



Jon Ritter

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12/4/2015

Melanie Bachman
Acting Executive Director
Connecticut Siting Counsel
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification**
119 Tanner Marsh Road, Guilford, CT
41.288776 / -72.658378

Dear Ms. Bachman:

T-Mobile Northeast, LLC (T-Mobile) currently maintains six (6) antennas at the One-Hundred Seventy Five foot (175') level of the existing One-Hundred Ninety (190') foot tower at 119 Tanner Marsh Road, Guilford, CT. The tower is owned by American Tower Corporation. The property is owned by Dudley Marjorie & ET AL. T-Mobile now intends to add Three (3) new 700MHz antennas. These antennas would be installed at the One-Hundred Ninety (190') foot level of the tower. T-Mobile does not intend to remove any additional equipment at this time.

This facility was approved by the Connecticut Siting Council and the Town of Guilford on July 24, 1984 in Docket# 44. The approval included the conditions that tower antennas shall be no taller than necessary to provide the proposed service and in no event shall exceed 167'. Construction activities shall take place during daylight working hours.

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 the Chief Elected Official, First Selectman, Joseph Mazza for the Town of Guilford, as well as the property owner and the tower owner.

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

- 1) The proposed modification will not result in an increase in the height of the existing structure.
- 2) The modifications will not require an extension of the site boundary.
- 3) The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
- 4) The operation and replacement of antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
- 5) The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6) The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile Northeast LLC 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)

Sincerely,

Jon Ritter

Jon Ritter

On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035
774-264-0016
jritter@trmcom.com

cc: **Chief Elected Official, First Selectman, Joseph Mazza, Town of Guilford**
American Tower Corporation
Dudley Marjorie & ET AL

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 190.6 ft Self Supported Tower
ATC Site Name : GLFD-Guilford Rebuild CT, CT
ATC Site Number : 311305
Engineering Number : 63955822
Proposed Carrier : T-Mobile
Carrier Site Name : Guilford SNET Mobilit_1
Carrier Site Number : CT11028A
Site Location : 10 Tanner Marsh Road
Guilford, CT 06437-2942
41.288608,-72.658281
County : New Haven
Date : November 24, 2015
Max Usage : 98%
Result : Pass

Reviewed by:
William Garrett, PE
Chief Engineer

Prepared By:
Sarah W. Frye, E.I.
Structural Engineer I



Nov 25 2015 2:23 PM

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 190.6 ft self supported tower to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Nello Job #RFQ34841, dated April 8, 2011
Foundation Drawing	ATC Job #47517572B, dated June 15, 2011
Geotechnical Report	GEOservices Project #21-07254, dated March 11, 2008

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Spectral Response:	$S_s = 0.17, S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
190.0	194.0	2	Diamond X50A	Leg	(1) 1/2" Coax	Enertrac
187.0	192.0	3	10' Dipole	Leg	(3) 1 1/4" Coax	Town Of Guilford
183.0	183.0	3	RFS APXV18-206517S-C	Side Arms	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
	181.0	3	RCU			
172.0	175.0	3	Ericsson AIR 21 B4A B2P	Sector Frames	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson AIR 21, 1.3 M, B2A B4P, AWS - 1700/2100			
		3	Ericsson KRY 112 144/1			
163.0	166.0	3	Ericsson RRUS-11 (19.7")	Sector Frames	(12) 3/8" Coax (3) 0.74" 8 AWG 7 (12) 1 5/8" Coax (1) 1/2" Coax (1) 0.39" Fiber Trunk	AT&T Mobility
		3	CCI OPA-65R-LCUU-H4 (14.4" width)			
		3	Ericsson RRUS-12 B2			
		6	Ericsson RRUS-11 1900MHz			
		3	Ericsson RRUS A2 B2			
		1	Raycap DC6-48-60-18-8F			
		6	Powerwave 7770.00			
		6	Powerwave LGP21401			
		6	Powerwave 7020			
		6	Powerwave LGP21901			
142.0	142.0	2	Diamond X50A	Side Arms	(2) 1/2" Coax	Senet
140.0	147.0	1	Andrew DB408	Side Arm	(6) 7/8" Coax	Town Of Guilford
138.0	138.0	1	Shively 6810-HW-2 w/ Radome	Leg	(1) 7/8" Coax	Monroe B.o.e
130.0	130.0	1	Shively 6812B-1 w/o Radome	Leg	-	
108.8	108.8	1	Scala PR-950	Leg	(1) 7/8" Coax	
108.5	108.5	1	Harris FML-4E-HW	Leg	(1) 7/8" Coax	
87.0	92.5	1	Antel BCD-87010 ___ 4°	Stand-Off	(1) 1 5/8" Coax	Spok Holdings
80.0	80.0	2	4' Dish w/ Radome	Leg	(2) 7/8" Coax	Town Of Guilford
16.0	16.0	1	Channel Master Type 120	Leg	(1) 0.28" RG-6	Spok Holdings

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
172.0	177.0	3	Ericsson RRUS 11 B12	Sector Frames	-	T-Mobile
	175.0	3	Andrew LNX-6515DS-VTM			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	78%	Pass
Diagonals	98%	Pass
Horizontals	11%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	434.0	585.9	404.4	69%
Axial (Kips)	488.3	659.2	457.2	69%
Shear (Kips)	49.5	66.8	45.8	69%

* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
172.0	Ericsson RRUS 11 B12	T-Mobile	0.316	0.022	0.240
	Andrew LNX-6515DS-VTM				
108.8	Scala PR-950	Monroe B.O.E	0.123	0.006	0.127
80.0	4' Dish w/ Radome	Town of Guilford	0.070	0.004	0.099
16.0	Channel Master Type 120	Spok Holdings			

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

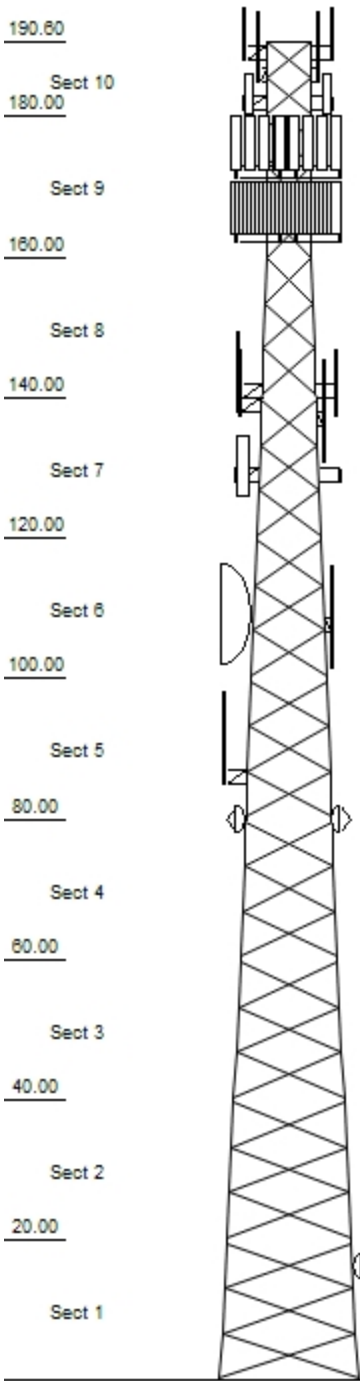
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



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 Loads: 110 mph no ice
 50 mph w / 3/4" radial ice
 Site Class: D Ss: 0.17 S1: 0.06
 60 mph Serviceability

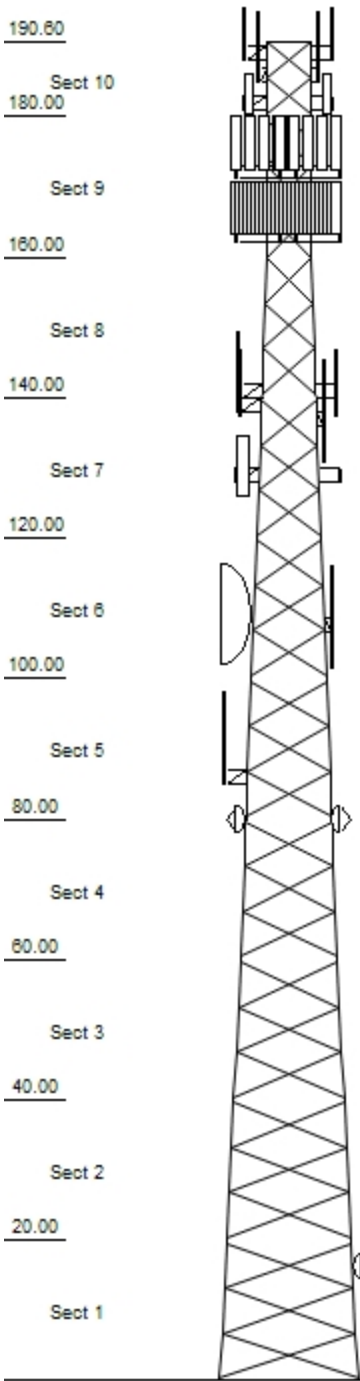
Job Information			
Tower : 311305	Location : GLFD-Guilford Rebuild CT, CT		
Code : ANSI/TIA-222-G	Shape : Triangle	Base Width : 20.00 ft	
Client : T- Mobile	Top Width : 6.50 ft		

Sections Properties			
Section	Leg Members	Diagonal Members	Horizontal Members
1	PST 50 ksi 12" DIA PIPE	SAE 50 ksi 4X4X0.25	
2	PST 50 ksi 10" DIA PIPE	SAE 50 ksi 3.5X3.5X0.25	
3 - 4	PST 50 ksi 10" DIA PIPE	SAE 50 ksi 3X3X0.25	
5 - 6	PST 50 ksi 8" DIA PIPE	SAE 50 ksi 3X3X0.1875	
7	PST 50 ksi 6" DIA PIPE	SAE 50 ksi 3X3X0.1875	
8	PST 50 ksi 5" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
9	PST 50 ksi 3" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
10	PST 50 ksi 2" DIA PIPE	SAE 50 ksi 2X2X0.1875	SAE 36 ksi 2X2X0.1875

