STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

January 18, 2011

Thomas J. Regan, Esq.
Brown Rudnick LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

RE: **EM-T-MOBILE-027-101217A** – T-Mobile USA, Inc. notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton, Connecticut.

Dear Attorney Regan:

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:

- 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 December 17, 2010. 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,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable William Fritz, Jr., First Selectman, Town of Clinton
Thomas Lane, Zoning Enforcement Officer, Town of Clinton

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

December 21, 2010

The Honorable William W. Fritz, Jr.
First Selectman
Town of Clinton
54 East Main Street
Clinton, CT 06413

RE: **EM-T-MOBILE-027-101217A** – T-Mobile USA, Inc. notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton, Connecticut.

Dear First Selectman Fritz:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by January 6, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Thomas Lane, Zoning Enforcement Officer, Town of Clinton

BROWNRUDNICK

CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

THOMAS J. REGAN
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

EM-T-MOBILE-027-101217A

Via Hand Delivery

December 17, 2010

ORIGINAL

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification /Clinton @ 48 Cow Hill Road

Dear Mr. Caruso:

On behalf of T-Mobile USA, Inc. ("T-Mobile"), enclosed for filing are an original and five (5) copies of T-Mobile's Notice of Exempt Modification for a Facility located at the above-referenced site.

I also enclose herewith a check in the amount of $625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK LLP

By: Thomas J. Regan
Thomas J. Regan

Enclosures

cc w/ encl. via 1st Class Mail – William W. Fritz, First Selectman

40280046 v1 - MERCIECM - 025064/0016

CONNECTICUT SITING COUNCIL

In re:		
T-Mobile USA, Inc. Notice to Make an Exempt Modification to an Existing Facility at 48 Cow Hill Road, Clinton, Connecticut.	:	**EXEMPT MODIFICATION NO. _____**
	:	December 17, 2010

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile USA, Inc. ("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Clinton of T-Mobile's intent to make an exempt modification to the existing lattice tower (the "Tower") located at 48 Cow Hill Road, Clinton, Connecticut. Specifically, T-Mobile plans to upgrade its wireless system in Connecticut by implementing its Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") technology that utilizes a code division multiple access ("CDMA") base to allow for fast and large data transfers. To accomplish this upgrade, T-Mobile must modify its antenna and equipment configurations at many of its existing sites.

Once the UMTS upgrade is complete, T-Mobile will operate on a more unified communication system, allowing international wireless telephones to function world-wide. Furthermore, UMTS will enhance global positioning system ("GPS") navigation capabilities and provide emergency responders with more advanced tracking capabilities. The proposed UMTS technology is compatible with the existing second-generation ("2G") Global System for Mobile Communication ("GSM") currently on the Tower and the proposed upgrade is expected to enhance the existing 2G system. In order to accomplish the upgrade at this site, T-Mobile plans to add UMTS technology and install associated equipment at the base of the Tower.

Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), T-Mobile's plans do not constitute a modification subject to the Council's review because T-Mobile will not

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

change the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

The Tower is a 212-foot lattice tower located at 48 Cow Hill Road in Clinton, Connecticut (latitude N 41° 17' 20.2", longitude W -73° 32' 18.5."). The Tower is owned by Crown Castle. Currently, T-Mobile has 3 GSM panel antennas and 6 twin Tower Mounted Antennas ("TMA") with a centerline of 137 feet. Multiple carriers are currently located on the Tower. A site plan with Tower specifications is attached.

Specifically, T-Mobile plans to install 3 additional UMTS panel antennas and remove and replace its 6 existing TMA. The 6 existing TMA will be replaced with 3 PCS TMA and 3 AWS TMA. The centerline of the new antennas and TMAs will remain at 137 feet. T-Mobile will continue to utilize its 6 existing coaxial cables and install 6 additional 1-5/8 inch coax cables.

To confirm the Tower can support these changes, T-Mobile commissioned Crown Castle to perform a structural analysis of the Tower (attached). According to the Structural Analysis Report, dated September 21, 2010, the Tower has "...sufficient capacity..." to support the existing, reserved and proposed loading. (Page 1, Structural Analysis Report).

In addition, T-Mobile proposes to install 1 new UMTS equipment cabinet on the existing concrete pad. T-Mobile's equipment will be located on its existing concrete pad, therefore, no increase in the boundaries of the site will be necessary.

Excluding brief, minor, construction-related noise during the addition of the antennas and the installation of the equipment cabinet, T-Mobile's changes to the Tower will not increase noise levels at the site.

The proposed antennas will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

around the Tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The worst-case power density analysis for the antennas, measured at the base of the Tower, indicates that T-Mobile's proposed antennas will emit 5.09% of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the Tower will emit 36.56% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, T-Mobile's proposed plan to add antennas and equipment at this site does not constitute a modification subject to the Council's jurisdiction because T-Mobile will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

T-Mobile USA, Inc.

By: Thomas J. Regan

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522 /Fax - 860.509.6501

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Certificate of Service

This is to certify that on this 17th day of December, 2010, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Clinton
First Selectman William W. Fritz
54 E. Main Street
Clinton, CT 06413

By: Thomas J. Regan
Thomas J. Regan

40279521 v1 - 025064/0016

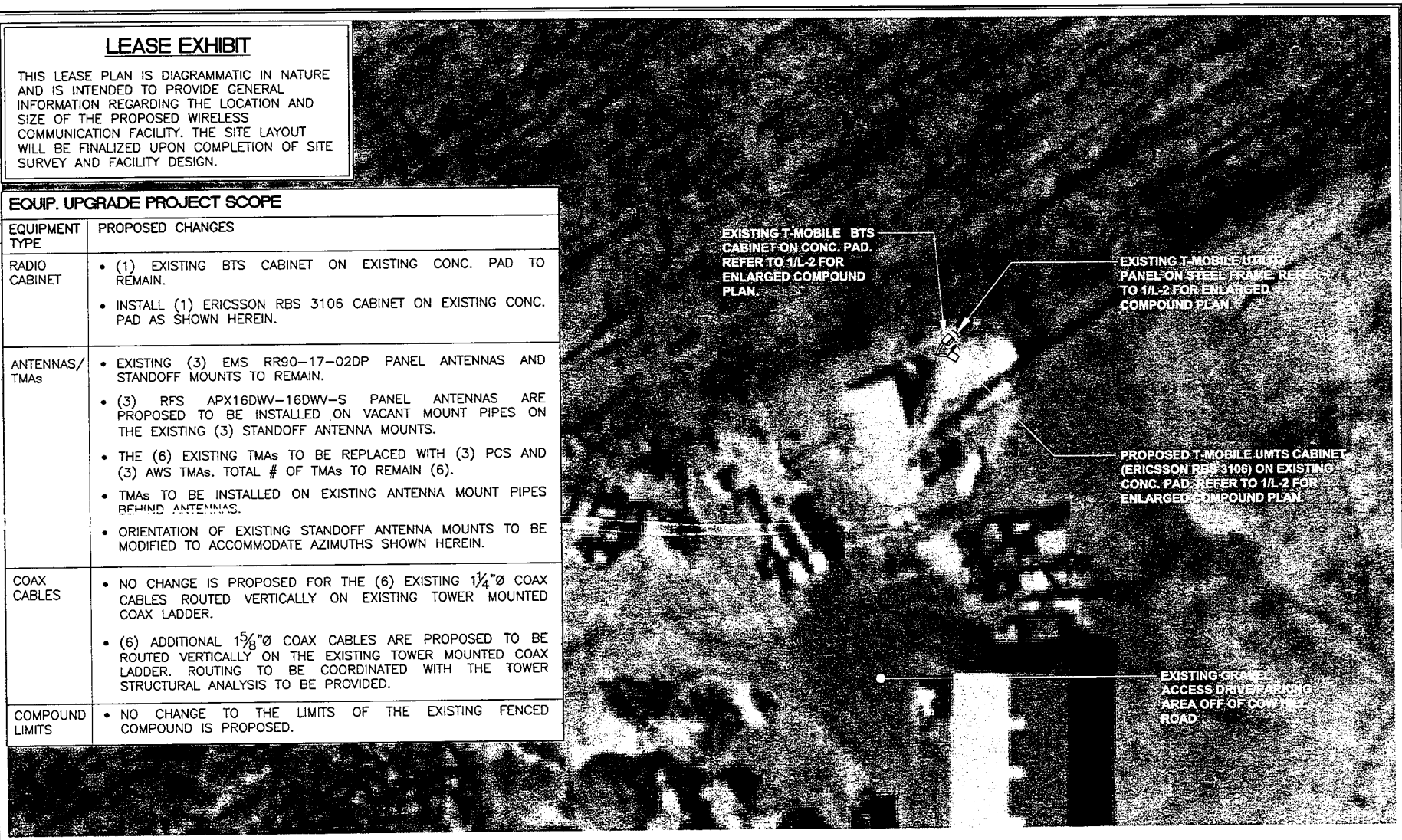
BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.

EQUIP. UPGRADE PROJECT SCOPE

EQUIPMENT TYPE	PROPOSED CHANGES
RADIO CABINET	• (1) EXISTING BTS CABINET ON EXISTING CONC. PAD TO REMAIN. • INSTALL (1) ERICSSON RBS 3106 CABINET ON EXISTING CONC. PAD AS SHOWN HEREIN.
ANTENNAS/ TMAs	• EXISTING (3) EMS RR90-17-02DP PANEL ANTENNAS AND STANDOFF MOUNTS TO REMAIN. • (3) RFS APX16DWV-16DWV-S PANEL ANTENNAS ARE PROPOSED TO BE INSTALLED ON VACANT MOUNT PIPES ON THE EXISTING (3) STANDOFF ANTENNA MOUNTS. • THE (6) EXISTING TMAs TO BE REPLACED WITH (3) PCS AND (3) AWS TMAs. TOTAL # OF TMAs TO REMAIN (6). • TMAs TO BE INSTALLED ON EXISTING ANTENNA MOUNT PIPES BEHIND ANTENNAS. • ORIENTATION OF EXISTING STANDOFF ANTENNA MOUNTS TO BE MODIFIED TO ACCOMMODATE AZIMUTHS SHOWN HEREIN.
COAX CABLES	• NO CHANGE IS PROPOSED FOR THE (6) EXISTING 1¼"Ø COAX CABLES ROUTED VERTICALLY ON EXISTING TOWER MOUNTED COAX LADDER. • (6) ADDITIONAL 1⅝"Ø COAX CABLES ARE PROPOSED TO BE ROUTED VERTICALLY ON THE EXISTING TOWER MOUNTED COAX LADDER. ROUTING TO BE COORDINATED WITH THE TOWER STRUCTURAL ANALYSIS TO BE PROVIDED.
COMPOUND LIMITS	• NO CHANGE TO THE LIMITS OF THE EXISTING FENCED COMPOUND IS PROPOSED.



1 / L-1 **SITE PLAN**
SCALE: 1" = 40'

APPROXIMATE NORTH

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

NO.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
00	9/28/10	DEB	CFC	FINAL LEASE EXHIBIT
B	9/27/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW
A	9/20/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE
CT11030H
BAM TOWER
49 COW HILL ROAD
CLINTON, CT 06413

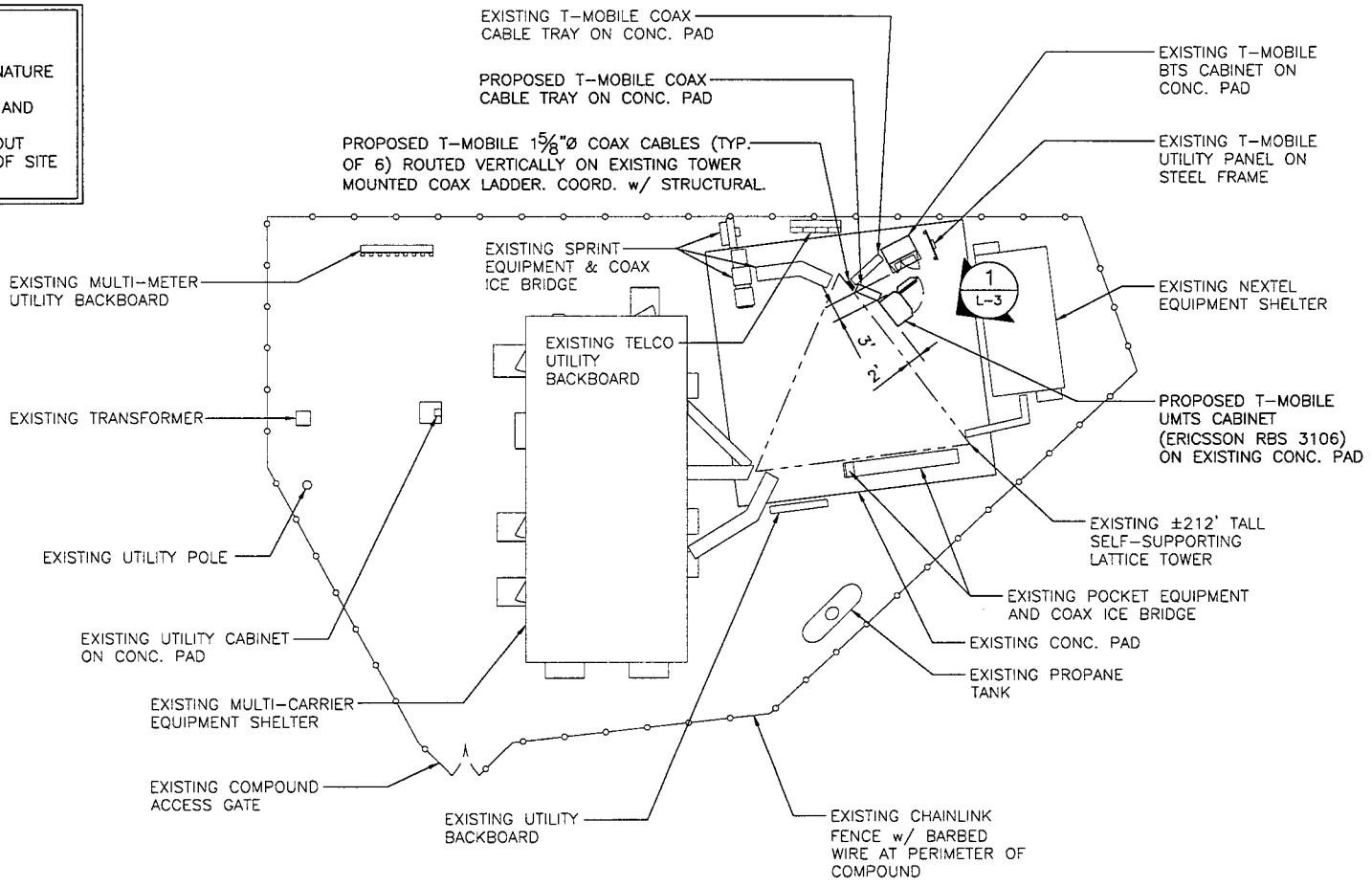
DATE: 9/20/10
SCALE: AS SHOWN
JOB NO. 10116.005

LEASE EXHIBIT

SHEET NO. L-1
Sheet No. 1 of 2

LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.



1 / L-2 **COMPOUND PLAN**

SCALE: 1/16" = 1'-0"

TRUE NORTH

16 0 8 16 32 64

(IN FEET)

1 inch = 16 ft.

