



Daniel F. Caruso
Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

March 14, 2011

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-015-110203** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1280 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The tower be reinforced in accordance with recommendations made in the Structural Analysis and Reinforcement Report prepared by Centek Engineering dated January 25, 2011 and stamped by Carlo Centore; and
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended reinforcements have been completed and the tower and foundation will not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated February 3, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.



CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,



Linda Roberts

Executive Director

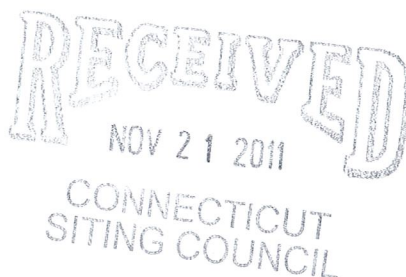
LR/CDM/laf

- c: The Honorable Bill Finch, Mayor, City of Bridgeport
Edmund Schmidt, Associate City Attorney, City of Bridgeport
Remo Tartaglia

280 Trumbull Street
Hartford, CT 06103-3597
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kbaldwin@rc.com
Direct (860) 275-8345

November 17, 2011

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051



Re: **Notice of Completion of Construction Activity**
EM-VER-015-110203 – Chopsey Hill Road, Bridgeport, CT

Dear Ms. Roberts:

On March 14, 2011 the Siting Council ("Council") acknowledged the Verizon Wireless notice of intent to modify the above-referenced telecommunications facility. The structural report submitted with that notice stated that the tower and tower foundation needed reinforcement. The structural report was updated on June 23, 2011, as part of a third party review of the tower and it was determined that reinforcement of the tower was, in fact, not required. A copy of the June 23, 2011 structural analysis is attached.

Also attached is an Existing Telecommunications Facility Tower Modification Certification Letter verifying that the foundation reinforcements were completed in accordance with the original and updated structural analyses. Construction activity associated with these modifications has now been completed.

If you have any questions or need any additional information regarding any of these facilities, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ken Baldwin".

Kenneth C. Baldwin

Copy to:
Sandy M. Carter



Law Offices

BOSTON

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November 9, 2011

Mr. Mark Gauger
Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

Re: Existing Telecommunications Facility Tower Modification Certification Letter

Project: Verizon ~ North Bridgeport
1280 Chopsey Hill Road
Bridgeport, CT

Engineer: Centek Engineering
63-2 North Branford Road Branford, CT 06405

Contractor: Construction Services of Branford
63-3 North Branford Road Branford, CT 06405

Centek Project No.: 10179.CO30

Dear Mr. Gauger,

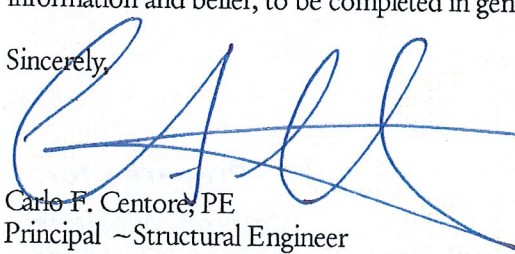
We are providing this "Existing Telecommunications Facility Tower Modification Certification Letter" with regard to the antenna upgrade by Verizon Wireless at the above referenced project.

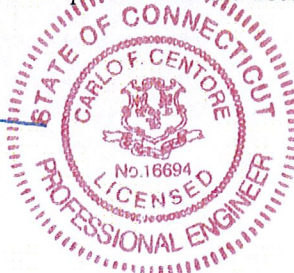
The following are the basis for substantiating compliance with the design documents prepared by Centek Engineering:

- ☐ Review of the Centek Engineering structural analysis and reinforcement report dated 1/25/2011 and the subsequent structural analysis dated 6/23/2011 (Rev. 1).
- ☐ Field observations by Centek personnel of antenna installation on 11/9/2011 confirming compliance with the above referenced documents.
- ☐ Field observations by Centek personnel of the required reinforcements conducted on 11/9/2011 confirming that all work was completed in accordance with the recommendations of the structural analysis report prepared by Centek Engineering dated 6/23/2011 (Rev. 1).

The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents referenced above.

Sincerely,


Carlo F. Centore, PE
Principal ~ Structural Engineer



CC: Rachel Mayo - Robinson & Cole
Tim Parks - Verizon Wireless

**Structural Analysis and
Reinforcement Report**

240' Existing ROHN SSMW Lattice Tower

*Proposed Verizon Wireless
LTE Antenna Installation*

Verizon Site Ref: North Bridgeport

*1280 Chopsey Hill Road
Bridgeport, CT*

Centek Project No. 10001-CO78

~~Date: January 25, 2011~~

Revision #1: June 23, 2011



Prepared for:

**Verizon Wireless
99 East River Road, 9th Floor
East Hartford, CT 06108**

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION.
- ANTENNA AND APPURTENANCE SUMMARY.
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS.
- ANALYSIS.
- TOWER LOADING.
- TOWER CAPACITY.
- FOUNDATION AND ANCHORS.
- CONCLUSION.

SECTION 2 – CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS.
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM.

SECTION 3 – CALCULATIONS

- RISATower INPUT/OUTPUT SUMMARY.
- RISATower FEED LINE PLAN.
- RISATower FEED LINE DISTRIBUTION.
- RISATower DETAILED OUTPUT.
- ANCHOR BOLT ANALYSIS.
- FOUNDATION ANALYSIS.
- S-1: TOWER ELEVATION AND NOTES.
- S-2: ANTENNA CONFIGURATION PLAN.
- S-3: ANTENNA DETAILS AND COAX FEEDLINE PLAN.
- S-4: FOUNDATION REINFORCEMENT PLANS AND DETAILS.
- N-1 THRU N-2: STRUCTURAL NOTES.

SECTION 4 – REFERENCE MATERIALS

- VERIZON RF DATA SHEET.
- ANTENNA CUT SHEETS.

Introduction

The purpose of this report is to summarize the results of the non-linear, P- Δ structural analysis of the antenna installation proposed by Verizon Wireless on the existing self supporting lattice tower located in Bridgeport, Connecticut.

The host tower is a 240-ft three legged, tapered steel lattice tower originally designed and manufactured by UNR-ROHN. The tower geometry and structure member sizes were obtained from the manufacturer's original design drawings (UNR-ROHN file no. 23253DB); a previous structural analysis report prepared by CHA, project job no. 20621.1005.28000 R4, dated June 18, 2009 and a tower mapping report prepared by CSB Communication, LLC, dated August 18, 2010. Foundation information was taken from a dispersive wave propagation testing report prepared by FDH Engineering; project no. 10-12269E N1, dated January 17, 2011.

Antenna and appurtenance inventory were obtained from the aforementioned CHA structural analysis report, CSB tower mapping report together with field verification conducted from grade by Centek personnel on September 20, 2010.

The tower is made of eleven (11) tapered vertical leg sections consisting of steel pipe conforming to ASTM A500-50. Diagonal and horizontal lateral support bracing consists of steel pipe and single angle sections, conforming to ASTM A500-50 and ASTM A36. All tower connections are bolted. The width of the tower face is 10.58-ft at the top and 40.25-ft at the base.

Verizon Wireless proposes the replacement of twelve (12) existing panel antennas with twelve (12) proposed panel antennas and the installation of six (6) diplexers on three (3) existing 14-ft T-frames. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- UNKNOWN (Existing):
Antenna: One (1) 16-ft Omni-directional whip antenna mounted on a 4-ft side arm with an elevation of ± 248 -ft above grade level.
Coax Cable: One (1) 1-1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 242 -ft above grade level.
Coax Cable: None.

- NONE (Existing):
Antenna: One (1) flash beacon light mounted with an elevation of ± 240 -ft above grade level.
Cable: One (1) 1" $\varnothing$ rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) vacant 4-ft side arm with a RAD center elevation of ± 238 -ft above grade level.
Coax Cable: None.
- UNKNOWN (Existing):
Antenna: Two (2) 10-ft Omni-directional whip antennas mounted on 4-ft side arms with RAD center elevations of ± 230 -ft above grade level.
Coax Cable: One (1) 1-1/4" $\varnothing$ and one (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 229 -ft above grade level.
Coax Cable: Two (1) 1-1/4" $\varnothing$ coax cables (disconnected).
- UNKNOWN (Existing):
Antenna: One (1) 10-ft x3in vacant pipe mount with a RAD center elevation of ± 229 -ft above grade level.
- METROPCS (Existing):
Antennas: Six (6) Kathrein 800-10504 panel antennas and six (6) RCU's mounted on three (3) 10-ft T-Frames with a RAD center elevation of ± 210 -ft above grade level.
Coax Cables: Twelve (12) 1-5/8" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- T-MOBILE (Existing):
Antennas: Six (6) RFS APX16PV-16PVL-X panel antennas and nine (9) TMA's mounted on three (3) 13-ft T-Frames with a RAD center elevation of ± 202 -ft above grade level.
Coax Cables: Thirty (30) 1-5/8" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 4-ft Yagi antenna mounted on a 10-ftx2-1/2in $\varnothing$ pipe with a RAD center elevation of ± 198 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- SPRINT/NEXTEL/CLEARWIRE (EXISTING):
Antennas: Six (6) EMS RR90-11-10DBL, three (3) Argus LLPX310R panel antennas, three (3) Samsung RRU 's, one (1) 2-ft 6in Ø and (2) 2-ft Ø microwave dishes mounted on three (3) 6-ft T-Frames with a RAD center elevation of ±187-ft above grade level.
Coax Cables: Twelve (12) 1-5/8" Ø , four (4) 1/2"Ø coax cables and two (2) innerduct conduits running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 14-ft x2-1/2in Ø vacant pipe mount with a RAD center elevation of ±185-ft above grade level.
- UNKNOWN (Existing):
Antenna: One (1) 20-ft Omni-directional whip antenna mounted to one existing AT&T T-Frame with a RAD center elevation of ±176-ft above grade level.
Coax Cable: Two (2) 1-1/4" Ø coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
Antennas: Six (6) Allgon 7184.05 panel antennas mounted on six (6) 14-ft x2-1/2" Ø pipes with RAD center elevation of ±174-ft above grade level.
Coax Cables: Six (6) 1-5/8" Ø coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
Antennas: Three (3) vacant 14-ft x2-1/2" and one (1) 10-ft x4" Ø vacant pipes with RAD center elevations of ±174-ft above grade level.
- AT&T (Existing):
Antennas: Six (6) Powerwave 7770 panel antennas and six (6) LGP21401 TMA's mounted on three (3) 14-ft T-Frames with a RAD center elevation of ±164-ft above grade level.
Coax Cables: Twelve (12) 1-5/8" Ø coax cables running on the leg of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 2-ft side arm with a RAD center elevation of ±141-ft above grade level.
Coax Cable: One (1) 1/4" Ø coax cable running on the face of the existing tower as specified in Section 3 of this report.
- NONE (Existing):
Antenna: Three (3) obstruction lights mounted with an elevation of ±140-ft above grade level.
Cable: One (1) 1" Ø rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (EXISTING):
Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ± 132 -ft above grade level.
Coax Cable: One (1) 1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 124 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 114 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ± 98 -ft above grade level.
Coax Cable: One (1) 1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) vacant 2-ft side arm with a RAD center elevation of ± 82 -ft above grade level.
Coax Cable: Two (2) 1/4" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) GPS antenna mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ± 52 -ft above grade level.
Coax Cables: One (1) 1/2" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 0.8M satellite dish mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ± 22 -ft above grade level.
Coax Cables: One (1) 1/2" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- **VERIZON (EXISTING TO REMAIN):**
Coax Cables: Twelve (12) 1-5/8" Ø coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- **VERIZON (Existing to remove):**
Antennas: Six (6) Celwave APL199014 and six (6) APL869012 panel antennas mounted on three (3) 14-ft T-Frames with a RAD center elevation of ±150-ft above grade level.
- **VERIZON (Proposed):**
Antennas: Three (3) Antel BXA-70063/6CF_2, four (4) Antel LPA80063/6CF, two (2) Andrew DB846F65AZXY, three (3) RYMSA MG D3-800T0 panels antennas and six (6) FD9R6004/2C-3L Diplexers mounted on three (3) existing 14-ft T-Frames with a RAD center elevation of ±150-ft above grade level.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- **All coax cables routed as specified in Section 3 of this report.**

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower legs, and the model assumes that the leg members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for 90 mph basic wind speed (fastest mile) with no ice and 75% reduction of wind force with $\frac{1}{2}$ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of $\frac{1}{2}$ " radial ice tower structure and its components.

Basic Wind Speed:	Fairfield County; $v = 85$ mph (fastest mile)	[Section 16 of TIA/EIA-222-F-96]
	Bridgeport; $v = 110$ mph (3 second gust) equivalent to $v = 90$ mph (fastest mile)	[Appendix K of the 2009 CT Building Code Supplement]
	<i>Appendix K wind speed Controls</i>	
Load Cases:	<u>Load Case 1</u> ; 90 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design.	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 2</u> ; 78 mph wind speed w/ $\frac{1}{2}$ " radial ice plus gravity load – used in calculation of tower stresses. The 78 mph wind speed velocity represents 75% of the wind pressure generated by the 90 mph wind speed.	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 3</u> ; Seismic – not checked	[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

Calculated stresses were found to be within allowable limits. In Load Case 1, per RISATower "Section Capacity Table", this tower was found to be **89.5%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T13)	0'-0" - 30'-0"	54.7%	PASS
Diagonal (T9)	100'-0" - 120'-0"	89.5%	PASS
Horizontal (T8)	120'-0" - 140'-0"	78.3%	PASS
Top Girt (T12)	30'-0" - 60'-0"	75.9%	PASS

Foundation and Anchors

The existing foundation system consists of three (3) 22-ft x 6-ft deep independent square reinforced concrete pads concentrically bearing on the existing sub grade. The existing foundation locations and dimensions were taken from the aforementioned FDH dispersive wave propagation testing report available in Section 4 of this report. Allowable soil bearing pressure was assumed to be a minimum of 4,000 psi for the analysis. The tower legs are connected to the foundation with (12) 1.00"Ø, ASTM A-354 Grade BC (Fy = 109ksi) anchor bolts per leg.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower reactions developed from the governing Load Case 1 were used in the verification of the foundation:

Load Effect	Original Tower Design Reactions ⁽¹⁾	Proposed Tower Reactions
Leg Shear	NA	54.0 kips
Leg Compression	452.80 kips	363.0 kips
Leg Tension	381.10 kips	290.0 kips
Base Moment	14355 ft-kips	111220 ft-kips
Base Shear	78.97 kips	91.0 kips

Notes:

1: Original tower design base reactions taken from original UNR-ROHN design drawing C880398, dated January 28, 1988 based on EIA-222-D-1986 with a design basic wind speed of 85mph (fastest mile).

2: Proposed reactions based on a basic wind speed of 90mph (fastest mile) and 78mph with ½" radial ice.

3: OM denotes Overturning Moment

- The anchor bolts were found to be within allowable limits.

Tower Section	Component	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	56.1%	PASS

- The foundation **was NOT found** to be within allowable limits. Reinforcement of the existing foundation is required. Refer to drawings S-1 thru N-2 within Section 3 of this report for more information.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS) ⁽⁴⁾	Proposed Loading (FS) ⁽⁴⁾	Result
Existing Foundation				
(3) Independent Reinf. Concrete Mat Foundations (exist. condition)	Uplift	2.00	1.53	FAIL
With Proposed Reinforcements				
(3) Independent Reinf. Concrete Mat Foundations (proposed condition)	Uplift	2.00	2.09	PASS

Note 4: FS denotes Factor of Safety

Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed antenna modification with the implementation of the foundation reinforcements outlined in drawings S-1 thru N-2 located within section 3 of this report.

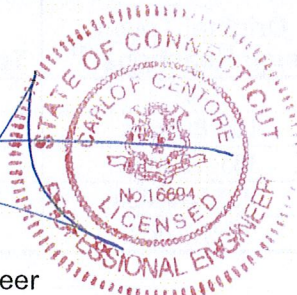
The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Checked by:

Carlo F. Centore, PE
Principal ~ Structural Engineer



Prepared by:

Jason R. Mead
Structural Engineer

A handwritten signature in blue ink that reads "Jason R. Mead".

*Standard Conditions for Furnishing of
Professional Engineering Services on
Existing Structures*

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

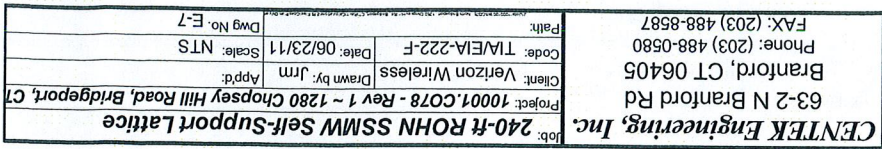
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISATower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

RISATower Features:

- RISATower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- RISATower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

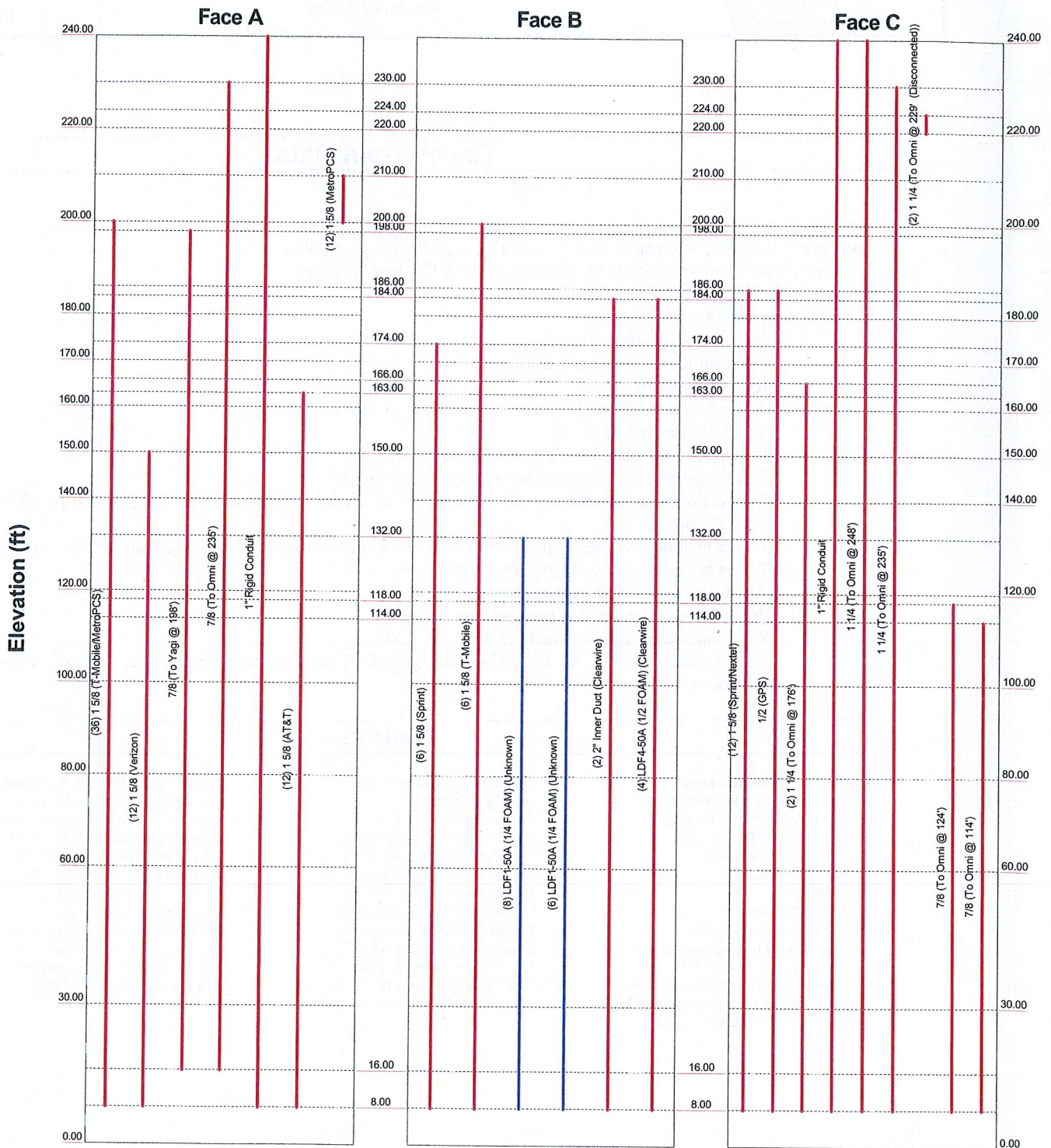
Round _____ Flat _____ App In Face _____ App Out Face _____



Feedline Distribution Chart

0' - 240'

Round Flat App In Face App Out Face Truss Leg



CEN TEK Engineering, Inc.

63-2 N Branford Rd

Branford, CT 06405

Phone: (203) 488-0580

FAX: (203) 488-8587

Job: 240-ft ROHN SSMW Self-Support Lattice

Project: 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT

Client: Verizon Wireless

Drawn by: Jrm

App'd:

Code: TIA/EIA-222-F

Date: 06/23/11

Scale: NTS

Path:

Dwg No. E-7

<i>RISATower</i> <i>CENTEK Engineering, Inc.</i> <i>63-2 N Branford Rd</i> <i>Branford, CT 06405</i> <i>Phone: (203) 488-0580</i> <i>FAX: (203) 488-8587</i>	Job 240-ft ROHN SSMW Self-Support Lattice	Page 1 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client Verizon Wireless	Designed by Jrm

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 240.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 10.58 ft at the top and 40.25 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Basic wind speed of 90 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 78 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Weld together tower sections have flange connections..

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

Welds are fabricated with ER-70S-6 electrodes..

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

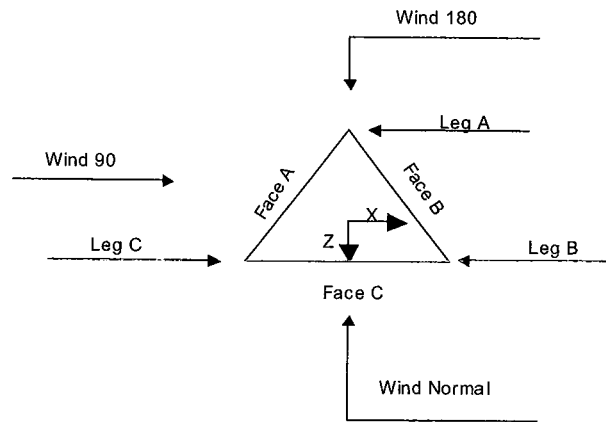
Stress ratio used in tower member design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
√ Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	2 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	240.00-220.00			10.58	1	20.00
T2	220.00-200.00			12.63	1	20.00
T3	200.00-180.00			14.96	1	20.00
T4	180.00-170.00			17.46	1	10.00
T5	170.00-160.00			18.71	1	10.00
T6	160.00-150.00			19.96	1	10.00
T7	150.00-140.00			21.25	1	10.00
T8	140.00-120.00			22.54	1	20.00
T9	120.00-100.00			25.04	1	20.00
T10	100.00-80.00			27.54	1	20.00
T11	80.00-60.00			30.04	1	20.00
T12	60.00-30.00			32.54	1	30.00
T13	30.00-0.00			36.23	1	30.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	240.00-220.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T2	220.00-200.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	3 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	200.00-180.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T4	180.00-170.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T5	170.00-160.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T6	160.00-150.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T7	150.00-140.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	140.00-120.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T10	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T11	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T13	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T3 200.00-180.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T4 180.00-170.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 EH	A500-46 (46 ksi)
T6 160.00-150.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T7 150.00-140.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T8 140.00-120.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A500-46 (46 ksi)
T9 120.00-100.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Arbitrary Shape	ROHN 2.5 STD Reinf w/ L2x2x1/4	A500-50 (50 ksi)
T10 100.00-80.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T12 60.00-30.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T13 30.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Arbitrary Shape	ROHN 3.0STD Reinf w/ L2.5x2.5x3/8	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 240.00-220.00	Pipe	ROHN 2 STD	A500-50 (50 ksi)	Flat Bar		A36 (36 ksi)
T2 220.00-200.00	Pipe	ROHN 2 STD	A500-50	Flat Bar		A36

<i>RISATower</i> <i>CENTEK Engineering, Inc.</i> 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	4 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 200.00-180.00	Pipe	ROHN 2 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T4 180.00-170.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T5 170.00-160.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T6 160.00-150.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T7 150.00-140.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T8 140.00-120.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T9 120.00-100.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T10 100.00-80.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T11 80.00-60.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T12 60.00-30.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T13 30.00-0.00	Pipe	ROHN 3.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T3 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T4 180.00-170.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T6 160.00-150.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T7 150.00-140.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T8 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T9 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T10 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T12 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T13 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 STD	A500-50 (50 ksi)

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	5 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Section Geometry (cont'd)

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
<i>ft</i>						
T1 240.00-220.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 220.00-200.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 200.00-180.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 180.00-170.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 170.00-160.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 160.00-150.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T7 150.00-140.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 140.00-120.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3 1/2x3x1/4	A36 (36 ksi)
T9 120.00-100.00	Solid Round		A572-50 (50 ksi)	Pipe	P2x.154	A500-50 (50 ksi)
T10 100.00-80.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T11 80.00-60.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T12 60.00-30.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T13 30.00-0.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
<i>ft</i>				
T9 120.00-100.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1)	Pipe Pipe Pipe	1 1 1
T10 100.00-80.00	A36 (36 ksi)	Hip Diagonal Horizontal (1) Diagonal (1) Hip (1)	Pipe Pipe Pipe Pipe	1 1 1 1
T11 80.00-60.00	A36 (36 ksi)	Hip Diagonal Horizontal (1) Diagonal (1) Hip (1)	Pipe Pipe Pipe Pipe	1 1 1 1
T12 60.00-30.00	A36 (36 ksi)	Hip Diagonal Horizontal (1) Horizontal (2) Diagonal (1)	Pipe Pipe Pipe Pipe	1 1 1 1

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	6 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Tower Elevation <i>ft</i>	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
T13 30.00-0.00	A36 (36 ksi)	Diagonal (2)	ROHN 2 STD	
		Hip (1)	ROHN 2 STD	1
		Hip (2)	ROHN 2 STD	
		Hip Diagonal	ROHN 2 STD	1
		Horizontal (1)	ROHN 2 STD	1
		Horizontal (2)	ROHN 2 STD	
		Diagonal (1)	ROHN 2 STD	1
		Diagonal (2)	ROHN 2 STD	
		Hip (1)	ROHN 2 STD	1
		Hip (2)	ROHN 2 STD	
		Hip Diagonal	ROHN 2 STD	1

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Gusset Area (per face) <i>ft²</i>	Gusset Thickness <i>in</i>	Gusset Grade	Adjust. Factor <i>A_f</i>	Adjust. Factor <i>A_r</i>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals <i>in</i>	Double Angle Stitch Bolt Spacing Horizontals <i>in</i>
T1 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T2 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T3 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T4 180.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T5 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T6 160.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T7 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T8 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T9 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T10 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T11 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T12 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T13 30.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000

Tower Section Geometry (cont'd)

K Factors

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	8 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T9 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 60.00-30.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 30.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 240.00-220.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T2 220.00-200.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T3 200.00-180.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T4 180.00-170.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T5 170.00-160.00	Flange	1.0000 A325N	0	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T6 160.00-150.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T7 150.00-140.00	Flange	1.0000 A325N	0	0.7500 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T8 140.00-120.00	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T9 120.00-100.00	Flange	1.0000 A325N	8	0.7500 A325N	3	0.7500 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T10 100.00-80.00	Flange	1.0000 A325N	8	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T11 80.00-60.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T12 60.00-30.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T13 30.00-0.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	9 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (T- Mobile/Metro PCS)	A	Yes	Ar (CfAe)	200.00 - 8.00	-2.0000	0.38	36	12	1.9800	1.9800		1.04
1 5/8 (Sprint)	B	Yes	Ar (CfAe)	174.00 - 8.00	3.0000	0.42	6	6	1.9800	1.9800		1.04
1 5/8 (Verizon)	A	Yes	Ar (CfAe)	150.00 - 8.00	2.5000	-0.41	12	6	1.9800	1.9800		1.04
7/8 (To Yagi @ 198')	A	Yes	Ar (CfAe)	198.00 - 16.00	3.0000	-0.45	1	1	1.1100	1.1100		0.54
1 5/8 (Sprint/Nextel)	C	Yes	Ar (CfAe)	186.00 - 8.00	-6.0000	0.44	12	6	1.9800	1.9800		1.04
1/2 (GPS)	C	Yes	Ar (CfAe)	186.00 - 8.00	-3.0000	0.47	1	1	0.5800	0.5800		0.25
7/8 (To Omni @ 235')	A	Yes	Ar (CfAe)	230.00 - 16.00	3.0000	-0.44	1	1	1.1100	1.1100		0.54
1 1/4 (To Omni @ 176')	C	Yes	Ar (CfAe)	166.00 - 8.00	3.0000	0.44	2	2	1.5500	1.5500		0.66
1" Rigid Conduit	A	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	-0.46	1	1	1.0000	1.0000		0.70
1" Rigid Conduit	C	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	0.41	1	1	1.0000	1.0000		0.70
1 5/8 (AT&T)	A	No	Ar (Leg)	163.00 - 8.00	0.0000	0.05	12	6	1.9800	1.9800		1.04
1 5/8 (T-Mobile)	B	Yes	Ar (CfAe)	200.00 - 8.00	3.0000	-0.38	6	6	1.9800	1.9800		1.04
2" Inner Duct (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	5.0000	0.38	2	2	2.0000	2.0000		1.00
LDF4-50A (1/2 FOAM) (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	3.0000	0.38	4	4	1.5000 0.6300	0.6300		0.15
1 1/4 (To Omni @ 248')	C	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	0.46	1	1	1.5500	1.5500		0.66
1 1/4 (To Omni @ 235')	C	Yes	Ar (CfAe)	230.00 - 8.00	3.0000	0.43	1	1	1.5500	1.5500		0.66
1 1/4 (To Omni @ 229' (Disconnected)	C	Yes	Ar (CfAe)	224.00 - 220.00	3.0000	0.43	2	2	1.5500	1.5500		0.66
7/8 (To Omni @ 124')	C	Yes	Ar (CfAe)	118.00 - 8.00	3.0000	0.41	1	1	1.1100	1.1100		0.54
7/8 (To Omni @ 114')	C	Yes	Ar (CfAe)	114.00 - 8.00	3.0000	0.47	1	1	1.1100	1.1100		0.54
1 5/8 (MetroPCS)	A	Yes	Ar (CfAe)	210.00 - 200.00	-2.0000	0.38	12	12	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances - Entered As Area

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 10 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client	Verizon Wireless	Designed by Jrm

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _{AA} ft ² /ft	Weight plf
LDFI-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.46	8	No Ice 1/2" Ice	0.03 0.14	0.06 0.58
LDFI-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.48	6	No Ice 1/2" Ice	0.03 0.14	0.06 0.58

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	240.00-220.00	A	2.592	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	6.575	0.000	0.000	0.000	0.04
T2	220.00-200.00	A	23.317	0.000	0.000	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	6.833	0.000	0.000	0.000	0.04
T3	200.00-180.00	A	44.782	0.000	0.000	0.000	0.78
		B	21.973	0.000	0.000	0.000	0.14
		C	13.063	0.000	0.000	0.000	0.12
T4	180.00-170.00	A	22.483	0.000	0.000	0.000	0.39
		B	19.293	0.000	0.000	0.000	0.11
		C	13.800	0.000	0.000	0.000	0.15
T5	170.00-160.00	A	25.453	0.000	0.000	0.000	0.43
		B	28.203	0.000	0.000	0.000	0.15
		C	15.350	0.000	0.000	0.000	0.16
T6	160.00-150.00	A	32.383	0.000	0.000	0.000	0.52
		B	35.133	0.000	0.000	0.000	0.15
		C	16.383	0.000	0.000	0.000	0.16
T7	150.00-140.00	A	42.283	0.000	0.000	0.000	0.64
		B	35.133	0.000	0.000	0.000	0.15
		C	16.383	0.000	0.000	0.000	0.16
T8	140.00-120.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	5.880	0.000	0.31
		C	32.767	0.000	0.000	0.000	0.32
T9	120.00-100.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	35.727	0.000	0.000	0.000	0.34
T10	100.00-80.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	36.467	0.000	0.000	0.000	0.34
T11	80.00-60.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	36.467	0.000	0.000	0.000	0.34
T12	60.00-30.00	A	126.850	0.000	0.000	0.000	1.93
		B	105.400	0.000	14.700	0.000	0.48
		C	54.700	0.000	0.000	0.000	0.51
T13	30.00-0.00	A	91.543	0.000	0.000	0.000	1.40
		B	77.293	0.000	10.780	0.000	0.35
		C	40.113	0.000	0.000	0.000	0.38

Feed Line/Linear Appurtenances Section Areas - With Ice

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	11 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
T1	240.00-220.00	A	0.500	5.092	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		11.408	0.000	0.000	0.000	0.10
T2	220.00-200.00	A	0.500	36.650	0.000	0.000	0.000	0.37
		B		0.000	0.000	0.000	0.000	0.00
		C		11.833	0.000	0.000	0.000	0.11
T3	200.00-180.00	A	0.500	69.615	0.000	0.000	0.000	1.93
		B		32.343	1.260	0.000	0.000	0.34
		C		21.563	0.000	0.000	0.000	0.30
T4	180.00-170.00	A	0.500	34.983	0.000	0.000	0.000	0.97
		B		27.218	3.150	0.000	0.000	0.30
		C		22.133	0.000	0.000	0.000	0.37
T5	170.00-160.00	A	0.500	39.453	0.000	0.000	0.000	1.06
		B		40.628	3.150	0.000	0.000	0.39
		C		24.683	0.000	0.000	0.000	0.39
T6	160.00-150.00	A	0.500	49.883	0.000	0.000	0.000	1.27
		B		51.058	3.150	0.000	0.000	0.39
		C		26.383	0.000	0.000	0.000	0.41
T7	150.00-140.00	A	0.500	64.783	0.000	0.000	0.000	1.58
		B		51.058	3.150	0.000	0.000	0.39
		C		26.383	0.000	0.000	0.000	0.41
T8	140.00-120.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	22.680	0.000	0.88
		C		52.767	0.000	0.000	0.000	0.82
T9	120.00-100.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		58.393	0.000	0.000	0.000	0.87
T10	100.00-80.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		59.800	0.000	0.000	0.000	0.88
T11	80.00-60.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		59.800	0.000	0.000	0.000	0.88
T12	60.00-30.00	A	0.500	194.350	0.000	0.000	0.000	4.74
		B		153.175	9.450	56.700	0.000	1.41
		C		89.700	0.000	0.000	0.000	1.32
T13	30.00-0.00	A	0.500	139.710	0.000	0.000	0.000	3.45
		B		112.328	6.930	41.580	0.000	1.04
		C		65.780	0.000	0.000	0.000	0.97

Feed Line Shielding

Section	Elevation ft	Face	A_R ft ²	A_R Ice ft ²	A_F ft ²	A_F Ice ft ²
T1	240.00-220.00	A	0.192	0.537	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.488	1.203	0.000	0.000
T2	220.00-200.00	A	1.419	3.059	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.416	0.988	0.000	0.000
T3	200.00-180.00	A	2.553	5.450	0.000	0.000
		B	1.253	2.631	0.000	0.000
		C	0.745	1.688	0.000	0.000
T4	180.00-170.00	A	1.327	2.783	0.000	0.000
		B	1.139	2.416	0.000	0.000
		C	0.814	1.761	0.000	0.000

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	12 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section	Elevation	Face	A_R	$A_{R_{Ice}}$	A_F	$A_{F_{Ice}}$
	ft		ft ²	ft ²	ft ²	ft ²
T5	170.00-160.00	A	1.301	2.728	0.000	0.000
		B	1.460	3.066	0.000	0.000
		C	0.888	1.925	0.000	0.000
T6	160.00-150.00	A	1.439	2.931	0.000	0.000
		B	1.615	3.293	0.000	0.000
		C	1.049	2.210	0.000	0.000
T7	150.00-140.00	A	2.038	4.111	0.000	0.000
		B	1.588	3.240	0.000	0.000
		C	1.031	2.174	0.000	0.000
T8	140.00-120.00	A	3.994	8.059	0.000	0.000
		B	3.112	6.350	0.000	0.000
		C	2.021	4.262	0.000	0.000
T9	120.00-100.00	A	2.720	5.867	1.818	3.289
		B	2.120	4.623	1.417	2.592
		C	1.501	3.434	1.003	1.925
T10	100.00-80.00	A	4.364	9.027	0.000	0.000
		B	3.400	7.114	0.000	0.000
		C	2.457	5.411	0.000	0.000
T11	80.00-60.00	A	4.210	8.708	0.000	0.000
		B	3.281	6.862	0.000	0.000
		C	2.371	5.219	0.000	0.000
T12	60.00-30.00	A	6.423	13.482	0.000	0.000
		B	5.005	10.624	0.000	0.000
		C	3.616	8.081	0.000	0.000
T13	30.00-0.00	A	3.279	6.938	1.652	2.888
		B	2.609	5.611	1.315	2.335
		C	1.885	4.268	0.950	1.776

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	$CP_{X_{Ice}}$	$CP_{Z_{Ice}}$
	ft	in	in	in	in
T1	240.00-220.00	-3.8034	2.4499	-5.2683	3.3647
T2	220.00-200.00	-5.3761	-6.3246	-7.2629	-6.6939
T3	200.00-180.00	-7.1305	-19.5517	-9.1529	-21.0415
T4	180.00-170.00	-5.6158	-12.8530	-7.5781	-13.2836
T5	170.00-160.00	-2.1692	-12.2711	-3.8219	-12.5350
T6	160.00-150.00	-2.6702	-16.4236	-4.3103	-17.1264
T7	150.00-140.00	-9.3573	-13.4764	-11.4713	-13.8953
T8	140.00-120.00	-7.1429	-12.2890	-4.6479	-9.5007
T9	120.00-100.00	-6.7811	-11.1494	-2.0268	-6.6004
T10	100.00-80.00	-7.6096	-11.8024	-2.5078	-6.8431
T11	80.00-60.00	-7.7996	-11.9973	-2.6709	-7.0873
T12	60.00-30.00	-8.5277	-13.0599	-2.8975	-7.6768
T13	30.00-0.00	-6.9014	-11.6012	-2.0490	-7.3820

Discrete Tower Loads

<i>RISATower</i> <i>CENTEK Engineering, Inc.</i> <i>63-2 N Branford Rd</i> <i>Branford, CT 06405</i> <i>Phone: (203) 488-0580</i> <i>FAX: (203) 488-8587</i>	Job	240-ft ROHN SSMW Self-Support Lattice	Page	13 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
16' x 2.5" Dia Omni (Unknown)	C	From Face	0.00 0.00 0.00	0.0000	248.00	No Ice 1/2" Ice 4.08 5.75	4.08 5.75	0.05 0.08
Flash Beacon Lighting	C	From Leg	0.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice 2.70 3.10	2.70 3.10	0.05 0.07
8'x2 1/2" Pipe Mount	C	From Face	0.00 0.00 0.00	0.0000	237.00	No Ice 1/2" Ice 2.30 3.13	2.30 3.13	0.04 0.06
Pirol 4' Side Mount Standoff (1) (Vacant)	B	From Leg	2.00 0.00 0.00	0.0000	238.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
12' x 2" Dia Omni (Unknown)	B	From Leg	4.00 0.00 0.00	0.0000	242.00	No Ice 1/2" Ice 2.40 3.63	2.40 3.63	0.03 0.05
Pirol 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	236.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
10' x 3" Dia Omni (Unknown)	A	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice 3.00 4.03	3.00 4.03	0.03 0.05
10' x 3" Dia Omni (Unknown)	C	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice 3.00 4.03	3.00 4.03	0.03 0.05
Pirol 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
Pirol 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
10'x2.5" Pipe Mount (Vacant)	B	From Face	0.00 0.00 0.00	0.0000	229.00	No Ice 1/2" Ice 2.88 3.91	2.88 3.91	0.06 0.08
10' x 3" Dia Omni (Unknown)	A	From Leg	4.00 0.00 0.00	0.0000	229.00	No Ice 1/2" Ice 3.00 4.03	3.00 4.03	0.03 0.05
Pirol 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	224.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
(2) 800-10504 (Metro PCS)	A	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 3.66 4.01	2.26 2.59	0.02 0.04
(2) 800-10504 (Metro PCS)	B	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 3.66 4.01	2.26 2.59	0.02 0.04
(2) 800-10504 (Metro PCS)	C	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 3.66 4.01	2.26 2.59	0.02 0.04
(2) 860 10025 RCU (Metro PCS)	A	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 0.16 0.22	0.13 0.19	0.00 0.00
(2) 860 10025 RCU (Metro PCS)	B	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 0.16 0.22	0.13 0.19	0.00 0.00
(2) 860 10025 RCU (Metro PCS)	C	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice 0.16 0.22	0.13 0.19	0.00 0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	14 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
10-ft T-Frame (Metro PCS)	A	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Metro PCS)	B	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Metro PCS)	C	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
(3) APX16PV-16PVL-X (T-Mobile)	A	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(3) APX16PV-16PVL-X (T-Mobile)	B	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(3) APX16PV-16PVL-X (T-Mobile)	C	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(2) G20057A1 TMA (T-Mobile)	A	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
(2) G20057A1 TMA (T-Mobile)	B	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
(2) G20057A1 TMA (T-Mobile)	C	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
RFS TMA (T-Mobile)	A	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
RFS TMA (T-Mobile)	B	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
RFS TMA (T-Mobile)	C	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
13-ft T-Frame (T-Mobile)	A	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
13-ft T-Frame (T-Mobile)	B	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
13-ft T-Frame (T-Mobile)	C	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
4-ft Yagi (Unknown)	C	From Face	2.00 0.00 0.00	0.0000	198.00	No Ice 1/2" Ice	1.15 1.91	1.15 1.91	0.01 0.02
10'x4" Pipe Mount (Yagi mount))	C	From Face	0.00 0.00 0.00	0.0000	195.00	No Ice 1/2" Ice	4.50 5.24	4.50 5.24	0.11 0.14
(2) RR90-11-10DBL (Sprint/Nextel)	A	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63	0.02 0.06
(2) RR90-11-10DBL (Sprint/Nextel)	B	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63	0.02 0.06

<i>RISATower</i> <i>CENTEK Engineering, Inc.</i> <i>63-2 N Branford Rd</i> <i>Branford, CT 06405</i> <i>Phone: (203) 488-0580</i> <i>FAX: (203) 488-8587</i>	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	15 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
(2) RR90-11-10DBL (Sprint/Nextel)	C	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63 0.02 0.06
6'x4" Pipe Mount (Clearwire)	A	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
6'x4" Pipe Mount (Clearwire)	B	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
6'x4" Pipe Mount (Clearwire)	C	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
14' x 2-1/2" Pipe Mount (Vacant)	B	None		0.0000	185.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46 0.08 0.11
LLPX310R (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21 0.03 0.05
LLPX310R (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21 0.03 0.05
LLPX310R (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21 0.03 0.05
RRU (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92 0.03 0.04
RRU (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92 0.03 0.04
RRU (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92 0.03 0.04
6-ft T-Frame (Sprint/Nextel)	A	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50 0.38 0.53
6-ft T-Frame (Sprint/Nextel)	B	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50 0.38 0.53
6-ft T-Frame (Sprint/Nextel)	C	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50 0.38 0.53
6'x4" Pipe Mount (Sprint/Nextel)	A	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	B	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	C	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46 0.05 0.07
20' x 3" Dia Omni (Unknown)	B	From Leg	2.00 0.00 0.00	0.0000	176.00	No Ice 1/2" Ice	6.00 8.03	6.00 8.03 0.05 0.09
(2) 7184.05 (Sprint/Nextel)	A	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.89 3.41	2.89 3.41 0.01 0.03
(2) 7184.05	B	From Face	0.50	0.0000	174.00	No Ice	2.89	2.89 0.01

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	16 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(Sprint/Nextel)			0.00			1/2" Ice	3.41	0.03
(2) DB950G40E-M	C	From Face	0.50	0.0000	174.00	No Ice	6.42	0.02
(Sprint/Nextel)			0.00			1/2" Ice	6.88	0.06
14' x 2-1/2" Pipe Mount	A	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			5.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	A	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			0.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	A	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			-5.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	B	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			5.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	B	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			0.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	B	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			-5.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	C	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			5.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	C	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			0.00			1/2" Ice	5.46	0.11
14' x 2-1/2" Pipe Mount	C	From Face	0.50	0.0000	174.00	No Ice	4.03	0.08
(Sprint/Nextel)			-5.00			1/2" Ice	5.46	0.11
10'x2.5" Pipe Mount	C	From Face	0.50	0.0000	174.00	No Ice	2.88	0.06
(Vacant)			-7.00			1/2" Ice	3.91	0.08
(2) 7770.00	A	From Leg	4.00	0.0000	164.00	No Ice	5.88	0.04
(AT&T)			0.00			1/2" Ice	6.31	0.07
(2) 7770.00	B	From Leg	4.00	0.0000	164.00	No Ice	5.88	0.04
(AT&T)			0.00			1/2" Ice	6.31	0.07
(2) 7770.00	C	From Leg	4.00	0.0000	164.00	No Ice	5.88	0.04
(AT&T)			0.00			1/2" Ice	6.31	0.07
(3) LPG21401 TMA	A	From Leg	3.50	0.0000	164.00	No Ice	0.95	0.02
(AT&T)			0.00			1/2" Ice	1.09	0.02
(3) LPG21401 TMA	B	From Leg	3.50	0.0000	164.00	No Ice	0.95	0.02
(AT&T)			0.00			1/2" Ice	1.09	0.02
(3) LPG21401 TMA	C	From Leg	3.50	0.0000	164.00	No Ice	0.95	0.02
(AT&T)			0.00			1/2" Ice	1.09	0.02
14-ft T-Frame Sector Mount	A	From Leg	2.00	0.0000	164.00	No Ice	16.30	0.51
(AT&T)			0.00			1/2" Ice	20.60	0.72
14-ft T-Frame Sector Mount	B	From Leg	2.00	0.0000	164.00	No Ice	16.30	0.51

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 17 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client	Verizon Wireless	Designed by Jrm

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(AT&T)			0.00 0.00			1/2" Ice 20.60	20.60	0.72
14-ft T-Frame Sector Mount (AT&T)	C	From Leg	2.00 0.00 0.00	0.0000	164.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
DB846F65ZAXY (Verizon)	A	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 7.03 1/2" Ice 7.54	6.16 6.62	0.02 0.07
MG D3-800T0 (Verizon)	A	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	4.16 4.60	0.02 0.06
DB846F65ZAXY (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 7.03 1/2" Ice 7.54	6.16 6.62	0.02 0.07
LPA-80063/6CF (Verizon)	B	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	B	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	4.16 4.60	0.02 0.06
LPA-80063/6CF (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
LPA-80063/6CF (Verizon)	C	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	C	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	4.16 4.60	0.02 0.06
LPA-80063/6CF (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
14-ft T-Frame Sector Mount (Verizon)	A	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	B	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	C	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
Obstruction Lights	A	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	B	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	C	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.18	0.18 0.18	0.01 0.01

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	19 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
Andrew 2' w/Radome (Clearwire)	C	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.00	No Ice 1/2" Ice	3.14 3.41 0.07 0.28
VHLP2.5-10W (Clearwire)	A	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.50	No Ice 1/2" Ice	4.91 5.24 0.05 0.08
0.8M Satellite Dish (Unknown)	C	Paraboloid w/o Radome	From Face	2.00 15.00 0.00	Worst		22.00	2.60	No Ice 1/2" Ice	5.31 5.66 0.01 0.08

Tower Pressures - No Ice

$$G_H = 1.102$$

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
T1 240.00-220.00	230.00	1.741	36	246.494	A	0.000	47.455	28.800	60.69	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	51.143		56.31	0.000	0.000
T2 220.00-200.00	210.00	1.697	35	290.299	A	0.000	66.877	28.815	43.09	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	51.397		56.06	0.000	0.000
T3 200.00-180.00	190.00	1.649	34	338.603	A	0.000	88.936	28.825	32.41	0.000	0.000
					B	0.000	67.428		42.75	0.000	0.000
					C	0.000	59.026		48.83	0.000	0.000
T4 180.00-170.00	175.00	1.611	33	188.052	A	0.000	45.892	14.412	31.41	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
					C	0.000	37.721		38.21	0.000	0.000
T5 170.00-160.00	165.00	1.584	33	200.552	A	0.000	49.403	14.412	29.17	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
					C	0.000	39.713		36.29	0.000	0.000
T6 160.00-150.00	155.00	1.556	32	213.252	A	0.000	58.195	14.415	24.77	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
					C	0.000	42.586		33.85	0.000	0.000
T7 150.00-140.00	145.00	1.526	32	226.152	A	0.000	68.090	14.415	21.17	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
					C	0.000	43.197		33.37	0.000	0.000
T8 140.00-120.00	130.00	1.48	31	490.203	A	0.000	138.028	28.825	20.88	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
					C	0.000	88.201		32.68	0.000	0.000
T9 120.00-100.00	110.00	1.411	29	540.203	A	13.261	130.279	28.825	20.08	0.000	0.000
					B	13.662	113.605		22.65	9.800	0.000
					C	14.076	76.709		31.75	0.000	0.000
T10 100.00-80.00	90.00	1.332	28	590.203	A	0.000	145.724	28.825	19.78	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
					C	0.000	93.255		30.91	0.000	0.000
T11 80.00-60.00	70.00	1.24	26	643.752	A	0.000	154.919	35.927	23.19	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
					C	0.000	102.045		35.21	0.000	0.000
T12 60.00-30.00	45.00	1.093	23	1058.476	A	0.000	231.969	53.885	23.23	0.000	0.000
					B	0.000	208.435		25.85	14.700	0.000
					C	0.000	155.622		34.63	0.000	0.000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	20 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
T13 30.00-0.00	15.00	1	21	1174.135	A	26.357	184.720	53.911	25.54	0.000	0.000
					B	26.695	167.364		27.78	10.780	0.000
					C	27.060	127.133		34.96	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.102$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
T1 240.00-220.00	230.00	1.741	27	0.5000	248.163	A	0.000	59.794	32.139	53.75	0.000	0.000
						B	0.000	55.240		58.18	0.000	0.000
						C	0.000	65.445		49.11	0.000	0.000
T2 220.00-200.00	210.00	1.697	26	0.5000	291.969	A	0.000	87.895	32.156	36.58	0.000	0.000
						B	0.000	54.305		59.21	0.000	0.000
						C	0.000	65.150		49.36	0.000	0.000
T3 200.00-180.00	190.00	1.649	26	0.5000	340.273	A	0.000	120.865	32.167	26.61	0.000	0.000
						B	1.260	86.413		36.69	0.000	0.000
						C	0.000	76.576		42.01	0.000	0.000
T4 180.00-170.00	175.00	1.611	25	0.5000	188.886	A	0.000	62.197	16.083	25.86	0.000	0.000
						B	3.150	54.800		27.75	0.000	0.000
						C	0.000	50.370		31.93	0.000	0.000
T5 170.00-160.00	165.00	1.584	25	0.5000	201.386	A	0.000	67.417	16.083	23.86	0.000	0.000
						B	3.150	68.255		22.52	0.000	0.000
						C	0.000	53.450		30.09	0.000	0.000
T6 160.00-150.00	155.00	1.556	24	0.5000	214.088	A	0.000	79.829	16.086	20.15	0.000	0.000
						B	3.150	80.641		19.20	0.000	0.000
						C	0.000	57.049		28.20	0.000	0.000
T7 150.00-140.00	145.00	1.526	24	0.5000	226.988	A	0.000	94.332	16.086	17.05	0.000	0.000
						B	3.150	81.478		19.01	0.000	0.000
						C	0.000	57.868		27.80	0.000	0.000
T8 140.00-120.00	130.00	1.48	23	0.5000	491.873	A	0.000	191.153	32.167	16.83	0.000	0.000
						B	6.300	165.411		18.73	22.680	0.000
						C	0.000	118.150		27.23	0.000	0.000
T9 120.00-100.00	110.00	1.411	22	0.5000	541.873	A	14.419	183.303	32.167	16.27	0.000	0.000
						B	21.416	152.869		18.46	37.800	0.000
						C	15.783	106.108		26.39	0.000	0.000
T10 100.00-80.00	90.00	1.332	21	0.5000	591.873	A	0.000	201.866	32.167	15.93	0.000	0.000
						B	6.300	171.871		18.05	37.800	0.000
						C	0.000	126.798		25.37	0.000	0.000
T11 80.00-60.00	70.00	1.24	19	0.5000	645.422	A	0.000	211.893	39.269	18.53	0.000	0.000
						B	6.300	181.590		20.90	37.800	0.000
						C	0.000	136.217		28.83	0.000	0.000
T12 60.00-30.00	45.00	1.093	17	0.5000	1060.980	A	0.000	317.749	58.898	18.54	0.000	0.000
						B	9.450	274.456		20.75	56.700	0.000
						C	0.000	208.548		28.24	0.000	0.000
T13 30.00-0.00	15.00	1	16	0.5000	1176.641	A	29.049	250.142	58.926	21.11	0.000	0.000
						B	36.531	218.722		23.09	41.580	0.000
						C	30.160	168.151		29.71	0.000	0.000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	21 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Pressure - Service

$$G_H = 1.102$$

Section Elevation	z	K _z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 240.00- 220.00	230.00	1.741	11	246.494	A	0.000	47.455	28.800	60.69	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	51.143		56.31	0.000	0.000
T2 220.00- 200.00	210.00	1.697	11	290.299	A	0.000	66.877	28.815	43.09	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	51.397		56.06	0.000	0.000
T3 200.00- 180.00	190.00	1.649	11	338.603	A	0.000	88.936	28.825	32.41	0.000	0.000
					B	0.000	67.428		42.75	0.000	0.000
					C	0.000	59.026		48.83	0.000	0.000
T4 180.00- 170.00	175.00	1.611	10	188.052	A	0.000	45.892	14.412	31.41	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
					C	0.000	37.721		38.21	0.000	0.000
T5 170.00- 160.00	165.00	1.584	10	200.552	A	0.000	49.403	14.412	29.17	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
					C	0.000	39.713		36.29	0.000	0.000
T6 160.00- 150.00	155.00	1.556	10	213.252	A	0.000	58.195	14.415	24.77	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
					C	0.000	42.586		33.85	0.000	0.000
T7 150.00- 140.00	145.00	1.526	10	226.152	A	0.000	68.090	14.415	21.17	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
					C	0.000	43.197		33.37	0.000	0.000
T8 140.00- 120.00	130.00	1.48	9	490.203	A	0.000	138.028	28.825	20.88	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
					C	0.000	88.201		32.68	0.000	0.000
T9 120.00- 100.00	110.00	1.411	9	540.203	A	13.261	130.279	28.825	20.08	0.000	0.000
					B	13.662	113.605		22.65	9.800	0.000
					C	14.076	76.709		31.75	0.000	0.000
T10 100.00- 80.00	90.00	1.332	9	590.203	A	0.000	145.724	28.825	19.78	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
					C	0.000	93.255		30.91	0.000	0.000
T11 80.00- 60.00	70.00	1.24	8	643.752	A	0.000	154.919	35.927	23.19	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
					C	0.000	102.045		35.21	0.000	0.000
T12 60.00- 30.00	45.00	1.093	7	1058.47	A	0.000	231.969	53.885	23.23	0.000	0.000
				6	B	0.000	208.435		25.85	14.700	0.000
					C	0.000	155.622		34.63	0.000	0.000
T13 30.00-0.00	15.00	1	6	1174.13	A	26.357	184.720	53.911	25.54	0.000	0.000
				5	B	26.695	167.364		27.78	10.780	0.000
					C	27.060	127.133		34.96	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	1	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.207	2.571	0.592	1	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	1	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	1	1	26.189			

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	22 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T3 200.00-180.00	1.04	4.02	C	0.177	2.674	0.586	1	1	30.118			
			A	0.263	2.4	0.605	1	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	1	1	39.798			
T4 180.00-170.00	0.65	2.21	C	0.174	2.684	0.585	1	1	34.560			
			A	0.244	2.456	0.6	1	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	1	1	25.585			
T5 170.00-160.00	0.74	2.42	C	0.201	2.594	0.591	1	1	22.275			
			A	0.246	2.449	0.601	1	1	29.689	2.74	274.03	B
			B	0.259	2.41	0.604	1	1	31.419			
T6 160.00-150.00	0.83	2.48	C	0.198	2.603	0.59	1	1	23.430			
			A	0.273	2.371	0.608	1	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	1	1	37.155			
T7 150.00-140.00	0.95	2.53	C	0.2	2.597	0.59	1	1	25.140			
			A	0.301	2.293	0.616	1	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	1	1	37.300			
T8 140.00-120.00	1.92	5.85	C	0.191	2.626	0.589	1	1	25.426			
			A	0.282	2.346	0.61	1	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	1	1	75.134			
T9 120.00-100.00	1.94	5.22	C	0.18	2.664	0.587	1	1	51.731			
			A	0.266	2.391	0.606	1	1	92.211	7.42	371.12	A
			B	0.236	2.481	0.598	1	1	81.633			
T10 100.00-80.00	1.95	5.46	C	0.168	2.706	0.584	1	1	58.905			
			A	0.247	2.447	0.601	1	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	1	1	76.833			
T11 80.00-60.00	1.95	6.32	C	0.158	2.742	0.583	1	1	54.343			
			A	0.241	2.466	0.6	1	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	1	1	82.049			
T12 60.00-30.00	2.92	9.27	C	0.159	2.74	0.583	1	1	59.474			
			A	0.219	2.533	0.594	1	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	1	1	122.930			
T13 30.00-0.00	2.13	11.03	C	0.147	2.782	0.581	1	1	90.420			
			A	0.18	2.665	0.586	1	1	134.693	8.45	281.60	A
			B	0.165	2.716	0.584	1	1	124.424			
Sum Weight:	17.25	64.42	C	0.131	2.841	0.579	1	1	100.643			
								OTM	7636.27 kip-ft	68.93		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	0.825	1	27.947			
			B	0.183	2.654	0.587	0.825	1	26.450	3.10	154.87	C
			C	0.207	2.571	0.592	0.825	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	0.825	1	39.930			
			B	0.155	2.753	0.582	0.825	1	26.189	3.87	193.33	A
			C	0.177	2.674	0.586	0.825	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	0.825	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.174	2.684	0.585	0.825	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	0.825	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.201	2.594	0.591	0.825	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	0.825	1	29.689	2.74	274.03	B

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	23 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
160.00			B	0.259	2.41	0.604	0.825	1	31.419			
			C	0.198	2.603	0.59	0.825	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	0.825	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.2	2.597	0.59	0.825	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	0.825	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.191	2.626	0.589	0.825	1	25.426			
T8 140.00-120.00	1.92	5.85	A	0.282	2.346	0.61	0.825	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.18	2.664	0.587	0.825	1	51.731			
T9 120.00-100.00	1.94	5.22	A	0.266	2.391	0.606	0.825	1	89.890	7.24	362.18	A
			B	0.236	2.481	0.598	0.825	1	79.242			
			C	0.168	2.706	0.584	0.825	1	56.442			
T10 100.00-80.00	1.95	5.46	A	0.247	2.447	0.601	0.825	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	0.825	1	76.833			
			C	0.158	2.742	0.583	0.825	1	54.343			
T11 80.00-60.00	1.95	6.32	A	0.241	2.466	0.6	0.825	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	0.825	1	82.049			
			C	0.159	2.74	0.583	0.825	1	59.474			
T12 60.00-30.00	2.92	9.27	A	0.219	2.533	0.594	0.825	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	0.825	1	122.930			
			C	0.147	2.782	0.581	0.825	1	90.420			
T13 30.00-0.00	2.13	11.03	A	0.18	2.665	0.586	0.825	1	130.080	8.17	272.24	A
			B	0.165	2.716	0.584	0.825	1	119.753			
			C	0.131	2.841	0.579	0.825	1	95.908			
Sum Weight:	17.25	64.42						OTM	7612.38 kip-ft	68.47		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	0.8	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.207	2.571	0.592	0.8	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	0.8	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.177	2.674	0.586	0.8	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	0.8	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.174	2.684	0.585	0.8	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	0.8	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.201	2.594	0.591	0.8	1	22.275			
T5 170.00-160.00	0.74	2.42	A	0.246	2.449	0.601	0.8	1	29.689	2.74	274.03	B
			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.198	2.603	0.59	0.8	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	0.8	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.2	2.597	0.59	0.8	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	0.8	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.191	2.626	0.589	0.8	1	25.426			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	24 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T8 140.00-120.00	1.92	5.85	A	0.282	2.346	0.61	0.8	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.18	2.664	0.587	0.8	1	51.731			
T9 120.00-100.00	1.94	5.22	A	0.266	2.391	0.606	0.8	1	89.559	7.22	360.90	A
			B	0.236	2.481	0.598	0.8	1	78.900			
			C	0.168	2.706	0.584	0.8	1	56.090			
T10 100.00-80.00	1.95	5.46	A	0.247	2.447	0.601	0.8	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	0.8	1	76.833			
			C	0.158	2.742	0.583	0.8	1	54.343			
T11 80.00-60.00	1.95	6.32	A	0.241	2.466	0.6	0.8	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	0.8	1	82.049			
			C	0.159	2.74	0.583	0.8	1	59.474			
T12 60.00-30.00	2.92	9.27	A	0.219	2.533	0.594	0.8	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	0.8	1	122.930			
			C	0.147	2.782	0.581	0.8	1	90.420			
T13 30.00-0.00	2.13	11.03	A	0.18	2.665	0.586	0.8	1	129.421	8.13	270.90	A
			B	0.165	2.716	0.584	0.8	1	119.085			
			C	0.131	2.841	0.579	0.8	1	95.232			
Sum Weight:	17.25	64.42						OTM	7608.97 kip-ft	68.41		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	0.85	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	0.85	1	26.450			
			C	0.207	2.571	0.592	0.85	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	0.85	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	0.85	1	26.189			
			C	0.177	2.674	0.586	0.85	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	0.85	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	0.85	1	39.798			
			C	0.174	2.684	0.585	0.85	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	0.85	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	0.85	1	25.585			
			C	0.201	2.594	0.591	0.85	1	22.275			
T5 170.00-160.00	0.74	2.42	A	0.246	2.449	0.601	0.85	1	29.689	2.74	274.03	B
			B	0.259	2.41	0.604	0.85	1	31.419			
			C	0.198	2.603	0.59	0.85	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	0.85	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	0.85	1	37.155			
			C	0.2	2.597	0.59	0.85	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	0.85	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	0.85	1	37.300			
			C	0.191	2.626	0.589	0.85	1	25.426			
T8 140.00-120.00	1.92	5.85	A	0.282	2.346	0.61	0.85	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	0.85	1	75.134			
			C	0.18	2.664	0.587	0.85	1	51.731			
T9 120.00-100.00	1.94	5.22	A	0.266	2.391	0.606	0.85	1	90.222	7.27	363.46	A
			B	0.236	2.481	0.598	0.85	1	79.583			
			C	0.168	2.706	0.584	0.85	1	56.794			
T10 100.00-80.00	1.95	5.46	A	0.247	2.447	0.601	0.85	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	0.85	1	76.833			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	25 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T11 80.00-60.00	1.95	6.32	C	0.158	2.742	0.583	0.85	1	54.343			
			A	0.241	2.466	0.6	0.85	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	0.85	1	82.049			
T12 60.00-30.00	2.92	9.27	C	0.159	2.74	0.583	0.85	1	59.474			
			A	0.219	2.533	0.594	0.85	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	0.85	1	122.930			
T13 30.00-0.00	2.13	11.03	C	0.147	2.782	0.581	0.85	1	90.420			
			A	0.18	2.665	0.586	0.85	1	130.739	8.21	273.58	A
			B	0.165	2.716	0.584	0.85	1	120.420			
Sum Weight:	17.25	64.42	C	0.131	2.841	0.579	0.85	1	96.585			
								OTM	7615.79 kip-ft	68.54		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	1	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	1	1	32.882			
			C	0.264	2.397	0.605	1	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	1	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	1	1	31.912			
			C	0.223	2.521	0.595	1	1	38.790			
T3 200.00-180.00	2.57	4.93	A	0.355	2.16	0.634	1	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	1	1	53.441			
			C	0.225	2.514	0.596	1	1	45.626			
T4 180.00-170.00	1.63	2.72	A	0.329	2.221	0.625	1	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	1	1	37.016			
			C	0.267	2.388	0.606	1	1	30.537			
T5 170.00-160.00	1.84	2.94	A	0.335	2.208	0.627	1	1	42.281	2.72	272.33	B
			B	0.355	2.161	0.634	1	1	46.431			
			C	0.265	2.392	0.606	1	1	32.387			
T6 160.00-150.00	2.07	3.06	A	0.373	2.12	0.641	1	1	51.163	3.08	307.50	B
			B	0.391	2.081	0.648	1	1	55.416			
			C	0.266	2.389	0.606	1	1	34.584			
T7 150.00-140.00	2.38	3.14	A	0.416	2.034	0.658	1	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	1	1	55.369			
			C	0.255	2.423	0.603	1	1	34.903			
T8 140.00-120.00	4.85	7.13	A	0.389	2.087	0.647	1	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	1	1	110.865			
			C	0.24	2.467	0.599	1	1	70.822			
T9 120.00-100.00	4.97	6.78	A	0.365	2.138	0.638	1	1	131.348	7.70	385.06	A
			B	0.322	2.24	0.623	1	1	116.617			
			C	0.225	2.515	0.596	1	1	79.003			
T10 100.00-80.00	4.98	6.78	A	0.341	2.193	0.629	1	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	1	1	112.209			
			C	0.214	2.549	0.593	1	1	75.243			
T11 80.00-60.00	4.98	7.77	A	0.328	2.223	0.625	1	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	1	1	117.655			
			C	0.211	2.56	0.593	1	1	80.738			
T12 60.00-30.00	7.47	11.45	A	0.299	2.297	0.616	1	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	1	1	175.913			
			C	0.197	2.608	0.59	1	1	122.982			
T13 30.00-	5.45	14.07	A	0.237	2.476	0.599	1	1	178.812	8.30	276.68	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	26 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
0.00			B	0.217	2.54	0.594	1	1	166.452			
Sum Weight:	43.83	80.15	C	0.169	2.704	0.584	1	1	128.442			
								OTM	7589.10	69.49		
									kip-ft			

Tower Forces - With Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	0.825	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.825	1	32.882			
			C	0.264	2.397	0.605	0.825	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	0.825	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.825	1	31.912			
			C	0.223	2.521	0.595	0.825	1	38.790			
T3 200.00-180.00	2.57	4.93	A	0.355	2.16	0.634	0.825	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.825	1	53.221			
			C	0.225	2.514	0.596	0.825	1	45.626			
T4 180.00-170.00	1.63	2.72	A	0.329	2.221	0.625	0.825	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.825	1	36.465			
			C	0.267	2.388	0.606	0.825	1	30.537			
T5 170.00-160.00	1.84	2.94	A	0.335	2.208	0.627	0.825	1	42.281	2.69	269.10	B
			B	0.355	2.161	0.634	0.825	1	45.880			
			C	0.265	2.392	0.606	0.825	1	32.387			
T6 160.00-150.00	2.07	3.06	A	0.373	2.12	0.641	0.825	1	51.163	3.04	304.44	B
			B	0.391	2.081	0.648	0.825	1	54.864			
			C	0.266	2.389	0.606	0.825	1	34.584			
T7 150.00-140.00	2.38	3.14	A	0.416	2.034	0.658	0.825	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.825	1	54.817			
			C	0.255	2.423	0.603	0.825	1	34.903			
T8 140.00-120.00	4.85	7.13	A	0.389	2.087	0.647	0.825	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.825	1	109.763			
			C	0.24	2.467	0.599	0.825	1	70.822			
T9 120.00-100.00	4.97	6.78	A	0.365	2.138	0.638	0.825	1	128.825	7.57	378.54	A
			B	0.322	2.24	0.623	0.825	1	112.869			
			C	0.225	2.515	0.596	0.825	1	76.241			
T10 100.00-80.00	4.98	6.78	A	0.341	2.193	0.629	0.825	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.825	1	111.107			
			C	0.214	2.549	0.593	0.825	1	75.243			
T11 80.00-60.00	4.98	7.77	A	0.328	2.223	0.625	0.825	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.825	1	116.553			
			C	0.211	2.56	0.593	0.825	1	80.738			
T12 60.00-30.00	7.47	11.45	A	0.299	2.297	0.616	0.825	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.825	1	174.259			
			C	0.197	2.608	0.59	0.825	1	122.982			
T13 30.00-0.00	5.45	14.07	A	0.237	2.476	0.599	0.825	1	173.728	8.08	269.49	A
			B	0.217	2.54	0.594	0.825	1	160.059			
			C	0.169	2.704	0.584	0.825	1	123.164			
Sum Weight:	43.83	80.15						OTM	7561.45	69.08		
									kip-ft			

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	27 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	0.8	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.8	1	32.882			
			C	0.264	2.397	0.605	0.8	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	0.8	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.8	1	31.912			
			C	0.223	2.521	0.595	0.8	1	38.790			
T3 200.00-180.00	2.57	4.93	A	0.355	2.16	0.634	0.8	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.8	1	53.189			
			C	0.225	2.514	0.596	0.8	1	45.626			
T4 180.00-170.00	1.63	2.72	A	0.329	2.221	0.625	0.8	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.8	1	36.386			
			C	0.267	2.388	0.606	0.8	1	30.537			
T5 170.00-160.00	1.84	2.94	A	0.335	2.208	0.627	0.8	1	42.281	2.69	268.64	B
			B	0.355	2.161	0.634	0.8	1	45.801			
			C	0.265	2.392	0.606	0.8	1	32.387			
T6 160.00-150.00	2.07	3.06	A	0.373	2.12	0.641	0.8	1	51.163	3.04	304.01	B
			B	0.391	2.081	0.648	0.8	1	54.786			
			C	0.266	2.389	0.606	0.8	1	34.584			
T7 150.00-140.00	2.38	3.14	A	0.416	2.034	0.658	0.8	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.8	1	54.739			
			C	0.255	2.423	0.603	0.8	1	34.903			
T8 140.00-120.00	4.85	7.13	A	0.389	2.087	0.647	0.8	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.8	1	109.605			
			C	0.24	2.467	0.599	0.8	1	70.822			
T9 120.00-100.00	4.97	6.78	A	0.365	2.138	0.638	0.8	1	128.465	7.55	377.60	A
			B	0.322	2.24	0.623	0.8	1	112.334			
			C	0.225	2.515	0.596	0.8	1	75.846			
T10 100.00-80.00	4.98	6.78	A	0.341	2.193	0.629	0.8	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.8	1	110.949			
			C	0.214	2.549	0.593	0.8	1	75.243			
T11 80.00-60.00	4.98	7.77	A	0.328	2.223	0.625	0.8	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.8	1	116.395			
			C	0.211	2.56	0.593	0.8	1	80.738			
T12 60.00-30.00	7.47	11.45	A	0.299	2.297	0.616	0.8	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.8	1	174.023			
			C	0.197	2.608	0.59	0.8	1	122.982			
T13 30.00-0.00	5.45	14.07	A	0.237	2.476	0.599	0.8	1	173.002	8.05	268.46	A
			B	0.217	2.54	0.594	0.8	1	159.146			
			C	0.169	2.704	0.584	0.8	1	122.410			
Sum Weight:	43.83	80.15						OTM	7557.50 kip-ft	69.02		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	0.85	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.85	1	32.882			
			C	0.264	2.397	0.605	0.85	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	0.85	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.85	1	31.912			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	28 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T3 200.00-180.00	2.57	4.93	C	0.223	2.521	0.595	0.85	1	38.790			
			A	0.355	2.16	0.634	0.85	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.85	1	53.252			
			C	0.225	2.514	0.596	0.85	1	45.626			
T4 180.00-170.00	1.63	2.72	A	0.329	2.221	0.625	0.85	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.85	1	36.544			
			C	0.267	2.388	0.606	0.85	1	30.537			
T5 170.00-160.00	1.84	2.94	A	0.335	2.208	0.627	0.85	1	42.281	2.70	269.56	B
			B	0.355	2.161	0.634	0.85	1	45.959			
			C	0.265	2.392	0.606	0.85	1	32.387			
T6 160.00-150.00	2.07	3.06	A	0.373	2.12	0.641	0.85	1	51.163	3.05	304.88	B
			B	0.391	2.081	0.648	0.85	1	54.943			
			C	0.266	2.389	0.606	0.85	1	34.584			
T7 150.00-140.00	2.38	3.14	A	0.416	2.034	0.658	0.85	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.85	1	54.896			
			C	0.255	2.423	0.603	0.85	1	34.903			
T8 140.00-120.00	4.85	7.13	A	0.389	2.087	0.647	0.85	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.85	1	109.920			
			C	0.24	2.467	0.599	0.85	1	70.822			
T9 120.00-100.00	4.97	6.78	A	0.365	2.138	0.638	0.85	1	129.186	7.59	379.47	A
			B	0.322	2.24	0.623	0.85	1	113.405			
			C	0.225	2.515	0.596	0.85	1	76.635			
T10 100.00-80.00	4.98	6.78	A	0.341	2.193	0.629	0.85	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.85	1	111.264			
			C	0.214	2.549	0.593	0.85	1	75.243			
T11 80.00-60.00	4.98	7.77	A	0.328	2.223	0.625	0.85	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.85	1	116.710			
			C	0.211	2.56	0.593	0.85	1	80.738			
T12 60.00-30.00	7.47	11.45	A	0.299	2.297	0.616	0.85	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.85	1	174.495			
			C	0.197	2.608	0.59	0.85	1	122.982			
T13 30.00-0.00	5.45	14.07	A	0.237	2.476	0.599	0.85	1	174.455	8.12	270.52	A
			B	0.217	2.54	0.594	0.85	1	160.972			
			C	0.169	2.704	0.584	0.85	1	123.918			
Sum Weight:	43.83	80.15						OTM	7565.40 kip-ft	69.14		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	1	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.207	2.571	0.592	1	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	1	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	1	1	26.189			
			C	0.177	2.674	0.586	1	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	1	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	1	1	39.798			
			C	0.174	2.684	0.585	1	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	1	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	1	1	25.585			
			C	0.201	2.594	0.591	1	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	1	1	29.689	0.85	84.58	B

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	29 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
160.00			B	0.259	2.41	0.604	1	1	31.419			
			C	0.198	2.603	0.59	1	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	1	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	1	1	37.155			
			C	0.2	2.597	0.59	1	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	1	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	1	1	37.300			
			C	0.191	2.626	0.589	1	1	25.426			
T8 140.00-120.00	1.92	5.85	A	0.282	2.346	0.61	1	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	1	1	75.134			
			C	0.18	2.664	0.587	1	1	51.731			
T9 120.00-100.00	1.94	5.22	A	0.266	2.391	0.606	1	1	92.211	2.29	114.54	A
			B	0.236	2.481	0.598	1	1	81.633			
			C	0.168	2.706	0.584	1	1	58.905			
T10 100.00-80.00	1.95	5.46	A	0.247	2.447	0.601	1	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	1	1	76.833			
			C	0.158	2.742	0.583	1	1	54.343			
T11 80.00-60.00	1.95	6.32	A	0.241	2.466	0.6	1	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	1	1	82.049			
			C	0.159	2.74	0.583	1	1	59.474			
T12 60.00-30.00	2.92	9.27	A	0.219	2.533	0.594	1	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	1	1	122.930			
			C	0.147	2.782	0.581	1	1	90.420			
T13 30.00-0.00	2.13	11.03	A	0.18	2.665	0.586	1	1	134.693	2.61	86.91	A
			B	0.165	2.716	0.584	1	1	124.424			
			C	0.131	2.841	0.579	1	1	100.643			
Sum Weight:	17.25	64.42						OTM	2356.87 kip-ft	21.27		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	0.825	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	0.825	1	26.450			
			C	0.207	2.571	0.592	0.825	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	0.825	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	0.825	1	26.189			
			C	0.177	2.674	0.586	0.825	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	0.825	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.174	2.684	0.585	0.825	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	0.825	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.201	2.594	0.591	0.825	1	22.275			
T5 170.00-160.00	0.74	2.42	A	0.246	2.449	0.601	0.825	1	29.689	0.85	84.58	B
			B	0.259	2.41	0.604	0.825	1	31.419			
			C	0.198	2.603	0.59	0.825	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	0.825	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.2	2.597	0.59	0.825	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	0.825	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.191	2.626	0.589	0.825	1	25.426			

