TEST REPORT

Report Number: 102289738MPK-012
Project Number: G102289738
October 30, 2015

Testing performed on the
DragonBoard 410C
Model: DragonBoard 410C
FCC ID: 2AFQA-DB410C
IC: 20763-DB410C

To

FCC Part 15 Subpart C (15.247)
Industry Canada RSS-247 Issue 1

For

Arrow Electronics, Inc.

Test Performed by:	Test Authorized by:
Intertek	Arrow Electronics, Inc.
1365 Adams Court	7459 South Lima Bldg. 1
Menlo Park, CA 94025 USA	Englewood, CO 80112 USA

Prepared by: _____ **Date:** October 30, 2015
Anderson Soungpanya

Reviewed by: _____ **Date:** October 30, 2015
Krishna K Vemuri

Report No. 102289738MPK-012

Equipment Under Test:	DragonBoard 410C
Trade Name:	DragonBoard
Model Number:	DragonBoard 410C
Serial Number:	AE-3915-006048
Applicant:	Arrow Electronics, Inc.
Contact:	Amanda Meyer
Address:	Arrow Electronics, Inc. 7459 South Lima Bldg. 1 Englewood, CO 80112
Country	USA
Tel. Number:	(303) 824-1711
Email:	ameyer@arrow.com
Applicable Regulation:	FCC Part 15 Subpart C (15.247) Industry Canada RSS-247 Issue 1
Date of Test:	October 1 – 28, 2015

We attest to the accuracy of this report:

Anderson Soungpanya
Project Engineer

Krishna K Vemuri
EMC Senior Staff Engineer

TABLE OF CONTENTS

1.0 Introduction

The Equipment Under Test (EUT) is the DragonBoard 410C, model number DragonBoard 410C, consisting one FHSS radio. This test report covers only the FHSS radio.

This report is designed to show compliance of the 2.4 GHz transceiver with the requirements of FCC Part 15 Subpart C (15.247) and RSS-247.

1.1 Summary of Tests

TEST	REFERENCE FCC Part 15 Subpart C (15.247)	REFERENCE RSS-247	RESULTS
RF Output Power	15.247(b)	5.4.2	Complies
20-dB Bandwidth	15.247(a)(1)	5.1.1	Complies
Channel Separation	15.247(a)(1)	5.1.2	Complies
Number of Hopping Channels	15.247(a)(1)	5.14	Complies
Average Channel Occupancy Time	15.247(a)(1)	5.14	Complies
Out-of-Band Antenna Conducted Emission	15.247(d)	5.5	Complies
Transmitter Radiated Emissions	15.247(d), 15.209, 15.205	RSS-GEN	Complies
RF Exposure	15.247(i)	RSS-102	Complies
AC Conducted Emission	15.207	RSS-GEN	Complies
Antenna Requirement	15.203	RSS-GEN	Complies. The EUT utilizes internal antenna and a unique connector.

2.0 General Description

2.1 Product Description

The DragonBoard™ 410c is the first development board based on a Qualcomm® Snapdragon™ 400 series processor. It features advanced processing power, Wi-Fi, Bluetooth connectivity, and GPS, all packed into a board the size of a credit card. Based on the 64-bit capable Snapdragon 410 processor, the DragonBoard 410c is designed to support rapid software development, education and prototyping, and is compliant with the96Boards Consumer Edition specification. All this makes it ideal for enabling embedded computing and Internet of Things (IoT) products, including the next generation of robotics, cameras, medical devices, vending machines, smart buildings, digital signage, casino gaming consoles, and much more.

Overview of the EUT

Applicant	Arrow Electronics, Inc.
Trade Name	Arrow Electronics, Inc.
Model Number	DragonBoard 410C
FCC Identifier	2AFQA-DB410C
IC Identifier	20763-DB410C
Type of Transmission	Frequency Hopping Spread Spectrum
Rated RF Output	3.67 dBm (2.33mW)
Frequency Range	2402 – 2480 MHz
Number of Channel(s)	79, (Channels 0-78)
Modulation Type	GFSK, π/4-DQPSK, 8DPSK
Data Rate	Up to 3Mbps
Antenna(s) type & Gain	PIFA Antenna, 3.6 dBi peak gain & Internal PCB Antenna, 0.7dBi peak gain
Applicant name & address	Arrow Electronics, Inc. 7459 South Lima Bldg. 1 Englewood, CO 80112 USA

EUT receive date: September 15, 2015
EUT receive condition: The pre-production version of the EUT was received in good condition with no apparent damage. As declared by the Applicant, it is identical to the production units.
Test start date: October 01, 2015
Test completion date: October 28, 2015
The test results in this report pertain only to the item tested.

2.2 Related Submittal(s) Grants

None.

2.3 Test Methodology

Antenna conducted measurements were performed according to the procedure DA 00-705 Released March 30, 2000 “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.”

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4. Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Data Sheet"** of this Application.

All other measurements were made in accordance with the procedures in part 2 of CFR 47.

Following is the channel test plan:

Channels in 2.4 GHz band			
Test Channel		Frequency, MHz	Tested
Low	0	2402	√
Middle	39	2441	√
High	78	2480	√

2.4 Test Facility

The test site used to collect the radiated data is site 1 (10-m semi-anechoic chamber). This test facility and site measurement data have been fully placed on file with the FCC, IC and A2LA accredited.

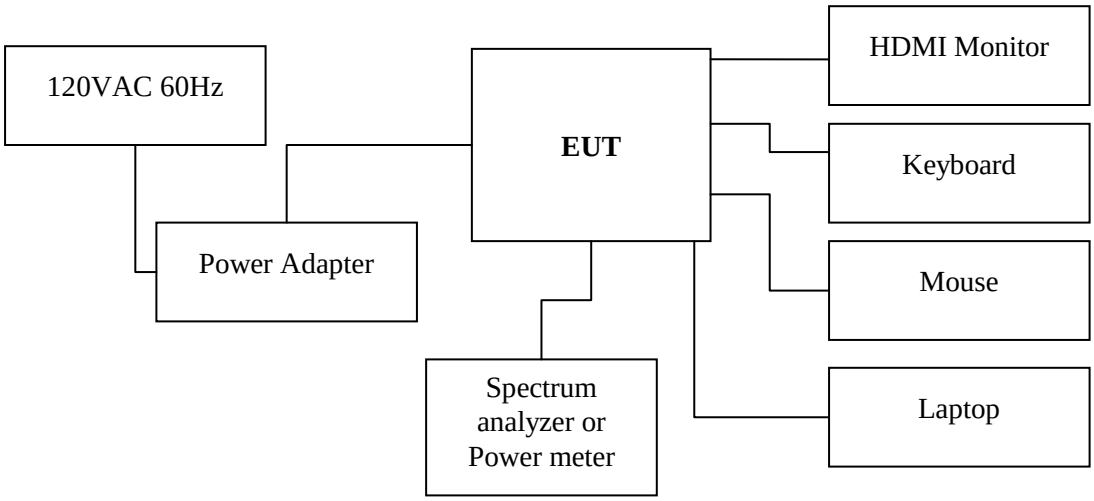
3.0 System Test Configuration

3.1 Support Equipment

Description	Manufacturer	Model No./ Part No.
Power Adapter	Power Partners	SAW24-120-2000
HDMI Monitor	HP	ZR2440W
Keyboard	HP	KU-0316
Mouse	Logitech	M-B0001
Laptop	Asus	Eee PC Seashell Series

3.2 Block Diagram of Test Setup

Antenna was removed and co-axial connector with a cable was installed for Conducted Measurements. Antenna was used for Radiated Measurements.



S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Length in Meters

3.3 Justification

For radiated emission measurements the EUT is placed on a non-conductive table. The EUT is attached to peripherals and they are connected and operational (as typical as possible). The EUT is wired to transmit full power. During testing, all cables are manipulated to produce worst-case emissions.

All measurements except "Average Channel Occupancy Time" test were done with the worse-case data rate with highest power and widest spectrum were selected for final measurements: DH5 for GFSK, DH5 for π/4-DQPSK, DH5 for 8DPSK. The Average Channel Occupancy Time test was measured with DH1, DH3 and DH5.

3.4 Mode of Operation During Test

During transmitter testing, the transmitter was setup to transmit continuously at maximum RF power on the low channel, middle channel, high channel and with hopping channels enabled.

3.5 Modifications Required for Compliance

Intertek installed no modifications during compliance testing in order to bring the product into compliance.

3.6 Additions, Deviations and Exclusions from Standards

No additions, deviations or exclusions from the standard were made.

4.0 Transmitter Emissions Measurement Results

4.1 20dB Bandwidth, and 99% Occupied Bandwidth
FCC Rule 15.247(a)(1)

4.1.1 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems” was used to determine the 20dB bandwidth.

- Span = Approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
- RBW = 1% of the 20 dB bandwidth
- VBW = 3 x RBW
- Sweep = Auto
- Detector function = Peak
- Trace = Max hold

The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the markerdelta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

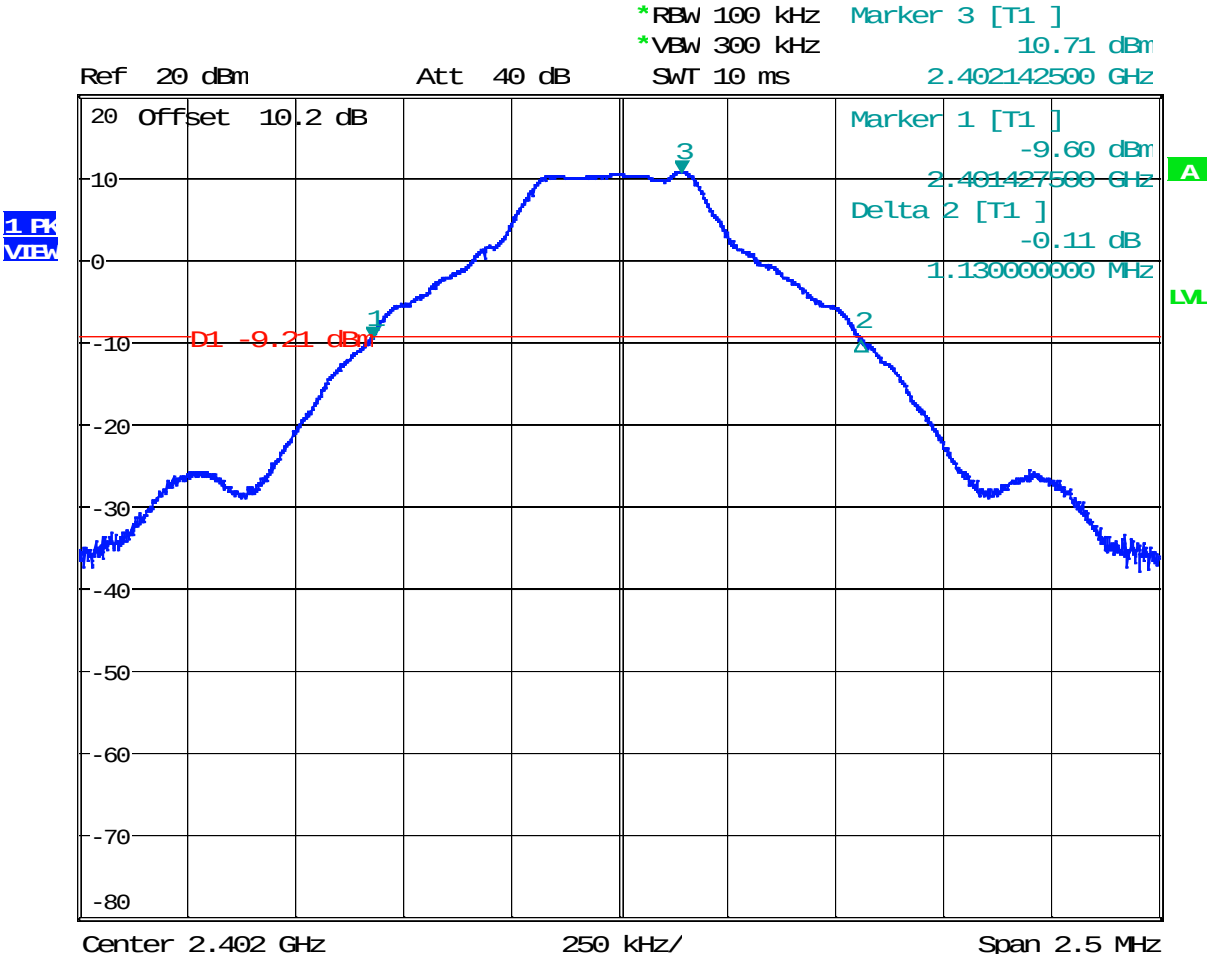
For 99% power bandwidth measurement, the bandwidth was determined by using the built-in 99% occupied bandwidth function of the spectrum analyzer.

The antenna port of the EUT was connected to the input of a spectrum analyzer (SA). For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A Peak output reading was taken, a Display line was drawn for 20dB lower than Peak level. The 20dB bandwidth was determined from where the channel output spectrum intersected the display line.

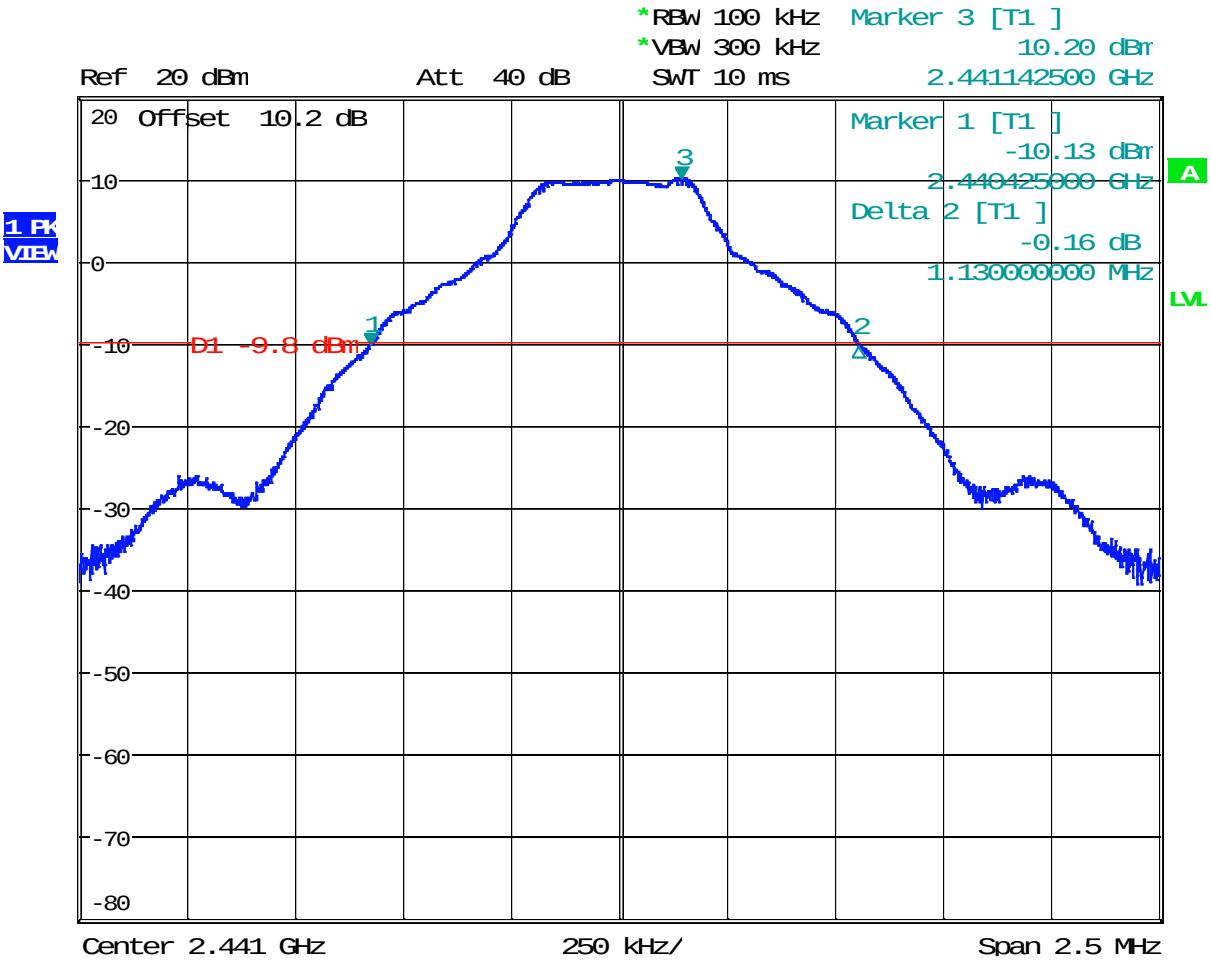
4.1.2 Test Result

Modulation Type	Channel	Frequency MHz	20 dB FCC Bandwidth, MHz	Plot #	99% Bandwidth, MHz	Plot #
GFSK	0	2402	1.130	1.1	0.912	1.10
	39	2441	1.130	1.2	0.914	1.11
	78	2480	1.129	1.3	0.905	1.12
π/4-DQPSK	0	2402	1.375	1.4	1.178	1.13
	39	2441	1.370	1.5	1.179	1.14
	78	2480	1.374	1.6	1.176	1.15
8DPSK	0	2402	1.380	1.7	1.178	1.16
	39	2441	1.380	1.8	1.176	1.17
	78	2480	1.384	1.9	1.176	1.18

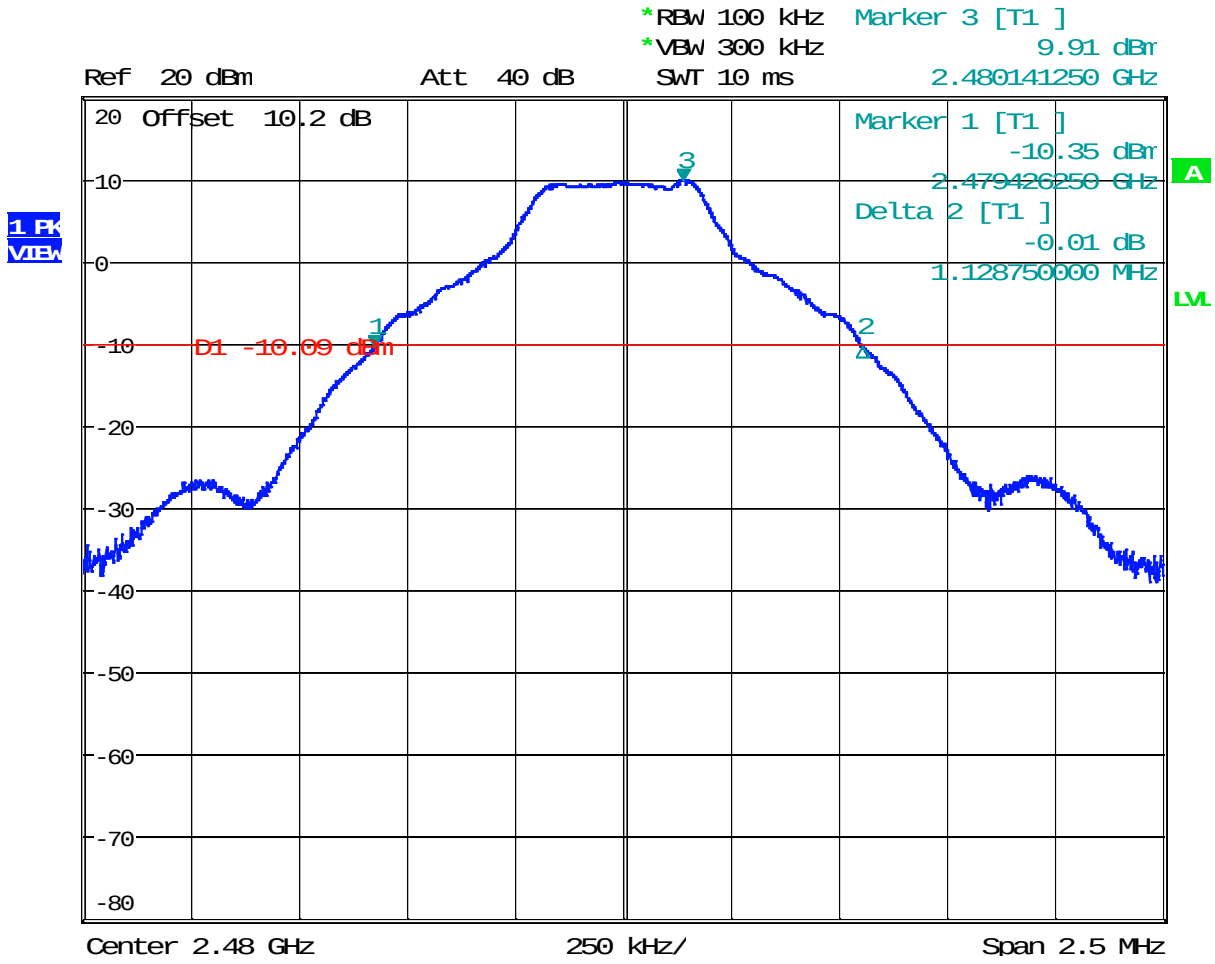
Plot 1. 1 – 20dB Bandwidth Low Channel GFSK



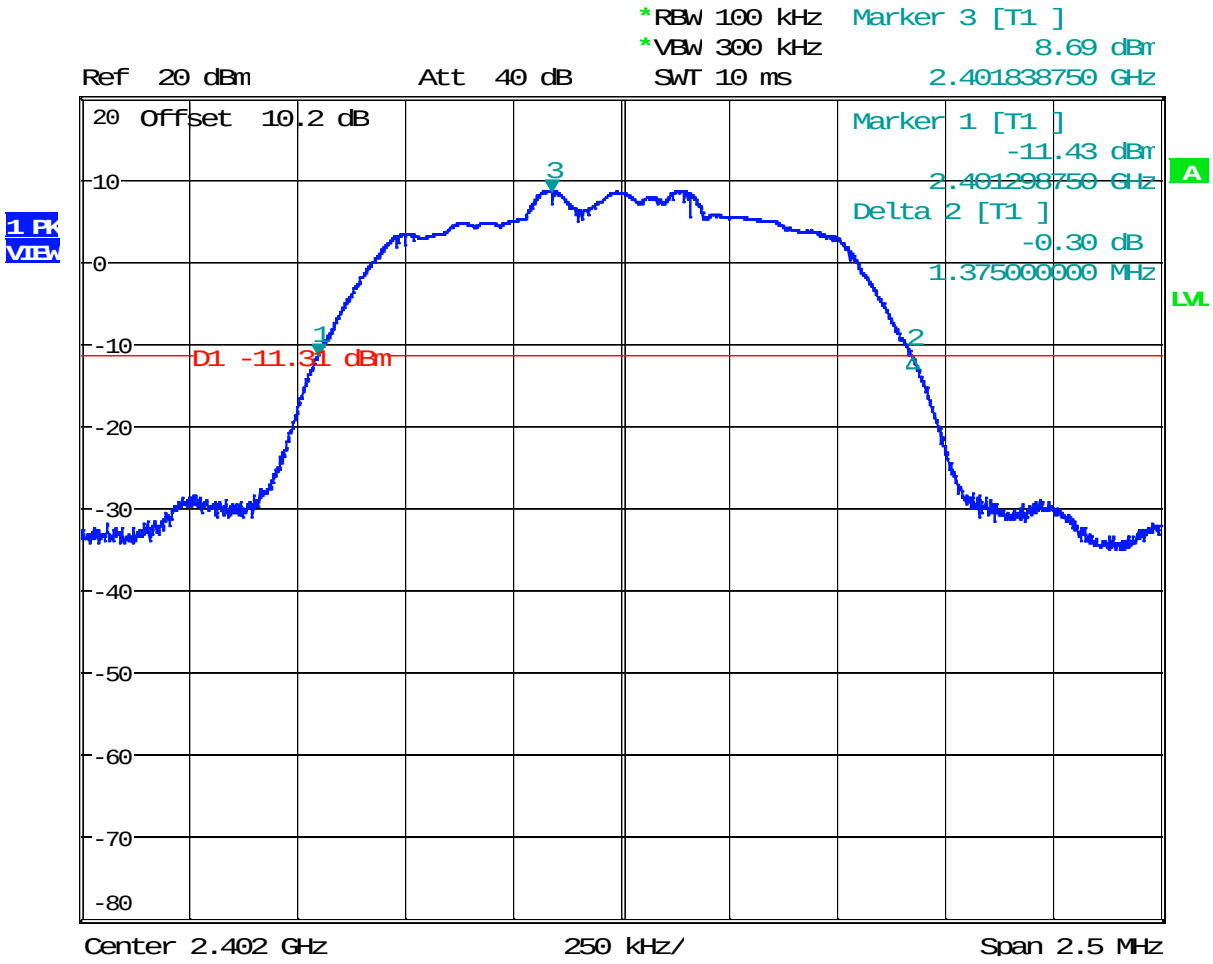
Plot 1. 2 – 20dB Bandwidth Middle Channel GFSK



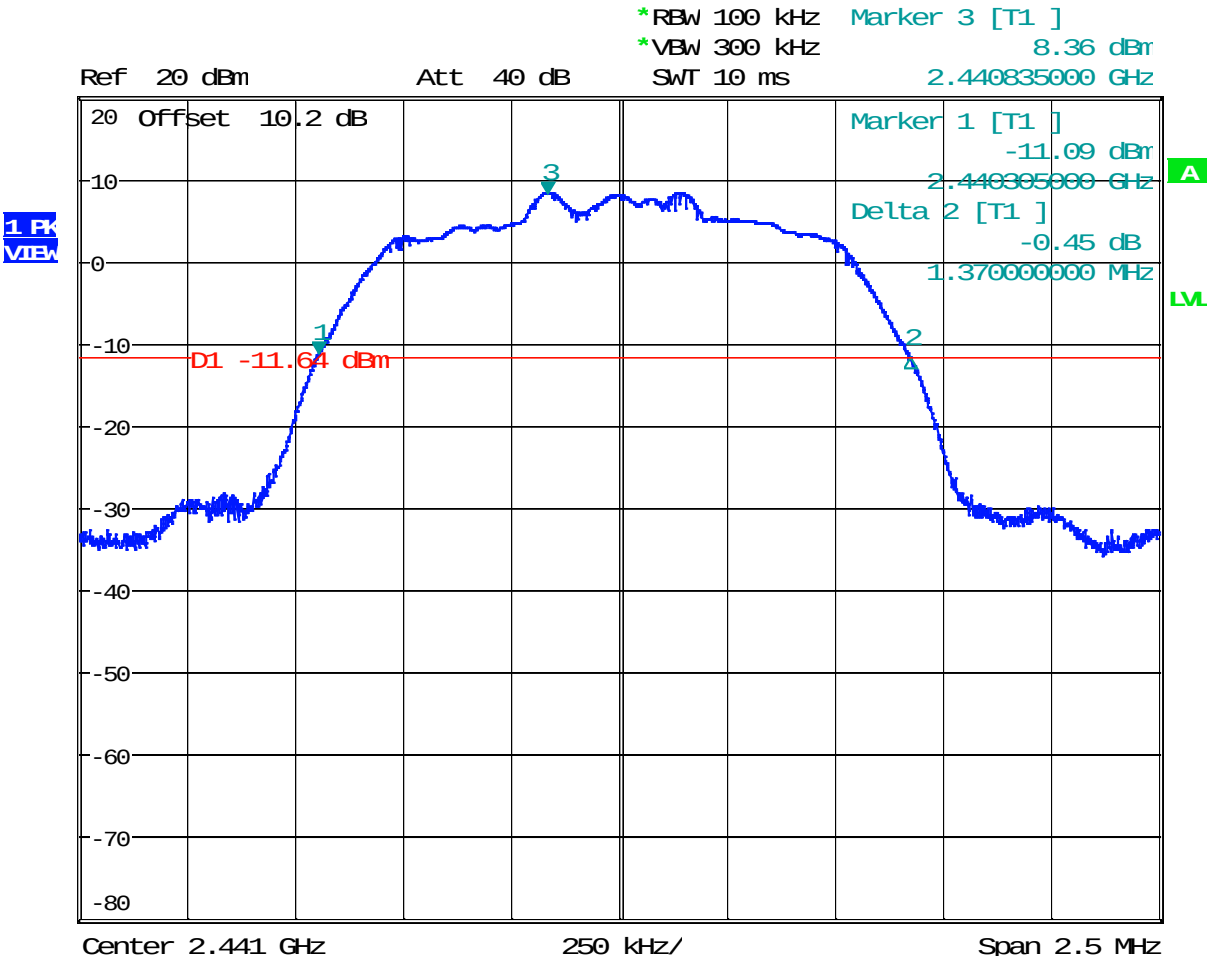
Plot 1. 3 – 20dB Bandwidth High Channel GFSK



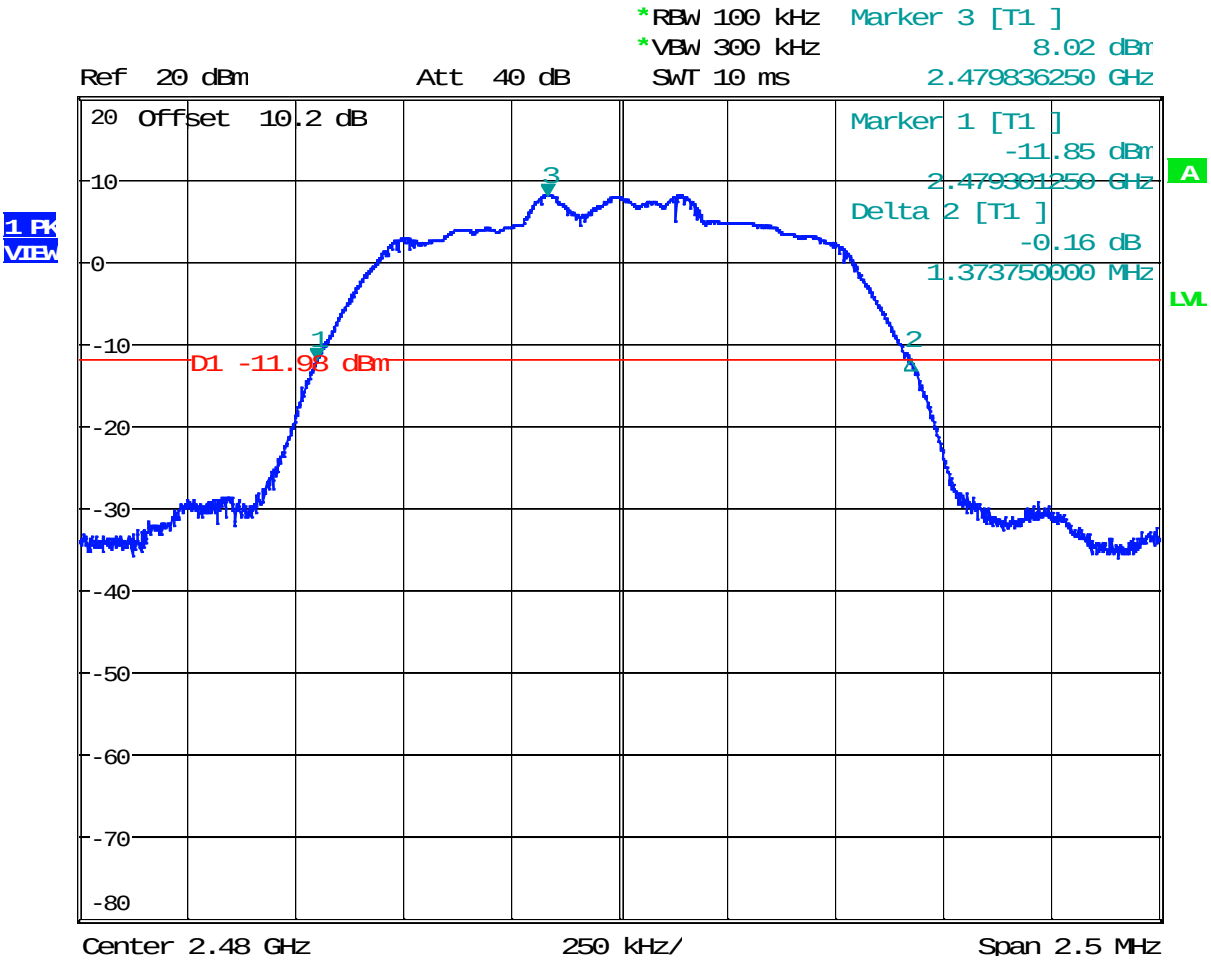
Plot 1. 4 – 20dB Bandwidth Low Channel π/4-DQPSK



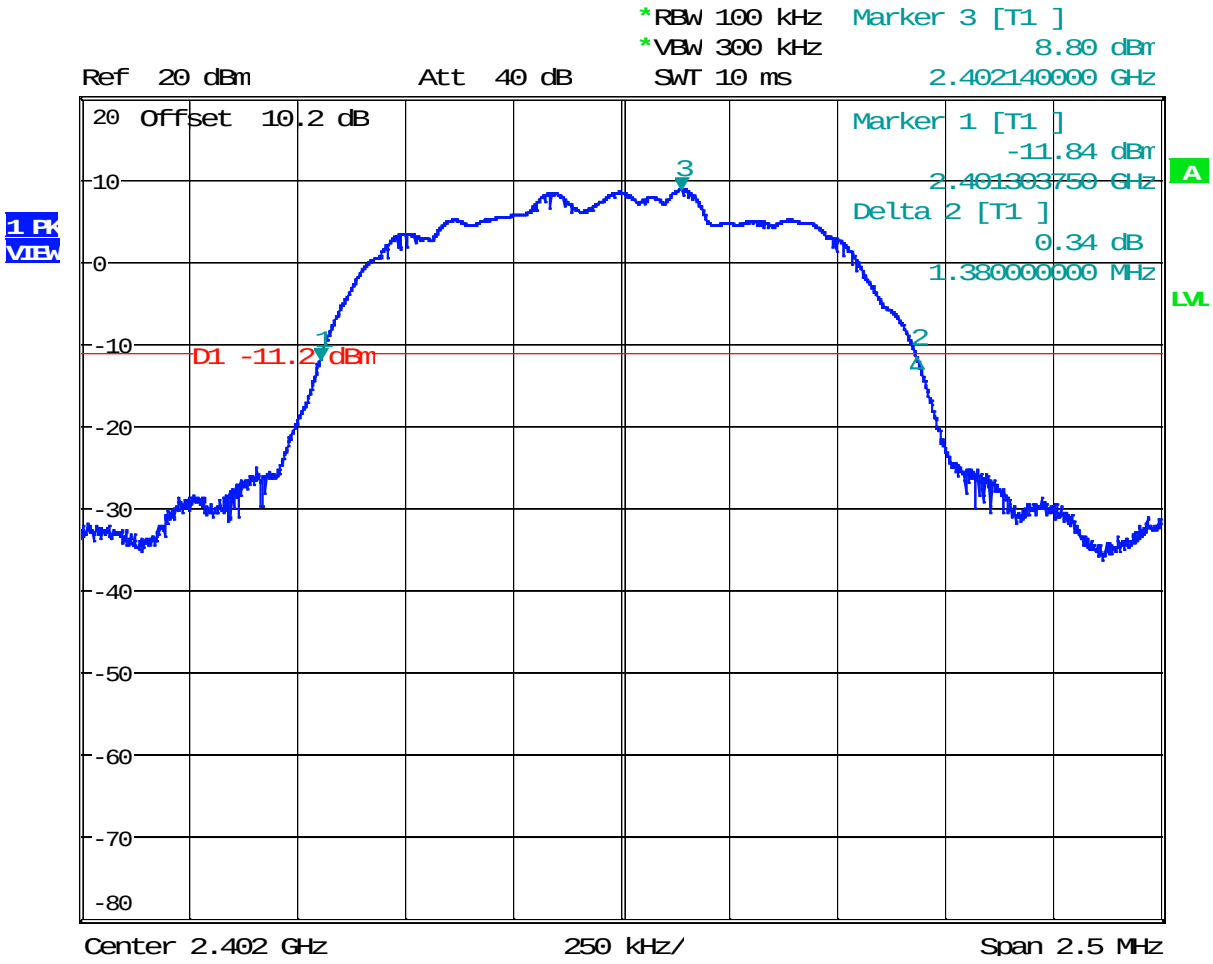
Plot 1. 5 – 20dB Bandwidth Middle Channel π/4-DQPSK



