

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

May 22, 2014

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

**Re: Notice of Exempt Modification
Crown Castle/ T-Mobile co-location
Site ID CT11063B
340 Bloomfield Avenue, Windsor CT**

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Crown Castle owns the existing monopole telecommunications tower and related facility at 340 Bloomfield Avenue, Windsor, Connecticut (Latitude: 41.852597, Longitude: -72.660566). T-Mobile intends to replace six existing antennas with six new antennas and related equipment at this existing telecommunications facility in Windsor ("Windsor Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Donald S. Trinks. The Town of Windsor is also the property owner.

The existing Windsor Facility consists of a 150 foot monopole tower.¹ T-Mobile plans to replace six existing antennas with six new antennas and add three TMAs (tower mounted amplifiers) at a centerline of 142 feet. (See the plans revised to May 21, 2014 attached hereto as Exhibit A). T-Mobile will also install fiber cable and reuse existing coax cables. The existing Windsor Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated May 13, 2014 and attached hereto as Exhibit B.

¹ The online CSC database does not include the Windsor Facility as having been approved via a Docket or Petition. This Facility has been the subject of several notice of intent however, the most recent being EM-SPRINT-164-130405A, EM-VER-164-111020, and EM-T-MOBILE-164-090429A.

May 22, 2014
Site ID CT11063B
Page 2

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

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement and additional antennas will be installed at a centerline of 142 feet, merely replacing existing antennas located at the same elevation. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries or lease area, as depicted on Sheet 1 of Exhibit A. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modification to the Windsor Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated May 7, 2014, T-Mobile's operations would add 0.555% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 53.575% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

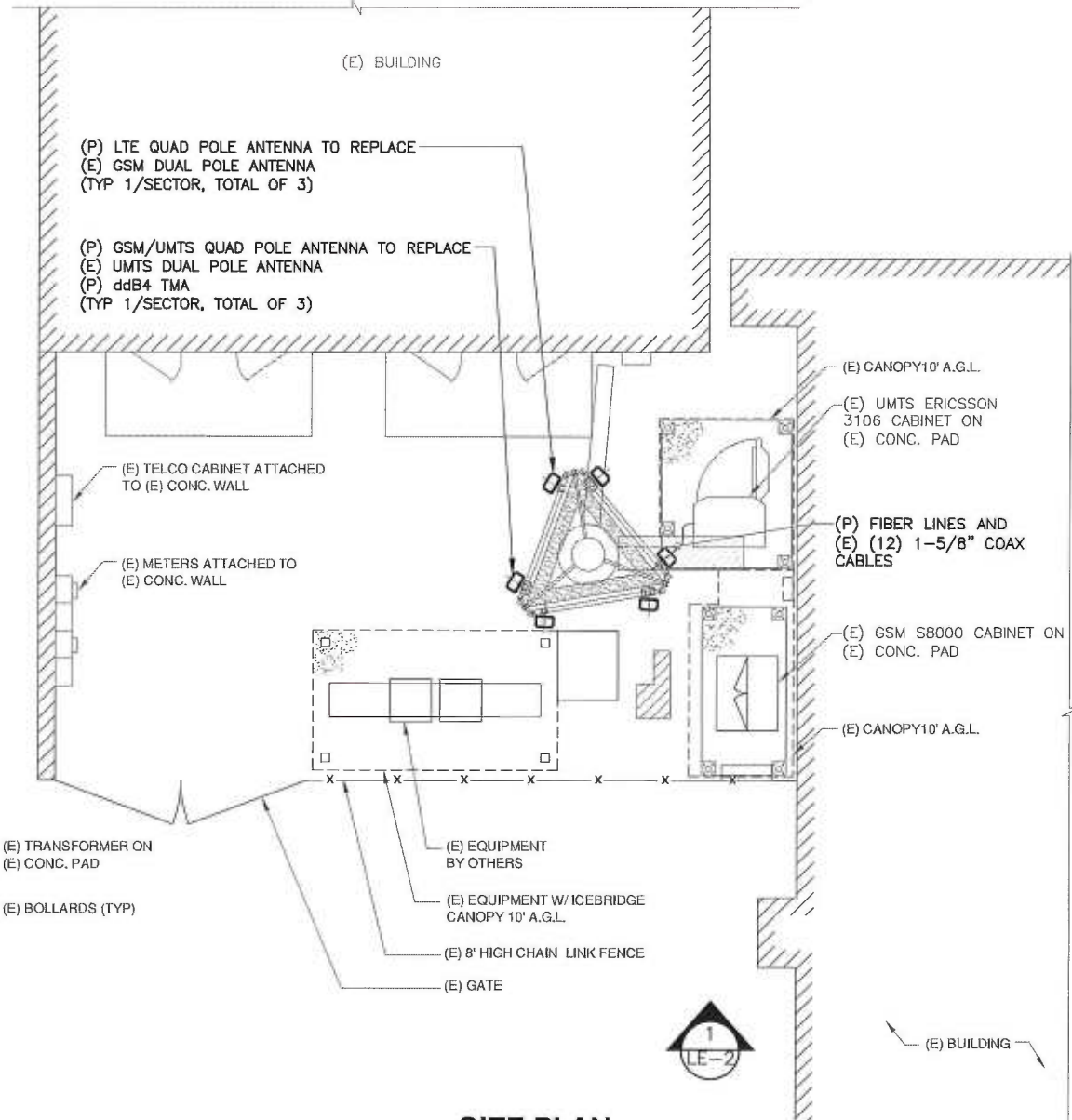
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Windsor Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,


Julie D. Kohler, Esq.

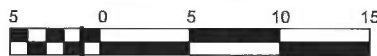
cc: Town of Windsor, Mayor Donald S. Trinks
Crown Castle
Sheldon Freinckle, NSS

EXHIBIT A



SITE PLAN

SCALE: 1" = 10'-0"



ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

CONFIGURATION
2C

SUBMITTALS	
LE REV A	02.03.14
LE REV 0	05.21.14

ATLANTIS GROUP
1340 Centre Street
Suite 203
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

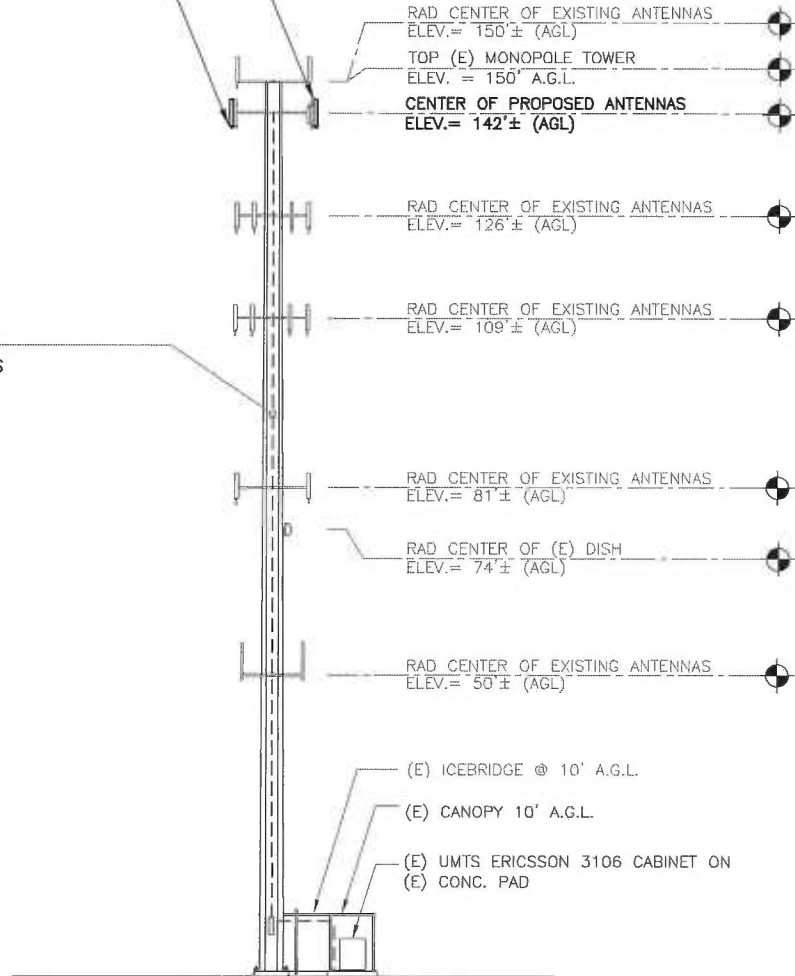
LEASE EXHIBIT
SITE NUMBER:
CT11063B
SITE NAME:
WINDSOR FIRE DEPARTMENT_1
SITE ADDRESS:
340 BLOOMFIELD AVENUE
WINDSOR, CT, 06095

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237
FOR
T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

(P) GSM/UMTS QUAD POLE ANTENNA TO REPLACE
 (E) UMTS DUAL POLE ANTENNA
 (P) ddb4 TMA
 (TYP 1/SECTOR, TOTAL OF 3)

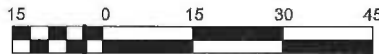
(P) LTE QUAD POLE ANTENNA TO REPLACE
 (E) GSM DUAL POLE ANTENNA
 (TYP 1/SECTOR, TOTAL OF 3)

(P) FIBER LINES AND
 (E) (12) 1-5/8" COAX CABLES
 IN MONOPOLE



ELEVATION

SCALE: 1" = 30'-0"



CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.03.14
LE REV 0	05.21.14

ATLANTIS GROUP
 1340 Centre Street
 Suite 203
 Newton, MA 02459
 Office: 617-965-0789
 Fax: 617-213-5056

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DRAWN BY: MB

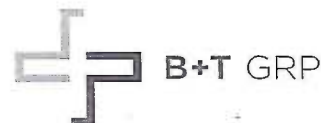
CHECKED BY: SM

PAGE 2 OF 2

EXHIBIT B

May 13, 2014

Mitzi Parker
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6613



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject: Structural Analysis Report

Carrier Designation: T-Mobile Co-Locate
Carrier Site Number: CT11063B
Carrier Site Name: Windsor Fire Department_1

Crown Castle Designation: Crown Castle BU Number: 855662
Crown Castle Site Name: WINDSORCENTRAL
Crown Castle JDE Job Number: 269940
Crown Castle Work Order Number: 744627
Crown Castle Application Number: 216463 Rev. 2

Engineering Firm Designation: B+T Group Project Number: 91728.002.01

Site Data: 340 Bloomfield Avenue, Windsor, Hartford County, CT
Latitude 41° 51' 9.3", Longitude -72° 39' 37.8"
150 Foot - Monopole Tower

Dear Mitzi Parker,

B+T Group are pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 634250, in accordance with application 216463, revision 2.

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

LC7: Existing + Proposed Equipment

Sufficient Capacity

Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F and the 2005 CT State Building Code based upon a wind speed of 80 mph fastest mile.

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

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

Respectfully submitted by:
B+T Engineering, Inc.