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
00	9/28/10	DEB	CFC	FINAL LEASE EXHIBIT
B	9/27/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW
A	9/24/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE

CT11030H
BAM TOWER

68 COWLES ROAD
CLINTON, CT 06413

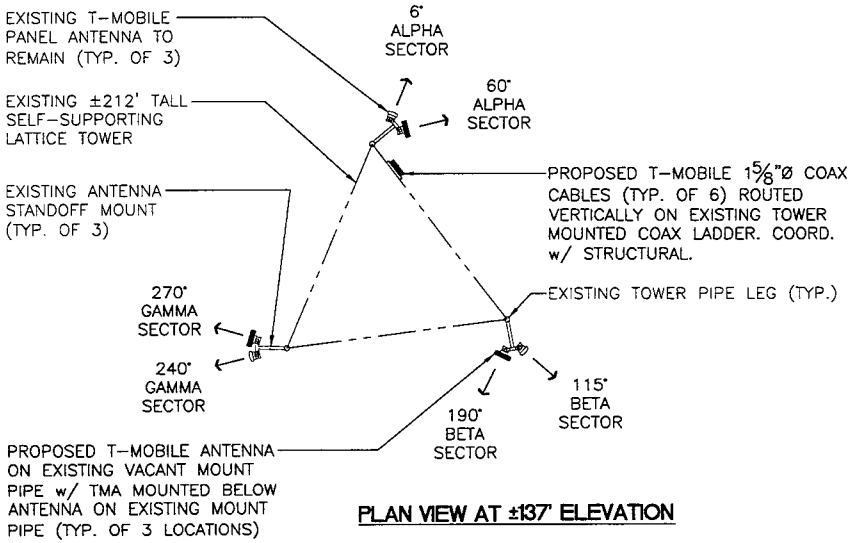
DATE:	9/20/10
SCALE:	AS SHOWN
JOB NO.	10118.005

LEASE EXHIBIT

SHEET NO.
L-2
Sheet No. 2 of 3

LEASE EXHIBIT

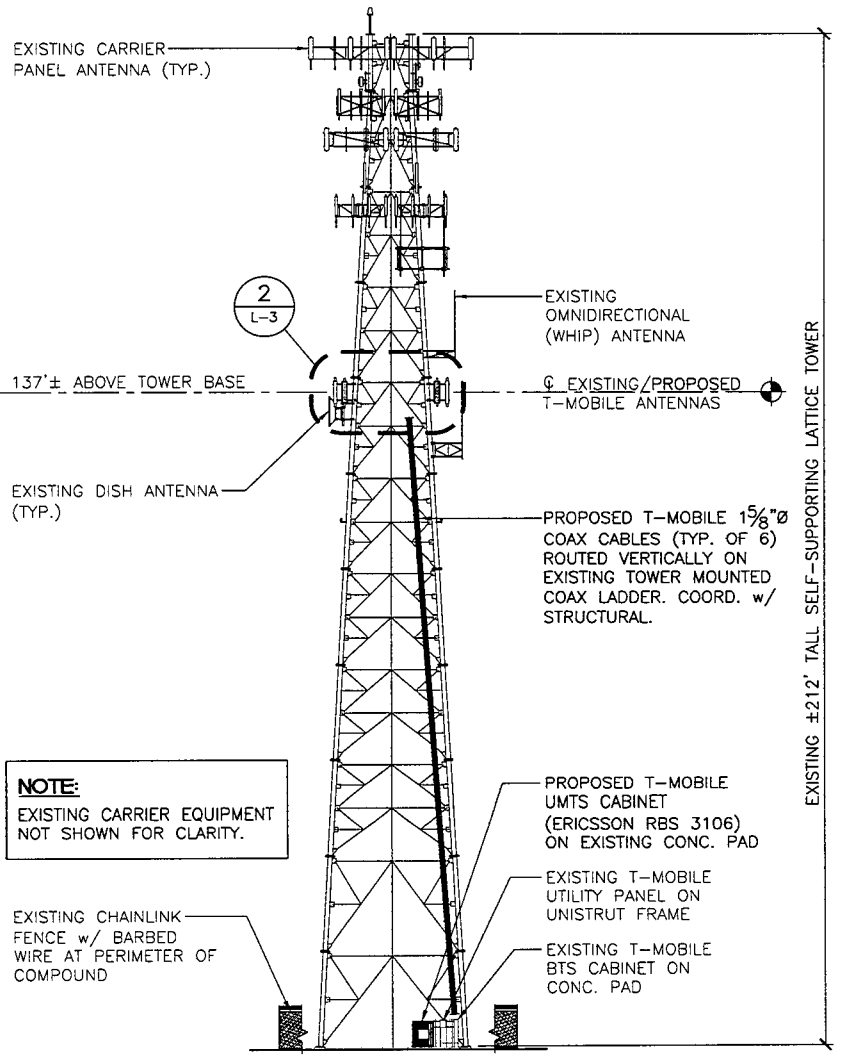
THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.



PLAN VIEW AT ±137' ELEVATION

2 / L-3 **ANTENNA MOUNTING CONFIGURATION**

NOT TO SCALE



NOTE:
EXISTING CARRIER EQUIPMENT NOT SHOWN FOR CLARITY.

1 / L-3 **NORTHEAST ELEVATION**

SCALE: 1" = 25'

25 0 12.5 25 50 100

(IN FEET)
1 inch = 25 ft.

DESIGNED BY:			CFC
DRAWN BY:			DEB
CHK'D BY:			CFC
00	9/29/10	DEB	CFC	FINAL LEASE EXHIBIT
B	9/27/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW
A	9/24/10	DEB	CFC	LEASE EXHIBIT - CLIENT REVIEW
REV.	DATE	DRAWN BY	CHK'D BY	REVISION DESCRIPTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE

CT11030H
BAM TOWER

49 COWLES ROAD
CLINTON, CT 06413

DATE: 9/20/10
SCALE: AS SHOWN
JOB NO. 10116.005

LEASE EXHIBIT

SHEET NO.
L-3
Sheet No. 3 of 3

Date: **September 21, 2010**

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430

Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
724-416-2149

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11030H
	Carrier Site Name:	Clinton HRT 105
Crown Castle Designation:	**Crown Castle BU Number:**	806363
	Crown Castle Site Name:	HRT 105 943201
	Crown Castle JDE Job Number:	142298
	Crown Castle Work Order Number:	358390
Engineering Firm Designation:	**Crown Castle Project Number:**	358390
Site Data:	**48 COW HILL ROAD, CLINTON, Middlesex County, CT**	
	Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"*	
	212.625 Foot - Self Support Tower	

Dear Veronica Harris,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 358390, in accordance with application 108264, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and local code requirements based upon a wind speed of 85 mph fastest mile.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Shoaib S. Ratnani, E.I.T./JCM

Respectfully submitted by:

Aaron C. Poot, P.E.
Engineering Supervisor

STATE OF CONNECTICUT
AARON C. POOT
No. 25050
LICENSED
PROFESSIONAL ENGINEER

RISA Tower Report - version 5.4.2.0 9/21/10

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN in June of 1992. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower was modified by Vertical Structures.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
137	137	3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/Mount Pipe	6	1-5/8	-
		3	rfs celwave	ATMAA1412D-1A20			
		3	rfs celwave	ATMPP1412D-1CWA			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
208	209	2	adc	ClearGain Dual Band 800/1900 MHz	-	-	2
		1	decibel	DB948F85T2E-M w/ Mount Pipe			
		6	antel	LPA-80080/6CF w/ Mount Pipe			
		5	decibel	DB948F85T2E-M w/ Mount Pipe	15	1-5/8	1
		3	swedcom	ALP 9212-N w/ Mount Pipe			
	208	12	mla	MLA_ANTENNA w/ Mount Pipe	12	1-5/8	3
		1	tower mounts	Sector Mount [SM 510-3]	-	-	1
202	204	1	sinclair	SD310-HL	2	11/32	2
	202	2	radiowaves	HP2-4.7NS	1	7/8	
		2	tower mounts	Pipe Mount [PM 501-1]			
197	198	6	decibel	DB980H90E-M w/ Mount Pipe	6	1-5/8	1
	197	1	tower mounts	Sector Mount [SM 502-3]			
190	190	6	adc	DUAL BAND 800/1900 FULL BAND MASTHEAD	12	1-5/8	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		1	tower mounts	Sector Mount [SM 601-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
182	182	3	kathrein	742 213 w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Pipe Mount [PM 501-3]			
175	176	12	decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	1
	175	1	tower mounts	Sector Mount [SM 510-3]			
165	173	1	rfs celwave	1151-3	-	-	2
	165	1	tower mounts	Side Arm Mount [SO 308-1]	1	7/8	1
145	149	1	bird technologies group	OA20-67-DIN	-	-	2
	145	1	tower mounts	Side Arm Mount [SO 308-1]	1	7/8	1
137	137	6	generic	TMA	-	-	4
		3	ems wireless	RR90-17-02DP w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Side Arm Mount [SO 201-3]			
133	133	1	tower mounts	Pipe Mount [PM 501-1]	1	EW52	1
	133	1	andrew	PL6-59W			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) MLA Equipment does not control; was not used in this analysis
4) Equipment will be removed and was not considered in the analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
212	212	4	rfs/celwave	PD10017	-	-
		12	sinclair	SRL410C4	-	-
200	200	2	generic	6' Grid Dish	-	-
190	190	9	swedcom	ALP9212N	-	-
100	100	1	decibel	DB222	-	-
90	90	1	decibel	DB225	-	-
80	80	2	decibel	DB225-2	-	-
60	60	1	decibel	DB212-2	-	-
		1	decibel	DB225		
		1	decibel	DB225-2		
50	50	1	decibel	DB212-2	-	-
40	40	1	decibel	DB212	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc.	262276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn	262273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn	262274	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Vertical Structures	2294593	CCISITES

3.1) Analysis Method

RISATower (version 5.4.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-2.18	37.41	8.6	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-29.72	83.44	35.6	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-65.08	138.58	47.0	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-99.55	205.75	48.4	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-126.86	211.35	60.0	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-157.81	263.18	60.0	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-186.16	263.18	70.7	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-213.22	331.42	64.3	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-239.82	331.21	72.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-252.31	433.40	58.2	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-307.11	433.92	70.8	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	8	-2.88	21.60	13.3	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	39	-8.73	15.46	56.5	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	78	-9.33	13.36	69.8	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-8.96	11.48	78.0	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-11.86	14.35	82.6	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-10.89	12.58	86.6	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-11.05	21.76	50.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-10.99	19.22	57.2	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	258	-11.99	16.87	71.1	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	284	-17.09	27.45	62.2	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	317	-19.87	26.23	75.7	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	7	-2.07	20.30	10.2 12.2 (b)	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-4.67	20.25	23.1 27.4 (b)	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-5.78	17.38	33.3 33.7 (b)	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	115	-6.13	24.67	24.8 35.7 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.06	20.44	34.5 41.1 (b)	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.10	14.86	47.8	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-7.66	25.42	30.1 44.6 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.00	19.85	40.3 46.7 (b)	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	256	-9.04	15.70	57.6	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	283	-9.34	27.89	33.5 37.8 (b)	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	316	-11.28	22.69	49.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.13	20.34	0.6	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-4.38	11.80	37.1	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	328	-5.33	9.84	54.2	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	302	-4.05	7.76	52.1	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-4.59	7.19	63.8	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	308	-0.05	10.76	0.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	341	-0.05	8.85	0.5	Pass
T10	40.6667 -	Redund Hip	ROHN 2.5 STD	307	-0.05	6.86	0.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	20.3333	Diagonal Bracing						
T11	20.3333 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	340	-0.05	6.20	0.8	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	18	-0.00	5.83	0.3	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	5.73	0.3	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	80	-0.01	4.22	0.3	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	118	-0.01	2.89	0.4	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	158	-0.01	2.19	0.4	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	185	-0.01	3.45	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.01	4.55	0.5	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.01	7.40	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.01	5.90	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.01	19.74	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	343	-0.01	16.16	0.4	Pass
							Summary	
						Leg (T9)	72.4	Pass
						Diagonal (T6)	86.6	Pass
						Horizontal (T9)	57.6	Pass
						Top Girt (T1)	0.6	Pass
						Redund Horz 1 Bracing (T11)	54.2	Pass
						Redund Diag 1 Bracing (T11)	63.8	Pass
						Redund Hip 1 Bracing (T11)	0.5	Pass
						Redund Hip Diagonal Bracing (T11)	0.8	Pass
						Inner Bracing (T7)	0.5	Pass
						Bolt Checks	58.5	Pass
						Rating =	86.6	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Rods	0	58.4	Pass
1	Base Foundation	0	51.4	Pass
Structure Rating (max from all components) =				**86.6%**

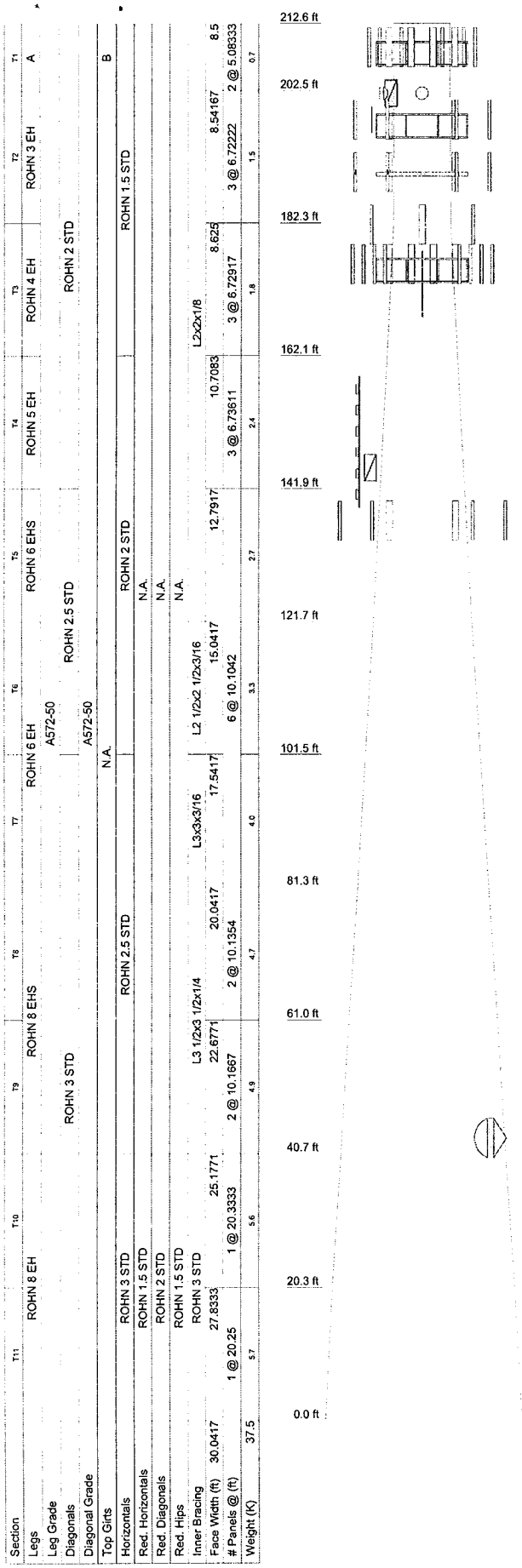
Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to support the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

