

TEST REPORT

Report Number: 102971715MPK-002

Project Number: G102971715

August 09, 2017

Testing performed on the

M445-403-01-NAA-4

Model: M400 WIFI/BT

FCC ID: B32M400WIFIBT

IC: 787C-M400WIFIBT

To

FCC Part 15 Subpart C (15.247)

Industry Canada RSS-247 Issue 2

For

Verifone, Inc.

Test Performed by:

Intertek

1365 Adams Court

Menlo Park, CA 94025

USA

Test Authorized by:

Verifone, Inc.

1400 W Stanford Ranch Rd.

Rocklin, CA 95765

USA

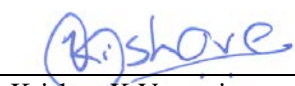
Prepared by:



Anderson Soungpanya

Date: August 09, 2017

Reviewed by:



Krishna K Vemuri


Date: August 09, 2017

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. This report must not be used to claim product endorsement by A2LA, NIST nor any other agency of the U.S. Government.


Report No. 102971715MPK-002

Equipment Under Test:	M445-403-01-NAA-4
Trade Name:	Verifone, Inc.
Model Number:	M400 WIFI/BT
Applicant:	Verifone, Inc.
Contact:	Edwin Mandapat
Address:	Verifone, Inc. 1400 W Stanford Ranch Rd. Rocklin, CA 95765
Country	USA
Tel. Number:	(916) 630-0550
Email:	Edwin_M1@Verifone.com
Applicable Regulation:	FCC Part 15 Subpart C (15.247) Industry Canada RSS-247 Issue 2
Date of Test:	May 25 – July 28, 2017

We attest to the accuracy of this report:



Anderson Soungpanya
Project Engineer



Krishna K Vemuri
Engineering Team Lead

TABLE OF CONTENTS

1.0	Introduction.....	5
1.1	Summary of Tests.....	5
2.0	General Description	6
2.1	Product Description.....	6
2.2	Related Submittal(s) Grants	7
2.3	Test Methodology	7
2.4	Test Facility.....	7
3.0	System Test Configuration.....	8
3.1	Support Equipment	8
3.2	Block Diagram of Test Setup	8
3.3	Justification	9
3.4	Mode of Operation During Test	9
3.5	Modifications Required for Compliance	9
3.6	Additions, Deviations and Exclusions from Standards	9
4.0	Transmitter Emissions Measurement Results	10
4.1	20dB Bandwidth, and 99% Occupied Bandwidth.....	10
4.1.1	Procedure	10
4.1.2	Test Result	11
4.2	Conducted Output Power at Antenna Terminals.....	21
4.2.1	Requirement.....	21
4.2.2	Procedure	21
4.3.3	Test Result	22
4.3	Carrier Frequency Separation.....	32
4.3.1	Requirement.....	32
4.3.2	Procedure	32
4.3.3	Test Result	33
4.4	Number of Channels	37
4.4.1	Requirement.....	37
4.4.2	Procedure	37
4.4.3	Test Result	38
4.5	Average Channel Occupancy Time.....	40
4.5.1	Requirement.....	40
4.5.2	Procedure	40
4.5.3	Test Results.....	41
4.6	Out-of-Band Conducted Emissions.....	59
4.6.1	Requirement.....	59
4.6.2	Procedure	59
4.6.3	Test Result	60
4.7	Transmitter Radiated Emissions.....	78
4.7.1	Requirement.....	78
4.7.2	Procedure	78
4.7.3	Field Strength Calculation.....	79
4.7.4	Test Results.....	79
4.7.5	Test Setup Photographs.....	113

5.0 List of Test Equipment114

6.0 Document History115

1.0 Introduction

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. This test report covers only the FHSS radio.

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.

2.0 General Description

2.1 Product Description

Verifone, Inc. supplied the following description of the EUT:

The M400 WIFI/BT is an Electronic Payment/POS Terminal for Retail.

For more information, see user's manual provided by the manufacturer.

Information about the Bluetooth FHSS radio is presented below:

For more information, refer to the following product specification, declared by the manufacturer.

Information about the 2.4 GHz radio is presented below:

Applicant	Verifone, Inc.
Model No.	M400 WIFI/BT
FCC Identifier	B32M400WIFIBT
IC Identifier	787C-M400WIFIBT
Type of Transmission	Frequency Hopping Spread Spectrum
Rated RF Output	5.10 dBm
Antenna(s) & Gain	Internal Antenna, Gain: 1.48 dBi
Frequency Range	2402 – 2480 MHz
Number of Channel(s)	79, (Channels 0-78)
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8DPSK
Data Rate	Up to 3Mbps
Applicant Name & Address	Verifone, Inc. 1400 W Stanford Ranch Rd. Rocklin, CA 95765 USA

EUT receive date: April 07, 2017

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: May 25, 2017

Test completion date: July 28, 2017

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 from ANSI C63.10:2013 for Frequency Hopping Spread Spectrum Systems

Radiated emissions measurements were performed according to the procedures in ANSI C63.10: 2013. 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

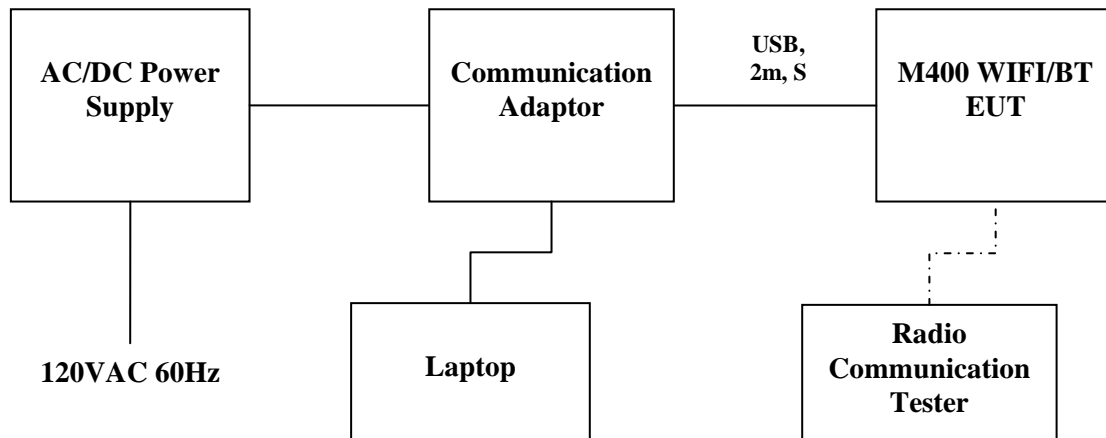
3.1 Support Equipment

Description	Manufacturer	Model No./ Part No.
Laptop	HP	EliteBook 8470p
Communication Adapter	Verifone	NA
AC/DC Power Adapter	I.T.E Power Supply	AU112106u
Wideband Radio Communication Tester	Rohde Schwarz	CMW500

3.2 Block Diagram of Test Setup

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Electronic Payment Terminal	Verifone	M400 WIFI/BT	401-148-349 (Conducted Sample)
			401-148-348 (Radiated Sample)

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



S = Shielded	F = With Ferrite
U = Unshielded	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.

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 ANSI C63.10:2013 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 marker delta 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.

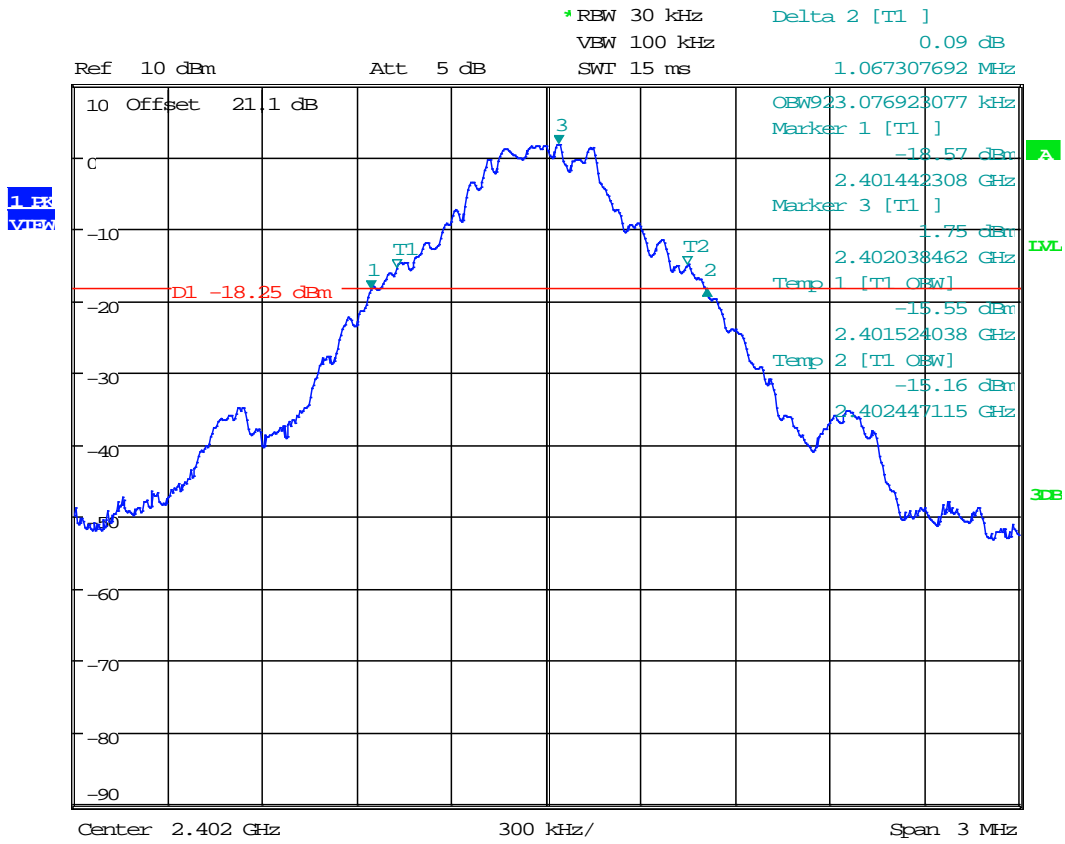
The antenna port of the EUT was connected to the input of a spectrum analyzer (SA). For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A Peak output reading was taken, a Display line was drawn for 20dB lower than Peak level. The 20dB bandwidth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

Tested By:	Anderson Soungpanya
Test Date:	May 25, 2017

4.1.2 Test Result

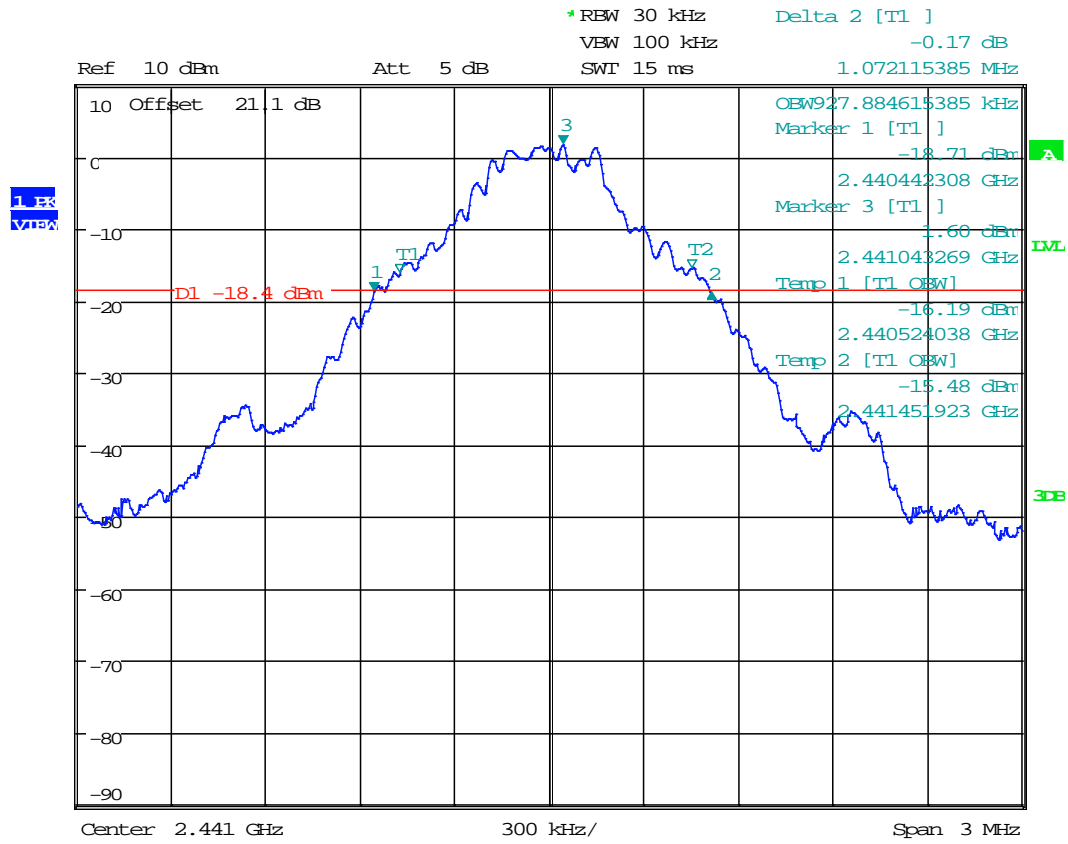
Modulation Type	Channel	Frequency MHz	20 dB FCC Bandwidth, MHz	99% Bandwidth, MHz	Plot #
GFSK	0	2402	1.067	0.923	1.1
	39	2441	1.072	0.928	1.2
	78	2480	1.072	0.923	1.3
$\pi/4$ -DQPSK	0	2402	1.370	1.212	1.4
	39	2441	1.366	1.216	1.5
	78	2480	1.366	1.212	1.6
8DPSK	0	2402	1.351	1.221	1.7
	39	2441	1.351	1.226	1.8
	78	2480	1.351	1.221	1.9

