CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID TEST REPORT

TEST REPORT NUMBER : CGZ3150306-00212-EF

CENTRE OF TESTING SERVICE CO., LTD.

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

TEST REPORT For FCC

47 CFR PART 15 OCT, 2014

Report Reference No.	CGZ3150306-00212-EF
Date of issue	11 March 2015
Testing Laboratory Name	**CENTRE OF TESTING SERVICE CO., LTD.**
Address	A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Testing location/ procedure	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's name	KC Wirefree Corporation
Address	2640 W Medtronic Way Tempe Arizona 85281 United States
Test specification	
Standard	**47 CFR PART 15 OCT, 2014**
Test Report Form No.	CTSEMC-1.0
TRF Originator	CENTRE OF TESTING SERVICE CO., LTD.
Master TRF	Dated 2009-01

Test item description	BTAUDIO
Trade Mark	KC Wirefree
Manufacturer	KC Wirefree Corporation
Model/Type reference	KC-5012
Ratings	DC 3.3V
Operating Frequency	2402.0 MHz ~2480.0 MHz
Result	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Kate zhang / Fileadministrators	Duke yang / Technique principal	Vincent yao / Manager

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FCC ID -- T E S T R E P O R T

Test Report No. : CGZ3150306-00212-EF	11 March 2015 Date of issue

Type / Model.....	KC-5012
EUT.....	BTAUDIO
Applicant……	KC Wirefree Corporation
Address.....	2640 W Medtronic Way Tempe Arizona 85281 United States
Telephone.....	+602-386-2640
Fax.....	+602-386-2640
Contact.....	Chris Simonelic
Manufacturer……	KC Wirefree Corporation
Address.....	2640 W Medtronic Way Tempe Arizona 85281 United States
Telephone.....	+602-386-2640
Fax.....	+602-386-2640
Contact.....	Chris Simonelic
Factory……	KC Wirefree Corporation
Address.....	2640 W Medtronic Way Tempe Arizona 85281 United States
Telephone.....	+602-386-2640
Fax.....	+602-386-2640
Contact.....	Chris Simonelic

Test Result according to the standards on page 1: **PASSED**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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TABLE OF CONTENTS

Description **Page**

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1.0 TEST STANDARDS

The tests were performed according to following standards:

■ **47 CFR PART 15 OCT, 2014**
■ **ANSI C63.4-2009**

2.0 SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	06 March 2015
Testing commenced on	06~11 March 2015
Testing concluded on	11 March 2015

2.2 FINAL ASSESSMENT

The IC requirements pertaining to the technical standards and tested operation modes are

■ - fulfilled.
☐ - **not** fulfilled.

The equipment under test
■ - fulfils the FCC requirements cited on page 1.
☐ - **does not** fulfil the FCC requirements cited on page 1.

3.0 EQUIPMENT UNDER TEST

3.1 POWER SUPPLY SYSTEM UNILISED

Power supply voltage : ■ DC 3.3V

3.2 SHORT DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)

Number of tested samples: **1**
Serial number: Prototype

3.3 EUT OPERATION MODE

The equipment under test was operated during the measurement under the following conditions:
☐ - Standby
☐ TX- Y position
☐ TX- Zposition
■ TX- X position

Operation mode 1:TX-X Position Low (2402.0 MHz) , TX-X Position Middle (2440.0 MHz),
TX-X Position High (2480.0 MHz)
Note:Operation mode 1 TX -X position of EUT is the radiated test worst case. so only these test results be recorded in the test report.

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3.4 EUT CONFIGURATION

3.4.1. Description of configuration (EUT)

Description	:	BTAUDIO
Model Number	:	KC-5012
Operation frequency	:	2402.0 MHz~ 2480.0 MHz ISM Band
Buletooth Version	:	3.0
Modulation Technology	:	GFSK for (1Mbps), π/4-DQPSK for (2Mbps), 8DPSK for (3Mbps) modulation
Antenna 1	:	PCB antenna, met requirement of FCC 15.203
Antenna 2		External antenna, met requirement of FCC 15.203

3.4.2. Tested Supporting System Details

3.4.2.1. Notebook

M/N	:	F83VF
S/N	:	N/A
Manufacturer	:	AUSU
Power Cord	:	/
FCC ID	:	ID

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4.0 TEST ENVIRONMENT

4.1 ADDRESS OF THE TEST LABORATORY

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406

4.2 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on May 22, 2014.

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.791995, July 13,2012.

4.3 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 DEFINITIONS OF SYMBOLS USED IN THIS TEST REPORT

■ - The black square indicates that the listed condition, standard or equipment is applicable for this report.

□ - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 STATEMENT OF THE MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.6 MEASUREMENT UNCERTAINTY

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)
	1GHz~26.5GHz	±3.54dB	(1)

(1).This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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5.0 SUMMARY OF STANDARDS AND RESULTS

5.1.DESCRIPTION OF STANDARDS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Conducted Emission Test	FCC Part 15 : 15.207 ANSI C63.4-2009	PASSED
20dB Bandwidth	FCC Part 15.247(a)(1) ANSI C63.4-2009	PASSED
Peak Power	FCC Part 15.247(b)(1) ANSI C63.4-2009	PASSED
Peak Power Spectral Density	15.247(e) Power Density ANSI C63.4-2009	N/A
100KHz Bandwidth Band edges measurement	FCC Part 15.247(d) ANSI C63.4-2009	PASSED
Conducted Spurious Emissions	FCC Part 15.247(d) ANSI C63.4-2009	PASSED
Frequency Separation	FCC Part 15.247(a)(1) ANSI C63.4-2009	PASSED
Number of Hopping Frequency	FCC Part 15.247(a)(1)(iii) ANSI C63.4-2009	PASSED
Dwell Time	FCC Part 15.247(a)(1)(iii) ANSI C63.4-2009	PASSED
Transmitter Unwanted Emissions	FCC Part 15: 15.209 ANSI C63.4-2009	PASSED
Receiver Spurious Emissions	FCC Part 15: 15.209 ANSI C63.4-2009	N/A
Antenna Requirements	FCC Part 15: 15.203 ANSI C63.4-2009	PASSED
N/A is an abbreviation for Not Applicable.		

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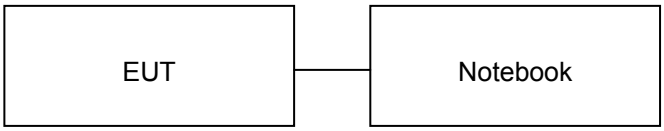
6.0 POWER LINE CONDUCTED EMISSION TEST

6.1.TEST EQUIPMENTS

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2014/11
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2014/11
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2014/11
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2014/11
5	EMI Test Software	EZ-EMC	Farad	N/A	N/A

6.2. BLOCK DIAGRAM OF TEST SETUP



(EUT: BTAUDIO ***)***

6.3. POWER LINE CONDUCTED EMISSION TEST LIMITS

Standard: FCC Part 15 : 15.207 ,ANSI C63.4-2009

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
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.

6.4.TEST PROCEDURE

The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#1). Power on the PC and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC Part 15C on Conducted Emission Test.

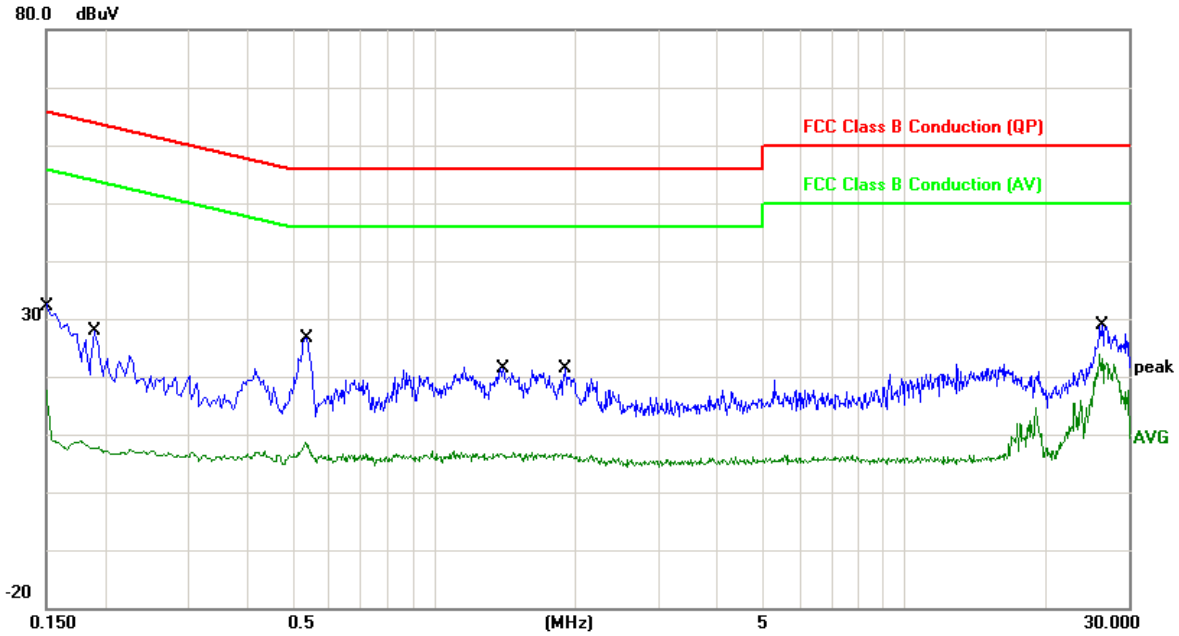
6.5. POWER LINE CONDUCTED EMISSION TEST RESULTS

PASSED.

The frequency range from 150KHz~30MHz is investigated. Please see the following pages.

Test point: L Frequency range: 0.15MHz~30MHz		Result:	■ - passed □ - not passed

EUT	BTAUDIO
Operating Condition	TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	06~11 March 2015
Operator	**Duke**
MODEL NO	KC-5012



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1516	9.78	13.72	23.50	65.91	-42.41	QP
2	0.1516	9.78	-1.31	8.47	55.91	-47.44	AVG
3	0.1900	9.78	6.91	16.69	64.04	-47.35	QP
4	0.1900	9.78	-2.70	7.08	54.04	-46.96	AVG
5	0.5420	9.84	10.47	20.31	56.00	-35.69	QP
6	0.5420	9.84	-2.15	7.69	46.00	-38.31	AVG
7	1.4060	9.84	2.99	12.83	56.00	-43.17	QP
8	1.4060	9.84	-3.83	6.01	46.00	-39.99	AVG
9	1.8980	9.86	2.11	11.97	56.00	-44.03	QP
10	1.8980	9.86	-3.93	5.93	46.00	-40.07	AVG
11	26.3500	10.07	16.56	26.63	60.00	-33.37	QP
12	26.3500	10.07	13.20	23.27	50.00	-26.73	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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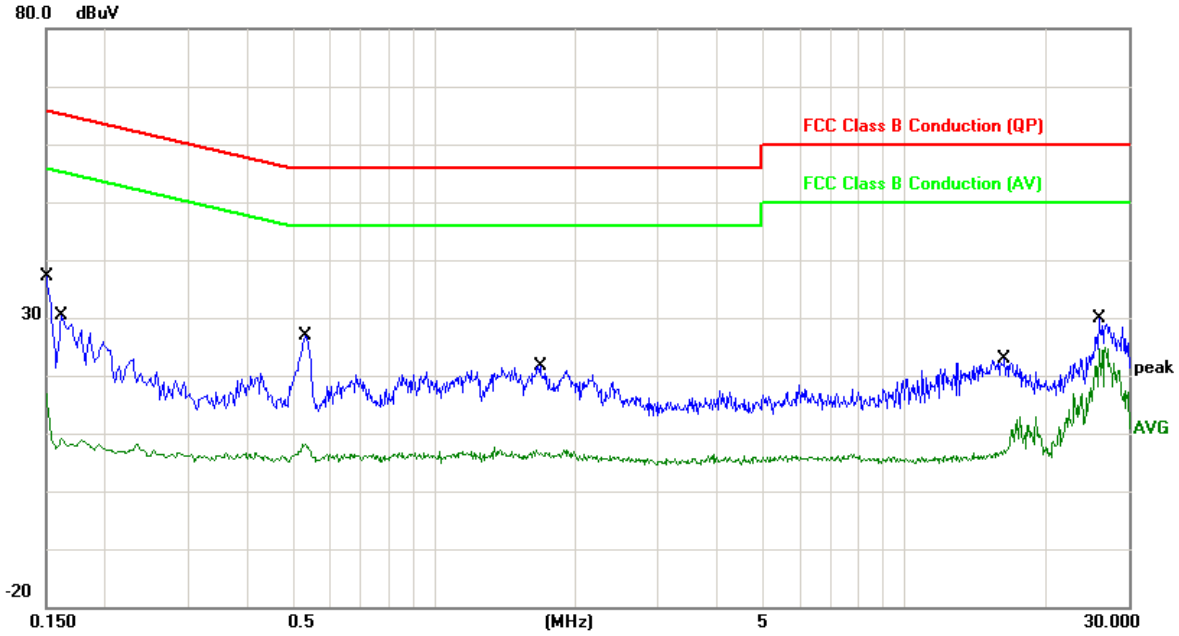
Test point:	N	Result:	■ - passed
Frequency range:	0.15MHz~30MHz		□ - not passed



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1500	9.78	18.92	28.70	66.00	-37.30	QP
2	0.1500	9.78	5.54	15.32	56.00	-40.68	AVG
3	0.1620	9.78	10.94	20.72	65.36	-44.64	QP
4	0.1620	9.78	-2.04	7.74	55.36	-47.62	AVG
5	0.5340	9.84	11.13	20.97	56.00	-35.03	QP
6	0.5340	9.84	-1.98	7.86	46.00	-38.14	AVG
7	1.6860	9.85	2.78	12.63	56.00	-43.37	QP
8	1.6860	9.85	-3.79	6.06	46.00	-39.94	AVG
9	16.3220	9.96	5.84	15.80	60.00	-44.20	QP
10	16.3220	9.96	-3.96	6.00	50.00	-44.00	AVG
11	25.9900	10.06	17.37	27.43	60.00	-32.57	QP
12	25.9900	10.06	13.99	24.05	50.00	-25.95	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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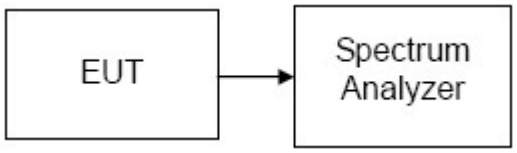
7.0 20dB BANDWIDTH

7.1 MEASUREMENT EQUIPMENT USED

20dB Bandwidth					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

7.2 TEST CONFIGURATION



7.3 TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT, then connect a low loss RF cable from antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=100kHz, VBW=300kHz, Span=10MHz, Sweep = auto.
4. Mark the peak frequency and 20dB (upper and lower) frequency.
5. Repeat until all the test channels are investigated.

7.4 TEST RESULTS

Channel	Frequency (MHz)	20dB Bandwidth (MHz)			Limit	Result
		GFSK	π/4-DQPSK	8DPSK		
Low	2402	1.122	1.104	1.410	-----	PASS
Middle	2440	1.090	1.090	1.420	-----	PASS
High	2480	1.090	1.090	1.420	-----	PASS

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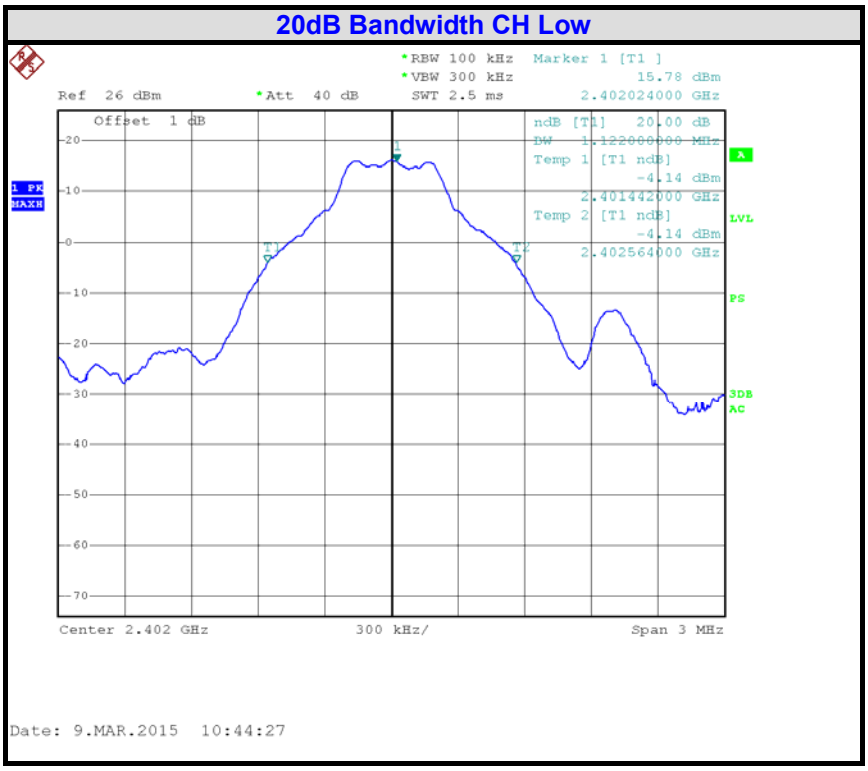
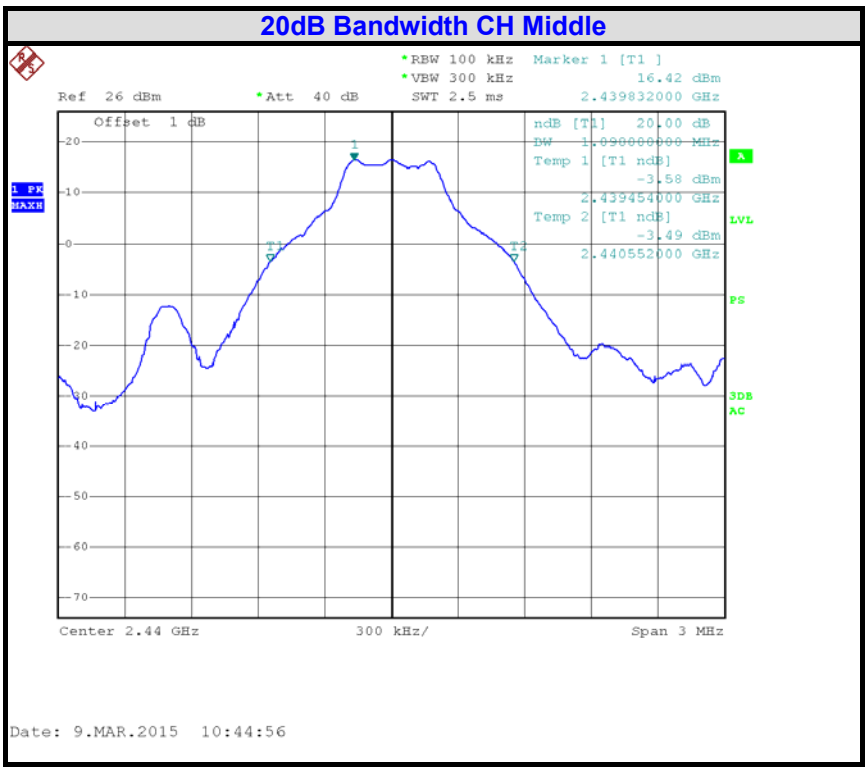
GFSK Modulation Test Plot