RISA TOWER OUTPUT



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB948F85T2E-M w/ Mount Pipe	208	(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	190
ALP 9212-N w/ Mount Pipe	208		
(2) ClearGain Dual Band 800/1900 MHz	208	(2) 7770.00 w/ Mount Pipe	190
		742 213 w/ Mount Pipe	182
(2) LPA-80080/6CF w/ Mount Pipe	208	Pipe Mount [PM 501-3]	182
DB948F85T2E-M w/ Mount Pipe	208	742 213 w/ Mount Pipe	182
ALP 9212-N w/ Mount Pipe	208	742 213 w/ Mount Pipe	182
(2) LPA-80080/6CF w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
DB948F85T2E-M w/ Mount Pipe	208	Sector Mount [SM 510-3]	175
(2) DB948F85T2E-M w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
ALP 9212-N w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
(2) LPA-80080/6CF w/ Mount Pipe	208	1151-3	165
Sector Mount [SM 510-3]	208	Side Arm Mount [SO 308-1]	165
SD310-HL	202	OA20-67-DIN	145
Pipe Mount [PM 501-1]	202	Side Arm Mount [SO 308-1]	145
Pipe Mount [PM 501-1]	202	RR90-17-02DP w/ Mount Pipe	137
HP2-4.7NS	202	APX16DWV-16DWV-S-E-A20 w/Mount Pipe	137
HP2-4.7NS	202	RR90-17-02DP w/ Mount Pipe	137
(2) DB980H90E-M w/ Mount Pipe	197	APX16DWV-16DWV-S-E-A20 w/Mount Pipe	137
Sector Mount [SM 502-3]	197	Side Arm Mount [SO 201-3]	137
(3) 4' x 2" Pipe Mount	197	ATMPP1412D-1CWA	137
(3) 4' x 2" Pipe Mount	197	ATMPP1412D-1CWA	137
(3) 4' x 2" Pipe Mount	197	ATMPP1412D-1CWA	137
(2) DB980H90E-M w/ Mount Pipe	197	ATMAA1412D-1A20	137
(2) DB980H90E-M w/ Mount Pipe	197	ATMAA1412D-1A20	137
(2) LGP13519	190	ATMAA1412D-1A20	137
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	190	RR90-17-02DP w/ Mount Pipe	137
(2) 7770.00 w/ Mount Pipe	190	APX16DWV-16DWV-S-E-A20 w/Mount Pipe	137
(2) LGP13519	190	Pipe Mount [PM 501-1]	133
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	190	PL6-59W	133
(2) 7770.00 w/ Mount Pipe	190		
(2) LGP13519	190		
Sector Mount [SM 601-3]	190		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 86.6%

MAX. BASE:
DOWN: 305 K
UPLIFT: -251 K
SHEAR: 36 K

AXIAL
141 K
SHEAR 19 K *MOMENT 2355 kip-ft*
TORQUE 10 kip-ft
38 mph WIND - 0.7500 in ICE

AXIAL
74 K
SHEAR 60 K *MOMENT 7302 kip-ft*
TORQUE 31 kip-ft
REACTIONS - 85 mph WIND

CROWN CASTLE
Shapeing The Wireless World
Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
Phone: 724-416-2149
FAX:

Job: *BU 806363*			
Project:			
Client: Crown Castle USA	Drawn by: Shoaib Ratnani	App'd:	
Code: TIA/EIA-222-F	Date: 09/21/10	Scale: NTS	
Path: R:\SA Models - Letters\Work Area\SRatnani\806363\806363.eri		Dwg No. E-1	

RISATower	Job	Page
	BU 806363	1 of 38
Crown Castle 2000 Corporate Dr. Canonsburg, PA 15317 Phone: 724-416-2149 FAX:	Project	Date 09:01:08 09/21/10
	Client Crown Castle USA	Designed by Shoaib Ratnani

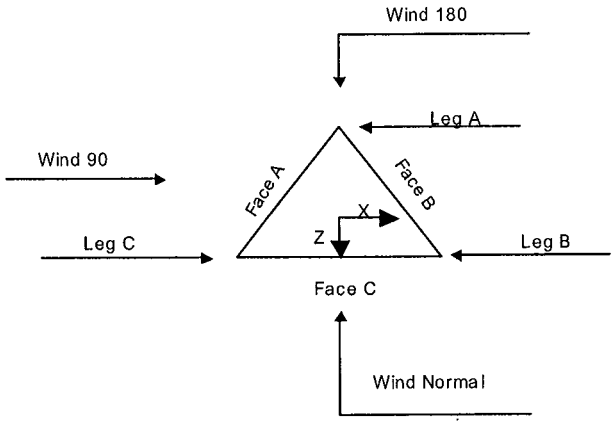
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 212'7-1/2" above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 8'6" at the top and 30'1/2" at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Middlesex County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 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		



Triangular Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	212'7-9/16"-202'5 -17/32"			8'6"	1	10'2-1/32"
T2	202'5-17/32"-182' 3-15/32"			8'6-15/32"	1	20'2-1/32"
T3	182'3-15/32"-162' 1-3/16"			8'7-9/16"	1	20'2-9/32"
T4	162'1-3/16"-141'1 0-13/16"			10'8-17/32"	1	20'2-17/32"
T5	141'10-13/16"-12 1'8-9/32"			12'9-15/32"	1	20'2-17/32"
T6	121'8-9/32"-101'5 -3/4"			15'15/32"	1	20'2-17/32"
T7	101'5-3/4"-81'3-1 /4"			17'6-15/32"	1	20'2-17/32"
T8	81'3-1/4"-61'			20'15/32"	1	20'3-1/4"
T9	61'-40'8-1/32"			22'8-5/32"	1	20'3-31/32"
T10	40'8-1/32"-20'3-3 1/32"			25'2-5/32"	1	20'3-31/32"
T11	20'3-31/32"-0'			27'9-31/32"	1	20'3-31/32"

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	212'7-9/16"-202'5-17/32"	5'31/32"	K Brace Down	No	Yes	0.0000	0.0000
T2	202'5-17/32"-182'3-15/32"	6'8-5/8"	K Brace Down	No	Yes	0.0000	0.0000
T3	182'3-15/32"-162'1-3/16"	6'8-3/4"	K Brace Down	No	Yes	0.0000	0.0000
T4	162'1-3/16"-141'10-13/16"	6'8-7/8"	K Brace Down	No	Yes	0.0000	0.0000
T5	141'10-13/16"-121'8-9/32"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T6	121'8-9/32"-101'5-3/4"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T7	101'5-3/4"-81'3-1/4"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T8	81'3-1/4"-61'	10'1-11/16"	K Brace Down	No	Yes	0.0000	0.0000
T9	61'-40'8-1/32"	10'2-1/32"	K Brace Down	No	Yes	0.0000	0.0000
T10	40'8-1/32"-20'3-31/32"	20'3-31/32"	K1 Down	No	Yes	0.0000	0.0000
T11	20'3-31/32"-0'	20'3"	K1 Down	No	Yes	0.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 212'7-9/16"-202'5-17/32"	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 202'5-17/32"-182'3-15/32"	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T3 182'3-15/32"-162'1-3/16"	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T4 162'1-3/16"-141'10-13/16"	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141'10-13/16"-121'8-9/32"	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T6 121'8-9/32"-101'5-3/4"	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T7 101'5-3/4"-81'3-1/4"	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 81'3-1/4"-61'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 61'-40'8-1/32"	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 212'7-9/16"-202'5-17/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 202'5-17/32"-182'3-15/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 182'3-15/32"-162'1-3/16"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T4 162'1-3/16"-141'10-13/16"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141'10-13/16"-121'8-9/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T6 121'8-9/32"-101'5-3/4"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T7 101'5-3/4"-81'3-1/4"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T8 81'3-1/4"-61'	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 61'-40'8-1/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 212'7-9/16"-202'5-17/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 202'5-17/32"-182'3-15/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 182'3-15/32"-162'1-3/16"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 162'1-3/16"-141'10-13/16"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T5 141'10-13/16"-121'8-9/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 121'8-9/32"-101'5-3/4"	Single Angle		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 101'5-3/4"-81'3-1/4"	Single Angle		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 81'3-1/4"-61'	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 61'-40'8-1/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T10 40'8-1/32"-20'3-31/32"	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T11 20'3-31/32"-0'	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 212'7-9/16"-202'5-17/32"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T2 202'5-17/32"-182'3-15/32"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T3 182'3-15/32"-162'1-3/16"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T4 162'1-3/16"-14	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
1'10-13/16" T5 141'10-13/16"-121'8-9/32"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T6 121'8-9/32"-101'5-3/4"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T7 101'5-3/4"-81'3-1/4"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T8 81'3-1/4"-61'	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T9 61'-40'8-1/32"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T10 40'8-1/32"-20'3-31/32"	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000
T11 20'3-31/32"-0'	0.00	0.0000	A36 (36 ksi)	1	1	1.05	30.0000	30.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 212'7-9/16"-202'5-17/32"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 202'5-17/32"-182'3-15/32"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 182'3-15/32"-162'1-3/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 162'1-3/16"-141'10-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 141'10-13/16"-121'8-9/32"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 121'8-9/32"-101'5-3/4"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 101'5-3/4"-81'3-1/4"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 81'3-1/4"-61'	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 61'-40'8-1/32"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 40'8-1/32"-20'	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
3-31/32" T11 20'3-31/32"-0'	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 212'7-9/16"-202'5-17/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T2 202'5-17/32"-182'3-15/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T3 182'3-15/32"-162'1-3/16"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T4 162'1-3/16"-141'10-13/16"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T5 141'10-13/16"-121'8-9/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T6 121'8-9/32"-101'5-3/4"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T7 101'5-3/4"-81'3-1/4"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T8 81'3-1/4"-61'	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T9 61'-40'8-1/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T10 40'8-1/32"-20'3-31/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T11 20'3-31/32"-0'	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 212'7-9/16"-202'5-17/32"	Flange	0.7500 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T2 202'5-17/32"-182'3-15/32"	Flange	0.8750 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T3 182'3-15/32"-162'1-3/16"	Flange	1.0000 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T4 162'1-3/16"-141'10-13/16"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T5 141'10-13/16"-121'8-9/32"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T6 121'8-9/32"-101'5-3/4"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T7 101'5-3/4"-81'3-1/4"	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T8 81'3-1/4"-61'	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T9 61'-40'8-1/32"	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T10 40'8-1/32"-20'3-31/32"	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	2	0.6250 A325X	0
T11 20'3-31/32"-0'	Flange	1.0000 A354-BC	10	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	2	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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
HJ7-50A(1-5/8")	C	Yes	Ar (CfAe)	208' - 0'	0.0000	0.4	15	12	1.0000	1.9800		1.04
Feedline Ladder (Af) **	C	Yes	Af (CfAe)	208' - 0'	0.0000	0.4	1	1	3.0000	3.0000	12.0000	8.40
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	202' - 0'	0.0000	-0.25	1	1	1.0000	1.0900		0.33
7921A(11/32")	A	Yes	Ar (CfAe)	202' - 0'	0.0000	-0.24	2	2	0.3300	0.3300		0.50
Feedline Ladder (Af) **	A	Yes	Af (CfAe)	202' - 0'	0.0000	-0.25	1	1	3.0000	3.0000	12.0000	8.40
LDF7-50A(1-5/8")	A	Yes	Ar (CfAe)	197' - 0'	0.0000	0.45	6	6	1.0000	1.9800		0.82
Feedline Ladder (Af) **	A	Yes	Af (CfAe)	197' - 0'	0.0000	0.45	1	1	3.0000	3.0000	12.0000	8.40
CR 50 1873(1-5/8")	A	Yes	Ar (CfAe)	190' - 0'	0.0000	-0.33	12	6	1.0000	1.9800		0.83

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
**												
AVA7-50(1-5/8")	C	Yes	Ar (CfAe)	182' - 0'	0.0000	-0.45	6	6	1.0000	2.0100		0.70
Feedline Ladder (Af)	C	Yes	Af (CfAe)	182' - 0'	0.0000	-0.45	1	1	3.0000	3.0000	12.0000	8.40
**												
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	175' - 0'	0.0000	0.4	12	9	1.0000	1.5500		0.66
Feedline Ladder (Af)	B	Yes	Af (CfAe)	175' - 0'	0.0000	0.4	1	1	3.0000	3.0000	12.0000	8.40
**												
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	165' - 0'	0.0000	-0.26	1	1	1.0000	1.0900		0.33
**												
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	145' - 0'	0.0000	-0.27	1	1	1.0000	1.0900		0.33
**												
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	137' - 0'	0.0000	-0.45	12	6	1.0000	1.5500		0.66
Feedline Ladder (Af)	B	Yes	Af (CfAe)	137' - 0'	0.0000	-0.45	1	1	3.0000	3.0000	12.0000	8.40
**												
EW52(ELLIPTICAL)	C	Yes	Ar (CfAe)	133' - 0'	0.0000	0.46	1	1	1.0000	2.2100		0.59
**												

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	212'7-9/16"-202'5-17/32"	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	10.973	1.385	0.000	0.000	0.13
T2	202'5-17/32"-182'3-15/32"	A	25.067	8.604	0.000	0.000	0.46
		B	0.000	0.000	0.000	0.000	0.00
		C	39.930	5.042	0.000	0.000	0.48
T3	182'3-15/32"-162'1-3/16"	A	43.178	10.094	0.000	0.000	0.67
		B	14.991	3.224	0.000	0.000	0.21
		C	59.967	10.021	0.000	0.000	0.74
T4	162'1-3/16"-141'10-13/16"	A	45.077	10.104	0.000	0.000	0.67
		B	23.492	5.052	0.000	0.000	0.33
		C	60.322	10.104	0.000	0.000	0.74
T5	141'10-13/16"-121'8-9/32"	A	46.631	10.104	0.000	0.000	0.68
		B	35.359	8.880	0.000	0.000	0.58
		C	62.405	10.104	0.000	0.000	0.75
T6	121'8-9/32"-101'5-3/4"	A	46.631	10.104	0.000	0.000	0.68
		B	39.154	10.104	0.000	0.000	0.66
		C	64.044	10.104	0.000	0.000	0.75
T7	101'5-3/4"-81'3-1/4"	A	46.631	10.104	0.000	0.000	0.68
		B	39.154	10.104	0.000	0.000	0.66
		C	64.044	10.104	0.000	0.000	0.75
T8	81'3-1/4"-61'	A	46.775	10.135	0.000	0.000	0.68
		B	39.275	10.135	0.000	0.000	0.66
		C	64.242	10.135	0.000	0.000	0.75
T9	61'-40'8-1/32"	A	46.919	10.167	0.000	0.000	0.68
		B	39.396	10.167	0.000	0.000	0.66

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	64.440	10.167	0.000	0.000	0.76
T10	40'8-1/32"-20'3-31 /32"	A	46.919	10.167	0.000	0.000	0.68
		B	39.396	10.167	0.000	0.000	0.66
		C	64.440	10.167	0.000	0.000	0.76
T11	20'3-31/32"-0'	A	46.919	10.167	0.000	0.000	0.68
		B	39.396	10.167	0.000	0.000	0.66
		C	64.440	10.167	0.000	0.000	0.76

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	212'7-9/16"-202'5-17/32"	A	0.935	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		1.778	17.099	0.000	0.000	0.42
T2	202'5-17/32"-182' 3-15/32"	A	0.927	15.581	41.066	0.000	0.000	1.29
		B		0.000	0.000	0.000	0.000	0.00
		C		6.442	62.207	0.000	0.000	1.53
T3	182'3-15/32"-162' 1-3/16"	A	0.914	22.062	65.439	0.000	0.000	2.05
		B		3.631	26.457	0.000	0.000	0.66
		C		12.773	94.192	0.000	0.000	2.27
T4	162'1-3/16"-141'1 0-13/16"	A	0.901	26.815	65.445	0.000	0.000	2.09
		B		5.644	41.429	0.000	0.000	1.03
		C		12.788	94.697	0.000	0.000	2.27
T5	141'10-13/16"-121 '8-9/32"	A	0.886	30.627	65.377	0.000	0.000	2.11
		B		9.831	62.999	0.000	0.000	1.77
		C		16.438	94.628	0.000	0.000	2.30
T6	121'8-9/32"-101'5-3/4"	A	0.868	30.273	65.298	0.000	0.000	2.09
		B		11.068	69.828	0.000	0.000	1.99
		C		19.212	94.549	0.000	0.000	2.31
T7	101'5-3/4"-81'3-1/4"	A	0.847	29.858	65.206	0.000	0.000	2.07
		B		10.929	69.736	0.000	0.000	1.96
		C		19.004	94.457	0.000	0.000	2.28
T8	81'3-1/4"-61'	A	0.822	29.442	65.294	0.000	0.000	2.04
		B		10.794	69.838	0.000	0.000	1.94
		C		18.809	94.636	0.000	0.000	2.25
T9	61'-40'8-1/32"	A	0.790	28.871	65.349	0.000	0.000	2.01
		B		10.607	69.907	0.000	0.000	1.92
		C		18.536	94.781	0.000	0.000	2.21
T10	40'8-1/32"-20'3-31 /32"	A	0.750	28.060	65.168	0.000	0.000	1.96
		B		10.336	69.726	0.000	0.000	1.88
		C		18.131	94.601	0.000	0.000	2.16
T11	20'3-31/32"-0'	A	0.750	28.060	65.168	0.000	0.000	1.96
		B		10.336	69.726	0.000	0.000	1.88
		C		18.131	94.601	0.000	0.000	2.16

