

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

AV Media Receiver

Model No.: NA1600, NA1600A, NA1600C, GI628BR, GI628B, GI1680B

Trade Mark: Nakamichi®

FCC ID: 2AB7S-NA1600

Report No.: KAD150225032E

Issue Date: November 09, 2015

Prepared for

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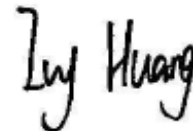
VERIFICATION OF COMPLIANCE

| | |
|----------------------|---|
| Applicant: | Soundmax Electronics Limited |
| Manufacturer: | Soundmax Electronics Limited |
| Product Description: | AV Media Receiver |
| Trade Mark: | Nakamichi[®] |
| Model Number: | NA1600, NA1600A, NA1600C, GI628BR, GI628B, GI1680B (Note: The samples are the same except model number. So NA1600 was selected for full test.) |

We hereby certify that:

The above equipment was tested by DONGGUAN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10-2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247(2015).

Date of Test : February 25, 2015 to April 21, 2015



Prepared by : Ivy Huang/Editor



Reviewer : Alan He/Supervisor



Approved & Authorized Signer : Sam Lv/Manager



Modified Information

| Version | Summary | Revision Date | Report No. |
|---------|-----------------|---------------|---------------|
| Ver.1.0 | Original Report | / | KAD150225032E |
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1. GENERAL INFORMATION

1.1 Product Description

A major technical descriptions of EUT is described as following:

| Characteristics | Description |
|-----------------------------------|-----------------------------|
| Product Name | AV Media Receiver |
| Model number | NA1600 |
| Power Supply | DC 12V |
| Kind of Device: | Bluetooth Ver.2.1+EDR |
| Modulation | GFSK, $\pi/4$ -DQPSK, 8DPSK |
| Operating Frequency Range | 2402-2480MHz |
| Number of Channels | 79 |
| Transmit Power Max | 4.07dBm(0.002553W) |
| Antenna Type | Inverted-E antenna |
| Antenna Gain | 4dBi |
| Product Hardware Version | V01 |
| Product Software Version | 20150103.2 |
| RF power setting in Test Software | 0.5 |

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AB7S-NA1600 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules and ANSI C63.10-2013.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.10-2013. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description

EMC Lab. :

Registered on FCC, June 18, 2014
The Certificate Number is 247565

Registered on Industry Canada, February 19, 2014
The Certificate Number is 9444A-1.

Name of Firm : DONGGUAN EMTEK CO., LTD.

Site Location : No.281, Guantai Road, Nancheng District,
Dongguan, China

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Test Procedure

2.2.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

2.2.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013.

2.3 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

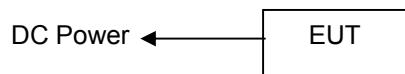


Table 2-1 Equipment Used in Tested System

| Item | Equipment | Trade Mark | Model No. | FCC ID | Note |
|------|-------------------|------------|--------------------|--------------|--------------------------|
| 1. | AV Media Receiver | N/A | NA1600 | 2AB7S-NA1600 | EUT |
| 2 | Notebook | Dell | Inspiron 14R-N4110 | N/A | Support Equipment |

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

3. Summary of Test Results

| FCC Rules | Description Of Test | Result |
|--------------------|-------------------------------|---------------|
| §15.247(a)(1) | Channel Separation test | Compliant |
| §15.247(a)(1) | 20dB Bandwidth | Compliant |
| §15.247(a)(1)(iii) | Quantity of Hopping Channel | Compliant |
| §15.247(a)(1)(iii) | Time of Occupancy(Dwell Time) | Compliant |
| §15.247(b) | Max Peak output Power test | Compliant |
| §15.247(d) | Band edge test | Compliant |
| §15.207 | AC Power Conducted Emission | N/A |
| §15.247(d),§15.209 | Radiated Emission | Compliant |
| §15.203 | Antenna Requirement | Compliant |
| §1.1310 | RF Exposure | Compliant |

Remark: The EUT is supplied by Battery, there is no need for AC Power Conducted Emission test to be performed on this product.

4. Description of test modes

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

The programmed RF utility is installed in notebook make the EUT to provide channel selection, power level, data rate and the application type. RF utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product. When finished the setup, the notebook will be removed.

The following summary table is showing all test modes to demonstrate in compliance with the standard:

| Channel | Frequency(MHz) |
|----------------|-----------------------|
| 1 | 2402 |
| 40 | 2441 |
| 79 | 2480 |

5. Radiated Emission Test

5.1 Measurement Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. For range 9KHz~30MHz, The measured value is really too low to be recorded.

When spectrum scanned from 30MHz to 1GHz setting resolution bandwidth 120KHz and video bandwidth 300KHz:

| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RB | 120KHz |
| VB | 300KHz |
| Detector | QP |
| Trace | Max hold |

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

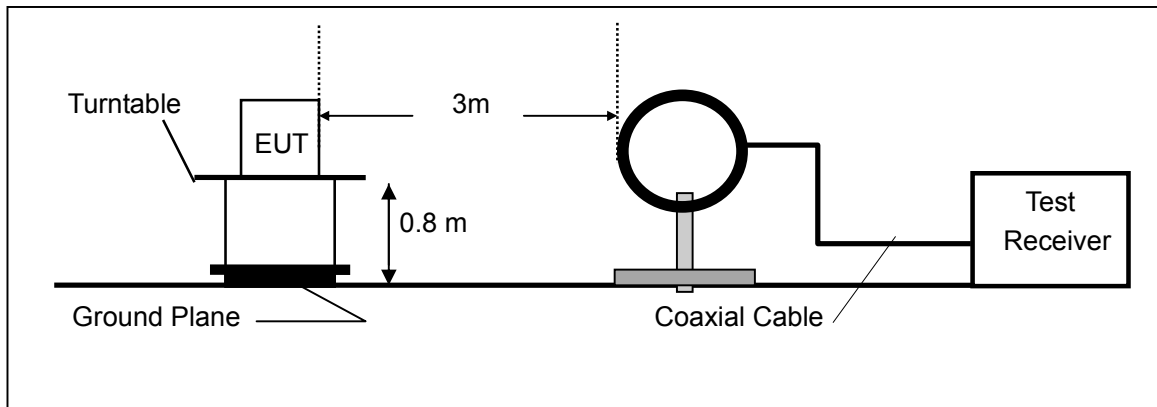
| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RB | 1MHz |
| VB | 3MHz |
| Detector | Peak |
| Trace | Max hold |

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz:

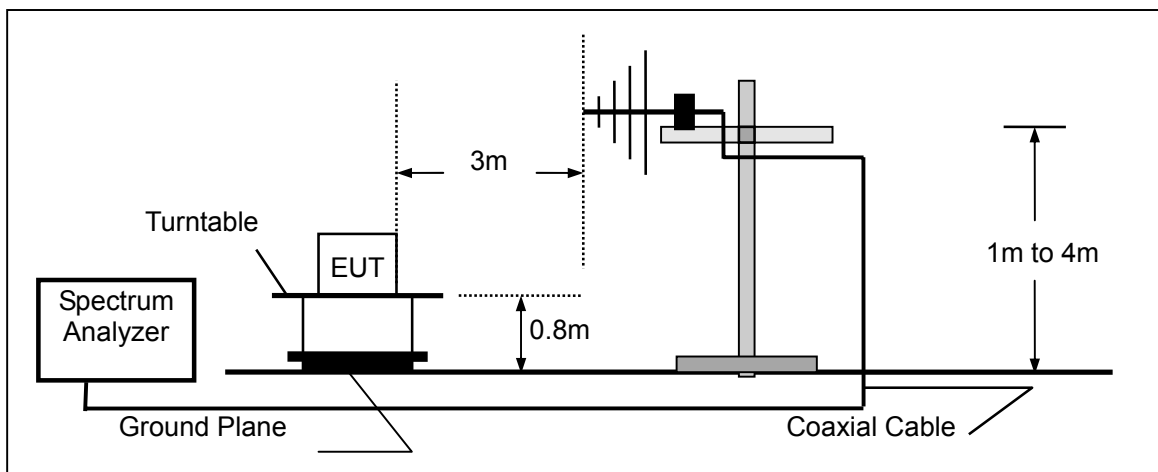
| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RB | 1MHz |
| VB | 10Hz |
| Detector | Peak |
| Trace | Max hold |

5.2 Test SET-UP (Block Diagram of Configuration)

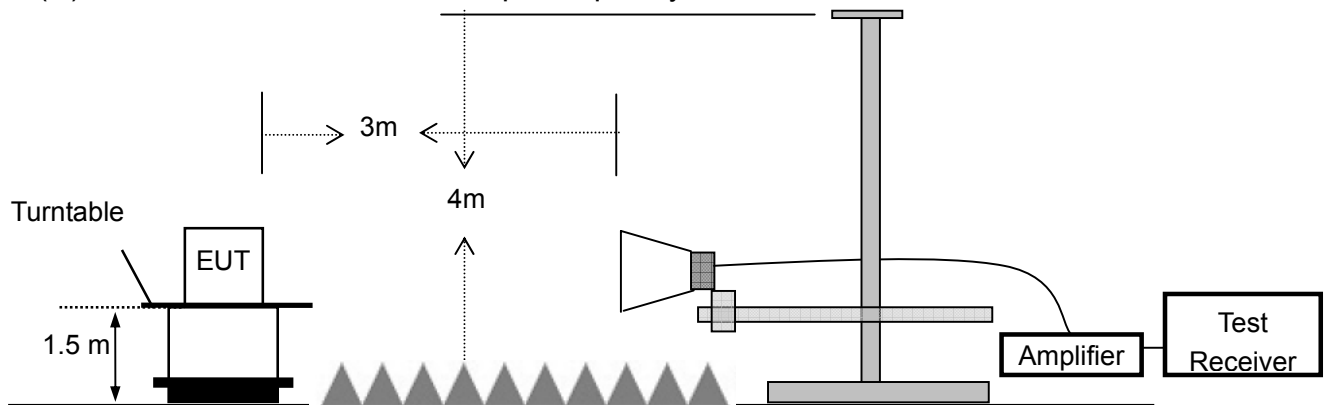
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



5.3 Measurement Equipment Used:

| Item | Equipment | Manufacturer | Model No. | Serial No. | Characteristics | Last Cal. | Cal. Interval |
|------|--------------------------------|-----------------|------------|--------------|-----------------|------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI | 1166.5950.03 | 9KHz-3GHz | 3/15/2015 | 1 Year |
| 2. | Loop Antenna | Schwarzbeck | FMZB 1519 | 012 | 9 KHz -30MHz | 12/29/2014 | 1 Year |
| 3. | Bilog Antenna | Schwarzbeck | VULB9163 | 000141 | 25MHz-2GHz | 3/15/2015 | 1 Year |
| 4. | Power Amplifier | CDS | RSU-M352 | 818 | 1MHz-1GHz | 3/15/2015 | 1 Year |
| 5. | Power Amplifier | HP | 8447F | OPT H64 | 1GHz-26.5GHz | 3/15/2015 | 1 Year |
| 6. | Color Monitor | SUNSPO | SP-140A | N/A | -- | 3/15/2015 | 1 Year |
| 7. | Single Line Filter | JIANLI | XL-3 | N/A | -- | 3/15/2015 | 1 Year |
| 8. | Single Phase Power Line Filter | JIANLI | DL-2X100B | N/A | -- | 3/15/2015 | 1 Year |
| 9. | 3 Phase Power Line Filter | JIANLI | DL-4X100B | N/A | -- | 3/15/2015 | 1 Year |
| 10. | DC Power Filter | JIANLI | DL-2X50B | N/A | -- | 3/15/2015 | 1 Year |
| 11. | Cable | Schwarzbeck | PLF-100 | 549489 | 9KHz-3GHz | 3/15/2015 | 1 Year |
| 12. | Cable | Rosenberger | CIL02 | A0783566 | 9KHz-3GHz | 3/15/2015 | 1 Year |
| 13. | Cable | Rosenberger | RG 233/U | 525178 | 9KHz-3GHz | 3/15/2015 | 1 Year |
| 14. | Signal Analyzer | Rohde & Schwarz | FSV30 | 103040 | 9KHz-40GHz | 12/29/2014 | 1 Year |
| 15. | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-1272 | 1GHz-18GHz | 12/29/2014 | 1 Year |
| 16. | Horn Antenna | Schwarzbeck | BBHA 9170 | BBHA9170399 | 14GHz -26.5GHz | 12/29/2014 | 1 Year |
| 17. | Power Amplifier | LUNAR EM | LNA1G18-40 | J10100000081 | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 18. | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 19. | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 20. | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |

5.4 Measurement Result

Below 30MHz:

All the modulation modes were tested the data of the test mode are recorded in the following pages.

Operation Mode: TX Mode Test Date : April 05, 2015
 Frequency Range: 9KHz~30MHz Temperature : 28°C
 Test Result: PASS Humidity : 60 %
 Measured Distance: 3m Test By: Andy

| Freq. (MHz) | Ant.Pol. H/V | Emission Level (dBuV/m) | Limit 3m (dBuV/m) | Over (dB) |
|----------------|-----------------|----------------------------|----------------------|--------------|
| -- | -- | -- | -- | -- |

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

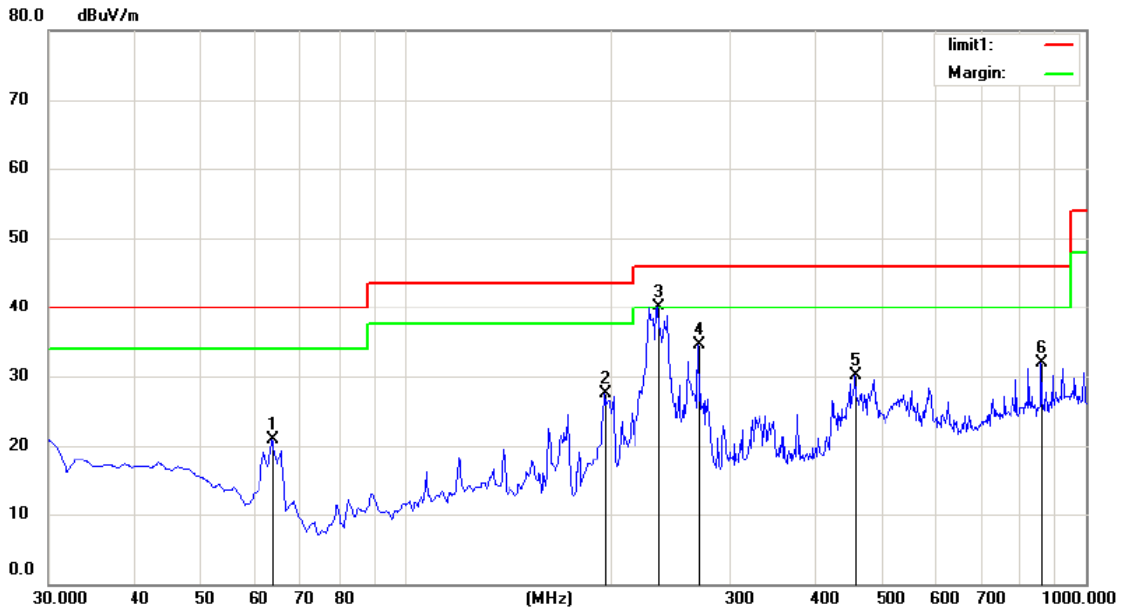
Distance extrapolation factor = $40 \log(\text{Specific distance} / \text{test distance})$ (dB);

Limit line = Specific limits (dBuV) + distance extrapolation factor.

