COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

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

March 11, 2014

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

Re: Notice of Exempt Modification
CCTMO/ T-Mobile co-location
Site ID CT11044E
725 Flanders Road, Groton

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 CCTMO (Crown Castle) owns the existing monopole telecommunications tower and related facility at 725 Flanders Road, Groton Connecticut (Latitude: 41.369964/ Longitude: -72.0082698). T-Mobile intends to replace six antennas and related equipment at this existing telecommunications facility in Groton ("Groton 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 the Groton Town Manager Mark R. Oefinger. The Town of Groton is also the property owner.

The existing Groton Facility consists of a 130 foot tall monopole tower.[1] T-Mobile plans to replace six antennas, add three antennas and replace three TMAs (tower mounted amplifiers) at a centerline of 132 feet. (See the plans revised to January 27, 2014 attached hereto as Exhibit A). T-Mobile will also add an equipment cabinet, install fiber and reuse existing coax cable. The existing Groton Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated February 18, 2014 and attached hereto as Exhibit B.

The planned modifications to the Groton Facility fall squarely within those activities

[1] While the online docket for the Connecticut Siting Council does not provide a docket or petition number for the approval of this structure, it does reference this structure in connection with notices of intent, the most recent captioned EM-CING-059-130507.

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 antennas will be installed at a centerline of 132 feet, merely replacing existing antennas located at the same 132 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. T-Mobile's equipment will be located entirely within the existing compound and leased area.

3. The proposed modification to the Groton 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 March 7, 2014, T-Mobile's operations would add 0.760% 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 50.080% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

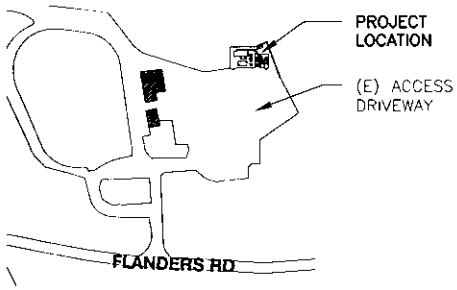
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Groton Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction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

Sincerely,

Julie D. Kohler, Esq.

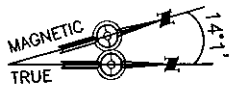
cc: Town Manager Mark R. Oefinger
Northeast Site Solutions, Sheldon J. Freincle

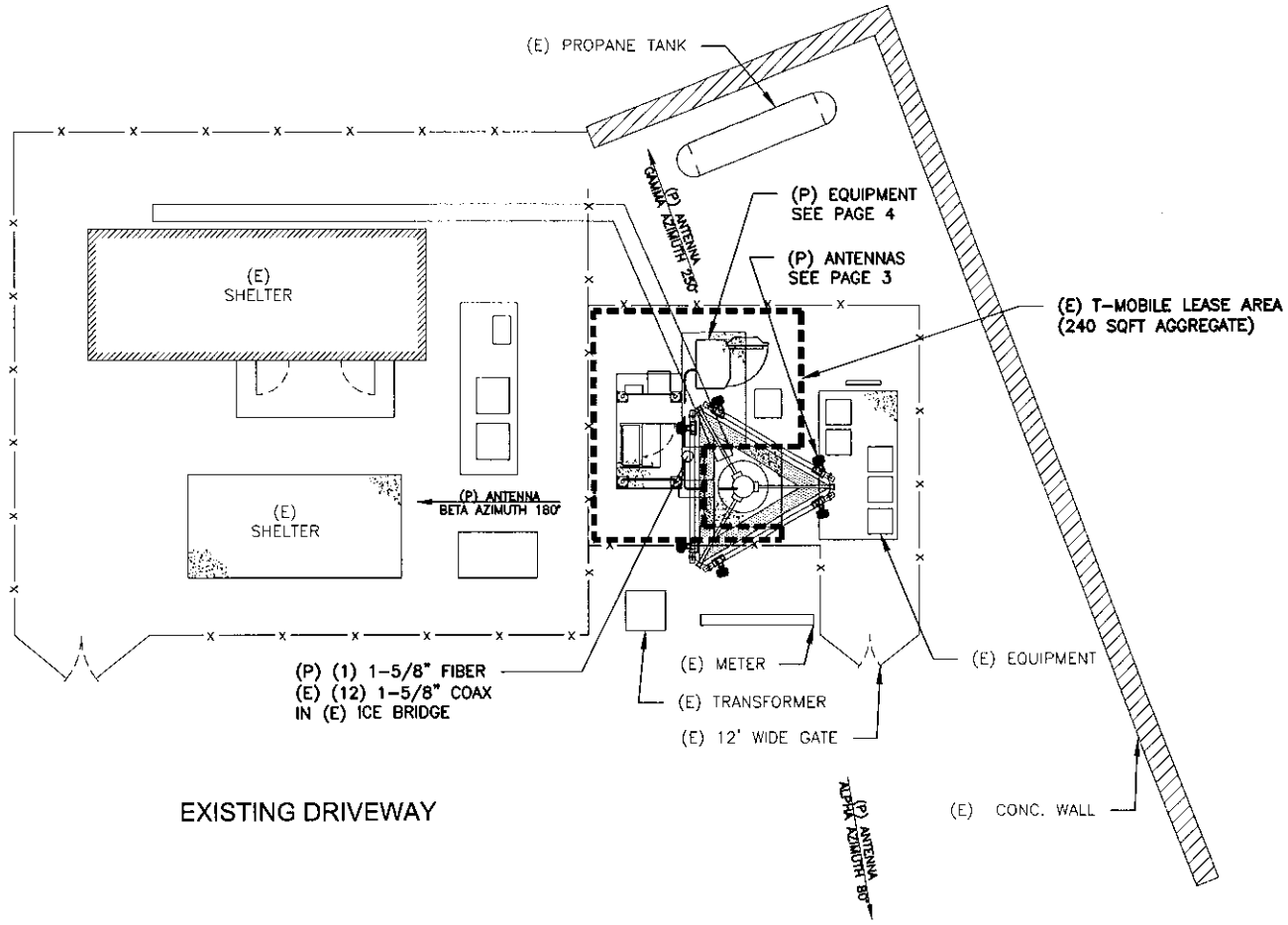
EXHIBIT A



KEY PLAN

N.T.S.





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.

SITE PLAN

N.T.S.

1 / LE-1

1 / L-2

CONFIGURATION

2C

SUBMITTALS	
LE REV A	01.22.14
LE REV 0	01.27.14

ATLANTIS GROUP
1340 Centre Street
Suite 214
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CT11044E

SITE NAME:
GROTON/I-95/X89/ NOA_1

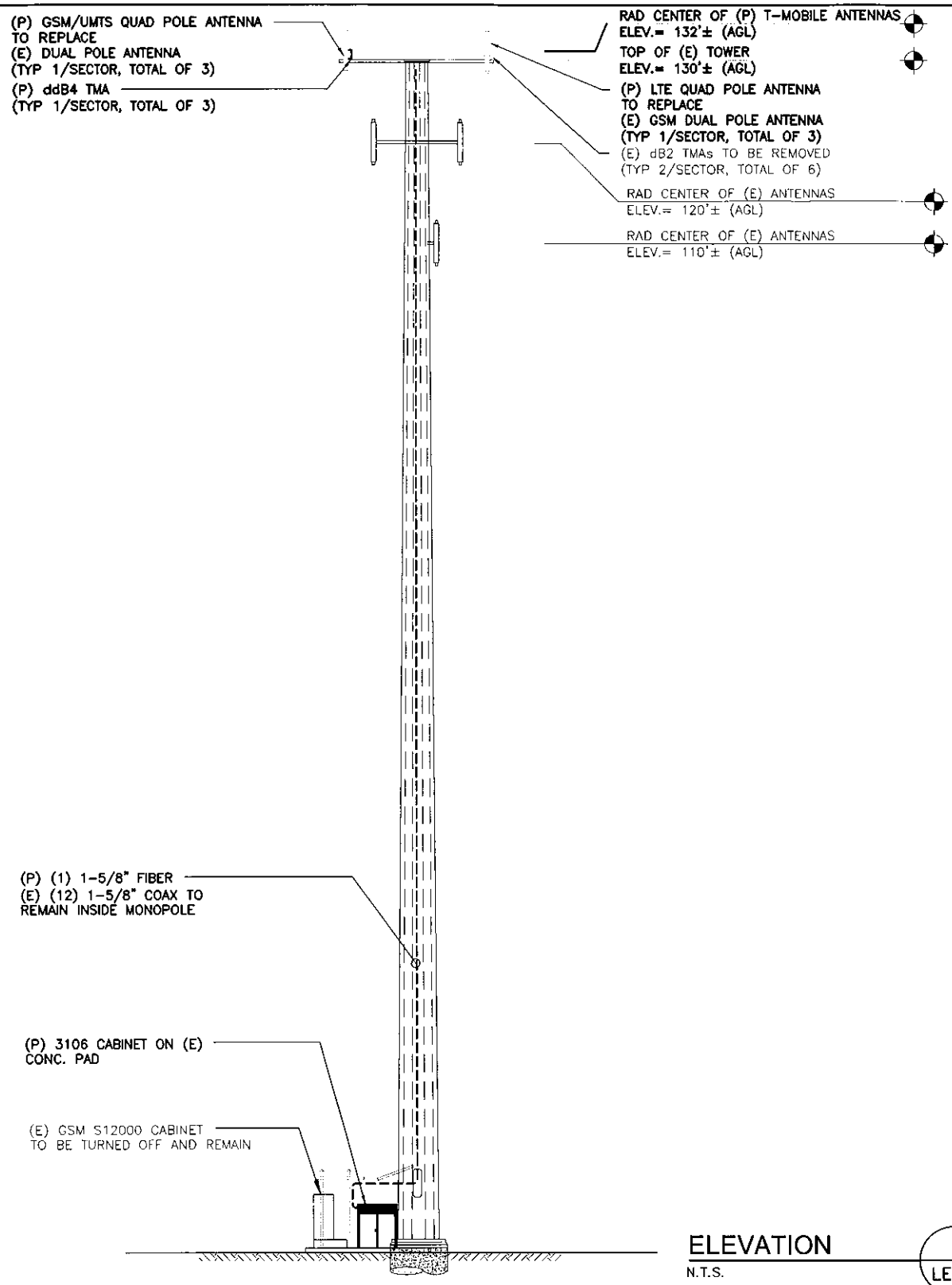
SITE ADDRESS:
725 FLANDERS RD
GROTON,CT 06340

