# RF Test Report

Report No: FCS202203098W01

Issued for

| | |
|---|---|
| Applicant: | Kunshan MYZY Fixture Technology Co., Ltd. |
| Address: | No.2618 ,Huanqing Road ,High-tech Zone，Kunshan City ,Jiangsu Province ,China |
| Product Name: | HDO 2.0 Fixture |
| Brand Name: | N/A |
| Model Name: | MZ22-FT007-01 |
| Series Model: | N/A |
| FCC ID: | 2AXI7-MZ22 |
| Issued By: Flux Compliance Service Laboratory<br>Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan<br>Tel: 769-27280901 Fax:769-27280901 http://www.FCS-lab.com | |

# TEST RESULT CERTIFICATION

| | |
|---|---|
| Applicant's Name..... : | Kunshan MYZY Fixture Technology Co., Ltd. |
| Address ..... : | No.2618 ,Huanqing Road ,High-tech Zone，Kunshan City ,Jiangsu Province ,China |
| Manufacture's Name..... : | Kunshan Myzy Fixture Technology Co., Ltd. |
| Address ..... : | No.2618 Huanqing Road, North of Kunshan |

**Product Description**

| | |
|---|---|
| Product Name..... : | HDO 2.0 Fixture |
| Brand Name ..... : | N/A |
| Model Name..... : | MZ22-FT007-01 |
| Series Model..... : | N/A |
| Test Standards..... : | FCC Rules and Regulations Part 15 Subpart C, Section 225 |
| Test Procedure..... : | ANSI C63.10:2013 |

This device described above has been tested FCS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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**Date of Test**.....:

| | |
|---|---|
| Date (s) of performance of tests.: | 14 Mar. 2022~24 Mar. 2022 |
| Date of Issue .....: | 24 Mar. 2022 |
| Test Result .....: | Pass |

Tested by : Scott Shen

(Scott Shen)

Reviewed by : Duke Qian

(Duke Qian)

Approved by : Jack Wang

(Jack Wang)

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## Revision History

| Rev. | Issue Date | Effect Page | Contents |
|---|---|---|---|
| 00 | 24 Mar. 2022 | All | Initial Issue |
| | | | |

# 1. SUMMARY OF TEST RESULTS

| Test Summary | | | |
|---|---|---|---|
| FCC part No. | Test Item | Judgment | Remark |
| 15.207 | Conducted Emission | PASS | -- |
| 15.225(d) &15.209 | Radiated Emission | PASS | -- |
| 15.225(a) | Field Strength of Fundamental Emissions | PASS | |
| 2.1049 | 20dB Bandwidth | PASS | |
| 15.225(e) | Frequency Stability | PASS | |
| 15.203 | Antenna Requirement | PASS | -- |

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) All tests are according to ANSI C63.10-2013

## 1.1 TEST FACTORY

| | |
|---|---|
| Company Name: | Flux Compliance Service Laboratory |
| Address: | Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan |
| Telephone: | +86-769-27280901 |
| Fax: | +86-769-27280901 |
| FCC Test Firm Registration Number: 514908<br>Designation number: CN0127<br>A2LA accreditation number：5545.01 | |

## 1.2 MEASUREMENT UNCERTAINTY

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

| No. | Item | Uncertainty |
|---|---|---|
| 1 | RF output power, conducted | ±0.71dB |
| 2 | Unwanted Emissions, conducted | ±2.98 dB |
| 3 | Conducted Emission (9KHz-150KHz) | ±4.13 dB |
| 4 | Conducted Emission (150KHz-30MHz) | ±4.74 dB |
| 5 | All emissions,radiated(<1G) 30MHz-1000MHz | ±3.2 dB |
| 6 | All emissions,radiated (1GHz -18GHz) | ±3.66 dB |
| 7 | All emissions,radiated (18GHz -40GHz) | ±4.31 dB |

# 2. GENERAL INFORMATION

## 2.1 GENERAL DESCRIPTION OF THE EUT

| | |
|---|---|
| Product Name | HDO 2.0 Fixture |
| Trade Name | N/A |
| Model Name | MZ22-FT007-01 |
| Series Model | N/A |
| Model Difference | N/A |
| Frequency | 13.56MHZ |
| Modulation | ASK |
| Antenna type | PCB antenna |
| Power Supply | AC 110-240V~50/60Hz |
| Hardware version number | V1.1 |
| Software version number | V1.1 |
| Connecting I/O Port(s) | Please refer to the User's Manual |

Note:

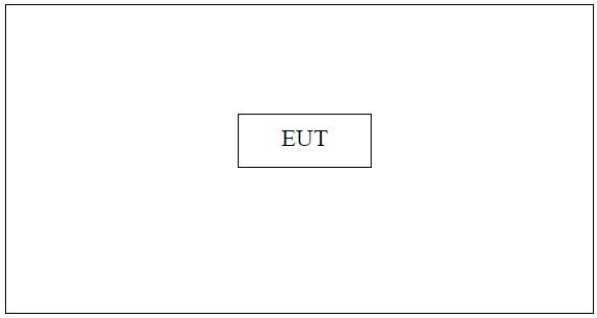
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | NOTE |
|---|---|---|---|---|---|---|
| 1 | NA | FGVX | PCB Antenna | N/A | 1.0 | Antenna |

## 2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Configuration and peripherals




Test environment conditions
During the measurement the environmental conditions were within the listed ranges:
Temperature range: 21-25℃
Humidity range: 40-75%
Pressure range: 86-106kPa

## 2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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.

Necessary accessories

| Item | Equipment | Mfr/Brand | Model/Type No. | Serial No. | Note |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Support units

| Item | Equipment | Mfr/Brand | Model/Type No. | Serial No. | Note |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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”.

