



**Shenzhen General Testing & Inspection Technology Co., Ltd.**

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# FCC TEST REPORT

**Product name** .....: LED TV

**Trademark**.....: AMTC,RCA,JVC,HITACHI

**Model Name**.....: MSAV3260Y-16031

**Adding Model** .....: MSAV32\*\*Y-16031(\* can from 0 to 9,A to Z );RTR3261-CA,  
RTR3260-US,RTR3260-B-US,RTR3260-C-US,RTR3260-C-CA;  
LT-32MA388,LT-32MAB388,LT-32MAT388;32RC3

**Test Standards** .....: **FCC CFR Title 47 Part 15 Subpart B**

**FCC ID** .....: 2AHVH3216036

**Report no.** .....: GTI20181516F

**Applicant**.....: Shen Zhen MTC Co.,LTD

**Address of applicant** .....: MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan  
street,Longgang district, Shenzhen, China

**Date of Receipt**.....: Jul 16, 2018

**Date of Test Date**.....: Jul 16, 2018 to Jul 24, 2018

**Date of issue**.....: Jul 25, 2018

|                           |        |
|---------------------------|--------|
| <b>Test result</b> .....: | Pass * |
|---------------------------|--------|

\* In the configuration tested, the EUT complied with the standards specified above



The FCC mark as shown above can be used, under the responsibility of the manufacturer, all necessary steps have been enforced to assure that all production units of the same equipment will continue to comply with the Federal Communications Commission's requirements.

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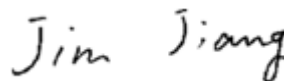


For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cncaic.cn](http://yz.cncaic.cn)

**GENERAL DESCRIPTION OF EUT**

|                      |                                                                                                                                                                                                                                                                         |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment            | LED TV                                                                                                                                                                                                                                                                  |
| Model Name           | MSAV3260Y-16031                                                                                                                                                                                                                                                         |
| Adding Model         | MSAV32**Y-16031(* can from 0 to 9,A to Z );RTR3261-CA, RTR3260-US,RTR3260-B-US,RTR3260-C-US,RTR3260-C-CA;LT-32MA388,LT-32MAB388,LT-32MAT388;32RC3                                                                                                                       |
| Model Difference     | Just different colors and trademarks, the other is the same                                                                                                                                                                                                             |
| Manufacturer         | Shen Zhen MTC Co.,LTD                                                                                                                                                                                                                                                   |
| Manufacturer Address | MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street,Longgang district, Shenzhen, China                                                                                                                                                               |
| Factory              | Shen Zhen MTC Co.,LTD                                                                                                                                                                                                                                                   |
| Factory Address      | MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street,Longgang district, Shenzhen, China                                                                                                                                                               |
| Product Description  | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as as both an ITE /Computing Device & a Sound and Television Broadcast Receiver. More details of EUT technical specification, please refer to the User's Manual. |
| Power Rating         | Input: AC100-240V, 50/60Hz , 48W                                                                                                                                                                                                                                        |

Compiled By:



(Jim Jiang)

Reviewed By:



(Totti Zhao)

Approved By:



(Walter Chen)

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## 1 TEST SUMMARY

Test procedures according to the technical standards:

| Test                        | Standard                         | Class   | Result | Remark |
|-----------------------------|----------------------------------|---------|--------|--------|
| Conducted Emission          | FCC Part 15<br>Section 15.107    | Class B | PASS   | ---    |
| Radiated Emission           | FCC Part 15<br>Section 15.109    | Class B | PASS   | ---    |
| Antenna Power<br>Conduction | FCC Part 15<br>Section 15.111    | Class B | PASS   | ---    |
| Picture Sensitivity         | FCC Part 15<br>Section 15.117(f) | Class B | PASS   | ---    |
| Noise figure                | FCC Part 15<br>Section 15.117(g) | Class B | PASS   | ---    |

### 1.1 TEST FACILITY

Shenzhen General Testing & Inspection Technology Co., Ltd.

Add. : 1-2F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

### IC Registration No.: 9783A

The 3m alternate test site of Shenzhen GTI Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

### FCC-Registration No.: 951311

Shenzhen GTI Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug 26, 2017

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

### A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U · (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| GTIC01    | ANSI   | 150 KHz ~ 30MHz             | 3.2      | /    |

### B. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | U · (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| GTIA01    | ANSI   | 30MHz ~ 1000MHz             | 4.7      | /    |
|           |        | 1GHz ~6GHz                  | 5.0      | /    |

## 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF TEST MODES

As the function of the EUT, test mode selected to test as below to conform this standard.

| test Mode | Description |
|-----------|-------------|
| Mode 1    | AV IN       |
| Mode 2    | HDMI        |
| Mode 3    | USB         |
| Mode 4    | NTSC        |
| Mode 5    | ATSC        |

Note:

Pre-scan above all test mode and voltage(120Vac/60Hz and 230Vac/50Hz), found below test mode and voltage which it was worse case mode.

| Test item                | Worse case operation Test mode | Worse case operation Test Voltage |
|--------------------------|--------------------------------|-----------------------------------|
| Conducted emission       | Mode 1/ Mode 2                 | 120V/60Hz                         |
| Radiated emission        | Mode 1/ Mode 2                 | 120V/60Hz                         |
| Antenna Power Conduction | Mode 4/ Mode 5                 | 120V/60Hz                         |
| Picture Sensitivity      | Mode 4                         | 120V/60Hz                         |
| Noise figure             | Mode 4                         | 120V/60Hz                         |

## 2.2 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment    | Mfr/Brand     | Model/Type No.  | Series No. | Note |
|------|--------------|---------------|-----------------|------------|------|
| E-1  | LED TV       | AMTC, RCA,JVC | MSAV3260Y-16031 | N/A        | EUT  |
| E-2  | PC           | HP            | P7-1035cn       | 4CV125C15J | AE   |
| E-3  | DVD          | GIEC          | GK-901          | N/A        | AE   |
| E-4  | TV Generator | DTV tool      | DTV             | N/A        | AE   |
| E-5  | Printer      | HP            | P1007           | VNFN584036 | AE   |
| E-6  | USB Disk     | Kingston      | DT101G2/8GB     | 253394     | AE   |

| Item | Shielded Type | Ferrite Core | Length | Note      |
|------|---------------|--------------|--------|-----------|
| C-1  | NO            | NO           | 120cm  | AC Line   |
| C-2  | NO            | NO           | 150cm  | AV Line   |
| C-3  | YES           | YES          | 150cm  | HDMI Line |
| C-4  | YES           | YES          | 150cm  | TV Line   |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

### 2.3 MEASUREMENT INSTRUMENTS EQUIPMENTS LIST

| Conducted Emission |                   |              |           |            |                  |
|--------------------|-------------------|--------------|-----------|------------|------------------|
| Item               | Test Equipment    | Manufacturer | Model No. | Serial No. | Calibrated until |
| 1                  | LISN              | R&S          | ENV216    | 101112     | Jan. 04, 2019    |
| 2                  | LISN              | R&S          | ENV216    | 101113     | Jan. 04, 2019    |
| 3                  | EMI Test Receiver | R&S          | ESCI      | 100920     | Jan. 04, 2019    |
| 4                  | ISN CAT6          | Schwarzbeck  | NTFM 8158 | 8158-0046  | Jan. 04, 2019    |

| Radiated Emission |                         |              |            |            |                  |
|-------------------|-------------------------|--------------|------------|------------|------------------|
| Item              | Test Equipment          | Manufacturer | Model No.  | Serial No. | Calibrated until |
| 1                 | Bilog Antenna           | Schwarzbeck  | CBL6141A   | 4180       | Jan. 04, 2019    |
| 2                 | Spectrum Analyzer       | R&S          | FSU26      | 100105     | Jan. 04, 2019    |
| 3                 | Horn Antenna            | Schwarzbeck  | BBHA 9120D | 647        | Jan. 04, 2019    |
| 4                 | Low Noise Pre-Amplifier | HP           | 8447D      | 1937A03050 | Jan. 04, 2019    |
| 5                 | Low Noise Pre-Amplifier | EMCI         | EMC051835  | 980075     | Jan. 04, 2019    |
| 6                 | Test Receiver           | R&S          | ESCI7      | 100967     | Jan. 04, 2019    |
| 7                 | Antenna Mast            | UC           | UC3000     | N/A        | N/A              |
| 8                 | Turn Table              | UC           | UC3000     | N/A        | N/A              |

| Antenna Power Conduction& Picture Sensitivity& Noise figure |                          |              |                      |            |                  |
|-------------------------------------------------------------|--------------------------|--------------|----------------------|------------|------------------|
| Item                                                        | Test Equipment           | Manufacturer | Model No.            | Serial No. | Calibrated until |
| 1                                                           | EMI Test Receiver        | R&S          | ESCI                 | 100920     | Jan. 04, 2019    |
| 2                                                           | Spectrum Analyzer        | R&S          | FSU26                | 100105     | Jan. 04, 2019    |
| 3                                                           | Digital signal generator | R&S          | SFC-U                | N/A        | Jan. 04, 2019    |
| 4                                                           | Analog signal generator  | PHILIPS      | YQ-70C-1052 (PM5418) | N/A        | Jan. 04, 2019    |

