

13.56 MHz Radio Test Report

FCC ID: SIB-SNBJR-MT5C

IC: 6719D-SNBJRMT5C

This report concerns (check one) : ☒ Original Grant ☐ Class I Change

Project No. : 1406C191
Equipment : nabi Tablet
Model Name : SNBJR-MT5C; SNBJR-MT5D
Applicant : Foxconn International Inc.
Address : No.2,Ziyou St.,Tucheng Dist., New
Taipei City 236,Taiwan

Tested by: BTL Inc.

Date of Receipt: Jun. 24, 2014

Date of Test: Jun. 24, 2014~ Jul. 07, 2014

Issued Date: Jul. 11, 2014

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

Authorized Signatory : Steven Lu
(Steven Lu)

BTL INC.

No.3,Jinshagang 1st Road, ShiXia,
Dalang Town, Dong Guan, China.

TEL: 0769-8318-3000

FAX: 0769-8319-6000

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

BTL's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **BTL-self**, extracts from the test report shall not be reproduced except in full with **BTL's** authorized written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents

| | |
|--|----|
| 1. CERTIFICATION | 6 |
| 2. SUMMARY OF TEST RESULTS | 7 |
| 2.1 TEST FACILITY | 8 |
| 2.2 MEASUREMENT UNCERTAINTY | 8 |
| 3. GENERAL INFORMATION | 9 |
| 3.1 GENERAL DESCRIPTION OF EUT | 9 |
| 3.2 DESCRIPTION OF TEST MODES | 10 |
| 3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED | 11 |
| 4. EMC EMISSION TEST | 13 |
| 4.1 CONDUCTED EMISSION MEASUREMENT | 13 |
| 4.1.2 TEST PROCEDURE | 13 |
| 4.1.3 DEVIATION FROM TEST STANDARD | 13 |
| 4.1.4 TEST SETUP | 14 |
| 4.1.5 EUT OPERATING CONDITIONS | 14 |
| 4.1.5 EUT TEST CONDITIONS | 14 |
| 4.1.6 TEST RESULTS | 14 |
| 4.2 RADIATED EMISSION TEST | 15 |
| 4.2.1 LIMIT | 15 |
| 4.2.2 TEST PROCEDURE | 16 |
| 4.2.3 DEVIATION FROM TEST STANDARD | 16 |
| 4.2.4 TEST SETUP | 17 |
| 4.2.5 EUT OPERATING CONDITIONS | 17 |
| 4.2.6 EUT TEST CONDITIONS | 17 |
| 4.2.7 TEST RESULTS (BELOW 30MHZ) - FCC PART 15.209 | 18 |
| 4.2.8 TEST RESULTS - (30-1000MHZ) - FCC PART 15.209 | 18 |
| 4.2.9 TEST RESULTS- FCC PART 15.225 | 18 |
| 4.3 FREQUENCY STABILITY MEASUREMENT | 19 |
| 4.3.1 LIMIT | 19 |
| 4.3.2 TEST PROCEDURE | 19 |
| 4.3.3 DEVIATION FROM TEST STANDARD | 19 |
| 4.3.4 EUT OPERATING CONDITIONS | 19 |
| 4.3.5 EUT TEST CONDITIONS | 19 |
| 4.3.6 TEST RESULTS | 19 |
| 5. 20DB SPECTRUM BANDWIDTH MEASUREMENT | 20 |
| 5.1. LIMIT OF 20dB BANDWIDTH MEASUREMENT | 20 |
| 5.2.TEST PROCEDURES | 20 |
| 5.3. TEST SETUP LAYOUT | 20 |
| 5.4. TEST DEVIATION | 20 |
| 5.5. EUT OPERATION DURING TEST | 20 |
| 5.6. TEST RESULT | 20 |

Table of Contents

| | |
|---|----|
| 6. MEASUREMENT INSTRUMENTS LIST | 21 |
| 7. EUT TEST PHOTO | 22 |
| ATTACHMENT A - CONDUCTED EMISSION | 25 |
| ATTACHMENT B - RADIATED EMISSION (9KHZ-30MHZ) | 28 |
| ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ) | 30 |
| ATTACHMENT D - RADIATED EMISSION (FCC PART 15.225) | 33 |
| ATTACHMENT E - FREQUENCY STABILITY MEASUREMENT | 35 |
| ATTACHMENT F - 20DB SPECTRUM BANDWIDTH MEASUREMENT | 37 |

REPORT ISSUED HISTORY

| Issued No. | Description | Issued Date |
|---------------------|-----------------|---------------|
| NEI-FICP-6-1406C191 | Original Issue. | Jul. 11, 2014 |

1. CERTIFICATION

Equipment : nabi Tablet
Brand Name : nabi
Model Name : SNBJR-MT5C; SNBJR-MT5D
Applicant : Foxconn International Inc.
Manufacturer : FUHU INC
Address : 909 N SEPULVEDA BLVD STE 540 EL SEGUNDO, CA 90245-2733
Date of Test : Jun. 24, 2014~ Jul. 07, 2014
Test Item : ENGINEERING SAMPLE
Standard(s) : FCC Part 15, Subpart C: 15.225 / ANSI C63.4: 2009
Canada RSS-210:2010; Canada RSS-GEN:2010

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc..

