



FCC 47 CFR MPE REPORT

KONKA GROUP CO., LTD.

32" HD SMART TV

Model Number: 32RR683TC

Additional Model: TC-LE32K-AN2401

FCC ID: 2AQX732RR683UN00

Applicant:	KONKA GROUP CO., LTD.
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Report Number:	ESTE-R2403113
Date of Test:	Feb. 28, 2024~ Mar. 14, 2024
Date of Report:	Mar. 18, 2024

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, $d=0.2\text{m}$, as well as the gain of the used antenna, the RF power density can be obtained

2. Conducted Power Result

Mode	Frequency (MHz)	Antenna	Peak output power (dBm)	Peak output power (mW)
GFSK	2402	ant 1	5.6	3.631
	2441	ant 1	6.19	4.159
	2480	ant 1	6.23	4.198
π/4-DQPSK	2402	ant 1	8.67	7.362
	2441	ant 1	8.65	7.328
	2480	ant 1	8.67	7.362
8-DPSK	2402	ant 1	9.21	8.337
	2441	ant 1	9.14	8.204
	2480	ant 1	9.27	8.453
BLE 1M	2402	ant 1	5.45	3.508
	2440	ant 1	5.45	3.508
	2480	ant 1	5.56	3.597
BLE 2M	2402	ant 1	5.58	3.614
	2440	ant 1	5.66	3.681
	2480	ant 1	5.74	3.750
IEEE 802.11b	2412	ant 1	13.29	21.330
		ant 2	11.6	14.454
	2437	ant 1	12.48	17.701
		ant 2	10.53	11.298
	2462	ant 1	11.82	15.205
		ant 2	10.81	12.050
IEEE 802.11g	2412	ant 1	15.84	38.371
		ant 2	15.05	31.989
	2437	ant 1	14.91	30.974
		ant 2	14.36	27.290
	2462	ant 1	14.44	27.797
		ant 2	13.72	23.550
IEEE 802.11n HT20	2412	ant 1	15.21	33.189
		ant 2	13.75	23.714
	2437	ant 1	13.99	25.061
		ant 2	12.74	18.793
	2462	ant 1	13.32	21.478
		ant 2	13.02	20.045

IEEE 802.11n HT40	2422	ant 1	15.04	31.915
		ant 2	14.11	25.763
	2437	ant 1	14.42	27.669
		ant 2	13.33	21.528
	2452	ant 1	14.01	25.177
		ant 2	13.14	20.606
IEEE 802.11a	5180	ant 1	13.32	21.478
		ant 2	13.77	23.823
	5200	ant 1	13.77	23.823
		ant 2	13.59	22.856
	5240	ant 1	14.37	27.353
		ant 2	14.43	27.733
	5260	ant 1	14.52	28.314
		ant 2	14.27	26.730
	5300	ant 1	15.54	35.810
		ant 2	14.69	29.444
	5320	ant 1	15.3	33.884
		ant 2	14.79	30.130
	5500	ant 1	14.16	26.062
		ant 2	13.5	22.387
	5580	ant 1	16.51	44.771
		ant 2	14.5	28.184
	5700	ant 1	14.57	28.642
		ant 2	17.28	53.456
	5745	ant 1	14.36	27.290
		ant 2	16.24	42.073
	5785	ant 1	14.63	29.040
		ant 2	15	31.623
	5825	ant 1	16.05	40.272
		ant 2	13.96	24.889
IEEE 802.11n20	5180	ant 1	11.03	12.677
		ant 2	11.19	13.152
	5200	ant 1	10.7	11.749
		ant 2	11.22	13.243
	5240	ant 1	11.54	14.256
		ant 2	11.27	13.397
5260	ant 1	11.9	15.488	
	ant 2	11.22	13.243	

	5300	ant 1	12.78	18.967
		ant 2	11.94	15.631
	5320	ant 1	12.75	18.836
		ant 2	12.13	16.331
	5500	ant 1	11.28	13.428
		ant 2	10.79	11.995
	5580	ant 1	14.02	25.235
		ant 2	11.71	14.825
	5700	ant 1	11.84	15.276
		ant 2	14.16	26.062
	5745	ant 1	11.79	15.101
		ant 2	13.21	20.941
	5785	ant 1	12.41	17.418
		ant 2	12.17	16.482
	5825	ant 1	12.97	19.815
		ant 2	11.53	14.223
IEEE 802.11ac VHT20	5180	ant 1	11.32	13.552
		ant 2	11.49	14.093
	5200	ant 1	11.28	13.428
		ant 2	11.32	13.552
	5240	ant 1	11.85	15.311
		ant 2	12.26	16.827
	5260	ant 1	13.79	23.933
		ant 2	10.84	12.134
	5300	ant 1	13.84	24.210
		ant 2	11.31	13.521
	5320	ant 1	13.67	23.281
		ant 2	11.81	15.171
	5500	ant 1	12.33	17.100
		ant 2	9.75	9.441
	5580	ant 1	14.17	26.122
		ant 2	12.76	18.880
	5700	ant 1	15.14	32.659
		ant 2	11.14	13.002
5745	ant 1	14.31	26.977	
	ant 2	10.57	11.402	
5785	ant 1	13.31	21.429	
	ant 2	10.49	11.194	

