

FCC 47 CFR MPE REPORT

Sceptre Inc.

LED TV

Model Number: G65

Additional Model: A65, A650CV-UMC, A651CV-UMC, A652CV-UMC, A653CV-UMC, A654CV-UMC, A655CV-UMC, A656CV-UMC, A657CV-UMC, A658CV-UMC, A659CV-UMC, A550CV-UMC, G55, A55, A551CV-UMC, A552CV-UMC, A553CV-UMC, A554CV-UMC, A555CV-UMC, A556CV-UMC, A557CV-UMC, A558CV-UMC, A559CV-UMC, G50, A50, A510CV-UMC, A511CV-UMC, A512CV-UMC, A513CV-UMC, A514CV-UMC, A515CV-UMC, A516CV-UMC, A517CV-UMC, A518CV-UMC, A519CV-UMC

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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 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

1.2. MPE Calculation Method

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

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)
GFSK	2402	2.73	1.87500	2 ± 1	3.6	2.29086
	2441	3.11	2.04644	3 ± 1	3.6	2.29086
	2480	2.42	1.74582	2 ± 1	3.6	2.29086
8-DPSK	2402	5.9	3.89045	5 ± 1	3.6	2.29086
	2441	5.53	3.57273	5 ± 1	3.6	2.29086
	2480	4.7	2.95121	4 ± 1	3.6	2.29086
BLE GFSK	2402	-0.54	0.88308	0 ± 1	3.6	2.29086
	2440	-1.23	0.75336	-1 ± 1	3.6	2.29086
	2480	-2.65	0.54325	-2 ± 1	3.6	2.29086
BLE GFSK 2M	2402	-0.56	0.87902	0 ± 1	3.6	2.29086
	2440	-1.24	0.75162	-1 ± 1	3.6	2.29086
	2480	-2.63	0.54576	-2 ± 1	3.6	2.29086
IEEE 802.11b	2412	15.42	34.83373	15 ± 1	3.2	2.08930
	2437	14.89	30.83188	14 ± 1	3.2	2.08930
	2462	15.39	34.59394	15 ± 1	3.2	2.08930
IEEE 802.11g	2412	18.49	70.63176	18 ± 1	3.2	2.08930
	2437	18.02	63.38697	18 ± 1	3.2	2.08930
	2462	18.49	70.63176	18 ± 1	3.2	2.08930
IEEE 802.11n HT20 (2.4G)	2412	17.85	60.95369	17 ± 1	3.2	2.08930
	2437	17.47	55.84702	17 ± 1	3.2	2.08930
	2462	18.04	63.67955	18 ± 1	3.2	2.08930
IEEE 802.11n HT40 (2.4G)	2422	17.89	61.51769	17 ± 1	3.2	2.08930
	2437	17.41	55.08077	17 ± 1	3.2	2.08930
	2452	17.25	53.08844	17 ± 1	3.2	2.08930
IEEE 802.11a	5180	13.36	21.67704	13 ± 1	3.2	2.08930
	5200	13.17	20.74914	13 ± 1	3.2	2.08930
	5240	11.91	15.52387	11 ± 1	3.2	2.08930
	5260	13.22	20.98940	13 ± 1	3.2	2.08930
	5300	13.03	20.09093	13 ± 1	3.2	2.08930
	5320	12.69	18.57804	12 ± 1	3.2	2.08930
	5500	13.18	20.79697	13 ± 1	3.2	2.08930

	5580	14.62	28.97344	14 ± 1	3.2	2.08930
	5700	11.96	15.70363	11 ± 1	3.2	2.08930
	5745	10.92	12.35947	10 ± 1	3.2	2.08930
	5785	11.98	15.77611	11 ± 1	3.2	2.08930
	5825	12.04	15.99558	12 ± 1	3.2	2.08930

