

September 5, 2017

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **PE1133-VER-20160912 – 330 Pokorny Road, Haddam, Connecticut**

Dear Ms. Bachman:

On October 11, 2016, the Siting Council approved the above-referenced Sub-Petition allowing Cellco to modify the existing telecommunications facility at 330 Pokorny Road in Haddam, Connecticut. The modifications involved the installation of Cellco's antennas and remote radio heads ("RRHs").

As a condition of the approval, Cellco was required to provide the Council with a copy of the Structural Analysis Report referencing Rev. G of the structural standards. A copy of that report is attached. Also attached are specifications for the new RRHs that Cellco intends to install at this facility. The attached Rev. G Structural Report includes reference to the new RRHs.

Sincerely,



Kenneth C. Baldwin

Copy to:
Elizabeth Jamieson

Report Date: August 22, 2017

Client: Verizon Wireless
99 East River Dr, 9th Floor
East Hartford, CT 06108
Attn: Doug Talmadge
Phone: 860-549-6116

Structure: Existing 280-ft Self-Support Tower
Site Name: Higganum South CT
Site Address: 330 Pokorny Road
City, County, State: Haddam, Middlesex County, CT
Latitude, Longitude: 41° 26' 36.9 ", -72° 33' 58.9"

PJF Project: 24317-0014.001.8700_R1

Paul J. Ford and Company is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above mentioned self-support tower. The purpose of this analysis is to determine the acceptability of the self-support tower stress level.

Analysis Criteria:

Reference Standard: 2016 Connecticut State Building Code with the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1.

Ultimate Wind Speed: 130 mph 3-second gust wind speed without ice
Nominal Wind Speed: 101 mph 3-second gust wind speed without ice
Ice Wind Speed: 50 mph 3-second gust wind speed with 0.75" ice
Service Wind Speed: 60.0 mph (Serviceability) without ice
TIA-222 Criteria: Structure Class II, Topographic Category I, Exposure Category B

Proposed Appurtenance Loads:

The structure was analyzed with the addition of the proposed appurtenance loads shown in Table 1 combined with the existing and reserved loads shown in Table 2 of this report.

Summary of Analysis Results:

Existing Structure: Pass
Existing Foundation: Pass

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and Verizon Wireless. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Matthew Buske, PE
Project Engineer
mbuske@pjfweb.com

Columbus
250 E Broad St, Suite 600
Columbus, OH 43215
Phone 614.221.6679



Orlando
1801 Lee Rd, Suite 230
Winter Park, FL 32789
Phone 407.898.9039

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Antenna and Cable Information

Table 2 - Existing Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 – Tower Components vs. Capacity

4.1) Recommendations

Table 6 – Twist & Sway

Table 7-Tower Deflection

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Additional Calculations

1) INTRODUCTION

This tower is a 280 ft Self Support tower designed by Valmont in February of 2012. The tower was originally designed for a wind speed of 85 mph per EIA/TIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 100.7 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

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
276.0	276.0	1	rfs celwave	PAL8 w/ radome	1	EW63	
		2	-	8' x 2" Sch 40 Pipe Mount			
240.0	240.0	1	rfs celwave	PAL6 w/ radome	2	EW63	
		1	-	8' x 2" Sch 40 Pipe Mount			
230.0	230.0	1	rfs celwave	PAL8 w/ radome	1	WE63	
		1	-	8' x 2" Sch 40 Pipe Mount			
205.5	205.5	1	rfs celwave	PA10-59 w/ radome	1	EW63	
		1	-	8' x 2" Sch 40 Pipe Mount			
145.0	145.0	3	alcatel lucent	B13 RRH4X30-4R	3	hybrid	-
		3	alcatel lucent	B25 RRH4x30-4R			
		3	alcatel lucent	B66A RRH4X45			
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe			
		6	commscope	LNX-6515DS-A1M w/ Mount Pipe			
		3	rfs celwave	DB-T1-6Z-8AB-0Z			
		3	Valmont	VFA12-RRU Sector Frame			

Table 2 - Existing 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
280.0	280.0	1	-	FAA L-864 Beacon	1	1/2	1
279.0	299.2	1	-	ANT150F6-3	2	1 5/8 7/8	1
	289.8	1	-	DB538-G			
	286.25	1	kreco	Kreco CO-35A			
	279.0	3	tower mounts	4' x 2" Std. Pipe Mount			
276.0	276.0	2	rfs celwave	PAL8 w/ radome	2	EW63	1
		2	-	8' x 2" Sch 40 Pipe Mount			
266.0	266.0	1	rfs celwave	PAL8 w/ radome	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
261.0	261.0	1	-	10' 8-Bay Dipole	2	7/8	1
		1	-	3' Side Arm Mount			
260.0	265.5	1	decibel	DB589-Y	2	1 5/8 3/8	1
	260.0	1	-	12" x 12" x 6" TMA			
		1	-	6' Side Arm Mount			
	254.5	1	decibel	DB589-Y			
255.0	255.0	1	-	DB212-C	1	7/8	1
		1	-	6' Side Arm Mount			
241.0	241.0	1	sinclair	SD110-SFXPASNM	1	7/8	1
		1	-	6' Side Arm Mount			
240.0	247.0	1	kreco	CO-36A	1	7/8	1
		1	-	6' Side Arm Mount			
235.2	240.8	1	-	SE419-SF3P4LDF	2	1 5/8 1/2 3/8	1
	235.2	1	-	6' Side Arm Mount			
		1	-	12" x 16" x 6"AMP			
	229.5	1	-	SE419-SF3P4LDF			
230.0	230.0	1	-	3' Side Arm Mount	1	7/8	1
		1	comprod	Comprod 531-70HD			
220.0	220.0	1	rfs celwave	PAL8 w/ radome	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			
216.0	224.0	1	telewave	ANT450F10	2	7/8	1
	216.0	1	sinclair	SD110-SFXPASNM			
		2	-	6' Side Arm Mount			
204.0	204.0	1	-	3' Side Arm Mount	1	1 5/8	1
	200.0	1	sinclair	SC479-HF1LDF			
200.0	210.0	1	telewave	Telewave ANT900D6-9	3	1 5/8 1/2	1
	206.0	1	sinclair	SC479-HF1LDF			
		1	-	3' Side Arm Mount			
	200.0	1	-	12" x 16" x 6"AMP			
		1	tower mounts	6' Side Arm Mount			
194.0	1	sinclair	SC479-HF1LDF				
197.0	197.0	1	rfs celwave	PAL6-59 w/ radome	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			
195.0	195.0	1	rfs celwave	PA10-59 w/ radome	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			
175.0	181.0	1	antel	BCR-80010:90	4	1 5/8 1/2 3/8	1
		1	sinclair	SC479-HF1LDF			
	175.0	2	-	6' Side Arm Mount			
		1	-	12" x 16" x 6"AMP			
	169.0	1	antel	BCR-80010:90			
1		sinclair	SC479-HF1LDF				
168.0	168.0	1	-	3' Side Arm Mount	1	7/8	1
	178.0	1	telewave	ANT450F6			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
163.0	163.0	1	rfs celwave	RFS PAD6-65AC	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			
153.5	153.5	12	decibel	DB980H90E-M	18	1 5/8	1
		3	-	Sector Frame			
140.0	140.0	3	-	FAA L-810 Sidelight	1	3/8	1
130.0	130.0	1	kreco	CO-36A	1	7/8	1
		1	-	6' Side Arm Mount			
128.0	133.0	1	telewave	ANT450F6	1	7/8	1
		1	-	6' Side Arm Mount			
126.0	132.0	1	kathrein	PRF-950	1	7/8	1
	126.0	1	-	6' Side Arm Mount			
123.0	123.0	1	rfs celwave	SBX4-W60AC2	1	E60	1
		1	-	8' x 2" Sch 40 Pipe Mount			
117.0	117.0	1	-	3' Side Arm Mount	1	7/8	1
		1	kathrein	PRF-950			
116.0	116.0	2	-	3' Side Arm Mount	1	7/8	1
		1	browning	BR6155			
	113.0	1	telewave	ANT400D			
104.0	104.0	1	rfs celwave	RFS PAD6-65AC w/ radome	1	EW63	1
		1	-	8' x 2" Sch 40 Pipe Mount			
97.0	97.0	1	-	3' Side Arm Mount	1	7/8	1
		1	browning	BR6155			
55.0	55.0	1	-	3' Side Arm Mount	1	7/8	1
	60.0	1	astron wireless	V-1500			
50.0	50.0	1	-	3' Side Arm Mount	1	1/2	1
	51.5	1	telewave	Telewave ANT790-S2			

Notes:

- 1) Existing Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference
Tower Manufacturer Drawings	Valmont, 2/29/2012	#240898
Geotechnical Report	8/1/2011	-
Structural Analysis	Centek, 2/3/2015	#14316.000

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	280 - 270	Leg	Valmont 207628 (12x1.25)	2	-4.36	142.49	24.4	Pass
T2	270 - 260	Leg	Valmont 207628 (12x1.25)	18	-8.53	142.49	21.9	Pass
T3	260 - 240	Leg	Valmont 207628 (12x1.25)	28	-28.04	142.49	19.7	Pass
T4	240 - 220	Leg	Valmont 207628 (12x1.25)	43	-39.12	142.49	42.3	Pass
T5	220 - 210	Leg	Valmont 195557 (12x1.75)	64	-69.90	301.49	44.9	Pass
T6	210 - 200	Leg	Valmont 195557 (12x1.75)	73	-86.25	301.49	46.3	Pass
T7	200 - 180	Leg	Valmont 211843 (12x2)	85	-114.80	356.29	55.1	Pass
T8	180 - 160	Leg	Valmont 208334 (12x2.25)	94	-157.00	451.15	34.8	Pass
T9	160 - 140	Leg	Valmont 208334 (12x2.25)	103	-199.11	451.15	66.5	Pass
T10	140 - 120	Leg	Valmont 208335 (12x2.5)	112	-246.79	557.27	44.3	Pass
T11	120 - 100	Leg	Valmont 208337 (12x2.75)	121	-296.64	674.68	44.0	Pass
T12	100 - 80	Leg	Valmont 208338 (12x3)	130	-347.43	803.44	43.2	Pass
T13	80 - 60	Leg	Valmont 208338 (12x3)	139	-399.16	803.44	49.7	Pass
T14	60 - 40	Leg	Valmont 208339 (12x3.25)	150	-450.34	943.57	47.7	Pass
T15	40 - 20	Leg	Valmont 208339 (12x3.25)	159	-503.10	943.57	53.3	Pass
T16	20 - 0	Leg	Valmont 208339 (12x3.25)	168	-551.94	943.57	58.5	Pass
T1	280 - 270	Diagonal	L 3 x 3 x 5/16	7	-2.61	17.33	15.1	Pass
T2	270 - 260	Diagonal	L 3 x 3 x 5/16	20	-4.30	15.59	27.6	Pass
T3	260 - 240	Diagonal	L 3 x 3 x 5/16	32	-5.54	12.75	43.5	Pass
T4	240 - 220	Diagonal	L 4 x 4 x 1/4	53	-9.15	20.95	43.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T5	220 - 210	Diagonal	L 4 x 4 x 1/4	68	-10.70	19.15	55.9	Pass
T6	210 - 200	Diagonal	L 4 x 4 x 1/4	80	-10.87	17.55	62.0	Pass
T7	200 - 180	Diagonal	2L 3.5 x 3.5 x 1/4 (3/8)	92	-17.32	28.37	61.0	Pass
T8	180 - 160	Diagonal	2L 3.5 x 3.5 x 1/4 (3/8)	101	-17.74	25.65	69.2	Pass
T9	160 - 140	Diagonal	2L 4 x 4 x 1/4 (3/8)	110	-20.27	34.45	58.8	Pass
T10	140 - 120	Diagonal	2L 4 x 4 x 3/8 (1/2)	119	-23.57	46.79	50.4	Pass
T11	120 - 100	Diagonal	2L 4 x 4 x 3/8 (1/2)	128	-24.96	43.07	57.9	Pass
T12	100 - 80	Diagonal	2L 5 x 5 x 5/16 (1/2)	137	-26.31	63.83	41.2	Pass
T13	80 - 60	Diagonal	2L 5 x 5 x 5/16 (1/2)	146	-27.16	58.27	46.6	Pass
T14	60 - 40	Diagonal	2L 5 x 5 x 5/16 (1/2)	155	-28.55	53.32	53.5	Pass
T15	40 - 20	Diagonal	2L 5 x 5 x 5/16 (1/2)	164	-28.62	48.93	58.5	Pass
T16	20 - 0	Diagonal	2L 5 x 5 x 5/16 (1/2)	173	-30.44	45.01	67.6	Pass
T1	280 - 270	Secondary Horizontal	L 2.5 x 2.5 x 5/16	14	-1.36	13.33	10.2	Pass
T2	270 - 260	Secondary Horizontal	L 2.5 x 2.5 x 5/16	27	-0.64	11.83	5.4	Pass
T6	210 - 200	Secondary Horizontal	L 5 x 5 x 3/8	82	-1.50	45.50	3.3	Pass
T1	280 - 270	Top Girt	L 3.5 x 3.5 x 5/16	6	-0.33	13.40	2.4	Pass
T4	240 - 220	Top Girt	L 5 x 5 x 3/8	47	-1.05	32.66	3.2	Pass
T4	240 - 220	Mid Girt	L 5 x 5 x 3/8	50	-1.55	29.78	5.2	Pass
							Summary	
							Leg (T9)	66.5 Pass
							Diagonal (T8)	69.2 Pass
							Secondary Horizontal (T1)	10.2 Pass
							Top Girt (T4)	3.2 Pass
							Mid Girt (T4)	5.2 Pass
							Bolt Checks	78.0 Pass
							Rating =	78.0 Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	62.5	Pass
1,2	Base Foundation Structural	-	35.4	Pass
1,2	Base Foundation Soil Interaction	-	43.6	Pass
Structure Rating (max from all components) =				78.0%

Notes:

- 1) See additional documentation in "Appendix B – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Base reactions were increased by 10% for the foundation analysis.

