From: Gorka, Mark <Mark.Gorka@ct.gov>
Sent: Wednesday, May 13, 2020 8:19 AM
To: Bachman, Melanie <Melanie.Bachman@ct.gov>
Subject: RE: Tower Share Application - 7 Hoskins Rd, Bloomfield - DESPP

Good Morning Melanie,

The structural engineer sent us the updates we requested:

- Exhibit C2 - a revised structural analysis, which includes the TTA (Exhibit C – structural analysis for AT&T included our antennas, but not the TTA), and
- Exhibit C3 - a certification letter that addresses the sector frame antenna mount.

Let me know if the Council has other questions or requests. Will the "telemeeting" be open for public viewing on 5/21?

Sincerely,

Mark Gorka, Grants and Contracts Specialist
Department of Emergency Services and Public Protection
Office: (860) 685-8107
Fax: (860) 685-8362
Mobile: (860) 508-9684

Exhibit C2

Structural Analysis Update 5/5/2020

(includes TTA)

STRUCTURAL ANALYSIS REPORT
185' SELF-SUPPORTING TOWER
BLOOMFIELD, CONNECTICUT

Prepared for the
State of Connecticut
Department of Emergency Services and Public Protection

Site: Bloomfield

May 5, 2020

Legs	69%
Bracing	82%
Foundation	46%

APT Project #CT636100

567 VAUXHALL ST. EXT., SUITE 311 · WATERFORD, CT 06385 · PHONE 860-663-1697 · FAX 860-663-0935
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STRUCTURAL ANALYSIS REPORT
185' SELF-SUPPORTING TOWER
BLOOMFIELD, CONNECTICUT
prepared for the
State of Connecticut
Department of Emergency Services and Public Protection

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of Northeast Utilities' (Eversource Energy) 185-foot self-supporting tower. The analysis was performed for the State of Connecticut Department of Emergency Services and Public Protection's (DESPP) proposed installation of one tower top amplifier at 183' as detailed below.

APT's analysis indicates the tower meets the requirements of the Connecticut State Building Code and TIA-222-G with DESPP's proposed equipment changes. The tower base foundation was also evaluated and found to be adequately sized. Deflection values were found to be within Northeast Utilities Substation Standards requirements. Usage values are as follows:

Legs	69%
Bracing	82%
Foundation	46%

INTRODUCTION:

A structural analysis was performed on the above-mentioned communications tower by APT for the State of Connecticut DESPP. The tower is located at 8 Hoskins Road in Bloomfield, Connecticut. The structure is a 185-foot galvanized steel self-supporting tower manufactured by Sabre Communications Corporation. The tower features pipe legs with angle steel bracing members.

APT did not perform a site visit for this analysis. The analysis relied solely on the following documents:

Document	Remarks	Date	Source
Geotechnical Testing Report	Design Earth Technology #2014.15	10/14/2014	Eversource
Structural Design Report	Sabre Communications #127272	8/19/2015	Eversource
Final Erection Drawings	Sabre Communications #127272	9/26/2015	Eversource
Feedline Plan	Centek Engineering	12/7/2016	T-Mobile
Construction Drawings	APT Filing no. CT409140	12/9/2016	APT
RFDS/antenna rec	T-Mobile site no. CTHA142A	2/14/2017	T-Mobile

Structural Analysis Report	APT Filing no. CT1071511	2/27/2017	APT
RFDS/antenna rec	AT&T site no. CTV1001	6/29/2018	AT&T
Existing equipment inventory	Compiled by Eversource Energy	3/12/2019	Eversource
Mount analysis	Hudson Design Group, LLC	1/22/2020	SAI Comm.

The analysis was performed in accordance with TIA-222-G using the following antenna inventory (proposed equipment shown in **bold** text; reserved equipment shown in *italic* text):

Carrier	Elev.	Antenna	Mount	Feed Line
-	185'	LED beacon	Leg	3/8"
Eversource	185'	20' omnidirectional whip (DS9A09F36D-N) with TTA, 14' omnidirectional whip (Kreco CO-41HD)	Pipes on legs	(2) 1-5/8", 1/2", 7/8"
Bloomfield PD/FD	185'	BA8080-67 16-bay dipole	Pipe on leg	(2) 7/8"
	183'	24' omnidirectional whip (DS2C03F36D)	12' sector mount	(2) 7/8"
CSP	183'	(3) 14' omnidirectional whip (DB Spectra-DS7C09P36U-D; two are inverted), **Dual Branch TTA**	Above sector mount	(3) 1-5/8", 1/2"
Eversource	183'	(2) 8' dishes with radomes (PADX8-59A)	(2) Pipes on legs	(4) EW-63
Simsbury PD	181'	10', 4-bay dipole (DB 411; inverted)	Pipe on leg	7/8"
Eversource	177'	4' dish with radome (PA4-57A)	Pipe on leg	EW-90
Eversource	172'	8' dish with radome (PADX8-59A)	Pipe on leg	(2) EW-63
Eversource	171'	8' dish with radome (PADX8-59A)	Pipe on leg	(2) EW-63
Simsbury PD	165'	PR-900 Paraflector	Pipe on leg	7/8"
Eversource	165'	ANT150F6 omnidirectional whip	3' sidearm	7/8"
AT&T	160'	(3) 7770.00, (2) OPA-65R-LCUU-H8, (1) OPA-65R-LCUU-H6, (4) 800-10966, (2) 800-10965 panels, (3) RRUS-32 RRHs, (3) RRUS-E2 RRHs, (3) B14 4478 RRHs, (3) B2/B66A 8843 RRHs, (3) 4449 B5 RRHs, (3) TT08-19DB111-001 TMAs, (3) 'Squid' D-boxes, (3) DC6-48-60-18-8C-EV D-boxes	(3) 12' sector mounts	(6) 2-1/4", (3) fiber, (12) power
Verizon	150'	(3) BXA-70063/6, (6) BXA-171063/12, (6) LPA-80080/4 panels, (3) RRH2x40-700 RRHs, (3) RRH2x40-AWS RRHs, (1) DB-T1-6Z-8AB-0Z D-box	(3) 12' sector mounts	(6) 1-5/8", (2) 1-5/8" hybrid
T-Mobile	140'	(3) APXV18-206516, (3) LNX-6515DS & (3) APXV18-206517 panels, (6) RRUS-11 RRHs, (1) cylindrical 'squid' D-box, (1) IBR1300 Radio	(3) 12' sector mounts	(3) 1-1/4", 6x12 hybrid
Eversource	*135'*	*(2) 6' dishes with radomes*	*(2) Pipes on legs*	*(4) EW-63*

Eversource	125'	8' dish with radome (PADX8-59A)	Pipe on leg	EW-63
Eversource	125'	ANT150F6 omnidirectional whip, 12' single dipole (Comprod 531-70HD)	(2) 6' sidearms	(2) 7/8"
Eversource	109'	12' single dipole (Comprod 531-70HD)	6' sidearm	7/8"
Eversource	108'	14' omnidirectional whip (Kreco CO-41HD)	6' sidearm	7/8"
-	103'	(3) Obstruction lights	Legs	3/8"
Eversource	100'	8' dish with radome (PADX8-59A)	Pipe on leg	EW-63
Bloomfield PD/FD	98'	3' high-performance dish (SC3-W100XGT1C)	3' sidearm	3/8" LMR
Bloomfield PD/FD	91	3' high-performance dish (SC3-W100XGT1C)	3' sidearm	3/8" LMR
Eversource	87'	5' omnidirectional whip (ANT150F2)	3' sidearm	7/8"
Eversource	85'	12' single dipole (Comprod 531-70HD)	6' sidearm	7/8"
Bloomfield PD/FD	66'	18" square panel (Motorola WB2619)	3' sidearm	Cat5e

RIGOROUS STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with the Connecticut State Building Code and TIA-222, Revision G (TIA), Structural Standard for Antenna Supporting Structures and Antennas.

The analysis was conducted using a 3-second gust wind speed of 130 miles per hour (Ultimate) with no ice and 50-mph with 1" radial ice in accordance with Appendix N of the Connecticut State Building Code. The following additional design criteria were used:

Structure Class:	III
Topographic Category:	2
Exposure Category:	B
Crest Height:	200'

Analysis Results:

Analysis of the tower was conducted in accordance with the criteria outlined herein with antenna changes as previously described. The following table summarizes the results of the analysis based on stresses of individual leg and bracing members:

Elevation	Leg Capacity	Bracing Capacity
180'-185'	4%	19%
160'-180'	10%	58%
140'-160'	28%	48%
120'-140'	54%	70%
100'-120'	51%	76%
80'-100'	58%	56%
60'-80'	52%	62%
40'-60'	69%	72%
20'-40'	63%	82%
0'-20'	62%	75%

Bracing, Splice and Anchor Bolts:

Bracing, splice and anchor bolts were evaluated under the proposed loading. All evaluated bolts were found to be adequately sized to support the proposed loads.

Base Foundation:

Evaluation of the existing base foundation was performed from original Sabre foundation drawings. The base foundation was found to be adequately sized to support the proposed equipment. Factored base reactions imposed with the additional antennas were calculated as follows:

Reaction	Original Design	Calculated
Compression	775 k	577.6 k
Uplift	656 k	-477.7 k
Shear	132 k	101.2 k
OTM	23,690 ft-k	17,379 ft-k

Deflection:

Combined twist and sway was evaluated per Northeast Utilities Substation Standard SUB 090, Section 7 under service wind as well as design wind speeds. The tower was found to be within the allowable 0.5 degree total maximum. Results are summarized as follows:

Load Case	Tilt	Twist	Combined Max.
Service Wind – 60-mph	0.0801˚	0.0041˚	0.0802˚
Design Wind – 105-mph	0.3624˚	0.0205˚	0.3630˚

CONCLUSIONS AND RECOMMENDATIONS:

APT's structural analysis indicates that the 185-foot self-supporting tower located at 8 Hoskins Road in Bloomfield, Connecticut meets the requirements of the Connecticut State Building Code and TIA-222-G with DESPP's proposed equipment changes.

The tower base foundation was also evaluated and determined to be adequately sized. Additionally, deflection values were found to be within Northeast Utilities Substation Standards requirements.

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in an undeteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corporation, P.C. (APT) is not responsible for modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

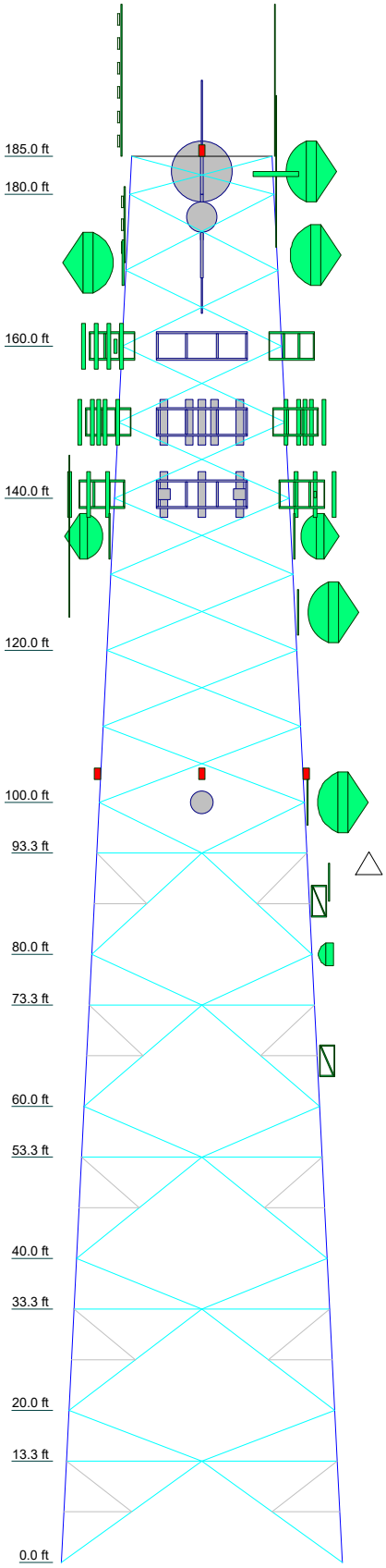
1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating torque arms or guys.
4. Installing antenna mounting gates or side arms.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Tower Schematic

Section	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P12.75x.5		P10.75x.5		P10.75x.365		P8.625x.5			P8.625x.322			P6.625x.280		
Leg Grade									A572-50						
Diagonals		L6x6x1/2				L6x6x3/8			L4x6x1/2	B	L5x5x3/8		L5x5x5/16	L4x4x1/4	A
Diagonal Grade									A36						
Top Girts									N.A.						C
Horizontals	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L4x4x5/16	N.A.	L4x4x5/16				N.A.		
Red. Horizontals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	L3x3x1/4				N.A.		
Red. Diagonals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	L3x3x1/4				N.A.		
Red. Hips	A	N.A.	A	N.A.	A	N.A.	L3x3x1/4	N.A.	L3x3x1/4				N.A.		
Face Width (ft)	37	35	33.6667	33	31.6667	31	29.6667	29	27.6667	27	25	23	21	19	18.5
# Panels @ (ft)	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D		8 @ 10			1 @ 5
Weight (lb) 59558.4	7427.4	3428.3	6612.9	2620.1	5254.3	2252.8	4877.9	2237.1	4302.4	1886.4	5798.4	4335.3	4106.6	2895.6	1522.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
LED beacon (NU)	185	OPA-65R-LCUU-H8 (ATI existing)	160
20' x 3" omni whip (NU)	185	OPA-65R-LCUU-H6 (ATI existing)	160
Tower Top Amplifier (NU)	185	7770.00 (ATI existing)	160
14' x 3" Dia Omni (NU)	185	(2) BXA-171063/12 (Verizon)	150
BA8080-67 16' 16 Bay Dipole (Bloomfield PD)	185	(2) LPA-80080/4 (Verizon)	150
		(2) LPA-80080/4 (Verizon)	150
6'x4 1/2" Pipe Mount (NU)	183	(2) LPA-80080/4 (Verizon)	150
24' x 2" omni whip	183	ALU RRH2x40-700U (Verizon)	150
12' T-frame sector mnt	183	ALU RRH2x40-700U (Verizon)	150
14' x 2" omni whip (NU)	183	ALU RRH2x40-700U (Verizon)	150
14' x 2" omni whip (NU)	183	ALU RRH2x40-AWS (Verizon)	150
14' x 2" omni whip (NU)	183	ALU RRH2x40-AWS (Verizon)	150
Dual Branch TTA (NU)	183	ALU RRH2x40-AWS (Verizon)	150
8' dish with radome (NU)	183	RFS DB-T1-6Z-8AB-0Z D-box (Verizon)	150
8' dish with radome (NU)	183		
6'x4 1/2" Pipe Mount (NU)	181	Rohn 6' x 12' Boom Gate (1) (Verizon)	150
10' 4-bay dipole (NU)	181 - 171	Rohn 6' x 12' Boom Gate (1) (Verizon)	150
6'x4 1/2" Pipe Mount (NU)	177	Rohn 6' x 12' Boom Gate (1) (Verizon)	150
4' dish with radome (NU)	177	BXA-70063/6 (Verizon)	150
6'x4 1/2" Pipe Mount (NU)	172	BXA-70063/6 (Verizon)	150
8' dish with radome (NU)	172	BXA-70063/6 (Verizon)	150
6'x4 1/2" Pipe Mount (NU)	171	(2) BXA-171063/12 (Verizon)	150
8' dish with radome (NU)	171	(2) BXA-171063/12 (Verizon)	150
ROHN 3-ft Side Arm (NU)	165	APXV18-206517 (T-Mobile)	140.5
6'x3" Pipe Mount (Simsbury PD)	165	LNX-6515DS-T4M (T-Mobile)	140.5
PR-900 (Simsbury PD)	165	LNX-6515DS-T4M (T-Mobile)	140.5
Telewave ANT150F6 (NU)	165	LNX-6515DS-T4M (T-Mobile)	140.5
OPA-65R-LCUU-H8 (ATI existing)	160	(2) Ericsson RRUS-11 (T-Mobile)	140.5
(2) 800-10966 (ATI)	160	(2) Ericsson RRUS-11 (T-Mobile)	140.5
(2) 800-10965 (ATI)	160	(2) Ericsson RRUS-11 (T-Mobile)	140.5
(2) 800-10966 (ATI)	160	T-Mobile Mini-Squid (T-Mobile)	140.5
RRUS-32 (ATI existing)	160	Fastback IBR 1300 (T-Mobile)	140.5
RRUS-32 (ATI existing)	160	4'x2 7/8" Pipe Mount (T-Mobile)	140.5
RRUS-32 (ATI existing)	160	12' T-frame sector mnt	140.5
RRUS-E2 (ATI existing)	160	12' T-frame sector mnt	140.5
RRUS-E2 (ATI existing)	160	12' T-frame sector mnt	140.5
RRUS-E2 (ATI existing)	160	APXV18-206516 (T-Mobile)	140.5
Ericsson RRUS B14 4478 (ATI)	160	APXV18-206516 (T-Mobile)	140.5
Ericsson RRUS B14 4478 (ATI)	160	APXV18-206516 (T-Mobile)	140.5
Ericsson RRUS B14 4478 (ATI)	160	APXV18-206517 (T-Mobile)	140.5
Ericsson RRUS 8843 (ATI)	160	APXV18-206517 (T-Mobile)	140.5
Ericsson RRUS 8843 (ATI)	160	6'x4 1/2" Pipe Mount (NU)	135
Ericsson RRUS 8843 (ATI)	160	6'x4 1/2" Pipe Mount (NU)	135
Ericsson RRUS B5 4449 (ATI)	160	6' dish with radome (NU)	135
Ericsson RRUS B5 4449 (ATI)	160	6' dish with radome (NU)	135
Ericsson RRUS B5 4449 (ATI)	160	12' single dipole (NU)	125
TT08-19DB111 TMA (ATI existing)	160	Rohn 6' Side-Arm(1) (NU)	125
TT08-19DB111 TMA (ATI existing)	160	6'x4 1/2" Pipe Mount (NU)	125
TT08-19DB111 TMA (ATI existing)	160	Telewave ANT150F6 (NU)	125
Raycap DC6-48-60-18-8F surge suppressor (ATI existing)	160	Rohn 6' Side-Arm(1) (NU)	125
		8' dish with radome (NU)	125
Raycap DC6-48-60-18-8F surge suppressor (ATI existing)	160	12' Dipole (NU)	109
		Rohn 6' Side-Arm(1) (NU)	109
Raycap DC6-48-60-18-8F surge suppressor (ATI existing)	160	14' x 3" Dia Omni (NU)	108
		Rohn 6' Side-Arm(1) (NU)	108
Raycap DC6-48-60-18-8C-EV (ATI existing)	160	Obstruction light (NU)	103
Raycap DC6-48-60-18-8C-EV (ATI existing)	160	Obstruction light (NU)	103
		Obstruction light (NU)	103
Raycap DC6-48-60-18-8C-EV (ATI existing)	160	6'x4 1/2" Pipe Mount (NU)	100
		8' dish with radome (NU)	100
SitePro VFA12-HD (ATI existing)	160	3' HP dish (Bloomfield PD/FD)	100
SitePro VFA12-HD (ATI existing)	160	Telewave ANT150F2 (NU)	87
SitePro VFA12-HD (ATI existing)	160	3' sidearm (NU)	87
(2) 5'x2-3/8" Pipe Mount (ATI new)	160	12' Dipole (NU)	85
(2) 5'x2-3/8" Pipe Mount (ATI new)	160	Rohn 6' Side-Arm(1) (NU)	85
(2) 5'x2-3/8" Pipe Mount (ATI new)	160	3' HP dish (Bloomfield PD/FD)	80
7770.00 (ATI existing)	160	3' sidearm (NU)	66
7770.00 (ATI existing)	160	18" square panel (NU)	66

