September 7, 2016

VIA EMAIL AND HAND DELIVERY

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

RE: T-Mobile Northeast LLC – CTHA029
Tower Share Application
293 Elm Street, Enfield, CT 06082
LAT: 41-59-51.74 N
LNG: -72-33-10.73 W

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the Town of Enfield police tower located at 293 Elm Street, Enfield, CT.

T-Mobile will install nine (9) 700/1900/2100 MHz antennas and six (6) RRH's at the 140' level of the existing 160' lattice tower. One (1) hybrid cable will also be installed on the face of the tower. T-Mobile's equipment and utility cabinets will be placed on a 10' x 17' concrete pad inside the existing fenced compound. Included are plans prepared by All-Points Technology Corporation dated July 20 2016, depicting the planned changes and attached as **Exhibit A**. Also included is a structural analysis prepared by All-Points Technology Corporation dated July18, 2016 confirming that the existing tower is structurally capable of supporting T-Mobile's equipment. The structural analysis is attached as **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Town Manager Bryan Chodkowski, Town of Enfield, as the tower and property owner. Also, please see the attached letter from the Town of Enfield authorizing the proposed shared use of the facility attached as **Exhibit C.**

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed equipment will not result in an increase in the height of the existing structure. The top of the lattice tower is approximately 160' AGL; T-Mobile's proposed antennas will be located at a centerline height of 140' AGL.

2. The proposed modifications will not require the extension of the site boundary as depicted on the attached site plan. T-Mobile's equipment pad will be located within the existing fenced compound.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria. The incremental effect of the proposed changes will be negligible.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, T-Mobile's operations at the site will result in a power density of 2.75%; the combined site operations will result in a total power density of 2.75% as evidenced by the power density calculations attached as **Exhibit D**.

5. The proposed equipment will not cause a change or alteration in the physical or environmental characteristics of the site.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally and economically feasible and meets the public safety concerns. As demonstrated in this letter, T-Mobile respectfully submits that the shared use of this facility satisfies these criteria:

A. Technical Feasibility. The existing lattice tower has been deemed to be structural capable of supporting T-Mobile's proposed loading. The structural analysis is included as **Exhibit B**.
B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this lattice tower in Enfield. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a letter of authorization from the Town of Enfield is included as **Exhibit C** authorizing T-Mobile to file this application for shared use.
C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental effect. The installation of T-Mobile's equipment at 140' AGL on the existing 160' lattice tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment will be installed within the existing fenced compound. Therefore, T-Mobile's shared use would not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit D**, the proposed antennas will not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.
D. Economic Feasibility. T-Mobile will be entering into an agreement with the Town of Enfield under mutually agreeable terms.
E. Public Safety Concerns. As discussed above, the lattice tower is structurally

capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing lattice tower. T-Mobile's intent to provide new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of residents and individuals traveling through the Town of Enfield.

Respectfully submitted,

By: _____

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

Attachments

cc: Bryan Chodkowski, Town Manager, Town of Enfield - as tower and property owner

EXHIBIT A

T-Mobile

NORTHEAST, LLC.

NEW SITE DEVELOPMENT (NSD)
"ENFIELD"
CTHA029A
293 ELM STREET
ENFIELD, CT 06082

VICINITY MAP
SCALE: 1" = 500'

DRAWING INDEX

SITE INFORMATION

T-MOBILE SITE NAME:	"ENFIELD"
T-MOBILE SITE NUMBER:	CTHA029A
SITE ADDRESS:	293 ELM STREET ENFIELD, CT 06082
SITE TYPE/DESCRIPTION:	INSTALL (6) NEW PANEL ANTENNAS, (6) NEW RRUs ON NEW MOUNTS ON EXIST. LATTICE TOWER. INSTALL (1) NEW RFC, (1) NEW TELCO CABINET, AND (1) NEW RBS ON NEW 10' X 20' CONCRETE PAD W/STEEL CANOPY. INSTALL NEW PAD MOUNTED TRANSFORMER, MULTIMETER CENTER, & MEBA CABINET.
PROPERTY OWNER:	TOWN OF ENFIELD PUBLIC SAFETY COMPLEX 820 ENFIELD STREET ENFIELD, CT 06082
LEASING CONTACT:	MATTHEW BANDLE (508) 642-5601
CONSTRUCTION CONTACT:	MIKE SCORDO (203) 620-5471
ENGINEER CONTACT:	ROBERT BURNS (860) 663-1697 x206
LATITUDE:	41°59'51.7268"N
LONGITUDE:	72°33'10.7268"W
ELEVATION:	181'± AMSL
MAP:	19
LOT:	103
MUNICIPALITY:	ENFIELD
ZONING DISTRICT:	I-1

