



FCC Part 15C Test Report

FCC ID: 2AKFLC5000

| | |
|------------------|-------------------------------------------------------------------------------------------------|
| Product Name: | C5000 Mobile Data Terminal |
| Trademark: | N/A |
| Model Name : | C5000 C5100, H942, H941, H951 |
| Prepared For : | Shenzhen Handheld-Wireless Technology Co., Ltd |
| Address : | 16th Floor, Block B, Dongfangtiande Bldg., Minzhi Street, Longhua New District, Shenzhen, China |
| Prepared By : | Shenzhen BCTC Technology Co., Ltd. |
| Address : | No.101, Yousong Road, Longhua New District, Shenzhen, China |
| Test Date: | Nov. 10 - Nov. 20, 2016 |
| Date of Report : | Nov. 22, 2016 |
| Report No.: | BCTC-LH161111868-3E |



TEST RESULT CERTIFICATION

Applicant's name: Shenzhen Handheld-Wireless Technology Co., Ltd
Address: 16th Floor, Block B, Dongfangtiande Bldg., Minzhi Street, Longhua New District, Shenzhen, China

Manufacturer's Name: Shenzhen Handheld-Wireless Technology Co., Ltd
Address: 16th Floor, Block B, Dongfangtiande Bldg., Minzhi Street, Longhua New District, Shenzhen, China

Product description

Product name.....: C5000 Mobile Data Terminal
Trademark.....: N/A
Model and/or type reference ..: C5000
C5100, H942, H941, H951

Standards.....: FCC Part15.225
ANSI C63.10-2013

This device described above has been tested by BCTC, and 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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Testing Engineer : Eric Yang
Eric Yang

Reviewer Supervisor : Jade Yang
Jade Yang

Approved & Authorized Manager: Carson Zhang
Carson Zhang

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.225) | | | |
|---------------------------------|----------------------------------------------------------------------|----------|--------|
| Standard Section | Test Item | Judgment | Remark |
| 15.207 | Conducted Emission | PASS | |
| Part 15.209(a), 15.225(d) | Radiated Spurious Emission | PASS | |
| 15.225(c) | Bandwidth | PASS | |
| Part 15.209(a), 15.225(c)(d) | Band Edge Emission | PASS | |
| Part 15.225(e) | Transmitter Frequency Stability (Temperature & Voltage Variation) | PASS | |
| 15.203 | Antenna Requirement | PASS | |

NOTE:

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

1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add. : No.101, Yousong Road, Longhua New District, Shenzhen, China

FCC Registered No.: 187086

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** %.

| No. | Item | Uncertainty |
|-----|-------------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | RF power, conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions, conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions, radiated (<1G) | $\pm 4.68\text{dB}$ |
| 5 | All emissions, radiated (>1G) | $\pm 4.89\text{dB}$ |
| 6 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Equipment | C5000 Mobile Data Terminal | |
| Trade Name | N/A | |
| Model Name | C5000 C5100, H942, H941, H951 | |
| Model Difference | The product's different for model name and outlook color. | |
| Product Description | The EUT is a C5000 Mobile Data Terminal | |
| | Operation Frequency: | 13.56MHz |
| | Modulation Type: | ASK |
| | Number Of Channel | 1 CH |
| | Antenna type: | internal antenna |
| | Antenna Gain (dBi) | 0dBi |
| | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. | |
| Channel List | Please refer to the Note 2. | |
| Power | DC 5V from adapter DC 3.7V from battery | |
| Adapter | Model:GME10C-050200FU I/P:AC 100-240V 50/60Hz 0.28A O/P:DC 5V 2.0A | |
| hardware version | -- | |
| Software version | -- | |
| Serial number | -- | |
| 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.



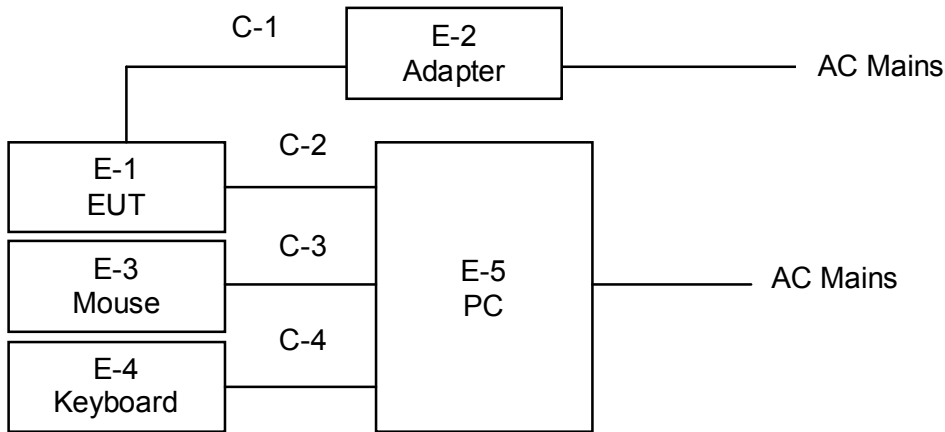
2.2 DESCRIPTION OF TEST MODES

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

| Pretest Mode | Description |
|----------------------------------------------|-------------|
| Mode 1 | TX Mode |
| For Conducted & Radiated Emission | |
| Final Test Mode | Description |
| Mode 1 | TX Mode |

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted & Radiated Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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 | C5000 Mobile Data Terminal | N/A | C5000 | N/A | EUT |
| E-2 | Adapter | N/A | GME10C-050200FU | N/A | |
| E-2 | Mouse | AUPM | B036 | N/A | |
| E-3 | Keyboard | BTK | K015 | N/A | |
| E-4 | PC | ASUS | AWT8000 | N/A | PC does not supply power to EUT. |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|---------------------|
| C-1 | No | No | 0.8m | DC Line |
| C-2 | NO | NO | 0.8M | Mini USB cable |
| C-3 | NO | NO | 0.8M | Mouse cable(USB) |
| C-4 | NO | NO | 1.2M | Keyboard cable(USB) |

