COHEN and WOLF P.C.
ATTORNEYS AT LAW

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

August 22, 2014

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: Notice of Exempt Modification
Town of Farmington/T-Mobile co-location
T-Mobile Site ID CTHA149A
319 New Britain Avenue, Farmington, 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, the town of Farmington owns the existing monopole telecommunications tower and related facility at 319 New Britain Avenue, Farmington, CT (41.74971/-72.872511). T-Mobile intends to replace 3 existing antennas with 3 new antennas and related equipment at this existing telecommunications facility in Farmington ("Farmington 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 Town Manager, Kathleen A. Eageen, and the property owner, the town of Farmington.

The existing Farmington Facility consists of a 190 foot monopole tower.[1] T-Mobile plans to replace 3 existing antennas on existing empty mast pipes with 3 new antennas on an existing low profile platform at a centerline of 160 feet. (See the plans revised to July 31, 2014 attached hereto as **Exhibit A**). T-Mobile will also install remote radio units behind the proposed antennas on the existing mast pipes. The existing Farmington Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated August 6, 2014, and attached hereto as **Exhibit B**.

[1] The Farmington Facility was approved at a height of 190 feet (Petition No. 561), which is consistent with this filing.

The planned modifications to the Farmington 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 existing antennas are at a centerline of 160 feet; the replacement antennas will be installed at the same 160 foot level. 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 on 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 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 August 13, 2014. T-Mobile's operations would add 4.60% 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 70.85% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as **Exhibit C.**

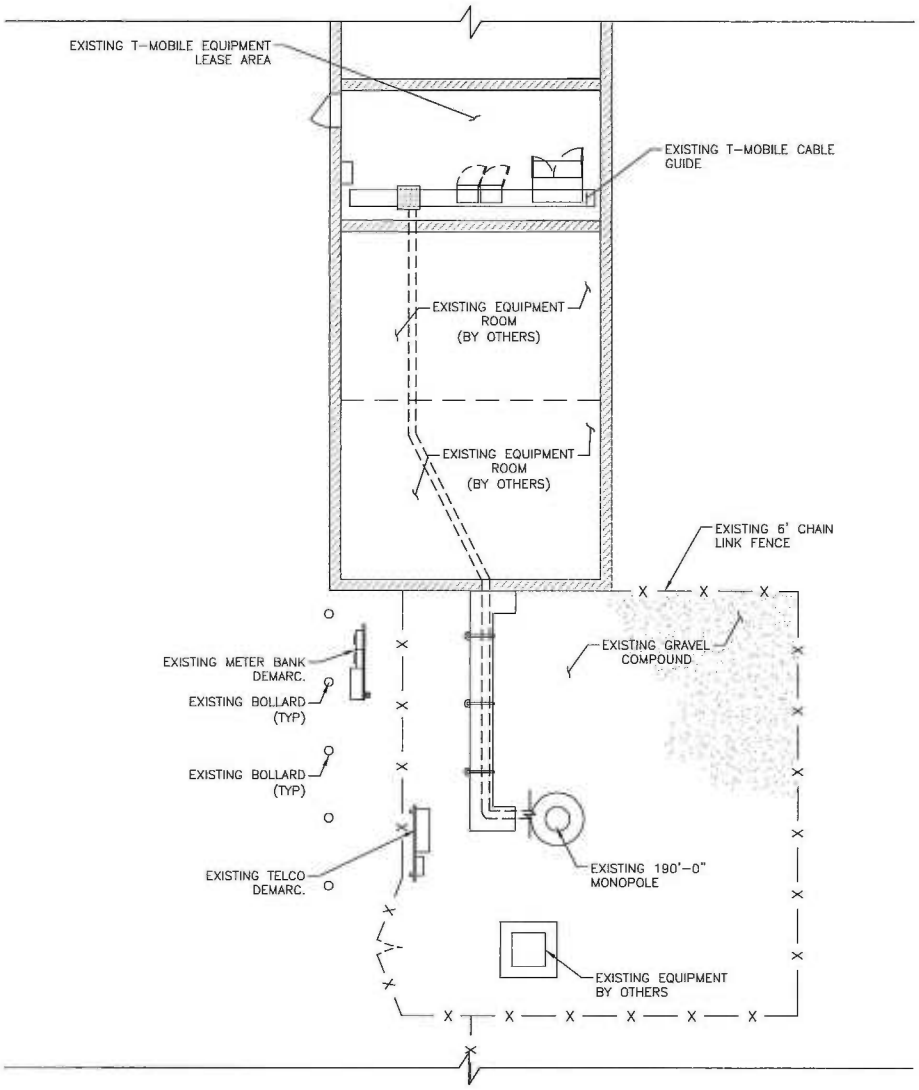
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Farmington Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement of this exempt modification, T-Mobile shall commence construction approximately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

Sincerely,

Rachel A. Schwartzman, Esq.

cc: Town of Farmington, Town Manager, Kathleen A. Eagen
Town of Farmington
Jamie Ford, EBI Consulting

EXHIBIT A



CONFIGURATION

702CU

APPROX. NORTH

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

SITE PLAN

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

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: (781) 273-2500 | Fax: (781) 273-3311
www.ebiconsulting.com
EBI JOB NO.: 81140830

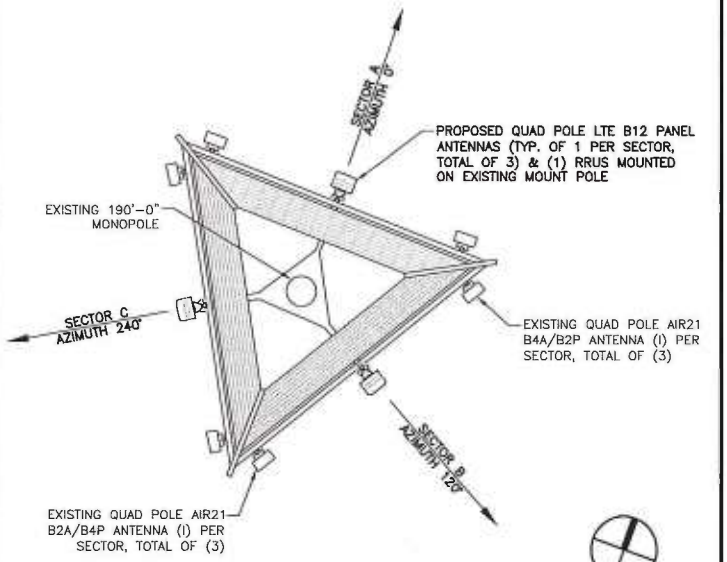
CLIENT:
T-Mobile Northeast, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860.692.7100

SITE INFO:
CTHA149A
FARMINGTON PD MP
319 NEW BRITIAN AVE
FARMINGTON, CT 06085

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	07/31/14	FOR REVIEW	MK

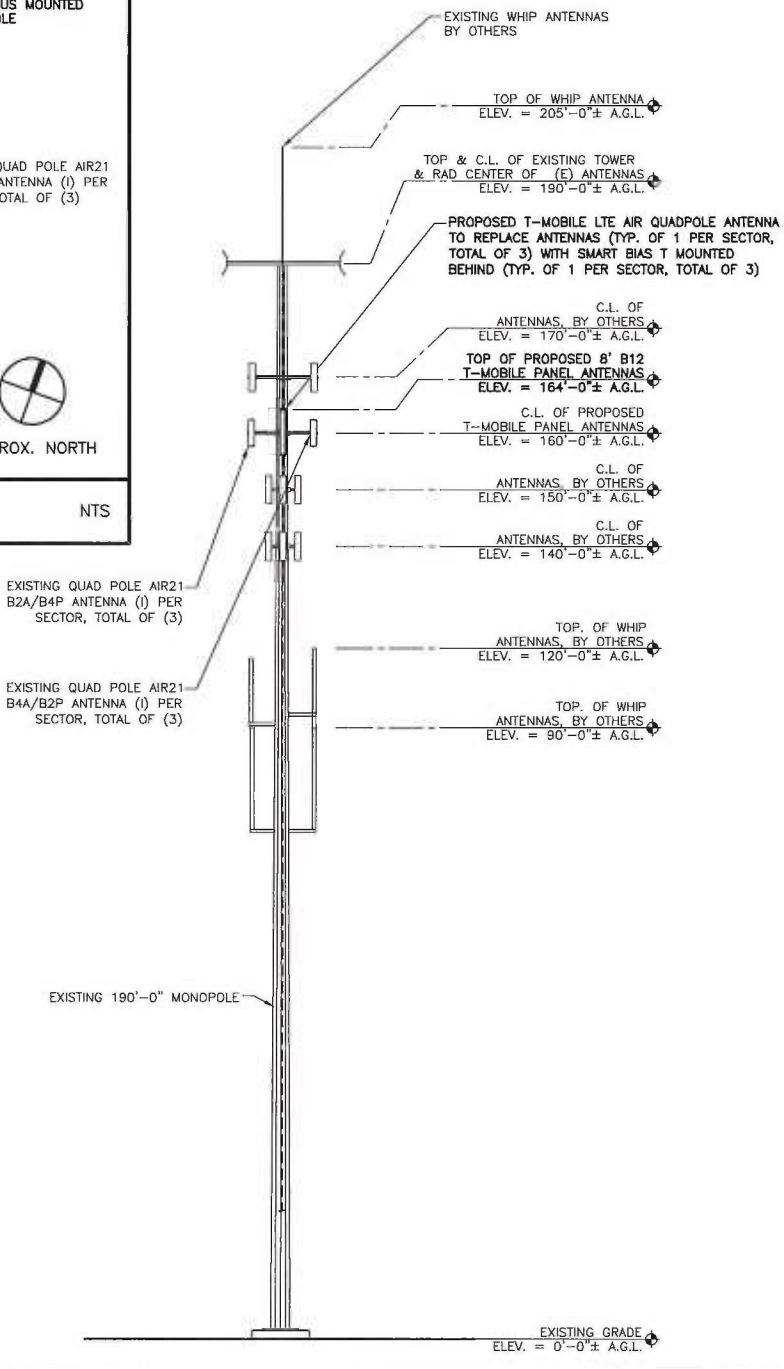
DRAWN BY: MK
CHECKED BY: PM
DATE: 07/31/14

SHEET NO: LE-1



ANTENNA CONFIGURATION

NTS



CONFIGURATION

702CU

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

TOWER ELEVATION

SCALE: 1/32" = 1'-0"

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: (781) 273-2500 | Fax: (781) 273-3311
www.ebiconsulting.com
EBI JOB NO.: 81140830

CLIENT:
T-Mobile Northeast, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860.692.7100

SITE INFO:
CTHA149A
FARMINGTON PD MP
319 NEW BRITIAN AVE
FARMINGTON, CT 06085

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	07/31/14	FOR REVIEW	MK

DRAWN BY: MK
CHECKED BY: PM
DATE: 07/31/14

SHEET NO: LE-2

EXHIBIT B

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

STRUCTURAL ANALYSIS REPORT

August 06, 2014

T-Mobile, USA
35 Griffin Rd
South Bloomfield, CT 06002
Attention: Mark Richard

Subject: 700MHz Upgrade Project
Site #: CT HA 149 A
EBI Reference #: 81140830
Site Name: Farmington PD MP
Address: 319 New Britian Ave, Farmington, CT 06085

Dear Mr. Richard:

In accordance with your request, EBI Consulting's structural engineers have reviewed the available documentation for the above site in order to assess its capability for supporting the structural loads from the proposed antennas, remote radio units, coaxial cables, and related equipment. This analysis is in accordance with the following design codes governing this project:

- International Building Code, 2003 with CT 2005, 2009, 2011, and 2013 amendments
- ASCE 7-05
- AISC Steel Construction Manual, 13th Edition
- ANSI/TIA-222-F

The following sources of information were considered in preparing this analysis:

- Photographs taken by EBI personnel on a site visit on July 25, 2014
- Structural analysis report prepared by Atlantis Group, dated May10, 2013
- Construction drawings prepared by Atlantis Group, dated April 25, 2013

The tower was analyzed for a wind speed of 80 mph without ice and with 1/2" radial ice at a reduced wind speed of 69 mph.

Three Commscope SBNHH-1d65C (96"x11.9x7.1 at 75 lbs) antennas are proposed to be installed on existing empty mast pipes, mounted to an existing low profile platform at a centerline elevation of approximately 160'-0". Additionally, three RRUS11 B12 remote radio units are proposed to be installed behind the proposed antennas on the same existing mast pipes.

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273-2500
Fax: (781) 273-3311
www.ebiconsulting.com

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)
190.0	195.0	2	-	3" Dia. 10' Omni	2	7/8"
	190.0	1	Scala	PR-460	1	7/8"
		1	-	Lightning Rod 1/2"x4' on 15' Pole	-	-
188.0	188.0	3	-	Pirod 4' Side Mount Standoff (1)	-	-
185.0	190.0	1	-	3" Dia. 10' Omni	1	7/8"
	185.0	1	Scala	PR-460	1	7/8"
183.0	183.0	2	-	Pirod 4' Side Mount Standoff (1)	-	-
180.0	185.0	1	-	3" Dia. 10' Omni	1	7/8"
178.0	178.0	2	-	Pirod 4' Side Mount Standoff (1)	-	-
175.0	175.0	3	-	800 MHz RRH w/ 4' mast pipe	-	-
174.0	174.0	1	Micro-wave dishes	Gabriel Electronics 2' Dish	-	-
		1	Micro-wave dishes	Gabriel Electronics 2' Dish		
173.0	173.0	3	-	1900 MHz RRH	-	-
170.0	170.0	3	-	3.5' Panel w/ pipe (LLPX310R)	6	1-5/8"
		3		5'x1' Panel w/ pipe		
		1	-	Platform Mount [LP 403-1]		

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	160.0	3	-	AIR21 B2A/B4P w/ mast pipe	13	1-5/8"
		3	-	AIR21 B4A/B2P w/ mast pipe		
		1	-	Platform Mount [LP 303-1]		
145	146	3	-	Allgon 7770 w/ mast pipe	12	1-5/8"
		3	-	Kathrein 742-213 w/ mast pipe		
		6	-	TMAs		
	145	1	-	T-Arm Mount [TA 601-3]		
113.0	118.0	3	-	3" Dia. 10' Omni	3	1/2"
	113.0	3	-	Pirod 4' Side Mount Standoff (1)		
90.0	95.0	3	-	3" Dia 20' Omni	3	1/2"
	90.0	3	-	Pirod 4' Side Mount Standoff (1)		

Local Antenna Mounting System:

The generic *Round Low Profile Platform* antenna mounting system has the following assumed characteristics:

- Triangular in plan with a nominal face width of between 12'-0" and 14'-0", designed to support (3) or (4) panel antennas per sector.
- Horizontal platform perimeter members are made from Sch. 40 pipe with a minimum outer diameter of 3-1/2".
- Main supporting members, spanning from the tower connection point to the center point of the triangular plan apexes, are made from hollow steel sections, HSS4x4x1/4" minimum.
- Secondary bracing members, spanning between the horizontal perimeter members and the main supporting members, are made from hollow steel sections, HSS4x4x1/4" minimum.

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

- Platform walking/standing surface consists of either 3/4" x 1/8" minimum steel bar or expanded metal grating.
- A robust ring mount with (3) 3/4" minimum diameter high-strength steel threaded rods at each connection.

By engineering analysis and/or comparison, the existing antenna mounting system is capable of supporting the final configuration of proposed equipment without causing an overstress condition on the mounting system.

