

JULIE D. KOHLER

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

September 4, 2014

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

**Re: Notice of Exempt Modification
Laydon Industries/T-Mobile
Site ID CTNH039A
69 Wheeler Street, New Haven**

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, Laydon Industries owns the existing monopole telecommunications facility at 69 Wheeler Street, New Haven Connecticut (Latitude: 41.29603, Longitude: -72.89792). T-Mobile intends to replace three antennas and related equipment at this existing telecommunications facility in New Haven ("New Haven 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) and/or (3). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Toni Harp. Laydon Industries is also the property owner.

The existing New Haven Facility consists of a monopole telecommunications facility at a height of 98 feet AGL.¹ T-Mobile proposes to replace three antennas on pipe mounts at a centerline of 98 feet. (See the plans revised to August 6, 2014 attached hereto as Exhibit A). T-Mobile will also install an H-frame, mount an RRU to the H-frame, and reuse existing coax cable.

The planned modifications to the New Haven Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2) and/or (3).

¹ This online Connecticut Siting Council database does not include a docket or petition number for the approval of this structure, but does include the approval of Petition 753, T-Mobile's request for an extension of ten feet on the existing facility. T-Mobile's proposed modifications are consistent with that approval.

September 4, 2014
Site ID CTNH039A
Page 2

1. The proposed replacement antennas will not increase the height of the tower. T-Mobile's new antennas will be installed at a centerline of 98 feet, merely replacing existing antennas. 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 leased area as shown on Sheet A-1 of Exhibit A.

3. The proposed modifications to the New Haven Facility will not increase the noise level 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 September 1, 2014 T-Mobile's operations would add 15.41% 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 79.77% 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 modifications constitute 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: City of New Haven, Mayor Toni Harp
Laydon Industries
Elizabeth Jamieson, Transcend Wireless

EXHIBIT A

SITE NAME: NH039/LAYDON CONSTRUCTION

69 WHEELER STREET
 NEW HAVEN, CT 06512
 NEW HAVEN COUNTY

SITE NUMBER: CTNH039A
CONFIGURATION: 704BU

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 648-1116

Transcend Wireless

TRANSCEND WIRELESS
 10 INDUSTRIAL AVE
 MAHWAH, NJ 07430

TEL: (201) 684-0055
 FAX: (201) 684-0056



1401 ORCHARD STREET
 MAHWAH, NJ 07430
 N. ANDOVER, NJ 07046

TEL: (973) 523-6552
 FAX: (973) 326-5890

APPROVALS

CONSTRUCTION DATE

RF ENGINEERING DATE

ZONING/SITE ACQ. DATE

OPERATIONS DATE

TOWER OWNER DATE

PROJECT NO: CTNH039A

DRAWN BY: AS

CHECKED BY: DR

REV	DATE	DESCRIPTION
2	08/06/14	ISSUED FOR REVIEW
1	08/04/14	ISSUED FOR REVIEW
0	07/28/14	ISSUED FOR REVIEW

SITE NUMBER: CTNH039A

SITE NAME: NH039/

LAYDON CONSTRUCTION

69 WHEELER STREET
 NEW HAVEN, CT 06512
 NEW HAVEN COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

1. STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY HUDSON DESIGN ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING TOWER PLATFORM, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE MODERNIZATION EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.
2. HUDSON DESIGN ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE



CALL
BEFORE YOU DIG
 CALL TOLL FREE 800-922-4455
 OR CALL 811
 UNDERGROUND SERVICE ALERT

PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION

ZONING JURISDICTION: BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

SITE ADDRESS: 69 WHEELER STREET
 NEW HAVEN, CT 06512

LATITUDE: 41° 72' 45.6" N
 LONGITUDE: 72° 53' 52.44" W

JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

DRAWING	TITLE	REV
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & ELEVATION PLAN	1
A-2	ANTENNA PLAN & DETAILS	1
G-1	GROUNDING DETAILS	1

STRUCTURAL NOTE:
 ADDITIONAL TOWER AND STRUCTURAL ANALYSIS ARE
 REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT
 TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.

T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 648-1116



TRANSCEND WIRELESS
 10 INDUSTRIAL AVE
 MAHWAH, NJ 07430
 TEL: (201) 684-0055
 FAX: (201) 684-0066



1601 DODD STREET
 SUITE 200
 N. ANDOVER, MA 01945
 TEL: (978) 527-5599
 FAX: (978) 336-5588

APPROVALS

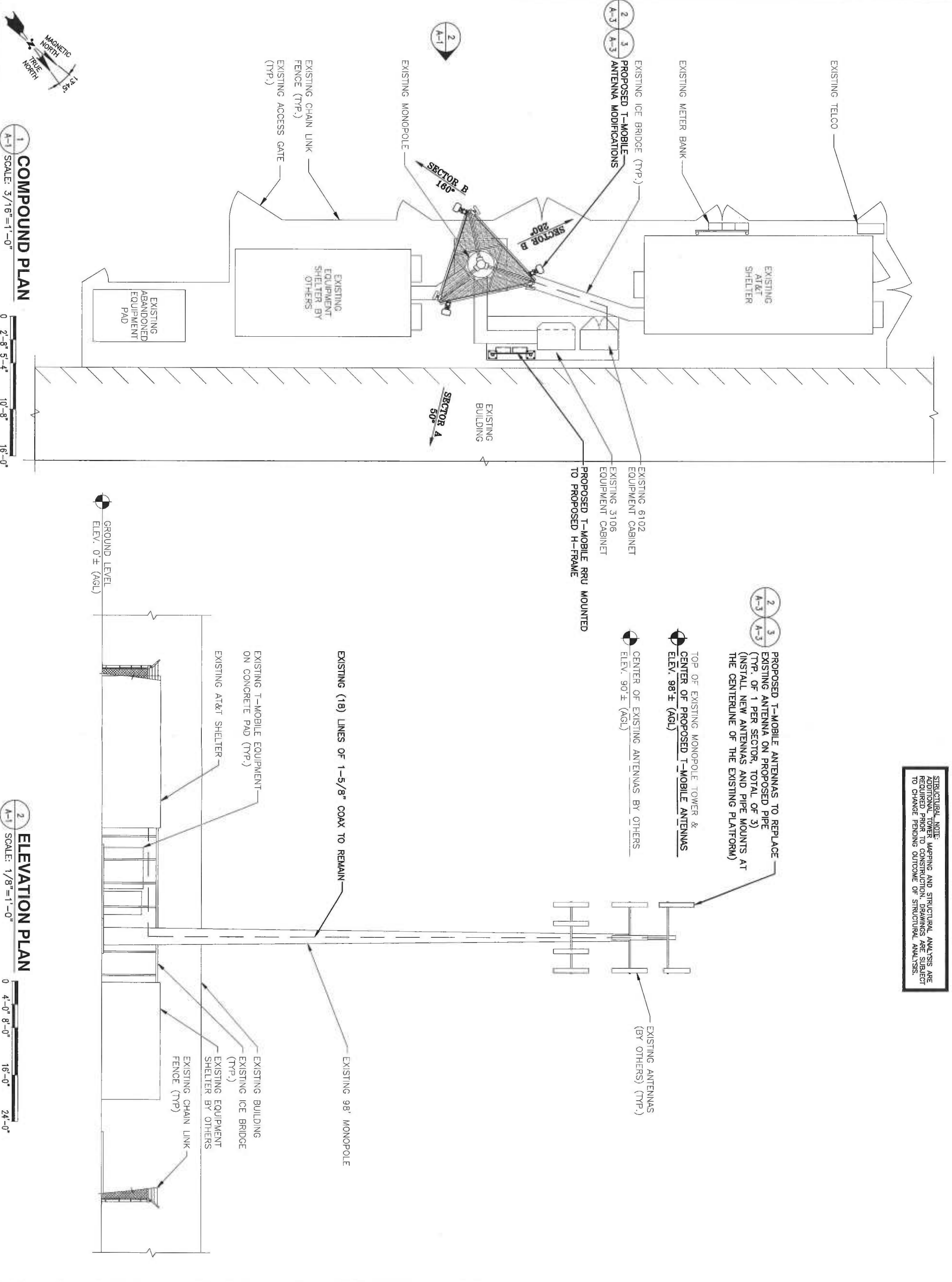
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH039A
DRAWN BY:	AS
CHECKED BY:	DR