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FICP-6-1406C191) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part 15, Subpart C: 15.225 / Canada RSS-210 :2010 ; RSS-GEN :2010 | | | | |
|---|-----------------------------|-------------------------------------|----------|--------|
| Standard(s) Section | | Test Item | Judgment | Remark |
| 15.207 | RSS-GEN 7.2.2 | Conducted emission | PASS | |
| 15.35 / 15.205 / 15.209 / 15.225 | RSS-210 Annex 2(A2.6) | Radiated emission | PASS | |
| 15.225(e) | RSS-210 Annex 2(A2.6) | Frequency Stability | PASS | |
| 15.203 | | Antenna Requirement | PASS | |
| | RSS-210 Annex 8(A8.5) | 20dB Occupied Bandwidth Measurement | PASS | |

NOTE:

(1) "N/A" denotes test is not applicable in this test report.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C-01** and **DG-CB03** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792

BTL's test firm number for FCC: 319330

BTL's test firm number for IC: 4428B-1

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC rules and for reference only.

The reported uncertainty of measurement $y \pm U$, 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%**.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| DG-C02 | CISPR | 150 KHz ~ 30MHz | 1.94 | |

B. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U , (dB) | Note |
|-----------|--------|-----------------------------|------------|----------|------|
| DG-CB03 | CISPR | 9KHz~30MHz | V | 3.79 | |
| | | 9KHz~30MHz | H | 3.57 | |
| | | 30MHz ~ 200MHz | V | 3.82 | |
| | | 30MHz ~ 200MHz | H | 3.60 | |
| | | 200MHz ~ 1,000MHz | V | 3.86 | |
| | | 200MHz ~ 1,000MHz | H | 3.94 | |
| | | 1GHz~18GHz | V | 3.12 | |
| | | 1GHz~18GHz | H | 3.68 | |
| | | 18GHz~40GHz | V | 4.15 | |
| | | 18GHz~40GHz | H | 4.14 | |

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | | |
|------------------------|--|--------------|
| Equipment | nabi Tablet | |
| Brand Name | nabi | |
| Model Name | SNBJR-MT5C; SNBJR-MT5D | |
| Model Difference | Only differ in model name and memory (SNBJR-MT5C: 8GB; SNBJR-MT5D: 16GB). | |
| Product Description | Operation Frequency: | 13.56 MHz |
| | Antenna Designation: | Loop Antenna |
| | More details of EUT technical specification, please refer to the User's Manual. | |
| Power Source | #1 DC voltage supplied from AC adapter. Brand / Model: Chicony / W12-010N3A #2 Supplied from rechargeable Li-ion polymer battery. Brand / Model: McNair / MLP496069 | |
| Power Rating | #1 I/P: AC 100-240V~50/60Hz 0.3A O/P: DC 5V 2A #2 DC 3.7V 2400mAh 8.88Wh | |
| 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. | Manufacturer | Model Name | Antenna Type | Connector | Gain (dBi) |
|------|--------------|----------------|--------------|-----------|------------|
| 1 | JIENG TAI | AH-JT-0219Y211 | Loop Antenna | N/A | N/A |

3.2 DESCRIPTION OF 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.

| Pretest Test Mode | Description |
|-------------------|-------------|
| Mode 1 | TX MODE |

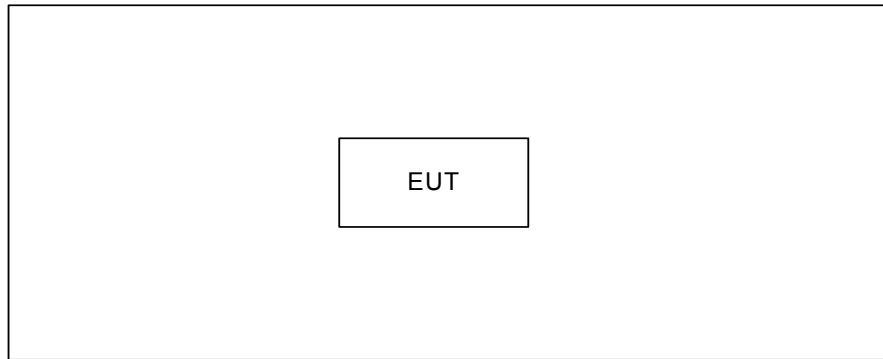
| Conducted emission test | |
|-------------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | TX MODE |

| Radiated emission test | |
|------------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | TX MODE |

| Frequency Stability test/ Antenna Requirement test/ 20dB Occupied Bandwidth Measurement | |
|--|-------------|
| Final Test Mode | Description |
| Mode 1 | TX MODE |

- (1) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 DESCRIPTION OF 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.

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID/IC | Series No. | Note |
|------|-----------|-----------|----------------|-----------|------------|------|
| - | - | - | - | - | - | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| - | - | - | - | |

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150KHz-30MHz)

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

| | | | | | |
|-----------|-------|-------|-----------|-----------|-----|
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 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 |