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 30 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client	Verizon Wireless	Designed by Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.825	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.18	2.664	0.587	0.825	1	51.731			
T9 120.00- 100.00	1.94	5.22	A	0.266	2.391	0.606	0.825	1	89.890	2.24	111.78	A
			B	0.236	2.481	0.598	0.825	1	79.242			
			C	0.168	2.706	0.584	0.825	1	56.442			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.825	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.825	1	76.833			
			C	0.158	2.742	0.583	0.825	1	54.343			
T11 80.00- 60.00	1.95	6.32	A	0.241	2.466	0.6	0.825	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.825	1	82.049			
			C	0.159	2.74	0.583	0.825	1	59.474			
T12 60.00- 30.00	2.92	9.27	A	0.219	2.533	0.594	0.825	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.825	1	122.930			
			C	0.147	2.782	0.581	0.825	1	90.420			
T13 30.00- 0.00	2.13	11.03	A	0.18	2.665	0.586	0.825	1	130.080	2.52	84.02	A
			B	0.165	2.716	0.584	0.825	1	119.753			
			C	0.131	2.841	0.579	0.825	1	95.908			
Sum Weight:	17.25	64.42						OTM	2349.50 kip-ft	21.13		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	0.8	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.207	2.571	0.592	0.8	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	0.8	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.177	2.674	0.586	0.8	1	30.118			
T3 200.00- 180.00	1.04	4.02	A	0.263	2.4	0.605	0.8	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.174	2.684	0.585	0.8	1	34.560			
T4 180.00- 170.00	0.65	2.21	A	0.244	2.456	0.6	0.8	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.201	2.594	0.591	0.8	1	22.275			
T5 170.00- 160.00	0.74	2.42	A	0.246	2.449	0.601	0.8	1	29.689	0.85	84.58	B
			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.198	2.603	0.59	0.8	1	23.430			
T6 160.00- 150.00	0.83	2.48	A	0.273	2.371	0.608	0.8	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.2	2.597	0.59	0.8	1	25.140			
T7 150.00- 140.00	0.95	2.53	A	0.301	2.293	0.616	0.8	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.191	2.626	0.589	0.8	1	25.426			
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.8	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.18	2.664	0.587	0.8	1	51.731			
T9 120.00- 100.00	1.94	5.22	A	0.266	2.391	0.606	0.8	1	89.559	2.23	111.39	A
			B	0.236	2.481	0.598	0.8	1	78.900			
			C	0.168	2.706	0.584	0.8	1	56.090			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.8	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.8	1	76.833			

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	31 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T11 80.00-60.00	1.95	6.32	C	0.158	2.742	0.583	0.8	1	54.343			
			A	0.241	2.466	0.6	0.8	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.8	1	82.049			
			C	0.159	2.74	0.583	0.8	1	59.474			
T12 60.00-30.00	2.92	9.27	A	0.219	2.533	0.594	0.8	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.8	1	122.930			
			C	0.147	2.782	0.581	0.8	1	90.420			
T13 30.00-0.00	2.13	11.03	A	0.18	2.665	0.586	0.8	1	129.421	2.51	83.61	A
			B	0.165	2.716	0.584	0.8	1	119.085			
			C	0.131	2.841	0.579	0.8	1	95.232			
Sum Weight:	17.25	64.42						OTM	2348.45 kip-ft	21.11		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.06	3.73	A	0.193	2.621	0.589	0.85	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	0.85	1	26.450			
			C	0.207	2.571	0.592	0.85	1	30.274			
T2 220.00-200.00	0.19	3.90	A	0.23	2.498	0.597	0.85	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	0.85	1	26.189			
			C	0.177	2.674	0.586	0.85	1	30.118			
T3 200.00-180.00	1.04	4.02	A	0.263	2.4	0.605	0.85	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	0.85	1	39.798			
			C	0.174	2.684	0.585	0.85	1	34.560			
T4 180.00-170.00	0.65	2.21	A	0.244	2.456	0.6	0.85	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	0.85	1	25.585			
			C	0.201	2.594	0.591	0.85	1	22.275			
T5 170.00-160.00	0.74	2.42	A	0.246	2.449	0.601	0.85	1	29.689	0.85	84.58	B
			B	0.259	2.41	0.604	0.85	1	31.419			
			C	0.198	2.603	0.59	0.85	1	23.430			
T6 160.00-150.00	0.83	2.48	A	0.273	2.371	0.608	0.85	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	0.85	1	37.155			
			C	0.2	2.597	0.59	0.85	1	25.140			
T7 150.00-140.00	0.95	2.53	A	0.301	2.293	0.616	0.85	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	0.85	1	37.300			
			C	0.191	2.626	0.589	0.85	1	25.426			
T8 140.00-120.00	1.92	5.85	A	0.282	2.346	0.61	0.85	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.85	1	75.134			
			C	0.18	2.664	0.587	0.85	1	51.731			
T9 120.00-100.00	1.94	5.22	A	0.266	2.391	0.606	0.85	1	90.222	2.24	112.18	A
			B	0.236	2.481	0.598	0.85	1	79.583			
			C	0.168	2.706	0.584	0.85	1	56.794			
T10 100.00-80.00	1.95	5.46	A	0.247	2.447	0.601	0.85	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.85	1	76.833			
			C	0.158	2.742	0.583	0.85	1	54.343			
T11 80.00-60.00	1.95	6.32	A	0.241	2.466	0.6	0.85	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.85	1	82.049			
			C	0.159	2.74	0.583	0.85	1	59.474			
T12 60.00-30.00	2.92	9.27	A	0.219	2.533	0.594	0.85	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.85	1	122.930			
			C	0.147	2.782	0.581	0.85	1	90.420			
T13 30.00-	2.13	11.03	A	0.18	2.665	0.586	0.85	1	130.739	2.53	84.44	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	32 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
0.00			B	0.165	2.716	0.584	0.85	1	120.420			
Sum Weight:	17.25	64.42	C	0.131	2.841	0.579	0.85	1 OTM	96.585 2350.55 kip-ft	21.15		

Force Totals

Load Case	Vertical Forces	Sum of Forces	Sum of Forces	Sum of Overturning Moments, M _x	Sum of Overturning Moments, M _y	Sum of Torques
	K	X K	Z K	kip-ft	kip-ft	kip-ft
Leg Weight	34.76					
Bracing Weight	29.66					
Total Member Self-Weight	64.42					
Total Weight	93.04			-90.54	51.86	
Wind 0 deg - No Ice		0.00	-91.05	-11664.17	51.86	-36.30
Wind 30 deg - No Ice		45.28	-78.51	-10095.87	-5716.14	-60.52
Wind 45 deg - No Ice		63.99	-64.06	-8257.44	-8102.91	-66.84
Wind 60 deg - No Ice		78.31	-45.26	-5863.70	-9932.70	-68.60
Wind 90 deg - No Ice		90.56	0.00	-90.54	-11484.14	-58.56
Wind 120 deg - No Ice		78.77	45.52	5696.28	-9956.34	-32.89
Wind 135 deg - No Ice		63.99	64.06	8076.37	-8102.91	-15.88
Wind 150 deg - No Ice		45.28	78.51	9914.79	-5716.14	1.96
Wind 180 deg - No Ice		0.00	90.52	11455.80	51.86	36.00
Wind 210 deg - No Ice		-45.28	78.51	9914.79	5819.87	60.52
Wind 225 deg - No Ice		-63.99	64.06	8076.37	8206.64	66.84
Wind 240 deg - No Ice		-78.77	45.52	5696.28	10060.07	69.19
Wind 270 deg - No Ice		-90.56	0.00	-90.54	11587.87	58.56
Wind 300 deg - No Ice		-78.31	-45.26	-5863.70	10036.43	32.60
Wind 315 deg - No Ice		-63.99	-64.06	-8257.44	8206.64	15.88
Wind 330 deg - No Ice		-45.28	-78.51	-10095.87	5819.87	-1.96
Member Ice	15.73					
Total Weight Ice	141.57			-209.38	120.40	
Wind 0 deg - Ice		0.00	-90.04	-11472.47	120.40	-20.12
Wind 30 deg - Ice		44.81	-77.67	-9942.97	-5492.38	-39.20
Wind 45 deg - Ice		63.33	-63.38	-8154.03	-7814.48	-45.02
Wind 60 deg - Ice		77.51	-44.79	-5825.12	-9594.38	-47.76
Wind 90 deg - Ice		89.61	0.00	-209.38	-11105.16	-43.66
Wind 120 deg - Ice		77.91	45.02	5422.16	-9621.75	-27.96
Wind 135 deg - Ice		63.33	63.38	7735.26	-7814.48	-16.67
Wind 150 deg - Ice		44.81	77.67	9524.20	-5492.38	-4.46
Wind 180 deg - Ice		0.00	89.57	11022.09	120.40	20.03
Wind 210 deg - Ice		-44.81	77.67	9524.20	5733.18	39.20
Wind 225 deg - Ice		-63.33	63.38	7735.26	8055.28	45.02
Wind 240 deg - Ice		-77.91	45.02	5422.16	9862.55	48.08
Wind 270 deg - Ice		-89.61	0.00	-209.38	11345.96	43.66
Wind 300 deg - Ice		-77.51	-44.79	-5825.12	9835.18	27.73
Wind 315 deg - Ice		-63.33	-63.38	-8154.03	8055.28	16.67
Wind 330 deg - Ice		-44.81	-77.67	-9942.97	5733.18	4.46
Total Weight	93.04			-90.54	51.86	
Wind 0 deg - Service		0.00	-28.10	-3570.40	-3.49	-11.20
Wind 30 deg - Service		13.98	-24.23	-3086.36	-1783.74	-18.68
Wind 45 deg - Service		19.75	-19.77	-2518.95	-2520.39	-20.63
Wind 60 deg - Service		24.17	-13.97	-1780.14	-3085.14	-21.17
Wind 90 deg - Service		27.95	0.00	1.70	-3563.98	-18.07
Wind 120 deg - Service		24.31	14.05	1787.76	-3092.44	-10.15

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	33 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 135 deg - Service		19.75	19.77	2522.35	-2520.39	-4.90
Wind 150 deg - Service		13.98	24.23	3089.77	-1783.74	0.61
Wind 180 deg - Service		0.00	27.94	3565.39	-3.49	11.11
Wind 210 deg - Service		-13.98	24.23	3089.77	1776.76	18.68
Wind 225 deg - Service		-19.75	19.77	2522.35	2513.42	20.63
Wind 240 deg - Service		-24.31	14.05	1787.76	3085.46	21.35
Wind 270 deg - Service		-27.95	0.00	1.70	3557.01	18.07
Wind 300 deg - Service		-24.17	-13.97	-1780.14	3078.17	10.06
Wind 315 deg - Service		-19.75	-19.77	-2518.95	2513.42	4.90
Wind 330 deg - Service		-13.98	-24.23	-3086.36	1776.76	-0.61

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+ Wind 0 deg - No Ice
3	Dead+ Wind 30 deg - No Ice
4	Dead+ Wind 45 deg - No Ice
5	Dead+ Wind 60 deg - No Ice
6	Dead+ Wind 90 deg - No Ice
7	Dead+ Wind 120 deg - No Ice
8	Dead+ Wind 135 deg - No Ice
9	Dead+ Wind 150 deg - No Ice
10	Dead+ Wind 180 deg - No Ice
11	Dead+ Wind 210 deg - No Ice
12	Dead+ Wind 225 deg - No Ice
13	Dead+ Wind 240 deg - No Ice
14	Dead+ Wind 270 deg - No Ice
15	Dead+ Wind 300 deg - No Ice
16	Dead+ Wind 315 deg - No Ice
17	Dead+ Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 34 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client	Verizon Wireless	Designed by Jrm

Comb. No.	Description
42	Dead+ Wind 150 deg - Service
43	Dead+ Wind 180 deg - Service
44	Dead+ Wind 210 deg - Service
45	Dead+ Wind 225 deg - Service
46	Dead+ Wind 240 deg - Service
47	Dead+ Wind 270 deg - Service
48	Dead+ Wind 300 deg - Service
49	Dead+ Wind 315 deg - Service
50	Dead+ Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	240 - 220	Leg	Max Tension	10	1.30	-0.01	0.00
			Max. Compression	30	-4.06	0.14	-0.04
			Max. Mx	27	0.19	0.38	0.02
			Max. My	23	-1.09	-0.02	-0.52
			Max. Vy	32	-0.30	0.00	0.00
			Max. Vx	21	-0.41	-0.00	-0.00
		Diagonal	Max Tension	3	1.68	0.00	0.00
			Max. Compression	23	-1.79	0.00	0.00
			Max. Mx	34	1.60	0.04	0.00
			Max. My	22	-0.05	0.00	0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Horizontal	Max Tension	4	1.21	-0.02	0.00
			Max. Compression	12	-1.18	0.00	0.00
			Max. Mx	32	0.05	-0.03	-0.00
			Max. My	32	-0.22	-0.03	-0.00
			Max. Vy	32	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
		Top Girt	Max Tension	22	0.46	-0.02	0.00
			Max. Compression	30	-0.48	-0.02	-0.00
			Max. Mx	27	-0.13	-0.02	-0.00
			Max. My	19	0.22	-0.02	0.00
			Max. Vy	27	-0.02	-0.02	-0.00
			Max. Vx	19	-0.00	-0.02	0.00
		Inner Bracing	Max Tension	30	0.01	0.00	0.00
			Max. Compression	30	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T2	220 - 200	Leg	Max Tension	15	6.09	-0.32	-0.00
			Max. Compression	19	-13.24	0.46	0.03
			Max. Mx	15	4.72	1.39	-0.02
			Max. My	9	-3.70	-0.05	1.35
			Max. Vy	10	-1.13	-0.32	-0.01
			Max. Vx	6	1.09	-0.04	0.16
		Diagonal	Max Tension	11	5.11	0.00	0.00
			Max. Compression	11	-5.26	0.00	0.00
			Max. Mx	34	4.58	0.09	0.00
			Max. My	22	-0.25	0.00	0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Horizontal	Max Tension	4	3.20	-0.02	0.00
			Max. Compression	12	-3.22	-0.02	-0.00

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	35 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	200 - 180	Top Girt	Max. Mx	32	0.16	-0.04	-0.01
			Max. My	10	-0.81	-0.02	-0.01
			Max. Vy	32	-0.02	-0.04	-0.01
			Max. Vx	15	0.00	-0.02	-0.01
			Max Tension	4	1.62	-0.02	0.00
			Max. Compression	12	-1.60	-0.02	-0.00
			Max. Mx	32	-0.26	-0.03	-0.00
			Max. My	15	-0.27	-0.02	-0.00
			Max. Vy	32	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
			Max Tension	12	0.03	0.00	0.00
			Max. Compression	12	-0.03	0.00	0.00
		Inner Bracing	Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	19.57	-0.87	-0.04
			Max. Compression	19	-32.43	1.32	-0.01
			Max. Mx	10	17.98	1.70	0.02
			Max. My	6	-6.35	-0.07	-1.78
			Max. Vy	10	0.90	-1.65	0.02
			Max. Vx	14	0.93	-0.07	-1.63
		Diagonal	Max Tension	11	8.59	0.00	0.00
			Max. Compression	11	-8.76	0.00	0.00
			Max. Mx	34	7.51	0.12	0.00
			Max. My	22	-0.64	0.00	0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Horizontal	Max Tension	4	5.74	-0.03	0.00
			Max. Compression	12	-5.75	-0.03	-0.00
			Max. Mx	32	0.36	-0.05	-0.01
			Max. My	10	-0.67	-0.03	-0.01
			Max. Vy	32	-0.03	-0.05	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
		Top Girt	Max Tension	4	4.49	-0.03	0.00
			Max. Compression	12	-4.52	-0.03	-0.00
			Max. Mx	32	-0.93	-0.04	-0.01
			Max. My	10	-0.80	-0.03	-0.01
			Max. Vy	32	-0.03	-0.04	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
		Inner Bracing	Max Tension	12	0.08	0.00	0.00
			Max. Compression	12	-0.08	0.00	0.00
			Max. Mx	18	-0.00	-0.03	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T4	180 - 170	Leg	Max Tension	15	28.92	-1.62	-0.06
			Max. Compression	19	-44.50	1.42	-0.02
			Max. Mx	10	27.42	-1.73	0.03
			Max. My	14	-6.76	-0.07	-1.63
			Max. Vy	10	0.67	-1.73	0.03
			Max. Vx	11	-0.65	-0.05	1.62
		Diagonal	Max Tension	11	10.44	0.00	0.00
			Max. Compression	11	-10.67	0.00	0.00
			Max. Mx	34	9.30	0.13	0.00
			Max. My	22	-0.73	0.00	0.00
			Max. Vy	34	-0.04	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Top Girt	Max Tension	4	7.25	-0.06	0.00
			Max. Compression	12	-7.27	-0.06	-0.00
			Max. Mx	32	-1.25	-0.09	-0.02

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	36 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	170 - 160	Inner Bracing	Max. My	10	-0.94	-0.07	-0.02
			Max. Vy	32	-0.04	-0.09	-0.02
			Max. Vx	10	0.00	-0.07	-0.02
			Max Tension	12	0.13	0.00	0.00
			Max. Compression	12	-0.13	0.00	0.00
			Max. Mx	18	0.00	-0.05	0.00
			Max. My	19	0.11	0.00	-0.00
			Max. Vy	18	0.02	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	40.48	-1.69	-0.05
		Leg	Max. Compression	19	-59.26	0.76	0.02
			Max. Mx	10	39.63	-1.73	0.03
			Max. My	3	-7.18	-0.08	-1.63
			Max. Vy	10	0.70	-1.06	-0.02
			Max. Vx	14	0.71	-0.07	-1.17
			Max Tension	11	11.91	0.00	0.00
			Max. Compression	11	-12.20	0.00	0.00
			Max. Mx	34	10.77	0.17	0.00
			Max. My	22	-0.74	0.00	0.00
			Max. Vy	34	-0.05	0.00	0.00
		Diagonal	Max. Vx	22	0.00	0.00	0.00
			Max Tension	11	8.51	-0.07	0.00
			Max. Compression	12	-8.48	-0.07	-0.00
			Max. Mx	32	-1.17	-0.10	-0.02
			Max. My	10	-0.87	-0.07	-0.02
			Max. Vy	32	-0.05	-0.10	-0.02
			Max. Vx	10	0.00	-0.07	-0.02
			Max Tension	12	0.15	0.00	0.00
			Max. Compression	12	-0.15	0.00	0.00
			Max. Mx	18	0.00	-0.06	0.00
			Max. My	19	0.13	0.00	-0.00
T6	160 - 150	Inner Bracing	Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	53.17	-1.06	-0.05
			Max. Compression	19	-74.77	-0.11	0.03
			Max. Mx	10	52.10	-1.06	-0.02
			Max. My	14	-10.00	-0.07	-1.17
			Max. Vy	10	-0.26	-1.06	-0.02
			Max. Vx	6	0.32	-0.07	1.16
			Max Tension	11	12.96	0.00	0.00
			Max. Compression	11	-13.28	0.00	0.00
		Leg	Max. Mx	34	11.70	0.20	0.00
			Max. My	22	-0.90	0.00	0.00
			Max. Vy	34	-0.05	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
			Max Tension	11	9.55	-0.08	0.00
			Max. Compression	12	-9.50	-0.08	-0.00
			Max. Mx	32	-1.21	-0.11	-0.02
			Max. My	10	-0.80	-0.08	-0.02
			Max. Vy	32	-0.05	-0.11	-0.02
			Max. Vx	10	0.00	-0.08	-0.02
		Diagonal	Max Tension	12	0.16	0.00	0.00
			Max. Compression	12	-0.16	0.00	0.00
			Max. Mx	18	0.00	-0.08	0.00
			Max. My	19	0.14	0.00	-0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	66.59	0.09	-0.07
			Max. Compression	19	-92.00	0.76	0.02
			Max. Mx	10	64.63	-1.00	-0.02
			Max. My	14	-12.54	-0.06	-1.19
T7	150 - 140	Leg					

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	37 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	140 - 120	Diagonal	Max. Vy	10	0.26	-1.00	-0.02
			Max. Vx	6	-0.31	-0.06	1.19
			Max Tension	11	14.95	0.00	0.00
			Max. Compression	11	-15.30	0.00	0.00
			Max. Mx	34	13.39	0.22	0.00
			Max. My	22	-0.98	0.00	0.00
		Top Girt	Max. Vy	34	-0.06	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	11	11.33	-0.09	-0.00
			Max. Compression	12	-11.25	-0.09	-0.01
			Max. Mx	32	-1.45	-0.12	-0.02
			Max. My	10	-1.04	-0.09	-0.02
		Inner Bracing	Max. Vy	32	-0.05	-0.12	-0.02
			Max. Vx	10	0.00	-0.09	-0.02
			Max Tension	12	0.19	0.00	0.00
			Max. Compression	12	-0.19	0.00	0.00
			Max. Mx	18	0.00	-0.09	0.00
			Max. My	19	0.17	0.00	-0.00
		Leg	Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	98.12	-0.61	-0.02
			Max. Compression	19	-128.47	-1.08	0.04
			Max. Mx	19	-128.47	-1.08	0.04
			Max. My	14	-15.32	-0.48	-2.64
		Diagonal	Max. Vy	24	0.27	0.70	0.01
			Max. Vx	14	0.42	-0.48	-2.64
			Max Tension	11	15.92	0.00	0.00
			Max. Compression	11	-16.43	0.00	0.00
			Max. Mx	34	14.57	0.32	0.00
			Max. My	22	-1.08	0.00	0.00
		Horizontal	Max. Vy	34	-0.08	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	11	12.75	0.00	0.00
			Max. Compression	11	-12.44	-0.11	-0.00
			Max. Mx	32	1.32	-0.15	-0.02
			Max. My	10	-1.19	-0.12	-0.02
		Top Girt	Max. Vy	32	-0.06	-0.15	-0.02
			Max. Vx	10	0.00	-0.12	-0.02
			Max Tension	11	12.23	-0.10	-0.00
			Max. Compression	11	-12.09	-0.10	-0.00
			Max. Mx	32	-1.03	-0.14	-0.02
			Max. My	10	-0.50	-0.10	-0.02
		Inner Bracing	Max. Vy	32	-0.06	-0.14	-0.02
			Max. Vx	10	0.00	-0.10	-0.02
			Max Tension	11	0.21	0.00	0.00
			Max. Compression	11	-0.21	0.00	0.00
			Max. Mx	18	-0.01	-0.15	0.00
			Max. My	32	-0.01	0.00	0.00
T9	120 - 100	Leg	Max. Vy	18	-0.05	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	112.91	-0.09	-0.08
			Max. Compression	19	-147.24	-2.81	0.13
			Max. Mx	19	-146.31	3.44	-0.09
			Max. My	14	-17.47	-0.94	-4.79
		Diagonal	Max. Vy	19	0.73	3.44	-0.09
			Max. Vx	6	-0.94	-0.94	4.79
			Max Tension	11	23.56	0.00	0.00
			Max. Compression	11	-24.15	0.00	0.00
			Max. Mx	19	-0.54	-0.16	-0.02
			Max. My	4	-23.04	-0.10	-0.08
			Max. Vy	19	0.06	-0.16	-0.02

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	38 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T10	100 - 80	Top Girt	Max. Vx	21	-0.01	0.00	0.00
			Max Tension	11	13.48	-0.12	-0.00
			Max. Compression	11	-13.44	-0.12	-0.00
			Max. Mx	32	-0.50	-0.18	-0.02
			Max. My	10	-0.63	-0.14	-0.02
			Max. Vy	32	0.06	-0.18	-0.02
		Redund Horz 1 Bracing	Max. Vx	10	0.00	-0.14	-0.02
			Max Tension	19	2.56	0.00	0.00
			Max. Compression	19	-2.56	0.00	0.00
			Max. Mx	18	0.35	0.03	0.00
			Max. My	31	2.20	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Diag 1 Bracing	Max. Vx	31	-0.00	0.00	0.00
			Max Tension	19	2.34	0.00	0.00
			Max. Compression	19	-2.34	0.00	0.00
			Max. Mx	34	2.09	0.04	0.00
			Max. My	33	1.78	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max. Vx	33	-0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Vx	32	-0.00	0.00	0.00
			Max Tension	28	0.09	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.07	0.12	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	0.03	0.00	0.00
		Inner Bracing	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.23	0.00	0.00
			Max. Compression	11	-0.23	0.00	0.00
			Max. Mx	18	0.00	0.11	0.00
			Max. My	19	0.20	0.00	0.00
			Max. Vy	18	-0.03	0.00	0.00
		Leg	Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	143.49	0.59	-0.20
			Max. Compression	19	-183.49	-3.03	0.15
			Max. Mx	19	-182.43	3.96	-0.13
			Max. My	6	-20.33	-1.12	5.98
			Max. Vy	19	0.76	3.96	-0.13
		Diagonal	Max. Vx	6	-1.18	-1.12	5.98
			Max Tension	11	24.57	0.00	0.00
			Max. Compression	11	-25.09	0.00	0.00
			Max. Mx	19	-0.61	-0.14	-0.03
			Max. My	4	-23.87	-0.09	-0.10
			Max. Vy	19	0.05	-0.14	-0.03
		Top Girt	Max. Vx	4	-0.01	0.00	0.00
			Max Tension	11	14.82	-0.19	0.00
			Max. Compression	11	-14.97	-0.20	0.00
			Max. Mx	32	-1.13	-0.29	-0.03
			Max. My	7	1.09	-0.15	0.03
			Max. Vy	32	0.09	-0.29	-0.03
		Redund Horz 1 Bracing	Max. Vx	24	-0.00	-0.22	0.03
			Max Tension	19	3.18	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	39 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client Verizon Wireless	Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load	Force	Major Axis Moment	Minor Axis Moment
				Comb.	K	kip-ft	kip-ft
T11	80 - 60	Redund Diag 1 Bracing	Max. Compression	19	-3.18	0.00	0.00
			Max. Mx	18	0.40	0.03	0.00
			Max. My	31	2.74	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	2.73	0.00	0.00
			Max. Compression	19	-2.73	0.00	0.00
			Max. Mx	34	2.43	0.05	0.00
			Max. My	33	2.07	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.08	0.13	0.00
		Inner Bracing	Max. My	23	0.03	0.00	0.00
			Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.26	0.00	0.00
			Max. Compression	11	-0.26	0.00	0.00
		Leg	Max. Mx	18	0.00	0.24	0.00
			Max. My	19	0.23	0.00	0.00
			Max. Vy	18	-0.07	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	174.39	0.43	-0.28
			Max. Compression	19	-220.58	-2.48	0.17
			Max. Mx	19	-219.54	4.75	-0.19
			Max. My	14	-23.25	-1.43	-9.09
			Max. Vy	19	-0.85	4.75	-0.19
			Max. Vx	6	-1.62	-1.43	9.07
		Diagonal	Max Tension	11	25.23	0.00	0.00
			Max. Compression	11	-25.78	-0.11	-0.00
			Max. Mx	28	-11.85	-0.15	-0.06
			Max. My	4	-24.14	-0.11	-0.08
			Max. Vy	28	0.05	-0.15	-0.06
		Top Girt	Max. Vx	4	-0.01	0.00	0.00
			Max Tension	11	16.04	-0.22	0.00
			Max. Compression	11	-16.13	-0.23	0.00
			Max. Mx	33	-4.85	-0.33	-0.03
			Max. My	24	1.01	-0.27	0.03
		Redund Horz 1 Bracing	Max. Vy	33	0.10	-0.33	-0.03
			Max. Vx	24	-0.00	-0.27	0.03
			Max Tension	19	3.83	0.00	0.00
			Max. Compression	19	-3.83	0.00	0.00
			Max. Mx	18	0.46	0.04	0.00
		Redund Diag 1 Bracing	Max. My	31	3.30	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	3.10	0.00	0.00
			Max. Compression	19	-3.10	0.00	0.00
			Max. Mx	34	2.75	0.06	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	40 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	60 - 30	Redund Hip 1 Bracing	Max. My	33	2.34	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.04	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Mx	19	0.07	0.15	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.28	0.00	0.00
			Max. Compression	11	-0.28	0.00	0.00
			Max. Mx	18	0.00	0.29	0.00
			Max. My	19	0.24	0.00	0.00
			Max. Vy	18	-0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Inner Bracing	Max Tension	15	205.10	-0.90	-0.32
			Max. Compression	19	-258.82	-1.25	0.42
			Max. Mx	19	-257.71	6.84	-0.26
			Max. My	6	-26.99	-2.25	15.84
			Max. Vy	2	0.93	6.58	-0.38
			Max. Vx	6	-2.38	-2.25	15.84
			Max Tension	11	33.66	0.00	0.00
			Max. Compression	11	-34.16	-0.11	0.08
			Max. Mx	20	-33.22	-0.14	0.11
			Max. My	4	-32.41	0.00	-0.20
		Diagonal	Max. Vy	20	-0.04	-0.14	0.11
			Max. Vx	3	0.03	0.01	-0.19
			Max Tension	11	17.44	-0.26	0.00
			Max. Compression	11	-17.51	-0.27	0.00
			Max. Mx	32	-1.90	-0.39	-0.03
			Max. My	24	0.92	-0.31	0.03
			Max. Vy	32	-0.11	-0.39	-0.03
			Max. Vx	24	-0.00	-0.31	0.03
			Max Tension	19	4.49	0.00	0.00
			Max. Compression	19	-4.49	0.00	0.00
		Redund Horz 1 Bracing	Max. Mx	18	0.53	0.02	0.00
			Max. My	23	0.63	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
			Max Tension	19	4.49	0.00	0.00
			Max. Compression	19	-4.49	0.00	0.00
			Max. Mx	18	0.53	0.08	0.00
			Max. My	23	3.78	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	19	4.60	0.00	0.00
			Max. Compression	19	-4.60	0.00	0.00
			Max. Mx	28	3.96	0.04	0.00
			Max. My	28	3.96	0.00	-0.00
			Max. Vy	28	-0.01	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max. Compression	19	-4.60	0.00	0.00
			Max. Mx	28	3.96	0.04	0.00
			Max. My	28	3.96	0.00	-0.00
			Max. Vy	28	-0.01	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	41 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	30 - 0	Redund Diag 2 Bracing	Max Tension	19	2.96	0.00	0.00
			Max. Compression	19	-2.96	0.00	0.00
			Max. Mx	20	2.63	0.10	0.00
			Max. My	21	2.23	0.00	0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	11	0.01	0.00	0.00
			Max. Compression	11	-0.12	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. My	33	-0.02	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	33	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	4	0.02	0.00	0.00
			Max. Compression	21	-0.06	0.00	0.00
			Max. Mx	18	-0.01	0.08	0.00
			Max. My	30	-0.03	0.00	0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	11	0.25	0.00	0.00
			Max. Compression	23	-0.08	0.00	0.00
			Max. Mx	19	0.07	0.18	0.00
			Max. My	23	-0.01	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Inner Bracing	Max Tension	11	0.30	0.00	0.00
			Max. Compression	11	-0.30	0.00	0.00
			Max. Mx	18	0.00	0.34	0.00
			Max. My	19	0.26	0.00	0.00
			Max. Vy	18	-0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Leg	Max Tension	15	248.96	-2.58	-0.61
			Max. Compression	19	-313.86	0.00	-0.00
			Max. Mx	19	-312.88	11.44	-0.16
			Max. My	6	-29.52	-2.26	15.83
			Max. Vy	19	1.20	11.44	-0.16
			Max. Vx	14	-2.00	-2.25	-15.83
		Diagonal	Max Tension	11	33.16	-0.21	0.28
			Max. Compression	11	-34.45	0.00	0.00
			Max. Mx	32	26.81	-0.28	0.02
			Max. My	3	-33.10	0.04	-0.32
			Max. Vy	32	-0.09	-0.28	0.02
			Max. Vx	20	0.04	-0.22	0.16
		Top Girt	Max Tension	4	18.01	-0.37	0.01
			Max. Compression	12	-19.29	-0.42	-0.01
			Max. Mx	32	-3.86	-0.56	-0.04
			Max. My	24	2.25	-0.41	0.04
			Max. Vy	32	-0.14	-0.56	-0.04
			Max. Vx	24	-0.00	-0.41	0.04
		Redund Horz 1 Bracing	Max Tension	19	5.45	0.00	0.00
			Max. Compression	19	-5.45	0.00	0.00
			Max. Mx	27	3.04	0.03	0.00
		Redund Horz 2 Bracing	Max. Vy	27	-0.02	0.00	0.00
			Max Tension	19	5.45	0.00	0.00
			Max. Compression	19	-5.45	0.00	0.00
			Max. Mx	28	0.64	0.10	0.00
			Max. My	28	0.61	0.00	0.00

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	42 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Redund Diag 1 Bracing	Max. Vy	28	-0.03	0.00	0.00
			Max Tension	19	5.12	0.00	0.00
			Max. Compression	19	-5.12	0.00	0.00
			Max. Mx	29	4.86	0.04	0.00
			Max. My	21	1.36	0.00	0.00
		Redund Diag 2 Bracing	Max. Vy	29	-0.01	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
			Max Tension	19	3.42	0.00	0.00
			Max. Compression	19	-3.42	0.00	0.00
			Max. Mx	19	3.42	0.12	0.00
		Redund Hip 1 Bracing	Max. My	28	1.06	0.00	-0.00
			Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
			Max Tension	12	0.02	0.00	0.00
		Redund Hip 2 Bracing	Max. Compression	11	-0.13	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max Tension	5	0.01	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Compression	27	-0.05	0.00	0.00
			Max. Mx	18	-0.02	0.10	0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max Tension	28	0.20	0.00	0.00
		Inner Bracing	Max. Compression	23	-0.09	0.00	0.00
			Max. Mx	20	0.08	0.21	0.00
			Max. My	32	0.15	0.00	-0.00
			Max. Vy	20	-0.04	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max Tension	12	0.33	0.00	0.00
			Max. Compression	12	-0.33	0.00	0.00
			Max. Mx	18	0.01	0.42	0.00
			Max. My	32	0.25	0.00	-0.00
			Max. Vy	18	0.09	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	356.35	46.45	-27.75
	Max. H _x	30	356.35	46.45	-27.75
	Max. H _z	4	-276.56	-38.28	26.15
	Min. Vert	5	-287.27	-41.03	24.79
	Min. H _x	5	-287.27	-41.03	24.79
Leg B	Min. H _z	29	345.20	43.61	-28.93
	Max. Vert	24	350.35	-46.53	-27.40
	Max. H _x	15	-289.85	41.32	24.38
	Max. H _z	16	-279.14	38.68	25.55
	Min. Vert	15	-289.85	41.32	24.38
Leg A	Min. H _x	24	350.35	-46.53	-27.40
	Min. H _z	25	339.20	-43.75	-28.47
	Max. Vert	19	362.68	-0.35	54.25

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	43 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H _x	14	33.62	10.58	2.90
	Max. H _z	19	362.68	-0.35	54.25
	Min. Vert	10	-285.03	0.50	-47.92
	Min. H _x	6	33.62	-10.63	2.90
	Min. H _z	10	-285.03	0.50	-47.92

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	93.04	0.00	0.00	-90.55	51.87	0.00
Dead+Wind 0 deg - No Ice	93.04	-0.00	-91.05	-11219.94	51.95	-36.39
Dead+Wind 30 deg - No Ice	93.04	45.28	-78.51	-9714.56	-5495.79	-60.67
Dead+Wind 45 deg - No Ice	93.04	63.99	-64.06	-7946.63	-7791.79	-67.02
Dead+Wind 60 deg - No Ice	93.04	78.31	-45.26	-5644.32	-9552.25	-68.79
Dead+Wind 90 deg - No Ice	93.04	90.56	0.00	-90.75	-11043.58	-58.73
Dead+Wind 120 deg - No Ice	93.04	78.77	45.52	5473.91	-9571.44	-33.00
Dead+Wind 135 deg - No Ice	93.04	63.99	64.06	7765.19	-7791.83	-15.95
Dead+Wind 150 deg - No Ice	93.04	45.28	78.51	9533.17	-5495.81	1.95
Dead+Wind 180 deg - No Ice	93.04	0.00	90.52	11016.45	51.99	36.09
Dead+Wind 210 deg - No Ice	93.04	-45.28	78.51	9533.14	5599.77	60.68
Dead+Wind 225 deg - No Ice	93.04	-63.99	64.06	7765.17	7895.76	67.03
Dead+Wind 240 deg - No Ice	93.04	-78.77	45.52	5473.90	9675.36	69.37
Dead+Wind 270 deg - No Ice	93.04	-90.56	0.00	-90.74	11147.47	58.73
Dead+Wind 300 deg - No Ice	93.04	-78.31	-45.26	-5644.28	9656.13	32.71
Dead+Wind 315 deg - No Ice	93.04	-63.99	-64.06	-7946.58	7895.68	15.94
Dead+Wind 330 deg - No Ice	93.04	-45.28	-78.51	-9714.54	5599.68	-1.95
Dead+Ice+Temp	141.57	0.00	0.00	-209.71	120.56	0.00
Dead+Wind 0 deg+Ice+Temp	141.57	-0.00	-90.04	-10997.11	120.62	-20.32
Dead+Wind 30 deg+Ice+Temp	141.57	44.81	-77.67	-9534.24	-5255.91	-39.55
Dead+Wind 45 deg+Ice+Temp	141.57	63.33	-63.38	-7820.79	-7480.55	-45.41
Dead+Wind 60 deg+Ice+Temp	141.57	77.51	-44.79	-5589.91	-9185.93	-48.18
Dead+Wind 90 deg+Ice+Temp	141.57	89.61	0.00	-209.89	-10632.48	-44.02
Dead+Wind 120 deg+Ice+Temp	141.57	77.91	45.02	5183.78	-9209.52	-28.18
Dead+Wind 135 deg+Ice+Temp	141.57	63.33	63.38	7401.07	-7480.56	-16.79
Dead+Wind 150 deg+Ice+Temp	141.57	44.81	77.67	9114.55	-5255.91	-4.48
Dead+Wind 180 deg+Ice+Temp	141.57	-0.00	89.57	10550.24	120.67	20.23
Dead+Wind 210 deg+Ice+Temp	141.57	-44.81	77.67	9114.56	5497.23	39.56
Dead+Wind 225 deg+Ice+Temp	141.57	-63.33	63.38	7401.08	7721.87	45.41
Dead+Wind 240 deg+Ice+Temp	141.57	-77.91	45.02	5183.80	9450.82	48.49
Dead+Wind 270 deg+Ice+Temp	141.57	-89.61	0.00	-209.84	10873.74	44.02
Dead+Wind 300 deg+Ice+Temp	141.57	-77.51	-44.79	-5589.86	9427.17	27.95
Dead+Wind 315 deg+Ice+Temp	141.57	-63.33	-63.38	-7820.73	7721.78	16.80
Dead+Wind 330 deg+Ice+Temp	141.57	-44.81	-77.67	-9534.19	5497.16	4.49
Dead+Wind 0 deg - Service	93.04	-0.00	-28.10	-3525.64	51.93	-11.23
Dead+Wind 30 deg - Service	93.04	13.98	-24.23	-3061.03	-1660.33	-18.73
Dead+Wind 45 deg - Service	93.04	19.75	-19.77	-2515.37	-2368.98	-20.68
Dead+Wind 60 deg - Service	93.04	24.17	-13.97	-1804.80	-2912.36	-21.24
Dead+Wind 90 deg - Service	93.04	27.95	0.00	-90.69	-3372.62	-18.13
Dead+Wind 120 deg - Service	93.04	24.31	14.05	1626.79	-2918.24	-10.19
Dead+Wind 135 deg - Service	93.04	19.75	19.77	2333.98	-2368.98	-4.93
Dead+Wind 150 deg - Service	93.04	13.98	24.23	2879.65	-1660.34	0.60
Dead+Wind 180 deg - Service	93.04	0.00	27.94	3337.51	51.97	11.13
Dead+Wind 210 deg - Service	93.04	-13.98	24.23	2879.66	1764.23	18.73
Dead+Wind 225 deg - Service	93.04	-19.75	19.77	2333.98	2472.87	20.69
Dead+Wind 240 deg - Service	93.04	-24.31	14.05	1626.79	3022.13	21.40

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	44 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Load Combination	Vertical	Shear _x	Shear _y	Overturning Moment, M _x	Overturning Moment, M _y	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+ Wind 270 deg - Service	93.04	-27.95	0.00	-90.68	3476.50	18.12
Dead+ Wind 300 deg - Service	93.04	-24.17	-13.97	-1804.78	3016.22	10.09
Dead+ Wind 315 deg - Service	93.04	-19.75	-19.77	-2515.35	2472.86	4.92
Dead+ Wind 330 deg - Service	93.04	-13.98	-24.23	-3061.03	1764.22	-0.60

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-93.04	0.00	0.00	93.04	0.00	0.000%
2	-0.00	-93.04	-91.05	0.00	93.04	91.05	0.000%
3	45.28	-93.04	-78.51	-45.28	93.04	78.51	0.000%
4	63.99	-93.04	-64.06	-63.99	93.04	64.06	0.000%
5	78.31	-93.04	-45.26	-78.31	93.04	45.26	0.000%
6	90.56	-93.04	-0.00	-90.56	93.04	-0.00	0.000%
7	78.77	-93.04	45.52	-78.77	93.04	-45.52	0.000%
8	63.99	-93.04	64.06	-63.99	93.04	-64.06	0.000%
9	45.28	-93.04	78.51	-45.28	93.04	-78.51	0.000%
10	0.00	-93.04	90.52	-0.00	93.04	-90.52	0.000%
11	-45.28	-93.04	78.51	45.28	93.04	-78.51	0.000%
12	-63.99	-93.04	64.06	63.99	93.04	-64.06	0.000%
13	-78.77	-93.04	45.52	78.77	93.04	-45.52	0.000%
14	-90.56	-93.04	0.00	90.56	93.04	-0.00	0.000%
15	-78.31	-93.04	-45.26	78.31	93.04	45.26	0.000%
16	-63.99	-93.04	-64.06	63.99	93.04	64.06	0.000%
17	-45.28	-93.04	-78.51	45.28	93.04	78.51	0.000%
18	0.00	-141.57	0.00	0.00	141.57	0.00	0.000%
19	-0.00	-141.57	-90.04	0.00	141.57	90.04	0.000%
20	44.81	-141.57	-77.67	-44.81	141.57	77.67	0.000%
21	63.33	-141.57	-63.38	-63.33	141.57	63.38	0.000%
22	77.51	-141.57	-44.79	-77.51	141.57	44.79	0.000%
23	89.61	-141.57	-0.00	-89.61	141.57	-0.00	0.000%
24	77.91	-141.57	45.02	-77.91	141.57	-45.02	0.000%
25	63.33	-141.57	63.38	-63.33	141.57	-63.38	0.000%
26	44.81	-141.57	77.67	-44.81	141.57	-77.67	0.000%
27	0.00	-141.57	89.57	0.00	141.57	-89.57	0.000%
28	-44.81	-141.57	77.67	44.81	141.57	-77.67	0.000%
29	-63.33	-141.57	63.38	63.33	141.57	-63.38	0.000%
30	-77.91	-141.57	45.02	77.91	141.57	-45.02	0.000%
31	-89.61	-141.57	0.00	89.61	141.57	-0.00	0.000%
32	-77.51	-141.57	-44.79	77.51	141.57	44.79	0.000%
33	-63.33	-141.57	-63.38	63.33	141.57	63.38	0.000%
34	-44.81	-141.57	-77.67	44.81	141.57	77.67	0.000%
35	-0.00	-93.04	-28.10	0.00	93.04	28.10	0.000%
36	13.98	-93.04	-24.23	-13.98	93.04	24.23	0.000%
37	19.75	-93.04	-19.77	-19.75	93.04	19.77	0.000%
38	24.17	-93.04	-13.97	-24.17	93.04	13.97	0.000%
39	27.95	-93.04	-0.00	-27.95	93.04	-0.00	0.000%
40	24.31	-93.04	14.05	-24.31	93.04	-14.05	0.000%
41	19.75	-93.04	19.77	-19.75	93.04	-19.77	0.000%
42	13.98	-93.04	24.23	-13.98	93.04	-24.23	0.000%
43	0.00	-93.04	27.94	-0.00	93.04	-27.94	0.000%
44	-13.98	-93.04	24.23	13.98	93.04	-24.23	0.000%
45	-19.75	-93.04	19.77	19.75	93.04	-19.77	0.000%
46	-24.31	-93.04	14.05	24.31	93.04	-14.05	0.000%
47	-27.95	-93.04	0.00	27.95	93.04	-0.00	0.000%
48	-24.17	-93.04	-13.97	24.17	93.04	13.97	0.000%

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	45 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

<u>Load</u> <u>Comb.</u>	<u>Sum of Applied Forces</u>			<u>Sum of Reactions</u>			<u>% Error</u>
	<u>PX</u> <u>K</u>	<u>PY</u> <u>K</u>	<u>PZ</u> <u>K</u>	<u>PX</u> <u>K</u>	<u>PY</u> <u>K</u>	<u>PZ</u> <u>K</u>	
49	-19.75	-93.04	-19.77	19.75	93.04	19.77	0.000%
50	-13.98	-93.04	-24.23	13.98	93.04	24.23	0.000%

Non-Linear Convergence Results

<u>Load</u> <u>Combination</u>	<u>Converged?</u>	<u>Number</u> <u>of Cycles</u>	<u>Displacement</u> <u>Tolerance</u>	<u>Force</u> <u>Tolerance</u>
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000186
3	Yes	4	0.00000001	0.00000176
4	Yes	4	0.00000001	0.00000129
5	Yes	4	0.00000001	0.00000075
6	Yes	4	0.00000001	0.00000121
7	Yes	4	0.00000001	0.00000177
8	Yes	4	0.00000001	0.00000175
9	Yes	4	0.00000001	0.00000145
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000168
12	Yes	4	0.00000001	0.00000189
13	Yes	4	0.00000001	0.00000182
14	Yes	4	0.00000001	0.00000127
15	Yes	4	0.00000001	0.00000074
16	Yes	4	0.00000001	0.00000110
17	Yes	4	0.00000001	0.00000148
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000230
20	Yes	4	0.00000001	0.00000200
21	Yes	4	0.00000001	0.00000138
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000136
24	Yes	4	0.00000001	0.00000206
25	Yes	4	0.00000001	0.00000201
26	Yes	4	0.00000001	0.00000162
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000185
29	Yes	4	0.00000001	0.00000218
30	Yes	4	0.00000001	0.00000218
31	Yes	4	0.00000001	0.00000147
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000120
34	Yes	4	0.00000001	0.00000174
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	46 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

50 Yes 4 0.00000001 0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	2.610	50	0.0637	0.0185
T2	220 - 200	2.336	50	0.0638	0.0193
T3	200 - 180	2.054	50	0.0637	0.0186
T4	180 - 170	1.758	50	0.0627	0.0168
T5	170 - 160	1.609	50	0.0616	0.0158
T6	160 - 150	1.465	50	0.0600	0.0151
T7	150 - 140	1.323	50	0.0580	0.0143
T8	140 - 120	1.181	50	0.0556	0.0134
T9	120 - 100	0.921	50	0.0492	0.0120
T10	100 - 80	0.688	35	0.0418	0.0103
T11	80 - 60	0.482	35	0.0333	0.0082
T12	60 - 30	0.306	40	0.0258	0.0062
T13	30 - 0	0.084	42	0.0141	0.0023

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	50	2.610	0.0637	0.0185	Inf
242.00	12' x 2" Dia Omni	50	2.610	0.0637	0.0185	Inf
240.00	Flash Beacon Lighting	50	2.610	0.0637	0.0185	Inf
238.00	Pirot 4' Side Mount Standoff (1)	50	2.582	0.0637	0.0186	Inf
237.00	8'x2 1/2" Pipe Mount	50	2.569	0.0637	0.0187	Inf
236.00	Pirot 4' Side Mount Standoff (1)	50	2.555	0.0637	0.0187	Inf
235.00	10' x 3" Dia Omni	50	2.542	0.0637	0.0188	Inf
230.00	Pirot 4' Side Mount Standoff (1)	50	2.473	0.0638	0.0190	Inf
229.00	10'x2.5" Pipe Mount	50	2.460	0.0638	0.0191	Inf
224.00	Pirot 4' Side Mount Standoff (1)	50	2.391	0.0638	0.0192	749633
210.00	(2) 800-10504	50	2.196	0.0638	0.0191	361454
202.00	(3) APX16PV-16PVL-X	50	2.082	0.0637	0.0187	278004
198.00	4-ft Yagi	50	2.025	0.0636	0.0184	286332
195.00	10'x4" Pipe Mount	50	1.981	0.0635	0.0182	327360
187.00	Andrew 2' w/Radome	50	1.862	0.0632	0.0175	569200
185.00	14' x 2-1/2" Pipe Mount	50	1.833	0.0631	0.0173	698137
184.00	LLPX310R	50	1.818	0.0630	0.0172	788315
176.00	20' x 3" Dia Omni	50	1.698	0.0623	0.0164	565008
174.00	(2) 7184.05	50	1.669	0.0621	0.0162	361070
164.00	(2) 7770.00	50	1.522	0.0607	0.0154	332244
150.00	DB846F65ZAXY	50	1.323	0.0580	0.0143	782489
141.00	10' x 1" Dia Omni	50	1.195	0.0558	0.0135	142176
140.00	Obstruction Lights	50	1.181	0.0556	0.0134	131976
136.00	2' stand off (2 arms)	50	1.126	0.0544	0.0131	127878
132.00	2' stand off (2 arms)	50	1.073	0.0532	0.0129	142073
124.00	12' x 1-1/2" Dia Omni	50	0.970	0.0506	0.0123	183118
118.00	Pirot 4' Side Mount Standoff (1)	50	0.896	0.0485	0.0119	208598
114.00	12' x 2" Dia Omni	35	0.848	0.0471	0.0115	203512
108.00	Pirot 4' Side Mount Standoff (1)	35	0.778	0.0449	0.0110	193884
98.00	4-ft Yagi	35	0.666	0.0410	0.0101	173794

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	47 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
ft						
82.00	2' stand off (2 arms)	35	0.501	0.0341	0.0084	130242
56.00	GPS	40	0.272	0.0244	0.0057	495871
22.00	0.8M Satellite Dish	42	0.050	0.0105	0.0015	67993

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	8.275	2	0.1996	0.0600
T2	220 - 200	7.415	2	0.2001	0.0626
T3	200 - 180	6.529	2	0.1997	0.0602
T4	180 - 170	5.598	2	0.1967	0.0546
T5	170 - 160	5.129	2	0.1934	0.0514
T6	160 - 150	4.674	2	0.1884	0.0490
T7	150 - 140	4.224	2	0.1821	0.0463
T8	140 - 120	3.775	2	0.1745	0.0436
T9	120 - 100	2.953	2	0.1544	0.0390
T10	100 - 80	2.211	2	0.1314	0.0333
T11	80 - 60	1.554	2	0.1045	0.0265
T12	60 - 30	0.989	7	0.0812	0.0198
T13	30 - 0	0.271	26	0.0444	0.0073

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	2	8.275	0.1996	0.0600	743846
242.00	12' x 2" Dia Omni	2	8.275	0.1996	0.0600	743846
240.00	Flash Beacon Lighting	2	8.275	0.1996	0.0600	743846
238.00	Pirol 4' Side Mount Standoff (1)	2	8.189	0.1997	0.0604	743846
237.00	8'x2 1/2" Pipe Mount	2	8.146	0.1997	0.0606	743846
236.00	Pirol 4' Side Mount Standoff (1)	2	8.103	0.1997	0.0607	743846
235.00	10' x 3" Dia Omni	2	8.061	0.1998	0.0609	743846
230.00	Pirol 4' Side Mount Standoff (1)	2	7.846	0.1999	0.0617	371925
229.00	10'x2.5" Pipe Mount	2	7.803	0.1999	0.0619	338113
224.00	Pirol 4' Side Mount Standoff (1)	2	7.588	0.2000	0.0624	232424
210.00	(2) 800-10504	2	6.977	0.2001	0.0620	112841
202.00	(3) APX16PV-16PVL-X	2	6.619	0.1998	0.0606	87026
198.00	4-ft Yagi	2	6.437	0.1995	0.0597	90035
195.00	10'x4" Pipe Mount	2	6.299	0.1993	0.0590	103602
187.00	Andrew 2' w/Radome	2	5.927	0.1982	0.0568	186546
185.00	14' x 2-1/2" Pipe Mount	2	5.833	0.1978	0.0562	233104
184.00	LLPX310R	2	5.786	0.1976	0.0558	266866
176.00	20' x 3" Dia Omni	2	5.410	0.1956	0.0532	184995
174.00	(2) 7184.05	2	5.316	0.1949	0.0526	115186
164.00	(2) 7770.00	2	4.855	0.1906	0.0500	107656
150.00	DB846F65ZAXY	2	4.224	0.1821	0.0463	285237
141.00	10' x 1" Dia Omni	2	3.819	0.1754	0.0439	44703
140.00	Obstruction Lights	2	3.775	0.1745	0.0436	41431
136.00	2' stand off (2 arms)	2	3.602	0.1710	0.0427	40245

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	48 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
132.00	2' stand off (2 arms)	2	3.434	0.1671	0.0418	45056
124.00	12' x 1-1/2" Dia Omni	2	3.110	0.1588	0.0400	59304
118.00	Pirot 4' Side Mount Standoff (1)	2	2.876	0.1523	0.0385	68643
114.00	12' x 2" Dia Omni	2	2.723	0.1479	0.0375	66888
108.00	Pirot 4' Side Mount Standoff (1)	2	2.499	0.1411	0.0358	63424
98.00	4-ft Yagi	2	2.141	0.1288	0.0326	56275
82.00	2' stand off (2 arms)	2	1.615	0.1071	0.0272	41186
56.00	GPS	10	0.880	0.0767	0.0182	185824
22.00	0.8M Satellite Dish	26	0.161	0.0331	0.0048	21158

Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt	Allowable Load	Ratio Load Allowable	Allowable Ratio	Criteria
	ft			in		K	K			
T1	240	Leg	A325N	1.0000	8	0.00	34.56	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	0.60	6.44	0.093 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	0.61	6.44	0.094 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.24	6.44	0.037 ✓	1.333	Bolt Shear
T2	220	Leg	A325N	1.0000	8	0.37	34.56	0.011 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1.75	6.44	0.272 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.61	6.44	0.250 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.81	6.44	0.126 ✓	1.333	Bolt Shear
T3	200	Leg	A325N	1.0000	8	1.41	34.56	0.041 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	2.92	6.44	0.453 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.87	6.44	0.446 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	2.26	6.44	0.351 ✓	1.333	Bolt Shear
T4	180	Leg	A325N	1.0000	8	3.62	34.56	0.105 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.56	6.44	0.552 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	3.64	6.44	0.565 ✓	1.333	Bolt Shear
T5	170	Diagonal	A325N	0.6250	3	4.07	6.44	0.631 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.25	6.44	0.660 ✓	1.333	Bolt Shear
T6	160	Leg	A325N	1.0000	8	6.65	34.56	0.192 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.43	6.44	0.687 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.77	6.44	0.741 ✓	1.333	Bolt Shear
T7	150	Diagonal	A325N	0.7500	3	5.10	9.28	0.550 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	5.66	6.44	0.879 ✓	1.333	Bolt Shear
T8	140	Leg	A325N	1.0000	8	10.29	34.56	0.298 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	5.48	9.28	0.590 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	6.37	6.44	0.989 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	6.12	6.44	0.949 ✓	1.333	Bolt Shear
T9	120	Leg	A325N	1.0000	8	14.11	34.56	0.408 ✓	1.333	Bolt Tension

RISATower

CEN TEK Engineering, Inc.
63-2 N Branford Rd

Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job

240-ft ROHN SSMW Self-Support Lattice

Page

49 of 62

Project

10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT

Date

13:07:25 06/23/11

Client

Verizon Wireless

Designed by

Jrm

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T10	100	Diagonal	A325N	0.7500	3	8.05	9.28	0.868 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.7500	2	6.74	9.28	0.726 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	8	17.94	34.56	0.519 ✓	1.333	Bolt Tension
T11	80	Diagonal	A325N	0.8750	3	8.36	12.63	0.662 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	7.49	12.63	0.593 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	14.53	34.56	0.421 ✓	1.333	Bolt Tension
T12	60	Diagonal	A325N	0.8750	3	8.59	12.63	0.681 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	8.06	12.63	0.639 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	17.09	34.56	0.495 ✓	1.333	Bolt Tension
T13	30	Diagonal	A325N	0.8750	3	11.39	12.63	0.902 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	8.75	12.63	0.693 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	20.75	34.56	0.600 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	11.48	12.63	0.909 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	9.64	12.63	0.764 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8 K=1.00	27.415	12.7627	-4.06	349.89	0.012 ✓
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8 K=1.00	25.579	12.7627	-13.24	326.45	0.041 ✓
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-32.43	326.43	0.099 ✓
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-44.50	326.43	0.136 ✓
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-59.26	326.43	0.182 ✓
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-74.77	326.41	0.229 ✓
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-92.00	326.41	0.282 ✓
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-128.47	326.43	0.394 ✓
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-147.25	326.43	0.451 ✓
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-183.49	326.43	0.562 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	50 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-220.58	430.75	0.512
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2 K=1.00	26.754	16.1007	-258.82	430.76	0.601
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2 K=1.00	26.752	16.1007	-313.86	430.72	0.729

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1 K=1.00	8.562	1.0745	-1.79	9.20	0.194
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6 K=1.00	6.581	1.7040	-5.26	11.21	0.469
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3 K=1.00	5.741	1.7040	-8.76	9.78	0.896
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8 K=1.00	5.365	1.7040	-10.67	9.14	1.168
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9 K=1.00	4.771	2.2535	-12.20	10.75	1.135
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4 K=1.00	7.060	2.2285	-13.28	15.73	0.844
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5 K=1.00	6.595	2.2285	-15.30	14.70	1.041
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4 K=1.00	5.525	3.0159	-16.43	16.66	0.986
T9	120 - 100	ROHN 2.5 STD Reinf w/ L2x2x1/4	24.29	12.15	139.6 K=0.85	7.665	2.6416	-24.15	20.25	1.193
T10	100 - 80	ROHN 3 STD	25.02	12.51	109.7 K=0.85	12.415	2.2285	-25.09	27.67	0.907
T11	80 - 60	ROHN 3 STD	25.79	12.90	113.0 K=0.85	11.685	2.2285	-25.78	26.04	0.990
T12	60 - 30	ROHN 3 STD	35.06	11.69	102.4 K=0.85	13.896	2.2285	-34.16	30.97	1.103
T13	30 - 0	ROHN 3.0STD Reinf w/ L2.5x2.5x3/8	36.14	12.05	114.7 K=0.85	11.349	3.9563	-34.45	44.90	0.767

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6 K=1.00	17.872	1.0745	-1.18	19.20	0.062
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7	14.781	1.0745	-3.22	15.88	0.203

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	51 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T3	200 - 180	ROHN 2 STD	16.21	7.75	K=1.00 118.1 K=1.00	10.709	1.0745	-5.75	11.51	0.500
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1 K=1.00	6.995	1.7040	-12.44	11.92	1.044

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	240 - 220	ROHN 2 STD	10.58	4.93	63.9 K=0.85	22.042	1.0745	-0.48	23.68	0.020
T2	220 - 200	ROHN 2 STD	12.63	5.96	77.2 K=0.85	19.571	1.0745	-1.60	21.03	0.076
T3	200 - 180	ROHN 2 STD	14.96	7.12	92.3 K=0.85	16.445	1.0745	-4.52	17.67	0.256
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	90.1 K=0.85	16.912	1.7040	-7.27	28.82	0.252
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	96.8 K=0.85	15.427	1.7040	-8.48	26.29	0.323
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	103.6 K=0.85	13.867	1.7040	-9.50	23.63	0.402
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	110.5 K=0.85	12.225	1.7040	-11.25	20.83	0.540
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	117.5 K=0.85	10.823	1.7040	-12.09	18.44	0.655
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	130.9 K=0.85	8.712	1.7040	-13.44	14.85	0.905
T10	100 - 80	ROHN 3 STD	27.54	13.41	117.6 K=0.85	10.806	2.2285	-14.97	24.08	0.622
T11	80 - 60	ROHN 3 STD	30.04	14.66	128.5 K=0.85	9.041	2.2285	-16.13	20.15	0.801
T12	60 - 30	ROHN 3 STD	32.54	15.82	138.7 K=0.85	7.763	2.2285	-17.51	17.30	1.012
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	134.8 K=0.85	8.217	2.6795	-19.29	22.02	0.876

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0 K=1.00	14.210	1.0745	-2.56	15.27	0.167
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5 K=1.00	13.043	1.0745	-3.18	14.01	0.227

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	52 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client Verizon Wireless	Designed by Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7 K=1.00	11.984	1.0745	-3.83	12.88	0.297
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9 K=1.00	15.810	1.0745	-4.49	16.99	0.264
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2 K=1.00	14.763	1.0745	-5.45	15.86	0.343

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5 K=1.00	5.942	1.0745	-4.49	6.38	0.703
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3 K=1.00	4.751	1.0745	-5.45	5.11	1.067

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9 K=1.00	5.557	1.0745	-2.34	5.97	0.393
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6 K=1.00	5.190	1.0745	-2.73	5.58	0.489
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5 K=1.00	4.847	1.0745	-3.10	5.21	0.594
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5 K=1.00	6.336	1.0745	-4.60	6.81	0.675
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7 K=1.00	5.927	1.0745	-5.12	6.37	0.804

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6 K=1.00	3.431	1.0745	-2.96	3.69	0.804
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3 K=1.00	3.023	1.0745	-3.42	3.25	1.054

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	53 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	6.26	95.4 K=1.00	13.547	1.0745	-0.05	14.56	0.003
T10	100 - 80	ROHN 2 STD	6.89	6.89	105.0 K=1.00	12.340	1.0745	-0.05	13.26	0.004
T11	80 - 60	ROHN 2 STD	7.51	7.51	114.5 K=1.00	11.058	1.0745	-0.05	11.88	0.004
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7 K=1.00	15.054	1.0745	-0.12	16.18	0.008
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1 K=1.00	13.959	1.0745	-0.13	15.00	0.008

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4 K=1.00	5.461	1.0745	-0.06	5.87	0.010
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1 K=1.00	4.405	1.0745	-0.05	4.73	0.011

Redundant Hip Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1 K=1.00	2.844	1.0745	-0.05	3.06	0.017
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7 K=1.00	2.556	1.0745	-0.05	2.75	0.019
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7 K=1.00	2.302	1.0745	-0.05	2.47	0.020
T12	60 - 30	KL/R > 250 (C) - 274 ROHN 2 STD	17.69	17.69	269.7 K=1.00	2.052	1.0745	-0.08	2.21	0.037
T13	30 - 0	KL/R > 250 (C) - 323 ROHN 2 STD	19.08	19.08	290.8 K=1.00	1.766	1.0745	-0.08	1.90	0.043
		KL/R > 250 (C) - 374								

Inner Bracing Design Data (Compression)

RISATower

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Job	240-ft ROHN SSMW Self-Support Lattice	Page	54 of 62
Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	L2x2x1/8	5.29	5.29	159.7 K=1.00	5.857	0.4844	-0.01	2.84	0.003
T2	220 - 200	L2x2x1/8	6.31	6.31	190.6 K=1.00	4.110	0.4844	-0.03	1.99	0.014
T3	200 - 180	L2x2x1/8	7.48	7.48	225.8 K=1.00	2.929	0.4844	-0.08	1.42	0.055
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	211.6 K=1.00	3.334	0.9020	-0.13	3.01	0.042
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	226.8 K=1.00	2.903	0.9020	-0.15	2.62	0.056
T6	160 - 150	L3x3x3/16	9.98	9.98	200.9 K=1.00	3.698	1.0900	-0.16	4.03	0.041
T7	150 - 140	L3x3x3/16	10.63	10.63	213.9 K=1.00	3.263	1.0900	-0.19	3.56	0.055
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	214.3 K=1.00	3.251	1.5600	-0.21	5.07	0.041
T9	120 - 100	P2x.154	12.52	12.52	190.9 K=1.00	4.099	1.0745	-0.23	4.40	0.053
T10	100 - 80	P3x.216	13.77	13.77	142.0 K=1.00	7.405	2.2285	-0.26	16.50	0.016
T11	80 - 60	P3x.216	15.02	15.02	154.9 K=1.00	6.224	2.2285	-0.28	13.87	0.020
T12	60 - 30	P3x.216	16.27	16.27	167.8 K=1.00	5.304	2.2285	-0.30	11.82	0.026
T13	30 - 0	P3x.216	18.12	18.12	186.8 K=1.00	4.279	2.2285	-0.33	9.53	0.035

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	1.30	382.88	0.003
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8	30.000	12.7627	5.72	382.88	0.015
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	19.57	382.88	0.051
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	28.92	382.88	0.076
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	40.48	382.88	0.106
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	53.17	382.88	0.139
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	66.60	382.88	0.174

RISATower

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240-ft ROHN SSMW Self-Support Lattice

Page

55 of 62

Project

10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport,
CT

Date

13:07:25 06/23/11

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	98.12	382.88	0.256
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	112.91	382.88	0.295
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	143.49	382.88	0.375
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	174.39	483.02	0.361
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2	30.000	16.1007	205.10	483.02	0.425
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2	30.000	16.1007	248.96	483.02	0.515

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1	30.000	1.0745	1.68	32.24	0.052
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6	30.000	1.7040	5.11	51.12	0.100
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3	30.000	1.7040	8.59	51.12	0.168
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8	30.000	1.7040	10.44	51.12	0.204
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9	27.600	2.2535	11.91	62.20	0.191
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4	27.600	2.2285	12.96	61.51	0.211
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5	27.600	2.2285	14.95	61.51	0.243
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4	27.600	3.0159	15.92	83.24	0.191
T9	120 - 100	ROHN 2.5 STD Reinf w/ L2x2x1/4	24.29	12.15	164.2	30.000	2.6416	23.56	79.25	0.297
T10	100 - 80	ROHN 3 STD	25.02	12.51	129.0	30.000	2.2285	24.57	66.85	0.367
T11	80 - 60	ROHN 3 STD	25.79	12.90	133.0	27.600	2.2285	25.23	61.51	0.410
T12	60 - 30	ROHN 3 STD	35.06	11.69	120.5	27.600	2.2285	33.66	61.51	0.547
T13	30 - 0	ROHN 3.0STD Reinf w/ L2.5x2.5x3/8	36.14	12.05	135.0	30.000	3.9563	33.16	118.69	0.279

Horizontal Design Data (Tension)

RISATower

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Job

240-ft ROHN SSMW Self-Support Lattice

Page

56 of 62

Project

10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT

Date

13:07:25 06/23/11

Client

Verizon Wireless

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6	30.000	1.0745	1.21	32.24	0.038
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7	30.000	1.0745	3.20	32.24	0.099
T3	200 - 180	ROHN 2 STD	16.21	7.75	118.1	30.000	1.0745	5.74	32.24	0.178
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1	30.000	1.7040	12.75	51.12	0.249

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	10.58	4.93	75.2	30.000	1.0745	0.46	32.24	0.014
T2	220 - 200	ROHN 2 STD	12.63	5.96	90.8	30.000	1.0745	1.62	32.24	0.050
T3	200 - 180	ROHN 2 STD	14.96	7.12	108.6	30.000	1.0745	4.49	32.24	0.139
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	106.0	30.000	1.7040	7.25	51.12	0.142
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	113.9	30.000	1.7040	8.51	51.12	0.166
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	121.9	30.000	1.7040	9.55	51.12	0.187
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	130.0	30.000	1.7040	11.33	51.12	0.222
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	138.2	30.000	1.7040	12.23	51.12	0.239
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	154.0	30.000	1.7040	13.48	51.12	0.264
T10	100 - 80	ROHN 3 STD	27.54	13.41	138.3	30.000	2.2285	14.82	66.85	0.222
T11	80 - 60	ROHN 3 STD	30.04	14.66	151.2	30.000	2.2285	16.04	66.85	0.240
T12	60 - 30	ROHN 3 STD	32.54	15.82	163.2	30.000	2.2285	17.44	66.85	0.261
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	158.6	30.000	2.6795	18.01	80.39	0.224

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
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RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	57 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0	21.600	1.0745	2.56	23.21	0.110
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5	21.600	1.0745	3.18	23.21	0.137
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7	21.600	1.0745	3.83	23.21	0.165
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9	21.600	1.0745	4.49	23.21	0.194
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2	21.600	1.0745	5.45	23.21	0.235

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5	21.600	1.0745	4.49	23.21	0.194
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3	21.600	1.0745	5.45	23.21	0.235

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9	21.600	1.0745	2.34	23.21	0.101
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6	21.600	1.0745	2.73	23.21	0.118
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5	21.600	1.0745	3.10	23.21	0.133
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5	21.600	1.0745	4.60	23.21	0.198
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7	21.600	1.0745	5.12	23.21	0.221

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6	21.600	1.0745	2.96	23.21	0.128

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	58 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3	21.600	1.0745	3.42	23.21	0.147

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7	21.600	1.0745	0.01	23.21	0.000
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1	21.600	1.0745	0.02	23.21	0.001

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4	21.600	1.0745	0.02	23.21	0.001
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1	21.600	1.0745	0.01	23.21	0.001

Redundant Hip Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1	21.600	1.0745	0.09	23.21	0.004
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7	21.600	1.0745	0.10	23.21	0.004
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7	21.600	1.0745	0.10	23.21	0.004
T12	60 - 30	ROHN 2 STD	13.98	13.98	213.1	21.600	1.0745	0.25	23.21	0.011
T13	30 - 0	ROHN 2 STD	14.77	14.77	225.1	21.600	1.0745	0.20	23.21	0.009

Inner Bracing Design Data (Tension)

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	59 of 62
	Project 10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 13:07:25 06/23/11 Designed by Jrm

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	L2x2x1/8	5.29	5.29	101.4	21.600	0.4844	0.01	10.46	0.001
T2	220 - 200	L2x2x1/8	6.31	6.31	121.0	21.600	0.4844	0.03	10.46	0.003
T3	200 - 180	L2x2x1/8	7.48	7.48	143.3	21.600	0.4844	0.08	10.46	0.007
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	134.7	21.600	0.9020	0.13	19.48	0.006
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	144.3	21.600	0.9020	0.15	19.48	0.008
T6	160 - 150	L3x3x3/16	9.98	9.98	127.5	21.600	1.0900	0.16	23.54	0.007
T7	150 - 140	L3x3x3/16	10.63	10.63	135.8	21.600	1.0900	0.19	23.54	0.008
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	148.1	21.600	1.5600	0.21	33.70	0.006
T9	120 - 100	P2x.154	12.52	12.52	190.9	30.000	1.0745	0.23	32.24	0.007
T10	100 - 80	P3x.216	13.77	13.77	142.0	30.000	2.2285	0.26	66.85	0.004
T11	80 - 60	P3x.216	15.02	15.02	154.9	30.000	2.2285	0.28	66.85	0.004
T12	60 - 30	P3x.216	16.27	16.27	167.8	30.000	2.2285	0.30	66.85	0.005
T13	30 - 0	P3x.216	18.12	18.12	186.8	30.000	2.2285	0.33	66.85	0.005

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	240 - 220	Leg	ROHN 8 EH	1	-4.06	466.41	0.9	Pass
T2	220 - 200	Leg	ROHN 8 EH	42	-13.24	435.16	3.0	Pass
T3	200 - 180	Leg	ROHN 8 EH	69	-32.43	435.13	7.5	Pass
T4	180 - 170	Leg	ROHN 8 EH	96	-44.50	435.13	10.2	Pass
T5	170 - 160	Leg	ROHN 8 EH	111	-59.26	435.13	13.6	Pass
T6	160 - 150	Leg	ROHN 8 EH	126	-74.77	435.11	17.2	Pass
T7	150 - 140	Leg	ROHN 8 EH	141	-92.00	435.11	21.1	Pass
T8	140 - 120	Leg	ROHN 8 EH	156	-128.47	435.13	29.5	Pass
T9	120 - 100	Leg	ROHN 8 EH	183	-147.25	435.13	33.8	Pass
T10	100 - 80	Leg	ROHN 8 EH	216	-183.49	435.13	42.2	Pass
T11	80 - 60	Leg	ROHN 10 EH	249	-220.58	574.19	38.4	Pass
T12	60 - 30	Leg	ROHN 10 EH	282	-258.82	574.20	45.1	Pass
T13	30 - 0	Leg	ROHN 10 EH	333	-313.86	574.15	54.7	Pass
T1	240 - 220	Diagonal	ROHN 2 STD	9	-1.79	12.26	14.6	Pass
T2	220 - 200	Diagonal	ROHN 2.5 STD	54	-5.26	14.95	35.2	Pass
T3	200 - 180	Diagonal	ROHN 2.5 STD	81	-8.76	13.04	67.2	Pass
T4	180 - 170	Diagonal	ROHN 2.5 STD	105	-10.67	12.19	87.6	Pass
T5	170 - 160	Diagonal	ROHN 2.5 EH	120	-12.20	14.33	85.1	Pass
T6	160 - 150	Diagonal	ROHN 3 STD	135	-13.28	20.97	63.3	Pass
T7	150 - 140	Diagonal	ROHN 3 STD	150	-15.30	19.59	78.1	Pass
T8	140 - 120	Diagonal	ROHN 3 EH	168	-16.43	22.21	74.0	Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 60 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date 13:07:25 06/23/11
	Client	Verizon Wireless	Designed by Jrm