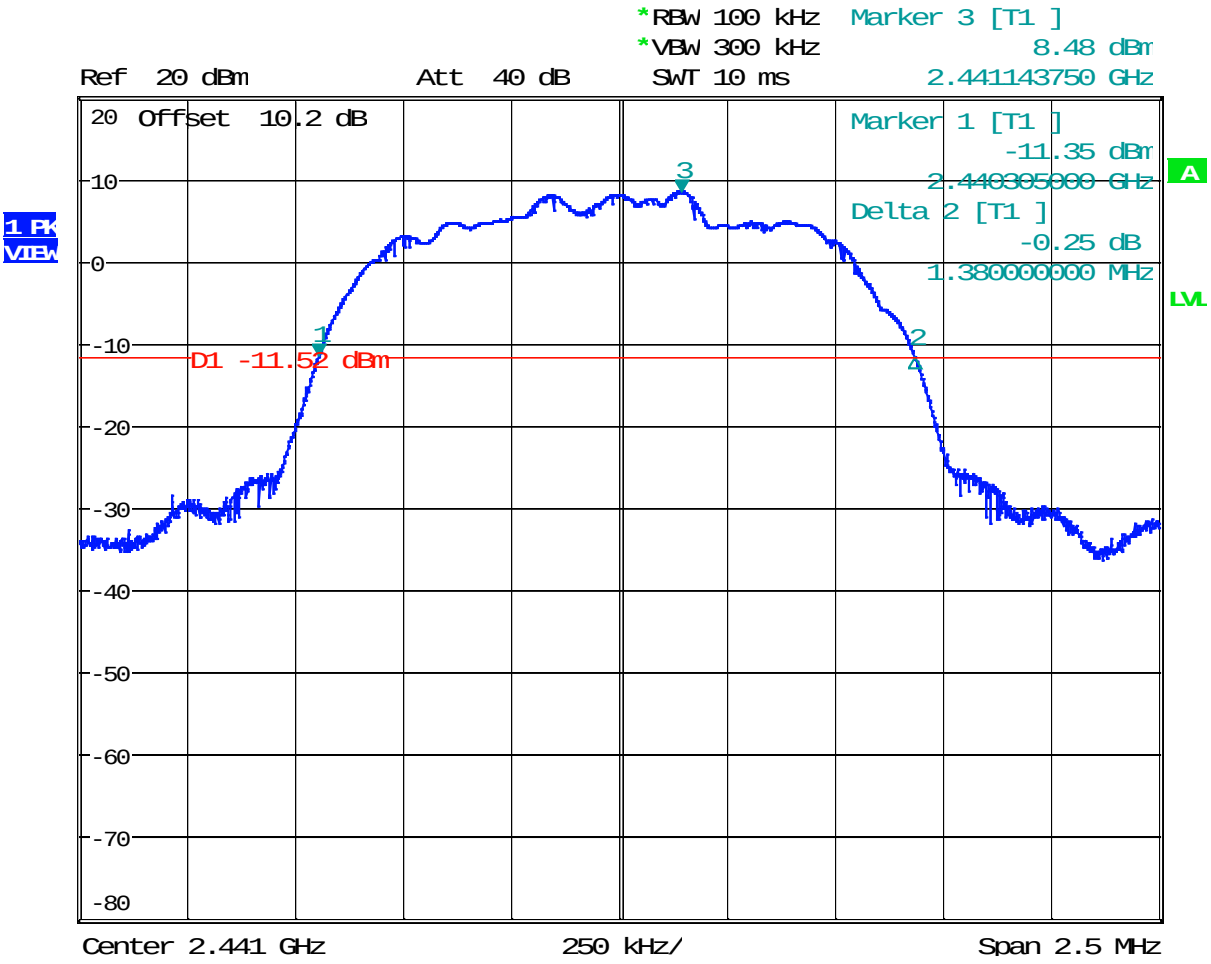
Plot 1. 6 – 20dB Bandwidth High Channel π/4-DQPSK



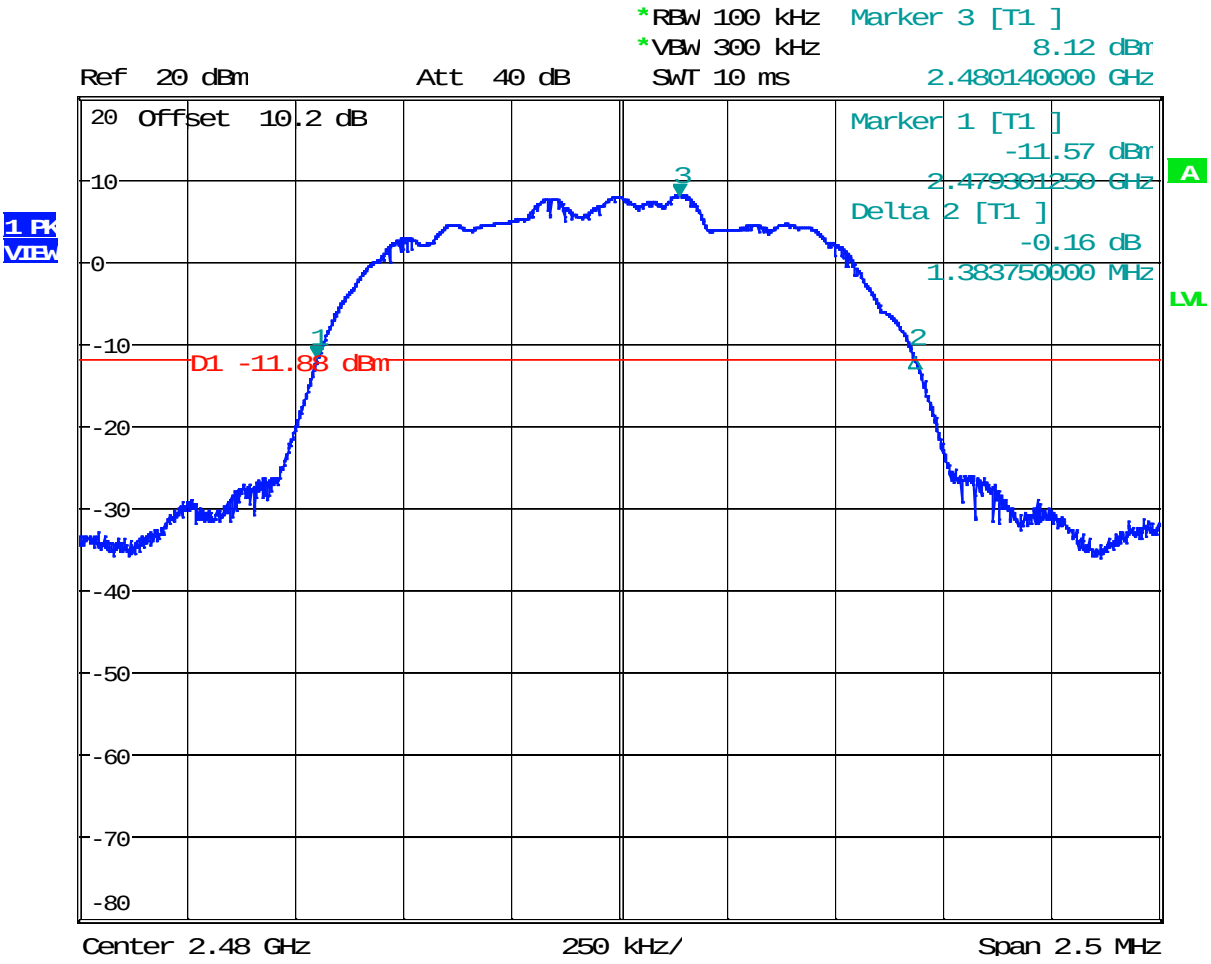
Plot 1. 7 – 20dB Bandwidth Low Channel 8DPSK



Plot 1. 8 – 20dB Bandwidth Middle Channel 8DPSK

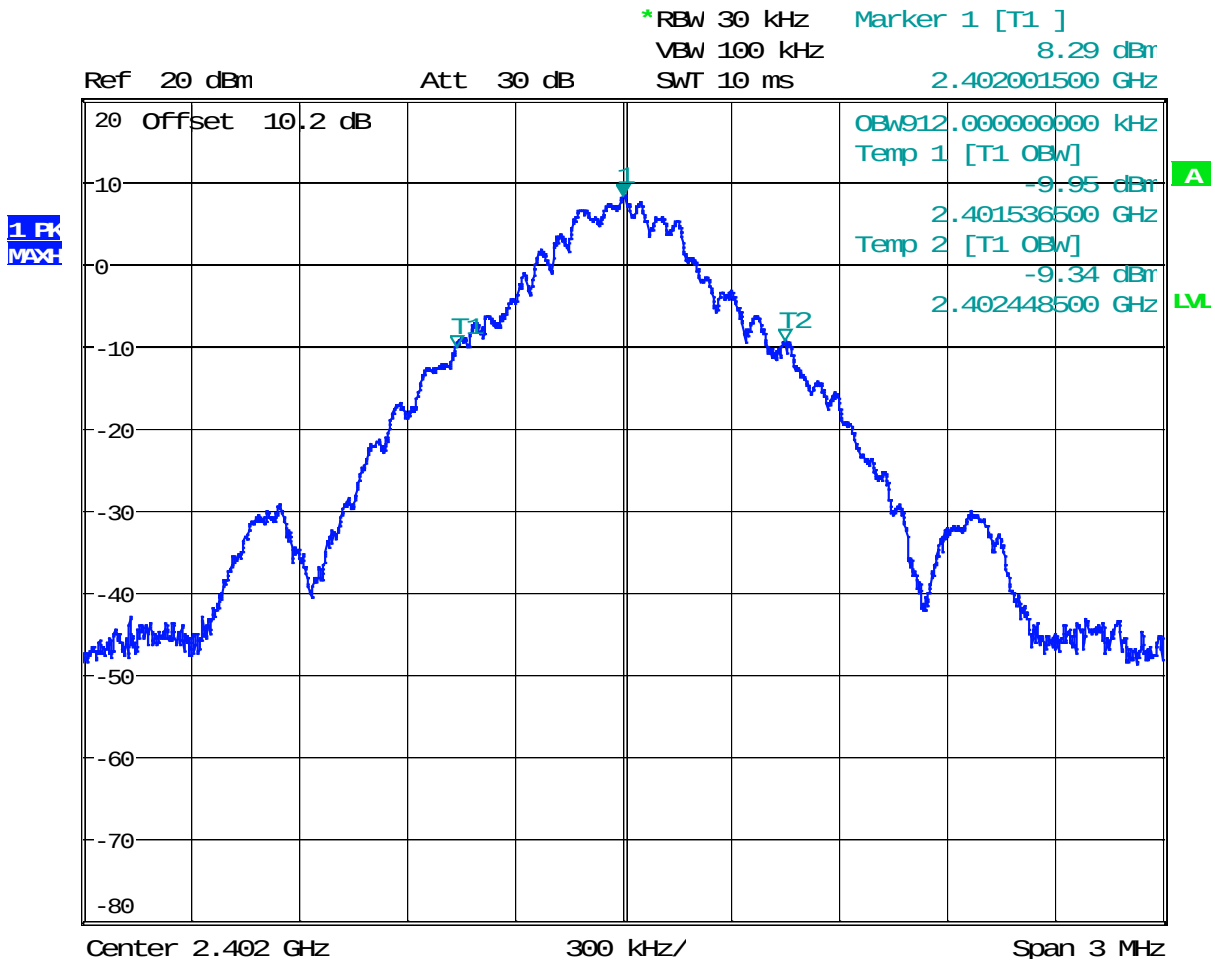


Plot 1. 9 – 20dB Bandwidth High Channel 8DPSK

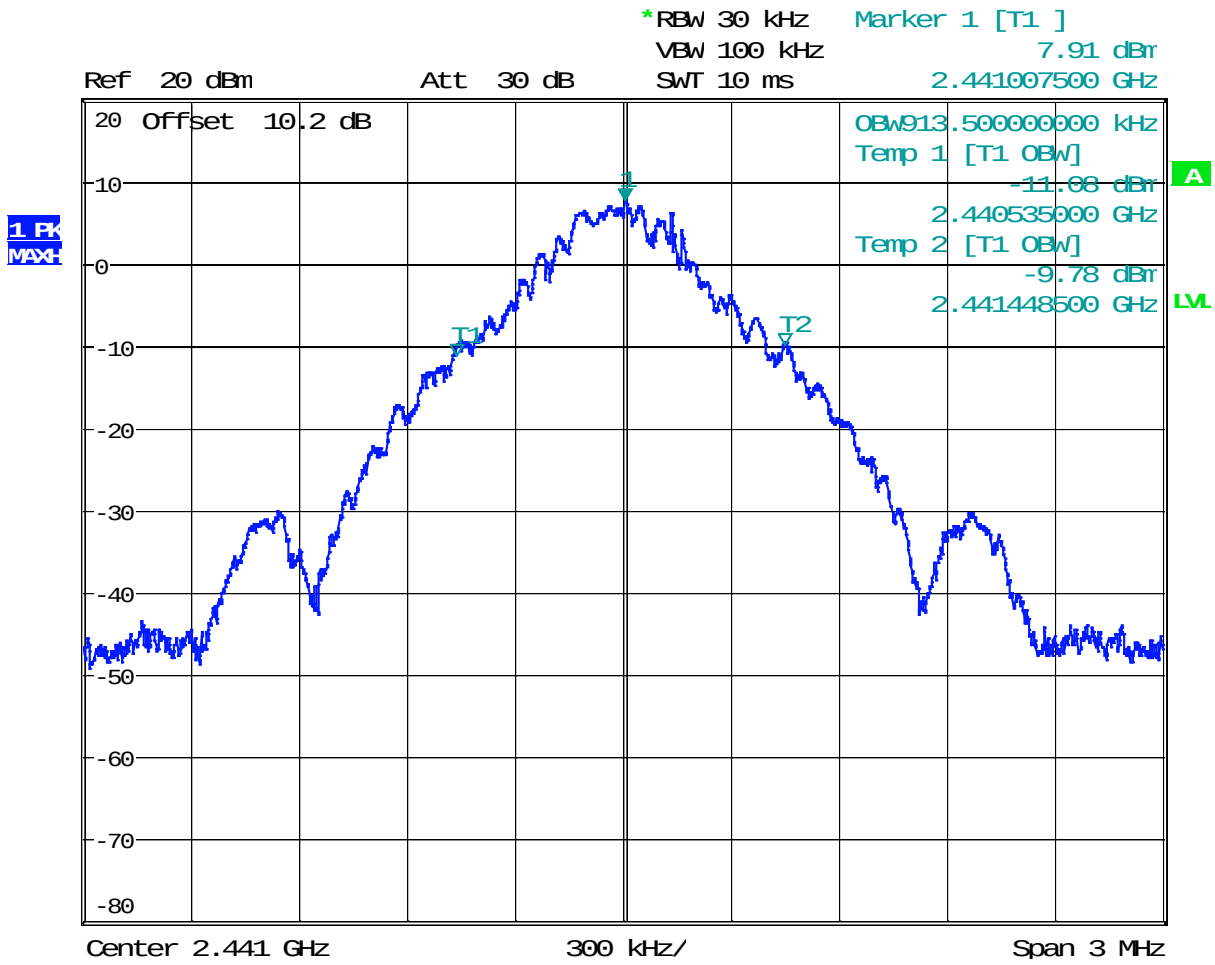


99% Bandwidth Test Result

Plot 1. 20 – 99% Bandwidth Low Channel GFSK

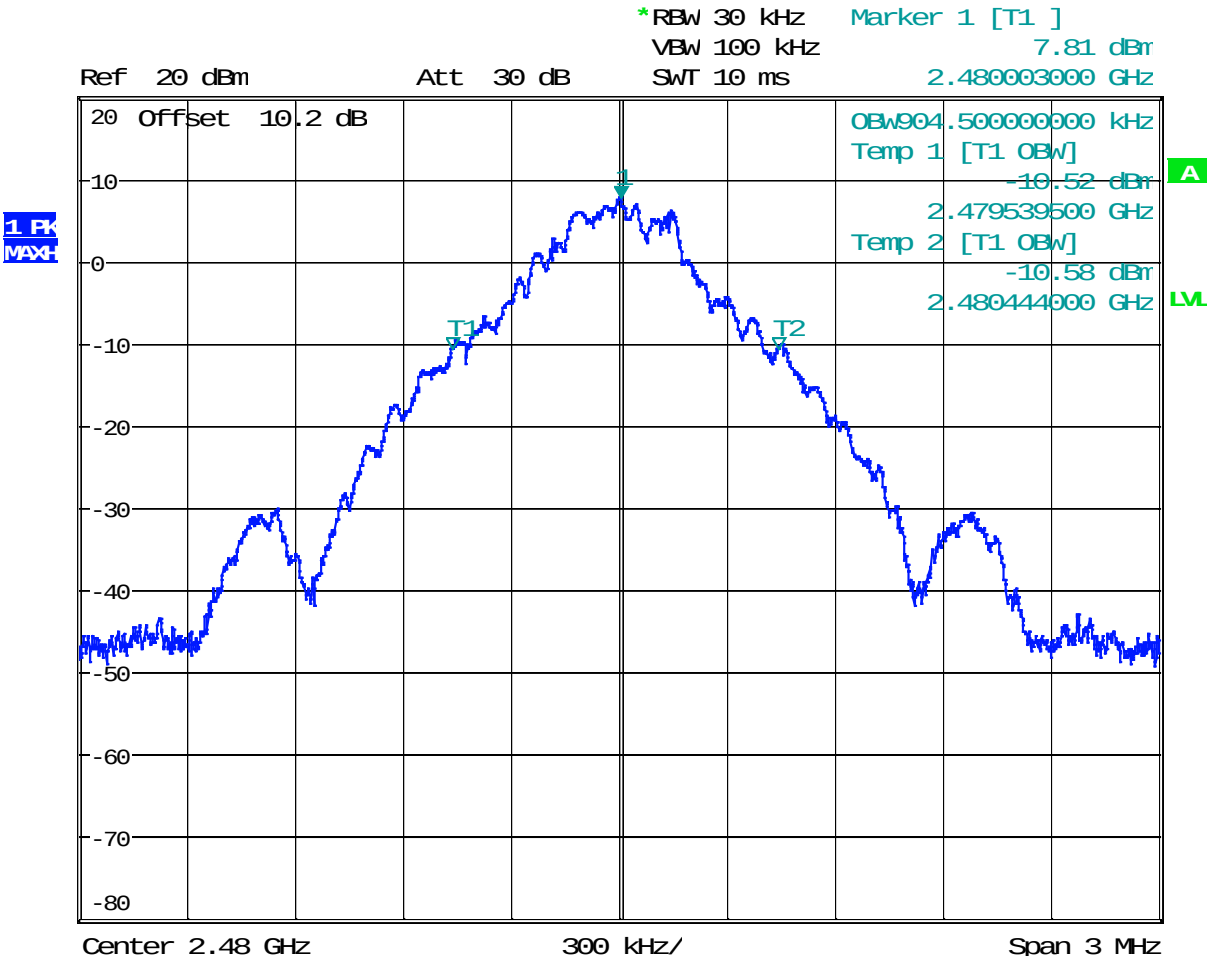


Plot 1. 31– 99% Bandwidth Middle Channel GFSK

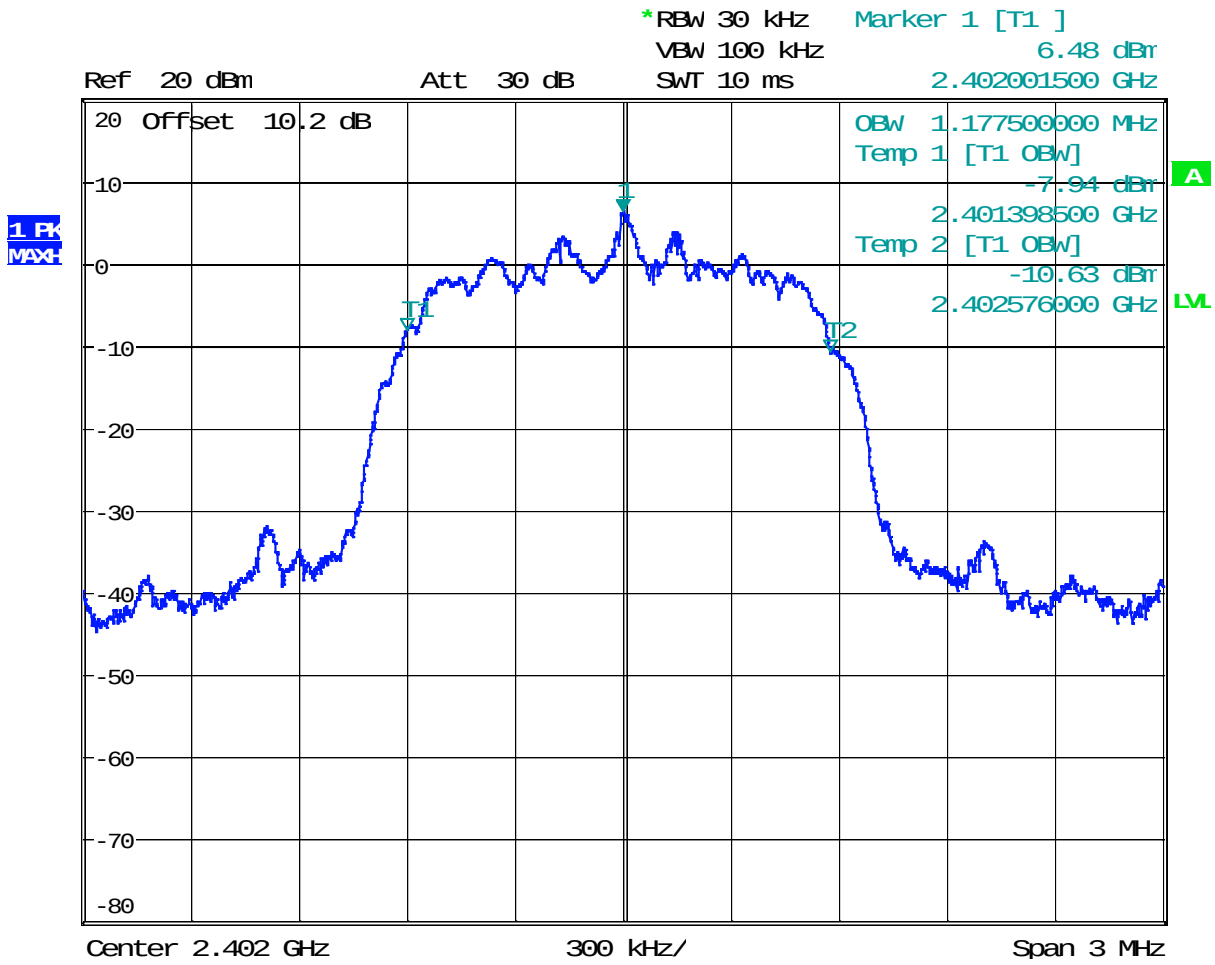


Date: 5.OCT.2015 11:29:46

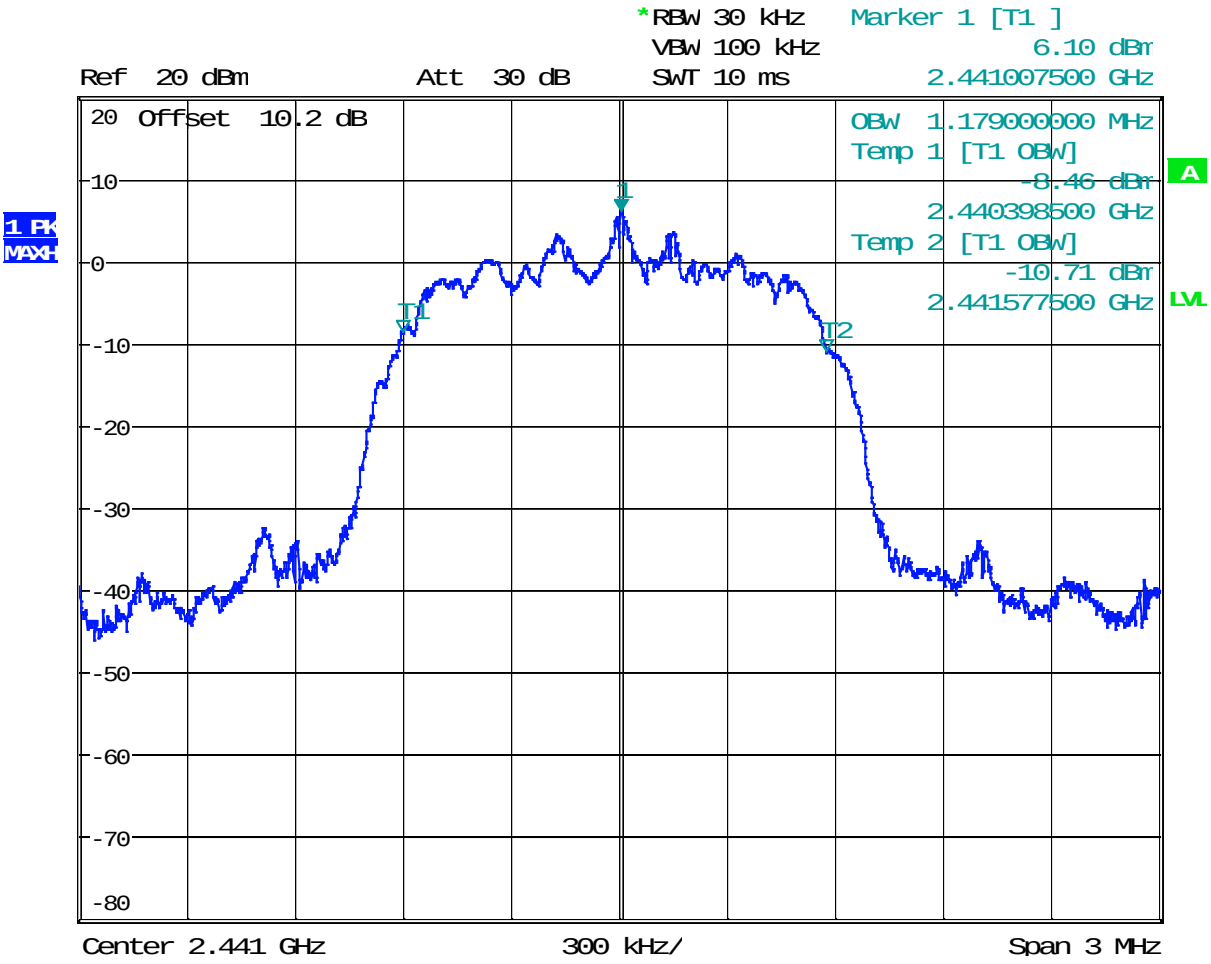
Plot 1. 42– 99% Bandwidth High Channel GFSK