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	212'7-9/16"-202'5-17 /32"	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
		C	1.133	3.260	0.000	0.000
T2	202'5-17/32"-182'3-1 5/32"	A	2.633	8.402	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	3.517	10.023	0.000	0.000
T3	182'3-15/32"-162'1-3 /16"	A	3.883	11.960	0.000	0.000
		B	1.328	4.106	0.000	0.000
		C	5.102	14.558	0.000	0.000
T4	162'1-3/16"-141'10-1 3/16"	A	4.051	12.172	0.000	0.000
		B	2.095	6.208	0.000	0.000
		C	5.170	14.137	0.000	0.000
T5	141'10-13/16"-121'8- 9/32"	A	3.422	9.801	0.000	0.000
		B	2.668	7.459	0.000	0.000
		C	4.374	11.308	0.000	0.000
T6	121'8-9/32"-101'5-3/ 4"	A	3.208	9.087	0.000	0.000
		B	2.785	7.719	0.000	0.000
		C	4.193	10.782	0.000	0.000
T7	101'5-3/4"-81'3-1/4"	A	3.710	9.653	0.000	0.000
		B	3.221	8.220	0.000	0.000
		C	4.848	11.484	0.000	0.000
T8	81'3-1/4"-61'	A	3.572	9.144	0.000	0.000
		B	3.101	7.809	0.000	0.000
		C	4.668	10.916	0.000	0.000
T9	61'-40'8-1/32"	A	3.472	8.697	0.000	0.000
		B	3.014	7.455	0.000	0.000
		C	4.538	10.427	0.000	0.000
T10	40'8-1/32"-20'3-31/3 2"	A	3.857	9.814	0.000	0.000
		B	3.348	8.453	0.000	0.000
		C	5.040	11.831	0.000	0.000
T11	20'3-31/32"-0'	A	3.675	9.348	0.000	0.000
		B	3.191	8.051	0.000	0.000
		C	4.803	11.268	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	212'7-9/16"-202'5-17 /32"	-9.3767	7.3098	-6.8511	5.3406
T2	202'5-17/32"-182'3-1 5/32"	-16.1015	3.6607	-12.7878	3.3364
T3	182'3-15/32"-162'1-3 /16"	-5.2399	7.2550	-4.4019	6.2049
T4	162'1-3/16"-141'10-1 3/16"	-3.5039	8.7578	-3.2404	7.6886
T5	141'10-13/16"-121'8- 9/32"	-4.3184	4.9387	-4.5062	4.8726
T6	121'8-9/32"-101'5-3/ 4"	-5.2206	4.2244	-5.4962	4.4212
T7	101'5-3/4"-81'3-1/4"	-5.6438	4.5423	-6.0030	4.8346
T8	81'3-1/4"-61'	-5.9169	4.7420	-6.4014	5.1638
T9	61'-40'8-1/32"	-6.5057	5.1966	-7.0097	5.6802
T10	40'8-1/32"-20'3-31/3 2"	-6.9929	5.5707	-7.4068	6.0604
T11	20'3-31/32"-0'	-7.5364	5.9909	-7.9854	6.5161

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) DB948F85T2E-M w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
						1" Ice	2.86	5.80	0.10
						2" Ice	3.62	7.22	0.19
						4" Ice	5.36	10.31	0.49
ALP 9212-N w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	6.02	7.05	0.04
						1/2" Ice	6.51	7.83	0.09
						1" Ice	6.99	8.59	0.16
						2" Ice	7.99	10.15	0.32
						4" Ice	10.13	13.50	0.75
(2) ClearGain Dual Band 800/1900 MHz	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	1.54	0.80	0.02
						1/2" Ice	1.71	0.94	0.03
						1" Ice	1.89	1.08	0.05
						2" Ice	2.27	1.39	0.08
						4" Ice	3.14	2.11	0.18
(2) LPA-80080/6CF w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	4.56	10.73	0.05
						1/2" Ice	5.11	11.99	0.11
						1" Ice	5.61	12.97	0.19
						2" Ice	6.65	14.98	0.36
						4" Ice	8.83	19.22	0.86
DB948F85T2E-M w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
						1" Ice	2.86	5.80	0.10
						2" Ice	3.62	7.22	0.19
						4" Ice	5.36	10.31	0.49
ALP 9212-N w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	6.02	7.05	0.04
						1/2" Ice	6.51	7.83	0.09
						1" Ice	6.99	8.59	0.16
						2" Ice	7.99	10.15	0.32
						4" Ice	10.13	13.50	0.75
(2) LPA-80080/6CF w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	4.56	10.73	0.05
						1/2" Ice	5.11	11.99	0.11
						1" Ice	5.61	12.97	0.19
						2" Ice	6.65	14.98	0.36
						4" Ice	8.83	19.22	0.86
DB948F85T2E-M w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
						1" Ice	2.86	5.80	0.10
						2" Ice	3.62	7.22	0.19
						4" Ice	5.36	10.31	0.49
(2) DB948F85T2E-M w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
						1" Ice	2.86	5.80	0.10
						2" Ice	3.62	7.22	0.19
						4" Ice	5.36	10.31	0.49
ALP 9212-N w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	6.02	7.05	0.04
						1/2" Ice	6.51	7.83	0.09
						1" Ice	6.99	8.59	0.16
						2" Ice	7.99	10.15	0.32
						4" Ice	10.13	13.50	0.75
(2) LPA-80080/6CF w/	C	From Face	4.00	0.0000	208'	No Ice	4.56	10.73	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0'			1/2" Ice	5.11	11.99	0.11
			1'			1" Ice	5.61	12.97	0.19
						2" Ice	6.65	14.98	0.36
						4" Ice	8.83	19.22	0.86
Sector Mount [SM 510-3]	C	None		0.0000	208'	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09
						1" Ice	74.56	74.56	3.78
						2" Ice	109.02	109.02	5.17
						4" Ice	177.94	177.94	7.94
**									
SD310-HL	A	From Leg	1.00	0.0000	202'	No Ice	1.11	1.11	6.50
			0'			1/2" Ice	1.36	1.36	6.51
			2'			1" Ice	1.62	1.62	6.52
						2" Ice	2.17	2.17	6.56
						4" Ice	3.58	3.58	6.67
Pipe Mount [PM 501-1]	A	From Leg	0.50	0.0000	202'	No Ice	3.47	1.67	0.05
			0'			1/2" Ice	4.45	2.10	0.06
			0'			1" Ice	5.43	2.53	0.07
						2" Ice	7.39	3.39	0.08
						4" Ice	11.31	5.11	0.11
Pipe Mount [PM 501-1]	C	From Leg	0.50	0.0000	202'	No Ice	3.47	1.67	0.05
			0'			1/2" Ice	4.45	2.10	0.06
			0'			1" Ice	5.43	2.53	0.07
						2" Ice	7.39	3.39	0.08
						4" Ice	11.31	5.11	0.11
**									
(2) DB980H90E-M w/ Mount Pipe	A	From Leg	4.00	0.0000	197'	No Ice	4.04	3.62	0.03
			0'			1/2" Ice	4.50	4.48	0.06
			1'			1" Ice	4.95	5.22	0.11
						2" Ice	5.87	6.74	0.22
						4" Ice	8.05	10.00	0.55
(2) DB980H90E-M w/ Mount Pipe	B	From Leg	4.00	0.0000	197'	No Ice	4.04	3.62	0.03
			0'			1/2" Ice	4.50	4.48	0.06
			1'			1" Ice	4.95	5.22	0.11
						2" Ice	5.87	6.74	0.22
						4" Ice	8.05	10.00	0.55
(2) DB980H90E-M w/ Mount Pipe	C	From Leg	4.00	0.0000	197'	No Ice	4.04	3.62	0.03
			0'			1/2" Ice	4.50	4.48	0.06
			1'			1" Ice	4.95	5.22	0.11
						2" Ice	5.87	6.74	0.22
						4" Ice	8.05	10.00	0.55
Sector Mount [SM 502-3]	C	None		0.0000	197'	No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
						2" Ice	90.38	90.38	3.88
						4" Ice	147.74	147.74	6.08
(3) 4' x 2" Pipe Mount	C	From Leg	4.00	0.0000	197'	No Ice	0.79	0.79	0.03
			0'			1/2" Ice	1.03	1.03	0.04
			1'			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
						4" Ice	3.11	3.11	0.17
(3) 4' x 2" Pipe Mount	C	From Leg	4.00	0.0000	197'	No Ice	0.79	0.79	0.03
			0'			1/2" Ice	1.03	1.03	0.04
			1'			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
						4" Ice	3.11	3.11	0.17
(3) 4' x 2" Pipe Mount	C	From Leg	4.00	0.0000	197'	No Ice	0.79	0.79	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	1.03	1.03	0.04
			1'			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
						4" Ice	3.11	3.11	0.17
**									
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	A	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	1.55 1.72	0.81 0.94	0.03 0.04
			0'			1" Ice	1.90	1.09	0.05
						2" Ice	2.28	1.40	0.09
						4" Ice	3.14	2.12	0.19
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	0.06 0.10
			0'			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP13519	A	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
			0'			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	B	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	1.55 1.72	0.81 0.94	0.03 0.04
			0'			1" Ice	1.90	1.09	0.05
						2" Ice	2.28	1.40	0.09
						4" Ice	3.14	2.12	0.19
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	0.06 0.10
			0'			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP13519	B	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
			0'			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	C	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	1.55 1.72	0.81 0.94	0.03 0.04
			0'			1" Ice	1.90	1.09	0.05
						2" Ice	2.28	1.40	0.09
						4" Ice	3.14	2.12	0.19
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	0.06 0.10
			0'			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP13519	C	From Leg	4.00 0'	0.0000	190'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
			0'			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
Sector Mount [SM 601-3]	C	None		0.0000	190'	No Ice	30.27	30.27	1.42
						1/2" Ice	41.24	41.24	1.99
						1" Ice	52.21	52.21	2.56
						2" Ice	74.15	74.15	3.69
						4" Ice	118.03	118.03	5.96
**									
742 213 w/ Mount Pipe	A	From Leg	4.00	0.0000	182'	No Ice	5.37	4.62	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	5.95	6.00	0.09
			0'			1" Ice	6.50	6.98	0.14
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	B	From Leg	4.00	0.0000	182'	No Ice	5.37	4.62	0.05
			0'			1/2" Ice	5.95	6.00	0.09
			0'			1" Ice	6.50	6.98	0.14
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	C	From Leg	4.00	0.0000	182'	No Ice	5.37	4.62	0.05
			0'			1/2" Ice	5.95	6.00	0.09
			0'			1" Ice	6.50	6.98	0.14
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
Pipe Mount [PM 501-3]	C	None		0.0000	182'	No Ice	5.78	5.78	0.16
						1/2" Ice	7.37	7.37	0.18
						1" Ice	8.96	8.96	0.20
						2" Ice	12.14	12.14	0.24
						4" Ice	18.50	18.50	0.32
**									
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00	0.0000	175'	No Ice	3.30	4.92	0.03
			0'			1/2" Ice	3.69	5.60	0.07
			1'			1" Ice	4.12	6.28	0.12
						2" Ice	5.01	7.71	0.23
						4" Ice	6.92	10.83	0.56
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00	0.0000	175'	No Ice	3.30	4.92	0.03
			0'			1/2" Ice	3.69	5.60	0.07
			1'			1" Ice	4.12	6.28	0.12
						2" Ice	5.01	7.71	0.23
						4" Ice	6.92	10.83	0.56
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00	0.0000	175'	No Ice	3.30	4.92	0.03
			0'			1/2" Ice	3.69	5.60	0.07
			1'			1" Ice	4.12	6.28	0.12
						2" Ice	5.01	7.71	0.23
						4" Ice	6.92	10.83	0.56
Sector Mount [SM 510-3]	C	None		0.0000	175'	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09
						1" Ice	74.56	74.56	3.78
						2" Ice	109.02	109.02	5.17
						4" Ice	177.94	177.94	7.94
**									
1151-3	A	From Leg	4.00	0.0000	165'	No Ice	4.18	4.18	0.02
			0'			1/2" Ice	5.73	5.73	0.05
			8'			1" Ice	7.30	7.30	0.09
						2" Ice	10.48	10.48	0.20
						4" Ice	14.75	14.75	0.54
Side Arm Mount [SO 308-1]	A	From Leg	2.00	0.0000	165'	No Ice	0.98	3.03	0.05
			0'			1/2" Ice	1.70	5.22	0.08
			0'			1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26
**									
OA20-67-DIN	C	From Leg	4.00	0.0000	145'	No Ice	5.02	4.40	0.01
			0'			1/2" Ice	7.96	6.80	0.04
			4'			1" Ice	10.93	9.20	0.08
						2" Ice	16.91	13.99	0.13
						4" Ice	29.12	23.87	0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Arm Mount [SO 308-1]	C	From Leg	2.00 0' 0'	0.0000	145'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	3.03 5.22 7.41 11.79 20.55	0.05 0.08 0.10 0.16 0.26
**									
RR90-17-02DP w/ Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.59 5.09 5.58 6.59 8.73	3.32 4.09 4.78 6.23 9.31	0.03 0.07 0.11 0.22 0.56
APX16DWV-16DWV-S-E-A 20 w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.27 7.73 8.21 9.18 11.23	3.29 3.92 4.57 5.92 8.88	0.06 0.10 0.16 0.28 0.65
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.59 5.09 5.58 6.59 8.73	3.32 4.09 4.78 6.23 9.31	0.03 0.07 0.11 0.22 0.56
APX16DWV-16DWV-S-E-A 20 w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.27 7.73 8.21 9.18 11.23	3.29 3.92 4.57 5.92 8.88	0.06 0.10 0.16 0.28 0.65
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.59 5.09 5.58 6.59 8.73	3.32 4.09 4.78 6.23 9.31	0.03 0.07 0.11 0.22 0.56
APX16DWV-16DWV-S-E-A 20 w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.27 7.73 8.21 9.18 11.23	3.29 3.92 4.57 5.92 8.88	0.06 0.10 0.16 0.28 0.65
Side Arm Mount [SO 201-3]	C	None		0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.71 7.91 10.11 14.51 23.31	5.71 7.91 10.11 14.51 23.31	0.29 0.35 0.41 0.54 0.79
ATMPP1412D-1CWA	A	From Leg	2.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.17 1.32 1.48 1.82 2.61	0.42 0.53 0.65 0.92 1.57	0.01 0.02 0.03 0.05 0.13
ATMPP1412D-1CWA	B	From Leg	2.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.17 1.32 1.48 1.82 2.61	0.42 0.53 0.65 0.92 1.57	0.01 0.02 0.03 0.05 0.13
ATMPP1412D-1CWA	C	From Leg	2.00 0' 0'	0.0000	137'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.17 1.32 1.48 1.82 2.61	0.42 0.53 0.65 0.92 1.57	0.01 0.02 0.03 0.05 0.13
ATMAA1412D-1A20	A	From Leg	2.00	0.0000	137'	No Ice	1.17	0.47	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	1.31	0.57	0.02
			0'			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMAA1412D-1A20	B	From Leg	2.00	0.0000	137'	No Ice	1.17	0.47	0.01
			0'			1/2" Ice	1.31	0.57	0.02
			0'			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMAA1412D-1A20	C	From Leg	2.00	0.0000	137'	No Ice	1.17	0.47	0.01
			0'			1/2" Ice	1.31	0.57	0.02
			0'			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
**									
Pipe Mount [PM 501-1]	A	From Leg	0.50	0.0000	133'	No Ice	3.47	1.67	0.05
			0'			1/2" Ice	4.45	2.10	0.06
			0'			1" Ice	5.43	2.53	0.07
						2" Ice	7.39	3.39	0.08
						4" Ice	11.31	5.11	0.11
**									
1142-2C	A	From Leg	4.00	0.0000	125'	No Ice	2.09	2.09	0.02
			0'			1/2" Ice	3.37	3.37	0.04
			8'			1" Ice	4.67	4.67	0.07
						2" Ice	7.32	7.32	0.14
						4" Ice	10.79	10.79	0.39
Side Arm Mount [SO 308-1]	A	From Leg	2.00	0.0000	125'	No Ice	0.98	3.03	0.05
			0'			1/2" Ice	1.70	5.22	0.08
			0'			1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HP2-4.7NS	A	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000		202'	2.04	No Ice	3.27	0.03
				0'					1/2" Ice	3.55	0.05
				0'					1" Ice	3.82	0.06
									2" Ice	4.36	0.10
									4" Ice	5.46	0.17
HP2-4.7NS	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000		202'	2.04	No Ice	3.27	0.03
				0'					1/2" Ice	3.55	0.05
				0'					1" Ice	3.82	0.06
									2" Ice	4.36	0.10
									4" Ice	5.46	0.17
**											
PL6-59W	B	Paraboloid	From	1.00	0.0000		133'	6.00	No Ice	28.27	0.14

