COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

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

August 25, 2014

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

Re: Notice of Exempt Modification
T-Mobile location
Site ID CT11000A
100 Filley Street, Bloomfield, Connecticut

Dear Attorney Bachman:

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

In this case, T-Mobile owns the existing monopole tower and related facility located at 100 Filley Street, Bloomfield, Connecticut (Latitude: 41.851769 Longitude: -72.715175). T-Mobile intends to replace three antennas and related equipment at this existing telecommunications facility in Bloomfield ("Bloomfield Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Town Mayor, Sydney Schulman. T-Mobile is also the property owner.

The existing Bloomfield Facility consists of a 93 foot tall monopole tower.[1] T-Mobile plans to replace three antennas at a centerline of 93 feet. (See the plans revised to August 1, 2014 attached hereto as Exhibit A). T-Mobile will also install three remote radio units (RRUs) mounted on an H-frame on the existing concrete pad, and install coax cable. The existing Bloomfield Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated August 11, 2014 and attached hereto as Exhibit B.[2]

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[1] While the online docket for the Connecticut Siting Council does not provide a docket or petition number for the approval of this structure, it does reference this structure in connection with a notice of intent to modify captioned EM-T-MOBILE-011-090409.

[2] The structural analysis provides that the tower is adequate to support the proposed equipment with the addition of a handrail kit. This addition will be completed prior to the installation of the proposed modifications.

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

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement antennas will be installed at a centerline of 93 feet, replacing existing antennas located at the same 93 foot height. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries. T-Mobile's equipment will be located entirely within the existing compound and equipment pad as shown on pages LE-1 and LE-2 of Exhibit A.

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

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated August 20, 2014, T-Mobile's operations would add 15.66% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 15.66% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

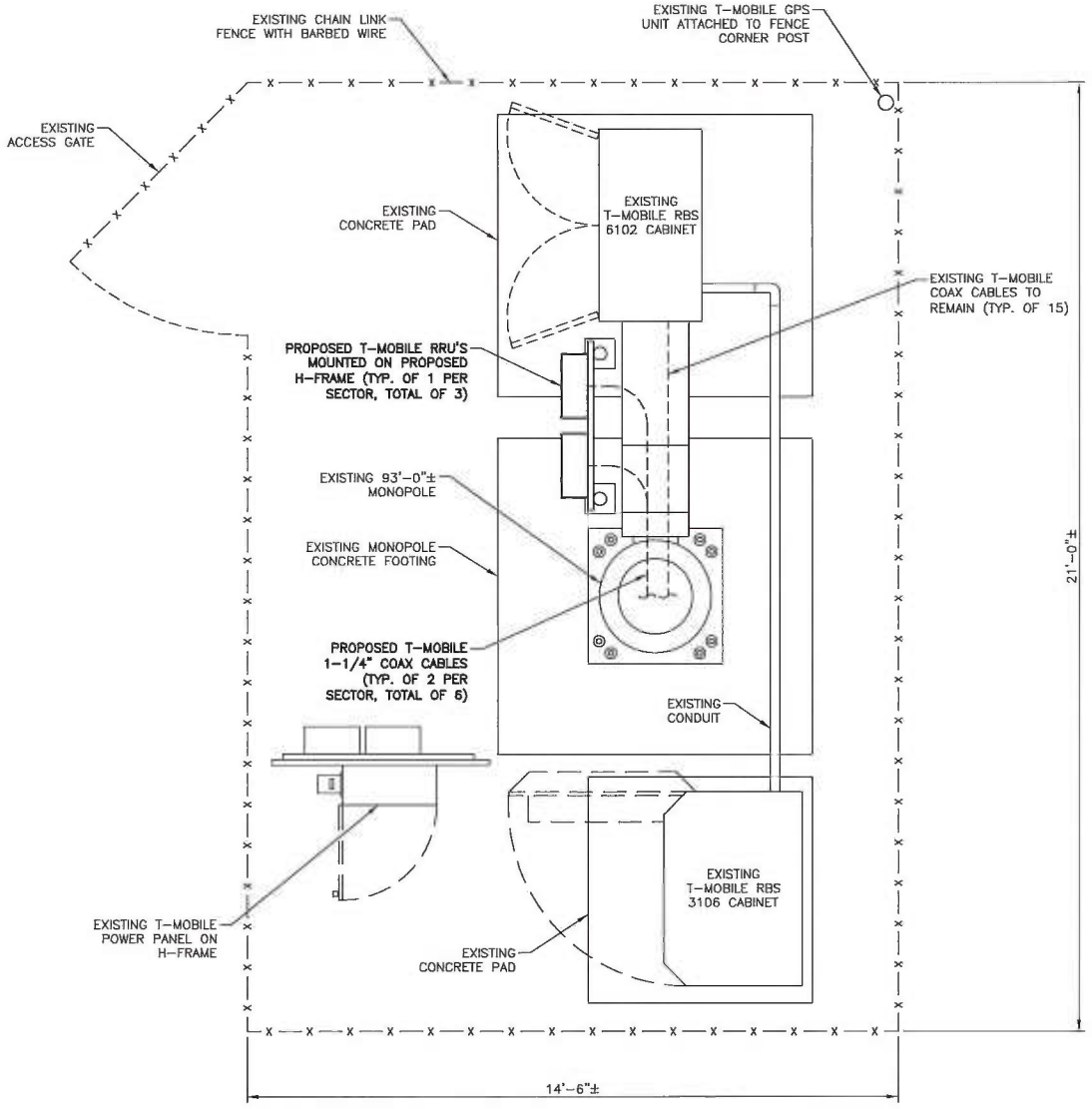
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Bloomfield Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence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