APPLICANT:	POWER PROVIDER:	TELCO PROVIDER:	CALL BEFORE YOU DIG:	CODE COMPLIANCE INFORMATION:
T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002	EVERSOURCE (860) 871-3442 NICK KAMM	FRONTIER: (800)-921-8102	811	STATE OF CONNECTICUT BUILDING CODE, LATEST EDITION ANSI/TIA-222-F NATIONAL ELECTRIC CODE, LATEST EDITION

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE PHONE: (860) 663-1697
KILLINGWORTH, CT 06419 FAX: (860) 663-0935
WWW.ALL-POINTSTECH.COM

T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

VERTICAL

APPROVALS

LANDLORD	DATE:
RF ENGINEER	DATE:
CONSTRUCTION	DATE:
OPERATIONS	DATE:
SITE ACQ.	DATE:

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	07/20/16	FOR REVIEW: RCB
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

T-MOBILE
"ENFIELD"

SITE ADDRESS:	293 ELM STREET ENFIELD, CT 06082
APT FILING NUMBER:	CT-428-150
SITE NUMBER:	CTHA029A
DRAWN BY:	ESH
CHECKED BY:	RCB
DATE:	07/20/16

CONFIGURATION

797DB2

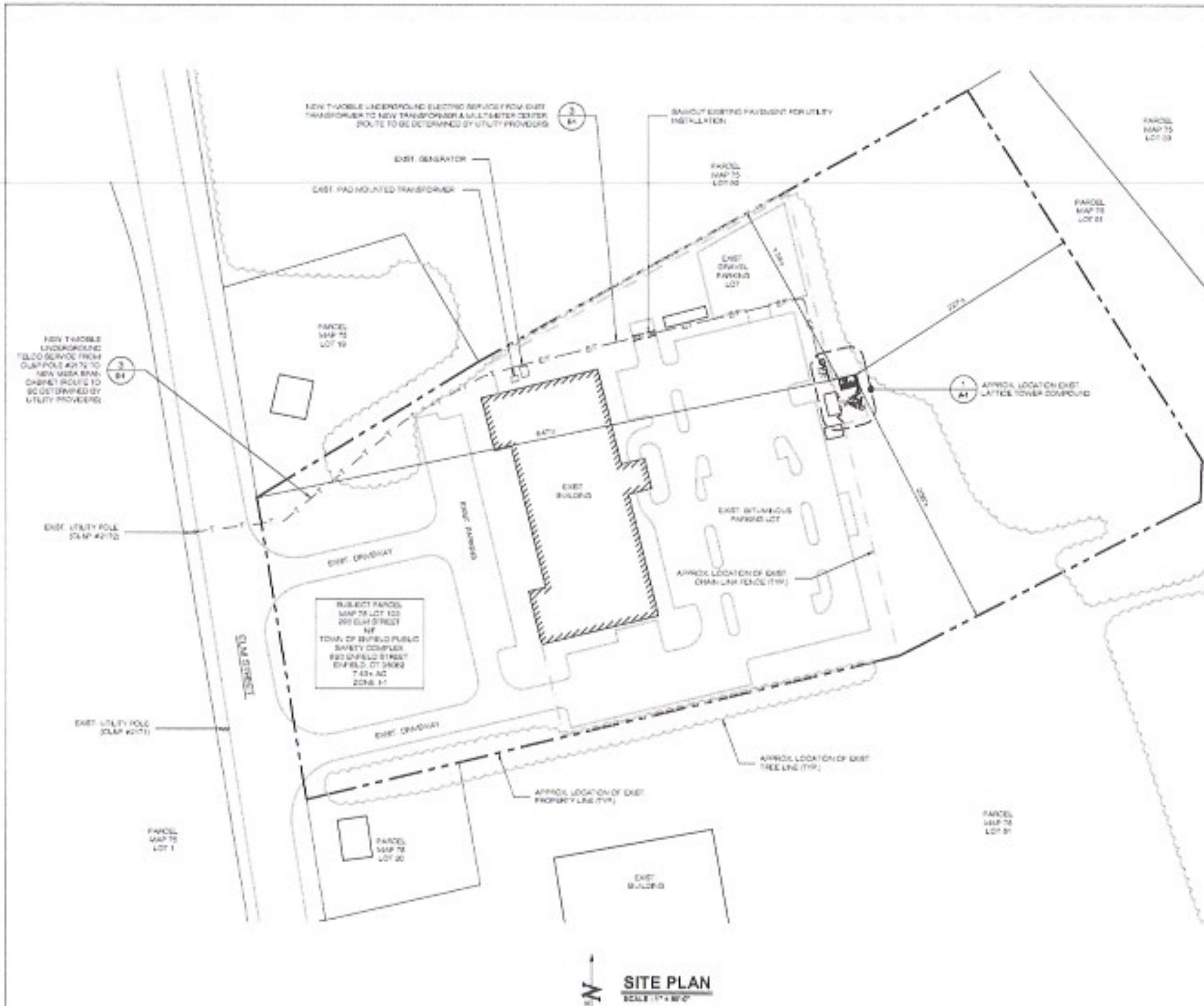
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