Summary of Results: (Refer to attached TNX Tower Analysis for detailed analysis results)

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	190 - 164.25	Pole	TP25.45x19.5625x0.25	1	-5556.43	1012001.56	15.7	Pass
L2	164.25 - 129.67	Pole	TP33.35x24.2824x0.3125	2	-11079.10	1655812.54	47.4	Pass
L3	129.67 - 96	Pole	TP41.0432x31.7989x0.375	3	-17206.50	2445215.11	59.7	Pass
L4	96 - 63.17	Pole	TP48.5462x39.142x0.375	4	-24839.40	2895369.19	72.6	Pass
L5	63.17 - 31.17	Pole	TP55.8588x46.4169x0.375	5	-33425.40	3335832.36	80.7	Pass
L6	31.17 - 0	Pole	TP63x53.5352x0.375	6	-44989.00	3686784.59	90.5	Pass
							Summary	
						Pole (L6)	90.5	Pass
						Bolt Check	99.4	Pass
						Base Plate	75.8	Pass
						RATING =	**99.4**	**Pass**

The maximum stress under the proposed conditions and configurations is **99.4%** of the tower capacity, governed by the bolts, and is considered adequate.

Foundation:

Reactions:

Maximum reactions at base:	5-10-2013 Atlantis Group Report Reactions	03-13-2022 URS Analysis	Proposed loading Reactions
Base Shear (Kips)	36.6	33	36.6
Base Compression (Kips)	54.6	58.2	54.8
Base Moment (Kip-ft)	4,170	3,291	4,245

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

Based on the stress level of the monopole shaft, which is at **90.5%**, and assuming the foundation system was designed to have at least the capacity of the superstructure, the monopole foundation system is considered to have adequate structural strength

Limitations and Assumptions:

The report is based on the following:

1. Tower is properly installed and maintained.
2. All members are as specified in the original design documents and are in good condition.
3. All required members are in place.
4. All bolts are in place and are tightly fastened.
5. Tower is in plumb condition.
6. All member protective coatings are in good condition.
7. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
8. Modifications listed in the previous report have been installed.

EBI is not responsible for any modifications completed prior to or hereafter in which EBI is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing / replacing antennas
C. Adding coaxial cables

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

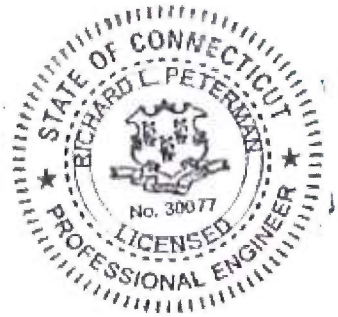
THE CONCLUSION OF THE TOWER STRUCTURAL ANALYSIS IS THAT THE TOWER IS AT 99.4% CAPACITY FOR THE PROPOSED AND EXISTING LOADING AND IS CONSIDERED ADEQUATE.

Please feel free to contact our office should you have any questions.

Sincerely yours,
EBI Consulting
August 6, 2014

Brandon Kelsey, E.I.T.

Richard L. Peterman, P.E.
Professional Engineer



Attachment: Photograph Log, Calculations

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

PHOTOGRAPH LOG

Photo 1: Existing monopole.	
Photo 2: T-Mobile existing antenna platform.	

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

Photo 3: T-Mobile existing antenna platform, close-up view at connection to monopole.	
Photo 4: Existing monopole base.	

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

STRUCTURAL DESIGN PARAMETERS

BUILDING CODE:	2003 IBC WITH CT 2005, 2009, 2011, 2013 AMENDMENTS ASCE7-05 TIA- 222-F
OCCUPANCY CATEGORY:	II
LIVE LOADS:	
Roof:	20 PSF
SNOW LOADS:	
GROUND SNOW LOAD, Pg:	30 PSF
EQUATION 7-1 FLAT ROOF CONVERSION FACTOR:	0.7
SNOW EXPOSURE FACTOR, Ce:	1.0
THERMAL FACTOR, Ct:	0.9
SNOW LOAD IMPORTANCE FACTOR, I_s:	1.0
TANK FLAT ROOF SNOW LOAD, Pf:	20 PSF
WIND LOADS:	
BASIC WIND SPEED (fastest mile), V:	80 MPH
IMPORTANCE FACTOR, I:	1.0
EXPOSURE CATEGORY:	C
INTERNAL PRESSURE COEFFICIENT:	±0.18
ICE LOADS:	
ICE THICKNESS	0.5 INCH
BASIC WIND SPEED WITH ICE, Vi	69 MPH
SEISMIC LOADS:	
COMPONENT IMPORTANCE FACTOR, Ip:	1.5
SPECTRAL ACCELERATION SHORT PERIOD, $S_s \leq$	0.24
SPECTRAL ACCELERATION 1-SECOND PERIOD, $S_1 \leq$	0.064
SITE CLASS:	D
SPECTRAL RESPONSE COEFFICIENT, S_{DS}:	0.256
SPECTRAL RESPONSE COEFFICIENT, S_{D1}:	0.102
SEISMIC DESIGN CATEGORY, SDC:	B

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
Tel: (781) 273-2500
Fax: (781) 273-3311
www.ebiconsulting.com

APPENDIX A

Mount Calculations

EBI Consulting
environmental | engineering | due diligence

EnviroBusiness, Inc.
21 B Street
Burlington, MA 01803
800.786.2346

Carrier: T-Mobile
Site ID: CTHA149A

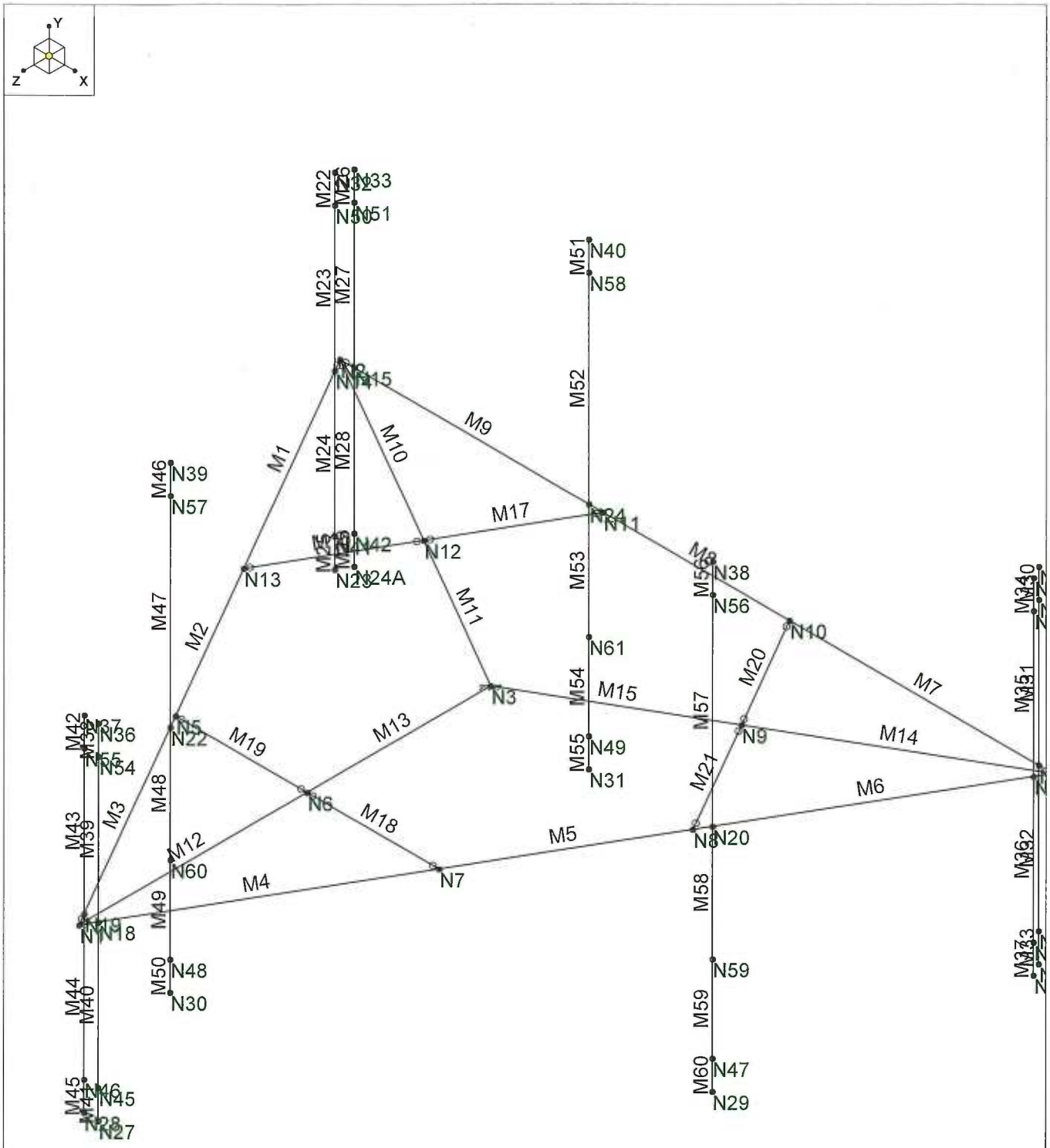
This spreadsheet calculates the wind and ice forces on proposed equipment. Shaded fields indicated user data entry.

Determine the wind loads on new equipment using TIA222 - Rev F design code:

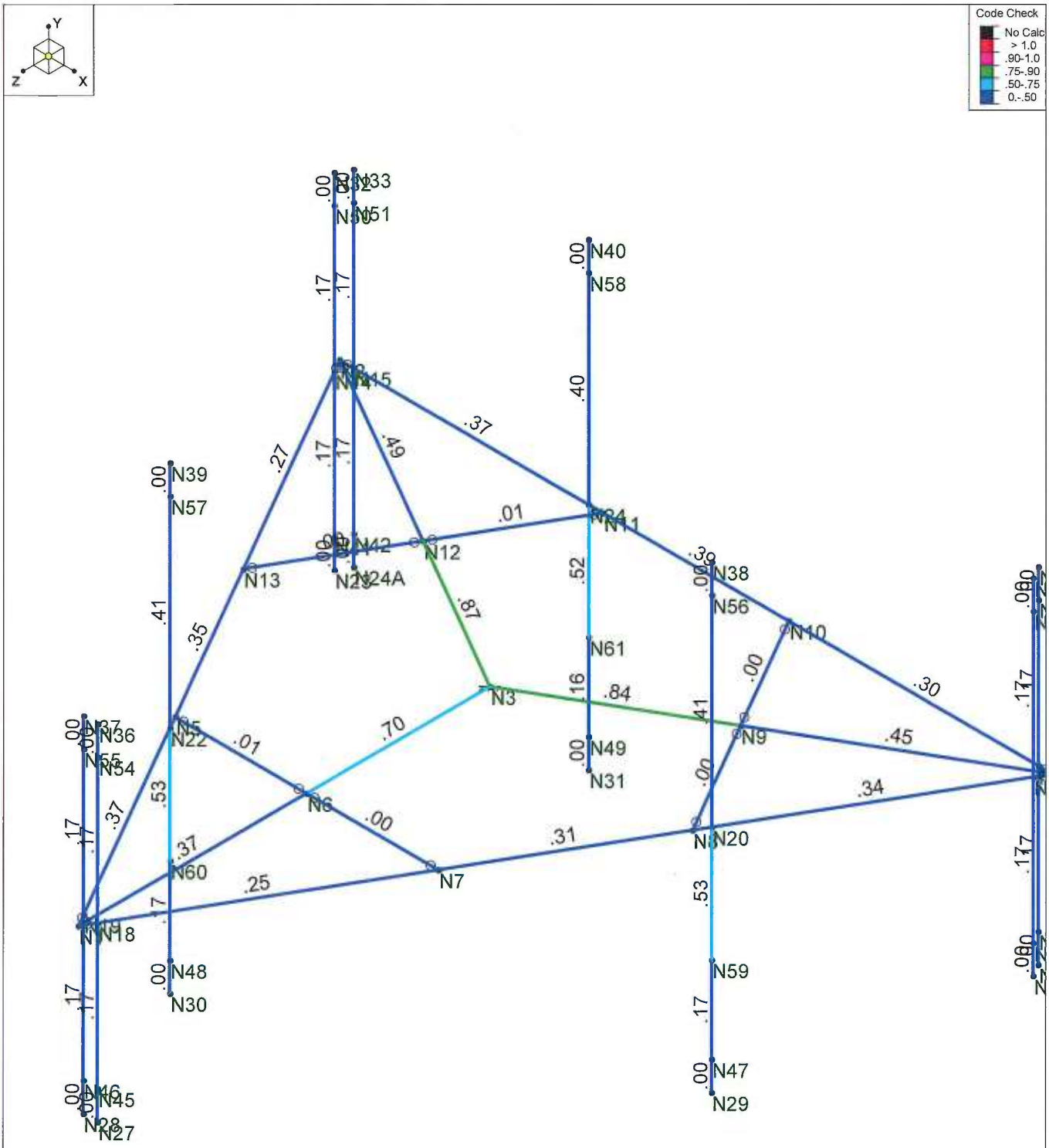
sustained V=	80	mph (for appurtenances only, per TIA-222-F county listings)
Height above grade =	160	ft, center of antennas
Kz=	1.57	
Wind importance factor, I =	1.00	
qz=	25.7	psf, formula is ,*0.00256*Kz*V^2
Gh for lattice structure formula	1.13	see table below for occurrence - use value only when not at a cantilever or on a monopole
Wind with ice / Wind ratio	0.75	
Ice thickness	0.50	
Ice density	56	pcf

Calculate wind at face of proposed equipment using the TIA-222-F code revision:

Description	Weight (lbs)	Height (in)	Width (in)	Depth (in)	Front Aspect ratio	Front C_a (TIA222F Table 3)	Side Aspect ratio	Side C_a (TIA222F Table 3)	Cant-ilever or mono-pole?	Sheilding factor, Gh	Wind force on face, no ice (lb)	Wind at face, with ice (lb)	Wind force on side, no ice (lb)	Wind at side, with ice (lb or plf)	Ice Load (lb or plf)
Flat Appurtenances															
Ex. AIR21 B4A/B2P	108	56	12	8	4.67	1.40	7.00	1.40	Y	1.69	**284**	223.9	**189.3**	152.2	42.5
Ex. AIR21 B2A/B4P	108	56	12	8	4.67	1.40	7.00	1.40	Y	1.69	**284**	223.9	**189.3**	152.2	42.5
Pr. Commscope sbnhh-1d65c	75	96	11.9	7.1	8.07	1.44	13.52	1.62	Y	1.69	**495**	388.9	**332.8**	238.4	70.1
Pr. RRUS11 B12	76	20	17	7	1.18	1.40	2.86	1.40	Y	1.69	**144**	113.7	**59.2**	48.7	19.2
Ex. HSS 4x4x1/4 (1 LF)	12	12	4	4	3.00	1.40	3.00	1.40	Y	1.69	**20**	17.8	**20.3**	17.8	3.8
Round Appurtenances															
Ex. 2-7/8" O.D. pipe (per lf)	6	12.0	2.9	2.9	-	1.20	4.17	1.20	Y	1.69	**12**	11.5	**12.5**	11.5	2.8
Ex. 3-1/2" O.D. pipe (per lf)	8	12.0	3.5	3.5	-	1.20	3.43	1.20	Y	1.69	**15**	13.6	**15.2**	13.6	3.3



EBI Consulting		SK - 1
BK	Antenna Mount Analysis	Aug 7, 2014 at 11:59 AM
81140830	Member and Node Label	Round LP Mount 3 (TIA222-F, AS...



Member Code Checks Displayed
Solution: Envelope

EBI Consulting		SK - 2
BK	Antenna Mount Analysis	Aug 7, 2014 at 11:59 AM
81140830	Bending Unity Check	Round LP Mount 3 (TIA222-F, AS...