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T9	120 - 100	Diagonal	ROHN 2.5 STD Reinf w/ L2x2x1/4	204	-24.15	26.99	89.5	Pass
T10	100 - 80	Diagonal	ROHN 3 STD	237	-25.09	36.88	68.0	Pass
T11	80 - 60	Diagonal	ROHN 3 STD	270	-25.78	34.71	74.3	Pass
T12	60 - 30	Diagonal	ROHN 3 STD	315	-34.16	41.28	82.7	Pass
T13	30 - 0	Diagonal	ROHN 3.0STD Reinf w/ L2.5x2.5x3/8	366	-34.45	59.85	57.6	Pass
T1	240 - 220	Horizontal	ROHN 2 STD	13	-1.18	25.60	68.2 (b) 4.6	Pass
T2	220 - 200	Horizontal	ROHN 2 STD	52	-3.22	21.17	7.1 (b) 15.2	Pass
T3	200 - 180	Horizontal	ROHN 2 STD	79	-5.75	15.34	18.8 (b) 37.5	Pass
T8	140 - 120	Horizontal	ROHN 2.5 STD	166	-12.44	15.89	78.3	Pass
T1	240 - 220	Top Girt	ROHN 2 STD	4	-0.48	31.57	1.5	Pass
T2	220 - 200	Top Girt	ROHN 2 STD	45	-1.60	28.03	2.8 (b) 5.7	Pass
T3	200 - 180	Top Girt	ROHN 2 STD	72	-4.52	23.55	9.5 (b) 19.2	Pass
T4	180 - 170	Top Girt	ROHN 2.5 STD	99	-7.27	38.42	26.3 (b) 18.9	Pass
T5	170 - 160	Top Girt	ROHN 2.5 STD	114	-8.48	35.04	42.4 (b) 24.2	Pass
T6	160 - 150	Top Girt	ROHN 2.5 STD	129	-9.50	31.50	49.5 (b) 30.2	Pass
T7	150 - 140	Top Girt	ROHN 2.5 STD	144	-11.25	27.77	55.6 (b) 40.5	Pass
T8	140 - 120	Top Girt	ROHN 2.5 STD	159	-12.09	24.58	65.9 (b) 49.2	Pass
T9	120 - 100	Top Girt	ROHN 2.5 STD	186	-13.44	19.79	71.2 (b) 67.9	Pass
T10	100 - 80	Top Girt	ROHN 3 STD	219	-14.97	32.10	46.6	Pass
T11	80 - 60	Top Girt	ROHN 3 STD	252	-16.13	26.86	60.1	Pass
T12	60 - 30	Top Girt	ROHN 3 STD	285	-17.51	23.06	75.9	Pass
T13	30 - 0	Top Girt	ROHN 3.5 STD	336	-19.29	29.35	65.7	Pass
T9	120 - 100	Redund Horz 1 Bracing	ROHN 2 STD	197	-2.56	20.35	12.6	Pass
T10	100 - 80	Redund Horz 1 Bracing	ROHN 2 STD	230	-3.18	18.68	17.0	Pass
T11	80 - 60	Redund Horz 1 Bracing	ROHN 2 STD	263	-3.83	17.17	22.3	Pass
T12	60 - 30	Redund Horz 1 Bracing	ROHN 2 STD	302	-4.49	22.65	19.8	Pass
T13	30 - 0	Redund Horz 1 Bracing	ROHN 2 STD	362	-5.45	21.15	25.8	Pass
T12	60 - 30	Redund Horz 2 Bracing	ROHN 2 STD	303	-4.49	8.51	52.8	Pass
T13	30 - 0	Redund Horz 2 Bracing	ROHN 2 STD	363	-5.45	6.81	80.1	Pass
T9	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	198	-2.34	7.96	29.4	Pass
T10	100 - 80	Redund Diag 1 Bracing	ROHN 2 STD	231	-2.73	7.43	36.7	Pass
T11	80 - 60	Redund Diag 1 Bracing	ROHN 2 STD	264	-3.10	6.94	44.6	Pass
T12	60 - 30	Redund Diag 1 Bracing	ROHN 2 STD	313	-4.60	9.07	50.7	Pass
T13	30 - 0	Redund Diag 1 Bracing	ROHN 2 STD	355	-5.12	8.49	60.3	Pass
T12	60 - 30	Redund Diag 2 Bracing	ROHN 2 STD	305	-2.96	4.91	60.3	Pass
T13	30 - 0	Redund Diag 2 Bracing	ROHN 2 STD	356	-3.42	4.33	79.1	Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	61 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*Pallow K	% Capacity	Pass Fail
T9	120 - 100	Bracing Redund Hip 1	ROHN 2 STD	207	-0.05	19.40	0.2	Pass
T10	100 - 80	Bracing Redund Hip 1	ROHN 2 STD	240	-0.05	17.67	0.3	Pass
T11	80 - 60	Bracing Redund Hip 1	ROHN 2 STD	273	-0.05	15.84	0.3	Pass
T12	60 - 30	Bracing Redund Hip 1	ROHN 2 STD	320	-0.12	21.56	0.6	Pass
T13	30 - 0	Bracing Redund Hip 1	ROHN 2 STD	371	-0.13	19.99	0.6	Pass
T12	60 - 30	Bracing Redund Hip 2	ROHN 2 STD	325	-0.06	7.82	0.8	Pass
T13	30 - 0	Bracing Redund Hip 2	ROHN 2 STD	372	-0.05	6.31	0.8	Pass
T9	120 - 100	Bracing Redund Hip Diagonal	ROHN 2 STD	208	-0.05	4.07	1.2	Pass
T10	100 - 80	Bracing Redund Hip Diagonal	ROHN 2 STD	241	-0.05	3.66	1.4	Pass
T11	80 - 60	Bracing Redund Hip Diagonal	ROHN 2 STD	274	-0.05	3.30	1.5	Pass
T12	60 - 30	Bracing Redund Hip Diagonal	ROHN 2 STD	323	-0.08	2.94	2.8	Pass
T13	30 - 0	Bracing Redund Hip Diagonal	ROHN 2 STD	374	-0.08	2.53	3.2	Pass
T1	240 - 220	Inner Bracing	L2x2x1/8	16	-0.00	2.97	0.2	Pass
T2	220 - 200	Inner Bracing	L2x2x1/8	66	-0.03	2.65	1.0	Pass
T3	200 - 180	Inner Bracing	L2x2x1/8	92	-0.08	1.89	4.1	Pass
T4	180 - 170	Inner Bracing	L2 1/2x2 1/2x3/16	108	-0.13	4.01	3.1	Pass
T5	170 - 160	Inner Bracing	L2 1/2x2 1/2x3/16	123	-0.15	3.49	4.2	Pass
T6	160 - 150	Inner Bracing	L3x3x3/16	137	-0.16	5.37	3.1	Pass
T7	150 - 140	Inner Bracing	L3x3x3/16	153	-0.19	4.74	4.1	Pass
T8	140 - 120	Inner Bracing	L3 1/2x3x1/4	179	-0.21	6.76	3.1	Pass
T9	120 - 100	Inner Bracing	P2x.154	212	-0.23	5.87	4.0	Pass
T10	100 - 80	Inner Bracing	P3x.216	245	-0.26	22.00	1.2	Pass
T11	80 - 60	Inner Bracing	P3x.216	278	-0.28	18.49	1.5	Pass
T12	60 - 30	Inner Bracing	P3x.216	329	-0.30	15.76	1.9	Pass
T13	30 - 0	Inner Bracing	P3x.216	380	-0.33	12.71	2.6	Pass
							Summary	
							Leg (T13)	54.7 Pass
							Diagonal (T9)	89.5 Pass
							Horizontal (T8)	78.3 Pass
							Top Girt (T12)	75.9 Pass
							Redund Horz 1 Bracing (T13)	25.8 Pass
							Redund Horz 2 Bracing (T13)	80.1 Pass
							Redund Diag 1 Bracing (T13)	60.3 Pass
							Redund Diag 2 Bracing	79.1 Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	62 of 62
	Project	10001.CO78 - Rev 1 ~ 1280 Chopsey Hill Road, Bridgeport, CT	Date	13:07:25 06/23/11
	Client	Verizon Wireless	Designed by	Jrm

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
						(T13)		
						Redund Hip 1 Bracing	0.6	Pass
						(T13)		
						Redund Hip 2 Bracing	0.8	Pass
						(T13)		
						Redund Hip Diagonal Bracing	3.2	Pass
						(T13)		
						Inner Bracing (T5)	4.2	Pass
						Bolt Checks	74.2	Pass
						RATING =	89.5	Pass

Program Version 5.4.2.0 - 6/17/2010 File:J:/Jobs/1000100.WI/CO78 - North Bridgeport - 1280 Chopsey Hill Rd., Bridgeport, CT/Rev 1/Calculations/ERI Files/240 ROHN SSMW Lattice Bridgeport_CT_06-21-11.eri

Tower Anchor Bolt Analysis**Max Leg Reactions:**

Uplift = Uplift := 290-kips

Shear = Shear := 54-kips

Leg Reactions from RISA-Tower
Load Case 1

Compression = Compression := 363-kips

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts = $N := 12$ Bolt Ultimate Strength = $F_u := 125\text{ksi}$ Bolt Yield Strength = $F_y := 109\text{ksi}$ Diameter of Anchor Bolts = $D := 1.0\text{in}$ Threads per Inch = $n := 8$ Coefficient of Friction = $\mu := 0.70$ **Anchor Bolt Area:**Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785\text{-in}^2$ Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743\text{-in}}{n} \right)^2 = 0.606\text{-in}^2$ (AISC 9th Ed. pg. 4-147)

Check Tensile Force:

Maximum Tensile Force (Gross Area) =

$$F_{\text{gross.area}} := 1.33 \cdot (0.33 \cdot A_g \cdot F_u) = 43.1 \cdot \text{kips}$$

Note: 1.33 increase
allowed per
TIA/EIA

Maximum Tensile Force (Net Area) =

$$F_{\text{net.area}} := 1.33 \cdot (0.60 \cdot A_n \cdot F_y) = 52.7 \cdot \text{kips}$$

Allowable Tension =

$$\text{AllowableTension} := \begin{cases} F_{\text{gross.area}} & \text{if } F_{\text{gross.area}} < F_{\text{net.area}} \\ F_{\text{net.area}} & \text{if } F_{\text{net.area}} < F_{\text{gross.area}} \end{cases}$$

$$\text{AllowableTension} = 43.1 \cdot \text{kips}$$

Applied Tension =

$$\text{MaxTension} := \frac{\text{Uplift}}{N} = 24.17 \cdot \text{kips}$$

$$\frac{\text{MaxTension}}{\text{AllowableTension}} = 56.1\%$$

$$\text{Condition1} := \text{if} \left(\frac{\text{MaxTension}}{F_{\text{net.area}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition1 = "OK"

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed
Steel Transmission Structures

Required Area =

$$A_{s1} := \frac{\text{Uplift}}{F_y} + \frac{\text{Shear}}{\mu \cdot 0.85 \cdot F_y} = 3.5 \cdot \text{in}^2$$

$$A_{s2} := \left| \frac{\text{Shear} - (0.3 \cdot \text{Compression})}{\mu \cdot 0.85 \cdot F_y} \right| = 0.847 \cdot \text{in}^2$$

Provided Area =

$$A_{\text{provided}} := A_n \cdot N = 7.3 \cdot \text{in}^2$$

$$\text{Ratio1} := \left(\frac{A_{s1}}{A_{\text{provided}}} \right) = 0.48$$

$$\text{Ratio2} := \left(\frac{A_{s2}}{A_{\text{provided}}} \right) = 0.12$$

$$\text{Condition2} := \text{if} \left(\frac{A_{s1}}{A_{\text{provided}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right) = \text{"OK"}$$

$$\text{Condition3} := \text{if} \left(\frac{A_{s2}}{A_{\text{provided}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right) = \text{"OK"}$$

Foundation Analysis**Input Data:**Max. Reactions at Tower Leg:

Shear = Shear := 54-kips (User Input)

Compression = Comp := 363-kips (User Input)

Uplift = Uplift := 290-kips (User Input)

Tower Properties:Tower Height = $H_t := 240\text{-ft}$ (User Input)Foundation Properties:Pad Projection Above Grade = $P_P := 0.5\text{-ft}$ (User Input)Pad Width = $PD_W := 22.0\text{-ft}$ (User Input)Pad Thickness = $PD_t := 6.1\text{-ft}$ (User Input)**Proposed Reinforced Foundation Properties:**Area of Proposed Reinforced Concrete Above Existing Foundation = $A_{\text{Reinf}} := 364\text{ft}^2$ (User Input)Thickness of Proposed Reinforced Concrete Above Existing Foundation = $T_{\text{Reinf}} := 3.0\text{ft}$ (User Input)Subgrade Properties:Concrete Unit Weight = $\gamma_c := 150\text{-pcf}$ (User Input)Water Unit Weight = $\gamma_w := 62.4\text{-pcf}$ (User Input)Soil Unit Weight = $\gamma_s := 0\text{-pcf}$ (User Input)Uplift Angle = $\psi := 0.0\text{-deg}$ (Note: Design assumes soil does not contribute to uplift resistance) (User Input)Soil Bearing Capacity = $q_{\text{soil}} := 4000\text{-psf}$ (User Input)Depth of Soil = $D_{\text{soil}} := PD_t - P_P = 5.6\text{-ft}$

Calculated Data:

Active Pressure =

$$K_a := \frac{(1 - \sin(\psi))}{(1 + \sin(\psi))} = 1$$

$$P_a := \frac{1}{2} \cdot (PD_t)^2 \cdot PD_w \cdot \gamma_s \cdot K_a = 0 \text{ kips}$$

Passive Pressure =

$$K_p := \frac{(1 + \sin(\psi))}{(1 - \sin(\psi))} = 1$$

$$P_p := \frac{1}{2} \cdot (PD_t)^2 \cdot PD_w \cdot \gamma_s \cdot K_p = 0 \text{ kips}$$

Cross Sectional Area of Pad =

$$A_{pad} := PD_w^2 = 484 \text{ ft}^2$$

Section Modulus of Pad =

$$S_{pad} := \frac{PD_w \cdot PD_w^2}{6} = 1774.7 \text{ ft}^3$$

Volume of Existing Concrete Pad =

$$V_{pad} := PD_w^2 \cdot PD_t = 2952.4 \text{ ft}^3$$

Volume of Proposed Concrete Pad =

$$V_{Reinf} := A_{Reinf} \cdot T_{Reinf} = 1092 \text{ ft}^3$$

Total Volume of Concrete =

$$V_{Conc} := V_{pad} + V_{Reinf} = 4044 \text{ ft}^3$$

$$H_s := PD_t - P_p = 5.6 \text{ ft}$$

$$B_1 := PD_w^2 = 484 \text{ ft}^2$$

$$B_2 := (2 \cdot \tan(\psi) \cdot H_s + PD_w)^2 = 484 \text{ ft}^2$$

Volume of Soil =

$$V_{Soil} := 0 \text{ ft}^2$$

(Note: Design assumes soil does not contribute to uplift resistance)

Mass of Soil =

$$Mass_{Soil} := V_{Soil} \cdot \gamma_s = 0 \text{ kips}$$

Mass of Concrete =

$$Mass_{Conc} := V_{Conc} \cdot \gamma_c = 606.7 \text{ kips}$$

Total Mass =

$$Mass_{Tot} := Mass_{Soil} + Mass_{Conc} = 606.66 \text{ kips}$$

Check Bearing:

Area of the Mat =

$$A_{\text{mat}} := PD_w^2 = 484 \text{ ft}^2$$

Section Modulus of Mat =

$$S := \frac{PD_w^3}{6} = 1774.67 \cdot \text{ft}^3$$

Maximum Pressure in Mat =

$$P_{\text{max}} := \frac{\text{Mass}_{\text{Conc}} + \text{Comp}}{A_{\text{pad}}} + \frac{\text{Shear} \cdot (PD_t)}{S} = 2.19 \cdot \text{ksf}$$

$$\text{Max_Pressure_Check} := \text{if}(P_{\text{max}} < q_{\text{soil}}, \text{"Okay"}, \text{"No Good"})$$

Max_Pressure_Check = "Okay"

(Note: Eccentricity Due to the Addition of Proposed Concrete Mass is Negligible When Considering Bearing Pressure)

Minimum Pressure in Mat =

$$P_{\text{min}} := \frac{\text{Mass}_{\text{Conc}} + \text{Comp}}{A_{\text{mat}}} - \frac{\text{Shear} \cdot (PD_t)}{S} = 1.818 \cdot \text{ksf}$$

$$\text{Min_Pressure_Check} := \text{if}((P_{\text{min}} \geq 0) \cdot (P_{\text{min}} < q_{\text{soil}}), \text{"Okay"}, \text{"No Good"})$$

Min_Pressure_Check = "Okay"

(Note: Eccentricity Due to the Addition of Proposed Concrete Mass is Negligible When Considering Bearing Pressure)

Check Uplift:

Required Factor of Safety =

$$F_S := 2.0$$

$$\text{ActualFS} := \frac{\text{Mass}_{\text{Tot}}}{\text{Uplift}} = 2.09$$

$$\text{Uplift_Check} := \text{if}\left(\frac{\text{Mass}_{\text{Tot}}}{\text{Uplift}} \geq F_S, \text{"OK"}, \text{"Overstressed"}\right)$$

Uplift_Check = "OK"

Proposed Tower
Reinforcement Drawings

1. REFER TO STRUCTURAL ANALYSIS PREPARED BY CENTEK ENGINEERING, INC., FOR VERIZON WIRELESS, DATED 06/23/11, REVISION #1.
2. TOWER GEOMETRY, STRUCTURE MEMBER SIZES AND FOUNDATION INFORMATION OBTAINED FROM THE MANUFACTURER'S ORIGINAL DESIGN DRAWINGS (UNR-ROHN FILE NO. 23253DB); A PREVIOUS STRUCTURAL ANALYSIS REPORT PREPARED BY CHA, PROJECT JOB NO. 20621.1005.28000 R4, DATED JUNE 18, 2009 AND A TOWER MAPPING REPORT PREPARED BY GSB COMMUNICATION, LLC, DATED MAY 03, 2008.



TOWER
ELEVATION
AND NOTES

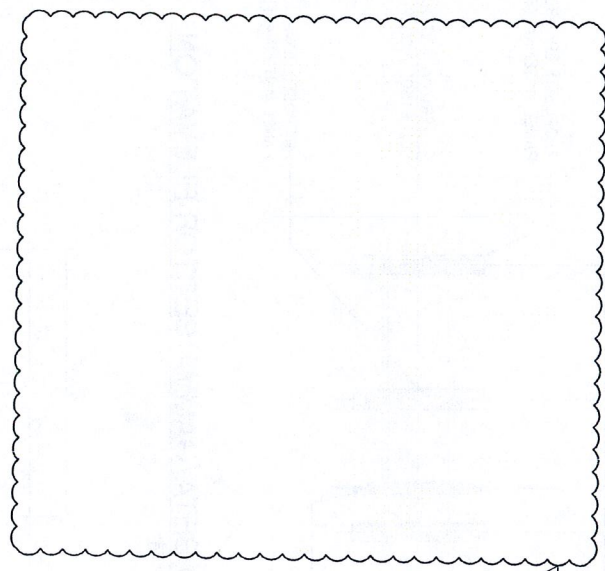
SHEET NO. **S-1**

Sheet No. 1 of 5

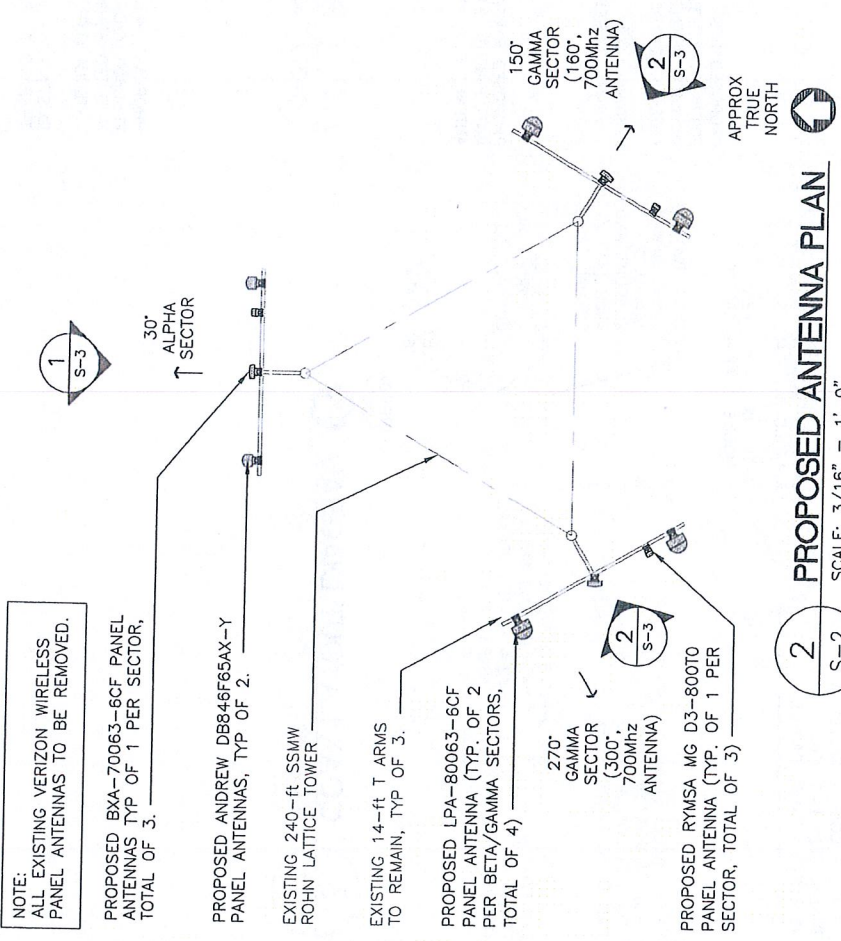
DESIGNED BY: JRM	DATE: 01/29/11	REV: 1	DESCRIPTION: ISSUED FOR CONSTRUCTION
DRAWN BY: JRM	DATE: 01/29/11	REV: 2	DESCRIPTION: DIRECTED TOWER STEEL REINFORCEMENT
CHECKED BY: JRM	DATE: 01/29/11	REV: 3	DESCRIPTION: REINFORCED FOR CONSTRUCTION
CHECKED BY: JRM	DATE: 01/29/11	REV: 4	DESCRIPTION: REINFORCED FOR CONSTRUCTION

PROJECT: VERIZON WIRELESS	PROJECT NO.: 100010078
LOCATION: NORTH BRIDGEPORT	DATE: 12/06/10
SCALE: AS SHOWN	AS SHOWN
PROJECT: VERIZON WIRELESS	PROJECT NO.: 100010078
LOCATION: NORTH BRIDGEPORT	DATE: 12/06/10
SCALE: AS SHOWN	AS SHOWN

TOWER REINFORCEMENT AND ANTENNA PLAN	SHEET NO. S-2
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1 K-BRACE REINFORCEMENT DETAIL
S-2 SCALE: 1" = 10'-0"

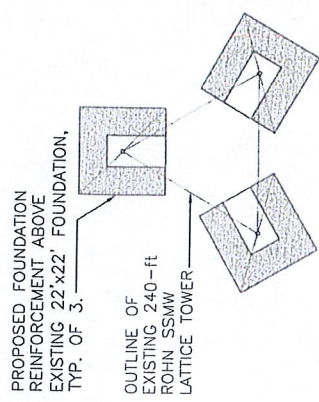


2 PROPOSED ANTENNA PLAN
S-2 SCALE: 3/16" = 1'-0"



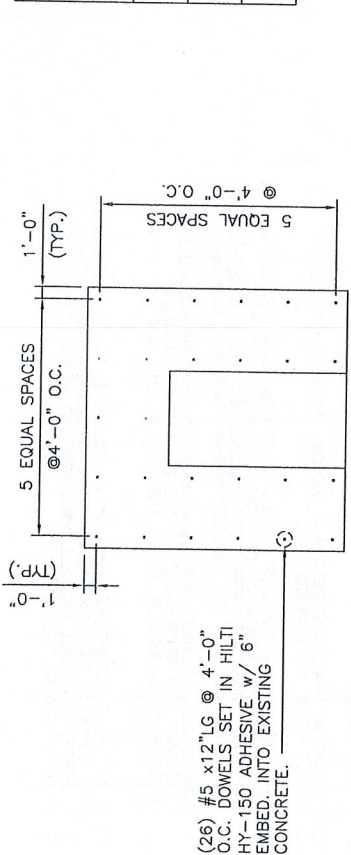
FOUNDATION DESIGN LOADS
PER TIA/EIA-222-F:
FOUNDATION DESIGN INCLUDES A SAFETY FACTOR OF 2.0 PER 2005 CSBC, SECTION 3108.4.2.

LEG UPLIFT (kips)	290
LEG SHEAR (kips)	54
LEG COMPRESSION (kips)	363

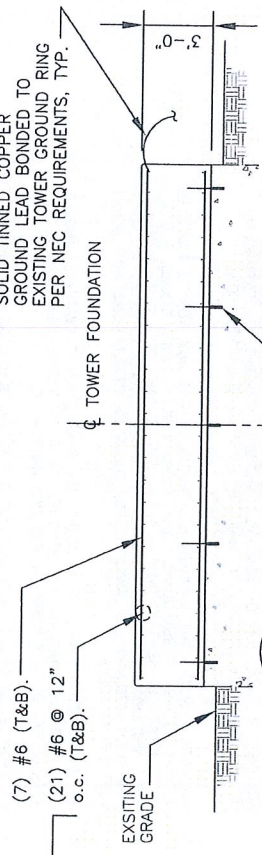


KEY PLAN
NTS

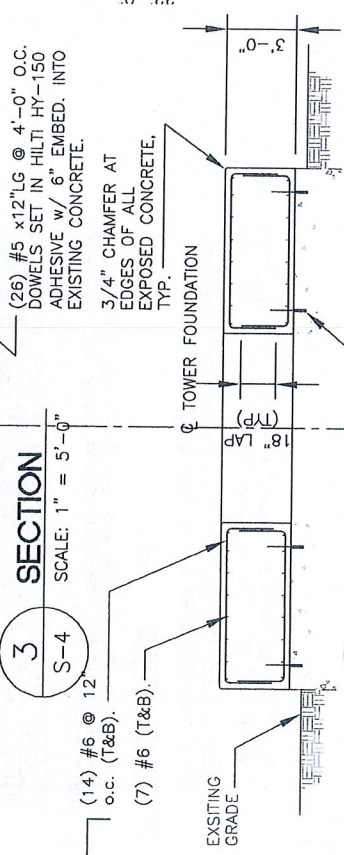
APPROX
TRUE
NORTH



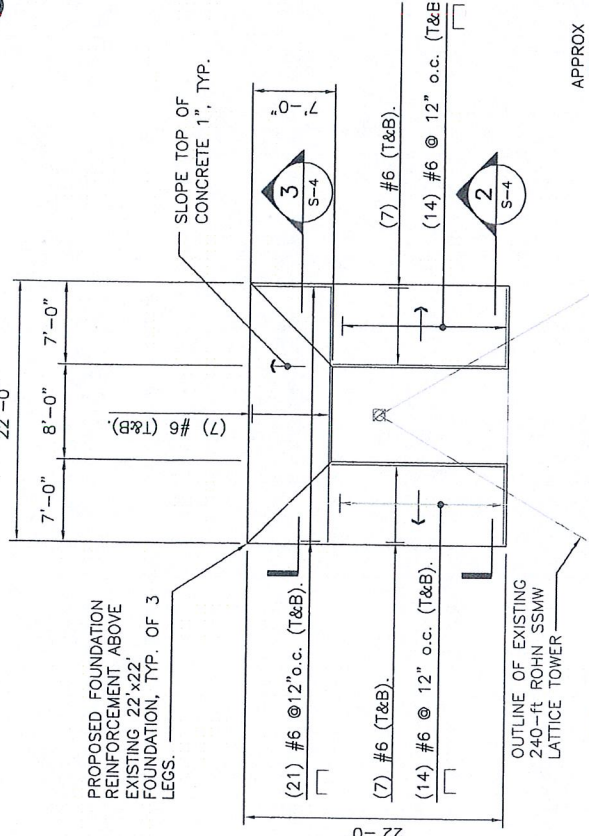
4 DOWEL LOCATION PLAN
SCALE: 1" = 20'-0"



3 SECTION
SCALE: 1" = 5'-0"



2 SECTION
SCALE: 1" = 5'-0"



1 TYP. FOUNDATION REINF. PLAN
SCALE: 1" = 20'-0"

APPROX
TRUE
NORTH

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.

- DESIGN CRITERIA:
 - WIND SPEED OF 90 MPH (FASTEST MILE) AND 78 MPH (FASTEST MILE) CONCURRENT WITH 0.5" OF RADIAL ICE PER EIA/TIA 222 F-96.
 - SEISMIC LOAD: PER ASCE 7-95 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (DOES NOT GOVERN)

1. ALL WORK SHALL BE IN ACCORDANCE WITH TIA/EIA-222 REVISION "F"
"STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING
STRUCTURES"

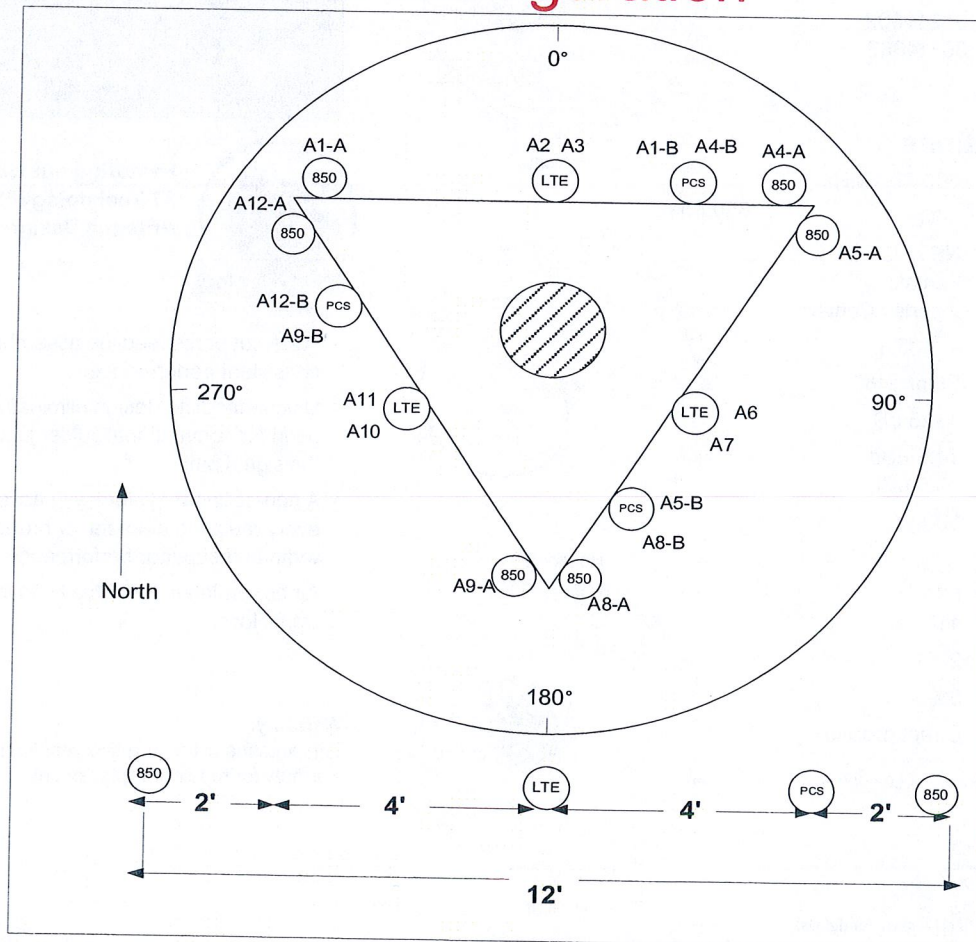
2. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH TOWER OWNER.
3. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORKSHEET AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
5. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
7. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK.
8. TOWER REINFORCING SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS AND SUPPORT STRUCTURES. ALL SAFETY PROCEDURES, RIGGING AND ERECTION METHODS SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.
9. EXISTING COAXIAL CABLES AND ALL ACCESSORIES SHALL BE RELOCATED AS NECESSARY AND REINSTALLED BY THE CONTRACTOR WITHOUT INTERRUPTION IN SERVICE WHERE THEY ARE IN CONFLICT WITH TOWER REINFORCEMENT.
10. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

DESIGNED BY: JWA DRAWN BY: JWA CHECKED BY: JWA	DATE: 12/06/01 SCALE: AS SHOWN SHEET NO. 10001.0270	VERIZON WIRELESS COMMERCIAL CONSTRUCTION AND MAINTENANCE NORTH BRIDGEPORT ROBIN LATTICE TOWER REINFORCEMENT BRIDGEPORT, CT 06606 42 North Bridge Road Bridgeport, CT 06606 www.verizonwireless.com	REVISION NO. DATE BY DESCRIPTION 1 01/25/01 JWA CFC BRIDGEPORT STEEL REINFORCEMENT - BRIDGEPORT CONSTRUCTION				SHEET NO. 10001.0270 OF 5 1-N-1 SHEET NO. 10001.0270	STRUCTURAL NOTES
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SITE NAME	N BRIDGEPORT CT			ECP - CELL #	5	33
LATITUDE	41-13-10.35 N			LONGITUDE	73-12-06.40 W	
Additional Comments: LTE PHASE 2				SAVE BUTTON		
				STRUCTURE TYPE	LATTICE	
700 Mhz - LTE ANTENNA ADD	ALPHA		BETA		GAMMA	
EQUIPMENT TYPE	eNodeB		eNodeB		eNodeB	
ANTENNA TYPE	BXA-70063-6CF 5°		BXA-70063-6CF 6°		BXA-70063-6CF 4°	
QTY OF ANTENNAS PER FACE	1		1		1	
ORIENTATION (DEG)	30		160		300	
DOWN TILT (MECH/DEG)	0		6		0	
RAD CTR (FT AGL)	155		155		155	
TMA - QTY / MODEL						
DIPLEXER - QTY / MODEL						
MCPA BRICKS (QTY)						
850 Cellular - Current Config	ALPHA		BETA		GAMMA	
EQUIPMENT TYPE	Modcell 4.0 HD		Modcell 4.0 HD		Modcell 4.0 HD	
ANTENNA TYPE	APL869012_T0		APL866513		APL866513	
QTY OF ANTENNAS PER FACE	2		2		2	
ORIENTATION (DEG)	30		150		270	
DOWN TILT (MECH/DEG)	0		10		7	
RAD CTR (FT AGL)	155		155		155	
TMA - QTY / MODEL						
DIPLEXER - QTY / MODEL						
DIPLEXER KIT - QTY / MODEL						
MCPA BRICKS (QTY)						
850 Cellular - Future Config	ALPHA		BETA		GAMMA	
EQUIPMENT TYPE	Modcell 4.0 HD		Modcell 4.0 HD		Modcell 4.0 HD	
ANTENNA TYPE	DB846F65ZAXY		LPA-80063/6CF 5°		LPA-80063/6CF 5°	
QTY OF ANTENNAS PER FACE	2		2		2	
ORIENTATION (DEG)	30		150		270	
DOWN TILT (MECH/DEG)	4°		5°		2°	
RAD CTR (FT AGL)	155		155		155	
TMA - QTY / MODEL						
DIPLEXER - QTY / MODEL	2	FD9R6004/2C-3L	2	FD9R6004/2C-3L	2	FD9R6004/2C-3L
DIPLEXER KIT - QTY / MODEL						
MCPA BRICKS (QTY)						
1900 PCS - Current Config	ALPHA		BETA		GAMMA	
EQUIPMENT TYPE	PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0	
ANTENNA TYPE	APL199014-T0		APL199014-T0		APL199014-T0	
QTY OF ANTENNAS PER FACE	2		2		2	
ORIENTATION (DEG)	30		150		270	
DOWN TILT (MECH/DEG)	0		0		0	
RAD CTR (FT AGL)	155		155		155	
TMA - QTY / MODEL						
DIPLEXER - QTY / MODEL						
DIPLEXER KIT - QTY / MODEL						
MCPA BRICKS (QTY)						
1900 PCS - Future Config	ALPHA		BETA		GAMMA	
EQUIPMENT TYPE	PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0	
ANTENNA TYPE	MG D3-800T0		MG D3-800T6		MG D3-800T6	
QTY OF ANTENNAS PER FACE	1		1		1	
ORIENTATION (DEG)	30		150		270	
DOWN TILT (MECH/DEG)	3°		0		0	
RAD CTR (FT AGL)	155		155		155	
TMA - QTY / MODEL						
DIPLEX WITH CELLULAR CABLE	DIPLEX with Cellular Cable		DIPLEX with Cellular Cable		DIPLEX with Cellular Cable	
MCPA BRICKS (QTY)						

NUMBER OF CABLE'S NEEDED							ESTIMATED CABLE LENGTH					
MAINLINE SIZE		1 5/8"		TOTAL # OF MAINLINES			12		MAINLINE (FT)			
JUMPER SIZE		1/2 "		TOTAL # OF TOP JUMPERS			18		TOP JUMPER (FT)		12	
Equipment Cable Ordering		MAIN CABLE		12		+	0	TOP JUMPER #		12	+	6
TX / RX FREQUENCIES							TX POWER OUTPUT					
Cellular A-Band				PCS F-Band			700 Mhz C - B		Cellular (Watts)		20	
TX - 869-880,890-891.5 MHZ				TX - 1970-1975			TX - 746-757		PCS (Watts)		16	
RX - 824-835,845-846.5 MHZ				RX - 1890-1895			RX - 776-787		LTE (Watts)		40	
ALPHA				BETA				GAMMA				
Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code	
A1-A	800	Tx1/Rx0	RED	A5-A	800	Tx2/Rx0	BLUE	A9-A	800	Tx3/Rx0	GREEN	
A1-B	1900	Tx1/Rx0	RED/ WHITE	A5-B	1900	Tx2/Rx0	BLUE/ WHITE	A9-B	1900	Tx3/Rx0	GREEN/WHITE	
A2	700	Tx1/Rx0	RED/ ORANGE	A6	700	Tx2/Rx0	BLUE/ ORANGE	A10	700	Tx3/Rx0	GREEN/ORANGE	
A3	700	Tx4/Rx1	RED/RED/ ORANGE	A7	700	Tx5/Rx1	BLUE/BLUE/ ORANGE	A11	700	Tx6/Rx1	GREEN/GREEN/ ORANGE	
A4-B	1900	Tx4/Rx1	RED/RED/ WHITE	A8-B	1900	Tx5/Rx1	BLUE/BLUE/ WHITE	A12-B	1900	Tx6/Rx1	GREEN/GREEN/ WHITE	
A4-A	800	Tx4/Rx1	RED/RED	A8-A	800	Tx5/Rx1	BLUE/BLUE	A12-A	800	Tx6/Rx1	GREEN/GREEN	
RF ENGINEER						RF MANAGER			INITIALS		DATE	
Prepared By : Dany Bustamante						Steve Weatherbee			DB		11/18/2010	

Site Configuration



Mechanical specifications

Length	1804 mm	71.0 in
Width	285 mm	11.2 in
Depth	114 mm	4.5 in
Depth with z-bracket	154 mm	6.1 in
Weight ⁴⁾	7.9 kg	17.0 lbs
Wind Area Fore/Aft	0.51 m ²	5.5 ft ²
Wind Area Side	0.21 m ²	2.2 ft ²
Max Wind Survivability	>201 km/hr	>125 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	753 N	169 lbf
Side	351 N	79 lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter $\varnothing 50$ -160 mm; $\varnothing 2.0$ -6.3 in

Mounting Bracket Kit	36210002
Downtilt Bracket Kit	36114003

Electrical specifications

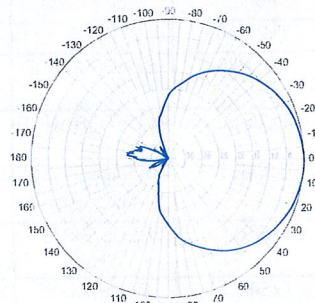
Frequency Range	696-900 MHz
Impedance	50 Ω
Connector ³⁾	NE or E-DIN Female 2 ports / Center
VSWR ¹⁾	$\leq 1.35:1$
Polarization	Slant $\pm 45^\circ$
Isolation Between Ports ¹⁾	< -25 dB
Gain ¹⁾	14.5 dBd 16.5 dBi
Power Rating ²⁾	500 W
Half Power Angle ¹⁾	
Horizontal Beamwidth	63°
Vertical Beamwidth	11°
Electrical downtilt ⁵⁾	2°
Null fill ¹⁾	5%
Lightning protection	Direct ground

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

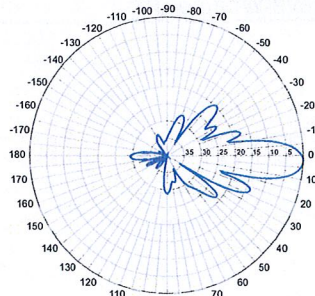
- 1) Typical values.
- 2) Power rating limited by connector only.
- 3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
- 4) Antenna weight does not include brackets.
- 5) Add'l downtilts may be available. Check website for details.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾
750 MHz

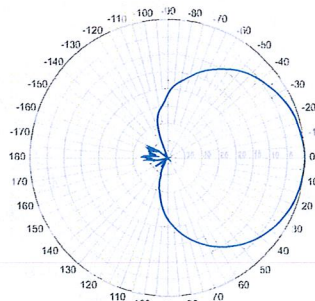


Horizontal

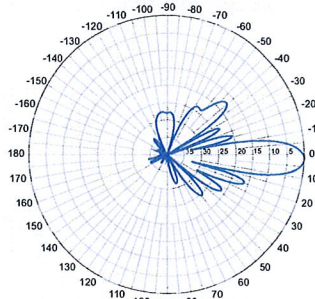


Vertical

850 MHz



Horizontal

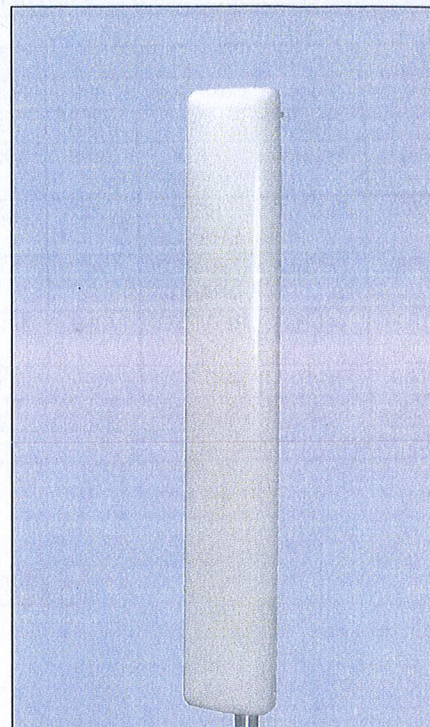


Vertical

696-900 MHz

BXA-70063/6CF __ 2°

When ordering replace " __ " with connector type.



Featuring our Exclusive
3T Technology™
Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:

This antenna is under a five-year limited warranty for repair or replacement.

Revision Date: 04/07/09

Product Specifications



DB846F65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Excellent azimuth roll-off, reducing soft hand-offs and improving capacity
- Deep null filling below the horizon for improved signal intensity
- Rugged, reliable design, light weight for low tower loading
- Air dielectric feed system

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	806–896	870–960
Beamwidth, Horizontal, degrees	65	60
Gain, dBd	14.5	14.8
Gain, dBi	16.6	16.9
Beamwidth, Vertical, degrees	11.0	10.5
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Front-to-Back Ratio at 180°, dB	40	40
VSWR	1.33:1	1.33:1
3rd Order IMD at 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance	50	50
Lightning Protection	dc Ground	dc Ground

From North America, toll free
Telephone: 1-800-255-1479
Fax: 1-800-349-5444

Outside North America
Telephone: +1-708-873-2307
Fax: +1-779-435-8579

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All specifications are subject to change. Please see
www.andrew.com for the most current information.

page 1 of 3
2/11/2008

Product Specifications



Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Wind Area, maximum	0.1 m ² 1.6 ft ²
Wind Loading, maximum	387.0 N @ 100 mph 87.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h 150.0 mph

Dimensions

Depth	215.9 mm 8.5 in
Length	1828.8 mm 72.0 in
Width	254.0 mm 10.0 in
Net Weight	9.5 kg 21.0 lb

Regulatory Compliance/Certifications

Agency
RoHS 2002/95/EC
China RoHS SJ/T 11364-2006

Classification
Compliant by Exemption
Logo 2



Included Products



DB5083

Downtilt Mounting Kit for 4.5 in (114.3 mm) OD round members



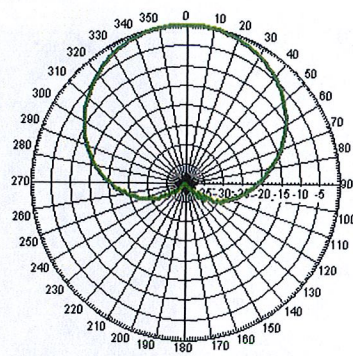
DB380

Pipe Mounting Kit for 4.5 in (114.3 mm) OD round members

Product Specifications

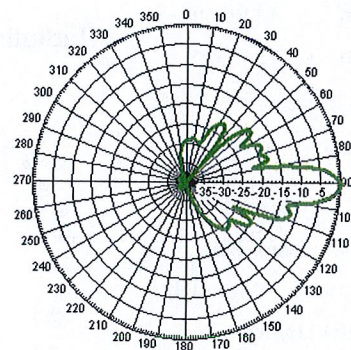


Horizontal Pattern

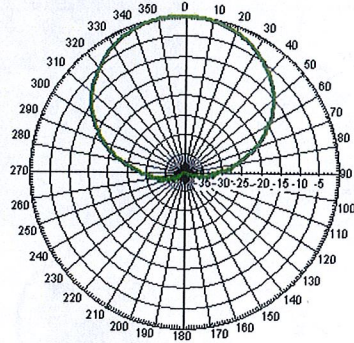


Freq: 850 MHz, Tilt: 0

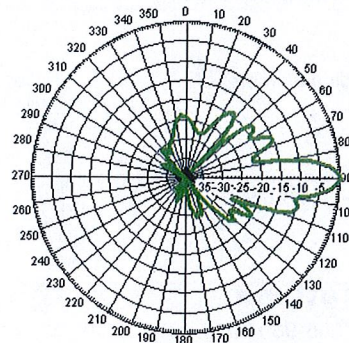
Vertical Pattern



Freq: 850 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

LPA-80063/6CF

When ordering, replace " " with connector type.

Mechanical specifications

Length	1800 mm	70.87 in
Width	380 mm	14.96 in
Depth	332 mm	13.07 in
4) Weight	12.25 kg	27 lbs
Wind Area		
Front	0.684 m ²	7.39 ft ²
Side	0.598 m ²	6.45 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>235 km/hr	>146 mph
Wind load @ 100 mph (161 km/hr)		
Front	993 N	223.3 lbs
Side	872 N	196.1 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #21699999

Downtilt bracket kit #21699999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

Frequency Range	806-960 MHz
Impedance	50Ω
3) Connector	NE, E-DIN
1) VSWR	≤1.4:1
Polarization	Vertical
1) Gain	14.5 dBd
2) Power Rating	500 W
1) Half Power Angle	
H-Plane	63°
E-Plane	10°
1) Electrical Downtilt	0°
1) Null Fill	10%
Lightning Protection	Direct Ground

1) Typical Values

2) Power Rating limited by connector only.

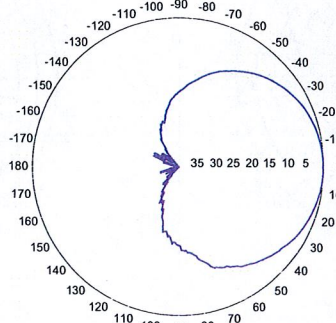
3) NE indicates an elongated N Connector.

E-DIN indicates an elongated DIN Connector.

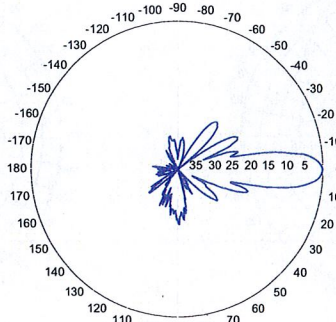
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾



Horizontal



Vertical

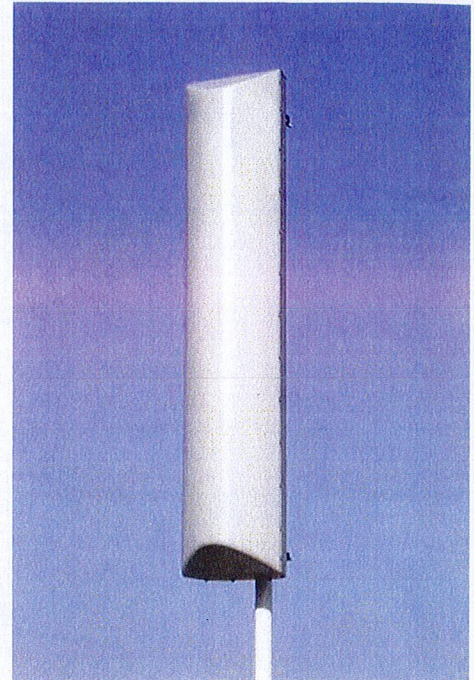
Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

CF Denotes a Center-Fed Connector.

806-960 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.



Revision Date: 12/1/05

MG D3-800Tx



Xpol GSM1800+PCS & UMTS Panel Antenna

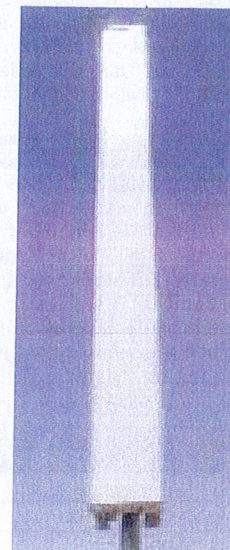
15.9 dBd/18 dBi

WIDE BAND 1710-2170 MHz

H 65° V 6.5°

Electrical Specifications

Antenna Model	MG D3-800Tx		
Frequency Range (MHz)	1710-1880	1850-1990	1920-2170
Impedance	50 Ohms		
VSWR	1.40:1		
Polarization	±45°		
Isolation between Ports (dB)	30		
Average Gain (dBd/dBi)	15.7/17.8	15.9/18	16.15/18.25
Horizontal Beamwidth (deg)	65°±5°		
Vertical Beamwidth (deg)	6.5°±0.5°	6.3°±0.5°	6.3°±0.5°
Electrical Tilt (deg)	Fixed 0°-14°		
Sidelobe Suppression (dB)	18	18	18
Front to Back Ratio (dB) @180°±20°	30		
Polarization Isolation (dB) @3 dB Beamwidth	20		
Maximum Power per Input (w)	250		
Intermodulation Products (dBc)	-150		
Connectors	2 x 7/16 Female		
Connector Position	Antenna Bottom		

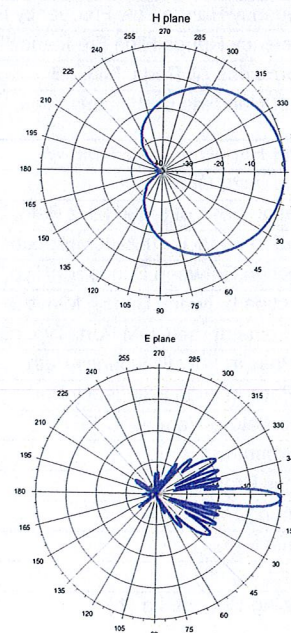


Mechanical & Environmental Specifications

Dimensions (mm)	1380 x 160 x 90
Survival Wind Speed	200 km/h
Front Windload (N) @ 160 km/h	335
Lateral Windload (N) @ 160 km/h	188
Antenna Weight (kg)	7
Clamps Weight (kg)	2
Mast Mounting	50 to 135 mm
Radome Color	Grey
Grounding	All metallic parts are DC grounded
Temperature Range	-55 to +60°C
Humidity	100 %

Shipping Specifications

Dimensions (mm)	1580 x 340 x 210
Weight (kg)	12
Material	Cardboard and Foam



Ctra. Campo Real, Km 2,100
28500 Arganda del Rey
Madrid-Spain



Phone: 34 91 876 06 81
Fax: 34 91 876 07 09
E-mail: telecom.comercial@rymsa.com
Web: www.rymsa.com



ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- LTE ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- Integrated DC block/bypass versions available
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket
- Kit available for easy dual mount

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Band, MHz	698-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710 - 2170 MHz path, with mounting hardware SEM2-1A
Mounting	Wall, pole
Frequency Range Low Frequency Path, MHz	698-960
Frequency Range High Frequency Path, MHz	1710-2200
Return Loss All Ports, Min, dB	19
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss 698-960 MHz Path, Typ, dB	0.07
Insertion Loss 1710-2200MHz path, Typ, dB	0.13
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
Rejection between Bands, Min, dB	60
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Application	LTE 700MHz, GSM900/3G/UMTS, GSM900/GSM1800, Cellular 800/PCS
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

RFS The Clear Choice ®

FD9R6004/2C-3L

Rev: --

Print Date: 17.03.2010

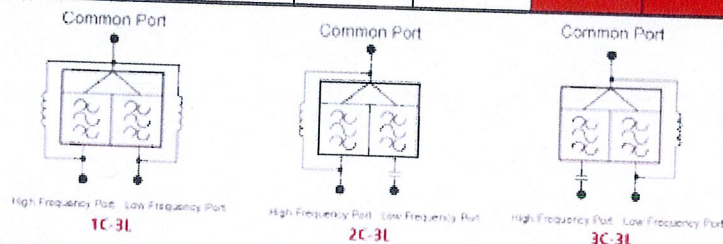
Please visit us on the internet at <http://www.rfsworld.com/>

Radio Frequency Systems

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Selection Guide FD9R6004 Series

Single Wideband Diplexer	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Indoor/ Outdoor	FD9R6004/1C-3L				
	FD9R6004/2C-3L				
	FD9R6004/3C-3L				



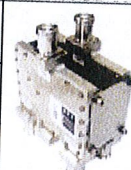
The FD9R6004 Series is upgradeable to a dual diplexer kit by means of 2 diplexers and mounting hardware kit SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information

Mounting hardware, Wall and pole mount Ø40-110mm (Included with the product)	SEM2-1A	
Assembly kit for 2 pcs of FD9R6004/xC-3L (optional)	SEM2-3	
Ground cable, 2m, includes lugs (optional)	CA020-2	
Ground cable, 3m, includes lugs (optional)	CA030-2	
Mounting Hardware for 6 diplexers, Tower Base (optional)	SEM6	

It is also possible to select double diplexer kits including mounting hardware too

Dual Diplexer Kit Ordering Information

Kit consisting of (2) in-line long neck connector diplexers (Full DC Pass), (1) mounting hardware SEM2-1A, & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/1C-DL	
Kit consisting of (2) in-line long neck connector diplexers (DC Pass High Band), (1) mounting hardware SEM2-1A & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/2C-DL	
Kit consisting of (2) in-line long neck connector diplexers (DC Pass Low Band), (1) mounting hardware SEM2-1A & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/3C-DL	



Daniel F. Caruso
Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

March 14, 2011

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-015-110203** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1280 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The tower be reinforced in accordance with recommendations made in the Structural Analysis and Reinforcement Report prepared by Centek Engineering dated January 25, 2011 and stamped by Carlo Centore; and
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended reinforcements have been completed and the tower and foundation will not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated February 3, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.



CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,



Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Bill Finch, Mayor, City of Bridgeport
Edmund Schmidt, Associate City Attorney, City of Bridgeport
Remo Tartaglia



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

February 22, 2011

The Honorable Bill Finch
Mayor
City of Bridgeport
City Hall Annex
999 Broad Street
Bridgeport, CT 06604

RE: **EM-VER-015-110203** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1280 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Mayor Finch:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by March 8, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Edmund Schmidt, Associate City Attorney, City of Bridgeport

EM-VER-015-110203

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

February 3, 2011

Via Hand Delivery

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED
FEB - 3 2011

ORIGINAL

CONNECTICUT
SITING COUNCIL

Re: **Notice of Exempt Modification – Antenna Swap**
Chopsey Hill Road, Bridgeport, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 150-foot level on the existing 240-foot lattice tower at the above-referenced address. The tower is owned by Remo Tartaglia. The Connecticut Siting Council ("Council") approved Cellco's use of this tower in 1990. Cellco intends to remove all of its existing antennas and replace them with twelve (12) new antennas (two (2) model DB846F65ZAXY cellular antennas; four (4) model LPA 80063/6CF cellular antennas; three (3) model MG D3-800T0 PCS antennas; and three (3) model BXA 70063/6CF LTE antennas). All new antennas will be installed at the same 150-foot level on the tower. Cellco will also install six (6) coax cable diplexers on its existing antenna platform. Attached behind Tab 1 of this filing are the specifications for each of the proposed replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Bill Finch, Mayor for the City of Bridgeport. A copy of this letter is also being sent to Remo Tartaglia, the owner of the property on which the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).



Law Offices

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10875175-v1

ROBINSON & COLE LLP

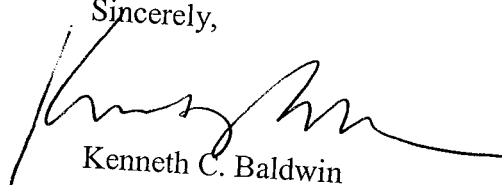
Linda Roberts
February 3, 2011
Page 2

1. The proposed modifications will not result in any increase in the overall height of the existing tower. Cellco's replacement antennas and diplexers will be located at the 150-foot level on the 240-foot tower.
2. The proposed modifications will not involve any modifications to ground-mounted equipment and, therefore, will not require the extension of the site boundaries.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.
4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table for the modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report and modification drawings confirming that the tower and foundation, with modifications, can support Cellco's proposed modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Kenneth C. Baldwin

Enclosures
Copy to:

Bill Finch, Bridgeport Mayor
Remo Tartaglia
Sandy M. Carter



Product Specifications



DB846F65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Excellent azimuth roll-off, reducing soft hand-offs and improving capacity
- Deep null filling below the horizon for improved signal intensity
- Rugged, reliable design, light weight for low tower loading
- Air dielectric feed system

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	806–896	870–960
Beamwidth, Horizontal, degrees	65	60
Gain, dBd	14.5	14.8
Gain, dBi	16.6	16.9
Beamwidth, Vertical, degrees	11.0	10.5
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Front-to-Back Ratio at 180°, dB	40	40
VSWR Return Loss, db	1.33:1 17.0	1.33:1 17.0
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance, ohms	50	50
Lightning Protection	dc Ground	dc Ground

www.commscope.com/andrew

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Product Specifications

DB846F65ZAXY



Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Wind Loading, maximum	387.0 N @ 100 mph 87.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h 150.0 mph

Dimensions

Depth	215.9 mm 8.5 in
Length	1828.8 mm 72.0 in
Width	254.0 mm 10.0 in
Net Weight	9.5 kg 21.0 lb

Regulatory Compliance/Certifications

Agency

RoHS 2002/95/EC
China RoHS SJ/T 11364-2006

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)



INCLUDED PRODUCTS

DB5083

Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

DB380

Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

DB382NS

Side Offset Bracket for 4.5 in (114.3 mm) OD round members

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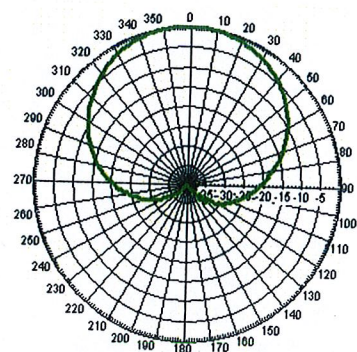
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Product Specifications

DB846F65ZAXY

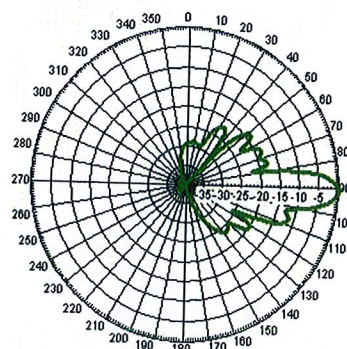


Horizontal Pattern

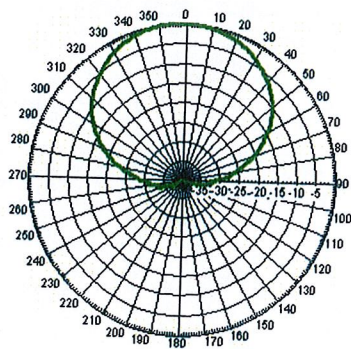


Freq: 850 MHz, Tilt: 0

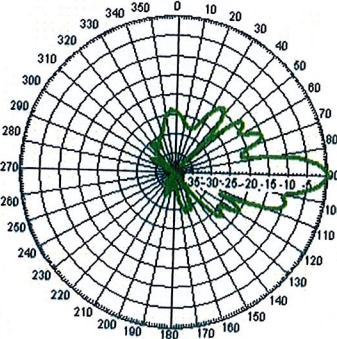
Vertical Pattern



Freq: 850 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

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LPA-80063-6CF-EDIN-X

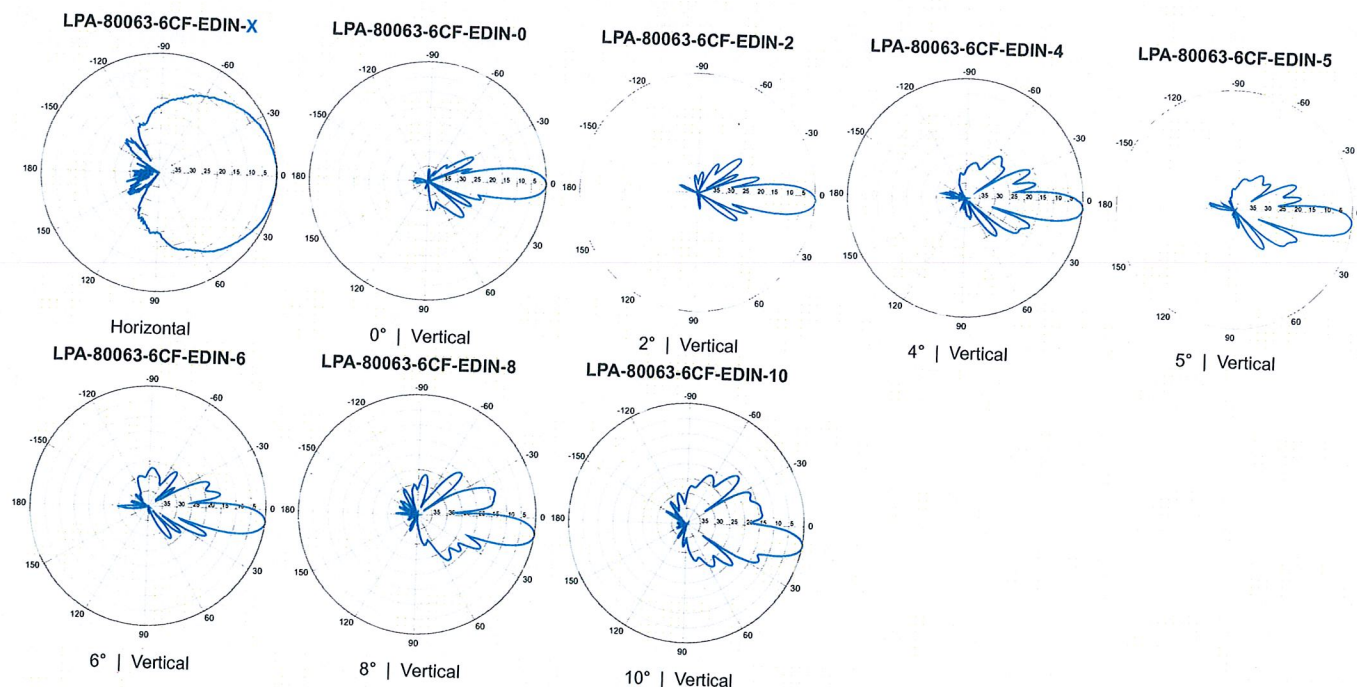
V-Pol | Log Periodic | 63° | 14.5 dBd

Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.



Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	10°
Gain	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10
Impedance	50Ω
VSWR	≤1.4:1
Null fill	5% (-26.02 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1805 x 385 x 332 mm 71.1 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm 14.6 in
Weight without mounting brackets	12.3 kg 27 lbs
Survival wind speed	> 201 km/hr > 125 mph
Wind area	Front: 0.70 m ² Side: 0.59 m ² Front: 7.5 ft ² Side: 6.3 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 885 N Side: 757 N Front: 199 lbf Side: 170 lbf
Mounting Options	
3-Point Mounting & Downtilt Bracket Kit (0-20°)	Part Number Fits Pipe Diameter Weight
	21700000 50-102 mm 2.0-4.0 in 11 kg 25 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.



SINGLE-BAND PANEL ANTENNA

BROADBAND 1710-2170 MHz

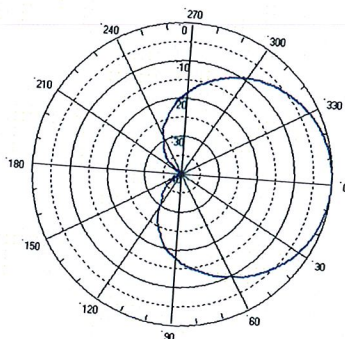
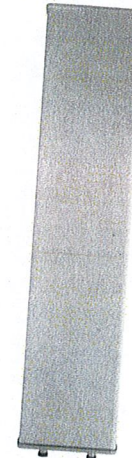
MGD3-800TX

ELECTRICAL SPECIFICATIONS

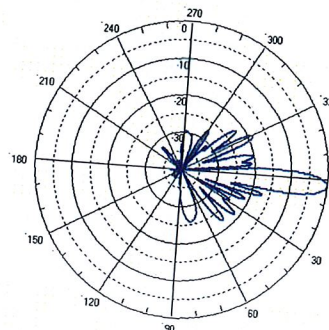
BROADBAND 1710-2170 MHz			
Antenna Model	MGD3-800TX		
Polarization	$\pm 45^\circ$		
Frequency	1710-2170		
Horizontal Beamwidth	1710 - 1880	1850 - 1990	1920 - 2170
Vertical Beamwidth	66°	64°	63°
Gain (dBi)	7.2°	6.6°	6.3°
Vertical Electrical Tilt	18	18	18.5
Upper Sidelobe Suppression for the 1 st lobe above main beam (dB)	FIXED 0°, 2°, 4°, 6°	FIXED 0°, 2°, 4°, 6°	FIXED 0°, 2°, 4°, 6°
Front-to-Back Ratio @ 180° $\pm$ 20° (dB)	20	20	20
VSWR	> 30	> 30	> 30
Cross Polar Ratio @ $\pm 60^\circ$ (dB)	< 1.4 : 1	< 1.4 : 1	< 1.4 : 1
Isolation between Ports (dB)	> 10	> 10	> 10
Maximum Power Per Input (W)	> 30	> 30	> 30
Intermodulation (dBc)	250		
Impedance (Ω)	< - 150		
	50		

MECHANICAL SPECIFICATIONS

Connectors	2 X 7/16 Female
Connector Position	Bottom
Survival Wind Speed km/h (mph)	200 (125)
Front Windload N @ 160 km/h (lbs @ 100 mph)	370 (85)
Lateral Windload N @ 160 km/h (lbs @ 100 mph)	170 (40)
Radome Color	Grey, paintable
Humidity	100%
Antenna Weight kg (lbs)	7 (15)
Antenna Dimension mm (in) H X W X D	1340 X 170 X 100 (53 X 7 X 4)



H&V Pattern



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 Phone: +52 55 1106 2623
 RYMSA Wireless U.S.A. sales@rymsawireless.com
 Phone: +1 888 622 6095
 www.rymsawireless.com

Slant $\pm 45^\circ$ Dual Polarized FET Panel 63° / 14.5 dBd 696-900 MHz

Mechanical specifications

Length	1804 mm	71.0 in
Width	285 mm	11.2 in
Depth	114 mm	4.5 in
Depth with z-bracket	154 mm	6.1 in
Weight ⁴⁾	7.9 kg	17.0 lbs
Wind Area Fore/Aft	0.51 m ²	5.5 ft ²
Wind Area Side	0.21 m ²	2.2 ft ²
Max Wind Survivability	>201 km/hr	>125 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	753 N	169 lbf
Side	351 N	79 lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter Ø50-160 mm; Ø2.0-6.3 in

Mounting Bracket Kit	36210002
Downtilt Bracket Kit	36114003

Electrical specifications

Frequency Range	696-900 MHz
Impedance	50Ω
Connector ³⁾	NE or E-DIN Female 2 ports / Center

VSWR ¹⁾	≤ 1.35:1
Polarization	Slant $\pm 45^\circ$
Isolation Between Ports ¹⁾	< -25 dB
Gain ¹⁾	14.5 dBd 16.5 dBi
Power Rating ²⁾	500 W

Half Power Angle ¹⁾	
Horizontal Beamwidth	63°
Vertical Beamwidth	11°

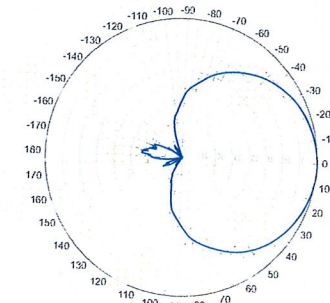
Electrical downtilt ⁵⁾	0°
Null fill ¹⁾	5%
Lightning protection	Direct ground

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

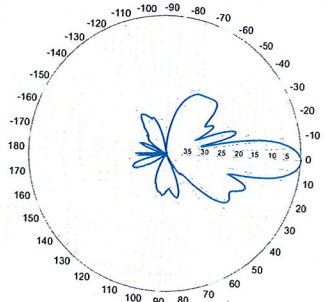
- 1) Typical values.
- 2) Power rating limited by connector only.
- 3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
- 4) Antenna weight does not include brackets.
- 5) Add'l downtilts may be available. Check website for details.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern
750 MHz

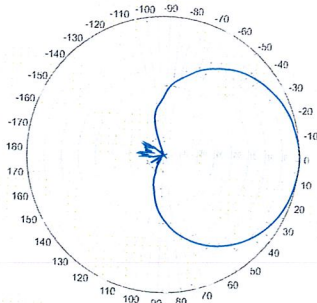


Horizontal

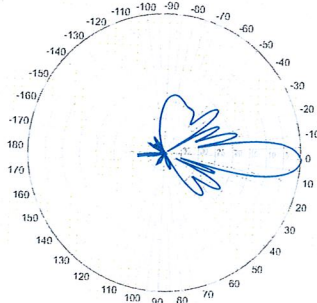


Vertical

850 MHz



Horizontal

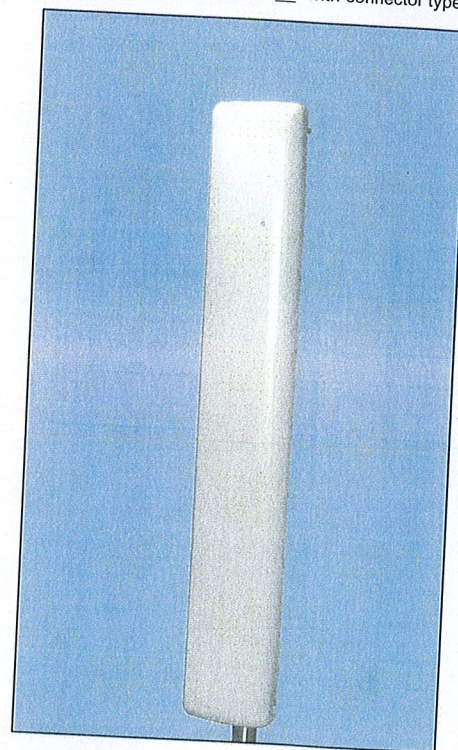


Vertical

696-900 MHz

BXA-70063/6CF

When ordering replace " " with connector type.



Featuring our Exclusive
3T Technology™
Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:

This antenna is under a five-year limited warranty for repair or replacement.

Revision Date: 01/08/09

815.399.0001 • antel@antelinc.com • www.antelinc.com

Amphenol
Antel, Inc.
The Antenna Technology Company

1 of 1

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path



Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- LTE ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- Integrated DC block/bypass versions available
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Equipped with 1 * Breathable Vent – Prevent any humidity inside the product
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket
- Kit available for easy dual mount

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Band, MHz	698-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Frequency Range Low Frequency Path, MHz	698-960
Frequency Range High Frequency Path, MHz	1710-2200
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss 698-960 MHz Path, Typ, dB	0.07
Insertion Loss 1710-2200MHz path, Typ, dB	0.13
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Application	LTE 700MHz, GSM900/3G/UMTS, GSM900/GSM1800, Cellular 800/PCS
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

RFS The Clear Choice®

FD9R6004/2C-3L

Rev: --

Print Date: 28.01.2011

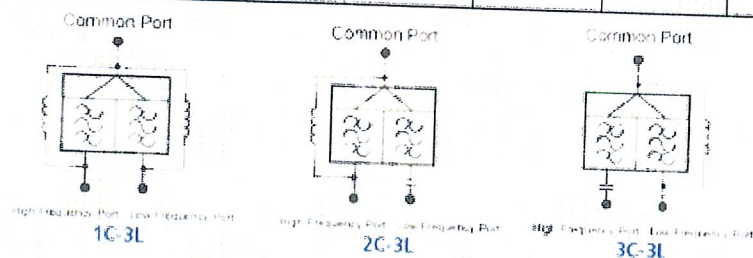
Radio Frequency Systems

Please visit us on the internet at <http://www.rfsworld.com/>

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Selection Guide Diplexer 698-960 / 1710-2200MHz

	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information

Model Number	Description	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FT9DW/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

Site Name: North Bridgeport		General	Power	Density						
Tower Height: Verizon @ 150Ft.										
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total		
*Marcus	5	100	217	0.0038	450	0.3000	1.27%			
*Marcus	5	100	217	0.0038	450	0.3000	1.27%			
*Cingular GSM	1	0.1	237	0.0000	450	0.3000	1.27%			
*Cingular GSM	5	275	237	0.0000	5.8GHz	1.0000	0.00%			
*SNET	7	296	165	0.0182	1945	1.0000	0.00%			
*Red Star	20	100	165	0.0274	880	1.0000	1.82%			
*Metrocall	1	150	158	0.0288	880	0.5867	4.66%			
*Metrocall	1	150	217	0.0011	44	0.5867	4.91%			
*Clinton Tower	1	150	239	0.0009	75	0.2000	0.57%			
*AAT	1	3500	240	0.0218	930	0.2000	0.47%			
*Nextel	1	3500	223	0.0253	930	0.6200	3.52%			
*Clearwire	8	100	235	0.0228	930	0.6200	4.08%			
*Clearwire	2	153	187	0.0082	851	0.6200	3.68%			
*Sprint CDMA	1	211	187	0.0031	2496	0.5673	1.45%			
*Sprint/Nextel WiMAX	11	411	187	0.0022	11 GHz	1.0000	0.31%			
*Sprint/Nextel Microwave	3	562	187	0.0465	1962.5	1.0000	0.22%			
*Sprint/Nextel Microwave	2	4074	187	0.0173	2657	1.0000	4.65%			
*Sprint/Nextel Microwave	2	1097	180	0.0904	19500	1.0000	1.73%			
*T-Mobile	2	692	180	0.0243	22500	1.0000	9.04%			
*T-Mobile	8	134	180	0.0154	22500	1.0000	2.43%			
*MetroPCS	2	559	200	0.0096	1945	1.0000	1.54%			
*MetroPCS	7	735	200	0.0100	2100	1.0000	0.96%			
Verizon	3	337	195	0.0487	2310	1.0000	1.00%			
Verizon	9	373	150	0.0162	1970	1.0000	4.87%			
Verizon	1	780	150	0.0536	869	0.5793	1.62%			
			150	0.01246497	757	0.497333	9.26%			
* Source: Siting Council							2.51%	67.86%		

**Structural Analysis and
Reinforcement Report**

240' Existing ROHN SSMW Lattice Tower

*Proposed Verizon Wireless
LTE Antenna Installation*

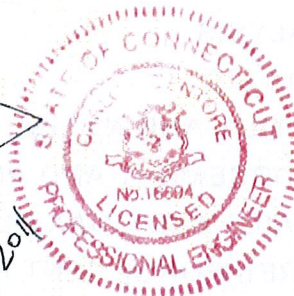
Verizon Site Ref: North Bridgeport

*1280 Chopsey Hill Road
Bridgeport, CT*

Centek Project No. 10001-CO78

Date: January 25, 2011


1-26-2011



Prepared for:

*Verizon Wireless
99 East River Road, 9th Floor
East Hartford, CT 06108*

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION.
- ANTENNA AND APPURTENANCE SUMMARY.
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS.
- ANALYSIS.
- TOWER LOADING.
- TOWER CAPACITY.
- FOUNDATION AND ANCHORS.
- CONCLUSION.