SHEET TITLE:

TITLE SHEET & INDEX

SHEET NUMBER:

T-1



SITE PLAN

SCALE: 1" = 50'-0"

BULK TABLE

ENFIELD
200 ELM STREET
ENFIELD, CT 06082
MAP 75
LOT 100
ZONED I-1

ITEM	ALLOWABLE	EXIST.	NEW
MIN. LOT AREA (SF)	40,000 SF	7.43 AC	NC
MIN. LOT FRONTAGE (FT)	200 FT	282.7± FT	NC
MIN. FRONT YARD (FT)	40 FT	206.7± FT	NC
MIN. SIDE YARD (EACH) (FT)	25 FT	20.8± FT	NC
MIN. REAR YARD (FT)	25 FT	251.3± FT	227± FT
MAX. BUILDING HEIGHT (FT)	28 FT	25± FT	NC
MAX. BUILDING COVERAGE (%)	30%	8.1%	NC
MAX. IMPERVIOUS COVERAGE (%)	65%	34.8%	NC

* EXIST. NON-CONFORMITY
NA = NOT APPLICABLE
NC = NO CHANGE

SITE PLAN NOTES

PROPERTY OWNER: TOWN OF ENFIELD
PUBLIC SAFETY COMPLEX
820 ENFIELD STREET
ENFIELD, CT 06082

1) NEW USE: INSTALLATION OF PERSONAL WIRELESS SERVICES FACILITY ON EXIST. 160'± AGL LATTICE TOWER W/ NEW GROUND EQUIPMENT AT THE BASE OF THE TOWER.
2) BOUNDARY, SITE & TOPOGRAPHIC INFORMATION TAKEN FROM TOWN OF ENFIELD GEOGRAPHIC INFORMATION SYSTEMS, CONNECTICUT ENVIRONMENTAL CONDITIONS ONLINE, & FIELD MEASUREMENTS TAKEN ON 05/20/16.
3) NO ADDITIONAL PARKING IS NEEDED, AS THE NEW GROUND FACILITY INSTALLATION IS UNMANNED & VISITED APPROXIMATELY ONCE/MONTH FOR ROUTINE MAINTENANCE. ACCORDINGLY, THE NEW DEVELOPMENT WILL NOT ADVERSELY CHANGE OR AFFECT TRAFFIC PATTERNS.
4) SUBJECT FACILITY ON-SITE IS LOCATED WITHIN ZONE X FLOOD ZONE DESIGNATION (FIRM FLOOD INSURANCE RATE MAP #09003C0021F).
5) NEW EQUIPMENT SPACE WILL BE OUTFITTED WITH ONE 150W EXTERIOR LIGHT W/ MOTION DETECTOR (SEE H-01B).
6) NO STORMWATER DRAINAGE, WATER SUPPLY, SEWAGE DISPOSAL, REFUSE STORAGE, IS REQUIRED, AS THE NEW INSTALLATION IS FOR AN UNMANNED FACILITY.
7) ALL NEW UTILITIES FOR NEW EQUIPMENT WILL BE PROVIDED FROM NEARBY SERVICES CURRENTLY SERVING THE SITE. CONNECTIONS TO SHALL BE DETERMINED BY A LOCAL UTILITY REPRESENTATIVE.
8) NO DUST, FUMES, ODORS, OR VIBRATIONS WILL OCCUR AS A RESULT OF THE NEW INSTALLATION.