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	perimeter	PIPE_3.0	Beam	Pipe	A53 Gr. B	Typical	2.07	2.85	2.85	5.69
2	apexes	HSS4x4x4	Beam	Tube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
3	braces	HSS4x4x4	Beam	Tube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
4	mast pipe	PIPE_2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	perimeter	4.619									Lateral
2	M2	perimeter	3.262									Lateral
3	M3	perimeter	4.619									Lateral
4	M4	perimeter	4.619									Lateral
5	M5	perimeter	3.262									Lateral
6	M6	perimeter	4.619									Lateral
7	M7	perimeter	4.619									Lateral
8	M8	perimeter	3.262									Lateral
9	M9	perimeter	4.619									Lateral
10	M10	apexes	4									Lateral
11	M11	apexes	3.217									Lateral
12	M12	apexes	4									Lateral
13	M13	apexes	3.217									Lateral
14	M14	apexes	4									Lateral
15	M15	apexes	3.217									Lateral
16	M16	braces	2.309									Lateral
17	M17	braces	2.309									Lateral
18	M18	braces	2.309									Lateral
19	M19	braces	2.309									Lateral
20	M20	braces	2.309									Lateral
21	M21	braces	2.309									Lateral
22	M22	mast pipe	.5									Lateral
23	M23	mast pipe	2.5									Lateral
24	M24	mast pipe	2.5									Lateral
25	M25	mast pipe	.5									Lateral
26	M26	mast pipe	.5									Lateral
27	M27	mast pipe	2.5									Lateral
28	M28	mast pipe	2.5									Lateral
29	M29	mast pipe	.5									Lateral
30	M30	mast pipe	.5									Lateral
31	M31	mast pipe	2.5									Lateral
32	M32	mast pipe	2.5									Lateral
33	M33	mast pipe	.5									Lateral
34	M34	mast pipe	.5									Lateral
35	M35	mast pipe	2.5									Lateral
36	M36	mast pipe	2.5									Lateral
37	M37	mast pipe	.5									Lateral
38	M38	mast pipe	.5									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
39	M39	mast pipe	2.5									Lateral
40	M40	mast pipe	2.5									Lateral
41	M41	mast pipe	.5									Lateral
42	M42	mast pipe	.5									Lateral
43	M43	mast pipe	2.5									Lateral
44	M44	mast pipe	2.5									Lateral
45	M45	mast pipe	.5									Lateral
46	M46	mast pipe	.5									Lateral
47	M47	mast pipe	3.5									Lateral
48	M48	mast pipe	2									Lateral
49	M49	mast pipe	1.5									Lateral
50	M50	mast pipe	.5									Lateral
51	M51	mast pipe	.5									Lateral
52	M52	mast pipe	3.5									Lateral
53	M53	mast pipe	2									Lateral
54	M54	mast pipe	1.5									Lateral
55	M55	mast pipe	.5									Lateral
56	M56	mast pipe	.5									Lateral
57	M57	mast pipe	3.5									Lateral
58	M58	mast pipe	2									Lateral
59	M59	mast pipe	1.5									Lateral
60	M60	mast pipe	.5									Lateral

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	7.216878	0	
2	N2	-6.25	0	-3.608439	0	
3	N3	0	0	0	0	
4	N4	6.25	0	-3.608439	0	
5	N5	-2.309401	0	3.216878	0	
6	N6	1e-14	0	3.216878	0	
7	N7	2.309401	0	3.216878	0	
8	N8	3.940599	0	0.391561	0	
9	N9	2.785898	0	-1.608439	0	
10	N10	1.631198	0	-3.608439	0	
11	N11	-1.631198	0	-3.608439	0	
12	N12	-2.785898	0	-1.608439	0	
13	N13	-3.940599	0	0.391561	0	
14	N14	-6.125	0	-3.391933	0	
15	N15	-6.001198	0	-3.608439	0	
16	N16	6	0	-3.608439	0	
17	N17	6.125599	0	-3.39297	0	
18	N18	.125	0	7.000372	0	
19	N19	-0.124401	0	7.001409	0	
20	N20	4.065599	0	0.175054	0	
21	N22	-2.184401	0	3.433385	0	
22	N24	-1.881198	0	-3.608439	0	
23	N23	-6.125	-3	-3.391933	0	
24	N24A	-6.001198	-3	-3.608439	0	
25	N25	6	-3	-3.608439	0	
26	N26	6.125599	-3	-3.39297	0	
27	N27	.125	-3	7.000372	0	
28	N28	-0.124401	-3	7.001409	0	
29	N29	4.065599	-4	0.175054	0	
30	N30	-2.184401	-4	3.433385	0	
31	N31	-1.881198	-4	-3.608439	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
32	N32	-6.125	3	-3.391933	0	
33	N33	-6.001198	3	-3.608439	0	
34	N34	6	3	-3.608439	0	
35	N35	6.125599	3	-3.39297	0	
36	N36	.125	3	7.000372	0	
37	N37	-0.124401	3	7.001409	0	
38	N38	4.065599	4	0.175054	0	
39	N39	-2.184401	4	3.433385	0	
40	N40	-1.881198	4	-3.608439	0	
41	N41	-6.125	-2.5	-3.391933	0	
42	N42	-6.001198	-2.5	-3.608439	0	
43	N43	6	-2.5	-3.608439	0	
44	N44	6.125599	-2.5	-3.39297	0	
45	N45	.125	-2.5	7.000372	0	
46	N46	-0.124401	-2.5	7.001409	0	
47	N47	4.065599	-3.5	0.175054	0	
48	N48	-2.184401	-3.5	3.433385	0	
49	N49	-1.881198	-3.5	-3.608439	0	
50	N50	-6.125	2.5	-3.391933	0	
51	N51	-6.001198	2.5	-3.608439	0	
52	N52	6	2.5	-3.608439	0	
53	N53	6.125599	2.5	-3.39297	0	
54	N54	.125	2.5	7.000372	0	
55	N55	-0.124401	2.5	7.001409	0	
56	N56	4.065599	3.5	0.175054	0	
57	N57	-2.184401	3.5	3.433385	0	
58	N58	-1.881198	3.5	-3.608439	0	
59	N59	4.065599	-2	0.175054	0	
60	N60	-2.184401	-2	3.433385	0	
61	N61	-1.881198	-2	-3.608439	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	

Joint Loads and Enforced Displacements (BLC 1 : dead)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N50	L	Y	-.054
2	N51	L	Y	-.054
3	N41	L	Y	-.054
4	N42	L	Y	-.054
5	N52	L	Y	-.054
6	N53	L	Y	-.054
7	N43	L	Y	-.054
8	N44	L	Y	-.054
9	N54	L	Y	-.054
10	N55	L	Y	-.054
11	N45	L	Y	-.054
12	N46	L	Y	-.054
13	N57	L	Y	-.038
14	N48	L	Y	-.038
15	N58	L	Y	-.038
16	N49	L	Y	-.038
17	N56	L	Y	-.038
18	N47	L	Y	-.038

Joint Loads and Enforced Displacements (BLC 1 : dead) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
19	N60	L	Y	-.076
20	N61	L	Y	-.076
21	N59	L	Y	-.076

Joint Loads and Enforced Displacements (BLC 2 : ice)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N50	L	Y	-.021
2	N51	L	Y	-.021
3	N41	L	Y	-.021
4	N42	L	Y	-.021
5	N52	L	Y	-.021
6	N53	L	Y	-.021
7	N43	L	Y	-.021
8	N44	L	Y	-.021
9	N55	L	Y	-.021
10	N54	L	Y	-.021
11	N46	L	Y	-.021
12	N45	L	Y	-.021
13	N57	L	Y	-.035
14	N48	L	Y	-.035
15	N58	L	Y	-.035
16	N49	L	Y	-.035
17	N56	L	Y	-.035
18	N47	L	Y	-.035
19	N60	L	Y	-.019
20	N61	L	Y	-.019
21	N59	L	Y	-.019

Joint Loads and Enforced Displacements (BLC 3 : wind No Ice)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N50	L	Z	.142
2	N51	L	Z	.142
3	N42	L	Z	.142
4	N41	L	Z	.142
5	N52	L	Z	.142
6	N53	L	Z	.142
7	N43	L	Z	.142
8	N44	L	Z	.142
9	N55	L	Z	.142
10	N54	L	Z	.142
11	N46	L	Z	.142
12	N45	L	Z	.142
13	N57	L	Z	.248
14	N48	L	Z	.248
15	N58	L	Z	.248
16	N49	L	Z	.248
17	N56	L	Z	.248
18	N47	L	Z	.248
19	N60	L	Z	.144
20	N61	L	Z	.144
21	N59	L	Z	.144

Joint Loads and Enforced Displacements (BLC 4 : Wind With Ice)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N51	L	Z	.112
2	N50	L	Z	.112

Joint Loads and Enforced Displacements (BLC 4 : Wind With Ice) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
3	N42	L	Z	.112
4	N41	L	Z	.112
5	N52	L	Z	.112
6	N53	L	Z	.112
7	N43	L	Z	.112
8	N44	L	Z	.112
9	N54	L	Z	.112
10	N55	L	Z	.112
11	N45	L	Z	.112
12	N46	L	Z	.112
13	N57	L	Z	.195
14	N48	L	Z	.195
15	N58	L	Z	.195
16	N49	L	Z	.195
17	N56	L	Z	.195
18	N47	L	Z	.195
19	N60	L	Z	.114
20	N61	L	Z	.114
21	N59	L	Z	.114

Member Distributed Loads (BLC 2 : ice)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M10	Y	-.004	-.004	0	0
2	M16	Y	-.004	-.004	0	0
3	M17	Y	-.004	-.004	0	0
4	M11	Y	-.004	-.004	0	0
5	M19	Y	-.004	-.004	0	0
6	M18	Y	-.004	-.004	0	0
7	M12	Y	-.004	-.004	0	0
8	M13	Y	-.004	-.004	0	0
9	M15	Y	-.004	-.004	0	0
10	M20	Y	-.004	-.004	0	0
11	M21	Y	-.004	-.004	0	0
12	M14	Y	-.004	-.004	0	0
13	M3	Y	-.003	-.003	0	0
14	M2	Y	-.003	-.003	0	0
15	M4	Y	-.003	-.003	0	0
16	M5	Y	-.003	-.003	0	0
17	M6	Y	-.003	-.003	0	0
18	M8	Y	-.003	-.003	0	0
19	M7	Y	-.003	-.003	0	0
20	M9	Y	-.003	-.003	0	0
21	M1	Y	-.003	-.003	0	0
22	M42	Y	-.003	-.003	0	0
23	M43	Y	-.003	-.003	0	0
24	M44	Y	-.003	-.003	0	0
25	M45	Y	-.003	-.003	0	0
26	M38	Y	-.003	-.003	0	0
27	M39	Y	-.003	-.003	0	0
28	M40	Y	-.003	-.003	0	0
29	M41	Y	-.003	-.003	0	0
30	M22	Y	-.003	-.003	0	0
31	M23	Y	-.003	-.003	0	0
32	M24	Y	-.003	-.003	0	0
33	M25	Y	-.003	-.003	0	0
34	M26	Y	-.003	-.003	0	0

Member Distributed Loads (BLC 2 : ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
35	M27	Y	-.003	-.003	0	0
36	M28	Y	-.003	-.003	0	0
37	M29	Y	-.003	-.003	0	0
38	M30	Y	-.003	-.003	0	0
39	M31	Y	-.003	-.003	0	0
40	M32	Y	-.003	-.003	0	0
41	M33	Y	-.003	-.003	0	0
42	M34	Y	-.003	-.003	0	0
43	M35	Y	-.003	-.003	0	0
44	M36	Y	-.003	-.003	0	0
45	M37	Y	-.003	-.003	0	0
46	M46	Y	-.003	-.003	0	0
47	M47	Y	-.003	-.003	0	0
48	M48	Y	-.003	-.003	0	0
49	M49	Y	-.003	-.003	0	0
50	M50	Y	-.003	-.003	0	0
51	M51	Y	-.003	-.003	0	0
52	M52	Y	-.003	-.003	0	0
53	M53	Y	-.003	-.003	0	0
54	M54	Y	-.003	-.003	0	0
55	M55	Y	-.003	-.003	0	0
56	M56	Y	-.003	-.003	0	0
57	M57	Y	-.003	-.003	0	0
58	M58	Y	-.003	-.003	0	0
59	M59	Y	-.003	-.003	0	0
60	M60	Y	-.003	-.003	0	0

Member Distributed Loads (BLC 3 : wind No Ice)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M10	Z	.02	.02	0	0
2	M16	Z	.02	.02	0	0
3	M17	Z	.02	.02	0	0
4	M11	Z	.02	.02	0	0
5	M19	Z	.02	.02	0	0
6	M18	Z	.02	.02	0	0
7	M12	Z	.02	.02	0	0
8	M13	Z	.02	.02	0	0
9	M15	Z	.02	.02	0	0
10	M14	Z	.02	.02	0	0
11	M20	Z	.02	.02	0	0
12	M21	Z	.02	.02	0	0
13	M9	Z	.015	.015	0	0
14	M8	Z	.015	.015	0	0
15	M7	Z	.015	.015	0	0
16	M6	Z	.015	.015	0	0
17	M5	Z	.015	.015	0	0
18	M4	Z	.015	.015	0	0
19	M3	Z	.015	.015	0	0
20	M2	Z	.015	.015	0	0
21	M1	Z	.015	.015	0	0
22	M22	Z	.012	.012	0	0
23	M23	Z	.012	.012	0	0
24	M24	Z	.012	.012	0	0
25	M25	Z	.012	.012	0	0
26	M26	Z	.012	.012	0	0
27	M27	Z	.012	.012	0	0
28	M28	Z	.012	.012	0	0

Member Distributed Loads (BLC 3 : wind No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
29	M29	Z	.012	.012	0	0
30	M30	Z	.012	.012	0	0
31	M31	Z	.012	.012	0	0
32	M32	Z	.012	.012	0	0
33	M33	Z	.012	.012	0	0
34	M34	Z	.012	.012	0	0
35	M35	Z	.012	.012	0	0
36	M36	Z	.012	.012	0	0
37	M37	Z	.012	.012	0	0
38	M38	Z	.012	.012	0	0
39	M39	Z	.012	.012	0	0
40	M40	Z	.012	.012	0	0
41	M41	Z	.012	.012	0	0
42	M42	Z	.012	.012	0	0
43	M43	Z	.012	.012	0	0
44	M44	Z	.012	.012	0	0
45	M45	Z	.012	.012	0	0
46	M46	Z	.012	.012	0	0
47	M47	Z	.012	.012	0	0
48	M48	Z	.012	.012	0	0
49	M49	Z	.012	.012	0	0
50	M50	Z	.012	.012	0	0
51	M51	Z	.012	.012	0	0
52	M52	Z	.012	.012	0	0
53	M53	Z	.012	.012	0	0
54	M54	Z	.012	.012	0	0
55	M55	Z	.012	.012	0	0
56	M56	Z	.012	.012	0	0
57	M57	Z	.012	.012	0	0
58	M58	Z	.012	.012	0	0
59	M59	Z	.012	.012	0	0
60	M60	Z	.012	.012	0	0

Member Distributed Loads (BLC 4 : Wind With Ice)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M10	Z	.018	.018	0	0
2	M16	Z	.018	.018	0	0
3	M17	Z	.018	.018	0	0
4	M11	Z	.018	.018	0	0
5	M19	Z	.018	.018	0	0
6	M18	Z	.018	.018	0	0
7	M12	Z	.018	.018	0	0
8	M13	Z	.018	.018	0	0
9	M15	Z	.018	.018	0	0
10	M14	Z	.018	.018	0	0
11	M20	Z	.018	.018	0	0
12	M21	Z	.018	.018	0	0
13	M9	Z	.014	.014	0	0
14	M8	Z	.014	.014	0	0
15	M7	Z	.014	.014	0	0
16	M6	Z	.014	.014	0	0
17	M5	Z	.014	.014	0	0
18	M4	Z	.014	.014	0	0
19	M3	Z	.014	.014	0	0
20	M2	Z	.014	.014	0	0
21	M1	Z	.014	.014	0	0
22	M26	Z	.012	.012	0	0

