



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

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## TEST REPORT

**Report No.** .....: **GTI20182108F**

**FCC ID.** .....: **2AHVH55658646**

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

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

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

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

**Product Name**.....: **LED TV**

**Trade Mark**.....: AMTC,JVC

**Model/Type reference**.....: MUAV5565Y-65864

**Listed Model(s)** .....: MUAV55\*\*Y-65864( \* can from 0 to 9,A to Z), LT-55MA888

**Standard**.....: **47 CFR FCC Part 15 Subpart B - Unintentional Radiators  
ANSI C63.4: 2014**

**Date of receipt of test sample**...: 2018-11-07

**Date of testing**.....: 2018-11-07 to 2018-11-14

**Date of issue**.....: 2018-11-14

**Result**.....: **PASS**

Compiled by:  
(Printed name+signature) Torny Fang

Supervised by:  
( Printed name+signature) Cary Luo

Approved by:  
( Printed name+signature) Walter Chen

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

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

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# 1. TEST SUMMARY

## 1.1. Test Standards

The tests were performed according to following standards:

[47 CFR FCC Part 15 Subpart B](#): Unintentional Radiators.

[ANSI C63.4: 2014](#): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz.

## 1.2. Report version

| Revised No. | Date of issue | Description |
|-------------|---------------|-------------|
| 01          | 2018-11-14    | Original    |
|             |               |             |
|             |               |             |
|             |               |             |

### 1.3. Test Description

| FCC CFR Title 47 FCC Part 15 Subpart B / ICES-003 |                       |        |               |
|---|-----------------------|--------|---------------|
| Test Item   | Standard Section      | Result | Test Engineer |
|   | FCC Part 15 Subpart B |        |               |
| Conducted Emissions Test                          | 15.107                | Pass   | Will Chen     |
| Radiated Emission Test                            | 15.109                | Pass   | Will Chen     |
| Antenna Power Conduction                          | 15.111                | Pass   | Will Chen     |
| Picture Sensitivity                               | 15.117(f)             | Pass   | Will Chen     |
| Noise figure                                      | 15.117(g)             | Pass   | Will Chen     |

Note: The measurement uncertainty is not included in the test result.

## 1.4. Test Facility

### Address of the report laboratory

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

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

### Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS-Lab Code: L5365**

Shenzhen General Testing & Inspection Technology Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### **A2LA-Lab Cert. No.: 4340.01**

Shenzhen General Testing & Inspection Technology Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### **IC Registration No.: 9783A**

The 3m alternate test site of Shenzhen General Testing & Inspection 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 General Testing & Inspection 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

## 1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen General Testing & Inspection Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for Shenzhen General Testing & Inspection Technology Co., Ltd.

| Test Items                           | Measurement Uncertainty | Notes |
|--------------------------------------|-------------------------|-------|
| Conducted Emissions 9kHz~30MHz       | 3.20 dB                 | (1)   |
| Radiated Emissions 30~1000MHz        | 4.70 dB                 | (1)   |
| Radiated Emissions 1~18GHz           | 5.00 dB                 | (1)   |
| Radiated Emissions 18~40GHz          | 5.54 dB                 | (1)   |
| Antenna Power Conduction Measurement | 2.64 dB                 | (1)   |
| Picture Sensitivity Measurement      | 1.85 dB                 | (1)   |
| Noise Figure Measurement             | 2.30 dB                 | (1)   |

**Note:** (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

## 1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

|                     |         |
|---------------------|---------|
| Normal Temperature: | 25°C    |
| Relative Humidity   | 55 %    |
| Air Pressure        | 989 hPa |

## 2. GENERAL INFORMATION

### 2.1. Client Information

|               |  |
|---------------|--|
| Applicant:    | Shen Zhen MTC Co.,LTD  |
| Address:      | MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street, Longgang district, Shenzhen, China |
| Manufacturer: | Shen Zhen MTC Co.,LTD  |
| Address:      | MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street, Longgang district, Shenzhen, China |

### 2.2. General Description of EUT

|                       |  |
|-----------------------|--|
| Product Name:         | LED TV   |
| Model/Type reference: | MUAV5565Y-65864  |
| Marketing Name:       | AMTC,JVC   |
| Listed Model(s):      | MUAV55**Y-65864( * can from 0 to 9,A to Z), LT-55MA888             |
| Model Difference:     | the only differences are the appearance 、 trade name and model no. |
| Power supply:         | INPUT: AC100-240V, 170W, 50/60Hz                                   |

### 2.3. Accessory Equipment information

| Equipment Information |                   |              |              |
|-----------------------|-------------------|--------------|--------------|
| Name                  | Model             | S/N          | Manufacturer |
| USB disk              | DTGE9             | ---          | Kingston     |
| PC                    | p7-1035cn         | ---          | HP           |
| Keyboard              | RFK-613           | ---          | ERYEFU       |
| Mouse                 | RFK-613           | ---          | ERYEFU       |
| Printer               | HP LaserJet P1007 | VNFN584036   | HP           |
| DVD Player            | DV-310NC-K        | ---          | Plioneer     |
| Cable Information     |                   |              |              |
| Name                  | Shielded Type     | Ferrite Core | Length       |
| VGA Cable             | YES               | YES          | 1.5M         |
| HDMI Cable            | YES               | NO           | 1.2M         |
| AV Cable              | YES               | YES          | 1.2M         |
| component Cable       | YES               | YES          | 1.2M         |

## 2.4. Description of Test Modes

| Test mode | ATSC | AV IN | HDMI IN | VGA IN | USB Playing | Lan | Component | NTSC |
|-----------|------|-------|---------|--------|-------------|-----|-----------|------|
| 1         | ■    |       |         |        |             |     |           |      |
| 2         |      | ■     |         |        |             |     |           |      |
| 3         |      |       | ■       |        |             |     |           |      |
| 4         |      |       |         | ■      |             |     |           |      |
| 5         |      |       |         |        | ■           |     |           |      |
| 6         |      |       |         |        |             | ■   |           |      |
| 7         |      |       |         |        |             |     | ■         |      |
| 8         |      |       |         |        |             |     |           | ■    |

Note:

1. ■ is operation mode.