LEGEND

CONCRETE CURB	UTILITY POLE
DROP CURB	BOLLARD
WALL	CHAIN LINK FENCE
EDGE OF PAVEMENT	STOCKADE FENCE
OVERHEAD WIRES	FENCE OTHER
STRUCTURE - MANHOLE	TOP/BOTTOM OF CURB
STRUCTURE - TELEPHONE	SPOT ELEVATION
STRUCTURE - DRAINAGE	CONCRETE
WATER VALVE	TREE LINE
WATER METER	MONUMENT
FIRE HYDRANT	HEDGE
DRAINAGE INLET	TREE
SIGN	HANDICAP PARKING
LIGHT POLE	PARKING STALL COUNT

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE, KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

VERTICAL DEVELOPMENT

APPROVALS

LANDLORD: ________ DATE: ________
RF ENGINEER: ________ DATE: ________
CONSTRUCTION: ________ DATE: ________
OPERATIONS: ________ DATE: ________
SITE ACQ.: ________ DATE: ________

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	07/29/16	FOR REVIEW: RCS
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

NOTE:

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. 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.

T-MOBILE
"ENFIELD"

SITE ADDRESS: 200 ELM STREET, ENFIELD, CT 06082

APT FILING NUMBER: CT-409-180

SITE NUMBER: CTHA326A

DRAWN BY: CSH | CHECKED BY: RCS
DATE: 07/29/16

CONFIGURATION

797DB2

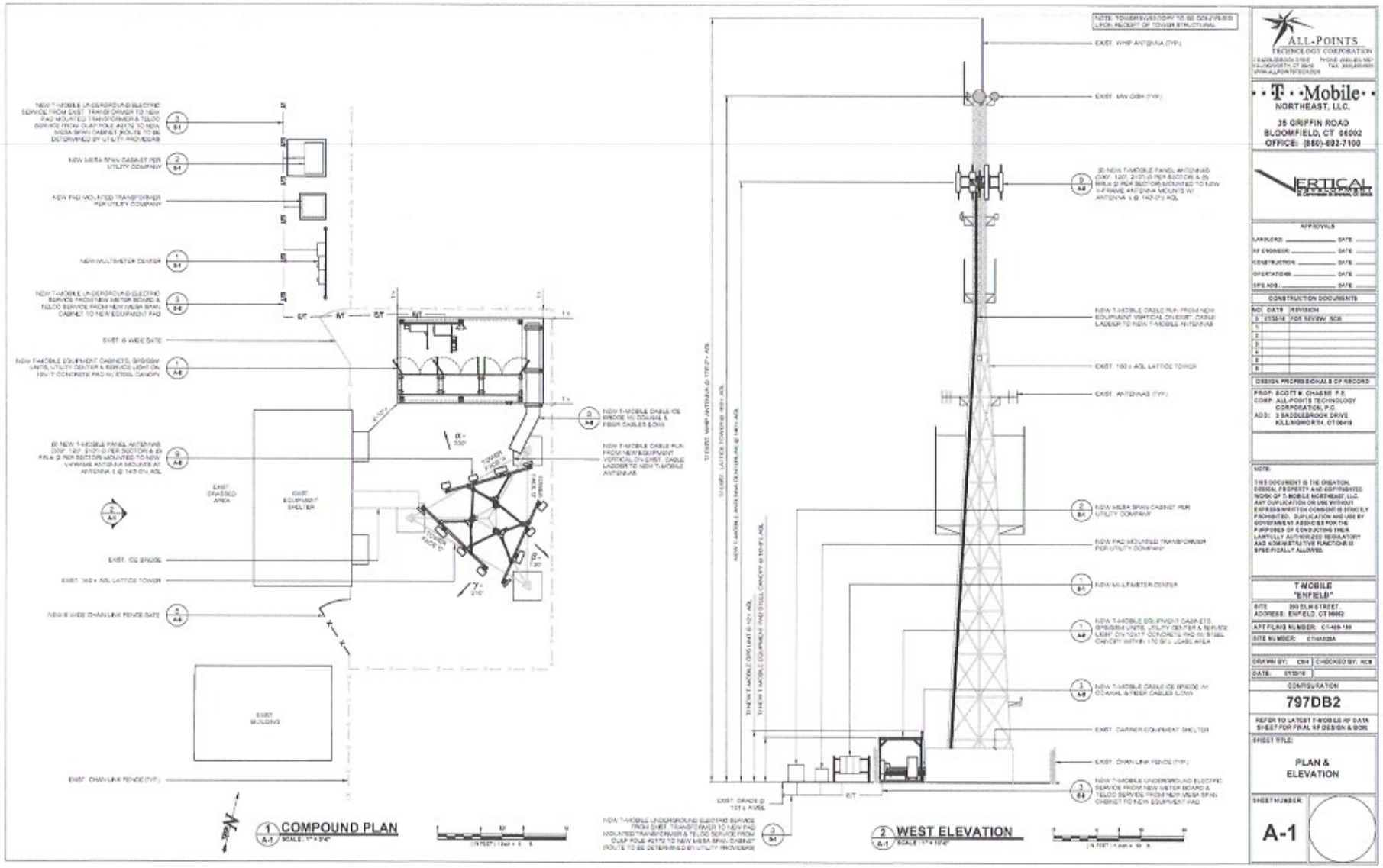
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

SP-1



ALL-POINTS TECHNOLOGY CORPORATION

T-Mobile
NORTHEAST, LLC.