SECTION 2 – CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS.
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM.

SECTION 3 – CALCULATIONS

- RISATower INPUT/OUTPUT SUMMARY WITHOUT REINFORCEMENT.
- RISATower FEED LINE PLAN.
- RISATower FEED LINE DISTRIBUTION.
- RISATower DETAILED OUTPUT WITHOUT REINFORCEMENT.
- RISATower INPUT/OUTPUT SUMMARY WITH REINFORCEMENT.
- RISATower DETAILED OUTPUT WITH REINFORCEMENT.
- ANCHOR BOLT ANALYSIS.
- FOUNDATION ANALYSIS.
- S-1: TOWER ELEVATION AND NOTES.
- S-2: TOWER REINFORCEMENT AND ANTENNA PLAN.
- S-3: ANTENNA DETAILS AND COAX PLAN.
- S-4: FOUNDATION REINFORCEMENT PLANS AND DETAILS.
- N-1 THRU N-4: STRUCTURAL NOTES.

CEN TEK Engineering, Inc.

Structural Analysis - 240-ft ROHN SSMW Lattice Tower

Verizon Wireless LTE Antenna Installation

Bridgeport, CT

January 25, 2011

SECTION 4 – REFERENCE MATERIALS

- VERIZON RF DATA SHEET.
- ANTENNA CUT SHEETS.

Introduction

The purpose of this report is to summarize the results of the non-linear, P- Δ structural analysis of the antenna installation proposed by Verizon Wireless on the existing self supporting lattice tower located in Bridgeport, Connecticut.

The host tower is a 240-ft three legged, tapered steel lattice tower originally designed and manufactured by UNR-ROHN. The tower geometry, structure member sizes and foundation information were obtained from the manufacturer's original design drawings (UNR-ROHN file no. 23253DB); a previous structural analysis report prepared by CHA, project job no. 20621.1005.28000 R4, dated June 18, 2009 and a tower mapping report prepared by CSB Communication, LLC, dated August 18, 2010.

Antenna and appurtenance inventory were obtained from the aforementioned CHA structural analysis report, CSB tower mapping report together with field verification conducted from grade by Centek personnel on September 20, 2010.

The tower is made of eleven (11) tapered vertical leg sections consisting of steel pipe conforming to ASTM A500-50. Diagonal and horizontal lateral support bracing consists of steel pipe and single angle sections, conforming to ASTM A500-50 and ASTM A36. All tower connections are bolted. The width of the tower face is 10.58-ft at the top and 40.25-ft at the base.

Verizon Wireless proposes the replacement of twelve (12) existing panel antennas with twelve (12) proposed panel antennas and the installation of six (6) diplexers on three (3) existing 14-ft T-frames. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- UNKNOWN (Existing):
Antenna: One (1) 16-ft Omni-directional whip antenna mounted on a 4-ft side arm with an elevation of ± 248 -ft above grade level.
Coax Cable: One (1) 1-1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 242 -ft above grade level.
Coax Cable: None.
- NONE (Existing):
Antenna: One (1) flash beacon light mounted with an elevation of ± 240 -ft above grade level.
Cable: One (1) 1" $\varnothing$ rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
Antenna: One (1) vacant 4-ft side arm with a RAD center elevation of ± 238 -ft above grade level.
Coax Cable: None.
- UNKNOWN (Existing):
Antenna: Two (2) 10-ft Omni-directional whip antennas mounted on 4-ft side arms with RAD center elevations of ± 230 -ft above grade level.
Coax Cable: One (1) 1-1/4" $\varnothing$ and one (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 229 -ft above grade level.
Coax Cable: Two (1) 1-1/4" $\varnothing$ coax cables (disconnected).
- UNKNOWN (Existing):
Antenna: One (1) 10-ft x3in vacant pipe mount with a RAD center elevation of ± 229 -ft above grade level.
- METROPCS (Existing):
Antennas: Six (6) Kathrein 800-10504 panel antennas and six (6) RCU's mounted on three (3) 10-ft T-Frames with a RAD center elevation of ± 210 -ft above grade level.
Coax Cables: Twelve (12) 1-5/8" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- T-MOBILE (Existing):
Antennas: Six (6) RFS APX16PV-16PVL-X panel antennas and nine (9) TMA's mounted on three (3) 13-ft T-Frames with a RAD center elevation of ± 202 -ft above grade level.
Coax Cables: Thirty (30) 1-5/8" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 4-ft Yagi antenna mounted on a 10-ft x 2-1/2in $\varnothing$ pipe with a RAD center elevation of ± 198 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL/CLEARWIRE (Existing):
Antennas: Six (6) EMS RR90-11-10DBL, three (3) Argus LLPX310R panel antennas, three (3) Samsung RRU 's, one (1) 2-ft 6in $\varnothing$ and (2) 2-ft $\varnothing$ microwave dishes mounted on three (3) 6-ft T-Frames with a RAD center elevation of ± 187 -ft above grade level.
Coax Cables: Twelve (12) 1-5/8" $\varnothing$, four (4) 1/2" $\varnothing$ coax cables and two (2) innerduct conduits running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 14-ft x 2-1/2in $\varnothing$ vacant pipe mount with a RAD center elevation of ± 185 -ft above grade level.

- UNKNOWN (Existing):
Antenna: One (1) 20-ft Omni-directional whip antenna mounted to one existing AT&T T-Frame with a RAD center elevation of ± 176 -ft above grade level.
Coax Cable: Two (2) 1-1/4" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
Antennas: Six (6) Allgon 7184.05 panel antennas mounted on six (6) 14-ft x2-1/2" $\varnothing$ pipes with RAD center elevation of ± 174 -ft above grade level.
Coax Cables: Six (6) 1-5/8" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
Antennas: Three (3) vacant 14-ft x2-1/2" and one (1) 10-ft x4" $\varnothing$ vacant pipes with RAD center elevations of ± 174 -ft above grade level.
- AT&T (Existing):
Antennas: Six (6) Powerwave 7770 panel antennas and six (6) LGP21401 TMA's mounted on three (3) 14-ft T-Frames with a RAD center elevation of ± 164 -ft above grade level.
Coax Cables: Twelve (12) 1-5/8" $\varnothing$ coax cables running on the leg of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 2-ft side arm with a RAD center elevation of ± 141 -ft above grade level.
Coax Cable: One (1) 1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- NONE (Existing):
Antenna: Three (3) obstruction lights mounted with an elevation of ± 140 -ft above grade level.
Cable: One (1) 1" $\varnothing$ rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (EXISTING):
Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ± 132 -ft above grade level.
Coax Cable: One (1) 1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 124 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ± 114 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ± 98 -ft above grade level.
Coax Cable: One (1) 1/4" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) vacant 2-ft side arm with a RAD center elevation of ± 82 -ft above grade level.
Coax Cable: Two (2) 1/4" $\varnothing$ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) GPS antenna mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ± 52 -ft above grade level.
Coax Cables: One (1) 1/2" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 0.8M satellite dish mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ± 22 -ft above grade level.
Coax Cables: One (1) 1/2" $\varnothing$ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- VERIZON (EXISTING TO REMAIN):
Coax Cables: Twelve (12) 1-5/8" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing to remove):
Antennas: Six (6) Celwave APL199014 and six (6) APL869012 panel antennas mounted on three (3) 14-ft T-Frames with a RAD center elevation of ± 150 -ft above grade level.
- VERIZON (Proposed):
Antennas: Three (3) Antel BXA-70063/6CF_2, four (4) Antel LPA80063/6CF, two (2) Andrew DB846F65AZXY, three (3) RYMSA MG D3-800T0 panels antennas and six (6) FD9R6004/2C-3L Diplexers mounted on three (3) existing 14-ft T-Frames with a RAD center elevation of ± 150 -ft above grade level.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- **All coax cables routed as specified in Section 3 of this report.**

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower legs, and the model assumes that the leg members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for 90 mph basic wind speed (fastest mile) with no ice and 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice tower structure and its components.

Basic Wind Speed:	Fairfield County; $v = 85$ mph (fastest mile)	[Section 16 of TIA/EIA-222-F-96]
	Bridgeport; $v = 110$ mph (3 second gust) equivalent to $v = 90$ mph (fastest mile)	[Appendix K of the 2009 CT Building Code Supplement]
	Appendix K wind speed Controls	
Load Cases:	<u>Load Case 1</u> ; 90 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design.	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 2</u> ; 78 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 69 mph wind speed velocity represents 75% of the wind pressure generated by the 90 mph wind speed.	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 3</u> ; Seismic – not checked	[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

With the reinforcements outlined on drawings S-1 thru N-3 located within section 3 this report the calculated stresses were found to be within allowable limits. In Load Case 1, per RISATower "Section Capacity Table", this tower was found to be **109.7%** of its total capacity without reinforcement and **95.6%** with reinforcement.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Un-reinforced Tower			
Leg (T13)	0'-0"- 30'-0"	54.5%	PASS
Diagonal (T12)	30'-0"- 60'-0"	111.3%	FAIL
Diagonal (T11)	60'-0"- 80'-0"	102.1%	FAIL
Horizontal (T8)	120'-0"-140'-0"	78.3%	PASS
Reinforced Tower			
Diagonal (T12)	30'-0"- 60'-0"	87.3%	PASS
Diagonal (T11)	60'-0"- 80'-0"	79.8%	PASS

Foundation and Anchors

The existing foundation design information was unavailable for use in this structural analysis. Review of the foundation design consisted of a comparison of proposed applied loads obtained from the tower design calculations; governing Load Case 1 with the original tower loading obtained from the aforementioned UNR-ROHN design drawing dated January 22, 1988.

Tower legs are connected to three (3) independent reinforced concrete foundations by means of (12) 1.00" Ø, ASTM A-354 Grade BC (Fy = 109ksi) anchor bolts per leg, embedded approximately 6-ft into the concrete foundation structure.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower reactions developed from the governing Load Case 1 were used in the verification of the foundation:

Reaction Type	Original Tower Design Reactions ⁽¹⁾	Proposed Tower Reactions	Result
Leg Shear	NA	54.0 kips	PASS
Leg Compression	452.80 kips	362.0 kips	PASS
Leg Tension	381.10 kips	289.0 kips	PASS
Base Moment	14355 ft-kips	11175 ft-kips	PASS
Base Shear	78.97 kips	90.0 kips	PASS⁽⁴⁾

Notes:

1: Original tower design base reactions taken from original UNR-ROHN design drawing C880398, dated January 28, 1988 based on EIA-222-D-1986 with a design basic wind speed of 85mph (fastest mile).

2: Proposed reactions based on a basic wind speed of 90mph (fastest mile) and 78mph with ½" radial ice.

3: OM denotes Overturning Moment

4: Does not control.

- The anchor bolts were found to be within allowable limits.

Tower Section	Component	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	55.9%	PASS

CEN TEK Engineering, Inc.

Structural Analysis - 240-ft ROHN SSMW Lattice Tower

Verizon Wireless LTE Antenna Installation

Bridgeport, CT

January 25, 2011

- The foundation **was NOT found** to be within allowable limits. Reinforcement of the existing foundation is required. Refer to drawings S-1 thru N-4 within Section 3 of this report for more information.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS) ⁽¹⁾	Proposed Loading (FS) ⁽¹⁾	Result
Existing Foundation				
(3) Independent Reinf. Concrete Mat Foundations (exist. condition)	Uplift	2.00	1.75	FAIL
With Proposed Reinforcements				
(3) Independent Reinf. Concrete Mat Foundations (proposed condition)	Uplift	2.00	2.32	PASS

Note 1: FS denotes Factor of Safety

Conclusion

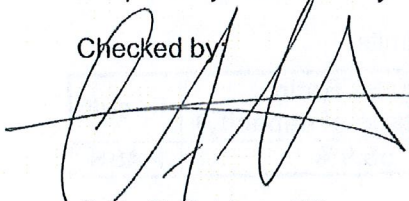
This analysis shows that the subject tower **is adequate** to support the proposed antenna modification with the implementation of the reinforcements outlined in drawings S-1 thru N-4 located within section 3 of this report.

The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

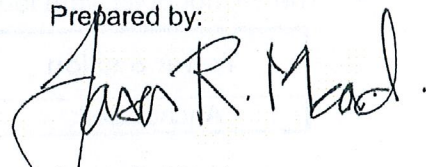
Checked by:



Carlo F. Centore, PE
Principal ~ Structural Engineer



Prepared by:



Jason R. Mead
Structural Engineer

CEN TEK Engineering, Inc.

Structural Analysis - 240-ft ROHN SSMW Lattice Tower

Verizon Wireless LTE Antenna Installation

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January 25, 2011

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an uncorroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

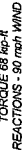
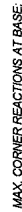
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISATower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

RISATower Features:

- RISATower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- RISATower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Risa Tower Calculations
(Un-reinforced)



Division	11A	11B	11C	11D	11E	11F	11G	11H	11I	11J	11K	11L	11M	11N	11O	11P	11Q	11R	11S	11T	11U	11V	11W	11X	11Y	11Z	11AA	11AB	11AC	11AD	11AE	11AF	11AG	11AH	11AI	11AJ	11AK	11AL	11AM	11AN	11AO	11AP	11AQ	11AR	11AS	11AT	11AU	11AV	11AW	11AX	11AY	11AZ	11BA	11BB	11BC	11BD	11BE	11BF	11BG	11BH	11BI	11BJ	11BK	11BL	11BM	11BN	11BO	11BP	11BQ	11BR	11BS	11BT	11BU	11BV	11BW	11BX	11BY	11BZ	11CA	11CB	11CC	11CD	11CE	11CF	11CG	11CH	11CI	11CJ	11CK	11CL	11CM	11CN	11CO	11CP	11CQ	11CR	11CS	11CT	11CU	11CV	11CW	11CX	11CY	11CZ	11DA	11DB	11DC	11DD	11DE	11DF	11DG	11DH	11DI	11DJ	11DK	11DL	11DM	11DN	11DO	11DP	11DQ	11DR	11DS	11DT	11DU	11DV	11DW	11DX	11DY	11DZ	11EA	11EB	11EC	11ED	11EE	11EF	11EG	11EH	11EI	11EJ	11EK	11EL	11EM	11EN	11EO	11EP	11EQ	11ER	11ES	11ET	11EU	11EV	11EW	11EX	11EY	11EZ	11FA	11FB	11FC	11FD	11FE	11FF	11FG	11FH	11FI	11FJ	11FK	11FL	11FM	11FN	11FO	11FP	11FQ	11FR	11FS	11FT	11FU	11FV	11FW	11FX	11FY	11FZ	11GA	11GB	11GC	11GD	11GE	11GF	11GG	11GH	11GI	11GJ	11GK	11GL	11GM	11GN	11GO	11GP	11GQ	11GR	11GS	11GT	11GU	11GV	11GW	11GX	11GY	11GZ	11HA	11HB	11HC	11HD	11HE	11HF	11HG	11HH	11HI	11HJ	11HK	11HL	11HM	11HN	11HO	11HP	11HQ	11HR	11HS	11HT	11HU	11HV	11HW	11HX	11HY	11HZ	11IA	11IB	11IC	11ID	11IE	11IF	11IG	11IH	11II	11IJ	11IK	11IL	11IM	11IN	11IO	11IP	11IQ	11IR	11IS	11IT	11IU	11IV	11IW	11IX	11IY	11IZ	11JA	11JB	11JC	11JD	11JE	11JF	11JG	11JH	11JI	11JJ	11JK	11JL	11JM	11JN	11JO	11JP	11JQ	11JR	11JS	11JT	11JU	11JV	11JW	11JX	11JY	11JZ	11KA	11KB	11KC	11KD	11KE	11KF	11KG	11KH	11KI	11KJ	11KK	11KL	11KM	11KN	11KO	11KP	11KQ	11KR	11KS	11KT	11KU	11KV	11KW	11KX	11KY	11KZ	11LA	11LB	11LC	11LD	11LE	11LF	11LG	11LH	11LI	11LJ	11LK	11LM	11LN	11LO	11LP	11LQ	11LR	11LS	11LT	11LU	11LV	11LW	11LX	11LY	11LZ	11MA	11MB	11MC	11MD	11ME	11MF	11MG	11MH	11MI	11MJ	11MK	11ML	11MM	11MN	11MO	11MP	11MQ	11MR	11MS	11MT	11MU	11MV	11MW	11MX	11MY	11MZ	11NA	11NB	11NC	11ND	11NE	11NF	11NG	11NH	11NI	11NJ	11NK	11NL	11NM	11NN	11NO	11NP	11NQ	11NR	11NS	11NT	11NU	11NV	11NW	11NX	11NY	11NZ	11OA	11OB	11OC	11OD	11OE	11OF	11OG	11OH	11OI	11OJ	11OK	11OL	11OM	11ON	11OO	11OP	11OQ	11OR	11OS	11OT	11OU	11OV	11OW	11OX	11OY	11OZ	11PA	11PB	11PC	11PD	11PE	11PF	11PG	11PH	11PI	11PJ	11PK	11PL	11PM	11PN	11PO	11PP	11PQ	11PR	11PS	11PT	11PU	11PV	11PW	11PX	11PY	11PZ	11QA	11QB	11QC	11QD	11QE	11QF	11QG	11QH	11QI	11QJ	11QK	11QL	11QM	11QN	11QO	11QP	11QQ	11QR	11QS	11QT	11QU	11QV	11QW	11QX	11QY	11QZ	11RA	11RB	11RC	11RD	11RE	11RF	11RG	11RH	11RI	11RJ	11RK	11RL	11RM	11RN	11RO	11RP	11RQ	11RR	11RS	11RT	11RU	11RV	11RW	11RX	11RY	11RZ	11SA	11SB	11SC	11SD	11SE	11SF	11SG	11SH	11SI	11SJ	11SK	11SL	11SM	11SN	11SO	11SP	11SQ	11SR	11SS	11ST	11SU	11SV	11SW	11SX	11SY	11SZ	11TA	11TB	11TC	11TD	11TE	11TF	11TG	11TH	11TI	11TJ	11TK	11TL	11TM	11TN	11TO	11TP	11TQ	11TR	11TS	11TT	11TU	11TV	11TW	11TX	11TY	11TZ	11UA	11UB	11UC	11UD	11UE	11UF	11UG	11UH	11UI	11UJ	11UK	11UL	11UM	11UN	11UO	11UP	11UQ	11UR	11US	11UT	11UU	11UV	11UW	11UX	11UY	11UZ	11VA	11VB	11VC	11VD	11VE	11VF	11VG	11VH	11VI	11VJ	11VK	11VL	11VM	11VN	11VO	11VP	11VQ	11VR	11VS	11VT	11VU	11VV	11VW	11VX	11VY	11VZ	11WA	11WB	11WC	11WD	11WE	11WF	11WG	11WH	11WI	11WJ	11WK	11WL	11WM	11WN	11WO	11WP	11WQ	11WR	11WS	11WT	11WU	11WV	11WW	11WX	11WY	11WZ	11XA	11XB	11XC	11XD	11XE	11XF	11XG	11XH	11XI	11XJ	11XK	11XL	11XM	11XN	11XO	11XP	11XQ	11XR	11XS	11XT	11XU	11XV	11XW	11XZ	11YA	11YB	11YC	11YD	11YE	11YF	11YG	11YH	11YI	11YJ	11YK	11YL	11YM	11YN	11YO	11YP	11YQ	11YR	11YS	11YT	11YU	11YV	11YW	11YZ	11ZA	11ZB	11ZC	11ZD	11ZE	11ZF	11ZG	11ZH	11ZI	11ZJ	11ZK	11ZL	11ZM	11ZN	11ZO	11ZP	11ZQ	11ZR	11ZS	11ZT	11ZU	11ZV	11ZW	11ZX	11ZY	11ZZ
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TYPE	ELEVATION	TYPE	ELEVATION
16' x 2.5' Dia Orn (Unknown)	248	LPGUTUR (Chevrole)	184
12' x 2' Dia Orn (Unknown)	242	14' x 3' Dia Orn (Unknown)	178
Flash Beacon Lighting	240	14' x 2.1/2' Pipe Mount (SprayNozel)	174
Pined 2 Side Mount Standoff (1) (Veanet)	237	14' x 2.1/2' Pipe Mount (SprayNozel)	174
Pined 2 Side Mount Standoff (1)	236	14' x 2.1/2' Pipe Mount (SprayNozel)	174
Pined 2 Side Mount Standoff (1)	235	14' x 2.1/2' Pipe Mount (SprayNozel)	174
16' x 2' Dia Orn (Unknown)	235	14' x 2.1/2' Pipe Mount (SprayNozel)	174
Pined 2 Side Mount Standoff (1)	230	14' x 2.1/2' Pipe Mount (SprayNozel)	174
Pined 2 Side Mount Standoff (1)	229	14' x 2.1/2' Pipe Mount (SprayNozel)	174
10' x 12' Dia Orn (Unknown)	229	10' x 2.5' Pipe Mount (Veanet)	174
Pined 2 Side Mount Standoff (1)	224	(2) D8650505C-M (SprayNozel)	174
Pined 2 Side Mount Standoff (1)	224	(2) D8650505C-M (SprayNozel)	174
(2) 805-10504 Metro PCS	210	(2) TMA-05 (SprayNozel)	174
(2) 805-10504 Metro PCS	210	(3) LPQ21401 TMA (ATJ)	164
(2) 860-10025 RCJ (Metro PCS)	210	(3) LPQ21401 TMA (ATJ)	164
(2) 860-10025 RCJ (Metro PCS)	210	14-11 Frame Sector Mount (ATJ)	164
14-11 Frame (Metro PCS)	210	14-11 Frame Sector Mount (ATJ)	164
14-11 Frame (Metro PCS)	210	14-11 Frame Sector Mount (ATJ)	164
14-11 Frame (Metro PCS)	210	(2) 7770.00 (ATJ)	164
(2) APX18PV+18PV-X (T-Mobile)	202	(2) 7770.00 (ATJ)	164
(2) APX18PV+18PV-X (T-Mobile)	202	D8646520AT (Vetson)	150
(2) GS0057A1 TMA (T-Mobile)	202	LPA-800330CF (Vetson)	150
(2) GS0057A1 TMA (T-Mobile)	202	MG D3-80070 (Vetson)	150
(2) GS0057A1 TMA (T-Mobile)	202	MG D3-80070 (Vetson)	150
RPS TMA (T-Mobile)	202	LPA-800330CF (Vetson)	150
RPS TMA (T-Mobile)	202	MG D3-80070 (Vetson)	150
13-1 T-Frame (T-Mobile)	202	BXA-700585CF (Vetson)	150
13-1 T-Frame (T-Mobile)	202	LPA-800330CF (Vetson)	150
13-1 T-Frame (T-Mobile)	202	14-11 Frame Sector Mount (Vetson)	150
14-1 Vtg (Unknown)	198	14-11 Frame Sector Mount (Vetson)	150
14-1 Vtg (Unknown)	198	14-11 Frame Sector Mount (Vetson)	150
(2) RB80-11-1038 (SprayNozel)	187	D8646520AT (Vetson)	150
(2) RB80-11-1038 (SprayNozel)	187	MG D3-80070 (Vetson)	150
(2) RB80-11-1038 (SprayNozel)	187	BXA-700585CF (Vetson)	150
6'x6' Pipe Mount (Chevrole)	187	9' x 1' Dia Orn (Unknown)	141
6'x6' Pipe Mount (Chevrole)	187	Obstruction Lights	140
6'x6' Pipe Mount (Chevrole)	187	Obstruction Lights	140
Antenna 2 withNozel (Chevrole)	187	2 band off (2 arms)	135
VNL-P2.5-10W (Chevrole)	187	2 band off (2 arms)	132
14' x 2.5-1/2' Pipe Mount (Veanet)	165	4-4 Vtg (Unknown)	132
RRU (Chevrole)	164	12' x 1-1/2' Dia Orn (Unknown)	124
RRU (Chevrole)	164	Pined 2 Side Mount Standoff (1)	114
RRU (Chevrole)	164	Pined 2 Side Mount Standoff (1)	114
6-1 T-Frame (SprayNozel)	98	4-4 Vtg (Unknown)	98
6-1 T-Frame (SprayNozel)	98	2 band off (2 arms)	88
6'x6' Pipe Mount (SprayNozel)	84	2 band off (2 arms) (Veanet)	82
6'x6' Pipe Mount (SprayNozel)	84	GPS (Unknown)	58
6'x6' Pipe Mount (SprayNozel)	84	30'x2' Pipe Mount	22
LPQ21401 (Chevrole)	184	Coast Guard (21) (Unknown)	22

MARK		SIZE	SYMBOL LIST		MARK	SIZE
A	ROHN 2.5 EH		C			ROHN 3.0 STD Reinforced w/L 3.0x2.5x0.8
B	ROHN 2.5 STD Reinforced w/L 2x0.1x4					

GRADE		Fy	Fu	GRADE	Fy	Fu
A375-50	50 ksi	65 ksi		A500-46	46 ksi	62 ksi
A375-60	60 ksi	75 ksi				
A575-50	50 ksi	62 ksi				

PROJECT NO.

DATE

SHEET NO.

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.

7. Tower designed for a 90 mph basic wind in accordance with the TIEA/E-222-F Standard.
8. Tower is also designed for a 78 mph basic wind with 0.50 in ice.
9. Deflections are based upon a 50 mph wind.
10. Weld together tower sections have flange connections.
11. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIEA/E-222 and AISC Specifications.
12. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
13. Welds are fabricated with ER-70S-6 electrodes.
14. TOWER RATING: 111.3%

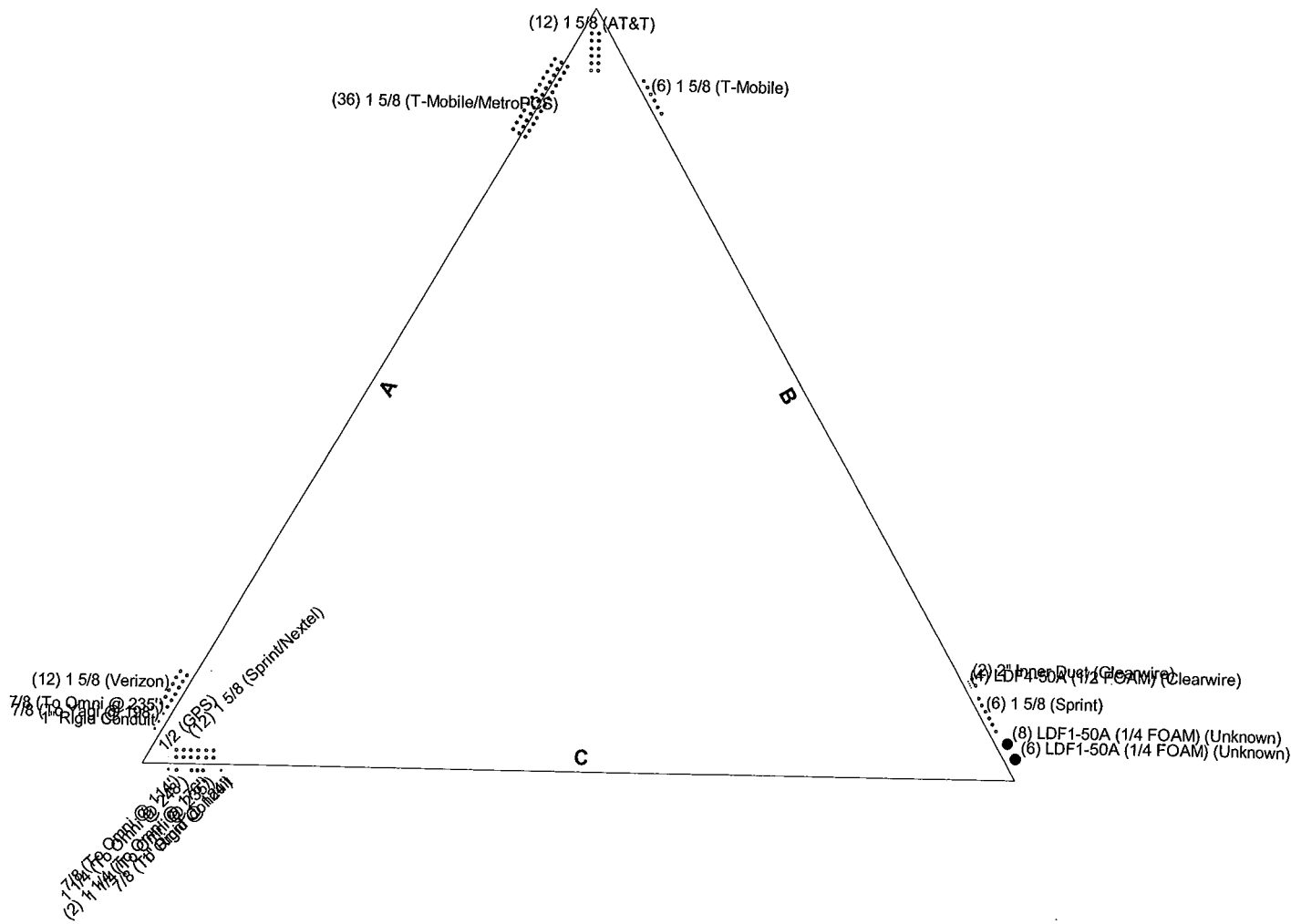
CENTEK Engineering, Inc.
63-2 N Branford Rd
Branford, CT 06405
Phone: (203) 488-8580
FAX: (203) 488-8587

Job: **240-ft ROHN SSMW Self-Support Lattice**
Project: **10001.C078 - 1780 Chopsey Hill Road, Bridgeport, CT**

Client:	Verizon Wireless	Drawn By:	Staff	Date:	12/08/10	Scale:	NTS
Code:	TIA/EIA-222-F	Checked By:	Staff	Date:		Scale:	NTS
Part:		Checked By:	Staff	Date:		Scale:	NTS

Page No. E-1

Feedline Plan

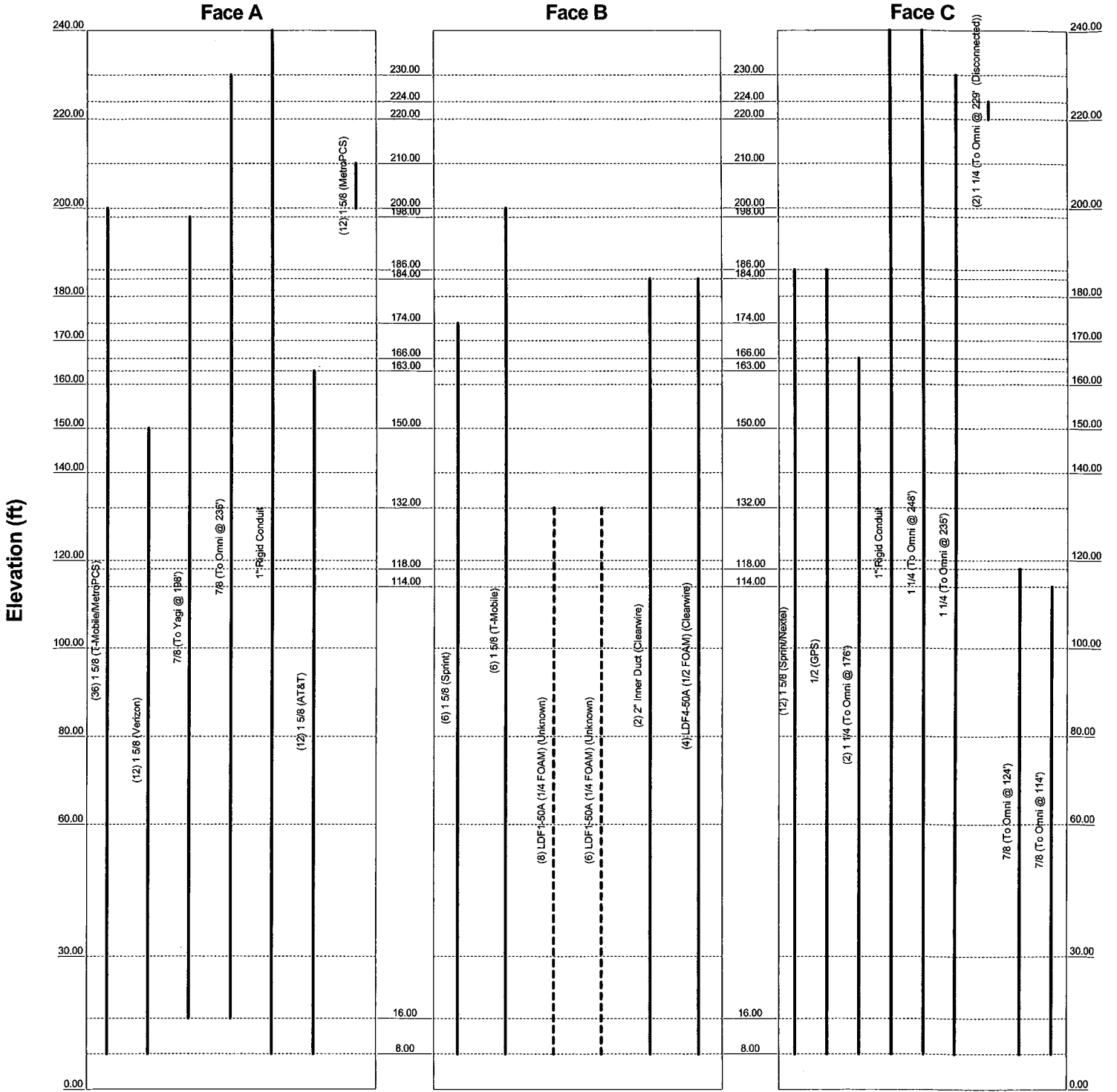


CEN TEK Engineering, Inc.		Job: 240-ft ROHN SSMW Self-Support Lattice	
63-2 N Branford Rd Branford, CT 06405		Project: 10001.C078 - 1280 Chopsey Hill Road, Bridgeport, CT	
Phone: (203) 488-0580		Client: Verizon Wireless	Drawn by: Staff
FAX: (203) 488-8587		Code: TIA/EIA-222-F	Date: 12/08/10
		Path:	Scale: NTS
			Dwg No: E-7

Feedline Distribution Chart

0' - 240'

Round Flat App In Face App Out Face Truss Leg



CEN TEK Engineering, Inc.

63-2 N Branford Rd
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 240-ft ROHN SSMW Self-Support Lattice		
Project: 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT		
Client: Verizon Wireless	Drawn by: Staff	App'd:
Code: TIA/EIA-222-F	Date: 12/08/10	Scale: NTS
Path:	Dwg No. E-7	

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 1 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 240.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 10.58 ft at the top and 40.25 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Basic wind speed of 90 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 78 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Weld together tower sections have flange connections..

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

Welds are fabricated with ER-70S-6 electrodes..

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

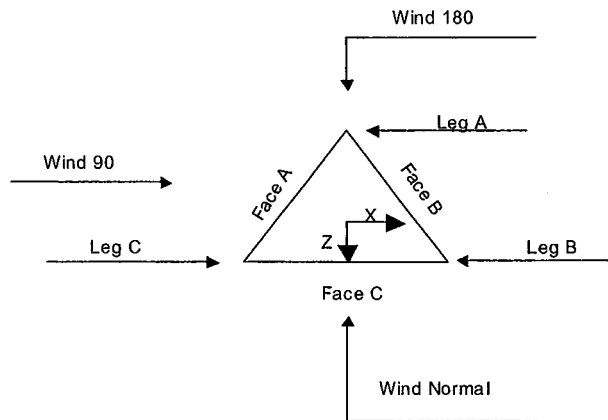
Stress ratio used in tower member design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile ✓ Include Bolts In Member Capacity ✓ Leg Bolts Are At Top Of Section ✓ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r Retension Guys To Initial Tension Bypass Mast Stability Checks Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules ✓ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression ✓ All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feedline Torque Include Angle Block Shear Check <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|---|

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	2 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	240.00-220.00			10.58	1	20.00
T2	220.00-200.00			12.63	1	20.00
T3	200.00-180.00			14.96	1	20.00
T4	180.00-170.00			17.46	1	10.00
T5	170.00-160.00			18.71	1	10.00
T6	160.00-150.00			19.96	1	10.00
T7	150.00-140.00			21.25	1	10.00
T8	140.00-120.00			22.54	1	20.00
T9	120.00-100.00			25.04	1	20.00
T10	100.00-80.00			27.54	1	20.00
T11	80.00-60.00			30.04	1	20.00
T12	60.00-30.00			32.54	1	30.00
T13	30.00-0.00			36.23	1	30.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	240.00-220.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T2	220.00-200.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	3 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	200.00-180.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T4	180.00-170.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T5	170.00-160.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T6	160.00-150.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T7	150.00-140.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	140.00-120.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T10	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T11	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T13	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T3 200.00-180.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T4 180.00-170.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 EH	A500-46 (46 ksi)
T6 160.00-150.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T7 150.00-140.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T8 140.00-120.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A500-46 (46 ksi)
T9 120.00-100.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD Reinforced w/ L2x2x1/4	A500-50 (50 ksi)
T10 100.00-80.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T12 60.00-30.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T13 30.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 240.00-220.00	Pipe	ROHN 2 STD	A500-50 (50 ksi)	Flat Bar		A36 (36 ksi)
T2 220.00-200.00	Pipe	ROHN 2 STD	A500-50	Flat Bar		A36

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	4 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 200.00-180.00	Pipe	ROHN 2 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T4 180.00-170.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T5 170.00-160.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T6 160.00-150.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T7 150.00-140.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T8 140.00-120.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T9 120.00-100.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T10 100.00-80.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T11 80.00-60.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T12 60.00-30.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T13 30.00-0.00	Pipe	ROHN 3.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T3 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T4 180.00-170.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T6 160.00-150.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T7 150.00-140.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T8 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T9 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T10 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T12 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T13 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 STD	A500-50 (50 ksi)

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 5 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 240.00-220.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 220.00-200.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 200.00-180.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 180.00-170.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 170.00-160.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 160.00-150.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T7 150.00-140.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 140.00-120.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3 1/2x3x1/4	A36 (36 ksi)
T9 120.00-100.00	Solid Round		A572-50 (50 ksi)	Pipe	P2x.154	A500-50 (50 ksi)
T10 100.00-80.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T11 80.00-60.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T12 60.00-30.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T13 30.00-0.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
T9 120.00-100.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T10 100.00-80.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T11 80.00-60.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T12 60.00-30.00	A36 (36 ksi)	Horizontal (1) Horizontal (2) Diagonal (1)	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	6 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 19:17:16 12/08/10 Designed by Staff

Tower Elevation	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
ft				
T13 30.00-0.00	A36 (36 ksi)	Diagonal (2)	ROHN 2 STD	1
		Hip (1)	ROHN 2 STD	
		Hip (2)	ROHN 2 STD	1
		Hip Diagonal	ROHN 2 STD	
		Horizontal (1)	ROHN 2 STD	1
		Horizontal (2)	ROHN 2 STD	
		Diagonal (1)	ROHN 2 STD	1
		Diagonal (2)	ROHN 2 STD	
		Hip (1)	ROHN 2 STD	1
		Hip (2)	ROHN 2 STD	
		Hip Diagonal	ROHN 2 STD	1

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
T1 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T2 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T3 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T4 180.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T5 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T6 160.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T7 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T8 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T9 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T10 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T11 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T12 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T13 30.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000

Tower Section Geometry (cont'd)

K Factors

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	8 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 19:17:16 12/08/10 Designed by Staff

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T9 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 60.00-30.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 30.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 240.00-220.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T2 220.00-200.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T3 200.00-180.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T4 180.00-170.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T5 170.00-160.00	Flange	1.0000 A325N	0	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T6 160.00-150.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	2	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T7 150.00-140.00	Flange	1.0000 A325N	0	0.7500 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T8 140.00-120.00	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T9 120.00-100.00	Flange	1.0000 A325N	8	0.7500 A325N	3	0.7500 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T10 100.00-80.00	Flange	1.0000 A325N	8	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T11 80.00-60.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T12 60.00-30.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T13 30.00-0.00	Flange	1.0000 A325N	12	0.8750 A325N	3	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 9 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (T- Mobile/Metro PCS)	A	Yes	Ar (CfAe)	200.00 - 8.00	-2.0000	0.38	36	12	1.9800	1.9800		1.04
1 5/8 (Sprint)	B	Yes	Ar (CfAe)	174.00 - 8.00	3.0000	0.42	6	6	1.9800	1.9800		1.04
1 5/8 (Verizon)	A	Yes	Ar (CfAe)	150.00 - 8.00	2.5000	-0.41	12	6	1.9800	1.9800		1.04
7/8 (To Yagi @ 198')	A	Yes	Ar (CfAe)	198.00 - 16.00	3.0000	-0.45	1	1	1.1100	1.1100		0.54
1 5/8 (Sprint/Nextel)	C	Yes	Ar (CfAe)	186.00 - 8.00	-6.0000	0.44	12	6	1.9800	1.9800		1.04
1/2 (GPS)	C	Yes	Ar (CfAe)	186.00 - 8.00	-3.0000	0.47	1	1	0.5800	0.5800		0.25
7/8 (To Omni @ 235')	A	Yes	Ar (CfAe)	230.00 - 16.00	3.0000	-0.44	1	1	1.1100	1.1100		0.54
1 1/4 (To Omni @ 176')	C	Yes	Ar (CfAe)	166.00 - 8.00	3.0000	0.44	2	2	1.5500	1.5500		0.66
1" Rigid Conduit	A	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	-0.46	1	1	1.0000	1.0000		0.70
1" Rigid Conduit	C	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	0.41	1	1	1.0000	1.0000		0.70
1 5/8 (AT&T)	A	No	Ar (Leg)	163.00 - 8.00	0.0000	0.05	12	6	1.9800	1.9800		1.04
1 5/8 (T-Mobile)	B	Yes	Ar (CfAe)	200.00 - 8.00	3.0000	-0.38	6	6	1.9800	1.9800		1.04
2" Inner Duct (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	5.0000	0.38	2	2	2.0000	2.0000		1.00
LDF4-50A (1/2 FOAM) (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	3.0000	0.38	4	4	1.5000 0.6300	2.0000 0.6300		0.15
1 1/4 (To Omni @ 248')	C	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	0.46	1	1	1.5500	1.5500		0.66
1 1/4 (To Omni @ 235')	C	Yes	Ar (CfAe)	230.00 - 8.00	3.0000	0.43	1	1	1.5500	1.5500		0.66
1 1/4 (To Omni @ 229' (Disconnected)	C	Yes	Ar (CfAe)	224.00 - 220.00	3.0000	0.43	2	2	1.5500	1.5500		0.66
7/8 (To Omni @ 124')	C	Yes	Ar (CfAe)	118.00 - 8.00	3.0000	0.41	1	1	1.1100	1.1100		0.54
7/8 (To Omni @ 114')	C	Yes	Ar (CfAe)	114.00 - 8.00	3.0000	0.47	1	1	1.1100	1.1100		0.54
1 5/8 (MetroPCS)	A	Yes	Ar (CfAe)	210.00 - 200.00	-2.0000	0.38	12	12	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances - Entered As Area

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	10 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _A A _A ft ² /ft	Weight plf
LDF1-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.46	8	No Ice 1/2" Ice	0.03 0.14	0.06 0.58
LDF1-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.48	6	No Ice 1/2" Ice	0.03 0.14	0.06 0.58

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	240.00-220.00	A	2.592	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	6.575	0.000	0.000	0.000	0.04
T2	220.00-200.00	A	23.317	0.000	0.000	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	6.833	0.000	0.000	0.000	0.04
T3	200.00-180.00	A	44.782	0.000	0.000	0.000	0.78
		B	21.973	0.000	0.000	0.000	0.14
		C	13.063	0.000	0.000	0.000	0.12
T4	180.00-170.00	A	22.483	0.000	0.000	0.000	0.39
		B	19.293	0.000	0.000	0.000	0.11
		C	13.800	0.000	0.000	0.000	0.15
T5	170.00-160.00	A	25.453	0.000	0.000	0.000	0.43
		B	28.203	0.000	0.000	0.000	0.15
		C	15.350	0.000	0.000	0.000	0.16
T6	160.00-150.00	A	32.383	0.000	0.000	0.000	0.52
		B	35.133	0.000	0.000	0.000	0.15
		C	16.383	0.000	0.000	0.000	0.16
T7	150.00-140.00	A	42.283	0.000	0.000	0.000	0.64
		B	35.133	0.000	0.000	0.000	0.15
		C	16.383	0.000	0.000	0.000	0.16
T8	140.00-120.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	5.880	0.000	0.31
		C	32.767	0.000	0.000	0.000	0.32
T9	120.00-100.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	35.727	0.000	0.000	0.000	0.34
T10	100.00-80.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	36.467	0.000	0.000	0.000	0.34
T11	80.00-60.00	A	84.567	0.000	0.000	0.000	1.28
		B	70.267	0.000	9.800	0.000	0.32
		C	36.467	0.000	0.000	0.000	0.34
T12	60.00-30.00	A	126.850	0.000	0.000	0.000	1.93
		B	105.400	0.000	14.700	0.000	0.48
		C	54.700	0.000	0.000	0.000	0.51
T13	30.00-0.00	A	91.543	0.000	0.000	0.000	1.40
		B	77.293	0.000	10.780	0.000	0.35
		C	40.113	0.000	0.000	0.000	0.38

Feed Line/Linear Appurtenances Section Areas - With Ice

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 11 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
T1	240.00-220.00	A	0.500	5.092	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		11.408	0.000	0.000	0.000	0.10
T2	220.00-200.00	A	0.500	36.650	0.000	0.000	0.000	0.37
		B		0.000	0.000	0.000	0.000	0.00
		C		11.833	0.000	0.000	0.000	0.11
T3	200.00-180.00	A	0.500	69.615	0.000	0.000	0.000	1.93
		B		32.343	1.260	0.000	0.000	0.34
		C		21.563	0.000	0.000	0.000	0.30
T4	180.00-170.00	A	0.500	34.983	0.000	0.000	0.000	0.97
		B		27.218	3.150	0.000	0.000	0.30
		C		22.133	0.000	0.000	0.000	0.37
T5	170.00-160.00	A	0.500	39.453	0.000	0.000	0.000	1.06
		B		40.628	3.150	0.000	0.000	0.39
		C		24.683	0.000	0.000	0.000	0.39
T6	160.00-150.00	A	0.500	49.883	0.000	0.000	0.000	1.27
		B		51.058	3.150	0.000	0.000	0.39
		C		26.383	0.000	0.000	0.000	0.41
T7	150.00-140.00	A	0.500	64.783	0.000	0.000	0.000	1.58
		B		51.058	3.150	0.000	0.000	0.39
		C		26.383	0.000	0.000	0.000	0.41
T8	140.00-120.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	22.680	0.000	0.88
		C		52.767	0.000	0.000	0.000	0.82
T9	120.00-100.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		58.393	0.000	0.000	0.000	0.87
T10	100.00-80.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		59.800	0.000	0.000	0.000	0.88
T11	80.00-60.00	A	0.500	129.567	0.000	0.000	0.000	3.16
		B		102.117	6.300	37.800	0.000	0.94
		C		59.800	0.000	0.000	0.000	0.88
T12	60.00-30.00	A	0.500	194.350	0.000	0.000	0.000	4.74
		B		153.175	9.450	56.700	0.000	1.41
		C		89.700	0.000	0.000	0.000	1.32
T13	30.00-0.00	A	0.500	139.710	0.000	0.000	0.000	3.45
		B		112.328	6.930	41.580	0.000	1.04
		C		65.780	0.000	0.000	0.000	0.97

Feed Line Shielding

Section	Elevation ft	Face	A_R ft ²	A_R Ice ft ²	A_F ft ²	A_F Ice ft ²
T1	240.00-220.00	A	0.192	0.537	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.488	1.203	0.000	0.000
T2	220.00-200.00	A	1.419	3.059	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.416	0.988	0.000	0.000
T3	200.00-180.00	A	2.553	5.450	0.000	0.000
		B	1.253	2.631	0.000	0.000
		C	0.745	1.688	0.000	0.000
T4	180.00-170.00	A	1.327	2.783	0.000	0.000
		B	1.139	2.416	0.000	0.000
		C	0.814	1.761	0.000	0.000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	12 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section	Elevation	Face	A_R	$A_{R_{Ice}}$	A_F	$A_{F_{Ice}}$
	ft		ft ²	ft ²	ft ²	ft ²
T5	170.00-160.00	A	1.301	2.728	0.000	0.000
		B	1.460	3.066	0.000	0.000
		C	0.888	1.925	0.000	0.000
T6	160.00-150.00	A	1.439	2.931	0.000	0.000
		B	1.615	3.293	0.000	0.000
		C	1.049	2.210	0.000	0.000
T7	150.00-140.00	A	2.038	4.111	0.000	0.000
		B	1.588	3.240	0.000	0.000
		C	1.031	2.174	0.000	0.000
T8	140.00-120.00	A	3.994	8.059	0.000	0.000
		B	3.112	6.350	0.000	0.000
		C	2.021	4.262	0.000	0.000
T9	120.00-100.00	A	4.265	8.980	0.000	0.000
		B	3.324	7.076	0.000	0.000
		C	2.353	5.256	0.000	0.000
T10	100.00-80.00	A	4.364	9.027	0.000	0.000
		B	3.400	7.114	0.000	0.000
		C	2.457	5.411	0.000	0.000
T11	80.00-60.00	A	4.210	8.708	0.000	0.000
		B	3.281	6.862	0.000	0.000
		C	2.371	5.219	0.000	0.000
T12	60.00-30.00	A	6.423	13.482	0.000	0.000
		B	5.005	10.624	0.000	0.000
		C	3.616	8.081	0.000	0.000
T13	30.00-0.00	A	4.668	9.601	0.000	0.000
		B	3.715	7.765	0.000	0.000
		C	2.684	5.906	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	$CP_{x_{Ice}}$	$CP_{z_{Ice}}$
	ft	in	in	in	in
T1	240.00-220.00	-3.8034	2.4499	-5.2683	3.3647
T2	220.00-200.00	-5.3761	-6.3246	-7.2629	-6.6939
T3	200.00-180.00	-7.1305	-19.5517	-9.1529	-21.0415
T4	180.00-170.00	-5.6158	-12.8530	-7.5781	-13.2836
T5	170.00-160.00	-2.1692	-12.2711	-3.8219	-12.5350
T6	160.00-150.00	-2.6702	-16.4236	-4.3103	-17.1264
T7	150.00-140.00	-9.3573	-13.4764	-11.4713	-13.8953
T8	140.00-120.00	-7.1429	-12.2890	-4.6479	-9.5007
T9	120.00-100.00	-6.9356	-11.3459	-2.0550	-6.6320
T10	100.00-80.00	-7.6096	-11.8024	-2.5078	-6.8431
T11	80.00-60.00	-7.7996	-11.9973	-2.6709	-7.0873
T12	60.00-30.00	-8.5277	-13.0599	-2.8975	-7.6768
T13	30.00-0.00	-7.0953	-11.8725	-2.0920	-7.4481

Discrete Tower Loads

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 13 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
16' x 2.5" Dia Omni (Unknown)	C	From Face	0.00 0.00 0.00	0.0000	248.00	No Ice 1/2" Ice	4.08 5.75	4.08 5.75	0.05 0.08
Flash Beacon Lighting	C	From Leg	0.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	2.70 3.10	2.70 3.10	0.05 0.07
8'x2 1/2" Pipe Mount	C	From Face	0.00 0.00 0.00	0.0000	237.00	No Ice 1/2" Ice	2.30 3.13	2.30 3.13	0.04 0.06
Pirol 4' Side Mount Standoff (1) (Vacant)	B	From Leg	2.00 0.00 0.00	0.0000	238.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
12' x 2" Dia Omni (Unknown)	B	From Leg	4.00 0.00 0.00	0.0000	242.00	No Ice 1/2" Ice	2.40 3.63	2.40 3.63	0.03 0.05
Pirol 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	236.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
10' x 3" Dia Omni (Unknown)	A	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	0.03 0.05
10' x 3" Dia Omni (Unknown)	C	From Leg	4.00 0.00 0.00	0.0000	235.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	0.03 0.05
Pirol 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
Pirol 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
10'x2.5" Pipe Mount (Vacant)	B	From Face	0.00 0.00 0.00	0.0000	229.00	No Ice 1/2" Ice	2.88 3.91	2.88 3.91	0.06 0.08
10' x 3" Dia Omni (Unknown)	A	From Leg	4.00 0.00 0.00	0.0000	229.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	0.03 0.05
Pirol 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	224.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
(2) 800-10504 (Metro PCS)	A	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	3.66 4.01	2.26 2.59	0.02 0.04
(2) 800-10504 (Metro PCS)	B	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	3.66 4.01	2.26 2.59	0.02 0.04
(2) 800-10504 (Metro PCS)	C	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	3.66 4.01	2.26 2.59	0.02 0.04
(2) 860 10025 RCU (Metro PCS)	A	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	0.16 0.22	0.13 0.19	0.00 0.00
(2) 860 10025 RCU (Metro PCS)	B	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	0.16 0.22	0.13 0.19	0.00 0.00
(2) 860 10025 RCU (Metro PCS)	C	From Leg	3.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	0.16 0.22	0.13 0.19	0.00 0.00

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	14 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
10-ft T-Frame (Metro PCS)	A	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Metro PCS)	B	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Metro PCS)	C	From Leg	1.50 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
(3) APX16PV-16PVL-X (T-Mobile)	A	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(3) APX16PV-16PVL-X (T-Mobile)	B	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(3) APX16PV-16PVL-X (T-Mobile)	C	From Leg	3.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(2) G20057A1 TMA (T-Mobile)	A	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
(2) G20057A1 TMA (T-Mobile)	B	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
(2) G20057A1 TMA (T-Mobile)	C	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
RFS TMA (T-Mobile)	A	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
RFS TMA (T-Mobile)	B	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
RFS TMA (T-Mobile)	C	From Leg	3.00 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	1.17 1.31	0.39 0.48	0.01 0.02
13-ft T-Frame (T-Mobile)	A	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
13-ft T-Frame (T-Mobile)	B	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
13-ft T-Frame (T-Mobile)	C	From Leg	1.50 0.00 0.00	0.0000	202.00	No Ice 1/2" Ice	11.70 16.40	11.70 16.40	0.53 0.74
4-ft Yagi (Unknown)	C	From Face	2.00 0.00 0.00	0.0000	198.00	No Ice 1/2" Ice	1.15 1.91	1.15 1.91	0.01 0.02
10'x4" Pipe Mount (Yagi mount))	C	From Face	0.00 0.00 0.00	0.0000	195.00	No Ice 1/2" Ice	4.50 5.24	4.50 5.24	0.11 0.14
(2) RR90-11-10DBL (Sprint/Nextel)	A	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63	0.02 0.06
(2) RR90-11-10DBL (Sprint/Nextel)	B	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63	0.02 0.06

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 15 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(2) RR90-11-10DBL (Sprint/Nextel)	C	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.60 5.99	3.27 3.63	0.02 0.06
6'x4" Pipe Mount (Clearwire)	A	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Clearwire)	B	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Clearwire)	C	From Leg	2.50 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
14' x 2-1/2" Pipe Mount (Vacant)	B	None		0.0000	185.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
LLPX310R (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21	0.03 0.05
LLPX310R (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21	0.03 0.05
LLPX310R (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21	0.03 0.05
RRU (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
RRU (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
RRU (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
6-ft T-Frame (Sprint/Nextel)	A	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6-ft T-Frame (Sprint/Nextel)	B	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6-ft T-Frame (Sprint/Nextel)	C	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6'x4" Pipe Mount (Sprint/Nextel)	A	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	B	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	C	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
20' x 3" Dia Omni (Unknown)	B	From Leg	2.00 0.00 0.00	0.0000	176.00	No Ice 1/2" Ice	6.00 8.03	6.00 8.03	0.05 0.09
(2) 7184.05 (Sprint/Nextel)	A	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.89 3.41	2.89 3.41	0.01 0.03
(2) 7184.05	B	From Face	0.50	0.0000	174.00	No Ice	2.89	2.89	0.01

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job		Page
	240-ft ROHN SSMW Self-Support Lattice		16 of 62
	Project		Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT		19:17:16 12/08/10
	Client		Designed by
	Verizon Wireless		Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(Sprint/Nextel)			0.00			1/2" Ice	3.41	3.41	0.03
(2) DB950G40E-M (Sprint/Nextel)	C	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	6.42 6.88	4.72 5.11	0.02 0.06
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
10'x2.5" Pipe Mount (Vacant)	C	From Face	0.50 -7.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.88 3.91	2.88 3.91	0.06 0.08
(2) 7770.00 (AT&T)	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00 (AT&T)	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00 (AT&T)	C	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(3) LPG21401 TMA (AT&T)	A	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(3) LPG21401 TMA (AT&T)	B	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(3) LPG21401 TMA (AT&T)	C	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
14-ft T-Frame Sector Mount (AT&T)	A	From Leg	2.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount	B	From Leg	2.00	0.0000	164.00	No Ice	16.30	16.30	0.51

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	17 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 19:17:16 12/08/10 Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(AT&T)			0.00					
14-ft T-Frame Sector Mount (AT&T)	C	From Leg	0.00 2.00 0.00 0.00	0.0000	164.00	1/2" Ice 20.60 No Ice 16.30 1/2" Ice 20.60	20.60 16.30 20.60	0.72 0.51 0.72
DB846F65ZAXY (Verizon)	A	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 7.03 1/2" Ice 7.54	6.16 6.62	0.02 0.07
MG D3-800T0 (Verizon)	A	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	3.76 4.19	0.02 0.06
DB846F65ZAXY (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 7.03 1/2" Ice 7.54	6.16 6.62	0.02 0.07
LPA-80063/6CF (Verizon)	B	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	B	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	3.76 4.19	0.02 0.06
LPA-80063/6CF (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
LPA-80063/6CF (Verizon)	C	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	C	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 3.45 1/2" Ice 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 7.73 1/2" Ice 8.27	3.76 4.19	0.02 0.06
LPA-80063/6CF (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 10.31 1/2" Ice 10.87	9.01 9.55	0.03 0.10
14-ft T-Frame Sector Mount (Verizon)	A	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	B	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	C	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 16.30 1/2" Ice 20.60	16.30 20.60	0.51 0.72
Obstruction Lights	A	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	B	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	C	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 0.18 1/2" Ice 0.25	0.18 0.25	0.01 0.01

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	18 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			1/2" Ice	0.25	0.01
			0.00					
10' x 1" Dia Omni (Unknown)	B	From Leg	2.00	0.0000	141.00	No Ice	1.00	0.03
			0.00			1/2" Ice	2.02	0.04
			0.00					
2' stand off (2 arms)	B	From Leg	1.00	0.0000	136.00	No Ice	2.79	0.10
			0.00			1/2" Ice	4.10	0.13
			0.00					
2' stand off (2 arms)	B	From Leg	1.00	0.0000	132.00	No Ice	2.79	0.10
			0.00			1/2" Ice	4.10	0.13
			0.00					
4-ft Yagi (Unknown)	B	From Leg	2.00	0.0000	132.00	No Ice	1.15	0.01
			0.00			1/2" Ice	1.91	0.02
			0.00					
12' x 1-1/2" Dia Omni (Unknown)	B	From Leg	4.00	0.0000	124.00	No Ice	1.80	0.03
			0.00			1/2" Ice	3.02	0.04
			0.00					
Pirot 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	118.00	No Ice	2.72	0.05
			0.00			1/2" Ice	4.91	0.09
			0.00					
12' x 2" Dia Omni (Unknown)	C	From Leg	4.00	0.0000	114.00	No Ice	2.40	0.03
			0.00			1/2" Ice	3.63	0.05
			0.00					
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00	0.0000	108.00	No Ice	2.72	0.05
			0.00			1/2" Ice	4.91	0.09
			0.00					
4-ft Yagi (Unknown)	A	From Leg	3.50	0.0000	98.00	No Ice	1.15	0.01
			0.00			1/2" Ice	1.91	0.02
			0.00					
2' stand off (2 arms)	A	From Leg	1.00	0.0000	98.00	No Ice	2.79	0.10
			0.00			1/2" Ice	4.10	0.13
			0.00					
2' stand off (2 arms) (Vacant)	A	From Leg	1.00	0.0000	82.00	No Ice	2.79	0.10
			0.00			1/2" Ice	4.10	0.13
			0.00					
GPS (Unknown)	C	From Face	2.00	0.0000	56.00	No Ice	1.00	0.01
			12.00			1/2" Ice	1.50	0.01
			0.00					
5'0"x3" Pipe Mount	C	From Face	0.50	0.0000	56.00	No Ice	1.36	0.03
			12.00			1/2" Ice	1.67	0.04
			0.00					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
Andrew 2' w/Radome (Clearwire)	B	Paraboloid w/Radome	From Leg	4.00 0.00	Worst		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	0.07 0.28

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	19 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
Andrew 2' w/Radome (Clearwire)	C	Paraboloid w/Radome	From Leg	0.00 4.00 0.00	Worst		187.00	2.00	No Ice 1/2" Ice	3.14 3.41 0.07 0.28
VHLP2.5-10W (Clearwire)	A	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.50	No Ice 1/2" Ice	4.91 5.24 0.05 0.08
0.8M Satellite Dish (Unknown)	C	Paraboloid w/o Radome	From Face	2.00 15.00 0.00	Worst		22.00	2.60	No Ice 1/2" Ice	5.31 5.66 0.01 0.08

Tower Pressures - No Ice

$$G_H = 1.102$$

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
T1 240.00- 220.00	230.00	1.741	36	246.494	A	0.000	47.455	28.800	60.69	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	51.143		56.31	0.000	0.000
T2 220.00- 200.00	210.00	1.697	35	290.299	A	0.000	66.877	28.815	43.09	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	51.397		56.06	0.000	0.000
T3 200.00- 180.00	190.00	1.649	34	338.603	A	0.000	88.936	28.825	32.41	0.000	0.000
					B	0.000	67.428		42.75	0.000	0.000
					C	0.000	59.026		48.83	0.000	0.000
T4 180.00- 170.00	175.00	1.611	33	188.052	A	0.000	45.892	14.412	31.41	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
					C	0.000	37.721		38.21	0.000	0.000
T5 170.00- 160.00	165.00	1.584	33	200.552	A	0.000	49.403	14.412	29.17	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
					C	0.000	39.713		36.29	0.000	0.000
T6 160.00- 150.00	155.00	1.556	32	213.252	A	0.000	58.195	14.415	24.77	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
					C	0.000	42.586		33.85	0.000	0.000
T7 150.00- 140.00	145.00	1.526	32	226.152	A	0.000	68.090	14.415	21.17	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
					C	0.000	43.197		33.37	0.000	0.000
T8 140.00- 120.00	130.00	1.48	31	490.203	A	0.000	138.028	28.825	20.88	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
					C	0.000	88.201		32.68	0.000	0.000
T9 120.00- 100.00	110.00	1.411	29	540.203	A	0.000	141.549	28.825	20.36	0.000	0.000
					B	0.000	125.216		23.02	9.800	0.000
					C	0.000	88.672		32.51	0.000	0.000
T10 100.00- 80.00	90.00	1.332	28	590.203	A	0.000	145.724	28.825	19.78	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
					C	0.000	93.255		30.91	0.000	0.000
T11 80.00- 60.00	70.00	1.24	26	643.752	A	0.000	154.919	35.927	23.19	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
					C	0.000	102.045		35.21	0.000	0.000
T12 60.00- 30.00	45.00	1.093	23	1058.47 6	A	0.000	231.969	53.885	23.23	0.000	0.000
					B	0.000	208.435		25.85	14.700	0.000
					C	0.000	155.622		34.63	0.000	0.000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 20 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T13 30.00-0.00	15.00	1	21	1174.135	A	0.000	206.891	53.911	26.06	0.000	0.000
					B	0.000	189.819		28.40	10.780	0.000
					C	0.000	149.894		35.97	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.102$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
T1 240.00-220.00	230.00	1.741	27	0.5000	248.163	A	0.000	59.794	32.139	53.75	0.000	0.000
						B	0.000	55.240		58.18	0.000	0.000
						C	0.000	65.445		49.11	0.000	0.000
T2 220.00-200.00	210.00	1.697	26	0.5000	291.969	A	0.000	87.895	32.156	36.58	0.000	0.000
						B	0.000	54.305		59.21	0.000	0.000
						C	0.000	65.150		49.36	0.000	0.000
T3 200.00-180.00	190.00	1.649	26	0.5000	340.273	A	0.000	120.865	32.167	26.61	0.000	0.000
						B	1.260	86.413		36.69	0.000	0.000
						C	0.000	76.576		42.01	0.000	0.000
T4 180.00-170.00	175.00	1.611	25	0.5000	188.886	A	0.000	62.197	16.083	25.86	0.000	0.000
						B	3.150	54.800		27.75	0.000	0.000
						C	0.000	50.370		31.93	0.000	0.000
T5 170.00-160.00	165.00	1.584	25	0.5000	201.386	A	0.000	67.417	16.083	23.86	0.000	0.000
						B	3.150	68.255		22.52	0.000	0.000
						C	0.000	53.450		30.09	0.000	0.000
T6 160.00-150.00	155.00	1.556	24	0.5000	214.088	A	0.000	79.829	16.086	20.15	0.000	0.000
						B	3.150	80.641		19.20	0.000	0.000
						C	0.000	57.049		28.20	0.000	0.000
T7 150.00-140.00	145.00	1.526	24	0.5000	226.988	A	0.000	94.332	16.086	17.05	0.000	0.000
						B	3.150	81.478		19.01	0.000	0.000
						C	0.000	57.868		27.80	0.000	0.000
T8 140.00-120.00	130.00	1.48	23	0.5000	491.873	A	0.000	191.153	32.167	16.83	0.000	0.000
						B	6.300	165.411		18.73	22.680	0.000
						C	0.000	118.150		27.23	0.000	0.000
T9 120.00-100.00	110.00	1.411	22	0.5000	541.873	A	0.000	196.949	32.167	16.33	0.000	0.000
						B	6.300	167.176		18.54	37.800	0.000
						C	0.000	121.045		26.57	0.000	0.000
T10 100.00-80.00	90.00	1.332	21	0.5000	591.873	A	0.000	201.866	32.167	15.93	0.000	0.000
						B	6.300	171.871		18.05	37.800	0.000
						C	0.000	126.798		25.37	0.000	0.000
T11 80.00-60.00	70.00	1.24	19	0.5000	645.422	A	0.000	211.893	39.269	18.53	0.000	0.000
						B	6.300	181.590		20.90	37.800	0.000
						C	0.000	136.217		28.83	0.000	0.000
T12 60.00-30.00	45.00	1.093	17	0.5000	1060.980	A	0.000	317.749	58.898	18.54	0.000	0.000
						B	9.450	274.456		20.75	56.700	0.000
						C	0.000	208.548		28.24	0.000	0.000
T13 30.00-0.00	15.00	1	16	0.5000	1176.641	A	0.000	276.929	58.926	21.28	0.000	0.000
						B	6.930	246.019		23.30	41.580	0.000
						C	0.000	195.963		30.07	0.000	0.000

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 21 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Tower Pressure - Service

$$G_H = 1.102$$

Section Elevation	z	K _z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 240.00- 220.00	230.00	1.741	11	246.494	A	0.000	47.455	28.800	60.69	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	51.143		56.31	0.000	0.000
T2 220.00- 200.00	210.00	1.697	11	290.299	A	0.000	66.877	28.815	43.09	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	51.397		56.06	0.000	0.000
T3 200.00- 180.00	190.00	1.649	11	338.603	A	0.000	88.936	28.825	32.41	0.000	0.000
					B	0.000	67.428		42.75	0.000	0.000
					C	0.000	59.026		48.83	0.000	0.000
T4 180.00- 170.00	175.00	1.611	10	188.052	A	0.000	45.892	14.412	31.41	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
					C	0.000	37.721		38.21	0.000	0.000
T5 170.00- 160.00	165.00	1.584	10	200.552	A	0.000	49.403	14.412	29.17	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
					C	0.000	39.713		36.29	0.000	0.000
T6 160.00- 150.00	155.00	1.556	10	213.252	A	0.000	58.195	14.415	24.77	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
					C	0.000	42.586		33.85	0.000	0.000
T7 150.00- 140.00	145.00	1.526	10	226.152	A	0.000	68.090	14.415	21.17	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
					C	0.000	43.197		33.37	0.000	0.000
T8 140.00- 120.00	130.00	1.48	9	490.203	A	0.000	138.028	28.825	20.88	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
					C	0.000	88.201		32.68	0.000	0.000
T9 120.00- 100.00	110.00	1.411	9	540.203	A	0.000	141.549	28.825	20.36	0.000	0.000
					B	0.000	125.216		23.02	9.800	0.000
					C	0.000	88.672		32.51	0.000	0.000
T10 100.00- 80.00	90.00	1.332	9	590.203	A	0.000	145.724	28.825	19.78	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
					C	0.000	93.255		30.91	0.000	0.000
T11 80.00- 60.00	70.00	1.24	8	643.752	A	0.000	154.919	35.927	23.19	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
					C	0.000	102.045		35.21	0.000	0.000
T12 60.00- 30.00	45.00	1.093	7	1058.47	A	0.000	231.969	53.885	23.23	0.000	0.000
				6	B	0.000	208.435		25.85	14.700	0.000
					C	0.000	155.622		34.63	0.000	0.000
T13 30.00-0.00	15.00	1	6	1174.13	A	0.000	206.891	53.911	26.06	0.000	0.000
				5	B	0.000	189.819		28.40	10.780	0.000
					C	0.000	149.894		35.97	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	1	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.207	2.571	0.592	1	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	1	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	1	1	26.189			

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	22 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T3 200.00- 180.00	1.04	4.02	C	0.177	2.674	0.586	1	1	30.118			
			A	0.263	2.4	0.605	1	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	1	1	39.798			
T4 180.00- 170.00	0.65	2.21	C	0.174	2.684	0.585	1	1	34.560			
			A	0.244	2.456	0.6	1	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	1	1	25.585			
T5 170.00- 160.00	0.74	2.42	C	0.201	2.594	0.591	1	1	22.275			
			A	0.246	2.449	0.601	1	1	29.689	2.74	274.03	B
			B	0.259	2.41	0.604	1	1	31.419			
T6 160.00- 150.00	0.83	2.48	C	0.198	2.603	0.59	1	1	23.430			
			A	0.273	2.371	0.608	1	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	1	1	37.155			
T7 150.00- 140.00	0.95	2.53	C	0.2	2.597	0.59	1	1	25.140			
			A	0.301	2.293	0.616	1	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	1	1	37.300			
T8 140.00- 120.00	1.92	5.85	C	0.191	2.626	0.589	1	1	25.426			
			A	0.282	2.346	0.61	1	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	1	1	75.134			
T9 120.00- 100.00	1.94	5.08	C	0.18	2.664	0.587	1	1	51.731			
			A	0.262	2.402	0.605	1	1	85.640	6.95	347.28	A
			B	0.232	2.493	0.597	1	1	74.804			
T10 100.00- 80.00	1.95	5.46	C	0.164	2.72	0.584	1	1	51.762			
			A	0.247	2.447	0.601	1	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	1	1	76.833			
T11 80.00- 60.00	1.95	6.32	C	0.158	2.742	0.583	1	1	54.343			
			A	0.241	2.466	0.6	1	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	1	1	82.049			
T12 60.00- 30.00	2.92	9.27	C	0.159	2.74	0.583	1	1	59.474			
			A	0.219	2.533	0.594	1	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	1	1	122.930			
T13 30.00- 0.00	2.13	10.68	C	0.147	2.782	0.581	1	1	90.420			
			A	0.176	2.677	0.586	1	1	121.204	7.66	255.37	A
			B	0.162	2.729	0.583	1	1	110.727			
Sum Weight:	17.25	63.93	C	0.128	2.855	0.578	1	1	86.685			
								OTM	7572.00 kip-ft	67.67		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	0.825	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	0.825	1	26.450			
			C	0.207	2.571	0.592	0.825	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	0.825	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	0.825	1	26.189			
			C	0.177	2.674	0.586	0.825	1	30.118			
T3 200.00- 180.00	1.04	4.02	A	0.263	2.4	0.605	0.825	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.174	2.684	0.585	0.825	1	34.560			
T4 180.00- 170.00	0.65	2.21	A	0.244	2.456	0.6	0.825	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.201	2.594	0.591	0.825	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	0.825	1	29.689	2.74	274.03	B