Plot 1. 1 – 20dB Bandwidth Low Channel GFSK



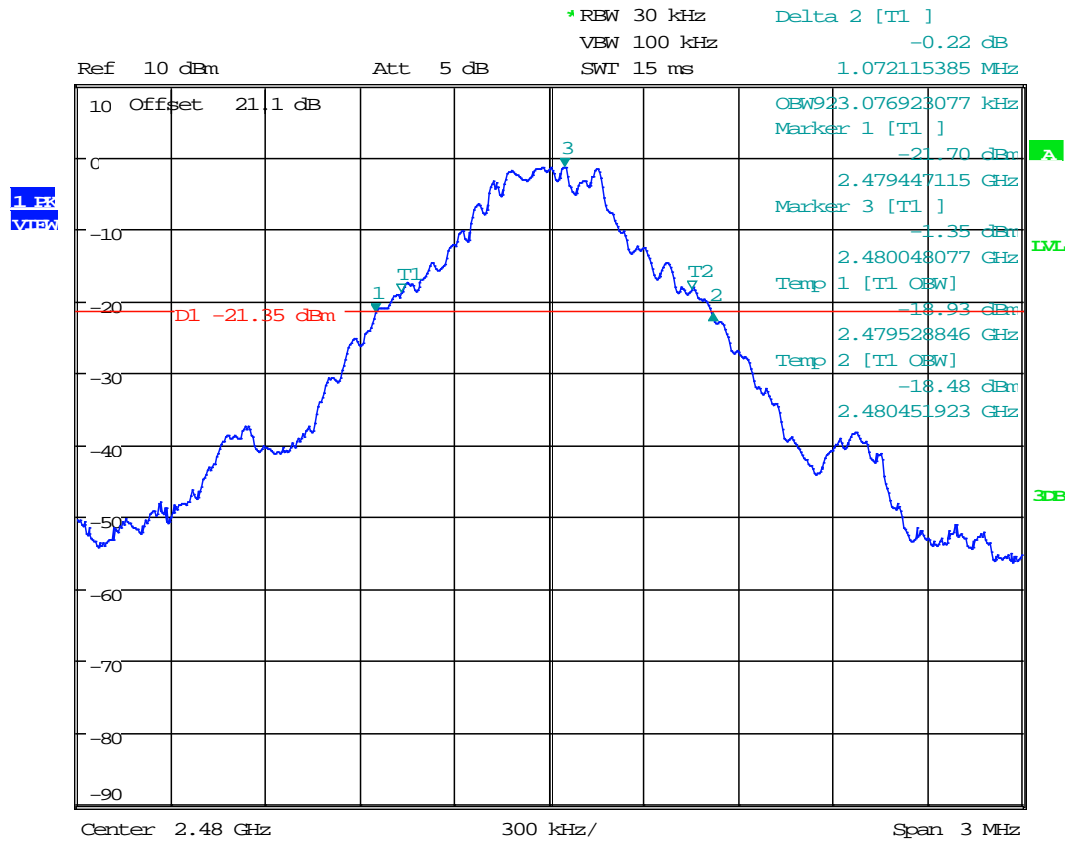
Date: 25.MAY.2017 09:23:51

Plot 1. 2 – 20dB Bandwidth Middle Channel GFSK



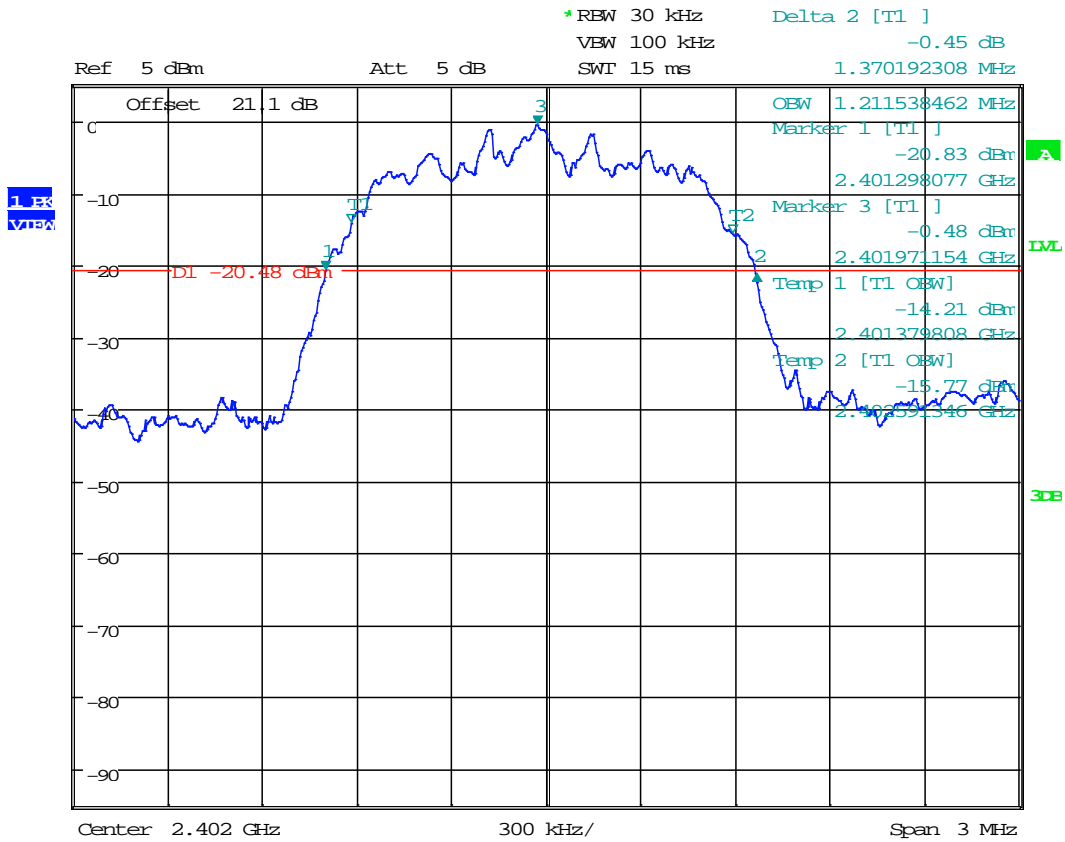
Date: 25.MAY.2017 09:20:59

Plot 1. 3 – 20dB Bandwidth High Channel GFSK



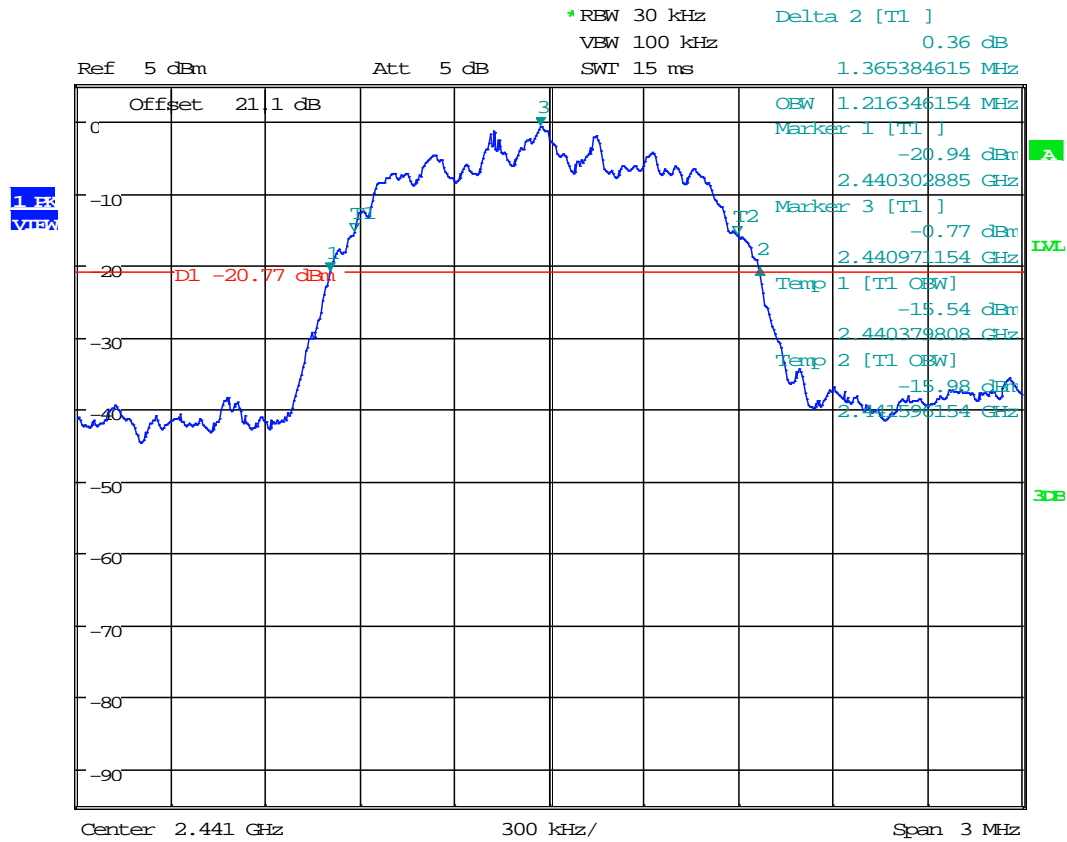
Date: 25.MAY.2017 09:22:27

Plot 1. 4 – 20dB Bandwidth Low Channel $\pi/4$ -DQPSK



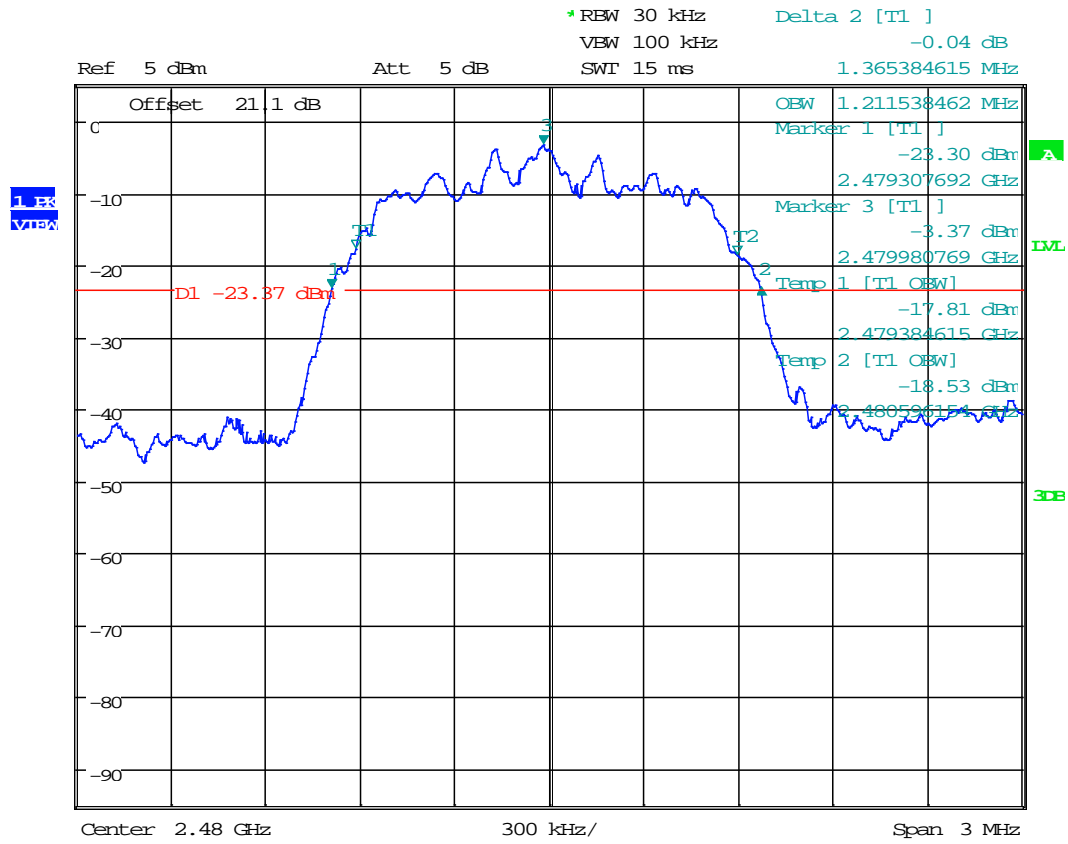
Date: 25.MAY.2017 09:17:17

Plot 1.5 – 20dB Bandwidth Middle Channel $\pi/4$ -DQPSK



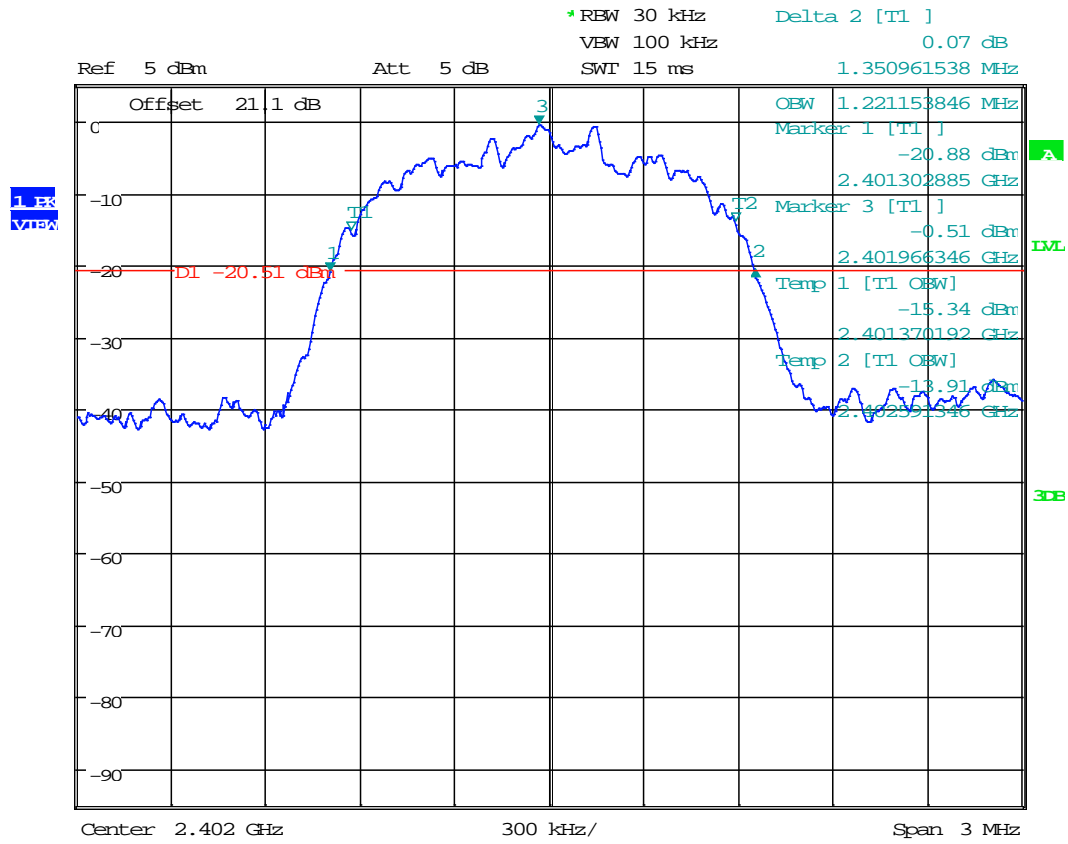
Date: 25.MAY.2017 09:16:09

Plot 1. 6 – 20dB Bandwidth High Channel $\pi/4$ -DQPSK



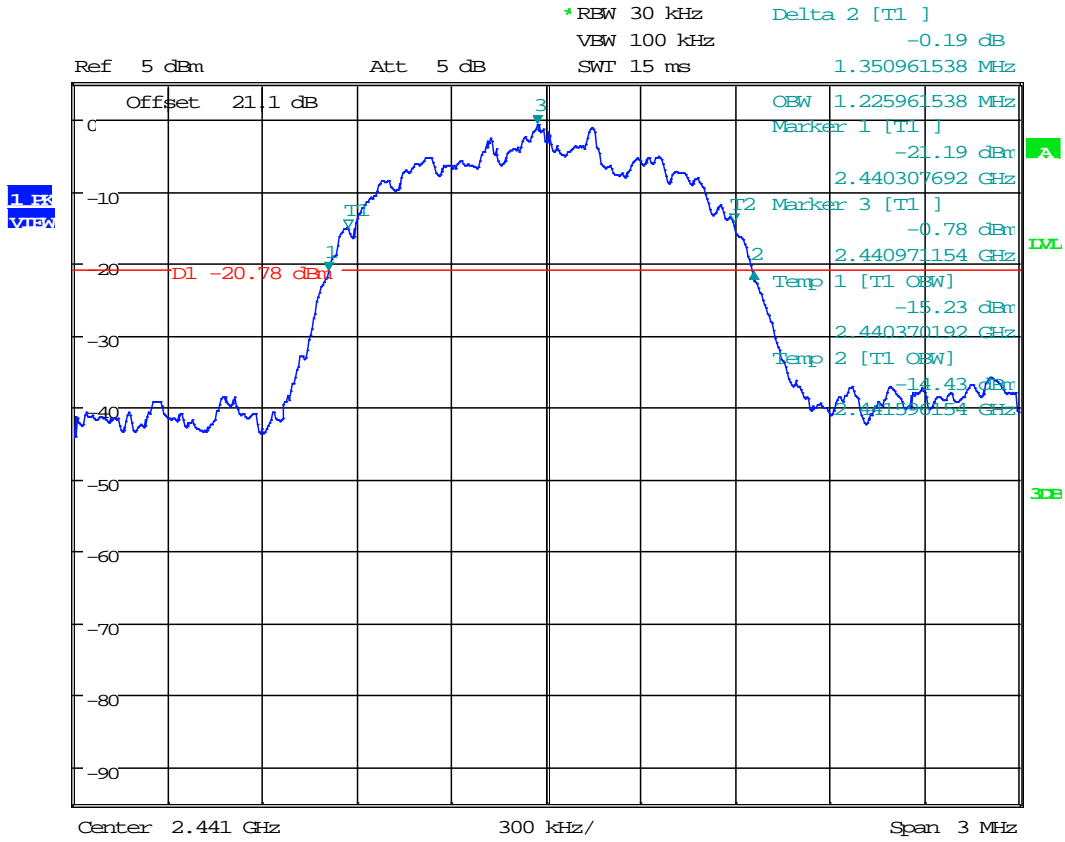
Date: 25.MAY.2017 09:14:56

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



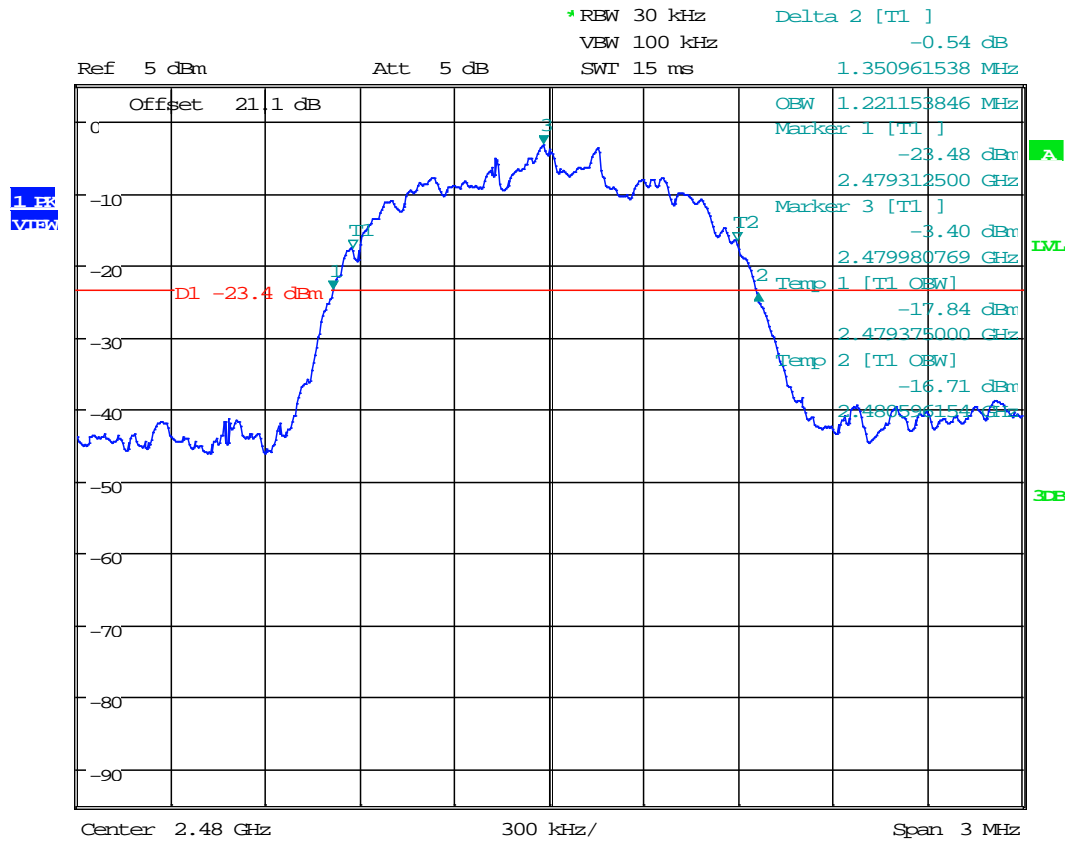
Date: 25.MAY.2017 08:45:18

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



Date: 25.MAY.2017 09:10:10

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



Date: 25.MAY.2017 09:13:03

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 ANSI C63.10:2013 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.

Tested By:	Anderson Soungpanya
Test Date:	May 25, 2017

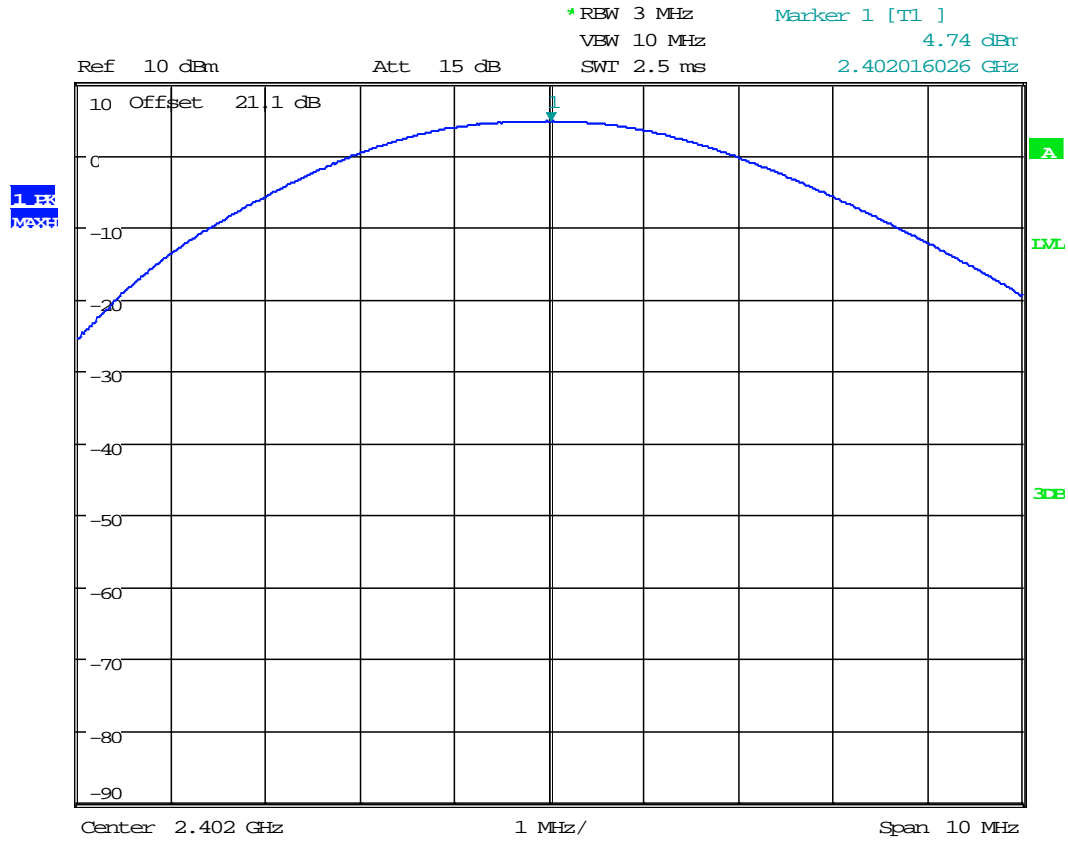
4.3.3 Test Result

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	4.47	2.80	2.1
	39	2441	4.54	2.84	2.2
	78	2480	1.60	1.45	2.3
$\pi/4$ -DQPSK	0	2402	4.70	2.95	2.4
	39	2441	4.39	2.75	2.5
	78	2480	1.82	1.52	2.6
8DPSK	0	2402	5.10	3.24	2.7
	39	2441	4.81	3.03	2.7
	78	2480	2.14	1.64	2.9

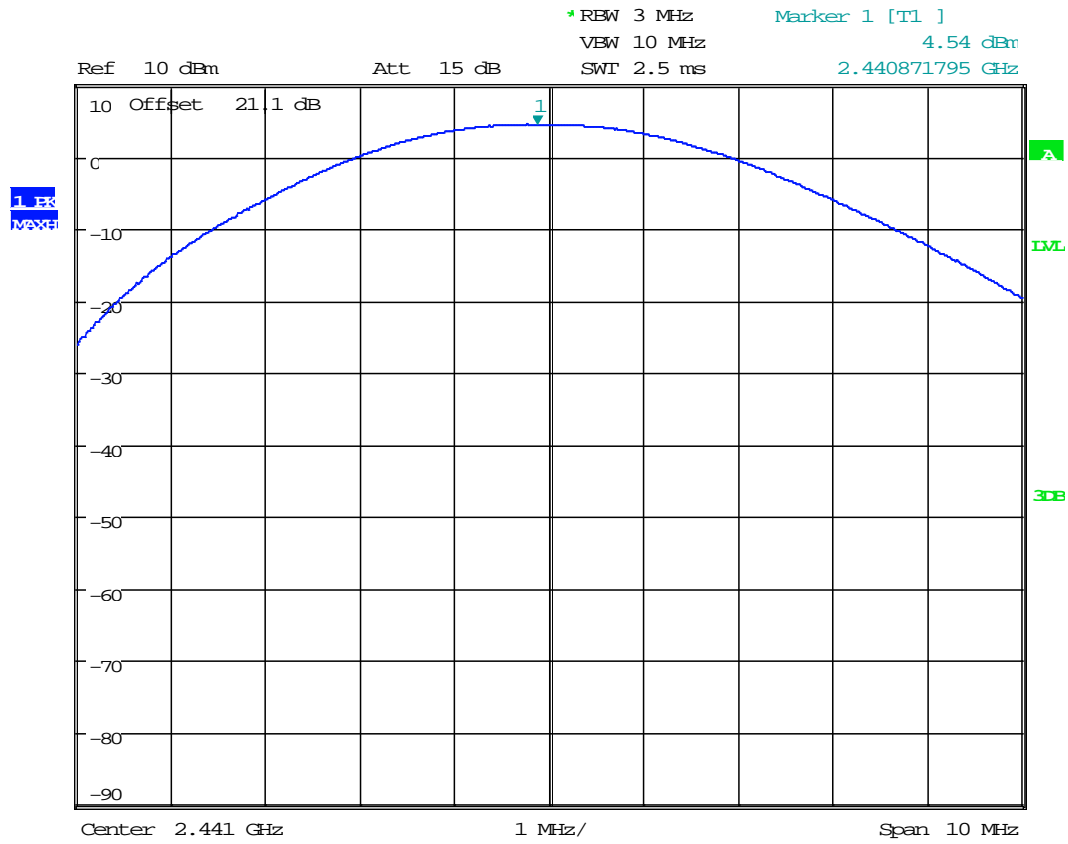
Results	Complies
----------------	-----------------