Below 1000MHz:

Pass.

All the modulation modes were tested the data of the worst mode (TX 2402MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.

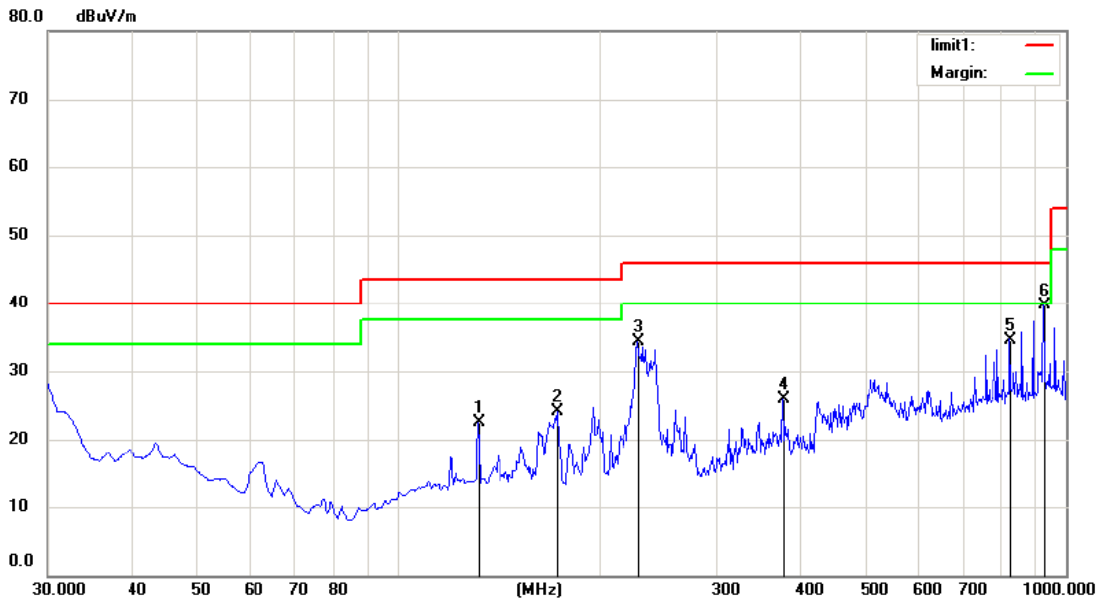


Site Chamber #1 Polarization: **Horizontal** Temperature: 24
 Limit: (RE)FCC PART 15 class B 3m Power: DC 12V Humidity: 55 %
 Mode: TX(GFSK)
 Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | Antenna Height | Table Degree | |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | cm | degree | Comment |
| 1 | | 63.9500 | 41.44 | -20.56 | 20.88 | 40.00 | -19.12 | QP | | |
| 2 | | 195.8700 | 45.35 | -17.85 | 27.50 | 43.50 | -16.00 | QP | | |
| 3 | * | 235.6400 | 55.93 | -15.87 | 40.06 | 46.00 | -5.94 | QP | | |
| 4 | | 269.5900 | 49.72 | -15.20 | 34.52 | 46.00 | -11.48 | QP | | |
| 5 | | 457.7700 | 41.12 | -11.04 | 30.08 | 46.00 | -15.92 | QP | | |
| 6 | | 861.2900 | 36.32 | -4.45 | 31.87 | 46.00 | -14.13 | QP | | |

*:Maximum data x:Over limit !:over margin

Operator: Snake



Site Chamber #1 Polarization: **Vertical** Temperature: 24
 Limit: (RE)FCC PART 15 class B 3m Power: DC 12V Humidity: 55 %
 Mode: TX(GFSK)
 Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | Antenna Height | Table Degree | |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | cm | degree | Comment |
| 1 | | 131.8500 | 38.94 | -16.40 | 22.54 | 43.50 | -20.96 | QP | | |
| 2 | | 173.5600 | 42.78 | -18.61 | 24.17 | 43.50 | -19.33 | QP | | |
| 3 | | 228.8500 | 50.36 | -16.01 | 34.35 | 46.00 | -11.65 | QP | | |
| 4 | | 378.2300 | 38.05 | -12.19 | 25.86 | 46.00 | -20.14 | QP | | |
| 5 | | 827.3400 | 39.12 | -4.52 | 34.60 | 46.00 | -11.40 | QP | | |
| 6 | * | 928.2200 | 42.30 | -2.67 | 39.63 | 46.00 | -6.37 | QP | | |

*:Maximum data x:Over limit !:over margin

Operator: Snake

Above 1000MHz~10th Harmonics:

Operation Mode: GFSK (CH1: 2402MHz) Test Date : April 05, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4804 | V | 63.15 | 45.03 | 74 | 54 | -10.85 | -8.97 |
| 7206 | V | 62.05 | 44.15 | 74 | 54 | -11.95 | -9.85 |
| 9608 | V | 61.42 | 43.6 | 74 | 54 | -12.58 | -10.4 |
| 12010 | V | 60.39 | 42.15 | 74 | 54 | -13.61 | -11.85 |
| 14412 | V | 59.74 | 41.71 | 74 | 54 | -14.26 | -12.29 |
| 16814 | V | 58.43 | 40.25 | 74 | 54 | -15.57 | -13.75 |
| 4804 | H | 65.04 | 45.62 | 74 | 54 | -8.96 | -8.38 |
| 7206 | H | 64.18 | 44.15 | 74 | 54 | -9.82 | -9.85 |
| 9608 | H | 63.82 | 43.82 | 74 | 54 | -10.18 | -10.18 |
| 12010 | H | 62.49 | 42.15 | 74 | 54 | -11.51 | -11.85 |
| 14412 | H | 61.05 | 41.07 | 74 | 54 | -12.95 | -12.93 |
| 16814 | H | 60.78 | 40.39 | 74 | 54 | -13.22 | -13.61 |

Operation Mode: GFSK (CH40: 2441MHz) Test Date : April 05, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4882 | V | 66.32 | 46.32 | 74 | 54 | -7.68 | -7.68 |
| 7323 | V | 65.15 | 45.15 | 74 | 54 | -8.85 | -8.85 |
| 9764 | V | 64.05 | 44.01 | 74 | 54 | -9.95 | -9.99 |
| 12205 | V | 63.82 | 43.71 | 74 | 54 | -10.18 | -10.29 |
| 14646 | V | 62.48 | 42.18 | 74 | 54 | -11.52 | -11.82 |
| 17087 | V | 61.05 | 41.05 | 74 | 54 | -12.95 | -12.95 |
| 4882 | H | 65.74 | 45.05 | 74 | 54 | -8.26 | -8.95 |
| 7323 | H | 64.18 | 44.78 | 74 | 54 | -9.82 | -9.22 |
| 9764 | H | 63.28 | 43.15 | 74 | 54 | -10.72 | -10.85 |
| 12205 | H | 62.71 | 42.05 | 74 | 54 | -11.29 | -11.95 |
| 14646 | H | 61.05 | 41.39 | 74 | 54 | -12.95 | -12.61 |
| 17087 | H | 60.33 | 40.28 | 74 | 54 | -13.67 | -13.72 |

Operation Mode: GFSK (CH79: 2480MHz) Test Date : April 05, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4960 | V | 66.02 | 45.78 | 74 | 54 | -7.98 | -8.22 |
| 7440 | V | 65.15 | 44.15 | 74 | 54 | -8.85 | -9.85 |
| 9920 | V | 64.72 | 43.05 | 74 | 54 | -9.28 | -10.95 |
| 12400 | V | 63.18 | 42.92 | 74 | 54 | -10.82 | -11.08 |
| 14880 | V | 62.05 | 41.04 | 74 | 54 | -11.95 | -12.96 |
| 17360 | V | 61.92 | 40.39 | 74 | 54 | -12.08 | -13.61 |
| 4960 | H | 65.74 | 45.01 | 74 | 54 | -8.26 | -8.99 |
| 7440 | H | 64.18 | 44.03 | 74 | 54 | -9.82 | -9.97 |
| 9920 | H | 63.59 | 43.92 | 74 | 54 | -10.41 | -10.08 |
| 12400 | H | 62.71 | 42.18 | 74 | 54 | -11.29 | -11.82 |
| 14880 | H | 61.04 | 41.71 | 74 | 54 | -12.96 | -12.29 |
| 17360 | H | 60.36 | 40.39 | 74 | 54 | -13.64 | -13.61 |

Operation Mode: Pi/4-DQPSK (CH1: 2402MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4804 | V | 65.82 | 46.32 | 74 | 54 | -8.18 | -7.68 |
| 7206 | V | 64.73 | 45.15 | 74 | 54 | -9.27 | -8.85 |
| 9608 | V | 63.15 | 44.05 | 74 | 54 | -10.85 | -9.95 |
| 12010 | V | 62.92 | 43.15 | 74 | 54 | -11.08 | -10.85 |
| 14412 | V | 61.05 | 42.01 | 74 | 54 | -12.95 | -11.99 |
| 16814 | V | 60.39 | 41.98 | 74 | 54 | -13.61 | -12.02 |
| 4804 | H | 66.71 | 45.78 | 74 | 54 | -7.29 | -8.22 |
| 7206 | H | 65.18 | 44.15 | 74 | 54 | -8.82 | -9.85 |
| 9608 | H | 64.05 | 43.02 | 74 | 54 | -9.95 | -10.98 |
| 12010 | H | 63.28 | 42.19 | 74 | 54 | -10.72 | -11.81 |
| 14412 | H | 62.71 | 41.42 | 74 | 54 | -11.29 | -12.58 |
| 16814 | H | 61.42 | 40.82 | 74 | 54 | -12.58 | -13.18 |

Operation Mode: Pi/4-DQPSK (CH40: 2441MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4882 | V | 65.7 | 45.72 | 74 | 54 | -8.3 | -8.28 |
| 7323 | V | 64.19 | 44.19 | 74 | 54 | -9.81 | -9.81 |
| 9764 | V | 63.52 | 43.15 | 74 | 54 | -10.48 | -10.85 |
| 12205 | V | 62.74 | 42.92 | 74 | 54 | -11.26 | -11.08 |
| 14646 | V | 61.04 | 41.04 | 74 | 54 | -12.96 | -12.96 |
| 17087 | V | 60.39 | 40.25 | 74 | 54 | -13.61 | -13.75 |
| 4882 | H | 65.28 | 45.36 | 74 | 54 | -8.72 | -8.64 |
| 7323 | H | 64.03 | 44.15 | 74 | 54 | -9.97 | -9.85 |
| 9764 | H | 63.15 | 42.01 | 74 | 54 | -10.85 | -11.99 |
| 12205 | H | 62.82 | 41.82 | 74 | 54 | -11.18 | -12.18 |
| 14646 | H | 61.42 | 40.59 | 74 | 54 | -12.58 | -13.41 |
| 17087 | H | 60.39 | 38.44 | 74 | 54 | -13.61 | -15.56 |

Operation Mode: Pi/4-DQPSK (CH79: 2480MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4960 | V | 66.33 | 45.12 | 74 | 54 | -7.67 | -8.88 |
| 7440 | V | 65.15 | 44.03 | 74 | 54 | -8.85 | -9.97 |
| 9920 | V | 64.05 | 43.25 | 74 | 54 | -9.95 | -10.75 |
| 12400 | V | 63.82 | 42.74 | 74 | 54 | -10.18 | -11.26 |
| 14880 | V | 62.74 | 41.15 | 74 | 54 | -11.26 | -12.85 |
| 17360 | V | 61.42 | 40.95 | 74 | 54 | -12.58 | -13.05 |
| 4960 | H | 65.36 | 46.04 | 74 | 54 | -8.64 | -7.96 |
| 7440 | H | 64.28 | 45.13 | 74 | 54 | -9.72 | -8.87 |
| 9920 | H | 63.15 | 44.82 | 74 | 54 | -10.85 | -9.18 |
| 12400 | H | 62.74 | 43.18 | 74 | 54 | -11.26 | -10.82 |
| 14880 | H | 61.04 | 42.82 | 74 | 54 | -12.96 | -11.18 |
| 17360 | H | 60.36 | 41.42 | 74 | 54 | -13.64 | -12.58 |

Operation Mode: 8DPSK (CH1: 2402MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4804 | V | 66.36 | 46.13 | 74 | 54 | -7.64 | -7.87 |
| 7206 | V | 64.52 | 45.02 | 74 | 54 | -9.48 | -8.98 |
| 9608 | V | 63.15 | 44.18 | 74 | 54 | -10.85 | -9.82 |
| 12010 | V | 62.82 | 43.5 | 74 | 54 | -11.18 | -10.5 |
| 14412 | V | 61.43 | 42.13 | 74 | 54 | -12.57 | -11.87 |
| 16814 | V | 60.95 | 40.82 | 74 | 54 | -13.05 | -13.18 |
| 4804 | H | 65.18 | 45.14 | 74 | 54 | -8.82 | -8.86 |
| 7206 | H | 65.42 | 44.13 | 74 | 54 | -8.58 | -9.87 |
| 9608 | H | 64.72 | 43.96 | 74 | 54 | -9.28 | -10.04 |
| 12010 | H | 63.15 | 42.92 | 74 | 54 | -10.85 | -11.08 |
| 14412 | H | 62.25 | 41.25 | 74 | 54 | -11.75 | -12.75 |
| 16814 | H | 61.79 | 40.32 | 74 | 54 | -12.21 | -13.68 |

Operation Mode: 8DPSK (CH40: 2441MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4882 | V | 65.33 | 44.15 | 74 | 54 | -8.67 | -9.85 |
| 7323 | V | 65 | 43.02 | 74 | 54 | -9 | -10.98 |
| 9764 | V | 64.25 | 42.18 | 74 | 54 | -9.75 | -11.82 |
| 12205 | V | 63.15 | 41.72 | 74 | 54 | -10.85 | -12.28 |
| 14646 | V | 62.02 | 40.36 | 74 | 54 | -11.98 | -13.64 |
| 17087 | V | 61.74 | 39.52 | 74 | 54 | -12.26 | -14.48 |
| 4882 | H | 65.92 | 45.15 | 74 | 54 | -8.08 | -8.85 |
| 7323 | H | 64.25 | 44.53 | 74 | 54 | -9.75 | -9.47 |
| 9764 | H | 63.71 | 43.15 | 74 | 54 | -10.29 | -10.85 |
| 12205 | H | 62.05 | 41.74 | 74 | 54 | -11.95 | -12.26 |
| 14646 | H | 61.36 | 38.05 | 74 | 54 | -12.64 | -15.95 |
| 17087 | H | 60.1 | 37.42 | 74 | 54 | -13.9 | -16.58 |