Member Distributed Loads (BLC 4 : Wind With Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
23	M27	Z	.012	.012	0	0
24	M28	Z	.012	.012	0	0
25	M29	Z	.012	.012	0	0
26	M22	Z	.012	.012	0	0
27	M23	Z	.012	.012	0	0
28	M24	Z	.012	.012	0	0
29	M25	Z	.012	.012	0	0
30	M30	Z	.012	.012	0	0
31	M31	Z	.012	.012	0	0
32	M32	Z	.012	.012	0	0
33	M33	Z	.012	.012	0	0
34	M34	Z	.012	.012	0	0
35	M35	Z	.012	.012	0	0
36	M36	Z	.012	.012	0	0
37	M37	Z	.012	.012	0	0
38	M38	Z	.012	.012	0	0
39	M39	Z	.012	.012	0	0
40	M40	Z	.012	.012	0	0
41	M41	Z	.012	.012	0	0
42	M42	Z	.012	.012	0	0
43	M43	Z	.012	.012	0	0
44	M44	Z	.012	.012	0	0
45	M45	Z	.012	.012	0	0
46	M46	Z	.012	.012	0	0
47	M47	Z	.012	.012	0	0
48	M48	Z	.012	.012	0	0
49	M49	Z	.012	.012	0	0
50	M50	Z	.012	.012	0	0
51	M51	Z	.012	.012	0	0
52	M52	Z	.012	.012	0	0
53	M53	Z	.012	.012	0	0
54	M54	Z	.012	.012	0	0
55	M55	Z	.012	.012	0	0
56	M56	Z	.012	.012	0	0
57	M57	Z	.012	.012	0	0
58	M58	Z	.012	.012	0	0
59	M59	Z	.012	.012	0	0
60	M60	Z	.012	.012	0	0

Member Distributed Loads (BLC 5 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.000193	-.002	0	.924
2	M1	Y	-.002	-.003	.924	1.848
3	M1	Y	-.003	-.004	1.848	2.771
4	M1	Y	-.004	-.003	2.771	3.695
5	M1	Y	-.003	-.000828	3.695	4.619
6	M10	Y	-.000799	-.003	0	.8
7	M10	Y	-.003	-.006	.8	1.6
8	M10	Y	-.006	-.008	1.6	2.4
9	M10	Y	-.008	-.007	2.4	3.2
10	M10	Y	-.007	-.005	3.2	4
11	M16	Y	-.000536	-.002	0	.462
12	M16	Y	-.002	-.003	.462	.924
13	M16	Y	-.003	-.005	.924	1.386
14	M16	Y	-.005	-.003	1.386	1.848
15	M16	Y	-.003	-.00019	1.848	2.309
16	M9	Y	-.0002	-.003	0	.924

Member Distributed Loads (BLC 5 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
17	M9	Y	-.003	-.004	.924	1.848
18	M9	Y	-.004	-.003	1.848	2.771
19	M9	Y	-.003	-.002	2.771	3.695
20	M9	Y	-.002	-.000315	3.695	4.619
21	M17	Y	-.000132	-.003	0	.462
22	M17	Y	-.003	-.004	.462	.924
23	M17	Y	-.004	-.003	.924	1.386
24	M17	Y	-.003	-.002	1.386	1.848
25	M17	Y	-.002	-.000975	1.848	2.309
26	M7	Y	-.000193	-.002	0	.924
27	M7	Y	-.002	-.003	.924	1.848
28	M7	Y	-.003	-.004	1.848	2.771
29	M7	Y	-.004	-.003	2.771	3.695
30	M7	Y	-.003	-.000828	3.695	4.619
31	M14	Y	-.000799	-.003	0	.8
32	M14	Y	-.003	-.006	.8	1.6
33	M14	Y	-.006	-.008	1.6	2.4
34	M14	Y	-.008	-.007	2.4	3.2
35	M14	Y	-.007	-.005	3.2	4
36	M20	Y	-.000536	-.002	0	.462
37	M20	Y	-.002	-.003	.462	.924
38	M20	Y	-.003	-.005	.924	1.386
39	M20	Y	-.005	-.003	1.386	1.848
40	M20	Y	-.003	-.00019	1.848	2.309
41	M6	Y	-.0002	-.003	0	.924
42	M6	Y	-.003	-.004	.924	1.848
43	M6	Y	-.004	-.003	1.848	2.771
44	M6	Y	-.003	-.002	2.771	3.695
45	M6	Y	-.002	-.000315	3.695	4.619
46	M21	Y	-.000132	-.003	0	.462
47	M21	Y	-.003	-.004	.462	.924
48	M21	Y	-.004	-.003	.924	1.386
49	M21	Y	-.003	-.002	1.386	1.848
50	M21	Y	-.002	-.000975	1.848	2.309
51	M3	Y	-.000828	-.003	0	.924
52	M3	Y	-.003	-.004	.924	1.848
53	M3	Y	-.004	-.003	1.848	2.771
54	M3	Y	-.003	-.002	2.771	3.695
55	M3	Y	-.002	-.000193	3.695	4.619
56	M12	Y	-.000597	-.003	0	.8
57	M12	Y	-.003	-.006	.8	1.6
58	M12	Y	-.006	-.008	1.6	2.4
59	M12	Y	-.008	-.007	2.4	3.2
60	M12	Y	-.007	-.004	3.2	4
61	M19	Y	-.00019	-.003	0	.462
62	M19	Y	-.003	-.005	.462	.924
63	M19	Y	-.005	-.003	.924	1.386
64	M19	Y	-.003	-.002	1.386	1.848
65	M19	Y	-.002	-.000536	1.848	2.309
66	M4	Y	-.000193	-.002	0	.924
67	M4	Y	-.002	-.003	.924	1.848
68	M4	Y	-.003	-.004	1.848	2.771
69	M4	Y	-.004	-.003	2.771	3.695
70	M4	Y	-.003	-.000828	3.695	4.619
71	M18	Y	-.000536	-.002	0	.462
72	M18	Y	-.002	-.003	.462	.924
73	M18	Y	-.003	-.005	.924	1.386

Member Distributed Loads (BLC 5 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
74	M18	Y	-.005	-.003	1.386	1.848
75	M18	Y	-.003	-.00019	1.848	2.309

Member Distributed Loads (BLC 6 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.000387	-.004	0	.924
2	M1	Y	-.004	-.006	.924	1.848
3	M1	Y	-.006	-.008	1.848	2.771
4	M1	Y	-.008	-.006	2.771	3.695
5	M1	Y	-.006	-.002	3.695	4.619
6	M10	Y	-.002	-.005	0	.8
7	M10	Y	-.005	-.011	.8	1.6
8	M10	Y	-.011	-.016	1.6	2.4
9	M10	Y	-.016	-.014	2.4	3.2
10	M10	Y	-.014	-.009	3.2	4
11	M16	Y	-.001	-.003	0	.462
12	M16	Y	-.003	-.007	.462	.924
13	M16	Y	-.007	-.009	.924	1.386
14	M16	Y	-.009	-.006	1.386	1.848
15	M16	Y	-.006	-.000381	1.848	2.309
16	M9	Y	-.0004	-.006	0	.924
17	M9	Y	-.006	-.008	.924	1.848
18	M9	Y	-.008	-.006	1.848	2.771
19	M9	Y	-.006	-.003	2.771	3.695
20	M9	Y	-.003	-.00063	3.695	4.619
21	M17	Y	-.000264	-.006	0	.462
22	M17	Y	-.006	-.009	.462	.924
23	M17	Y	-.009	-.007	.924	1.386
24	M17	Y	-.007	-.004	1.386	1.848
25	M17	Y	-.004	-.002	1.848	2.309
26	M7	Y	-.000387	-.004	0	.924
27	M7	Y	-.004	-.006	.924	1.848
28	M7	Y	-.006	-.008	1.848	2.771
29	M7	Y	-.008	-.006	2.771	3.695
30	M7	Y	-.006	-.002	3.695	4.619
31	M14	Y	-.002	-.005	0	.8
32	M14	Y	-.005	-.011	.8	1.6
33	M14	Y	-.011	-.016	1.6	2.4
34	M14	Y	-.016	-.014	2.4	3.2
35	M14	Y	-.014	-.009	3.2	4
36	M20	Y	-.001	-.003	0	.462
37	M20	Y	-.003	-.007	.462	.924
38	M20	Y	-.007	-.009	.924	1.386
39	M20	Y	-.009	-.006	1.386	1.848
40	M20	Y	-.006	-.000381	1.848	2.309
41	M6	Y	-.0004	-.006	0	.924
42	M6	Y	-.006	-.008	.924	1.848
43	M6	Y	-.008	-.006	1.848	2.771
44	M6	Y	-.006	-.003	2.771	3.695
45	M6	Y	-.003	-.00063	3.695	4.619
46	M21	Y	-.000264	-.006	0	.462
47	M21	Y	-.006	-.009	.462	.924
48	M21	Y	-.009	-.007	.924	1.386
49	M21	Y	-.007	-.004	1.386	1.848
50	M21	Y	-.004	-.002	1.848	2.309
51	M3	Y	-.002	-.006	0	.924
52	M3	Y	-.006	-.008	.924	1.848

Member Distributed Loads (BLC 6 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
53	M3	Y	-.008	-.006	1.848	2.771
54	M3	Y	-.006	-.004	2.771	3.695
55	M3	Y	-.004	-.000387	3.695	4.619
56	M12	Y	-.001	-.005	0	.8
57	M12	Y	-.005	-.011	.8	1.6
58	M12	Y	-.011	-.016	1.6	2.4
59	M12	Y	-.016	-.013	2.4	3.2
60	M12	Y	-.013	-.008	3.2	4
61	M19	Y	-.000381	-.006	0	.462
62	M19	Y	-.006	-.009	.462	.924
63	M19	Y	-.009	-.007	.924	1.386
64	M19	Y	-.007	-.003	1.386	1.848
65	M19	Y	-.003	-.001	1.848	2.309
66	M4	Y	-.000387	-.004	0	.924
67	M4	Y	-.004	-.006	.924	1.848
68	M4	Y	-.006	-.008	1.848	2.771
69	M4	Y	-.008	-.006	2.771	3.695
70	M4	Y	-.006	-.002	3.695	4.619
71	M18	Y	-.001	-.003	0	.462
72	M18	Y	-.003	-.007	.462	.924
73	M18	Y	-.007	-.009	.924	1.386
74	M18	Y	-.009	-.006	1.386	1.848
75	M18	Y	-.006	-.000381	1.848	2.309

Member Area Loads (BLC 1 : dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N2	N13	N12		Y	Two Way	-.006
2	N2	N12	N11		Y	Two Way	-.006
3	N9	N4	N10		Y	Two Way	-.006
4	N9	N8	N4		Y	Two Way	-.006
5	N6	N1	N5		Y	Two Way	-.006
6	N7	N6	N1		Y	Two Way	-.006

Member Area Loads (BLC 2 : ice)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N2	N13	N12		Y	Two Way	-.012
2	N2	N12	N11		Y	Two Way	-.012
3	N9	N4	N10		Y	Two Way	-.012
4	N9	N8	N4		Y	Two Way	-.012
5	N6	N1	N5		Y	Two Way	-.012
6	N7	N6	N1		Y	Two Way	-.012

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	dead	None		-1		21			6	
2	ice	None				21		60	6	
3	wind No Ice	None				21		60		
4	Wind With Ice	None				21		60		
5	BLC 1 Transient Area Loads	None						75		
6	BLC 2 Transient Area Loads	None						75		

Load Combinations

	Description	Sol...	P...	S...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
1	1.0DL + 1.0WL	Yes	Y		1	1	3	1										
2	1.0DL + 1.0Di + 1.0Wi	Yes	Y		1	1	2	1	4	1								

Envelope AISC 13th(360-05): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om...	Mnzz/om...	Cb	Eqn
1	M1	PIPE_3.0	.271	4.619	2	.061	0		2	38.701	43.383	3.825	3.825	1...	H1-1b
2	M2	PIPE_3.0	.353	3.262	2	.046	0		2	40.981	43.383	3.825	3.825	1...	H1-1b
3	M3	PIPE_3.0	.367	.241	2	.078	0		1	38.701	43.383	3.825	3.825	1...	H1-1b
4	M4	PIPE_3.0	.251	4.619	2	.036	0		2	38.701	43.383	3.825	3.825	1...	H1-1b
5	M5	PIPE_3.0	.309	3.262	2	.029	0		2	40.981	43.383	3.825	3.825	1...	H1-1b
6	M6	PIPE_3.0	.338	.289	2	.075	4.619		2	38.701	43.383	3.825	3.825	1...	H1-1b
7	M7	PIPE_3.0	.300	4.619	2	.075	0		2	38.701	43.383	3.825	3.825	1...	H1-1b
8	M8	PIPE_3.0	.393	3.262	2	.036	0		1	40.981	43.383	3.825	3.825	1...	H1-1b
9	M9	PIPE_3.0	.366	.241	2	.112	0		1	38.701	43.383	3.825	3.825	1...	H1-1b
10	M10	HSS4x4x4	.487	4	2	.065	4	y	2	86.814	92.826	10.765	10.765	1...	H1-1b
11	M11	HSS4x4x4	.873	3.217	2	.065	3.217	y	2	88.892	92.826	10.765	10.765	1...	H1-1b
12	M12	HSS4x4x4	.367	4	2	.039	4	y	2	86.814	92.826	10.765	10.765	1...	H1-1b
13	M13	HSS4x4x4	.698	3.217	2	.046	3.217	y	2	88.892	92.826	10.765	10.765	1...	H1-1b
14	M14	HSS4x4x4	.452	4	2	.071	4	y	2	86.814	92.826	10.765	10.765	1...	H1-1b
15	M15	HSS4x4x4	.838	3.217	2	.074	3.217	y	2	88.892	92.826	10.765	10.765	1...	H1-1b
16	M16	HSS4x4x4	.003	1.155	2	.011	2.309	y	2	90.777	92.826	10.765	10.765	1...	H1-1b
17	M17	HSS4x4x4	.006	1.107	1	.025	0	y	1	90.777	92.826	10.765	10.765	1...	H1-1b
18	M18	HSS4x4x4	.004	1.179	2	.015	2.309	y	2	90.777	92.826	10.765	10.765	1...	H1-1b
19	M19	HSS4x4x4	.005	1.155	1	.012	2.309	z	1	90.777	92.826	10.765	10.765	1...	H1-1b
20	M20	HSS4x4x4	.003	1.203	2	.017	2.309	y	2	90.777	92.826	10.765	10.765	1...	H1-1b
21	M21	HSS4x4x4	.003	1.107	2	.014	0	y	2	90.777	92.826	10.765	10.765	1...	H1-1b
22	M22	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1...	H1-1b
23	M23	PIPE_2.5	.174	2.5	1	.018	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
24	M24	PIPE_2.5	.174	0	1	.018	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
25	M25	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1...	H1-1b
26	M26	PIPE_2.5	.001	.5	2	.001	.5		1	33.674	33.743	2.393	2.393	1...	H1-1b
27	M27	PIPE_2.5	.169	2.5	1	.017	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
28	M28	PIPE_2.5	.169	0	1	.017	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
29	M29	PIPE_2.5	.001	0	2	.001	0		1	33.674	33.743	2.393	2.393	1...	H1-1b
30	M30	PIPE_2.5	.001	.5	2	.001	.5		1	33.674	33.743	2.393	2.393	1...	H1-1b
31	M31	PIPE_2.5	.169	2.5	1	.017	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
32	M32	PIPE_2.5	.169	0	1	.017	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
33	M33	PIPE_2.5	.001	0	2	.001	0		1	33.674	33.743	2.393	2.393	1...	H1-1b
34	M34	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1...	H1-1b
35	M35	PIPE_2.5	.174	2.5	1	.018	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
36	M36	PIPE_2.5	.173	0	1	.018	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
37	M37	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1...	H1-1b
38	M38	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1...	H1-1b
39	M39	PIPE_2.5	.173	2.5	1	.018	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
40	M40	PIPE_2.5	.172	0	1	.018	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
41	M41	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1...	H1-1b
42	M42	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1...	H1-1b
43	M43	PIPE_2.5	.173	2.5	1	.018	2.5		1	32.06	33.743	2.393	2.393	1...	H1-1b
44	M44	PIPE_2.5	.172	0	1	.018	0		1	32.06	33.743	2.393	2.393	1...	H1-1b
45	M45	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1...	H1-1b
46	M46	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1...	H1-1b
47	M47	PIPE_2.5	.405	3.5	1	.029	3.5		1	30.524	33.743	2.393	2.393	1...	H1-1b
48	M48	PIPE_2.5	.526	0	1	.044	0		1	32.656	33.743	2.393	2.393	1...	H1-1b
49	M49	PIPE_2.5	.166	0	1	.027	0		1	33.127	33.743	2.393	2.393	1...	H1-1b
50	M50	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1...	H1-1b