Plot 2. 2 – Output Power Low Channel GFSK



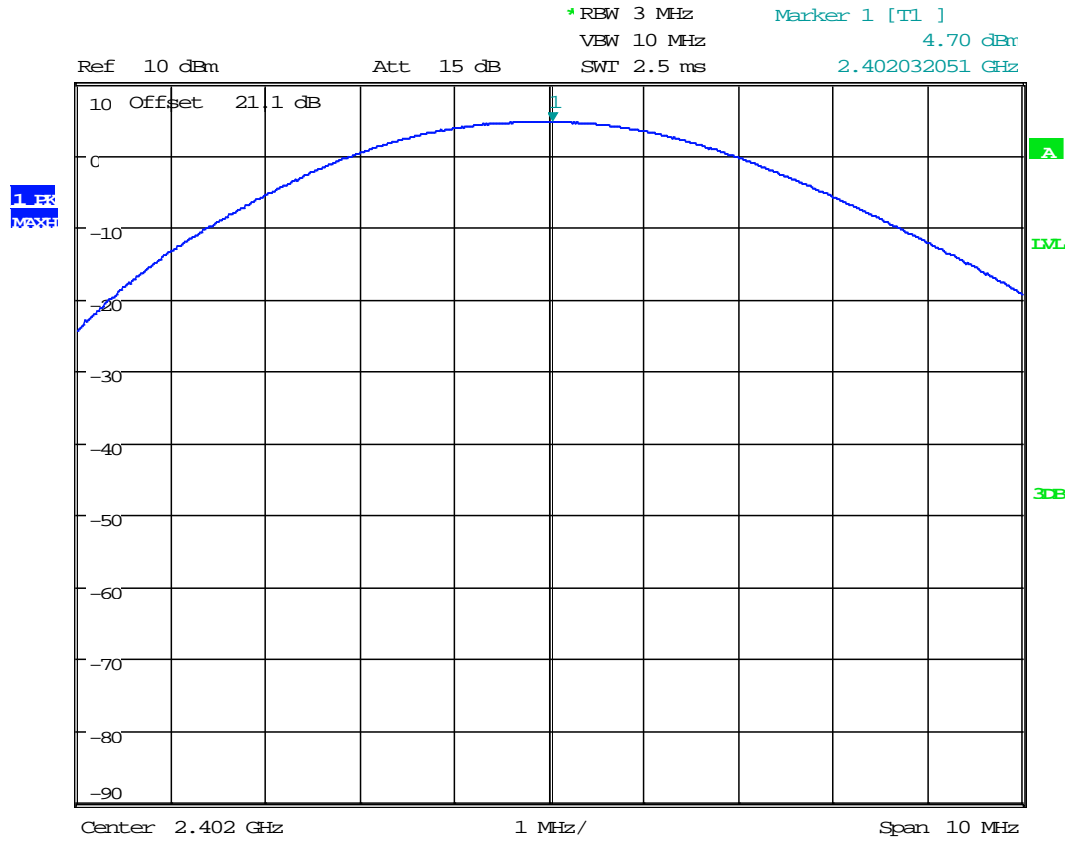
Date: 25.MAY.2017 07:46:37

Plot 2.2 – Output Power Middle Channel GFSK



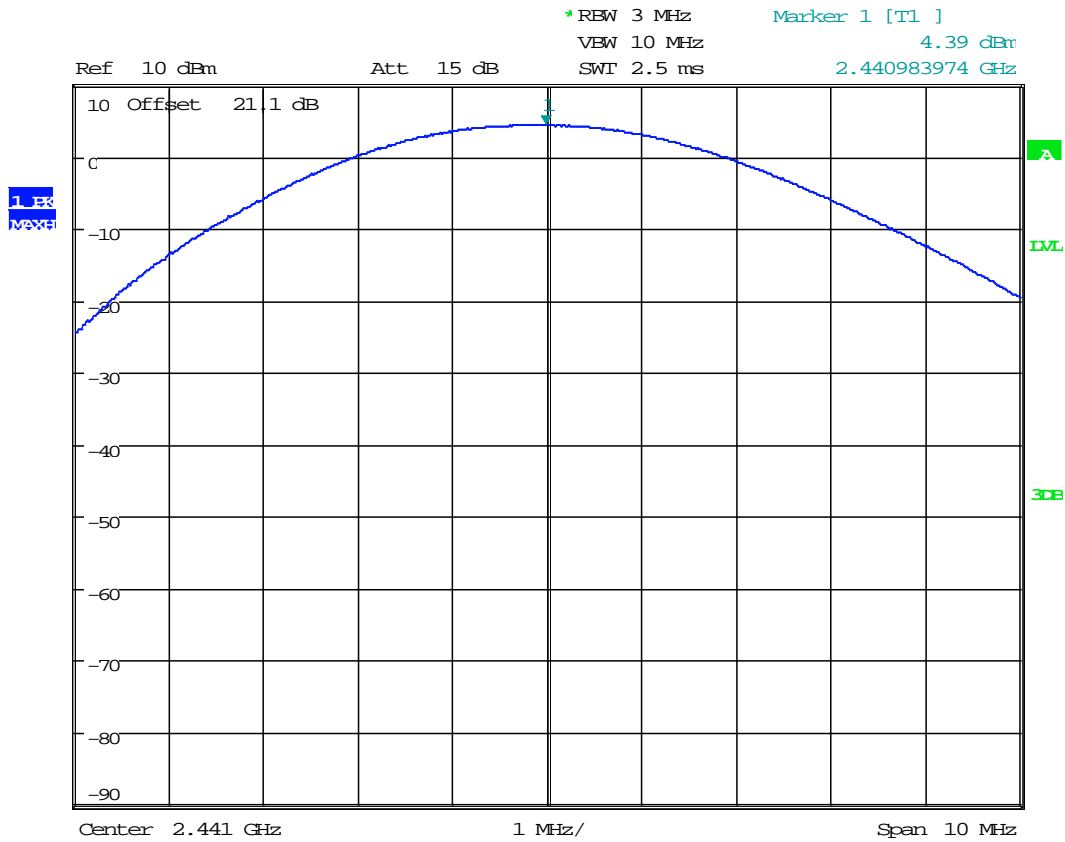
Date: 25.MAY.2017 07:46:13

Plot 2. 4 – Output Power Low Channel $\pi/4$ -DQPSK



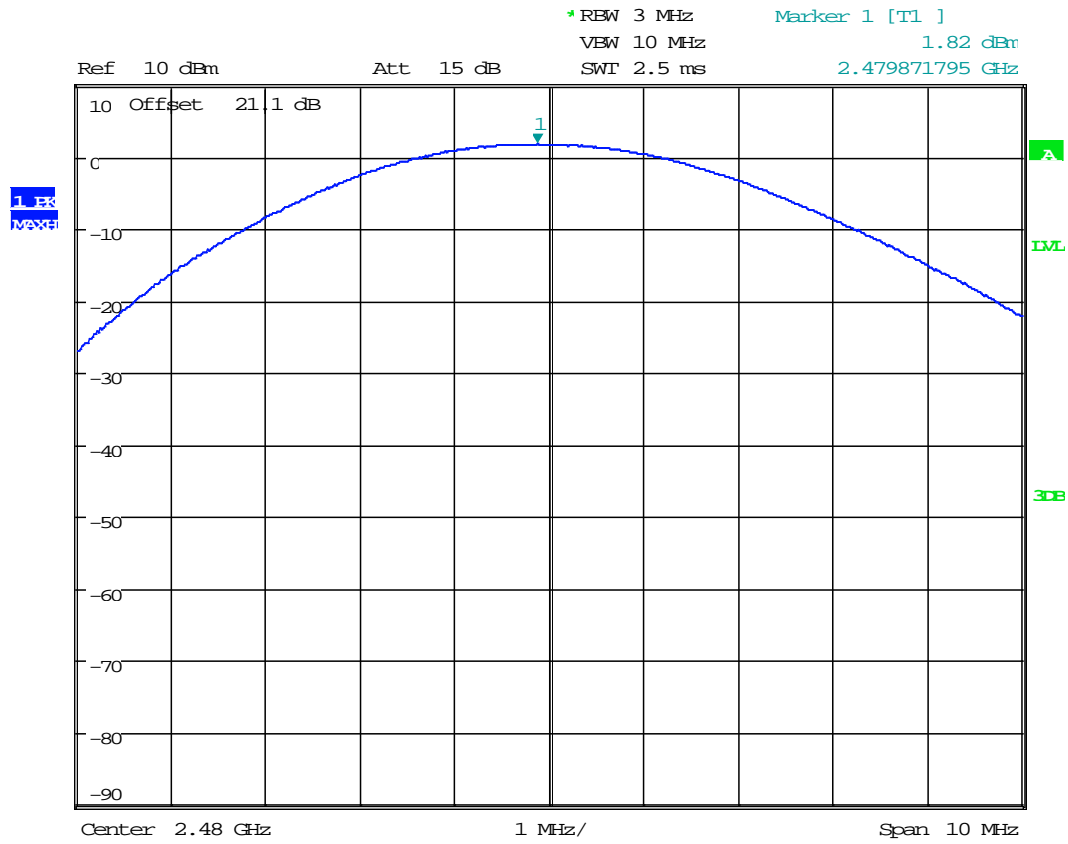
Date: 25.MAY.2017 07:47:43

Plot 2.5 – Output Power Middle Channel $\pi/4$ -DQPSK



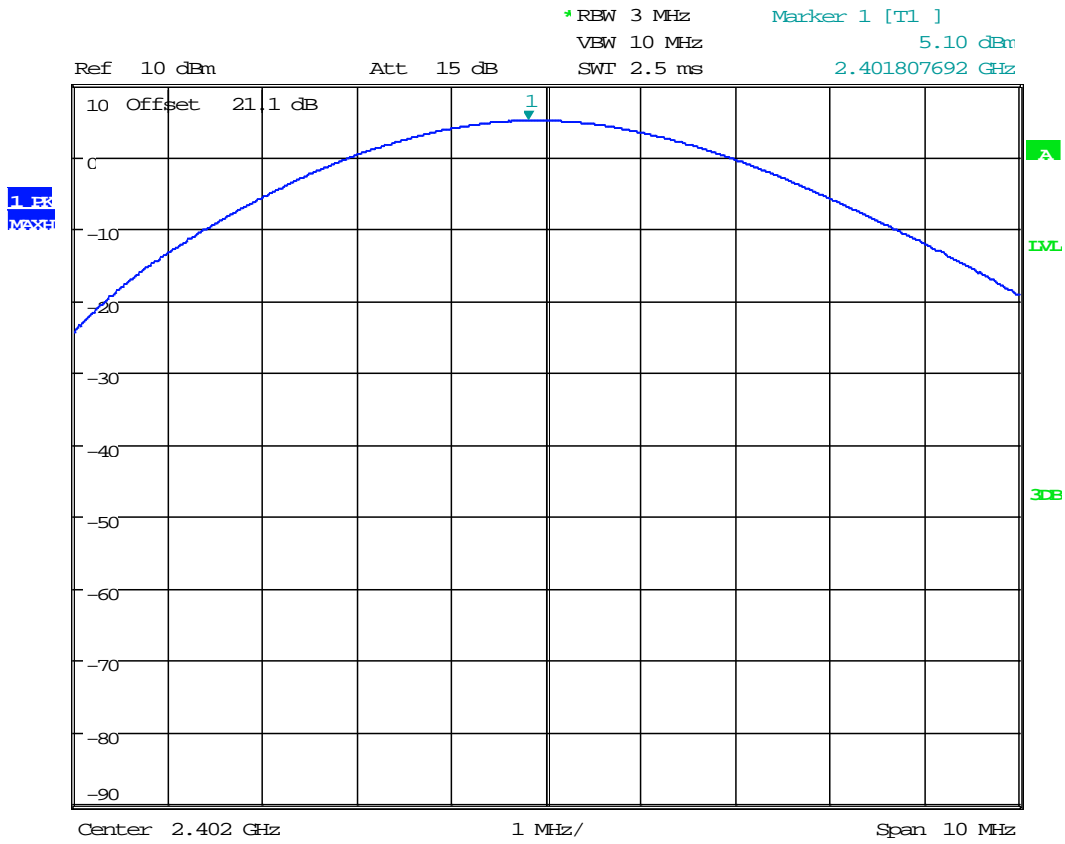
Date: 25.MAY.2017 08:07:57

Plot 2. 6 – Output Power High Channel $\pi/4$ -DQPSK



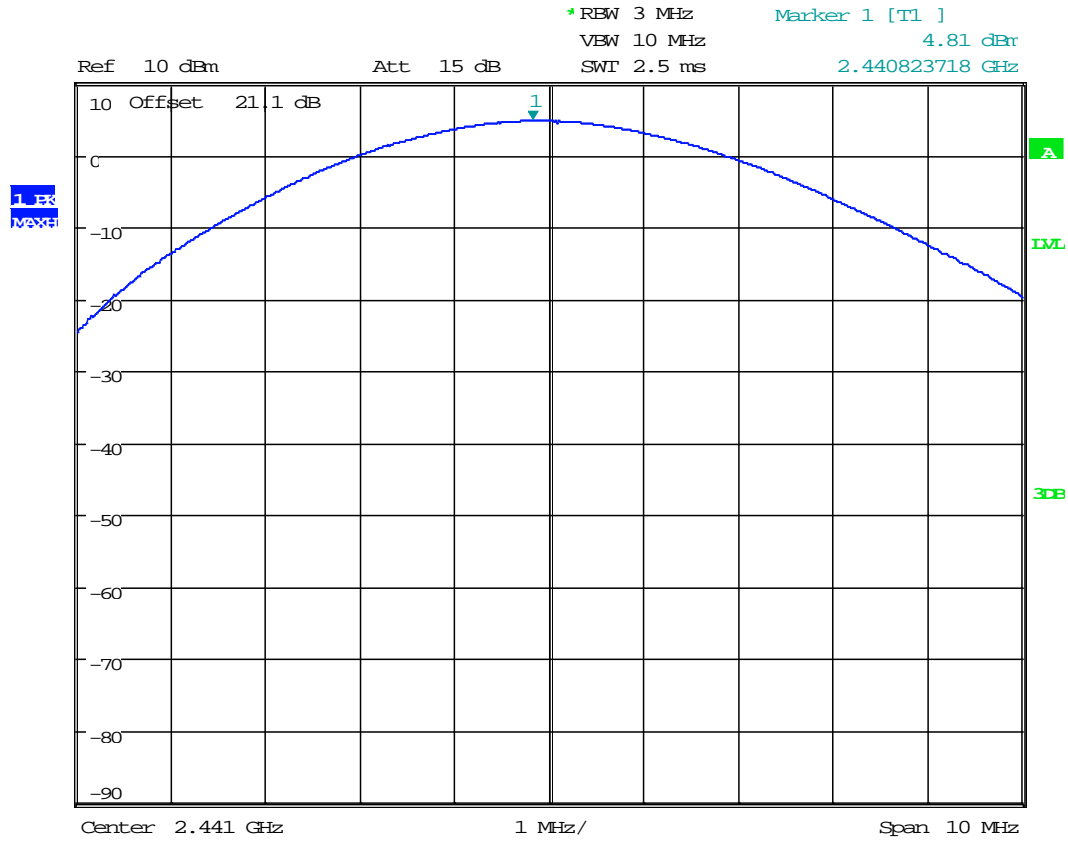
Date: 25.MAY.2017 08:08:40

Plot 2. 7 – Output Power Low Channel 8DPSK



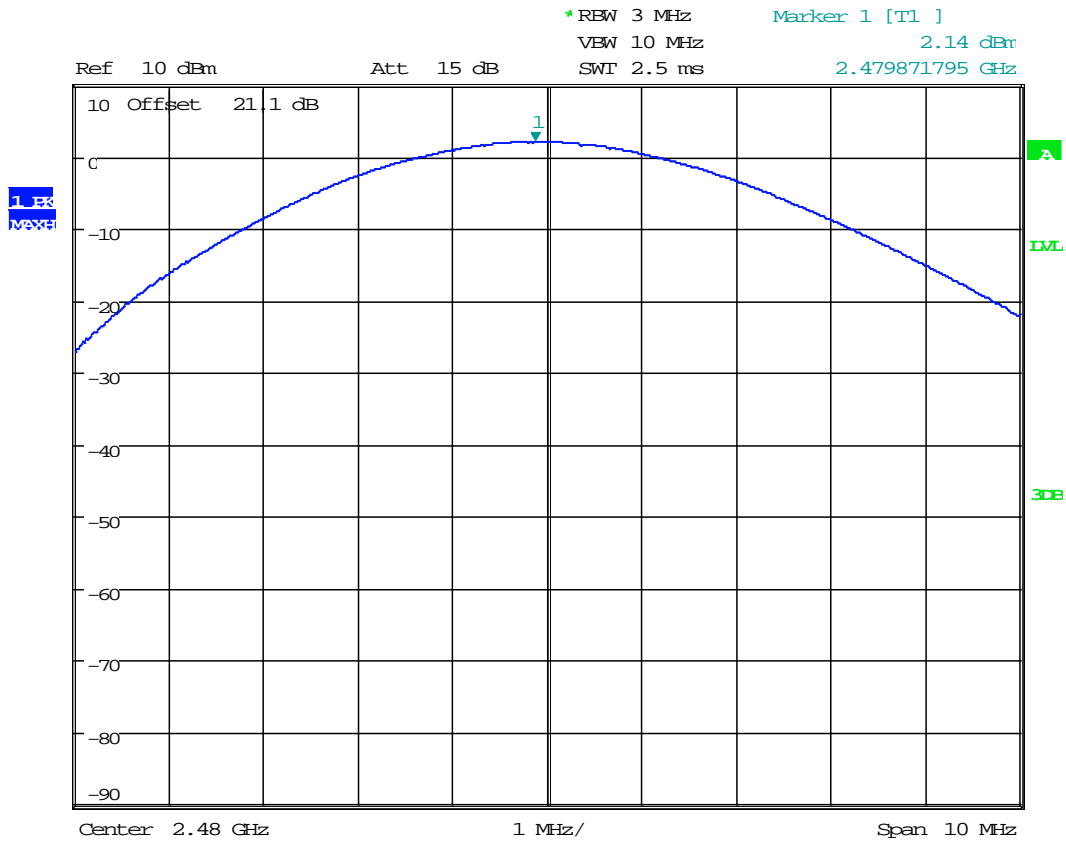
Date: 25.MAY.2017 08:40:27

Plot 2. 8 – Output Power Middle Channel 8DPSK



Date: 25.MAY.2017 08:39:04

Plot 2. 9 – Output Power High Channel 8DPSK



Date: 25.MAY.2017 08:38:14

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 ANSI C63.10:2013 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.

Tested By:	Anderson Soungpanya
Test Date:	May 25, 2017

4.3.3 Test Result

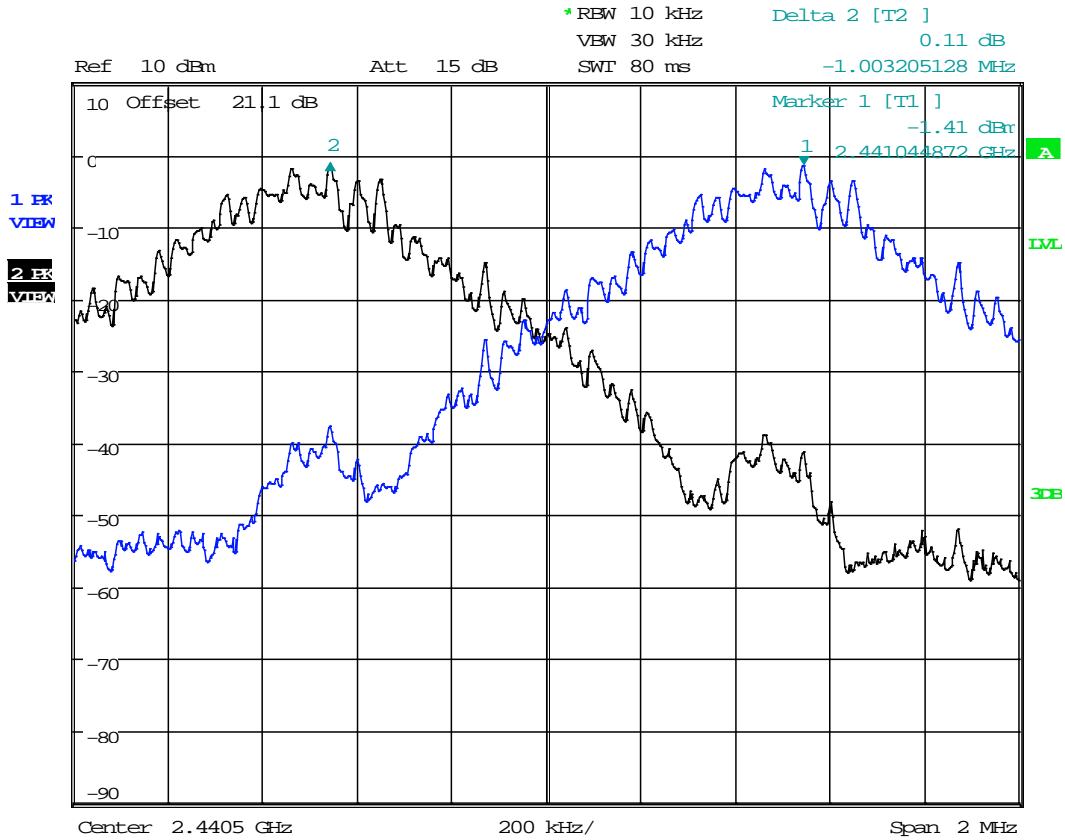
The worst case 20dB Bandwidth is 1.370 MHz, therefore this bandwidth was used to calculate the minimum limit for Carrier Frequency Separation below.

$$(2/3) * 1.370 \text{ MHz} = 0.914 \text{ MHz (minimum requirement)}$$

The Carrier Frequency Separation is **1.00 MHz**, therefore meets the minimum requirement. Please refer to spectrum analyzer plot 3.1 below for the test result.

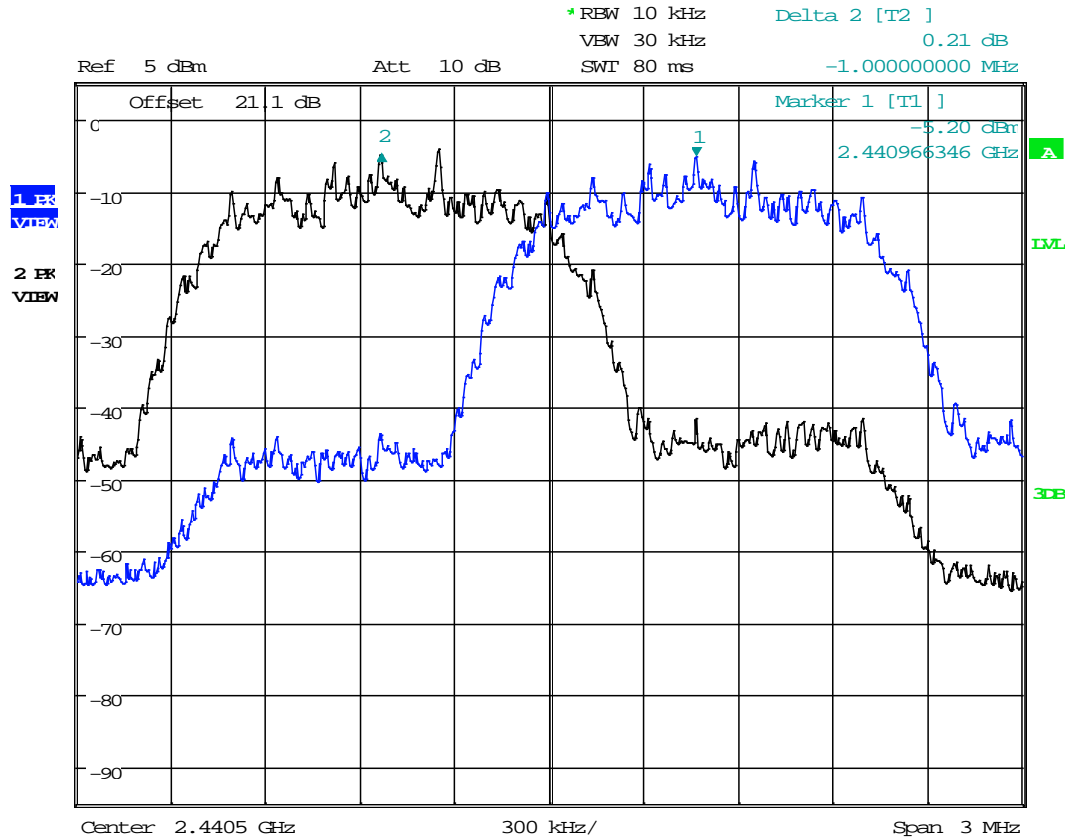
Results	Complies
----------------	-----------------

Plot 3.3- Channel Separation GFSK



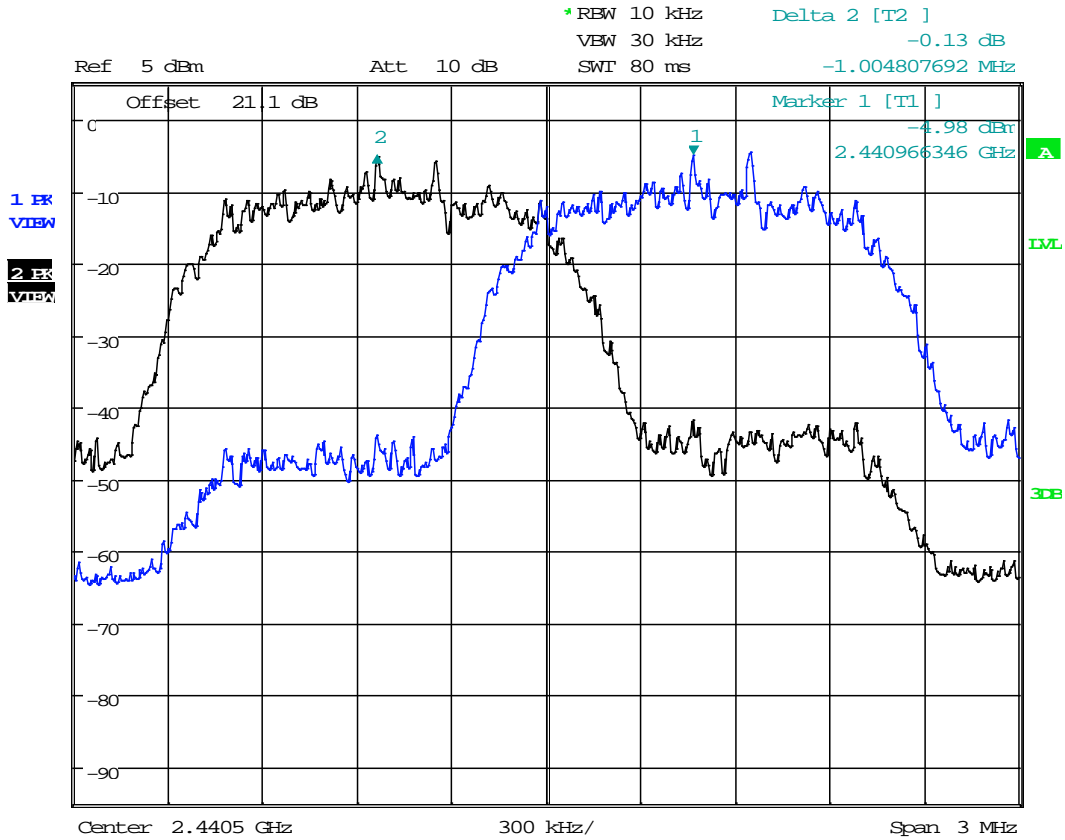
Date: 25.MAY.2017 09:29:27

Plot 3.2– Channel Separation $\pi/4$ -DQPSK



Date: 25.MAY.2017 09:33:31

Plot 3.2– Channel Separation DPQSK



Date: 25.MAY.2017 09:35:33

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 ANSI C63.10:2013 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.

