



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: siting.council@ct.gov

www.ct.gov/csc

October 11, 2011

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

RE: **EM-VER-032-110922** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1712 Main Street, Coventry, 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:

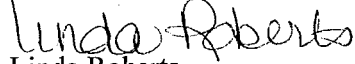
- The proposed reinforcements outlined in drawings S-1 through S-3 of the Structural Analysis prepared by Centek Engineering dated September 8, 2011 and stamped by Carlo Centore be implemented as recommended; and
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended bolt replacements 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 September 21, 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.

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,

A handwritten signature in cursive script that reads "Linda Roberts".

Linda Roberts
Executive Director

LR/CDM/laf

- c: The Honorable James E. Clark, Chairman Town Council, Town of Coventry
John A. Elsesser, Town Manager, Town of Coventry
Eric M. Trott, Director of Planning & Development, Town of Coventry

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ORIGINAL

September 21, 2011

RECEIVED
SEP 22 2011CONNECTICUT
SITING COUNCIL

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

Re: **Notice of Exempt Modification – Antenna Swap**
1712 Main Street, Coventry, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains wireless telecommunications antennas at the 150-foot level on the existing 190-foot tower at the above-referenced address. The tower and underlying property are owned by the Town of Coventry. The Council approved Cellco’s use of the existing tower in 2004. Cellco now intends to modify its facility by replacing six (6) of its cellular antennas with six (6) model APL 868013-42T0 cellular, at the same 150-foot level on the tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.



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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 John A. Elsesser, Town Manager for the Town of Coventry.

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

1. The proposed antenna modifications will not result in any increase in the overall height of the existing tower. Cellco’s antennas will be located at the same 150-foot level on the existing 190-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.

ROBINSON & COLE_{LLP}

Linda Roberts
September 21, 2011
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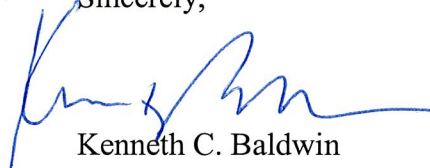
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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 power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antenna 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:

John A. Elsesser, Coventry Town Manager
Sandy M. Carter





Maximizer® Log Periodic Antenna, 806-894, 80deg, 14.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELLite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELLite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.

Features/Benefits

- 45 dB front-to-back ratio reduces co-channel interference.
- Monolithic construction reduces IM.
- No solder joints, high reliability.
- Surface treated components prevent galvanic corrosion.
- UV stabilized radome assures long life without radome deterioration due to UV exposure.



Technical Specifications

Electrical Specifications

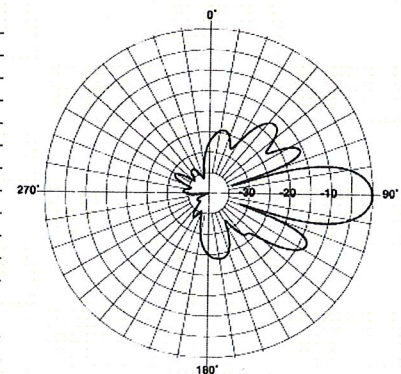
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	80
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	14.1 (12)
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

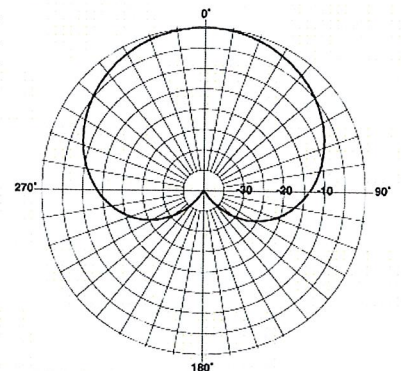
Dimensions - HxWxD, mm (in)	1219 x 152 x 203 (48 x 6 x 8)
Weight w/o Mtg Hardware, kg (lb)	2.8 (6.32)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.307 (3.3)
Maximum Thrust @ Rated Wind, N (lbf)	916 (206)
Wind Load - Side @ Rated Wind, N (lbf)	743 (167)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	7.9 (17.5)
Packing Dimensions, HxWxD, mm (in)	1270 x 305 x 203 (50 x 12 x 8)

Ordering Information

Mounting Hardware	APM21-3
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Vertical Pattern



Horizontal Pattern

Other Documentation

Site Name: Coventry E		General	Power	Density				
Tower Height: Verizon @ 150ft								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Nextel	12	100	130	0.0255	851	0.5673	4.50%	
*Unknown	1	80	190	0.0008	75.98	0.2000	0.40%	
*Unknown	1	1000	190	0.0100	449.875	0.2999	3.32%	
*Unknown	1	200	190	0.0020	33.8	0.2000	1.00%	
*Unknown	1	750	160	0.0105	450	0.3000	3.51%	
*Unknown	1	600	160	0.0084	450	0.3000	2.81%	
*Unknown	1	100	160	0.0014	450	0.3000	0.47%	
*Unknown	1	30	140	0.0006	145.63	0.2000	0.28%	
*Unknown	1	15	140	0.0003	440.925	0.2940	0.09%	
*Unknown	1	8	140	0.0001	173.20375	0.2000	0.07%	
*Unknown	1	30	190	0.0003	50.4	0.2000	0.15%	
*Unknown	1	2	120	0.0000	420.5	0.2803	0.02%	
*Unknown	1	250	190	0.0025	152.0075	0.2000	1.25%	
*Unknown	1	4	188	0.0000	903	0.6020	0.01%	
*Unknown	1	40	95	0.0016	33.44	0.2000	0.80%	
*Unknown	1	80	75	0.0051	45.4	0.2000	2.56%	
*Unknown	1	80	95	0.0032	45.14	0.2000	1.59%	
*Unknown	1	200	75	0.0128	33.8	0.2000	6.39%	
*Unknown	1	100	120	0.0025	153.955	0.2000	1.25%	
*Unknown	1	4	188	0.0000	903	0.6020	0.01%	
*Unknown	1	80	110	0.0024	45.1400	0.2000	1.19%	
*Unknown	1	50	115	0.0014	47.54	0.2000	0.68%	
*Pocket	3	631	95	0.0754	2130	1.0000	7.54%	
Verizon	11	434	150	0.0763	1970	1.0000	7.63%	
Verizon	9	357	150	0.0513	869	0.5793	8.86%	
								56.36%
* Source: Siting Council								



Centered on Solutions™

Structural Analysis Report

190' Existing Rohn Lattice Tower

*Proposed Verizon Wireless
Antenna Upgrade*

Verizon Site Ref: Coventry East

*1712 Main Street
Coventry, CT*

Centek Project No. 11001.CO46

Date: September 8, 2011



Prepared for:

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

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Introduction

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

The host tower is a 190-ft, three legged, lattice tower originally manufactured by ROHN eng. file no. 33814PH dated 7/24/96. The tower geometry, structure member sizes and foundation information were taken from a previous structural report prepared by All Points Technology Corporation dated March 4, 2004. Antenna and appurtenance inventory were taken from the aforementioned APT structural report, a Verizon RF data sheet and visual verification from grade by Centek personnel on August 1, 2011.

The tower consists of ten (10) vertical sections consisting of steel pipe legs conforming to ASTM A572 Gr. 50 and lateral bracing conforming to ASTM A572 Gr. 50 and ASTM A36. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 4-ft 8-in at the top and 19-ft 0-in at the bottom.

Verizon Wireless proposes the removal of six (6) panel antennas and the installation of six (6) panel antennas mounted on three (3) existing sector mounts. 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: Two (2) obstruction lights, one (1) PD1142-3 Omni-directional whip antenna, one (1) ASP705 Omni-directional whip antenna, one (1) DB420 dipole antenna and one (1) 3' yagi pipe mounted to the top of the tower.
Coax Cable: Two (2) 1-1/4" $\varnothing$ and two (2) 7/8" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) PD1142-2A Omni-directional whip antenna, one (1) ASP705 Omni-directional whip antenna, one (1) 4' Omni-directional whip antenna, one (1) 3' yagi, one (1) halo and one (1) paraflector grid mounted on three (3) 4-ft side arms with an elevation of ± 188 -ft above grade level.
Coax Cable: Three (3) 7/8" $\varnothing$ and three (3) 1/2" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
Antenna: Six (6) Andrew DB980H90E-M panel antennas mounted on three (3) 14-ft boom gates with a RAD center elevation of ± 180 -ft above grade level.
Coax Cable: Six (6) 1-5/8" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
Antenna: Two (2) ASP705 Omni-directional whip antennas and one (1) 3-ft dish mounted on two (2) 4-ft side arms with an elevation of ± 156 -ft above grade level.
Coax Cable: Three (3) 7/8" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: Two (2) paraflector grid antennas, one (1) DB264 dipole antenna and one (1) DB436 yagi mounted on two (2) 4-ft side arms with an elevation of ± 142 -ft above grade level.
Coax Cable: Two (2) 7/8" $\varnothing$ and one (1) 1/2" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) DB230 yagi leg mounted with an elevation of ± 142 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) single dipole antenna leg mounted with an elevation of ± 136 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- Nextel (Existing):
Antenna: Twelve (12) Andrew DB844H90E-XY panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ± 130 -ft above grade level.
Coax Cable: Twelve (12) 1-1/4" $\varnothing$ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) Dipole antenna mounted on one (1) 4-ft side arm with an elevation of ± 113 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) PD320 dipole antenna leg mounted with an elevation of ± 110 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) 14-ft Omni-directional whip antenna mounted on one (1) 4-ft side arm with an elevation of ± 109 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
Antenna: One (1) 14-ft Omni-directional whip antenna mounted on one (1) 4-ft side arm with an elevation of ± 103 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) GPS antenna mounted on a 1-ft standoff pipe with an elevation of ± 102 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) DB212 single dipole antenna leg mounted with an elevation of ± 94 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) single dipole antenna leg mounted with an elevation of ± 92 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) PD320 dipole antenna leg mounted with an elevation of ± 74 -ft above grade level.
Coax Cable: One (1) 7/8" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) single dipole antenna leg mounted with an elevation of ± 70 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) single dipole antenna leg mounted with an elevation of ± 50 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) DB212 single dipole antenna leg mounted with an elevation of ± 50 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
Antenna: One (1) DB212 single dipole antenna leg mounted with an elevation of ± 32 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) single dipole antenna leg mounted with an elevation of ± 31 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
Antenna: One (1) PD 400 Omni-directional whip antenna and one (1) 3-ft yagi mounted on one (1) 4-ft side arm with an elevation of ± 17 -ft above grade level.
Coax Cable: One (1) 1/2" $\varnothing$ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing to Remain):
Antennas: Six (6) Andrew DB948F85T2E-M panel antennas mounted on (3) 12-ft T-Frames with a RAD center elevation of ± 150 -ft above grade level.
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) Andrew DB844H90E-XY panel antennas mounted on (3) 12-ft T-Frames with a RAD center elevation of ± 150 -ft above grade level.
- **VERIZON (Proposed):**
Antennas: Six (6) RFS APL868013-42T0 panel antennas mounted on (3) 12-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 should be 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 85 mph basic wind speed (fastest mile) with no ice and 74 mph 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:	Tolland v = 85 mph (fastest mile) Coventry; v = 100 mph (3 second gust) equivalent to v = 80 mph (fastest mile) <i>TIA/EIA wind speed controls.</i>	[Section 16 of TIA/EIA-222-F-96] [Appendix K of the 2005 CT Building Code Supplement]
Load Cases:	<u>Load Case 1</u> ; 85 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design of monopole towers. <u>Load Case 2</u> ; 74 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 74 mph wind speed velocity represents 75% of the wind pressure generated by the 85 mph wind speed. This load case typically controls the design of lattice towers. <u>Load Case 3</u> ; Seismic – not checked	[Section 2.3.16 of TIA/EIA-222-F-96] [Section 2.3.16 of TIA/EIA-222-F-96] [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 NOT found** to be within allowable limits. However, with the implementation of the reinforcements outlined on drawings S-1 thru S-3 in Section 3 of this report the tower shall be considered to be within the allowable limits. In Load Case 2, per RISATower "Section Capacity Table", this tower was found to be **112.0%** of its total capacity without reinforcement and **99.5%** with the reinforcement.

Condition	Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Existing Tower	Diagonal (T5)	100'-0"-120'-0"	112.0%	FAIL
	Leg (T7)	60'-0"-80'-0"	99.4%	PASS
Reinforced Tower	Diagonal (T7)	60'-0"-80'-0"	91.1%	PASS
	Leg (T7)	60'-0"-80'-0"	99.5%	PASS

Foundation and Anchors

The existing foundation consists of a 32-ft square x 4.5-ft thick reinforced concrete mat. The base of the tower is connected to the foundation by means of (24) 1.00"Ø, ASTM A354 Gr. BC anchor bolts embedded approximately 5.5-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 2 were used in the verification of the foundation:

Reactions	Vector	Proposed Base Reactions
Base	Shear	43 kips
	Compression	51 kips
	Moment	4481 kip-ft
Leg	Shear	28 kips
	Uplift	253 kips
	Compression	289 kips

CEN TEK Engineering, Inc.
Structural Analysis - 190-ft Rohn Lattice Tower
Verizon Wireless Antenna Upgrade – Coventry East
Coventry, CT
September 8, 2011

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

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	71.4%	PASS

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS) ⁽¹⁾	Proposed Loading (FS) ⁽¹⁾	Result
Reinforced Concrete Mat	OM ⁽²⁾	2.0	2.4	PASS

Note 1: FS denotes Factor of Safety

Note 2: OM denotes Overturning Moment.

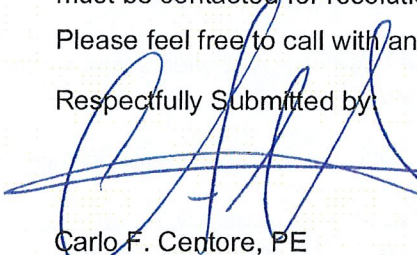
Conclusion

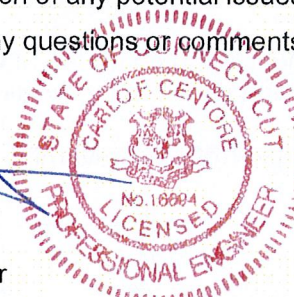
This analysis shows that the subject tower with the proposed reinforcements outlined on drawing S-1 thru S-3 within section 3 of this report **is adequate** to support the proposed modified antenna configuration.

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.

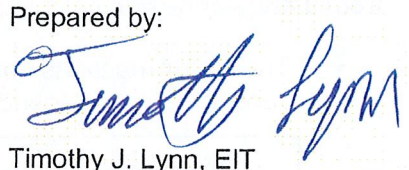
Please feel free to call with any questions or comments.

Respectfully Submitted by:


Carlo F. Centore, PE
Principal ~ Structural Engineer



Prepared by:


Timothy J. Lynn, EIT
Structural Engineer

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.

CEN TEK Engineering, Inc.

Structural Analysis - 190-ft Rohn Lattice Tower
Verizon Wireless Antenna Upgrade – Coventry East
Coventry, CT
September 8, 2011

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.

TYPE	ELEVATION	TYPE	ELEVATION
(2) Obstruction Lights	192	DB948F85T2E-M (Verizon Existing)	150
PD1142-3	192	APL868013-42T0 (Verizon Proposed)	150
ASP-705	192	APL868013-42T0 (Verizon Proposed)	150
ASP-705	192	DB948F85T2E-M (Verizon Existing)	150
DB420	192	Paraflector	144
Halo	192	Pirod 4' Side Mount Standoff (1)	142
4' x 3" DIA Omni	190	DB264-A	142
3' Yagi	190	DB436-C	142
3' Yagi	190	DB230-2A	142
Pirod 4' Side Mount Standoff (1)	188	Pirod 4' Side Mount Standoff (1)	142
Pirod 4' Side Mount Standoff (1)	188	Paraflector	140
Pirod 4' Side Mount Standoff (1)	188	Single Dipole	136
Paraflector	187	10-ft T-Frame (Nextel Existing)	130
PD1142-2A	187	10-ft T-Frame (Nextel Existing)	130
Rohn 6'x14' Boom Gate (3) (Sprint Existing)	180	10-ft T-Frame (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
Pirod 4' Side Mount Standoff (1)	156	Pirod 4' Side Mount Standoff (1)	113
ASP-705	156	Dipole	113
Pirod 4' Side Mount Standoff (1)	156	PD320	110
ASP-705	156	Pirod 4' Side Mount Standoff (1)	109
3-ft dish	156	14' x 3" Dia Omni	109
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	14' x 3" Dia Omni	103
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	Pirod 4' Side Mount Standoff (1)	103
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	GPS	102
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	1' Standoff Pipe	102
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	DB212 Single Dipole	94
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	150	15-ft Single Dipole	92
DB948F85T2E-M (Verizon Existing)	150	PD320	74
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	70
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	50
DB948F85T2E-M (Verizon Existing)	150	DB212 Single Dipole	50
DB948F85T2E-M (Verizon Existing)	150	DB212 Single Dipole	32
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	31
APL868013-42T0 (Verizon Proposed)	150	PD400	17
DB948F85T2E-M (Verizon Existing)	150	3' Yagi	17
		Pirod 4' Side Mount Standoff (1)	17

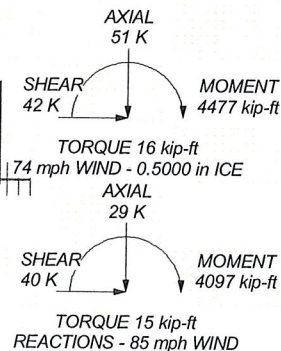
MARK	SIZE	MARK	SIZE
A	ROHN 2 STD	B	L1 3/4x1 3/4x3/16

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.

4. TOWER RATING: 112%

MAX. CORNER F4:
DOWN: 289 K
UPLIFT: -253 K
SHEAR: 28 K



Job: 11001.CO46 - Coventry East		
Project: 190' Rohn Lattice Tower - 1712 Main St., Coventry, CT		
Client: Verizon Wireless	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 09/08/11	Scale: NTS
Path:		Dwg No. E 1

	Round	Flat	App In Face	App Out Face
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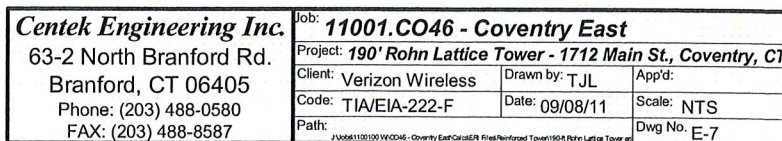
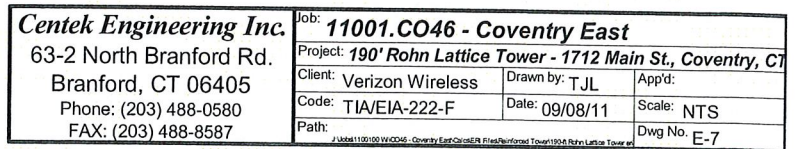


Diagram illustrating the components of a truss leg assembly:

- Round
- Flat
- App In Face
- App Out Face
- Truss Leg



<i>RISATower</i> Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page 1 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:33:52 09/08/11
	Client	Verizon Wireless	Designed by TJL

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 190.00 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 4.65 ft at the top and 19.00 ft at the base.

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

The following design criteria apply:

Basic wind speed of 85 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 74 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

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

Pressures are calculated at each section.

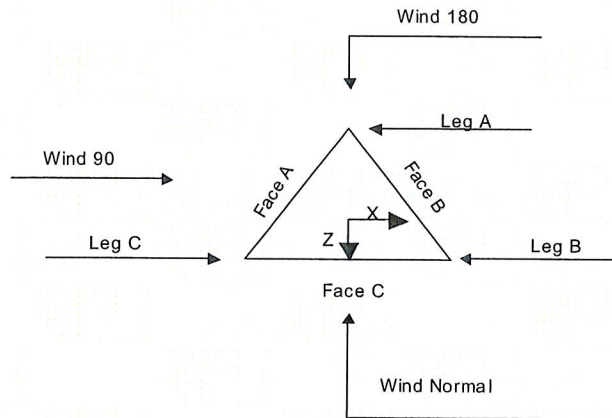
Stress ratio used in tower member design is 1.333.

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		

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	Client	Verizon Wireless	Designed by	TJL



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	190.00-180.00			4.65	1	10.00
T2	180.00-160.00			4.65	1	20.00
T3	160.00-140.00			4.69	1	20.00
T4	140.00-120.00			4.72	1	20.00
T5	120.00-100.00			6.76	1	20.00
T6	100.00-80.00			8.83	1	20.00
T7	80.00-60.00			10.83	1	20.00
T8	60.00-40.00			12.92	1	20.00
T9	40.00-20.00			14.85	1	20.00
T10	20.00-0.00			16.99	1	20.00

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	190.00-180.00	5.00	X Brace	No	Yes	0.0000	0.0000
T2	180.00-160.00	4.00	X Brace	No	No	0.0000	0.0000
T3	160.00-140.00	4.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	4.00	X Brace	No	Yes	0.0000	0.0000
T5	120.00-100.00	5.00	X Brace	No	No	0.0000	0.0000

<i>RISA Tower</i> Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	3 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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
T6	100.00-80.00	6.67	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	6.67	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	6.67	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 190.00-180.00	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.00-160.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T5 120.00-100.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 80.00-60.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T9 40.00-20.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T10 20.00-0.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
T1 190.00-180.00	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T4 140.00-120.00	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	Page
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	Client Verizon Wireless	Designed by TJL

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 190.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 190.00-180.00	Yes	Yes	1	1	1	1	1	1	1	1
T2 180.00-160.00	Yes	Yes	1	1	1	1	1	1	1	1
T3 160.00-140.00	Yes	Yes	1	1	1	1	1	1	1	1
T4 140.00-120.00	Yes	Yes	1	1	1	1	1	1	1	1
T5 120.00-100.00	Yes	Yes	1	1	1	1	1	1	1	1
T6 100.00-80.00	Yes	Yes	1	1	1	1	1	1	1	1
T7 80.00-60.00	Yes	Yes	1	1	1	1	1	1	1	1
T8 60.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1
T9 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1
T10 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1

¹Note: 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.

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	5 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

Tower Section Geometry (cont'd)

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
T1 190.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

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 190.00-180.00	Flange	0.6250	4	0.6250	1	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T2 180.00-160.00	Flange	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 160.00-140.00	Flange	0.7500	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T4 140.00-120.00	Flange	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5 120.00-100.00	Flange	0.8750	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T6 100.00-80.00	Flange	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 80.00-60.00	Flange	0.8750	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T8 60.00-40.00	Flange	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 40.00-20.00	Flange	1.0000	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T10 20.00-0.00	Flange	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
		1.0000	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
		0.7500	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
		A354-BC		A325N		A325N		A325N		A325X		A325N		A325X	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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 (Verizon Existing)	B	Yes	Ar (CfAe)	150.00 - 0.00	-2.0000	-0.3	12	12	1.9800	1.9800		1.04
1 1/4 (Nextel Existing)	A	Yes	Ar (CfAe)	130.00 - 0.00	-2.0000	0	12	12	1.5500	1.5500		0.66
1 5/8 (Sprint Existing)	A	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1 5/8 (Sprint Existing)	B	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1 5/8 (Sprint Existing)	C	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1/2	A	Yes	Ar (CfAe)	50.00 - 0.00	0.0000	0.07	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	70.00 - 0.00	0.0000	0.06	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	94.00 - 0.00	0.0000	0.05	1	1	0.5800	0.5800		0.25
7/8	A	Yes	Ar (CfAe)	156.00 - 0.00	0.0000	0.03	2	2	1.1100	1.1100		0.54
1/2	A	Yes	Ar (CfAe)	185.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	32.00 - 0.00	0.0000	-0.03	1	1	0.5800	0.5800		0.25
1 1/4	A	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.05	1	1	1.5500	1.5500		0.66
1/2	A	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.06	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	17.00 - 0.00	0.0000	-0.07	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	92.00 - 0.00	0.0000	0.08	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	0.07	1	1	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	0.06	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	156.00 - 0.00	0.0000	0.05	1	1	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.04	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.025	2	2	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	102.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.05	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	109.00 - 0.00	0.0000	-0.06	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.06	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	110.00 - 0.00	0.0000	0.05	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.04	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	136.00 - 0.00	0.0000	0.03	1	1	0.5800	0.5800		0.25
1/2	C	Yes	Ar (CfAe)	113.00 - 0.00	0.0000	0.02	1	1	0.5800	0.5800		0.25
1/2	C	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
7/8	C	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	-0.03	1	1	1.1100	1.1100		0.54
1 1/4	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.04	1	1	1.5500	1.5500		0.66
7/8	C	Yes	Ar (CfAe)	103.00 - 0.00	0.0000	-0.05	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	31.00 - 0.00	0.0000	-0.06	1	1	0.5800	0.5800		0.25
7/8	C	Yes	Ar (CfAe)	74.00 - 0.00	0.0000	-0.07	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	50.00 - 0.00	0.0000	-0.08	1	1	0.5800	0.5800		0.25

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	190.00-180.00	A	2.017	0.000	0.000	0.000	0.01
		B	3.258	0.000	0.000	0.000	0.02
		C	3.142	0.000	0.000	0.000	0.02
T2	180.00-160.00	A	4.517	0.000	0.000	0.000	0.02
		B	6.517	0.000	0.000	0.000	0.04

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	Client	Verizon Wireless	Designed by TJL

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
T3	160.00-140.00	C	6.283	0.000	0.000	0.000	0.03
		A	10.777	0.000	0.000	0.000	0.06
		B	31.378	0.000	0.000	0.000	0.19
T4	140.00-120.00	C	9.865	0.000	0.000	0.000	0.06
		A	30.317	0.000	0.000	0.000	0.17
		B	57.383	0.000	0.000	0.000	0.36
T5	120.00-100.00	C	16.473	0.000	0.000	0.000	0.10
		A	45.817	0.000	0.000	0.000	0.24
		B	58.313	0.000	0.000	0.000	0.36
T6	100.00-80.00	C	18.497	0.000	0.000	0.000	0.11
		A	46.493	0.000	0.000	0.000	0.25
		B	61.310	0.000	0.000	0.000	0.38
T7	80.00-60.00	C	21.333	0.000	0.000	0.000	0.12
		A	47.267	0.000	0.000	0.000	0.25
		B	62.050	0.000	0.000	0.000	0.38
T8	60.00-40.00	C	22.628	0.000	0.000	0.000	0.13
		A	48.233	0.000	0.000	0.000	0.26
		B	62.050	0.000	0.000	0.000	0.38
T9	40.00-20.00	C	23.667	0.000	0.000	0.000	0.14
		A	49.297	0.000	0.000	0.000	0.26
		B	62.050	0.000	0.000	0.000	0.38
T10	20.00-0.00	C	24.682	0.000	0.000	0.000	0.14
		A	50.505	0.000	0.000	0.000	0.27
		B	62.050	0.000	0.000	0.000	0.38
		C	25.117	0.000	0.000	0.000	0.14

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	$C_A A_A$ In Face ft^2	$C_A A_A$ Out Face ft^2	Weight K
T1	190.00-180.00	A	0.500	4.100	0.000	0.000	0.000	0.03
		B		6.592	0.000	0.000	0.000	0.05
		C		5.642	0.000	0.000	0.000	0.05
T2	180.00-160.00	A	0.500	9.517	0.000	0.000	0.000	0.07
		B		13.183	0.000	0.000	0.000	0.11
		C		11.283	0.000	0.000	0.000	0.10
T3	160.00-140.00	A	0.500	20.110	0.000	0.000	0.000	0.17
		B		51.378	0.000	0.000	0.000	0.50
		C		16.865	0.000	0.000	0.000	0.16
T4	140.00-120.00	A	0.500	51.983	0.000	0.000	0.000	0.47
		B		92.383	0.000	0.000	0.000	0.90
		C		29.473	0.000	0.000	0.000	0.26
T5	120.00-100.00	A	0.500	77.483	0.000	0.000	0.000	0.70
		B		94.229	0.000	0.000	0.000	0.92
		C		33.998	0.000	0.000	0.000	0.30
T6	100.00-80.00	A	0.500	79.327	0.000	0.000	0.000	0.71
		B		100.643	0.000	0.000	0.000	0.97
		C		39.667	0.000	0.000	0.000	0.35
T7	80.00-60.00	A	0.500	81.433	0.000	0.000	0.000	0.72
		B		102.050	0.000	0.000	0.000	0.98
		C		42.128	0.000	0.000	0.000	0.37
T8	60.00-40.00	A	0.500	84.067	0.000	0.000	0.000	0.74
		B		102.050	0.000	0.000	0.000	0.98
		C		44.500	0.000	0.000	0.000	0.39
T9	40.00-20.00	A	0.500	86.963	0.000	0.000	0.000	0.76
		B		102.050	0.000	0.000	0.000	0.98
		C		47.265	0.000	0.000	0.000	0.41

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	Client	Verizon Wireless	Designed by	TJL

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
T10	20.00-0.00	A	0.500	90.255	0.000	0.000	0.000	0.78
		B		102.050	0.000	0.000	0.000	0.98
		C		48.450	0.000	0.000	0.000	0.41

