FCC - TEST REPORT

Report Number	:	**68.910.16.025.01**	Date of Issue:	June 6, 2016

Model	:	0507, 0509, CE-56M, CE-56MCL
Product Type	:	SING-A-LONG Bluetooth & MP3 Player with Dual Microphones
Applicant	:	Bulk Unlimited Corp..
Address	:	199 Lee Ave. Suite 464 Brooklyn, NY,
		New York, United States 112011
Production Facility	:	Shenzhen China East Electronics Co., Ltd.
Address	:	No.8-14, JinYuan Rd., JinYuan Industrial, He Ao,
		Heng Gang, Long Gang, Shenzhen, Guangdong, P. R. China

Test Result	:	■ **Positive** ☐ **Negative**
Total pages including Appendices	:	50

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1 Table of Contents

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2 Details about the Test Laboratory

Details about the Test Laboratory
Test Site

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
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P. R. China

FCC Registration Number: 502708

Telephone: 86 755 8828 6998
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3 Description of the Equipment Under Test

Product:	SING-A-LONG Bluetooth & MP3 Player with Dual Microphones
Model no.:	0509
FCC ID：	2AE67-0509
Options and accessories:	NIL
Rating:	DC 6V (Supplied by 4×1.5VDC AA batteries) or DC 5V (Powered by Micro USB port)
RF Transmission Frequency:	2402MHz-2480MHz
No. of Operated Channel:	79
Modulation:	GFSK, π/4-DQPSK, 8-DPSK
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Description of the EUT:	The Equipment Under Test (EUT) is a SING-A-LONG Bluetooth & MP3 Player with Dual Microphones operated at 2.4GHz.

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2015 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to Public Notice DA 00-705 -Frequency Hopper Spread Spectrum Test Procedure released by FCC on March 30, 2000 and C63.10-2013.

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5 Summary of Test Results

Technical Requirements				
FCC Part 15 Subpart C				
Test Condition		Pages	Test Result	Test Site
§15.207	Conducted emission AC power port	10	Pass	Site 2
§15.247(b)(1)	Conducted peak output power	13	Pass	Site 2
§15.247(e)	Power spectral density	--	N/A	--
§15.247(a)(2)	6dB bandwidth	--	N/A	--
§15.247(a)(1)	20dB bandwidth and 99% Occupied Bandwidth	20	Pass	Site 2
§15.247(a)(1)	Carrier frequency separation	27	Pass	Site 2
§15.247(a)(1)(iii)	Number of hopping frequencies	30	Pass	Site 2
§15.247(a)(1)(iii)	Dwell Time	32	Pass	Site 2
§15.247(d)	Spurious RF conducted emissions	35	Pass	Site 2
§15.247(d)	Band edge	39	Pass	Site 2
§15.247(d) & §15.209 &	Spurious radiated emissions for transmitter	46	Pass	Site 2
§15.203	Antenna requirement	See note 1	Pass	--

Note 1: N/A=Not Applicable.
Note 2: The EUT uses a pcb antenna, which gain is 0dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

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6 General Remarks

Remarks

Model 0507, 0509, CE-56M and CE-56MCL are identical except model name and the color of enclosure. Therefore model 0509 was chosen as the representative model to perform full tests. This submittal(s) (test report) is intended for FCC ID: 2AE67-0509, complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: May 25, 2016

Testing Start Date: June 1, 2016

Testing End Date: June 6, 2016

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Reviewed by:

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Prepared by:

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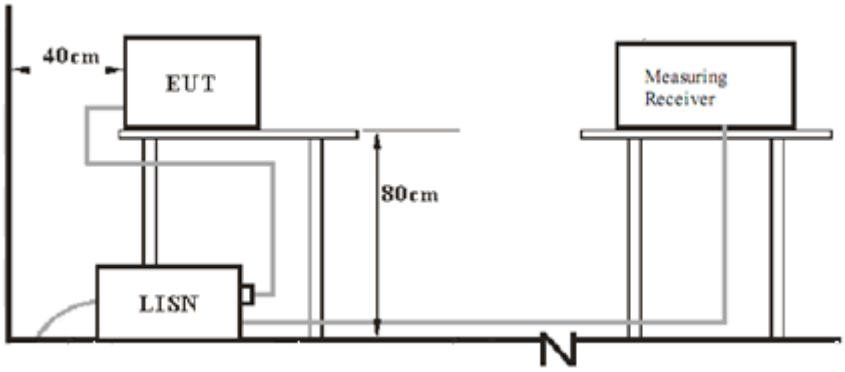
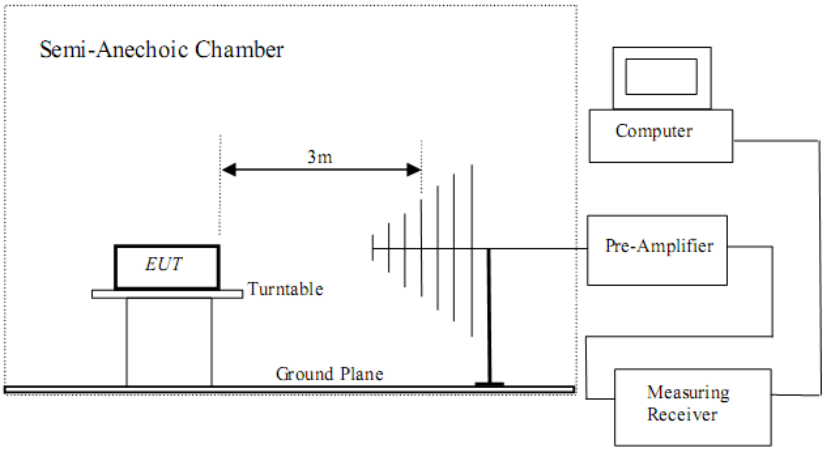
7 Test Setups

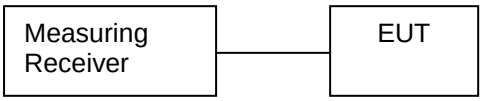
7.1 AC Power Line Conducted Emission test setups



7.2 Radiated test setups



7.3 Conducted RF test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
Laptop	lenovo	X220	---

Test software: HC_Data_test, which used to control the EUT in continues transmitting mode.

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power

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9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

Frequency MHz	QP Limit dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

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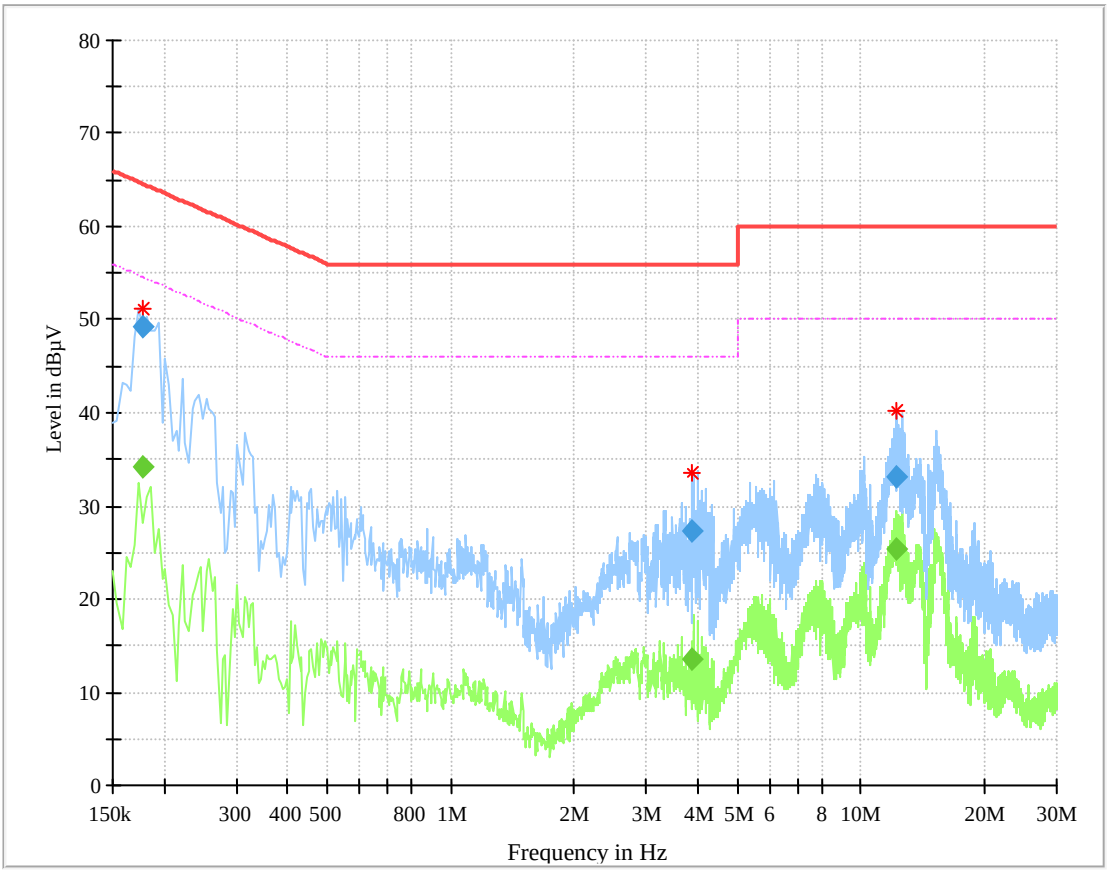
Conducted Emission

Product Type	:	SING-A-LONG Bluetooth & MP3 Player with Dual Microphones
M/N	:	0509
Operating Condition	:	BT Playing & MIC ON
Test Specification	:	Live
Comment	:	AC 120V/60Hz (powered by Micro USB port from PC)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line
0.178500	---	34.29	54.56	20.27	L1
0.178500	49.22	---	64.56	15.34	L1
3.889500	---	13.63	46.00	32.37	L1
3.889500	27.31	---	56.00	28.69	L1
12.230500	---	25.36	50.00	24.64	L1
12.230500	33.08	---	60.00	26.92	L1

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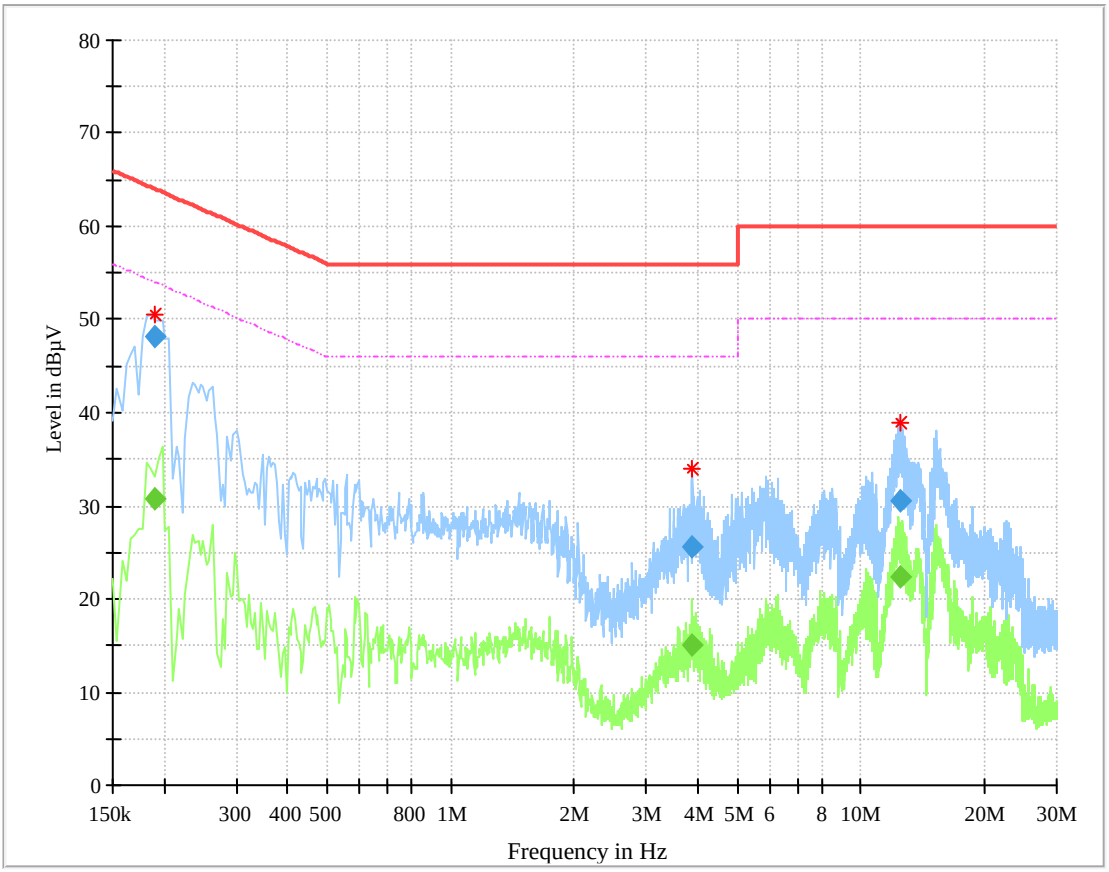
Conducted Emission

Product Type	:	SING-A-LONG Bluetooth & MP3 Player with Dual Microphones
M/N	:	0509
Operating Condition	:	BT Playing & MIC ON
Test Specification	:	Neutral
Comment	:	AC 120V/60Hz (powered by Micro USB port from PC)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line
0.189500	---	30.74	54.06	23.32	N
0.189500	48.20	---	64.06	15.86	N
3.893500	---	14.95	46.00	31.05	N
3.893500	25.53	---	56.00	30.47	N
12.541500	---	22.32	50.00	27.68	N
12.541500	30.50	---	60.00	29.50	N

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9.2 Conducted peak output power

Test Method

1. Use the following spectrum analyzer settings:
   Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
   RBW > the 20 dB bandwidth of the emission being measured, VBW≥RBW,
   Sweep = auto, Detector function = peak, Trace = max hold
2. Add a correction factor to the display.
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power

