




Exhibit: RF Exposure – FCC

FCC ID: XEY-ZX-RN
IC: 8410A-ZXRN

Client	Verdant Environmental Technologies Inc	
Product	ZX Root Node 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 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 12.3mW (see page 26 on 7169005571C-000_ZX_Root_Node_900MHz-FHSS Rev2.pdf) yields to:

$$\frac{12.3}{5} \cdot \sqrt{0.927525} = 2.34,$$

2.34 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 at 1900MHz is 7mW at 5mm or less.

This device has effective isotropic radiated power (as worst-case vertical polarization at 915MHz, see, for instance pag.42 in 7169005571C-000_ZX_Root_Node_900MHz-FHSS Rev2) with a peak value of 98 (dBμV/m @ 3 meters) - 95.2 (factor to convert to EIRP at 3 meters) of 2.8dBm, or 3mW.

- 3mW is less than 7mW limit as per section 2.5.1 on RS-102, thus the device meets the exception rules.