Exhibit: RF Exposure – FCC

FCC ID: WR9EBSTAT3LT02

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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^2f.
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

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 dBm + 1.5 dBi -2.15 = 8.53 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 dBm + 2 dBi -2.15 = 19.87 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.

Radiofrequency Radiation Exposure Evaluation: Mobile Devices

Mobile devices shall be evaluated for RF radiation exposure according to the provisions of FCC §2.1091 and the MPE guidelines identified in FCC §1.1310.

As per FCC §1.1310 Table 1(B), the limit for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields for General Population/Uncontrolled Exposure in the frequency range of 300 MHz to 1.5 GHz is f/1500 mW/cm^2 and in the frequency range of 1.5GHz to 100GHz is 1.0 mW/cm^2. Where f = frequency in MHz.

The power density formula is given by:

$$P_d = (P_{out} * G) / (4 * pi * R^2)$$

Where,
P_d = Power density in mW/cm^2
P_{out} = Conducted output power to antenna in mW
G = Numeric Antenna Gain
Pi = 3.1416
R = Separation distance in cm

MPE Calculation: 902.8 – 927.7 MHz FHSS transmitter

The FHSS/Hybrid transmitter has a maximum conducted (Average) output power of 9.18 dBm or 8.28 mW and an antenna gain of 1.5 dBi or 1.41 numerically.
For 20 cm separation distance, the power density is:

$$P_d = (8.28\ mW * 1.41) / (4 * 3.1416 * (20\ cm)^2)$$
$$P_d = 0.0023\ mW/cm^2$$

The device passes the requirement. The calculated power density of 0.0023 mW/cm^2 is below the (920.0/1500) = 0.613 mW/cm^2 limit.

MPE Calculations: 2412 – 2462 MHz DTS transmitter

The DTS transmitter has a maximum conducted (Average) output power of 20.02 dBm or 100.46 mW and an antenna gain of 2 dBi or 1.58 numerically. For 20 cm separation distance, the power density is:

$$P_d = (100.46\ mW * 1.58) / (4 * \pi * (20cm)^2)$$
$$P_d = 0.032\ mW/cm^2$$

The device passes the requirement. The calculated power density is 0.032 mW/cm^2 and this is below the 1.0 mW/cm^2 limit.