4.1) Recommendations

- The tower and its foundations have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

Table 6-Twist & Sway

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
276.00	PAL8	47	3.274	0.1015	0.0127	929719
266.00	PAL8	47	3.059	0.1011	0.0125	Inf
261.00	10' 8-Bay Dipole	47	2.952	0.1005	0.0123	521095
230.00	PAL8	47	2.308	0.0899	0.0107	137610
220.00	PAL8	47	2.115	0.0849	0.0097	120888
205.50	PA10-59	47	1.851	0.0797	0.0079	183444
197.00	PAL6-59	47	1.701	0.0761	0.0071	103145
195.00	PA10-59	47	1.668	0.0753	0.0070	106322
163.00	RFS PAD6-65AC	47	1.177	0.0631	0.0049	156181
126.00	PRF-950	47	0.721	0.0468	0.0033	136533
123.00	SBX4-W60AC2	47	0.690	0.0456	0.0032	145641
117.00	PRF-950	47	0.630	0.0432	0.0030	156509
104.00	RFS PAD6-65AC	47	0.509	0.0381	0.0026	157853

Table 7-Tower Deflection

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	15.066	18	0.4519	0.0576
T2	270 - 260	14.112	18	0.4516	0.0575
T3	260 - 240	13.152	18	0.4473	0.0557
T4	240 - 220	11.274	18	0.4236	0.0517
T5	220 - 210	9.514	18	0.3798	0.0439
T6	210 - 200	8.690	18	0.3647	0.0380
T7	200 - 180	7.890	18	0.3467	0.0335
T8	180 - 160	6.425	18	0.3119	0.0270
T9	160 - 140	5.115	18	0.2777	0.0215
T10	140 - 120	3.956	2	0.2374	0.0169
T11	120 - 100	2.976	2	0.1996	0.0140

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
T12	100 - 80	2.145	2	0.1648	0.0111
T13	80 - 60	1.449	2	0.1328	0.0087
T14	60 - 40	0.885	2	0.0982	0.0064
T15	40 - 20	0.460	2	0.0671	0.0042
T16	20 - 0	0.148	2	0.0340	0.0021

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 280.00 ft above the ground line.
 The base of the tower is set at an elevation of 0.00 ft above the ground line.
 The face width of the tower is 12.00 ft at the top and 40.00 ft at the base.
 This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- 1) Tower is located in Middlesex County, Connecticut.
- 2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- 3) Basic wind speed of 101 mph.
- 4) Structure Class II.
- 5) Exposure Category B.
- 6) Topographic Category 1.
- 7) Crest Height 0.00 ft.
- 8) Nominal ice thickness of 0.7500 in.
- 9) Ice thickness is considered to increase with height.
- 10) Ice density of 56 pcf.
- 11) A wind speed of 50 mph is used in combination with ice.
- 12) Deflections calculated using a wind speed of 60 mph.
- 13) A non-linear (P-delta) analysis was used.
- 14) Pressures are calculated at each section.
- 15) Stress ratio used in tower member design is 1.

Options

- | | | |
|--|--|---|
| Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
✓ Use Code Stress Ratios
✓ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile

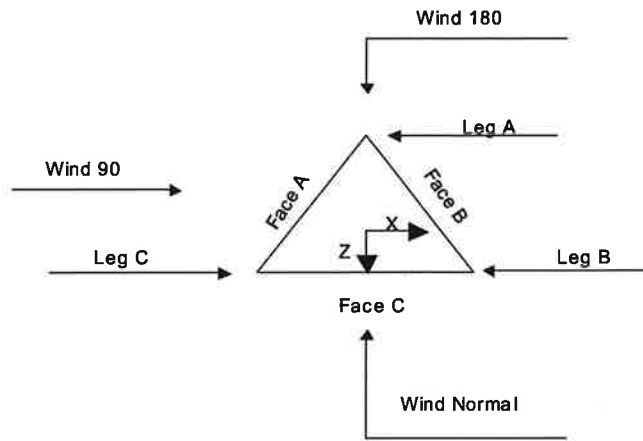
Include Bolts In Member Capacity

Leg Bolts Are At Top Of Section
Secondary Horizontal Braces Leg
Use Diamond Inner Bracing (4 Sided)
SR Members Have Cut Ends
SR Members Are Concentric | Distribute Leg Loads As Uniform
Assume Legs Pinned
Assume Rigid Index Plate
Use Clear Spans For Wind Area
✓ Use Clear Spans For KL/r
Retension Guys To Initial Tension
Bypass Mast Stability Checks
✓ Use Azimuth Dish Coefficients
✓ Project Wind Area of Appurt.

Autocalc Torque Arm Areas

Add IBC .6D+W Combination
✓ Sort Capacity Reports By Component
Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder | Use ASCE 10 X-Brace Ly Rules
✓ Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
✓ Consider Feed Line Torque
✓ Include Angle Block Shear Check
Use TIA-222-G Bracing Resist.
Exemption
Use TIA-222-G Tension Splice
Exemption

<div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets |
|--|--|---|



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	280.00-270.00			12.00	1	10.00
T2	270.00-260.00			13.00	1	10.00
T3	260.00-240.00			14.00	1	20.00
T4	240.00-220.00			16.00	1	20.00
T5	220.00-210.00			18.00	1	10.00
T6	210.00-200.00			19.00	1	10.00
T7	200.00-180.00			20.00	1	20.00
T8	180.00-160.00			22.00	1	20.00
T9	160.00-140.00			24.00	1	20.00
T10	140.00-120.00			26.00	1	20.00
T11	120.00-100.00			28.00	1	20.00
T12	100.00-80.00			30.00	1	20.00
T13	80.00-60.00			32.00	1	20.00
T14	60.00-40.00			34.00	1	20.00
T15	40.00-20.00			36.00	1	20.00
T16	20.00-0.00			38.00	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	280.00-270.00	10.00	X Brace	No	Yes	0.0000	0.0000
T2	270.00-260.00	10.00	X Brace	No	Yes	0.0000	0.0000
T3	260.00-240.00	10.00	X Brace	No	No	0.0000	0.0000
T4	240.00-220.00	10.00	X Brace	No	No	0.0000	0.0000
T5	220.00-210.00	10.00	X Brace	No	No	0.0000	0.0000
T6	210.00-200.00	10.00	X Brace	No	Yes	0.0000	0.0000

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
T7	200.00-180.00	20.00	X Brace	No	No	0.0000	0.0000
T8	180.00-160.00	20.00	X Brace	No	No	0.0000	0.0000
T9	160.00-140.00	20.00	X Brace	No	No	0.0000	0.0000
T10	140.00-120.00	20.00	X Brace	No	No	0.0000	0.0000
T11	120.00-100.00	20.00	X Brace	No	No	0.0000	0.0000
T12	100.00-80.00	20.00	X Brace	No	No	0.0000	0.0000
T13	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T14	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T15	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T16	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 280.00-270.00	Truss Leg	Valmont 207628 (12x1.25)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T2 270.00-260.00	Truss Leg	Valmont 207628 (12x1.25)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T3 260.00-240.00	Truss Leg	Valmont 207628 (12x1.25)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T4 240.00-220.00	Truss Leg	Valmont 207628 (12x1.25)	A572-50 (50 ksi)	Single Angle	L 4 x 4 x 1/4	A36 (36 ksi)
T5 220.00-210.00	Truss Leg	Valmont 195557 (12x1.75)	A572-50 (50 ksi)	Single Angle	L 4 x 4 x 1/4	A36 (36 ksi)
T6 210.00-200.00	Truss Leg	Valmont 195557 (12x1.75)	A572-50 (50 ksi)	Single Angle	L 4 x 4 x 1/4	A36 (36 ksi)
T7 200.00-180.00	Truss Leg	Valmont 211843 (12x2)	A572-50 (50 ksi)	Double Angle	2L 3.5 x 3.5 x 1/4 (3/8)	A36 (36 ksi)
T8 180.00-160.00	Truss Leg	Valmont 208334 (12x2.25)	A572-50 (50 ksi)	Double Angle	2L 3.5 x 3.5 x 1/4 (3/8)	A36 (36 ksi)
T9 160.00-140.00	Truss Leg	Valmont 208334 (12x2.25)	A572-50 (50 ksi)	Double Angle	2L 4 x 4 x 1/4 (3/8)	A36 (36 ksi)
T10 140.00-120.00	Truss Leg	Valmont 208335 (12x2.5)	A572-50 (50 ksi)	Double Angle	2L 4 x 4 x 3/8 (1/2)	A36 (36 ksi)
T11 120.00-100.00	Truss Leg	Valmont 208337 (12x2.75)	A572-50 (50 ksi)	Double Angle	2L 4 x 4 x 3/8 (1/2)	A36 (36 ksi)
T12 100.00-80.00	Truss Leg	Valmont 208338 (12x3)	A572-50 (50 ksi)	Double Angle	2L 5 x 5 x 5/16 (1/2)	A36 (36 ksi)
T13 80.00-60.00	Truss Leg	Valmont 208338 (12x3)	A572-50 (50 ksi)	Double Angle	2L 5 x 5 x 5/16 (1/2)	A36 (36 ksi)
T14 60.00-40.00	Truss Leg	Valmont 208339 (12x3.25)	A572-50 (50 ksi)	Double Angle	2L 5 x 5 x 5/16 (1/2)	A36 (36 ksi)
T15 40.00-20.00	Truss Leg	Valmont 208339 (12x3.25)	A572-50 (50 ksi)	Double Angle	2L 5 x 5 x 5/16 (1/2)	A36 (36 ksi)
T16 20.00-0.00	Truss Leg	Valmont 208339 (12x3.25)	A572-50 (50 ksi)	Double Angle	2L 5 x 5 x 5/16 (1/2)	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 280.00-270.00	Equal Angle	L 3.5 x 3.5 x 5/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T4 240.00-220.00	Single Angle	L 5 x 5 x 3/8	A36 (36 ksi)	Single Angle		A36 (36 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
T4 240.00-220.00	1	Single Angle	L 5 x 5 x 3/8	A36 (36 ksi)	Single Angle		A36 (36 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 280.00-270.00	Single Angle	L 2.5 x 2.5 x 5/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T2 270.00-260.00	Single Angle	L 2.5 x 2.5 x 5/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T6 210.00-200.00	Single Angle	L 5 x 5 x 3/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 280.00-270.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T2 270.00-260.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T3 260.00-240.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T4 240.00-220.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T5 220.00-210.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T6 210.00-200.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T7 200.00-180.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T8 180.00-160.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T9 160.00-140.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T10 140.00-120.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T11 120.00-100.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T12 100.00-80.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T13 80.00-60.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T14 60.00-40.00	0.00	0.5000	A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt
T15 40.00-	0.00	0.5000	A36	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in	(36 ksi) A36 (36 ksi)				in	in	in
T16 20.00-0.00	0.00	0.5000	(36 ksi) A36 (36 ksi)	1	1	1.1	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
ft				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T1 280.00-270.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T2 270.00-260.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T3 260.00-240.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T4 240.00-220.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T5 220.00-210.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T6 210.00-200.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T7 200.00-180.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T8 180.00-160.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T9 160.00-140.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T10 140.00-120.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T11 120.00-100.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T12 100.00-80.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T13 80.00-60.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T14 60.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T15 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T16 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry (cont'd)

Tower Elevation	Truss-Leg K Factors					
	Leg Panels	Truss-Legs Used As Leg Members		Truss-Legs Used As Inner Members		Z Brace Diagonals
X Brace Diagonals		Z Brace Diagonals	X Brace Diagonals	Z Brace Diagonals		
T1 280.00-270.00	1	1	1	1	1	1
T2 270.00-260.00	1	1	1	1	1	1
T3 260.00-	1	1	1	1	1	1

Tower Elevation ft	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
240.00						
T4 240.00-220.00	1	1	1	1	1	1
T5 220.00-210.00	1	1	1	1	1	1
T6 210.00-200.00	1	1	1	1	1	1
T7 200.00-180.00	1	1	1	1	1	1
T8 180.00-160.00	1	1	1	1	1	1
T9 160.00-140.00	1	1	1	1	1	1
T10 140.00-120.00	1	1	1	1	1	1
T11 120.00-100.00	1	1	1	1	1	1
T12 100.00-80.00	1	1	1	1	1	1
T13 80.00-60.00	1	1	1	1	1	1
T14 60.00-40.00	1	1	1	1	1	1
T15 40.00-20.00	1	1	1	1	1	1
T16 20.00-0.00	1	1	1	1	1	1

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 280.00-270.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 270.00-260.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 260.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 220.00-210.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 210.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T13 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
		T1 280.00-270.00	Flange	1.0000 A325N	0	1.0000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 270.00-260.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 260.00-240.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 240.00-220.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 220.00-210.00	Flange	1.0000 A325N	0	1.0000 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 210.00-200.00	Flange	1.0000 A325N	12	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 180.00-160.00	Flange	1.0000 A325N	12	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 120.00-100.00	Flange	1.0000 A325N	12	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 100.00-80.00	Flange	1.2500 A325N	12	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 80.00-60.00	Flange	1.2500 A325N	12	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 60.00-40.00	Flange	1.2500 A325N	12	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 40.00-20.00	Flange	1.2500 A325N	12	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 20.00-0.00	Flange	0.0000 A615-75	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	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	Perimete r in	Weight plf