20dB Bandwidth CH Low



20dB Bandwidth CH Middle



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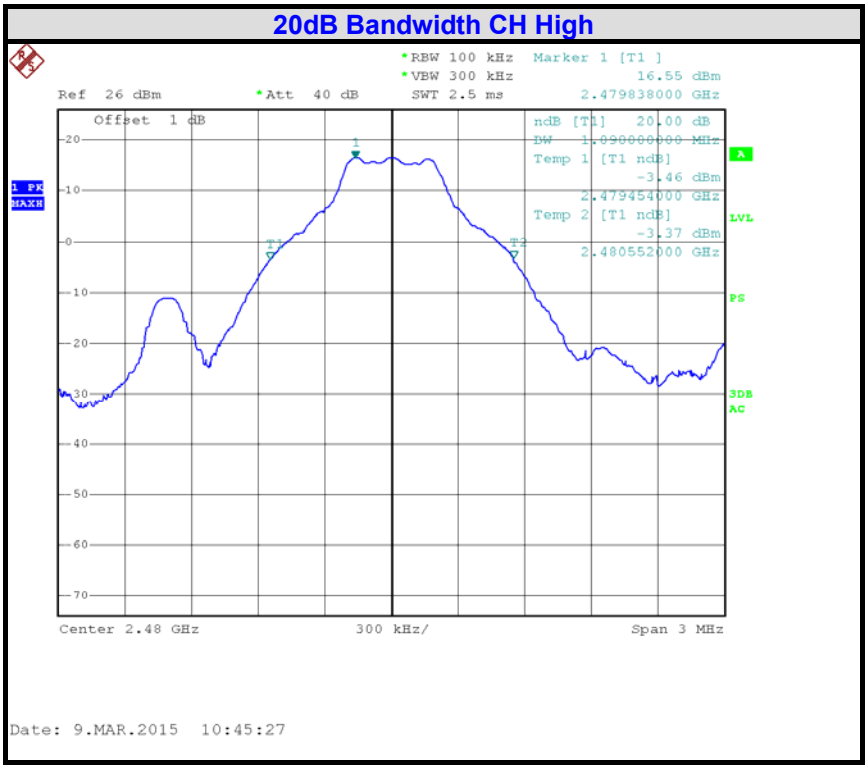
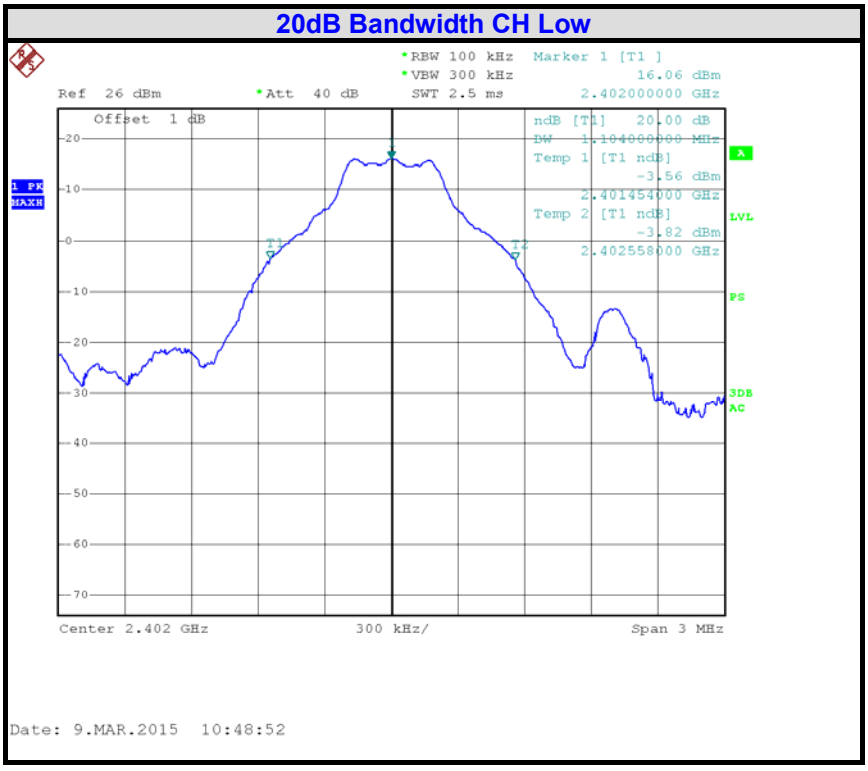


π/4-DQPSK Modulation Test Plot



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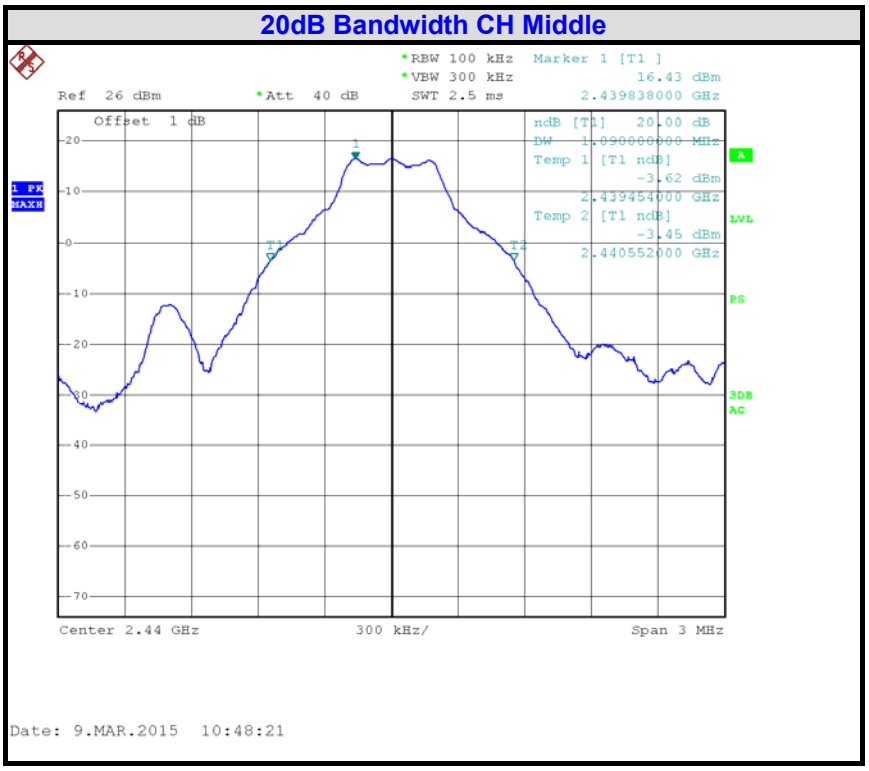
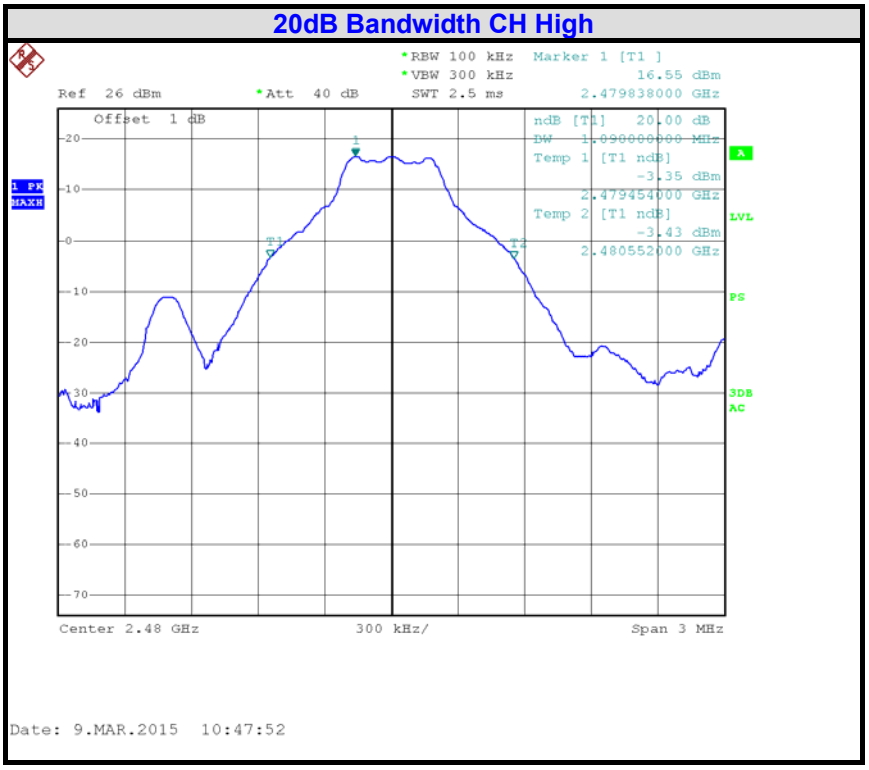
20dB Bandwidth CH Middle



20dB Bandwidth CH High



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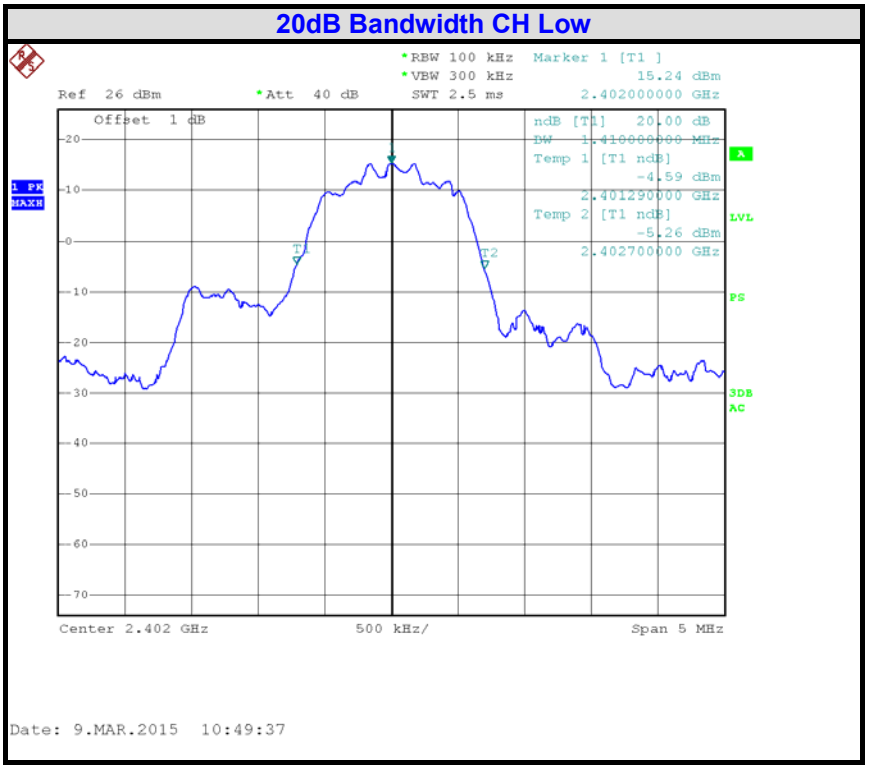
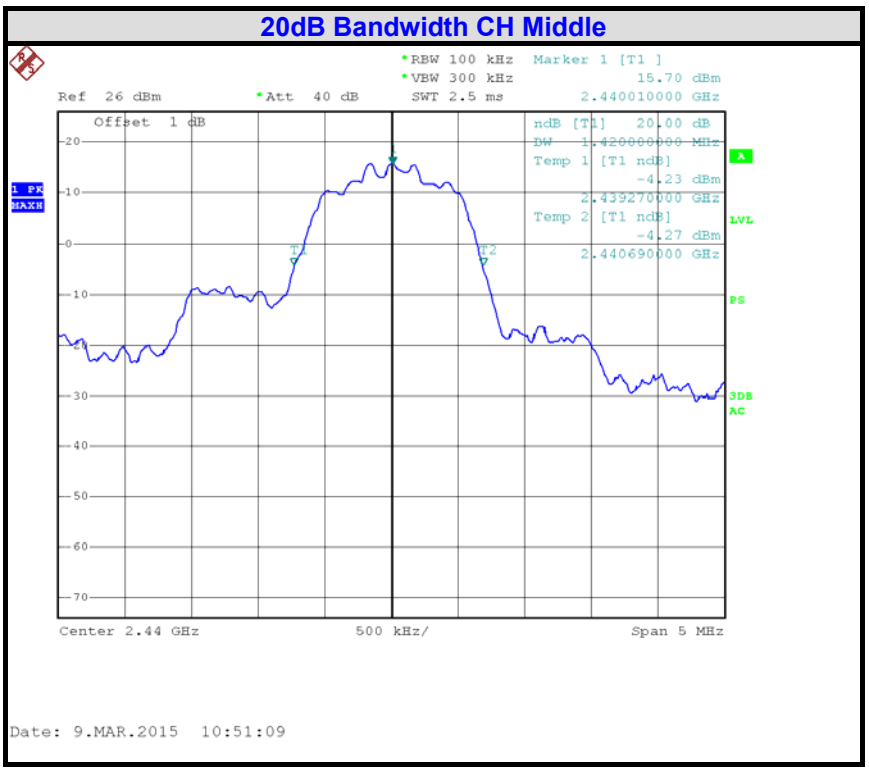
8DPSK Modulation Test Plot

20dB Bandwidth CH Low



20dB Bandwidth CH Middle



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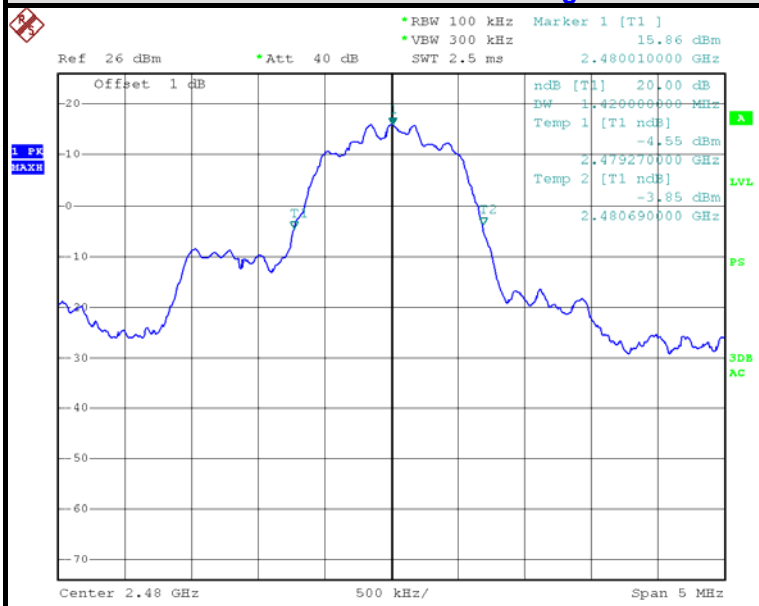
20dB Bandwidth CH High



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8.0 PEAK POWER

8.1 LIMIT

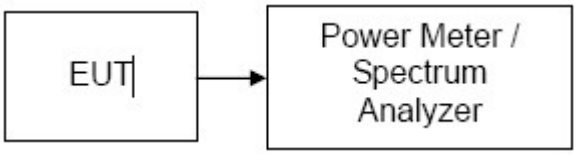
The maximum peak output power of the intentional radiator shall not exceed the following:

1. For frequency hopping systems operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels; the maximum peak conducted output power shall not exceed 0.25 W, and the e.i.r.p. shall not exceed 1 W if the hopset uses less than 50 hopping channels.
2. For frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.
3. For frequency hopping systems operating in the band 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.
4. For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.
5. Point-to-point systems in the bands 2400-2483.5 MHz and 5725-5850 MHz are permitted to have an e.i.r.p. higher than 4 W provided that the higher e.i.r.p. is achieved by employing higher gain directional antennas and not higher transmitter output powers. Point-to-multipoint systems, omnidirectional applications and multiple co-located transmitters transmitting the same information are prohibited from exceeding 4 W e.i.r.p. However, remote stations of point-to-multipoint systems shall be allowed to operate at greater than 4 W e.i.r.p. under the same conditions as for point-topoint systems.

8.2 MEASUREMENT EQUIPMENT USED

Peak Power					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03
2	Power meter	ROHDE & SCHWARZ	NRVS	842856/049	2014/03

8.3 TEST CONDIGURATION



8.4 TEST PROCEDURE

1. Set span to encompass the entire emission bandwidth of the signal.
2. Set RBW = 1 MHz.
3. Set VBW = 3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power Intervals, the trigger may be set to “free run”.
6. Mark the peak frequency and channel power function on spectrum.
7. Repeat until all the test channels are investigated.

8.5 TEST RESULTS

Passed

Test Data

Channel	Frequency (MHz)	Output Power (dBm)			Limit (dBm)	Result
		GFSK	π/4-DQPSK	8DPSK		
Low	2402	16.25	16.22	16.76	30	PASS
Middle	2440	16.60	16.60	17.07		PASS
High	2480	16.71	16.70	17.50		PASS

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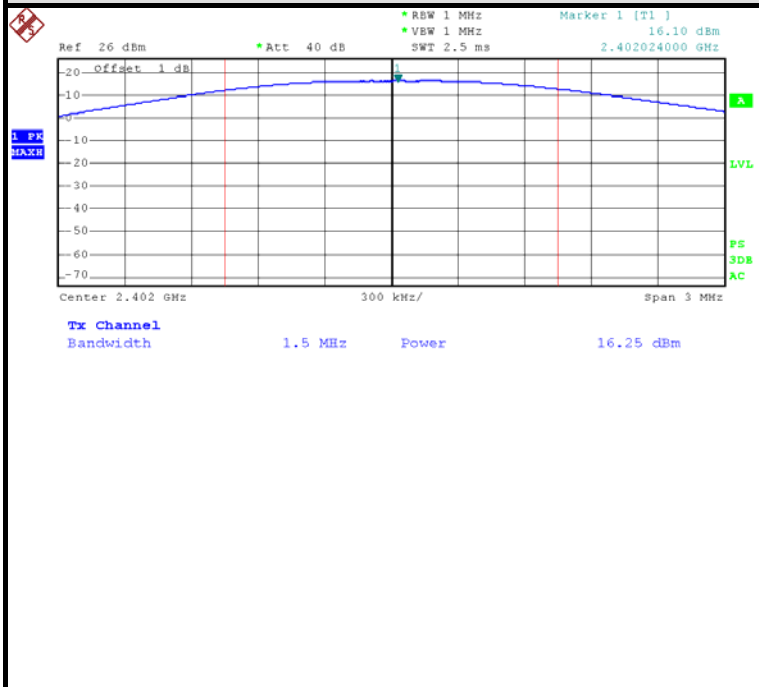
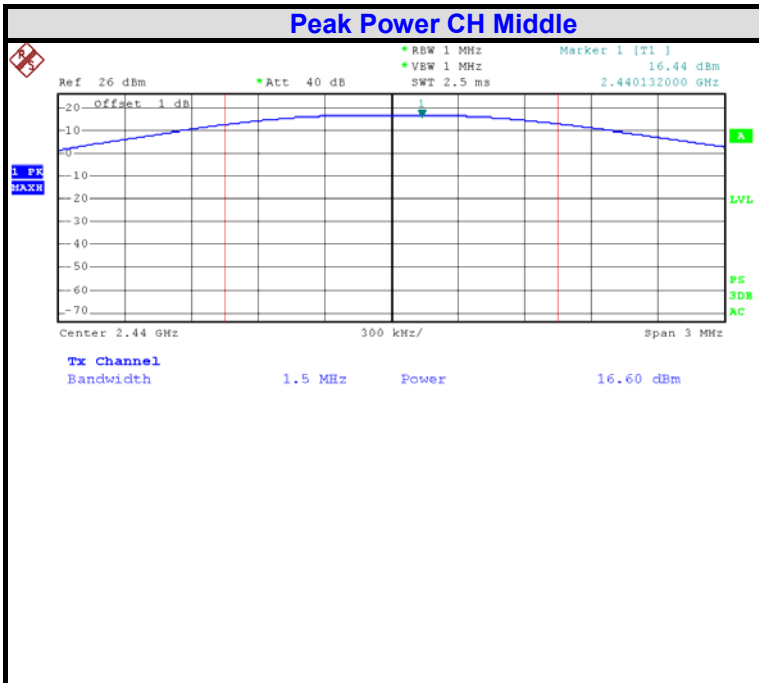
GFSK Modulation Test Plot