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

DRAWN BY: E.B | CHECKED BY: SM



ELEVATION

N.T.S.

1
LE-4

CONFIGURATION

2C

SUBMITTALS	
LE REV A	01.22.14
LE REV 0	01.27.14

ATLANTIS GROUP
1340 Centre Street
Suite 214
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

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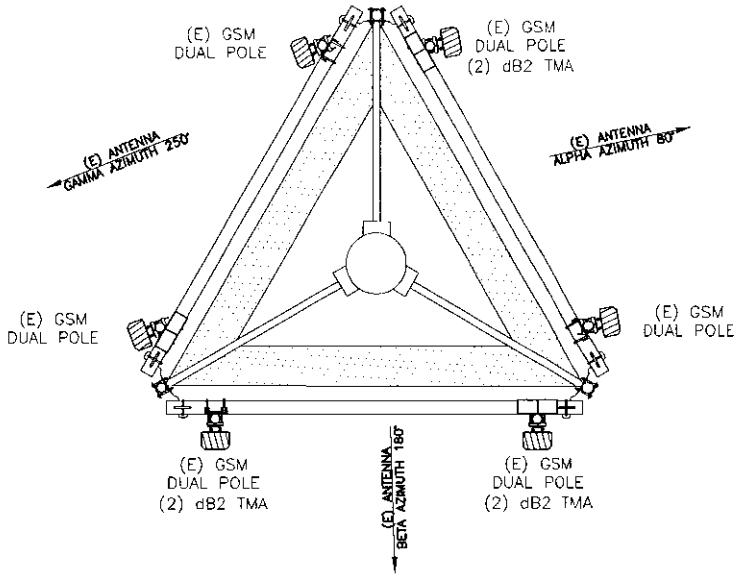
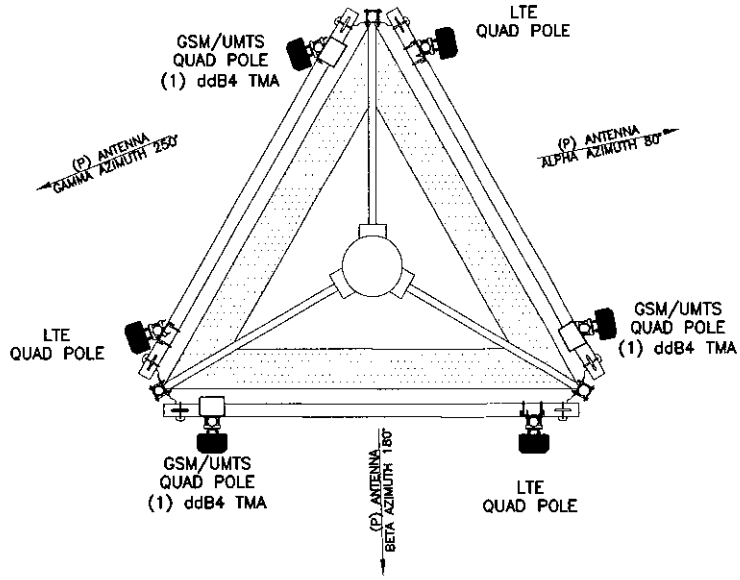


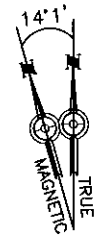
EXISTING ANTENNA CONFIGURATION 1 / LE-3

N.T.S.



PROPOSED ANTENNA CONFIGURATION 2 / LE-3

N.T.S.



CONFIGURATION

2C

SUBMITTALS	
LE REV A	01.22.14
LE REV 0	01.27.14

ATLANTIS GROUP
1340 Centre Street
Suite 214
Newton, MA 02459
Office: 617-965-0789
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LEASE EXHIBIT

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CT11044E

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725 FLANDERS RD
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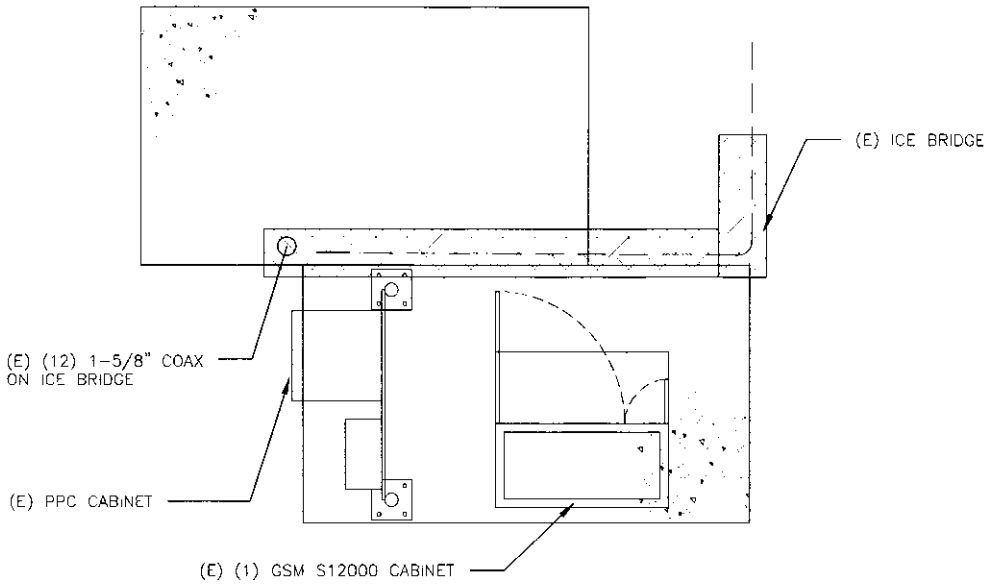
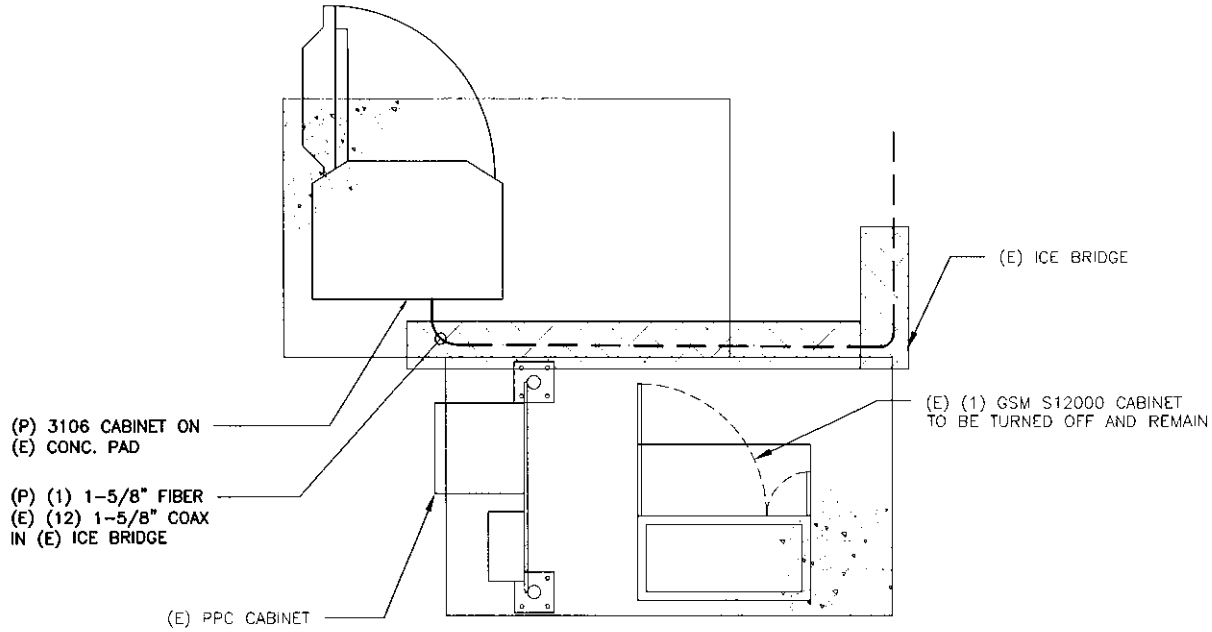