Discrete Appurtenance			
Elev (ft)	Type	Qty	Description
190.00	Whip	2	Diamond X50A
187.00	Whip	3	10' Dipole
183.00	Panel	3	RFS APXV18-206517S-C
183.00	Panel	3	RCU
183.00	Straight Arm	3	Round Side Arm
172.00	Panel	3	Andrew LNX-6515DS-VTM
172.00	Panel	3	Ericsson RRUS 11 B12
172.00	Mounting Frame	3	Round Sector Frame
172.00	Panel	3	Ericsson AIR 21 B4AB2P
172.00	Panel	3	Ericsson AIR 21, 1.3 M, B2AB4
172.00	Panel	3	Ericsson KRY 112 144/1
163.00	Panel	3	Ericsson RRUS-11 (19.7")
163.00	Panel	3	CCI OPA-65R-LCUU-H4 (14.4" wid
163.00	Panel	3	Ericsson RRUS-12 B2
163.00	Panel	6	Ericsson RRUS-11 1900 MHz
163.00	Panel	3	Ericsson RRUS A2 B2
163.00	Panel	1	Raycap DC6-48-60-18-8F
163.00	Panel	6	Powerwave Algon 7770.00
163.00	Panel	6	Powerwave Algon LGP21401
163.00	Panel	6	Powerwave Algon 7020
163.00	Panel	6	Powerwave Algon LGP21901
163.00	Mounting Frame	3	Flat Light Sector Frame
142.00	Straight Arm	2	Round Side Arm
142.00	Whip	2	Diamond X50A
140.00	Whip	1	Andrew DB408
140.00	Straight Arm	1	Round Side Arm
138.00	Whip	1	Shively 6810-HW-2 w/ Radome
130.00	Panel	1	Shively 6812B-1 w/o Radome
108.80	Dish	1	Scala PR-950
108.50	Whip	1	Harris FML-4E-HW
87.00	Whip	1	Antel BCD-87010 ___ 4°
87.00	Straight Arm	1	Stand-Off
80.00	Dish	2	4' Dish w/ Radome
16.00	Dish	1	Channel Master Type 120

Linear Appurtenance			
Elev (ft)		Qty	Description
From	To		
0.000	190.00	1	1/2" Coax
0.000	189.99	1	Climbing Ladder
0.000	187.00	3	1 1/4" Coax
0.000	183.00	1	Waveguide
0.000	183.00	1	3/8" Coax
0.000	183.00	6	1 5/8" Coax
0.000	172.00	1	Waveguide
0.000	172.00	12	1 5/8" Coax
0.000	172.00	1	1 1/4" Hybriflex Cab
0.000	163.00	1	Waveguide
0.000	163.00	12	3/8" Coax

Uplift 404.44 k Moment 7,616.88 kMoment Ice 1,917.36 k-ft
 Vert 457.16 k Tot Down 52.20 k Tot Down Ice 142.56 k
 Horiz 45.84 k Tot Shear 77.11 k Tot Shear Ice 18.96 k



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Job Information			
Tower : 311305	Location : GLFD-Guilford Rebuild CT, CT		
Code : ANSI/TIA-222-G	Shape : Triangle	Base Width : 20.00 ft	
Client : T- Mobile	Top Width : 6.50 ft		

0.000	163.00	1	1/2" Coax
0.000	163.00	4	1 5/8" Coax
0.000	163.00	8	1 5/8" Coax
0.000	163.00	3	0.74" 8 AWG 7
0.000	163.00	1	0.39" Fiber Trunk
0.000	142.00	2	1/2" Coax
0.000	140.00	6	7/8" Coax
0.000	138.00	1	7/8" Coax
0.000	108.80	1	7/8" Coax
0.000	108.50	1	7/8" Coax
0.000	87.000	1	1 5/8" Coax
0.000	80.000	2	7/8" Coax
0.000	16.000	1	0.28" RG-6

Uplift 404.44 k Moment 7,616.88 k Moment Ice 1,917.36 k-ft
 Vert 457.16 k Tot Down 52.20 k Tot Down Ice 142.56 k
 Horiz 45.84 k Tot Shear 77.11 k Tot Shear Ice 18.96 k

Site Number: 311305

Code: ANSI/TIA-222-G

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

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Customer: T- Mobile

Analysis Parameters

Location:	New Haven County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	190.5999
Shape:	Triangle	Base Elevation (ft):	0.00
Tower Manufacturer:	Nello Corp	Bottom Face Width (ft):	20.00
Tower Type:	Self Support	Top Face Width (ft):	6.50

Ice & Wind Parameters

Structure Class:	II	Design Windspeed Without Ice:	110 mph
Exposure Category:	C	Design Windspeed With Ice:	50 mph
Topographic Category:	1	Operational Windspeed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	0.81				
T_L (sec):	6	p:	1.3	C_s :	0.000
S_s :	0.173	S_1 :	0.060	$C_{s, Max}$:	0.000
F_a :	1.600	F_v :	2.400	$C_{s, Min}$:	0.000
S_{ds} :	0.185	S_{d1} :	0.096		