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11n HT20 (5G)	5180	10.20	10.47129	10 ± 1	3.2	2.08930
	5200	10.03	10.06932	10 ± 1	3.2	2.08930
	5240	8.68	7.379042	8 ± 1	3.2	2.08930
	5260	10.17	10.3992	10 ± 1	3.2	2.08930
	5300	9.83	9.616123	9 ± 1	3.2	2.08930
	5320	9.51	8.933055	9 ± 1	3.2	2.08930
	5500	9.89	9.749896	9 ± 1	3.2	2.08930
	5580	11.39	13.77209	11 ± 1	3.2	2.08930
	5700	8.64	7.311391	8 ± 1	3.2	2.08930
	5745	7.65	5.821032	7 ± 1	3.2	2.08930
	5785	8.78	7.550922	8 ± 1	3.2	2.08930
	5825	8.84	7.655966	8 ± 1	3.2	2.08930
IEEE 802.11ac VHT20	5180	10.04	10.09253	10 ± 1	3.2	2.08930
	5200	9.89	9.749896	9 ± 1	3.2	2.08930
	5240	8.62	7.277798	8 ± 1	3.2	2.08930
	5260	10.01	10.02305	10 ± 1	3.2	2.08930
	5300	9.73	9.397233	9 ± 1	3.2	2.08930
	5320	9.41	8.729714	9 ± 1	3.2	2.08930
	5500	9.73	9.397233	9 ± 1	3.2	2.08930
	5580	11.40	13.80384	11 ± 1	3.2	2.08930
	5700	8.63	7.294575	8 ± 1	3.2	2.08930
	5745	7.58	5.72796	7 ± 1	3.2	2.08930
	5785	8.63	7.294575	8 ± 1	3.2	2.08930
	5825	8.66	7.345139	8 ± 1	3.2	2.08930

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11n HT40 (5G)	5190	12.41	17.41807	12 ± 1	3.2	2.08930
	5230	10.89	12.27439	10 ± 1	3.2	2.08930
	5270	12.49	17.74189	12 ± 1	3.2	2.08930
	5310	12.03	15.95879	12 ± 1	3.2	2.08930
	5510	12.03	15.95879	12 ± 1	3.2	2.08930
	5670	11.55	14.28894	12 ± 1	3.2	2.08930
	5755	10.36	10.86426	10 ± 1	3.2	2.08930
	5795	10.75	11.88502	10 ± 1	3.2	2.08930
IEEE 802.11ac VHT40	5190	12.24	16.74943	12 ± 1	3.2	2.08930
	5230	10.75	11.88502	10 ± 1	3.2	2.08930
	5270	12.36	17.21869	12 ± 1	3.2	2.08930
	5310	11.74	14.92794	11 ± 1	3.2	2.08930
	5510	11.81	15.1705	11 ± 1	3.2	2.08930
	5670	11.44	13.93157	11 ± 1	3.2	2.08930
	5755	10.02	10.04616	10 ± 1	3.2	2.08930
	5795	10.62	11.53453	10 ± 1	3.2	2.08930
IEEE 802.11ac VHT80	5210	10.76	11.91242	10 ± 1	3.2	2.08930
	5290	11.86	15.34617	11 ± 1	3.2	2.08930
	5530	12.55	17.98871	12 ± 1	3.2	2.08930
	5610	11.37	13.70882	11 ± 1	3.2	2.08930
	5775	10.12	10.28016	10 ± 1	3.2	2.08930

