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
$10*Log_{10}$(Peak TX Power * E^3 Watts) = Peak TX Power (dBm) ERP

26.95 dBm + 3.00 dBi = 29.95 dBm EIRP
To convert to EIRP use the relation: EIRP = ERP ***X*** 1.64. (2.55 EIRP = 1.56 ERP)
To convert to dBi to dBd use the relation: dBi = dBd **+** 2.14. (7.14 dBi = 5.0 dBd)

Power Density = EIRP(mW)/(4*π*r^2)

0.04915 mW/cm^2 = (495.4)(1.995)/(4*π*40^2)

Per OET 65:
Maximum Permissible Exposure is Freq. (MHz)/1500 = MPE mW/cm^2
851.04 MHz/1500= 0.5673 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,

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