

November 23, 2015

VIA EMAIL AND OVERNIGHT DELIVERY

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

RE: T-Mobile Northeast LLC - CT11014B
Notice of Exempt Modification
623 Pine Street, Bridgeport, CT 06605
LAT: 41-09-57.81" N
LNG: 73-13-0.11" W

Dear Ms. Bachman:

T-Mobile Northeast LLC ("T-Mobile") currently maintains nine (9) antennas at the 180' level on the existing 250' tall self-support tower located at 623 Pine Street in Bridgeport, CT. The property is owned by Radio Communications Corporation. T-Mobile now intends to replace six (6) existing antennas with three (3) 1900 and 2100 MHz antennas and three (3) 700 MHz antennas. These antennas would be installed at the 180' level of the tower. T-Mobile also intends to add three (3) RRH's and three (3) DC power cables.

The Council originally approved T-Mobile's tower share application on August 31, 2000 (TS-VOICESTREAM-015-001023) to install six (6) antennas at 180' on the existing 250' tower. This modification complies with the aforementioned conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that 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 Bill Finch, Mayor for the City of Bridgeport, as well as the property owner and the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure. T-Mobile proposes to replace six (6) existing antennas at a centerline height of 180' on the existing 250' self-support tower.
2. The proposed modifications will not require the extension of the site boundary. T-Mobile will connect three (3) DC power cables to an existing fiber cabinet in the equipment room. Thus, there will be no effect on the site compound or T-

Mobile's leased area.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria. The incremental effect of the proposed changes will be negligible.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, T-Mobile's operations at the site will result in a power density of 1.33%; the combined site operations will result in a total power density of 7.45%.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site. T-Mobile will replace existing antennas and install DC power cables to an existing fiber cabinet in the equipment room.
6. The existing structure and its foundation can support the proposed loading. As indicated in the attached structural analysis the subject tower is adequate to support the proposed T-Mobile equipment upgrade.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

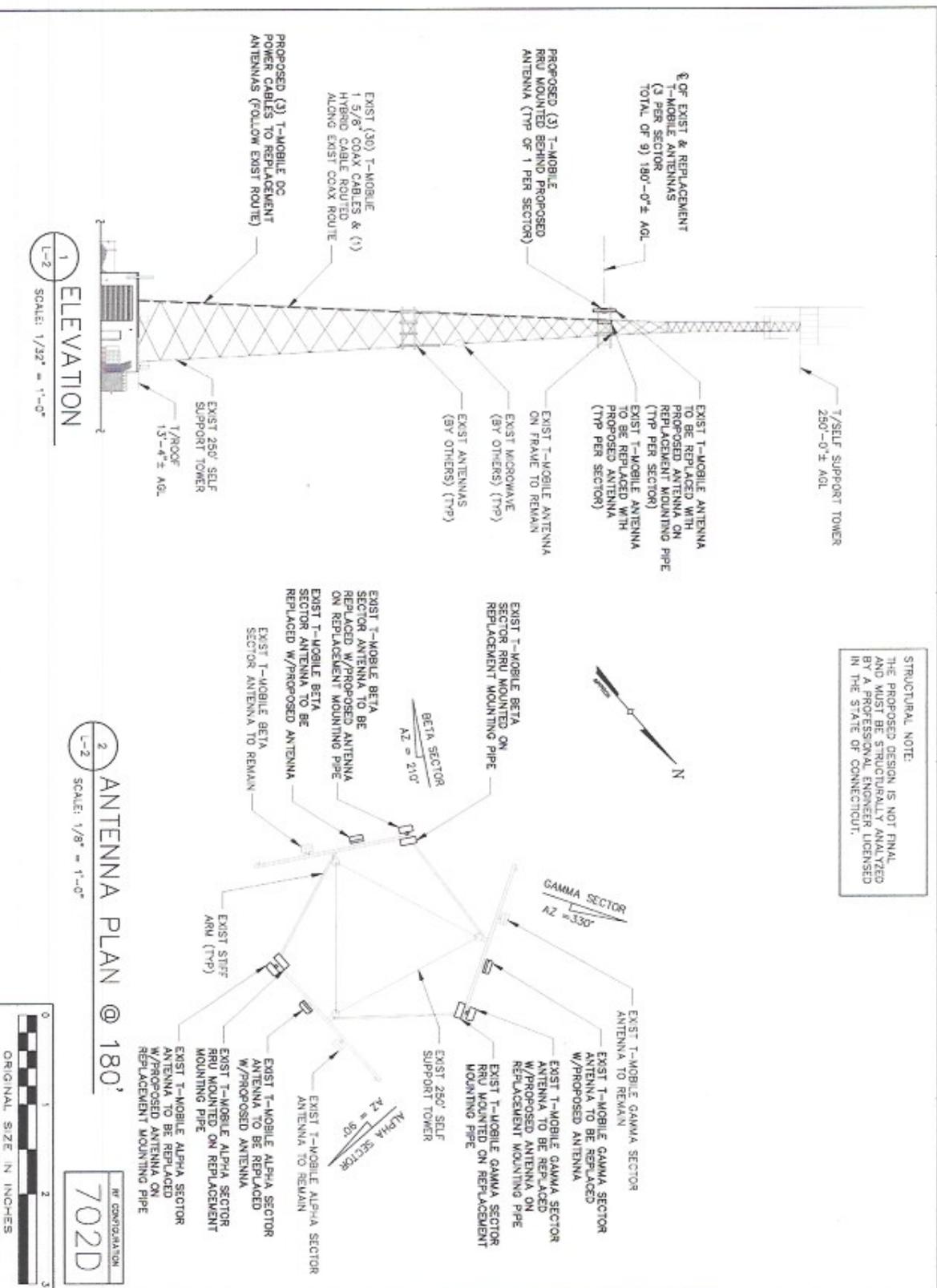
Respectfully submitted,

By: 
Eric Dahl, Agent for T-Mobile
860-227-1975
edahl@comcast.net

Attachments

cc: Bill Finch, Mayor for the City of Bridgeport - as elected official
Bob Knapp/Radio Communications Corporation - as tower and property owner

