

### **TEST REPORT**

FCC ID: 2AB3E-IT55F

Applicant : ION AUDIO,LLC

Address : 200 Scenic View Drive, Cumberland, RI 02864, U.S.A

#### **Equipment Under Test (EUT):**

Name : Air LP

Model : iT55Fxx (x can be A-Z, 0-9 or blank)

Trademark : ION

**Standards**: FCC PART 15, SUBPART C: 2014 (Section 15.247)

RSS-247 ISSUE 1 MAY 2015; RSS-GEN ISSUE 4 NOV 2014

ANSI C63.4:2014; ANSI C63.10:2013

**Report No** : T1851236 07

**Date of Test**: August 31- September 22, 2015

**Date of Issue**: September 23, 2015

**Test Result** : PASS

In the configuration tested, the EUT complied with the standards specified above Authorized Signature

(Mark Zhu)

Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Alpha Product Testing Co., Ltd. Or test done by Shenzhen Alpha Product Testing Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Alpha Product Testing Co., Ltd. Approvals in writing.

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#### TEST REPORT VERIFICATION

Applicant : ION AUDIO,LLC
Manufacturer : ION AUDIO,LLC

EUT Description : Air LP

(A) Model No. : iT55Fxx (x can be A-Z, 0-9 or blank)

(B) Trademark : ION

(C) Ratings Supply : DC 12V from adapter

(D)Test Voltage : DC 12V from adapter with adapter 120V/60Hz input

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C 2014, ANSI C63.4-2014

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature)......

Approved by (name + signature)......:

Eric Huang
Test Engineer

Simple Guan
Project Manager

Date of issue..... September 23, 2015

### 1. General Information

### 1.1. Description of Device (EUT)

EUT : Air LP

Model No. : iT55Fxx (x can be A-Z, 0-9 or blank)

Difference : All models covered by this report are identical, except model no.,

brand name and appearance of enclosure (for color and silk-screen

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only) for marketing purpose

Trade mark : ION

Power supply : DC 12V from adapter

Radio Technology : BT 3.0+EDR

Operation frequency : 2402-2480MHz

Modulation : GFSK,  $\pi$  /4 DQPSK,8-DPSK

Antenna Type : Integrated Antenna, max gain 1.5dBi.

Adapter : N/A

Applicant : ION AUDIO,LLC

Address : 200 Scenic View Drive, Cumberland, RI 02864, U.S.A

manufacture : ION AUDIO, LLC

Address : 200 Scenic View Drive, Cumberland, RI 02864, U.S.A.

### 1.2. Accessories of device (EUT)

| Description  |   | AC Adapter               |
|--------------|---|--------------------------|
| Manufacturer |   | TEKA                     |
| Model No.    |   | TEKA006-1200200UKC       |
| Rated Input  |   | 100-240VAC, 50/60Hz,0.3A |
| Rated Output | : | 12VDC, 0.2A              |

#### 1.3. Test Lab information

Shenzhen Alpha Product Testing Co., Ltd Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road, Bao'an, Shenzhen, China

August 11, 2014 File on Federal Communication Commission

Registration Number: 203110

July 18, 2014 Certificated by IC Registration Number: 12135A

## 2. Summary of test

### 2.1. Summary of test result

| <b>Description of Test Item</b> | Standard                           | Results |  |
|---------------------------------|------------------------------------|---------|--|
|                                 | FCC Part 15: 15.247(b)(1)          |         |  |
| Maximum Peak Output Power       | ANSI C63.4 :2014&RSS-247 5.4(2) &  | PASS    |  |
|                                 | ANSI C63.10 :2013                  |         |  |
|                                 | FCC Part 15: 15.215                |         |  |
| Bandwidth                       | ANSI C63.4 :2014&RSS-247 5.1(2) &  | PASS    |  |
|                                 | ANSI C63.10 :2013                  |         |  |
|                                 | FCC Part 15: 15.247(a)(1)          |         |  |
| Carrier Frequency Separation    | ANSI C63.4 :2014&                  | PASS    |  |
|                                 | RSS-247 5.1(2) & ANSI C63.10 :2013 |         |  |
|                                 | FCC Part 15: 15.247(a)(1)(iii)     |         |  |
| Number Of Hopping Channel       | ANSI C63.4 :2014&RSS-247 5.1(4) &  | PASS    |  |
|                                 | ANSI C63.10 :2013                  |         |  |
|                                 | FCC Part 15: 15.247(a)(1)(iii)     |         |  |
| Dwell Time                      | ANSI C63.4 :2014&RSS-247 5.1(4) &  | PASS    |  |
|                                 | ANSI C63.10 :2013                  |         |  |
|                                 | FCC Part 15: 15.209                |         |  |
| Radiated Emission               | FCC Part 15: 15.247(d)             | PASS    |  |
| Radiated Emission               | ANSI C63.4 :2014&RSS-247 Section   |         |  |
|                                 | 5.5& ANSI C63.10 :2013             |         |  |
|                                 | FCC Part 15: 15.247(d)             |         |  |
| Band Edge Compliance            | ANSI C63.4 :2014&RSS-247 Section   | PASS    |  |
|                                 | 5.5& ANSI C63.10 :2013             |         |  |
|                                 | FCC Part 15: 15.207                |         |  |
| Power Line Conducted            | ANSI C63.4 :2014&IC RSS Gen,       | PASS    |  |
| Emissions                       | Section 7.2.4& ANSI C63.10 :2013   |         |  |
|                                 | FCC Part 15: 15.203 &IC RSS Gen,   |         |  |
| Antenna requirement             | Section 7.1.4                      | PASS    |  |
|                                 | Section 7.1.7                      |         |  |

2.2. Assistant equipment used for test

| Description                  | : | Notebook |  |
|------------------------------|---|----------|--|
| Manufacturer                 |   | ACER     |  |
| Model No.                    | : | ZQT      |  |
| Remark: FCC DOC approved CSR |   |          |  |

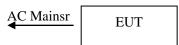
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### 2.3. Block Diagram

1, For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was be set into BT test mode by CSR software before test.



2, For Power Line Conducted Emissions Test: EUT was connected to notebook by 1.5m USB line



#### 2.4. Test mode

The test software "CSR" was used to control EUT work in Continuous TX mode, and select test channel, wireless mode.

| Tested mode, channel, and data rate information |              |      |  |  |  |
|---|--------------|------|--|--|--|
| Mode Channel Frequency                          |              |      |  |  |  |
|   | (MHz)        |      |  |  |  |
|   | Low :CH1     | 2402 |  |  |  |
| GFSK  | Middle: CH40 | 2441 |  |  |  |
|   | High: CH79   | 2480 |  |  |  |

| Tested mode, channel, and data rate information |              |      |  |  |  |  |
|---|--------------|------|--|--|--|--|
| Mode Channel Frequency                          |              |      |  |  |  |  |
| (MF   |              |      |  |  |  |  |
|   | Low:CH1      | 2402 |  |  |  |  |
| π /4 DQPSK                                      | Middle: CH40 | 2441 |  |  |  |  |
|   | High: CH79   | 2480 |  |  |  |  |

| Tested mode, channel, and data rate information |              |      |  |  |  |
|---|--------------|------|--|--|--|
| Mode Channel Frequency                          |              |      |  |  |  |
|   | (MHz)        |      |  |  |  |
|   | Low:CH1      | 2402 |  |  |  |
| 8- DPSK   | Middle: CH40 | 2441 |  |  |  |
|   | High: CH79   | 2480 |  |  |  |

### 2.5. Test Conditions

| Temperature range | 21-25℃    |
|-------------------|-----------|
| Humidity range    | 40-75%    |
| Pressure range    | 86-106kPa |

### 2.6. Measurement Uncertainty (95% confidence levels, k=2)

| Item  | MU      | Remark      |
|---|---------|-------------|
| Uncertainty for Power point Conducted Emissions<br>Test | 2.42dB  |             |
| Uncertainty for Radiation Emission test in 3m           | 2.13 dB | Polarize: V |
| chamber (below 30MHz)                                   | 2.57dB  | Polarize: H |
| Uncertainty for Radiation Emission test in 3m           | 3.54dB  | Polarize: V |
| chamber<br>(30MHz to 1GHz)                              | 4.1dB   | Polarize: H |
| Uncertainty for Radiation Emission test in 3m           | 2.08dB  | Polarize: H |
| chamber (1GHz to 25GHz)                                 | 2.56dB  | Polarize: V |
| Uncertainty for radio frequency                         | 1×10-9  |             |
| Uncertainty for conducted RF Power                      | 0.65dB  |             |
| Uncertainty for temperature                             | 0.2℃    |             |
| Uncertainty for humidity                                | 1%      |             |
| Uncertainty for DC and low frequency voltages           | 0.06%   |             |

### 2.7. Test Equipment

| Equipment              | Manufacture       | Model No.       | Serial No.           | Cal. Due day | Cal Interval |
|------------------------|-------------------|-----------------|----------------------|--------------|--------------|
| 3m Semi-Anechoic       | ETS-LINDGREN      | N/A             | SEL0017              | 2016.01.19   | 1 Year       |
| Spectrum analyzer      | Agilent           | E4407B          | MY49510055           | 2016.01.19   | 1 Year       |
| Receiver               | R&S               | ESCI            | 101165               | 2016.01.19   | 1 Year       |
| Bilog Antenna          | SCHWARZBECK       | VULB 9168       | 9168-438             | 2017.01.21   | 2Year        |
| Horn Antenna           | SCHWARZBECK       | BBHA 9120 D     | BBHA 9120<br>D(1201) | 2017.01.21   | 2Year        |
| Horn Antenna           | SCHWARZBECK       | BBHA 9170       | BBHA 9170<br>D(1432) | 2017.01.21   | 2Year        |
| Active Loop<br>Antenna | Beijing Daze      | ZN30900A        | SEL0097              | 2016.01.19   | 1 Year       |
| Cable                  | Resenberger       | SUCOFLEX<br>104 | MY6562/4             | 2016.01.19   | 1 Year       |
| Cable                  | Resenberger       | SUCOFLEX<br>104 | 309972/4             | 2016.01.19   | 1Year        |
| Cable                  | Resenberger       | SUCOFLEX<br>104 | 329112/4             | 2016.01.19   | 1Year        |
| L.I.S.N.#1             | Schwarzbeck       | NSLK8126        | 8126466              | 2016.01.19   | 1Year        |
| L.I.S.N.#2             | ROHDE&SCHWA<br>RZ | ENV216          | 101043               | 2016.01.19   | 1 Year       |
| Power Meter            | Anritsu           | ML2487A         | 6K00001491           | 2016.01.19   | 1Year        |
| Power sensor           | Anritsu           | ML2491A         | 32516                | 2016.01.19   | 1 Year       |
| Pre-amplifier          | SCHWARZBECK       | BBV9743         | 9743-019             | 2016.01.19   | 1 Year       |
| Pre-amplifier          | Quietek           | AP-180C         | CHM-0602012          | 2016.01.19   | 1Year        |

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### 3. Maximum Peak Output power

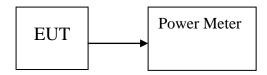
#### 3.1. Limit

Please refer RSS-247 & section15.247.