Plot 1. 53 – 99% Bandwidth Low Channel π/4-DQPSK

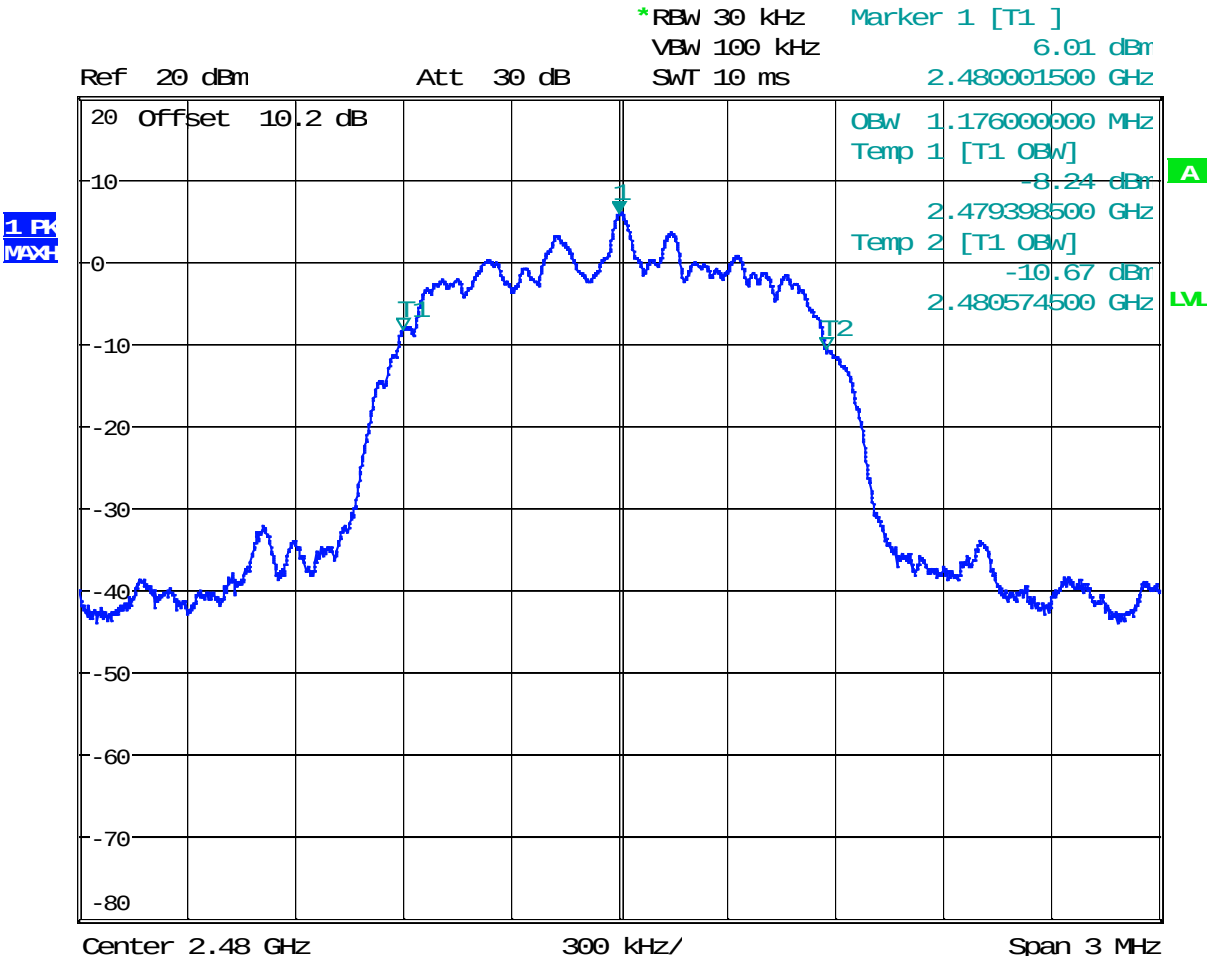


Plot 1. 14 – 99% Bandwidth Middle Channel π/4-DQPSK

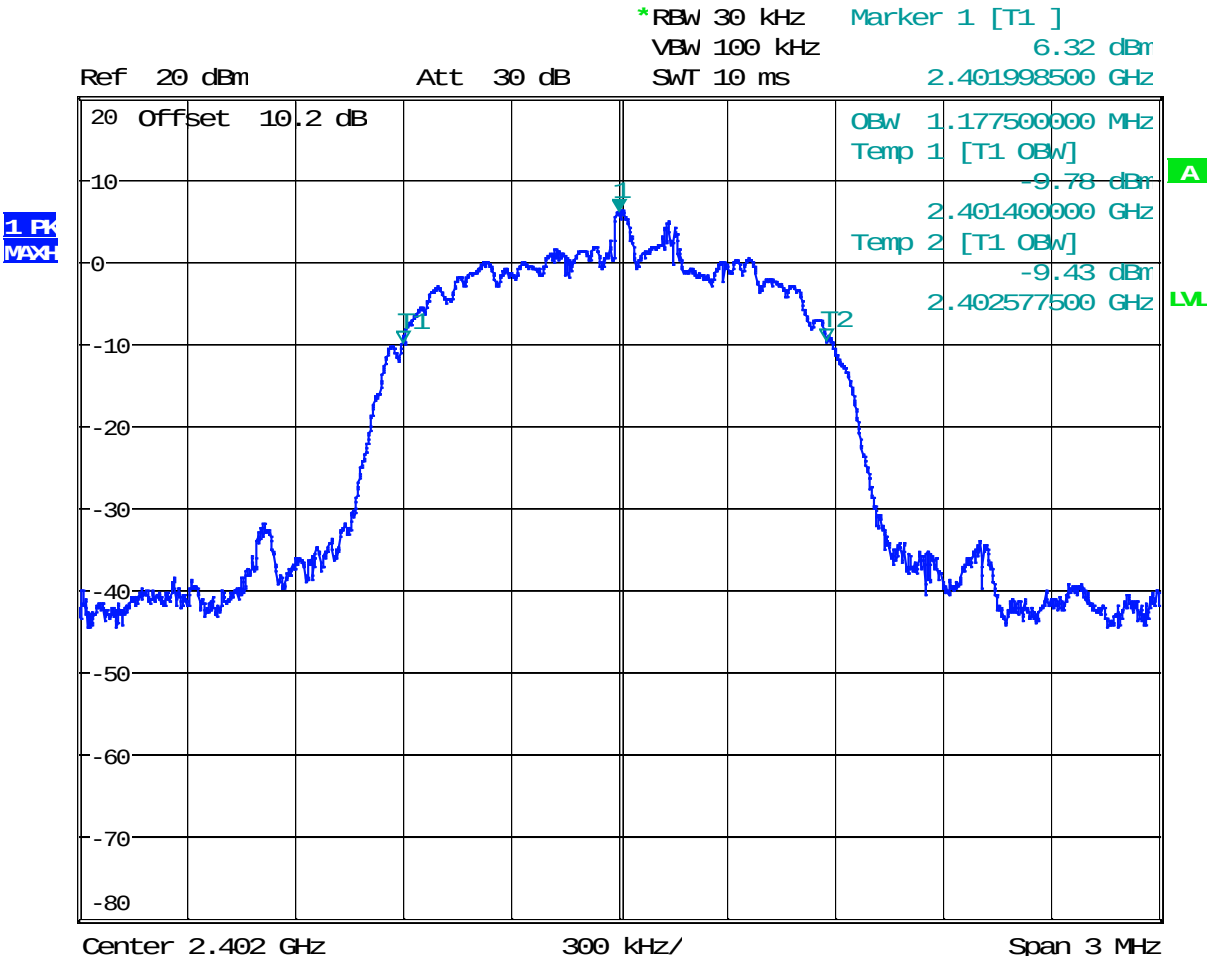


Date: 5.OCT.2015 11:30:41

Plot 1. 15 – 99% Bandwidth High Channel π/4-DQPSK

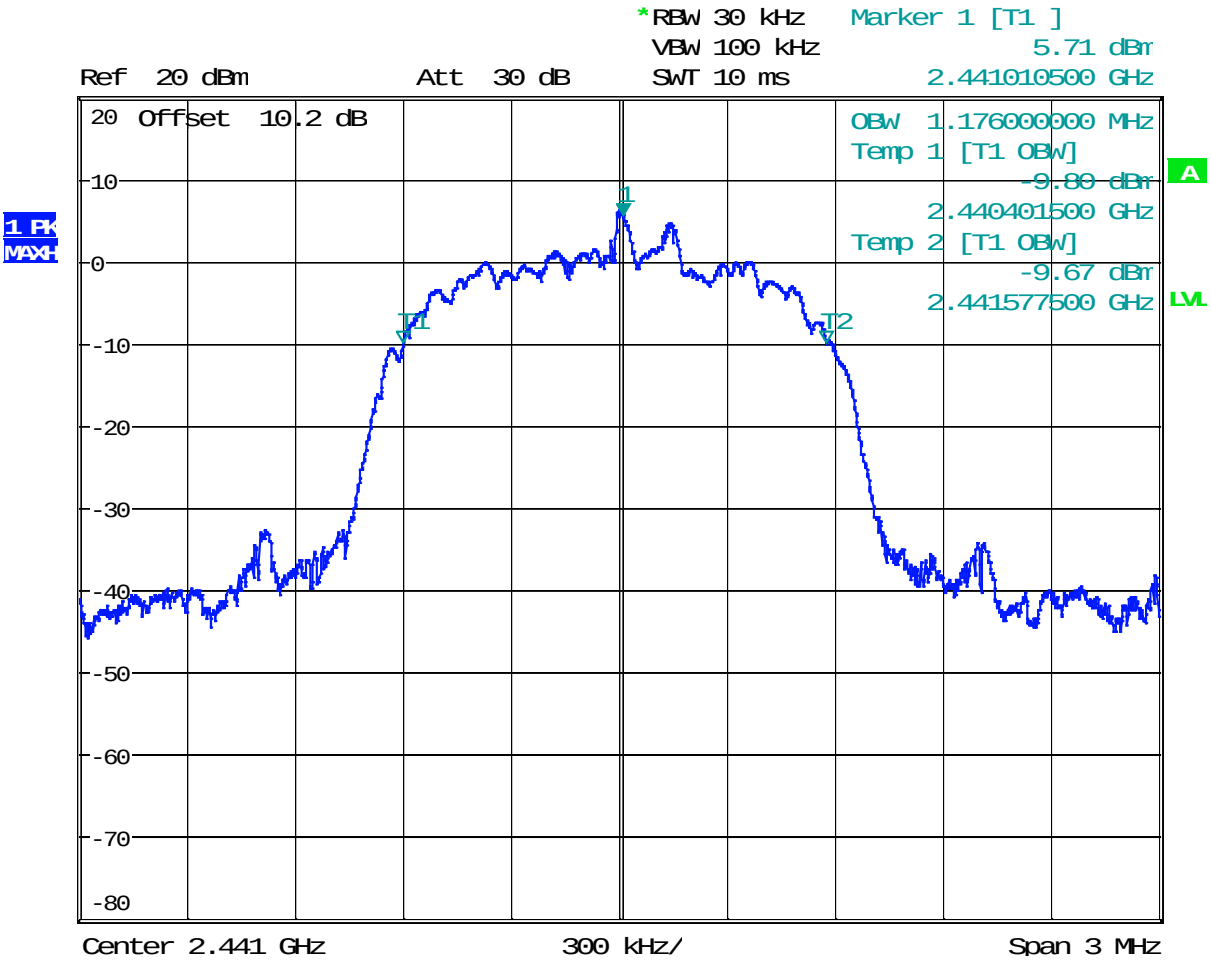


Plot 1. 16 – 99% Bandwidth Low Channel 8DPSK



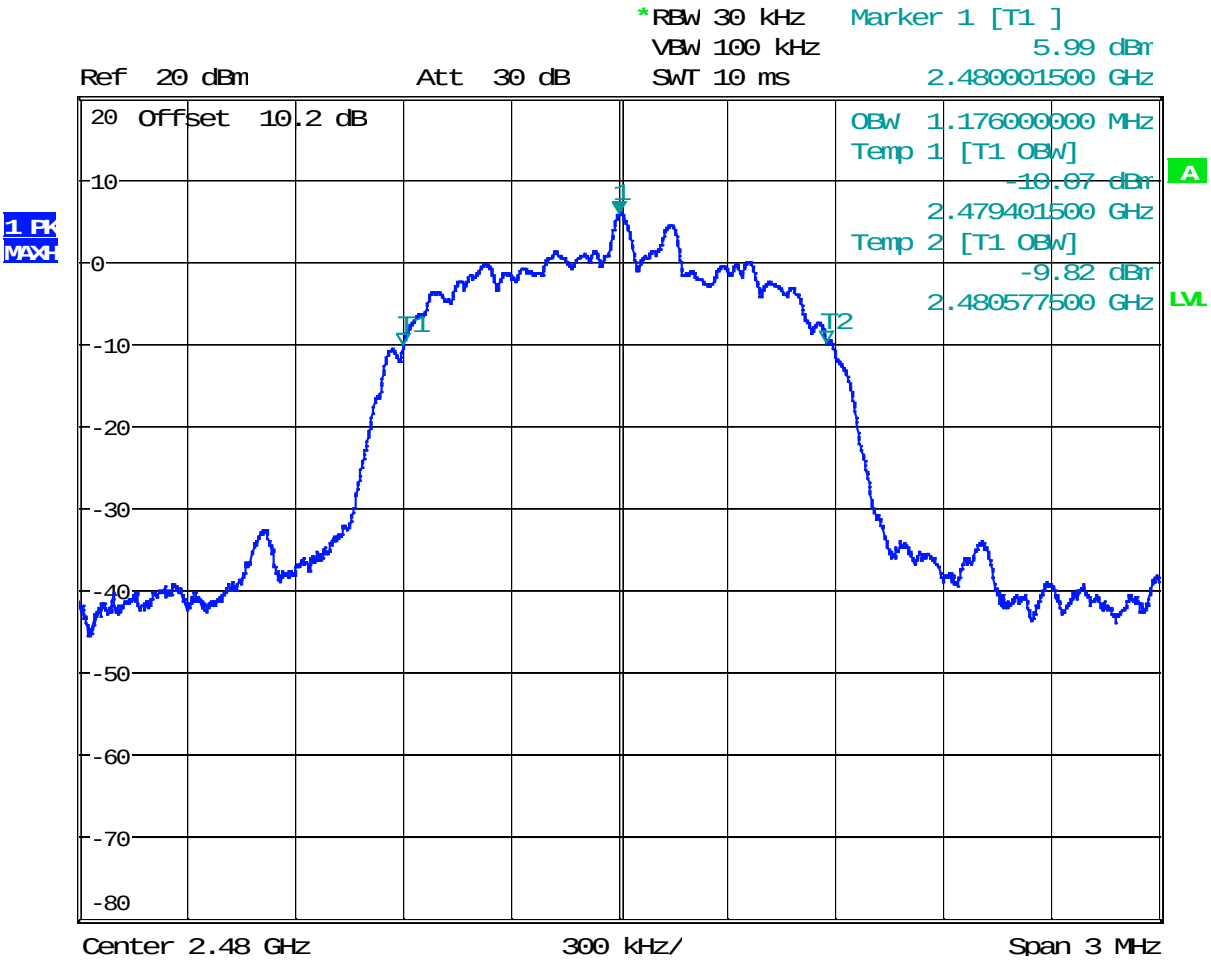
Date: 5.OCT.2015 11:32:28

Plot 1. 17 – 99% B Bandwidth Middle Channel 8DPSK



Date: 5.OCT.2015 11:31:33

Plot 1. 18 – 99% Bandwidth High Channel 8DPSK



Date: 5.OCT.2015 11:25:23

4.2 Conducted Output Power at Antenna Terminals
FCC Rule 15.247(b)(1)

4.2.1 Requirement

For systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, the maximum peak output power is 1 watt (30 dBm), for all other systems 0.125 W (21 dBm).

4.2.2 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" was used to determine the RF Output Power.

- Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
- RBW > the 20 dB bandwidth of the emission being measured
- VBW = 3 x RBW
- Sweep = auto
- Detector function = peak
- Trace = max hold

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 (see the NOTE above regarding external attenuation and cable loss). The limit is specified in one of the subparagraphs of this Section. Submit this plot.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Power was read directly from the spectrum analyzer and cable loss correction was added to the reading to obtain the power at the antenna terminals.

4.2.3 Test Result

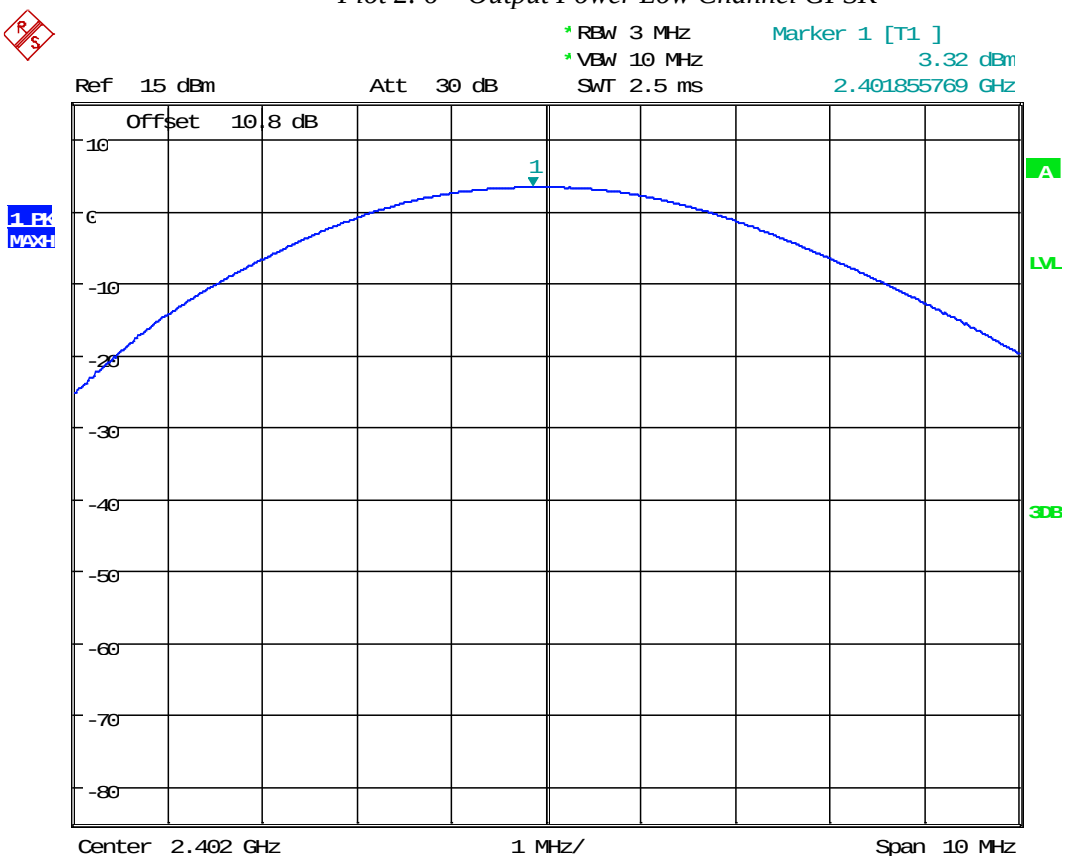
Refer to the following plots for the test result:

Modulation Type	Channel	Frequency MHz	Conducted Peak Power dBm	Conducted Peak Power mW	Plot #
GFSK	0	2402	3.32	2.15	2.1
	39	2441	3.26	2.12	2.2
	78	2480	3.16	2.07	2.3
π/4-DQPSK	0	2402	3.32	2.15	2.4
	39	2441	3.30	2.14	2.5
	78	2480	3.18	2.08	2.6
8DPSK	0	2402	3.67	2.33	2.7
	39	2441	3.60	2.29	2.7
	78	2480	3.55	2.26	2.9

Results	Complies

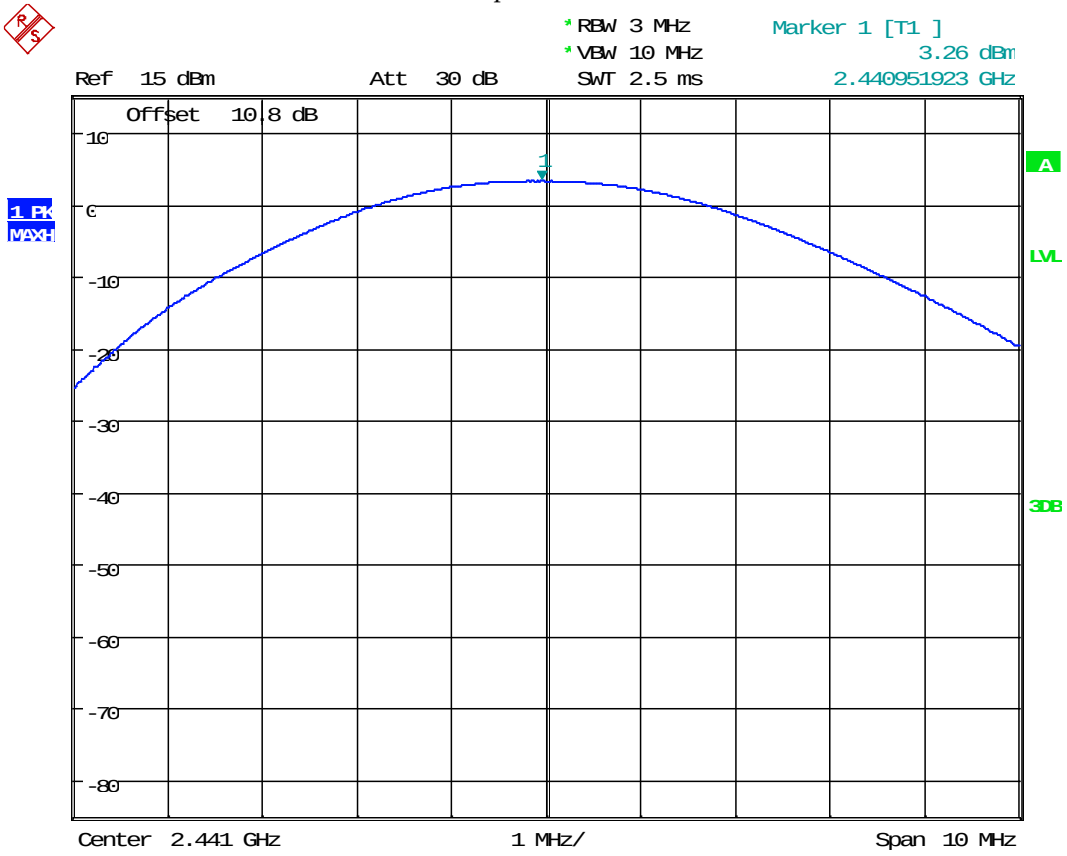
4.2.3 Output Power Test Result (Continued)

Plot 2. 6 – Output Power Low Channel GFSK



Date: 21.OCT.2015 08:19:03

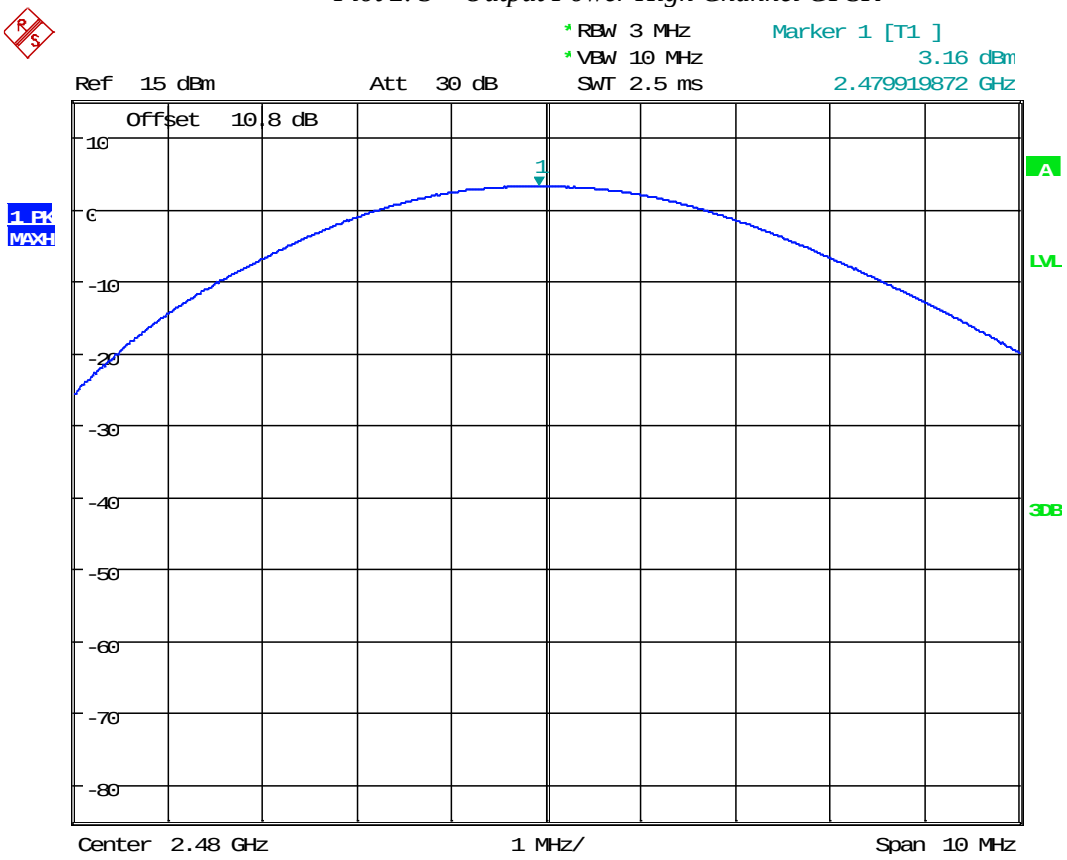
Plot 2. 2 – Output Power Middle Channel GFSK



Date: 21.OCT.2015 08:17:53

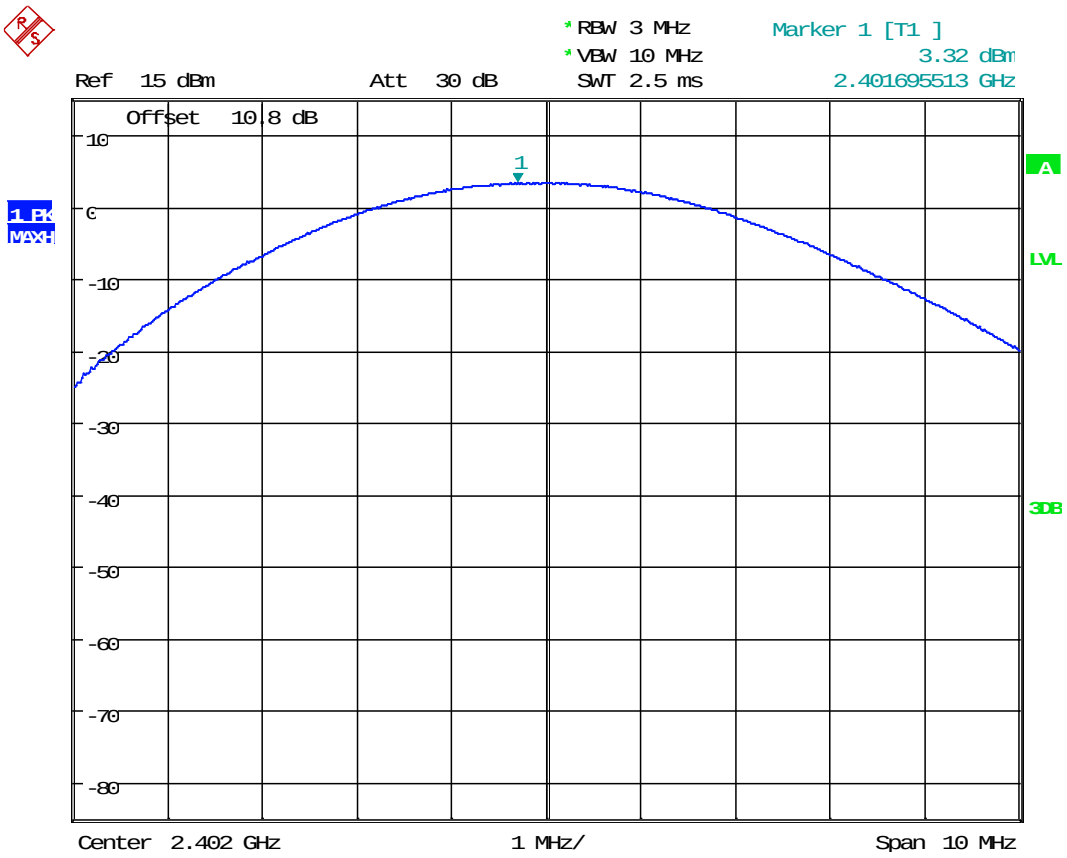
4.2.3 Output Power Test Result (Continued)

Plot 2. 3 – Output Power High Channel GFSK



Date: 21.OCT.2015 08:20:20

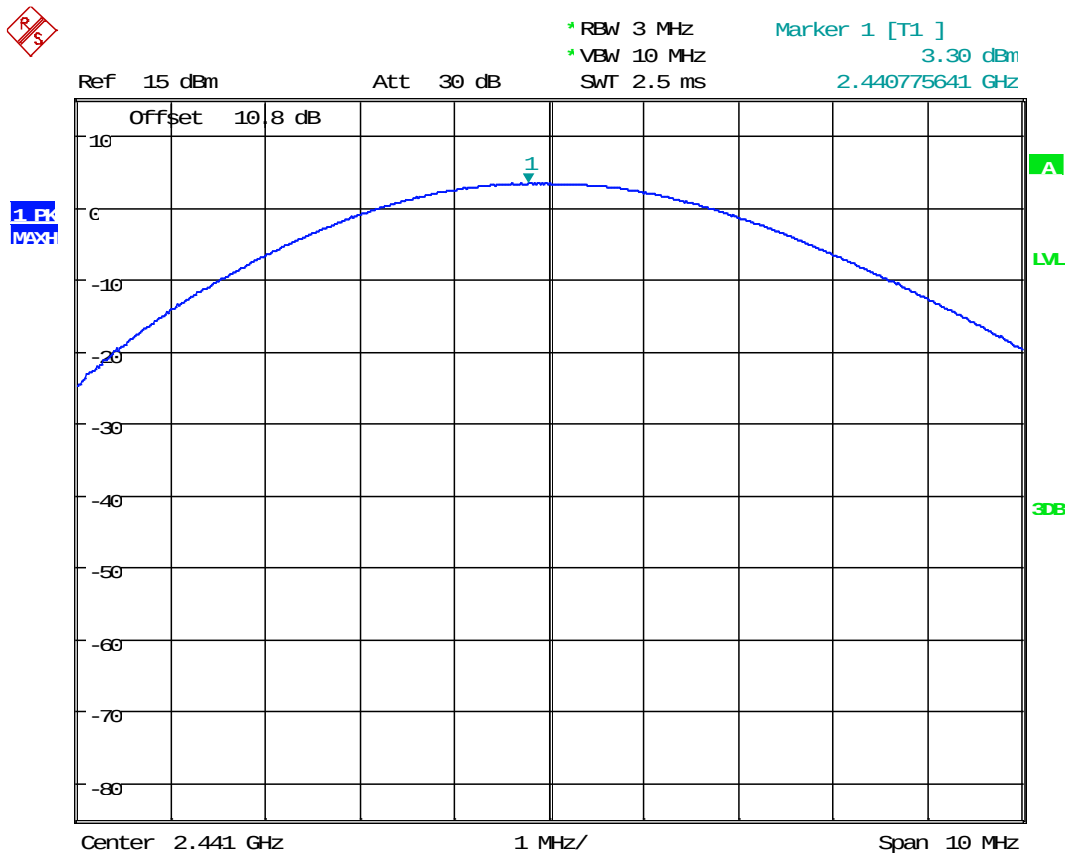
Plot 2. 4 – Output Power Low Channel π/4-DQPSK



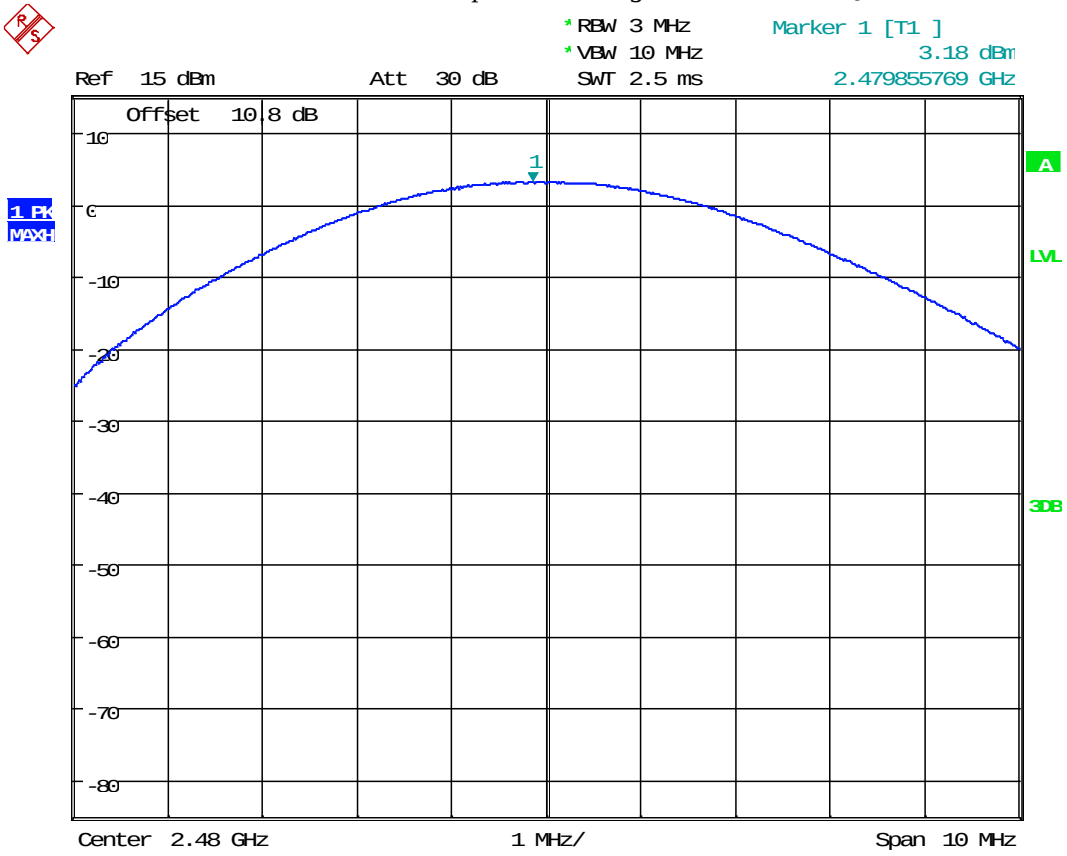
Date: 21.OCT.2015 08:28:15

4.2.3 Output Power Test Result (Continued)

Plot 2. 5 – Output Power Middle Channel π/4-DQPSK



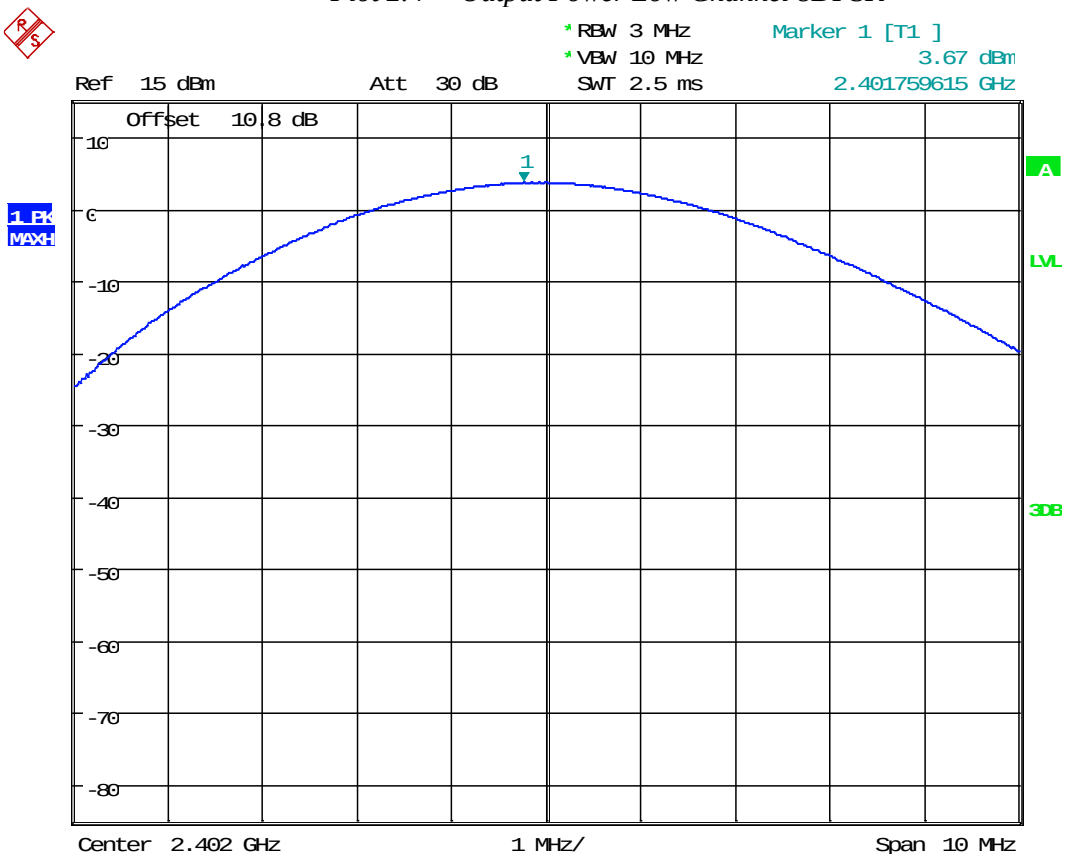
Plot 2. 6 – Output Power High Channel π/4-DQPSK



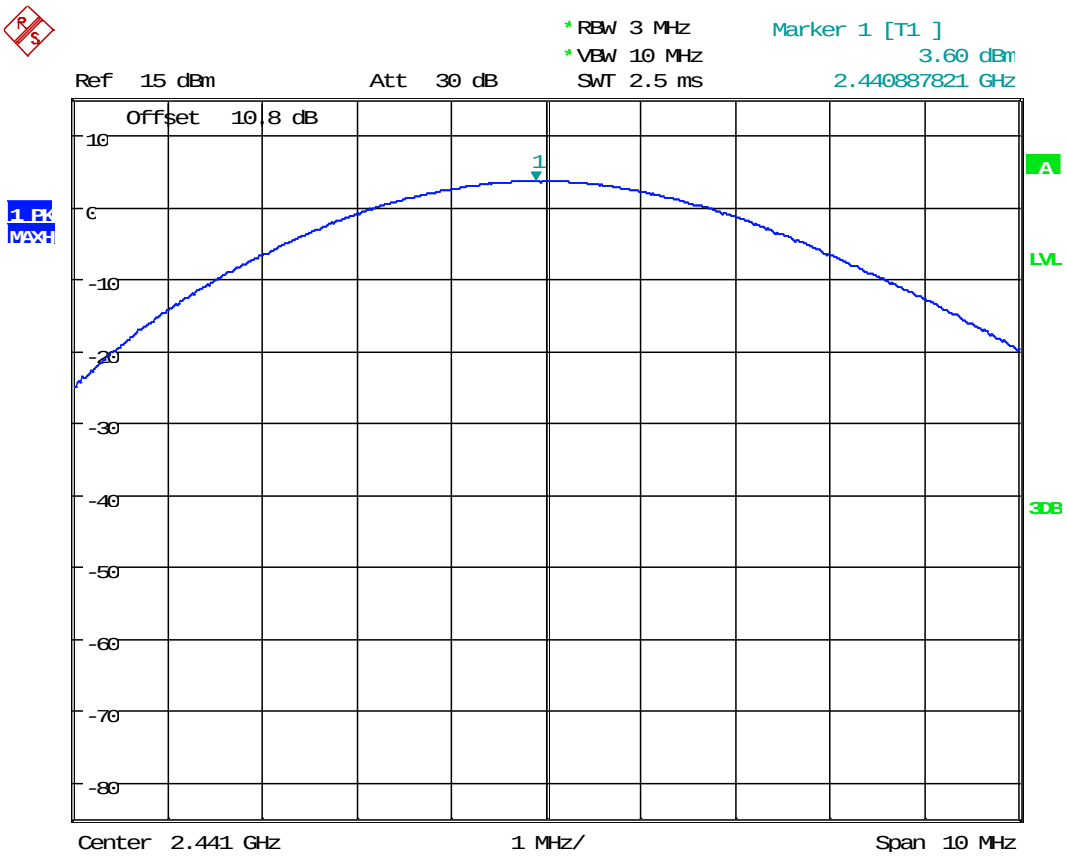
Date: 21.OCT.2015 08:20:46

4.2.3 Output Power Test Result (Continued)

Plot 2. 7 – Output Power Low Channel 8DPSK



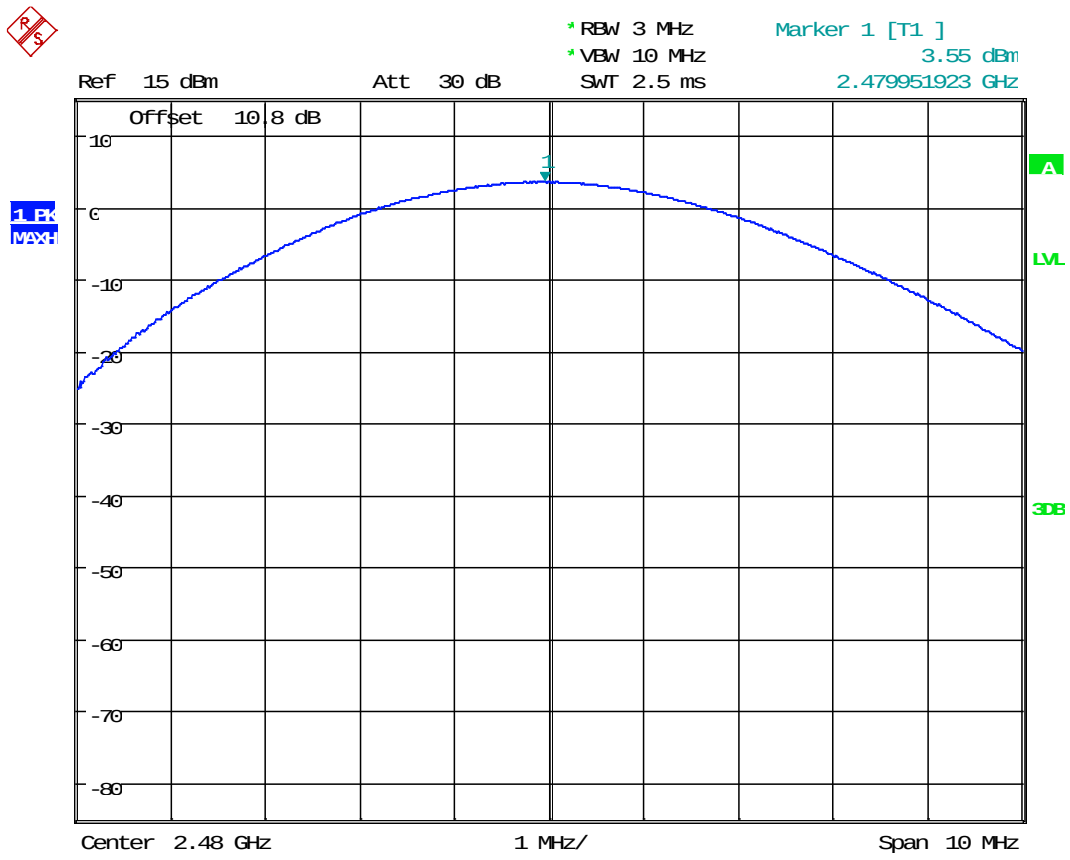
Plot 2. 8 – Output Power Middle Channel 8DPSK



Date: 21.OCT.2015 08:29:29

4.2.3 Output Power Test Result (Continued)

Plot 2. 9 – Output Power High Channel 8DPSK



4.3 Carrier Frequency Separation
FCC 15.247 (a)(1)

4.3.1 Requirement

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.