STRUCTURAL NOTE:
 THE PROPOSED DESIGN IS NOT FINAL
 AND MUST BE STRUCTURALLY ANALYZED
 BY A PROFESSIONAL ENGINEER LICENSED
 IN THE STATE OF CONNECTICUT.



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

2 ANTENNA PLAN @ 180°
 SCALE: 1/8" = 1'-0"



ORIGINAL SIZE IN INCHES

702D

TECTONIC
 Project Solutions. Exceptional Service.
 Structural Engineering & Surveying
 1178 Main Street, Suite 200
 Bridgeport, CT 06610
 Phone: (203) 381-4444
 Fax: (203) 381-4444
 www.tectoniceng.com

Mobile
 200 GREENWOOD
 BRIDGEPORT, CT 06610

VERTICAL
 Structural Engineering & Surveying, Inc.
 1178 Main Street, Suite 200
 Bridgeport, CT 06610

T-MOBILE	PROJECT NUMBER	00	DATE	08/20/15
LANDLORD	DESIGNED BY	JO	DATE	08/20/15
CONTRACTOR	DRAWN BY	SAO	DATE	08/20/15
REV. DATE	REVISION			
12/29/15	FOR COMMENT			

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 ENGINEERING, INC. FOR PERMISSION.

SHEET NUMBER
 702D
 SHEET TITLE
 ANTENNA PLAN
 PROJECT NUMBER
 CT11014B
 CT1014/-95/X24/BLA
 623 PINE STREET
 BRIDGEPORT, CT 06616

SHEET TITLE
 ANTENNA PLAN
 SHEET NUMBER
 L-1

STRUCTURAL ANALYSIS REPORT

T-MOBILE UPGRADE

EXISTING 250' SELF-SUPPORT TOWER

**T-MOBILE SITE: CT11014B
CT014/ I-95/ X24/ BLA**

**623 PINE STREET
BRIDGEPORT, CT 06605**

**NOVEMBER 13, 2015
TEC W.O. 7964.CT11014B**

TECTONIC

Practical Solutions, Exceptional Service

STRUCTURAL ANALYSIS REPORT**Project Information**

W.O. Number:	7964.CT11014B	Report Date:	11/13/2015
Client:	T-Mobile	Revision:	0
Site Name:	CT014/ I-95/ X24/ Bla		
Owner:	Radio Communications Corp.		
Site Address:	623 Pine Street	FCC Regulation Number:	-
City, State:	Bridgeport, CT 06605	County:	Fairfield

Structure Information

Structure Type:	Self-Support	Manufacturer:	Rohn
Structure Height:	250 ft.	Year Built:	Unknown
Original Drawings:	Structure: No	Foundation:	No
Previous Analysis:	Yes		
Documents provided:			
	<u>Item</u>	<u>By</u>	<u>No.</u>
	Structural Analysis Report (16 pages)	KM Consulting Engineers	040306.02
	Structural Analysis Report (31 pages)	KM Consulting Engineers	121101.03
	RFDS	T-Mobile	CT11014B
	Lease Exhibit (2 sheets)	TECTONIC	7964.CT11014B
			<u>Date</u>
			8/29/12
			2/6/15
			10/15/15
			10/26/15

Inspection

Type:	Visual Inspection from Ground	Date:	10/15/2015
General Condition:			
	Tower: Good		
	Foundation: Good		
Observations:	None		
Finish:	Galvanized	Condition:	Intact

Proposed Installation

T-Mobile is proposing to replace six (6) panel antennas and install associated appurtenances as a part of this upgrade. The final T-Mobile configuration upon this upgrade will be as follows:

Antennas:

Height (ft.)	Carrier	Qty	Manuf.	Model	Mount	Leg (s)
180	T-Mobile	3	Ericsson	AIR 21 B2A/B4P	(3) 14' Sector Frames	A,B,C
		3	Ericsson	AIR 32 B4A/B2P		
		3	Commscope	LNx-6515DS-VTM		
		3	Unknown	TMA		
		3	Ericsson	RRUS 11 B12		

Cables:

Height (ft.)	Qty	Nom. Size	Location	Comments
180	30	1-5/8" dia	Face AB	Existing to remain
180	1	Hybriflex	Face AB	Existing to remain
180	3	4AWG DC cable	Face AB	To be stacked on existing

W.O. Number: 7964.CT11014B
 Client: T-Mobile
 Site Name: CT014/ I-95/ X24/ Bla

Report Date: 11/13/2015
 Revision: 0

Analysis Criteria

Design Standard: TIA/EIA-222-F
 Building Code: 2005 Connecticut State Building Code

	<u>Capacity (no ice)</u>	<u>Capacity w/ ice</u>	<u>Service</u>
Wind Speed:	85 mph	74 mph	50 mph
Basic Ice Thickness:	0 inch	0.5 inch	0 inch

Assumptions:

1. The tower was designed, manufactured, and constructed in accordance with the approved tower drawings
2. The foundation was designed and constructed based on site-specific geotechnical information.
3. Tower member and appurtenance sizes are solely based on the analysis reports provided by the client.
4. All tower bolted connections have been designed such that the member capacity governs.
5. Anchor rods conform to ASTM F1554 Gr. 36.