Pre-scan above all test mode, found below test mode which it was worse case mode.

| Test item                | Test mode (Worse case mode) |
|--------------------------|-----------------------------|
| Conducted emission       | Mode 3                      |
| Radiated emission        | Mode 4                      |
| Antenna Power Conduction | Mode 1                      |
| Picture Sensitivity      | Mode 8                      |
| Noise figure             | Mode 1                      |



## 2.5. Measurement Instruments 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                  | UNIVERSAL RADIO COMMUNICATION | Rohde & Schwarz | CMU200    | 114694     | Jan. 04, 2019    |
| 5                  | RF cable                      | Schwarzbeck     | AK9515E   | 33154      | Jan. 04, 2019    |

| Radiated Emission |                               |                 |            |            |                  |
|-------------------|-------------------------------|-----------------|------------|------------|------------------|
| Item              | Test Equipment                | Manufacturer    | Model No.  | Serial No. | Calibrated until |
| 1                 | Log-Bicon Antenna             | Schwarzbeck     | CBL6141A   | 4180       | Jan. 04, 2019    |
| 2                 | Spectrum Analyzer             | HP              | 8563E      | 02052      | Jan. 04, 2019    |
| 3                 | Horn Antenna                  | Schwarzbeck     | BBHA 9120D | 648        | Jan. 04, 2019    |
| 4                 | Pre-Amplifier                 | HP              | 8447D      | 1937A03050 | Jan. 04, 2019    |
| 5                 | Pre-Amplifier                 | EMCI            | EMC051835  | 980075     | Jan. 04, 2019    |
| 6                 | EMI Test Receiver             | R&S             | ESCI       | 100658     | Jan. 04, 2019    |
| 7                 | Antenna Mast                  | UC              | UC3000     | N/A        | N/A              |
| 8                 | Turn Table                    | UC              | UC3000     | N/A        | N/A              |
| 9                 | UNIVERSAL RADIO COMMUNICATION | Rohde & Schwarz | CMU200     | 114694     | Jan. 04, 2019    |
| 10                | RF cable                      | Schwarzbeck     | AK9515E    | 33155      | Jan. 04, 2019    |

| 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    |
| 5   | RF cable                 | Schwarzbeck  | AK9515E              | 33154      | Jan. 04, 2019    |

The Cal. Interval was one year.

### 3. EMC EMISSION TEST

#### 3.1. Radiated Emission

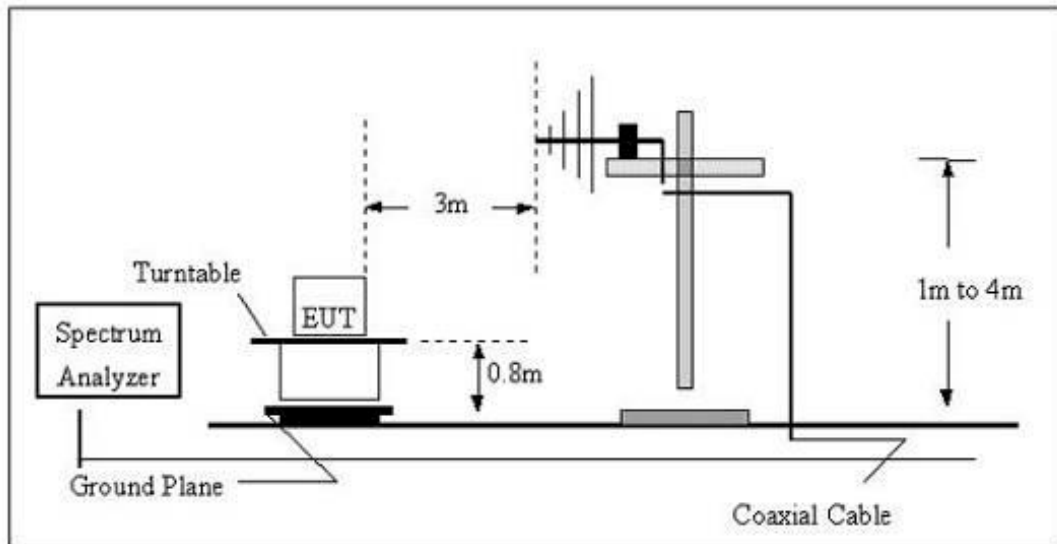
**LIMIT**

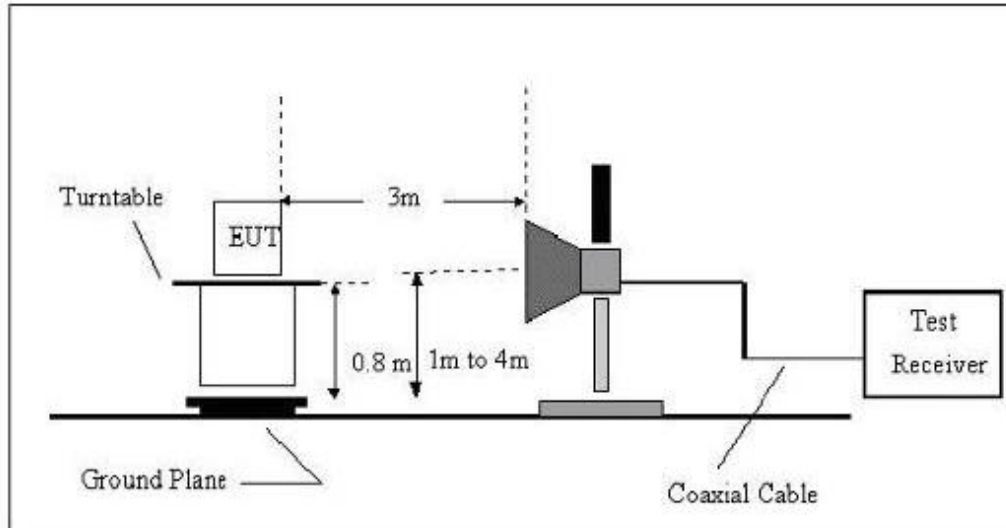
FCC CFR Title 47 Part 15 Subpart B Section 15.109