## 2.4 EQUIPMENTS LIST

Radiation Test equipment

| Kind of Equipment | Manufacturer | Type No. | Company No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESRP 3 | FCS-E001 | 2022.02.10 | 2023.02.09 |
| Signal Analyzer | R&S | FSV40-N | FCS-E012 | 2022.02.10 | 2023.02.09 |
| Active loop Antenna | ZHINAN | ZN30900C | FCS-E013 | 2022.02.10 | 2023.02.09 |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | FCS-E002 | 2022.02.10 | 2023.02.09 |
| Horn Antenna | SCHWARZBECK | BBHA 9120D | FCS-E003 | 2022.02.10 | 2023.02.09 |
| SHF-EHF Horn Antenna (18G-40GHz) | A-INFO | LB-180400-KF | FCS-E018 | 2022.02.10 | 2023.02.09 |
| Pre-Amplifier(0.1M-3G Hz) | EMCI | EM330N | FCS-E004 | 2022.02.10 | 2023.02.09 |
| Pre-Amplifier (1G-18GHz) | N/A | TSAMP-0518SE | FCS-E014 | 2022.02.10 | 2023.02.09 |
| Pre-Amplifier (18G-40GHz) | TERA-MW | TRLA-0400 | FCS-E019 | 2022.02.10 | 2023.02.09 |
| Temperature & Humidity | HTC-1 | victor | FCS-E005 | 2022.02.10 | 2023.02.09 |

Conduction Test equipment

| Kind of Equipment | Manufacturer | Type No. | Company No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESPI | FCS-E020 | 2022.02.10 | 2023.02.09 |
| LISN | R&S | ENV216 | FCS-E007 | 2022.02.10 | 2023.02.09 |
| LISN | ETS | 3810/2NM | FCS-E009 | 2022.02.10 | 2023.02.09 |
| Temperature & Humidity | HTC-1 | victor | FCS-E008 | 2022.02.10 | 2023.02.09 |

RF Connected Test

| Kind of Equipment | Manufacturer | Type No. | Company No. | Last calibration | Calibrated until |
|---|---|---|---|---|---|
| Spectrum Analyzer | Keysight | N9020A | FCS-E015 | 2022.02.10 | 2023.02.09 |
| Spectrum Analyzer | Agilent | E4447A | MY50180039 | 2022.02.10 | 2023.02.09 |
| Spectrum Analyzer | R&S | FSV-40 | 101499 | 2022.02.10 | 2023.02.09 |

# 3 CONDUCTED EMISSION MEASUREMENT

## 3.1 LIMIT

FCC §15.207

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

| FREQUENCY (MHz) | Conducted Emissionlimit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 -0.5 | 66 - 56 * | 56 - 46 * |
| 0.50 -5.0 | 56.00 | 46.00 |
| 5.0 -30.0 | 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.

## 3.2 TEST PROCEDURE

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 |

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical 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.

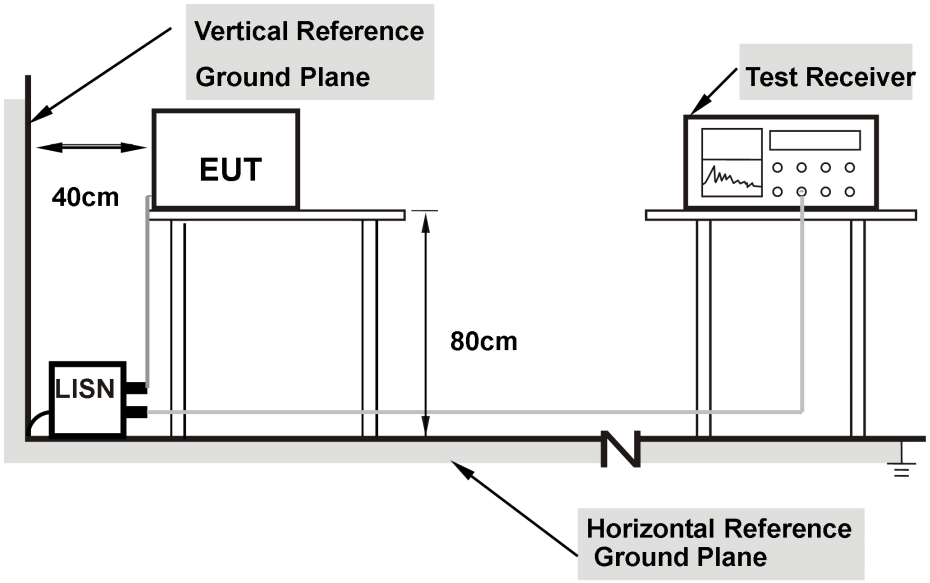
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. 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.

d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.3 TEST SETUP



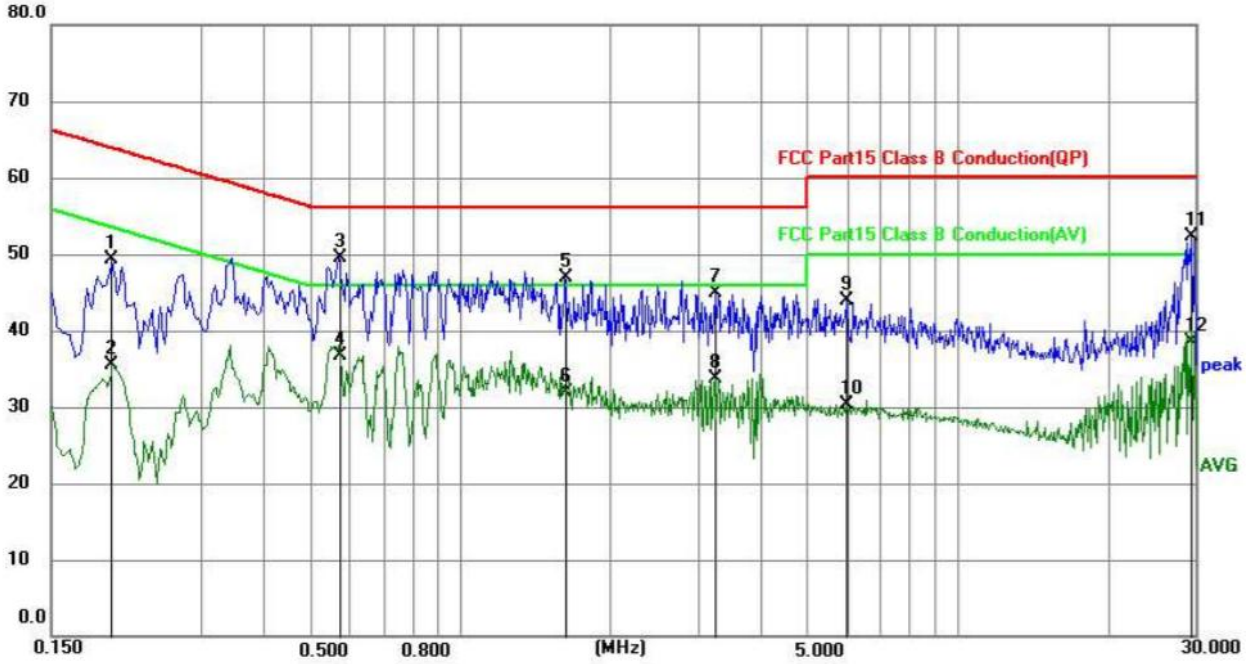

Note: 1.Support units were connected to second LISN.