Sincerely,

Julie D. Kohler, Esq.

cc: Town of Bloomfield, First Mayor Sydney Schulman
T-Mobile, EBI Consulting

EXHIBIT A



CONFIGURATION

704BU

APPROX. NORTH

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

SITE PLAN

SCALE: 1/4" = 1'-0"

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: (781) 273-2500 | Fax: (781) 273-3311
www.ebiconsulting.com
EBI JOB NO.: 81140786

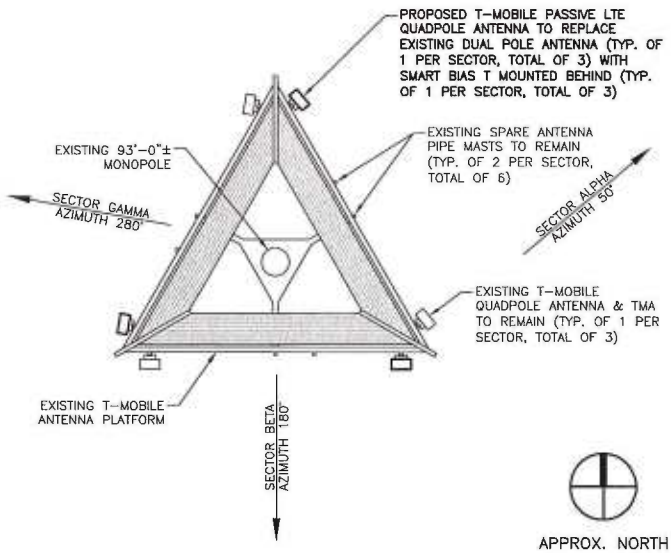
CLIENT:
T-Mobile Northeast, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860.692.7100