4.3.2 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" was used to determine the Carrier Frequency Separation.

- The EUT must have its hopping function enabled
- Span = wide enough to capture the peaks of two adjacent channels
- Resolution (or IF) Bandwidth (RBW) = 1% of the span
- Video (or Average) Bandwidth (VBW) = 3 x RBW
- Sweep = auto
- Detector function = peak
- Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section. Submit this plot.

4.3.3 Test Result

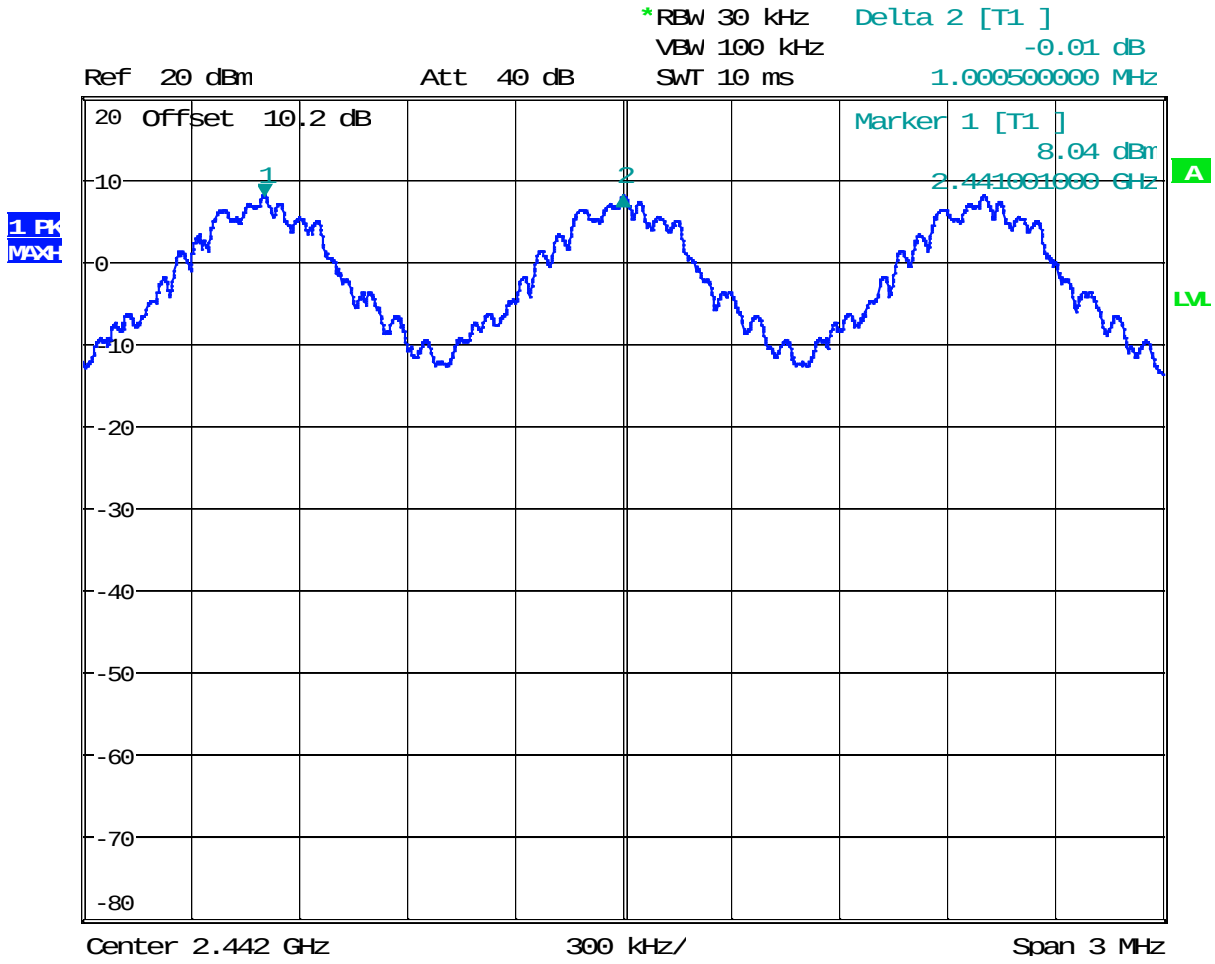
The worst case 20dB Bandwidth is 1.384MHz, therefor this bandwidth was used to calculate the minimum limit for Carrier Frequency Separation below.

(2/3) * 1.384 MHz = 0.927 MHz (minimum requirement)

The Carrier Frequency Separation is **1.002 MHz**, therefore meets the minimum requirement. Please refer to spectrum analyzer plot 3.1 below for the test result.

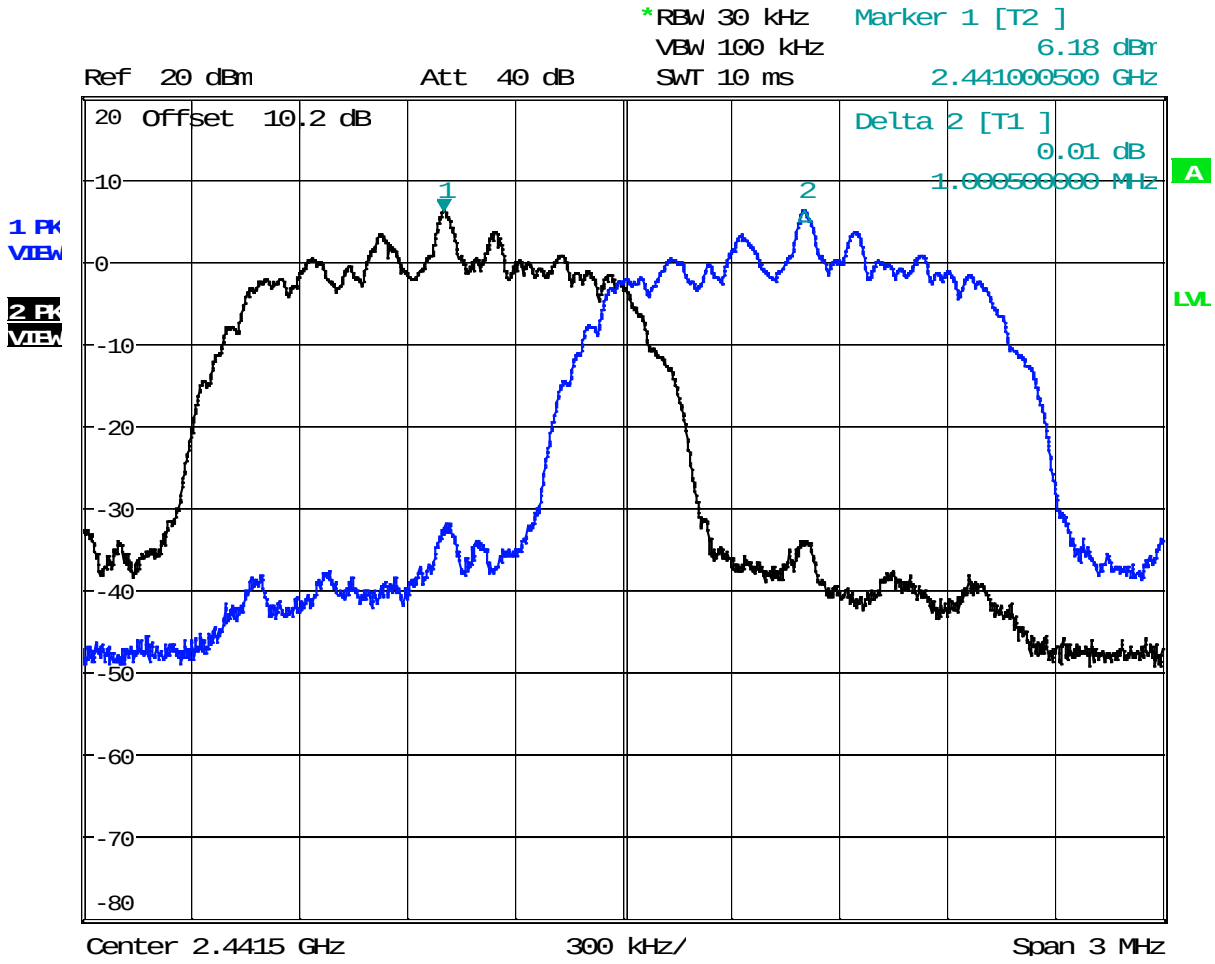
Results	**Complies**

Plot 3.7– Channel Separation GFSK

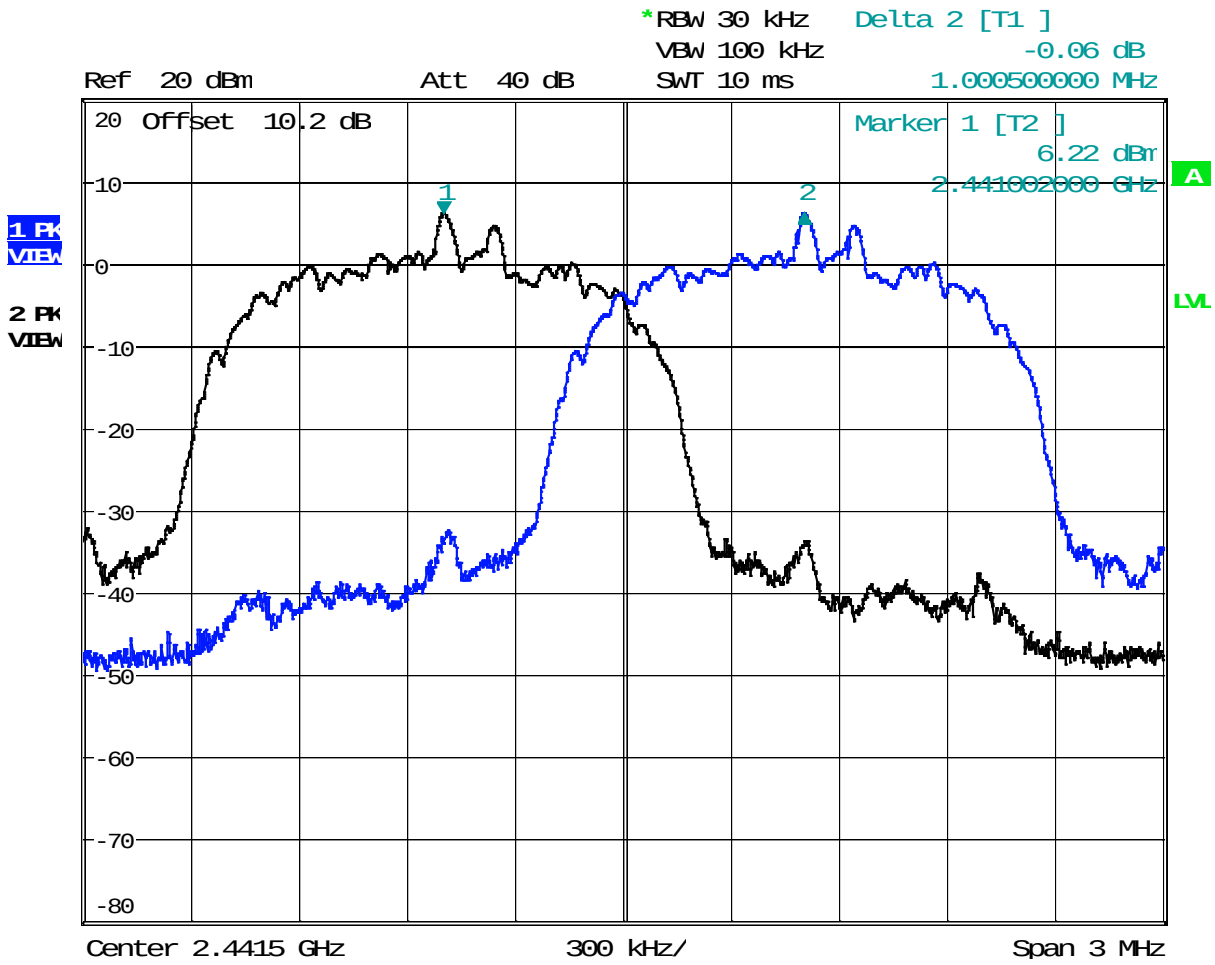


Date: 5.OCT.2015 11:39:24

Plot 3.2– Channel Separation π/4-DQPSK



Plot 3.3– Channel Separation 8DPSK



Date: 5.OCT.2015 11:55:15

4.4 Number of Channels
FCC 15.247 (a)(1)(iii)

4.4.1 Requirement

Systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping channels.

4.4.2 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" was used to determine the Number of Channels.

- The EUT must have its hopping function enabled.
- Span = the frequency band of operation
- RBW = 1% of the span
- VBW = 3 x RBW
- Sweep = auto
- Detector function = peak
- Trace = max hold

Allow the trace to stabilize. It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies.

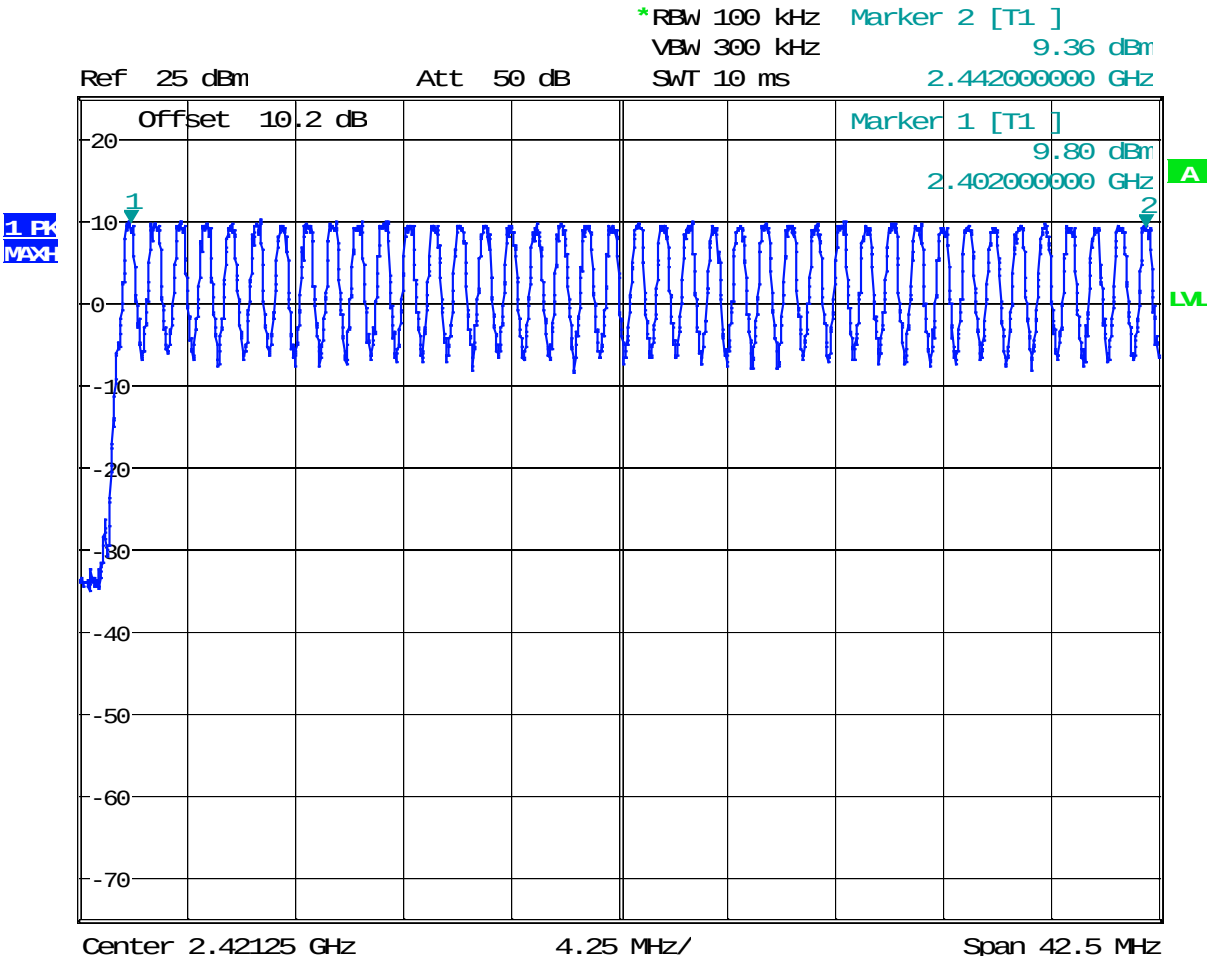
With the analyzer set to MAX HOLD, readings were taken once channels were filled in. The traces were broken down into 2 spans from 2400 to 2483.5MHz. The channel peaks were recorded and compared to the minimum number of channels required in the regulation.

4.4.3 Test Result

Modulation Type	No. Of Channels
GFSK	79
π/4-DQPSK	79
DPQSK	79

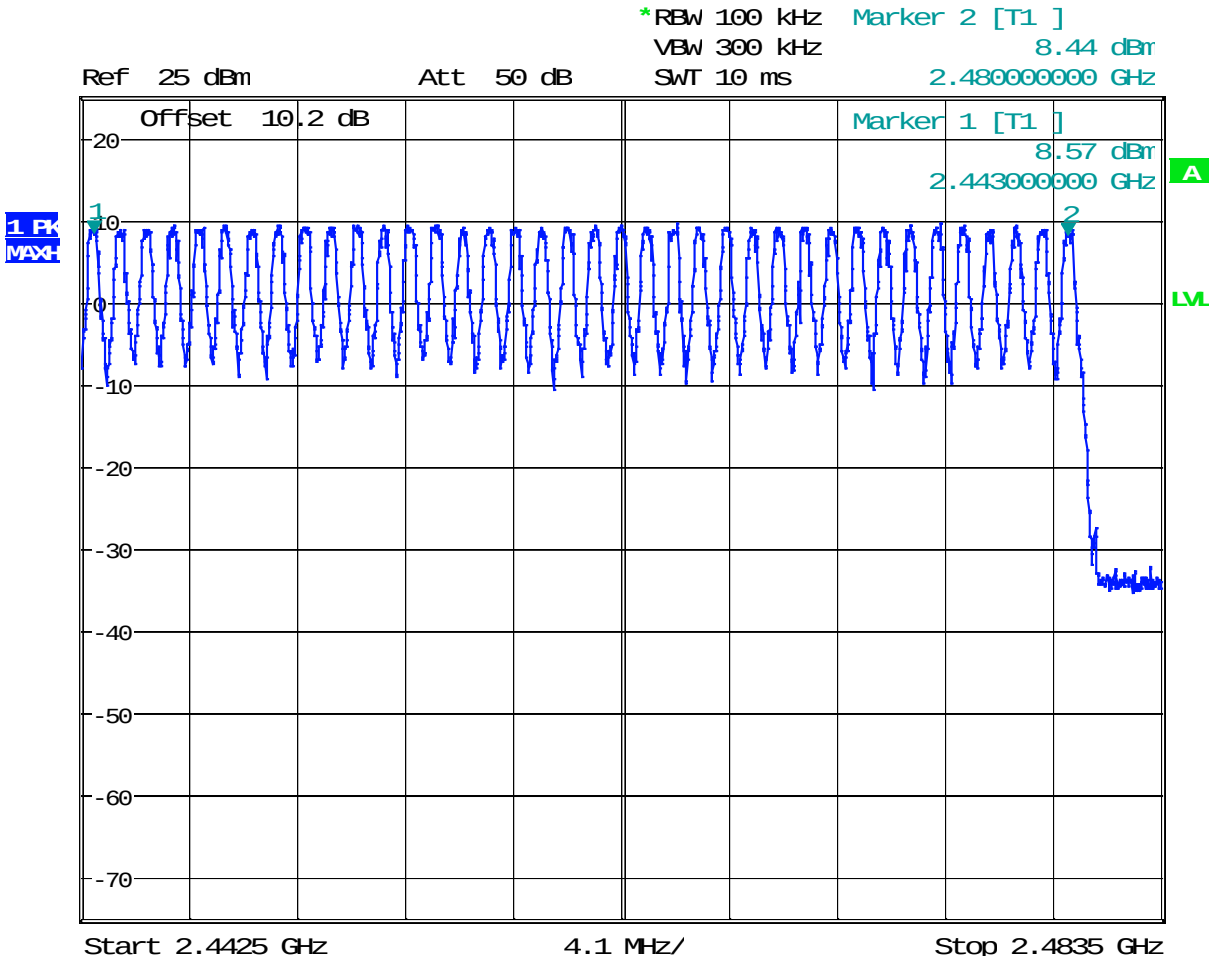
Results	Complies

Plot 4.1 - Number of hopping channels (GFSK – 2400 to 2442.5 MHz)

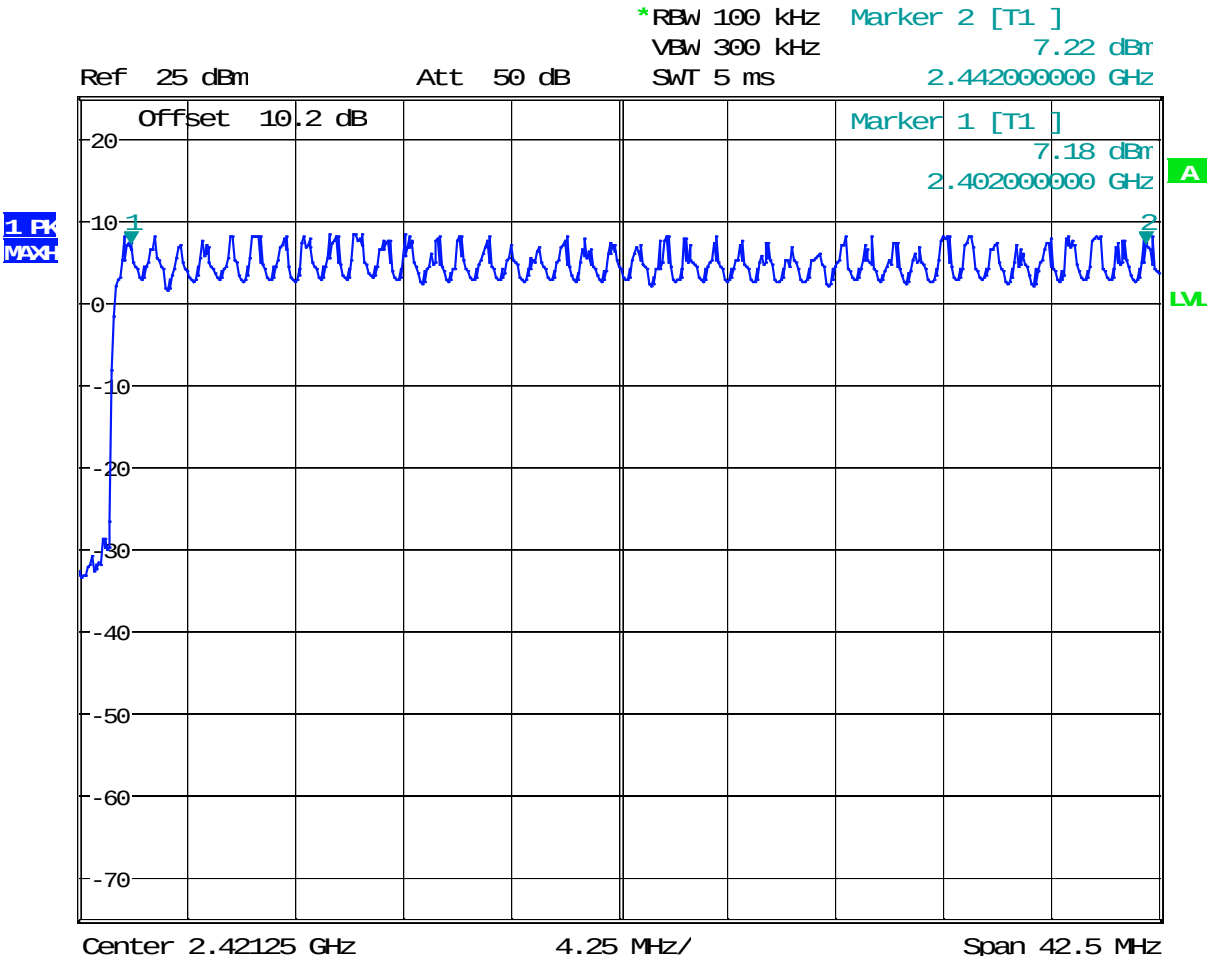


Date: 5.OCT.2015 12:22:06

Plot 4.2 - Number of hopping channels (GFSK - 2442.5 to 2483.5 MHz)

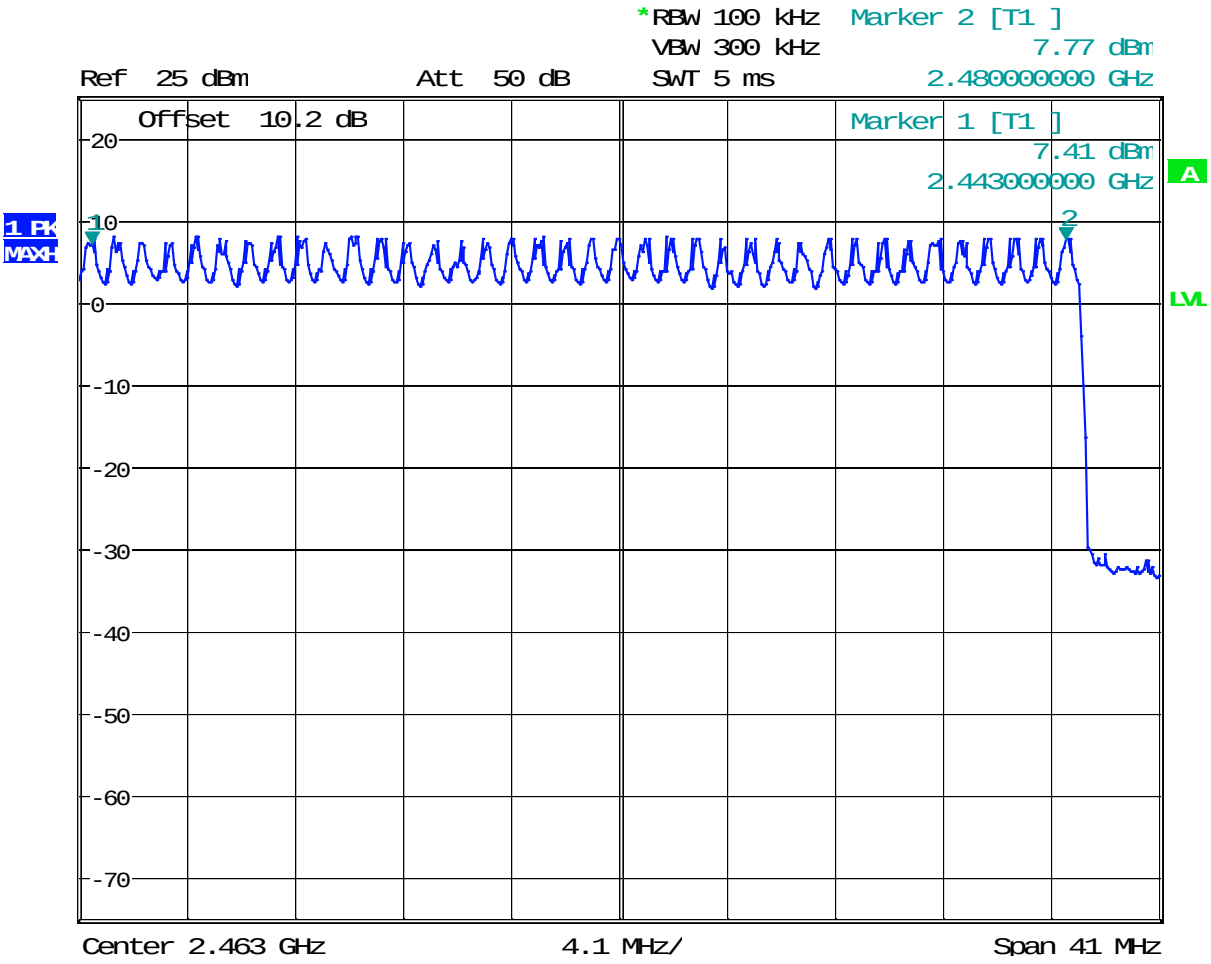


Plot 4.3 - Number of hopping channels (π/4-DQPSK– 2400 to 2442.5 MHz)

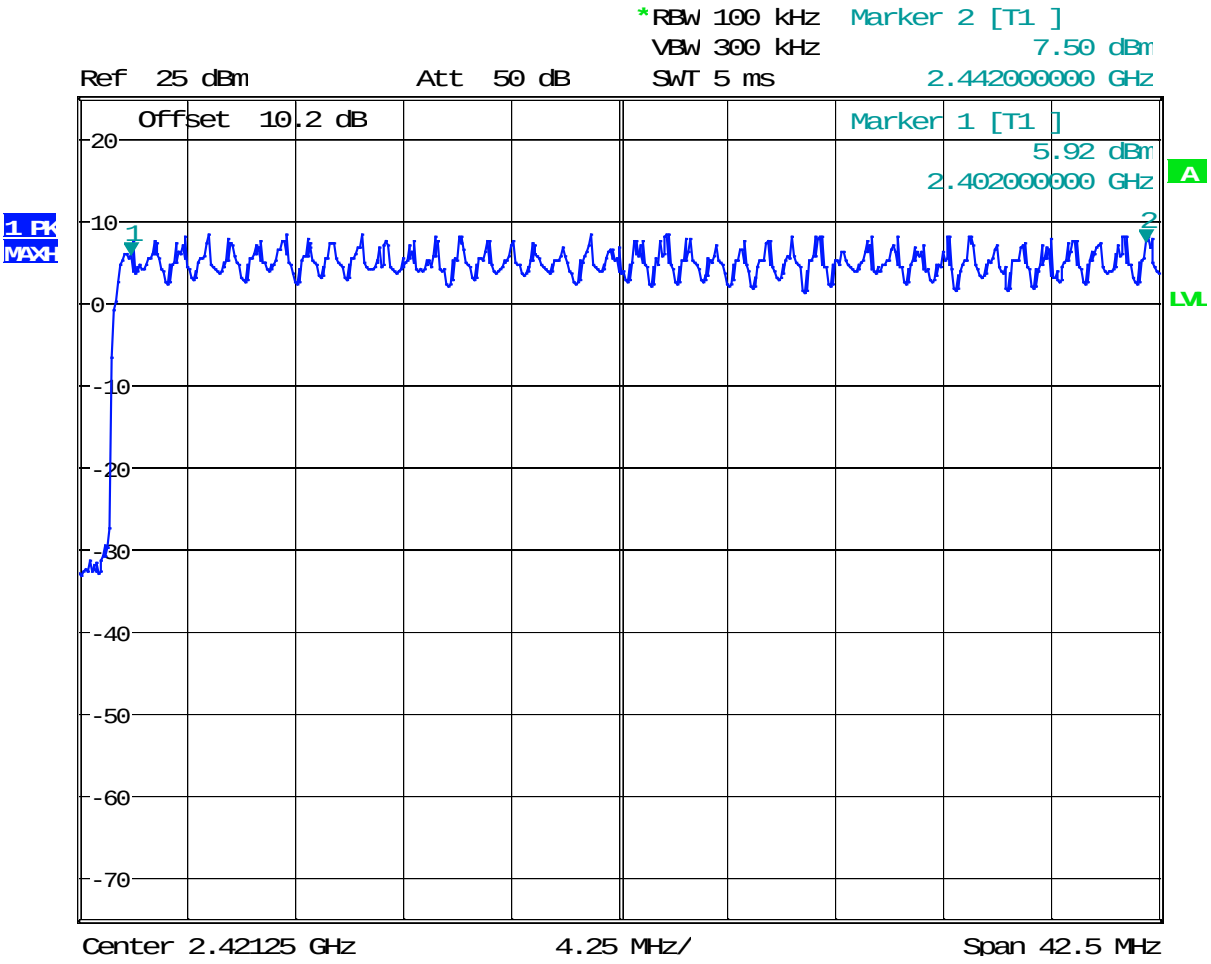


Date: 5.OCT.2015 13:13:37

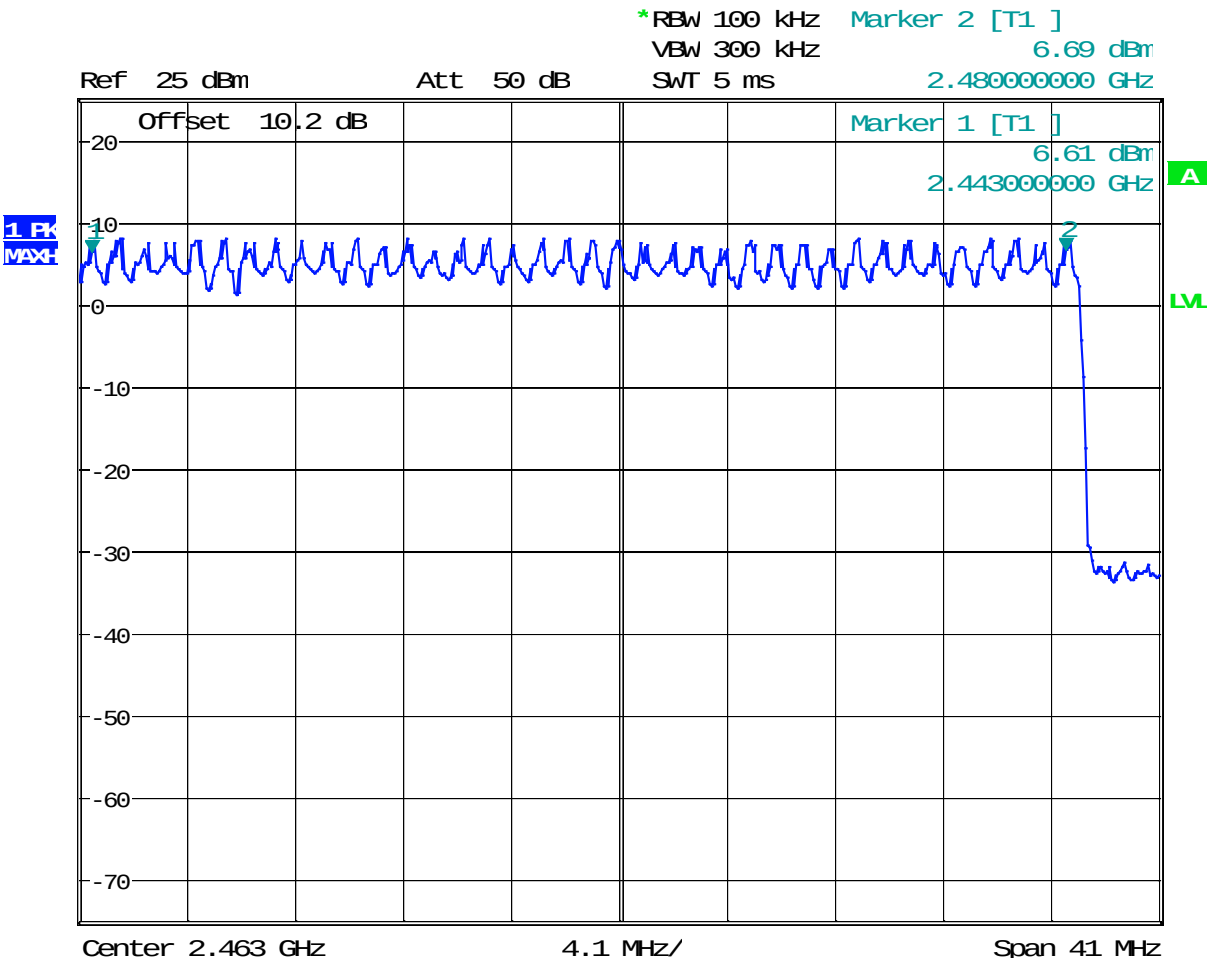
Plot 4.4 - Number of hopping channels (π/4-DQPSK- 2442.5 to 2483.5 MHz)



Plot 4.5 - Number of hopping channels (8DPSK – 2400 to 2442.5 MHz)



Plot 4.6 - Number of hopping channels (8DPSK - 2442.5 to 2483.5 MHz)



Date: 5.OCT.2015 12:50:52

4.5 Average Channel Occupancy Time
FCC 15.247(a)(1)

4.5.1 Requirement

For systems operating in the 2400-2483.5 MHz band, the average time of occupancy on any channel shall not be greater than 0.4 second within a period of 0.4 second multiplied by the number of hopping channels employed.