### 3 CONDUCTED EMISSION MEASUREMENT

#### 3.1 Limits of Conducted Emission

| FREQUENCY (MHz) | Class A (dBuV) |         | Class B (dBuV) |           |
|-----------------|----------------|---------|----------------|-----------|
|                 | Quasi-peak     | Average | Quasi-peak     | Average   |
| 0.15 -0.5       | 79.00          | 66.00   | 66 - 56 *      | 56 - 46 * |
| 0.50 -5.0       | 73.00          | 60.00   | 56.00          | 46.00     |
| 5.0 -30.0       | 73.00          | 60.00   | 60.00          | 50.00     |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

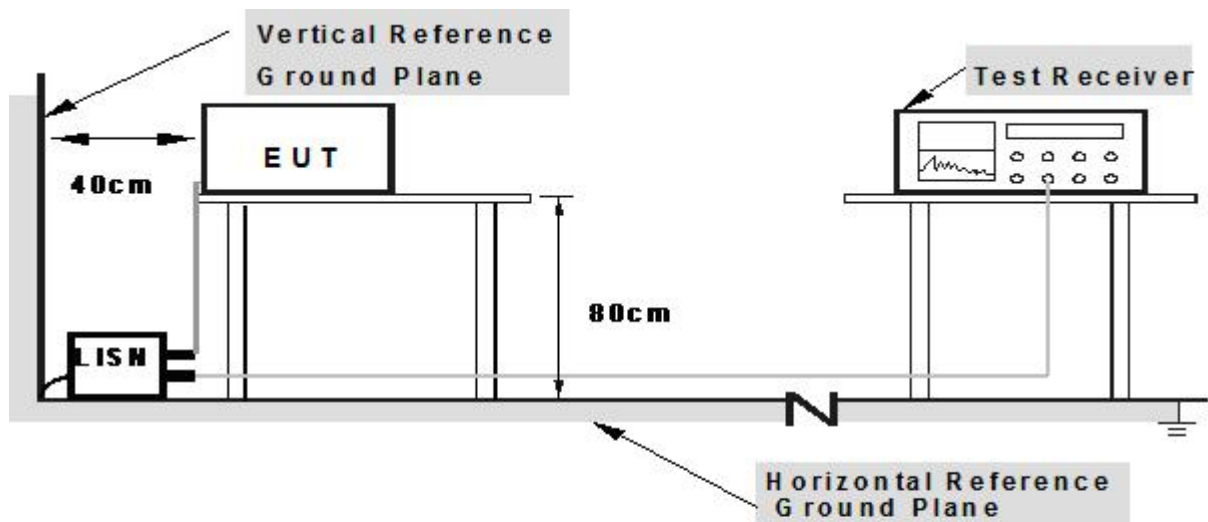
The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

### 3.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.3 TEST SETUP



**Note: 1.Support units were connected to second LISN.**

**2.Both of LISN s (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

### 3.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.



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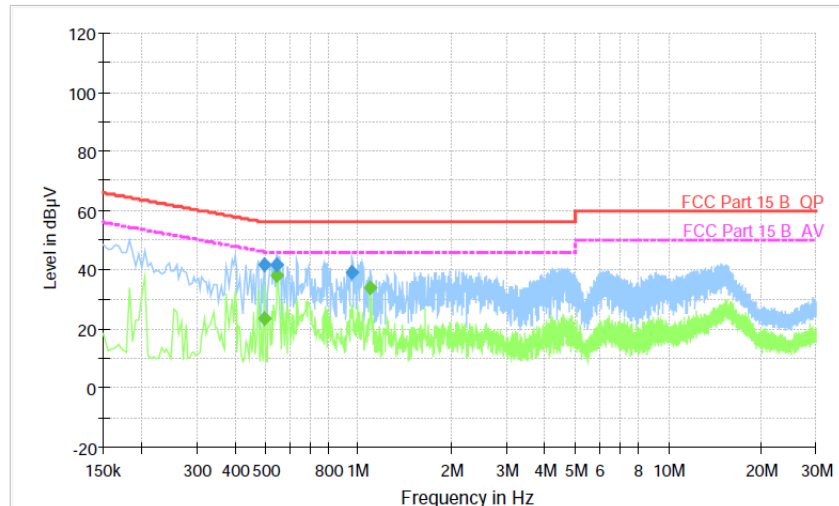
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### 3.5 TEST RESULTS

|               |              |                     |        |
|---------------|--------------|---------------------|--------|
| Temperature : | 23.5℃        | Relative Humidity : | 56%    |
| Pressure :    | 101 Kpa      | Test Mode :         | Mode 1 |
| Test Voltage: | AC 120V/60Hz | Phase :             | L      |



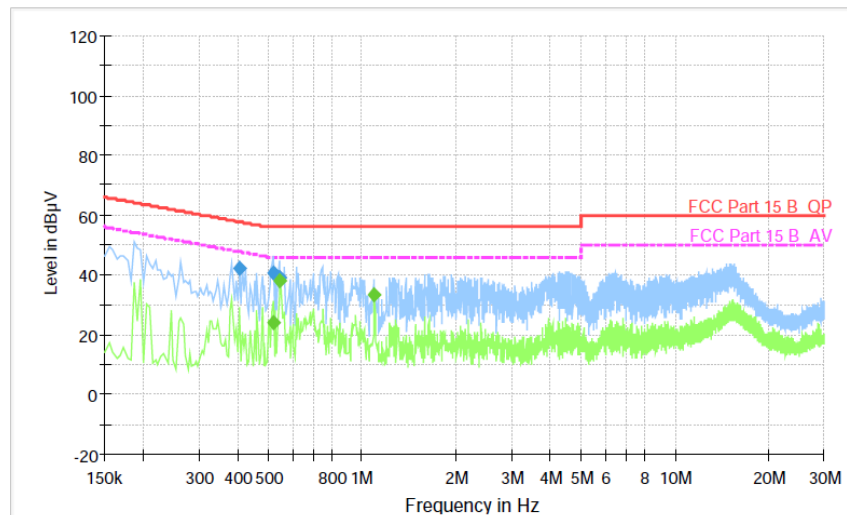
#### Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.496500        | 41.8             | 1000.000        | 9.000           | Off    | L1   | 9.8        | 14.3        | 56.1         |         |
| 0.546000        | 41.7             | 1000.000        | 9.000           | Off    | L1   | 9.8        | 14.3        | 56.0         |         |
| 0.951000        | 39.0             | 1000.000        | 9.000           | Off    | L1   | 9.9        | 17.0        | 56.0         |         |

#### Final Measurement Detector 2

| Frequency (MHz) | Average (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.496500        | 23.6           | 1000.000        | 9.000           | Off    | L1   | 9.8        | 22.5        | 46.1         |         |
| 0.546000        | 37.9           | 1000.000        | 9.000           | Off    | L1   | 9.8        | 8.1         | 46.0         |         |
| 1.095000        | 33.8           | 1000.000        | 9.000           | Off    | L1   | 9.9        | 12.2        | 46.0         |         |

|               |              |                     |        |
|---------------|--------------|---------------------|--------|
| Temperature : | 23.5℃        | Relative Humidity : | 56%    |
| Pressure :    | 101 Kpa      | Test Mode :         | Mode 1 |
| Test Voltage: | AC 120V/60Hz | Phase :             | N      |