#### 3.2. Test Procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

### 3.3. Test Setup



#### 3.4. Test Result

| EUT: Air LP      | M/N: iT: | 55F                   |                                     |                |                |  |
|------------------|----------|-----------------------|-------------------------------------|----------------|----------------|--|
| Test date: 2015  | 5-09-12  | Test site: RF site    | Test site: RF site Tested by: Peter |                |                |  |
| Mode Freq (MHz)  |          | PK Output Power (dBm) | PK Output<br>Power<br>(mW)          | Limit<br>(dBm) | Margin<br>(dB) |  |
|                  | 2402     | -0.86                 | 0.820                               | 21             | 21.860         |  |
| GFSK             | 2441     | -1.34                 | 0.735                               | 21             | 22.340         |  |
|                  | 2480     | -1.96                 | 0.637                               | 21             | 22.960         |  |
|                  | 2402     | -1.74                 | 0.670                               | 21             | 22.740         |  |
| π /4 DQPSK,      | 2441     | -2.38                 | 0.578                               | 21             | 23.380         |  |
|                  | 2480     | -2.67                 | 0.541                               | 21             | 23.670         |  |
|                  | 2402     | -1.86                 | 0.652                               | 21             | 22.860         |  |
| 8- DPSK          | 2441     | -2.88                 | 0.515                               | 21             | 23.880         |  |
|                  | 2480     | -2.99                 | 0.502                               | 21             | 23.990         |  |
| Conclusion: PASS |          |                       |                                     |                |                |  |

### 4. Bandwidth

#### 4.1. Limit

Please refer RSS-247 & section15.247.

#### 4.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW, PK detector. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

#### 4.3. Test Result

| EUT: Air LP     | M/N: i        | T55F                 |                |      |
|-----------------|---------------|----------------------|----------------|------|
| Test date: 2015 | 5-09-12       | Test site: RF site   | Tested by: Pet | er   |
| Mode            | Freq<br>(MHz) | 20dB Bandwidth (KHz) | Limit Conc     |      |
|                 | 2402          | 846.5                | -              | PASS |
| GFSK            | 2441          | 835.2                | -              | PASS |
|                 | 2480          | 850.7                | -              | PASS |
|                 | 2402          | 1197                 | -              | PASS |
| π /4 DQPSK      | 2441          | 1220                 | -              | PASS |
|                 | 2480          | 1216                 | -              | PASS |
| 8- DPSK         | 2402          | 1198                 | -              | PASS |
|                 | 2441          | 1214                 | -              | PASS |
|                 | 2480          | 1219                 | -              | PASS |

### Orginal Test data

GFSK:







#### $\pi$ /4 DQPSK







#### 8- DPSK







### 5. Carrier Frequency Separation

#### 5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

#### 5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

#### 5.3. Test Result

| EUT: Air LP M/N: iT55F |                          |                              |                                      |            |  |  |  |
|------------------------|--------------------------|------------------------------|--------------------------------------|------------|--|--|--|
| Test date: 2015-       | 09-12                    | Test site: RF site Tested by |                                      | Peter      |  |  |  |
| Mode/Channel           | Channel separation (KHz) | 20dB Bandwidth<br>(KHz)      | Limit (KHz)<br>2/3 20dB<br>bandwidth | Conclusion |  |  |  |
| GFSK                   | 1005                     | 835.200                      | 556.800                              | PASS       |  |  |  |
| π /4 DQPSK             | 1002                     | 1220.000                     | 813.333                              | PASS       |  |  |  |
| 8- DPSK                | 1008                     | 1214.000                     | 809.333                              | PASS       |  |  |  |

#### Orginal test data for channel separation

#### **GFSK**



#### $\pi$ /4 DQPSK



#### 8- DPSK



### 6. Number Of Hopping Channel

#### 6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

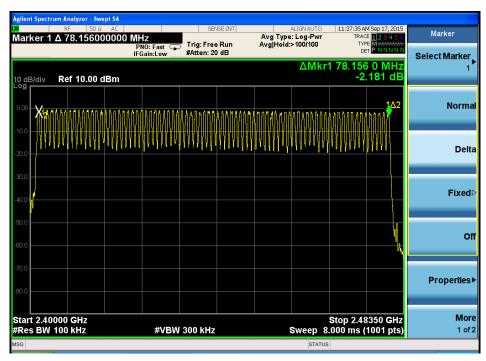
#### 6.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

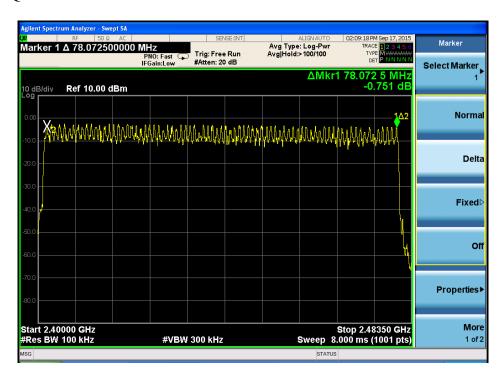
#### 6.3. Test Result

| EUT: Air LP M/N: iT55F |                           |                  |            |  |  |  |  |
|------------------------|---------------------------|------------------|------------|--|--|--|--|
| Test date: 2015-09-12  | Test site: RF site        | Tested by: Peter |            |  |  |  |  |
| Mode                   | Number of hopping channel | Limit            | Conclusion |  |  |  |  |
| GFSK                   | 79                        | >15              | PASS       |  |  |  |  |
| $\pi$ /4 DQPSK         | 79                        | >15              | PASS       |  |  |  |  |
| 8- DPSK                | 79                        | >15              | PASS       |  |  |  |  |

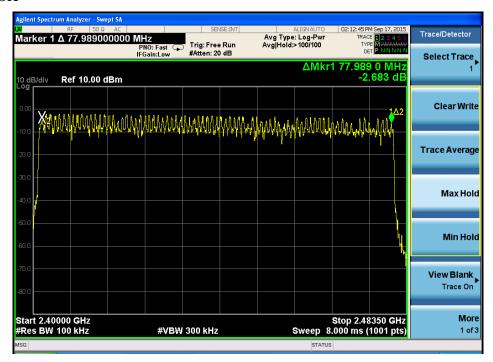
# Original test data for hopping channel number GFSK



#### $\pi$ /4 DQPSK



#### 8- DPSK



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### 7. Dwell Time

#### 7.1. Test limit

Please refer RSS-247 & section15.247.

#### 7.2. Test Procedure

- 7.2.1. Place the EUT on the table and set it in transmitting mode.
- 7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 7.2.3. Set center frequency of spectrum analyzer = operating frequency.
- 7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
- 7.2.5. Repeat above procedures until all frequency measured were complete.

#### 7.3. Test Results

PASS.

Detailed information please see the following page.

| EUT: Air LP           | M/N: iT55F |                 |                                     |                |           |            |  |
|-----------------------|------------|-----------------|-------------------------------------|----------------|-----------|------------|--|
| Test date: 2015-09-12 |            | Test site: RF   | Test site: RF site Tested by: Peter |                |           |            |  |
| Mode Data Packet      |            | Frequency (MHz) | Pulse Duration (ms)                 | Dwell Time (s) | Limit (s) | Conclusion |  |
|                       | DH1        | 2441            | 0.392                               | 0.251          | < 0.4     | PASS       |  |
| GFSK                  | DH3        | 2441            | 1.668                               | 0.356          | < 0.4     | PASS       |  |
|                       | DH5        | 2441            | 2.888                               | 0.370          | < 0.4     | PASS       |  |
|                       | DH1        | 2441            | 0.404                               | 0.259          | < 0.4     | PASS       |  |
| π /4 DQPSK            | DH3        | 2441            | 1.616                               | 0.345          | < 0.4     | PASS       |  |
|                       | DH5        | 2441            | 2.884                               | 0.369          | < 0.4     | PASS       |  |
| 8- DPSK               | DH1        | 2441            | 0.408                               | 0.261          | < 0.4     | PASS       |  |
| 0- DLVV               | DH3        | 2441            | 1.616                               | 0.345          | < 0.4     | PASS       |  |
|                       | DH5        | 2441            | 2.892                               | 0.370          | < 0.4     | PASS       |  |

Note: 1 A period time = 0.4 (s) \* 79 = 31.6(s)

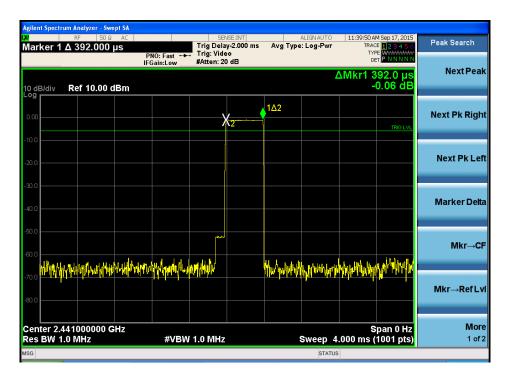
DH3 time slot = Pulse Duration \* (1600/(3\*79)) \* A period time

DH5 time slot = Pulse Duration \* (1600/(5\*79)) \* A period time

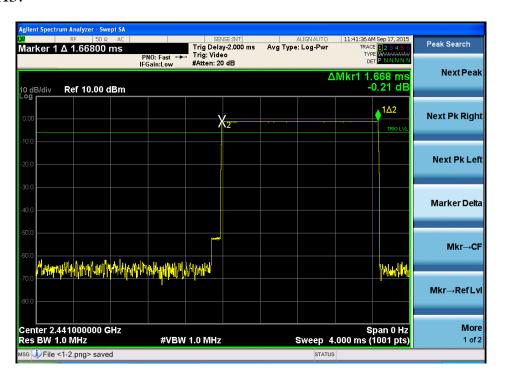
<sup>2</sup> DH1 time slot = Pulse Duration \* (1600/(1\*79)) \* A period time