4.5.2 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems” was used to determine the Average Channel Occupancy Time.

- The EUT must have its hopping function enabled.
- Span = zero span, centered on a hopping channel
- RBW = 1 MHz
- VBW = 3 x RBW
- Sweep = as necessary to capture the entire dwell time per hopping channel
- Detector function = peak
- Trace = max hold

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. An oscilloscope may be used instead of a spectrum analyzer.

The spectrum analyzer center frequency was set to one of the known hopping channels, the SPAN was set to ZERO SPANS, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

Since the radio is employed 79 hopping channels, the Occupancy Time was calculated for the period of 0.4 * 79 = 31.6 sec.

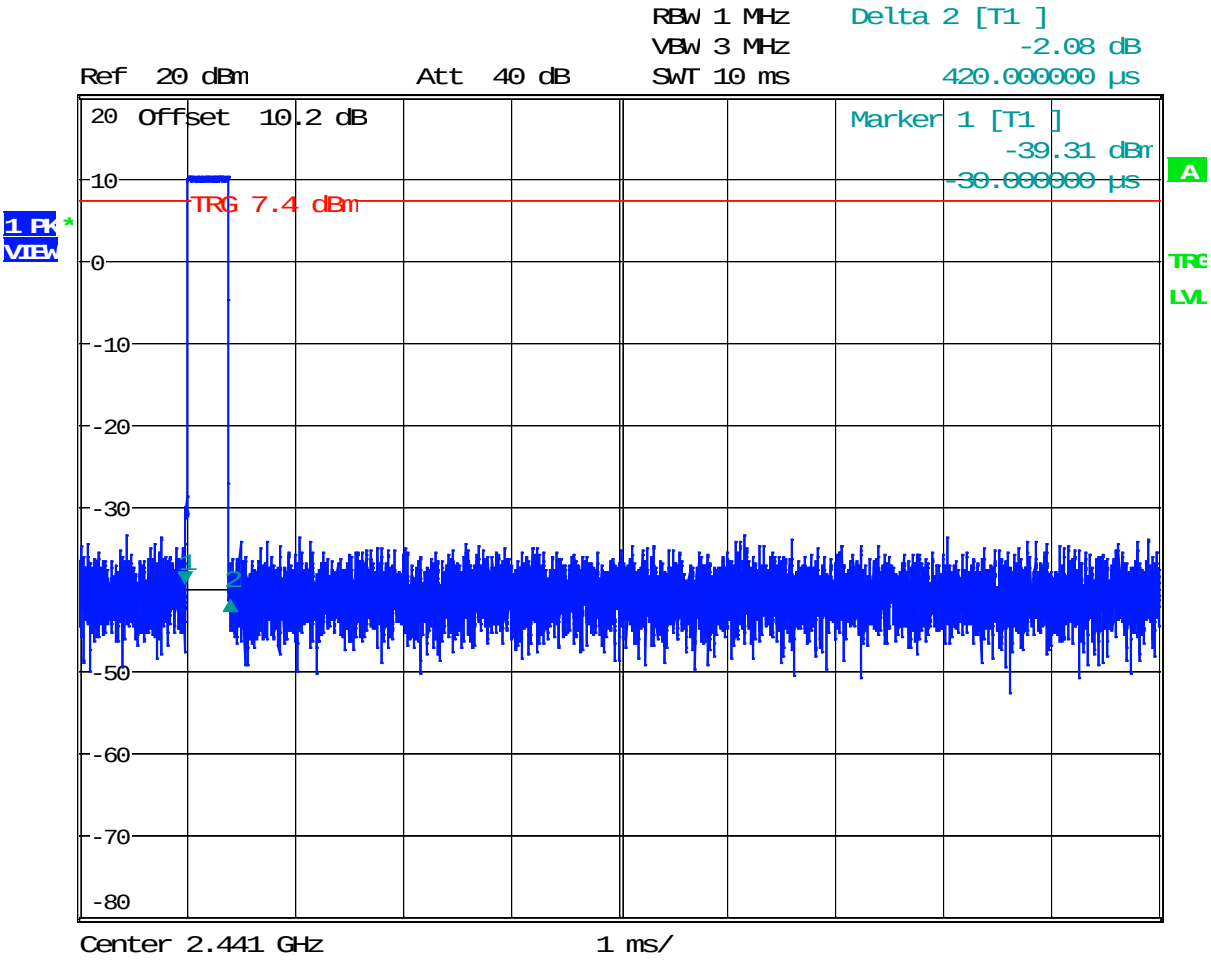
4.5.3 Test Results

Results	**Complies**

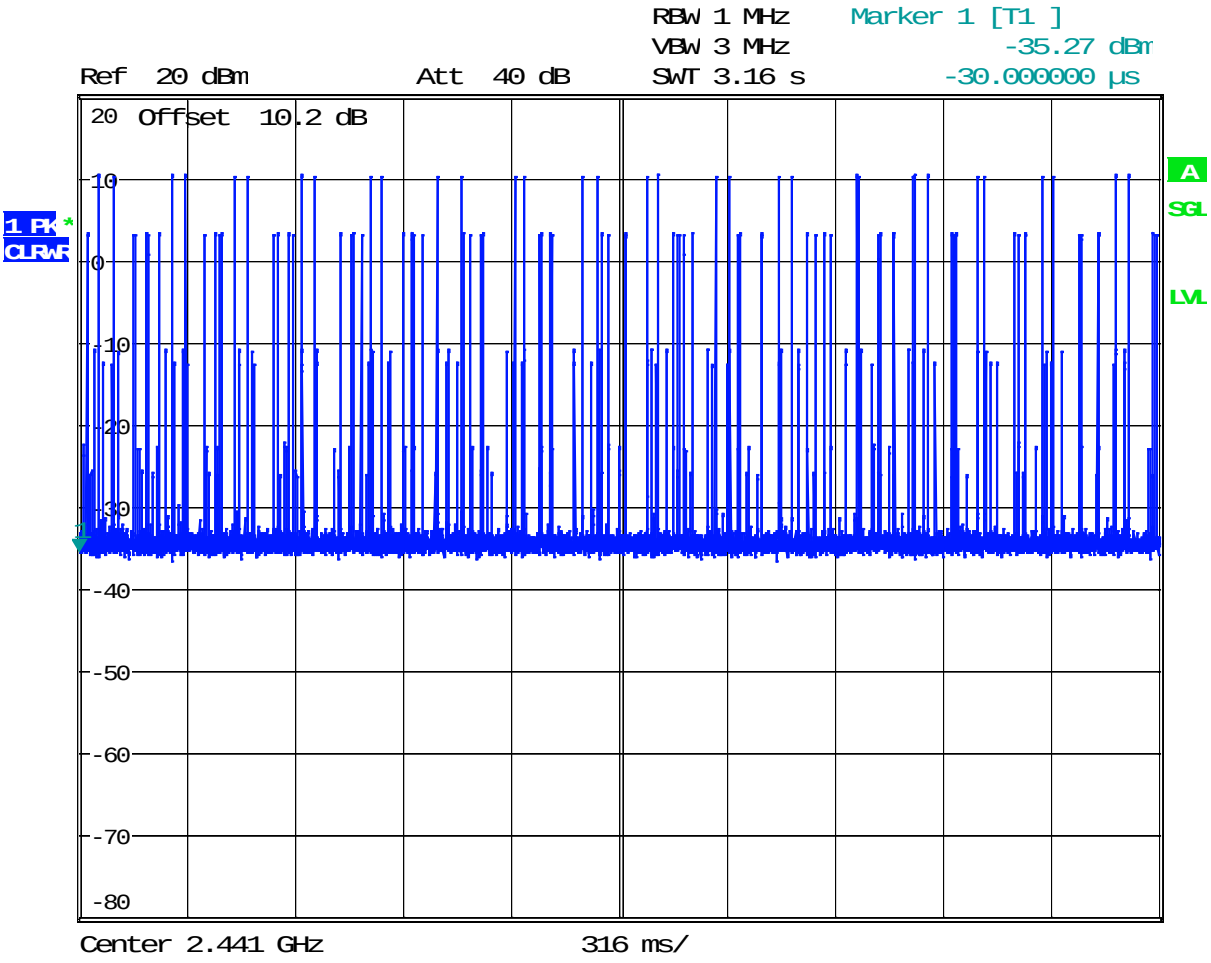
4.5.3 Test Results (Continued)

GFSK, DH1

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
31*10	0.420	130.2	400



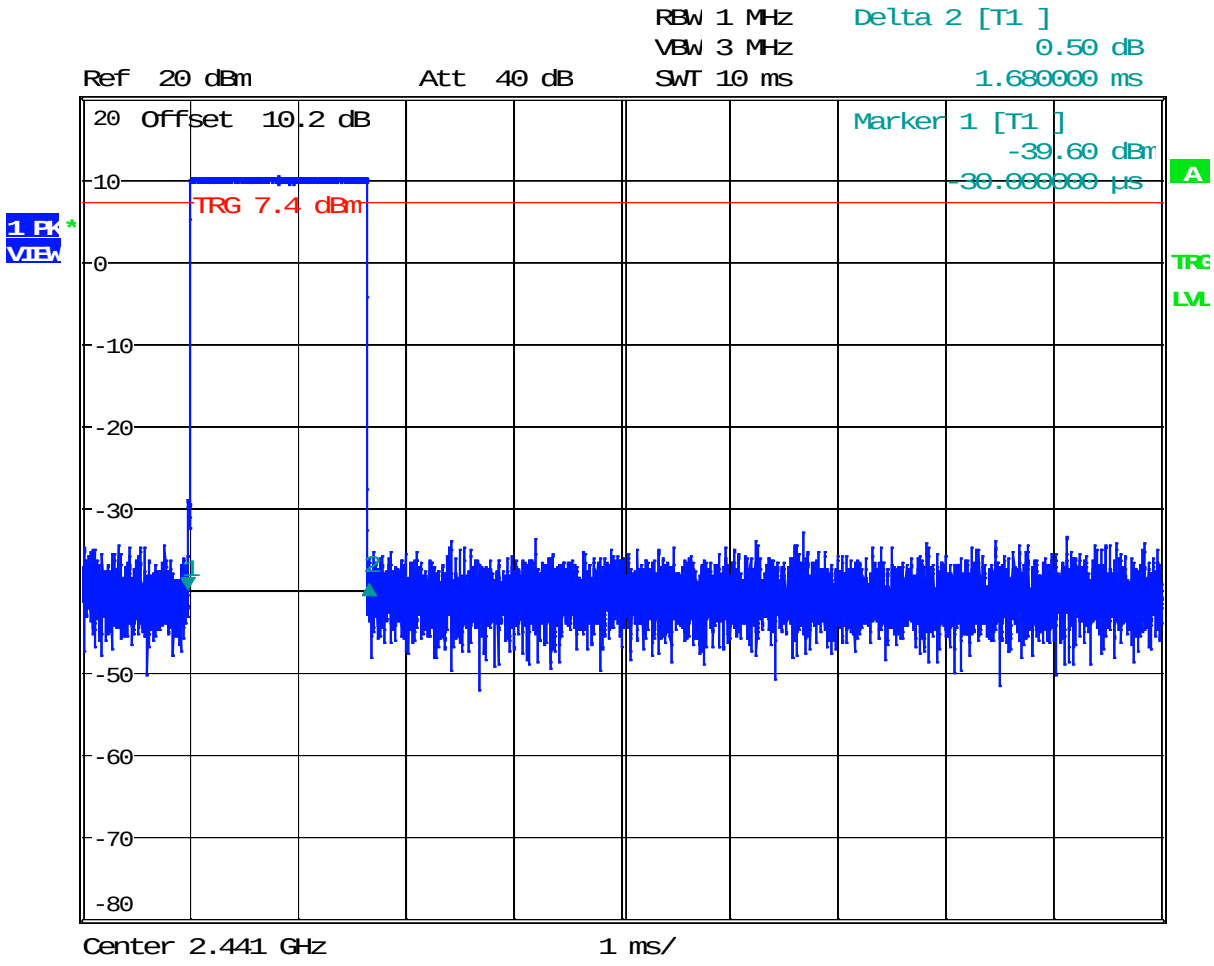
Date: 5.OCT.2015 15:31:59



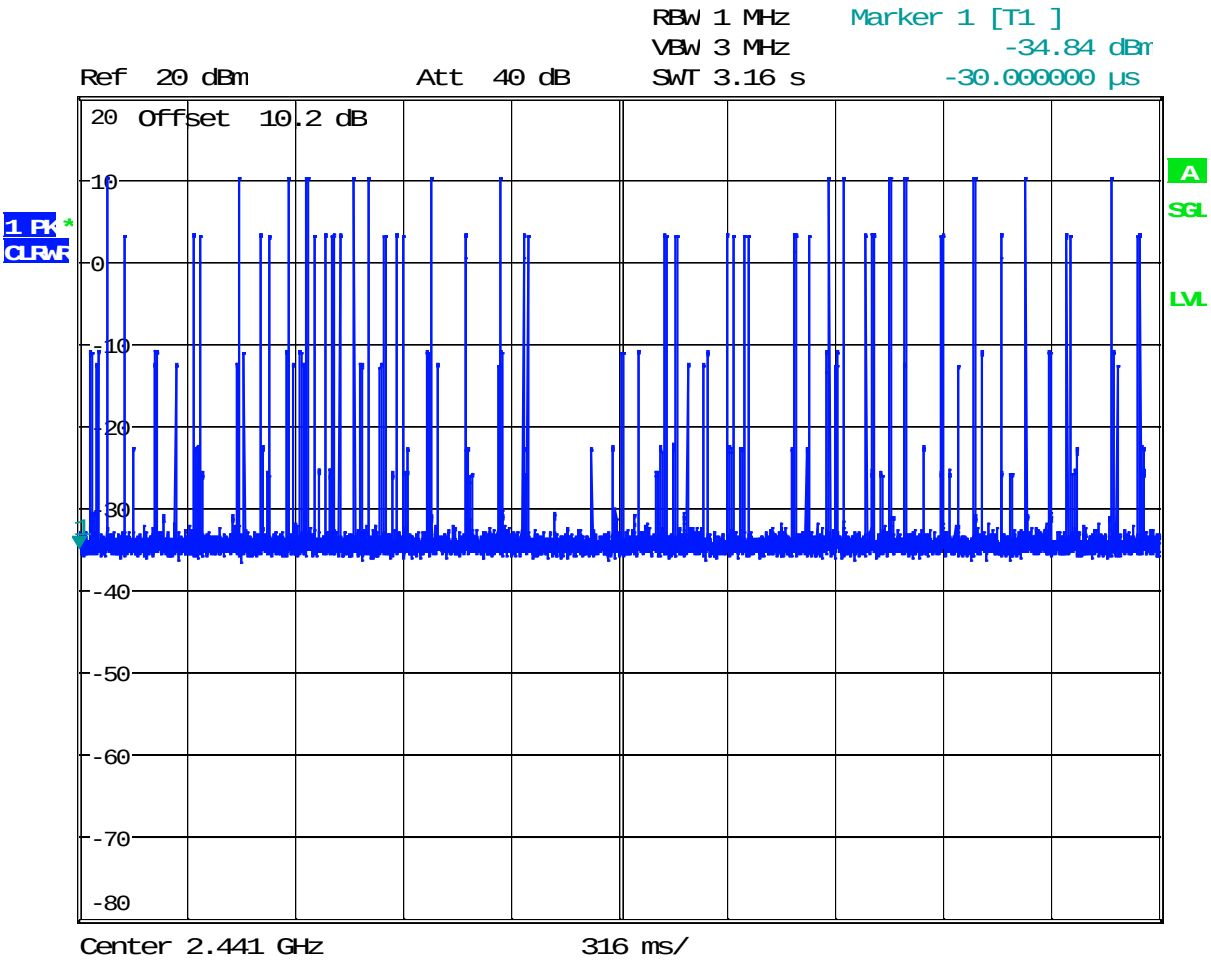
Date: 5.OCT.2015 15:39:56

GFSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
15*10	1.68	252.0	400



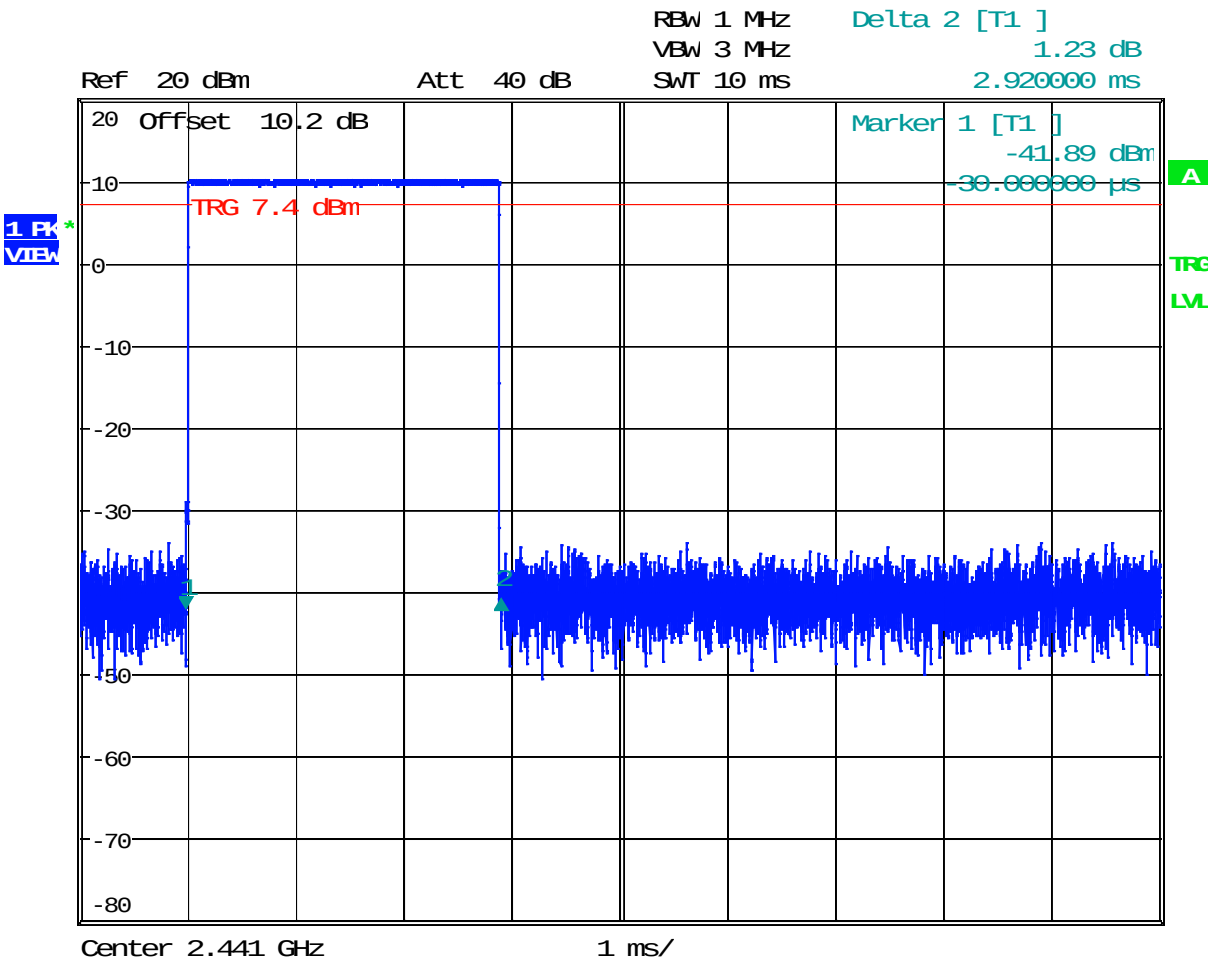
Date: 5.OCT.2015 15:32:59



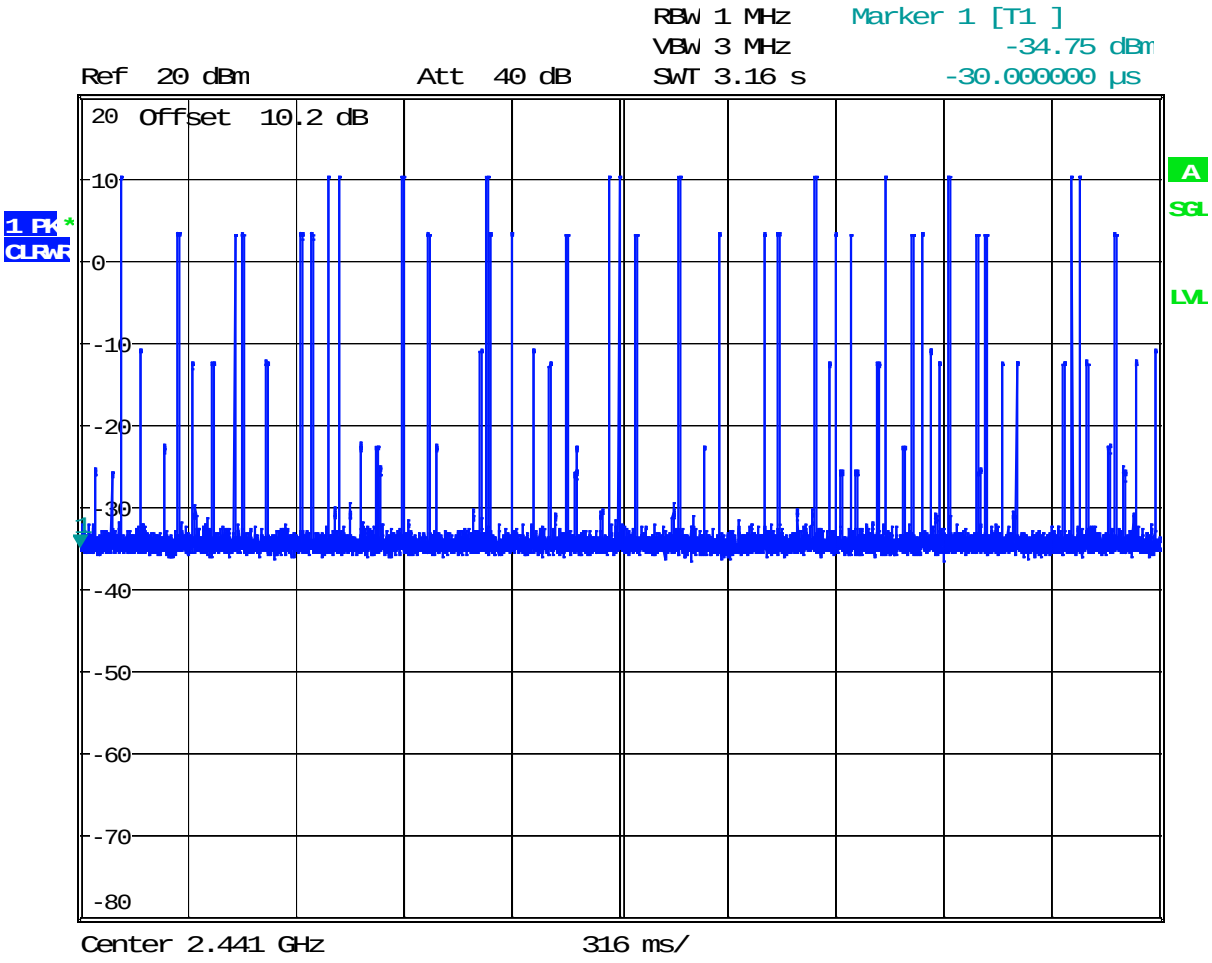
Date: 5.OCT.2015 15:39:12

GFSK, DH5

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
12*10	2.92	350.4	400



Date: 5.OCT.2015 15:33:41

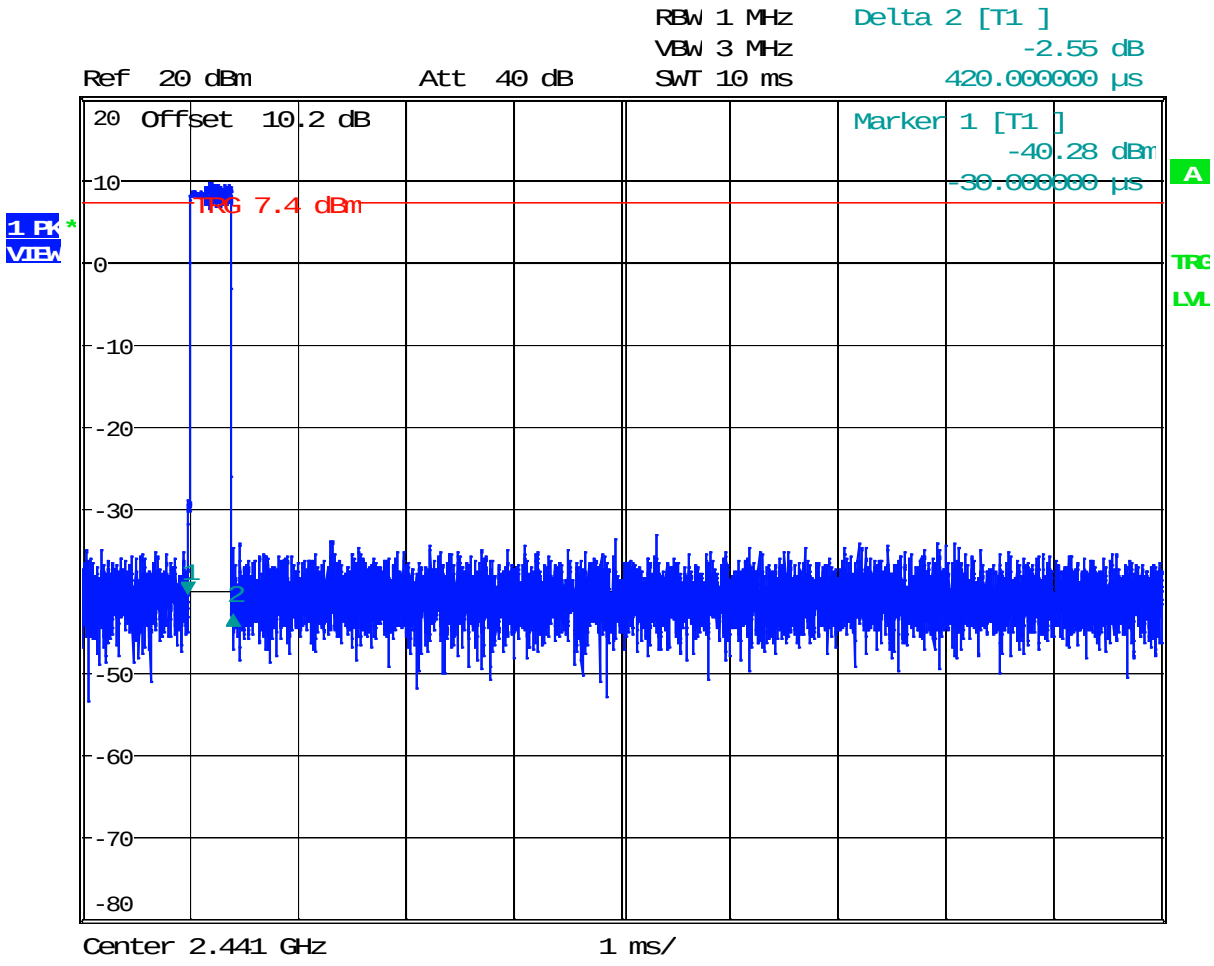


Date: 5.OCT.2015 15:36:48

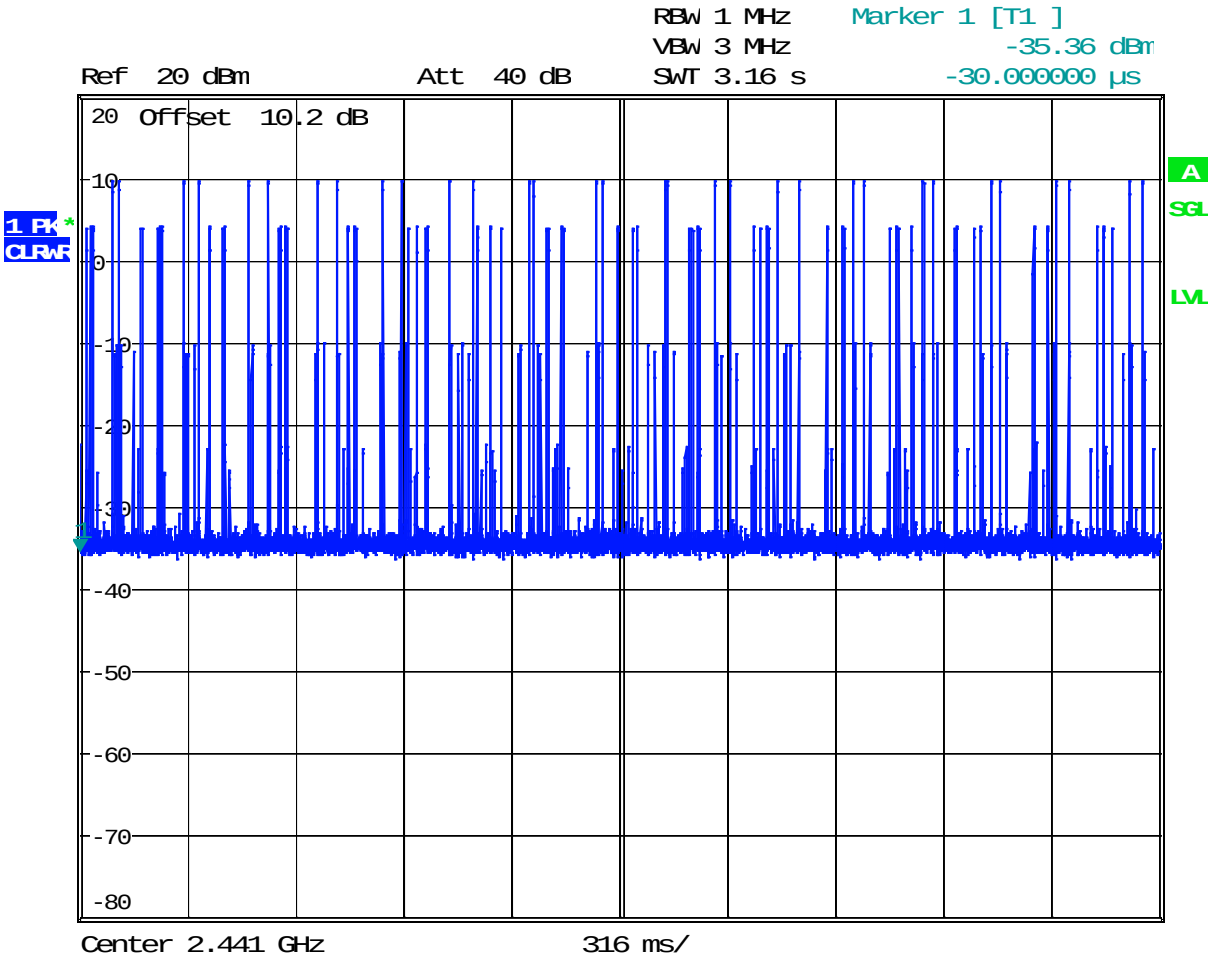
4.5.3 Test Results (Continued)