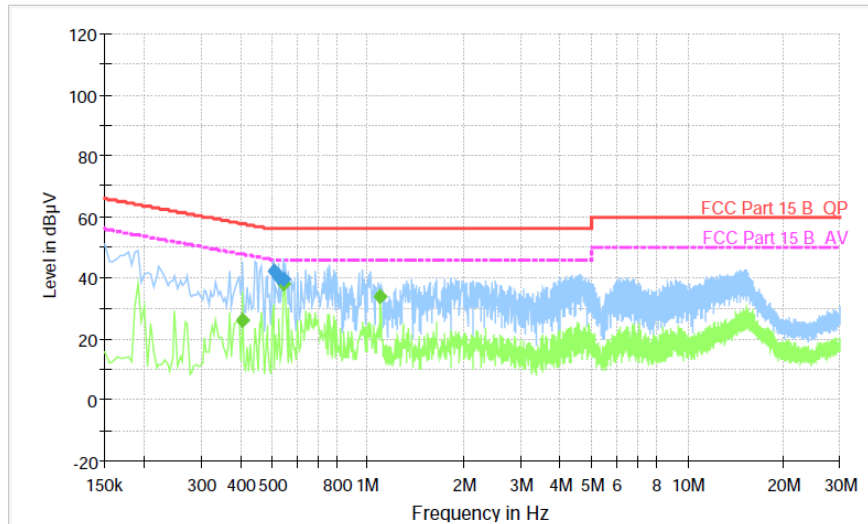
#### Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.406500        | 42.2             | 1000.000        | 9.000           | Off    | N    | 10.0       | 15.5        | 57.7         |         |
| 0.519000        | 40.6             | 1000.000        | 9.000           | Off    | N    | 10.1       | 15.4        | 56.0         |         |
| 0.541500        | 39.2             | 1000.000        | 9.000           | Off    | N    | 10.1       | 16.8        | 56.0         |         |

#### Final Measurement Detector 2

| Frequency (MHz) | Average (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.519000        | 24.0           | 1000.000        | 9.000           | Off    | N    | 10.1       | 22.0        | 46.0         |         |
| 0.546000        | 37.8           | 1000.000        | 9.000           | Off    | N    | 10.1       | 8.2         | 46.0         |         |
| 1.095000        | 33.4           | 1000.000        | 9.000           | Off    | N    | 10.0       | 12.6        | 46.0         |         |

|               |              |                     |        |
|---------------|--------------|---------------------|--------|
| Temperature : | 23.5℃        | Relative Humidity : | 56%    |
| Pressure :    | 101 Kpa      | Test Mode :         | Mode 2 |
| Test Voltage: | AC 120V/60Hz | Phase :             | L      |



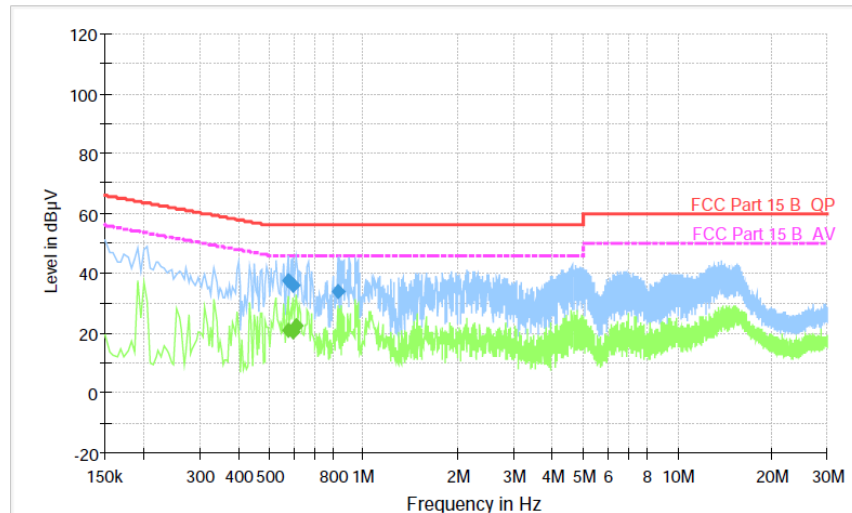
#### Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.505500        | 42.2             | 1000.000        | 9.000           | Off    | L1   | 9.8        | 13.8        | 56.0         |         |
| 0.528000        | 40.0             | 1000.000        | 9.000           | Off    | L1   | 9.8        | 16.0        | 56.0         |         |
| 0.541500        | 39.6             | 1000.000        | 9.000           | Off    | L1   | 9.8        | 16.4        | 56.0         |         |

#### Final Measurement Detector 2

| Frequency (MHz) | Average (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.406500        | 26.2           | 1000.000        | 9.000           | Off    | L1   | 9.8        | 21.5        | 47.7         |         |
| 0.546000        | 38.0           | 1000.000        | 9.000           | Off    | L1   | 9.8        | 8.0         | 46.0         |         |
| 1.095000        | 33.8           | 1000.000        | 9.000           | Off    | L1   | 9.9        | 12.2        | 46.0         |         |

|               |              |                     |        |
|---------------|--------------|---------------------|--------|
| Temperature : | 23.5°C       | Relative Humidity : | 56%    |
| Pressure :    | 101 Kpa      | Test Mode :         | Mode 2 |
| Test Voltage: | AC 120V/60Hz | Phase :             | N      |



#### Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.573000        | 37.5             | 1000.000        | 9.000           | Off    | N    | 10.1       | 18.5        | 56.0         |         |
| 0.595500        | 36.3             | 1000.000        | 9.000           | Off    | N    | 10.0       | 19.7        | 56.0         |         |
| 0.825000        | 34.0             | 1000.000        | 9.000           | Off    | N    | 10.0       | 22.0        | 56.0         |         |

#### Final Measurement Detector 2

| Frequency (MHz) | Average (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.573000        | 21.2           | 1000.000        | 9.000           | Off    | N    | 10.1       | 24.8        | 46.0         |         |
| 0.595500        | 20.3           | 1000.000        | 9.000           | Off    | N    | 10.0       | 25.7        | 46.0         |         |
| 0.609000        | 22.7           | 1000.000        | 9.000           | Off    | N    | 10.0       | 23.3        | 46.0         |         |

## 4 RADIATED EMISSION MEASUREMENT

### 4.1 LIMITS OF RADIATED EMISSION MEASUREMENT

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

| FREQUENCY (MHz) | Class A (at 10m) | Class B (at 3m) |
|-----------------|------------------|-----------------|
|                 | dBuV/m           | dBu /m          |
| 30 ~ 88         | 39.0             | 40.0            |
| 88 ~ 216        | 43.5             | 43.5            |
| 216 ~ 960       | 46.5             | 46.0            |
| Above 960       | 49.5             | 54.0            |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Class A (at 3m) dBuV/m |     | Class B (at 3m) dBuV/m |     |
|-----------------|------------------------|-----|------------------------|-----|
|                 | Peak                   | Avg | Peak                   | Avg |
| Above 1000      | 80                     | 60  | 74                     | 54  |

Notes:

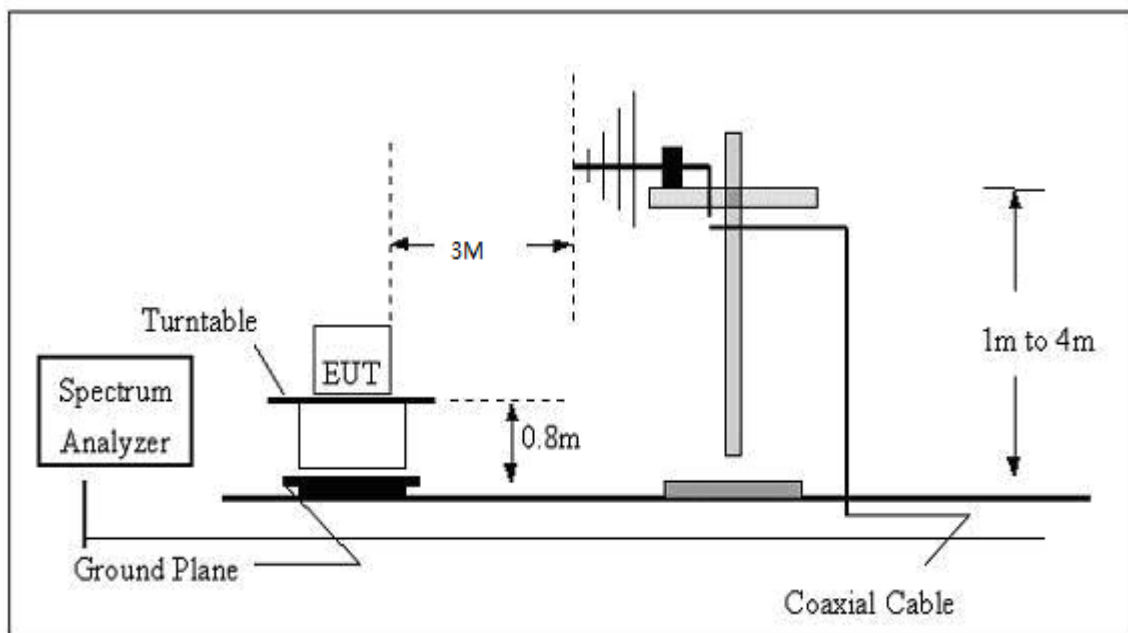
- (1) The limit for radiated test was performed according to as following:  
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