#### **GFSK**

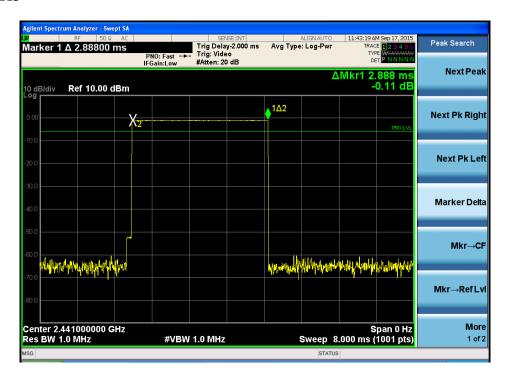
#### DH1:



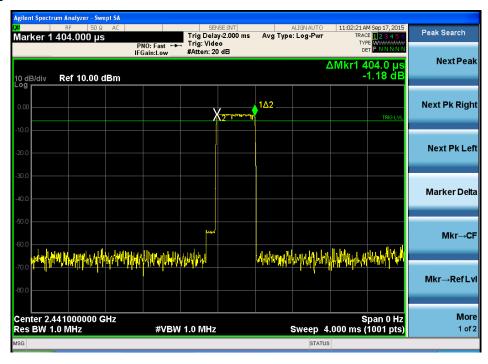
#### DH3:



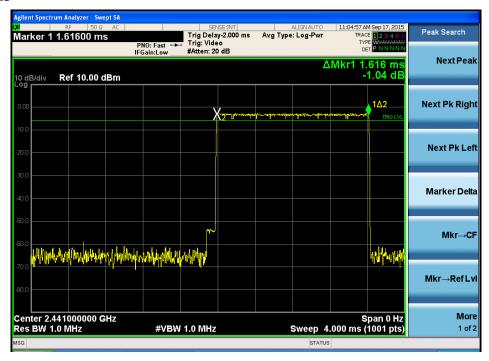
#### DH5



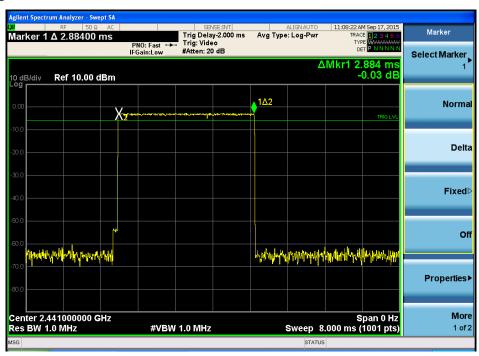
# $\begin{array}{c} \pi \ / 4 \ DQPSK \\ DH1 \end{array}$



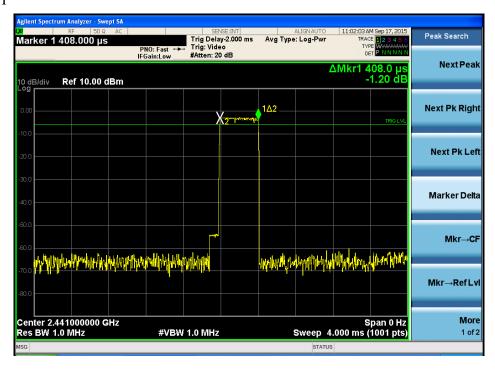
#### DH3



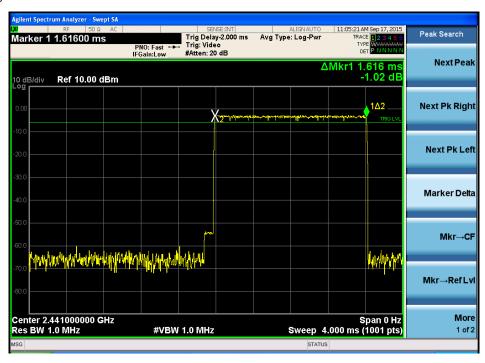
#### DH5



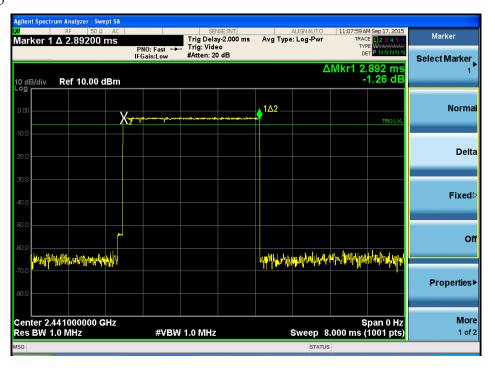
#### 8- DPSK: DH1



#### DH3



#### DH5



### 8. Radiated emissions

#### 8.1. Limit

All the emissions appearing within RSS-GEN restricted frequency bands shall not exceed the limits shown in RSS-GEN, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with RSS-GEN limits.

RSS-GEN Restricted frequency band

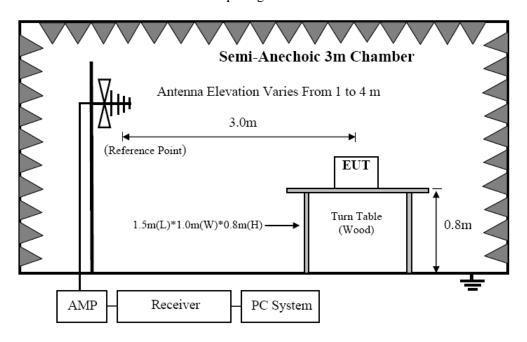
| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

**RSS-GEN Limit** 

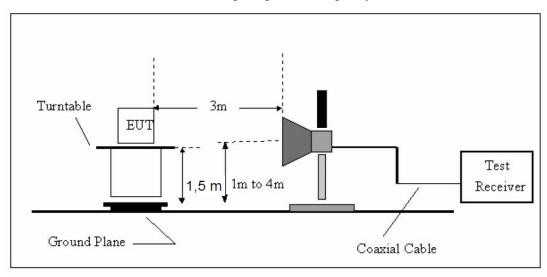
| FREQUENCY   | DISTANCE | FIELD STRENGTHS LIMIT                                     |               |  |  |
|-------------|----------|---|---------------|--|--|
| MHz         | Meters   | $\mu V/m$   | $dB(\mu V)/m$ |  |  |
| 0.009-0.490 | 300      | 2400/F(KHz)   | /             |  |  |
| 0.490-1.705 | 30       | 24000/F(KHz)  | /             |  |  |
| 1.705-30    | 30       | 30  | 29.5          |  |  |
| 30 ~ 88     | 3        | 100   | 40.0          |  |  |
| 88 ~ 216    | 3        | 150   | 43.5          |  |  |
| 216 ~ 960   | 3        | 200   | 46.0          |  |  |
| 960 ~ 1000  | 3        | 500 54.0  |               |  |  |
| Above 1000  | 3        | 74.0 dB(µV)   | /m (Peak)     |  |  |
| Above 1000  | 3        | $54.0 \text{ dB}(\mu\text{V})/\text{m} \text{ (Average)}$ |               |  |  |

### 8.2. Block Diagram of Test setup

8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



8.2.2 In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

#### 8.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1GHz testing, and 150cm for above 1GHz testing.
- (2) Setup EUT and simulator as shown in section 1.4 and 6.1
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
- (a) Change work frequency or channel of device if practicable.
- (b) Change modulation type of device if practicable.
- (c) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2014 on Radiated Emission test.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

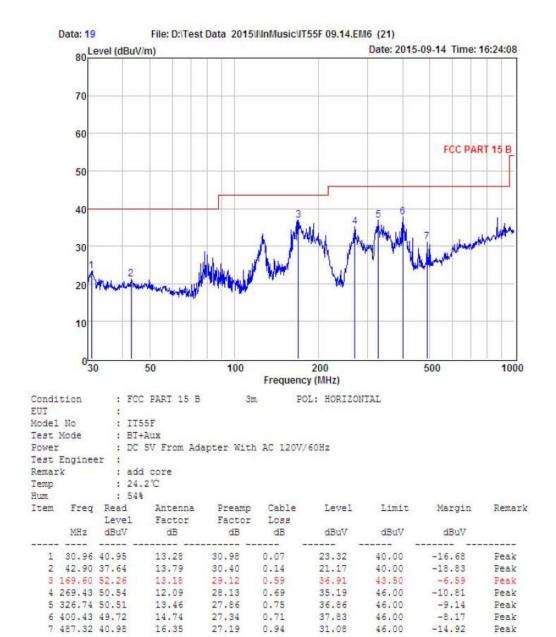
#### 8.4. Test Result

We have scanned the 10th harmonic from 9KHz to the EUT. Detailed information please see the following page.

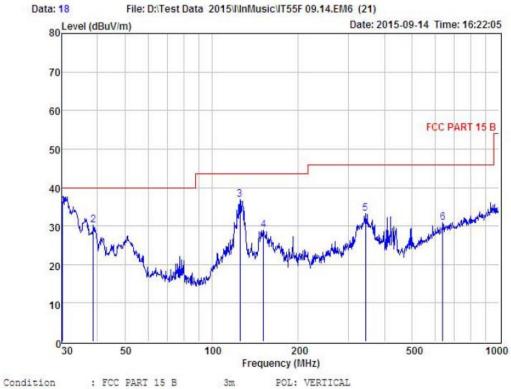
From 9KHz to 30MHz: Conclusion: PASS

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

#### From 30MHz to 1000MHz: Conclusion: PASS



Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



EUT

: IT55F Model No

Test Mode : BT+Aux
Power : DC 5V From Adapter With AC 120V/60Hz

Test Engineer :

