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ADMITTED IN MASSACHUSETTS, CONNECTICUT AND RHODE ISLAND

August 17, 2015

Attorney Melanie Bachman
Acting Executive Director
CONNECTICUT SITING COUNCIL
Ten Franklin Square
New Britain, CT 06051

**RE: Notice of Exempt Modification
Manchester Police Department / T-Mobile equipment upgrade
T-Mobile Site ID CT11365D
239 Middle Turnpike East
Manchester, CT 06040**

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 (the "CSC") on its behalf.

This application concerns the self-supporting communications tower and associated equipment (collectively "the Facility") owned by and constructed on land owned by the Town of Manchester (Police Department) at 239 Middle Turnpike East, Manchester, Connecticut. The Facility is located at Latitude - 41.784444/ Longitude - 72.511667. T-Mobile intends to remove three (3) existing 4' LTE antennas located at C/L 163.0' AGL and to replace them with three (3) 6' LTE antennas at the same height. Additionally, T-Mobile intends to install ancillary devices behind the proposed antennas on proposed pipe masts. Kindly accept this correspondence and included materials 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). Pursuant to R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the General Manger of the Town of

O'CONNELL, ATTMORE & MORRIS, LLC

Connecticut Siting Council
CT11365D 239 Middle Turnpike East
Manchester, CT

August 17, 2015

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Manchester¹, Scott Shanley and to Police Chief Marc Montminy as owners of the property and the Facility.

The existing Facility consists of a 183'² self-supporting tower, referenced recently in filings with the CSC designated as EM-CING-077-150526 and TS-VER-077-140911. T-Mobile plans to replace three existing 4' antennas with three 6' antennas (including ancillary RRU's (i.e. remote radio units) to be installed on proposed pipe masts). See the accompanying plans dated August 13, 2015 attached hereto as **Exhibit A**. Prior to the installation of the proposed T-Mobile equipment, the tower will be subject to structural reinforcement to be undertaken by other leaseholders at the Facility. See Structural Analysis with reinforcement detail attached hereto as **Exhibit B**.

The proposed modifications to the Facility are of the type of activities provided for in R.C.S.A. § 16-50j-72(b)(2). Additionally, the below detail will assist in the analysis of the within application.

1. The proposed modification will not increase the height of the tower, which will remain at 183.0 AGL as depicted on Exhibit A.
2. The proposed modifications will not require an enlargement or reconfiguration of the site boundaries or enclosed compound.
3. The proposed modifications will not increase the noise levels at the existing facility by six decibels or more.
4. The operation of the additional 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 an RF Emissions Analysis Report prepared by EBI Consulting dated August 13, 2015, T-Mobile's operations would add 4.9% of the FCC standard. Therefore, the calculated "worst case" scenario power density for the planned combined operation at the site including all of the proposed antennas would be 70.39 % of the FCC standard as calculated for a mixed frequency site as evidenced by the RF exhibit attached hereto as **Exhibit C**.

¹ The Town of Manchester is organized under the Council-Manager form of government. The General Manager is the Town's chief executive and is appointed by the elected Board of Directors.

² Note that the CSC lists the height as 190' AGL. As indicated on Exhibit A, the actual tower tops off at +/- 183' AGL with transmission equipment extending above the top of the tower structure.

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

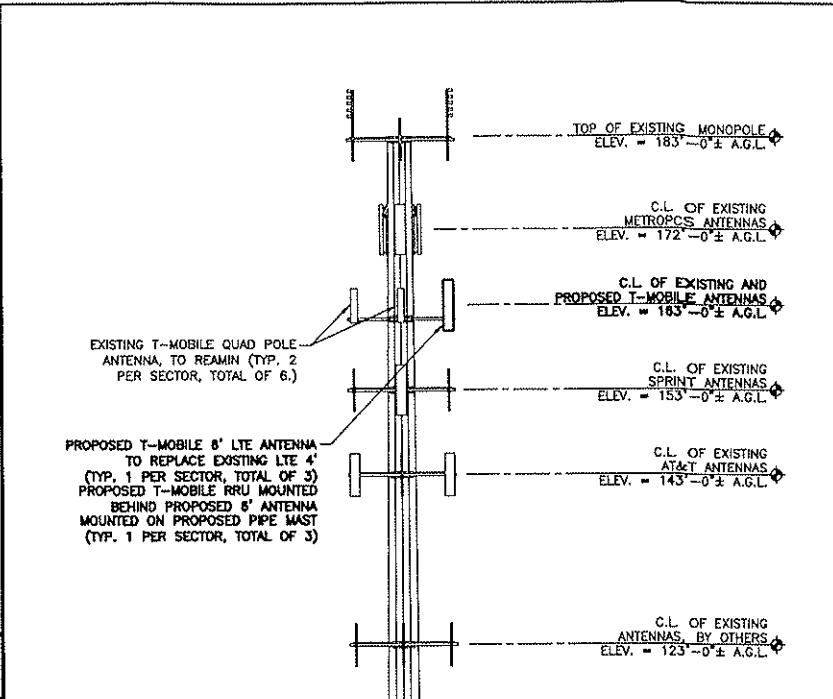
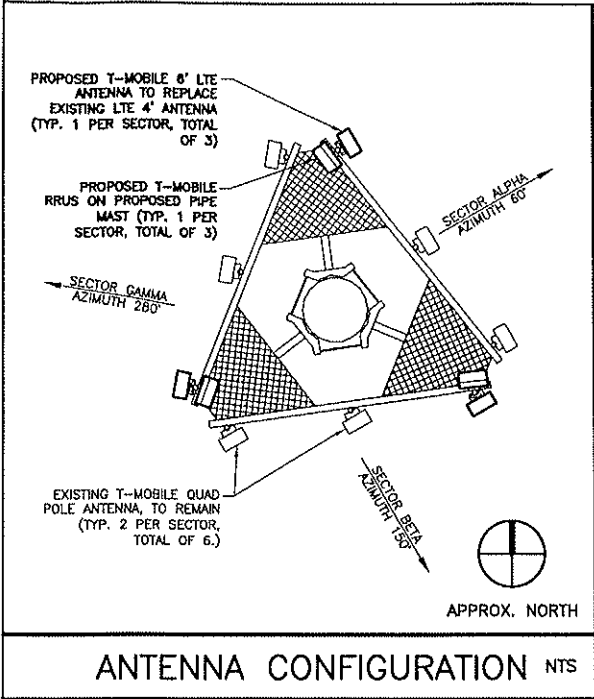
Yours truly,
O'CONNELL, ATTMORE & MORRIS, LLC



Simon J. Brighenti, Jr., Esq.

SJB/ja

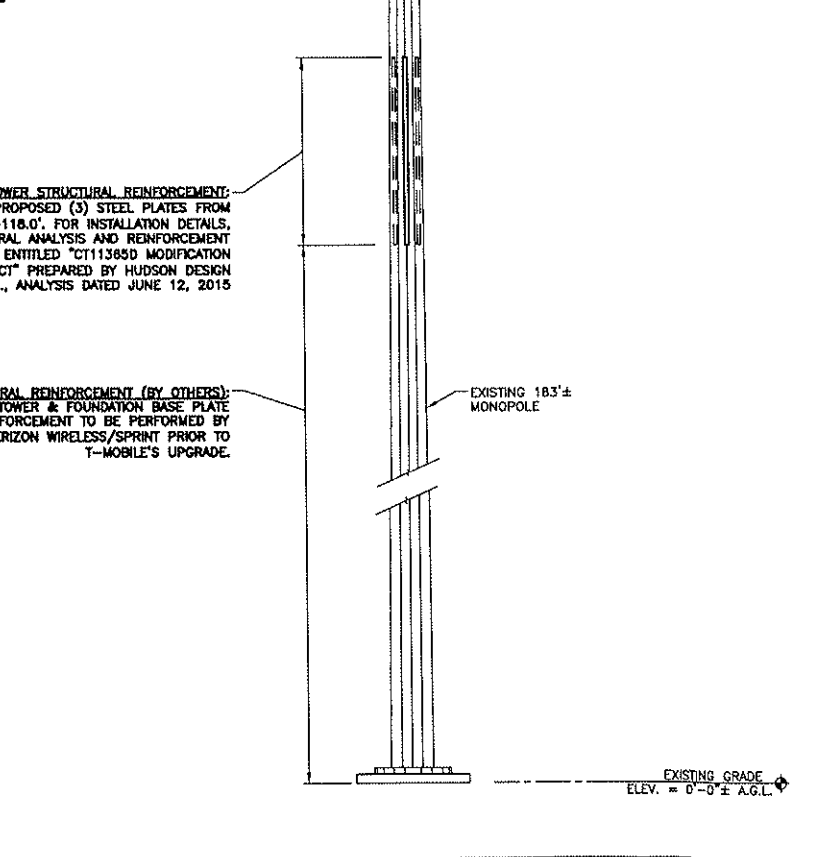
cc: General Manger of the Town of Manchester Scott Shanley
Manchester, CT Police Chief Marc Montminy
EBI Consulting



PROPOSED TOWER STRUCTURAL REINFORCEMENT:
 INSTALL PROPOSED (3) STEEL PLATES FROM ELEVATION 88.0'-116.0'. FOR INSTALLATION DETAILS, SEE STRUCTURAL ANALYSIS AND REINFORCEMENT DRAWINGS ENTITLED "CT11365D MODIFICATION MANCHESTER, CT" PREPARED BY HUDSON DESIGN GROUP, LLC., ANALYSIS DATED JUNE 12, 2015

STRUCTURAL REINFORCEMENT (BY OTHERS):
 TOWER & FOUNDATION BASE PLATE REINFORCEMENT TO BE PERFORMED BY VERIZON WIRELESS/SPRINT PRIOR TO T-MOBILE'S UPGRADE.

CONFIGURATION
702CC



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

TOWER ELEVATION

SCALE: 3/64" = 1'-0"

PREPARED BY: 21 B Street Burlington, MA 01803 Tel: (781) 273-2500 Fax: (781) 273-3311 www.ebiconsulting.com	CLIENT: T-Mobile Northeast, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860.892.7100	SITE INFO: CT11365D CT365/MANCHESTER PD_MP 230 E. MIDDLE TURNPIKE, MANCHESTER, CT. 06040	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">SUBMITTALS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>08/05/14</td> <td>FOR REVIEW</td> <td>SH</td> </tr> <tr> <td>B</td> <td>08/13/15</td> <td>REVISED PER COMMENTS</td> <td>LF</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	SUBMITTALS				NO.	DATE	DESCRIPTION	BY	A	08/05/14	FOR REVIEW	SH	B	08/13/15	REVISED PER COMMENTS	LF									DRAWN BY: SHEET NO: LE-2 CHECKED BY: PM DATE: 07/30/14
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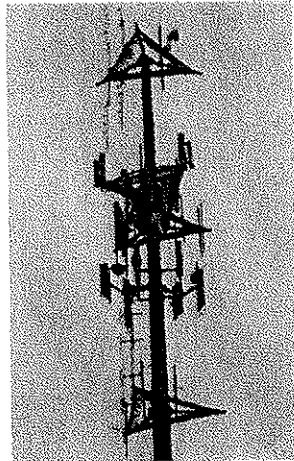
(Revised)
STRUCTURAL ANALYSIS REPORT

For

CT11365D
CT365/MANCHESTER PD_MP

239 East Middle Turnpike
Manchester, CT 06040

Antennas Mounted to the Monopole



Prepared for:

T-Mobile

Dated: July 24, 2015 (Rev 1)

Dated: June 12, 2015

Prepared by:



1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com





SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-Mobile to conduct a structural evaluation of the 183' monopole supporting the existing and proposed T-Mobile's antennas located at elevation 163' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of T-Mobile's existing and proposed antennas listed below.

Record drawings of the existing monopole prepared by Engineered Endeavors Inc., dated September 17, 2002, were available for our use. The previous structural analysis report prepared by Ramaker & Associates, Inc., dated November 26, 2012, was available and obtained for our use. The previous structural analysis report prepared by Destek Engineering, LLC, dated October 14, 2014, was also available and obtained for our use.

Structural analysis with monopole modification report prepared by this office, dated April 10, 2015, was used for monopole analysis.

CONCLUSION SUMMARY:

HDG performed structural analysis of the existing monopole with the following proposed modification:

Add steel reinforcing plates to the existing monopole from El.88' to El.118'.

Based on our evaluation, we have determined that the existing monopole with the proposed modification and foundation are in conformance with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at 96.0% - (Pole section L5 from EL.43.9' to EL.88.0' Controlling).



APPURTANENCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Lighting Rod	194'	Low Profile Platform
	(2) 20' Dipole	184'	Low Profile Platform
T-MOBILE	(3) AIR 21 B2A B4P Antennas	163'	Low Profile Platform
T-MOBILE	(3) AIR 21 B4A B2P Antennas	163'	Low Profile Platform
T-MOBILE	(3) ATMAP1412D TMA	163'	Low Profile Platform
T-MOBILE	(3) LNX-6515DS-VTM Antennas	163'	Low Profile Platform
T-MOBILE	(3) RRUS 11	163'	Low Profile Platform
Sprint	(3) APXVSP18 Antennas	153'	Low Profile Platform
Sprint	(3) RRH-800	153'	Low Profile Platform
Sprint	(6) RRH-1900	153'	Low Profile Platform
Sprint	(3) APXVTM14-C-120 Antennas	153'	Low Profile Platform
Sprint	(3) RRH8x20-25	151'	Ring Mount
	(3) 840-10054 Antennas	153'	Low Profile Platform
	(3) 860-10025 RCU	153'	Low Profile Platform
	Panel Antenna	153'	Low Profile Platform
	(2) 2' Dishes	150'	Low Profile Platform
	2.5' Dish	150'	Low Profile Platform
AT&T	(3) 800-10121 Antennas	143'	Low Profile Platform
AT&T	(2) OPA-65R-LCUU-H6 Antennas	143'	Low Profile Platform
AT&T	(4) OPA-65R-LCUU-H8 Antennas	143'	Low Profile Platform
AT&T	(12) RRUs	143'	Low Profile Platform
AT&T	(3) A2 Modules	143'	Low Profile Platform
AT&T	(2) Surge Arrestors	143'	Low Profile Platform
	(2) 20' Omni	129'	Low Profile Platform
	20' Dipole	126'	Low Profile Platform
	(2) 3' Yagi	126'	Low Profile Platform
VERIZON	(6) LNX 6514DS-VTM Antennas	110'	Low Profile Platform
VERIZON	(6) HBX 6517DS-VTM Antennas	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-AWS	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-07U	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-PCS	110'	Low Profile Platform
VERIZON	(2) DB-T1-6Z-8AB-OZ	110'	Low Profile Platform
	GPS	54'	1' Side Mount Standoff
POLICE	(4) VHLPX2-18 Dish	38.9'	1' Side Mount Standoff

*Proposed T-Mobile Appurtenances shown in Bold.