### 4.2 TEST PROCEDURE

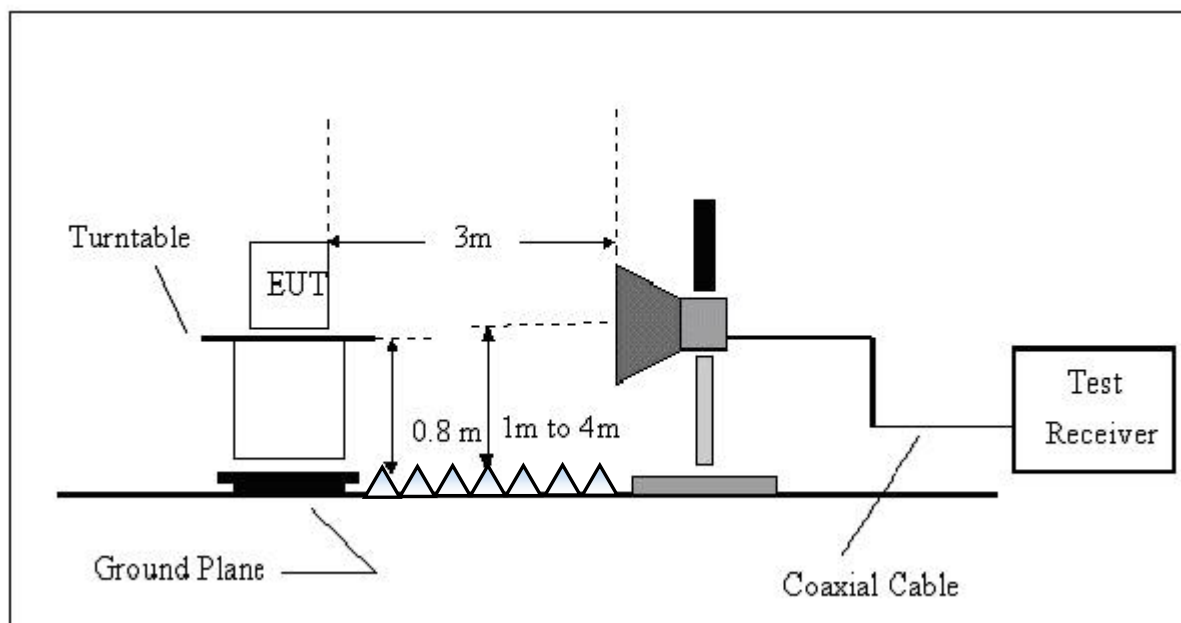
- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 4.3 TEST SETUP

#### (A) Radiated Emission Test Set-up, Frequency Below 1000MHz



#### (B) Radiated Emission Test Set-up, Frequency Over 1GHz

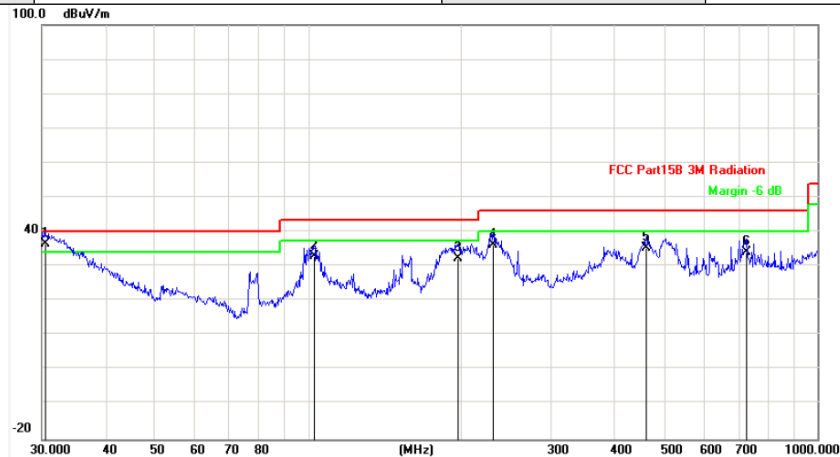


#### 4.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

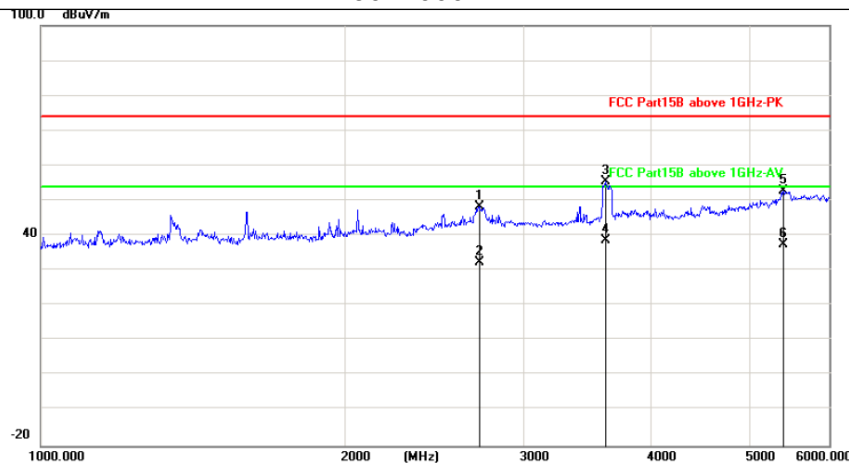
#### 4.5 TEST RESULTS

|               |          |                    |              |
|---------------|----------|--------------------|--------------|
| Temperature:  | 24.2°C   | Relative Humidity: | 57%          |
| Pressure:     | 101 Kpa  | Test Mode:         | Mode 1       |
| Polarization: | Vertical | Test Power:        | AC 120V/60Hz |



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth ( ) | P/F | Remark |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|----------|-------------|-------------|-----|--------|
| 1   | 30.4237         | -3.75         | 40.35          | 36.60          | 40.00          | -3.40       | QP       |             |             | P   |        |
| 2   | 102.7192        | -13.92        | 47.02          | 33.10          | 43.50          | -10.40      | QP       |             |             | P   |        |
| 3   | 197.1999        | -13.41        | 45.91          | 32.50          | 43.50          | -11.00      | QP       |             |             | P   |        |
| 4   | 230.9067        | -12.73        | 49.03          | 36.30          | 46.00          | -9.70       | QP       |             |             | P   |        |
| 5   | 460.7271        | -7.97         | 43.17          | 35.20          | 46.00          | -10.80      | QP       |             |             | P   |        |
| 6   | 726.8052        | -2.24         | 36.54          | 34.30          | 46.00          | -11.70      | QP       |             |             | P   |        |

#### 30~1000MHz



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth ( ) | P/F | Remark |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|----------|-------------|-------------|-----|--------|
| 1   | 2708.021        | -3.01         | 51.38          | 48.37          | 74.00          | -25.63      | peak     |             |             | P   |        |
| 2   | 2708.021        | -3.01         | 35.21          | 32.20          | 54.00          | -21.80      | AVG      |             |             | P   |        |
| 3   | 3613.553        | -1.05         | 56.60          | 55.55          | 74.00          | -18.45      | peak     |             |             | P   |        |
| 4   | 3613.553        | -1.05         | 39.85          | 38.80          | 54.00          | -15.20      | AVG      |             |             | P   |        |
| 5   | 5407.773        | 3.51          | 49.12          | 52.63          | 74.00          | -21.37      | peak     |             |             | P   |        |
| 6   | 5407.773        | 3.51          | 33.89          | 37.40          | 54.00          | -16.60      | AVG      |             |             | P   |        |

#### 1000~6000MHz

Shenzhen General Testing & Inspection Technology Co., Ltd.