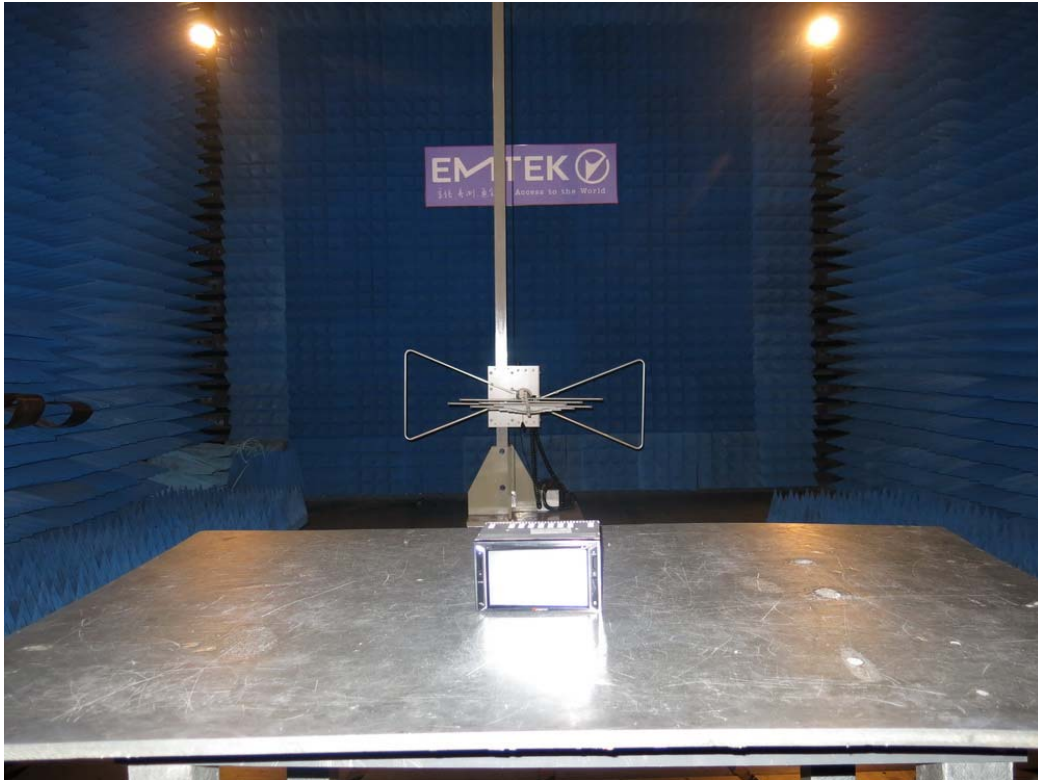
Operation Mode: 8DPSK (CH79: 2480MHz) Test Date : March 20, 2015

| Freq. (MHz) | Ant. Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|------------------|------------------------|-------|------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4960 | V | 65.72 | 45.15 | 74 | 54 | -8.28 | -8.85 |
| 7440 | V | 64.03 | 44.25 | 74 | 54 | -9.97 | -9.75 |
| 9920 | V | 63.52 | 43.15 | 74 | 54 | -10.48 | -10.85 |
| 12400 | V | 62.71 | 42.05 | 74 | 54 | -11.29 | -11.95 |
| 14880 | V | 61.05 | 41.29 | 74 | 54 | -12.95 | -12.71 |
| 17360 | V | 60.52 | 39.72 | 74 | 54 | -13.48 | -14.28 |
| 4960 | H | 65.74 | 45.15 | 74 | 54 | -8.26 | -8.85 |
| 7440 | H | 64.15 | 44.26 | 74 | 54 | -9.85 | -9.74 |
| 9920 | H | 63.85 | 43.05 | 74 | 54 | -10.15 | -10.95 |
| 12400 | H | 62.95 | 42.69 | 74 | 54 | -11.05 | -11.31 |
| 14880 | H | 60.25 | 41.05 | 74 | 54 | -13.75 | -12.95 |
| 17360 | H | 58.42 | 40.25 | 74 | 54 | -15.58 | -13.75 |

Other harmonics emissions are lower than 20dB below the allowable limit.

- Note:**
- (1) All Readings are Peak Value and AV.
 - (2) Emission Level= Reading Level+ Probe Factor +Cable Loss.
 - (3) The average measurement was not performed when the peak measured data under the limit of average detection.

5.5 Radiated Measurement Photos:

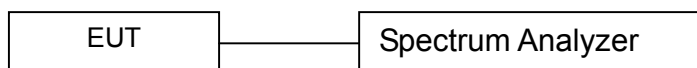


6. Channel Separation test

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

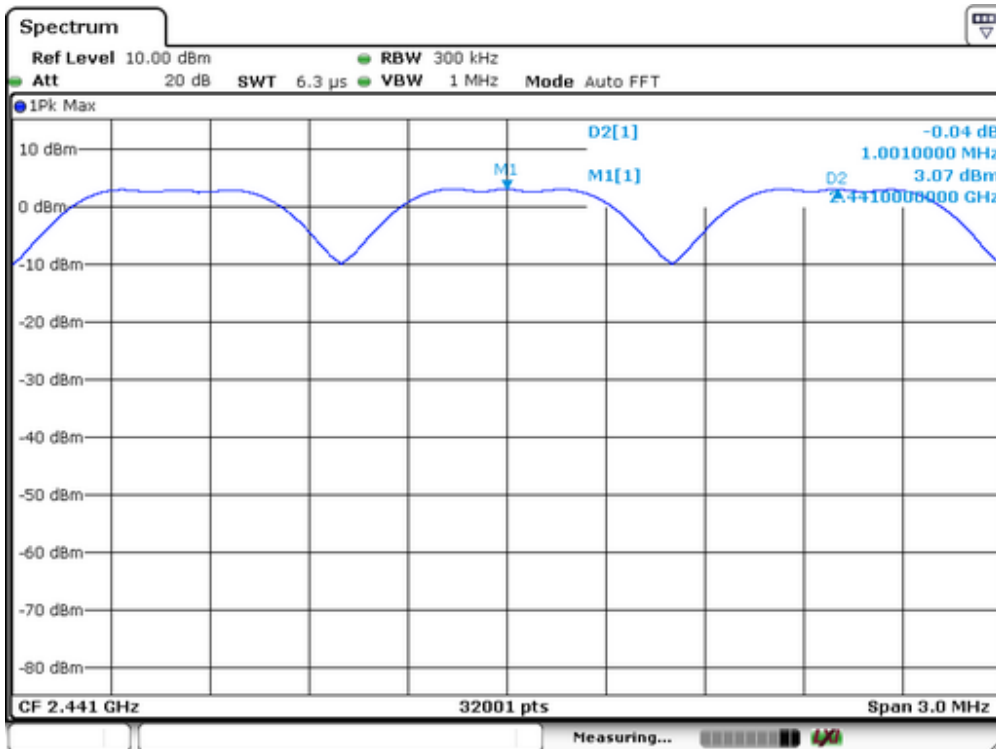
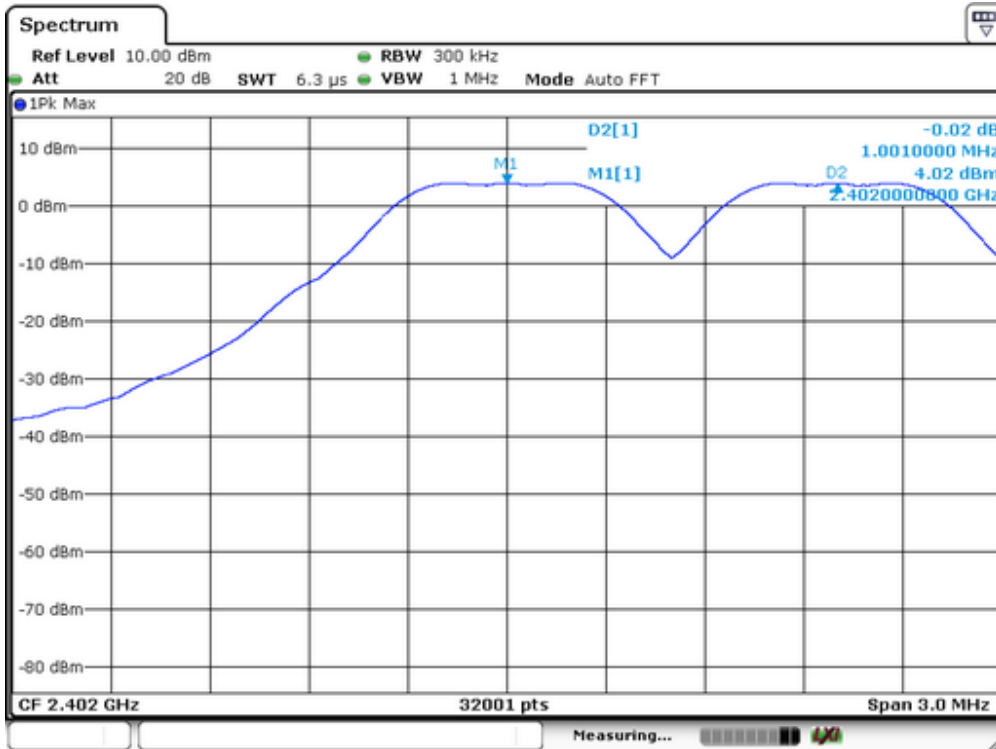
Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

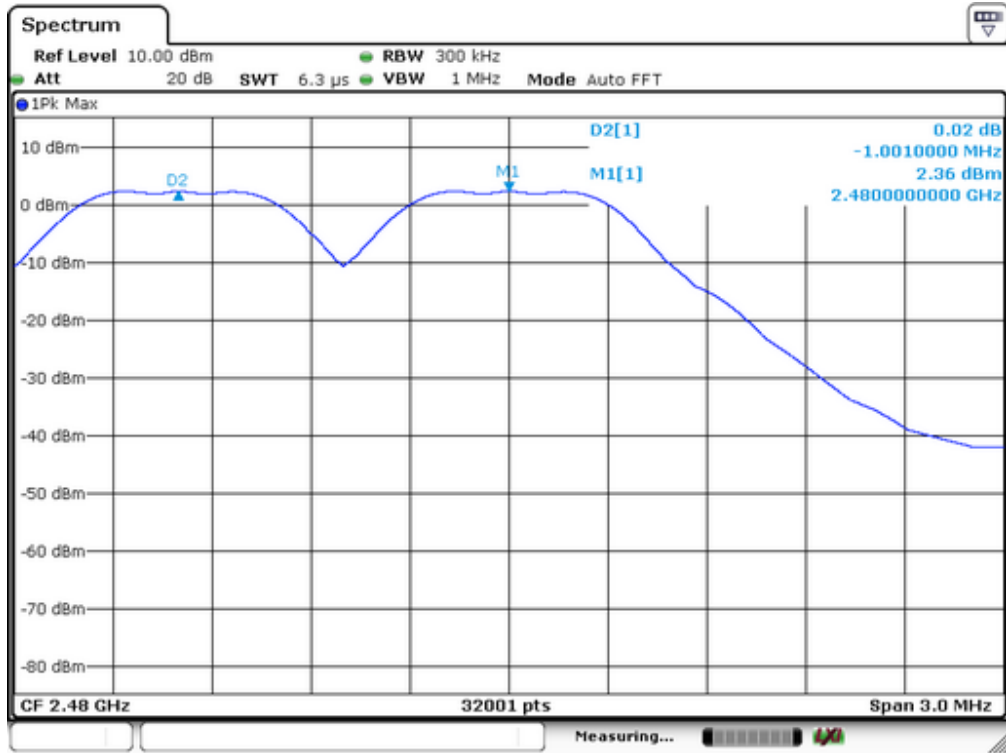
6.4 Measurement Results:

Refer to attached data chart.

| | | | |
|--------------------|------|---------------|----------------|
| Spectrum Detector: | PK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 24°C |
| Test Result: | PASS | Humidity : | 53 % |
| Modulation: | GFSK | | |

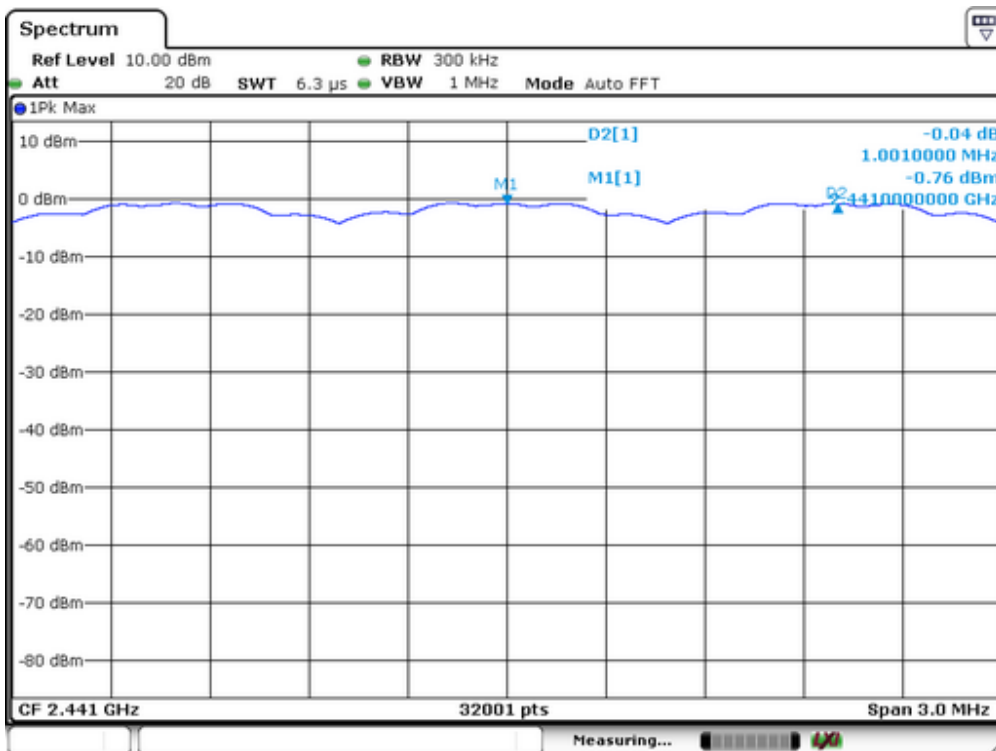
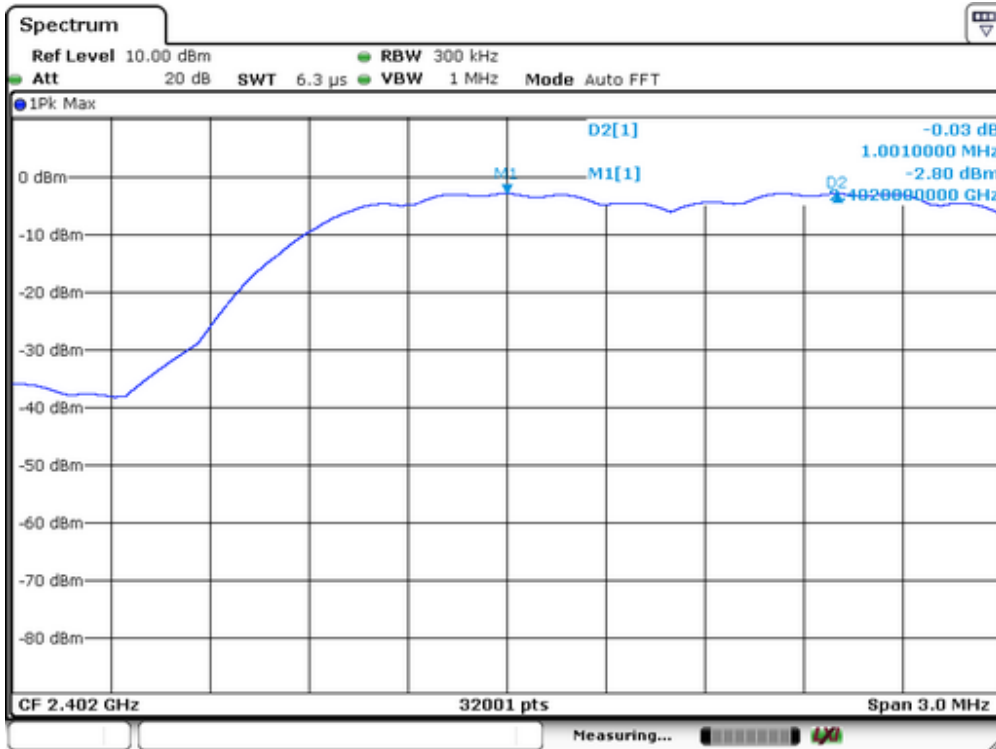
| Channel number | Channel frequency (MHz) | Separation Read Value (kHz) | Separation Limit 20dB Down BW(kHz) |
|----------------|-------------------------|-----------------------------|------------------------------------|
| 1 | 2402 | 1001 | >818 |
| 40 | 2441 | 1001 | >815 |
| 79 | 2480 | 1001 | >818 |

