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Federal Communications Commission
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FCC ID: PK5GM401 MPE Calculation

The PK5GM401 has a measured output power of 860mW with a worst case antenna gain of 3.6dBi. The equipment operates in the PCS1900 band. The equipment is proposed as being safe for use at 20cm.

The wavelength of the equipment is:

$$\frac{3 \times 10^8}{1900 \times 10^6} = 0.16\text{m}$$

Thus, the far field region is defined as being:

$$\frac{\lambda}{2} = \frac{0.16}{6.283} = 0.025\text{cm or } 25\text{mm}$$

At 20cm, the equipment is operating in the far field:

Thus, predicting the worst case RF Power Density at 20cm from the antenna would be:

$$S = \frac{P \times G}{4 R^2} = \frac{860 \times 2.29}{12.57 \times 20^2} = 0.392\text{mW/cm}^2$$

where:

P = power measured in mW
G = antenna gain as numeric gain, (2.29 numeric / 3.6dBi)
R = distance in cm

MPE for Occupational/Controlled Exposure at 1900MHz is 5mW/cm²

MPE for General Population/Uncontrolled Exposure at 1900MHz is 1mW/cm²

Therefore the RF power density at 20cm is less than both the General Population and Occupational exposure limits.

Sincerely

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