Note: For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until |
|------|--------------------|--------------|------------|---------------|------------------|------------------|
| 1 | Spectrum Analyzer | Agilent | E4407B | MY45109572 | 2016.08.27 | 2017.08.26 |
| 2 | Test Receiver | R&S | ESPI | 101396 | 2016.08.27 | 2017.08.26 |
| 3 | Bilog Antenna | SCHWARZBECK | VULB9160 | VULB9160-3369 | 2016.08.27 | 2017.08.26 |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264416 | 2016.08.27 | 2017.08.26 |
| 5 | Spectrum Analyzer | Agilent | N9020A | MY5051041 | 2016.08.27 | 2017.08.26 |
| 6 | Horn Antenna | SCHWARZBECK | 9120D | 9120D-1275 | 2016.08.29 | 2017.08.28 |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2016.07.06 | 2017.07.05 |
| 8 | Amplifier | SCHWARZBECK | BBV9718 | 9718-270 | 2016.08.27 | 2017.08.26 |
| 9 | Amplifier | SCHWARZBECK | BBV9743 | 9743-119 | 2016.08.27 | 2017.08.26 |
| 10 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2016.06.07 | 2017.06.06 |
| 11 | Power Meter | R&S | NRVS | 100696 | 2016.08.27 | 2017.08.26 |
| 12 | Power Sensor | R&S | URV5-Z4 | 0395.1619.05 | 2016.08.27 | 2017.08.26 |
| 13 | RF cables | R&S | N/A | N/A | 2016.08.27 | 2017.08.26 |
| 14 | 966 chamber | ChengYu | 966 Room | 966 | 2016.08.27 | 2017.08.26 |

Conduction Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until |
|------|--------------------|--------------|----------|------------------------|------------------|------------------|
| 1 | Test Receiver | R&S | ESCI | 1166.5950K03-101165-ha | 2016.08.27 | 2017.08.26 |
| 2 | LISN | R&S | NSLK8126 | 8126466 | 2016.08.27 | 2017.08.26 |
| 3 | LISN | R&S | NSLK8126 | 8126487 | 2016.08.27 | 2017.08.26 |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264417 | 2016.08.27 | 2017.08.26 |
| 5 | RF cables | R&S | R204 | R20X | 2016.08.27 | 2017.08.26 |



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

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

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 |

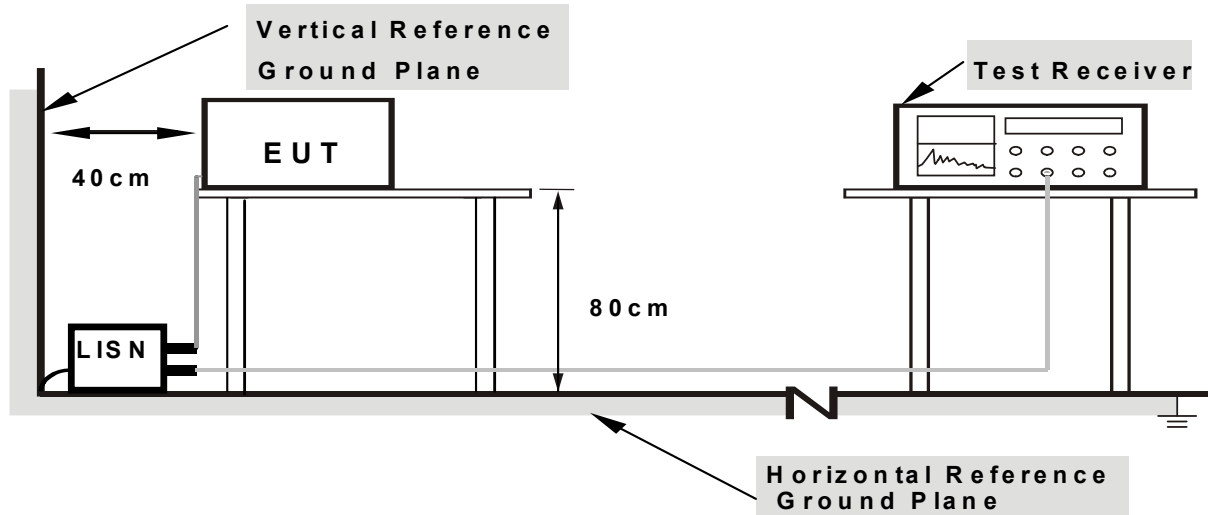
3.1.2 TEST PROCEDURE

- a. 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.
- 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.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 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

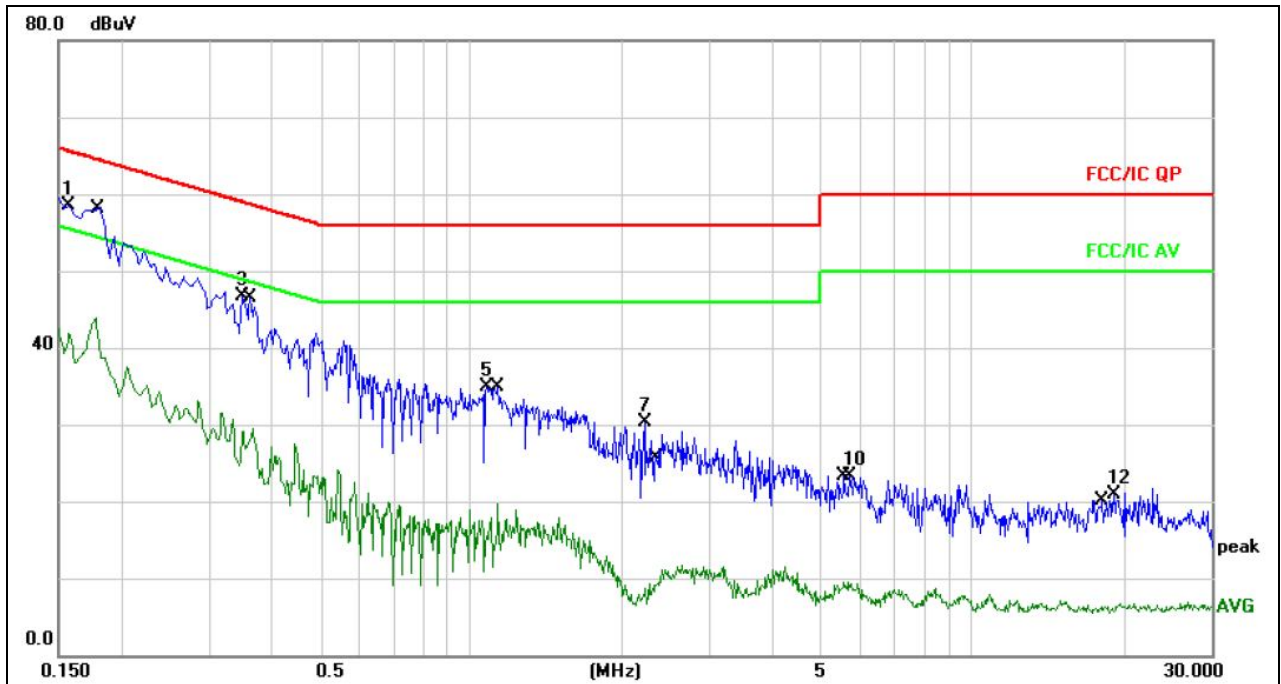
3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS



| | | | |
|----------------|---------------------------------------|---------------------|--------|
| Temperature : | 25 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 5V from adapter input AC 120V/60Hz | Test Mode : | Mode 1 |