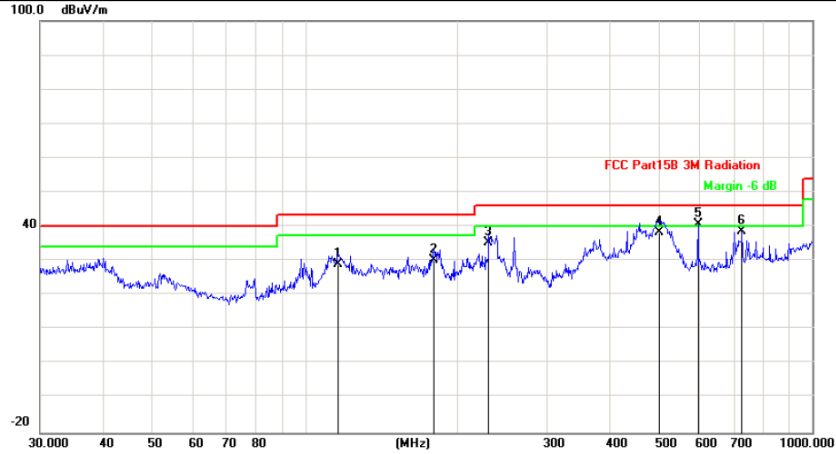
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Tel.: (86)755-27521059

Fax.: (86)755-27521011

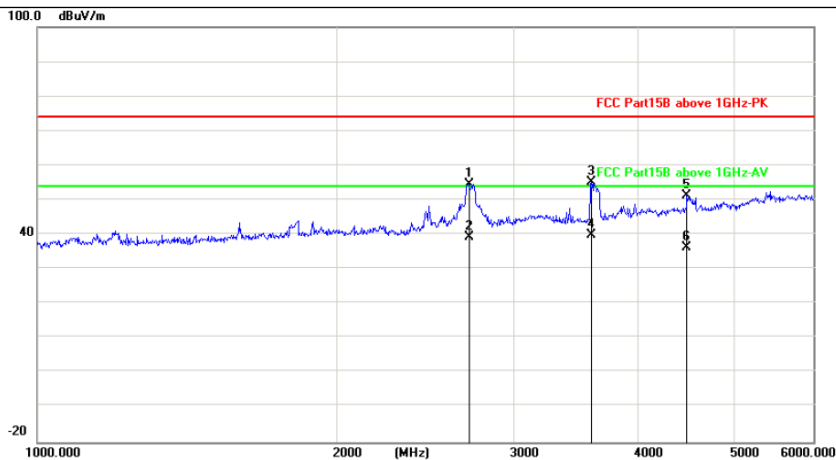
Http://www.sz-ctc.org.cn

|               |            |                    |              |
|---------------|------------|--------------------|--------------|
| Temperature:  | 24.2°C     | Relative Humidity: | 57%          |
| Pressure:     | 101 Kpa    | Test Mode:         | Mode 1       |
| Polarization: | Horizontal | Test Power:        | AC 120V/60Hz |



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (°) | P/F | Remark |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|----------|-------------|-------------|-----|--------|
| 1   | 116.1320        | -13.51        | 42.51          | 29.00          | 43.50          | -14.50      | QP       |             |             | P   |        |
| 2   | 179.3863        | -14.92        | 45.12          | 30.20          | 43.50          | -13.30      | QP       |             |             | P   |        |
| 3   | 230.0985        | -12.66        | 48.16          | 35.50          | 46.00          | -10.50      | QP       |             |             | P   |        |
| 4   | 499.4245        | -6.84         | 45.04          | 38.20          | 46.00          | -7.80       | QP       |             |             | P   |        |
| 5   | 595.1326        | -5.20         | 45.89          | 40.69          | 46.00          | -5.31       | QP       |             |             | P   |        |
| 6   | 726.8052        | -2.24         | 40.96          | 38.72          | 46.00          | -7.28       | QP       |             |             | P   |        |

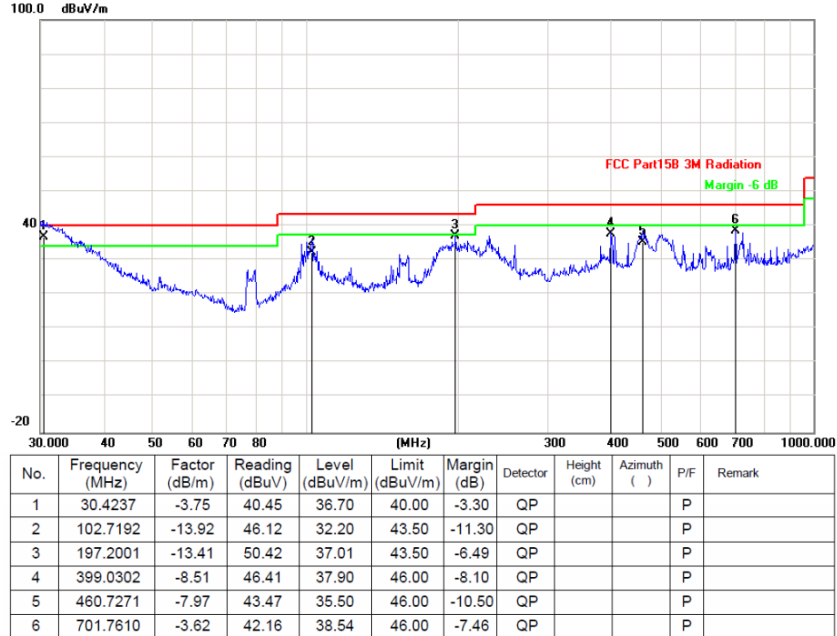
### 30~1000MHz



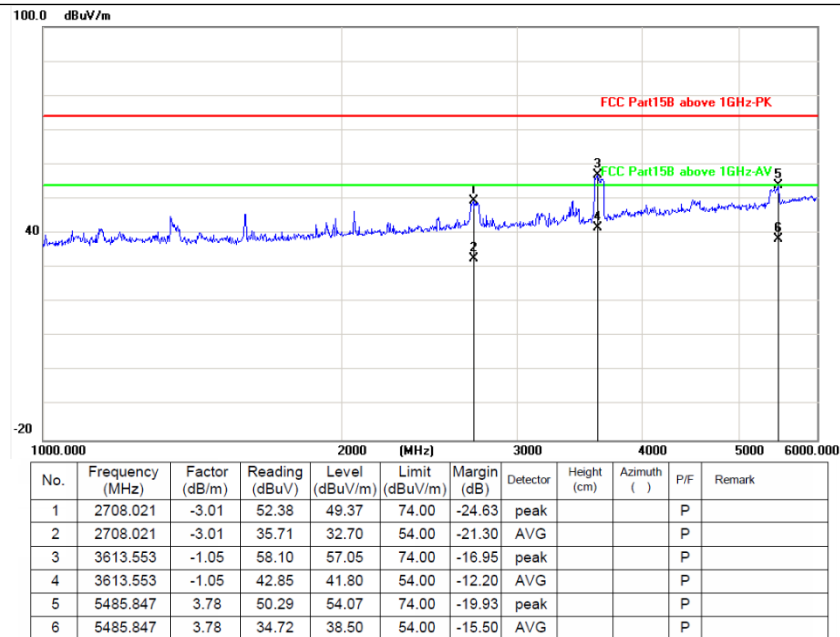
| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (°) | P/F | Remark |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|----------|-------------|-------------|-----|--------|
| 1   | 2708.021        | -3.01         | 57.57          | 54.56          | 74.00          | -19.44      | peak     |             |             | P   |        |
| 2   | 2708.021        | -3.01         | 42.31          | 39.30          | 54.00          | -14.70      | AVG      |             |             | P   |        |
| 3   | 3594.181        | -1.16         | 56.24          | 55.08          | 74.00          | -18.92      | peak     |             |             | P   |        |
| 4   | 3594.181        | -1.16         | 41.16          | 40.00          | 54.00          | -14.00      | AVG      |             |             | P   |        |
| 5   | 4480.357        | 1.50          | 49.88          | 51.38          | 74.00          | -22.62      | peak     |             |             | P   |        |
| 6   | 4480.357        | 1.50          | 34.80          | 36.30          | 54.00          | -17.70      | AVG      |             |             | P   |        |

### 1000~6000MHz

|               |          |                    |              |
|---------------|----------|--------------------|--------------|
| Temperature:  | 24.2°C   | Relative Humidity: | 57%          |
| Pressure:     | 101 Kpa  | Test Mode:         | Mode 2       |
| Polarization: | Vertical | Test Power:        | AC 120V/60Hz |