Remark : add core : 24.2°C Temp Hum : 54%

| AL WAR |        |               | 7.0               |                  |      |       |       |        |        |
|--------|--------|---------------|-------------------|------------------|------|-------|-------|--------|--------|
| Item   | Freq   | Read<br>Level | Antenna<br>Factor | Preamp<br>Factor |      | Level | Limit | Margin | Remark |
|        | MHz    | dBuV          | dB                | dB               | dB   | dBuV  | dBuV  | dBuV   |        |
|        |        |               |                   |                  |      |       |       |        |        |
| 1      | 30.26  | 52,90         | 13.22             | 30.98            | 0.03 | 35.17 | 40.00 | -4.83  | QP     |
| 2      | 38.62  | 47.15         | 13.73             | 30.84            | 0.13 | 30.17 | 40.00 | -9.83  | Peak   |
| 3      | 125,45 | 53.66         | 12.46             | 29.56            | 0.28 | 36.84 | 43.50 | -6.66  | Peak   |
| 4      | 151.60 | 43.75         | 14.16             | 29.41            | 0.42 | 28.92 | 43.50 | -14.58 | Peak   |
| 5      | 343.18 | 46.47         | 13.71             | 27.82            | 0.80 | 33.16 | 46.00 | -12.84 | Peak   |
| 6      | 638.37 | 36.41         | 18.94             | 25.59            | 1.22 | 30.98 | 46.00 | -15.02 | Peak   |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Report No.: T1851236 07

|      |                        | 1GF                       | Iz—25GI                     | Hz Radi         | iated en              | nissison Te        | st result         |                |        |
|------|------------------------|---------------------------|-----------------------------|-----------------|-----------------------|--------------------|-------------------|----------------|--------|
| EUT  | EUT: Air LP M/N: iT55F |                           |                             |                 |                       |                    |                   |                |        |
| Pow  | er: DC 1               | 2V from ad                | apter                       |                 |                       |                    |                   |                |        |
| Test | date: 20               | 15-09-12                  | Test site                   | : 3m Cl         | namber                | Tested by          | y: Peter          |                |        |
| Test | mode: G                | FSK Tx CF                 | H1 2402M                    | IHz             |                       |                    |                   |                |        |
| Ante | enna pola              | rity: Vertica             | al                          |                 |                       |                    |                   |                |        |
| No   | Freq (MHz)             | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
| 1    | 4804                   | 42.25                     | 33.95                       | 10.18           | 34.26                 | 52.12              | 74                | 21.88          | PK     |
| 2    | 4804                   | 32.87                     | 33.95                       | 10.18           | 34.26                 | 42.74              | 54                | 11.26          | AV     |
| 3    | 7206                   | /                         |                             |                 |                       |                    |                   |                |        |
| 4    | 9608                   | /                         |                             |                 |                       |                    |                   |                |        |
| 5    | 12010                  | /                         |                             |                 |                       |                    |                   |                |        |
| Ante | enna Pola              | rity: Horizo              | ontal                       |                 |                       |                    |                   |                |        |
| 1    | 4804                   | 43.14                     | 33.95                       | 10.18           | 34.26                 | 53.01              | 74                | 20.99          | PK     |
| 2    | 4804                   | 32.08                     | 33.95                       | 10.18           | 34.26                 | 41.95              | 54                | 12.05          | AV     |
| 3    | 7206                   | /                         |                             |                 |                       |                    |                   |                |        |
| 4    | 9608                   | /                         |                             |                 |                       |                    |                   |                |        |
| 5    | 12010                  |                           |                             |                 |                       |                    |                   |                |        |

#### Note:

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

1GHz—25GHz Radiated emissison Test result

EUT: Air LP M/N: iT55F

Power: DC 12V from adapter

Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter

Test mode: GFSK Tx CH40 2441MHz

Antenna polarity: Vertical

| Anter | ma potan   | ty. Verticai              |                             |                                       |                       |                    |                |             |        |
|-------|------------|---------------------------|-----------------------------|---------------------------------------|-----------------------|--------------------|----------------|-------------|--------|
| No    | Freq (MHz) | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B)                       | Amp<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1     | 4882       | 42.9                      | 33.93                       | 10.2                                  | 34.29                 | 52.74              | 74             | 21.26       | PK     |
| 2     | 4882       | 32.7                      | 33.93                       | 10.2                                  | 34.29                 | 42.54              | 54             | 11.46       | AV     |
| 3     | 7323       | /                         |                             |                                       |                       |                    |                |             |        |
| 4     | 9764       | /                         |                             |                                       |                       |                    |                |             |        |
| 5     | 12205      | /                         |                             |                                       |                       |                    |                |             |        |
| Anter | nna Polari | ty: Horizon               | tal                         |                                       |                       |                    |                |             |        |
| 1     | 4882       | 42.73                     | 33.93                       | 10.2                                  | 34.29                 | 52.57              | 74             | 21.43       | PK     |
| 2     | 4882       | 32.28                     | 33.93                       | 10.2                                  | 34.29                 | 42.12              | 54             | 11.88       | AV     |
| 3     | 7323       | /                         |                             |                                       |                       |                    | ·              |             |        |
| 1 .   |            |                           |                             | · · · · · · · · · · · · · · · · · · · | 1                     |                    | ·              |             |        |

# 5 Note:

9764

12205

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

1GHz—25GHz Radiated emissison Test result EUT: Air LP M/N: iT55F Power: DC 12V from adapter Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter Test mode: GFSK Tx CH79 2480MHz Antenna polarity: Vertical Read Antenna Cable Amp Limit Freq Result Margin Factor loss(d | Factor No (dBuV/ Level Remark (MHz) (dBuV/m) (dB) (dBuV/m)(dB/m)B) (dB) m) 4960 10.22 1 43.18 33.98 34.25 53.13 74 20.87 PK 2 4960 32.4 33.98 10.22 34.25 42.35 54 11.65 AV 3 7440 / 9920 4 / 12400 Antenna Polarity: Horizontal 4960 43.21 33.98 10.22 34.25 53.16 20.84 PK 1 74 4960 33.98 10.22 34.25 42.58 11.42 AV 2 32.63 54 3 7440

# 5 Solution

4

9920

12400

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

1GHz—25GHz Radiated emissison Test result

Report No.: T1851236 07

EUT: Air LP M/N: iT55F

Power: DC 12V from adapter

Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter

Test mode: π /4 DQPSK Tx CH1 2402MHz

Antenna polarity: Vertical

| MIII | ima pora   | inty. Vertice             | 11                          |                 |                       |                    |                   |                |        |
|------|------------|---------------------------|-----------------------------|-----------------|-----------------------|--------------------|-------------------|----------------|--------|
| No   | Freq (MHz) | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
| 1    | 4804       | 42.79                     | 33.95                       | 10.18           | 34.26                 | 52.66              | 74                | 21.34          | PK     |
| 2    | 4804       | 32.28                     | 33.95                       | 10.18           | 34.26                 | 42.15              | 54                | 11.85          | AV     |
| 3    | 7206       | /                         |                             |                 |                       |                    |                   |                |        |
| 4    | 9608       | /                         |                             |                 |                       |                    |                   |                |        |
| 5    | 12010      | /                         |                             |                 |                       |                    |                   |                |        |
| Ante | enna Pola  | rity: Horizo              | ontal                       |                 |                       |                    |                   |                |        |
| 1    | 4804       | 42.81                     | 33.95                       | 10.18           | 34.26                 | 52.68              | 74                | 21.32          | PK     |
| 2    | 4804       | 32.56                     | 33.95                       | 10.18           | 34.26                 | 42.43              | 54                | 11.57          | AV     |
| 3    | 7206       | /                         |                             |                 |                       |                    |                   |                |        |
| 4    | 9608       | /                         |                             |                 |                       |                    |                   | ·              |        |
| 5    | 12010      | /                         |                             |                 |                       |                    |                   | ·              |        |

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| 1 | GH <sub>2</sub> _ | -25GHz         | Radiated | emissison | Test result |
|---|-------------------|----------------|----------|-----------|-------------|
| ш |                   | -/. )\ II I /. | Nachaled | CHINNINGH |             |

EUT: Air LP M/N: iT55F

Power: DC 12V from adapter

Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter

Test mode:  $\pi / 4$  DQPSK Tx CH40 2441MHz

| Anten | Antenna polarity: Vertical |               |                   |              |               |          |              |        |        |  |  |
|-------|----------------------------|---------------|-------------------|--------------|---------------|----------|--------------|--------|--------|--|--|
| No    | Freq                       | Read<br>Level | Antenna<br>Factor | Cable loss(d | Amp<br>Factor | Result   | Limit (dBuV/ | Margin | Remark |  |  |
|       | (MHz)                      | (dBuV/m)      | (dB/m)            | B)           | (dB)          | (dBuV/m) | m)           | (dB)   |        |  |  |
| 1     | 4882                       | 42.91         | 33.93             | 10.2         | 34.29         | 52.75    | 74           | 21.25  | PK     |  |  |
| 2     | 4882                       | 32.49         | 33.93             | 10.2         | 34.29         | 42.33    | 54           | 11.67  | AV     |  |  |
| 3     | 7323                       | /             |                   |              |               |          |              |        |        |  |  |
| 4     | 9764                       | /             |                   |              |               |          |              |        |        |  |  |
| 5     | 12205                      | /             |                   |              |               |          |              |        |        |  |  |
| Anten | ına Polari                 | ty: Horizon   | tal               |              |               |          |              |        |        |  |  |
| 1     | 4882                       | 42.91         | 33.93             | 10.2         | 34.29         | 52.75    | 74           | 21.25  | PK     |  |  |
| 2     | 4882                       | 32.28         | 33.93             | 10.2         | 34.29         | 42.12    | 54           | 11.88  | AV     |  |  |
| 3     | 7323                       | /             |                   |              |               |          |              |        |        |  |  |
| 4     | 9764                       | /             |                   |              |               |          |              |        |        |  |  |

# 5 Note:

12205

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

|      | 1GHz—25GHz Radiated emissison Test result                    |               |           |       |       |       |    |       |    |  |  |  |
|------|--|---------------|-----------|-------|-------|-------|----|-------|----|--|--|--|
| EU'  | Γ: Air LP  | N             | 1/N: iT55 | F     |       |       |    |       |    |  |  |  |
| Pow  | Power: DC 12V from adapter                                   |               |           |       |       |       |    |       |    |  |  |  |
| Test | Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter |               |           |       |       |       |    |       |    |  |  |  |
| Test | Test mode: π /4 DQPSK Tx CH79 2480MHz                        |               |           |       |       |       |    |       |    |  |  |  |
| Ant  | enna pola  | rity: Vertic  | al        |       |       |       |    |       |    |  |  |  |
| No   | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$       |               |           |       |       |       |    |       |    |  |  |  |
| 1    | 4960   | 42.81         | 33.98     | 10.22 | 34.25 | 52.76 | 74 | 21.24 | PK |  |  |  |
| 2    | 4960   | 32.66         | 33.98     | 10.22 | 34.25 | 42.61 | 54 | 11.39 | AV |  |  |  |
| 3    | 7440   | /             |           |       |       |       |    |       |    |  |  |  |
| 4    | 9920   | /             |           |       |       |       |    |       |    |  |  |  |
| 5    | 12400  | /             |           |       |       |       |    |       |    |  |  |  |
| Ant  | enna Pola  | arity: Horizo | ontal     |       |       |       |    |       |    |  |  |  |
| 1    | 4960   | 43.19         | 33.98     | 10.22 | 34.25 | 53.14 | 74 | 20.86 | PK |  |  |  |
| 2    | 4960   | 32.76         | 33.98     | 10.22 | 34.25 | 42.71 | 54 | 11.29 | AV |  |  |  |
| 3    | 7440   | /             |           |       |       |       |    |       |    |  |  |  |
| 4    | 9920   | /             |           |       |       |       |    |       |    |  |  |  |
| 5    | 12400  | /             |           |       |       |       |    |       |    |  |  |  |