Antenna 2

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	15.55	35.89219	15 ± 1	3.2	2.08930
	2437	15.00	31.62278	15 ± 1	3.2	2.08930
	2462	15.49	35.39973	15 ± 1	3.2	2.08930
IEEE 802.11g	2412	19.14	82.03515	19 ± 1	3.2	2.08930
	2437	19.08	80.90959	19 ± 1	3.2	2.08930
	2462	19.71	93.54057	19 ± 1	3.2	2.08930
IEEE 802.11n HT20 (2.4G)	2412	18.20	66.06934	18 ± 1	3.2	2.08930
	2437	18.15	65.31306	18 ± 1	3.2	2.08930
	2462	18.65	73.28245	18 ± 1	3.2	2.08930
IEEE 802.11n HT40 (2.4G)	2422	18.19	65.91739	18 ± 1	3.2	2.08930
	2437	17.98	62.80584	18 ± 1	3.2	2.08930
	2452	18.03	63.53309	18 ± 1	3.2	2.08930
IEEE 802.11a	5180	12.20	16.59587	12 ± 1	3.2	2.08930
	5200	11.82	15.20548	11 ± 1	3.2	2.08930
	5240	11.89	15.45254	11 ± 1	3.2	2.08930
	5260	12.92	19.58845	12 ± 1	3.2	2.08930
	5300	12.15	16.4059	12 ± 1	3.2	2.08930
	5320	11.99	15.81248	12 ± 1	3.2	2.08930
	5500	13.82	24.09905	13 ± 1	3.2	2.08930
	5580	13.89	24.49063	13 ± 1	3.2	2.08930
	5700	11.21	13.21296	11 ± 1	3.2	2.08930
	5745	10.97	12.50259	10 ± 1	3.2	2.08930
	5785	11.76	14.99685	11 ± 1	3.2	2.08930
	5825	11.53	14.22329	11 ± 1	3.2	2.08930

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11n HT20 (5G)	5180	11.36	13.67729	11 ± 1	3.2	2.08930
	5200	11.09	12.85287	11 ± 1	3.2	2.08930
	5240	10.96	12.47384	10 ± 1	3.2	2.08930
	5260	12.13	16.33052	12 ± 1	3.2	2.08930
	5300	11.25	13.33521	11 ± 1	3.2	2.08930
	5320	11.14	13.0017	11 ± 1	3.2	2.08930
	5500	13.10	20.41738	13 ± 1	3.2	2.08930
	5580	12.99	19.90673	13 ± 1	3.2	2.08930
	5700	10.37	10.8893	10 ± 1	3.2	2.08930
	5745	10.12	10.28016	10 ± 1	3.2	2.08930
	5785	10.85	12.16186	10 ± 1	3.2	2.08930
	5825	10.66	11.64126	10 ± 1	3.2	2.08930
IEEE 802.11ac VHT20	5180	10.94	12.41652	10 ± 1	3.2	2.08930
	5200	10.75	11.88502	10 ± 1	3.2	2.08930
	5240	10.68	11.69499	10 ± 1	3.2	2.08930
	5260	11.81	15.1705	11 ± 1	3.2	2.08930
	5300	10.95	12.44515	10 ± 1	3.2	2.08930
	5320	10.86	12.1899	10 ± 1	3.2	2.08930
	5500	12.69	18.57804	12 ± 1	3.2	2.08930
	5580	12.70	18.62087	12 ± 1	3.2	2.08930
	5700	10.00	10	10 ± 1	3.2	2.08930
	5745	10.14	10.32761	10 ± 1	3.2	2.08930
	5785	10.98	12.53141	10 ± 1	3.2	2.08930
	5825	10.81	12.05036	10 ± 1	3.2	2.08930

