July 10, 2012

Attn: Application Examiner, Reviewing Engineer

The maximum TX output power of the Spectrum CELL Path1/HP-PCS Path 1 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 6.94 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

27.83 dBm + 6.94 dBi = 34.77 dBm EIRP
34.77 dBm EIRP = 3.0 Watts 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)

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 ≤ 1.0 mW/cm^2.

3.0 Watts EIRP = $3.0*10^3$ mWatts EIRP

1.0 mW/cm^2 = $3.0*10^3$ mW/$(4*\pi*r^2)$

r= SQR($3.0*10^3/4*\pi$ 1.0)
r= 15.45 cm or 0.1545 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 20 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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