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0	07/28/14	ISSUED FOR REVIEW

SITE NUMBER: CTNH039A
SITE NAME: NH039/
LAYDON CONSTRUCTION
 69 WHEELER STREET
 NEW HAVEN, CT 06512
 NEW HAVEN COUNTY

SHEET TITLE
 COMPOUND & ELEVATION
 PLAN

SHEET NUMBER
 A-1



1
COMPOUND PLAN
 SCALE: 3/16"=1'-0"
 0 2'-8" 5'-4" 10'-8" 16'-0"

2
ELEVATION PLAN
 SCALE: 1/8"=1'-0"
 0 4'-0" 8'-0" 16'-0" 24'-0"

T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 648-1116



TRANSCEND WIRELESS
 10 INDUSTRIAL AVE
 MIDDLETOWN, CT 06450
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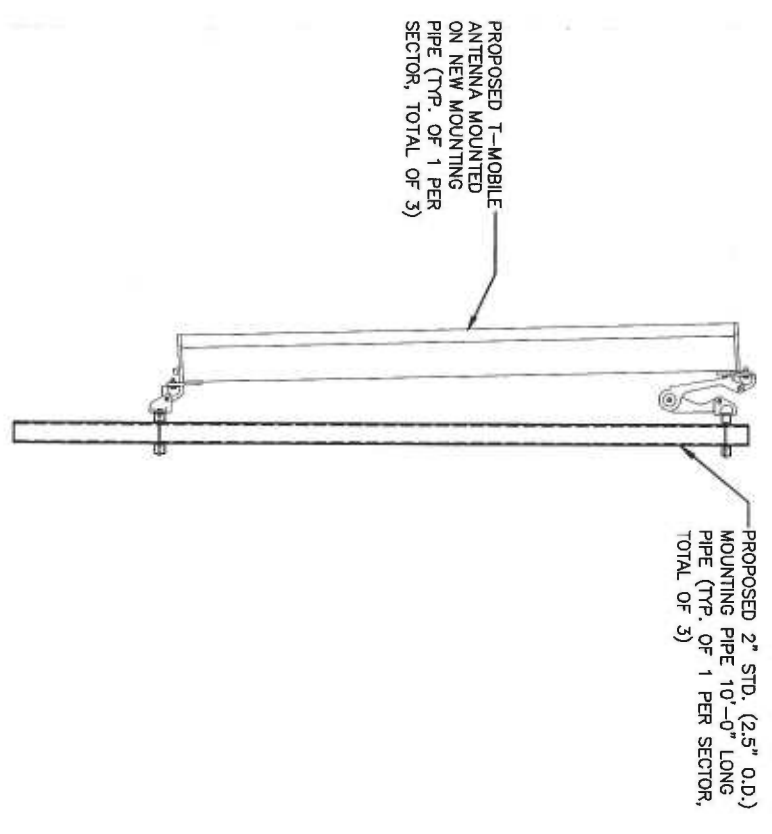
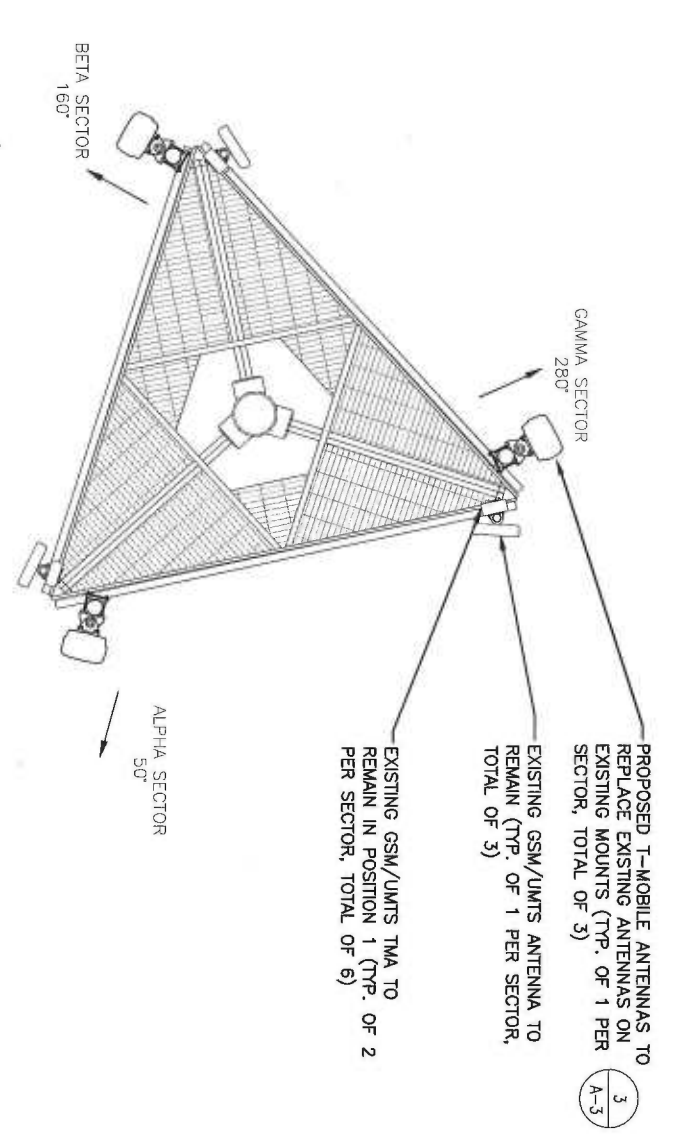
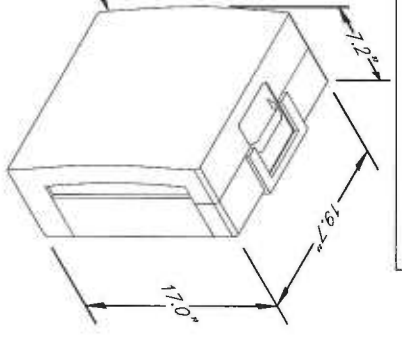
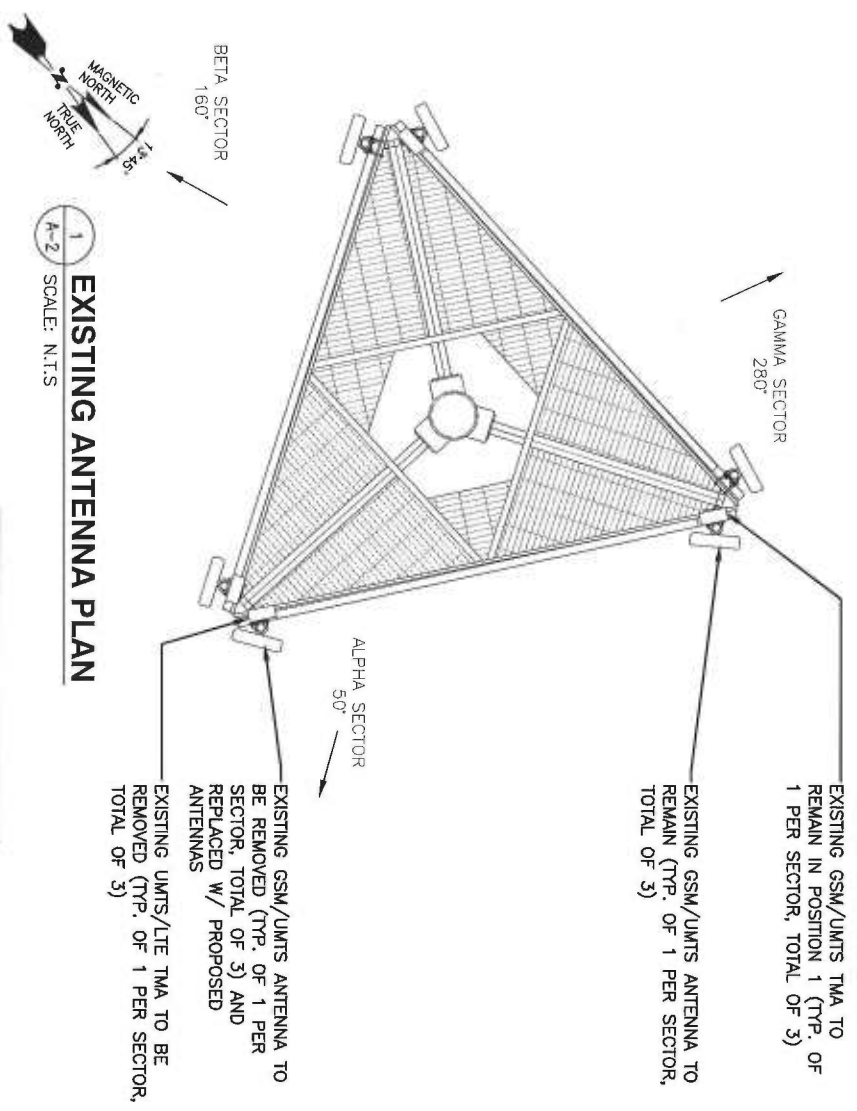


1400 ORCHARD STREET
 10000 STATE ROUTE 930
 N. ANDOVER, MA 01946
 TEL: (978) 527-6550
 FAX: (978) 336-5889

NOTE:
 ADDITIONAL MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.

EXISTING ANTENNA SCHEDULE (TO BE REPLACED)			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	RFS	APX16PV_16PVL	55.9x13x3.15
BETA:	RFS	APX16PV_16PVL	55.9x13x3.15