Load Cases

1.2D + 1.6W Normal	110 mph Normal to Face with No Ice
1.2D + 1.6W 60 deg	110 mph 60 degree with No Ice
1.2D + 1.6W 90 deg	110 mph 90 degree with No Ice
0.9D + 1.6W Normal	110 mph Normal to Face with No Ice (Reduced DL)
0.9D + 1.6W 60 deg	110 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.6W 90 deg	110 mph 90 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 degree with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 degree with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E Normal	Seismic Normal
(1.2 + 0.2Sds) * DL + E 60 deg	Seismic 60 degree
(1.2 + 0.2Sds) * DL + E 90 deg	Seismic 90 degree
(0.9 - 0.2Sds) * DL + E Normal	Seismic (Reduced DL) Normal
(0.9 - 0.2Sds) * DL + E 60 deg	Seismic (Reduced DL) 60 degree
(0.9 - 0.2Sds) * DL + E 90 deg	Seismic (Reduced DL) 90 degree
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 degree
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 degree

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	466.9	38.31	117	7
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	2639.1	38.23	528	130
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	19.7	37.76	10	4
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	37.84	433	114
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	37.84	538	648
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	75.3	37.49	25	48
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	855.6	37.58	171	219
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	389
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	389
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	2937.2	37.49	979	222
172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	37.35	1103	1296
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	83.5	37.08	28	48
163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	145.2	37.08	48	19
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	399.3	37.08	133	122
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	29
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	373.9	37.08	125	95
163.0	Ericsson RRUS-11	6	44	2.5	1.6	17.0	8.0	0.80	0.50	3.0	914.9	37.08	305	380
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	506.4	37.08	169	220
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	571.8	37.08	191	251
163.0	Powerwave Allgon	6	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	2600.5	37.08	867	302
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	1423.3	37.08	474	246
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	36.93	1355	1728
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	35.88	98	7
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	35.88	411	432
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	997.7	36.14	143	24
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	35.77	253	216
138.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	35.66	669	356
130.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	35.22	29	4
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.92	465	55
108.5	Harris FML-4E-HW	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.90	592	327
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	32.36	110	108
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	711.1	32.78	129	38
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	31.79	938	346
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	22.66	622	181
Totals		93	6249	427.5										

Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	466.9	38.31	117	4
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	2639.1	38.23	528	73
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	19.7	37.76	10	2
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	37.84	433	64
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	37.84	538	365
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	75.3	37.49	25	27
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	855.6	37.58	171	123
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	219
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	219
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	2937.2	37.49	979	125
172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	37.35	1103	729
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	83.5	37.08	28	27

Site Number: 311305

Code: ANSI/TIA-222-G

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

11/24/2015 2:16:53 PM

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Tower Loading

163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	145.2	37.08	48	11
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	399.3	37.08	133	69
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	16
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	373.9	37.08	125	53
163.0	Ericsson RRUS-11	6	44	2.5	1.6	17.0	8.0	0.80	0.50	3.0	914.9	37.08	305	214
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	506.4	37.08	169	124
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	571.8	37.08	191	141
163.0	Powerwave Allgon	6	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	2600.5	37.08	867	170
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	1423.3	37.08	474	139
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	36.93	1355	972
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	35.88	98	4
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	35.88	411	243
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	997.7	36.14	143	14
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	35.77	253	122
138.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	35.66	669	200
130.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	35.22	29	2
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.92	465	31
108.5	Harris FML-4E-HW	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.90	592	184
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	32.36	110	61
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	711.1	32.78	129	21
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	31.79	938	194
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	22.66	622	102
Totals		93	6249	427.5										