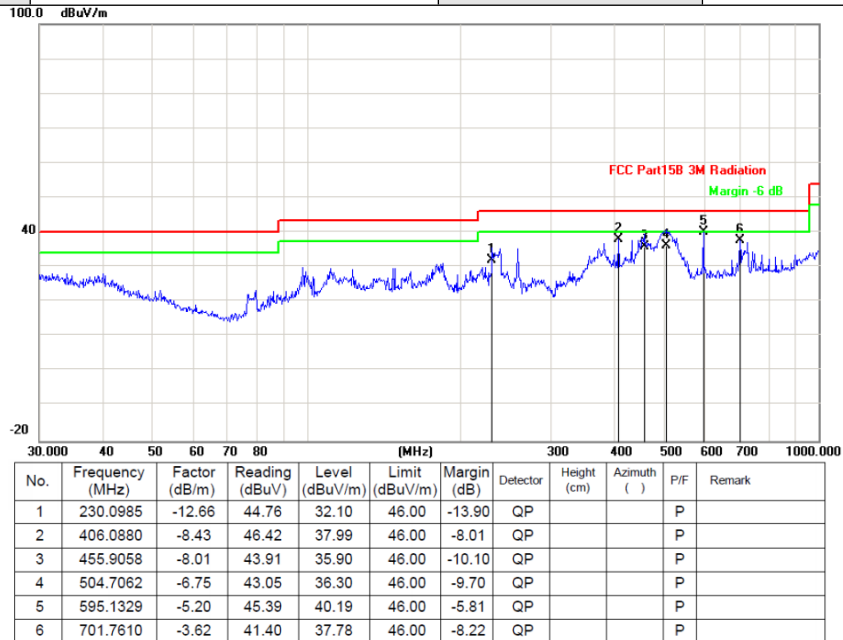
### 30~1000MHz



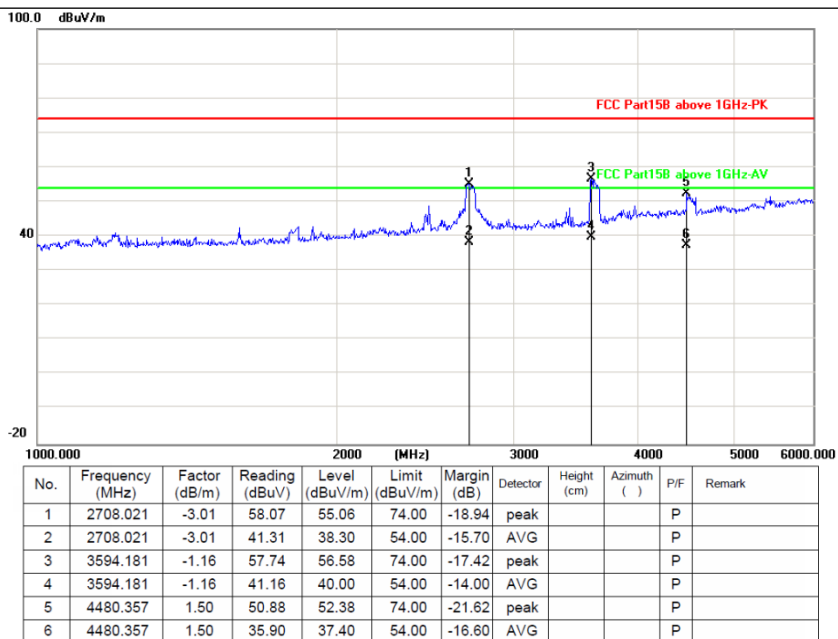
### 1000~6000MHz



|               |            |                    |              |
|---------------|------------|--------------------|--------------|
| Temperature:  | 24.2°C     | Relative Humidity: | 57%          |
| Pressure:     | 101 Kpa    | Test Mode:         | Mode 2       |
| Polarization: | Horizontal | Test Power:        | AC 120V/60Hz |



## 30~1000MHz



## 1000~6000MHz

Shenzhen General Testing &amp; Inspection Technology Co., Ltd.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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Http://www.sz-ctc.org.cn

中国国家认证认可监督管理委员会  
Certification and Accreditation Administration of the People's Republic of ChinaFor anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cncaic.cn](http://yz.cncaic.cn)

## 5 Antenna Power Conduction Measurement

Test Mode: Mode 4

| Channel | Frequency (MHz) | Measured Frequency (MHz) | Reading (dBμV) | Limit (dBμV) | Margin (dB) |
|---------|-----------------|--------------------------|----------------|--------------|-------------|
| 2       | 101.000         | 101.000                  | <30.0          | 50.0         | <-20.0      |
|         | 202.000         | 202.000                  | <30.0          | 50.0         | <-20.0      |
| 3       | 107.000         | 107.000                  | <30.0          | 50.0         | <-20.0      |
|         | 214.000         | 214.000                  | <30.0          | 50.0         | <-20.0      |
| 4       | 113.000         | 113.000                  | <30.0          | 50.0         | <-20.0      |
|         | 226.000         | 226.000                  | <30.0          | 50.0         | <-20.0      |
| 5       | 123.000         | 123.000                  | <30.0          | 50.0         | <-20.0      |
|         | 246.000         | 246.000                  | <30.0          | 50.0         | <-20.0      |
| 6       | 129.000         | 129.000                  | <30.0          | 50.0         | <-20.0      |
|         | 258.000         | 258.000                  | <30.0          | 50.0         | <-20.0      |
| 7       | 221.000         | 221.000                  | <30.0          | 50.0         | <-20.0      |
|         | 442.000         | 442.000                  | <30.0          | 50.0         | <-20.0      |
| 8       | 227.000         | 227.000                  | <30.0          | 50.0         | <-20.0      |
|         | 454.000         | 454.000                  | <30.0          | 50.0         | <-20.0      |
| 9       | 233.000         | 233.000                  | <30.0          | 50.0         | <-20.0      |
|         | 466.000         | 466.000                  | <30.0          | 50.0         | <-20.0      |
| 10      | 239.000         | 239.000                  | <30.0          | 50.0         | <-20.0      |
|         | 478.000         | 478.000                  | <30.0          | 50.0         | <-20.0      |
| 11      | 245.000         | 245.000                  | <30.0          | 50.0         | <-20.0      |
|         | 490.000         | 490.000                  | <30.0          | 50.0         | <-20.0      |
| 12      | 251.000         | 251.000                  | <30.0          | 50.0         | <-20.0      |
|         | 502.000         | 502.000                  | <30.0          | 50.0         | <-20.0      |

Note: Negative signs (-) in the margin column signify levels below the limit.

Limit (50 dBμV) was converted from the limit (2nW) at the 50 Ω measurement impedance.

Test Mode: Mode 4

| Channel | Frequency (MHz) | Measured Frequency(MHz) | Reading (dBμV) | Limit (dBμV) | Margin (dB) |
|---------|-----------------|-------------------------|----------------|--------------|-------------|
| 13      | 257.000         | 257.000                 | <30.0          | 50.0         | <-20.0      |
|         | 514.000         | 514.000                 | <30.0          | 50.0         | <-20.0      |
| 14      | 517.000         | 517.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1034.000        | 1034.000                | <30.0          | 50.0         | <-20.0      |
| 15      | 523.000         | 523.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1046.000        | 1046.000                | <30.0          | 50.0         | <-20.0      |
| 20      | 553.000         | 553.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1106.000        | 1106.000                | <30.0          | 50.0         | <-20.0      |
| 28      | 601.000         | 601.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1202.000        | 1202.000                | <30.0          | 50.0         | <-20.0      |
| 36      | 649.000         | 649.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1298.000        | 1298.000                | <30.0          | 50.0         | <-20.0      |
| 45      | 703.000         | 703.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1406.000        | 1406.000                | <30.0          | 50.0         | <-20.0      |
| 53      | 751.000         | 751.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1502.000        | 1502.000                | <30.0          | 50.0         | <-20.0      |
| 61      | 799.000         | 799.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1598.000        | 1598.000                | <30.0          | 50.0         | <-20.0      |
| 69      | 847.000         | 847.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1694.000        | 1694.000                | <30.0          | 50.0         | <-20.0      |

Note: Negative signs (-) in the margin column signify levels below the limit.

