

## **FCC 47 CFR MPE REPORT**

Shenyang Tongfang Multimedia Co., Limited

LED TV

Model Number: WD65NC4190

Additional Model: E4SFC651

FCC ID: 2ACWIWD65NC419

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## Maximum Permissible Exposure

### 1、Applicable Standard

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.

#### (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   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 <sup>2</sup> )	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

### 2、MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = E^2 / 377$$

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

$$Pd = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

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

### 3. Calculated Result and Limit

Mode	Frequency (MHz)	output power (dBm)	output power (mW)	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)			
IEEE 802.11b (ANT a)	2412	15.81	38.11	15±1	2	1.59	0.01255	1	Compiles
	2442	15.42	34.83	15±1	2	1.59	0.01255	1	Compiles
	2472	15.50	35.48	15±1	2	1.59	0.01255	1	Compiles
IEEE 802.11g (ANT a)	2412	11.90	15.49	11±1	2	1.59	0.00500	1	Compiles
	2442	10.36	10.86	11±1	2	1.59	0.00500	1	Compiles
	2472	10.30	10.72	11±1	2	1.59	0.00500	1	Compiles
IEEE 802.11b (ANT b)	2412	13.72	23.55	13±1	2	1.59	0.00792	1	Compiles
	2442	13.85	24.27	13±1	2	1.59	0.00792	1	Compiles
	2472	13.16	20.70	13±1	2	1.59	0.00792	1	Compiles
IEEE 802.11g (ANT b)	2412	8.81	7.60	9±1	2	1.59	0.00315	1	Compiles
	2442	9.12	8.17	9±1	2	1.59	0.00315	1	Compiles
	2472	8.46	7.01	9±1	2	1.59	0.00315	1	Compiles
IEEE 802.11n HT20 (ANT a)	2412	11.11	12.91	11±1	2	1.59	0.00500	1	Compiles
	2442	10.85	12.16	11±1	2	1.59	0.00500	1	Compiles
	2472	10.38	10.91	11±1	2	1.59	0.00500	1	Compiles
IEEE 802.11n HT20 (ANT b)	2412	8.63	7.30	9±1	2	1.59	0.00315	1	Compiles
	2442	8.83	7.64	9±1	2	1.59	0.00315	1	Compiles
	2472	8.76	7.52	9±1	2	1.59	0.00315	1	Compiles
IEEE 802.11n HT40 (ANT a)	2422	8.88	7.73	8±1	2	1.59	0.00251	1	Compiles
	2442	7.73	5.93	8±1	2	1.59	0.00251	1	Compiles
	2462	7.78	6.00	8±1	2	1.59	0.00251	1	Compiles
IEEE 802.11n HT40 (ANT a)	2422	6.71	4.69	7±1	2	1.59	0.00199	1	Compiles
	2442	6.43	4.40	7±1	2	1.59	0.00199	1	Compiles
	2462	6.60	4.57	7±1	2	1.59	0.00199	1	Compiles

Mode	Frequency (MHz)	Power Density (S) (mW /cm <sup>2</sup> )			Limited of Power Density (S) (mW /cm <sup>2</sup> )	Test Result
		ANT a	ANT b	Sum		
IEEE 802.11n HT20 (ANT ab)	2412	0.00500	0.00315	0.00815	1	Compiles
	2442	0.00500	0.00315	0.00815	1	Compiles
	2472	0.00500	0.00315	0.00815	1	Compiles
IEEE 802.11n HT40 (ANT ab)	2422	0.00251	0.00199	0.00450	1	Compiles
	2442	0.00251	0.00199	0.00450	1	Compiles
	2462	0.00251	0.00199	0.00450	1	Compiles