# FCC 47 CFR MPE REPORT

Nanjing CEC Panda Appliances CO.,Ltd Dongguan Sub-Company

LED TV

Model Number: E4SW6518

FCC ID: 2AMYA123-E4SW6518

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# Maximum Permissible Exposure

## 1、Applicable Standard

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.

**(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/cm2) | 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/cm2) | 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.o | 30 |

Note: f=frequency in MHz; *Plane-wave equivalent power density

## 2、MPE Calculation Method

E (V/m) = (30*P*G) 0.5/d  Power Density: Pd (W/m2) = E2/377

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 = (30*P*G) / (377*d2)

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

## 3、Conducted Power Result

3.1 Antenna 0

| Mode | Frequency (MHz) | Peak output power (dBm) | Peak output power (mW) | Target power（dBm） | Antenna gain | |
|---|---|---|---|---|---|---|
| | | | | | (dBi) | (Linear) |
| IEEE 802.11b | 2412 | 13.57 | 22.751 | 13±1 | 1.7957 | 1.512 |
| | 2437 | 13.62 | 23.014 | 13±1 | 1.7957 | 1.512 |
| | 2462 | 13.04 | 20.137 | 13±1 | 1.7957 | 1.512 |
| IEEE 802.11g | 2412 | 9.11 | 8.147 | 9±1 | 1.7957 | 1.512 |
| | 2437 | 9.30 | 8.511 | 9±1 | 1.7957 | 1.512 |
| | 2462 | 9.10 | 8.128 | 9±1 | 1.7957 | 1.512 |
| IEEE 802.11n HT20 | 2412 | 8.93 | 7.816 | 8±1 | 1.7957 | 1.512 |
| | 2437 | 8.99 | 7.925 | 8±1 | 1.7957 | 1.512 |
| | 2462 | 8.95 | 7.852 | 8±1 | 1.7957 | 1.512 |
| IEEE 802.11n HT40 | 2422 | 7.30 | 5.370 | 7±1 | 1.7957 | 1.512 |
| | 2437 | 7.44 | 5.546 | 7±1 | 1.7957 | 1.512 |
| | 2452 | 7.87 | 6.124 | 7±1 | 1.7957 | 1.512 |

3.2 Antenna 1

| Mode | Frequency (MHz) | Peak output power (dBm) | Peak output power (mW) | Target power（dBm） | Antenna gain | |
|---|---|---|---|---|---|---|
| | | | | | (dBi) | (Linear) |
| IEEE 802.11b | 2412 | 13.92 | 24.660 | 13±1 | 1.7957 | 1.512 |
| | 2437 | 14.14 | 25.942 | 14±1 | 1.7957 | 1.512 |
| | 2462 | 14.54 | 28.445 | 14±1 | 1.7957 | 1.512 |
| IEEE 802.11g | 2412 | 9.68 | 9.290 | 9±1 | 1.7957 | 1.512 |
| | 2437 | 9.98 | 9.954 | 9±1 | 1.7957 | 1.512 |
| | 2462 | 9.73 | 9.397 | 9±1 | 1.7957 | 1.512 |
| IEEE 802.11n HT20 | 2412 | 9.52 | 8.954 | 9±1 | 1.7957 | 1.512 |
| | 2437 | 9.86 | 9.683 | 9±1 | 1.7957 | 1.512 |
| | 2462 | 9.81 | 9.572 | 9±1 | 1.7957 | 1.512 |
| IEEE 802.11n HT40 | 2422 | 7.99 | 6.295 | 7±1 | 1.7957 | 1.512 |
| | 2437 | 8.09 | 6.442 | 8±1 | 1.7957 | 1.512 |
| | 2452 | 8.38 | 6.887 | 8±1 | 1.7957 | 1.512 |

## 4、Calculated Result and Limit

4.1 Antenna 0

| Mode | Target power（dBm） | Antenna gain | | Power Density (S) (mW /cm2) | Limited of Power Density (S) (mW /cm2) | Test Result |
|---|---|---|---|---|---|---|
| | | (dBi) | (Linear) | | | |
| Wi-Fi | | | | | | |
| IEEE 802.11b | 14 | 1.7957 | 1.512 | **0.00756** | 1 | Compiles |
| IEEE 802.11g | 10 | 1.7957 | 1.512 | **0.00301** | 1 | Compiles |
| IEEE 802.11n HT20 | 9 | 1.7957 | 1.512 | **0.00239** | 1 | Compiles |
| IEEE 802.11n HT40 | 8 | 1.7957 | 1.512 | **0.00190** | 1 | Compiles |

4.2 Antenna 1

| Mode | Target power（dBm） | Antenna gain | | Power Density (S) (mW /cm2) | Limited of Power Density (S) (mW /cm2) | Test Result |
|---|---|---|---|---|---|---|
| | | (dBi) | (Linear) | | | |
| Wi-Fi | | | | | | |
| IEEE 802.11b | 15 | 1.7957 | 1.512 | **0.00951** | 1 | Compiles |
| IEEE 802.11g | 10 | 1.7957 | 1.512 | **0.00301** | 1 | Compiles |
| IEEE 802.11n HT20 | 10 | 1.7957 | 1.512 | **0.00301** | 1 | Compiles |
| IEEE 802.11n HT40 | 9 | 1.7957 | 1.512 | **0.00239** | 1 | Compiles |

4.3 Antenna 0+1

| Mode | Power Density (S) (mW /cm2) Antenna 0 | Power Density (S) (mW /cm2) Antenna 1 | Power Density (S) (mW /cm2) Total | Limited of Power Density (S) (mW /cm2) | Test Result |
|---|---|---|---|---|---|
| Wi-Fi | | | | | |
| IEEE 802.11n HT20 | **0.00239** | **0.00301** | **0.00540** | 1 | Compiles |
| IEEE 802.11n HT40 | **0.00190** | **0.00239** | **0.00429** | 1 | Compiles |