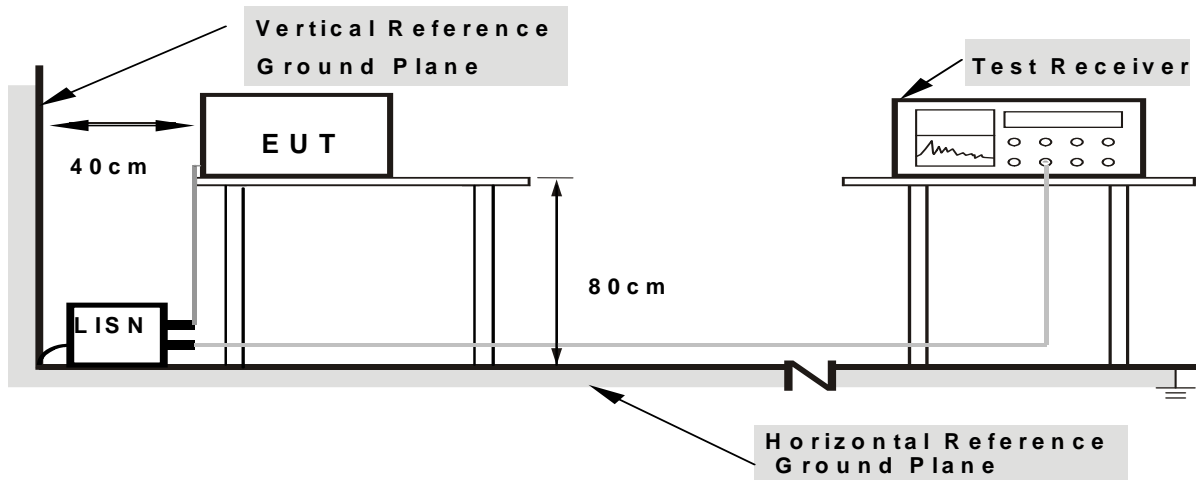
4.1.2 TEST PROCEDURE

- 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.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 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

4.1.5 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.

The EUT was programmed to be in continuously transmitting mode.

4.1.5 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: AC 120V/60Hz

4.1.6 TEST RESULTS

Please refer to the Attachment A.

Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』 . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a “*” marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.

4.2 RADIATED EMISSION TEST

4.2.1 LIMIT

| FCC Part 15.209 | | | | |
|------------------------------------|---------------------------|------|--|-------------------------|
| Frequency (MHz) | Field Strength Limitation | | Field Strength Limitation at 3m Measurement Dist | |
| | (uV/m) | Dist | (uV/m) | (dBuV/m) |
| 0.009 – 0.490 | 2400 / F(KHz) | 300m | 10000 * 2400/F(KHz) | 20log 2400/F(KHz) + 80 |
| 0.490 – 1.705 | 24000 / F(KHz) | 30m | 100 * 24000/F(KHz) | 20log 24000/F(KHz) + 40 |
| 1.705 – 30.00 | 30 | 30m | 100* 30 | 20log 30 + 40 |
| 30.0 – 88.0 | 100 | 3m | 100 | 20log 100 |
| 88.0 – 216.0 | 150 | 3m | 150 | 20log 150 |
| 216.0 – 960.0 | 200 | 3m | 200 | 20log 200 |
| Above 960.0 | 500 | 3m | 500 | 20log 500 |
| FCC Part 15.225(a)/(b)/(c) | | | | |
| Frequency (MHz) | Field Strength Limitation | | Field Strength Limitation at 3m Measurement Dist | |
| | (uV/m) | Dist | (uV/m) | (dBuV/m) |
| 13.553 – 13.567 | 15,848 | 30 m | 15,848*100 | 124 |
| 13.567 – 13.710 | 334 | 30 m | 334*100 | 90.5 |
| 13.110 – 13.410 13.710 – 14.010 | 106 | 30 m | 106*100 | 80.5 |

Note

:

- (1) The tighter limit shall apply at the boundary between two frequency range.
- (2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).
- (3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.

Example:

F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as $L_{d1} = L_1 = 30uV/m * (10)^2 = 100 * 30 uV/m$

- (4) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)

Margin Level = Measurement Value – Limit Value

4.2.2 TEST PROCEDURE

- 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.(below 1GHz)
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- 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: (FCC PART 15.209)

- a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

NOTE: (FCC PART 15.225)

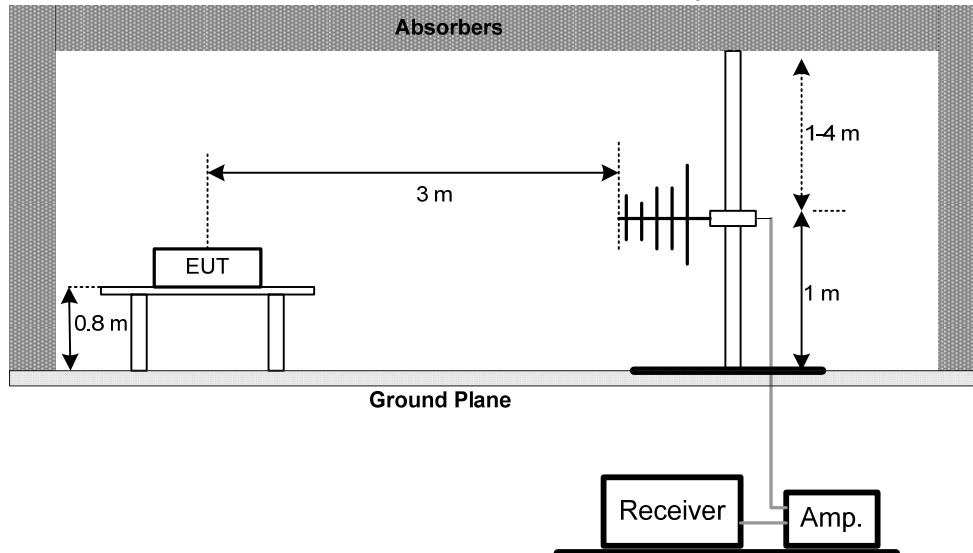
- a. Spectrum Setting:
 - 9 KHz – 150 KHz, RBW= 200Hz, VBW=200Hz, Sweep time = 200 ms.
 - 150 K Hz – 30 MHz, RBW= 10 KHz, VBW=10 KHz, Sweep time = 200 ms.
 - 30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- c. The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.

