

FCC 47 CFR MPE REPORT

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WIFI+BT Module

Model Number: WXT26M2601B

FCC ID: 2AC23-WXT26

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Maximum Permissible Exposure

1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

(a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

2. Conducted Power Result

Antenna	Mode (MHz)	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)
BT	8-DPSK	2402	9.12	8.166	9 ± 2
1	IEEE 802.11b	2412	14.89	30.832	14 ± 2
1	IEEE 802.11g	2437	21.17	130.918	21 ± 2
1	IEEE 802.11n HT20(2.4G)	2437	21.73	148.936	21 ± 2
1	IEEE 802.11n HT40(2.4G)	2452	22.05	160.325	22 ± 2
1	IEEE 802.11ax HE20(2.4G)	2462	23.56	226.986	23 ± 2
1	IEEE 802.11ax HE40(2.4G)	2452	23.87	243.781	23 ± 2
1	IEEE 802.11a	5825	16.74	47.206	16 ± 2
1	IEEE 802.11n HT20(5G)	5825	16.67	46.452	16 ± 2
1	IEEE 802.11n HT40(5G)	5795	18.16	65.464	18 ± 2
1	IEEE 802.11ac VHT20(5G)	5825	16.64	46.132	16 ± 2
1	IEEE 802.11ac VHT40(5G)	5795	18.11	64.714	18 ± 2
1	IEEE 802.11ac VHT80(5G)	5775	17.59	57.412	17 ± 2
1	IEEE 802.11ax HE20(5G)	5825	21.01	126.183	21 ± 2
1	IEEE 802.11ax HE40(5G)	5795	20.25	105.925	20 ± 2
1	IEEE 802.11ax HE80(5G)	5775	19.95	98.855	19 ± 2
2	IEEE 802.11b	2412	15.10	32.359	15 ± 2
2	IEEE 802.11g	2437	22.00	158.489	22 ± 2
2	IEEE 802.11n HT20(2.4G)	2437	22.83	191.867	22 ± 2
2	IEEE 802.11n HT40(2.4G)	2437	22.21	166.341	22 ± 2
2	IEEE 802.11ax HE20(2.4G)	2462	23.58	228.034	23 ± 2
2	IEEE 802.11ax HE40(2.4G)	2422	23.67	232.809	23 ± 2
2	IEEE 802.11a	5825	17.78	59.979	17 ± 2
2	IEEE 802.11n HT20(5G)	5825	17.24	52.966	17 ± 2
2	IEEE 802.11n HT40(5G)	5795	19.00	79.433	19 ± 2
2	IEEE 802.11ac VHT20(5G)	5825	17.15	51.880	17 ± 2
2	IEEE 802.11ac VHT40(5G)	5795	18.93	78.163	18 ± 2
2	IEEE 802.11ac VHT80(5G)	5775	18.41	69.343	18 ± 2
2	IEEE 802.11ax HE20(5G)	5825	21.02	126.474	21 ± 2
2	IEEE 802.11ax HE40(5G)	5795	20.68	116.950	20 ± 2
2	IEEE 802.11ax HE80(5G)	5775	20.68	116.950	20 ± 2

3. Calculated Result and Limit

BT Antenna

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm ²)	Limited of Power Density (S) (mW/cm ²)	Test Result
		(dBi)	(Linear)			
2.4G Band						
8-DPSK	11	2	1.585	0.00397	1	Compiles