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	190.00-180.00	A	0.000	0.235	0.202	0.411
		B	0.000	0.378	0.327	0.661
		C	0.000	0.323	0.315	0.566
T2	180.00-160.00	A	0.000	0.522	0.434	0.914
		B	0.000	0.723	0.626	1.266
		C	0.000	0.619	0.603	1.083
T3	160.00-140.00	A	0.000	1.100	1.031	1.925
		B	0.000	2.810	3.003	4.917
		C	0.000	0.922	0.944	1.614
T4	140.00-120.00	A	0.000	2.868	2.927	5.020
		B	0.000	5.098	5.541	8.921
		C	0.000	1.626	1.591	2.846
T5	120.00-100.00	A	0.000	3.075	3.182	5.381
		B	0.000	3.740	4.050	6.544
		C	0.000	1.349	1.285	2.361
T6	100.00-80.00	A	0.000	2.399	3.515	5.998
		B	0.000	3.044	4.636	7.610
		C	0.000	1.200	1.613	2.999
T7	80.00-60.00	A	0.000	2.336	3.390	5.841
		B	0.000	2.928	4.451	7.320
		C	0.000	1.209	1.623	3.022
T8	60.00-40.00	A	0.000	2.332	4.014	6.997
		B	0.000	2.831	5.164	8.493
		C	0.000	1.235	1.970	3.704
T9	40.00-20.00	A	0.000	1.712	2.912	5.137
		B	0.000	2.009	3.665	6.028
		C	0.000	0.931	1.458	2.792
T10	20.00-0.00	A	0.000	1.721	3.371	6.025
		B	0.000	1.946	4.142	6.812
		C	0.000	0.924	1.677	3.234

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	190.00-180.00	0.3629	0.3944	0.4331	0.2891
T2	180.00-160.00	0.2511	0.3282	0.2667	0.2053
T3	160.00-140.00	0.5751	-3.6387	0.5528	-3.5893
T4	140.00-120.00	-0.1400	-6.3530	-0.1372	-6.0634
T5	120.00-100.00	-1.4115	-8.4892	-1.4650	-8.1291
T6	100.00-80.00	-1.1985	-9.2808	-1.2278	-9.1911
T7	80.00-60.00	-1.2980	-10.7600	-1.3722	-10.6527

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Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
T8	60.00-40.00	-1.3967	-11.0429	-1.5926	-11.2226
T9	40.00-20.00	-1.8121	-13.3249	-2.1482	-13.3574
T10	20.00-0.00	-1.9877	-13.1174	-2.5816	-13.5807

Discrete Tower Loads

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
Pirot 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
Pirot 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
(2) Obstruction Lights	C	From Leg	0.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 0.18 0.25	0.18 0.25	0.01 0.01
PD1142-3	C	From Leg	0.00 0.00 4.00	0.0000	192.00	No Ice 1/2" Ice 0.48 0.55	0.48 0.55	0.01 0.01
3' Yagi	C	From Leg	1.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 2.08 3.79	2.08 3.79	0.03 0.05
PD1142-2A	C	From Leg	4.00 0.00 8.00	0.0000	187.00	No Ice 1/2" Ice 0.79 0.91	0.79 0.91	0.01 0.01
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
ASP-705	C	From Leg	4.00 0.00 10.00	0.0000	156.00	No Ice 1/2" Ice 5.88 8.01	5.88 8.01	0.03 0.07
DB230-2A	C	From Leg	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 3.00 5.40	3.00 5.40	0.11 0.15
PD320	C	From Leg	1.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 2.03 4.58	2.03 4.58	0.01 0.03
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 2.72 4.91	2.72 4.91	0.05 0.09
14' x 3" Dia Omni	C	From Leg	4.00 0.00 7.00	0.0000	103.00	No Ice 1/2" Ice 4.20 5.63	4.20 5.63	0.04 0.07
15-ft Single Dipole	C	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 1/2" Ice 3.00 6.00	3.00 6.00	0.04 0.06
PD320	C	From Leg	1.00	0.0000	74.00	No Ice 2.03	2.03	0.01

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	Project		Date
	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT		17:33:52 09/08/11
	Client		Designed by
	Verizon Wireless		TJL

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	4.58	4.58	0.03
15-ft Single Dipole	C	From Leg	0.00						
			1.00	0.0000	50.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
15-ft Single Dipole	C	From Leg	0.00						
			1.00	0.0000	31.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
ASP-705	B	From Leg	0.00						
			1.00	0.0000	192.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
ASP-705	B	From Leg	10.00						
			4.00	0.0000	192.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
Paraflector	B	From Leg	10.00						
			4.00	0.0000	187.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	156.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
ASP-705	B	From Leg	0.00						
			4.00	0.0000	156.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
Paraflector	B	From Leg	10.00						
			4.00	0.0000	144.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Paraflector	B	From Leg	0.00						
			4.00	0.0000	140.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	142.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	109.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
14' x 3" Dia Omni	B	From Leg	0.00						
			4.00	0.0000	109.00	No Ice	4.20	4.20	0.04
			0.00			1/2" Ice	5.63	5.63	0.07
GPS	B	From Leg	7.00						
			1.00	0.0000	102.00	No Ice	1.00	1.00	0.01
			0.00			1/2" Ice	1.50	1.50	0.01
1' Standoff Pipe	B	From Leg	0.00						
			0.50	0.0000	102.00	No Ice	0.16	0.16	0.01
			0.00			1/2" Ice	0.23	0.23	0.01
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	94.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
15-ft Single Dipole	B	From Leg	0.00						
			1.00	0.0000	70.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	50.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	32.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
Pirot 4' Side Mount Standoff	B	From Leg	0.00						
			2.00	0.0000	17.00	No Ice	2.72	2.72	0.05

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	Project		Date
	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT		17:33:52 09/08/11
	Client		Designed by
	Verizon Wireless		TJL

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
(1)			0.00 0.00			1/2" Ice 4.91	4.91	0.09
PD400	B	From Leg	4.00 0.00 6.00	0.0000	17.00	No Ice 1/2" Ice 4.48	3.14 4.48	0.02 0.04
3' Yagi	B	From Leg	4.00 0.00 0.00	0.0000	17.00	No Ice 1/2" Ice 3.79	2.08 3.79	0.03 0.05
DB420	A	From Leg	1.00 0.00 10.00	0.0000	192.00	No Ice 1/2" Ice 5.99	3.33 5.99	0.03 0.04
4' x 3" DIA Omni	A	From Leg	4.00 0.00 2.00	0.0000	190.00	No Ice 1/2" Ice 1.25	1.00 1.25	0.02 0.02
Halo	A	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 5.60	4.00 5.60	0.01 0.03
3' Yagi	A	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 3.79	2.08 3.79	0.03 0.05
Pirot 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 4.91	2.72 4.91	0.05 0.09
DB264-A	A	From Leg	4.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 5.69	3.16 5.69	0.04 0.05
DB436-C	A	From Leg	4.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 0.81	0.45 0.81	0.01 0.01
Single Dipole	A	From Leg	1.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice 3.20	1.60 3.20	0.03 0.04
Pirot 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	113.00	No Ice 1/2" Ice 4.91	2.72 4.91	0.05 0.09
Dipole	A	From Leg	4.00 0.00 3.00	0.0000	113.00	No Ice 1/2" Ice 5.69	3.16 5.69	0.04 0.05
Rohn 6'x14' Boom Gate (3) (Sprint Existing)	C	None		0.0000	180.00	No Ice 1/2" Ice 61.90	52.00 61.90	1.75 2.19
(2) DB980H90E-M (Sprint Existing)	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 4.18	3.80 2.19 2.56	0.01 0.03
(2) DB980H90E-M (Sprint Existing)	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 4.18	3.80 2.19 2.56	0.01 0.03
(2) DB980H90E-M (Sprint Existing)	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 4.18	3.80 2.19 2.56	0.01 0.03
10-ft T-Frame (Nextel Existing)	A	None		0.0000	130.00	No Ice 1/2" Ice 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Nextel Existing)	B	None		0.0000	130.00	No Ice 1/2" Ice 17.50	13.60 17.50	0.38 0.53
10-ft T-Frame (Nextel Existing)	C	None		0.0000	130.00	No Ice 1/2" Ice 17.50	13.60 17.50	0.38 0.53
(4) DB844H90E-XY (Nextel Existing)	A	From Leg	4.00 0.00	0.0000	130.00	No Ice 1/2" Ice 3.18	2.87 3.73 4.10	0.01 0.04

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	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:33:52 09/08/11
	Client	Verizon Wireless	Designed by TJL

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
(4) DB844H90E-XY (Nextel Existing)	B	From Leg	0.00 4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
(4) DB844H90E-XY (Nextel Existing)	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	A	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	B	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	C	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
DB948F85T2E-M (Verizon Existing)	A	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	A	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	A	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	A	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon Existing)	B	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	B	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	B	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	B	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon Existing)	C	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	C	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	C	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	C	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03

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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
3-ft dish	C	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		156.00	3.00	No Ice 1/2" Ice	3.14 3.41
										0.08 0.10

Tower Pressures - No Ice

$$G_H = 1.117$$

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 190.00-180.00	185.00	1.636	30	48.479	A	4.261	5.975	3.958	38.67	0.000	0.000
					B	4.136	7.217		34.87	0.000	0.000
					C	4.148	7.100		35.19	0.000	0.000
T2 180.00-160.00	170.00	1.597	30	98.192	A	8.081	14.100	9.583	43.20	0.000	0.000
					B	7.889	16.100		39.95	0.000	0.000
					C	7.912	15.867		40.30	0.000	0.000
T3 160.00-140.00	150.00	1.541	29	99.933	A	7.426	22.443	11.667	39.06	0.000	0.000
					B	5.455	43.045		24.06	0.000	0.000
					C	7.514	21.532		40.17	0.000	0.000
T4 140.00-120.00	130.00	1.48	27	121.475	A	7.347	43.673	13.356	26.18	0.000	0.000
					B	4.733	70.740		17.70	0.000	0.000
					C	8.684	29.830		34.68	0.000	0.000
T5 120.00-100.00	110.00	1.411	26	163.410	A	7.116	60.843	15.027	22.11	0.000	0.000
					B	6.249	73.339		18.88	0.000	0.000
					C	9.014	33.524		35.33	0.000	0.000
T6 100.00-80.00	90.00	1.332	25	205.883	A	10.660	65.068	18.574	24.53	0.000	0.000
					B	9.540	79.884		20.77	0.000	0.000
					C	12.562	39.908		35.40	0.000	0.000
T7 80.00-60.00	70.00	1.24	23	246.784	A	12.973	65.844	18.577	23.57	0.000	0.000
					B	11.913	80.627		20.07	0.000	0.000
					C	14.740	41.205		33.21	0.000	0.000
T8 60.00-40.00	50.00	1.126	21	288.755	A	18.199	70.351	22.118	24.98	0.000	0.000
					B	17.050	84.168		21.85	0.000	0.000
					C	20.244	45.784		33.50	0.000	0.000
T9 40.00-20.00	30.00	1	18	329.457	A	15.241	71.422	22.125	25.53	0.000	0.000
					B	14.487	84.175		22.43	0.000	0.000
					C	16.695	46.807		34.84	0.000	0.000
T10 20.00-0.00	10.00	1	18	374.293	A	19.747	79.303	28.798	29.07	0.000	0.000
					B	18.977	90.848		26.22	0.000	0.000
					C	21.442	53.915		38.22	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.117$$

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	Client	Verizon Wireless	Designed by TJL

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 190.00-180.00	185.00	1.636	23	0.5000	49.313	A	4.052	12.040	5.625	34.96	0.000	0.000
						B	3.802	14.389		30.92	0.000	0.000
						C	3.897	13.494		32.34	0.000	0.000
T2 180.00-160.00	170.00	1.597	22	0.5000	99.858	A	7.601	26.777	12.917	37.57	0.000	0.000
						B	7.249	30.243		34.45	0.000	0.000
						C	7.432	28.447		36.00	0.000	0.000
T3 160.00-140.00	150.00	1.541	21	0.5000	101.600	A	6.533	38.843	15.000	33.06	0.000	0.000
						B	3.540	68.401		20.85	0.000	0.000
						C	6.844	35.776		35.20	0.000	0.000
T4 140.00-120.00	130.00	1.48	21	0.5000	123.144	A	5.255	71.682	16.696	21.70	0.000	0.000
						B	1.354	109.852		15.01	0.000	0.000
						C	7.428	50.414		28.86	0.000	0.000
T5 120.00-100.00	110.00	1.411	20	0.5000	165.079	A	4.917	98.659	18.366	17.73	0.000	0.000
						B	3.754	114.740		15.50	0.000	0.000
						C	7.937	56.899		28.33	0.000	0.000
T6 100.00-80.00	90.00	1.332	18	0.5000	207.552	A	8.177	104.511	21.913	19.45	0.000	0.000
						B	6.566	125.183		16.63	0.000	0.000
						C	11.176	66.050		28.38	0.000	0.000
T7 80.00-60.00	70.00	1.24	17	0.5000	248.453	A	10.522	107.559	21.916	18.56	0.000	0.000
						B	9.044	127.584		16.04	0.000	0.000
						C	13.342	69.381		26.49	0.000	0.000
T8 60.00-40.00	50.00	1.126	16	0.5000	290.423	A	15.217	114.595	25.456	19.61	0.000	0.000
						B	13.720	132.080		17.46	0.000	0.000
						C	18.510	76.126		26.90	0.000	0.000
T9 40.00-20.00	30.00	1	14	0.5000	331.127	A	13.016	116.767	25.465	19.62	0.000	0.000
						B	12.125	131.557		17.72	0.000	0.000
						C	15.361	77.850		27.32	0.000	0.000
T10 20.00-0.00	10.00	1	14	0.5000	375.962	A	17.094	127.276	32.137	22.26	0.000	0.000
						B	16.307	138.846		20.71	0.000	0.000
						C	19.885	86.269		30.27	0.000	0.000

Tower Pressure - Service

$$G_H = 1.117$$

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 190.00-180.00	185.00	1.636	10	48.479	A	4.261	5.975	3.958	38.67	0.000	0.000
					B	4.136	7.217		34.87	0.000	0.000
					C	4.148	7.100		35.19	0.000	0.000
T2 180.00-160.00	170.00	1.597	10	98.192	A	8.081	14.100	9.583	43.20	0.000	0.000
					B	7.889	16.100		39.95	0.000	0.000
					C	7.912	15.867		40.30	0.000	0.000
T3 160.00-140.00	150.00	1.541	10	99.933	A	7.426	22.443	11.667	39.06	0.000	0.000
					B	5.455	43.045		24.06	0.000	0.000
					C	7.514	21.532		40.17	0.000	0.000
T4 140.00-120.00	130.00	1.48	9	121.475	A	7.347	43.673	13.356	26.18	0.000	0.000
					B	4.733	70.740		17.70	0.000	0.000
					C	8.684	29.830		34.68	0.000	0.000
T5 120.00-100.00	110.00	1.411	9	163.410	A	7.116	60.843	15.027	22.11	0.000	0.000
					B	6.249	73.339		18.88	0.000	0.000
					C	9.014	33.524		35.33	0.000	0.000
T6 100.00-	90.00	1.332	9	205.883	A	10.660	65.068	18.574	24.53	0.000	0.000

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	Client	Verizon Wireless	Designed by	TJL

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			
80.00					B	9.540	79.884		20.77	0.000	0.000
T7 80.00-60.00	70.00	1.24	8	246.784	C	12.562	39.908	18.577	35.40	0.000	0.000
					A	12.973	65.844		23.57	0.000	0.000
					B	11.913	80.627		20.07	0.000	0.000
T8 60.00-40.00	50.00	1.126	7	288.755	C	14.740	41.205	22.118	33.21	0.000	0.000
					A	18.199	70.351		24.98	0.000	0.000
					B	17.050	84.168		21.85	0.000	0.000
T9 40.00-20.00	30.00	1	6	329.457	C	20.244	45.784	22.125	33.50	0.000	0.000
					A	15.241	71.422		25.53	0.000	0.000
					B	14.487	84.175		22.43	0.000	0.000
T10 20.00-0.00	10.00	1	6	374.293	C	16.695	46.807	28.798	34.84	0.000	0.000
					A	19.747	79.303		29.07	0.000	0.000
					B	18.977	90.848		26.22	0.000	0.000
					C	21.442	53.915		38.22	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 190.00-180.00	0.05	0.31	A	0.211	2.559	0.593	1	1	7.802	0.71	71.04	B
			B	0.234	2.486	0.598	1	1	8.451			
			C	0.232	2.493	0.597	1	1	8.390			
T2 180.00-160.00	0.10	0.74	A	0.226	2.512	0.596	1	1	16.485	1.42	71.13	B
			B	0.244	2.455	0.6	1	1	17.557			
			C	0.242	2.461	0.6	1	1	17.430			
T3 160.00-140.00	0.31	1.01	A	0.299	2.299	0.616	1	1	21.242	2.15	107.50	B
			B	0.485	1.92	0.69	1	1	35.161			
			C	0.291	2.321	0.613	1	1	20.714			
T4 140.00-120.00	0.62	1.23	A	0.42	2.026	0.66	1	1	36.170	3.23	161.60	B
			B	0.621	1.792	0.767	1	1	58.981			
			C	0.317	2.252	0.621	1	1	27.216			
T5 120.00-100.00	0.71	1.37	A	0.416	2.033	0.658	1	1	47.164	3.18	159.08	B
			B	0.487	1.917	0.691	1	1	56.924			
			C	0.26	2.407	0.605	1	1	29.281			
T6 100.00-80.00	0.75	1.91	A	0.368	2.131	0.639	1	1	52.238	3.45	172.74	B
			B	0.434	2	0.666	1	1	62.760			
			C	0.255	2.423	0.603	1	1	36.632			
T7 80.00-60.00	0.77	2.00	A	0.319	2.246	0.622	1	1	53.929	3.45	172.49	B
			B	0.375	2.116	0.642	1	1	63.652			
			C	0.227	2.509	0.596	1	1	39.307			
T8 60.00-40.00	0.78	2.73	A	0.307	2.278	0.618	1	1	61.674	3.55	177.51	B
			B	0.351	2.17	0.633	1	1	70.299			
			C	0.229	2.503	0.597	1	1	47.562			
T9 40.00-20.00	0.79	2.83	A	0.263	2.399	0.605	1	1	58.472	3.15	157.42	B
			B	0.299	2.297	0.616	1	1	66.317			
			C	0.193	2.62	0.589	1	1	44.262			
T10 20.00-0.00	0.80	3.41	A	0.265	2.394	0.606	1	1	67.783	3.57	178.69	B
			B	0.293	2.314	0.614	1	1	74.749			
			C	0.201	2.592	0.591	1	1	53.288			
Sum Weight:	5.66	17.53						OTM	2326.02 kip-ft	27.87		

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	Client	Verizon Wireless	Designed by TJL

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.825	1	7.057	0.65	64.96	B
			B	0.234	2.486	0.598	0.825	1	7.728			
			C	0.232	2.493	0.597	0.825	1	7.664			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.825	1	15.071	1.31	65.53	B
			B	0.244	2.455	0.6	0.825	1	16.176			
			C	0.242	2.461	0.6	0.825	1	16.046			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.825	1	19.942	2.09	104.58	B
			B	0.485	1.92	0.69	0.825	1	34.206			
			C	0.291	2.321	0.613	0.825	1	19.399			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.825	1	34.884	3.19	159.33	B
			B	0.621	1.792	0.767	0.825	1	58.153			
			C	0.317	2.252	0.621	0.825	1	25.696			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.825	1	45.919	3.12	156.02	B
			B	0.487	1.917	0.691	0.825	1	55.831			
			C	0.26	2.407	0.605	0.825	1	27.704			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.825	1	50.373	3.36	168.15	B
			B	0.434	2	0.666	0.825	1	61.090			
			C	0.255	2.423	0.603	0.825	1	34.433			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.825	1	51.659	3.34	166.84	B
			B	0.375	2.116	0.642	0.825	1	61.567			
			C	0.227	2.509	0.596	0.825	1	36.728			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.825	1	58.489	3.40	169.98	B
			B	0.351	2.17	0.633	0.825	1	67.316			
			C	0.229	2.503	0.597	0.825	1	44.019			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.825	1	55.805	3.03	151.40	B
			B	0.299	2.297	0.616	0.825	1	63.782			
			C	0.193	2.62	0.589	0.825	1	41.340			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.825	1	64.327	3.42	170.75	B
			B	0.293	2.314	0.614	0.825	1	71.428			
			C	0.201	2.592	0.591	0.825	1	49.536			
Sum Weight:	5.66	17.53						OTM	2245.46 kip-ft	26.90		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.8	1	6.950	0.64	64.09	B
			B	0.234	2.486	0.598	0.8	1	7.624			
			C	0.232	2.493	0.597	0.8	1	7.560			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.8	1	14.869	1.29	64.74	B
			B	0.244	2.455	0.6	0.8	1	15.979			
			C	0.242	2.461	0.6	0.8	1	15.848			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.8	1	19.756	2.08	104.16	B
			B	0.485	1.92	0.69	0.8	1	34.070			
			C	0.291	2.321	0.613	0.8	1	19.211			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.8	1	34.700	3.18	159.01	B
			B	0.621	1.792	0.767	0.8	1	58.035			
			C	0.317	2.252	0.621	0.8	1	25.479			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.8	1	45.741	3.11	155.58	B
			B	0.487	1.917	0.691	0.8	1	55.675			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	17 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
T6 100.00- 80.00	0.75	1.91	C	0.26	2.407	0.605	0.8	1	27.478	3.35	167.49	B
			A	0.368	2.131	0.639	0.8	1	50.106			
			B	0.434	2	0.666	0.8	1	60.852			
T7 80.00- 60.00	0.77	2.00	C	0.255	2.423	0.603	0.8	1	34.119	3.32	166.03	B
			A	0.319	2.246	0.622	0.8	1	51.335			
			B	0.375	2.116	0.642	0.8	1	61.269			
T8 60.00- 40.00	0.78	2.73	C	0.227	2.509	0.596	0.8	1	36.359	3.38	168.90	B
			A	0.307	2.278	0.618	0.8	1	58.034			
			B	0.351	2.17	0.633	0.8	1	66.889			
T9 40.00- 20.00	0.79	2.83	C	0.229	2.503	0.597	0.8	1	43.513	3.01	150.54	B
			A	0.263	2.399	0.605	0.8	1	55.424			
			B	0.299	2.297	0.616	0.8	1	63.420			
T10 20.00- 0.00	0.80	3.41	C	0.193	2.62	0.589	0.8	1	40.923	3.39	169.62	B
			A	0.265	2.394	0.606	0.8	1	63.833			
			B	0.293	2.314	0.614	0.8	1	70.954			
Sum Weight:	5.66	17.53	C	0.201	2.592	0.591	0.8	1	49.000			
								OTM	2233.95 kip-ft	26.76		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.85	1	7.163	0.66	65.83	B
			B	0.234	2.486	0.598	0.85	1	7.831			
			C	0.232	2.493	0.597	0.85	1	7.768			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.85	1	15.273	1.33	66.33	B
			B	0.244	2.455	0.6	0.85	1	16.373			
			C	0.242	2.461	0.6	0.85	1	16.244			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.85	1	20.128	2.10	105.00	B
			B	0.485	1.92	0.69	0.85	1	34.343			
			C	0.291	2.321	0.613	0.85	1	19.587			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.85	1	35.068	3.19	159.66	B
			B	0.621	1.792	0.767	0.85	1	58.271			
			C	0.317	2.252	0.621	0.85	1	25.913			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.85	1	46.097	3.13	156.46	B
			B	0.487	1.917	0.691	0.85	1	55.987			
			C	0.26	2.407	0.605	0.85	1	27.929			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.85	1	50.639	3.38	168.81	B
			B	0.434	2	0.666	0.85	1	61.329			
			C	0.255	2.423	0.603	0.85	1	34.747			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.85	1	51.983	3.35	167.65	B
			B	0.375	2.116	0.642	0.85	1	61.865			
			C	0.227	2.509	0.596	0.85	1	37.096			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.85	1	58.944	3.42	171.05	B
			B	0.351	2.17	0.633	0.85	1	67.742			
			C	0.229	2.503	0.597	0.85	1	44.525			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.85	1	56.186	3.05	152.26	B
			B	0.299	2.297	0.616	0.85	1	64.144			
			C	0.193	2.62	0.589	0.85	1	41.757			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.85	1	64.821	3.44	171.89	B
			B	0.293	2.314	0.614	0.85	1	71.903			
			C	0.201	2.592	0.591	0.85	1	50.072			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	18 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
Sum Weight:	5.66	17.53						OTM	2256.97 kip-ft	27.04		

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 190.00-180.00	0.14	0.53	A	0.326	2.228	0.624	1	1	11.569	0.70	70.21	B
			B	0.369	2.129	0.639	1	1	13.003			
			C	0.353	2.165	0.633	1	1	12.445			
T2 180.00-160.00	0.28	1.18	A	0.344	2.185	0.63	1	1	24.483	1.40	69.79	B
			B	0.375	2.115	0.642	1	1	26.662			
			C	0.359	2.15	0.636	1	1	25.519			
T3 160.00-140.00	0.83	1.48	A	0.447	1.979	0.672	1	1	32.625	2.55	127.37	B
			B	0.708	1.777	0.826	1	1	60.020			
			C	0.419	2.027	0.66	1	1	30.446			
T4 140.00-120.00	1.64	1.78	A	0.625	1.791	0.769	1	1	60.383	4.85	242.44	B
			B	0.903	1.928	0.986	1	1	109.658			
			C	0.47	1.942	0.683	1	1	41.837			
T5 120.00-100.00	1.92	1.94	A	0.627	1.79	0.771	1	1	80.961	3.86	193.02	B
			B	0.718	1.778	0.833	1	1	99.307			
			C	0.393	2.079	0.649	1	1	44.846			
T6 100.00-80.00	2.03	2.63	A	0.543	1.85	0.72	1	1	83.461	3.82	191.12	B
			B	0.635	1.787	0.775	1	1	103.644			
			C	0.372	2.122	0.641	1	1	53.488			
T7 80.00-60.00	2.08	2.80	A	0.475	1.934	0.685	1	1	84.221	3.59	179.66	B
			B	0.55	1.844	0.724	1	1	101.443			
			C	0.333	2.212	0.627	1	1	56.812			
T8 60.00-40.00	2.11	3.75	A	0.447	1.978	0.672	1	1	92.213	3.51	175.47	B
			B	0.502	1.897	0.699	1	1	105.983			
			C	0.326	2.229	0.624	1	1	66.025			
T9 40.00-20.00	2.15	3.70	A	0.392	2.08	0.648	1	1	88.721	3.09	154.65	B
			B	0.434	2.001	0.666	1	1	99.745			
			C	0.281	2.346	0.61	1	1	62.882			
T10 20.00-0.00	2.18	4.51	A	0.384	2.097	0.645	1	1	99.213	3.40	169.91	B
			B	0.413	2.039	0.657	1	1	107.509			
			C	0.282	2.344	0.611	1	1	72.565			
Sum Weight:	15.35	24.30						OTM	2702.05 kip-ft	30.77		

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 190.00-180.00	0.14	0.53	A	0.326	2.228	0.624	0.825	1	10.860	0.67	66.61	B
			B	0.369	2.129	0.639	0.825	1	12.337			
			C	0.353	2.165	0.633	0.825	1	11.763			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page 19 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:33:52 09/08/11
	Client	Verizon Wireless	Designed by TJL

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	
T2 180.00- 160.00	0.28	1.18	A	0.344	2.185	0.63	0.825	1	23.153	1.33	66.47	B
			B	0.375	2.115	0.642	0.825	1	25.393			
			C	0.359	2.15	0.636	0.825	1	24.219			
T3 160.00- 140.00	0.83	1.48	A	0.447	1.979	0.672	0.825	1	31.482	2.52	126.05	B
			B	0.708	1.777	0.826	0.825	1	59.401			
			C	0.419	2.027	0.66	0.825	1	29.249			
T4 140.00- 120.00	1.64	1.78	A	0.625	1.791	0.769	0.825	1	59.463	4.84	241.92	B
			B	0.903	1.928	0.986	0.825	1	109.421			
			C	0.47	1.942	0.683	0.825	1	40.537			
T5 120.00- 100.00	1.92	1.94	A	0.627	1.79	0.771	0.825	1	80.101	3.83	191.74	B
			B	0.718	1.778	0.833	0.825	1	98.650			
			C	0.393	2.079	0.649	0.825	1	43.457			
T6 100.00- 80.00	2.03	2.63	A	0.543	1.85	0.72	0.825	1	82.030	3.78	189.00	B
			B	0.635	1.787	0.775	0.825	1	102.496			
			C	0.372	2.122	0.641	0.825	1	51.533			
T7 80.00- 60.00	2.08	2.80	A	0.475	1.934	0.685	0.825	1	82.380	3.54	176.86	B
			B	0.55	1.844	0.724	0.825	1	99.860			
			C	0.333	2.212	0.627	0.825	1	54.477			
T8 60.00- 40.00	2.11	3.75	A	0.447	1.978	0.672	0.825	1	89.550	3.43	171.50	B
			B	0.502	1.897	0.699	0.825	1	103.582			
			C	0.326	2.229	0.624	0.825	1	62.785			
T9 40.00- 20.00	2.15	3.70	A	0.392	2.08	0.648	0.825	1	86.444	3.03	151.36	B
			B	0.434	2.001	0.666	0.825	1	97.623			
			C	0.281	2.346	0.61	0.825	1	60.194			
T10 20.00- 0.00	2.18	4.51	A	0.384	2.097	0.645	0.825	1	96.222	3.31	165.40	B
			B	0.413	2.039	0.657	0.825	1	104.655			
			C	0.282	2.344	0.611	0.825	1	69.085			
Sum Weight:	15.35	24.30						OTM	2661.41 kip-ft	30.27		