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
		w/Radome	Leg	0' -90'					1/2" Ice 1" Ice 2" Ice 4" Ice	29.05 29.83 31.39 34.51	0.29 0.44 0.74 1.34

Load Combinations

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

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	212.625 - 202.458	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-2.76	0.00	0.00
			Max. Mx	2	-1.40	-0.36	0.01
			Max. My	3	-1.04	-0.00	0.38
			Max. Vy	2	-1.45	0.30	0.01
			Max. Vx	13	-1.47	-0.00	0.30
		Diagonal	Max Tension	11	2.81	0.00	0.00
			Max. Compression	11	-2.88	0.00	0.00
			Max. Mx	26	0.70	0.03	0.00
			Max. My	2	0.05	0.00	0.00
			Max. Vy	26	-0.02	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	12	2.10	-0.01	0.00
			Max. Compression	6	-2.07	0.00	0.00
			Max. Mx	21	0.05	-0.02	-0.00
			Max. My	8	-0.91	-0.01	-0.01
			Max. Vy	21	-0.02	-0.02	-0.00
			Max. Vx	8	0.00	-0.01	-0.01
		Top Girt	Max Tension	12	0.13	-0.01	0.00
			Max. Compression	6	-0.13	-0.01	-0.00
			Max. Mx	21	-0.01	-0.01	-0.00
			Max. My	12	-0.08	-0.01	-0.00
			Max. Vy	21	0.02	-0.01	-0.00
			Max. Vx	12	0.00	-0.01	-0.00
		Inner Bracing	Max Tension	2	0.00	0.00	0.00
			Max. Compression	12	-0.00	0.00	0.00
			Max. Mx	14	-0.00	-0.01	0.00
			Max. My	15	0.00	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
T2	202.458 - 182.292	Leg	Max Tension	12	16.68	-0.04	0.05
			Max. Compression	2	-29.72	0.06	0.07
			Max. Mx	2	-13.68	0.54	0.11
			Max. My	13	-2.21	-0.01	0.64
			Max. Vy	8	0.71	-0.52	-0.11
			Max. Vx	13	-0.88	-0.01	0.64
		Diagonal	Max Tension	9	8.66	0.00	0.00
			Max. Compression	9	-8.73	0.00	0.00
			Max. Mx	26	2.06	0.03	0.00
			Max. My	2	0.23	0.00	0.00
			Max. Vy	26	-0.02	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	4.70	0.00	0.00
			Max. Compression	9	-4.67	0.00	0.00
			Max. Mx	25	0.28	-0.02	-0.00
			Max. My	4	-0.66	-0.02	-0.01
			Max. Vy	25	-0.02	-0.02	-0.00
			Max. Vx	4	0.00	-0.02	-0.01
		Inner Bracing	Max Tension	13	0.01	0.00	0.00
			Max. Compression	9	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.01	0.00
			Max. My	15	0.00	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
T3	182.292 - 162.104	Leg	Max Tension	12	47.78	-0.21	-0.03
			Max. Compression	2	-65.08	0.20	0.02
			Max. Mx	4	36.21	-0.36	-0.01
			Max. My	13	-4.00	-0.03	0.36

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	4	-1.00	-0.36	-0.01
			Max. Vx	13	0.99	-0.03	0.36
		Diagonal	Max Tension	9	9.26	0.00	0.00
			Max. Compression	9	-9.33	0.00	0.00
			Max. Mx	24	2.48	0.04	0.00
			Max. My	2	0.86	0.00	0.00
			Max. Vy	24	-0.02	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	5.76	0.00	0.00
			Max. Compression	9	-5.78	-0.01	0.00
			Max. Mx	25	0.42	-0.03	-0.00
			Max. My	8	-0.54	-0.02	-0.01
			Max. Vy	25	-0.02	-0.03	-0.00
			Max. Vx	8	0.00	-0.02	-0.01
		Inner Bracing	Max Tension	7	0.00	0.00	0.00
			Max. Compression	9	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.02	0.00
			Max. My	15	-0.00	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
T4	162.104 - 141.896	Leg	Max Tension	12	79.59	-0.19	0.04
			Max. Compression	2	-99.55	1.03	0.09
			Max. Mx	12	79.51	-1.04	0.09
			Max. My	13	-7.84	-0.03	1.11
			Max. Vy	12	0.21	-1.04	0.09
			Max. Vx	13	-0.29	-0.03	1.11
		Diagonal	Max Tension	9	9.14	0.00	0.00
			Max. Compression	9	-9.23	0.00	0.00
			Max. Mx	24	2.44	0.06	0.00
			Max. My	2	0.73	0.00	0.00
			Max. Vy	24	-0.02	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	6.11	0.00	0.00
			Max. Compression	9	-6.13	-0.02	0.00
			Max. Mx	25	0.54	-0.05	-0.00
			Max. My	8	-0.86	-0.03	-0.01
			Max. Vy	25	-0.03	-0.05	-0.00
			Max. Vx	8	0.00	-0.03	-0.01
		Inner Bracing	Max Tension	7	0.01	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.03	0.00
			Max. My	23	-0.00	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
T5	141.896 - 121.688	Leg	Max Tension	12	103.52	-0.90	-0.02
			Max. Compression	2	-126.86	0.53	0.04
			Max. Mx	12	89.43	-1.04	0.09
			Max. My	13	-8.22	-0.03	1.11
			Max. Vy	4	-0.31	-1.04	0.00
			Max. Vx	13	0.33	-0.03	1.11
		Diagonal	Max Tension	9	11.69	0.00	0.00
			Max. Compression	9	-11.86	0.00	0.00
			Max. Mx	24	3.23	0.12	0.00
			Max. My	2	0.99	0.00	0.00
			Max. Vy	24	-0.04	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	6.96	0.00	0.00
			Max. Compression	9	-7.06	-0.03	0.00
			Max. Mx	25	0.66	-0.06	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-1.11	-0.05	-0.01
			Max. Vy	25	-0.03	-0.06	-0.00
			Max. Vx	8	0.00	-0.05	-0.01
		Inner Bracing	Max Tension	7	0.00	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.03	0.00
			Max. My	23	-0.00	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
T6	121.688 - 101.479	Leg	Max Tension	12	130.69	-0.57	0.02
			Max. Compression	2	-157.81	0.83	0.07
			Max. Mx	4	129.61	-0.85	0.01
			Max. My	13	-11.55	-0.02	0.91
			Max. Vy	4	0.12	-0.85	0.01
			Max. Vx	7	0.13	-0.02	-0.90
		Diagonal	Max Tension	9	10.82	0.00	0.00
			Max. Compression	9	-11.00	0.00	0.00
			Max. Mx	24	2.91	0.15	0.00
			Max. My	2	0.82	0.00	0.00
			Max. Vy	24	-0.04	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	7.01	0.00	0.00
			Max. Compression	9	-7.10	-0.04	0.00
			Max. Mx	25	0.79	-0.07	-0.00
			Max. My	6	1.29	-0.01	0.01
			Max. Vy	25	-0.04	-0.07	-0.00
			Max. Vx	6	-0.00	-0.01	0.01
		Inner Bracing	Max Tension	7	0.00	0.00	0.00
			Max. Compression	9	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.06	0.00
			Max. My	2	0.00	0.00	-0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T7	101.479 - 81.2708	Leg	Max Tension	12	154.79	-0.55	0.02
			Max. Compression	2	-186.17	0.71	0.03
			Max. Mx	4	142.16	-0.85	0.01
			Max. My	13	-12.21	-0.02	0.91
			Max. Vy	4	-0.12	-0.85	0.01
			Max. Vx	7	-0.13	-0.02	-0.90
		Diagonal	Max Tension	9	10.75	0.00	0.00
			Max. Compression	9	-11.05	0.00	0.00
			Max. Mx	24	2.88	0.22	0.00
			Max. My	2	0.69	0.00	0.00
			Max. Vy	24	-0.06	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	7.61	0.00	0.00
			Max. Compression	9	-7.66	-0.07	-0.00
			Max. Mx	25	0.92	-0.13	-0.00
			Max. My	6	1.14	-0.03	0.02
			Max. Vy	25	-0.06	-0.13	-0.00
			Max. Vx	6	-0.00	-0.03	0.02
		Inner Bracing	Max Tension	7	0.00	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.10	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	14	0.04	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T8	81.2708 - 61	Leg	Max Tension	12	177.04	-1.15	0.01
			Max. Compression	2	-213.22	0.66	0.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	12	177.04	-1.15	0.01
			Max. My	13	-14.82	-0.02	1.08
			Max. Vy	4	0.15	-1.15	0.01
			Max. Vx	13	-0.15	-0.02	1.08
		Diagonal	Max Tension	9	10.58	0.00	0.00
			Max. Compression	9	-10.99	0.00	0.00
			Max. Mx	24	2.78	0.27	0.00
			Max. My	2	0.59	0.00	0.00
			Max. Vy	24	-0.07	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	9	8.02	0.00	0.00
			Max. Compression	9	-8.00	-0.09	-0.00
			Max. Mx	25	1.05	-0.16	-0.00
			Max. My	6	1.30	-0.05	0.02
			Max. Vy	25	-0.07	-0.16	-0.00
			Max. Vx	6	-0.00	-0.05	0.02
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.16	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	14	0.06	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T9	61 - 40.6667	Leg	Max Tension	12	198.59	-1.66	-0.01
			Max. Compression	2	-239.82	-2.23	0.05
			Max. Mx	2	-239.82	-2.23	0.05
			Max. My	13	-18.43	-0.48	3.14
			Max. Vy	2	0.51	1.88	-0.06
			Max. Vx	10	-0.45	0.32	2.70
		Diagonal	Max Tension	5	11.52	0.00	0.00
			Max. Compression	5	-11.99	0.00	0.00
			Max. Mx	24	3.04	0.31	0.00
			Max. My	6	0.61	0.00	-0.00
			Max. Vy	24	0.08	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Horizontal	Max Tension	5	9.18	0.00	0.00
			Max. Compression	5	-9.04	-0.11	-0.00
			Max. Mx	25	1.18	-0.19	-0.00
			Max. My	6	1.04	-0.08	0.01
			Max. Vy	25	-0.07	-0.19	-0.00
			Max. Vx	6	-0.00	-0.08	0.01
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.20	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	14	0.07	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T10	40.6667 - 20.3333	Leg	Max Tension	12	207.26	1.05	0.13
			Max. Compression	2	-252.31	-6.95	0.28
			Max. Mx	2	-251.98	7.96	-0.21
			Max. My	13	-20.32	-1.02	4.95
			Max. Vy	2	1.52	7.96	-0.21
			Max. Vx	13	-0.85	-1.02	4.95
		Diagonal	Max Tension	11	16.40	-0.14	-0.03
			Max. Compression	11	-17.09	0.00	0.00
			Max. Mx	12	13.32	-0.17	0.06
			Max. My	11	-16.52	0.00	-0.10
			Max. Vy	25	0.05	-0.13	0.01
			Max. Vx	11	-0.01	0.00	0.00
		Horizontal	Max Tension	11	9.02	-0.17	-0.00
			Max. Compression	11	-9.34	-0.17	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	25	-1.30	-0.28	-0.01
			Max. My	6	1.63	-0.10	0.02
			Max. Vy	25	0.10	-0.28	-0.01
			Max. Vx	6	-0.00	-0.10	0.02
		Redund Horz 1 Bracing	Max Tension	2	4.38	0.00	0.00
			Max. Compression	2	-4.38	0.00	0.00
			Max. Mx	14	0.63	0.03	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	2	4.05	0.00	0.00
			Max. Compression	2	-4.05	0.00	0.00
			Max. Mx	23	1.83	0.06	0.00
			Max. My	5	3.46	0.00	-0.00
			Max. Vy	23	-0.02	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-0.05	0.00	0.00
			Max. Mx	14	-0.01	0.03	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	5	0.08	0.00	0.00
			Max. Compression	26	-0.06	0.00	0.00
			Max. Mx	23	0.05	0.20	0.00
			Max. My	13	0.02	0.00	0.00
			Max. Vy	23	-0.05	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.02	0.00	0.00
			Max. Mx	14	-0.01	0.23	0.00
			Max. My	2	-0.00	0.00	0.00
			Max. Vy	14	-0.07	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
T11	20.3333 - 0	Leg	Max Tension	12	252.50	1.35	-0.05
			Max. Compression	2	-307.11	-0.00	-0.00
			Max. Mx	2	-277.08	7.56	-0.20
			Max. My	13	-22.03	-1.02	4.95
			Max. Vy	6	-16.68	-0.00	0.00
			Max. Vx	7	6.60	0.00	-0.00
		Diagonal	Max Tension	11	19.16	-0.14	-0.02
			Max. Compression	11	-19.87	0.00	0.00
			Max. Mx	11	9.34	-0.17	0.03
			Max. My	11	-19.79	-0.02	-0.10
			Max. Vy	24	0.06	-0.15	0.00
			Max. Vx	11	-0.01	0.00	0.00
		Horizontal	Max Tension	11	11.21	-0.20	-0.00
			Max. Compression	11	-11.28	-0.20	-0.00
			Max. Mx	25	1.52	-0.29	-0.01
			Max. My	6	1.05	-0.14	0.02
			Max. Vy	25	-0.10	-0.29	-0.01
			Max. Vx	6	-0.00	-0.14	0.02
		Redund Horz 1 Bracing	Max Tension	2	5.33	0.00	0.00
			Max. Compression	2	-5.33	0.00	0.00
			Max. Mx	22	2.10	0.03	0.00
			Max. Vy	22	-0.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	2	4.59	0.00	0.00
			Max. Compression	2	-4.59	0.00	0.00
			Max. Mx	23	2.06	0.06	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	6	4.54	0.00	-0.00
			Max. Vy	23	-0.02	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-0.05	0.00	0.00
			Max. Mx	14	-0.01	0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	5	0.09	0.00	0.00
			Max. Compression	2	-0.06	0.00	0.00
			Max. Mx	26	0.05	0.23	0.00
			Max. My	2	0.04	0.00	0.00
			Max. Vy	26	-0.06	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Inner Bracing	Max Tension	5	0.00	0.00	0.00
			Max. Compression	5	-0.02	0.00	0.00
			Max. Mx	14	-0.01	0.29	0.00
			Max. My	2	-0.00	0.00	0.00
			Max. Vy	14	-0.08	0.00	0.00
			Max. Vx	2	-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	10	304.17	31.10	-17.84
	Max. H_x	10	304.17	31.10	-17.84
	Max. H_z	3	-214.05	-22.12	16.53
	Min. Vert	4	-249.71	-27.61	15.80
	Min. H_x	4	-249.71	-27.61	15.80
	Min. H_z	9	263.93	25.18	-18.14
Leg B	Max. Vert	6	302.40	-31.30	-17.43
	Max. H_x	12	-250.99	27.97	15.46
	Max. H_z	13	-215.23	22.62	15.90
	Min. Vert	12	-250.99	27.97	15.46
	Min. H_x	6	302.40	-31.30	-17.43
	Min. H_z	7	261.97	-25.56	-17.44
Leg A	Max. Vert	2	305.45	-0.46	35.89
	Max. H_x	11	25.75	5.55	1.88
	Max. H_z	2	305.45	-0.46	35.89
	Min. Vert	8	-248.76	0.47	-31.81
	Min. H_x	5	26.55	-5.56	1.93
	Min. H_z	8	-248.76	0.47	-31.81