T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-MOBILE	(12) 1 5/8" Cables	163'	Inside Monopole
T-MOBILE	(9) Fiber Cables	163'	Inside Monopole
T-MOBILE	(6) Fiber Cables	163'	Inside Monopole

**Proposed T-Mobile Coax Cables shown in Bold.*

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	13.9 %	166.5 – 184.0	PASS	
Pole Section-L2	70.7 %	133.1 – 166.5	PASS	
Pole Section-L3	81.2 %	113.0 – 133.1	PASS	
Pole Section-L4	91.1 %	88.0 – 113.0	PASS	
Pole Section-L5	96.0 %	43.9 – 88.0	PASS	Controlling
Pole Section-L6	92.2 %	1.0 – 43.9	PASS	
Base Plate	87.3 %	1.0	PASS	



DESIGN CRITERIA:

1. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

County: Hartford
Wind Load: 80 mph (fastest mile)
 100 mph (3 second gust)
Nominal Ice Thickness: 1/2 inch

2. Approximate height above grade to proposed antennas: 163'-0"

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The monopole dimensions, member sizes and strength of material are as indicated in the record drawings prepared by Engineered Endeavors Inc., dated September 17, 2002.
2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
3. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.



SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRHs be mounted on the existing steel platform supported by the monopole.

Reference HDG's Latest Construction Drawings for all component and connection requirements (attached).

ONGOING AND PERIODIC INSPECTION AND MAINTENANCE:

After the Contractor has successfully completed the installation and the work has been accepted, the Owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

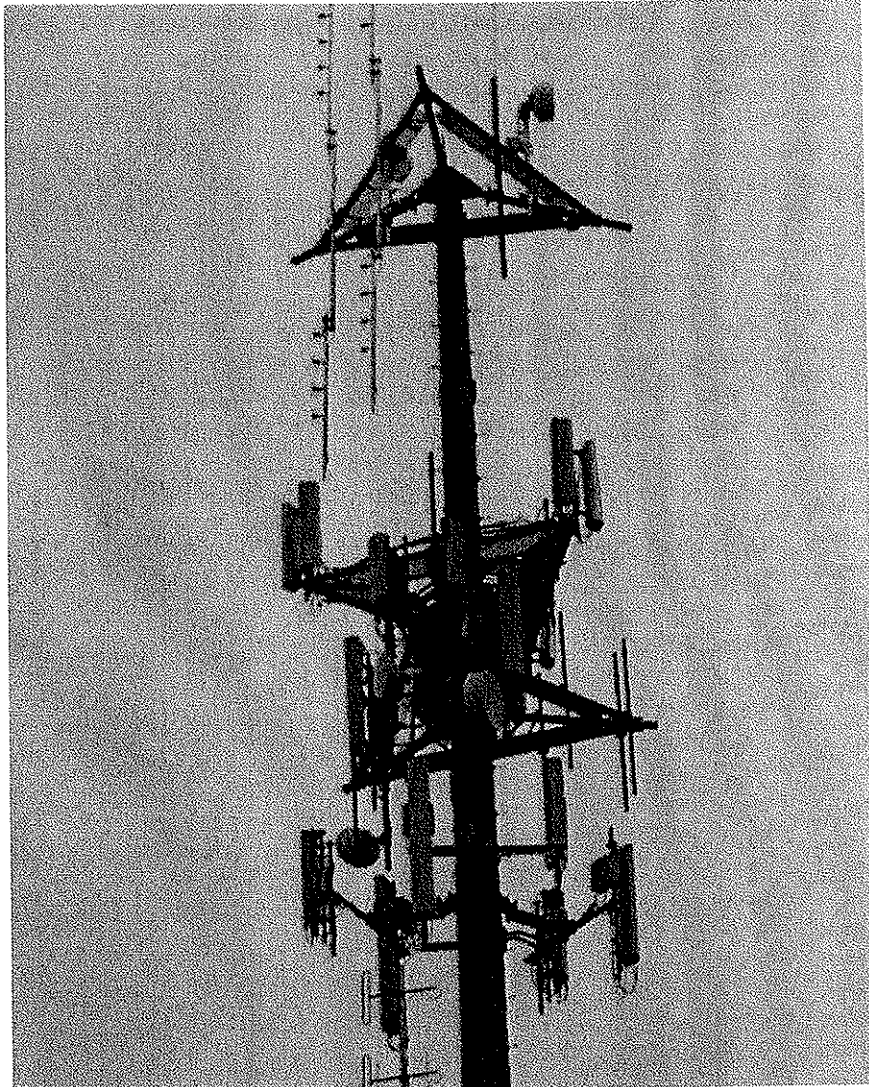
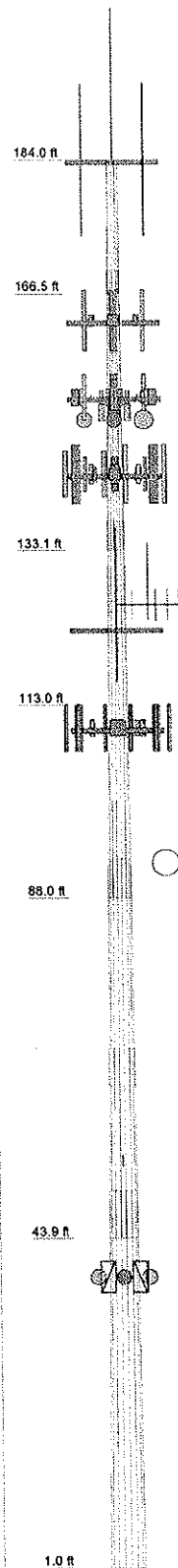


Photo 1: Photo illustrating the Monopole with Appurtenances shown.



CALCULATIONS

Section	1	2	3	4	5	6
Length (ft)	17.50	36.42	23.92	25.00	49.08	49.08
Number of Sides	18	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3750	0.4150	0.4850	0.5400
Socket Length (ft)	3.00	3.83		5.00	6.17	
Top Dia (in)	15.5000	18.3556	25.0549	30.2850	33.9406	42.5549
Bot Dia (in)	19.3950	26.4010	30.2850	35.8920	44.5030	53.5000
Grade				A572-65		
Weight (lb)	611.7	2176.1	2644.3	3661.2	10010.3	13593.1



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 2"x2"	184	PIROD 13' Low Profile Platform (AT&T)	143
PIROD 13' Low Profile Platform	184	Kathrein 800 10121 w/mount pipe	143
20'-4 Bay Dipole	184	Kathrein 800 10121 w/mount pipe	143
20'-4 Bay Dipole	184	Kathrein 800 10121 w/mount pipe	143
PIROD 13' Low Profile Platform (T-Mobile - Existing)	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
RFS ATMAP1412D-1A20	163	Ericsson RRUS-12	143
RFS ATMAP1412D-1A20	163	Ericsson RRUS-12	143
RFS ATMAP1412D-1A20	163	Ericsson RRUS-12	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-E2	143
LNX-6515DS-VTM w/ Mount Pipe (T-Mobile - Proposed)	163	Ericsson A2 Module	143
LNX-6515DS-VTM w/ Mount Pipe	163	Ericsson A2 Module	143
LNX-6515DS-VTM w/ Mount Pipe	163	Surge Arrestor (DC6-48-60-18-8F)	143
Ericsson RRUS 11	163	20'-4 Bay Dipole	123
Ericsson RRUS 11	163	3' Yagi antenna	123
PIROD 13' Low Profile Platform (SPRINT)	153	3' Yagi antenna	123
APXVSP18-C w/mount pipe	153	PIROD 13' Low Profile Platform	123
APXVSP18-C w/mount pipe	153	Omni 2"x10'	123
APXVSP18-C w/mount pipe	153	Omni 2"x10'	123
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
APXVTM14-C-120 w/mount pipe (SPRINT)	153	RRH 2X40-AWS+RDEM	110
APXVTM14-C-120 w/mount pipe	153	RRH 2X40-AWS+RDEM	110
APXVTM14-C-120 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-PCS	110
Kathrein 860 10025 RCU	153	RRH 2X40-PCS	110
Kathrein 860 10025 RCU	153	RFS DB-T1-6Z-8AB-0Z	110
Kathrein 860 10025 RCU	153	RFS DB-T1-6Z-8AB-0Z	110
Panel Antenna 18"x18"	153	PIROD 13' Low Profile Platform (Verizon - proposed)	110
Ring Mount	151	GPS	54
RRH 8x20-25	151	1' Side Mount Standoff	54
RRH 8x20-25	151	1' Side Mount Standoff	38.9
RRH 8x20-25	151	1' Side Mount Standoff	38.9
Andrew VHLP2-11	150	1' Side Mount Standoff	38.9
Andrew VHLPX2-5-11	150	Andrew VHLPX2-18-2WH/B	38.9
Andrew VHLP2-11	150	Andrew VHLPX2-18-2WH/B	38.9
		(2) Andrew VHLPX2-18-2WH/B	38.9

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 80.0 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69.3 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50.0 mph wind.

Hudson Design Group LLC 1600 Osgood Street Bldg. 20N Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586		Job: CT11365D MANCHESTER POLICE TOWER Project: 183 ft Monopole	
Client: T-MOBILE	Drawn by: kw	App'd:	
Code: TIA/EIA-222-F	Date: 07/24/15	Scale: NTS	
Path:		Dwg No. E-1	

tnxTower Hudson Design Group LLC 1600 Osgood Street Bldg. 20N Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job CT11365D MANCHESTER POLICE TOWER	Page 1 of 12
	Project 183 ft Monopole	Date 09:11:54 07/24/15
	Client T-MOBILE	Designed by kw

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 80.0 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56.0 pcf.

A wind speed of 69.3 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 50.0 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.

Tapered Pole Section Geometry

Section	Elevation <i>ft</i>	Section Length <i>ft</i>	Splice Length <i>ft</i>	Number of Sides	Top Diameter <i>in</i>	Bottom Diameter <i>in</i>	Wall Thickness <i>in</i>	Bend Radius <i>in</i>	Pole Grade
L1	184.00-166.50	17.50	3.00	18	15.5000	19.3990	0.1875	0.7500	A572-65 (65 ksi)
L2	166.50-133.08	36.42	3.83	18	18.3556	26.4010	0.2500	1.0000	A572-65 (65 ksi)
L3	133.08-112.99	23.92	0.00	18	25.0549	30.2850	0.3750	1.5000	A572-65 (65 ksi)
L4	112.99-87.99	25.00	5.00	18	30.2850	35.8920	0.4150	1.6600	A572-65 (65 ksi)
L5	87.99-43.91	49.08	6.17	18	33.9406	44.9030	0.4850	1.9400	A572-65 (65 ksi)
L6	43.91-1.00	49.08		18	42.5549	53.5000	0.5400	2.1600	A572-65 (65 ksi)

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	A615-75
Anchor bolt grade	2.2500 in
Anchor bolt size	18
Number of bolts	84.0000 in
Embedment length	4.0 ksi
f_c	4.0000 in
Grout space	A572-60
Base plate grade	2.0000 in
Base plate thickness	62.0000 in
Bolt circle diameter	68.0000 in
Outer diameter	

tnxTower Hudson Design Group LLC 1600 Osgood Street Bldg. 20N Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job CT11365D MANCHESTER POLICE TOWER	Page 2 of 12
	Project 183 ft Monopole	Date 09:11:54 O 7/24/15
	Client T-MOBILE	Designed by kw

Base Plate Data	
Inner diameter	43.0000 in
Base plate type	Stiffened Plate
Bolts per stiffener	1
Stiffener thickness	0.5000 in
Stiffener height	9.0000 in

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	CAAs		Weight plf
						ft ² /ft	plf	
2" Conduit	A	No	CaAa (Out Of Face)	153.00 - 6.00	2	No Ice	0.20	2.80
						1/2" Ice	0.30	4.33
1/2	A	No	CaAa (Out Of Face)	153.00 - 6.00	3	No Ice	0.06	0.25
						1/2" Ice	0.16	0.91
3/8	A	No	Inside Pole	153.00 - 6.00	3	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
7/8	B	No	Inside Pole	184.00 - 6.00	4	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
1 5/8 (T-MOBILE)	B	No	Inside Pole	163.00 - 6.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
1 5/8 Fiber Cable (T-MOBILE)	B	No	Inside Pole	163.00 - 6.00	9	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
1 5/8 Fiber Cable (T-MOBILE - proposed)	B	No	Inside Pole	163.00 - 6.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
1 1/4 (SPRINT)	B	No	Inside Pole	153.00 - 6.00	3	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
1 5/8 (AT&T)	B	No	Inside Pole	143.00 - 6.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
FB-L98B-002 (AT&T)	B	No	Inside Pole	143.00 - 6.00	3	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
WR-VG122ST-BRDA (AT&T)	B	No	Inside Pole	143.00 - 6.00	6	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
1/2	B	No	Inside Pole	123.00 - 6.00	5	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
1/2	B	No	Inside Pole	54.00 - 6.00	1	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
1/2	B	No	Inside Pole	38.90 - 6.00	4	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25

1 5/8 Fiber Cable (VERIZON)	B	No	Inside Pole	110.00 - 6.00	2	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement ft	CAAs		Weight lb
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²	
Lightning Rod 2"x21'	A	From Leg	1.00	0.00	0.0000	184.00	No Ice	4.20	80.00
			0.00				1/2" Ice	6.33	112.30
			10.00						
PiROD 13' Low Profile	A	None			0.0000	184.00	No Ice	15.70	1300.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CA _{A1} Front ft ²	CA _{A1} Side ft ²	Weight lb
Platform						1/2" Ice 20.10	20.10	1765.00
20'-4 Bay Dipole	C	From Face	3.50 4.00 0.00	0.0000	184.00	No Ice 4.75 1/2" Ice 6.25	4.75 6.25	50.00 80.00
20'-4 Bay Dipole	C	From Face	3.50 -4.00 0.00	0.0000	184.00	No Ice 4.75 1/2" Ice 6.25	4.75 6.25	50.00 80.00

