



TESTING CERT #3478.01



# TEST REPORT

EUT Description	WLAN and BT, 2x2 PCIe M.2 2230 adapter card
Brand Name	Intel® Dual Band Wireless-AC 8265
Model Name	8265NGW
Serial Number	TA#: H93538-003 WF MAC: 34:13:E8:52:D5:B4 / 34:13:E8:52:D9:0B / 34:13:E8:52:D8:F7 BT MAC: 34:13:E8:52:D5:B8 / 34:13:E8:52:D9:0F / 34:13:E8:52:D8:FB (see section 4)
FCC/IC ID	FCC ID: PD98265NG / PD98265NGU IC ID: 1000M-8265NG
Antenna type	SkyCross WIMAX/WLAN Reference Antenna
Hardware/Software Version	HW: WsP2230 cfg12.1MS Test SW: DRTU version 1.8.7-02784 Op SW: 99.0.19.1
Date of Sample Receipt	2016-04-01
Date of Test	Radiated: 2016-04-05 / 2016-05-12
Features	802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.2 (see section 5)

Applicant	Intel Mobile Communications
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210 USA
Contact Person	Steven Hackett
Telephone/Fax/ Email	steven.c.hackett@intel.com

Reference Standards	FCC CFR Title 47 Part 15C RSS-247 issue 1, RSS-Gen issue 4 (see section 1)
---------------------	--

Test Report number	160321-01.TR03
Revision Control	Rev. 00

The test results relate only to the samples tested.

The test report shall not be reproduced in full, without written approval of the laboratory.

Issued by

Reviewed by

Olivier FARGANT  
(RF Test Lead)

Jose M. FORTES  
(Technical Manager)

Intel Mobile Communications France S.A.S – WRF Lab  
425 rue de Goa – Le Cargo B6 – 06600, Antibes, France  
Tel. +33493001400 / Fax +33493001401

# Table of Contents

---

<b>1. Standards, reference documents and applicable test methods.....</b>	<b>3</b>
<b>2. General conditions, competences and guarantees .....</b>	<b>3</b>
<b>3. Environmental Conditions.....</b>	<b>3</b>
<b>4. Test samples .....</b>	<b>4</b>
<b>5. EUT features.....</b>	<b>4</b>
<b>6. Remarks and comments.....</b>	<b>4</b>
<b>7. Test Verdicts summary.....</b>	<b>5</b>
<b>7.1. BT Basic Data Rate / Enhanced Data Rate .....</b>	<b>5</b>
<b>8. Document Revision History .....</b>	<b>5</b>
<b>Annex A. Test &amp; System Description .....</b>	<b>6</b>
A.1 MEASUREMENT SYSTEM .....	6
A.2 TEST EQUIPMENT LIST .....	8
A.3 MEASUREMENT UNCERTAINTY EVALUATION.....	8
<b>Annex B. Test Results .....</b>	<b>9</b>
B.1 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION.....	9
B.2 NUMBER OF HOPPING CHANNELS.....	16
B.3 TIME OF OCCUPANCY (DWEIL TIME).....	20
B.4 MAXIMUM PEAK OUTPUT POWER AND ANTENNA GAIN .....	27
B.5 OUT-OF-BAND EMISSIONS (CONDUCTED).....	34
B.6 RADIATED SPURIOUS EMISSION .....	59
<b>Annex C. Photographs.....</b>	<b>72</b>

## 1. Standards, reference documents and applicable test methods

1. FCC 47 CFR part 15 - Subpart C – §15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
2. FCC 47 CFR part 15 - Subpart C – §15.209 Radiated emission limits; general requirements.
3. Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems - DA 00-705 Released March 30, 2000
4. RSS-247 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.
5. RSS-Gen Issue 4 - General Requirements for Compliance of Radio Apparatus.
6. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

## 2. General conditions, competences and guarantees

- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is a testing laboratory accredited by the American Association for Laboratory Accreditation (A2LA).
- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm listed by the FCC, with Designation Number FR0011.
- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by IC, with IC Assigned Code 1000Y.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.
- ✓ Complete or partial reproduction of the report cannot be made without written permission of Intel WRF Lab.

