

# FCC 47 CFR MPE REPORT

Zhuhai Quin Technology Co., Ltd

Label Printer

Model Number: PM-344-WF

Additional Model: PM-344-WF PRO, AM-344-WF, AM-344-WF PRO, PM-244-WF, PM-244-WF PRO, AM-244-WF, AM-244-WF PRO, PM-345-WF, PM-345-WF PRO, AM-345-WF, AM-345-WF PRO, PM-245-WF, PM-245-WF PRO, AM-245-WF, AM-245-WF PRO, PM-346-WF, PM-346-WF PRO, AM-346-WF, AM-346-WF PRO, PM-246-WF, PM-246-WF PRO, AM-246-WF, AM-246-WF PRO, PM-347-WF, PM-347-WF PRO, AM-347-WF, AM-347-WF PRO, PM-247-WF, PM-247-WF PRO, AM-247-WF, AM-247-WF PRO, PM-348-WF, PM-348-WF PRO, AM-348-WF, AM-348-WF PRO, PM-248-WF, PM-248-WF PRO, AM-248-WF, AM-248-WF PRO, PM-349-WF, PM-349-WF PRO, AM-349-WF, AM-349-WF PRO, PM-249-WF, PM-249-WF PRO, AM-249-WF, AM-249-WF PRO

FCC ID: 2ASRB-344WF

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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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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,  $d=0.2\text{m}$ , as well as the gain of the used antenna, the RF power density can be obtained

## 2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
BLE 1M	2402	5.6	3.631
	2440	5.23	3.334
	2480	5.25	3.350
BLE 2M	2402	6.12	4.093
	2440	5.37	3.443
	2480	4.44	2.780
IEEE 802.11b	2412	16.17	41.400
	2437	16.17	41.400
	2462	16.1	40.738
IEEE 802.11g	2412	20.97	125.026
	2437	21.56	143.219
	2462	21.6	144.544
IEEE 802.11n HT20	2412	21.59	144.212
	2437	21.51	141.579
	2462	21.53	142.233
IEEE 802.11n HT40	2422	21.6	144.544
	2442	21.63	145.546
	2452	21.47	140.281
IEEE 802.11a	5180	17.01	50.234
	5200	17.26	53.211
	5240	18.14	65.163
	5745	17.9	61.660
	5785	16.19	41.591
	5825	15.83	38.282

### 3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm <sup>2</sup> )	Limited of Power Density (S) (mW /cm <sup>2</sup> )	Test Result
				(dBi)	(Linear)			
2.4G Band								
BLE	6.12	6±1	7	2.72	1.871	0.00187	1	Complies
IEEE 802.11b	16.17	16±1	17	2.72	1.871	0.01865	1	Complies
IEEE 802.11g	21.60	21±1	22	2.72	1.871	0.05898	1	Complies
IEEE 802.11n HT20	21.59	21±1	22	2.72	1.871	0.05898	1	Complies
IEEE 802.11n HT40	21.63	21±1	22	2.72	1.871	0.05898	1	Complies
5G Band								
IEEE 802.11a	18.14	18±1	19	2.21	1.663	0.02629	1	Complies

#### BT+WIFI

MAX Power Density (S) (mW/cm <sup>2</sup> ) Bluetooth	MAX Power Density (S) (mW/cm <sup>2</sup> ) WiFi	Total Ratio	Limit Ratio	Test Result
0.00187	0.05898	0.06085	1	Complies

Note: WIFI 2.4G and 5GHz bands are share an antenna, Can't both the 2.4G and 5 GHz bands operate simultaneously.

**End of Test Report**