



December 20, 2013

Attn: Application Examiner, Reviewing Engineer

The maximum TX output power of the Spectrum 800SMR/1900PCS HP MRAU from the PCS EUT antenna port is 27.83 dBm. The maximum gain antenna that could be for use with the EUT has a gain of 3.00 dBi.

From the following equations:

Peak Output of EUT at antenna Connector (dBm) + Gain of Antenna (dBd) = Peak TX Power (dBm) ERP

$10 \cdot \log_{10}(\text{Peak TX Power} \cdot E^3 \text{ Watts}) = \text{Peak TX Power (dBm) ERP}$

$27.83 \text{ dBm} + 3.00 \text{ dBi} = 30.83 \text{ dBm EIRP}$

To convert to EIRP use the relation: $\text{EIRP} = \text{ERP} \times 1.64$. ($2.55 \text{ EIRP} = 1.56 \text{ ERP}$)

To convert to dBi to dBd use the relation: $\text{dBi} = \text{dBd} + 2.14$. ($7.14 \text{ dBi} = 5.0 \text{ dBd}$)

Per OET 65:

Maximum Permissible Exposure is 1.0 mW/cm^2 over 30 minutes. (1500 MHz - 100,000 MHz)

The following equations determine the distance from the antenna that the power density is $\leq 1.0 \text{ mW/cm}^2$.

$3.0 \text{ Watts EIRP} = 3.0 \cdot 10^3 \text{ mWatts EIRP}$

$1.0 \text{ mW/cm}^2 = 3.0 \cdot 10^3 \text{ mW} / (4 \cdot \pi \cdot r^2)$

$r = \text{SQR}(3.0 \cdot 10^3 / 4 \cdot \pi \cdot 1.0)$

$r = 15.45 \text{ cm or } 0.1545 \text{ Meters}$

In addition, the following statement is in our installation manual:

To comply with Maximum Permissible Exposure (MPE) requirements, antennas must be installed to provide at least 40 centimeters of separation from all persons per FCC 47CFR, Part 2.1091 and IC RSS-102, Section 2.5.2.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Joshua J. Wittman', is written over a horizontal blue line.

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