

FCC 47 CFR MPE REPORT

Anhui Grizzly Vision Technology Co.,Ltd

50" ULTRA HD SMART TV(ATSC TUNER)

Model Number: RWOSU5049

Additional Model: RWOSU5047, RWOSBU5048, RWOSQU5050,

RHOWS507SM, RTU5015, RNSMU5036-B, RQSM5022,

RNSMU5021, RLDED5098-UHD

FCC ID: 2AXAQ-RCA-HX-50

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Report Number:	ESTE-R2109119
Date of Test:	Jul. 29~Sep. 07, 2021
Date of Report:	Sep. 09, 2021

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	Mode (MHz)	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)
0	GFSK 1M-BLE	2480	3.19	2.0845	3 ± 1
0	GFSK-2M-BLE	2480	3.22	2.0989	3 ± 1
0	GFSK-BT	2480	3.27	2.1232	3 ± 1
0	8-DPSK-BT	2480	6.20	4.1687	6 ± 1
1	IEEE 802.11b	2462	16.52	44.8745	16 ± 1
1	IEEE 802.11g	2462	20.19	104.4720	20 ± 1
1	IEEE 802.11n HT20(2.4G)	2462	18.51	70.9578	18 ± 1
1	IEEE 802.11n HT40(2.4G)	2452	19.00	79.4328	19 ± 1
1	IEEE 802.11a	5240	12.91	19.5434	12 ± 1
1	IEEE 802.11n HT20(5G)	5240	11.43	13.8995	11 ± 1
1	IEEE 802.11ac VHT20 (5G)	5240	11.31	13.5207	11 ± 1
1	IEEE 802.11n HT40(5G)	5230	11.64	14.5881	11 ± 1
1	IEEE 802.11acVHT40(5G)	5230	11.26	13.3660	11 ± 1
1	IEEE 802.11acVHT80(5G)	5210	10.16	10.3753	10 ± 1
2	IEEE 802.11b	2462	17.56	57.0164	17 ± 1
2	IEEE 802.11g	2462	21.55	142.8894	21 ± 1
2	IEEE 802.11n HT20(2.4G)	2462	20.55	113.5011	20 ± 1
2	IEEE 802.11n HT40(2.4G)	2437	20.76	119.1242	20 ± 1
2	IEEE 802.11a	5785	11.76	14.9968	11 ± 1
2	IEEE 802.11n HT20(5G)	5785	10.53	11.2980	10 ± 1
2	IEEE 802.11ac VHT20(5G)	5785	10.35	10.8393	10 ± 1
2	IEEE 802.11n HT40(5G)	5795	10.46	11.1173	10 ± 1
2	IEEE 802.11acVHT40(5G)	5795	9.94	9.8628	9 ± 1
2	IEEE 802.11acVHT80(5G)	5775	9.33	8.5704	9 ± 1

3. Calculated Result and Limit

Bluetooth Antenna 0

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						
BLE	4	2	1.585	0.0008	1	Complies
BT	7	2	1.585	0.0016	1	Complies

W-Fi 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	0.0158	1	Complies
IEEE 802.11g	21	2	1.585	0.0397	1	Complies
IEEE 802.11n HT20	19	2	1.585	0.0250	1	Complies
IEEE 802.11n HT40	20	2	1.585	0.0315	1	Complies
5G Band						
IEEE 802.11a	13	2	1.585	0.0063	1	Complies
IEEE 802.11n HT20	12	2	1.585	0.0050	1	Complies
IEEE 802.11ac VHT20	12	2	1.585	0.0050	1	Complies
IEEE 802.11n HT40	12	2	1.585	0.0050	1	Complies
IEEE 802.11ac VHT40	12	2	1.585	0.0050	1	Complies
IEEE 802.11ac VHT80	11	2	1.585	0.0040	1	Complies

Wi-Fi 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	0.0199	1	Complies
IEEE 802.11g	22	2	1.585	0.0500	1	Complies
IEEE 802.11n HT20	21	2	1.585	0.0397	1	Complies
IEEE 802.11n HT40	21	2	1.585	0.0397	1	Complies
5G Band						
IEEE 802.11a	12	2	1.585	0.0050	1	Complies
IEEE 802.11n HT20	11	2	1.585	0.0040	1	Complies
IEEE 802.11ac VHT20	11	2	1.585	0.0040	1	Complies
IEEE 802.11n HT40	11	2	1.585	0.0040	1	Complies
IEEE 802.11ac VHT40	10	2	1.585	0.0032	1	Complies
IEEE 802.11ac VHT80	10	2	1.585	0.0032	1	Complies

Wi-Fi Antenna 1+2

Mode	Power Density (S) (mW/cm ²) Antenna 1	Power Density (S) (mW/cm ²) Antenna 2	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	0.0250	0.0397	0.0647	1	Complies
IEEE 802.11n HT40	0.0315	0.0397	0.0712	1	Complies
5G Band					
IEEE 802.11n HT20	0.0050	0.0040	0.0090	1	Complies
IEEE 802.11ac VHT20	0.0050	0.0040	0.0090	1	Complies
IEEE 802.11n HT40	0.0050	0.0040	0.0090	1	Complies
IEEE 802.11ac VHT40	0.0050	0.0032	0.0082	1	Complies
IEEE 802.11ac VHT80	0.0040	0.0032	0.0072	1	Complies

Bluetooth+2.4G Wi-Fi+5G Wi-Fi

MAX Power Density (S) (mW/cm ²) Bluetooth	MAX Power Density (S) (mW/cm ²) 2.4G WiFi ANT1+ANT2	MAX Power Density (S) (mW/cm ²) 5G WiFi ANT1+ANT2	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
0.0016	0.0712	0.0090	0.0818	1	Complies

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