Limits

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

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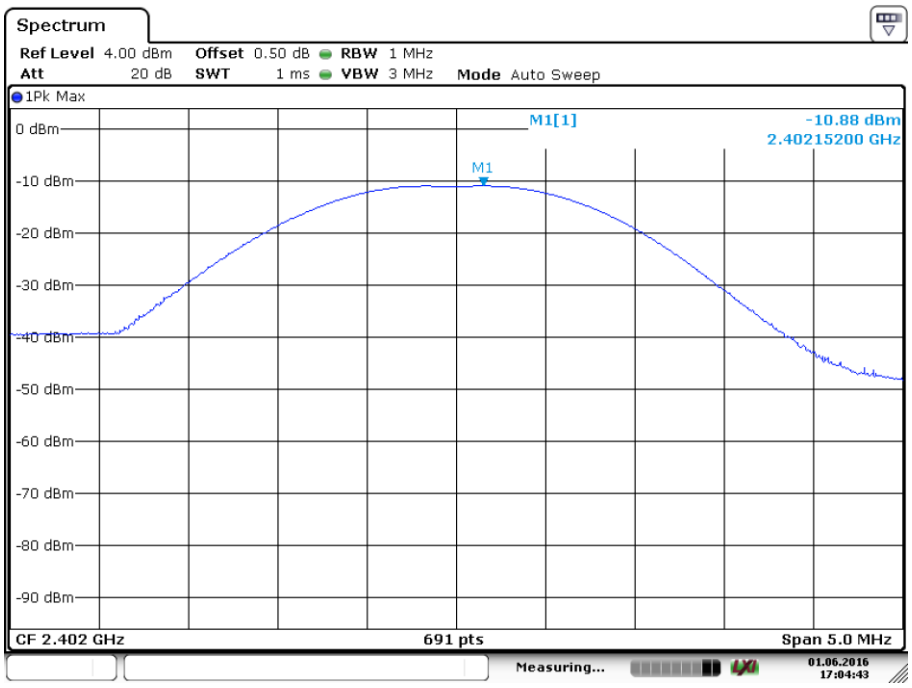
Conducted peak output power

Bluetooth Mode GFSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	-10.88	Pass
Middle channel 2441MHz	-10.80	Pass
High channel 2480MHz	-11.22	Pass

Low channel 2402MHz



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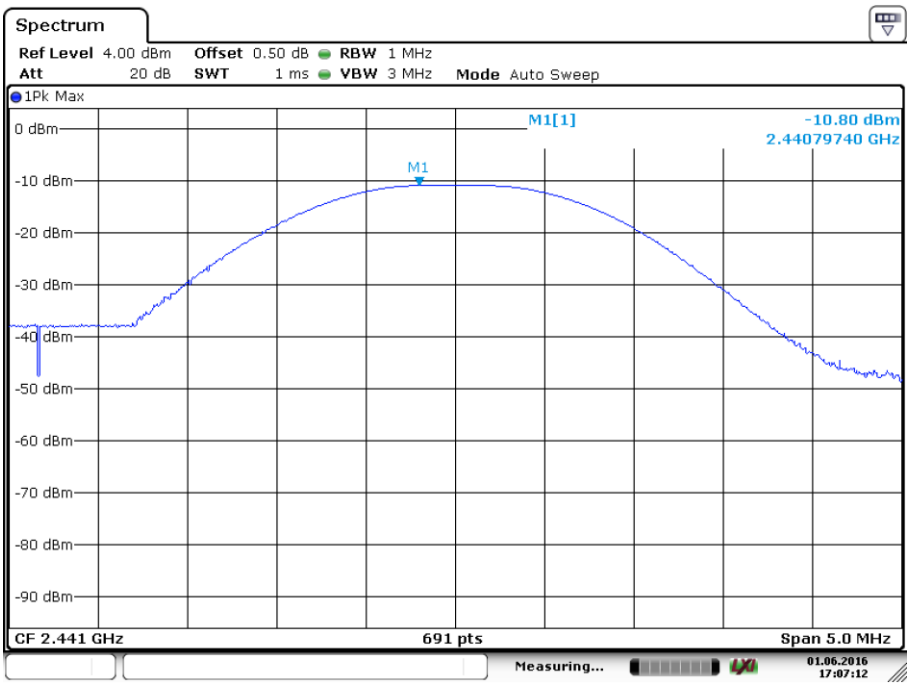
Middle channel 2441MHz



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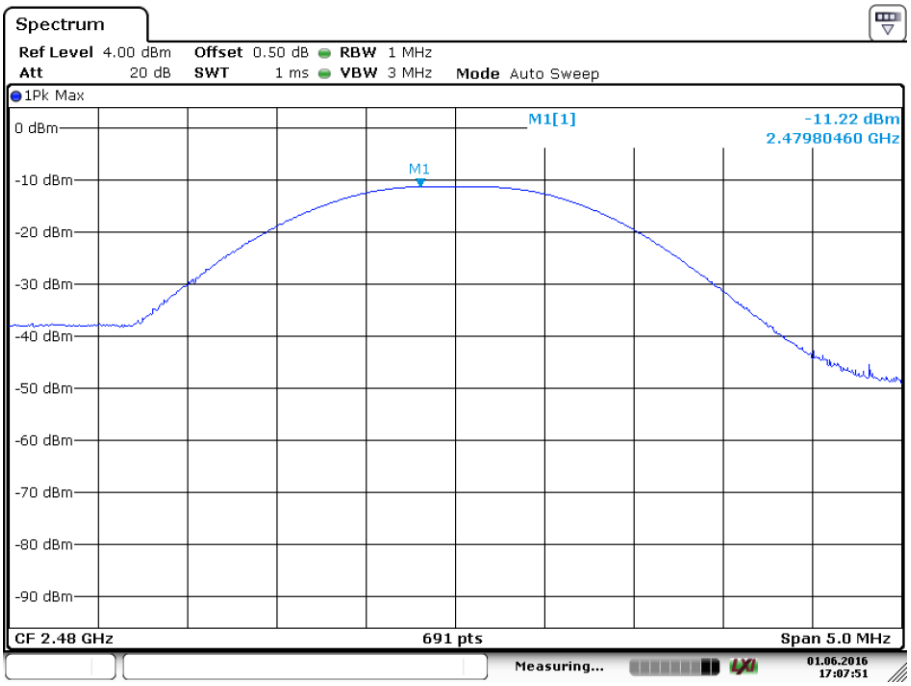
High channel 2480MHz



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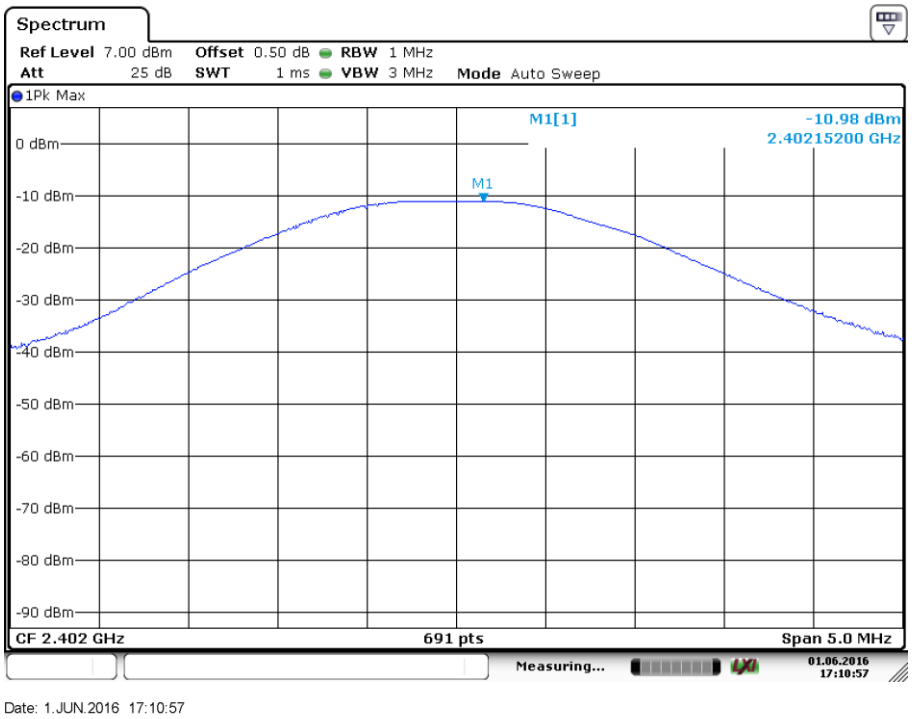
Bluetooth Mode π/4-DQPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	-10.98	Pass
Middle channel 2441MHz	-10.82	Pass
High channel 2480MHz	-11.21	Pass

Low channel 2402MHz



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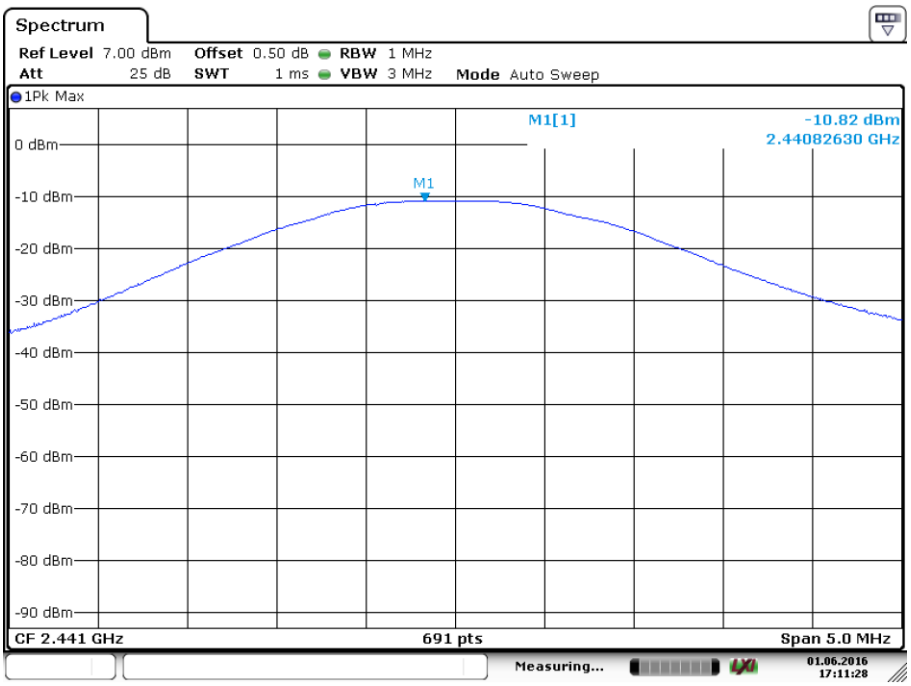
Middle channel 2441MHz



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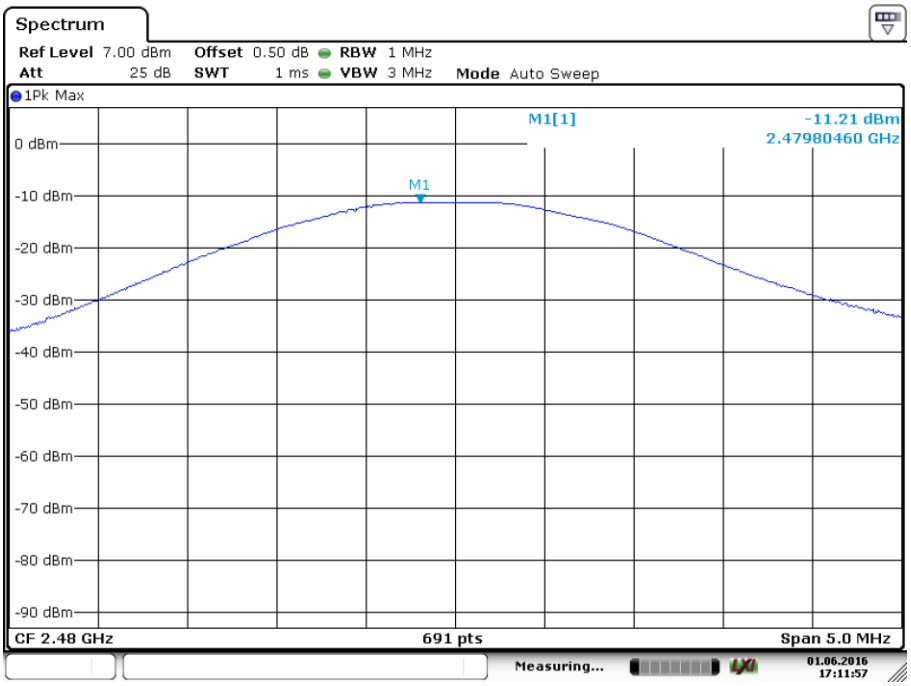
High channel 2480MHz



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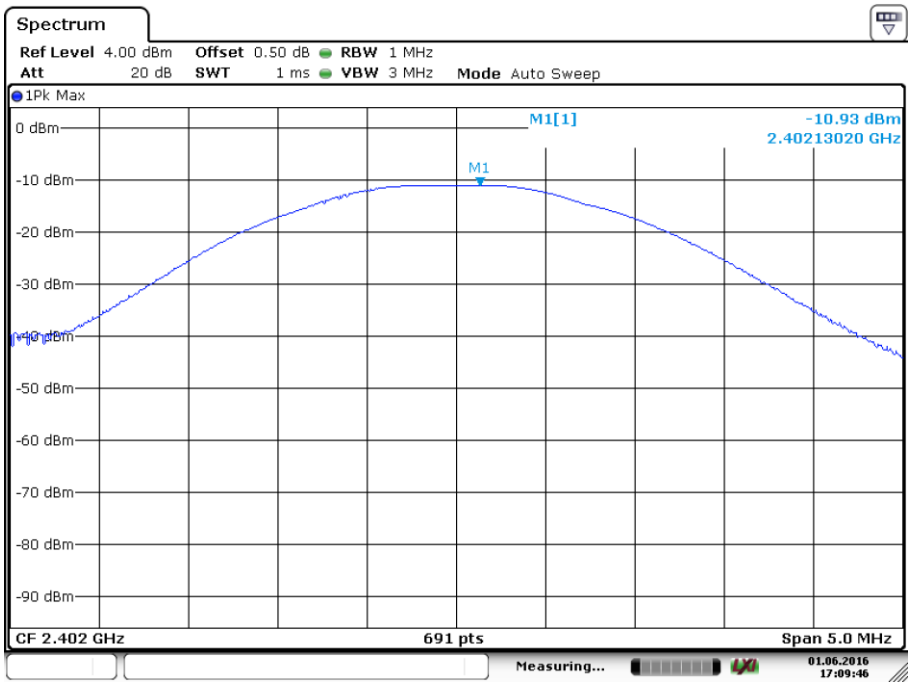
Bluetooth Mode 8DPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	-10.93	Pass
Middle channel 2441MHz	-10.78	Pass
High channel 2480MHz	-11.20	Pass

