



Exhibit: RF Exposure – FCC

FCC ID: 2ABFD-MDF1019

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Client	Mircom Technologies Ltd.	
Product	MDF-1019	
Standard(s)	FCC Part 15 Subpart 15.247 FCC KDB 447498:2015	

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.

General SAR test exclusion guidance:

As per FCC KDB 447498 Section 4.3.1 b), the SAR Test Exclusion Threshold for 100 MHz to 6 GHz at test separation distances > 50 mm is determined by:

- 1) {[Power allowed at *numeric threshold* for 50 mm]} + [(test separation distance – 50 mm) ($f_{\text{MHz}}/150$)]} mW, for 100 MHz to 1500 MHz
- 2) {[Power allowed at *numeric threshold* for 50 mm]} + [(test separation distance – 50 mm)*10]} mW, for > 1500 MHz and ≤ 6 GHz

Where:

Power allowed at *numeric threshold* for 50 mm (for 1-g SAR) is given by:

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

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

f_{GHz} is the RF channel transmit frequency in GHz

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SAR Calculations: 2405 – 2480 MHz DTS transmitter

Power allowed at *numeric threshold* for 50 mm:

$$(\text{max power of channel, including tune-up tolerance, mW}) \leq [3.0 / \sqrt{(2.480 \text{ GHz})}] * [50 \text{ mm}]$$

$$(\text{max power of channel, including tune-up tolerance, mW}) \leq 95.25 \text{ mW}$$

Therefore SAR Exclusion for 200 mm test distance is:

$$\{[\text{Power allowed at } \textit{numeric threshold} \text{ for 50 mm}]\} + [(\text{test separation distance} - 50 \text{ mm}) * 10]\}$$

mW, for > 1500 MHz and ≤ 6 GHz

$$= [95.25 \text{ mW}] + [(200 \text{ mm} - 50 \text{ mm}) * 10]$$

$$= 1595 \text{ mW}$$

The EUT meets the SAR Exclusion Threshold. Peak conducted power of DTS transmitter was measured to be 24 mW which is below the 1595mW threshold.

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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 $f/1500 \text{ mW/cm}^2$ 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

π = 3.1416

R = Separation distance in cm

MPE Calculation: 2405 – 2480 MHz DTS transmitter

The DTS transmitter has a maximum conducted output power of 13.81dBm or 24.04mW and an antenna gain of 5dBi or 3.16 numerically.

For a distance of 20cm, the power density is:

$$P_d = (24.04\text{mW} * 3.16) / (4 * 3.1416 * (20\text{cm})^2)$$

$$P_d = 0.015 \text{ mW/cm}^2$$

The device passes the requirement. The calculated power density of 0.015 mW/cm^2 is below the 1.0 mW/cm^2 limit.