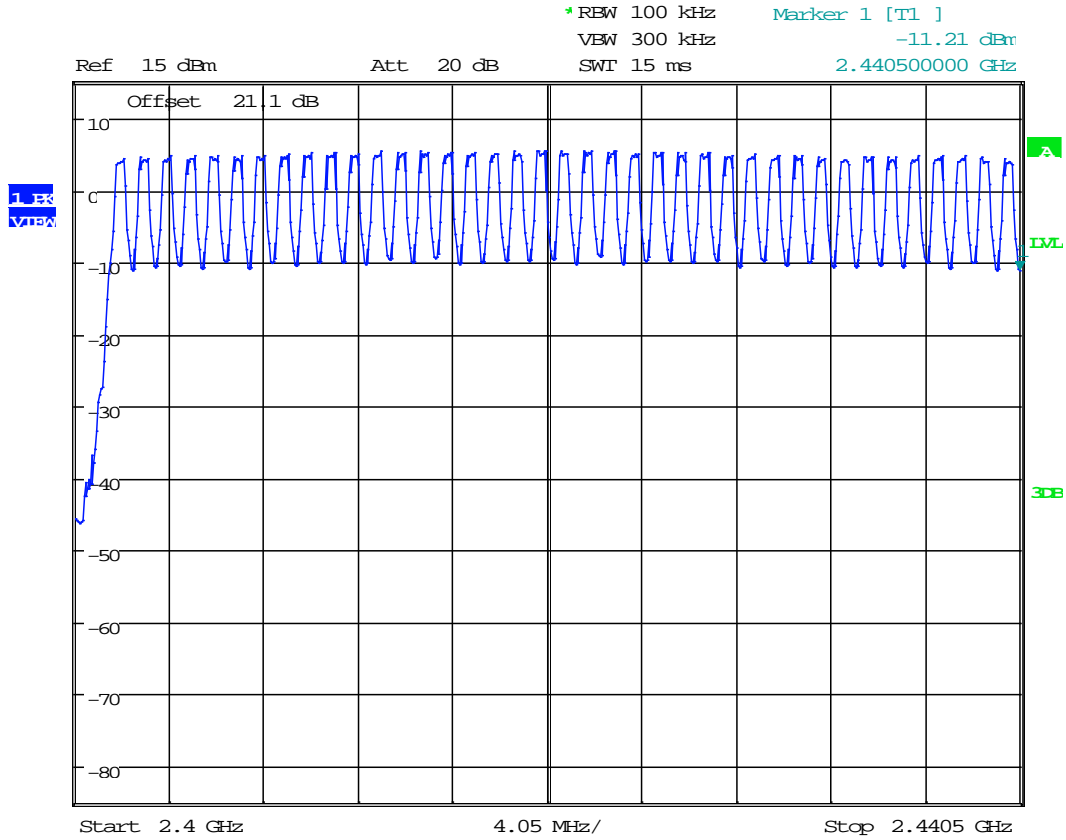
With the analyzer set to MAX HOLD, readings were taken once channels were filled in. The traces were broken down into 2 spans from 2400 to 2483.5MHz. The channel peaks were recorded and compared to the minimum number of channels required in the regulation.

Tested By:	Anderson Soungpanya
Test Date:	May 25, 2017

4.4.3 Test Result

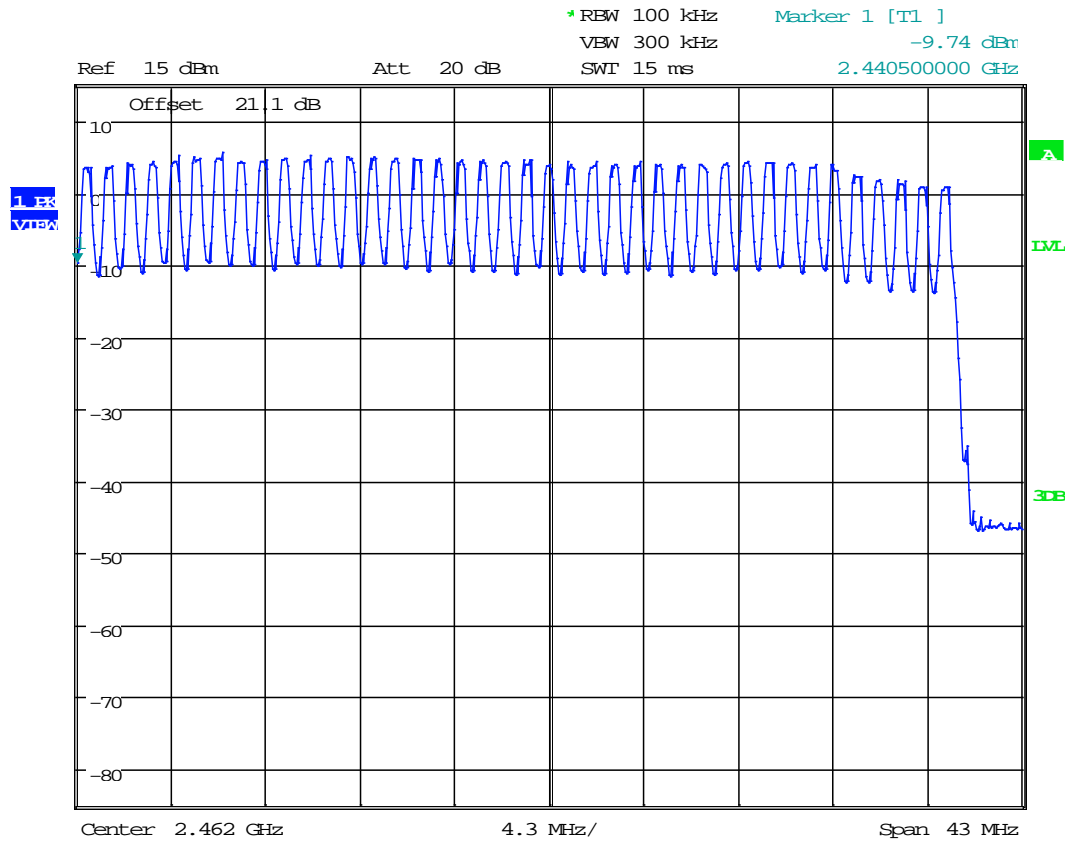
Results **79 Channels -Complies**

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



Date: 25.MAY.2017 10:49:22

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



Date: 25.MAY.2017 11:05:30

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 ANSI C63.10:2013 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 78 hopping channels, the Occupancy Time was calculated for the period of $0.4 * 79 = 31.6$ sec.

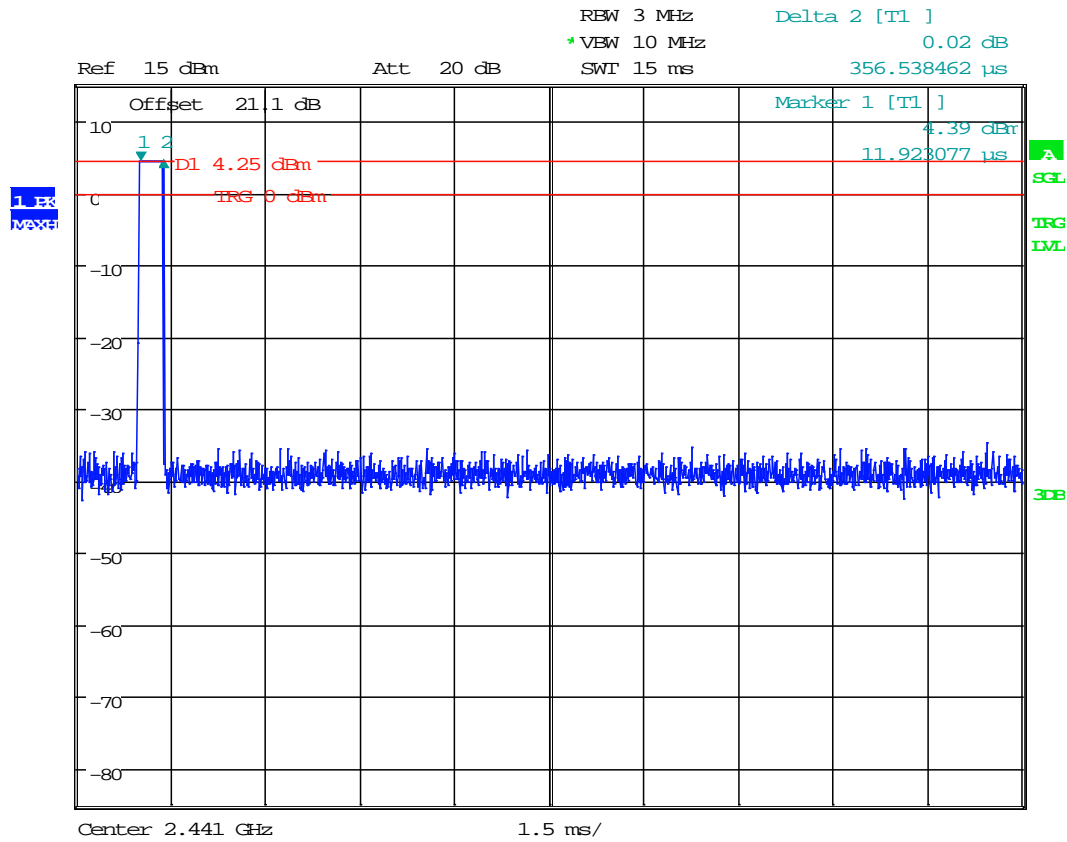
Tested By:	Anderson Soungpanya
Test Date:	May 25-26, 2017

4.5.3 Test Results

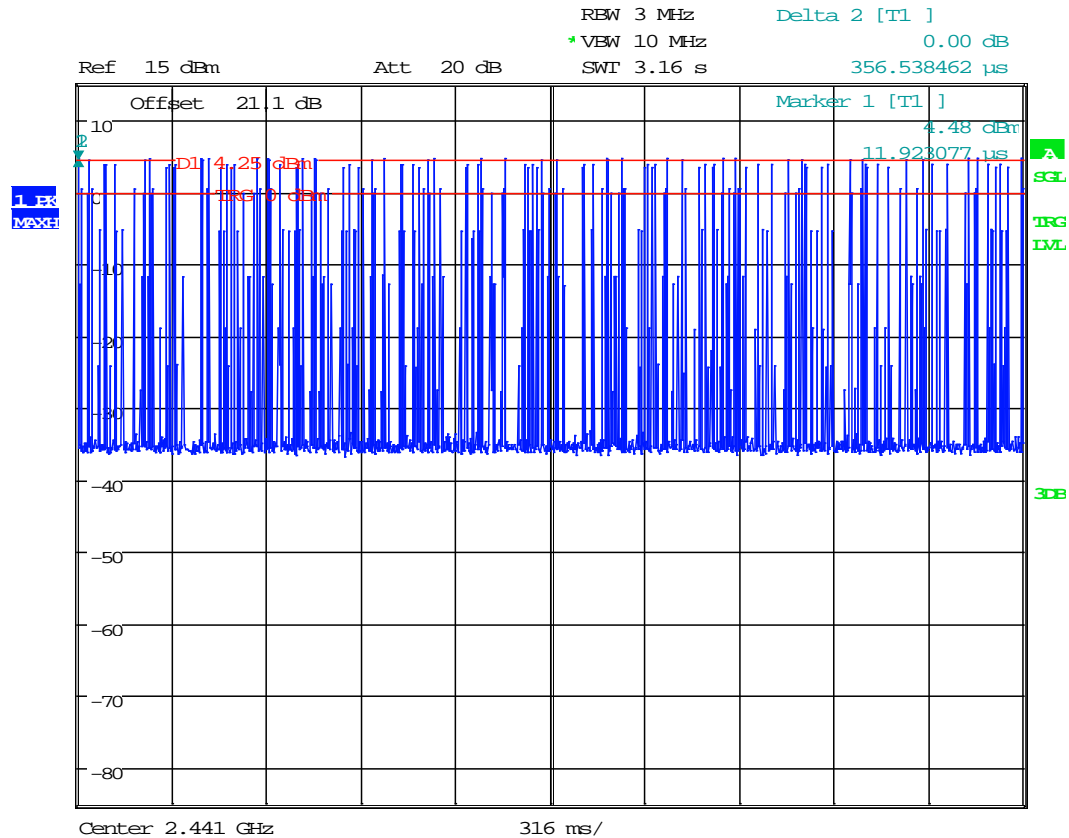
Results	Complies
----------------	-----------------