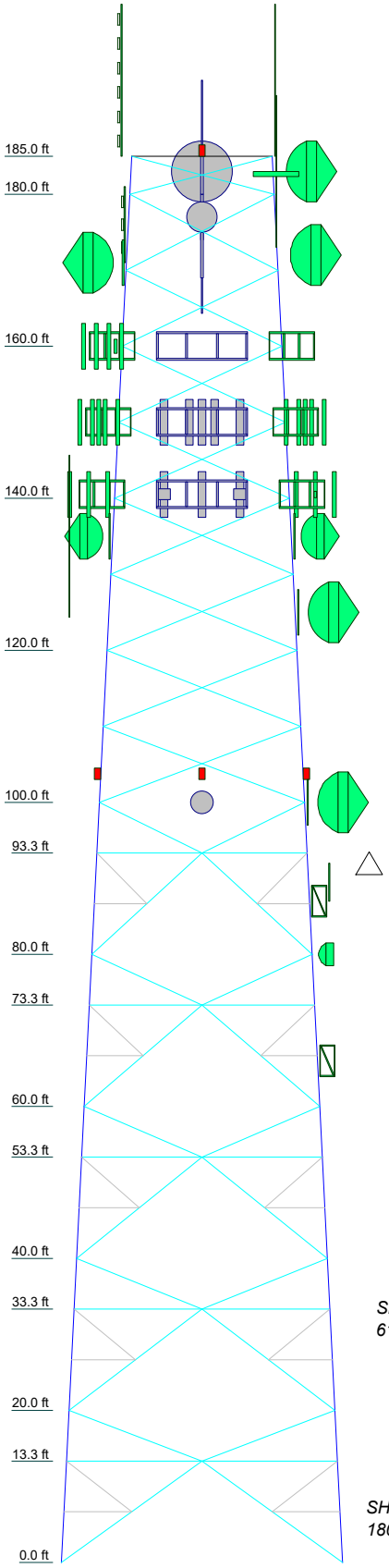
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3 1/2x3 1/2x1/4	C	L5x5x5/16
B	L6x6x3/8	D	1 @ 6.66667

All-Points Technology Corp.
116 Grandview Road
Conway, NH 03818
Phone: (860) 663-1697
FAX: (603) 447-2124

Job: ***185' Self-Supporting Tower***
Project: ***CT636100 Bloomfield***
Client: State of Connecticut - DESPP | Drawn by: M. Larson | App'd:
Code: TIA-222-G | Date: 05/05/20 | Scale: NTS
Path: C:\Users\APT User\Desktop\Work\Jobs\Miscellaneous\CT636100 Bloomfield\CT636100 Bloomfield.en | Dwg No. E-1

Section	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P12.75x.5		P10.75x.5		P10.75x.365		P8.625x.5		P8.625x.322				P6.625x.280		
Leg Grade	A572-50														
Diagonals	L6x6x1/2			L6x6x3/8					L4x6x1/2	B	L5x5x3/8	L5x5x5/16		L4x4x1/4	A
Diagonal Grade	A36														
Top Girts	N.A.														C
Horizontals	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L4x4x5/16	N.A.	L4x4x5/16			N.A.			
Red. Horizontals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	L3x3x1/4			N.A.			
Red. Diagonals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	L3x3x1/4			N.A.			
Red. Hips	A	N.A.	A	N.A.	A	N.A.	L3x3x1/4	N.A.	L3x3x1/4			N.A.			
Face Width (ft)	37	35.6667	35	33.6667	33	31.6667	31	29.6667	29	27.6667	25	23	21	19	18.5
# Panels @ (ft)	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D	1 @ 13.3333	D	8 @ 10				1 @ 5
Weight (lb) 59558.4	7427.4	3428.3	6612.9	2620.1	5254.3	2252.8	4877.9	2237.1	4302.4	1886.4	5798.4	4335.3	4106.6	2895.6	1522.9



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3 1/2x3 1/2x1/4	C	L5x5x5/16
B	L6x6x3/8	D	1 @ 6.66667

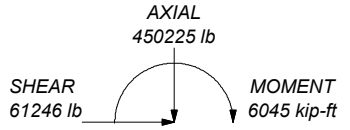
MATERIAL STRENGTH

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

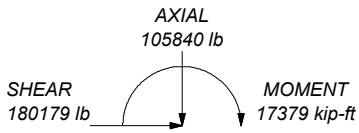
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 577629 lb
SHEAR: 101156 lb

UPLIFT: -477665 lb
SHEAR: 88147 lb



TORQUE 117 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 137 kip-ft
REACTIONS - 101 mph WIND

All-Points Technology Corp.
116 Grandview Road
Conway, NH 03818
Phone: (860) 663-1697
FAX: (603) 447-2124

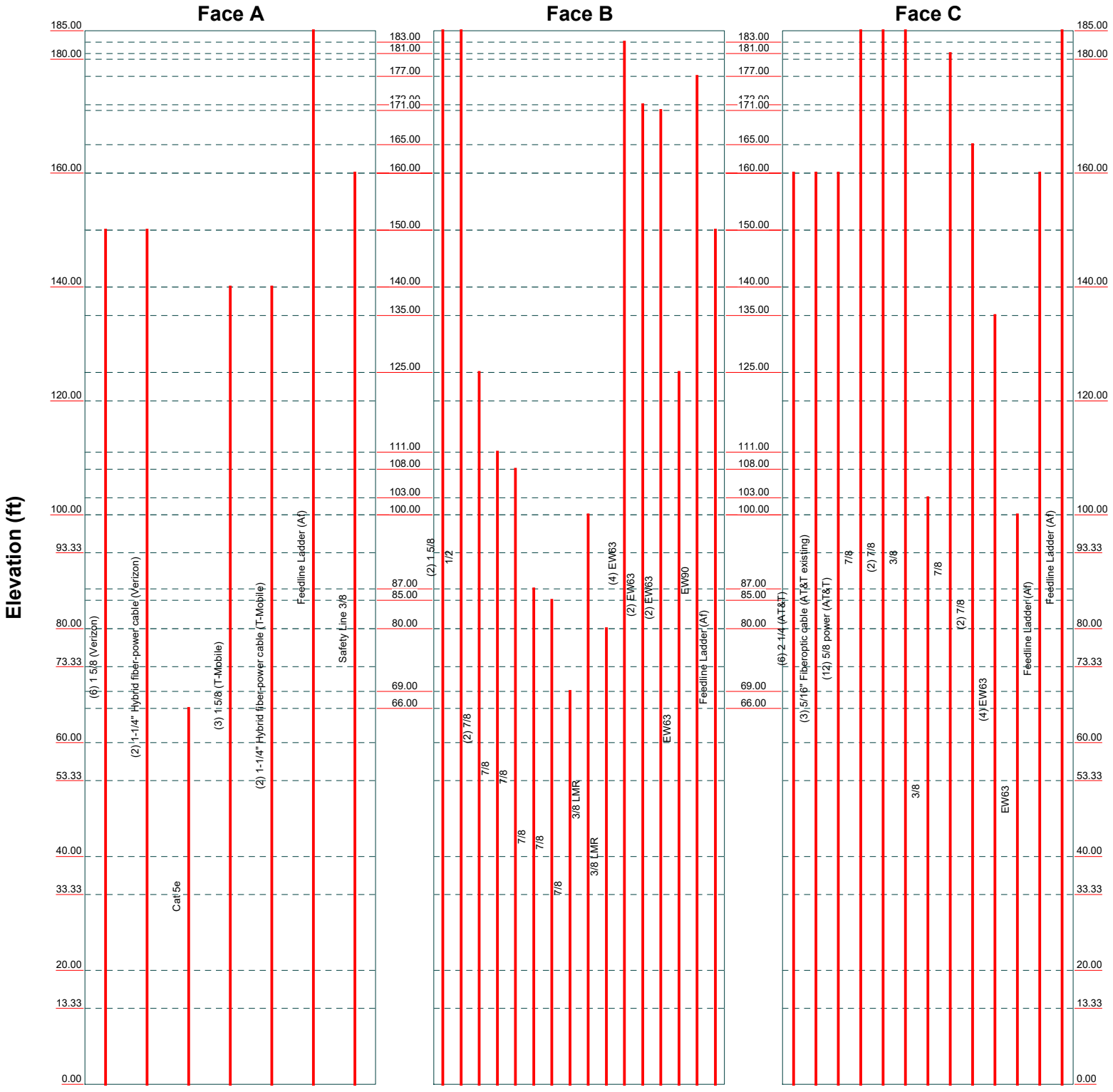
Job: ***185' Self-Supporting Tower***			
Project: ***CT636100 Bloomfield***			
Client: State of Connecticut - DESPP	Drawn by: M. Larson	App'd:	
Code: TIA-222-G	Date: 05/05/20	Scale: NTS	
Path: C:\Users\APT User\Desktop\Work\Jobs\Miscellaneous\CT636100 Bloomfield\CT636100 Bloomfield.en		Dwg No. E-1	

Appendix B

Calculations

Feed Line Distribution Chart
0' - 185'

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



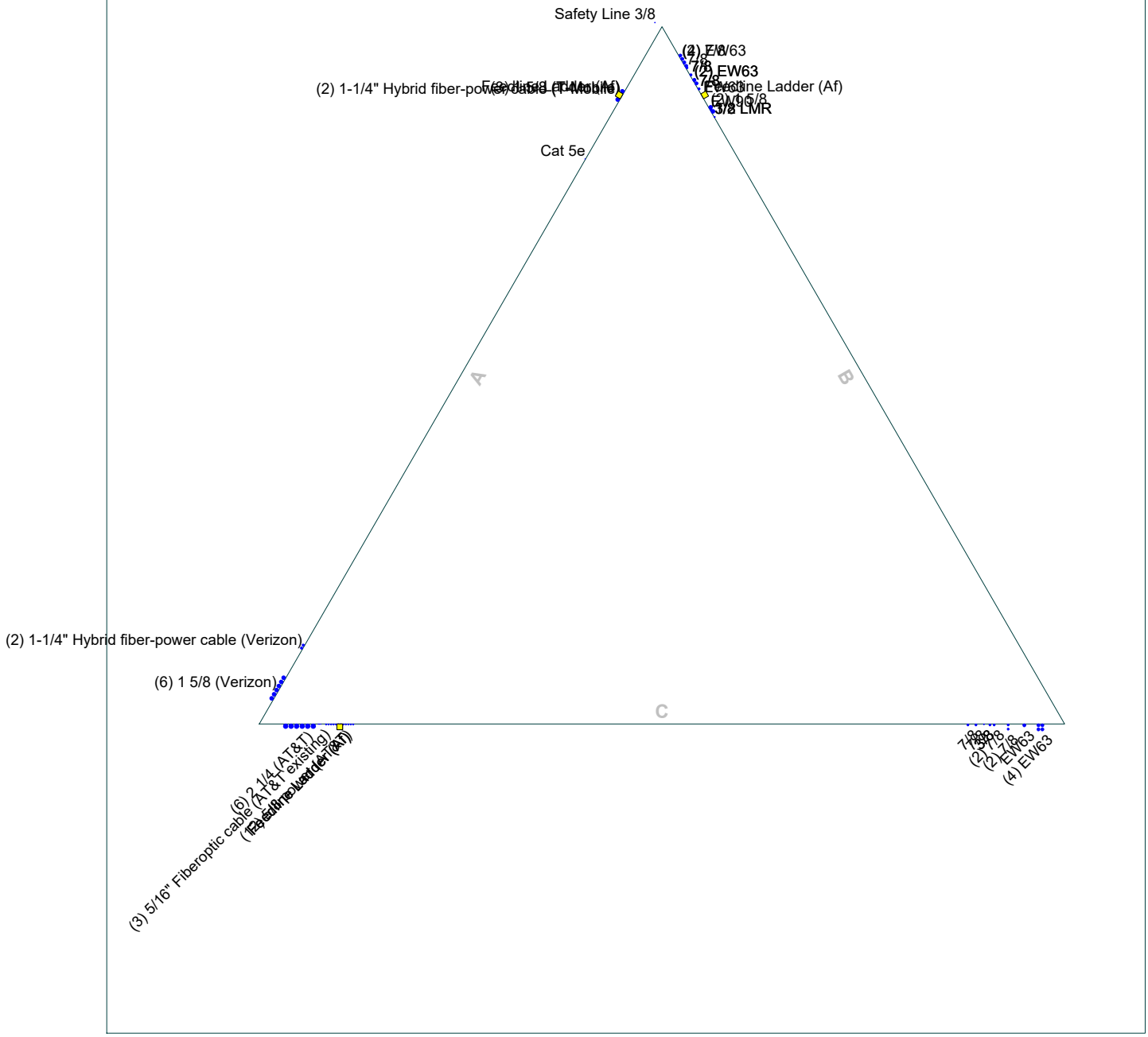
All-Points Technology Corp.
116 Grandview Road
Conway, NH 03818
Phone: (860) 663-1697
FAX: (603) 447-2124

Job: ***185' Self-Supporting Tower***			
Project: ***CT636100 Bloomfield***			
Client: State of Connecticut - DESPP	Drawn by: M. Larson	App'd:	
Code: TIA-222-G	Date: 05/05/20	Scale: NTS	
Path: C:\Users\APT User\Desktop\Work\Jobs\Miscellaneous\CT636100 Bloomfield\CT636100 Bloomfield.en		Dwg No. E-7	

Feed Line Plan
20'

Round Flat App In Face App Out Face

Section @ 20'



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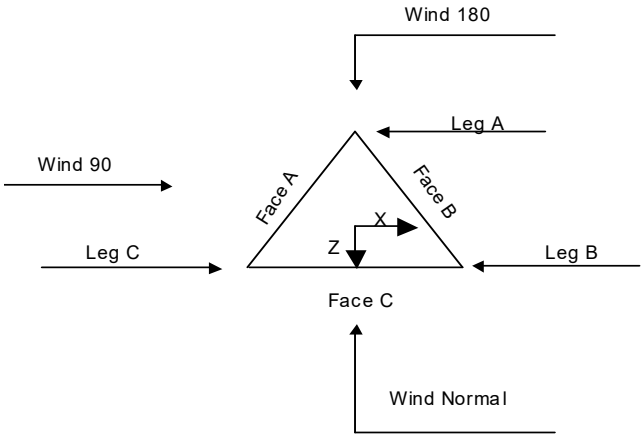
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 185.00 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 18.50 ft at the top and 37.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Ultimate wind speed of 130 mph
Basic wind speed of 101 mph.
Structure Class III.
Exposure Category C.
Topographic Category 2.
Crest Height 200.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz		Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	185.00-180.00			18.50	1	5.00
T2	180.00-160.00			19.00	1	20.00
T3	160.00-140.00			21.00	1	20.00
T4	140.00-120.00			23.00	1	20.00
T5	120.00-100.00			25.00	1	20.00
T6	100.00-93.33			27.00	1	6.67
T7	93.33-80.00			27.67	1	13.33
T8	80.00-73.33			29.00	1	6.67
T9	73.33-60.00			29.67	1	13.33
T10	60.00-53.33			31.00	1	6.67
T11	53.33-40.00			31.67	1	13.33
T12	40.00-33.33			33.00	1	6.67
T13	33.33-20.00			33.67	1	13.33
T14	20.00-13.33			35.00	1	6.67
T15	13.33-0.00			35.67	1	13.33