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 190.00- 180.00	0.14	0.53	A	0.326	2.228	0.624	0.8	1	10.758	0.66	66.10	B
			B	0.369	2.129	0.639	0.8	1	12.242			
			C	0.353	2.165	0.633	0.8	1	11.665			
T2 180.00- 160.00	0.28	1.18	A	0.344	2.185	0.63	0.8	1	22.963	1.32	66.00	B
			B	0.375	2.115	0.642	0.8	1	25.212			
			C	0.359	2.15	0.636	0.8	1	24.033			
T3 160.00- 140.00	0.83	1.48	A	0.447	1.979	0.672	0.8	1	31.318	2.52	125.86	B
			B	0.708	1.777	0.826	0.8	1	59.312			
			C	0.419	2.027	0.66	0.8	1	29.078			
T4 140.00- 120.00	1.64	1.78	A	0.625	1.791	0.769	0.8	1	59.332	4.84	241.85	B
			B	0.903	1.928	0.986	0.8	1	109.387			
			C	0.47	1.942	0.683	0.8	1	40.351			
T5 120.00- 100.00	1.92	1.94	A	0.627	1.79	0.771	0.8	1	79.978	3.83	191.56	B
			B	0.718	1.778	0.833	0.8	1	98.556			
			C	0.393	2.079	0.649	0.8	1	43.259			
T6 100.00- 80.00	2.03	2.63	A	0.543	1.85	0.72	0.8	1	81.825	3.77	188.70	B
			B	0.635	1.787	0.775	0.8	1	102.331			
			C	0.372	2.122	0.641	0.8	1	51.253			
T7 80.00- 60.00	2.08	2.80	A	0.475	1.934	0.685	0.8	1	82.117	3.53	176.46	B
			B	0.55	1.844	0.724	0.8	1	99.634			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page 20 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:33:52 09/08/11
	Client	Verizon Wireless	Designed by TJL

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 60.00- 40.00	2.11	3.75	C	0.333	2.212	0.627	0.8	1	54.143	3.42	170.93	B
			A	0.447	1.978	0.672	0.8	1	89.169			
			B	0.502	1.897	0.699	0.8	1	103.239			
T9 40.00- 20.00	2.15	3.70	C	0.326	2.229	0.624	0.8	1	62.323	3.02	150.89	B
			A	0.392	2.08	0.648	0.8	1	86.118			
			B	0.434	2.001	0.666	0.8	1	97.320			
T10 20.00- 0.00	2.18	4.51	C	0.281	2.346	0.61	0.8	1	59.809	3.30	164.75	B
			A	0.384	2.097	0.645	0.8	1	95.794			
			B	0.413	2.039	0.657	0.8	1	104.248			
Sum Weight:	15.35	24.30	C	0.282	2.344	0.611	0.8	1	68.588	30.20		
								OTM	2655.60 kip-ft			

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 190.00- 180.00	0.14	0.53	A	0.326	2.228	0.624	0.85	1	10.961	0.67	67.13	B
			B	0.369	2.129	0.639	0.85	1	12.432			
			C	0.353	2.165	0.633	0.85	1	11.860			
T2 180.00- 160.00	0.28	1.18	A	0.344	2.185	0.63	0.85	1	23.343	1.34	66.94	B
			B	0.375	2.115	0.642	0.85	1	25.574			
			C	0.359	2.15	0.636	0.85	1	24.405			
T3 160.00- 140.00	0.83	1.48	A	0.447	1.979	0.672	0.85	1	31.645	2.52	126.24	B
			B	0.708	1.777	0.826	0.85	1	59.489			
			C	0.419	2.027	0.66	0.85	1	29.420			
T4 140.00- 120.00	1.64	1.78	A	0.625	1.791	0.769	0.85	1	59.595	4.84	242.00	B
			B	0.903	1.928	0.986	0.85	1	109.455			
			C	0.47	1.942	0.683	0.85	1	40.722			
T5 120.00- 100.00	1.92	1.94	A	0.627	1.79	0.771	0.85	1	80.223	3.84	191.92	B
			B	0.718	1.778	0.833	0.85	1	98.744			
			C	0.393	2.079	0.649	0.85	1	43.656			
T6 100.00- 80.00	2.03	2.63	A	0.543	1.85	0.72	0.85	1	82.234	3.79	189.31	B
			B	0.635	1.787	0.775	0.85	1	102.660			
			C	0.372	2.122	0.641	0.85	1	51.812			
T7 80.00- 60.00	2.08	2.80	A	0.475	1.934	0.685	0.85	1	82.643	3.55	177.26	B
			B	0.55	1.844	0.724	0.85	1	100.086			
			C	0.333	2.212	0.627	0.85	1	54.810			
T8 60.00- 40.00	2.11	3.75	A	0.447	1.978	0.672	0.85	1	89.930	3.44	172.06	B
			B	0.502	1.897	0.699	0.85	1	103.925			
			C	0.326	2.229	0.624	0.85	1	63.248			
T9 40.00- 20.00	2.15	3.70	A	0.392	2.08	0.648	0.85	1	86.769	3.04	151.83	B
			B	0.434	2.001	0.666	0.85	1	97.926			
			C	0.281	2.346	0.61	0.85	1	60.578			
T10 20.00- 0.00	2.18	4.51	A	0.384	2.097	0.645	0.85	1	96.649	3.32	166.04	B
			B	0.413	2.039	0.657	0.85	1	105.063			
			C	0.282	2.344	0.611	0.85	1	69.582			
Sum Weight:	15.35	24.30						OTM	2667.21 kip-ft	30.34		

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	21 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	1	1	7.802	0.25	24.58	B
			B	0.234	2.486	0.598	1	1	8.451			
			C	0.232	2.493	0.597	1	1	8.390			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	1	1	16.485	0.49	24.61	B
			B	0.244	2.455	0.6	1	1	17.557			
			C	0.242	2.461	0.6	1	1	17.430			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	1	1	21.242	0.74	37.20	B
			B	0.485	1.92	0.69	1	1	35.161			
			C	0.291	2.321	0.613	1	1	20.714			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	1	1	36.170	1.12	55.92	B
			B	0.621	1.792	0.767	1	1	58.981			
			C	0.317	2.252	0.621	1	1	27.216			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	1	1	47.164	1.10	55.04	B
			B	0.487	1.917	0.691	1	1	56.924			
			C	0.26	2.407	0.605	1	1	29.281			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	1	1	52.238	1.20	59.77	B
			B	0.434	2	0.666	1	1	62.760			
			C	0.255	2.423	0.603	1	1	36.632			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	1	1	53.929	1.19	59.69	B
			B	0.375	2.116	0.642	1	1	63.652			
			C	0.227	2.509	0.596	1	1	39.307			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	1	1	61.674	1.23	61.42	B
			B	0.351	2.17	0.633	1	1	70.299			
			C	0.229	2.503	0.597	1	1	47.562			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	1	1	58.472	1.09	54.47	B
			B	0.299	2.297	0.616	1	1	66.317			
			C	0.193	2.62	0.589	1	1	44.262			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	1	1	67.783	1.24	61.83	B
			B	0.293	2.314	0.614	1	1	74.749			
			C	0.201	2.592	0.591	1	1	53.288			
Sum Weight:	5.66	17.53						OTM	804.85 kip-ft	9.64		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.825	1	7.057	0.22	22.48	B
			B	0.234	2.486	0.598	0.825	1	7.728			
			C	0.232	2.493	0.597	0.825	1	7.664			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.825	1	15.071	0.45	22.68	B
			B	0.244	2.455	0.6	0.825	1	16.176			
			C	0.242	2.461	0.6	0.825	1	16.046			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.825	1	19.942	0.72	36.19	B
			B	0.485	1.92	0.69	0.825	1	34.206			
			C	0.291	2.321	0.613	0.825	1	19.399			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.825	1	34.884	1.10	55.13	B
			B	0.621	1.792	0.767	0.825	1	58.153			
			C	0.317	2.252	0.621	0.825	1	25.696			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.825	1	45.919	1.08	53.99	B
			B	0.487	1.917	0.691	0.825	1	55.831			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	22 of 37
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	Client	Verizon Wireless	Designed by	TJL

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	
T6 100.00- 80.00	0.75	1.91	C	0.26	2.407	0.605	0.825	1	27.704			
			A	0.368	2.131	0.639	0.825	1	50.373	1.16	58.18	B
			B	0.434	2	0.666	0.825	1	61.090			
			C	0.255	2.423	0.603	0.825	1	34.433			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.825	1	51.659	1.15	57.73	B
			B	0.375	2.116	0.642	0.825	1	61.567			
			C	0.227	2.509	0.596	0.825	1	36.728			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.825	1	58.489	1.18	58.82	B
			B	0.351	2.17	0.633	0.825	1	67.316			
			C	0.229	2.503	0.597	0.825	1	44.019			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.825	1	55.805	1.05	52.39	B
			B	0.299	2.297	0.616	0.825	1	63.782			
			C	0.193	2.62	0.589	0.825	1	41.340			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.825	1	64.327	1.18	59.08	B
			B	0.293	2.314	0.614	0.825	1	71.428			
			C	0.201	2.592	0.591	0.825	1	49.536			
Sum Weight:	5.66	17.53						OTM	776.97 kip-ft	9.31		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.8	1	6.950	0.22	22.18	B
			B	0.234	2.486	0.598	0.8	1	7.624			
			C	0.232	2.493	0.597	0.8	1	7.560			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.8	1	14.869	0.45	22.40	B
			B	0.244	2.455	0.6	0.8	1	15.979			
			C	0.242	2.461	0.6	0.8	1	15.848			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.8	1	19.756	0.72	36.04	B
			B	0.485	1.92	0.69	0.8	1	34.070			
			C	0.291	2.321	0.613	0.8	1	19.211			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.8	1	34.700	1.10	55.02	B
			B	0.621	1.792	0.767	0.8	1	58.035			
			C	0.317	2.252	0.621	0.8	1	25.479			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.8	1	45.741	1.08	53.84	B
			B	0.487	1.917	0.691	0.8	1	55.675			
			C	0.26	2.407	0.605	0.8	1	27.478			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.8	1	50.106	1.16	57.96	B
			B	0.434	2	0.666	0.8	1	60.852			
			C	0.255	2.423	0.603	0.8	1	34.119			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.8	1	51.335	1.15	57.45	B
			B	0.375	2.116	0.642	0.8	1	61.269			
			C	0.227	2.509	0.596	0.8	1	36.359			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.8	1	58.034	1.17	58.44	B
			B	0.351	2.17	0.633	0.8	1	66.889			
			C	0.229	2.503	0.597	0.8	1	43.513			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.8	1	55.424	1.04	52.09	B
			B	0.299	2.297	0.616	0.8	1	63.420			
			C	0.193	2.62	0.589	0.8	1	40.923			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.8	1	63.833	1.17	58.69	B
			B	0.293	2.314	0.614	0.8	1	70.954			
			C	0.201	2.592	0.591	0.8	1	49.000			

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	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
Sum Weight:	5.66	17.53						OTM	772.99 kip-ft	9.26		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.85	1	7.163	0.23	22.78	B
			B	0.234	2.486	0.598	0.85	1	7.831			
			C	0.232	2.493	0.597	0.85	1	7.768			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.85	1	15.273	0.46	22.95	B
			B	0.244	2.455	0.6	0.85	1	16.373			
			C	0.242	2.461	0.6	0.85	1	16.244			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.85	1	20.128	0.73	36.33	B
			B	0.485	1.92	0.69	0.85	1	34.343			
			C	0.291	2.321	0.613	0.85	1	19.587			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.85	1	35.068	1.10	55.25	B
			B	0.621	1.792	0.767	0.85	1	58.271			
			C	0.317	2.252	0.621	0.85	1	25.913			
T5 120.00- 100.00	0.71	1.37	A	0.416	2.033	0.658	0.85	1	46.097	1.08	54.14	B
			B	0.487	1.917	0.691	0.85	1	55.987			
			C	0.26	2.407	0.605	0.85	1	27.929			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.85	1	50.639	1.17	58.41	B
			B	0.434	2	0.666	0.85	1	61.329			
			C	0.255	2.423	0.603	0.85	1	34.747			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.85	1	51.983	1.16	58.01	B
			B	0.375	2.116	0.642	0.85	1	61.865			
			C	0.227	2.509	0.596	0.85	1	37.096			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.85	1	58.944	1.18	59.19	B
			B	0.351	2.17	0.633	0.85	1	67.742			
			C	0.229	2.503	0.597	0.85	1	44.525			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.85	1	56.186	1.05	52.69	B
			B	0.299	2.297	0.616	0.85	1	64.144			
			C	0.193	2.62	0.589	0.85	1	41.757			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.85	1	64.821	1.19	59.48	B
			B	0.293	2.314	0.614	0.85	1	71.903			
			C	0.201	2.592	0.591	0.85	1	50.072			
Sum Weight:	5.66	17.53						OTM	780.96 kip-ft	9.36		

Force Totals

Load Case	Vertical Forces	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	10.31					
Bracing Weight	7.22					
Total Member Self-Weight	17.53			-7.08	-0.67	

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	Client	Verizon Wireless	Designed by	TJL

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
Total Weight	29.49			-7.08	-0.67	
Wind 0 deg - No Ice		0.13	-39.52	-4078.13	-21.28	5.01
Wind 30 deg - No Ice		19.43	-33.49	-3470.62	-2015.00	-2.42
Wind 45 deg - No Ice		27.32	-27.26	-2828.75	-2832.30	-6.05
Wind 60 deg - No Ice		33.31	-19.23	-2000.65	-3453.63	-9.29
Wind 90 deg - No Ice		38.72	-0.08	-19.77	-4007.35	-13.98
Wind 120 deg - No Ice		34.29	19.65	2010.60	-3536.61	-15.03
Wind 135 deg - No Ice		27.30	27.17	2800.40	-2828.68	-13.19
Wind 150 deg - No Ice		19.31	33.44	3449.42	-1996.06	-11.22
Wind 180 deg - No Ice		-0.02	38.37	3965.44	1.97	-4.89
Wind 210 deg - No Ice		-19.34	33.49	3456.06	1999.66	2.76
Wind 225 deg - No Ice		-27.25	27.25	2813.23	2820.15	6.26
Wind 240 deg - No Ice		-34.23	19.76	2028.61	3525.25	10.03
Wind 270 deg - No Ice		-38.67	0.00	-6.31	3998.66	13.65
Wind 300 deg - No Ice		-33.23	-19.17	-1991.05	3440.95	14.17
Wind 315 deg - No Ice		-27.24	-27.20	-2819.28	2818.54	13.18
Wind 330 deg - No Ice		-19.31	-33.44	-3463.39	1995.04	11.22
Member Ice	6.77					
Total Weight Ice	50.65			-14.12	-9.40	
Wind 0 deg - Ice		0.11	-42.48	-4441.74	-26.19	4.02
Wind 30 deg - Ice		21.10	-36.41	-3816.51	-2216.64	-4.06
Wind 45 deg - Ice		29.74	-29.69	-3116.16	-3119.54	-7.86
Wind 60 deg - Ice		36.33	-20.98	-2208.03	-3809.35	-11.15
Wind 90 deg - Ice		42.08	-0.07	-24.46	-4405.99	-15.43
Wind 120 deg - Ice		36.84	21.15	2185.14	-3852.22	-15.56
Wind 135 deg - Ice		29.72	29.61	3076.35	-3116.59	-13.57
Wind 150 deg - Ice		21.00	36.37	3782.53	-2201.22	-11.09
Wind 180 deg - Ice		-0.01	41.88	4361.78	-7.25	-3.90
Wind 210 deg - Ice		-21.02	36.40	3787.94	2186.45	4.33
Wind 225 deg - Ice		-29.68	29.68	3086.80	3091.94	8.03
Wind 240 deg - Ice		-36.79	21.24	2199.82	3825.26	11.54
Wind 270 deg - Ice		-42.04	0.00	-13.50	4381.21	15.16
Wind 300 deg - Ice		-36.27	-20.93	-2200.21	3781.32	15.05
Wind 315 deg - Ice		-29.67	-29.64	-3108.45	3090.63	13.56
Wind 330 deg - Ice		-21.00	-36.37	-3810.62	2182.69	11.09
Total Weight	29.49			-7.08	-0.67	
Wind 0 deg - Service		0.05	-13.67	-1406.24	-8.30	1.73
Wind 30 deg - Service		6.72	-11.59	-1196.03	-698.17	-0.84
Wind 45 deg - Service		9.45	-9.43	-973.93	-980.97	-2.09
Wind 60 deg - Service		11.53	-6.65	-687.38	-1195.96	-3.21
Wind 90 deg - Service		13.40	-0.03	-1.96	-1387.56	-4.84
Wind 120 deg - Service		11.87	6.80	700.59	-1224.68	-5.20
Wind 135 deg - Service		9.45	9.40	973.88	-979.72	-4.56
Wind 150 deg - Service		6.68	11.57	1198.45	-691.62	-3.88
Wind 180 deg - Service		-0.01	13.28	1377.00	-0.26	-1.69
Wind 210 deg - Service		-6.69	11.59	1200.75	690.99	0.95
Wind 225 deg - Service		-9.43	9.43	978.32	974.89	2.17
Wind 240 deg - Service		-11.84	6.84	706.82	1218.87	3.47
Wind 270 deg - Service		-13.38	0.00	2.70	1382.68	4.72
Wind 300 deg - Service		-11.50	-6.63	-684.06	1189.70	4.90
Wind 315 deg - Service		-9.43	-9.41	-970.65	974.34	4.56
Wind 330 deg - Service		-6.68	-11.57	-1193.52	689.39	3.88

Load Combinations

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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
T1	190 - 180	Leg	Max Tension	22	4.83	-0.16	-0.02
			Max. Compression	24	-6.43	0.01	0.00
			Max. Mx	23	-3.95	0.26	0.07

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	180 - 160	Diagonal	Max. My	27	-2.91	0.06	0.33
			Max. Vy	32	0.60	-0.00	0.00
			Max. Vx	27	-0.68	-0.00	0.00
			Max Tension	27	1.75	0.00	0.00
			Max. Compression	19	-1.78	0.00	0.00
			Max. Mx	24	0.21	0.01	0.00
		Top Girt	Max. My	3	-0.44	-0.00	-0.01
			Max. Vy	24	0.01	0.01	0.00
			Max. Vx	2	-0.00	0.00	0.00
			Max Tension	24	0.31	0.00	0.00
			Max. Compression	22	-0.35	0.00	0.00
			Max. Mx	18	0.00	-0.01	0.00
		Leg	Max. My	26	0.04	0.00	-0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
			Max Tension	22	27.69	-0.06	-0.00
			Max. Compression	24	-32.08	0.10	-0.01
			Max. Mx	24	-32.08	0.10	-0.01
			Max. My	20	-2.93	-0.00	-0.11
			Max. Vy	7	-0.03	0.03	-0.00
			Max. Vx	3	0.07	-0.00	-0.10
			Max Tension	34	2.90	0.00	0.00
			Max. Compression	26	-2.96	0.00	0.00
T3	160 - 140	Leg	Max. Mx	21	2.20	0.02	-0.00
			Max. My	10	-2.12	0.00	0.01
			Max. Vy	25	-0.01	0.02	0.00
			Max. Vx	10	0.00	0.00	0.00
			Max Tension	22	67.34	-0.66	0.05
			Max. Compression	24	-76.47	0.75	0.08
		Diagonal	Max. Mx	24	-76.47	0.75	0.08
			Max. My	23	-2.94	-0.03	0.58
			Max. Vy	2	-0.47	0.52	-0.01
			Max. Vx	6	0.51	-0.01	0.50
			Max Tension	26	5.41	0.00	0.00
			Max. Compression	19	-5.70	0.00	0.00
		Leg	Max. Mx	24	3.81	0.03	0.00
			Max. My	3	-4.15	-0.02	-0.01
			Max. Vy	24	-0.02	0.03	0.00
			Max. Vx	3	0.00	-0.02	-0.01
			Max Tension	22	100.53	-0.27	0.01
			Max. Compression	24	-113.66	0.41	0.00
T4	140 - 120	Diagonal	Max. Mx	24	-85.17	0.75	0.08
			Max. My	26	-2.57	-0.04	-0.66
			Max. Vy	10	-0.47	-0.63	0.00
			Max. Vx	6	-0.51	-0.02	0.60
			Max Tension	34	4.50	0.00	0.00
			Max. Compression	34	-4.61	0.00	0.00
		Leg	Max. Mx	23	1.81	0.03	0.00
			Max. My	27	-2.76	-0.00	0.01
			Max. Vy	24	-0.01	0.03	0.00
			Max. Vx	27	-0.00	0.00	0.00
			Max Tension	5	0.11	0.00	0.00
			Max. Compression	24	-0.19	0.00	0.00
		Top Girt	Max. Mx	18	-0.02	-0.01	0.00
			Max. My	27	-0.11	0.00	0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	27	-0.00	0.00	0.00
			Max Tension	22	130.84	-0.42	-0.02
			Max. Compression	24	-146.34	0.66	0.00
T5	120 - 100	Leg	Max. Mx	22	130.69	-0.67	0.01
			Max. My	23	-7.41	-0.01	0.73

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	100 - 80	Diagonal	Max. Vy	32	-0.14	-0.47	-0.06
			Max. Vx	20	-0.21	0.00	-0.45
			Max. Tension	34	4.96	0.00	0.00
			Max. Compression	34	-5.12	0.00	0.00
			Max. Mx	22	3.68	0.02	0.00
			Max. My	27	-4.04	-0.00	0.01
		Leg	Max. Vy	22	0.01	0.02	0.00
			Max. Vx	27	-0.00	0.00	0.00
			Max. Tension	22	158.22	-0.66	0.02
			Max. Compression	24	-176.58	0.68	0.01
			Max. Mx	22	158.11	-0.70	0.02
			Max. My	23	-7.73	-0.01	0.73
		Diagonal	Max. Vy	27	-0.08	-0.69	-0.00
			Max. Vx	19	0.10	-0.35	0.62
			Max. Tension	34	5.62	0.00	0.00
			Max. Compression	34	-5.83	0.00	0.00
			Max. Mx	24	3.96	0.05	0.00
			Max. My	33	-5.47	-0.01	-0.01
T7	80 - 60	Leg	Max. Vy	22	0.02	0.05	0.00
			Max. Vx	33	0.00	0.00	0.00
			Max. Tension	22	183.53	-0.65	-0.00
			Max. Compression	24	-205.06	1.01	0.05
			Max. Mx	24	-205.06	1.01	0.05
			Max. My	23	-11.24	0.11	1.03
		Diagonal	Max. Vy	24	-0.10	1.01	0.05
			Max. Vx	23	-0.13	0.11	1.03
			Max. Tension	34	5.55	0.00	0.00
			Max. Compression	34	-5.81	0.00	0.00
			Max. Mx	22	4.16	0.06	0.00
			Max. My	32	-5.05	0.02	-0.01
		Leg	Max. Vy	22	0.03	0.06	0.00
			Max. Vx	32	0.00	0.00	0.00
			Max. Tension	22	207.89	-0.44	0.01
			Max. Compression	19	-234.18	0.52	0.00
			Max. Mx	22	207.76	-1.87	0.03
			Max. My	23	-11.79	0.11	1.03
T8	60 - 40	Leg	Max. Vy	27	0.26	-1.87	0.00
			Max. Vx	6	0.09	-0.02	0.86
			Max. Tension	26	6.78	0.00	0.00
			Max. Compression	34	-6.74	0.00	0.00
			Max. Mx	24	4.40	0.11	0.01
			Max. My	32	-5.45	0.02	-0.01
		Diagonal	Max. Vy	22	0.04	0.10	0.01
			Max. Vx	32	0.00	0.00	0.00
			Max. Tension	22	226.72	0.39	0.04
			Max. Compression	19	-258.30	-0.39	-0.03
			Max. Mx	27	224.17	-3.19	0.03
			Max. My	23	-16.04	0.97	1.55
		Leg	Max. Vy	27	0.42	-3.19	0.03
			Max. Vx	6	0.21	-0.08	1.46
			Max. Tension	26	7.25	0.00	0.00
			Max. Compression	26	-7.25	0.00	0.00
			Max. Mx	22	4.29	0.13	0.01
			Max. My	33	-6.91	0.04	-0.02
T9	40 - 20	Leg	Max. Vy	22	0.04	0.13	0.01
			Max. Vx	33	0.00	0.00	0.00
			Max. Tension	22	245.97	1.21	0.01
			Max. Compression	19	-283.87	-0.00	0.00
			Max. Mx	24	-268.40	4.35	0.00
			Max. My	23	-19.10	2.75	3.31
		Diagonal	Max. Vy	32	-0.56	-3.19	-0.05

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	Client	Verizon Wireless	Designed by TJL

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max. Vx	23	0.42	2.75	3.31
			Max Tension	33	9.36	0.00	0.00
			Max. Compression	26	-8.60	0.00	0.00
			Max. Mx	22	3.67	0.20	0.01
			Max. My	33	-8.49	0.10	-0.03
			Max. Vy	22	0.06	0.20	0.01
			Max. Vx	33	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	287.19	21.22	-12.65
	Max. H _x	13	258.18	21.57	-12.81
	Max. H _z	22	-252.84	-23.86	14.16
	Min. Vert	22	-252.84	-23.86	14.16
	Min. H _x	22	-252.84	-23.86	14.16
Leg B	Min. H _z	13	258.18	21.57	-12.81
	Max. Vert	24	288.18	-21.16	-12.78
	Max. H _x	32	-251.10	23.74	14.23
	Max. H _z	32	-251.10	23.74	14.23
	Min. Vert	32	-251.10	23.74	14.23
Leg A	Min. H _x	7	258.23	-21.50	-12.94
	Min. H _z	7	258.23	-21.50	-12.94
	Max. Vert	19	288.97	0.14	24.73
	Max. H _x	31	17.71	2.38	-1.65
	Max. H _z	2	258.84	0.15	25.10
	Min. Vert	27	-250.32	-0.12	-27.66
	Min. H _x	23	18.38	-2.37	-1.60
	Min. H _z	27	-250.32	-0.12	-27.66

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	29.49	0.00	0.00	-7.08	-0.67	-0.00
Dead+Wind 0 deg - No Ice	29.49	0.13	-39.52	-4097.35	-21.43	5.00
Dead+Wind 30 deg - No Ice	29.49	19.43	-33.49	-3487.00	-2024.56	-2.44
Dead+Wind 45 deg - No Ice	29.49	27.32	-27.26	-2842.11	-2845.71	-6.07
Dead+Wind 60 deg - No Ice	29.49	33.31	-19.23	-2010.11	-3469.97	-9.32
Dead+Wind 90 deg - No Ice	29.49	38.72	-0.08	-19.90	-4026.29	-14.03
Dead+Wind 120 deg - No Ice	29.49	34.29	19.65	2020.03	-3553.31	-15.07
Dead+Wind 135 deg - No Ice	29.49	27.30	27.17	2813.61	-2842.07	-13.21
Dead+Wind 150 deg - No Ice	29.49	19.31	33.44	3465.70	-2005.51	-11.23
Dead+Wind 180 deg - No Ice	29.49	-0.02	38.37	3984.20	1.95	-4.89
Dead+Wind 210 deg - No Ice	29.49	-19.34	33.49	3472.42	2009.09	2.77
Dead+Wind 225 deg - No Ice	29.49	-27.25	27.25	2826.53	2833.47	6.29
Dead+Wind 240 deg - No Ice	29.49	-34.23	19.76	2038.18	3541.87	10.06
Dead+Wind 270 deg - No Ice	29.49	-38.67	0.00	-6.37	4017.56	13.70
Dead+Wind 300 deg - No Ice	29.49	-33.23	-19.17	-2000.49	3457.21	14.21
Dead+Wind 315 deg - No Ice	29.49	-27.24	-27.20	-2832.62	2831.85	13.20

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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 330 deg - No Ice	29.49	-19.31	-33.44	-3479.75	2004.44	11.23
Dead+Ice+Temp	50.65	-0.00	0.00	-14.09	-9.56	0.00
Dead+Wind 0 deg+Ice+Temp	50.65	0.11	-42.48	-4476.99	-26.60	4.25
Dead+Wind 30 deg+Ice+Temp	50.65	21.10	-36.41	-3846.79	-2234.49	-3.83
Dead+Wind 45 deg+Ice+Temp	50.65	29.74	-29.69	-3140.87	-3144.57	-7.68
Dead+Wind 60 deg+Ice+Temp	50.65	36.33	-20.98	-2225.53	-3839.86	-11.03
Dead+Wind 90 deg+Ice+Temp	50.65	42.08	-0.07	-24.60	-4441.22	-15.43
Dead+Wind 120 deg+Ice+Temp	50.65	36.84	21.15	2202.60	-3883.03	-15.66
Dead+Wind 135 deg+Ice+Temp	50.65	29.72	29.61	3100.95	-3141.56	-13.70
Dead+Wind 150 deg+Ice+Temp	50.65	21.00	36.37	3812.78	-2218.89	-11.26
Dead+Wind 180 deg+Ice+Temp	50.65	-0.01	41.88	4396.69	-7.46	-4.13
Dead+Wind 210 deg+Ice+Temp	50.65	-21.02	36.40	3818.27	2203.71	4.10
Dead+Wind 225 deg+Ice+Temp	50.65	-29.68	29.68	3111.51	3116.42	7.85
Dead+Wind 240 deg+Ice+Temp	50.65	-36.79	21.24	2217.43	3855.57	11.41
Dead+Wind 270 deg+Ice+Temp	50.65	-42.04	0.00	-13.55	4415.97	15.16
Dead+Wind 300 deg+Ice+Temp	50.65	-36.27	-20.93	-2217.68	3811.29	15.16
Dead+Wind 315 deg+Ice+Temp	50.65	-29.67	-29.64	-3133.13	3115.09	13.69
Dead+Wind 330 deg+Ice+Temp	50.65	-21.00	-36.37	-3840.88	2199.90	11.26
Dead+Wind 0 deg - Service	29.49	0.05	-13.67	-1422.49	-7.85	1.73
Dead+Wind 30 deg - Service	29.49	6.72	-11.59	-1211.28	-701.01	-0.85
Dead+Wind 45 deg - Service	29.49	9.45	-9.43	-988.12	-985.16	-2.10
Dead+Wind 60 deg - Service	29.49	11.53	-6.65	-700.22	-1201.18	-3.23
Dead+Wind 90 deg - Service	29.49	13.40	-0.03	-11.52	-1393.69	-4.85
Dead+Wind 120 deg - Service	29.49	11.87	6.80	694.38	-1230.02	-5.21
Dead+Wind 135 deg - Service	29.49	9.45	9.40	968.98	-983.90	-4.58
Dead+Wind 150 deg - Service	29.49	6.68	11.57	1194.62	-694.42	-3.89
Dead+Wind 180 deg - Service	29.49	-0.01	13.28	1374.04	0.24	-1.69
Dead+Wind 210 deg - Service	29.49	-6.69	11.59	1196.94	694.79	0.96
Dead+Wind 225 deg - Service	29.49	-9.43	9.43	973.44	980.05	2.18
Dead+Wind 240 deg - Service	29.49	-11.84	6.84	700.65	1225.19	3.48
Dead+Wind 270 deg - Service	29.49	-13.38	0.00	-6.84	1389.79	4.73
Dead+Wind 300 deg - Service	29.49	-11.50	-6.63	-696.88	1195.89	4.92
Dead+Wind 315 deg - Service	29.49	-9.43	-9.41	-984.83	979.49	4.57
Dead+Wind 330 deg - Service	29.49	-6.68	-11.57	-1208.77	693.18	3.89