SITE INFO:
CT11000A
BLOOMFIELD/W. DUDLEY 1
100 FILLEY STREET
BLOOMFIELD, CT 06002

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	08/01/14	FOR REVIEW	AC

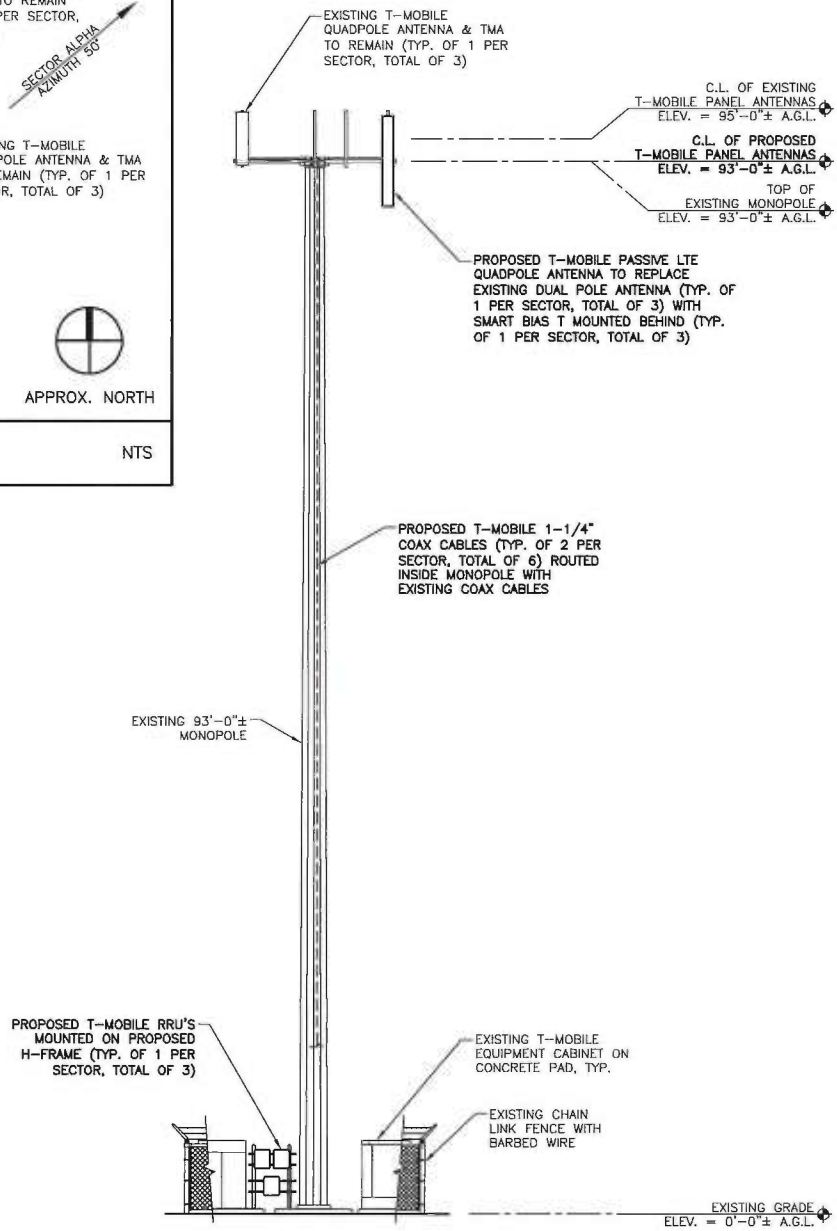
DRAWN BY: AC
CHECKED BY: PM
DATE: 07/30/14

SHEET NO: LE-1



ANTENNA CONFIGURATION

NTS



CONFIGURATION

704BU

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

TOWER ELEVATION

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

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: (781) 273-2500 | Fax: (781) 273-3311
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CLIENT:
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35 GRIFFIN ROAD SOUTH
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860.692.7100

SITE INFO:
CT11000A
BLOOMFIELD/W. DUDLEY 1
100 FILLEY STREET
BLOOMFIELD, CT 06002

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	08/01/14	FOR REVIEW	AC

DRAWN BY: AC
CHECKED BY: PM
DATE: 07/30/14

SHEET NO: LE-2

EXHIBIT B

EBI Consulting
environmental | engineering | due diligence

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

STRUCTURAL ANALYSIS REPORT

August 11, 2014

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

Subject: 700 MHz Upgrade Project
Site #: CT-11000A
EBI Reference #: 81140786
Site Name: Bloomfield/W. Dudley 1
Address: 100 Filley St., Bloomfield, CT

