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Maximum Permissible Exposure Calculations

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Calculations prepared for:
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Model Number: 1XRTT Agent
FCC Identification: QQZ1XRTT Agent

Fundamental Operating Frequency: 824.04-848.97MHz, 1851.25 MHz- 1908.75 MHz

Maximum Rated Output Power: 0.28Watts
Measured Maximum Output Power: 0.31 watts (Antenna terminal, 824.04 MHz)
0.28 Watts (Antenna terminal, 1851.25 MHz)

MPE limit in accordance with FCC part 1.1311, table 1

Limit for Maximum permissible exposure: (B) Limit for General population/uncontrolled Exposure.

For frequency range of 300-1500 MHz , the MPE is $f / 1500$ (mW/cm²)

For frequency range of 1500-100,000 MHz , the MPE is 1 (mW/cm²)

Power Output (Watts)	Distance (meter)	Powr Density (W/M2)	Power Density (mW/cm2)	Limit (mW/cm2)	Result
0.28	0.2	0.9135	0.0914	0.5577	PASS
0.31	0.2	1.0114	0.1011	0.5577	PASS
0.28	0.2	0.9135	0.0914	1.0000	PASS

$$\text{Power Density (W/M}^2\text{)} = (30 * P_t * G) / (d^2 * Z_o)$$

P_t = Power Delivered to the Antenna

G = Antenna Gain

d = Distance in meters

Z_o = Impedance of Free Space = 377 Ω

Under normal operating conditions, the antenna is designed to maintain a separation distance of 20 cm from all persons. As can be seen from the MPE results, this device passes the limits specified in 1.1311 at a distance of 20 cm and at the rated output power of 0.28 Watts

At measured output power at antenna terminal of 0.48 Watts and 0.55 watts, the EUT satisfies the requirement in both frequency ranges.