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	185.00-180.00	5.00	X Brace	No	No	0.0000	0.0000
T2	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T3	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	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
T6	100.00-93.33	6.67	Diamond	No	Yes	0.0000	0.0000
T7	93.33-80.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T8	80.00-73.33	6.67	Diamond	No	Yes	0.0000	0.0000
T9	73.33-60.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T10	60.00-53.33	6.67	Diamond	No	Yes	0.0000	0.0000
T11	53.33-40.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T12	40.00-33.33	6.67	Diamond	No	Yes	0.0000	0.0000
T13	33.33-20.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T14	20.00-13.33	6.67	Diamond	No	Yes	0.0000	0.0000
T15	13.33-0.00	13.33	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 185.00-180.00	Pipe	P6.625x.280	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T2 180.00-160.00	Pipe	P6.625x.280	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	P6.625x.280	A572-50 (50 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T4 140.00-120.00	Pipe	P6.625x.280	A572-50 (50 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T5 120.00-100.00	Pipe	P8.625x.322	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A36 (36 ksi)
T6 100.00-93.33	Pipe	P8.625x.322	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T7 93.33-80.00	Pipe	P8.625x.322	A572-50 (50 ksi)	Single Angle	L4x6x1/2	A36 (36 ksi)
T8 80.00-73.33	Pipe	P8.625x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T9 73.33-60.00	Pipe	P8.625x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T10 60.00-53.33	Pipe	P10.75x.365	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T11 53.33-40.00	Pipe	P10.75x.365	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T12 40.00-33.33	Pipe	P10.75x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T13 33.33-20.00	Pipe	P10.75x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	A36 (36 ksi)
T14 20.00-13.33	Pipe	P12.75x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	A36 (36 ksi)
T15 13.33-0.00	Pipe	P12.75x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	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 185.00-180.00	Equal Angle	L5x5x5/16	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
T6 100.00-93.33	None	Single Angle		A36 (36 ksi)	Solid Round	None	A36 (36 ksi)
T7 93.33-80.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L4x4x5/16	A36 (36 ksi)
T8 80.00-73.33	None	Single Angle		A36 (36 ksi)	Solid Round	None	A36 (36 ksi)
T9 73.33-60.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L4x4x5/16	A36 (36 ksi)
T10 60.00-53.33	None	Single Angle		A36 (36 ksi)	Solid Round	None	A36 (36 ksi)
T11 53.33-40.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T12 40.00-33.33	None	Single Angle		A36 (36 ksi)	Solid Round	None	A36 (36 ksi)
T13 33.33-20.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T14 20.00-13.33	None	Single Angle		A36 (36 ksi)	Solid Round	None	A36 (36 ksi)
T15 13.33-0.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T7	A36	Horizontal (1)	Equal Angle	L3x3x1/4	1
93.33-80.00	(36 ksi)	Diagonal (1)	Equal Angle	L3x3x1/4	1
		Hip (1)	Equal Angle	L3x3x1/4	1
T9	A36	Horizontal (1)	Equal Angle	L3x3x1/4	1
73.33-60.00	(36 ksi)	Diagonal (1)	Equal Angle	L3x3x1/4	1
		Hip (1)	Equal Angle	L3x3x1/4	1
T11	A36	Horizontal (1)	Equal Angle	L3x3x5/16	1
53.33-40.00	(36 ksi)	Diagonal (1)	Equal Angle	L3x3x5/16	1
		Hip (1)	Equal Angle	L3 1/2x3 1/2x1/4	1
T13	A36	Horizontal (1)	Equal Angle	L3x3x5/16	1
33.33-20.00	(36 ksi)	Diagonal (1)	Equal Angle	L3x3x5/16	1
		Hip (1)	Equal Angle	L3 1/2x3 1/2x1/4	1
T15	A36	Horizontal (1)	Single Angle	L3 1/2x4x5/16	1
13.33-0.00	(36 ksi)	Diagonal (1)	Single Angle	L3 1/2x4x5/16	1
		Hip (1)	Equal Angle	L3 1/2x3 1/2x1/4	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
185.00-180.00			(36 ksi)						
T2	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
180.00-160.00			(36 ksi)						
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
160.00-140.00			(36 ksi)						
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
140.00-120.00			(36 ksi)						
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
100.00-93.33			(36 ksi)						
T7 93.33-80.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						
T8 80.00-73.33	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						
T9 73.33-60.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						
T10	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
60.00-53.33			(36 ksi)						
T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
53.33-40.00			(36 ksi)						
T12	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
40.00-33.33			(36 ksi)						
T13	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
33.33-20.00			(36 ksi)						
T14	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
20.00-13.33			(36 ksi)						
T15 13.33-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
185.00-180.00				1	1	1	1	1	1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
100.00-93.33				1	1	1	1	1	1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
93.33-80.00				1	1	1	1	1	1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
80.00-73.33				1	1	1	1	1	1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
73.33-60.00				1	1	1	1	1	1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
60.00-53.33				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
53.33-40.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
40.00-33.33				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
33.33-20.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
20.00-13.33				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
13.33-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 185.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T2 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 100.00-93.33	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 93.33-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 80.00-73.33	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 73.33-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 60.00-53.33	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T11 53.33-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T12 40.00-33.33	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T13 33.33-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T14 20.00-13.33	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T15 13.33-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 185.00-180.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 180.00-160.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 160.00-140.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 140.00-120.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T5 120.00-100.00	3.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T6 100.00-93.33	3.0000	0.0000	3.0000	4.0000	0.0000	4.0000	0.0000	0.0000
T7 93.33-80.00	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	0.0000	0.0000
T8 80.00-73.33	0.0000	0.0000	0.0000	8.0000	0.0000	8.0000	0.0000	0.0000
T9 73.33-60.00	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000
T10 60.00-53.33	0.0000	0.0000	0.0000	9.0000	0.0000	9.0000	0.0000	0.0000
T11 53.33-40.00	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000
T12 40.00-33.33	0.0000	0.0000	0.0000	9.0000	0.0000	9.0000	0.0000	0.0000
T13 33.33-20.00	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000
T14 20.00-13.33	0.0000	0.0000	0.0000	9.0000	0.0000	9.0000	0.0000	0.0000
T15 13.33-0.00	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000

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 185.00-180.00	Flange	1.2500 A325N	6	0.7500 A325X	1	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T2 180.00-160.00	Flange	1.2500 A325N	6	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T3 160.00-140.00	Flange	1.2500 A325N	6	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T4 140.00-120.00	Flange	1.2500 A325N	8	0.6250 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T5 120.00-100.00	Flange	1.5000 A325N	8	0.7500 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T6 100.00-93.33	Flange	0.0000 A325N	0	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T7 93.33-80.00	Flange	1.5000 A325N	8	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	2	0.6250 A325N	0
T8 80.00-73.33	Flange	0.0000 A325N	0	0.8750 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	0	0.6250 A325N	0
T9 73.33-60.00	Flange	1.5000 A325N	8	0.8750 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.8750 A325X	2	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T10 60.00-53.33	Flange	0.0000 A325N	0	0.8750 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325X	0	0.6250 A325N	0
T11 53.33-40.00	Flange	1.5000 A325N	8	0.8750 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.8750 A325X	2	0.6250 A325N	0
T12 40.00-33.33	Flange	0.0000 A325N	0	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325X	0	0.6250 A325N	0
T13 33.33-20.00	Flange	1.5000 A325N	8	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325X	2	0.6250 A325N	0
T14 20.00-13.33	Flange	0.0000 A325N	0	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325X	0	0.6250 A325N	0
T15 13.33-0.00	Flange	1.7500 F1554-105	6	1.0000 A325X	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
2 1/4 (AT&T)	C	No	No	Ar (CaAa)	160.00 - 0.00	0.0000	0.45	6	6	0.5000	2.3800		1.16
5/16" Fiberoptic cable (AT&T existing)	C	No	No	Ar (CaAa)	160.00 - 0.00	0.0000	0.425	3	3	0.3125	0.3125		0.25
5/8 power (AT&T)	C	No	No	Ar (CaAa)	160.00 - 0.00	0.0000	0.4	12	12	0.6450	0.6450		0.40
1 5/8 (Verizon)	A	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	-0.45	6	6	0.5000	1.9800		1.04
1-1/4" Hybrid fiber-power cable (Verizon)	A	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	-0.39	2	2	0.5000	1.2500		1.30
1 5/8	B	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	-0.38	2	2	0.5000	1.9800		1.04
7/8	C	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	-0.39	1	1	1.1100	1.1100		0.54
7/8	C	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	-0.41	2	2	1.1100	1.1100		0.54
3/8	C	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	-0.4	1	1	0.4400	0.4400		0.08
3/8	C	No	No	Ar (CaAa)	103.00 - 0.00	0.0000	-0.4	1	1	0.4400	0.4400		0.08
1/2	B	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	-0.37	1	1	0.5800	0.5800		0.25
7/8	C	No	No	Ar (CaAa)	181.00 - 0.00	0.0000	-0.38	1	1	1.1100	1.1100		0.54
7/8	C	No	No	Ar (CaAa)	165.00 - 0.00	0.0000	-0.43	2	1	1.1100	1.1100		0.54
7/8	B	No	No	Ar (CaAa)	125.00 - 0.00	0.0000	-0.45	2	2	1.1100	1.1100		0.54
7/8	B	No	No	Ar (CaAa)	111.00 - 0.00	0.0000	-0.41	1	1	1.1100	1.1100		0.54
7/8	B	No	No	Ar (CaAa)	108.00 - 0.00	0.0000	-0.41	1	1	1.1100	1.1100		0.54
7/8	B	No	No	Ar (CaAa)	87.00 - 0.00	0.0000	-0.43	1	1	1.1100	1.1100		0.54

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8	B	No	No	Ar (CaAa)	85.00 - 0.00	0.0000	-0.43	1	1	1.1100	1.1100		0.54
7/8	B	No	No	Ar (CaAa)	69.00 - 0.00	0.0000	-0.44	1	1	1.1100	1.1100		0.54
Cat 5e	A	No	No	Ar (CaAa)	66.00 - 0.00	0.0000	0.31	1	1	0.3125	0.3125		0.02
3/8 LMR	B	No	No	Ar (CaAa)	100.00 - 0.00	0.0000	-0.37	1	1	0.4400	0.4400		0.08
3/8 LMR	B	No	No	Ar (CaAa)	80.00 - 0.00	0.0000	-0.37	1	1	0.4400	0.4400		0.08
EW63	B	No	No	Ar (CaAa)	183.00 - 0.00	0.0000	-0.45	4	4	0.5000	1.5742		0.51
EW63	B	No	No	Ar (CaAa)	172.00 - 0.00	0.0000	-0.42	2	2	0.5000	1.5742		0.51
EW63	B	No	No	Ar (CaAa)	171.00 - 0.00	0.0000	-0.42	2	2	0.5000	1.5742		0.51
EW63	B	No	No	Ar (CaAa)	125.00 - 0.00	0.0000	-0.4	1	1	0.5000	1.5742		0.51
EW90	B	No	No	Ar (CaAa)	177.00 - 0.00	0.0000	-0.38	1	1	0.5000	0.9869		0.32
EW63	C	No	No	Ar (CaAa)	135.00 - 0.00	0.0000	-0.47	4	2	0.5000	1.5742		0.51
EW63	C	No	No	Ar (CaAa)	100.00 - 0.00	0.0000	-0.45	1	1	0.5000	1.5742		0.51
1 5/8 (T-Mobile)	A	No	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.4	3	3	0.5000	1.9800		1.04
1-1/4" Hybrid fiber-power cable (T-Mobile)	A	No	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.4	2	2	0.5000	1.2500		1.30
Feedline Ladder (Af)	C	No	No	Af (CaAa)	160.00 - 0.00	0.0000	0.4	1	1	0.0000	3.0000		8.40
Feedline Ladder (Af)	B	No	No	Af (CaAa)	150.00 - 0.00	0.0000	-0.4	1	1	0.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	No	Af (CaAa)	185.00 - 0.00	0.0000	0.4	1	1	0.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	185.00 - 0.00	0.0000	0.4	1	1	0.0000	3.0000		8.40
Safety Line 3/8	A	No	No	Ar (CaAa)	160.00 - 0.00	4.0000	0.5	1	1	0.3750	0.3750		0.22

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	185.00-180.00	A	0.000	0.000	2.500	0.000	42.00
		B	0.000	0.000	4.159	0.000	17.77
		C	0.000	0.000	4.496	0.000	51.04
T2	180.00-160.00	A	0.000	0.000	10.000	0.000	168.00
		B	0.000	0.000	30.593	0.000	116.30
		C	0.000	0.000	20.870	0.000	218.20
T3	160.00-140.00	A	0.000	0.000	25.130	0.000	260.80
		B	0.000	0.000	41.241	0.000	218.60
		C	0.000	0.000	80.115	0.000	652.60
T4	140.00-120.00	A	0.000	0.000	56.390	0.000	463.60
		B	0.000	0.000	48.138	0.000	310.55
		C	0.000	0.000	89.560	0.000	683.20
T5	120.00-100.00	A	0.000	0.000	56.390	0.000	463.60
		B	0.000	0.000	55.939	0.000	344.66
		C	0.000	0.000	92.841	0.000	693.64
T6	100.00-93.33	A	0.000	0.000	18.797	0.000	154.53

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	19.717	0.000	119.20
		C	0.000	0.000	32.246	0.000	235.07
T7	93.33-80.00	A	0.000	0.000	37.593	0.000	309.07
		B	0.000	0.000	40.765	0.000	244.88
		C	0.000	0.000	64.491	0.000	470.13
T8	80.00-73.33	A	0.000	0.000	18.797	0.000	154.53
		B	0.000	0.000	21.490	0.000	126.93
		C	0.000	0.000	32.246	0.000	235.07
T9	73.33-60.00	A	0.000	0.000	37.781	0.000	309.20
		B	0.000	0.000	43.979	0.000	258.73
		C	0.000	0.000	64.491	0.000	470.13
T10	60.00-53.33	A	0.000	0.000	19.005	0.000	154.68
		B	0.000	0.000	22.230	0.000	130.53
		C	0.000	0.000	32.246	0.000	235.07
T11	53.33-40.00	A	0.000	0.000	38.010	0.000	309.36
		B	0.000	0.000	44.460	0.000	261.07
		C	0.000	0.000	64.491	0.000	470.13
T12	40.00-33.33	A	0.000	0.000	19.005	0.000	154.68
		B	0.000	0.000	22.230	0.000	130.53
		C	0.000	0.000	32.246	0.000	235.07
T13	33.33-20.00	A	0.000	0.000	38.010	0.000	309.36
		B	0.000	0.000	44.460	0.000	261.07
		C	0.000	0.000	64.491	0.000	470.13
T14	20.00-13.33	A	0.000	0.000	19.005	0.000	154.68
		B	0.000	0.000	22.230	0.000	130.53
		C	0.000	0.000	32.246	0.000	235.07
T15	13.33-0.00	A	0.000	0.000	38.010	0.000	309.36
		B	0.000	0.000	44.460	0.000	261.07
		C	0.000	0.000	64.491	0.000	470.13

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	185.00-180.00	A	3.246	0.000	0.000	5.746	0.000	195.30
		B		0.000	0.000	18.344	0.000	341.24
		C		0.000	0.000	21.536	0.000	498.40
T2	180.00-160.00	A	3.245	0.000	0.000	22.981	0.000	780.97
		B		0.000	0.000	139.726	0.000	2557.48
		C		0.000	0.000	106.051	0.000	2455.88
T3	160.00-140.00	A	3.243	0.000	0.000	80.149	0.000	1941.38
		B		0.000	0.000	180.921	0.000	3436.46
		C		0.000	0.000	297.053	0.000	6698.05
T4	140.00-120.00	A	3.240	0.000	0.000	193.773	0.000	4065.02
		B		0.000	0.000	204.058	0.000	4041.59
		C		0.000	0.000	323.736	0.000	7191.61
T5	120.00-100.00	A	3.234	0.000	0.000	193.552	0.000	4055.25
		B		0.000	0.000	253.478	0.000	5025.84
		C		0.000	0.000	334.381	0.000	7384.29
T6	100.00-93.33	A	3.227	0.000	0.000	64.434	0.000	1348.06
		B		0.000	0.000	94.254	0.000	1890.41
		C		0.000	0.000	120.574	0.000	2666.32
T7	93.33-80.00	A	3.219	0.000	0.000	128.686	0.000	2688.13
		B		0.000	0.000	197.245	0.000	3978.41
		C		0.000	0.000	240.795	0.000	5315.56
T8	80.00-73.33	A	3.209	0.000	0.000	64.218	0.000	1338.58
		B		0.000	0.000	108.480	0.000	2203.55
		C		0.000	0.000	120.155	0.000	2646.07

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T9	73.33-60.00	A	3.194	0.000	0.000	132.113	0.000	2744.30
		B		0.000	0.000	222.982	0.000	4533.01
		C		0.000	0.000	239.641	0.000	5259.93
T10	60.00-53.33	A	3.174	0.000	0.000	68.247	0.000	1410.86
		B		0.000	0.000	112.584	0.000	2282.00
		C		0.000	0.000	119.356	0.000	2607.67
T11	53.33-40.00	A	3.145	0.000	0.000	135.744	0.000	2789.29
		B		0.000	0.000	223.668	0.000	4502.10
		C		0.000	0.000	237.402	0.000	5152.76
T12	40.00-33.33	A	3.104	0.000	0.000	67.329	0.000	1371.33
		B		0.000	0.000	110.748	0.000	2206.60
		C		0.000	0.000	117.752	0.000	2531.40
T13	33.33-20.00	A	3.041	0.000	0.000	133.006	0.000	2672.57
		B		0.000	0.000	218.194	0.000	4279.84
		C		0.000	0.000	232.622	0.000	4927.61
T14	20.00-13.33	A	2.936	0.000	0.000	65.127	0.000	1278.84
		B		0.000	0.000	106.344	0.000	2030.99
		C		0.000	0.000	113.908	0.000	2353.10
T15	13.33-0.00	A	2.713	0.000	0.000	124.389	0.000	2321.30
		B		0.000	0.000	200.949	0.000	3616.69
		C		0.000	0.000	217.574	0.000	4251.21