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

VERTICAL

APPROVALS

LANDLORD:	DATE:
RF ENGINEER:	DATE:
CONSTRUCTION:	DATE:
OPERATIONS:	DATE:
SITE ACQ.:	DATE:

CONSTRUCTION DOCUMENTS

NO.	DATE	REVISION
3	07/20/16	FOR REVIEW SCB
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

T-MOBILE
"ENFIELD"

SITE ADDRESS:	350 ELM STREET ENFIELD, CT 06082
APT FILING NUMBER:	CT-469-130
SITE NUMBER:	CT11433A
DRAWN BY:	CSH
CHECKED BY:	RCB
DATE:	07/20/16

CONFIGURATION

797DB2

REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

SHEET TITLE:

PLAN & ELEVATION

SHEET NUMBER:

A-1

EXHIBIT B

STRUCTURAL ANALYSIS REPORT
160' SELF-SUPPORTING TOWER
ENFIELD, CONNECTICUT

Prepared for
Vertical Development, LLC

T-Mobile Site #CTHA029A

July 18, 2016

APT Project #CT409191

□ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935
⊗ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

STRUCTURAL ANALYSIS REPORT
160' PiROD SELF-SUPPORTING TOWER
ENFIELD, CONNECTICUT
prepared for
Vertical Development, LLC

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a condition assessment and structural analysis of this 160-foot self-supporting tower. The analysis was performed for T-Mobile's proposed installation of nine panel antennas and six remote radio heads (RRHs) as detailed below. The equipment is to be fed by one 9x18 hybrid cable, and will be mounted on three 10'-6" sector mounts.

APT's analysis indicates the tower meets the requirements of the Connecticut State Building Code and TIA/EIA-222 with the proposed changes.

Evaluation of the existing base foundation was performed from original Valmont design drawings. The foundation was found to be adequately sized for the proposed equipment.

INTRODUCTION:

A condition assessment and structural analysis was performed on the above-mentioned communications tower by APT for Vertical Development, LLC. The tower is located at the Enfield Police Department at 293 Elm Street in Enfield, Connecticut. APT visited the tower site on June 22, 2016 to record physical and dimensional properties of the structure and its appurtenances, and to assess the condition of the tower.

The structure is a 160-foot galvanized steel guyed tower manufactured by Valmont/PiROD. The tower features truss legs with angle steel bracing members from 0'-110', and solid rod legs and bracing members from 110'-160'. The following documents were utilized:

Document	Remarks	Date	Source
Valmont tower & foundation drawings	Valmont Eng. File #A-168131	10/27/2011	Owner
Lease exhibit	APT Project no. CT409190	5/31/2016	APT
Antenna design	Listing of proposed equipment	4/15/2016	T-Mobile

The analysis was performed in accordance with TIA-222 Revisions F and G using the following antenna inventory (proposed equipment shown in **bold** text):

Carrier	Elev.	Antenna	Mount	Coax.
	170'	Lightning rod	14' pipe extension	N.A.
Enfield PD	158'	3', 2' high-performance dishes, 2' dish w/out radome, 1' square panel, 10' omnidirectional whip	(3) 3' sidearms	(5) 7/8", ¼"
T-Mobile	140'	**(3) LNX-6515DS, (3) APX16DWV-16DWVS, (3) AIR 32 B66Aa B2a panels, (3) RRUS-11, (3) RRUS-32 RRHs**	**(3) 10'-6" sector mounts**	**(1) 9x18 hybrid**
Enfield PD	133'	2' high-performance dish, 1' square panel	(2) 3' sidearms	(2) 7/8", (2) ¼"
Enfield PD	114'	3', (2) 12' omnidirectional whips	(3) 3' sidearms	(3) 7/8"
Enfield PD	99'	1' square panel	Leg	¼"
Enfield PD	88'	2', (2) 3' yagis	(3) 3' sidearms	(3) 7/8", ¼"
Enfield PD	58'	12', (2) 20' omnidirectional whips	(3) 3' sidearms	(3) 1/2"
Enfield PD	18'	GPS	3' sidearm	1/2"

CONDITION ASSESSMENT:

- **General Observations:** The tower, a 3-legged galvanized steel structure, appeared to be in sound condition. No signs of movement or overstress of the tower were observed.