Limit (50 dBμV) was converted from the limit (2nW) at the 50 Ω measurement impedance.

## 6 Antenna Power Conduction Measurement

Test Mode: Mode 5

| Channel | Frequency (MHz) | Measured Frequency(MHz) | Reading (dBμV) | Limit (dBμV) | Margin (dB) |
|---------|-----------------|-------------------------|----------------|--------------|-------------|
| 2       | 101.000         | 101.000                 | <30.0          | 50.0         | <-20.0      |
|         | 202.000         | 202.000                 | <30.0          | 50.0         | <-20.0      |
| 3       | 107.000         | 107.000                 | <30.0          | 50.0         | <-20.0      |
|         | 214.000         | 214.000                 | <30.0          | 50.0         | <-20.0      |
| 4       | 113.000         | 113.000                 | <30.0          | 50.0         | <-20.0      |
|         | 226.000         | 226.000                 | <30.0          | 50.0         | <-20.0      |
| 5       | 123.000         | 123.000                 | <30.0          | 50.0         | <-20.0      |
|         | 246.000         | 246.000                 | <30.0          | 50.0         | <-20.0      |
| 6       | 129.000         | 129.000                 | <30.0          | 50.0         | <-20.0      |
|         | 258.000         | 258.000                 | <30.0          | 50.0         | <-20.0      |
| 7       | 221.000         | 221.000                 | <30.0          | 50.0         | <-20.0      |
|         | 442.000         | 442.000                 | <30.0          | 50.0         | <-20.0      |
| 8       | 227.000         | 227.000                 | <30.0          | 50.0         | <-20.0      |
|         | 454.000         | 454.000                 | <30.0          | 50.0         | <-20.0      |
| 9       | 233.000         | 233.000                 | <30.0          | 50.0         | <-20.0      |
|         | 466.000         | 466.000                 | <30.0          | 50.0         | <-20.0      |
| 10      | 239.000         | 239.000                 | <30.0          | 50.0         | <-20.0      |
|         | 478.000         | 478.000                 | <30.0          | 50.0         | <-20.0      |
| 11      | 245.000         | 245.000                 | <30.0          | 50.0         | <-20.0      |
|         | 490.000         | 490.000                 | <30.0          | 50.0         | <-20.0      |
| 12      | 251.000         | 251.000                 | <30.0          | 50.0         | <-20.0      |
|         | 502.000         | 502.000                 | <30.0          | 50.0         | <-20.0      |

Note: Negative signs (-) in the margin column signify levels below the limit.

Limit (50 dBμV) was converted from the limit (2nW) at the 50 Ω measurement impedance.

## Test Mode: Mode 5

| Channel | Frequency (MHz) | Measured Frequency(MHz) | Reading (dBμV) | Limit (dBμV) | Margin (dB) |
|---------|-----------------|-------------------------|----------------|--------------|-------------|
| 13      | 257.000         | 257.000                 | <30.0          | 50.0         | <-20.0      |
|         | 514.000         | 514.000                 | <30.0          | 50.0         | <-20.0      |
| 14      | 517.000         | 517.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1034.000        | 1034.000                | <30.0          | 50.0         | <-20.0      |
| 15      | 523.000         | 523.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1046.000        | 1046.000                | <30.0          | 50.0         | <-20.0      |
| 20      | 553.000         | 553.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1106.000        | 1106.000                | <30.0          | 50.0         | <-20.0      |
| 28      | 601.000         | 601.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1202.000        | 1202.000                | <30.0          | 50.0         | <-20.0      |
| 36      | 649.000         | 649.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1298.000        | 1298.000                | <30.0          | 50.0         | <-20.0      |
| 45      | 703.000         | 703.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1406.000        | 1406.000                | <30.0          | 50.0         | <-20.0      |
| 53      | 751.000         | 751.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1502.000        | 1502.000                | <30.0          | 50.0         | <-20.0      |
| 61      | 799.000         | 799.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1598.000        | 1598.000                | <30.0          | 50.0         | <-20.0      |
| 69      | 847.000         | 847.000                 | <30.0          | 50.0         | <-20.0      |
|         | 1694.000        | 1694.000                | <30.0          | 50.0         | <-20.0      |

Note: Negative signs (-) in the margin column signify levels below the limit.

Limit (50 dBμV) was converted from the limit (2nW) at the 50 Ω measurement impedance.

## 7 Picture Sensitivity Measurement

Test Mode: Mode 4

| VHF Band                                       |                             | Antenna<br>Input Level<br>(dBμV) | UHF Band     |                             | Antenna<br>Input Level<br>(dBμV) |
|------------------------------------------------|-----------------------------|----------------------------------|--------------|-----------------------------|----------------------------------|
| Channel                                        | Frequency<br>Range<br>(MHz) |                                  | Channel      | Frequency<br>Range<br>(MHz) |                                  |
| 2                                              | 55.250                      | 27                               | 14           | 471.250                     | 28                               |
| 3                                              | 61.250                      | 25                               | 20           | 507.250                     | 27                               |
| 4                                              | 67.250                      | 26                               | 26           | 543.250                     | 26                               |
| 5                                              | 77.250                      | 27                               | 32           | 579.250                     | 27                               |
| 6                                              | 83.250                      | 25                               | 38           | 615.250                     | 26                               |
| 7                                              | 175.250                     | 24                               | 44           | 651.250                     | 25                               |
| 8                                              | 181.250                     | 23                               | 50           | 687.250                     | 26                               |
| 9                                              | 187.250                     | 26                               | 56           | 723.250                     | 27                               |
| 10                                             | 193.250                     | 26                               | 62           | 759.250                     | 25                               |
| 11                                             | 199.250                     | 24                               | 69           | 801.250                     | 26                               |
| 12                                             | 205.250                     | 25                               | /            | /                           | /                                |
| 13                                             | 211.250                     | 24                               | /            | /                           | /                                |
| Average(VHF)                                   |                             | 25.17                            | Average(UHF) |                             | 26.3                             |
| Average(UHF)-Average(VHF)=1.13 dB(Limit 8.0dB) |                             |                                  |              |                             |                                  |

## 8 Noise Figure Measurement

Test Mode: Mode 4

| Channel | Measured Frequency (MHz) | Gain (dB) | Noise Figure (dB) | Limit (dB) |
|---------|--------------------------|-----------|-------------------|------------|
| 14      | 471.250                  | >30.0     | 3.9               | 14         |
| 20      | 507.250                  | >30.0     | 4.2               | 14         |
| 26      | 543.250                  | >30.0     | 4.1               | 14         |
| 32      | 579.250                  | >30.0     | 3.9               | 14         |
| 38      | 615.250                  | >30.0     | 3.8               | 14         |
| 44      | 651.250                  | >30.0     | 4.2               | 14         |
| 50      | 687.250                  | >30.0     | 4.1               | 14         |
| 56      | 723.250                  | >30.0     | 4.1               | 14         |
| 62      | 759.250                  | >30.0     | 3.9               | 14         |
| 69      | 801.250                  | >30.0     | 3.8               | 14         |

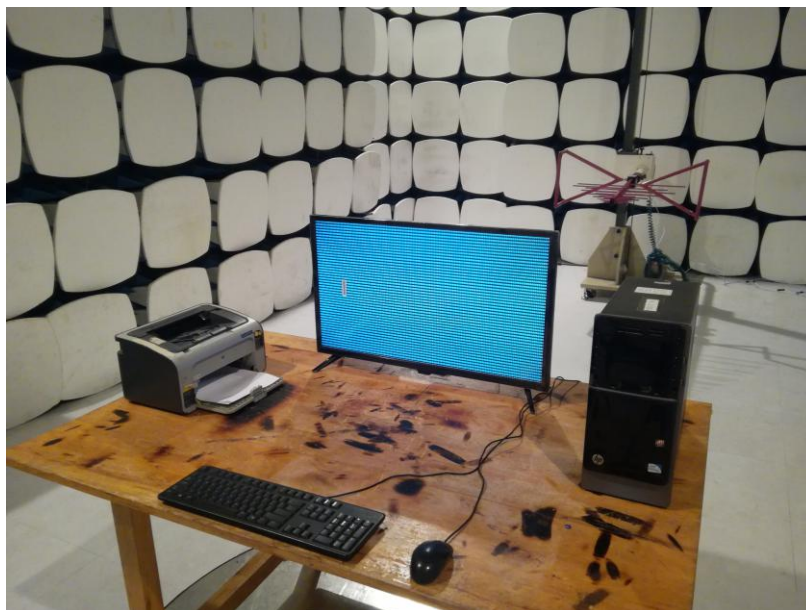
Remark: The specification was provided by tuner manufacturer.