Analysis Results

<u>Element</u>	<u>% Usage</u>
Legs	65.6%
Diagonals	64.5%
Horizontals	54.8%
Anchor Rods	64.1%

Foundation Reactions (Envelope):

Vertical	234	kips
Shear (total)	59	kips
Overturning Moment	7163	kips
Compression (per leg)	375	kips
Uplift (per leg)	204	kips
Shear (per leg)	40	kips

W.O. Number: 7964.CT11014B
Client: T-Mobile
Site Name: CT014/ I-95/ X24/ Bla

Report Date: 11/13/2015
Revision: 0

Conclusions

Based on our analysis, the existing self-support tower has adequate capacity to support the proposed T-Mobile upgrade as described herein in accordance with current code requirements.

No information with regards to the foundation was made available at the time of this report. As such, the foundation has not been evaluated.

Furthermore, based on our analysis, the existing antenna support mounts have sufficient capacity to support the proposed upgrade as referenced in this report.

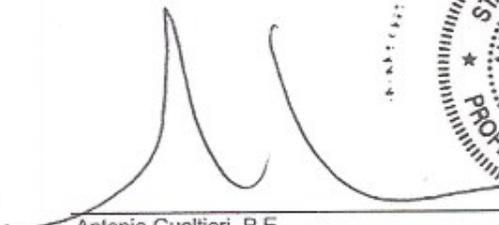
This analysis is solely based on the documents referenced in this report and information provided by T-Mobile. This analysis may be affected if any assumptions are not valid or have been made in error. TECTONIC should be notified to determine the effect on the structural integrity of the tower.

Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

Prepared by: Clifford Gunther
Structural Engineer

Reviewed by: Ian Marinaccio
Structural Engineer

Approved by:

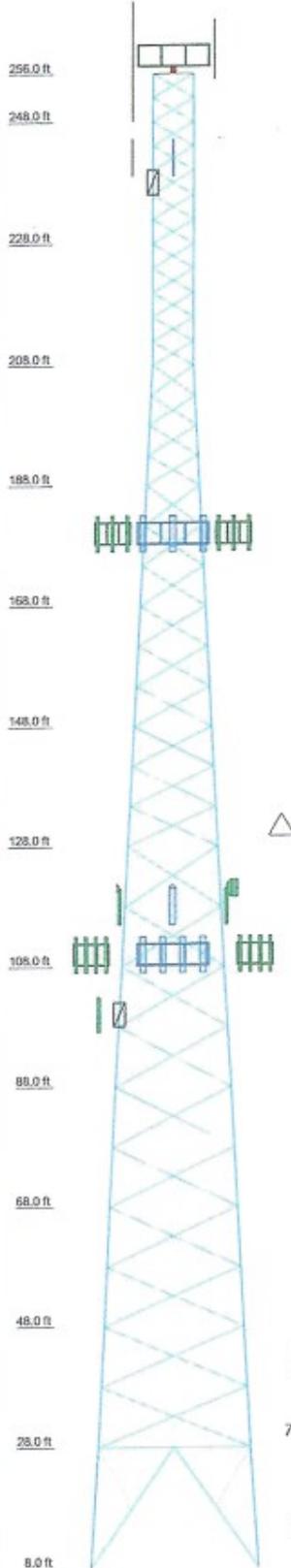

Antonio Gualtieri, P.E.
Sr. Vice President



Date:

11/13/15.