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	-29.49	0.00	0.00	29.49	0.00	0.000%
2	0.13	-29.49	-39.52	-0.13	29.49	39.52	0.000%
3	19.43	-29.49	-33.49	-19.43	29.49	33.49	0.000%
4	27.32	-29.49	-27.26	-27.32	29.49	27.26	0.000%
5	33.31	-29.49	-19.23	-33.31	29.49	19.23	0.000%
6	38.72	-29.49	-0.08	-38.72	29.49	0.08	0.000%
7	34.29	-29.49	19.65	-34.29	29.49	-19.65	0.000%
8	27.30	-29.49	27.17	-27.30	29.49	-27.17	0.000%
9	19.31	-29.49	33.44	-19.31	29.49	-33.44	0.000%
10	-0.02	-29.49	38.37	0.02	29.49	-38.37	0.000%
11	-19.34	-29.49	33.49	19.34	29.49	-33.49	0.000%
12	-27.25	-29.49	27.25	27.25	29.49	-27.25	0.000%
13	-34.23	-29.49	19.76	34.23	29.49	-19.76	0.000%
14	-38.67	-29.49	0.00	38.67	29.49	-0.00	0.000%
15	-33.23	-29.49	-19.17	33.23	29.49	19.17	0.000%
16	-27.24	-29.49	-27.20	27.24	29.49	27.20	0.000%
17	-19.31	-29.49	-33.44	19.31	29.49	33.44	0.000%
18	0.00	-50.65	0.00	0.00	50.65	-0.00	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
19	0.11	-50.65	-42.48	-0.11	50.65	42.48	0.000%
20	21.10	-50.65	-36.41	-21.10	50.65	36.41	0.000%
21	29.74	-50.65	-29.69	-29.74	50.65	29.69	0.000%
22	36.33	-50.65	-20.98	-36.33	50.65	20.98	0.000%
23	42.08	-50.65	-0.07	-42.08	50.65	0.07	0.000%
24	36.84	-50.65	21.15	-36.84	50.65	-21.15	0.000%
25	29.72	-50.65	29.61	-29.72	50.65	-29.61	0.000%
26	21.00	-50.65	36.37	-21.00	50.65	-36.37	0.000%
27	-0.01	-50.65	41.88	0.01	50.65	-41.88	0.000%
28	-21.02	-50.65	36.40	21.02	50.65	-36.40	0.000%
29	-29.68	-50.65	29.68	29.68	50.65	-29.68	0.000%
30	-36.79	-50.65	21.24	36.79	50.65	-21.24	0.000%
31	-42.04	-50.65	0.00	42.04	50.65	-0.00	0.000%
32	-36.27	-50.65	-20.93	36.27	50.65	20.93	0.000%
33	-29.67	-50.65	-29.64	29.67	50.65	29.64	0.000%
34	-21.00	-50.65	-36.37	21.00	50.65	36.37	0.000%
35	0.05	-29.49	-13.67	-0.05	29.49	13.67	0.000%
36	6.72	-29.49	-11.59	-6.72	29.49	11.59	0.000%
37	9.45	-29.49	-9.43	-9.45	29.49	9.43	0.000%
38	11.53	-29.49	-6.65	-11.53	29.49	6.65	0.000%
39	13.40	-29.49	-0.03	-13.40	29.49	0.03	0.000%
40	11.87	-29.49	6.80	-11.87	29.49	-6.80	0.000%
41	9.45	-29.49	9.40	-9.45	29.49	-9.40	0.000%
42	6.68	-29.49	11.57	-6.68	29.49	-11.57	0.000%
43	-0.01	-29.49	13.28	0.01	29.49	-13.28	0.000%
44	-6.69	-29.49	11.59	6.69	29.49	-11.59	0.000%
45	-9.43	-29.49	9.43	9.43	29.49	-9.43	0.000%
46	-11.84	-29.49	6.84	11.84	29.49	-6.84	0.000%
47	-13.38	-29.49	0.00	13.38	29.49	-0.00	0.000%
48	-11.50	-29.49	-6.63	11.50	29.49	6.63	0.000%
49	-9.43	-29.49	-9.41	9.43	29.49	9.41	0.000%
50	-6.68	-29.49	-11.57	6.68	29.49	11.57	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	0.00000001
3	Yes	4	0.00000001	0.00000129
4	Yes	4	0.00000001	0.00000101
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000132
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000078
9	Yes	4	0.00000001	0.00000117
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000128
12	Yes	4	0.00000001	0.00000089
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000131
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000090
17	Yes	4	0.00000001	0.00000117
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000234

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20	Yes	4	0.00000001	0.00000330
21	Yes	4	0.00000001	0.00000300
22	Yes	4	0.00000001	0.00000252
23	Yes	4	0.00000001	0.00000253
24	Yes	4	0.00000001	0.00000195
25	Yes	4	0.00000001	0.00000212
26	Yes	4	0.00000001	0.00000237
27	Yes	4	0.00000001	0.00000263
28	Yes	4	0.00000001	0.00000331
29	Yes	4	0.00000001	0.00000285
30	Yes	4	0.00000001	0.00000218
31	Yes	4	0.00000001	0.00000261
32	Yes	4	0.00000001	0.00000250
33	Yes	4	0.00000001	0.00000247
34	Yes	4	0.00000001	0.00000241
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	190 - 180	10.319	35	0.5586	0.0894
T2	180 - 160	9.154	35	0.5500	0.0813
T3	160 - 140	6.916	35	0.4952	0.0644
T4	140 - 120	4.961	35	0.4095	0.0463
T5	120 - 100	3.426	35	0.3102	0.0248
T6	100 - 80	2.260	35	0.2296	0.0138
T7	80 - 60	1.387	35	0.1731	0.0101
T8	60 - 40	0.745	35	0.1184	0.0064
T9	40 - 20	0.325	35	0.0696	0.0040
T10	20 - 0	0.089	35	0.0317	0.0018

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	(2) Obstruction Lights	35	10.319	0.5586	0.0894	103414
190.00	3' Yagi	35	10.319	0.5586	0.0894	103414
188.00	Pirot 4' Side Mount Standoff (1)	35	10.085	0.5574	0.0878	103414

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	Client	Verizon Wireless	Designed by	TJL

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
187.00	PD1142-2A	35	9.968	0.5568	0.0870	103414
180.00	Rohn 6'x14' Boom Gate (3)	35	9.154	0.5500	0.0813	51669
156.00	3-ft dish	35	6.496	0.4799	0.0611	14845
150.00	Pirol 12' T-Frame Sector Mount (1)	35	5.891	0.4552	0.0560	12688
144.00	Paraflector	35	5.321	0.4284	0.0504	11082
142.00	DB230-2A	35	5.139	0.4191	0.0484	10690
140.00	Paraflector	35	4.961	0.4095	0.0463	10482
136.00	Single Dipole	35	4.620	0.3898	0.0417	10711
130.00	10-ft T-Frame	35	4.142	0.3596	0.0344	11549
113.00	Pirol 4' Side Mount Standoff (1)	35	2.980	0.2788	0.0199	14125
110.00	PD320	35	2.802	0.2663	0.0181	14550
109.00	Pirol 4' Side Mount Standoff (1)	35	2.744	0.2623	0.0176	14697
103.00	Pirol 4' Side Mount Standoff (1)	35	2.414	0.2398	0.0148	15651
102.00	GPS	35	2.362	0.2363	0.0145	15828
94.00	DB212 Single Dipole	35	1.971	0.2111	0.0124	17696
92.00	15-ft Single Dipole	35	1.880	0.2054	0.0121	18271
74.00	PD320	35	1.171	0.1568	0.0090	21906
70.00	15-ft Single Dipole	35	1.038	0.1457	0.0082	21414
50.00	15-ft Single Dipole	35	0.509	0.0927	0.0050	23371
32.00	DB212 Single Dipole	35	0.209	0.0533	0.0031	27452
31.00	15-ft Single Dipole	35	0.197	0.0514	0.0030	27436
17.00	Pirol 4' Side Mount Standoff (1)	35	0.069	0.0267	0.0015	32172

Maximum Tower Deflections - Design Wind

<i>Section No.</i>	<i>Elevation</i>	<i>Horz. Deflection</i>	<i>Gov. Load Comb.</i>	<i>Tilt</i>	<i>Twist</i>
	<i>ft</i>	<i>in</i>		<i>°</i>	<i>°</i>
T1	190 - 180	32.041	24	1.7257	0.2583
T2	180 - 160	28.445	24	1.6947	0.2350
T3	160 - 140	21.566	24	1.5248	0.1861
T4	140 - 120	15.542	24	1.2686	0.1338
T5	120 - 100	10.773	24	0.9673	0.0792
T6	100 - 80	7.120	19	0.7203	0.0477
T7	80 - 60	4.377	19	0.5445	0.0333
T8	60 - 40	2.349	19	0.3731	0.0202
T9	40 - 20	1.022	19	0.2195	0.0122
T10	20 - 0	0.279	19	0.0999	0.0056

Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
192.00	(2) Obstruction Lights	24	32.041	1.7257	0.2583	27462
190.00	3' Yagi	24	32.041	1.7257	0.2583	27462
188.00	Pirol 4' Side Mount Standoff (1)	24	31.319	1.7211	0.2537	27462
187.00	PD1142-2A	24	30.958	1.7186	0.2514	27462
180.00	Rohn 6'x14' Boom Gate (3)	24	28.445	1.6947	0.2350	14076
156.00	3-ft dish	24	20.276	1.4789	0.1765	5032
150.00	Pirol 12' T-Frame Sector Mount (1)	24	18.414	1.4051	0.1618	4286
144.00	Paraflector	24	16.653	1.3253	0.1458	3733

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	Client	Verizon Wireless	Designed by	TJL

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
142.00	DB230-2A	24	16.091	1.2973	0.1399	3598
140.00	Paraflector	24	15.542	1.2686	0.1338	3526
136.00	Single Dipole	24	14.487	1.2093	0.1210	3593
130.00	10-ft T-Frame	24	13.002	1.1176	0.1052	3857
113.00	Pirol 4' Side Mount Standoff (1)	24	9.379	0.8713	0.0656	4648
110.00	PD320	24	8.820	0.8332	0.0609	4765
109.00	Pirol 4' Side Mount Standoff (1)	24	8.639	0.8210	0.0594	4805
103.00	Pirol 4' Side Mount Standoff (1)	24	7.604	0.7518	0.0512	5064
102.00	GPS	19	7.441	0.7411	0.0499	5113
94.00	DB212 Single Dipole	19	6.213	0.6630	0.0422	5686
92.00	15-ft Single Dipole	19	5.927	0.6453	0.0408	5868
74.00	PD320	19	3.695	0.4933	0.0294	6981
70.00	15-ft Single Dipole	19	3.275	0.4588	0.0266	6805
50.00	15-ft Single Dipole	19	1.604	0.2924	0.0157	7391
32.00	DB212 Single Dipole	19	0.658	0.1680	0.0095	8677
31.00	15-ft Single Dipole	19	0.619	0.1619	0.0092	8670
17.00	Pirol 4' Side Mount Standoff (1)	19	0.215	0.0842	0.0046	10146

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	190	Leg	A325N	0.6250	4	1.21	13.50	0.089 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	1.75	6.12	0.286 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	0.35	6.44	0.054 ✓	1.333	Bolt Shear
T2	180	Leg	A325N	0.7500	4	6.92	19.44	0.356 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	2.90	6.12	0.475 ✓	1.333	Member Bearing
T3	160	Leg	A325N	0.8750	4	16.87	26.46	0.638 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.41	6.12	0.885 ✓	1.333	Member Bearing
T4	140	Leg	A325N	0.8750	4	25.13	26.46	0.950 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	4.50	6.12	0.736 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	0.19	6.44	0.030 ✓	1.333	Bolt Shear
T5	120	Leg	A325N	1.0000	4	32.71	34.56	0.947 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	4.96	6.12	0.811 ✓	1.333	Member Bearing
T6	100	Leg	A325N	1.0000	4	39.56	34.56	1.145 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.62	6.12	0.919 ✓	1.333	Member Bearing
T7	80	Leg	A325N	1.0000	6	30.59	34.56	0.885 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.55	6.12	0.908 ✓	1.333	Member Bearing
T8	60	Leg	A325N	1.0000	6	34.65	34.56	1.003 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	6.78	6.44	1.052 ✓	1.333	Bolt Shear
T9	40	Leg	A325N	1.0000	8	28.34	34.56	0.820 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	7.25	6.44	1.126 ✓	1.333	Bolt Shear
T10	20	Leg	A354-BC	1.0000	8	30.75	32.40	0.949 ✓	1.333	Bolt Tension

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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
		Diagonal	A325N	0.7500	1	9.36	9.28	1.009 ✓	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	190 - 180	ROHN 2 STD	10.00	5.00	76.2 K=1.00	19.756	1.0745	-6.43	21.23	0.303 ✓
T2	180 - 160	ROHN 2.5 STD	20.00	4.00	50.7 K=1.00	24.247	1.7040	-32.08	41.32	0.777 ✓
T3	160 - 140	ROHN 3 EH	20.00	4.00	42.2 K=1.00	25.514	3.0159	-76.47	76.95	0.994 ✓
T4	140 - 120	ROHN 3.5 EH	20.03	4.01	36.8 K=1.00	26.273	3.6784	-113.66	96.64	1.176 ✓
T5	120 - 100	ROHN 4 EH	20.04	5.01	40.7 K=1.00	25.733	4.4074	-146.34	113.42	1.290 ✓
T6	100 - 80	ROHN 5 EH	20.03	6.68	43.6 K=1.00	25.320	6.1120	-176.57	154.76	1.141 ✓
T7	80 - 60	ROHN 5 EH	20.04	6.68	43.6 K=1.00	25.320	6.1120	-205.06	154.75	1.325 ✓
T8	60 - 40	ROHN 6 EHS	20.03	6.68	36.0 K=1.00	26.380	6.7133	-234.19	177.09	1.322 ✓
T9	40 - 20	ROHN 6 EH	20.04	10.02	54.8 K=1.00	23.589	8.4049	-258.30	198.26	1.303 ✓
T10	20 - 0	ROHN 8 EHS	20.03	10.02	41.2 K=1.00	25.667	9.7193	-283.87	249.47	1.138 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	6.83	3.13	112.1 K=1.02	11.386	0.6211	-1.78	7.07	0.251 ✓
T2	180 - 160	L1 3/4x1 3/4x3/16	6.16	2.79	103.1 K=1.06	12.579	0.6211	-2.96	7.81	0.379 ✓
T3	160 - 140	L1 3/4x1 3/4x3/16	6.18	2.77	102.5 K=1.06	12.656	0.6211	-5.70	7.86	0.725 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	7.68	3.63	126.8 K=1.00	9.287	0.6211	-4.53	5.77	0.786 ✓

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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
T5	120 - 100	L1 3/4x1 3/4x3/16	9.92	4.76	166.3 K=1.00	5.400	0.6211	-5.01	3.35	1.493 X
T6	100 - 80	H1-3 (1.49 CR) - 127 L2 1/2x2 1/2x3/16	12.44	6.01	145.6 K=1.00	7.045	0.9020	-5.83	6.35	0.917 ✓
T7	80 - 60	L2 1/2x2 1/2x3/16	14.23	6.92	167.6 K=1.00	5.314	0.9020	-5.81	4.79	1.213 ✓
T8	60 - 40	L3x3x1/4	15.99	7.73	156.7 K=1.00	6.081	1.4400	-6.26	8.76	0.715 ✓
T9	40 - 20	L3x3x1/4	18.35	9.04	183.2 K=1.00	4.451	1.4400	-7.25	6.41	1.132 ✓
T10	20 - 0	L3 1/2x3 1/2x1/4	20.15	9.81	169.6 K=1.00	5.189	1.6900	-8.60	8.77	0.980 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	4.65	4.18	146.1 K=1.00	6.997	0.6211	-0.35	4.35	0.080 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	4.72	4.16	145.3 K=1.00	7.077	0.6211	-0.19	4.40	0.043 ✓

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	190 - 180	ROHN 2 STD	10.00	5.00	76.2	30.000	1.0745	4.83	32.24	0.150 ✓
T2	180 - 160	ROHN 2.5 STD	20.00	4.00	50.7	30.000	1.7040	27.69	51.12	0.542 ✓
T3	160 - 140	ROHN 3 EH	20.00	4.00	42.2	30.000	3.0159	67.48	90.48	0.746 ✓
T4	140 - 120	ROHN 3.5 EH	20.03	4.01	36.8	30.000	3.6784	100.53	110.35	0.911 ✓
T5	120 - 100	ROHN 4 EH	20.04	5.01	40.7	30.000	4.4074	130.84	132.22	0.990 ✓
T6	100 - 80	ROHN 5 EH	20.03	6.68	43.6	30.000	6.1120	158.22	183.36	0.863 ✓
T7	80 - 60	ROHN 5 EH	20.04	6.68	43.6	30.000	6.1120	183.53	183.36	1.001 ✓
T8	60 - 40	ROHN 6 EHS	20.03	6.68	36.0	30.000	6.7133	207.89	201.40	1.032 ✓

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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
T9	40 - 20	ROHN 6 EH	20.04	10.02	54.8	30.000	8.4049	226.72	252.15	0.899 ✓
T10	20 - 0	ROHN 8 EHS	20.03	10.02	41.2	30.000	9.7193	245.97	291.58	0.844 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	6.83	3.13	73.1	21.600	0.6211	1.75	13.42	0.130 ✓
T2	180 - 160	L1 3/4x1 3/4x3/16	6.16	2.79	65.4	21.600	0.6211	2.90	13.42	0.216 ✓
T3	160 - 140	L1 3/4x1 3/4x3/16	6.18	2.77	64.9	21.600	0.6211	5.41	13.42	0.403 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	7.34	3.46	80.3	21.600	0.6211	4.50	13.42	0.336 ✓
T5	120 - 100	L1 3/4x1 3/4x3/16	9.48	4.54	104.5	21.600	0.6211	4.96	13.42	0.370 ✓
T6	100 - 80	H1-3 (1.37 CR) - 132 L2 1/2x2 1/2x3/16	12.44	6.01	94.7	21.600	0.9020	5.62	19.48	0.289 ✓
T7	80 - 60	L2 1/2x2 1/2x3/16	13.62	6.61	104.1	21.600	0.9020	5.55	19.48	0.285 ✓
T8	60 - 40	L3x3x1/4	15.99	7.73	101.5	32.500	1.2525	6.78	40.71	0.166 ✓
T9	40 - 20	L3x3x1/4	19.26	9.48	124.1	32.500	1.2525	7.25	40.71	0.178 ✓
T10	20 - 0	L3 1/2x3 1/2x1/4	21.03	10.25	114.4	32.500	1.4713	9.36	47.82	0.196 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	4.65	4.18	99.5	21.600	0.6211	0.31	13.42	0.023 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	4.72	4.16	99.0	21.600	0.6211	0.11	13.42	0.008 ✓

Section Capacity Table

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	37 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:33:52 09/08/11
	Client	Verizon Wireless	Designed by	TJL

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	190 - 180	Leg	ROHN 2 STD	2	-6.43	28.30	22.7	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	20	-32.08	55.08	58.3	Pass
T3	160 - 140	Leg	ROHN 3 EH	53	-76.47	102.57	74.6	Pass
T4	140 - 120	Leg	ROHN 3.5 EH	86	-113.66	128.82	88.2	Pass
T5	120 - 100	Leg	ROHN 4 EH	122	-146.34	151.18	96.8	Pass
T6	100 - 80	Leg	ROHN 5 EH	149	-176.57	206.29	85.6	Pass
85.9 (b)								
T7	80 - 60	Leg	ROHN 5 EH	170	-205.06	206.28	99.4	Pass
T8	60 - 40	Leg	ROHN 6 EHS	192	-234.19	236.06	99.2	Pass
T9	40 - 20	Leg	ROHN 6 EH	213	-258.30	264.29	97.7	Pass
T10	20 - 0	Leg	ROHN 8 EHS	228	-283.87	332.54	85.4	Pass
T1	190 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1.78	9.43	18.9	Pass
21.5 (b)								
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	24	-2.96	10.41	28.4	Pass
35.6 (b)								
T3	160 - 140	Diagonal	L1 3/4x1 3/4x3/16	58	-5.70	10.48	54.4	Pass
66.4 (b)								
T4	140 - 120	Diagonal	L1 3/4x1 3/4x3/16	94	-4.53	7.69	58.9	Pass
T5	120 - 100	Diagonal	L1 3/4x1 3/4x3/16	127	-5.01	4.47	112.0	Fail X
T6	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	154	-5.83	8.47	68.8	Pass
69.0 (b)								
T7	80 - 60	Diagonal	L2 1/2x2 1/2x3/16	175	-5.81	6.39	91.0	Pass
T8	60 - 40	Diagonal	L3x3x1/4	195	-6.26	11.67	53.6	Pass
78.9 (b)								
T9	40 - 20	Diagonal	L3x3x1/4	222	-7.25	8.54	84.9	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	237	-8.60	11.69	73.6	Pass
75.7 (b)								
T1	190 - 180	Top Girt	L1 3/4x1 3/4x3/16	5	-0.35	5.79	6.0	Pass
T4	140 - 120	Top Girt	L1 3/4x1 3/4x3/16	90	-0.19	5.86	3.3	Pass
Summary								
Leg (T7)							99.4	Pass
Diagonal (T5)							112.0	Fail X
Top Girt (T1)							6.0	Pass
Bolt Checks							85.9	Pass
RATING =							112.0	Fail X

Mat Foundation Analysis:**Input Data:**Tower Data

Overturing Moment =	$OM := 4481\text{-ft-kips}$	(User Input from RISATower)
Shear Force =	$S_t := 43\text{-kip}$	(User Input from RISATower)
Axial Force =	$WT_t := 51\text{-kip}$	(User Input from RISATower)
Max Compression Force =	$C_t := 289\text{-kip}$	(User Input from RISATower)
Max Uplift Force =	$U_t := 253\text{-kip}$	(User Input from RISATower)
Tower Height =	$H_t := 190\text{-ft}$	(User Input)
Tower Width =	$W_t := 19\text{-ft}$	(User Input)
Tower Position on Foundation (1=offset, 2=centered) =	$Pos_t := 2$	(User Input)

Footing Data:

Overall Depth of Footing =	$D_f := 4\text{-ft}$	(User Input)
Thickness of Footing =	$T_f := 4.5\text{-ft}$	(User Input)
Width of Footing =	$W_f := 32.0\text{-ft}$	(User Input)

Material Properties:

Concrete Compressive Strength =	$f_c := 3000\text{-psi}$	(User Input)
Steel Reinforcement Yield Strength =	$f_y := 60000\text{-psi}$	(User Input)
Internal Friction Angle of Soil =	$\Phi_s := 30\text{-deg}$	(User Input)
Allowable Soil Bearing Capacity =	$q_s := 4000\text{-psf}$	(User Input)
Unit Weight of Soil =	$\gamma_{\text{soil}} := 120\text{-pcf}$	(User Input)
Unit Weight of Concrete =	$\gamma_{\text{conc}} := 150\text{-pcf}$	(User Input)
Foundation Bouyancy =	Bouyancy := 0	(User Input) (Yes=1 / No=0)
Depth to Neglect =	$n := 0\text{-ft}$	(User Input)
Cohesion of Clay Type Soil =	$c := 0\text{-ksf}$	(User Input) (Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input) (UBC-1997 Fig 23-2)
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)

Pad Reinforcement:

Bar Size =	$BS_{top} := 7$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 0.875 \cdot \text{in}$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 33$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 7$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 0.875 \cdot \text{in}$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 33$	(User Input)	(Bottom of Pad)
Clear Cover of Reinforcement =	$Cvr_{pad} := 3.0 \cdot \text{in}$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)

Calculated Factors:

Pad Top Reinforcement Bar Area =	$A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 0.601 \cdot \text{in}^2$	
Pad Bottom Reinforcement Bar Area =	$A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 0.601 \cdot \text{in}^2$	
Coefficient of Lateral Soil Pressure =	$K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$	
Load Factor =	$LF := \begin{cases} 1.333 & \text{if } H_t \leq 700 \cdot \text{ft} \\ 1.7 & \text{if } H_t \geq 1200 \cdot \text{ft} \\ 1.333 + \left(\frac{H_t - 700 \cdot \text{ft}}{1200 \cdot \text{ft} - 700 \cdot \text{ft}} \right) \cdot 0.4 & \text{otherwise} \end{cases}$	= 1.333

Stability of Footing:

Adjusted Concrete Unit Weight =

$$\gamma_c := \text{if}(\text{Bouyancy} = 1, \gamma_{\text{conc}} - 62.4 \text{pcf}, \gamma_{\text{conc}}) = 150 \text{pcf}$$

Adjusted Soil Unit Weight =

$$\gamma_s := \text{if}(\text{Bouyancy} = 1, \gamma_{\text{soil}} - 62.4 \text{pcf}, \gamma_{\text{soil}}) = 120 \text{pcf}$$

Passive Pressure =

$$P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \text{ksf}$$

$$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = -0.18 \text{ksf}$$

$$P_{top} := \text{if}(n < (D_f - T_f), P_{pt}, P_{pn}) = 0 \text{ksf}$$

$$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 1.44 \text{ksf}$$

$$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 0.72 \text{ksf}$$

$$T_p := \text{if}(n < (D_f - T_f), T_f, (D_f - n)) = 4$$

$$A_p := W_f \cdot T_p = 128$$

Ultimate Shear =

$$S_u := P_{ave} \cdot A_p = 92.16 \text{kip}$$

Weight of Concrete =

$$WT_c := (W_f^2 \cdot T_f) \cdot \gamma_c = 691.2 \text{kip}$$

Tower Offset =

$$X_{t1} := \left[\frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \text{-deg}))}{2} \right] \quad X_{t2} := \frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \text{-deg}))}{3}$$

$$X_t := \text{if}(\text{Pos}_t, X_{t1}, X_{t2}) = 7.773$$

$$X_{off} := \frac{W_f}{2} - \left[\frac{(W_t \cdot \cos(30 \text{-deg}))}{3} + X_t \right] = 2.742$$

Total Weight =

$$WT_{tot} := WT_c = 691.2 \text{kip}$$

Resisting Moment =

$$M_r := (WT_{tot}) \cdot \frac{W_f}{2} + S_u \cdot \frac{T_f}{3} = 11197 \text{kip-ft}$$

Overturning Moment =

$$M_{ot} := OM + S_t \cdot T_f = 4674.5 \text{kip-ft}$$

Factor of Safety Actual =

$$FS := \frac{M_r}{M_{ot}} = 2.4$$

Factor of Safety Required =

$$FS_{req} := 2$$

$$\text{OverTurning_Moment_Check} := \text{if}(FS \geq FS_{req}, \text{"Okay"}, \text{"No Good"})$$

$$\text{OverTurning_Moment_Check} = \text{"Okay"}$$

Bearing Pressure Caused by Footing:

Total Load =

$$\text{Load}_{\text{tot}} := \text{WT}_c + \text{WT}_t = 742 \text{ kip}$$

Area of the Mat =

$$A_{\text{mat}} := W_f^2 = 1.024 \times 10^3$$

Section Modulus of Mat =

$$S := \frac{W_f^3}{6} = 5461.33 \text{ ft}^3$$

Maximum Pressure in Mat =

$$P_{\text{max}} := \frac{\text{Load}_{\text{tot}}}{A_{\text{mat}}} + \frac{M_{\text{ot}}}{S} = 1.581 \text{ ksf}$$

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

$$\text{Max_Pressure_Check} = \text{"Okay"}$$

Minimum Pressure in Mat =

$$P_{\text{min}} := \frac{\text{Load}_{\text{tot}}}{A_{\text{mat}}} - \frac{M_{\text{ot}}}{S} = -0.131 \text{ ksf}$$

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

$$\text{Min_Pressure_Check} = \text{"No Good"}$$

Distance to Resultant of Pressure Distribution =

$$X_p := \frac{P_{\text{max}}}{P_{\text{max}} - P_{\text{min}}} \cdot \frac{1}{3} = 9.85$$

Distance to Kern =

$$X_k := \frac{W_f}{6} = 5.333$$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity =

$$e := \frac{M_{\text{ot}}}{\text{WT}_{\text{tot}}} = 6.763$$

Adjusted Soil Pressure =

$$P_a := \frac{2 \cdot \text{WT}_{\text{tot}}}{3 \cdot W_f \left(\frac{W_f}{2} - e \right)} = 1.559 \text{ ksf}$$

$$q_{\text{adj}} := \text{if}(P_{\text{min}} < 0, P_a, P_{\text{max}}) = 1.559 \text{ ksf}$$

$$\text{Pressure_Check} := \text{if}(q_{\text{adj}} < q_s, \text{"Okay"}, \text{"No Good"})$$

$$\text{Pressure_Check} = \text{"Okay"}$$

Steel Reinforcement in Pad:
Required Reinforcement for Bending:

Strength Reduction Factor =

$$\phi_m := .90$$

(ACI-2008 9.3.2.1)

$$M_{nT} := LF \left[U_t \left(W_t \sin(60\text{-deg}) - \frac{d_p}{2} \right) + S_t (D_f + L_{pag}) \right] - W_{Tt} \cdot X_{off} = 5639\text{-ft}\cdot\text{k}$$

$$M_{nS} := -1 \cdot \left[\frac{1}{2} \cdot \left(\frac{W_f}{2} + \frac{W_t}{3} \cdot \cos(30\text{-deg}) - \frac{d_p}{2} \right)^2 \cdot W_t [\gamma_s (T_f - T_f)] \right]$$

$$M_{nC} := -1 \cdot \left[\frac{1}{2} \cdot \left(\frac{W_f}{2} + \frac{W_t}{3} \cdot \cos(30\text{-deg}) - \frac{d_p}{2} \right)^2 \cdot W_t (\gamma_c T_f) \right]$$

Design Moment =

$$M_n := \frac{M_{nT} + M_{nS} + M_{nC}}{\phi_m} = 2.976 \times 10^3 \cdot \text{kips}\cdot\text{ft}$$

$$\beta := \begin{cases} 0.85 & \text{if } 2500\text{-psi} \leq f_c \leq 4000\text{-psi} \\ 0.65 & \text{if } f_c > 8000\text{-psi} \\ \left[0.85 - \left[\frac{\left(\frac{f_c}{\text{psi}} - 4000 \right)}{1000} \right] \cdot 0.5 \right] & \text{otherwise} \end{cases} = 0.85$$

(ACI-2008 10.2.7.3)

$$b_{eff} := W_t \cos(30\text{-deg}) + d_p = 197.454\text{-in}$$

$$d := T_f - C_{vr_{pad}} - d_{bbot} = 50.125\text{-in}$$

$$A_s := \frac{M_n}{(f_y \cdot d)} = 11.876\text{-in}^2$$

$$a := \frac{A_s \cdot f_y}{\beta \cdot f_c \cdot b_{eff}} = 1.415\text{-in}$$

$$A_s := \frac{M_n}{f_y \left(d - \frac{a}{2} \right)} = 12.046\text{-in}^2$$

$$\rho := \frac{A_s}{b_{eff} d} = 0.00122$$

Required Reinforcement for Temperature and Shrinkage:

$$\rho_{sh} := \begin{cases} .0018 & \text{if } f_y \geq 60000 \text{ psi} = 0.0018 \\ .0020 & \text{otherwise} \end{cases} \quad (\text{ACI -2008 7.12.2.1})$$

Check Bottom Bars:

$$A_s := \begin{cases} (\rho \cdot b_{eff} \cdot d) & \text{if } (\rho \cdot b_{eff} \cdot d) > \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d = 12.046 \text{ in}^2 \\ \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d & \text{otherwise} \end{cases}$$

$$A_{s_{prov}} := A_{bbot} \cdot NB_{bot} = 19.8 \text{ in}^2$$

$$Pad_Reinforcement_Bot := \text{if}(A_{s_{prov}} > A_s, \text{"Okay"}, \text{"No Good"})$$

$$Pad_Reinforcement_Bot = \text{"Okay"}$$

Check top Bars:

$$A_s := \text{if} \left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d \right) = 8.9 \text{ in}^2$$

$$A_{s_{prov}} := A_{btop} \cdot NB_{top} = 19.8 \text{ in}^2$$

$$Pad_Reinforcement_Top := \text{if}(A_{s_{prov}} > A_s, \text{"Okay"}, \text{"No Good"})$$

$$Pad_Reinforcement_Top = \text{"Okay"}$$

Development Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot C_{vr_{pad}} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 10.91 \text{ in}$$

Spacing or Cover Dimension =

$$c := \text{if} \left(C_{vr_{pad}} < \frac{B_{sPad}}{2}, C_{vr_{pad}}, \frac{B_{sPad}}{2} \right) = 3 \text{ in}$$

Transverse Reinforcement Index =

$$k_{tr} := 0 \quad (\text{ACI-2008 12.2.3})$$

$$L_{dbt} := \frac{3 \cdot f_y \cdot \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \text{ psi}} \cdot \frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot} = 21 \text{ in}$$

Minimum Development Length =

$$L_{dbmin} := 12 \text{ in} \quad (\text{ACI-2008 12.2.1})$$

$$L_{dbtCheck} := \text{if}(L_{dbt} \geq L_{dbmin}, \text{"Use L.dbt"}, \text{"Use L.dbmin"}) = \text{"Use L.dbt"}$$

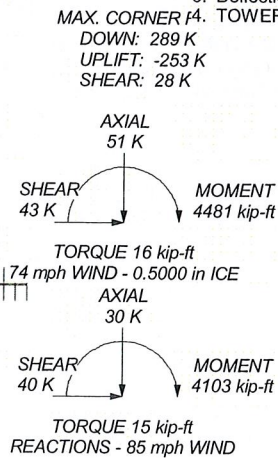
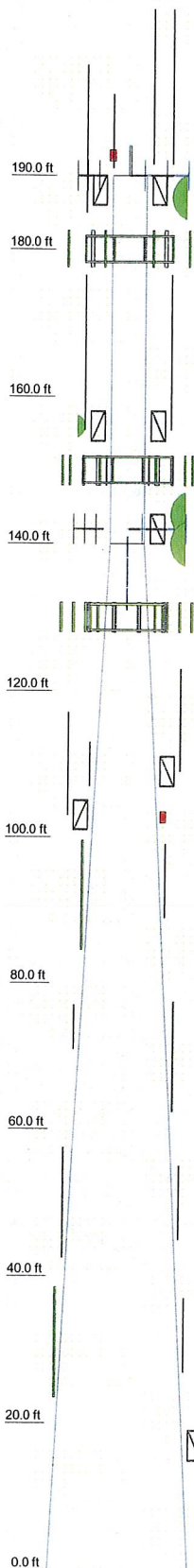
Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{W_t}{2} - C_{vr_{pad}} = 75 \text{ in}$$

$$L_{pad_Check} := \text{if}(L_{Pad} > L_{dbt}, \text{"Okay"}, \text{"No Good"})$$

$$L_{pad_Check} = \text{"Okay"}$$

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs										
Leg Grade										
Diagonals										
Diagonal Grade										
Top Girts										
Face Width (ft)										
# Panels @ (ft)										
Weight (K)										



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) Obstruction Lights	192	DB948F85T2E-M (Verizon Existing)	150
PD1142-3	192	APL868013-42T0 (Verizon Proposed)	150
ASP-705	192	APL868013-42T0 (Verizon Proposed)	150
ASP-705	192	DB948F85T2E-M (Verizon Existing)	150
DB420	192	Paraflector	144
Halo	192	Pirot 4' Side Mount Standoff (1)	142
4' x 3" DIA Omni	190	DB264-A	142
3' Yagi	190	DB436-C	142
3' Yagi	190	DB230-2A	142
Pirot 4' Side Mount Standoff (1)	188	Pirot 4' Side Mount Standoff (1)	142
Pirot 4' Side Mount Standoff (1)	188	Paraflector	140
Pirot 4' Side Mount Standoff (1)	188	Single Dipole	136
Paraflector	187	10-ft T-Frame (Nextel Existing)	130
PD1142-2A	187	10-ft T-Frame (Nextel Existing)	130
Rohn 6'x14' Boom Gate (3) (Sprint Existing)	180	10-ft T-Frame (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
(2) DB980H90E-M (Sprint Existing)	180	(4) DB844H90E-XY (Nextel Existing)	130
Pirot 4' Side Mount Standoff (1)	156	Pirot 4' Side Mount Standoff (1)	113
ASP-705	156	Dipole	113
Pirot 4' Side Mount Standoff (1)	156	PD320	110
ASP-705	156	Pirot 4' Side Mount Standoff (1)	109
3-ft dish	156	14' x 3" Dia Omni	109
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	14' x 3" Dia Omni	103
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	Pirot 4' Side Mount Standoff (1)	103
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	GPS	102
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	1' Standoff Pipe	102
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	DB212 Single Dipole	94
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	150	15-ft Single Dipole	92
DB948F85T2E-M (Verizon Existing)	150	PD320	74
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	70
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	50
DB948F85T2E-M (Verizon Existing)	150	DB212 Single Dipole	50
DB948F85T2E-M (Verizon Existing)	150	DB212 Single Dipole	32
APL868013-42T0 (Verizon Proposed)	150	15-ft Single Dipole	31
APL868013-42T0 (Verizon Proposed)	150	PD400	17
DB948F85T2E-M (Verizon Existing)	150	3' Yagi	17
		Pirot 4' Side Mount Standoff (1)	17

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2 STD	B	L1 3/4x1 3/4x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.
4. TOWER RATING: 99.5%

Centek Engineering Inc.

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

Job:	11001.CO46 - Coventry East
Project:	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT
Client:	Verizon Wireless
Code:	TIA/EIA-222-F
Path:	2:\Users\11001\100\W\CO46 - Coventry East\Coventry East\190' Rohn Lattice Tower.rvt
Drawn by:	TJL
Date:	09/08/11
Scale:	NTS
Dwg No.	E-1

<i>RISATower</i> Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 11001.CO46 - Coventry East	Page 1 of 37
	Project 190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:26:23 09/08/11
	Client Verizon Wireless	Designed by TJL

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 190.00 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 4.65 ft at the top and 19.00 ft at the base.

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

The following design criteria apply:

Basic wind speed of 85 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 74 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

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

Pressures are calculated at each section.

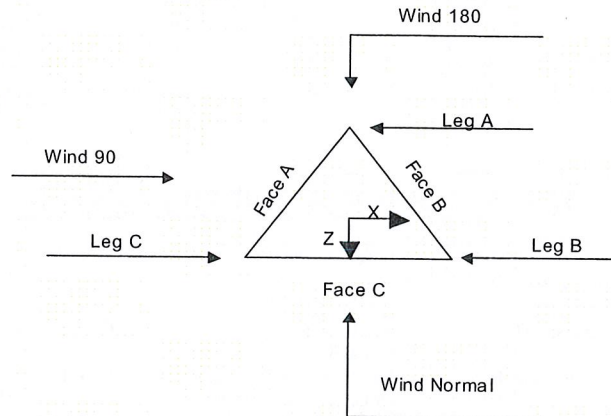
Stress ratio used in tower member design is 1.333.

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		

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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	190.00-180.00			4.65	1	10.00
T2	180.00-160.00			4.65	1	20.00
T3	160.00-140.00			4.69	1	20.00
T4	140.00-120.00			4.72	1	20.00
T5	120.00-100.00			6.76	1	20.00
T6	100.00-80.00			8.83	1	20.00
T7	80.00-60.00			10.83	1	20.00
T8	60.00-40.00			12.92	1	20.00
T9	40.00-20.00			14.85	1	20.00
T10	20.00-0.00			16.99	1	20.00

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	190.00-180.00	5.00	X Brace	No	Yes	0.0000	0.0000
T2	180.00-160.00	4.00	X Brace	No	No	0.0000	0.0000
T3	160.00-140.00	4.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	4.00	X Brace	No	Yes	0.0000	0.0000
T5	120.00-100.00	5.00	X Brace	No	No	0.0000	0.0000

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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
T6	100.00-80.00	6.67	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	6.67	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	6.67	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 190.00-180.00	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.00-160.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T5 120.00-100.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 80.00-60.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T9 40.00-20.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T10 20.00-0.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
T1 190.00-180.00	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T4 140.00-120.00	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

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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 190.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 190.00-180.00	Yes	Yes	1	1	1	1	1	1	1	1
T2 180.00-160.00	Yes	Yes	1	1	1	1	1	1	1	1
T3 160.00-140.00	Yes	Yes	1	1	1	1	1	1	1	1
T4 140.00-120.00	Yes	Yes	1	1	1	1	1	1	1	1
T5 120.00-100.00	Yes	Yes	1	1	1	1	1	1	1	1
T6 100.00-80.00	Yes	Yes	1	1	1	1	1	1	1	1
T7 80.00-60.00	Yes	Yes	1	1	1	1	1	1	1	1
T8 60.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1
T9 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1
T10 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1

¹Note: 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.

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Tower Section Geometry (cont'd)

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
T1 190.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

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 190.00-180.00	Flange	0.6250	4	0.6250	1	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T2 180.00-160.00	Flange	0.7500	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T3 160.00-140.00	Flange	0.8750	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T4 140.00-120.00	Flange	0.8750	4	0.6250	1	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T5 120.00-100.00	Flange	1.0000	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T6 100.00-80.00	Flange	1.0000	4	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T7 80.00-60.00	Flange	1.0000	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T8 60.00-40.00	Flange	1.0000	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T9 40.00-20.00	Flange	1.0000	8	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T10 20.00-0.00	Flange	1.0000	8	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A354-BC		A325N		A325N		A325N		A325X		A325N		A325X	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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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 (Verizon Existing)	B	Yes	Ar (CfAe)	150.00 - 0.00	-2.0000	-0.3	12	12	1.9800	1.9800		1.04
1 1/4 (Nextel Existing)	A	Yes	Ar (CfAe)	130.00 - 0.00	-2.0000	0	12	12	1.5500	1.5500		0.66
1 5/8 (Sprint Existing)	A	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1 5/8 (Sprint Existing)	B	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1 5/8 (Sprint Existing)	C	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0	2	2	1.9800	1.9800		1.04
1/2	A	Yes	Ar (CfAe)	50.00 - 0.00	0.0000	0.07	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	70.00 - 0.00	0.0000	0.06	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	94.00 - 0.00	0.0000	0.05	1	1	0.5800	0.5800		0.25
7/8	A	Yes	Ar (CfAe)	156.00 - 0.00	0.0000	0.03	2	2	1.1100	1.1100		0.54
1/2	A	Yes	Ar (CfAe)	185.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	32.00 - 0.00	0.0000	-0.03	1	1	0.5800	0.5800		0.25
1 1/4	A	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.05	1	1	1.5500	1.5500		0.66
1/2	A	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.06	1	1	0.5800	0.5800		0.25
1/2	A	Yes	Ar (CfAe)	17.00 - 0.00	0.0000	-0.07	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	92.00 - 0.00	0.0000	0.08	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	0.07	1	1	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	0.06	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	156.00 - 0.00	0.0000	0.05	1	1	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.04	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.025	2	2	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	102.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
7/8	B	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.05	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	109.00 - 0.00	0.0000	-0.06	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.06	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	110.00 - 0.00	0.0000	0.05	1	1	1.1100	1.1100		0.54
7/8	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	0.04	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	136.00 - 0.00	0.0000	0.03	1	1	0.5800	0.5800		0.25
1/2	C	Yes	Ar (CfAe)	113.00 - 0.00	0.0000	0.02	1	1	0.5800	0.5800		0.25
1/2	C	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	-0.02	1	1	0.5800	0.5800		0.25
7/8	C	Yes	Ar (CfAe)	142.00 - 0.00	0.0000	-0.03	1	1	1.1100	1.1100		0.54
1 1/4	C	Yes	Ar (CfAe)	190.00 - 0.00	0.0000	-0.04	1	1	1.5500	1.5500		0.66
7/8	C	Yes	Ar (CfAe)	103.00 - 0.00	0.0000	-0.05	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	31.00 - 0.00	0.0000	-0.06	1	1	0.5800	0.5800		0.25
7/8	C	Yes	Ar (CfAe)	74.00 - 0.00	0.0000	-0.07	1	1	1.1100	1.1100		0.54
1/2	C	Yes	Ar (CfAe)	50.00 - 0.00	0.0000	-0.08	1	1	0.5800	0.5800		0.25

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	190.00-180.00	A	2.017	0.000	0.000	0.000	0.01
		B	3.258	0.000	0.000	0.000	0.02
		C	3.142	0.000	0.000	0.000	0.02
T2	180.00-160.00	A	4.517	0.000	0.000	0.000	0.02
		B	6.517	0.000	0.000	0.000	0.04

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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
T3	160.00-140.00	C	6.283	0.000	0.000	0.000	0.03
		A	10.777	0.000	0.000	0.000	0.06
		B	31.378	0.000	0.000	0.000	0.19
		C	9.865	0.000	0.000	0.000	0.06
T4	140.00-120.00	A	30.317	0.000	0.000	0.000	0.17
		B	57.383	0.000	0.000	0.000	0.36
		C	16.473	0.000	0.000	0.000	0.10
T5	120.00-100.00	A	45.817	0.000	0.000	0.000	0.24
		B	58.313	0.000	0.000	0.000	0.36
		C	18.497	0.000	0.000	0.000	0.11
T6	100.00-80.00	A	46.493	0.000	0.000	0.000	0.25
		B	61.310	0.000	0.000	0.000	0.38
		C	21.333	0.000	0.000	0.000	0.12
T7	80.00-60.00	A	47.267	0.000	0.000	0.000	0.25
		B	62.050	0.000	0.000	0.000	0.38
		C	22.628	0.000	0.000	0.000	0.13
T8	60.00-40.00	A	48.233	0.000	0.000	0.000	0.26
		B	62.050	0.000	0.000	0.000	0.38
		C	23.667	0.000	0.000	0.000	0.14
T9	40.00-20.00	A	49.297	0.000	0.000	0.000	0.26
		B	62.050	0.000	0.000	0.000	0.38
		C	24.682	0.000	0.000	0.000	0.14
T10	20.00-0.00	A	50.505	0.000	0.000	0.000	0.27
		B	62.050	0.000	0.000	0.000	0.38
		C	25.117	0.000	0.000	0.000	0.14

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	$C_A A_A$ In Face ft^2	$C_A A_A$ Out Face ft^2	Weight K
T1	190.00-180.00	A	0.500	4.100	0.000	0.000	0.000	0.03
		B		6.592	0.000	0.000	0.000	0.05
		C		5.642	0.000	0.000	0.000	0.05
T2	180.00-160.00	A	0.500	9.517	0.000	0.000	0.000	0.07
		B		13.183	0.000	0.000	0.000	0.11
		C		11.283	0.000	0.000	0.000	0.10
T3	160.00-140.00	A	0.500	20.110	0.000	0.000	0.000	0.17
		B		51.378	0.000	0.000	0.000	0.50
		C		16.865	0.000	0.000	0.000	0.16
T4	140.00-120.00	A	0.500	51.983	0.000	0.000	0.000	0.47
		B		92.383	0.000	0.000	0.000	0.90
		C		29.473	0.000	0.000	0.000	0.26
T5	120.00-100.00	A	0.500	77.483	0.000	0.000	0.000	0.70
		B		94.229	0.000	0.000	0.000	0.92
		C		33.998	0.000	0.000	0.000	0.30
T6	100.00-80.00	A	0.500	79.327	0.000	0.000	0.000	0.71
		B		100.643	0.000	0.000	0.000	0.97
		C		39.667	0.000	0.000	0.000	0.35
T7	80.00-60.00	A	0.500	81.433	0.000	0.000	0.000	0.72
		B		102.050	0.000	0.000	0.000	0.98
		C		42.128	0.000	0.000	0.000	0.37
T8	60.00-40.00	A	0.500	84.067	0.000	0.000	0.000	0.74
		B		102.050	0.000	0.000	0.000	0.98
		C		44.500	0.000	0.000	0.000	0.39
T9	40.00-20.00	A	0.500	86.963	0.000	0.000	0.000	0.76
		B		102.050	0.000	0.000	0.000	0.98
		C		47.265	0.000	0.000	0.000	0.41

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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
T10	20.00-0.00	A	0.500	90.255	0.000	0.000	0.000	0.78
		B		102.050	0.000	0.000	0.000	0.98
		C		48.450	0.000	0.000	0.000	0.41

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	190.00-180.00	A	0.000	0.235	0.202	0.411
		B	0.000	0.378	0.327	0.661
		C	0.000	0.323	0.315	0.566
T2	180.00-160.00	A	0.000	0.522	0.434	0.914
		B	0.000	0.723	0.626	1.266
		C	0.000	0.619	0.603	1.083
T3	160.00-140.00	A	0.000	1.100	1.031	1.925
		B	0.000	2.810	3.003	4.917
		C	0.000	0.922	0.944	1.614
T4	140.00-120.00	A	0.000	2.868	2.927	5.020
		B	0.000	5.098	5.541	8.921
		C	0.000	1.626	1.591	2.846
T5	120.00-100.00	A	0.000	3.075	3.637	6.150
		B	0.000	3.740	4.628	7.479
		C	0.000	1.349	1.468	2.698
T6	100.00-80.00	A	0.000	2.399	3.515	5.998
		B	0.000	3.044	4.636	7.610
		C	0.000	1.200	1.613	2.999
T7	80.00-60.00	A	0.000	2.336	3.390	5.841
		B	0.000	2.928	4.451	7.320
		C	0.000	1.209	1.623	3.022
T8	60.00-40.00	A	0.000	2.332	4.014	6.997
		B	0.000	2.831	5.164	8.493
		C	0.000	1.235	1.970	3.704
T9	40.00-20.00	A	0.000	1.712	2.912	5.137
		B	0.000	2.009	3.665	6.028
		C	0.000	0.931	1.458	2.792
T10	20.00-0.00	A	0.000	1.721	3.371	6.025
		B	0.000	1.946	4.142	6.812
		C	0.000	0.924	1.677	3.234

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	190.00-180.00	0.3629	0.3944	0.4331	0.2891
T2	180.00-160.00	0.2511	0.3282	0.2667	0.2053
T3	160.00-140.00	0.5751	-3.6387	0.5528	-3.5893
T4	140.00-120.00	-0.1400	-6.3530	-0.1372	-6.0634
T5	120.00-100.00	-1.3733	-8.2598	-1.4368	-7.9727
T6	100.00-80.00	-1.1985	-9.2808	-1.2278	-9.1911
T7	80.00-60.00	-1.2980	-10.7600	-1.3722	-10.6527

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Section	Elevation	CP _X	CP _Z	CP _X Ice	CP _Z Ice
	ft	in	in	in	in
T8	60.00-40.00	-1.3967	-11.0429	-1.5926	-11.2226
T9	40.00-20.00	-1.8121	-13.3249	-2.1482	-13.3574
T10	20.00-0.00	-1.9877	-13.1174	-2.5816	-13.5807

Discrete Tower Loads

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
Pirot 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
Pirot 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
(2) Obstruction Lights	C	From Leg	0.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	0.01 0.01
PD1142-3	C	From Leg	0.00 0.00 4.00	0.0000	192.00	No Ice 1/2" Ice	0.48 0.55	0.48 0.55	0.01 0.01
3' Yagi	C	From Leg	1.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice	2.08 3.79	2.08 3.79	0.03 0.05
PD1142-2A	C	From Leg	4.00 0.00 8.00	0.0000	187.00	No Ice 1/2" Ice	0.79 0.91	0.79 0.91	0.01 0.01
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
ASP-705	C	From Leg	4.00 0.00 10.00	0.0000	156.00	No Ice 1/2" Ice	5.88 8.01	5.88 8.01	0.03 0.07
DB230-2A	C	From Leg	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice	3.00 5.40	3.00 5.40	0.11 0.15
PD320	C	From Leg	1.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.03 4.58	2.03 4.58	0.01 0.03
Pirot 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
14' x 3" Dia Omni	C	From Leg	4.00 0.00 7.00	0.0000	103.00	No Ice 1/2" Ice	4.20 5.63	4.20 5.63	0.04 0.07
15-ft Single Dipole	C	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 1/2" Ice	3.00 6.00	3.00 6.00	0.04 0.06
PD320	C	From Leg	1.00	0.0000	74.00	No Ice	2.03	2.03	0.01

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	Client	Verizon Wireless	Designed by	TJL

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	4.58	4.58	0.03
15-ft Single Dipole	C	From Leg	0.00						
			1.00	0.0000	50.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
15-ft Single Dipole	C	From Leg	0.00						
			1.00	0.0000	31.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
ASP-705	B	From Leg	0.00						
			1.00	0.0000	192.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
ASP-705	B	From Leg	10.00						
			4.00	0.0000	192.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
Paraflector	B	From Leg	10.00						
			4.00	0.0000	187.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	156.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
ASP-705	B	From Leg	0.00						
			4.00	0.0000	156.00	No Ice	5.88	5.88	0.03
			0.00			1/2" Ice	8.01	8.01	0.07
Paraflector	B	From Leg	10.00						
			4.00	0.0000	144.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Paraflector	B	From Leg	0.00						
			4.00	0.0000	140.00	No Ice	8.90	8.90	0.04
			0.00			1/2" Ice	10.70	10.70	0.60
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	142.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
Pirot 4' Side Mount Standoff (1)	B	From Leg	0.00						
			2.00	0.0000	109.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
14' x 3" Dia Omni	B	From Leg	0.00						
			4.00	0.0000	109.00	No Ice	4.20	4.20	0.04
			0.00			1/2" Ice	5.63	5.63	0.07
GPS	B	From Leg	7.00						
			1.00	0.0000	102.00	No Ice	1.00	1.00	0.01
			0.00			1/2" Ice	1.50	1.50	0.01
1' Standoff Pipe	B	From Leg	0.00						
			0.50	0.0000	102.00	No Ice	0.16	0.16	0.01
			0.00			1/2" Ice	0.23	0.23	0.01
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	94.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
15-ft Single Dipole	B	From Leg	0.00						
			1.00	0.0000	70.00	No Ice	3.00	3.00	0.04
			0.00			1/2" Ice	6.00	6.00	0.06
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	50.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
DB212 Single Dipole	B	From Leg	0.00						
			1.00	0.0000	32.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
Pirot 4' Side Mount Standoff	B	From Leg	0.00						
			2.00	0.0000	17.00	No Ice	2.72	2.72	0.05

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	Client Verizon Wireless		Designed by TJL

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
(1)			0.00			1/2" Ice	4.91	4.91	0.09
PD400	B	From Leg	0.00	0.0000	17.00	No Ice	3.13	3.13	0.02
			0.00			1/2" Ice	4.48	4.48	0.04
3' Yagi	B	From Leg	6.00	0.0000	17.00	No Ice	2.08	2.08	0.03
			0.00			1/2" Ice	3.79	3.79	0.05
DB420	A	From Leg	0.00	0.0000	192.00	No Ice	3.33	3.33	0.03
			0.00			1/2" Ice	5.99	5.99	0.04
4' x 3" DIA Omni	A	From Leg	10.00	0.0000	190.00	No Ice	1.00	1.00	0.02
			0.00			1/2" Ice	1.25	1.25	0.02
Halo	A	From Leg	2.00	0.0000	192.00	No Ice	4.00	4.00	0.01
			0.00			1/2" Ice	5.60	5.60	0.03
3' Yagi	A	From Leg	0.00	0.0000	190.00	No Ice	2.08	2.08	0.03
			0.00			1/2" Ice	3.79	3.79	0.05
Pirot 4' Side Mount Standoff (1)	A	From Leg	0.00	0.0000	142.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
DB264-A	A	From Leg	0.00	0.0000	142.00	No Ice	3.16	3.16	0.04
			0.00			1/2" Ice	5.69	5.69	0.05
DB436-C	A	From Leg	0.00	0.0000	142.00	No Ice	0.45	0.45	0.01
			0.00			1/2" Ice	0.81	0.81	0.01
Single Dipole	A	From Leg	0.00	0.0000	136.00	No Ice	1.60	1.60	0.03
			0.00			1/2" Ice	3.20	3.20	0.04
Pirot 4' Side Mount Standoff (1)	A	From Leg	0.00	0.0000	113.00	No Ice	2.72	2.72	0.05
			0.00			1/2" Ice	4.91	4.91	0.09
Dipole	A	From Leg	0.00	0.0000	113.00	No Ice	3.16	3.16	0.04
			0.00			1/2" Ice	5.69	5.69	0.05
Rohn 6'x14' Boom Gate (3) (Sprint Existing)	C	None	3.00	0.0000	180.00	No Ice	52.00	52.00	1.75
(2) DB980H90E-M (Sprint Existing)	A	From Leg	0.00	0.0000	180.00	1/2" Ice	61.90	61.90	2.19
			0.00			No Ice	3.80	2.19	0.01
			0.00			1/2" Ice	4.18	2.56	0.03
(2) DB980H90E-M (Sprint Existing)	B	From Leg	0.00	0.0000	180.00	No Ice	3.80	2.19	0.01
			0.00			1/2" Ice	4.18	2.56	0.03
(2) DB980H90E-M (Sprint Existing)	C	From Leg	0.00	0.0000	180.00	No Ice	3.80	2.19	0.01
			0.00			1/2" Ice	4.18	2.56	0.03
10-ft T-Frame (Nextel Existing)	A	None		0.0000	130.00	No Ice	13.60	13.60	0.38
						1/2" Ice	17.50	17.50	0.53
10-ft T-Frame (Nextel Existing)	B	None		0.0000	130.00	No Ice	13.60	13.60	0.38
						1/2" Ice	17.50	17.50	0.53
10-ft T-Frame (Nextel Existing)	C	None		0.0000	130.00	No Ice	13.60	13.60	0.38
						1/2" Ice	17.50	17.50	0.53
(4) DB844H90E-XY (Nextel Existing)	A	From Leg	0.00	0.0000	130.00	No Ice	2.87	3.73	0.01
						1/2" Ice	3.18	4.10	0.04

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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
(4) DB844H90E-XY (Nextel Existing)	B	From Leg	0.00 4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
(4) DB844H90E-XY (Nextel Existing)	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	A	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	B	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirot 12' T-Frame Sector Mount (1) (Verizon Existing)	C	None		0.0000	150.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
DB948F85T2E-M (Verizon Existing)	A	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	A	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	A	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	A	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon Existing)	B	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	B	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	B	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	B	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon Existing)	C	From Leg	4.00 -6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
APL868013-42T0 (Verizon Proposed)	C	From Leg	4.00 -4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
APL868013-42T0 (Verizon Proposed)	C	From Leg	4.00 4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.02 0.04
DB948F85T2E-M (Verizon Existing)	C	From Leg	4.00 6.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03