Jennifer Barnat
Project Engineer

Chad E. Tuttle, P.E.
President

tnxTower Report - version 6.1.4.1



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1) INTRODUCTION

This tower is a 150 ft Monopole. Tower manufacturer, Basic wind speed and standard code are unknown.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 38 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
142.0	143.0	3	Ericsson	ERICSSON AIR 21 B2A B4P	1	1 5/8	--
		3	Ericsson	ERICSSON AIR 21 B4A B2P			
		3	Ericsson	KRY 112 144/1			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	155.0	1	RFS Celwave	PD320-2	12 3 1	1 5/8 1 1/4 7/8	1
	150.0	1	--	Platform Mount [LP 1201-1]			
	148.0	3	Ericsson	RRUS-11			
		6	Kathrein	800 10121			
		12	Kathrein	860 10025			
		2	KMW	AM-X-CD-16-65-00T-RET			
		12	Powerwave	LGP 13519			
		1	Powerwave Technologies	P65-15-XLH-RR			
1	Raycap	DC6-48-60-18-8F					
142.0	142.0	3	EMS Wireless	RR90-17-02DP	--	--	3
		3	Ericsson	KRY 112 144/1			
		6	Remec	G20045A1			
		3	RFS Celwave	APX16DWV-16DWVS-C			
		1	--	Platform Mount [LP 1201-1]			
126.0	126.0	3	Alcatel Lucent	RRH2x40-AWS	1	1 5/8	2
		3	Andrew	HBX-6516DS-VTM			
		3	Andrew	HBX-6517DS-VTM			
		1	RFS Celwave	DB-T1-6Z-8AB-0Z			
		1	Antel	BXA-70080-6CF-4	12	1 5/8	1
		6	Decibel	DB844G65ZAXY			
		2	Powerwave	P65-16-XL-R			
		6	RFS Celwave	FD9R6004/2C-3L			
1	--	Platform Mount [LP 1201-1]					

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
109.0	118.0	1	Decibel	DB205-L	3 3	7/8 1 1/4	1
	113.0	1	Sinclair	SD212-SF3P2SNM			
	110.0	4	RFS Celwave	APXVSPP18-C-A20			
		3	Alcatel Lucent	1900MHz RRH			
		3	Alcatel Lucent	800MHZ 2X50W RRH W/FILTER			
109.0	1	--	Platform Mount [LP 601-1]				
81.0	83.0	1	Sinclair	SRL-227	2	7/8	1
	81.0	1	--	Side Arm Mount [SO 701-3]			
	76.0	1	Sinclair	SD212			
74.0	75.0	1	Radiowaves	HP2-23	1	1/4	1
	74.0	1	--	Pipe Mount [PM 601-1]			
50.0	51.0	1	PCTEL	GPS-TMG-HR-26N	1	1/2	1
	50.0	1	--	Side Arm Mount [SO 702-1]			

- Notes:
 1) Existing Equipment
 2) Reserved Equipment
 3) Equipment To Be Removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
<i>Information Unknown</i>						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	T-Mobile Co-locate, Revision# 2	216463	CCI Sites
Tower Mapping	BTE Management Group, Job No. 15085	Date: 07/12/2012	On File
Foundation Drawing	PJF Structural Analysis Project No. A00007-T144	Date: 07/26/2007	On File
Geotech Report			
Antenna Configuration	Crown CAD Package	Date: 04/11/2014	CCI Sites

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
L1	150 - 117	Pole	TP30.37x24.19x0.219	1	-10.344	1062.629	39.1	Pass
L2	117 - 76	Pole	TP38.04x29.221x0.25	2	-18.080	1520.326	87.3	Pass
L3	76 - 41	Pole	TP44.58x36.605x0.344	3	-25.744	2445.735	83.5	Pass
L4	41 - 0	Pole	TP52.25x42.775x0.375	4	-38.428	3209.891	88.9	Pass
							Summary	
						Pole (L4)	88.9	Pass
						RATING	88.9	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	76.8	Pass
1	Base Plate	Base	83.4	Pass
1	Base Foundation	Base	87.3	Pass

Structure Rating (max from all components) =	88.9%
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Notes:

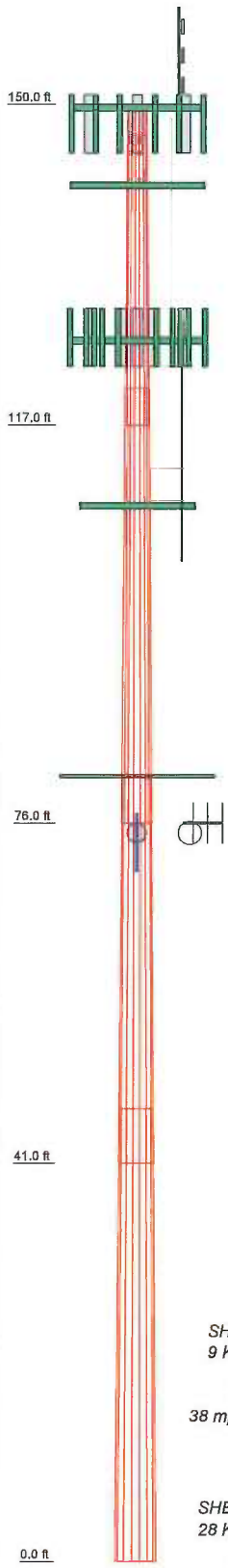
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Capacities up to 100% are considered acceptable based on analysis methods used.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9
Length (ft)	33.000	44.800	39.750	46.570	41.0	41.0	41.0	41.0	41.0
Number of Sides	18	18	18	18	18	18	18	18	18
Thickness (in)	0.219	0.250	0.344	0.375	0.375	0.375	0.375	0.375	0.375
Socket Length (ft)	3.800	4.750	5.570	42.775	42.775	42.775	42.775	42.775	42.775
Top Dia (in)	24.190	29.221	36.805	44.580	44.580	44.580	44.580	44.580	44.580
Bot Dia (in)	30.370	38.040	44.580	44.580	44.580	44.580	44.580	44.580	44.580
Grade			AB07-65						
Weight (K)	2.1	4.0	5.9	8.9	8.9	8.9	8.9	8.9	8.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) 800 10121 w/ Mount Pipe (E)	150	(2) FD9R6004/2C-3L (E)	126
(2) 800 10121 w/ Mount Pipe (E)	150	HBX-6516DS-VTM w/ Mount Pipe (R)	126
(2) 800 10121 w/ Mount Pipe (E)	150	HBX-6516DS-VTM w/ Mount Pipe (R)	126
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	150	HBX-6516DS-VTM w/ Mount Pipe (R)	126
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	150	HBX-6516DS-VTM w/ Mount Pipe (R)	126
P65-15-XLH-RR w/ Mount Pipe (E)	150	HBX-6517DS-VTM w/ Mount Pipe (R)	126
(4) LGP 13519 (E)	150	HBX-6517DS-VTM w/ Mount Pipe (R)	126
(4) LGP 13519 (E)	150	HBX-6517DS-VTM w/ Mount Pipe (R)	126
(4) LGP 13519 (E)	150	HBX-6517DS-VTM w/ Mount Pipe (R)	126
RRUS-11 (E)	150	DB-T1-6Z-8AB-0Z (R)	126
RRUS-11 (E)	150	RRH2x40-AWS (R)	126
RRUS-11 (E)	150	RRH2x40-AWS (R)	126
(4) 860 10025 (E)	150	RRH2x40-AWS (R)	126
(4) 860 10025 (E)	150	RRH2x40-AWS (R)	126
(4) 860 10025 (E)	150	RRH2x40-AWS (R)	126
(4) 860 10025 (E)	150	Platform Mount [LP 1201-1] (E)	126
(4) 860 10025 (E)	150	(2) DB844G65ZAXY w/ Mount Pipe (E)	126
DC6-48-60-18-8F (E)	150	SD212-SF3P2SNM (E)	109
PD320-2 (E)	150	(2) APXVSP18-C-A20 w/ Mount Pipe (E)	109
Platform Mount [LP 1201-1] (E)	147	APXVSP18-C-A20 w/ Mount Pipe (E)	109
Deluner Mount (E)	142	APXVSP18-C-A20 w/ Mount Pipe (E)	109
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	142	800MHz 2X50W RRH W/FILTER (E)	109
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	142	800MHz 2X50W RRH W/FILTER (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	142	800MHz 2X50W RRH W/FILTER (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	142	800MHz 2X50W RRH W/FILTER (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	142	800MHz 2X50W RRH W/FILTER (E)	109
KRY 112 144/1 (P)	142	1900MHz RRH (E)	109
KRY 112 144/1 (P)	142	1900MHz RRH (E)	109
KRY 112 144/1 (P)	142	1900MHz RRH (E)	109
(2) 6' x 2' Mount Pipe (E)	142	Platform Mount [LP 601-1] (E)	81
(2) 6' x 2' Mount Pipe (E)	142	DB205-L (E)	109
(2) 6' x 2' Mount Pipe (E)	142	Detuner Mount (E)	95
Platform Mount [LP 1201-1] (E)	142	4' x 2" Pipe Mount (E)	81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	142	4' x 2" Pipe Mount (E)	81
(2) DB844G65ZAXY w/ Mount Pipe (E)	126	4' x 2" Pipe Mount (E)	81
(2) DB844G65ZAXY w/ Mount Pipe (E)	126	Side Arm Mount [SO 701-3] (E)	81
(2) DB844G65ZAXY w/ Mount Pipe (E)	126	SRL-227 (E)	81
(2) DB844G65ZAXY w/ Mount Pipe (E)	126	SD212 (E)	81
P65-16-XL-R w/ Mount Pipe (E)	126	Pipe Mount [PM 601-1] (E)	74
P65-16-XL-R w/ Mount Pipe (E)	126	HP2-23 (E)	74
P65-16-XL-R w/ Mount Pipe (E)	126	GPS-TMG-HR-26N (E)	50
BXA-70080-6CF-4 w/ Mount Pipe (E)	126	Detuner Mount (E)	50
(2) FD9R6004/2C-3L (E)	126	Side Arm Mount [SO 702-1] (E)	50
(2) FD9R6004/2C-3L (E)	126	Detuner Mount (E)	15