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11n HT40 (5G)	5190	10.95	12.44515	10 ± 1	3.2	2.08930
	5230	10.60	11.48154	10 ± 1	3.2	2.08930
	5270	11.68	14.72313	11 ± 1	3.2	2.08930
	5310	10.90	12.30269	10 ± 1	3.2	2.08930
	5510	12.48	17.70109	12 ± 1	3.2	2.08930
	5670	11.39	13.77209	11 ± 1	3.2	2.08930
	5755	10.08	10.18591	10 ± 1	3.2	2.08930
	5795	10.50	11.22018	10 ± 1	3.2	2.08930
IEEE 802.11ac VHT40	5190	10.63	11.56112	10 ± 1	3.2	2.08930
	5230	10.41	10.99006	10 ± 1	3.2	2.08930
	5270	11.49	14.09289	11 ± 1	3.2	2.08930
	5310	10.66	11.64126	10 ± 1	3.2	2.08930
	5510	12.32	17.06082	12 ± 1	3.2	2.08930
	5670	11.08	12.82331	11 ± 1	3.2	2.08930
	5755	9.86	9.682779	9 ± 1	3.2	2.08930
	5795	10.17	10.3992	10 ± 1	3.2	2.08930
IEEE 802.11ac VHT80	5210	10.22	10.51962	10 ± 1	3.2	2.08930
	5290	10.76	11.91242	10 ± 1	3.2	2.08930
	5610	11.64	14.58814	11 ± 1	3.2	2.08930
	5530	10.41	10.99006	10 ± 1	3.2	2.08930
	5775	9.88	9.727472	9 ± 1	3.2	2.08930

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						
GFSK	4	3.6	2.29086	0.00114	1	Compiles
8-DPSK	6	3.6	2.29086	0.00181	1	Compiles
BLE GFSK	1	3.6	2.29086	0.00057	1	
BLE GFSK 2M	1	3.6	2.29086	0.00057	1	Compiles
IEEE 802.11b	16	3.2	2.08930	0.01655	1	Compiles
IEEE 802.11g	19	3.2	2.08930	0.03302	1	Compiles
IEEE 802.11n HT20	19	3.2	2.08930	0.03302	1	Compiles
IEEE 802.11n HT40	18	3.2	2.08930	0.02623	1	Compiles
5G Band						
IEEE 802.11a	14	3.2	2.08930	0.01044	1	Compiles
IEEE 802.11n HT20	12	3.2	2.08930	0.00659	1	Compiles
IEEE 802.11ac VHT20	12	3.2	2.08930	0.00659	1	Compiles
IEEE 802.11n HT40	13	3.2	2.08930	0.00829	1	Compiles
IEEE 802.11ac VHT40	13	3.2	2.08930	0.00829	1	Compiles
IEEE 802.11ac VHT80	13	3.2	2.08930	0.00829	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	16	3.2	2.08930	0.01655	1	Compiles
IEEE 802.11g	20	3.2	2.08930	0.04157	1	Compiles
IEEE 802.11n HT20	19	3.2	2.08930	0.03302	1	Compiles
IEEE 802.11n HT40	19	3.2	2.08930	0.03302	1	Compiles
5G Band						
IEEE 802.11a	14	3.2	2.08930	0.01044	1	Compiles
IEEE 802.11n HT20	14	3.2	2.08930	0.01044	1	Compiles
IEEE 802.11ac VHT20	13	3.2	2.08930	0.00829	1	Compiles
IEEE 802.11n HT40	13	3.2	2.08930	0.00829	1	Compiles
IEEE 802.11ac VHT40	13	3.2	2.08930	0.00829	1	Compiles
IEEE 802.11ac VHT80	12	3.2	2.08930	0.00659	1	Compiles

Antenna 1+2

Mode	Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	4.178 (6.21dBi)	158.9	0.13208	1	Compiles
IEEE 802.11n HT40	4.178 (6.21dBi)	142.5	0.11845	1	Compiles
5G Band					
IEEE 802.11n HT20	4.178 (6.21dBi)	41.0	0.03408	1	Compiles
IEEE 802.11ac VHT20	4.178 (6.21dBi)	35.8	0.02976	1	Compiles
IEEE 802.11n HT40	4.178 (6.21dBi)	39.9	0.03317	1	Compiles
IEEE 802.11ac VHT40	4.178 (6.21dBi)	39.9	0.03317	1	Compiles
IEEE 802.11ac VHT80	4.178 (6.21dBi)	35.8	0.02976	1	Compiles

Note: 2.4 and 5GHz bands are share an antenna, Can't both the 2.4 and 5 GHz bands operate simultaneously.

End of Test Report