EXISTING EQUIPMENT PLAN 1 / LE-4

N.T.S.



PROPOSED EQUIPMENT PLAN 2 / LE-4

N.T.S.

CONFIGURATION

2C

SUBMITTALS	
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LE REV 0	01.27.14

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BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: E.B | CHECKED BY:SM

EXHIBIT B

Date: **February 18, 2014**

Cheryl Schultz
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Aero Solutions, LLC
5500 Flatiron Parkway, Suite 100
Boulder, CO 80503
720-381-2843

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11044E
	Carrier Site Name:	Groton/I-95/X89/Noa_1
Crown Castle Designation:	**Crown Castle BU Number:**	824359
	Crown Castle Site Name:	Groton/ I-95/ X89/ Noa_1
	Crown Castle JDE Job Number:	259550
	Crown Castle Work Order Number:	709796
	Crown Castle Application Number:	216343 Rev. 3
Engineering Firm Designation:	**Aero Solutions, LLC Project Number:**	003-14-0109R1
Site Data:	**725 Flanders Rd, Groton, New London County, CT**	
	Latitude *41° 22' 11.74"*, Longitude *-72° 0' 29.77"*	
	130 Foot - Monopole Tower	

Dear Cheryl Schultz,

Aero Solutions, LLC is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 615817, in accordance with application 216343, revision 3.

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:

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 85 mph fastest mile.

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

Structural analysis prepared by: Benjamin Ude

Respectfully submitted by:

Shraddha Dharia, P.E.
Structural Engineer
CT PE#: PEN0028187
Expires: 1/31/2014

tnxTower Report - version 6.1.4.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 130 ft Monopole tower designed by PIROD MANUFACTURES INC. in October of 2002. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

The tower has been modified per reinforcement drawings prepared by Structural Components, in October of 2009. Reinforcement consists of guy wires. There modifications were determined to be ineffective and were not considered in the analysis.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
131.0	132.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	1	1-5/8"	
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
	131.0	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
131.0	131.0	6	andrew	TMBXX-6516-R2M w/ Mount Pipe	12	1-5/8"	2
		3	ems wireless	RR65-19-02DP w/ Mount Pipe			
		3	rfs celwave	APX16DWV-16DWVS-C-A20 w/ Mount Pipe			
		3	rfs celwave	ATMAA1412D-1A20			
		3	rfs celwave	ATMPP1412D-1CWA			
		1	tower mounts	Platform Mount [LP 405-1]	12	1-5/8"	1
122.0	122.0	3	ericsson	RRUS 11			1
		1	tower mounts	Pipe Mount [PM 601-3]			
119.0	121.0	2	andrew	SBNH-1D6565C w/ Mount Pipe	1 12	3/8" 1-5/8"	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP 17201			
		6	powerwave technologies	LGP13519			
		6	powerwave technologies	LGP21401			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
	119.0	1	tower mounts	T-Arm Mount [TA 602-3]			
105.0	106.0	6	antel	LPA-185063/8CF w/ Mount Pipe	18	1-5/8"	1
	105.0	3	antel	BXA-70063/6CF w/ Mount Pipe			
		6	antel	LPA-80063/6CF w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) 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)
130	130	1	decibel	DB853	11	1-5/8
		9	ems wireless	RR90-17-00DP		
		1	rfs celwave	PD1610		
116	116	9	ems wireless	RR90-17-00DP	9	1-5/8

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	French & Parrello Associates, P.A.	3472178	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH Engineering, Inc. (Mapping)	3804602	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Pirod Manufacturers, Inc.	3472179	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	CCI	3817477	CCISITES

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) The base plate and flange plat connection geometry for all elevations were taken from the previous analysis by CCI.

This analysis may be affected if any assumptions are not valid or have been made in error. Aero Solutions, LLC 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 (lb)	SF*P allow (lb)	% Capacity	Pass / Fail
L1	130 - 120	Pole	P30x3/8	1	-4.08	1166.57	5.7	Pass
L2	120 - 100	Pole	P36x3/8	2	-10.84	1325.68	27.1	Pass
L3	100 - 80	Pole	P42x3/8	3	-15.04	1484.55	46.9	Pass
L4	80 - 60	Pole	P48x3/8	4	-20.92	1643.28	60.9	Pass
L5	60 - 40	Pole	P54x3/8	5	-26.15	1801.92	71.4	Pass
L6	40 - 20	Pole	P60x3/8	6	-31.90	1960.48	79.1	Pass
L7	20 - 0	Pole	P60x3/4	7	-42.34	4666.27	42.9	Pass
							Summary	
						Pole (L6)	79.1	Pass
						Rating =	79.1	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	39.6	Pass
1	Base Plate	0	42.9	Pass
1	Base Foundation	0	52.2	Pass
1	Base Foundation Soil Interaction	0	73.9	Pass
1	Flange Connection	120	5.7	Pass
1	Flange Connection	100	27.1	Pass
1	Flange Connection	80	46.9	Pass
1	Flange Connection	60	60.9	Pass
1	Flange Connection	40	71.4	Pass
1	Flange Connection	20	79.1	Pass

Structure Rating (max from all components) =	79.1%

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

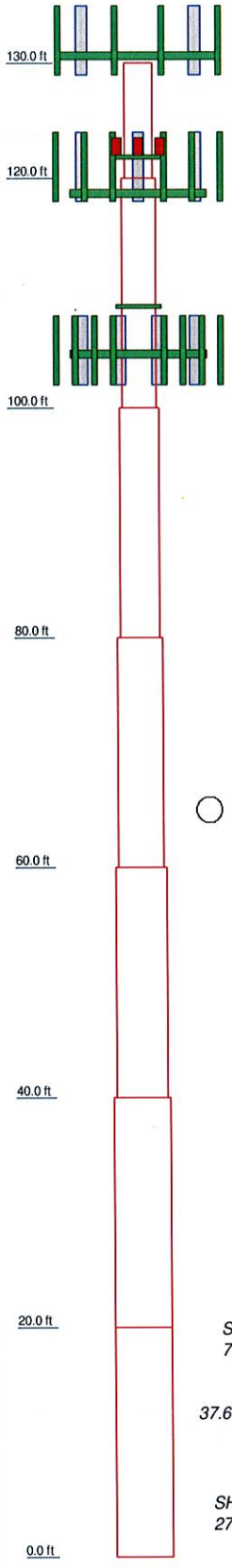
4.1) Recommendations

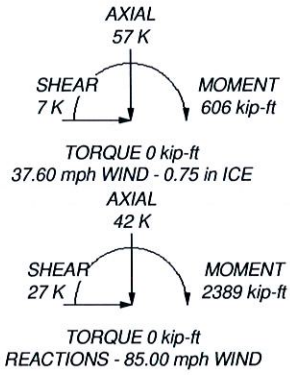
The tower and its base and anchor foundations have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Grade	Weight (K)
1	P30x3/8	10.00	A53-B-42	1.2
2	P36x3/8	20.00		2.9
3	P42x3/8	20.00		3.3
4	P48x3/8	20.00		3.8
5	P54x3/8	20.00		4.3
6	P60x3/8	20.00		4.8
7	P60x3/4	20.00		9.5
				29.8