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

### 3.4 TEST RESULTS

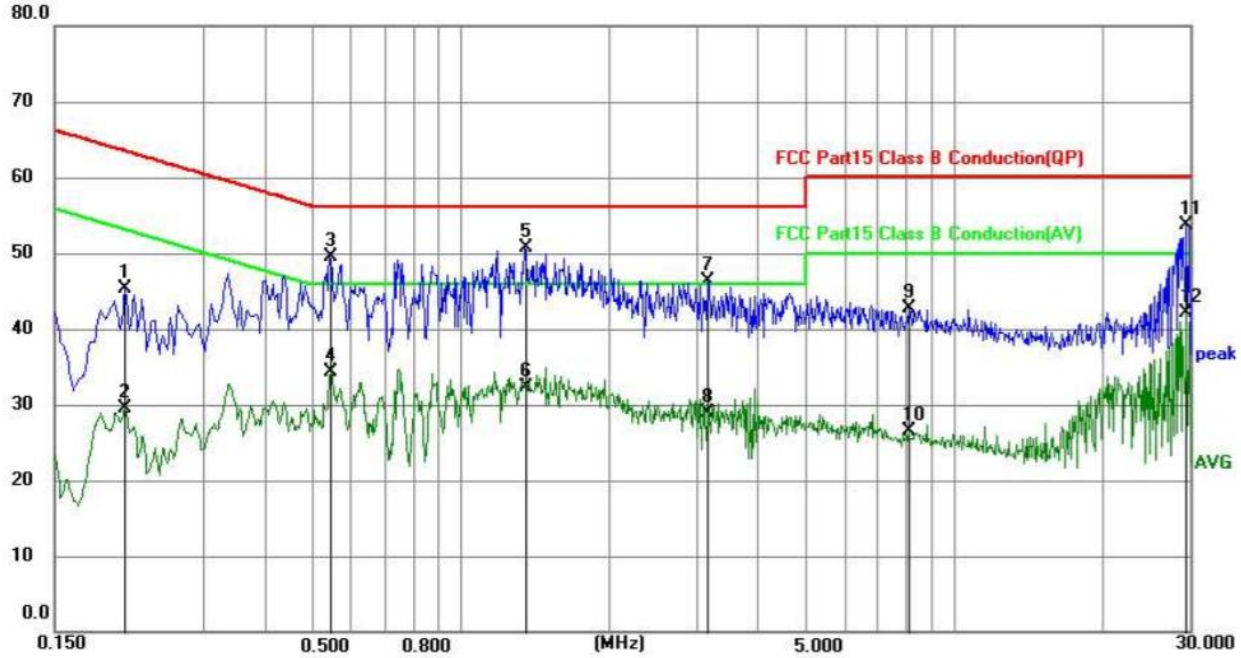
| | | | |
|---|---|---|---|
| Temperature: | 25℃ | Relative Humidity: | 50% |
| Test Mode: | ASK | Test Voltage: | AC 110V/60Hz |
| Result: | Pass | | |

L-line




| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.1995 | 39.81 | 9.53 | 49.34 | 63.63 | 14.29 | QP |
| 2 | 0.1995 | 26.07 | 9.53 | 35.60 | 53.63 | 18.03 | AVG |
| 3 | 0.5685 | 39.85 | 9.56 | 49.41 | 56.00 | 6.59 | QP |
| 4 | 0.5685 | 27.14 | 9.56 | 36.70 | 46.00 | 9.30 | AVG |
| 5 | 1.6260 | 37.25 | 9.58 | 46.83 | 56.00 | 9.17 | QP |
| 6 | 1.6260 | 22.31 | 9.58 | 31.89 | 46.00 | 14.11 | AVG |
| 7 | 3.2415 | 35.38 | 9.58 | 44.96 | 56.00 | 11.04 | QP |
| 8 | 3.2415 | 24.12 | 9.58 | 33.90 | 46.00 | 12.30 | AVG |
| 9 | 5.9730 | 34.27 | 9.60 | 43.87 | 60.00 | 16.13 | QP |
| 10 | 5.9730 | 20.78 | 9.60 | 30.38 | 50.00 | 19.62 | AVG |
| 11 | 29.4270 | 42.42 | 9.81 | 52.23 | 60.00 | 7.77 | QP |
| 12 | 29.4270 | 28.70 | 9.81 | 38.51 | 50.00 | 11.49 | AVG |

N-line




| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 0.2085 | 35.84 | 9.53 | 45.37 | 63.26 | 17.89 | QP |
| 2 | 0.2085 | 20.07 | 9.53 | 29.60 | 53.26 | 23.66 | AVG |
| 3 | 0.5415 | 39.88 | 9.56 | 49.44 | 56.00 | 6.56 | QP |
| 4 | 0.5415 | 24.72 | 9.56 | 34.28 | 46.00 | 11.72 | AVG |
| 5 | 1.3515 | 41.16 | 9.57 | 50.73 | 56.00 | 5.27 | QP |
| 6 | 1.3515 | 22.77 | 9.57 | 32.34 | 46.00 | 13.66 | AVG |
| 7 | 3.1695 | 36.67 | 9.61 | 46.28 | 56.00 | 9.72 | QP |
| 8 | 3.1695 | 19.35 | 9.61 | 28.96 | 46.00 | 17.04 | AVG |
| 9 | 8.0925 | 32.88 | 9.77 | 42.65 | 60.00 | 17.35 | QP |
| 10 | 8.0925 | 16.77 | 9.77 | 26.54 | 50.00 | 23.46 | AVG |
| 11 | 29.6295 | 43.94 | 9.85 | 53.79 | 60.00 | 6.21 | QP |
| 12 | 29.6295 | 32.24 | 9.85 | 42.09 | 50.00 | 7.91 | AVG |

# 4.RADIATED EMISSION MEASUREMENT

## 4.1 LIMIT

FCC §15.225(A), (B), (C), (D)

LIMITS OF RADIATED EMISSION MEASUREMENT

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|---|---|---|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

4. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

LIMITS OF FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL

| Frequency range (MHz) | Field Strength@30m | | Field Strength@3m |
|---|---|---|---|
| | μV/m | dBμV/m | dBμV/m |
| Below 13.110 | 30 | 29.5 | 69.5 |
| 13.110 ~ 13.410 | 106 | 40.5 | 80.5 |
| 13.410 ~ 13.553 | 334 | 50.5 | 90.5 |
| 13.553 ~13.567 | 15.848 | 84 | 124 |
| 13.567 ~ 13.710 | 334 | 50.5 | 90.5 |
| 13.710 ~14.010 | 106 | 40.5 | 80.5 |
| Above 14.010 | 30 | 29.5 | 69.5 |

NOTE:

1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.

