

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 DSSS radio that operates in the 2400-2483.5MHz band and will be installed in the Mega.M.O.L.E. temperature sensor device. The radio will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091(b). A single antenna, gain = 1.55 dBi, is available for use with the radio. The maximum peak conducted output power is 0.924 mW.

The maximum peak power is 1.32 mW (EIRP) for FCC ID: MQEE47-6342-45. The EUT is not subject to routine environmental evaluation per 47 CFR 2.1091. Per 47 CFR 1.1310, the EUT must meet the General Population / Uncontrolled exposure limits listed in Table 1.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as $(f_{\text{MHz}}/1500) \text{ mW/cm}^2$. 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/cm^2)

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:

MPE Estimate

FCC ID: MQEE47-6342-45

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)
Monopole	N/A	2400	0.924	1.55	0	0.00026	1

The power density does not exceed 1.0 mW/cm^2 at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: MQEE47-6342-45, is compliant with the requirements of 15.247(i).