GFSK, DHI

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
34*10	0.357	121.38	400



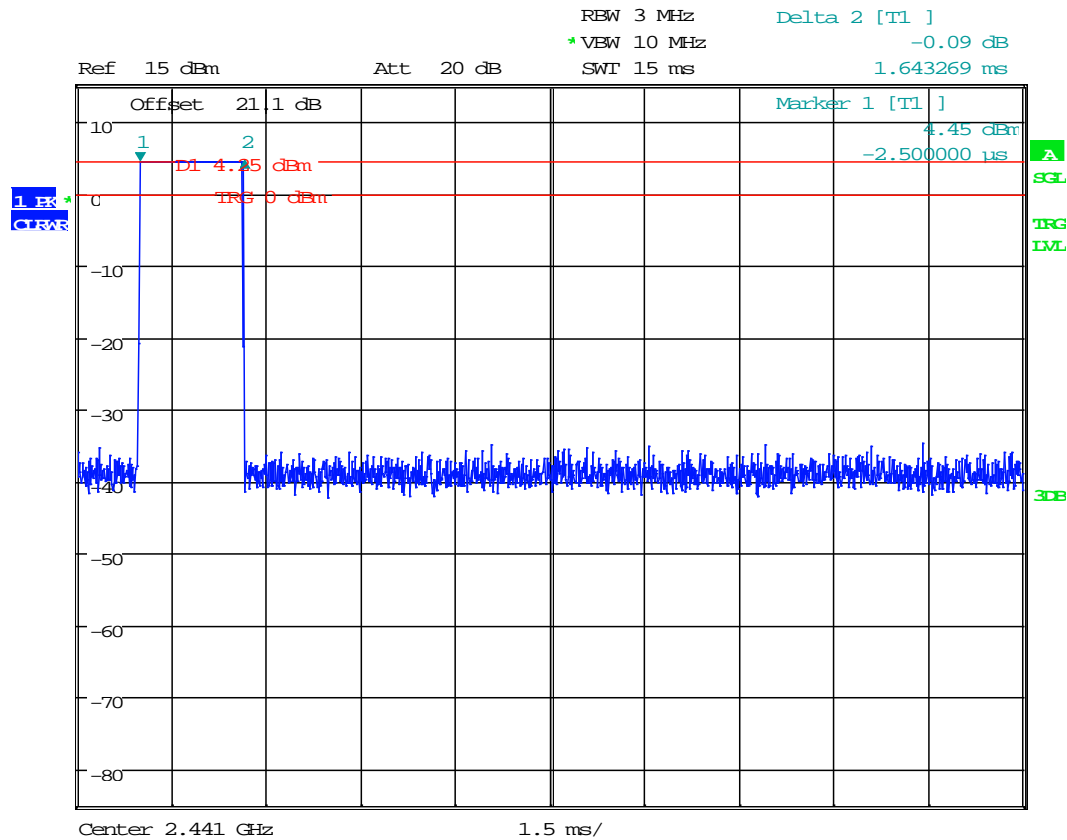
Date: 25.MAY.2017 11:37:21



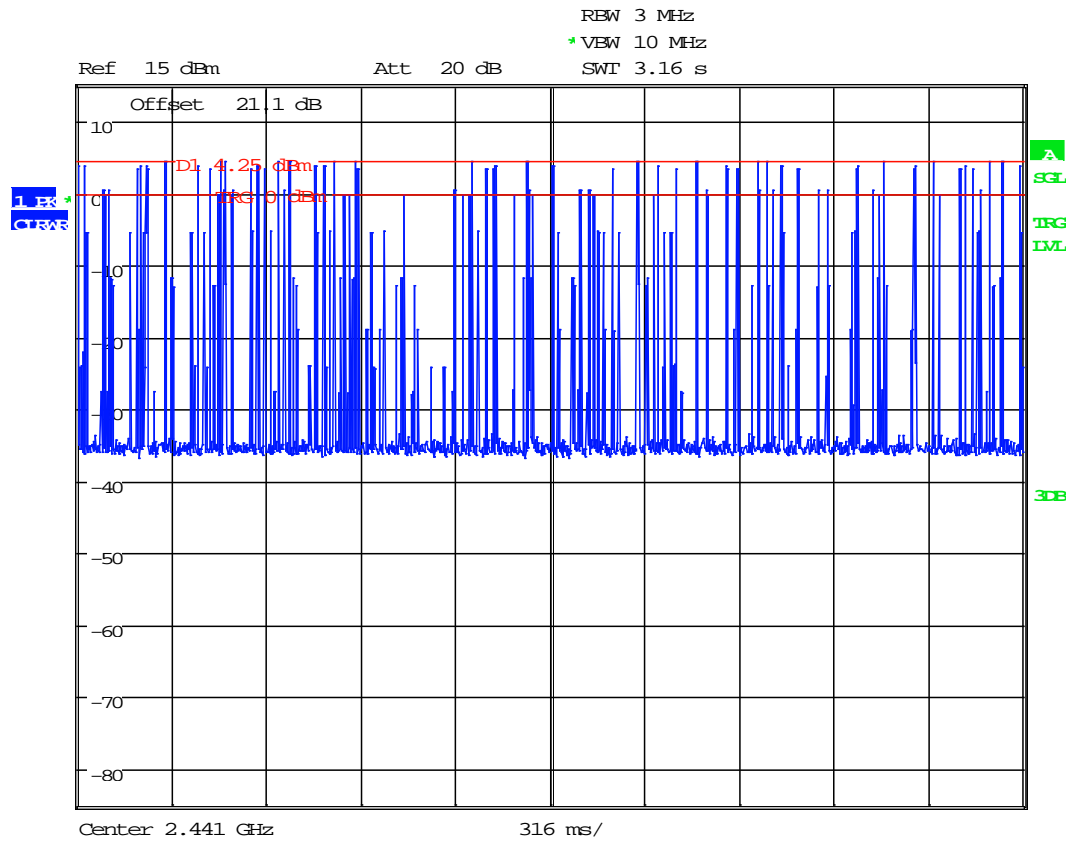
Date: 25.MAY.2017 11:38:27

GFSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
20*10	1.64	328.00	400



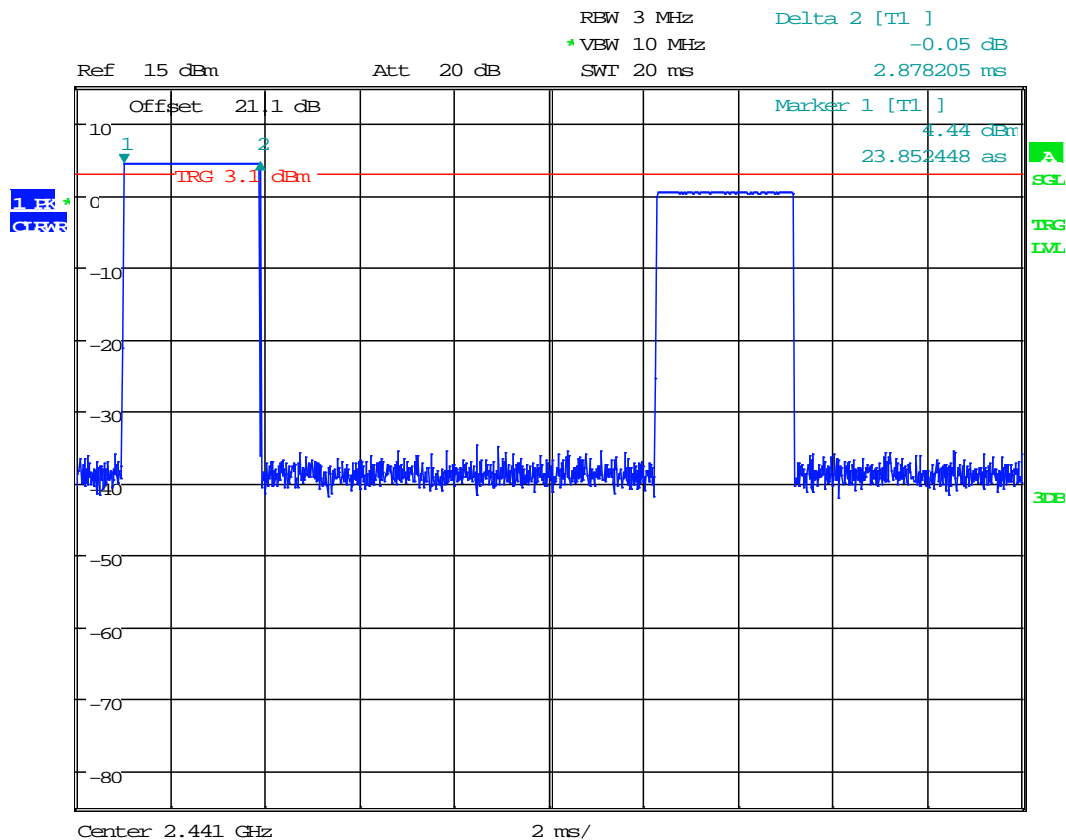
Date: 25.MAY.2017 11:18:26



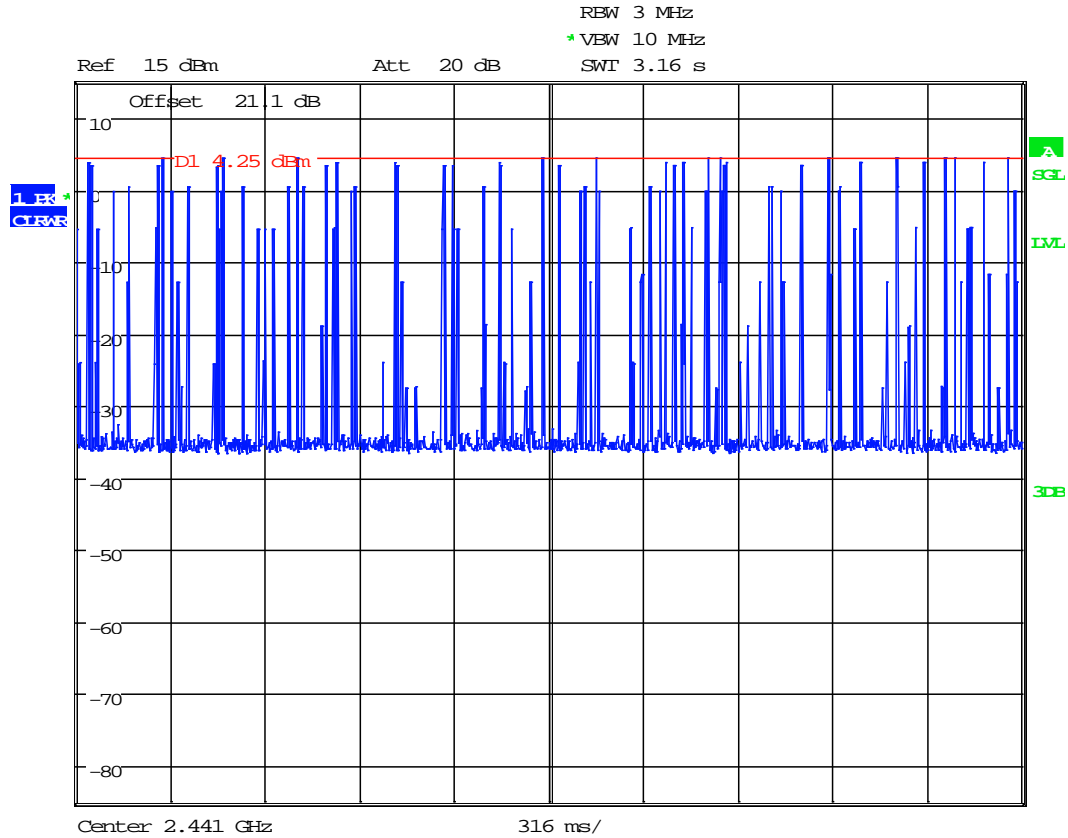
Date: 25.MAY.2017 11:19:19

GFSK, DH5

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
12*10	2.88	345.60	400



Date: 25.MAY.2017 11:09:14

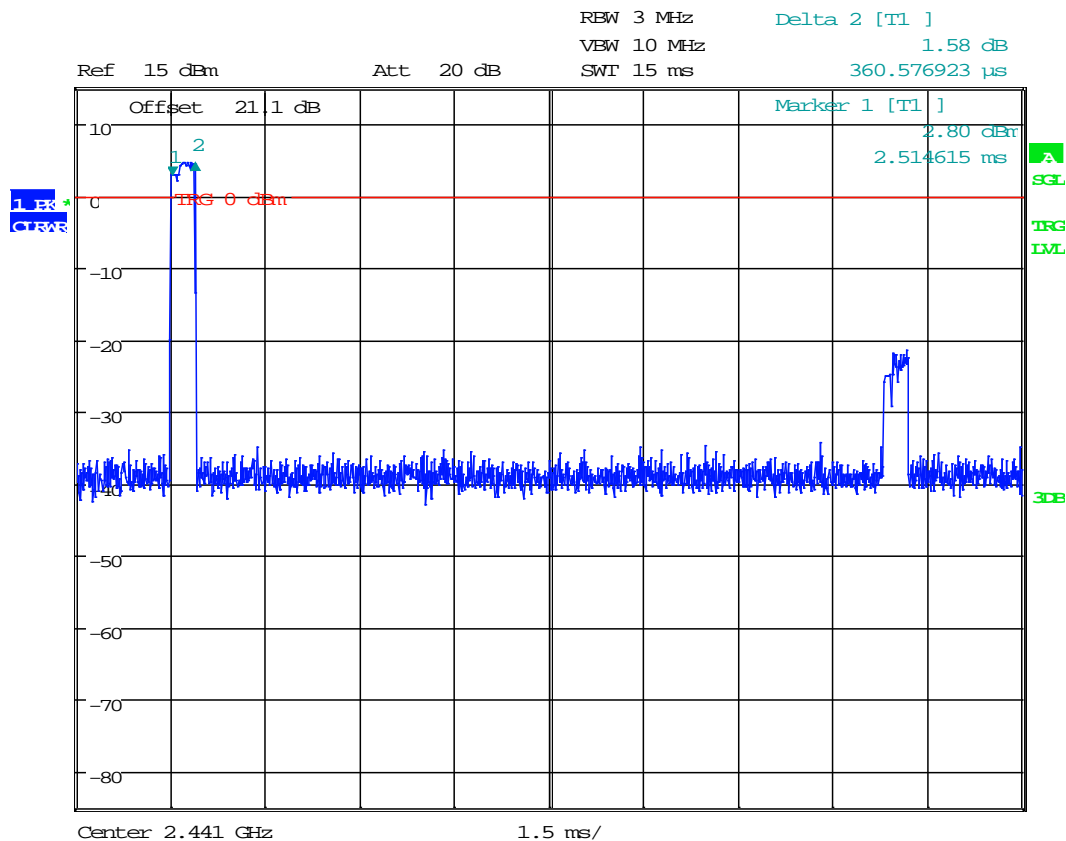


Date: 25.MAY.2017 11:14:39

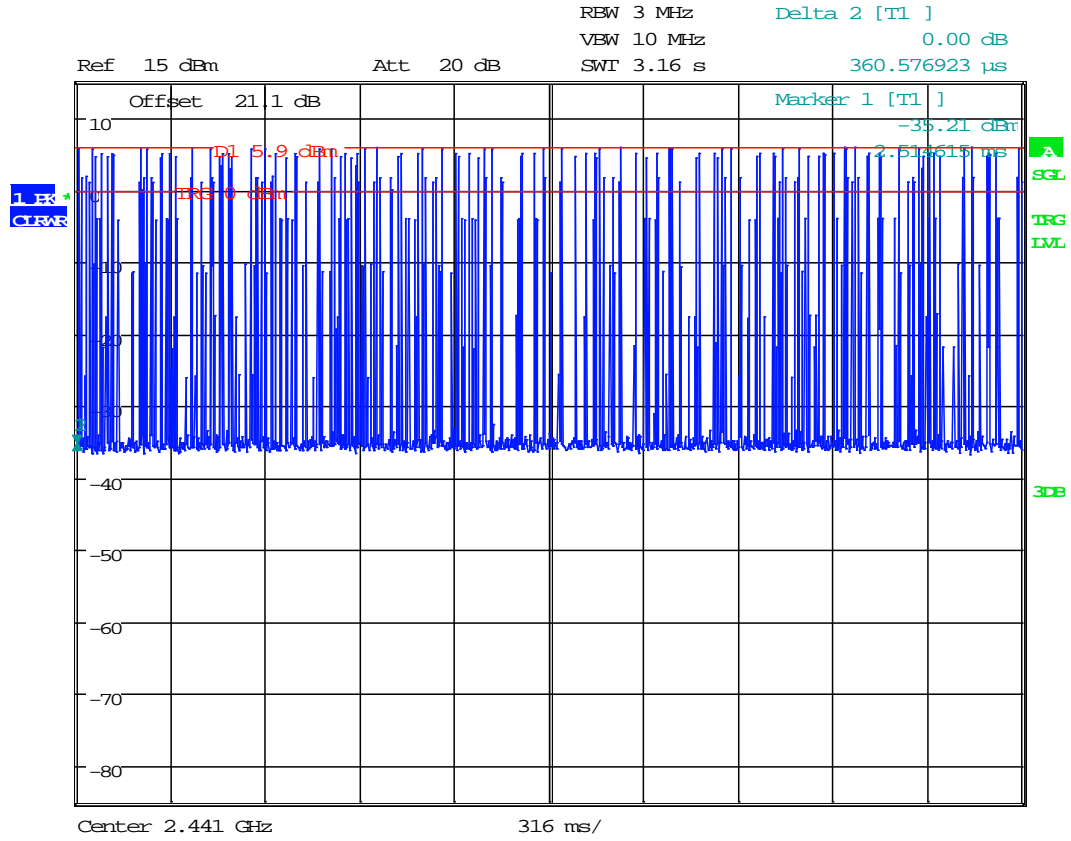
4.5.3 Test Results (Continued)

$\pi/4$ -DQPSK, DH1

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
33*10	0.361	119.13	400



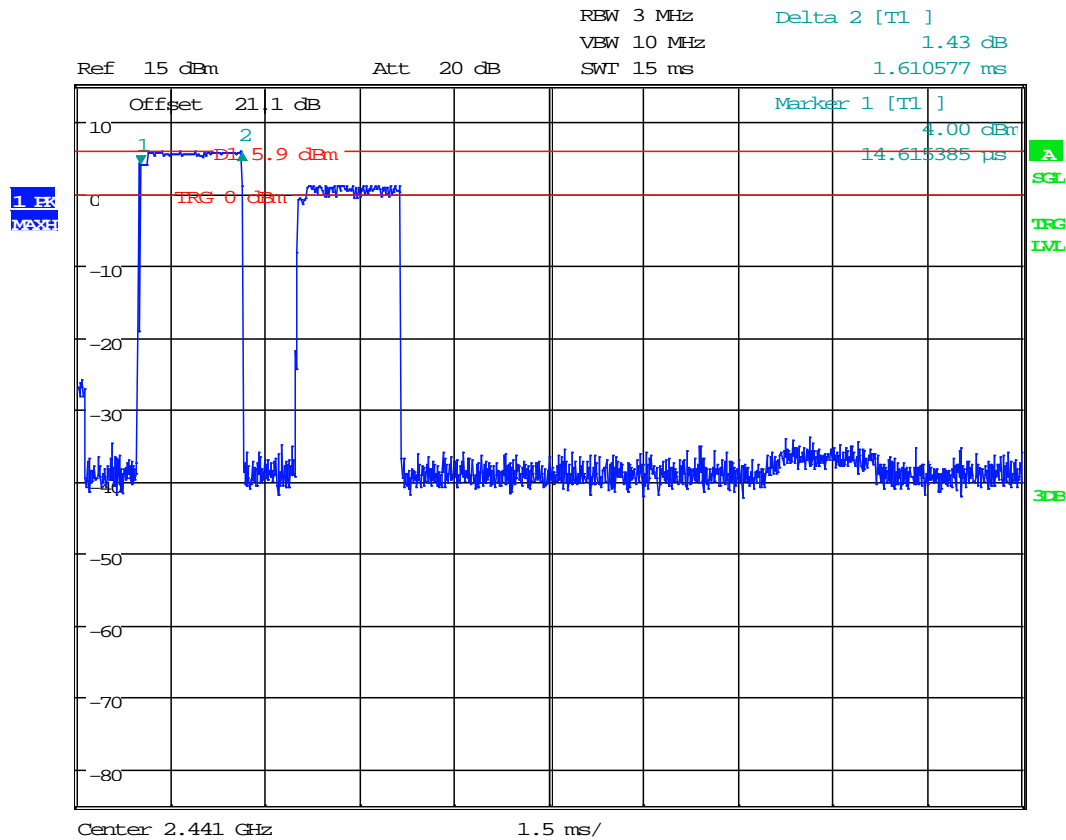
Date: 26.MAY.2017 08:00:32



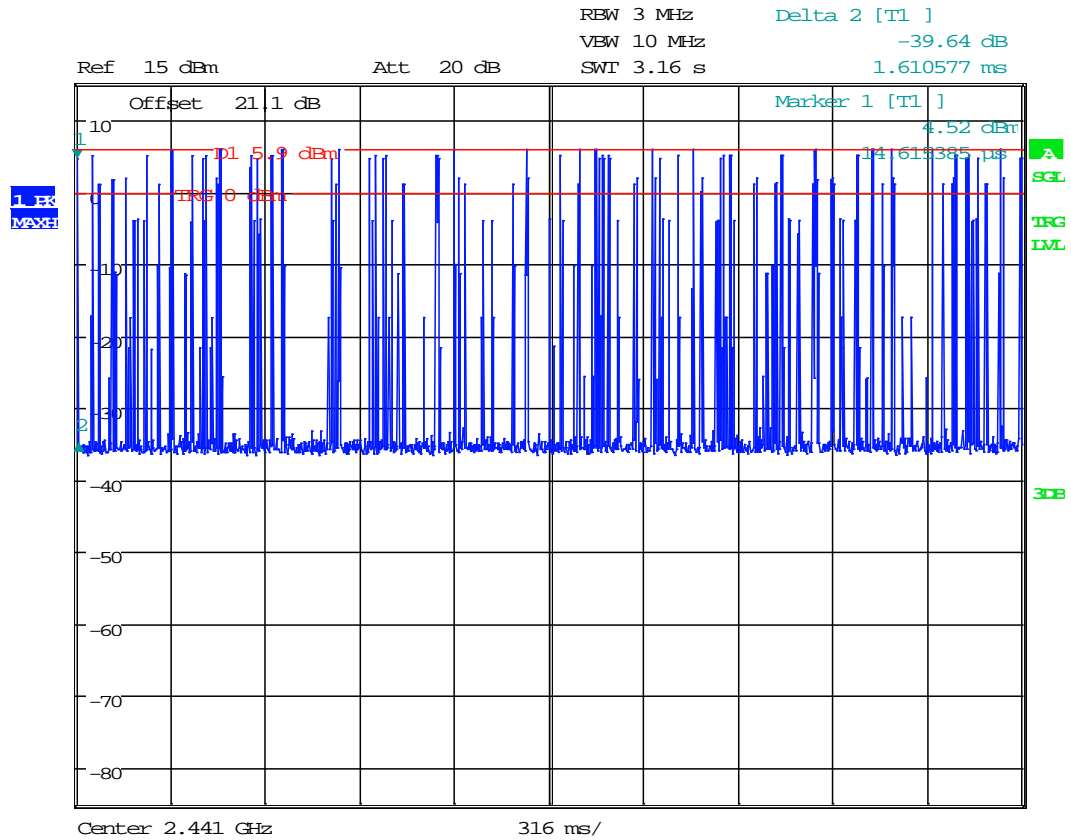
Date: 26.MAY.2017 08:02:49

$\pi/4$ -DQPSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
18*10	1.61	289.80	400



