

6. Measurement Data (continued)

6.11. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))

6.11.1 RF Exposure for devices that operate above 6 GHz

Requirements: 2.1093(b): A portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

2.1093 (d): Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified 47 CFR 1.1310. Measurements and calculations to demonstrate compliance with MPE Field strength or power density limits for device operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

1.1310, Table 1: Limits for Maximum Permissible Exposure (MPE), Section (B): Limits for General Population/Uncontrolled Exposure for devices that operate between 1500 to 100,000 MHz is 1.0 mW/cm² using a 30 minute averaging time.

ISED RSS-102, Issue 5, Section 3: Devices operating above 6 GHz regardless of the separation distance shall undergo an RF Exposure evaluation using IEEE C95.3.

ISED RSS-102 Section 4 Table 4 RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment) above 6000 MHz the limit is 10 W/m² using an averaging time of 6 minutes.

Center Frequency (GHz)	MPE Distance (cm)	DUT Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density		FCC Limit	ISED Limit
				(mW/cm ²)	(W/m ²)	(mW/cm ²)	(W/m ²)
	(1)	(2)	(3)	(4)		(5)	(6)
6.492	5	-5.80	0.0	0.0008372	0.0083724	1	10

$$PD = \frac{OP + AG}{(4 \times \pi \times d^2)}$$

- Reference CFR 2.1093(b): For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 5 centimeters of the body of the user.
- Measured Peak Power at 3 Meters from Section 6.7 of this test report.
- Antenna Gain included in the measured values of Section 6.7
- Power density is calculated from field strength measurement and antenna gain.
- Reference CFR 1.1310, Table 1: Limits for Maximum Permissible Exposure (MPE), Section (B): Limits for General Population/Uncontrolled Exposure.
- Reference IC RSS-102 Section 4 Table 4 RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment) above 6000 MHz the limit is 10 W/m²

6. Measurement Data (continued)

6.11. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))

6.11.2 RF Exposure for devices with simultaneous operation

Requirements: For devices that contain multiple transmitters that may operate simultaneously an RF Exposure evaluation for that simultaneous transmission shall be performed.

The EUT contains an WB transmitter operating at ~ 6.5 GHz, and a BLE/WiFi Module operating in the 2.4 GHz and 5 GHz bands under FCC ID: UFEAXD-Y1. Using the worst case data for the UWB and WiFi radios an estimation of RF Exposure at 5 cm has been calculated in the table below. The BLE and 2.4 GHz WiFi share the same antenna and the 2.4 GHz and 5 GHz radios cannot be operated simultaneously as described in the modular filing.

Worse Case for the 2.4 GHz Radio was 802.11n-HT20 Mode of operation at 2.412 MHz.

Center Frequency (GHz)	MPE Distance (cm)	DUT Peak Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density		FCC Limit (mW/cm ²)	ISED Limit (W/m ²)
				(mW/cm ²)	(W/m ²)		
	(1)	(2)	(3)	(4)		(5)	(6)
6.491	5	-5.80	0.0	0.0008372	0.0083724	1	10
2.412	20	17.50	3.2	0.0231063	0.2310629	1	10
			SUM	0.0239435	0.2394353	1	10

Worse Case for the 5 GHz Radio was 802.11n-HT20 Mode of operation at 5.500 MHz.

Center Frequency (GHz)	MPE Distance (cm)	DUT Peak Output Power (dBm)	DUT Antenna Gain (dBi)	Power Density		FCC Limit (mW/cm ²)	ISED Limit (W/m ²)
				(mW/cm ²)	(W/m ²)		
	(1)	(2)	(3)	(4)		(5)	(6)
6.491	5	-5.80	0.0	0.0008372	0.0083724	1	10
5.500	20	17.50	3.51	0.0251033	0.2510326	1	10
			SUM	0.0259405	0.2594050	1	10