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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 ft²	Weight K
3-ft dish	C	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		156.00	3.00	No Ice 1/2" Ice	3.14 3.41
										0.08 0.10

Tower Pressures - No Ice

$$G_H = 1.117$$

Section Elevation ft	z ft	K _z	q _z psf	A _G ft²	F a c e	A _F ft²	A _R ft²	A _{leg} ft²	Leg %	C _A A _A In Face ft²	C _A A _A Out Face ft²
T1 190.00-180.00	185.00	1.636	30	48.479	A	4.261	5.975	3.958	38.67	0.000	0.000
					B	4.136	7.217		34.87	0.000	0.000
					C	4.148	7.100		35.19	0.000	0.000
T2 180.00-160.00	170.00	1.597	30	98.192	A	8.081	14.100	9.583	43.20	0.000	0.000
					B	7.889	16.100		39.95	0.000	0.000
					C	7.912	15.867		40.30	0.000	0.000
T3 160.00-140.00	150.00	1.541	29	99.933	A	7.426	22.443	11.667	39.06	0.000	0.000
					B	5.455	43.045		24.06	0.000	0.000
					C	7.514	21.532		40.17	0.000	0.000
T4 140.00-120.00	130.00	1.48	27	121.475	A	7.347	43.673	13.356	26.18	0.000	0.000
					B	4.733	70.740		17.70	0.000	0.000
					C	8.684	29.830		34.68	0.000	0.000
T5 120.00-100.00	110.00	1.411	26	163.410	A	8.133	60.843	15.027	21.79	0.000	0.000
					B	7.141	73.339		18.67	0.000	0.000
					C	10.301	33.524		34.29	0.000	0.000
T6 100.00-80.00	90.00	1.332	25	205.883	A	10.660	65.068	18.574	24.53	0.000	0.000
					B	9.540	79.884		20.77	0.000	0.000
					C	12.562	39.908		35.40	0.000	0.000
T7 80.00-60.00	70.00	1.24	23	246.784	A	12.973	65.844	18.577	23.57	0.000	0.000
					B	11.913	80.627		20.07	0.000	0.000
					C	14.740	41.205		33.21	0.000	0.000
T8 60.00-40.00	50.00	1.126	21	288.755	A	18.199	70.351	22.118	24.98	0.000	0.000
					B	17.050	84.168		21.85	0.000	0.000
					C	20.244	45.784		33.50	0.000	0.000
T9 40.00-20.00	30.00	1	18	329.457	A	15.241	71.422	22.125	25.53	0.000	0.000
					B	14.487	84.175		22.43	0.000	0.000
					C	16.695	46.807		34.84	0.000	0.000
T10 20.00-0.00	10.00	1	18	374.293	A	19.747	79.303	28.798	29.07	0.000	0.000
					B	18.977	90.848		26.22	0.000	0.000
					C	21.442	53.915		38.22	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.117$$

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page 14 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:26:23 09/08/11
	Client	Verizon Wireless	Designed by TJL

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 190.00-180.00	185.00	1.636	23	0.5000	49.313	A	4.052	12.040	5.625	34.96	0.000	0.000
						B	3.802	14.389		30.92	0.000	0.000
						C	3.897	13.494		32.34	0.000	0.000
T2 180.00-160.00	170.00	1.597	22	0.5000	99.858	A	7.601	26.777	12.917	37.57	0.000	0.000
						B	7.249	30.243		34.45	0.000	0.000
						C	7.432	28.447		36.00	0.000	0.000
T3 160.00-140.00	150.00	1.541	21	0.5000	101.600	A	6.533	38.843	15.000	33.06	0.000	0.000
						B	3.540	68.401		20.85	0.000	0.000
						C	6.844	35.776		35.20	0.000	0.000
T4 140.00-120.00	130.00	1.48	21	0.5000	123.144	A	5.255	71.682	16.696	21.70	0.000	0.000
						B	1.354	109.852		15.01	0.000	0.000
						C	7.428	50.414		28.86	0.000	0.000
T5 120.00-100.00	110.00	1.411	20	0.5000	165.079	A	5.620	98.659	18.366	17.61	0.000	0.000
						B	4.290	114.740		15.43	0.000	0.000
						C	9.071	56.899		27.84	0.000	0.000
T6 100.00-80.00	90.00	1.332	18	0.5000	207.552	A	8.177	104.511	21.913	19.45	0.000	0.000
						B	6.566	125.183		16.63	0.000	0.000
						C	11.176	66.050		28.38	0.000	0.000
T7 80.00-60.00	70.00	1.24	17	0.5000	248.453	A	10.522	107.559	21.916	18.56	0.000	0.000
						B	9.044	127.584		16.04	0.000	0.000
						C	13.342	69.381		26.49	0.000	0.000
T8 60.00-40.00	50.00	1.126	16	0.5000	290.423	A	15.217	114.595	25.456	19.61	0.000	0.000
						B	13.720	132.080		17.46	0.000	0.000
						C	18.510	76.126		26.90	0.000	0.000
T9 40.00-20.00	30.00	1	14	0.5000	331.127	A	13.016	116.767	25.465	19.62	0.000	0.000
						B	12.125	131.557		17.72	0.000	0.000
						C	15.361	77.850		27.32	0.000	0.000
T10 20.00-0.00	10.00	1	14	0.5000	375.962	A	17.094	127.276	32.137	22.26	0.000	0.000
						B	16.307	138.846		20.71	0.000	0.000
						C	19.885	86.269		30.27	0.000	0.000

Tower Pressure - Service

$$G_H = 1.117$$

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 190.00-180.00	185.00	1.636	10	48.479	A	4.261	5.975	3.958	38.67	0.000	0.000
					B	4.136	7.217		34.87	0.000	0.000
					C	4.148	7.100		35.19	0.000	0.000
T2 180.00-160.00	170.00	1.597	10	98.192	A	8.081	14.100	9.583	43.20	0.000	0.000
					B	7.889	16.100		39.95	0.000	0.000
					C	7.912	15.867		40.30	0.000	0.000
T3 160.00-140.00	150.00	1.541	10	99.933	A	7.426	22.443	11.667	39.06	0.000	0.000
					B	5.455	43.045		24.06	0.000	0.000
					C	7.514	21.532		40.17	0.000	0.000
T4 140.00-120.00	130.00	1.48	9	121.475	A	7.347	43.673	13.356	26.18	0.000	0.000
					B	4.733	70.740		17.70	0.000	0.000
					C	8.684	29.830		34.68	0.000	0.000
T5 120.00-100.00	110.00	1.411	9	163.410	A	8.133	60.843	15.027	21.79	0.000	0.000
					B	7.141	73.339		18.67	0.000	0.000
					C	10.301	33.524		34.29	0.000	0.000
T6 100.00-	90.00	1.332	9	205.883	A	10.660	65.068	18.574	24.53	0.000	0.000

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	15 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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			
80.00					B	9.540	79.884		20.77	0.000	0.000
T7 80.00-60.00	70.00	1.24	8	246.784	C	12.562	39.908		35.40	0.000	0.000
					A	12.973	65.844	18.577	23.57	0.000	0.000
					B	11.913	80.627		20.07	0.000	0.000
T8 60.00-40.00	50.00	1.126	7	288.755	C	14.740	41.205		33.21	0.000	0.000
					A	18.199	70.351	22.118	24.98	0.000	0.000
					B	17.050	84.168		21.85	0.000	0.000
T9 40.00-20.00	30.00	1	6	329.457	C	20.244	45.784		33.50	0.000	0.000
					A	15.241	71.422	22.125	25.53	0.000	0.000
					B	14.487	84.175		22.43	0.000	0.000
T10 20.00-0.00	10.00	1	6	374.293	C	16.695	46.807		34.84	0.000	0.000
					A	19.747	79.303	28.798	29.07	0.000	0.000
					B	18.977	90.848		26.22	0.000	0.000
					C	21.442	53.915		38.22	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 190.00-180.00	0.05	0.31	A	0.211	2.559	0.593	1	1	7.802	0.71	71.04	B
			B	0.234	2.486	0.598	1	1	8.451			
			C	0.232	2.493	0.597	1	1	8.390			
T2 180.00-160.00	0.10	0.74	A	0.226	2.512	0.596	1	1	16.485	1.42	71.13	B
			B	0.244	2.455	0.6	1	1	17.557			
			C	0.242	2.461	0.6	1	1	17.430			
T3 160.00-140.00	0.31	1.01	A	0.299	2.299	0.616	1	1	21.242	2.15	107.50	B
			B	0.485	1.92	0.69	1	1	35.161			
			C	0.291	2.321	0.613	1	1	20.714			
T4 140.00-120.00	0.62	1.23	A	0.42	2.026	0.66	1	1	36.170	3.23	161.60	B
			B	0.621	1.792	0.767	1	1	58.981			
			C	0.317	2.252	0.621	1	1	27.216			
T5 120.00-100.00	0.71	1.44	A	0.422	2.022	0.661	1	1	48.343	3.23	161.50	B
			B	0.493	1.91	0.694	1	1	58.017			
			C	0.268	2.384	0.607	1	1	30.640			
T6 100.00-80.00	0.75	1.91	A	0.368	2.131	0.639	1	1	52.238	3.45	172.74	B
			B	0.434	2	0.666	1	1	62.760			
			C	0.255	2.423	0.603	1	1	36.632			
T7 80.00-60.00	0.77	2.00	A	0.319	2.246	0.622	1	1	53.929	3.45	172.49	B
			B	0.375	2.116	0.642	1	1	63.652			
			C	0.227	2.509	0.596	1	1	39.307			
T8 60.00-40.00	0.78	2.73	A	0.307	2.278	0.618	1	1	61.674	3.55	177.51	B
			B	0.351	2.17	0.633	1	1	70.299			
			C	0.229	2.503	0.597	1	1	47.562			
T9 40.00-20.00	0.79	2.83	A	0.263	2.399	0.605	1	1	58.472	3.15	157.42	B
			B	0.299	2.297	0.616	1	1	66.317			
			C	0.193	2.62	0.589	1	1	44.262			
T10 20.00-0.00	0.80	3.41	A	0.265	2.394	0.606	1	1	67.783	3.57	178.69	B
			B	0.293	2.314	0.614	1	1	74.749			
			C	0.201	2.592	0.591	1	1	53.288			
Sum Weight:	5.66	17.60						OTM	2331.35 kip-ft	27.92		

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	16 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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 190.00-180.00	0.05	0.31	A	0.211	2.559	0.593	0.825	1	7.057	0.65	64.96	B
			B	0.234	2.486	0.598	0.825	1	7.728			
			C	0.232	2.493	0.597	0.825	1	7.664			
T2 180.00-160.00	0.10	0.74	A	0.226	2.512	0.596	0.825	1	15.071	1.31	65.53	B
			B	0.244	2.455	0.6	0.825	1	16.176			
			C	0.242	2.461	0.6	0.825	1	16.046			
T3 160.00-140.00	0.31	1.01	A	0.299	2.299	0.616	0.825	1	19.942	2.09	104.58	B
			B	0.485	1.92	0.69	0.825	1	34.206			
			C	0.291	2.321	0.613	0.825	1	19.399			
T4 140.00-120.00	0.62	1.23	A	0.42	2.026	0.66	0.825	1	34.884	3.19	159.33	B
			B	0.621	1.792	0.767	0.825	1	58.153			
			C	0.317	2.252	0.621	0.825	1	25.696			
T5 120.00-100.00	0.71	1.44	A	0.422	2.022	0.661	0.825	1	46.919	3.16	158.02	B
			B	0.493	1.91	0.694	0.825	1	56.767			
			C	0.268	2.384	0.607	0.825	1	28.837			
T6 100.00-80.00	0.75	1.91	A	0.368	2.131	0.639	0.825	1	50.373	3.36	168.15	B
			B	0.434	2	0.666	0.825	1	61.090			
			C	0.255	2.423	0.603	0.825	1	34.433			
T7 80.00-60.00	0.77	2.00	A	0.319	2.246	0.622	0.825	1	51.659	3.34	166.84	B
			B	0.375	2.116	0.642	0.825	1	61.567			
			C	0.227	2.509	0.596	0.825	1	36.728			
T8 60.00-40.00	0.78	2.73	A	0.307	2.278	0.618	0.825	1	58.489	3.40	169.98	B
			B	0.351	2.17	0.633	0.825	1	67.316			
			C	0.229	2.503	0.597	0.825	1	44.019			
T9 40.00-20.00	0.79	2.83	A	0.263	2.399	0.605	0.825	1	55.805	3.03	151.40	B
			B	0.299	2.297	0.616	0.825	1	63.782			
			C	0.193	2.62	0.589	0.825	1	41.340			
T10 20.00-0.00	0.80	3.41	A	0.265	2.394	0.606	0.825	1	64.327	3.42	170.75	B
			B	0.293	2.314	0.614	0.825	1	71.428			
			C	0.201	2.592	0.591	0.825	1	49.536			
Sum Weight:	5.66	17.60						OTM	2249.85 kip-ft	26.94		

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 190.00-180.00	0.05	0.31	A	0.211	2.559	0.593	0.8	1	6.950	0.64	64.09	B
			B	0.234	2.486	0.598	0.8	1	7.624			
			C	0.232	2.493	0.597	0.8	1	7.560			
T2 180.00-160.00	0.10	0.74	A	0.226	2.512	0.596	0.8	1	14.869	1.29	64.74	B
			B	0.244	2.455	0.6	0.8	1	15.979			
			C	0.242	2.461	0.6	0.8	1	15.848			
T3 160.00-140.00	0.31	1.01	A	0.299	2.299	0.616	0.8	1	19.756	2.08	104.16	B
			B	0.485	1.92	0.69	0.8	1	34.070			
			C	0.291	2.321	0.613	0.8	1	19.211			
T4 140.00-120.00	0.62	1.23	A	0.42	2.026	0.66	0.8	1	34.700	3.18	159.01	B
			B	0.621	1.792	0.767	0.8	1	58.035			
			C	0.317	2.252	0.621	0.8	1	25.479			
T5 120.00-100.00	0.71	1.44	A	0.422	2.022	0.661	0.8	1	46.716	3.15	157.52	B
			B	0.493	1.91	0.694	0.8	1	56.589			

<i>RISATower</i> Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	17 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
T6 100.00- 80.00	0.75	1.91	C	0.268	2.384	0.607	0.8	1	28.580	3.35	167.49	B
			A	0.368	2.131	0.639	0.8	1	50.106			
			B	0.434	2	0.666	0.8	1	60.852			
T7 80.00- 60.00	0.77	2.00	C	0.255	2.423	0.603	0.8	1	34.119	3.32	166.03	B
			A	0.319	2.246	0.622	0.8	1	51.335			
			B	0.375	2.116	0.642	0.8	1	61.269			
T8 60.00- 40.00	0.78	2.73	C	0.227	2.509	0.596	0.8	1	36.359	3.38	168.90	B
			A	0.307	2.278	0.618	0.8	1	58.034			
			B	0.351	2.17	0.633	0.8	1	66.889			
T9 40.00- 20.00	0.79	2.83	C	0.229	2.503	0.597	0.8	1	43.513	3.01	150.54	B
			A	0.263	2.399	0.605	0.8	1	55.424			
			B	0.299	2.297	0.616	0.8	1	63.420			
T10 20.00- 0.00	0.80	3.41	C	0.193	2.62	0.589	0.8	1	40.923	3.39	169.62	B
			A	0.265	2.394	0.606	0.8	1	63.833			
			B	0.293	2.314	0.614	0.8	1	70.954			
Sum Weight:	5.66	17.60	C	0.201	2.592	0.591	0.8	1	49.000			
								OTM	2238.21 kip-ft	26.80		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.85	1	7.163	0.66	65.83	B
			B	0.234	2.486	0.598	0.85	1	7.831			
			C	0.232	2.493	0.597	0.85	1	7.768			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.85	1	15.273	1.33	66.33	B
			B	0.244	2.455	0.6	0.85	1	16.373			
			C	0.242	2.461	0.6	0.85	1	16.244			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.85	1	20.128	2.10	105.00	B
			B	0.485	1.92	0.69	0.85	1	34.343			
			C	0.291	2.321	0.613	0.85	1	19.587			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.85	1	35.068	3.19	159.66	B
			B	0.621	1.792	0.767	0.85	1	58.271			
			C	0.317	2.252	0.621	0.85	1	25.913			
T5 120.00- 100.00	0.71	1.44	A	0.422	2.022	0.661	0.85	1	47.123	3.17	158.52	B
			B	0.493	1.91	0.694	0.85	1	56.946			
			C	0.268	2.384	0.607	0.85	1	29.095			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.85	1	50.639	3.38	168.81	B
			B	0.434	2	0.666	0.85	1	61.329			
			C	0.255	2.423	0.603	0.85	1	34.747			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.85	1	51.983	3.35	167.65	B
			B	0.375	2.116	0.642	0.85	1	61.865			
			C	0.227	2.509	0.596	0.85	1	37.096			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.85	1	58.944	3.42	171.05	B
			B	0.351	2.17	0.633	0.85	1	67.742			
			C	0.229	2.503	0.597	0.85	1	44.525			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.85	1	56.186	3.05	152.26	B
			B	0.299	2.297	0.616	0.85	1	64.144			
			C	0.193	2.62	0.589	0.85	1	41.757			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.85	1	64.821	3.44	171.89	B
			B	0.293	2.314	0.614	0.85	1	71.903			
			C	0.201	2.592	0.591	0.85	1	50.072			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	18 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
Sum Weight:	5.66	17.60						OTM	2261.50 kip-ft	27.08		

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 190.00- 180.00	0.14	0.53	A	0.326	2.228	0.624	1	1	11.569	0.70	70.21	B
			B	0.369	2.129	0.639	1	1	13.003			
			C	0.353	2.165	0.633	1	1	12.445			
T2 180.00- 160.00	0.28	1.18	A	0.344	2.185	0.63	1	1	24.483	1.40	69.79	B
			B	0.375	2.115	0.642	1	1	26.662			
			C	0.359	2.15	0.636	1	1	25.519			
T3 160.00- 140.00	0.83	1.48	A	0.447	1.979	0.672	1	1	32.625	2.55	127.37	B
			B	0.708	1.777	0.826	1	1	60.020			
			C	0.419	2.027	0.66	1	1	30.446			
T4 140.00- 120.00	1.64	1.78	A	0.625	1.791	0.769	1	1	60.383	4.85	242.44	B
			B	0.903	1.928	0.986	1	1	109.658			
			C	0.47	1.942	0.683	1	1	41.837			
T5 120.00- 100.00	1.92	2.06	A	0.632	1.788	0.774	1	1	81.933	3.89	194.66	B
			B	0.721	1.779	0.835	1	1	100.117			
			C	0.4	2.065	0.651	1	1	46.138			
T6 100.00- 80.00	2.03	2.63	A	0.543	1.85	0.72	1	1	83.461	3.82	191.12	B
			B	0.635	1.787	0.775	1	1	103.644			
			C	0.372	2.122	0.641	1	1	53.488			
T7 80.00- 60.00	2.08	2.80	A	0.475	1.934	0.685	1	1	84.221	3.59	179.66	B
			B	0.55	1.844	0.724	1	1	101.443			
			C	0.333	2.212	0.627	1	1	56.812			
T8 60.00- 40.00	2.11	3.75	A	0.447	1.978	0.672	1	1	92.213	3.51	175.47	B
			B	0.502	1.897	0.699	1	1	105.983			
			C	0.326	2.229	0.624	1	1	66.025			
T9 40.00- 20.00	2.15	3.70	A	0.392	2.08	0.648	1	1	88.721	3.09	154.65	B
			B	0.434	2.001	0.666	1	1	99.745			
			C	0.281	2.346	0.61	1	1	62.882			
T10 20.00- 0.00	2.18	4.51	A	0.384	2.097	0.645	1	1	99.213	3.40	169.91	B
			B	0.413	2.039	0.657	1	1	107.509			
			C	0.282	2.344	0.611	1	1	72.565			
Sum Weight:	15.35	24.41						OTM	2705.66 kip-ft	30.80		

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 190.00- 180.00	0.14	0.53	A	0.326	2.228	0.624	0.825	1	10.860	0.67	66.61	B
			B	0.369	2.129	0.639	0.825	1	12.337			
			C	0.353	2.165	0.633	0.825	1	11.763			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	19 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
T2 180.00-160.00	0.28	1.18	A	0.344	2.185	0.63	0.825	1	23.153	1.33	66.47	B
			B	0.375	2.115	0.642	0.825	1	25.393			
			C	0.359	2.15	0.636	0.825	1	24.219			
T3 160.00-140.00	0.83	1.48	A	0.447	1.979	0.672	0.825	1	31.482	2.52	126.05	B
			B	0.708	1.777	0.826	0.825	1	59.401			
			C	0.419	2.027	0.66	0.825	1	29.249			
T4 140.00-120.00	1.64	1.78	A	0.625	1.791	0.769	0.825	1	59.463	4.84	241.92	B
			B	0.903	1.928	0.986	0.825	1	109.421			
			C	0.47	1.942	0.683	0.825	1	40.537			
T5 120.00-100.00	1.92	2.06	A	0.632	1.788	0.774	0.825	1	80.950	3.86	193.20	B
			B	0.721	1.779	0.835	0.825	1	99.366			
			C	0.4	2.065	0.651	0.825	1	44.551			
T6 100.00-80.00	2.03	2.63	A	0.543	1.85	0.72	0.825	1	82.030	3.78	189.00	B
			B	0.635	1.787	0.775	0.825	1	102.496			
			C	0.372	2.122	0.641	0.825	1	51.533			
T7 80.00-60.00	2.08	2.80	A	0.475	1.934	0.685	0.825	1	82.380	3.54	176.86	B
			B	0.55	1.844	0.724	0.825	1	99.860			
			C	0.333	2.212	0.627	0.825	1	54.477			
T8 60.00-40.00	2.11	3.75	A	0.447	1.978	0.672	0.825	1	89.550	3.43	171.50	B
			B	0.502	1.897	0.699	0.825	1	103.582			
			C	0.326	2.229	0.624	0.825	1	62.785			
T9 40.00-20.00	2.15	3.70	A	0.392	2.08	0.648	0.825	1	86.444	3.03	151.36	B
			B	0.434	2.001	0.666	0.825	1	97.623			
			C	0.281	2.346	0.61	0.825	1	60.194			
T10 20.00-0.00	2.18	4.51	A	0.384	2.097	0.645	0.825	1	96.222	3.31	165.40	B
			B	0.413	2.039	0.657	0.825	1	104.655			
			C	0.282	2.344	0.611	0.825	1	69.085			
Sum Weight:	15.35	24.41						OTM	2664.62 kip-ft	30.30		

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 190.00-180.00	0.14	0.53	A	0.326	2.228	0.624	0.8	1	10.758	0.66	66.10	B
			B	0.369	2.129	0.639	0.8	1	12.242			
			C	0.353	2.165	0.633	0.8	1	11.665			
T2 180.00-160.00	0.28	1.18	A	0.344	2.185	0.63	0.8	1	22.963	1.32	66.00	B
			B	0.375	2.115	0.642	0.8	1	25.212			
			C	0.359	2.15	0.636	0.8	1	24.033			
T3 160.00-140.00	0.83	1.48	A	0.447	1.979	0.672	0.8	1	31.318	2.52	125.86	B
			B	0.708	1.777	0.826	0.8	1	59.312			
			C	0.419	2.027	0.66	0.8	1	29.078			
T4 140.00-120.00	1.64	1.78	A	0.625	1.791	0.769	0.8	1	59.332	4.84	241.85	B
			B	0.903	1.928	0.986	0.8	1	109.387			
			C	0.47	1.942	0.683	0.8	1	40.351			
T5 120.00-100.00	1.92	2.06	A	0.632	1.788	0.774	0.8	1	80.809	3.86	192.99	B
			B	0.721	1.779	0.835	0.8	1	99.259			
			C	0.4	2.065	0.651	0.8	1	44.324			
T6 100.00-80.00	2.03	2.63	A	0.543	1.85	0.72	0.8	1	81.825	3.77	188.70	B
			B	0.635	1.787	0.775	0.8	1	102.331			
			C	0.372	2.122	0.641	0.8	1	51.253			
T7 80.00-60.00	2.08	2.80	A	0.475	1.934	0.685	0.8	1	82.117	3.53	176.46	B
			B	0.55	1.844	0.724	0.8	1	99.634			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	21 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	1	1	7.802	0.25	24.58	B
			B	0.234	2.486	0.598	1	1	8.451			
			C	0.232	2.493	0.597	1	1	8.390			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	1	1	16.485	0.49	24.61	B
			B	0.244	2.455	0.6	1	1	17.557			
			C	0.242	2.461	0.6	1	1	17.430			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	1	1	21.242	0.74	37.20	B
			B	0.485	1.92	0.69	1	1	35.161			
			C	0.291	2.321	0.613	1	1	20.714			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	1	1	36.170	1.12	55.92	B
			B	0.621	1.792	0.767	1	1	58.981			
			C	0.317	2.252	0.621	1	1	27.216			
T5 120.00- 100.00	0.71	1.44	A	0.422	2.022	0.661	1	1	48.343	1.12	55.88	B
			B	0.493	1.91	0.694	1	1	58.017			
			C	0.268	2.384	0.607	1	1	30.640			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	1	1	52.238	1.20	59.77	B
			B	0.434	2	0.666	1	1	62.760			
			C	0.255	2.423	0.603	1	1	36.632			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	1	1	53.929	1.19	59.69	B
			B	0.375	2.116	0.642	1	1	63.652			
			C	0.227	2.509	0.596	1	1	39.307			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	1	1	61.674	1.23	61.42	B
			B	0.351	2.17	0.633	1	1	70.299			
			C	0.229	2.503	0.597	1	1	47.562			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	1	1	58.472	1.09	54.47	B
			B	0.299	2.297	0.616	1	1	66.317			
			C	0.193	2.62	0.589	1	1	44.262			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	1	1	67.783	1.24	61.83	B
			B	0.293	2.314	0.614	1	1	74.749			
			C	0.201	2.592	0.591	1	1	53.288			
Sum Weight:	5.66	17.60						OTM	806.70 kip-ft	9.66		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.825	1	7.057	0.22	22.48	B
			B	0.234	2.486	0.598	0.825	1	7.728			
			C	0.232	2.493	0.597	0.825	1	7.664			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.825	1	15.071	0.45	22.68	B
			B	0.244	2.455	0.6	0.825	1	16.176			
			C	0.242	2.461	0.6	0.825	1	16.046			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.825	1	19.942	0.72	36.19	B
			B	0.485	1.92	0.69	0.825	1	34.206			
			C	0.291	2.321	0.613	0.825	1	19.399			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.825	1	34.884	1.10	55.13	B
			B	0.621	1.792	0.767	0.825	1	58.153			
			C	0.317	2.252	0.621	0.825	1	25.696			
T5 120.00- 100.00	0.71	1.44	A	0.422	2.022	0.661	0.825	1	46.919	1.09	54.68	B
			B	0.493	1.91	0.694	0.825	1	56.767			

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	22 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
T6 100.00- 80.00	0.75	1.91	C	0.268	2.384	0.607	0.825	1	28.837	1.16	58.18	B
			A	0.368	2.131	0.639	0.825	1	50.373			
			B	0.434	2	0.666	0.825	1	61.090			
T7 80.00- 60.00	0.77	2.00	C	0.255	2.423	0.603	0.825	1	34.433	1.15	57.73	B
			A	0.319	2.246	0.622	0.825	1	51.659			
			B	0.375	2.116	0.642	0.825	1	61.567			
T8 60.00- 40.00	0.78	2.73	C	0.227	2.509	0.596	0.825	1	36.728	1.18	58.82	B
			A	0.307	2.278	0.618	0.825	1	58.489			
			B	0.351	2.17	0.633	0.825	1	67.316			
T9 40.00- 20.00	0.79	2.83	C	0.229	2.503	0.597	0.825	1	44.019	1.05	52.39	B
			A	0.263	2.399	0.605	0.825	1	55.805			
			B	0.299	2.297	0.616	0.825	1	63.782			
T10 20.00- 0.00	0.80	3.41	C	0.193	2.62	0.589	0.825	1	41.340	1.18	59.08	B
			A	0.265	2.394	0.606	0.825	1	64.327			
			B	0.293	2.314	0.614	0.825	1	71.428			
Sum Weight:	5.66	17.60	C	0.201	2.592	0.591	0.825	1	49.536	9.32		
								OTM	778.50 kip-ft			

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.8	1	6.950	0.22	22.18	B
			B	0.234	2.486	0.598	0.8	1	7.624			
			C	0.232	2.493	0.597	0.8	1	7.560			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.8	1	14.869	0.45	22.40	B
			B	0.244	2.455	0.6	0.8	1	15.979			
			C	0.242	2.461	0.6	0.8	1	15.848			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.8	1	19.756	0.72	36.04	B
			B	0.485	1.92	0.69	0.8	1	34.070			
			C	0.291	2.321	0.613	0.8	1	19.211			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.8	1	34.700	1.10	55.02	B
			B	0.621	1.792	0.767	0.8	1	58.035			
			C	0.317	2.252	0.621	0.8	1	25.479			
T5 120.00- 100.00	0.71	1.44	A	0.422	2.022	0.661	0.8	1	46.716	1.09	54.51	B
			B	0.493	1.91	0.694	0.8	1	56.589			
			C	0.268	2.384	0.607	0.8	1	28.580			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.8	1	50.106	1.16	57.96	B
			B	0.434	2	0.666	0.8	1	60.852			
			C	0.255	2.423	0.603	0.8	1	34.119			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.8	1	51.335	1.15	57.45	B
			B	0.375	2.116	0.642	0.8	1	61.269			
			C	0.227	2.509	0.596	0.8	1	36.359			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.8	1	58.034	1.17	58.44	B
			B	0.351	2.17	0.633	0.8	1	66.889			
			C	0.229	2.503	0.597	0.8	1	43.513			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.8	1	55.424	1.04	52.09	B
			B	0.299	2.297	0.616	0.8	1	63.420			
			C	0.193	2.62	0.589	0.8	1	40.923			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.8	1	63.833	1.17	58.69	B
			B	0.293	2.314	0.614	0.8	1	70.954			
			C	0.201	2.592	0.591	0.8	1	49.000			

