

**JULIE D. KOHLER**

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

March 6, 2014

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

**Re: Notice of Exempt Modification  
Site ID CT11333D  
274 Derby Avenue, 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, T-Mobile owns the existing flagpole telecommunications facility at 274 Derby Avenue, New Haven Connecticut (Latitude: 41.31377, Longitude: -72.959559). T-Mobile intends to replace the existing flagpole (which houses T-Mobile's canister antenna) with a flagpole of the exact same height 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, and the property owner, Yale University.

The existing New Haven Facility consists of a flagpole telecommunications facility at a height of 91 feet AGL, with T-Mobile's canister antenna internally mounted at a height of 85 feet AGL ("Existing Facility").<sup>1</sup> T-Mobile proposes to:

- Replace the Existing Facility with a flagpole of the same height with a slightly larger diameter ("Replacement Facility"). The existing flagpole facility is 10 inches in diameter. The Replacement Facility will be 18 inches in diameter to accommodate T-Mobile's 18 inch diameter canister antenna; and
- Replace the 7.5 foot square mat foundation with a 10 foot square mat

<sup>1</sup> The online Connecticut Siting Council database does not include a docket or petition number for the approval of this structure, and therefore does not include limitations on the configuration of the facility.

March 6, 2014  
Site ID CT11333D  
Page 2

foundation. (See the plans revised to October 31, 2013 attached hereto as Exhibit A).

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. The proposed replacement will not increase the height of the tower. T-Mobile's Replacement Facility will be 91 feet AGL, merely replacing the Existing Facility at a height of 91 feet AGL. (The antenna centerline will remain at 85 feet AGL.) The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

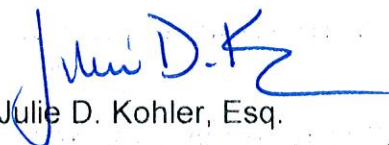
2. The proposed modifications will not require an extension of the site boundaries. The Replacement Facility will be located in the exact same location as the Existing Facility and no expansion of the existing site boundaries or lease area is required.

3. The proposed replacement of the New Haven Facility will not increase the noise levels at the Existing Facility by six decibels or more.

4. The operation of the replacement antenna will not increase the total radio frequency (RF) power density, measured at the base of the Replacement Facility, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated October 16, 2013, T-Mobile's operations would add 1.737% 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 1.737% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit B.

For the foregoing reasons, T-Mobile respectfully submits that the proposed Replacement Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2) and/or (3). 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.