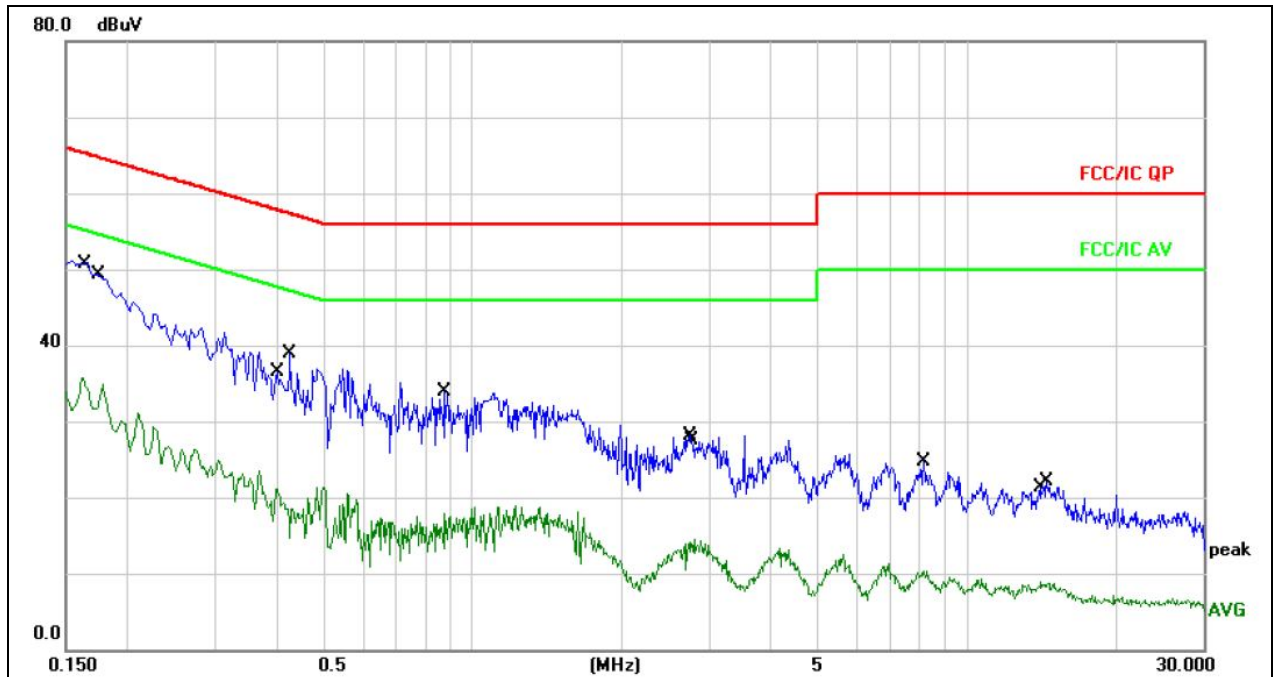
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1 | * | 0.1580 | 48.54 | 10.05 | 58.59 | 65.57 | -6.98 | QP | |
| 2 | | 0.1580 | 33.80 | 10.05 | 43.85 | 55.57 | -11.72 | AVG | |
| 3 | | 0.3500 | 36.53 | 10.10 | 46.63 | 58.96 | -12.33 | QP | |
| 4 | | 0.3500 | 19.40 | 10.10 | 29.50 | 48.96 | -19.46 | AVG | |
| 5 | | 1.0740 | 24.73 | 10.17 | 34.90 | 56.00 | -21.10 | QP | |
| 6 | | 1.0740 | 9.49 | 10.17 | 19.66 | 46.00 | -26.34 | AVG | |
| 7 | | 2.2220 | 20.10 | 10.18 | 30.28 | 56.00 | -25.72 | QP | |
| 8 | | 2.2220 | -0.83 | 10.18 | 9.35 | 46.00 | -36.65 | AVG | |
| 9 | | 5.5420 | -0.54 | 10.12 | 9.58 | 50.00 | -40.42 | AVG | |
| 10 | | 5.5420 | 13.22 | 10.12 | 23.34 | 60.00 | -36.66 | QP | |
| 11 | | 18.2300 | -3.81 | 10.16 | 6.35 | 50.00 | -43.65 | AVG | |
| 12 | | 19.1260 | 10.70 | 10.17 | 20.87 | 60.00 | -39.13 | QP | |



| | | | |
|----------------|---------------------------------------|---------------------|--------|
| Temperature : | 25 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 5V from adapter input AC 120V/60Hz | Test Mode : | Mode 1 |



Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1 | | 0.1620 | 25.72 | 10.05 | 35.77 | 55.36 | -19.59 | AVG | |
| 2 | * | 0.1740 | 39.19 | 10.06 | 49.25 | 64.76 | -15.51 | QP | |
| 3 | | 0.4020 | 11.09 | 10.11 | 21.20 | 47.81 | -26.61 | AVG | |
| 4 | | 0.4260 | 28.73 | 10.11 | 38.84 | 57.33 | -18.49 | QP | |
| 5 | | 0.8780 | 23.80 | 10.15 | 33.95 | 56.00 | -22.05 | QP | |
| 6 | | 0.8780 | 7.83 | 10.15 | 17.98 | 46.00 | -28.02 | AVG | |
| 7 | | 2.7500 | 17.96 | 10.19 | 28.15 | 56.00 | -27.85 | QP | |
| 8 | | 2.7980 | 4.24 | 10.19 | 14.43 | 46.00 | -31.57 | AVG | |
| 9 | | 8.1660 | 14.59 | 10.10 | 24.69 | 60.00 | -35.31 | QP | |
| 10 | | 8.1660 | 0.15 | 10.10 | 10.25 | 50.00 | -39.75 | AVG | |
| 11 | | 14.0780 | -1.22 | 10.14 | 8.92 | 50.00 | -41.08 | AVG | |
| 12 | | 14.4580 | 12.03 | 10.14 | 22.17 | 60.00 | -37.83 | QP | |



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

1. The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters
2. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| 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 |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