According to FCC section 15.225, for <30 MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 KHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT) There was no detected Restricted bands and Radiated suprious emission below 30MHz. The 30m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows; 3 m Limit(dBuV/m) =20log(X)+40log(30/3)= 20log(15848)+40log(30/3) = 124dBuV

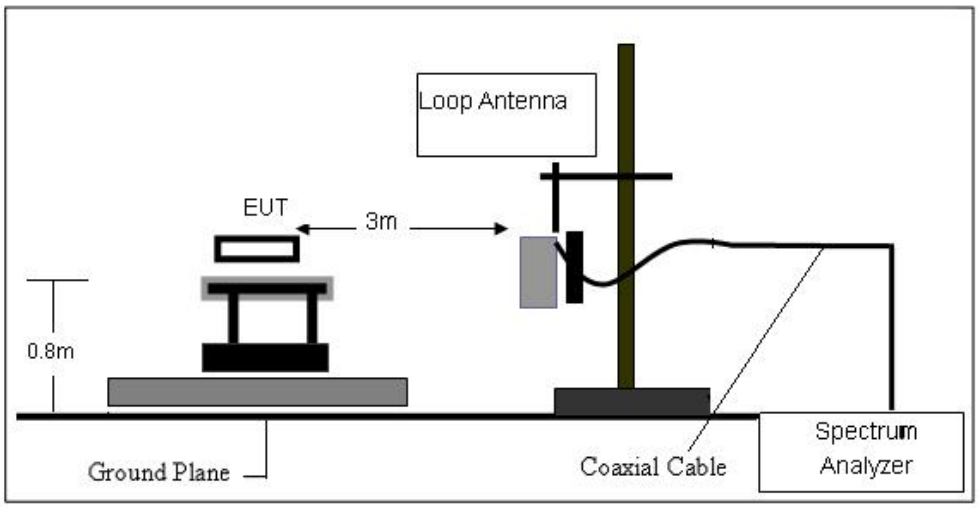
4.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

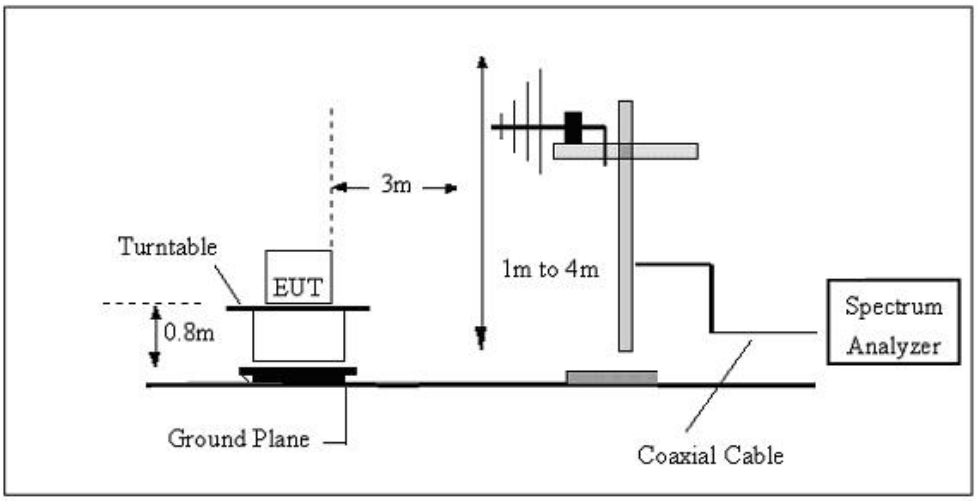
Note:
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.3 TEST SETUP

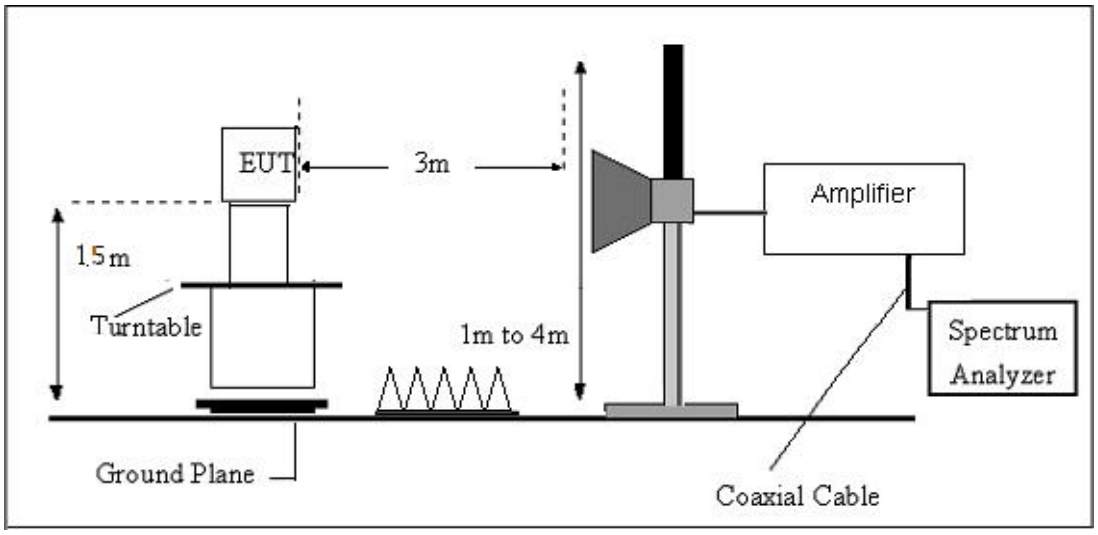
（A） Radiated Emission Test-Up Frequency Below 30MHz