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| 1011-   | 25011-         | Dadiatad | :         | Tas4.  | 14     |
|---------|----------------|----------|-----------|--------|--------|
| 1( tH7— | <b>-ノつ(†H7</b> | Radiated | emissison | Lest 1 | resulf |

EUT: Air LP M/N: IT55F

Power: DC 12V from adapter

Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter

Test mode: 8- DQPSK Tx CH1 2402MHz

Antenna polarity: Vertical

| ZIII | Antenna polarity. Vertical |                           |                             |                 |                       |                    |                   |                |        |  |  |
|------|----------------------------|---------------------------|-----------------------------|-----------------|-----------------------|--------------------|-------------------|----------------|--------|--|--|
| No   | Freq (MHz)                 | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |  |  |
| 1    | 4804                       | 42.8                      | 33.95                       | 10.18           | 34.26                 | 52.67              | 74                | 21.33          | PK     |  |  |
| 2    | 4804                       | 32.19                     | 33.95                       | 10.18           | 34.26                 | 42.06              | 54                | 11.94          | AV     |  |  |
| 3    | 7206                       | /                         |                             |                 |                       |                    |                   |                |        |  |  |
| 4    | 9608                       | /                         |                             |                 |                       |                    |                   |                |        |  |  |
| 5    | 12010                      | /                         |                             |                 |                       |                    |                   |                |        |  |  |
| Ante | enna Pola                  | rity: Horizo              | ntal                        |                 |                       |                    |                   |                |        |  |  |
| 1    | 4804                       | 42.48                     | 33.95                       | 10.18           | 34.26                 | 52.35              | 74                | 21.65          | PK     |  |  |
| 2    | 4804                       | 31.85                     | 33.95                       | 10.18           | 34.26                 | 41.72              | 54                | 12.28          | AV     |  |  |
| 3    | 7206                       | /                         |                             |                 |                       |                    |                   |                |        |  |  |
| 4    | 9608                       | /                         |                             |                 |                       |                    |                   |                |        |  |  |
| 5    | 12010                      | /                         |                             |                 |                       |                    |                   |                |        |  |  |

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

1GHz—25GHz Radiated emissison Test result M/N: IT55F

EUT: Air LP Power: DC 12V from adapter

Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter

Test mode: 8- DQPSK Tx CH40 2441MHz

| Anten | Antenna polarity: Vertical |               |                   |        |       |                 |              |             |        |  |  |
|-------|----------------------------|---------------|-------------------|--------|-------|-----------------|--------------|-------------|--------|--|--|
| No    | No Freq (MHz)              | Read<br>Level | Antenna<br>Factor | loss(d |       | Result (dBuV/m) | Limit (dBuV/ | Margin (dB) | Remark |  |  |
|       |                            | (dBuV/m)      | (dB/m)            | B)     | (dB)  | · ·             | m)           | , ,         |        |  |  |
| 1     | 4882                       | 42.61         | 33.93             | 10.2   | 34.29 | 52.45           | 74           | 21.55       | PK     |  |  |
| 2     | 4882                       | 32.28         | 33.93             | 10.2   | 34.29 | 42.12           | 54           | 11.88       | AV     |  |  |
| 3     | 7323                       | /             |                   |        |       |                 |              |             |        |  |  |
| 4     | 9764                       | /             |                   |        |       |                 |              |             |        |  |  |
| 5     | 12205                      | /             |                   |        |       |                 |              |             |        |  |  |
| Anten | ına Polari                 | ty: Horizon   | ıtal              |        |       |                 |              |             |        |  |  |
| 1     | 4882                       | 42.79         | 33.93             | 10.2   | 34.29 | 52.63           | 74           | 21.37       | PK     |  |  |
| 2     | 4882                       | 32.4          | 33.93             | 10.2   | 34.29 | 42.24           | 54           | 11.76       | AV     |  |  |
| 3     | 7323                       | /             |                   |        |       |                 |              |             |        |  |  |
| 4     | 9764                       | /             |                   |        |       |                 |              |             |        |  |  |
| 5     | 12205                      | /             |                   |        |       |                 |              |             |        |  |  |

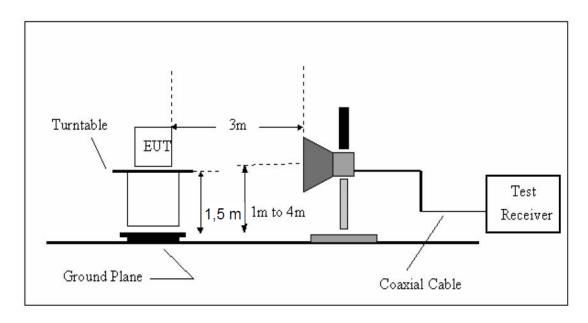
- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

|      | 1GHz—25GHz Radiated emissison Test result  |               |          |       |       |       |    |       |    |  |  |
|------|--|---------------|----------|-------|-------|-------|----|-------|----|--|--|
| EU   | Γ: Air LP  |               | M/N: IT5 | 5F    |       |       |    |       |    |  |  |
| Pow  | er: DC   | 12V from a    | adapter  |       |       |       |    |       |    |  |  |
| Test | Test date: 2015-09-12 Test site: 3m Chamber Tested by: Peter   |               |          |       |       |       |    |       |    |  |  |
| Test | Test mode: 8- DQPSK Tx CH79 2480MHz  |               |          |       |       |       |    |       |    |  |  |
| Ant  | Antenna polarity: Vertical   |               |          |       |       |       |    |       |    |  |  |
| No   | Freq (MHz)   Read   Antenna   Cable   Amp   Result   (dBuV/m)   (dB/m)   B)   Result   (dBuV/m)   (dBuV/m)   Remark   (dBuV/m)   Remark   (dBuV/m)   Remark   (dBuV/m)   Remark   (dBuV/m)   (dB)   Remark   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (dBuV/m)   (d |               |          |       |       |       |    |       |    |  |  |
| 1    | 4960   | 42.59         | 33.98    | 10.22 | 34.25 | 52.54 | 74 | 21.46 | PK |  |  |
| 2    | 4960   | 33.81         | 33.98    | 10.22 | 34.25 | 43.76 | 54 | 10.24 | AV |  |  |
| 3    | 7440   | /             |          |       |       |       |    |       |    |  |  |
| 4    | 9920   | /             |          |       |       |       |    |       |    |  |  |
| 5    | 12400  | /             |          |       |       |       |    |       |    |  |  |
| Ant  | enna Pola  | arity: Horizo | ontal    |       |       |       |    |       |    |  |  |
| 1    | 4960   | 42.91         | 33.98    | 10.22 | 34.25 | 52.86 | 74 | 21.14 | PK |  |  |
| 2    | 4960   | 32.28         | 33.98    | 10.22 | 34.25 | 42.23 | 54 | 11.77 | AV |  |  |
| 3    | 7440   | /             |          |       |       |       |    |       |    |  |  |
| 4    | 9920   | /             |          |       |       |       |    |       |    |  |  |
| 5    | 12400  | /             |          |       |       |       |    |       |    |  |  |

- 1, Measuring frequency from 1GHz to 25GHz
- 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# 9. Band Edge Compliance

# 9.1. Block Diagram of Test Setup



# 9.2. Limit

All the lower and upper band-edges emissions appearing within restricted frequency bands shall not exceed the limits shown in RSS-GEN, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with RSS-GEN limits.

# 9.3. Test Procedure

All restriction band and non- restriction band have been tested , only worse case is reported.

# 9.4. Test Result

# PASS. (See below detailed test data)

#### Radiated Method

**GFSK** (CH Low)

|                            | Band Edge Test result     |                             |                 |                       |                 |                   |             |        |  |  |
|----------------------------|---------------------------|-----------------------------|-----------------|-----------------------|-----------------|-------------------|-------------|--------|--|--|
| EUT: Air LP                |                           | M/N:                        | iT55F           |                       |                 |                   |             |        |  |  |
| Power: DC 12               | 2V from ad                | apter                       |                 |                       |                 |                   |             |        |  |  |
| Test date: 201             | 5-09-12                   | Test site                   | : 3m Cl         | namber                | Tested by       | : Peter           |             |        |  |  |
| Test mode: T               | x CH Low                  | 2402MHz                     | Z               |                       |                 |                   |             |        |  |  |
| Antenna polarity: Vertical |                           |                             |                 |                       |                 |                   |             |        |  |  |
| Freq (MHz)                 | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin (dB) | Remark |  |  |
| 2390                       | 43.63                     | 27.62                       | 3.92            | 34.97                 | 40.2            | 74                | 33.8        | PK     |  |  |
| 2390                       |                           | 27.62                       | 3.92            | 34.97                 |                 | 54                |             | AV     |  |  |
| 2400                       | 42.96                     | 27.62                       | 3.94            | 34.97                 | 39.55           | 74                | 34.45       | PK     |  |  |
| 2400                       |                           | 27.62                       | 3.94            | 34.97                 |                 | 54                |             | AV     |  |  |
|                            |                           |                             |                 |                       |                 |                   |             |        |  |  |
| Antenna Pola               | rity: Horizo              | ontal                       |                 |                       |                 |                   |             |        |  |  |
| 2390                       | 43.12                     | 27.62                       | 3.92            | 34.97                 | 39.69           | 74                | 34.31       | PK     |  |  |
| 2390                       | 1                         | 27.62                       | 3.92            | 34.97                 |                 | 54                |             | AV     |  |  |
| 2400                       | 43.33                     | 27.62                       | 3.94            | 34.97                 | 39.92           | 74                | 34.08       | PK     |  |  |
| 2400                       |                           | 27.62                       | 3.94            | 34.97                 |                 | 54                |             | AV     |  |  |
| Note:                      |                           |                             |                 |                       |                 |                   |             |        |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# GFSK (CH High)