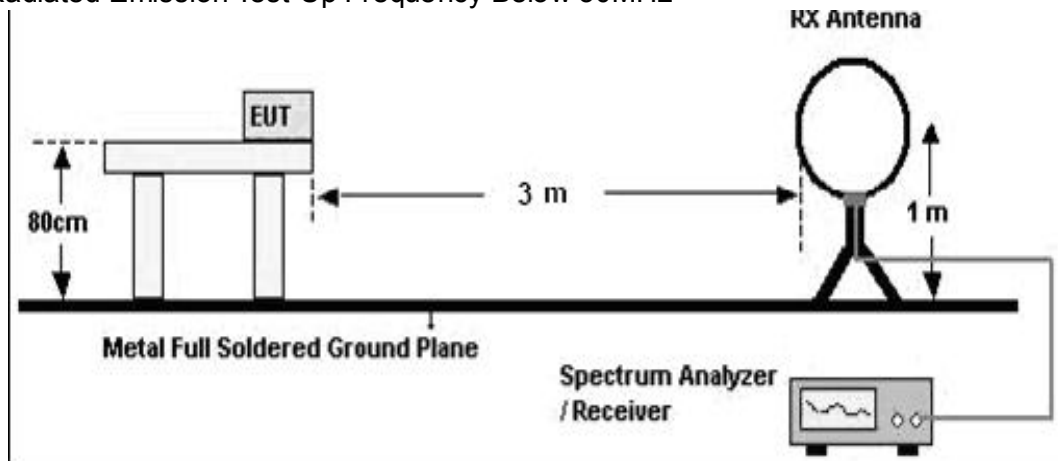
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

3.2.3 DEVIATION FROM TEST STANDARD

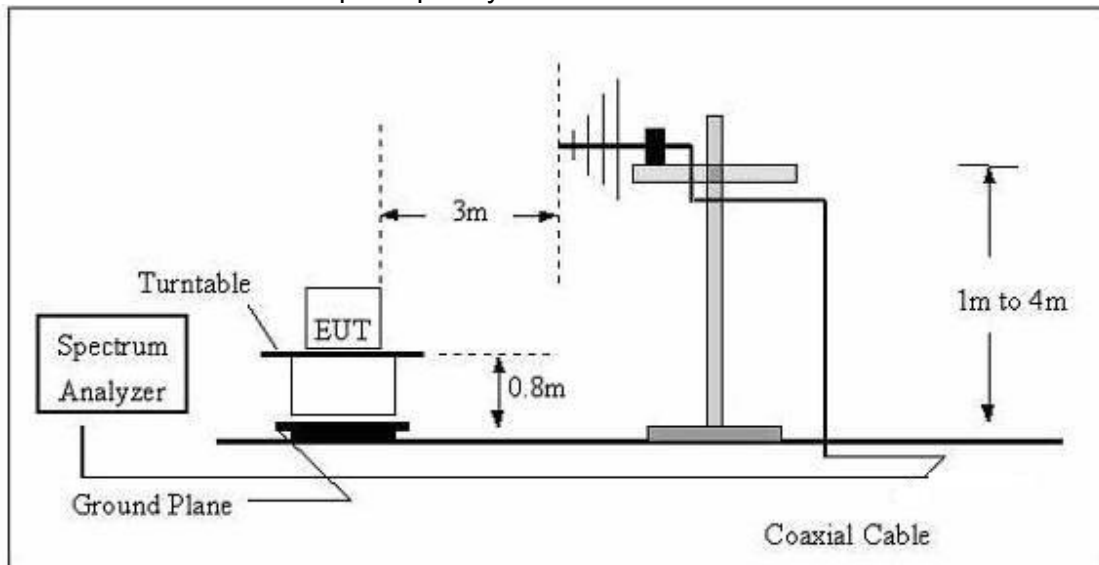
No deviation

3.2.4 TEST SETUP

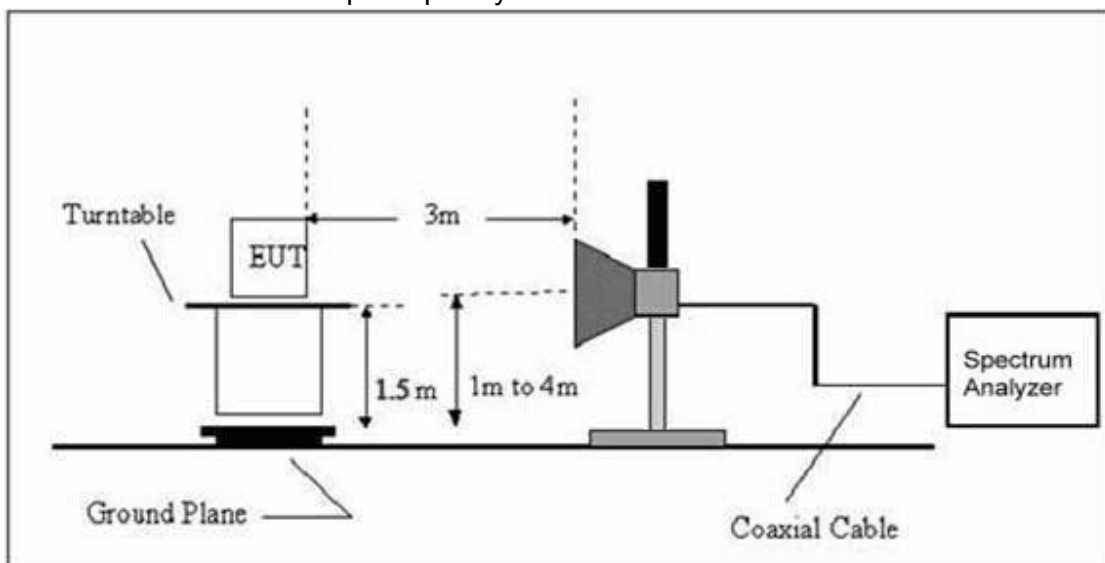
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