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
190.0	Diamond X50A	2	65	2.5	5.6	2.0	2.0	1.00	1.00	4.0	136.5	7.92	34	156
187.0	10' Dipole	3	140	9.7	8.0	3.0	3.0	1.00	0.90	5.0	880.7	7.90	176	525
183.0	RCU	3	12	0.4	0.7	2.0	2.0	0.80	0.50	-2.0	5.9	7.80	3	42
183.0	RFS APXV18-	3	147	6.4	6.0	6.8	3.2	0.80	0.68	0.0	0.0	7.82	70	549
183.0	Round Side Arm	3	225	8.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	7.82	107	918
172.0	Ericsson KRY 112	3	28	0.6	0.6	6.1	2.7	0.80	0.50	3.0	15.1	7.75	5	108
172.0	Ericsson RRUS 11	3	138	3.5	1.6	17.0	7.2	0.80	0.50	5.0	137.8	7.76	28	535
172.0	Ericsson RRUS 21, 1,3	3	256	6.9	4.5	12.0	8.0	0.80	0.71	3.0	231.6	7.75	77	987
172.0	Ericsson AIR 21 B4A	3	256	6.9	4.5	12.0	8.0	0.80	0.71	3.0	231.6	7.75	77	987
172.0	Andrew LNX-	3	319	13.1	8.0	11.9	7.1	0.80	0.70	3.0	435.2	7.75	145	1184
172.0	Round Sector Frame	3	673	31.2	0.0	0.0	0.0	0.75	0.67	0.0	0.0	7.72	308	2640
163.0	Powerwave Allgon	6	18	0.4	0.3	6.0	3.0	0.80	0.50	3.0	20.1	7.66	7	138
163.0	Powerwave Allgon	6	18	0.6	0.7	4.9	2.4	0.80	0.50	3.0	29.1	7.66	10	132
163.0	Powerwave Allgon	6	48	1.6	1.2	9.2	2.6	0.80	0.50	3.0	73.3	7.66	24	364
163.0	Raycap DC6-48-60-	1	101	2.5	2.0	9.7	9.7	0.80	1.00	3.0	39.4	7.66	13	125
163.0	Ericsson RRUS A2 B2	3	90	2.8	1.4	16.0	5.8	0.80	0.50	3.0	65.7	7.66	22	338
163.0	Ericsson RRUS-11	6	134	3.5	1.6	17.0	8.0	0.80	0.50	3.0	162.7	7.66	54	1029
163.0	Ericsson RRUS-11	3	141	3.5	1.6	17.0	8.0	0.80	0.50	3.0	81.3	7.66	27	545
163.0	Ericsson RRUS-12 B2	3	151	3.9	2.1	15.1	6.7	0.80	0.50	3.0	91.1	7.66	30	585
163.0	Powerwave Allgon	6	170	6.6	4.6	11.0	5.0	0.80	0.65	3.0	400.1	7.66	133	1276
163.0	CCI OPA-65R-LCUU-	3	348	14.6	7.7	14.8	7.4	0.80	0.66	3.0	451.6	7.66	151	1294
163.0	Flat Light Sector	3	702	33.0	0.0	0.0	0.0	0.75	0.67	0.0	0.0	7.63	323	2814
142.0	Diamond X50A	2	132	5.7	9.7	3.0	3.0	0.90	1.00	0.0	0.0	7.41	64	317
142.0	Round Side Arm	2	223	7.9	0.0	0.0	0.0	0.90	0.90	0.0	0.0	7.41	81	608
140.0	Andrew DB408	1	144	5.6	9.7	3.0	3.0	1.00	1.00	7.0	250.9	7.47	36	177
140.0	Round Side Arm	1	222	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.39	50	303
138.0	Shively 6810-HW-2	1	4177	87.0	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.37	545	5072
130.0	Shively 6812B-1 w/o	1	706	25.2	9.0	24.0	24.0	1.00	1.00	0.0	0.0	7.28	156	848

Site Number: 311305

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

11/24/2015 2:16:53 PM

Customer: T- Mobile

Tower Loading

108.8	Scala PR-950	1	51	13.5	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.01	80	70
108.5	Harris FML-4E-HW	1	4090	86.9	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.00	517	4962
87.00	Stand-Off	1	125	4.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	6.69	24	168
87.00	Antel BCD-87010	1	153	6.5	11.2	2.6	2.6	1.00	1.00	5.5	207.3	6.77	38	190
80.00	4' Dish w/ Radome	2	416	12.3	4.0	0.0	0.0	1.00	1.00	0.0	0.0	6.57	138	1057
16.00	Channel Master	1	235	22.5	3.9	47.2	0.0	1.00	1.00	0.0	0.0	4.68	89	312
Totals		93	24878	828.0										

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	86.8	11.40	22	5
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	490.7	11.37	98	90
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	3.7	11.23	2	3
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	11.26	81	79
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	11.26	100	450
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	14.0	11.15	5	33
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	159.1	11.18	32	152
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	281.1	11.15	94	270
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	281.1	11.15	94	270
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	546.2	11.15	182	154
172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	11.11	205	900
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	15.5	11.03	5	33
163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	27.0	11.03	9	13
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	74.3	11.03	25	85
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	25.0	11.03	8	20
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	69.5	11.03	23	66
163.0	Ericsson RRUS-11	6	44	2.5	1.6	17.0	8.0	0.80	0.50	3.0	170.1	11.03	57	264
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	94.2	11.03	31	153
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	106.3	11.03	35	174
163.0	Powerwave Allgon	6	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	483.6	11.03	161	210
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	264.7	11.03	88	171
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	10.99	252	1200
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	10.67	18	5
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	10.67	76	300
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	185.5	10.75	27	17
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.64	47	150
138.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.61	124	247
130.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	10.48	5	3
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.09	87	38
108.5	Harris FML-4E-HW	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.09	110	227
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	9.63	20	75
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	132.2	9.75	24	27
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	9.46	174	240
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	6.74	116	126
Totals		93	6249	427.5										