| Frequency     | Limit (dBuV/m @3m) | Value      |
|---------------|--------------------|------------|
| 30MHz-88MHz   | 40.00              | Quasi-peak |
| 88MHz-216MHz  | 43.50              | Quasi-peak |
| 216MHz-960MHz | 46.00              | Quasi-peak |
| 960MHz-1GHz   | 54.00              | Quasi-peak |
| Above 1GHz    | 54.00              | Average    |
|               | 74.00              | Peak       |

**TEST CONFIGURATION**

(B) Radiated Emission Test Set-Up Frequency below 1 GHz



**(B) Radiated Emission Test Set-Up Frequency above 1GHz****TEST PROCEDURE**

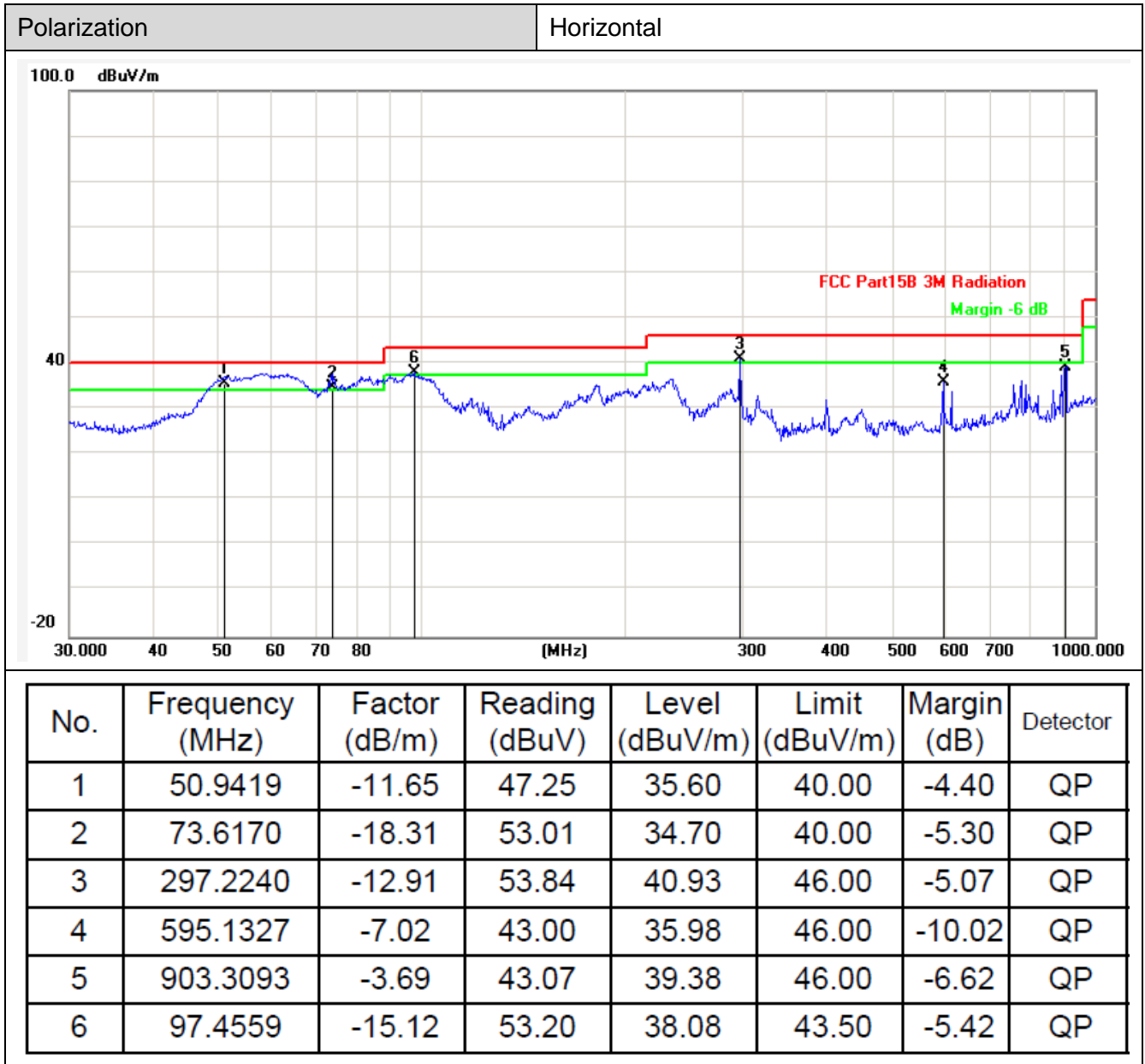
1. The EUT was tested according to ANSI C63.4:2014.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
  - (1) Span shall be wide enough to fully capture the emission being measured;
  - (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold;  
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
  - (3) Above 1GHz, RBW=1MHz, VBW=3MHz