（B） Radiated Emission Test-Up Frequency 30MHz~1GHz



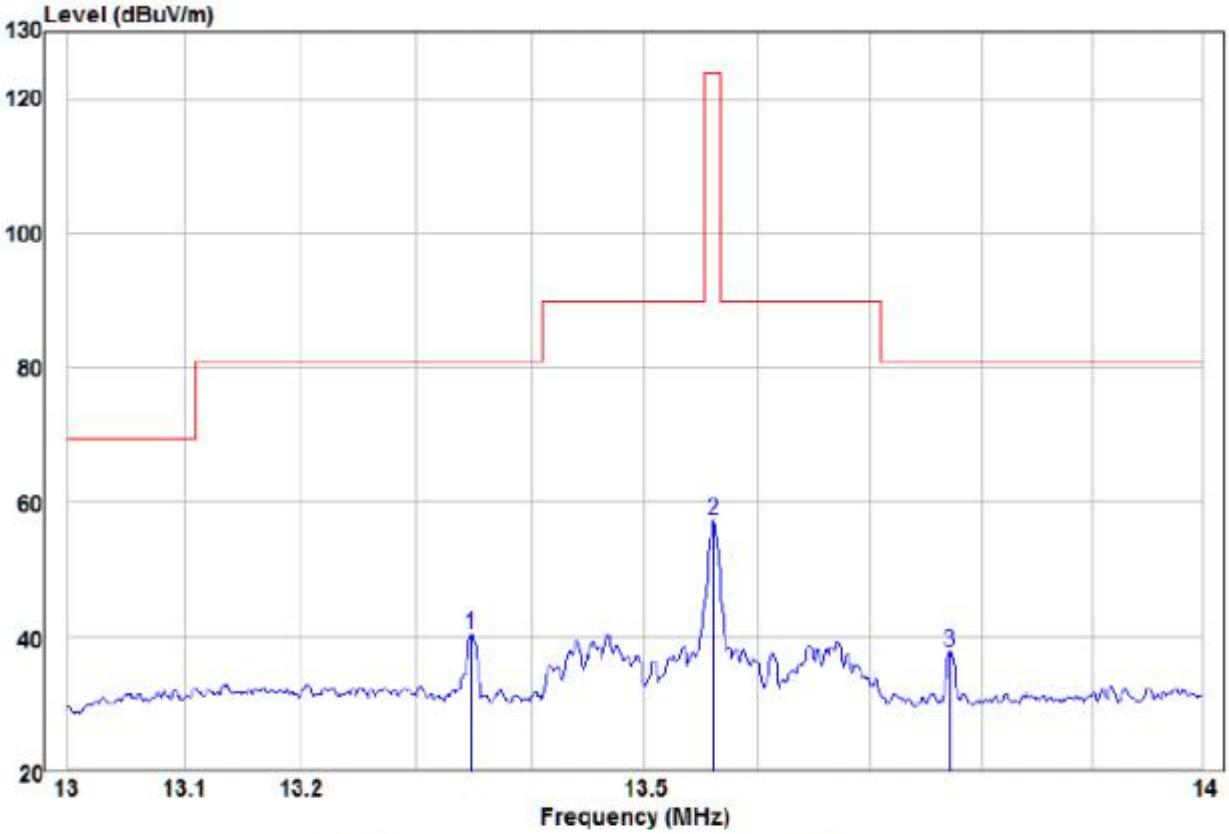

（C） Radiated Emission Test-Up Frequency Above 1GHz



4.4 TEST RESULTS

| | | | |
|---|---|---|---|
| Temperature: | 25℃ | Relative Humidity: | 60% |
| Test Mode: | ASK | Test Voltage: | AC 110V/60Hz |

For field strength of the fundamental signal

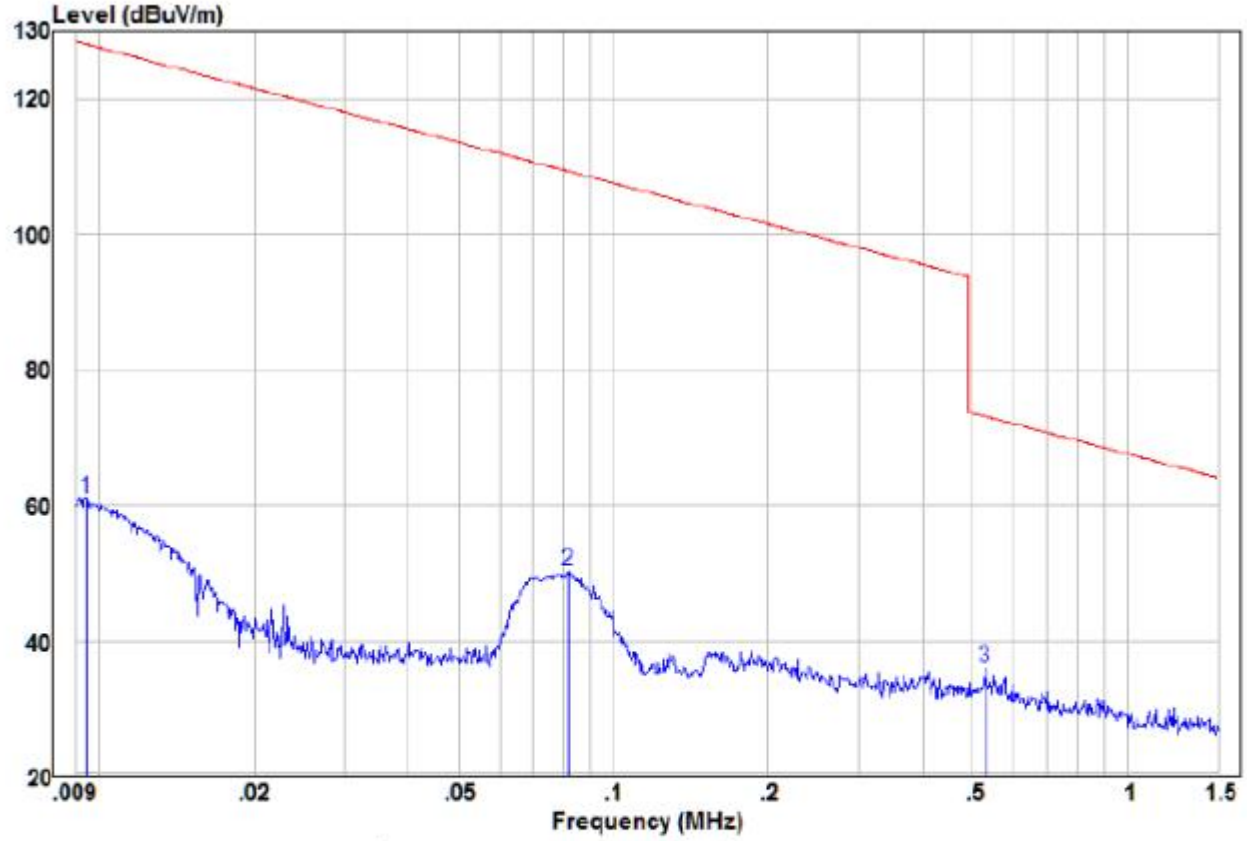



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | |
| 1 pp | 13.35 | 20.43 | 19.93 | 40.36 | 81.00 | -40.64 | Peak | HORIZONTAL |
| 2 | 13.56 | 37.32 | 19.92 | 57.24 | 124.00 | -66.76 | Peak | HORIZONTAL |
| 3 | 13.77 | 17.94 | 19.92 | 37.86 | 81.00 | -43.14 | Peak | HORIZONTAL |