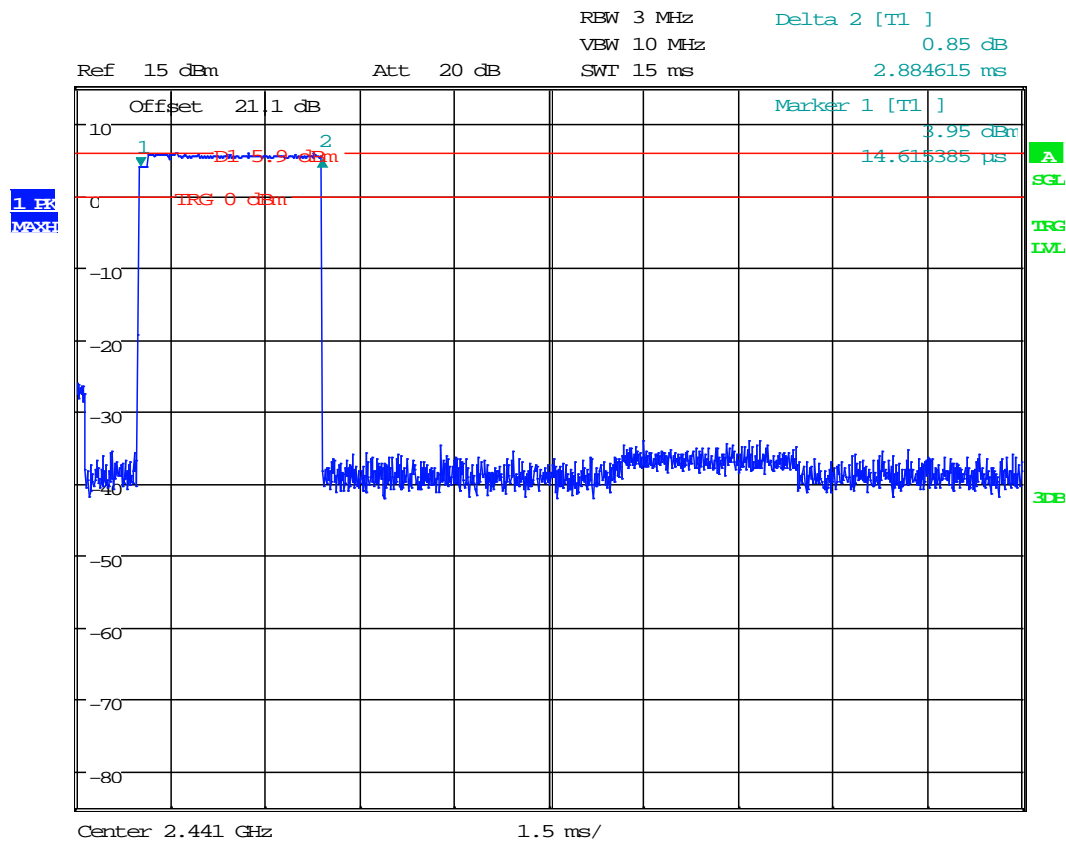
Date: 26.MAY.2017 08:05:23



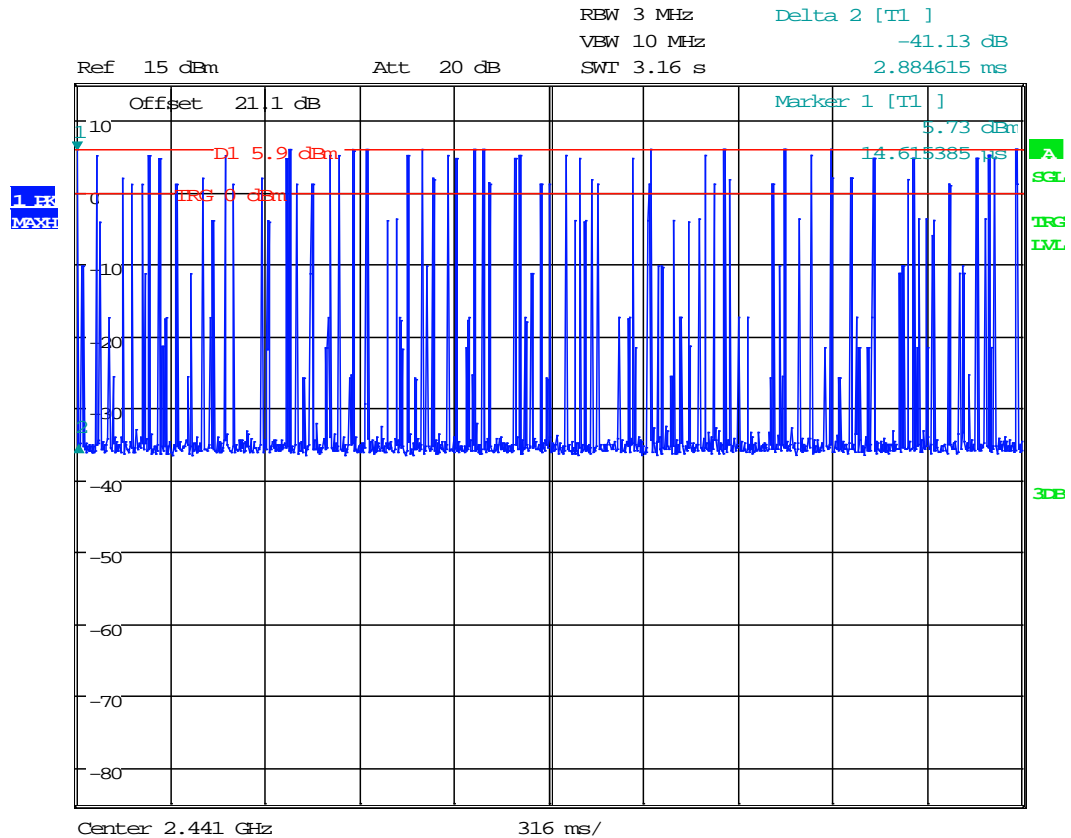
Date: 26.MAY.2017 08:06:07

$\pi/4$ -DQPSK, DH5

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
11*10	2.88	316.80	400



Date: 26.MAY.2017 08:08:37

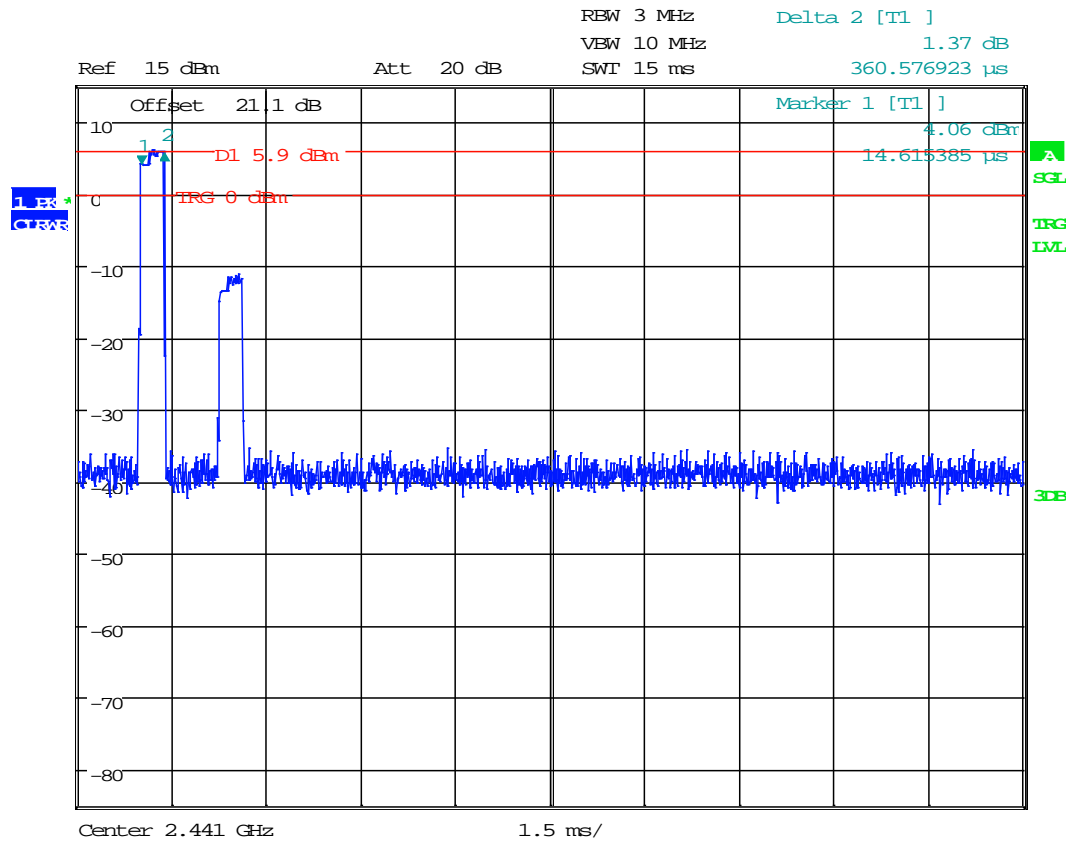


Date: 26.MAY.2017 08:09:16

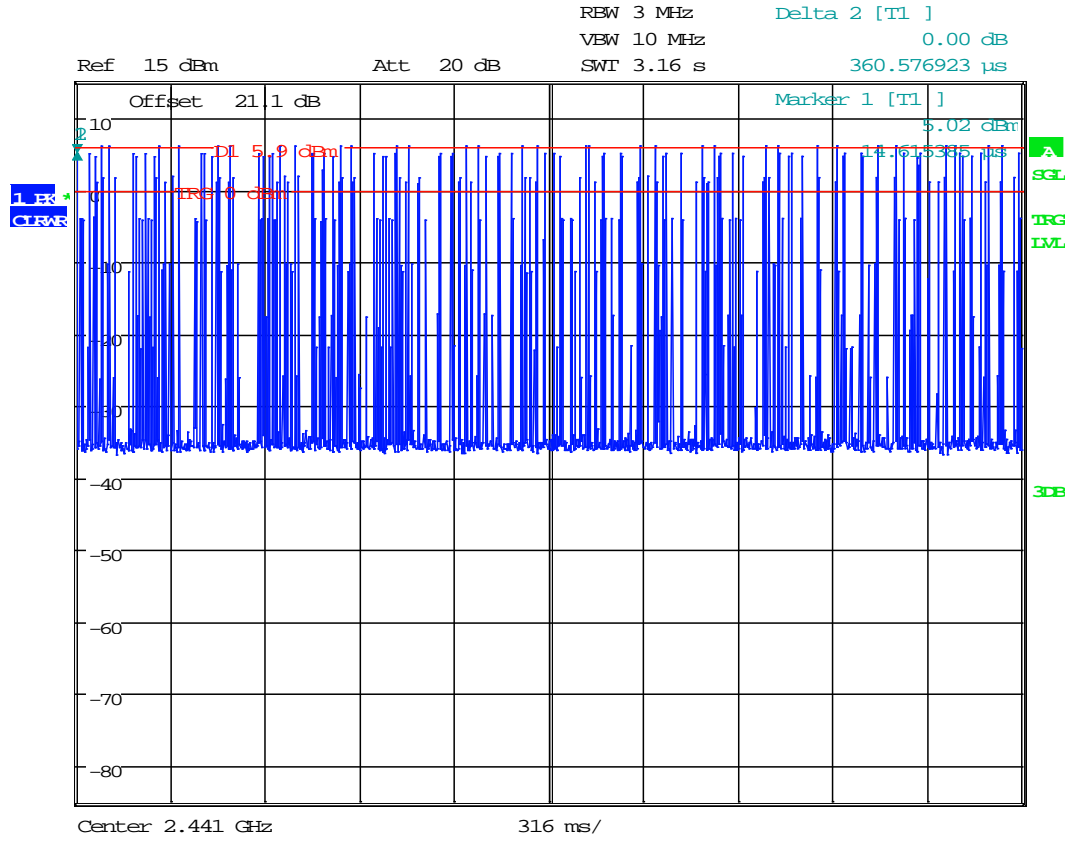
4.5.3 Test Results (Continued)

8DPSK, DHI

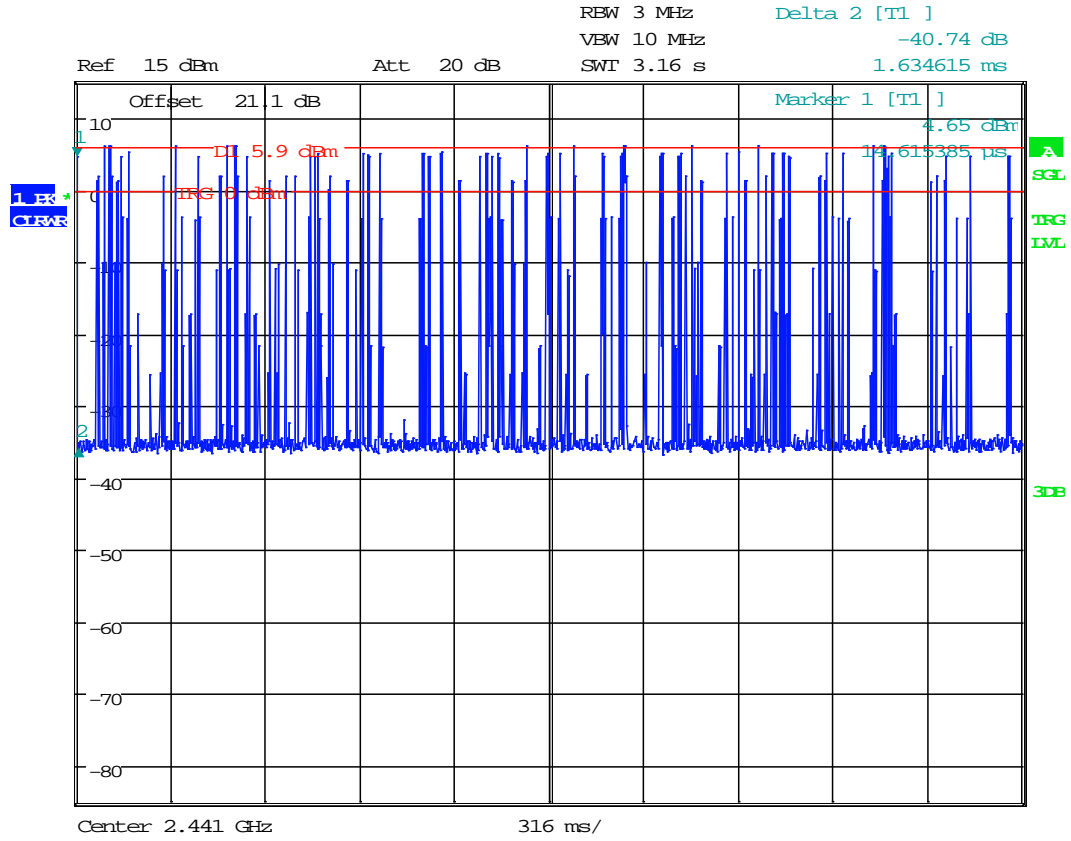
No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
33*10	0.360	118.80	400



Date: 26.MAY.2017 08:10:37



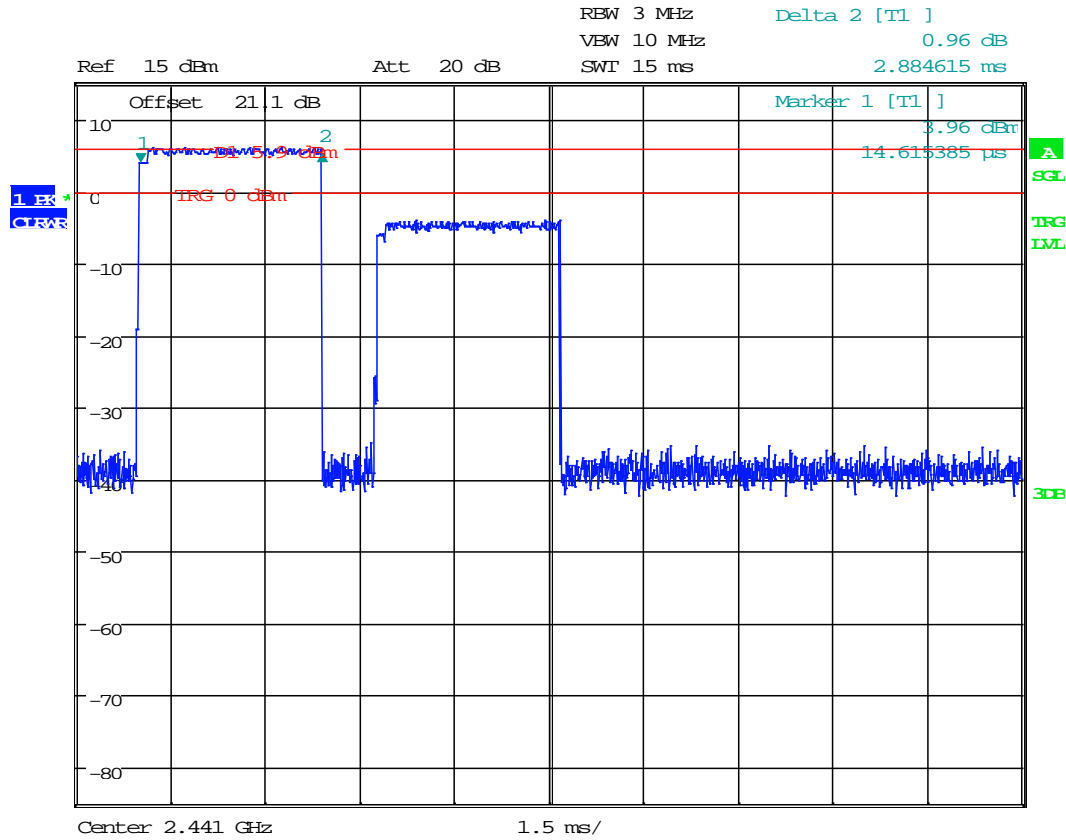
Date: 26.MAY.2017 08:11:27



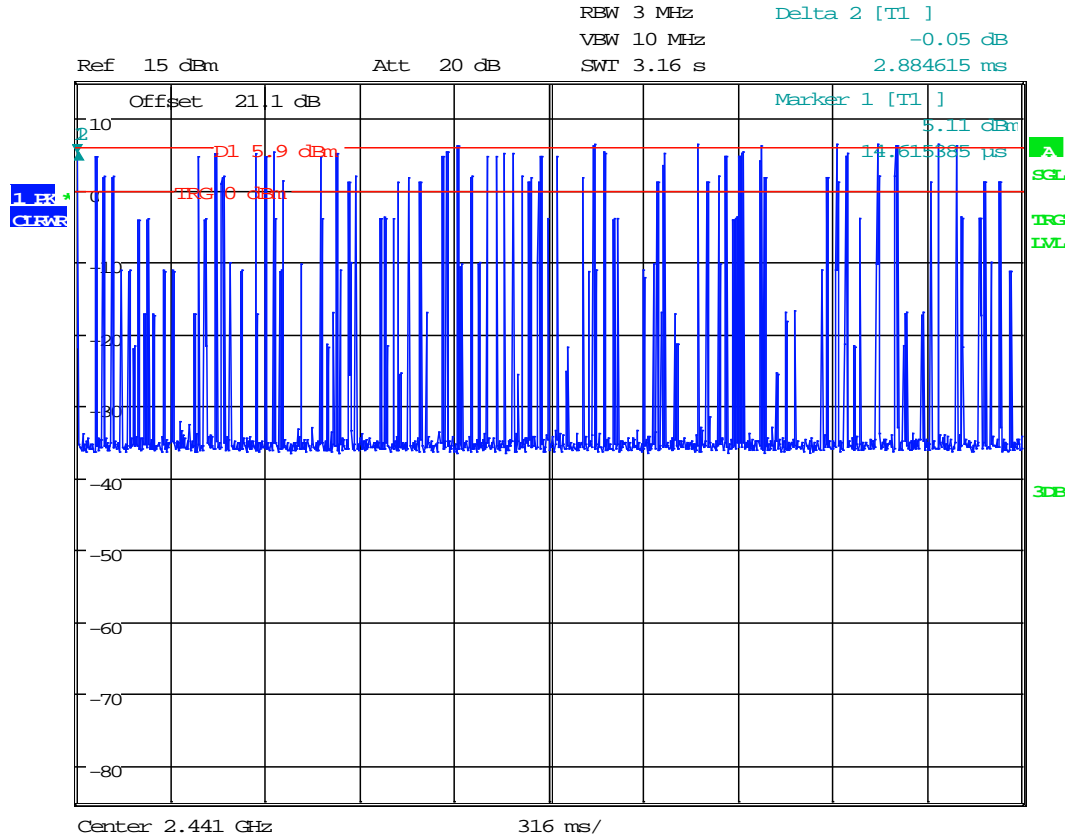
Date: 26.MAY.2017 08:13:17

8DPSK, DH3

No. of Burst in 3.16s (31.6s Period)	Burst On Time (ms)	Dwell Time (ms)	Dwell Time limit (ms)
11*10	2.88	316.80	400



Date: 26.MAY.2017 08:15:53



Date: 26.MAY.2017 08:16:32

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 ANSI C63.10:2013 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.

Tested By:	Anderson Soungpanya
Test Date:	May 26, 2017

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
$\pi/4$ -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

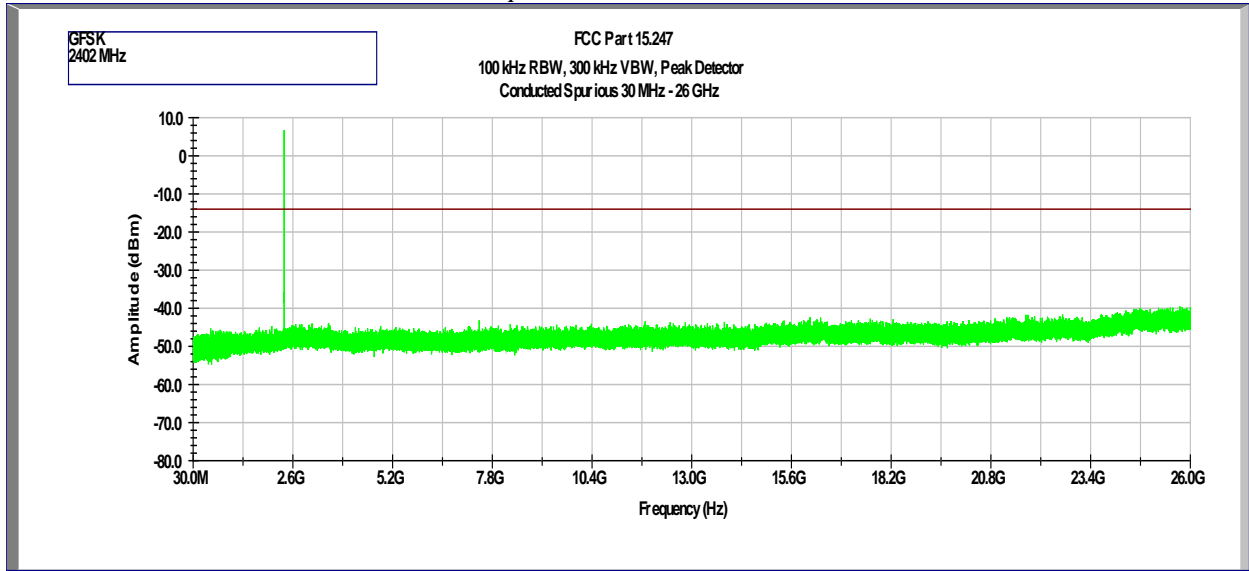
Out-of-Band Conducted Spurious Emissions at the Band-Edge:

Table 4.2

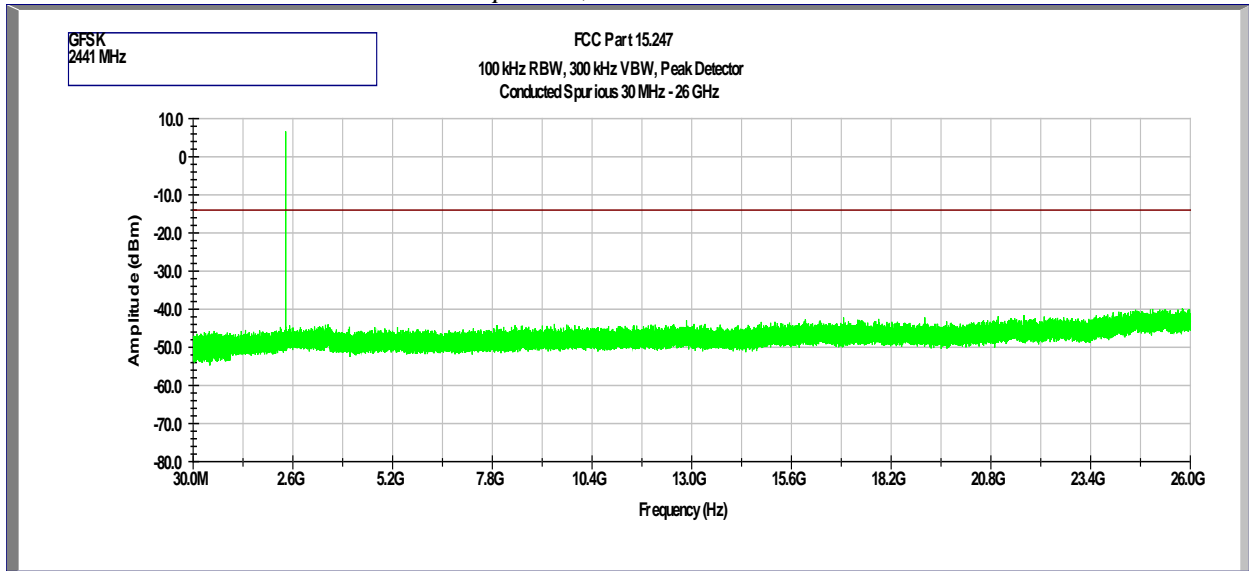
Radio	Channel	Frequency MHz	Out-band emissions margin to In-band emissions	Plot #
GFSK	0	2402	Complies	4.10
	Hopping	Low Band Edge	Complies	4.11
	78	2480	Complies	4.12
	Hopping	High Band Edge	Complies	4.13
$\pi/4$ -DQPSK	0	2402	Complies	4.14
	Hopping	Low Band Edge	Complies	4.15
	78	2480	Complies	4.16
	Hopping	High Band Edge	Complies	4.17
8DPSK	0	2402	Complies	4.18
	Hopping	Low Band Edge	Complies	4.19
	78	2480	Complies	4.20
	Hopping	High Band Edge	Complies	4.21

Results	Complies
----------------	-----------------

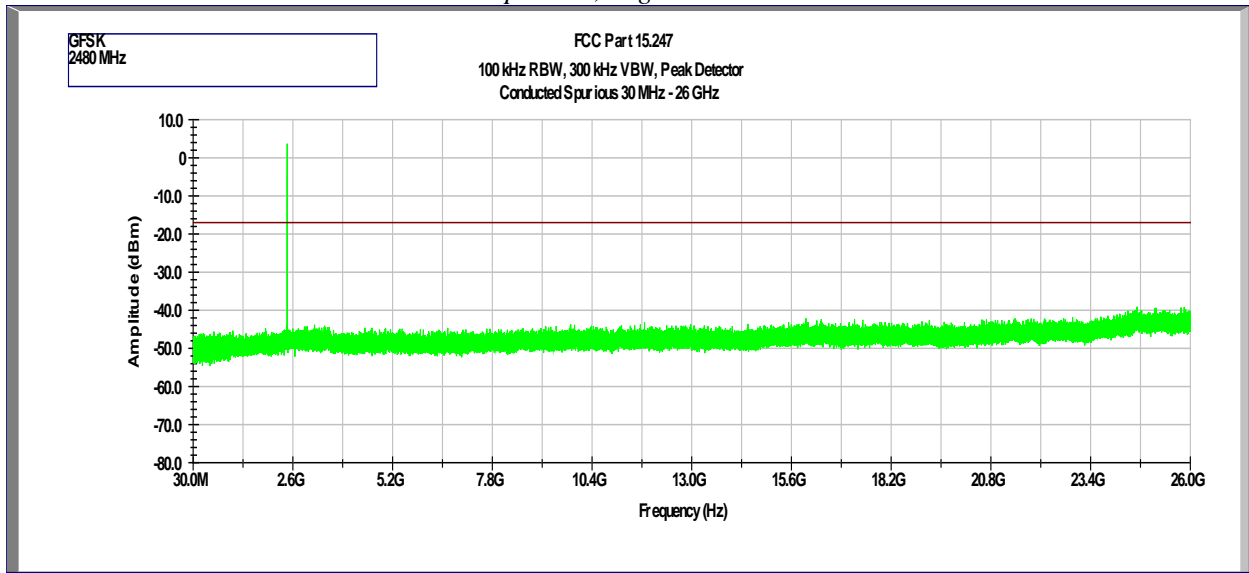
Plot 4.1
Transmitter Spurious, Low Channel with GFSK



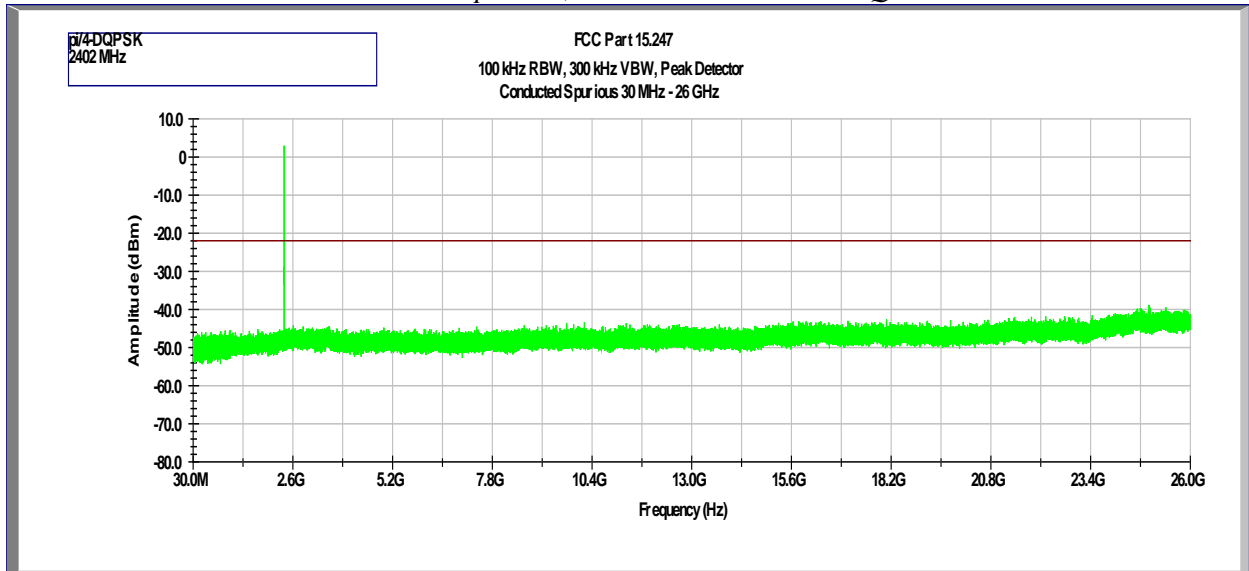
Plot 4.2
Transmitter Spurious, Middle Channel with GFSK