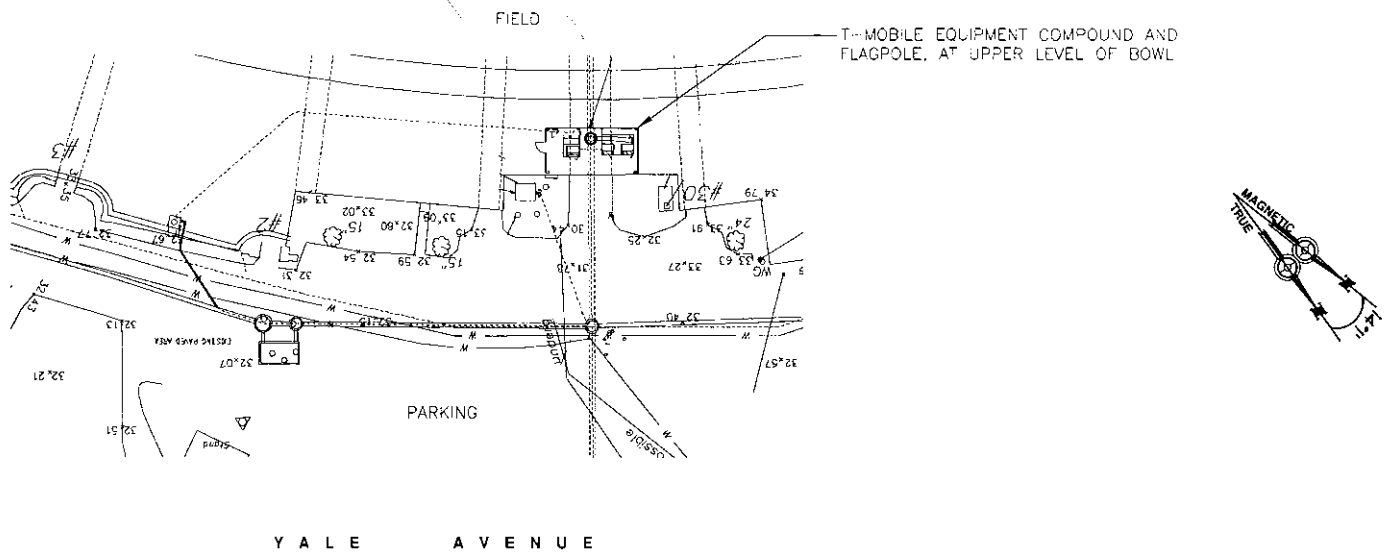
Sincerely,



Julie D. Kohler, Esq.

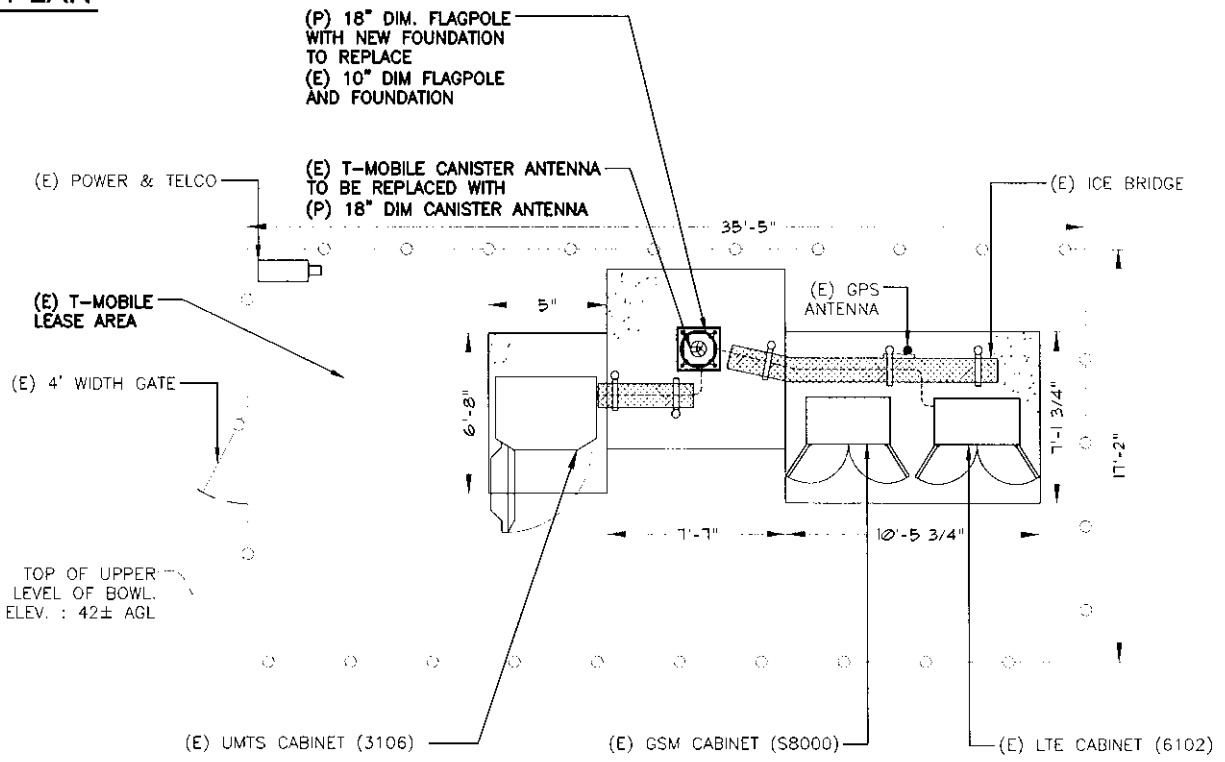
cc: City of New Haven, Mayor Toni Harp  
Yale University  
Sheldon Freinle, Northeast Site Solutions