PIROD 13' Low Profile Platform (T-Mobile - Existing)	A	None		0.0000	163.00	No Ice 15.70 1/2" Ice 20.10	15.70 20.10	1300.00 1765.00
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
RFS ATMAP1412D-1A20	A	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
RFS ATMAP1412D-1A20	B	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
RFS ATMAP1412D-1A20	C	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69

LNX-6515DS-VTM w/ Mount Pipe (T-Mobile - Proposed)	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
LNX-6515DS-VTM w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
LNX-6515DS-VTM w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
Ericsson RRUS 11	A	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32
Ericsson RRUS 11	B	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32
Ericsson RRUS 11	C	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAA Front ft ²	CAA Side ft ²	Weight lb	

PIROD 13' Low Profile Platform (SPRINT)	A	None		0.0000	153.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1300.00 1765.00
APXVSPP18-C w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
(2) RRH-1900	A	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
(2) RRH-1900	B	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
(2) RRH-1900	C	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
RRH-800	A	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74
RRH-800	B	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74
RRH-800	C	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74

APXVTM14-C-120 w/mount pipe (SPRINT)	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31
APXVTM14-C-120 w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31
APXVTM14-C-120 w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31
RRH 8x20-25	A	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.14
RRH 8x20-25	B	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.14
RRH 8x20-25	C	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.14
Ring Mount	C	None		0.0000	151.00	No Ice 1/2" Ice	1.40 2.40	1.40 2.40	90.00 130.00

840-10054 w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	5.41 5.83	2.39 2.92	46.43 82.55
840-10054 w/mount pipe	B	From Face	3.50	0.0000	153.00	No Ice	5.41	2.39	46.43

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight lb
			0.00			1/2" Ice 5.83	2.92	82.55
840-10054 w/mount pipe	C	From Face	0.00 3.50	0.0000	153.00	No Ice 5.41 1/2" Ice 5.83	2.39 2.92	46.43 82.55
Kathrein 860 10025 RCU	A	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14 0.20	1.20 2.76
Kathrein 860 10025 RCU	B	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14 0.20	1.20 2.76
Kathrein 860 10025 RCU	C	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14 0.20	1.20 2.76
Panel Antenna 18"X18"	B	From Face	0.00 3.50	0.0000	153.00	No Ice 3.15 1/2" Ice 3.39	0.53 0.67	15.00 30.30

PiROD 13' Low Profile Platform	A	None		0.0000	123.00	No Ice 15.70 1/2" Ice 20.10	15.70 20.10	1300.00 1765.00
Omni 2"x10'	B	From Face	0.00 3.50	0.0000	123.00	No Ice 2.00 1/2" Ice 3.02	2.00 3.02	20.00 35.50
Omni 2"x10'	B	From Face	0.00 3.50	0.0000	123.00	No Ice 2.00 1/2" Ice 3.02	2.00 3.02	20.00 35.50
20'-4 Bay Dipole	C	From Face	0.00 3.50	0.0000	123.00	No Ice 4.75 1/2" Ice 6.25	4.75 6.25	50.00 80.00
3' Yagi antenna	B	From Face	0.00 3.50	0.0000	123.00	No Ice 0.70 1/2" Ice 0.95	0.35 0.48	10.00 36.35
3' Yagi antenna	C	From Face	0.00 3.50	0.0000	123.00	No Ice 0.70 1/2" Ice 0.95	0.35 0.48	10.00 36.35

1' Side Mount Standoff	C	From Face	0.00 1.00	0.0000	54.00	No Ice 1.00 1/2" Ice 1.50	1.00 1.50	30.00 50.00
GPS	C	From Face	0.00 3.00	0.0000	54.00	No Ice 0.21 1/2" Ice 0.32	0.21 0.32	5.00 7.52

PiROD 13' Low Profile Platform (AT&T)	A	None		0.0000	143.00	No Ice 15.70 1/2" Ice 20.10	15.70 20.10	1300.00 1765.00
Kathrein 800 10121 w/mount pipe	A	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81 5.49	78.15 128.24
Kathrein 800 10121 w/mount pipe	B	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81 5.49	78.15 128.24
Kathrein 800 10121 w/mount pipe	C	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81 5.49	78.15 128.24
Ericsson RRUS-11	A	From Face	0.00 2.50	0.0000	143.00	No Ice 3.26 1/2" Ice 3.50	1.38 1.56	50.70 71.57

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
Ericsson RRUS-11	B	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.26 1/2" Ice 3.50	1.38 1.56	50.70 71.57
Ericsson RRUS-11	C	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.26 1/2" Ice 3.50	1.38 1.56	50.70 71.57
DC6-48-60-18-8F	C	From Leg	0.00 2.00 0.00	0.0000	143.00	No Ice 1.27 1/2" Ice 1.46	1.27 1.46	20.00 35.12

(2) OPA-65R-LCUU-H6 w/mount pipe	A	From Face	0.00 3.50 0.00	0.0000	143.00	No Ice 10.65 1/2" Ice 11.30	7.53 8.56	112.53 192.76
(2) OPA-65R-LCUU-H8 w/mount pipe	B	From Face	0.00 3.50 0.00	0.0000	143.00	No Ice 13.34 1/2" Ice 14.18	9.83 11.34	140.11 239.33
(2) OPA-65R-LCUU-H8 w/mount pipe	C	From Face	0.00 3.50 0.00	0.0000	143.00	No Ice 13.34 1/2" Ice 14.18	9.83 11.34	140.11 239.33
Ericsson RRUS-12	A	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	58.00 81.22
Ericsson RRUS-12	B	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	58.00 81.22
Ericsson RRUS-12	C	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	58.00 81.22
Ericsson RRUS-32	A	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson RRUS-32	B	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson RRUS-32	C	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson RRUS-E2	A	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson RRUS-E2	B	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson RRUS-E2	C	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	77.00 104.93
Ericsson A2 Module	A	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 2.42 1/2" Ice 2.63	0.54 0.67	22.00 34.73
Ericsson A2 Module	B	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 2.42 1/2" Ice 2.63	0.54 0.67	22.00 34.73
Ericsson A2 Module	C	From Face	0.00 2.50 0.00	0.0000	143.00	No Ice 2.42 1/2" Ice 2.63	0.54 0.67	22.00 34.73
Surge Arrestor	A	From Leg	0.00 2.00	0.0000	143.00	No Ice 1.27	1.27	20.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAA Front ft ²	CAA Side ft ²	Weight lb	
(DC6-48-60-18-8F)			0.00 0.00		1/2" Ice	1.46	1.46	35.12	

PiROD 13' Low Profile Platform (Verizon - proposed)	C	None		0.0000	110.00	No Ice 1/2" Ice	15.70 20.10	1300.00 1765.00	
(2) LNX 6514DS-VTM w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.63 9.29	7.07 8.25	64.55 133.55
(2) LNX 6514DS-VTM w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.63 9.29	7.07 8.25	64.55 133.55
(2) LNX 6514DS-VTM w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.63 9.29	7.07 8.25	64.55 133.55
(2) HBX-6517DS-VTM w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.42 5.97	4.96 6.14	39.25 85.00
(2) HBX-6517DS-VTM w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.42 5.97	4.96 6.14	39.25 85.00
(2) HBX-6517DS-VTM w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.42 5.97	4.96 6.14	39.25 85.00
RRH 2X40-AWS+RDEM	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	3.77 4.04	2.23 2.46	47.60 73.79
RRH 2X40-AWS+RDEM	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	3.77 4.04	2.23 2.46	47.60 73.79
RRH 2X40-AWS+RDEM	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	3.77 4.04	2.23 2.46	47.60 73.79
RRH 2X40-07U	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.29 2.49	1.21 1.36	50.00 66.78
RRH 2X40-07U	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.29 2.49	1.21 1.36	50.00 66.78
RRH 2X40-07U	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.29 2.49	1.21 1.36	50.00 66.78
RRH 2X40-PCS	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.57 2.79	2.02 2.23	55.00 75.41
RRH 2X40-PCS	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.57 2.79	2.02 2.23	55.00 75.41
RRH 2X40-PCS	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.57 2.79	2.02 2.23	55.00 75.41
RFS DB-T1-6Z-8AB-0Z	B	From Face	1.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	44.00 80.13
RFS DB-T1-6Z-8AB-0Z	C	From Face	1.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	44.00 80.13

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₁ Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb

1' Side Mount Standoff	A	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	30.00 50.00
1' Side Mount Standoff	B	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	30.00 50.00
1' Side Mount Standoff	C	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	30.00 50.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft	°	°	ft	ft	ft ²	lb
Andrew VHLP2-11	A	Paraboloid w/Radome	From Face	3.50 0.00 0.00	0.0000		150.00	2.00	No Ice 1/2" Ice	31.00 41.00
Andrew VHLPX2.5-11	B	Paraboloid w/Shroud (HP)	From Face	3.50 0.00 0.00	0.0000		150.00	2.50	No Ice 1/2" Ice	49.00 77.00
Andrew VHLP2-11	C	Paraboloid w/Radome	From Face	3.50 0.00 0.00	0.0000		150.00	2.00	No Ice 1/2" Ice	31.00 41.00
Andrew VHLPX2-18-2WH/B	A	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00
Andrew VHLPX2-18-2WH/B	B	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00
(2) Andrew VHLPX2-18-2WH/B	C	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00

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

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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	24	65972.65	32753.61	-135.40
	Max. H _x	11	54519.98	37264.98	-182.71
	Max. H _z	2	54519.98	-230.38	37240.39
	Max. M _x	2	4622869.48	-230.38	37240.39
	Max. M _z	5	4628206.67	-37238.44	246.35
	Max. Torsion	9	2570.31	18807.61	-32341.69
	Min. Vert	1	54519.98	0.00	0.00
	Min. H _x	5	54519.98	-37238.44	246.35
	Min. H _z	8	54519.98	272.09	-37282.32
	Min. M _x	8	-4626109.37	272.09	-37282.32
	Min. M _z	11	-4631060.50	37264.98	-182.71
	Min. Torsion	3	-2631.61	-18840.95	32321.06

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturing Moment, M _x lb-ft	Overturing Moment, M _z lb-ft	Torque lb-ft
Dead Only	54519.98	0.00	0.00	-711.73	-598.64	-0.00

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Load Combination	Vertical	Shear _x	Shear _y	Overtuning Moment, M _x	Overtuning Moment, M _y	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 0 deg - No Ice	54519.98	230.38	-37240.39	-4622869.48	-34313.45	1913.08
Dead+Wind 30 deg - No Ice	54519.98	18840.95	-32321.06	-4011683.67	-2343570.11	2631.61
Dead+Wind 60 deg - No Ice	54519.98	32357.91	-18781.04	-2333136.44	-4021213.43	2519.14
Dead+Wind 90 deg - No Ice	54519.98	37238.44	-246.35	-34115.01	-4628206.67	1722.20
Dead+Wind 120 deg - No Ice	54519.98	32178.46	18396.30	2280253.15	-4000637.11	579.89
Dead+Wind 150 deg - No Ice	54519.98	18506.86	32177.38	3991535.94	-2299472.43	-712.45
Dead+Wind 180 deg - No Ice	54519.98	-272.09	37282.32	4626109.37	39620.70	-1721.31
Dead+Wind 210 deg - No Ice	54519.98	-18807.61	32341.69	4014635.54	2341008.65	-2570.31
Dead+Wind 240 deg - No Ice	54519.98	-32311.22	18738.96	2329621.42	4017518.84	-2492.11
Dead+Wind 270 deg - No Ice	54519.98	-37264.98	182.71	28280.17	4631060.50	-1761.93
Dead+Wind 300 deg - No Ice	54519.98	-32263.08	-18412.10	-2279589.67	4007710.50	-798.66
Dead+Wind 330 deg - No Ice	54519.98	-18490.72	-32215.96	-3997830.32	2291724.08	691.05
Dead+Ice+Temp	65972.65	0.00	0.00	-1380.21	-1168.91	0.02
Dead+Wind 0 deg+Ice+Temp	65972.65	174.24	-32725.55	-4127953.18	-27219.33	1843.17
Dead+Wind 30 deg+Ice+Temp	65972.65	16535.68	-28392.17	-3580921.67	-2089933.68	2309.63
Dead+Wind 60 deg+Ice+Temp	65972.65	28429.61	-16482.93	-2080786.18	-3589840.68	2052.65
Dead+Wind 90 deg+Ice+Temp	65972.65	32732.92	-187.51	-27164.38	-4133635.74	1237.91
Dead+Wind 120 deg+Ice+Temp	65972.65	28295.54	16192.01	2038601.70	-3574566.61	188.18
Dead+Wind 150 deg+Ice+Temp	65972.65	16285.46	28287.61	3564392.31	-2056625.12	-907.13
Dead+Wind 180 deg+Ice+Temp	65972.65	-207.33	32759.49	4128963.04	29979.37	-1688.89
Dead+Wind 210 deg+Ice+Temp	65972.65	-16507.81	28408.31	3581622.30	2086210.47	-2260.09
Dead+Wind 240 deg+Ice+Temp	65972.65	-28390.78	16448.20	2076147.06	3585158.84	-2030.76
Dead+Wind 270 deg+Ice+Temp	65972.65	-32753.61	135.40	20630.24	4134344.79	-1270.08
Dead+Wind 300 deg+Ice+Temp	65972.65	-28363.84	-16205.55	-2039795.09	3578801.83	-364.35
Dead+Wind 330 deg+Ice+Temp	65972.65	-16273.02	-28318.62	-3571195.36	2048767.49	889.93
Dead+Wind 0 deg - Service	54519.98	89.99	-14547.03	-1810107.58	-13843.68	760.12
Dead+Wind 30 deg - Service	54519.98	7359.75	-12625.41	-1570881.74	-917848.65	1046.34
Dead+Wind 60 deg - Service	54519.98	12639.81	-7336.35	-913784.65	-1574599.36	1002.75
Dead+Wind 90 deg - Service	54519.98	14546.27	-96.23	-13787.04	-1812183.80	686.83
Dead+Wind 120 deg - Service	54519.98	12569.71	7186.05	892179.77	-1566477.87	232.76
Dead+Wind 150 deg - Service	54519.98	7229.24	12569.29	1562064.80	-900548.09	-281.36
Dead+Wind 180 deg - Service	54519.98	-106.29	14563.41	1810502.18	15102.48	-682.80
Dead+Wind 210 deg - Service	54519.98	-7346.72	12633.47	1571172.41	916025.40	-1021.80
Dead+Wind 240 deg - Service	54519.98	-12621.57	7319.91	911545.07	1572332.23	-992.79
Dead+Wind 270 deg - Service	54519.98	-14556.63	71.37	10640.25	1812500.01	-703.63
Dead+Wind 300 deg - Service	54519.98	-12602.77	-7192.23	-892795.20	1568449.72	-320.03
Dead+Wind 330 deg - Service	54519.98	-7222.94	-12584.36	-1565411.53	896703.24	273.68