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



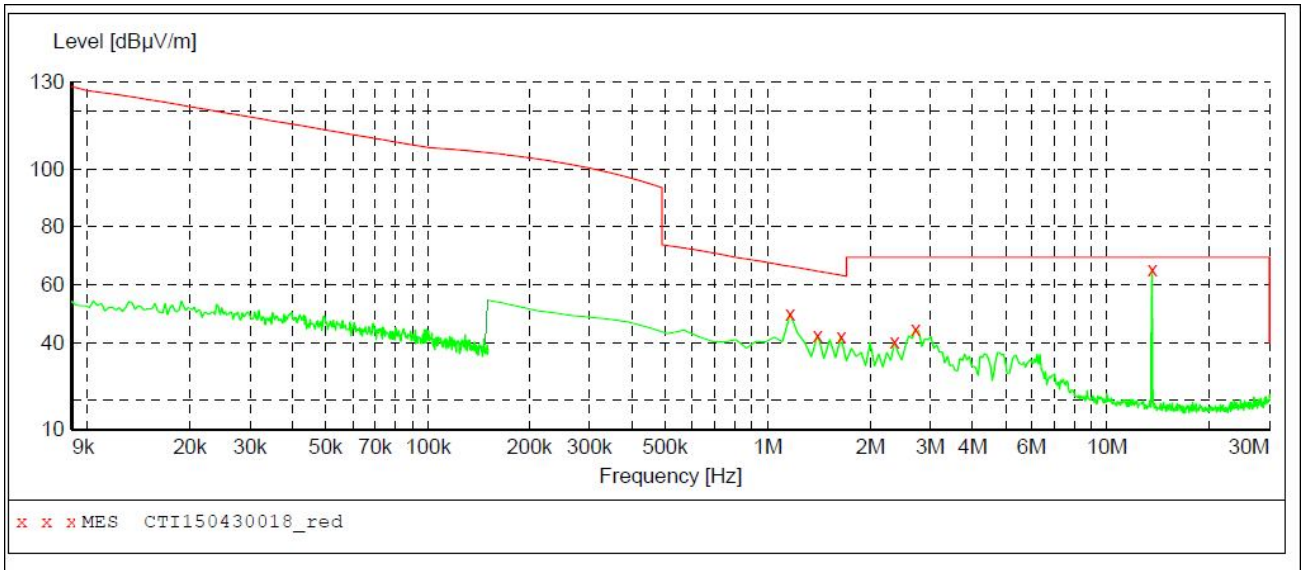
3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

| | | | |
|--------------|----------|--------------------|---------------------------------------|
| Temperature: | 20°C | Relative Humidity: | 48% |
| Pressure: | 1010 hPa | Test Voltage : | DC 5V from adapter input AC 120V/60Hz |
| Test Mode : | Mode 1 | Polarization : | -- |



The worst data are below:

| Frequency (MHz) | Antenna Polarity | PK Level (dB µ V/m) | QP Level (dB µ V/m) | Test limit_PK (dB µ V/m) | Result |
|-----------------|------------------|---------------------|---------------------|--------------------------|--------|
| 13.56 | 90° | 74.7 | 64.3 | 124.0 | Pass |

NOTE:

Measurements were performed at 3 metres and results extrapolated to 30 metres.

The limit is specified at a test distance of 30 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.

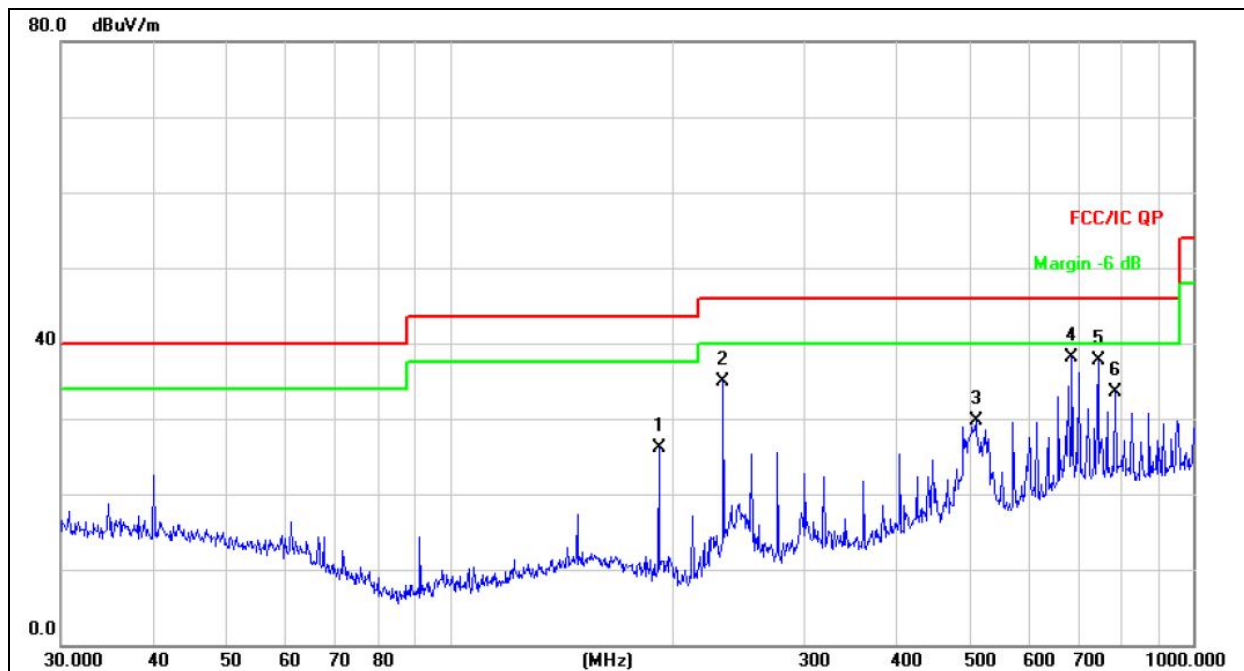
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log(\text{specific distance}/\text{test distance})$ (dB);
 Limit line = specific limits(dBuv) + distance extrapolation factor.



3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

| | | | |
|----------------|---------------------------------------|---------------------|------------|
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Polarization : | Horizontal |
| Test Voltage : | DC 5V from adapter input AC 120V/60Hz | | |
| Test Mode : | Mode 1 | | |