Section	T19	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			P10x5										
Diagonals			L5x8x3/8										
Diagonal Grade													
Top Girts													
Horizontals													
Red. Horizontals													
Red. Diagonals													
Red. Pops													
Inner Bracing													
Face Width (ft)	27.5333	23.228	21.28	19.28	17.0933	14.989	10.916	8.916	4 @ 5	5.833	12 @ 4	6 @ 4	8.800
# Panels @ (ft)	1 @ 19.5167			10 @ 10									
Weight (K)	51.0	1.4	1.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' Platform	256	VHL P2.5-11-3WH (Clearwire)	118
10x1" Dia Omni	256	VHL P1-23-1WH (Clearwire)	118
(2) 4x0.75" Dia Omni	256	(2) HBXX-6516DS-A2M w/ Mount Pipe (Verizon)	110
Flash Beacon Lighting	256	(2) HBXX-6516DS-A2M w/ Mount Pipe (Verizon)	110
(5) 2.375"x6" Pipe Mount	256	(2) HBXX-6516DS-A2M w/ Mount Pipe (Verizon)	110
(5) 2.375"x6" Pipe Mount	256	(2) HBXX-6516DS-A2M w/ Mount Pipe (Verizon)	110
(5) 2.375"x6" Pipe Mount	256	(2) HBXX-6516DS-A2M w/ Mount Pipe (Verizon)	110
(2) 10x1" Dia Omni	256	800 10734V01 w/ Mount Pipe (Verizon)	110
8x3"OD Omni	238	800 10734V01 w/ Mount Pipe (Verizon)	110
8x3"OD Omni	238	800 10734V01 w/ Mount Pipe (Verizon)	110
4' Standoff	238	AWS LTE RRH (Verizon)	110
4' Standoff	238	AWS LTE RRH (Verizon)	110
ERICSSON AIR 21 B2A B4P (T-Mobile)	180	AWS LTE RRH (Verizon)	110
ERICSSON AIR 21 B2A B4P (T-Mobile)	180	700 MHz RRH (Verizon)	110
ERICSSON AIR 21 B2A B4P (T-Mobile)	180	700 MHz RRH (Verizon)	110
ERICSSON AIR 32 B4A B2P (T-Mobile)	180	700 MHz RRH (Verizon)	110
ERICSSON AIR 32 B4A B2P (T-Mobile)	180	RH-2X60-PCS (Verizon)	110
ERICSSON AIR 32 B4A B2P (T-Mobile)	180	RRH-2X60-PCS (Verizon)	110
LNX-6515DS-VTM (T-Mobile)	180	RRH-2X60-PCS (Verizon)	110
LNX-6515DS-VTM (T-Mobile)	180	(2) CXC78-DF-2X (Verizon)	110
LNX-6515DS-VTM (T-Mobile)	180	(2) CXC78-DF-2X (Verizon)	110
TMA (12" x 8") (T-Mobile)	180	(2) CXC78-DF-2X (Verizon)	110
TMA (12" x 8") (T-Mobile)	180	GPS_A (Verizon)	110
TMA (12" x 8") (T-Mobile)	180	OVP Fiber Box (Verizon)	110
RRUS 11 B12 (T-Mobile)	180	(3) 12' Sector Frames (Verizon)	110
RRUS 11 B12 (T-Mobile)	180	(2) APL866513-42T6 w/ Mount Pipe (Verizon)	110
RRUS 11 B12 (T-Mobile)	180	(2) APL866513-42T9 w/ Mount Pipe (Verizon)	110
(3) 14' Sector Frames (T-Mobile)	180	(2) APL866513-42T9 w/ Mount Pipe (Verizon)	110
48"x8" w/6"-2.375"OD Pipe (Clearwire)	118	4' Standoff	100
48"x8" w/6"-2.375"OD Pipe (Clearwire)	118	(2) 48"x8" w/6"-2.375"OD Pipe	100
48"x8" w/6"-2.375"OD Pipe (Clearwire)	118		
TMA (12" x 8") (Clearwire)	118		
TMA (12" x 8") (Clearwire)	118		
TMA (12" x 8") (Clearwire)	118		
VHL P1-23-1WH (Clearwire)	118		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 3 STD	C	L3x3x1/4
B	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

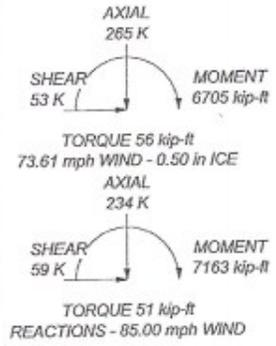
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85.00 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 73.61 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50.00 mph wind.
5. TOWER RATING: 65.6%

MAX. CORNER REACTIONS AT BASE:

DOWN: 375 K
SHEAR: 40 K

UPLIFT: -204 K
SHEAR: 27 K



<p>TECTONIC Practical Solutions. Exceptional Service.</p>	<p>Job: 7964.CT11014B</p>
	<p>1279 Route 300 Newburgh, NY 12550 Phone: (845) 567-6656 FAX: (845) 567-8703</p>
<p>Project: CT014/I-95/X24/Bl</p>	<p>Client: Crown Castle Code: TIA/EIA-222-F Date: 11/13/15</p>
<p>Drawn by: Clifford Gunther</p>	<p>App'd: _____ Scale: NTS Dwg No. E-1</p>



Job No. 7964.CT11014B
 Sheet No. _____ of _____
 Calculated By CG Date: 11/13/15
 Checked By _____ Date: 11/13/15

CALCULATION OF WIND LOAD ON APPURTENANCES - REV-F

Appurtenance Centerline = 180 ft
 County: Fairfield
 Wind Speed = 85 mph
 Ice Thickness = 0.5 in Radial ice per Rev F

Per, TIA/EIA-222-F-1996:
 Design Wind Load, $F = q_z G_{H1} (C_d A_w)$
 $q_z = 30.03 \text{ psf}$
 $K_z = 1.62$ $G_{H1} = 1.12$ Sec 2.3.4.2
 $G_{H1} = 1.12$

No Ice

(E) or (P)?	Appurtenance	Quantity	Length or Diameter (in)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna Ca	Normal Antenna Aa Each (ft ²)	Transverse Antenna Aa Each (ft ²)	Manufacturer Wind Area Each (ft ²)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Antenna Weight with bracket Each (lb)
(E)	AIR 21 82A/84P	1	56.0	12.0	8.0	Flat	1.40	4.67	3.11	N.A.	220	147	91
(P)	AIR 32 84A/82P	1	54.0	12.0	8.6	Flat	1.40	4.50	3.23	N.A.	212	152	109
(P)	LNX-651505-VTM	1	96.4	11.9	7.1	Flat	1.44	7.93	4.75	N.A.	384	230	50
(E)	TMA	1	18.0	12.0	6.0	Flat	1.40	1.50	0.75	N.A.	71	35	30
(P)	RRUS11 B12	1	20.0	17.0	7.0	Flat	1.40	2.36	0.97	N.A.	111	46	51