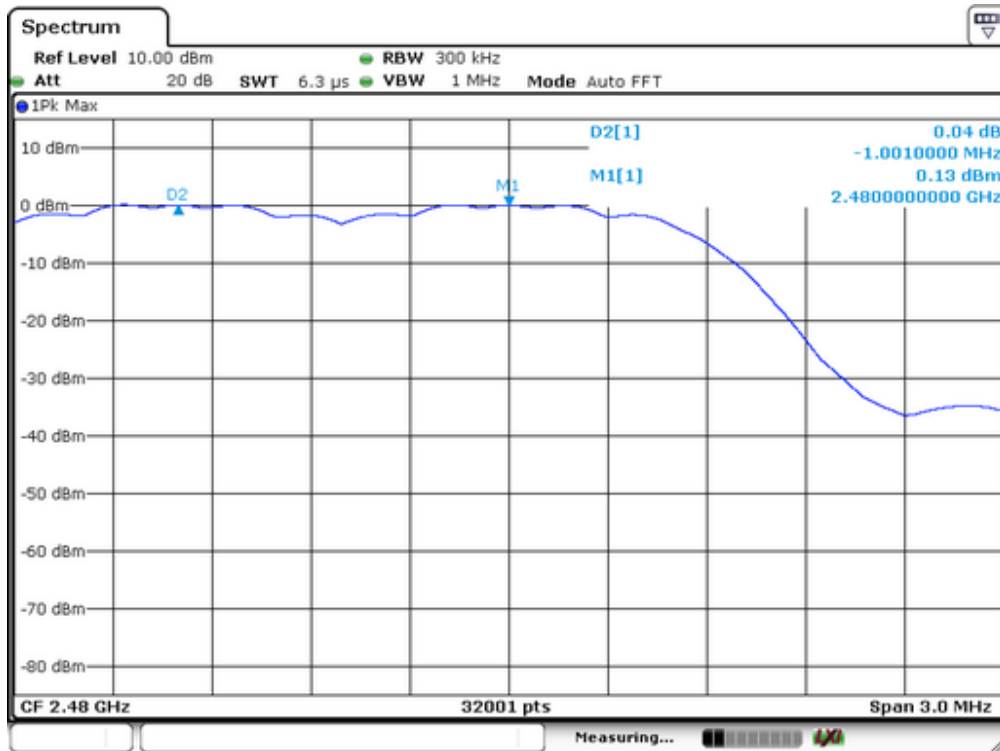




Spectrum Detector: PK Test Date : April 05, 2015
 Test By: Andy Temperature : 24°C
 Test Result: PASS Humidity : 53 %
 Modulation: 1/4Π-DQPSK

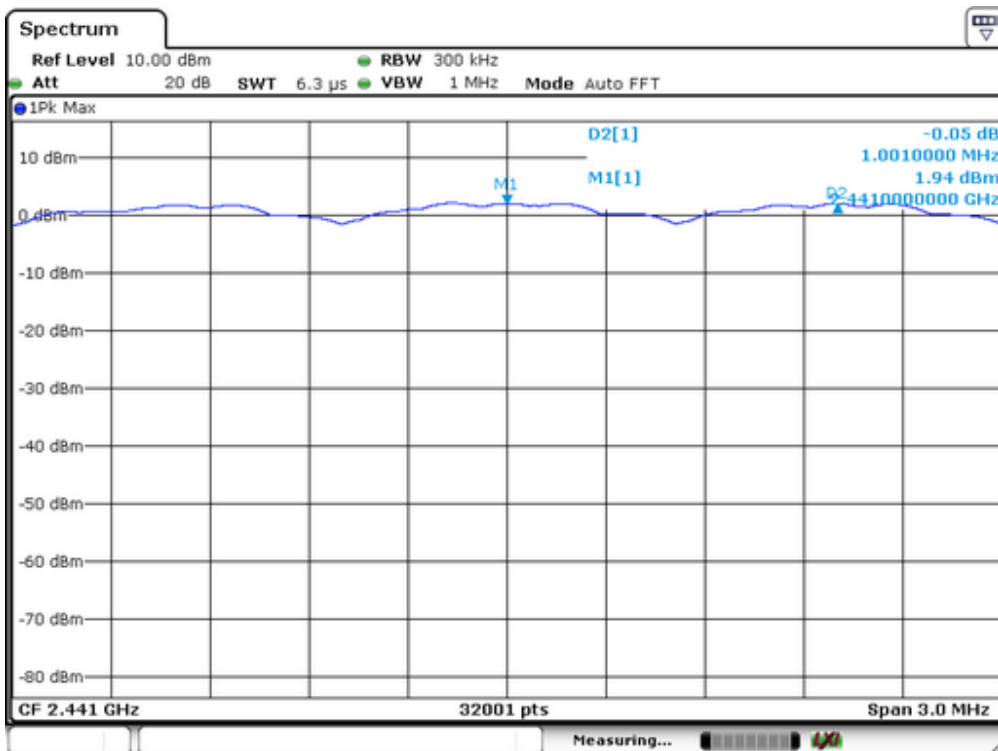
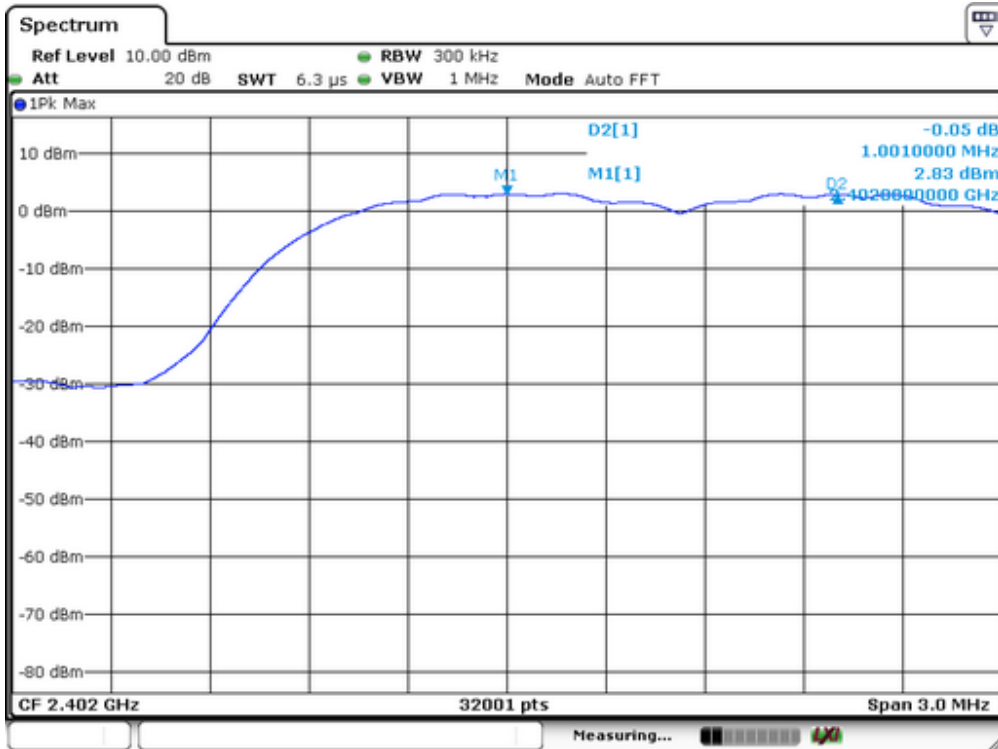
| Channel number | Channel frequency (MHz) | Separation Read Value (kHz) | Separation Limit 2/3 20dB Down BW(kHz) |
|----------------|-------------------------|-----------------------------|--|
| 1 | 2402 | 1001 | >824 |
| 40 | 2441 | 1001 | >822 |
| 79 | 2480 | 1001 | >822 |

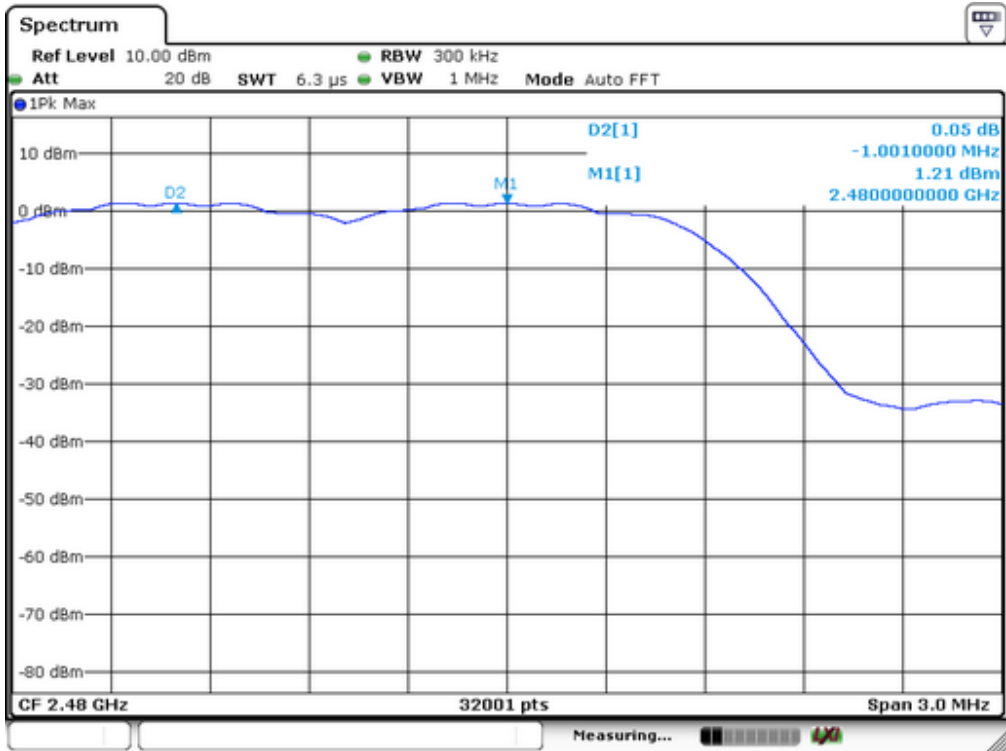




Spectrum Detector: PK Test Date : April 05, 2015
 Test By: Andy Temperature : 24 °C
 Test Result: PASS Humidity : 53 %
 Modulation: 8DPSK

| Channel number | Channel frequency (MHz) | Separation Read Value (kHz) | Separation Limit 2/3 20dB Down BW(kHz) |
|----------------|-------------------------|-----------------------------|--|
| 1 | 2402 | 1001 | >808 |
| 40 | 2441 | 1001 | >806 |
| 79 | 2480 | 1001 | >806 |



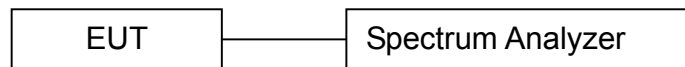


7. 20dB Bandwidth test

7.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

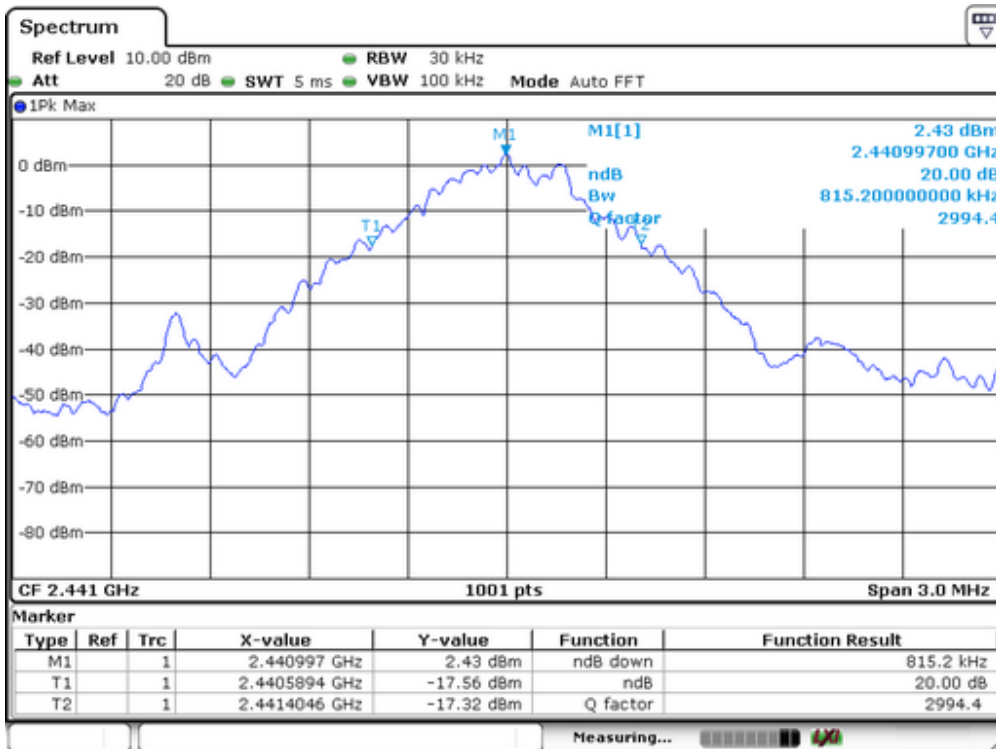
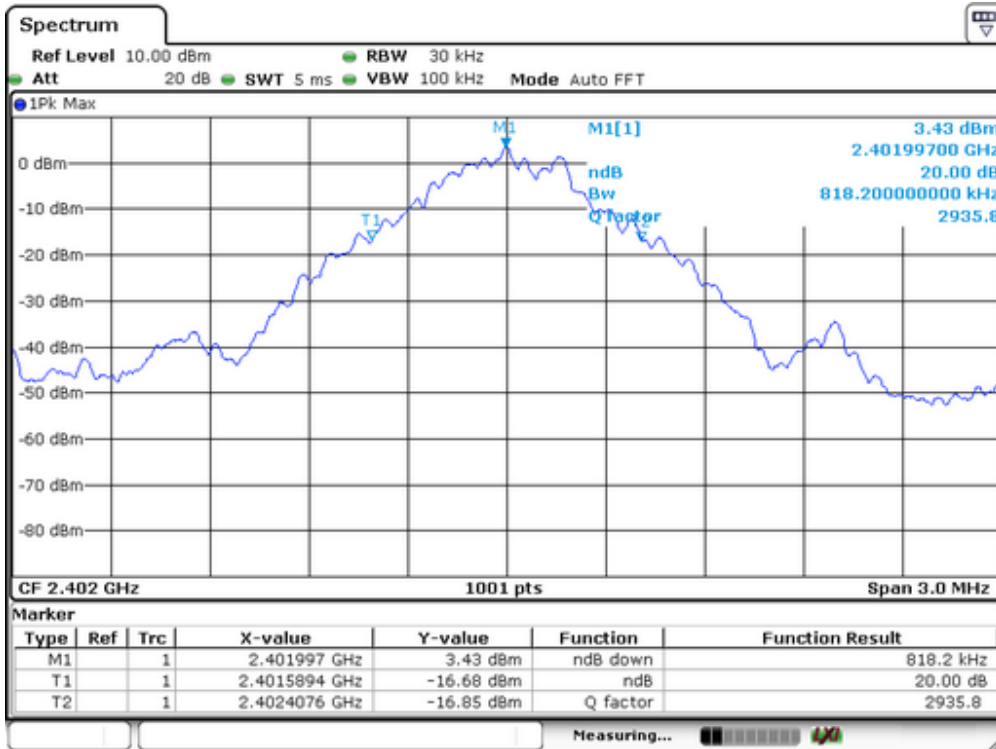
Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