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
Safety Line 3/8	C	No	Ar (CaAa)	280.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22
LDF4-50A (1/2" foam)	C	No	Ar (CaAa)	280.00 - 0.00	0.0000	0.45	1	1	0.6300	0.6300		0.15
LDF2-50 (3/8" foam)	C	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.45	1	1	0.4400	0.4400		0.08
****FACE A****												
LDF7-50A (1 5/8" foam)	A	No	Ar (CaAa)	153.50 - 0.00	0.0000	0.4	18	12	1.0000 0.5000	1.9800		0.92
EW63(ELLIP TICAL)	A	No	Ar (CaAa)	195.00 - 0.00	0.0000	-0.45	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	A	No	Ar (CaAa)	163.00 - 0.00	0.0000	-0.43	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	A	No	Ar (CaAa)	104.00 - 0.00	0.0000	-0.42	1	1	1.0000 0.5000	2.0100		0.51
LDF7-50A (1 5/8" foam)	A	No	Ar (CaAa)	235.17 - 0.00	0.0000	-0.38	2	2	1.0000 0.5000	1.9800		0.92
LDF2-50 (3/8" foam)	A	No	Ar (CaAa)	235.17 - 0.00	0.0000	-0.38	1	1	0.4400	0.4400		0.08
LDF4-50A (1/2" foam)	A	No	Ar (CaAa)	235.17 - 0.00	0.0000	-0.38	1	1	0.6300	0.6300		0.15
LDF7-50A (1 5/8" foam)	A	No	Ar (CaAa)	200.00 - 0.00	0.0000	-0.36	3	3	1.0000 0.5000	1.9800		0.92
LDF7-50A (1 5/8" foam)	A	No	Ar (CaAa)	175.00 - 0.00	0.0000	-0.34	4	2	1.0000 0.5000	1.9800		0.92
LDF5-50A (7/8" foam)	A	No	Ar (CaAa)	116.00 - 0.00	0.0000	-0.32	2	2	1.0900	1.0900		0.33
LDF5-50A (7/8" foam)	A	No	Ar (CaAa)	55.00 - 0.00	0.0000	-0.32	1	1	1.0900	1.0900		0.33
LDF4-50A (1/2" foam)	A	No	Ar (CaAa)	175.00 - 0.00	0.0000	-0.4	1	1	0.6300	0.6300		0.15
LDF2-50 (3/8" foam)	A	No	Ar (CaAa)	175.00 - 0.00	0.0000	-0.4	1	1	0.4400	0.4400		0.08
LDF4-50A (1/2" foam)	A	No	Ar (CaAa)	200.00 - 0.00	0.0000	-0.36	1	1	0.6300	0.6300		0.15
****FACE B****												
EW63(ELLIP TICAL)	B	No	Ar (CaAa)	276.00 - 0.00	0.0000	0.47	2	2	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	B	No	Ar (CaAa)	276.00 - 0.00	0.0000	0.47	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	B	No	Ar (CaAa)	266.00 - 0.00	0.0000	0.46	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	B	No	Ar (CaAa)	220.00 - 0.00	0.0000	0.45	1	1	1.0000 0.5000	2.0100		0.51
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.43	1	1	1.0000 0.5000	1.0900		0.33
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	255.00 - 0.00	0.0000	0.41	1	1	1.0900 0.5000	1.0900		0.33
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	240.00 - 0.00	0.0000	0.42	1	1	1.0000 0.5000	1.0900		0.33
LDF2-50 (3/8" foam)	B	No	Ar (CaAa)	260.00 - 0.00	0.0000	0.41	1	1	0.4400	0.4400		0.08
LDF7-50A (1 5/8" foam)	B	No	Ar (CaAa)	260.00 - 0.00	0.0000	0.39	2	2	1.0000 0.5000	1.9800		0.92
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	230.00 - 0.00	0.0000	0.38	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	216.00 - 0.00	0.0000	0.38	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	280.00 - 0.00	0.0000	0.37	2	1	1.0900	1.0900		0.33
LDF5-50A (7/8" foam)	B	No	Ar (CaAa)	130.00 - 0.00	0.0000	0.44	1	1	1.0900	1.0900		0.33

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
LDF7-50A (1 5/8" foam) ****FACE C****	B	No	Ar (CaAa)	145.00 - 0.00	0.0000	-0.44	3	3	1.0000 0.5000	1.9800		0.92
LDF7-50A (1 5/8" foam)	C	No	Ar (CaAa)	279.00 - 0.00	0.0000	0.46	1	1	1.0000 0.5000	1.9800		0.92
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	117.00 - 0.00	0.0000	0.45	1	1	1.0000 0.5000	1.0900		0.33
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	97.00 - 0.00	0.0000	0.43	1	1	1.0000 0.5000	1.0900		0.33
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	261.00 - 0.00	0.0000	0.43	2	2	1.0000 0.5000	1.0900		0.33
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	241.00 - 0.00	0.0000	0.43	1	1	1.0000 0.5000	1.0900		0.33
EW63(ELLIP TICAL)	C	No	Ar (CaAa)	240.00 - 0.00	0.0000	0.4	2	2	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	C	No	Ar (CaAa)	230.00 - 0.00	0.0000	0.4	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	C	No	Ar (CaAa)	205.50 - 0.00	0.0000	0.4	1	1	1.0000 0.5000	2.0100		0.51
EW63(ELLIP TICAL)	C	No	Ar (CaAa)	197.00 - 0.00	0.0000	0.4	1	1	1.0000 0.5000	2.0100		0.51
E60(ELLIPTICAL)	C	No	Ar (CaAa)	123.00 - 0.00	0.0000	0.4	1	1	2.2000	2.2000		0.68
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	128.00 - 0.00	0.0000	0.4	1	1	1.0900	1.0900		0.33
LDF5-50A (7/8" foam)	C	No	Ar (CaAa)	126.00 - 0.00	0.0000	0.4	1	1	1.0900	1.0900		0.33
LDF4-50A (1/2" foam)	C	No	Ar (CaAa)	50.00 - 0.00	0.0000	0.4	1	1	0.6300	0.6300		0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
Kreco CO-35A	A	From Leg	0.50	0.0000	279.00	No Ice	3.26	3.26	0.01
			0.00			1/2"	4.74	4.74	0.03
			0.00			Ice	6.23	6.23	0.06
4' x 2" Std. Pipe Mount	A	From Leg	0.00	0.0000	279.00	No Ice	0.87	0.87	0.01
			0.00			1/2"	1.11	1.11	0.02
			0.00			Ice	1.36	1.36	0.03
*** ANT150F6-3	C	From Leg	0.50	0.0000	279.00	No Ice	4.80	4.80	0.03
			0.00			1/2"	6.83	6.83	0.07
			0.00			Ice	8.87	8.87	0.11
4' x 2" Std. Pipe Mount	C	From Leg	0.00	0.0000	279.00	No Ice	0.87	0.87	0.01
			0.00			1/2"	1.11	1.11	0.02
			0.00			Ice	1.36	1.36	0.03
** DB538-G	B	From Leg	0.50	0.0000	279.00	No Ice	3.64	3.64	0.02
			0.00			1/2"	5.13	5.13	0.04
			0.00			Ice	6.63	6.63	0.08
4' x 2" Std. Pipe Mount	B	From Leg	0.00	0.0000	279.00	No Ice	0.87	0.87	0.01
			0.00			1/2"	1.11	1.11	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.00			Ice 1" Ice	1.36 1.36	0.03
** FAA L-864 Beacon	B	From Leg	0.00 0.00 0.00	0.0000	280.00	No Ice 1/2" Ice 1" Ice	1.20 2.20 3.20 3.20	0.05 0.08 0.12
** 8' x 2" Sch 40 Pipe Mount	A	From Leg	0.00 0.00 0.00	0.0000	276.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 3.40	0.03 0.04 0.06
8' x 2" Sch 40 Pipe Mount	B	From Leg	0.00 0.00 0.00	0.0000	276.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 3.40	0.03 0.04 0.06
8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	276.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 3.40	0.03 0.04 0.06
**** 8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	276.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 3.40	0.03 0.04 0.06
**** 10' 8-Bay Dipole	A	From Leg	3.00 0.00 0.00	0.0000	261.00	No Ice 1/2" Ice 1" Ice	8.00 10.00 12.00 12.00	0.06 0.10 0.14
3' Side Arm Mount	A	From Leg	1.50 0.00 0.00	0.0000	261.00	No Ice 1/2" Ice 1" Ice	0.94 1.48 2.02 2.93	0.03 0.04 0.06
**** DB589-Y	B	From Leg	6.00 0.00 5.50	0.0000	260.00	No Ice 1/2" Ice 1" Ice	2.13 3.00 3.76 3.76	0.01 0.03 0.05
DB589-Y	B	From Leg	6.00 0.00 -5.50	0.0000	260.00	No Ice 1/2" Ice 1" Ice	2.13 3.00 3.76 3.76	0.01 0.03 0.05
12" x 12" x 6" TMA	B	From Leg	6.00 0.00 0.00	0.0000	260.00	No Ice 1/2" Ice 1" Ice	1.20 1.34 1.48 0.60	0.03 0.04 0.05
6' Side Arm Mount	B	From Leg	3.00 0.00 0.00	0.0000	260.00	No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06 1.23	0.05 0.08 0.10
*** DB212-C	C	From Leg	6.00 0.00 0.00	0.0000	255.00	No Ice 1/2" Ice 1" Ice	3.10 6.22 9.35 9.35	0.03 0.06 0.10
6' Side Arm Mount	C	From Leg	3.00 0.00 0.00	0.0000	255.00	No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06 1.23	0.05 0.08 0.10
*** CO-36A	A	From Leg	6.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	0.75 1.96 3.19	0.01 0.02 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft	CA _A A Front ft ²	CA _A A Side ft ²	Weight K	
6' Side Arm Mount	A	From Leg	3.00 0.00 0.00	0.0000	240.00	1" Ice No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

Comprod 531-70HD	A	From Leg	3.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice 1" Ice	4.98 6.22 7.47	4.98 6.22 7.47	0.04 0.05 0.06
3' Side Arm Mount	A	From Leg	1.50 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice 1" Ice	0.94 1.48 2.02	1.41 2.17 2.93	0.03 0.04 0.06

SD110-SFXPASNM	B	From Leg	6.00 0.00 0.00	0.0000	241.00	No Ice 1/2" Ice 1" Ice	7.50 15.00 22.50	7.50 15.00 22.50	0.03 0.03 0.04
6' Side Arm Mount	B	From Leg	3.00 0.00 0.00	0.0000	241.00	No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06

SE419-SF3P4LDF w/ Mount Pipe	C	From Leg	6.00 0.00 5.67	0.0000	235.17	No Ice 1/2" Ice 1" Ice	4.36 5.45 6.53	11.82 13.45 15.10	0.06 0.13 0.20
SE419-SF3P4LDF w/ Mount Pipe	C	From Leg	6.00 0.00 -5.67	0.0000	235.17	No Ice 1/2" Ice 1" Ice	4.36 5.45 6.53	11.82 13.45 15.10	0.06 0.13 0.20
6' Side Arm Mount	C	From Leg	3.00 0.00 0.00	0.0000	235.17	No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06

ANT450F10	B	From Leg	6.00 0.00 0.00	0.0000	216.00	No Ice 1/2" Ice 1" Ice	5.59 7.66 9.74	5.59 7.66 9.74	0.04 0.08 0.14
6' Side Arm Mount	B	From Leg	3.00 0.00 0.00	0.0000	216.00	No Ice 1/2" Ice 1" Ice	4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

SD110-SFXPASNM	A	From Leg	6.00 0.00 0.00	0.0000	216.00	No Ice 1/2" Ice 1" Ice	7.50 15.00 22.50	7.50 15.00 22.50	0.03 0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front	CAAA Side	Weight K
						ft ²	ft ²	
6' Side Arm Mount	A	From Leg	3.00 0.00 0.00	0.0000	216.00	No Ice 4.54 1/2" 7.80 Ice 11.06 1" Ice	1.23 2.55 3.88	0.05 0.08 0.10

8' x 2" Sch 40 Pipe Mount	A	From Leg	0.00 0.00 0.00	0.0000	205.50	No Ice 1.90 1/2" 2.73 Ice 3.40 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06

SC479-HF1LDF	B	From Leg	6.00 0.00 6.00	0.0000	200.00	No Ice 4.99 1/2" 6.51 Ice 8.00 1" Ice	4.99 6.51 8.00	0.03 0.07 0.11
SC479-HF1LDF	B	From Leg	6.00 0.00 -6.00	0.0000	200.00	No Ice 4.99 1/2" 6.51 Ice 8.00 1" Ice	4.99 6.51 8.00	0.03 0.07 0.11
TMA (16" x 12" x 6")	B	From Leg	6.00 0.00 0.00	0.0000	200.00	No Ice 1.70 1/2" 1.86 Ice 2.04 1" Ice	0.86 0.99 1.12	0.03 0.04 0.06
6' Side Arm Mount	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 4.54 1/2" 7.80 Ice 11.06 1" Ice	1.23 2.55 3.88	0.05 0.08 0.10

SC479-HF1LDF	B	From Leg	3.00 0.00 -4.00	0.0000	204.00	No Ice 4.98 1/2" 6.51 Ice 8.00 1" Ice	4.98 6.51 8.00	0.03 0.07 0.11
3' Side Arm Mount	B	From Leg	1.50 0.00 0.00	0.0000	204.00	No Ice 0.94 1/2" 1.48 Ice 2.02 1" Ice	1.41 2.17 2.93	0.03 0.04 0.06

Telewave ANT900D6-9	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 0.80 1/2" 1.60 Ice 2.40 1" Ice	0.80 1.60 2.40	0.01 0.02 0.03
3' Side Arm Mount	C	From Leg	1.50 0.00 0.00	0.0000	200.00	No Ice 0.94 1/2" 1.48 Ice 2.02 1" Ice	1.41 2.17 2.93	0.03 0.04 0.06