π/4-DQPSK, DH1

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
30*10	0.420	126.0	400



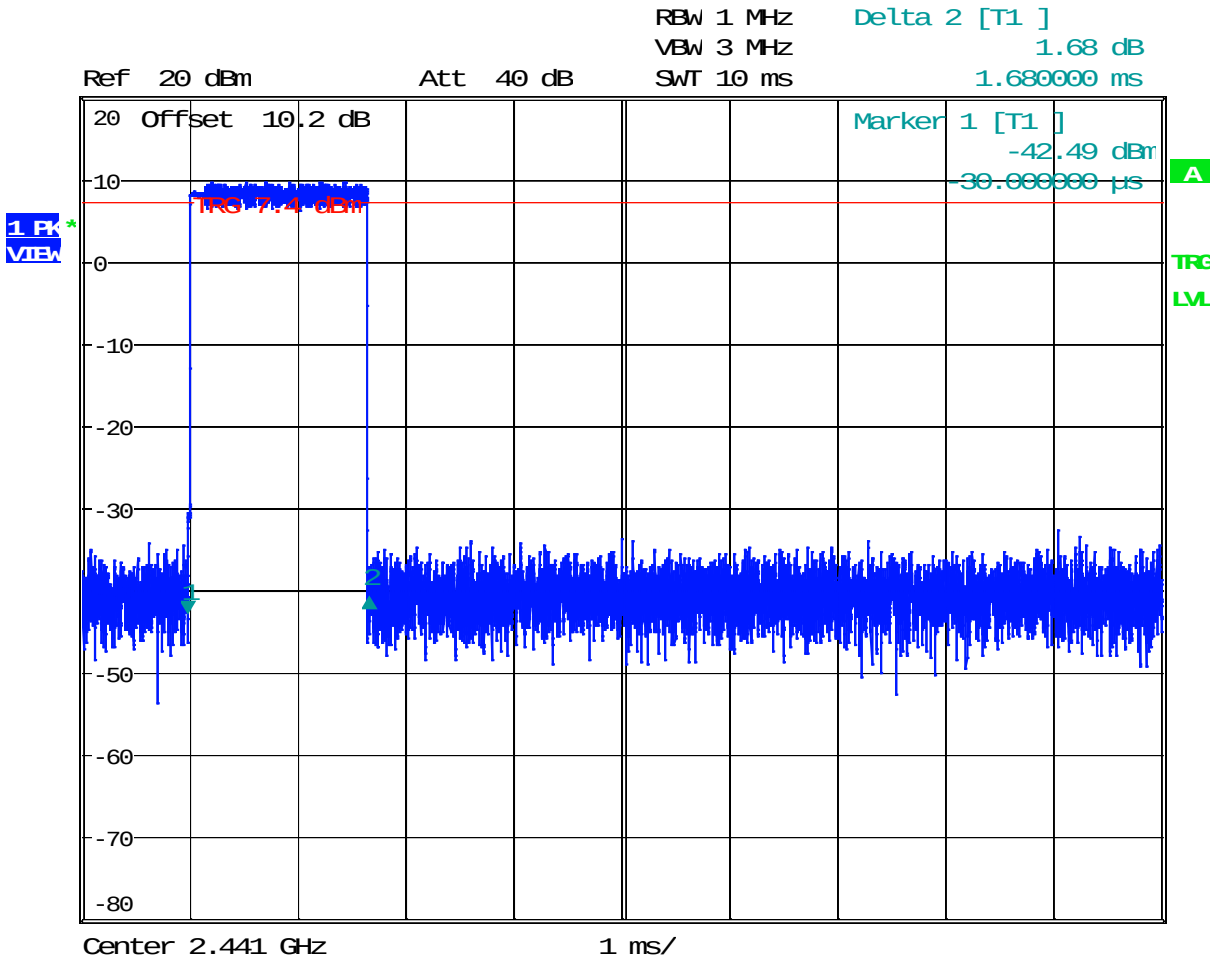
Date: 5.OCT.2015 15:30:26



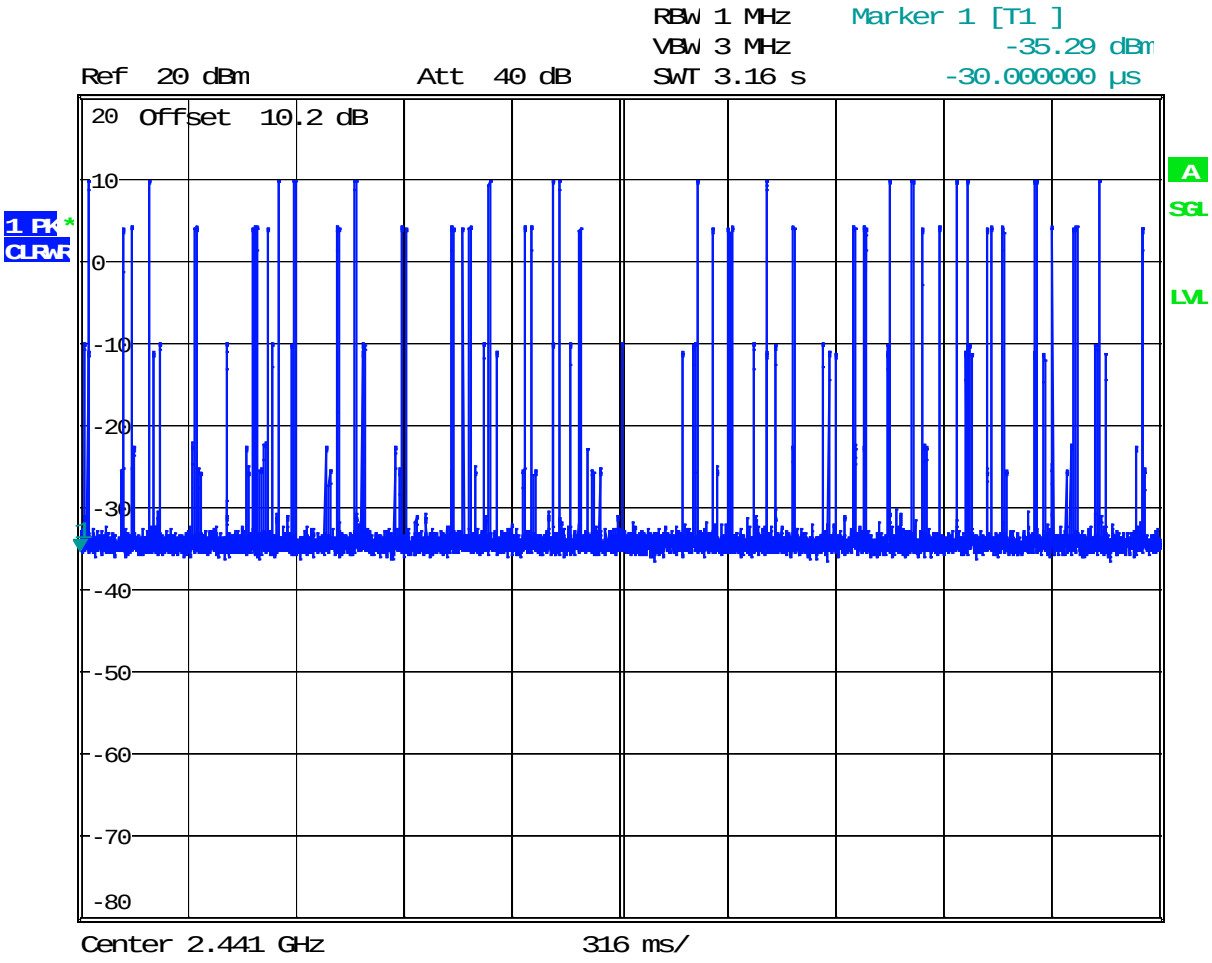
Date: 5.OCT.2015 15:29:01

π/4-DQPSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
17*10	1.68	285.6	400



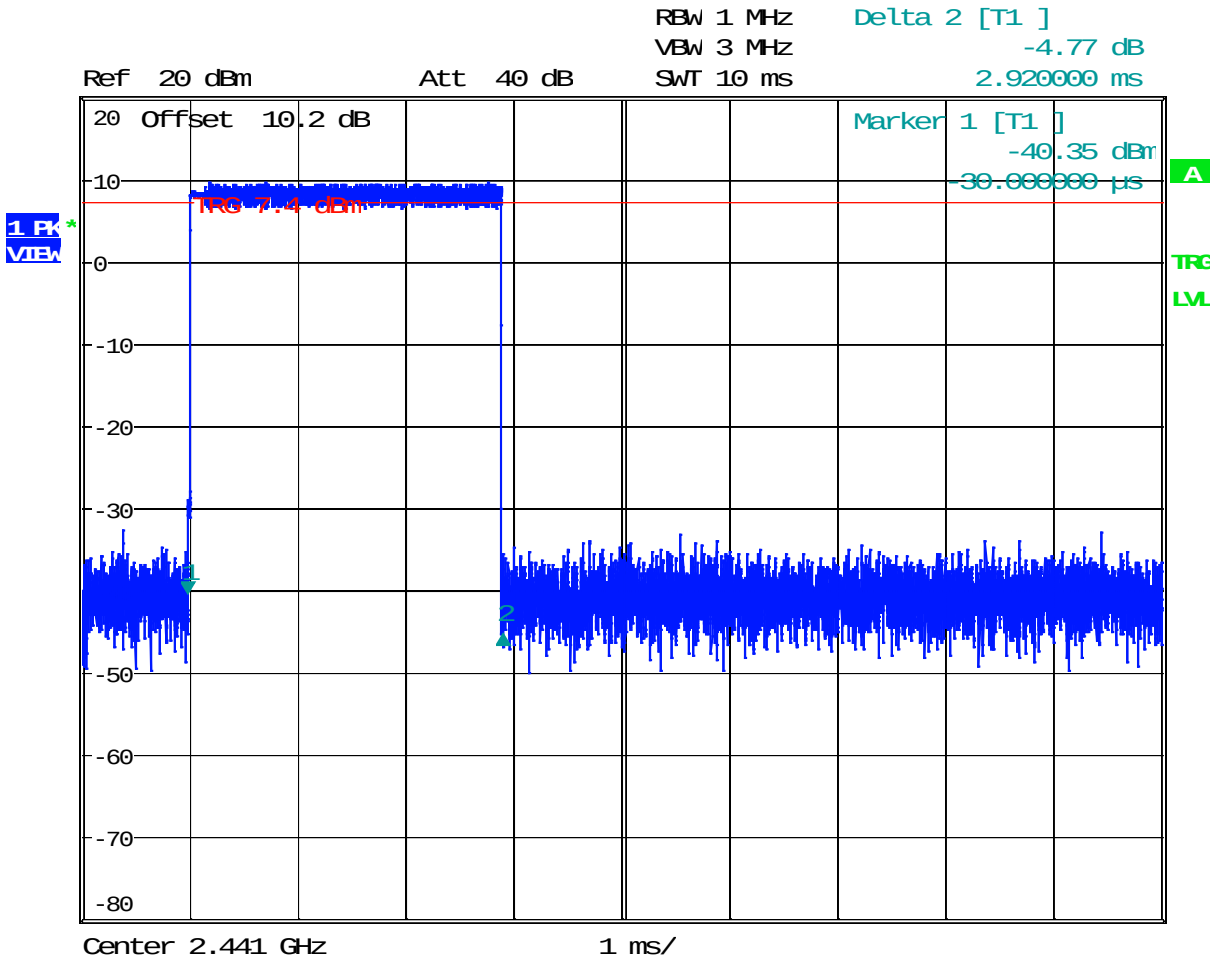
Date: 5.OCT.2015 15:26:55



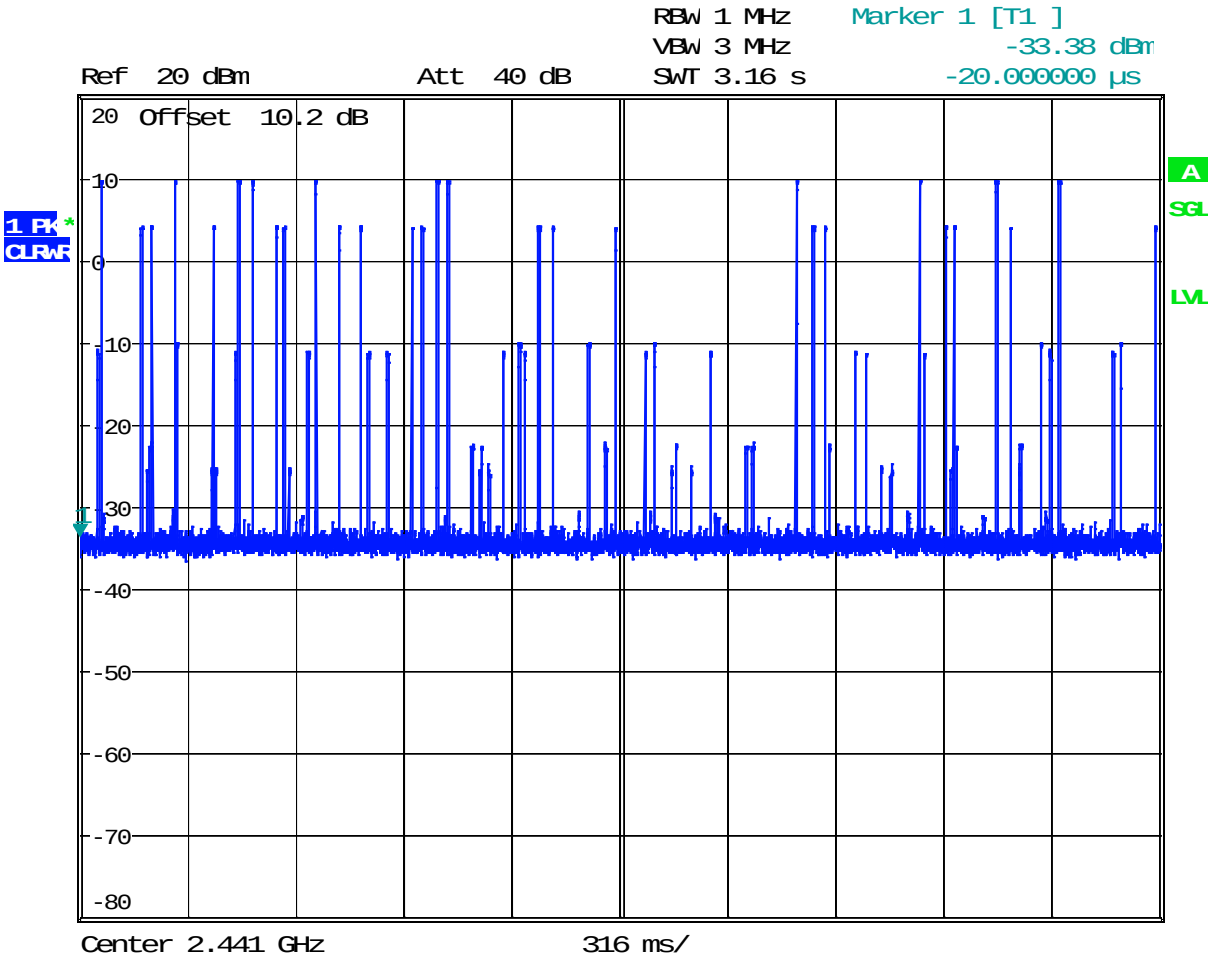
Date: 5.OCT.2015 15:27:44

π/4-DQPSK, DH5

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
11*10	2.92	321.2	400



Date: 5.OCT.2015 15:25:11

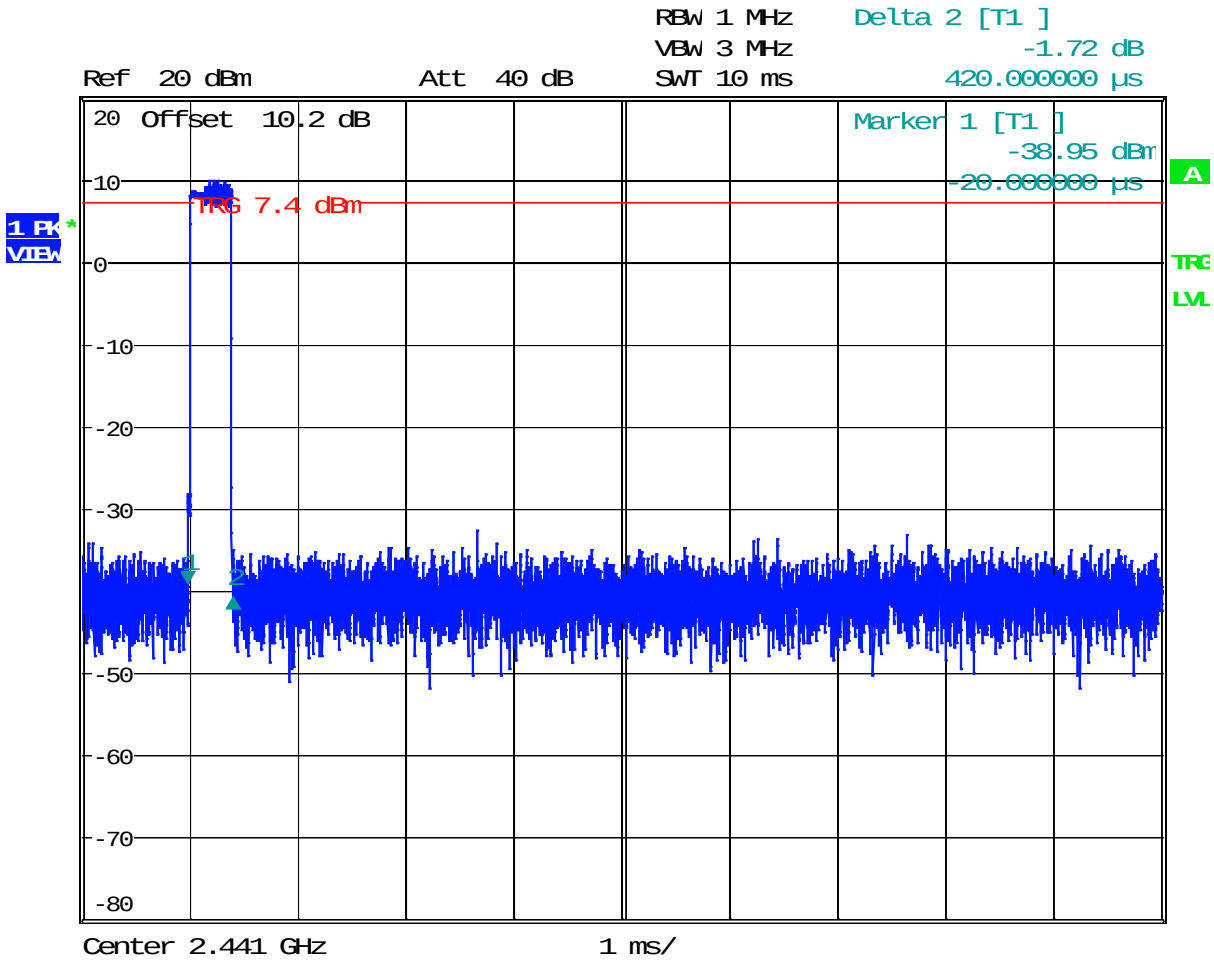


Date: 5.OCT.2015 15:23:31

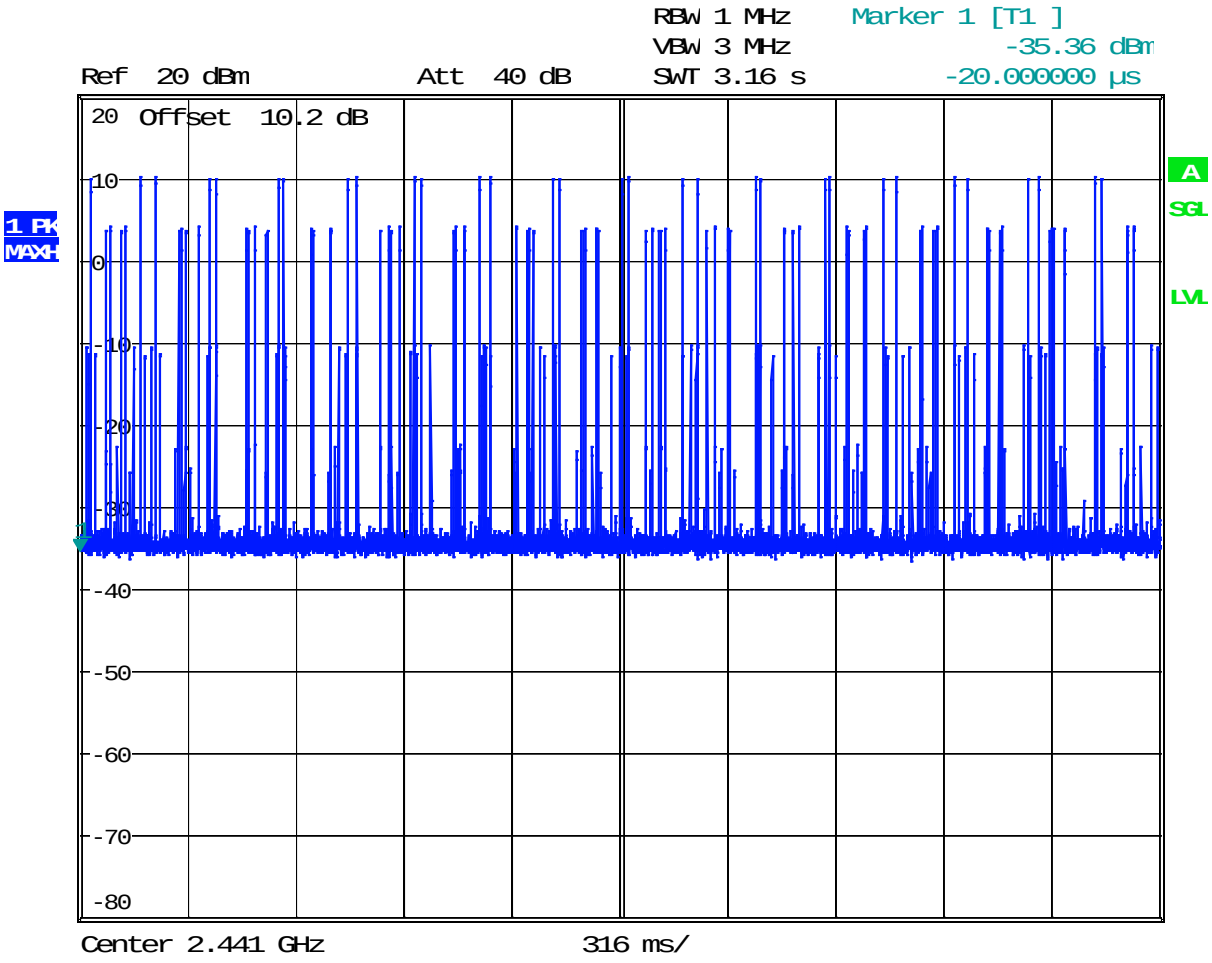
4.5.3 Test Results (Continued)

8DPSK, DH1

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
31*10	0.420	130.2	400



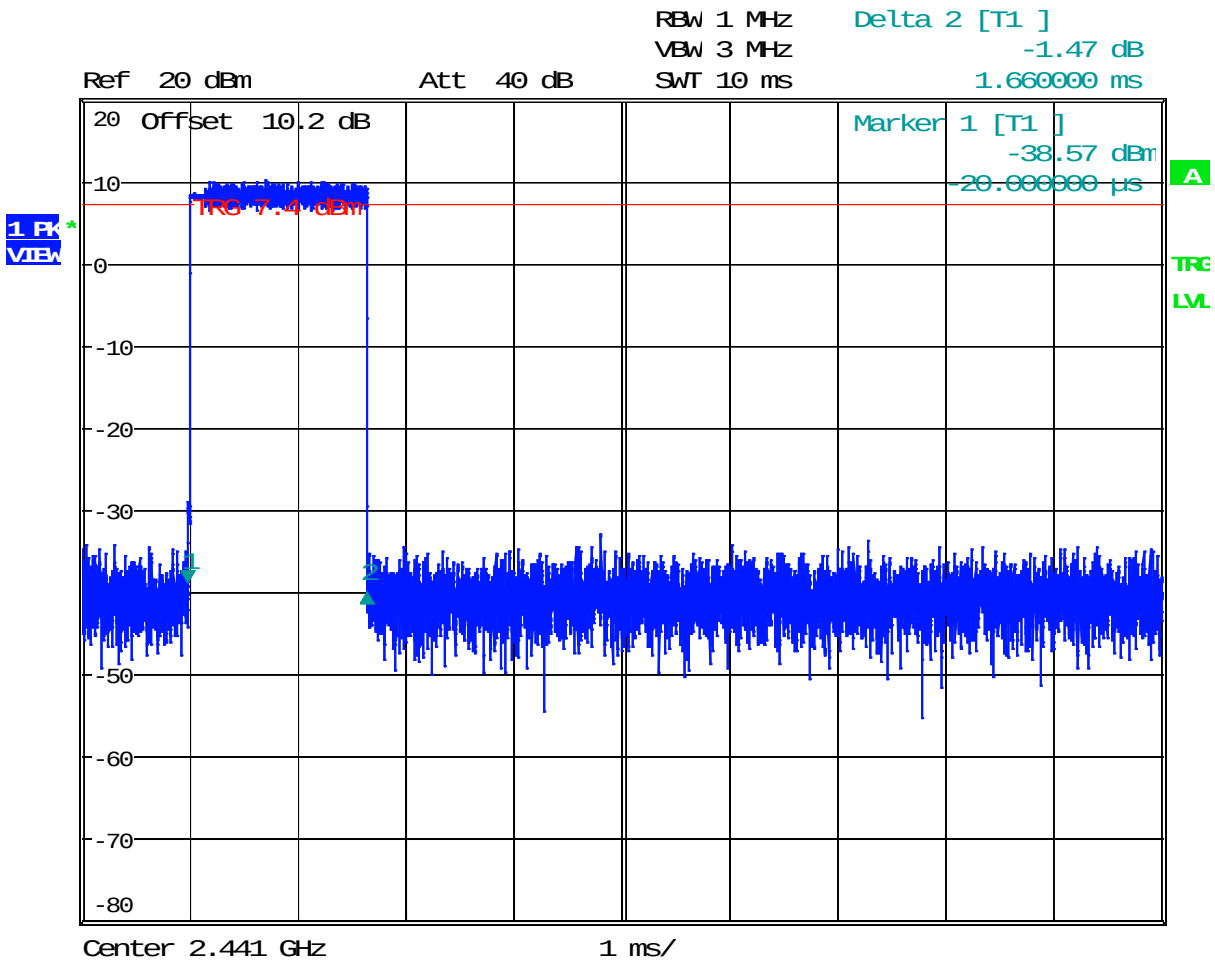
Date: 5.OCT.2015 15:19:14



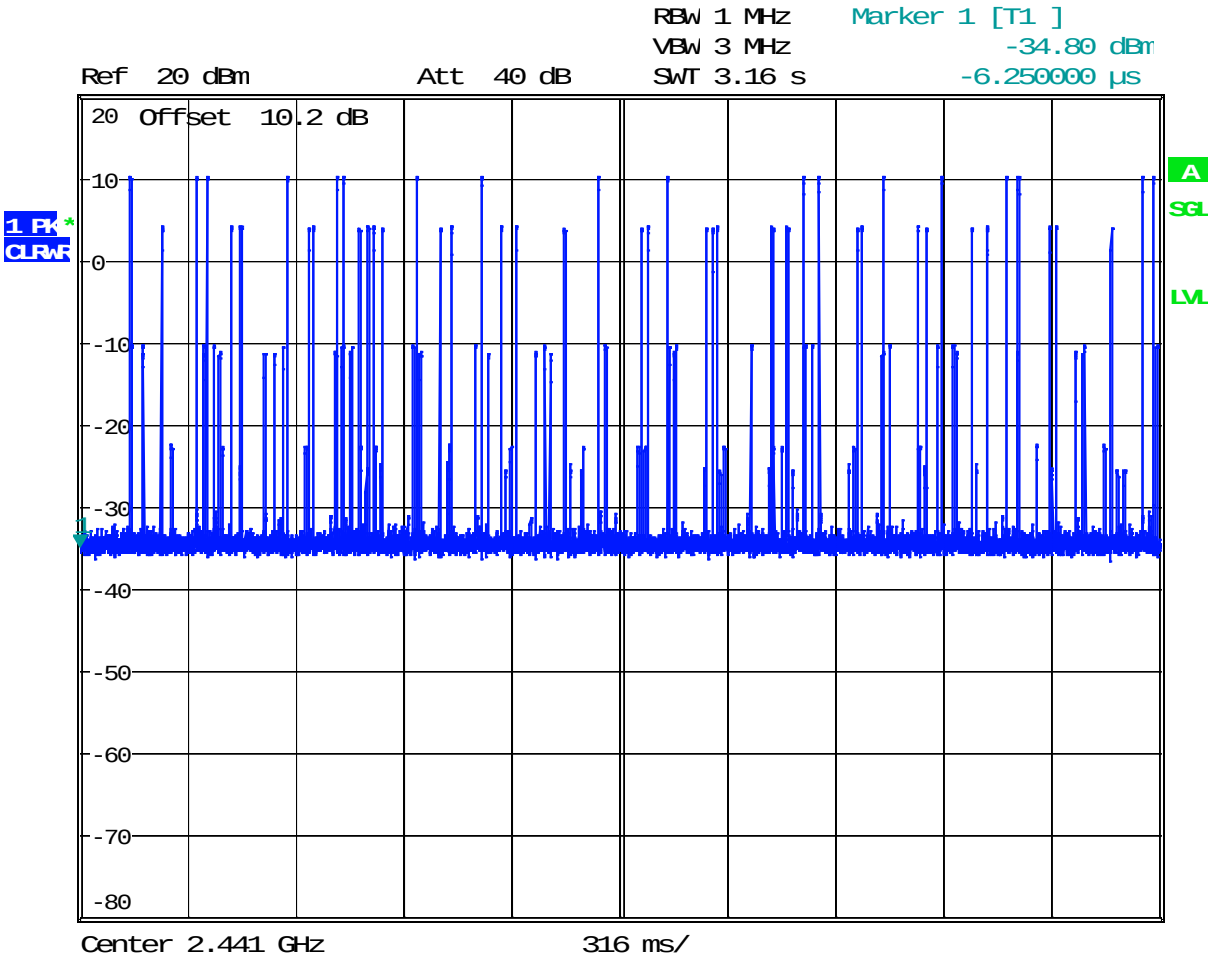
Date: 5.OCT.2015 15:21:06

8DPSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
17*10	1.66	282.2	400



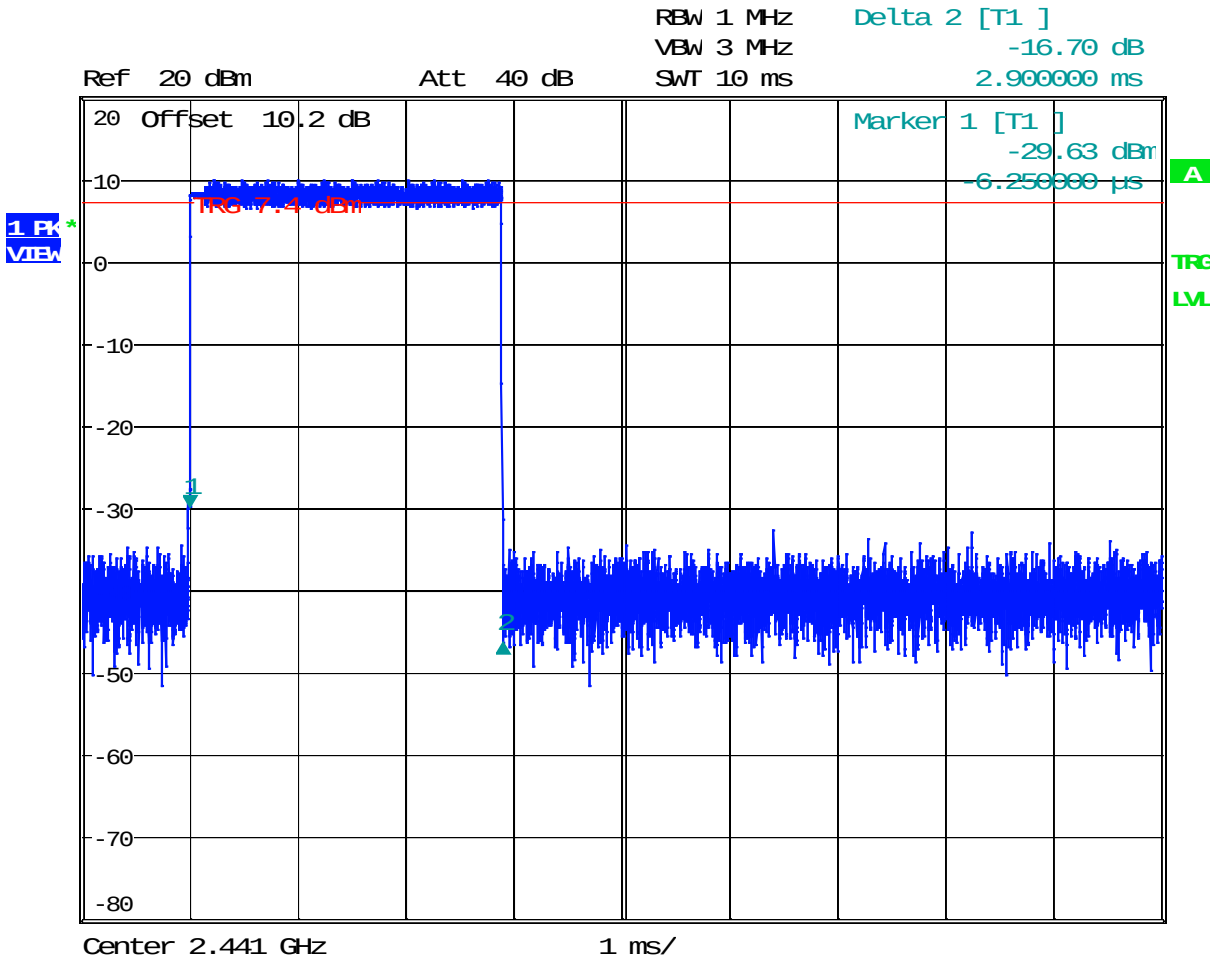
Date: 5.OCT.2015 15:17:50



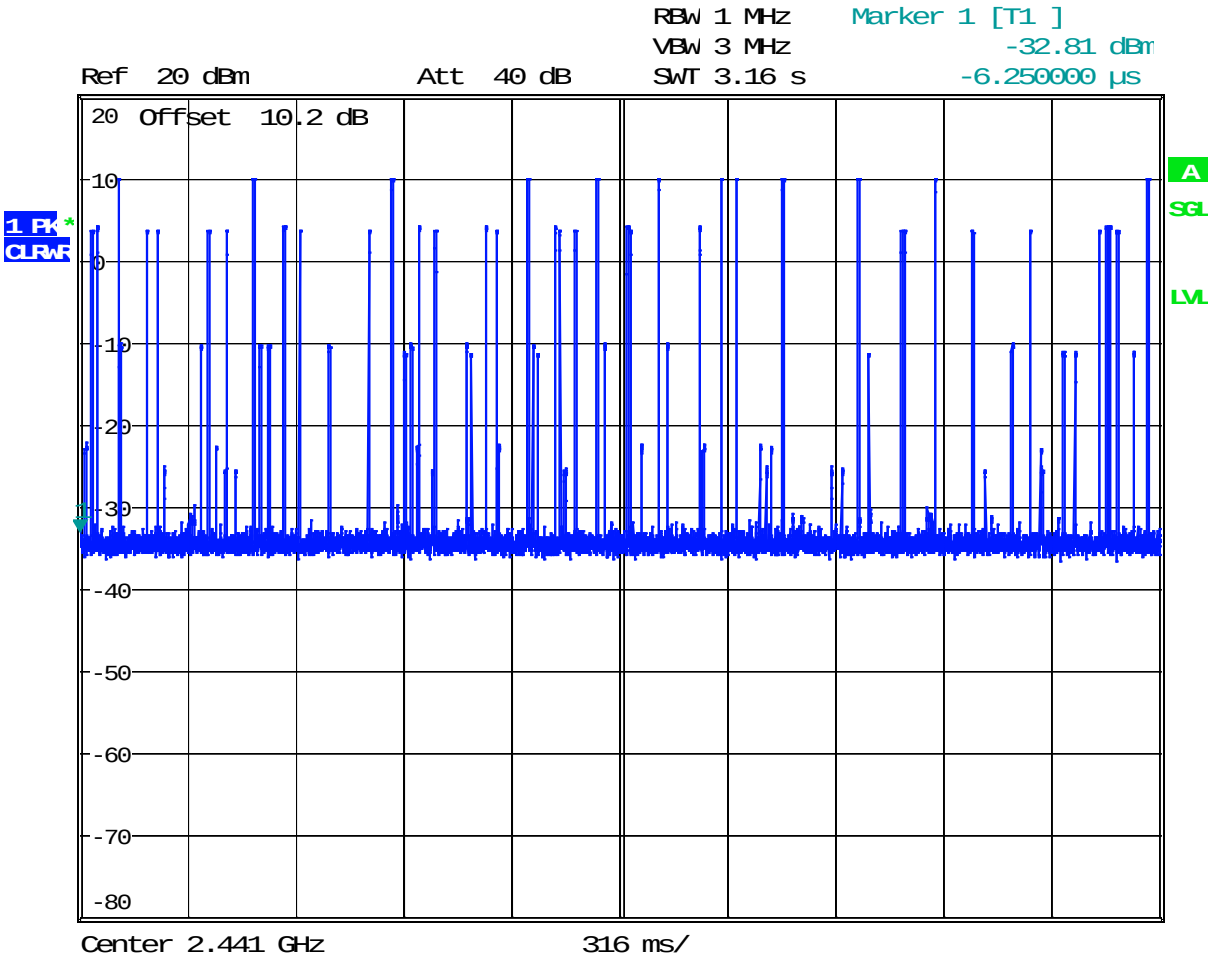
Date: 5.OCT.2015 15:16:26

8DPSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
12*10	2.90	348.0	400



Date: 5.OCT.2015 15:11:43



Date: 5.OCT.2015 15:14:30

4.6 Out-of-Band Conducted Emissions
FCC 15.247(d)

4.6.1 Requirement

In any 100 kHz bandwidths outside the EUT pass-band, the RF power shall be at least 20dB (peak) or 30 dB (average) below that of the maximum in-band 100 kHz emissions.