Dear Mr. Richard:

EBI Consulting's structural engineers have prepared this structural report for the existing monopole tower at the above address, in accordance with the CT State Building Code (with amendments) and ANSI/TIA/EIA-222 Revision F. Information from the following sources was utilized in our analysis:

1. Tower analysis by Paul J. Ford and Co., dated July 24, 1997
2. Photographs from site visit by EBI on June 17, 2014

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

The proposed (3) Commscope SBNHH-1D65C panel antennas shall be installed on proposed 2-7/8" O.D. pipe masts, mounted to existing sector frames. Additionally, (6) 1-1/4" coax cables will be installed from the equipment cabinets to the proposed T-Mobile equipment, following the route of the existing coaxial cable installations. The three proposed RRUS11 B12 remote radio units are conservatively included at the antenna level, however, please refer to drawings for final position.

Local Equipment Support:

Calculations for local support are included herein and are found to be **adequate with addition of a handrail kit**. As an alternate, the proposed antenna may be moved to the center position on the sector frame. The sector frame is estimated to consist of:

- Triangular in plan with a nominal face width of between 12'-0" and 13'-0".
- Horizontal platform perimeter members are made from L4x4x1/4" angles, L3x3x1/4" angles, or HSS3x2.5x3/16" minimum.
- Supported by L3x3x1/4" angles minimum attached to a triangular plate 1" thick minimum, bolted to the top flange of the monopole with at least (10) 3/4" minimum diameter bolts.

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- Platform walking/standing surface consists of either 1"x3/16" steel bar or expanded metal grating.

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

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	93 - 44.75	Pole	TP25.45x19.5625x0.1875	1	-5386.32	710142.39	68.8	Pass
L2	44.75 - 0	Pole	TP33.35x24.6784x0.25	2	-10328.30	1260398.10	70.8	Pass
							Summary	
						Pole (L2)	70.8	Pass
						Base Plate	51.0	Pass
						RATING =	**70.8**	**Pass**

The maximum stress under the proposed conditions and configurations is **70.8%** of the tower capacity, governed by the monopole section L2, and is considered adequate.

Global Tower Analysis Foundation:

Max. corner reaction at base:	Previous Report Reactions (kips)	Proposed Loading Reactions (kips)
Axial (kips)	13	13
Moment (foot-kips)	800	601
Shear (kips)	12	8.3

The previous structural analysis was made available to EBI Consulting for comparing current reactions with previous reactions. It can be seen that the current reactions are less than the previous analysis and that the foundation will have adequate capacity for the proposed loading. The previous foundation design remains valid for the proposed loading.

Limitations and Assumptions:

This report is based on the following:

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

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8. Modifications listed in the previous report have been installed.

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

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

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

THE CONCLUSION OF THE TOWER STRUCTURAL ANALYSIS IS THAT THE TOWER HAS ADEQUATE CAPACITY FOR THE PROPOSED LOADING. Please contact this office should you have any questions regarding this matter.

Sincerely,
EBI Consulting
August 11, 2014

Matthew Hykes, P.E.
Professional Engineer

Maribel Dentinger, P.E.
Professional Engineer

EBI Consulting
environmental | engineering | due diligence

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STRUCTURAL PHOTO LOG

Photo 1: General view of an existing T-Mobile sector.	
Photo 2: General view of an existing T-Mobile sector.	
Photo 3: Existing tower base.	

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Photo 4: Overall view of upper portion of tower.	