Note: peak emission were reported

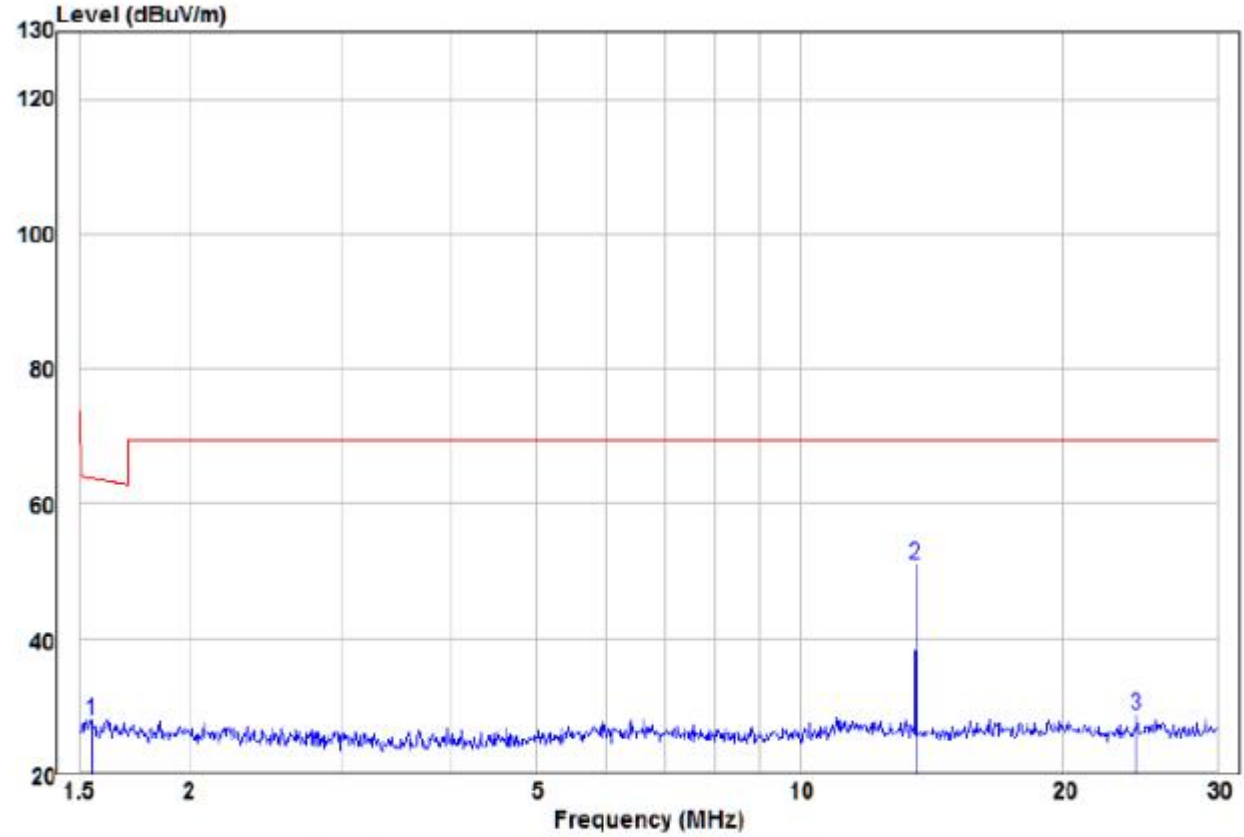
For spurious emission

9kHz – 150KHz:




| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | |
| 1 | 0.01 | 41.36 | 19.69 | 61.05 | 128.10 | -67.05 | QP | HORIZONTAL |
| 2 | 0.08 | 30.60 | 19.67 | 50.27 | 109.36 | -59.09 | QP | HORIZONTAL |
| 3 pp | 0.53 | 16.17 | 19.71 | 35.88 | 73.15 | -37.27 | QP | HORIZONTAL |

150KHz-30MHz:

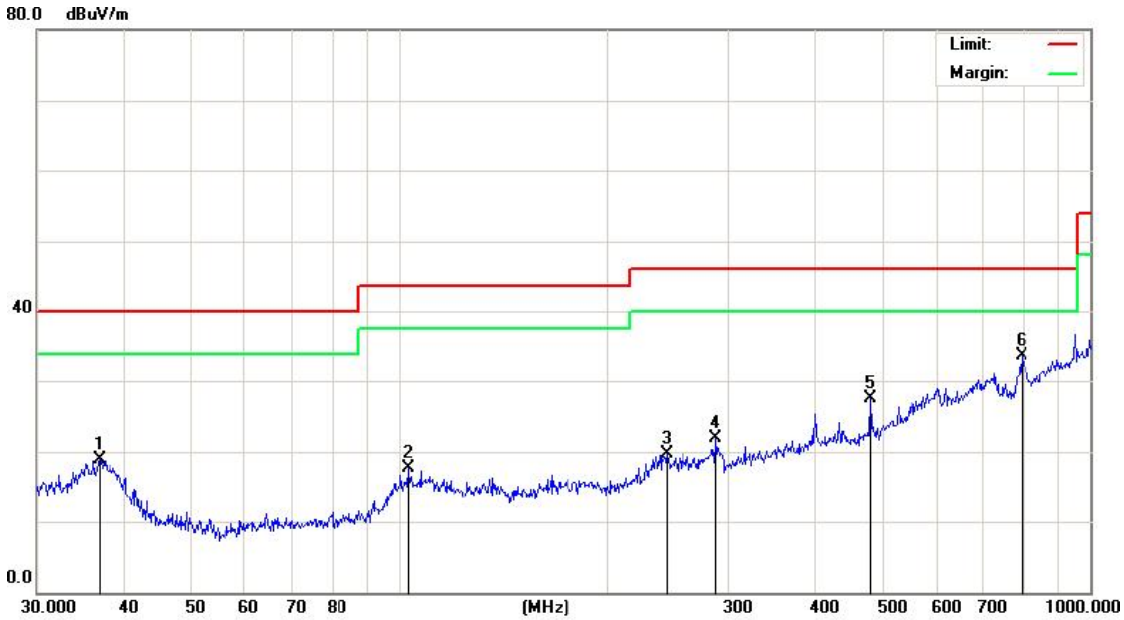



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | |
| 1 | 1.55 | 8.13 | 19.96 | 28.09 | 63.85 | -35.76 | QP | HORIZONTAL |
| 2 pp | 13.56 | 31.13 | 19.92 | 51.05 | 69.50 | -18.45 | QP | HORIZONTAL |
| 3 | 24.32 | 8.52 | 20.16 | 28.68 | 69.50 | -40.82 | QP | HORIZONTAL |