Peak Power CH Low



Peak Power CH Middle



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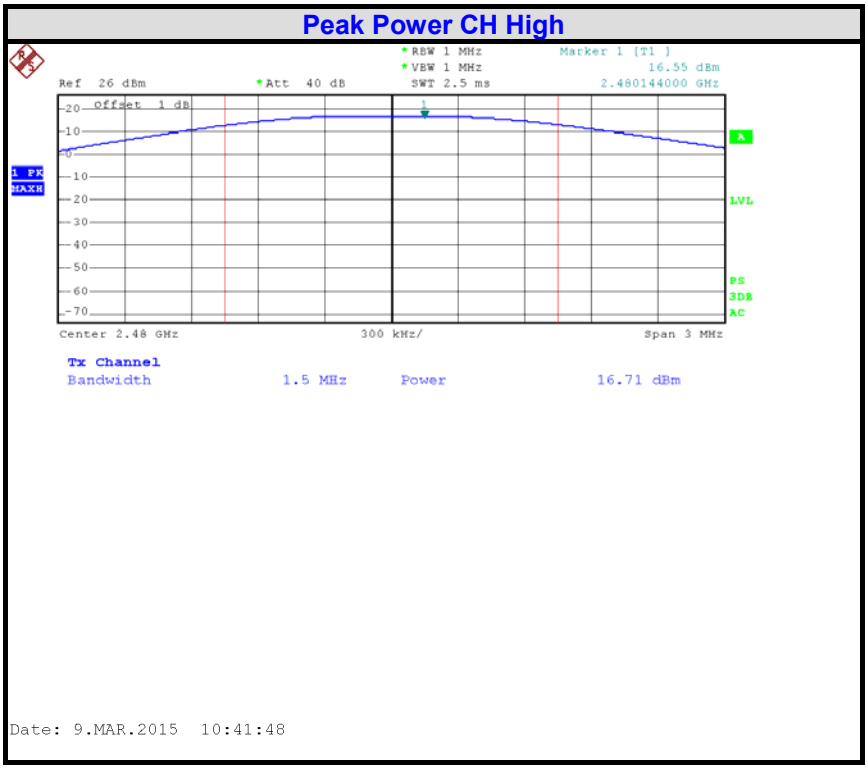
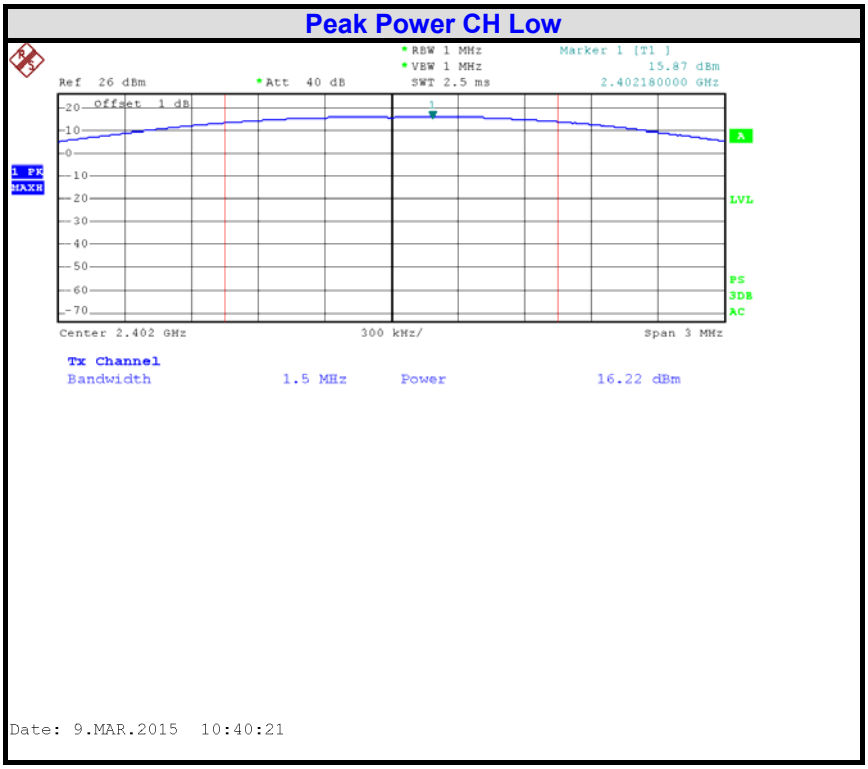


π/4-DQPSK Modulation Test Plot



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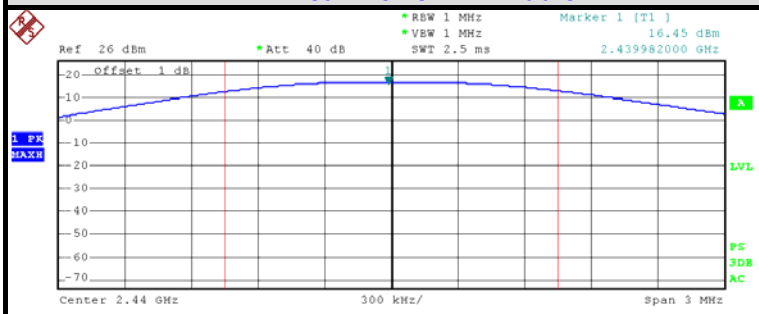
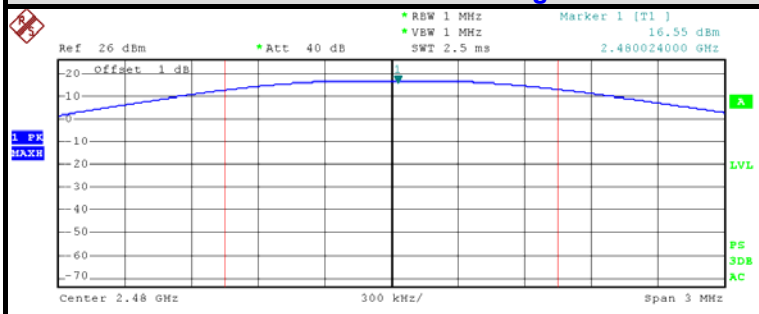
Peak Power CH Middle



Date: 9.MAR.2015 10:40:45

Peak Power CH High



Date: 9.MAR.2015 10:41:12

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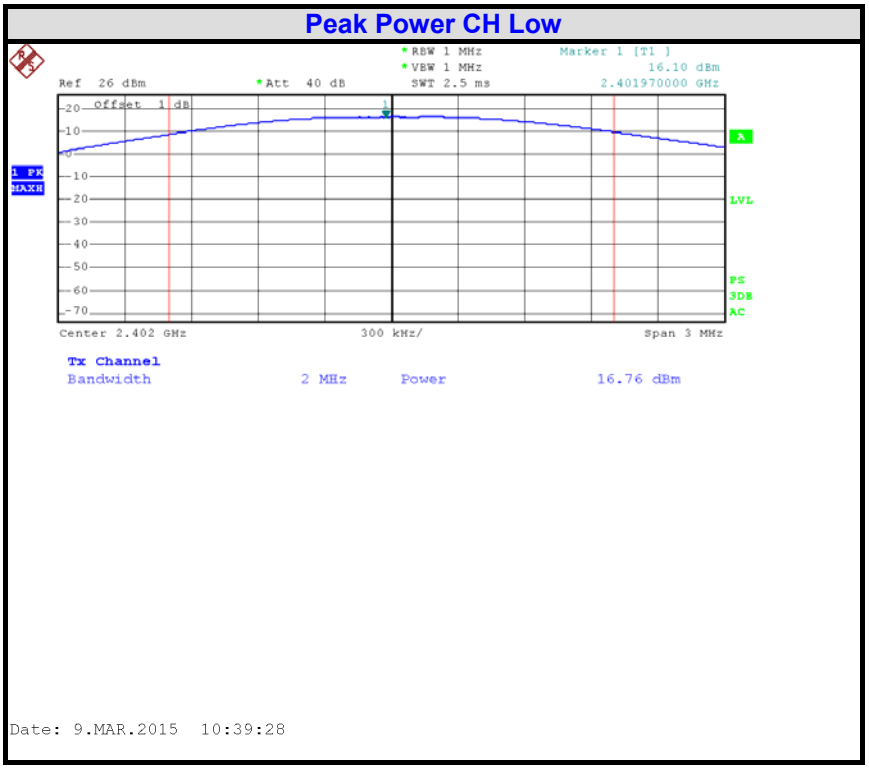
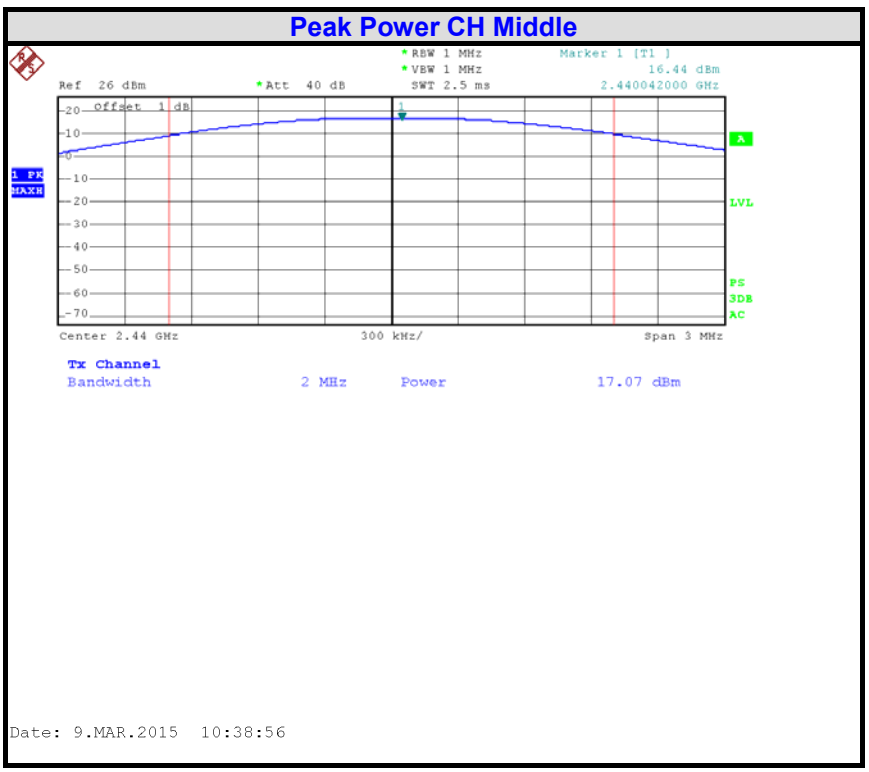
8DPSK Modulation Test Plot

Peak Power CH Low



Peak Power CH Middle



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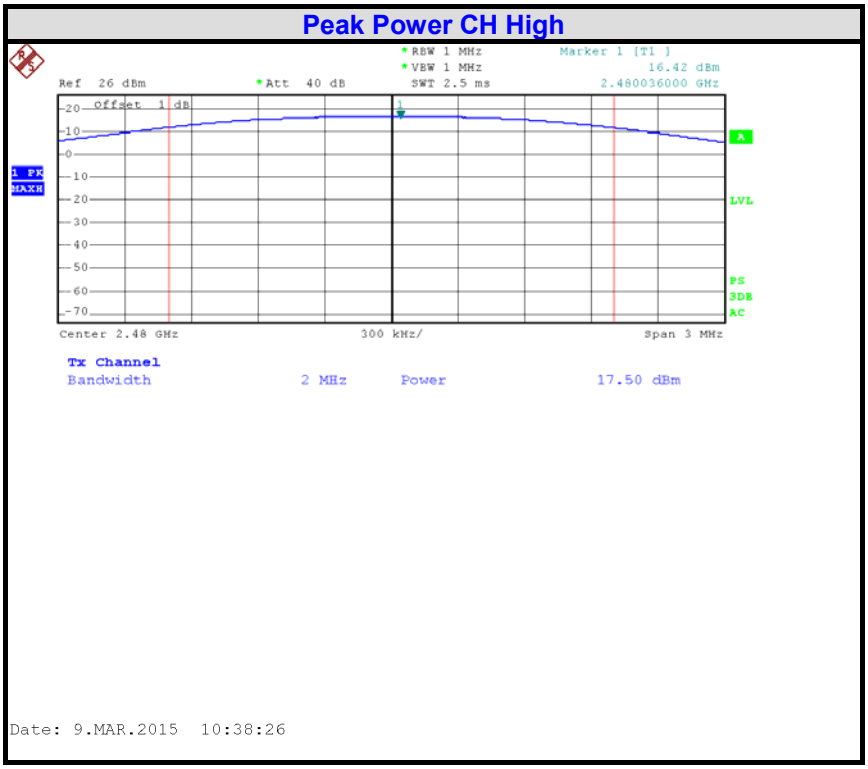
Peak Power CH High



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9.0 PEAK POWER SPECTRAL DENSITY

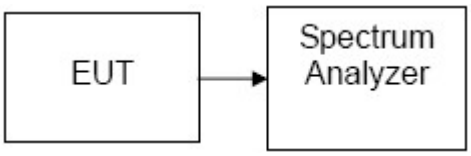
9.1 LIMIT

1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section

9.2 MEASUREMENT EQUIPMENT USED

Peak Power Spectral Density					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

9.3 TEST CONFIGURATION



9.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

9.5 TEST RESULTS

Not applicable for frequency hopping systems device.

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10.0 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

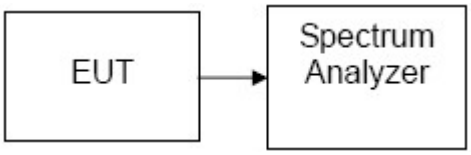
10.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

10.2 MEASUREMENT EQUIPMENT USED

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

10.3 TEST CONFIGURATION



10.4 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation
   RBW = 100KHz(1% of the span)
   VBW =3RBW
   Sweep = auto

Detector function = peak
Trace = max hold

4. Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Plot the result on the screen of spectrum analyzer.
5. Repeat above procedures until all measured frequencies were complete.

10.5 TEST RESULTS

Refer to attach spectrum analyzer data chart.

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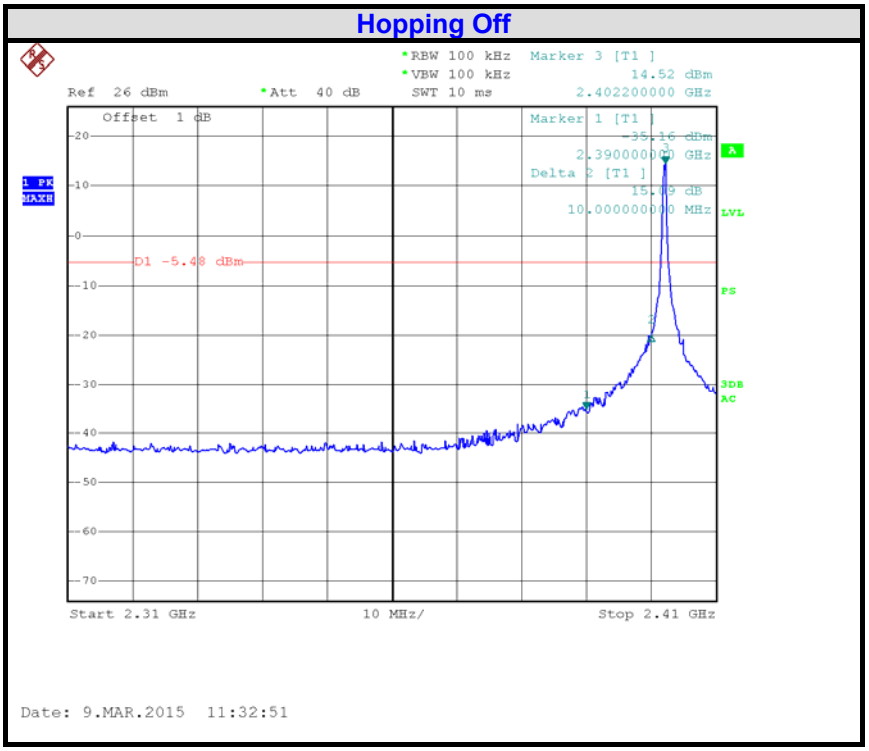
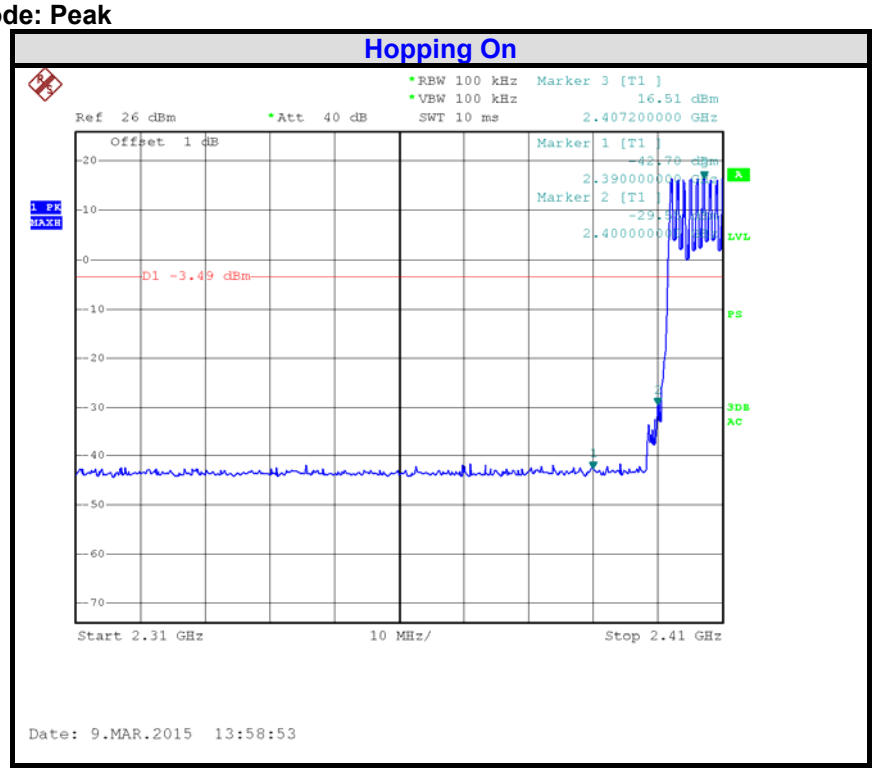
GFSK Modulation
Band Edges (CH-Low)
Detector mode: Peak