APPENDIX A

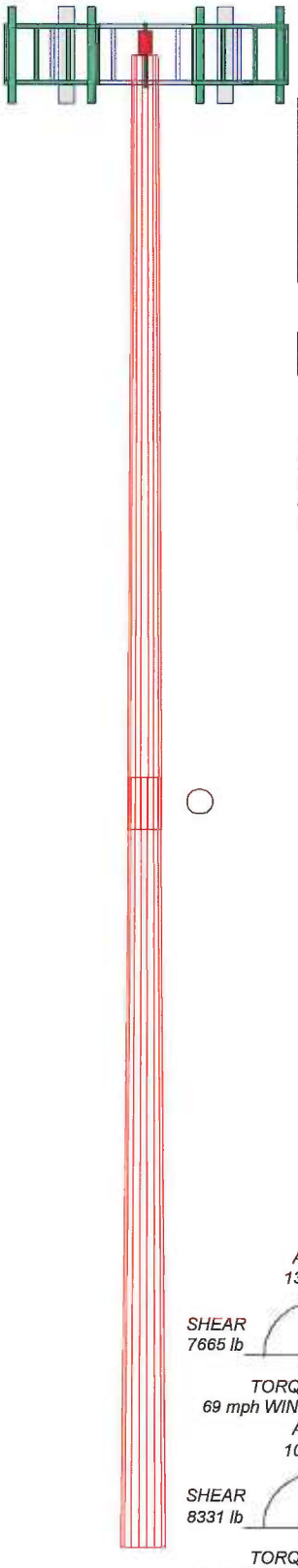
TNX Tower Results

Section	1	2
Length (ft)	48.25	48.00
Number of Sides	18	18
Thickness (in)	0.1875	0.2500
Socket Length (ft)	3.25	
Top Dia (in)	19.5625	24.6784
Bot Dia (in)	25.4500	33.3500
Grade	A607-60	
Weight (lb)	2180.8	3728.0

93.0 ft

44.8 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	93	RRUS11_B12	93
Beacon	93	APX16DWV_16DWVS	93
Valmont 13' Platform w/Rails	93	APX16DWV_16DWVS	93
SBNHH-1D65C w/ Mount Pipe	93	APX16DWV_16DWVS	93
SBNHH-1D65C w/ Mount Pipe	93	TMA	93
SBNHH-1D65C w/ Mount Pipe	93	TMA	93
RRUS11_B12	93	TMA	93
RRUS11_B12	93		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 70.8%