Solution Summary

Load Comb.	Sum of Applied Forces				Sum of Reactions		% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-54519.98	0.00	0.00	54519.98	0.00	0.000%
2	230.38	-54519.98	-37240.39	-230.38	54519.98	37240.39	0.000%
3	18840.95	-54519.98	-32321.06	-18840.95	54519.98	32321.06	0.000%
4	32357.91	-54519.98	-18781.04	-32357.91	54519.98	18781.04	0.000%
5	37238.44	-54519.98	-246.35	-37238.44	54519.98	246.35	0.000%
6	32178.46	-54519.98	18396.30	-32178.46	54519.98	-18396.30	0.000%
7	18506.86	-54519.98	32177.38	-18506.86	54519.98	-32177.38	0.000%
8	-272.09	-54519.98	37282.32	272.09	54519.98	-37282.32	0.000%
9	-18807.61	-54519.98	32341.69	18807.61	54519.98	-32341.69	0.000%
10	-32311.22	-54519.98	18738.96	32311.22	54519.98	-18738.96	0.000%
11	-37264.98	-54519.98	182.71	37264.98	54519.98	-182.71	0.000%
12	-32263.08	-54519.98	-18412.10	32263.08	54519.98	18412.10	0.000%
13	-18490.72	-54519.98	-32215.96	18490.72	54519.98	32215.96	0.000%
14	0.00	-65972.65	0.00	-0.00	65972.65	-0.00	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
15	174.24	-65972.65	-32725.54	-174.24	65972.65	32725.55	0.000%
16	16535.67	-65972.65	-28392.17	-16535.68	65972.65	28392.17	0.000%
17	28429.61	-65972.65	-16482.93	-28429.61	65972.65	16482.93	0.000%
18	32732.91	-65972.65	-187.51	-32732.92	65972.65	187.51	0.000%
19	28295.54	-65972.65	16192.01	-28295.54	65972.65	-16192.01	0.000%
20	16285.46	-65972.65	28287.61	-16285.46	65972.65	-28287.61	0.000%
21	-207.33	-65972.65	32759.48	207.33	65972.65	-32759.49	0.000%
22	-16507.81	-65972.65	28408.31	16507.81	65972.65	-28408.31	0.000%
23	-28390.78	-65972.65	16448.20	28390.78	65972.65	-16448.20	0.000%
24	-32753.60	-65972.65	135.40	32753.61	65972.65	-135.40	0.000%
25	-28363.84	-65972.65	-16205.55	28363.84	65972.65	16205.55	0.000%
26	-16273.02	-65972.65	-28318.62	16273.02	65972.65	28318.62	0.000%
27	89.99	-54519.98	-14547.03	-89.99	54519.98	14547.03	0.000%
28	7359.75	-54519.98	-12625.41	-7359.75	54519.98	12625.41	0.000%
29	12639.81	-54519.98	-7336.35	-12639.81	54519.98	7336.35	0.000%
30	14546.26	-54519.98	-96.23	-14546.27	54519.98	96.23	0.000%
31	12569.71	-54519.98	7186.05	-12569.71	54519.98	-7186.05	0.000%
32	7229.24	-54519.98	12569.29	-7229.24	54519.98	-12569.29	0.000%
33	-106.29	-54519.98	14563.41	106.29	54519.98	-14563.41	0.000%
34	-7346.72	-54519.98	12633.47	7346.72	54519.98	-12633.47	0.000%
35	-12621.57	-54519.98	7319.91	12621.57	54519.98	-7319.91	0.000%
36	-14556.63	-54519.98	71.37	14556.63	54519.98	-71.37	0.000%
37	-12602.77	-54519.98	-7192.23	12602.77	54519.98	7192.23	0.000%
38	-7222.94	-54519.98	-12584.36	7222.94	54519.98	12584.36	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	184 - 166.5	66.6915	29	3.2171	0.0193
L2	169.5 - 133.08	57.0034	29	3.1566	0.0118
L3	136.91 - 112.99	36.5635	29	2.7122	0.0057
L4	112.99 - 87.99	24.1382	29	2.1990	0.0036
L5	92.99 - 43.91	15.9219	29	1.7190	0.0022
L6	50.08 - 1	4.3452	29	0.8250	0.0008

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184.00	Lightning Rod 2"x21'	29	66.6915	3.2171	0.0197	29320
163.00	PIROD 13' Low Profile Platform	29	52.7243	3.1029	0.0096	6692
153.00	PIROD 13' Low Profile Platform	29	46.2954	2.9822	0.0075	4400
151.00	RRH 8x20-25	29	45.0392	2.9532	0.0072	4117
150.00	Andrew VHLP2-11	29	44.4154	2.9381	0.0071	3988
143.00	PIROD 13' Low Profile Platform	29	40.1386	2.8235	0.0063	3269
123.00	PIROD 13' Low Profile Platform	29	29.0027	2.4266	0.0045	2471
110.00	PIROD 13' Low Profile Platform	29	22.7857	2.1281	0.0033	2343
54.00	1' Side Mount Standoff	29	5.0463	0.8980	0.0008	2468
38.90	Andrew VHLPX2-18-2WH/B	29	2.7383	0.6247	0.0006	3152

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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
L1	184 - 166.5	Pole	TP19.399x15.5x0.1875	1	-2474.25	573700.52	13.9	Pass	
L2	166.5 - 133.08	Pole	TP26.401x18.3556x0.25	2	-11200.10	1043870.92	70.7	Pass	
L3	133.08 - 112.99	Pole	TP30.285x25.0549x0.375	3	-16780.10	1850750.45	81.2	Pass	
L4	112.99 - 87.99	Pole	TP35.892x30.285x0.415	4	-23124.30	2352598.27	91.1	Pass	
L5	87.99 - 43.91	Pole	TP44.903x33.9406x0.485	5	-35764.50	3444405.21	96.0	Pass	
L6	43.91 - 1	Pole	TP53.5x42.5549x0.54	6	-47861.60	4359922.90	92.2	Pass	
							Summary		
							Pole (L5)	96.0	Pass
							Base Plate	87.3	Pass
							RATING =	96.0	Pass

CCI Foundation Tool Suite - Monopole Pier

CCIFTS 1.1.103.14128 - Phase 1

Date: 7/24/2015

BU: CT11365D Mod
 Site Name:
 App Number: N/A
 Work Order:

Monopole Drilled Pier

Input

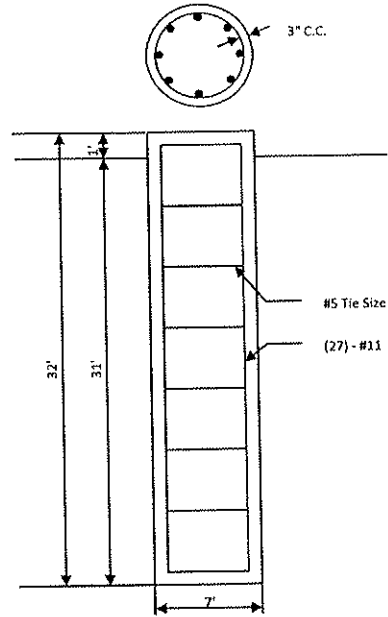
Criteria
 TIA Revision: F
 ACI 318 Revision: 2002
 Seismic Category: B

Forces
 Compression: 54.5 kips
 Shear: 37.4 kips
 Moment: 4649 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 7 ft
 Ext. above grade: 1 ft
 Depth below grade: 31 ft

Material Properties
 Number of Rebar: 27
 Rebar Size: 11
 Tie Size: 5
 Rebar tensile strength: 60 ksi
 Concrete Strength: 4000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 3 in

Soil Profile: Profile 1



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.5	0	3.5	100	0	0	0	0		
2	2.5	3.5	6	100	0	30				
3	10	6	16	37.6	0	30				
4	15	16	31	37.6	0	30				

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 5.87 ft
 Max Moment, Mu: 4894.69 k-ft
 Soil Safety Factor: 2.13
 Safety Factor Req'd: 2
RATING: 93.7%

Soil Axial Capacity
 Skin Friction (k): 106.41 kips
 End Bearing (k): 0.00 kips
 Comp. Capacity (k), φCn: 106.41 kips
 Comp. (k), Cu: 70.85 kips
RATING: 66.6%

Concrete/Steel Check

Mu (from soil analysis): 6363.09 k-ft
 φMn: 6758.24 k-ft
RATING: 94.2%

rho provided: 0.76
 rho required: 0.33 OK

Rebar Spacing: 7.36
 Spacing required: 22.56 OK

Dev. Length required: 24.88
 Dev. Length provided: 53.51 OK

Overall Foundation Rating: 94.2%



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

T-Mobile Existing Facility

Site ID: CT11365D

CT365 / Manchester PD_MP
239 East Middle Turnpike
Manchester, CT 06040

August 13, 2015

EBI Project Number: 6215004416

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	70.39 %



August 13, 2015

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

Emissions Analysis for Site: **CT11365D – CT365 / Manchester PD_MP**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **239 East Middle Turnpike, Manchester, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is $467 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is approximately $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **239 East Middle Turnpike, Manchester, 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.



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- 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 LNX-6515DS-VTM** 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 **15.9 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 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.

The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P & B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P & B2A/B4P** have a maximum gain of **15.9 dBd** at their main lobe

- 8) The antenna mounting height centerline of the proposed antennas is **163 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.



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T-Mobile Site Inventory and Power Data

Section	A	Section	B	Section	1
Antenna #	1	Antenna #	1	Antenna #	1
	Ericsson AIR21 B4A/B2P		Ericsson AIR21 B4A/B2P		Ericsson AIR21 B4A/B2P
	15.9 dBd		15.9 dBd		15.9 dBd
	163		163		163
	1900 MHz(PCS) / 2100 MHz (AWS)		1900 MHz(PCS) / 2100 MHz (AWS)		1900 MHz(PCS) / 2100 MHz (AWS)
	2		2		2
	120		120		120
	4,668.54		4,668.54		4,668.54
	0.68		0.68		0.68
Antenna #	2	Antenna #	2	Antenna #	2
	Ericsson AIR21 B4A/B2P		Ericsson AIR21 B4A/B2P		Ericsson AIR21 B4A/B2P
	15.9 dBd		15.9 dBd		15.9 dBd
	163		163		163
	1900 MHz(PCS) / 2100 MHz (AWS)		1900 MHz(PCS) / 2100 MHz (AWS)		1900 MHz(PCS) / 2100 MHz (AWS)
	4		4		4
	120		120		120
	4,668.54		4,668.54		4,668.54
	0.68		0.68		0.68
Antenna #	3	Antenna #	3	Antenna #	3
	Commscope LNX- 6515DS-VTM		Commscope LNX- 6515DS-VTM		Commscope LNX- 6515DS-VTM
	14.6 dBd		14.6 dBd		14.6 dBd
	163		163		163
	700 MHz		700 MHz		700 MHz
	1		1		1
	30		30		30
	865.21		865.21		865.21
	0.27		0.27		0.27

Site Composite MPE %	
Category	MPE %
T-MOBILE	100
Town MFRE	0.96 %
Town MPD - ch 1	0.13 %
Town MPD - ch 2	0.15 %
Town MFD	0.26 %
Town services intercity	0.49 %
RAFS I/2	1.65 %
Town public works	0.73 %
Town Services EOC	0.73 %
Town FD	0.73 %
town SP hotline	0.97 %
Town Vol FD	0.56 %
Town Service - School	0.16 %
Hfd City FD	0.73 %
Tolland MUT	0.73 %
Sprint	11.76 %
Clearwire	0.81 %
Verizon	6.80 %
AT&T	17.51 %
Verizon Wireless	9.63 %
Site Total MPE %:	70.39 %

T-Mobile Sector 1 Total	1.63 %
T-Mobile Sector 2 Total	1.63 %
T-Mobile Sector 3 Total	1.63 %
Site Total	70.39 %



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:

Component	Value (%)
Sector 1:	1.63 %
Sector 2:	1.63 %
Sector 3 :	1.63 %
T-Mobile Total:	4.90 %
Site Total:	70.39 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **70.39%** 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



August 31, 2015

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
239 East Middle Turnpike, Manchester CT 06040
Longitude: 72.51177
Latitude: 41.78439
T-Mobile Site#: CT11365D_L700

Members of the Siting Council:

On behalf of T-Mobile, Northeast Site Solutions (NSS) is submitting an exempt modification application to the Connecticut Siting Council for modification of existing equipment at a tower facility located at 239 East Middle Turnpike, Manchester CT 06040.

The 239 East Middle Turnpike, Manchester CT 06040 facility consists of a 183' Monopole Tower owned and operated by Town of Manchester. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's L700 Project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of \$625.



NSS **NORTHEAST**
SITE SOLUTIONS

Turnkey Wireless Development

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, Northeast Site Solutions (NSS) on behalf of T-Mobile, respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 860.209.4690 with any questions you may have concerning this matter.