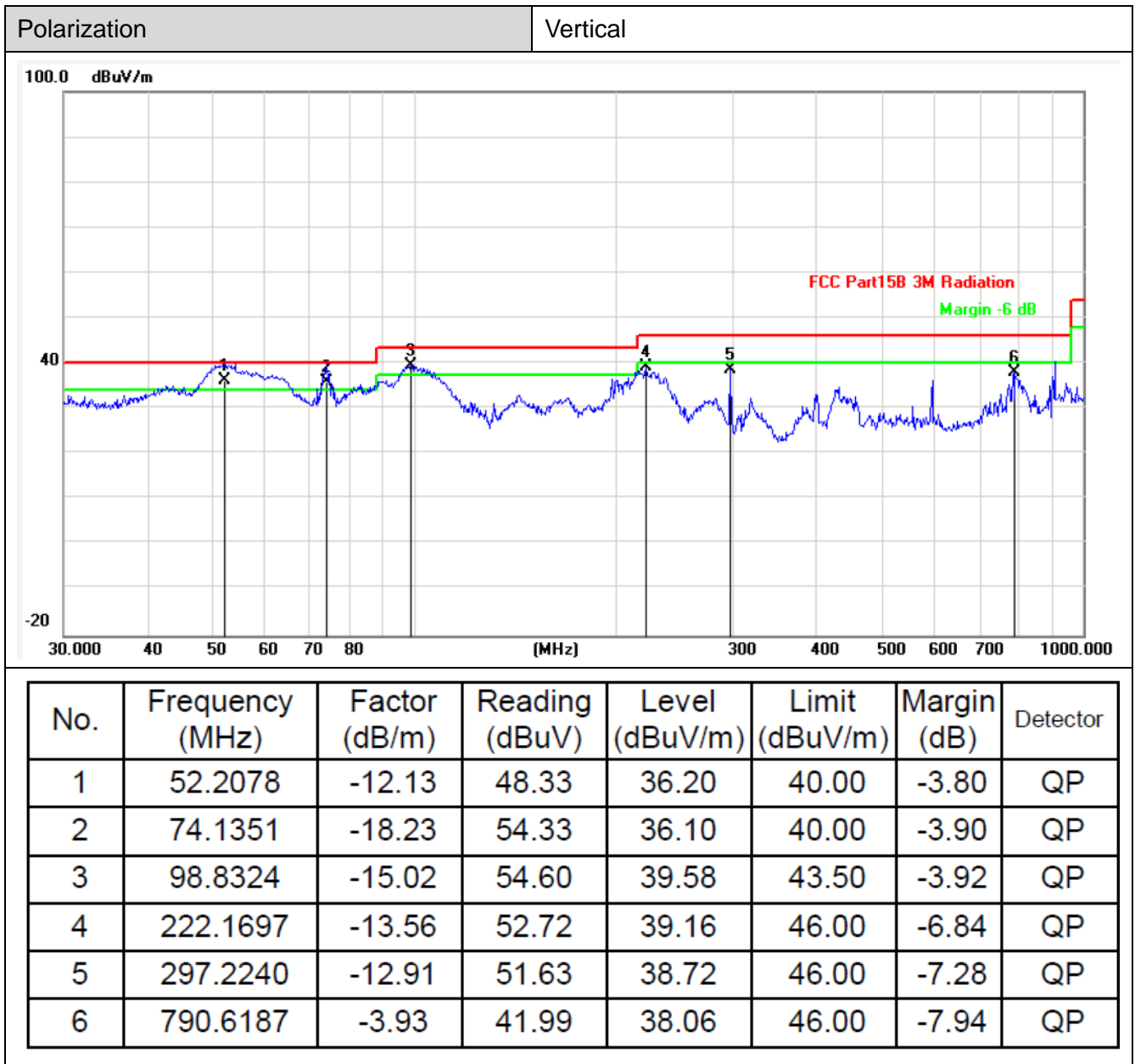
**TEST MODE:**

Please refer to the clause 2.3

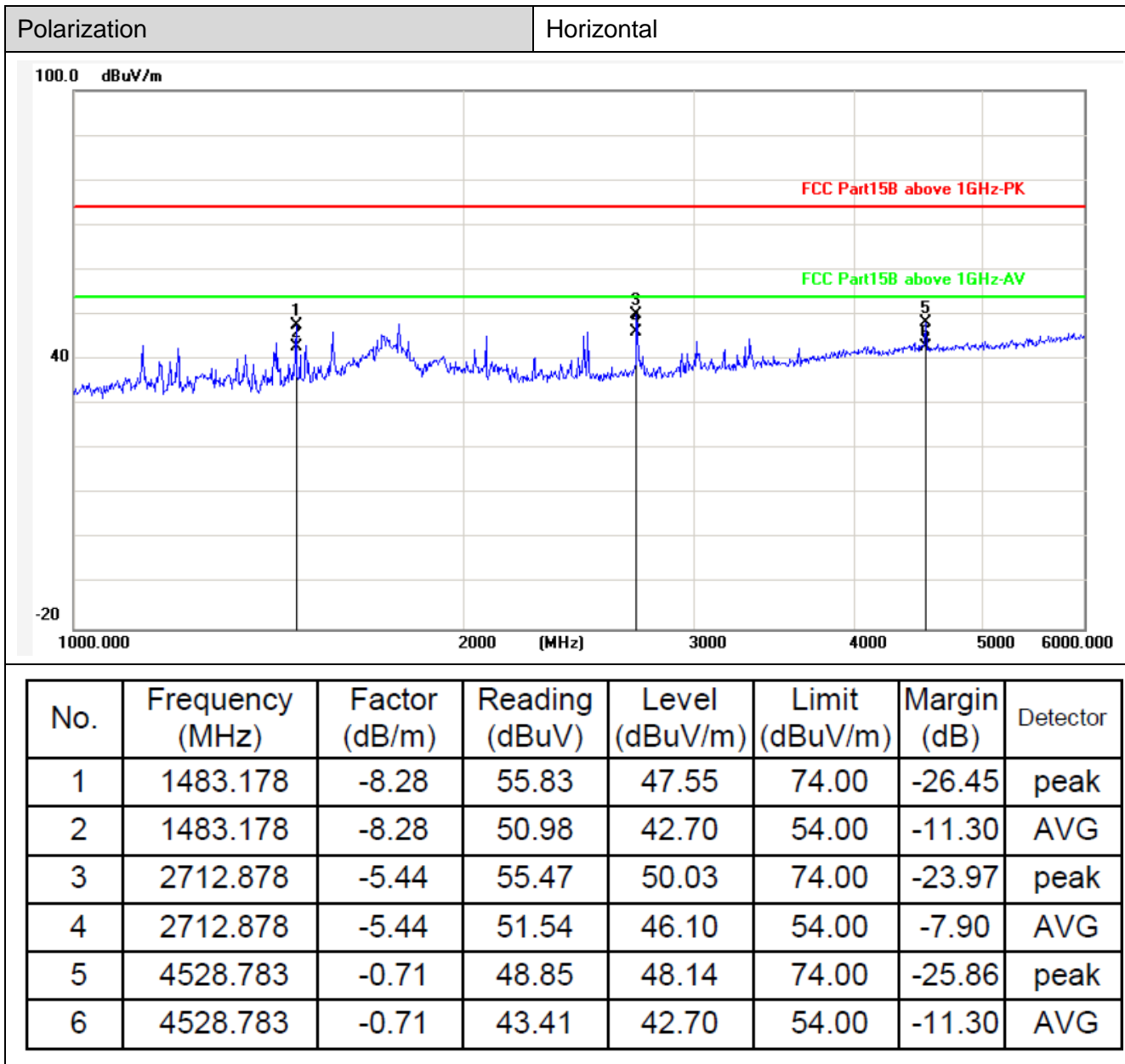
**TEST RESULTS**

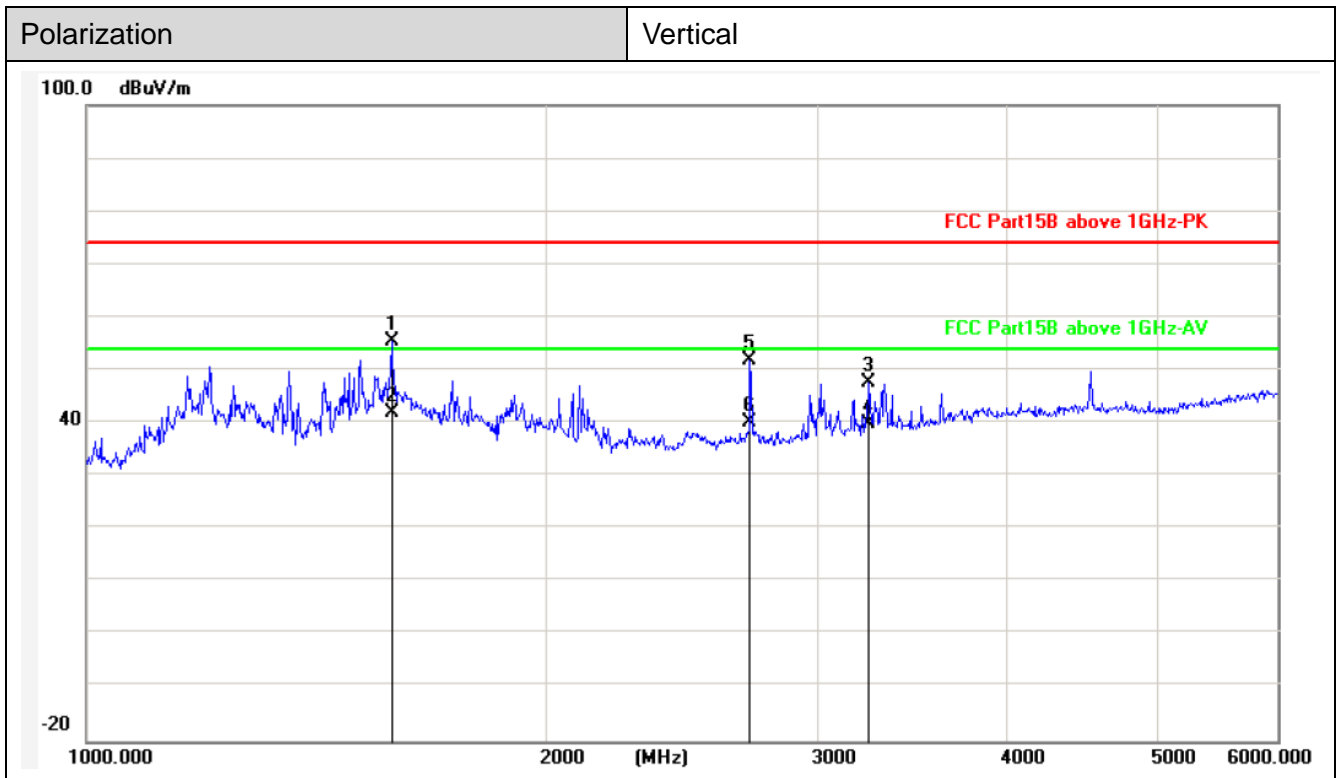
30MHz-1GHz





1GHz-6GHz





| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|----------|
| 1   | 1582.001        | -8.24         | 63.73          | 55.49          | 74.00          | -18.51      | peak     |
| 2   | 1582.001        | -8.24         | 50.34          | 42.10          | 54.00          | -11.90      | AVG      |
| 3   | 3245.229        | -4.80         | 52.32          | 47.52          | 74.00          | -26.48      | peak     |
| 4   | 3245.229        | -4.80         | 44.80          | 40.00          | 54.00          | -14.00      | AVG      |
| 5   | 2712.878        | -5.44         | 57.32          | 51.88          | 74.00          | -22.12      | peak     |
| 6   | 2712.878        | -5.44         | 45.64          | 40.20          | 54.00          | -13.80      | AVG      |

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.