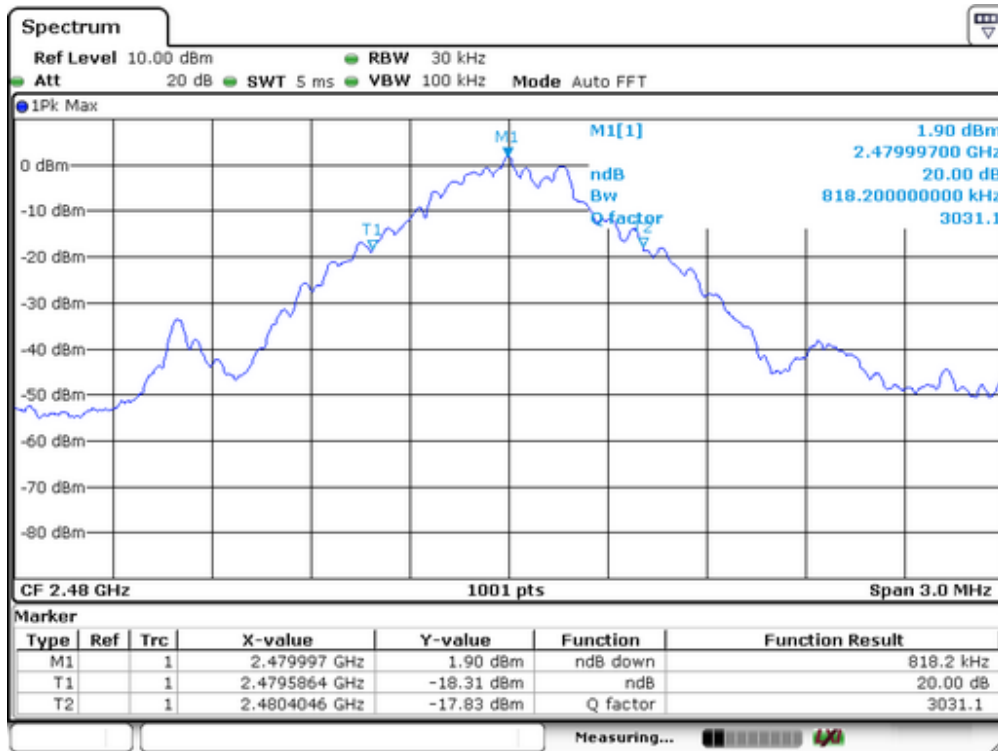
7.4 Measurement Results:

Refer to attached data chart.

| | | | |
|--------------------|------|---------------|----------------|
| Spectrum Detector: | PK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 25 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Modulation: | GFSK | | |

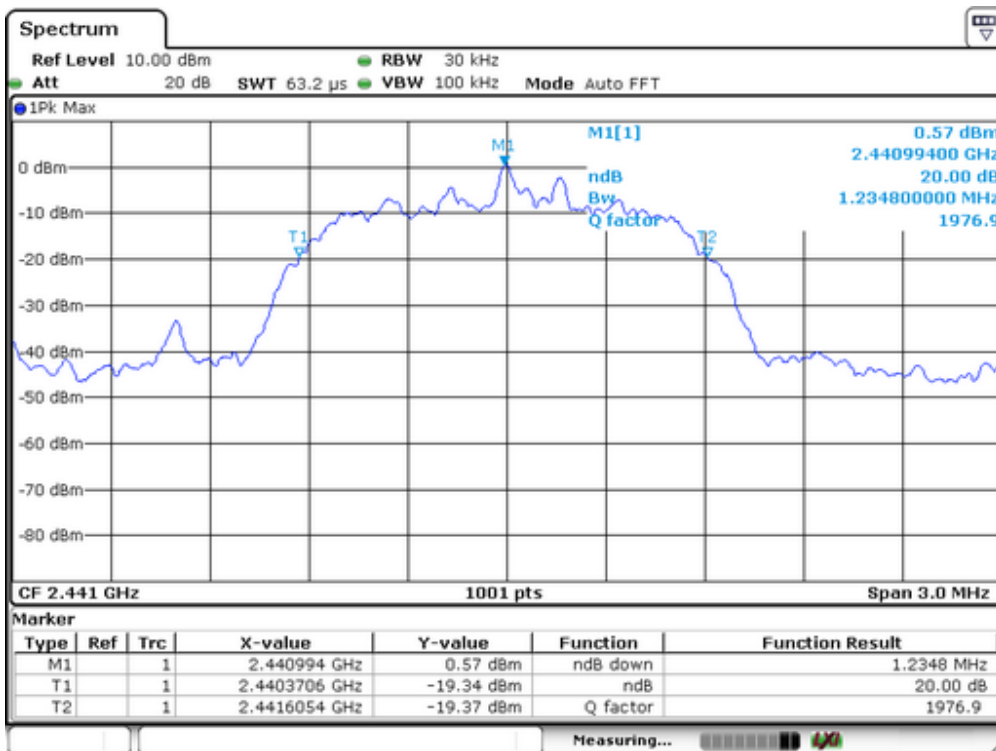
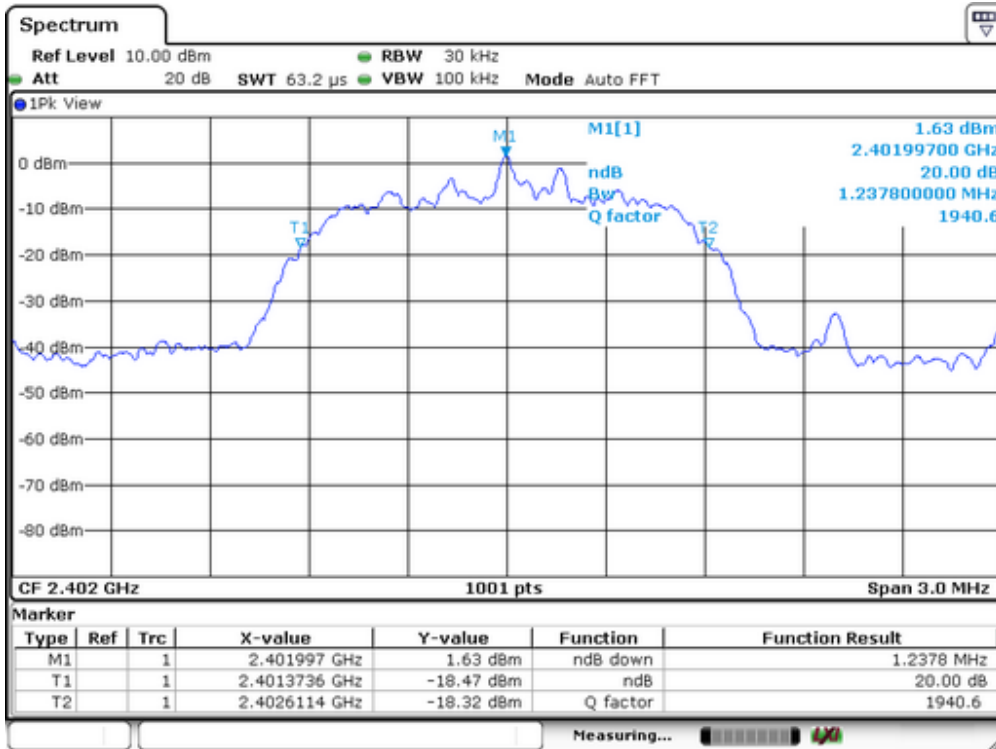
| Channel number | Channel frequency (MHz) | 20dB Down BW(KHz) |
|----------------|-------------------------|-------------------|
| 1 | 2402 | 818 |
| 40 | 2441 | 815 |
| 79 | 2480 | 818 |

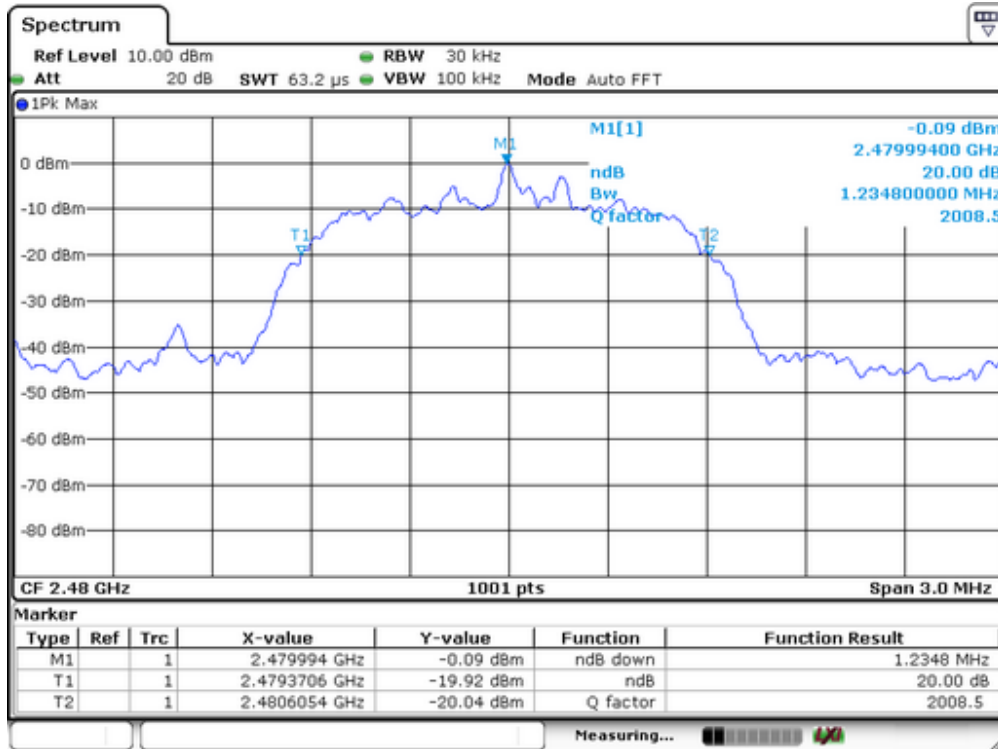




Spectrum Detector: PK Test Date : April 05, 2015
 Test By: Andy Temperature : 24°C
 Test Result: PASS Humidity : 53 %
 Modulation: $\pi/4$ -DQPSK

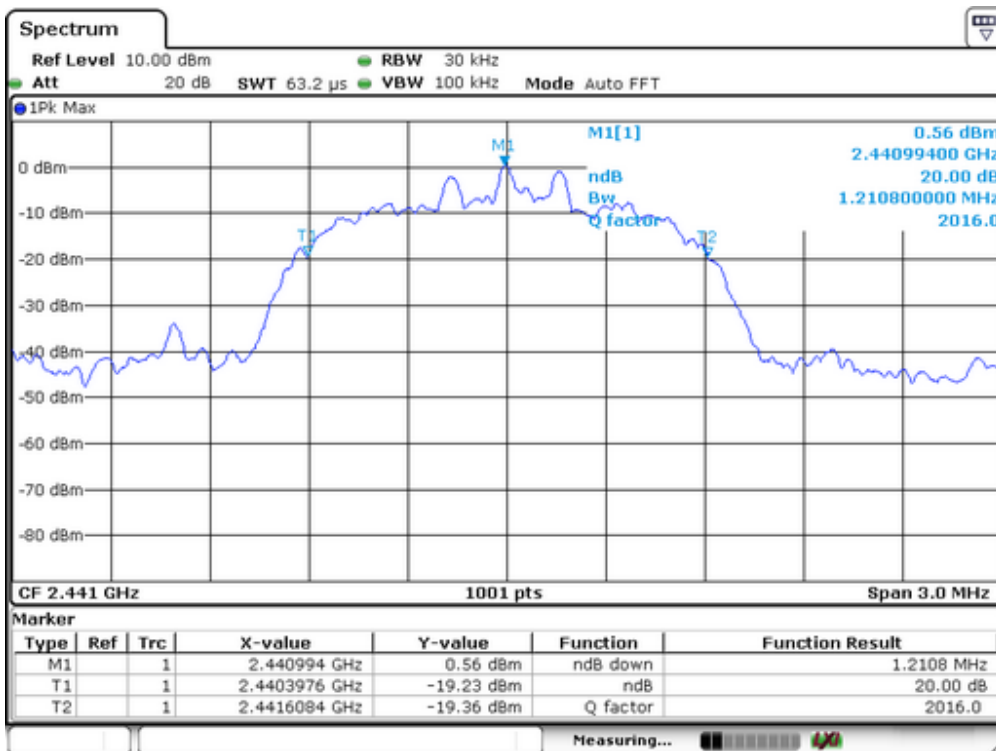
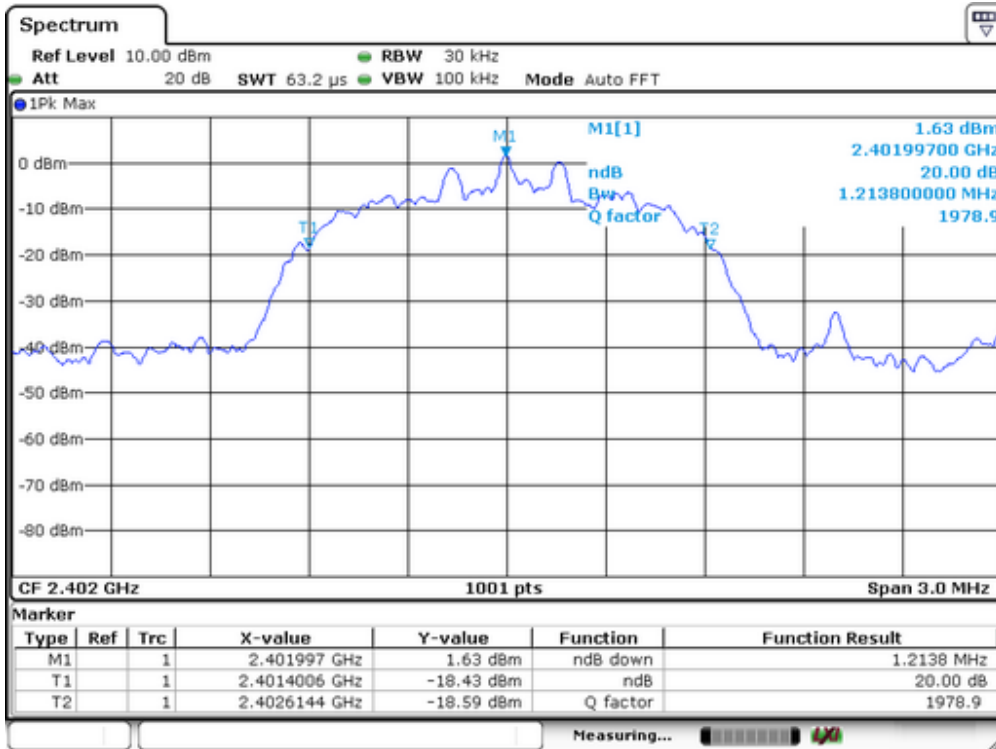
| Channel number | Channel frequency (MHz) | 20dB Down BW(kHz) |
|----------------|-------------------------|-------------------|
| 1 | 2402 | 1237 |
| 40 | 2441 | 1234 |
| 79 | 2480 | 1234 |