Envelope AISC 13th(360-05): ASD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om...	Mnzz/om...	Cb	Eqn
51	M51	PIPE_2.5	.001	.5	2	.001	.5		1	33.674	33.743	2.393	2.393	1	H1-1b
52	M52	PIPE_2.5	.401	3.5	1	.029	3.5		1	30.524	33.743	2.393	2.393	1....	H1-1b
53	M53	PIPE_2.5	.518	0	1	.043	0		1	32.656	33.743	2.393	2.393	1....	H1-1b
54	M54	PIPE_2.5	.165	0	1	.027	0		1	33.127	33.743	2.393	2.393	1....	H1-1b
55	M55	PIPE_2.5	.001	0	2	.001	0		1	33.674	33.743	2.393	2.393	1	H1-1b
56	M56	PIPE_2.5	.001	.5	2	.001	.5		2	33.674	33.743	2.393	2.393	1....	H1-1b
57	M57	PIPE_2.5	.406	3.5	1	.029	3.5		1	30.524	33.743	2.393	2.393	1....	H1-1b
58	M58	PIPE_2.5	.527	0	1	.044	0		1	32.656	33.743	2.393	2.393	1....	H1-1b
59	M59	PIPE_2.5	.166	0	1	.027	0		1	33.127	33.743	2.393	2.393	1....	H1-1b
60	M60	PIPE_2.5	.001	0	2	.001	0		2	33.674	33.743	2.393	2.393	1....	H1-1b

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	0	1	3.556	2	-4.74	2	1.541	2	0	1	-.001	1
2		min	0	2	2.27	1	-5.617	1	1.518	1	0	2	-.003	2
3	Totals:	max	0	1	3.556	2	-4.74	2						
4		min	0	2	2.27	1	-5.617	1						

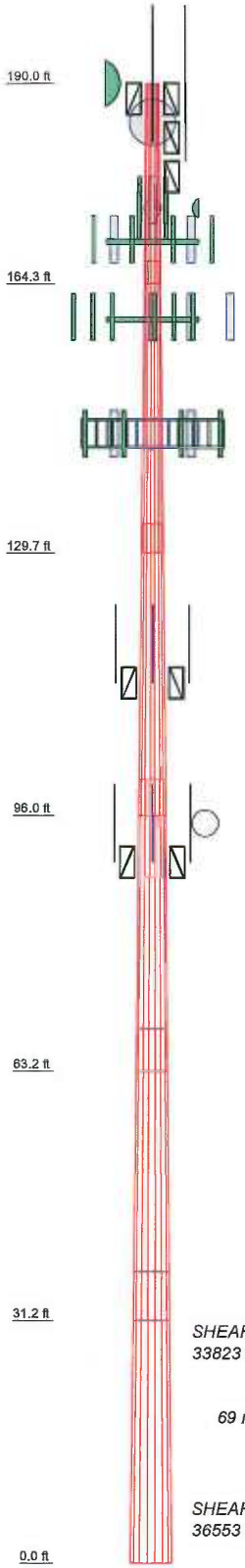
EBI Consulting
environmental | engineering | due diligence

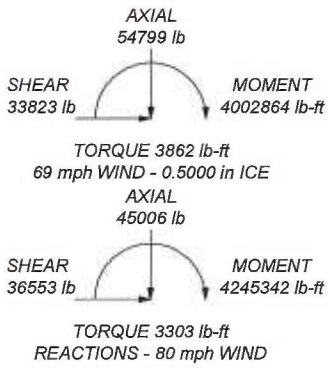
21 B Street
Burlington, MA 01803
Tel: (781) 273- 2500
Fax: (781) 273- 3311
www.ebiconsulting.com

APPENDIX B

TNX Tower Results

Section	6	5	4	3	2	1
Length (ft)	37.42	37.50	37.50	37.50	37.50	25.75
Number of Sides	18	18	18	18	18	18
Thickness (in)	0.3750	0.3750	0.3750	0.3750	0.3125	0.2500
Socket Length (ft)		6.25	5.50	4.67	3.83	2.92
Top Dia (in)	53.5352	46.4169	39.1420	31.7989	24.2824	19.5625
Bot Dia (in)	63.0000	55.8588	48.5462	41.0432	33.3500	25.4500
Grade	A572-65					
Weight (lb)	8774.1	7709.9	6602.2	5474.7	3607.7	1547.4





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1/2"x4' on 15' Pole	190	AIR21 B4A/B2P w/ mast pipe	160
3" Dia. 10' Omni	190	AIR21 B4A/B2P w/ mast pipe	160
3" Dia. 10' Omni	190	SBNHH-1D65C w/ Mount Pipe	160
PR-460	190	SBNHH-1D65C w/ Mount Pipe	160
Pirod 4' Side Mount Standoff (1)	188	SBNHH-1D65C w/ Mount Pipe	160
Pirod 4' Side Mount Standoff (1)	188	RRUS11_B12	160
Pirod 4' Side Mount Standoff (1)	188	RRUS11_B12	160
3" Dia. 10' Omni	185	RRUS11_B12	160
PR-460	185	Platform Mount [LP 303-1]	160
Pirod 4' Side Mount Standoff (1)	183	AIR21 B2A/B4P w/ mast pipe	160
Pirod 4' Side Mount Standoff (1)	183	Allgon 7770 w/ mast pipe	145
3" Dia. 10' Omni	180	Allgon 7770 w/ mast pipe	145
Pirod 4' Side Mount Standoff (1)	178	Kathrein 742-213 w/ mast pipe	145
Pirod 4' Side Mount Standoff (1)	178	Kathrein 742-213 w/ mast pipe	145
800 MHz RRH w/ 4' mast pipe	175	Kathrein 742-213 w/ mast pipe	145
800 MHz RRH w/ 4' mast pipe	175	(2) TMAs	145
800 MHz RRH w/ 4' mast pipe	175	(2) TMAs	145
Gabriel Electronics 2' Dish	174	(2) TMAs	145
Gabriel Electronics 2' Dish	174	T-Arm Mount [TA 601-3]	145
1900 MHz RRH	173	Allgon 7770 w/ mast pipe	145
1900 MHz RRH	173	Pirod 4' Side Mount Standoff (1)	113
1900 MHz RRH	173	3" Dia. 10' Omni	113
5'x1' Panel w/ pipe	170	Pirod 4' Side Mount Standoff (1)	113
5'x1' Panel w/ pipe	170	3" Dia. 10' Omni	113
3.5' Panel w/ pipe (LLPX310R)	170	Pirod 4' Side Mount Standoff (1)	113
3.5' Panel w/ pipe (LLPX310R)	170	3" Dia. 10' Omni	113
3.5' Panel w/ pipe (LLPX310R)	170	Pirod 4' Side Mount Standoff (1)	90
Platform Mount [LP 403-1]	170	3" Dia 20' Omni	90
5'x1' Panel w/ pipe	170	Pirod 4' Side Mount Standoff (1)	90
AIR21 B2A/B4P w/ mast pipe	160	3" Dia 20' Omni	90
AIR21 B2A/B4P w/ mast pipe	160	Pirod 4' Side Mount Standoff (1)	90
AIR21 B4A/B2P w/ mast pipe	160	3" Dia 20' Omni	90

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	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 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 99.4%

EBI Consulting
21 B St
Burlington, MA 01803
Phone: (781) 273 - 2500
FAX: (781) 273 - 3311

Job: CTHA149A			
Project: 81140830			
Client: T-Mobile	Drawn by: Brandon Kelsey		App'd:
Code: TIA/EIA-222-F	Date: 08/08/14		Scale: NTS
Path: C:\Users\bkelsey\Desktop\Job Notes\08-04 CTHA149A (81140830)\calcs\tnx tower\CTHA149A tower.er			Dwg No. E-1

tnxTower	Job	Page
	CTHA149A	1 of 22
EBI Consulting 21 B St Burlington, MA 01803 Phone: (781) 273 - 2500 FAX: (781) 273 - 3311	**Project** 81140830	**Date** 13:27:05 08/08/14
	Client T-Mobile	**Designed by** Brandon Kelsey

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 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
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		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends		Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		

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	190.00-164.25	25.75	2.92	18	19.5625	25.4500	0.2500	1.0000	A572-65 (65 ksi)
L2	164.25-129.67	37.50	3.83	18	24.2824	33.3500	0.3125	1.2500	A572-65 (65 ksi)
L3	129.67-96.00	37.50	4.67	18	31.7989	41.0432	0.3750	1.5000	A572-65 (65 ksi)
L4	96.00-63.17	37.50	5.50	18	39.1420	48.5462	0.3750	1.5000	A572-65 (65 ksi)
L5	63.17-31.17	37.50	6.25	18	46.4169	55.8588	0.3750	1.5000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L6	31.17-0.00	37.42		18	53.5352	63.0000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.8643	15.3245	722.1042	6.8559	9.9377	72.6627	1445.1586	7.6637	3.0030	12.012
	25.8426	19.9962	1604.3016	8.9460	12.9286	124.0893	3210.7141	10.0000	4.0392	16.157
L2	25.3739	23.7751	1725.8036	8.5093	12.3354	139.9061	3453.8781	11.8898	3.7237	11.916
	33.8645	32.7691	4518.7251	11.7283	16.9418	266.7205	9043.3961	16.3876	5.3196	17.023
L3	33.2482	37.4023	4666.1168	11.1555	16.1538	288.8550	9338.3733	18.7047	4.9366	13.164
	41.6764	48.4053	10114.4086	14.4372	20.8499	485.1048	20242.1259	24.2073	6.5636	17.503
L4	40.9350	46.1424	8761.1561	13.7623	19.8841	440.6106	17533.8403	23.0756	6.2290	16.611
	49.2951	57.3358	16808.8513	17.1008	24.6615	681.5835	33639.8202	28.6733	7.8841	21.024
L5	48.5391	54.8014	14676.9478	16.3449	23.5798	622.4375	29373.2078	27.4059	7.5094	20.025
	56.7205	66.0396	25684.6844	19.6967	28.3763	905.1466	51403.1653	33.0261	9.1711	24.456
L6	55.9663	63.2739	22590.9390	18.8719	27.1959	830.6757	45211.6037	31.6429	8.7622	23.366
	63.9719	74.5394	36933.3632	22.2319	32.0040	1154.0233	73915.3243	37.2768	10.4280	27.808

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 190.00-164.25				1	1	1		
L2 164.25-129.67				1	1	1		
L3 129.67-96.00				1	1	1		
L4 96.00-63.17				1	1	1		
L5 63.17-31.17				1	1	1		
L6 31.17-0.00				1	1	1		

Monopole Base Plate Data

Base Plate Data	
Base plate is square	
Base plate is grouted	
Anchor bolt grade	F1554-105
Anchor bolt size	1.2500 in
Number of bolts	44
Embedment length	51.5000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	1.5000 in
Bolt circle diameter	68.0000 in
Outer diameter	74.0000 in
Inner diameter	62.0000 in
Base plate type	Stiffened Plate

Base Plate Data	
Bolts per stiffener	1
Stiffener thickness	0.5000 in
Stiffener height	10.0000 in

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 plf
LDF5-50A (7/8 FOAM)	B	No	Inside Pole	6.00 - 190.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	C	No	Inside Pole	6.00 - 190.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	6.00 - 185.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	B	No	Inside Pole	6.00 - 180.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	8.00 - 170.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (Out Of Face)	8.00 - 160.00	7	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	8.00 - 150.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	8.00 - 150.00	4	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	CaAa (Out Of Face)	8.00 - 150.00	2	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
LDF4RN-50A (1/2 FOAM)	A	No	Inside Pole	6.00 - 113.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
LDF4RN-50A (1/2 FOAM)	A	No	Inside Pole	6.00 - 90.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
LDF6-50A (1-1/4 FOAM)	A	No	CaAa (Out Of Face)	8.00 - 160.00	1	No Ice	0.00	1.61
						1/2" Ice	0.00	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	190.00-164.25	A	0.000	0.000	0.000	0.000	13.70
		B	0.000	0.000	0.000	0.000	13.70
		C	0.000	0.000	0.000	0.000	45.28
L2	164.25-129.67	A	0.000	0.000	0.000	42.037	245.75
		B	0.000	0.000	0.000	0.000	122.85
		C	0.000	0.000	0.000	8.051	292.98
L3	129.67-96.00	A	0.000	0.000	0.000	46.667	277.35
		B	0.000	0.000	0.000	0.000	187.88
		C	0.000	0.000	0.000	13.333	353.54
L4	96.00-63.17	A	0.000	0.000	0.000	45.502	289.82
		B	0.000	0.000	0.000	0.000	183.19
		C	0.000	0.000	0.000	13.001	344.71
L5	63.17-31.17	A	0.000	0.000	0.000	44.352	285.12
		B	0.000	0.000	0.000	0.000	178.56
		C	0.000	0.000	0.000	12.672	336.00
L6	31.17-0.00	A	0.000	0.000	0.000	32.114	209.56
		B	0.000	0.000	0.000	0.000	130.61
		C	0.000	0.000	0.000	9.175	244.60

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	190.00-164.25	A	0.500	0.000	0.000	0.000	0.000	13.70
		B		0.000	0.000	0.000	0.000	13.70
		C		0.000	0.000	0.000	0.000	45.28
L2	164.25-129.67	A	0.500	0.000	0.000	0.000	63.268	518.56
		B		0.000	0.000	0.000	0.000	122.85
		C		0.000	0.000	0.000	12.117	354.58
L3	129.67-96.00	A	0.500	0.000	0.000	0.000	70.235	580.20
		B		0.000	0.000	0.000	0.000	187.88
		C		0.000	0.000	0.000	20.067	455.55
L4	96.00-63.17	A	0.500	0.000	0.000	0.000	68.482	585.11
		B		0.000	0.000	0.000	0.000	183.19
		C		0.000	0.000	0.000	19.566	444.19
L5	63.17-31.17	A	0.500	0.000	0.000	0.000	66.751	572.95
		B		0.000	0.000	0.000	0.000	178.56
		C		0.000	0.000	0.000	19.072	432.96
L6	31.17-0.00	A	0.500	0.000	0.000	0.000	48.332	417.97
		B		0.000	0.000	0.000	0.000	130.61
		C		0.000	0.000	0.000	13.809	314.81