## 3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	23°C ± 2°C
Humidity	43% ± 5%

#### 4. Test samples

Sample	Control #	Description	Model	Serial #	Date of reception	Note
#01	160321-01.S02	WiFi/BT Module	8265NGW	WF MAC: 34:13:E8:52:D8:CF, BT MAC: 34:13:E8:52:D8:D3	2016-04-01	Used for conducted tests
	160107-01.S14	Extender board	PCB00495	ASS00495-01 4950414-064	2016-01-07	
	160107-01.S19	AC/DC Adapter	SPU60-102	08741187 1350	2016-01-07	
	13112601.S05	Laptop	DELL Latitude	27078391477	2014-02-12	
#02	160321-01.S03	WiFi/BT Module	8265NGW	WF MAC: 34:13:E8:52:D9:0B, BT MAC: 34:13:E8:52:D9:0F	2015-04-01	Used for radiated tests (from 30 MHz to 1 GHz)
	160107-01.S12	Extender board	PC00495	4955013-034	2016-01-07	
	160107-01.S28	Laptop	Latitude E5440	BJSYN32	2016-01-15	
#03	160321-01.S05	WiFi/BT Module	8265NGW	WF MAC: 34:13:E8:52:D8:F7 BT MAC: 34:13:E8:52:D8:FB	2016-04-01	Used for radiated tests (from 1 GHz to 25 GHz)
	15060102.S03	Extender board	PCB00495	ASS00495-01 4955013-045	2015-06-12	
	15040201.S15	Laptop	DELL Latitude	21238680926	2015-04-15	

NA: Not Applicable

#### 5. EUT features

These are the detailed bands and modes supported by the Equipment Under Test:

802.11b/g/n	2.4GHz (2400.0 – 2483.5 MHz)
802.11a/n/ac	5.2GHz (5150.0 – 5250.0 MHz) 5.3GHz (5250.0 – 5350.0 MHz) 5.6GHz (5470.0 – 5725.0 MHz) 5.8GHz (5725.0 – 5850.0 MHz)
BDR/EDR 2.1 BLE 4.2	2.4GHz (2400.0 – 2483.5 MHz)

#### 6. Remarks and comments

N/A

## 7. Test Verdicts summary

### 7.1. BT Basic Data Rate / Enhanced Data Rate

FCC part	RSS part	Test name	Verdict
15.247 (a) (1)	RSS-247 Clause 5.1 (1) and (2)	20dB Bandwidth and Carrier frequency separation	P
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Number of hopping channels	P
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Time of Occupancy (Dwell Time)	P
15.247 (b) (1)	RSS-247 Clause 5.4 (2)	Maximum Peak Output Power and antenna gain	P
15.247 (d)	RSS-247 Clause 5.5	Out-of-band Emissions (conducted)	P
15.247 (d) 15.209	RSS-247 Clause 5.5	Out-of-band Emissions (radiated)	P

