

## Compliance with 47 CFR 2.1091

The EUT is a UHF transmitter contained in a handheld locating device that receives a kHz signal and transmits in the 464 to 470 MHz band to a remote display device. It 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). The antenna has a peak gain of 0.1 dBi. The maximum peak conducted output power is 108.8 mW.

The maximum peak power is 111.3 mW (EIRP) for FCC ID: KKGf2R. The transmit frequency is 464.5 to 469.6 MHz. 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 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<sup>2</sup>)

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: KKGf2R

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 <sup>2</sup> )	General Population Exposure Limit from 1.1310 (mW/cm <sup>2</sup> )
Dipole	420-5102-00	464.5	108.8	0.1	0	0.022	0.309666667

The power density does not exceed 0.31 mW/cm<sup>2</sup> at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: KKGf2R, is compliant with the requirements of 2.1091.