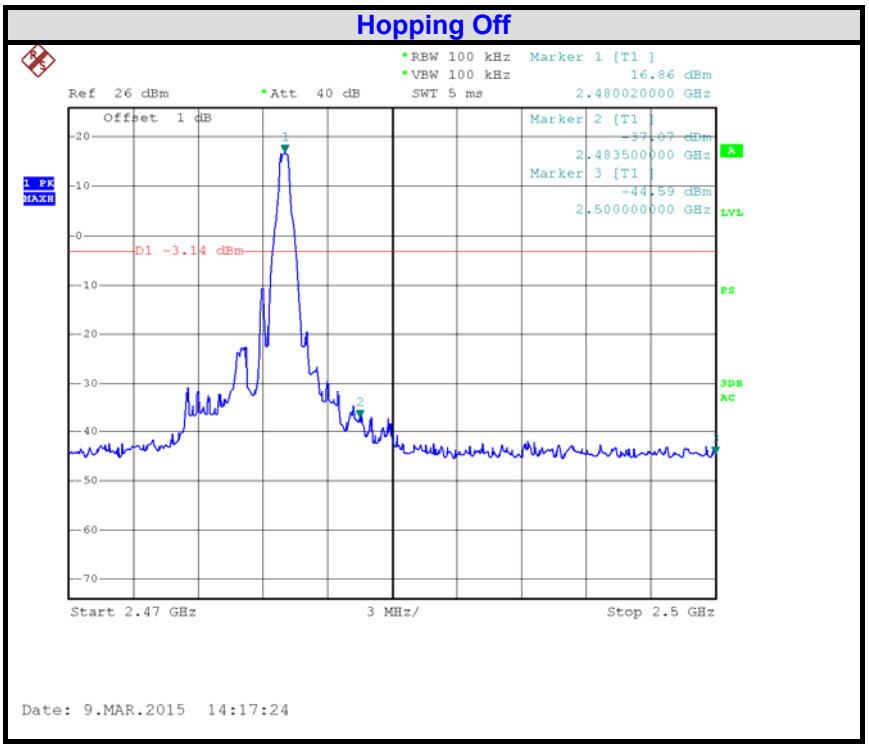


Band Edges-Hopping on (CH-Low)
Detector mode: Peak



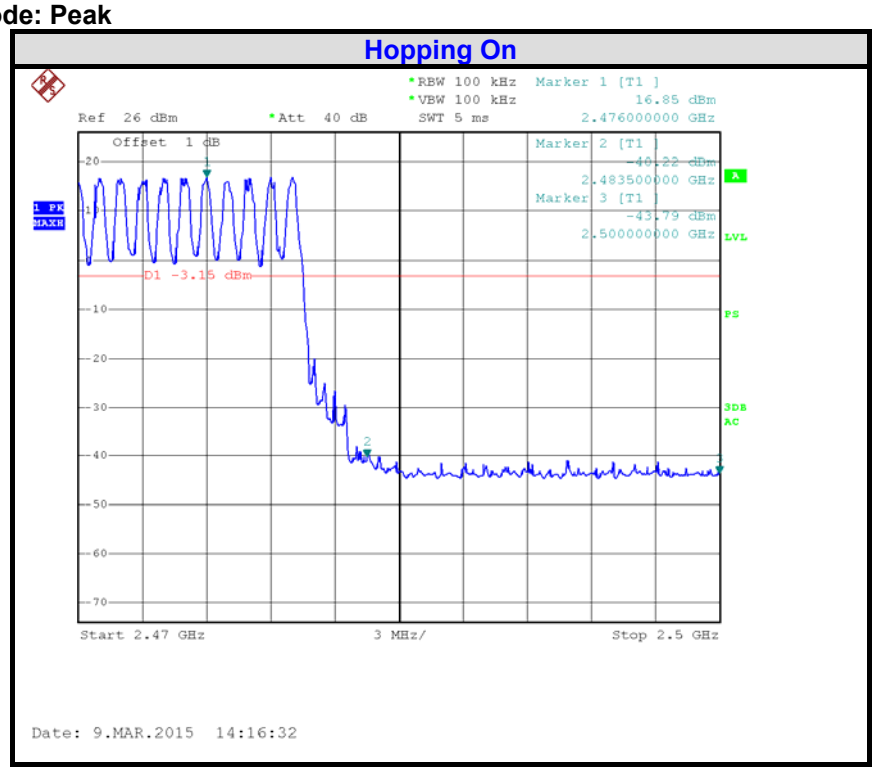
Band Edges (CH-High)

Detector mode: Peak



Band Edges (CH-High)

Detector mode: Peak



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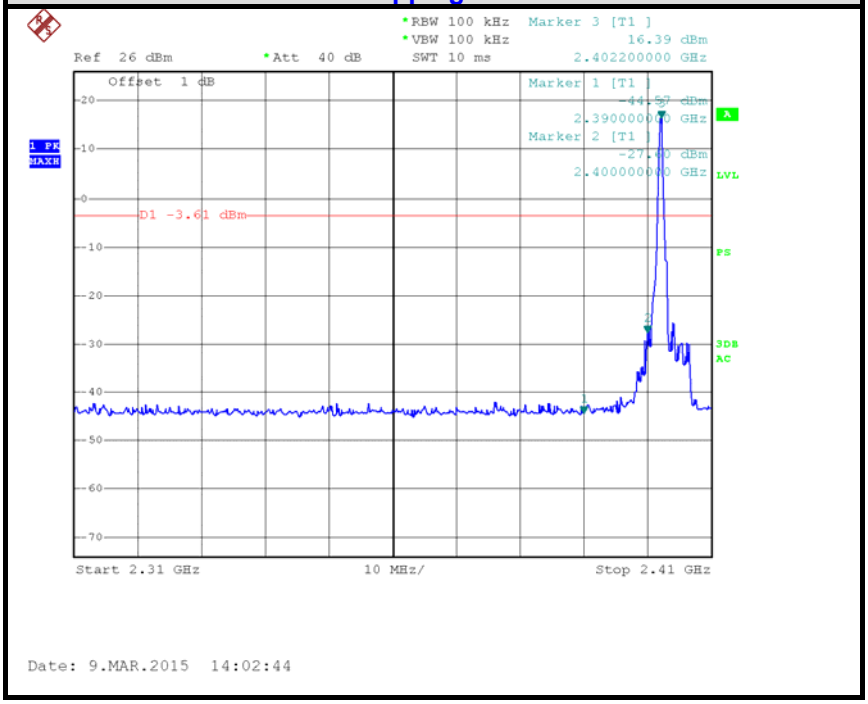
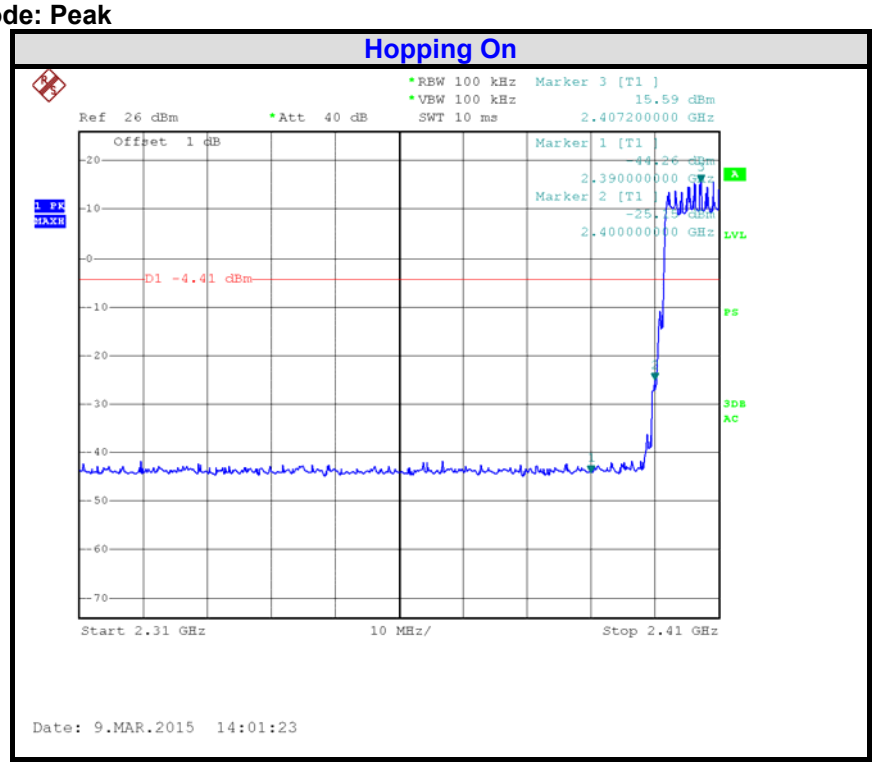
π/4-DQPSK Modulation
Band Edges (CH-Low)
Detector mode: Peak

Hopping Off



Band Edges-Hopping on (CH-Low)
Detector mode: Peak

Hopping On



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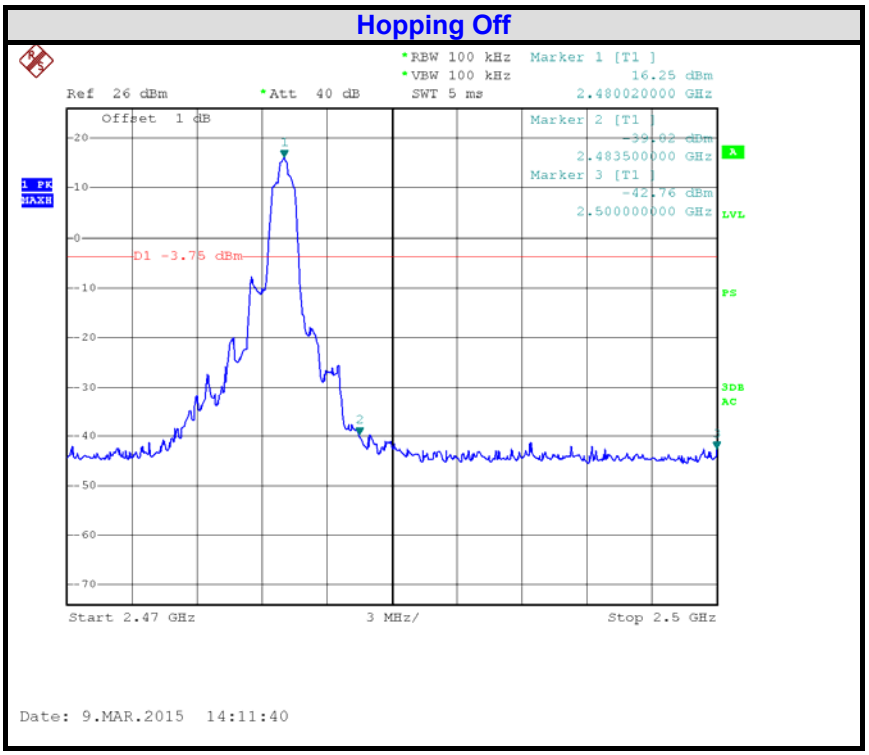
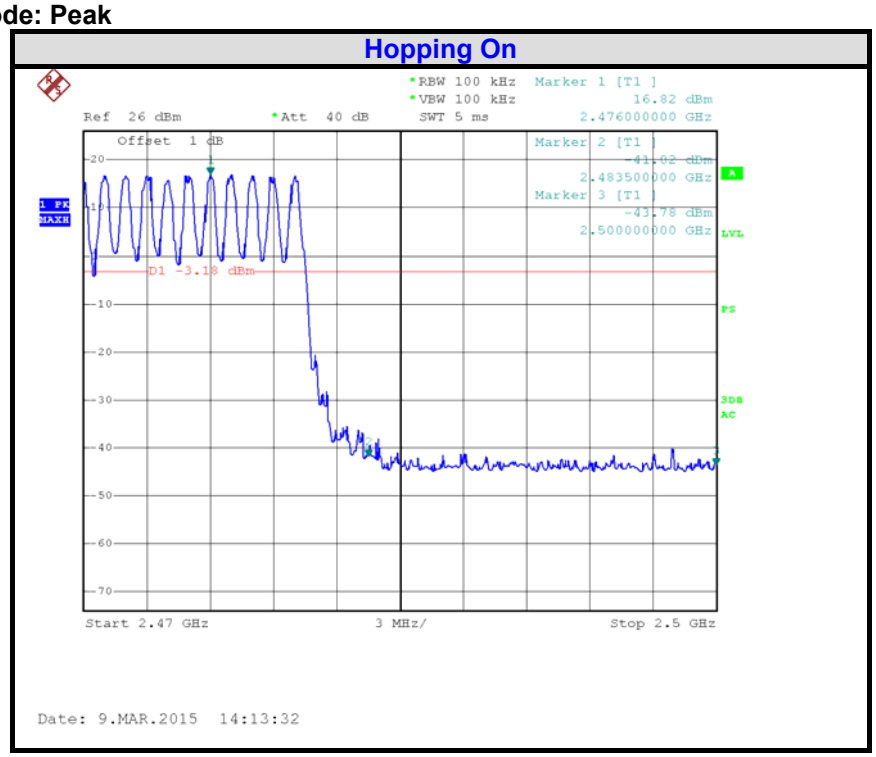
Band Edges (CH-High)

Detector mode: Peak



Band Edges (CH-High)

Detector mode: Peak



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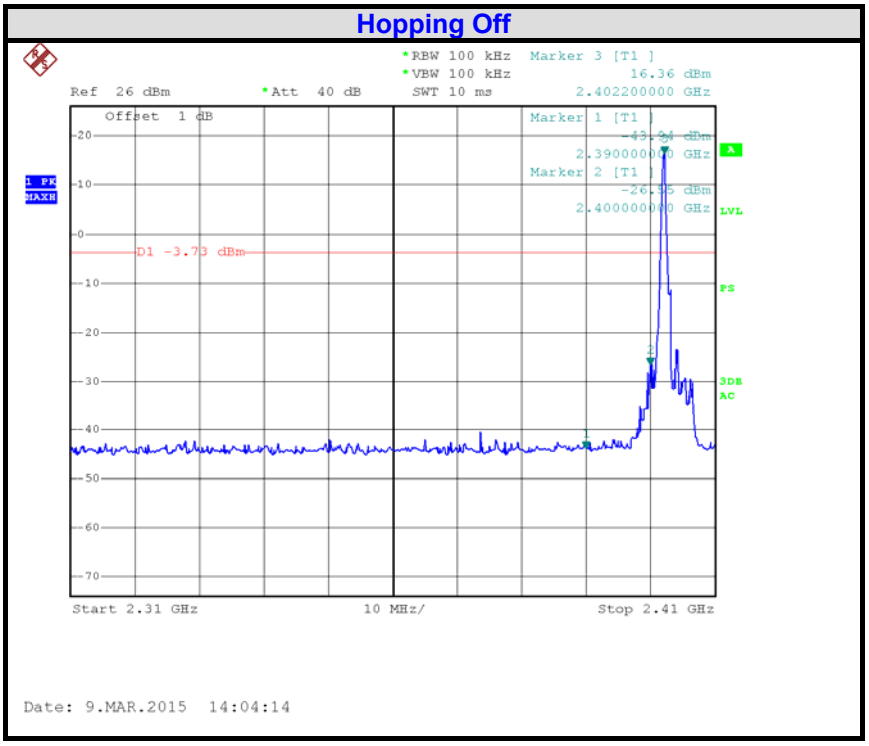
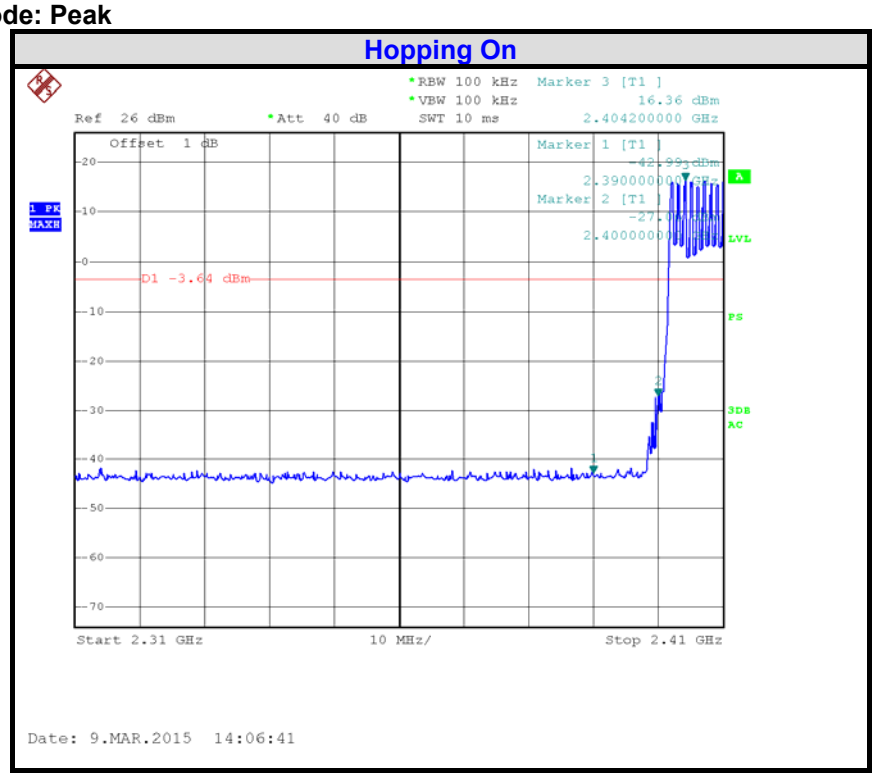
8DPSK Modulation
Band Edges (CH-Low)
Detector mode: Peak



Band Edges-Hopping on (CH-Low)
Detector mode: Peak



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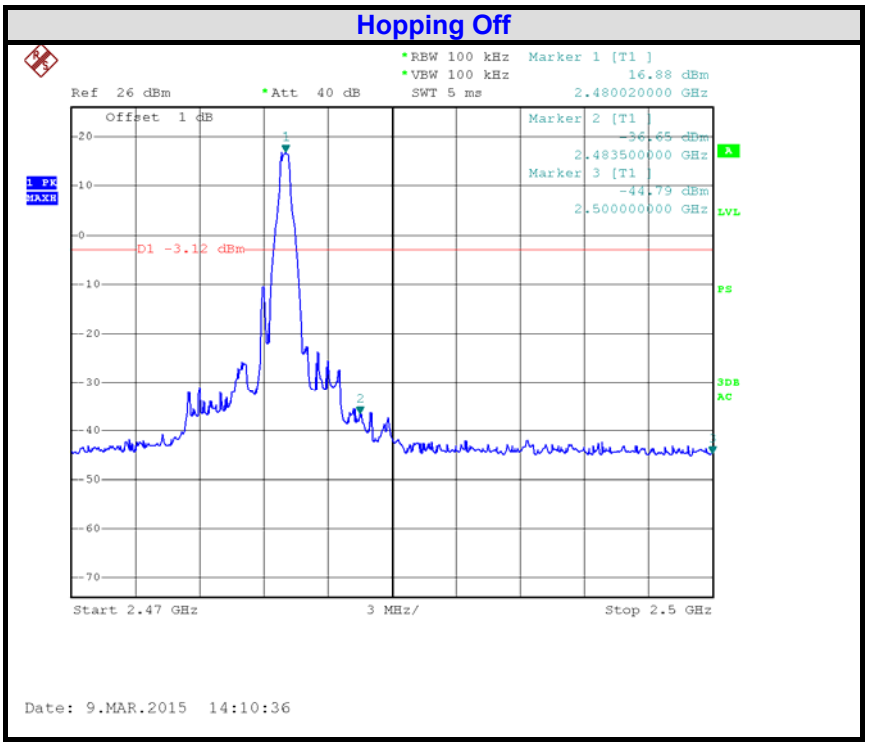
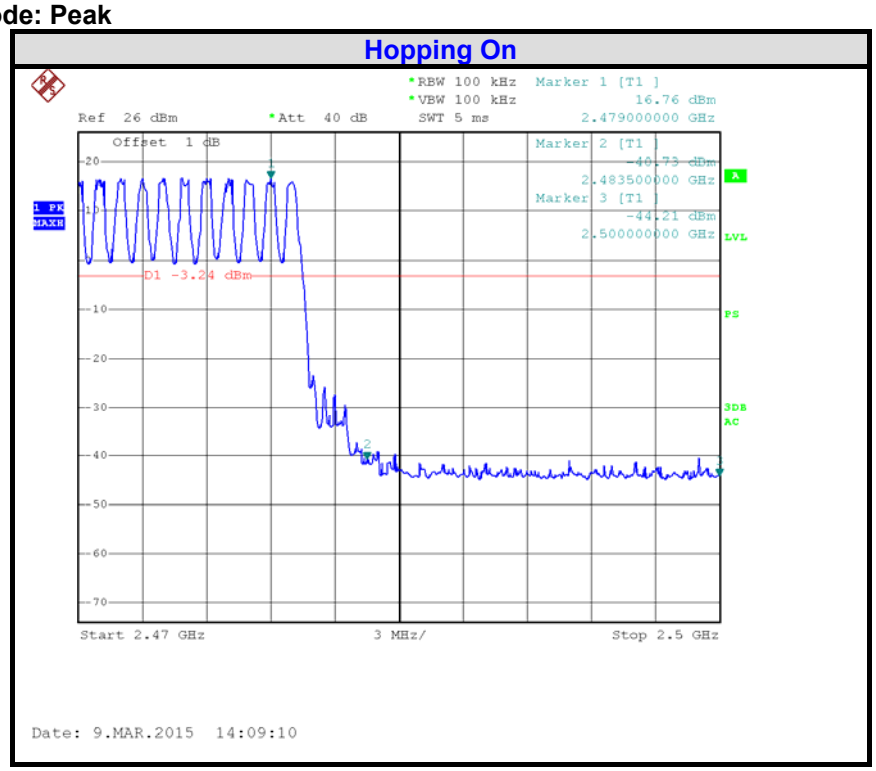
Band Edges (CH-High)

Detector mode: Peak



Band Edges (CH-High)

Detector mode: Peak



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11.0 FREQUENCY SEPARATION

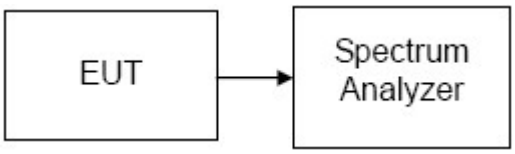
11.1 LIMIT

According to §15.247(a)(1), 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.