GAMMA:	RFS	APX16PV_16PVL	55.9x13x3.15

PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	COMMSCOPE	LNX-6515DS-VTM	96.4x11.9x7.1
BETA:	COMMSCOPE	LNX-6515DS-VTM	96.4x11.9x7.1
GAMMA:	COMMSCOPE	LNX-6515DS-VTM	96.4x11.9x7.1



APPROVALS

CONSTRUCTION	DATE
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SITE NAME: NH039/
LAYDON CONSTRUCTION
 69 WHEELER STREET
 NEW HAVEN, CT 06512
 NEW HAVEN COUNTY

SHEET TITLE
 ANTENNA PLAN
 & DETAILS

SHEET NUMBER
 A-2

EXHIBIT B

STRUCTURAL ANALYSIS REPORT

For

CTNH039A

NH039/LAYDON CONSTRUCTION

69 WHEELER STREET
NEW HAVEN, CT 06512

Antennas Mounted on the Monopole



Prepared for:

Transcend Wireless

T-Mobile

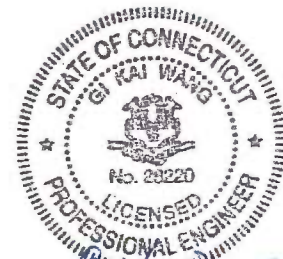
Dated: August 26, 2014

Prepared by:

Hudson
Design Group LLC



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



Gi Kai Wang 8/26/2014



SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-MOBILE to conduct a structural evaluation of the 98' monopole supporting the proposed T-MOBILE's antennas located at elevation 98' above the ground level.