Sincerely,

Denise Sabo

Mobile: 860-209-4690

Fax: 413-521-0558

Office: 199 Brickyard Rd, Farmington, CT 06032

Email: denise@northeastsitesolutions.com

cc: Town of Manchester



T-MOBILE USA, INC.
 12920 SE 38TH STREET
 BELLEVUE, WA 98006
 (425) 378-4000

3160500
 8/13/2015
 2000011160

Invoice Number	Inv. Date	Description	Deductions	Voucher	Amount Paid
CKKMB00427	8/10/2015	SR CT11365D SITING COUNCIL FIL	0.00	1101442227	625.00

DO NOT ACCEPT THIS CHECK UNLESS THE FACE FADES FROM BLACK TO RED WITH LOGO IN BACKGROUND. THE BACK OF THIS DOCUMENT HAS HEAT-SENSITIVE INK THAT CHANGES FROM ORANGE TO YELLOW



T-MOBILE USA, INC.
 12920 SE 38th Street
 Bellevue, WA 98006
 (425) 378-4000

The Bank of New York Mellon
 Pittsburgh, PA
 60-160/433

3160500
 8/13/2015
 VID 2000011160

PAY **\$625.00**
SIX TWO FIVE DOLLARS AND NO CENTS

***\$625.00**

Six Hundred Twenty Five Dollars Only

To The Order Of **CONNECTICUT SITING COUNCIL**
 10 FRANKLIN SQ
 NEW BRITAIN, CT 06051

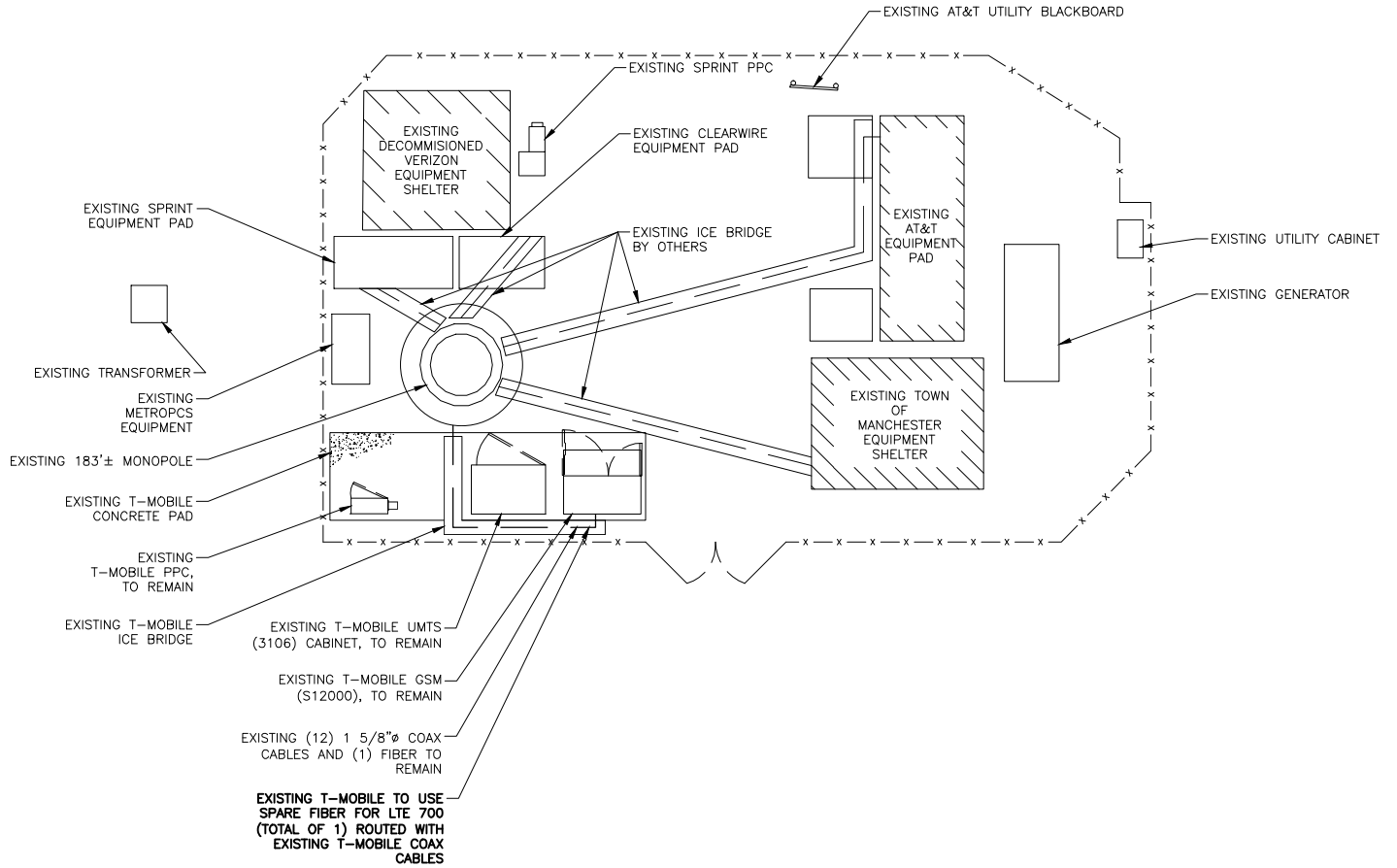
VOID AFTER 180 DAYS
 THIS CHECK CLEARS THROUGH POSITIVE PAY

David [Signature]

⑈0003 160500⑈ ⑆043301601⑆ 013⑈8430⑈

THE ORIGINAL DOCUMENT HAS A REFLECTIVE WATERMARK ON THE BACK. HOLD AT AN ANGLE TO VIEW, DO NOT CASH IF MISSING.

Exhibit A



CONFIGURATION
702CU




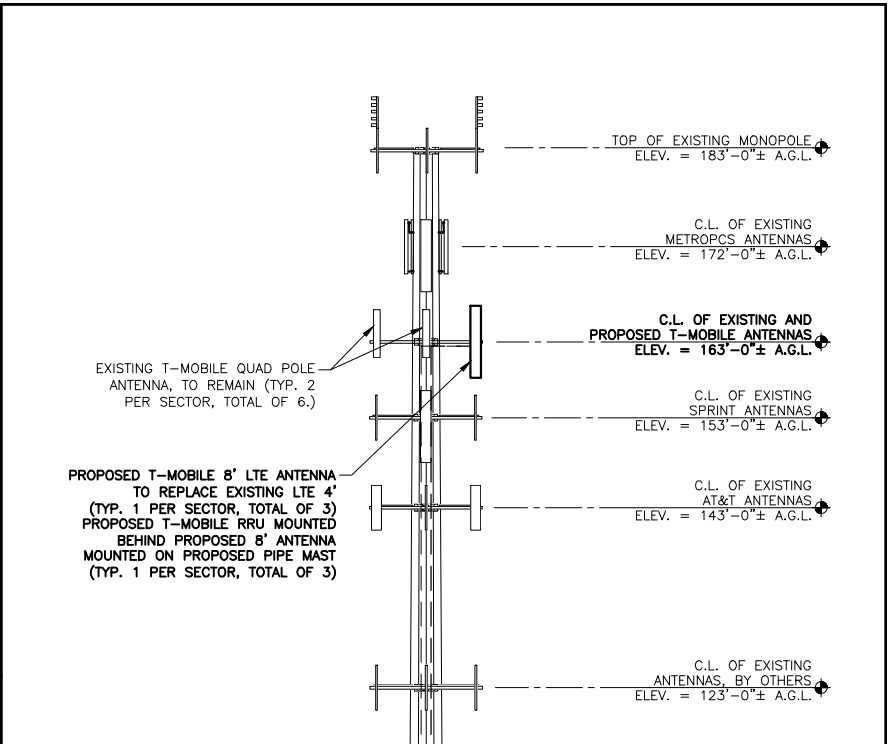
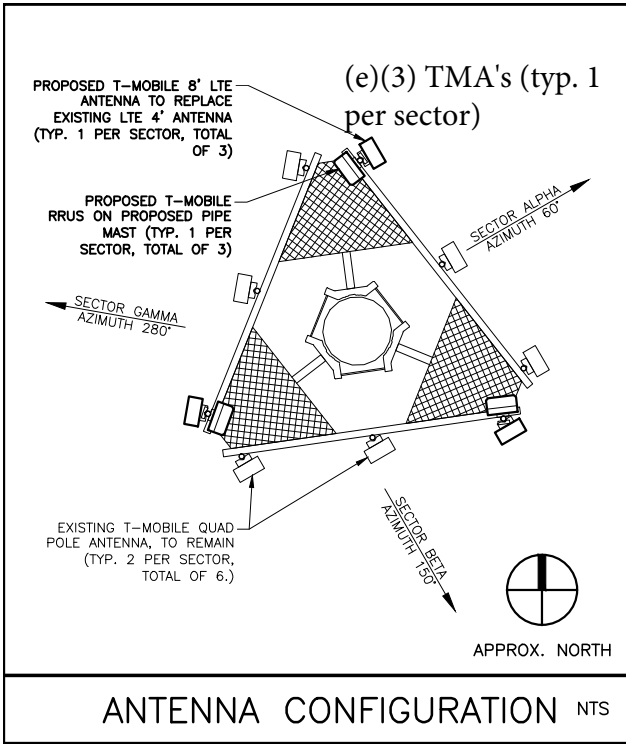
APPROX. NORTH

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

SITE PLAN

SCALE: 3/32" = 1'-0"

PREPARED BY:  21 B Street Burlington, MA 01803 Tel: (781) 273-2500 Fax: (781) 273-3311 www.ebiconsulting.com	CLIENT: T-Mobile Northeast, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860.692.7100	SITE INFO: CT11365D CT365/MANCHESTER PD_MP 239 E. MIDDLE TURNPIKE, MANCHESTER, CT. 06040	SUBMITTALS				DRAWN BY:	SHEET NO:
			NO.	DATE	DESCRIPTION	BY	SH	
	A	08/05/14	FOR REVIEW	SH		PM	LE-1	
	B	08/13/15	REVISED PER COMMENTS	LF				
	3	09/01/15	REVISED CONFIGURATION	SS		DATE: 07/30/14		



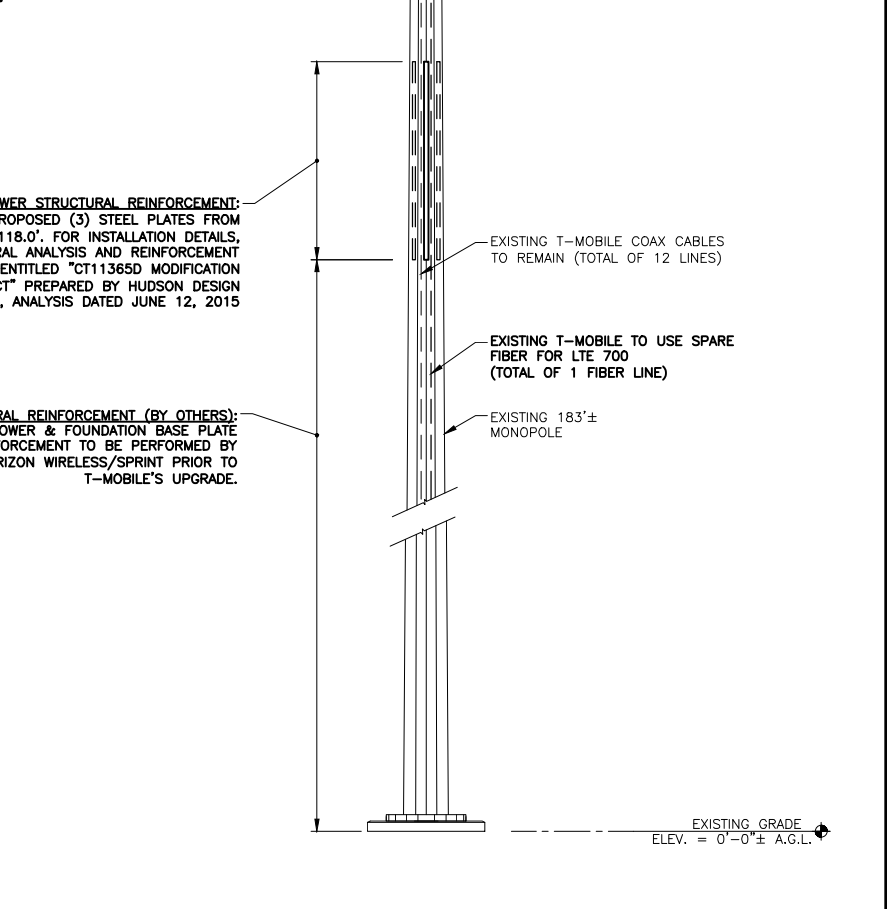
ANTENNA CONFIGURATION NTS

PROPOSED TOWER STRUCTURAL REINFORCEMENT:
 INSTALL PROPOSED (3) STEEL PLATES FROM ELEVATION 88.0'-118.0'. FOR INSTALLATION DETAILS, SEE STRUCTURAL ANALYSIS AND REINFORCEMENT DRAWINGS ENTITLED "CT11365D MODIFICATION MANCHESTER, CT" PREPARED BY HUDSON DESIGN GROUP, LLC., ANALYSIS DATED JUNE 12, 2015

STRUCTURAL REINFORCEMENT (BY OTHERS):
 TOWER & FOUNDATION BASE PLATE REINFORCEMENT TO BE PERFORMED BY VERIZON WIRELESS/SPRINT PRIOR TO T-MOBILE'S UPGRADE.

CONFIGURATION

702CU



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

TOWER ELEVATION SCALE: 3/64" = 1'-0"

PREPARED BY: 21 B Street Burlington, MA 01803 Tel: (781) 273-2500 Fax: (781) 273-3311 www.ebiconsulting.com	CLIENT: T-Mobile Northeast, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860.692.7100	SITE INFO: CT11365D CT365/MANCHESTER PD_MP 239 E. MIDDLE TURNPIKE, MANCHESTER, CT. 06040	SUBMITTALS				DRAWN BY:	SHEET NO:
			NO.	DATE	DESCRIPTION	BY	SH	
	A	08/05/14	FOR REVIEW	SH		LE-2 DATE: 07/30/14		
	B	08/13/15	REVISED PER COMMENTS	LF				
	3	09/01/15	REVISED CONFIGURATION	SS				

Exhibit B

(Revised)
STRUCTURAL ANALYSIS REPORT

For

CT43XC827
MANCHESTER/POLICE TOWER

239 Middle Turnpike
Manchester, CT 06040

Antennas Mounted to the Monopole



Prepared for:

Sprint[®]
VISION

1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (201) 684-4223

Dated: August 4, 2015

Prepared by:

Hudson
Design Group LLC



1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com



Gi Kai Wang 8/4/2015



SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-Mobile to conduct a structural evaluation of the 183' monopole supporting the existing and proposed T-Mobile's antennas located at elevation 163' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of T-Mobile's existing and proposed antennas listed below.

Record drawings of the existing monopole prepared by Engineered Endeavors Inc., dated September 17, 2002, were available for our use. The previous structural analysis report prepared by Ramaker & Associates, Inc., dated November 26, 2012, was available and obtained for our use. The previous structural analysis report prepared by Destek Engineering, LLC, dated October 14, 2014, was also available and obtained for our use.