11.2 MEASUREMENT EQUIPMENT USED

Frequency Separation					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

11.3 TEST CONFIGURATION



11.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW=100KHz, VBW=100KHz, Adjust Span to 6MHz, Sweep = auto.
5. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

11.5 TEST RESULTS

PASSED

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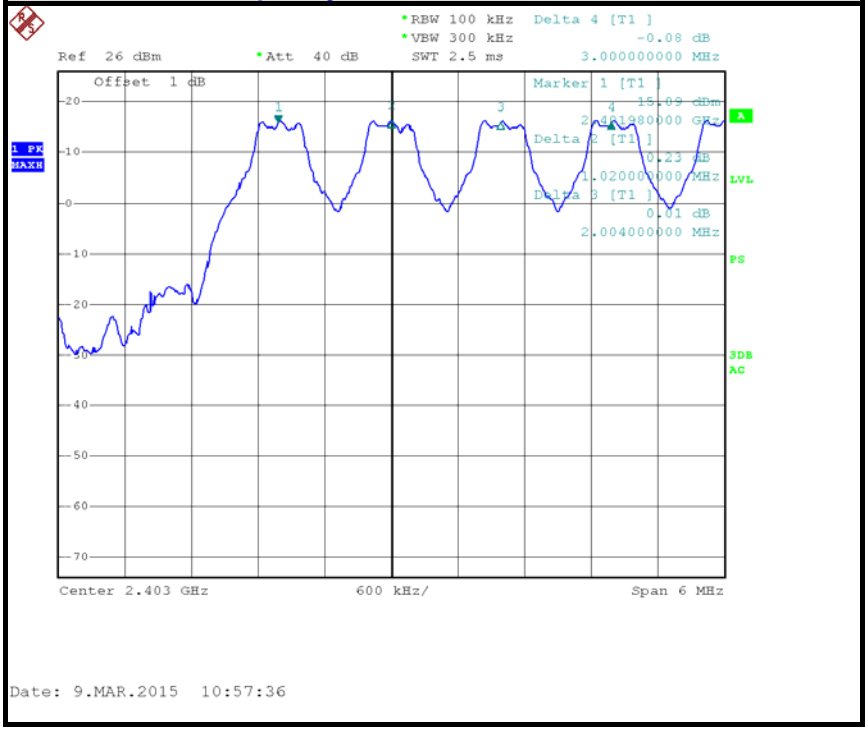
Test Data

Channel Separation (MHz)	Two-thirds of the 20dB Bandwidth (MHz)	Channel Separation Limit	Result
1MHz	0.95	> Two-thirds of the 20 dB Bandwidth	PASSED

Frequency:2400.00MHz-2406.00MHz



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12.0 NUMBER OF HOPPING FREQUENCY

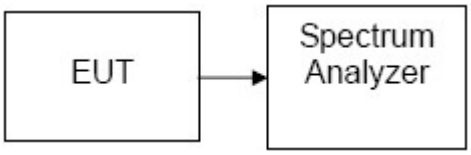
12.1 LIMIT

According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

12.2 MEASUREMENT EQUIPMENT USED

Peak Power Spectral Density					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

12.3 TEST CONFIGURATION



12.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2440 MHz, Sweep = Auto and Start=2439MHz, Stop = 2483.5MHz, Sweep = Auto.
4. Set the spectrum analyzer as RBW=100KHz, VBW=300KHz,
5. Max hold, view and count how many channel in the band.

12.5 TEST RESULTS

PASSED

12.6 TEST DATA

Result(No. of CH)	Limit	Result
79	**>15**	**Pass**

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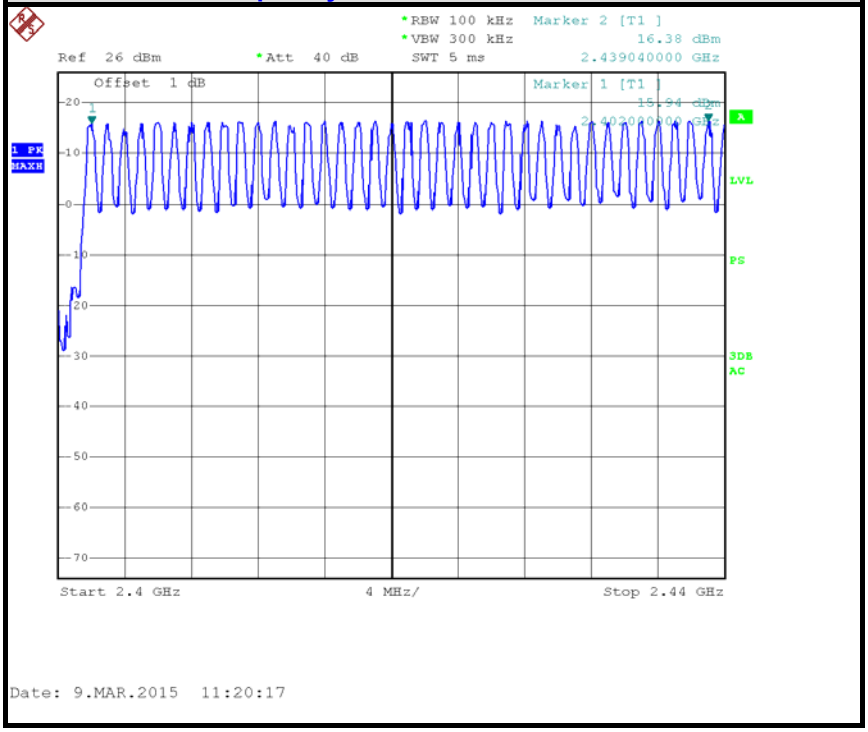
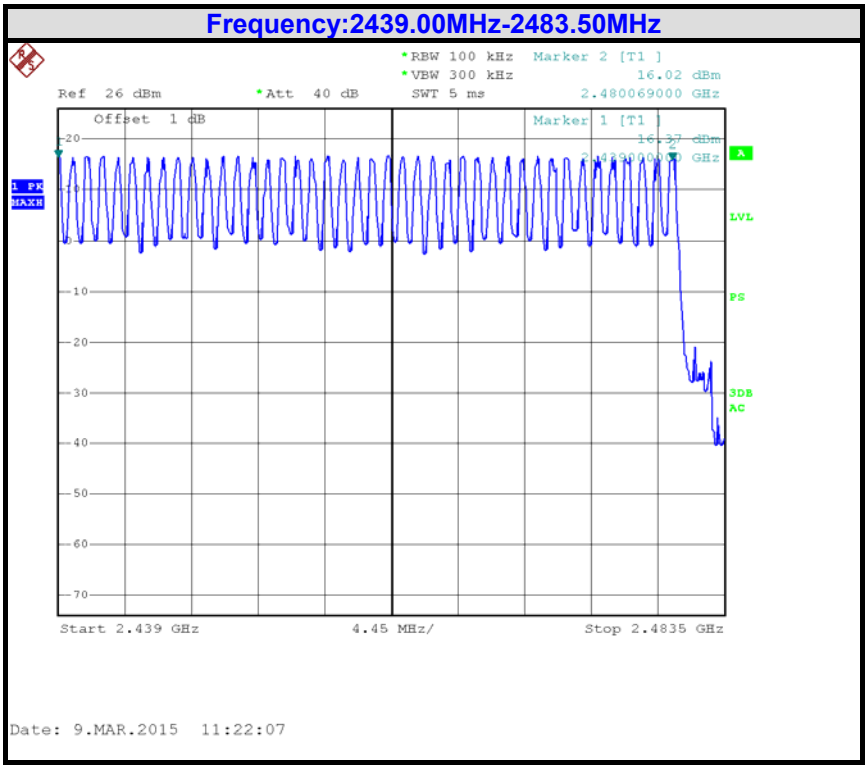
Test Plot

Frequency:2400.00MHz-2440.00MHz



Frequency:2439.00MHz-2483.50MHz



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13.0 TIME OF OCCUPANCY (DWELL TIME)

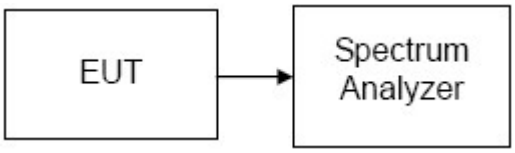
13.1 LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

13.2 MEASUREMENT EQUIPMENT USED

Frequency Separation					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

13.3 TEST CONFIGURATION



13.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

13.5 TEST RESULTS

PASSED

13.6 TEST DATA

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GFSK

DH1

CH Middle: 0.395*(1600/2)/79*31.6=126.4(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Middle	0.395	126.4	31.6	400	Pass

DH3

CH Middle: 1.660*(1600/4)/79*31.6=265.6(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Middle	1.660	265.6	31.6	400	Pass

DH5

CH Middle: 2.92*(1600/6)/79*31.6=311.47(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Middle	2.92	311.47	31.6	400	Pass

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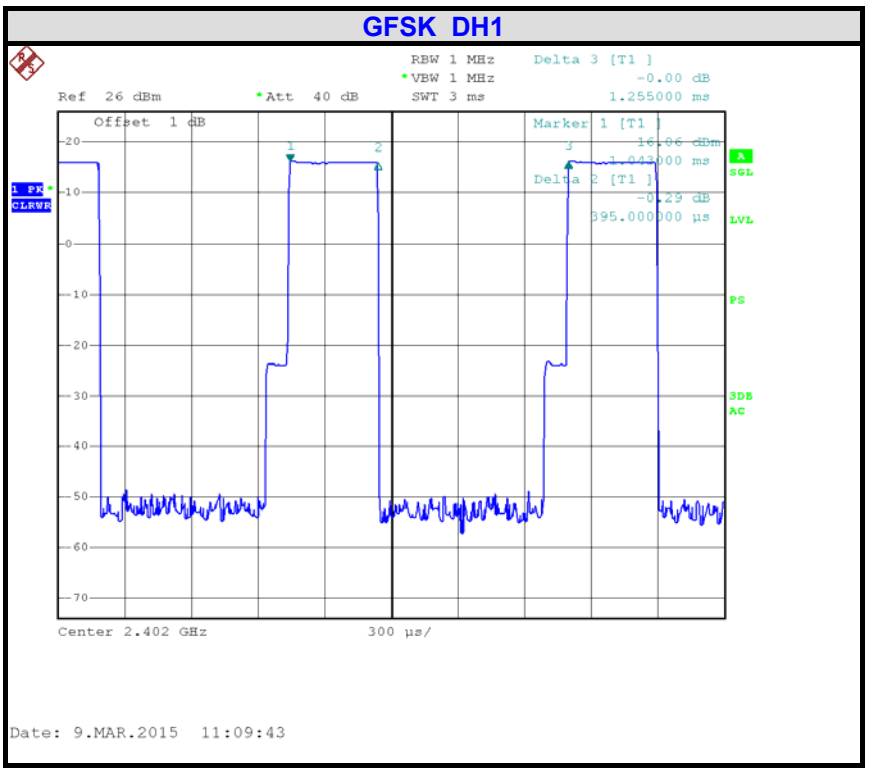
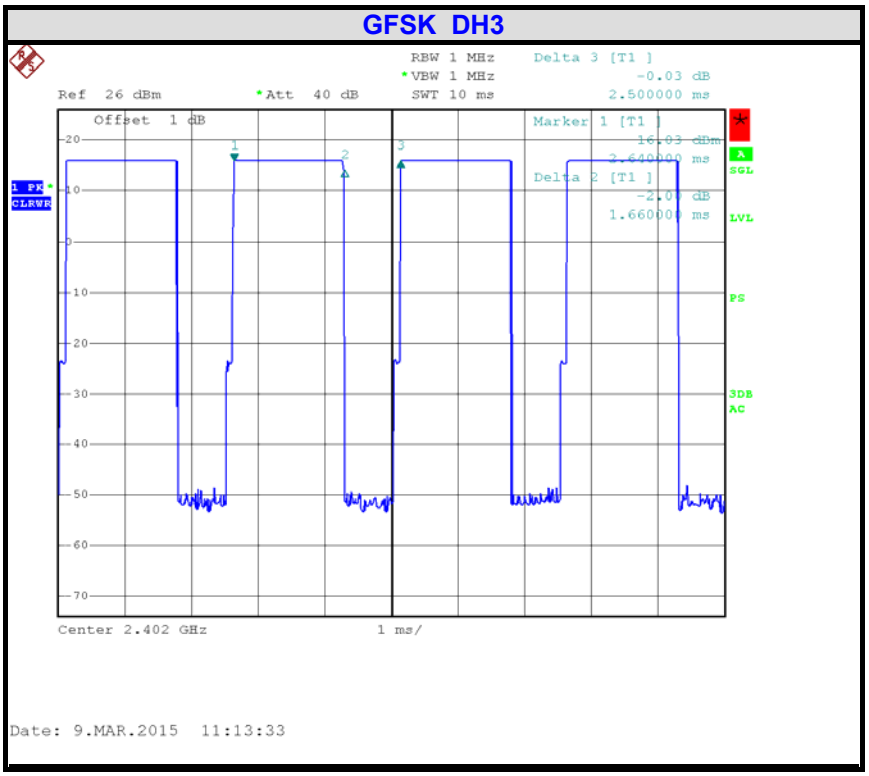
Test Plot

GFSK DH1



GFSK DH3



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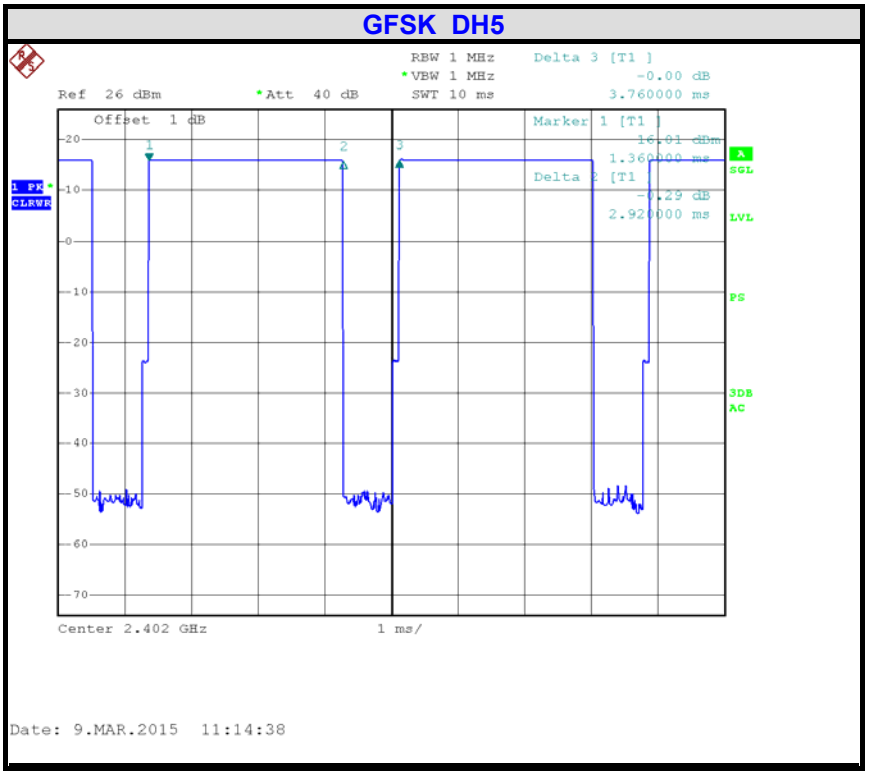
GFSK DH5



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14.0 TRANSMITTER UNWANTED EMISSIONS

14.1 LIMIT

According to §15.209.Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
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	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

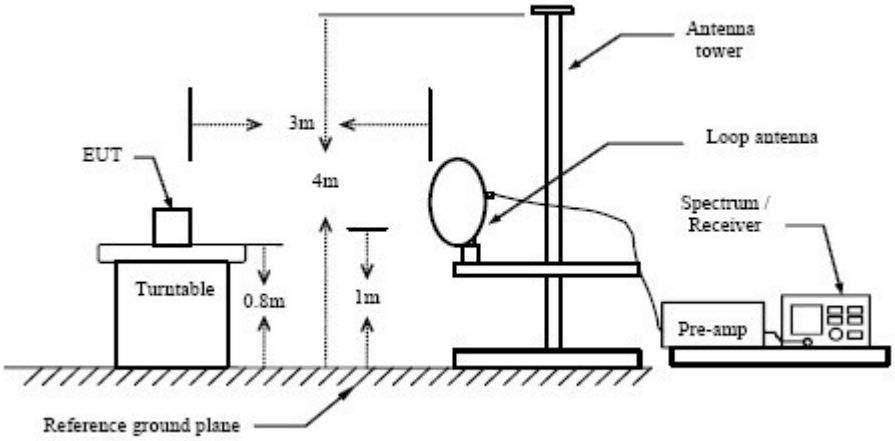
Note: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

14.2 TEST EQUIPMENT

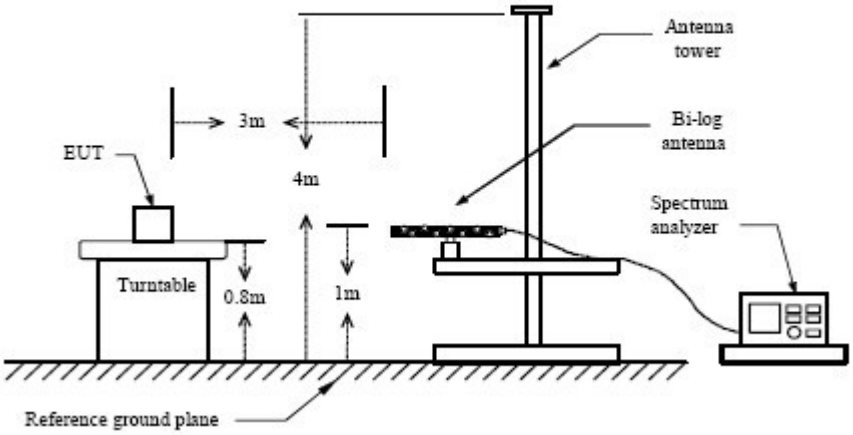
Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2014/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2014/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2014/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2014/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2014/11
7	EMI Test Software	EZ-EMC	Farad	N/A	N/A

14.3 TEST CONFIGURATION

Below 30MHz



Below 1 GHz



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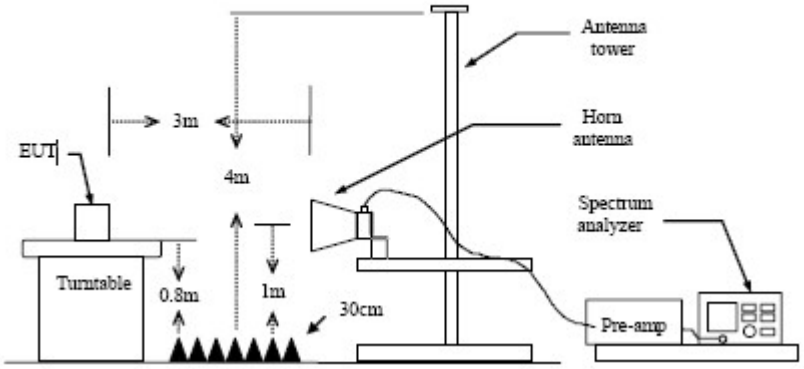
Above 1 GHz



14.4 TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

14.5 TEST RESULTS

The frequency range from 9KHz~30MHz,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

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Test Mode: Frequency range:	TX –X Position Mode 9KHz~30MHz	Result:	■ - passed □ - not passed

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
Remark: The test result reading value is to low, margin all > 10dB of the limit.							