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

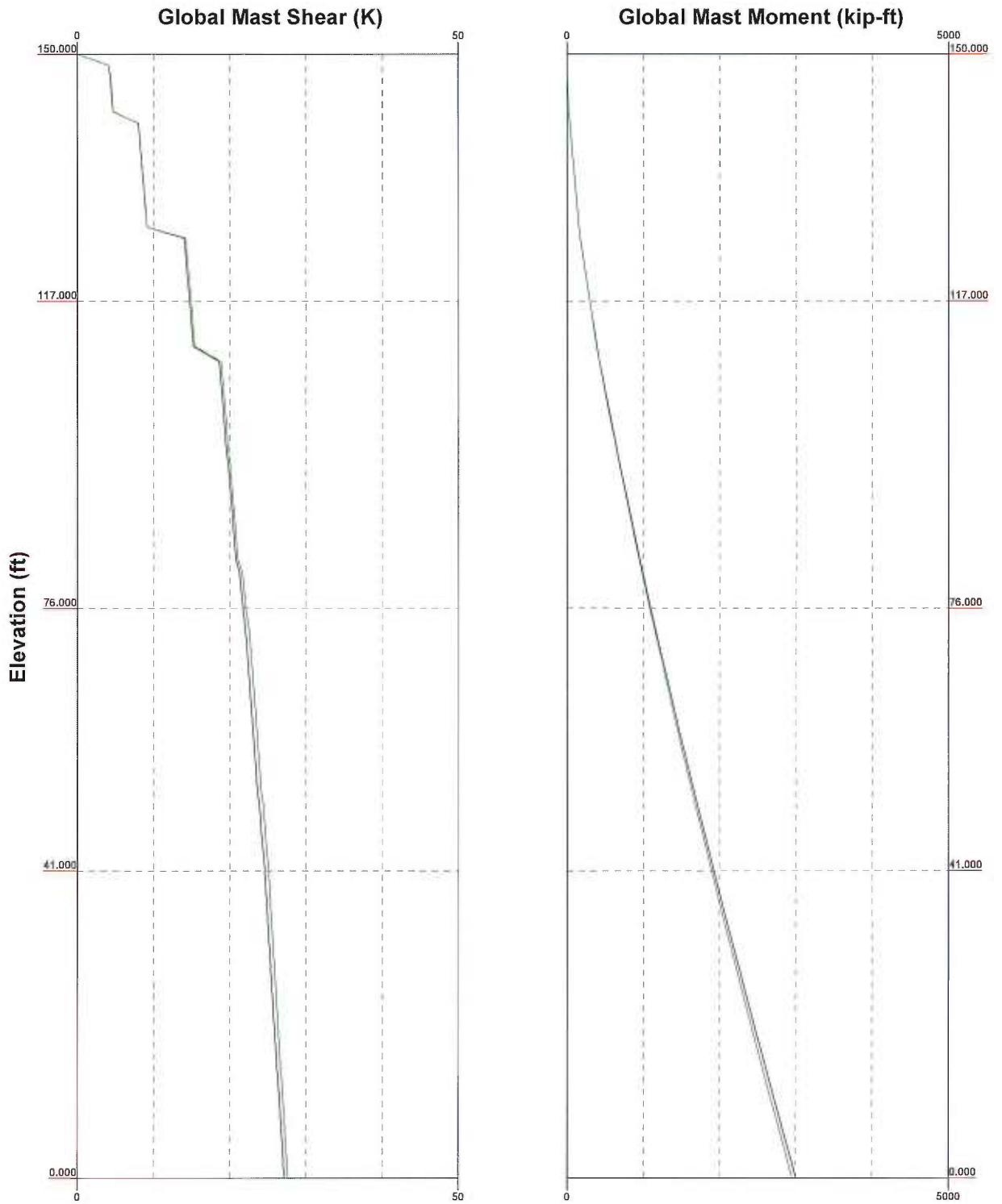
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
 2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
 3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
 4. Deflections are based upon a 50 mph wind.
 5. TOWER RATING: 88.9%
- AXIAL 61 K
 SHEAR 9 K
 TORQUE 1 kip-ft
 38 mph WIND - 1.000 in ICE
 AXIAL 38 K
 SHEAR 28 K
 MOMENT 3005 kip-ft
 TORQUE 3 kip-ft
 REACTIONS - 80 mph WIND

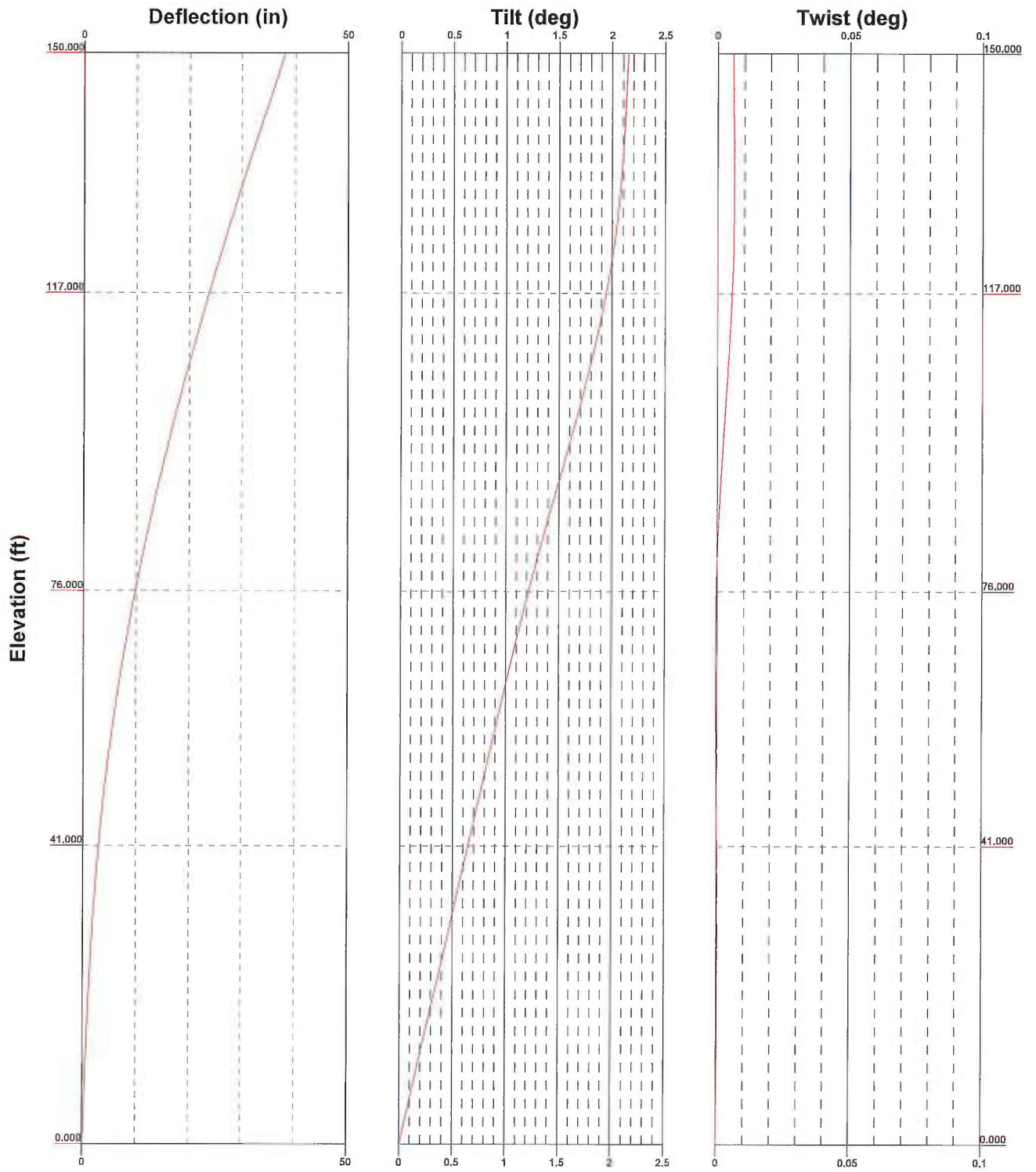
 <p>B+T Group 1717 South Boulder Ave, Suite 300 Tulsa, OK - 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: 91728.002.01 - Windsor Central, CT (BU#855662)
	Project:
	Client: Crown Castle Drawn by: JBarnat App'd:
	Code: TIA/EIA-222-F Date: 04/25/14 Scale: NTS
	Path: Dwg No: E-1


— Vx — Vz

— Mx — Mz



 <p>B+T Group 1717 South Boulder Ave, Suite 300 Tulsa, OK - 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: 91728.002.01 - Windsor Central, CT (BU#85566)		
	Project:		
	Client: Crown Castle	Drawn by: JBarnat	App'd:
	Code: TIA/EIA-222-F	Date: 04/25/14	Scale: NTS
	Path:	Dwg No. E-4	

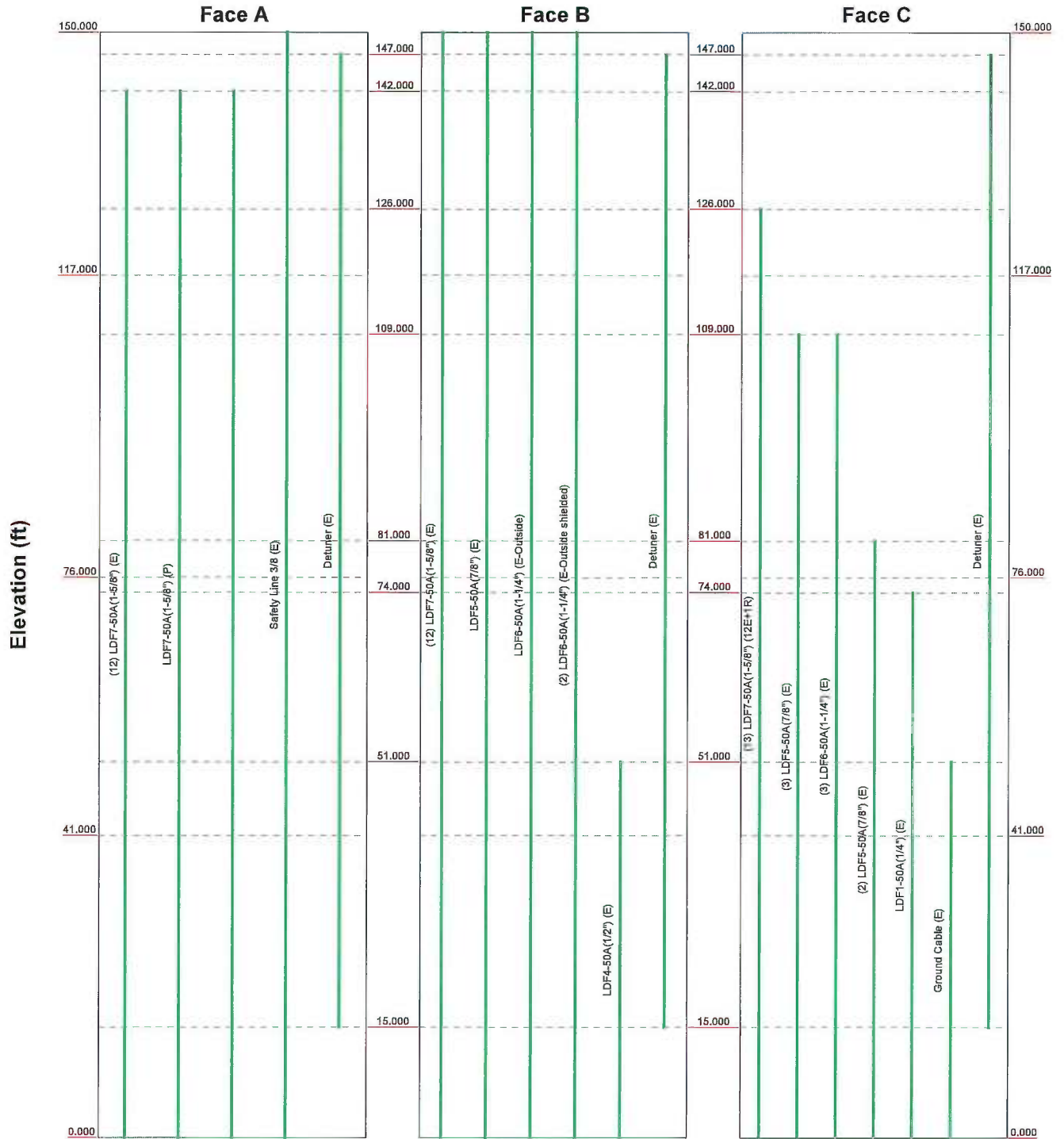


	B+T Group		Job: 91728.002.01 - Windsor Central, CT (BU#855662)		
	1717 South Boulder Ave, Suite 300		Project:		
	Tulsa, OK - 74119		Client: Crown Castle	Drawn by: JBarnat	App'd:
	Phone: (918) 587-4630		Code: TIA/EIA-222-F	Date: 04/25/14	Scale: NTS
FAX: (918) 295-0265		Path:	Dwg No. E-5		