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	190.00-164.25	0.0000	0.0000	0.0000	0.0000
L2	164.25-129.67	-0.2007	-1.0469	-0.2496	-1.3021
L3	129.67-96.00	-0.3257	-1.1281	-0.4076	-1.4120
L4	96.00-63.17	-0.3473	-1.2030	-0.4432	-1.5353
L5	63.17-31.17	-0.3642	-1.2615	-0.4720	-1.6351
L6	31.17-0.00	-0.2961	-1.0258	-0.3978	-1.3779

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod 1/2"x4' on 15' Pole	B	None		0.0000	190.00	No Ice	5.45	5.45	128.70
						1/2" Ice	7.40	7.40	187.46
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
3" Dia. 10' Omni	A	From Leg	4.00 0.00	0.0000	190.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	23.00 44.79

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			5.00						
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
3" Dia. 10' Omni	B	From Leg	4.00 0.00 5.00	0.0000	190.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	23.00 44.79
Pirod 4' Side Mount Standoff (1)	C	From Leg	2.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
PR-460	C	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice	6.35 11.43	6.35 11.43	38.00 49.40
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	183.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
3" Dia. 10' Omni	B	From Leg	4.00 0.00 5.00	0.0000	185.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	23.00 44.79
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	183.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
PR-460	A	From Leg	4.00 0.00 0.00	0.0000	185.00	No Ice 1/2" Ice	6.35 11.43	6.35 11.43	38.00 49.40
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice	2.72 4.91	1.36 2.46	50.00 89.00
3" Dia. 10' Omni	B	From Leg	4.00 0.00 5.00	0.0000	180.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	23.00 44.79
800 MHz RRH w/ 4' mast pipe	A	From Leg	1.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.99 3.35	3.23 3.68	87.16 121.87
800 MHz RRH w/ 4' mast pipe	B	From Leg	1.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.99 3.35	3.23 3.68	87.16 121.87
800 MHz RRH w/ 4' mast pipe	C	From Leg	1.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.99 3.35	3.23 3.68	87.16 121.87
1900 MHz RRH	A	From Leg	1.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice	2.18 2.38	1.48 1.66	46.00 62.23
1900 MHz RRH	B	From Leg	1.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice	2.18 2.38	1.48 1.66	46.00 62.23
1900 MHz RRH	C	From Leg	1.00 0.00 0.00	0.0000	173.00	No Ice 1/2" Ice	2.18 2.38	1.48 1.66	46.00 62.23
Platform Mount [LP 403-1]	A	None		0.0000	170.00	No Ice 1/2" Ice	18.85 24.30	18.85 24.30	1500.00 1796.56
5'x1' Panel w/ pipe	A	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.24 7.79	4.20 5.07	81.90 130.52

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
5'x1' Panel w/ pipe	B	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.24 7.79	4.20 5.07	81.90 130.52
5'x1' Panel w/ pipe	C	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.24 7.79	4.20 5.07	81.90 130.52
3.5' Panel w/ pipe (LLPX310R)	A	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	5.54 6.04	3.66 4.30	64.74 109.30
3.5' Panel w/ pipe (LLPX310R)	B	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	5.54 6.04	3.66 4.30	64.74 109.30
3.5' Panel w/ pipe (LLPX310R)	C	From Leg	5.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	5.54 6.04	3.66 4.30	64.74 109.30
Platform Mount [LP 303-1]	A	None		0.0000	160.00	No Ice 1/2" Ice	14.66 18.87	14.66 18.87	1250.00 1481.33
AIR21 B2A/B4P w/ mast pipe	A	From Leg	5.00 5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.87 7.38	6.29 7.05	134.62 203.81
AIR21 B2A/B4P w/ mast pipe	B	From Leg	5.00 5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.87 7.38	6.29 7.05	134.62 203.81
AIR21 B2A/B4P w/ mast pipe	C	From Leg	5.00 5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.87 7.38	6.29 7.05	134.62 203.81
AIR21 B4A/B2P w/ mast pipe	A	From Leg	5.00 -5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.85 7.41	5.78 6.70	126.90 182.26
AIR21 B4A/B2P w/ mast pipe	B	From Leg	5.00 -5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.85 7.41	5.78 6.70	126.90 182.26
AIR21 B4A/B2P w/ mast pipe	C	From Leg	5.00 -5.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.85 7.41	5.78 6.70	126.90 182.26
SBNHH-1D65C w/ Mount Pipe	A	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
SBNHH-1D65C w/ Mount Pipe	B	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
SBNHH-1D65C w/ Mount Pipe	C	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
RRUS11_B12	A	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
RRUS11_B12	B	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
RRUS11_B12	C	From Leg	5.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
T-Arm Mount [TA 601-3]	A	None		0.0000	145.00	No Ice 1/2" Ice	10.90 14.65	10.90 14.65	726.00 925.56
Allgon 7770 w/ mast pipe	A	From Leg	2.00 2.00	0.0000	145.00	No Ice 1/2" Ice	5.92 6.36	2.91 3.26	27.00 59.64

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			1.00						
Allgon 7770 w/ mast pipe	B	From Leg	2.00	0.0000	145.00	No Ice	5.92	2.91	27.00
			2.00			1/2" Ice	6.36	3.26	59.64
			1.00						
Allgon 7770 w/ mast pipe	C	From Leg	2.00	0.0000	145.00	No Ice	5.92	2.91	27.00
			2.00			1/2" Ice	6.36	3.26	59.64
			1.00						
Kathrein 742-213 w/ mast pipe	A	From Leg	2.00	0.0000	145.00	No Ice	5.14	4.80	75.48
			-2.00			1/2" Ice	5.61	5.78	123.59
			1.00						
Kathrein 742-213 w/ mast pipe	B	From Leg	2.00	0.0000	145.00	No Ice	5.14	4.80	75.48
			-2.00			1/2" Ice	5.61	5.78	123.59
			1.00						
Kathrein 742-213 w/ mast pipe	C	From Leg	2.00	0.0000	145.00	No Ice	5.14	4.80	75.48
			-2.00			1/2" Ice	5.61	5.78	123.59
			1.00						
(2) TMAs	A	From Leg	2.00	0.0000	145.00	No Ice	0.59	0.78	50.00
			0.00			1/2" Ice	0.69	0.90	57.31
			1.00						
(2) TMAs	B	From Leg	2.00	0.0000	145.00	No Ice	0.59	0.78	50.00
			0.00			1/2" Ice	0.69	0.90	57.31
			1.00						
(2) TMAs	C	From Leg	2.00	0.0000	145.00	No Ice	0.59	0.78	50.00
			0.00			1/2" Ice	0.69	0.90	57.31
			1.00						
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00	0.0000	113.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00
			0.00						
3" Dia. 10' Omni	A	From Leg	4.00	0.0000	113.00	No Ice	3.00	3.00	23.00
			0.00			1/2" Ice	4.03	4.03	44.79
			5.00						
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	113.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00
			0.00						
3" Dia. 10' Omni	B	From Leg	4.00	0.0000	113.00	No Ice	3.00	3.00	23.00
			0.00			1/2" Ice	4.03	4.03	44.79
			5.00						
Pirod 4' Side Mount Standoff (1)	C	From Leg	2.00	0.0000	113.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00
			0.00						
3" Dia. 10' Omni	C	From Leg	4.00	0.0000	113.00	No Ice	3.00	3.00	23.00
			0.00			1/2" Ice	4.03	4.03	44.79
			5.00						
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00	0.0000	90.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00
			0.00						
3" Dia 20' Omni	A	From Leg	4.00	0.0000	90.00	No Ice	4.00	4.00	55.00
			0.00			1/2" Ice	6.00	6.00	100.00
			5.00						
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	90.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00
			0.00						
3" Dia 20' Omni	B	From Leg	4.00	0.0000	90.00	No Ice	4.00	4.00	55.00
			0.00			1/2" Ice	6.00	6.00	100.00
			5.00						
Pirod 4' Side Mount Standoff (1)	C	From Leg	2.00	0.0000	90.00	No Ice	2.72	1.36	50.00
			0.00			1/2" Ice	4.91	2.46	89.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
3" Dia 20' Omni	C	From Leg	0.00 4.00 0.00 5.00	0.0000	90.00	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	55.00 100.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
Gabriel Electronics 2' Dish	A	Paraboloid w/Radome	From Leg	5.00 0.00 0.00	0.0000		174.00	2.42	No Ice 1/2" Ice	4.59 4.91	65.00 115.00
Gabriel Electronics 2' Dish	B	Paraboloid w/o Radome	From Leg	5.00 0.00 0.00	0.0000		174.00	2.42	No Ice 1/2" Ice	4.59 4.91	65.00 115.00

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 190.00-164.25	176.56	1.615	26	48.295	A	0.000	48.295	48.295	100.00	0.000	0.000
					B	0.000	48.295		100.00	0.000	0.000
					C	0.000	48.295		100.00	0.000	0.000
L2 164.25-129.67	146.28	1.53	25	84.056	A	0.000	84.056	84.056	100.00	0.000	42.037
					B	0.000	84.056		100.00	0.000	0.000
					C	0.000	84.056		100.00	0.000	8.051
L3 129.67-96.00	112.38	1.419	23	103.516	A	0.000	103.516	103.516	100.00	0.000	46.667
					B	0.000	103.516		100.00	0.000	0.000
					C	0.000	103.516		100.00	0.000	13.333
L4 96.00-63.17	79.32	1.285	21	121.552	A	0.000	121.552	121.552	100.00	0.000	45.502
					B	0.000	121.552		100.00	0.000	0.000
					C	0.000	121.552		100.00	0.000	13.001
L5 63.17-31.17	47.15	1.107	18	138.214	A	0.000	138.214	138.214	100.00	0.000	44.352
					B	0.000	138.214		100.00	0.000	0.000
					C	0.000	138.214		100.00	0.000	12.672
L6 31.17-0.00	15.24	1	16	153.403	A	0.000	153.403	153.403	100.00	0.000	32.114
					B	0.000	153.403		100.00	0.000	0.000
					C	0.000	153.403		100.00	0.000	9.175

Tower Pressure - With Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 190.00-164.25	176.56	1.615	20	0.5000	50.440	A	0.000	50.440	50.440	100.00	0.000	0.000
						B	0.000	50.440		100.00	0.000	0.000
						C	0.000	50.440		100.00	0.000	0.000
L2 164.25-129.67	146.28	1.53	19	0.5000	86.938	A	0.000	86.938	86.938	100.00	0.000	63.268
						B	0.000	86.938		100.00	0.000	0.000
						C	0.000	86.938		100.00	0.000	12.117
L3 129.67-96.00	112.38	1.419	17	0.5000	106.322	A	0.000	106.322	106.322	100.00	0.000	70.235
						B	0.000	106.322		100.00	0.000	0.000
						C	0.000	106.322		100.00	0.000	20.067
L4 96.00-63.17	79.32	1.285	16	0.5000	124.288	A	0.000	124.288	124.288	100.00	0.000	68.482
						B	0.000	124.288		100.00	0.000	0.000
						C	0.000	124.288		100.00	0.000	19.566
L5 63.17-31.17	47.15	1.107	14	0.5000	140.881	A	0.000	140.881	140.881	100.00	0.000	66.751
						B	0.000	140.881		100.00	0.000	0.000
						C	0.000	140.881		100.00	0.000	19.072
L6 31.17-0.00	15.24	1	12	0.5000	156.001	A	0.000	156.001	156.001	100.00	0.000	48.332
						B	0.000	156.001		100.00	0.000	0.000
						C	0.000	156.001		100.00	0.000	13.809

Tower Pressure - Service

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 190.00-164.25	176.56	1.615	10	48.295	A	0.000	48.295	48.295	100.00	0.000	0.000
					B	0.000	48.295		100.00	0.000	0.000
					C	0.000	48.295		100.00	0.000	0.000
L2 164.25-129.67	146.28	1.53	10	84.056	A	0.000	84.056	84.056	100.00	0.000	42.037
					B	0.000	84.056		100.00	0.000	0.000
					C	0.000	84.056		100.00	0.000	8.051
L3 129.67-96.00	112.38	1.419	9	103.516	A	0.000	103.516	103.516	100.00	0.000	46.667
					B	0.000	103.516		100.00	0.000	0.000
					C	0.000	103.516		100.00	0.000	13.333
L4 96.00-63.17	79.32	1.285	8	121.552	A	0.000	121.552	121.552	100.00	0.000	45.502
					B	0.000	121.552		100.00	0.000	0.000
					C	0.000	121.552		100.00	0.000	13.001
L5 63.17-31.17	47.15	1.107	7	138.214	A	0.000	138.214	138.214	100.00	0.000	44.352
					B	0.000	138.214		100.00	0.000	0.000
					C	0.000	138.214		100.00	0.000	12.672
L6 31.17-0.00	15.24	1	6	153.403	A	0.000	153.403	153.403	100.00	0.000	32.114
					B	0.000	153.403		100.00	0.000	0.000
					C	0.000	153.403		100.00	0.000	9.175