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	185.00-180.00	-0.4218	-5.5764	3.1697	-4.1694
T2	180.00-160.00	0.7197	-16.0919	10.5296	-18.1855
T3	160.00-140.00	-18.8782	-9.4987	-14.4089	-11.8804
T4	140.00-120.00	-18.7445	-13.7202	-14.6225	-18.3412
T5	120.00-100.00	-17.7222	-16.1764	-12.9528	-24.3770
T6	100.00-93.33	-17.2040	-17.2594	-9.1125	-26.6599
T7	93.33-80.00	-17.5912	-18.5729	-8.7567	-28.0758
T8	80.00-73.33	-17.6776	-20.1808	-8.6961	-34.1318
T9	73.33-60.00	-16.5221	-19.6936	-8.3259	-34.6061
T10	60.00-53.33	-17.8572	-21.5543	-9.1531	-38.9002
T11	53.33-40.00	-16.3459	-19.8659	-8.7479	-36.8819
T12	40.00-33.33	-18.4607	-22.3213	-9.7384	-40.5307
T13	33.33-20.00	-16.8691	-20.5333	-9.3542	-38.2005
T14	20.00-13.33	-18.6719	-22.5465	-10.4791	-41.3543
T15	13.33-0.00	-16.8525	-20.5005	-10.4105	-38.2438

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	9	1 5/8	180.00 - 185.00	0.6000	0.3928
T1	10	7/8	180.00 - 185.00	0.6000	0.3928
T1	11	7/8	180.00 - 185.00	0.6000	0.3928
T1	12	3/8	180.00 - 185.00	0.6000	0.3928
T1	14	1/2	180.00 - 185.00	0.6000	0.3928