Structural analysis with monopole modification report prepared by this office, dated April 10, 2015, was used for monopole analysis.

CONCLUSION SUMMARY:

HDG performed structural analysis of the existing monopole with the following proposed modification:

Add steel reinforcing plates to the existing monopole from El.88' to El.118'.

Based on our evaluation, we have determined that the existing monopole with the proposed modification and foundation **are in conformance** with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **96.0%** - (Pole section L5 from EL.43.9' to EL.88.0' Controlling).



APPURTANENCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Lighting Rod	194'	Low Profile Platform
	(2) 20' Dipole	184'	Low Profile Platform
T-MOBILE	(3) AIR 21 B2A B4P Antennas	163'	Low Profile Platform
T-MOBILE	(3) AIR 21 B4A B2P Antennas	163'	Low Profile Platform
T-MOBILE	(3) ATMAP1412D TMA	163'	Low Profile Platform
T-MOBILE	(3) LNX-6515DS-VTM Antennas	163'	Low Profile Platform
T-MOBILE	(3) RRUS 11	163'	Low Profile Platform
Sprint	(3) APXVSP18 Antennas	153'	Low Profile Platform
Sprint	(3) RRH-800	153'	Low Profile Platform
Sprint	(6) RRH-1900	153'	Low Profile Platform
Sprint	(3) APXVTM14-C-120 Antennas	153'	Low Profile Platform
Sprint	(3) RRH8x20-25	151'	Ring Mount
	(3) 840-10054 Antennas	153'	Low Profile Platform
	(3) 860-10025 RCU	153'	Low Profile Platform
	Panel Antenna	153'	Low Profile Platform
	(2) 2' Dishes	150'	Low Profile Platform
	2.5' Dish	150'	Low Profile Platform
AT&T	(3) 800-10121 Antennas	143'	Low Profile Platform
AT&T	(2) OPA-65R-LCUU-H6 Antennas	143'	Low Profile Platform
AT&T	(4) OPA-65R-LCUU-H8 Antennas	143'	Low Profile Platform
AT&T	(12) RRUs	143'	Low Profile Platform
AT&T	(3) A2 Modules	143'	Low Profile Platform
AT&T	(2) Surge Arrestors	143'	Low Profile Platform
	(2) 20' Omni	129'	Low Profile Platform
	20' Dipole	126'	Low Profile Platform
	(2) 3' Yagi	126'	Low Profile Platform
VERIZON	(6) LNX 6514DS-VTM Antennas	110'	Low Profile Platform
VERIZON	(6) HBX 6517DS-VTM Antennas	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-AWS	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-07U	110'	Low Profile Platform
VERIZON	(3) RRH 2X40-PCS	110'	Low Profile Platform
VERIZON	(2) DB-T1-6Z-8AB-0Z	110'	Low Profile Platform
	GPS	54'	1' Side Mount Standoff
POLICE	(4) VHLPX2-18 Dish	38.9'	1' Side Mount Standoff

***Proposed T-Mobile Appurtenances shown in Bold.**



T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-MOBILE	(12) 1 5/8" Cables	163'	Inside Monopole
T-MOBILE	(1) 1-5/8" Fiber Cable	163'	Inside Monopole

**Proposed T-Mobile Coax Cables shown in Bold.*

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	13.9 %	166.5 – 184.0	PASS	
Pole Section-L2	70.7 %	133.1 – 166.5	PASS	
Pole Section-L3	81.2 %	113.0 – 133.1	PASS	
Pole Section-L4	91.1 %	88.0 – 113.0	PASS	
Pole Section-L5	96.0 %	43.9 – 88.0	PASS	Controlling
Pole Section-L6	92.2 %	1.0 – 43.9	PASS	
Base Plate	87.3 %	1.0	PASS	



DESIGN CRITERIA:

1. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

County: Hartford
Wind Load: 80 mph (fastest mile)
100 mph (3 second gust)
Nominal Ice Thickness: 1/2 inch

2. Approximate height above grade to proposed antennas: 163'-0"

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The monopole dimensions, member sizes and strength of material are as indicated in the record drawings prepared by Engineered Endeavors Inc., dated September 17, 2002.
2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
3. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.



SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRHs be mounted on the existing steel platform supported by the monopole.

Reference HDG's Latest Construction Drawings for all component and connection requirements (attached).

ONGOING AND PERIODIC INSPECTION AND MAINTENANCE:

After the Contractor has successfully completed the installation and the work has been accepted, the Owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.



Photo 1: Photo illustrating the Monopole with Appurtenances shown.



CALCULATIONS

DESIGNED APPURTENANCE LOADING

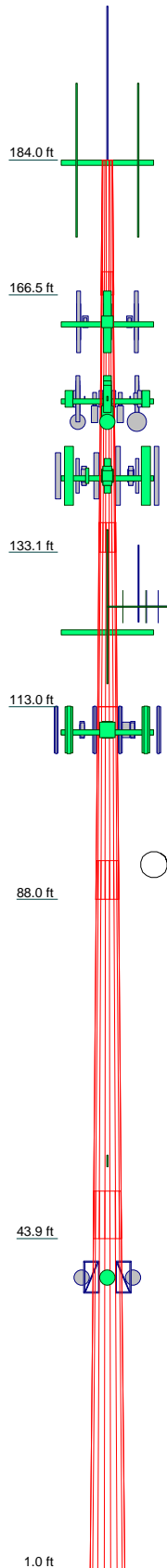
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 2"x21'	184	PIROD 13' Low Profile Platform (ATI)	143
PIROD 13' Low Profile Platform	184	Kathrein 800 10121 w/mount pipe	143
20'-4 Bay Dipole	184	Kathrein 800 10121 w/mount pipe	143
20'-4 Bay Dipole	184	Kathrein 800 10121 w/mount pipe	143
PIROD 13' Low Profile Platform (T-Mobile - Existing)	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	Ericsson RRUS-11	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	DC6-48-60-18-8F	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	(2) OPA-65R-LCUU-H6 w/mount pipe	143
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	163	(2) OPA-65R-LCUU-H8 w/mount pipe	143
RFS ATMAP1412D-1A20	163	(2) OPA-65R-LCUU-H8 w/mount pipe	143
RFS ATMAP1412D-1A20	163	Ericsson RRUS-12	143
RFS ATMAP1412D-1A20	163	Ericsson RRUS-12	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-12	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-32	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-E2	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-E2	143
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	163	Ericsson RRUS-E2	143
LNX-6515DS-VTM w/ Mount Pipe (T-Mobile - Proposed)	163	Ericsson A2 Module	143
LNX-6515DS-VTM w/ Mount Pipe	163	Ericsson A2 Module	143
LNX-6515DS-VTM w/ Mount Pipe	163	Ericsson A2 Module	143
Ericsson RRUS 11	163	Surge Arrestor (DC6-48-60-18-8F)	143
Ericsson RRUS 11	163	20'-4 Bay Dipole	123
Ericsson RRUS 11	163	3' Yagi antenna	123
PIROD 13' Low Profile Platform (SPRINT)	153	3' Yagi antenna	123
APXVSP18-C w/mount pipe	153	PIROD 13' Low Profile Platform	123
APXVSP18-C w/mount pipe	153	Omni 2"x10'	123
APXVSP18-C w/mount pipe	153	Omni 2"x10'	123
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
(2) RRH-1900	153	(2) LNX 6514DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
RRH-800	153	(2) HBX-6517DS-VTM w/mount pipe	110
APXVTM14-C-120 w/mount pipe (SPRINT)	153	RRH 2X40-AWS+RDEM	110
APXVTM14-C-120 w/mount pipe	153	RRH 2X40-AWS+RDEM	110
APXVTM14-C-120 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-07U	110
840-10054 w/mount pipe	153	RRH 2X40-PCS	110
Kathrein 860 10025 RCU	153	RRH 2X40-PCS	110
Kathrein 860 10025 RCU	153	RRH 2X40-PCS	110
Panel Antenna 18"X18"	153	RFS DB-T1-6Z-8AB-0Z	110
Ring Mount	151	RFS DB-T1-6Z-8AB-0Z	110
RRH 8x20-25	151	PIROD 13' Low Profile Platform (Verizon - proposed)	110
RRH 8x20-25	151	GPS	54
RRH 8x20-25	151	1' Side Mount Standoff	54
Andrew VHLP2-11	150	1' Side Mount Standoff	38.9
Andrew VHLP2-11	150	1' Side Mount Standoff	38.9
Andrew VHLP2-11	150	1' Side Mount Standoff	38.9
Andrew VHLP2-11	150	Andrew VHLPX2-18-2WH/B	38.9
Andrew VHLP2-11	150	Andrew VHLPX2-18-2WH/B	38.9
		(2) Andrew VHLPX2-18-2WH/B	38.9

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 80.0 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69.3 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50.0 mph wind.



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	17.50	18	0.1875	3.00	15.5000	19.3990	A572-65	611.7
2	36.42	18	0.2500	3.83	18.3556	26.4010	A572-65	2176.1
3	23.92	18	0.3750	5.00	25.0549	30.2850	A572-65	2644.3
4	25.00	18	0.4150	5.00	30.2850	35.8920	A572-65	3661.2
5	49.08	18	0.4850	6.17	33.9406	44.9030	A572-65	10010.3
6	49.08	18	0.5400	6.17	42.5549	53.5000	A572-65	13593.1
								32696.8

Hudson Design Group LLC
 1600 Osgood Street Bldg. 20N Suite 3090
 North Andover, MA 01845
 Phone: (978) 557-5553
 FAX: (978) 336-5586

Job: CT43XC827 MANCHESTER POLICE TOWER
 Project: 183 ft Monopole
 Client: SPRINT
 Code: TIA/EIA-222-F
 Path:
 Drawn by: kw
 Date: 08/04/15
 App'd:
 Scale: NTS
 Dwg No. E-1



Hudson Design Group LLC
 1600 Osgood Street Bldg. 20N Suite 3090
 North Andover, MA 01845
 Phone: (978) 557-5553
 FAX: (978) 336-5586

Job	CT43XC827 MANCHESTER POLICE TOWER	Page	1 of 12
Project	183 ft Monopole	Date	09:03:12 08/04/15
Client	SPRINT	Designed by	kw

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 80.0 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56.0 pcf.

A wind speed of 69.3 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 50.0 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.

Tapered Pole Section Geometry

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
L1	184.00-166.50	17.50	3.00	18	15.5000	19.3990	0.1875	0.7500	A572-65 (65 ksi)
L2	166.50-133.08	36.42	3.83	18	18.3556	26.4010	0.2500	1.0000	A572-65 (65 ksi)
L3	133.08-112.99	23.92	0.00	18	25.0549	30.2850	0.3750	1.5000	A572-65 (65 ksi)
L4	112.99-87.99	25.00	5.00	18	30.2850	35.8920	0.4150	1.6600	A572-65 (65 ksi)
L5	87.99-43.91	49.08	6.17	18	33.9406	44.9030	0.4850	1.9400	A572-65 (65 ksi)
L6	43.91-1.00	49.08		18	42.5549	53.5000	0.5400	2.1600	A572-65 (65 ksi)

Monopole Base Plate Data

Base Plate Data

Base plate is square	
Base plate is grouted	√
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	18
Embedment length	84.0000 in
f_c	4.0 ksi
Grout space	4.0000 in
Base plate grade	A572-60
Base plate thickness	2.0000 in
Bolt circle diameter	62.0000 in
Outer diameter	68.0000 in



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Base Plate Data

Inner diameter	43.0000 in
Base plate type	Stiffened Plate
Bolts per stiffener	1
Stiffener thickness	0.5000 in
Stiffener height	9.0000 in

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A		Weight plf
							ft ² /ft		
2" Conduit	A	No	CaAa (Out Of Face)	153.00 - 6.00	2	No Ice	0.20	2.80	
						1/2" Ice	0.30	4.33	
1/2	A	No	CaAa (Out Of Face)	153.00 - 6.00	3	No Ice	0.06	0.25	
						1/2" Ice	0.16	0.91	
3/8	A	No	Inside Pole	153.00 - 6.00	3	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	
7/8	B	No	Inside Pole	184.00 - 6.00	4	No Ice	0.00	0.54	
						1/2" Ice	0.00	0.54	
1 5/8 (T-MOBILE)	B	No	Inside Pole	163.00 - 6.00	12	No Ice	0.00	1.04	
						1/2" Ice	0.00	1.04	
1 5/8 Fiber Cable (T-MOBILE)	B	No	Inside Pole	163.00 - 6.00	9	No Ice	0.00	1.04	
						1/2" Ice	0.00	1.04	
1 5/8 Fiber Cable (T-MOBILE - proposed)	B	No	Inside Pole	163.00 - 6.00	6	No Ice	0.00	1.04	
						1/2" Ice	0.00	1.04	
1 1/4 (SPRINT)	B	No	Inside Pole	153.00 - 6.00	3	No Ice	0.00	0.66	
						1/2" Ice	0.00	0.66	
1 5/8 (AT&T)	B	No	Inside Pole	143.00 - 6.00	6	No Ice	0.00	1.04	
						1/2" Ice	0.00	1.04	
FB-L98B-002 (AT&T)	B	No	Inside Pole	143.00 - 6.00	3	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	
WR-VG122ST-BRDA (AT&T)	B	No	Inside Pole	143.00 - 6.00	6	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	
1/2	B	No	Inside Pole	123.00 - 6.00	5	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	
1/2	B	No	Inside Pole	54.00 - 6.00	1	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	
1/2	B	No	Inside Pole	38.90 - 6.00	4	No Ice	0.00	0.25	
						1/2" Ice	0.00	0.25	

1 5/8 Fiber Cable (VERIZON)	B	No	Inside Pole	110.00 - 6.00	2	No Ice	0.00	1.04	
						1/2" Ice	0.00	1.04	

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement ft	C _A A _A		Weight lb	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
Lightning Rod 2"x21'	A	From Leg	1.00	0.0000	0.0000	184.00	No Ice	4.20	4.20	80.00
			0.00				1/2" Ice	6.33	6.33	112.30
			10.00							
PiROD 13' Low Profile	A	None		0.0000	0.0000	184.00	No Ice	15.70	15.70	1300.00