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	74.39	0.00	0.00	-31.61	21.55	-0.00
Dead+Wind 0 deg - No Ice	74.39	0.01	-60.39	-7301.69	7.41	-24.19

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 30 deg - No Ice	74.39	29.65	-51.47	-6252.92	-3565.21	-11.25
Dead+Wind 60 deg - No Ice	74.39	51.13	-29.61	-3617.10	-6158.22	5.14
Dead+Wind 90 deg - No Ice	74.39	59.45	-0.07	-45.53	-7148.61	20.67
Dead+Wind 120 deg - No Ice	74.39	52.27	30.19	3599.06	-6261.85	30.39
Dead+Wind 150 deg - No Ice	74.39	29.66	51.54	6189.88	-3551.41	30.97
Dead+Wind 180 deg - No Ice	74.39	-0.07	59.10	7117.06	34.35	24.49
Dead+Wind 210 deg - No Ice	74.39	-29.73	51.42	6187.61	3611.57	11.25
Dead+Wind 240 deg - No Ice	74.39	-52.27	30.20	3615.49	6305.39	-6.25
Dead+Wind 270 deg - No Ice	74.39	-59.59	-0.01	-24.85	7193.62	-21.37
Dead+Wind 300 deg - No Ice	74.39	-51.36	-29.66	-3604.25	6204.30	-29.60
Dead+Wind 330 deg - No Ice	74.39	-29.80	-51.63	-6251.42	3601.65	-30.27
Dead+Ice+Temp	140.70	0.00	0.00	-3.88	73.69	0.00
Dead+Wind 0 deg+Ice+Temp	140.70	0.00	-19.15	-2295.77	70.79	-8.55
Dead+Wind 30 deg+Ice+Temp	140.70	8.82	-15.29	-1858.52	-996.97	-4.07
Dead+Wind 60 deg+Ice+Temp	140.70	14.86	-8.59	-1051.38	-1735.72	0.83
Dead+Wind 90 deg+Ice+Temp	140.70	17.68	-0.01	-7.01	-2067.04	5.71
Dead+Wind 120 deg+Ice+Temp	140.70	16.60	9.58	1141.07	-1910.21	9.83
Dead+Wind 150 deg+Ice+Temp	140.70	8.83	15.31	1850.73	-993.87	9.61
Dead+Wind 180 deg+Ice+Temp	140.70	-0.01	17.15	2086.09	76.73	7.69
Dead+Wind 210 deg+Ice+Temp	140.70	-8.84	15.28	1850.24	1145.48	4.07
Dead+Wind 240 deg+Ice+Temp	140.70	-16.59	9.58	1144.70	2058.14	-1.29
Dead+Wind 270 deg+Ice+Temp	140.70	-17.70	-0.00	-2.48	2215.21	-5.86
Dead+Wind 300 deg+Ice+Temp	140.70	-14.91	-8.60	-1048.51	1884.16	-8.52
Dead+Wind 330 deg+Ice+Temp	140.70	-8.85	-15.32	-1858.09	1143.28	-9.47
Dead+Wind 0 deg - Service	74.39	0.00	-20.90	-2547.35	16.69	-8.36
Dead+Wind 30 deg - Service	74.39	10.25	-17.81	-2184.44	-1219.51	-3.88
Dead+Wind 60 deg - Service	74.39	17.69	-10.24	-1272.37	-2116.74	1.77
Dead+Wind 90 deg - Service	74.39	20.57	-0.02	-36.52	-2459.46	7.14
Dead+Wind 120 deg - Service	74.39	18.09	10.45	1224.59	-2152.64	10.52
Dead+Wind 150 deg - Service	74.39	10.27	17.83	2121.07	-1214.77	10.72
Dead+Wind 180 deg - Service	74.39	-0.02	20.45	2441.95	26.03	8.46
Dead+Wind 210 deg - Service	74.39	-10.29	17.79	2120.29	1263.83	3.88
Dead+Wind 240 deg - Service	74.39	-18.09	10.45	1230.28	2195.97	-2.16
Dead+Wind 270 deg - Service	74.39	-20.62	0.00	-29.36	2503.30	-7.38
Dead+Wind 300 deg - Service	74.39	-17.77	-10.26	-1267.94	2161.01	-10.24
Dead+Wind 330 deg - Service	74.39	-10.31	-17.87	-2183.93	1260.37	-10.48

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-74.39	0.00	-0.00	74.39	-0.00	0.000%
2	0.01	-74.39	-60.43	-0.01	74.39	60.39	0.046%
3	29.64	-74.39	-51.50	-29.65	74.39	51.47	0.033%
4	51.12	-74.39	-29.61	-51.13	74.39	29.61	0.004%
5	59.47	-74.39	-0.05	-59.45	74.39	0.07	0.030%
6	52.31	-74.39	30.21	-52.27	74.39	-30.19	0.044%
7	29.69	-74.39	51.55	-29.66	74.39	-51.54	0.030%
8	-0.07	-74.39	59.10	0.07	74.39	-59.10	0.004%
9	-29.76	-74.39	51.42	29.73	74.39	-51.42	0.032%
10	-52.31	-74.39	30.22	52.27	74.39	-30.20	0.045%
11	-59.61	-74.39	0.02	59.59	74.39	0.01	0.031%
12	-51.36	-74.39	-29.66	51.36	74.39	29.66	0.004%
13	-29.79	-74.39	-51.65	29.80	74.39	51.63	0.032%
14	0.00	-140.70	0.00	-0.00	140.70	-0.00	0.000%
15	0.00	-140.70	-19.17	-0.00	140.70	19.15	0.013%
16	8.82	-140.70	-15.30	-8.82	140.70	15.29	0.010%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
17	14.87	-140.70	-8.59	-14.86	140.70	8.59	0.006%
18	17.69	-140.70	-0.01	-17.68	140.70	0.01	0.009%
19	16.61	-140.70	9.59	-16.60	140.70	-9.58	0.012%
20	8.84	-140.70	15.31	-8.83	140.70	-15.31	0.009%
21	-0.01	-140.70	17.16	0.01	140.70	-17.15	0.006%
22	-8.85	-140.70	15.29	8.84	140.70	-15.28	0.010%
23	-16.61	-140.70	9.59	16.59	140.70	-9.58	0.013%
24	-17.72	-140.70	0.00	17.70	140.70	0.00	0.010%
25	-14.91	-140.70	-8.60	14.91	140.70	8.60	0.007%
26	-8.86	-140.70	-15.34	8.85	140.70	15.32	0.010%
27	0.00	-74.39	-20.91	-0.00	74.39	20.90	0.011%
28	10.25	-74.39	-17.82	-10.25	74.39	17.81	0.009%
29	17.69	-74.39	-10.25	-17.69	74.39	10.24	0.004%
30	20.58	-74.39	-0.02	-20.57	74.39	0.02	0.008%
31	18.10	-74.39	10.45	-18.09	74.39	-10.45	0.011%
32	10.27	-74.39	17.84	-10.27	74.39	-17.83	0.008%
33	-0.02	-74.39	20.45	0.02	74.39	-20.45	0.004%
34	-10.30	-74.39	17.79	10.29	74.39	-17.79	0.008%
35	-18.10	-74.39	10.46	18.09	74.39	-10.45	0.011%
36	-20.63	-74.39	0.01	20.62	74.39	-0.00	0.008%
37	-17.77	-74.39	-10.26	17.77	74.39	10.26	0.004%
38	-10.31	-74.39	-17.87	10.31	74.39	17.87	0.009%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00007090
2	Yes	4	0.00027201	0.00067746
3	Yes	4	0.00026475	0.00065754
4	Yes	4	0.00025518	0.00063056
5	Yes	4	0.00026156	0.00064697
6	Yes	4	0.00026918	0.00066659
7	Yes	4	0.00026167	0.00064554
8	Yes	4	0.00025427	0.00062595
9	Yes	4	0.00026309	0.00065010
10	Yes	4	0.00027084	0.00067150
11	Yes	4	0.00026254	0.00064992
12	Yes	4	0.00025437	0.00062885
13	Yes	4	0.00026307	0.00065267
14	Yes	4	0.00000001	0.00007028
15	Yes	4	0.00045680	0.00094563
16	Yes	4	0.00045154	0.00091321
17	Yes	4	0.00044450	0.00088328
18	Yes	4	0.00044313	0.00087701
19	Yes	4	0.00044545	0.00089215
20	Yes	4	0.00044250	0.00087175
21	Yes	4	0.00044291	0.00087337
22	Yes	4	0.00044935	0.00090094
23	Yes	4	0.00045480	0.00093462
24	Yes	4	0.00045286	0.00092382
25	Yes	4	0.00045120	0.00091923
26	Yes	4	0.00045401	0.00093000
27	Yes	4	0.00000001	0.00063313
28	Yes	4	0.00000001	0.00062543
29	Yes	4	0.00000001	0.00061123

30	Yes	4	0.00000001	0.00060765
31	Yes	4	0.00000001	0.00061049
32	Yes	4	0.00000001	0.00059800
33	Yes	4	0.00000001	0.00059334
34	Yes	4	0.00000001	0.00060502
35	Yes	4	0.00000001	0.00061594
36	Yes	4	0.00000001	0.00061360
37	Yes	4	0.00000001	0.00061226
38	Yes	4	0.00000001	0.00062382

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	5.309	27	0.2355	0.0545
T2	202.458 - 182.292	4.802	27	0.2353	0.0540
T3	182.292 - 162.104	3.824	27	0.2120	0.0450
T4	162.104 - 141.896	2.954	27	0.1828	0.0329
T5	141.896 - 121.688	2.200	27	0.1555	0.0243
T6	121.688 - 101.479	1.583	27	0.1269	0.0175
T7	101.479 - 81.2708	1.076	27	0.1025	0.0124
T8	81.2708 - 61	0.686	27	0.0770	0.0093
T9	61 - 40.6667	0.390	27	0.0549	0.0066
T10	40.6667 - 20.3333	0.182	31	0.0327	0.0042
T11	20.3333 - 0	0.062	31	0.0163	0.0020

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
208'	(2) DB948F85T2E-M w/ Mount Pipe	27	5.078	0.2361	0.0545	97290
202'	HP2-4.7NS	27	4.779	0.2351	0.0539	55111
197'	(2) DB980H90E-M w/ Mount Pipe	27	4.531	0.2316	0.0525	74152
190'	(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	27	4.189	0.2233	0.0494	56201
182'	742 213 w/ Mount Pipe	27	3.811	0.2115	0.0449	37868
175'	(4) DB844H90E-XY w/ Mount Pipe	27	3.496	0.2011	0.0405	39655
165'	1151-3	27	3.072	0.1868	0.0345	45501
145'	OA20-67-DIN	27	2.307	0.1598	0.0254	33019
137'	RR90-17-02DP w/ Mount Pipe	27	2.039	0.1485	0.0225	34696
133'	Pipe Mount [PM 501-1]	27	1.913	0.1427	0.0211	38181
125'	1142-2C	27	1.676	0.1313	0.0185	47701
43'	PL6-59W	31	0.201	0.0350	0.0045	53822

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	14.809	2	0.6219	0.1573
T2	202.458 - 182.292	13.470	2	0.6213	0.1559
T3	182.292 - 162.104	10.823	2	0.5783	0.1301
T4	162.104 - 141.896	8.400	2	0.5090	0.0949
T5	141.896 - 121.688	6.277	2	0.4370	0.0701
T6	121.688 - 101.479	4.528	2	0.3588	0.0505
T7	101.479 - 81.2708	3.083	2	0.2909	0.0358
T8	81.2708 - 61	1.970	2	0.2192	0.0269
T9	61 - 40.6667	1.125	2	0.1564	0.0191
T10	40.6667 - 20.3333	0.526	6	0.0935	0.0120
T11	20.3333 - 0	0.178	6	0.0467	0.0058

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
208'	(2) DB948F85T2E-M w/ Mount Pipe	2	14.201	0.6228	0.1574	52298
202'	HP2-4.7NS	2	13.409	0.6209	0.1557	30934
197'	(2) DB980H90E-M w/ Mount Pipe	2	12.746	0.6149	0.1517	55903
190'	(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	2	11.820	0.6003	0.1428	32503
182'	742 213 w/ Mount Pipe	2	10.786	0.5774	0.1295	17564
175'	(4) DB844H90E-XY w/ Mount Pipe	2	9.915	0.5544	0.1169	17174
165'	1151-3	2	8.731	0.5192	0.0995	17781
145'	OA20-67-DIN	2	6.579	0.4486	0.0734	12079
137'	RR90-17-02DP w/ Mount Pipe	2	5.820	0.4181	0.0650	12629
133'	Pipe Mount [PM 501-1]	2	5.464	0.4022	0.0610	13879
125'	1142-2C	2	4.793	0.3710	0.0534	17279
43'	PL6-59W	6	0.581	0.1001	0.0128	18873

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	212.625	Leg	A325N	0.7500	4	0.00	19.44	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	0.96	6.44	0.149 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.05	6.44	0.163 ✓	1.333	Bolt Shear
T2	202.458	Leg	A325N	0.8750	4	4.17	26.46	0.158 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	2.91	6.44	0.451 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.35	6.44	0.365 ✓	1.333	Bolt Shear
T3	182.292	Leg	A325N	1.0000	4	11.94	34.56	0.346 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.11	6.44	0.483 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.89	6.44	0.449 ✓	1.333	Bolt Shear