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	15	7/8	180.00 - 181.00	0.6000	0.3928
T1	26	EW63	180.00 - 183.00	0.6000	0.3928
T1	38	Feedline Ladder (Af)	180.00 - 185.00	0.6000	0.3928
T1	39	Feedline Ladder (Af)	180.00 - 185.00	0.6000	0.3928
T2	9	1 5/8	160.00 - 180.00	0.6000	0.6000
T2	10	7/8	160.00 - 180.00	0.6000	0.6000
T2	11	7/8	160.00 - 180.00	0.6000	0.6000
T2	12	3/8	160.00 - 180.00	0.6000	0.6000
T2	14	1/2	160.00 - 180.00	0.6000	0.6000
T2	15	7/8	160.00 - 180.00	0.6000	0.6000
T2	16	7/8	160.00 - 165.00	0.6000	0.6000
T2	26	EW63	160.00 - 180.00	0.6000	0.6000
T2	27	EW63	160.00 - 172.00	0.6000	0.6000
T2	28	EW63	160.00 - 171.00	0.6000	0.6000
T2	30	EW90	160.00 - 177.00	0.6000	0.6000
T2	38	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T2	39	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T3	2	2 1/4	140.00 - 160.00	0.6000	0.6000
T3	3	5/16" Fiberoptic cable	140.00 - 160.00	0.6000	0.6000
T3	5	5/8 power	140.00 - 160.00	0.6000	0.6000
T3	7	1 5/8	140.00 - 150.00	0.6000	0.6000
T3	8	1-1/4" Hybrid fiber-power cable	140.00 - 150.00	0.6000	0.6000
T3	9	1 5/8	140.00 - 160.00	0.6000	0.6000
T3	10	7/8	140.00 - 160.00	0.6000	0.6000
T3	11	7/8	140.00 - 160.00	0.6000	0.6000
T3	12	3/8	140.00 - 160.00	0.6000	0.6000
T3	14	1/2	140.00 - 160.00	0.6000	0.6000
T3	15	7/8	140.00 - 160.00	0.6000	0.6000
T3	16	7/8	140.00 - 160.00	0.6000	0.6000
T3	26	EW63	140.00 - 160.00	0.6000	0.6000
T3	27	EW63	140.00 - 160.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	28	EW63	140.00 - 160.00	0.6000	0.6000
T3	30	EW90	140.00 - 160.00	0.6000	0.6000
T3	36	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	37	Feedline Ladder (Af)	140.00 - 150.00	0.6000	0.6000
T3	38	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	39	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	40	Safety Line 3/8	140.00 - 160.00	1.0000	1.0000
T4	2	2 1/4	120.00 - 140.00	0.6000	0.6000
T4	3	5/16" Fiberoptic cable	120.00 - 140.00	0.6000	0.6000
T4	5	5/8 power	120.00 - 140.00	0.6000	0.6000
T4	7	1 5/8	120.00 - 140.00	0.6000	0.6000
T4	8	1-1/4" Hybrid fiber-power cable	120.00 - 140.00	0.6000	0.6000
T4	9	1 5/8	120.00 - 140.00	0.6000	0.6000
T4	10	7/8	120.00 - 140.00	0.6000	0.6000
T4	11	7/8	120.00 - 140.00	0.6000	0.6000
T4	12	3/8	120.00 - 140.00	0.6000	0.6000
T4	14	1/2	120.00 - 140.00	0.6000	0.6000
T4	15	7/8	120.00 - 140.00	0.6000	0.6000
T4	16	7/8	120.00 - 140.00	0.6000	0.6000
T4	17	7/8	120.00 - 125.00	0.6000	0.6000
T4	26	EW63	120.00 - 140.00	0.6000	0.6000
T4	27	EW63	120.00 - 140.00	0.6000	0.6000
T4	28	EW63	120.00 - 140.00	0.6000	0.6000
T4	29	EW63	120.00 - 125.00	0.6000	0.6000
T4	30	EW90	120.00 - 140.00	0.6000	0.6000
T4	31	EW63	120.00 - 135.00	0.6000	0.6000
T4	33	1 5/8	120.00 - 140.00	0.6000	0.6000
T4	34	1-1/4" Hybrid fiber-power cable	120.00 - 140.00	0.6000	0.6000
T4	36	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	37	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	38	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	39	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	40	Safety Line 3/8	120.00 - 140.00	1.0000	1.0000
T5	2	2 1/4	100.00 - 120.00	0.6000	0.6000
T5	3	5/16" Fiberoptic cable	100.00 - 120.00	0.6000	0.6000
T5	5	5/8 power	100.00 - 120.00	0.6000	0.6000
T5	7	1 5/8	100.00 - 120.00	0.6000	0.6000
T5	8	1-1/4" Hybrid fiber-power cable	100.00 - 120.00	0.6000	0.6000
T5	9	1 5/8	100.00 - 120.00	0.6000	0.6000
T5	10	7/8	100.00 - 120.00	0.6000	0.6000
T5	11	7/8	100.00 - 120.00	0.6000	0.6000
T5	12	3/8	100.00 - 120.00	0.6000	0.6000
T5	13	3/8	100.00 - 103.00	0.6000	0.6000
T5	14	1/2	100.00 - 120.00	0.6000	0.6000
T5	15	7/8	100.00 - 120.00	0.6000	0.6000
T5	16	7/8	100.00 - 120.00	0.6000	0.6000
T5	17	7/8	100.00 - 120.00	0.6000	0.6000
T5	18	7/8	100.00 - 111.00	0.6000	0.6000
T5	19	7/8	100.00 - 108.00	0.6000	0.6000
T5	26	EW63	100.00 - 120.00	0.6000	0.6000
T5	27	EW63	100.00 - 120.00	0.6000	0.6000
T5	28	EW63	100.00 - 120.00	0.6000	0.6000
T5	29	EW63	100.00 - 120.00	0.6000	0.6000
T5	30	EW90	100.00 - 120.00	0.6000	0.6000
T5	31	EW63	100.00 - 120.00	0.6000	0.6000
T5	33	1 5/8	100.00 - 120.00	0.6000	0.6000
T5	34	1-1/4" Hybrid fiber-power cable	100.00 - 120.00	0.6000	0.6000
T5	36	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	37	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	38	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	39	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	40	Safety Line 3/8	100.00 - 120.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	2	2 1/4	93.33 - 100.00	0.6000	0.6000
T6	3	5/16" Fiberoptic cable	93.33 - 100.00	0.6000	0.6000
T6	5	5/8 power	93.33 - 100.00	0.6000	0.6000
T6	7	1 5/8	93.33 - 100.00	0.6000	0.6000
T6	8	1-1/4" Hybrid fiber-power cable	93.33 - 100.00	0.6000	0.6000
T6	9	1 5/8	93.33 - 100.00	0.6000	0.6000
T6	10	7/8	93.33 - 100.00	0.6000	0.6000
T6	11	7/8	93.33 - 100.00	0.6000	0.6000
T6	12	3/8	93.33 - 100.00	0.6000	0.6000
T6	13	3/8	93.33 - 100.00	0.6000	0.6000
T6	14	1/2	93.33 - 100.00	0.6000	0.6000
T6	15	7/8	93.33 - 100.00	0.6000	0.6000
T6	16	7/8	93.33 - 100.00	0.6000	0.6000
T6	17	7/8	93.33 - 100.00	0.6000	0.6000
T6	18	7/8	93.33 - 100.00	0.6000	0.6000
T6	19	7/8	93.33 - 100.00	0.6000	0.6000
T6	24	3/8 LMR	93.33 - 100.00	0.6000	0.6000
T6	26	EW63	93.33 - 100.00	0.6000	0.6000
T6	27	EW63	93.33 - 100.00	0.6000	0.6000
T6	28	EW63	93.33 - 100.00	0.6000	0.6000
T6	29	EW63	93.33 - 100.00	0.6000	0.6000
T6	30	EW90	93.33 - 100.00	0.6000	0.6000
T6	31	EW63	93.33 - 100.00	0.6000	0.6000
T6	32	EW63	93.33 - 100.00	0.6000	0.6000
T6	33	1 5/8	93.33 - 100.00	0.6000	0.6000
T6	34	1-1/4" Hybrid fiber-power cable	93.33 - 100.00	0.6000	0.6000
T6	36	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	37	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	38	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	39	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	40	Safety Line 3/8	93.33 - 100.00	1.0000	1.0000
T7	2	2 1/4	80.00 - 93.33	0.6000	0.6000
T7	3	5/16" Fiberoptic cable	80.00 - 93.33	0.6000	0.6000
T7	5	5/8 power	80.00 - 93.33	0.6000	0.6000
T7	7	1 5/8	80.00 - 93.33	0.6000	0.6000
T7	8	1-1/4" Hybrid fiber-power cable	80.00 - 93.33	0.6000	0.6000
T7	9	1 5/8	80.00 - 93.33	0.6000	0.6000
T7	10	7/8	80.00 - 93.33	0.6000	0.6000
T7	11	7/8	80.00 - 93.33	0.6000	0.6000
T7	12	3/8	80.00 - 93.33	0.6000	0.6000
T7	13	3/8	80.00 - 93.33	0.6000	0.6000
T7	14	1/2	80.00 - 93.33	0.6000	0.6000
T7	15	7/8	80.00 - 93.33	0.6000	0.6000
T7	16	7/8	80.00 - 93.33	0.6000	0.6000
T7	17	7/8	80.00 - 93.33	0.6000	0.6000
T7	18	7/8	80.00 - 93.33	0.6000	0.6000
T7	19	7/8	80.00 - 93.33	0.6000	0.6000
T7	20	7/8	80.00 - 87.00	0.6000	0.6000
T7	21	7/8	80.00 - 85.00	0.6000	0.6000
T7	24	3/8 LMR	80.00 - 93.33	0.6000	0.6000
T7	26	EW63	80.00 - 93.33	0.6000	0.6000
T7	27	EW63	80.00 - 93.33	0.6000	0.6000
T7	28	EW63	80.00 - 93.33	0.6000	0.6000
T7	29	EW63	80.00 - 93.33	0.6000	0.6000
T7	30	EW90	80.00 - 93.33	0.6000	0.6000
T7	31	EW63	80.00 - 93.33	0.6000	0.6000
T7	32	EW63	80.00 - 93.33	0.6000	0.6000
T7	33	1 5/8	80.00 - 93.33	0.6000	0.6000
T7	34	1-1/4" Hybrid fiber-power	80.00 - 93.33	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		cable			
T7	36	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	37	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	38	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	39	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	40	Safety Line 3/8	80.00 - 93.33	1.0000	1.0000
T8	2	2 1/4	73.33 - 80.00	0.6000	0.6000
T8	3	5/16" Fiberoptic cable	73.33 - 80.00	0.6000	0.6000
T8	5	5/8 power	73.33 - 80.00	0.6000	0.6000
T8	7	1 5/8	73.33 - 80.00	0.6000	0.6000
T8	8	1-1/4" Hybrid fiber-power cable	73.33 - 80.00	0.6000	0.6000
T8	9	1 5/8	73.33 - 80.00	0.6000	0.6000
T8	10	7/8	73.33 - 80.00	0.6000	0.6000
T8	11	7/8	73.33 - 80.00	0.6000	0.6000
T8	12	3/8	73.33 - 80.00	0.6000	0.6000
T8	13	3/8	73.33 - 80.00	0.6000	0.6000
T8	14	1/2	73.33 - 80.00	0.6000	0.6000
T8	15	7/8	73.33 - 80.00	0.6000	0.6000
T8	16	7/8	73.33 - 80.00	0.6000	0.6000
T8	17	7/8	73.33 - 80.00	0.6000	0.6000
T8	18	7/8	73.33 - 80.00	0.6000	0.6000
T8	19	7/8	73.33 - 80.00	0.6000	0.6000
T8	20	7/8	73.33 - 80.00	0.6000	0.6000
T8	21	7/8	73.33 - 80.00	0.6000	0.6000
T8	24	3/8 LMR	73.33 - 80.00	0.6000	0.6000
T8	25	3/8 LMR	73.33 - 80.00	0.6000	0.6000
T8	26	EW63	73.33 - 80.00	0.6000	0.6000
T8	27	EW63	73.33 - 80.00	0.6000	0.6000
T8	28	EW63	73.33 - 80.00	0.6000	0.6000
T8	29	EW63	73.33 - 80.00	0.6000	0.6000
T8	30	EW90	73.33 - 80.00	0.6000	0.6000
T8	31	EW63	73.33 - 80.00	0.6000	0.6000
T8	32	EW63	73.33 - 80.00	0.6000	0.6000
T8	33	1 5/8	73.33 - 80.00	0.6000	0.6000
T8	34	1-1/4" Hybrid fiber-power cable	73.33 - 80.00	0.6000	0.6000
T8	36	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	37	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	38	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	39	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	40	Safety Line 3/8	73.33 - 80.00	1.0000	1.0000
T9	2	2 1/4	60.00 - 73.33	0.6000	0.6000
T9	3	5/16" Fiberoptic cable	60.00 - 73.33	0.6000	0.6000
T9	5	5/8 power	60.00 - 73.33	0.6000	0.6000
T9	7	1 5/8	60.00 - 73.33	0.6000	0.6000
T9	8	1-1/4" Hybrid fiber-power cable	60.00 - 73.33	0.6000	0.6000
T9	9	1 5/8	60.00 - 73.33	0.6000	0.6000
T9	10	7/8	60.00 - 73.33	0.6000	0.6000
T9	11	7/8	60.00 - 73.33	0.6000	0.6000
T9	12	3/8	60.00 - 73.33	0.6000	0.6000
T9	13	3/8	60.00 - 73.33	0.6000	0.6000
T9	14	1/2	60.00 - 73.33	0.6000	0.6000
T9	15	7/8	60.00 - 73.33	0.6000	0.6000
T9	16	7/8	60.00 - 73.33	0.6000	0.6000
T9	17	7/8	60.00 - 73.33	0.6000	0.6000
T9	18	7/8	60.00 - 73.33	0.6000	0.6000
T9	19	7/8	60.00 - 73.33	0.6000	0.6000
T9	20	7/8	60.00 - 73.33	0.6000	0.6000
T9	21	7/8	60.00 - 73.33	0.6000	0.6000
T9	22	7/8	60.00 - 69.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	23	Cat 5e	60.00 - 66.00	0.6000	0.6000
T9	24	3/8 LMR	60.00 - 73.33	0.6000	0.6000
T9	25	3/8 LMR	60.00 - 73.33	0.6000	0.6000
T9	26	EW63	60.00 - 73.33	0.6000	0.6000
T9	27	EW63	60.00 - 73.33	0.6000	0.6000
T9	28	EW63	60.00 - 73.33	0.6000	0.6000
T9	29	EW63	60.00 - 73.33	0.6000	0.6000
T9	30	EW90	60.00 - 73.33	0.6000	0.6000
T9	31	EW63	60.00 - 73.33	0.6000	0.6000
T9	32	EW63	60.00 - 73.33	0.6000	0.6000
T9	33	1 5/8	60.00 - 73.33	0.6000	0.6000
T9	34	1-1/4" Hybrid fiber-power cable	60.00 - 73.33	0.6000	0.6000
T9	36	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	37	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	38	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	39	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	40	Safety Line 3/8	60.00 - 73.33	1.0000	1.0000
T10	2	2 1/4	53.33 - 60.00	0.6000	0.6000
T10	3	5/16" Fiberoptic cable	53.33 - 60.00	0.6000	0.6000
T10	5	5/8 power	53.33 - 60.00	0.6000	0.6000
T10	7	1 5/8	53.33 - 60.00	0.6000	0.6000
T10	8	1-1/4" Hybrid fiber-power cable	53.33 - 60.00	0.6000	0.6000
T10	9	1 5/8	53.33 - 60.00	0.6000	0.6000
T10	10	7/8	53.33 - 60.00	0.6000	0.6000
T10	11	7/8	53.33 - 60.00	0.6000	0.6000
T10	12	3/8	53.33 - 60.00	0.6000	0.6000
T10	13	3/8	53.33 - 60.00	0.6000	0.6000
T10	14	1/2	53.33 - 60.00	0.6000	0.6000
T10	15	7/8	53.33 - 60.00	0.6000	0.6000
T10	16	7/8	53.33 - 60.00	0.6000	0.6000
T10	17	7/8	53.33 - 60.00	0.6000	0.6000
T10	18	7/8	53.33 - 60.00	0.6000	0.6000
T10	19	7/8	53.33 - 60.00	0.6000	0.6000
T10	20	7/8	53.33 - 60.00	0.6000	0.6000
T10	21	7/8	53.33 - 60.00	0.6000	0.6000
T10	22	7/8	53.33 - 60.00	0.6000	0.6000
T10	23	Cat 5e	53.33 - 60.00	0.6000	0.6000
T10	24	3/8 LMR	53.33 - 60.00	0.6000	0.6000
T10	25	3/8 LMR	53.33 - 60.00	0.6000	0.6000
T10	26	EW63	53.33 - 60.00	0.6000	0.6000
T10	27	EW63	53.33 - 60.00	0.6000	0.6000
T10	28	EW63	53.33 - 60.00	0.6000	0.6000
T10	29	EW63	53.33 - 60.00	0.6000	0.6000
T10	30	EW90	53.33 - 60.00	0.6000	0.6000
T10	31	EW63	53.33 - 60.00	0.6000	0.6000
T10	32	EW63	53.33 - 60.00	0.6000	0.6000
T10	33	1 5/8	53.33 - 60.00	0.6000	0.6000
T10	34	1-1/4" Hybrid fiber-power cable	53.33 - 60.00	0.6000	0.6000
T10	36	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	37	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	38	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	39	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	40	Safety Line 3/8	53.33 - 60.00	1.0000	1.0000
T11	2	2 1/4	40.00 - 53.33	0.6000	0.6000
T11	3	5/16" Fiberoptic cable	40.00 - 53.33	0.6000	0.6000
T11	5	5/8 power	40.00 - 53.33	0.6000	0.6000
T11	7	1 5/8	40.00 - 53.33	0.6000	0.6000
T11	8	1-1/4" Hybrid fiber-power cable	40.00 - 53.33	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	9	1 5/8	40.00 - 53.33	0.6000	0.6000
T11	10	7/8	40.00 - 53.33	0.6000	0.6000
T11	11	7/8	40.00 - 53.33	0.6000	0.6000
T11	12	3/8	40.00 - 53.33	0.6000	0.6000
T11	13	3/8	40.00 - 53.33	0.6000	0.6000
T11	14	1/2	40.00 - 53.33	0.6000	0.6000
T11	15	7/8	40.00 - 53.33	0.6000	0.6000
T11	16	7/8	40.00 - 53.33	0.6000	0.6000
T11	17	7/8	40.00 - 53.33	0.6000	0.6000
T11	18	7/8	40.00 - 53.33	0.6000	0.6000
T11	19	7/8	40.00 - 53.33	0.6000	0.6000
T11	20	7/8	40.00 - 53.33	0.6000	0.6000
T11	21	7/8	40.00 - 53.33	0.6000	0.6000
T11	22	7/8	40.00 - 53.33	0.6000	0.6000
T11	23	Cat 5e	40.00 - 53.33	0.6000	0.6000
T11	24	3/8 LMR	40.00 - 53.33	0.6000	0.6000
T11	25	3/8 LMR	40.00 - 53.33	0.6000	0.6000
T11	26	EW63	40.00 - 53.33	0.6000	0.6000
T11	27	EW63	40.00 - 53.33	0.6000	0.6000
T11	28	EW63	40.00 - 53.33	0.6000	0.6000
T11	29	EW63	40.00 - 53.33	0.6000	0.6000
T11	30	EW90	40.00 - 53.33	0.6000	0.6000
T11	31	EW63	40.00 - 53.33	0.6000	0.6000
T11	32	EW63	40.00 - 53.33	0.6000	0.6000
T11	33	1 5/8	40.00 - 53.33	0.6000	0.6000
T11	34	1-1/4" Hybrid fiber-power cable	40.00 - 53.33	0.6000	0.6000
T11	36	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	37	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	38	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	39	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	40	Safety Line 3/8	40.00 - 53.33	1.0000	1.0000
T12	2	2 1/4	33.33 - 40.00	0.6000	0.6000
T12	3	5/16" Fiberoptic cable	33.33 - 40.00	0.6000	0.6000
T12	5	5/8 power	33.33 - 40.00	0.6000	0.6000
T12	7	1 5/8	33.33 - 40.00	0.6000	0.6000
T12	8	1-1/4" Hybrid fiber-power cable	33.33 - 40.00	0.6000	0.6000
T12	9	1 5/8	33.33 - 40.00	0.6000	0.6000
T12	10	7/8	33.33 - 40.00	0.6000	0.6000
T12	11	7/8	33.33 - 40.00	0.6000	0.6000
T12	12	3/8	33.33 - 40.00	0.6000	0.6000
T12	13	3/8	33.33 - 40.00	0.6000	0.6000
T12	14	1/2	33.33 - 40.00	0.6000	0.6000
T12	15	7/8	33.33 - 40.00	0.6000	0.6000
T12	16	7/8	33.33 - 40.00	0.6000	0.6000
T12	17	7/8	33.33 - 40.00	0.6000	0.6000
T12	18	7/8	33.33 - 40.00	0.6000	0.6000
T12	19	7/8	33.33 - 40.00	0.6000	0.6000
T12	20	7/8	33.33 - 40.00	0.6000	0.6000
T12	21	7/8	33.33 - 40.00	0.6000	0.6000
T12	22	7/8	33.33 - 40.00	0.6000	0.6000
T12	23	Cat 5e	33.33 - 40.00	0.6000	0.6000
T12	24	3/8 LMR	33.33 - 40.00	0.6000	0.6000
T12	25	3/8 LMR	33.33 - 40.00	0.6000	0.6000
T12	26	EW63	33.33 - 40.00	0.6000	0.6000
T12	27	EW63	33.33 - 40.00	0.6000	0.6000
T12	28	EW63	33.33 - 40.00	0.6000	0.6000
T12	29	EW63	33.33 - 40.00	0.6000	0.6000
T12	30	EW90	33.33 - 40.00	0.6000	0.6000
T12	31	EW63	33.33 - 40.00	0.6000	0.6000
T12	32	EW63	33.33 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	33	1 5/8	33.33 - 40.00	0.6000	0.6000
T12	34	1-1/4" Hybrid fiber-power cable	33.33 - 40.00	0.6000	0.6000
T12	36	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	37	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	38	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	39	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	40	Safety Line 3/8	33.33 - 40.00	1.0000	1.0000
T13	2	2 1/4	20.00 - 33.33	0.6000	0.6000
T13	3	5/16" Fiberoptic cable	20.00 - 33.33	0.6000	0.6000
T13	5	5/8 power	20.00 - 33.33	0.6000	0.6000
T13	7	1 5/8	20.00 - 33.33	0.6000	0.6000
T13	8	1-1/4" Hybrid fiber-power cable	20.00 - 33.33	0.6000	0.6000
T13	9	1 5/8	20.00 - 33.33	0.6000	0.6000
T13	10	7/8	20.00 - 33.33	0.6000	0.6000
T13	11	7/8	20.00 - 33.33	0.6000	0.6000
T13	12	3/8	20.00 - 33.33	0.6000	0.6000
T13	13	3/8	20.00 - 33.33	0.6000	0.6000
T13	14	1/2	20.00 - 33.33	0.6000	0.6000
T13	15	7/8	20.00 - 33.33	0.6000	0.6000
T13	16	7/8	20.00 - 33.33	0.6000	0.6000
T13	17	7/8	20.00 - 33.33	0.6000	0.6000
T13	18	7/8	20.00 - 33.33	0.6000	0.6000
T13	19	7/8	20.00 - 33.33	0.6000	0.6000
T13	20	7/8	20.00 - 33.33	0.6000	0.6000
T13	21	7/8	20.00 - 33.33	0.6000	0.6000
T13	22	7/8	20.00 - 33.33	0.6000	0.6000
T13	23	Cat 5e	20.00 - 33.33	0.6000	0.6000
T13	24	3/8 LMR	20.00 - 33.33	0.6000	0.6000
T13	25	3/8 LMR	20.00 - 33.33	0.6000	0.6000
T13	26	EW63	20.00 - 33.33	0.6000	0.6000
T13	27	EW63	20.00 - 33.33	0.6000	0.6000
T13	28	EW63	20.00 - 33.33	0.6000	0.6000
T13	29	EW63	20.00 - 33.33	0.6000	0.6000
T13	30	EW90	20.00 - 33.33	0.6000	0.6000
T13	31	EW63	20.00 - 33.33	0.6000	0.6000
T13	32	EW63	20.00 - 33.33	0.6000	0.6000
T13	33	1 5/8	20.00 - 33.33	0.6000	0.6000
T13	34	1-1/4" Hybrid fiber-power cable	20.00 - 33.33	0.6000	0.6000
T13	36	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	37	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	38	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	39	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	40	Safety Line 3/8	20.00 - 33.33	1.0000	1.0000
T14	2	2 1/4	13.33 - 20.00	0.6000	0.6000
T14	3	5/16" Fiberoptic cable	13.33 - 20.00	0.6000	0.6000
T14	5	5/8 power	13.33 - 20.00	0.6000	0.6000
T14	7	1 5/8	13.33 - 20.00	0.6000	0.6000
T14	8	1-1/4" Hybrid fiber-power cable	13.33 - 20.00	0.6000	0.6000
T14	9	1 5/8	13.33 - 20.00	0.6000	0.6000
T14	10	7/8	13.33 - 20.00	0.6000	0.6000
T14	11	7/8	13.33 - 20.00	0.6000	0.6000
T14	12	3/8	13.33 - 20.00	0.6000	0.6000
T14	13	3/8	13.33 - 20.00	0.6000	0.6000
T14	14	1/2	13.33 - 20.00	0.6000	0.6000
T14	15	7/8	13.33 - 20.00	0.6000	0.6000
T14	16	7/8	13.33 - 20.00	0.6000	0.6000
T14	17	7/8	13.33 - 20.00	0.6000	0.6000
T14	18	7/8	13.33 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	19	7/8	13.33 - 20.00	0.6000	0.6000
T14	20	7/8	13.33 - 20.00	0.6000	0.6000
T14	21	7/8	13.33 - 20.00	0.6000	0.6000
T14	22	7/8	13.33 - 20.00	0.6000	0.6000
T14	23	Cat 5e	13.33 - 20.00	0.6000	0.6000
T14	24	3/8 LMR	13.33 - 20.00	0.6000	0.6000
T14	25	3/8 LMR	13.33 - 20.00	0.6000	0.6000
T14	26	EW63	13.33 - 20.00	0.6000	0.6000
T14	27	EW63	13.33 - 20.00	0.6000	0.6000
T14	28	EW63	13.33 - 20.00	0.6000	0.6000
T14	29	EW63	13.33 - 20.00	0.6000	0.6000
T14	30	EW90	13.33 - 20.00	0.6000	0.6000
T14	31	EW63	13.33 - 20.00	0.6000	0.6000
T14	32	EW63	13.33 - 20.00	0.6000	0.6000
T14	33	1 5/8	13.33 - 20.00	0.6000	0.6000
T14	34	1-1/4" Hybrid fiber-power cable	13.33 - 20.00	0.6000	0.6000
T14	36	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	37	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	38	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	39	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	40	Safety Line 3/8	13.33 - 20.00	1.0000	1.0000
T15	2	2 1/4	0.00 - 13.33	0.6000	0.6000
T15	3	5/16" Fiberoptic cable	0.00 - 13.33	0.6000	0.6000
T15	5	5/8 power	0.00 - 13.33	0.6000	0.6000
T15	7	1 5/8	0.00 - 13.33	0.6000	0.6000
T15	8	1-1/4" Hybrid fiber-power cable	0.00 - 13.33	0.6000	0.6000
T15	9	1 5/8	0.00 - 13.33	0.6000	0.6000
T15	10	7/8	0.00 - 13.33	0.6000	0.6000
T15	11	7/8	0.00 - 13.33	0.6000	0.6000
T15	12	3/8	0.00 - 13.33	0.6000	0.6000
T15	13	3/8	0.00 - 13.33	0.6000	0.6000
T15	14	1/2	0.00 - 13.33	0.6000	0.6000
T15	15	7/8	0.00 - 13.33	0.6000	0.6000
T15	16	7/8	0.00 - 13.33	0.6000	0.6000
T15	17	7/8	0.00 - 13.33	0.6000	0.6000
T15	18	7/8	0.00 - 13.33	0.6000	0.6000
T15	19	7/8	0.00 - 13.33	0.6000	0.6000
T15	20	7/8	0.00 - 13.33	0.6000	0.6000
T15	21	7/8	0.00 - 13.33	0.6000	0.6000
T15	22	7/8	0.00 - 13.33	0.6000	0.6000
T15	23	Cat 5e	0.00 - 13.33	0.6000	0.6000
T15	24	3/8 LMR	0.00 - 13.33	0.6000	0.6000
T15	25	3/8 LMR	0.00 - 13.33	0.6000	0.6000
T15	26	EW63	0.00 - 13.33	0.6000	0.6000
T15	27	EW63	0.00 - 13.33	0.6000	0.6000
T15	28	EW63	0.00 - 13.33	0.6000	0.6000
T15	29	EW63	0.00 - 13.33	0.6000	0.6000
T15	30	EW90	0.00 - 13.33	0.6000	0.6000
T15	31	EW63	0.00 - 13.33	0.6000	0.6000
T15	32	EW63	0.00 - 13.33	0.6000	0.6000
T15	33	1 5/8	0.00 - 13.33	0.6000	0.6000
T15	34	1-1/4" Hybrid fiber-power cable	0.00 - 13.33	0.6000	0.6000
T15	36	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	37	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	38	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	39	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	40	Safety Line 3/8	0.00 - 13.33	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
LED beacon	C	None		0.0000	185.00	No Ice	0.40	0.40	30.00
(NU)						1/2" Ice	0.68	0.68	43.19
						1" Ice	0.80	0.80	58.50
20' x 3" omni whip	B	From Leg	1.00	0.0000	185.00	No Ice	5.60	5.60	50.00
(NU)			1.00			1/2" Ice	8.03	8.03	93.17
			10.00			1" Ice	10.08	10.08	149.01
Tower Top Amplifier	B	From Leg	1.00	0.0000	185.00	No Ice	3.11	1.17	40.00
(NU)			1.00			1/2" Ice	3.35	1.34	58.76
			0.00			1" Ice	3.60	1.52	80.44
14' x 3" Dia Omni	C	From Leg	1.00	0.0000	185.00	No Ice	4.20	4.20	40.00
(NU)			-1.00			1/2" Ice	5.63	5.63	70.34
			7.00			1" Ice	7.08	7.08	109.69
BA8080-67 16' 16 Bay	C	From Leg	1.00	0.0000	185.00	No Ice	4.00	4.00	55.00
Dipole			1.00			1/2" Ice	6.00	6.00	100.00
(Bloomfield PD)			10.00			1" Ice	8.00	8.00	145.00
6'x4 1/2" Pipe Mount	A	From Leg	0.50	0.0000	183.00	No Ice	1.58	1.58	64.70
(NU)			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
24' x 2" omni whip	B	From Leg	0.50	0.0000	183.00	No Ice	10.20	5.10	465.00
			0.00			1/2" Ice	13.80	6.90	600.00
			0.00			1" Ice	17.40	8.70	735.00
12' T-frame sector mnt	B	From Leg	0.50	0.0000	183.00	No Ice	10.20	5.10	465.00
			0.00			1/2" Ice	13.80	6.90	600.00
			0.00			1" Ice	17.40	8.70	735.00
14' x 2" omni whip	A	From Leg	0.50	0.0000	183.00	No Ice	2.80	2.80	75.00
(NU)			0.00			1/2" Ice	4.22	4.22	96.61
			-7.00			1" Ice	5.67	5.67	127.13
14' x 2" omni whip	A	From Leg	0.50	0.0000	183.00	No Ice	2.80	2.80	75.00
(NU)			0.00			1/2" Ice	4.22	4.22	96.61
			-7.00			1" Ice	5.67	5.67	127.13
14' x 2" omni whip	A	From Leg	0.50	0.0000	183.00	No Ice	2.80	2.80	75.00
(NU)			0.00			1/2" Ice	4.22	4.22	96.61
			7.00			1" Ice	5.67	5.67	127.13
Dual Branch TTA	A	From Leg	0.50	0.0000	183.00	No Ice	1.50	0.94	22.00
(NU)			0.00			1/2" Ice	1.65	1.07	35.55
			0.00			1" Ice	1.81	1.20	51.52
6'x4 1/2" Pipe Mount	A	From Leg	0.50	0.0000	177.00	No Ice	1.58	1.58	64.70
(NU)			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
10' 4-bay dipole	C	From Leg	0.50	0.0000	171.00 - 181.00	No Ice	2.50	2.50	75.00
(NU)			0.00			1/2" Ice	3.53	3.53	93.64
			0.00			1" Ice	4.58	4.58	118.79
6'x4 1/2" Pipe Mount	C	From Leg	0.50	0.0000	181.00	No Ice	1.58	1.58	64.70
(NU)			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
6'x4 1/2" Pipe Mount	A	From Leg	0.50	0.0000	172.00	No Ice	1.58	1.58	64.70
(NU)			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
6'x4 1/2" Pipe Mount	C	From Leg	0.50	0.0000	171.00	No Ice	1.58	1.58	64.70
(NU)			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
PR-900	C	From Leg	0.50	0.0000	165.00	No Ice	6.35	6.35	38.00
(Simsbury PD)			0.00			1/2" Ice	11.43	11.43	49.40
			0.00			1" Ice	16.51	16.51	60.80

