

FCC 47 CFR MPE REPORT

Chunghsin Technology Group CO., LTD

55 inch DLED SMART TV

Model Number: E4SFT5517

FCC ID: 2AE2W-5517

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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 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

2、 MPE Calculation Method

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

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

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

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、Conducted Power Result

3.1 Antenna 0

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	13.90	24.547	13±2	1.21	1.321
	2437	13.23	21.038	13±2	1.21	1.321
	2462	14.47	27.990	14±2	1.21	1.321
IEEE 802.11g	2412	10.12	10.280	10±2	1.21	1.321
	2437	9.83	9.616	9±2	1.21	1.321
	2462	10.72	11.803	10±2	1.21	1.321
IEEE 802.11n HT20	2412	10.13	10.304	10±2	1.21	1.321
	2437	10.20	10.471	10±2	1.21	1.321
	2462	10.74	11.858	10±2	1.21	1.321
IEEE 802.11n HT40	2422	8.03	6.353	8±2	1.21	1.321
	2437	8.39	6.902	8±2	1.21	1.321
	2452	8.32	6.792	8±2	1.21	1.321

3.2 Antenna 1

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	17.03	50.466	17±2	1.21	1.321
	2437	14.58	28.708	14±2	1.21	1.321
	2462	14.66	29.242	14±2	1.21	1.321
IEEE 802.11g	2412	14.00	25.119	14±2	1.21	1.321
	2437	10.98	12.531	10±2	1.21	1.321
	2462	10.79	11.995	10±2	1.21	1.321
IEEE 802.11n HT20	2412	12.85	19.275	12±2	1.21	1.321
	2437	10.45	11.092	10±2	1.21	1.321
	2462	10.53	11.298	10±2	1.21	1.321
IEEE 802.11n HT40	2422	10.00	10.000	10±2	1.21	1.321
	2437	7.90	6.166	7±2	1.21	1.321
	2452	9.04	8.017	9±2	1.21	1.321

4、 Calculated Result and Limit

4.1 Antenna 0

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm ²)	Limited of Power Density (S) (mW/cm ²)	Test Result
		(dBi)	(Linear)			
IEEE 802.11b	16	1.21	1.321	0.01046	1	Compiles
IEEE 802.11g	12	1.21	1.321	0.00417	1	Compiles
IEEE 802.11n HT20	12	1.21	1.321	0.00417	1	Compiles
IEEE 802.11n HT40	10	1.21	1.321	0.00263	1	Compiles

4.2 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)			
IEEE 802.11b	19	1.21	1.321	0.02088	1	Compiles
IEEE 802.11g	16	1.21	1.321	0.01046	1	Compiles
IEEE 802.11n HT20	14	1.21	1.321	0.00660	1	Compiles
IEEE 802.11n HT40	12	1.21	1.321	0.00417	1	Compiles

4.3 Antenna 0+1

Mode	Power Density (S) (mW/cm2) Antenna 0	Power Density (S) (mW/cm2) Antenna 1	Power Density (S) (mW/cm2) Total	Limited of Power Density (S) (mW/cm2)	Test Result
IEEE 802.11n HT20	0.00417	0.00660	0.01077	1	Compiles
IEEE 802.11n HT40	0.00263	0.00417	0.00680	1	Compiles