

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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|--------------------------|---|
| Prepared for: | Anhui Grizzly Vision Technology Co.,Ltd |
| | High-tech Industrial Park,High-tech Zone,Huainan,Anhui,China |
| | |
| 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 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

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

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

| 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