Feed Line Distribution Chart

0' - 150'

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



<p>B+T Group 1717 South Boulder Ave, Suite 300 Tulsa, OK - 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: 91728.002.01 - Windsor Central, CT (BU#855662)	
	Project: Crown Castle	Drawn by: JBarnat
	Code: TIA/EIA-222-F	Date: 04/25/14
	Path:	Scale: NTS Dwg No. E-7

tnxTower B+T Group 1717 South Boulder Ave, Suite 300 Tulsa, OK - 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 91728.002.01 - Windsor Central, CT (BU#855662)	Page 1 of 19
	Project	Date 08:27:33 04/25/14
	Client Crown Castle	Designed by JBarnat

Tower Input Data

There is a pole section.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 1.000 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 50 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

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

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys √ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Use TIA-222-G Tension Splice Capacity Exemption 	<ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feedline Torque Include Angle Block Shear Check Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	---	--

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	150.000-117.000	33.000	3.800	18	24.190	30.370	0.219	0.875	A607-65 (65 ksi)
L2	117.000-76.000	44.800	4.750	18	29.221	38.040	0.250	1.000	A607-65 (65 ksi)
L3	76.000-41.000	39.750	5.570	18	36.605	44.580	0.344	1.375	A607-65 (65 ksi)
L4	41.000-0.000	46.570		18	42.775	52.250	0.375	1.500	A607-65 (65 ksi)

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Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.563	16.644	1208.271	8.510	12.289	98.325	2418.133	8.323	3.872	17.703
	30.839	20.934	2404.409	10.704	15.428	155.848	4811.982	10.469	4.960	22.675
L2	30.431	22.988	2437.635	10.285	14.844	164.215	4878.478	11.496	4.703	18.811
	38.627	29.986	5410.222	13.415	19.324	279.970	10827.562	14.996	6.255	25.02
L3	38.137	39.563	6572.235	12.873	18.595	353.435	13153.117	19.785	5.837	16.982
	45.268	48.265	11932.240	15.704	22.647	526.888	23880.181	24.137	7.241	21.065
L4	44.586	50.467	11462.328	15.052	21.730	527.496	22939.739	25.238	6.868	18.316
	53.056	61.744	20991.814	18.416	26.543	790.861	42011.250	30.878	8.536	22.763

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 150.000-117.000				1	1	1		
L2 117.000-76.000				1	1	1		
L3 76.000-41.000				1	1	1		
L4 41.000-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	in	in	klf
\$\$										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Face Offset	Lateral Offset (Frac FW)	#	C _A A _A	Weight
				ft	in			ft ² /ft	klf
LDF7-50A(1-5/8") (E)	B	No	Inside Pole	150.000 - 0.000	0.000	0	12	No Ice	0.000
								1/2" Ice	0.000
								1" Ice	0.000
								2" Ice	0.000
								4" Ice	0.000
LDF5-50A(7/8") (E)	B	No	Inside Pole	150.000 - 0.000	0.000	0	1	No Ice	0.000
								1/2" Ice	0.000
								1" Ice	0.000
								2" Ice	0.000
								4" Ice	0.000

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _{MAA} ft ² /ft	Weight klf
LDF6-50A(1-1/4") (E-Outside)	B	No	CaAa (Out Of Face)	150.000 - 0.000	0.000	0	1	No Ice	0.155	0.001
								1/2" Ice	0.255	0.002
								1" Ice	0.355	0.004
								2" Ice	0.555	0.009
								4" Ice	0.955	0.028
LDF6-50A(1-1/4") (E-Outside shielded)	B	No	CaAa (Out Of Face)	150.000 - 0.000	0.000	0	2	No Ice	0.000	0.001
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.004
								2" Ice	0.000	0.009
								4" Ice	0.000	0.028
*** LDF7-50A(1-5/8") (E)	A	No	Inside Pole	142.000 - 0.000	0.000	0	12	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
LDF7-50A(1-5/8") (P)	A	No	Inside Pole	142.000 - 0.000	0.000	0	1	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
*** LDF7-50A(1-5/8") (12E+1R)	C	No	Inside Pole	126.000 - 0.000	0.000	0	13	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
*** LDF5-50A(7/8") (E)	C	No	Inside Pole	109.000 - 0.000	0.000	0	3	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
LDF6-50A(1-1/4") (E)	C	No	Inside Pole	109.000 - 0.000	0.000	0	3	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
*** LDF5-50A(7/8") (E)	C	No	Inside Pole	81.000 - 0.000	0.000	0	2	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
*** LDF1-50A(1/4") (E)	C	No	Inside Pole	74.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
*** LDF4-50A(1/2") (E)	B	No	CaAa (Out Of Face)	51.000 - 0.000	0.000	0	1	No Ice	0.063	0.000
								1/2" Ice	0.163	0.001
								1" Ice	0.263	0.002
								2" Ice	0.463	0.007
								4" Ice	0.863	0.023

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _A A _A ft ² /ft	Weight klf

Ground Cable (E)	C	No	Inside Pole	51.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000

Safety Line 3/8 (E)	A	No	CaAa (Out Of Face)	150.000 - 0.000	0.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004

Detuner (E)	C	No	CaAa (Out Of Face)	147.000 - 15.000	24.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004
Detuner (E)	B	No	CaAa (Out Of Face)	147.000 - 15.000	24.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004
Detuner (E)	A	No	CaAa (Out Of Face)	147.000 - 15.000	24.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	150.000-117.000	A	0.000	0.000	0.000	2.362	0.350
		B	0.000	0.000	0.000	6.240	0.408
		C	0.000	0.000	0.000	1.125	0.103
L2	117.000-76.000	A	0.000	0.000	0.000	3.075	0.570
		B	0.000	0.000	0.000	7.893	0.507
		C	0.000	0.000	0.000	1.538	0.547
L3	76.000-41.000	A	0.000	0.000	0.000	2.625	0.486
		B	0.000	0.000	0.000	7.368	0.434
		C	0.000	0.000	0.000	1.313	0.512
L4	41.000-0.000	A	0.000	0.000	0.000	2.513	0.567
		B	0.000	0.000	0.000	9.913	0.510
		C	0.000	0.000	0.000	0.975	0.604

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	150.000-117.000	A	1.182	0.000	0.000	0.000	17.257	0.429
		B		0.000	0.000	0.000	21.134	0.854

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L2	117.000-76.000	C		0.000	0.000	0.000	8.218	0.140
		A	1.137	0.000	0.000	0.000	22.461	0.673
		B		0.000	0.000	0.000	27.279	1.066
L3	76.000-41.000	C		0.000	0.000	0.000	11.231	0.599
		A	1.071	0.000	0.000	0.000	18.539	0.571
		B		0.000	0.000	0.000	25.555	0.909
L4	41.000-0.000	C		0.000	0.000	0.000	9.270	0.555
		A	1.000	0.000	0.000	0.000	16.862	0.643
		B		0.000	0.000	0.000	33.043	1.066
		C		0.000	0.000	0.000	6.543	0.634

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	150.000-117.000	0.178	0.053	0.298	-0.069
L2	117.000-76.000	0.182	0.054	0.319	-0.074
L3	76.000-41.000	0.207	0.068	0.407	-0.030
L4	41.000-0.000	0.262	0.099	0.605	0.077

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
(2) 800 10121 w/ Mount Pipe (E)	A	From Leg	4.000	0.000	150.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.114
			-2.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
(2) 800 10121 w/ Mount Pipe (E)	B	From Leg	4.000	0.000	150.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.114
			-2.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
(2) 800 10121 w/ Mount Pipe (E)	C	From Leg	4.000	0.000	150.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.114
			-2.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	A	From Leg	4.000	0.000	150.000	No Ice	8.498	6.304	0.074
			0.000			1/2" Ice	9.149	7.479	0.139
			-2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	150.000	No Ice	8.498	6.304	0.074
			0.000			1/2" Ice	9.149	7.479	0.139

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₂ Side	Weight
			Horz	Lateral	Vert					
(E)					-2.000					
P65-15-XLH-RR w/ Mount Pipe	C	From Leg	4.000	0.000	150.000	1" Ice	9.767	8.368	0.212	
			0.000			2" Ice	11.031	10.179	0.385	
			-2.000			4" Ice	13.679	14.024	0.874	
						No Ice	5.838	3.665	0.048	
						1/2" Ice	6.292	4.278	0.092	
(E)			4.000	0.000	150.000	1" Ice	6.756	4.902	0.142	
			0.000			2" Ice	7.716	6.235	0.262	
			-2.000			4" Ice	9.772	9.277	0.611	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(4) LGP 13519	A	From Leg	4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(E)			4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(4) LGP 13519	B	From Leg	4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(E)			4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(4) LGP 13519	C	From Leg	4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
(E)			4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	0.338	0.207	0.005	
						1/2" Ice	0.422	0.280	0.008	
RRUS-11	A	From Leg	4.000	0.000	150.000	1" Ice	0.515	0.362	0.012	
			0.000			2" Ice	0.726	0.551	0.024	
			-2.000			4" Ice	1.252	1.034	0.071	
						No Ice	3.249	1.373	0.048	
						1/2" Ice	3.491	1.551	0.068	
(E)			4.000	0.000	150.000	1" Ice	3.741	1.738	0.092	
			0.000			2" Ice	4.268	2.138	0.150	
			-2.000			4" Ice	5.426	3.042	0.310	
						No Ice	3.249	1.373	0.048	
						1/2" Ice	3.491	1.551	0.068	
RRUS-11	B	From Leg	4.000	0.000	150.000	1" Ice	3.741	1.738	0.092	
			0.000			2" Ice	4.268	2.138	0.150	
			-2.000			4" Ice	5.426	3.042	0.310	
						No Ice	3.249	1.373	0.048	
						1/2" Ice	3.491	1.551	0.068	
(E)			4.000	0.000	150.000	1" Ice	3.741	1.738	0.092	
			0.000			2" Ice	4.268	2.138	0.150	
			-2.000			4" Ice	5.426	3.042	0.310	
						No Ice	3.249	1.373	0.048	
						1/2" Ice	3.491	1.551	0.068	
(4) 860 10025	A	From Leg	4.000	0.000	150.000	1" Ice	3.741	1.738	0.092	
			0.000			2" Ice	4.268	2.138	0.150	
			-2.000			4" Ice	5.426	3.042	0.310	
						No Ice	0.163	0.136	0.001	
						1/2" Ice	0.229	0.199	0.003	
(E)			4.000	0.000	150.000	1" Ice	0.302	0.270	0.005	
			0.000			2" Ice	0.476	0.439	0.014	
			-2.000			4" Ice	0.927	0.879	0.051	
						No Ice	0.163	0.136	0.001	
						1/2" Ice	0.229	0.199	0.003	
(4) 860 10025	B	From Leg	4.000	0.000	150.000	1" Ice	0.302	0.270	0.005	
			0.000			2" Ice	0.476	0.439	0.014	
			-2.000			4" Ice	0.927	0.879	0.051	
						No Ice	0.163	0.136	0.001	
						1/2" Ice	0.229	0.199	0.003	
(E)			4.000	0.000	150.000	1" Ice	0.302	0.270	0.005	
			0.000			2" Ice	0.476	0.439	0.014	
			-2.000			4" Ice	0.927	0.879	0.051	
						No Ice	0.163	0.136	0.001	
						1/2" Ice	0.229	0.199	0.003	
(4) 860 10025	C	From Leg	4.000	0.000	150.000	1" Ice	0.302	0.270	0.005	
			0.000			2" Ice	0.476	0.439	0.014	
			-2.000			4" Ice	0.927	0.879	0.051	
						No Ice	0.163	0.136	0.001	
						1/2" Ice	0.229	0.199	0.003	
(E)			4.000	0.000	150.000	1" Ice	0.302	0.270	0.005	
			0.000			2" Ice	0.476	0.439	0.014	
			-2.000			4" Ice	0.927	0.879	0.051	
						No Ice	1.467	1.467	0.019	
						1/2" Ice	1.667	1.667	0.037	
DC6-48-60-18-8F	B	From Leg	4.000	0.000	150.000	1" Ice	1.878	1.878	0.057	
			0.000			2" Ice	2.333	2.333	0.105	
			-2.000							