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
Platform								
20'-4 Bay Dipole	C	From Face	3.50 4.00 0.00	0.0000	184.00	1/2" Ice 20.10 No Ice 4.75 1/2" Ice 6.25	20.10 4.75 6.25	1765.00 50.00 80.00
20'-4 Bay Dipole	C	From Face	3.50 -4.00 0.00	0.0000	184.00	No Ice 4.75 1/2" Ice 6.25	4.75 6.25	50.00 80.00

PiROD 13' Low Profile Platform	A	None		0.0000	163.00	No Ice 15.70 1/2" Ice 20.10	15.70 20.10	1300.00 1765.00
(T-Mobile - Existing)								
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
RFS ATMAP1412D-1A20	A	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
RFS ATMAP1412D-1A20	B	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
RFS ATMAP1412D-1A20	C	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 1.17 1/2" Ice 1.31	0.47 0.57	13.00 20.62
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 6.85 1/2" Ice 7.41	5.78 6.70	104.90 162.69

LNx-6515DS-VTM w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
(T-Mobile - Proposed)								
LNx-6515DS-VTM w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
LNx-6515DS-VTM w/ Mount Pipe	C	From Face	3.50 0.00 0.00	0.0000	163.00	No Ice 11.67 1/2" Ice 12.39	9.83 11.35	83.15 172.72
Ericsson RRUS 11	A	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32
Ericsson RRUS 11	B	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32
Ericsson RRUS 11	C	From Face	2.50 0.00 0.00	0.0000	163.00	No Ice 2.94 1/2" Ice 3.17	1.25 1.41	55.00 74.32



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb

PiROD 13' Low Profile Platform (SPRINT)	A	None		0.0000	153.00	No Ice 1/2" Ice	15.70 20.10	1300.00 1765.00
APXVSPP18-C w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	82.55 150.56
APXVSPP18-C w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	82.55 150.56
APXVSPP18-C w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	8.50 9.15	82.55 150.56
(2) RRH-1900	A	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	60.00 88.32
(2) RRH-1900	B	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	60.00 88.32
(2) RRH-1900	C	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.71 2.95	60.00 88.32
RRH-800	A	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	64.00 91.74
RRH-800	B	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	64.00 91.74
RRH-800	C	From Face	1.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.49 2.71	64.00 91.74

APXVTM14-C-120 w/mount pipe (SPRINT)	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	91.90 147.31
APXVTM14-C-120 w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	91.90 147.31
APXVTM14-C-120 w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	7.21 7.77	91.90 147.31
RRH 8x20-25	A	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	70.00 97.14
RRH 8x20-25	B	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	70.00 97.14
RRH 8x20-25	C	From Face	1.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice	4.72 5.01	70.00 97.14
Ring Mount	C	None		0.0000	151.00	No Ice 1/2" Ice	1.40 2.40	90.00 130.00

840-10054 w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	5.41 5.83	46.43 82.55
840-10054 w/mount pipe	B	From Face	3.50	0.0000	153.00	No Ice	5.41	46.43



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb	
			0.00			1/2" Ice 5.83	2.92	82.55	
840-10054 w/mount pipe	C	From Face	0.00 3.50	0.0000	153.00	No Ice 5.41 1/2" Ice 5.83	2.39	46.43 82.55	
Kathrein 860 10025 RCU	A	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14	1.20 2.76	
Kathrein 860 10025 RCU	B	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14	1.20 2.76	
Kathrein 860 10025 RCU	C	From Face	0.00 2.50	0.0000	153.00	No Ice 0.16 1/2" Ice 0.23	0.14	1.20 2.76	
Panel Antenna 18"X18"	B	From Face	0.00 3.50	0.0000	153.00	No Ice 3.15 1/2" Ice 3.39	0.53	15.00 30.30	

PiROD 13' Low Profile Platform	A	None		0.0000	123.00	No Ice 15.70 1/2" Ice 20.10	15.70	1300.00 1765.00	
Omni 2"x10'	B	From Face	0.00 3.50	0.0000	123.00	No Ice 2.00 1/2" Ice 3.02	2.00	20.00 35.50	
Omni 2"x10'	B	From Face	6.00 3.50	0.0000	123.00	No Ice 2.00 1/2" Ice 3.02	2.00	20.00 35.50	
20'-4 Bay Dipole	C	From Face	6.00 3.50	0.0000	123.00	No Ice 4.75 1/2" Ice 6.25	4.75	50.00 80.00	
3' Yagi antenna	B	From Face	0.00 3.50	0.0000	123.00	No Ice 0.70 1/2" Ice 0.95	0.35	10.00 36.35	
3' Yagi antenna	C	From Face	0.00 3.50	0.0000	123.00	No Ice 0.70 1/2" Ice 0.95	0.35	10.00 36.35	

1' Side Mount Standoff	C	From Face	0.00 1.00	0.0000	54.00	No Ice 1.00 1/2" Ice 1.50	1.00	30.00 50.00	
GPS	C	From Face	0.00 3.00	0.0000	54.00	No Ice 0.21 1/2" Ice 0.32	0.21	5.00 7.52	

PiROD 13' Low Profile Platform (AT&T)	A	None		0.0000	143.00	No Ice 15.70 1/2" Ice 20.10	15.70	1300.00 1765.00	
Kathrein 800 10121 w/mount pipe	A	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81	78.15 128.24	
Kathrein 800 10121 w/mount pipe	B	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81	78.15 128.24	
Kathrein 800 10121 w/mount pipe	C	From Face	0.00 3.50	0.0000	143.00	No Ice 5.72 1/2" Ice 6.21	4.81	78.15 128.24	
Ericsson RRUS-11	A	From Face	0.00 2.50	0.0000	143.00	No Ice 3.26 1/2" Ice 3.50	1.38	50.70 71.57	



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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft ²	ft ²	lb	
Ericsson RRUS-11	B	From Face	0.00	2.50	0.0000	143.00	No Ice	3.26	1.38	50.70
			0.00	0.00			1/2" Ice	3.50	1.56	71.57
			0.00	0.00						
Ericsson RRUS-11	C	From Face	2.50	0.00	0.0000	143.00	No Ice	3.26	1.38	50.70
			0.00	0.00			1/2" Ice	3.50	1.56	71.57
			0.00	0.00						
DC6-48-60-18-8F	C	From Leg	2.00	0.00	0.0000	143.00	No Ice	1.27	1.27	20.00
			0.00	0.00			1/2" Ice	1.46	1.46	35.12
			0.00	0.00						

(2) OPA-65R-LCUU-H6 w/mount pipe	A	From Face	3.50	0.00	0.0000	143.00	No Ice	10.65	7.53	112.53
			0.00	0.00			1/2" Ice	11.30	8.56	192.76
			0.00	0.00						
(2) OPA-65R-LCUU-H8 w/mount pipe	B	From Face	3.50	0.00	0.0000	143.00	No Ice	13.34	9.83	140.11
			0.00	0.00			1/2" Ice	14.18	11.34	239.33
			0.00	0.00						
(2) OPA-65R-LCUU-H8 w/mount pipe	C	From Face	3.50	0.00	0.0000	143.00	No Ice	13.34	9.83	140.11
			0.00	0.00			1/2" Ice	14.18	11.34	239.33
			0.00	0.00						
Ericsson RRUS-12	A	From Face	2.50	0.00	0.0000	143.00	No Ice	3.67	1.49	58.00
			0.00	0.00			1/2" Ice	3.93	1.67	81.22
			0.00	0.00						
Ericsson RRUS-12	B	From Face	2.50	0.00	0.0000	143.00	No Ice	3.67	1.49	58.00
			0.00	0.00			1/2" Ice	3.93	1.67	81.22
			0.00	0.00						
Ericsson RRUS-12	C	From Face	2.50	0.00	0.0000	143.00	No Ice	3.67	1.49	58.00
			0.00	0.00			1/2" Ice	3.93	1.67	81.22
			0.00	0.00						
Ericsson RRUS-32	A	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson RRUS-32	B	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson RRUS-32	C	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson RRUS-E2	A	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson RRUS-E2	B	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson RRUS-E2	C	From Face	2.50	0.00	0.0000	143.00	No Ice	3.87	2.76	77.00
			0.00	0.00			1/2" Ice	4.15	3.02	104.93
			0.00	0.00						
Ericsson A2 Module	A	From Face	2.50	0.00	0.0000	143.00	No Ice	2.42	0.54	22.00
			0.00	0.00			1/2" Ice	2.63	0.67	34.73
			0.00	0.00						
Ericsson A2 Module	B	From Face	2.50	0.00	0.0000	143.00	No Ice	2.42	0.54	22.00
			0.00	0.00			1/2" Ice	2.63	0.67	34.73
			0.00	0.00						
Ericsson A2 Module	C	From Face	2.50	0.00	0.0000	143.00	No Ice	2.42	0.54	22.00
			0.00	0.00			1/2" Ice	2.63	0.67	34.73
			0.00	0.00						
Surge Arrestor	A	From Leg	2.00	0.00	0.0000	143.00	No Ice	1.27	1.27	20.00



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
(DC6-48-60-18-8F)			0.00 0.00		1/2" Ice	1.46	1.46	35.12

PiROD 13' Low Profile Platform (Verizon - proposed)	C	None		0.0000	110.00	No Ice 15.70 1/2" Ice 20.10	15.70 20.10	1300.00 1765.00
(2) LNX 6514DS-VTM w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 8.63 1/2" Ice 9.29	7.07 8.25	64.55 133.55
(2) LNX 6514DS-VTM w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 8.63 1/2" Ice 9.29	7.07 8.25	64.55 133.55
(2) LNX 6514DS-VTM w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 8.63 1/2" Ice 9.29	7.07 8.25	64.55 133.55
(2) HBX-6517DS-VTM w/mount pipe	A	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 5.42 1/2" Ice 5.97	4.96 6.14	39.25 85.00
(2) HBX-6517DS-VTM w/mount pipe	B	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 5.42 1/2" Ice 5.97	4.96 6.14	39.25 85.00
(2) HBX-6517DS-VTM w/mount pipe	C	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 5.42 1/2" Ice 5.97	4.96 6.14	39.25 85.00
RRH 2X40-AWS+RDEM	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 3.77 1/2" Ice 4.04	2.23 2.46	47.60 73.79
RRH 2X40-AWS+RDEM	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 3.77 1/2" Ice 4.04	2.23 2.46	47.60 73.79
RRH 2X40-AWS+RDEM	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 3.77 1/2" Ice 4.04	2.23 2.46	47.60 73.79
RRH 2X40-07U	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.29 1/2" Ice 2.49	1.21 1.36	50.00 66.78
RRH 2X40-07U	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.29 1/2" Ice 2.49	1.21 1.36	50.00 66.78
RRH 2X40-07U	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.29 1/2" Ice 2.49	1.21 1.36	50.00 66.78
RRH 2X40-PCS	A	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.57 1/2" Ice 2.79	2.02 2.23	55.00 75.41
RRH 2X40-PCS	B	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.57 1/2" Ice 2.79	2.02 2.23	55.00 75.41
RRH 2X40-PCS	C	From Face	2.50 0.00 0.00	0.0000	110.00	No Ice 2.57 1/2" Ice 2.79	2.02 2.23	55.00 75.41
RFS DB-T1-6Z-8AB-0Z	B	From Face	1.50 0.00 0.00	0.0000	110.00	No Ice 5.60 1/2" Ice 5.92	2.33 2.56	44.00 80.13
RFS DB-T1-6Z-8AB-0Z	C	From Face	1.50 0.00 0.00	0.0000	110.00	No Ice 5.60 1/2" Ice 5.92	2.33 2.56	44.00 80.13



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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	lb	

1' Side Mount Standoff	A	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	30.00 50.00
1' Side Mount Standoff	B	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	30.00 50.00
1' Side Mount Standoff	C	From Face	0.50 0.00 0.00	0.0000	38.90	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	30.00 50.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft ft ft	°	°	ft	ft	ft ²	lb
Andrew VHLP2-11	A	Paraboloid w/Radome	From Face	3.50 0.00 0.00	0.0000		150.00	2.00	No Ice 1/2" Ice	31.00 41.00
Andrew VHLPX2.5-11	B	Paraboloid w/Shroud (HP)	From Face	3.50 0.00 0.00	0.0000		150.00	2.50	No Ice 1/2" Ice	49.00 77.00
Andrew VHLP2-11	C	Paraboloid w/Radome	From Face	3.50 0.00 0.00	0.0000		150.00	2.00	No Ice 1/2" Ice	31.00 41.00
Andrew VHLPX2-18-2WH/B	A	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00
Andrew VHLPX2-18-2WH/B	B	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00
(2) Andrew VHLPX2-18-2WH/B	C	Paraboloid w/Radome	From Face	2.00 0.00 0.00	0.0000		38.90	2.00	No Ice 1/2" Ice	25.00 35.00

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



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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	24	65972.65	32753.61	-135.40
	Max. H _x	11	54519.98	37264.98	-182.71
	Max. H _z	2	54519.98	-230.38	37240.39
	Max. M _x	2	4622869.48	-230.38	37240.39
	Max. M _z	5	4628206.67	-37238.44	246.35
	Max. Torsion	9	2570.31	18807.61	-32341.69
	Min. Vert	1	54519.98	0.00	0.00
	Min. H _x	5	54519.98	-37238.44	246.35
	Min. H _z	8	54519.98	272.09	-37282.32
	Min. M _x	8	-4626109.38	272.09	-37282.32
	Min. M _z	11	-4631060.50	37264.98	-182.71
	Min. Torsion	3	-2631.61	-18840.95	32321.06

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	54519.98	0.00	0.00	-711.73	-598.64	-0.00