AXIAL
13438 lb

SHEAR
7665 lb

MOMENT
558616 lb-ft

TORQUE 78 lb-ft
69 mph WIND - 0.5000 in ICE

AXIAL
10336 lb

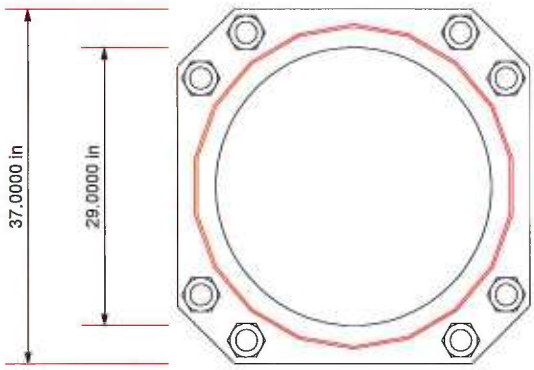
SHEAR
8331 lb

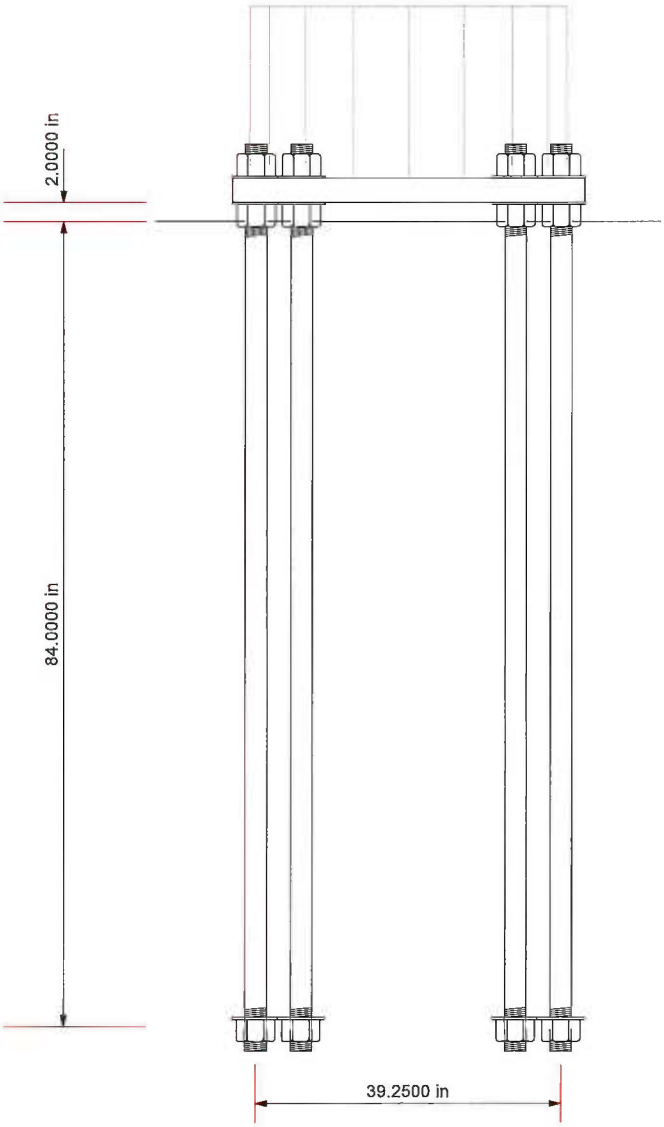
MOMENT
600629 lb-ft

TORQUE 15 lb-ft
REACTIONS - 80 mph WIND

EBI
21 B Street
Burlington, MA 01803
Phone: (781) 425-5100
FAX: (781) 425-5141

Job: *CT11000A*		
Project: *81140786*		
Client: T-Mobile	Drawn by: mhykes	App'd:
Code: TIA/EIA-222-F	Date: 08/11/14	Scale: NTS
Path: C:\Misc Jobs_Turnkey TMO CT\CT11000A\Structural\Calculations\tower\CT11000 tower.er		Dwg No. E-1





FOUNDATION NOTES

1. Plate thickness is 2.5000 in.
2. Plate grade is A572-50.
3. Anchor bolt grade is A615-75.
4. f'c is 4 ksi.

EBI
21 B Street
Burlington, MA 01803
Phone: (781) 425-5100
FAX: (781) 425-5141

Job: ***CT11000A***		
Project: ***81140786***		
Client: T-Mobile	Drawn by: mhykes	App'd:
Code: TIA/EIA-222-F	Date: 08/11/14	Scale: NTS
Path: C:\Misc Jobs_Turnkey TMO CT\CT11000A\Structural\Calculations\tower\CT11000 tower.er		Dwg No. F-1

tnxTower	Job	Page
	CT11000A	1 of 7
EBI 21 B Street Burlington, MA 01803 Phone: (781) 425-5100 FAX: (781) 425-5141	Project 81140786	Date 13:47:32 08/11/14
	Client T-Mobile	Designed by mhykes

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends		Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	93.00-44.75	48.25	3.25	18	19.5625	25.4500	0.1875	0.7500	A607-60 (60 ksi)
L2	44.75-0.00	48.00		18	24.6784	33.3500	0.2500	1.0000	A607-60 (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.8643	11.5305	546.8532	6.8781	9.9377	55.0279	1094.4260	5.7664	3.1130	16.603
	25.8426	15.0343	1212.2010	8.9682	12.9286	93.7612	2425.9970	7.5186	4.1492	22.129
L2	25.6553	19.3840	1461.4070	8.6721	12.5366	116.5708	2924.7370	9.6938	3.9034	15.614
	33.8645	26.2648	3635.5353	11.7505	16.9418	214.5897	7275.8543	13.1349	5.4296	21.718

