

FCC 47 CFR MPE REPORT

Shenzhen Koorui technology Co., Ltd

Color Display Unit

Model Number: 15B2

Additional Model: 15B1, 15B***, MB15***** (* can be a-z, A-Z, 0-9 or blank)

FCC ID: 2A23C15B2

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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

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

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

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
IEEE 802.11b	2412	18.56	71.7794
	2437	18.14	65.1628
	2462	17.98	62.8058
IEEE 802.11g	2412	18.50	70.7946
	2437	18.31	67.7642
	2462	18.09	64.4169
IEEE 802.11n HT20	2412	18.63	72.9458
	2437	18.11	64.7143
	2462	18.00	63.0957
IEEE 802.11n HT40	2422	18.66	73.4514
	2437	18.48	70.4693
	2452	18.33	68.0769
IEEE 802.11a	5180	16.02	39.9945
	5200	16.11	40.8319
	5240	16.99	50.0035
	5260	17.26	53.2108
	5300	17.26	53.2108
	5320	17.44	55.4626
	5500	15.55	35.8922
	5580	16.13	41.0204
	5700	17.09	51.1682
	5745	17.09	51.1682
	5785	16.39	43.5512
5825	15.93	39.1742	

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
IEEE 802.11n HT20	5180	14.95	31.2608
	5200	15.04	31.9154
	5240	15.66	36.8129
	5260	15.78	37.8443
	5300	15.99	39.7192
	5320	15.63	36.5595
	5500	15.28	33.7287
	5580	16.3	42.6580
	5700	15.75	37.5837
	5745	15.36	34.3558
	5785	14.81	30.2691
	5825	14.35	27.2270
IEEE 802.11n HT40	5190	15.51	35.5631
	5230	16.22	41.8794
	5270	16.49	44.5656
	5310	16.13	41.0204
	5510	15.75	37.5837
	5550	16.69	46.6659
	5670	15.59	36.2243
	5755	15.63	36.5595
	5795	14.96	31.3329

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX 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	18.56	18±1	19	4.71	2.9580	0.0467	1	Complies
IEEE 802.11g	18.5	18±1	19	4.71	2.9580	0.0467	1	Complies
IEEE 802.11n HT20	18.63	18±1	19	4.71	2.9580	0.0467	1	Complies
IEEE 802.11n HT40	18.66	18±1	19	4.71	2.9580	0.0467	1	Complies
5G Band								
IEEE 802.11a	17.44	17±1	18	4.71	2.9580	0.0371	1	Complies
IEEE 802.11n HT20	16.30	16±1	17	4.71	2.9580	0.0295	1	Complies
IEEE 802.11n HT40	16.69	16±1	17	4.71	2.9580	0.0295	1	Complies

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

End of Test Report