Client:	Gelo Technologies
Product Name/Model:	Thermostat and Gateway
FCC ID:	2BEIZ-GTG010
Reference	FCC KDB 447498 D04 v01

FCC RF Exposure

Where the Device Under Test (DUT) can be shown to meet the requirements for an exemption pursuant to FCC 47 CFR §1.1307(b)(3), an evaluation is not required with respect to the limits on human exposure to RF emissions provided in FCC 47 CFR §1.1310.

1. Determination of Exemption

As per 47 CFR §1.1307(b)(3), for single RF sources (i.e., any single fixed RF source, mobile device, or portable device), a single RF source is exempt if:

A. **1-mW Test Exemption:** The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

B. **SAR-Based Exemption:** The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th}\ (mW) = \begin{cases} ERP(d/20\ cm)^{x} & d\ \leq 20\ cm \\ ERP_{20cm} & 20\ cm\ < d\ \leq 40\ cm \end{cases}$$

Where

$$x = -log_{10}\left(\frac{60}{ERP_{20cm}\sqrt{f}}\right)\ and\ f\ is\ in\ GHz$$

And

$$ERP_{20cm}\ (mW) = \begin{cases} 2040f & 0.3\ GHz \leq f < 1.5\ GHz \\ 3060 & 1.5\ GHz \leq f \leq 6\ GHz \end{cases}$$

d = the minimum separation distance (cm) in any direction from any part of the device antenna(s) or radiating structure(s) to the body of the device user.

C. **MPE-Based Exemption:** Using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 of § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (Watts)
0.3-1.34	1,920 R^2
1.34-30	3,450 R^2/f^2
30-300	3.83 R^2
300-1,500	0.0128 R^2f
1,500-100,000	19.2 R^2

2. RF Exposure Evaluation

The DUT is a mobile device designed to be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the RF source's radiating structure and the body of the user or nearby persons.

2.1 DUT RF Output Power

Evaluation Frequency (MHz)	Peak Conducted Power (dBm)	Rated Output Power (dBm)	Antenna Gain (dBi)	Max ERP (dBm)	Max ERP (mW)	Minimum Separation Distance (cm)
2405.4	18.44	20	2.0	18.29	67.45	20

Note:
1. EIRP (dBm) = Conducted power (dBm) + Antenna Gain (dBi)
2. ERP (dBm) = EIRP (dBm) – 2.15

2.2 MPE-Based Exemption

Evaluation Frequency (MHz)	Minimum Required Separation Distance (λ/2π) (cm)	Threshold ERP (W)	DUT Maximum ERP (W)
2405.4	1.99	0.768	0.067

Note:
$\lambda/2\pi = (3x10^8 m/s) / (2 * 3.14 * f (Hz))$ in meters

The DUT meets the minimum separation distance requirement and the Maximum ERP of 0.067 W is below the threshold of 0.768 W.

According to 47 CFR §1.1307(b)(3)(i)(C), this device complies with the RF exposure test exemption.