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _A A _A		Weight	
			Horz	Lateral	Vert			Front	Side		
			ft	ft	ft	°	ft	ft ²	ft ²	K	
PD320-2 (E)	B	From Leg	4.000			0.000	150.000	4" Ice	3.378	3.378	0.239
			0.000					No Ice	1.800	1.000	0.015
			5.000					1/2" Ice	3.408	2.017	0.022
								1" Ice	5.016	3.034	0.029
								2" Ice	8.232	5.068	0.043
Platform Mount [LP 1201-1] (E)	C	None				0.000	150.000	4" Ice	14.664	9.136	0.071
								No Ice	23.100	23.100	2.100
								1/2" Ice	26.800	26.800	2.500
								1" Ice	30.500	30.500	2.900
								2" Ice	37.900	37.900	3.700
							4" Ice	52.700	52.700	5.300	
*\$\$\$ ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	A	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	B	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	C	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	B	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	A	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	C	From Leg	4.000			0.000	142.000	No Ice	6.825	5.642	0.112
			0.000					1/2" Ice	7.347	6.480	0.169
			1.000					1" Ice	7.863	7.257	0.233
								2" Ice	8.926	8.864	0.383
								4" Ice	11.175	12.293	0.807
KRY 112 144/1 (P)	A	From Leg	4.000			0.000	142.000	No Ice	0.408	0.204	0.011
			0.000					1/2" Ice	0.497	0.273	0.014
			1.000					1" Ice	0.594	0.351	0.019
								2" Ice	0.815	0.533	0.032
								4" Ice	1.359	0.999	0.082
KRY 112 144/1 (P)	B	From Leg	4.000			0.000	142.000	No Ice	0.408	0.204	0.011
			0.000					1/2" Ice	0.497	0.273	0.014
			1.000					1" Ice	0.594	0.351	0.019
								2" Ice	0.815	0.533	0.032
								4" Ice	1.359	0.999	0.082
KRY 112 144/1 (P)	C	From Leg	4.000			0.000	142.000	No Ice	0.408	0.204	0.011
			0.000					1/2" Ice	0.497	0.273	0.014
			1.000					1" Ice	0.594	0.351	0.019
								2" Ice	0.815	0.533	0.032
								4" Ice	1.359	0.999	0.082

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight	
			Horz	Vert	Lateral						°
(2) 6' x 2" Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	0.000	142.000	No Ice	1.425	1.425	0.022
			0.000	0.000	0.000			1/2" Ice	1.925	1.925	0.033
			0.000	0.000	0.000			1" Ice	2.294	2.294	0.048
			0.000	0.000	0.000			2" Ice	3.060	3.060	0.090
			0.000	0.000	0.000			4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	0.000	142.000	No Ice	1.425	1.425	0.022
			0.000	0.000	0.000			1/2" Ice	1.925	1.925	0.033
			0.000	0.000	0.000			1" Ice	2.294	2.294	0.048
			0.000	0.000	0.000			2" Ice	3.060	3.060	0.090
			0.000	0.000	0.000			4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	0.000	142.000	No Ice	1.425	1.425	0.022
			0.000	0.000	0.000			1/2" Ice	1.925	1.925	0.033
			0.000	0.000	0.000			1" Ice	2.294	2.294	0.048
			0.000	0.000	0.000			2" Ice	3.060	3.060	0.090
			0.000	0.000	0.000			4" Ice	4.702	4.702	0.231
Platform Mount [LP 1201-1] (E)	C	None				0.000	142.000	No Ice	23.100	23.100	2.100
								1/2" Ice	26.800	26.800	2.500
								1" Ice	30.500	30.500	2.900
								2" Ice	37.900	37.900	3.700
								4" Ice	52.700	52.700	5.300
\$\$											
(2) DB844G65ZAXY w/Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	5.379	5.396	0.042
			0.000	0.000	0.000			1/2" Ice	6.071	6.491	0.093
			0.000	0.000	0.000			1" Ice	6.647	7.302	0.150
			0.000	0.000	0.000			2" Ice	7.828	8.960	0.288
			0.000	0.000	0.000			4" Ice	10.341	12.491	0.689
(2) DB844G65ZAXY w/Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	5.379	5.396	0.042
			0.000	0.000	0.000			1/2" Ice	6.071	6.491	0.093
			0.000	0.000	0.000			1" Ice	6.647	7.302	0.150
			0.000	0.000	0.000			2" Ice	7.828	8.960	0.288
			0.000	0.000	0.000			4" Ice	10.341	12.491	0.689
(2) DB844G65ZAXY w/Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	5.379	5.396	0.042
			0.000	0.000	0.000			1/2" Ice	6.071	6.491	0.093
			0.000	0.000	0.000			1" Ice	6.647	7.302	0.150
			0.000	0.000	0.000			2" Ice	7.828	8.960	0.288
			0.000	0.000	0.000			4" Ice	10.341	12.491	0.689
P65-16-XL-R w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	8.637	6.362	0.057
			0.000	0.000	0.000			1/2" Ice	9.290	7.538	0.122
			0.000	0.000	0.000			1" Ice	9.910	8.427	0.196
			0.000	0.000	0.000			2" Ice	11.176	10.239	0.371
			0.000	0.000	0.000			4" Ice	13.829	14.099	0.864
P65-16-XL-R w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	8.637	6.362	0.057
			0.000	0.000	0.000			1/2" Ice	9.290	7.538	0.122
			0.000	0.000	0.000			1" Ice	9.910	8.427	0.196
			0.000	0.000	0.000			2" Ice	11.176	10.239	0.371
			0.000	0.000	0.000			4" Ice	13.829	14.099	0.864
BXA-70080-6CF-4 w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	6.006	6.203	0.043
			0.000	0.000	0.000			1/2" Ice	6.562	7.359	0.098
			0.000	0.000	0.000			1" Ice	7.083	8.229	0.160
			0.000	0.000	0.000			2" Ice	8.167	10.019	0.310
			0.000	0.000	0.000			4" Ice	10.691	13.840	0.750
(2) FD9R6004/2C-3L (E)	A	From Leg	4.000	0.000	0.000	0.000	126.000	No Ice	0.367	0.085	0.003
			0.000	0.000	0.000			1/2" Ice	0.451	0.136	0.005
			0.000	0.000	0.000			1" Ice	0.543	0.196	0.009
			0.000	0.000	0.000			2" Ice	0.755	0.343	0.020
			0.000	0.000	0.000			4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	B	From Leg	4.000	0.000	0.000	126.000	No Ice	0.367	0.085	0.003	

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Description	Face or Leg	Offset Type	Offsets: Horiz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(E)			0.000 0.000			1/2" Ice 0.451 1" Ice 0.543 2" Ice 0.755 4" Ice 1.281	0.136 0.196 0.343 0.740	0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (E)	C	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 0.367 1/2" Ice 0.451 1" Ice 0.543 2" Ice 0.755 4" Ice 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
HBX-6516DS-VTM w/ Mount Pipe (R)	A	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 3.598 1/2" Ice 3.998 1" Ice 4.435 2" Ice 5.368 4" Ice 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
HBX-6516DS-VTM w/ Mount Pipe (R)	B	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 3.598 1/2" Ice 3.998 1" Ice 4.435 2" Ice 5.368 4" Ice 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
HBX-6516DS-VTM w/ Mount Pipe (R)	C	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 3.598 1/2" Ice 3.998 1" Ice 4.435 2" Ice 5.368 4" Ice 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
HBX-6517DS-VTM w/ Mount Pipe (R)	A	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 5.541 1/2" Ice 6.112 1" Ice 6.654 2" Ice 7.750 4" Ice 10.109	5.021 6.223 7.167 9.011 12.898	0.045 0.092 0.146 0.281 0.692
HBX-6517DS-VTM w/ Mount Pipe (R)	B	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 5.541 1/2" Ice 6.112 1" Ice 6.654 2" Ice 7.750 4" Ice 10.109	5.021 6.223 7.167 9.011 12.898	0.045 0.092 0.146 0.281 0.692
HBX-6517DS-VTM w/ Mount Pipe (R)	C	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 5.541 1/2" Ice 6.112 1" Ice 6.654 2" Ice 7.750 4" Ice 10.109	5.021 6.223 7.167 9.011 12.898	0.045 0.092 0.146 0.281 0.692
DB-TI-6Z-8AB-0Z (R)	A	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 5.600 1/2" Ice 5.915 1" Ice 6.240 2" Ice 6.914 4" Ice 8.365	2.333 2.558 2.791 3.284 4.373	0.044 0.080 0.120 0.213 0.455
RRH2x40-AWS (R)	A	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 2.522 1/2" Ice 2.753 1" Ice 2.993 2" Ice 3.499 4" Ice 4.615	1.589 1.795 2.010 2.465 3.479	0.044 0.061 0.082 0.132 0.275
RRH2x40-AWS (R)	B	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 2.522 1/2" Ice 2.753 1" Ice 2.993 2" Ice 3.499 4" Ice 4.615	1.589 1.795 2.010 2.465 3.479	0.044 0.061 0.082 0.132 0.275
RRH2x40-AWS (R)	C	From Leg	4.000 0.000 0.000	0.000	126.000	No Ice 2.522 1/2" Ice 2.753 1" Ice 2.993	1.589 1.795 2.010	0.044 0.061 0.082