4.6.2 Procedure

The Procedure described in the FCC Publication DA 00-705 Released March 30, 2000 “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems” was used to determine the Out-of-Band Conducted Emissions.

- 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 = 3 x RBW
- Sweep = auto
- Detector function = peak
- Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

A spectrum analyzer was connected to the antenna port of the transmitter. Analyzer Resolution Bandwidth was set to 100 kHz. For each channel investigated, the in-band and out-of-band emission measurements were performed. The out-of-band emissions were measured from 30 MHz to 26 GHz.

4.6.3 Test Result

Refer to the following plots and out-of-band conducted spurious emissions at the Band-Edge, Table 4.1 & 4.2 for the test results:

Table 4.1

Radio	Channel	Frequency MHz	Description	Plot #
GFSK	0	2402	Scan 30 MHz – 26 GHz	4.1
	39	2441	Scan 30 MHz – 26 GHz	4.2
	78	2480	Scan 30 MHz – 26 GHz	4.3
π/4-DQPSK	0	2402	Scan 30 MHz – 26 GHz	4.4
	39	2441	Scan 30 MHz – 26 GHz	4.5
	78	2480	Scan 30 MHz – 26 GHz	4.6
8DPSK	0	2402	Scan 30 MHz – 26 GHz	4.7
	39	2441	Scan 30 MHz – 26 GHz	4.8
	78	2480	Scan 30 MHz – 26 GHz	4.9

Out-of-Band Conducted Spurious Emissions at the Band-Edge:

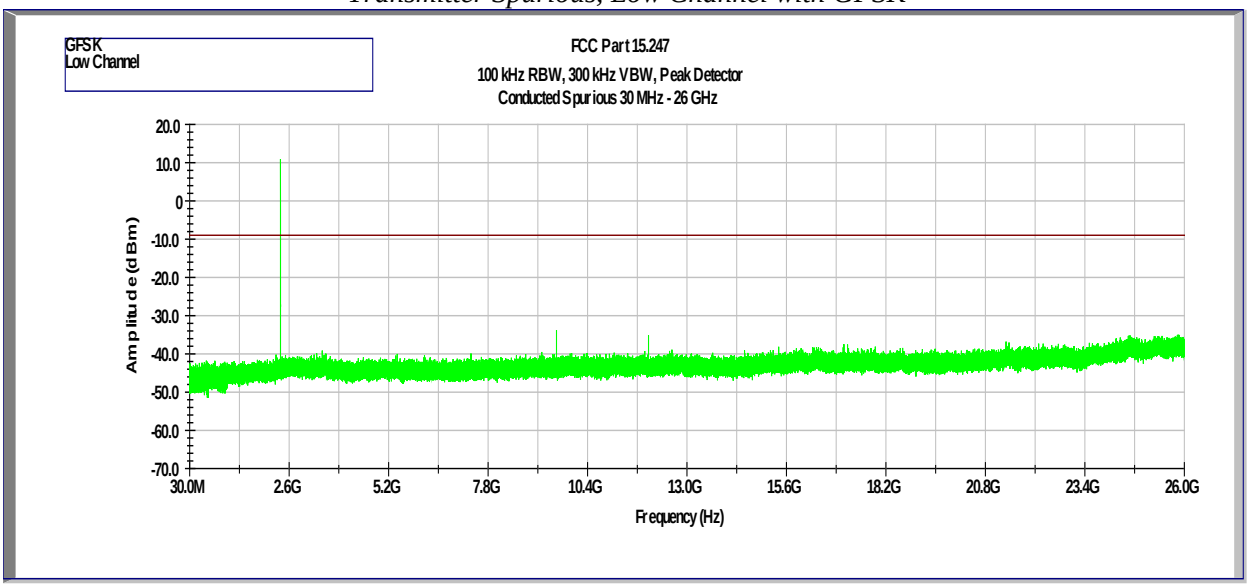
Table 4.2

Radio	Channel	Frequency MHz	Out-band emissions margin to In-band emissions (dB)	Plot #
GFSK	0	2402	-51.20	4.10
	Hopping	Low Band Edge	-55.78	4.11
	78	2480	-51.47	4.12
	Hopping	High Band Edge	-51.38	4.13
π/4-DQPSK	0	2402	-50.39	4.14
	Hopping	Low Band Edge	-54.00	4.15
	78	2480	-49.87	4.16
	Hopping	High Band Edge	-49.08	4.17
8DPSK	0	2402	-49.69	4.18
	Hopping	Low Band Edge	-55.07	4.19
	78	2480	-50.88	4.20
	Hopping	High Band Edge	-50.41	4.21

Results	Complies

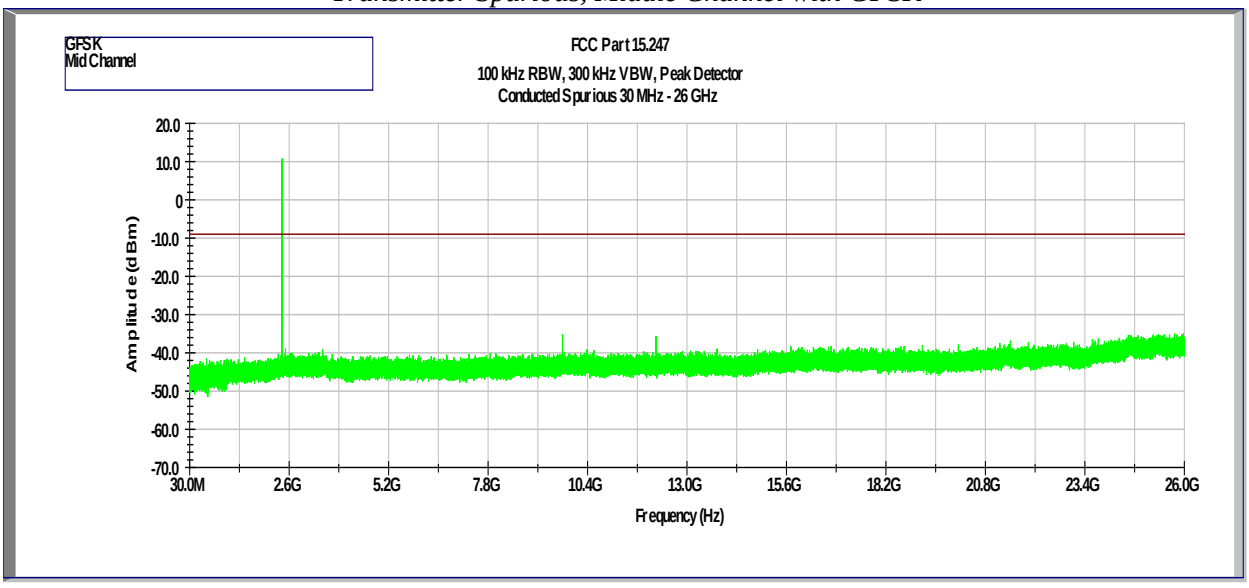
Plot 4.1

Transmitter Spurious, Low Channel with GFSK



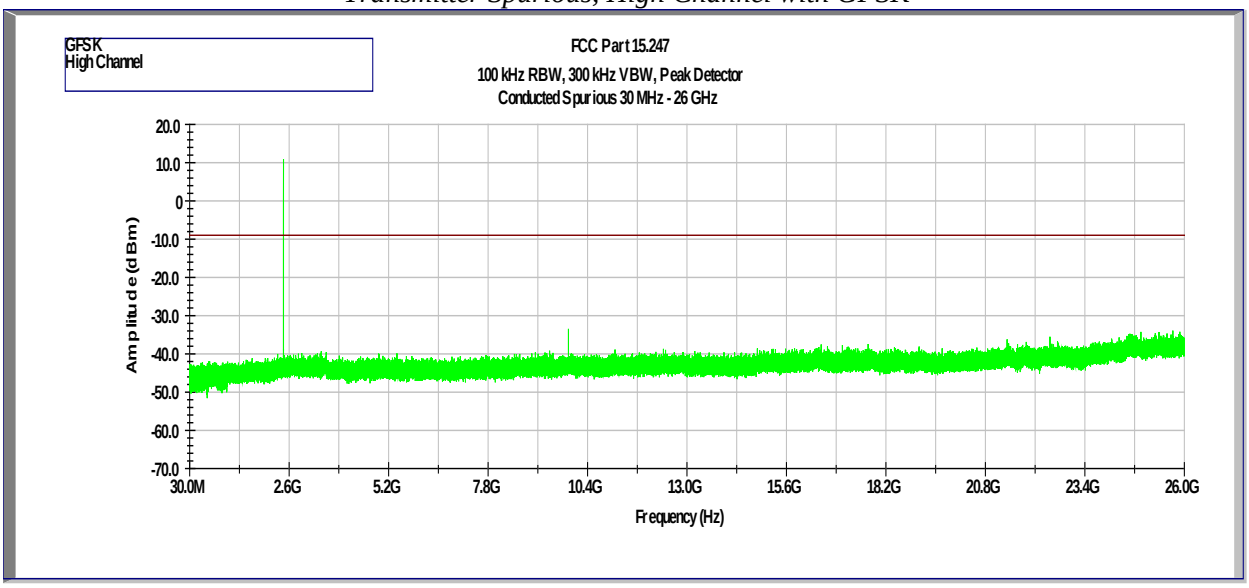
Plot 4.2

Transmitter Spurious, Middle Channel with GFSK



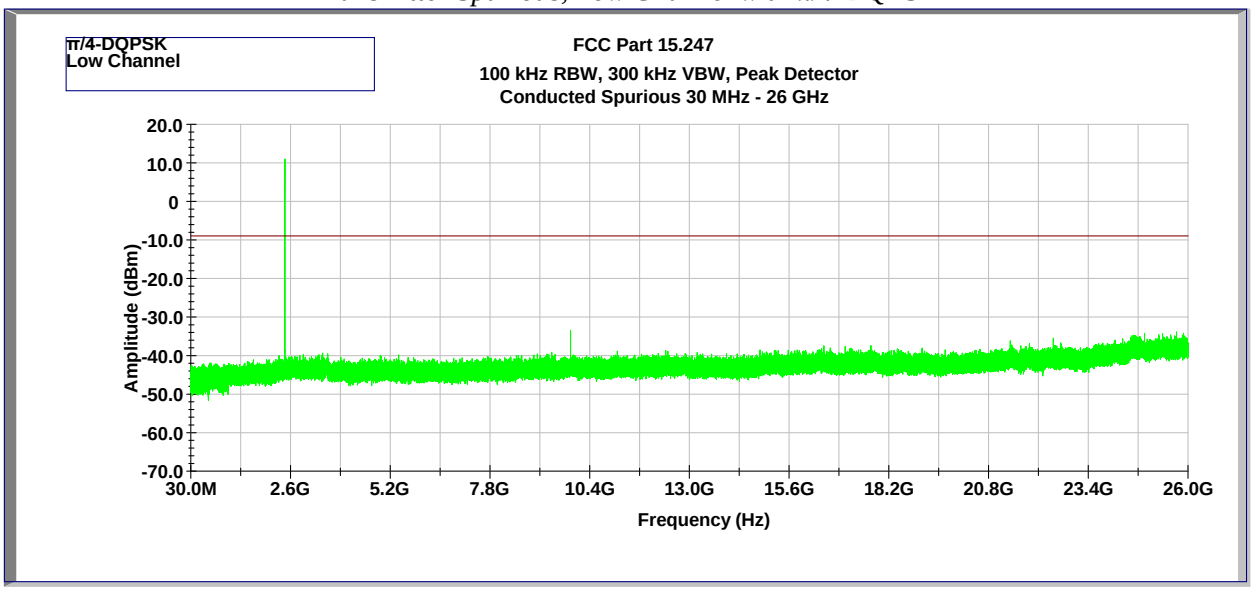
Plot 4.3

Transmitter Spurious, High Channel with GFSK



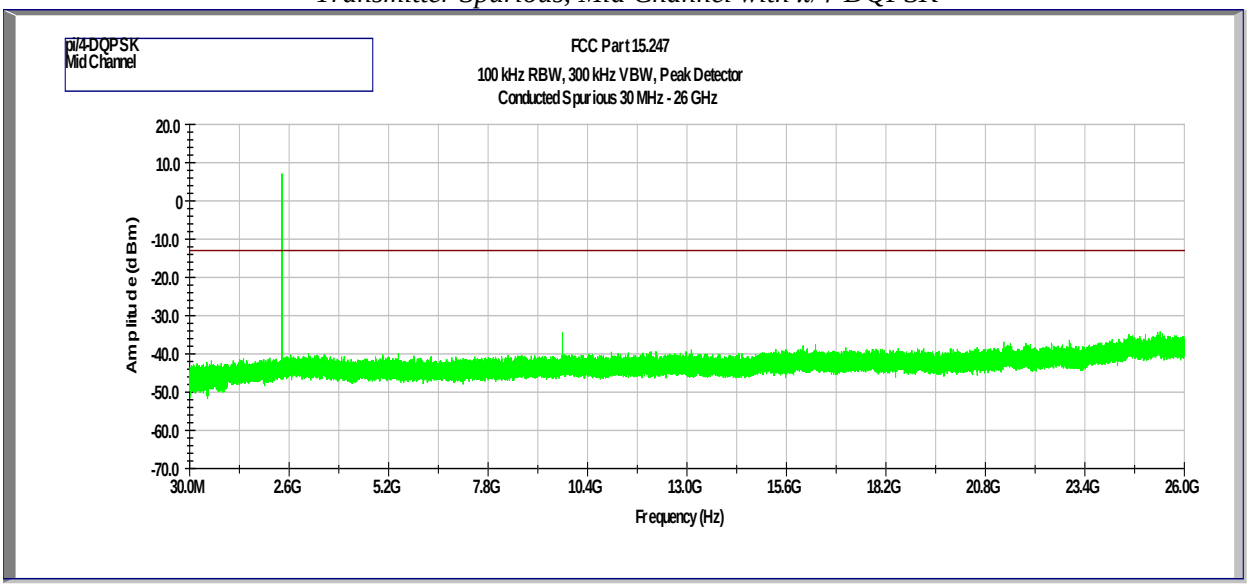
Plot 4.4

Transmitter Spurious, Low Channel with π/4-DQPSK



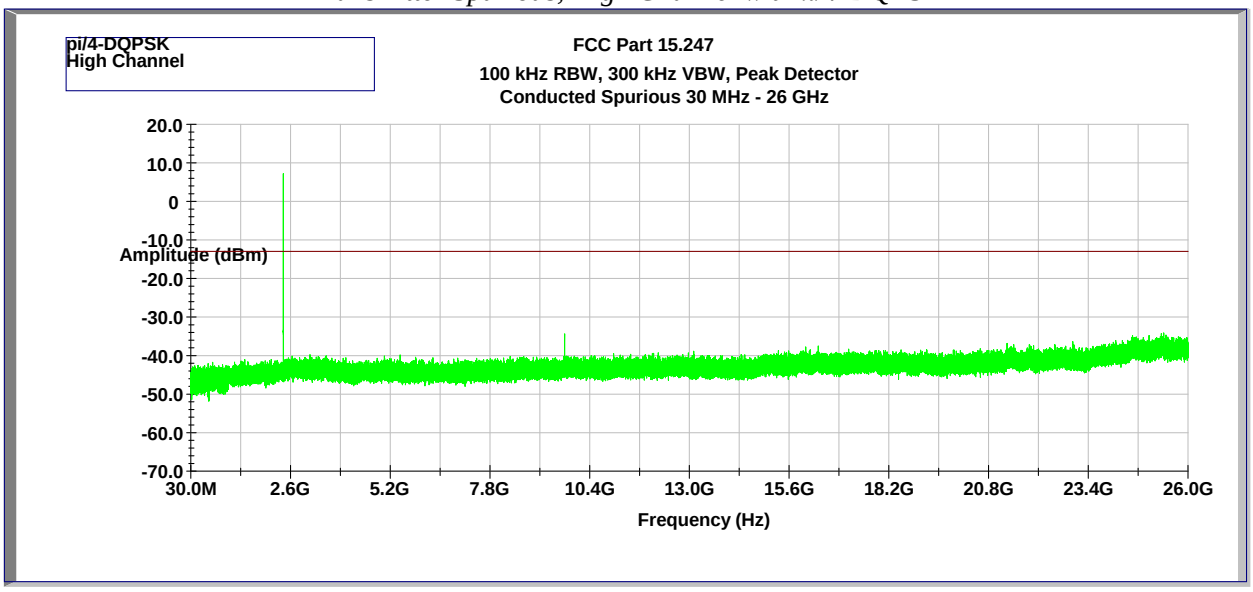
Plot 4.5

Transmitter Spurious, Mid Channel with π/4-DQPSK



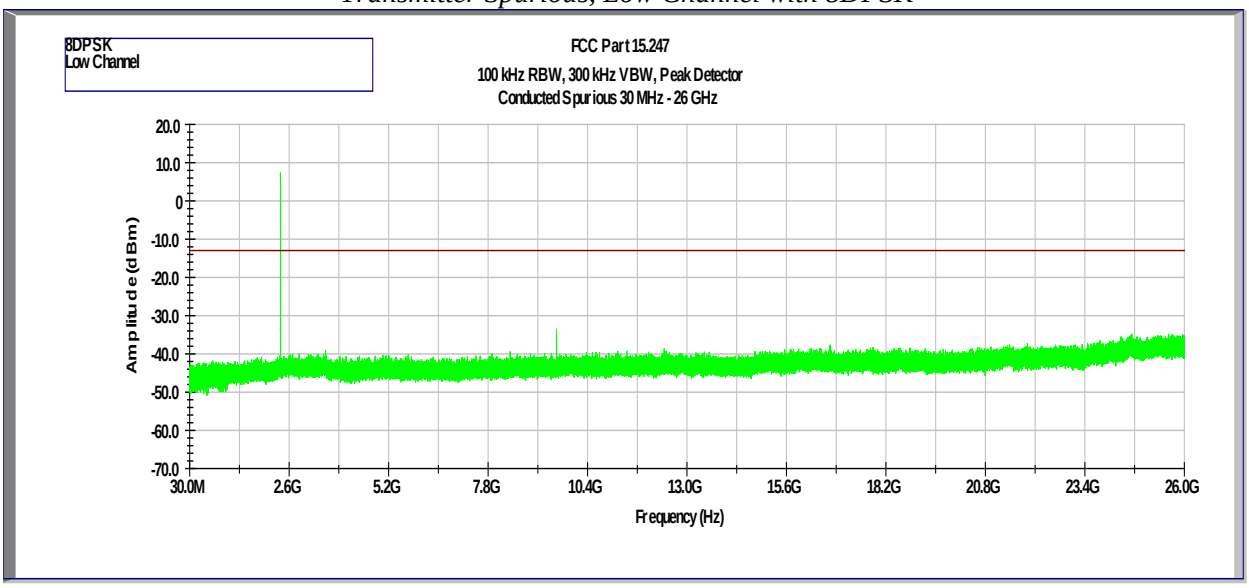
Plot 4.6

Transmitter Spurious, High Channel with π/4-DQPSK



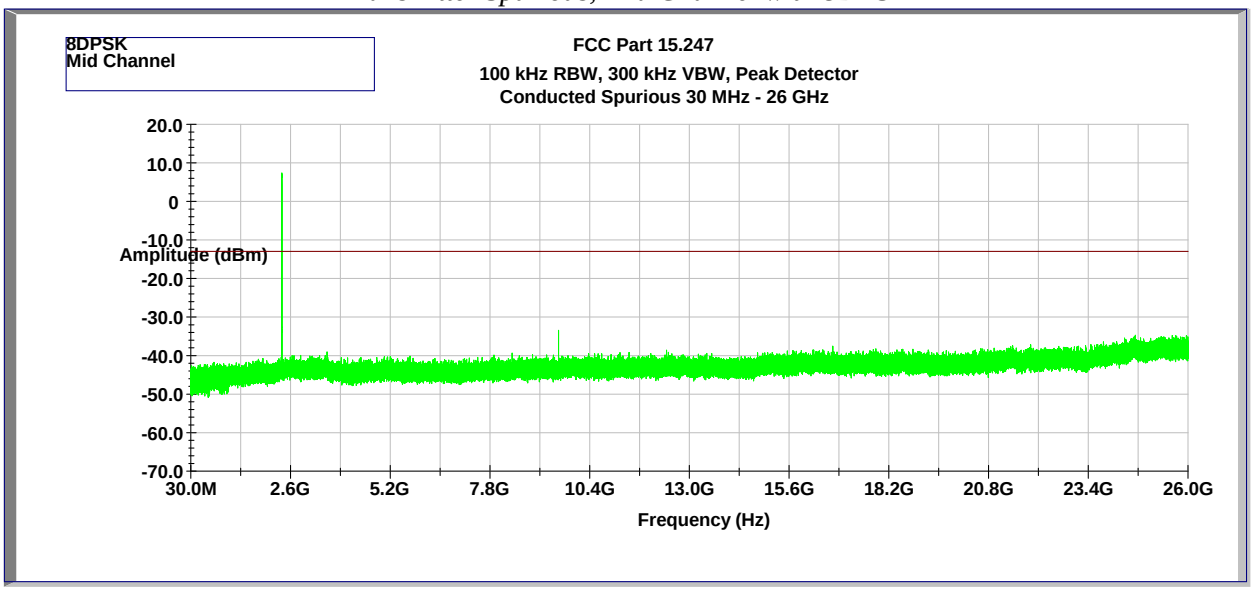
Plot 4.7

Transmitter Spurious, Low Channel with 8DPSK



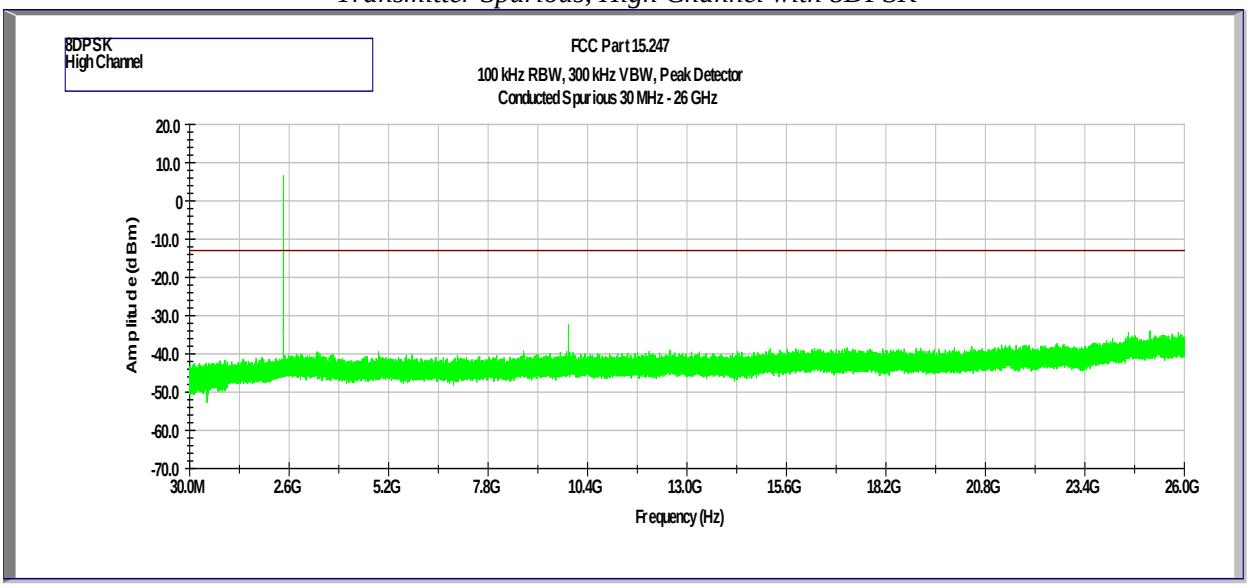
Plot 4.8

Transmitter Spurious, Mid Channel with 8DPSK

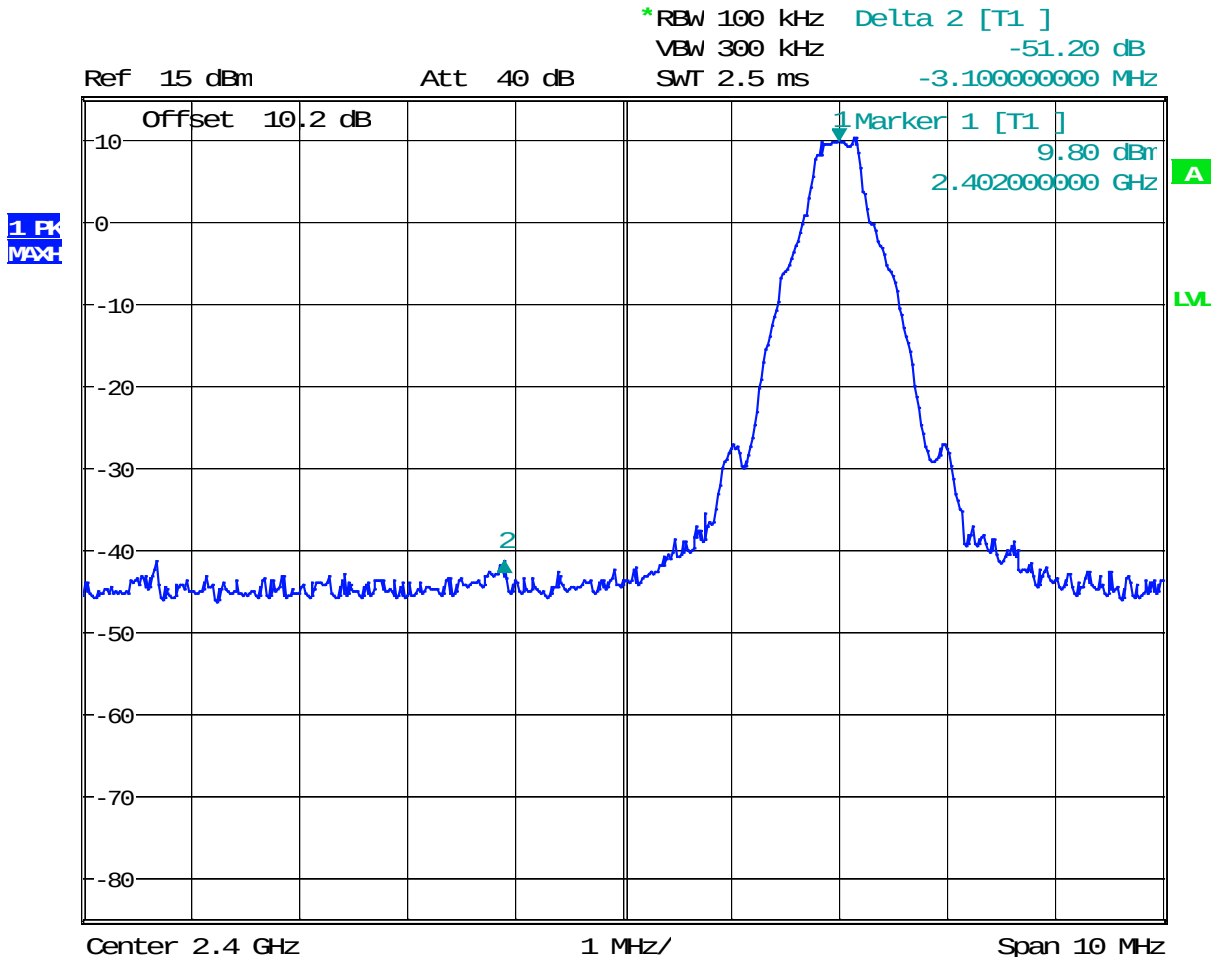


Plot 4.9

Transmitter Spurious, High Channel with 8DPSK

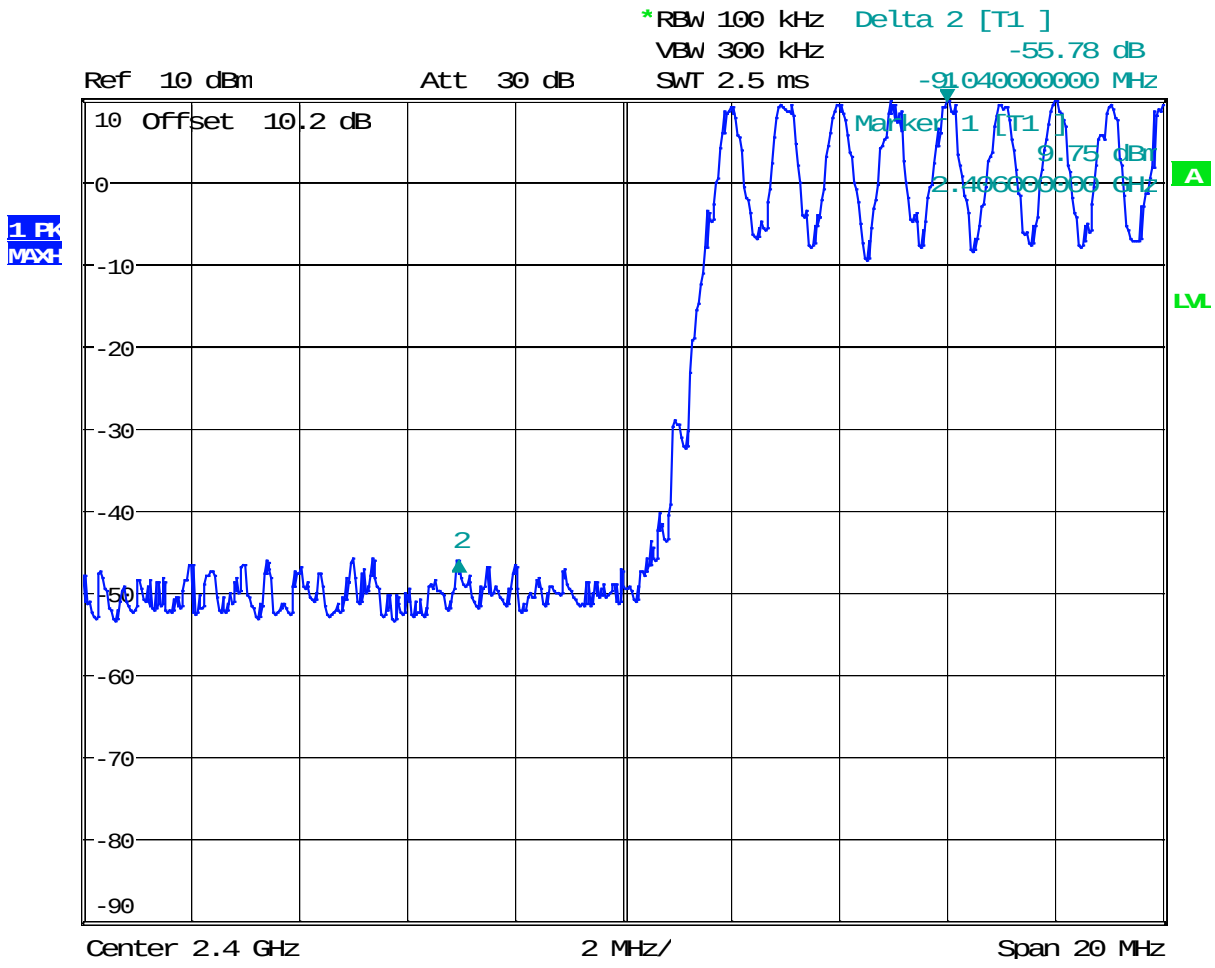


Plot 4.10
Conducted Band Edge, Low Channel with GFSK



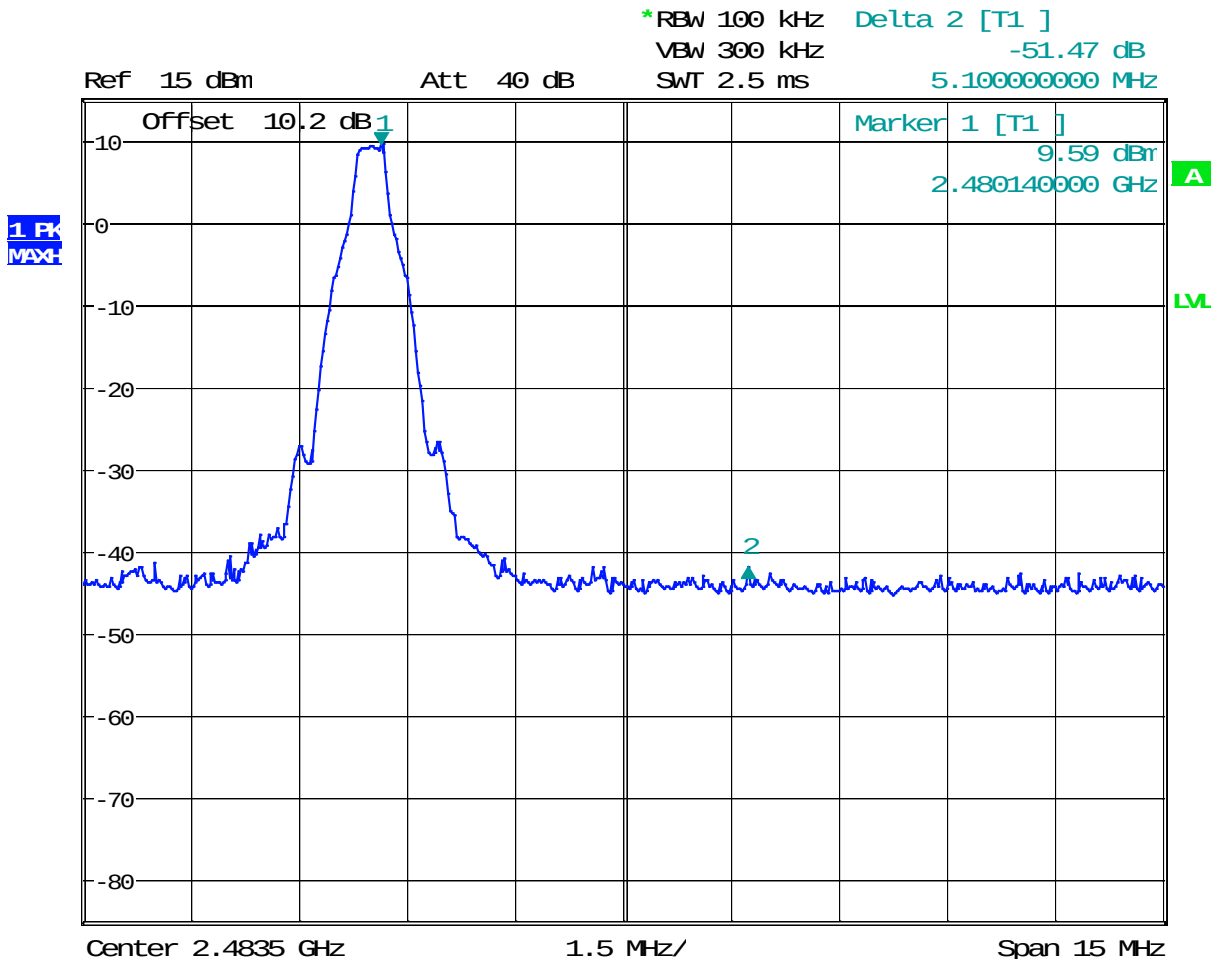
Date: 5.OCT.2015 13:24:10

Plot 4.11
Conducted Band Edge, with GFSK (Hopping)