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
T4	162.104	Leg	A325N	1.0000	6	13.26	34.56	0.384 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.08	6.44	0.478 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.06	6.44	0.475 ✓	1.333	Bolt Shear
T5	141.896	Leg	A325N	1.0000	6	17.25	34.56	0.499 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.95	6.44	0.613 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.53	6.44	0.548 ✓	1.333	Bolt Shear
T6	121.688	Leg	A325N	1.0000	6	21.78	34.56	0.630 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.67	6.44	0.569 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.55	6.44	0.551 ✓	1.333	Bolt Shear
T7	101.479	Leg	A325N	1.0000	8	19.35	34.56	0.560 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.68	6.44	0.572 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.83	6.44	0.594 ✓	1.333	Bolt Shear
T8	81.2708	Leg	A325N	1.0000	8	22.13	34.56	0.640 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.66	6.44	0.569 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.01	6.44	0.622 ✓	1.333	Bolt Shear
T9	61	Leg	A325N	1.0000	8	24.82	34.56	0.718 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.00	6.44	0.621 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.59	6.44	0.712 ✓	1.333	Bolt Shear
T10	40.6667	Leg	A325N	1.0000	8	25.83	34.56	0.748 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	5.70	9.28	0.614 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.7500	2	4.67	9.28	0.503 ✓	1.333	Bolt Shear
T11	20.3333	Leg	A354-BC	1.0000	10	25.25	32.40	0.779 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	6.62	9.28	0.714 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.7500	2	5.64	9.28	0.608 ✓	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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2.5 STD	10'2-1/32'	5'31/32"	64.4 K=1.00	21.955	1.7040	-2.60	37.41	0.070 ✓
T2	202.458 - 182.292	ROHN 3 EH	20'2-1/32'	6'8-5/8"	71.0 K=1.00	20.754	3.0159	-29.72	62.59	0.475 ✓
T3	182.292 - 162.104	ROHN 4 EH	20'2-5/8"	6'8-7/8"	54.8 K=1.00	23.588	4.4074	-65.08	103.96	0.626 ✓
T4	162.104 -	ROHN 5 EH	20'2-7/8"	6'9"	44.0	25.253	6.1120	-99.55	154.35	0.645

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	141.896				K=1.00					✓
T5	141.896 - 121.688	ROHN 6 EHS	20'3"	10'1-9/16"	54.6 K=1.00	23.618	6.7133	-126.86	158.55	0.800 ✓
T6	121.688 - 101.479	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4 K=1.00	23.490	8.4049	-157.81	197.43	0.799 ✓
T7	101.479 - 81.2708	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4 K=1.00	23.490	8.4049	-186.16	197.43	0.943 ✓
T8	81.2708 - 61	ROHN 8 EHS	20'3-31/32"	10'1-29/32"	41.8 K=1.00	25.581	9.7193	-213.22	248.63	0.858 ✓
T9	61 - 40.6667	ROHN 8 EHS	20'4-9/16"	10'2-9/32"	41.9 K=1.00	25.564	9.7193	-239.82	248.47	0.965 ✓
T10	40.6667 - 20.3333	ROHN 8 EH	20'4-11/16"	10'2-13/32"	42.5 K=1.00	25.475	12.7627	-252.31	325.13	0.776 ✓
T11	20.3333 - 0	ROHN 8 EH	20'4-7/16"	10'1-11/16"	42.3 K=1.00	25.505	12.7627	-307.11	325.52	0.943 ✓

* DL controls

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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2 STD	6'7-11/16"	6'5-13/32"	98.4 K=1.00	15.079	1.0745	-2.88	16.20	0.178 ✓
T2	202.458 - 182.292	ROHN 2 STD	7'11-7/8"	7'8-5/8"	117.6 K=1.00	10.790	1.0745	-8.73	11.59	0.753 ✓
T3	182.292 - 162.104	ROHN 2 STD	8'7-3/16"	8'3-19/32"	126.5 K=1.00	9.325	1.0745	-9.33	10.02	0.931 ✓
T4	162.104 - 141.896	ROHN 2 STD	9'3-15/32"	8'11-13/32"	136.5 K=1.00	8.013	1.0745	-8.96	8.61	1.040 ✓
T5	141.896 - 121.688	ROHN 2.5 STD	12'7-3/16"	12'1-11/16"	153.7 K=1.00	6.318	1.7040	-11.86	10.77	1.101 ✓
T6	121.688 - 101.479	ROHN 2.5 STD	13'4-9/16"	12'11-17/32"	164.2 K=1.00	5.539	1.7040	-10.89	9.44	1.154 ✓
T7	101.479 - 81.2708	ROHN 3 STD	14'2-7/8"	13'10-3/32"	142.8 K=1.00	7.327	2.2285	-11.05	16.33	0.677 ✓
T8	81.2708 - 61	ROHN 3 STD	15'2-17/32"	14'8-3/4"	151.9 K=1.00	6.470	2.2285	-10.99	14.42	0.762 ✓
T9	61 - 40.6667	ROHN 3 STD	16'2-9/32"	15'8-5/8"	162.2 K=1.00	5.679	2.2285	-11.99	12.66	0.948 ✓
T10	40.6667 - 20.3333	ROHN 3 STD	24'7-13/16"	12'3-31/32"	127.1 K=1.00	9.242	2.2285	-17.09	20.59	0.830 ✓
T11	20.3333 - 0	ROHN 3 STD	25'2-5/8"	12'7-5/16"	130.0 K=1.00	8.831	2.2285	-19.87	19.68	1.010 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6-1/4"	4'1-11/16'	79.8 K=1.00	19.051	0.7995	-2.07	15.23	0.136 ✓
T2	202.458 - 182.292	ROHN 1.5 STD	8'7-3/16"	4'1-13/16'	80.0 K=1.00	19.004	0.7995	-4.67	15.19	0.307 ✓
T3	182.292 - 162.104	ROHN 1.5 STD	10'1/8"	4'9-27/32'	92.9 K=1.00	16.310	0.7995	-5.78	13.04	0.443 ✓
T4	162.104 - 141.896	ROHN 2 STD	12'1-3/16'	5'9-27/32'	88.7 K=1.00	17.221	1.0745	-6.13	18.50	0.331 ✓
T5	141.896 - 121.688	ROHN 2 STD	13'11-1/3 2"	6'8-5/32"	101.9 K=1.00	14.269	1.0745	-7.06	15.33	0.460 ✓
T6	121.688 - 101.479	ROHN 2 STD	16'3-15/3 2"	7'10-7/16'	120.0 K=1.00	10.374	1.0745	-7.10	11.15	0.637 ✓
T7	101.479 - 81.2708	ROHN 2.5 STD	18'9-15/3 2"	9'1-7/16"	115.5 K=1.00	11.192	1.7040	-7.66	19.07	0.402 ✓
T8	81.2708 - 61	ROHN 2.5 STD	21'4-5/16'	10'3-27/3 2"	130.7 K=1.00	8.739	1.7040	-8.00	14.89	0.537 ✓
T9	61 - 40.6667	ROHN 2.5 STD	23'11-5/3 2"	11'7-3/16'	147.0 K=1.00	6.913	1.7040	-9.04	11.78	0.767 ✓
T10	40.6667 - 20.3333	ROHN 3 STD	25'2-5/32'	12'2-3/4"	126.1 K=1.00	9.388	2.2285	-9.34	20.92	0.446 ✓
T11	20.3333 - 0	ROHN 3 STD	27'9-31/3 2"	13'6-23/3 2"	139.8 K=1.00	7.639	2.2285	-11.28	17.02	0.663 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6"	4'1-9/16"	79.6 K=1.00	19.091	0.7995	-0.13	15.26	0.009 ✓

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32'	5'11-5/32'	114.4 K=1.00	11.073	0.7995	-4.38	8.85	0.495 ✓
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/3 2"	6'7-3/16"	127.2 K=1.00	9.231	0.7995	-5.33	7.38	0.722 ✓

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2 STD	11'7-9/16' '	10'10-11/16"	166.0 K=1.00	5.420	1.0745	-4.05	5.82	0.695 ✓
T11	20.3333 - 0	ROHN 2 STD	11'11-7/8' '	11'3-27/32"	172.5 K=1.00	5.018	1.0745	-4.59	5.39	0.851 ✓

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32' '	6'3-15/32' '	121.3 K=1.00	10.093	0.7995	-0.05	8.07	0.006 ✓
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'11-17/32"	134.1 K=1.00	8.302	0.7995	-0.05	6.64	0.007 ✓

Redundant Hip Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15'2-13/32"	15'2-13/32"	192.6 K=1.00	4.027	1.7040	-0.05	6.86	0.008* ✓
T11	20.3333 - 0	ROHN 2.5 STD	15'11-7/8' '	15'11-7/8' '	202.6 K=1.00	3.639	1.7040	-0.05	6.20	0.008* ✓

* DL controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	L2x2x1/8	4'3-1/8"	4'3-1/8"	128.6 K=1.00	9.029	0.4844	-0.00	4.37	0.001 ✓
T2	202.458 - 182.292	L2x2x1/8	4'3-19/32' '	4'3-19/32' '	129.8 K=1.00	8.870	0.4844	-0.01	4.30	0.001 ✓
T3	182.292 - 162.104	L2x2x1/8	5'1/8"	5'1/8"	151.1 K=1.00	6.537	0.4844	-0.01	3.17	0.002 ✓
T4	162.104 - 141.896	L2x2x1/8	6'19/32"	6'19/32"	182.6 K=1.00	4.480	0.4844	-0.01	2.17	0.003 ✓
T5	141.896 - 121.688	L2x2x1/8	6'11-17/32"	6'11-17/32"	210.0 K=1.00	3.385	0.4844	-0.01	1.64	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	8'1-13/16'	8'1-13/16'	197.5 K=1.00	3.829	0.9020	-0.01	3.45	0.002*
T7	101.479 - 81.2708	L3x3x3/16	9'4-13/16'	9'4-13/16'	189.2 K=1.00	4.173	1.0900	-0.01	4.55	0.002*
T8	81.2708 - 61	L3 1/2x3 1/2x1/4	10'8-5/32'	10'8-5/32'	184.7 K=1.00	4.379	1.6900	-0.01	7.40	0.001*
T9	61 - 40.6667	L3 1/2x3 1/2x1/4	11'11-17/32"	11'11-17/32"	206.9 K=1.00	3.490	1.6900	-0.01	5.90	0.002*
T10	40.6667 - 20.3333	ROHN 3 STD	12'7-3/32'	12'7-3/32'	129.8 K=1.00	8.860	2.2285	-0.01	19.74	0.001*
T11	20.3333 - 0	ROHN 3 STD	13'11-1/32"	13'11-1/32"	143.5 K=1.00	7.250	2.2285	-0.02	16.16	0.001

* DL controls

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 $\frac{P}{P_a}$
T2	202.458 - 182.292	ROHN 3 EH	20'2-1/32'	6'8-5/8"	71.0	30.000	3.0159	16.68	90.48	0.184
T3	182.292 - 162.104	ROHN 4 EH	20'2-5/8"	6'8-7/8"	54.8	30.000	4.4074	47.78	132.22	0.361
T4	162.104 - 141.896	ROHN 5 EH	20'2-7/8"	6'9"	44.0	30.000	6.1120	79.59	183.36	0.434
T5	141.896 - 121.688	ROHN 6 EHS	20'3"	10'1-9/16'	54.6	30.000	6.7133	103.52	201.40	0.514
T6	121.688 - 101.479	ROHN 6 EH	20'3-1/8"	10'1-9/16'	55.4	30.000	8.4049	130.69	252.15	0.518
T7	101.479 - 81.2708	ROHN 6 EH	20'3-1/8"	10'1-9/16'	55.4	30.000	8.4049	154.79	252.15	0.614
T8	81.2708 - 61	ROHN 8 EHS	20'3-31/32"	10'1-29/32"	41.8	30.000	9.7193	177.04	291.58	0.607
T9	61 - 40.6667	ROHN 8 EHS	20'4-9/16'	10'2-9/32'	41.9	30.000	9.7193	198.59	291.58	0.681
T10	40.6667 - 20.3333	ROHN 8 EH	20'4-11/16"	10'2-13/32"	42.5	30.000	12.7627	207.26	382.88	0.541
T11	20.3333 - 0	ROHN 8 EH	20'4-7/16'	10'1-11/16"	42.3	30.000	12.7627	252.50	382.88	0.659

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2 STD	6'7-11/16"	6'5-13/32"	98.4	30.000	1.0745	2.81	32.24	0.087 ✓
T2	202.458 - 182.292	ROHN 2 STD	7'11-7/8"	7'8-5/8"	117.6	30.000	1.0745	8.66	32.24	0.269 ✓
T3	182.292 - 162.104	ROHN 2 STD	8'4-11/16"	8'1-3/32"	123.3	30.000	1.0745	9.26	32.24	0.287 ✓
T4	162.104 - 141.896	ROHN 2 STD	8'9-31/32"	8'5-7/8"	129.4	30.000	1.0745	9.14	32.24	0.283 ✓
T5	141.896 - 121.688	ROHN 2.5 STD	12'7-3/16"	12'1-11/16"	153.7	30.000	1.7040	11.69	51.12	0.229 ✓
T6	121.688 - 101.479	ROHN 2.5 STD	12'11-3/4"	12'6-23/32"	159.1	30.000	1.7040	10.82	51.12	0.212 ✓
T7	101.479 - 81.2708	ROHN 3 STD	13'9-19/32"	13'4-29/32"	138.3	30.000	2.2285	10.75	66.85	0.161 ✓
T8	81.2708 - 61	ROHN 3 STD	15'2-17/32"	14'8-3/4"	151.9	30.000	2.2285	10.58	66.85	0.158 ✓
T9	61 - 40.6667	ROHN 3 STD	16'2-9/32"	15'8-5/8"	162.2	30.000	2.2285	11.52	66.85	0.172 ✓
T10	40.6667 - 20.3333	ROHN 3 STD	24'7-13/16"	12'3-31/32"	127.1	30.000	2.2285	16.40	66.85	0.245 ✓
T11	20.3333 - 0	ROHN 3 STD	25'2-5/8"	12'7-5/16"	130.0	30.000	2.2285	19.16	66.85	0.287 ✓

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6-1/4"	4'1-11/16"	79.8	30.000	0.7995	2.10	23.98	0.088 ✓
T2	202.458 - 182.292	ROHN 1.5 STD	8'7-3/16"	4'1-13/16"	80.0	30.000	0.7995	4.70	23.98	0.196 ✓
T3	182.292 - 162.104	ROHN 1.5 STD	10'1/8"	4'9-27/32"	92.9	30.000	0.7995	5.76	23.98	0.240 ✓
T4	162.104 - 141.896	ROHN 2 STD	12'1-3/16"	5'9-27/32"	88.7	30.000	1.0745	6.11	32.24	0.190 ✓
T5	141.896 - 121.688	ROHN 2 STD	13'11-1/32"	6'8-5/32"	101.9	30.000	1.0745	6.96	32.24	0.216 ✓
T6	121.688 - 101.479	ROHN 2 STD	16'3-15/32"	7'10-7/16"	120.0	30.000	1.0745	7.01	32.24	0.217 ✓
T7	101.479 - 81.2708	ROHN 2.5 STD	18'9-15/32"	9'1-7/16"	115.5	30.000	1.7040	7.61	51.12	0.149 ✓
T8	81.2708 - 61	ROHN 2.5 STD	21'4-5/16"	10'3-27/32"	130.7	30.000	1.7040	8.02	51.12	0.157 ✓
T9	61 - 40.6667	ROHN 2.5 STD	23'11-5/32"	11'7-3/16"	147.0	30.000	1.7040	9.18	51.12	0.180 ✓
T10	40.6667 - 20.3333	ROHN 3 STD	25'2-5/32"	12'2-3/4"	126.1	30.000	2.2285	9.02	66.85	0.135 ✓
T11	20.3333 - 0	ROHN 3 STD	27'9-31/32"	13'6-23/32"	139.8	30.000	2.2285	11.21	66.85	0.168

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
			2"	2"						✓

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	212.625 - 202.458	ROHN 1.5 STD	8'6"	4'1-9/16"	79.6	30.000	0.7995	0.13	23.98	0.005 ✓

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32'	5'11-5/32'	114.4	21.600	0.7995	4.38	17.27	0.254 ✓
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'7-3/16"	127.2	21.600	0.7995	5.33	17.27	0.308 ✓