WiFi Antenna 1

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm ²)	Limited of Power Density (S) (mW/cm ²)	Test Result
		(dBi)	(Linear)			
2.4G Band						
IEEE 802.11b	16	2	1.585	0.01255	1	Compiles
IEEE 802.11g	23	2	1.585	0.06291	1	Compiles
IEEE 802.11n HT20	23	2	1.585	0.06291	1	Compiles
IEEE 802.11n HT40	24	2	1.585	0.07920	1	Compiles
IEEE 802.11ax HE20	25	2	1.585	0.09971	1	Compiles
IEEE 802.11ax HE40	25	2	1.585	0.09971	1	Compiles
5G Band						
IEEE 802.11a	18	3	1.995	0.02505	1	Compiles
IEEE 802.11n HT20	18	3	1.995	0.02505	1	Compiles
IEEE 802.11n HT40	20	3	1.995	0.03969	1	Compiles
IEEE 802.11ac VHT20	18	3	1.995	0.02505	1	Compiles
IEEE 802.11ac VHT40	20	3	1.995	0.03969	1	Compiles
IEEE 802.11ac VHT80	19	3	1.995	0.03153	1	Compiles
IEEE 802.11ax HE20	23	3	1.995	0.07920	1	Compiles
IEEE 802.11ax HE40	22	3	1.995	0.06291	1	Compiles
IEEE 802.11ax HE80	21	3	1.995	0.04997	1	Compiles

WiFi Antenna 2

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm ²)	Limited of Power Density (S) (mW/cm ²)	Test Result
		(dBi)	(Linear)			
2.4G Band						
IEEE 802.11b	17	2	1.585	0.01580	1	Compiles
IEEE 802.11g	24	2	1.585	0.07920	1	Compiles
IEEE 802.11n HT20	24	2	1.585	0.07920	1	Compiles
IEEE 802.11n HT40	24	2	1.585	0.07920	1	Compiles
IEEE 802.11ax HE20	25	2	1.585	0.09971	1	Compiles
IEEE 802.11ax HE40	25	2	1.585	0.09971	1	Compiles
5G Band						
IEEE 802.11a	19	3	1.995	0.03153	1	Compiles
IEEE 802.11n HT20	19	3	1.995	0.03153	1	Compiles
IEEE 802.11n HT40	21	3	1.995	0.04997	1	Compiles
IEEE 802.11ac VHT20	19	3	1.995	0.03153	1	Compiles
IEEE 802.11ac VHT40	20	3	1.995	0.03969	1	Compiles
IEEE 802.11ac VHT80	20	3	1.995	0.03969	1	Compiles
IEEE 802.11ax HE20	23	3	1.995	0.07920	1	Compiles
IEEE 802.11ax HE40	22	3	1.995	0.06291	1	Compiles
IEEE 802.11ax HE80	22	3	1.995	0.06291	1	Compiles

WiFi Antenna 1+2

Mode	Power Density (S) (mW/cm ²) Antenna 0	Power Density (S) (mW/cm ²) Antenna 1	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	0.06291	0.07920	0.14211	1	Compiles
IEEE 802.11n HT40	0.07920	0.07920	0.15840	1	Compiles
IEEE 802.11ax HE20	0.09971	0.09971	0.19942	1	Compiles
IEEE 802.11ax HE40	0.09971	0.09971	0.19942	1	Compiles
5G Band					
IEEE 802.11n HT20	0.02505	0.03153	0.05658	1	Compiles
IEEE 802.11n HT40	0.03969	0.04997	0.08966	1	Compiles
IEEE 802.11ac VHT20	0.02505	0.03153	0.05658	1	Compiles
IEEE 802.11ac VHT40	0.03969	0.03969	0.07938	1	Compiles
IEEE 802.11ac VHT80	0.03153	0.03969	0.07122	1	Compiles
IEEE 802.11ax HE20	0.07920	0.07920	0.15840	1	Compiles
IEEE 802.11ax HE40	0.06291	0.06291	0.12582	1	Compiles
IEEE 802.11ax HE80	0.04997	0.06291	0.11288	1	Compiles

BT Antenna +WiFi Antenna 1+2

MAX Power Density (S) (mW/cm ²) Bluetooth	MAX Power Density (S) (mW/cm ²) 2.4G WiFi	MAX Power Density (S) (mW/cm ²) 5G WiFi	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
0.00397	0.19942	0.15840	0.361799	1	Compiles

End of Test Report