P: Pass

F: Fail

NM: Not Measured

NA: Not Applicable

## 8. Document Revision History

Revision #	Date	Modified by	Details
Rev. 00	2016-05-17	G. Gerbaud	First issue

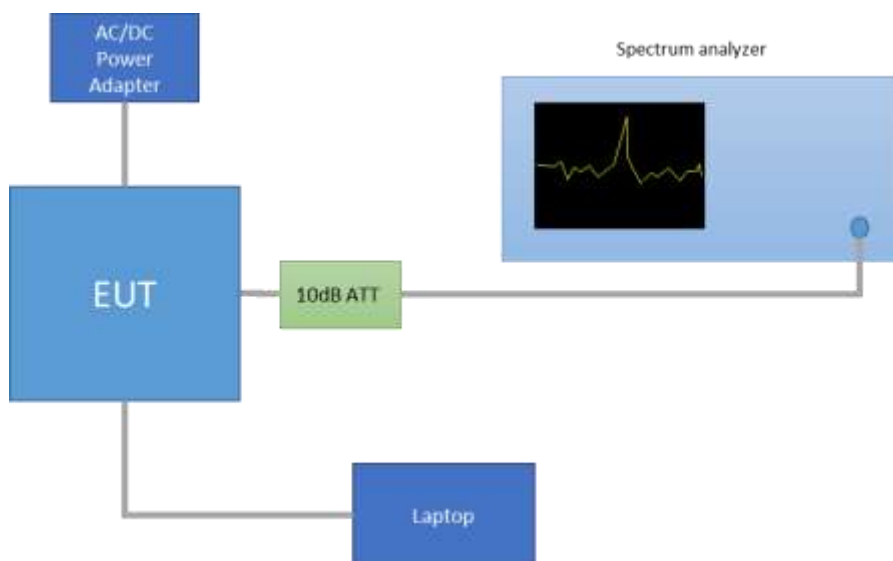
# Annex A. Test & System Description

## A.1 Measurement system

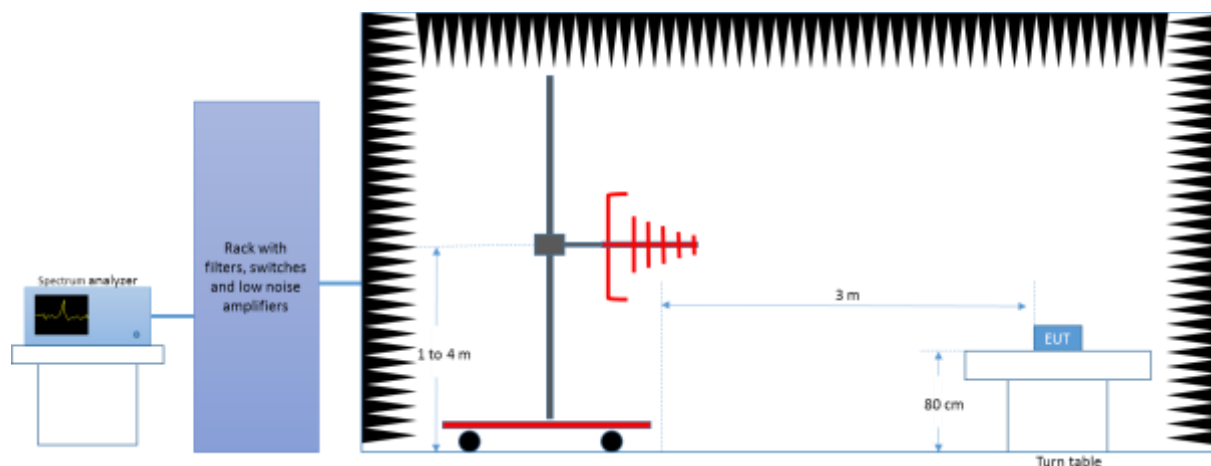
Measurements were performed using the following setups.

The DUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. The laptop computer was used to configure the EUT to continuously transmit at a specified output power using all different modes and modulation schemes.