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	1403.56	54.51	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	4434.46	128.24	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	4996.81	148.41	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	4882.16	148.71	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	4478.70	139.96	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	3904.17	125.25	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	2115946.2 4 lb-ft	24099.86		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	1403.56	54.51	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	4434.46	128.24	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	4996.81	148.41	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	4882.16	148.71	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	4478.70	139.96	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	3904.17	125.25	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	2115946.2 4 lb-ft	24099.86		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	1403.56	54.51	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	4434.46	128.24	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	4996.81	148.41	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	4882.16	148.71	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	4478.70	139.96	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	3904.17	125.25	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	2115946.24 lb-ft	24099.86		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1913.05	A	1	0.65	1	1	1	50.440	1099.44	42.70	C
190.00-164.25			B	1	0.65	1	1	1	50.440			
			C	1	0.65	1	1	1	50.440			
L2	995.98	4240.84	A	1	0.65	1	1	1	86.938	4188.68	121.13	C
164.25-129.67			B	1	0.65	1	1	1	86.938			
			C	1	0.65	1	1	1	86.938			
L3	1223.63	6251.76	A	1	0.65	1	1	1	106.322	4693.46	139.40	C
129.67-96.00			B	1	0.65	1	1	1	106.322			
			C	1	0.65	1	1	1	106.322			
L4	1212.49	7512.50	A	1	0.65	1	1	1	124.288	4495.71	136.94	C
96.00-63.17			B	1	0.65	1	1	1	124.288			
			C	1	0.65	1	1	1	124.288			
L5	1184.46	8743.43	A	1	0.65	1	1	1	140.881	4057.35	126.79	C
63.17-31.17			B	1	0.65	1	1	1	140.881			
			C	1	0.65	1	1	1	140.881			
L6 31.17-0.00	863.39	9919.78	A	1	0.65	1	1	1	156.001	3396.22	108.96	C
			B	1	0.65	1	1	1	156.001			
			C	1	0.65	1	1	1	156.001			
Sum Weight:	5552.62	38581.34						OTM	1933946.54 lb-ft	21930.85		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1913.05	A	1	0.65	1	1	1	50.440	1099.44	42.70	C
190.00-164.25			B	1	0.65	1	1	1	50.440			
			C	1	0.65	1	1	1	50.440			
L2	995.98	4240.84	A	1	0.65	1	1	1	86.938	4188.68	121.13	C
164.25-129.67			B	1	0.65	1	1	1	86.938			
			C	1	0.65	1	1	1	86.938			
L3	1223.63	6251.76	A	1	0.65	1	1	1	106.322	4693.46	139.40	C
129.67-96.00			B	1	0.65	1	1	1	106.322			
			C	1	0.65	1	1	1	106.322			
L4	1212.49	7512.50	A	1	0.65	1	1	1	124.288	4495.71	136.94	C
96.00-63.17			B	1	0.65	1	1	1	124.288			
			C	1	0.65	1	1	1	124.288			
L5	1184.46	8743.43	A	1	0.65	1	1	1	140.881	4057.35	126.79	C
63.17-31.17			B	1	0.65	1	1	1	140.881			
			C	1	0.65	1	1	1	140.881			
L6 31.17-0.00	863.39	9919.78	A	1	0.65	1	1	1	156.001	3396.22	108.96	C
			B	1	0.65	1	1	1	156.001			
			C	1	0.65	1	1	1	156.001			
Sum Weight:	5552.62	38581.34						OTM	1933946.5 4 lb-ft	21930.85		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1913.05	A	1	0.65	1	1	1	50.440	1099.44	42.70	C
190.00-164.25			B	1	0.65	1	1	1	50.440			
			C	1	0.65	1	1	1	50.440			
L2	995.98	4240.84	A	1	0.65	1	1	1	86.938	4188.68	121.13	C
164.25-129.67			B	1	0.65	1	1	1	86.938			
			C	1	0.65	1	1	1	86.938			
L3	1223.63	6251.76	A	1	0.65	1	1	1	106.322	4693.46	139.40	C
129.67-96.00			B	1	0.65	1	1	1	106.322			
			C	1	0.65	1	1	1	106.322			
L4	1212.49	7512.50	A	1	0.65	1	1	1	124.288	4495.71	136.94	C
96.00-63.17			B	1	0.65	1	1	1	124.288			
			C	1	0.65	1	1	1	124.288			
L5	1184.46	8743.43	A	1	0.65	1	1	1	140.881	4057.35	126.79	C
63.17-31.17			B	1	0.65	1	1	1	140.881			
			C	1	0.65	1	1	1	140.881			
L6 31.17-0.00	863.39	9919.78	A	1	0.65	1	1	1	156.001	3396.22	108.96	C
			B	1	0.65	1	1	1	156.001			
			C	1	0.65	1	1	1	156.001			
Sum Weight:	5552.62	38581.34						OTM	1933946.5 4 lb-ft	21930.85		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	548.26	21.29	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	1732.21	50.09	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	1951.88	57.97	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	1907.10	58.09	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	1749.49	54.67	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	1525.07	48.93	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	826541.50 lb-ft	9414.01		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	548.26	21.29	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	1732.21	50.09	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	1951.88	57.97	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	1907.10	58.09	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	1749.49	54.67	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	1525.07	48.93	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	826541.50 lb-ft	9414.01		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	72.67	1547.43	A	1	0.65	1	1	1	48.295	548.26	21.29	C
190.00-164.25			B	1	0.65	1	1	1	48.295			
			C	1	0.65	1	1	1	48.295			
L2	661.57	3607.65	A	1	0.65	1	1	1	84.056	1732.21	50.09	C
164.25-129.67			B	1	0.65	1	1	1	84.056			
			C	1	0.65	1	1	1	84.056			
L3	818.76	5474.73	A	1	0.65	1	1	1	103.516	1951.88	57.97	C
129.67-96.00			B	1	0.65	1	1	1	103.516			
			C	1	0.65	1	1	1	103.516			
L4	817.72	6602.15	A	1	0.65	1	1	1	121.552	1907.10	58.09	C
96.00-63.17			B	1	0.65	1	1	1	121.552			
			C	1	0.65	1	1	1	121.552			
L5	799.68	7709.94	A	1	0.65	1	1	1	138.214	1749.49	54.67	C
63.17-31.17			B	1	0.65	1	1	1	138.214			
			C	1	0.65	1	1	1	138.214			
L6 31.17-0.00	584.78	8774.05	A	1	0.65	1	1	1	153.403	1525.07	48.93	C
			B	1	0.65	1	1	1	153.403			
			C	1	0.65	1	1	1	153.403			
Sum Weight:	3755.19	33715.95						OTM	826541.50 lb-ft	9414.01		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	33715.95					
Bracing Weight	0.00					
Total Member Self-Weight	33715.95			-2181.81	-344.93	
Total Weight	45006.20			-2181.81	-344.93	
Wind 0 deg - No Ice		-320.00	-36483.06	-4094866.58	55679.98	498.23
Wind 30 deg - No Ice		18081.82	-31429.21	-3517485.94	-2018399.58	-1009.34
Wind 60 deg - No Ice		31409.04	-18087.05	-2021345.69	-3511794.52	-2084.91
Wind 90 deg - No Ice		36329.08	90.03	13828.80	-4065840.37	-2735.69
Wind 120 deg - No Ice		31552.24	18304.31	2055383.02	-3537056.96	-3066.31
Wind 150 deg - No Ice		18261.32	31620.22	3546703.96	-2050230.22	-2537.30
Wind 180 deg - No Ice		87.18	36434.46	4082047.88	-15859.29	-874.04
Wind 210 deg - No Ice		-18105.61	31481.10	3522151.28	2021849.68	1097.06
Wind 240 deg - No Ice		-31629.08	17979.17	1998211.36	3549392.69	2568.08
Wind 270 deg - No Ice		-36424.25	-190.25	-35629.53	4081708.93	3324.77
Wind 300 deg - No Ice		-31608.91	-18303.11	-2059538.28	3546227.44	2958.95
Wind 330 deg - No Ice		-18414.76	-31575.89	-3543353.96	2076239.00	1860.50
Member Ice	4865.39					
Total Weight Ice	54798.74			-4493.82	-335.03	
Wind 0 deg - Ice		-285.96	-33750.08	-3821095.13	49889.17	45.70
Wind 30 deg - Ice		16704.71	-29080.59	-3283811.08	-1878325.33	-1722.76
Wind 60 deg - Ice		29035.18	-16725.79	-1886420.23	-3271283.69	-2900.00
Wind 90 deg - Ice		33592.80	101.46	13627.43	-3789030.31	-3407.58
Wind 120 deg - Ice		29179.30	16950.72	1917379.74	-3296827.57	-3333.34
Wind 150 deg - Ice		16899.35	29263.07	3307041.71	-1913001.20	-2335.43
Wind 180 deg - Ice		99.17	33711.09	3805324.09	-18058.16	-347.21
Wind 210 deg - Ice		-16723.80	29122.22	3282067.26	1880976.71	1793.14
Wind 240 deg - Ice		-29211.72	16639.24	1862373.10	3301331.62	3287.64
Wind 270 deg - Ice		-33669.14	-181.86	-36604.64	3801644.86	3880.19
Wind 300 deg - Ice		-29224.76	-16949.76	-1926200.21	3304068.33	3247.20

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 330 deg - Ice		-17022.46	-29227.50	-3309840.81	1933751.11	1792.44
Total Weight	45006.20			-2181.81	-344.93	
Wind 0 deg - Service		-125.00	-14251.19	-1599080.49	21165.06	194.62
Wind 30 deg - Service		7063.21	-12277.03	-1373541.18	-789022.27	-394.27
Wind 60 deg - Service		12269.15	-7065.25	-789111.40	-1372379.67	-814.42
Wind 90 deg - Service		14191.05	35.17	5878.64	-1588803.82	-1068.63
Wind 120 deg - Service		12325.09	7150.12	803360.76	-1382247.81	-1197.78
Wind 150 deg - Service		7133.33	12351.65	1385908.00	-801456.11	-991.13
Wind 180 deg - Service		34.05	14232.21	1595026.72	-6779.97	-341.42
Wind 210 deg - Service		-7072.50	12297.30	1376317.11	789200.10	428.54
Wind 240 deg - Service		-12355.11	7023.11	781028.08	1385896.59	1003.16
Wind 270 deg - Service		-14228.22	-74.31	-13441.02	1593832.62	1298.74
Wind 300 deg - Service		-12347.23	-7149.65	-804030.38	1384660.16	1155.84
Wind 330 deg - Service		-7193.26	-12334.33	-1383645.88	810445.93	726.76

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

Comb. No.	Description
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	190 - 164.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-6122.01	-1410.61	620.93
			Max. Mx	18	-5575.27	-75989.61	-632.55
			Max. My	15	-5554.56	1151.83	76854.99
			Max. Vy	11	-6817.44	70104.43	1970.16
			Max. Vx	2	-6878.40	1959.90	72006.16
			Max. Torque	7			1956.48
L2	164.25 - 129.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-16308.64	-1349.35	1164.41
			Max. Mx	11	-11100.47	502805.81	8934.68
			Max. My	2	-11089.39	13183.57	506989.05
			Max. Vy	11	-17250.89	502805.81	8934.68
			Max. Vx	2	-17313.87	13183.57	506989.05
			Max. Torque	7			2066.83
L3	129.67 - 96	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23749.59	-1169.34	1878.16
			Max. Mx	11	-17224.31	1158599.17	15897.62
			Max. My	2	-17215.19	24303.92	1165096.97
			Max. Vy	11	-22791.90	1158599.17	15897.62
			Max. Vx	2	-22855.25	24303.92	1165096.97
			Max. Torque	24			-2273.17
L4	96 - 63.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32662.72	-935.70	2687.54
			Max. Mx	11	-24852.34	1981514.64	22732.72
			Max. My	2	-24845.78	35160.11	1990315.50
			Max. Vy	11	-28190.91	1981514.64	22732.72
			Max. Vx	2	-28253.97	35160.11	1990315.50
			Max. Torque	24			-2824.07
L5	63.17 - 31.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42185.31	-669.62	3609.25
			Max. Mx	11	-33432.64	2929901.72	29383.86
			Max. My	2	-33429.00	45669.33	2940973.75
			Max. Vy	11	-32353.59	2929901.72	29383.86
			Max. Vx	2	-32415.44	45669.33	2940973.75
			Max. Torque	24			-3365.16
L6	31.17 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-54798.74	-388.39	4583.42
			Max. Mx	11	-44989.16	4219230.24	37090.83
			Max. My	2	-44989.08	57964.62	4232909.10
			Max. Vy	11	-36445.30	4219230.24	37090.83
			Max. Vx	2	-36504.19	57964.62	4232909.10
			Max. Torque	24			-3861.75

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	15	54798.74	285.96	33750.11
	Max. H_x	11	45006.20	36424.25	190.25
	Max. H_z	2	45006.20	320.00	36483.07
	Max. M_x	2	4232909.10	320.00	36483.07
	Max. M_z	5	4202800.17	-36329.09	-90.03
	Max. Torsion	18	3395.54	-33592.83	-101.46
	Min. Vert	1	45006.20	-0.00	0.00
	Min. H_x	5	45006.20	-36329.09	-90.03
	Min. H_z	8	45006.20	-87.18	-36434.46
	Min. M_x	8	-4219611.65	-87.18	-36434.46
	Min. M_z	11	-4219230.24	36424.25	190.25
	Min. Torsion	24	-3861.78	33669.18	181.86

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	45006.20	0.00	-0.00	-2187.63	-350.19	-0.04
Dead+Wind 0 deg - No Ice	45006.20	-320.00	-36483.07	-4232909.10	57964.70	488.61
Dead+Wind 30 deg - No Ice	45006.20	18081.82	-31429.21	-3635962.80	-2086302.69	-1012.28
Dead+Wind 60 deg - No Ice	45006.20	31409.04	-18087.05	-2089351.78	-3630062.02	-2079.65
Dead+Wind 90 deg - No Ice	45006.20	36329.09	90.03	14419.88	-4202800.17	-2721.64
Dead+Wind 120 deg - No Ice	45006.20	31552.24	18304.31	2124764.72	-3656253.24	-3042.62
Dead+Wind 150 deg - No Ice	45006.20	18261.32	31620.22	3666285.14	-2119377.94	-2510.96
Dead+Wind 180 deg - No Ice	45006.20	87.18	36434.46	4219611.65	-16536.04	-857.22
Dead+Wind 210 deg - No Ice	45006.20	-18105.61	31481.10	3640805.18	2089837.32	1098.93
Dead+Wind 240 deg - No Ice	45006.20	-31629.08	17979.17	2065247.21	3669098.25	2554.20
Dead+Wind 270 deg - No Ice	45006.20	-36424.25	-190.25	-37090.37	4219230.24	3302.51
Dead+Wind 300 deg - No Ice	45006.20	-31608.91	-18303.11	-2129049.51	3665748.87	2936.41
Dead+Wind 330 deg - No Ice	45006.20	-18414.76	-31575.89	-3662758.93	2146422.11	1843.32
Dead+Ice+Temp	54798.74	0.00	-0.00	-4583.42	-388.39	-0.08
Dead+Wind 0 deg+Ice+Temp	54798.74	-285.96	-33750.11	-3990017.42	52547.95	46.08
Dead+Wind 30 deg+Ice+Temp	54798.74	16704.72	-29080.59	-3428813.67	-1961143.73	-1718.09
Dead+Wind 60 deg+Ice+Temp	54798.74	29035.18	-16725.79	-1969609.11	-3415684.17	-2891.30
Dead+Wind 90 deg+Ice+Temp	54798.74	33592.83	101.46	14407.96	-3956353.25	-3395.54
Dead+Wind 120 deg+Ice+Temp	54798.74	29179.30	16950.72	2002260.62	-3442512.56	-3317.73
Dead+Wind 150 deg+Ice+Temp	54798.74	16899.35	29263.07	3453240.77	-1997649.87	-2321.00
Dead+Wind 180 deg+Ice+Temp	54798.74	99.17	33711.12	3973442.49	-19114.33	-341.57
Dead+Wind 210 deg+Ice+Temp	54798.74	-16723.80	29122.22	3426990.94	1963794.68	1787.84
Dead+Wind 240 deg+Ice+Temp	54798.74	-29211.72	16639.24	1944277.29	3447181.76	3272.21
Dead+Wind 270 deg+Ice+Temp	54798.74	-33669.18	-181.86	-38578.91	3969492.27	3861.78
Dead+Wind 300 deg+Ice+Temp	54798.74	-29224.76	-16949.76	-2011502.65	3450018.34	3232.31
Dead+Wind 330 deg+Ice+Temp	54798.74	-17022.46	-29227.50	-3456142.25	2019405.65	1785.02
Dead+Wind 0 deg - Service	45006.20	-125.00	-14251.20	-1656535.49	22437.90	193.24
Dead+Wind 30 deg - Service	45006.20	7063.21	-12277.03	-1423077.79	-815993.42	-395.88
Dead+Wind 60 deg - Service	45006.20	12269.15	-7065.25	-818338.80	-1419612.99	-815.44
Dead+Wind 90 deg - Service	45006.20	14191.06	35.17	4250.04	-1643570.83	-1068.61
Dead+Wind 120 deg - Service	45006.20	12325.09	7150.12	829432.12	-1429898.16	-1196.43
Dead+Wind 150 deg - Service	45006.20	7133.33	12351.65	1432200.71	-828958.73	-988.84
Dead+Wind 180 deg - Service	45006.20	34.05	14232.22	1648541.76	-6706.51	-339.10
Dead+Wind 210 deg - Service	45006.20	-7072.50	12297.30	1422201.77	816909.22	430.13
Dead+Wind 240 deg - Service	45006.20	-12355.11	7023.11	806141.15	1434433.20	1003.19
Dead+Wind 270 deg - Service	45006.20	-14228.23	-74.31	-15901.08	1649542.63	1297.90
Dead+Wind 300 deg - Service	45006.20	-12347.23	-7149.65	-833895.67	1433145.31	1154.49
Dead+Wind 330 deg - Service	45006.20	-7193.26	-12334.33	-1433608.50	839065.27	725.27