|                |                           |                             | Band Ed         | lge Test              | result          |                   |                |        |
|----------------|---------------------------|-----------------------------|-----------------|-----------------------|-----------------|-------------------|----------------|--------|
| EUT: Air LP    |                           | M/N:                        | iT55F           |                       |                 |                   |                |        |
| Power: DC 12   | 2V from ada               | apter                       |                 |                       |                 |                   |                |        |
| Test date: 201 | 15-09-12                  | Test site                   | : 3m Cl         | namber                | Tested by       | : Peter           |                |        |
| Test mode: T   | x CH High                 | 2480MH                      | Z               |                       |                 |                   |                |        |
| Antenna pola   | rity: Vertica             | al                          |                 |                       |                 |                   |                |        |
| Freq (MHz)     | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
| 2483.5         | 42.96                     | 27.89                       | 4               | 34.97                 | 39.88           | 74                | 34.12          | PK     |
| 2483.5         |                           |                             |                 |                       |                 | 54                |                | AV     |
|                |                           |                             |                 |                       |                 |                   |                |        |
|                |                           |                             |                 |                       |                 |                   |                |        |
| Antenna Pola   | rity: Horizo              | ntal                        |                 |                       |                 |                   | II.            |        |
| 2483.5         | 43.15                     | 27.89                       | 4               | 34.97                 | 40.07           | 74                | 33.93          | PK     |
| 2483.5         |                           |                             |                 |                       |                 | 54                |                | AV     |
|                |                           |                             |                 |                       |                 |                   |                |        |
|                |                           |                             |                 |                       |                 |                   |                |        |
|                |                           |                             |                 |                       |                 |                   |                |        |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# GFSK (Hopping Low)

|                |                           |                             | Band Ed | dge Test              | result          |                   |                |        |
|----------------|---------------------------|-----------------------------|---------|-----------------------|-----------------|-------------------|----------------|--------|
| EUT: Air LP    |                           | M/N:                        | iT55F   |                       |                 |                   |                |        |
| Power: DC 12   | 2V from ada               | apter                       |         |                       |                 |                   |                |        |
| Test date: 201 | 15-09-12                  | Test site                   | : 3m Cł | namber                | Tested by       | : Peter           |                |        |
| Test mode: T   | X                         |                             |         |                       |                 |                   |                |        |
| Antenna pola   | rity: Vertica             | al                          |         |                       |                 |                   |                |        |
| Freq (MHz)     | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) |         | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
| 2390           | 41.96                     | 27.62                       | 3.92    | 34.97                 | 38.53           | 74                | 35.47          | PK     |
| 2390           |                           | 27.62                       | 3.92    | 34.97                 |                 | 54                |                | AV     |
|                |                           |                             |         |                       |                 |                   |                |        |
|                |                           |                             |         |                       |                 |                   |                |        |
| Antenna Pola   | rity: Horizo              | ntal                        |         |                       |                 |                   |                |        |
| 2390           | 42.91                     | 27.62                       | 3.92    | 34.97                 | 39.48           | 74                | 34.52          | PK     |
| 2390           |                           | 27.62                       | 3.92    | 34.97                 |                 | 54                |                | AV     |
|                |                           |                             |         |                       |                 |                   |                |        |
|                |                           |                             |         |                       |                 |                   |                |        |
|                |                           |                             |         |                       |                 |                   |                |        |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# GFSK (Hopping High)

|               |                           |                             | Band Ed | lge Test              | result          |                |                |        |
|---------------|---------------------------|-----------------------------|---------|-----------------------|-----------------|----------------|----------------|--------|
| EUT: Air LP   |                           | M/N:                        | iT55F   |                       |                 |                |                |        |
| Power: DC 12  | 2V from ada               | apter                       |         |                       |                 |                |                |        |
| Test date: 20 | 15-09-12                  | Test site                   | : 3m Cł | namber                | Tested by       | : Peter        |                |        |
| Test mode: T  | X                         |                             |         |                       |                 |                |                |        |
| Antenna pola  | rity: Vertica             | al                          |         |                       |                 |                |                |        |
| Freq (MHz)    | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) |         | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin<br>(dB) | Remark |
| 2483.5        | 42.43                     | 27.89                       | 4       | 34.97                 | 39.35           | 74             | 34.65          | PK     |
| 2483.5        |                           |                             |         |                       |                 | 54             |                | AV     |
|               |                           |                             |         |                       |                 |                |                |        |
|               |                           |                             |         |                       |                 |                |                |        |
| Antenna Pola  | rity: Horizo              | ntal                        |         |                       |                 |                | l.             |        |
| 2483.5        | 42.65                     | 27.89                       | 4       | 34.97                 | 39.57           | 74             | 34.43          | PK     |
| 2483.5 54 AV  |                           |                             |         |                       |                 |                | AV             |        |
|               |                           |                             |         |                       |                 |                |                |        |
|               |                           |                             |         |                       |                 |                |                |        |
|               |                           |                             |         |                       |                 |                |                |        |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# $\pi/4$ DQPSK (CH Low)

|                             |                           |                             | Band Ed         | dge Test              | result          |                   |                |        |  |
|-----------------------------|---------------------------|-----------------------------|-----------------|-----------------------|-----------------|-------------------|----------------|--------|--|
| EUT: Air LP                 |                           | M/N:                        | iT55F           |                       |                 |                   |                |        |  |
| Power: DC 12                | 2V from ada               | apter                       |                 |                       |                 |                   |                |        |  |
| Test date: 201              | 15-09-12                  | Test site                   | : 3m Cł         | namber                | Tested by       | : Peter           |                |        |  |
| Test mode: T                | x CH Low 2                | 2402MHz                     | Z               |                       |                 |                   |                |        |  |
| Antenna pola                | rity: Vertica             | al                          |                 |                       |                 |                   |                |        |  |
| Freq (MHz)                  | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) | Cable loss(d B) | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |  |
| 2390                        | 42.73                     | 27.62                       | 3.92            | 34.97                 | 39.3            | 74                | 34.7           | PK     |  |
| 2390                        |                           | 27.62                       | 3.92            | 34.97                 |                 | 54                |                | AV     |  |
|                             |                           |                             |                 |                       |                 |                   |                |        |  |
|                             |                           |                             |                 |                       |                 |                   |                |        |  |
| Antenna Pola                | rity: Horizo              | ntal                        |                 |                       |                 |                   |                |        |  |
| 2390                        | 43.05                     | 27.62                       | 3.92            | 34.97                 | 39.62           | 74                | 34.38          | PK     |  |
| 2390 27.62 3.92 34.97 54 AV |                           |                             |                 |                       |                 |                   | AV             |        |  |
|                             |                           |                             |                 |                       |                 |                   |                |        |  |
|                             |                           |                             |                 |                       |                 |                   |                |        |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# $\pi$ /4 DQPSK ( CH High )

|               |                        |           | Band Ed | dge Test | result    |          |        |        |  |  |
|---------------|------------------------|-----------|---------|----------|-----------|----------|--------|--------|--|--|
| EUT: Air LP   |                        | M/N:      | iT55F   |          |           |          |        |        |  |  |
| Power: DC 1   | 2V from ad             | apter     |         |          |           |          |        |        |  |  |
| Test date: 20 | 15-09-12               | Test site | : 3m Cl | namber   | Tested by | : Peter  |        |        |  |  |
| Test mode: T  | x CH High              | 2480MH    | Z       |          |           |          |        |        |  |  |
| Antenna pola  | rity: Vertica          | al        |         |          |           |          |        |        |  |  |
| _             | Read Antenna Cable Amp |           |         |          |           |          |        |        |  |  |
| Freq          | Level                  | Factor    | loss(d  | Factor   | Result    | Limit    | Margin | Remark |  |  |
| (MHz)         | (dBuV/m)               | (dB/m)    | B)      | (dB)     | (dBuV/m)  | (dBuV/m) | (dB)   |        |  |  |
| 2483.5        | 42.14                  | 27.89     | 4       | 34.97    | 39.06     | 74       | 34.94  | PK     |  |  |
| 2483.5        |                        | 54        |         | AV       |           |          |        |        |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
| Antenna Pola  | rity: Horizo           | ontal     |         |          |           |          |        |        |  |  |
| 2483.5        | 42.58                  | 27.89     | 4       | 34.97    | 39.5      | 74       | 34.5   | PK     |  |  |
| 2483.5        |                        |           |         |          |           | 54       |        | AV     |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
|               |                        |           |         |          |           |          |        |        |  |  |
| Note:         | •                      |           |         |          | •         |          |        |        |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# $\pi$ /4 DQPSK (Hopping Low)

|  | Band Edge Test result |           |         |        |           |         |       |    |  |  |  |
|--|-----------------------|-----------|---------|--------|-----------|---------|-------|----|--|--|--|
| EUT: Air LP  |                       | M/N:      | iT55F   |        |           |         |       |    |  |  |  |
| Power: DC 12   | 2V from ada           | apter     |         |        |           |         |       |    |  |  |  |
| Test date: 201   | 15-09-12              | Test site | : 3m Cł | namber | Tested by | : Peter |       |    |  |  |  |
| Test mode:   |                       |           |         |        |           |         |       |    |  |  |  |
| Antenna pola   | rity: Vertica         | al        |         |        |           |         |       |    |  |  |  |
| Freq Level Factor (dBuV/m) (dB/m) B) (dB) Result (dBuV/m) (dBuV/m) (dB) Remark |                       |           |         |        |           |         |       |    |  |  |  |
| 2390   | 42.73                 | 27.62     | 3.92    | 34.97  | 39.3      | 74      | 34.7  | PK |  |  |  |
| 2390   |                       | 27.62     | 3.92    | 34.97  |           | 54      |       | AV |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
| Antenna Pola   | rity: Horizo          | ntal      |         |        |           |         |       |    |  |  |  |
| 2390   | 42.69                 | 27.62     | 3.92    | 34.97  | 39.26     | 74      | 34.74 | PK |  |  |  |
| 2390   |                       | 27.62     | 3.92    | 34.97  |           | 54      |       | AV |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
|  | _                     |           |         |        | _         |         |       |    |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
| Note:  |                       |           |         |        |           |         |       |    |  |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

