

## FCC 47 CFR MPE REPORT

Chunghsin Technology Group CO., LTD

43 inch DLED SMART TV

Model Number: ELST4316S

FCC ID: 2AE2W-4316S

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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

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

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、Conducted Power Result**

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	17.37	54.576	17±2	2	1.585
	2437	17.19	52.360	17±2	2	1.585
	2462	17.71	59.020	17±2	2	1.585
IEEE 802.11g	2412	12.09	16.181	12±2	2	1.585
	2437	12.09	16.181	12±2	2	1.585
	2462	12.40	17.378	12±2	2	1.585
IEEE 802.11n HT20	2412	11.46	13.996	11±2	2	1.585
	2437	11.19	13.152	11±2	2	1.585
	2462	12.03	15.959	12±2	2	1.585
IEEE 802.11n HT40	2422	9.88	9.727	9±2	2	1.585
	2437	10.73	11.830	10±2	2	1.585
	2452	10.43	11.041	10±2	2	1.585

**4、 Calculated Result and Limit**

Mode	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						
IEEE 802.11b	19	2	1.585	<b>0.02505</b>	1	Compiles
IEEE 802.11g	14	2	1.585	<b>0.00792</b>	1	Compiles
IEEE 802.11n HT20	14	2	1.585	<b>0.00792</b>	1	Compiles
IEEE 802.11n HT40	12	2	1.585	<b>0.00500</b>	1	Compiles