### 3.2. Conducted Emission (AC Mains)

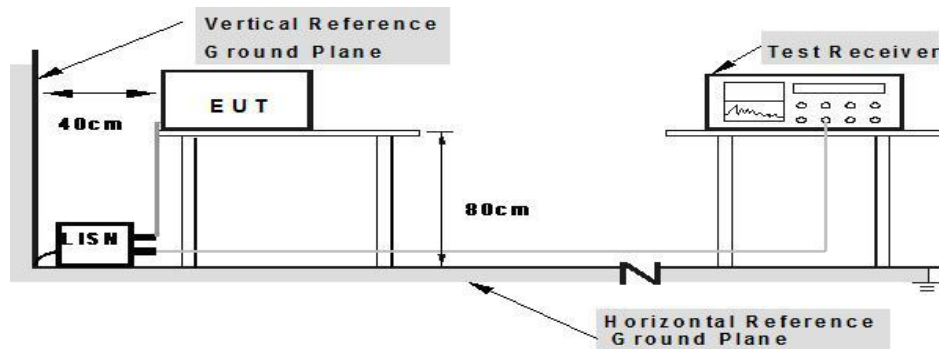
#### LIMIT

FCC CFR Title 47 Part 15 Subpart B Section 15.107

| Frequency range (MHz) | Limit (dBuV) |           |
|-----------------------|--------------|-----------|
|                       | Quasi-peak   | Average   |
| 0.15-0.5              | 66 to 56*    | 56 to 46* |
| 0.5-5                 | 56           | 46        |
| 5-30                  | 60           | 50        |

\* Decreases with the logarithm of the frequency.