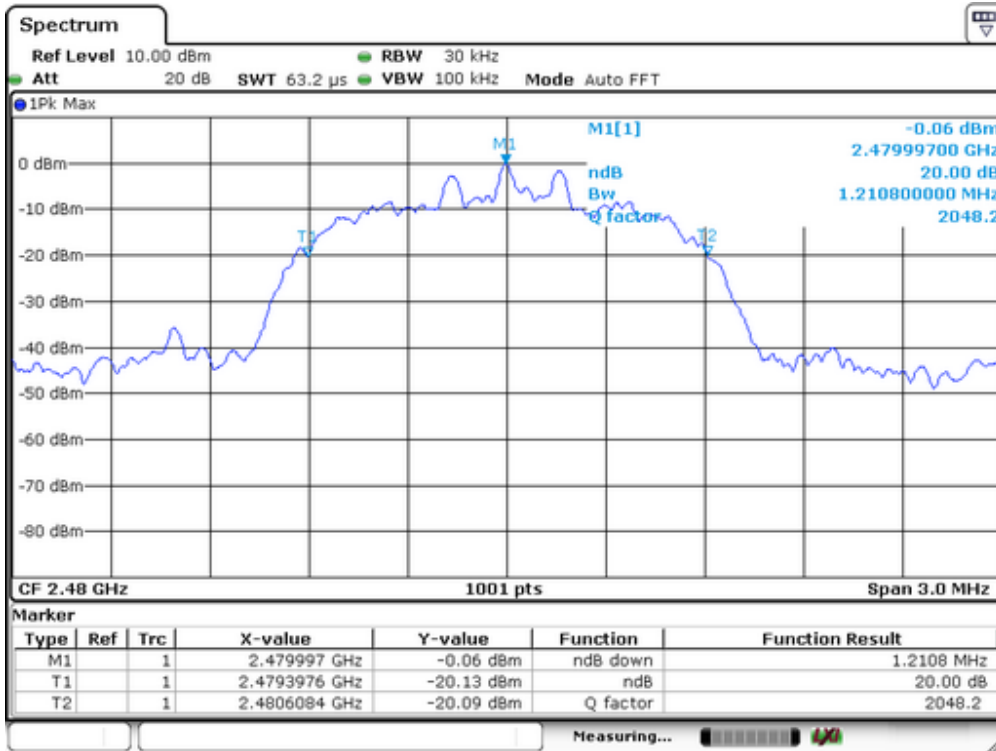




| | | | |
|--------------------|-------|---------------|----------------|
| Spectrum Detector: | PK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 24°C |
| Test Result: | PASS | Humidity : | 53 % |
| Modulation: | 8DPSK | | |

| Channel number | Channel frequency (MHz) | 20dB Down BW(kHz) |
|----------------|-------------------------|-------------------|
| 1 | 2402 | 1213 |
| 40 | 2441 | 1210 |
| 79 | 2480 | 1210 |



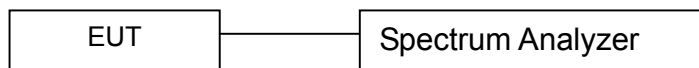


8. Quantity of Hopping Channel Test

8.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

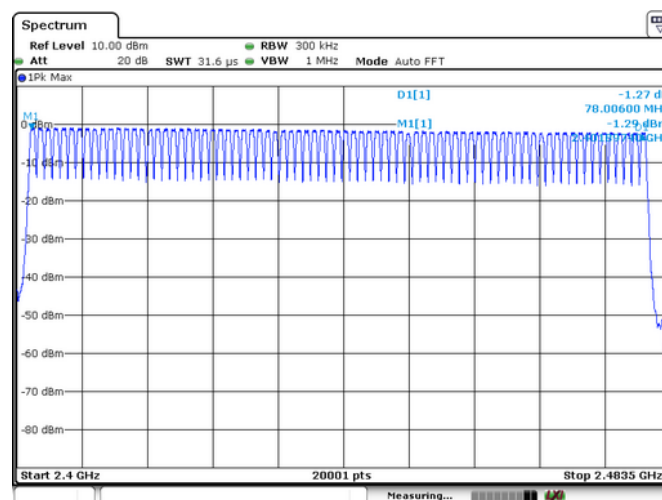
Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

8.4 Measurement Results:

Refer to attached data chart.

| | | | |
|-----------------|------|---------------|----------------|
| Worst Test Mode | GFSK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 25 °C |
| Test Result: | PASS | Humidity : | 50 % |

| Hopping Channel Frequency Range | Quantity of Hopping Channel | Quantity of Hopping Channel |
|---------------------------------|-----------------------------|-----------------------------|
| 2402-2480 | 79 | > 15 |



9. Time of Occupancy (Dwell Time) test

9.1 Test Description

The Equipment Under Test (EUT) was set up to perform the dwell time measurements. The EUT was connected to the spectrum analyzer via a short coax cable. The dwell time is calculated by:

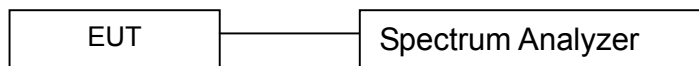
$$\text{Dwell time} = \text{time slot length} * \text{hop rate} / \text{number of hopping channels} * 31.6\text{s}$$

with:

- hop rate = $1600/2 * 1/\text{s}$ for DH1 packets = 1600 s^{-1}
- hop rate = $1600/4 * 1/\text{s}$ for DH3 packets = 533.33 s^{-1}
- hop rate = $1600/6 * 1/\text{s}$ for DH5 packets = 320 s^{-1}
- number of hopping channels = 79
- $31.6 \text{ s} = 0.4 \text{ seconds multiplied by the number of hopping channels} = 0.4 \text{ s} * 79$

The highest value of the dwell time is reported.

9.2 Test SET-UP (Block Diagram of Configuration)



9.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

9.4 Test Requirements / Limits

FCC Part 15, Subpart C, §15.247 (a) (1) (iii)

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Since the Bluetooth technology uses 79 channels this period is calculated to be 31.6seconds. Refer to attached data chart.

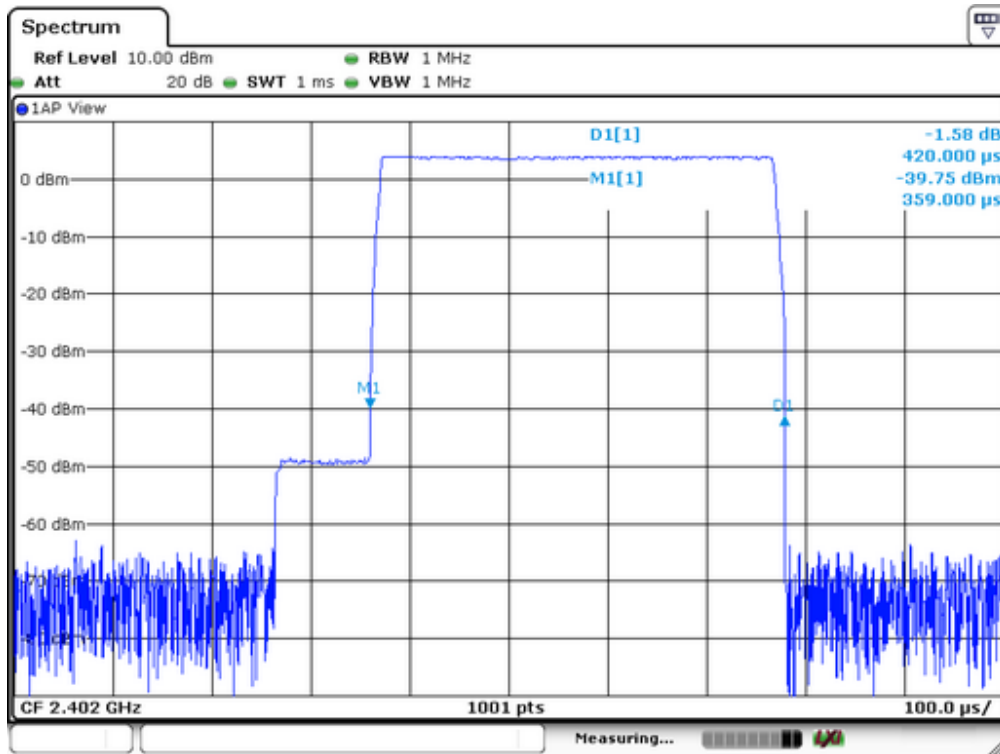
9.5 Measurement Results:

| Packet type | Frequency (MHz) | Time slot length(ms) | Dwell time | Dwell time(ms) |
|-------------|-----------------|----------------------|-------------------------------------|----------------|
| DH1 | 2402 | 0.420 | time slot length *1600/2 /79 * 31.6 | 134.40 |
| DH3 | 2441 | 1.677 | time slot length *1600/4 /79 * 31.6 | 268.32 |
| DH5 | 2480 | 2.925 | time slot length *1600/6 /79 * 31.6 | 311.99 |

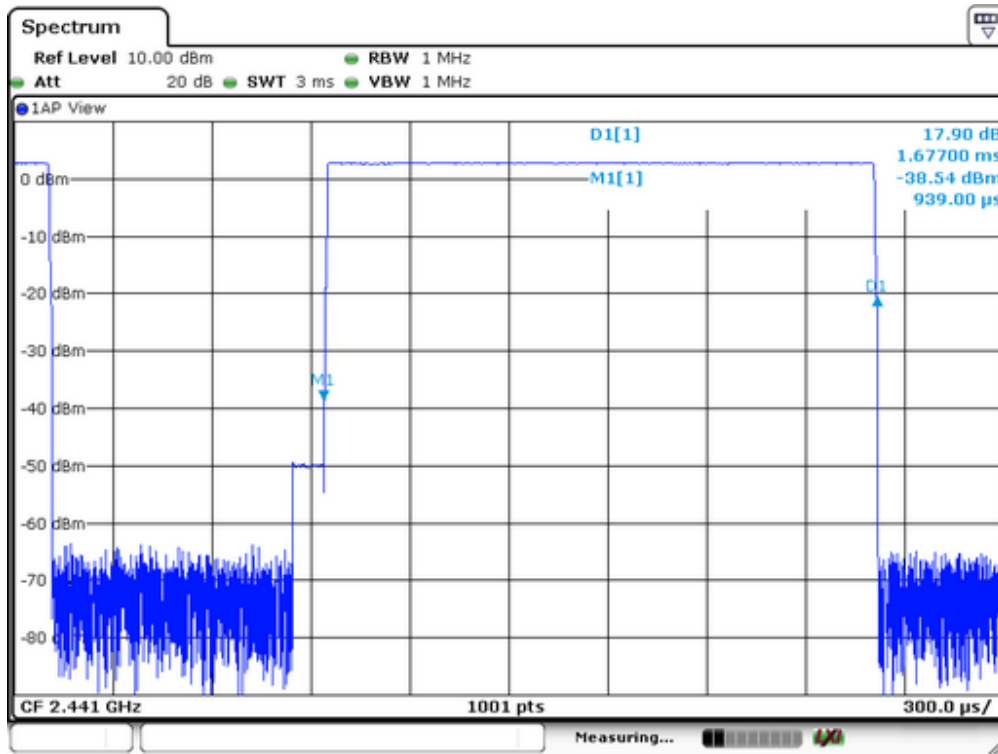
Remark: The results of worst case(GFSK) was recorded.

Test Plot:

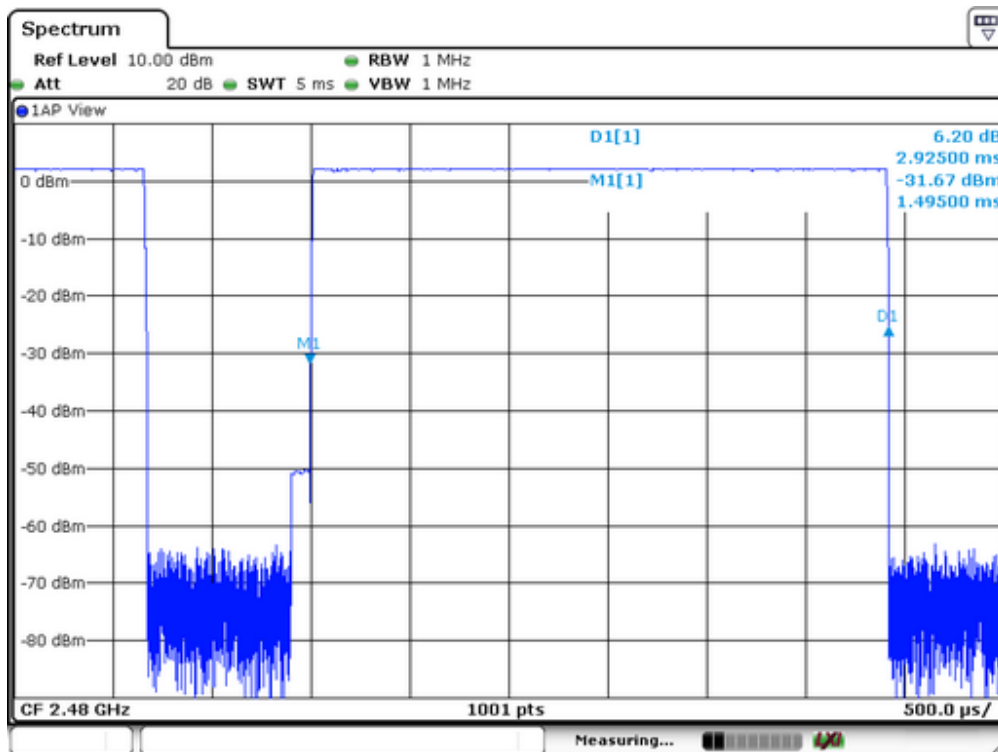
DH1:



DH3:



DH5:

