

FCC 47 CFR MPE REPORT

Chunghsin Technology Group CO., LTD

43 inch DLED SMART TV

Model Number: ELST4316S

FCC ID: 2AE2W-4316S

Prepared for:	Chunghsin Technology Group CO., LTD
	NO. 618-2 GONGREN WEST ROAD, JIAOJIANG AREA,
	TAIZHOU, ZHEJIANG, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R1801073
Date of Test:	Jan. 12~23, 2018
Date of Report:	Jan. 25, 2018

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

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 /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
IEEE 802.11b	19	2	1.585	0.02505	1	Compiles
IEEE 802.11g	14	2	1.585	0.00792	1	Compiles
IEEE 802.11n HT20	14	2	1.585	0.00792	1	Compiles
IEEE 802.11n HT40	12	2	1.585	0.00500	1	Compiles