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

Record drawings of the existing monopole were not available for our use. The previous structural analysis report prepared by Structural Components, LLC, dated April 26, 2012, was available and obtained for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole is in conformance with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at 98.3% - (Pole section L2 from EL.70' to EL.88' Controlling).



APPURTANENCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
T-MOBILE	(3) APX16PV-16PVL Antennas	98'	Low Profile Platform
T-MOBILE	(6) ATMAA1412D TMA	98'	Low Profile Platform
T-MOBILE	(3) LNX-6515DS-VTM Antennas	98'	Low Profile Platform
	(6) RRUS-11	94'	T-Frame
	Surge Arrestor DC6-48-60-18-8F	94'	T-Frame
	(3) AM-X-CD-16-65 Antennas	91.5'	T-Frame
	(3) 7750 Antennas	91.5'	T-Frame
	(3) 7770 Antennas	91.5'	T-Frame
	(6) LGP21401 TMA	91.5'	T-Frame
	(6) LGP21900	91.5'	T-Frame
	(2) A-ANT-18G Dishes	82'	T-Frame
	(11) DB844G45ZAXY Antennas	80'	T-Frame
	(3) LLPX310R Antennas	80'	T-Frame
	(3) RRUS-11	80'	T-Frame

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

T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-MOBILE	(18) 1 5/8" Cables	98'	Inside Monopole

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

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	23.9 %	88 – 98	PASS	
Pole Section-L2	98.3 %	70 – 88	PASS	Controlling
Pole Section-L3	86.6 %	48.68 – 70	PASS	
Pole Section-L4	95.8 %	20 – 48.68	PASS	
Pole Section-L5	92.4 %	0 – 20	PASS	



DESIGN CRITERIA:

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

County: New Haven
Wind Load: 90 mph (fastest mile)
 110 mph (3 second gust)
Nominal Ice Thickness: 1/2 inch

2. Approximate height above grade to proposed antennas: 98'

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

ASSUMPTIONS:

1. The monopole dimensions, member sizes and strength of material are as indicated in the previous structural analysis report prepared by Structural Components, LLC, dated April 26, 2012.
2. The appurtenances configuration is as stated in the previous structural analysis report prepared by Structural Components, LLC, dated April 26, 2012. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
3. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.
6. The foundation of the tower was not checked due to lack of information. As-built foundation drawings and geotechnical report would be required to determine whether the foundation is capable of supporting the proposed loadings.



SUPPORT RECOMMENDATIONS:

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

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

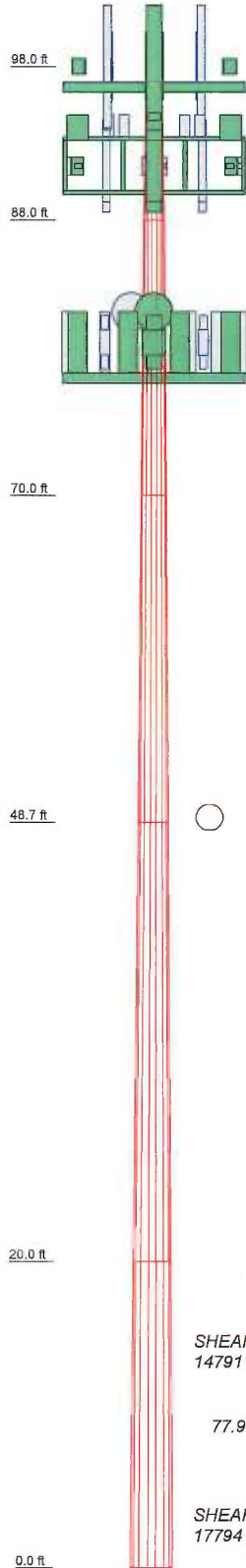


Photo 1: Photo illustrating the Monopole with Appurtenances shown.



CALCULATIONS

Section	1	2	3	4	5	
Length (ft)	10.00	10.00	21.32	20.66	20.00	8174.7
Number of Sides	18	18	18	18	18	
Thickness (in)	0.2500	0.1875	0.3240	0.3480	0.3600	
Top Dia (in)	12.7500	16.5000	20.0700	24.3130	30.0200	
Bot Dia (in)	16.5000	20.0700	24.3130	30.0200	34.0000	
Grade						
Weight (lb)	388.1	659.7	1631.4	2899.1	2596.3	



DESIGNED APPURTENANCE LOADING

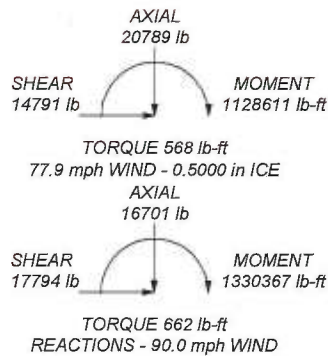
TYPE	ELEVATION	TYPE	ELEVATION
RFS APX16PV-16PVL w/mount pipe	98	Powerwave 7750	91.5
RFS APX16PV-16PVL w/mount pipe	98	Powerwave 7770	91.5
RFS APX16PV-16PVL w/mount pipe	98	Powerwave 7770	91.5
(2) RFS ATMAA1412D-1A20	98	Powerwave 7770	91.5
(2) RFS ATMAA1412D-1A20	98	(2) Powerwave TMA LGP21401	91.5
(2) RFS ATMAA1412D-1A20	98	(2) Powerwave TMA LGP21401	91.5
Andrew LNX-6515DS-VTM w/mount pipe (T-MOBILE - proposed)	98	(2) Powerwave TMA LGP21401	91.5
Andrew LNX-6515DS-VTM w/mount pipe	98	(2) Powerwave LGP21900	91.5
Andrew LNX-6515DS-VTM w/mount pipe	98	(2) Powerwave LGP21900	91.5
Andrew LNX-6515DS-VTM w/mount pipe	98	(2) Powerwave LGP21900	91.5
PIROD 13' Low Profile Platform (Monopole) (T-MOBILE - existing)	97	TA 602-3	91.5
(2) Ericsson RRUS-11 (ATJ)	94	A-ANT-18G-24	82
(2) Ericsson RRUS-11	94	A-ANT-18G-24	82
(2) Ericsson RRUS-11	94	(4) DB844G45ZAXY	80
DC6-48-60-18-8F	94	Argus LLPX310R	80
KMW AM-X-CD-16-65-00T-RET	91.5	Argus LLPX310R	80
KMW AM-X-CD-16-65-00T-RET	91.5	Argus LLPX310R	80
KMW AM-X-CD-16-65-00T-RET	91.5	Argus LLPX310R	80
Powerwave 7750	91.5	Ericsson RRUS-11	80
Powerwave 7750	91.5	Ericsson RRUS-11	80
Powerwave 7750	91.5	(3) DB844G45ZAXY (Nextel)	80
		(4) DB844G45ZAXY	80
		TA 602-3	78