Low channel 2402MHz



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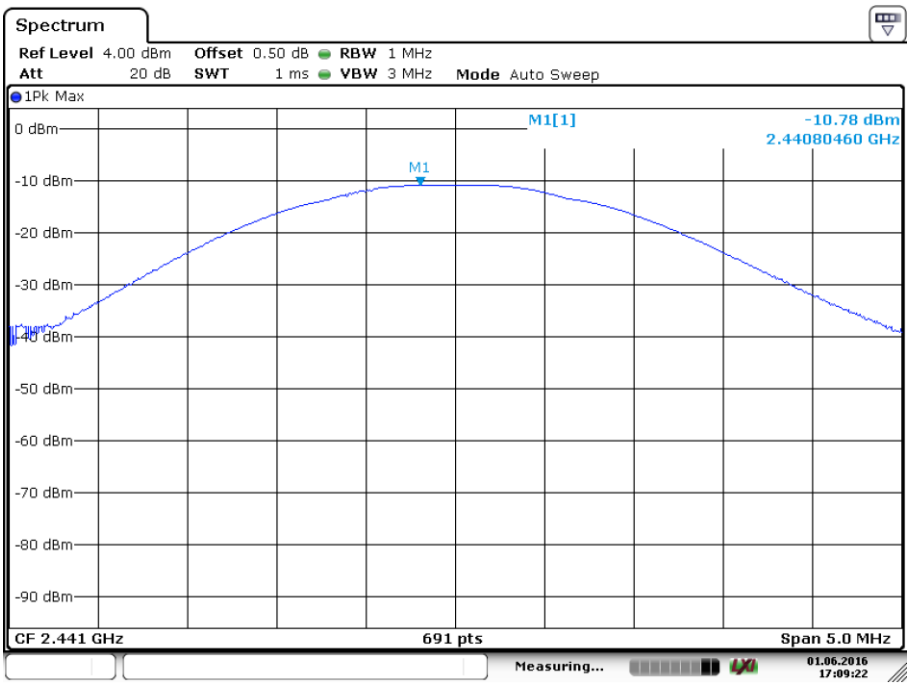
Middle channel 2441MHz



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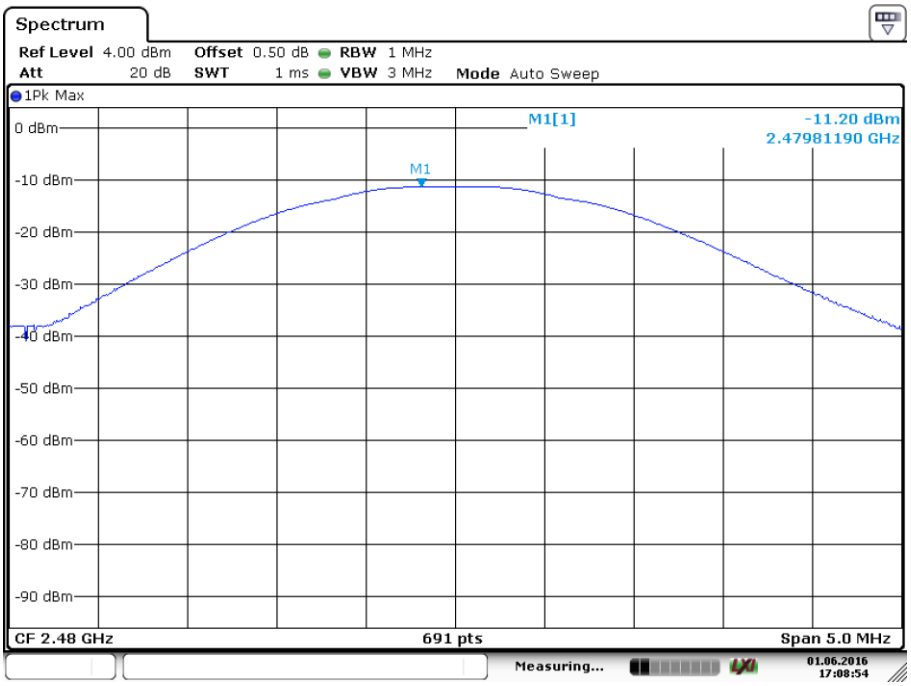
High channel 2480MHz



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9.3 20 dB bandwidth and 99% Occupied Bandwidth

Test Method

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 without connection to measurement instrument. 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.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Limit

Limit kHz
N/A

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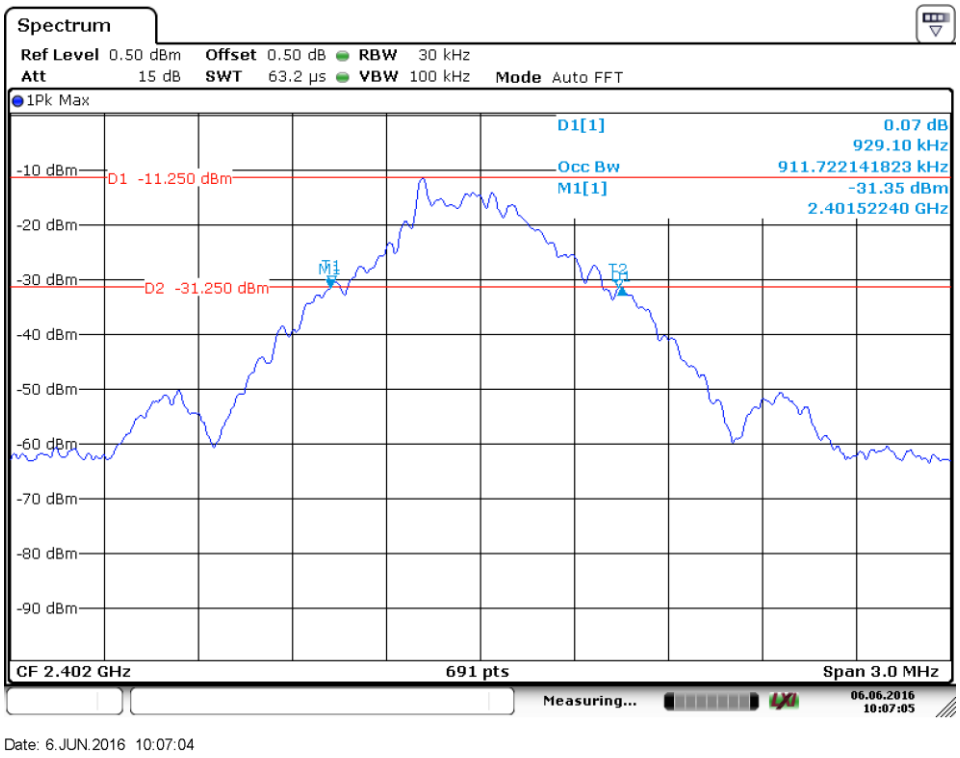
20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode GFSK Modulation test result

Frequency MHz	20 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz	Result
2402	929.10	911.72	--	Pass
2441	942.10	907.38	--	Pass
2480	933.40	907.38	--	Pass

2402MHz



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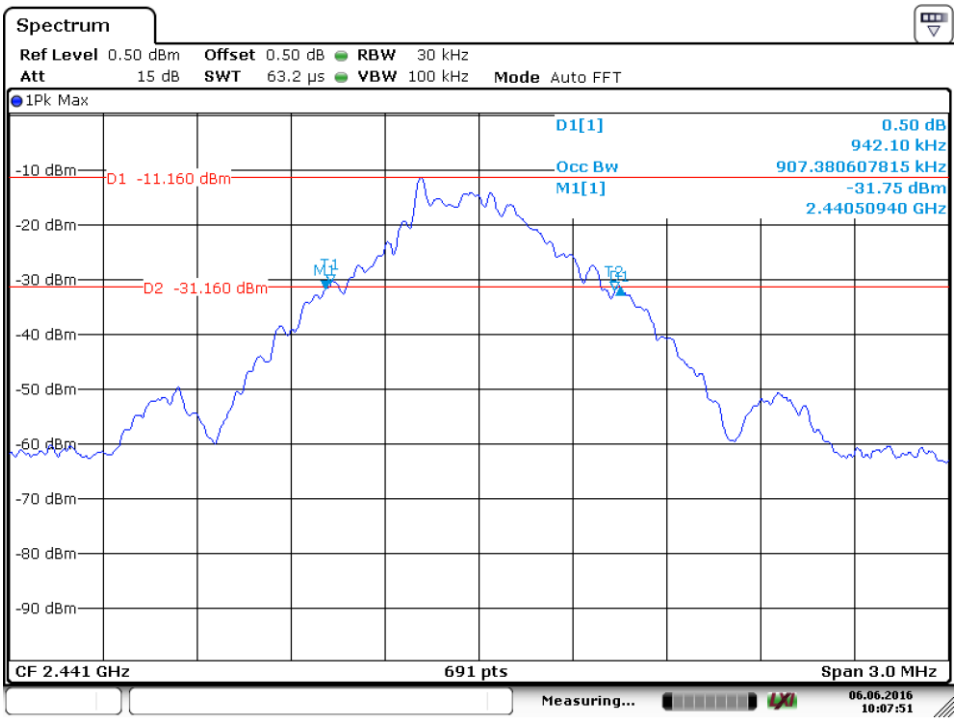
2441MHz



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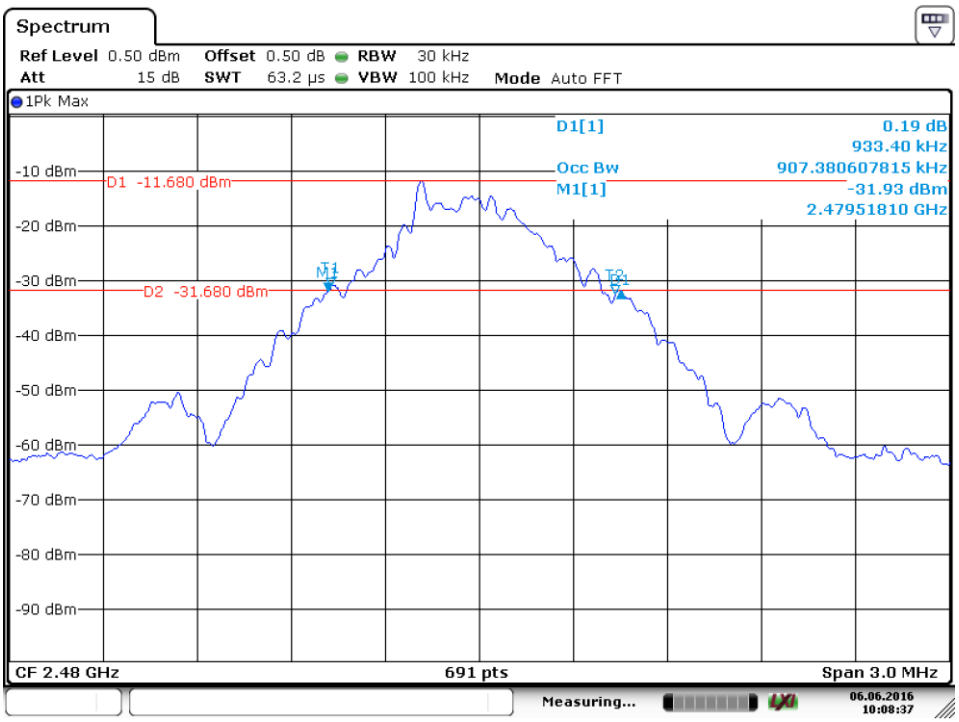
2480MHz



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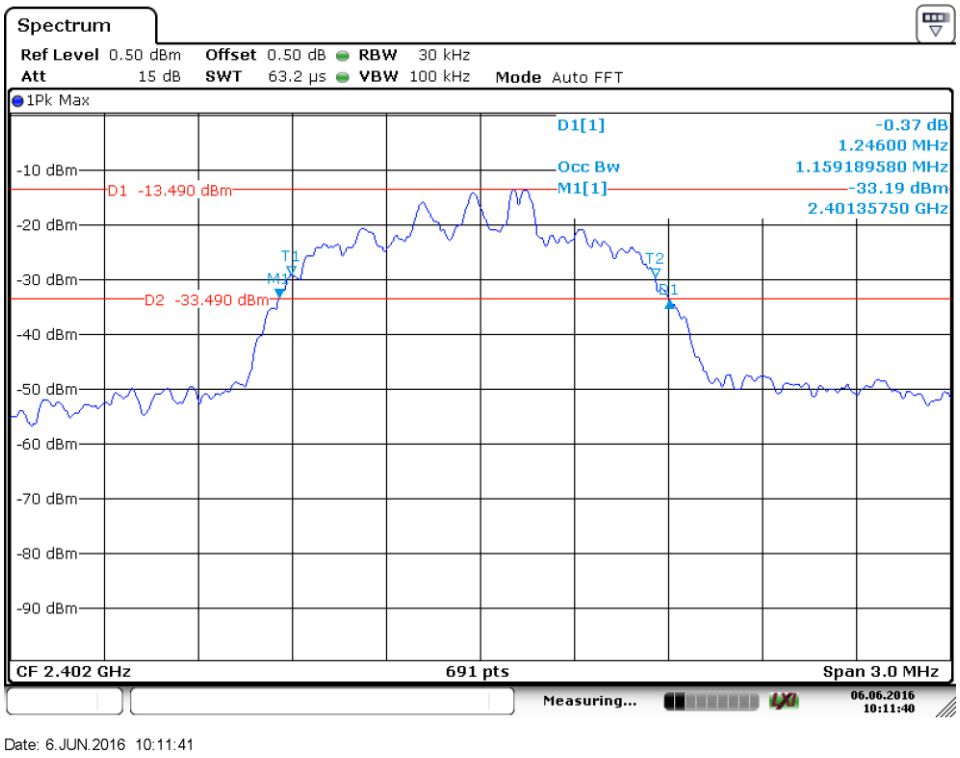
20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode π/4-DQPSK Modulation test result

Frequency MHz	20 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz	Result
2402	1246.0	1159.19	--	Pass
2441	1250.4	1198.26	--	Pass
2480	1250.4	1206.95	--	Pass