RISA Tower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	23 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	
Sum Weight:	5.66	17.60						OTM	774.47 kip-ft	9.27		

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 190.00- 180.00	0.05	0.31	A	0.211	2.559	0.593	0.85	1	7.163	0.23	22.78	B
			B	0.234	2.486	0.598	0.85	1	7.831			
			C	0.232	2.493	0.597	0.85	1	7.768			
T2 180.00- 160.00	0.10	0.74	A	0.226	2.512	0.596	0.85	1	15.273	0.46	22.95	B
			B	0.244	2.455	0.6	0.85	1	16.373			
			C	0.242	2.461	0.6	0.85	1	16.244			
T3 160.00- 140.00	0.31	1.01	A	0.299	2.299	0.616	0.85	1	20.128	0.73	36.33	B
			B	0.485	1.92	0.69	0.85	1	34.343			
			C	0.291	2.321	0.613	0.85	1	19.587			
T4 140.00- 120.00	0.62	1.23	A	0.42	2.026	0.66	0.85	1	35.068	1.10	55.25	B
			B	0.621	1.792	0.767	0.85	1	58.271			
			C	0.317	2.252	0.621	0.85	1	25.913			
T5 120.00- 100.00	0.71	1.44	A	0.422	2.022	0.661	0.85	1	47.123	1.10	54.85	B
			B	0.493	1.91	0.694	0.85	1	56.946			
			C	0.268	2.384	0.607	0.85	1	29.095			
T6 100.00- 80.00	0.75	1.91	A	0.368	2.131	0.639	0.85	1	50.639	1.17	58.41	B
			B	0.434	2	0.666	0.85	1	61.329			
			C	0.255	2.423	0.603	0.85	1	34.747			
T7 80.00- 60.00	0.77	2.00	A	0.319	2.246	0.622	0.85	1	51.983	1.16	58.01	B
			B	0.375	2.116	0.642	0.85	1	61.865			
			C	0.227	2.509	0.596	0.85	1	37.096			
T8 60.00- 40.00	0.78	2.73	A	0.307	2.278	0.618	0.85	1	58.944	1.18	59.19	B
			B	0.351	2.17	0.633	0.85	1	67.742			
			C	0.229	2.503	0.597	0.85	1	44.525			
T9 40.00- 20.00	0.79	2.83	A	0.263	2.399	0.605	0.85	1	56.186	1.05	52.69	B
			B	0.299	2.297	0.616	0.85	1	64.144			
			C	0.193	2.62	0.589	0.85	1	41.757			
T10 20.00- 0.00	0.80	3.41	A	0.265	2.394	0.606	0.85	1	64.821	1.19	59.48	B
			B	0.293	2.314	0.614	0.85	1	71.903			
			C	0.201	2.592	0.591	0.85	1	50.072			
Sum Weight:	5.66	17.60						OTM	782.52 kip-ft	9.37		

Force Totals

Load Case	Vertical Forces	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	10.31					
Bracing Weight	7.29					
Total Member Self-Weight	17.60			-7.08	-0.67	

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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
Total Weight	29.56			-7.08	-0.67	
Wind 0 deg - No Ice		0.13	-39.57	-4083.46	-21.28	5.01
Wind 30 deg - No Ice		19.45	-33.52	-3474.54	-2017.27	-2.40
Wind 45 deg - No Ice		27.35	-27.28	-2831.86	-2835.41	-6.03
Wind 60 deg - No Ice		33.34	-19.25	-2002.78	-3457.32	-9.26
Wind 90 deg - No Ice		38.76	-0.08	-19.77	-4011.88	-13.95
Wind 120 deg - No Ice		34.33	19.67	2013.26	-3541.23	-15.01
Wind 135 deg - No Ice		27.33	27.19	2803.51	-2831.79	-13.17
Wind 150 deg - No Ice		19.33	33.48	3453.34	-1998.33	-11.21
Wind 180 deg - No Ice		-0.02	38.41	3969.70	1.97	-4.89
Wind 210 deg - No Ice		-19.36	33.52	3459.99	2001.92	2.73
Wind 225 deg - No Ice		-27.28	27.28	2816.33	2823.26	6.24
Wind 240 deg - No Ice		-34.27	19.78	2031.28	3529.86	10.00
Wind 270 deg - No Ice		-38.71	0.00	-6.31	4003.19	13.62
Wind 300 deg - No Ice		-33.27	-19.19	-1993.18	3444.64	14.15
Wind 315 deg - No Ice		-27.27	-27.22	-2822.39	2821.65	13.16
Wind 330 deg - No Ice		-19.33	-33.48	-3467.31	1997.31	11.21
Member Ice	6.81					
Total Weight Ice	50.76			-14.12	-9.40	
Wind 0 deg - Ice		0.11	-42.51	-4445.35	-26.19	4.02
Wind 30 deg - Ice		21.11	-36.43	-3819.34	-2218.28	-4.04
Wind 45 deg - Ice		29.76	-29.71	-3118.43	-3121.81	-7.83
Wind 60 deg - Ice		36.36	-20.99	-2209.60	-3812.08	-11.12
Wind 90 deg - Ice		42.11	-0.07	-24.46	-4409.26	-15.40
Wind 120 deg - Ice		36.87	21.16	2186.95	-3855.35	-15.53
Wind 135 deg - Ice		29.74	29.63	3078.62	-3118.86	-13.55
Wind 150 deg - Ice		21.01	36.40	3785.36	-2202.85	-11.08
Wind 180 deg - Ice		-0.01	41.91	4364.93	-7.25	-3.91
Wind 210 deg - Ice		-21.04	36.43	3790.77	2188.08	4.31
Wind 225 deg - Ice		-29.70	29.70	3089.07	3094.22	8.01
Wind 240 deg - Ice		-36.82	21.26	2201.62	3828.39	11.51
Wind 270 deg - Ice		-42.07	0.00	-13.50	4384.48	15.13
Wind 300 deg - Ice		-36.30	-20.94	-2201.79	3784.05	15.03
Wind 315 deg - Ice		-29.69	-29.66	-3110.72	3092.90	13.54
Wind 330 deg - Ice		-21.01	-36.39	-3813.45	2184.32	11.08
Total Weight	29.56			-7.08	-0.67	
Wind 0 deg - Service		0.05	-13.69	-1408.08	-8.30	1.73
Wind 30 deg - Service		6.73	-11.60	-1197.38	-698.95	-0.83
Wind 45 deg - Service		9.46	-9.44	-975.00	-982.05	-2.09
Wind 60 deg - Service		11.54	-6.66	-688.12	-1197.24	-3.20
Wind 90 deg - Service		13.41	-0.03	-1.96	-1389.13	-4.83
Wind 120 deg - Service		11.88	6.81	701.51	-1226.27	-5.19
Wind 135 deg - Service		9.46	9.41	974.95	-980.79	-4.56
Wind 150 deg - Service		6.69	11.58	1199.81	-692.40	-3.88
Wind 180 deg - Service		-0.01	13.29	1378.48	-0.26	-1.69
Wind 210 deg - Service		-6.70	11.60	1202.11	691.77	0.95
Wind 225 deg - Service		-9.44	9.44	979.39	975.97	2.16
Wind 240 deg - Service		-11.86	6.85	707.74	1220.47	3.46
Wind 270 deg - Service		-13.39	0.00	2.70	1384.25	4.71
Wind 300 deg - Service		-11.51	-6.64	-684.80	1190.98	4.90
Wind 315 deg - Service		-9.44	-9.42	-971.73	975.41	4.55
Wind 330 deg - Service		-6.69	-11.58	-1194.88	690.17	3.88

Load Combinations

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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
T1	190 - 180	Leg	Max Tension	22	4.83	-0.16	-0.02
			Max. Compression	24	-6.43	0.01	0.00
			Max. Mx	23	-3.95	0.26	0.07

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	100 - 80	Diagonal	Max. Vy	32	-0.14	-0.47	-0.06
			Max. Vx	20	-0.21	0.00	-0.46
			Max Tension	34	4.96	0.00	0.00
			Max. Compression	34	-5.13	0.00	0.00
		Leg	Max. Mx	24	3.03	0.03	0.00
			Max. My	27	-4.05	-0.00	0.01
			Max. Vy	22	0.02	0.03	0.00
			Max. Vx	27	-0.00	0.00	0.00
		Diagonal	Max Tension	22	158.27	-0.66	0.02
			Max. Compression	24	-176.72	0.68	0.01
			Max. Mx	22	148.98	-0.70	0.02
			Max. My	23	-8.04	-0.01	0.73
			Max. Vy	27	-0.08	-0.70	-0.00
			Max. Vx	26	-0.10	-0.01	-0.71
			Max Tension	34	5.63	0.00	0.00
			Max. Compression	34	-5.84	0.00	0.00
T7	80 - 60	Leg	Max. Mx	24	3.97	0.05	0.00
			Max. My	33	-5.45	-0.01	-0.01
			Max. Vy	22	0.02	0.05	0.00
			Max. Vx	33	0.00	0.00	0.00
		Diagonal	Max Tension	22	183.62	-0.66	-0.00
			Max. Compression	24	-205.24	1.01	0.05
			Max. Mx	24	-205.24	1.01	0.05
			Max. My	23	-11.28	0.11	1.03
			Max. Vy	24	-0.10	1.01	0.05
			Max. Vx	23	-0.13	0.11	1.03
			Max Tension	34	5.56	0.00	0.00
			Max. Compression	34	-5.82	0.00	0.00
T8	60 - 40	Leg	Max. Mx	22	4.17	0.06	0.00
			Max. My	32	-5.06	0.02	-0.01
			Max. Vy	22	0.03	0.06	0.00
			Max. Vx	32	0.00	0.00	0.00
		Diagonal	Max Tension	22	208.01	-0.44	0.01
			Max. Compression	19	-234.40	0.52	0.00
			Max. Mx	22	207.88	-1.87	0.03
			Max. My	23	-11.83	0.11	1.03
			Max. Vy	27	0.26	-1.87	0.00
			Max. Vx	6	0.09	-0.02	0.87
			Max Tension	26	6.78	0.00	0.00
			Max. Compression	34	-6.75	0.00	0.00
T9	40 - 20	Leg	Max. Mx	24	4.41	0.11	0.01
			Max. My	32	-5.46	0.02	-0.01
			Max. Vy	22	0.04	0.10	0.01
			Max. Vx	32	0.00	0.00	0.00
		Diagonal	Max Tension	22	226.86	0.39	0.04
			Max. Compression	19	-258.54	-0.39	-0.03
			Max. Mx	27	224.31	-3.19	0.03
			Max. My	23	-16.08	0.97	1.55
			Max. Vy	27	0.42	-3.19	0.03
			Max. Vx	6	0.21	-0.08	1.47
			Max Tension	26	7.26	0.00	0.00
			Max. Compression	26	-7.26	0.00	0.00
T10	20 - 0	Leg	Max. Mx	22	4.30	0.13	0.01
			Max. My	33	-6.92	0.04	-0.02
			Max. Vy	22	0.04	0.13	0.01
			Max. Vx	33	0.00	0.00	0.00
		Diagonal	Max Tension	22	246.13	1.21	0.01
			Max. Compression	19	-284.13	-0.00	0.00
			Max. Mx	24	-268.65	4.35	0.00
			Max. My	23	-19.13	2.75	3.31
			Max. Vy	32	-0.56	-3.19	-0.05

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max. Vx	23	0.42	2.75	3.31
			Max Tension	33	9.37	0.00	0.00
			Max. Compression	26	-8.60	0.00	0.00
			Max. Mx	22	3.68	0.20	0.01
			Max. My	33	-8.50	0.10	-0.03
			Max. Vy	22	0.06	0.20	0.01
			Max. Vx	33	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	287.45	21.24	-12.66
	Max. H _x	13	258.53	21.60	-12.82
	Max. H _z	22	-253.00	-23.88	14.17
	Min. Vert	22	-253.00	-23.88	14.17
	Min. H _x	22	-253.00	-23.88	14.17
Leg B	Min. H _z	13	258.53	21.60	-12.82
	Max. Vert	24	288.45	-21.18	-12.79
	Max. H _x	32	-251.26	23.76	14.24
	Max. H _z	32	-251.26	23.76	14.24
	Min. Vert	32	-251.26	23.76	14.24
Leg A	Min. H _x	7	258.58	-21.52	-12.95
	Min. H _z	7	258.58	-21.52	-12.95
	Max. Vert	19	289.23	0.14	24.76
	Max. H _x	31	17.74	2.38	-1.64
	Max. H _z	2	259.19	0.15	25.13
	Min. Vert	27	-250.48	-0.12	-27.68
	Min. H _x	23	18.42	-2.37	-1.60
	Min. H _z	27	-250.48	-0.12	-27.68

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	29.56	0.00	0.00	-7.08	-0.67	-0.00
Dead+ Wind 0 deg - No Ice	29.56	0.13	-39.57	-4102.73	-21.43	5.01
Dead+ Wind 30 deg - No Ice	29.56	19.45	-33.52	-3490.97	-2026.85	-2.42
Dead+ Wind 45 deg - No Ice	29.56	27.35	-27.28	-2845.26	-2848.86	-6.05
Dead+ Wind 60 deg - No Ice	29.56	33.34	-19.25	-2012.27	-3473.71	-9.29
Dead+ Wind 90 deg - No Ice	29.56	38.76	-0.08	-19.90	-4030.88	-14.00
Dead+ Wind 120 deg - No Ice	29.56	34.33	19.67	2022.73	-3557.98	-15.04
Dead+ Wind 135 deg - No Ice	29.56	27.33	27.19	2816.76	-2845.22	-13.19
Dead+ Wind 150 deg - No Ice	29.56	19.33	33.48	3469.67	-2007.81	-11.22
Dead+ Wind 180 deg - No Ice	29.56	-0.02	38.41	3988.52	1.95	-4.89
Dead+ Wind 210 deg - No Ice	29.56	-19.36	33.52	3476.39	2011.38	2.75
Dead+ Wind 225 deg - No Ice	29.56	-27.28	27.28	2829.68	2836.62	6.26
Dead+ Wind 240 deg - No Ice	29.56	-34.27	19.78	2040.87	3546.54	10.04
Dead+ Wind 270 deg - No Ice	29.56	-38.71	0.00	-6.37	4022.15	13.67
Dead+ Wind 300 deg - No Ice	29.56	-33.27	-19.19	-2002.65	3460.95	14.18
Dead+ Wind 315 deg - No Ice	29.56	-27.27	-27.22	-2835.77	2835.00	13.18

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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 330 deg - No Ice	29.56	-19.33	-33.48	-3483.72	2006.74	11.21
Dead+Ice+Temp	50.76	-0.00	0.00	-14.09	-9.56	0.00
Dead+Wind 0 deg+Ice+Temp	50.76	0.11	-42.51	-4480.69	-26.60	4.25
Dead+Wind 30 deg+Ice+Temp	50.76	21.11	-36.43	-3849.70	-2236.17	-3.81
Dead+Wind 45 deg+Ice+Temp	50.76	29.76	-29.71	-3143.21	-3146.91	-7.65
Dead+Wind 60 deg+Ice+Temp	50.76	36.36	-20.99	-2227.15	-3842.67	-11.00
Dead+Wind 90 deg+Ice+Temp	50.76	42.11	-0.07	-24.60	-4444.58	-15.40
Dead+Wind 120 deg+Ice+Temp	50.76	36.87	21.16	2204.45	-3886.24	-15.63
Dead+Wind 135 deg+Ice+Temp	50.76	29.74	29.63	3103.28	-3143.90	-13.68
Dead+Wind 150 deg+Ice+Temp	50.76	21.01	36.40	3815.69	-2220.57	-11.25
Dead+Wind 180 deg+Ice+Temp	50.76	-0.01	41.91	4399.93	-7.46	-4.13
Dead+Wind 210 deg+Ice+Temp	50.76	-21.04	36.43	3821.17	2205.38	4.08
Dead+Wind 225 deg+Ice+Temp	50.76	-29.70	29.70	3113.85	3118.75	7.82
Dead+Wind 240 deg+Ice+Temp	50.76	-36.82	21.26	2219.29	3858.78	11.38
Dead+Wind 270 deg+Ice+Temp	50.76	-42.07	0.00	-13.55	4419.32	15.13
Dead+Wind 300 deg+Ice+Temp	50.76	-36.30	-20.94	-2219.30	3814.10	15.13
Dead+Wind 315 deg+Ice+Temp	50.76	-29.69	-29.66	-3135.46	3117.42	13.68
Dead+Wind 330 deg+Ice+Temp	50.76	-21.01	-36.39	-3843.79	2201.58	11.25
Dead+Wind 0 deg - Service	29.56	0.05	-13.69	-1424.36	-7.85	1.73
Dead+Wind 30 deg - Service	29.56	6.73	-11.60	-1212.66	-701.80	-0.84
Dead+Wind 45 deg - Service	29.56	9.46	-9.44	-989.21	-986.25	-2.09
Dead+Wind 60 deg - Service	29.56	11.54	-6.66	-700.96	-1202.47	-3.21
Dead+Wind 90 deg - Service	29.56	13.41	-0.03	-11.52	-1395.28	-4.84
Dead+Wind 120 deg - Service	29.56	11.88	6.81	695.31	-1231.64	-5.21
Dead+Wind 135 deg - Service	29.56	9.46	9.41	970.07	-984.99	-4.57
Dead+Wind 150 deg - Service	29.56	6.69	11.58	1196.00	-695.21	-3.89
Dead+Wind 180 deg - Service	29.56	-0.01	13.29	1375.53	0.24	-1.69
Dead+Wind 210 deg - Service	29.56	-6.70	11.60	1198.31	695.58	0.96
Dead+Wind 225 deg - Service	29.56	-9.44	9.44	974.53	981.14	2.17
Dead+Wind 240 deg - Service	29.56	-11.86	6.85	701.58	1226.80	3.47
Dead+Wind 270 deg - Service	29.56	-13.39	0.00	-6.84	1391.38	4.72
Dead+Wind 300 deg - Service	29.56	-11.51	-6.64	-697.63	1197.18	4.91
Dead+Wind 315 deg - Service	29.56	-9.44	-9.42	-985.92	980.58	4.56
Dead+Wind 330 deg - Service	29.56	-6.69	-11.58	-1210.14	693.97	3.89

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	-29.56	0.00	0.00	29.56	0.00	0.000%
2	0.13	-29.56	-39.57	-0.13	29.56	39.57	0.000%
3	19.45	-29.56	-33.52	-19.45	29.56	33.52	0.000%
4	27.35	-29.56	-27.28	-27.35	29.56	27.28	0.000%
5	33.34	-29.56	-19.25	-33.34	29.56	19.25	0.000%
6	38.76	-29.56	-0.08	-38.76	29.56	0.08	0.000%
7	34.33	-29.56	19.67	-34.33	29.56	-19.67	0.000%
8	27.33	-29.56	27.19	-27.33	29.56	-27.19	0.000%
9	19.33	-29.56	33.48	-19.33	29.56	-33.48	0.000%
10	-0.02	-29.56	38.41	0.02	29.56	-38.41	0.000%
11	-19.36	-29.56	33.52	19.36	29.56	-33.52	0.000%
12	-27.28	-29.56	27.28	27.28	29.56	-27.28	0.000%
13	-34.27	-29.56	19.78	34.27	29.56	-19.78	0.000%
14	-38.71	-29.56	0.00	38.71	29.56	-0.00	0.000%
15	-33.27	-29.56	-19.19	33.27	29.56	19.19	0.000%
16	-27.27	-29.56	-27.22	27.27	29.56	27.22	0.000%
17	-19.33	-29.56	-33.48	19.33	29.56	33.48	0.000%
18	0.00	-50.76	0.00	0.00	50.76	-0.00	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
19	0.11	-50.76	-42.51	-0.11	50.76	42.51	0.000%
20	21.11	-50.76	-36.43	-21.11	50.76	36.43	0.000%
21	29.76	-50.76	-29.71	-29.76	50.76	29.71	0.000%
22	36.36	-50.76	-20.99	-36.36	50.76	20.99	0.000%
23	42.11	-50.76	-0.07	-42.11	50.76	0.07	0.000%
24	36.87	-50.76	21.16	-36.87	50.76	-21.16	0.000%
25	29.74	-50.76	29.63	-29.74	50.76	-29.63	0.000%
26	21.01	-50.76	36.40	-21.01	50.76	-36.40	0.000%
27	-0.01	-50.76	41.91	0.01	50.76	-41.91	0.000%
28	-21.04	-50.76	36.43	21.04	50.76	-36.43	0.000%
29	-29.70	-50.76	29.70	29.70	50.76	-29.70	0.000%
30	-36.82	-50.76	21.26	36.82	50.76	-21.26	0.000%
31	-42.07	-50.76	0.00	42.07	50.76	-0.00	0.000%
32	-36.30	-50.76	-20.94	36.30	50.76	20.94	0.000%
33	-29.69	-50.76	-29.66	29.69	50.76	29.66	0.000%
34	-21.01	-50.76	-36.39	21.01	50.76	36.39	0.000%
35	0.05	-29.56	-13.69	-0.05	29.56	13.69	0.000%
36	6.73	-29.56	-11.60	-6.73	29.56	11.60	0.000%
37	9.46	-29.56	-9.44	-9.46	29.56	9.44	0.000%
38	11.54	-29.56	-6.66	-11.54	29.56	6.66	0.000%
39	13.41	-29.56	-0.03	-13.41	29.56	0.03	0.000%
40	11.88	-29.56	6.81	-11.88	29.56	-6.81	0.000%
41	9.46	-29.56	9.41	-9.46	29.56	-9.41	0.000%
42	6.69	-29.56	11.58	-6.69	29.56	-11.58	0.000%
43	-0.01	-29.56	13.29	0.01	29.56	-13.29	0.000%
44	-6.70	-29.56	11.60	6.70	29.56	-11.60	0.000%
45	-9.44	-29.56	9.44	9.44	29.56	-9.44	0.000%
46	-11.86	-29.56	6.85	11.86	29.56	-6.85	0.000%
47	-13.39	-29.56	0.00	13.39	29.56	-0.00	0.000%
48	-11.51	-29.56	-6.64	11.51	29.56	6.64	0.000%
49	-9.44	-29.56	-9.42	9.44	29.56	9.42	0.000%
50	-6.69	-29.56	-11.58	6.69	29.56	11.58	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	0.00000001
3	Yes	4	0.00000001	0.00000125
4	Yes	4	0.00000001	0.00000098
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000130
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000078
9	Yes	4	0.00000001	0.00000117
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000124
12	Yes	4	0.00000001	0.00000087
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000129
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000091
17	Yes	4	0.00000001	0.00000118
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000230

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20	Yes	4	0.00000001	0.00000324
21	Yes	4	0.00000001	0.00000297
22	Yes	4	0.00000001	0.00000251
23	Yes	4	0.00000001	0.00000252
24	Yes	4	0.00000001	0.00000195
25	Yes	4	0.00000001	0.00000212
26	Yes	4	0.00000001	0.00000237
27	Yes	4	0.00000001	0.00000260
28	Yes	4	0.00000001	0.00000325
29	Yes	4	0.00000001	0.00000281
30	Yes	4	0.00000001	0.00000216
31	Yes	4	0.00000001	0.00000260
32	Yes	4	0.00000001	0.00000250
33	Yes	4	0.00000001	0.00000248
34	Yes	4	0.00000001	0.00000241
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	190 - 180	10.327	35	0.5591	0.0878
T2	180 - 160	9.161	35	0.5506	0.0797
T3	160 - 140	6.920	35	0.4958	0.0628
T4	140 - 120	4.963	35	0.4101	0.0446
T5	120 - 100	3.426	35	0.3108	0.0233
T6	100 - 80	2.263	35	0.2299	0.0138
T7	80 - 60	1.389	35	0.1733	0.0101
T8	60 - 40	0.746	35	0.1185	0.0064
T9	40 - 20	0.325	35	0.0697	0.0039
T10	20 - 0	0.089	35	0.0317	0.0018

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	(2) Obstruction Lights	35	10.327	0.5591	0.0878	103713
190.00	3' Yagi	35	10.327	0.5591	0.0878	103713
188.00	Pirot 4' Side Mount Standoff (1)	35	10.093	0.5580	0.0862	103713

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Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
187.00	PD1142-2A	35	9.976	0.5573	0.0854	103713
180.00	Rohn 6'x14' Boom Gate (3)	35	9.161	0.5506	0.0797	51781
156.00	3-ft dish	35	6.500	0.4805	0.0595	14842
150.00	Piroid 12' T-Frame Sector Mount (1)	35	5.895	0.4557	0.0544	12725
144.00	Paraflector	35	5.323	0.4290	0.0488	11138
142.00	DB230-2A	35	5.141	0.4197	0.0468	10748
140.00	Paraflector	35	4.963	0.4101	0.0446	10534
136.00	Single Dipole	35	4.622	0.3904	0.0400	10714
130.00	10-ft T-Frame	35	4.142	0.3602	0.0326	11436
113.00	Piroid 4' Side Mount Standoff (1)	35	2.981	0.2792	0.0189	13965
110.00	PD320	35	2.803	0.2667	0.0174	14515
109.00	Piroid 4' Side Mount Standoff (1)	35	2.745	0.2627	0.0169	14708
103.00	Piroid 4' Side Mount Standoff (1)	35	2.417	0.2401	0.0147	15982
102.00	GPS	35	2.365	0.2366	0.0143	16212
94.00	DB212 Single Dipole	35	1.974	0.2113	0.0125	18087
92.00	15-ft Single Dipole	35	1.883	0.2056	0.0121	18598
74.00	PD320	35	1.173	0.1570	0.0090	21725
70.00	15-ft Single Dipole	35	1.040	0.1459	0.0082	21300
50.00	15-ft Single Dipole	35	0.510	0.0928	0.0050	23368
32.00	DB212 Single Dipole	35	0.210	0.0533	0.0031	27401
31.00	15-ft Single Dipole	35	0.197	0.0514	0.0030	27387
17.00	Piroid 4' Side Mount Standoff (1)	35	0.069	0.0267	0.0015	32136

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.	°	°
T1	190 - 180	32.058	24	1.7273	0.2536
T2	180 - 160	28.458	24	1.6963	0.2303
T3	160 - 140	21.574	24	1.5264	0.1813
T4	140 - 120	15.543	24	1.2701	0.1290
T5	120 - 100	10.767	24	0.9689	0.0747
T6	100 - 80	7.126	19	0.7208	0.0475
T7	80 - 60	4.380	19	0.5449	0.0332
T8	60 - 40	2.351	19	0.3734	0.0202
T9	40 - 20	1.023	19	0.2197	0.0122
T10	20 - 0	0.279	19	0.1000	0.0055

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
192.00	(2) Obstruction Lights	24	32.058	1.7273	0.2536	27533
190.00	3' Yagi	24	32.058	1.7273	0.2536	27533
188.00	Piroid 4' Side Mount Standoff (1)	24	31.335	1.7226	0.2489	27533
187.00	PD1142-2A	24	30.974	1.7202	0.2466	27533
180.00	Rohn 6'x14' Boom Gate (3)	24	28.458	1.6963	0.2303	14104
156.00	3-ft dish	24	20.282	1.4804	0.1718	5031
150.00	Piroid 12' T-Frame Sector Mount (1)	24	18.419	1.4066	0.1572	4299
144.00	Paraflector	24	16.655	1.3268	0.1411	3754

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
142.00	DB230-2A	24	16.092	1.2988	0.1352	3620
140.00	Paraflector	24	15.543	1.2701	0.1290	3545
136.00	Single Dipole	24	14.485	1.2109	0.1159	3595
130.00	10-ft T-Frame	24	12.998	1.1193	0.0998	3815
113.00	Pirot 4' Side Mount Standoff (1)	24	9.376	0.8726	0.0628	4589
110.00	PD320	24	8.820	0.8343	0.0588	4752
109.00	Pirot 4' Side Mount Standoff (1)	24	8.639	0.8219	0.0575	4809
103.00	Pirot 4' Side Mount Standoff (1)	24	7.609	0.7525	0.0505	5180
102.00	GPS	19	7.445	0.7417	0.0495	5247
94.00	DB212 Single Dipole	19	6.219	0.6634	0.0425	5822
92.00	15-ft Single Dipole	19	5.934	0.6456	0.0410	5982
74.00	PD320	19	3.698	0.4937	0.0292	6923
70.00	15-ft Single Dipole	19	3.277	0.4592	0.0264	6770
50.00	15-ft Single Dipole	19	1.606	0.2926	0.0157	7394
32.00	DB212 Single Dipole	19	0.659	0.1681	0.0095	8665
31.00	15-ft Single Dipole	19	0.619	0.1621	0.0091	8659
17.00	Pirot 4' Side Mount Standoff (1)	19	0.215	0.0843	0.0046	10140

Bolt Design Data

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	190	Leg	A325N	0.6250	4	1.21	13.50	0.089 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	1.75	6.12	0.286 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	0.35	6.44	0.054 ✓	1.333	Bolt Shear
T2	180	Leg	A325N	0.7500	4	6.92	19.44	0.356 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	2.90	6.12	0.475 ✓	1.333	Member Bearing
T3	160	Leg	A325N	0.8750	4	16.87	26.46	0.638 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.41	6.12	0.885 ✓	1.333	Member Bearing
T4	140	Leg	A325N	0.8750	4	25.13	26.46	0.950 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	4.51	6.12	0.737 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	0.19	6.44	0.030 ✓	1.333	Bolt Shear
T5	120	Leg	A325N	1.0000	4	32.71	34.56	0.947 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	4.96	6.12	0.811 ✓	1.333	Member Bearing
T6	100	Leg	A325N	1.0000	4	39.57	34.56	1.145 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.63	6.12	0.921 ✓	1.333	Member Bearing
T7	80	Leg	A325N	1.0000	6	30.60	34.56	0.886 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.56	6.12	0.909 ✓	1.333	Member Bearing
T8	60	Leg	A325N	1.0000	6	34.67	34.56	1.003 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	6.78	6.44	1.053 ✓	1.333	Bolt Shear
T9	40	Leg	A325N	1.0000	8	28.36	34.56	0.821 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	7.26	6.44	1.127 ✓	1.333	Bolt Shear
T10	20	Leg	A354-BC	1.0000	8	30.77	32.40	0.950 ✓	1.333	Bolt Tension