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₄ Side	Weight								
			Horz Lateral	Vert						°	ft	ft ²	ft ²	K			
Platform Mount [LP 1201-1] (E)	C	None			0.000	126.000	2" Ice	3.499	2.465	0.132							
							4" Ice	4.615	3.479	0.275							
							No Ice	23.100	23.100	2.100							
							1/2" Ice	26.800	26.800	2.500							
							1" Ice	30.500	30.500	2.900							
							2" Ice	37.900	37.900	3.700							
							4" Ice	52.700	52.700	5.300							
*** DB205-L (E)	B	From Leg	4.000	0.000	0.000	109.000	No Ice	1.717	1.717	0.036							
							1/2" Ice	3.450	3.450	0.052							
							1" Ice	5.200	5.200	0.078							
							2" Ice	8.750	8.750	0.164							
							4" Ice	15.687	15.687	0.472							
														No Ice	2.160	2.160	0.021
SD212-SF3P2SNM (E)	B	From Leg	4.000	0.000	0.000	109.000	1/2" Ice	3.960	3.960	0.050							
							1" Ice	5.760	5.760	0.079							
							2" Ice	9.360	9.360	0.137							
							4" Ice	16.560	16.560	0.253							
														No Ice	8.498	6.946	0.083
							(2) APXVSP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	109.000	1/2" Ice	9.149	8.127	0.151
1" Ice	9.767	9.021	0.227														
2" Ice	11.031	10.844	0.406														
4" Ice	13.679	14.851	0.909														
														No Ice	8.498	6.946	0.083
APXVSP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	109.000								1/2" Ice	9.149	8.127	0.151
							1" Ice	9.767	9.021	0.227							
							2" Ice	11.031	10.844	0.406							
							4" Ice	13.679	14.851	0.909							
														No Ice	8.498	6.946	0.083
							APXVSP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	109.000	1/2" Ice	9.149	8.127	0.151
1" Ice	9.767	9.021	0.227														
2" Ice	11.031	10.844	0.406														
4" Ice	13.679	14.851	0.909														
														No Ice	2.401	2.254	0.064
800MHz 2X50W RRH W/FILTER (E)	A	From Leg	4.000	0.000	0.000	109.000								1/2" Ice	2.613	2.460	0.086
							1" Ice	2.833	2.675	0.111							
							2" Ice	3.300	3.132	0.172							
							4" Ice	4.337	4.148	0.338							
														No Ice	2.401	2.254	0.064
							800MHz 2X50W RRH W/FILTER (E)	B	From Leg	4.000	0.000	0.000	109.000	1/2" Ice	2.613	2.460	0.086
1" Ice	2.833	2.675	0.111														
2" Ice	3.300	3.132	0.172														
4" Ice	4.337	4.148	0.338														
														No Ice	2.401	2.254	0.064
800MHz 2X50W RRH W/FILTER (E)	C	From Leg	4.000	0.000	0.000	109.000								1/2" Ice	2.613	2.460	0.086
							1" Ice	2.833	2.675	0.111							
							2" Ice	3.300	3.132	0.172							
							4" Ice	4.337	4.148	0.338							
														No Ice	2.907	3.801	0.044
							1900MHz RRH (E)	A	From Leg	4.000	0.000	0.000	109.000	1/2" Ice	3.145	4.065	0.075
1" Ice	3.391	4.337	0.110														
2" Ice	3.909	4.908	0.192														
4" Ice	5.050	6.152	0.407														
														No Ice	2.907	3.801	0.044
1900MHz RRH (E)	B	From Leg	4.000	0.000	0.000	109.000								1/2" Ice	3.145	4.065	0.075
							1" Ice	3.391	4.337	0.110							
							2" Ice	3.909	4.908	0.192							

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						°
1900MHz RRH (E)	C	From Leg	4.000	0.000	0.000	109.000	4" Ice	5.050	6.152	0.407
			0.000				No Ice	2.907	3.801	0.044
			1.000				1/2" Ice	3.145	4.065	0.075
							1" Ice	3.391	4.337	0.110
							2" Ice	3.909	4.908	0.192
Platform Mount [LP 601-1] (E)	C	None			0.000	109.000	4" Ice	5.050	6.152	0.407
							No Ice	28.470	28.470	1.122
							1/2" Ice	33.590	33.590	1.514
							1" Ice	38.710	38.710	1.905
							2" Ice	48.950	48.950	2.689
		4" Ice	69.430	69.430	4.255					
*\$\$\$ SRL-227 (E)	A	From Leg	4.000	0.000	0.000	81.000	No Ice	4.625	1.448	0.035
			0.000				1/2" Ice	9.386	3.733	0.071
			2.000				1" Ice	14.147	6.018	0.106
							2" Ice	23.669	10.588	0.178
							4" Ice	42.713	19.728	0.320
SD212 (E)	B	From Leg	4.000	0.000	0.000	81.000	No Ice	3.000	3.000	0.016
			0.000				1/2" Ice	4.032	4.032	0.174
			-5.000				1" Ice	5.064	5.064	0.341
							2" Ice	7.128	7.128	0.701
							4" Ice	11.256	11.256	1.531
4' x 2" Pipe Mount (E)	A	From Leg	4.000	0.000	0.000	81.000	No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
			0.000				1" Ice	1.281	1.281	0.044
							2" Ice	1.814	1.814	0.072
							4" Ice	3.111	3.111	0.167
4' x 2" Pipe Mount (E)	B	From Leg	4.000	0.000	0.000	81.000	No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
			0.000				1" Ice	1.281	1.281	0.044
							2" Ice	1.814	1.814	0.072
							4" Ice	3.111	3.111	0.167
4' x 2" Pipe Mount (E)	C	From Leg	4.000	0.000	0.000	81.000	No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
			0.000				1" Ice	1.281	1.281	0.044
							2" Ice	1.814	1.814	0.072
							4" Ice	3.111	3.111	0.167
Side Arm Mount [SO 701-3] (E)	A	None			0.000	81.000	No Ice	2.830	2.830	0.195
							1/2" Ice	3.920	3.920	0.237
							1" Ice	5.010	5.010	0.279
							2" Ice	7.190	7.190	0.363
							4" Ice	11.550	11.550	0.531
*\$\$\$ Pipe Mount [PM 601-1] (E)	A	From Leg	0.500	0.000	0.000	74.000	No Ice	3.000	0.900	0.065
			0.000				1/2" Ice	3.740	1.120	0.079
			0.000				1" Ice	4.480	1.340	0.093
							2" Ice	5.960	1.780	0.122
							4" Ice	8.920	2.660	0.178
*\$\$\$ GPS-TMG-HR-26N (E)	A	From Leg	4.000	0.000	0.000	50.000	No Ice	0.243	0.156	0.001
			0.000				1/2" Ice	0.312	0.213	0.003
			1.000				1" Ice	0.390	0.279	0.006
							2" Ice	0.571	0.437	0.017
							4" Ice	1.038	0.857	0.059
Side Arm Mount [SO 702-1] (E)	A	From Leg	1.500	0.000	0.000	50.000	No Ice	1.000	1.430	0.027
			0.000				1/2" Ice	1.000	2.050	0.038
			0.000				1" Ice	1.000	2.670	0.049

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
							2" Ice 1.000	3.910	0.071
							4" Ice 1.000	6.390	0.115
*** Detuner Mount (E)	C	None			0.000	147.000	No Ice 2.830	2.830	0.195
							1/2" Ice 3.920	3.920	0.237
							1" Ice 5.010	5.010	0.279
							2" Ice 7.190	7.190	0.363
							4" Ice 11.550	11.550	0.531
Detuner Mount (E)	C	None			0.000	95.000	No Ice 2.830	2.830	0.195
							1/2" Ice 3.920	3.920	0.237
							1" Ice 5.010	5.010	0.279
							2" Ice 7.190	7.190	0.363
							4" Ice 11.550	11.550	0.531
Detuner Mount (E)	C	None			0.000	50.000	No Ice 2.830	2.830	0.195
							1/2" Ice 3.920	3.920	0.237
							1" Ice 5.010	5.010	0.279
							2" Ice 7.190	7.190	0.363
							4" Ice 11.550	11.550	0.531
Detuner Mount (E)	C	None			0.000	15.000	No Ice 2.830	2.830	0.195
							1/2" Ice 3.920	3.920	0.237
							1" Ice 5.010	5.010	0.279
							2" Ice 7.190	7.190	0.363
							4" Ice 11.550	11.550	0.531

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz Lateral	Vert						
				ft	ft	°	°	ft	ft	ft ²	K
HP2-23 (E)	A	Paraboloid w/Shroud (HP)	From Leg	1.000	0.000	0.000		74.000	2.042	No Ice 3.274	0.027
				0.000						1/2" Ice 3.547	0.045
				1.000						1" Ice 3.819	0.063
										2" Ice 4.365	0.100
										4" Ice 5.456	0.173

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 117	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-21.236	-1.506	0.614
			Max. Mx	5	-10.374	-244.043	-0.582
			Max. My	2	-10.344	0.455	244.440
			Max. Vy	5	14.453	-244.043	-0.582
			Max. Vx	2	-14.629	0.455	244.440
			Max. Torque	7			1.141
L2	117 - 76	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-34.596	-5.156	0.811
			Max. Mx	5	-18.117	-982.965	-2.660
			Max. My	2	-18.080	2.488	992.517
			Max. Vy	5	21.322	-982.965	-2.660
			Max. Vx	2	-21.677	2.488	992.517
			Max. Torque	7			2.754
L3	76 - 41	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-44.734	-6.047	1.082
			Max. Mx	5	-25.771	-1760.882	-4.134
			Max. My	2	-25.744	4.451	1785.969
			Max. Vy	5	24.164	-1760.882	-4.134
			Max. Vx	8	24.653	-6.363	-1784.987
			Max. Torque	7			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	41 - 0	Pole	Max. Torque	13			-2.963
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-60.605	-7.230	0.524
			Max. M _x	5	-38.429	-2958.132	-6.416
			Max. M _y	8	-38.428	-9.347	-3004.704
			Max. V _y	5	27.208	-2958.132	-6.416
			Max. V _x	8	27.685	-9.347	-3004.704
			Max. Torque	13			-3.014

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	20	60.605	-4.500	-7.906
	Max. H _x	11	38.449	27.179	0.071
	Max. H _z	2	38.449	0.059	27.628
	Max. M _x	2	3004.218	0.059	27.628
	Max. M _z	5	2958.132	-27.179	-0.046
	Max. Torsion	7	3.009	-13.631	-23.994
	Min. Vert	1	38.449	0.000	0.000
	Min. H _x	5	38.449	-27.179	-0.046
	Min. H _z	8	38.449	-0.059	-27.656
	Min. M _x	8	-3004.704	-0.059	-27.656
	Min. M _z	11	-2955.832	27.179	0.071
	Min. Torsion	13	-3.014	13.625	23.964

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	38.449	0.000	0.000	-0.791	-1.083	0.000
Dead+Wind 0 deg - No Ice	38.449	-0.059	-27.628	-3004.218	7.079	2.404
Dead+Wind 30 deg - No Ice	38.449	13.523	-23.906	-2598.468	-1471.286	1.157
Dead+Wind 60 deg - No Ice	38.449	23.496	-13.786	-1497.262	-2556.947	-0.435
Dead+Wind 90 deg - No Ice	38.449	27.179	0.046	6.417	-2958.132	-1.919
Dead+Wind 120 deg - No Ice	38.449	23.547	13.915	1511.866	-2564.488	-2.797
Dead+Wind 150 deg - No Ice	38.449	13.631	23.994	2607.202	-1485.993	-3.009
Dead+Wind 180 deg - No Ice	38.449	0.059	27.656	3004.704	-9.346	-2.421
Dead+Wind 210 deg - No Ice	38.449	-13.530	23.935	2599.015	1469.515	-1.178
Dead+Wind 240 deg - No Ice	38.449	-23.488	13.813	1497.651	2554.023	0.392
Dead+Wind 270 deg - No Ice	38.449	-27.179	-0.071	-10.009	2955.832	1.936
Dead+Wind 300 deg - No Ice	38.449	-23.555	-13.888	-1511.451	2562.829	2.856
Dead+Wind 330 deg - No Ice	38.449	-13.625	-23.964	-2606.628	1483.212	3.014
Dead+Ice+Temp	60.605	0.000	-0.000	-0.524	-7.230	0.000
Dead+Wind 0 deg+Ice+Temp	60.605	-0.018	-9.107	-1019.370	-4.648	1.275
Dead+Wind 30 deg+Ice+Temp	60.605	4.467	-7.880	-881.711	-507.593	0.819
Dead+Wind 60 deg+Ice+Temp	60.605	7.759	-4.544	-508.106	-876.821	0.135
Dead+Wind 90 deg+Ice+Temp	60.605	8.974	0.014	1.902	-1013.176	-0.588
Dead+Wind 120 deg+Ice+Temp	60.605	7.775	4.582	512.278	-879.348	-1.129
Dead+Wind 150 deg+Ice+Temp	60.605	4.500	7.906	883.951	-512.409	-1.389
Dead+Wind 180 deg+Ice+Temp	60.605	0.018	9.115	1018.891	-10.048	-1.278