2402MHz



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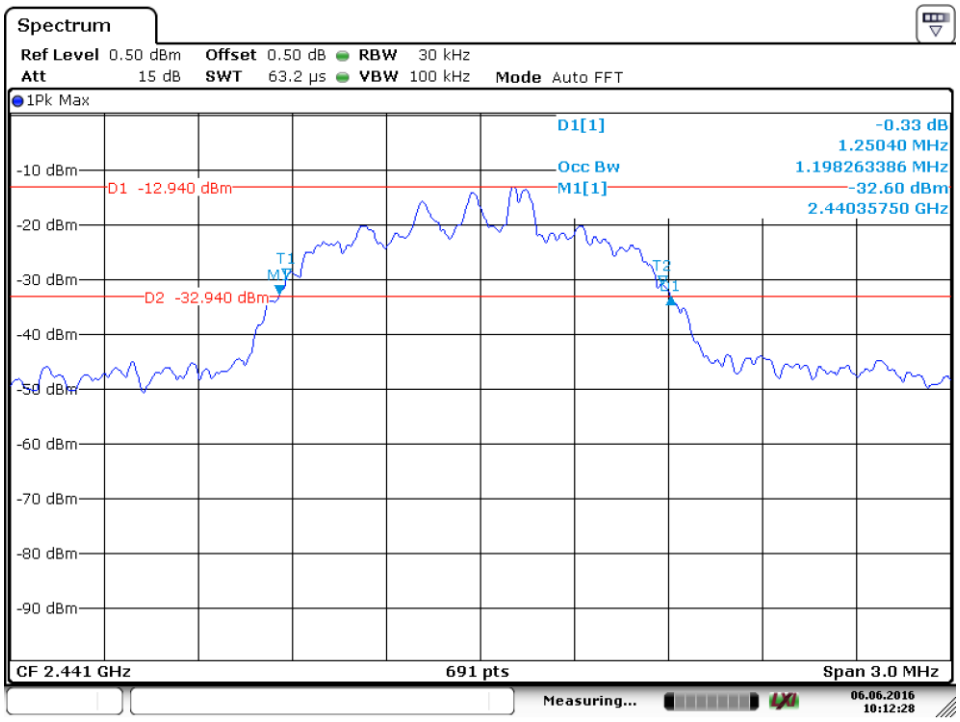
2441MHz



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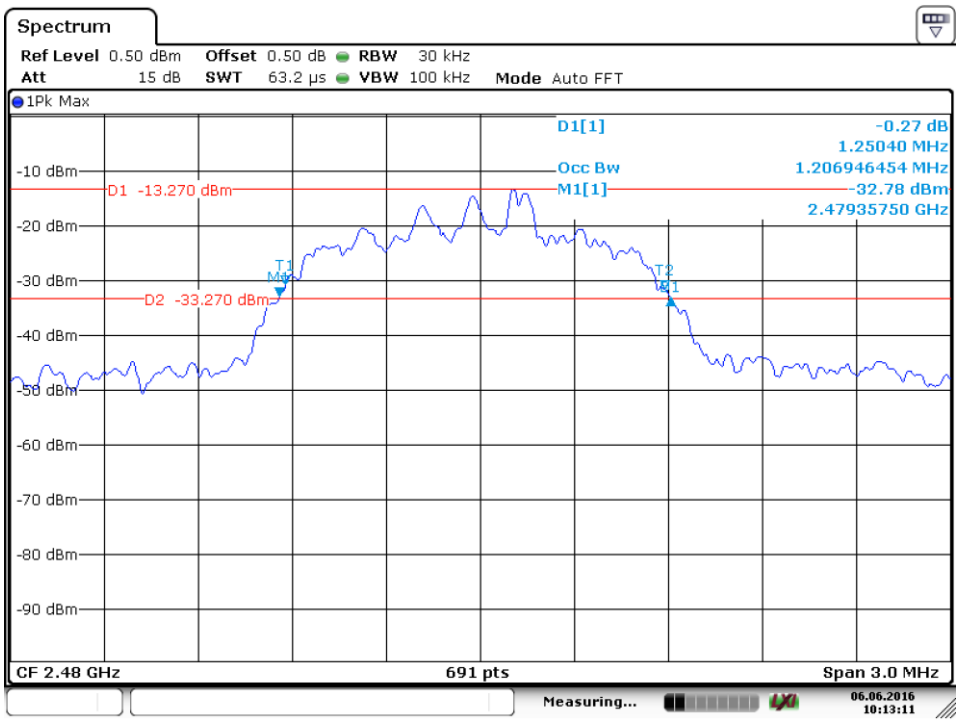
2480MHz



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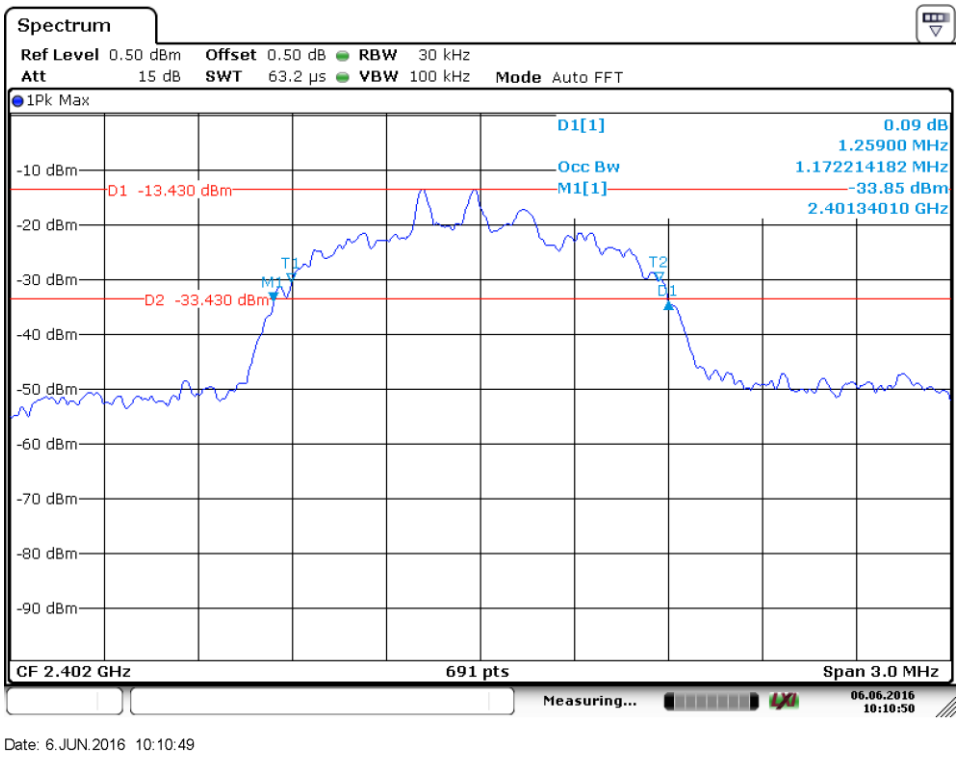
20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode 8DPSK Modulation test result

Frequency MHz	20 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz	Result
2402	1259.0	1172.21	--	Pass
2441	1259.0	1211.29	--	Pass
2480	1263.4	1224.31	--	Pass

2402MHz



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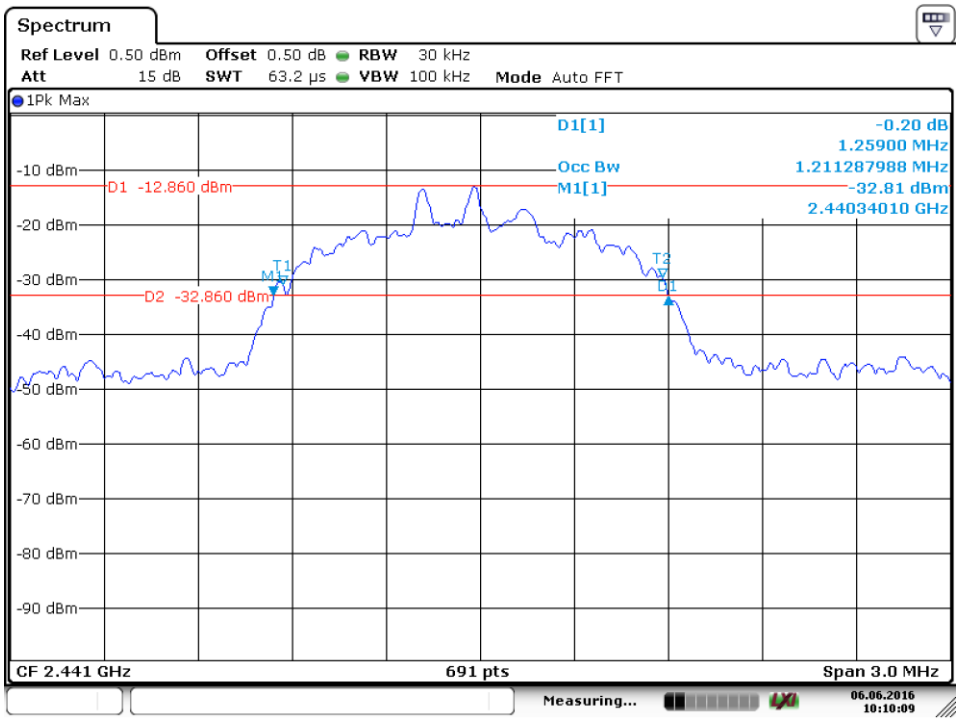
2441MHz



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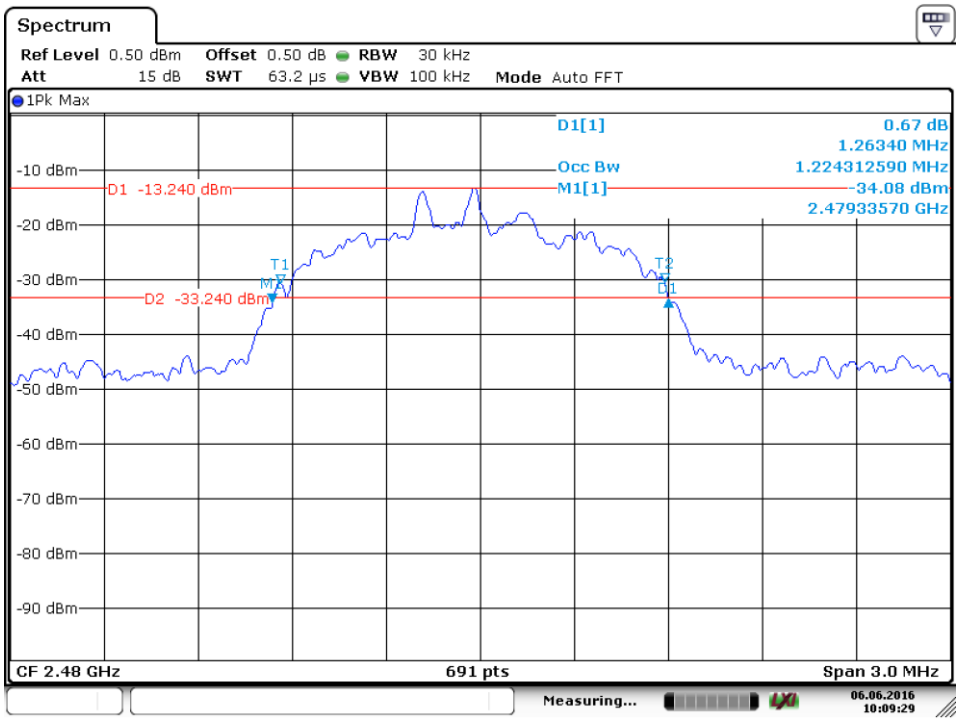
2480MHz



Date: 6.JUN.2016 10:09:29

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9.4 Carrier Frequency Separation

Test Method

1. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels, RBW ≥ 1% of the span, VBW) ≥RBW, Sweep = auto, Detector function = peak
2. By using the Max-Hold function record the separation of two adjacent channels.
3. Measure the frequency difference of these two adjacent channels by spectrum analyzer marker function.
4. Repeat above procedures until all frequencies measured were complete.

Limit

Limit kHz
≥25KHz or 2/3 of the 20 dB bandwidth which is greater

GFSK Modulation Limit

Frequency MHz	2/3 of 20 dB Bandwidth kHz
2402	619.4
2441	628.1
2480	622.3

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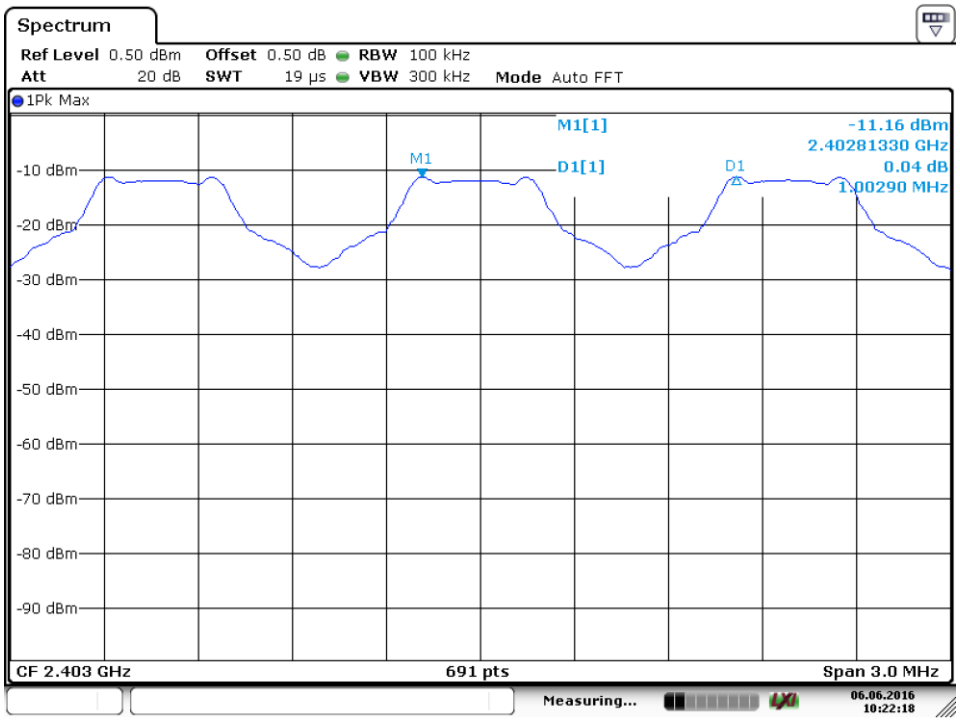
Carrier Frequency Separation

Test result: The measurement was performed with the typical configuration (normal hopping status), here GFSK modulation mode was used to show compliance.