4.2.3 DEVIATION FROM TEST STANDARD

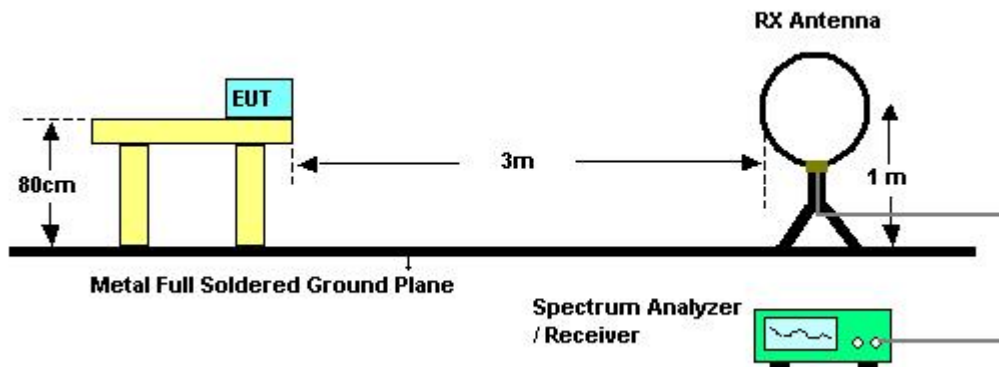
No deviation

4.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) For radiated emissions below 30MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.6 EUT TEST CONDITIONS

Temperature: 25°C
 Relative Humidity: 55%
 Test Voltage: DC 3.7V

4.2.7 TEST RESULTS (BELOW 30MHZ) - FCC PART 15.209

Please refer to the Attachment B.

4.2.8 TEST RESULTS - (30-1000MHZ) - FCC PART 15.209

Please refer to the Attachment C.

4.2.9 TEST RESULTS- FCC PART 15.225

Please refer to the Attachment D.

4.3 FREQUENCY STABILITY MEASUREMENT

4.3.1 LIMIT

| FCC Part 15.225(e) |
|---|
| The frequency tolerance of the carrier signal shall be maintained within +/-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. |

4.3.2 TEST PROCEDURE

- a. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber.
After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.
- b. At room temperature ($25\pm 5^{\circ}\text{C}$), an external variable AC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.

4.3.3 DEVIATION FROM TEST STANDARD

No deviation

4.3.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.3.5 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: DC 3.7V

4.3.6 TEST RESULTS

Please refer to the Attachment E.

5. 20dB SPECTRUM BANDWIDTH MEASUREMENT

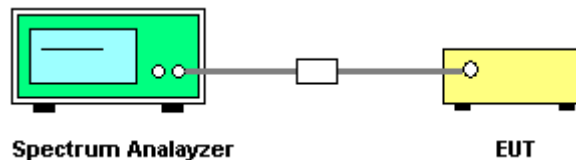
5.1. LIMIT OF 20dB BANDWIDTH MEASUREMENT

The 20dB bandwidth shall be specified in operating frequency band.

5.2. TEST PROCEDURES

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10kHz RBW and 10kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.3. TEST SETUP LAYOUT



5.4. TEST DEVIATION

There is no deviation with the original standard.

5.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

5.6. TEST RESULT

Please refer to the Attachment F.

6. MEASUREMENT INSTRUMENTS LIST

| Conducted Emission Measurement | | | | | |
|--------------------------------|-------------------|--------------|----------|------------|------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | LISN | EMCO | 3816/2 | 00052765 | Apr. 24, 2015 |
| 2 | LISN | R&S | ENV216 | 100087 | Nov. 09, 2014 |
| 3 | Test Cable | N/A | C_17 | N/A | Mar. 14, 2015 |
| 4 | EMI TEST RECEIVER | R&S | ESCS30 | 826547/022 | Apr. 24, 2015 |
| 5 | 50Ω Terminator | SHX | TF2-3G-A | 08122902 | Apr. 24, 2015 |

| Radiated Emission Measurement | | | | | |
|-------------------------------|-------------------------|--------------|-----------|------------|------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Antenna | Schwarbeck | VULB9160 | 9160-3232 | Apr. 24, 2015 |
| 2 | Amplifier | HP | 8447D | 2944A09673 | Apr. 24, 2015 |
| 3 | Test Receiver | R&S | ESCI | 100382 | Apr. 24, 2015 |
| 4 | Test Cable | N/A | C-01_CB03 | N/A | Jul. 01, 2015 |
| 5 | Antenna | ETS | 3115 | 00075789 | Apr. 24, 2015 |
| 6 | Amplifier | Agilent | 8449B | 3008A02274 | Apr. 24, 2015 |
| 7 | Spectrum | Agilent | E4408B | US39240143 | Nov. 09, 2014 |
| 8 | Test Cable | HUBER+SUHNER | C-45 | N/A | Apr. 30, 2014 |
| 9 | Controller | CT | SC100 | N/A | N/A |
| 10 | Horn Antenna | EMCO | 3115 | 9605-4803 | Apr. 24, 2015 |
| 11 | Active Loop Antenna | R&S | HFH2-Z2 | 830749/020 | Apr. 24, 2015 |
| 12 | Broad-Band Horn Antenna | Schwarzbeck | BBHA 9170 | 9170319 | Oct. 22, 2014 |

| 6dB Bandwidth Measurement | | | | | |
|---------------------------|-------------------|--------------|----------|------------|------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP 40 | 100185 | Nov. 09, 2014 |

