




Canada

Exhibit: RF Exposure – FCC

FCC ID: WR9EBSTAT3LT02

Report File #: 7169011789R-000

Client	Ecobee Inc.	
Product	EB-STATE3LT02	
Standard(s)	FCC Part 15 Subpart 15.247 FCC KDB 447498 v06	

RF Exposure – FCC

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

The EUT contains a 902 – 928 MHz FHSS/Hybrid transmitter and a 2400 – 2483.5 MHz DTS transmitter. The Firmware guarantees simultaneous will not occur. Antenna co-location evaluation is therefore not applicable.

RF Exposure Exemption Evaluation: Mobile Devices

Mobile devices are exempted from routine MPE evaluation based on guidance provided in FCC §1.1307 (b)(3)(i)(C) for devices operating from 300 kHz to 100 GHz with a minimum separation distance of $\lambda/2\pi$ and with an ERP lower than the Threshold ERP.

The Threshold ERP is given in Table 1 to § 1.1307(b)(3)(i)(C).


Table 1 to § 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 ² f.
1,500-100,000	19.2R ² .

Where R is the separation distance in meters and f is in MHz.

The table below lists the minimum separation distance $\lambda/2\pi$ for the lowest channel of operation for the FHSS/Hybrid transmitter and for the DTS transmitter.

RF Source frequency (MHz)	Minimum separation Distance (cm)
920	5.19
2412	1.98

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The declared separation distance by the client is 20 cm.

The table below lists the Threshold ERP at 20 cm for the lowest channel of operation for the FHSS/Hybrid transmitter and for the DTS transmitter.

RF Source frequency (MHz)	Threshold ERP (watts)	Threshold ERP (mW)	Threshold ERP (dBm)
920	0.471	471.0	26.73
2412	0.768	768.0	28.85

Given that $EIRP = P_{out} + G$ and $ERP = EIRP - 2.15$

Therefore, $ERP = P_{out} + G - 2.15$

Threshold ERP Calculation: 920 – 927.7 MHz FHSS/Hybrid transmitter

The lowest frequency of operation and the channel transmitter with highest power is 920 MHz for the FHSS/Hybrid transmitter. The transmitter has a maximum conducted (Average) output power of 9.18 dBm and an antenna gain of 1.5 dBi.

The ERP of the EUT is $9.18 \text{ dBm} + 1.5 \text{ dBi} - 2.15 = 8.53 \text{ dBm}$ (0.007 W) which is significantly less than the Threshold ERP of 0.471 W exemption limit.

Threshold ERP Calculation: 2412 – 2462 MHz DTS transmitter

The DTS transmitter has a maximum conducted (Average) output power of 20.02 dBm and an antenna gain of 2.0 dBi.

The ERP of the EUT is $20.02 \text{ dBm} + 2 \text{ dBi} - 2.15 = 19.87 \text{ dBm}$ (0.097 W) which is significantly less than the Threshold ERP of 0.768 W exemption limit.

Conclusion

Both 920 MHz and 2412 MHz transmitters qualify for standalone testing exemption.

Note: power for each transmitter was from the original certification. Power was verified for each transmitter and are lower than the original test filing.