# **EXHIBIT A**



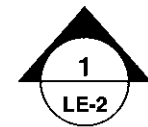
**KEY PLAN**

N.T.S



ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE / LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

**COMPOUND PLAN**  
N.T.S



SUBMITTALS	
LE REV A	07.29.13
LE REV 0	10.31.13

**ATLANTIS GROUP**  
1340 Centre Street  
Suite 203  
Newton, MA 02459  
Office: 617-965-0789  
Fax: 617-213-5056

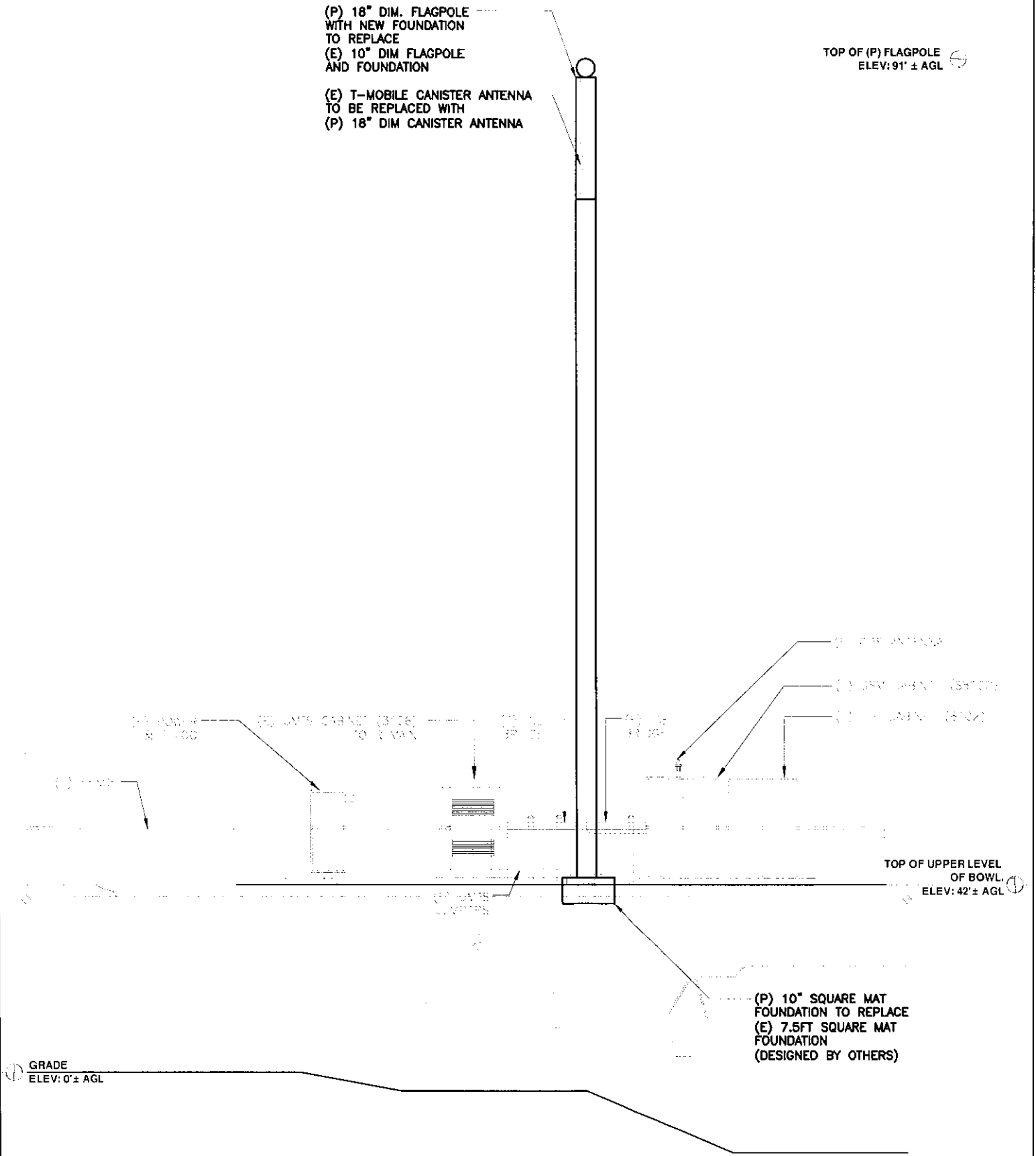
**LEASE EXHIBIT**  
SITE NUMBER:  
CT11333D  
SITE NAME:  
NEW HAVEN/RT10/RT24  
SITE ADDRESS:  
274 DERBY AVENUE  
NEW HAVEN, CT 06520