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

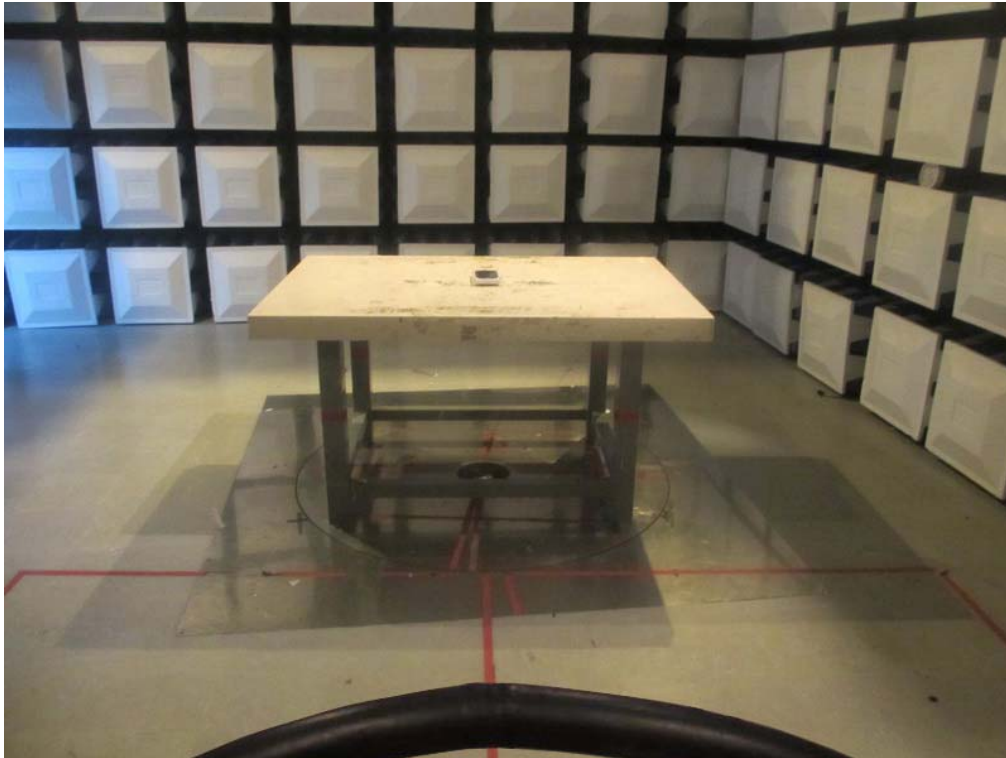
7. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos

9KHz~30MHz



Radiated Measurement Photos

30~1000MHz



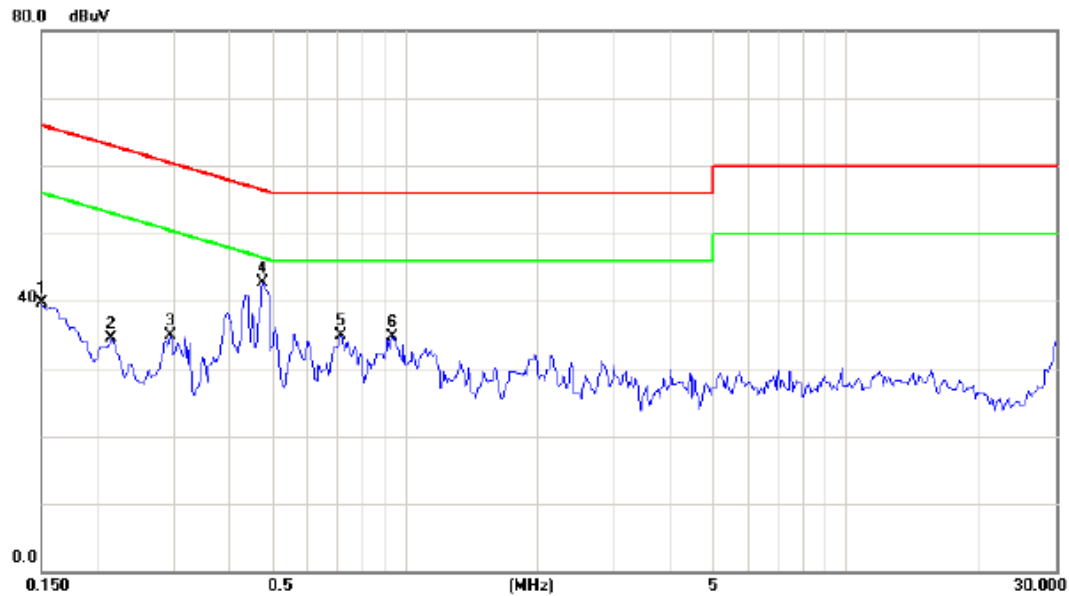
Radiated Measurement Photos

Above 1000MHz



Test Mode : TX MODE

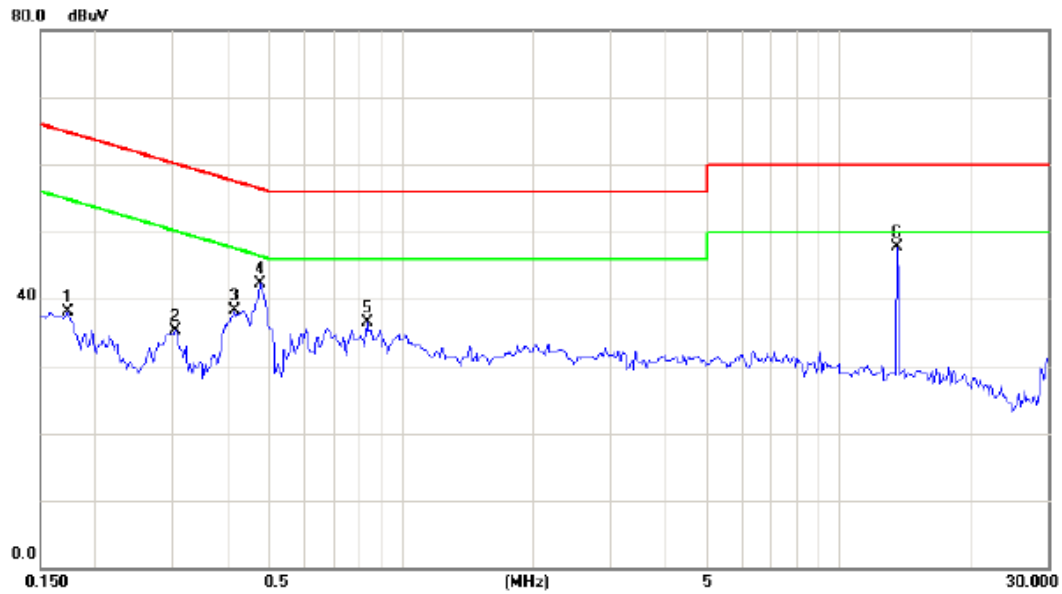
Line



| No. | Mk. | Freq. | Reading | Correct | Measure- | Limit | Over | | |
|-----|-----|--------|---------|---------|----------|-------|--------|----------|---------|
| | | MHz | Level | Factor | ment | | | Detector | Comment |
| | | | dBuV | dB | dBuV | dBuV | dB | | |
| 1 | | 0.1500 | 30.14 | 9.52 | 39.66 | 66.00 | -26.34 | peak | |
| 2 | | 0.2164 | 24.97 | 9.55 | 34.52 | 62.96 | -28.44 | peak | |
| 3 | | 0.2945 | 25.28 | 9.59 | 34.87 | 60.40 | -25.53 | peak | |
| 4 | * | 0.4781 | 33.04 | 9.69 | 42.73 | 56.37 | -13.64 | peak | |
| 5 | | 0.7164 | 25.22 | 9.62 | 34.84 | 56.00 | -21.16 | peak | |
| 6 | | 0.9391 | 24.95 | 9.69 | 34.64 | 56.00 | -21.36 | peak | |

Test Mode : TX MODE

Neutral



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | | |
|-----|-----|---------|---------------|----------------|-------------|-------|--------|----------|---------|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1734 | 28.46 | 9.62 | 38.08 | 64.80 | -26.72 | peak | |
| 2 | | 0.3063 | 25.65 | 9.62 | 35.27 | 60.07 | -24.80 | peak | |
| 3 | | 0.4156 | 28.76 | 9.63 | 38.39 | 57.54 | -19.15 | peak | |
| 4 | | 0.4781 | 32.76 | 9.64 | 42.40 | 56.37 | -13.97 | peak | |
| 5 | | 0.8375 | 26.79 | 9.67 | 36.46 | 56.00 | -19.54 | peak | |
| 6 | * | 13.5586 | 37.52 | 10.23 | 47.75 | 60.00 | -12.25 | peak | |

ATTACHMENT B - RADIATED EMISSION (9KHZ-30MHZ)

Test Mode : TX MODE

| Freq. (MHz) | Ant. 0°/90° | Reading(RA) (dBuV) | Corr.Factor(CF) (dB) | Measured(FS) (dBuV/m) | Limits(QP) (dBuV/m) | Margin (dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 0.0094 | 0° | 76.35 | 24.97 | 101.32 | 108.12 | -6.80 | AVG |
| 0.0095 | 0° | 82.36 | 24.97 | 107.33 | 128.12 | -20.79 | PEAK |
| 0.0234 | 0° | 56.38 | 24.08 | 80.46 | 100.22 | -19.76 | AVG |
| 0.0235 | 0° | 59.35 | 24.08 | 83.43 | 120.22 | -36.79 | PEAK |
| 0.0314 | 0° | 57.35 | 23.58 | 80.93 | 97.67 | -16.74 | AVG |
| 0.0316 | 0° | 58.35 | 23.58 | 81.93 | 117.67 | -35.74 | PEAK |
| 0.0425 | 0° | 59.35 | 22.88 | 82.23 | 95.04 | -12.81 | AVG |
| 0.0427 | 0° | 63.35 | 22.88 | 86.23 | 115.04 | -28.81 | PEAK |
| 0.4915 | 0° | 17.45 | 19.82 | 37.27 | 73.77 | -36.50 | QP |
| 1.7157 | 0° | 18.63 | 19.53 | 38.16 | 69.54 | -31.38 | QP |