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 93.00-44.75				1	1	1		
L2 44.75-0.00				1	1	1		

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	8
Embedment length	84.0000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	2.5000 in
Bolt circle diameter	39.2500 in
Outer diameter	37.0000 in
Inner diameter	29.0000 in
Corner clipped	6.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
step bolts	A	Surface Ar (CaAa)	0.00 - 91.00	1	1	0.000 0.000	0.0000		7.90
Safety Line 5/16	A	Surface Ar (CaAa)	0.00 - 91.00	1	1	0.000 0.000	0.3125		0.26
step bolts	B	Surface Ar (CaAa)	0.00 - 91.00	1	1	0.000 0.000	0.0000		7.90

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF6-50A (1-1/4	A	No	Inside Pole	0.00 - 93.00	1	No Ice	0.00	0.66

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
FOAM)						1/2" Ice	0.00	0.66

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	93.00-44.75	A	0.000	0.000	1.445	0.000	409.25
		B	0.000	0.000	0.000	0.000	365.38
		C	0.000	0.000	0.000	0.000	0.00
L2	44.75-0.00	A	0.000	0.000	1.398	0.000	394.69
		B	0.000	0.000	0.000	0.000	353.52
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	93.00-44.75	A	0.500	0.000	0.000	10.695	0.000	446.33
		B		0.000	0.000	4.625	0.000	379.50
		C		0.000	0.000	0.000	0.000	0.00
L2	44.75-0.00	A	0.500	0.000	0.000	10.348	0.000	430.57
		B		0.000	0.000	4.475	0.000	367.19
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	93.00-44.75	-0.0390	-0.0225	-0.1373	-0.1983
L2	44.75-0.00	-0.0405	-0.0234	-0.1473	-0.2133

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod 5/8x4'	B	None		0.0000	93.00	No Ice	0.25	0.25	31.00
						1/2" Ice	0.66	0.66	33.82
Beacon	B	None		0.0000	93.00	No Ice	0.30	0.30	30.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						1/2" Ice	0.40	0.40	32.00
Valmont 13' Platform w/Rails	A	None		0.0000	93.00	No Ice	53.00	53.00	2000.00
						1/2" Ice	68.00	68.00	3000.00
SBNHH-1D65C w/ Mount Pipe	A	From Leg	5.00 0.00 0.00	0.0000	93.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
SBNHH-1D65C w/ Mount Pipe	B	From Leg	5.00 0.00 0.00	0.0000	93.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
SBNHH-1D65C w/ Mount Pipe	C	From Leg	5.00 0.00 0.00	0.0000	93.00	No Ice 1/2" Ice	11.39 12.01	9.96 11.38	121.32 211.80
RRUS11_B12	A	From Leg	4.00 0.00 1.00	0.0000	93.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
RRUS11_B12	B	From Leg	4.00 0.00 1.00	0.0000	93.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
RRUS11_B12	C	From Leg	4.00 0.00 1.00	0.0000	93.00	No Ice 1/2" Ice	3.31 3.55	1.36 1.54	51.00 71.87
APX16DWV_16DWVS	A	From Leg	5.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	7.33 7.80	3.48 4.13	78.95 128.20
APX16DWV_16DWVS	B	From Leg	5.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	7.33 7.80	3.48 4.13	78.95 128.20
APX16DWV_16DWVS	C	From Leg	5.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	7.33 7.80	3.48 4.13	78.95 128.20
TMA	A	From Leg	4.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	2.00 3.00	2.00 3.00	30.00 32.00
TMA	B	From Leg	4.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	2.00 3.00	2.00 3.00	30.00 32.00
TMA	C	From Leg	4.00 0.00 2.00	0.0000	93.00	No Ice 1/2" Ice	2.00 3.00	2.00 3.00	30.00 32.00