8' x 2" Sch 40 Pipe Mount	A	From Leg	0.00 0.00 0.00	0.0000	197.00	No Ice 1.90 1/2" 2.73 Ice 3.40 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06
8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	195.00	No Ice 1.90 1/2" 2.73 Ice 3.40 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06

SC479-HF1LDF	B	From Leg	6.00 0.00 6.00	0.0000	175.00	No Ice 5.03 1/2" 6.51 Ice 8.00 1" Ice	5.03 6.51 8.00	0.03 0.07 0.11
SC479-HF1LDF	B	From Leg	6.00 0.00 -6.00	0.0000	175.00	No Ice 5.03 1/2" 6.51 Ice 8.00 1" Ice	5.03 6.51 8.00	0.03 0.07 0.11
TMA (16" x 12" x 6")	B	From Leg	6.00 0.00	0.0000	175.00	No Ice 1.70 1/2" 1.86	0.86 0.99	0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			Ice 2.04	1.12	0.06
6' Side Arm Mount	B	From Leg	3.00 0.00 0.00	0.0000	175.00	1" Ice No Ice 1/2" Ice 1" Ice 4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

BCR-80010:90	A	From Leg	6.00 0.00 6.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice 4.00 6.03 6.80	4.00 6.03 6.80	0.04 0.07 0.11
BCR-80010:90	A	From Leg	6.00 0.00 -6.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice 4.00 6.03 6.80	4.00 6.03 6.80	0.04 0.07 0.11
6' Side Arm Mount	A	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice 4.54 7.80 11.06	1.23 2.55 3.88	0.05 0.08 0.10

ANT450F6	C	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 0.79 1.01 1.23	0.79 1.01 1.23	0.01 0.02 0.03
3' Side Arm Mount	C	From Leg	1.50 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 0.94 1.48 2.02	1.41 2.17 2.93	0.03 0.04 0.06

8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice 1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06

FAA L-810 Sidelight	A	From Leg	0.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 0.20 0.40 0.60	0.20 0.40 0.60	0.00 0.01 0.01
FAA L-810 Sidelight	B	From Leg	0.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 0.20 0.40 0.60	0.20 0.40 0.60	0.00 0.01 0.01
FAA L-810 Sidelight	C	From Leg	0.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 0.20 0.40 0.60	0.20 0.40 0.60	0.00 0.01 0.01

(4) DB980H90E-M w/Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	153.50	No Ice 1/2" Ice 1" Ice 4.27 4.86 5.37	3.86 4.95 5.75	0.03 0.07 0.12
(4) DB980H90E-M w/Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	153.50	No Ice 1/2" Ice 1" Ice 4.27 4.86 5.37	3.86 4.95 5.75	0.03 0.07 0.12
(4) DB980H90E-M w/Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	153.50	No Ice 1/2" Ice 1" Ice 4.27 4.86 5.37	3.86 4.95 5.75	0.03 0.07 0.12
Generic Sector Frame	A	From Leg	2.00 0.00 0.00	0.0000	153.50	No Ice 1/2" Ice 1" Ice 15.00 17.50 20.00	10.00 12.50 15.00	0.60 0.80 1.00
Generic Sector Frame	B	From Leg	2.00	0.0000	153.50	No Ice 15.00	10.00	0.60

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.00			1/2"	17.50	0.80
			0.00			Ice	20.00	1.00
						1" Ice		
Generic Sector Frame	C	From Leg	2.00	0.0000	153.50	No Ice	15.00	0.60
			0.00			1/2"	17.50	0.80
			0.00			Ice	20.00	1.00
						1" Ice		

(2) LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	0.00	0.0000	145.00	No Ice	11.68	0.08
			0.00			1/2"	12.40	0.17
			0.00			Ice	13.14	0.27
						1" Ice		
(2) LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	0.00	0.0000	145.00	No Ice	11.68	0.08
			0.00			1/2"	12.40	0.17
			0.00			Ice	13.14	0.27
						1" Ice		
(2) LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	0.00	0.0000	145.00	No Ice	11.68	0.08
			0.00			1/2"	12.40	0.17
			0.00			Ice	13.14	0.27
						1" Ice		
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	0.00	0.0000	145.00	No Ice	8.77	0.07
			0.00			1/2"	9.34	0.14
			0.00			Ice	9.89	0.21
						1" Ice		
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	0.00	0.0000	145.00	No Ice	8.77	0.07
			0.00			1/2"	9.34	0.14
			0.00			Ice	9.89	0.21
						1" Ice		
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	0.00	0.0000	145.00	No Ice	8.77	0.07
			0.00			1/2"	9.34	0.14
			0.00			Ice	9.89	0.21
						1" Ice		
B25 RRH4x30-4R	A	From Leg	4.00	0.0000	145.00	No Ice	2.14	0.05
			0.00			1/2"	2.33	0.07
			0.00			Ice	2.53	0.09
						1" Ice		
B25 RRH4x30-4R	B	From Leg	4.00	0.0000	145.00	No Ice	2.14	0.05
			0.00			1/2"	2.33	0.07
			0.00			Ice	2.53	0.09
						1" Ice		
B25 RRH4x30-4R	C	From Leg	4.00	0.0000	145.00	No Ice	2.14	0.05
			0.00			1/2"	2.33	0.07
			0.00			Ice	2.53	0.09
						1" Ice		
B13 RRH4X30-4R	A	From Leg	4.00	0.0000	145.00	No Ice	2.16	0.06
			0.00			1/2"	2.35	0.08
			0.00			Ice	2.55	0.10
						1" Ice		
B13 RRH4X30-4R	B	From Leg	4.00	0.0000	145.00	No Ice	2.16	0.06
			0.00			1/2"	2.35	0.08
			0.00			Ice	2.55	0.10
						1" Ice		
B13 RRH4X30-4R	C	From Leg	4.00	0.0000	145.00	No Ice	2.16	0.06
			0.00			1/2"	2.35	0.08
			0.00			Ice	2.55	0.10
						1" Ice		
B66A RRH4X45	A	From Leg	4.00	0.0000	145.00	No Ice	2.58	0.07
			0.00			1/2"	2.79	0.09
			0.00			Ice	3.01	0.11
						1" Ice		
B66A RRH4X45	B	From Leg	4.00	0.0000	145.00	No Ice	2.58	0.07
			0.00			1/2"	2.79	0.09
			0.00			Ice	3.01	0.11
						1" Ice		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
B66A RRH4X45	C	From Leg	4.00	0.0000	145.00	No Ice	2.58	1.63	0.07
			0.00			1/2"	2.79	1.81	0.09
			0.00			Ice	3.01	2.00	0.11
						1" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	145.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			0.00			Ice	5.35	2.39	0.12
						1" Ice			
DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.0000	145.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			0.00			Ice	5.35	2.39	0.12
						1" Ice			
DB-T1-6Z-8AB-0Z	C	From Leg	4.00	0.0000	145.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			0.00			Ice	5.35	2.39	0.12
						1" Ice			
Generic Sector Frame	A	From Leg	2.00	0.0000	145.00	No Ice	15.00	10.00	0.60
			0.00			1/2"	17.50	12.50	0.80
			0.00			Ice	20.00	15.00	1.00
						1" Ice			
Generic Sector Frame	B	From Leg	2.00	0.0000	145.00	No Ice	15.00	10.00	0.60
			0.00			1/2"	17.50	12.50	0.80
			0.00			Ice	20.00	15.00	1.00
						1" Ice			
Generic Sector Frame	C	From Leg	2.00	0.0000	145.00	No Ice	15.00	10.00	0.60
			0.00			1/2"	17.50	12.50	0.80
			0.00			Ice	20.00	15.00	1.00
						1" Ice			

8' x 2" Sch 40 Pipe Mount	C	From Leg	0.00	0.0000	123.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice			

CO-36A	C	From Leg	6.00	0.0000	130.00	No Ice	0.75	0.75	0.01
			0.00			1/2"	1.96	1.96	0.02
			0.00			Ice	3.19	3.19	0.04
						1" Ice			
6' Side Arm Mount	C	From Leg	3.00	0.0000	130.00	No Ice	4.54	1.23	0.05
			0.00			1/2"	7.80	2.55	0.08
			0.00			Ice	11.06	3.88	0.10
						1" Ice			

ANT450F6	A	From Leg	6.00	0.0000	128.00	No Ice	0.79	0.79	0.01
			0.00			1/2"	1.01	1.01	0.02
			0.00			Ice	1.23	1.23	0.03
						1" Ice			
6' Side Arm Mount	A	From Leg	3.00	0.0000	128.00	No Ice	4.54	1.23	0.05
			0.00			1/2"	7.80	2.55	0.08
			0.00			Ice	11.06	3.88	0.10
						1" Ice			

6' Side Arm Mount	A	From Leg	3.00	0.0000	126.00	No Ice	4.54	1.23	0.05
			0.00			1/2"	7.80	2.55	0.08
			0.00			Ice	11.06	3.88	0.10
						1" Ice			
3' Side Arm Mount	C	From Leg	1.50	0.0000	117.00	No Ice	0.94	1.41	0.03
			0.00			1/2"	1.48	2.17	0.04
			0.00			Ice	2.02	2.93	0.06
						1" Ice			

BR6155	A	From Leg	3.00	0.0000	116.00	No Ice	1.00	1.00	0.02
			0.00			1/2"	1.39	1.39	0.02
			0.00			Ice	1.70	1.70	0.03

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
3' Side Arm Mount	A	From Leg	1.50	0.0000	116.00	1" Ice	0.94	1.41	0.03	
			0.00			No Ice	1.48	2.17	0.04	
			0.00			1/2" Ice	2.02	2.93	0.06	
						1" Ice				

ANT400D	A	From Leg	0.00	0.0000	116.00	No Ice	0.95	0.95	0.01	
			0.00			1/2"	1.19	1.19	0.02	
			-3.00			Ice	1.45	1.45	0.03	
						1" Ice				
3' Side Arm Mount	A	From Leg	1.50	0.0000	116.00	No Ice	0.94	1.41	0.03	
			0.00			1/2"	1.48	2.17	0.04	
			0.00			Ice	2.02	2.93	0.06	
						1" Ice				

8' x 2" Sch 40 Pipe Mount	B	From Leg	0.00	0.0000	104.00	No Ice	1.90	1.90	0.03	
			0.00			1/2"	2.73	2.73	0.04	
			0.00			Ice	3.40	3.40	0.06	
						1" Ice				

BR6155	A	From Leg	3.00	0.0000	97.00	No Ice	1.00	1.00	0.02	
			0.00			1/2"	1.39	1.39	0.02	
			0.00			Ice	1.70	1.70	0.03	
						1" Ice				
3' Side Arm Mount	A	From Leg	1.50	0.0000	97.00	No Ice	0.94	1.41	0.03	
			0.00			1/2"	1.48	2.17	0.04	
			0.00			Ice	2.02	2.93	0.06	
						1" Ice				

V-1500	A	From Leg	3.00	0.0000	55.00	No Ice	0.55	0.55	0.00	
			0.00			1/2"	1.07	1.07	0.01	
			0.00			Ice	1.45	1.45	0.02	
						1" Ice				
3' Side Arm Mount	A	From Leg	1.50	0.0000	55.00	No Ice	0.94	1.41	0.03	
			0.00			1/2"	1.48	2.17	0.04	
			0.00			Ice	2.02	2.93	0.06	
						1" Ice				

Telewave ANT790-S2	C	From Leg	3.00	0.0000	50.00	No Ice	1.58	1.58	0.02	
			0.00			1/2"	2.29	2.29	0.04	
			0.00			Ice	2.60	2.60	0.06	
						1" Ice				
3' Side Arm Mount	C	From Leg	1.50	0.0000	50.00	No Ice	0.94	1.41	0.03	
			0.00			1/2"	1.48	2.17	0.04	
			0.00			Ice	2.02	2.93	0.06	
						1" Ice				

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:			3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz	Lateral	Vert					
PAL8	A	Paraboloid w/Radome	From Leg	0.50	0.0000	276.00	8.00	No Ice	50.27	0.29	
				0.00				1/2" Ice	51.32	0.55	
				0.00				1" Ice	52.37	0.81	

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz	Lateral Vert						
				ft	°	°	ft	ft	ft ²	K	
PAL8	B	Paraboloid w/Radome	From Leg	0.50	0.0000		276.00	8.00	No Ice	50.27	0.29
				0.00					1/2" Ice	51.32	0.55
				0.00					1" Ice	52.37	0.81
PAL8	C	Paraboloid w/Radome	From Leg	0.50	0.0000		276.00	8.00	No Ice	50.27	0.29
				0.00					1/2" Ice	51.32	0.55
				0.00					1" Ice	52.37	0.81

PAL8	C	Paraboloid w/Radome	From Leg	0.50	0.0000		266.00	8.00	No Ice	50.27	0.29
				0.00					1/2" Ice	51.32	0.55
				0.00					1" Ice	52.37	0.81
PADX6-59AC	C	Paraboloid w/Radome	From Leg	0.50	0.0000		240.00	6.00	No Ice	28.27	0.19
				0.00					1/2" Ice	29.07	0.33
				0.00					1" Ice	29.86	0.48
PAL8	C	Paraboloid w/Radome	From Leg	0.50	0.0000		230.00	8.00	No Ice	50.27	0.29
				0.00					1/2" Ice	51.32	0.55
				0.00					1" Ice	52.37	0.81

PAL8	C	Paraboloid w/Radome	From Leg	0.50	0.0000		220.00	8.00	No Ice	50.27	0.29
				0.00					1/2" Ice	51.32	0.55
				0.00					1" Ice	52.37	0.81
PA10-59	A	Paraboloid w/Radome	From Leg	0.50	0.0000		205.50	10.44	No Ice	85.63	0.79
				0.00					1/2" Ice	87.00	1.24
				0.00					1" Ice	88.38	1.69