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	23 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
160.00			B	0.259	2.41	0.604	0.825	1	31.419			
T6 160.00-	0.83	2.48	C	0.198	2.603	0.59	0.825	1	23.430			
150.00			A	0.273	2.371	0.608	0.825	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.2	2.597	0.59	0.825	1	25.140			
T7 150.00-	0.95	2.53	A	0.301	2.293	0.616	0.825	1	41.959	3.36	335.58	A
140.00			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.191	2.626	0.589	0.825	1	25.426			
T8 140.00-	1.92	5.85	A	0.282	2.346	0.61	0.825	1	84.257	6.88	344.08	A
120.00			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.18	2.664	0.587	0.825	1	51.731			
T9 120.00-	1.94	5.08	A	0.262	2.402	0.605	0.825	1	85.640	6.95	347.28	A
100.00			B	0.232	2.493	0.597	0.825	1	74.804			
			C	0.164	2.72	0.584	0.825	1	51.762			
T10 100.00-	1.95	5.46	A	0.247	2.447	0.601	0.825	1	87.593	6.82	341.06	A
80.00			B	0.219	2.534	0.594	0.825	1	76.833			
			C	0.158	2.742	0.583	0.825	1	54.343			
T11 80.00-	1.95	6.32	A	0.241	2.466	0.6	0.825	1	92.879	6.76	338.25	A
60.00			B	0.215	2.547	0.594	0.825	1	82.049			
			C	0.159	2.74	0.583	0.825	1	59.474			
T12 60.00-	2.92	9.27	A	0.219	2.533	0.594	0.825	1	137.904	9.09	302.97	A
30.00			B	0.197	2.606	0.59	0.825	1	122.930			
			C	0.147	2.782	0.581	0.825	1	90.420			
T13 30.00-	2.13	10.68	A	0.176	2.677	0.586	0.825	1	121.204	7.66	255.37	A
0.00			B	0.162	2.729	0.583	0.825	1	110.727			
			C	0.128	2.855	0.578	0.825	1	86.685			
Sum Weight:	17.25	63.93						OTM	7572.00 kip-ft	67.67		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-	0.06	3.73	A	0.193	2.621	0.589	0.8	1	27.947	3.10	154.87	C
220.00			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.207	2.571	0.592	0.8	1	30.274			
T2 220.00-	0.19	3.90	A	0.23	2.498	0.597	0.8	1	39.930	3.87	193.33	A
200.00			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.177	2.674	0.586	0.8	1	30.118			
T3 200.00-	1.04	4.02	A	0.263	2.4	0.605	0.8	1	53.823	4.87	243.36	A
180.00			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.174	2.684	0.585	0.8	1	34.560			
T4 180.00-	0.65	2.21	A	0.244	2.456	0.6	0.8	1	27.552	2.49	248.99	A
170.00			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.201	2.594	0.591	0.8	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	0.8	1	29.689	2.74	274.03	B
160.00			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.198	2.603	0.59	0.8	1	23.430			
T6 160.00-	0.83	2.48	A	0.273	2.371	0.608	0.8	1	35.382	3.09	308.64	B
150.00			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.2	2.597	0.59	0.8	1	25.140			
T7 150.00-	0.95	2.53	A	0.301	2.293	0.616	0.8	1	41.959	3.36	335.58	A
140.00			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.191	2.626	0.589	0.8	1	25.426			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	24 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K	e						ft ²	K	plf	
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.8	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.18	2.664	0.587	0.8	1	51.731			
T9 120.00- 100.00	1.94	5.08	A	0.262	2.402	0.605	0.8	1	85.640	6.95	347.28	A
			B	0.232	2.493	0.597	0.8	1	74.804			
			C	0.164	2.72	0.584	0.8	1	51.762			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.8	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	0.8	1	76.833			
			C	0.158	2.742	0.583	0.8	1	54.343			
T11 80.00- 60.00	1.95	6.32	A	0.241	2.466	0.6	0.8	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	0.8	1	82.049			
			C	0.159	2.74	0.583	0.8	1	59.474			
T12 60.00- 30.00	2.92	9.27	A	0.219	2.533	0.594	0.8	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	0.8	1	122.930			
			C	0.147	2.782	0.581	0.8	1	90.420			
T13 30.00- 0.00	2.13	10.68	A	0.176	2.677	0.586	0.8	1	121.204	7.66	255.37	A
			B	0.162	2.729	0.583	0.8	1	110.727			
			C	0.128	2.855	0.578	0.8	1	86.685			
Sum Weight:	17.25	63.93						OTM	7572.00 kip-ft	67.67		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K	e						ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	0.85	1	27.947	3.10	154.87	C
			B	0.183	2.654	0.587	0.85	1	26.450			
			C	0.207	2.571	0.592	0.85	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	0.85	1	39.930	3.87	193.33	A
			B	0.155	2.753	0.582	0.85	1	26.189			
			C	0.177	2.674	0.586	0.85	1	30.118			
T3 200.00- 180.00	1.04	4.02	A	0.263	2.4	0.605	0.85	1	53.823	4.87	243.36	A
			B	0.199	2.599	0.59	0.85	1	39.798			
			C	0.174	2.684	0.585	0.85	1	34.560			
T4 180.00- 170.00	0.65	2.21	A	0.244	2.456	0.6	0.85	1	27.552	2.49	248.99	A
			B	0.228	2.505	0.597	0.85	1	25.585			
			C	0.201	2.594	0.591	0.85	1	22.275			
T5 170.00- 160.00	0.74	2.42	A	0.246	2.449	0.601	0.85	1	29.689	2.74	274.03	B
			B	0.259	2.41	0.604	0.85	1	31.419			
			C	0.198	2.603	0.59	0.85	1	23.430			
T6 160.00- 150.00	0.83	2.48	A	0.273	2.371	0.608	0.85	1	35.382	3.09	308.64	B
			B	0.285	2.337	0.611	0.85	1	37.155			
			C	0.2	2.597	0.59	0.85	1	25.140			
T7 150.00- 140.00	0.95	2.53	A	0.301	2.293	0.616	0.85	1	41.959	3.36	335.58	A
			B	0.271	2.375	0.608	0.85	1	37.300			
			C	0.191	2.626	0.589	0.85	1	25.426			
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.85	1	84.257	6.88	344.08	A
			B	0.254	2.425	0.603	0.85	1	75.134			
			C	0.18	2.664	0.587	0.85	1	51.731			
T9 120.00- 100.00	1.94	5.08	A	0.262	2.402	0.605	0.85	1	85.640	6.95	347.28	A
			B	0.232	2.493	0.597	0.85	1	74.804			
			C	0.164	2.72	0.584	0.85	1	51.762			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.85	1	87.593	6.82	341.06	A
			B	0.219	2.534	0.594	0.85	1	76.833			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	25 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T11 80.00- 60.00	1.95	6.32	C	0.158	2.742	0.583	0.85	1	54.343			
			A	0.241	2.466	0.6	0.85	1	92.879	6.76	338.25	A
			B	0.215	2.547	0.594	0.85	1	82.049			
T12 60.00- 30.00	2.92	9.27	C	0.159	2.74	0.583	0.85	1	59.474			
			A	0.219	2.533	0.594	0.85	1	137.904	9.09	302.97	A
			B	0.197	2.606	0.59	0.85	1	122.930			
T13 30.00- 0.00	2.13	10.68	C	0.147	2.782	0.581	0.85	1	90.420			
			A	0.176	2.677	0.586	0.85	1	121.204	7.66	255.37	A
			B	0.162	2.729	0.583	0.85	1	110.727			
Sum Weight:	17.25	63.93	C	0.128	2.855	0.578	0.85	1	86.685			
								OTM	7572.00	67.67		
									kip-ft			

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.15	4.62	A	0.241	2.465	0.6	1	1	35.853			
			B	0.223	2.522	0.595	1	1	32.882	2.83	141.73	C
			C	0.264	2.397	0.605	1	1	39.625			
T2 220.00- 200.00	0.48	4.76	A	0.301	2.293	0.616	1	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	1	1	31.912			
			C	0.223	2.521	0.595	1	1	38.790			
T3 200.00- 180.00	2.57	4.93	A	0.355	2.16	0.634	1	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	1	1	53.441			
			C	0.225	2.514	0.596	1	1	45.626			
T4 180.00- 170.00	1.63	2.72	A	0.329	2.221	0.625	1	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	1	1	37.016			
			C	0.267	2.388	0.606	1	1	30.537			
T5 170.00- 160.00	1.84	2.94	A	0.335	2.208	0.627	1	1	42.281	2.72	272.33	B
			B	0.355	2.161	0.634	1	1	46.431			
			C	0.265	2.392	0.606	1	1	32.387			
T6 160.00- 150.00	2.07	3.06	A	0.373	2.12	0.641	1	1	51.163	3.08	307.50	B
			B	0.391	2.081	0.648	1	1	55.416			
			C	0.266	2.389	0.606	1	1	34.584			
T7 150.00- 140.00	2.38	3.14	A	0.416	2.034	0.658	1	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	1	1	55.369			
			C	0.255	2.423	0.603	1	1	34.903			
T8 140.00- 120.00	4.85	7.13	A	0.389	2.087	0.647	1	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	1	1	110.865			
			C	0.24	2.467	0.599	1	1	70.822			
T9 120.00- 100.00	4.97	6.27	A	0.363	2.141	0.637	1	1	125.530	7.41	370.50	A
			B	0.32	2.244	0.622	1	1	110.328			
			C	0.223	2.52	0.595	1	1	72.076			
T10 100.00- 80.00	4.98	6.78	A	0.341	2.193	0.629	1	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	1	1	112.209			
			C	0.214	2.549	0.593	1	1	75.243			
T11 80.00- 60.00	4.98	7.77	A	0.328	2.223	0.625	1	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	1	1	117.655			
			C	0.211	2.56	0.593	1	1	80.738			
T12 60.00- 30.00	7.47	11.45	A	0.299	2.297	0.616	1	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	1	1	175.913			
			C	0.197	2.608	0.59	1	1	122.982			
T13 30.00-	5.45	13.07	A	0.235	2.482	0.598	1	1	165.673	7.76	258.66	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	26 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
0.00			B	0.215	2.547	0.594	1	1	152.959			
Sum Weight:	43.83	78.64	C	0.167	2.712	0.584	1	1	114.471	68.66		
								OTM	7548.98			
									kip-ft			

Tower Forces - With Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.15	4.62	A	0.241	2.465	0.6	0.825	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.825	1	32.882			
			C	0.264	2.397	0.605	0.825	1	39.625			
T2 220.00- 200.00	0.48	4.76	A	0.301	2.293	0.616	0.825	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.825	1	31.912			
			C	0.223	2.521	0.595	0.825	1	38.790			
T3 200.00- 180.00	2.57	4.93	A	0.355	2.16	0.634	0.825	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.825	1	53.221			
			C	0.225	2.514	0.596	0.825	1	45.626			
T4 180.00- 170.00	1.63	2.72	A	0.329	2.221	0.625	0.825	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.825	1	36.465			
			C	0.267	2.388	0.606	0.825	1	30.537			
T5 170.00- 160.00	1.84	2.94	A	0.335	2.208	0.627	0.825	1	42.281	2.69	269.10	B
			B	0.355	2.161	0.634	0.825	1	45.880			
			C	0.265	2.392	0.606	0.825	1	32.387			
T6 160.00- 150.00	2.07	3.06	A	0.373	2.12	0.641	0.825	1	51.163	3.04	304.44	B
			B	0.391	2.081	0.648	0.825	1	54.864			
			C	0.266	2.389	0.606	0.825	1	34.584			
T7 150.00- 140.00	2.38	3.14	A	0.416	2.034	0.658	0.825	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.825	1	54.817			
			C	0.255	2.423	0.603	0.825	1	34.903			
T8 140.00- 120.00	4.85	7.13	A	0.389	2.087	0.647	0.825	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.825	1	109.763			
			C	0.24	2.467	0.599	0.825	1	70.822			
T9 120.00- 100.00	4.97	6.27	A	0.363	2.141	0.637	0.825	1	125.530	7.41	370.50	A
			B	0.32	2.244	0.622	0.825	1	109.226			
			C	0.223	2.52	0.595	0.825	1	72.076			
T10 100.00- 80.00	4.98	6.78	A	0.341	2.193	0.629	0.825	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.825	1	111.107			
			C	0.214	2.549	0.593	0.825	1	75.243			
T11 80.00- 60.00	4.98	7.77	A	0.328	2.223	0.625	0.825	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.825	1	116.553			
			C	0.211	2.56	0.593	0.825	1	80.738			
T12 60.00- 30.00	7.47	11.45	A	0.299	2.297	0.616	0.825	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.825	1	174.259			
			C	0.197	2.608	0.59	0.825	1	122.982			
T13 30.00- 0.00	5.45	13.07	A	0.235	2.482	0.598	0.825	1	165.673	7.76	258.66	A
			B	0.215	2.547	0.594	0.825	1	151.746			
			C	0.167	2.712	0.584	0.825	1	114.471			
Sum Weight:	43.83	78.64						OTM	7538.90	68.59		
									kip-ft			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	27 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 19:17:16 12/08/10 Designed by Staff

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	0.8	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.8	1	32.882			
			C	0.264	2.397	0.605	0.8	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	0.8	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.8	1	31.912			
			C	0.223	2.521	0.595	0.8	1	38.790			
T3 200.00-180.00	2.57	4.93	A	0.355	2.16	0.634	0.8	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.8	1	53.189			
			C	0.225	2.514	0.596	0.8	1	45.626			
T4 180.00-170.00	1.63	2.72	A	0.329	2.221	0.625	0.8	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.8	1	36.386			
			C	0.267	2.388	0.606	0.8	1	30.537			
T5 170.00-160.00	1.84	2.94	A	0.335	2.208	0.627	0.8	1	42.281	2.69	268.64	B
			B	0.355	2.161	0.634	0.8	1	45.801			
			C	0.265	2.392	0.606	0.8	1	32.387			
T6 160.00-150.00	2.07	3.06	A	0.373	2.12	0.641	0.8	1	51.163	3.04	304.01	B
			B	0.391	2.081	0.648	0.8	1	54.786			
			C	0.266	2.389	0.606	0.8	1	34.584			
T7 150.00-140.00	2.38	3.14	A	0.416	2.034	0.658	0.8	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.8	1	54.739			
			C	0.255	2.423	0.603	0.8	1	34.903			
T8 140.00-120.00	4.85	7.13	A	0.389	2.087	0.647	0.8	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.8	1	109.605			
			C	0.24	2.467	0.599	0.8	1	70.822			
T9 120.00-100.00	4.97	6.27	A	0.363	2.141	0.637	0.8	1	125.530	7.41	370.50	A
			B	0.32	2.244	0.622	0.8	1	109.068			
			C	0.223	2.52	0.595	0.8	1	72.076			
T10 100.00-80.00	4.98	6.78	A	0.341	2.193	0.629	0.8	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.8	1	110.949			
			C	0.214	2.549	0.593	0.8	1	75.243			
T11 80.00-60.00	4.98	7.77	A	0.328	2.223	0.625	0.8	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.8	1	116.395			
			C	0.211	2.56	0.593	0.8	1	80.738			
T12 60.00-30.00	7.47	11.45	A	0.299	2.297	0.616	0.8	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.8	1	174.023			
			C	0.197	2.608	0.59	0.8	1	122.982			
T13 30.00-0.00	5.45	13.07	A	0.235	2.482	0.598	0.8	1	165.673	7.76	258.66	A
			B	0.215	2.547	0.594	0.8	1	151.573			
			C	0.167	2.712	0.584	0.8	1	114.471			
Sum Weight:	43.83	78.64						OTM	7537.46 kip-ft	68.58		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.15	4.62	A	0.241	2.465	0.6	0.85	1	35.853	2.83	141.73	C
			B	0.223	2.522	0.595	0.85	1	32.882			
			C	0.264	2.397	0.605	0.85	1	39.625			
T2 220.00-200.00	0.48	4.76	A	0.301	2.293	0.616	0.85	1	54.163	3.61	180.58	A
			B	0.186	2.643	0.588	0.85	1	31.912			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	28 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T3 200.00- 180.00	2.57	4.93	C	0.223	2.521	0.595	0.85	1	38.790			
			A	0.355	2.16	0.634	0.85	1	76.671	4.68	233.94	A
			B	0.258	2.415	0.604	0.85	1	53.252			
			C	0.225	2.514	0.596	0.85	1	45.626			
T4 180.00- 170.00	1.63	2.72	A	0.329	2.221	0.625	0.85	1	38.892	2.38	238.42	A
			B	0.307	2.278	0.618	0.85	1	36.544			
			C	0.267	2.388	0.606	0.85	1	30.537			
T5 170.00- 160.00	1.84	2.94	A	0.335	2.208	0.627	0.85	1	42.281	2.70	269.56	B
			B	0.355	2.161	0.634	0.85	1	45.959			
			C	0.265	2.392	0.606	0.85	1	32.387			
T6 160.00- 150.00	2.07	3.06	A	0.373	2.12	0.641	0.85	1	51.163	3.05	304.88	B
			B	0.391	2.081	0.648	0.85	1	54.943			
			C	0.266	2.389	0.606	0.85	1	34.584			
T7 150.00- 140.00	2.38	3.14	A	0.416	2.034	0.658	0.85	1	62.078	3.30	330.28	A
			B	0.373	2.12	0.641	0.85	1	54.896			
			C	0.255	2.423	0.603	0.85	1	34.903			
T8 140.00- 120.00	4.85	7.13	A	0.389	2.087	0.647	0.85	1	123.681	7.12	355.97	A
			B	0.349	2.174	0.632	0.85	1	109.920			
			C	0.24	2.467	0.599	0.85	1	70.822			
T9 120.00- 100.00	4.97	6.27	A	0.363	2.141	0.637	0.85	1	125.530	7.41	370.50	A
			B	0.32	2.244	0.622	0.85	1	109.383			
			C	0.223	2.52	0.595	0.85	1	72.076			
T10 100.00- 80.00	4.98	6.78	A	0.341	2.193	0.629	0.85	1	127.039	7.22	361.03	A
			B	0.301	2.293	0.616	0.85	1	111.264			
			C	0.214	2.549	0.593	0.85	1	75.243			
T11 80.00- 60.00	4.98	7.77	A	0.328	2.223	0.625	0.85	1	132.427	7.06	352.91	A
			B	0.291	2.32	0.613	0.85	1	116.710			
			C	0.211	2.56	0.593	0.85	1	80.738			
T12 60.00- 30.00	7.47	11.45	A	0.299	2.297	0.616	0.85	1	195.652	9.48	315.94	A
			B	0.268	2.386	0.607	0.85	1	174.495			
			C	0.197	2.608	0.59	0.85	1	122.982			
T13 30.00- 0.00	5.45	13.07	A	0.235	2.482	0.598	0.85	1	165.673	7.76	258.66	A
			B	0.215	2.547	0.594	0.85	1	151.920			
			C	0.167	2.712	0.584	0.85	1	114.471			
Sum Weight:	43.83	78.64						OTM	7540.34 kip-ft	68.60		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	1	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.207	2.571	0.592	1	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	1	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	1	1	26.189			
			C	0.177	2.674	0.586	1	1	30.118			
T3 200.00- 180.00	1.04	4.02	A	0.263	2.4	0.605	1	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	1	1	39.798			
			C	0.174	2.684	0.585	1	1	34.560			
T4 180.00- 170.00	0.65	2.21	A	0.244	2.456	0.6	1	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	1	1	25.585			
			C	0.201	2.594	0.591	1	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	1	1	29.689	0.85	84.58	B

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 29 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
160.00			B	0.259	2.41	0.604	1	1	31.419			
T6 160.00-	0.83	2.48	C	0.198	2.603	0.59	1	1	23.430			
150.00			A	0.273	2.371	0.608	1	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	1	1	37.155			
T7 150.00-	0.95	2.53	C	0.2	2.597	0.59	1	1	25.140			
140.00			A	0.301	2.293	0.616	1	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	1	1	37.300			
T8 140.00-	1.92	5.85	C	0.191	2.626	0.589	1	1	25.426			
120.00			A	0.282	2.346	0.61	1	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	1	1	75.134			
T9 120.00-	1.94	5.08	C	0.18	2.664	0.587	1	1	51.731			
100.00			A	0.262	2.402	0.605	1	1	85.640	2.14	107.18	A
			B	0.232	2.493	0.597	1	1	74.804			
T10 100.00-	1.95	5.46	C	0.164	2.72	0.584	1	1	51.762			
80.00			A	0.247	2.447	0.601	1	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	1	1	76.833			
T11 80.00-	1.95	6.32	C	0.158	2.742	0.583	1	1	54.343			
60.00			A	0.241	2.466	0.6	1	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	1	1	82.049			
T12 60.00-	2.92	9.27	C	0.159	2.74	0.583	1	1	59.474			
30.00			A	0.219	2.533	0.594	1	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	1	1	122.930			
T13 30.00-	2.13	10.68	C	0.147	2.782	0.581	1	1	90.420			
0.00			A	0.176	2.677	0.586	1	1	121.204	2.36	78.82	A
			B	0.162	2.729	0.583	1	1	110.727			
Sum Weight:	17.25	63.93	C	0.128	2.855	0.578	1	1	86.685			
							OTM		2337.04	20.88		
									kip-ft			

Tower Forces - Service - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-	0.06	3.73	A	0.193	2.621	0.589	0.825	1	27.947	0.96	47.80	C
220.00			B	0.183	2.654	0.587	0.825	1	26.450			
			C	0.207	2.571	0.592	0.825	1	30.274			
T2 220.00-	0.19	3.90	A	0.23	2.498	0.597	0.825	1	39.930	1.19	59.67	A
200.00			B	0.155	2.753	0.582	0.825	1	26.189			
			C	0.177	2.674	0.586	0.825	1	30.118			
T3 200.00-	1.04	4.02	A	0.263	2.4	0.605	0.825	1	53.823	1.50	75.11	A
180.00			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.174	2.684	0.585	0.825	1	34.560			
T4 180.00-	0.65	2.21	A	0.244	2.456	0.6	0.825	1	27.552	0.77	76.85	A
170.00			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.201	2.594	0.591	0.825	1	22.275			
T5 170.00-	0.74	2.42	A	0.246	2.449	0.601	0.825	1	29.689	0.85	84.58	B
160.00			B	0.259	2.41	0.604	0.825	1	31.419			
			C	0.198	2.603	0.59	0.825	1	23.430			
T6 160.00-	0.83	2.48	A	0.273	2.371	0.608	0.825	1	35.382	0.95	95.26	B
150.00			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.2	2.597	0.59	0.825	1	25.140			
T7 150.00-	0.95	2.53	A	0.301	2.293	0.616	0.825	1	41.959	1.04	103.58	A
140.00			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.191	2.626	0.589	0.825	1	25.426			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	30 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.825	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.18	2.664	0.587	0.825	1	51.731			
T9 120.00- 100.00	1.94	5.08	A	0.262	2.402	0.605	0.825	1	85.640	2.14	107.18	A
			B	0.232	2.493	0.597	0.825	1	74.804			
			C	0.164	2.72	0.584	0.825	1	51.762			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.825	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.825	1	76.833			
			C	0.158	2.742	0.583	0.825	1	54.343			
T11 80.00- 60.00	1.95	6.32	A	0.241	2.466	0.6	0.825	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.825	1	82.049			
			C	0.159	2.74	0.583	0.825	1	59.474			
T12 60.00- 30.00	2.92	9.27	A	0.219	2.533	0.594	0.825	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.825	1	122.930			
			C	0.147	2.782	0.581	0.825	1	90.420			
T13 30.00- 0.00	2.13	10.68	A	0.176	2.677	0.586	0.825	1	121.204	2.36	78.82	A
			B	0.162	2.729	0.583	0.825	1	110.727			
			C	0.128	2.855	0.578	0.825	1	86.685			
Sum Weight:	17.25	63.93						OTM	2337.04 kip-ft	20.88		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	0.8	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.207	2.571	0.592	0.8	1	30.274			
T2 220.00- 200.00	0.19	3.90	A	0.23	2.498	0.597	0.8	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.177	2.674	0.586	0.8	1	30.118			
T3 200.00- 180.00	1.04	4.02	A	0.263	2.4	0.605	0.8	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.174	2.684	0.585	0.8	1	34.560			
T4 180.00- 170.00	0.65	2.21	A	0.244	2.456	0.6	0.8	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.201	2.594	0.591	0.8	1	22.275			
T5 170.00- 160.00	0.74	2.42	A	0.246	2.449	0.601	0.8	1	29.689	0.85	84.58	B
			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.198	2.603	0.59	0.8	1	23.430			
T6 160.00- 150.00	0.83	2.48	A	0.273	2.371	0.608	0.8	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.2	2.597	0.59	0.8	1	25.140			
T7 150.00- 140.00	0.95	2.53	A	0.301	2.293	0.616	0.8	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.191	2.626	0.589	0.8	1	25.426			
T8 140.00- 120.00	1.92	5.85	A	0.282	2.346	0.61	0.8	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.18	2.664	0.587	0.8	1	51.731			
T9 120.00- 100.00	1.94	5.08	A	0.262	2.402	0.605	0.8	1	85.640	2.14	107.18	A
			B	0.232	2.493	0.597	0.8	1	74.804			
			C	0.164	2.72	0.584	0.8	1	51.762			
T10 100.00- 80.00	1.95	5.46	A	0.247	2.447	0.601	0.8	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.8	1	76.833			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 31 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T11 80.00- 60.00	1.95	6.32	C	0.158	2.742	0.583	0.8	1	54.343			
			A	0.241	2.466	0.6	0.8	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.8	1	82.049			
T12 60.00- 30.00	2.92	9.27	C	0.159	2.74	0.583	0.8	1	59.474			
			A	0.219	2.533	0.594	0.8	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.8	1	122.930			
T13 30.00- 0.00	2.13	10.68	C	0.147	2.782	0.581	0.8	1	90.420			
			A	0.176	2.677	0.586	0.8	1	121.204	2.36	78.82	A
			B	0.162	2.729	0.583	0.8	1	110.727			
Sum Weight:	17.25	63.93	C	0.128	2.855	0.578	0.8	1	86.685			
								OTM	2337.04	20.88		
									kip-ft			

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	3.73	A	0.193	2.621	0.589	0.85	1	27.947	0.96	47.80	C
			B	0.183	2.654	0.587	0.85	1	26.450			
T2 220.00- 200.00	0.19	3.90	C	0.207	2.571	0.592	0.85	1	30.274			
			A	0.23	2.498	0.597	0.85	1	39.930	1.19	59.67	A
			B	0.155	2.753	0.582	0.85	1	26.189			
T3 200.00- 180.00	1.04	4.02	C	0.177	2.674	0.586	0.85	1	30.118			
			A	0.263	2.4	0.605	0.85	1	53.823	1.50	75.11	A
			B	0.199	2.599	0.59	0.85	1	39.798			
T4 180.00- 170.00	0.65	2.21	C	0.174	2.684	0.585	0.85	1	34.560			
			A	0.244	2.456	0.6	0.85	1	27.552	0.77	76.85	A
			B	0.228	2.505	0.597	0.85	1	25.585			
T5 170.00- 160.00	0.74	2.42	C	0.201	2.594	0.591	0.85	1	22.275			
			A	0.246	2.449	0.601	0.85	1	29.689	0.85	84.58	B
			B	0.259	2.41	0.604	0.85	1	31.419			
T6 160.00- 150.00	0.83	2.48	C	0.198	2.603	0.59	0.85	1	23.430			
			A	0.273	2.371	0.608	0.85	1	35.382	0.95	95.26	B
			B	0.285	2.337	0.611	0.85	1	37.155			
T7 150.00- 140.00	0.95	2.53	C	0.2	2.597	0.59	0.85	1	25.140			
			A	0.301	2.293	0.616	0.85	1	41.959	1.04	103.58	A
			B	0.271	2.375	0.608	0.85	1	37.300			
T8 140.00- 120.00	1.92	5.85	C	0.191	2.626	0.589	0.85	1	25.426			
			A	0.282	2.346	0.61	0.85	1	84.257	2.12	106.20	A
			B	0.254	2.425	0.603	0.85	1	75.134			
T9 120.00- 100.00	1.94	5.08	C	0.18	2.664	0.587	0.85	1	51.731			
			A	0.262	2.402	0.605	0.85	1	85.640	2.14	107.18	A
			B	0.232	2.493	0.597	0.85	1	74.804			
T10 100.00- 80.00	1.95	5.46	C	0.164	2.72	0.584	0.85	1	51.762			
			A	0.247	2.447	0.601	0.85	1	87.593	2.11	105.26	A
			B	0.219	2.534	0.594	0.85	1	76.833			
T11 80.00- 60.00	1.95	6.32	C	0.158	2.742	0.583	0.85	1	54.343			
			A	0.241	2.466	0.6	0.85	1	92.879	2.09	104.40	A
			B	0.215	2.547	0.594	0.85	1	82.049			
T12 60.00- 30.00	2.92	9.27	C	0.159	2.74	0.583	0.85	1	59.474			
			A	0.219	2.533	0.594	0.85	1	137.904	2.81	93.51	A
			B	0.197	2.606	0.59	0.85	1	122.930			
T13 30.00-	2.13	10.68	C	0.147	2.782	0.581	0.85	1	90.420			
			A	0.176	2.677	0.586	0.85	1	121.204	2.36	78.82	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	32 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
0.00			B	0.162	2.729	0.583	0.85	1	110.727			
Sum Weight:	17.25	63.93	C	0.128	2.855	0.578	0.85	1 OTM	86.685 2337.04 kip-ft	20.88		

Force Totals

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Overturning Moments, M _x	Sum of Overturning Moments, M _z	Sum of Torques
	K	K	K	kip-ft	kip-ft	kip-ft
Leg Weight	34.76					
Bracing Weight	29.16					
Total Member Self-Weight	63.93			-90.54	51.86	
Total Weight	92.54			-90.54	51.86	
Wind 0 deg - No Ice		0.00	-89.76	-11596.72	51.86	-35.79
Wind 30 deg - No Ice		44.83	-77.74	-10055.18	-5692.65	-60.00
Wind 45 deg - No Ice		63.41	-63.47	-8226.63	-8072.11	-66.33
Wind 60 deg - No Ice		77.65	-44.88	-5843.63	-9897.93	-68.14
Wind 90 deg - No Ice		89.67	0.00	-90.54	-11437.16	-58.02
Wind 120 deg - No Ice		77.65	44.88	5662.55	-9897.93	-32.35
Wind 135 deg - No Ice		63.41	63.47	8045.56	-8072.11	-15.72
Wind 150 deg - No Ice		44.83	77.74	9874.11	-5692.65	1.99
Wind 180 deg - No Ice		0.00	89.76	11415.64	51.86	35.79
Wind 210 deg - No Ice		-44.83	77.74	9874.11	5796.38	60.00
Wind 225 deg - No Ice		-63.41	63.47	8045.56	8175.83	66.33
Wind 240 deg - No Ice		-77.65	44.88	5662.55	10001.65	68.14
Wind 270 deg - No Ice		-89.67	0.00	-90.54	11540.89	58.02
Wind 300 deg - No Ice		-77.65	-44.88	-5843.63	10001.65	32.35
Wind 315 deg - No Ice		-63.41	-63.47	-8226.63	8175.83	15.72
Wind 330 deg - No Ice		-44.83	-77.74	-10055.18	5796.38	-1.99
Member Ice	14.72					
Total Weight Ice	140.06			-209.38	120.40	
Wind 0 deg - Ice		0.00	-89.19	-11429.93	120.40	-20.03
Wind 30 deg - Ice		44.53	-77.20	-9919.18	-5478.64	-39.03
Wind 45 deg - Ice		62.97	-63.02	-8136.38	-7796.83	-44.83
Wind 60 deg - Ice		77.12	-44.56	-5813.90	-9574.94	-47.57
Wind 90 deg - Ice		89.06	0.00	-209.38	-11077.69	-43.41
Wind 120 deg - Ice		77.18	44.60	5400.89	-9584.91	-27.63
Wind 135 deg - Ice		62.97	63.02	7717.61	-7796.83	-16.54
Wind 150 deg - Ice		44.53	77.20	9500.41	-5478.64	-4.37
Wind 180 deg - Ice		0.00	89.12	10999.64	120.40	20.00
Wind 210 deg - Ice		-44.53	77.20	9500.41	5719.45	39.03
Wind 225 deg - Ice		-62.97	63.02	7717.61	8037.63	44.83
Wind 240 deg - Ice		-77.18	44.60	5400.89	9825.71	47.66
Wind 270 deg - Ice		-89.06	0.00	-209.38	11318.49	43.41
Wind 300 deg - Ice		-77.12	-44.56	-5813.90	9815.74	27.57
Wind 315 deg - Ice		-62.97	-63.02	-8136.38	8037.63	16.54
Wind 330 deg - Ice		-44.53	-77.20	-9919.18	5719.45	4.37
Total Weight	92.54			-90.54	51.86	
Wind 0 deg - Service		0.00	-27.70	-3549.59	-3.49	-11.05
Wind 30 deg - Service		13.84	-23.99	-3073.80	-1776.49	-18.52
Wind 45 deg - Service		19.57	-19.59	-2509.44	-2510.89	-20.47
Wind 60 deg - Service		23.97	-13.85	-1773.94	-3074.41	-21.03
Wind 90 deg - Service		27.68	0.00	1.70	-3549.48	-17.91
Wind 120 deg - Service		23.97	13.85	1777.35	-3074.41	-9.98

RISATower

CEN TEK Engineering, Inc.
63-2 N Branford Rd
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job

240-ft ROHN SSMW Self-Support Lattice

Page

33 of 62

Project

10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT

Date

19:17:16 12/08/10

Client

Verizon Wireless

Designed by

Staff

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 135 deg - Service		19.57	19.59	2512.85	-2510.89	-4.85
Wind 150 deg - Service		13.84	23.99	3077.21	-1776.49	0.61
Wind 180 deg - Service		0.00	27.70	3552.99	-3.49	11.05
Wind 210 deg - Service		-13.84	23.99	3077.21	1769.51	18.52
Wind 225 deg - Service		-19.57	19.59	2512.85	2503.91	20.47
Wind 240 deg - Service		-23.97	13.85	1777.35	3067.44	21.03
Wind 270 deg - Service		-27.68	0.00	1.70	3542.51	17.91
Wind 300 deg - Service		-23.97	-13.85	-1773.94	3067.44	9.98
Wind 315 deg - Service		-19.57	-19.59	-2509.44	2503.91	4.85
Wind 330 deg - Service		-13.84	-23.99	-3073.80	1769.51	-0.61

Load Combinations

Comb.
No.

Description

- 1 Dead Only
- 2 Dead+Wind 0 deg - No Ice
- 3 Dead+Wind 30 deg - No Ice
- 4 Dead+Wind 45 deg - No Ice
- 5 Dead+Wind 60 deg - No Ice
- 6 Dead+Wind 90 deg - No Ice
- 7 Dead+Wind 120 deg - No Ice
- 8 Dead+Wind 135 deg - No Ice
- 9 Dead+Wind 150 deg - No Ice
- 10 Dead+Wind 180 deg - No Ice
- 11 Dead+Wind 210 deg - No Ice
- 12 Dead+Wind 225 deg - No Ice
- 13 Dead+Wind 240 deg - No Ice
- 14 Dead+Wind 270 deg - No Ice
- 15 Dead+Wind 300 deg - No Ice
- 16 Dead+Wind 315 deg - No Ice
- 17 Dead+Wind 330 deg - No Ice
- 18 Dead+Ice+Temp
- 19 Dead+Wind 0 deg+Ice+Temp
- 20 Dead+Wind 30 deg+Ice+Temp
- 21 Dead+Wind 45 deg+Ice+Temp
- 22 Dead+Wind 60 deg+Ice+Temp
- 23 Dead+Wind 90 deg+Ice+Temp
- 24 Dead+Wind 120 deg+Ice+Temp
- 25 Dead+Wind 135 deg+Ice+Temp
- 26 Dead+Wind 150 deg+Ice+Temp
- 27 Dead+Wind 180 deg+Ice+Temp
- 28 Dead+Wind 210 deg+Ice+Temp
- 29 Dead+Wind 225 deg+Ice+Temp
- 30 Dead+Wind 240 deg+Ice+Temp
- 31 Dead+Wind 270 deg+Ice+Temp
- 32 Dead+Wind 300 deg+Ice+Temp
- 33 Dead+Wind 315 deg+Ice+Temp
- 34 Dead+Wind 330 deg+Ice+Temp
- 35 Dead+Wind 0 deg - Service
- 36 Dead+Wind 30 deg - Service
- 37 Dead+Wind 45 deg - Service
- 38 Dead+Wind 60 deg - Service
- 39 Dead+Wind 90 deg - Service
- 40 Dead+Wind 120 deg - Service
- 41 Dead+Wind 135 deg - Service

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	34 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Comb. No.	Description
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	240 - 220	Leg	Max Tension	10	1.30	-0.01	0.00
			Max. Compression	30	-4.06	0.14	-0.04
			Max. Mx	27	0.19	0.38	0.02
			Max. My	23	-1.09	-0.02	-0.52
			Max. Vy	32	-0.30	0.00	0.00
		Diagonal	Max. Vx	21	-0.41	-0.00	-0.00
			Max Tension	3	1.68	0.00	0.00
			Max. Compression	23	-1.79	0.00	0.00
			Max. Mx	34	1.60	0.04	0.00
			Max. My	22	-0.05	0.00	0.00
		Horizontal	Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	4	1.21	-0.02	0.00
			Max. Compression	12	-1.18	0.00	0.00
			Max. Mx	32	0.05	-0.03	-0.00
		Top Girt	Max. My	32	-0.22	-0.03	-0.00
			Max. Vy	32	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
			Max Tension	22	0.46	-0.02	0.00
			Max. Compression	30	-0.48	-0.02	-0.00
		Inner Bracing	Max. Mx	27	-0.13	-0.02	-0.00
			Max. My	19	0.22	-0.02	0.00
			Max. Vy	27	-0.02	-0.02	-0.00
			Max. Vx	19	-0.00	-0.02	0.00
			Max Tension	30	0.01	0.00	0.00
T2	220 - 200	Leg	Max. Compression	30	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Diagonal	Max Tension	15	6.09	-0.32	-0.00
			Max. Compression	19	-13.24	0.46	0.03
			Max. Mx	15	4.72	1.39	-0.02
			Max. My	9	-3.70	-0.05	1.35
			Max. Vy	10	-1.13	-0.32	-0.01
		Horizontal	Max. Vx	6	1.09	-0.04	0.16
			Max Tension	11	5.11	0.00	0.00
			Max. Compression	11	-5.26	0.00	0.00
			Max. Mx	34	4.58	0.09	0.00
			Max. My	22	-0.25	0.00	0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
		Horizontal	Max Tension	4	3.20	-0.02	0.00
			Max. Compression	12	-3.22	-0.02	-0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 35 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	200 - 180	Top Girt	Max. Mx	32	0.16	-0.04	-0.01
			Max. My	10	-0.81	-0.02	-0.01
			Max. Vy	32	-0.02	-0.04	-0.01
			Max. Vx	15	0.00	-0.02	-0.01
			Max Tension	4	1.62	-0.02	0.00
			Max. Compression	12	-1.60	-0.02	-0.00
		Inner Bracing	Max. Mx	32	-0.26	-0.03	-0.00
			Max. My	15	-0.27	-0.02	-0.00
			Max. Vy	32	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
			Max Tension	12	0.03	0.00	0.00
			Max. Compression	12	-0.03	0.00	0.00
		Leg	Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	19.57	-0.87	-0.04
			Max. Compression	19	-32.43	1.32	-0.01
		Diagonal	Max. Mx	10	17.98	1.70	0.02
			Max. My	6	-6.35	-0.07	-1.78
			Max. Vy	10	0.90	-1.65	0.02
			Max. Vx	14	0.93	-0.07	-1.63
			Max Tension	11	8.59	0.00	0.00
			Max. Compression	11	-8.76	0.00	0.00
		Horizontal	Max. Mx	34	7.51	0.12	0.00
			Max. My	22	-0.64	0.00	0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	4	5.74	-0.03	0.00
			Max. Compression	12	-5.75	-0.03	-0.00
T4	180 - 170	Top Girt	Max. Mx	32	0.36	-0.05	-0.01
			Max. My	10	-0.67	-0.03	-0.01
			Max. Vy	32	-0.03	-0.05	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
			Max Tension	4	4.49	-0.03	0.00
			Max. Compression	12	-4.52	-0.03	-0.00
		Inner Bracing	Max. Mx	32	-0.93	-0.04	-0.01
			Max. My	10	-0.80	-0.03	-0.01
			Max. Vy	32	-0.03	-0.04	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
			Max Tension	12	0.08	0.00	0.00
			Max. Compression	12	-0.08	0.00	0.00
		Leg	Max. Mx	18	-0.00	-0.03	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	28.92	-1.62	-0.06
			Max. Compression	19	-44.50	1.42	-0.02
		Diagonal	Max. Mx	10	27.42	-1.73	0.03
			Max. My	14	-6.76	-0.07	-1.63
			Max. Vy	10	0.67	-1.73	0.03
			Max. Vx	11	-0.65	-0.05	1.62
			Max Tension	11	10.44	0.00	0.00
			Max. Compression	11	-10.67	0.00	0.00
		Top Girt	Max. Mx	34	9.30	0.13	0.00
			Max. My	22	-0.73	0.00	0.00
			Max. Vy	34	-0.04	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	4	7.25	-0.06	0.00
			Max. Compression	12	-7.27	-0.06	-0.00
			Max. Mx	32	-1.25	-0.09	-0.02

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	36 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	170 - 160	Inner Bracing	Max. My	10	-0.94	-0.07	-0.02
			Max. Vy	32	-0.04	-0.09	-0.02
			Max. Vx	10	0.00	-0.07	-0.02
			Max. Tension	12	0.13	0.00	0.00
			Max. Compression	12	-0.13	0.00	0.00
			Max. Mx	18	0.00	-0.05	0.00
			Max. My	19	0.11	0.00	-0.00
			Max. Vy	18	0.02	0.00	0.00
		Leg	Max. Vx	19	0.00	0.00	0.00
			Max. Tension	15	40.48	-1.69	-0.05
			Max. Compression	19	-59.26	0.76	0.02
			Max. Mx	10	39.63	-1.73	0.03
			Max. My	3	-7.18	-0.08	-1.63
			Max. Vy	10	0.70	-1.06	-0.02
			Max. Vx	14	0.71	-0.07	-1.17
		Diagonal	Max. Tension	11	11.91	0.00	0.00
			Max. Compression	11	-12.20	0.00	0.00
			Max. Mx	34	10.77	0.17	0.00
			Max. My	22	-0.74	0.00	0.00
			Max. Vy	34	-0.05	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Top Girt	Max. Tension	11	8.51	-0.07	0.00
			Max. Compression	12	-8.48	-0.07	-0.00
			Max. Mx	32	-1.17	-0.10	-0.02
			Max. My	10	-0.87	-0.07	-0.02
			Max. Vy	32	-0.05	-0.10	-0.02
			Max. Vx	10	0.00	-0.07	-0.02
		Inner Bracing	Max. Tension	12	0.15	0.00	0.00
			Max. Compression	12	-0.15	0.00	0.00
			Max. Mx	18	0.00	-0.06	0.00
			Max. My	19	0.13	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
T6	160 - 150	Leg	Max. Tension	15	53.17	-1.06	-0.05
			Max. Compression	19	-74.77	-0.11	0.03
			Max. Mx	10	52.10	-1.06	-0.02
			Max. My	14	-10.00	-0.07	-1.17
			Max. Vy	10	-0.26	-1.06	-0.02
			Max. Vx	6	0.32	-0.07	1.16
		Diagonal	Max. Tension	11	12.96	0.00	0.00
			Max. Compression	11	-13.28	0.00	0.00
			Max. Mx	34	11.70	0.20	0.00
			Max. My	22	-0.90	0.00	0.00
			Max. Vy	34	-0.05	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Top Girt	Max. Tension	11	9.55	-0.08	0.00
			Max. Compression	12	-9.50	-0.08	-0.00
			Max. Mx	32	-1.21	-0.11	-0.02
			Max. My	10	-0.80	-0.08	-0.02
			Max. Vy	32	-0.05	-0.11	-0.02
			Max. Vx	10	0.00	-0.08	-0.02
		Inner Bracing	Max. Tension	12	0.16	0.00	0.00
			Max. Compression	12	-0.16	0.00	0.00
			Max. Mx	18	0.00	-0.08	0.00
			Max. My	19	0.14	0.00	-0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T7	150 - 140	Leg	Max. Tension	15	66.59	0.08	-0.07
			Max. Compression	19	-92.00	0.76	0.02
			Max. Mx	10	64.63	-0.99	-0.02
			Max. My	14	-12.54	-0.06	-1.19

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 37 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	140 - 120	Diagonal	Max. Vy	10	0.26	-0.99	-0.02
			Max. Vx	6	-0.31	-0.06	1.18
			Max Tension	11	14.94	0.00	0.00
			Max. Compression	11	-15.29	0.00	0.00
			Max. Mx	34	13.38	0.22	0.00
			Max. My	22	-0.98	0.00	0.00
		Top Girt	Max. Vy	34	-0.06	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	11	11.32	-0.09	-0.00
			Max. Compression	12	-11.24	-0.09	-0.01
			Max. Mx	32	-1.44	-0.12	-0.02
			Max. My	10	-1.04	-0.09	-0.02
		Inner Bracing	Max. Vy	32	-0.05	-0.12	-0.02
			Max. Vx	10	0.00	-0.09	-0.02
			Max Tension	12	0.19	0.00	0.00
			Max. Compression	12	-0.19	0.00	0.00
			Max. Mx	18	0.00	-0.09	0.00
			Max. My	19	0.17	0.00	-0.00
		Leg	Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	98.09	-0.62	-0.02
			Max. Compression	19	-128.45	-1.13	0.04
			Max. Mx	19	-128.45	-1.13	0.04
			Max. My	14	-15.32	-0.48	-2.52
		Diagonal	Max. Vy	24	0.27	0.72	0.01
			Max. Vx	14	0.41	-0.48	-2.52
			Max Tension	11	15.92	0.00	0.00
			Max. Compression	11	-16.44	0.00	0.00
			Max. Mx	34	14.58	0.32	0.00
			Max. My	22	-1.08	0.00	0.00
		Horizontal	Max. Vy	34	-0.08	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
			Max Tension	11	12.75	0.00	0.00
			Max. Compression	11	-12.44	-0.11	-0.00
			Max. Mx	32	1.32	-0.15	-0.02
			Max. My	10	-1.19	-0.12	-0.02
		Top Girt	Max. Vy	32	-0.06	-0.15	-0.02
			Max. Vx	10	0.00	-0.12	-0.02
			Max Tension	11	12.23	-0.10	-0.00
			Max. Compression	11	-12.08	-0.10	-0.00
			Max. Mx	32	-1.03	-0.14	-0.02
			Max. My	10	-0.50	-0.10	-0.02
		Inner Bracing	Max. Vy	32	-0.06	-0.14	-0.02
			Max. Vx	10	0.00	-0.10	-0.02
			Max Tension	11	0.21	0.00	0.00
			Max. Compression	11	-0.21	0.00	0.00
			Max. Mx	18	-0.01	-0.15	0.00
			Max. My	32	-0.01	0.00	0.00
T9	120 - 100	Leg	Max. Vy	18	-0.05	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	113.02	-0.02	-0.07
			Max. Compression	19	-147.27	-2.36	0.15
			Max. Mx	19	-146.33	3.09	-0.10
			Max. My	6	-17.46	-0.93	5.20
		Diagonal	Max. Vy	19	0.64	3.09	-0.10
			Max. Vx	6	-1.00	-0.93	5.20
			Max Tension	11	23.49	0.00	0.00
			Max. Compression	11	-23.96	0.00	0.00
			Max. Mx	19	-0.50	-0.13	-0.03
			Max. My	4	-22.86	-0.09	-0.08
			Max. Vy	19	0.05	-0.13	-0.03

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	38 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T10	100 - 80	Top Girt	Max. Vx	4	-0.01	0.00	0.00
			Max Tension	11	13.45	-0.12	-0.00
			Max. Compression	11	-13.38	-0.12	-0.00
			Max. Mx	32	-0.47	-0.18	-0.02
			Max. My	10	-0.60	-0.14	-0.02
			Max. Vy	32	0.06	-0.18	-0.02
		Redund Horz 1 Bracing	Max. Vx	10	0.00	-0.14	-0.02
			Max Tension	19	2.56	0.00	0.00
			Max. Compression	19	-2.56	0.00	0.00
			Max. Mx	18	0.34	0.03	0.00
			Max. My	31	2.20	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Diag 1 Bracing	Max. Vx	31	-0.00	0.00	0.00
			Max Tension	19	2.34	0.00	0.00
			Max. Compression	19	-2.34	0.00	0.00
			Max. Mx	34	2.09	0.04	0.00
			Max. My	33	1.78	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max. Vx	33	-0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Vx	32	-0.00	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.08	0.12	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	0.03	0.00	0.00
		Inner Bracing	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.23	0.00	0.00
			Max. Compression	11	-0.23	0.00	0.00
			Max. Mx	18	0.00	0.11	0.00
			Max. My	19	0.20	0.00	0.00
			Max. Vy	18	-0.03	0.00	0.00
		Leg	Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	143.47	0.14	-0.22
			Max. Compression	19	-183.27	-3.03	0.15
			Max. Mx	19	-182.21	3.87	-0.13
			Max. My	6	-20.28	-1.11	5.94
			Max. Vy	19	0.75	3.87	-0.13
		Diagonal	Max. Vx	6	-1.18	-1.11	5.94
			Max Tension	11	24.42	0.00	0.00
			Max. Compression	11	-24.93	-0.09	0.01
			Max. Mx	19	-0.61	-0.14	-0.03
			Max. My	4	-23.68	-0.09	-0.10
			Max. Vy	19	0.05	-0.14	-0.03
		Top Girt	Max. Vx	4	-0.01	0.00	0.00
			Max Tension	11	14.72	-0.19	0.00
			Max. Compression	11	-14.90	-0.20	0.00
			Max. Mx	32	-1.15	-0.29	-0.03
			Max. My	10	-1.12	-0.23	-0.03
			Max. Vy	32	0.09	-0.29	-0.03
		Redund Horz 1 Bracing	Max. Vx	24	-0.00	-0.22	0.03
			Max Tension	19	3.18	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 39 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	80 - 60	Leg	Max. Compression	19	-3.18	0.00	0.00
			Max. Mx	18	0.40	0.03	0.00
			Max. My	31	2.74	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	2.73	0.00	0.00
		Redund Diag 1 Bracing	Max. Compression	19	-2.73	0.00	0.00
			Max. Mx	34	2.42	0.05	0.00
			Max. My	33	2.06	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Vx	32	-0.00	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.08	0.13	0.00
			Max. My	23	0.03	0.00	0.00
		Inner Bracing	Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.26	0.00	0.00
			Max. Compression	11	-0.26	0.00	0.00
			Max. Mx	18	0.00	0.24	0.00
		Diagonal	Max. My	19	0.23	0.00	0.00
			Max. Vy	18	-0.07	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	174.15	0.44	-0.28
			Max. Compression	19	-220.12	-2.50	0.17
		Top Girt	Max. Mx	19	-219.08	4.77	-0.19
			Max. My	14	-23.20	-1.43	-9.06
			Max. Vy	19	-0.85	4.77	-0.19
			Max. Vx	6	-1.61	-1.43	9.04
			Max Tension	11	25.06	0.00	0.00
		Redund Horz 1 Bracing	Max. Compression	11	-25.61	-0.11	-0.00
			Max. Mx	28	-11.81	-0.15	-0.06
			Max. My	4	-24.00	-0.11	-0.08
			Max. Vy	28	0.05	-0.15	-0.06
			Max. Vx	4	-0.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	11	15.93	-0.22	0.00
			Max. Compression	11	-16.02	-0.23	0.00
			Max. Mx	33	-4.83	-0.33	-0.03
			Max. My	27	-0.98	-0.32	-0.03
			Max. Vy	33	0.10	-0.33	-0.03
		Redund Hip 1 Bracing	Max. Vx	27	0.00	-0.32	-0.03
			Max Tension	19	3.82	0.00	0.00
			Max. Compression	19	-3.82	0.00	0.00
			Max. Mx	18	0.46	0.04	0.00
			Max. My	31	3.29	0.00	-0.00
		Redund Hip Diagonal Bracing	Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	3.09	0.00	0.00
			Max. Compression	19	-3.09	0.00	0.00
			Max. Mx	34	2.74	0.06	0.00

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	40 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	60 - 30	Redund Hip 1 Bracing	Max. My	33	2.33	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.04	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.07	0.15	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.28	0.00	0.00
			Max. Compression	11	-0.28	0.00	0.00
			Max. Mx	18	0.00	0.29	0.00
			Max. My	19	0.24	0.00	0.00
			Max. Vy	18	-0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Inner Bracing	Max Tension	15	204.67	-0.88	-0.32
			Max. Compression	19	-258.14	-1.39	0.42
			Max. Mx	19	-257.03	6.85	-0.26
			Max. My	6	-26.94	-2.23	15.58
			Max. Vy	2	0.95	6.62	-0.38
			Max. Vx	6	-2.35	-2.23	15.58
			Max Tension	11	33.48	0.00	0.00
			Max. Compression	11	-33.98	-0.11	0.08
			Max. Mx	20	-33.12	-0.14	0.11
			Max. My	4	-32.26	0.00	-0.20
			Max. Vy	20	-0.04	-0.14	0.11
			Max. Vx	3	0.03	0.01	-0.19
		Top Girt	Max Tension	11	17.35	-0.26	0.00
			Max. Compression	11	-17.42	-0.27	0.00
			Max. Mx	32	-1.90	-0.39	-0.03
			Max. My	24	0.93	-0.31	0.03
			Max. Vy	32	-0.11	-0.39	-0.03
			Max. Vx	27	0.00	-0.39	-0.03
		Redund Horz 1 Bracing	Max Tension	19	4.48	0.00	0.00
			Max. Compression	19	-4.48	0.00	0.00
			Max. Mx	18	0.53	0.02	0.00
			Max. My	23	0.61	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	19	4.48	0.00	0.00
			Max. Compression	19	-4.48	0.00	0.00
			Max. Mx	18	0.53	0.08	0.00
			Max. My	23	3.77	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	4.58	0.00	0.00
			Max. Compression	19	-4.58	0.00	0.00
			Max. Mx	28	3.96	0.04	0.00
			Max. My	28	3.96	0.00	-0.00
			Max. Vy	28	-0.01	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 41 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	30 - 0	Redund Diag 2 Bracing	Max Tension	19	2.96	0.00	0.00
			Max. Compression	19	-2.96	0.00	0.00
			Max. Mx	20	2.62	0.10	0.00
			Max. My	21	2.23	0.00	0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	11	0.01	0.00	0.00
			Max. Compression	11	-0.12	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. My	33	-0.02	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	33	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	4	0.02	0.00	0.00
			Max. Compression	21	-0.06	0.00	0.00
			Max. Mx	18	-0.01	0.08	0.00
			Max. My	30	-0.03	0.00	0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max Tension	11	0.25	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Compression	23	-0.08	0.00	0.00
			Max. Mx	19	0.07	0.18	0.00
			Max. My	23	-0.01	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	11	0.30	0.00	0.00
		Inner Bracing	Max. Compression	11	-0.30	0.00	0.00
			Max. Mx	18	0.00	0.34	0.00
			Max. My	19	0.26	0.00	0.00
			Max. Vy	18	-0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	248.37	-2.37	-0.60
		Leg	Max. Compression	19	-312.89	0.00	-0.00
			Max. Mx	19	-311.90	10.88	-0.18
			Max. My	6	-29.46	-2.24	15.57
			Max. Vy	19	1.14	10.88	-0.18
			Max. Vx	14	-1.99	-2.23	-15.57
			Max Tension	11	32.85	-0.23	0.24
		Diagonal	Max. Compression	11	-34.15	0.00	0.00
			Max. Mx	32	27.86	-0.28	0.18
			Max. My	20	-32.35	0.10	-0.28
			Max. Vy	19	-0.08	-0.20	0.15
			Max. Vx	3	0.03	0.11	-0.28
			Max Tension	4	17.95	-0.37	0.01
		Top Girt	Max. Compression	12	-19.14	-0.42	-0.01
			Max. Mx	32	-3.81	-0.55	-0.04
			Max. My	24	2.28	-0.41	0.04
			Max. Vy	32	-0.14	-0.55	-0.04
			Max. Vx	24	-0.00	-0.41	0.04
			Max Tension	19	5.43	0.00	0.00
		Redund Horz 1 Bracing	Max. Compression	19	-5.43	0.00	0.00
			Max. Mx	27	3.03	0.03	0.00
			Max. Vy	27	-0.02	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	19	5.43	0.00	0.00
			Max. Compression	19	-5.43	0.00	0.00
			Max. Mx	28	0.64	0.10	0.00
			Max. My	28	0.65	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 42 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Redund Diag 1 Bracing	Max. Vy	28	-0.03	0.00	0.00
			Max Tension	19	5.11	0.00	0.00
			Max. Compression	19	-5.11	0.00	0.00
			Max. Mx	29	4.84	0.04	0.00
			Max. My	21	1.29	0.00	0.00
		Redund Diag 2 Bracing	Max. Vy	29	-0.01	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
			Max Tension	19	3.41	0.00	0.00
			Max. Compression	19	-3.41	0.00	0.00
			Max. Mx	19	3.41	0.12	0.00
		Redund Hip 1 Bracing	Max. My	28	1.01	0.00	-0.00
			Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
			Max Tension	11	0.02	0.00	0.00
			Max. Compression	11	-0.12	0.00	0.00
		Redund Hip 2 Bracing	Max. Mx	18	-0.01	0.03	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max Tension	5	0.01	0.00	0.00
			Max. Compression	27	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.10	0.00
		Redund Hip Diagonal Bracing	Max. Vy	18	-0.03	0.00	0.00
			Max Tension	28	0.21	0.00	0.00
			Max. Compression	23	-0.09	0.00	0.00
			Max. Mx	20	0.09	0.21	0.00
			Max. My	32	0.16	0.00	-0.00
		Inner Bracing	Max. Vy	20	-0.04	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max Tension	12	0.33	0.00	0.00
			Max. Compression	12	-0.33	0.00	0.00
			Max. Mx	18	0.01	0.42	0.00
			Max. My	32	0.25	0.00	-0.00
			Max. Vy	18	0.09	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	354.89	46.02	-27.50
	Max. H _x	30	354.89	46.02	-27.50
	Max. H _z	4	-275.76	-38.06	25.97
	Min. Vert	5	-286.52	-40.80	24.65
	Min. H _x	5	-286.52	-40.80	24.65
Leg B	Min. H _z	29	344.16	43.33	-28.72
	Max. Vert	24	348.89	-46.10	-27.14
	Max. H _x	15	-289.10	41.10	24.24
	Max. H _z	16	-278.34	38.46	25.37
	Min. Vert	15	-289.10	41.10	24.24
Leg A	Min. H _x	24	348.89	-46.10	-27.14
	Min. H _z	25	338.16	-43.47	-28.27
	Max. Vert	19	361.22	-0.35	53.75

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 43 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H _x	14	33.45	10.36	2.86
	Max. H _z	19	361.22	-0.35	53.75
	Min. Vert	10	-284.28	0.50	-47.66
	Min. H _x	6	33.45	-10.42	2.86
	Min. H _z	10	-284.28	0.50	-47.66

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	92.54	0.00	0.00	-90.55	51.87	0.00
Dead+Wind 0 deg - No Ice	92.54	-0.00	-89.76	-11165.95	51.95	-35.88
Dead+Wind 30 deg - No Ice	92.54	44.83	-77.74	-9682.17	-5477.10	-60.15
Dead+Wind 45 deg - No Ice	92.54	63.41	-63.47	-7922.14	-7767.30	-66.51
Dead+Wind 60 deg - No Ice	92.54	77.65	-44.88	-5628.39	-9524.65	-68.32
Dead+Wind 90 deg - No Ice	92.54	89.67	0.00	-90.75	-11006.18	-58.18
Dead+Wind 120 deg - No Ice	92.54	77.65	44.88	5446.91	-9524.69	-32.45
Dead+Wind 135 deg - No Ice	92.54	63.41	63.47	7740.69	-7767.34	-15.78
Dead+Wind 150 deg - No Ice	92.54	44.83	77.74	9500.78	-5477.10	1.98
Dead+Wind 180 deg - No Ice	92.54	-0.00	89.76	10984.60	52.18	35.86
Dead+Wind 210 deg - No Ice	92.54	-44.83	77.74	9500.76	5581.07	60.16
Dead+Wind 225 deg - No Ice	92.54	-63.41	63.47	7740.68	7871.27	66.52
Dead+Wind 240 deg - No Ice	92.54	-77.65	44.88	5446.90	9628.60	68.32
Dead+Wind 270 deg - No Ice	92.54	-89.67	0.00	-90.73	11110.07	58.18
Dead+Wind 300 deg - No Ice	92.54	-77.65	-44.88	-5628.44	9628.35	32.44
Dead+Wind 315 deg - No Ice	92.54	-63.41	-63.47	-7922.09	7871.18	15.78
Dead+Wind 330 deg - No Ice	92.54	-44.83	-77.74	-9682.14	5580.98	-1.98
Dead+Ice+Temp	140.06	0.00	0.00	-209.71	120.56	0.00
Dead+Wind 0 deg+Ice+Temp	140.06	-0.00	-89.19	-10963.75	120.62	-20.22
Dead+Wind 30 deg+Ice+Temp	140.06	44.53	-77.20	-9515.71	-5245.23	-39.38
Dead+Wind 45 deg+Ice+Temp	140.06	62.97	-63.02	-7807.08	-7466.85	-45.22
Dead+Wind 60 deg+Ice+Temp	140.06	77.12	-44.56	-5581.22	-9170.87	-47.98
Dead+Wind 90 deg+Ice+Temp	140.06	89.06	0.00	-209.89	-10611.10	-43.77
Dead+Wind 120 deg+Ice+Temp	140.06	77.18	44.60	5167.11	-9180.64	-27.85
Dead+Wind 135 deg+Ice+Temp	140.06	62.97	63.02	7387.37	-7466.85	-16.66
Dead+Wind 150 deg+Ice+Temp	140.06	44.53	77.20	9096.04	-5245.22	-4.39
Dead+Wind 180 deg+Ice+Temp	140.06	-0.00	89.12	10532.85	120.67	20.20
Dead+Wind 210 deg+Ice+Temp	140.06	-44.53	77.20	9096.05	5486.54	39.39
Dead+Wind 225 deg+Ice+Temp	140.06	-62.97	63.02	7387.38	7708.16	45.22
Dead+Wind 240 deg+Ice+Temp	140.06	-77.18	44.60	5167.13	9421.93	48.07
Dead+Wind 270 deg+Ice+Temp	140.06	-89.06	0.00	-209.84	10852.35	43.77
Dead+Wind 300 deg+Ice+Temp	140.06	-77.12	-44.56	-5581.16	9412.11	27.79
Dead+Wind 315 deg+Ice+Temp	140.06	-62.97	-63.02	-7807.02	7708.07	16.66
Dead+Wind 330 deg+Ice+Temp	140.06	-44.53	-77.20	-9515.67	5486.47	4.40
Dead+Wind 0 deg - Service	92.54	-0.00	-27.70	-3508.98	51.93	-11.08
Dead+Wind 30 deg - Service	92.54	13.84	-23.99	-3051.03	-1654.56	-18.57
Dead+Wind 45 deg - Service	92.54	19.57	-19.59	-2507.80	-2361.42	-20.52
Dead+Wind 60 deg - Service	92.54	23.97	-13.85	-1799.84	-2903.82	-21.09
Dead+Wind 90 deg - Service	92.54	27.68	0.00	-90.69	-3361.08	-17.96
Dead+Wind 120 deg - Service	92.54	23.97	13.85	1618.46	-2903.81	-10.02
Dead+Wind 135 deg - Service	92.54	19.57	19.59	2326.42	-2361.42	-4.88
Dead+Wind 150 deg - Service	92.54	13.84	23.99	2869.65	-1654.56	0.61
Dead+Wind 180 deg - Service	92.54	0.00	27.70	3327.63	51.95	11.07
Dead+Wind 210 deg - Service	92.54	-13.84	23.99	2869.66	1758.46	18.57
Dead+Wind 225 deg - Service	92.54	-19.57	19.59	2326.42	2465.31	20.53
Dead+Wind 240 deg - Service	92.54	-23.97	13.85	1618.46	3007.70	21.08

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	44 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 270 deg - Service	92.54	-27.68	0.00	-90.68	3464.95	17.96
Dead+Wind 300 deg - Service	92.54	-23.97	-13.85	-1799.88	3007.73	10.01
Dead+Wind 315 deg - Service	92.54	-19.57	-19.59	-2507.79	2465.30	4.87
Dead+Wind 330 deg - Service	92.54	-13.84	-23.99	-3051.03	1758.44	-0.61

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-92.54	0.00	0.00	92.54	0.00	0.000%
2	-0.00	-92.54	-89.76	0.00	92.54	89.76	0.000%
3	44.83	-92.54	-77.74	-44.83	92.54	77.74	0.000%
4	63.41	-92.54	-63.47	-63.41	92.54	63.47	0.000%
5	77.65	-92.54	-44.88	-77.65	92.54	44.88	0.000%
6	89.67	-92.54	-0.00	-89.67	92.54	-0.00	0.000%
7	77.65	-92.54	44.88	-77.65	92.54	-44.88	0.000%
8	63.41	-92.54	63.47	-63.41	92.54	-63.47	0.000%
9	44.83	-92.54	77.74	-44.83	92.54	-77.74	0.000%
10	0.00	-92.54	89.76	0.00	92.54	-89.76	0.000%
11	-44.83	-92.54	77.74	44.83	92.54	-77.74	0.000%
12	-63.41	-92.54	63.47	63.41	92.54	-63.47	0.000%
13	-77.65	-92.54	44.88	77.65	92.54	-44.88	0.000%
14	-89.67	-92.54	0.00	89.67	92.54	-0.00	0.000%
15	-77.65	-92.54	-44.88	77.65	92.54	44.88	0.000%
16	-63.41	-92.54	-63.47	63.41	92.54	63.47	0.000%
17	-44.83	-92.54	-77.74	44.83	92.54	77.74	0.000%
18	0.00	-140.06	0.00	0.00	140.06	0.00	0.000%
19	-0.00	-140.06	-89.19	0.00	140.06	89.19	0.000%
20	44.53	-140.06	-77.20	-44.53	140.06	77.20	0.000%
21	62.97	-140.06	-63.02	-62.97	140.06	63.02	0.000%
22	77.12	-140.06	-44.56	-77.12	140.06	44.56	0.000%
23	89.06	-140.06	-0.00	-89.06	140.06	-0.00	0.000%
24	77.18	-140.06	44.60	-77.18	140.06	-44.60	0.000%
25	62.97	-140.06	63.02	-62.97	140.06	-63.02	0.000%
26	44.53	-140.06	77.20	-44.53	140.06	-77.20	0.000%
27	0.00	-140.06	89.12	0.00	140.06	-89.12	0.000%
28	-44.53	-140.06	77.20	44.53	140.06	-77.20	0.000%
29	-62.97	-140.06	63.02	62.97	140.06	-63.02	0.000%
30	-77.18	-140.06	44.60	77.18	140.06	-44.60	0.000%
31	-89.06	-140.06	0.00	89.06	140.06	-0.00	0.000%
32	-77.12	-140.06	-44.56	77.12	140.06	44.56	0.000%
33	-62.97	-140.06	-63.02	62.97	140.06	63.02	0.000%
34	-44.53	-140.06	-77.20	44.53	140.06	77.20	0.000%
35	-0.00	-92.54	-27.70	0.00	92.54	27.70	0.000%
36	13.84	-92.54	-23.99	-13.84	92.54	23.99	0.000%
37	19.57	-92.54	-19.59	-19.57	92.54	19.59	0.000%
38	23.97	-92.54	-13.85	-23.97	92.54	13.85	0.000%
39	27.68	-92.54	-0.00	-27.68	92.54	-0.00	0.000%
40	23.97	-92.54	13.85	-23.97	92.54	-13.85	0.000%
41	19.57	-92.54	19.59	-19.57	92.54	-19.59	0.000%
42	13.84	-92.54	23.99	-13.84	92.54	-23.99	0.000%
43	0.00	-92.54	27.70	0.00	92.54	-27.70	0.000%
44	-13.84	-92.54	23.99	13.84	92.54	-23.99	0.000%
45	-19.57	-92.54	19.59	19.57	92.54	-19.59	0.000%
46	-23.97	-92.54	13.85	23.97	92.54	-13.85	0.000%
47	-27.68	-92.54	0.00	27.68	92.54	-0.00	0.000%
48	-23.97	-92.54	-13.85	23.97	92.54	13.85	0.000%

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	45 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
49	-19.57	-92.54	-19.59	19.57	92.54	19.59	0.000%
50	-13.84	-92.54	-23.99	13.84	92.54	23.99	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000182
3	Yes	4	0.00000001	0.00000185
4	Yes	4	0.00000001	0.00000135
5	Yes	4	0.00000001	0.00000076
6	Yes	4	0.00000001	0.00000122
7	Yes	4	0.00000001	0.00000172
8	Yes	4	0.00000001	0.00000174
9	Yes	4	0.00000001	0.00000149
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000176
12	Yes	4	0.00000001	0.00000192
13	Yes	4	0.00000001	0.00000178
14	Yes	4	0.00000001	0.00000128
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000115
17	Yes	4	0.00000001	0.00000151
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000226
20	Yes	4	0.00000001	0.00000207
21	Yes	4	0.00000001	0.00000145
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000135
24	Yes	4	0.00000001	0.00000201
25	Yes	4	0.00000001	0.00000200
26	Yes	4	0.00000001	0.00000165
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000192
29	Yes	4	0.00000001	0.00000220
30	Yes	4	0.00000001	0.00000215
31	Yes	4	0.00000001	0.00000148
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000125
34	Yes	4	0.00000001	0.00000178
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	46 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

50

Yes

4

0.00000001

0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	2.609	50	0.0633	0.0188
T2	220 - 200	2.337	50	0.0635	0.0196
T3	200 - 180	2.056	50	0.0634	0.0189
T4	180 - 170	1.762	50	0.0624	0.0172
T5	170 - 160	1.614	50	0.0613	0.0162
T6	160 - 150	1.470	50	0.0597	0.0155
T7	150 - 140	1.329	50	0.0577	0.0146
T8	140 - 120	1.187	50	0.0552	0.0138
T9	120 - 100	0.929	50	0.0489	0.0124
T10	100 - 80	0.691	50	0.0416	0.0104
T11	80 - 60	0.486	50	0.0330	0.0084
T12	60 - 30	0.312	43	0.0256	0.0064
T13	30 - 0	0.093	42	0.0139	0.0025

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	50	2.609	0.0633	0.0188	Inf
242.00	12' x 2" Dia Omni	50	2.609	0.0633	0.0188	Inf
240.00	Flash Beacon Lighting	50	2.609	0.0633	0.0188	Inf
238.00	Pirod 4' Side Mount Standoff (1)	50	2.582	0.0634	0.0190	Inf
237.00	8'x2 1/2" Pipe Mount	50	2.569	0.0634	0.0190	Inf
236.00	Pirod 4' Side Mount Standoff (1)	50	2.555	0.0634	0.0191	Inf
235.00	10' x 3" Dia Omni	50	2.542	0.0634	0.0191	Inf
230.00	Pirod 4' Side Mount Standoff (1)	50	2.474	0.0634	0.0194	Inf
229.00	10'x2.5" Pipe Mount	50	2.460	0.0634	0.0194	Inf
224.00	Pirod 4' Side Mount Standoff (1)	50	2.392	0.0635	0.0196	749746
210.00	(2) 800-10504	50	2.198	0.0635	0.0195	361420
202.00	(3) APX16PV-16PVL-X	50	2.085	0.0634	0.0190	277952
198.00	4-ft Yagi	50	2.027	0.0633	0.0188	286300
195.00	10'x4" Pipe Mount	50	1.984	0.0632	0.0185	327380
187.00	Andrew 2' w/Radome	50	1.866	0.0629	0.0178	569784
185.00	14' x 2-1/2" Pipe Mount	50	1.836	0.0627	0.0177	699215
184.00	LLPX310R	50	1.821	0.0627	0.0176	789825
176.00	20' x 3" Dia Omni	50	1.702	0.0620	0.0168	566575
174.00	(2) 7184.05	50	1.673	0.0618	0.0166	362223
164.00	(2) 7770.00	50	1.527	0.0604	0.0157	328982
150.00	DB846F65ZAXY	50	1.329	0.0577	0.0146	720019
141.00	10' x 1" Dia Omni	50	1.201	0.0555	0.0139	129387
140.00	Obstruction Lights	50	1.187	0.0552	0.0138	120968
136.00	2' stand off (2 arms)	50	1.133	0.0541	0.0135	124694
132.00	2' stand off (2 arms)	50	1.081	0.0529	0.0132	153824
124.00	12' x 1-1/2" Dia Omni	50	0.979	0.0502	0.0127	290067
118.00	Pirod 4' Side Mount Standoff (1)	50	0.904	0.0482	0.0122	374496
114.00	12' x 2" Dia Omni	50	0.855	0.0468	0.0118	262713
108.00	Pirod 4' Side Mount Standoff (1)	50	0.783	0.0447	0.0113	175467
98.00	4-ft Yagi	50	0.668	0.0408	0.0102	124179

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 47 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
82.00	2' stand off (2 arms)	50	0.505	0.0339	0.0086	138247
56.00	GPS	43	0.279	0.0242	0.0059	428659
22.00	0.8M Satellite Dish	42	0.057	0.0104	0.0017	73578

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	8.269	17	0.1985	0.0612
T2	220 - 200	7.414	17	0.1990	0.0637
T3	200 - 180	6.532	17	0.1986	0.0614
T4	180 - 170	5.606	17	0.1956	0.0557
T5	170 - 160	5.140	17	0.1923	0.0525
T6	160 - 150	4.687	17	0.1873	0.0502
T7	150 - 140	4.239	17	0.1810	0.0475
T8	140 - 120	3.793	17	0.1735	0.0448
T9	120 - 100	2.975	17	0.1534	0.0402
T10	100 - 80	2.219	17	0.1307	0.0340
T11	80 - 60	1.568	16	0.1038	0.0272
T12	60 - 30	1.011	10	0.0805	0.0205
T13	30 - 0	0.299	26	0.0437	0.0079

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	17	8.269	0.1985	0.0612	743978
242.00	12' x 2" Dia Omni	17	8.269	0.1985	0.0612	743978
240.00	Flash Beacon Lighting	17	8.269	0.1985	0.0612	743978
238.00	Pirol 4' Side Mount Standoff (1)	17	8.184	0.1986	0.0616	743978
237.00	8'x2 1/2" Pipe Mount	17	8.142	0.1986	0.0617	743978
236.00	Pirol 4' Side Mount Standoff (1)	17	8.099	0.1987	0.0619	743978
235.00	10' x 3" Dia Omni	17	8.057	0.1987	0.0621	743978
230.00	Pirol 4' Side Mount Standoff (1)	17	7.843	0.1988	0.0629	371992
229.00	10'x2.5" Pipe Mount	17	7.801	0.1989	0.0630	338174
224.00	Pirol 4' Side Mount Standoff (1)	17	7.587	0.1990	0.0636	232466
210.00	(2) 800-10504	17	6.979	0.1990	0.0632	112830
202.00	(3) APX16PV-16PVL-X	17	6.623	0.1987	0.0618	87010
198.00	4-ft Yagi	17	6.442	0.1985	0.0609	90025
195.00	10'x4" Pipe Mount	17	6.304	0.1982	0.0602	103608
187.00	Andrew 2' w/Radome	17	5.934	0.1971	0.0579	186750
185.00	14' x 2-1/2" Pipe Mount	17	5.840	0.1968	0.0573	233494
184.00	LLPX310R	17	5.794	0.1966	0.0570	267420
176.00	20' x 3" Dia Omni	17	5.419	0.1945	0.0544	185544
174.00	(2) 7184.05	17	5.325	0.1939	0.0537	115571
164.00	(2) 7770.00	17	4.867	0.1895	0.0511	106536
150.00	DB846F65ZAXY	17	4.239	0.1810	0.0475	258947
141.00	10' x 1" Dia Omni	17	3.837	0.1743	0.0451	40583
140.00	Obstruction Lights	17	3.793	0.1735	0.0448	37895
136.00	2' stand off (2 arms)	17	3.622	0.1699	0.0439	39215

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	48 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
132.00	2' stand off (2 arms)	17	3.455	0.1660	0.0430	48937
124.00	12' x 1-1/2" Dia Omni	17	3.133	0.1577	0.0412	97536
118.00	Pirot 4' Side Mount Standoff (1)	17	2.897	0.1512	0.0396	131163
114.00	12' x 2" Dia Omni	17	2.741	0.1469	0.0385	88182
108.00	Pirot 4' Side Mount Standoff (1)	17	2.512	0.1403	0.0366	57022
98.00	4-ft Yagi	17	2.149	0.1281	0.0333	39565
82.00	2' stand off (2 arms)	17	1.628	0.1064	0.0279	43807
56.00	GPS	10	0.903	0.0759	0.0189	155379
22.00	0.8M Satellite Dish	26	0.184	0.0326	0.0053	22963

Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt	Allowable Load	Ratio Load Allowable	Allowable Ratio	Criteria
	ft			in		K	K			
T1	240	Leg	A325N	1.0000	8	0.00	34.56	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	0.60	6.44	0.093 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	0.61	6.44	0.094 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.24	6.44	0.037 ✓	1.333	Bolt Shear
T2	220	Leg	A325N	1.0000	8	0.37	34.56	0.011 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1.75	6.44	0.272 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.61	6.44	0.250 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.81	6.44	0.126 ✓	1.333	Bolt Shear
T3	200	Leg	A325N	1.0000	8	1.41	34.56	0.041 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	2.92	6.44	0.453 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.87	6.44	0.446 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	2.26	6.44	0.351 ✓	1.333	Bolt Shear
T4	180	Leg	A325N	1.0000	8	3.62	34.56	0.105 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.56	6.44	0.552 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	3.64	6.44	0.565 ✓	1.333	Bolt Shear
T5	170	Diagonal	A325N	0.6250	3	4.07	6.44	0.631 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.25	6.44	0.660 ✓	1.333	Bolt Shear
T6	160	Leg	A325N	1.0000	8	6.65	34.56	0.192 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.43	6.44	0.687 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.77	6.44	0.741 ✓	1.333	Bolt Shear
T7	150	Diagonal	A325N	0.7500	3	5.10	9.28	0.549 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	5.66	6.44	0.879 ✓	1.333	Bolt Shear
T8	140	Leg	A325N	1.0000	8	10.29	34.56	0.298 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	5.48	9.28	0.591 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	6.38	6.44	0.990 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	6.11	6.44	0.949 ✓	1.333	Bolt Shear
T9	120	Leg	A325N	1.0000	8	14.13	34.56	0.409 ✓	1.333	Bolt Tension