GFSK Modulation test result

Frequency MHz	Carrier Frequency Separation kHz	Result
2402	1002.9	Pass
2441	1002.9	Pass
2480	1002.9	Pass

Low Channel



Date: 6.JUN.2016 10:22:18

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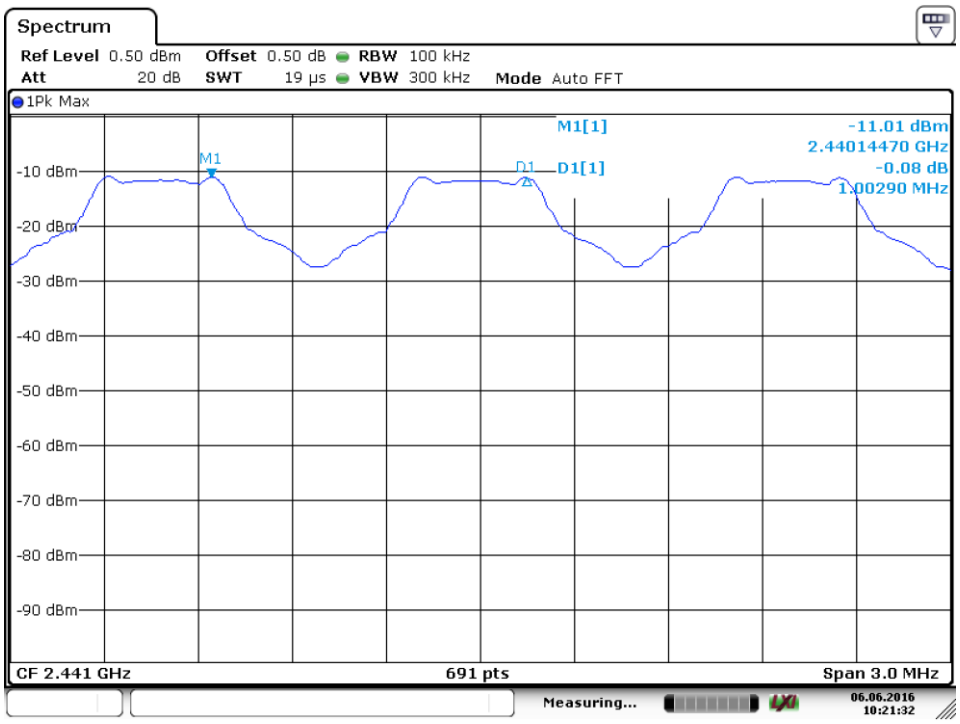
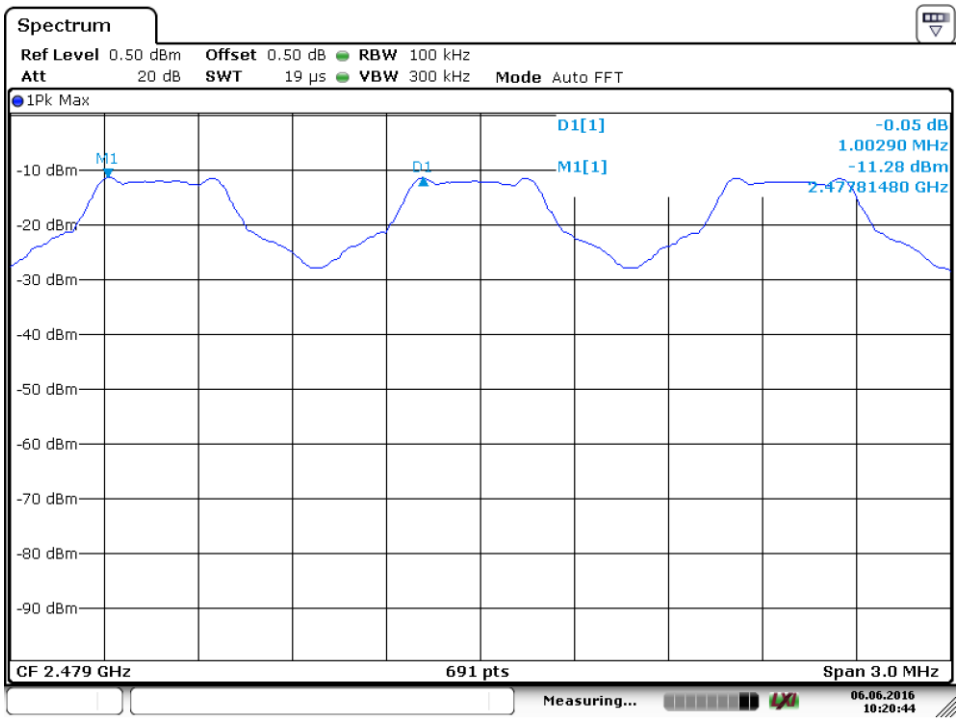
Middle channel



Date: 6.JUN.2016 10:21:31

High Channel



Date: 6.JUN.2016 10:20:44

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9.5 Number of hopping frequencies

Test Method

1. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels, RBW ≥ 1% of the span, VBW) ≥RBW, Sweep = auto, Detector function = peak
2. Set the spectrum analyzer on Max-Hold Mode, and then keep the EUT in hopping mode.
3. Record all the signals from each channel until each one has been recorded.
4. Repeat above procedures until all frequencies measured were complete.

Limit

Limit number
≥ 15

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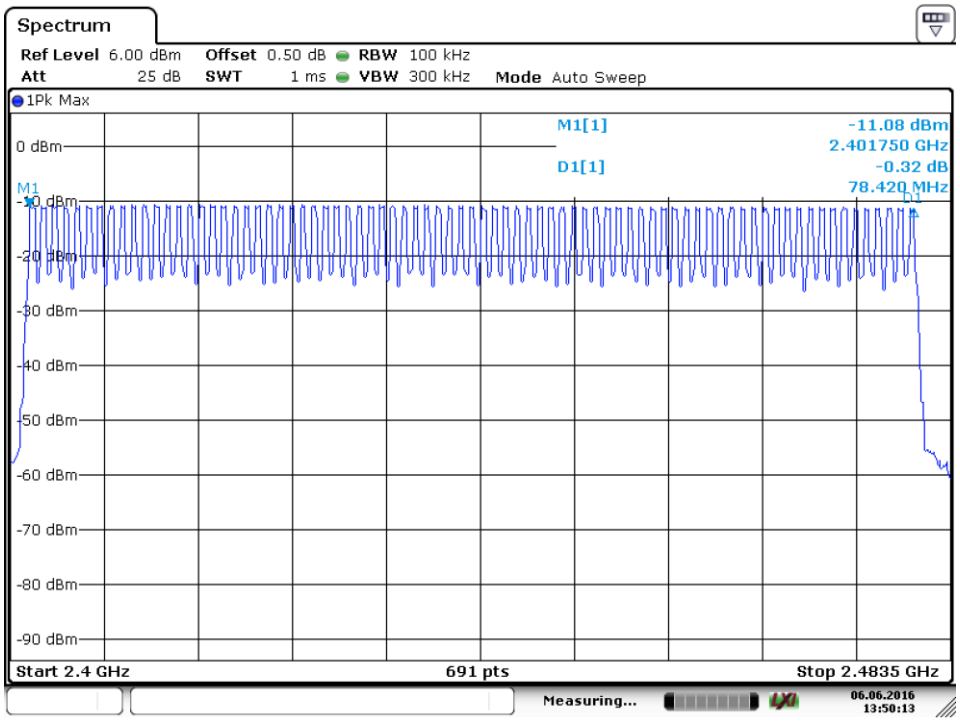
Number of hopping frequencies

Test result: The measurement was performed with the typical configuration (normal hopping status), and the total hopping channels is constant for the all modulation mode according with the Bluetooth Core Specification. Here GFSK modulation mode was used to show compliance.

Number of hopping frequencies	Result
79	Pass



Date: 6.JUN.2016 13:50:12

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9.6 Dwell Time

Test Method

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable. Equipment mode: Spectrum analyzer
2. RBW: 1MHz; VBW: 1MHz; SPAN: Zero Span
3. Adjust the center frequency of spectrum analyzer on any frequency be measured.
4. Measure the Dwell Time by spectrum analyzer Marker function.
5. Repeat above procedures until all frequencies measured were complete.

Limit

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

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Dwell Time

Dwell time

The maximum dwell time shall be 0.4 s.
According to the Bluetooth Core Specification, the worse result (DH5 mode) was reported to show compliance.

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:
The duration for dwell time calculation: 0.4 [s] * hopping number = 0.4 [s] * 79 [ch] = 31.6 [s*ch];

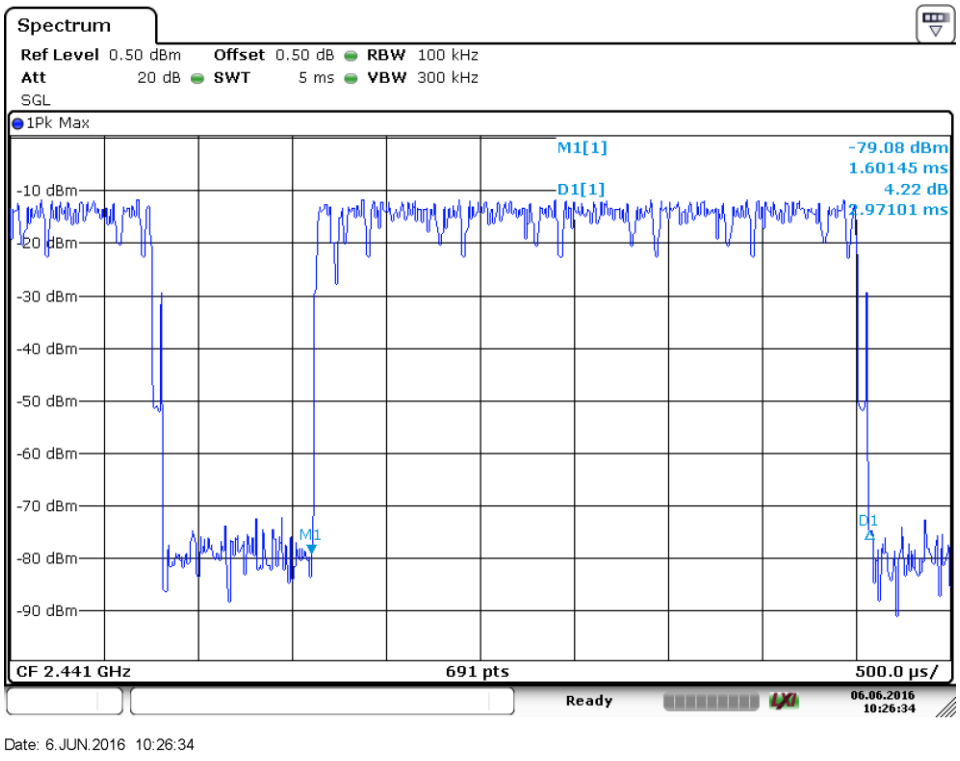
The burst width, which is directly measured, refers to the duration on one channel hop.

The maximum number of hopping channels in 31.6s for DH5=1600 / 6 / 79 *31.6=106.67

Test Result

Modulation	Mode	Reading (us)	Total Hops	Test Result (ms)	Limit (ms)	Result
GFSK	DH5	2971.01	106.67	319.70	< 400	Pass
π/4-DQPSK	2DH5	2963.77	106.67	316.06	< 400	Pass
8-DPSK	3DH5	2978.26	106.67	317.66	< 400	Pass

GFSK Modulation



DH5

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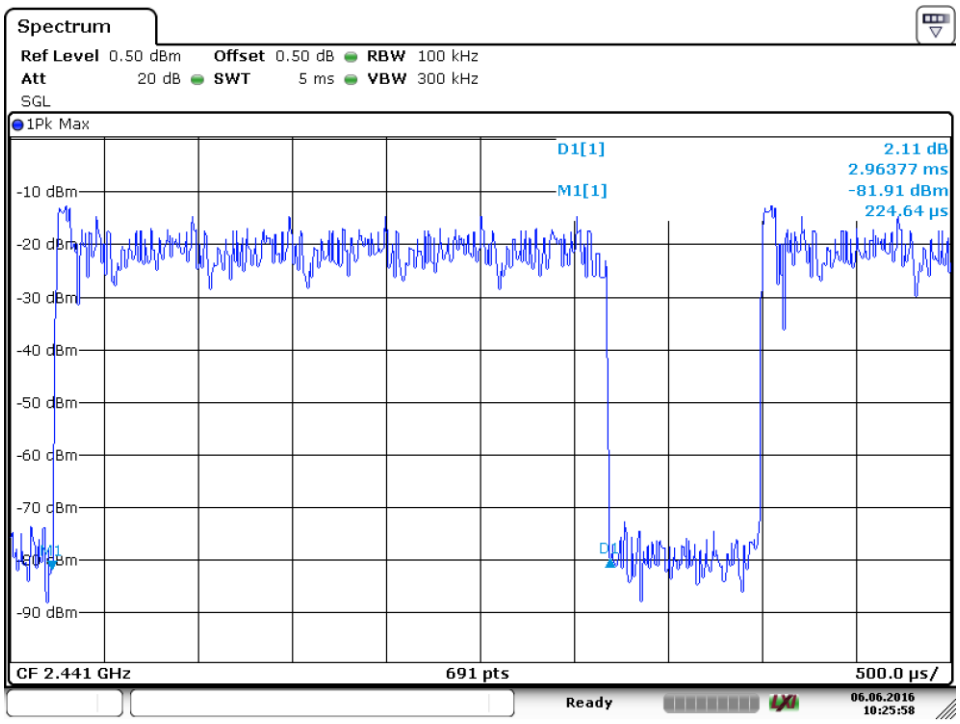
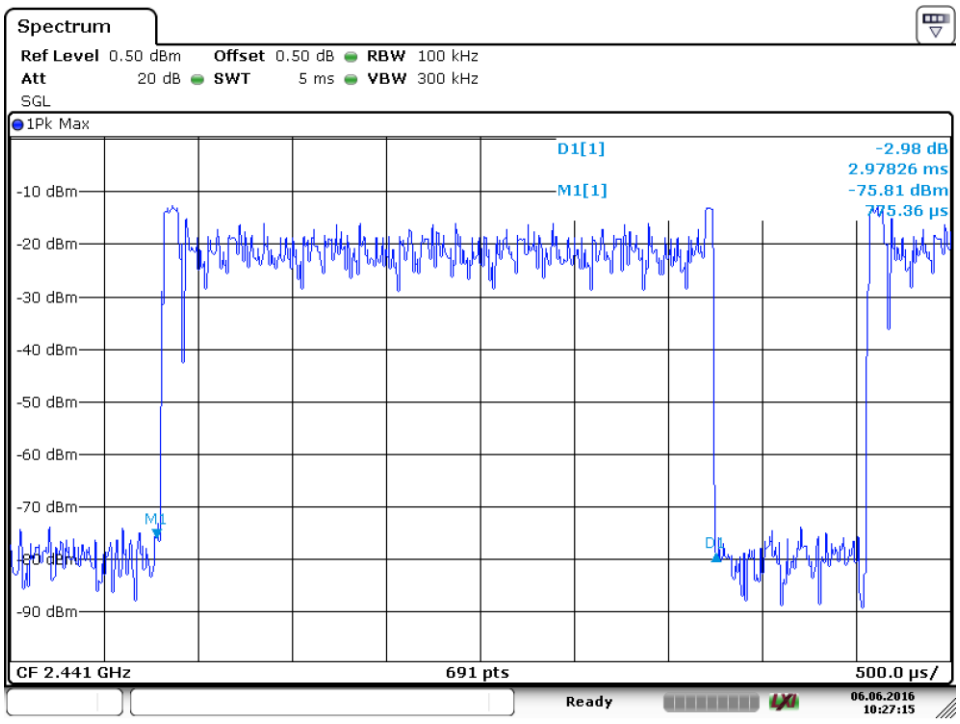
π/4-DQPSK Modulation



Date: 6.JUN.2016 10:25:59

2DH5

8-DPSK Modulation



Date: 6.JUN.2016 10:27:15

3DH5

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9.7 Spurious RF conducted emissions

Test Method

1. 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
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
3. The level displayed must comply with the limit specified in this Section. Submit these plots.
4. Repeat above procedures until all frequencies measured were complete.

Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

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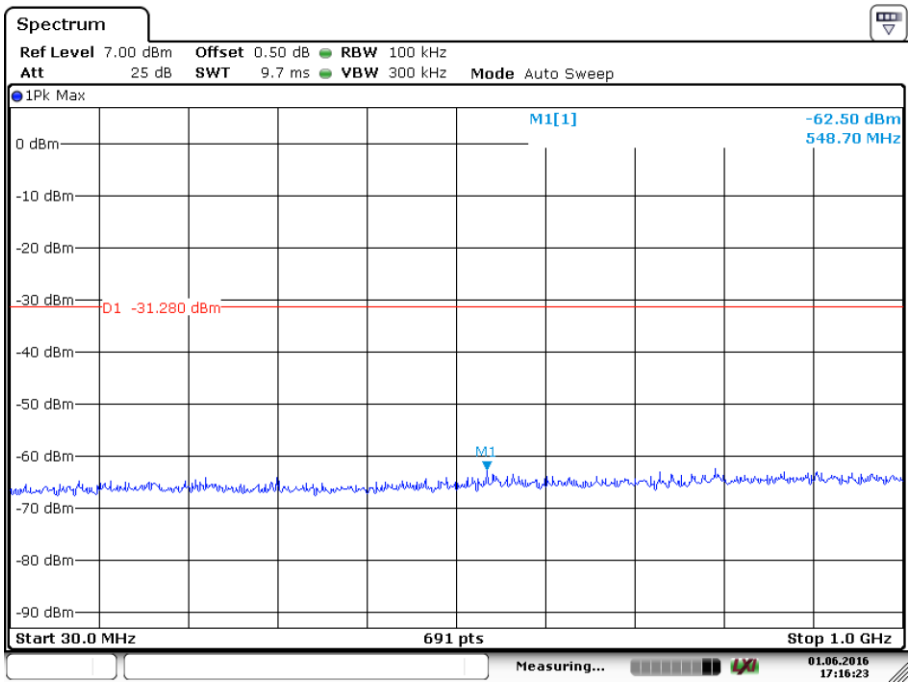
Spurious RF conducted emissions

Only the worse case (which is subject to the maximum EIRP, GFSK mode) test result is listed in the report.
BT3.0 GFSK Modulation:
2402MHz



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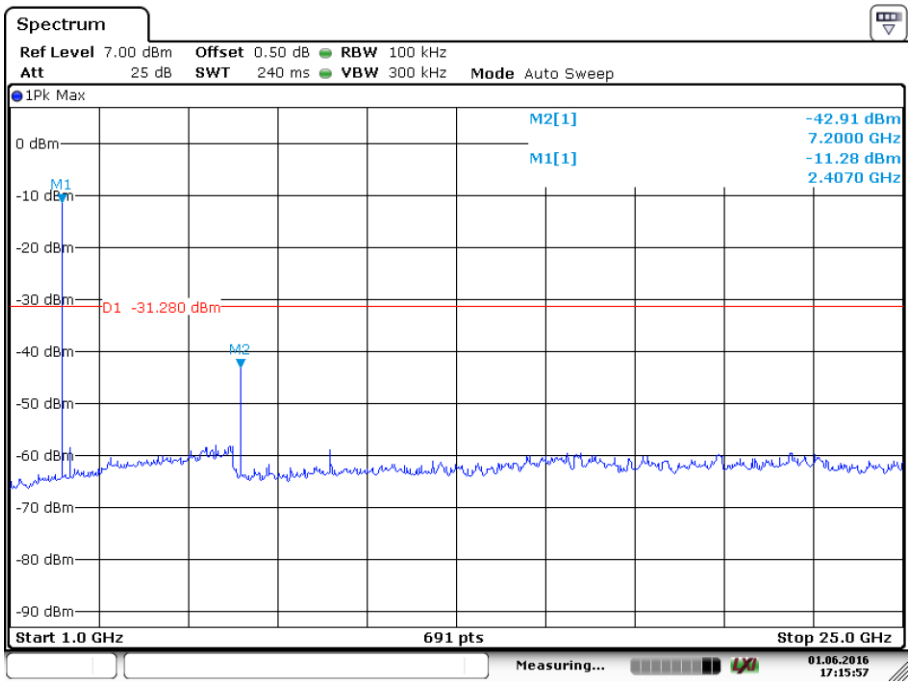

Date: 1.JUN.2016 17:15:56

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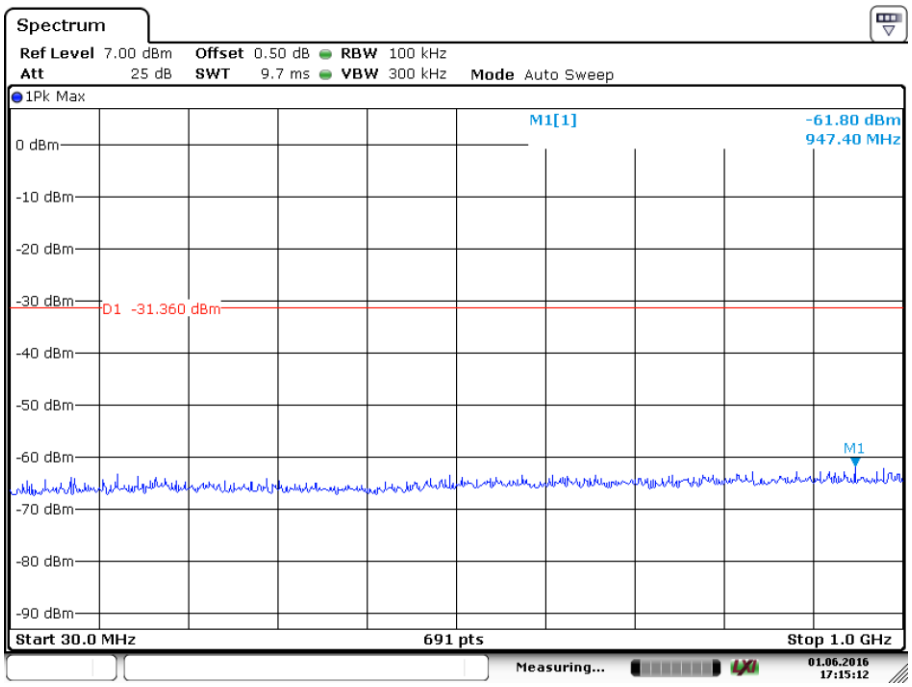
2441MHz



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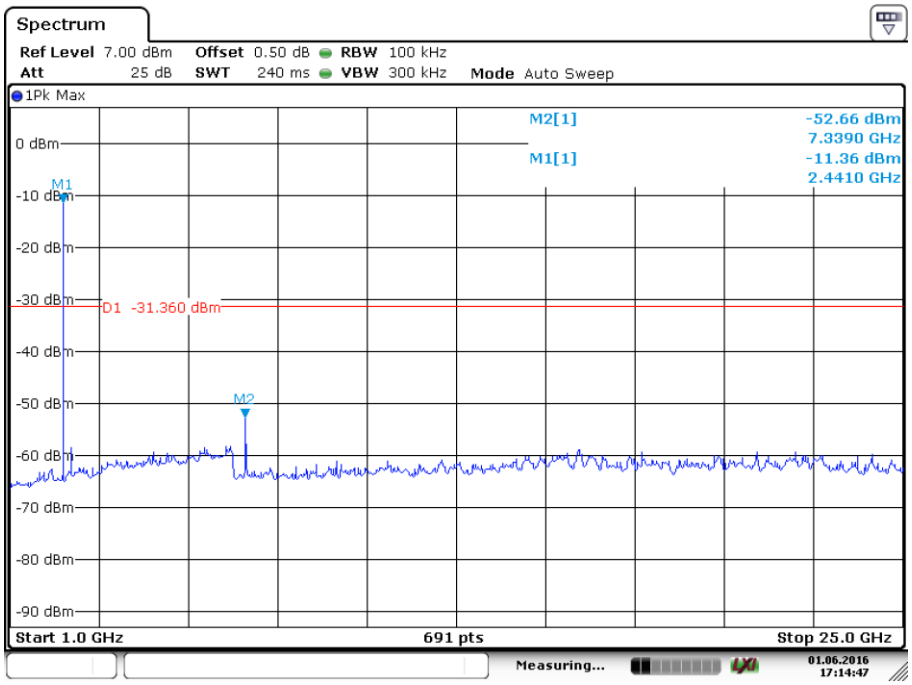

Date: 1.JUN.2016 17:14:47

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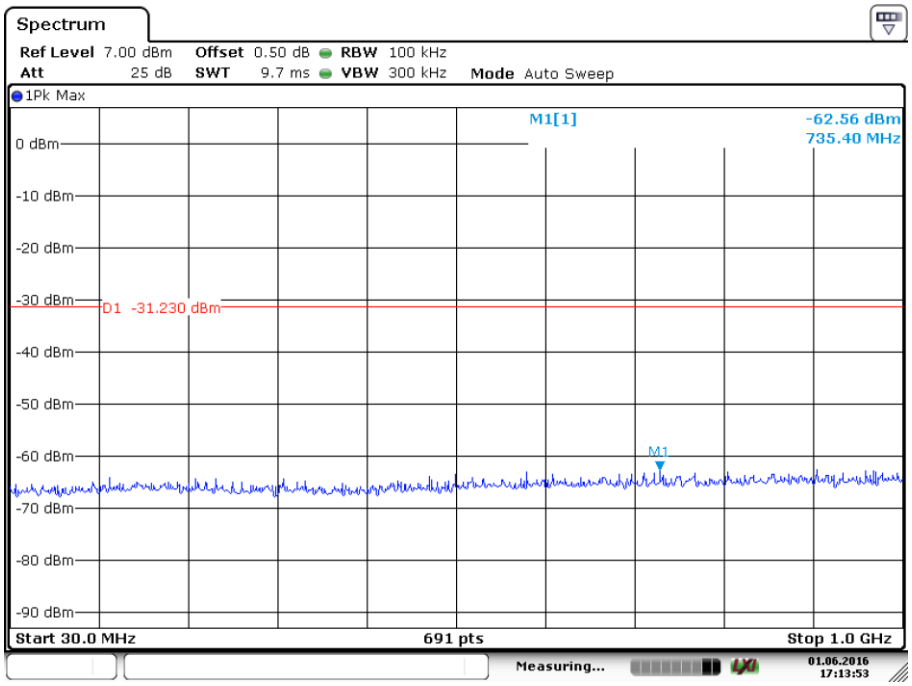
2480MHz



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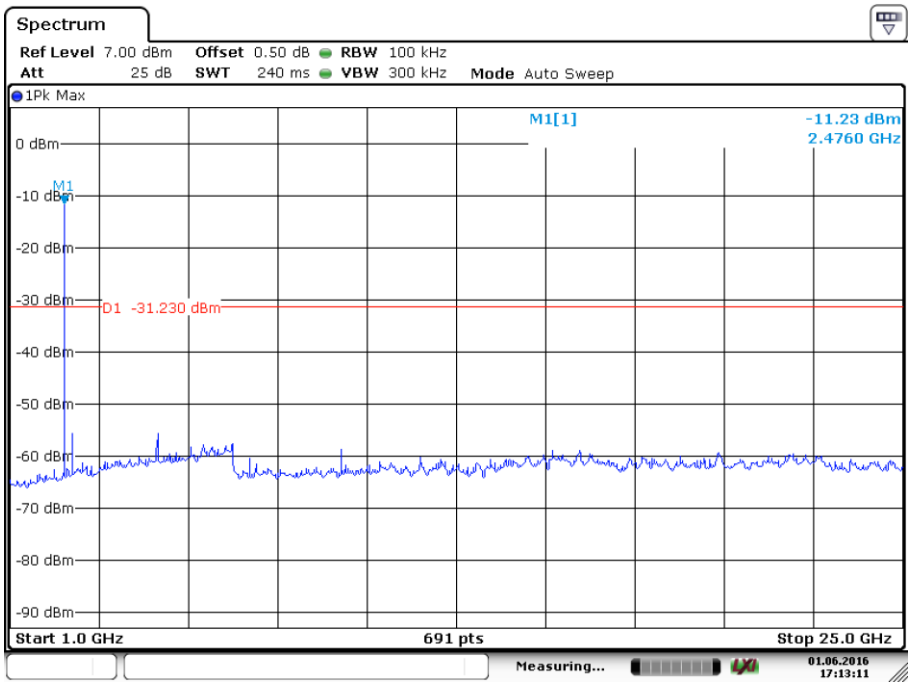

Date: 1.JUN.2016 17:13:12

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9.8 Band edge testing

Test Method

1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold
2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
3 The level displayed must comply with the limit specified in this Section. .
4 Repeat the test at the hopping off and hopping on mode, submit all the plots.

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.