PAL6-59	A	Paraboloid w/Radome	From Leg	0.50	0.0000		197.00	6.00	No Ice	28.27	0.19
				0.00					1/2" Ice	29.07	0.33
				0.00					1" Ice	29.86	0.48
PA10-59	C	Paraboloid w/Radome	From Leg	0.50	0.0000		195.00	10.44	No Ice	85.63	0.79
				0.00					1/2" Ice	87.00	1.24
				0.00					1" Ice	88.38	1.69

RFS PAD6-65AC	C	Paraboloid w/Radome	From Leg	0.50	0.0000		163.00	6.00	No Ice	28.27	0.07
				0.00					1/2" Ice	29.07	0.15
				0.00					1" Ice	29.86	0.23
SBX4-W60AC2	C	Paraboloid w/Radome	From Leg	0.50	0.0000		123.00	4.14	No Ice	13.47	0.08
				0.00					1/2" Ice	14.02	0.15
				0.00					1" Ice	14.57	0.22

PRF-950	A	Grid	From Leg	6.00	0.0000		126.00	5.67	No Ice	25.22	0.04
				0.00					1/2" Ice	25.97	0.17
				0.00					1" Ice	26.71	0.31
PRF-950	C	Grid	From Leg	3.00	0.0000		117.00	5.67	No Ice	25.22	0.04
				0.00					1/2" Ice	25.97	0.17
				0.00					1" Ice	26.71	0.31
RFS PAD6-65AC	B	Paraboloid w/Radome	From Leg	0.50	0.0000		104.00	6.00	No Ice	28.27	0.07
				0.00					1/2" Ice	29.07	0.15
				0.00					1" Ice	29.86	0.23

Truss-Leg Properties

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diamete r	Equiv. Diamete r Ice	Leg Area
	in ²	in ²	K	K	in	in	in ²
Valmont 207628 (12x1.25)	2161.7740	6228.2496	0.48	2.23	7.5062	21.6259	3.6816
Valmont 207628 (12x1.25)	2161.7740	6223.3729	0.48	2.23	7.5062	21.6089	3.6816
Valmont 207628 (12x1.25)	2161.7740	6215.7379	0.48	2.22	7.5062	21.5824	3.6816
Valmont 207628 (12x1.25)	2161.7740	6204.8894	0.48	2.21	7.5062	21.5448	3.6816

Section Designation	Area in ²	Area Ice in ²	Self Weight K	Ice Weight K	Equiv. Diamete r in	Equiv. Diamete r Ice in	Leg Area in ²
Valmont 195557 (12x1.75)	1998.1590	5536.7374	0.78	2.20	6.9381	19.2248	7.2158
Valmont 195557 (12x1.75)	1998.1590	5531.7859	0.78	2.20	6.9381	19.2076	7.2158
Valmont 211843 (12x2)	2279.9276	5595.9350	1.02	2.23	7.9164	19.4303	9.4248
Valmont 208334 (12x2.25)	2264.8364	5656.5500	1.20	2.26	7.8640	19.6408	11.9282
Valmont 208334 (12x2.25)	2264.8364	5643.8890	1.20	2.25	7.8640	19.5968	11.9282
Valmont 208335 (12x2.5)	2550.6273	5701.6063	1.41	2.28	8.8563	19.7972	14.7262
Valmont 208337 (12x2.75)	2786.4655	5757.1894	1.69	2.30	9.6752	19.9902	17.8187
Valmont 208338 (12x3)	3229.8584	6592.8519	2.03	2.33	11.2148	22.8918	21.2058
Valmont 208338 (12x3)	3229.8584	6563.5761	2.03	2.30	11.2148	22.7902	21.2058
Valmont 208339 (12x3.25)	3392.5998	6597.5145	2.30	2.31	11.7799	22.9080	24.8873
Valmont 208339 (12x3.25)	3392.5998	6542.1238	2.30	2.27	11.7799	22.7157	24.8873
Valmont 208339 (12x3.25)	3392.5998	6432.1645	2.30	2.19	11.7799	22.3339	24.8873

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice

Comb. No.	Description
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	3.360	47	0.1014	0.0127
T2	270 - 260	3.146	47	0.1014	0.0127
T3	260 - 240	2.930	47	0.1003	0.0123
T4	240 - 220	2.510	47	0.0950	0.0114
T5	220 - 210	2.115	47	0.0849	0.0097
T6	210 - 200	1.932	47	0.0815	0.0084
T7	200 - 180	1.753	47	0.0774	0.0074
T8	180 - 160	1.427	47	0.0695	0.0060
T9	160 - 140	1.135	47	0.0618	0.0047
T10	140 - 120	0.877	47	0.0528	0.0037
T11	120 - 100	0.659	47	0.0444	0.0031
T12	100 - 80	0.475	47	0.0366	0.0024
T13	80 - 60	0.320	47	0.0295	0.0019
T14	60 - 40	0.196	47	0.0218	0.0014
T15	40 - 20	0.102	47	0.0149	0.0009
T16	20 - 0	0.033	39	0.0075	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	FAA L-864 Beacon	47	3.360	0.1014	0.0127	929719
279.00	Kreco CO-35A	47	3.338	0.1014	0.0127	929719
276.00	PAL8	47	3.274	0.1015	0.0127	929719
266.00	PAL8	47	3.059	0.1011	0.0125	Inf
261.00	10' 8-Bay Dipole	47	2.952	0.1005	0.0123	521095
260.00	DB589-Y	47	2.930	0.1003	0.0123	446682
255.00	DB212-C	47	2.823	0.0995	0.0121	309742
241.00	SD110-SFXPASNM	47	2.530	0.0954	0.0114	187053
240.00	PADX6-59AC	47	2.510	0.0950	0.0114	181561
235.17	SE419-SF3P4LDF w/ Mount Pipe	47	2.411	0.0926	0.0111	157580
230.00	PAL8	47	2.308	0.0899	0.0107	137610
220.00	PAL8	47	2.115	0.0849	0.0097	120888
216.00	ANT450F10	47	2.041	0.0835	0.0091	165949
205.50	PA10-59	47	1.851	0.0797	0.0079	183444
204.00	SC479-HF1LDF	47	1.824	0.0791	0.0077	147987
200.00	SC479-HF1LDF	47	1.753	0.0774	0.0074	106437
197.00	PAL6-59	47	1.701	0.0761	0.0071	103145

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	PA10-59	47	1.668	0.0753	0.0070	106322
175.00	SC479-HF1LDF	47	1.351	0.0677	0.0056	149484
168.00	ANT450F6	47	1.248	0.0651	0.0052	153453
163.00	RFS PAD6-65AC	47	1.177	0.0631	0.0049	156181
153.50	(4) DB980H90E-M w/ Mount Pipe	47	1.047	0.0590	0.0044	136007
145.00	(2) LNX-6515DS-A1M w/ Mount Pipe	47	0.938	0.0551	0.0039	114886
140.00	FAA L-810 Sidelight	47	0.877	0.0528	0.0037	108255
130.00	CO-36A	47	0.764	0.0485	0.0034	125854
128.00	ANT450F6	47	0.742	0.0476	0.0033	130977
126.00	PRF-950	47	0.721	0.0468	0.0033	136533
123.00	SBX4-W60AC2	47	0.690	0.0456	0.0032	145641
117.00	PRF-950	47	0.630	0.0432	0.0030	156509
116.00	BR6155	47	0.620	0.0428	0.0030	156770
104.00	RFS PAD6-65AC	47	0.509	0.0381	0.0026	157853
97.00	BR6155	47	0.450	0.0355	0.0023	160155
55.00	V-1500	47	0.170	0.0200	0.0013	157032
50.00	Telewave ANT790-S2	47	0.145	0.0183	0.0012	186650

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	15.066	18	0.4519	0.0576
T2	270 - 260	14.112	18	0.4516	0.0575
T3	260 - 240	13.152	18	0.4473	0.0557
T4	240 - 220	11.274	18	0.4236	0.0517
T5	220 - 210	9.514	18	0.3798	0.0439
T6	210 - 200	8.690	18	0.3647	0.0380
T7	200 - 180	7.890	18	0.3467	0.0335
T8	180 - 160	6.425	18	0.3119	0.0270
T9	160 - 140	5.115	18	0.2777	0.0215
T10	140 - 120	3.956	2	0.2374	0.0169
T11	120 - 100	2.976	2	0.1996	0.0140
T12	100 - 80	2.145	2	0.1648	0.0111
T13	80 - 60	1.449	2	0.1328	0.0087
T14	60 - 40	0.885	2	0.0982	0.0064
T15	40 - 20	0.460	2	0.0671	0.0042
T16	20 - 0	0.148	2	0.0340	0.0021

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	FAA L-864 Beacon	18	15.066	0.4519	0.0576	213672
279.00	Kreco CO-35A	18	14.971	0.4520	0.0577	213672
276.00	PAL8	18	14.685	0.4521	0.0577	213672
266.00	PAL8	18	13.728	0.4504	0.0569	558955
261.00	10' 8-Bay Dipole	18	13.248	0.4479	0.0559	123293
260.00	DB589-Y	18	13.152	0.4473	0.0557	104808
255.00	DB212-C	18	12.675	0.4437	0.0548	71506
241.00	SD110-SFXPASNM	18	11.366	0.4255	0.0519	42579
240.00	PADX6-59AC	18	11.274	0.4236	0.0517	41351
235.17	SE419-SF3P4LDF w/ Mount Pipe	18	10.836	0.4133	0.0505	36154
230.00	PAL8	18	10.375	0.4012	0.0487	31827
220.00	PAL8	18	9.514	0.3798	0.0439	28228
216.00	ANT450F10	18	9.181	0.3735	0.0415	38653

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
205.50	PA10-59	18	8.326	0.3570	0.0357	40603
204.00	SC479-HF1LDF	18	8.206	0.3542	0.0351	33155
200.00	SC479-HF1LDF	18	7.890	0.3467	0.0335	23843
197.00	PAL6-59	18	7.658	0.3412	0.0324	23129
195.00	PA10-59	18	7.506	0.3376	0.0317	23873
175.00	SC479-HF1LDF	18	6.084	0.3037	0.0256	33824
168.00	ANT450F6	18	5.622	0.2920	0.0236	34500
163.00	RFS PAD6-65AC	18	5.303	0.2832	0.0223	34948
153.50	(4) DB980H90E-M w/ Mount Pipe	2	4.720	0.2650	0.0198	30390
145.00	(2) LNX-6515DS-A1M w/ Mount Pipe	2	4.229	0.2476	0.0179	25708
140.00	FAA L-810 Sidelight	2	3.956	0.2374	0.0169	24233
130.00	CO-36A	2	3.445	0.2180	0.0154	28100
128.00	ANT450F6	2	3.348	0.2143	0.0151	29223
126.00	PRF-950	2	3.253	0.2106	0.0148	30439
123.00	SBX4-W60AC2	2	3.113	0.2051	0.0144	32376
117.00	PRF-950	2	2.843	0.1942	0.0136	34766
116.00	BR6155	2	2.799	0.1924	0.0134	34859
104.00	RFS PAD6-65AC	2	2.301	0.1714	0.0116	35259
97.00	BR6155	2	2.032	0.1599	0.0107	35747
55.00	V-1500	2	0.767	0.0902	0.0059	34980
50.00	Telewave ANT790-S2	2	0.658	0.0825	0.0053	41408

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	280	Diagonal	A325N	1.0000	1	2.37	19.47	0.122 ✓	1	Member Block Shear
		Top Girt	A325N	0.5000	1	0.33	7.95	0.041 ✓	1	Bolt Shear
T2	270	Leg	A325N	1.0000	6	0.83	53.01	0.016 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	4.02	19.47	0.206 ✓	1	Member Block Shear
T3	260	Leg	A325N	1.0000	6	3.39	53.01	0.064 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	5.40	19.47	0.277 ✓	1	Member Block Shear
T4	240	Leg	A325N	1.0000	6	6.62	53.01	0.125 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	8.89	18.30	0.486 ✓	1	Member Block Shear
T5	220	Diagonal	A325N	1.0000	1	10.56	18.30	0.577 ✓	1	Member Block Shear
T6	210	Leg	A325N	1.0000	12	5.59	53.01	0.105 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10.77	18.30	0.589 ✓	1	Member Block Shear
T7	200	Leg	A325N	1.0000	12	7.49	53.01	0.141 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	16.90	29.58	0.571 ✓	1	Gusset Bearing
T8	180	Leg	A325N	1.0000	12	10.35	53.01	0.195 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	17.71	29.58	0.599 ✓	1	Gusset Bearing
T9	160	Leg	A325N	1.0000	12	13.14	53.01	0.248 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	19.62	29.58	0.663 ✓	1	Gusset Bearing
T10	140	Leg	A325N	1.0000	12	16.28	53.01	0.307 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	23.09	29.58	0.780 ✓	1	Gusset Bearing
T11	120	Leg	A325N	1.0000	12	19.63	53.01	0.370 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	12.31	39.15	0.314 ✓	1	Gusset Bearing

