



Canada

Exhibit: RF Exposure - FCC

FCC ID: XEYWX-DB
IC: 8410A-WXDB

Client	Verdant Environmental Technologies Inc	
Product	WX DB 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 9.5mW (see page 52 on TR-7169007677-FCC-ISED-WX DB.pdf) yields to:

$$\frac{9.5}{5} \cdot \sqrt{0.927525} = 1.82;$$

1.82 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 of 16.061mW has been calculated based on the interpolation between the limit of 835MHz is 17mW and 1900MHz is 7mW at 5mm or less.

This device has effective isotropic radiated power with a peak value of 103.5 dB μ V/m² - 95.2 (factor to convert to EIRP at 3 meters) of 8.3dBm, or 6.8mW.

- 6.8 mW is less than 16.061mW limit as per section 2.5.1 on RS-102, thus the device meets the exception rules.

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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 4.21mW (see page 51 on TR-7169007677-FCC-ISED-2020-04-17-WX DB.pdf) yields to:

$$\frac{4.21}{5} \cdot \sqrt{2.402} = 1.30,$$

1.30 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 \times 2.5 = 10mW.

As per Table 1 in RSS-102, Section 2.5.1, the limit of 4.24mW has been calculated based on the interpolation between the limit of 1900MHz is 7mW and 2450MHz, which is 4mW; times 2.5 equal to 10mW at 5mm or less.

This device has effective isotropic radiated power with a peak value of 97 dB μ V/mⁱⁱ - 95.2 (factor to convert to EIRP at 3 meters) of 1.8dBm, or 1.51mW.

- 1.51mW is less than 10mW limit as per section 2.5.1 on RS-102, thus the device meets the SAR exclusion criterion.

This device has a maximum conducted peak power of 4.21mWⁱⁱⁱ

- 4.21mW is less than 10mW, thus the device meets the SAR exclusion criterion.

ⁱ See Table A.3 in page 113 of TR-7169007677-FCC-ISED-WX DB_Rev2.pdf

ⁱⁱ See Table A.5 in page 114 of TR-7169007677-FCC-ISED-WX DB_Rev2.pdf

ⁱⁱⁱ See Table 19 in page 52 of TR-7169007677-FCC-ISED-WX DB_Rev2.pdf