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
6'x3" Pipe Mount (Simsbury PD)	C	From Leg	0.50 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice 1" Ice	1.77 2.13 2.50	1.77 2.13 2.50	30.00 47.98 65.33
Telewave ANT150F6 (NU)	A	From Leg	3.00 0.00 10.00	0.0000	165.00	No Ice 1/2" Ice 1" Ice	5.87 8.03 10.21	5.87 8.03 10.21	35.00 77.71 133.89
ROHN 3-ft Side Arm (NU)	A	From Leg	1.50 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice 1" Ice	3.10 5.00 6.90	3.10 5.00 6.90	70.00 100.00 130.00
7770.00 (AT&T existing)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	35.00 67.63 105.06
7770.00 (AT&T existing)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	35.00 67.63 105.06
7770.00 (AT&T existing)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	35.00 67.63 105.06
OPA-65R-LCUU-H8 (AT&T existing)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	12.75 13.33 13.92	7.25 7.82 8.40	90.00 161.29 240.16
OPA-65R-LCUU-H6 (AT&T existing)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	9.66 10.13 10.61	5.52 5.97 6.43	75.00 133.43 198.17
OPA-65R-LCUU-H8 (AT&T existing)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	12.75 13.33 13.92	7.25 7.82 8.40	90.00 161.29 240.16
(2) 800-10966 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	17.36 17.99 18.63	7.50 8.09 8.69	125.00 217.18 317.51
(2) 800-10965 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	13.81 14.35 14.89	5.83 6.32 6.82	45.00 121.53 205.11
(2) 800-10966 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	17.36 17.99 18.63	7.50 8.09 8.69	125.00 217.18 317.51
RRUS-32 (AT&T existing)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.87 4.15 4.44	2.76 3.02 3.29	80.00 104.93 136.47
RRUS-32 (AT&T existing)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.87 4.15 4.44	2.76 3.02 3.29	80.00 104.93 136.47
RRUS-32 (AT&T existing)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.87 4.15 4.44	2.76 3.02 3.29	80.00 104.93 136.47
RRUS-E2 (AT&T existing)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.67 3.93 4.19	1.49 1.67 1.87	60.00 81.22 107.65
RRUS-E2 (AT&T existing)	B	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.67 3.93 4.19	1.49 1.67 1.87	60.00 81.22 107.65
RRUS-E2 (AT&T existing)	C	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.67 3.93 4.19	1.49 1.67 1.87	60.00 81.22 107.65
Ericsson RRUS B14 4478 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	1.06 1.20 1.34	65.00 80.88 99.39

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Ericsson RRUS B14 4478	B	From Leg	3.00	0.0000	160.00	No Ice	1.84	1.06	65.00
(AT&T)			0.00			1/2" Ice	2.01	1.20	80.88
			0.00			1" Ice	2.19	1.34	99.39
Ericsson RRUS B14 4478	C	From Leg	3.00	0.0000	160.00	No Ice	1.84	1.06	65.00
(AT&T)			0.00			1/2" Ice	2.01	1.20	80.88
			0.00			1" Ice	2.19	1.34	99.39
Ericsson RRUS 8843	A	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	72.00
(AT&T)			0.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
Ericsson RRUS 8843	B	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	72.00
(AT&T)			0.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
Ericsson RRUS 8843	C	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	72.00
(AT&T)			0.00			1/2" Ice	1.80	1.50	89.60
			0.00			1" Ice	1.97	1.65	109.91
Ericsson RRUS B5 4449	A	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.30	73.00
(AT&T)			0.00			1/2" Ice	1.80	1.45	90.19
			0.00			1" Ice	1.97	1.60	110.08
Ericsson RRUS B5 4449	B	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.30	73.00
(AT&T)			0.00			1/2" Ice	1.80	1.45	90.19
			0.00			1" Ice	1.97	1.60	110.08
Ericsson RRUS B5 4449	C	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.30	73.00
(AT&T)			0.00			1/2" Ice	1.80	1.45	90.19
			0.00			1" Ice	1.97	1.60	110.08
TT08-19DB111 TMA	A	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	20.00
(AT&T existing)			0.00			1/2" Ice	0.91	0.75	27.63
			0.00			1" Ice	1.04	0.87	37.15
TT08-19DB111 TMA	B	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	20.00
(AT&T existing)			0.00			1/2" Ice	0.91	0.75	27.63
			0.00			1" Ice	1.04	0.87	37.15
TT08-19DB111 TMA	C	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	20.00
(AT&T existing)			0.00			1/2" Ice	0.91	0.75	27.63
			0.00			1" Ice	1.04	0.87	37.15
Raycap DC6-48-60-18-8F	A	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
surge suppressor			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
Raycap DC6-48-60-18-8F	B	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
surge suppressor			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
Raycap DC6-48-60-18-8F	C	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
surge suppressor			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
Raycap	A	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
DC6-48-60-18-8C-EV			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
Raycap	B	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
DC6-48-60-18-8C-EV			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
Raycap	C	From Leg	1.00	0.0000	160.00	No Ice	0.74	0.74	30.00
DC6-48-60-18-8C-EV			0.00			1/2" Ice	1.20	1.20	44.34
(AT&T existing)			0.00			1" Ice	1.37	1.37	60.93
SitePro VFA12-HD	A	From Leg	1.50	0.0000	160.00	No Ice	13.20	9.20	650.00
(AT&T existing)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	950.00
SitePro VFA12-HD	B	From Leg	1.50	0.0000	160.00	No Ice	13.20	9.20	650.00
(AT&T existing)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	950.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
SitePro VFA12-HD	C	From Leg	1.50	0.0000	160.00	No Ice	13.20	9.20	650.00
(AT&T existing)			0.00			1/2" Ice	19.50	14.60	800.00
			0.00			1" Ice	25.80	19.50	950.00
(2) 5'x2-3/8" Pipe Mount	A	From Leg	1.50	0.0000	160.00	No Ice	1.19	1.19	20.00
(AT&T new)			0.00			1/2" Ice	1.50	1.50	29.07
			0.00			1" Ice	1.81	1.81	41.59
(2) 5'x2-3/8" Pipe Mount	B	From Leg	1.50	0.0000	160.00	No Ice	1.19	1.19	20.00
(AT&T new)			0.00			1/2" Ice	1.50	1.50	29.07
			0.00			1" Ice	1.81	1.81	41.59
(2) 5'x2-3/8" Pipe Mount	C	From Leg	1.50	0.0000	160.00	No Ice	1.19	1.19	20.00
(AT&T new)			0.00			1/2" Ice	1.50	1.50	29.07
			0.00			1" Ice	1.81	1.81	41.59
BXA-70063/6	A	From Leg	3.00	0.0000	150.00	No Ice	7.57	3.76	25.00
(Verizon)			0.00			1/2" Ice	8.02	4.19	65.60
			0.00			1" Ice	8.47	4.63	112.01
BXA-70063/6	B	From Leg	3.00	0.0000	150.00	No Ice	7.57	3.76	25.00
(Verizon)			0.00			1/2" Ice	8.02	4.19	65.60
			0.00			1" Ice	8.47	4.63	112.01
BXA-70063/6	C	From Leg	3.00	0.0000	150.00	No Ice	7.57	3.76	25.00
(Verizon)			0.00			1/2" Ice	8.02	4.19	65.60
			0.00			1" Ice	8.47	4.63	112.01
(2) BXA-171063/12	A	From Leg	3.00	0.0000	150.00	No Ice	4.79	3.62	25.00
(Verizon)			0.00			1/2" Ice	5.24	4.06	52.45
			0.00			1" Ice	5.70	4.50	85.45
(2) BXA-171063/12	B	From Leg	3.00	0.0000	150.00	No Ice	4.79	3.62	25.00
(Verizon)			0.00			1/2" Ice	5.24	4.06	52.45
			0.00			1" Ice	5.70	4.50	85.45
(2) BXA-171063/12	C	From Leg	3.00	0.0000	150.00	No Ice	4.79	3.62	25.00
(Verizon)			0.00			1/2" Ice	5.24	4.06	52.45
			0.00			1" Ice	5.70	4.50	85.45
(2) LPA-80080/4	A	From Leg	3.00	0.0000	150.00	No Ice	2.62	5.40	20.00
(Verizon)			0.00			1/2" Ice	2.92	5.73	53.12
			0.00			1" Ice	3.23	6.06	90.72
(2) LPA-80080/4	B	From Leg	3.00	0.0000	150.00	No Ice	2.62	5.40	20.00
(Verizon)			0.00			1/2" Ice	2.92	5.73	53.12
			0.00			1" Ice	3.23	6.06	90.72
(2) LPA-80080/4	C	From Leg	3.00	0.0000	150.00	No Ice	2.62	5.40	20.00
(Verizon)			0.00			1/2" Ice	2.92	5.73	53.12
			0.00			1" Ice	3.23	6.06	90.72
ALU RRH2x40-700U	A	From Leg	3.00	0.0000	150.00	No Ice	2.83	1.67	51.00
(Verizon)			0.00			1/2" Ice	3.04	1.84	75.56
			0.00			1" Ice	3.26	2.01	103.37
ALU RRH2x40-700U	B	From Leg	3.00	0.0000	150.00	No Ice	2.83	1.67	51.00
(Verizon)			0.00			1/2" Ice	3.04	1.84	75.56
			0.00			1" Ice	3.26	2.01	103.37
ALU RRH2x40-700U	C	From Leg	3.00	0.0000	150.00	No Ice	2.83	1.67	51.00
(Verizon)			0.00			1/2" Ice	3.04	1.84	75.56
			0.00			1" Ice	3.26	2.01	103.37
ALU RRH2x40-AWS	A	From Leg	3.00	0.0000	150.00	No Ice	2.85	1.42	131.00
(Verizon)			0.00			1/2" Ice	3.06	1.59	151.90
			0.00			1" Ice	3.29	1.77	175.92
ALU RRH2x40-AWS	B	From Leg	3.00	0.0000	150.00	No Ice	2.85	1.42	131.00
(Verizon)			0.00			1/2" Ice	3.06	1.59	151.90
			0.00			1" Ice	3.29	1.77	175.92
ALU RRH2x40-AWS	C	From Leg	3.00	0.0000	150.00	No Ice	2.85	1.42	131.00
(Verizon)			0.00			1/2" Ice	3.06	1.59	151.90
			0.00			1" Ice	3.29	1.77	175.92

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RFS DB-T1-6Z-8AB-0Z	A	From Leg	3.00	0.0000	150.00	No Ice	4.80	2.00	45.00
D-box			0.00			1/2" Ice	5.07	2.19	81.13
(Verizon)			0.00			1" Ice	5.35	2.39	121.22
Rohn 6' x 12' Boom Gate (1)	A	From Leg	1.50	0.0000	150.00	No Ice	16.60	16.60	560.00
(Verizon)			0.00			1/2" Ice	19.80	19.80	700.00
			0.00			1" Ice	23.00	23.00	840.00
Rohn 6' x 12' Boom Gate (1)	B	From Leg	1.50	0.0000	150.00	No Ice	16.60	16.60	560.00
(Verizon)			0.00			1/2" Ice	19.80	19.80	700.00
			0.00			1" Ice	23.00	23.00	840.00
Rohn 6' x 12' Boom Gate (1)	C	From Leg	1.50	0.0000	150.00	No Ice	16.60	16.60	560.00
(Verizon)			0.00			1/2" Ice	19.80	19.80	700.00
			0.00			1" Ice	23.00	23.00	840.00
APXV18-206516	A	From Leg	4.00	0.0000	140.50	No Ice	3.57	2.00	15.00
(T-Mobile)			0.00			1/2" Ice	3.91	2.33	34.86
			0.00			1" Ice	4.25	2.66	58.99
APXV18-206516	B	From Leg	4.00	0.0000	140.50	No Ice	3.57	2.00	15.00
(T-Mobile)			0.00			1/2" Ice	3.91	2.33	34.86
			0.00			1" Ice	4.25	2.66	58.99
APXV18-206516	C	From Leg	4.00	0.0000	140.50	No Ice	3.57	2.00	15.00
(T-Mobile)			0.00			1/2" Ice	3.91	2.33	34.86
			0.00			1" Ice	4.25	2.66	58.99
APXV18-206517	A	From Leg	4.00	0.0000	140.50	No Ice	5.17	3.04	30.00
(T-Mobile)			0.00			1/2" Ice	5.62	3.47	56.60
			0.00			1" Ice	6.08	3.91	88.70
APXV18-206517	B	From Leg	4.00	0.0000	140.50	No Ice	5.17	3.04	30.00
(T-Mobile)			0.00			1/2" Ice	5.62	3.47	56.60
			0.00			1" Ice	6.08	3.91	88.70
APXV18-206517	C	From Leg	4.00	0.0000	140.50	No Ice	5.17	3.04	30.00
(T-Mobile)			0.00			1/2" Ice	5.62	3.47	56.60
			0.00			1" Ice	6.08	3.91	88.70
LNX-6515DS-T4M	A	From Leg	4.00	0.0000	140.50	No Ice	11.39	7.66	50.00
(T-Mobile)			0.00			1/2" Ice	12.01	8.25	115.61
			0.00			1" Ice	12.63	8.84	188.87
LNX-6515DS-T4M	B	From Leg	4.00	0.0000	140.50	No Ice	11.39	7.66	50.00
(T-Mobile)			0.00			1/2" Ice	12.01	8.25	115.61
			0.00			1" Ice	12.63	8.84	188.87
LNX-6515DS-T4M	C	From Leg	4.00	0.0000	140.50	No Ice	11.39	7.66	50.00
(T-Mobile)			0.00			1/2" Ice	12.01	8.25	115.61
			0.00			1" Ice	12.63	8.84	188.87
(2) Ericsson RRUS-11	A	From Leg	3.50	0.0000	140.50	No Ice	2.79	1.02	55.00
(T-Mobile)			0.00			1/2" Ice	3.00	1.16	75.86
			0.00			1" Ice	3.21	1.30	99.77
(2) Ericsson RRUS-11	B	From Leg	3.50	0.0000	140.50	No Ice	2.79	1.02	55.00
(T-Mobile)			0.00			1/2" Ice	3.00	1.16	75.86
			0.00			1" Ice	3.21	1.30	99.77
(2) Ericsson RRUS-11	C	From Leg	3.50	0.0000	140.50	No Ice	2.79	1.02	55.00
(T-Mobile)			0.00			1/2" Ice	3.00	1.16	75.86
			0.00			1" Ice	3.21	1.30	99.77
T-Mobile Mini-Squid	C	None		0.0000	140.50	No Ice	0.13	0.13	4.00
(T-Mobile)						1/2" Ice	0.24	0.24	6.69
						1" Ice	0.31	0.31	10.38
Fastback IBR 1300	B	From Leg	4.00	0.0000	140.50	No Ice	0.67	0.31	10.00
(T-Mobile)			0.00			1/2" Ice	0.78	0.38	15.42
			0.00			1" Ice	0.89	0.47	22.44
4'x2 7/8" Pipe Mount	B	From Leg	4.00	0.0000	140.50	No Ice	0.95	0.95	23.20
(T-Mobile)			0.00			1/2" Ice	1.22	1.22	31.83
			0.00			1" Ice	1.48	1.48	43.35

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12' T-frame sector mnt	A	From Leg	2.00	0.0000	140.50	No Ice	10.20	5.10	600.00
			0.00			1/2" Ice	13.80	6.90	750.00
			0.00			1" Ice	17.40	8.70	900.00
12' T-frame sector mnt	B	From Leg	2.00	0.0000	140.50	No Ice	10.20	5.10	600.00
			0.00			1/2" Ice	13.80	6.90	750.00
			0.00			1" Ice	17.40	8.70	900.00
12' T-frame sector mnt	C	From Leg	2.00	0.0000	140.50	No Ice	10.20	5.10	600.00
			0.00			1/2" Ice	13.80	6.90	750.00
			0.00			1" Ice	17.40	8.70	900.00
6'x4 1/2" Pipe Mount (NU)	B	From Leg	0.50	0.0000	135.00	No Ice	1.57	1.57	64.70
			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
6'x4 1/2" Pipe Mount (NU)	C	From Leg	0.50	0.0000	135.00	No Ice	1.57	1.57	64.70
			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
6'x4 1/2" Pipe Mount (NU)	B	From Leg	0.50	0.0000	125.00	No Ice	1.57	1.57	64.70
			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
Telewave ANT150F6 (NU)	C	From Leg	6.00	0.0000	125.00	No Ice	5.87	5.87	35.00
			0.00			1/2" Ice	8.03	8.03	77.71
			10.00			1" Ice	10.21	10.21	133.89
Rohn 6' Side-Arm(1) (NU)	C	From Leg	3.00	0.0000	125.00	No Ice	10.60	10.60	140.00
			0.00			1/2" Ice	15.40	15.40	212.00
			0.00			1" Ice	20.20	20.20	284.00
12' single dipole (NU)	A	From Leg	6.00	0.0000	125.00	No Ice	2.25	2.25	30.00
			0.00			1/2" Ice	4.83	4.83	51.65
			0.00			1" Ice	7.43	7.43	89.22
Rohn 6' Side-Arm(1) (NU)	A	From Leg	3.00	0.0000	125.00	No Ice	10.60	10.60	140.00
			0.00			1/2" Ice	15.40	15.40	212.00
			0.00			1" Ice	20.20	20.20	284.00
12' Dipole (NU)	A	From Leg	6.00	0.0000	109.00	No Ice	6.00	6.00	70.00
			0.00			1/2" Ice	8.00	8.00	90.00
			0.00			1" Ice	10.00	10.00	110.00
Rohn 6' Side-Arm(1) (NU)	A	From Leg	3.00	0.0000	109.00	No Ice	10.60	10.60	140.00
			0.00			1/2" Ice	15.40	15.40	212.00
			0.00			1" Ice	20.20	20.20	284.00
14' x 3" Dia Omni (NU)	B	From Leg	6.00	0.0000	108.00	No Ice	4.20	4.20	40.00
			0.00			1/2" Ice	5.63	5.63	70.34
			7.00			1" Ice	7.08	7.08	109.69
Rohn 6' Side-Arm(1) (NU)	B	From Leg	3.00	0.0000	108.00	No Ice	10.60	10.60	140.00
			0.00			1/2" Ice	15.40	15.40	212.00
			0.00			1" Ice	20.20	20.20	284.00
Obstruction light (NU)	A	From Leg	0.50	0.0000	103.00	No Ice	0.13	0.13	8.00
			0.00			1/2" Ice	0.22	0.22	10.47
			0.00			1" Ice	0.29	0.29	13.91
Obstruction light (NU)	B	From Leg	0.50	0.0000	103.00	No Ice	0.13	0.13	8.00
			0.00			1/2" Ice	0.22	0.22	10.47
			0.00			1" Ice	0.29	0.29	13.91
Obstruction light (NU)	C	From Leg	0.50	0.0000	103.00	No Ice	0.13	0.13	8.00
			0.00			1/2" Ice	0.22	0.22	10.47
			0.00			1" Ice	0.29	0.29	13.91
6'x4 1/2" Pipe Mount (NU)	B	From Leg	0.50	0.0000	100.00	No Ice	1.56	1.56	64.70
			0.00			1/2" Ice	2.62	2.62	83.80
			0.00			1" Ice	3.00	3.00	107.17
Telewave ANT150F2 (NU)	B	From Leg	3.00	0.0000	87.00	No Ice	1.29	1.29	15.00
			0.00			1/2" Ice	1.60	1.60	25.28
			2.50			1" Ice	1.91	1.91	39.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
3' sidearm	B	From Leg	1.50	0.0000	87.00	No Ice	1.43	0.72	30.00
(NU)			0.00			1/2" Ice	2.18	1.09	65.00
			0.00			1" Ice	2.93	1.47	105.00
12' Dipole	A	From Leg	6.00	0.0000	85.00	No Ice	6.00	6.00	70.00
(NU)			0.00			1/2" Ice	8.00	8.00	90.00
			0.00			1" Ice	10.00	10.00	110.00
Rohn 6' Side-Arm(1)	A	From Leg	3.00	0.0000	85.00	No Ice	10.60	10.60	140.00
(NU)			0.00			1/2" Ice	15.40	15.40	212.00
			0.00			1" Ice	20.20	20.20	284.00
18" square panel	B	From Leg	3.00	0.0000	66.00	No Ice	2.70	0.51	22.00
(NU)			0.00			1/2" Ice	2.90	0.63	37.30
			0.00			1" Ice	3.11	0.75	55.31
3' sidearm	B	From Leg	1.50	0.0000	66.00	No Ice	1.43	0.72	30.00
(NU)			0.00			1/2" Ice	2.18	1.09	65.00
			0.00			1" Ice	2.93	1.47	105.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
8' dish with radome	A	Paraboloid	From	2.00	Worst		183.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
8' dish with radome	B	Paraboloid	From	2.00	Worst		183.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
4' dish with radome	A	Paraboloid	From	1.00	Worst		177.00	4.00	No Ice	12.57	150.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	13.10	217.22
				0.00					1" Ice	13.62	284.44
8' dish with radome	B	Paraboloid	From	2.00	Worst		172.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
8' dish with radome	C	Paraboloid	From	2.00	Worst		171.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
6' dish with radome	B	Paraboloid	From	1.50	Worst		135.00	6.00	No Ice	28.27	250.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	29.07	400.00
				0.00					1" Ice	29.86	550.00
6' dish with radome	C	Paraboloid	From	1.50	Worst		135.00	6.00	No Ice	28.27	250.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	29.07	400.00
				0.00					1" Ice	29.86	550.00
8' dish with radome	B	Paraboloid	From	2.00	Worst		125.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
8' dish with radome	B	Paraboloid	From	2.00	Worst		100.00	8.00	No Ice	50.27	450.00
(NU)		w/Radome	Leg	0.00					1/2" Ice	51.32	713.43
				0.00					1" Ice	52.37	976.86
3' HP dish	A	Paraboloid	From	1.00	Worst		100.00	3.00	No Ice	7.07	75.00
(Bloomfield PD/FD)		w/Shroud (HP)	Leg	0.00					1/2" Ice	7.47	113.33
				0.00					1" Ice	7.86	153.33
3' HP dish	B	Paraboloid	From	1.00	Worst		80.00	3.00	No Ice	7.07	75.00
(Bloomfield PD/FD)		w/Shroud (HP)	Leg	0.00					1/2" Ice	7.47	113.33