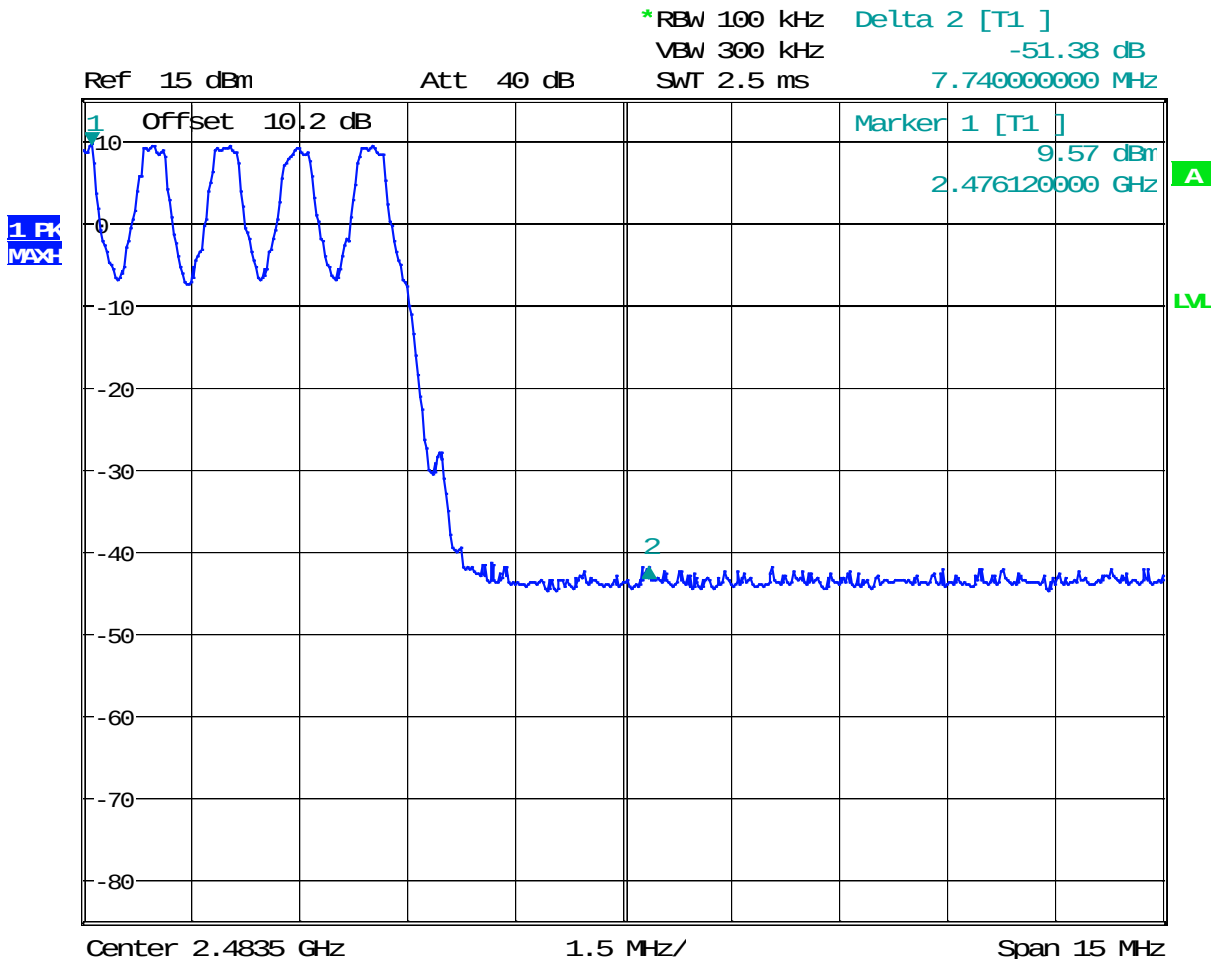
Date: 5.OCT.2015 13:22:49

Plot 4.12
Conducted Band Edge, High Channel with GFSK

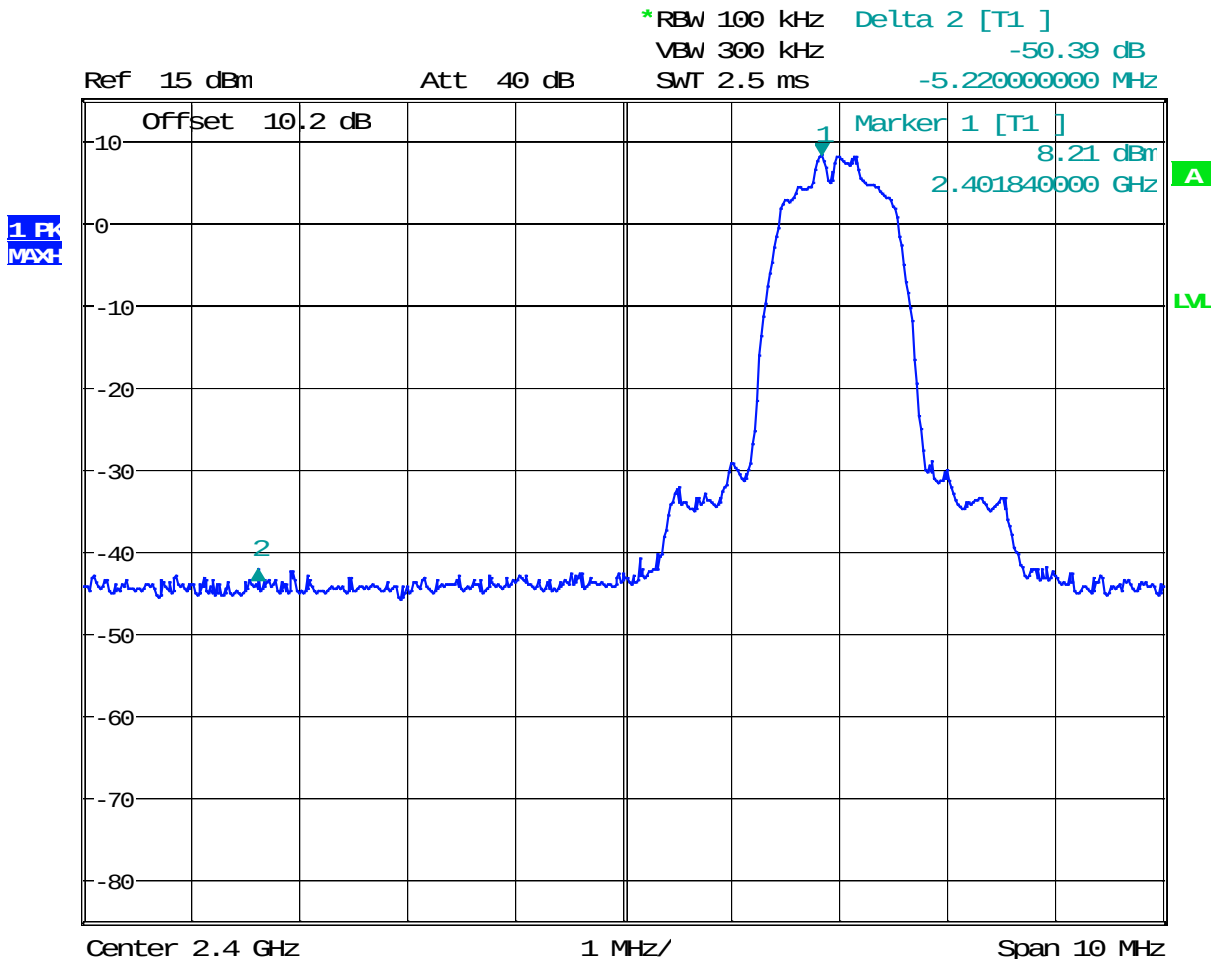


Plot 4.13

Conducted Band Edge, High Channel with GFSK (Hopping)

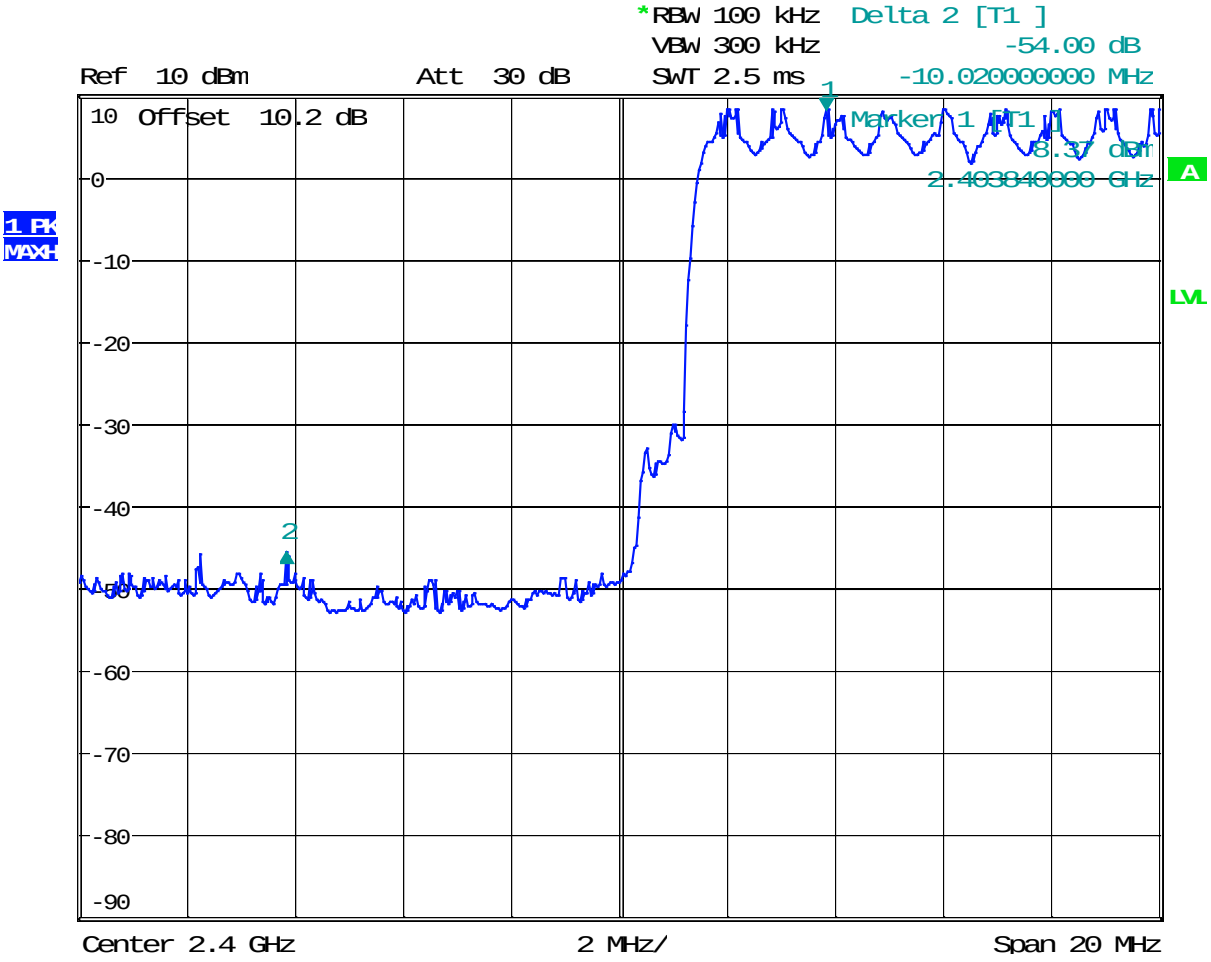


Plot 4.14
Conducted Band Edge, Low Channel with π/4-DQPSK



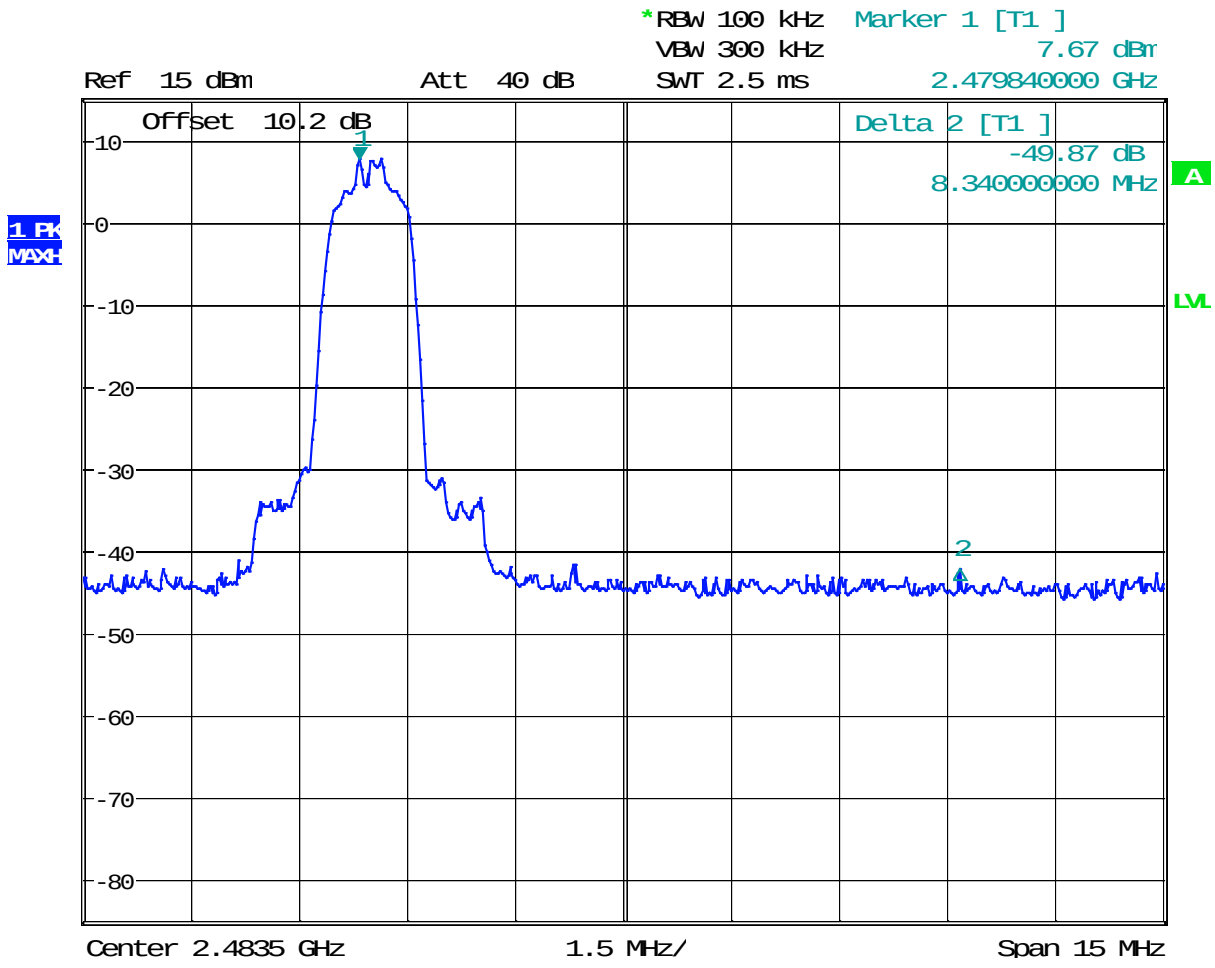
Plot 4.15

Conducted Band Edge, with π/4-DQPSK (Hopping)

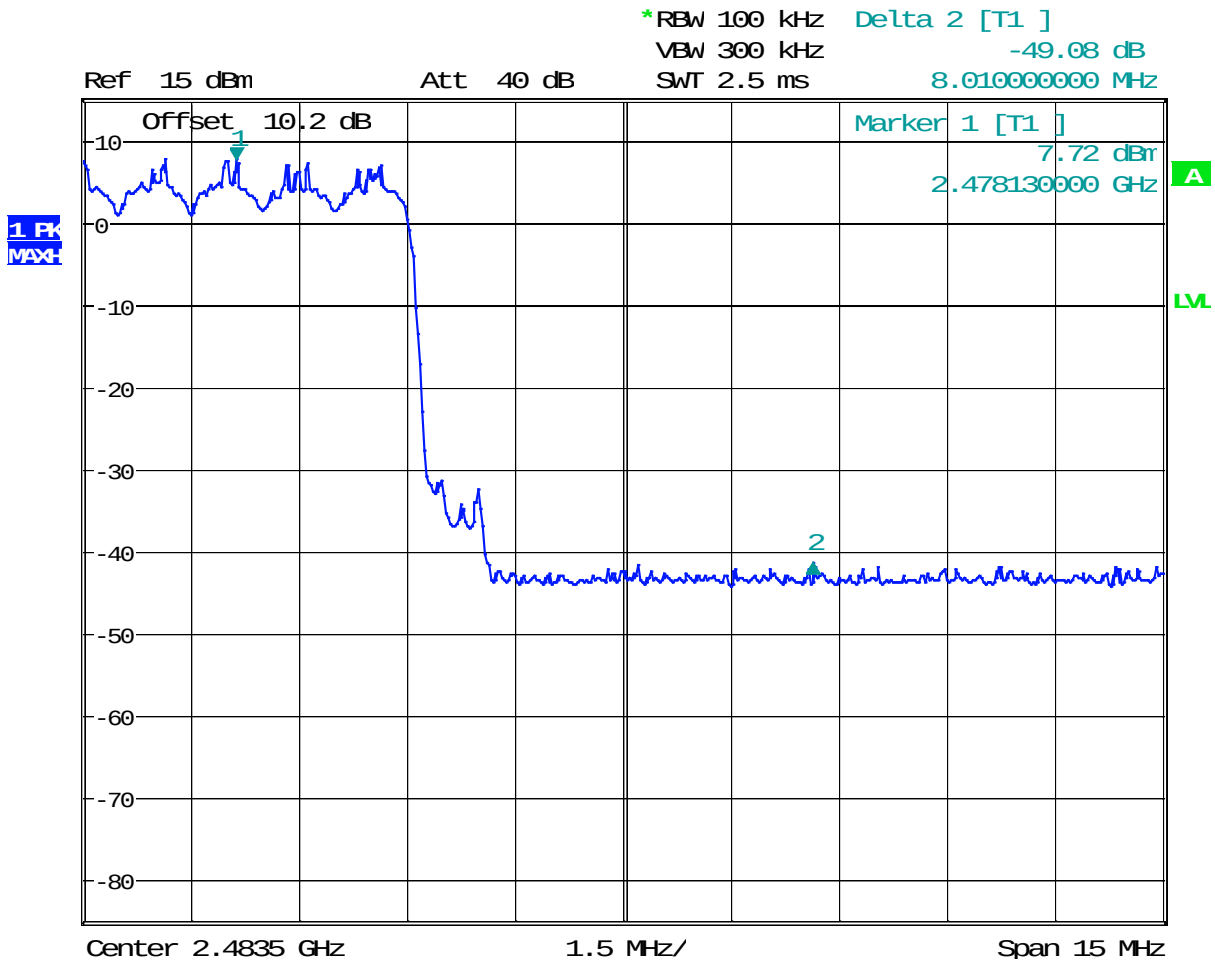


Date: 5.OCT.2015 13:19:09

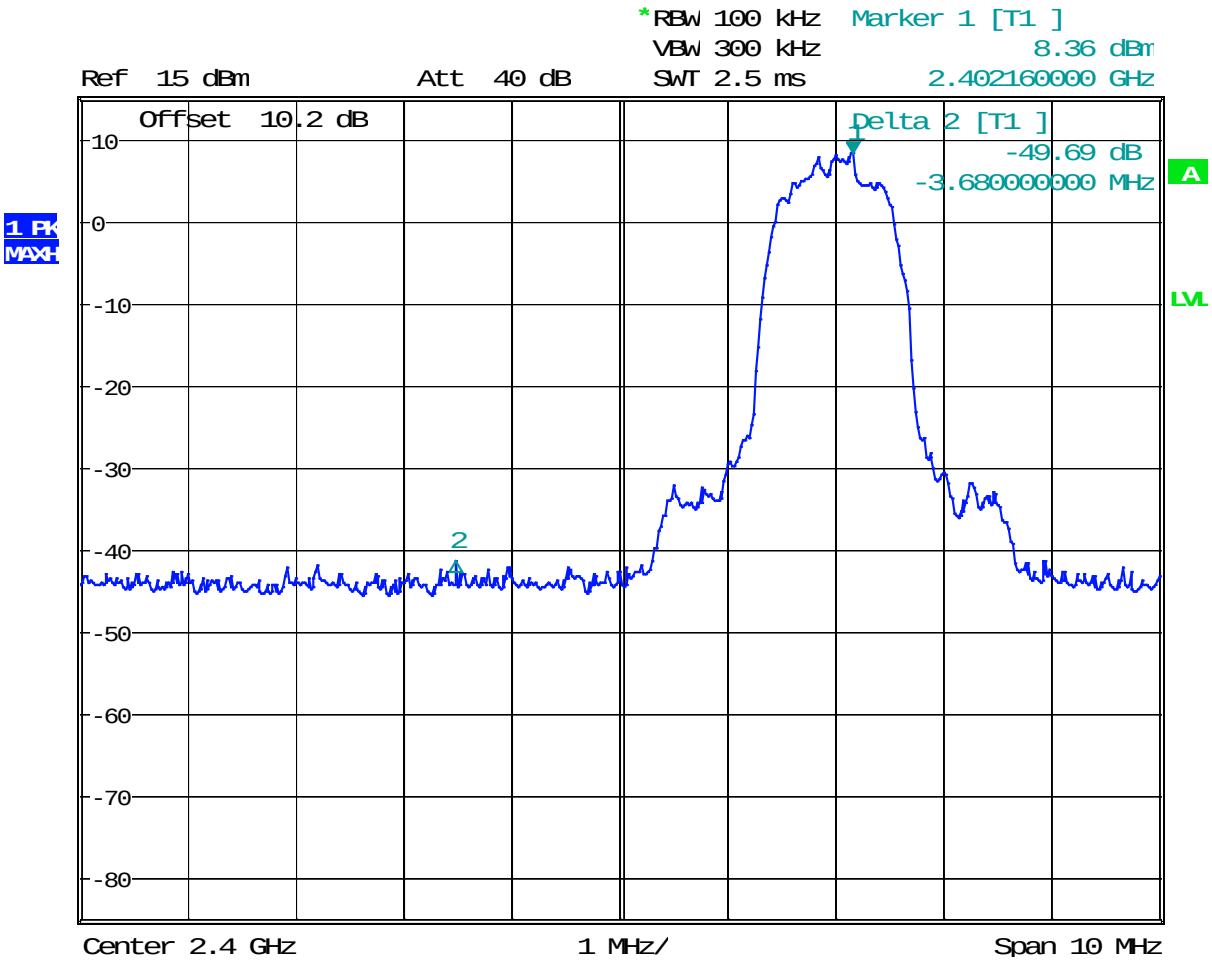
Plot 4.16
Conducted Band Edge, High Channel with π/4-DQPSK



Plot 4.17
Conducted Band Edge, High Channel with π/4-DQPSK (Hopping)



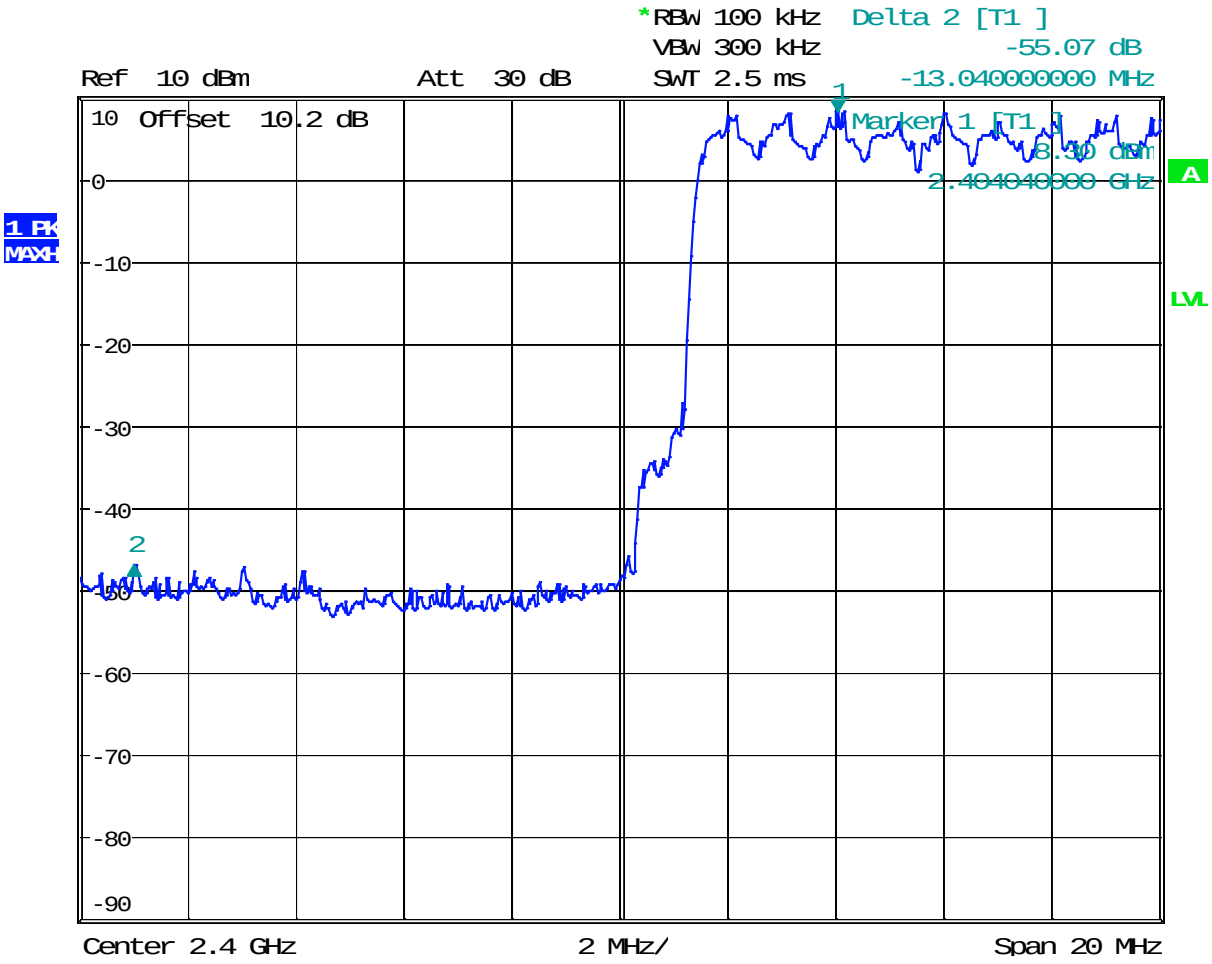
Plot 4.18
Conducted Band Edge, Low Channel with 8DPSK



Date: 5.OCT.2015 13:26:47

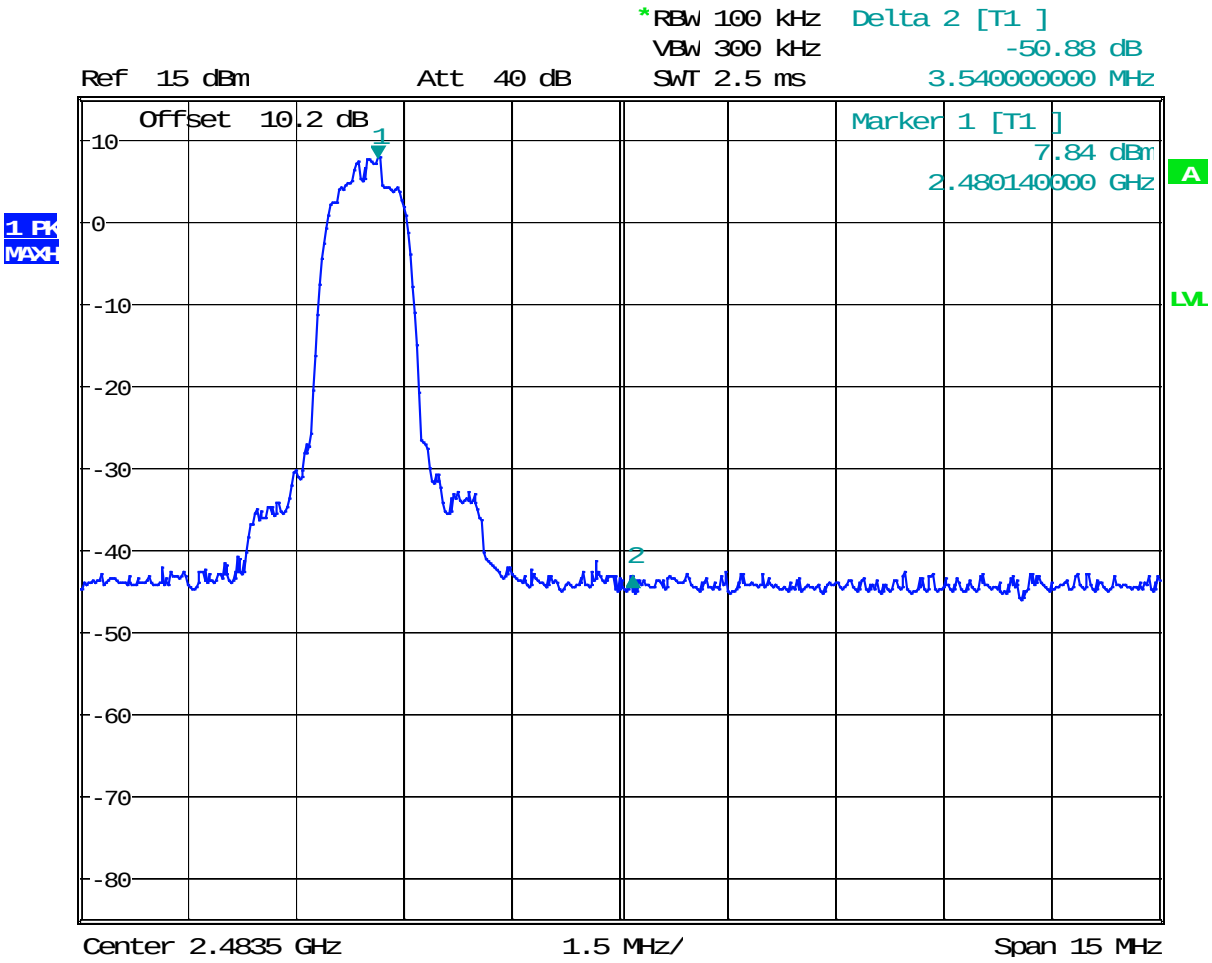
Plot 4.19

Conducted Band Edge, with 8DPSK (Hopping)



Date: 5.OCT.2015 13:21:33

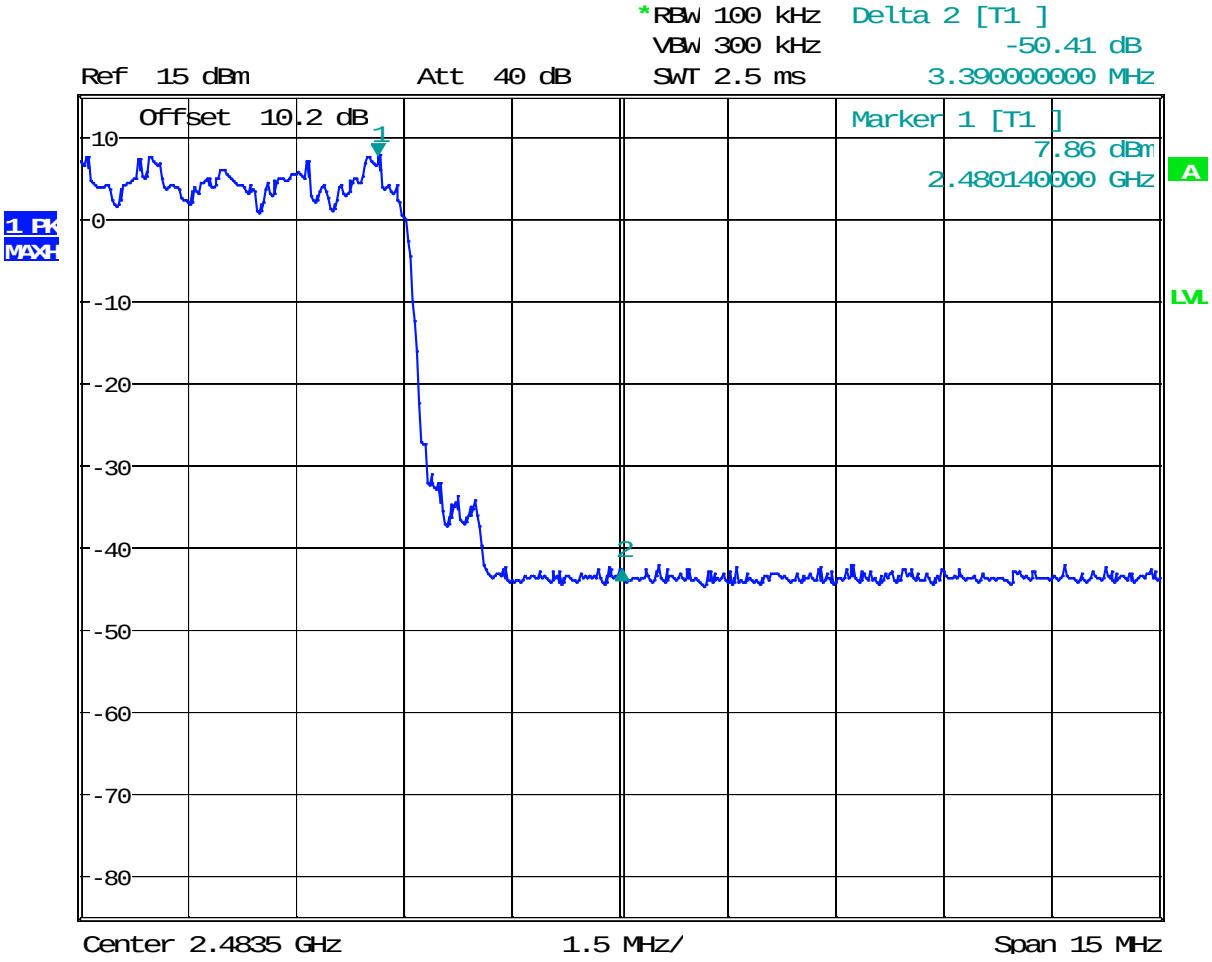
Plot 4.20
Conducted Band Edge, High Channel with 8DPSK



Date: 5.OCT.2015 13:28:22

Plot 4.21

Conducted Band Edge, High Channel with 8DPSK (Hopping)



Date: 5.OCT.2015 13:30:49