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	49 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T10	100	Diagonal	A325N	0.7500	3	7.99	9.28	0.861 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.7500	2	6.72	9.28	0.725 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	8	17.93	34.56	0.519 ✓	1.333	Bolt Tension
T11	80	Diagonal	A325N	0.8750	3	8.31	12.63	0.658 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	7.45	12.63	0.590 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	14.51	34.56	0.420 ✓	1.333	Bolt Tension
T12	60	Diagonal	A325N	0.8750	3	8.54	12.63	0.676 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	8.01	12.63	0.634 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	17.06	34.56	0.494 ✓	1.333	Bolt Tension
T13	30	Diagonal	A325N	0.8750	3	11.33	12.63	0.897 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	8.71	12.63	0.690 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	12	20.70	34.56	0.599 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	11.38	12.63	0.901 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	9.57	12.63	0.758 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _n ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8 K=1.00	27.415	12.7627	-4.06	349.89	0.012 ✓
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8 K=1.00	25.579	12.7627	-13.24	326.45	0.041 ✓
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-32.43	326.43	0.099 ✓
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-44.50	326.43	0.136 ✓
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-59.26	326.43	0.182 ✓
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-74.77	326.41	0.229 ✓
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-92.00	326.41	0.282 ✓
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-128.45	326.43	0.393 ✓
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-147.27	326.43	0.451 ✓
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-183.27	326.43	0.561 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	50 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-220.12	430.75	0.511
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2 K=1.00	26.754	16.1007	-258.14	430.76	0.599
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2 K=1.00	26.752	16.1007	-312.88	430.72	0.726

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1 K=1.00	8.562	1.0745	-1.79	9.20	0.194
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6 K=1.00	6.581	1.7040	-5.26	11.21	0.469
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3 K=1.00	5.741	1.7040	-8.76	9.78	0.896
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8 K=1.00	5.365	1.7040	-10.67	9.14	1.168
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9 K=1.00	4.771	2.2535	-12.20	10.75	1.135
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4 K=1.00	7.060	2.2285	-13.28	15.73	0.844
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5 K=1.00	6.595	2.2285	-15.29	14.70	1.041
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4 K=1.00	5.525	3.0159	-16.44	16.66	0.987
T9	120 - 100	ROHN 2.5 STD Reinforced w/ L2x2x1/4	24.29	12.15	136.9 K=1.00	7.963	2.3562	-23.96	18.76	1.277
T10	100 - 80	ROHN 3 STD	25.02	12.51	129.0 K=1.00	8.970	2.2285	-24.93	19.99	1.247
T11	80 - 60	ROHN 3 STD	25.79	12.90	133.0 K=1.00	8.442	2.2285	-25.61	18.81	1.361
T12	60 - 30	H1-3 (1.36 CR) - 270 ROHN 3 STD	35.06	11.69	120.5 K=1.00	10.279	2.2285	-33.98	22.91	1.483
T13	30 - 0	H1-3 (1.48 CR) - 315/2 ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	36.14	12.05	110.2 K=1.00	12.306	3.4872	-34.15	42.91	0.796

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6 K=1.00	17.872	1.0745	-1.18	19.20	0.062

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	51 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7 K=1.00	14.781	1.0745	-3.22	15.88	0.203
T3	200 - 180	ROHN 2 STD	16.21	7.75	118.1 K=1.00	10.709	1.0745	-5.75	11.51	0.500
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1 K=1.00	6.995	1.7040	-12.44	11.92	1.044

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	10.58	4.93	63.9 K=0.85	22.042	1.0745	-0.48	23.68	0.020
T2	220 - 200	ROHN 2 STD	12.63	5.96	77.2 K=0.85	19.571	1.0745	-1.60	21.03	0.076
T3	200 - 180	ROHN 2 STD	14.96	7.12	92.3 K=0.85	16.445	1.0745	-4.52	17.67	0.256
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	90.1 K=0.85	16.912	1.7040	-7.27	28.82	0.252
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	96.8 K=0.85	15.427	1.7040	-8.48	26.29	0.323
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	103.6 K=0.85	13.867	1.7040	-9.50	23.63	0.402
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	110.5 K=0.85	12.225	1.7040	-11.24	20.83	0.540
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	117.5 K=0.85	10.823	1.7040	-12.08	18.44	0.655
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	130.9 K=0.85	8.712	1.7040	-13.38	14.85	0.901
T10	100 - 80	ROHN 3 STD	27.54	13.41	117.6 K=0.85	10.806	2.2285	-14.90	24.08	0.619
T11	80 - 60	ROHN 3 STD	30.04	14.66	128.5 K=0.85	9.041	2.2285	-16.02	20.15	0.795
T12	60 - 30	ROHN 3 STD	32.54	15.82	138.7 K=0.85	7.763	2.2285	-17.42	17.30	1.007
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	134.8 K=0.85	8.217	2.6795	-19.14	22.02	0.869

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0 K=1.00	14.210	1.0745	-2.56	15.27	0.167
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5	13.043	1.0745	-3.18	14.01	0.227

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 52 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
					K=1.00					✓
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7	11.984	1.0745	-3.82	12.88	0.297
					K=1.00					✓
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9	15.810	1.0745	-4.48	16.99	0.264
					K=1.00					✓
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2	14.763	1.0745	-5.43	15.86	0.342
					K=1.00					✓

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5	5.942	1.0745	-4.48	6.38	0.702
					K=1.00					✓
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3	4.751	1.0745	-5.43	5.11	1.064
					K=1.00					✓

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9	5.557	1.0745	-2.34	5.97	0.393
					K=1.00					✓
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6	5.190	1.0745	-2.73	5.58	0.489
					K=1.00					✓
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5	4.847	1.0745	-3.09	5.21	0.593
					K=1.00					✓
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5	6.336	1.0745	-4.58	6.81	0.673
					K=1.00					✓
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7	5.927	1.0745	-5.11	6.37	0.802
					K=1.00					✓

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6	3.431	1.0745	-2.96	3.69	0.802
					K=1.00					✓
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3	3.023	1.0745	-3.41	3.25	1.051
					K=1.00					✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 53 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	6.26	95.4 K=1.00	13.547	1.0745	-0.05	14.56	0.003
T10	100 - 80	ROHN 2 STD	6.89	6.89	105.0 K=1.00	12.340	1.0745	-0.05	13.26	0.004 ✓
T11	80 - 60	ROHN 2 STD	7.51	7.51	114.5 K=1.00	11.058	1.0745	-0.05	11.88	0.004 ✓
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7 K=1.00	15.054	1.0745	-0.12	16.18	0.008 ✓
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1 K=1.00	13.959	1.0745	-0.12	15.00	0.008 ✓

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4 K=1.00	5.461	1.0745	-0.06	5.87	0.010 ✓
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1 K=1.00	4.405	1.0745	-0.05	4.73	0.011 ✓

Redundant Hip Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1 K=1.00	2.844	1.0745	-0.05	3.06	0.016 ✓
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7 K=1.00	2.556	1.0745	-0.05	2.75	0.019 ✓
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7 K=1.00	2.302	1.0745	-0.05	2.47	0.020 ✓
T12	60 - 30	KL/R > 250 (C) - 274 ROHN 2 STD	17.69	17.69	269.7 K=1.00	2.052	1.0745	-0.08	2.21	0.037 ✓
T13	30 - 0	KL/R > 250 (C) - 323 ROHN 2 STD	19.08	19.08	290.8 K=1.00	1.766	1.0745	-0.08	1.90	0.043 ✓
		KL/R > 250 (C) - 374								✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	54 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	L2x2x1/8	5.29	5.29	159.7 K=1.00	5.857	0.4844	-0.01	2.84	0.003
T2	220 - 200	L2x2x1/8	6.31	6.31	190.6 K=1.00	4.110	0.4844	-0.03	1.99	0.014
T3	200 - 180	L2x2x1/8	7.48	7.48	225.8 K=1.00	2.929	0.4844	-0.08	1.42	0.055
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	211.6 K=1.00	3.334	0.9020	-0.13	3.01	0.042
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	226.8 K=1.00	2.903	0.9020	-0.15	2.62	0.056
T6	160 - 150	L3x3x3/16	9.98	9.98	200.9 K=1.00	3.698	1.0900	-0.16	4.03	0.041
T7	150 - 140	L3x3x3/16	10.63	10.63	213.9 K=1.00	3.263	1.0900	-0.19	3.56	0.055
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	214.3 K=1.00	3.251	1.5600	-0.21	5.07	0.041
T9	120 - 100	P2x.154	12.52	12.52	190.9 K=1.00	4.099	1.0745	-0.23	4.40	0.053
T10	100 - 80	P3x.216	13.77	13.77	142.0 K=1.00	7.405	2.2285	-0.26	16.50	0.016
T11	80 - 60	P3x.216	15.02	15.02	154.9 K=1.00	6.224	2.2285	-0.28	13.87	0.020
T12	60 - 30	P3x.216	16.27	16.27	167.8 K=1.00	5.304	2.2285	-0.30	11.82	0.026
T13	30 - 0	P3x.216	18.12	18.12	186.8 K=1.00	4.279	2.2285	-0.33	9.53	0.035

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	1.30	382.88	0.003
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8	30.000	12.7627	5.72	382.88	0.015
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	19.57	382.88	0.051
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	28.92	382.88	0.076
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	40.48	382.88	0.106
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	53.17	382.88	0.139

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 55 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	66.60	382.88	0.174 ✓
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	98.09	382.88	0.256 ✓
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	113.02	382.88	0.295 ✓
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	143.47	382.88	0.375 ✓
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	174.15	483.02	0.361 ✓
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2	30.000	16.1007	204.67	483.02	0.424 ✓
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2	30.000	16.1007	248.37	483.02	0.514 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1	30.000	1.0745	1.68	32.24	0.052 ✓
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6	30.000	1.7040	5.11	51.12	0.100 ✓
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3	30.000	1.7040	8.59	51.12	0.168 ✓
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8	30.000	1.7040	10.44	51.12	0.204 ✓
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9	27.600	2.2535	11.91	62.20	0.191 ✓
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4	27.600	2.2285	12.96	61.51	0.211 ✓
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5	27.600	2.2285	14.94	61.51	0.243 ✓
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4	27.600	3.0159	15.92	83.24	0.191 ✓
T9	120 - 100	ROHN 2.5 STD Reinforced w/ L2x2x1/4	24.29	12.15	136.9	30.000	2.3562	23.49	70.69	0.332 ✓
T10	100 - 80	ROHN 3 STD	25.02	12.51	129.0	30.000	2.2285	24.42	66.85	0.365 ✓
T11	80 - 60	ROHN 3 STD	25.79	12.90	133.0	30.000	2.2285	25.06	66.85	0.375 ✓
T12	60 - 30	H1-3 (1.36 CR) - 267 ROHN 3 STD	35.06	11.69	120.5	30.000	2.2285	33.48	66.85	0.501 ✓
T13	30 - 0	H1-3 (1.47 CR) - 310/2 ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	36.14	12.05	110.2	30.000	3.4872	32.85	104.61	0.314 ✓

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	56 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Horizontal Design Data (Tension)

Section No.	Elevation <i>ft</i>	Size	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>F_a</i> <i>ksi</i>	<i>A</i> <i>in²</i>	Actual <i>P</i> <i>K</i>	Allow. <i>P_a</i> <i>K</i>	Ratio <i>P</i> <i>P_a</i>
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6	30.000	1.0745	1.21	32.24	0.038
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7	30.000	1.0745	3.20	32.24	0.099 ✓
T3	200 - 180	ROHN 2 STD	16.21	7.75	118.1	30.000	1.0745	5.74	32.24	0.178 ✓
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1	30.000	1.7040	12.75	51.12	0.249 ✓

Top Girt Design Data (Tension)

Section No.	Elevation <i>ft</i>	Size	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>F_a</i> <i>ksi</i>	<i>A</i> <i>in²</i>	Actual <i>P</i> <i>K</i>	Allow. <i>P_a</i> <i>K</i>	Ratio <i>P</i> <i>P_a</i>
T1	240 - 220	ROHN 2 STD	10.58	4.93	75.2	30.000	1.0745	0.46	32.24	0.014
T2	220 - 200	ROHN 2 STD	12.63	5.96	90.8	30.000	1.0745	1.62	32.24	0.050 ✓
T3	200 - 180	ROHN 2 STD	14.96	7.12	108.6	30.000	1.0745	4.49	32.24	0.139 ✓
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	106.0	30.000	1.7040	7.25	51.12	0.142 ✓
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	113.9	30.000	1.7040	8.51	51.12	0.166 ✓
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	121.9	30.000	1.7040	9.55	51.12	0.187 ✓
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	130.0	30.000	1.7040	11.32	51.12	0.221 ✓
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	138.2	30.000	1.7040	12.23	51.12	0.239 ✓
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	154.0	30.000	1.7040	13.45	51.12	0.263 ✓
T10	100 - 80	ROHN 3 STD	27.54	13.41	138.3	30.000	2.2285	14.72	66.85	0.220 ✓
T11	80 - 60	ROHN 3 STD	30.04	14.66	151.2	30.000	2.2285	15.93	66.85	0.238 ✓
T12	60 - 30	ROHN 3 STD	32.54	15.82	163.2	30.000	2.2285	17.35	66.85	0.260 ✓
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	158.6	30.000	2.6795	17.95	80.39	0.223 ✓

Redundant Horizontal (1) Design Data (Tension)

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice	57 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0	21.600	1.0745	2.56	23.21	0.110
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5	21.600	1.0745	3.18	23.21	0.137 ✓
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7	21.600	1.0745	3.82	23.21	0.165 ✓
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9	21.600	1.0745	4.48	23.21	0.193 ✓
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2	21.600	1.0745	5.43	23.21	0.234 ✓

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5	21.600	1.0745	4.48	23.21	0.193 ✓
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3	21.600	1.0745	5.43	23.21	0.234 ✓

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9	21.600	1.0745	2.34	23.21	0.101
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6	21.600	1.0745	2.73	23.21	0.117 ✓
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5	21.600	1.0745	3.09	23.21	0.133 ✓
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5	21.600	1.0745	4.58	23.21	0.198 ✓
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7	21.600	1.0745	5.11	23.21	0.220 ✓

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6	21.600	1.0745	2.96	23.21	0.127

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	58 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3	21.600	1.0745	3.41	23.21	0.147 ✓ ✓

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7	21.600	1.0745	0.01	23.21	0.000 ✓
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1	21.600	1.0745	0.02	23.21	0.001 ✓ ✓

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4	21.600	1.0745	0.02	23.21	0.001 ✓
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1	21.600	1.0745	0.01	23.21	0.001 ✓ ✓

Redundant Hip Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1	21.600	1.0745	0.10	23.21	0.004 ✓
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7	21.600	1.0745	0.10	23.21	0.004 ✓
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7	21.600	1.0745	0.10	23.21	0.004 ✓
T12	60 - 30	ROHN 2 STD	13.98	13.98	213.1	21.600	1.0745	0.25	23.21	0.011 ✓
T13	30 - 0	ROHN 2 STD	14.77	14.77	225.1	21.600	1.0745	0.21	23.21	0.009 ✓ ✓

Inner Bracing Design Data (Tension)

RISATower

CEN TEK Engineering, Inc.
63-2 N Branford Rd
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job	240-ft ROHN SSMW Self-Support Lattice	Page	59 of 62
Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	L2x2x1/8	5.29	5.29	101.4	21.600	0.4844	0.01	10.46	0.001
T2	220 - 200	L2x2x1/8	6.31	6.31	121.0	21.600	0.4844	0.03	10.46	0.003
T3	200 - 180	L2x2x1/8	7.48	7.48	143.3	21.600	0.4844	0.08	10.46	0.007
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	134.7	21.600	0.9020	0.13	19.48	0.006
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	144.3	21.600	0.9020	0.15	19.48	0.008
T6	160 - 150	L3x3x3/16	9.98	9.98	127.5	21.600	1.0900	0.16	23.54	0.007
T7	150 - 140	L3x3x3/16	10.63	10.63	135.8	21.600	1.0900	0.19	23.54	0.008
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	148.1	21.600	1.5600	0.21	33.70	0.006
T9	120 - 100	P2x.154	12.52	12.52	190.9	30.000	1.0745	0.23	32.24	0.007
T10	100 - 80	P3x.216	13.77	13.77	142.0	30.000	2.2285	0.26	66.85	0.004
T11	80 - 60	P3x.216	15.02	15.02	154.9	30.000	2.2285	0.28	66.85	0.004
T12	60 - 30	P3x.216	16.27	16.27	167.8	30.000	2.2285	0.30	66.85	0.005
T13	30 - 0	P3x.216	18.12	18.12	186.8	30.000	2.2285	0.33	66.85	0.005

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	240 - 220	Leg	ROHN 8 EH	1	-4.06	466.41	0.9	Pass
T2	220 - 200	Leg	ROHN 8 EH	42	-13.24	435.16	3.0	Pass
T3	200 - 180	Leg	ROHN 8 EH	69	-32.43	435.13	7.5	Pass
T4	180 - 170	Leg	ROHN 8 EH	96	-44.50	435.13	10.2	Pass
T5	170 - 160	Leg	ROHN 8 EH	111	-59.26	435.13	13.6	Pass
T6	160 - 150	Leg	ROHN 8 EH	126	-74.77	435.11	17.2	Pass
T7	150 - 140	Leg	ROHN 8 EH	141	-92.00	435.11	21.1	Pass
T8	140 - 120	Leg	ROHN 8 EH	156	-128.45	435.13	29.5	Pass
T9	120 - 100	Leg	ROHN 8 EH	183	-147.27	435.13	33.8	Pass
T10	100 - 80	Leg	ROHN 8 EH	216	-183.27	435.13	42.1	Pass
T11	80 - 60	Leg	ROHN 10 EH	249	-220.12	574.19	38.3	Pass
T12	60 - 30	Leg	ROHN 10 EH	282	-258.14	574.20	45.0	Pass
T13	30 - 0	Leg	ROHN 10 EH	333	-312.88	574.15	54.5	Pass
T1	240 - 220	Diagonal	ROHN 2 STD	9	-1.79	12.26	14.6	Pass
T2	220 - 200	Diagonal	ROHN 2.5 STD	54	-5.26	14.95	35.2	Pass
T3	200 - 180	Diagonal	ROHN 2.5 STD	81	-8.76	13.04	67.2	Pass
T4	180 - 170	Diagonal	ROHN 2.5 STD	105	-10.67	12.19	87.6	Pass
T5	170 - 160	Diagonal	ROHN 2.5 EH	120	-12.20	14.33	85.1	Pass
T6	160 - 150	Diagonal	ROHN 3 STD	135	-13.28	20.97	63.3	Pass
T7	150 - 140	Diagonal	ROHN 3 STD	150	-15.29	19.59	78.1	Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 60 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T8	140 - 120	Diagonal	ROHN 3 EH	168	-16.44	22.21	74.0	Pass
T9	120 - 100	Diagonal	ROHN 2.5 STD Reinforced w/ L2x2x1/4	204	-23.96	25.01	95.8	Pass
T10	100 - 80	Diagonal	ROHN 3 STD	237	-24.93	26.65	93.6	Pass
T11	80 - 60	Diagonal	ROHN 3 STD	270	-25.61	25.08	102.1	Fail X
T12	60 - 30	Diagonal	ROHN 3 STD	315	-33.98	30.54	111.3	Fail X
T13	30 - 0	Diagonal	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	366	-34.15	57.20	59.7	Pass
T1	240 - 220	Horizontal	ROHN 2 STD	13	-1.18	25.60	67.6 (b) 4.6	Pass
T2	220 - 200	Horizontal	ROHN 2 STD	52	-3.22	21.17	7.1 (b) 15.2	Pass
T3	200 - 180	Horizontal	ROHN 2 STD	79	-5.75	15.34	18.8 (b) 37.5	Pass
T8	140 - 120	Horizontal	ROHN 2.5 STD	166	-12.44	15.89	78.3	Pass
T1	240 - 220	Top Girt	ROHN 2 STD	4	-0.48	31.57	1.5	Pass
T2	220 - 200	Top Girt	ROHN 2 STD	45	-1.60	28.03	2.8 (b) 5.7	Pass
T3	200 - 180	Top Girt	ROHN 2 STD	72	-4.52	23.55	9.5 (b) 19.2	Pass
T4	180 - 170	Top Girt	ROHN 2.5 STD	99	-7.27	38.42	26.3 (b) 18.9	Pass
T5	170 - 160	Top Girt	ROHN 2.5 STD	114	-8.48	35.04	42.3 (b) 24.2	Pass
T6	160 - 150	Top Girt	ROHN 2.5 STD	129	-9.50	31.50	49.5 (b) 30.1	Pass
T7	150 - 140	Top Girt	ROHN 2.5 STD	144	-11.24	27.77	55.6 (b) 40.5	Pass
T8	140 - 120	Top Girt	ROHN 2.5 STD	159	-12.08	24.58	65.9 (b) 49.1	Pass
T9	120 - 100	Top Girt	ROHN 2.5 STD	186	-13.38	19.79	71.2 (b) 67.6	Pass
T10	100 - 80	Top Girt	ROHN 3 STD	219	-14.90	32.10	46.4	Pass
T11	80 - 60	Top Girt	ROHN 3 STD	252	-16.02	26.86	59.7	Pass
T12	60 - 30	Top Girt	ROHN 3 STD	285	-17.42	23.06	75.5	Pass
T13	30 - 0	Top Girt	ROHN 3.5 STD	336	-19.14	29.35	65.2	Pass
T9	120 - 100	Redund Horiz 1 Bracing	ROHN 2 STD	197	-2.56	20.35	12.6	Pass
T10	100 - 80	Redund Horiz 1 Bracing	ROHN 2 STD	230	-3.18	18.68	17.0	Pass
T11	80 - 60	Redund Horiz 1 Bracing	ROHN 2 STD	263	-3.82	17.17	22.3	Pass
T12	60 - 30	Redund Horiz 1 Bracing	ROHN 2 STD	302	-4.48	22.65	19.8	Pass
T13	30 - 0	Redund Horiz 1 Bracing	ROHN 2 STD	353	-5.43	21.15	25.7	Pass
T12	60 - 30	Redund Horiz 2 Bracing	ROHN 2 STD	303	-4.48	8.51	52.6	Pass
T13	30 - 0	Redund Horiz 2 Bracing	ROHN 2 STD	354	-5.43	6.81	79.8	Pass
T9	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	198	-2.34	7.96	29.5	Pass
T10	100 - 80	Redund Diag 1 Bracing	ROHN 2 STD	231	-2.73	7.43	36.7	Pass
T11	80 - 60	Redund Diag 1 Bracing	ROHN 2 STD	264	-3.09	6.94	44.5	Pass
T12	60 - 30	Redund Diag 1 Bracing	ROHN 2 STD	304	-4.58	9.07	50.5	Pass
T13	30 - 0	Redund Diag 1 Bracing	ROHN 2 STD	355	-5.11	8.49	60.2	Pass
T12	60 - 30	Redund Diag 2 Bracing	ROHN 2 STD	314	-2.96	4.91	60.1	Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page 61 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 19:17:16 12/08/10
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T13	30 - 0	Redund Diag 2 Bracing	ROHN 2 STD	356	-3.41	4.33	78.8	Pass
T9	120 - 100	Redund Hip 1 Bracing	ROHN 2 STD	207	-0.05	19.40	0.2	Pass
T10	100 - 80	Redund Hip 1 Bracing	ROHN 2 STD	240	-0.05	17.67	0.3	Pass
T11	80 - 60	Redund Hip 1 Bracing	ROHN 2 STD	273	-0.05	15.84	0.3	Pass
T12	60 - 30	Redund Hip 1 Bracing	ROHN 2 STD	320	-0.12	21.56	0.6	Pass
T13	30 - 0	Redund Hip 1 Bracing	ROHN 2 STD	371	-0.12	19.99	0.6	Pass
T12	60 - 30	Redund Hip 2 Bracing	ROHN 2 STD	325	-0.06	7.82	0.8	Pass
T13	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	372	-0.05	6.31	0.8	Pass
T9	120 - 100	Redund Hip Diagonal Bracing	ROHN 2 STD	208	-0.05	4.07	1.2	Pass
T10	100 - 80	Redund Hip Diagonal Bracing	ROHN 2 STD	241	-0.05	3.66	1.4	Pass
T11	80 - 60	Redund Hip Diagonal Bracing	ROHN 2 STD	274	-0.05	3.30	1.5	Pass
T12	60 - 30	Redund Hip Diagonal Bracing	ROHN 2 STD	323	-0.08	2.94	2.7	Pass
T13	30 - 0	Redund Hip Diagonal Bracing	ROHN 2 STD	374	-0.08	2.53	3.2	Pass
T1	240 - 220	Inner Bracing	L2x2x1/8	16	-0.00	2.97	0.2	Pass
T2	220 - 200	Inner Bracing	L2x2x1/8	65	-0.03	2.65	1.0	Pass
T3	200 - 180	Inner Bracing	L2x2x1/8	93	-0.08	1.89	4.1	Pass
T4	180 - 170	Inner Bracing	L2 1/2x2 1/2x3/16	107	-0.13	4.01	3.1	Pass
T5	170 - 160	Inner Bracing	L2 1/2x2 1/2x3/16	123	-0.15	3.49	4.2	Pass
T6	160 - 150	Inner Bracing	L3x3x3/16	137	-0.16	5.37	3.1	Pass
T7	150 - 140	Inner Bracing	L3x3x3/16	152	-0.19	4.74	4.1	Pass
T8	140 - 120	Inner Bracing	L3 1/2x3x1/4	180	-0.21	6.76	3.1	Pass
T9	120 - 100	Inner Bracing	P2x.154	212	-0.23	5.87	3.9	Pass
T10	100 - 80	Inner Bracing	P3x.216	245	-0.26	22.00	1.2	Pass
T11	80 - 60	Inner Bracing	P3x.216	278	-0.28	18.49	1.5	Pass
T12	60 - 30	Inner Bracing	P3x.216	330	-0.30	15.76	1.9	Pass
T13	30 - 0	Inner Bracing	P3x.216	380	-0.33	12.71	2.6	Pass

Summary		
Leg (T13)	54.5	Pass
Diagonal (T12)	111.3	Fail X
Horizontal (T8)	78.3	Pass
Top Girt (T12)	75.5	Pass
Redund Horz 1 Bracing (T13)	25.7	Pass
Redund Horz 2 Bracing (T13)	79.8	Pass
Redund Diag 1 Bracing (T13)	60.2	Pass
Redund Diag 2	78.8	Pass

<i>RISATower</i> <i>CEN TEK Engineering, Inc.</i> 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice	Page	62 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	19:17:16 12/08/10
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
						Bracing (T13)		
						Redund Hip 1 Bracing (T13)	0.6	Pass
						Redund Hip 2 Bracing (T13)	0.8	Pass
						Redund Hip Diagonal Bracing (T13)	3.2	Pass
						Inner Bracing (T5)	4.2	Pass
						Bolt Checks	74.2	Pass
						RATING =	111.3	Fail X

Program Version 5.4.2.0 - 6/17/2010 File:J:\Jobs\1000100.WI\CO78 - North Bridgeport - 1280 Chopsey Hill Rd., Bridgeport, CT/Calculations/ERI Files/240 ROHN SSMW Lattice Bridgeport_CT.eri

Risa Tower Calculations
(with Reinforcement)

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page	1 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	11:05:07 01/25/11
	Client	Verizon Wireless	Designed by	Staff

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 240.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 10.58 ft at the top and 40.25 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Basic wind speed of 90 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 78 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Weld together tower sections have flange connections..

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

Welds are fabricated with ER-70S-6 electrodes..

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

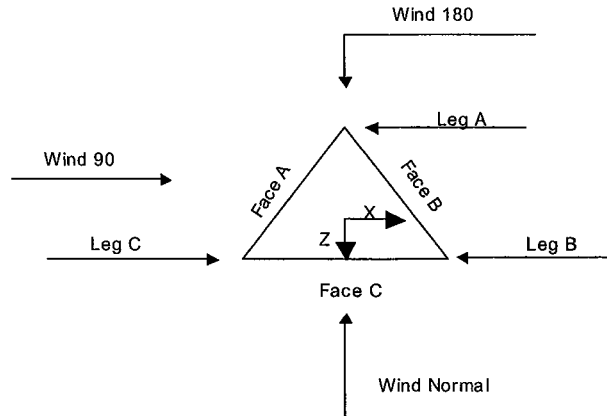
Stress ratio used in tower member design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile ✓ Include Bolts In Member Capacity ✓ Leg Bolts Are At Top Of Section ✓ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r Retension Guys To Initial Tension Bypass Mast Stability Checks Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules ✓ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression ✓ All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feedline Torque Include Angle Block Shear Check Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|---|

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 2 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	240.00-220.00			10.58	1	20.00
T2	220.00-200.00			12.63	1	20.00
T3	200.00-180.00			14.96	1	20.00
T4	180.00-170.00			17.46	1	10.00
T5	170.00-160.00			18.71	1	10.00
T6	160.00-150.00			19.96	1	10.00
T7	150.00-140.00			21.25	1	10.00
T8	140.00-120.00			22.54	1	20.00
T9	120.00-100.00			25.04	1	20.00
T10	100.00-80.00			27.54	1	20.00
T11	80.00-60.00			30.04	1	20.00
T12	60.00-30.00			32.54	1	30.00
T13	30.00-0.00			36.23	1	30.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	240.00-220.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T2	220.00-200.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	3 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	200.00-180.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T4	180.00-170.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T5	170.00-160.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T6	160.00-150.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T7	150.00-140.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	140.00-120.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T10	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T11	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T13	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T3 200.00-180.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T4 180.00-170.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 EH	A500-46 (46 ksi)
T6 160.00-150.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T7 150.00-140.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-46 (46 ksi)
T8 140.00-120.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A500-46 (46 ksi)
T9 120.00-100.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD Reinforced w/ L2x2x1/4	A500-50 (50 ksi)
T10 100.00-80.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A500-46 (46 ksi)
T12 60.00-30.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A500-46 (46 ksi)
T13 30.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 240.00-220.00	Pipe	ROHN 2 STD	A500-50 (50 ksi)	Flat Bar		A36 (36 ksi)
T2 220.00-200.00	Pipe	ROHN 2 STD	A500-50	Flat Bar		A36

<i>RISA</i>Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	4 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 200.00-180.00	Pipe	ROHN 2 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T4 180.00-170.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T5 170.00-160.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T6 160.00-150.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T7 150.00-140.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T8 140.00-120.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T9 120.00-100.00	Pipe	ROHN 2.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T10 100.00-80.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T11 80.00-60.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T12 60.00-30.00	Pipe	ROHN 3 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36
T13 30.00-0.00	Pipe	ROHN 3.5 STD	(50 ksi) A500-50	Flat Bar		(36 ksi) A36

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T2 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T3 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2 STD	A500-50 (50 ksi)
T4 180.00-170.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T5 170.00-160.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T6 160.00-150.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T7 150.00-140.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T8 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T9 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A500-50 (50 ksi)
T10 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T11 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T12 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A500-50 (50 ksi)
T13 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 STD	A500-50 (50 ksi)

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	5 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 240.00-220.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 220.00-200.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 200.00-180.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 180.00-170.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 170.00-160.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 160.00-150.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T7 150.00-140.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 140.00-120.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3 1/2x3x1/4	A36 (36 ksi)
T9 120.00-100.00	Solid Round		A572-50 (50 ksi)	Pipe	P2x.154	A500-50 (50 ksi)
T10 100.00-80.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T11 80.00-60.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T12 60.00-30.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)
T13 30.00-0.00	Solid Round		A572-50 (50 ksi)	Pipe	P3x.216	A500-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
T9 120.00-100.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T10 100.00-80.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T11 80.00-60.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1) Hip Diagonal	Pipe Pipe Pipe ROHN 2 STD	1 1 1 1
T12 60.00-30.00	A36 (36 ksi)	Horizontal (1) Horizontal (2) Diagonal (1)	Pipe Pipe Pipe	1 1 1

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	6 of 62
	Project	Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	11:05:07 01/25/11
	Client	Designed by
	Verizon Wireless	Staff

Tower Elevation	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
ft				
T13 30.00-0.00	A36 (36 ksi)	Diagonal (2)	ROHN 2 STD	
		Hip (1)	Pipe	1
		Hip (2)	ROHN 2 STD	
		Hip Diagonal	ROHN 2 STD	1
		Horizontal (1)	Pipe	1
		Horizontal (2)	ROHN 2 STD	
		Diagonal (1)	Pipe	1
		Diagonal (2)	ROHN 2 STD	
		Hip (1)	Pipe	1
		Hip (2)	ROHN 2 STD	
		Hip Diagonal	ROHN 2 STD	1

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
T1 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T2 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T3 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T4 180.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T5 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T6 160.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T7 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T8 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T9 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T10 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T11 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T12 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000
T13 30.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.02	36.0000	36.0000

Tower Section Geometry (cont'd)

K Factors

<i>RISATower</i> <i>CEN TEK Engineering, Inc.</i> 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page	7 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	11:05:07 01/25/11
	Client	Verizon Wireless	Designed by	Staff

Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

[illegible]

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 8 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T9 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 60.00-30.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 30.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 240.00-220.00	Flange	1.0000	8	0.6250	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 220.00-200.00	Flange	1.0000	8	0.6250	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 200.00-180.00	Flange	1.0000	8	0.6250	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4 180.00-170.00	Flange	1.0000	8	0.6250	3	0.6250	2	0.0000	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5 170.00-160.00	Flange	1.0000	0	0.6250	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6 160.00-150.00	Flange	1.0000	8	0.6250	3	0.6250	2	0.0000	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 150.00-140.00	Flange	1.0000	0	0.7500	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8 140.00-120.00	Flange	1.0000	8	0.7500	3	0.6250	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 120.00-100.00	Flange	1.0000	8	0.7500	3	0.7500	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10 100.00-80.00	Flange	1.0000	8	0.8750	3	0.8750	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11 80.00-60.00	Flange	1.0000	12	0.8750	3	0.8750	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12 60.00-30.00	Flange	1.0000	12	0.8750	3	0.8750	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13 30.00-0.00	Flange	1.0000	12	0.8750	3	0.8750	2	0.6250	0	0.6250	0	0.6250	2	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	9 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (T-Mobile/Metro PCS)	A	Yes	Ar (CfAe)	200.00 - 8.00	-2.0000	0.38	36	12	1.9800	1.9800		1.04
1 5/8 (Sprint)	B	Yes	Ar (CfAe)	174.00 - 8.00	3.0000	0.42	6	6	1.9800	1.9800		1.04
1 5/8 (Verizon)	A	Yes	Ar (CfAe)	150.00 - 8.00	2.5000	-0.41	12	6	1.9800	1.9800		1.04
1 5/8 (Sprint/Nextel)	C	Yes	Ar (CfAe)	186.00 - 8.00	-6.0000	0.44	12	6	1.9800	1.9800		1.04
1/2 (GPS)	C	Yes	Ar (CfAe)	186.00 - 8.00	-3.0000	0.47	1	1	0.5800	0.5800		0.25
1" Rigid Conduit	A	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	-0.46	1	1	1.0000	1.0000		0.70
1" Rigid Conduit	C	Yes	Ar (CfAe)	240.00 - 8.00	3.0000	0.41	1	1	1.0000	1.0000		0.70
1 5/8 (AT&T)	A	No	Ar (Leg)	163.00 - 8.00	0.0000	0.05	12	6	1.9800	1.9800		1.04
1 5/8 (T-Mobile)	B	Yes	Ar (CfAe)	200.00 - 8.00	3.0000	-0.38	6	6	1.9800	1.9800		1.04
2" Inner Duct (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	5.0000	0.38	2	2	2.0000	2.0000		1.00
LDF4-50A (1/2 FOAM) (Clearwire)	B	Yes	Ar (CfAe)	184.00 - 8.00	3.0000	0.38	4	4	1.5000 0.6300	0.6300		0.15
7/8 (To Omni @ 124')	C	Yes	Ar (CfAe)	118.00 - 8.00	3.0000	0.41	1	1	1.1100	1.1100		0.54
7/8 (To Omni @ 114')	C	Yes	Ar (CfAe)	114.00 - 8.00	3.0000	0.47	1	1	1.1100	1.1100		0.54
1 5/8 (MetroPCS)	A	Yes	Ar (CfAe)	210.00 - 200.00	-2.0000	0.38	12	12	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _{AA}	Weight
LDF1-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.46	8	No Ice 1/2" Ice	0.03 0.14 0.06 0.58
LDF1-50A (1/4 FOAM) (Unknown)	B	No	CaAa (In Face)	132.00 - 8.00	3.0000	0.48	6	No Ice 1/2" Ice	0.03 0.14 0.06 0.58

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	240.00-220.00	A	1.667	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	10 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_{AA} In Face ft^2	C_{AA} Out Face ft^2	Weight K
T2	220.00-200.00	C	1.667	0.000	0.000	0.000	0.01
		A	21.467	0.000	0.000	0.000	0.14
		B	0.000	0.000	0.000	0.000	0.00
T3	200.00-180.00	C	1.667	0.000	0.000	0.000	0.01
		A	41.267	0.000	0.000	0.000	0.76
		B	21.973	0.000	0.000	0.000	0.14
T4	180.00-170.00	C	7.897	0.000	0.000	0.000	0.09
		A	20.633	0.000	0.000	0.000	0.38
		B	19.293	0.000	0.000	0.000	0.11
T5	170.00-160.00	C	11.217	0.000	0.000	0.000	0.13
		A	23.603	0.000	0.000	0.000	0.42
		B	28.203	0.000	0.000	0.000	0.15
T6	160.00-150.00	C	11.217	0.000	0.000	0.000	0.13
		A	30.533	0.000	0.000	0.000	0.51
		B	35.133	0.000	0.000	0.000	0.15
T7	150.00-140.00	C	11.217	0.000	0.000	0.000	0.13
		A	40.433	0.000	0.000	0.000	0.63
		B	35.133	0.000	0.000	0.000	0.15
T8	140.00-120.00	C	11.217	0.000	0.000	0.000	0.13
		A	80.867	0.000	0.000	0.000	1.26
		B	70.267	0.000	5.880	0.000	0.31
T9	120.00-100.00	C	22.433	0.000	0.000	0.000	0.27
		A	80.867	0.000	0.000	0.000	1.26
		B	70.267	0.000	9.800	0.000	0.32
T10	100.00-80.00	C	25.393	0.000	0.000	0.000	0.29
		A	80.867	0.000	0.000	0.000	1.26
		B	70.267	0.000	9.800	0.000	0.32
T11	80.00-60.00	C	26.133	0.000	0.000	0.000	0.29
		A	80.867	0.000	0.000	0.000	1.26
		B	70.267	0.000	9.800	0.000	0.32
T12	60.00-30.00	C	26.133	0.000	0.000	0.000	0.29
		A	121.300	0.000	0.000	0.000	1.89
		B	105.400	0.000	14.700	0.000	0.48
T13	30.00-0.00	C	39.200	0.000	0.000	0.000	0.44
		A	88.953	0.000	0.000	0.000	1.39
		B	77.293	0.000	10.780	0.000	0.35
		C	28.747	0.000	0.000	0.000	0.32

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_{AA} In Face ft^2	C_{AA} Out Face ft^2	Weight K
T1	240.00-220.00	A	0.500	3.333	0.000	0.000	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		3.333	0.000	0.000	0.000	0.03
T2	220.00-200.00	A	0.500	33.133	0.000	0.000	0.000	0.34
		B		0.000	0.000	0.000	0.000	0.00
		C		3.333	0.000	0.000	0.000	0.03
T3	200.00-180.00	A	0.500	62.933	0.000	0.000	0.000	1.87
		B		32.343	1.260	0.000	0.000	0.34
		C		13.063	0.000	0.000	0.000	0.22
T4	180.00-170.00	A	0.500	31.467	0.000	0.000	0.000	0.94
		B		27.218	3.150	0.000	0.000	0.30
		C		17.883	0.000	0.000	0.000	0.33
T5	170.00-160.00	A	0.500	35.937	0.000	0.000	0.000	1.03
		B		40.628	3.150	0.000	0.000	0.39
		C		17.883	0.000	0.000	0.000	0.33

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page	11 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	11:05:07 01/25/11
	Client	Verizon Wireless	Designed by	Staff

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_{AA} In Face ft^2	C_{AA} Out Face ft^2	Weight K
T6	160.00-150.00	A	0.500	46.367	0.000	0.000	0.000	1.24
		B		51.058	3.150	0.000	0.000	0.39
		C		17.883	0.000	0.000	0.000	0.33
T7	150.00-140.00	A	0.500	61.267	0.000	0.000	0.000	1.55
		B		51.058	3.150	0.000	0.000	0.39
		C		17.883	0.000	0.000	0.000	0.33
T8	140.00-120.00	A	0.500	122.533	0.000	0.000	0.000	3.10
		B		102.117	6.300	22.680	0.000	0.88
		C		35.767	0.000	0.000	0.000	0.66
T9	120.00-100.00	A	0.500	122.533	0.000	0.000	0.000	3.10
		B		102.117	6.300	37.800	0.000	0.94
		C		41.393	0.000	0.000	0.000	0.71
T10	100.00-80.00	A	0.500	122.533	0.000	0.000	0.000	3.10
		B		102.117	6.300	37.800	0.000	0.94
		C		42.800	0.000	0.000	0.000	0.72
T11	80.00-60.00	A	0.500	122.533	0.000	0.000	0.000	3.10
		B		102.117	6.300	37.800	0.000	0.94
		C		42.800	0.000	0.000	0.000	0.72
T12	60.00-30.00	A	0.500	183.800	0.000	0.000	0.000	4.65
		B		153.175	9.450	56.700	0.000	1.41
		C		64.200	0.000	0.000	0.000	1.09
T13	30.00-0.00	A	0.500	134.787	0.000	0.000	0.000	3.41
		B		112.328	6.930	41.580	0.000	1.04
		C		47.080	0.000	0.000	0.000	0.80

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	240.00-220.00	A	0.124	0.352	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.124	0.352	0.000	0.000
T2	220.00-200.00	A	1.306	2.766	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.101	0.278	0.000	0.000
T3	200.00-180.00	A	2.353	4.927	0.000	0.000
		B	1.253	2.631	0.000	0.000
		C	0.450	1.023	0.000	0.000
T4	180.00-170.00	A	1.218	2.503	0.000	0.000
		B	1.139	2.416	0.000	0.000
		C	0.662	1.422	0.000	0.000
T5	170.00-160.00	A	1.194	2.454	0.000	0.000
		B	1.460	3.066	0.000	0.000
		C	0.649	1.395	0.000	0.000
T6	160.00-150.00	A	1.321	2.636	0.000	0.000
		B	1.615	3.293	0.000	0.000
		C	0.718	1.498	0.000	0.000
T7	150.00-140.00	A	1.922	3.821	0.000	0.000
		B	1.588	3.240	0.000	0.000
		C	0.706	1.474	0.000	0.000
T8	140.00-120.00	A	3.766	7.491	0.000	0.000
		B	3.112	6.350	0.000	0.000
		C	1.383	2.889	0.000	0.000
T9	120.00-100.00	A	4.022	8.347	0.000	0.000
		B	3.324	7.076	0.000	0.000
		C	1.672	3.726	0.000	0.000

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	12 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section	Elevation	Face	A_R	$A_{R\ Ice}$	A_F	$A_{F\ Ice}$
	ft		ft ²	ft ²	ft ²	ft ²
T10	100.00-80.00	A	4.114	8.391	0.000	0.000
		B	3.400	7.114	0.000	0.000
		C	1.761	3.873	0.000	0.000
T11	80.00-60.00	A	3.970	8.094	0.000	0.000
		B	3.281	6.862	0.000	0.000
		C	1.699	3.736	0.000	0.000
T12	60.00-30.00	A	6.056	12.532	0.000	0.000
		B	5.005	10.624	0.000	0.000
		C	2.592	5.784	0.000	0.000
T13	30.00-0.00	A	4.495	9.159	0.000	0.000
		B	3.715	7.765	0.000	0.000
		C	1.924	4.227	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	$CP_{X\ Ice}$	$CP_{Z\ Ice}$
	ft	in	in	in	in
T1	240.00-220.00	-1.4171	0.8630	-2.2052	1.3430
T2	220.00-200.00	-2.4236	-8.6024	-3.4195	-9.7294
T3	200.00-180.00	-3.8524	-22.4571	-4.9592	-24.8869
T4	180.00-170.00	-2.3852	-15.3303	-3.5044	-16.4567
T5	170.00-160.00	2.1602	-15.5215	1.5228	-16.5864
T6	160.00-150.00	1.9704	-20.1107	1.3703	-21.7060
T7	150.00-140.00	-5.0111	-16.9730	-6.1975	-18.2037
T8	140.00-120.00	-2.6860	-15.6951	0.3796	-13.1215
T9	120.00-100.00	-2.2637	-14.8082	2.9199	-9.9948
T10	100.00-80.00	-2.6707	-15.4369	2.7939	-10.4134
T11	80.00-60.00	-2.7499	-15.6720	2.8578	-10.7933
T12	60.00-30.00	-3.0146	-17.0618	3.1197	-11.7008
T13	30.00-0.00	-2.6775	-15.0551	2.8708	-10.8034

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horiz Lateral	Azimuth Adjustment	Placement	$C_{AA\ Front}$	$C_{AA\ Side}$	Weight
			ft	°	ft	ft ²	ft ²	K
16' x 2.5" Dia Omni (Unknown)	C	From Face	0.00	0.0000	248.00	No Ice	4.08	0.05
			0.00			1/2" Ice	5.75	0.08
			0.00					
Flash Beacon Lighting	C	From Leg	0.00	0.0000	240.00	No Ice	2.70	0.05
			0.00			1/2" Ice	3.10	0.07
			0.00					
8'x2 1/2" Pipe Mount	C	From Face	0.00	0.0000	237.00	No Ice	2.30	0.04
			0.00			1/2" Ice	3.13	0.06
			0.00					
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	238.00	No Ice	2.72	0.05
			0.00			1/2" Ice	4.91	0.09

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	13 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(Vacant)			0.00						
12' x 2" Dia Omni	B	From Leg	4.00	0.0000	242.00	No Ice	2.40	2.40	0.03
(Unknown)			0.00			1/2" Ice	3.63	3.63	0.05
Pirol 4' Side Mount Standoff	B	From Leg	2.00	0.0000	236.00	No Ice	2.72	2.72	0.05
(1)			0.00			1/2" Ice	4.91	4.91	0.09
10' x 3" Dia Omni	A	From Leg	4.00	0.0000	235.00	No Ice	3.00	3.00	0.03
(Unknown)			0.00			1/2" Ice	4.03	4.03	0.05
10' x 3" Dia Omni	C	From Leg	4.00	0.0000	235.00	No Ice	3.00	3.00	0.03
(Unknown)			0.00			1/2" Ice	4.03	4.03	0.05
Pirol 4' Side Mount Standoff	A	From Leg	2.00	0.0000	230.00	No Ice	2.72	2.72	0.05
(1)			0.00			1/2" Ice	4.91	4.91	0.09
Pirol 4' Side Mount Standoff	C	From Leg	2.00	0.0000	230.00	No Ice	2.72	2.72	0.05
(1)			0.00			1/2" Ice	4.91	4.91	0.09
10'x2.5" Pipe Mount	B	From Face	0.00	0.0000	229.00	No Ice	2.88	2.88	0.06
(Vacant)			0.00			1/2" Ice	3.91	3.91	0.08
10' x 3" Dia Omni	A	From Leg	4.00	0.0000	229.00	No Ice	3.00	3.00	0.03
(Unknown)			0.00			1/2" Ice	4.03	4.03	0.05
Pirol 4' Side Mount Standoff	A	From Leg	2.00	0.0000	224.00	No Ice	2.72	2.72	0.05
(1)			0.00			1/2" Ice	4.91	4.91	0.09
(2) 800-10504	A	From Leg	3.00	0.0000	210.00	No Ice	3.66	2.26	0.02
(Metro PCS)			0.00			1/2" Ice	4.01	2.59	0.04
(2) 800-10504	B	From Leg	3.00	0.0000	210.00	No Ice	3.66	2.26	0.02
(Metro PCS)			0.00			1/2" Ice	4.01	2.59	0.04
(2) 800-10504	C	From Leg	3.00	0.0000	210.00	No Ice	3.66	2.26	0.02
(Metro PCS)			0.00			1/2" Ice	4.01	2.59	0.04
(2) 860 10025 RCU	A	From Leg	3.00	0.0000	210.00	No Ice	0.16	0.13	0.00
(Metro PCS)			0.00			1/2" Ice	0.22	0.19	0.00
(2) 860 10025 RCU	B	From Leg	3.00	0.0000	210.00	No Ice	0.16	0.13	0.00
(Metro PCS)			0.00			1/2" Ice	0.22	0.19	0.00
(2) 860 10025 RCU	C	From Leg	3.00	0.0000	210.00	No Ice	0.16	0.13	0.00
(Metro PCS)			0.00			1/2" Ice	0.22	0.19	0.00
10-ft T-Frame	A	From Leg	1.50	0.0000	210.00	No Ice	13.60	13.60	0.38
(Metro PCS)			0.00			1/2" Ice	17.50	17.50	0.53
10-ft T-Frame	B	From Leg	1.50	0.0000	210.00	No Ice	13.60	13.60	0.38
(Metro PCS)			0.00			1/2" Ice	17.50	17.50	0.53
10-ft T-Frame	C	From Leg	1.50	0.0000	210.00	No Ice	13.60	13.60	0.38
(Metro PCS)			0.00			1/2" Ice	17.50	17.50	0.53
(3) APX16PV-16PVL-X	A	From Leg	3.50	0.0000	202.00	No Ice	6.70	2.00	0.04
(T-Mobile)			0.00			1/2" Ice	7.13	2.33	0.07

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job		Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced		14 of 62
	Project		Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT		11:05:07 01/25/11
	Client		Designed by
	Verizon Wireless		Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00						
(3) APX16PV-16PVL-X (T-Mobile)	B	From Leg	3.50	0.0000	202.00	No Ice	6.70	2.00	0.04
			0.00			1/2" Ice	7.13	2.33	0.07
			0.00						
(3) APX16PV-16PVL-X (T-Mobile)	C	From Leg	3.50	0.0000	202.00	No Ice	6.70	2.00	0.04
			0.00			1/2" Ice	7.13	2.33	0.07
			0.00						
(2) G20057A1 TMA (T-Mobile)	A	From Leg	3.00	0.0000	202.00	No Ice	0.82	0.39	0.01
			0.00			1/2" Ice	0.95	0.49	0.02
			0.00						
(2) G20057A1 TMA (T-Mobile)	B	From Leg	3.00	0.0000	202.00	No Ice	0.82	0.39	0.01
			0.00			1/2" Ice	0.95	0.49	0.02
			0.00						
(2) G20057A1 TMA (T-Mobile)	C	From Leg	3.00	0.0000	202.00	No Ice	0.82	0.39	0.01
			0.00			1/2" Ice	0.95	0.49	0.02
			0.00						
RFS TMA (T-Mobile)	A	From Leg	3.00	0.0000	202.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00						
RFS TMA (T-Mobile)	B	From Leg	3.00	0.0000	202.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00						
RFS TMA (T-Mobile)	C	From Leg	3.00	0.0000	202.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00						
13-ft T-Frame (T-Mobile)	A	From Leg	1.50	0.0000	202.00	No Ice	11.70	11.70	0.53
			0.00			1/2" Ice	16.40	16.40	0.74
			0.00						
13-ft T-Frame (T-Mobile)	B	From Leg	1.50	0.0000	202.00	No Ice	11.70	11.70	0.53
			0.00			1/2" Ice	16.40	16.40	0.74
			0.00						
13-ft T-Frame (T-Mobile)	C	From Leg	1.50	0.0000	202.00	No Ice	11.70	11.70	0.53
			0.00			1/2" Ice	16.40	16.40	0.74
			0.00						
4-ft Yagi (Unknown)	C	From Face	2.00	0.0000	198.00	No Ice	1.15	1.15	0.01
			0.00			1/2" Ice	1.91	1.91	0.02
			0.00						
10'x4" Pipe Mount ((Yagi mount))	C	From Face	0.00	0.0000	195.00	No Ice	4.50	4.50	0.11
			0.00			1/2" Ice	5.24	5.24	0.14
			0.00						
(2) RR90-11-10DBL (Sprint/Nextel)	A	From Leg	3.00	0.0000	187.00	No Ice	5.60	3.27	0.02
			0.00			1/2" Ice	5.99	3.63	0.06
			0.00						
(2) RR90-11-10DBL (Sprint/Nextel)	B	From Leg	3.00	0.0000	187.00	No Ice	5.60	3.27	0.02
			0.00			1/2" Ice	5.99	3.63	0.06
			0.00						
(2) RR90-11-10DBL (Sprint/Nextel)	C	From Leg	3.00	0.0000	187.00	No Ice	5.60	3.27	0.02
			0.00			1/2" Ice	5.99	3.63	0.06
			0.00						
6'x4" Pipe Mount (Clearwire)	A	From Leg	2.50	0.0000	187.00	No Ice	2.09	2.09	0.05
			0.00			1/2" Ice	2.46	2.46	0.07
			0.00						
6'x4" Pipe Mount (Clearwire)	B	From Leg	2.50	0.0000	187.00	No Ice	2.09	2.09	0.05
			0.00			1/2" Ice	2.46	2.46	0.07
			0.00						
6'x4" Pipe Mount (Clearwire)	C	From Leg	2.50	0.0000	187.00	No Ice	2.09	2.09	0.05
			0.00			1/2" Ice	2.46	2.46	0.07

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	15 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.00						
14' x 2-1/2" Pipe Mount (Vacant)	B	None		0.0000	185.00	No Ice	4.03	4.03	0.08
LLPX310R (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	1/2" Ice No Ice 1/2" Ice	5.46 4.83 5.18	5.46 1.95 2.21	0.11 0.03 0.05
LLPX310R (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21	0.03 0.05
LLPX310R (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	4.83 5.18	1.95 2.21	0.03 0.05
RRU (Clearwire)	A	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
RRU (Clearwire)	B	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
RRU (Clearwire)	C	From Leg	3.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	1.80 2.00	0.78 0.92	0.03 0.04
6-ft T-Frame (Sprint/Nextel)	A	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6-ft T-Frame (Sprint/Nextel)	B	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6-ft T-Frame (Sprint/Nextel)	C	From Leg	1.50 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	13.60 17.50	13.60 17.50	0.38 0.53
6'x4" Pipe Mount (Sprint/Nextel)	A	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	B	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
6'x4" Pipe Mount (Sprint/Nextel)	C	From Leg	1.00 0.00 0.00	0.0000	184.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	0.05 0.07
20' x 3" Dia Omni (Unknown)	B	From Leg	2.00 0.00 0.00	0.0000	176.00	No Ice 1/2" Ice	6.00 8.03	6.00 8.03	0.05 0.09
(2) 7184.05 (Sprint/Nextel)	A	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.89 3.41	2.89 3.41	0.01 0.03
(2) 7184.05 (Sprint/Nextel)	B	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.89 3.41	2.89 3.41	0.01 0.03
(2) DB950G40E-M (Sprint/Nextel)	C	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	6.42 6.88	4.72 5.11	0.02 0.06
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	16 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	A	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	B	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	C	From Face	0.50 -5.00 0.00	0.0000	174.00	No Ice 1/2" Ice	4.03 5.46	4.03 5.46	0.08 0.11
10'x2.5" Pipe Mount (Vacant)	C	From Face	0.50 -7.00 0.00	0.0000	174.00	No Ice 1/2" Ice	2.88 3.91	2.88 3.91	0.06 0.08
(2) 7770.00 (AT&T)	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00 (AT&T)	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00 (AT&T)	C	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(3) LPG21401 TMA (AT&T)	A	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(3) LPG21401 TMA (AT&T)	B	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(3) LPG21401 TMA (AT&T)	C	From Leg	3.50 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
14-ft T-Frame Sector Mount (AT&T)	A	From Leg	2.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (AT&T)	B	From Leg	2.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (AT&T)	C	From Leg	2.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
DB846F65ZAXY (Verizon)	A	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.03 7.54	6.16 6.62	0.02 0.07
MG D3-800T0 (Verizon)	A	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	3.45 3.80	2.22 2.55	0.02 0.04

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	17 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
BXA-70063/6CF (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
DB846F65ZAXY (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.03 7.54	6.16 6.62	0.02 0.07
LPA-80063/6CF (Verizon)	B	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	10.31 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	B	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	3.45 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
LPA-80063/6CF (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	10.31 10.87	9.01 9.55	0.03 0.10
LPA-80063/6CF (Verizon)	C	From Leg	3.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	10.31 10.87	9.01 9.55	0.03 0.10
MG D3-800T0 (Verizon)	C	From Leg	3.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	3.45 3.80	2.22 2.55	0.02 0.04
BXA-70063/6CF (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
LPA-80063/6CF (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	10.31 10.87	9.01 9.55	0.03 0.10
14-ft T-Frame Sector Mount (Verizon)	A	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	B	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
14-ft T-Frame Sector Mount (Verizon)	C	From Leg	1.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	16.30 20.60	16.30 20.60	0.51 0.72
Obstruction Lights	A	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	B	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	0.01 0.01
Obstruction Lights	C	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	0.01 0.01
10' x 1" Dia Omni (Unknown)	B	From Leg	2.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice	1.00 2.02	1.00 2.02	0.03 0.04
2' stand off (2 arms)	B	From Leg	1.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.79 4.10	2.79 4.10	0.10 0.13
2' stand off (2 arms)	B	From Leg	1.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice	2.79 4.10	2.79 4.10	0.10 0.13

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	18 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
4-ft Yagi (Unknown)	B	From Leg	2.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice	1.15 1.91	1.15 1.91	0.01 0.02
12' x 1-1/2" Dia Omni (Unknown)	B	From Leg	4.00 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	1.80 3.02	1.80 3.02	0.03 0.04
Pirot 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
12' x 2" Dia Omni (Unknown)	C	From Leg	4.00 0.00 0.00	0.0000	114.00	No Ice 1/2" Ice	2.40 3.63	2.40 3.63	0.03 0.05
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	108.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
4-ft Yagi (Unknown)	A	From Leg	3.50 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	1.15 1.91	1.15 1.91	0.01 0.02
2' stand off (2 arms)	A	From Leg	1.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	2.79 4.10	2.79 4.10	0.10 0.13
2' stand off (2 arms) (Vacant)	A	From Leg	1.00 0.00 0.00	0.0000	82.00	No Ice 1/2" Ice	2.79 4.10	2.79 4.10	0.10 0.13
GPS (Unknown)	C	From Face	2.00 12.00 0.00	0.0000	56.00	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	0.01 0.01
50"x3" Pipe Mount	C	From Face	0.50 12.00 0.00	0.0000	56.00	No Ice 1/2" Ice	1.36 1.67	1.36 1.67	0.03 0.04

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft ²	Weight K
Andrew 2' w/Radome (Clearwire)	B	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	0.07 0.28
Andrew 2' w/Radome (Clearwire)	C	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	0.07 0.28
VHLP2.5-10W (Clearwire)	A	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	Worst		187.00	2.50	No Ice 1/2" Ice	4.91 5.24	0.05 0.08
0.8M Satellite Dish (Unknown)	C	Paraboloid w/o Radome	From Face	2.00 15.00 0.00	Worst		22.00	2.60	No Ice 1/2" Ice	5.31 5.66	0.01 0.08

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	19 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Tower Pressures - No Ice

$$G_H = 1.102$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 240.00- 220.00	230.00	1.741	36	246.494	A	0.000	46.599	28.800	61.80	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	46.599		61.80	0.000	0.000
T2 220.00- 200.00	210.00	1.697	35	290.299	A	0.000	65.139	28.815	44.24	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	46.544		61.91	0.000	0.000
T3 200.00- 180.00	190.00	1.649	34	338.603	A	0.000	85.622	28.825	33.67	0.000	0.000
					B	0.000	67.428		42.75	0.000	0.000
					C	0.000	54.154		53.23	0.000	0.000
T4 180.00- 170.00	175.00	1.611	33	188.052	A	0.000	44.151	14.412	32.64	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
					C	0.000	35.290		40.84	0.000	0.000
T5 170.00- 160.00	165.00	1.584	33	200.552	A	0.000	47.660	14.412	30.24	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
					C	0.000	35.819		40.24	0.000	0.000
T6 160.00- 150.00	155.00	1.556	32	213.252	A	0.000	56.464	14.415	25.53	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
					C	0.000	37.750		38.19	0.000	0.000
T7 150.00- 140.00	145.00	1.526	32	226.152	A	0.000	66.357	14.415	21.72	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
					C	0.000	38.356		37.58	0.000	0.000
T8 140.00- 120.00	130.00	1.48	31	490.203	A	0.000	134.556	28.825	21.42	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
					C	0.000	78.505		36.72	0.000	0.000
T9 120.00- 100.00	110.00	1.411	29	540.203	A	0.000	138.093	28.825	20.87	0.000	0.000
					B	0.000	125.216		23.02	9.800	0.000
					C	0.000	79.019		36.48	0.000	0.000
T10 100.00- 80.00	90.00	1.332	28	590.203	A	0.000	142.273	28.825	20.26	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
					C	0.000	83.618		34.47	0.000	0.000
T11 80.00- 60.00	70.00	1.24	26	643.752	A	0.000	151.459	35.927	23.72	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
					C	0.000	92.384		38.89	0.000	0.000
T12 60.00- 30.00	45.00	1.093	23	1058.47	A	0.000	226.786	53.885	23.76	0.000	0.000
				6	B	0.000	208.435		25.85	14.700	0.000
					C	0.000	141.146		38.18	0.000	0.000
T13 30.00-0.00	15.00	1	21	1174.13	A	0.000	204.474	53.911	26.37	0.000	0.000
				5	B	0.000	189.819		28.40	10.780	0.000
					C	0.000	139.288		38.70	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.102$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			

RISATower

CEN TEK Engineering, Inc.
63-2 N Branford Rd
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job
240-ft ROHN SSMW Self-Support Lattice ~ Reinforced

Page
20 of 62

Project
10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT

Date
11:05:07 01/25/11

Client
Verizon Wireless

Designed by
Staff

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
T1 240.00- 220.00	230.00	1.741	27	0.5000	248.163	A	0.000	58.221	32.139	55.20	0.000	0.000
						B	0.000	55.240		58.18	0.000	0.000
						C	0.000	58.221		55.20	0.000	0.000
T2 220.00- 200.00	210.00	1.697	26	0.5000	291.969	A	0.000	84.672	32.156	37.98	0.000	0.000
						B	0.000	54.305		59.21	0.000	0.000
						C	0.000	57.360		56.06	0.000	0.000
T3 200.00- 180.00	190.00	1.649	26	0.5000	340.273	A	0.000	114.707	32.167	28.04	0.000	0.000
						B	1.260	86.413		36.69	0.000	0.000
						C	0.000	68.741		46.79	0.000	0.000
T4 180.00- 170.00	175.00	1.611	25	0.5000	188.886	A	0.000	58.960	16.083	27.28	0.000	0.000
						B	3.150	54.800		27.75	0.000	0.000
						C	0.000	46.458		34.62	0.000	0.000
T5 170.00- 160.00	165.00	1.584	25	0.5000	201.386	A	0.000	64.175	16.083	25.06	0.000	0.000
						B	3.150	68.255		22.52	0.000	0.000
						C	0.000	47.181		34.09	0.000	0.000
T6 160.00- 150.00	155.00	1.556	24	0.5000	214.088	A	0.000	76.607	16.086	21.00	0.000	0.000
						B	3.150	80.641		19.20	0.000	0.000
						C	0.000	49.261		32.65	0.000	0.000
T7 150.00- 140.00	145.00	1.526	24	0.5000	226.988	A	0.000	91.105	16.086	17.66	0.000	0.000
						B	3.150	81.478		19.01	0.000	0.000
						C	0.000	50.069		32.13	0.000	0.000
T8 140.00- 120.00	130.00	1.48	23	0.5000	491.873	A	0.000	184.688	32.167	17.42	0.000	0.000
						B	6.300	165.411		18.73	22.680	0.000
						C	0.000	102.523		31.38	0.000	0.000
T9 120.00- 100.00	110.00	1.411	22	0.5000	541.873	A	0.000	190.549	32.167	16.88	0.000	0.000
						B	6.300	167.176		18.54	37.800	0.000
						C	0.000	105.575		30.47	0.000	0.000
T10 100.00- 80.00	90.00	1.332	21	0.5000	591.873	A	0.000	195.469	32.167	16.46	0.000	0.000
						B	6.300	171.871		18.05	37.800	0.000
						C	0.000	111.336		28.89	0.000	0.000
T11 80.00-60.00	70.00	1.24	19	0.5000	645.422	A	0.000	205.474	39.269	19.11	0.000	0.000
						B	6.300	181.590		20.90	37.800	0.000
						C	0.000	120.701		32.53	0.000	0.000
T12 60.00-30.00	45.00	1.093	17	0.5000	1060.980	A	0.000	308.150	58.898	19.11	0.000	0.000
						B	9.450	274.456		20.75	56.700	0.000
						C	0.000	185.345		31.78	0.000	0.000
T13 30.00-0.00	15.00	1	16	0.5000	1176.641	A	0.000	272.448	58.926	21.63	0.000	0.000
						B	6.930	246.019		23.30	41.580	0.000
						C	0.000	178.942		32.93	0.000	0.000

Tower Pressure - Service

$$G_H = 1.102$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 240.00- 220.00	230.00	1.741	11	246.494	A	0.000	46.599	28.800	61.80	0.000	0.000
					B	0.000	45.056		63.92	0.000	0.000
					C	0.000	46.599		61.80	0.000	0.000
T2 220.00- 200.00	210.00	1.697	11	290.299	A	0.000	65.139	28.815	44.24	0.000	0.000
					B	0.000	44.979		64.06	0.000	0.000
					C	0.000	46.544		61.91	0.000	0.000
T3 200.00-	190.00	1.649	11	338.603	A	0.000	85.622	28.825	33.67	0.000	0.000

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	21 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
180.00					B	0.000	67.428		42.75	0.000	0.000
T4 180.00- 170.00	175.00	1.611	10	188.052	C	0.000	54.154		53.23	0.000	0.000
					A	0.000	44.151	14.412	32.64	0.000	0.000
					B	0.000	42.890		33.60	0.000	0.000
T5 170.00- 160.00	165.00	1.584	10	200.552	C	0.000	35.290		40.84	0.000	0.000
					A	0.000	47.660	14.412	30.24	0.000	0.000
					B	0.000	51.994		27.72	0.000	0.000
T6 160.00- 150.00	155.00	1.556	10	213.252	C	0.000	35.819		40.24	0.000	0.000
					A	0.000	56.464	14.415	25.53	0.000	0.000
					B	0.000	60.769		23.72	0.000	0.000
T7 150.00- 140.00	145.00	1.526	10	226.152	C	0.000	37.750		38.19	0.000	0.000
					A	0.000	66.357	14.415	21.72	0.000	0.000
					B	0.000	61.390		23.48	0.000	0.000
T8 140.00- 120.00	130.00	1.48	9	490.203	C	0.000	38.356		37.58	0.000	0.000
					A	0.000	134.556	28.825	21.42	0.000	0.000
					B	0.000	124.609		23.13	5.880	0.000
T9 120.00- 100.00	110.00	1.411	9	540.203	C	0.000	78.505		36.72	0.000	0.000
					A	0.000	138.093	28.825	20.87	0.000	0.000
					B	0.000	125.216		23.02	9.800	0.000
T10 100.00- 80.00	90.00	1.332	9	590.203	C	0.000	79.019		36.48	0.000	0.000
					A	0.000	142.273	28.825	20.26	0.000	0.000
					B	0.000	129.250		22.30	9.800	0.000
T11 80.00- 60.00	70.00	1.24	8	643.752	C	0.000	83.618		34.47	0.000	0.000
					A	0.000	151.459	35.927	23.72	0.000	0.000
					B	0.000	138.242		25.99	9.800	0.000
T12 60.00- 30.00	45.00	1.093	7	1058.47	C	0.000	92.384		38.89	0.000	0.000
				6	A	0.000	226.786	53.885	23.76	0.000	0.000
					B	0.000	208.435		25.85	14.700	0.000
T13 30.00-0.00	15.00	1	6	1174.13	C	0.000	141.146		38.18	0.000	0.000
				5	A	0.000	204.474	53.911	26.37	0.000	0.000
					B	0.000	189.819		28.40	10.780	0.000
					C	0.000	139.288		38.70	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	1	1	27.411	2.87	143.59	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.189	2.633	0.588	1	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	1	1	38.802	3.79	189.29	A
			B	0.155	2.753	0.582	1	1	26.189			
			C	0.16	2.734	0.583	1	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	1	1	51.596	4.72	236.09	A
			B	0.199	2.599	0.59	1	1	39.798			
			C	0.16	2.735	0.583	1	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	1	1	26.407	2.41	241.40	A
			B	0.228	2.505	0.597	1	1	25.585			
			C	0.188	2.638	0.588	1	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	1	1	28.539	2.74	274.03	B
			B	0.259	2.41	0.604	1	1	31.419			
			C	0.179	2.669	0.586	1	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	1	1	34.203	3.09	308.64	B
			B	0.285	2.337	0.611	1	1	37.155			
			C	0.177	2.675	0.586	1	1	22.121			

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	22 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	1	1	40.737	3.29	328.72	A
			B	0.271	2.375	0.608	1	1	37.300			
			C	0.17	2.701	0.585	1	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	1	1	81.867	6.75	337.36	A
			B	0.254	2.425	0.603	1	1	75.134			
			C	0.16	2.735	0.583	1	1	45.775			
T9 120.00- 100.00	1.87	5.08	A	0.256	2.421	0.603	1	1	83.315	6.82	340.81	A
			B	0.232	2.493	0.597	1	1	74.804			
			C	0.146	2.785	0.581	1	1	45.903			
T10 100.00- 80.00	1.87	5.46	A	0.241	2.465	0.6	1	1	85.312	6.70	334.87	A
			B	0.219	2.534	0.594	1	1	76.833			
			C	0.142	2.802	0.58	1	1	48.518			
T11 80.00- 60.00	1.87	6.74	A	0.235	2.482	0.598	1	1	90.607	6.65	332.44	A
			B	0.215	2.547	0.594	1	1	82.049			
			C	0.144	2.796	0.581	1	1	53.629			
T12 60.00- 30.00	2.81	9.85	A	0.214	2.549	0.593	1	1	134.577	8.93	297.72	A
			B	0.197	2.606	0.59	1	1	122.930			
			C	0.133	2.834	0.579	1	1	81.733			
T13 30.00- 0.00	2.06	10.68	A	0.174	2.685	0.585	1	1	119.713	7.59	252.99	A
			B	0.162	2.729	0.583	1	1	110.727			
			C	0.119	2.89	0.577	1	1	80.394			
Sum Weight:	16.52	64.93						OTM	7393.20 kip-ft	66.34		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	0.825	1	27.411	2.87	143.59	C
			B	0.183	2.654	0.587	0.825	1	26.450			
			C	0.189	2.633	0.588	0.825	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	0.825	1	38.802	3.79	189.29	A
			B	0.155	2.753	0.582	0.825	1	26.189			
			C	0.16	2.734	0.583	0.825	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	0.825	1	51.596	4.72	236.09	A
			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.16	2.735	0.583	0.825	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	0.825	1	26.407	2.41	241.40	A
			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.188	2.638	0.588	0.825	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	0.825	1	28.539	2.74	274.03	B
			B	0.259	2.41	0.604	0.825	1	31.419			
			C	0.179	2.669	0.586	0.825	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	0.825	1	34.203	3.09	308.64	B
			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.177	2.675	0.586	0.825	1	22.121			
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	0.825	1	40.737	3.29	328.72	A
			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.17	2.701	0.585	0.825	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	0.825	1	81.867	6.75	337.36	A
			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.16	2.735	0.583	0.825	1	45.775			
T9 120.00- 100.00	1.87	5.08	A	0.256	2.421	0.603	0.825	1	83.315	6.82	340.81	A
			B	0.232	2.493	0.597	0.825	1	74.804			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	23 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T10 100.00- 80.00	1.87	5.46	C	0.146	2.785	0.581	0.825	1	45.903			
			A	0.241	2.465	0.6	0.825	1	85.312	6.70	334.87	A
			B	0.219	2.534	0.594	0.825	1	76.833			
T11 80.00- 60.00	1.87	6.74	C	0.142	2.802	0.58	0.825	1	48.518			
			A	0.235	2.482	0.598	0.825	1	90.607	6.65	332.44	A
			B	0.215	2.547	0.594	0.825	1	82.049			
T12 60.00- 30.00	2.81	9.85	C	0.144	2.796	0.581	0.825	1	53.629			
			A	0.214	2.549	0.593	0.825	1	134.577	8.93	297.72	A
			B	0.197	2.606	0.59	0.825	1	122.930			
T13 30.00- 0.00	2.06	10.68	C	0.133	2.834	0.579	0.825	1	81.733			
			A	0.174	2.685	0.585	0.825	1	119.713	7.59	252.99	A
			B	0.162	2.729	0.583	0.825	1	110.727			
Sum Weight:	16.52	64.93	C	0.119	2.89	0.577	0.825	1	80.394			
								OTM	7393.20 kip-ft	66.34		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	0.8	1	27.411	2.87	143.59	C
			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.189	2.633	0.588	0.8	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	0.8	1	38.802	3.79	189.29	A
			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.16	2.734	0.583	0.8	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	0.8	1	51.596	4.72	236.09	A
			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.16	2.735	0.583	0.8	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	0.8	1	26.407	2.41	241.40	A
			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.188	2.638	0.588	0.8	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	0.8	1	28.539	2.74	274.03	B
			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.179	2.669	0.586	0.8	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	0.8	1	34.203	3.09	308.64	B
			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.177	2.675	0.586	0.8	1	22.121			
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	0.8	1	40.737	3.29	328.72	A
			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.17	2.701	0.585	0.8	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	0.8	1	81.867	6.75	337.36	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.16	2.735	0.583	0.8	1	45.775			
T9 120.00- 100.00	1.87	5.08	A	0.256	2.421	0.603	0.8	1	83.315	6.82	340.81	A
			B	0.232	2.493	0.597	0.8	1	74.804			
			C	0.146	2.785	0.581	0.8	1	45.903			
T10 100.00- 80.00	1.87	5.46	A	0.241	2.465	0.6	0.8	1	85.312	6.70	334.87	A
			B	0.219	2.534	0.594	0.8	1	76.833			
			C	0.142	2.802	0.58	0.8	1	48.518			
T11 80.00- 60.00	1.87	6.74	A	0.235	2.482	0.598	0.8	1	90.607	6.65	332.44	A
			B	0.215	2.547	0.594	0.8	1	82.049			
			C	0.144	2.796	0.581	0.8	1	53.629			
T12 60.00-	2.81	9.85	A	0.214	2.549	0.593	0.8	1	134.577	8.93	297.72	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	24 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
30.00			B	0.197	2.606	0.59	0.8	1	122.930			
			C	0.133	2.834	0.579	0.8	1	81.733			
T13 30.00-0.00	2.06	10.68	A	0.174	2.685	0.585	0.8	1	119.713	7.59	252.99	A
			B	0.162	2.729	0.583	0.8	1	110.727			
			C	0.119	2.89	0.577	0.8	1	80.394			
Sum Weight:	16.52	64.93						OTM	7393.20 kip-ft	66.34		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.03	3.73	A	0.189	2.633	0.588	0.85	1	27.411	2.87	143.59	C
			B	0.183	2.654	0.587	0.85	1	26.450			
			C	0.189	2.633	0.588	0.85	1	27.411			
T2 220.00-200.00	0.15	3.90	A	0.224	2.517	0.596	0.85	1	38.802	3.79	189.29	A
			B	0.155	2.753	0.582	0.85	1	26.189			
			C	0.16	2.734	0.583	0.85	1	27.141			
T3 200.00-180.00	0.99	4.02	A	0.253	2.429	0.603	0.85	1	51.596	4.72	236.09	A
			B	0.199	2.599	0.59	0.85	1	39.798			
			C	0.16	2.735	0.583	0.85	1	31.574			
T4 180.00-170.00	0.63	2.21	A	0.235	2.484	0.598	0.85	1	26.407	2.41	241.40	A
			B	0.228	2.505	0.597	0.85	1	25.585			
			C	0.188	2.638	0.588	0.85	1	20.749			
T5 170.00-160.00	0.70	2.42	A	0.238	2.475	0.599	0.85	1	28.539	2.74	274.03	B
			B	0.259	2.41	0.604	0.85	1	31.419			
			C	0.179	2.669	0.586	0.85	1	20.999			
T6 160.00-150.00	0.79	2.48	A	0.265	2.394	0.606	0.85	1	34.203	3.09	308.64	B
			B	0.285	2.337	0.611	0.85	1	37.155			
			C	0.177	2.675	0.586	0.85	1	22.121			
T7 150.00-140.00	0.92	2.53	A	0.293	2.314	0.614	0.85	1	40.737	3.29	328.72	A
			B	0.271	2.375	0.608	0.85	1	37.300			
			C	0.17	2.701	0.585	0.85	1	22.426			
T8 140.00-120.00	1.84	5.85	A	0.274	2.366	0.608	0.85	1	81.867	6.75	337.36	A
			B	0.254	2.425	0.603	0.85	1	75.134			
			C	0.16	2.735	0.583	0.85	1	45.775			
T9 120.00-100.00	1.87	5.08	A	0.256	2.421	0.603	0.85	1	83.315	6.82	340.81	A
			B	0.232	2.493	0.597	0.85	1	74.804			
			C	0.146	2.785	0.581	0.85	1	45.903			
T10 100.00-80.00	1.87	5.46	A	0.241	2.465	0.6	0.85	1	85.312	6.70	334.87	A
			B	0.219	2.534	0.594	0.85	1	76.833			
			C	0.142	2.802	0.58	0.85	1	48.518			
T11 80.00-60.00	1.87	6.74	A	0.235	2.482	0.598	0.85	1	90.607	6.65	332.44	A
			B	0.215	2.547	0.594	0.85	1	82.049			
			C	0.144	2.796	0.581	0.85	1	53.629			
T12 60.00-30.00	2.81	9.85	A	0.214	2.549	0.593	0.85	1	134.577	8.93	297.72	A
			B	0.197	2.606	0.59	0.85	1	122.930			
			C	0.133	2.834	0.579	0.85	1	81.733			
T13 30.00-0.00	2.06	10.68	A	0.174	2.685	0.585	0.85	1	119.713	7.59	252.99	A
			B	0.162	2.729	0.583	0.85	1	110.727			
			C	0.119	2.89	0.577	0.85	1	80.394			
Sum Weight:	16.52	64.93						OTM	7393.20 kip-ft	66.34		