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	lb
				0.00					1" Ice	7.86	153.33

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+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
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	185 - 180	2.047	39	0.0801	0.0041
T2	180 - 160	1.970	39	0.0798	0.0039
T3	160 - 140	1.640	39	0.0783	0.0036
T4	140 - 120	1.315	39	0.0738	0.0040
T5	120 - 100	1.002	39	0.0648	0.0033
T6	100 - 93.3333	0.722	39	0.0555	0.0029
T7	93.3333 - 80	0.635	39	0.0516	0.0030
T8	80 - 73.3333	0.490	39	0.0436	0.0027
T9	73.3333 - 60	0.418	39	0.0404	0.0026
T10	60 - 53.3333	0.294	39	0.0338	0.0022
T11	53.3333 - 40	0.236	39	0.0296	0.0021
T12	40 - 33.3333	0.146	39	0.0211	0.0015
T13	33.3333 - 20	0.104	39	0.0175	0.0013
T14	20 - 13.3333	0.048	39	0.0102	0.0008
T15	13.3333 - 0	0.025	43	0.0068	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	LED beacon	39	2.047	0.0801	0.0041	97841
183.00	8' dish with radome	39	2.016	0.0800	0.0040	97841
181.00	10' 4-bay dipole	39	1.985	0.0799	0.0039	97841
177.00	4' dish with radome	39	1.922	0.0797	0.0038	96736
176.00	10' 4-bay dipole	39	1.906	0.0796	0.0037	103840
172.00	8' dish with radome	39	1.841	0.0793	0.0036	162027
171.00	8' dish with radome	39	1.824	0.0793	0.0035	188629
165.00	PR-900	39	1.724	0.0788	0.0034	Inf
160.00	7770.00	39	1.640	0.0783	0.0036	262378
150.00	BXA-70063/6	39	1.476	0.0767	0.0040	371484
140.50	APXV18-206516	39	1.323	0.0740	0.0040	833657
135.00	6' dish with radome	39	1.235	0.0718	0.0039	350447
125.00	8' dish with radome	39	1.078	0.0672	0.0036	138845
109.00	12' Dipole	39	0.845	0.0600	0.0029	172459
108.00	14' x 3" Dia Omni	39	0.831	0.0595	0.0029	182709
103.00	Obstruction light	39	0.762	0.0571	0.0029	243304
100.00	8' dish with radome	39	0.722	0.0555	0.0029	155269
87.00	Telewave ANT150F2	39	0.564	0.0477	0.0029	101870
85.00	12' Dipole	39	0.543	0.0465	0.0028	262846
80.00	3' HP dish	39	0.490	0.0436	0.0027	207822
66.00	18" square panel	39	0.348	0.0369	0.0024	134938

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	185 - 180	9.278	2	0.3624	0.0205
T2	180 - 160	8.929	2	0.3615	0.0202
T3	160 - 140	7.434	2	0.3554	0.0191
T4	140 - 120	5.958	2	0.3347	0.0180
T5	120 - 100	4.540	2	0.2939	0.0165

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T6	100 - 93.3333	3.269	2	0.2517	0.0145
T7	93.3333 - 80	2.877	2	0.2338	0.0141
T8	80 - 73.3333	2.219	2	0.1975	0.0125
T9	73.3333 - 60	1.894	2	0.1828	0.0120
T10	60 - 53.3333	1.331	2	0.1529	0.0102
T11	53.3333 - 40	1.068	2	0.1338	0.0094
T12	40 - 33.3333	0.661	2	0.0954	0.0070
T13	33.3333 - 20	0.470	2	0.0792	0.0059
T14	20 - 13.3333	0.216	2	0.0462	0.0036
T15	13.3333 - 0	0.115	3	0.0308	0.0027

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	LED beacon	2	9.278	0.3624	0.0205	22081
183.00	8' dish with radome	2	9.140	0.3620	0.0204	22081
181.00	10' 4-bay dipole	2	9.000	0.3617	0.0203	22081
177.00	4' dish with radome	2	8.713	0.3609	0.0201	21879
176.00	10' 4-bay dipole	2	8.640	0.3607	0.0200	23514
172.00	8' dish with radome	2	8.343	0.3599	0.0198	37023
171.00	8' dish with radome	2	8.268	0.3596	0.0197	43280
165.00	PR-900	2	7.813	0.3577	0.0194	512725
160.00	7770.00	2	7.434	0.3554	0.0191	59797
150.00	BXA-70063/6	2	6.689	0.3478	0.0184	84127
140.50	APXV18-206516	2	5.994	0.3355	0.0180	187813
135.00	6' dish with radome	2	5.595	0.3257	0.0176	77286
125.00	8' dish with radome	2	4.883	0.3046	0.0169	30765
109.00	12' Dipole	2	3.825	0.2718	0.0152	38300
108.00	14' x 3" Dia Omni	2	3.762	0.2697	0.0151	40586
103.00	Obstruction light	2	3.452	0.2588	0.0147	54603
100.00	8' dish with radome	2	3.269	0.2517	0.0145	34582
87.00	Telewave ANT150F2	2	2.554	0.2159	0.0134	22459
85.00	12' Dipole	2	2.458	0.2104	0.0131	58440
80.00	3' HP dish	2	2.219	0.1975	0.0125	45370
66.00	18" square panel	2	1.574	0.1672	0.0111	30001

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	185	Leg	A325N	1.2500	6	462.81	82835.00	0.006 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	1	2651.53	17835.00	0.149 ✔	1	Member Bearing
		Top Girt	A325X	0.7500	1	1264.84	21868.40	0.058 ✔	1	Bolt Shear
T2	180	Leg	A325N	1.2500	6	1971.40	82835.00	0.024 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	1	8453.95	17835.00	0.474 ✔	1	Member Bearing
T3	160	Leg	A325N	1.2500	6	6556.70	82835.00	0.079 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	1	14991.20	21868.40	0.686 ✔	1	Bolt Shear
T4	140	Leg	A325N	1.2500	8	10386.20	82835.00	0.125 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325X	0.6250	2	10677.30	15186.40	0.703 ✔	1	Bolt Shear
T5	120	Leg	A325N	1.5000	8	17168.50	119282.00	0.144 ✔	1	Bolt Tension
		Diagonal	A325X	0.7500	2	12605.00	21868.40	0.576 ✔	1	Bolt Shear
T6	100	Diagonal	A325X	1.0000	2	14090.10	33603.80	0.419 ✔	1	Member Bearing
T7	93.3333	Leg	A325N	1.5000	8	21006.50	119282.00	0.176 ✔	1	Bolt Tension
		Diagonal	A325X	1.0000	2	18020.30	38877.20	0.464 ✔	1	Bolt Shear
		Horizontal	A325N	1.0000	2	1813.45	28003.10	0.065 ✔	1	Member Bearing
T8	80	Diagonal	A325X	0.8750	2	15257.50	29765.40	0.513 ✔	1	Bolt Shear
T9	73.3333	Leg	A325N	1.5000	8	28723.20	119282.00	0.241 ✔	1	Bolt Tension
		Diagonal	A325X	0.8750	2	19487.10	29765.40	0.655 ✔	1	Bolt Shear
		Horizontal	A325X	0.8750	2	2449.45	24468.80	0.100 ✔	1	Member Bearing
T10	60	Diagonal	A325X	0.8750	2	16724.60	29765.40	0.562 ✔	1	Bolt Shear
T11	53.3333	Leg	A325N	1.5000	8	36508.20	119282.00	0.306 ✔	1	Bolt Tension
		Diagonal	A325X	0.8750	2	21862.60	29765.40	0.734 ✔	1	Bolt Shear
		Horizontal	A325X	0.8750	2	3092.71	24468.80	0.126 ✔	1	Member Bearing
T12	40	Diagonal	A325X	1.0000	2	18515.70	33603.80	0.551 ✔	1	Member Bearing
T13	33.3333	Leg	A325N	1.5000	8	44861.10	119282.00	0.376 ✔	1	Bolt Tension
		Diagonal	A325X	1.0000	2	23877.80	38877.20	0.614 ✔	1	Bolt Shear
		Horizontal	A325X	1.0000	2	3786.88	28003.10	0.135 ✔	1	Member Bearing
T14	20	Diagonal	A325X	1.0000	2	20143.40	38877.20	0.518 ✔	1	Bolt Shear
T15	13.3333	Leg	F1554-105	1.7500	6	71240.80	169121.00	0.421 ✔	1	Bolt Tension
		Diagonal	A325X	1.0000	2	26096.60	38877.20	0.671 ✔	1	Bolt Shear
		Horizontal	A325X	1.0000	2	4504.17	28003.10	0.161 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	P6.625x.280	5.01	5.01	26.8 K=1.00	5.5813	-8330.57	238344.00	0.035 [1] ✔
T2	180 - 160	P6.625x.280	20.03	10.02	53.5 K=1.00	5.5813	-19818.70	203686.00	0.097 [1] ✔
T3	160 - 140	P6.625x.280	20.03	10.02	53.5 K=1.00	5.5813	-56809.40	203686.00	0.279 [1] ✔
T4	140 - 120	P6.625x.280	20.03	10.02	53.5 K=1.00	5.5813	-108918.00	203686.00	0.535 [1] ✔
T5	120 - 100	P8.625x.322	20.03	10.02	40.9 K=1.00	8.3993	-171848.00	334421.00	0.514 [1] ✔
T6	100 - 93.3333	P8.625x.322	6.68	6.68	27.3	8.3993	-209051.00	357954.00	0.584 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	P8.625x.322	13.36	6.68	27.3 K=1.00	8.3993	-209138.00	357954.00	0.584 [1]
T8	80 - 73.3333	P8.625x.5	6.68	6.68	27.8 K=1.00	12.7627	-282485.00	542674.00	0.521 [1]
T9	73.3333 - 60	P8.625x.5	13.36	6.68	27.8 K=1.00	12.7627	-282348.00	542674.00	0.520 [1]
T10	60 - 53.3333	P10.75x.365	6.68	6.68	21.8 K=1.00	11.9083	-356670.00	517553.00	0.689 [1]
T11	53.3333 - 40	P10.75x.365	13.36	6.68	21.8 K=1.00	11.9083	-355603.00	517553.00	0.687 [1]
T12	40 - 33.3333	P10.75x.5	6.68	6.68	22.1 K=1.00	16.1007	-436726.00	699144.00	0.625 [1]
T13	33.3333 - 20	P10.75x.5	13.36	6.68	22.1 K=1.00	16.1007	-435623.00	699144.00	0.623 [1]
T14	20 - 13.3333	P12.75x.5	6.68	6.68	18.5 K=1.00	19.2423	-519449.00	844532.00	0.615 [1]
T15	13.3333 - 0	P12.75x.5	13.36	6.68	18.5 K=1.00	19.2423	-519146.00	844532.00	0.615 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L3 1/2x3 1/2x1/4	19.28	9.60	166.1 K=1.00	1.6900	-2666.20	13846.40	0.193 [1]
T2	180 - 160	L4x4x1/4	22.60	11.41	172.2 K=1.00	1.9400	-8600.28	14783.50	0.582 [1]
T3	160 - 140	L5x5x5/16	24.43	12.32	148.7 K=1.00	3.0300	-14927.60	30957.70	0.482 [1]
T4	140 - 120	L5x5x5/16	26.28	13.16	149.7 K=0.94	3.0300	-21232.80	30550.20	0.695 [1]
T5	120 - 100	L5x5x3/8	28.15	14.08	158.7 K=0.93	3.6100	-24688.10	32396.50	0.762 [1]
T6	100 - 93.3333	L6x6x3/8	14.76	14.18	134.1 K=0.94	4.3600	-29055.70	54670.60	0.531 [1]
T7	93.3333 - 80	L4x6x1/2	19.58	9.50	128.4 K=0.98	4.7500	-36040.60	64584.40	0.558 [1]
T8	80 - 73.3333	L6x6x3/8	15.36	14.81	138.0 K=0.92	4.3600	-29877.90	51708.80	0.578 [1]
T9	73.3333 - 60	L6x6x3/8	20.20	19.65	123.3 K=0.98	4.3600	-38974.30	62971.70	0.619 [1]
T10	60 - 53.3333	L6x6x3/8	16.19	15.64	143.2 K=0.91	4.3600	-33381.90	48054.80	0.695 [1]
T11	53.3333 - 40	L6x6x3/8	20.90	20.34	126.1 K=0.97	4.3600	-43725.30	60823.50	0.719 [1]
T12	40 - 33.3333	L6x6x3/8	17.10	16.52	148.7 K=0.89	4.3600	-36608.00	44572.30	0.821 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T13	33.3333 - 20	L6x6x1/2	21.67	21.09	129.9 K=0.95	5.7500	-47755.50	76651.80	0.623 [1]
T14	20 - 13.3333	L6x6x1/2	18.03	17.45	155.3 K=0.88	5.7500	-40214.60	53853.40	0.747 [1]
T15	13.3333 - 0	L6x6x1/2	22.47	21.89	133.0 K=0.94	5.7500	-52193.10	73370.50	0.711 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L4x4x5/16	27.67	13.18	181.0 K=0.91	2.4000	-3626.89	16552.00	0.219 [1]
T9	73.3333 - 60	L4x4x5/16	29.67	14.21	192.9 K=0.89	2.4000	-4898.89	14569.50	0.336 [1]
T11	53.3333 - 40	L5x5x5/16	31.67	15.13	167.7 K=0.92	3.0300	-6185.42	24328.80	0.254 [1]
T13	33.3333 - 20	L5x5x5/16	33.67	16.09	176.6 K=0.91	3.0300	-7573.76	21936.00	0.345 [1]
T15	13.3333 - 0	L5x5x5/16	35.67	17.01	185.1 K=0.90	3.0300	-9008.34	19982.70	0.451 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L5x5x5/16	18.50	17.68	213.4 K=1.00	3.0300	-1264.84	15030.40	0.084 [1]
		KL/R > 200 (C) - 5							