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-45006.20	0.00	-0.00	45006.20	0.00	0.000%
2	-320.00	-45006.20	-36483.06	320.00	45006.20	36483.07	0.000%
3	18081.82	-45006.20	-31429.21	-18081.82	45006.20	31429.21	0.000%
4	31409.04	-45006.20	-18087.05	-31409.04	45006.20	18087.05	0.000%
5	36329.08	-45006.20	90.03	-36329.09	45006.20	-90.03	0.000%
6	31552.24	-45006.20	18304.31	-31552.24	45006.20	-18304.31	0.000%
7	18261.32	-45006.20	31620.22	-18261.32	45006.20	-31620.22	0.000%
8	87.18	-45006.20	36434.46	-87.18	45006.20	-36434.46	0.000%
9	-18105.61	-45006.20	31481.10	18105.61	45006.20	-31481.10	0.000%
10	-31629.08	-45006.20	17979.17	31629.08	45006.20	-17979.17	0.000%
11	-36424.25	-45006.20	-190.25	36424.25	45006.20	190.25	0.000%
12	-31608.91	-45006.20	-18303.11	31608.91	45006.20	18303.11	0.000%
13	-18414.76	-45006.20	-31575.89	18414.76	45006.20	31575.89	0.000%
14	0.00	-54798.74	0.00	-0.00	54798.74	0.00	0.000%
15	-285.96	-54798.74	-33750.08	285.96	54798.74	33750.11	0.000%
16	16704.71	-54798.74	-29080.59	-16704.72	54798.74	29080.59	0.000%
17	29035.18	-54798.74	-16725.79	-29035.18	54798.74	16725.79	0.000%
18	33592.80	-54798.74	101.46	-33592.83	54798.74	-101.46	0.000%
19	29179.30	-54798.74	16950.72	-29179.30	54798.74	-16950.72	0.000%
20	16899.35	-54798.74	29263.07	-16899.35	54798.74	-29263.07	0.000%
21	99.17	-54798.74	33711.09	-99.17	54798.74	-33711.12	0.000%
22	-16723.80	-54798.74	29122.22	16723.80	54798.74	-29122.22	0.000%
23	-29211.72	-54798.74	16639.24	29211.72	54798.74	-16639.24	0.000%
24	-33669.14	-54798.74	-181.86	33669.18	54798.74	181.86	0.000%
25	-29224.76	-54798.74	-16949.76	29224.76	54798.74	16949.76	0.000%
26	-17022.46	-54798.74	-29227.50	17022.46	54798.74	29227.50	0.000%
27	-125.00	-45006.20	-14251.19	125.00	45006.20	14251.20	0.000%
28	7063.21	-45006.20	-12277.03	-7063.21	45006.20	12277.03	0.000%
29	12269.15	-45006.20	-7065.25	-12269.15	45006.20	7065.25	0.000%
30	14191.05	-45006.20	35.17	-14191.06	45006.20	-35.17	0.000%
31	12325.09	-45006.20	7150.12	-12325.09	45006.20	-7150.12	0.000%
32	7133.33	-45006.20	12351.65	-7133.33	45006.20	-12351.65	0.000%
33	34.05	-45006.20	14232.21	-34.05	45006.20	-14232.22	0.000%
34	-7072.50	-45006.20	12297.30	7072.50	45006.20	-12297.30	0.000%
35	-12355.11	-45006.20	7023.11	12355.11	45006.20	-7023.11	0.000%
36	-14228.22	-45006.20	-74.31	14228.23	45006.20	74.31	0.000%
37	-12347.23	-45006.20	-7149.65	12347.23	45006.20	7149.65	0.000%
38	-7193.26	-45006.20	-12334.33	7193.26	45006.20	12334.33	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	0.00058306
3	Yes	6	0.00000001	0.00004518
4	Yes	6	0.00000001	0.00004597
5	Yes	5	0.00000001	0.00004590
6	Yes	6	0.00000001	0.00004457
7	Yes	6	0.00000001	0.00004853
8	Yes	5	0.00000001	0.00006398

9	Yes	6	0.00000001	0.00004550
10	Yes	6	0.00000001	0.00004412
11	Yes	5	0.00000001	0.00010833
12	Yes	6	0.00000001	0.00004851
13	Yes	6	0.00000001	0.00004561
14	Yes	4	0.00000001	0.00001234
15	Yes	5	0.00000001	0.00056087
16	Yes	6	0.00000001	0.00012650
17	Yes	6	0.00000001	0.00013018
18	Yes	5	0.00000001	0.00056701
19	Yes	6	0.00000001	0.00012739
20	Yes	6	0.00000001	0.00013499
21	Yes	5	0.00000001	0.00056256
22	Yes	6	0.00000001	0.00012869
23	Yes	6	0.00000001	0.00012386
24	Yes	5	0.00000001	0.00060153
25	Yes	6	0.00000001	0.00013600
26	Yes	6	0.00000001	0.00013038
27	Yes	4	0.00000001	0.00019381
28	Yes	5	0.00000001	0.00011297
29	Yes	5	0.00000001	0.00011679
30	Yes	4	0.00000001	0.00031352
31	Yes	5	0.00000001	0.00010936
32	Yes	5	0.00000001	0.00012827
33	Yes	4	0.00000001	0.00032749
34	Yes	5	0.00000001	0.00011350
35	Yes	5	0.00000001	0.00010728
36	Yes	4	0.00000001	0.00049447
37	Yes	5	0.00000001	0.00012812
38	Yes	5	0.00000001	0.00011376

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 164.25	47.952	38	2.1042	0.0069
L2	167.17 - 129.67	37.982	38	2.0486	0.0054
L3	133.5 - 96	24.444	38	1.7329	0.0030
L4	100.67 - 63.17	13.867	38	1.3147	0.0019
L5	68.67 - 31.17	6.423	38	0.8785	0.0011
L6	37.42 - 0	1.931	38	0.4653	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Lightning Rod 1/2"x4' on 15' Pole	38	47.952	2.1042	0.0083	51867
188.00	Pirod 4' Side Mount Standoff (1)	38	47.071	2.1020	0.0081	51867
185.00	3" Dia. 10' Omni	38	45.749	2.0984	0.0079	51867
183.00	Pirod 4' Side Mount Standoff (1)	38	44.869	2.0956	0.0078	37048
180.00	3" Dia. 10' Omni	38	43.552	2.0907	0.0076	25933
178.00	Pirod 4' Side Mount Standoff (1)	38	42.677	2.0866	0.0074	21611
175.00	800 MHz RRH w/ 4' mast pipe	38	41.367	2.0791	0.0072	17288
174.00	Gabriel Electronics 2' Dish	38	40.932	2.0761	0.0071	16208

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
173.00	1900 MHz RRH	38	40.497	2.0729	0.0070	15254
170.00	Platform Mount [LP 403-1]	38	39.199	2.0617	0.0068	12966
160.00	Platform Mount [LP 303-1]	38	34.938	2.0034	0.0058	8628
145.00	T-Arm Mount [TA 601-3]	38	28.821	1.8646	0.0042	5726
113.00	Pirod 4' Side Mount Standoff (1)	38	17.493	1.4772	0.0022	4363
90.00	Pirod 4' Side Mount Standoff (1)	38	11.072	1.1703	0.0016	4342

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 164.25	122.285	13	5.3717	0.0192
L2	167.17 - 129.67	96.886	13	5.2299	0.0146
L3	133.5 - 96	62.386	13	4.4246	0.0086
L4	100.67 - 63.17	35.409	13	3.3579	0.0055
L5	68.67 - 31.17	16.407	13	2.2442	0.0032
L6	37.42 - 0	4.935	13	1.1891	0.0015

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Lightning Rod 1/2"x4' on 15' Pole	13	122.285	5.3717	0.0210	19321
188.00	Pirod 4' Side Mount Standoff (1)	13	120.040	5.3661	0.0207	19321
185.00	3" Dia. 10' Omni	13	116.674	5.3570	0.0201	19321
183.00	Pirod 4' Side Mount Standoff (1)	13	114.433	5.3499	0.0198	13800
180.00	3" Dia. 10' Omni	13	111.078	5.3373	0.0192	9660
178.00	Pirod 4' Side Mount Standoff (1)	13	108.847	5.3269	0.0189	8049
175.00	800 MHz RRH w/ 4' mast pipe	13	105.511	5.3077	0.0183	6439
174.00	Gabriel Electronics 2' Dish	13	104.402	5.3002	0.0181	6036
173.00	1900 MHz RRH	13	103.296	5.2920	0.0179	5681
170.00	Platform Mount [LP 403-1]	13	99.988	5.2634	0.0172	4831
160.00	Platform Mount [LP 303-1]	13	89.131	5.1146	0.0147	3347
145.00	T-Arm Mount [TA 601-3]	13	73.545	4.7606	0.0108	2276
113.00	Pirod 4' Side Mount Standoff (1)	13	44.661	3.7723	0.0064	1725
90.00	Pirod 4' Side Mount Standoff (1)	13	28.276	2.9892	0.0047	1711

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
1.5000	44	1.2500	67084.62	69129.57	37.819	10.407	Bolt T	1.33

Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Ratio Bolt Tension	Actual Allowable Ratio Bolt Compression	Actual Allowable Ratio Plate Stress	Actual Allowable Ratio Stiffener Stress	Controlling Condition	Ratio
in		in	lb	lb	ksi	ksi		
			50621.37	84031.47	37.500	37.500		✔
			1.33	0.82	1.01	0.28		

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
L1	190 - 164.25 (1)	TP25.45x19.5625x0.25	25.75	0.00	0.0	39.000	19.4664	-5556.43	759191.00	0.007
L2	164.25 - 129.67 (2)	TP33.35x24.2824x0.3125	37.50	0.00	0.0	39.000	31.8505	-11079.10	1242170.00	0.009
L3	129.67 - 96 (3)	TP41.0432x31.7989x0.375	37.50	0.00	0.0	39.000	47.0351	-17206.50	1834370.00	0.009
L4	96 - 63.17 (4)	TP48.5462x39.142x0.375	37.50	0.00	0.0	39.000	55.6941	-24839.40	2172070.00	0.011
L5	63.17 - 31.17 (5)	TP55.8588x46.4169x0.375	37.50	0.00	0.0	39.000	64.1666	-33425.40	2502500.00	0.013
L6	31.17 - 0 (6)	TP63x53.5352x0.375	37.42	0.00	0.0	37.105	74.5394	-44989.00	2765780.00	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		lb-ft	ksi	ksi		lb-ft	ksi	ksi	
L1	190 - 164.25 (1)	TP25.45x19.5625x0.25	77111.33	-7.871	39.000	0.202	0.00	0.000	39.000	0.000
L2	164.25 - 129.67 (2)	TP33.35x24.2824x0.3125	509720.83	-24.281	39.000	0.623	0.00	0.000	39.000	0.000
L3	129.67 - 96 (3)	TP41.0432x31.7989x0.375	1170241.67	-30.668	39.000	0.786	0.00	0.000	39.000	0.000
L4	96 - 63.17 (4)	TP48.5462x39.142x0.375	1997816.67	-37.286	39.000	0.956	0.00	0.000	39.000	0.000
L5	63.17 - 31.17 (5)	TP55.8588x46.4169x0.375	2950750.00	-41.445	39.000	1.063	0.00	0.000	39.000	0.000
L6	31.17 - 0 (6)	TP63x53.5352x0.375	4245341.67	-44.145	37.105	1.190	0.00	0.000	37.105	0.000

Pole Interaction Design Data

Section No.	Elevation	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft							
L1	190 - 164.25 (1)	TP25.45x19.5625x0.25	0.007	0.202	0.000	0.209 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	164.25 - 129.67 (2)	TP33.35x24.2824x0.3125	0.009	0.623	0.000	0.632 ✔	1.333	H1-3 ✔
L3	129.67 - 96 (3)	TP41.0432x31.7989x0.375	0.009	0.786	0.000	0.796 ✔	1.333	H1-3 ✔
L4	96 - 63.17 (4)	TP48.5462x39.142x0.375	0.011	0.956	0.000	0.967 ✔	1.333	H1-3 ✔
L5	63.17 - 31.17 (5)	TP55.8588x46.4169x0.375	0.013	1.063	0.000	1.076 ✔	1.333	H1-3 ✔
L6	31.17 - 0 (6)	TP63x53.5352x0.375	0.016	1.190	0.000	1.206 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	190 - 164.25	Pole	TP25.45x19.5625x0.25	1	-5556.43	1012001.56	15.7	Pass
L2	164.25 - 129.67	Pole	TP33.35x24.2824x0.3125	2	-11079.10	1655812.54	47.4	Pass
L3	129.67 - 96	Pole	TP41.0432x31.7989x0.375	3	-17206.50	2445215.11	59.7	Pass
L4	96 - 63.17	Pole	TP48.5462x39.142x0.375	4	-24839.40	2895369.19	72.6	Pass
L5	63.17 - 31.17	Pole	TP55.8588x46.4169x0.375	5	-33425.40	3335832.36	80.7	Pass
L6	31.17 - 0	Pole	TP63x53.5352x0.375	6	-44989.00	3686784.59	90.5	Pass
							Summary	
						Pole (L6)	90.5	Pass
						Base Plate	99.4	Pass
						RATING =	**99.4**	**Pass**

EXHIBIT C

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA149A

Farmington PD MP
319 New Britain Avenue
Farmington, CT 06085

August 13, 2014

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	70.85 %

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

EBI Consulting
environmental | engineering | due diligence

August 13, 2014

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

Emissions Analysis for Site: **CTHA149A – Farmington PD MP**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **319 New Britain Avenue, Farmington, 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 700 MHz 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 **319 New Britain Avenue, Farmington, 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, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of 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 (PCS Band - 1900 MHz)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) **2** UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) 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.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope SBNHH-1D65C** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P** has a maximum gain of **15.6 dBd** at its main lobe. The **Commscope SBNHH-1D65C** has a maximum gain of **13.4 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **160 feet** above ground level (AGL).

9) 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.

EBI Consulting
environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.6 dBd	Gain:	15.6 dBd	Gain:	15.6 dBd
Height (AGL):	160	Height (AGL):	160	Height (AGL):	160
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	60	Total TX Power:	60	# AWS Channels:	60
ERP (W):	1,888.44	ERP (W):	1,888.44	ERP (W):	1,888.44
Antenna A1 MPE%	0.66	Antenna B1 MPE%	0.66	Antenna C1 MPE%	0.66
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.6 dBd	Gain:	15.6 dBd	Gain:	15.6 dBd
Height (AGL):	160	Height (AGL):	160	Height (AGL):	160
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	60	Total TX Power:	60	Total TX Power:	60
ERP (W):	1,888.44	ERP (W):	1,888.44	ERP (W):	1,888.44
Antenna A2 MPE%	0.66	Antenna B2 MPE%	0.66	Antenna C2 MPE%	0.66
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope SBNHH-1D65C	Make / Model:	Commscope SBNHH-1D65C	Make / Model:	Commscope SBNHH-1D65C
Gain:	13.4 dBd	Gain:	13.4 dBd	Gain:	13.4 dBd
Height (AGL):	160	Height (AGL):	160	Height (AGL):	160
Frequency Bands	700 Mhz	Frequency Bands	700 Mhz	Frequency Bands	700 Mhz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	396.59	ERP (W):	396.59	ERP (W):	396.59
Antenna A3 MPE%	0.21	Antenna B3 MPE%	0.21	Antenna C3 MPE%	0.21

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**4.60 %**
Town	2.19 %
Emergency	8.03 %
Public Works	35.67 %
Sprint	2.58 %
Clearwire	0.63 %
AT&T	17.15 %
Site Total MPE %:	**70.85 %**

T-Mobile Sector 1 Total:	1.53 %
T-Mobile Sector 2 Total:	1.53 %
T-Mobile Sector 3 Total:	1.53 %
Site Total:	70.85 %

EBI Consulting
environmental | engineering | due diligence

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.53 %
Sector 2:	1.53 %
Sector 3 :	1.53 %
T-Mobile Total:	4.60 %
Site Total:	70.85 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **70.85%** 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

EBI Consulting
21 B Street
Burlington, MA 01803`