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	25 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	4.62	A	0.235	2.484	0.598	1	1	34.821	2.58	129.09	C
			B	0.223	2.522	0.595	1	1	32.882			
			C	0.235	2.484	0.598	1	1	34.821			
T2 220.00- 200.00	0.37	4.76	A	0.29	2.323	0.613	1	1	51.895	3.51	175.26	A
			B	0.186	2.643	0.588	1	1	31.912			
			C	0.196	2.608	0.59	1	1	33.824			
T3 200.00- 180.00	2.43	4.93	A	0.337	2.202	0.628	1	1	72.031	4.48	224.10	A
			B	0.258	2.415	0.604	1	1	53.441			
			C	0.202	2.589	0.591	1	1	40.613			
T4 180.00- 170.00	1.57	2.72	A	0.312	2.264	0.62	1	1	36.537	2.33	232.76	B
			B	0.307	2.278	0.618	1	1	37.016			
			C	0.246	2.45	0.601	1	1	27.914			
T5 170.00- 160.00	1.75	2.94	A	0.319	2.248	0.622	1	1	39.903	2.72	272.33	B
			B	0.355	2.161	0.634	1	1	46.431			
			C	0.234	2.486	0.598	1	1	28.214			
T6 160.00- 150.00	1.96	3.06	A	0.358	2.154	0.635	1	1	48.668	3.08	307.50	B
			B	0.391	2.081	0.648	1	1	55.416			
			C	0.23	2.499	0.597	1	1	29.409			
T7 150.00- 140.00	2.27	3.14	A	0.401	2.061	0.652	1	1	59.415	3.20	320.36	A
			B	0.373	2.12	0.641	1	1	55.369			
			C	0.221	2.529	0.595	1	1	29.782			
T8 140.00- 120.00	4.64	7.13	A	0.375	2.115	0.642	1	1	118.552	6.93	346.56	A
			B	0.349	2.174	0.632	1	1	110.865			
			C	0.208	2.568	0.592	1	1	60.710			
T9 120.00- 100.00	4.75	6.27	A	0.352	2.168	0.633	1	1	120.630	7.23	361.73	A
			B	0.32	2.244	0.622	1	1	110.328			
			C	0.195	2.613	0.589	1	1	62.222			
T10 100.00- 80.00	4.77	6.78	A	0.33	2.219	0.626	1	1	122.290	7.06	352.79	A
			B	0.301	2.293	0.616	1	1	112.209			
			C	0.188	2.636	0.588	1	1	65.471			
T11 80.00- 60.00	4.77	8.19	A	0.318	2.248	0.622	1	1	127.741	6.90	345.22	A
			B	0.291	2.32	0.613	1	1	117.655			
			C	0.187	2.64	0.588	1	1	70.953			
T12 60.00- 30.00	7.15	12.03	A	0.29	2.322	0.613	1	1	188.902	9.27	309.14	A
			B	0.268	2.386	0.607	1	1	175.913			
			C	0.175	2.683	0.586	1	1	108.531			
T13 30.00- 0.00	5.24	13.07	A	0.232	2.494	0.597	1	1	162.745	7.67	255.61	A
			B	0.215	2.547	0.594	1	1	152.959			
			C	0.152	2.764	0.582	1	1	104.108			
Sum Weight:	41.74	79.64						OTM	7326.88 kip-ft	66.97		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-	0.06	4.62	A	0.235	2.484	0.598	0.825	1	34.821	2.58	129.09	C

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	26 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
220.00			B	0.223	2.522	0.595	0.825	1	32.882			
			C	0.235	2.484	0.598	0.825	1	34.821			
T2 220.00- 200.00	0.37	4.76	A	0.29	2.323	0.613	0.825	1	51.895	3.51	175.26	A
			B	0.186	2.643	0.588	0.825	1	31.912			
			C	0.196	2.608	0.59	0.825	1	33.824			
T3 200.00- 180.00	2.43	4.93	A	0.337	2.202	0.628	0.825	1	72.031	4.48	224.10	A
			B	0.258	2.415	0.604	0.825	1	53.221			
			C	0.202	2.589	0.591	0.825	1	40.613			
T4 180.00- 170.00	1.57	2.72	A	0.312	2.264	0.62	0.825	1	36.537	2.29	229.29	B
			B	0.307	2.278	0.618	0.825	1	36.465			
			C	0.246	2.45	0.601	0.825	1	27.914			
T5 170.00- 160.00	1.75	2.94	A	0.319	2.248	0.622	0.825	1	39.903	2.69	269.10	B
			B	0.355	2.161	0.634	0.825	1	45.880			
			C	0.234	2.486	0.598	0.825	1	28.214			
T6 160.00- 150.00	1.96	3.06	A	0.358	2.154	0.635	0.825	1	48.668	3.04	304.44	B
			B	0.391	2.081	0.648	0.825	1	54.864			
			C	0.23	2.499	0.597	0.825	1	29.409			
T7 150.00- 140.00	2.27	3.14	A	0.401	2.061	0.652	0.825	1	59.415	3.20	320.36	A
			B	0.373	2.12	0.641	0.825	1	54.817			
			C	0.221	2.529	0.595	0.825	1	29.782			
T8 140.00- 120.00	4.64	7.13	A	0.375	2.115	0.642	0.825	1	118.552	6.93	346.56	A
			B	0.349	2.174	0.632	0.825	1	109.763			
			C	0.208	2.568	0.592	0.825	1	60.710			
T9 120.00- 100.00	4.75	6.27	A	0.352	2.168	0.633	0.825	1	120.630	7.23	361.73	A
			B	0.32	2.244	0.622	0.825	1	109.226			
			C	0.195	2.613	0.589	0.825	1	62.222			
T10 100.00- 80.00	4.77	6.78	A	0.33	2.219	0.626	0.825	1	122.290	7.06	352.79	A
			B	0.301	2.293	0.616	0.825	1	111.107			
			C	0.188	2.636	0.588	0.825	1	65.471			
T11 80.00- 60.00	4.77	8.19	A	0.318	2.248	0.622	0.825	1	127.741	6.90	345.22	A
			B	0.291	2.32	0.613	0.825	1	116.553			
			C	0.187	2.64	0.588	0.825	1	70.953			
T12 60.00- 30.00	7.15	12.03	A	0.29	2.322	0.613	0.825	1	188.902	9.27	309.14	A
			B	0.268	2.386	0.607	0.825	1	174.259			
			C	0.175	2.683	0.586	0.825	1	108.531			
T13 30.00- 0.00	5.24	13.07	A	0.232	2.494	0.597	0.825	1	162.745	7.67	255.61	A
			B	0.215	2.547	0.594	0.825	1	151.746			
			C	0.152	2.764	0.582	0.825	1	104.108			
Sum Weight:	41.74	79.64						OTM	7310.74 kip-ft	66.87		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.06	4.62	A	0.235	2.484	0.598	0.8	1	34.821	2.58	129.09	C
			B	0.223	2.522	0.595	0.8	1	32.882			
			C	0.235	2.484	0.598	0.8	1	34.821			
T2 220.00- 200.00	0.37	4.76	A	0.29	2.323	0.613	0.8	1	51.895	3.51	175.26	A
			B	0.186	2.643	0.588	0.8	1	31.912			
			C	0.196	2.608	0.59	0.8	1	33.824			
T3 200.00- 180.00	2.43	4.93	A	0.337	2.202	0.628	0.8	1	72.031	4.48	224.10	A
			B	0.258	2.415	0.604	0.8	1	53.189			
			C	0.202	2.589	0.591	0.8	1	40.613			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	27 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T4 180.00-170.00	1.57	2.72	A	0.312	2.264	0.62	0.8	1	36.537	2.29	228.79	B
			B	0.307	2.278	0.618	0.8	1	36.386			
			C	0.246	2.45	0.601	0.8	1	27.914			
T5 170.00-160.00	1.75	2.94	A	0.319	2.248	0.622	0.8	1	39.903	2.69	268.64	B
			B	0.355	2.161	0.634	0.8	1	45.801			
			C	0.234	2.486	0.598	0.8	1	28.214			
T6 160.00-150.00	1.96	3.06	A	0.358	2.154	0.635	0.8	1	48.668	3.04	304.01	B
			B	0.391	2.081	0.648	0.8	1	54.786			
			C	0.23	2.499	0.597	0.8	1	29.409			
T7 150.00-140.00	2.27	3.14	A	0.401	2.061	0.652	0.8	1	59.415	3.20	320.36	A
			B	0.373	2.12	0.641	0.8	1	54.739			
			C	0.221	2.529	0.595	0.8	1	29.782			
T8 140.00-120.00	4.64	7.13	A	0.375	2.115	0.642	0.8	1	118.552	6.93	346.56	A
			B	0.349	2.174	0.632	0.8	1	109.605			
			C	0.208	2.568	0.592	0.8	1	60.710			
T9 120.00-100.00	4.75	6.27	A	0.352	2.168	0.633	0.8	1	120.630	7.23	361.73	A
			B	0.32	2.244	0.622	0.8	1	109.068			
			C	0.195	2.613	0.589	0.8	1	62.222			
T10 100.00-80.00	4.77	6.78	A	0.33	2.219	0.626	0.8	1	122.290	7.06	352.79	A
			B	0.301	2.293	0.616	0.8	1	110.949			
			C	0.188	2.636	0.588	0.8	1	65.471			
T11 80.00-60.00	4.77	8.19	A	0.318	2.248	0.622	0.8	1	127.741	6.90	345.22	A
			B	0.291	2.32	0.613	0.8	1	116.395			
			C	0.187	2.64	0.588	0.8	1	70.953			
T12 60.00-30.00	7.15	12.03	A	0.29	2.322	0.613	0.8	1	188.902	9.27	309.14	A
			B	0.268	2.386	0.607	0.8	1	174.023			
			C	0.175	2.683	0.586	0.8	1	108.531			
T13 30.00-0.00	5.24	13.07	A	0.232	2.494	0.597	0.8	1	162.745	7.67	255.61	A
			B	0.215	2.547	0.594	0.8	1	151.573			
			C	0.152	2.764	0.582	0.8	1	104.108			
Sum Weight:	41.74	79.64						OTM	7308.43 kip-ft	66.86		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-220.00	0.06	4.62	A	0.235	2.484	0.598	0.85	1	34.821	2.58	129.09	C
			B	0.223	2.522	0.595	0.85	1	32.882			
			C	0.235	2.484	0.598	0.85	1	34.821			
T2 220.00-200.00	0.37	4.76	A	0.29	2.323	0.613	0.85	1	51.895	3.51	175.26	A
			B	0.186	2.643	0.588	0.85	1	31.912			
			C	0.196	2.608	0.59	0.85	1	33.824			
T3 200.00-180.00	2.43	4.93	A	0.337	2.202	0.628	0.85	1	72.031	4.48	224.10	A
			B	0.258	2.415	0.604	0.85	1	53.252			
			C	0.202	2.589	0.591	0.85	1	40.613			
T4 180.00-170.00	1.57	2.72	A	0.312	2.264	0.62	0.85	1	36.537	2.30	229.79	B
			B	0.307	2.278	0.618	0.85	1	36.544			
			C	0.246	2.45	0.601	0.85	1	27.914			
T5 170.00-160.00	1.75	2.94	A	0.319	2.248	0.622	0.85	1	39.903	2.70	269.56	B
			B	0.355	2.161	0.634	0.85	1	45.959			
			C	0.234	2.486	0.598	0.85	1	28.214			
T6 160.00-150.00	1.96	3.06	A	0.358	2.154	0.635	0.85	1	48.668	3.05	304.88	B
			B	0.391	2.081	0.648	0.85	1	54.943			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	28 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T7 150.00- 140.00	2.27	3.14	C	0.23	2.499	0.597	0.85	1	29.409			
			A	0.401	2.061	0.652	0.85	1	59.415	3.20	320.36	A
			B	0.373	2.12	0.641	0.85	1	54.896			
			C	0.221	2.529	0.595	0.85	1	29.782			
T8 140.00- 120.00	4.64	7.13	A	0.375	2.115	0.642	0.85	1	118.552	6.93	346.56	A
			B	0.349	2.174	0.632	0.85	1	109.920			
			C	0.208	2.568	0.592	0.85	1	60.710			
T9 120.00- 100.00	4.75	6.27	A	0.352	2.168	0.633	0.85	1	120.630	7.23	361.73	A
			B	0.32	2.244	0.622	0.85	1	109.383			
			C	0.195	2.613	0.589	0.85	1	62.222			
T10 100.00- 80.00	4.77	6.78	A	0.33	2.219	0.626	0.85	1	122.290	7.06	352.79	A
			B	0.301	2.293	0.616	0.85	1	111.264			
			C	0.188	2.636	0.588	0.85	1	65.471			
T11 80.00- 60.00	4.77	8.19	A	0.318	2.248	0.622	0.85	1	127.741	6.90	345.22	A
			B	0.291	2.32	0.613	0.85	1	116.710			
			C	0.187	2.64	0.588	0.85	1	70.953			
T12 60.00- 30.00	7.15	12.03	A	0.29	2.322	0.613	0.85	1	188.902	9.27	309.14	A
			B	0.268	2.386	0.607	0.85	1	174.495			
			C	0.175	2.683	0.586	0.85	1	108.531			
T13 30.00- 0.00	5.24	13.07	A	0.232	2.494	0.597	0.85	1	162.745	7.67	255.61	A
			B	0.215	2.547	0.594	0.85	1	151.920			
			C	0.152	2.764	0.582	0.85	1	104.108			
Sum Weight:	41.74	79.64						OTM	7313.05 kip-ft	66.88		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	1	1	27.411	0.89	44.32	C
			B	0.183	2.654	0.587	1	1	26.450			
			C	0.189	2.633	0.588	1	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	1	1	38.802	1.17	58.42	A
			B	0.155	2.753	0.582	1	1	26.189			
			C	0.16	2.734	0.583	1	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	1	1	51.596	1.46	72.87	A
			B	0.199	2.599	0.59	1	1	39.798			
			C	0.16	2.735	0.583	1	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	1	1	26.407	0.75	74.51	A
			B	0.228	2.505	0.597	1	1	25.585			
			C	0.188	2.638	0.588	1	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	1	1	28.539	0.85	84.58	B
			B	0.259	2.41	0.604	1	1	31.419			
			C	0.179	2.669	0.586	1	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	1	1	34.203	0.95	95.26	B
			B	0.285	2.337	0.611	1	1	37.155			
			C	0.177	2.675	0.586	1	1	22.121			
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	1	1	40.737	1.01	101.46	A
			B	0.271	2.375	0.608	1	1	37.300			
			C	0.17	2.701	0.585	1	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	1	1	81.867	2.08	104.12	A
			B	0.254	2.425	0.603	1	1	75.134			
			C	0.16	2.735	0.583	1	1	45.775			
T9 120.00-	1.87	5.08	A	0.256	2.421	0.603	1	1	83.315	2.10	105.19	A

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	29 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
100.00			B	0.232	2.493	0.597	1	1	74.804			
T10 100.00-	1.87	5.46	C	0.146	2.785	0.581	1	1	45.903			
80.00			A	0.241	2.465	0.6	1	1	85.312	2.07	103.35	A
			B	0.219	2.534	0.594	1	1	76.833			
T11 80.00-	1.87	6.74	C	0.142	2.802	0.58	1	1	48.518			
60.00			A	0.235	2.482	0.598	1	1	90.607	2.05	102.60	A
			B	0.215	2.547	0.594	1	1	82.049			
T12 60.00-	2.81	9.85	C	0.144	2.796	0.581	1	1	53.629			
30.00			A	0.214	2.549	0.593	1	1	134.577	2.76	91.89	A
			B	0.197	2.606	0.59	1	1	122.930			
T13 30.00-	2.06	10.68	C	0.133	2.834	0.579	1	1	81.733			
0.00			A	0.174	2.685	0.585	1	1	119.713	2.34	78.08	A
			B	0.162	2.729	0.583	1	1	110.727			
Sum Weight:	16.52	64.93	C	0.119	2.89	0.577	1	1	80.394			
								OTM	2281.85	20.47		
									kip-ft			

Tower Forces - Service - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00-	0.03	3.73	A	0.189	2.633	0.588	0.825	1	27.411	0.89	44.32	C
220.00			B	0.183	2.654	0.587	0.825	1	26.450			
			C	0.189	2.633	0.588	0.825	1	27.411			
T2 220.00-	0.15	3.90	A	0.224	2.517	0.596	0.825	1	38.802	1.17	58.42	A
200.00			B	0.155	2.753	0.582	0.825	1	26.189			
			C	0.16	2.734	0.583	0.825	1	27.141			
T3 200.00-	0.99	4.02	A	0.253	2.429	0.603	0.825	1	51.596	1.46	72.87	A
180.00			B	0.199	2.599	0.59	0.825	1	39.798			
			C	0.16	2.735	0.583	0.825	1	31.574			
T4 180.00-	0.63	2.21	A	0.235	2.484	0.598	0.825	1	26.407	0.75	74.51	A
170.00			B	0.228	2.505	0.597	0.825	1	25.585			
			C	0.188	2.638	0.588	0.825	1	20.749			
T5 170.00-	0.70	2.42	A	0.238	2.475	0.599	0.825	1	28.539	0.85	84.58	B
160.00			B	0.259	2.41	0.604	0.825	1	31.419			
			C	0.179	2.669	0.586	0.825	1	20.999			
T6 160.00-	0.79	2.48	A	0.265	2.394	0.606	0.825	1	34.203	0.95	95.26	B
150.00			B	0.285	2.337	0.611	0.825	1	37.155			
			C	0.177	2.675	0.586	0.825	1	22.121			
T7 150.00-	0.92	2.53	A	0.293	2.314	0.614	0.825	1	40.737	1.01	101.46	A
140.00			B	0.271	2.375	0.608	0.825	1	37.300			
			C	0.17	2.701	0.585	0.825	1	22.426			
T8 140.00-	1.84	5.85	A	0.274	2.366	0.608	0.825	1	81.867	2.08	104.12	A
120.00			B	0.254	2.425	0.603	0.825	1	75.134			
			C	0.16	2.735	0.583	0.825	1	45.775			
T9 120.00-	1.87	5.08	A	0.256	2.421	0.603	0.825	1	83.315	2.10	105.19	A
100.00			B	0.232	2.493	0.597	0.825	1	74.804			
			C	0.146	2.785	0.581	0.825	1	45.903			
T10 100.00-	1.87	5.46	A	0.241	2.465	0.6	0.825	1	85.312	2.07	103.35	A
80.00			B	0.219	2.534	0.594	0.825	1	76.833			
			C	0.142	2.802	0.58	0.825	1	48.518			
T11 80.00-	1.87	6.74	A	0.235	2.482	0.598	0.825	1	90.607	2.05	102.60	A
60.00			B	0.215	2.547	0.594	0.825	1	82.049			
			C	0.144	2.796	0.581	0.825	1	53.629			

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	30 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T12 60.00- 30.00	2.81	9.85	A	0.214	2.549	0.593	0.825	1	134.577	2.76	91.89	A
			B	0.197	2.606	0.59	0.825	1	122.930			
			C	0.133	2.834	0.579	0.825	1	81.733			
T13 30.00- 0.00	2.06	10.68	A	0.174	2.685	0.585	0.825	1	119.713	2.34	78.08	A
			B	0.162	2.729	0.583	0.825	1	110.727			
			C	0.119	2.89	0.577	0.825	1	80.394			
Sum Weight:	16.52	64.93						OTM	2281.85 kip-ft	20.47		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	0.8	1	27.411	0.89	44.32	C
			B	0.183	2.654	0.587	0.8	1	26.450			
			C	0.189	2.633	0.588	0.8	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	0.8	1	38.802	1.17	58.42	A
			B	0.155	2.753	0.582	0.8	1	26.189			
			C	0.16	2.734	0.583	0.8	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	0.8	1	51.596	1.46	72.87	A
			B	0.199	2.599	0.59	0.8	1	39.798			
			C	0.16	2.735	0.583	0.8	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	0.8	1	26.407	0.75	74.51	A
			B	0.228	2.505	0.597	0.8	1	25.585			
			C	0.188	2.638	0.588	0.8	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	0.8	1	28.539	0.85	84.58	B
			B	0.259	2.41	0.604	0.8	1	31.419			
			C	0.179	2.669	0.586	0.8	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	0.8	1	34.203	0.95	95.26	B
			B	0.285	2.337	0.611	0.8	1	37.155			
			C	0.177	2.675	0.586	0.8	1	22.121			
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	0.8	1	40.737	1.01	101.46	A
			B	0.271	2.375	0.608	0.8	1	37.300			
			C	0.17	2.701	0.585	0.8	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	0.8	1	81.867	2.08	104.12	A
			B	0.254	2.425	0.603	0.8	1	75.134			
			C	0.16	2.735	0.583	0.8	1	45.775			
T9 120.00- 100.00	1.87	5.08	A	0.256	2.421	0.603	0.8	1	83.315	2.10	105.19	A
			B	0.232	2.493	0.597	0.8	1	74.804			
			C	0.146	2.785	0.581	0.8	1	45.903			
T10 100.00- 80.00	1.87	5.46	A	0.241	2.465	0.6	0.8	1	85.312	2.07	103.35	A
			B	0.219	2.534	0.594	0.8	1	76.833			
			C	0.142	2.802	0.58	0.8	1	48.518			
T11 80.00- 60.00	1.87	6.74	A	0.235	2.482	0.598	0.8	1	90.607	2.05	102.60	A
			B	0.215	2.547	0.594	0.8	1	82.049			
			C	0.144	2.796	0.581	0.8	1	53.629			
T12 60.00- 30.00	2.81	9.85	A	0.214	2.549	0.593	0.8	1	134.577	2.76	91.89	A
			B	0.197	2.606	0.59	0.8	1	122.930			
			C	0.133	2.834	0.579	0.8	1	81.733			
T13 30.00- 0.00	2.06	10.68	A	0.174	2.685	0.585	0.8	1	119.713	2.34	78.08	A
			B	0.162	2.729	0.583	0.8	1	110.727			
			C	0.119	2.89	0.577	0.8	1	80.394			
Sum Weight:	16.52	64.93						OTM	2281.85	20.47		

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	31 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
									kip-ft			

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 240.00- 220.00	0.03	3.73	A	0.189	2.633	0.588	0.85	1	27.411	0.89	44.32	C
			B	0.183	2.654	0.587	0.85	1	26.450			
			C	0.189	2.633	0.588	0.85	1	27.411			
T2 220.00- 200.00	0.15	3.90	A	0.224	2.517	0.596	0.85	1	38.802	1.17	58.42	A
			B	0.155	2.753	0.582	0.85	1	26.189			
			C	0.16	2.734	0.583	0.85	1	27.141			
T3 200.00- 180.00	0.99	4.02	A	0.253	2.429	0.603	0.85	1	51.596	1.46	72.87	A
			B	0.199	2.599	0.59	0.85	1	39.798			
			C	0.16	2.735	0.583	0.85	1	31.574			
T4 180.00- 170.00	0.63	2.21	A	0.235	2.484	0.598	0.85	1	26.407	0.75	74.51	A
			B	0.228	2.505	0.597	0.85	1	25.585			
			C	0.188	2.638	0.588	0.85	1	20.749			
T5 170.00- 160.00	0.70	2.42	A	0.238	2.475	0.599	0.85	1	28.539	0.85	84.58	B
			B	0.259	2.41	0.604	0.85	1	31.419			
			C	0.179	2.669	0.586	0.85	1	20.999			
T6 160.00- 150.00	0.79	2.48	A	0.265	2.394	0.606	0.85	1	34.203	0.95	95.26	B
			B	0.285	2.337	0.611	0.85	1	37.155			
			C	0.177	2.675	0.586	0.85	1	22.121			
T7 150.00- 140.00	0.92	2.53	A	0.293	2.314	0.614	0.85	1	40.737	1.01	101.46	A
			B	0.271	2.375	0.608	0.85	1	37.300			
			C	0.17	2.701	0.585	0.85	1	22.426			
T8 140.00- 120.00	1.84	5.85	A	0.274	2.366	0.608	0.85	1	81.867	2.08	104.12	A
			B	0.254	2.425	0.603	0.85	1	75.134			
			C	0.16	2.735	0.583	0.85	1	45.775			
T9 120.00- 100.00	1.87	5.08	A	0.256	2.421	0.603	0.85	1	83.315	2.10	105.19	A
			B	0.232	2.493	0.597	0.85	1	74.804			
			C	0.146	2.785	0.581	0.85	1	45.903			
T10 100.00- 80.00	1.87	5.46	A	0.241	2.465	0.6	0.85	1	85.312	2.07	103.35	A
			B	0.219	2.534	0.594	0.85	1	76.833			
			C	0.142	2.802	0.58	0.85	1	48.518			
T11 80.00- 60.00	1.87	6.74	A	0.235	2.482	0.598	0.85	1	90.607	2.05	102.60	A
			B	0.215	2.547	0.594	0.85	1	82.049			
			C	0.144	2.796	0.581	0.85	1	53.629			
T12 60.00- 30.00	2.81	9.85	A	0.214	2.549	0.593	0.85	1	134.577	2.76	91.89	A
			B	0.197	2.606	0.59	0.85	1	122.930			
			C	0.133	2.834	0.579	0.85	1	81.733			
T13 30.00- 0.00	2.06	10.68	A	0.174	2.685	0.585	0.85	1	119.713	2.34	78.08	A
			B	0.162	2.729	0.583	0.85	1	110.727			
			C	0.119	2.89	0.577	0.85	1	80.394			
Sum Weight:	16.52	64.93						OTM	2281.85 kip-ft	20.47		

Force Totals

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	32 of 62
	Project	Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	11:05:07 01/25/11
	Client	Designed by
	Verizon Wireless	Staff

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	34.76					
Bracing Weight	30.16					
Total Member Self-Weight	64.93			-95.91	43.21	
Total Weight	92.82			-95.91	43.21	
Wind 0 deg - No Ice		0.00	-88.43	-11423.29	43.21	-10.62
Wind 30 deg - No Ice		44.17	-76.59	-9905.70	-5611.90	-46.80
Wind 45 deg - No Ice		62.47	-62.53	-8105.57	-7954.33	-60.69
Wind 60 deg - No Ice		76.50	-44.22	-5759.60	-9751.73	-70.44
Wind 90 deg - No Ice		88.34	0.00	-95.91	-11267.02	-75.21
Wind 120 deg - No Ice		76.50	44.22	5567.78	-9751.73	-59.83
Wind 135 deg - No Ice		62.47	62.53	7913.76	-7954.33	-45.67
Wind 150 deg - No Ice		44.17	76.59	9713.89	-5611.90	-28.41
Wind 180 deg - No Ice		0.00	88.43	11231.47	43.21	10.62
Wind 210 deg - No Ice		-44.17	76.59	9713.89	5698.32	46.80
Wind 225 deg - No Ice		-62.47	62.53	7913.76	8040.75	60.69
Wind 240 deg - No Ice		-76.50	44.22	5567.78	9838.15	70.44
Wind 270 deg - No Ice		-88.34	0.00	-95.91	11353.44	75.21
Wind 300 deg - No Ice		-76.50	-44.22	-5759.60	9838.15	59.83
Wind 315 deg - No Ice		-62.47	-62.53	-8105.57	8040.75	45.67
Wind 330 deg - No Ice		-44.17	-76.59	-9905.70	5698.32	28.41
Member Ice	14.72					
Total Weight Ice	138.96			-224.85	95.52	
Wind 0 deg - Ice		0.00	-87.50	-11223.29	95.52	8.90
Wind 30 deg - Ice		43.67	-75.71	-9737.80	-5389.87	-23.51
Wind 45 deg - Ice		61.75	-61.81	-7990.51	-7660.37	-37.84
Wind 60 deg - Ice		75.62	-43.70	-5714.85	-9401.47	-49.58
Wind 90 deg - Ice		87.34	0.00	-224.85	-10875.27	-62.44
Wind 120 deg - Ice		75.71	43.75	5274.38	-9417.44	-58.63
Wind 135 deg - Ice		61.75	61.81	7540.82	-7660.37	-50.43
Wind 150 deg - Ice		43.67	75.71	9288.10	-5389.87	-38.93
Wind 180 deg - Ice		0.00	87.39	10755.15	95.52	-8.91
Wind 210 deg - Ice		-43.67	75.71	9288.10	5580.92	23.51
Wind 225 deg - Ice		-61.75	61.81	7540.82	7851.41	37.84
Wind 240 deg - Ice		-75.71	43.75	5274.38	9608.49	49.73
Wind 270 deg - Ice		-87.34	0.00	-224.85	11066.32	62.44
Wind 300 deg - Ice		-75.62	-43.70	-5714.85	9592.51	58.49
Wind 315 deg - Ice		-61.75	-61.81	-7990.51	7851.41	50.43
Wind 330 deg - Ice		-43.67	-75.71	-9737.80	5580.92	38.93
Total Weight	92.82			-95.91	43.21	
Wind 0 deg - Service		0.00	-27.29	-3494.40	-3.49	-3.28
Wind 30 deg - Service		13.63	-23.64	-3026.01	-1748.89	-14.44
Wind 45 deg - Service		19.28	-19.30	-2470.42	-2471.86	-18.73
Wind 60 deg - Service		23.61	-13.65	-1746.35	-3026.62	-21.74
Wind 90 deg - Service		27.27	0.00	1.70	-3494.30	-23.21
Wind 120 deg - Service		23.61	13.65	1749.76	-3026.62	-18.46
Wind 135 deg - Service		19.28	19.30	2473.82	-2471.86	-14.10
Wind 150 deg - Service		13.63	23.64	3029.42	-1748.89	-8.77
Wind 180 deg - Service		0.00	27.29	3497.81	-3.49	3.28
Wind 210 deg - Service		-13.63	23.64	3029.42	1741.92	14.44
Wind 225 deg - Service		-19.28	19.30	2473.82	2464.89	18.73
Wind 240 deg - Service		-23.61	13.65	1749.76	3019.64	21.74
Wind 270 deg - Service		-27.27	0.00	1.70	3487.32	23.21
Wind 300 deg - Service		-23.61	-13.65	-1746.35	3019.64	18.46
Wind 315 deg - Service		-19.28	-19.30	-2470.42	2464.89	14.10
Wind 330 deg - Service		-13.63	-23.64	-3026.01	1741.92	8.77

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	33 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 45 deg - No Ice
5	Dead+Wind 60 deg - No Ice
6	Dead+Wind 90 deg - No Ice
7	Dead+Wind 120 deg - No Ice
8	Dead+Wind 135 deg - No Ice
9	Dead+Wind 150 deg - No Ice
10	Dead+Wind 180 deg - No Ice
11	Dead+Wind 210 deg - No Ice
12	Dead+Wind 225 deg - No Ice
13	Dead+Wind 240 deg - No Ice
14	Dead+Wind 270 deg - No Ice
15	Dead+Wind 300 deg - No Ice
16	Dead+Wind 315 deg - No Ice
17	Dead+Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
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RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	34 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	240 - 220	Leg	Max Tension	10	1.26	-0.02	-0.00
			Max. Compression	19	-3.98	0.14	-0.00
			Max. Mx	27	0.19	0.36	0.02
			Max. My	31	-0.57	-0.02	0.52
			Max. Vy	32	-0.30	0.00	0.00
			Max. Vx	21	-0.41	-0.00	-0.00
		Diagonal	Max Tension	17	1.60	0.00	0.00
			Max. Compression	34	-1.73	0.00	0.00
			Max. Mx	34	1.57	0.04	0.00
			Max. My	32	-0.08	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Horizontal	Max Tension	33	1.17	0.00	0.00
			Max. Compression	12	-1.13	0.00	0.00
			Max. Mx	22	0.05	-0.03	-0.00
			Max. My	32	-0.17	-0.03	-0.00
			Max. Vy	22	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
		Top Girt	Max Tension	22	0.46	-0.02	0.00
			Max. Compression	30	-0.48	-0.02	-0.00
			Max. Mx	27	-0.12	-0.02	-0.00
			Max. My	19	0.23	-0.02	0.00
			Max. Vy	27	-0.02	-0.02	-0.00
			Max. Vx	19	-0.00	-0.02	0.00
		Inner Bracing	Max Tension	30	0.01	0.00	0.00
			Max. Compression	30	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T2	220 - 200	Leg	Max Tension	15	5.79	-0.32	-0.01
			Max. Compression	19	-12.91	0.46	0.01
			Max. Mx	15	4.42	1.39	-0.04
			Max. My	6	-3.75	-0.05	-1.35
			Max. Vy	10	-1.13	-0.32	-0.01
			Max. Vx	6	1.09	-0.04	0.17
		Diagonal	Max Tension	11	4.93	0.00	0.00
			Max. Compression	11	-5.08	0.00	0.00
			Max. Mx	34	4.57	0.09	0.00
			Max. My	32	-0.23	0.00	-0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Horizontal	Max Tension	4	3.11	-0.02	0.00
			Max. Compression	12	-3.13	-0.02	-0.00
			Max. Mx	32	0.16	-0.04	-0.01
			Max. My	10	-0.86	-0.02	-0.01
			Max. Vy	32	-0.02	-0.04	-0.01
			Max. Vx	15	0.00	-0.02	-0.01
		Top Girt	Max Tension	4	1.54	-0.02	0.00
			Max. Compression	12	-1.52	-0.02	-0.00
			Max. Mx	32	-0.29	-0.03	-0.00
			Max. My	15	-0.21	-0.02	-0.00
			Max. Vy	32	-0.02	-0.03	-0.00
			Max. Vx	32	0.00	-0.03	-0.00
		Inner Bracing	Max Tension	12	0.03	0.00	0.00
			Max. Compression	12	-0.03	0.00	0.00
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T3	200 - 180	Leg	Max Tension	15	18.91	-0.88	-0.05

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page	35 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	11:05:07 01/25/11
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T4	180 - 170	Diagonal	Max. Compression	19	-31.68	1.32	-0.03
			Max. Mx	10	17.31	1.70	0.03
			Max. My	6	-6.36	-0.07	-1.80
			Max. Vy	10	0.90	-1.65	0.03
			Max. Vx	14	0.94	-0.07	-1.64
			Max Tension	11	8.36	0.00	0.00
		Horizontal	Max. Compression	11	-8.54	0.00	0.00
			Max. Mx	34	7.53	0.12	0.00
			Max. My	32	-0.52	0.00	-0.00
			Max. Vy	34	-0.03	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max Tension	4	5.62	-0.03	0.00
		Top Girt	Max. Compression	12	-5.63	-0.03	-0.00
			Max. Mx	32	0.35	-0.05	-0.01
			Max. My	10	-0.75	-0.03	-0.01
			Max. Vy	32	-0.03	-0.05	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
			Max Tension	4	4.38	-0.03	0.00
		Inner Bracing	Max. Compression	12	-4.42	-0.03	-0.00
			Max. Mx	32	-1.02	-0.04	-0.01
			Max. My	10	-0.87	-0.03	-0.01
			Max. Vy	32	-0.03	-0.04	-0.01
			Max. Vx	15	0.00	-0.03	-0.01
			Max Tension	12	0.08	0.00	0.00
		Leg	Max. Compression	12	-0.08	0.00	0.00
			Max. Mx	18	-0.00	-0.03	0.00
			Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	28.06	-1.62	-0.07
		Diagonal	Max. Compression	19	-43.48	1.41	-0.05
			Max. Mx	10	26.55	-1.72	0.05
			Max. My	3	-6.67	-0.08	-1.64
			Max. Vy	10	0.67	-1.72	0.05
			Max. Vx	11	-0.65	-0.05	1.63
			Max Tension	11	10.18	0.00	0.00
		Top Girt	Max. Compression	11	-10.42	0.00	0.00
			Max. Mx	34	9.32	0.13	0.00
			Max. My	32	-0.67	0.00	-0.00
			Max. Vy	34	-0.04	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max Tension	4	7.11	-0.06	0.00
		Inner Bracing	Max. Compression	12	-7.13	-0.06	-0.00
			Max. Mx	32	-1.38	-0.09	-0.02
			Max. My	10	-1.04	-0.06	-0.02
			Max. Vy	32	-0.04	-0.09	-0.02
			Max. Vx	10	0.00	-0.06	-0.02
			Max Tension	12	0.12	0.00	0.00
T5	170 - 160	Leg	Max. Compression	12	-0.12	0.00	0.00
			Max. Mx	18	0.00	-0.05	0.00
			Max. My	19	0.10	0.00	-0.00
			Max. Vy	18	0.02	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	39.41	-1.69	-0.07
		Diagonal	Max. Compression	19	-57.98	0.75	-0.00
			Max. Mx	10	38.55	-1.72	0.05
			Max. My	3	-7.18	-0.08	-1.64
			Max. Vy	10	0.70	-1.06	0.00
			Max. Vx	14	0.72	-0.07	-1.17
			Max Tension	9	11.68	0.00	0.00
			Max. Compression	9	-11.97	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	36 of 62
	Project	Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	11:05:07 01/25/11
	Client	Designed by
	Verizon Wireless	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	160 - 150	Top Girt	Max. Mx	34	10.80	0.17	0.00
			Max. My	32	-0.75	0.00	-0.00
			Max. Vy	34	-0.05	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
			Max Tension	16	8.36	-0.06	0.00
			Max. Compression	8	-8.35	-0.07	-0.00
			Max. Mx	32	-1.33	-0.10	-0.02
			Max. My	10	-0.99	-0.07	-0.02
			Max. Vy	32	-0.05	-0.10	-0.02
			Max. Vx	10	0.00	-0.07	-0.02
		Inner Bracing	Max Tension	8	0.14	0.00	0.00
			Max. Compression	8	-0.14	0.00	0.00
			Max. Mx	18	0.00	-0.06	0.00
			Max. My	19	0.12	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	51.86	-1.05	-0.07
			Max. Compression	19	-73.21	-0.12	0.01
			Max. Mx	10	50.79	-1.06	0.00
			Max. My	14	-9.99	-0.07	-1.17
		Diagonal	Max. Vy	10	-0.26	-1.06	0.00
			Max. Vx	6	0.33	-0.07	1.17
			Max Tension	9	12.76	0.00	0.00
			Max. Compression	9	-13.09	0.00	0.00
			Max. Mx	34	11.79	0.20	0.00
			Max. My	32	-0.91	0.00	-0.00
			Max. Vy	34	-0.05	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Top Girt	Max Tension	9	9.40	-0.08	-0.00
			Max. Compression	8	-9.39	-0.08	-0.01
			Max. Mx	32	-1.42	-0.11	-0.02
			Max. My	10	-0.95	-0.08	-0.02
			Max. Vy	32	-0.05	-0.11	-0.02
			Max. Vx	10	0.00	-0.08	-0.02
		Inner Bracing	Max Tension	8	0.16	0.00	0.00
			Max. Compression	8	-0.16	0.00	0.00
			Max. Mx	18	0.00	-0.08	0.00
			Max. My	19	0.13	0.00	-0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T7	150 - 140	Leg	Max Tension	15	65.08	0.09	-0.09
			Max. Compression	19	-90.19	0.75	-0.02
			Max. Mx	10	63.10	-0.99	0.01
			Max. My	14	-12.55	-0.06	-1.20
			Max. Vy	10	0.26	-0.99	0.01
			Max. Vx	6	-0.33	-0.06	1.20
		Diagonal	Max Tension	9	14.71	0.00	0.00
			Max. Compression	9	-15.07	0.00	0.00
			Max. Mx	34	13.53	0.22	0.00
			Max. My	32	-0.97	0.00	-0.00
			Max. Vy	34	-0.06	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Top Girt	Max Tension	16	11.16	-0.08	0.01
			Max. Compression	8	-11.12	-0.09	-0.01
			Max. Mx	32	-1.69	-0.12	-0.02
			Max. My	10	-1.21	-0.09	-0.02
			Max. Vy	32	-0.05	-0.12	-0.02
			Max. Vx	10	0.00	-0.09	-0.02
		Inner Bracing	Max Tension	8	0.19	0.00	0.00
			Max. Compression	8	-0.19	0.00	0.00
			Max. Mx	18	0.00	-0.09	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 37 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	140 - 120	Leg	Max. My	19	0.16	0.00	-0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	96.21	-0.62	-0.03
			Max. Compression	19	-126.16	-1.11	-0.03
			Max. Mx	19	-126.16	-1.11	-0.03
		Diagonal	Max. My	14	-15.32	-0.48	-2.53
			Max. Vy	7	0.27	0.73	0.02
			Max. Vx	14	0.42	-0.48	-2.53
			Max Tension	9	15.75	0.00	0.00
			Max. Compression	9	-16.27	0.00	0.00
			Max. Mx	34	14.73	0.32	0.00
		Horizontal	Max. My	32	-1.10	0.00	-0.00
			Max. Vy	34	-0.08	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max Tension	9	12.62	-0.11	-0.00
			Max. Compression	9	-12.31	-0.11	-0.00
			Max. Mx	32	1.30	-0.15	-0.02
		Top Girt	Max. My	10	-1.17	-0.12	-0.02
			Max. Vy	32	-0.06	-0.15	-0.02
			Max. Vx	10	0.00	-0.12	-0.02
			Max Tension	9	12.04	-0.10	-0.00
			Max. Compression	9	-11.89	-0.10	-0.00
			Max. Mx	32	-1.29	-0.14	-0.02
		Inner Bracing	Max. My	10	-0.69	-0.10	-0.02
			Max. Vy	32	-0.06	-0.14	-0.02
			Max. Vx	10	0.00	-0.10	-0.02
			Max Tension	9	0.21	0.00	0.00
			Max. Compression	9	-0.21	0.00	0.00
			Max. Mx	18	-0.01	-0.15	0.00
T9	120 - 100	Leg	Max. My	19	-0.00	0.00	-0.00
			Max. Vy	18	-0.05	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	15	110.94	-0.04	-0.14
			Max. Compression	19	-144.76	-2.31	-0.04
			Max. Mx	19	-143.79	3.03	0.03
		Diagonal	Max. My	6	-17.47	-0.93	5.25
			Max. Vy	19	0.63	3.03	0.03
			Max. Vx	6	-1.02	-0.93	5.25
			Max Tension	9	23.21	0.00	0.00
			Max. Compression	9	-23.54	0.00	0.00
			Max. Mx	29	-5.33	-0.13	-0.04
		Top Girt	Max. My	5	-20.17	-0.10	-0.08
			Max. Vy	29	0.05	-0.13	-0.04
			Max. Vx	5	-0.01	0.00	0.00
			Max Tension	9	13.26	-0.12	-0.00
			Max. Compression	9	-13.17	-0.12	-0.00
			Max. Mx	32	-0.11	-0.18	-0.02
		Redund Horz 1 Bracing	Max. My	10	-0.84	-0.14	-0.02
			Max. Vy	32	0.06	-0.18	-0.02
			Max. Vx	10	0.00	-0.14	-0.02
			Max Tension	19	2.51	0.00	0.00
			Max. Compression	19	-2.51	0.00	0.00
			Max. Mx	18	0.34	0.03	0.00
		Redund Diag 1 Bracing	Max. My	31	2.15	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	-0.00	0.00	0.00
			Max Tension	19	2.30	0.00	0.00
			Max. Compression	19	-2.30	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	38 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T10	100 - 80	Redund Hip 1 Bracing	Max. Mx	34	2.05	0.04	0.00
			Max. My	33	1.75	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	-0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	34	0.09	0.00	0.00
			Max. Compression	24	-0.05	0.00	0.00
			Max. Mx	19	0.08	0.12	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	0.03	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	9	0.23	0.00	0.00
			Max. Compression	9	-0.23	0.00	0.00
			Max. Mx	18	0.00	0.11	0.00
			Max. My	19	0.19	0.00	0.00
		Inner Bracing	Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	141.02	0.09	-0.39
			Max. Compression	19	-180.24	-2.78	-0.08
			Max. Mx	19	-179.14	3.77	0.03
			Max. My	6	-20.28	-1.14	6.47
			Max. Vy	19	0.72	3.77	0.03
			Max. Vx	6	-1.25	-1.14	6.47
			Max Tension	9	23.90	0.00	0.00
			Max. Compression	9	-24.37	-0.08	-0.09
		Diagonal	Max. Mx	24	-1.40	-0.14	-0.04
			Max. My	4	-23.18	-0.09	-0.09
			Max. Vy	24	0.05	-0.14	-0.04
			Max. Vx	4	-0.01	0.00	0.00
			Max Tension	9	14.38	-0.19	0.00
			Max. Compression	12	-14.59	-0.21	-0.01
			Max. Mx	32	-2.39	-0.29	-0.03
			Max. My	10	-1.37	-0.23	-0.03
			Max. Vy	32	-0.09	-0.29	-0.03
			Max. Vx	27	0.00	-0.29	-0.03
		Top Girt	Max Tension	19	3.13	0.00	0.00
			Max. Compression	19	-3.13	0.00	0.00
			Max. Mx	18	0.40	0.03	0.00
			Max. My	31	2.67	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	2.68	0.00	0.00
			Max. Compression	19	-2.68	0.00	0.00
			Max. Mx	34	2.38	0.05	0.00
			Max. My	33	2.03	0.00	-0.00
		Redund Hip 1 Bracing	Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-0.05	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	39 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	80 - 60	Redund Hip Diagonal Bracing	Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
			Max Tension	28	0.10	0.00	0.00
		Inner Bracing	Max. Compression	24	-0.05	0.00	0.00
			Max. Mx	19	0.08	0.13	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	12	0.25	0.00	0.00
			Max. Compression	12	-0.25	0.00	0.00
			Max. Mx	18	0.00	0.24	0.00
			Max. My	19	0.22	0.00	0.00
			Max. Vy	18	-0.07	0.00	0.00
		Leg	Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	170.81	0.13	-0.52
		Diagonal	Max. Compression	19	-216.14	-4.14	-0.10
			Max. Mx	19	-215.09	6.24	0.04
			Max. My	14	-23.22	-1.49	-8.12
			Max. Vy	19	1.11	6.24	0.04
			Max. Vx	6	-1.43	-1.49	8.11
			Max Tension	11	24.59	0.00	0.00
			Max. Compression	26	-25.30	0.00	0.00
			Max. Mx	19	0.69	-0.19	0.07
			Max. My	4	-24.02	-0.14	-0.08
			Max. Vy	24	0.07	-0.19	-0.03
		Top Girt	Max. Vx	4	-0.01	0.00	0.00
			Max Tension	11	15.58	-0.22	-0.00
			Max. Compression	12	-15.78	-0.24	-0.01
			Max. Mx	32	-0.39	-0.33	-0.03
			Max. My	24	0.62	-0.27	0.03
		Redund Horz 1 Bracing	Max. Vy	32	0.10	-0.33	-0.03
			Max. Vx	27	0.00	-0.32	-0.03
			Max Tension	19	3.75	0.00	0.00
			Max. Compression	19	-3.75	0.00	0.00
			Max. Mx	18	0.46	0.04	0.00
		Redund Diag 1 Bracing	Max. My	31	3.21	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
			Max Tension	19	3.03	0.00	0.00
			Max. Compression	19	-3.03	0.00	0.00
		Redund Hip 1 Bracing	Max. Mx	34	2.69	0.06	0.00
			Max. My	33	2.29	0.00	-0.00
			Max. Vy	34	-0.02	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max. Compression	12	-0.04	0.00	0.00
			Max. Mx	18	-0.01	0.04	0.00
			Max. My	32	-0.02	0.00	0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max Tension	34	0.08	0.00	0.00
		Inner Bracing	Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	19	0.07	0.15	0.00
			Max. My	23	0.03	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	12	0.27	0.00	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	40 of 62
	Project	Date
	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	11:05:07 01/25/11
	Client	Designed by
	Verizon Wireless	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	60 - 30	Leg	Max. Compression	12	-0.27	0.00	0.00
			Max. Mx	18	0.00	0.29	0.00
			Max. My	19	0.24	0.00	0.00
			Max. Vy	18	-0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	15	200.87	0.57	-0.48
			Max. Compression	19	-253.17	-5.09	-0.14
			Max. Mx	19	-252.03	9.10	0.05
			Max. My	14	-27.13	-2.29	-12.85
			Max. Vy	2	1.55	8.91	-0.08
			Max. Vx	6	-1.96	-2.29	12.84
		Diagonal	Max Tension	11	32.77	0.00	0.00
			Max. Compression	12	-33.67	0.00	0.00
			Max. Mx	26	-33.33	-0.17	0.11
			Max. My	4	-32.09	0.01	-0.20
			Max. Vy	19	-0.06	-0.15	0.13
			Max. Vx	25	0.03	0.02	-0.19
		Top Girt	Max Tension	11	16.96	-0.26	0.00
			Max. Compression	26	-17.11	-0.35	0.00
			Max. Mx	32	-0.25	-0.40	-0.03
			Max. My	24	0.49	-0.31	0.03
			Max. Vy	32	0.11	-0.40	-0.03
			Max. Vx	27	0.00	-0.39	-0.03
		Redund Horz 1 Bracing	Max Tension	19	4.39	0.00	0.00
			Max. Compression	19	-4.39	0.00	0.00
			Max. Mx	18	0.53	0.02	0.00
			Max. My	23	-0.00	0.00	-0.00
		Redund Horz 2 Bracing	Max. Vy	18	-0.01	0.00	0.00
			Max Tension	19	4.39	0.00	0.00
			Max. Compression	19	-4.39	0.00	0.00
			Max. Mx	18	0.53	0.08	0.00
		Redund Diag 1 Bracing	Max. My	23	3.70	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
			Max Tension	19	4.50	0.00	0.00
		Redund Diag 2 Bracing	Max. Compression	19	-4.50	0.00	0.00
			Max. Mx	34	3.99	0.04	0.00
			Max. My	34	3.99	0.00	-0.00
			Max. Vy	34	-0.01	0.00	0.00
		Redund Hip 1 Bracing	Max. Vx	34	0.00	0.00	0.00
			Max Tension	19	2.90	0.00	0.00
			Max. Compression	19	-2.90	0.00	0.00
			Max. Mx	20	2.57	0.10	0.00
		Redund Hip 2 Bracing	Max. My	21	2.19	0.00	0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	21	-0.00	0.00	0.00
			Max Tension	11	0.01	0.00	0.00
		Redund Hip 1 Bracing	Max. Compression	11	-0.11	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. My	33	-0.01	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	5	0.01	0.00	0.00
			Max. Compression	27	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.08	0.00
			Max. My	30	-0.03	0.00	0.00

RISA Tower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page	41 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date	11:05:07 01/25/11
	Client	Verizon Wireless	Designed by	Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	30 - 0	Redund Hip	Max. Vy	18	-0.03	0.00	0.00
			Max Tension	11	0.21	0.00	0.00
		Diagonal Bracing	Max. Compression	23	-0.08	0.00	0.00
			Max. Mx	19	0.06	0.18	0.00
			Max. My	23	-0.01	0.00	0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
			Max Tension	26	0.30	0.00	0.00
			Max. Compression	26	-0.30	0.00	0.00
			Max. Mx	18	0.00	0.34	0.00
			Max. My	32	0.25	0.00	-0.00
			Max. Vy	18	-0.08	0.00	0.00
		Inner Bracing	Max. Vx	32	0.00	0.00	0.00
			Max Tension	15	243.99	1.16	-0.85
			Max. Compression	19	-308.01	0.00	0.00
			Max. Mx	19	-307.01	10.59	0.02
			Max. My	14	-29.73	-2.29	-12.85
			Max. Vy	19	1.11	10.59	0.02
			Max. Vx	14	-1.70	-2.29	-12.85
			Max Tension	11	32.02	-0.23	0.23
			Max. Compression	26	-33.48	0.00	0.00
			Max. Mx	5	25.63	-0.27	0.17
		Leg	Max. My	3	-32.12	0.10	-0.27
			Max. Vy	19	-0.08	-0.19	0.15
			Max. Vx	25	0.03	0.10	-0.26
			Max Tension	4	17.54	-0.37	0.01
			Max. Compression	25	-18.66	-0.50	-0.01
			Max. Mx	32	-4.20	-0.55	-0.04
			Max. My	24	1.72	-0.41	0.04
			Max. Vy	32	-0.14	-0.55	-0.04
			Max. Vx	30	-0.00	-0.41	0.04
			Max Tension	19	5.35	0.00	0.00
		Diagonal	Max. Compression	19	-5.35	0.00	0.00
			Max. Mx	27	2.96	0.03	0.00
			Max. Vy	27	-0.02	0.00	0.00
		Top Girt	Max Tension	19	5.35	0.00	0.00
			Max. Compression	19	-5.35	0.00	0.00
			Max. Mx	28	0.64	0.10	0.00
		Redund Horz 1 Bracing	Max. My	33	-0.07	0.00	0.00
			Max. Vy	28	-0.03	0.00	0.00
			Max Tension	19	5.03	0.00	0.00
		Redund Horz 2 Bracing	Max. Compression	19	-5.03	0.00	0.00
			Max. Mx	29	4.74	0.04	0.00
			Max. My	26	1.13	0.00	0.00
		Redund Diag 1 Bracing	Max. Vy	29	-0.01	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
			Max Tension	19	3.36	0.00	0.00
		Redund Diag 2 Bracing	Max. Compression	19	-3.36	0.00	0.00
			Max. Mx	19	3.36	0.12	0.00
			Max. My	34	1.13	0.00	-0.00
		Redund Hip 1 Bracing	Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
			Max Tension	17	0.02	0.00	0.00
		Redund Hip	Max. Compression	11	-0.12	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 42 of 62
	Project	10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client	Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	5	0.01	0.00	0.00
			Max. Compression	27	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.10	0.00
			Max. Vy	18	-0.03	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	28	0.20	0.00	0.00
			Max. Compression	23	-0.09	0.00	0.00
			Max. Mx	20	0.08	0.21	0.00
			Max. My	32	0.16	0.00	-0.00
			Max. Vy	20	-0.04	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Inner Bracing	Max Tension	25	0.32	0.00	0.00
			Max. Compression	25	-0.32	0.00	0.00
			Max. Mx	18	0.01	0.42	0.00
			Max. My	32	0.25	0.00	-0.00
			Max. Vy	18	0.09	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	347.68	45.13	-27.02
	Max. H _x	30	347.68	45.13	-27.02
	Max. H _z	4	-271.29	-37.45	25.49
	Min. Vert	5	-281.89	-40.10	24.28
	Min. H _x	5	-281.89	-40.10	24.28
	Min. H _z	29	336.98	42.54	-28.11
Leg B	Max. Vert	24	342.92	-45.02	-27.04
	Max. H _x	15	-284.04	40.20	24.19
	Max. H _z	16	-273.44	37.58	25.33
	Min. Vert	15	-284.04	40.20	24.19
	Min. H _x	24	342.92	-45.02	-27.04
	Min. H _z	25	332.23	-42.40	-28.17
Leg A	Max. Vert	19	355.29	0.07	52.76
	Max. H _x	14	33.70	10.51	2.87
	Max. H _z	19	355.29	0.07	52.76
	Min. Vert	10	-279.20	0.13	-46.85
	Min. H _x	6	33.70	-10.56	2.87
	Min. H _z	10	-279.20	0.13	-46.85

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	92.82	0.00	0.00	-95.94	43.22	0.00
Dead+Wind 0 deg - No Ice	92.82	-0.00	-88.43	-11002.64	43.27	-10.69
Dead+Wind 30 deg - No Ice	92.82	44.17	-76.59	-9541.45	-5401.42	-46.94
Dead+Wind 45 deg - No Ice	92.82	62.47	-62.53	-7808.23	-7656.69	-60.86

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	43 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead+Wind 60 deg - No Ice	92.82	76.50	-44.22	-5549.42	-9387.23	-70.63
Dead+Wind 90 deg - No Ice	92.82	88.34	0.00	-96.15	-10846.18	-75.39
Dead+Wind 120 deg - No Ice	92.82	76.50	44.22	5357.16	-9387.30	-59.95
Dead+Wind 135 deg - No Ice	92.82	62.47	62.53	7616.01	-7656.77	-45.76
Dead+Wind 150 deg - No Ice	92.82	44.17	76.59	9349.28	-5401.48	-28.44
Dead+Wind 180 deg - No Ice	92.82	-0.00	88.43	10810.54	43.33	10.69
Dead+Wind 210 deg - No Ice	92.82	-44.17	76.59	9349.29	5488.04	46.95
Dead+Wind 225 deg - No Ice	92.82	-62.47	62.53	7616.02	7743.31	60.87
Dead+Wind 240 deg - No Ice	92.82	-76.50	44.22	5357.17	9473.85	70.63
Dead+Wind 270 deg - No Ice	92.82	-88.34	0.00	-96.13	10932.73	75.39
Dead+Wind 300 deg - No Ice	92.82	-76.50	-44.22	-5549.39	9473.77	59.95
Dead+Wind 315 deg - No Ice	92.82	-62.47	-62.53	-7808.20	7743.23	45.76
Dead+Wind 330 deg - No Ice	92.82	-44.17	-76.59	-9541.45	5487.96	28.44
Dead+Ice+Temp	138.96	0.00	0.00	-225.19	95.64	0.00
Dead+Wind 0 deg+Ice+Temp	138.96	-0.00	-87.50	-10769.83	95.71	8.74
Dead+Wind 30 deg+Ice+Temp	138.96	43.67	-75.71	-9345.42	-5162.89	-23.83
Dead+Wind 45 deg+Ice+Temp	138.96	61.75	-61.81	-7670.28	-7339.49	-38.22
Dead+Wind 60 deg+Ice+Temp	138.96	75.62	-43.70	-5488.60	-9008.56	-49.99
Dead+Wind 90 deg+Ice+Temp	138.96	87.34	0.00	-225.40	-10421.56	-62.82
Dead+Wind 120 deg+Ice+Temp	138.96	75.71	43.75	5046.87	-9024.29	-58.89
Dead+Wind 135 deg+Ice+Temp	138.96	61.75	61.81	7219.55	-7339.58	-50.59
Dead+Wind 150 deg+Ice+Temp	138.96	43.67	75.71	8894.74	-5162.98	-38.99
Dead+Wind 180 deg+Ice+Temp	138.96	-0.00	87.39	10301.13	95.67	-8.75
Dead+Wind 210 deg+Ice+Temp	138.96	-43.67	75.71	8894.77	5354.33	23.84
Dead+Wind 225 deg+Ice+Temp	138.96	-61.75	61.81	7219.59	7530.94	38.21
Dead+Wind 240 deg+Ice+Temp	138.96	-75.71	43.75	5046.92	9215.67	50.14
Dead+Wind 270 deg+Ice+Temp	138.96	-87.34	0.00	-225.35	10612.95	62.82
Dead+Wind 300 deg+Ice+Temp	138.96	-75.62	-43.70	-5488.56	9199.97	58.75
Dead+Wind 315 deg+Ice+Temp	138.96	-61.75	-61.81	-7670.25	7530.89	50.60
Dead+Wind 330 deg+Ice+Temp	138.96	-43.67	-75.71	-9345.40	5354.30	38.99
Dead+Wind 0 deg - Service	92.82	-0.00	-27.29	-3462.29	43.27	-3.31
Dead+Wind 30 deg - Service	92.82	13.63	-23.64	-3011.32	-1637.20	-14.49
Dead+Wind 45 deg - Service	92.82	19.28	-19.30	-2476.36	-2333.28	-18.78
Dead+Wind 60 deg - Service	92.82	23.61	-13.65	-1779.19	-2867.40	-21.80
Dead+Wind 90 deg - Service	92.82	27.27	0.00	-96.07	-3317.69	-23.27
Dead+Wind 120 deg - Service	92.82	23.61	13.65	1587.05	-2867.39	-18.51
Dead+Wind 135 deg - Service	92.82	19.28	19.30	2284.22	-2333.28	-14.13
Dead+Wind 150 deg - Service	92.82	13.63	23.64	2819.18	-1637.21	-8.78
Dead+Wind 180 deg - Service	92.82	0.00	27.29	3270.18	43.27	3.30
Dead+Wind 210 deg - Service	92.82	-13.63	23.64	2819.19	1723.75	14.49
Dead+Wind 225 deg - Service	92.82	-19.28	19.30	2284.23	2419.82	18.79
Dead+Wind 240 deg - Service	92.82	-23.61	13.65	1587.05	2953.93	21.79
Dead+Wind 270 deg - Service	92.82	-27.27	0.00	-96.06	3404.22	23.27
Dead+Wind 300 deg - Service	92.82	-23.61	-13.65	-1779.23	2953.97	18.50
Dead+Wind 315 deg - Service	92.82	-19.28	-19.30	-2476.35	2419.82	14.12
Dead+Wind 330 deg - Service	92.82	-13.63	-23.64	-3011.32	1723.75	8.78

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-92.82	0.00	0.00	92.82	0.00	0.000%
2	-0.00	-92.82	-88.43	0.00	92.82	88.43	0.000%
3	44.17	-92.82	-76.59	-44.17	92.82	76.59	0.000%
4	62.47	-92.82	-62.53	-62.47	92.82	62.53	0.000%
5	76.50	-92.82	-44.22	-76.50	92.82	44.22	0.000%
6	88.34	-92.82	-0.00	-88.34	92.82	-0.00	0.000%

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	44 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
7	76.50	-92.82	44.22	-76.50	92.82	-44.22	0.000%
8	62.47	-92.82	62.53	-62.47	92.82	-62.53	0.000%
9	44.17	-92.82	76.59	-44.17	92.82	-76.59	0.000%
10	0.00	-92.82	88.43	0.00	92.82	-88.43	0.000%
11	-44.17	-92.82	76.59	44.17	92.82	-76.59	0.000%
12	-62.47	-92.82	62.53	62.47	92.82	-62.53	0.000%
13	-76.50	-92.82	44.22	76.50	92.82	-44.22	0.000%
14	-88.34	-92.82	0.00	88.34	92.82	-0.00	0.000%
15	-76.50	-92.82	-44.22	76.50	92.82	44.22	0.000%
16	-62.47	-92.82	-62.53	62.47	92.82	62.53	0.000%
17	-44.17	-92.82	-76.59	44.17	92.82	76.59	0.000%
18	0.00	-138.96	0.00	0.00	138.96	0.00	0.000%
19	-0.00	-138.96	-87.50	0.00	138.96	87.50	0.000%
20	43.67	-138.96	-75.71	-43.67	138.96	75.71	0.000%
21	61.75	-138.96	-61.81	-61.75	138.96	61.81	0.000%
22	75.62	-138.96	-43.70	-75.62	138.96	43.70	0.000%
23	87.34	-138.96	-0.00	-87.34	138.96	-0.00	0.000%
24	75.71	-138.96	43.75	-75.71	138.96	-43.75	0.000%
25	61.75	-138.96	61.81	-61.75	138.96	-61.81	0.000%
26	43.67	-138.96	75.71	-43.67	138.96	-75.71	0.000%
27	0.00	-138.96	87.39	0.00	138.96	-87.39	0.000%
28	-43.67	-138.96	75.71	43.67	138.96	-75.71	0.000%
29	-61.75	-138.96	61.81	61.75	138.96	-61.81	0.000%
30	-75.71	-138.96	43.75	75.71	138.96	-43.75	0.000%
31	-87.34	-138.96	0.00	87.34	138.96	-0.00	0.000%
32	-75.62	-138.96	-43.70	75.62	138.96	43.70	0.000%
33	-61.75	-138.96	-61.81	61.75	138.96	61.81	0.000%
34	-43.67	-138.96	-75.71	43.67	138.96	75.71	0.000%
35	0.00	-92.82	-27.29	0.00	92.82	27.29	0.000%
36	13.63	-92.82	-23.64	-13.63	92.82	23.64	0.000%
37	19.28	-92.82	-19.30	-19.28	92.82	19.30	0.000%
38	23.61	-92.82	-13.65	-23.61	92.82	13.65	0.000%
39	27.27	-92.82	-0.00	-27.27	92.82	-0.00	0.000%
40	23.61	-92.82	13.65	-23.61	92.82	-13.65	0.000%
41	19.28	-92.82	19.30	-19.28	92.82	-19.30	0.000%
42	13.63	-92.82	23.64	-13.63	92.82	-23.64	0.000%
43	0.00	-92.82	27.29	0.00	92.82	-27.29	0.000%
44	-13.63	-92.82	23.64	13.63	92.82	-23.64	0.000%
45	-19.28	-92.82	19.30	19.28	92.82	-19.30	0.000%
46	-23.61	-92.82	13.65	23.61	92.82	-13.65	0.000%
47	-27.27	-92.82	0.00	27.27	92.82	-0.00	0.000%
48	-23.61	-92.82	-13.65	23.61	92.82	13.65	0.000%
49	-19.28	-92.82	-19.30	19.28	92.82	19.30	0.000%
50	-13.63	-92.82	-23.64	13.63	92.82	23.64	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000173
3	Yes	4	0.00000001	0.00000167
4	Yes	4	0.00000001	0.00000123
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000114
7	Yes	4	0.00000001	0.00000168

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	45 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

8	Yes	4	0.00000001	0.00000173
9	Yes	4	0.00000001	0.00000150
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000160
12	Yes	4	0.00000001	0.00000181
13	Yes	4	0.00000001	0.00000172
14	Yes	4	0.00000001	0.00000118
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000116
17	Yes	4	0.00000001	0.00000154
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000214
20	Yes	4	0.00000001	0.00000184
21	Yes	4	0.00000001	0.00000129
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000126
24	Yes	4	0.00000001	0.00000195
25	Yes	4	0.00000001	0.00000197
26	Yes	4	0.00000001	0.00000165
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000171
29	Yes	4	0.00000001	0.00000202
30	Yes	4	0.00000001	0.00000203
31	Yes	4	0.00000001	0.00000134
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000126
34	Yes	4	0.00000001	0.00000180
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	2.553	50	0.0630	0.0207
T2	220 - 200	2.282	50	0.0632	0.0214
T3	200 - 180	2.003	50	0.0631	0.0206
T4	180 - 170	1.710	50	0.0621	0.0188
T5	170 - 160	1.563	50	0.0611	0.0177
T6	160 - 150	1.420	50	0.0595	0.0168
T7	150 - 140	1.279	50	0.0575	0.0157
T8	140 - 120	1.138	50	0.0552	0.0147
T9	120 - 100	0.880	50	0.0489	0.0129
T10	100 - 80	0.642	50	0.0418	0.0106
T11	80 - 60	0.437	50	0.0333	0.0081

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	46 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T12	60 - 30	0.277	43	0.0258	0.0062
T13	30 - 0	0.091	42	0.0137	0.0027

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	50	2.553	0.0630	0.0207	Inf
242.00	12' x 2" Dia Omni	50	2.553	0.0630	0.0207	Inf
240.00	Flash Beacon Lighting	50	2.553	0.0630	0.0207	Inf
238.00	Pirol 4' Side Mount Standoff (1)	50	2.526	0.0631	0.0208	Inf
237.00	8'x2 1/2" Pipe Mount	50	2.512	0.0631	0.0208	Inf
236.00	Pirol 4' Side Mount Standoff (1)	50	2.499	0.0631	0.0209	Inf
235.00	10' x 3" Dia Omni	50	2.485	0.0631	0.0209	Inf
230.00	Pirol 4' Side Mount Standoff (1)	50	2.418	0.0631	0.0212	Inf
229.00	10'x2.5" Pipe Mount	50	2.404	0.0631	0.0212	Inf
224.00	Pirol 4' Side Mount Standoff (1)	50	2.336	0.0632	0.0213	799914
210.00	(2) 800-10504	50	2.144	0.0632	0.0212	366276
202.00	(3) APX16PV-16PVL-X	50	2.031	0.0631	0.0207	276454
198.00	4-ft Yagi	50	1.974	0.0630	0.0204	283693
195.00	10'x4" Pipe Mount	50	1.930	0.0629	0.0202	324068
187.00	Andrew 2' w/Radome	50	1.813	0.0626	0.0195	559539
185.00	14' x 2-1/2" Pipe Mount	50	1.784	0.0625	0.0193	683743
184.00	LLPX310R	50	1.769	0.0624	0.0192	770449
176.00	20' x 3" Dia Omni	50	1.651	0.0618	0.0183	581614
174.00	(2) 7184.05	50	1.621	0.0616	0.0181	370691
164.00	(2) 7770.00	50	1.477	0.0602	0.0171	339297
150.00	DB846F6SZAXY	50	1.279	0.0575	0.0157	671444
141.00	10' x 1" Dia Omni	50	1.152	0.0554	0.0148	132167
140.00	Obstruction Lights	50	1.138	0.0552	0.0147	123364
136.00	2' stand off (2 arms)	50	1.084	0.0540	0.0144	126333
132.00	2' stand off (2 arms)	50	1.032	0.0528	0.0140	154341
124.00	12' x 1-1/2" Dia Omni	50	0.930	0.0502	0.0133	278547
118.00	Pirol 4' Side Mount Standoff (1)	50	0.856	0.0482	0.0127	364965
114.00	12' x 2" Dia Omni	50	0.807	0.0469	0.0123	276647
108.00	Pirol 4' Side Mount Standoff (1)	50	0.735	0.0448	0.0116	196436
98.00	4-ft Yagi	50	0.620	0.0410	0.0103	133826
82.00	2' stand off (2 arms)	50	0.456	0.0341	0.0084	93261
56.00	GPS	43	0.249	0.0242	0.0058	255227
22.00	0.8M Satellite Dish	42	0.059	0.0102	0.0019	100511

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	8.087	2	0.1977	0.0670
T2	220 - 200	7.236	2	0.1982	0.0694
T3	200 - 180	6.360	2	0.1978	0.0668
T4	180 - 170	5.439	2	0.1949	0.0608
T5	170 - 160	4.975	2	0.1917	0.0573

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	47 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T6	160 - 150	4.523	2	0.1868	0.0544
T7	150 - 140	4.078	2	0.1806	0.0511
T8	140 - 120	3.633	2	0.1733	0.0478
T9	120 - 100	2.816	2	0.1535	0.0419
T10	100 - 80	2.061	17	0.1312	0.0343
T11	80 - 60	1.409	17	0.1047	0.0263
T12	60 - 30	0.897	10	0.0809	0.0200
T13	30 - 0	0.292	27	0.0431	0.0088

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
248.00	16' x 2.5" Dia Omni	2	8.087	0.1977	0.0670	795589
242.00	12' x 2" Dia Omni	2	8.087	0.1977	0.0670	795589
240.00	Flash Beacon Lighting	2	8.087	0.1977	0.0670	795589
238.00	Pirol 4' Side Mount Standoff (1)	2	8.002	0.1978	0.0674	795589
237.00	8'x2 1/2" Pipe Mount	2	7.960	0.1978	0.0675	795589
236.00	Pirol 4' Side Mount Standoff (1)	2	7.918	0.1978	0.0677	795589
235.00	10' x 3" Dia Omni	2	7.875	0.1979	0.0679	795589
230.00	Pirol 4' Side Mount Standoff (1)	2	7.663	0.1980	0.0686	397797
229.00	10'x2.5" Pipe Mount	2	7.621	0.1980	0.0687	361634
224.00	Pirol 4' Side Mount Standoff (1)	2	7.408	0.1981	0.0692	248574
210.00	(2) 800-10504	2	6.803	0.1981	0.0687	114415
202.00	(3) APX16PV-16PVL-X	2	6.449	0.1979	0.0672	86579
198.00	4-ft Yagi	2	6.269	0.1976	0.0663	89203
195.00	10'x4" Pipe Mount	2	6.133	0.1974	0.0656	102547
187.00	Andrew 2' w/Radome	2	5.764	0.1963	0.0632	183796
185.00	14' x 2-1/2" Pipe Mount	2	5.672	0.1960	0.0626	229194
184.00	LLPX310R	2	5.625	0.1958	0.0622	261979
176.00	20' x 3" Dia Omni	2	5.252	0.1938	0.0594	191196
174.00	(2) 7184.05	2	5.159	0.1932	0.0586	118393
164.00	(2) 7770.00	2	4.703	0.1890	0.0555	110343
150.00	DB846F65ZAXY	2	4.078	0.1806	0.0511	238799
141.00	10' x 1" Dia Omni	2	3.676	0.1741	0.0481	41533
140.00	Obstruction Lights	2	3.633	0.1733	0.0478	38711
136.00	2' stand off (2 arms)	2	3.462	0.1697	0.0466	39788
132.00	2' stand off (2 arms)	2	3.295	0.1659	0.0455	49142
124.00	12' x 1-1/2" Dia Omni	2	2.974	0.1577	0.0432	93177
118.00	Pirol 4' Side Mount Standoff (1)	2	2.738	0.1514	0.0413	126964
114.00	12' x 2" Dia Omni	2	2.583	0.1472	0.0398	93141
108.00	Pirol 4' Side Mount Standoff (1)	2	2.355	0.1406	0.0375	64229
98.00	4-ft Yagi	17	1.990	0.1287	0.0334	42750
82.00	2' stand off (2 arms)	17	1.467	0.1073	0.0270	29194
56.00	GPS	10	0.804	0.0762	0.0186	85816
22.00	0.8M Satellite Dish	27	0.190	0.0320	0.0061	31622