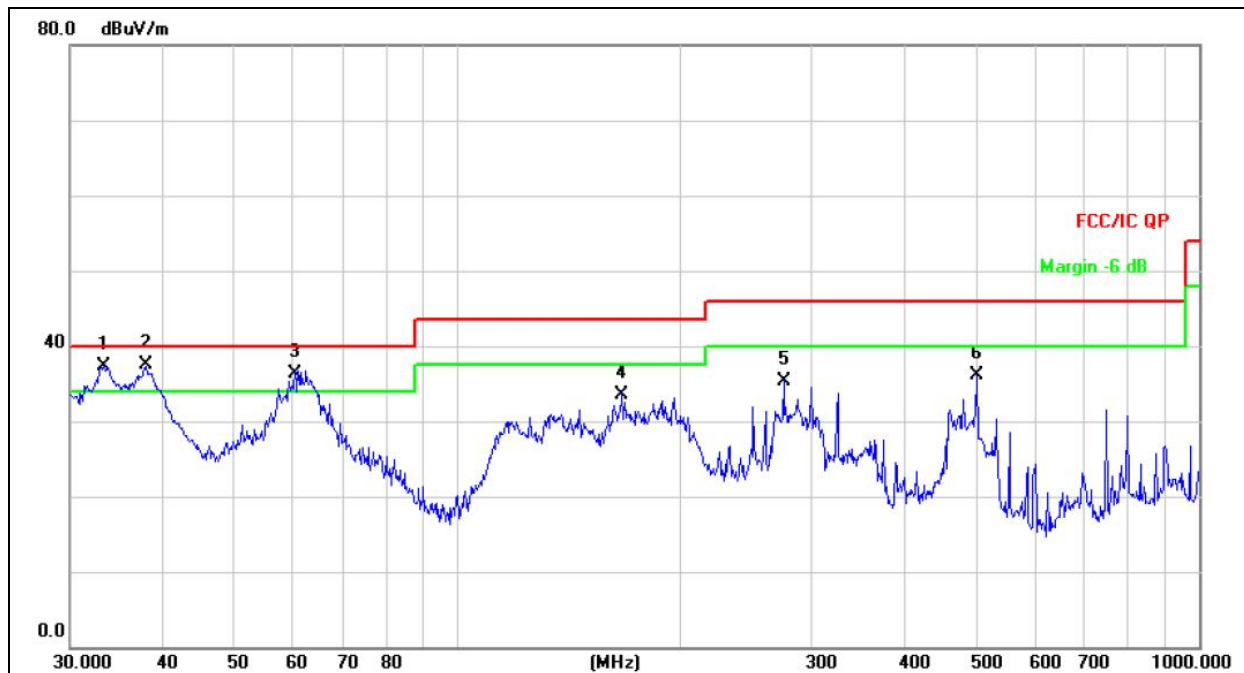


Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector |
| 1 | | 191.0738 | 41.74 | -15.65 | 26.09 | 43.50 | -17.41 | QP |
| 2 | | 233.3487 | 49.86 | -14.87 | 34.99 | 46.00 | -11.01 | QP |
| 3 | | 510.0436 | 37.81 | -8.02 | 29.79 | 46.00 | -16.21 | QP |
| 4 | * | 687.1507 | 42.66 | -4.59 | 38.07 | 46.00 | -7.93 | QP |
| 5 | | 744.8661 | 40.92 | -3.22 | 37.70 | 46.00 | -8.30 | QP |
| 6 | | 785.0935 | 36.21 | -2.75 | 33.46 | 46.00 | -12.54 | QP |



| | | | |
|----------------|---------------------------------------|---------------------|----------|
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Polarization : | Vertical |
| Test Voltage : | DC 5V from adapter input AC 120V/60Hz | | |
| Test Mode : | Mode 1 | | |



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB/m | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|---------------------------|----------------------------|-----------------|------------|----------|
| 1 | ! | 33.3212 | 45.64 | -8.41 | 37.23 | 40.00 | -2.77 | QP |
| 2 | * | 37.9214 | 46.27 | -8.75 | 37.52 | 40.00 | -2.48 | QP |
| 3 | ! | 60.2769 | 47.83 | -11.57 | 36.26 | 40.00 | -3.74 | QP |
| 4 | | 166.6452 | 46.69 | -13.26 | 33.43 | 43.50 | -10.07 | QP |
| 5 | | 275.1394 | 48.51 | -13.29 | 35.22 | 46.00 | -10.78 | QP |
| 6 | | 501.1614 | 44.33 | -8.19 | 36.14 | 46.00 | -9.86 | QP |



3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.225

LIMITS OF RADIATED EMISSION MEASUREMENT

- a. 15.848 microvolts/m (84 dB μ V/m) at 30 m, within the band 13.553– 13.567 MHz.
- b. 334 microvolts/m (50.5 dB μ V/m) at 30 m, within the bands 13.410– 13.553 MHz and 13.567– 13.710 MHz.
- c. 106 microvolts/m (40.5 dB μ V/m) at 30 m, within the bands 13.110– 13.410 MHz and 13.710– 14.010 MHz.
- d. 30 microvolts/m (29.5 dB μ V/m) at 30 m, outside the band 13.110– 14.010 MHz.

Notes:

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

3.3.2 TEST PROCEDURE

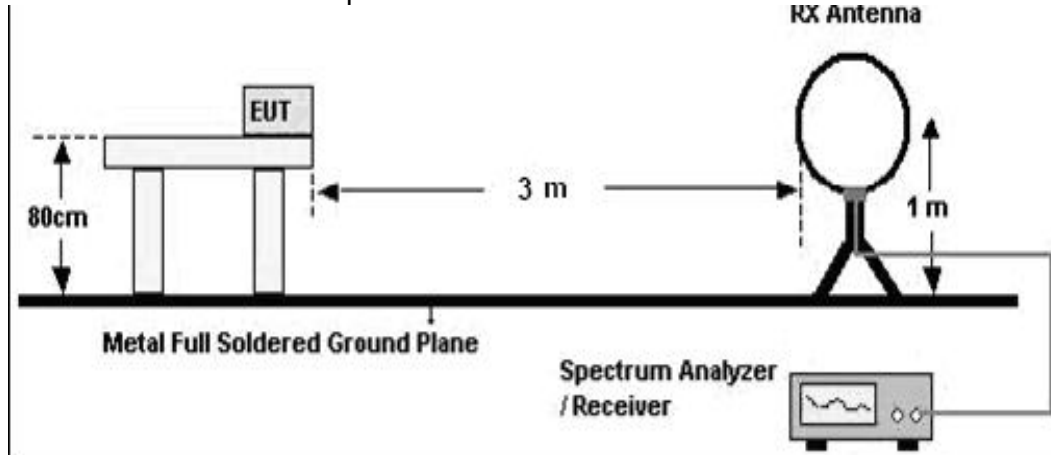
- a. The Product is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.
- b. For each suspected emission, the Product was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- c. The test frequency analyzer system was set to Peak Detect (300Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up



