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RF Exposure Considerations for M7B-Q95 Module

FCC ID: FCC ID: 2AWGH-M7B-Q95-B

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 supports 2.4 GHz Zigbee operation.

The following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v06
Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

MPE CONSIDERATIONS

The MPE calculation used to calculate the safe operating distance for the user is:

$$S = EIRP/4 \pi R^2$$

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)

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Power Density Requirement (S)

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of

FCC §1.1310 (e) **for f >1500MHz** :

S_{req} = 1.0 mW/cm²

Transmitter Powers (P)

Maximum transmitter Power = 9.5dBm

Antenna Gain (G)

Antenna Gain (*Chip Antenna P/N 2450AT43B100*) = +1.3dBi (peak)

CALCULATION:

Values:

S_{req} = 1.0mW/cm²

EIRP = 9.5 + 1.3 = 10.8dBm = 12.0mW

R = 20cm

Calculation:

$S = 12/(12.56 \times 20^2)$

$S = 12/(5024)$

S_1 = 0.0024mW/ cm² (<1.0 mW/cm²)

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the M7B-Q95 module using the antenna specified.