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T10	40.6667 - 20.3333	ROHN 2 STD	11'7-9/16'	10'10-11/16"	166.0	21.600	1.0745	4.05	23.21	0.174 ✓
T11	20.3333 - 0	ROHN 2 STD	11'11-7/8'	11'3-27/32"	172.5	21.600	1.0745	4.59	23.21	0.198 ✓

Redundant Hip Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T10	40.6667 - 20.3333	ROHN 2.5 STD	15'2-13/32"	15'2-13/32"	192.6	21.600	1.7040	0.08	36.81	0.002 ✓
T11	20.3333 - 0	ROHN 2.5 STD	15'11-7/8'	15'11-7/8'	202.6	21.600	1.7040	0.09	36.81	0.002 ✓

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	L2x2x1/8	4'3-1/8"	4'3-1/8"	81.6	21.600	0.4844	0.00	10.46	0.000 ✓
T2	202.458 - 182.292	L2x2x1/8	4'3-19/32'	4'3-19/32'	82.4	21.600	0.4844	0.01	10.46	0.001 ✓
T3	182.292 - 162.104	L2x2x1/8	4'7-29/32'	4'7-29/32'	89.3	21.600	0.4844	0.00	10.46	0.000 ✓
T4	162.104 - 141.896	L2x2x1/8	5'4-3/16"	5'4-3/16"	102.6	21.600	0.4844	0.01	10.46	0.000 ✓
T5	141.896 - 121.688	L2x2x1/8	6'4-13/16'	6'4-13/16'	122.6	21.600	0.4844	0.00	10.46	0.000 ✓
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	7'6-1/4"	7'6-1/4"	116.0	21.600	0.9020	0.00	19.48	0.000 ✓
T7	101.479 - 81.2708	L3x3x3/16	8'9-1/4"	8'9-1/4"	112.1	21.600	1.0900	0.00	23.54	0.000 ✓
T11	20.3333 - 0	ROHN 3 STD	13'11-1/32"	13'11-1/32"	143.5	30.000	2.2285	0.00	66.85	0.000 ✓

Section Capacity Table

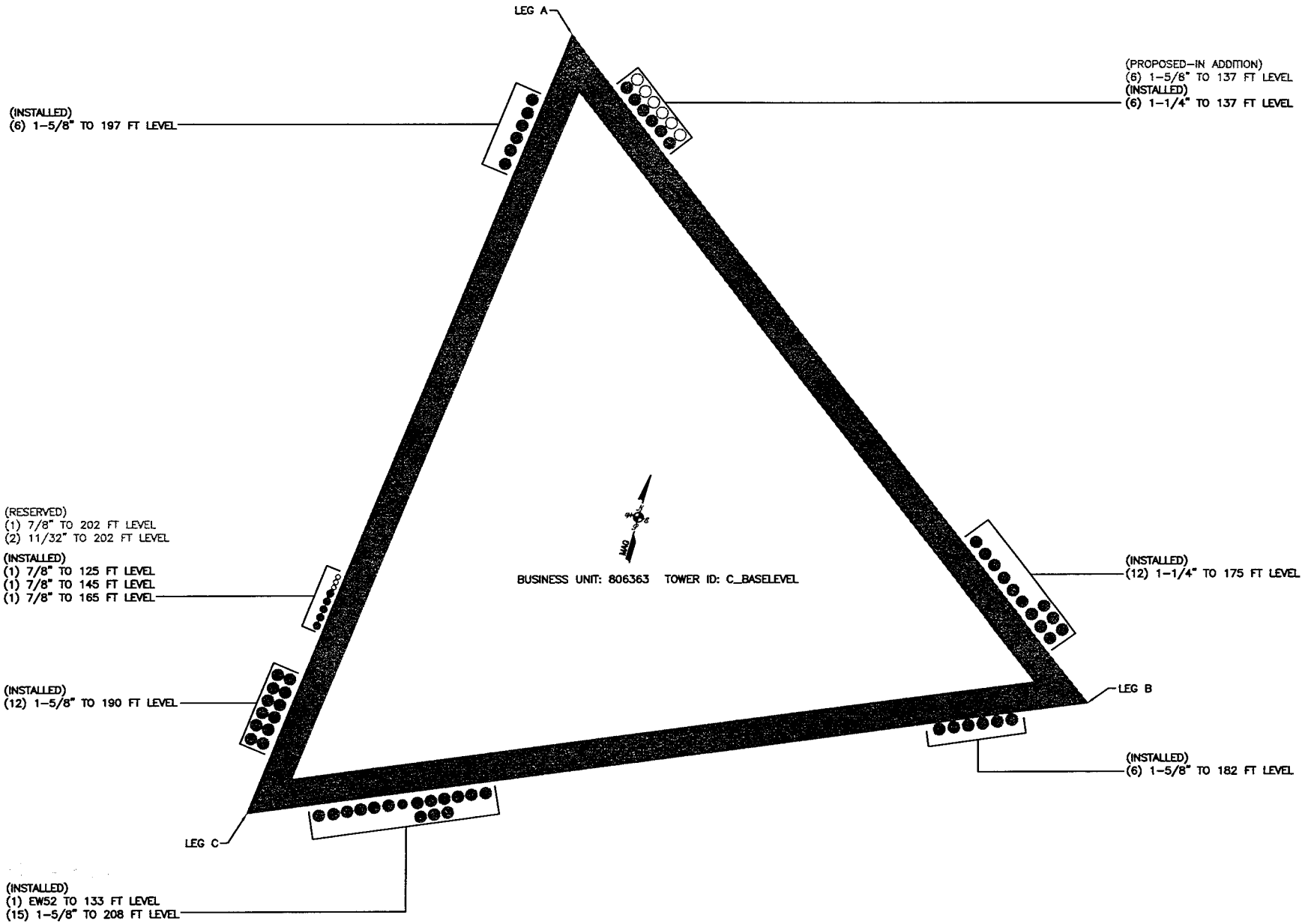
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-2.18	37.41	8.6	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-29.72	83.44	35.6	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-65.08	138.58	47.0	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-99.55	205.75	48.4	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-126.86	211.35	60.0	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-157.81	263.18	60.0	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-186.16	263.18	70.7	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-213.22	331.42	64.3	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-239.82	331.21	72.4	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-252.31	433.40	58.2	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-307.11	433.92	70.8	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	8	-2.88	21.60	13.3	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	39	-8.73	15.46	56.5	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	78	-9.33	13.36	69.8	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-8.96	11.48	78.0	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-11.86	14.35	82.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-10.89	12.58	86.6	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-11.05	21.76	50.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-10.99	19.22	57.2	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	258	-11.99	16.87	71.1	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	284	-17.09	27.45	62.2	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	317	-19.87	26.23	75.7	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	7	-2.07	20.30	10.2 12.2 (b)	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-4.67	20.25	23.1 27.4 (b)	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-5.78	17.38	33.3 33.7 (b)	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	115	-6.13	24.67	24.8 35.7 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-7.06	20.44	34.5 41.1 (b)	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-7.10	14.86	47.8	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-7.66	25.42	30.1 44.6 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-8.00	19.85	40.3 46.7 (b)	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	256	-9.04	15.70	57.6	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	283	-9.34	27.89	33.5 37.8 (b)	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	316	-11.28	22.69	49.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.13	20.34	0.6	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-4.38	11.80	37.1	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	328	-5.33	9.84	54.2	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	302	-4.05	7.76	52.1	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-4.59	7.19	63.8	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	308	-0.05	10.76	0.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	341	-0.05	8.85	0.5	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal Bracing	ROHN 2.5 STD	307	-0.05	6.86	0.8	Pass
T11	20.3333 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	340	-0.05	6.20	0.8	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	18	-0.00	5.83	0.3	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	5.73	0.3	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	80	-0.01	4.22	0.3	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	118	-0.01	2.89	0.4	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	158	-0.01	2.19	0.4	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	185	-0.01	3.45	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.01	4.55	0.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.01	7.40	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.01	5.90	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.01	19.74	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	343	-0.01	16.16	0.4	Pass
							Summary	
						Leg (T9)	72.4	Pass
						Diagonal (T6)	86.6	Pass
						Horizontal (T9)	57.6	Pass
						Top Girt (T1)	0.6	Pass
						Redund Horz 1 Bracing (T11)	54.2	Pass
						Redund Diag 1 Bracing (T11)	63.8	Pass
						Redund Hip 1 Bracing (T11)	0.5	Pass
						Redund Hip Diagonal Bracing (T11)	0.8	Pass
						Inner Bracing (T7)	0.5	Pass
						Bolt Checks	58.5	Pass
						RATING =	**86.6**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


LEG A
(PROPOSED–IN ADDITION)
(6) 1–5/8" TO 137 FT LEVEL
(INSTALLED)
(6) 1–1/4" TO 137 FT LEVEL
(INSTALLED)
(6) 1–5/8" TO 197 FT LEVEL
(RESERVED)
(1) 7/8" TO 202 FT LEVEL
(2) 11/32" TO 202 FT LEVEL
(INSTALLED)
(1) 7/8" TO 125 FT LEVEL
(1) 7/8" TO 145 FT LEVEL
(1) 7/8" TO 165 FT LEVEL
(INSTALLED)
(12) 1–1/4" TO 175 FT LEVEL
BUSINESS UNIT: 806363 TOWER ID: C_BASELEVEL
(INSTALLED)
(12) 1–5/8" TO 190 FT LEVEL
LEG B
(INSTALLED)
(6) 1–5/8" TO 182 FT LEVEL
LEG C
(INSTALLED)
(1) EW52 TO 133 FT LEVEL
(15) 1–5/8" TO 208 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Block Foundation

Checks capacity of monolithic block foundation for a self-supporting tower

BU#: *806363*
Site Name: *HRT 105 943201*
App Number: *108264*

CROWN CASTLE

Design Reactions		
Shear, S:	60.00	kips
Moment, M:	7302.00	ft-kips
Compression/leg, Ca:	305.00	kips
Uplift/leg, Ua:	251.00	kips
Tower Weight, Wt:	74.00	kips
Tower Height, H:	213	ft
Base Face Width, L:	30.0	ft

Foundtion Dimensions		
Depth, D:	4.0	ft
Block Width, W:	40.3	ft
Ext. Above Grade, E:	0.5	ft
Neglected Depth, N:	4.0	ft

Material Properties		
Rebar Tensile, Fy:	60000	psi
Concrete Strength, F'c:	3000	psi
Concrete Density, δc:	150	pcf
Clear Cover, cc:	3	in

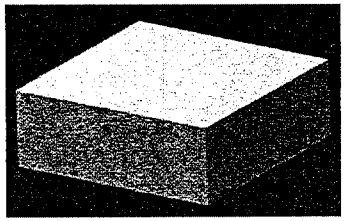
Soil Properties		
Soil Unit Weight, γ:	120	pcf
Allowable Gross Bearing, Bc:	4.000	ksf
Cohesion, Co:	0.000	ksf
Friction Angle, φ:	35	degrees
Passive Pressure, Pp:	0.000	pcf
Base Friction, μ:	0.2	
Seismic Zone, Sz:	1	

Rebar Properties		
Rebar Bar Size, sb:	7	
Rebar Quantity, mp:	55	66
Base Plate Size, di:	12.0	in

Design Checks	Capacity/ Availability	Demand/ Limits	Check	
Shear (ksf)	116.75	60.00	OK	51.4%
Overturning ft-kips)	15979.55	7572.00	OK	47.4%
Bearing (ksf)	4.00	1.42	OK	35.4%
1-way Shear (kips)	2652.11	78.53	OK	3.0%
2-way Shear (kips)	2143.34	460.41	OK	21.5%
Shrinkage Steel	0.0013	0.0018	OK	
Rebar Area (in^2)	33.07	39.36	OK	
Rebar Spacing (in)	7.94	2<s<18	OK	
Rebar Devel.	58.25	44.49	OK	

☐ Tower centroid is offset from foundation centroid

Modification Checks	Capacity/ Availability	Demand/ Limits	Check
EC Width (ft)	0.00	1.5	Not Used
EC Rebar (in^2)	2.21	0.00	Not Used
Rebar spacing (in)	-2.44	2<s<18	Not Used
Tie spacing (in)	34.04	0	Not Used
Shear Strength of Cone (kips)	24.85	32.47	Not Used
Dowel steel (in^2)	19.24	0.00	Not Used
Dowel spacing (in)	31.00	18.00	Not Used
Dowel edge dist (in)	9.00	9.00	Not Used
Devel Length (in)	-3.00	22.43	Not Used



Modifications					
End Cap Width, Wec:	0.00	ft	EC Dowel Size, sdow:	7	
EC Bar Size, sec:	6		Dowel Quantity, mdow:	32	0
Rebar Quantity, mec:	5	0	Number of Rows, nd:	2	
EC Tie Size, stie:	4		Dowel Embed, ddow:	9.00	in
Tie Quantity, mtie:	15	0	Edge Distance, edow:	9.00	in

T-Mobile

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Transcend
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11030H
Date: December 15, 2010

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Self Support Tower at 48 COW HILL ROAD, Clinton, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

1) The emissions from T-Mobile transmitters are in the (1935-1944.8), (2140-2145), (2110-2120)MHz frequency Band.
2) The antenna array consists of three sectors, with 2 antennas per sector.
3) The model number for GSM antenna is RR90-17-02DP.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 137 ft.
4) UMTS antenna center line height is 137 ft.
5) The maximum transmit power from any GSM sector is 1653.94 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2330.72 Watts Effective Radiated Power (EiRP) assuming 2 channels per sector.
6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
8) The average ground level of the studied area does not change significantly with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile antenna installation on a Self Support Tower at 48 COW HILL ROAD, Clinton, CT, is 0.05094 mW/cm^2. This value represents 5.094% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.
The combined Power Density from other carriers is 31.46888%. The combined Power Density for the site is 36.563% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	CT11030H
Site Address:	48 COW HILL ROAD
Town:	Clinton
Tower Height:	212 ft.
Tower Style:	Self Support Tower

GSM Data		UMTS Data	
Base Station TX output	20 W	Base Station TX output	40 W
Number of channels	8	Number of channels	2
Antenna Model	RR90-17-02DP	Antenna Model	APX16DWV-16DWV
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	160 ft.	Cable Length	160 ft.
Antenna Height	137.0 ft.	Antenna Height	137.0 ft.
Ground Reflection	1.6	Ground Reflection	1.6
Frequency	1945.0 MHz	Frequency	2.1 GHz
Jumper & Connector loss	4.50 dB	Jumper & Connector loss	1.50 dB
Antenna Gain	16.5 dBi	Antenna Gain	18.0 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.8560 dB	Total Cable Loss	1.8560 dB
Total Attenuation	6.3560 dB	Total Attenuation	3.3560 dB
Total EIRP per Channel	53.15 dBm	Total EIRP per Channel	60.66 dBm
(In Watts)	206.74 W	(In Watts)	1165.36 W
Total EIRP per Sector	62.19 dBm	Total EIRP per Sector	63.67 dBm
(In Watts)	1653.94 W	(In Watts)	2330.72 W
nsg	10.1440	nsg	14.6440
Power Density (S) =	0.021145 mW/cm^2	Power Density (S) =	0.029797 mW/cm^2

T-Mobile Worst Case % MPE = 5.0941%

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	% of Standard
Cingular UMTS	0.8489 %
Cingular GSM	1.0051 %
Cingular GSM	0.8506 %
Pocket	2.0549 %
Sprint+Nextel+Omnipt	5.2500 %
Verizon	7.4969 %
Verizon	0.4288 %
Town	6.9037 %
MediaFLO	6.6300 %
Nextel	
Other Antenna Systems	
Total Excluding T-Mobile	**31.4689 %**
T-Mobile	5.0941
Total % MPE for Site	**36.5630%**