



December 20, 2013

Attn: Application Examiner, Reviewing Engineer

The maximum TX output power of the Spectrum 800SMR/1900PCS HP MRAU from the EUT antenna port for the SMR band is 26.95 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

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

$26.95 \text{ dBm} + 3.00 \text{ dBi} = 29.95 \text{ dBm EIRP}$

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: $\text{dBi} = \text{dBd} + 2.14$. ($7.14 \text{ dBi} = 5.0 \text{ dBd}$)

$\text{Power Density} = \text{EIRP(mW)} / (4 \cdot \pi \cdot r^2)$

$0.04915 \text{ mW/cm}^2 = (495.4)(1.995) / (4 \cdot \pi \cdot 40^2)$

Per OET 65:

Maximum Permissible Exposure is $\text{Freq. (MHz)} / 1500 = \text{MPE mW/cm}^2$

$851.04 \text{ MHz} / 1500 = 0.5673 \text{ mW/cm}^2$

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, reading "Joshua J. Wittman", is written over a horizontal blue line.

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