



RF Exposure Calculation for the

Interlite DMX Transceiver Module:

W-DMXTRX (A40904G4-X)

FCC ID: NY2-WDMXTRXDB

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 a device to the body of a user.

The transmitter operation for the W-DMXTRX covers the 5725 – 5850 MHz operating band.

The following FCC Rule Parts are applicable:

Part 1.1310 – Radio frequency radiation exposure limits

Part 2.1091 – Radio frequency radiation exposure evaluation: mobile devices

KDB 447498 D01 v05r02 – Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

MPE Calculation for the W-DMXTRX

The following MPE calculation is used to calculate the safe operating distance for the highest (worst case) EIRP value.

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

Where

S = Power density

EIRP = Effective Isotropic Radiated Power (EIRP = P x G)

P = Conducted Transmitter Power

G = Antenna Gain (relative to an isotropic radiator)

R = distance to the centre of radiation of the antenna (safe operating distance)

Transmitter frequency range = 5725 – 5850 MHz

Maximum measured peak output power (conducted) = 14.4 dBm



Specified Antenna Gain = +4.0 dBi

EIRP = 14.4 + 4.0 = 18.4 dBm = 69 mW

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for the W-DMXTRX

$$S = 1.0 \text{ mW/cm}^2$$

Calculation:

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

$$1.0 = 69/(12.56 \times R^2)$$

$$R^2 = 69/(12.56 \times 1)$$

$$R = 2.34 \text{ cm } (<20\text{cm})$$

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure FCC Rule Parts 1.1310, 2.1091 will not be exceeded for the W-DMXTRX using antennas having a maximum gain of 4.0 dBi.