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	131	(2) LGP21401	119
		(2) LGP21401	119
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	131	(2) LGP21401	119
		P65-17-XLH-RR w/ Mount Pipe	119
KRY 112 144/1	131	SBNH-1D6565C w/ Mount Pipe	119
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	131	SBNH-1D6565C w/ Mount Pipe	119
		(2) LGP 17201	119
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	131	(2) LGP 17201	119
KRY 112 144/1	131	(2) LGP 17201	119
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	131	DC6-48-60-18-8F	119
		T-Arm Mount [TA 602-3]	119
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	131	Side Arm Mount [SO 102-3]	109
		(2) LPA-185063/8CF w/ Mount Pipe	105
KRY 112 144/1	131	(2) LPA-185063/8CF w/ Mount Pipe	105
Platform Mount [LP 405-1]	131	(2) LPA-185063/8CF w/ Mount Pipe	105
RRUS 11	122	(2) LPA-80063/6CF w/ Mount Pipe	105
RRUS 11	122	(2) LPA-80063/6CF w/ Mount Pipe	105
RRUS 11	122	(2) LPA-80063/6CF w/ Mount Pipe	105
Pipe Mount [PM 601-3]	122	BXA-70063/6CF w/ Mount Pipe	105
(2) 7770.00 w/ Mount Pipe	119	BXA-70063/6CF w/ Mount Pipe	105
(2) 7770.00 w/ Mount Pipe	119	BXA-70063/6CF w/ Mount Pipe	105
(2) 7770.00 w/ Mount Pipe	119	Platform Mount [LP 303-1]	105
(2) LGP13519	119	torque arm	68
(2) LGP13519	119	torque arm	68
(2) LGP13519	119	torque arm	68

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 85.00 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 37.60 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50.00 mph wind.
5. TOWER RATING: 79.1%

Aero Solutions, LLC
5500 Flatiron Parkway, Suite 100
Boulder, CO 80503
Phone: 720-381-2843
FAX: 720-304-6883

Job: ***BU#824359 Groton- I-95- X89- Noa_1***			
Project: ***Existing 130FT Monopole***			
Client: Crown Castle	Drawn by: Benjamin Ude	App'd:	
Code: TIA/EIA-222-F	Date: 02/10/14	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

3) Tower is located in New London County, Connecticut.
4) Basic wind speed of 85.00 mph.
5) Nominal ice thickness of 0.75 in.
6) Ice thickness is considered to increase with height.
7) Ice density of 56.00 pcf.
8) A wind speed of 37.60 mph is used in combination with ice.
9) Temperature drop of 50 °F.
10) Deflections calculated using a wind speed of 50.00 mph.
11) A non-linear (P-delta) analysis was used.
12) Pressures are calculated at each section.
13) Stress ratio used in pole design is 1.333.
14) 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		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios		Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice		
			Capacity Exemption		

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	130.00-120.00	10.00	P30x3/8	A53-B-42 (42 ksi)	
L2	120.00-100.00	20.00	P36x3/8	A53-B-42 (42 ksi)	
L3	100.00-80.00	20.00	P42x3/8	A53-B-42 (42 ksi)	
L4	80.00-60.00	20.00	P48x3/8	A53-B-42 (42 ksi)	
L5	60.00-40.00	20.00	P54x3/8	A53-B-42 (42 ksi)	
L6	40.00-20.00	20.00	P60x3/8	A53-B-42 (42 ksi)	
L7	20.00-0.00	20.00	P60x3/4	A53-B-42 (42 ksi)	

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
L1 130.00-120.00				1	1	1		
L2 120.00-100.00				1	1	1		
L3 100.00-80.00				1	1	1		
L4 80.00-60.00				1	1	1		
L5 60.00-40.00				1	1	1		
L6 40.00-20.00				1	1	1		
L7 20.00-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
**								
LDF7-50A(1-5/8")	C	No	Inside Pole	130.00 - 0.00	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	CaAa (Out Of Face)	130.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.01
						4" Ice	0.00	0.03
**								
AVA7-50(1-5/8)	B	No	Inside Pole	119.00 - 0.00	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF2-50(3/8")	B	No	Inside Pole	119.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
2" Rigid Conduit	B	No	Inside Pole	119.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
**								
LDF7-50A(1-5/8")	A	No	CaAa (Out Of Face)	105.00 - 0.00	1	No Ice	0.20	0.00
						1/2" Ice	0.30	0.00
						1" Ice	0.40	0.00
						2" Ice	0.60	0.01
						4" Ice	1.00	0.03
LDF7-50A(1-5/8")	A	No	CaAa (Out Of	105.00 - 0.00	5	No Ice	0.00	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
			Face)			1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.01
						4" Ice	0.00	0.03
LDF7-50A(1-5/8")	A	No	Inside Pole	105.00 - 0.00	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
**								
Climbing Ladder (Round)	B	No	CaAa (Out Of Face)	130.00 - 0.00	1	No Ice	0.23	0.01
						1/2" Ice	0.55	0.01
						1" Ice	0.86	0.01
						2" Ice	1.48	0.03
						4" Ice	2.73	0.09
Torque Arm Channel	C	No	CaAa (Out Of Face)	79.50 - 60.50	1	No Ice	0.42	0.02
						1/2" Ice	0.42	0.02
						1" Ice	0.42	0.02
						2" Ice	0.42	0.02
						4" Ice	0.42	0.02
Guy Wires	C	No	CaAa (Out Of Face)	78.00 - 0.00	3	No Ice	0.06	0.00
						1/2" Ice	0.16	0.00
						1" Ice	0.26	0.00
						2" Ice	0.46	0.01
						4" Ice	0.86	0.02
**								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	2.344	0.05
		C	0.000	0.000	0.000	0.000	0.11
L2	120.00-100.00	A	0.000	0.000	0.000	0.990	0.07
		B	0.000	0.000	0.000	4.688	0.32
		C	0.000	0.000	0.000	0.000	0.22
L3	100.00-80.00	A	0.000	0.000	0.000	3.960	0.30
		B	0.000	0.000	0.000	4.688	0.33
		C	0.000	0.000	0.000	0.000	0.22
L4	80.00-60.00	A	0.000	0.000	0.000	3.960	0.30
		B	0.000	0.000	0.000	4.688	0.33
		C	0.000	0.000	0.000	11.420	0.58
L5	60.00-40.00	A	0.000	0.000	0.000	3.960	0.30
		B	0.000	0.000	0.000	4.688	0.33
		C	0.000	0.000	0.000	3.780	0.23
L6	40.00-20.00	A	0.000	0.000	0.000	3.960	0.30
		B	0.000	0.000	0.000	4.688	0.33
		C	0.000	0.000	0.000	3.780	0.23
L7	20.00-0.00	A	0.000	0.000	0.000	3.960	0.30
		B	0.000	0.000	0.000	4.688	0.33
		C	0.000	0.000	0.000	3.780	0.23

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-120.00	A	0.880	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	7.844	0.12
		C		0.000	0.000	0.000	0.000	0.14
L2	120.00-100.00	A	0.867	0.000	0.000	0.000	1.857	0.17

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	15.520	0.44
		C		0.000	0.000	0.000	0.000	0.27
L3	100.00-80.00	A	0.846	0.000	0.000	0.000	7.344	0.65
		B		0.000	0.000	0.000	15.262	0.45
		C		0.000	0.000	0.000	0.000	0.27
L4	80.00-60.00	A	0.821	0.000	0.000	0.000	7.243	0.64
		B		0.000	0.000	0.000	14.948	0.45
		C		0.000	0.000	0.000	20.285	0.71
L5	60.00-40.00	A	0.788	0.000	0.000	0.000	7.113	0.62
		B		0.000	0.000	0.000	14.542	0.44
		C		0.000	0.000	0.000	13.240	0.36
L6	40.00-20.00	A	0.750	0.000	0.000	0.000	6.960	0.60
		B		0.000	0.000	0.000	14.063	0.43
		C		0.000	0.000	0.000	12.780	0.35
L7	20.00-0.00	A	0.750	0.000	0.000	0.000	6.960	0.60
		B		0.000	0.000	0.000	14.063	0.43
		C		0.000	0.000	0.000	12.780	0.35

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-120.00	0.28	0.16	0.74	0.43
L2	120.00-100.00	0.28	0.09	0.75	0.33
L3	100.00-80.00	0.27	-0.11	0.73	0.02
L4	80.00-60.00	-0.35	0.25	-0.22	0.50
L5	60.00-40.00	0.05	0.02	0.06	0.36
L6	40.00-20.00	0.05	0.02	0.06	0.36
L7	20.00-0.00	0.05	0.02	0.06	0.36