| Freq. (MHz) | Ant. 0°/90° | Reading(RA) (dBuV) | Corr.Factor(CF) (dB) | Measured(FS) (dBuV/m) | Limits(QP) (dBuV/m) | Margin (dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 0.0094 | 90° | 76.35 | 24.30 | 100.65 | 128.19 | -27.54 | AVG |
| 0.0095 | 90° | 82.36 | 24.30 | 106.66 | 148.19 | -41.53 | PEAK |
| 0.0236 | 90° | 56.38 | 24.07 | 80.45 | 120.15 | -39.69 | AVG |
| 0.0237 | 90° | 59.35 | 24.07 | 83.42 | 140.15 | -56.72 | PEAK |
| 0.0315 | 90° | 57.35 | 23.57 | 80.92 | 117.64 | -36.72 | AVG |
| 0.0316 | 90° | 58.35 | 23.57 | 81.92 | 137.64 | -55.72 | PEAK |
| 0.0424 | 90° | 59.35 | 22.88 | 82.23 | 115.06 | -32.83 | AVG |
| 0.0426 | 90° | 63.35 | 22.88 | 86.23 | 135.06 | -48.83 | PEAK |
| 0.4916 | 90° | 17.45 | 19.82 | 37.27 | 73.77 | -36.50 | QP |
| 1.7157 | 90° | 18.63 | 19.53 | 38.16 | 69.54 | -31.38 | QP |

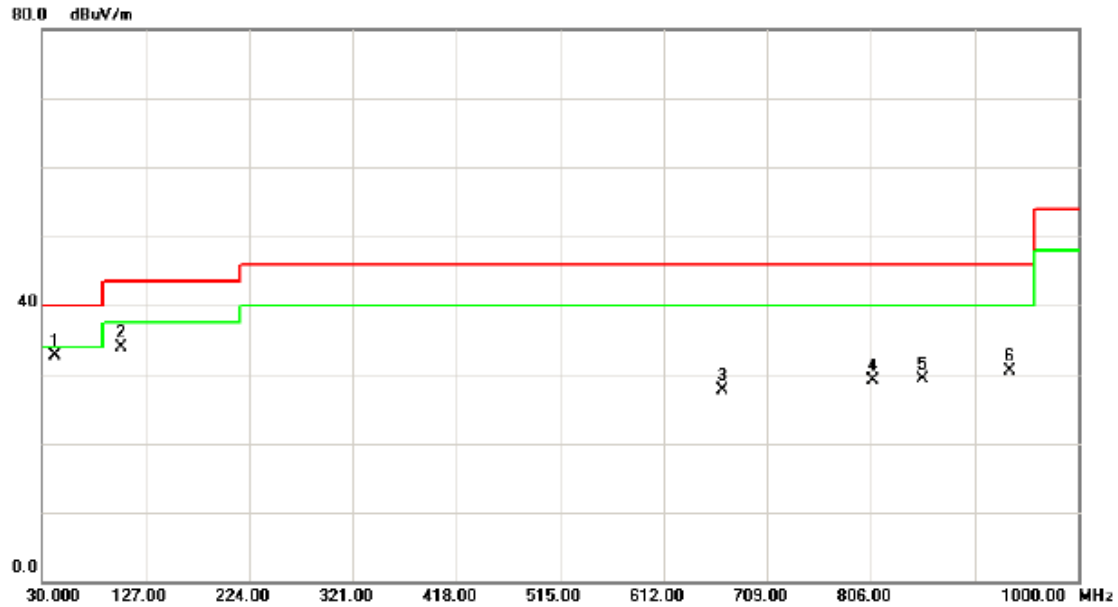
Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported. ◦
- (2) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB); ◦
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor. ◦

ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

Test Mode: TX MODE

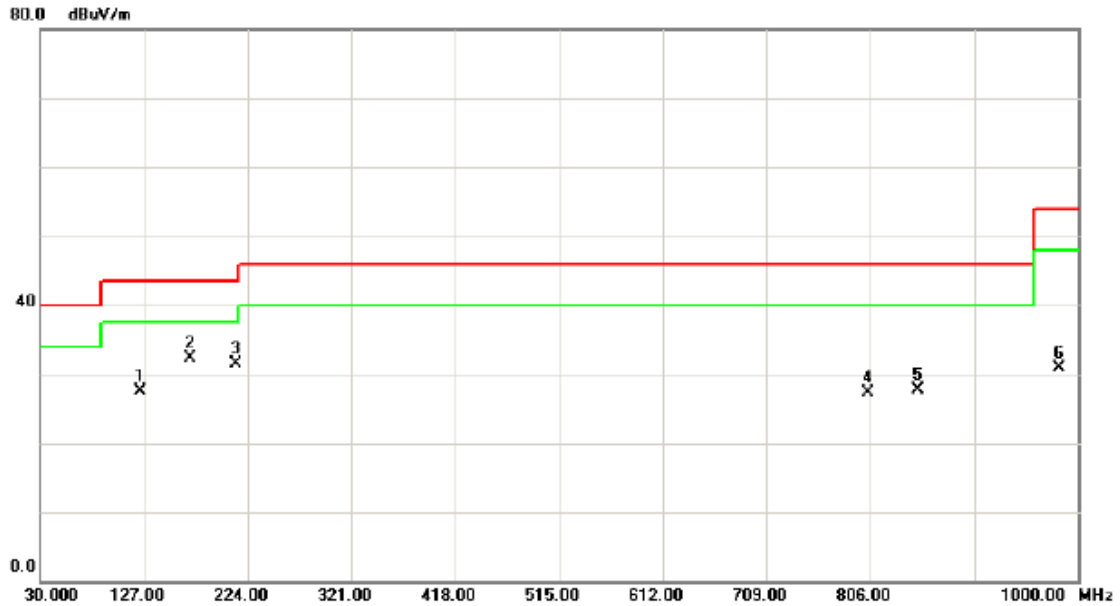
Vertical



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | * | 41.6400 | 46.79 | -14.12 | 32.67 | 40.00 | -7.33 | peak | |
| 2 | | 103.7200 | 50.11 | -16.11 | 34.00 | 43.50 | -9.50 | peak | |
| 3 | | 666.3200 | 32.85 | -5.12 | 27.73 | 46.00 | -18.27 | peak | |
| 4 | | 807.9400 | 32.10 | -2.97 | 29.13 | 46.00 | -16.87 | peak | |
| 5 | | 854.5000 | 32.37 | -3.10 | 29.27 | 46.00 | -16.73 | peak | |
| 6 | | 935.9800 | 31.08 | -0.67 | 30.41 | 46.00 | -15.59 | peak | |

Test Mode: TX MODE

Horizontal



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 124.0900 | 41.41 | -13.83 | 27.58 | 43.50 | -15.92 | peak | |
| 2 | * | 170.6500 | 45.12 | -12.78 | 32.34 | 43.50 | -11.16 | peak | |
| 3 | | 212.3600 | 46.90 | -15.31 | 31.59 | 43.50 | -11.91 | peak | |
| 4 | | 804.0600 | 30.21 | -2.94 | 27.27 | 46.00 | -18.73 | peak | |
| 5 | | 850.6200 | 30.97 | -3.23 | 27.74 | 46.00 | -18.26 | peak | |
| 6 | | 982.5400 | 31.35 | -0.39 | 30.96 | 54.00 | -23.04 | peak | |

ATTACHMENT D - RADIATED EMISSION (FCC PART 15.225)

| | |
|-----------|---------|
| Test Mode | TX MODE |
|-----------|---------|

| Freq. (MHz) | Ant. 0°/90° | Reading(RA) (dBuV) | Corr.Factor(CF) (dB) | Measured(FS) (dBuV/m) | Limits(QP) (dBuV/m) | Margin (dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 13.550 | 0° | 45.77 | 10.99 | 56.76 | 124.00 | -67.24 | |
| 27.140 | 0° | 23.24 | 9.33 | 32.57 | 69.54 | -36.97 | |

| Freq. (MHz) | Ant. 0°/90° | Reading(RA) (dBuV) | Corr.Factor(CF) (dB) | Measured(FS) (dBuV/m) | Limits(QP) (dBuV/m) | Margin (dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 13.540 | 90° | 41.56 | 10.99 | 52.55 | 124.00 | -71.45 | |
| 27.170 | 90° | 18.63 | 9.33 | 27.96 | 69.54 | -41.58 | |

ATTACHMENT E - FREQUENCY STABILITY MEASUREMENT

| | |
|------------|---------|
| Test Mode: | TX MODE |
|------------|---------|

| Frequency Stability Versus Environmental Temperature | | | | | | |
|--|---------------------|-----------------|--------------------|--------------------------|----------------|--------|
| | Temperature (°C) | Voltage (DC) | Frequency (MHz) | Frequency Error (kHz) | Limit (kHz) | Result |
| 0 min | 20 | 120V | 13.56 | | | |
| | 50 | 120V | 13.5609 | 0.9 | +/- 1.356 | PASS |
| 2 min | -20 | 120V | 13.5611 | 1.1 | +/- 1.356 | PASS |
| | 50 | 120V | 13.5605 | 0.5 | +/- 1.356 | PASS |
| 5 min | -20 | 120V | 13.5608 | 0.8 | +/- 1.356 | PASS |
| | 50 | 120V | 13.5609 | 0.9 | +/- 1.356 | PASS |
| 10 min | -20 | 120V | 13.5608 | 0.8 | +/- 1.356 | PASS |
| | 50 | 120V | 13.5612 | 1.2 | +/- 1.356 | PASS |
| | -20 | 120V | 13.5607 | 0.7 | +/- 1.356 | PASS |

| Frequency Stability Versus Input Voltage | | | | | | |
|--|-----------------|------|--------------------|--------------------------|----------------|--------|
| Temperature (°C) | Voltage (AC) | | Frequency (MHz) | Frequency Error (kHz) | Limit (kHz) | Result |
| 20 | V-nom | 120V | 13.56 | | | |
| 20 | V-min | 118V | 13.5605 | 0.5 | +/- 1.356 | PASS |
| 20 | V-max | 132V | 13.5611 | 1.1 | +/- 1.356 | PASS |

ATTACHMENT F - 20dB SPECTRUM BANDWIDTH MEASUREMENT

Test Mode : TX Mode