Site Number: 311305

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Customer: T- Mobile

Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	190.0	1/2" Coax	1	0.63	0.15	0	1	Individual	0.00	N	1.00	1.00	0.00
0.00	189.9	Climbing Ladder	1	2.00	6.90	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	187.0	1 1/4" Coax	3	1.55	0.63	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	183.0	1 5/8" Coax	6	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
0.00	183.0	3/8" Coax	1	0.44	0.08	0	3	Individual	0.00	N	1.00	1.00	0.01
0.00	183.0	Waveguide	1	2.00	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	172.0	1 1/4" Hybriflex	1	1.54	1.00	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	172.0	1 5/8" Coax	12	1.98	0.82	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	172.0	Waveguide	1	2.00	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	163.0	0.39" Fiber Trunk	1	0.39	0.06	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	163.0	0.74" 8 AWG 7	3	0.74	0.49	67	2	Block	0.00	N	0.00	1.00	0.00
0.00	163.0	1 5/8" Coax	8	1.98	0.82	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	163.0	1 5/8" Coax	4	1.98	0.82	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	163.0	1/2" Coax	1	0.63	0.15	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	163.0	3/8" Coax	12	0.44	0.08	50	2	Block	0.00	N	0.00	1.00	0.01
0.00	163.0	Waveguide	1	2.00	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	142.0	1/2" Coax	2	0.63	0.15	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	140.0	7/8" Coax	6	1.09	0.33	50	3	Block	0.00	N	1.00	1.00	0.00
0.00	138.0	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	108.8	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	0.00	0.00
0.00	108.5	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.01
0.00	87.00	1 5/8" Coax	1	1.98	0.82	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	80.00	7/8" Coax	2	1.09	0.33	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	16.00	0.28" RG-6	1	0.28	0.03	0	3	Individual	0.00	N	1.00	1.00	0.01

Force/Stress Summary

Section: 1		1		Bot Elev (ft): 0.00				Height (ft): 20.000								
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PST - 12" DIA PIPE	-450.90	1.2D + 1.6W	6.43	100	100	100	17.6	50.0	642.27	0	0	0.00	0.00	70	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 4X4X0.25	-13.60	1.2D + 1.6W 90	19.44	48	48	48	140.9	43.5	22.07	0	0	0.00	0.00	61	Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use				
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	(kip)	phiRnv	phiRn	%	Controls			
LEG	PST - 12" DIA PIPE	402.65	1.2D + 1.6W 60	50	65	657.00	0	0	0.00	0.00	61		Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 4X4X0.25	13.33	1.2D + 1.6W 90	50	65	87.30	0	0	0.00	0.00	15		Member			
Section: 2		2		Bot Elev (ft): 20.00				Height (ft): 20.000								
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PST - 10" DIA PIPE	-404.77	1.2D + 1.6W	6.43	100	100	100	21.0	50.0	518.48	0	0	0.00	0.00	78	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 3.5X3.5X0.25	-12.57	1.2D + 1.6W 90	18.77	48	48	48	155.8	42.0	15.73	0	0	0.00	0.00	79	Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use				
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	(kip)	phiRnv	phiRn	%	Controls			
LEG	PST - 10" DIA PIPE	365.00	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	68		Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 3.5X3.5X0.25	12.33	1.2D + 1.6W 90	50	65	76.05	0	0	0.00	0.00	16		Member			
Section: 3		3		Bot Elev (ft): 40.00				Height (ft): 20.000								
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PST - 10" DIA PIPE	-365.51	1.2D + 1.6W	0.38	100	100	100	1.2	50.0	535.44	0	0	0.00	0.00	68	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 3X3X0.25	-11.87	1.2D + 1.6W 90	16.90	48	48	48	164.5	50.0	12.02	0	0	0.00	0.00	98	Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use				
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	(kip)	phiRnv	phiRn	%	Controls			
LEG	PST - 10" DIA PIPE	323.36	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	60		Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0					
DIAG	SAE - 3X3X0.25	11.73	1.2D + 1.6W 90	50	65	64.80	0	0	0.00	0.00	18		Member			

Site Number: 311305

Code: ANSI/TIA-222-G

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

11/24/2015 2:16:53 PM

Customer: T- Mobile

Force/Stress Summary

Section: 4		4		Bot Elev (ft): 60.00				Height (ft): 20.000							
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	PST - 10" DIA PIPE	-315.51	1.2D + 1.6W	0.38	100	100	100	1.2	50.0	535.44	0	0	0.00	0.00	58 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.25	-13.38	1.2D + 1.6W 90	15.15	48	48	48	147.5	50.0	14.96	0	0	0.00	0.00	89 Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use			
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes		(kip)	(kip)	%	Controls		
LEG	PST - 10" DIA PIPE	279.60	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	52	Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0				
DIAG	SAE - 3X3X0.25	13.13	1.2D + 1.6W 90	50	65	64.80	0	0	0.00	0.00	20	Member			

Section: 5		5		Bot Elev (ft): 80.00				Height (ft): 20.000							
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	PST - 8" DIA PIPE	-254.24	1.2D + 1.6W	0.38	100	100	100	1.5	50.0	377.94	0	0	0.00	0.00	67 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.1875	-11.58	1.2D + 1.6W 90	13.81	48	48	48	133.5	44.0	13.82	0	0	0.00	0.00	83 Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use			
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes		(kip)	(kip)	%	Controls		
LEG	PST - 8" DIA PIPE	224.93	1.2D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	59	Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0				
DIAG	SAE - 3X3X0.1875	11.39	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	23	Member			