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
**									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	A	From Leg	4.00 0.00 0.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.17 0.24 0.31 0.48 0.92	0.01 0.01 0.02 0.03 0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00	-20.000	131.00	No Ice 1/2"	6.83 7.35	5.64 6.48	0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			Ice	7.86	7.26	0.23
						1" Ice	8.93	8.86	0.38
						2" Ice	11.18	12.29	0.81
						4" Ice			
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.17 0.24 0.31 0.48 0.92	0.01 0.01 0.02 0.03 0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	C	From Leg	4.00 0.00 0.00	-20.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.17 0.24 0.31 0.48 0.92	0.01 0.01 0.02 0.03 0.08
Platform Mount [LP 405-1]	C	None		0.000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	20.80 28.09 35.38 49.96 79.12	20.80 28.09 35.38 49.96 79.12	1.80 2.07 2.33 2.86 3.93
**									
RRUS 11	A	From Leg	1.00 0.00 0.00	35.000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.25 3.49 3.74 4.27 5.43	1.37 1.55 1.74 2.14 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11	B	From Leg	1.00 0.00 0.00	25.000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.25 3.49 3.74 4.27 5.43	1.37 1.55 1.74 2.14 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11	C	From Leg	1.00 0.00 0.00	31.000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.25 3.49 3.74 4.27 5.43	1.37 1.55 1.74 2.14 3.04	0.05 0.07 0.10 0.15 0.31
Pipe Mount [PM 601-3]	C	None		0.000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.39 5.48 6.57 8.75 13.11	4.39 5.48 6.57 8.75 13.11	0.20 0.24 0.28 0.36 0.53

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
**									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	35.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	25.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	31.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) LGP13519	A	From Leg	4.00 0.00 2.00	35.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.34 0.42 0.51 0.73 1.25	0.21 0.28 0.36 0.55 1.03	0.01 0.01 0.01 0.02 0.07
(2) LGP13519	B	From Leg	4.00 0.00 2.00	25.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.34 0.42 0.51 0.73 1.25	0.21 0.28 0.36 0.55 1.03	0.01 0.01 0.01 0.02 0.07
(2) LGP13519	C	From Leg	4.00 0.00 2.00	31.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.34 0.42 0.51 0.73 1.25	0.21 0.28 0.36 0.55 1.03	0.01 0.01 0.01 0.02 0.07
(2) LGP21401	A	From Leg	4.00 0.00 2.00	35.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.29 1.45 1.61 1.97 2.79	0.23 0.31 0.40 0.61 1.12	0.01 0.02 0.03 0.05 0.14
(2) LGP21401	B	From Leg	4.00 0.00 2.00	25.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.29 1.45 1.61 1.97 2.79	0.23 0.31 0.40 0.61 1.12	0.01 0.02 0.03 0.05 0.14
(2) LGP21401	C	From Leg	4.00 0.00 2.00	31.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.29 1.45 1.61 1.97 2.79	0.23 0.31 0.40 0.61 1.12	0.01 0.02 0.03 0.05 0.14
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	35.000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.70 12.42 13.15 14.64 17.91	8.94 10.45 11.99 14.31 19.14	0.09 0.18 0.27 0.50 1.13
SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	25.000	119.00	No Ice 1/2" Ice Ice 1" Ice	11.68 12.40 13.14 14.60	9.84 11.37 12.91 15.27	0.10 0.19 0.29 0.52

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 K
							2" Ice	17.87	20.14	1.17
							4" Ice			
SBNH-1D6565C w/ Mount Pipe	C	From Leg	4.00	0.00	31.000	119.00	No Ice	11.68	9.84	0.10
			0.00				1/2" Ice	12.40	11.37	0.19
			2.00				1" Ice	13.14	12.91	0.29
							2" Ice	14.60	15.27	0.52
							4" Ice	17.87	20.14	1.17
(2) LGP 17201	A	From Leg	4.00	0.00	35.000	119.00	No Ice	1.95	0.52	0.03
			0.00				1/2" Ice	2.13	0.64	0.04
			2.00				1" Ice	2.33	0.77	0.06
							2" Ice	2.75	1.06	0.09
							4" Ice	3.69	1.73	0.19
(2) LGP 17201	B	From Leg	4.00	0.00	25.000	119.00	No Ice	1.95	0.52	0.03
			0.00				1/2" Ice	2.13	0.64	0.04
			2.00				1" Ice	2.33	0.77	0.06
							2" Ice	2.75	1.06	0.09
							4" Ice	3.69	1.73	0.19
(2) LGP 17201	C	From Leg	4.00	0.00	31.000	119.00	No Ice	1.95	0.52	0.03
			0.00				1/2" Ice	2.13	0.64	0.04
			2.00				1" Ice	2.33	0.77	0.06
							2" Ice	2.75	1.06	0.09
							4" Ice	3.69	1.73	0.19
DC6-48-60-18-8F	B	From Leg	4.00	0.00	25.000	119.00	No Ice	2.57	2.57	0.03
			0.00				1/2" Ice	2.80	2.80	0.06
			2.00				1" Ice	3.04	3.04	0.08
							2" Ice	3.54	3.54	0.14
							4" Ice	4.66	4.66	0.31
T-Arm Mount [TA 602-3]	C	None			0.000	119.00	No Ice	11.59	11.59	0.77
							1/2" Ice	15.44	15.44	0.99
							1" Ice	19.29	19.29	1.21
							2" Ice	26.99	26.99	1.64
							4" Ice	42.39	42.39	2.50
**										
Side Arm Mount [SO 102-3]	C	None			0.000	109.00	No Ice	3.00	3.00	0.08
							1/2" Ice	3.48	3.48	0.11
							1" Ice	3.96	3.96	0.14
							2" Ice	4.92	4.92	0.20
							4" Ice	6.84	6.84	0.32
**										
(2) LPA-185063/8CF w/ Mount Pipe	A	From Leg	4.00	0.00	60.000	105.00	No Ice	3.04	2.73	0.01
			0.00				1/2" Ice	3.38	3.04	0.03
			1.00				1" Ice	3.74	3.37	0.06
							2" Ice	4.49	4.10	0.12
							4" Ice	6.09	5.69	0.31
(2) LPA-185063/8CF w/ Mount Pipe	B	From Leg	4.00	0.00	60.000	105.00	No Ice	3.04	2.73	0.01
			0.00				1/2" Ice	3.38	3.04	0.03
			1.00				1" Ice	3.74	3.37	0.06
							2" Ice	4.49	4.10	0.12
							4" Ice	6.09	5.69	0.31
(2) LPA-185063/8CF w/ Mount Pipe	C	From Leg	4.00	0.00	60.000	105.00	No Ice	3.04	2.73	0.01
			0.00				1/2" Ice	3.38	3.04	0.03
			1.00				1" Ice	3.74	3.37	0.06
							2" Ice	4.49	4.10	0.12
							4" Ice	6.09	5.69	0.31
(2) LPA-80063/6CF w/	A	From Leg	4.00		60.000	105.00	No Ice	10.33	10.43	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00 0.00			1/2" Ice	10.90 11.47	11.48 12.40	0.14 0.24
						1" Ice	12.65	14.31	0.46
						2" Ice	15.11	18.34	1.05
						4" Ice			
(2) LPA-80063/6CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	60.000	105.00	No Ice 1/2" Ice	10.33 10.90 11.47	10.43 11.48 12.40	0.05 0.14 0.24
						1" Ice	12.65	14.31	0.46
						2" Ice	15.11	18.34	1.05
						4" Ice			
(2) LPA-80063/6CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	60.000	105.00	No Ice 1/2" Ice	10.33 10.90 11.47	10.43 11.48 12.40	0.05 0.14 0.24
						1" Ice	12.65	14.31	0.46
						2" Ice	15.11	18.34	1.05
						4" Ice			
BXA-70063/6CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	60.000	105.00	No Ice 1/2" Ice	7.98 8.62 9.23	5.41 6.56 7.42	0.04 0.10 0.17
						1" Ice	10.47	9.20	0.33
						2" Ice	13.08	12.95	0.79
						4" Ice			
BXA-70063/6CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	60.000	105.00	No Ice 1/2" Ice	7.98 8.62 9.23	5.41 6.56 7.42	0.04 0.10 0.17
						1" Ice	10.47	9.20	0.33
						2" Ice	13.08	12.95	0.79
						4" Ice			
BXA-70063/6CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	60.000	105.00	No Ice 1/2" Ice	7.98 8.62 9.23	5.41 6.56 7.42	0.04 0.10 0.17
						1" Ice	10.47	9.20	0.33
						2" Ice	13.08	12.95	0.79
						4" Ice			
Platform Mount [LP 303-1]	C	None		0.000	105.00	No Ice 1/2" Ice	14.66 18.87 23.08	14.66 18.87 23.08	1.25 1.48 1.71
						1" Ice	31.50	31.50	2.18
						2" Ice	48.34	48.34	3.10
						4" Ice			
**									
torque arm	A	From Leg	5.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice	5.83 6.65 7.47	0.24 0.31 0.39	0.27 0.31 0.37
						1" Ice	9.14	0.57	0.50
						2" Ice	12.59	1.04	0.87
						4" Ice			
torque arm	B	From Leg	5.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice	5.83 6.65 7.47	0.24 0.31 0.39	0.27 0.31 0.37
						1" Ice	9.14	0.57	0.50
						2" Ice	12.59	1.04	0.87
						4" Ice			
torque arm	C	From Leg	5.00 0.00 0.00	0.000	68.00	No Ice 1/2" Ice	5.83 6.65 7.47	0.24 0.31 0.39	0.27 0.31 0.37
						1" Ice	9.14	0.57	0.50
						2" Ice	12.59	1.04	0.87
						4" Ice			
**									