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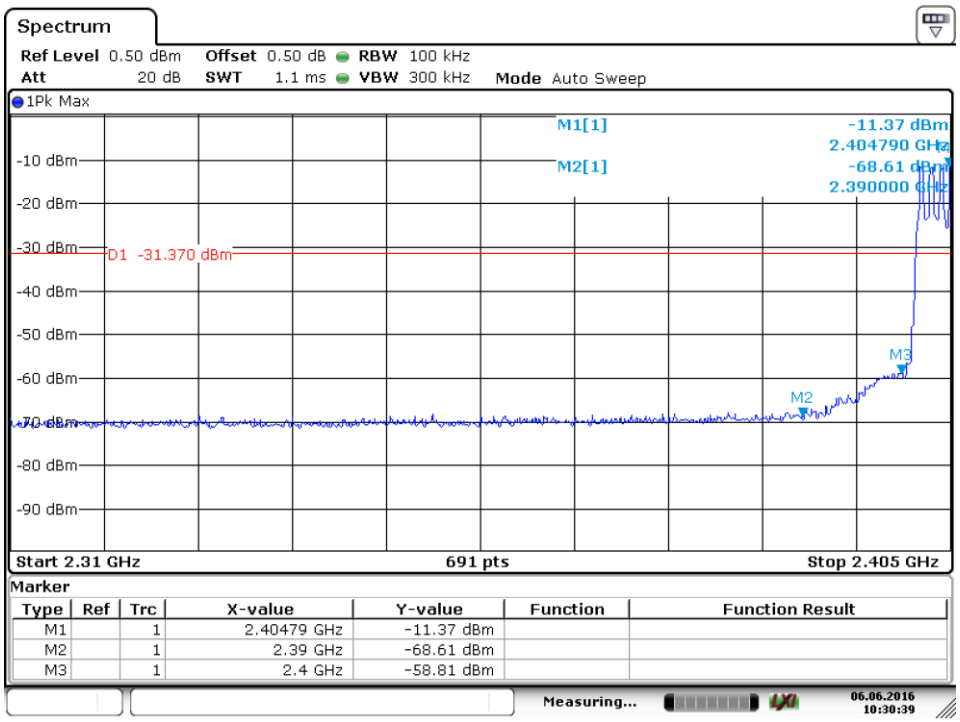
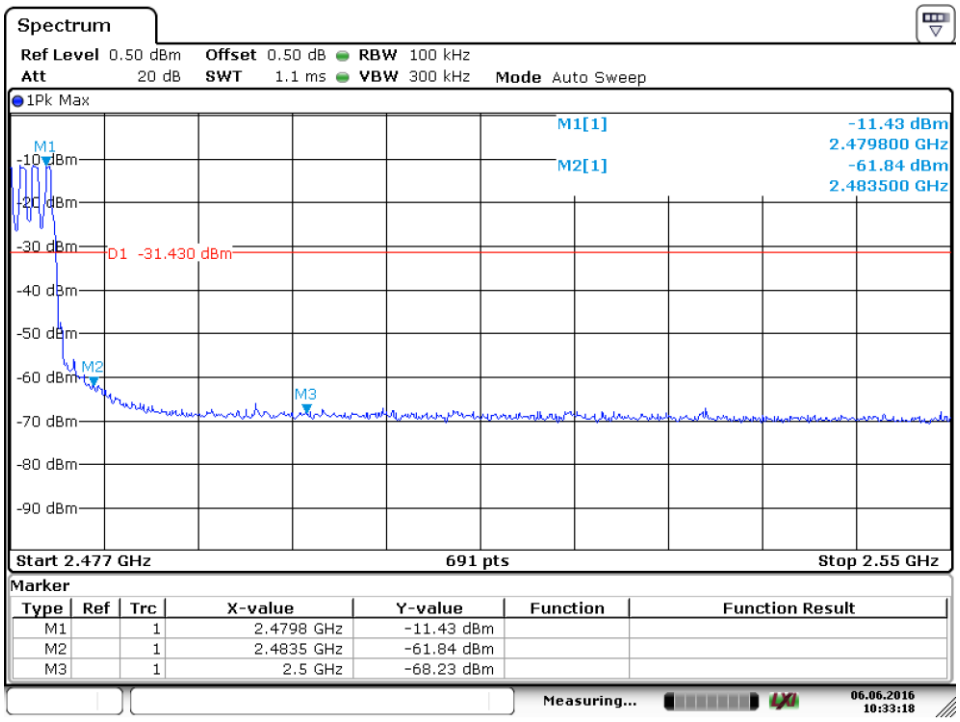
Band edge testing

BT3.0 GFSK Modulation Test Result:
Hopping on mode:



Date: 6.JUN.2016 10:30:39



Date: 6.JUN.2016 10:33:19

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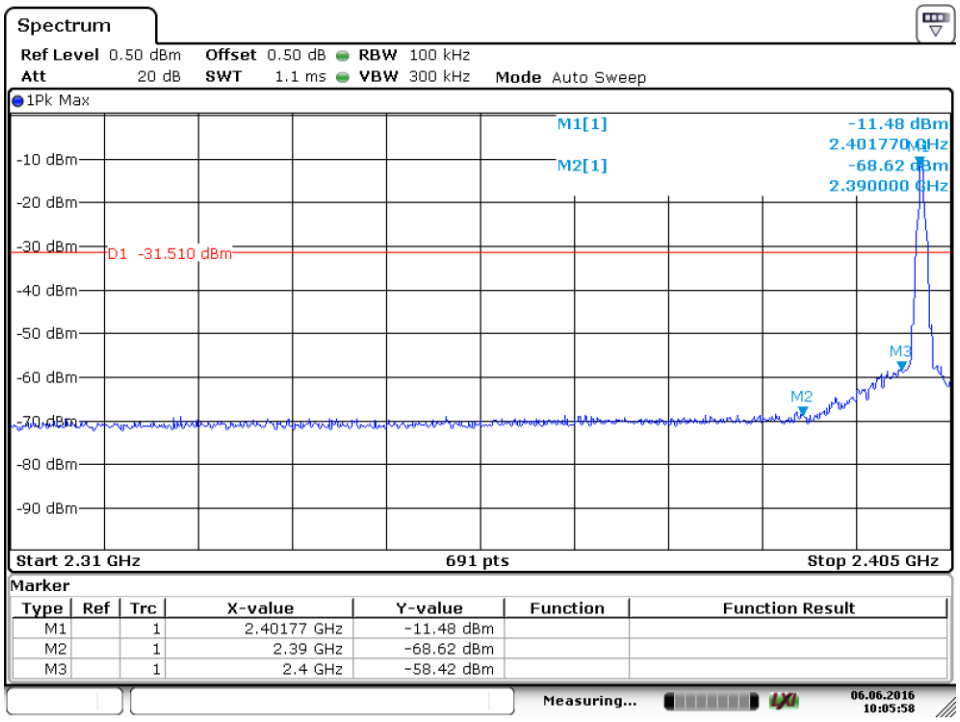
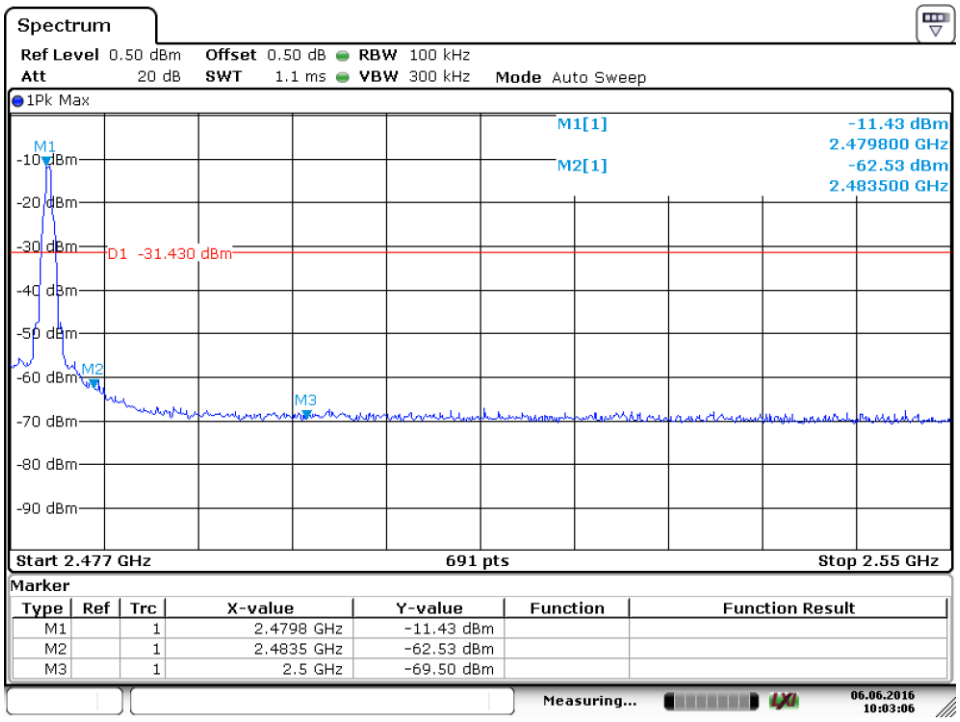
Hopping off mode:



Date: 6.JUN.2016 10:05:58



Date: 6.JUN.2016 10:03:07

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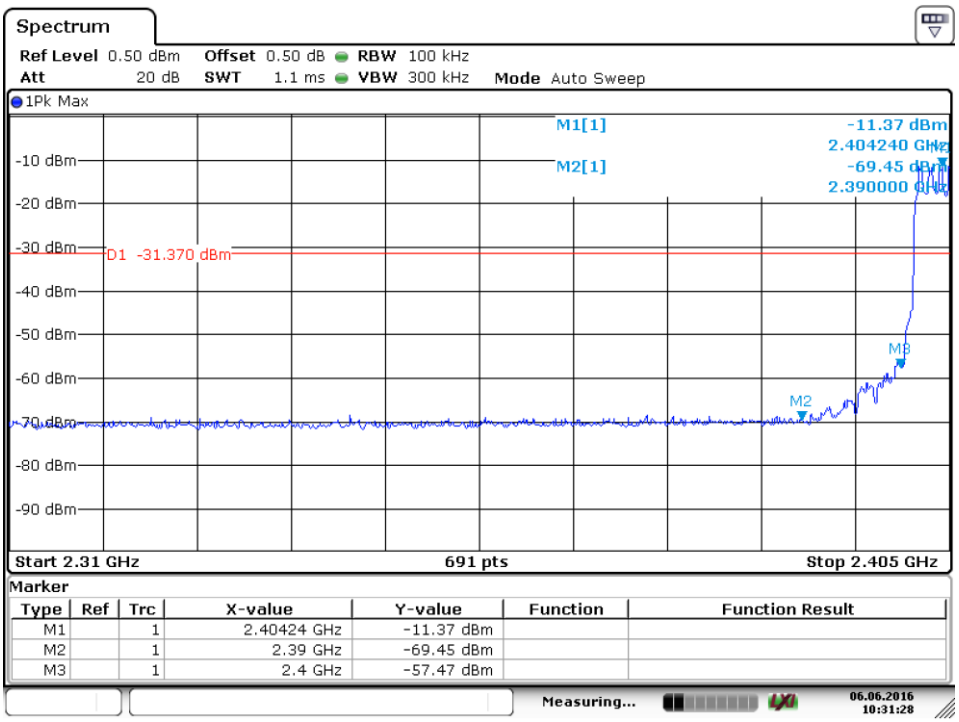
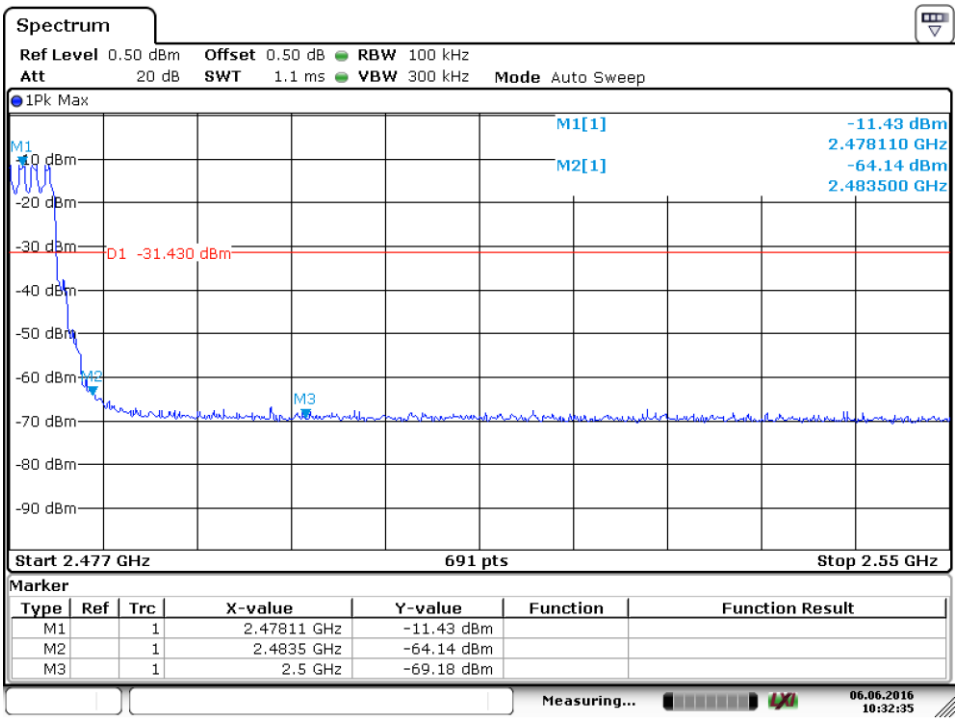
BT3.0 π/4-DQPSK Modulation Test Result:
Hopping on mode:



