

Mr. Joe Dichoso  
Federal Communications Commission  
7435 Oakland Mills Rd  
Columbia MD 21046-1609

August 31, 2000  
FCCID O2700000-30-30  
Confirmation # EA97821

Dear Mr. Dichoso,

Reference 15810

In response to your referenced request, a new exhibit has been submitted for your review. This exhibit represents an addition to the "revised Tables 1 and 2" submitted on 8/16/200 which shows measured data for both the Patch and Parabolic Antenna configurations. Additional Exhibit Table 1A and 2A" detail maximum transmit power calculations (PT) using two formulas.

These tables are based on the Table 1 and 2 of ITS measurement with the addition of two peak output power (PT) columns based on the power spectral density. The column "FCC Pt" is calculated from the formula,  $P_{SD} = EIRP / (4\pi d)^2 = P_T G_T / (4\pi d)^2$  as suggested by your recent email. The column "HXI Pt" relates to the calculated peak output power using a formula that I think is applicable based on the definition of  $P_{SD}$  = isotropic radiated power over spherical surface of the measurement point and the definition of  $EIRP = P_T G_T$ .

$$P_{SD} = EIRP / (4\pi d^2) = P_T G_T / (4\pi d^2) \dots \text{(Eq.2)}$$

Using your formula,

$$\begin{aligned} P_T &= P_{SD} (4\pi d)^2 / G_T \\ &= (16 \mu W/cm^2) \times (4 \times 3.14159 \times 300 cm)^2 / (40 \text{dBi}) \\ &= 227,395 \text{ mW} / 10,000 = 22.7395 \text{ mW} = 13.56 \text{ dBm} \quad (\text{for parabola}) \end{aligned}$$

$$\begin{aligned} P_T &= P_{SD} (4\pi d)^2 / G_T \\ &= (3.599 \mu W/cm^2) \times (4 \times 3.14159 \times 300 cm)^2 / (29 \text{dBi}) \\ &= 51,149 \text{ mW} / 794.3 = 64.395 \text{ mW} = 18.1 \text{ dBm} \quad (\text{for patch array}) \end{aligned}$$

Using our formula:

$$P_T = P_{SD} (4\pi d^2) / G_T \dots \text{(Eq.2')}$$

$$\begin{aligned} P_T &= P_{SD} (4\pi d^2) / G_T \\ &= (16 \mu W/cm^2) \times 4 \times 3.14159 \times (300 cm)^2 / (40 \text{dBi}) \\ &= 18,095 \text{ mW} / 10,000 = 1.8095 \text{ mW} = 2.6 \text{ dBm} \quad (\text{for parabola}) \end{aligned}$$

$$\begin{aligned} P_T &= P_{SD} (4\pi d^2) / G_T \\ &= (3.599 \mu W/cm^2) \times 4 \times 3.14159 \times (300 cm)^2 / (29 \text{dBi}) \\ &= 4,072 \text{ mW} / 794.3 = 5.126 \text{ mW} = 7.1 \text{ dBm} \quad (\text{for patch array}) \end{aligned}$$

Although your suggested formula yields a slightly higher level, both formulas result in levels well below the 15.255 limits, 500mW. Also, please note that power measurements made by ITS using a spectrum analyzer and harmonic mixer have been provided for both the parabolic and patch antenna configurations in Tables 1 and 2.

Please review this attachment and respond to me with any questions or comments. Thank you for your prompt attention to this matter.

Best regards,

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