#### TEST CONFIGURATION



**Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

#### TEST PROCEDURE

1. The EUT was setup according to ANSI C63.4-2014.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

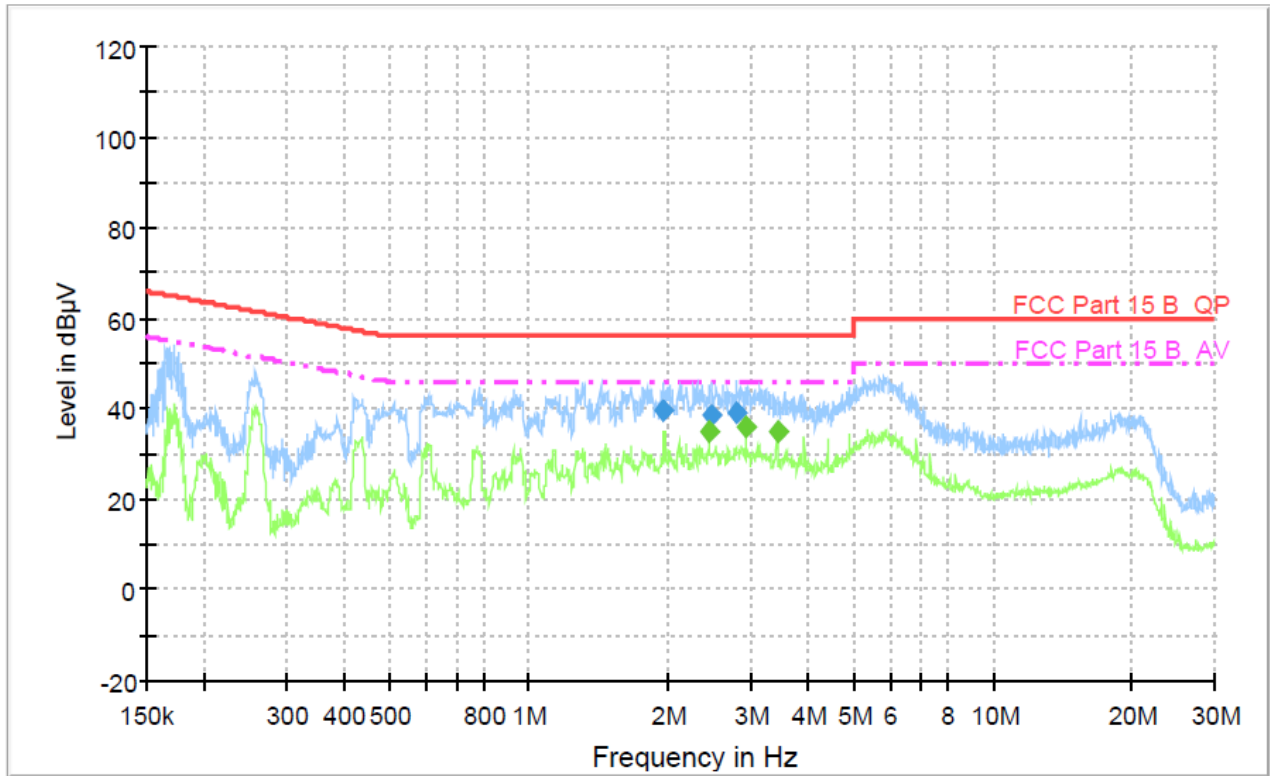
#### TEST RESULTS

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



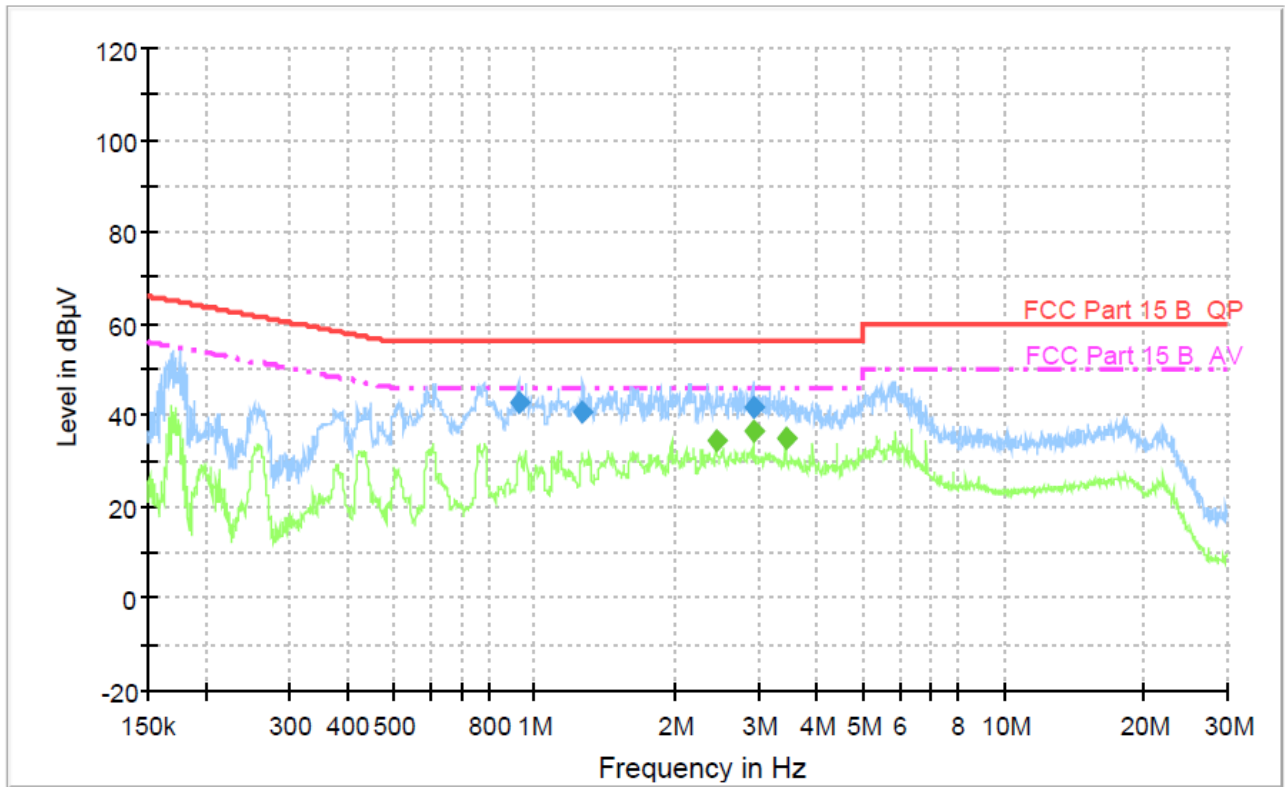
Polarization L



| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 1.950950        | 39.5             | 1000.000        | 9.000           | Off    | L1   | 10.0       | 16.6        | 56.0         |
| 2.474600        | 38.8             | 1000.000        | 9.000           | Off    | L1   | 10.0       | 17.2        | 56.0         |
| 2.812150        | 38.9             | 1000.000        | 9.000           | Off    | L1   | 10.0       | 17.1        | 56.0         |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 2.445110        | 35.0           | 1000.000        | 9.000           | Off    | L1   | 10.0       | 11.0        | 46.0         |
| 2.938520        | 36.1           | 1000.000        | 9.000           | Off    | L1   | 10.0       | 9.9         | 46.0         |
| 3.427230        | 35.0           | 1000.000        | 9.000           | Off    | L1   | 10.0       | 11.0        | 46.0         |

|              |   |
|--------------|---|
| Polarization | N |
|--------------|---|



| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.924100        | 42.8             | 1000.000        | 9.000           | Off    | N    | 9.5        | 13.2        | 56.0         |
| 1.269660        | 40.8             | 1000.000        | 9.000           | Off    | N    | 9.4        | 15.2        | 56.0         |
| 2.938520        | 42.0             | 1000.000        | 9.000           | Off    | N    | 9.5        | 14.0        | 56.0         |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 2.450000        | 34.5           | 1000.000        | 9.000           | Off    | N    | 9.4        | 11.5        | 46.0         |
| 2.938520        | 36.4           | 1000.000        | 9.000           | Off    | N    | 9.5        | 9.6         | 46.0         |
| 3.427230        | 35.0           | 1000.000        | 9.000           | Off    | N    | 9.5        | 11.0        | 46.0         |

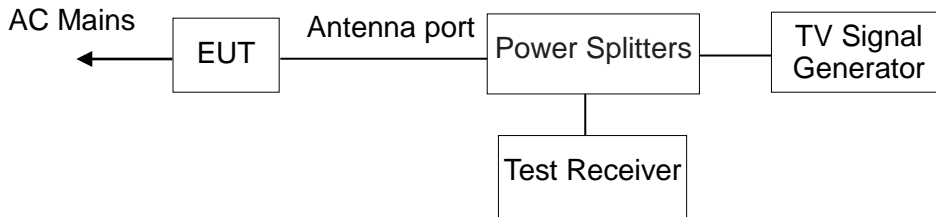
### 3.3. Antenna Power Conduction Measurement