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
T12	100	Leg	A325N	1.2500	12	23.02	82.83	0.278 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	12.86	39.15	0.328 ✓	1	Gusset Bearing
T13	80	Leg	A325N	1.2500	12	26.39	82.83	0.319 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	13.43	39.15	0.343 ✓	1	Gusset Bearing
T14	60	Leg	A325N	1.2500	12	29.72	82.83	0.359 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	13.90	39.15	0.355 ✓	1	Gusset Bearing
T15	40	Leg	A325N	1.2500	12	33.04	82.83	0.399 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	2	14.27	39.15	0.364 ✓	1	Gusset Bearing
T16	20	Diagonal	A325N	0.8750	2	14.61	39.15	0.373 ✓	1	Gusset Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	Valmont 207628 (12x1.25)	10.02	10.02	45.4 K=1.00	3.6816	-4.36	142.49	0.031 ¹ ✓
T2	270 - 260	Valmont 207628 (12x1.25)	10.02	10.02	45.4 K=1.00	3.6816	-9.35	142.49	0.066 ¹ ✓
T3	260 - 240	Valmont 207628 (12x1.25)	20.03	10.02	45.4 K=1.00	3.6816	-28.04	142.49	0.197 ¹ ✓
T4	240 - 220	Valmont 207628 (12x1.25)	20.03	10.02	45.4 K=1.00	3.6816	-53.65	142.49	0.376 ¹ ✓
T5	220 - 210	Valmont 195557 (12x1.75)	10.02	10.02	31.9 K=1.00	7.2158	-69.90	301.49	0.232 ¹ ✓
T6	210 - 200	Valmont 195557 (12x1.75)	10.02	10.02	31.9 K=1.00	7.2158	-86.25	301.49	0.286 ¹ ✓
T7	200 - 180	Valmont 211843 (12x2)	20.03	20.03	48.8 K=1.00	9.4248	-114.80	356.29	0.322 ¹ ✓
T8	180 - 160	Valmont 208334 (12x2.25)	20.03	20.03	48.8 K=1.00	11.928 2	-157.00	451.15	0.348 ¹ ✓
T9	160 - 140	Valmont 208334 (12x2.25)	20.03	20.03	48.8 K=1.00	11.928 2	-199.11	451.15	0.441 ¹ ✓
T10	140 - 120	Valmont 208335 (12x2.5)	20.03	20.03	48.7 K=1.00	14.726 2	-246.79	557.27	0.443 ¹ ✓
T11	120 - 100	Valmont 208337 (12x2.75)	20.03	20.03	48.6 K=1.00	17.818 7	-296.64	674.68	0.440 ¹ ✓
T12	100 - 80	Valmont 208338 (12x3)	20.03	20.03	48.5 K=1.00	21.205 7	-347.43	803.44	0.432 ¹ ✓
T13	80 - 60	Valmont 208338 (12x3)	20.03	20.03	48.5 K=1.00	21.205 7	-399.16	803.44	0.497 ¹ ✓
T14	60 - 40	Valmont 208339 (12x3.25)	20.03	20.03	48.4 K=1.00	24.887 3	-450.34	943.57	0.477 ¹ ✓
T15	40 - 20	Valmont 208339 (12x3.25)	20.03	20.03	48.4 K=1.00	24.887 3	-503.10	943.57	0.533 ¹ ✓
T16	20 - 0	Valmont 208339 (12x3.25)	20.03	20.03	48.4 K=1.00	24.887 3	-551.94	943.57	0.585 ¹ ✓

¹ $P_u / \phi P_n$ controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in ²	V_u K	ϕV_n K	Stress Ratio
T1	280 - 270	0.5	1.48	142.4	165.67	0.1963	0.60	2.45	0.244
T2	270 - 260	0.5	1.48	142.4	165.67	0.1963	0.54	2.45	0.219
T3	260 - 240	0.5	1.48	142.4	165.67	0.1963	0.40	2.45	0.162
T4	240 - 220	0.5	1.48	142.4	165.67	0.1963	1.04	2.45	0.423
T5	220 - 210	0.5	1.44	138.4	324.71	0.1963	1.18	2.62	0.449
T6	210 - 200	0.5	1.44	138.4	324.71	0.1963	1.21	2.62	0.463
T7	200 - 180	0.5	1.39	133.2	424.12	0.1963	1.60	2.90	0.551
T8	180 - 160	0.5	1.38	132.0	536.77	0.1963	0.91	2.95	0.308
T9	160 - 140	0.5	1.38	132.0	536.77	0.1963	1.96	2.95	0.665
T10	140 - 120	0.5	1.36	130.8	662.68	0.1963	0.77	3.00	0.257
T11	120 - 100	0.625	1.35	103.7	801.84	0.3068	0.76	6.54	0.117
T12	100 - 80	0.625	1.34	102.8	954.26	0.3068	0.54	6.61	0.082
T13	80 - 60	0.625	1.34	102.8	954.26	0.3068	0.56	6.61	0.085
T14	60 - 40	0.625	1.33	102.0	1119.93	0.3068	0.69	6.67	0.103
T15	40 - 20	0.625	1.33	102.0	1119.93	0.3068	0.77	6.67	0.116
T16	20 - 0	0.625	1.33	102.0	1119.93	0.3068	0.85	6.67	0.128

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	L 3 x 3 x 5/16	16.01	7.48	152.3 K=1.00	1.7800	-2.61	17.33	0.151 ¹
T2	270 - 260	L 3 x 3 x 5/16	16.80	7.88	160.6 K=1.00	1.7800	-4.30	15.59	0.276 ¹
T3	260 - 240	L 3 x 3 x 5/16	18.45	8.72	177.6 K=1.00	1.7800	-5.54	12.75	0.435 ¹
T4	240 - 220	L 4 x 4 x 1/4	20.16	9.58	144.6 K=1.00	1.9400	-9.15	20.95	0.437 ¹
T5	220 - 210	L 4 x 4 x 1/4	21.03	10.02	151.3 K=1.00	1.9400	-10.70	19.15	0.559 ¹
T6	210 - 200	L 4 x 4 x 1/4	21.92	10.47	158.0 K=1.00	1.9400	-10.87	17.55	0.620 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	200 - 180	2L 3.5 x 3.5 x 1/4 (3/8)	29.01	14.29	164.1 K=1.00	3.3800	-17.32	28.37	0.610 ¹ ✓
T8	180 - 160	2L 'a' > 81.9131 in - 92 2L 3.5 x 3.5 x 1/4 (3/8)	30.49	15.03	172.5 K=1.00	3.3800	-17.74	25.65	0.692 ¹ ✓
T9	160 - 140	2L 'a' > 86.1510 in - 101 2L 4 x 4 x 1/4 (3/8)	32.02	15.80	159.5 K=1.00	3.8800	-20.27	34.45	0.588 ¹ ✓
T10	140 - 120	2L 'a' > 90.4521 in - 110 2L 4 x 4 x 3/8 (1/2)	33.61	16.64	166.2 K=1.00	5.7188	-23.57	46.79	0.504 ¹ ✓
T11	120 - 100	2L 'a' > 95.5100 in - 119 2L 4 x 4 x 3/8 (1/2)	35.23	17.34	173.2 K=1.00	5.7188	-24.96	43.07	0.579 ¹ ✓
T12	100 - 80	2L 'a' > 92.7523 in - 128 2L 5 x 5 x 5/16 (1/2)	36.90	18.17	146.4 K=1.00	6.0547	-26.31	63.83	0.412 ¹ ✓
T13	80 - 60	2L 'a' > 100.4316 in - 137 2L 5 x 5 x 5/16 (1/2)	38.59	19.02	153.2 K=1.00	6.0547	-27.16	58.27	0.466 ¹ ✓
T14	60 - 40	2L 'a' > 104.1226 in - 146 2L 5 x 5 x 5/16 (1/2)	40.32	19.88	160.2 K=1.00	6.0547	-28.55	53.32	0.535 ¹ ✓
T15	40 - 20	2L 'a' > 107.8743 in - 155 2L 5 x 5 x 5/16 (1/2)	42.06	20.76	167.2 K=1.00	6.0547	-28.62	48.93	0.585 ¹ ✓
T16	20 - 0	2L 'a' > 111.6793 in - 164 2L 5 x 5 x 5/16 (1/2) 2L 'a' > 115.5312 in - 173	43.83	21.64	174.3 K=1.00	6.0547	-30.44	45.01	0.676 ¹ ✓

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	L 2.5 x 2.5 x 5/16	12.48	11.48	157.3 K=0.87	1.4600	-1.36	13.33	0.102 ¹ ✓
T2	270 - 260	L 2.5 x 2.5 x 5/16	13.48	12.48	167.0 K=0.85	1.4600	-0.64	11.83	0.054 ¹ ✓
T6	210 - 200	L 5 x 5 x 3/8	19.49	18.49	133.9 K=0.94	3.6100	-1.50	45.50	0.033 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	L 3.5 x 3.5 x 5/16	12.00	10.79	187.7 K=1.00	2.0900	-0.33	13.40	0.024 ¹ ✓

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	L 5 x 5 x 3/8	16.00	15.00	158.0 K=0.87	3.6100	-1.05	32.66	0.032 ¹ ✓

¹ P_u / φP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	L 5 x 5 x 3/8	17.00	16.00	165.5 K=0.85	3.6100	-1.55	29.78	0.052 ¹ ✓

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	Valmont 207628 (12x1.25)	10.02	10.02	45.4	3.6816	0.61	165.67	0.004 ¹ ✓
T2	270 - 260	Valmont 207628 (12x1.25)	10.02	10.02	45.4	3.6816	5.00	165.67	0.030 ¹ ✓
T3	260 - 240	Valmont 207628 (12x1.25)	20.03	10.02	45.4	3.6816	20.32	165.67	0.123 ¹ ✓
T4	240 - 220	Valmont 207628 (12x1.25)	20.03	10.02	45.4	3.6816	39.71	165.67	0.240 ¹ ✓
T5	220 - 210	Valmont 195557 (12x1.75)	10.02	10.02	31.9	7.2158	53.48	324.71	0.165 ¹ ✓
T6	210 - 200	Valmont 195557 (12x1.75)	10.02	10.02	31.9	7.2158	67.05	324.71	0.206 ¹ ✓
T7	200 - 180	Valmont 211843 (12x2)	20.03	20.03	48.8	9.4248	89.92	424.12	0.212 ¹ ✓
T8	180 - 160	Valmont 208334 (12x2.25)	20.03	20.03	48.8	11.928 2	124.16	536.77	0.231 ¹ ✓
T9	160 - 140	Valmont 208334 (12x2.25)	20.03	20.03	48.8	11.928 2	157.63	536.77	0.294 ¹ ✓
T10	140 - 120	Valmont 208335 (12x2.5)	20.03	20.03	48.7	14.726 2	195.36	662.68	0.295 ¹ ✓
T11	120 - 100	Valmont 208337 (12x2.75)	20.03	20.03	48.6	17.818 7	235.61	801.84	0.294 ¹ ✓
T12	100 - 80	Valmont 208338 (12x3)	20.03	20.03	48.5	21.205 7	276.29	954.26	0.290 ¹ ✓
T13	80 - 60	Valmont 208338 (12x3)	20.03	20.03	48.5	21.205 7	316.67	954.26	0.332 ¹ ✓
T14	60 - 40	Valmont 208339 (12x3.25)	20.03	20.03	48.4	24.887 3	356.60	1119.93	0.318 ¹ ✓
T15	40 - 20	Valmont 208339 (12x3.25)	20.03	20.03	48.4	24.887 3	396.53	1119.93	0.354 ¹ ✓

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T16	20 - 0	Valmont 208339 (12x3.25)	20.03	20.03	48.4	24.887 3	433.90	1119.93	0.387 ¹

¹ P_u / φP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L _d ft	Kl/r	φP _n K	A in ²	V _u K	φV _n K	Stress Ratio
T1	280 - 270	0.5	1.48	142.4	165.67	0.1963	0.60	2.45	0.244
T2	270 - 260	0.5	1.48	142.4	165.67	0.1963	0.54	2.45	0.219
T3	260 - 240	0.5	1.48	142.4	165.67	0.1963	0.40	2.45	0.162
T4	240 - 220	0.5	1.48	142.4	165.67	0.1963	1.04	2.45	0.423
T5	220 - 210	0.5	1.44	138.4	324.71	0.1963	1.18	2.62	0.449
T6	210 - 200	0.5	1.44	138.4	324.71	0.1963	1.21	2.62	0.463
T7	200 - 180	0.5	1.39	133.2	424.12	0.1963	1.60	2.90	0.551
T8	180 - 160	0.5	1.38	132.0	536.77	0.1963	0.91	2.95	0.308
T9	160 - 140	0.5	1.38	132.0	536.77	0.1963	1.96	2.95	0.665
T10	140 - 120	0.5	1.36	130.8	662.68	0.1963	0.77	3.00	0.257
T11	120 - 100	0.625	1.35	103.7	801.84	0.3068	0.76	6.54	0.117
T12	100 - 80	0.625	1.34	102.8	954.26	0.3068	0.54	6.61	0.082
T13	80 - 60	0.625	1.34	102.8	954.26	0.3068	0.56	6.61	0.085
T14	60 - 40	0.625	1.33	102.0	1119.93	0.3068	0.69	6.67	0.103
T15	40 - 20	0.625	1.33	102.0	1119.93	0.3068	0.77	6.67	0.116
T16	20 - 0	0.625	1.33	102.0	1119.93	0.3068	0.85	6.67	0.128

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	280 - 270	L 3 x 3 x 5/16	16.01	7.48	100.1	1.0713	2.37	46.60	0.051 ¹
T2	270 - 260	L 3 x 3 x 5/16	16.80	7.88	105.4	1.0713	4.02	46.60	0.086 ¹
T3	260 - 240	L 3 x 3 x 5/16	18.45	8.72	116.3	1.0713	5.40	46.60	0.116 ¹

