T-Mobile

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Technical Memo

To: Christine Farrell
From: Scott Heffernan - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CTNH370A
Date: March 20, 2007

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Monopole at 425 Litchfield Rd, New Milford, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

1) The emissions from T-Mobile transmitters are in the 1935-1945 MHz frequency band.
2) The antenna array consists of three sectors, with 3 antennas per sector.
3) The model number for each antenna is APXV18-209014-C.
4) The antenna center line height is 137 ft.
5) The maximum transmit power from any sector is 2788.88 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
7) Power levels emitting from the antennas 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.
8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Monopole at 425 Litchfield Rd, New Milford, CT, is 0.03565 mW/cm^2. This value represents 3.565% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.
#REF!

New England Market

Worst Case Power Density

Site:	**CTNH370A**
Site Address:	**425 Litchfield Rd**
Town:	**New Milford**
Tower Height:	**140 ft.**
Tower Style:	**Monopole**
Base Station TX output	25 W
Number of channels	8
Antenna Model	APXV18-209014-C
Cable Size	1 5/8
Cable Length	160 ft.
Antenna Height	137.0 ft.
Ground Reflection	1.6
Frequency	1945.0 MHz
Jumper & Connector loss	4.50 dB
Antenna Gain	17.8 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.8560 dB
Total Attenuation	6.3560 dB
Total EIRP per Channel	55.42 dBm
(In Watts)	348.61 W
Total EIRP per Sector	64.45 dBm
(In Watts)	2788.88 W
nsg	11.4440
Power Density (S) =	**0.035654 mW/cm^2**
T-Mobile Worst Case % MPE =	**3.5654%**

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

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