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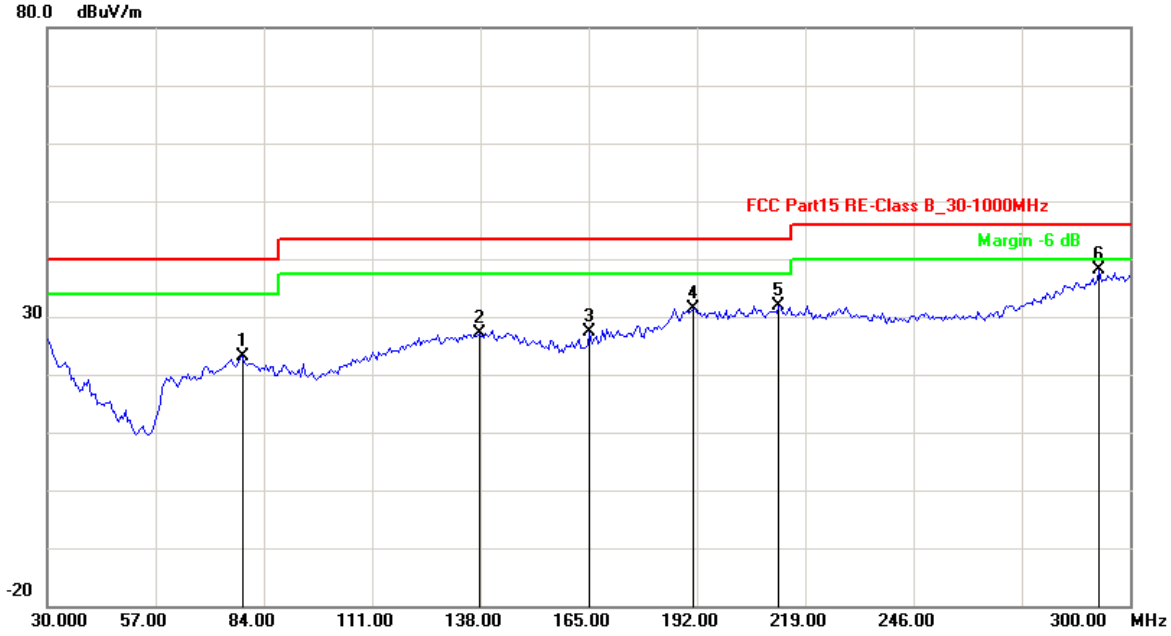
EUT	BTAUDIO
Antenna Type	External Antenna
Operating Condition	DC 3.3V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Operator	**Duke**
MODEL NO	KC-5012

Channel: Test point: Frequency range:	TX –X Position Horizontal 30MHz-1GHz	Result:	■ - passed □ - not passed



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	78.6974	-27.42	50.43	23.01	40.00	-16.99	QP
2	137.6754	-22.54	49.63	27.09	43.50	-16.41	QP
3	165.2705	-23.72	50.98	27.26	43.50	-16.24	QP
4	191.2425	-18.09	49.49	31.40	43.50	-12.10	QP
5	212.3447	-18.15	50.07	31.92	43.50	-11.58	QP
6	292.4249	-12.82	51.04	38.22	46.00	-7.78	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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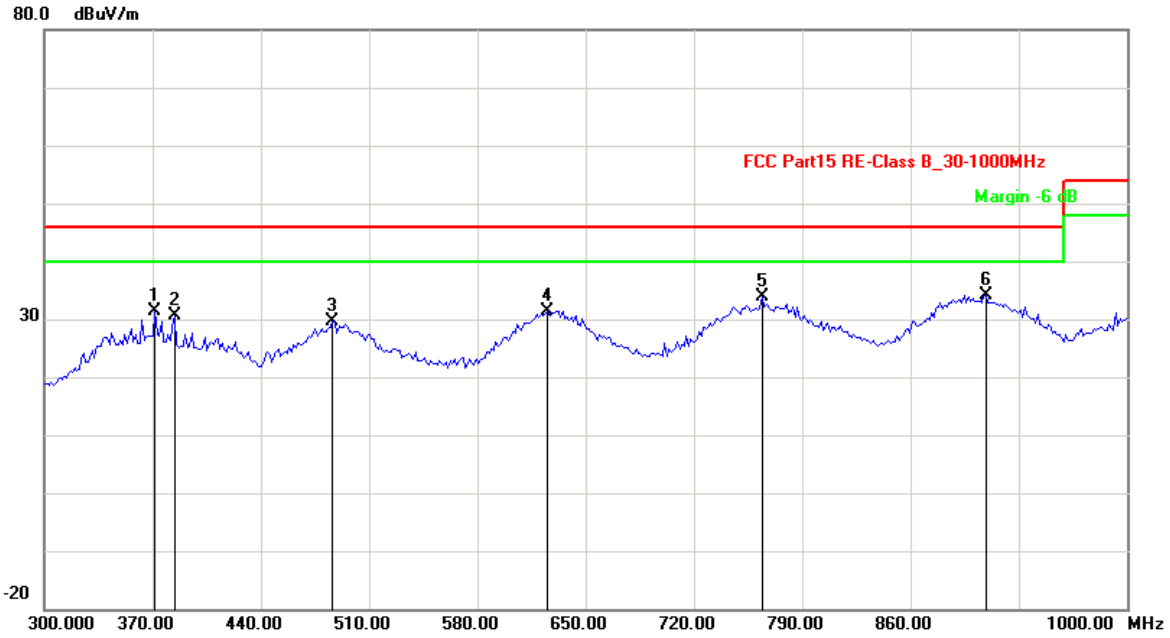

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	371.5431	-24.12	55.53	31.41	46.00	-14.59	QP
2	384.1683	-24.53	55.06	30.53	46.00	-15.47	QP
3	486.5731	-18.82	48.36	29.54	46.00	-16.46	QP
4	625.4509	-15.73	47.17	31.44	46.00	-14.56	QP
5	764.3287	-14.00	47.97	33.97	46.00	-12.03	QP
6	908.8176	-11.80	46.02	34.22	46.00	-11.78	QP
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	Low Channel	Result:	■ - passed
Test point:	Horizontal		□ - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2278.557	-6.63	44.07	37.44	74.00	-36.56	peak
2	2278.557	-6.63	29.78	23.15	54.00	-30.85	AVG
3	4637.275	2.83	45.21	48.04	74.00	-25.96	peak
4	4637.275	2.83	30.82	33.65	54.00	-20.35	AVG
5	6158.317	7.28	43.11	50.39	74.00	-23.61	peak
6	6158.317	7.28	29.46	36.74	54.00	-17.26	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Channel:	Middle Channel	Result:	■ - passed □ - not passed
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1484.970	-12.22	46.85	34.63	74.00	-39.37	peak
2	1484.970	-12.22	32.34	20.12	54.00	-33.88	AVG
3	3138.277	-1.44	44.09	42.65	74.00	-31.35	peak
4	3138.277	-1.44	29.91	28.47	54.00	-25.53	AVG
5	5629.259	5.71	43.97	49.68	74.00	-24.32	peak
6	5629.259	5.71	29.45	35.16	54.00	-18.84	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	High Channel	Result:	■ - passed □ - not passed
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1925.852	-9.66	44.41	34.75	74.00	-39.25	peak
2	1925.852	-9.66	29.81	20.15	54.00	-33.85	AVG
3	4967.936	3.60	44.31	47.91	74.00	-26.09	peak
4	4967.936	3.60	30.96	34.56	54.00	-19.44	AVG
5	5563.126	5.49	42.09	47.58	74.00	-26.42	peak
6	5563.126	5.49	27.34	32.83	54.00	-21.17	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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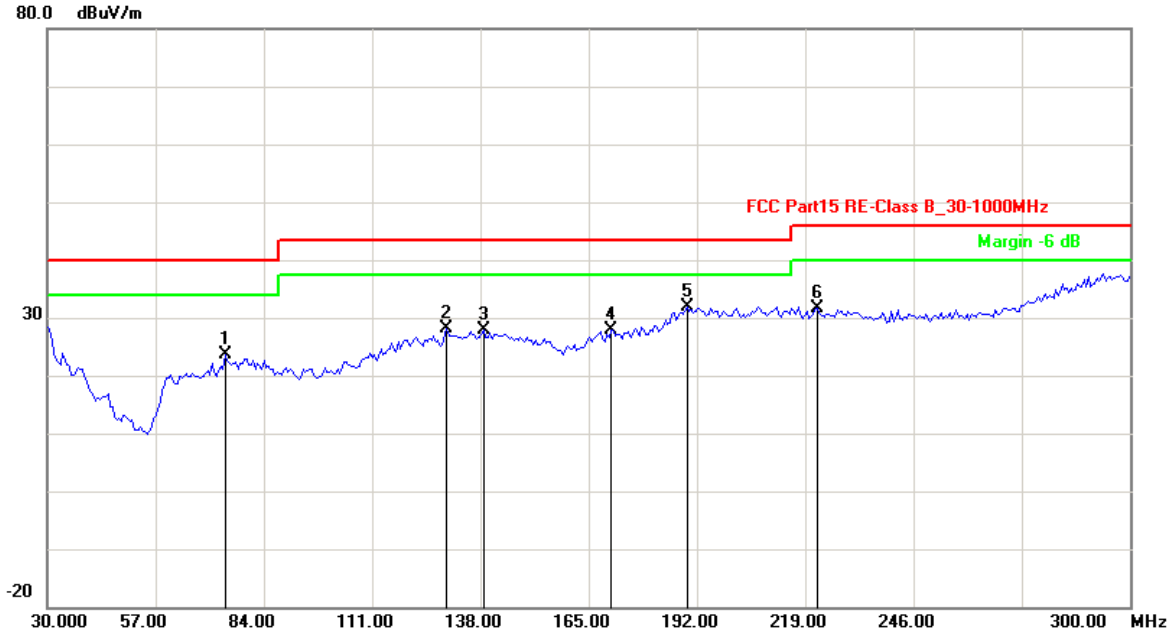
Channel:	TX –X Position	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	74.3687	-27.66	51.19	23.53	40.00	-16.47	QP
2	129.5591	-23.11	51.27	28.16	43.50	-15.34	QP
3	138.7575	-22.46	50.27	27.81	43.50	-15.69	QP
4	170.6814	-22.56	50.45	27.89	43.50	-15.61	QP
5	189.6192	-18.14	49.96	31.82	43.50	-11.68	QP
6	222.0842	-18.41	49.96	31.55	46.00	-14.45	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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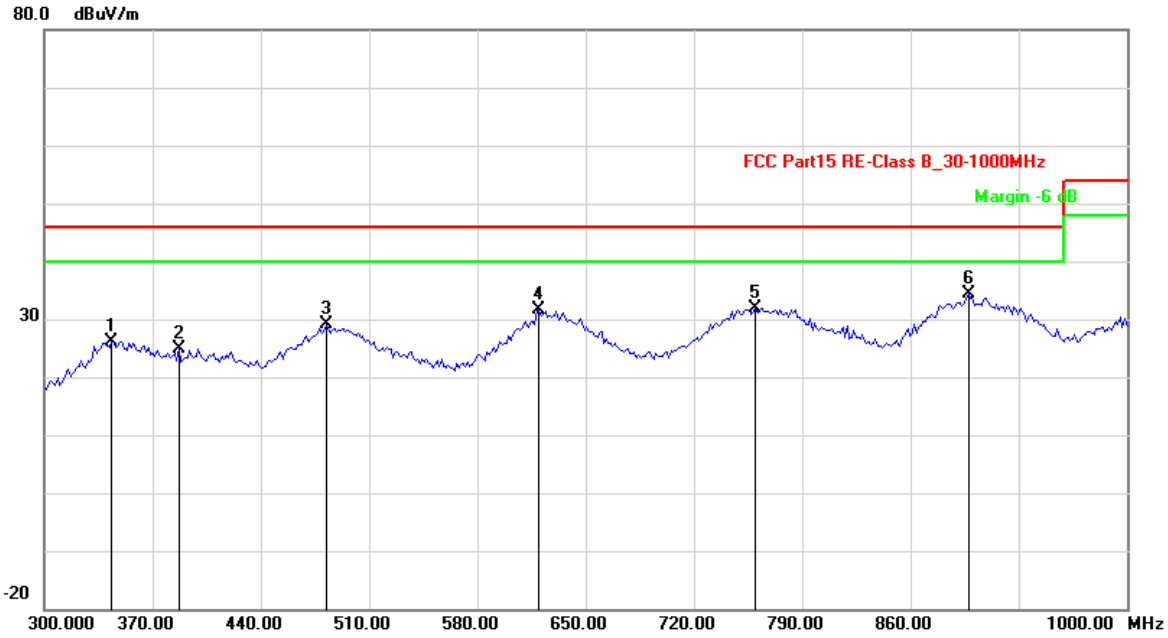

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	343.4870	-23.16	49.35	26.19	46.00	-19.81	QP
2	386.9739	-24.49	49.49	25.00	46.00	-21.00	QP
3	482.3647	-18.76	47.89	29.13	46.00	-16.87	QP
4	619.8397	-15.63	47.38	31.75	46.00	-14.25	QP
5	760.1202	-13.88	45.83	31.95	46.00	-14.05	QP
6	897.5952	-11.47	45.77	34.30	46.00	-11.70	QP
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	Low Channel	Result:	■ - passed
Test point:	Vertical		□ - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1881.764	-9.92	45.06	35.14	74.00	-38.86	peak
2	1881.764	-9.92	31.28	21.36	54.00	-32.64	AVG
3	4328.657	2.10	44.49	46.59	74.00	-27.41	peak
4	4328.657	2.10	30.47	32.57	54.00	-21.43	AVG
5	5695.391	5.92	43.73	49.65	74.00	-24.35	peak
6	5695.391	5.92	30.04	35.96	54.00	-18.04	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Channel:	Middle Channel	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2146.293	-7.87	46.74	38.87	74.00	-35.13	peak
2	2146.293	-7.87	33.13	25.26	54.00	-28.74	AVG
3	4615.230	2.78	46.06	48.84	74.00	-25.16	peak
4	4615.230	2.78	31.93	34.71	54.00	-19.29	AVG
5	6356.713	7.76	45.24	53.00	74.00	-21.00	peak
6	6356.713	7.76	30.93	38.69	54.00	-15.31	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	High Channel	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1727.455	-10.82	44.43	33.61	74.00	-40.39	peak
2	1727.455	-10.82	30.96	20.14	54.00	-33.86	AVG
3	4218.437	1.84	45.22	47.06	74.00	-26.94	peak
4	4218.437	1.84	30.75	32.59	54.00	-21.41	AVG
5	6224.449	7.44	43.49	50.93	74.00	-23.07	peak
6	6224.449	7.44	28.84	36.28	54.00	-17.72	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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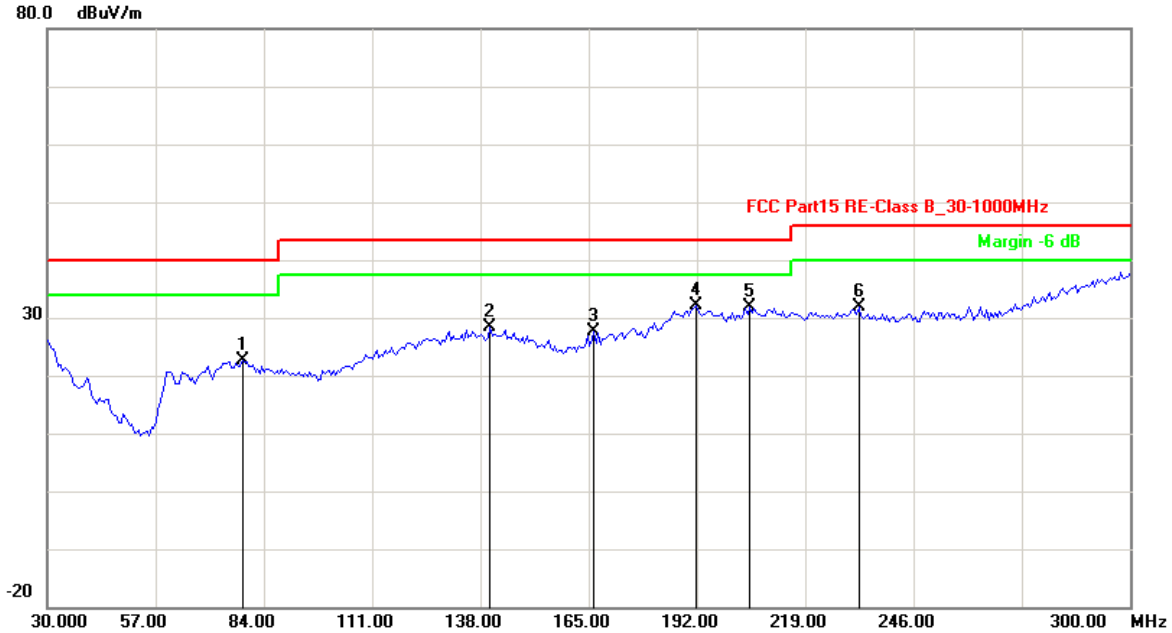
EUT	BTAUDIO
Antenna Type	PCB Antenna
Operating Condition	DC 3.3V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Operator	**Duke**
MODEL NO	KC-5012

Channel: Test point: Frequency range:	TX –X Position Horizontal 30MHz-1GHz	Result:	■ - passed □ - not passed