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 120	Pole	Max Tension	14	0.00	0.00	0.00
			Max. Compression	14	-5.94	-0.08	-0.10
			Max. Mx	5	-4.08	-37.69	-0.04
			Max. My	8	-4.09	-0.05	-37.63
			Max. Vy	5	4.15	-37.69	-0.04
			Max. Vx	8	4.12	-0.05	-37.63
			Max. Torque	9			0.02
L2	120 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-17.66	-0.64	-0.43
			Max. Mx	5	-10.84	-254.32	-0.03
			Max. My	8	-10.85	-0.09	-250.68
			Max. Vy	5	15.40	-254.32	-0.03
			Max. Vx	8	15.23	-0.09	-250.68
			Max. Torque	4			-0.35
L3	100 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23.25	-0.87	0.11
			Max. Mx	5	-15.04	-583.64	0.23
			Max. My	8	-15.05	-0.02	-576.42
			Max. Vy	5	17.51	-583.64	0.23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	17.34	-0.02	-576.42
			Max. Torque	4			-0.36
L4	80 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.89	-0.35	0.26
			Max. Mx	11	-20.92	962.57	-1.07
			Max. My	8	-20.92	0.65	-952.62
			Max. Vy	5	20.48	-962.45	0.13
			Max. Vx	8	20.31	0.65	-952.62
			Max. Torque	4			-0.37
L5	60 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-37.67	-0.45	0.79
			Max. Mx	5	-26.15	-1394.70	0.39
			Max. My	8	-26.16	0.70	-1381.27
			Max. Vy	5	22.72	-1394.70	0.39
			Max. Vx	8	22.55	0.70	-1381.27
			Max. Torque	4			-0.38
L6	40 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.96	-0.56	1.36
			Max. Mx	5	-31.90	-1870.57	0.66
			Max. My	8	-31.90	0.74	-1853.53
			Max. Vy	5	24.84	-1870.57	0.66
			Max. Vx	8	24.67	0.74	-1853.53
			Max. Torque	4			-0.39
L7	20 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-56.96	-0.67	1.93
			Max. Mx	5	-42.34	-2388.83	0.94
			Max. My	8	-42.34	0.77	-2368.19
			Max. Vy	5	26.96	-2388.83	0.94
			Max. Vx	8	26.79	0.77	-2368.19
			Max. Torque	4			-0.39

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	56.96	0.00	0.00
	Max. H_x	11	42.34	26.96	-0.01
	Max. H_z	2	42.34	-0.01	26.79
	Max. M_x	2	2367.70	-0.01	26.79
	Max. M_z	5	2388.83	-26.96	0.01
	Max. Torsion	10	0.39	23.35	-13.40
	Min. Vert	5	42.34	-26.96	0.01
	Min. H_x	5	42.34	-26.96	0.01
	Min. H_z	8	42.34	0.01	-26.79
	Min. M_x	8	-2368.19	0.01	-26.79
	Min. M_z	11	-2387.99	26.96	-0.01
	Min. Torsion	4	-0.39	-23.35	13.40

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	42.34	0.00	0.00	0.24	-0.41	0.00
Dead+Wind 0 deg - No Ice	42.34	0.01	-26.79	-2367.70	-1.60	0.13
Dead+Wind 30 deg - No Ice	42.34	13.49	-23.21	-2051.04	-1195.65	0.30
Dead+Wind 60 deg - No Ice	42.34	23.35	-13.40	-1184.75	-2069.43	0.39
Dead+Wind 90 deg - No Ice	42.34	26.96	-0.01	-0.94	-2388.83	0.38
Dead+Wind 120 deg - No Ice	42.34	23.34	13.39	1183.19	-2068.25	0.26
Dead+Wind 150 deg - No Ice	42.34	13.47	23.20	2050.36	-1193.60	0.08