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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
		Diagonal	A325N	0.7500	1	9.37	9.28	1.009 ✓	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	190 - 180	ROHN 2 STD	10.00	5.00	76.2 K=1.00	19.756	1.0745	-6.43	21.23	0.303 ✓
T2	180 - 160	ROHN 2.5 STD	20.00	4.00	50.7 K=1.00	24.247	1.7040	-32.08	41.32	0.777 ✓
T3	160 - 140	ROHN 3 EH	20.00	4.00	42.2 K=1.00	25.514	3.0159	-76.47	76.95	0.994 ✓
T4	140 - 120	ROHN 3.5 EH	20.03	4.01	36.8 K=1.00	26.273	3.6784	-113.66	96.64	1.176 ✓
T5	120 - 100	ROHN 4 EH	20.04	5.01	40.7 K=1.00	25.733	4.4074	-146.42	113.42	1.291 ✓
T6	100 - 80	ROHN 5 EH	20.03	6.68	43.6 K=1.00	25.320	6.1120	-176.72	154.76	1.142 ✓
T7	80 - 60	ROHN 5 EH	20.04	6.68	43.6 K=1.00	25.320	6.1120	-205.24	154.75	1.326 ✓
T8	60 - 40	ROHN 6 EHS	20.03	6.68	36.0 K=1.00	26.380	6.7133	-234.40	177.09	1.324 ✓
T9	40 - 20	ROHN 6 EH	20.04	10.02	54.8 K=1.00	23.589	8.4049	-258.54	198.26	1.304 ✓
T10	20 - 0	ROHN 8 EHS	20.03	10.02	41.2 K=1.00	25.667	9.7193	-284.13	249.47	1.139 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	6.83	3.13	112.1 K=1.02	11.386	0.6211	-1.78	7.07	0.251 ✓
T2	180 - 160	L1 3/4x1 3/4x3/16	6.16	2.79	103.1 K=1.06	12.579	0.6211	-2.96	7.81	0.379 ✓
T3	160 - 140	L1 3/4x1 3/4x3/16	6.18	2.77	102.5 K=1.06	12.656	0.6211	-5.70	7.86	0.725 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	7.68	3.63	126.8 K=1.00	9.287	0.6211	-4.52	5.77	0.783 ✓

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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
T5	120 - 100	L2x2x3/16	9.92	4.76	145.0 K=1.00	7.107	0.7150	-5.03	5.08	0.990
T6	100 - 80	L2 1/2x2 1/2x3/16	12.44	6.01	145.6 K=1.00	7.045	0.9020	-5.84	6.35	0.918
T7	80 - 60	L2 1/2x2 1/2x3/16	14.23	6.92	167.6 K=1.00	5.314	0.9020	-5.82	4.79	1.214
T8	60 - 40	L3x3x1/4	15.99	7.73	156.7 K=1.00	6.081	1.4400	-6.26	8.76	0.715
T9	40 - 20	L3x3x1/4	18.35	9.04	183.2 K=1.00	4.451	1.4400	-7.26	6.41	1.133
T10	20 - 0	L3 1/2x3 1/2x1/4	20.15	9.81	169.6 K=1.00	5.189	1.6900	-8.60	8.77	0.981

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	190 - 180	L1 3/4x1 3/4x3/16	4.65	4.18	146.1 K=1.00	6.997	0.6211	-0.35	4.35	0.080
T4	140 - 120	L1 3/4x1 3/4x3/16	4.72	4.16	145.3 K=1.00	7.077	0.6211	-0.19	4.40	0.043

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	190 - 180	ROHN 2 STD	10.00	5.00	76.2	30.000	1.0745	4.83	32.24	0.150
T2	180 - 160	ROHN 2.5 STD	20.00	4.00	50.7	30.000	1.7040	27.69	51.12	0.542
T3	160 - 140	ROHN 3 EH	20.00	4.00	42.2	30.000	3.0159	67.49	90.48	0.746
T4	140 - 120	ROHN 3.5 EH	20.03	4.01	36.8	30.000	3.6784	100.53	110.35	0.911
T5	120 - 100	ROHN 4 EH	20.04	5.01	40.7	30.000	4.4074	130.84	132.22	0.990
T6	100 - 80	ROHN 5 EH	20.03	6.68	43.6	30.000	6.1120	158.27	183.36	0.863
T7	80 - 60	ROHN 5 EH	20.04	6.68	43.6	30.000	6.1120	183.62	183.36	1.001
T8	60 - 40	ROHN 6 EHS	20.03	6.68	36.0	30.000	6.7133	208.01	201.40	1.033

RISATower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page	36 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date	17:26:23 09/08/11
	Client	Verizon Wireless	Designed by	TJL

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	40 - 20	ROHN 6 EH	20.04	10.02	54.8	30.000	8.4049	226.86	252.15	0.900 ✓
T10	20 - 0	ROHN 8 EHS	20.03	10.02	41.2	30.000	9.7193	246.13	291.58	0.844 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	6.83	3.13	73.1	21.600	0.6211	1.75	13.42	0.130 ✓
T2	180 - 160	L1 3/4x1 3/4x3/16	6.16	2.79	65.4	21.600	0.6211	2.90	13.42	0.216 ✓
T3	160 - 140	L1 3/4x1 3/4x3/16	6.18	2.77	64.9	21.600	0.6211	5.41	13.42	0.403 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	7.34	3.46	80.3	21.600	0.6211	4.51	13.42	0.336 ✓
T5	120 - 100	L2x2x3/16	9.48	4.54	90.9	21.600	0.7150	4.96	15.44	0.321 ✓
T6	100 - 80	L2 1/2x2 1/2x3/16	12.44	6.01	94.7	21.600	0.9020	5.63	19.48	0.289 ✓
T7	80 - 60	L2 1/2x2 1/2x3/16	13.62	6.61	104.1	21.600	0.9020	5.56	19.48	0.285 ✓
T8	60 - 40	L3x3x1/4	15.99	7.73	101.5	32.500	1.2525	6.78	40.71	0.167 ✓
T9	40 - 20	L3x3x1/4	19.26	9.48	124.1	32.500	1.2525	7.26	40.71	0.178 ✓
T10	20 - 0	L3 1/2x3 1/2x1/4	21.03	10.25	114.4	32.500	1.4713	9.37	47.82	0.196 ✓

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	190 - 180	L1 3/4x1 3/4x3/16	4.65	4.18	99.5	21.600	0.6211	0.31	13.42	0.023 ✓
T4	140 - 120	L1 3/4x1 3/4x3/16	4.72	4.16	99.0	21.600	0.6211	0.11	13.42	0.008 ✓

Section Capacity Table

<i>RISATower</i> Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job	11001.CO46 - Coventry East	Page 37 of 37
	Project	190' Rohn Lattice Tower - 1712 Main St., Coventry, CT	Date 17:26:23 09/08/11
	Client	Verizon Wireless	Designed by TJL

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	190 - 180	Leg	ROHN 2 STD	2	-6.43	28.30	22.7	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	20	-32.08	55.08	58.3	Pass
T3	160 - 140	Leg	ROHN 3 EH	53	-76.47	102.57	74.6	Pass
T4	140 - 120	Leg	ROHN 3.5 EH	86	-113.66	128.82	88.2	Pass
T5	120 - 100	Leg	ROHN 4 EH	122	-146.42	151.18	96.9	Pass
T6	100 - 80	Leg	ROHN 5 EH	149	-176.72	206.29	85.7	Pass
								85.9 (b)
T7	80 - 60	Leg	ROHN 5 EH	170	-205.24	206.28	99.5	Pass
T8	60 - 40	Leg	ROHN 6 EHS	192	-234.40	236.06	99.3	Pass
T9	40 - 20	Leg	ROHN 6 EH	213	-258.54	264.29	97.8	Pass
T10	20 - 0	Leg	ROHN 8 EHS	228	-284.13	332.54	85.4	Pass
T1	190 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1.78	9.43	18.9	Pass
								21.5 (b)
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	24	-2.96	10.41	28.4	Pass
								35.6 (b)
T3	160 - 140	Diagonal	L1 3/4x1 3/4x3/16	58	-5.70	10.48	54.4	Pass
								66.4 (b)
T4	140 - 120	Diagonal	L1 3/4x1 3/4x3/16	94	-4.52	7.69	58.8	Pass
T5	120 - 100	Diagonal	L2x2x3/16	127	-5.03	6.77	74.3	Pass
T6	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	154	-5.84	8.47	68.9	Pass
								69.1 (b)
T7	80 - 60	Diagonal	L2 1/2x2 1/2x3/16	175	-5.82	6.39	91.1	Pass
T8	60 - 40	Diagonal	L3x3x1/4	195	-6.26	11.67	53.7	Pass
								79.0 (b)
T9	40 - 20	Diagonal	L3x3x1/4	222	-7.26	8.54	85.0	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	237	-8.60	11.69	73.6	Pass
								75.7 (b)
T1	190 - 180	Top Girt	L1 3/4x1 3/4x3/16	5	-0.35	5.79	6.0	Pass
T4	140 - 120	Top Girt	L1 3/4x1 3/4x3/16	90	-0.19	5.86	3.3	Pass
								Summary
							Leg (T7)	99.5
							Diagonal (T7)	91.1
							Top Girt (T1)	6.0
							Bolt Checks	85.9
							RATING =	99.5

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.

1. GOVERNING CODE: 2005 CONNECTICUT STATE BUILDING CODE (CSBC) AS MODIFIED BY THE 2009 CT STATE SUPPLEMENT. SPECIFIC REFERENCE IS MADE TO SECTION 3108: RADIO AND TELEVISION TOWERS OF THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE CSBC.

WIND LOAD: (ANTENNA MOUNT)

2005 CONNECTICUT STATE BUILDING CODE:

- BASIC WIND SPEED (V) = 80 MPH (FASTEST MILE) EQUIVALENT TO 100 MPH (3-SECOND GUST) AS PER APPENDIX K OF THE CONNECTICUT SUPPLEMENT.

TIA/EIA-222-F96 STANDARD: CONTROLS

- BASIC WIND SPEED (V) = 85 MPH (FASTEST MILE).
- BASIC WIND SPEED (V) = 74 MPH (FASTEST MILE) CONCURRENT W/ 0.5" RADIAL ICE.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
 - A. STRUCTURAL STEEL (ANGLES)-----ASTM A36 (FY = 36 KSI)
 - A. PIPE-----ASTM A53 (FY = 35 KSI)
 - B. CONNECTION BOLTS-----ASTM A325-N
 - C. U-BOLTS-----ASTM A36
 - D. WELDING ELECTRODE-----ASTM E 70XX
2. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
3. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE"

[illegible]

CENTEK engineering
Centered on Solutions™

1712 MAIN STREET
COVENTRY, CT

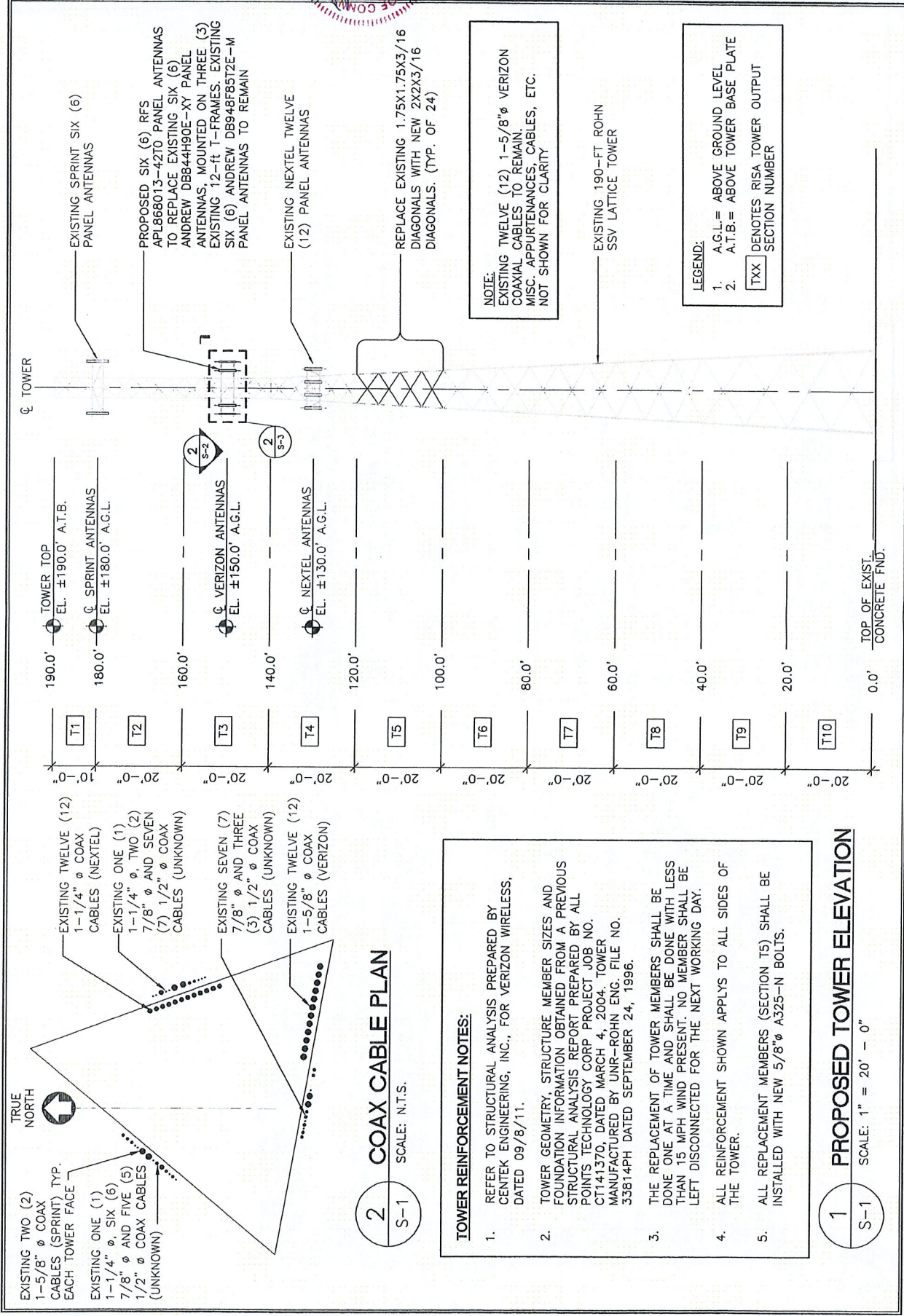
ENTRY EAST

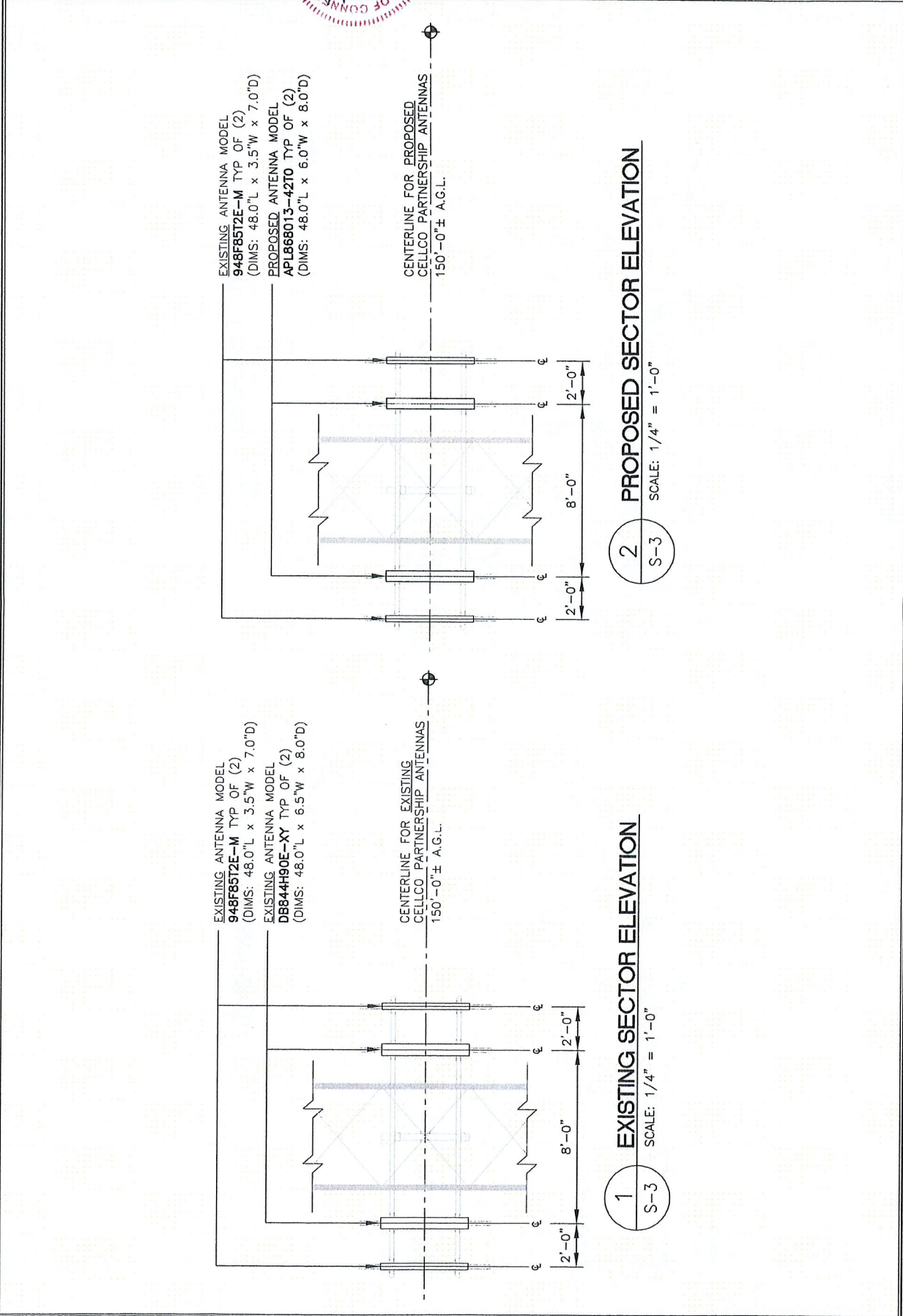
PO BOX 10000
WILMINGTON, DE 19806

Ship d/b/a Verizon Wireless

DATE:	9/7/11
SCALE:	AS SHOWN
JOB NO.	11001-CO46

SHEET NO. N-1





1

EXISTING SECTOR ELEVATION

SCALE: 1/4" = 1'-0"

2

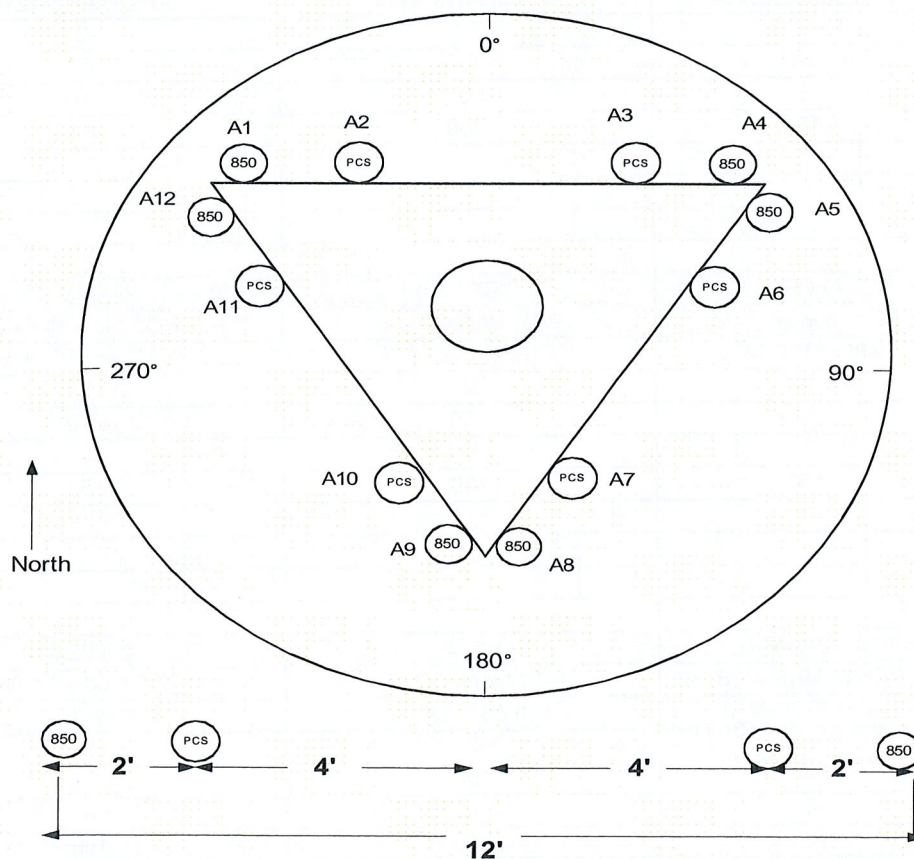
PROPOSED SECTOR ELEVATION

SCALE: 1/4" = 1'-0"

SITE NAME		COVENTRY EAST CT		ECP - CELL #		2		119	
LATITUDE		41-46-47.75 N		LONGITUDE		72-18-34.50 W			
Additional Comments:				SAVE BUTTON					
				STRUCTURE TYPE		MONOPOLE			
700 Mhz - LTE ANTENNA ADD		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		eNodeB		eNodeB		eNodeB			
ANTENNA TYPE									
QTY OF ANTENNAS PER FACE									
ORIENTATION (DEG)									
DOWN TILT (MECH/DEG)									
RAD CTR (FT AGL)									
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
MCPA BRICKS (QTY)									
850 Cellular - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Cellular Modcell 4.0		Cellular Modcell 4.0		Cellular Modcell 4.0			
ANTENNA TYPE		DB844H90-XY		DB844H90-XY		DB844H90-XY			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		150		150		150			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
850 Cellular - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Cellular Modcell 4.0		Cellular Modcell 4.0		Cellular Modcell 4.0			
ANTENNA TYPE		APL868013-42T0		APL868013-42T0		APL868013-42T0			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		150		150		150			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
1900 PCS - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0B		PCS Modcell 4.0B		PCS Modcell 4.0B			
ANTENNA TYPE		948F85T2E-M_2		948F85T2E-M_2		948F85T2E-M_2			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		150		150		150			
TMA - QTY / MODEL		2		2					
DIPLEXER - QTY / MODEL									
DIPLEXER KIT - QTY / MODEL									
MCPA BRICKS (QTY)									
1900 PCS - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0B		PCS Modcell 4.0B		PCS Modcell 4.0B			
ANTENNA TYPE		948F85T2E-M_2		948F85T2E-M_2		948F85T2E-M_2			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		150		270			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		150		150		150			
TMA - QTY / MODEL		2		2					

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		12		TOP JUMPER (FT)		12	
Equipment Cable Ordering				MAIN CABLE		12		+			
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	800	Tx1/Rx0	RED	A5	800	Tx2/Rx0	BLUE	A9	800	Tx3/Rx0	GREEN
A2	1900	Tx1/Rx0	RED/ WHITE	A6	1900	Tx2/Rx0	BLUE/ WHITE	A10	1900	Tx3/Rx0	GREEN/WHITE
	700	Tx1/Rx0	RED/ ORANGE		700	Tx2/Rx0	BLUE/ ORANGE		700	Tx3/Rx0	GREEN/ORANGE
	700	Tx4/Rx1	RED/RED/ ORANGE		700	Tx5/Rx1	BLUE/BLUE/ ORANGE		700	Tx6/Rx1	GREEN/GREEN/ ORANGE
A3	1900	Tx4/Rx1	RED/RED/ WHITE	A7	1900	Tx5/Rx1	BLUE/BLUE/ WHITE	A11	1900	Tx6/Rx1	GREEN/GREEN/ WHITE
A4	800	Tx4/Rx1	RED/RED	A8	800	Tx5/Rx1	BLUE/BLUE	A12	800	Tx6/Rx1	GREEN/GREEN
RF ENGINEER						RF MANAGER			INITIALS		DATE
Prepared By : Dany Bustamante						Steve Weatherbee			DB		8/8/2011

Site Configuration





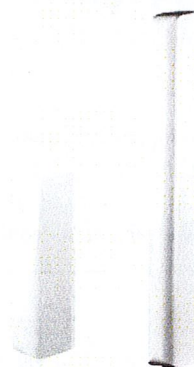
Maximizer® Log Periodic Antenna, 806-894, 80deg, 14.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELLite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELLite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.

Features/Benefits

- 45 dB front-to-back ratio reduces co-channel interference.
- Monolithic construction reduces IM.
- No solder joints, high reliability.
- Surface treated components prevent galvanic corrosion.
- UV stabilized radome assures long life without radome deterioration due to UV exposure.



Technical Specifications

Electrical Specifications

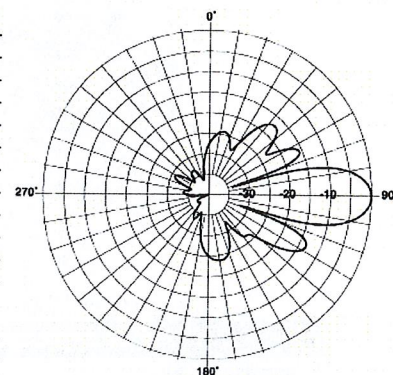
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	80
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	14.1 (12)
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

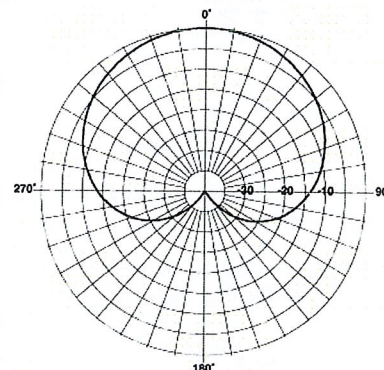
Dimensions - HxWxD, mm (in)	1219 x 152 x 203 (48 x 6 x 8)
Weight w/o Mtg Hardware, kg (lb)	2.8 (6.32)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m ² (ft ²)	0.307 (3.3)
Maximum Thrust @ Rated Wind, N (lbf)	916 (206)
Wind Load - Side @ Rated Wind, N (lbf)	743 (167)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	7.9 (17.5)
Packing Dimensions, HxWxD, mm (in)	1270 x 305 x 203 (50 x 12 x 8)

Ordering Information

Mounting Hardware	APM21-3
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Vertical Pattern

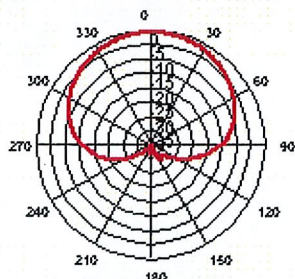


Horizontal Pattern

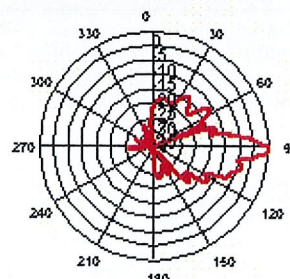
Other Documentation

DECIBEL® Base Station Antennas	948F85T2E-M 16.1 dBi, Directed Dipole Antenna 1850-1990 MHz	1850-1990 MHz MaxFill™ dB Director®
• Exceptional azimuth roll-off reducing soft hand-offs and improving capacity • Excellent upper side lobe suppression • Deep null filling below the horizon assures improved signal intensity • Low profile appearance and low wind loading profile for easier zoning approvals		

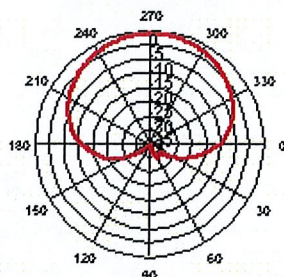
85°



Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)



ELECTRICAL		MECHANICAL	
Frequency (MHz): Polarization: Gain (dBd/dBi): Azimuth BW: Elevation BW: Beam Tilt: USLS* (dB): Null Fill* (dB): Front-to-Back Ratio* (dB): VSWR: IM Suppression - Two 20 Watt Carriers: Impedance: Max Input Power: Lightning Protection: Opt Electrical Tilt:	1850-1990 Vertical 14/16.1 85° 8° 2° >18 15 40 <1.33:1 -150 dBc 50 Ohms 250 Watts DC Ground 0°, 4°, 6°	Weight: Dimensions (LxWxD): Max. Wind Area: Max. Wind Load (@ 100mph): Max. Wind Speed: Radiator Material: Reflector Material: Radome Material: Mounting Hardware Material: Connector Type: Color: Standard Mounting Hardware: Downtilt Mounting Hardware: Opt. Mounting Hardware:	8.5 lbs (3.9 kg) 48 X 3.5 X 7 in (1219 X 89 X 178 mm) 1.18 ft² (0.11 m²) 65 lbf (289 N) 125 mph (201 km/h) Low Loss Circuit Board Aluminum ABS, UV Resistant Galvanized Steel 7-16 DIN - Female (Bottom) Light Gray DB390 Pipe Mount Kit, included DB5098, optional DB5094-AZ Azimuth Wall Mount



Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

Date: 4/29/2004
* - Indicates Typical Values

dbtech@andrew.com