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	240 - 220	L 4 x 4 x 1/4	20.16	9.58	93.9	1.2441	8.89	54.12	0.164 ¹
T5	220 - 210	L 4 x 4 x 1/4	21.03	10.02	98.1	1.2441	10.56	54.12	0.195 ¹
T6	210 - 200	L 4 x 4 x 1/4	21.92	10.47	102.4	1.2441	10.77	54.12	0.199 ¹
T7	200 - 180	2L 3.5 x 3.5 x 1/4 (3/8)	29.01	14.29	159.7	2.1600	16.90	93.96	0.180 ¹
T8	180 - 160	2L 'a' > 81.9131 in - 93 2L 3.5 x 3.5 x 1/4 (3/8)	30.49	15.03	167.8	2.1600	17.71	93.96	0.188 ¹
T9	160 - 140	2L 'a' > 86.1510 in - 102 2L 4 x 4 x 1/4 (3/8)	32.02	15.80	153.7	2.5350	19.62	110.27	0.178 ¹
T10	140 - 120	2L 'a' > 90.4521 in - 111 2L 4 x 4 x 3/8 (1/2)	33.61	16.64	163.3	3.7266	23.09	162.10	0.142 ¹
T11	120 - 100	2L 'a' > 95.5100 in - 120 2L 4 x 4 x 3/8 (1/2)	35.23	17.34	171.2	3.7266	24.62	162.10	0.152 ¹
T12	100 - 80	2L 'a' > 92.7523 in - 129 2L 5 x 5 x 5/16 (1/2)	36.90	18.17	141.4	4.0723	25.71	177.14	0.145 ¹
T13	80 - 60	2L 'a' > 100.4316 in - 138 2L 5 x 5 x 5/16 (1/2)	38.59	19.02	147.9	4.0723	26.87	177.14	0.152 ¹
T14	60 - 40	2L 'a' > 104.1226 in - 147 2L 5 x 5 x 5/16 (1/2)	40.32	19.88	154.5	4.0723	27.79	177.14	0.157 ¹
T15	40 - 20	2L 'a' > 107.8743 in - 156 2L 5 x 5 x 5/16 (1/2)	42.06	20.76	161.2	4.0723	28.54	177.14	0.161 ¹
T16	20 - 0	2L 'a' > 111.6793 in - 165 2L 5 x 5 x 5/16 (1/2)	43.83	21.64	168.0	4.0723	29.23	177.14	0.165 ¹
		2L 'a' > 115.5312 in - 174							

¹ $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	L 2.5 x 2.5 x 5/16	12.48	11.48	180.7	1.4600	1.17	47.30	0.025 ¹
T2	270 - 260	L 2.5 x 2.5 x 5/16	13.48	12.48	196.4	1.4600	0.68	47.30	0.014 ¹
T6	210 - 200	L 5 x 5 x 3/8	19.49	18.49	142.6	3.6100	1.50	116.96	0.013 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	280 - 270	L 3.5 x 3.5 x 5/16	12.00	10.79	122.2	1.4210	0.25	61.81	0.004 ¹
T4	240 - 220	L 5 x 5 x 3/8	16.00	15.00	115.7	3.6100	1.70	116.96	0.015 ¹

¹ $P_u / \phi P_n$ controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T4	240 - 220	L 5 x 5 x 3/8	17.00	16.00	123.4	3.6100	2.11	116.96	0.018 ¹

¹ $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	280 - 270	Leg	Valmont 207628 (12x1.25)	2	-4.36	142.49	24.4	Pass
T2	270 - 260	Leg	Valmont 207628 (12x1.25)	18	-8.53	142.49	21.9	Pass
T3	260 - 240	Leg	Valmont 207628 (12x1.25)	28	-28.04	142.49	19.7	Pass
T4	240 - 220	Leg	Valmont 207628 (12x1.25)	43	-39.12	142.49	42.3	Pass
T5	220 - 210	Leg	Valmont 195557 (12x1.75)	64	-69.90	301.49	44.9	Pass
T6	210 - 200	Leg	Valmont 195557 (12x1.75)	73	-86.25	301.49	46.3	Pass
T7	200 - 180	Leg	Valmont 211843 (12x2)	85	-114.80	356.29	55.1	Pass
T8	180 - 160	Leg	Valmont 208334 (12x2.25)	94	-157.00	451.15	34.8	Pass
T9	160 - 140	Leg	Valmont 208334 (12x2.25)	103	-199.11	451.15	66.5	Pass
T10	140 - 120	Leg	Valmont 208335 (12x2.5)	112	-246.79	557.27	44.3	Pass
T11	120 - 100	Leg	Valmont 208337 (12x2.75)	121	-296.64	674.68	44.0	Pass
T12	100 - 80	Leg	Valmont 208338 (12x3)	130	-347.43	803.44	43.2	Pass
T13	80 - 60	Leg	Valmont 208338 (12x3)	139	-399.16	803.44	49.7	Pass
T14	60 - 40	Leg	Valmont 208339 (12x3.25)	150	-450.34	943.57	47.7	Pass
T15	40 - 20	Leg	Valmont 208339 (12x3.25)	159	-503.10	943.57	53.3	Pass
T16	20 - 0	Leg	Valmont 208339 (12x3.25)	168	-551.94	943.57	58.5	Pass
T1	280 - 270	Diagonal	L 3 x 3 x 5/16	7	-2.61	17.33	15.1	Pass
T2	270 - 260	Diagonal	L 3 x 3 x 5/16	20	-4.30	15.59	27.6	Pass
T3	260 - 240	Diagonal	L 3 x 3 x 5/16	32	-5.54	12.75	43.5	Pass
T4	240 - 220	Diagonal	L 4 x 4 x 1/4	53	-9.15	20.95	43.7	Pass
T5	220 - 210	Diagonal	L 4 x 4 x 1/4	68	-10.70	19.15	55.9	Pass
T6	210 - 200	Diagonal	L 4 x 4 x 1/4	80	-10.87	17.55	62.0	Pass
T7	200 - 180	Diagonal	2L 3.5 x 3.5 x 1/4 (3/8)	92	-17.32	28.37	61.0	Pass
T8	180 - 160	Diagonal	2L 3.5 x 3.5 x 1/4 (3/8)	101	-17.74	25.65	69.2	Pass
T9	160 - 140	Diagonal	2L 4 x 4 x 1/4 (3/8)	110	-20.27	34.45	58.8	Pass
T10	140 - 120	Diagonal	2L 4 x 4 x 3/8 (1/2)	119	-23.57	46.79	50.4	Pass
T11	120 - 100	Diagonal	2L 4 x 4 x 3/8 (1/2)	128	-24.96	43.07	57.9	Pass
T12	100 - 80	Diagonal	2L 5 x 5 x 5/16 (1/2)	137	-26.31	63.83	41.2	Pass
T13	80 - 60	Diagonal	2L 5 x 5 x 5/16 (1/2)	146	-27.16	58.27	46.6	Pass
T14	60 - 40	Diagonal	2L 5 x 5 x 5/16 (1/2)	155	-28.55	53.32	53.5	Pass
T15	40 - 20	Diagonal	2L 5 x 5 x 5/16 (1/2)	164	-28.62	48.93	58.5	Pass
T16	20 - 0	Diagonal	2L 5 x 5 x 5/16 (1/2)	173	-30.44	45.01	67.6	Pass
T1	280 - 270	Secondary Horizontal	L 2.5 x 2.5 x 5/16	14	-1.36	13.33	10.2	Pass

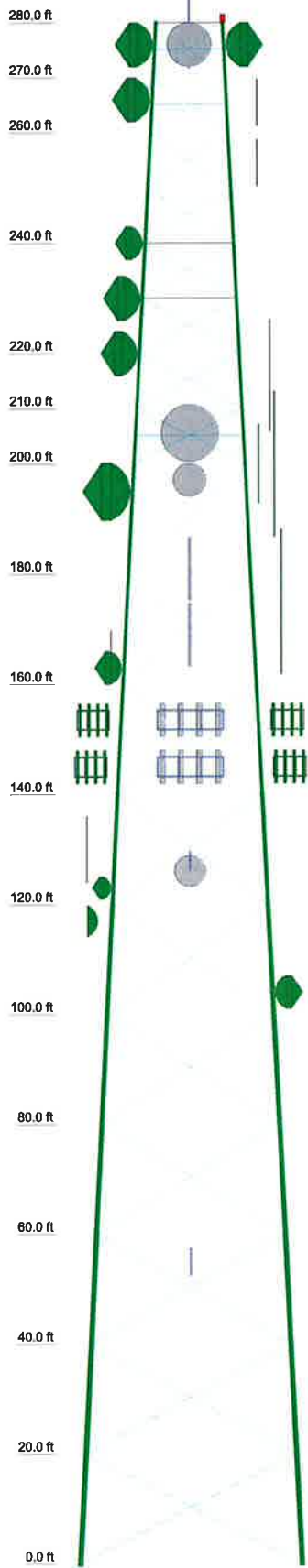
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	θP_{allow} K	% Capacity	Pass Fail	
T2	270 - 260	Secondary Horizontal	L 2.5 x 2.5 x 5/16	27	-0.64	11.83	5.4	Pass	
T6	210 - 200	Secondary Horizontal	L 5 x 5 x 3/8	82	-1.50	45.50	3.3	Pass	
T1	280 - 270	Top Girt	L 3.5 x 3.5 x 5/16	6	-0.33	13.40	2.4	Pass	
T4	240 - 220	Top Girt	L 5 x 5 x 3/8	47	-1.05	32.66	3.2	Pass	
T4	240 - 220	Mid Girt	L 5 x 5 x 3/8	50	-1.55	29.78	5.2	Pass	
							Summary		
							Leg (T9)	66.5	Pass
							Diagonal (T8)	69.2	Pass
							Secondary Horizontal (T1)	10.2	Pass
							Top Girt (T4)	3.2	Pass
							Mid Girt (T4)	5.2	Pass
							Bolt Checks	78.0	Pass
							RATING =	78.0	Pass

APPENDIX B
ADDITIONAL CALCULATIONS

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

- 1) Paul J. Ford and Company has not performed a site visit to verify the tower member sizes or the antenna/coax loading. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.
- 2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.
- 3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.
- 4) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard ANSI/TIA-222-G. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.
- 5) The attached sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.
- 6) Miscellaneous items such as antenna mounts etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Legs	Valmont 208339 (12x3.25)	2L 5 x 5 x 5/16 (1/2)	34	12.4	12.6	12.8	12.8	11.9	11.8
Diagonal Grade	Valmont 208338 (12x3)	2L 4 x 4 x 3/8 (1/2)	28	8.8	8.6	8.4	8.2	8.0	7.8
Diagonal	Valmont 208334 (12x2.25)	2L 3.5 x 3.5 x 1/4 (3/8)	22	5.9	5.7	5.5	5.3	5.1	4.9
Top Girts	A572-50	A36	26	6.4	6.2	6.0	5.8	5.6	5.4
Mid Girts	N.A.	N.A.	24	6.0	5.8	5.6	5.4	5.2	5.0
Sec. Horizontals	N.A.	N.A.	20	5.3	5.1	4.9	4.7	4.5	4.3
Face Width (ft)	40	10 @ 20	30	11.1	11.3	11.5	11.7	11.9	12.1
# Panels @ (ft)	112.0		38	12.6	12.8	13.0	13.2	13.4	13.6
Weight (K)			36	12.6	12.8	13.0	13.2	13.4	13.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
FAA L-864 Beacon	280	6' Side Arm Mount	175
4' x 2" Std. Pipe Mount	279	BCR-80010:90	175
ANT150F6-3	279	BCR-80010:90	175
4' x 2" Std. Pipe Mount	279	3' Side Arm Mount	168
DB538-G	279	ANT450F8	168
4' x 2" Std. Pipe Mount	279	8' x 2" Sch 40 Pipe Mount	163
Kreco CO-35A	279	RFS PAD6-65AC	163
8' x 2" Sch 40 Pipe Mount	276	(4) DB980H90E-M w/Mount Pipe	153.5
8' x 2" Sch 40 Pipe Mount	276	Generic Sector Frame	153.5
8' x 2" Sch 40 Pipe Mount	276	(4) DB980H90E-M w/Mount Pipe	153.5
8' x 2" Sch 40 Pipe Mount	276	(4) DB980H90E-M w/Mount Pipe	153.5
PAL8	276	Generic Sector Frame	153.5
PAL8	276	Generic Sector Frame	153.5
PAL8	276	B25 RRH4x30-4R	145
PAL8	266	B13 RRH4X30-4R	145
10' 8-Bay Dipole	261	B13 RRH4X30-4R	145
3' Side Arm Mount	261	B13 RRH4X30-4R	145
12" x 12" x 6" TMA	260	B66A RRH4X45	145
6' Side Arm Mount	260	B66A RRH4X45	145
DB589-Y	260	B66A RRH4X45	145
DB589-Y	260	DB-T1-6Z-8AB-0Z	145
DB212-C	255	DB-T1-6Z-8AB-0Z	145
6' Side Arm Mount	255	DB-T1-6Z-8AB-0Z	145
SD110-SFXPASNM	241	Generic Sector Frame	145
6' Side Arm Mount	241	Generic Sector Frame	145
8' x 2" Sch 40 Pipe Mount	240	Generic Sector Frame	145
CO-36A	240	(2) LNX-6515DS-A1M w/ Mount Pipe	145
6' Side Arm Mount	240	(2) HBXX-6517DS-A2M w/ Mount Pipe	145
PADX6-59AC	240	(2) HBXX-6517DS-A2M w/ Mount Pipe	145
SE419-SF3P4LDF w/ Mount Pipe	235.167	B25 RRH4x30-4R	145
SE419-SF3P4LDF w/ Mount Pipe	235.167	B25 RRH4x30-4R	145
6' Side Arm Mount	235.167	B25 RRH4x30-4R	145
Comprod 531-70HD	230	(2) LNX-6515DS-A1M w/ Mount Pipe	145
3' Side Arm Mount	230	(2) LNX-6515DS-A1M w/ Mount Pipe	145
8' x 2" Sch 40 Pipe Mount	230	FAA L-810 Sidelight	140
PAL8	230	FAA L-810 Sidelight	140
8' x 2" Sch 40 Pipe Mount	220	FAA L-810 Sidelight	140
PAL8	220	CO-36A	130
6' Side Arm Mount	216	6' Side Arm Mount	130
SD110-SFXPASNM	216	ANT450F8	128
6' Side Arm Mount	216	6' Side Arm Mount	128
ANT450F10	216	6' Side Arm Mount	126
8' x 2" Sch 40 Pipe Mount	205.5	PRF-950	126
PA10-59	205.5	8' x 2" Sch 40 Pipe Mount	123
SC479-HF1LDF	204	SBX4-W60AC2	123
3' Side Arm Mount	204	3' Side Arm Mount	117
TMA (16" x 12" x 6")	200	PRF-950	117
6' Side Arm Mount	200	ANT400D	116
SC479-HF1LDF	200	BR6155	116
Telewave ANT900D6-9	200	3' Side Arm Mount	116
SC479-HF1LDF	200	3' Side Arm Mount	116
3' Side Arm Mount	200	8' x 2" Sch 40 Pipe Mount	104
8' x 2" Sch 40 Pipe Mount	197	RFS PAD6-65AC	104
PAL6-59	197	BR6155	97
8' x 2" Sch 40 Pipe Mount	195	3' Side Arm Mount	97
PA10-59	195	V-1500	55
SC479-HF1LDF	175	3' Side Arm Mount	55
SC479-HF1LDF	175	3' Side Arm Mount	50
6' Side Arm Mount	175	Telewave ANT790-S2	50
TMA (16" x 12" x 6")	175		

SHEAR
36 K

TO
50 mph W

SHEAR
122 K

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Valmont 195557 (12x1.75)	E	2L 4 x 4 x 1/4 (3/8)
B	Valmont 211843 (12x2)	F	L 3.5 x 3.5 x 5/16
C	Valmont 208335 (12x2.5)	G	L 5 x 5 x 3/8
D	Valmont 208337 (12x2.75)		

MATERIAL STRENGTH

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

TORQUE 89 kip-ft
REACTIONS - 101 mph WIND

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Definitions are based upon a 50 mph wind.