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

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

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	93 - 44.75	16.809	27	1.5383	0.0001
L2	48 - 0	4.566	27	0.8882	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
93.00	Lightning Rod 5/8x4'	27	16.809	1.5383	0.0001	18943

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	93 - 44.75	42.872	2	3.9244	0.0007
L2	48 - 0	11.653	2	2.2665	0.0004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
93.00	Lightning Rod 5/8x4'	2	42.872	3.9244	0.0007	7473

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
2.5000	8	2.2500	89170.49 131210.58 0.68	91752.57 217809.56 0.42	19.841 37.500 0.53		Bolt T	0.68 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	93 - 44.75 (1)	TP25.45x19.5625x0.1875	48.25	0.00	0.0	36.000	14.7983	-5386.32	532740.00	0.010
L2	44.75 - 0 (2)	TP33.35x24.6784x0.25	48.00	0.00	0.0	36.000	26.2649	-10328.30	945535.00	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	93 - 44.75 (1)	TP25.45x19.5625x0.1875	247113.33	-32.647	36.000	0.907	0.00	0.000	36.000	0.000
L2	44.75 - 0 (2)	TP33.35x24.6784x0.25	600629.17	-33.588	36.000	0.933	0.00	0.000	36.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	93 - 44.75 (1)	TP25.45x19.5625x0.1875	0.010	0.907	0.000	0.917 ✔	1.333	H1-3 ✔
L2	44.75 - 0 (2)	TP33.35x24.6784x0.25	0.011	0.933	0.000	0.944 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	93 - 44.75	Pole	TP25.45x19.5625x0.1875	1	-5386.32	710142.39	68.8	Pass
L2	44.75 - 0	Pole	TP33.35x24.6784x0.25	2	-10328.30	1260398.10	70.8	Pass
							Summary	
						Pole (L2)	70.8	Pass
						Base Plate	51.0	Pass
						RATING =	**70.8**	**Pass**

EXHIBIT C

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

T-Mobile Existing Facility

Site ID: CT11000A

Bloomfield / W. Dudley 1
100 Filley Street
Bloomfield, CT 06002

August 20, 2014

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	15.66 %

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

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August 20, 2014

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

Emissions Analysis for Site: **CT11000A – Bloomfield / W. Dudley 1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **100 Filley Street, Bloomfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (μW/cm2). The general population exposure limit for the 700 MHz Band is 567 μW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 μW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **100 Filley Street, Bloomfield, 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 **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **15.6 dBd** at its main lobe. The **Commscope LNX-6515DS-A1M** has a maximum gain of **15.5 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **93 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

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	15.6 dBd	Gain:	15.6 dBd	Gain:	15.6 dBd
Height (AGL):	93	Height (AGL):	93	Height (AGL):	93
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	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	90	Total TX Power:	90	# AWS Channels:	90
ERP (W):	3,776.88	ERP (W):	3,776.88	ERP (W):	3,776.88
Antenna A1 MPE%	4.14	Antenna B1 MPE%	4.14	Antenna C1 MPE%	4.14
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	15.5 dBd	Gain:	15.5 dBd	Gain:	15.5 dBd
Height (AGL):	93	Height (AGL):	93	Height (AGL):	93
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):	470.23	ERP (W):	470.23	ERP (W):	470.23
Antenna A3 MPE%	1.08	Antenna B3 MPE%	1.08	Antenna C3 MPE%	1.08

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**15.66**
No Additional Carriers On Site	
Site Total MPE %:	**15.66 %**

T-Mobile Sector 1 Total:	5.22 %
T-Mobile Sector 2 Total:	5.22 %
T-Mobile Sector 3 Total:	5.22 %
Site Total:	15.66 %

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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:	5.22 %
Sector 2:	5.22 %
Sector 3 :	5.22 %
T-Mobile Total:	15.66 %
Site Total:	15.66 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.66%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

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