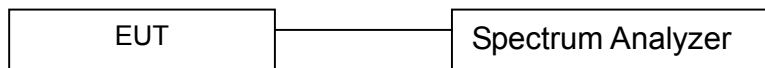


10. MAXIMUM PEAK OUTPUT POWER TEST

10.1 Measurement Procedure

- a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

10.2 Test SET-UP (Block Diagram of Configuration)



10.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

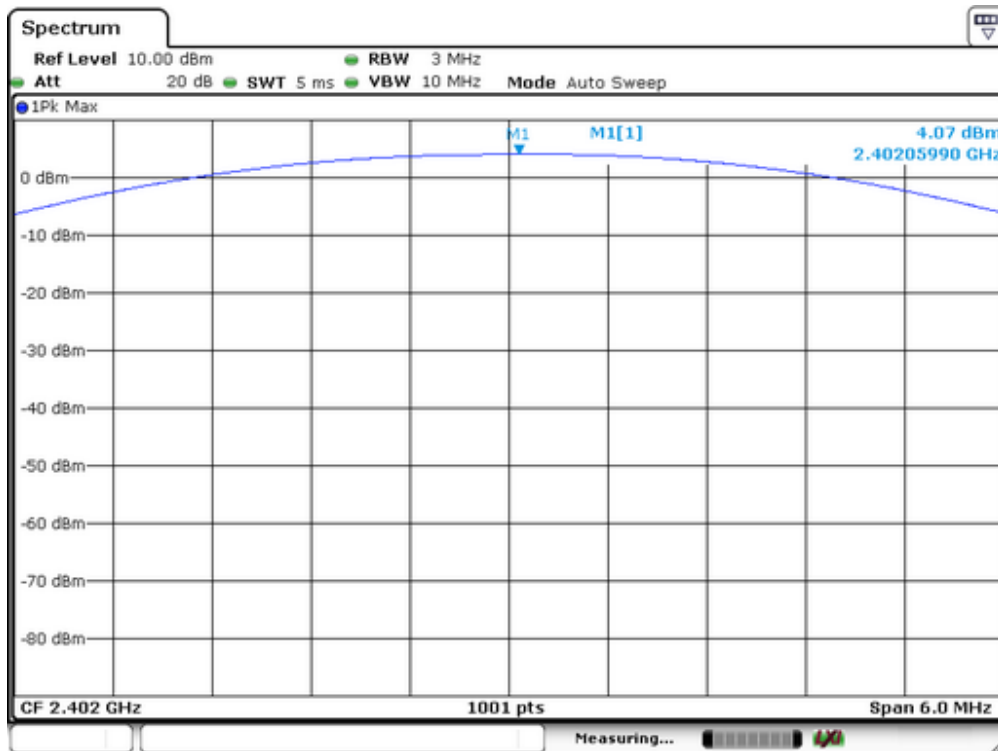
Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

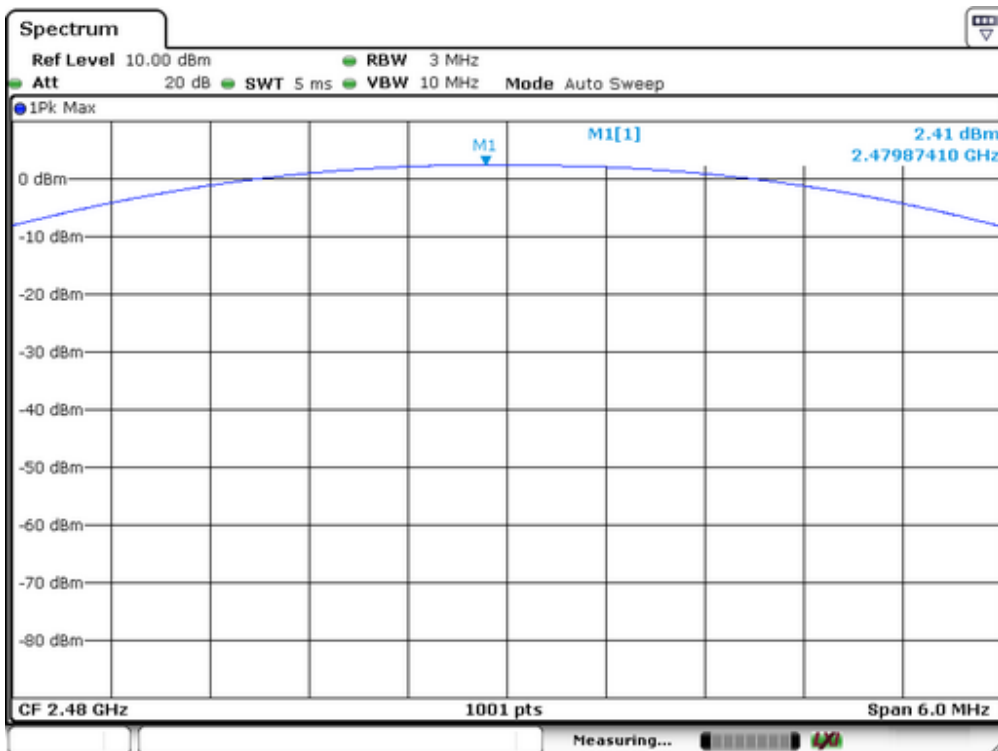
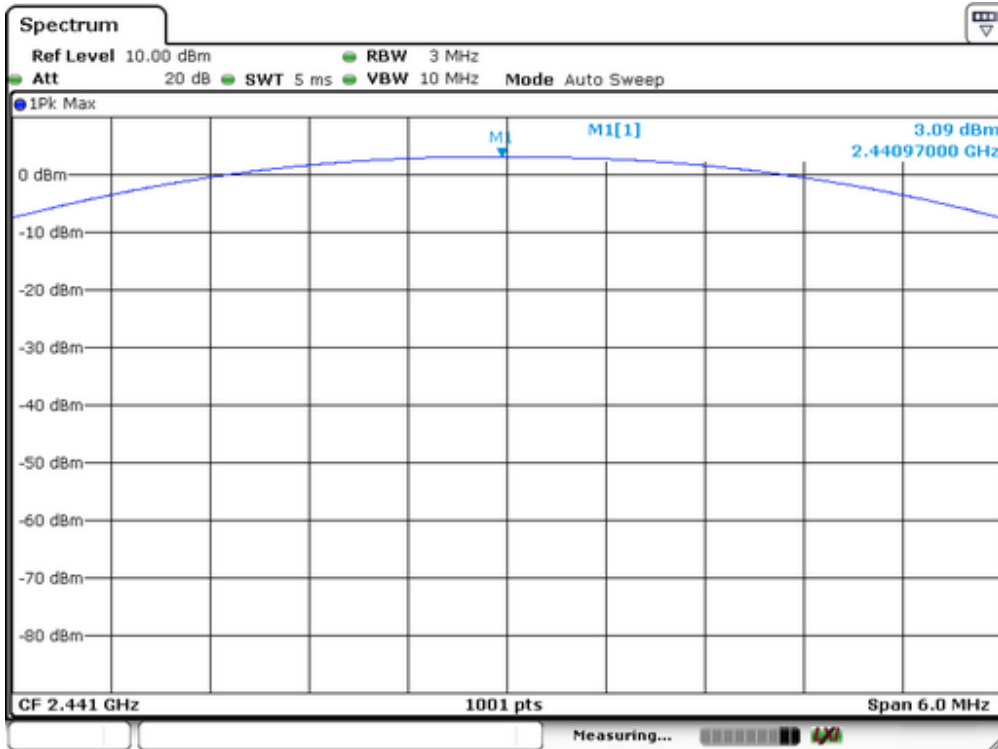
10.4 Measurement Results:

Refer to attached data chart.

| | | | |
|--------------------|------|---------------|----------------|
| Spectrum Detector: | PK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 25 °C |
| Test Result: | PASS | Humidity : | 50 % |
| Modulation: | GFSK | | |

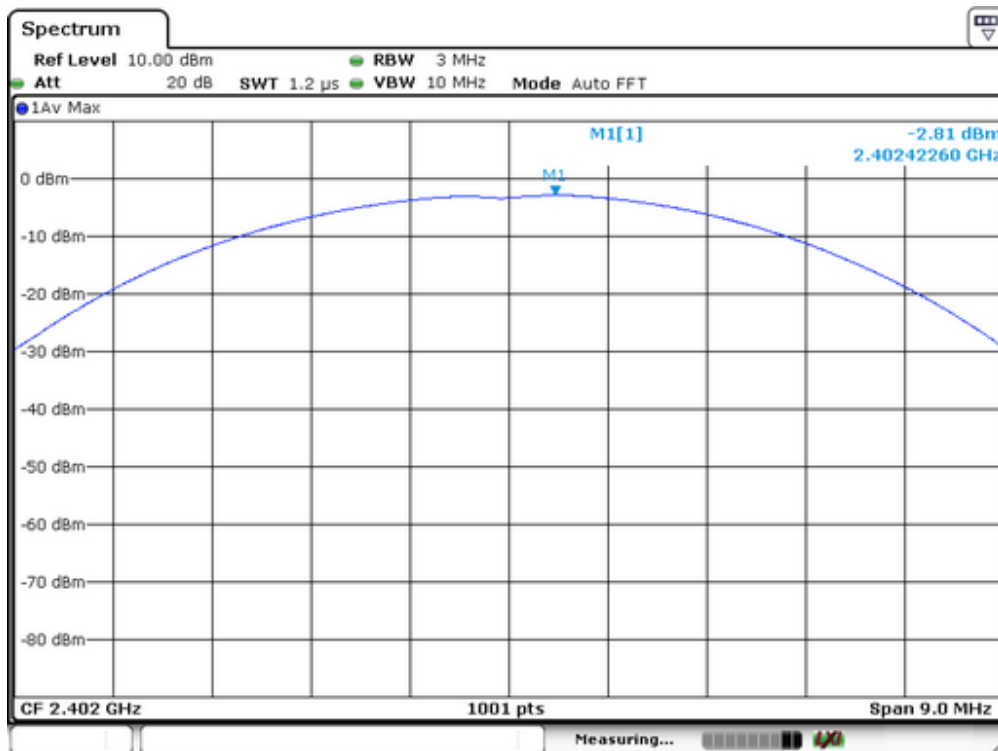
| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power output(mW) | Peak Power Limit(mW) | Pass/Fail |
|----------------|-------------------------|------------------------|-----------------------|----------------------|-----------|
| 01 | 2402 | 4.07 | 2.553 | 1000 | PASS |
| 40 | 2441 | 3.09 | 2.037 | 1000 | PASS |
| 79 | 2480 | 2.41 | 1.742 | 1000 | PASS |

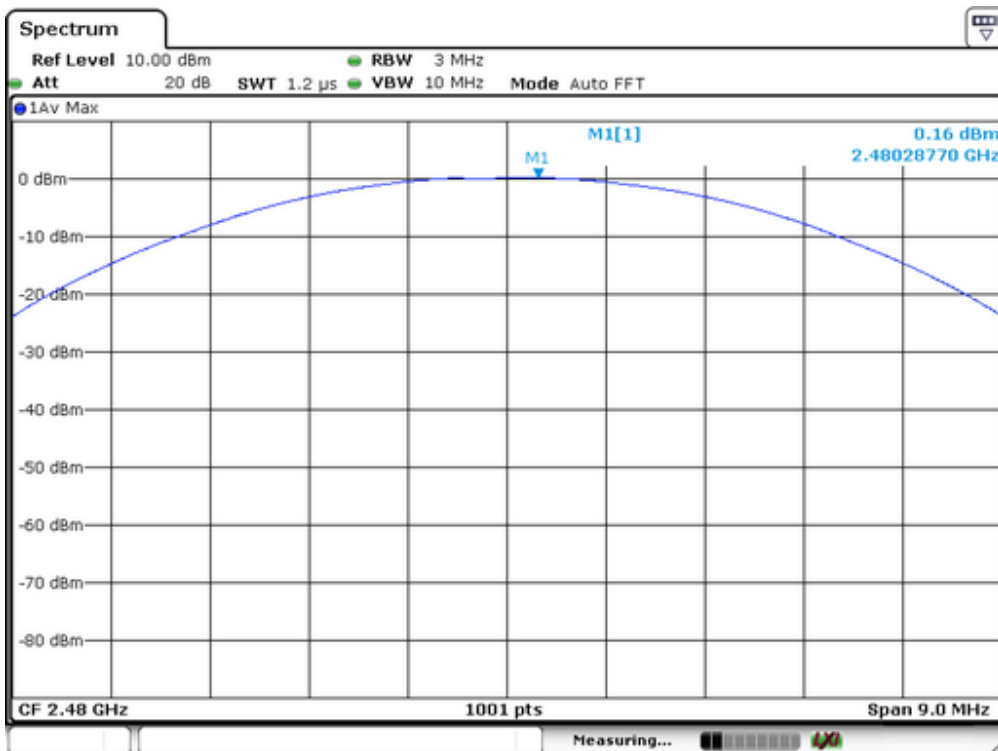
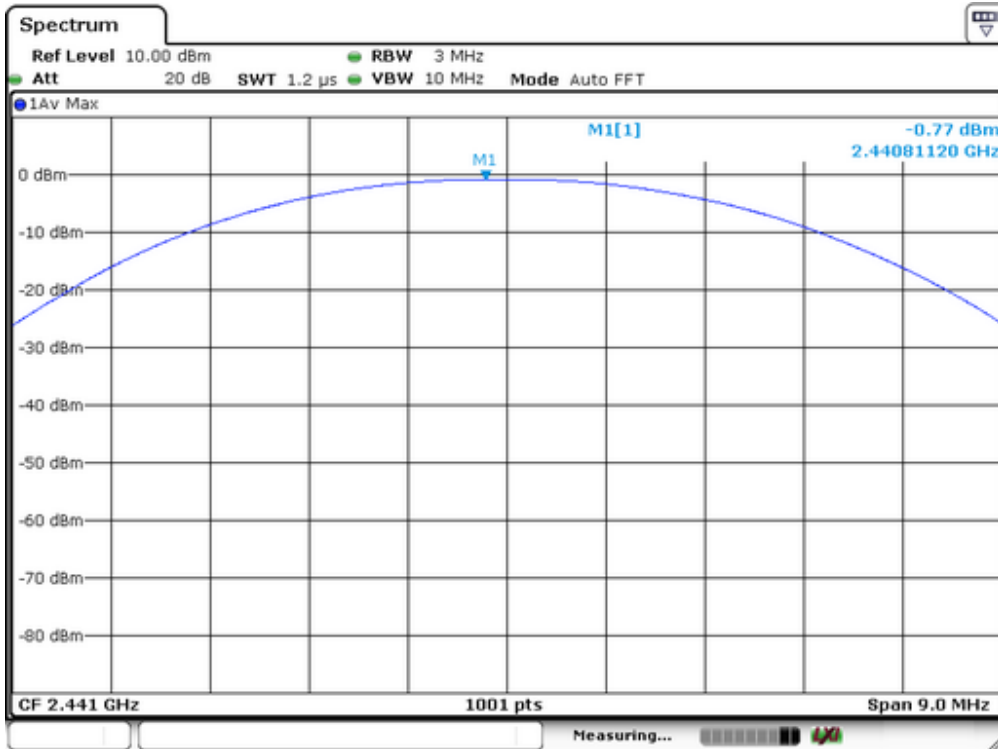




Spectrum Detector: PK Test Date : April 05, 2015
 Test By: Andy Temperature : 25 °C
 Test Result: PASS Humidity : 50 %
 Modulation: П/4-DQPSK

| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power output(mW) | Peak Power Limit(mW) | Pass/Fail |
|----------------|-------------------------|------------------------|-----------------------|----------------------|-----------|
| 01 | 2402 | -2.81 | 0.524 | 125 | PASS |
| 40 | 2441 | -0.77 | 0.838 | 125 | PASS |
| 79 | 2480 | 0.16 | 1.038 | 125 | PASS |