- **Legs:** Leg members consist of truss and solid rod steel members. Leg members appeared to be in good condition.

- **Bracing:** Bracing members are angle steel and solid rod bracing. Bracing and connections were visually observed to the maximum extent practicable. No loose or missing bracing bolts were noted, and no weld defects were observed.

- **Antenna Connections:** Antenna mounting hardware appeared to be in good condition. Visible grounding system components were observed to be securely fastened and in good condition.

- **Splice Connections:** Connections were checked by hand for tightness at climbing leg splice connections. No loose or missing splice bolts were observed.

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with the Connecticut State Building Code and TIA/EIA-222, Revisions F and G (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. The more stringent revision, in this case Revision F, was used to calculate tower usage below.

The analysis was conducted using an 80-mph fastest mile wind speed (equivalent to 95 mph 3-second gust) and 1.25" of radial ice. The EIA/TIA Standard requires a basic wind speed of 80-mph for Hartford County, Connecticut.

Two loading conditions were evaluated in accordance with EIA/TIA-222-F to determine the tower's capacity. The more demanding of the two cases is used to calculate the tower capacity:

- Case 1 = Wind Load (without ice) + Tower Dead Load
- Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load

In addition, the TIA/EIA standard permits a one-third increase in allowable stresses for towers less than 700-feet tall. Allowable stresses of tower members were increased by one-third when computing the load capacity values shown below.

Analysis Results:

Analysis of the tower was conducted in accordance with the criteria outlined herein with antenna changes as previously described. The following table summarizes the results of the analysis based on stresses of individual leg and bracing members:

Elevation	Leg Capacity	Bracing Capacity
150'-160'	6%	7%
130'-150'	27%	26%
110'-130'	50%	23%
100'-110'	54%	46%
80'-100'	52%	47%
60'-80'	67%	63%
40'-60'	82%	86%
20'-40'	69%	98%
0'-20'	79%	78%

Bracing, Splice and Anchor Bolts:

Connection bolts were evaluated under the proposed loading. All bolts were found to be adequately sized to support the proposed loads.

Base Foundation and Guy Anchors:

Evaluation of the existing base foundation was performed from original design drawings. The foundation was determined to be adequately sized for the proposed equipment. Base reactions imposed with the additional antennas were calculated as follows:

Compression:	207.6 kips
Uplift:	150.6 kips
Shear:	18.8 kips
Overturning Moment:	2541 ft-kips

CONCLUSIONS AND RECOMMENDATIONS:

APT's structural analysis indicates that the 160-foot self-supporting tower located at the Enfield Police Department at 293 Elm Street in Enfield, Connecticut meets the requirements of the Connecticut State Building Code with T-Mobile's proposed antennas and associated equipment.

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in an undeteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corporation, P.C. (APT) is not responsible for modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

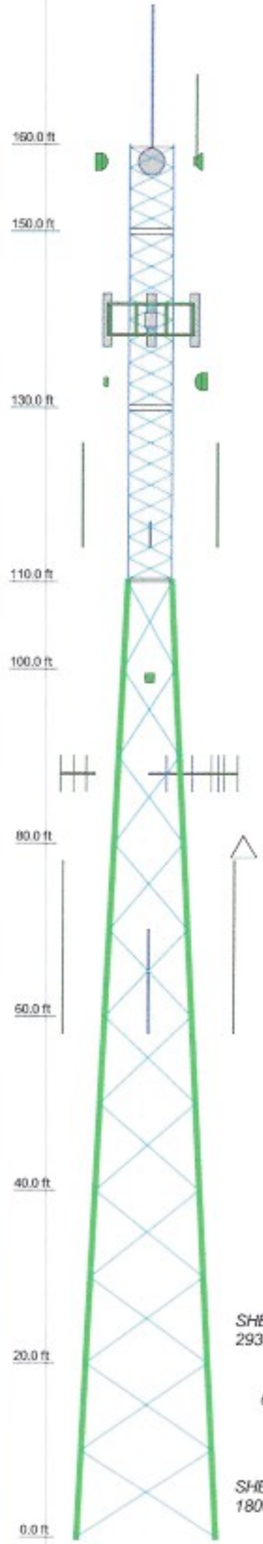
1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating torque arms or guys.
4. Installing antenna mounting gates or side arms.