#### LIMITS

FCC Part 15, Subpart B, Clause 15.111

| Limit(nW) | Limit (dBμV) |
|-----------|--------------|
| 2         | 51.7         |

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. The test item can be in deliver on shielding room.
2. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
3. EUT receives AC power source from the outlet socket. All support equipment, if need, receives 120VAC/60Hz power from another socket.
4. With the 75~50Ω matching network when the connected coaxial cable of impedance not matching.
5. The output level of the auxiliary signal generator shall be set to give the value of 70dB(μV) for TV to the input of the frequency-modulation of television receiver respectively, on a 75Ω impedance, An additional amplifier should be insert at the generator output, if necessary.
6. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
7. The results shall be expressed in the terms of the substitution power in nanowatt(nW), as supplied by the standard signal generator. The specified source impedance of the receiver shall be stated with the results.
8. When measurements are made at the antenna terminals of the equipment under test, an auxiliary signal generator shall be used to feed the equipment under test input with a standard test signal at the receiver tuning frequency.

Test results were obtained from the following equation:

$$\text{Emission Level (dB}\mu\text{V)} = \text{Power splitter Factor (dB)} + \text{Cable Loss (dB)} + \text{Reading (dB}\mu\text{V)}$$

$$\text{Margin (dB)} = \text{Emission Level (dB}\mu\text{V)} - \text{Limit (dB}\mu\text{V)}$$

**TEST RESULTS**

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

| Channel | Frequency (MHz) | Measured Frequency (MHz) | Reading (dB $\mu$ V) | Limit (dB $\mu$ V) | 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 (50dB $\mu$ V) was converted from the limit (2nW) at the 50 $\Omega$  measurement impedance.

### 3.4. Picture Sensitivity Measurement

#### TEST RESULTS

| VHF Band                                       |                       | Antenna Input Level (dBμV) | UHF Band     |                       | Antenna Input Level (dBμV) |
|--|-----------------------|----------------------------|--------------|-----------------------|----------------------------|
| Channel  | Frequency Range (MHz) |                            | Channel      | Frequency Range (MHz) |                            |
| 2  | 55.250                | 25                         | 14           | 471.250               | 26                         |
| 3  | 61.250                | 26                         | 20           | 507.250               | 26                         |
| 4  | 67.250                | 26                         | 26           | 543.250               | 28                         |
| 5  | 77.250                | 24                         | 32           | 579.250               | 25                         |
| 6  | 83.250                | 25                         | 38           | 615.250               | 28                         |
| 7  | 175.250               | 27                         | 44           | 651.250               | 26                         |
| 8  | 181.250               | 25                         | 50           | 687.250               | 25                         |
| 9  | 187.250               | 26                         | 56           | 723.250               | 24                         |
| 10   | 193.250               | 28                         | 62           | 759.250               | 25                         |
| 11   | 199.250               | 27                         | 69           | 801.250               | 25                         |
| 12   | 205.250               | 25                         | /            | /                     | /                          |
| 13   | 211.250               | 25                         | /            | /                     | /                          |
| Average(VHF)                                   |                       | 25.75                      | Average(UHF) |                       | 25.8                       |
| Average(UHF)-Average(VHF)=0.05 dB(Limit 8.0dB) |                       |                            |              |                       |                            |

### 3.5. Noise Figure Measurement

#### TEST RESULTS

| Channel | Frequency (MHz) | Measured Frequency (MHz) | Gain (dB) | Noise Figure (dB) | Limit (dB) |
|---------|-----------------|--------------------------|-----------|-------------------|------------|
| 2       | 101.000         | 101.000                  | >30.0     | 3.5               | 14         |
| 3       | 107.000         | 107.000                  | >30.0     | 3.6               | 14         |
| 4       | 113.000         | 113.000                  | >30.0     | 3.7               | 14         |
| 5       | 123.000         | 123.000                  | >30.0     | 3.8               | 14         |
| 6       | 129.000         | 129.000                  | >30.0     | 3.4               | 14         |
| 7       | 221.000         | 221.000                  | >30.0     | 3.3               | 14         |
| 8       | 227.000         | 227.000                  | >30.0     | 3.8               | 14         |
| 9       | 233.000         | 233.000                  | >30.0     | 3.6               | 14         |
| 10      | 239.000         | 239.000                  | >30.0     | 3.5               | 14         |
| 11      | 245.000         | 245.000                  | >30.0     | 3.8               | 14         |
| 12      | 251.000         | 251.000                  | >30.0     | 3.6               | 14         |
| 13      | 257.000         | 257.000                  | <30.0     | 3.6               | 14         |
| 14      | 517.000         | 517.000                  | <30.0     | 3.6               | 14         |
| 15      | 523.000         | 523.000                  | <30.0     | 3.8               | 14         |
| 20      | 553.000         | 553.000                  | <30.0     | 3.5               | 14         |
| 28      | 601.000         | 601.000                  | <30.0     | 3.8               | 14         |
| 36      | 649.000         | 649.000                  | <30.0     | 3.4               | 14         |
| 45      | 703.000         | 703.000                  | <30.0     | 3.5               | 14         |
| 53      | 751.000         | 751.000                  | <30.0     | 3.8               | 14         |
| 61      | 799.000         | 799.000                  | <30.0     | 3.6               | 14         |
| 69      | 847.000         | 847.000                  | <30.0     | 3.4               | 14         |

Remark: The specification was provided by tuner manufacturer.

## 4. EUT TEST PHOTOS

Reference to the document No.: Test Photographs



## 5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Reference to the document No.: External Photographs and Internal Photographs.

\*\*\*\*\*THE END\*\*\*\*\*