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 180 deg - No Ice	42.34	-0.01	26.79	2368.19	0.77	-0.13
Dead+Wind 210 deg - No Ice	42.34	-13.49	23.21	2051.54	1194.81	-0.30
Dead+Wind 240 deg - No Ice	42.34	-23.35	13.40	1185.25	2068.60	-0.39
Dead+Wind 270 deg - No Ice	42.34	-26.96	0.01	1.43	2387.99	-0.38
Dead+Wind 300 deg - No Ice	42.34	-23.34	-13.39	-1182.70	2067.41	-0.27
Dead+Wind 330 deg - No Ice	42.34	-13.47	-23.20	-2049.86	1192.76	-0.08
Dead+Ice+Temp	56.96	0.00	0.00	-1.93	-0.67	0.00
Dead+Wind 0 deg+Ice+Temp	56.96	0.00	-6.81	-603.26	-0.97	0.11
Dead+Wind 30 deg+Ice+Temp	56.96	3.42	-5.90	-522.84	-303.33	0.19
Dead+Wind 60 deg+Ice+Temp	56.96	5.92	-3.41	-302.84	-524.60	0.21
Dead+Wind 90 deg+Ice+Temp	56.96	6.84	-0.00	-2.22	-605.50	0.18
Dead+Wind 120 deg+Ice+Temp	56.96	5.92	3.40	298.48	-524.33	0.10
Dead+Wind 150 deg+Ice+Temp	56.96	3.42	5.90	518.67	-302.86	-0.01
Dead+Wind 180 deg+Ice+Temp	56.96	-0.00	6.81	599.37	-0.42	-0.11
Dead+Wind 210 deg+Ice+Temp	56.96	-3.42	5.90	518.95	301.94	-0.19
Dead+Wind 240 deg+Ice+Temp	56.96	-5.92	3.41	298.95	523.22	-0.21
Dead+Wind 270 deg+Ice+Temp	56.96	-6.84	0.00	-1.67	604.11	-0.18
Dead+Wind 300 deg+Ice+Temp	56.96	-5.92	-3.40	-302.37	522.95	-0.10
Dead+Wind 330 deg+Ice+Temp	56.96	-3.42	-5.90	-522.57	301.47	0.01
Dead+Wind 0 deg - Service	42.34	0.00	-9.27	-819.17	-0.83	0.04
Dead+Wind 30 deg - Service	42.34	4.67	-8.03	-709.60	-414.03	0.10
Dead+Wind 60 deg - Service	42.34	8.08	-4.64	-409.82	-716.40	0.14
Dead+Wind 90 deg - Service	42.34	9.33	-0.00	-0.16	-826.92	0.13
Dead+Wind 120 deg - Service	42.34	8.08	4.63	409.61	-715.99	0.09
Dead+Wind 150 deg - Service	42.34	4.66	8.03	709.68	-413.32	0.03
Dead+Wind 180 deg - Service	42.34	-0.05	9.27	819.67	0.01	-0.04
Dead+Wind 210 deg - Service	42.34	-4.67	8.03	710.09	413.19	-0.10
Dead+Wind 240 deg - Service	42.34	-8.08	4.64	410.32	715.56	-0.14
Dead+Wind 270 deg - Service	42.34	-9.33	0.00	0.66	826.09	-0.13
Dead+Wind 300 deg - Service	42.34	-8.08	-4.63	-409.11	715.15	-0.09
Dead+Wind 330 deg - Service	42.34	-4.66	-8.03	-709.19	412.48	-0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-42.34	0.00	0.00	42.34	0.00	0.000%
2	0.01	-42.34	-26.79	-0.01	42.34	26.79	0.000%
3	13.49	-42.34	-23.21	-13.49	42.34	23.21	0.000%
4	23.35	-42.34	-13.40	-23.35	42.34	13.40	0.000%
5	26.96	-42.34	-0.01	-26.96	42.34	0.01	0.000%
6	23.34	-42.34	13.39	-23.34	42.34	-13.39	0.000%
7	13.47	-42.34	23.20	-13.47	42.34	-23.20	0.000%
8	-0.01	-42.34	26.79	0.01	42.34	-26.79	0.000%
9	-13.49	-42.34	23.21	13.49	42.34	-23.21	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
10	-23.35	-42.34	13.40	23.35	42.34	-13.40	0.000%
11	-26.96	-42.34	0.01	26.96	42.34	-0.01	0.000%
12	-23.34	-42.34	-13.39	23.34	42.34	13.39	0.000%
13	-13.47	-42.34	-23.20	13.47	42.34	23.20	0.000%
14	0.00	-56.96	0.00	0.00	56.96	0.00	0.000%
15	0.00	-56.96	-6.81	-0.00	56.96	6.81	0.000%
16	3.42	-56.96	-5.90	-3.42	56.96	5.90	0.000%
17	5.92	-56.96	-3.41	-5.92	56.96	3.41	0.000%
18	6.84	-56.96	-0.00	-6.84	56.96	0.00	0.000%
19	5.92	-56.96	3.40	-5.92	56.96	-3.40	0.000%
20	3.42	-56.96	5.90	-3.42	56.96	-5.90	0.000%
21	-0.00	-56.96	6.81	0.00	56.96	-6.81	0.000%
22	-3.42	-56.96	5.90	3.42	56.96	-5.90	0.000%
23	-5.92	-56.96	3.41	5.92	56.96	-3.41	0.000%
24	-6.84	-56.96	0.00	6.84	56.96	-0.00	0.000%
25	-5.92	-56.96	-3.40	5.92	56.96	3.40	0.000%
26	-3.42	-56.96	-5.90	3.42	56.96	5.90	0.000%
27	0.00	-42.34	-9.27	-0.00	42.34	9.27	0.000%
28	4.67	-42.34	-8.03	-4.67	42.34	8.03	0.000%
29	8.08	-42.34	-4.64	-8.08	42.34	4.64	0.000%
30	9.33	-42.34	-0.00	-9.33	42.34	0.00	0.000%
31	8.08	-42.34	4.63	-8.08	42.34	-4.63	0.000%
32	4.66	-42.34	8.03	-4.66	42.34	-8.03	0.000%
33	-0.00	-42.34	9.27	0.05	42.34	-9.27	0.097%
34	-4.67	-42.34	8.03	4.67	42.34	-8.03	0.000%
35	-8.08	-42.34	4.64	8.08	42.34	-4.64	0.000%
36	-9.33	-42.34	0.00	9.33	42.34	-0.00	0.000%
37	-8.08	-42.34	-4.63	8.08	42.34	4.63	0.000%
38	-4.66	-42.34	-8.03	4.66	42.34	8.03	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00003560
3	Yes	4	0.00000001	0.00049622
4	Yes	4	0.00000001	0.00047495
5	Yes	4	0.00000001	0.00004291
6	Yes	4	0.00000001	0.00049570
7	Yes	4	0.00000001	0.00048273
8	Yes	4	0.00000001	0.00003529
9	Yes	4	0.00000001	0.00047670
10	Yes	4	0.00000001	0.00050163
11	Yes	4	0.00000001	0.00004367
12	Yes	4	0.00000001	0.00047708
13	Yes	4	0.00000001	0.00048638
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00057308
16	Yes	4	0.00000001	0.00058627
17	Yes	4	0.00000001	0.00058809
18	Yes	4	0.00000001	0.00057719
19	Yes	4	0.00000001	0.00058645
20	Yes	4	0.00000001	0.00058379
21	Yes	4	0.00000001	0.00057102
22	Yes	4	0.00000001	0.00058284
23	Yes	4	0.00000001	0.00058480
24	Yes	4	0.00000001	0.00057464
25	Yes	4	0.00000001	0.00058527
26	Yes	4	0.00000001	0.00058414
27	Yes	4	0.00000001	0.00001534
28	Yes	4	0.00000001	0.00003760
29	Yes	4	0.00000001	0.00003528
30	Yes	4	0.00000001	0.00001595
31	Yes	4	0.00000001	0.00003758

32	Yes	4	0.00000001	0.00003616
33	Yes	4	0.00000001	0.00097084
34	Yes	4	0.00000001	0.00003549
35	Yes	4	0.00000001	0.00003820
36	Yes	4	0.00000001	0.00001595
37	Yes	4	0.00000001	0.00003548
38	Yes	4	0.00000001	0.00003649

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 120	7.68	30	0.490	0.000
L2	120 - 100	6.66	30	0.485	0.000
L3	100 - 80	4.69	30	0.445	0.000
L4	80 - 60	2.96	30	0.368	0.000
L5	60 - 40	1.60	30	0.273	0.000
L6	40 - 20	0.66	30	0.171	0.000
L7	20 - 0	0.15	30	0.068	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	30	7.68	0.490	0.000	144057
122.00	RRUS 11	30	6.86	0.487	0.000	89206
119.00	(2) 7770.00 w/ Mount Pipe	30	6.56	0.484	0.000	62145
109.00	Side Arm Mount [SO 102-3]	30	5.55	0.469	0.000	28118
105.00	(2) LPA-185063/8CF w/ Mount Pipe	30	5.16	0.459	0.000	23013
68.00	torque arm	30	2.10	0.312	0.000	11877

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 120	22.18	5	1.416	0.001
L2	120 - 100	19.23	5	1.401	0.001
L3	100 - 80	13.54	5	1.286	0.001
L4	80 - 60	8.56	5	1.063	0.000
L5	60 - 40	4.63	5	0.789	0.000
L6	40 - 20	1.91	5	0.494	0.000
L7	20 - 0	0.43	5	0.197	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	5	22.18	1.416	0.001	50224
122.00	RRUS 11	5	19.82	1.405	0.001	31091

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	(2) 7770.00 w/ Mount Pipe	5	18.94	1.398	0.001	21630
109.00	Side Arm Mount [SO 102-3]	5	16.04	1.353	0.001	9770
105.00	(2) LPA-185063/8CF w/ Mount Pipe	5	14.92	1.326	0.001	7994
68.00	torque arm	5	6.07	0.902	0.000	4114

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	130 - 120 (1)	P30x3/8	10.00	0.00	0.0	25.07	34.90	-4.08	875.15	0.005
L2	120 - 100 (2)	P36x3/8	20.00	0.00	0.0	23.70	41.97	-10.84	994.51	0.011
L3	100 - 80 (3)	P42x3/8	20.00	0.00	0.0	22.71	49.04	-15.04	1113.69	0.014
L4	80 - 60 (4)	P48x3/8	20.00	0.00	0.0	21.97	56.11	-20.92	1232.77	0.017
L5	60 - 40 (5)	P54x3/8	20.00	0.00	0.0	21.40	63.18	-26.15	1351.78	0.019
L6	40 - 20 (6)	P60x3/8	20.00	0.00	0.0	20.94	70.24	-31.90	1470.73	0.022
L7	20 - 0 (7)	P60x3/4	20.00	0.00	0.0	25.07	139.60	-42.34	3500.58	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	130 - 120 (1)	P30x3/8	37.69	1.77	25.07	0.071	0.00	0.00	25.07	0.000
L2	120 - 100 (2)	P36x3/8	254.32	8.25	23.70	0.348	0.00	0.00	23.70	0.000
L3	100 - 80 (3)	P42x3/8	583.64	13.85	22.71	0.610	0.00	0.00	22.71	0.000
L4	80 - 60 (4)	P48x3/8	962.57	17.43	21.97	0.793	0.00	0.00	21.97	0.000
L5	60 - 40 (5)	P54x3/8	1394.71	19.90	21.40	0.930	0.00	0.00	21.40	0.000
L6	40 - 20 (6)	P60x3/8	1870.58	21.57	20.94	1.030	0.00	0.00	20.94	0.000
L7	20 - 0 (7)	P60x3/4	2388.82	14.04	25.07	0.560	0.00	0.00	25.07	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	130 - 120 (1)	P30x3/8	4.15	0.24	16.80	0.014	0.00	0.00	15.64	0.000
L2	120 - 100 (2)	P36x3/8	15.40	0.73	16.80	0.044	0.33	0.01	12.03	0.000
L3	100 - 80 (3)	P42x3/8	17.51	0.71	16.80	0.043	0.32	0.00	10.72	0.000
L4	80 - 60 (4)	P48x3/8	20.48	0.73	16.80	0.043	0.37	0.00	9.70	0.000
L5	60 - 40 (5)	P54x3/8	22.72	0.72	16.80	0.043	0.37	0.00	8.88	0.000
L6	40 - 20 (6)	P60x3/8	24.84	0.71	16.80	0.042	0.38	0.00	8.20	0.000
L7	20 - 0 (7)	P60x3/4	26.96	0.39	16.80	0.023	0.38	0.00	16.80	0.000