Section: 6		6		Bot Elev (ft): 100.0				Height (ft): 20.000							
		Pu		Len	Bracing %			Fy	Phic	Pn	Num	Shear		Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	(ksi)	(kip)	Bolts	Holes	(kip)	(kip)	%	Controls
LEG	PST - 8" DIA PIPE	-196.28	1.2D + 1.6W	0.38	100	100	100	1.5	50.0	377.94	0	0	0.00	0.00	51 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.1875	-11.01	1.2D + 1.6W 90	12.50	48	48	48	120.8	44.0	16.87	0	0	0.00	0.00	65 Member Z
Max Tension Member		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear	Bear	Use			
		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes		(kip)	(kip)	%	Controls		
LEG	PST - 8" DIA PIPE	172.36	1.2D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	45	Member			
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0				
DIAG	SAE - 3X3X0.1875	10.48	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	21	Member			

Force/Stress Summary

Section: 7		7		Bot Elev (ft): 120.0				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Phic (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	phiRn (kip)	Use (%)	Controls	
LEG	PST - 6" DIA PIPE	-130.18	1.2D + 1.6W	6.42	100	100	100	34.3	50.0	230.46	0	0	0.00	0.00	56	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 3X3X0.1875	-8.84	1.2D + 1.6W 90	11.24	48	48	48	111.5	44.0	19.40	0	0	0.00	0.00	45	Member Z	
Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	Bear phiRn (kip)	Use (%)	Controls				
LEG	PST - 6" DIA PIPE	120.96	1.2D + 1.6W 60	50	65	251.10	0	0	0.00	0.00	48		Member				
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0						
DIAG	SAE - 3X3X0.1875	8.64	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	17		Member				

Section: 8		8		Bot Elev (ft): 140.0				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Phic (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	phiRn (kip)	Use (%)	Controls	
LEG	PST - 5" DIA PIPE	-76.72	1.2D + 1.6W	6.55	100	100	100	41.8	50.0	170.30	0	0	0.00	0.00	45	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 2.5X2.5X0.1875	-6.98	1.2D + 1.6W 90	10.12	48	48	48	118.4	50.0	14.55	0	0	0.00	0.00	47	Member Z	
Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	Bear phiRn (kip)	Use (%)	Controls				
LEG	PST - 5" DIA PIPE	72.03	0.9D + 1.6W 60	50	65	193.50	0	0	0.00	0.00	37		Member				
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0						
DIAG	SAE - 2.5X2.5X0.1875	6.64	1.2D + 1.6W 90	50	65	40.59	0	0	0.00	0.00	16		Member				

Section: 9		9		Bot Elev (ft): 160.0				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Phic (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	phiRn (kip)	Use (%)	Controls	
LEG	PST - 3" DIA PIPE	-30.62	1.2D + 1.6W	6.54	100	100	100	67.7	50.0	71.80	0	0	0.00	0.00	42	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 2.5X2.5X0.1875	-5.04	1.2D + 1.6W	9.222	48	48	48	110.5	50.0	16.63	0	0	0.00	0.00	30	Member Z	
Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn (Bolts)	Num (Holes)	Num (kip)	phiRn (kip)	Bear phiRn (kip)	Use (%)	Controls				
LEG	PST - 3" DIA PIPE	23.40	0.9D + 1.6W 60	50	65	100.35	0	0	0.00	0.00	23		Member				
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0						
DIAG	SAE - 2.5X2.5X0.1875	5.09	1.2D + 1.6W 90	50	65	40.59	0	0	0.00	0.00	12		Member				

Site Number: 311305

Code: ANSI/TIA-222-G

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

11/24/2015 2:16:53 PM

Customer: T- Mobile

Force/Stress Summary

Section: 10 10		Bot Elev (ft): 180.0		Height (ft): 10.599											
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	PST - 2" DIA PIPE	-2.85	1.2D + 1.6W	5.11	100	100	100	77.9	50.0	30.88	0	0	0.00	0.00	9 Member X
HORIZ	SAE - 2X2X0.1875	-0.47	1.2D + 1.6W	6.500	100	100	100	198.0	36.0	4.12	0	0	0.00	0.00	11 Member Z
DIAG	SAE - 2X2X0.1875	-1.15	1.2D + 1.6W	8.269	48	48	48	120.9	50.0	11.05	0	0	0.00	0.00	10 Member Z

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	PST - 2" DIA PIPE	2.20	1.2D + 1.6W 60	50	65	48.15	0	0	0.00	0.00	4	Member
HORIZ	SAE - 2X2X0.1875	0.48	1.2D + 1.6W	36	58	23.17	0	0	0.00	0.00	2	Member
DIAG	SAE - 2X2X0.1875	1.43	1.2D + 1.6W	50	65	32.17	0	0	0.00	0.00	4	Member

Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
(0.9 - 0.2Sds) * DL + E 60 deg	1b	0.00	2.06	0.00	
	1a	-1.09	17.26	0.59	
	1	-0.04	17.26	-1.24	
(0.9 - 0.2Sds) * DL + E 90 deg	1b	0.08	3.27	0.07	
	1a	-1.35	21.12	0.75	
	1	-0.04	12.19	-0.82	
(0.9 - 0.2Sds) * DL + E Normal	1b	0.37	7.04	0.17	
	1a	-0.37	7.04	0.17	
	1	0.00	22.50	-1.66	
(1.2 + 0.2Sds) * DL + E 60 deg	1b	0.31	7.32	0.18	
	1a	-1.40	22.55	0.76	
	1	-0.04	22.55	-1.59	
(1.2 + 0.2Sds) * DL + E 90 deg	1b	0.39	8.54	0.25	
	1a	-1.66	26.41	0.93	
	1	-0.04	17.48	-1.18	
(1.2 + 0.2Sds) * DL + E Normal	1b	0.68	12.32	0.35	
	1a	-0.68	12.32	0.35	
	1	0.00	27.80	-2.02	
0.9D + 1.6W 60 deg	1b	-36.46	-404.44	-21.25	
	1a	-21.59	220.92	6.88	
	1	-5.17	222.67	-22.13	
0.9D + 1.6W 90 deg	1b	-33.52	-352.36	-15.74	
	1a	-34.43	378.46	16.59	
	1	-6.08	13.05	-0.85	
0.9D + 1.6W Normal	1b	-15.89	-206.48	-16.03	
	1a	16.16	-206.72	-15.55	
	1	-0.27	452.36	-45.54	
1.0D + 1.0W Service 60 deg	1b	-6.21	-64.18	-3.62	
	1a	-4.82	53.63	1.67	
	1	-1.03	54.05	-5.02	
1.0D + 1.0W Service 90 deg	1b	-5.65	-54.34	-2.59	
	1a	-7.28	83.35	3.54	
	1	-1.18	14.49	-0.96	
1.0D + 1.0W Service Normal	1b	-2.31	-26.65	-2.63	
	1a	2.37	-26.91	-2.55	
	1	-0.05	97.06	-9.48	
1.2D + 1.0Di + 1.0Wi 60 deg	1b	-14.59	-59.57	-8.42	
	1a	-0.20	100.93	-1.33	
	1	-1.26	101.20	0.49	
1.2D + 1.0Di + 1.0Wi 90 deg	1b	-13.76	-45.25	-7.02	
	1a	-3.50	141.62	1.07	
	1	-1.39	46.19	5.96	
1.2D + 1.0Di + 1.0Wi Normal	1b	-9.24	-5.92	-6.96	
	1a	9.43	-9.72	-6.79	

Site Number: 311305

Code:

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Site Name: GLFD-Guilford Rebuild CT, CT

Engineering Number: 63955822

11/24/2015 2:16:53 PM

Customer: T- Mobile

	1	-0.19	158.20	-5.21
1.2D + 1.6W 60 deg	1b	-36.22	-400.48	-21.11
	1a	-21.84	225.44	7.03
	1	-5.16	227.24	-22.42
1.2D + 1.6W 90 deg	1b	-33.27	-348.34	-15.61
	1a	-34.69	383.15	16.74
	1	-6.07	17.40	-1.14
1.2D + 1.6W Normal	1b	-15.65	-202.32	-15.88
	1a	15.92	-202.64	-15.40
	1	-0.27	457.16	-45.83

Max Uplift:	404.44 (kip)	Moment:	7,616.88 (kip-ft)	1.2D + 1.6W Normal
Max Down:	457.16 (kip)	Total Down:	52.20 (kip)	
Max Shear:	45.84 (kip)	Total Shear:	77.11 (kip)	

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

T-Mobile Existing Facility

Site ID: CT11028A

**Guilford SNET Mobilit_1
119 Tanner Marsh Road
Guilford, CT 06437**

December 1, 2015

EBI Project Number: 6215006207

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	63.37 %

December 1, 2015

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

Emissions Analysis for Site: **CT11028A – Guilford SNET Mobilit_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **119 Tanner Marsh Road, Guilford, 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 **119 Tanner Marsh Road, Guilford, 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 (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. 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.
- 8) The antenna mounting height centerline of the proposed antennas is **175 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):	175	Height (AGL):	175	Height (AGL):	175
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%	0.59	Antenna B1 MPE%	0.59	Antenna C1 MPE%	0.59
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):	175	Height (AGL):	175	Height (AGL):	175
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%	0.59	Antenna B2 MPE%	0.59	Antenna C2 MPE%	0.59
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):	175	Height (AGL):	175	Height (AGL):	175
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%	0.23	Antenna B3 MPE%	0.23	Antenna C3 MPE%	0.23

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.41 %
AT&T	0.60 %
MetroPCS	0.24 %
Town of Guilford	8.71 %
USA Mobility	0.28 %
WGRS-Town of Monroe	7.18 %
WMNR	44.95 %
Enertrac (Receive Only)	0.00 %
Site Total MPE %:	63.37 %

T-Mobile Sector 1 Total:	1.41 %
T-Mobile Sector 2 Total:	1.41 %
T-Mobile Sector 3 Total:	1.41 %
Site Total:	63.37 %

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	175	5.88	2100	1000	0.59 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	1167.14	175	2.94	1900	1000	0.29 %
T-Mobile 2100 MHz (AWS) UMTS	2	1167.14	175	2.94	2100	1000	0.29 %
T-Mobile 700 MHz LTE	1	865.21	175	1.09	700	467	0.23 %
						Total:	1.42%

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:	1.41 %
Sector 2:	1.41 %
Sector 3 :	1.41 %
T-Mobile Per Sector Maximum:	1.41 %
Site Total:	63.37 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **63.37%** 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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