FCC 47 CFR MPE REPORT

Chunghsin Technology Group CO.,LTD

43 inch DLED SMART TV

Model Number: ELST4316S

FCC ID: 2AE2W-ELST4316S

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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/cm2)	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/cm2)	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.o	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

2、MPE Calculation Method

E (V/m) = (30*P*G) 0.5/d Power Density: Pd (W/m2) = E2/377

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*P*G) / (377*d2)

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 a

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power（dBm）	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.16	41.305	16±2	1.21	1.321
	2437	16.01	39.902	16±2	1.21	1.321
	2462	14.23	26.485	14±2	1.21	1.321
IEEE 802.11g	2412	11.47	14.028	11±2	1.21	1.321
	2437	11.88	15.417	11±2	1.21	1.321
	2462	10.51	11.246	10±2	1.21	1.321
IEEE 802.11n HT20	2412	12.12	16.293	12±2	1.21	1.321
	2437	11.50	14.125	11±2	1.21	1.321
	2462	9.10	8.128	9±2	1.21	1.321
IEEE 802.11n HT40	2422	9.05	8.035	9±2	1.21	1.321
	2437	10.14	10.328	10±2	1.21	1.321
	2452	7.96	6.252	7±2	1.21	1.321

3.2 Antenna b

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power（dBm）	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.27	42.364	16±2	1.21	1.321
	2437	16.43	43.954	16±2	1.21	1.321
	2462	15.36	34.356	15±2	1.21	1.321
IEEE 802.11g	2412	12.43	17.498	12±2	1.21	1.321
	2437	13.42	21.979	13±2	1.21	1.321
	2462	10.31	10.740	10±2	1.21	1.321
IEEE 802.11n HT20	2412	13.14	20.606	13±2	1.21	1.321
	2437	12.25	16.788	12±2	1.21	1.321
	2462	9.62	9.162	9±2	1.21	1.321
IEEE 802.11n HT40	2422	10.61	11.508	10±2	1.21	1.321
	2437	10.54	11.324	10±2	1.21	1.321
	2452	8.83	7.638	8±2	1.21	1.321

4、Calculated Result and Limit

4.1 Antenna a

Mode	Target power（dBm）	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
		(dBi)	(Linear)			
IEEE 802.11b	18	1.21	1.321	0.01659	1	Compiles
IEEE 802.11g	13	1.21	1.321	0.00524	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

4.2 Antenna b

Mode	Target power（dBm）	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
		(dBi)	(Linear)			
IEEE 802.11b	18	1.21	1.321	0.01659	1	Compiles
IEEE 802.11g	15	1.21	1.321	0.00831	1	Compiles
IEEE 802.11n HT20	15	1.21	1.321	0.00831	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	0.00660	0.00831	0.01491	1	Compiles
IEEE 802.11n HT40	0.00417	0.00417	0.00834	1	Compiles