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 90.0 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 77.9 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50.0 mph wind.
5. TOWER RATING: 98.3%



Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586			Job: CTNH039A Project: 98 ft monopole		
Client: T-MOBILE	Drawn by: kw	App'd:	Code: TIA/EIA-222-F	Date: 08/26/14	Scale: NTS
Path:					Dwg No. E-1

tnxTower Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586	Job CTNH039A	Page 1 of 8
	Project 98 ft monopole	Date 13:12:39 08/26/14
	Client T-MOBILE	Designed by kw

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 90.0 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56.0 pcf.

A wind speed of 77.9 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 50.0 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	98.00-88.00	10.00	0.00	18	12.7500	16.5000	0.2500	1.0000	A572-65 (65 ksi)
L2	88.00-70.00	18.00	0.00	18	16.5000	20.0700	0.1875	0.7500	A572-65 (65 ksi)
L3	70.00-48.68	21.32	0.00	18	20.0700	24.3130	0.3240	1.2960	A572-65 (65 ksi)
L4	48.68-20.00	28.68	0.00	18	24.3130	30.0200	0.3490	1.3960	A572-65 (65 ksi)
L5	20.00-0.00	20.00		18	30.0200	34.0000	0.3800	1.5200	A572-65 (65 ksi)

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
1 5/8 (T-MOBILE - existing)	A	No	Inside Pole	98.00 - 0.00	18	No Ice 1/2" Ice	0.00 0.00	1.04 1.04

7/8 (AT&T)	A	No	Inside Pole	88.00 - 0.00	12	No Ice 1/2" Ice	0.00 0.00	0.54 0.54
1 5/8 Fiber Cable	A	No	Inside Pole	88.00 - 3.00	1	No Ice 1/2" Ice	0.00 0.00	1.04 1.04
597-6013 (5/16 COPPER)	A	No	Inside Pole	88.00 - 3.00	2	No Ice 1/2" Ice	0.00 0.00	0.03 0.03

1 5/8	A	No	Inside Pole	79.00 - 0.00	12	No Ice	0.00	1.04

tnxTower Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586	Job CTNH039A	Page 2 of 8
	Project 98 ft monopole	Date 13:12:39 08/26/14
	Client T-MOBILE	Designed by kw

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A		Weight
						ft ² /ft	plf	
(Nextel) 1/2	A	No	Inside Pole	79.00 - 0.00	2	1/2" Ice No Ice	0.00 0.00	1.04 0.25
2" Rigid Conduit	A	No	Inside Pole	79.00 - 0.00	1	1/2" Ice No Ice	0.00 0.00	0.25 2.80
Switchblade	C	No	CaAa (Out Of Face)	70.00 - 0.00	1	1/2" Ice No Ice	0.00 0.56	2.80 0.00
						1/2" Ice	0.67	0.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _A A _A		Weight lb	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
PiROD 13' Low Profile Platform (Monopole) (T-MOBILE - existing)	A	None			0.0000	97.00	No Ice 1/2" Ice	15.70 20.10	1300.00 1765.00	
RFS APX16PV-16PVL w/mount pipe	A	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	6.84 7.31	4.03 4.67	58.25 107.10
RFS APX16PV-16PVL w/mount pipe	B	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	6.84 7.31	4.03 4.67	58.25 107.10
RFS APX16PV-16PVL w/mount pipe	C	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	6.84 7.31	4.03 4.67	58.25 107.10
(2) RFS ATMAA1412D-1A20	A	From Face	2.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	1.17 1.31	0.47 0.57	13.00 20.62
(2) RFS ATMAA1412D-1A20	B	From Face	2.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	1.17 1.31	0.47 0.57	13.00 20.62
(2) RFS ATMAA1412D-1A20	C	From Face	2.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	1.17 1.31	0.47 0.57	13.00 20.62

Andrew LNX-6515DS-VTM w/mount pipe (T-MOBILE - proposed)	A	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	11.72 12.44	10.28 11.81	102.41 196.22
Andrew LNX-6515DS-VTM w/mount pipe	B	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	11.72 12.44	10.28 11.81	102.41 196.22
Andrew LNX-6515DS-VTM w/mount pipe	C	From Face	3.00 0.00 0.00		0.0000	98.00	No Ice 1/2" Ice	11.72 12.44	10.28 11.81	102.41 196.22

(2) Ericsson RRUS-11 (AT&T)	A	From Face	0.00 0.00 0.00		0.0000	94.00	No Ice 1/2" Ice	3.26 3.50	1.38 1.56	50.70 71.57
(2) Ericsson RRUS-11	B	From Face	0.00 0.00 0.00		0.0000	94.00	No Ice 1/2" Ice	3.26 3.50	1.38 1.56	50.70 71.57
(2) Ericsson RRUS-11	C	From Face	0.00 0.00 0.00		0.0000	94.00	No Ice 1/2" Ice	3.26 3.50	1.38 1.56	50.70 71.57

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	Project	98 ft monopole	Date	13:12:39 08/26/14
	Client	T-MOBILE	Designed by	kw