	5825	ant 1	12.78	18.967
		ant 2	11.64	14.588
IEEE 802.11n HT40	5190	ant 1	11.19	13.152
		ant 2	11.62	14.521
	5230	ant 1	11.71	14.825
		ant 2	11.89	15.453
	5270	ant 1	12.97	19.815
		ant 2	13.18	20.797
	5310	ant 1	13.45	22.131
		ant 2	12.6	18.197
	5510	ant 1	12.45	17.579
		ant 2	12.04	15.996
	5550	ant 1	14.58	28.708
		ant 2	12.38	17.298
	5670	ant 1	13.04	20.137
		ant 2	14.69	29.444
	5755	ant 1	12.81	19.099
		ant 2	14.15	26.002
5795	ant 1	13.45	22.131	
	ant 2	12.94	19.679	
IEEE 802.11ac VHT40	5190	ant 1	12.54	17.947
		ant 2	10.97	12.503
	5230	ant 1	13.32	21.478
		ant 2	10.83	12.106
	5270	ant 1	13.62	23.014
		ant 2	10.77	11.940
	5310	ant 1	14.13	25.882
		ant 2	11.79	15.101
	5510	ant 1	12.81	19.099
		ant 2	10.49	11.194
	5590	ant 1	14.72	29.648
		ant 2	13.4	21.878
	5670	ant 1	15.68	36.983
		ant 2	13.03	20.091
	5755	ant 1	13.97	24.946
		ant 2	10.53	11.298
5795	ant 1	13.61	22.961	
	ant 2	11.09	12.853	



		ant 2	12.54	17.947
IEEE 802.11ac VHT80	5210	ant 1	13.17	20.749
		ant 2	11.41	13.836
	5290	ant 1	14.92	31.046
		ant 2	12.12	16.293
	5530	ant 1	14.52	28.314
		ant 2	12.02	15.922
	5610	ant 1	15.02	31.769
		ant 2	13.34	21.577
	5775	ant 1	14.91	30.974
		ant 2	12	15.849

3. Calculated Result and Limit

SISO

The Worst Mode	Antenna	Peak output power (dBm)	Target power (dBm)	MAX 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	ant 1	6.23	6±1	7	3.21	2.094	0.0021	1	Complies
π/4-DQPSK	ant 1	8.67	8 ±1	9	3.21	2.094	0.0033	1	Complies
8-DPSK	ant 1	9.27	9±1	10	3.21	2.094	0.0042	1	Complies
BLE1M	ant 1	5.56	5 ±1	6	3.21	2.094	0.0017	1	Complies
BLE2M	ant 1	5.74	5 ±1	6	3.21	2.094	0.0017	1	Complies
IEEE 802.11b	ant 1	13.29	13 ±1	14	3.89	2.449	0.0122	1	Complies
	ant 2	11.6	11 ±1	12	3.89	2.449	0.0077	1	Complies
IEEE 802.11g	ant 1	15.84	15 ±1	16	3.89	2.449	0.0194	1	Complies
	ant 2	15.05	15 ±1	16	3.89	2.449	0.0194	1	Complies
IEEE 802.11n HT20	ant 1	15.21	15 ±1	16	3.89	2.449	0.0194	1	Complies
	ant 2	13.75	13±1	14	3.89	2.449	0.0122	1	Complies
IEEE 802.11n HT40	ant 1	15.04	15 ±1	16	3.89	2.449	0.0194	1	Complies
	ant 2	14.11	14 ±1	15	3.89	2.449	0.0154	1	Complies
5G Band									
IEEE 802.11a	ant 1	16.51	16 ±1	17	3.39	2.1827	0.0218	1	Complies
	ant 2	17.28	17 ±1	18	3.39	2.1827	0.0274	1	Complies
IEEE 802.11n HT20	ant 1	14.02	14 ±1	15	3.39	2.1827	0.0137	1	Complies
	ant 2	14.16	14±1	15	3.39	2.1827	0.0137	1	Complies
IEEE802.11ac VHT20	ant 1	15.14	15 ±1	16	3.39	2.1827	0.0173	1	Complies
	ant 2	12.76	12 ±1	13	3.39	2.1827	0.0087	1	Complies
IEEE 802.11n HT40	ant 1	14.58	14 ±1	15	3.39	2.1827	0.0137	1	Complies
	ant 2	14.69	14 ±1	15	3.39	2.1827	0.0137	1	Complies
IEEE 802.11ac VHT40	ant 1	15.68	15 ±1	16	3.39	2.1827	0.0173	1	Complies
	ant 2	13.4	13 ±1	14	3.39	2.1827	0.0109	1	Complies
IEEE 802.11ac VHT80	ant 1	15.02	15 ±1	16	3.39	2.1827	0.0173	1	Complies
	ant 2	13.34	13 ±1	14	3.39	2.1827	0.0109	1	Complies

MIMO

Mode	Power Density (S) (mW/cm ²) Antenna 0	Power Density (S) (mW/cm ²) Antenna 1	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	0.0194	0.0122	0.0316	1	Complies
IEEE 802.11n HT40	0.0194	0.0154	0.0348	1	Complies
5G Band					
IEEE 802.11n HT20	0.0137	0.0137	0.0275	1	Complies
IEEE 802.11ac VHT20	0.0173	0.0087	0.0260	1	Complies
IEEE 802.11n HT40	0.0137	0.0137	0.0275	1	Complies
IEEE 802.11ac VHT40	0.0173	0.0109	0.0282	1	Complies
IEEE 802.11ac VHT80	0.0173	0.0109	0.0282	1	Complies

BT+Wi-Fi

MAX Power Density (S) (mW/cm ²) Bluetooth	MAX Power Density (S) (mW/cm ²) WiFi	Total Ratio	Limit Ratio	Test Result
0.0042	0.0348	0.0390	1	Complies

End of Test Report