1. 13.56 MHz is fundamental signal which can be ignored.
2. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
4. Limit line = specific limits (dBμV) + distance extrapolation factor

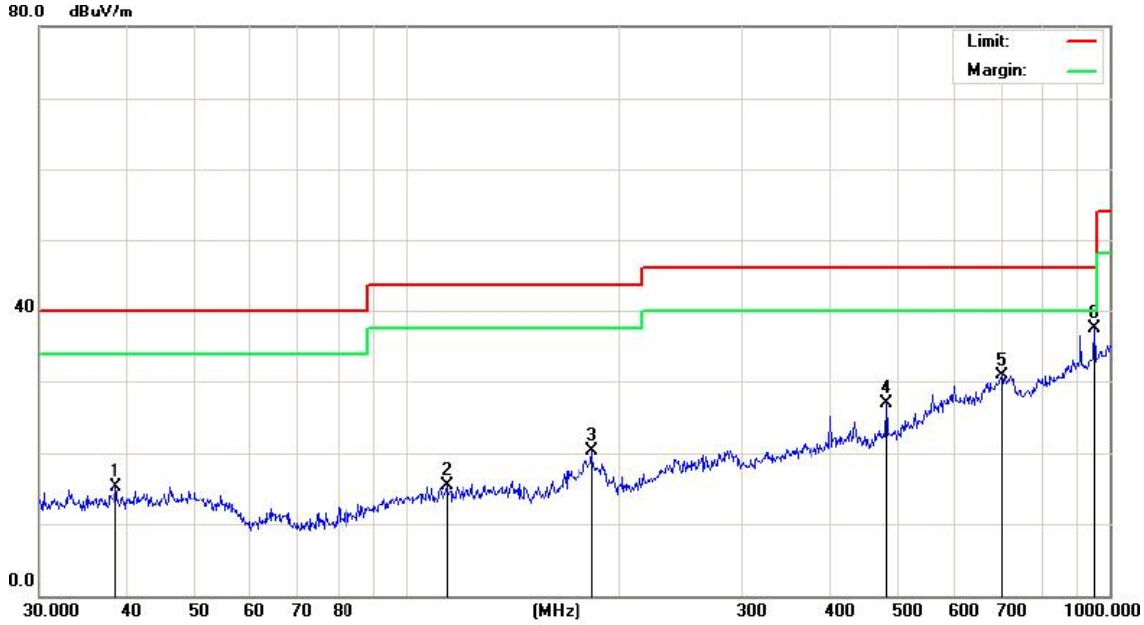
(30MHZ-1000MHZ)

| | | | |
|---|---|---|---|
| Temperature: | 23.7℃ | Relative Humidity: | 61% |
| Test Voltage: | AC 110V/60Hz | Phase: | Horizontal |
| Test Mode: | ASK | | |




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | |
|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 36.8953 | 35.68 | -16.72 | 18.96 | 40.00 | -21.04 | QP |
| 2 | | 103.0800 | 31.44 | -13.72 | 17.72 | 43.50 | -25.78 | QP |
| 3 | | 244.2321 | 31.16 | -11.54 | 19.62 | 46.00 | -26.38 | QP |
| 4 | | 287.9904 | 31.76 | -9.85 | 21.91 | 46.00 | -24.09 | QP |
| 5 | | 480.5276 | 33.40 | -5.90 | 27.50 | 46.00 | -18.50 | QP |
| 6 | * | 796.1830 | 30.64 | 3.01 | 33.65 | 46.00 | -12.35 | QP |

| | | | |
|---|---|---|---|
| Temperature: | 22.7℃ | Relative Humidity: | 61% |
| Test Voltage: | AC 110V/60Hz | Phase: | Vertical |
| Test Mode: | ASK | | |




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | |
|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 38.4809 | 29.77 | -14.48 | 15.29 | 40.00 | -24.71 | QP |
| 2 | | 113.7143 | 30.66 | -15.21 | 15.45 | 43.50 | -28.05 | QP |
| 3 | | 183.2005 | 30.71 | -10.48 | 20.23 | 43.50 | -23.27 | QP |
| 4 | | 480.5276 | 32.74 | -5.90 | 26.84 | 46.00 | -19.16 | QP |
| 5 | | 701.7610 | 30.61 | 0.32 | 30.93 | 46.00 | -15.07 | QP |
| 6 | * | 952.0937 | 33.74 | 3.77 | 37.51 | 46.00 | -8.49 | QP |

## 5.20 DB BANDWIDTH TEST

### 5.1 TEST PROCEDURE

FCC §2.1049&15.215(C)

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

The 20dB bandwidth is measured with a spectrum analyzer connected via a receiver antenna placed near the EUT

while the EUT is operating in transmission mode.

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth

RBW ≥ 1% of the 20 dB bandwidth

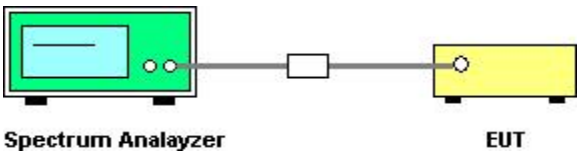
VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