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L3x3x1/4	6.92	6.56	132.9 K=1.00	1.4400	-3626.89	18406.80	0.197 [1]
T9	73.3333 - 60	L3x3x1/4	7.42	7.06	143.1	1.4400	-4896.52	15896.70	0.308 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	53.3333 - 40	L3x3x5/16	7.92	7.47	152.2 K=1.00	1.7800	-6166.90	17367.30	0.355 [1] ✔
T13	33.3333 - 20	L3x3x5/16	8.42	7.97	162.4 K=1.00	1.7800	-7554.63	15256.20	0.495 [1] ✔
T15	13.3333 - 0	L3 1/2x4x5/16	8.92	8.39	137.8 K=1.00	2.2500	-9003.10	26752.00	0.337 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L3x3x1/4	9.37	8.86	179.6 K=1.00	1.4400	-2457.02	10086.00	0.244 [1] ✔
T9	73.3333 - 60	L3x3x1/4	9.73	9.24	187.2 K=1.00	1.4400	-3213.15	9282.13	0.346 [1] ✔
T11	53.3333 - 40	L3x3x5/16	10.10	9.50	193.6 K=1.00	1.7800	-3945.23	10728.60	0.368 [1] ✔
T13	33.3333 - 20	L3x3x5/16	10.48	9.90	201.7 K=1.00	1.7800	-4715.04	9886.45	0.477 [1] ✔
T15	13.3333 - 0	L3 1/2x4x5/16	10.87	10.20	167.6 K=1.00	2.2500	-5490.84	18089.80	0.304 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L3x3x1/4	6.92	6.92	140.2 K=1.00	1.4400	-109.04	16549.70	0.007 [1] ✔
T9	73.3333 - 60	L3x3x1/4	7.42	7.42	150.3 K=1.00	1.4400	-114.98	14393.50	0.008 [1] ✔
T11	53.3333 - 40	L3 1/2x3 1/2x1/4	7.92	7.92	136.9 K=1.00	1.6900	-116.84	20375.00	0.006 [1] ✔
T13	33.3333 - 20	L3 1/2x3 1/2x1/4	8.42	8.42	145.5 K=1.00	1.6900	-127.01	18026.10	0.007 [1] ✔
T15	13.3333 - 0	L3 1/2x3 1/2x1/4	8.92	8.92	154.2 K=1.00	1.6900	-122.37	16061.20	0.008 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	P6.625x.280	5.01	5.01	26.8	5.5813	491.39	251161.00	0.002 [1] ✔
T2	180 - 160	P6.625x.280	20.03	10.02	53.5	5.5813	11828.40	251161.00	0.047 [1] ✔
T3	160 - 140	P6.625x.280	20.03	10.02	53.5	5.5813	39340.20	251161.00	0.157 [1] ✔
T4	140 - 120	P6.625x.280	20.03	10.02	53.5	5.5813	83089.60	251161.00	0.331 [1] ✔
T5	120 - 100	P8.625x.322	20.03	10.02	40.9	8.3993	137348.00	377967.00	0.363 [1] ✔
T6	100 - 93.3333	P8.625x.322	6.68	6.68	27.3	8.3993	170047.00	377967.00	0.450 [1] ✔
T7	93.3333 - 80	P8.625x.322	13.36	6.68	27.3	8.3993	168310.00	377967.00	0.445 [1] ✔
T8	80 - 73.3333	P8.625x.5	6.68	6.68	27.8	12.7627	232002.00	574322.00	0.404 [1] ✔
T9	73.3333 - 60	P8.625x.5	13.36	6.68	27.8	12.7627	230087.00	574322.00	0.401 [1] ✔
T10	60 - 53.3333	P10.75x.365	6.68	6.68	21.8	11.9083	295265.00	535873.00	0.551 [1] ✔
T11	53.3333 - 40	P10.75x.365	13.36	6.68	21.8	11.9083	292425.00	535873.00	0.546 [1] ✔
T12	40 - 33.3333	P10.75x.5	6.68	6.68	22.1	16.1007	362561.00	724530.00	0.500 [1] ✔
T13	33.3333 - 20	P10.75x.5	13.36	6.68	22.1	16.1007	359362.00	724530.00	0.496 [1] ✔
T14	20 - 13.3333	P12.75x.5	6.68	6.68	18.5	19.2423	431094.00	865902.00	0.498 [1] ✔
T15	13.3333 - 0	P12.75x.5	13.36	6.68	18.5	19.2423	427953.00	865902.00	0.494 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L3 1/2x3 1/2x1/4	19.28	9.60	107.6	1.6900	2651.53	54756.00	0.048 [1] ✔
T2	180 - 160	L4x4x1/4	22.60	11.41	111.1	1.9400	8453.95	62856.00	0.134 [1] ✔
T3	160 - 140	L5x5x5/16	24.43	12.32	95.4	3.0300	14991.20	98172.00	0.153 [1] ✔
T4	140 - 120	L5x5x5/16	26.28	13.16	102.5	3.0300	21354.50	98172.00	0.218 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	120 - 100	L5x5x3/8	28.15	14.08	110.3	3.6100	25209.90	116964.00	0.216 [1]
T6	100 - 93.3333	L6x6x3/8	14.76	14.18	94.2	4.3600	28180.30	141264.00	0.199 [1]
T7	93.3333 - 80	L4x6x1/2	19.58	9.50	123.0	4.7500	34818.20	153900.00	0.226 [1]
T8	80 - 73.3333	L6x6x3/8	15.36	14.81	98.0	4.3600	30515.00	141264.00	0.216 [1]
T9	73.3333 - 60	L6x6x3/8	20.20	19.65	128.9	4.3600	38471.50	141264.00	0.272 [1]
T10	60 - 53.3333	L6x6x3/8	16.19	15.64	103.3	4.3600	33449.30	141264.00	0.237 [1]
T11	53.3333 - 40	L6x6x3/8	20.90	20.34	133.4	4.3600	42710.40	141264.00	0.302 [1]
T12	40 - 33.3333	L6x6x3/8	17.10	16.52	109.2	4.3600	37031.40	141264.00	0.262 [1]
T13	33.3333 - 20	L6x6x1/2	21.67	21.09	139.8	5.7500	46798.60	186300.00	0.251 [1]
T14	20 - 13.3333	L6x6x1/2	18.03	17.45	116.3	5.7500	40286.80	186300.00	0.216 [1]
T15	13.3333 - 0	L6x6x1/2	22.47	21.89	145.0	5.7500	50657.20	186300.00	0.272 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L4x4x5/16	27.67	13.18	195.6	2.4000	3626.89	77760.00	0.047 [1]
T9	73.3333 - 60	L4x4x5/16	29.67	14.21	210.1	2.4000	4898.89	77760.00	0.063 [1]
T11	53.3333 - 40	L5x5x5/16	31.67	15.13	176.4	3.0300	6185.42	98172.00	0.063 [1]
T13	33.3333 - 20	L5x5x5/16	33.67	16.09	187.9	3.0300	7573.76	98172.00	0.077 [1]
T15	13.3333 - 0	L5x5x5/16	35.67	17.01	198.4	3.0300	9008.34	98172.00	0.092 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	185 - 180	L5x5x5/16	18.50	17.68	137.2	3.0300	280.86	98172.00	0.003 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T7	93.3333 - 80	L3x3x1/4	6.92	6.56	84.6	1.4400	3626.89	46656.00	0.078 [1] ✔
T9	73.3333 - 60	L3x3x1/4	7.42	7.06	91.1	1.4400	4896.52	46656.00	0.105 [1] ✔
T11	53.3333 - 40	L3x3x5/16	7.92	7.47	97.2	1.7800	6166.90	57672.00	0.107 [1] ✔
T13	33.3333 - 20	L3x3x5/16	8.42	7.97	103.7	1.7800	7554.63	57672.00	0.131 [1] ✔
T15	13.3333 - 0	L3 1/2x4x5/16	8.92	8.39	94.0	2.2500	9003.10	72900.00	0.123 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T7	93.3333 - 80	L3x3x1/4	9.37	8.86	114.3	1.4400	2457.02	46656.00	0.053 [1] ✔
T9	73.3333 - 60	L3x3x1/4	9.73	9.24	119.2	1.4400	3213.15	46656.00	0.069 [1] ✔
T11	53.3333 - 40	L3x3x5/16	10.10	9.50	123.7	1.7800	3945.23	57672.00	0.068 [1] ✔
T13	33.3333 - 20	L3x3x5/16	10.48	9.90	128.8	1.7800	4715.04	57672.00	0.082 [1] ✔
T15	13.3333 - 0	L3 1/2x4x5/16	10.87	10.20	114.4	2.2500	5490.84	72900.00	0.075 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	93.3333 - 80	L3x3x1/4	6.92	6.92	89.2	1.4400	1.19	46656.00	0.000 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	**185 - 180**	**Leg**	**P6.625x.280**	**2**	**-8330.57**	**238344.00**	**3.5**	**Pass**
		Diagonal	L3 1/2x3 1/2x1/4	10	-2666.20	13846.40	19.3	Pass
		Top Girt	L5x5x5/16	5	-1264.84	15030.40	8.4	Pass
T2	**180 - 160**	**Leg**	**P6.625x.280**	**14**	**-19818.70**	**203686.00**	**9.7**	**Pass**
		Diagonal	L4x4x1/4	19	-8600.28	14783.50	58.2	Pass
T3	**160 - 140**	**Leg**	**P6.625x.280**	**29**	**-56809.40**	**203686.00**	**27.9**	**Pass**
		Diagonal	L5x5x5/16	34	-14927.60	30957.70	48.2	Pass
							68.6 (b)	
T4	**140 - 120**	**Leg**	**P6.625x.280**	**43**	**-108918.00**	**203686.00**	**53.5**	**Pass**
		Diagonal	L5x5x5/16	47	-21232.80	30550.20	69.5	Pass
							70.3 (b)	
T5	**120 - 100**	**Leg**	**P8.625x.322**	**60**	**-171848.00**	**334421.00**	**51.4**	**Pass**
		Diagonal	L5x5x3/8	65	-24688.10	32396.50	76.2	Pass
T6	**100 - 93.3333**	**Leg**	**P8.625x.322**	**75**	**-209051.00**	**357954.00**	**58.4**	**Pass**
		Diagonal	L6x6x3/8	80	-29055.70	54670.60	53.1	Pass
T7	**93.3333 - 80**	**Leg**	**P8.625x.322**	**87**	**-209138.00**	**357954.00**	**58.4**	**Pass**
		Diagonal	L4x6x1/2	94	-36040.60	64584.40	55.8	Pass
		Horizontal	L4x4x5/16	79	-3626.89	16552.00	21.9	Pass
		Redund Horz 1 Bracing	L3x3x1/4	98	-3626.89	18406.80	19.7	Pass
		Redund Diag 1 Bracing	L3x3x1/4	103	-2457.02	10086.00	24.4	Pass
		Redund Hip 1 Bracing	L3x3x1/4	100	-109.04	16549.70	0.8	Pass
T8	**80 - 73.3333**	**Leg**	**P8.625x.5**	**111**	**-282485.00**	**542674.00**	**52.1**	**Pass**
		Diagonal	L6x6x3/8	117	-29877.90	51708.80	57.8	Pass
T9	**73.3333 - 60**	**Leg**	**P8.625x.5**	**123**	**-282348.00**	**542674.00**	**52.0**	**Pass**
		Diagonal	L6x6x3/8	137	-38974.30	62971.70	61.9	Pass
							65.5 (b)	
		Horizontal	L4x4x5/16	115	-4898.89	14569.50	33.6	Pass
		Redund Horz 1 Bracing	L3x3x1/4	134	-4896.52	15896.70	30.8	Pass
		Redund Diag 1 Bracing	L3x3x1/4	139	-3213.15	9282.13	34.6	Pass
		Redund Hip 1 Bracing	L3x3x1/4	143	-113.89	14393.50	0.9	Pass
T10	**60 - 53.3333**	**Leg**	**P10.75x.365**	**147**	**-356670.00**	**517553.00**	**68.9**	**Pass**
		Diagonal	L6x6x3/8	156	-33381.90	48054.80	69.5	Pass
T11	**53.3333 - 40**	**Leg**	**P10.75x.365**	**159**	**-355603.00**	**517553.00**	**68.7**	**Pass**
		Diagonal	L6x6x3/8	173	-43725.30	60823.50	71.9	Pass
							73.4 (b)	
		Horizontal	L5x5x5/16	151	-6185.42	24328.80	25.4	Pass
		Redund Horz 1 Bracing	L3x3x5/16	174	-6166.90	17367.30	35.5	Pass
		Redund Diag 1	L3x3x5/16	175	-3945.23	10728.60	36.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Bracing						
		Redund Hip 1 Bracing	L3 1/2x3 1/2x1/4	172	-116.84	20375.00	0.9	Pass
T12	**40 - 33.3333**	**Leg**	**P10.75x.5**	**183**	**-436726.00**	**699144.00**	**62.5**	**Pass**
		Diagonal	L6x6x3/8	192	-36608.00	44572.30	82.1	Pass
T13	**33.3333 - 20**	**Leg**	**P10.75x.5**	**195**	**-435623.00**	**699144.00**	**62.3**	**Pass**
		Diagonal	L6x6x1/2	209	-47755.50	76651.80	62.3	Pass
		Horizontal	L5x5x5/16	190	-7573.76	21936.00	34.5	Pass
		Redund Horz 1 Bracing	L3x3x5/16	206	-7554.63	15256.20	49.5	Pass
		Redund Diag 1 Bracing	L3x3x5/16	211	-4715.04	9886.45	47.7	Pass
		Redund Hip 1 Bracing	L3 1/2x3 1/2x1/4	215	-126.06	18026.10	0.9	Pass
T14	**20 - 13.3333**	**Leg**	**P12.75x.5**	**219**	**-519449.00**	**844532.00**	**61.5**	**Pass**
		Diagonal	L6x6x1/2	228	-40214.60	53853.40	74.7	Pass
T15	**13.3333 - 0**	**Leg**	**P12.75x.5**	**231**	**-519146.00**	**844532.00**	**61.5**	**Pass**
		Diagonal	L6x6x1/2	245	-52193.10	73370.50	71.1	Pass
		Horizontal	L5x5x5/16	223	-9008.34	19982.70	45.1	Pass
		Redund Horz 1 Bracing	L3 1/2x4x5/16	242	-9003.10	26752.00	33.7	Pass
		Redund Diag 1 Bracing	L3 1/2x4x5/16	243	-5490.84	18089.80	30.4	Pass
		Redund Hip 1 Bracing	L3 1/2x3 1/2x1/4	252	-122.37	16061.20	0.8	Pass
							Summary	
						Leg (T10)	68.9	Pass
						Diagonal (T12)	82.1	Pass
						Horizontal (T15)	45.1	Pass
						Top Girt (T1)	8.4	Pass
						Redund Horz 1 Bracing (T13)	49.5	Pass
						Redund Diag 1 Bracing (T13)	47.7	Pass
						Redund Hip 1 Bracing (T13)	0.9	Pass
						Bolt Checks	73.4	Pass
						RATING =	**82.1**	**Pass**

All-Points Technology Corp., P.C.
116 Grandview Road
Conway, NH 03818
(603) 496-5853

Client:	**State of Connecticut - DESPP**	Site:	**Bloomfield**
Job:	**Bloomfield**	Job No.:	**CT636100**
Calculated By:	**M. Larson**	Date:	**05-May-20**

Mat Foundation Analysis

Program assumes:

Mat is square in plan view.
Water table is below bottom of mat.

Unit weight of concrete =	150	pcf
Unit weight of soil =	100	pcf

Self-supporting tower with 3 piers

Information to be provided:

Pier is round or square in plan dimension ("R" or "S")	Shape =	R	
OTM = Overturning Moment to be resisted	OTM =	17379	ft-kips
H = Height from ground surface to top of mat (if buried)	H =	5.0	ft.
P_M = Projection of pier above mat	P_M =	5.5	ft.
y = Thickness of mat	y =	1.50	ft.
x = Width of mat	x =	45.50	ft.
d = Diameter of round pier	d =	6.0	ft.
S = Size of tension bars	S =	7	

Mass of tower and appurtenances (below)

Results:

Component	Mass	Moment Arm	Moment Resist.
Pier	23.3 kips	22.75 ft.	530.7 ft-kips
Overburden	1160.6 kips	22.75 ft.	26403.2 ft-kips
Mat	465.8 kips	22.75 ft.	10597.1 ft-kips

Overturning Moment Resistance =	37530.93	ft-kips	
Factor of Safety =	2.16		SATISFACTORY
Concrete Quantity =	132.3	c.y.	

Exhibit C3

Sector Frame Antenna Mount
Certification Letter

May 12, 2020

State of Connecticut
Department of Emergency Services and Public Protection
1111 Country Club Road
Middletown, CT 06457

Attn: Mark Gorka
Re: Antenna Mount Structural Certification Letter
Site: 8 Hoskins Road
Bloomfield, Connecticut

Dear Mark,

All-Points Technology Corporation, P.C. (APT), a professional engineering corporation licensed in the State of Connecticut, has been retained to assess the structural adequacy of the proposed antenna mount to support the proposed antenna and appurtenance installations on the above noted tower structure. This review was limited to a structural evaluation of the proposed antenna mounting assembly and its connection to the host tower structure.

The proposed equipment consists of the installation of four omnidirectional whip antennas and one tower-mounted amplifier. The equipment is to be installed on one SitePro1 Model VFA10-HD sector mount.

The structural review has been prepared in accordance with the following design standards:

ANSI/TIA-222-G-2009 - Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

ASCE/SEI 7-10 – Minimum Design Loads for Buildings and Other Structures

AISC - American Institute of Steel Construction Manual of Steel Construction, 14th Ed.

Verizon Network Standard NSTD-445 dated 6/29/17.

The proposed antenna/appurtenance and mount assembly loading consists of the following equipment:

Antennas	Elev.	Mount	Feed Lines
24' omnidirectional whip (DS2C03F36D), (3) 14' omnidirectional whips (DS7C09P36U-D; two are inverted), Dual Branch TTA	183'	12' sector mount (VFA10-HD or equal)	(2) 7/8", (3) 1-5/8", (1) 1/2"

The findings of this review are based upon a comparative review of the proposed equipment loading and a mount capacity letter for the SitePro1 Model VFA10-HD sector mounts as prepared by SitePro1, dated September 1, 2017.

In conclusion, APT finds that the proposed antenna mount assembly is structurally adequate to support the proposed antenna/appurtenance configuration.

Sincerely,
All-Points Technology Corporation, P.C.

Robert E. Adair, P.E.
President