

## **FCC 47 CFR MPE REPORT**

**Shenyang Tongfang Multimedia Technology Co., Limited**  
**LED TV**

**Model Number: WD55UT4490**

**FCC ID: 2ACWIWD55UT4490**

Prepared for : Shenyang Tongfang Multimedia Technology Co., Limited  
No. 10 Nanping East Road HunNan New District Shenyang,  
LiaoNing Province P.R. China

Prepared By :EST Technology Co., Ltd.  
Santun(guantai Road), Houjie Town, DongGuan City,GuangDong,  
China.

Tel: 86-769-83081888-808

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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)			
Antenna a									
IEEE 802.11b	2412	18.86	76.91	18±1	1.8	1.51	0.02392	1	Compiles
	2437	19.15	82.22	19±1	1.8	1.51	0.03011	1	Compiles
	2462	18.92	77.98	18±1	1.8	1.51	0.02392	1	Compiles
IEEE 802.11g	2412	14.74	29.79	14±1	1.8	1.51	0.00952	1	Compiles
	2437	15.13	32.58	15±1	1.8	1.51	0.01199	1	Compiles
	2462	16.08	40.55	16±1	1.8	1.51	0.01509	1	Compiles
IEEE 802.11n HT20	2412	14.94	31.19	14±1	1.8	1.51	0.00952	1	Compiles
	2437	15.29	33.81	15±1	1.8	1.51	0.01199	1	Compiles
	2462	15.41	34.75	15±1	1.8	1.51	0.01199	1	Compiles
IEEE 802.11n HT40	2422	13.37	21.73	13±1	1.8	1.51	0.00756	1	Compiles
	2437	13.29	21.33	13±1	1.8	1.51	0.00756	1	Compiles
	2452	13.99	25.06	13±1	1.8	1.51	0.00756	1	Compiles
Antenna b									
IEEE 802.11b	2412	18.98	79.07	18±1	1.8	1.51	0.02392	1	Compiles
	2437	19.03	79.98	19±1	1.8	1.51	0.03011	1	Compiles
	2462	18.78	75.51	18±1	1.8	1.51	0.02392	1	Compiles
IEEE 802.11g	2412	14.53	28.38	14±1	1.8	1.51	0.00952	1	Compiles
	2437	14.84	30.48	14±1	1.8	1.51	0.00952	1	Compiles
	2462	15.13	32.58	15±1	1.8	1.51	0.01199	1	Compiles
IEEE 802.11n HT20	2412	14.58	28.71	14±1	1.8	1.51	0.00952	1	Compiles
	2437	15.16	32.81	15±1	1.8	1.51	0.01199	1	Compiles
	2462	15.40	34.67	15±1	1.8	1.51	0.01199	1	Compiles
IEEE 802.11n HT40	2422	13.47	22.23	13±1	1.8	1.51	0.00756	1	Compiles
	2437	14.19	26.24	13±1	1.8	1.51	0.00756	1	Compiles
	2452	13.11	20.46	13±1	1.8	1.51	0.00756	1	Compiles

Mode	Frequency (MHz)	Power (W)			Limited (W)	Test Result
		Ant		Total		
		a	b			
IEEE 802.11n HT20	2412	0.00952	0.00952	0.01904	1	Compiles
	2437	0.01199	0.01199	0.02398	1	Compiles
	2462	0.01199	0.01199	0.02398	1	Compiles
IEEE 802.11n HT40	2412	0.00756	0.00756	0.01512	1	Compiles
	2437	0.00756	0.00756	0.01512	1	Compiles
	2462	0.00756	0.00756	0.01512	1	Compiles