Pole Interaction Design Data

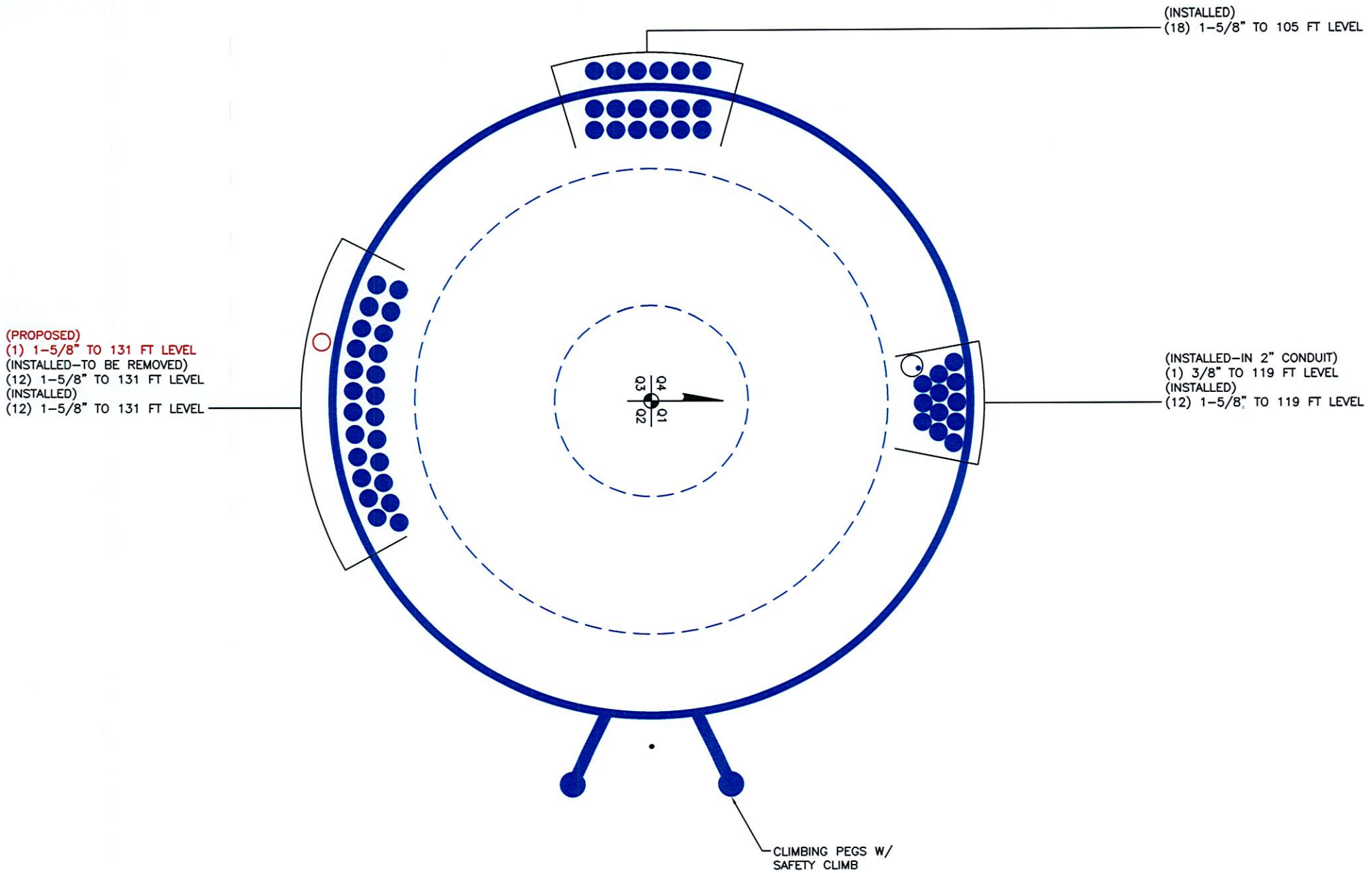
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 120 (1)	0.005	0.071	0.000	0.014	0.000	0.076 ✔	1.333	H1-3+VT ✔
L2	120 - 100 (2)	0.011	0.348	0.000	0.044	0.000	0.361 ✔	1.333	H1-3+VT ✔
L3	100 - 80 (3)	0.014	0.610	0.000	0.043	0.000	0.625 ✔	1.333	H1-3+VT ✔
L4	80 - 60 (4)	0.017	0.793	0.000	0.043	0.000	0.812 ✔	1.333	H1-3+VT ✔
L5	60 - 40 (5)	0.019	0.930	0.000	0.043	0.000	0.951 ✔	1.333	H1-3+VT ✔
L6	40 - 20 (6)	0.022	1.030	0.000	0.042	0.000	1.054 ✔	1.333	H1-3+VT ✔
L7	20 - 0 (7)	0.012	0.560	0.000	0.023	0.000	0.572 ✔	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	130 - 120	Pole	P30x3/8	1	-4.08	1166.57	5.7	Pass
L2	120 - 100	Pole	P36x3/8	2	-10.84	1325.68	27.1	Pass
L3	100 - 80	Pole	P42x3/8	3	-15.04	1484.55	46.9	Pass
L4	80 - 60	Pole	P48x3/8	4	-20.92	1643.28	60.9	Pass
L5	60 - 40	Pole	P54x3/8	5	-26.15	1801.92	71.4	Pass
L6	40 - 20	Pole	P60x3/8	6	-31.90	1960.48	79.1	Pass
L7	20 - 0	Pole	P60x3/4	7	-42.34	4666.27	42.9	Pass
							Summary	
						Pole (L6)	79.1	Pass
						RATING =	**79.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(INSTALLED)
(18) 1-5/8" TO 105 FT LEVEL
(PROPOSED)
(1) 1-5/8" TO 131 FT LEVEL
(INSTALLED-TO BE REMOVED)
(12) 1-5/8" TO 131 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 131 FT LEVEL
(INSTALLED-IN 2" CONDUIT)
(1) 3/8" TO 119 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 119 FT LEVEL
Q4
Q3
Q1
Q2
CLIMBING PEGS W/
SAFETY CLIMB

APPENDIX C

ADDITIONAL CALCULATIONS

EXHIBIT C

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

T-Mobile Existing Facility

Site ID: CT11044E

Groton / I-95 / X89 / NOA_1
725 Flanders Road
Groton, CT 06340

March 7, 2014

EBI Project Number: 62141245

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

March 7, 2014

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

Re: Emissions Values for Site: **CT11044E - Groton / I-95 / X89 / NOA_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 725 Flanders Road, Groton, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 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 (μW/cm2). The general population exposure limit for the cellular band is 567 μW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 μW/cm2. 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 725 Flanders Road, Groton, 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 / UMTS channels (1935.000 MHz to 1945.000 MHz / 1983.000 MHz to 1984.000 MHz) were considered for each sector of the proposed installation.
2) 4 UMTS / LTE channels (2110.000 to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
3) 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.
4) 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.
5) 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

6) The antenna mounting height centerline of the proposed antennas is **132 feet** above ground level (AGL)
7) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT11044E - Groton / I-95 / X89 / NOA_1
Site Addresss	725 Flanders Road, Groton, CT 06340
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/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	132	126	None	0	0	48.326044	1.094325	0.10943%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	132	126	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	132	126	None	0	0	24.163022	0.547162	0.05472%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	132	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.253%	

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/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	132	126	None	0	0	48.326044	1.094325	0.10943%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	132	126	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	132	126	None	0	0	24.163022	0.547162	0.05472%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	132	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.253%	

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/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	132	126	None	0	0	48.326044	1.094325	0.10943%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	132	126	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	132	126	None	0	0	24.163022	0.547162	0.05472%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	132	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.253%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.760%
AT&T	25.060%
Verizon Wireless	24.260%
Total Site MPE %	**50.080%**

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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 **0.760% (0.253% 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 **50.080%** 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
RF Engineering Director

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