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	78.6974	-27.42	49.98	22.56	40.00	-17.44	QP
2	140.3808	-22.42	50.71	28.29	43.50	-15.21	QP
3	166.3527	-23.47	51.18	27.71	43.50	-15.79	QP
4	191.7836	-18.13	50.20	32.07	43.50	-11.43	QP
5	205.3106	-18.34	50.16	31.82	43.50	-11.68	QP
6	232.3647	-18.53	50.32	31.79	46.00	-14.21	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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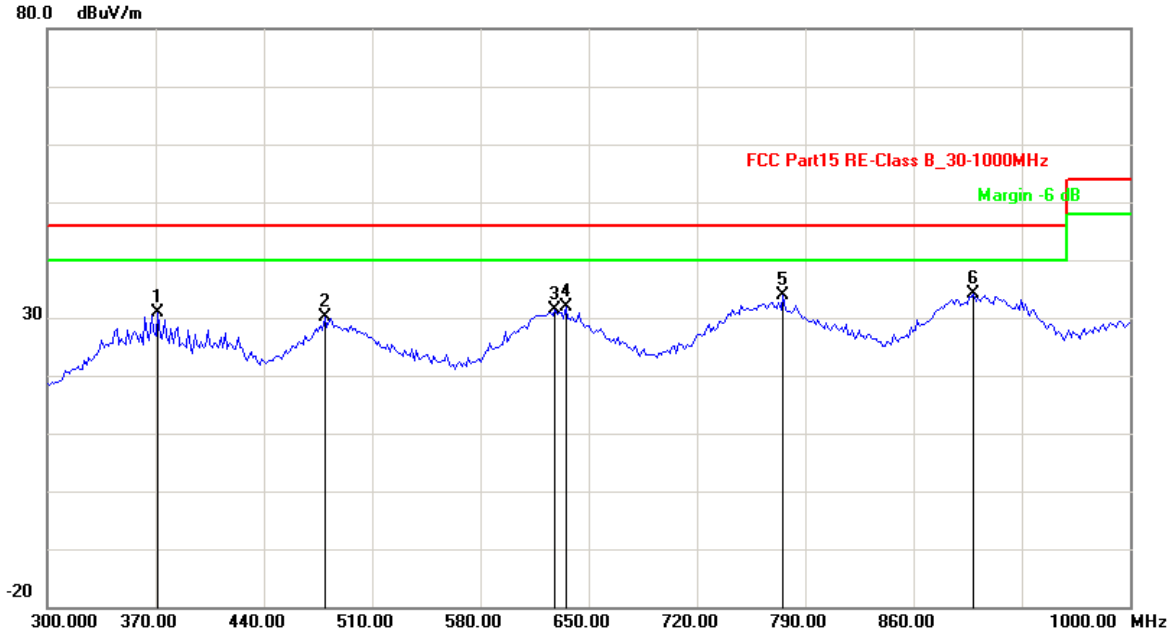

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	371.5431	-24.12	55.05	30.93	46.00	-15.07	QP
2	479.5591	-18.79	48.87	30.08	46.00	-15.92	QP
3	628.2565	-15.80	47.07	31.27	46.00	-14.73	QP
4	635.2705	-15.97	47.83	31.86	46.00	-14.14	QP
5	775.5511	-14.31	48.17	33.86	46.00	-12.14	QP
6	898.9980	-11.41	45.56	34.15	46.00	-11.85	QP
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	Low Channel	Result:	■ - passed □ - not passed
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2322.645	-6.22	47.96	41.74	74.00	-32.26	peak
2	2322.645	-6.22	32.81	26.59	54.00	-27.41	AVG
3	3865.731	0.90	48.83	49.73	74.00	-24.27	peak
4	3865.731	0.90	35.84	36.74	54.00	-17.26	AVG
5	6334.669	7.71	46.95	54.66	74.00	-19.34	peak
6	6334.669	7.71	32.47	40.18	54.00	-13.82	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Channel:	Middle Channel	Result:	■ - passed □ - not passed
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2058.116	-8.69	48.90	40.21	74.00	-33.79	peak
2	2058.116	-8.69	34.08	25.39	54.00	-28.61	AVG
3	3997.996	1.32	48.55	49.87	74.00	-24.13	peak
4	3997.996	1.32	34.36	35.68	54.00	-18.32	AVG
5	5607.214	5.64	45.69	51.33	74.00	-22.67	peak
6	5607.214	5.64	32.85	38.49	54.00	-15.51	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	High Channel	Result:	■ - passed □ - not passed
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1859.719	-10.05	47.30	37.25	74.00	-36.75	peak
2	1859.719	-10.05	33.19	23.14	54.00	-30.86	AVG
3	4637.275	2.83	47.31	50.14	74.00	-23.86	peak
4	4637.275	2.83	34.66	37.49	54.00	-16.51	AVG
5	5761.523	6.13	46.20	52.33	74.00	-21.67	peak
6	5761.523	6.13	32.32	38.45	54.00	-15.55	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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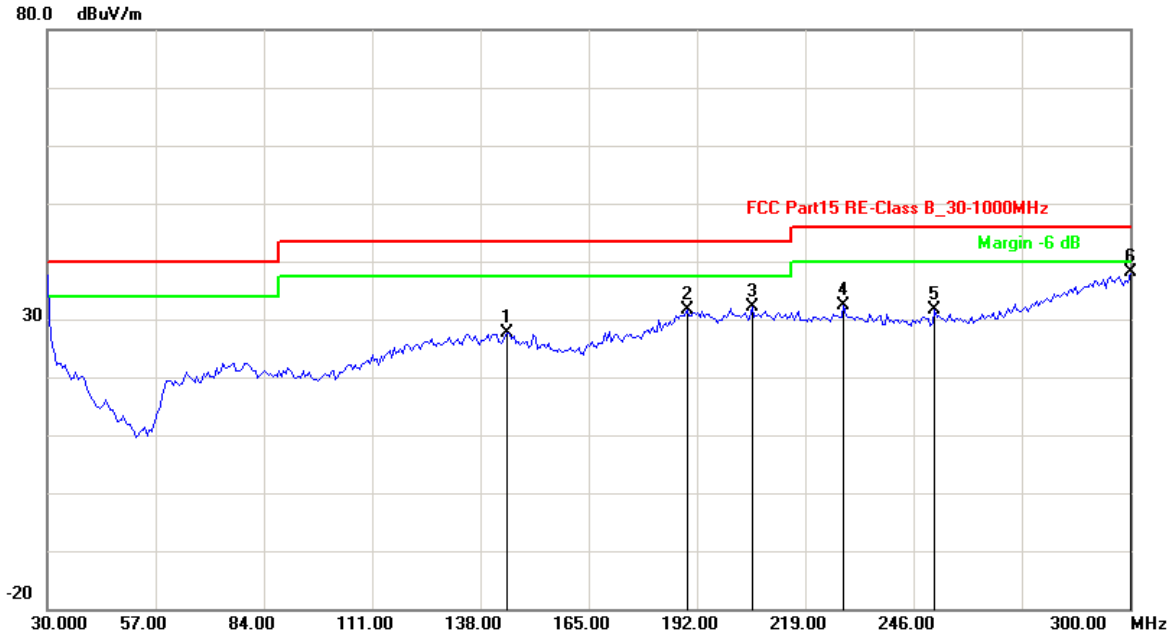
Channel:	TX –X Position	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	144.7094	-22.83	50.49	27.66	43.50	-15.84	QP
2	189.6192	-18.14	49.68	31.54	43.50	-11.96	QP
3	205.8517	-18.31	50.41	32.10	43.50	-11.40	QP
4	228.5772	-18.35	50.68	32.33	46.00	-13.67	QP
5	251.3026	-18.75	50.40	31.65	46.00	-14.35	QP
6	300.0000	-12.07	50.22	38.15	46.00	-7.85	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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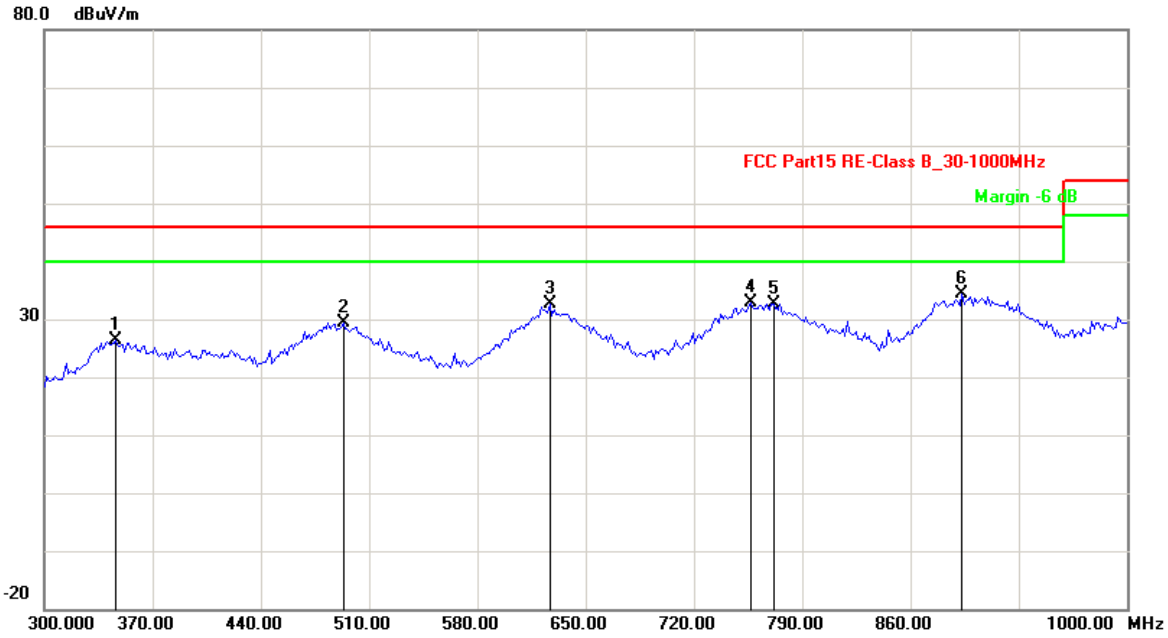

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	346.2926	-23.21	49.49	26.28	46.00	-19.72	QP
2	493.5872	-18.92	48.28	29.36	46.00	-16.64	QP
3	626.8537	-15.76	48.27	32.51	46.00	-13.49	QP
4	757.3146	-14.10	46.96	32.86	46.00	-13.14	QP
5	771.3427	-14.19	46.89	32.70	46.00	-13.30	QP
6	893.3868	-11.64	46.03	34.39	46.00	-11.61	QP
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	Low Channel	Result:	■ - passed
Test point:	Vertical		□ - not passed
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1925.852	-9.66	47.07	37.41	74.00	-36.59	peak
2	1925.852	-9.66	33.31	23.65	54.00	-30.35	AVG
3	4328.657	2.10	47.00	49.10	74.00	-24.90	peak
4	4328.657	2.10	32.48	34.58	54.00	-19.42	AVG
5	6687.375	8.56	46.23	54.79	74.00	-19.21	peak
6	6687.375	8.56	32.72	41.28	54.00	-12.72	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Channel:	Middle Channel	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1815.631	-10.31	48.13	37.82	74.00	-36.18	peak
2	1815.631	-10.31	33.45	23.14	54.00	-30.86	AVG
3	3645.291	0.19	48.85	49.04	74.00	-24.96	peak
4	3645.291	0.19	34.40	34.59	54.00	-19.41	AVG
5	5342.685	4.78	46.62	51.40	74.00	-22.60	peak
6	5342.685	4.78	31.96	36.74	54.00	-17.26	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Channel:	High Channel	Result:	■ - passed □ - not passed
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2234.469	-7.04	47.88	40.84	74.00	-33.16	peak
2	2234.469	-7.04	34.45	27.41	54.00	-26.59	AVG
3	5695.391	5.92	46.60	52.52	74.00	-21.48	peak
4	5695.391	5.92	32.83	38.75	54.00	-15.25	AVG
5	6621.242	8.40	46.94	55.34	74.00	-18.66	peak
6	6621.242	8.40	31.86	40.26	54.00	-13.74	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Note:Level=Reading+Factor. Margin=Level-Limit.

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15.0 CONDUCTED SPURIOUS EMISSIONS

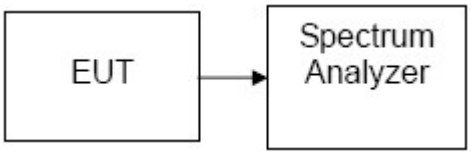
15.1 LIMIT

According to FCC Part 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

15.2 TEST EQUIPMENT

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03

15.3 TEST CONFIGURATION



15.4 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
   RBW = 100 kHz
   VBW = RBW
   Sweep = auto
   Detector function = peak

Trace = max hold.

4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. Plot the result on the screen of spectrum analyzer.
5. Repeat above procedures until all measured frequencies were complete.

15.5 TEST RESULTS

Low Channel:

30MHz to 26.6 GHz frequency band: All emissions are attenuated more than 20dB from the carrier.

Middle Channel:

30MHz to 26.6 GHz frequency band: All emissions are attenuated more than 20dB from the carrier.

High Channel:

30MHz to 26.6 GHz frequency band: All emissions are attenuated more than 20dB from the carrier.

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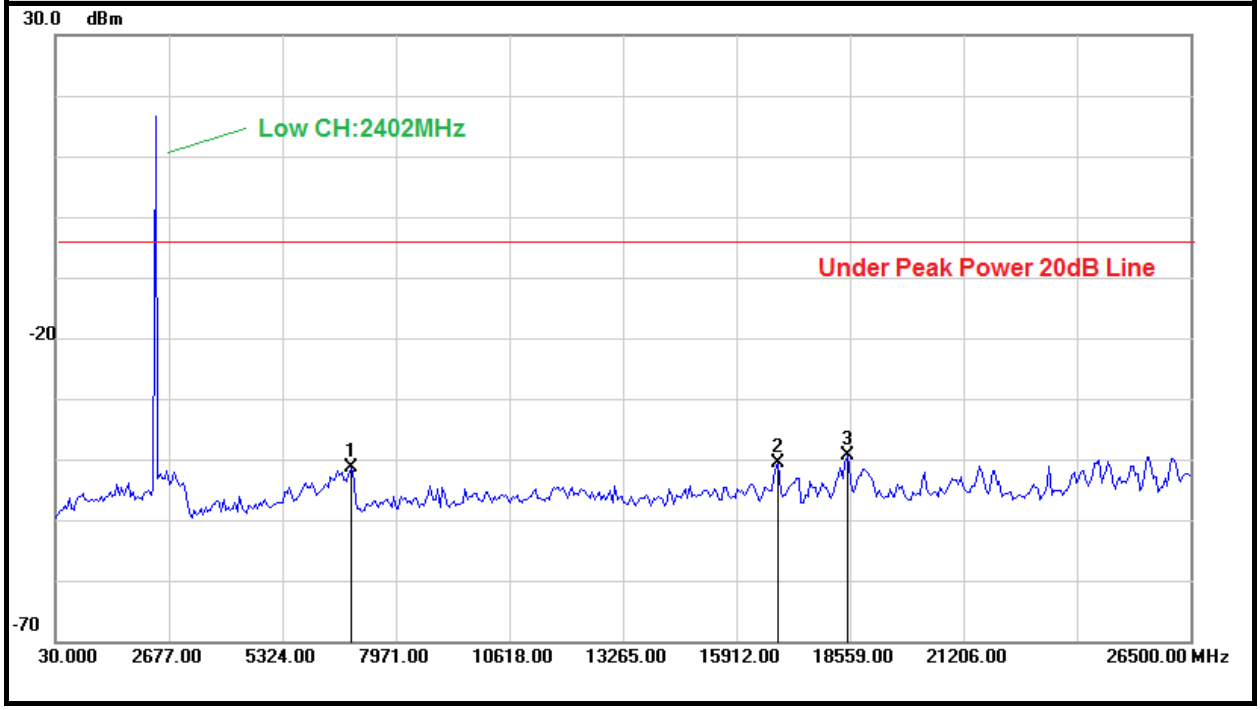
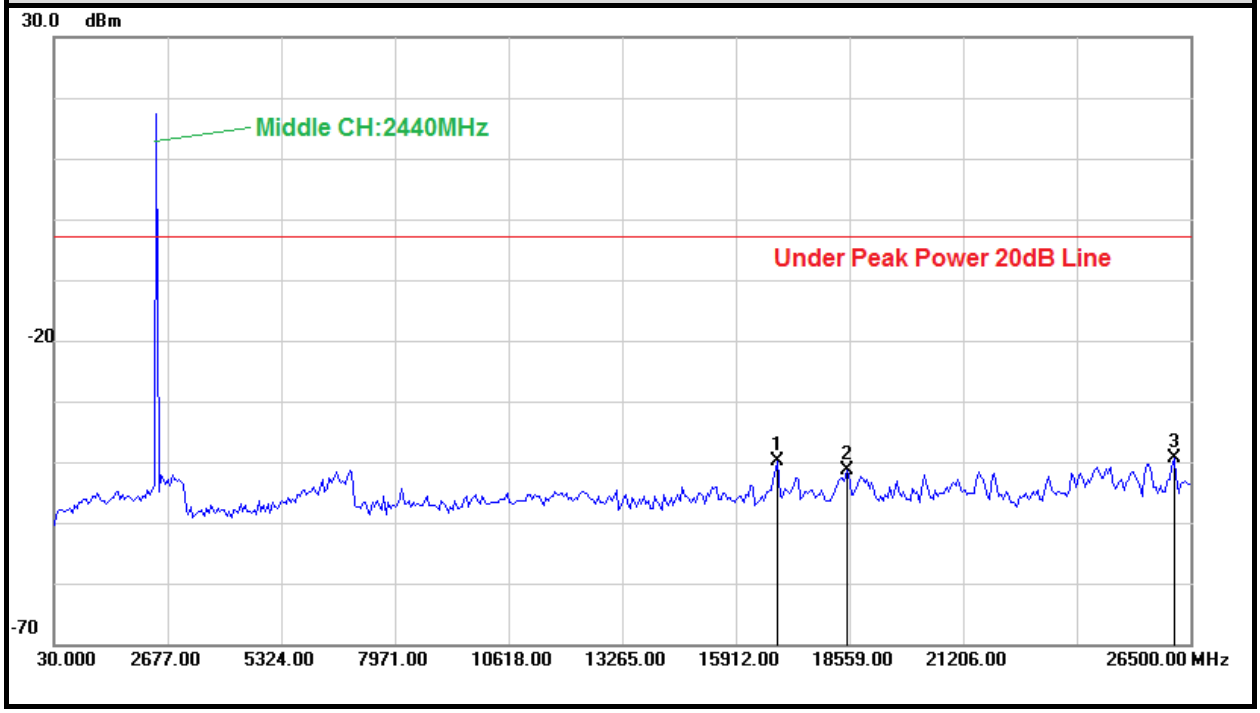
GFSK Modulation Test Plot:

Low CH 30MHz-26.5GHz



Middle CH 30MHz-26.5GHz



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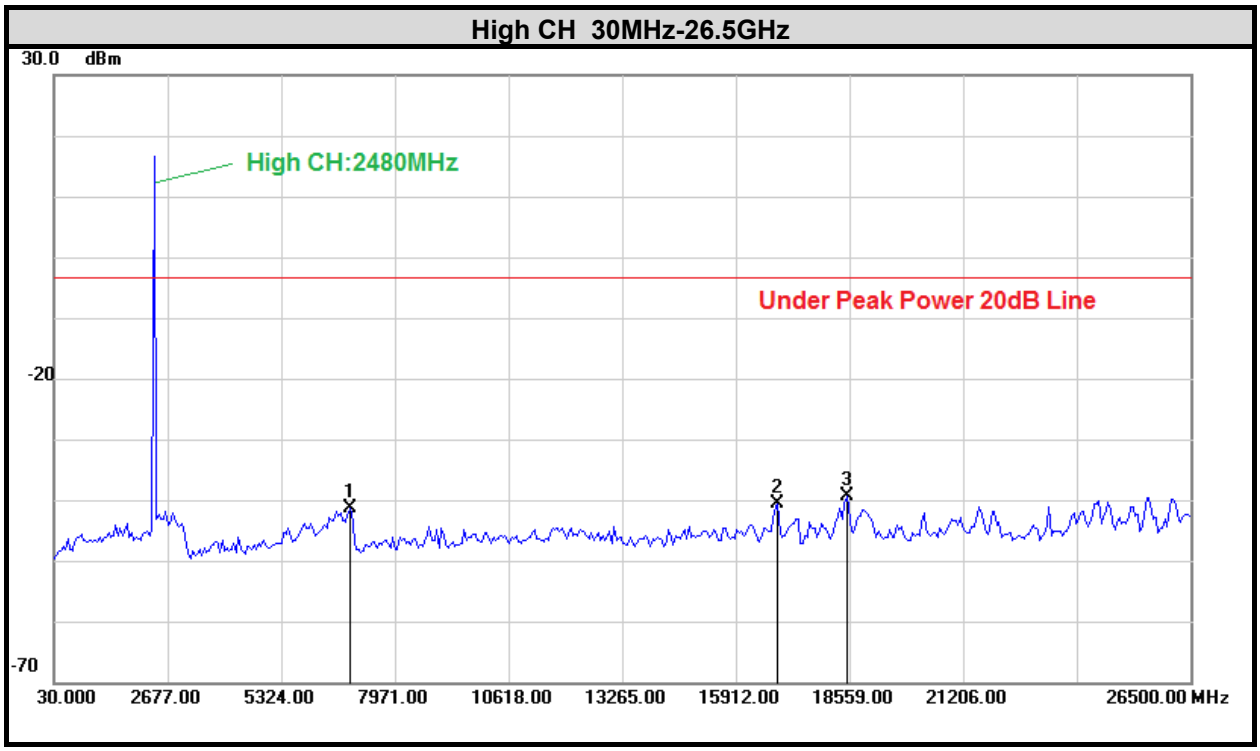
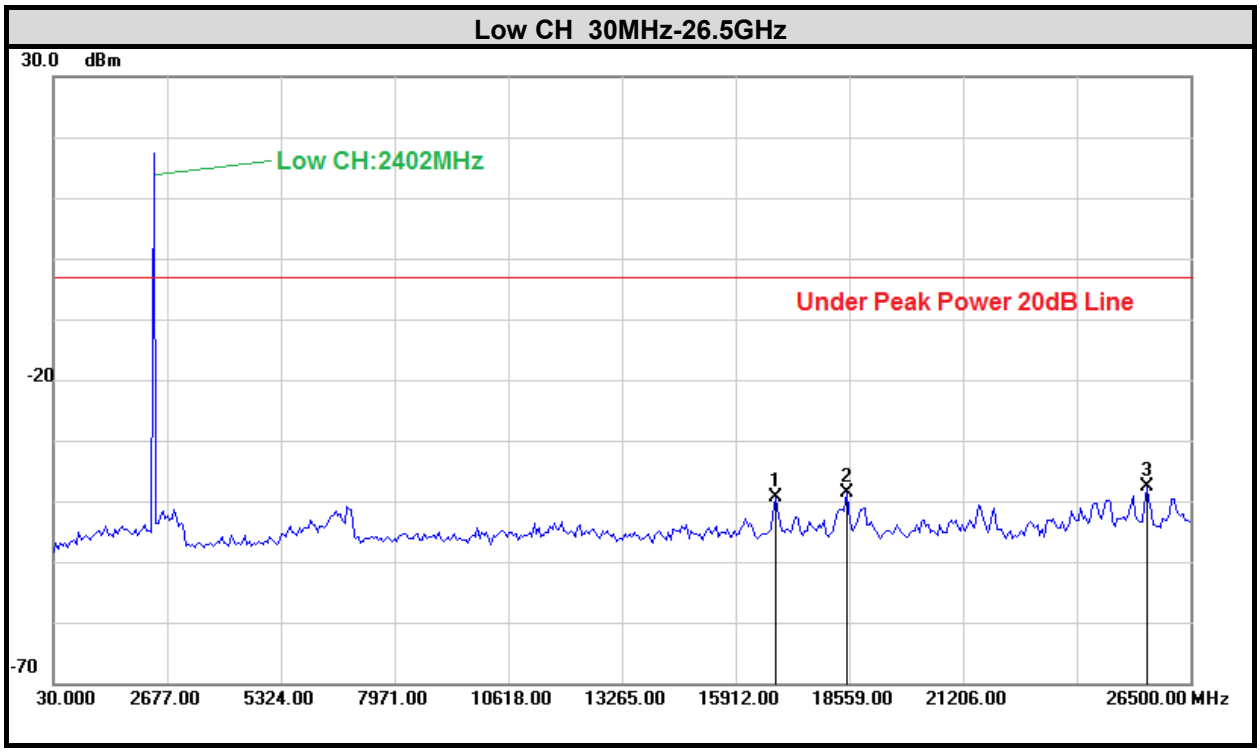


π/4-DQPSK Modulation Test Plot:



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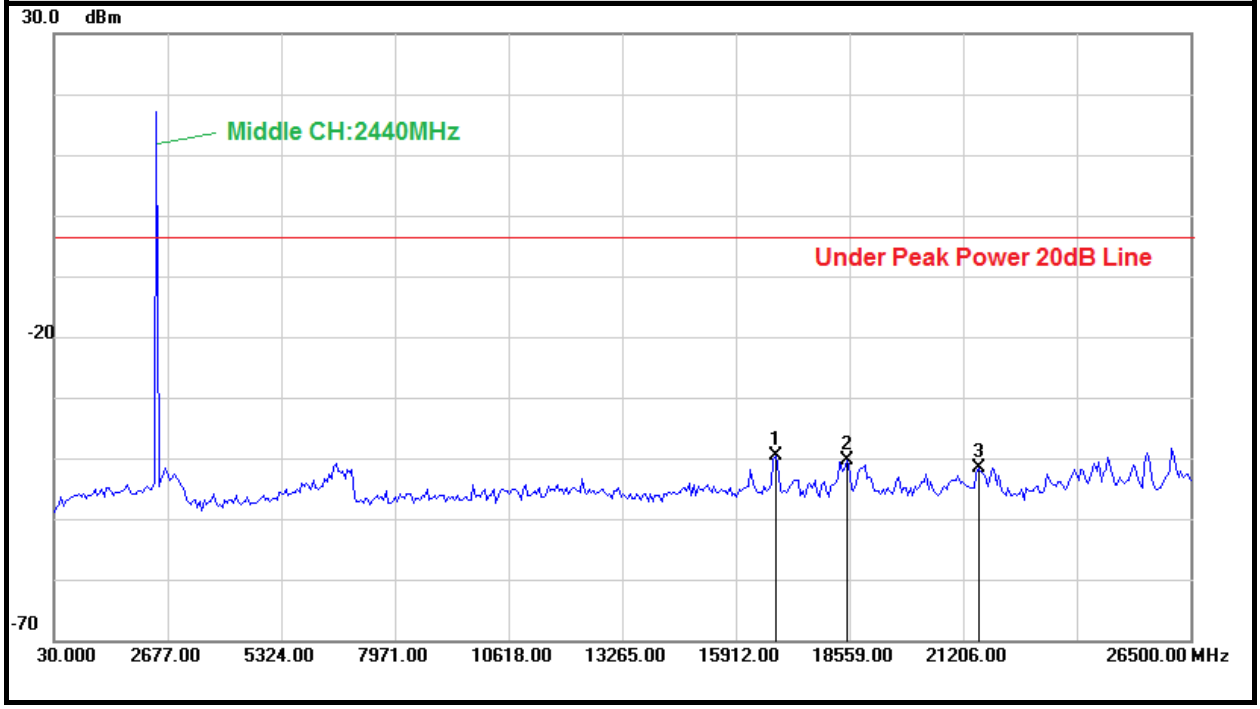
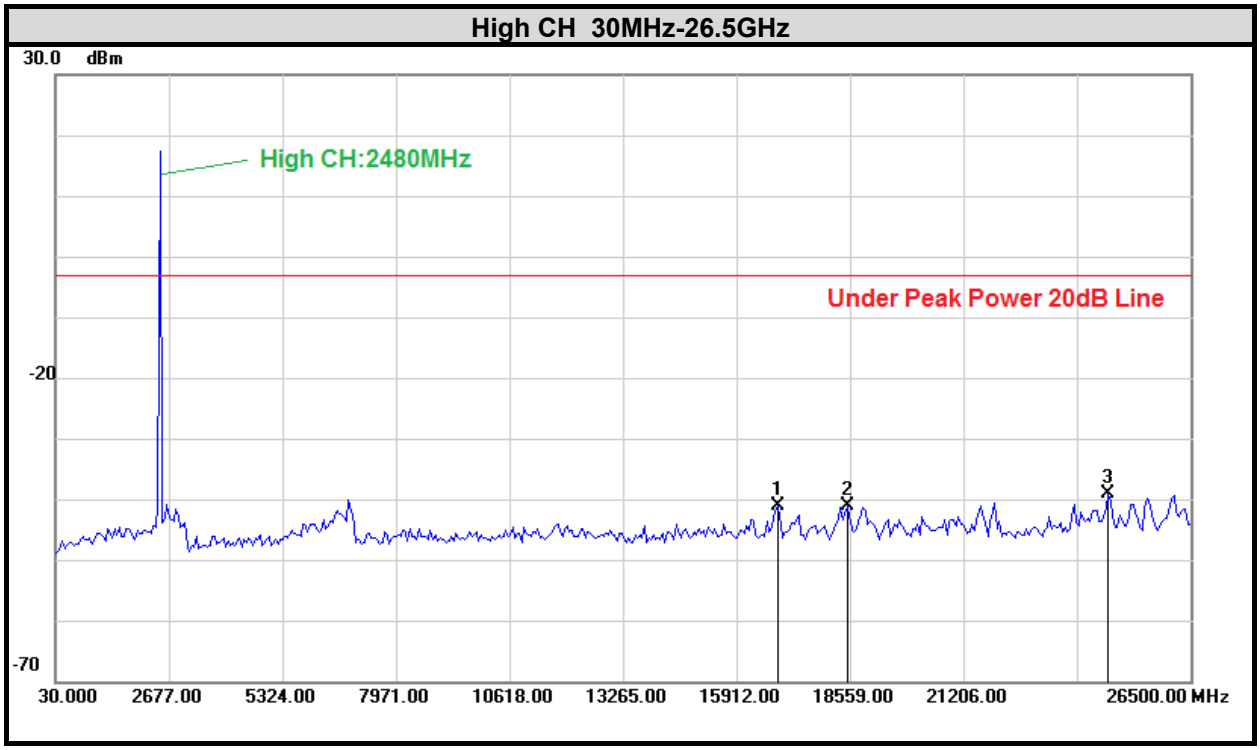
Middle CH 30MHz-26.5GHz



High CH 30MHz-26.5GHz



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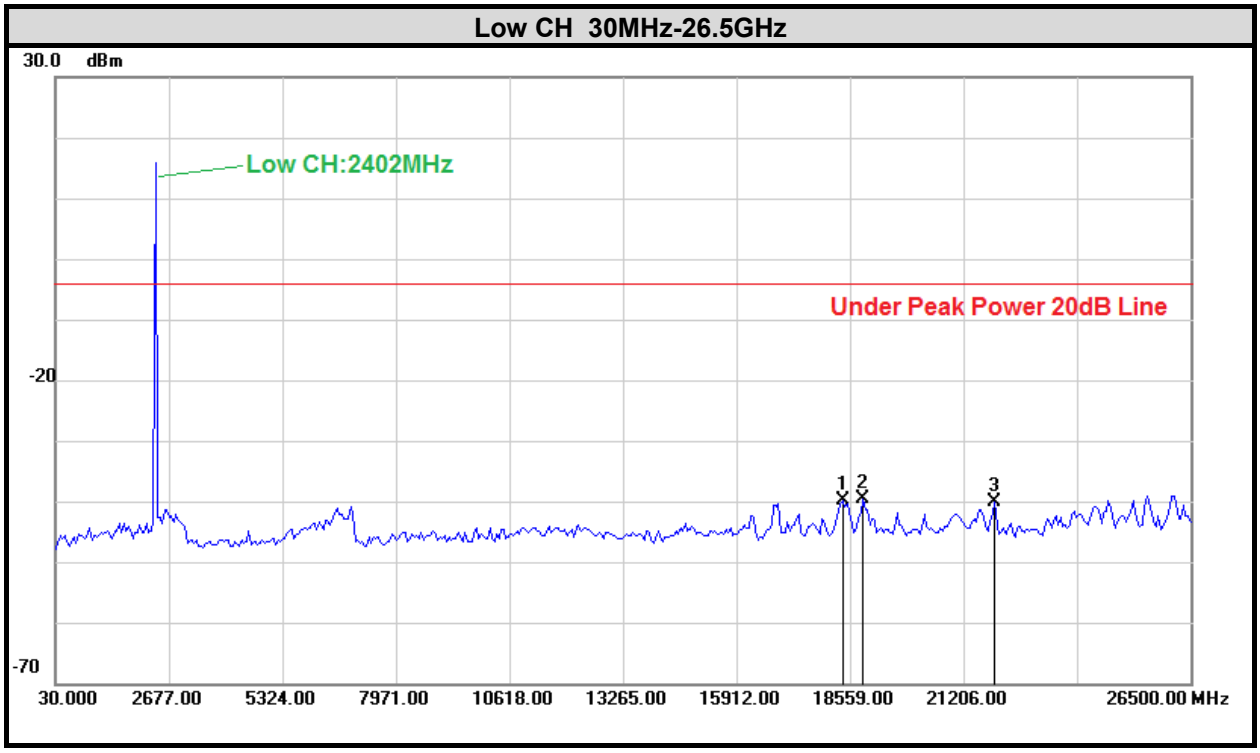
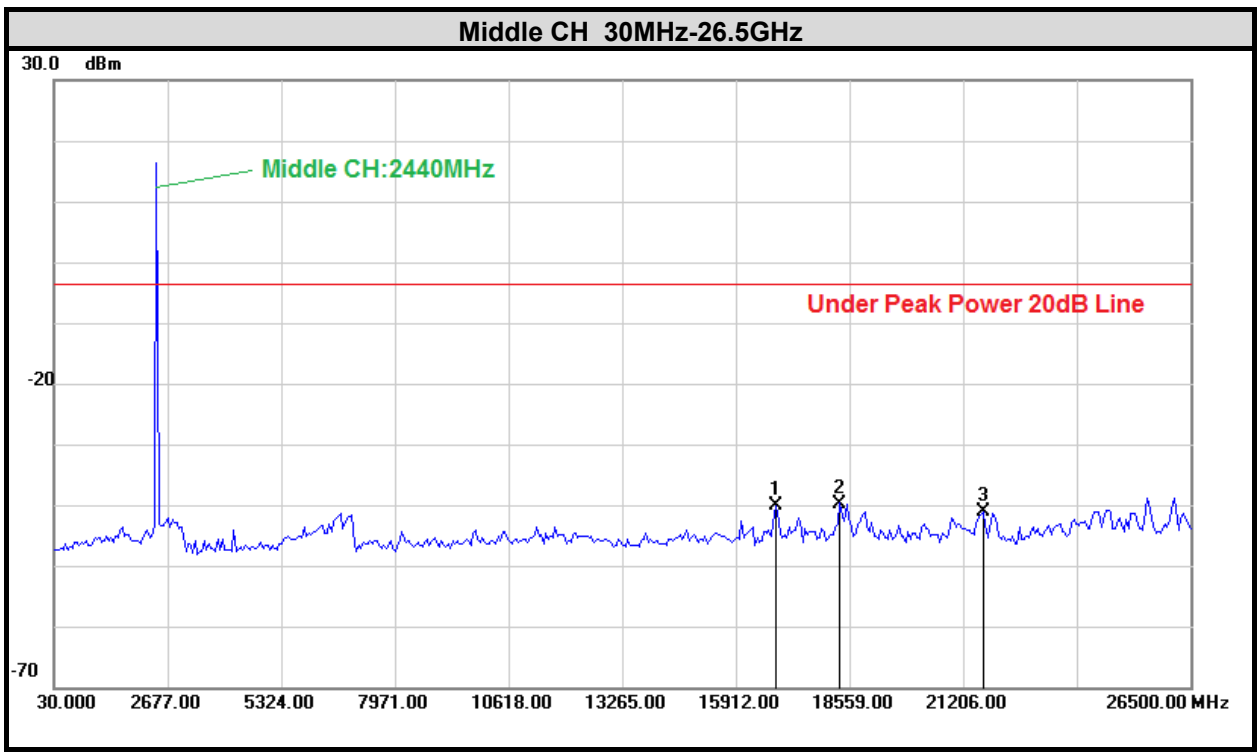
8DPSK Modulation Test Plot:

Low CH 30MHz-26.5GHz



Middle CH 30MHz-26.5GHz



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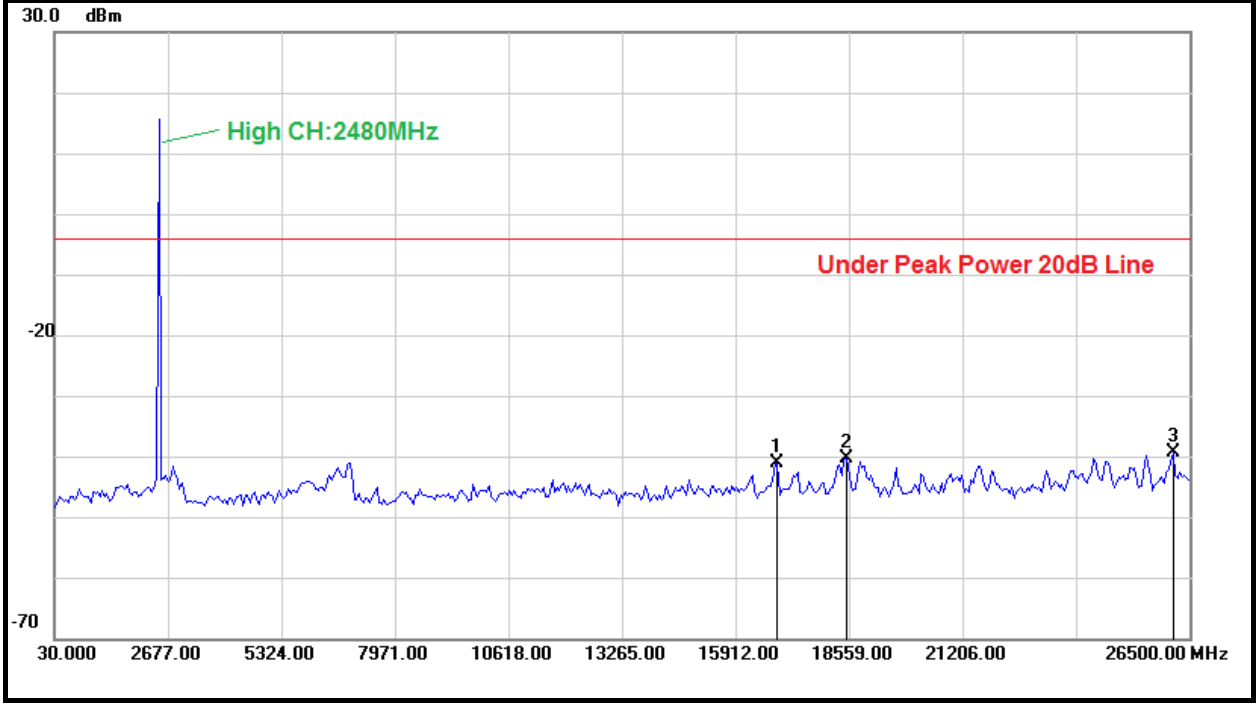
High CH 30MHz-26.5GHz



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16.0 Antenna Requirements

16.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
And according to FCC 47 CFR Section 15.247 (b), 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.

16.2 Antenna Construction and Directional Gain

Antenna:
Antenna type 1: External Antenna
Antenna Gain: 2.5 dBi

Antenna type 2: PCB Antenna
Antenna Gain: 0 dBi

17.0 DEVIATION TO TEST SPECIFICATIONS

The following identical model(s):

N/A

Belong to the tested device:

Product description: **BTAUDIO**
Model name: **KC-5012**

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