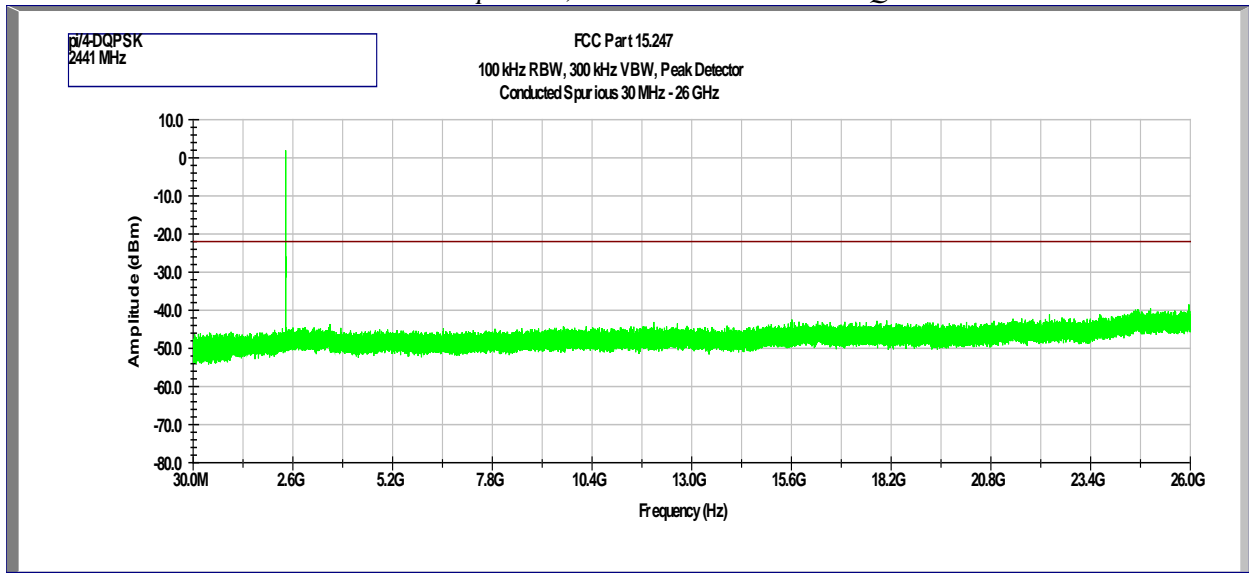
Plot 4.3
Transmitter Spurious, High Channel with GFSK



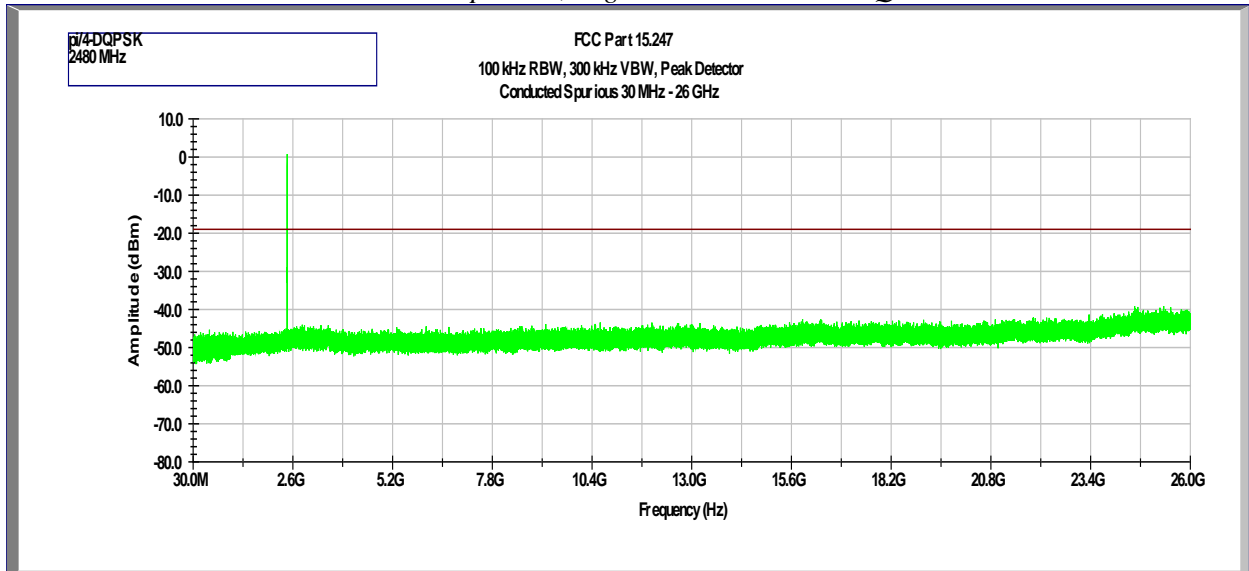
Plot 4.4
Transmitter Spurious, Low Channel with $\pi/4$ -DQPSK



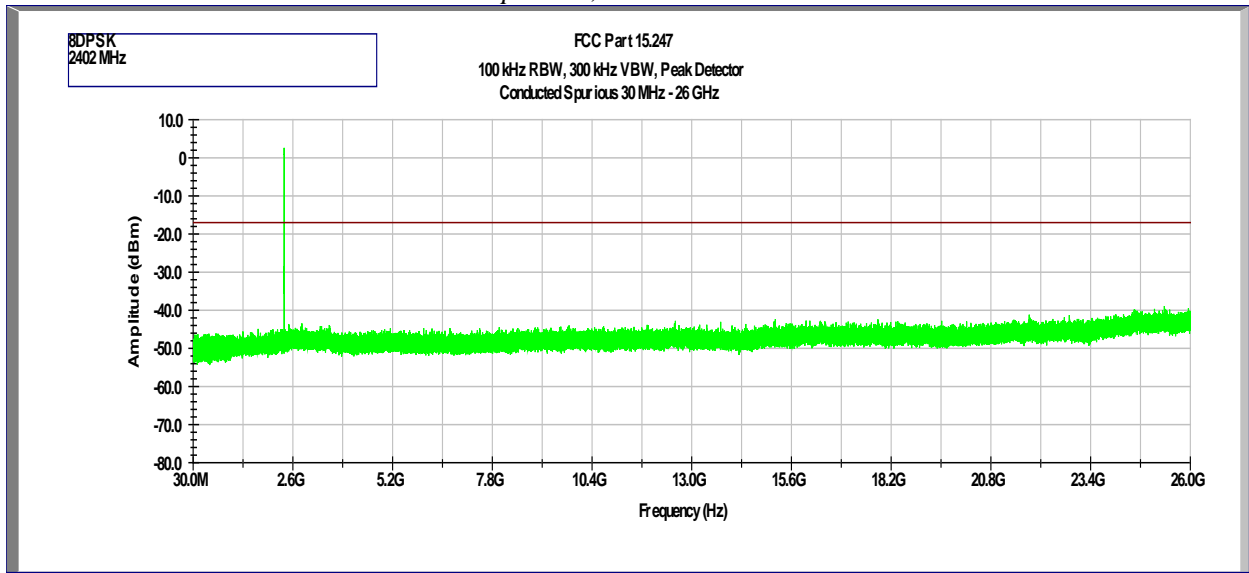
Plot 4.5
Transmitter Spurious, Mid Channel with $\pi/4$ -DQPSK



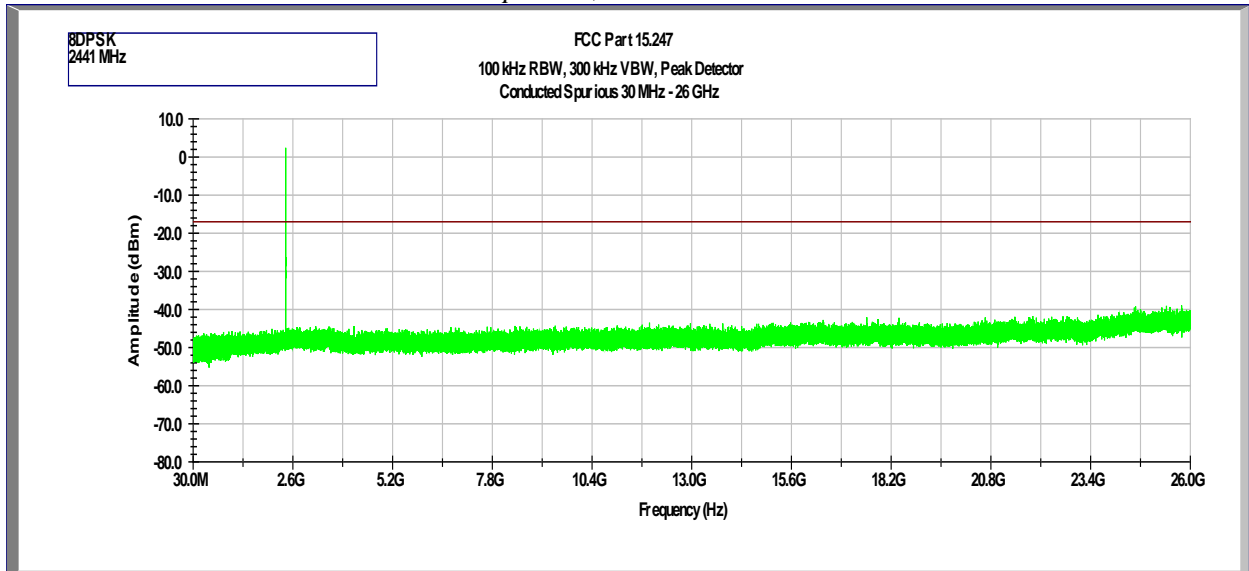
Plot 4.6
Transmitter Spurious, High Channel with $\pi/4$ -DQPSK



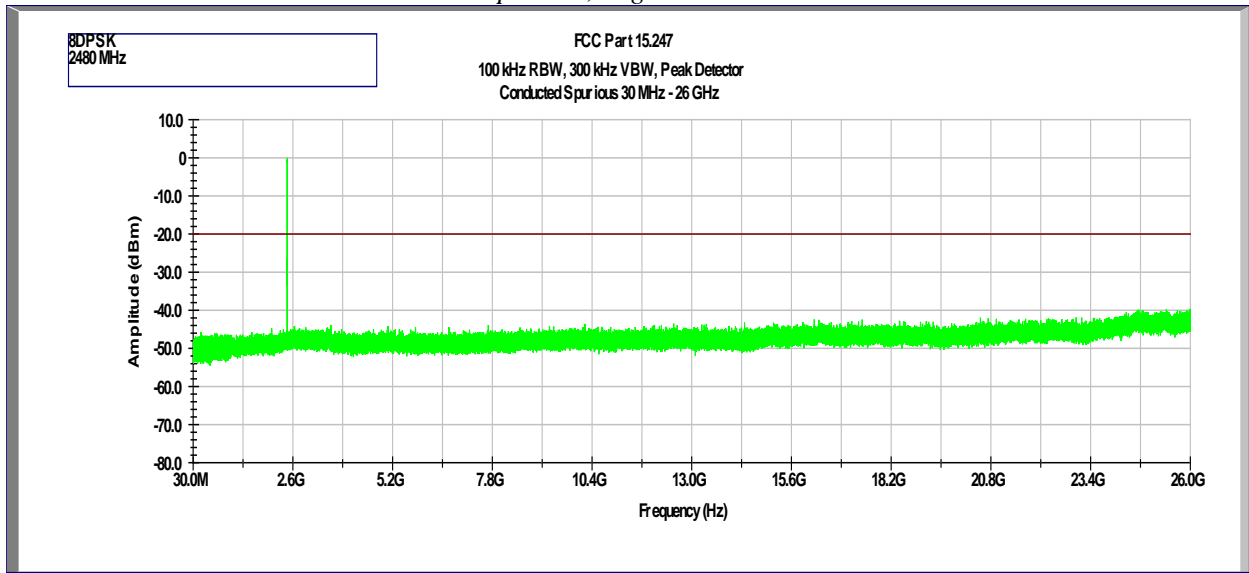
Plot 4.7
Transmitter Spurious, Low Channel with 8DPSK



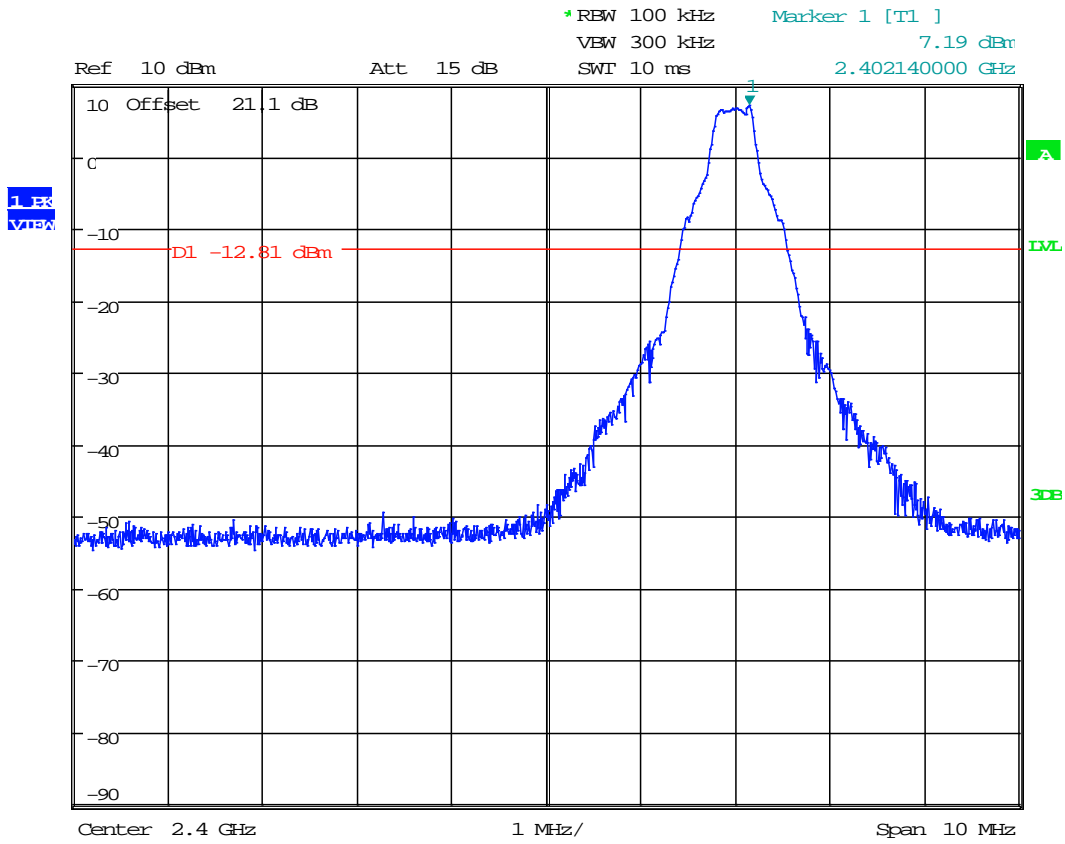
Plot 4.8
Transmitter Spurious, Mid Channel with 8DPSK



Plot 4.9
Transmitter Spurious, High Channel with 8DPSK

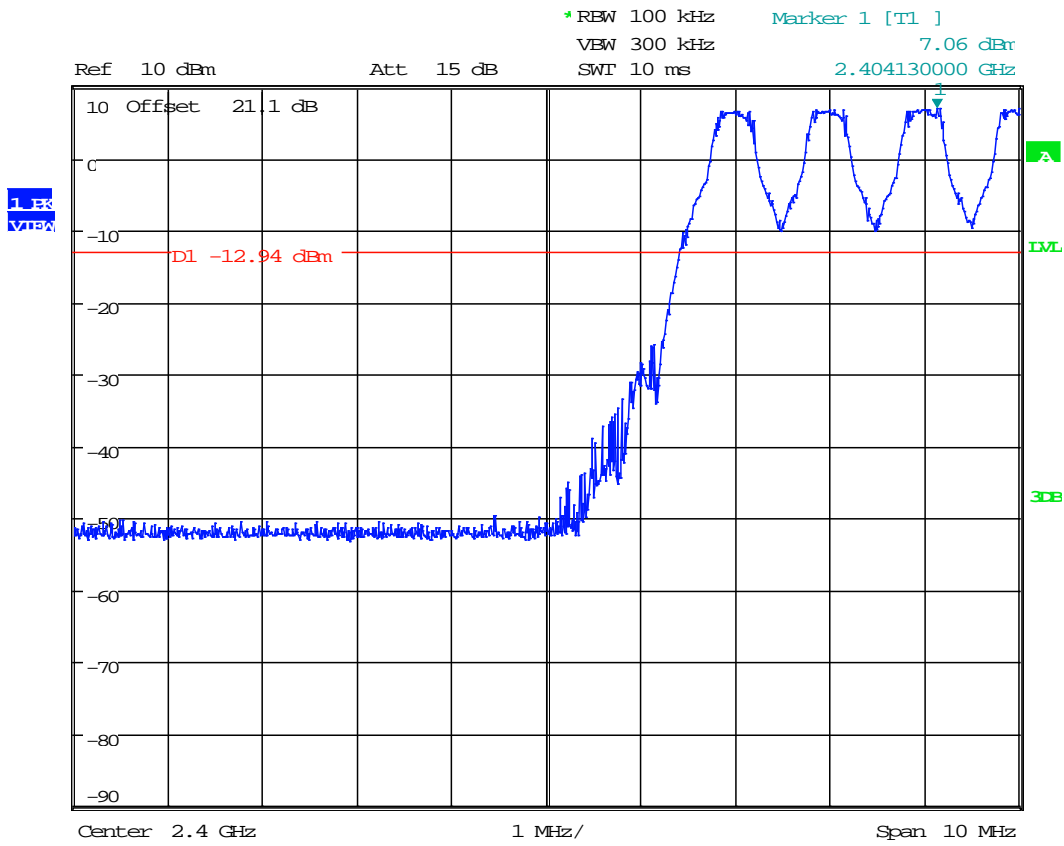


Plot 4.10
Conducted Band Edge, Low Channel with GFSK



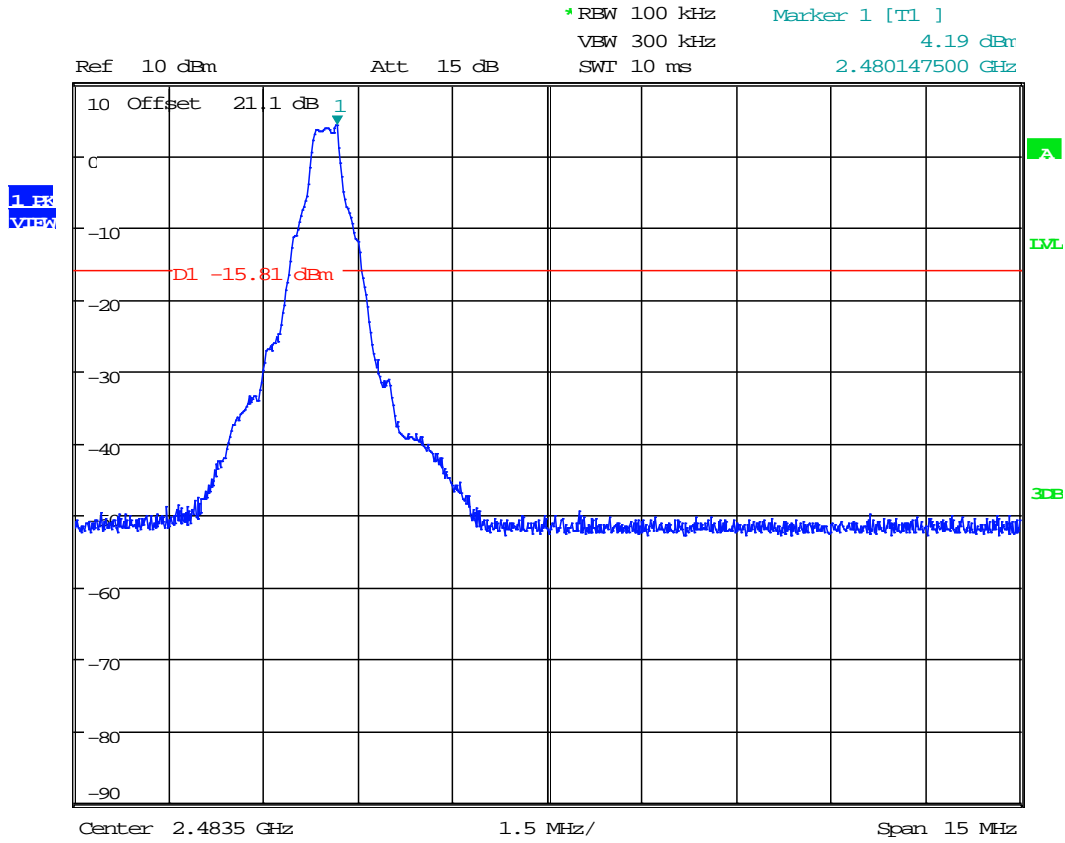
Date: 26.MAY.2017 08:48:43

Plot 4.11
Conducted Band Edge, with GFSK (Hopping)



