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 thermostat device that uses a wireless link to control air conditioning window units. It contains a Zigbee transceiver. It can be considered a mobile transmitter per 47 CFR 2.1093 because it is used greater than 20cm from the user's head or torso. The antenna is a PCB etch antenna that is internal to the unit and permanently attached. The antenna is a monopole F antenna with 2.0 dBi of gain. The maximum peak conducted output power is 2.09 mW.

The maximum peak radiated power is 3.3 mW eirp for FCC ID: Y38TE1310. The transmit frequency is 2405 to 2480MHz. Since the transmit frequency is greater than 1.5 GHz, and the output power is less than 3 W ERP, the EUT is categorically excluded from routine environmental evaluation per 47 CFR 2.1091(c).

KDB 447498 D01 Mobile Portable RF Exposure v04 provides the procedures, requirements, and authorization policies for mobile and portable devices. Item #7 best fits the exposure condition described in this report. Since this mobile device is categorically excluded from routine evaluation; per footnotes 1 and 31 of KDB 447498, simple calculations may be used to estimate the power density to demonstrate compliance with 47 CFR 1.1310 requirements. The following estimate shows MPE limits are met at a 20 cm boundary:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1 mW/cm2 above 1.5 GHz. 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:

FCC ID: Y38TE1310

Antenna Type	Antenna Manufacturer	Antenna Part No.	Transmit Frequency	Max Peak Conducted Output Power	Antenna Gain	Minimum Antenna Cable Loss	Power Density @ 20 cm	General Population Exposure Limit from 1.1310
			(MHz)	(mW)	(dBi)	(dB)	(mW/cm^2)	(mW/cm^2)
Monopole F	ThinkEco	PCB Etch	2400	2.09	2	0	0.001	1

The applicant's device, FCC ID: Y38TE1310, is compliant with the requirements of FCC 15.247(i).