




Exhibit: RF Exposure – FCC

FCC ID: XEY-ZX-LV
IC: 8410A-ZXLV

Client	Verdant Environmental Technologies Inc	
Product	ZX Low Voltage Thermostat	
Standard(s)	FCC Part 15 Subpart 15.247:2016 FCC KDB 447498:2015	

SAR Calculations: 902.8 – 927.7 MHz FHSS transmitter

The EUT contains a 902 – 928 MHz and a 2400 – 2483.5 MHz FHSS transmitters. The firmware guarantees simultaneous operation will not occur and therefore antenna co-location testing is not applicable. This device is designed to be operated handheld and for the purpose of demonstrating compliance with MPE requirements and SAR exemption; we present for a worst case 5mm distance and 100 % duty cycle.

FCC Requirements: SAR test exclusion guidance

As per FCC KDB 447498 D01 Section 4.3.1 a), the 1-g extremity SAR Test Exclusion Threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm is determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] [\sqrt{f(\text{GHz})}] \leq 3.0$$

Performing the calculation, of the worst case mentioned above, using the maximum power measured of 9.9mW (see page 49 on TR-7169005571-FCC-ISED_Low Voltage Thermostat.pdf) yields to:

$$\frac{9.9}{5} \cdot \sqrt{0.927525} = 1.91;$$


1.91 is below the 3.0 worst case limit, so this device complies with FCC requirements

ISED Requirements: SAR test exclusion guidance

As per Table 1 in RSS-102, Section 2.5.1, the limit at 1900MHz is 7mW at 5mm or less.

This device has effective isotropic radiated power with a peak value of 103.5 dB μ V/mⁱ - 95.2 (factor to convert to EIRP at 3 meters) of 8.3dBm, or 6.8mW.

- 6.8mW is less than 7mW limit as per section 2.5.1 on RS-102, thus the device meets the exception rules.

Client	Verdant Environmental Technologies Inc	
Product	ZX Low Voltage Thermostat	
Standard(s)	FCC Part 15 Subpart 15.247:2016 FCC KDB 447498:2015	

SAR Calculations: 2412 – 2462 MHz DTS transmitter

FCC Requirements: SAR test exclusion guidance

As per FCC KDB 447498 D01 Section 4.3.1 a), the 1-g extremity SAR Test Exclusion Threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm is determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] [\sqrt{f(\text{GHz})}] \leq 3.0.$

Performing the calculation, of the worst-case (at the antenna output) of 8.03mW (see page 48 on TR-7169005571-FCC-ISED_Low Voltage Thermostat.pdf) yields to:

$$\frac{8.03}{5} \cdot \sqrt{2.402} = 1.55,$$

1.55 is below the 3.0 worst case limit, so this device complies with FCC requirements

ISED Requirements: SAR test exclusion guidance

As per Table 1 in RSS-102, Section 2.5.1 the power limit at 2450MHz at 5mm or less is 4mW.

This device has effective isotropic radiated power with a peak value of 99dB μ V/mⁱⁱ - 95.2 (factor to convert to EIRP at 3 meters) of 3.8dBm, or 2.4mW.

- 2.4mW is less than 4mW limit as per section 2.5.1 on RS-102, thus the device meets the SAR exclusion criterion.

ⁱ See Table A.1 in page 106 of TR-7169005571-FCC-ISED_Low Voltage Thermostat.pdf

ⁱⁱ See Table A.5 in page 108 of TR-7169005571-FCC-ISED_Low Voltage Thermostat.pdf