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

Appendix A

Tower Schematic

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs	SR 1 3/4	SR 2	SR 2 1/4	Pirod 105218	Pirod 105217			Pirod 105218	
Leg Grade	A572-50								
Diagonals	SR 7/8		SR 1		L2 1/2x2 1/2x3/16			L3x3x3/16	
Diagonal Grade	A36								
Top Girts	SR 1		SR 1 1/4	L3x3x3/16	N.A.				
Bottom Girts	SR 1		SR 1 1/4	N.A.					
Face Width (ft)	5			6	8	10	12	14	18
# Panels @ (ft)	4 @ 2.33333	18 @ 2.41667		11 @ 10					
Weight (lb) 16915.3	596.7	1267.8	1646.5	942.0	2126.9	2175.2	2338.5	2304.5	3012.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Generic Lightning Rod 4' copper	160	LNX-6515DS-T4M	140
14' x 2-7/8" pipe mount	160	LNX-6515DS-T4M	140
1' square panel	158	1' square panel	133
10' x 2" omni whip	158	3' sidearm	133
2' sidearm	158	3' sidearm	133
2' sidearm	158	2' HP dish	133
2' sidearm	158	12' x 2" omni whip	126 - 114
3' HP dish	158	12' x 2" omni whip	126 - 114
2' dish, no radome	158	3' x 1" omni whip	117 - 114
2' HP dish	158	6' sidearm	114
APX16DWV-16DWVS	140	6' sidearm	114
APX16DWV-16DWVS	140	6' sidearm	114
APX16DWV-16DWVS	140	1' square panel	99
AIR 32 B66Aa B2a	140	3' Yagi	88
AIR 32 B66Aa B2a	140	3' sidearm	88
AIR 32 B66Aa B2a	140	3' sidearm	88
Ericsson RRUS-11	140	2' yagi	88
Ericsson RRUS-11	140	3' sidearm	88
Ericsson RRUS-11	140	3' Yagi	88
Ericsson RRUS-32	140	20' x 2.5" omni whip	78 - 58
Ericsson RRUS-32	140	20' x 2.5" omni whip	78 - 58
Ericsson RRUS-32	140	12' x 2" omni whip	70 - 58
10' sector mount	140	6' sidearm	58
10' sector mount	140	6' sidearm	58
10' sector mount	140	6' sidearm	58
LNX-6515DS-T4M	140	GPS on 3' standoff	18

MATERIAL STRENGTH

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

MAX. CORNER REACTIONS AT BASE:
DOWN: 207592 lb
SHEAR: 17743 lb

UPLIFT: -150552 lb
SHEAR: 18825 lb

AXIAL 72635 lb
SHEAR 29361 lb
MOMENT 2541019 lb-ft
TORQUE 12843 lb-ft
69 mph WIND - 1.2500 in ICE

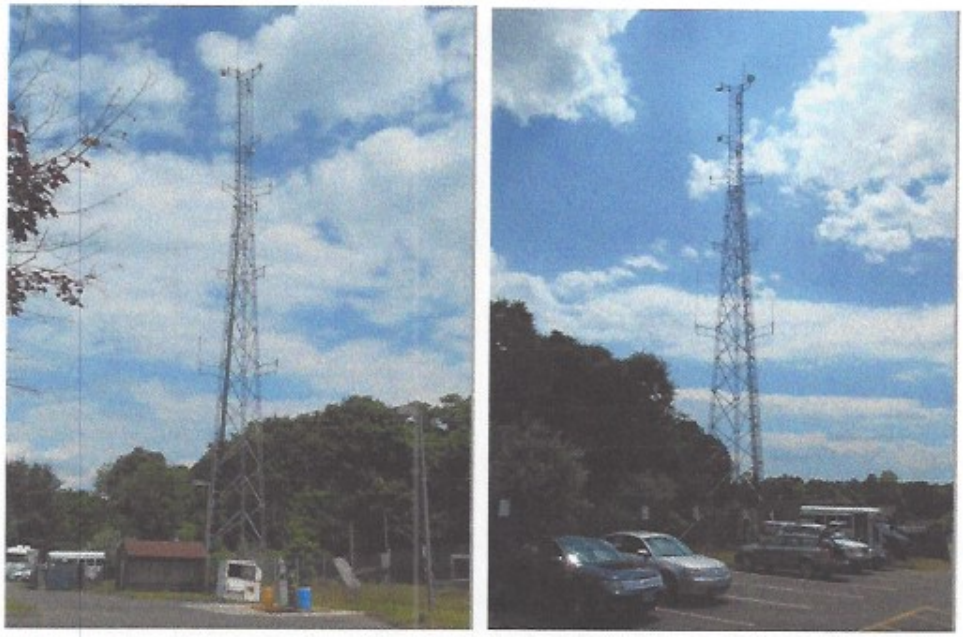
AXIAL 21414 lb
SHEAR 18099 lb
MOMENT 1548270 lb-ft
TORQUE 7614 lb-ft
REACTIONS - 80 mph WIND