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			Vert		°	ft	ft ²	ft ²	lb
			ft	ft					
			ft						
DC6-48-60-18-8F	C	From Face	0.00		0.0000	94.00	No Ice	1.27	20.00
			0.00				1/2" Ice	1.46	35.12
			0.00						
KMW	A	From Face	3.00		0.0000	91.50	No Ice	8.26	48.50
AM-X-CD-16-65-00T-RET			0.00				1/2" Ice	8.81	95.00
			0.00						
KMW	B	From Face	3.00		0.0000	91.50	No Ice	8.26	48.50
AM-X-CD-16-65-00T-RET			0.00				1/2" Ice	8.81	95.00
			0.00						
KMW	C	From Face	3.00		0.0000	91.50	No Ice	8.26	48.50
AM-X-CD-16-65-00T-RET			0.00				1/2" Ice	8.81	95.00
			0.00						
Powerwave 7750	A	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
Powerwave 7750	B	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
Powerwave 7750	C	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
Powerwave 7770	A	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
Powerwave 7770	B	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
Powerwave 7770	C	From Face	3.00		0.0000	91.50	No Ice	5.92	39.00
			0.00				1/2" Ice	6.36	71.64
			0.00						
(2) Powerwave TMA	A	From Face	3.00		0.0000	91.50	No Ice	1.23	14.10
LGP21401			0.00				1/2" Ice	1.38	21.29
			0.00						
(2) Powerwave TMA	B	From Face	3.00		0.0000	91.50	No Ice	1.23	14.10
LGP21401			0.00				1/2" Ice	1.38	21.29
			0.00						
(2) Powerwave TMA	C	From Face	3.00		0.0000	91.50	No Ice	1.23	14.10
LGP21401			0.00				1/2" Ice	1.38	21.29
			0.00						
(2) Powerwave LGP21900	A	From Face	3.00		0.0000	91.50	No Ice	0.23	5.50
			0.00				1/2" Ice	0.30	7.70
			0.00						
(2) Powerwave LGP21900	B	From Face	3.00		0.0000	91.50	No Ice	0.23	5.50
			0.00				1/2" Ice	0.30	7.70
			0.00						
(2) Powerwave LGP21900	C	From Face	3.00		0.0000	91.50	No Ice	0.23	5.50
			0.00				1/2" Ice	0.30	7.70
			0.00						
TA 602-3	A	None			0.0000	91.50	No Ice	11.59	774.00
							1/2" Ice	15.44	990.00

(3) DB844G45ZAXY	A	From Face	3.00		0.0000	80.00	No Ice	7.00	21.00
(Nextel)			0.00				1/2" Ice	7.41	64.04
			0.00						
(4) DB844G45ZAXY	B	From Face	3.00		0.0000	80.00	No Ice	7.00	21.00
			0.00				1/2" Ice	7.41	64.04

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	Client T-MOBILE	Designed by kw

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	lb	
(4) DB844G45ZAXY	C	From Face	0.00		0.0000	80.00	No Ice	7.00	3.97	21.00
			3.00				1/2" Ice	7.41	4.34	64.04
			0.00							
Argus LLPX310R	A	From Face	0.00		0.0000	80.00	No Ice	4.83	1.95	29.00
			3.00				1/2" Ice	5.18	2.21	54.88
			0.00							
Argus LLPX310R	B	From Face	0.00		0.0000	80.00	No Ice	4.83	1.95	29.00
			3.00				1/2" Ice	5.18	2.21	54.88
			0.00							
Argus LLPX310R	C	From Face	0.00		0.0000	80.00	No Ice	4.83	1.95	29.00
			3.00				1/2" Ice	5.18	2.21	54.88
			0.00							
Ericsson RRUS-11	A	From Face	0.00		0.0000	80.00	No Ice	3.26	1.38	50.70
			3.00				1/2" Ice	3.50	1.56	71.57
			0.00							
Ericsson RRUS-11	B	From Face	0.00		0.0000	80.00	No Ice	3.26	1.38	50.70
			3.00				1/2" Ice	3.50	1.56	71.57
			0.00							
Ericsson RRUS-11	C	From Face	0.00		0.0000	80.00	No Ice	3.26	1.38	50.70
			3.00				1/2" Ice	3.50	1.56	71.57
			0.00							
TA 602-3	A	None	0.00		0.0000	78.00	No Ice	11.59	11.59	774.00
							1/2" Ice	15.44	15.44	990.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							Vert
			ft	ft	°	°	ft	ft	ft ²	lb		
A-ANT-18G-24	A	Paraboloid w/Radome	From Face	1.00		0.0000		82.00	2.50	No Ice	4.90	41.00
				0.00						1/2" Ice	5.20	81.00
				0.00								
A-ANT-18G-24	C	Paraboloid w/Radome	From Face	1.00		0.0000		82.00	2.50	No Ice	4.90	41.00
				0.00						1/2" Ice	5.20	81.00
				0.00								

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

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

Maximum Reactions

<i>Location</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Vertical lb</i>	<i>Horizontal, X lb</i>	<i>Horizontal, Z lb</i>
Pole	Max. Vert	21	20788.97	25.23	-14776.00
	Max. H _x	11	16700.99	17629.85	-24.59
	Max. H _z	2	16700.99	-66.35	17754.76
	Max. M _x	2	1327078.26	-66.35	17754.76
	Max. M _z	5	1322015.45	-17691.79	83.15
	Max. Torsion	11	626.23	17629.85	-24.59
	Min. Vert	1	16700.99	0.00	0.00
	Min. H _x	5	16700.99	-17691.79	83.15
	Min. H _z	8	16700.99	34.34	-17774.14
	Min. M _x	8	-1328891.65	34.34	-17774.14
	Min. M _z	11	-1316787.76	17629.85	-24.59
	Min. Torsion	5	-661.87	-17691.79	83.15