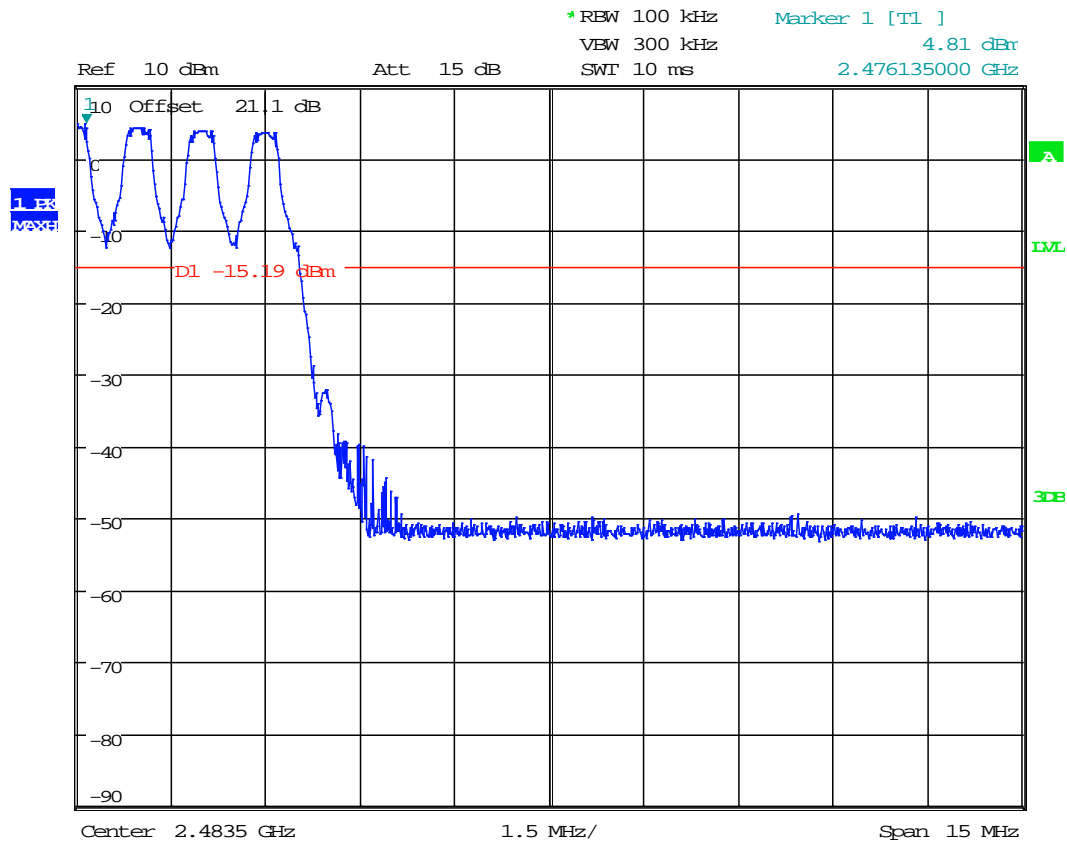
Date: 26.MAY.2017 08:47:27

Plot 4.12
Conducted Band Edge, High Channel with GFSK



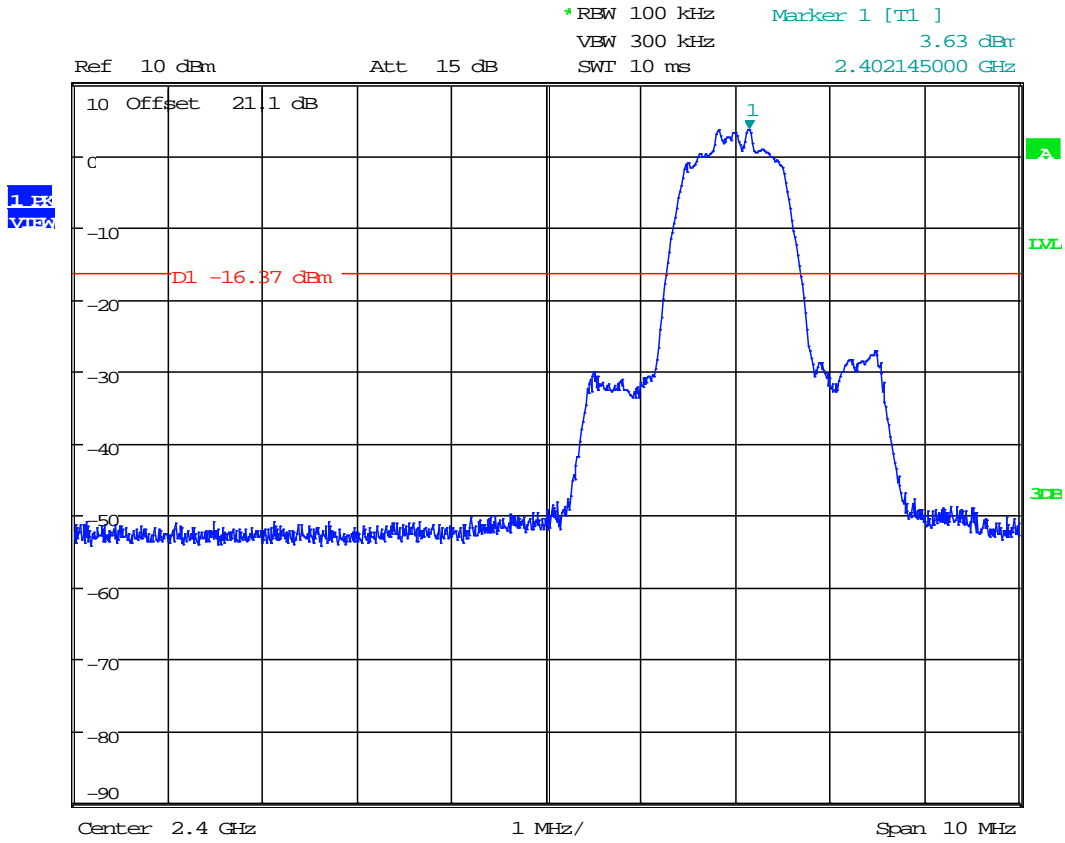
Date: 26.MAY.2017 09:12:56

Plot 4.13
Conducted Band Edge, with GFSK (Hopping)



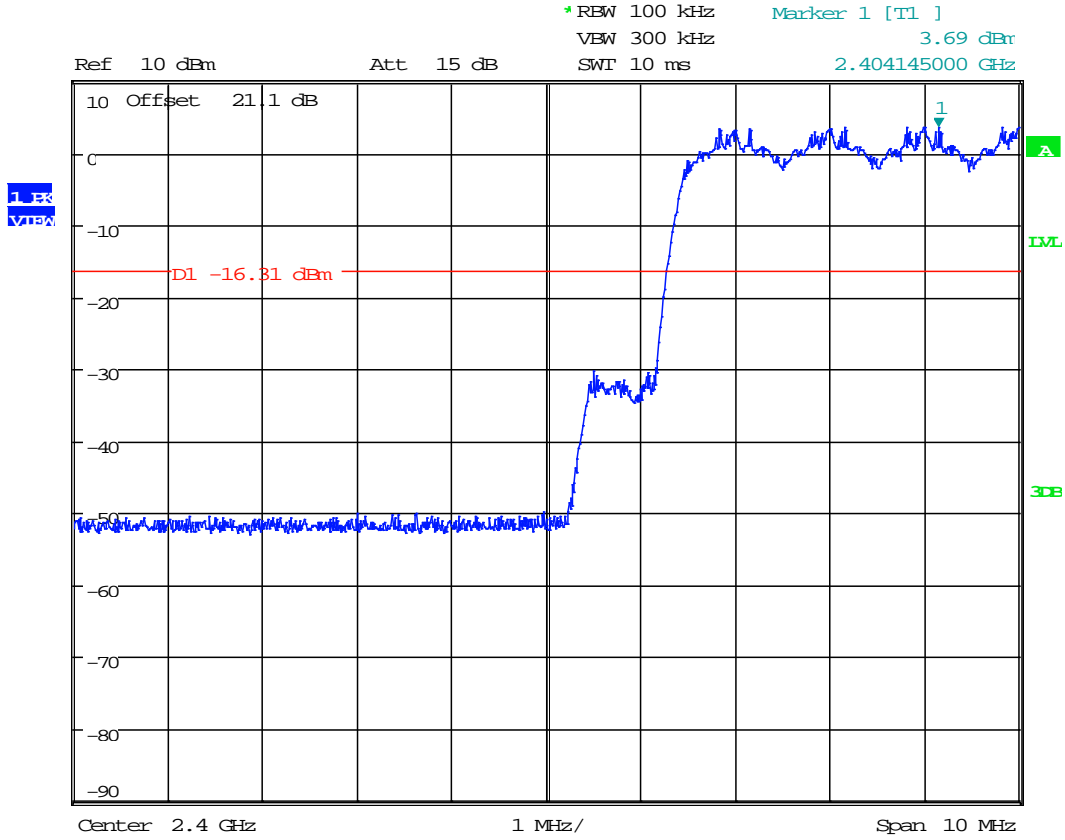
Date: 26.MAY.2017 09:20:27

Plot 4.14
Conducted Band Edge, Low Channel with $\pi/4$ -DQPSK



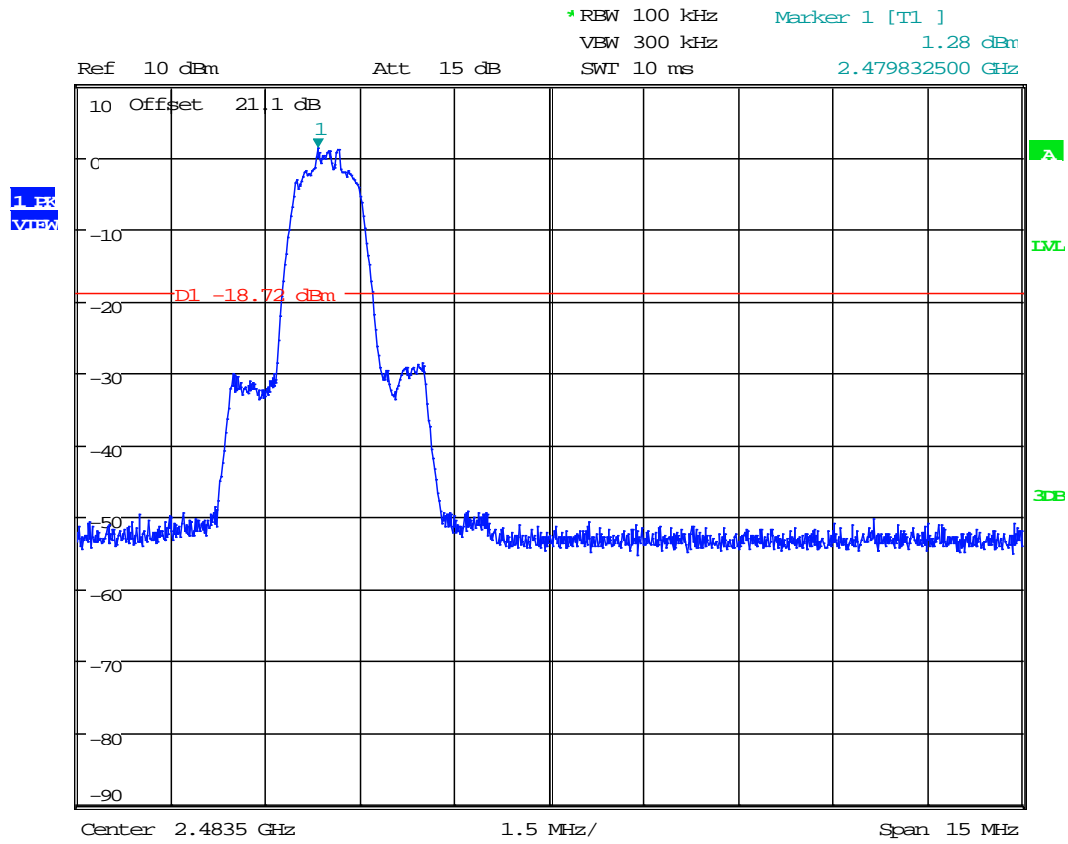
Date: 26.MAY.2017 08:29:25

Plot 4.15
 Conducted Band Edge, with $\pi/4$ -DQPSK (Hopping)



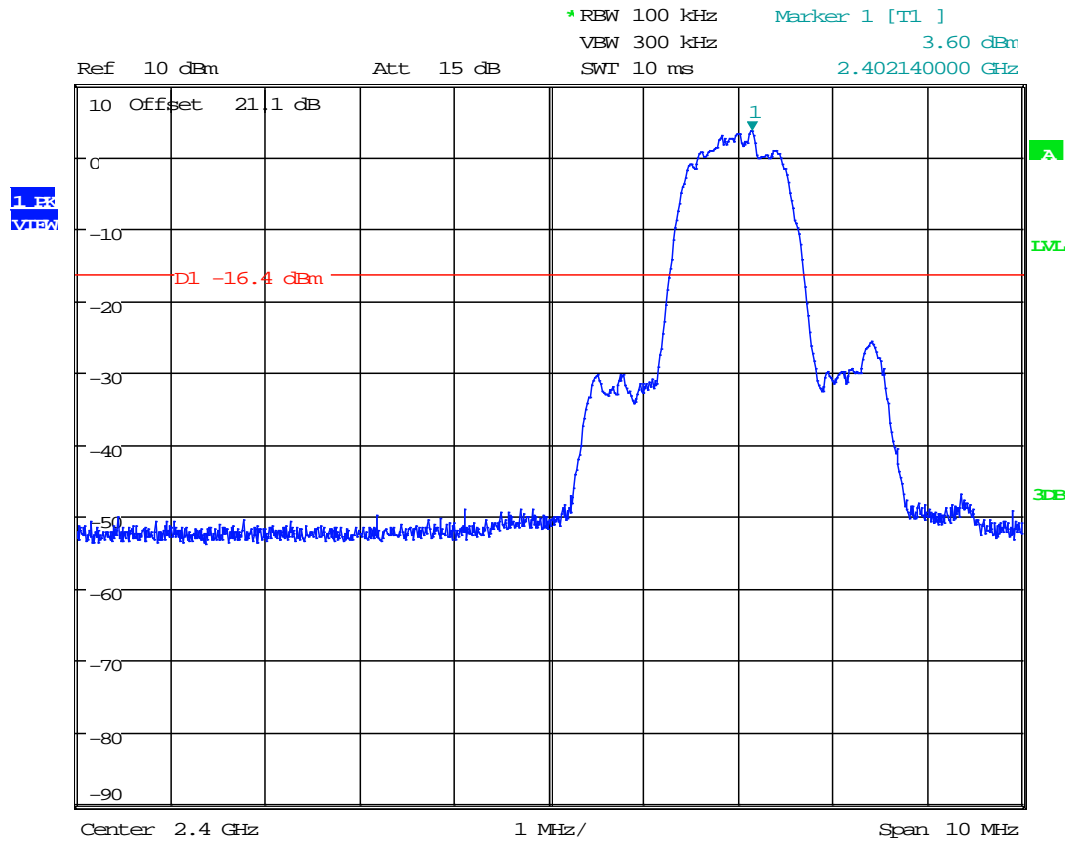
Date: 26.MAY.2017 08:40:22

Plot 4.16
Conducted Band Edge, High Channel with $\pi/4$ -DQPSK



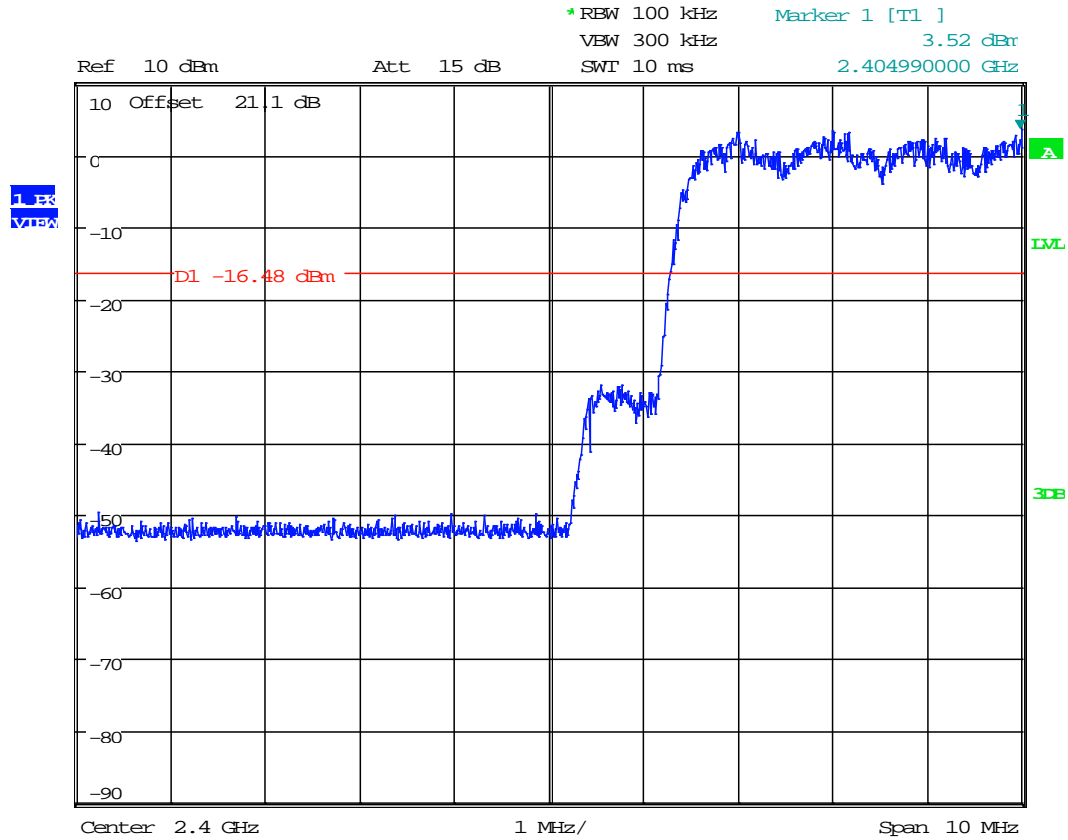
Date: 26.MAY.2017 09:30:05

Plot 4.18
Conducted Band Edge, Low Channel with 8DPSK



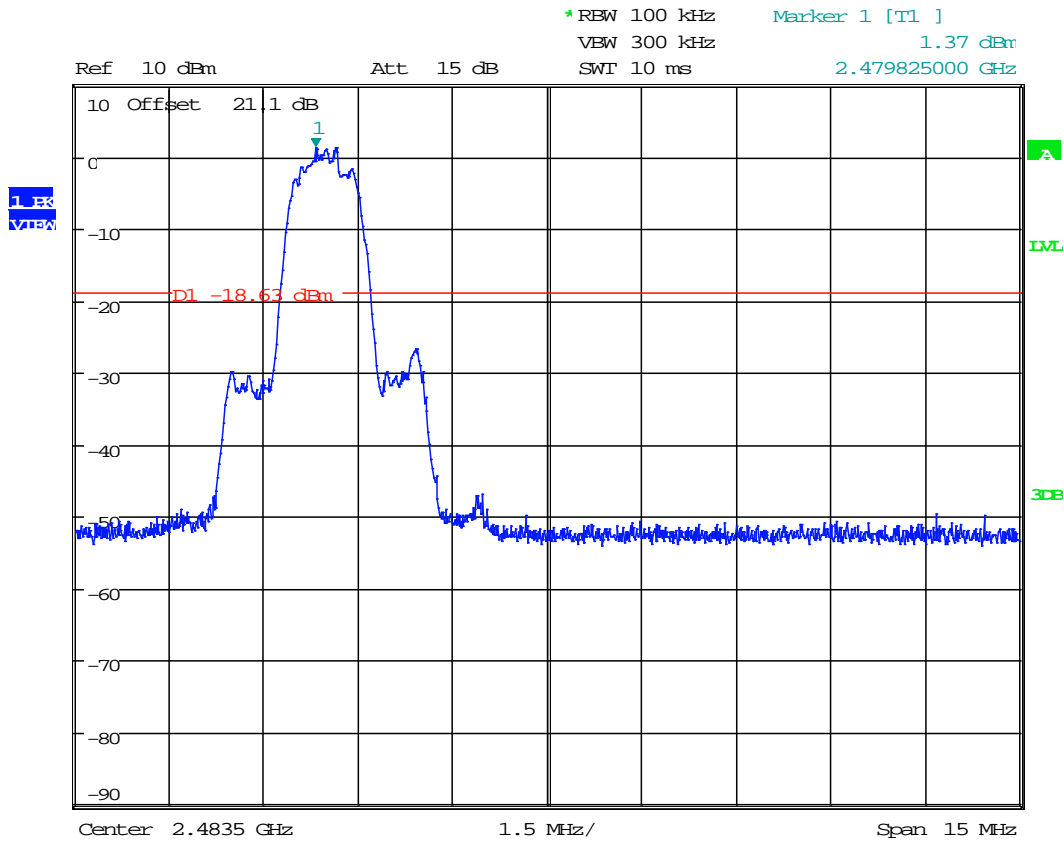
Date: 26.MAY.2017 08:27:44

Plot 4.19
Conducted Band Edge, with 8DPSK (Hopping)



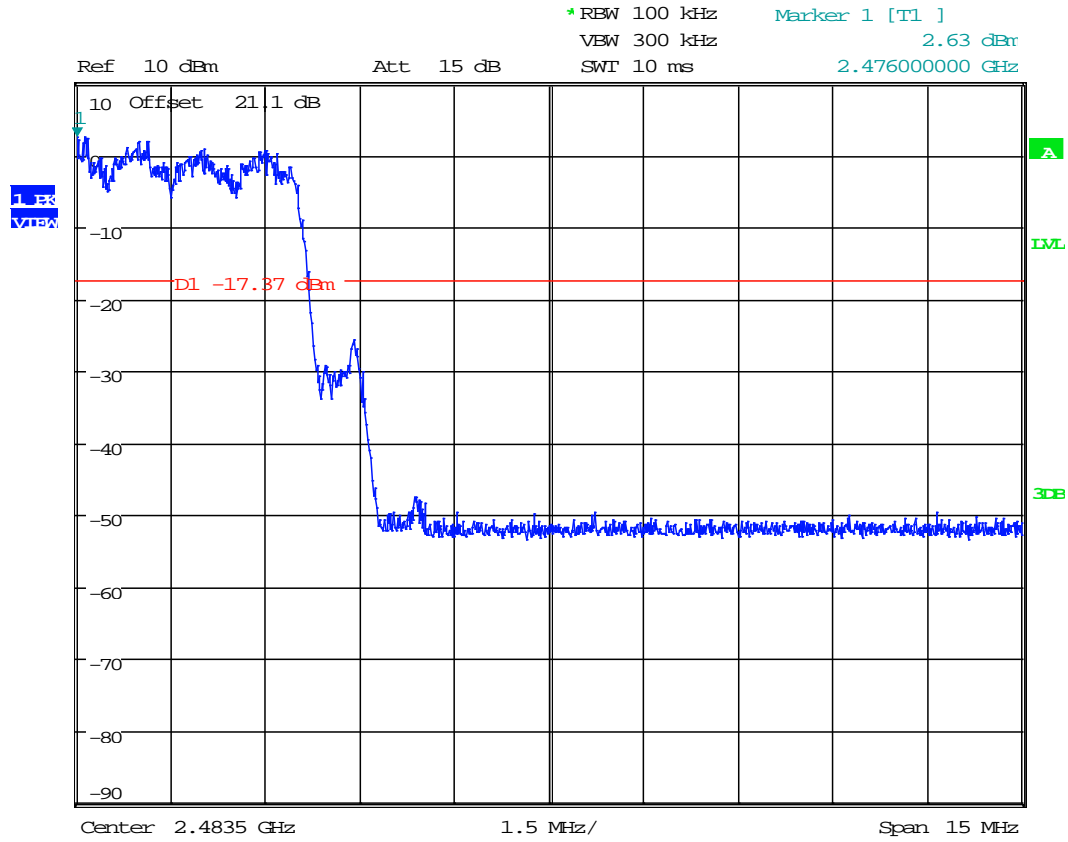
Date: 26.MAY.2017 08:25:02

Plot 4.20
Conducted Band Edge, High Channel with 8DPSK



Date: 26.MAY.2017 09:32:23

Plot 4.21
Conducted Band Edge, with 8DPSK (Hopping)



Date: 26.MAY.2017 09:37:47