All-Points Technology Corporation	Job: 160' PiROD Tower		
116 Grandview Road	Project: CT409191 Enfield		
Conway, NH 03818	Client: Vertical Development, LLC	Drawn by: Rob Adair	App'd:
Phone: (603) 496-5853	Code: TIA/EIA-222-F	Date: 06/30/16	Scale: NTS
FAX: (603) 447-2124	Path: [illegible]		Dwg No. E-1

Appendix B

Photographs

VERTICAL DEVELOPMENT
160' SELF-SUPPORTING TOWER
ENFIELD, CONNECTICUT
T-MOBILE SITE #CTHA029A



Overview photos of 160' self-supporting tower.

Photos of existing equipment at top of tower.

Photos taken by All-Points Technology Corporation, P.C. on June 22, 2016.

VERTICAL DEVELOPMENT
160' SELF-SUPPORTING TOWER
ENFIELD, CONNECTICUT
T-MOBILE SITE #CTHA029A

Photos of mid-section of tower, showing existing equipment.

Photos showing equipment on lower tower.

Photos taken by All-Points Technology Corporation, P.C. on June 22, 2016.

VERTICAL DEVELOPMENT
160' SELF-SUPPORTING TOWER
ENFIELD, CONNECTICUT
T-MOBILE SITE #CTHA029A

Photos of bottom of tower.

Photo of typical foundation pier.

Photos taken by All-Points Technology Corporation, P.C. on June 22, 2016.

EXHIBIT C

August 3, 2016

Eric Dahl
Vertical Development
55 Lynn Road
Ivoryton, CT 06442

RE: Town of Enfield
T-Mobile Northeast LLC ("T-Mobile") Site ID: CTHA029A
Telecommunication Facility at 293 Elm Street, Enfield, CT 06082

Dear Mr. Dahl:

The Town of Enfield, as owner of the above referenced property, hereby authorizes T-Mobile and/or its agent to apply for and obtain all necessary permits and approvals from all applicable Town and State of Connecticut boards, agencies and commissions for the proposed installation of T-Mobile's equipment consisting of antennas and related equipment at the above referenced site.

Sincerely,

TOWN OF ENFIELD

By: _____

Printed Name: Bryan R.H. Chodkowski

Title: Town Manager

Date: 9/7/16

EXHIBIT D

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

T-Mobile Existing Facility

Site ID: CTHA029A

Enfield
293 Elm Street
Enfield, CT 06082

August 3, 2016

EBI Project Number: 6216003468

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	2.75 %

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

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August 3, 2016

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

Emissions Analysis for Site: **CTHA029A – Enfield**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **293 Elm Street, Enfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. 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 **293 Elm Street, Enfield, 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 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.

2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 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 6-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 AIR32 B66Aa/B2P** & **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 **Ericsson AIR32 B66Aa/B2P** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **140 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active database. Values in this database are provided by the individual carriers themselves. For this facility there were no additional carriers listed in the CSC database with regards to radio frequency emissions.

10) All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B66Aa/B2P	Make / Model:	Ericsson AIR32 B66Aa/B2P	Make / Model:	Ericsson AIR32 B66Aa/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
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(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	1.87	Antenna B1 MPE%	1.87	Antenna C1 MPE%	1.87
Antenna #:	2	Antenna #:	2	Antenna #:	2
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):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	2,559.48	ERP (W):	2,559.48	ERP (W):	2,559.48
Antenna A2 MPE%	0.51	Antenna B2 MPE%	0.51	Antenna C2 MPE%	0.51
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):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.37	Antenna B3 MPE%	0.37	Antenna C3 MPE%	0.37

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	2.75 %
No Additional Carriers Listed in CSC MPE Database	NA
Site Total MPE %:	2.75 %

T-Mobile Sector A Total:	2.75 %
T-Mobile Sector B Total:	2.75 %
T-Mobile Sector C Total:	2.75 %
Site Total:	2.75 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	140	9.35	2100	1000	0.93 %
T-Mobile 1900 MHz (PCS) LTE	2	2334.27	140	9.35	1900	1000	0.93 %
T-Mobile 2100 MHz (AWS) UMTS	2	1279.74	140	5.12	2100	1000	0.51 %
T-Mobile 700 MHz LTE	1	865.21	140	1.73	700	467	0.37 %
						Total:	2.75 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	2.75 %
Sector B:	2.75 %
Sector C:	2.75 %
T-Mobile Per Sector Maximum:	2.75 %
Site Total:	2.75 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.75%** 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.