## 9 EUT TEST PHOTO

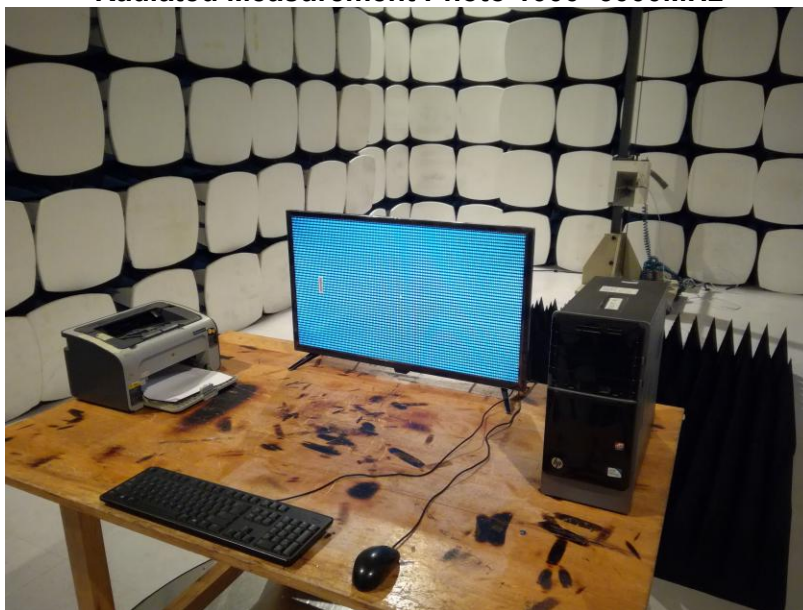
### Conducted Measurement Photo



### Radiated Measurement Photo 30~1000MHz



Radiated Measurement Photo 1000~6000MHz



## 10 ATTACHMENT PHOTOGRAPHS OF EUT

### 1. Photo



### 2. Photo



### 3. Photo



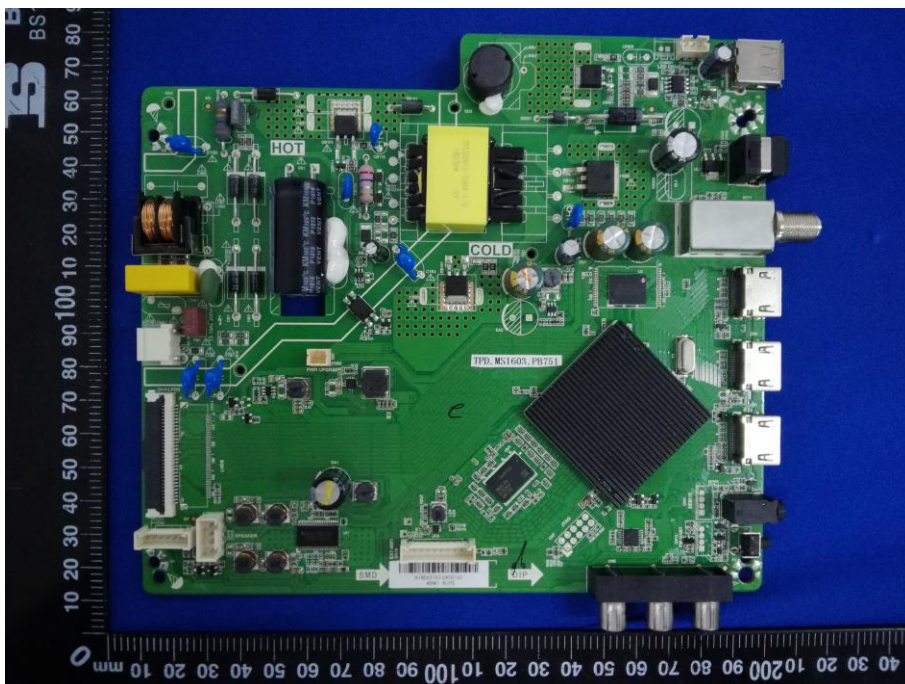
### 4. Photo



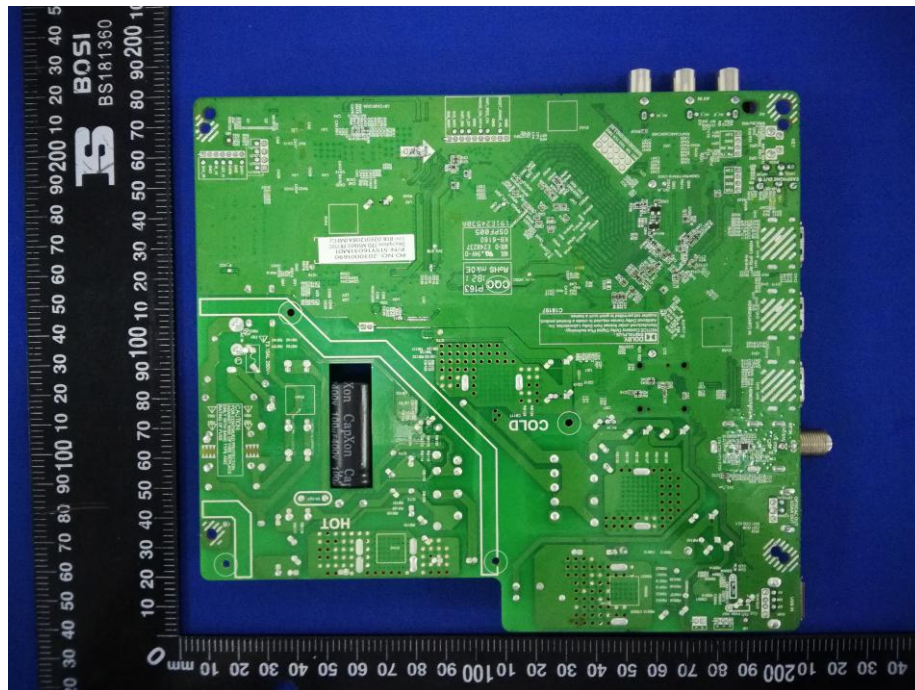
## 5. Photo



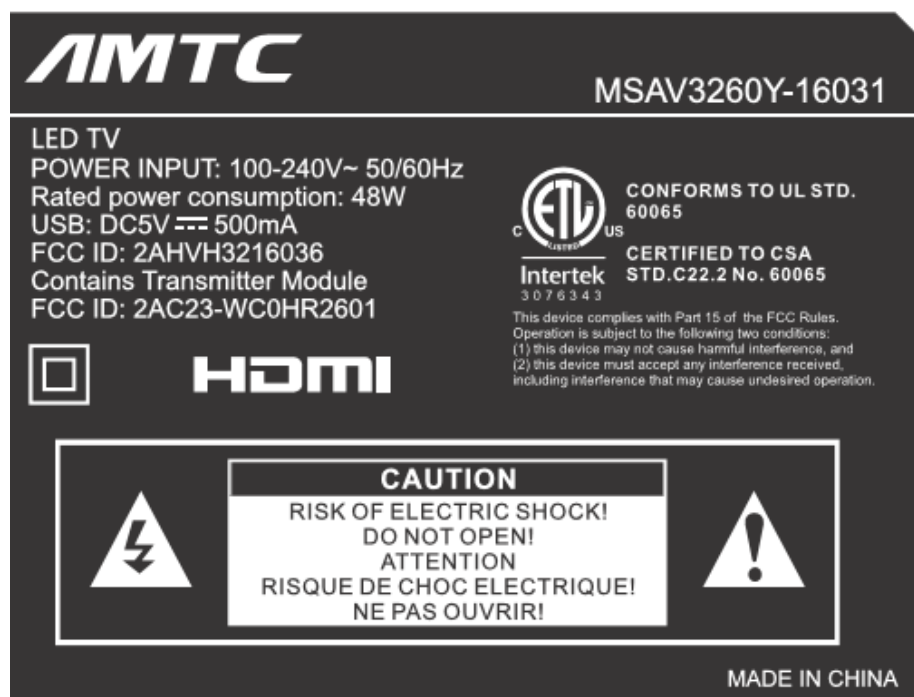
## 6. Photo



## 7. Photo



## 8. Photo



==== End of Test Report =====