



MPE Calculation / RF Exposure

Applicant: eSSys Co., Ltd
Product: eSSys WAVE RSE
Model: EWR1
FCC ID: 2ADQJ-EWR1

The FCC requires that the calculated MPE be equal to or less than a given limit dependent on frequency at a distance of 20 cm from the device to the body of the user. The equation for the calculation is given in 47 CFR FCC Part 2 Subpart J, section 2.1091 as,

$$S = \text{EIRP} / 4 \pi R^2$$

Where S = Power density
 EIRP = Effective Isotropically Radiated Power
 R = distance to the centre of radiation of the antenna

Values S = 1.0 mW/cm² for General population uncontrolled exposure (FCC Part 1.1310 Radiofrequency radiation exposure limits)
 S = 1.0 mW/cm²
 PT = 20.58 dBm (114.29 mW) : measured maximum peak output power
 G = Antenna gain = 12 dBi (15.85 in linear terms)
 EIRP = PT x G
 R = 20 cm

Calculation EIRP = 114.29 x 15.85 = 1811.50 mW
 S = 1811.50 / 12.56 x (20)²
 S = 1811.50 / 5024
 S = 0.36 mW/cm²

Conclusion This confirms compliance to the required FCC Part 1.1310 Radiofrequency radiation exposure limit of 1.0 mW/cm² at 20 cm operation.