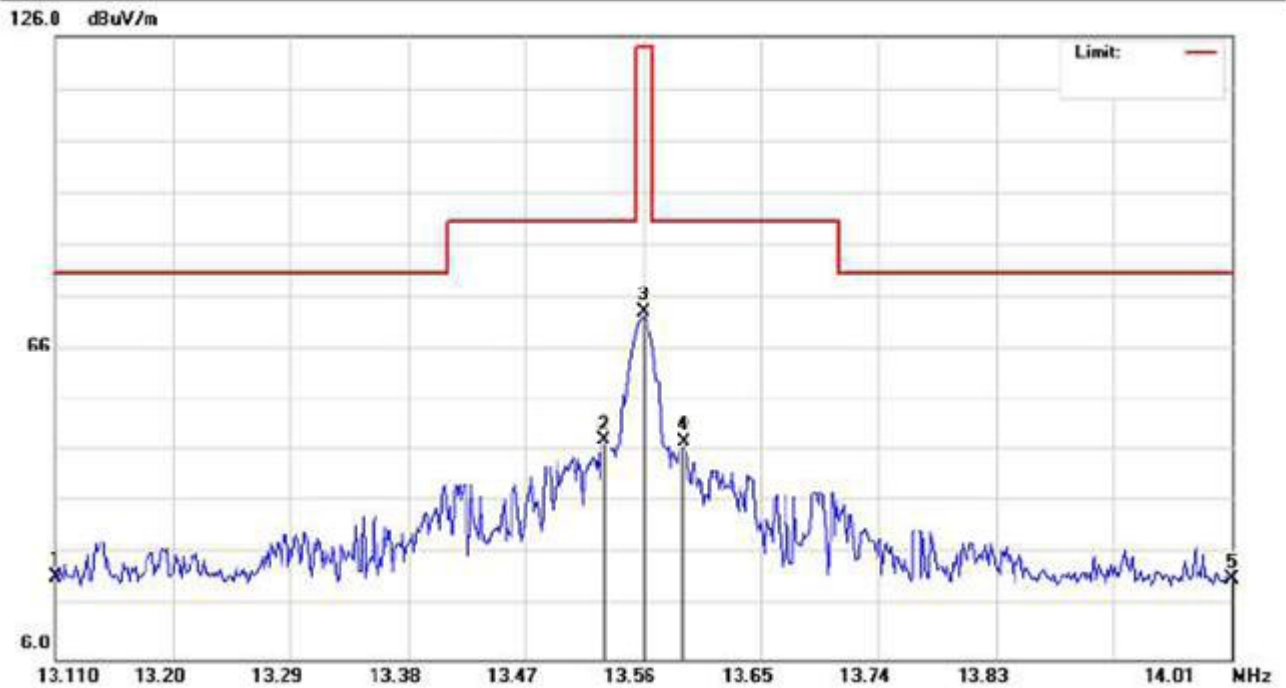
3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

The report only show the worst antenna Polarity's data.



3.3.6 TEST RESULT



| Frequency (MHz) | Antenna Polarity | Meter Reading (dBuV) | Pre- amplifier (dB) | Cable Loss (dB) | Antenna Factor (dB/m) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|--------------------|---------------------|----------------------------|---------------------------|-----------------------|-----------------------------|-------------------------------|--------------------|----------------|------------------|
| 13.11 | 90° | 38.34 | 38.06 | 7.42 | 10.15 | 17.85 | 69.50 | -51.65 | PK |
| 13.50 | 90° | 67.85 | 38.06 | 7.42 | 10.15 | 47.36 | 90.50 | -43.14 | PK |
| 13.56 | 90° | 94.97 | 38.06 | 7.42 | 10.15 | 74.48 | 124.00 | -49.52 | PK |
| 13.59 | 90° | 65.86 | 38.06 | 7.42 | 10.15 | 45.37 | 90.50 | -45.13 | PK |
| 14.01 | 90° | 36.03 | 38.06 | 7.42 | 10.15 | 15.54 | 69.50 | -53.96 | PK |

Note: Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier.



4. BANDWIDTH TEST

4.1 APPLIED PROCEDURES

| FCC Part15 (15.225) | |
|---------------------|-----------|
| Section | Test Item |
| 15.225 e | Bandwidth |

4.1.1 TEST PROCEDURE

1. Set RBW = 10 kHz.
2. Set the video bandwidth (VBW) \geq RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

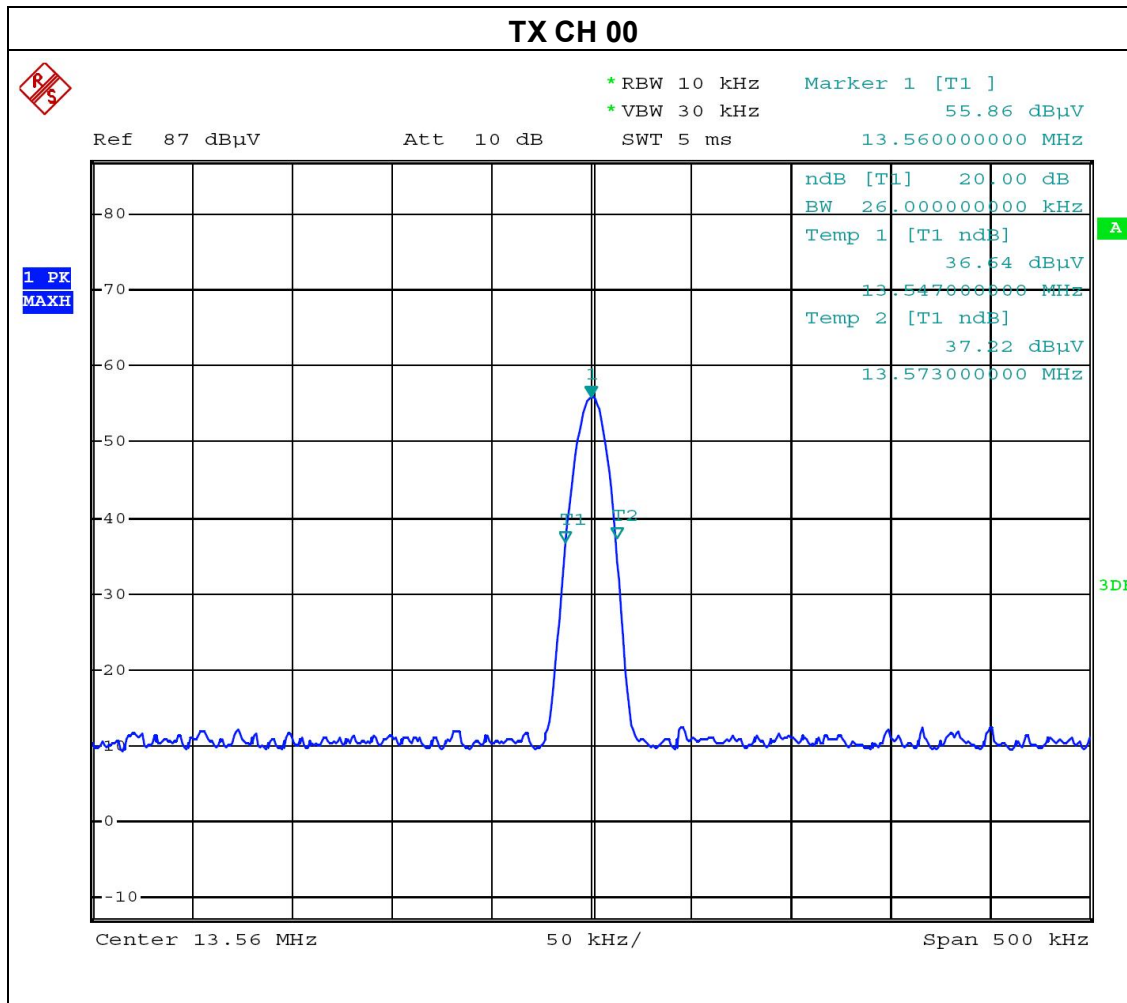
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



4.1.5 TEST RESULTS

| | | | |
|---------------|----------|---------------------|----------------------|
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 3.7V from battery |
| Test Mode : | TX Mode | | |

| Frequency (MHz) | 20dB bandwidth (KHz) |
|-----------------|----------------------|
| 13.56 | 26 |





5. TRANSMITTER FREQUENCY STABILITY

5.1 LIMITS

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ 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.