 $\pi$  /4 DQPSK (Hopping High )

|                |                           |                             | Band Ed | dge Test              | result          |                   |                |        |  |
|----------------|---------------------------|-----------------------------|---------|-----------------------|-----------------|-------------------|----------------|--------|--|
| EUT: Air LP    |                           | M/N:                        | iT55F   |                       |                 |                   |                |        |  |
| Power: DC 12   | 2V from ada               | apter                       |         |                       |                 |                   |                |        |  |
| Test date: 201 | 15-09-12                  | Test site                   | : 3m Cl | namber                | Tested by       | : Peter           |                |        |  |
| Test mode: T   | X                         |                             |         |                       |                 |                   |                |        |  |
| Antenna pola   | rity: Vertica             | al                          |         |                       |                 |                   |                |        |  |
| Freq<br>(MHz)  | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) |         | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |  |
| 2483.5         | 41.98                     | 27.89                       | 4       | 34.97                 | 38.9            | 74                | 35.1           | PK     |  |
| 2483.5         |                           |                             |         |                       |                 | 54                |                | AV     |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |
| Antanna Dala   | nityy Honiza              | ant al                      |         |                       |                 |                   |                |        |  |
| Antenna Pola   |                           | 1                           | 1       | 24.07                 | 40.15           | 7.4               | 22.95          | DIZ    |  |
| 2483.5         | 43.23                     | 27.89                       | 4       | 34.97                 | 40.15           | 74                | 33.85          | PK     |  |
| 2483.5         | 2483.5 54 AV              |                             |         |                       |                 |                   |                |        |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |
| N.T. /         |                           |                             | L       |                       |                 |                   |                |        |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

| 8- DPSK (C    | CH Low)      |           |         |          |           |         |        |  |
|---------------|--------------|-----------|---------|----------|-----------|---------|--------|--|
|               |              |           | Band Ed | dge Test | result    |         |        |  |
| EUT: Air LP   |              | M/N:      | iT55F   |          |           |         |        |  |
| Power: DC 1   | 2V from ad   | apter     |         |          |           |         |        |  |
| Test date: 20 | 15-09-12     | Test site | : 3m Cł | namber   | Tested by | : Peter |        |  |
| Test mode: T  | 'x CH Low    | 2402MHz   | Z       |          |           |         |        |  |
| Antenna pola  | rity: Vertic | al        |         |          |           |         |        |  |
| _             |              | Antenna   |         |          | Result    | Limit   | Margin |  |

| Freq<br>(MHz) | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) |      | Amp<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit (dBuV/m) | Margin<br>(dB) | Remark |
|---------------|---------------------------|-----------------------------|------|-----------------------|--------------------|----------------|----------------|--------|
| 2390          | 42.91                     | 27.62                       | 3.92 | 34.97                 | 39.48              | 74             | 34.52          | PK     |
| 2390          |                           | 27.62                       | 3.92 | 34.97                 |                    | 54             |                | AV     |
|               |                           |                             |      |                       |                    |                |                |        |
|               |                           |                             |      |                       |                    |                |                |        |
|               |                           |                             |      |                       |                    |                |                |        |
| Antenna Pola  | rity: Horizo              | ontal                       |      |                       |                    |                |                |        |
| 2390          | 43.12                     | 27.62                       | 3.92 | 34.97                 | 39.69              | 74             | 34.31          | PK     |
| 2390          |                           | 27.62                       | 3.92 | 34.97                 |                    | 54             |                | AV     |
|               |                           |                             |      |                       |                    |                |                |        |
|               |                           |                             |      |                       |                    |                |                |        |
|               |                           |                             |      |                       |                    |                |                |        |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# 8- DPSK (CH High)

|                |                           |                             | Band Ed | dge Test              | result          |                   |                |        |  |  |
|----------------|---------------------------|-----------------------------|---------|-----------------------|-----------------|-------------------|----------------|--------|--|--|
| EUT: Air LP    |                           | M/N:                        | iT55F   |                       |                 |                   |                |        |  |  |
| Power: DC 12   | 2V from ada               | apter                       |         |                       |                 |                   |                |        |  |  |
| Test date: 201 | 15-09-12                  | Test site                   | : 3m Cł | namber                | Tested by       | : Peter           |                |        |  |  |
| Test mode: T   | x CH High                 | 2480MH                      | Z       |                       |                 |                   |                |        |  |  |
| Antenna pola   | rity: Vertica             | al                          |         |                       |                 |                   |                |        |  |  |
| Freq (MHz)     | Read<br>Level<br>(dBuV/m) | Antenna<br>Factor<br>(dB/m) |         | Amp<br>Factor<br>(dB) | Result (dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |  |  |
| 2483.5         | 41.96                     | 27.89                       | 4       | 34.97                 | 38.88           | 74                | 35.12          | PK     |  |  |
| 2483.5         |                           | -                           | 1       |                       |                 | 54                |                | AV     |  |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |  |
| Antenna Pola   | rity: Horizo              | ntal                        |         |                       |                 |                   | I              |        |  |  |
| 2483.5         | 43.31                     | 27.89                       | 4       | 34.97                 | 40.23           | 74                | 33.77          | PK     |  |  |
| 2483.5 54 AV   |                           |                             |         |                       |                 |                   |                | AV     |  |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |  |
|                |                           |                             |         |                       |                 |                   |                |        |  |  |
| NI - 4         |                           |                             |         |                       |                 |                   |                |        |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

# 8- DPSK (Hopping Low)

|   | Band Edge Test result |           |         |        |           |         |       |    |  |  |  |
|---|-----------------------|-----------|---------|--------|-----------|---------|-------|----|--|--|--|
| EUT: Air LP   |                       | M/N:      | iT55F   |        |           |         |       |    |  |  |  |
| Power: DC 12  | 2V from ada           | apter     |         |        |           |         |       |    |  |  |  |
| Test date: 201  | 15-09-12              | Test site | : 3m Cł | namber | Tested by | : Peter |       |    |  |  |  |
| Test mode: T  | X                     |           |         |        |           |         |       |    |  |  |  |
| Antenna pola  | rity: Vertica         | al        |         |        |           |         |       |    |  |  |  |
| Freq Level Factor (dBuV/m) (dB/m) B) (dB) Result (dBuV/m) (dBuV/m) Margin (dB) Remark |                       |           |         |        |           |         |       |    |  |  |  |
| 2390  | 42.63                 | 27.62     | 3.92    | 34.97  | 39.2      | 74      | 34.8  | PK |  |  |  |
| 2390  |                       | 27.62     | 3.92    | 34.97  |           | 54      |       | AV |  |  |  |
|   |                       |           |         |        |           |         |       |    |  |  |  |
|   |                       |           |         |        |           |         |       |    |  |  |  |
| Antenna Pola  | rity: Horizo          | ntal      |         |        |           |         |       |    |  |  |  |
| 2390  | 43.16                 | 27.62     | 3.92    | 34.97  | 39.73     | 74      | 34.27 | PK |  |  |  |
| 2390 27.62 3.92 34.97 54 AV   |                       |           |         |        |           |         |       | AV |  |  |  |
|   |                       |           |         |        |           |         |       |    |  |  |  |
| NI - 4  |                       |           |         |        |           |         |       |    |  |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

8- DPSK (Hopping High )

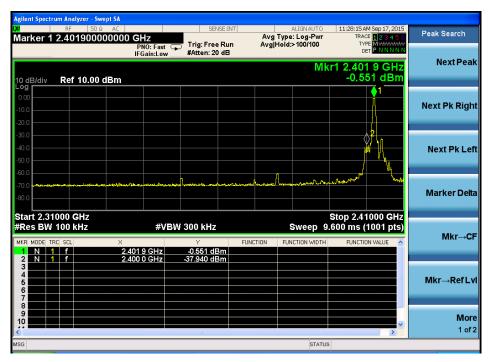
|  | Band Edge Test result |           |         |        |           |         |       |    |  |  |  |
|--|-----------------------|-----------|---------|--------|-----------|---------|-------|----|--|--|--|
| EUT: Air LP  |                       | M/N:      | iT55F   |        |           |         |       |    |  |  |  |
| Power: DC 12   | 2V from ada           | apter     |         |        |           |         |       |    |  |  |  |
| Test date: 201   | 15-09-12              | Test site | : 3m Cł | namber | Tested by | : Peter |       |    |  |  |  |
| Test mode: T   | X                     |           |         |        |           |         |       |    |  |  |  |
| Antenna pola   | rity: Vertica         | al        |         |        |           |         |       |    |  |  |  |
| Freq Level Factor (dBuV/m) (dBuV/m) (dB/m) B) (Amp Factor (dBuV/m) |                       |           |         |        |           |         |       |    |  |  |  |
| 2483.5   | 42.05                 | 27.89     | 4       | 34.97  | 38.97     | 74      | 35.03 | PK |  |  |  |
| 2483.5   |                       |           |         |        |           | 54      |       | AV |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |
| Antenna Pola   | rity: Horizo          | ntal      |         |        |           |         |       |    |  |  |  |
| 2483.5   | 42.76                 | 27.89     | 4       | 34.97  | 39.68     | 74      | 34.32 | PK |  |  |  |
| 2483.5 54 AV   |                       |           |         |        |           |         |       | AV |  |  |  |
|  |                       |           |         |        |           |         |       |    |  |  |  |

- 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
- 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
- 3, Result = Read level + Antenna factor + cable loss-Amp factor
- 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