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Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead+Wind 210 deg+Ice+Temp	60.605	-4.469	7.888	881.249	493.035	-0.823
Dead+Wind 240 deg+Ice+Temp	60.605	-7.757	4.551	507.598	861.948	-0.146
Dead+Wind 270 deg+Ice+Temp	60.605	-8.974	-0.021	-3.498	998.473	0.592
Dead+Wind 300 deg+Ice+Temp	60.605	-7.777	-4.575	-512.779	864.818	1.143
Dead+Wind 330 deg+Ice+Temp	60.605	-4.498	-7.898	-884.407	497.571	1.389
Dead+Wind 0 deg - Service	38.449	-0.023	-10.792	-1175.478	2.059	0.949
Dead+Wind 30 deg - Service	38.449	5.282	-9.338	-1016.779	-576.131	0.457
Dead+Wind 60 deg - Service	38.449	9.178	-5.385	-586.089	-1000.718	-0.172
Dead+Wind 90 deg - Service	38.449	10.617	0.018	1.989	-1157.611	-0.758
Dead+Wind 120 deg - Service	38.449	9.198	5.435	590.767	-1003.684	-1.103
Dead+Wind 150 deg - Service	38.449	5.325	9.372	1019.170	-581.894	-1.184
Dead+Wind 180 deg - Service	38.449	0.023	10.803	1174.632	-4.366	-0.951
Dead+Wind 210 deg - Service	38.449	-5.285	9.350	1015.958	574.023	-0.463
Dead+Wind 240 deg - Service	38.449	-9.175	5.396	585.202	998.163	0.154
Dead+Wind 270 deg - Service	38.449	-10.617	-0.028	-4.436	1155.300	0.760
Dead+Wind 300 deg - Service	38.449	-9.201	-5.425	-591.650	1001.618	1.123
Dead+Wind 330 deg - Service	38.449	-5.322	-9.361	-1019.987	579.386	1.187

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-38.449	0.000	0.000	38.449	0.000	0.000%
2	-0.059	-38.449	-27.628	0.059	38.449	27.628	0.000%
3	13.523	-38.449	-23.906	-13.523	38.449	23.906	0.000%
4	23.496	-38.449	-13.786	-23.496	38.449	13.786	0.000%
5	27.179	-38.449	0.046	-27.179	38.449	-0.046	0.000%
6	23.547	-38.449	13.915	-23.547	38.449	-13.915	0.000%
7	13.631	-38.449	23.994	-13.631	38.449	-23.994	0.000%
8	0.059	-38.449	27.656	-0.059	38.449	-27.656	0.000%
9	-13.530	-38.449	23.935	13.530	38.449	-23.935	0.000%
10	-23.488	-38.449	13.813	23.488	38.449	-13.813	0.000%
11	-27.179	-38.449	-0.071	27.179	38.449	0.071	0.000%
12	-23.555	-38.449	-13.888	23.555	38.449	13.888	0.000%
13	-13.625	-38.449	-23.964	13.625	38.449	23.964	0.000%
14	0.000	-60.605	0.000	-0.000	60.605	0.000	0.000%
15	-0.018	-60.605	-9.107	0.018	60.605	9.107	0.000%
16	4.467	-60.605	-7.880	-4.467	60.605	7.880	0.000%
17	7.759	-60.605	-4.544	-7.759	60.605	4.544	0.000%
18	8.974	-60.605	0.014	-8.974	60.605	-0.014	0.000%
19	7.775	-60.605	4.582	-7.775	60.605	-4.582	0.000%
20	4.500	-60.605	7.906	-4.500	60.605	-7.906	0.000%
21	0.018	-60.605	9.115	-0.018	60.605	-9.115	0.000%
22	-4.469	-60.605	7.888	4.469	60.605	-7.888	0.000%
23	-7.757	-60.605	4.551	7.757	60.605	-4.551	0.000%
24	-8.974	-60.605	-0.021	8.974	60.605	0.021	0.000%
25	-7.777	-60.605	-4.575	7.777	60.605	4.575	0.000%
26	-4.498	-60.605	-7.898	4.498	60.605	7.898	0.000%
27	-0.023	-38.449	-10.792	0.023	38.449	10.792	0.000%
28	5.282	-38.449	-9.338	-5.282	38.449	9.338	0.000%
29	9.178	-38.449	-5.385	-9.178	38.449	5.385	0.000%
30	10.617	-38.449	0.018	-10.617	38.449	-0.018	0.000%
31	9.198	-38.449	5.435	-9.198	38.449	-5.435	0.000%
32	5.325	-38.449	9.372	-5.325	38.449	-9.372	0.000%
33	0.023	-38.449	10.803	-0.023	38.449	-10.803	0.000%
34	-5.285	-38.449	9.350	5.285	38.449	-9.350	0.000%
35	-9.175	-38.449	5.396	9.175	38.449	-5.396	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
36	-10.617	-38.449	-0.028	10.617	38.449	0.028	0.000%
37	-9.201	-38.449	-5.425	9.201	38.449	5.425	0.000%
38	-5.322	-38.449	-9.361	5.322	38.449	9.361	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00011550
3	Yes	6	0.0000001	0.00008909
4	Yes	6	0.0000001	0.00008765
5	Yes	5	0.0000001	0.00008160
6	Yes	6	0.0000001	0.00008434
7	Yes	6	0.0000001	0.00009300
8	Yes	5	0.0000001	0.00014276
9	Yes	6	0.0000001	0.00008483
10	Yes	6	0.0000001	0.00008647
11	Yes	5	0.0000001	0.00010829
12	Yes	6	0.0000001	0.00009248
13	Yes	6	0.0000001	0.00008361
14	Yes	4	0.0000001	0.00005763
15	Yes	5	0.0000001	0.00054054
16	Yes	5	0.0000001	0.00084274
17	Yes	5	0.0000001	0.00081607
18	Yes	5	0.0000001	0.00052992
19	Yes	5	0.0000001	0.00081083
20	Yes	5	0.0000001	0.00085876
21	Yes	5	0.0000001	0.00053968
22	Yes	5	0.0000001	0.00078197
23	Yes	5	0.0000001	0.00079998
24	Yes	5	0.0000001	0.00051953
25	Yes	5	0.0000001	0.00083015
26	Yes	5	0.0000001	0.00079107
27	Yes	4	0.0000001	0.00052208
28	Yes	5	0.0000001	0.00017596
29	Yes	5	0.0000001	0.00016947
30	Yes	4	0.0000001	0.00038752
31	Yes	5	0.0000001	0.00015729
32	Yes	5	0.0000001	0.00019023
33	Yes	4	0.0000001	0.00056161
34	Yes	5	0.0000001	0.00015920
35	Yes	5	0.0000001	0.00016416
36	Yes	4	0.0000001	0.00042431
37	Yes	5	0.0000001	0.00018699
38	Yes	5	0.0000001	0.00015554

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 117	38.174	27	2.151	0.008
L2	120.8 - 76	25.332	27	1.988	0.006
L3	80.75 - 41	11.141	27	1.303	0.003
L4	46.57 - 0	3.724	27	0.733	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	(2) 800 10121 w/ Mount Pipe	27	38.174	2.151	0.008	27097
147.000	Detuner Mount	27	36.817	2.142	0.008	27097
142.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	27	34.562	2.126	0.007	16936
126.000	(2) DB844G65ZAXY w/Mount Pipe	27	27.521	2.038	0.006	5644
109.000	DB205-L	27	20.628	1.826	0.005	4056
95.000	Detuner Mount	27	15.586	1.575	0.004	3522
81.000	SRL-227	27	11.213	1.307	0.003	3123
75.000	HP2-23	27	9.565	1.199	0.002	3051
74.000	Pipe Mount [PM 601-1]	27	9.304	1.181	0.002	3042
50.000	GPS-TMG-HR-26N	27	4.251	0.787	0.001	2838
15.000	Detuner Mount	27	0.754	0.236	0.000	8719

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 117	97.369	2	5.489	0.021
L2	120.8 - 76	64.641	2	5.073	0.015
L3	80.75 - 41	28.451	2	3.326	0.007
L4	46.57 - 0	9.513	2	1.873	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	(2) 800 10121 w/ Mount Pipe	2	97.369	5.489	0.021	10824
147.000	Detuner Mount	2	93.912	5.466	0.020	10824
142.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2	88.166	5.425	0.019	6764
126.000	(2) DB844G65ZAXY w/Mount Pipe	2	70.220	5.200	0.016	2252
109.000	DB205-L	2	52.648	4.660	0.012	1609
95.000	Detuner Mount	2	39.790	4.021	0.010	1394
81.000	SRL-227	2	28.633	3.338	0.007	1233
75.000	HP2-23	2	24.426	3.061	0.006	1203
74.000	Pipe Mount [PM 601-1]	2	23.760	3.016	0.006	1199
50.000	GPS-TMG-HR-26N	2	10.859	2.011	0.003	1113

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	Client Crown Castle	Designed by JBarnat

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
15.000	Detuner Mount	8	1.926	0.604	0.001	3415

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
L1	150 - 117 (1)	TP30.37x24.19x0.219	33.000	0.000	0.0	39.000	20.440	-10.344	797.171	0.013
L2	117 - 76 (2)	TP38.04x29.221x0.25	44.800	0.000	0.0	39.000	29.244	-18.080	1140.530	0.016
L3	76 - 41 (3)	TP44.58x36.605x0.344	39.750	0.000	0.0	39.000	47.045	-25.744	1834.760	0.014
L4	41 - 0 (4)	TP52.25x42.775x0.375	46.570	0.000	0.0	39.000	61.744	-38.428	2408.020	0.016

Pole Bending Design Data

Section No.	Elevation	Size	Actual M _x	Actual f _{bx}	Allow. F _{bx}	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y	Actual f _{by}	Allow. F _{by}	Ratio $\frac{f_{by}}{F_{by}}$
	ft		kip-ft	ksi	ksi		kip-ft	ksi	ksi	
L1	150 - 117 (1)	TP30.37x24.19x0.219	244.768	19.772	39.000	0.507	0.000	0.000	39.000	0.000
L2	117 - 76 (2)	TP38.04x29.221x0.25	992.517	44.735	39.000	1.147	0.000	0.000	39.000	0.000
L3	76 - 41 (3)	TP44.58x36.605x0.344	1785.97	42.820	39.000	1.098	0.000	0.000	39.000	0.000
L4	41 - 0 (4)	TP52.25x42.775x0.375	3004.71	45.592	39.000	1.169	0.000	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V	Actual f _v	Allow. F _v	Ratio $\frac{f_v}{F_v}$	Actual T	Actual f _{vt}	Allow. F _{vt}	Ratio $\frac{f_{vt}}{F_{vt}}$
	ft		K	ksi	ksi		kip-ft	ksi	ksi	
L1	150 - 117 (1)	TP30.37x24.19x0.219	14.638	0.716	26.000	0.055	1.141	0.045	26.000	0.002
L2	117 - 76 (2)	TP38.04x29.221x0.25	21.677	0.741	26.000	0.057	2.284	0.050	26.000	0.002
L3	76 - 41 (3)	TP44.58x36.605x0.344	24.625	0.523	26.000	0.040	2.327	0.027	26.000	0.001
L4	41 - 0 (4)	TP52.25x42.775x0.375	27.686	0.448	26.000	0.034	2.421	0.018	26.000	0.001