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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+Wind 0 deg - No Ice	54519.98	230.38	-37240.39	-4622869.48	-34313.45	1913.08
Dead+Wind 30 deg - No Ice	54519.98	18840.95	-32321.06	-4011683.67	-2343570.11	2631.61
Dead+Wind 60 deg - No Ice	54519.98	32357.91	-18781.04	-2333136.44	-4021213.44	2519.14
Dead+Wind 90 deg - No Ice	54519.98	37238.44	-246.35	-34115.01	-4628206.67	1722.20
Dead+Wind 120 deg - No Ice	54519.98	32178.46	18396.30	2280253.15	-4000637.11	579.89
Dead+Wind 150 deg - No Ice	54519.98	18506.86	32177.38	3991535.94	-2299472.43	-712.45
Dead+Wind 180 deg - No Ice	54519.98	-272.09	37282.32	4626109.38	39620.70	-1721.31
Dead+Wind 210 deg - No Ice	54519.98	-18807.61	32341.69	4014635.54	2341008.65	-2570.31
Dead+Wind 240 deg - No Ice	54519.98	-32311.22	18738.96	2329621.42	4017518.84	-2492.11
Dead+Wind 270 deg - No Ice	54519.98	-37264.98	182.71	28280.17	4631060.50	-1761.93
Dead+Wind 300 deg - No Ice	54519.98	-32263.08	-18412.10	-2279589.67	4007710.50	-798.66
Dead+Wind 330 deg - No Ice	54519.98	-18490.72	-32215.96	-3997830.32	2291724.08	691.05
Dead+Ice+Temp	65972.65	0.00	0.00	-1380.21	-1168.91	0.02
Dead+Wind 0 deg+Ice+Temp	65972.65	174.24	-32725.55	-4127953.19	-27219.33	1843.17
Dead+Wind 30 deg+Ice+Temp	65972.65	16535.68	-28392.17	-3580921.67	-2089933.69	2309.63
Dead+Wind 60 deg+Ice+Temp	65972.65	28429.61	-16482.93	-2080786.18	-3589840.69	2052.65
Dead+Wind 90 deg+Ice+Temp	65972.65	32732.92	-187.51	-27164.38	-4133635.75	1237.91
Dead+Wind 120 deg+Ice+Temp	65972.65	28295.54	16192.01	2038601.70	-3574566.61	188.18
Dead+Wind 150 deg+Ice+Temp	65972.65	16285.46	28287.61	3564392.31	-2056625.12	-907.13
Dead+Wind 180 deg+Ice+Temp	65972.65	-207.33	32759.49	4128963.04	29979.37	-1688.89
Dead+Wind 210 deg+Ice+Temp	65972.65	-16507.81	28408.31	3581622.30	2086210.47	-2260.09
Dead+Wind 240 deg+Ice+Temp	65972.65	-28390.78	16448.20	2076147.06	3585158.84	-2030.76
Dead+Wind 270 deg+Ice+Temp	65972.65	-32753.61	135.40	20630.24	4134344.79	-1270.08
Dead+Wind 300 deg+Ice+Temp	65972.65	-28363.84	-16205.55	-2039795.09	3578801.83	-364.35
Dead+Wind 330 deg+Ice+Temp	65972.65	-16273.02	-28318.62	-3571195.37	2048767.49	889.93
Dead+Wind 0 deg - Service	54519.98	89.99	-14547.03	-1810107.58	-13843.68	760.12
Dead+Wind 30 deg - Service	54519.98	7359.75	-12625.41	-1570881.74	-917848.65	1046.34
Dead+Wind 60 deg - Service	54519.98	12639.81	-7336.35	-913784.65	-1574599.36	1002.75
Dead+Wind 90 deg - Service	54519.98	14546.27	-96.23	-13787.04	-1812183.80	686.83
Dead+Wind 120 deg - Service	54519.98	12569.71	7186.05	892179.77	-1566477.87	232.76
Dead+Wind 150 deg - Service	54519.98	7229.24	12569.29	1562064.80	-900548.09	-281.36
Dead+Wind 180 deg - Service	54519.98	-106.29	14563.41	1810502.18	15102.48	-682.80
Dead+Wind 210 deg - Service	54519.98	-7346.72	12633.47	1571172.41	916025.40	-1021.80
Dead+Wind 240 deg - Service	54519.98	-12621.57	7319.91	911545.07	1572332.23	-992.79
Dead+Wind 270 deg - Service	54519.98	-14556.63	71.37	10640.25	1812500.01	-703.63
Dead+Wind 300 deg - Service	54519.98	-12602.77	-7192.23	-892795.20	1568449.72	-320.03
Dead+Wind 330 deg - Service	54519.98	-7222.94	-12584.36	-1565411.53	896703.24	273.68

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-54519.98	0.00	0.00	54519.98	0.00	0.000%
2	230.38	-54519.98	-37240.39	-230.38	54519.98	37240.39	0.000%
3	18840.95	-54519.98	-32321.06	-18840.95	54519.98	32321.06	0.000%
4	32357.91	-54519.98	-18781.04	-32357.91	54519.98	18781.04	0.000%
5	37238.44	-54519.98	-246.35	-37238.44	54519.98	246.35	0.000%
6	32178.46	-54519.98	18396.30	-32178.46	54519.98	-18396.30	0.000%
7	18506.86	-54519.98	32177.38	-18506.86	54519.98	-32177.38	0.000%
8	-272.09	-54519.98	37282.32	272.09	54519.98	-37282.32	0.000%
9	-18807.61	-54519.98	32341.69	18807.61	54519.98	-32341.69	0.000%
10	-32311.22	-54519.98	18738.96	32311.22	54519.98	-18738.96	0.000%
11	-37264.98	-54519.98	182.71	37264.98	54519.98	-182.71	0.000%
12	-32263.08	-54519.98	-18412.10	32263.08	54519.98	18412.10	0.000%
13	-18490.72	-54519.98	-32215.96	18490.72	54519.98	32215.96	0.000%
14	0.00	-65972.65	0.00	-0.00	65972.65	-0.00	0.000%



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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
15	174.24	-65972.65	-32725.54	-174.24	65972.65	32725.55	0.000%
16	16535.67	-65972.65	-28392.17	-16535.68	65972.65	28392.17	0.000%
17	28429.61	-65972.65	-16482.93	-28429.61	65972.65	16482.93	0.000%
18	32732.91	-65972.65	-187.51	-32732.92	65972.65	187.51	0.000%
19	28295.54	-65972.65	16192.01	-28295.54	65972.65	-16192.01	0.000%
20	16285.46	-65972.65	28287.61	-16285.46	65972.65	-28287.61	0.000%
21	-207.33	-65972.65	32759.48	207.33	65972.65	-32759.49	0.000%
22	-16507.81	-65972.65	28408.31	16507.81	65972.65	-28408.31	0.000%
23	-28390.78	-65972.65	16448.20	28390.78	65972.65	-16448.20	0.000%
24	-32753.60	-65972.65	135.40	32753.61	65972.65	-135.40	0.000%
25	-28363.84	-65972.65	-16205.55	28363.84	65972.65	16205.55	0.000%
26	-16273.02	-65972.65	-28318.62	16273.02	65972.65	28318.62	0.000%
27	89.99	-54519.98	-14547.03	-89.99	54519.98	14547.03	0.000%
28	7359.75	-54519.98	-12625.41	-7359.75	54519.98	12625.41	0.000%
29	12639.81	-54519.98	-7336.35	-12639.81	54519.98	7336.35	0.000%
30	14546.26	-54519.98	-96.23	-14546.27	54519.98	96.23	0.000%
31	12569.71	-54519.98	7186.05	-12569.71	54519.98	-7186.05	0.000%
32	7229.24	-54519.98	12569.29	-7229.24	54519.98	-12569.29	0.000%
33	-106.29	-54519.98	14563.41	106.29	54519.98	-14563.41	0.000%
34	-7346.72	-54519.98	12633.47	7346.72	54519.98	-12633.47	0.000%
35	-12621.57	-54519.98	7319.91	12621.57	54519.98	-7319.91	0.000%
36	-14556.63	-54519.98	71.37	14556.63	54519.98	-71.37	0.000%
37	-12602.77	-54519.98	-7192.23	12602.77	54519.98	7192.23	0.000%
38	-7222.94	-54519.98	-12584.36	7222.94	54519.98	12584.36	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	184 - 166.5	66.6915	29	3.2171	0.0193
L2	169.5 - 133.08	57.0034	29	3.1566	0.0118
L3	136.91 - 112.99	36.5635	29	2.7122	0.0057
L4	112.99 - 87.99	24.1382	29	2.1990	0.0036
L5	92.99 - 43.91	15.9219	29	1.7190	0.0022
L6	50.08 - 1	4.3452	29	0.8250	0.0008

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184.00	Lightning Rod 2"x21'	29	66.6915	3.2171	0.0197	29320
163.00	PiROD 13' Low Profile Platform	29	52.7243	3.1029	0.0096	6692
153.00	PiROD 13' Low Profile Platform	29	46.2954	2.9822	0.0075	4400
151.00	RRH 8x20-25	29	45.0392	2.9532	0.0072	4117
150.00	Andrew VHLP2-11	29	44.4154	2.9381	0.0071	3988
143.00	PiROD 13' Low Profile Platform	29	40.1386	2.8235	0.0063	3269
123.00	PiROD 13' Low Profile Platform	29	29.0027	2.4266	0.0045	2471
110.00	PiROD 13' Low Profile Platform	29	22.7857	2.1281	0.0033	2343
54.00	1' Side Mount Standoff	29	5.0463	0.8980	0.0008	2468
38.90	Andrew VHLPX2-18-2WH/B	29	2.7383	0.6247	0.0006	3152



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Client	SPRINT	Designed by	kw

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
L1	184 - 166.5	Pole	TP19.399x15.5x0.1875	1	-2474.25	573700.52	13.9	Pass	
L2	166.5 - 133.08	Pole	TP26.401x18.3556x0.25	2	-11200.10	1043870.92	70.7	Pass	
L3	133.08 - 112.99	Pole	TP30.285x25.0549x0.375	3	-16780.10	1850750.45	81.2	Pass	
L4	112.99 - 87.99	Pole	TP35.892x30.285x0.415	4	-23124.30	2352598.27	91.1	Pass	
L5	87.99 - 43.91	Pole	TP44.903x33.9406x0.485	5	-35764.50	3444405.21	96.0	Pass	
L6	43.91 - 1	Pole	TP53.5x42.5549x0.54	6	-47861.60	4359922.90	92.2	Pass	
							Summary		
							Pole (L5)	96.0	Pass
							Base Plate	87.3	Pass
							RATING =	96.0	Pass

BU: CT143XC827
 Site Name:
 App Number: N/A
 Work Order:

Monopole Drilled Pier

Input

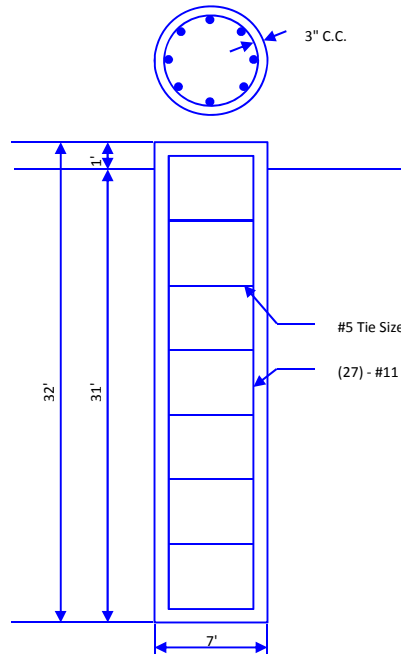
Criteria
 TIA Revision: F
 ACI 318 Revision: 2002
 Seismic Category: B

Forces
 Compression: 54.2 kips
 Shear: 37.4 kips
 Moment: 4649 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 7 ft
 Ext. above grade: 1 ft
 Depth below grade: 31 ft

Material Properties
 Number of Rebar: 27
 Rebar Size: 11
 Tie Size: 5
 Rebar tensile strength: 60 ksi
 Concrete Strength: 4000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 3 in

Soil Profile: Profile 1



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.5	0	3.5	100	0	0	0	0		
2	2.5	3.5	6	100	0	30				
3	10	6	16	37.6	0	30				
4	15	16	31	37.6	0	30				

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 5.87 ft
 Max Moment, Mu: 4894.69 k-ft
 Soil Safety Factor: 2.13
 Safety Factor Req'd: 2
RATING: 93.7%

Soil Axial Capacity
 Skin Friction (k): 106.41 kips
 End Bearing (k): 0.00 kips
 Comp. Capacity (k), φCn: 106.41 kips
 Comp. (k), Cu: 70.46 kips
RATING: 66.2%

Concrete/Steel Check
 Mu (from soil analysis): 6363.09 k-ft
 φMn: 6758.24 k-ft
RATING: 94.2%

rho provided: 0.76
 rho required: 0.33 OK

Rebar Spacing: 7.36
 Spacing required: 22.56 OK

Dev. Length required: 24.88
 Dev. Length provided: 53.51 OK

Overall Foundation Rating: 94.2%

Exhibit C

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

T-Mobile Existing Facility

Site ID: CT11365D

CT365 / Manchester PD_MP
239 East Middle Turnpike
Manchester, CT 06040

August 13, 2015

EBI Project Number: 6215004416

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	70.39 %

August 13, 2015

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

Emissions Analysis for Site: **CT11365D – CT365 / Manchester PD_MP**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **239 East Middle Turnpike, Manchester, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is $467 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is approximately $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **239 East Middle Turnpike, Manchester, 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 LNX-6515DS-VTM** 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 **15.9 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 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.

The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P & B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P & B2A/B4P** have a maximum gain of **15.9 dBd** at their main lobe

- 8) The antenna mounting height centerline of the proposed antennas is **163 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.

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:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
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:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.68	Antenna B1 MPE%	0.68	Antenna C1 MPE%	0.68
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:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
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:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.68	Antenna B2 MPE%	0.68	Antenna C2 MPE%	0.68
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
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):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.27	Antenna B3 MPE%	0.27	Antenna C3 MPE%	0.27

Site Composite MPE%	
Carrier	MPE%
T-Mobile	4.90
Town MFRE	0.96 %
Town MPD - ch 1	0.13 %
Town MPD - ch 2	0.15 %
Town MFD	0.26 %
Town services intercity	0.49 %
RAFS I/2	1.65 %
Town public works	0.73 %
Town Services EOC	0.73 %
Town FD	0.73 %
town SP hotline	0.97 %
Town Vol FD	0.56 %
Town Service - School	0.16 %
Htfd City FD	0.73 %
Tolland MUT	0.73 %
Sprint	11.76 %
Clearwire	0.81 %
Verizon	6.80 %
AT&T	17.51 %
Verizon Wireless	9.63 %
Site Total MPE %:	70.39 %

T-Mobile Sector 1 Total:	1.63 %
T-Mobile Sector 2 Total:	1.63 %
T-Mobile Sector 3 Total:	1.63 %
Site Total:	70.39 %

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:	1.63 %
Sector 2:	1.63 %
Sector 3 :	1.63 %
T-Mobile Total:	4.90 %
Site Total:	70.39 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **70.39%** 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.



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