FCC 47 CFR MPE REPORT

Sceptre Inc.

LED TV

Model Number: D32

Additional Model: A32, A320BV-SRC, A321BV-SRC, A322BV-SRC,

A323BV-SRC, A324BV-SRC, A325BV-SRC, A326BV-SRC,

A327BV-SRC, A328BV-SRC, A329BV-SRC

FCC ID: 2AGEED32

Prepared for:	Sceptre Inc.
	16800 E. Gale Avenue, City of Industry, CA 91745, USA
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

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Maximum Permissible Exposure

1. Applicable Standards

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.

1.1. Limits for Maximum Permissible Exposure (MPE)

(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 $\mid E \mid^2$, $\mid H \mid^2$ 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 $\mid E \mid^2$, $\mid H \mid^2$ 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

1.2. MPE Calculation Method

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

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

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

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

2. Conducted Power Result

Antenna 1

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	15.66	36.813	15±2	2	1.585
	2437	15.51	35.563	15±2	2	1.585
	2462	15.17	32.885	15±2	2	1.585
IEEE 802.11g	2412	19.26	84.333	19±2	2	1.585
	2437	19.16	82.414	19±2	2	1.585
	2462	19.07	80.724	19±2	2	1.585
IEEE 802.11n HT20	2412	19.08	80.910	19±2	2	1.585
	2437	18.34	68.234	18±2	2	1.585
	2462	17.91	61.802	17±2	2	1.585
IEEE 802.11n HT40	2422	18.97	78.886	18±2	2	1.585
	2437	18.37	68.707	18±2	2	1.585
	2452	18.52	71.121	18±2	2	1.585

Antenna 2

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.24	42.073	16±2	2	1.585
	2437	15.35	34.277	15±2	2	1.585
	2462	15.31	33.963	15±2	2	1.585
IEEE 802.11g	2412	20.07	101.625	20±2	2	1.585
	2437	18.97	78.886	18±2	2	1.585
	2462	18.98	79.068	18±2	2	1.585
IEEE 802.11n HT20	2412	19.43	87.700	19±2	2	1.585
	2437	18.56	71.779	18±2	2	1.585
	2462	18.60	72.444	18±2	2	1.585
IEEE 802.11n HT40	2422	19.52	89.536	19±2	2	1.585
	2437	18.31	67.764	18±2	2	1.585
	2452	18.33	68.077	18±2	2	1.585

Antenna 3

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain (dBi)	(Linear)
BT GFSK	2402	3.69	2.339	3±2	2	1.585
	2441	3.59	2.286	3±2	2	1.585
	2480	2.44	1.754	2±2	2	1.585
BT 8-DPSK	2402	6.31	4.276	6±2	2	1.585
	2441	6.19	4.159	6±2	2	1.585
	2480	5.04	3.192	5±2	2	1.585
BLE 1Mbps	2402	-0.97	0.800	0±2	2	1.585
	2440	-1.19	0.760	-1±2	2	1.585
	2480	-2.23	0.598	-2±2	2	1.585
BLE 2Mbps	2402	-1.21	0.756	-1±2	2	1.585
	2440	-1.52	0.705	-1±2	2	1.585
	2480	-2.25	0.596	-2±2	2	1.585

3. Calculated Result and Limit

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)			
2.4G Band						
IEEE 802.11b	17	2	1.585	0.01580	1	Compiles
IEEE 802.11g	21	2	1.585	0.03969	1	Compiles
IEEE 802.11n HT20	21	2	1.585	0.03969	1	Compiles
IEEE 802.11n HT40	20	2	1.585	0.03153	1	Compiles

Antenna 2

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm^2)	Limited of Power Density (S) (mW/cm^2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
IEEE 802.11b	18	2	1.585	0.01989	1	Compiles
IEEE 802.11g	22	2	1.585	0.04997	1	Compiles
IEEE 802.11n HT20	21	2	1.585	0.03969	1	Compiles
IEEE 802.11n HT40	21	2	1.585	0.03969	1	Compiles

Antenna 1+2

Mode	Directional AntennaGain (Numeric)	Peak Output Power (mW)	Power Density (S)(mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
IEEE 802.11n HT20	3.17 （5.01dBi）	168.6	0.1064	1	Compiles
IEEE 802.11n HT40	3.17 （5.01dBi）	168.4	0.1063	1	Compiles

Antenna 3

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm^2)	Limited of Power Density (S) (mW/cm^2)	Test Result
		(dBi)	(Linear)			
BT & BLE						
GFSK	5	2	1.585	0.00100	1	Compiles
8-DPSK	8	2	1.585	0.00199	1	Compiles
BLE 1Mbps	2	2	1.585	0.00050	1	Compiles
BLE 2Mbps	1	2	1.585	0.00040	1	Compiles

Note: 2.4G Band Wi-Fi uses antenna 1 and antenna 2, BT and BLE use antenna 3.

End of Test Report