Pole Interaction Design Data

tnxTower B+T Group 1717 South Boulder Ave, Suite 300 Tulsa, OK - 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 91728.002.01 - Windsor Central, CT (BU#855662)	Page 19 of 19
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	Client Crown Castle	Designed by JBarnat

Section No.	Elevation ft	Ratio P	Ratio f_{bx}	Ratio f_{by}	Ratio f_v	Ratio f_v	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_a	F_{bx}	F_{by}	F_v	F_v			
L1	150 - 117 (1)	0.013	0.507	0.000	0.055	0.002	0.521	1.333	H1-3+VT ✓
L2	117 - 76 (2)	0.016	1.147	0.000	0.057	0.002	1.164	1.333	H1-3+VT ✓
L3	76 - 41 (3)	0.014	1.098	0.000	0.040	0.001	1.112	1.333	H1-3+VT ✓
L4	41 - 0 (4)	0.016	1.169	0.000	0.034	0.001	1.185	1.333	H1-3+VT ✓

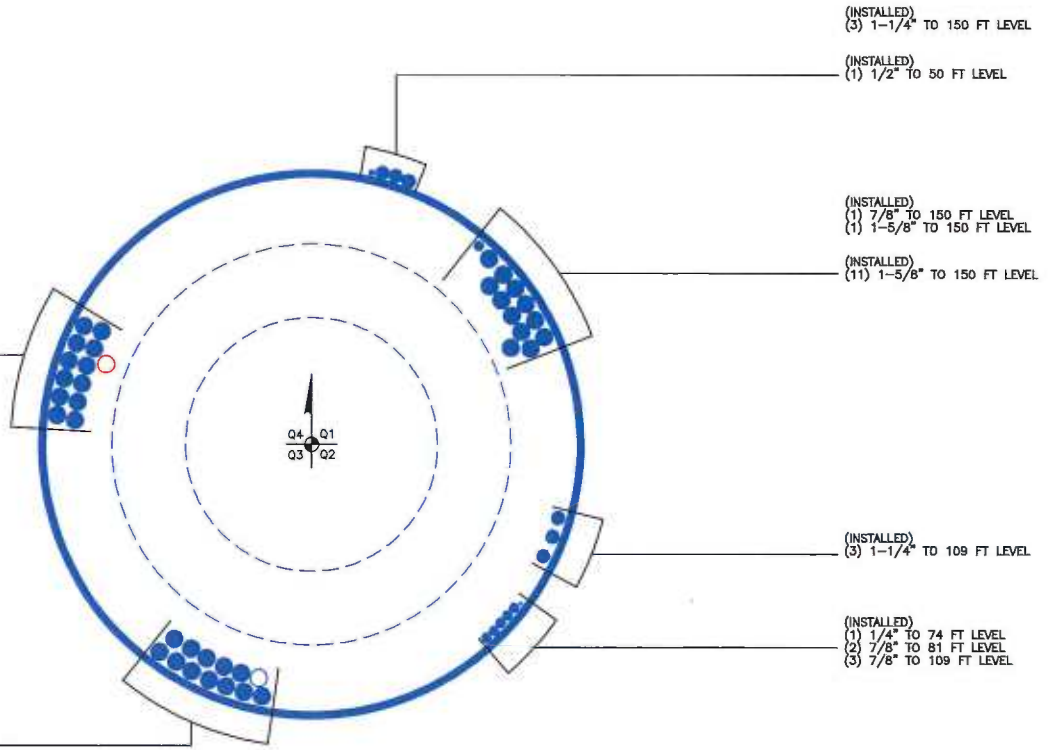
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	150 - 117	Pole	TP30.37x24.19x0.219	1	-10.344	1062.629	39.1	Pass
L2	117 - 76	Pole	TP38.04x29.221x0.25	2	-18.080	1520.326	87.3	Pass
L3	76 - 41	Pole	TP44.58x36.605x0.344	3	-25.744	2445.735	83.5	Pass
L4	41 - 0	Pole	TP52.25x42.775x0.375	4	-38.428	3209.891	88.9	Pass
Summary								
Pole (L4)							88.9	Pass
RATING =							88.9	Pass

APPENDIX B
BASE LEVEL DRAWING

(PROPOSED)
(1) 1-5/8" TO 142 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 142 FT LEVEL

(RESERVED)
(1) 1-5/8" TO 126 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 126 FT LEVEL



BUSINESS UNIT: 855662 TOWER ID: C_BASELEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F / G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 855662	
Site Name: WINDSORCENTRAL, CT	
App #: 216463 Rev 2	
Anchor Rod Data	
Qty:	16
Diam:	2.25 in
Rod Material:	A615-J
Yield, Fy:	75 ksi
Strength, Fu:	100 ksi
Bolt Circle:	59.25 in
Anchor Spacing:	6 in

Plate Data

W=Side:	57.25 in
Thick:	2.75 in
Grade:	55 ksi
Clip Distance:	6 in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened
Weld Type:	**
Groove Depth:	in **
Groove Angle:	degrees
Fillet H. Weld:	<-- Disregard
Fillet V. Weld:	in
Width:	in
Height:	in
Thick:	in
Notch:	in
Grade:	ksi
Weld str.:	ksi

Pole Data

Diam:	52.25 in
Thick:	0.375 in
Grade:	65 ksi
# of Sides:	18 "0" IF Round

Stress Increase Factor

ASD ASIF:	1.333
-----------	-------

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	3005	ft-kips
Unfactored Axial, P:	38	kips
Unfactored Shear, V:	28	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	149.8 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	76.8% Pass

Base Plate Results

Base Plate Stress:	45.9 ksi	Flexural Check
Allowable PL Bending Stress:	55.0 ksi	
Base Plate Stress Ratio:	83.4% Pass	

PL Ref. Data

Yield Line (in):	28.71
Max PL Length:	28.71

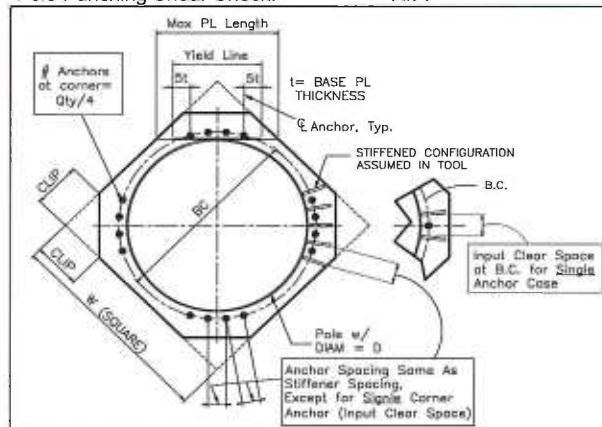
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check:	N/A
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BU: 855662
 Site Name: WINDSORCENTRAL, CT
 App Number: 216463 Rev 2
 Work Order: 738802



Monopole Drilled Pier

Input

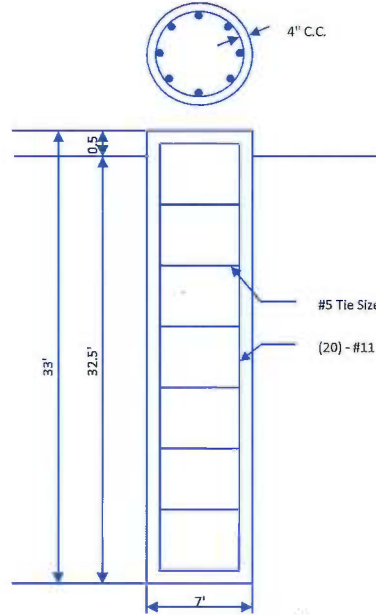
Criteria
 TIA Revision: F
 ACI 318 Revision: 2002
 Seismic Category: B

Forces
 Compression: 49.4 kips
 Shear: 36.4 kips
 Moment: 3906.5 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 7 ft
 Ext. above grade: 0.5 ft
 Depth below grade: 32.5 ft

Material Properties
 Number of Rebar: 20
 Rebar Size: #11
 Tie Size: #5
 Rebar tensile strength: 60 ksi
 Concrete Strength: 3000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 4 in

Soil Profile: Soil



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	2	0	2	100	0	0	0	0	0	
2	3	2	5	37.6	0	0	0	0	0	
3	7	5	12	55		35			0	
4	4	12	16	50		31			0	
5	16.5	16	32.5	50	800				0	

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 7.04 ft
 Max Moment, Mu: 3223.48 k-ft
 Soil Safety Factor: 2.29
 Safety Factor Req'd: 2
 RATING: 87.3%

Soil Axial Capacity
 Skin Friction (k): 135.67 kips
 End Bearing (k): 0.00 kips
 Comp. Capacity (k), φCn: 135.67 kips
 Comp. (k), Cu: 49.40 kips
 RATING: 36.4%

Concrete/Steel Check
 Mu (from soil analysis) 4190.52 k-ft
 φMn 4945.70 k-ft
 RATING: 84.7%

rho provided 0.56
 rho required 0.33 OK

Rebar Spacing 10.11
 Spacing required 22.56 OK

Dev. Length required 25.13
 Dev. Length provided 61.78 OK

Overall Foundation Rating: 87.3%

EXHIBIT C

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11063B

Windsor Fire Department_1
340 Bloomfield Avenue
Windsor, CT 06095

May 7, 2014

EBI Project Number: 62142823

May 7, 2014

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CT11063B - Windsor Fire Department_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 340 Bloomfield Avenue, Windsor, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is $567 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 340 Bloomfield Avenue, Windsor, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (1935.000 MHz—to 1945.000 MHz) were considered for each sector of the proposed installation.
- 2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
- 3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications.

- 7) The antenna mounting height centerline of the proposed antennas is **143 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

Site ID	CT110638 - Windsor Fire Department_1
Site Address	340 Bloomfield Avenue, Windsor, CT 06095
Site Type	Monopole

Sector 1																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/82P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	143	137	None	0	0	48.326044	0.925648	0.09256%
1b	Ericsson	AIR21 B4A/82P	Not Used					0	-3.95	143	137	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
															Sector total Power Density Value: 0.185%		
Sector 2																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/82P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	143	137	None	0	0	48.326044	0.925648	0.09256%
1b	Ericsson	AIR21 B4A/82P	Not Used					0	-3.95	143	137	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
															Sector total Power Density Value: 0.185%		
Sector 3																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/82P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	143	137	None	0	0	48.326044	0.925648	0.09256%
1b	Ericsson	AIR21 B4A/82P	Not Used					0	-3.95	143	137	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	143	137	1-5/8"	0	0	24.163022	0.462824	0.04628%
															Sector total Power Density Value: 0.185%		

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.555%
Verizon Wireless	17.880%
AT&T	16.890%
Clearwire	1.100%
Sprint	8.220%
Town	8.830%
Total Site MPE %	53.575%

Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.555% (0.185% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **53.575%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



Scott Heffernan
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