0.5" Ice

Amount of Radial Ice: 0.50 in

Appurtenance	Quantity	Length or Diameter (in)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna Ca	Normal Antenna Aa Each (ft ²)	Transverse Antenna Aa Each (ft ²)	25% reduction		Ice Weight Alone (lbs)
									Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	
(E) AIR 21 82A/84P	1	57.0	13.0	9.0	Cylindrical	0.80	5.15	3.56	104	72	42
(P) AIR 32 84A/82P	1	55.0	13.0	9.6	Cylindrical	0.80	4.97	3.67	100	74	42
(P) LNX-651505-VTM	1	97.4	12.9	8.1	Cylindrical	0.81	8.69	5.48	178	112	66
(E) TMA	1	19.0	13.0	7.0	Cylindrical	0.80	1.72	0.92	35	19	14
(P) RRUS11 B12	1	21.0	18.0	8.0	Cylindrical	0.80	2.63	1.17	53	24	21

NOTES:
 (E) Existing Antennas
 (P) Proposed Antennas

LEGEND
 Circular Area

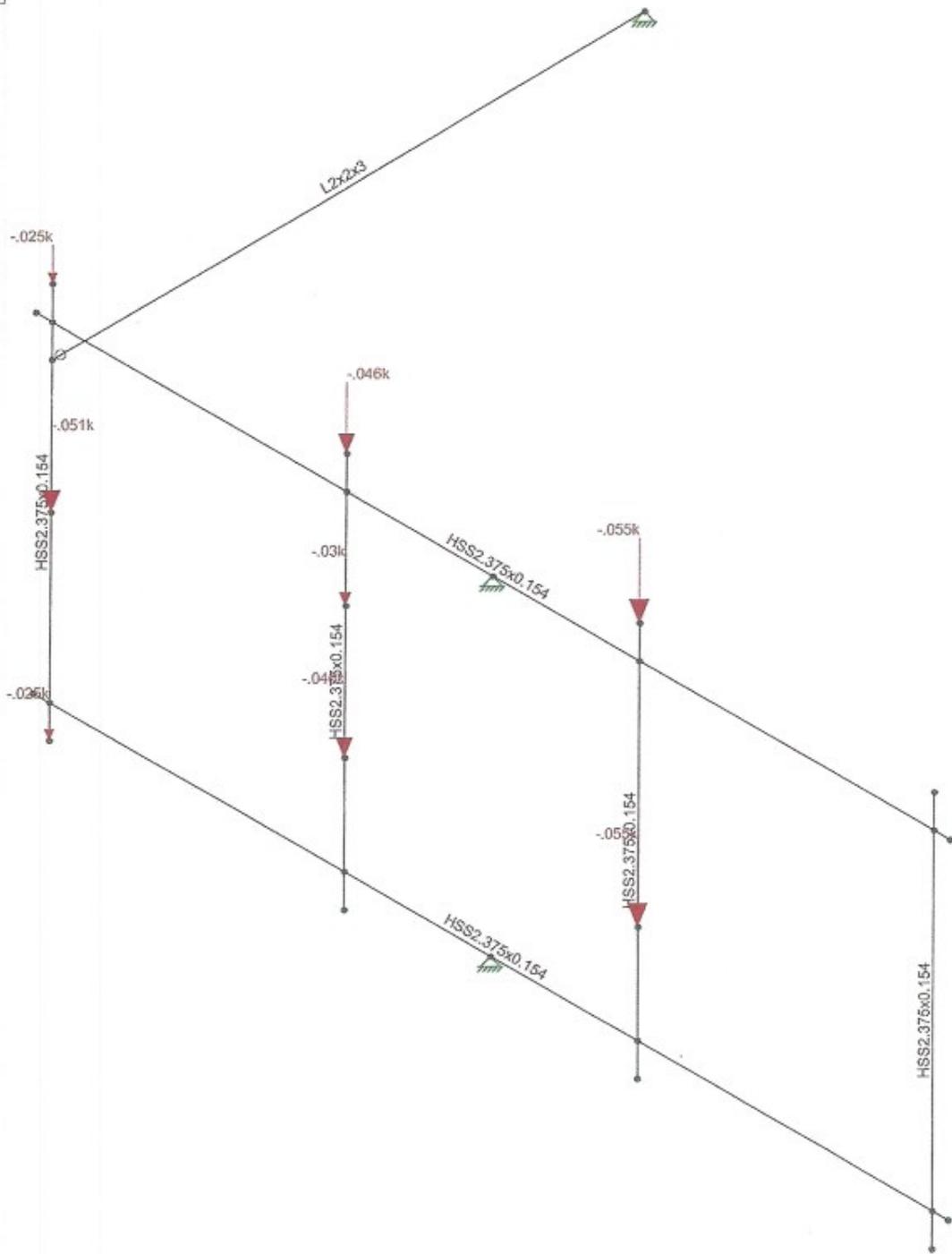
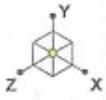


CALCULATION OF WIND LOAD ON MOUNTING SYSTEM - REVUE

Mount Centerline = 180 ft
 Fairlead = 45 mph
 Ice Thickness = 6.5 in. Radial ice per Rev F

Per, TIA/EU-222-F-1966:
 Design Wind Load, $F = qG_{HI}(C_dA_d)$
 $G_{HI} = 1.63$ Sec 2.3.4.2
 $G_{HI} = 1.63$
 $G_{HI} = 1.63$