Bolt Design Data

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	48 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	240	Leg	A325N	1.0000	8	0.00	34.56	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	0.58	6.44	0.089 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	0.58	6.44	0.091 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.24	6.44	0.037 ✓	1.333	Bolt Shear
T2	220	Leg	A325N	1.0000	8	0.36	34.56	0.010 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1.69	6.44	0.263 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.57	6.44	0.243 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.77	6.44	0.120 ✓	1.333	Bolt Shear
T3	200	Leg	A325N	1.0000	8	1.35	34.56	0.039 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	2.85	6.44	0.442 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.81	6.44	0.437 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	2.21	6.44	0.343 ✓	1.333	Bolt Shear
T4	180	Leg	A325N	1.0000	8	3.51	34.56	0.102 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.47	6.44	0.539 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	3.57	6.44	0.553 ✓	1.333	Bolt Shear
T5	170	Diagonal	A325N	0.6250	3	3.99	6.44	0.619 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.18	6.44	0.648 ✓	1.333	Bolt Shear
T6	160	Leg	A325N	1.0000	8	6.48	34.56	0.188 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.36	6.44	0.677 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	4.70	6.44	0.730 ✓	1.333	Bolt Shear
T7	150	Diagonal	A325N	0.7500	3	5.02	9.28	0.541 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	5.58	6.44	0.866 ✓	1.333	Bolt Shear
T8	140	Leg	A325N	1.0000	8	10.08	34.56	0.292 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	5.42	9.28	0.584 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	6.31	6.44	0.979 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	6.02	6.44	0.935 ✓	1.333	Bolt Shear
T9	120	Leg	A325N	1.0000	8	13.87	34.56	0.401 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	7.85	9.28	0.846 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.7500	2	6.63	9.28	0.715 ✓	1.333	Bolt Shear
T10	100	Leg	A325N	1.0000	8	17.63	34.56	0.510 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	8.12	12.63	0.643 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	7.30	12.63	0.578 ✓	1.333	Bolt Shear
T11	80	Leg	A325N	1.0000	12	14.23	34.56	0.412 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	8.43	12.63	0.668 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	7.89	12.63	0.625 ✓	1.333	Bolt Shear
T12	60	Leg	A325N	1.0000	12	16.74	34.56	0.484 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	11.22	12.63	0.889 ✓	1.333	Bolt Shear
		Top Girt	A325N	0.8750	2	8.55	12.63	0.677 ✓	1.333	Bolt Shear
T13	30	Leg	A325N	1.0000	12	20.33	34.56	0.588 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.8750	3	11.16	12.63	0.884 ✓	1.333	Bolt Shear

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	49 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
		Top Girt	A325N	0.8750	2	9.33	12.63	0.739 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8 K=1.00	27.415	12.7627	-3.98	349.89	0.011
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8 K=1.00	25.579	12.7627	-12.91	326.45	0.040 ✓
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-31.68	326.43	0.097 ✓
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-43.48	326.43	0.133 ✓
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-57.98	326.43	0.178 ✓
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-73.21	326.41	0.224 ✓
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8 K=1.00	25.576	12.7627	-90.19	326.41	0.276 ✓
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-126.16	326.43	0.386 ✓
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-144.76	326.43	0.443 ✓
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-180.24	326.43	0.552 ✓
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-216.14	430.75	0.502 ✓
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2 K=1.00	26.754	16.1007	-253.17	430.76	0.588 ✓
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2 K=1.00	26.752	16.1007	-308.01	430.72	0.715 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1 K=1.00	8.562	1.0745	-1.73	9.20	0.188 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 50 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6 K=1.00	6.581	1.7040	-5.08	11.21	0.453 ✓
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3 K=1.00	5.741	1.7040	-8.54	9.78	0.872 ✓
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8 K=1.00	5.365	1.7040	-10.42	9.14	1.140 ✓
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9 K=1.00	4.771	2.2535	-11.97	10.75	1.114 ✓
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4 K=1.00	7.060	2.2285	-13.09	15.73	0.832 ✓
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5 K=1.00	6.595	2.2285	-15.07	14.70	1.025 ✓
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4 K=1.00	5.525	3.0159	-16.27	16.66	0.976 ✓
T9	120 - 100	ROHN 2.5 STD Reinforced w/ L2x2x1/4	24.29	12.15	136.9 K=1.00	7.963	2.3562	-23.54	18.76	1.255 ✓
T10	100 - 80	ROHN 3 STD	25.02	12.51	129.0 K=1.00	8.970	2.2285	-24.37	19.99	1.219 ✓
T11	80 - 60	ROHN 3 EH	25.79	12.90	136.2 K=1.00	8.052	3.0159	-25.30	24.28	1.042 ✓
T12	60 - 30	ROHN 3 EH	35.06	11.69	123.4 K=1.00	9.804	3.0159	-33.67	29.57	1.139 ✓
T13	30 - 0	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	36.14	12.05	110.2 K=1.00	12.306	3.4872	-33.48	42.91	0.780 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6 K=1.00	17.872	1.0745	-1.13	19.20	0.059 ✓
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7 K=1.00	14.781	1.0745	-3.13	15.88	0.197 ✓
T3	200 - 180	ROHN 2 STD	16.21	7.75	118.1 K=1.00	10.709	1.0745	-5.63	11.51	0.489 ✓
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1 K=1.00	6.995	1.7040	-12.31	11.92	1.033 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	10.58	4.93	63.9 K=0.85	22.042	1.0745	-0.48	23.68	0.020 ✓
T2	220 - 200	ROHN 2 STD	12.63	5.96	77.2	19.571	1.0745	-1.52	21.03	0.072 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	51 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T3	200 - 180	ROHN 2 STD	14.96	7.12	K=0.85 92.3	16.445	1.0745	-4.42	17.67	0.250
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	K=0.85 90.1	16.912	1.7040	-7.13	28.82	0.247
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	K=0.85 96.8	15.427	1.7040	-8.35	26.29	0.318
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	K=0.85 103.6	13.867	1.7040	-9.39	23.63	0.397
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	K=0.85 110.5	12.225	1.7040	-11.12	20.83	0.534
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	K=0.85 117.5	10.823	1.7040	-11.89	18.44	0.645
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	K=0.85 130.9	8.712	1.7040	-13.17	14.85	0.887
T10	100 - 80	ROHN 3 STD	27.54	13.41	K=0.85 117.6	10.806	2.2285	-14.59	24.08	0.606
T11	80 - 60	ROHN 3 STD	30.04	14.66	K=0.85 128.5	9.041	2.2285	-15.78	20.15	0.783
T12	60 - 30	ROHN 3 STD	32.54	15.82	K=0.85 138.7	7.763	2.2285	-17.11	17.30	0.989
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	K=0.85 134.8	8.217	2.6795	-18.66	22.02	0.847

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0 K=1.00	14.210	1.0745	-2.51	15.27	0.165
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5 K=1.00	13.043	1.0745	-3.13	14.01	0.223
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7 K=1.00	11.984	1.0745	-3.75	12.88	0.291
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9 K=1.00	15.810	1.0745	-4.39	16.99	0.259
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2 K=1.00	14.763	1.0745	-5.35	15.86	0.337

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5 K=1.00	5.942	1.0745	-4.39	6.38	0.688

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	52 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3 K=1.00	4.751	1.0745	-5.35	5.11	1.047 ✓

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9 K=1.00	5.557	1.0745	-2.30	5.97	0.386 ✓
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6 K=1.00	5.190	1.0745	-2.68	5.58	0.481 ✓
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5 K=1.00	4.847	1.0745	-3.03	5.21	0.582 ✓
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5 K=1.00	6.336	1.0745	-4.50	6.81	0.660 ✓
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7 K=1.00	5.927	1.0745	-5.03	6.37	0.789 ✓

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6 K=1.00	3.431	1.0745	-2.90	3.69	0.786 ✓
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3 K=1.00	3.023	1.0745	-3.36	3.25	1.034 ✓

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	6.26	95.4 K=1.00	13.547	1.0745	-0.05	14.56	0.003 ✓
T10	100 - 80	ROHN 2 STD	6.89	6.89	105.0 K=1.00	12.340	1.0745	-0.05	13.26	0.004 ✓
T11	80 - 60	ROHN 2 STD	7.51	7.51	114.5 K=1.00	11.058	1.0745	-0.04	11.88	0.004 ✓
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7 K=1.00	15.054	1.0745	-0.11	16.18	0.007 ✓
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1 K=1.00	13.959	1.0745	-0.12	15.00	0.008 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	53 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P K	Allow. P _a K	Ratio P P _a
	ft		ft	ft		ksi	in ²			

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P K	Allow. P _a K	Ratio P P _a
	ft		ft	ft		ksi	in ²			
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4 K=1.00	5.461	1.0745	-0.05	5.87	0.009
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1 K=1.00	4.405	1.0745	-0.05	4.73	0.010

Redundant Hip Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P K	Allow. P _a K	Ratio P P _a
	ft		ft	ft		ksi	in ²			
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1 K=1.00	2.844	1.0745	-0.05	3.06	0.017
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7 K=1.00	2.556	1.0745	-0.05	2.75	0.019
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7 K=1.00	2.302	1.0745	-0.05	2.47	0.020
T12	60 - 30	KL/R > 250 (C) - 274 ROHN 2 STD	17.69	17.69	269.7 K=1.00	2.052	1.0745	-0.08	2.21	0.034
T13	30 - 0	KL/R > 250 (C) - 323 ROHN 2 STD	19.08	19.08	290.8 K=1.00	1.766	1.0745	-0.08	1.90	0.042
		KL/R > 250 (C) - 374								

Inner Bracing Design Data (Compression)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P K	Allow. P _a K	Ratio P P _a
	ft		ft	ft		ksi	in ²			
T1	240 - 220	L2x2x1/8	5.29	5.29	159.7 K=1.00	5.857	0.4844	-0.01	2.84	0.003
T2	220 - 200	L2x2x1/8	6.31	6.31	190.6 K=1.00	4.110	0.4844	-0.03	1.99	0.013
T3	200 - 180	L2x2x1/8	7.48	7.48	225.8 K=1.00	2.929	0.4844	-0.08	1.42	0.054
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	211.6 K=1.00	3.334	0.9020	-0.12	3.01	0.041
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	226.8 K=1.00	2.903	0.9020	-0.14	2.62	0.055

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	54 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T6	160 - 150	L3x3x3/16	9.98	9.98	200.9 K=1.00	3.698	1.0900	-0.16	4.03	0.040
T7	150 - 140	L3x3x3/16	10.63	10.63	213.9 K=1.00	3.263	1.0900	-0.19	3.56	0.054
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	214.3 K=1.00	3.251	1.5600	-0.21	5.07	0.041
T9	120 - 100	P2x.154	12.52	12.52	190.9 K=1.00	4.099	1.0745	-0.23	4.40	0.052
T10	100 - 80	P3x.216	13.77	13.77	142.0 K=1.00	7.405	2.2285	-0.25	16.50	0.015
T11	80 - 60	P3x.216	15.02	15.02	154.9 K=1.00	6.224	2.2285	-0.27	13.87	0.020
T12	60 - 30	P3x.216	16.27	16.27	167.8 K=1.00	5.304	2.2285	-0.30	11.82	0.025
T13	30 - 0	P3x.216	18.12	18.12	186.8 K=1.00	4.279	2.2285	-0.32	9.53	0.034

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	1.26	382.88	0.003
T2	220 - 200	ROHN 8 EH	20.05	10.02	41.8	30.000	12.7627	5.42	382.88	0.014
T3	200 - 180	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	18.91	382.88	0.049
T4	180 - 170	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	28.06	382.88	0.073
T5	170 - 160	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	39.41	382.88	0.103
T6	160 - 150	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	51.86	382.88	0.135
T7	150 - 140	ROHN 8 EH	10.03	10.03	41.8	30.000	12.7627	65.08	382.88	0.170
T8	140 - 120	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	96.21	382.88	0.251
T9	120 - 100	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	110.94	382.88	0.290
T10	100 - 80	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	141.02	382.88	0.368
T11	80 - 60	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	170.81	483.02	0.354
T12	60 - 30	ROHN 10 EH	30.08	10.03	33.2	30.000	16.1007	200.87	483.02	0.416

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	55 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T13	30 - 0	ROHN 10 EH	30.09	10.03	33.2	30.000	16.1007	243.99	483.02	0.505 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	9.18	8.66	132.1	30.000	1.0745	1.60	32.24	0.050 ✓
T2	220 - 200	ROHN 2.5 STD	12.49	11.89	150.6	30.000	1.7040	4.93	51.12	0.096 ✓
T3	200 - 180	ROHN 2.5 STD	13.28	12.73	161.3	30.000	1.7040	8.36	51.12	0.164 ✓
T4	180 - 170	ROHN 2.5 STD	13.70	13.17	166.8	30.000	1.7040	10.18	51.12	0.199 ✓
T5	170 - 160	ROHN 2.5 EH	14.13	13.62	176.9	27.600	2.2535	11.68	62.20	0.188 ✓
T6	160 - 150	ROHN 3 STD	14.60	14.10	145.4	27.600	2.2285	12.76	61.51	0.207 ✓
T7	150 - 140	ROHN 3 STD	15.07	14.59	150.5	27.600	2.2285	14.71	61.51	0.239 ✓
T8	140 - 120	ROHN 3 EH	16.03	15.57	164.4	27.600	3.0159	15.75	83.24	0.189 ✓
T9	120 - 100	ROHN 2.5 STD Reinforced w/ L2x2x1/4	24.29	12.15	136.9	30.000	2.3562	23.21	70.69	0.328 ✓
T10	100 - 80	ROHN 3 STD	25.02	12.51	129.0	30.000	2.2285	23.90	66.85	0.358 ✓
T11	80 - 60	ROHN 3 EH	25.79	12.90	136.2	27.600	3.0159	24.59	83.24	0.295 ✓
T12	60 - 30	ROHN 3 EH	35.06	11.69	123.4	27.600	3.0159	32.77	83.24	0.394 ✓
T13	30 - 0	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	36.14	12.05	110.2	30.000	3.4872	32.02	104.61	0.306 ✓

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	11.95	5.61	85.6	30.000	1.0745	1.17	32.24	0.036 ✓
T2	220 - 200	ROHN 2 STD	13.79	6.54	99.7	30.000	1.0745	3.11	32.24	0.097 ✓
T3	200 - 180	ROHN 2 STD	16.21	7.75	118.1	30.000	1.0745	5.62	32.24	0.174 ✓
T8	140 - 120	ROHN 2.5 STD	23.79	11.54	146.1	30.000	1.7040	12.62	51.12	0.247 ✓

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 56 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
										✓

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	ROHN 2 STD	10.58	4.93	75.2	30.000	1.0745	0.46	32.24	0.014
T2	220 - 200	ROHN 2 STD	12.63	5.96	90.8	30.000	1.0745	1.54	32.24	0.048
T3	200 - 180	ROHN 2 STD	14.96	7.12	108.6	30.000	1.0745	4.38	32.24	0.136
T4	180 - 170	ROHN 2.5 STD	17.46	8.37	106.0	30.000	1.7040	7.11	51.12	0.139
T5	170 - 160	ROHN 2.5 STD	18.71	9.00	113.9	30.000	1.7040	8.36	51.12	0.163
T6	160 - 150	ROHN 2.5 STD	19.96	9.62	121.9	30.000	1.7040	9.40	51.12	0.184
T7	150 - 140	ROHN 2.5 STD	21.25	10.27	130.0	30.000	1.7040	11.16	51.12	0.218
T8	140 - 120	ROHN 2.5 STD	22.54	10.91	138.2	30.000	1.7040	12.04	51.12	0.236
T9	120 - 100	ROHN 2.5 STD	25.04	12.16	154.0	30.000	1.7040	13.26	51.12	0.259
T10	100 - 80	ROHN 3 STD	27.54	13.41	138.3	30.000	2.2285	14.38	66.85	0.215
T11	80 - 60	ROHN 3 STD	30.04	14.66	151.2	30.000	2.2285	15.58	66.85	0.233
T12	60 - 30	ROHN 3 STD	32.54	15.82	163.2	30.000	2.2285	16.96	66.85	0.254
T13	30 - 0	ROHN 3.5 STD	36.23	17.67	158.6	30.000	2.6795	17.54	80.39	0.218

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	6.26	5.90	90.0	21.600	1.0745	2.51	23.21	0.108
T10	100 - 80	ROHN 2 STD	6.89	6.53	99.5	21.600	1.0745	3.13	23.21	0.135
T11	80 - 60	ROHN 2 STD	7.51	7.06	107.7	21.600	1.0745	3.75	23.21	0.162
T12	60 - 30	ROHN 2 STD	5.42	4.98	75.9	21.600	1.0745	4.39	23.21	0.189

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	57 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
T13	30 - 0	ROHN 2 STD	6.04	5.59	85.2	21.600	1.0745	5.35	23.21	0.230

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Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
T12	60 - 30	ROHN 2 STD	10.85	10.40	158.5	21.600	1.0745	4.39	23.21	0.189
T13	30 - 0	ROHN 2 STD	12.08	11.63	177.3	21.600	1.0745	5.35	23.21	0.230

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Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
T9	120 - 100	ROHN 2 STD	11.48	10.75	163.9	21.600	1.0745	2.30	23.21	0.099
T10	100 - 80	ROHN 2 STD	11.80	11.13	169.6	21.600	1.0745	2.68	23.21	0.116
T11	80 - 60	ROHN 2 STD	12.15	11.51	175.5	21.600	1.0745	3.03	23.21	0.131
T12	60 - 30	ROHN 2 STD	11.10	10.07	153.5	21.600	1.0745	4.50	23.21	0.194
T13	30 - 0	ROHN 2 STD	11.36	10.41	158.7	21.600	1.0745	5.03	23.21	0.217

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Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
T12	60 - 30	ROHN 2 STD	14.31	13.69	208.6	21.600	1.0745	2.90	23.21	0.125
T13	30 - 0	ROHN 2 STD	15.17	14.58	222.3	21.600	1.0745	3.36	23.21	0.145

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Redundant Hip (1) Design Data (Tension)

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	58 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	5.42	5.42	82.7	21.600	1.0745	0.01	23.21	0.000
T13	30 - 0	ROHN 2 STD	6.04	6.04	92.1	21.600	1.0745	0.02	23.21	0.001

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T12	60 - 30	ROHN 2 STD	10.85	10.85	165.4	21.600	1.0745	0.01	23.21	0.001
T13	30 - 0	ROHN 2 STD	12.08	12.08	184.1	21.600	1.0745	0.01	23.21	0.001

Redundant Hip Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	120 - 100	ROHN 2 STD	15.03	15.03	229.1	21.600	1.0745	0.09	23.21	0.004
T10	100 - 80	ROHN 2 STD	15.85	15.85	241.7	21.600	1.0745	0.10	23.21	0.004
T11	80 - 60	ROHN 2 STD	16.71	16.71	254.7	21.600	1.0745	0.08	23.21	0.003
T12	60 - 30	ROHN 2 STD	13.98	13.98	213.1	21.600	1.0745	0.21	23.21	0.009
T13	30 - 0	ROHN 2 STD	14.77	14.77	225.1	21.600	1.0745	0.20	23.21	0.008

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	240 - 220	L2x2x1/8	5.29	5.29	101.4	21.600	0.4844	0.01	10.46	0.001
T2	220 - 200	L2x2x1/8	6.31	6.31	121.0	21.600	0.4844	0.03	10.46	0.003
T3	200 - 180	L2x2x1/8	7.48	7.48	143.3	21.600	0.4844	0.08	10.46	0.007
T4	180 - 170	L2 1/2x2 1/2x3/16	8.73	8.73	134.7	21.600	0.9020	0.12	19.48	0.006

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	59 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T5	170 - 160	L2 1/2x2 1/2x3/16	9.36	9.36	144.3	21.600	0.9020	0.14	19.48	0.007
T6	160 - 150	L3x3x3/16	9.98	9.98	127.5	21.600	1.0900	0.16	23.54	0.007
T7	150 - 140	L3x3x3/16	10.63	10.63	135.8	21.600	1.0900	0.19	23.54	0.008
T8	140 - 120	L3 1/2x3x1/4	11.27	11.27	148.1	21.600	1.5600	0.21	33.70	0.006
T9	120 - 100	P2x.154	12.52	12.52	190.9	30.000	1.0745	0.23	32.24	0.007
T10	100 - 80	P3x.216	13.77	13.77	142.0	30.000	2.2285	0.25	66.85	0.004
T11	80 - 60	P3x.216	15.02	15.02	154.9	30.000	2.2285	0.27	66.85	0.004
T12	60 - 30	P3x.216	16.27	16.27	167.8	30.000	2.2285	0.30	66.85	0.004
T13	30 - 0	P3x.216	18.12	18.12	186.8	30.000	2.2285	0.32	66.85	0.005

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	240 - 220	Leg	ROHN 8 EH	3	-3.98	466.41	0.9	Pass
T2	220 - 200	Leg	ROHN 8 EH	42	-12.91	435.16	3.0	Pass
T3	200 - 180	Leg	ROHN 8 EH	69	-31.68	435.13	7.3	Pass
T4	180 - 170	Leg	ROHN 8 EH	96	-43.48	435.13	10.0	Pass
T5	170 - 160	Leg	ROHN 8 EH	111	-57.98	435.13	13.3	Pass
T6	160 - 150	Leg	ROHN 8 EH	126	-73.21	435.11	16.8	Pass
T7	150 - 140	Leg	ROHN 8 EH	141	-90.19	435.11	20.7	Pass
T8	140 - 120	Leg	ROHN 8 EH	156	-126.16	435.13	29.0	Pass
T9	120 - 100	Leg	ROHN 8 EH	183	-144.76	435.13	33.3	Pass
T10	100 - 80	Leg	ROHN 8 EH	216	-180.24	435.13	41.4	Pass
T11	80 - 60	Leg	ROHN 10 EH	249	-216.14	574.19	37.6	Pass
T12	60 - 30	Leg	ROHN 10 EH	282	-253.17	574.20	44.1	Pass
T13	30 - 0	Leg	ROHN 10 EH	333	-308.01	574.15	53.6	Pass
T1	240 - 220	Diagonal	ROHN 2 STD	12	-1.73	12.26	14.1	Pass
T2	220 - 200	Diagonal	ROHN 2.5 STD	54	-5.08	14.95	34.0	Pass
T3	200 - 180	Diagonal	ROHN 2.5 STD	81	-8.54	13.04	65.5	Pass
T4	180 - 170	Diagonal	ROHN 2.5 STD	105	-10.42	12.19	85.5	Pass
T5	170 - 160	Diagonal	ROHN 2.5 EH	117	-11.97	14.33	83.5	Pass
T6	160 - 150	Diagonal	ROHN 3 STD	132	-13.09	20.97	62.4	Pass
T7	150 - 140	Diagonal	ROHN 3 STD	147	-15.07	19.59	76.9	Pass
T8	140 - 120	Diagonal	ROHN 3 EH	164	-16.27	22.21	73.2	Pass
T9	120 - 100	Diagonal	ROHN 2.5 STD Reinforced w/ L2x2x1/4	193	-23.54	25.01	94.1	Pass
T10	100 - 80	Diagonal	ROHN 3 STD	226	-24.37	26.65	91.4	Pass
T11	80 - 60	Diagonal	ROHN 3 EH	259	-25.30	32.37	78.2	Pass
T12	60 - 30	Diagonal	ROHN 3 EH	315	-33.67	39.41	85.4	Pass
T13	30 - 0	Diagonal	ROHN 3.0 STD Reinforced w/L2.5x2.5x3/8	347	-33.48	57.20	58.5	Pass
T1	240 - 220	Horizontal	ROHN 2 STD	13	-1.13	25.60	66.3 (b) 4.4	Pass
T2	220 - 200	Horizontal	ROHN 2 STD	52	-3.13	21.17	6.8 (b) 14.8	Pass

RISATower CEN TEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	60 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT Client Verizon Wireless	Date 11:05:07 01/25/11 Designed by Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T3	200 - 180	Horizontal	ROHN 2 STD	79	-5.63	15.34	18.3 (b)	Pass
T8	140 - 120	Horizontal	ROHN 2.5 STD	163	-12.31	15.89	36.7	Pass
T1	240 - 220	Top Girt	ROHN 2 STD	4	-0.48	31.57	77.5	Pass
							1.5	Pass
T2	220 - 200	Top Girt	ROHN 2 STD	45	-1.52	28.03	2.8 (b)	Pass
							5.4	
T3	200 - 180	Top Girt	ROHN 2 STD	72	-4.42	23.55	9.0 (b)	Pass
							18.8	
T4	180 - 170	Top Girt	ROHN 2.5 STD	99	-7.13	38.42	25.7 (b)	Pass
							18.6	
T5	170 - 160	Top Girt	ROHN 2.5 STD	113	-8.35	35.04	41.5 (b)	Pass
							23.8	
T6	160 - 150	Top Girt	ROHN 2.5 STD	128	-9.39	31.50	48.6 (b)	Pass
							29.8	
T7	150 - 140	Top Girt	ROHN 2.5 STD	143	-11.12	27.77	54.8 (b)	Pass
							40.0	
T8	140 - 120	Top Girt	ROHN 2.5 STD	158	-11.89	24.58	65.0 (b)	Pass
							48.4	
T9	120 - 100	Top Girt	ROHN 2.5 STD	185	-13.17	19.79	70.1 (b)	Pass
							66.5	
T10	100 - 80	Top Girt	ROHN 3 STD	219	-14.59	32.10	45.5	Pass
T11	80 - 60	Top Girt	ROHN 3 STD	252	-15.78	26.86	58.8	Pass
T12	60 - 30	Top Girt	ROHN 3 STD	284	-17.11	23.06	74.2	Pass
T13	30 - 0	Top Girt	ROHN 3.5 STD	335	-18.66	29.35	63.6	Pass
T9	120 - 100	Redund Horz 1	ROHN 2 STD	202	-2.51	20.35	12.3	Pass
		Bracing						
T10	100 - 80	Redund Horz 1	ROHN 2 STD	235	-3.13	18.68	16.7	Pass
		Bracing						
T11	80 - 60	Redund Horz 1	ROHN 2 STD	263	-3.75	17.17	21.9	Pass
		Bracing						
T12	60 - 30	Redund Horz 1	ROHN 2 STD	302	-4.39	22.65	19.4	Pass
		Bracing						
T13	30 - 0	Redund Horz 1	ROHN 2 STD	353	-5.35	21.15	25.3	Pass
		Bracing						
T12	60 - 30	Redund Horz 2	ROHN 2 STD	303	-4.39	8.51	51.6	Pass
		Bracing						
T13	30 - 0	Redund Horz 2	ROHN 2 STD	354	-5.35	6.81	78.6	Pass
		Bracing						
T9	120 - 100	Redund Diag 1	ROHN 2 STD	198	-2.30	7.96	29.0	Pass
		Bracing						
T10	100 - 80	Redund Diag 1	ROHN 2 STD	236	-2.68	7.43	36.1	Pass
		Bracing						
T11	80 - 60	Redund Diag 1	ROHN 2 STD	264	-3.03	6.94	43.7	Pass
		Bracing						
T12	60 - 30	Redund Diag 1	ROHN 2 STD	313	-4.50	9.07	49.5	Pass
		Bracing						
T13	30 - 0	Redund Diag 1	ROHN 2 STD	355	-5.03	8.49	59.2	Pass
		Bracing						
T12	60 - 30	Redund Diag 2	ROHN 2 STD	305	-2.90	4.91	59.0	Pass
		Bracing						
T13	30 - 0	Redund Diag 2	ROHN 2 STD	365	-3.36	4.33	77.6	Pass
		Bracing						
T9	120 - 100	Redund Hip 1	ROHN 2 STD	207	-0.05	19.40	0.2	Pass
		Bracing						
T10	100 - 80	Redund Hip 1	ROHN 2 STD	240	-0.05	17.67	0.3	Pass
		Bracing						
T11	80 - 60	Redund Hip 1	ROHN 2 STD	273	-0.04	15.84	0.3	Pass
		Bracing						
T12	60 - 30	Redund Hip 1	ROHN 2 STD	320	-0.11	21.56	0.5	Pass
		Bracing						
T13	30 - 0	Redund Hip 1	ROHN 2 STD	371	-0.12	19.99	0.6	Pass

RISATower CENTEK Engineering, Inc. 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
	240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	61 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T12	60 - 30	Bracing Redund Hip 2	ROHN 2 STD	321	-0.05	7.82	0.6	Pass
T13	30 - 0	Bracing Redund Hip 2	ROHN 2 STD	372	-0.05	6.31	0.8	Pass
T9	120 - 100	Bracing Redund Hip Diagonal	ROHN 2 STD	208	-0.05	4.07	1.2	Pass
T10	100 - 80	Bracing Redund Hip Diagonal	ROHN 2 STD	241	-0.05	3.66	1.5	Pass
T11	80 - 60	Bracing Redund Hip Diagonal	ROHN 2 STD	274	-0.05	3.30	1.5	Pass
T12	60 - 30	Bracing Redund Hip Diagonal	ROHN 2 STD	323	-0.08	2.94	2.6	Pass
T13	30 - 0	Bracing Redund Hip Diagonal	ROHN 2 STD	374	-0.08	2.53	3.1	Pass
T1	240 - 220	Inner Bracing	L2x2x1/8	16	-0.00	2.97	0.2	Pass
T2	220 - 200	Inner Bracing	L2x2x1/8	65	-0.03	2.65	1.0	Pass
T3	200 - 180	Inner Bracing	L2x2x1/8	92	-0.08	1.89	4.0	Pass
T4	180 - 170	Inner Bracing	L2 1/2x2 1/2x3/16	107	-0.12	4.01	3.1	Pass
T5	170 - 160	Inner Bracing	L2 1/2x2 1/2x3/16	121	-0.14	3.49	4.1	Pass
T6	160 - 150	Inner Bracing	L3x3x3/16	136	-0.16	5.37	3.0	Pass
T7	150 - 140	Inner Bracing	L3x3x3/16	151	-0.19	4.74	4.1	Pass
T8	140 - 120	Inner Bracing	L3 1/2x3x1/4	178	-0.21	6.76	3.0	Pass
T9	120 - 100	Inner Bracing	P2x.154	211	-0.23	5.87	3.9	Pass
T10	100 - 80	Inner Bracing	P3x.216	245	-0.25	22.00	1.1	Pass
T11	80 - 60	Inner Bracing	P3x.216	278	-0.27	18.49	1.5	Pass
T12	60 - 30	Inner Bracing	P3x.216	328	-0.30	15.76	1.9	Pass
T13	30 - 0	Inner Bracing	P3x.216	379	-0.32	12.71	2.5	Pass
							Summary	
							Leg (T13)	53.6 Pass
							Diagonal (T9)	94.1 Pass
							Horizontal (T8)	77.5 Pass
							Top Girt (T12)	74.2 Pass
							Redund Horz 1 Bracing (T13)	25.3 Pass
							Redund Horz 2 Bracing (T13)	78.6 Pass
							Redund Diag 1 Bracing (T13)	59.2 Pass
							Redund Diag 2 Bracing (T13)	77.6 Pass
							Redund Hip 1 Bracing (T13)	0.6 Pass
							Redund Hip 2 Bracing (T13)	0.8 Pass
							Redund Hip Diagonal Bracing	3.1 Pass

<i>RISATower</i> <i>CEN TEK Engineering, Inc.</i> 63-2 N Branford Rd Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 240-ft ROHN SSMW Self-Support Lattice ~ Reinforced	Page 62 of 62
	Project 10001.CO78 - 1280 Chopsey Hill Road, Bridgeport, CT	Date 11:05:07 01/25/11
	Client Verizon Wireless	Designed by Staff

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
						(T13) Inner	4.1	Pass
						Bracing (T5)		
						Bolt Checks	73.5	Pass
						RATING =	94.1	Pass

Program Version 5.4.2.0 - 6/17/2010 File:J:\Jobs\1000100.WI\CO78 - North Bridgeport - 1280 Chopsey Hill Rd., Bridgeport, CT/Calculations/ERI
Files/Reinforced Tower/240 ROHN SSMW Lattice Bridgeport_CT_Reinforced.eri

Tower Anchor Bolt Analysis**Max Leg Reactions:**

Uplift =

Uplift := 289-kips

Shear =

Shear := 54-kips

Leg Reactions from RISA-Tower
Load Case 1

Compression =

Compression := 362-kips

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts =

 $N := 12$

Bolt Ultimate Strength =

 $F_u := 125\text{ksi}$

Bolt Yield Strength =

 $F_y := 109\text{ksi}$

Diameter of Anchor Bolts =

 $D := 1.0\text{in}$

Threads per Inch =

 $n := 8$

Coefficient of Friction =

 $\mu := 0.70$ **Anchor Bolt Area:**

Gross Area of Bolt =

$$A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot \text{in}^2$$

Net Area of Bolt =

$$A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot \text{in}}{n} \right)^2 = 0.606 \cdot \text{in}^2 \quad (\text{AISC 9th Ed. pg. 4-147})$$

Subject:

Anchor Bolt Analysis

Location:

Bridgeport, CT

Rev. 0: 01/25/11

Prepared by: J.R.M.
 Checked by: C.F.C.

Check Tensile Force:

Maximum Tensile Force (Gross Area) =

$$F_{\text{gross.area}} := 1.33 \cdot (0.33 \cdot A_g \cdot F_u) = 43.1 \cdot \text{kips}$$

Note: 1.33 increase
 allowed per
 TIA/EIA

Maximum Tensile Force (Net Area) =

$$F_{\text{net.area}} := 1.33 \cdot (0.60 \cdot A_n \cdot F_y) = 52.7 \cdot \text{kips}$$

Allowable Tension =

$$\text{AllowableTension} := \begin{cases} F_{\text{gross.area}} & \text{if } F_{\text{gross.area}} < F_{\text{net.area}} \\ F_{\text{net.area}} & \text{if } F_{\text{net.area}} < F_{\text{gross.area}} \end{cases}$$

$$\text{AllowableTension} = 43.1 \cdot \text{kips}$$

Applied Tension =

$$\text{MaxTension} := \frac{\text{Uplift}}{N} = 24.08 \cdot \text{kips}$$

$$\frac{\text{MaxTension}}{\text{AllowableTension}} = 55.9\%$$

$$\text{Condition1} := \text{if} \left(\frac{\text{MaxTension}}{F_{\text{net.area}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition1 = "OK"

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed
 Steel Transmission Structures

Required Area =

$$A_{s1} := \frac{\text{Uplift}}{F_y} + \frac{\text{Shear}}{\mu \cdot 85 \cdot F_y} = 3.5 \cdot \text{in}^2$$

$$A_{s2} := \left| \frac{\text{Shear} - (0.3 \cdot \text{Compression})}{\mu \cdot 85 \cdot F_y} \right| = 0.842 \cdot \text{in}^2$$

Provided Area =

$$A_{\text{sprovided}} := A_n \cdot N = 7.3 \cdot \text{in}^2 \quad \text{Ratio1} := \left(\frac{A_{s1}}{A_{\text{sprovided}}} \right) = 0.48$$

$$\text{Ratio2} := \left(\frac{A_{s2}}{A_{\text{sprovided}}} \right) = 0.12$$

$$\text{Condition2} := \text{if} \left(\frac{A_{s1}}{A_{\text{sprovided}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right) = \text{"OK"}$$

$$\text{Condition3} := \text{if} \left(\frac{A_{s2}}{A_{\text{sprovided}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right) = \text{"OK"}$$

Foundation Analysis**Input Data:**Max. Reactions at Tower Leg:

Shear =	Shear := 54-kips	(User Input)
Compression =	Comp := 361-kips	(User Input)
Uplift =	Uplift := 289-kips	(User Input)

Tower Properties:

Tower Height =	$H_t := 240\text{-ft}$	(User Input)
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Foundation Properties:

Pad Projection Above Grade =	$P_p := 0.5\text{-ft}$	(User Input)
Pad Width =	$PD_w := 22.0\text{-ft}$	(User Input)
Pad Thickness =	$PD_t := 6.1\text{-ft}$	(User Input)

Proposed Reinforced Foundation Properties:

Area of Proposed Reinforced Concrete Above Existing Foundation =	$A_{\text{Reinf}} := 364\text{ft}^2$	(User Input)
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Thickness of Proposed Reinforced Concrete Above Existing Foundation =	$T_{\text{Reinf}} := 3.0\text{ft}$	(User Input)
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Subgrade Properties:

Concrete Unit Weight =	$\gamma_c := 150\text{-pcf}$	(User Input)
Water Unit Weight =	$\gamma_w := 62.4\text{-pcf}$	(User Input)
Soil Unit Weight =	$\gamma_s := 100\text{-pcf}$	(User Input)
Unit Weight of Rock =	$\gamma_{\text{rock}} := 100\text{-pcf}$	(User Input)
Uplift Angle =	$\psi := 30.0\text{-deg}$	(User Input)
Soil Bearing Capacity =	$q_{\text{soil}} := 4000\text{-psf}$	(User Input)
Depth of Soil =	$D_{\text{soil}} := PD_t - P_p = 5.6\text{-ft}$	

Calculated Data:

Active Pressure =

$$K_a := \frac{(1 - \sin(\psi))}{(1 + \sin(\psi))} = 0.333$$

$$P_a := \frac{1}{2} \cdot (PD_t)^2 \cdot PD_w \cdot \gamma_s \cdot K_a = 13.64 \text{ kips}$$

Passive Pressure =

$$K_p := \frac{(1 + \sin(\psi))}{(1 - \sin(\psi))} = 3$$

$$P_p := \frac{1}{2} \cdot (PD_t)^2 \cdot PD_w \cdot \gamma_s \cdot K_p = 122.79 \text{ kips}$$

Cross Sectional Area of Pad =

$$A_{pad} := PD_w^2 = 484 \text{ ft}^2$$

Section Modulus of Pad =

$$S_{pad} := \frac{PD_w \cdot PD_w^2}{6} = 1774.7 \text{ ft}^3$$

Volume of Existing Concrete Pad =

$$V_{pad} := PD_w^2 \cdot PD_t = 2952.4 \text{ ft}^3$$

Volume of Proposed Concrete Pad =

$$V_{Reinf} := A_{Reinf} \cdot T_{Reinf} = 1092 \text{ ft}^3$$

Total Volume of Concrete =

$$V_{Conc} := V_{pad} + V_{Reinf} = 4044 \text{ ft}^3$$

$$H_s := PD_t - P_p = 5.6 \text{ ft}$$

$$B_1 := PD_w^2 = 484 \text{ ft}^2$$

$$B_2 := (2 \cdot \tan(\psi) \cdot H_s + PD_w)^2 = 810.3 \text{ ft}^2$$

Volume of Soil =

$$V_{Soil} := \left[\frac{(H_s)}{3} \cdot (B_1 + B_2 + \sqrt{B_1 \cdot B_2}) - V_{pad} \right] = 632.7 \text{ ft}^3$$

Mass of Soil =

$$Mass_{Soil} := V_{Soil} \cdot \gamma_s = 63.3 \text{ kips}$$

Mass of Concrete =

$$Mass_{Conc} := V_{Conc} \cdot \gamma_c = 606.7 \text{ kips}$$

Total Mass =

$$Mass_{Tot} := Mass_{Soil} + Mass_{Conc} = 669.93 \text{ kips}$$

Check Bearing:

Area of the Mat =

$$A_{\text{mat}} := PD_w^2 = 484 \text{ ft}^2$$

Section Modulus of Mat =

$$S := \frac{PD_w^3}{6} = 1774.67 \text{ ft}^3$$

Maximum Pressure in Mat =

$$P_{\text{max}} := \frac{\text{Mass}_{\text{Conc}} + \text{Comp}}{A_{\text{pad}}} + \frac{\text{Shear} \cdot (PD_t)}{S} = 2.18 \text{ ksf}$$

$$\text{Max_Pressure_Check} := \text{if}(P_{\text{max}} < q_{\text{soil}}, \text{"Okay"}, \text{"No Good"})$$

Max_Pressure_Check = "Okay"

(Note: Eccentricity Due to the Addition of Proposed Concrete Mass is Negligible When Considering Bearing Pressure)

Minimum Pressure in Mat =

$$P_{\text{min}} := \frac{\text{Mass}_{\text{Conc}} + \text{Comp}}{A_{\text{mat}}} - \frac{\text{Shear} \cdot (PD_t)}{S} = 1.814 \text{ ksf}$$

$$\text{Min_Pressure_Check} := \text{if}((P_{\text{min}} \geq 0) \cdot (P_{\text{min}} < q_{\text{soil}}), \text{"Okay"}, \text{"No Good"})$$

Min_Pressure_Check = "Okay"

(Note: Eccentricity Due to the Addition of Proposed Concrete Mass is Negligible When Considering Bearing Pressure)

Check Uplift:

Required Factor of Safety =

$$F_S := 2.0$$

$$\text{ActualFS} := \frac{\text{Mass}_{\text{Tot}}}{\text{Uplift}} = 2.32$$

$$\text{Uplift_Check} := \text{if}\left(\frac{\text{Mass}_{\text{Tot}}}{\text{Uplift}} \geq F_S, \text{"OK"}, \text{"Overstressed"}\right)$$

Uplift_Check = "OK"

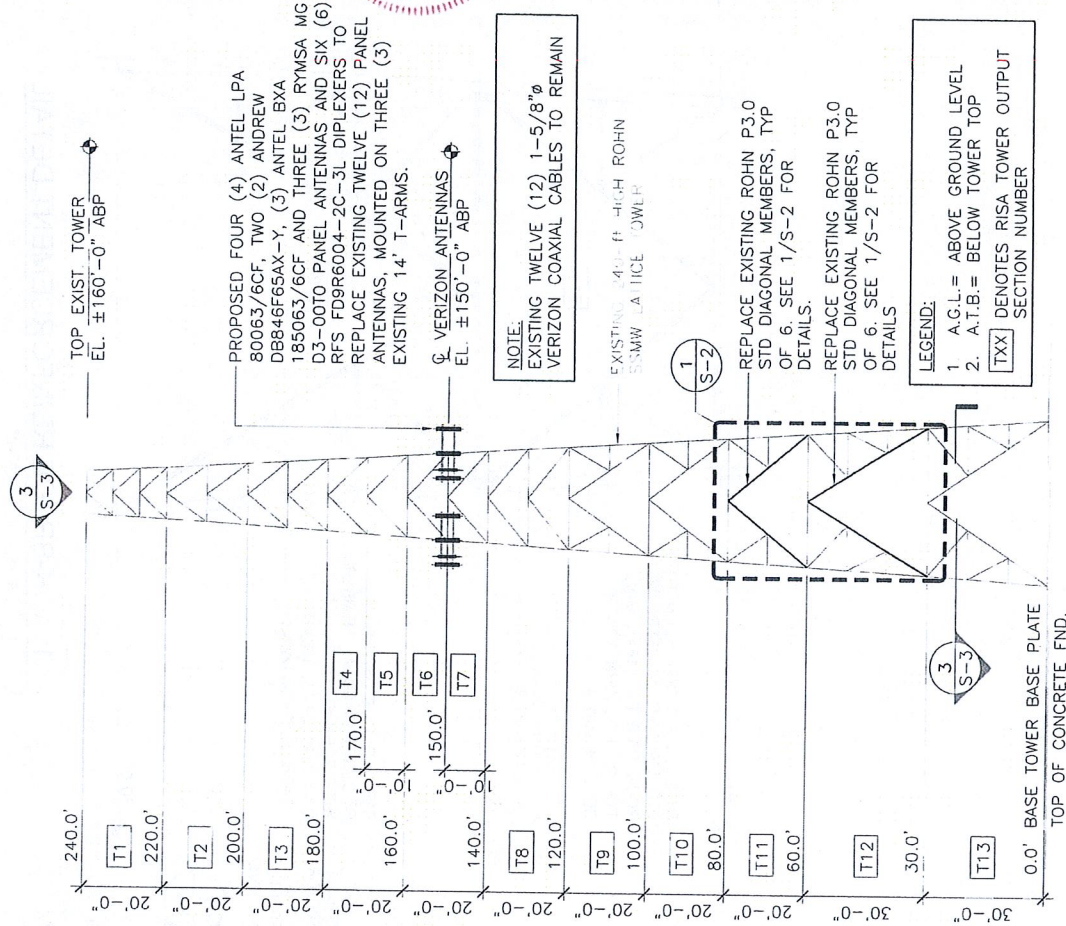
Proposed Tower
Reinforcement Drawings

1. REFER TO STRUCTURAL ANALYSIS PREPARED BY CENTEK ENGINEERING, INC., FOR VERIZON WIRELESS, DATED 12/06/10.

2. TOWER GEOMETRY, STRUCTURE MEMBER SIZES AND FOUNDATION INFORMATION OBTAINED FROM THE MANUFACTURER'S ORIGINAL DESIGN DRAWINGS (UNR-ROHN FILE NO. 23253DB); A PREVIOUS STRUCTURAL ANALYSIS REPORT PREPARED BY CHA, PROJECT JOB NO. 20621.1005.28000 R4, DATED JUNE 18, 2009 AND A TOWER MAPPING REPORT PREPARED BY CSB COMMUNICATION, LLC, DATED AUGUST 18, 2010.
3. THE REPLACEMENT OF TOWER MEMBERS SHALL BE DONE ONE AT A TIME AND SHALL BE CONDUCTED ON DAYS WITH LESS THAN 15 MPH WIND PRESENT.
NO MEMBER SHALL BE LEFT DISCONNECTED FOR THE NEXT WORKING DAY.
4. ALL REINFORCEMENT SHOWN HEREIN APPLIES TO ALL SIDES OF THE TOWER.
5. ALL REPLACEMENT MEMBERS SHALL BE INSTALLED WITH A325-N BOLTS (SIZE TO MATCH EXISTING).
6. COORDINATE INSTALLATION OF REINFORCEMENT WITH EXISTING ANTENNAS/APPURTENANCES. REFER TO RISA TOWER OUTPUT GRAPHIC SUMMARY FOR INFORMATION.
6. REPLACEMENT TOWER MEMBER CONTACT INFORMATION:

ROHN PRODUCTS LLC.,
6718 W. PLANK ROAD,
PEORIA, IL 61604
TEL: 1-800-727 ROHN
1-309-566-3000

PAINT ALL REPLACEMENT STEEL MEMBERS, COAXIAL CABLES AND HARDWARE WHERE NECESSARY TO MATCH EXISTING TOWER.



TOWER & MAST ELEVATION

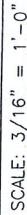
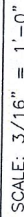
SCALE: 1" = 30'-0"

[illegible]

CENTEK engineering
C - more in Solution
(202) 488-0580
1332 North Broward Road
Fort Lauderdale, FL 33305
www.centek-engineering.com

VERIZON WIRELESS	PROPOSED WIRELESS COMMUNICATIONS AND/OR SERVICE	NORTH BRIDGEPORT	160' ROHN LATTICE TOWER REINFORCEMENT	12/06/10	DATE:
OB NO.	AS SHOWN	10001.00778	10001.00778	10/99	SCALE:
520 CHAFFET HILL ROAD BRIDGEPORT CT					

TOWER
ELEVATION
AND NOTES



SHEET NO. **S-3**
Sheet No. 3 of 11

PAINT NOTES CONTINUED

- PAINTING SCHEDULE:

PAINT NOTES CONTINUED

PAINTING SCHEDULE:

FIRST AND SECOND COAT:

FIRST AND SECOND COAT:

- ### 3. COAXIAL CABLES:

- A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
- B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
- C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. PHOSPHATE SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

PAINT NOTES

PAINTING SCHEDULE:

1. FERROUS METAL:
 - A. CLEAN SURFACE IN CONFORMANCE TO SSPC-SP-3 STANDARDS, POWER TOOL CLEANING.
PRIMER: APPLY ONE SPOT COAT OF TENEMEC SERIES 1 PRIMER @ 2.5-3.0 MILS DRY
FINISH COAT: APPLY TWO SPOT COATS OF TENEMEC SERIES 1029 (COLOR) AT 2.5 MILS PER COAT.
COLOR TO MATCH EXISTING BUILDING COLOR. OWNER TO APPROVE COLOR MATCH.
 2. ZINC COATED METAL: PROVIDE THE FOLLOWING FINISH SYSTEM OVER ZINC COATED METAL:
 - A. SEMIGLOSS ACRYLIC-ENAMEL FINISH: 2 FINISH COATS OVER A PRIMER.
PRIMER: GALVANIZED METAL PRIMER APPLIED AT SPREADING RATE RECOMMENDED BY THE MANUFACTURER TO ACHIEVE A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 1.2 MILS; BENJAMIN MOOR IRON CLAD GALVANIZED METAL LATEX PRIMER #155 OR APPROVED EQUAL.

[illegible]

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

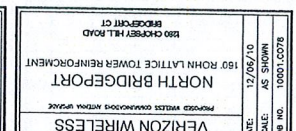
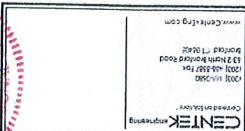
1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.

2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

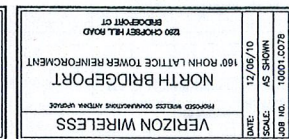
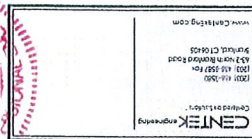
DESIGNED BY:	DATE	ISSUED FOR CONSTRUCTION	DATE	BY	DESCRIPTION
JAN	10/25/11				
JAN					
CFC					



1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:

- ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.
- ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
- ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION
- ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
- ACI 306.1 – STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING
- ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- CONCRETE SHALL BE AIR ENTRAINED AND SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:
ALL CONCRETE 3,500 PSI
- REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
- ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
- CONCRETE COVER OVER REINFORCING SHALL BE 3 INCHES.
- NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
- ALL REINFORCEMENT SHALL BE CONTINUOUS. SPLICES WILL NOT BE ALLOWED.
- NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
- NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1 % CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
- TOP OF FOOTING SURFACES SHALL RECEIVE A UNIFORM FLOAT FINISH. CURE FOOTING SURFACE WITH SONNEBORN KUPE-N-SEAL WB OR APPROVED EQUAL, APPLIED AS RECOMMENDED BY MANUFACTURER.
- PREPARATION OF SURFACES WHERE NEW CONCRETE WILL INTERFACE WITH EXISTING CAISSON: THE PERIMETER OF THE EXISTING CAISSON SHALL BE THOROUGHLY CLEANED OF ALL DIRT AND DELETERIOUS MATERIALS PRIOR TO APPLICATION OF BONDING AGENT. CONTRACTOR SHALL NOTIFY NORTHEAST UTILITIES 24 HOURS IN ADVANCE OF CLEANING.
- SKADUR 32, HI-MOD OR ENGINEER APPROVED EQUAL SHALL BE APPLIED, IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, TO ALL INTERFACING SURFACES BEFORE CONCRETE IS PLACED.
- CAULK JOINT BETWEEN EXISTING CONCRETE PIER AND NEW CONCRETE WITH SIKAFLEX 1-A BY SIKA CORP. OR ENGINEER APPROVED EQUAL.
- SUBMIT MANUFACTURER'S PRODUCT SPECIFICATION DATA AND INSTALLATION INSTRUCTIONS FOR REVIEW AND APPROVAL BY OWNER.
- NEW CONCRETE FOOTING SHALL BE ALLOWED TO CURE AT LEAST 14 DAYS BEFORE WIRELESS ANTENNA MOUNT, ANTENNAS, AND CABLES ARE INSTALLED.

13. INSPECTION AND TESTING OF CONCRETE WORK SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY, APPROVED AND PAID BY THE OWNER. THE INSPECTOR SHALL OBSERVE THE CONDITION OF SOILS AND FORMWORK BEFORE FOOTINGS ARE PLACED, SIZE, SPACING AND LOCATION OF REINFORCEMENT, AND PLACEMENT OF CONCRETE.
14. THE TESTING COMPANY SHALL ALSO OBTAIN A MINIMUM OF THREE (3) COMPRESSIVE STRENGTH TEST SPECIMENS FOR EACH CONCRETE MIX DESIGN. ONE SPECIMEN TESTED AT 7 DAYS, ONE AT 28 DAYS, AND ONE HELD IN RESERVE FOR FUTURE TESTING, IF NEEDED.
15. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE OWNER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

[illegible]

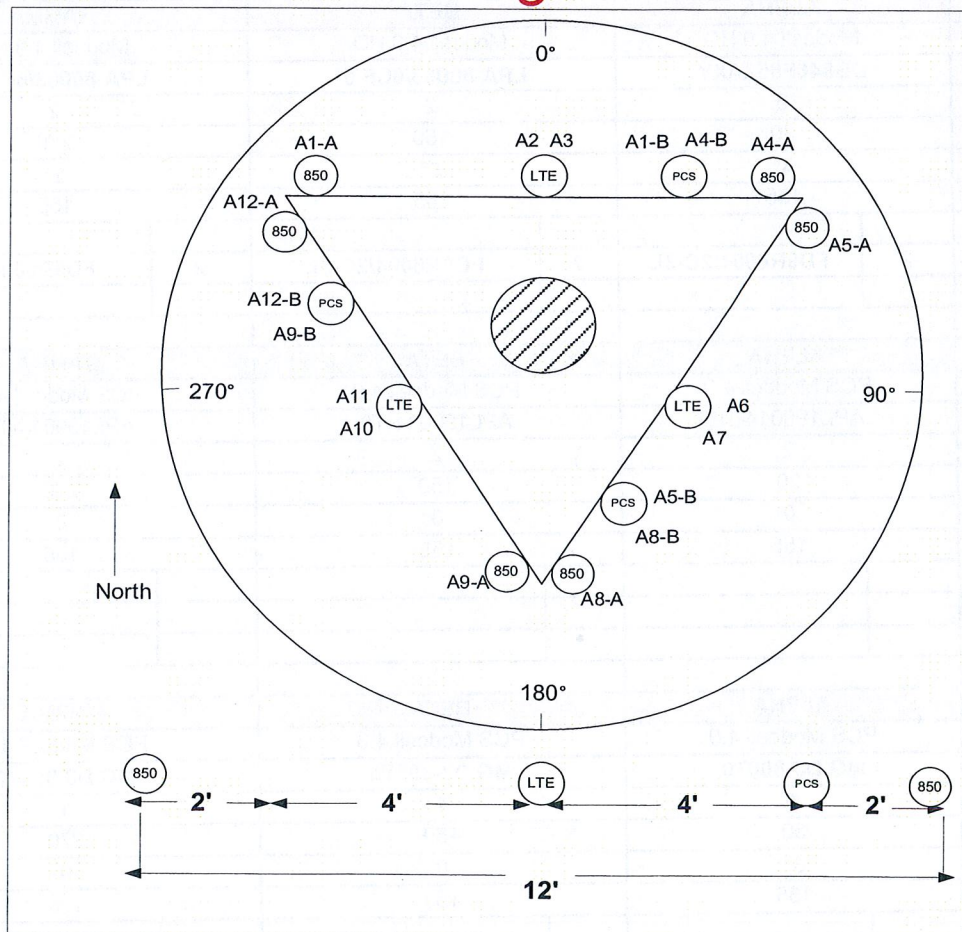
STRUCTURAL
NOTES

SHEET NO. **N-4**
Sheet No. $\frac{B}{1}$ of $\frac{1}{1}$

SITE NAME		N BRIDGEPORT CT		ECP - CELL #		5		33	
LATITUDE		41-13-10.35 N		LONGITUDE		73-12-06.40 W			
Additional Comments: LTE PHASE 2				SAVE BUTTON					
				STRUCTURE TYPE		LATTICE			
700 Mhz - LTE ANTENNA ADD		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		eNodeB		eNodeB		eNodeB			
ANTENNA TYPE		BXA-70063-6CF 5°		BXA-70063-6CF 6°		BXA-70063-6CF 4°			
QTY OF ANTENNAS PER FACE		1		1		1			
ORIENTATION (DEG)		30		160		300			
DOWN TILT (MECH/DEG)		0		6		0			
RAD CTR (FT AGL)		155		155		155			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
MCPA BRICKS (QTY)									
850 Cellular - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Modcell 4.0 HD		Modcell 4.0 HD		Modcell 4.0 HD			
ANTENNA TYPE		APL869012_T0		APL866513		APL866513			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		10		7			
RAD CTR (FT AGL)		155		155		155			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
850 Cellular - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Modcell 4.0 HD		Modcell 4.0 HD		Modcell 4.0 HD			
ANTENNA TYPE		DB846F65ZAXY		LPA-80063/6CF 5°		LPA-80063/6CF 5°			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		4°		5°		2°			
RAD CTR (FT AGL)		155		155		155			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL		2	FD9R6004/2C-3L	2	FD9R6004/2C-3L	2	FD9R6004/2C-3L		
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
1900 PCS - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0			
ANTENNA TYPE		APL199014-T0		APL199014-T0		APL199014-T0			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		155		155		155			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
900 PCS - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0			
ANTENNA TYPE		MG D3-800T0		MG D3-800T6		MG D3-800T6			
QTY OF ANTENNAS PER FACE		1		1		1			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		3°		0		0			
RAD CTR (FT AGL)		155		155		155			
TMA - QTY / MODEL									
DIPLEX WITH CELLULAR CABLE		DIPLEX with Cellular Cable		DIPLEX with Cellular Cable		DIPLEX with Cellular Cable			
MCPA BRICKS (QTY)									

NUMBER OF CABLE'S NEEDED								ESTIMATED CABLE LENGTH						
MAINLINE SIZE		1 5/8"		TOTAL # OF MAINLINES		12		MAINLINE (FT)						
JUMPER SIZE		1/2 "		TOTAL # OF TOP JUMPERS		18		TOP JUMPER (FT)		12				
Equipment Cable Ordering		MAIN CABLE		12		+		0		TOP JUMPER #		12	+	6
TX / RX FREQUENCIES								TX POWER OUTPUT						
Cellular A-Band				PCS F-Band				700 Mhz C - B		Cellular (Watts)		20		
TX - 869-880,890-891.5 MHz				TX - 1970-1975				TX - 746-757		PCS (Watts)		16		
RX - 824-835,845-846.5 MHz				RX - 1890-1895				RX - 776-787		LTE (Watts)		40		
ALPHA				BETA				GAMMA						
Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code			
A1-A	800	Tx1/Rx0	RED	A5-A	800	Tx2/Rx0	BLUE	A9-A	800	Tx3/Rx0	GREEN			
A1-B	1900	Tx1/Rx0	RED/ WHITE	A5-B	1900	Tx2/Rx0	BLUE/ WHITE	A9-B	1900	Tx3/Rx0	GREEN/WHITE			
A2	700	Tx1/Rx0	RED/ ORANGE	A6	700	Tx2/Rx0	BLUE/ ORANGE	A10	700	Tx3/Rx0	GREEN/ORANGE			
A3	700	Tx4/Rx1	RED/RED/ ORANGE	A7	700	Tx5/Rx1	BLUE/BLUE/ ORANGE	A11	700	Tx6/Rx1	GREEN/GREEN/ ORANGE			
A4-B	1900	Tx4/Rx1	RED/RED/ WHITE	A8-B	1900	Tx5/Rx1	BLUE/BLUE/ WHITE	A12-B	1900	Tx6/Rx1	GREEN/GREEN/ WHITE			
A4-A	800	Tx4/Rx1	RED/RED	A8-A	800	Tx5/Rx1	BLUE/BLUE	A12-A	800	Tx6/Rx1	GREEN/GREEN			
RF ENGINEER				RF MANAGER				INITIALS		DATE				
Prepared By : Dany Bustamante				Steve Weatherbee				DB		11/18/2010				

Site Configuration



Mechanical specifications

Length	1804 mm	71.0 in
Width	285 mm	11.2 in
Depth	114 mm	4.5 in
Depth with z-bracket	154 mm	6.1 in
Weight ⁴⁾	7.9 kg	17.0 lbs
Wind Area Fore/Aft	0.51 m ²	5.5 ft ²
Wind Area Side	0.21 m ²	2.2 ft ²
Max Wind Survivability	>201 km/hr	>125 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	753 N	169 lbf
Side	351 N	79 lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter $\varnothing 50$ -160 mm; $\varnothing 2.0$ -6.3 in

Mounting Bracket Kit	36210002
Downtilt Bracket Kit	36114003

Electrical specifications

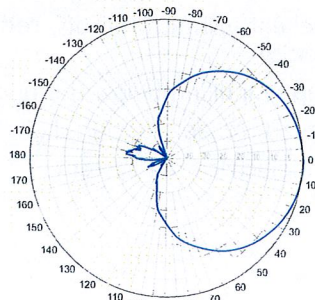
Frequency Range	696-900 MHz
Impedance	50 Ω
Connector ³⁾	NE or E-DIN Female 2 ports / Center
VSWR ¹⁾	$\leq 1.35:1$
Polarization	Slant $\pm 45^\circ$
Isolation Between Ports ¹⁾	< -25 dB
Gain ¹⁾	14.5 dBd 16.5 dBi
Power Rating ²⁾	500 W
Half Power Angle ¹⁾	
Horizontal Beamwidth	63°
Vertical Beamwidth	11°
Electrical downtilt ⁵⁾	2°
Null fill ¹⁾	5%
Lightning protection	Direct ground

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

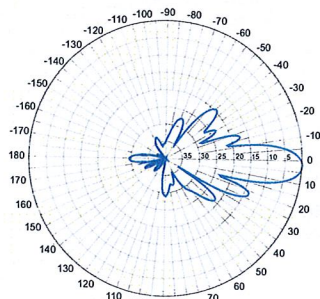
- 1) Typical values.
- 2) Power rating limited by connector only.
- 3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
- 4) Antenna weight does not include brackets.
- 5) Add'l downtilts may be available. Check website for details.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾
750 MHz

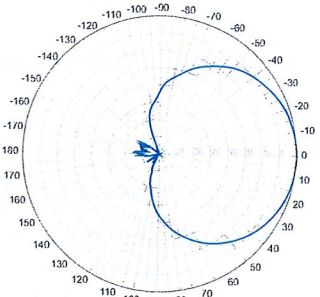


Horizontal

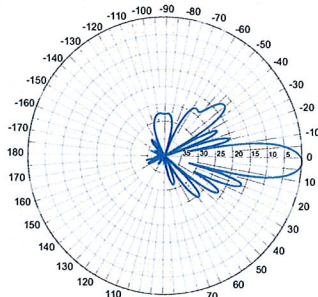


Vertical

850 MHz



Horizontal

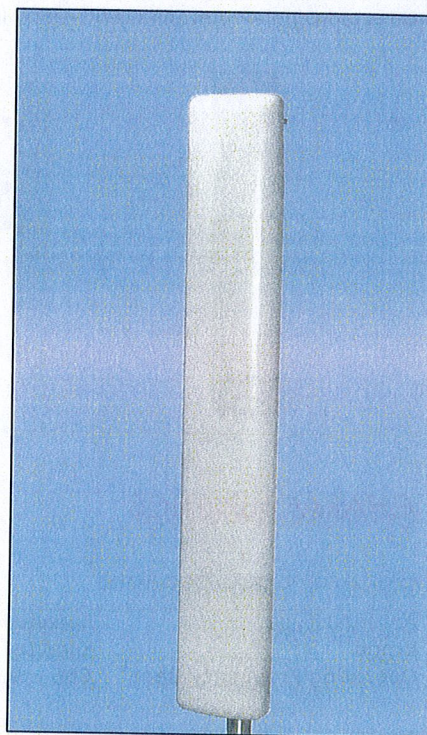


Vertical

696-900 MHz

BXA-70063/6CF 2°

When ordering replace " " with connector type.



Featuring our Exclusive
3T Technology™
Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:

This antenna is under a five-year limited warranty for repair or replacement.

Revision Date: 04/07/09

Product Specifications



DB846F65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Excellent azimuth roll-off, reducing soft hand-offs and improving capacity
- Deep null filling below the horizon for improved signal intensity
- Rugged, reliable design, light weight for low tower loading
- Air dielectric feed system

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	806–896	870–960
Beamwidth, Horizontal, degrees	65	60
Gain, dBd	14.5	14.8
Gain, dBi	16.6	16.9
Beamwidth, Vertical, degrees	11.0	10.5
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Front-to-Back Ratio at 180°, dB	40	40
VSWR	1.33:1	1.33:1
3rd Order IMD at 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance	50	50
Lightning Protection	dc Ground	dc Ground

Product Specifications



Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Wind Area, maximum	0.1 m ² 1.6 ft ²
Wind Loading, maximum	387.0 N @ 100 mph 87.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h 150.0 mph

Dimensions

Depth	215.9 mm 8.5 in
Length	1828.8 mm 72.0 in
Width	254.0 mm 10.0 in
Net Weight	9.5 kg 21.0 lb

Regulatory Compliance/Certifications

Agency

RoHS 2002/95/EC
China RoHS SJ/T 11364-2006

Classification

Compliant by Exemption
Logo 2



Included Products



DB5083

Downtilt Mounting Kit for 4.5 in (114.3 mm) OD round members



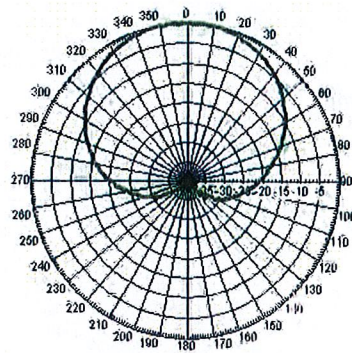
DB380

Pipe Mounting Kit for 4.5 in (114.3 mm) OD round members

Product Specifications

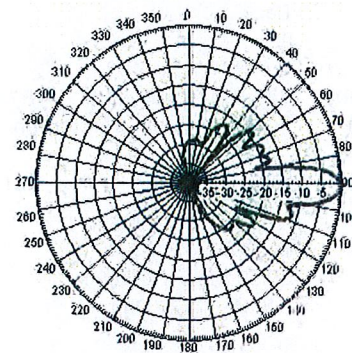


Horizontal Pattern

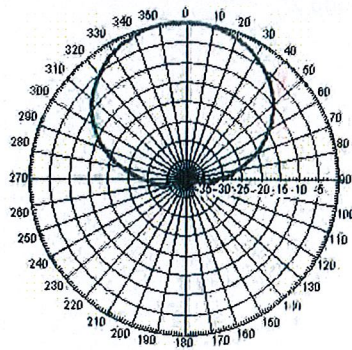


Freq: 850 MHz, Tilt: 0

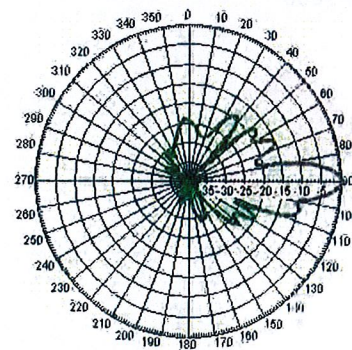
Vertical Pattern



Freq: 850 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

Vertically Polarized, Log Periodic 63° / 14.5 dBd

LPA-80063/6CF

When ordering, replace " " with connector type.

Mechanical specifications

Length	1800 mm	70.87 in
Width	380 mm	14.96 in
Depth	332 mm	13.07 in
4) Weight	12.25 kg	27 lbs
Wind Area		
Front	0.684 m ²	7.39 ft ²
Side	0.598 m ²	6.45 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>235 km/hr	>146 mph
Wind load @ 100 mph (161 km/hr)		
Front	993 N	223.3 lbs
Side	872 N	196.1 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #21699999

Downtilt bracket kit #21699999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

Frequency Range	806-960 MHz
Impedance	50Ω
3) Connector	NE, E-DIN
1) VSWR	≤1.4:1
Polarization	Vertical
1) Gain	14.5 dBd
2) Power Rating	500 W
1) Half Power Angle	
H-Plane	63°
E-Plane	10°
1) Electrical Downtilt	0°
1) Null Fill	10%
Lightning Protection	Direct Ground

1) Typical Values

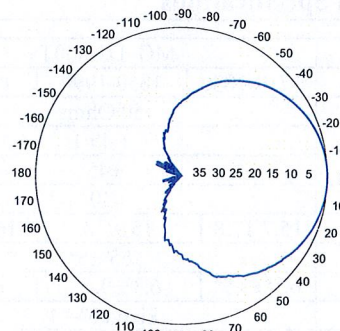
2) Power Rating limited by connector only.

3) NE indicates an elongated N Connector.
E-DIN indicates an elongated DIN Connector.

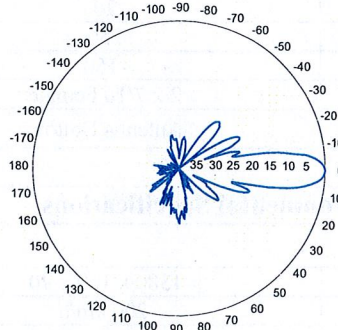
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern¹⁾



Horizontal



Vertical

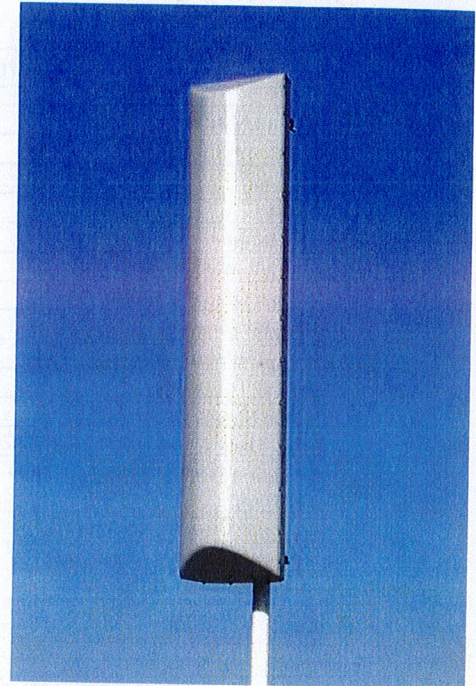
Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

CF Denotes a Center-Fed Connector.

806-960 MHz



**Amphenol Antel's
Exclusive 3T (True
Transmission Line
Technology)
Antenna Design:**

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

**Amphenol
Antel, Inc.**
The Antenna Technology Company

Revision Date: 12/1/05

MG D3-800Tx



Xpol GSM1800+PCS & UMTS Panel Antenna

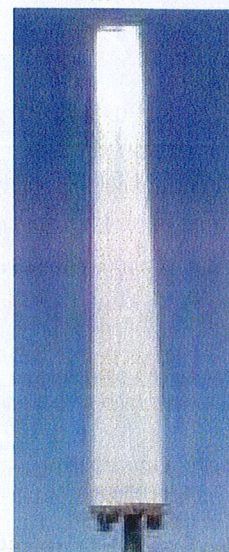
15.9 dBd/18 dBi

WIDE BAND 1710-2170 MHz

H 65° V 6.5°

Electrical Specifications

Antenna Model	MG D3-800Tx		
Frequency Range (MHz)	1710-1880	1850-1990	1920-2170
Impedance	50 Ohms		
VSWR	1.40:1		
Polarization	±45°		
Isolation between Ports (dB)	30		
Average Gain (dBd/dBi)	15.7/17.8	15.9/18	16.15/18.25
Horizontal Beamwidth (deg)	65°±5°		
Vertical Beamwidth (deg)	6.5°±0.5°	6.3°±0.5°	6.3°±0.5°
Electrical Tilt (deg)	Fixed 0°-14°		
Sidelobe Suppression (dB)	18	18	18
Front to Back Ratio (dB) @180°±20°	30		
Polarization Isolation (dB) @3 dB Beamwidth	20		
Maximum Power per Input (w)	250		
Intermodulation Products (dBc)	-150		
Connectors	2 x 7/16 Female		
Connector Position	Antenna Bottom		

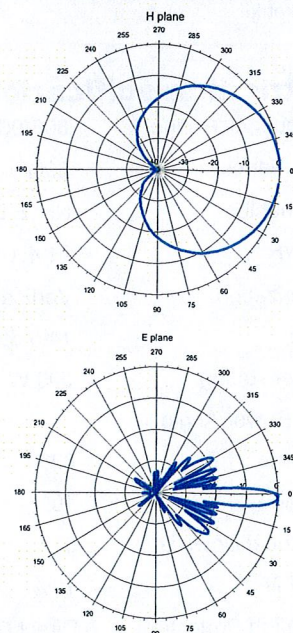


Mechanical & Environmental Specifications

Dimensions (mm)	1380 x 160 x 90
Survival Wind Speed	200 km/h
Front Windload (N) @ 160 km/h	335
Lateral Windload (N) @ 160 km/h	188
Antenna Weight (kg)	7
Clamps Weight (kg)	2
Mast Mounting	50 to 135 mm
Radome Color	Grey
Grounding	All metallic parts are DC grounded
Temperature Range	-55 to +60°C
Humidity	100 %

Shipping Specifications

Dimensions (mm)	1580 x 340 x 210
Weight (kg)	12
Material	Cardboard and Foam



Ctra. Campo Real, Km 2,100
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Madrid-Spain



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E-mail: telecom.comercial@rymsa.com
Web: www.rymsa.com



ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- LTE ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- Integrated DC block/bypass versions available
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket
- Kit available for easy dual mount

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Band, MHz	698-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710 - 2170 MHz path, with mounting hardware SEM2-1A
Mounting	Wall, pole
Frequency Range Low Frequency Path, MHz	698-960
Frequency Range High Frequency Path, MHz	1710-2200
Return Loss All Ports, Min, dB	19
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss 698-960 MHz Path, Typ, dB	0.07
Insertion Loss 1710-2200MHz path, Typ, dB	0.13
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
Rejection between Bands, Min, dB	60
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Application	LTE 700MHz, GSM900/3G/UMTS, GSM900/GSM1800, Cellular 800/PCS
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

RFS The Clear Choice®

FD9R6004/2C-3L

Rev: --

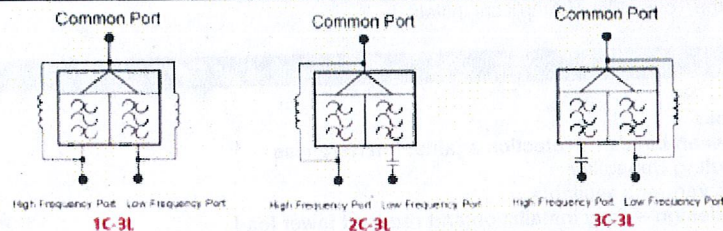
Print Date: 17.03.2010

Please visit us on the internet at <http://www.rfsworld.com/>

Radio Frequency Systems

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Selection Guide FD9R6004 Series					
Single Wideband Diplexer	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Indoor/ Outdoor	FD9R6004/1C-3L				
	FD9R6004/2C-3L				
	FD9R6004/3C-3L				



The FD9R6004 Series is upgradeable to a dual diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Mounting hardware, Wall and pole mount Ø40-110mm (Included with the product)	SEM2-1A	
Assembly kit for 2 pcs of FD9R6004/xC-3L (optional)	SEM2-3	
Ground cable, 2m, includes lugs (optional)	CA020-2	
Ground cable, 3m, includes lugs (optional)	CA030-2	
Mounting Hardware for 6 diplexers, Tower Base (optional)	SEM6	

It is also possible to select double diplexer kits including mounting hardware too.

Dual Diplexer Kit Ordering Information	
Kit consisting of (2) in-line long neck connector diplexers (Full DC Pass), (1) mounting hardware SEM2-1A, & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/1C-DL
Kit consisting of (2) in-line long neck connector diplexers (DC Pass High Band), (1) mounting hardware SEM2-1A & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/2C-DL
Kit consisting of (2) in-line long neck connector diplexers (DC Pass Low Band), (1) mounting hardware SEM2-1A & (1) assembly kit SEM2-3 disassembled	KIT-FD9R6004/3C-DL