Tower Mast Reaction Summary

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Load Combination	Vertical	Shear _x	Shear _y	Overturning Moment, M _x	Overturning Moment, M _y	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	16700.99	0.00	0.00	86.90	-6.59	0.00
Dead+Wind 0 deg - No Ice	16700.99	66.35	-17754.76	-1327078.26	-5490.04	101.78
Dead+Wind 30 deg - No Ice	16700.99	8917.90	-15398.52	-1151097.65	-666972.08	396.65
Dead+Wind 60 deg - No Ice	16700.99	15353.68	-8932.90	-668083.16	-1147534.26	611.14
Dead+Wind 90 deg - No Ice	16700.99	17691.79	-83.15	-6818.92	-1322015.45	661.87
Dead+Wind 120 deg - No Ice	16700.99	15290.68	8819.92	658941.11	-1142368.53	509.21
Dead+Wind 150 deg - No Ice	16700.99	8815.16	15385.67	1150335.42	-658514.92	211.59
Dead+Wind 180 deg - No Ice	16700.99	-34.34	17774.14	1328891.65	2774.55	-130.82
Dead+Wind 210 deg - No Ice	16700.99	-8836.22	15374.16	1149236.04	660069.22	-432.08
Dead+Wind 240 deg - No Ice	16700.99	-15253.81	8875.25	663402.46	1139115.42	-610.99
Dead+Wind 270 deg - No Ice	16700.99	-17629.85	24.59	2041.28	1316787.76	-626.23
Dead+Wind 300 deg - No Ice	16700.99	-15291.46	-8857.33	-661922.14	1142412.13	-480.36
Dead+Wind 330 deg - No Ice	16700.99	-8814.12	-15386.27	-1150202.42	658413.55	-211.82
Dead+Ice+Temp	20788.97	0.00	0.00	211.39	-86.31	0.00
Dead+Wind 0 deg+Ice+Temp	20788.97	50.71	-14760.58	-1125991.40	-4338.89	74.46
Dead+Wind 30 deg+Ice+Temp	20788.97	7411.92	-12799.84	-976494.08	-565880.92	330.69
Dead+Wind 60 deg+Ice+Temp	20788.97	12766.25	-7422.65	-566430.32	-974038.38	518.98
Dead+Wind 90 deg+Ice+Temp	20788.97	14712.89	-64.07	-5167.50	-1122352.85	568.24
Dead+Wind 120 deg+Ice+Temp	20788.97	12718.22	7336.37	559670.02	-970041.89	444.47
Dead+Wind 150 deg+Ice+Temp	20788.97	7333.80	12791.71	976363.39	-559364.16	194.79
Dead+Wind 180 deg+Ice+Temp	20788.97	-25.23	14776.00	1127768.59	1972.83	-97.59
Dead+Wind 210 deg+Ice+Temp	20788.97	-7346.91	12780.45	975299.83	560135.36	-358.94
Dead+Wind 240 deg+Ice+Temp	20788.97	-12686.77	7376.76	562961.58	967065.08	-518.82
Dead+Wind 270 deg+Ice+Temp	20788.97	-14663.59	17.46	1624.61	1117954.26	-539.74
Dead+Wind 300 deg+Ice+Temp	20788.97	-12718.84	-7366.14	-561764.25	969902.15	-421.38
Dead+Wind 330 deg+Ice+Temp	20788.97	-7332.97	-12792.19	-975944.83	559106.33	-194.91
Dead+Wind 0 deg - Service	16700.99	20.48	-5479.86	-410347.24	-1702.80	32.71
Dead+Wind 30 deg - Service	16700.99	2752.44	-4752.63	-355927.14	-206275.22	124.79
Dead+Wind 60 deg - Service	16700.99	4738.79	-2757.07	-206546.47	-354892.90	191.53
Dead+Wind 90 deg - Service	16700.99	5460.43	-25.66	-2043.15	-408845.71	206.95
Dead+Wind 120 deg - Service	16700.99	4719.35	2722.20	203844.50	-353285.81	158.82
Dead+Wind 150 deg - Service	16700.99	2720.73	4748.66	355815.61	-203656.76	65.47
Dead+Wind 180 deg - Service	16700.99	-10.60	5485.85	411039.06	852.42	-41.75
Dead+Wind 210 deg - Service	16700.99	-2727.23	4745.11	355475.53	204126.39	-135.89
Dead+Wind 240 deg - Service	16700.99	-4707.97	2739.27	205223.70	352269.03	-191.51
Dead+Wind 270 deg - Service	16700.99	-5441.31	7.59	696.19	407212.82	-195.83
Dead+Wind 300 deg - Service	16700.99	-4719.59	-2733.74	-204637.83	353291.90	-149.77
Dead+Wind 330 deg - Service	16700.99	-2720.41	-4748.85	-355646.01	203615.78	-65.47

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-16700.99	0.00	0.00	16700.99	0.00	0.000%
2	66.35	-16700.99	-17754.76	-66.35	16700.99	17754.76	0.000%
3	8917.90	-16700.99	-15398.52	-8917.90	16700.99	15398.52	0.000%
4	15353.68	-16700.99	-8932.90	-15353.68	16700.99	8932.90	0.000%
5	17691.78	-16700.99	-83.15	-17691.79	16700.99	83.15	0.000%
6	15290.68	-16700.99	8819.92	-15290.68	16700.99	-8819.92	0.000%
7	8815.16	-16700.99	15385.67	-8815.16	16700.99	-15385.67	0.000%
8	-34.34	-16700.99	17774.13	34.34	16700.99	-17774.14	0.000%
9	-8836.22	-16700.99	15374.16	8836.22	16700.99	-15374.16	0.000%
10	-15253.81	-16700.99	8875.25	15253.81	16700.99	-8875.25	0.000%
11	-17629.85	-16700.99	24.59	17629.85	16700.99	-24.59	0.000%
12	-15291.46	-16700.99	-8857.33	15291.46	16700.99	8857.33	0.000%
13	-8814.12	-16700.99	-15386.27	8814.12	16700.99	15386.27	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
14	0.00	-20788.97	0.00	0.00	20788.97	0.00	0.000%
15	50.71	-20788.97	-14760.56	-50.71	20788.97	14760.58	0.000%
16	7411.92	-20788.97	-12799.84	-7411.92	20788.97	12799.84	0.000%
17	12766.25	-20788.97	-7422.65	-12766.25	20788.97	7422.65	0.000%
18	14712.87	-20788.97	-64.07	-14712.89	20788.97	64.07	0.000%
19	12718.22	-20788.97	7336.37	-12718.22	20788.97	-7336.37	0.000%
20	7333.80	-20788.97	12791.71	-7333.80	20788.97	-12791.71	0.000%
21	-25.23	-20788.97	14775.98	25.23	20788.97	-14776.00	0.000%
22	-7346.91	-20788.97	12780.45	7346.91	20788.97	-12780.45	0.000%
23	-12686.77	-20788.97	7376.76	12686.77	20788.97	-7376.76	0.000%
24	-14663.57	-20788.97	17.46	14663.59	20788.97	-17.46	0.000%
25	-12718.84	-20788.97	-7366.14	12718.84	20788.97	7366.14	0.000%
26	-7332.97	-20788.97	-12792.19	7332.97	20788.97	12792.19	0.000%
27	20.48	-16700.99	-5479.86	-20.48	16700.99	5479.86	0.000%
28	2752.44	-16700.99	-4752.63	-2752.44	16700.99	4752.63	0.000%
29	4738.79	-16700.99	-2757.07	-4738.79	16700.99	2757.07	0.000%
30	5460.43	-16700.99	-25.66	-5460.43	16700.99	25.66	0.000%
31	4719.35	-16700.99	2722.20	-4719.35	16700.99	-2722.20	0.000%
32	2720.73	-16700.99	4748.66	-2720.73	16700.99	-4748.66	0.000%
33	-10.60	-16700.99	5485.84	10.60	16700.99	-5485.85	0.000%
34	-2727.23	-16700.99	4745.11	2727.23	16700.99	-4745.11	0.000%
35	-4707.97	-16700.99	2739.27	4707.97	16700.99	-2739.27	0.000%
36	-5441.31	-16700.99	7.59	5441.31	16700.99	-7.59	0.000%
37	-4719.59	-16700.99	-2733.74	4719.59	16700.99	2733.74	0.000%
38	-2720.41	-16700.99	-4748.85	2720.41	16700.99	4748.85	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	98 - 88	23.5127	28	2.1748	0.0037
L2	88 - 70	18.9992	28	2.1207	0.0036
L3	70 - 48.68	11.7546	28	1.6561	0.0022
L4	48.68 - 20	5.5052	28	1.1264	0.0011
L5	20 - 0	0.8712	28	0.4216	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.00	RFS APX16PV-16PVL w/mount pipe	28	23.5127	2.1748	0.0038	7456
97.00	PiROD 13' Low Profile Platform (Monopole)	28	23.0560	2.1734	0.0038	7456
94.00	(2) Ericsson RRUS-11	28	21.6893	2.1667	0.0038	7456
91.50	KMW AM-X-CD-16-65-00T-RET	28	20.5588	2.1547	0.0038	5745
82.00	A-ANT-18G-24	28	16.4195	2.0029	0.0033	2829
80.00	(3) DB844G4SZAXY	28	15.5917	1.9508	0.0031	2619
78.00	TA 602-3	28	14.7822	1.8946	0.0029	2437