Limit: $\pm 0.01\%$ of $13.56\text{MHz} = 1356\text{Hz}$

5.1.1 TEST PROCEDURE

1. Set RBW = 10 kHz.
2. Set the video bandwidth (VBW) \geq RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. The transmitter output (antenna port) was connected to the spectrum analyzer.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



5.1.5 TEST RESULTS

| | | | |
|---------------|----------|---------------------|----------------------|
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 3.7V from battery |
| Test Mode : | TX Mode | | |

| Test Conditions | | | Frequency Deviation | | Result |
|-----------------|------------|------------------|----------------------|---------------------|--------|
| Frequency MHz | Power(Vdc) | Temperature (°C) | Measured Freq. (MHz) | Frequency Error(Hz) | |
| 13.56 | 3.7 | -20 | 13.5603 | 300 | PASS |
| | 3.7 | -10 | 13.5604 | 400 | |
| | 3.7 | 0 | 13.5603 | 300 | |
| | 3.7 | 10 | 13.5605 | 500 | |
| | 3.7 | 20 | 13.5602 | 200 | |
| | 3.7 | 30 | 13.5602 | 200 | |
| | 3.7 | 40 | 13.5604 | 400 | |
| | 3.7 | 50 | 13.5603 | 300 | |
| | 4.26 | 25 | 13.5605 | 500 | |
| | 3.7 | 25 | 13.5604 | 400 | |
| 3.15 | 25 | 13.5603 | 400 | | |



6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

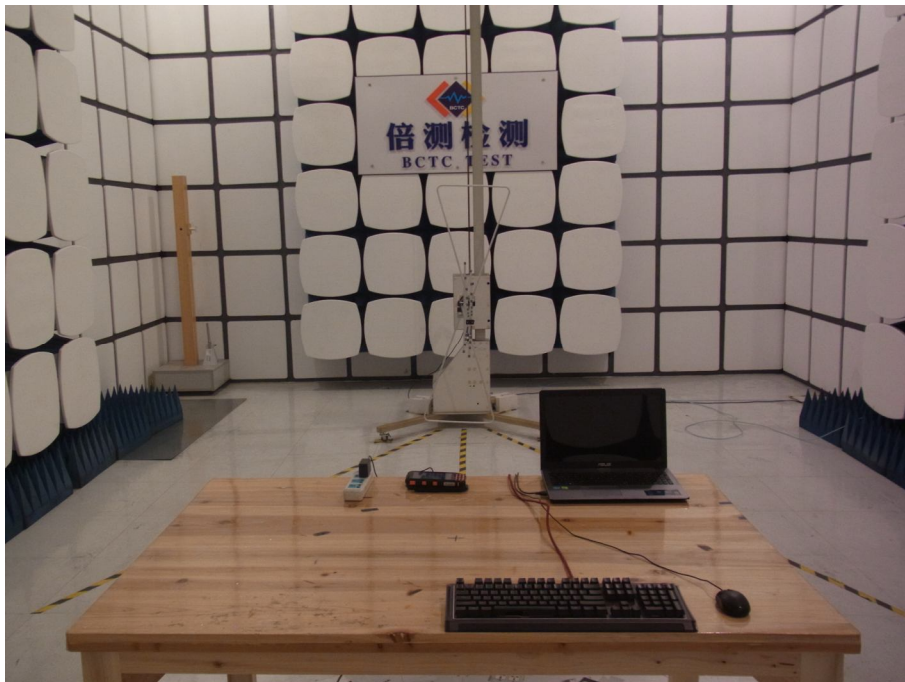
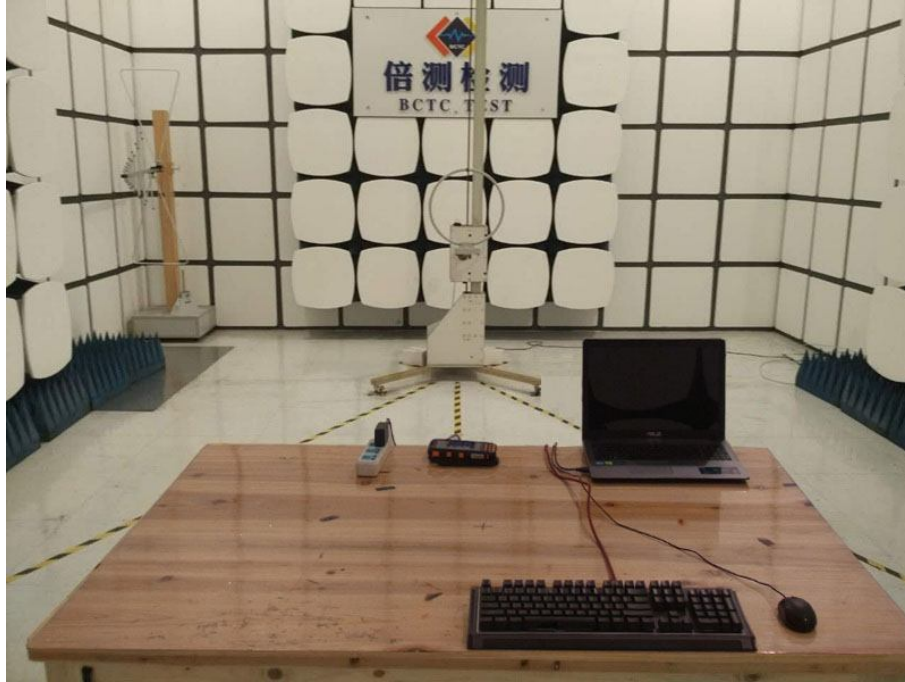
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 EUT ANTENNA

The EUT antenna is internal antenna,. It comply with the standard requirement.

7. TEST SEUUP PHOTO

Radiated Measurement Photos



Conducted Measurement Photos



8. EUT PHOTO







***** END OF REPORT *****