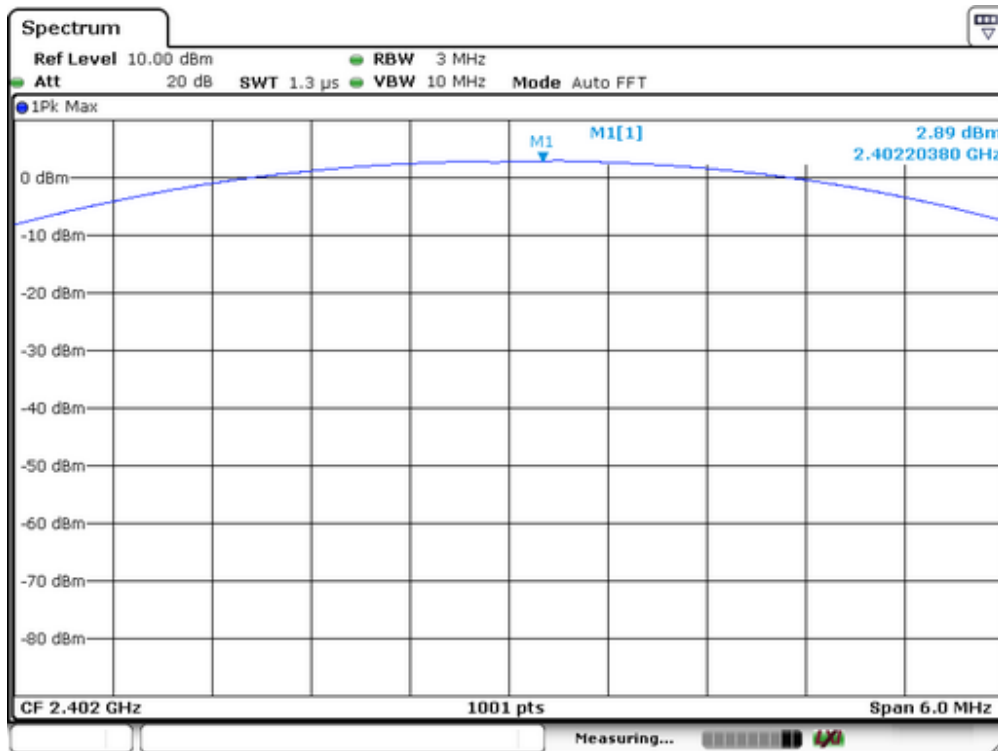


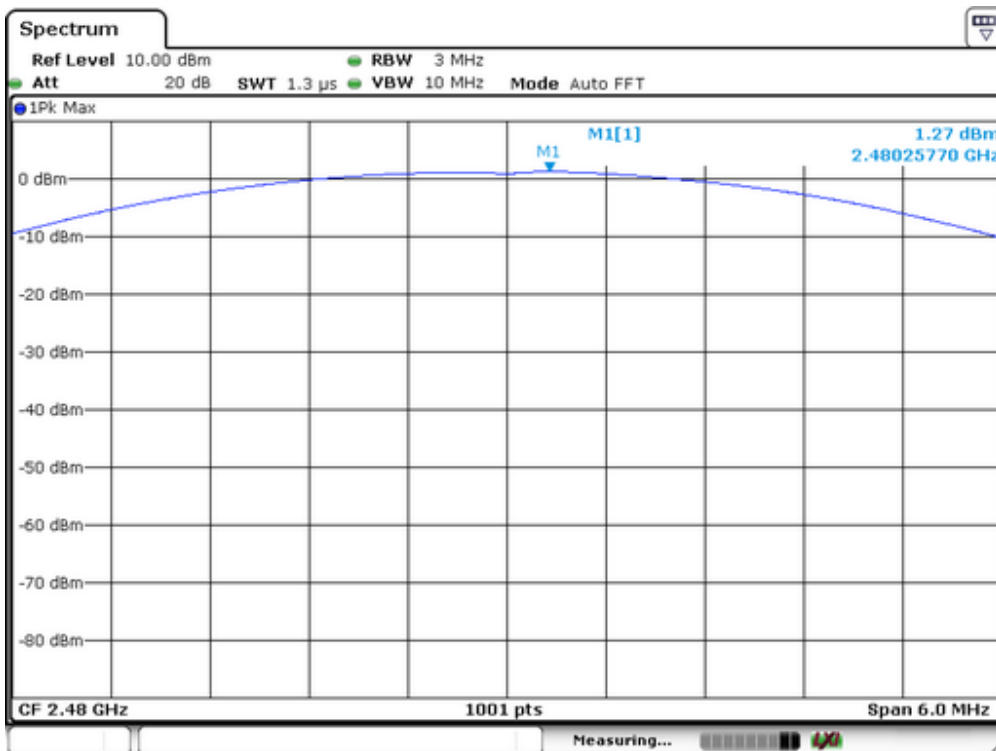
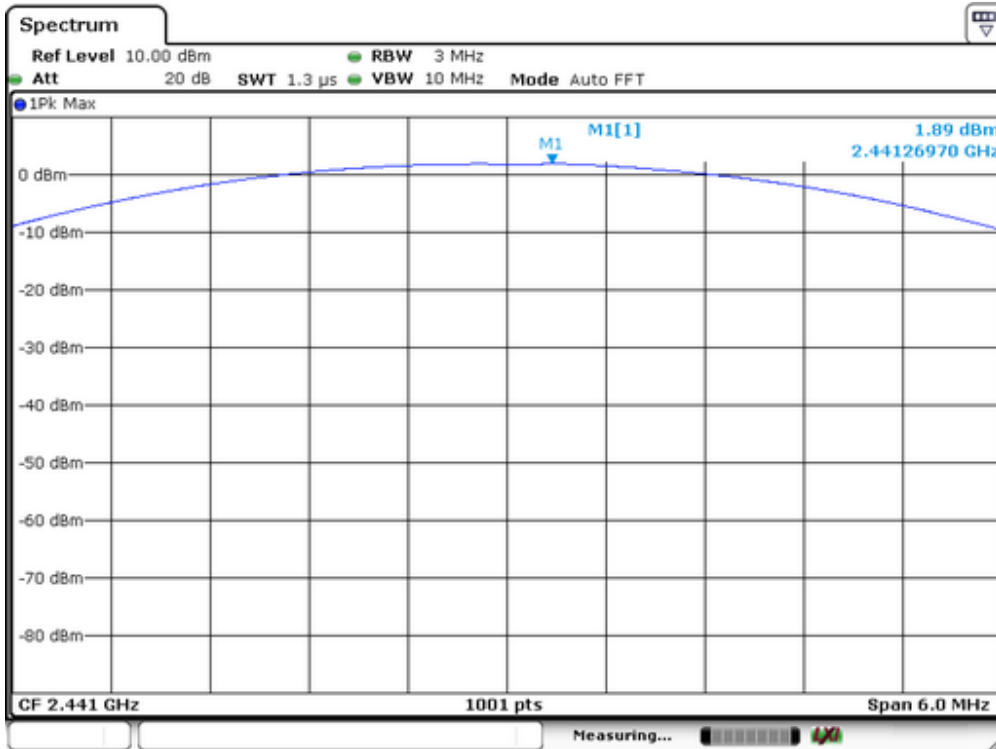


Spectrum Detector: PK
 Test By: Andy
 Test Result: PASS
 Modulation: 8DPSK

Test Date : April 05, 2015
 Temperature : 25 °C
 Humidity : 50 %

| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power output(mW) | Peak Power Limit(mW) | Pass/Fail |
|----------------|-------------------------|------------------------|-----------------------|----------------------|-----------|
| 01 | 2402 | 2.89 | 1.945 | 125 | PASS |
| 40 | 2441 | 1.89 | 1.545 | 125 | PASS |
| 79 | 2480 | 1.27 | 1.340 | 125 | PASS |





11. Band EDGE test

11.1 Measurement Procedure

For Conducted Test

1. The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100KHz. The video bandwidth is set to 300KHz.
2. The spectrum from 30MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RBW | 100KHz |
| VBW | 300KHz |
| Detector | Peak |
| Trace | Max hold |

For Radiated emission Test

The EUT was placed on a styrofoam table which is 1.5m above ground plane.

The measurement procedure at the band edges was simplified by performing the measurement in just one plot. Both, the in-band-emission and the unwanted emission were encompassed by the span. After trace stabilization, the maximum peak was determined by a peak detector and the value was marked by an appropriate limit line. The second limit line, which is 20dB below the first, marks the limit for the emissions in the unrestricted band. A maximum-peak-detector marks the highest emission in the unrestricted band next to the band edge.

The measurements were performed at the lower end of the 2.4GHz band.

Use the following spectrum analyzer settings:

For Restricted Band, When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

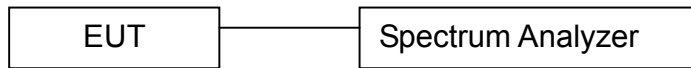
| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RBW | 1MHz |
| VBW | 3MHz |
| Detector | Peak |
| Trace | Max hold |

For Non-Restricted Band, When spectrum scanned above 1GHz setting resolution bandwidth 100KHz, video bandwidth 300KHz:

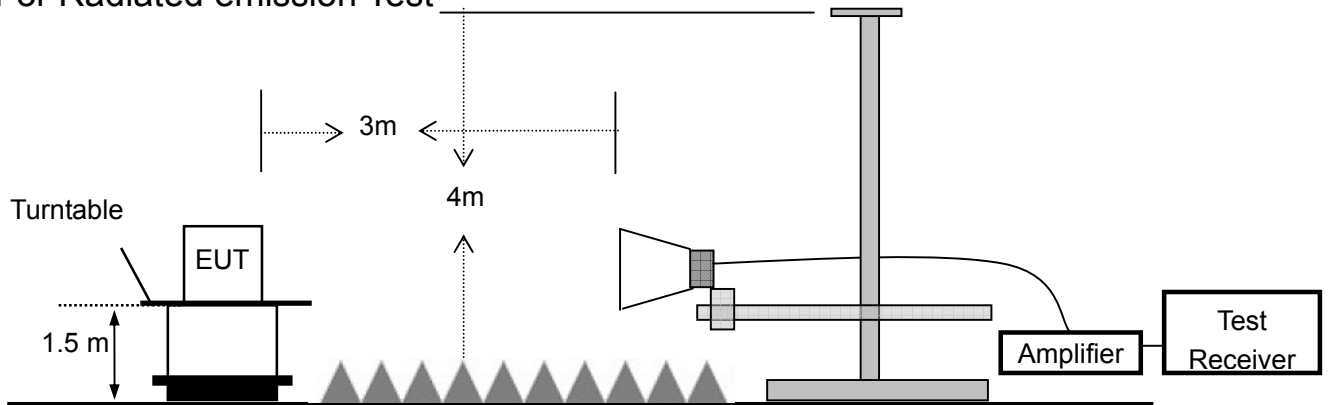
| EMI Test Receiver | Setting |
|-------------------|----------|
| Attenuation | Auto |
| RBW | 100KHz |
| VBW | 300KHz |
| Detector | Peak |
| Trace | Max hold |

11.2 Test SET-UP (Block Diagram of Configuration)

For Conducted Test



For Radiated emission Test



11.3 Measurement Equipment Used:

For Conducted Test

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | Characteristics | LAST CAL. | CAL DUE. |
|-------------------|-----------------|--------------|---------------|-----------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30 | 1321.3008K | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |
| Antenna Connector | ARTHUR-YANG | 2244-N1TG1 | N/A | 10Hz-30GHz | 03/15/2015 | 03/14/2016 |

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

For Radiated emission Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Characteristics | Last Cal. | Cal. Interval |
|------|-----------------|-----------------|------------|--------------|-----------------|------------|---------------|
| 1 | Signal Analyzer | Rohde & Schwarz | FSV30 | 103040 | 9KHz-40GHz | 12/29/2014 | 1 Year |
| 2 | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-1272 | 1GHz-18GHz | 12/29/2014 | 1 Year |
| 3 | Power Amplifier | LUNAR EM | LNA1G18-40 | J10100000081 | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 4 | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 5 | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |
| 6 | Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | 12/29/2014 | 1 Year |

11.4 Measurement Results:

Refer to attached data chart.

| | | | |
|--------------------|------|---------------|----------------|
| Spectrum Detector: | PK | Test Date : | April 05, 2015 |
| Test By: | Andy | Temperature : | 25 °C |
| Test Result: | PASS | Humidity : | 50 % |

1. Conducted Test

For Non-Hopping Mode:

| Frequency (MHz) | Modulation | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------|------------------------|--------------------------|--------------------------|----------------------|
| 2399.98 | GFSK | 3.9 | -38.37 | 42.27 | >20dBc |
| 2399.97 | pi/4-DQPSK | 1.99 | -41.99 | 43.98 | >20dBc |
| 2399.98 | 8DPSK | 1.97 | -39.61 | 41.58 | >20dBc |
| 2483.99 | GFSK | 2.30 | -59.69 | 61.99 | >20dBc |
| 2483.45 | pi/4-DQPSK | 0.33 | -58.6 | 58.93 | >20dBc |
| 2483.52 | 8DPSK | 0.29 | -59.55 | 59.84 | >20dBc |

For Hopping Mode:

| Frequency (MHz) | Modulation | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------|------------------------|--------------------------|--------------------------|----------------------|
| 2399.99 | GFSK | 3.89 | -40.33 | 44.22 | >20dBc |
| 2399.97 | pi/4-DQPSK | 1.98 | -42.45 | 44.43 | >20dBc |
| 2399.99 | 8DPSK | 1.92 | -39.12 | 41.04 | >20dBc |
| 2483.9 | GFSK | 2.29 | -60.1 | 62.39 | >20dBc |
| 2487.09 | pi/4-DQPSK | 0.32 | -60.10 | 60.42 | >20dBc |
| 2486.95 | 8DPSK | 0.27 | -60.09 | 60.36 | >20dBc |

2. Radiated emission Test

Worst test modulation GFSK

For Non-Hopping Mode:

| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) | | Band edge Limit (dBuV/m) | | Margin (dB) | |
|-----------------|----------------------------|-------------------|-------|--------------------------|----|-------------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 2398.41 | H | 65.15 | 44.15 | 74 | 54 | -8.85 | -9.85 |
| 2399.05 | V | 60.32 | 38.05 | 74 | 54 | -13.68 | -15.95 |
| 2483.95 | H | 66.18 | 45.18 | 74 | 54 | -7.82 | -8.82 |
| 2484.15 | V | 59.18 | 39.04 | 74 | 54 | -14.82 | -14.96 |

For Hopping Mode:

| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) | | Band edge Limit (dBuV/m) | | Margin (dB) | |
|-----------------|----------------------------|-------------------|-------|--------------------------|----|-------------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 2399 | H | 65.72 | 45.15 | 74 | 54 | -8.28 | -8.85 |
| 2399.89 | V | 60.15 | 39.05 | 74 | 54 | -13.85 | -14.95 |
| 2484.15 | H | 64.03 | 44.05 | 74 | 54 | -9.97 | -9.95 |
| 2484.03 | V | 58.95 | 38.74 | 74 | 54 | -15.05 | -15.26 |

12. Antenna Application

12.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

FCC part 15C section 15.247 requirements:

Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

12.2 Result

The EUT used inverted-E antenna. The antenna's gain is 4dBi and meets the requirement.

General Appearance of the EUT