### 5.2 TEST SETUP

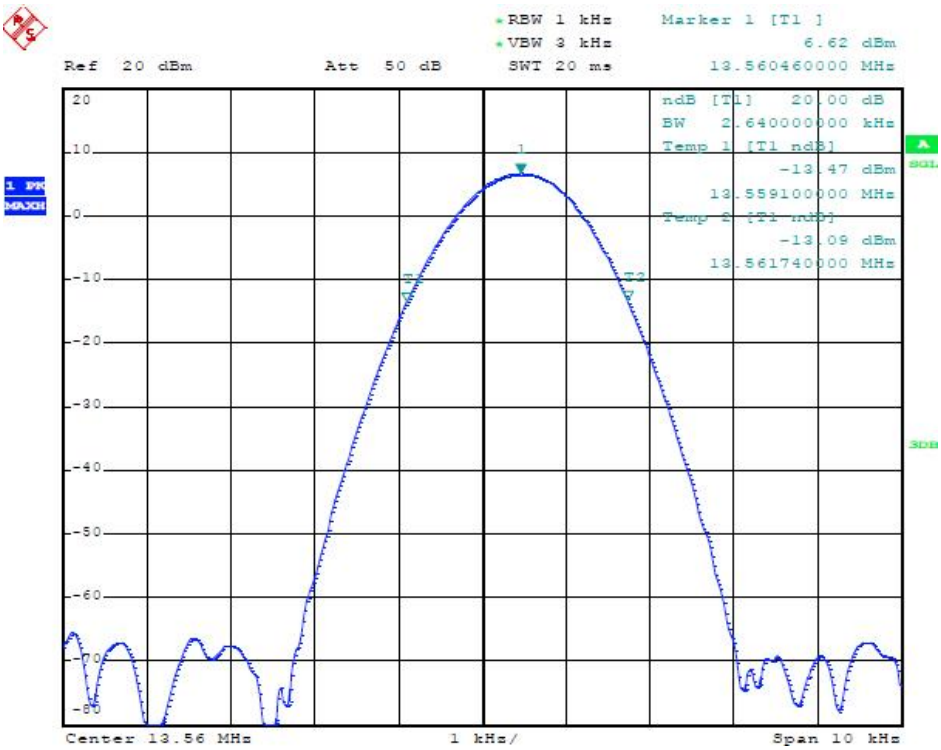


5.3 TEST RESULTS

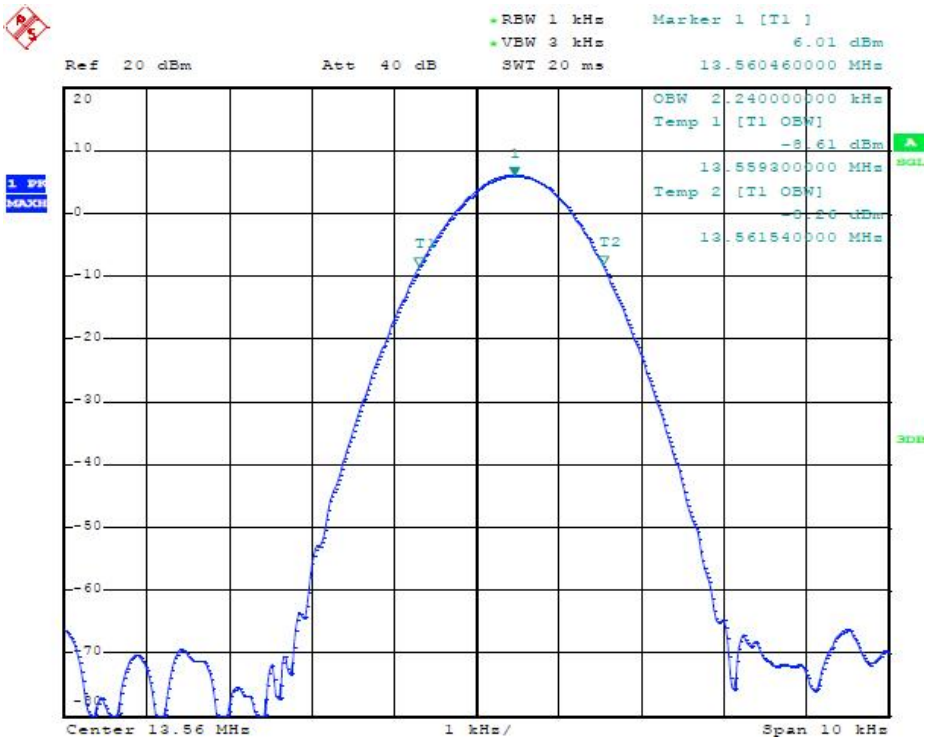
| | | | |
|---|---|---|---|
| Temperature: | 25℃ | Relative Humidity: | 50% |
| Test Mode: | ASK | Test Voltage: | AC 110V/60Hz |

| Frequency | 20dB Bandwidth (KHz) | 99%OBW (KHz) | Result |
|---|---|---|---|
| 13.56 MHz | 2.640KHZ | 2.240 | PASS |

20dB Bandwidth



99%OBW


RBW 1 kHz
VBW 3 kHz
SWT 20 ms
Marker 1 [T1 ]
6.01 dBm
13.560460000 MHz
Ref 20 dBm
Att 40 dB
OBW 2.240000000 kHz
Temp 1 [T1 OBW]
-8.61 dBm
13.559300000 MHz
Temp 2 [T1 OBW]
-8.20 dBm
13.561540000 MHz
T1
T2
Center 13.56 MHz
1 kHz/
Span 10 kHz

# 6 FREQUENCY STABILITY MEASUREMEN

## 6.1 LIMIT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery

## 6.2 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire emissions bandwidth.
4. Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
5. The fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × $10^6$ ppm and the limit is less than ±100ppm.
6. Extreme temperature rule is -20°C~50°C.

6.3TEST RESULTS

| Voltage vs. Frequency Stability | | Temperature vs. Frequency Stability | |
|---|---|---|---|
| Voltage (Vac) | Measurement Frequency (MHz) | Temperature (℃) | Measurement Frequency (MHz) |
| 120 | 13.560420 | -20 | 13.560550 |
| 102 | 13.560420 | -10 | 13.560550 |
| 138 | 13.560420 | 0 | 13.560540 |
| | | 10 | 13.560500 |
| | | 20 | 13.560480 |
| | | 30 | 13.560460 |
| | | 40 | 13.560420 |
| | | 50 | 13.560400 |
| **Max.Deviation (MHz)** | 0.000420 | **Max.Deviation (MHz)** | 0.000550 |
| **Max.Deviation (ppm)** | 30.9735 | **Max.Deviation (ppm)** | 40.5605 |
| **Limit** | **FS < ±100 ppm** | **Limit** | **FS < ±100 ppm** |
| **Test Result** | **PASS** | **Test Result** | **PASS** |

# 7 ANTENNA REQUIREMENT

## 7.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

## 7.2 EUT ANTENNA

The antennas used for this product are PCB antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 1dBi.

※※※※※END OF THE REPORT※※※※※