Description	Quantity	Round Members	Total Length	Diameter	Aspect Ratio	Ca	Projected Area	No Ice		Ice		Approximate	
								Wind Force Each	Wind Force Each	Wind Force Each	Wind Force Each	Volume of Ice	Ice Weight
			Feet	Inches	Length/Width	Coefficient	(ft ² , no ice)	Lbs	Lbs/ft	Lbs	Lbs/ft	Each	Each
Vertical Mount Pipe	4	2" PFE	6.0	2.38	30.3	1.20	2.19	71	12	77	13	0.19	11
Horizontal Pipe	2	2" PFE	14.0	2.38	70.7	1.20	2.77	169	12	180	13	0.44	25
								No Ice	No Ice	Ice	Ice	Approximate	Approximate
		Flat Members	Total Length	Width	Aspect Ratio	Cd	Projected Area	Wind Force	Wind Force	Wind Force	Wind Force	Volume of Ice	Ice Weight
			Feet	Inches	Length/Width	Coefficient	(ft ² , no ice)	Lbs	Lbs/ft	Lbs	Lbs/ft	Each	Each
Tieback CD2x5/16	1	2"	9.0	2.0	54.0	2.00	1.50	152	17	171	19	0.31	18
								No Ice	No Ice	Ice	Ice	Approximate	Approximate
								Lbs	Lbs/ft	Lbs	Lbs/ft	Each	Each
								152	17	171	19	0.31	18
								No Ice	No Ice	Ice	Ice	Approximate	Approximate
								Lbs	Lbs/ft	Lbs	Lbs/ft	Each	Each
								152	17	171	19	0.31	18



Loads: BLC 1, DL
Envelope Only Solution

TECTONIC
CG
7964.CT11014B

Mount Analysis

Nov 12, 2015 at 1:52 PM

Mount SA.r3d



Company : TECTONIC
 Designer : CG
 Job Number : 7964.CT11014B
 Model Name : Mount Analysis

Nov 12, 2015

Checked By: _____

Material Takeoff

	Material	Size	Pieces	Length(ft)	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	L2x2x3	1	9	0
3	A53 Gr.B	HSS2.375x0.154	6	52	.2
4	Total HR Steel		7	61	.2

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Design Parameters

	Label	Shape	Length(ft)	Lbyy(ft)	Lbzz(ft)	Lcomp top(ft)	Lcomp bot(ft)	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	2" STD Pipe	14			Lbyy						Lateral
2	M2	2" STD Pipe	14			Lbyy						Lateral
3	M3	2" STD Pipe	6			Lbyy						Lateral
4	M4	2" STD Pipe	6			Lbyy						Lateral
5	M5	2" STD Pipe	6			Lbyy						Lateral
6	M6	2" STD Pipe	6			Lbyy						Lateral
7	M7	L2x2x3/16	9			Lbyy						Lateral

Load Combinations

	Description	S...	P...	S...	B...	Fa...															
1	DL+W LX	Yes	Y		1	1	2	1													
2	DL+W LZ	Yes	Y		1	1		3	1												
3	DL+.7*(W LX+W LZ)	Yes	Y		1	1	2	.7	3	.7											
4	DL+DLi+W LXi	Yes	Y		1	1				4	1	5	1								
5	DL+DLi+W LZi	Yes	Y		1	1				4	1		6	1							
6	DL+DLi+.7*(W LXi+W LZi)	Yes	Y		1	1				4	1	5	.7	6	.7						

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N22	max	.085	4	.021	4	.524	2	0	1	0	1	0	1
2		min	0	5	.01	2	0	1	0	1	0	1	0	1
3	N23	max	.236	1	.412	5	.658	2	0	1	0	1	0	1
4		min	-.296	5	.255	1	0	1	0	1	0	1	0	1
5	N24	max	.739	1	.421	4	.44	2	0	1	0	1	0	1
6		min	.16	2	.267	2	0	1	0	1	0	1	0	1
7	Totals:	max	1.052	1	.849	5	1.622	2						
8		min	0	5	.542	1	0	1						