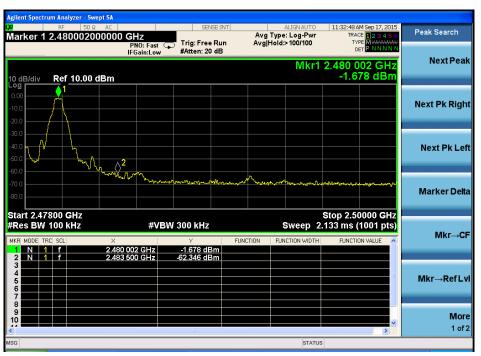
#### Conducted Method

#### **GFSK**

#### CH LOW:

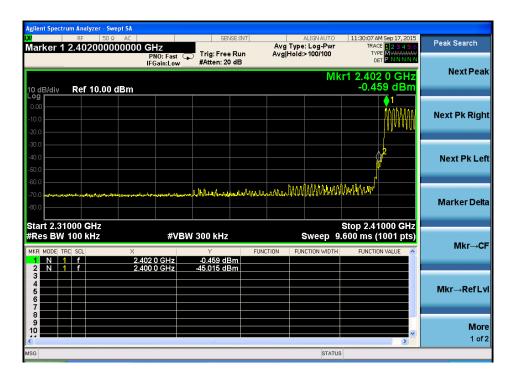


# CH High:

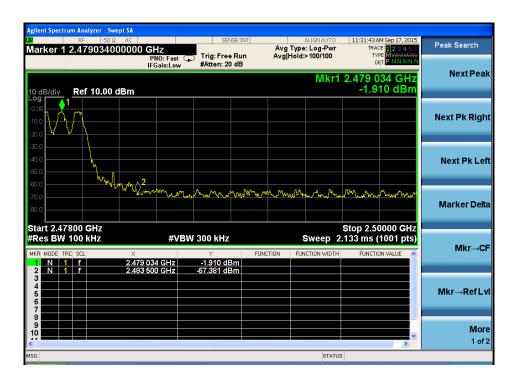


# Hopping

Low

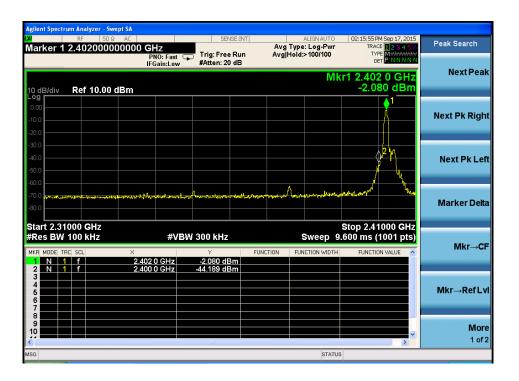


High



#### $\pi$ /4 DQPSK

Low

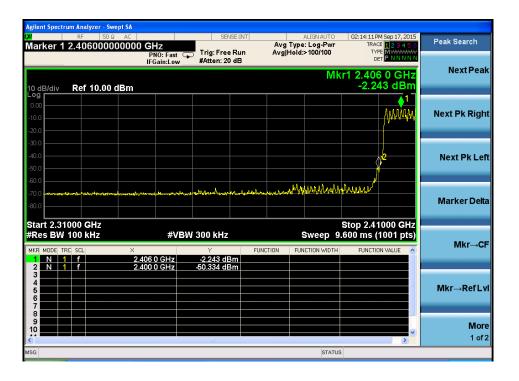


High

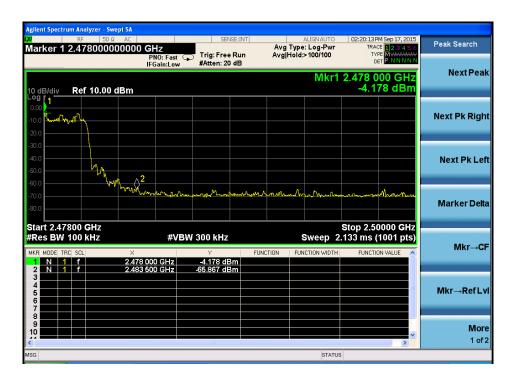


# Hopping

Low

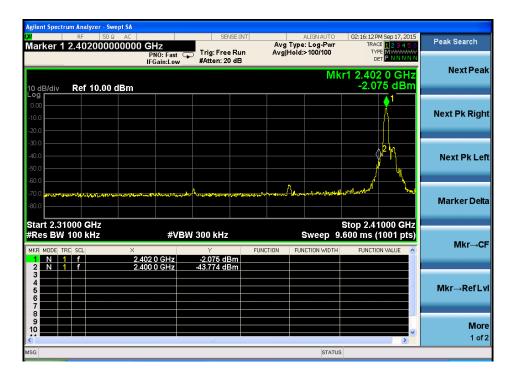


# High



#### 8- DPSK:

Low

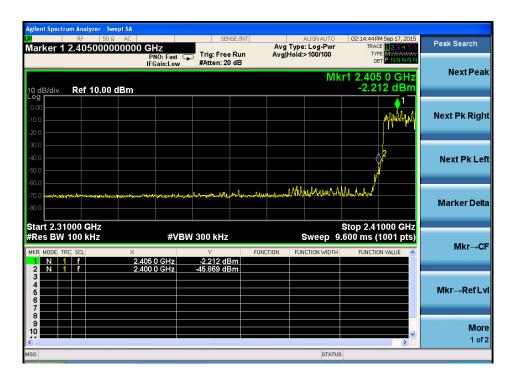


High



# Hopping

Low

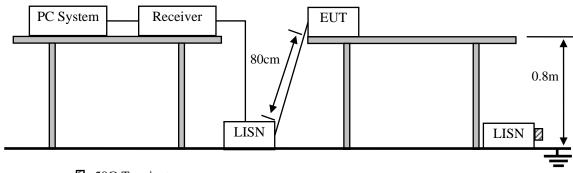


# High



# 10. Power Line Conducted Emissions

# 10.1.Block Diagram of Test Setup



 $\square$  :50 $\Omega$  Terminator

#### 10.2.Limit

|                 | Maximum R        | F Line Voltage |
|-----------------|------------------|----------------|
| Frequency       | Quasi-Peak Level | Average Level  |
|                 | $dB(\mu V)$      | $dB(\mu V)$    |
| 150kHz ~ 500kHz | 66 ~ 56*         | 56 ~ 46*       |
| 500kHz ~ 5MHz   | 56               | 46             |
| 5MHz ~ 30MHz    | 60               | 50             |

Notes: 1. \* Decreasing linearly with logarithm of frequency.

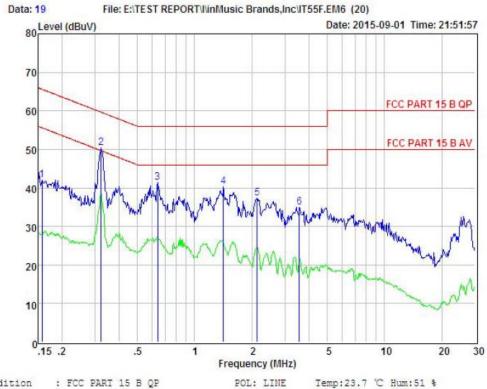
2. The lower limit shall apply at the transition frequencies.

#### 10.3.Test Procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2014 on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

# 10.4.Test Result

# PASS. (See below detailed test data)



: FCC PART 15 B QP POL: LINE Condition

EUT

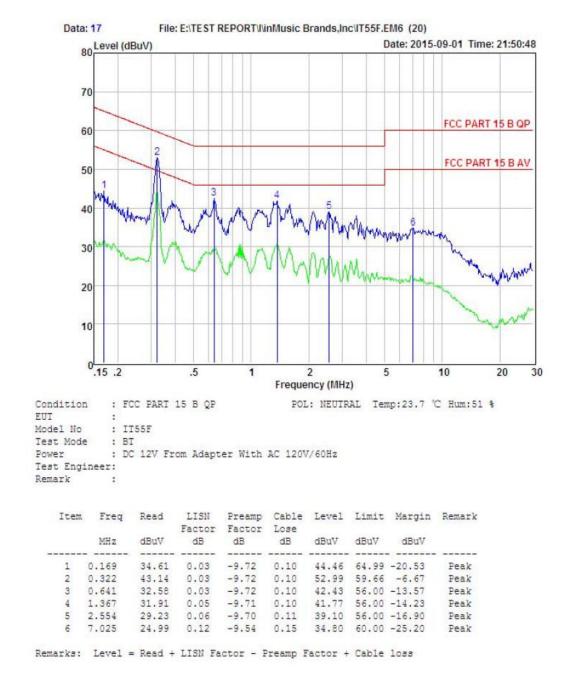
Model No : IT55F : BT Test Mode

: DC 12V From Adapter With AC 120V/60Hz Power

Test Engineer: Remark

| Item | Freq  | Read  | LISN<br>Factor | Preamp<br>Factor |      | Level | Limit | Margin | Remark |
|------|-------|-------|----------------|------------------|------|-------|-------|--------|--------|
|      | MHz   | dBuV  | dB             | dB               | dB   | dBuV  | dBuV  | dBuV   |        |
| <br> |       |       |                |                  |      |       |       |        |        |
| 1    | 0.157 | 32.15 | 0.03           | -9.72            | 0.10 | 42.00 | 65.60 | -23.60 | Peak   |
| 2    | 0.322 | 40.49 | 0.03           | -9.72            | 0.10 | 50.34 | 59.66 | -9.32  | Peak   |
| 3    | 0.641 | 31.58 | 0.03           | -9.72            | 0.10 | 41.43 | 56.00 | -14.57 | Peak   |
| 4    | 1.418 | 30.39 | 0.05           | -9.71            | 0.10 | 40.25 | 56.00 | -15.75 | Peak   |
| 5    | 2.133 | 27.53 | 0.06           | -9.70            | 0.10 | 37.39 | 56.00 | -18.61 | Peak   |
| 6    | 3.565 | 25.09 | 0.08           | -9.69            | 0.12 | 34.98 | 56.00 | -21.02 | Peak   |

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Note1: If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

# 11. Antenna Requirements

# 11.1.Limit

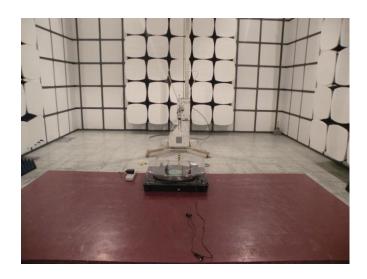
For intentional device, according to RSS-GEN, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to RSS-GEN, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

# 11.2.Result

The antennas used for this product are PCB Antenna for Bluetooth, no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi.

# 12. Test setup photo

# 12.1.Photos of Radiated emission

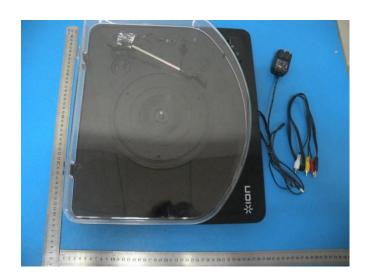




# 12.2.Photos of Conducted Emission test

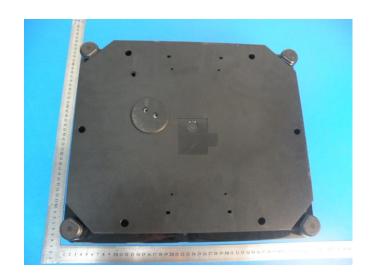


# 13.Photos of EUT













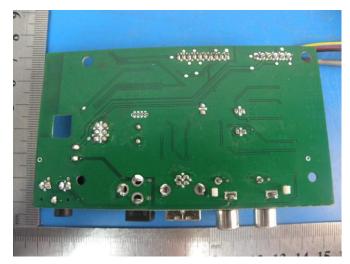


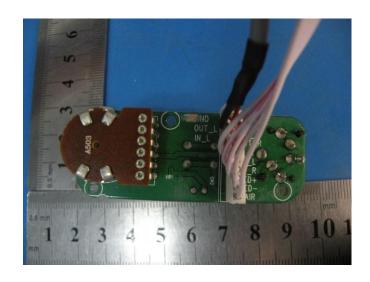


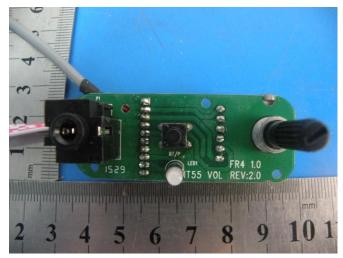












-----END OF THE REPORT-----