tnxTower Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586	Job	CTNH039A	Page	8 of 8
	Project	98 ft monopole	Date	13:12:39 08/26/14
	Client	T-MOBILE	Designed by	kw

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
L1	98 - 88	Pole	TP16.5x12.75x0.25	1	-3117.82	670340.35	23.9	Pass	
L2	88 - 70	Pole	TP20.07x16.5x0.1875	2	-5417.77	615139.48	98.3	Pass	
L3	70 - 48.68	Pole	TP24.313x20.07x0.324	3	-8233.44	1282504.57	86.6	Pass	
L4	48.68 - 20	Pole	TP30.02x24.313x0.349	4	-12861.60	1708679.32	95.8	Pass	
L5	20 - 0	Pole	TP34x30.02x0.38	5	-16690.80	2108059.43	92.4	Pass	
							Summary		
							Pole (L2)	98.3	Pass
							RATING =	98.3	Pass

EXHIBIT C

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

T-Mobile Existing Facility

Site ID: CTNH039A

Laydon Construction
69 Wheeler Street
New Haven, CT 06512

September 1, 2014

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	79.77 %

September 1, 2014

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

Emissions Analysis for Site: **CTNH039A – Laydon Construction**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **69 Wheeler Street, New Haven, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is $467 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is $1000 \mu\text{W}/\text{cm}^2$. 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 **69 Wheeler Street, New Haven, 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-VTM** 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 **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antenna mounting height centerline of the proposed antennas is **98 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:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	98	Height (AGL):	98	Height (AGL):	98
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:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	3,833.82	ERP (W):	3,833.82	ERP (W):	3,833.82
Antenna A1 MPE%	4.35	Antenna B1 MPE%	4.35	Antenna C1 MPE%	4.35
Antenna #:	2	Antenna #:	2	Antenna #:	2
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):	98	Height (AGL):	98	Height (AGL):	98
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):	445.37	ERP (W):	445.37	ERP (W):	445.37
Antenna A2 MPE%	0.79	Antenna B2 MPE%	0.79	Antenna C2 MPE%	0.79

Site Composite MPE%	
Carrier	MPE%
T-Mobile	15.41
Nextel	23.77 %
Clearwire	4.02 %
AT&T	36.57 %
Site Total MPE %:	79.77 %

T-Mobile Sector 1 Total:	5.14 %
T-Mobile Sector 2 Total:	5.14 %
T-Mobile Sector 3 Total:	5.14 %
Site Total:	79.77 %

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:	5.14 %
Sector 2:	5.14 %
Sector 3 :	5.14 %
T-Mobile Total:	15.41 %
Site Total:	79.77 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **79.77%** 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



T-Mobile USA
35 Griffin Road South
Bloomfield, CT 06002
Attention: Elizabeth Jamieson
860-605-7808

**SENT VIA CERTIFIED U.S. MAIL
RETURN RECEIPT REQUESTED**

August 28, 2014

Elmer Laydon
51 Longhini Ln
New Haven, CT 06519

**Re: Acknowledgment and Consent Letter for Modification of Antenna Facilities at
Site#: CTNH039A
Address: 69 Wheeler Street, New Haven, CT**

Dear Mr. Laydon:

T-Mobile Northeast LLC, as successor in interest to Omnipoint Communications, Inc., as successor in interest to Omnipoint Holdings, Inc. ("Tenant") and ("Owner") entered into a Lease on 11/23/2005 for a site located at 69 Wheeler Street (the "Property"), to install telecommunication equipment as defined therein on the Property.

This letter is to notify you that T-Mobile Northeast LLC will be performing maintenance and modifications to its antenna facility located on the premises, according to the terms of the lease. The work to be performed will involve removing and replacing a total of three (3) antennas and removing and replacing three (3) mounting pipes on the tower for each antenna.

Please anticipate our Modification Department contacting you or your representative in the coming weeks to schedule access.

If you accept the terms of this Acknowledgment and Consent Letter set forth above, please sign and date the acknowledgment below on the two (2) original copies enclosed and return one (1) original copy in the enclosed self addressed, stamped envelope. Should you have any questions, please contact Elizabeth Jamieson at the above number.

We thank you in advance for your continued cooperation in this matter.

Sincerely,

**Sam Simons
Development Manager
T-Mobile Northeast LLC**

Site Number: CTNH039A
Site Name: NH039/Laydon Construc
Acknowledgement and Consent-Connecticut Market

Acknowledged, Accepted and Agreed:

Landlord:

Elmer F. Laydon

BY:

Elmer Laydon

Date:

8/28/14