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH
Phone: 43215
FAX: 614.448.4105

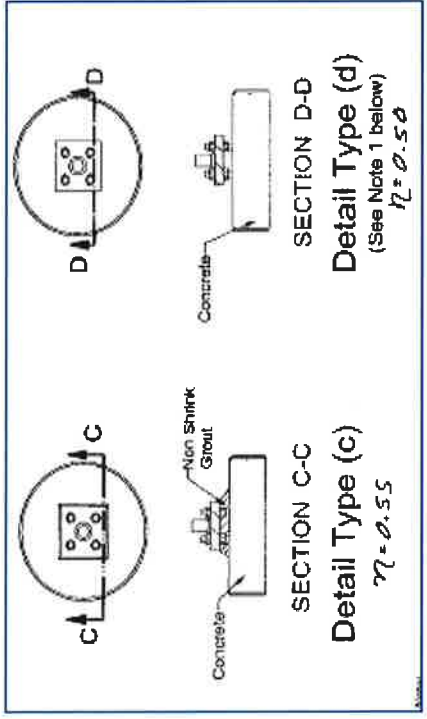
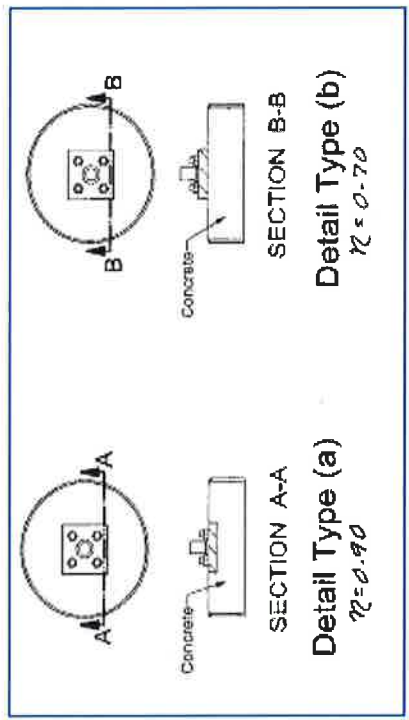
Job: **280-ft Self Support Tower Haddam, CT**
Project: **24317-0014**
Client: Verizon Wireless
Code: TIA-222-G
Path:
Drawn by: Matthew R Buske
Date: 08/22/17
App'd:
Scale: N
Dwg No.

Self-Support Tower Anchor Rod Capacity - TIA-G

Loads	Maximum Ratio
Compression: 577 kips	1.00
Shear: 75 kips	

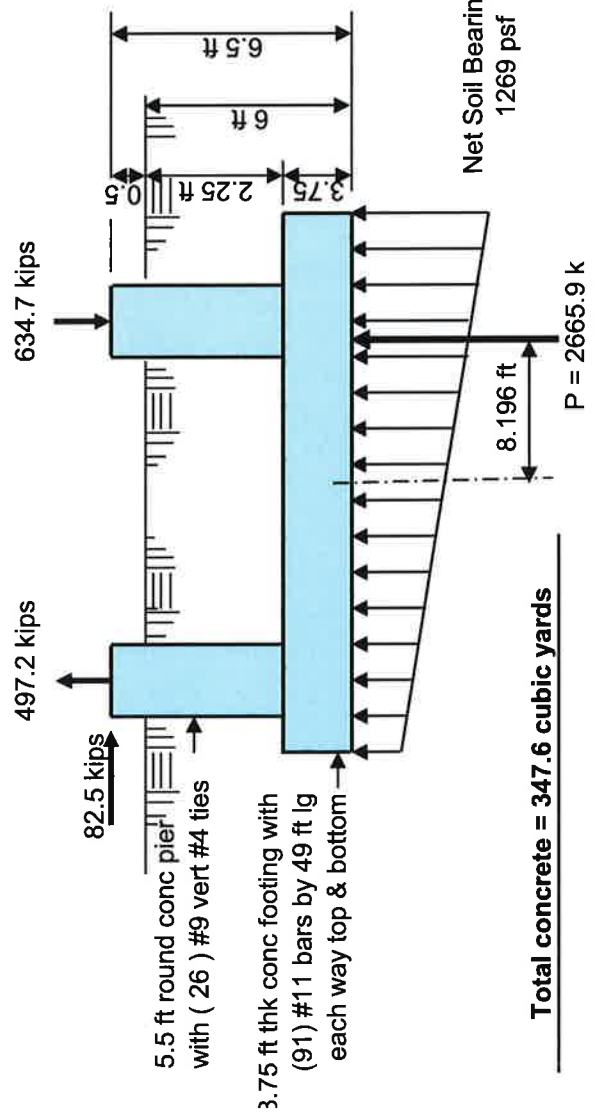
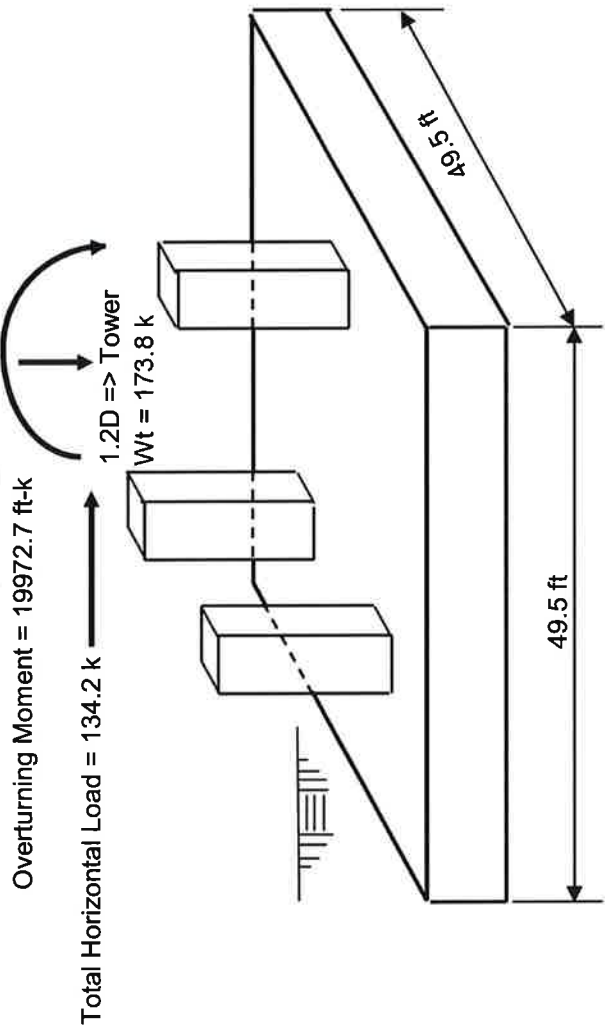
Existing Anchor Rods	Anchor Rod Condition (n):
Anchor Rod ϕ :	0.5
Anchor Rod Quantity:	1 1/4 in
Anchor Rod Grade:	12
	F1554 Gr. 105
F_y :	105 ksi
F_u :	125 ksi
Threads per Inch:	7
Total Net Tensile Area:	11.63 in ²
ϕ :	0.8
Total Anchor Rod Capacity ϕR_{nt} :	1162.93 kip
Anchor Rod Ratio:	0.625

I_{ar} : inches
 Moment: k-in



Combined Footing Foundation

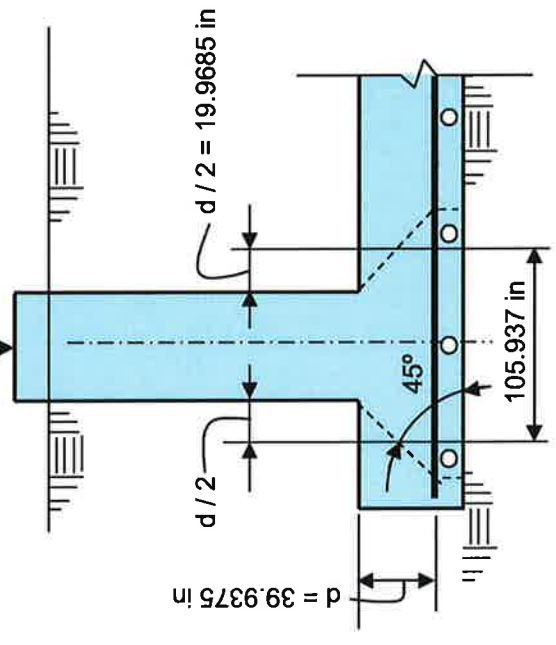
- Concrete strength $F'c$ = 4 (ksi)
- Rebar Strength Fy = 60 (ksi)
- Soil Density = 125 (pcf)
- Depth to Water Table = 9 (ft)
- minimum cover over vert rebar = 3 inches



Total concrete = 347.6 cubic yards

Net Soil Bearing = 1269 psf

$P = 2665.9 \text{ k}$



Ftg Overturning Resistance = 49485.8 ft-kips
 Total Overturning Moment = 21597.9 ft-kips
 Required Overturning Safety Factor = 1
 Overturning Safety Factor = 2.29
Ratio = 0.44 OK

Maximum Net Soil Bearing = 1.726 ksf
 Ultimate Net Soil Bearing = 9 ksf
Soil Bearing Stress Ratio = 0.19 OK

Ult Punching Shear Capacity = 253 psi
 Ult Punching Shear Force = 76 psi
Punching Shear Stress Ratio = 0.3 OK

Pad Bending Moment Capacity= 24166 ft-k
 Pad Bending Moment = 4356 ft-k
Bending Moment Stress Ratio = 0.18 OK

Pier Rebar Capacity = -1404 kips
 Pier Rebar Required = -497.2 kips
Pier Rebar Stress Ratio = 0.35 OK

Pad Bending Shear Capacity= 2251 ft-k
 Pad Bending Shear = 76 ft-k
Bending Shear Stress Ratio = 0.03 OK

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

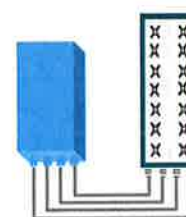


FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R
Can be switched between
modes via SW w/o site
visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (In 2Tx or 4Tx mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F)
Wind load (@150km/h or 93mph)	IP65 Frontal: <200N / Lateral : <150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein. Copyright © 2014 Alcatel-Lucent. All Rights Reserved

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

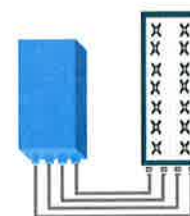


FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2)	2.0 dB typ. (<2.5 dB max)
RX Diversity scheme	2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.)	538 x 304 x 182 (21.2" x 12.0" x 7.2")
Volume (w/ solar shield) in L	30
Weight (w/ solar shield) in kg (lb)	24 (53)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	580W typical @100% RF load
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	Frontal: <200N / Lateral : <150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein.
Copyright © 2014 Alcatel-Lucent. All Rights Reserved

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

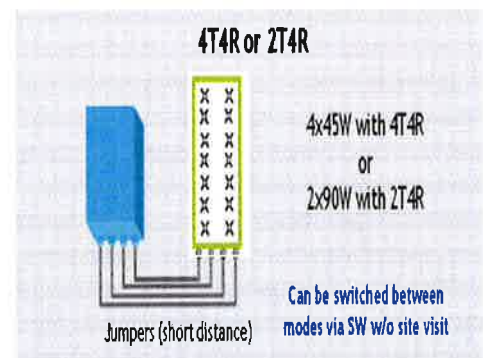
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (In 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3)	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield)
Volume in Liters	35.5 (with solar shield) 29.7 (without solar shield)
Weight in kg (lb) (w/o mounting HW)	25.8kg (56.8lb) (with solar shield)
DC voltage range	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	750W typical @100% RF load (In 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) UL50E Type 4 Enclosure
Wind load (@150km/h or 93mph)	250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein.
Copyright © 2016 Alcatel-Lucent. All Rights Reserved