Member AISC 14th(360-10): ASD Steel Code Checks

LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	Pnc/om [k]	Pnt/om [k]	Mny/om...	Mnz/om...	Cb	Eqn
1	1	M1	HSS2.375x0...	.189	7	.023	7		3.339	20.958	1.245	1.245	1.682 H1-1b
2	1	M2	HSS2.375x0...	.186	7	.028	7		3.339	20.958	1.245	1.245	1.669 H1-1b
3	1	M3	HSS2.375x0...	.210	5.5	.031	5.5		13.727	20.958	1.245	1.245	2.259 H1-1b
4	1	M4	HSS2.375x0...	.311	5.5	.032	5.5		13.727	20.958	1.245	1.245	2.077 H1-1b
5	1	M5	HSS2.375x0...	.083	.5	.016	.5		13.727	20.958	1.245	1.245	2.765 H1-1b
6	1	M6	HSS2.375x0...	.046	.5	.007	.5		13.727	20.958	1.245	1.245	2.052 H1-1b
7	1	M7	L2x2x3	.557	4.5	.016	0	z	1.408	15.564	.371	.575	1.136 H2-1
8	2	M1	HSS2.375x0...	.877	7	.312	4.667		3.339	20.958	1.245	1.245	1.67 H1-1b
9	2	M2	HSS2.375x0...	.576	7	.196	.292		3.339	20.958	1.245	1.245	1.671 H1-1b
10	2	M3	HSS2.375x0...	.443	5	.274	5		13.727	20.958	1.245	1.245	2.049 H3-6
11	2	M4	HSS2.375x0...	.337	.5	.262	.5		13.727	20.958	1.245	1.245	2.049 H3-6
12	2	M5	HSS2.375x0...	.129	.5	.076	.5		13.727	20.958	1.245	1.245	2.049 H1-1b
13	2	M6	HSS2.375x0...	.044	5.5	.009	.5		13.727	20.958	1.245	1.245	2.049 H1-1b
14	2	M7	L2x2x3	.454	4.5	.002	0	y	1.408	15.564	.371	.575	1.136 H2-1
15	3	M1	HSS2.375x0...	.625	7	.216	4.667		3.339	20.958	1.245	1.245	1.678 H1-1b
16	3	M2	HSS2.375x0...	.438	7	.139	7		3.339	20.958	1.245	1.245	1.669 H1-1b
17	3	M3	HSS2.375x0...	.276	5	.196	5		13.727	20.958	1.245	1.245	2.205 H1-1b
18	3	M4	HSS2.375x0...	.294	5.5	.189	5.5		13.727	20.958	1.245	1.245	2.07 H1-1b
19	3	M5	HSS2.375x0...	.110	.5	.057	.5		13.727	20.958	1.245	1.245	2.6 H1-1b
20	3	M6	HSS2.375x0...	.044	.5	.009	.5		13.727	20.958	1.245	1.245	2.051 H1-1b
21	3	M7	L2x2x3	.653	4.5	.011	0	z	1.408	15.564	.371	.575	1.136 H2-1
22	4	M1	HSS2.375x0...	.291	7	.041	7		3.339	20.958	1.245	1.245	1.647 H1-1b
23	4	M2	HSS2.375x0...	.288	.292	.043	7		3.339	20.958	1.245	1.245	1.683 H1-1b
24	4	M3	HSS2.375x0...	.310	5.5	.040	5.5		13.727	20.958	1.245	1.245	2.155 H1-1b
25	4	M4	HSS2.375x0...	.464	5.5	.042	5.5		13.727	20.958	1.245	1.245	2.07 H1-1b
26	4	M5	HSS2.375x0...	.082	.5	.013	.5		13.727	20.958	1.245	1.245	2.414 H1-1b
27	4	M6	HSS2.375x0...	.064	.5	.009	.5		13.727	20.958	1.245	1.245	2.027 H1-1b
28	4	M7	L2x2x3	.635	4.5	.018	0	z	1.408	15.564	.371	.575	1.136 H2-1
29	5	M1	HSS2.375x0...	.797	7	.166	4.667		3.339	20.958	1.245	1.245	1.64 H1-1b
30	5	M2	HSS2.375x0...	.632	7	.123	7		3.339	20.958	1.245	1.245	1.64 H1-1b
31	5	M3	HSS2.375x0...	.291	5.5	.137	5		13.727	20.958	1.245	1.245	2.049 H1-1b
32	5	M4	HSS2.375x0...	.430	.5	.145	.5		13.727	20.958	1.245	1.245	2.049 H1-1b
33	5	M5	HSS2.375x0...	.077	.5	.038	.5		13.727	20.958	1.245	1.245	2.049 H1-1b
34	5	M6	HSS2.375x0...	.050	5.5	.007	.5		13.727	20.958	1.245	1.245	2.049 H1-1b
35	5	M7	L2x2x3	.323	4.5	.004	0	y	1.408	15.564	.371	.575	1.136 H2-1
36	6	M1	HSS2.375x0...	.591	7	.119	4.667		3.339	20.958	1.245	1.245	1.644 H1-1b
37	6	M2	HSS2.375x0...	.496	7	.097	7		3.339	20.958	1.245	1.245	1.66 H1-1b
38	6	M3	HSS2.375x0...	.308	5.5	.111	5.5		13.727	20.958	1.245	1.245	2.125 H1-1b
39	6	M4	HSS2.375x0...	.454	5.5	.115	5.5		13.727	20.958	1.245	1.245	2.064 H1-1b
40	6	M5	HSS2.375x0...	.082	.5	.030	.5		13.727	20.958	1.245	1.245	2.329 H1-1b
41	6	M6	HSS2.375x0...	.060	.5	.009	.5		13.727	20.958	1.245	1.245	2.033 H1-1b
42	6	M7	L2x2x3	.576	4.5	.012	0	z	1.408	15.564	.371	.575	1.136 H2-1

Max stress does not exceed 80% therefore the existing mount is adequate.



EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11014B

CT014 / I-95 / X24 / BLA
623 Pine Street
Bridgeport, CT 06516

November 18, 2015

EBI Project Number: 6215005833

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	7.45 %

November 18, 2015

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

Emissions Analysis for Site: **CT11014B – CT014 / I-95 / X24 / BLA**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **623 Pine Street, Bridgeport, 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 approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **623 Pine Street, Bridgeport, 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 / UMTS 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 B2A/B4P & Ericsson AIR32 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 B2A/B4P & Ericsson AIR32 B4A/B2P** have a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. 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 **180 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 AIR32 B4A/B2P□	Make / Model:	Ericsson AIR32 B4A/B2P□	Make / Model:	Ericsson AIR32 B4A/B2P□
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	180	Height (AGL):	180	Height (AGL):	180
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	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%	0.55	Antenna B1 MPE%	0.55	Antenna C1 MPE%	0.55
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	180	Height (AGL):	180	Height (AGL):	180
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%	0.55	Antenna B2 MPE%	0.55	Antenna C2 MPE%	0.55
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):	180	Height (AGL):	180	Height (AGL):	180
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%	0.22	Antenna B3 MPE%	0.22	Antenna C3 MPE%	0.22