**NORTHEAST TOWERS**  
199 BRICKYARD ROAD  
FARMINGTON, CT 06032  
OFFICE: (860) 677-1999  
FOR  
**T-MOBILE NORTHEAST, LLC**  
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
OFFICE: (860) 692-7100  
FAX: (860) 692-7159

(P) 18" DIM. FLAGPOLE WITH NEW FOUNDATION TO REPLACE  
 (E) 10" DIM FLAGPOLE AND FOUNDATION

(E) T-MOBILE CANISTER ANTENNA TO BE REPLACED WITH  
 (P) 18" DIM CANISTER ANTENNA

TOP OF (P) FLAGPOLE  
 ELEV: 91' ± AGL



SUBMITTALS	
LE REV A	07.29.13
LE REV 0	10.31.13

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# **EXHIBIT B**



# EBI Consulting

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

T-Mobile Existing Facility

Site ID: CT11333D

New Haven/Rt 10/Rt 34  
274 Derby Avenue  
New Haven, CT 06520

**October 16, 2013**

**EBI Project Number: 69131503**

October 16, 2013

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

Re: Emissions Values for Site: **CT11333D - New Haven/Rt 10/Rt 34**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 274 Derby Avenue, 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 cellular band is  $567 \mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the PCS band 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 274 Derby Avenue, 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, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is 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 (1935.000 MHz—to 1945.000 MHz / 1980.000 MHz—to 1985.000 MHz) were considered for each sector of the proposed installation.
- 2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 4) 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.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 6) The antenna used in this modeling is the Andrew SHXX-6516-R2-TA for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 16 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications



# EBI Consulting

environmental | engineering | due diligence

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- 7) The antenna mounting height centerline of the proposed antennas is **85 feet** above ground level (AGL)
- 8) 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 calculation were done with respect to uncontrolled / general public threshold limits

3D - New Haven/Rt 10/Rt 34  
 Avenue, New Haven, CT 06520  
 Monopole

**Sector 1**

I	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
A	Passive	PCS - 1950 MHz	GSM / UMTS	30	4	120	-3.25	85	79	7/8"	1.2	0	43.070632	2.481036	0.24810%
A	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	85	79	7/8"	1.2	0	57.42751	3.308048	0.33080%

Sector total Power Density Value: 0.579%

**Sector 2**

I	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
A	Passive	PCS - 1950 MHz	GSM / UMTS	30	4	120	-3.25	85	79	7/8"	1.2	0	43.070632	2.481036	0.24810%
A	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	85	79	1-5/8"	1.2	0	57.42751	3.308048	0.33080%

Sector total Power Density Value: 0.579%

**Sector 3**

I	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
A	Passive	PCS - 1950 MHz	GSM / UMTS	30	4	120	-3.25	85	79	7/8"	1.2	0	43.070632	2.481036	0.24810%
A	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-3.25	85	79	1-5/8"	1.2	0	57.42751	3.308048	0.33080%

Sector total Power Density Value: 0.579%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.737%
<b>Total Site MPE %</b>	<b>1.737%</b>



## Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **1.737% (0.579% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **1.737%** 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 within the allowable 100% threshold standard per the federal government.

**Scott Heffernan**

RF Engineering Director

**EBI Consulting**

21 B Street  
Burlington, MA 01803