Date: 6.JUN.2016 10:31:28



Date: 6.JUN.2016 10:32:35

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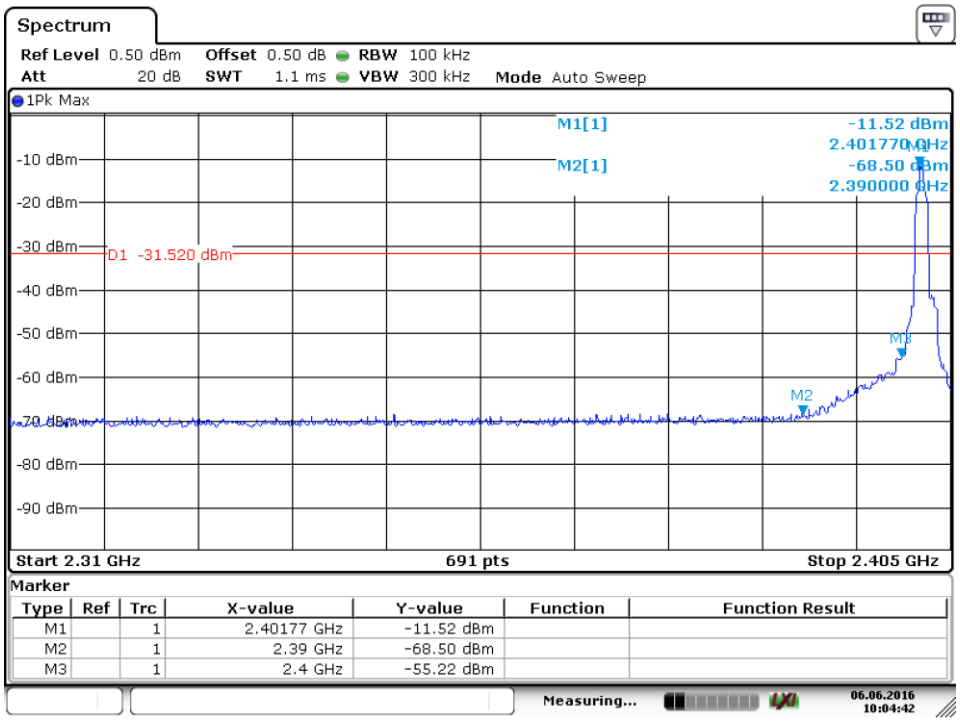
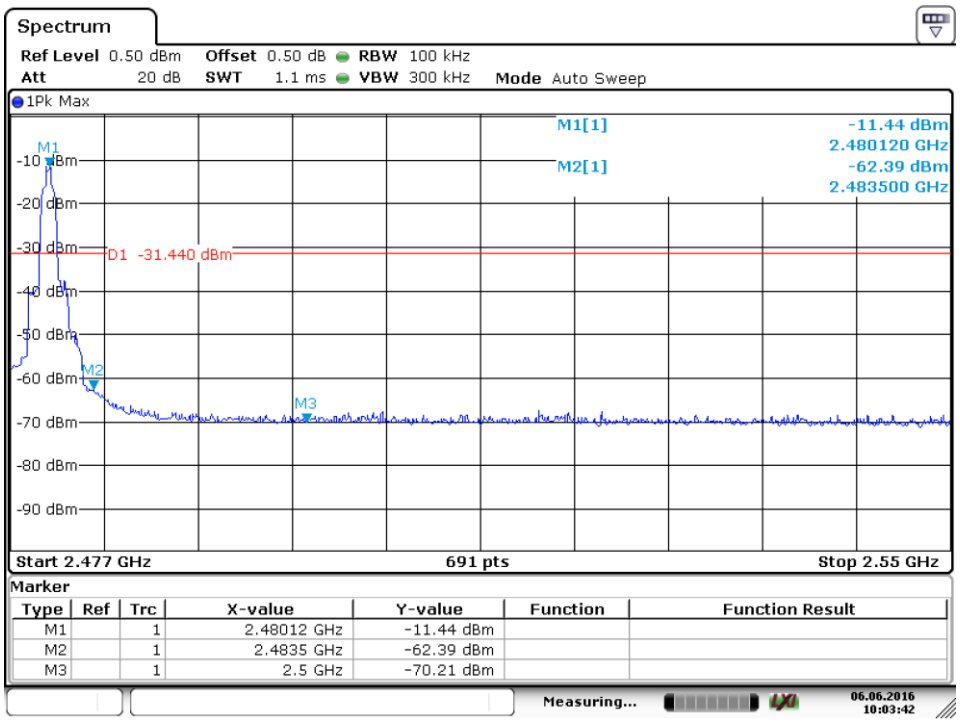
Hopping off mode:



Date: 6.JUN.2016 10:04:41



Date: 6.JUN.2016 10:03:42

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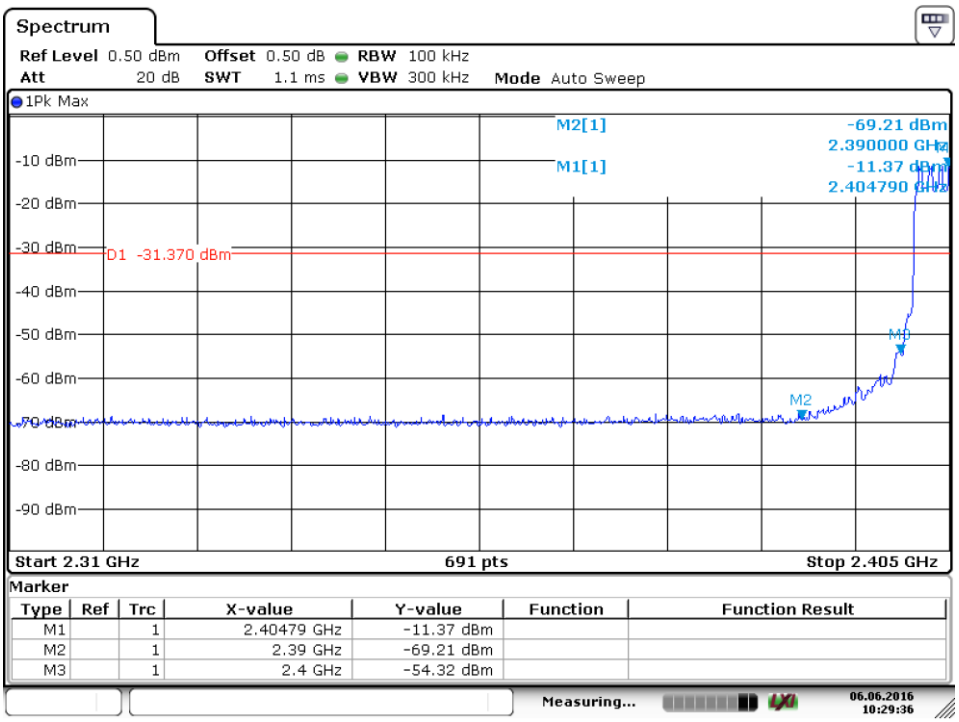
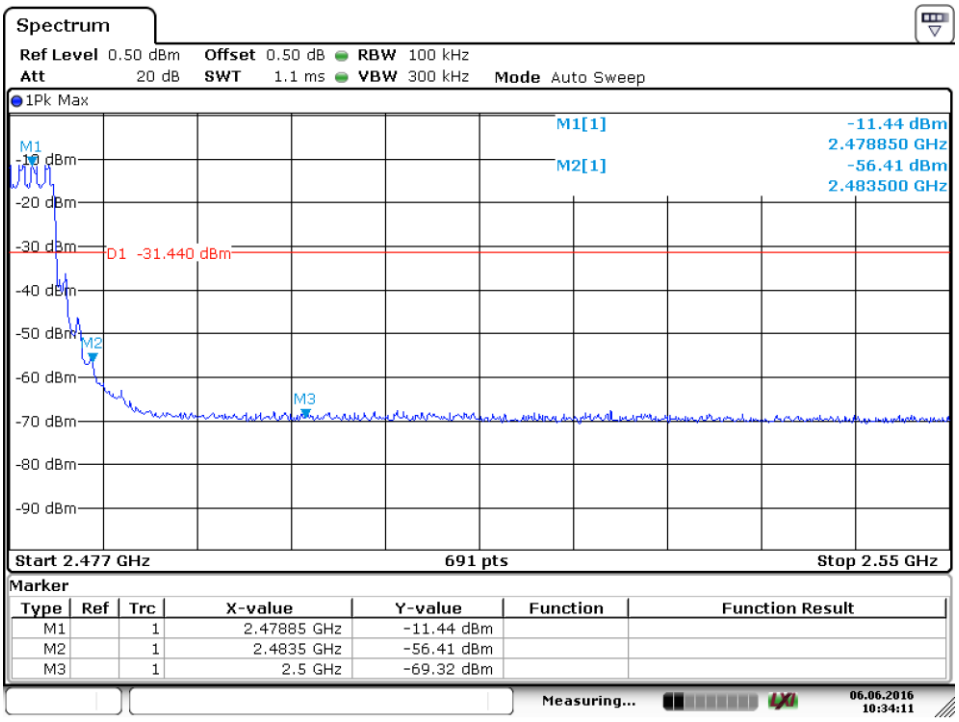
BT3.0 8-DPSK Modulation Test Result:
Hopping on mode:



Date: 6.JUN.2016 10:29:37



Date: 6.JUN.2016 10:34:11

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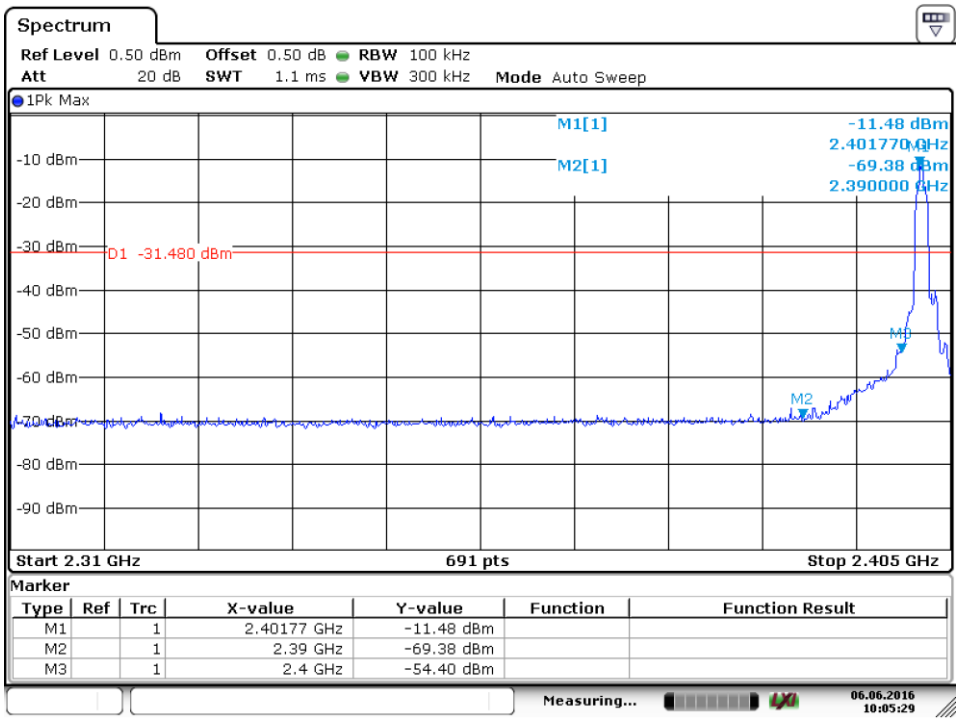
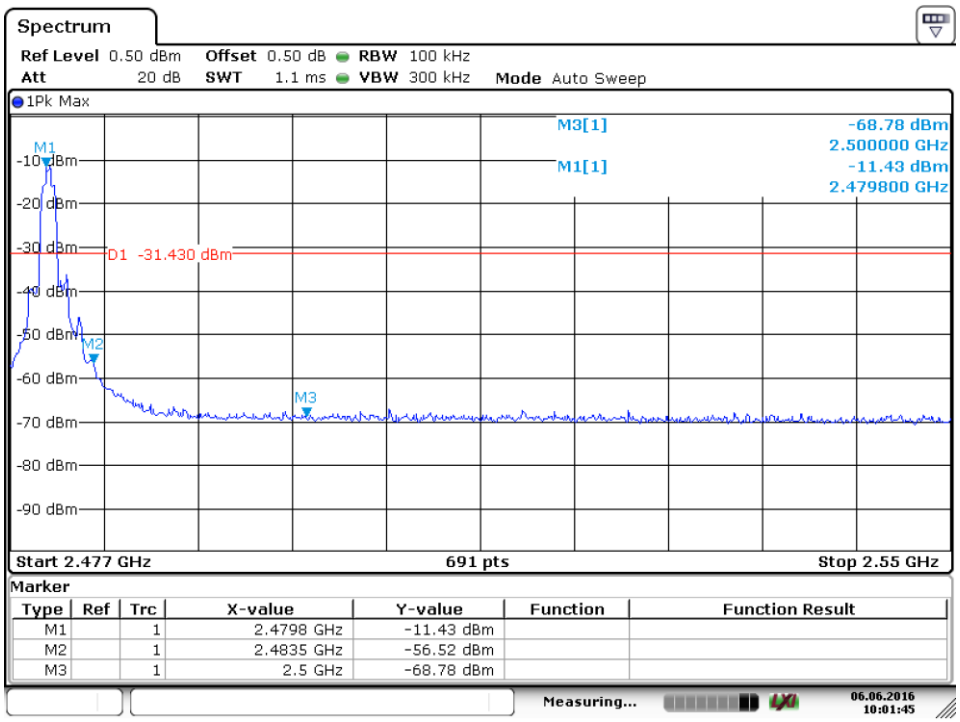
Hopping off mode:



Date: 6.JUN.2016 10:05:29



Date: 6.JUN.2016 10:01:45

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9.9 Spurious radiated emissions for transmitter

Test Method

1: The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5: Use the following spectrum analyzer settings According to C63.10:
For Above 1GHz
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 1MHz, VBW≥RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.
For Below 1GHz
Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Note:

1: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.
2: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.
3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (20log(1/duty cycle)).
4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

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Limit

The radio emission outside the operating frequency band 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. Radiated emissions which fall in the restricted bands, as defined in section15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (which is subject to the maximum EIRP, GFSK mode) test result is listed in the report.

Transmitting spurious emission test result as below:

BT3.0 GFSK Modulation 2402MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
30-1000MHz	277.40	41.84	H	46	QP	5.16	Pass
	286.35	42.72	V	46	QP	4.28	Pass
1000-25000MHz	*1535.200000	47.20	H	74	PK	26.80	Pass
	*4803.500000	48.49	H	74	PK	25.51	Pass
	*1535.200000	42.95	V	74	PK	31.05	Pass
	*4803.500000	42.98	V	74	PK	31.02	Pass
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BT3.0 GFSK Modulation 2441MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
30-1000MHz	277.40	41.54	H	46	QP	5.46	Pass
	286.35	42.61	V	46	QP	4.39	Pass
1000-25000MHz	*1535.200000	47.18	H	74	PK	26.82	Pass
	*4881.500000	50.43	H	74	PK	23.57	Pass
	*1535.200000	43.19	V	74	PK	30.81	Pass
	*4881.500000	44.25	V	74	PK	29.75	Pass
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BT3.0 GFSK Modulation 2480MHz Test Result

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
	MHz	dBuV/m		dBµV/m		dBuV/m	
30-1000MHz	277.40	41.23	H	46	QP	5.77	Pass
	286.35	42.67	V	46	QP	4.33	Pass
1000-25000MHz	*1535.133333	47.28	H	74	PK	26.72	Pass
	*4959.500000	48.23	H	74	PK	25.77	Pass
	*1535.133333	43.31	V	74	PK	30.69	Pass
	*4959.500000	45.94	V	74	PK	28.06	Pass
	--	--	--	--	--	--	-

Remark: 1) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.
2) "*" means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.

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10 Test Equipment List

Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2016-7-24
LISN	Rohde & Schwarz	ENV216	100326	2016-7-24

Conducted RF test (TS8997 Test System)

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2016-7-24
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2016-7-24
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2016-7-24
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2016-7-24

Radiated Spurious Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2016-7-24
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	708	2016-7-31
Horn Antenna	Rohde & Schwarz	HF907	102295	2016-7-24
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2017-10-21
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2016-7-24
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2016-7-24
Fully Anechoic Chamber	TDK	8X4X4	--	2019-5-29

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11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty		
Items		**Extended Uncertainty**
Conducted Emission	150 kHz to 30 MHz	±3.46 dB
Radiated Spurious Emission	25MHz-3000MHz	Horizontal: 4.98dB; Vertical: 5.06dB;
	3000MHz-18000MHz	Horizontal: 4.95dB; Vertical: 4.94dB;
Conducted RF Test		Power level test involved: 2.06dB Frequency test involved: 1.16×10-7

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