

Compliance with 47 CFR 15.247(i)

“Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.”

The EUT is a 802.11(b) radio that will be installed in the Creston, M/N: TPMC-4XG, handheld remote. The radio operates in the 2.4-2.4835 GHz frequency range. The radio is not intended for long term use within 20 centimeters of the head or torso of a user but will be used in a handheld position. As such, the RF Exposure condition will be handheld portable. The EUT is not subject to routine environmental evaluation per 47 CFR 2.1091(c). Per 47 CFR 1.1310, the EUT must meet the General Population / Uncontrolled exposure limits listed in Table 1.

The radio, when installed in the Creston handheld remote, will use either a PCB trace antenna, -0.17dBi, or a Chip antenna, 0dBi. Per the original grant (FCC ID: M4Y-0XG880M), the maximum conducted output power was 17.75 dBm (59.56 mW).

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1 mW/cm². The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm²)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power density 20 cm from the transmitting antenna is summarized in the following table:

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| Antenna Type | Antenna Part No. | Transmit Frequency (MHz) | Max Peak Conducted Output Power (mW) | Antenna Gain (dBi) | Minimum Antenna Cable Loss (dB) | Power Density @ 20 cm (mW/cm ²) | General Population Exposure Limit from 1.1310 (mW/cm ²) |
|--------------|------------------|-----------------------------|---|-----------------------|------------------------------------|--|--|
| Chip | AT5020-B2R8HAA | 2400 | 59.56 | 0 | 0 | 0.012 | 1 |
| PCB Trace | XG-180M | 2400 | 59.56 | -0.17 | 0 | 0.011 | 1 |

The power density does not exceed 1 mW/cm² at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: TPMC-4XG, is compliant with the requirements of 15.247(i).