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.33 %
Sprint	1.89 %
Clearwire	0.13 %
Microwave	0.14 %
Verizon Wireless	1.29 %
Unknown	1.51 %
MetroPCS	1.16 %
Site Total MPE %:	7.45 %

T-Mobile Sector 1 Total:	1.33 %
T-Mobile Sector 2 Total:	1.33 %
T-Mobile Sector 3 Total:	1.33 %
Site Total:	7.45 %

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (µW/cm²)	Frequency (MHz)	Allowable MPE (µW/cm²)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	180	5.54	2100	1000	0.55 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	1167.14	180	2.77	1900	1000	0.28 %
T-Mobile 2100 MHz (AWS) UMTS	2	1167.14	180	2.77	2100	1000	0.28 %
T-Mobile 700 MHz LTE	1	865.21	180	1.03	700	467	0.22 %
						Total:	1.33%



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:	1.33 %
Sector 2:	1.33 %
Sector 3 :	1.33 %
T-Mobile Per Sector Maximum:	1.33 %
Site Total:	7.45 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **7.45%** 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



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

December 3, 2015

Eric Dahl
Agent for T-Mobile
edahl@comcast.net

RE: **EM-T-MOBILE-015-151125** - T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 623 Pine Street, Bridgeport, Connecticut.

Dear Mr. Dahl:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on November 25, 2015.

Council staff has identified the following discrepancies:

- The decision in which the facility was approved and the conditions of approval are not given, and so it is unclear whether this modification would violate the municipality's conditions of approval.

The rationale for the request for information regarding municipal conditions of approval originates from the FCC Wireless Infrastructure Report and Order for eligible facilities requests to comply with any conditions of the original approval for an existing tower.

Therefore, the notice of intent to modify an existing telecommunications facility is incomplete at this time. This notice of incompleteness shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

The Council recommends that T-Mobile provide information to clarify or fulfill the deficiency noted above.

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Very truly yours,

Melanie Bachman
Acting Executive Director

MAB/CH

c: The Honorable Joseph Ganim, Mayor, City of Bridgeport
Parag Agrawal, Planning Director, City of Bridgeport
David Kooris, Director, Office of Planning and Economic Development, City of Bridgeport

Thank you, Cymon.

Eric Dahl
860-227-1975

Sent from my iPhone

On Dec 11, 2015, at 10:31 AM, Holzschuh, Cymon <Cymon.Holzschuh@ct.gov> wrote:

Thank you. I'll note for our records that this facility was approved by the Bridgeport Zoning Board of Appeals in 1999, and that the Bridgeport Zoning Department has no record of conditions that restrict exempt modifications. This information satisfies the Council's request for clarification, and the exempt modification filing for 623 Pine Street will now be processed normally.

We do not make the building permit acquisition a condition of acknowledgement or approval for any matter – this is a wholly separate process that must be initiated and completed with the City of Bridgeport prior to equipment replacement.

Cymon Holzschuh
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
P: 860.827.2941 | F: 860.827.2950



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***Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.***

From: Eric Dahl [<mailto:edahl@comcast.net>]
Sent: Thursday, December 10, 2015 1:43 PM
To: Mathews, Lisa A
Cc: CSC-DL Siting Council
Subject: Re: T-Mobile EM Incomplete letter - 623 Pine Street, Bridgeport, CT

Good Afternoon Lisa,

We reached out to the property owner and the City of Bridgeport for information regarding the original decision for the tower located at 623 Pine Street in Bridgeport. Neither has written information regarding any conditions of approval for the existing tower. However, we did receive the following response from Dennis Buckley, Zoning Administrator for the City of Bridgeport:

Ms. Ford,

In 1964 a 35 X70 Garage building was constructed with a 115 ft. tower and used by an ambulance company. In 1990 Robert & Lillian Knapp purchased the building for their business "Paging Associates" . Nine years later, (1999), came to the Zoning Board of Appeals, represented by Attorney Austin Wolf, seeking to replace the existing 115 ft tower with a 250 ft tower for their own use, as they still owned a paging service.

In 2001, the Knapp's started renting out space on the tower, to Verizon Wireless, which started Enforcement activity.

Eventually the permission was granted to the Verizon Equipment.

Later that year Voice Stream started using the structure.

In 2006 Nextel, In 2008

Metro PCS and in 2012 T-Mobil's agent, (Teresa Ranciato- Viele) were all given approvals to install equipment & antennas on the tower.

In answer to your question, any of the existing users can replace

their equipment as long as they get a building permit from the city. If new users want to go through the CT. Siting Council, they too will be required to obtain a building permit

If you need any additional information feel free to contact me.

Dennis Buckley
Zoning Administrator
45 Lyon Terrace Rm 210
Bridgeport, CT. 06604
203 576-7217

Please let me know if this will satisfy the Council's request for clarification here.

Thank you.

Eric Dahl
860-227-1975

On Dec 4, 2015, at 10:22 AM, Mathews, Lisa A <Lisa.A.Mathews@ct.gov> wrote:

Please see the attached correspondence.

Lisa A. Mathews
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
Lisa.A.Mathews@ct.gov

(860) 827-2957

<em-t-mobile-015-151125-incompleteltr-pinestreet.pdf>