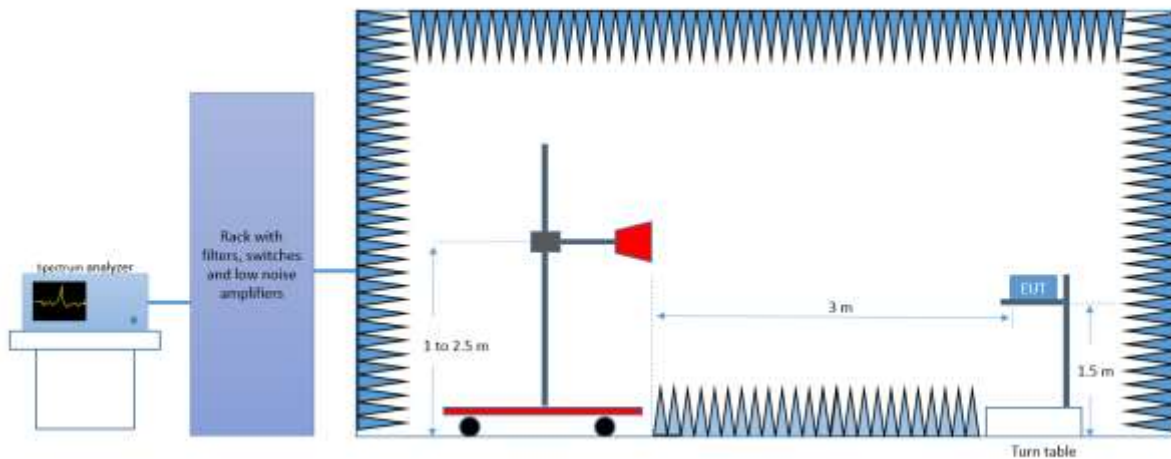
### Conducted Setup



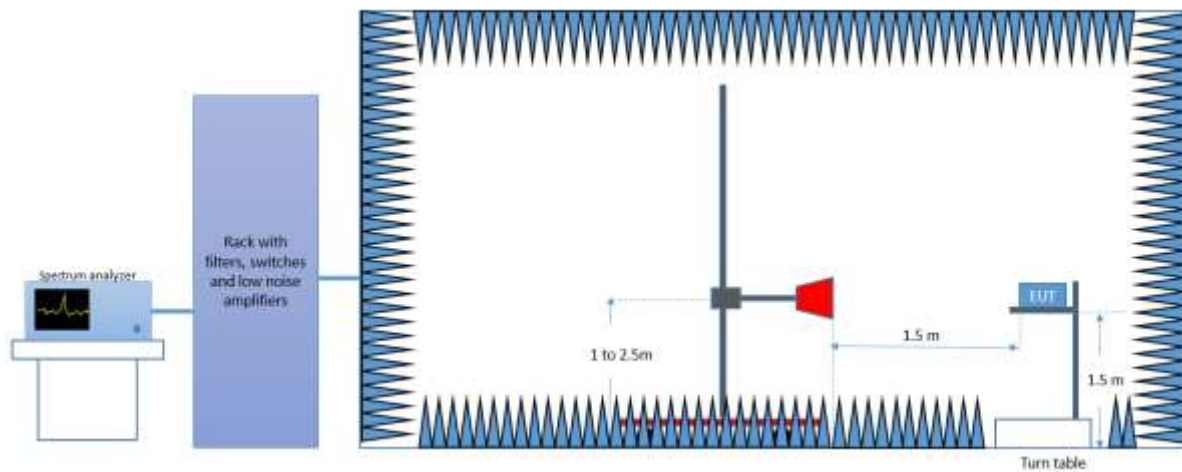
### Radiated Setup < 1GHz



### *Radiated Setup 1GHz - 18GHz*



### *Radiated Setup 18 GHz - 25 GHz*



## A.2 Test Equipment List

### Conducted Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0316	Spectrum analyzer	FSV30	103309	Rohde & Schwarz	2015-03-20	2017-03-20

### Radiated Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2016-04-15	2018-04-15
0258	Spectrum analyzer	FSV30	101318	Rohde & Schwarz	2016-04-27	2018-04-27
0310	Spectrum analyzer	FSV40	101425	Rohde & Schwarz	2015-03-25	2017-03-25
0137	Log antenna 30 MHz – 1 GHz	3142E	00156946	ETS Lindgren	2015-12-11	2017-12-11
0138	Horn antenna 1 GHz – 6.4 GHz	3117	00157734	ETS Lindgren	2016-03-14	2018-03-14
0343	Horn Antenna 6.4 GHz – 18 GHz	3117-PA	00201542	ETS Lindgren	2015-07-16	2017-07-16
0334	Horn Antenna 10 GHz – 40 GHz	3116C	00169308	ETS Lindgren	2015-07-15	2017-07-15
0139	Horn Antenna 18 GHz - 26.5 GHz	114514	00167100	ETS Lindgren	2014-08-14	2016-08-14
0135	Semi Anechoic chamber	FACT 3	5720	ETS Lindgren	2016-04-13	2016-05-28
0337	Full Anechoic chamber	RFD_FA_100	5996	ETS Lindgren	2015-09-08	2017-09-08
0329	Measurement Software	EMC32	1300.7027.00 (100401)	Rohde & Schwarz	N/A	N/A
N/A	Measurement Software	EMC32	012109650000013B (009977)	Rohde & Schwarz	N/A	N/A

## A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty [ $\pm$ dB]
Conducted Power (power meter)	$\pm 1.0$
Conducted spurious emission	$\pm 2.9$
Radiated test < 1GHz	$\pm 3.8$
Radiated test 1GHz -26 GHz	$\pm 4.7$



# Annex B. Test Results

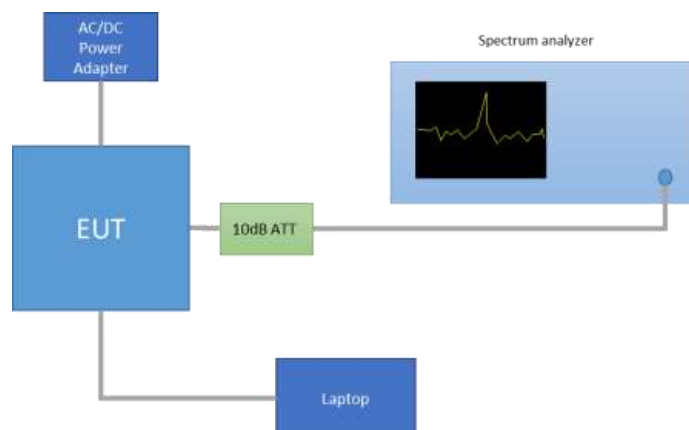
## B.1 20dB Bandwidth and Carrier frequency separation

### Test limits:

FCC part	RSS part	Limits
15.247 (a) (1)	RSS-247 Clause 5.1 (1) and (2)	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### Test procedure:

The setup below was used to measure the 20dB Bandwidth and Carrier frequency separation. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



### Results tables:

Mode	Channel Number	Frequency [MHz]	20dB BW [MHz]	Freq. Separation [kHz]
Basic Rate GFSK	0	2402	0.838	1000
	39	2441	0.839	
	78	2480	0.841	
EDR $\pi/4$ -DQPSK	0	2402	1.423	1000
	39	2441	1.428	
	78	2480	1.430	
EDR 8-DPSK	0	2402	1.424	1000
	39	2441	1.423	
	78	2480	1.425	

# Results screenshot:

## Basic Rate - GFSK

### 20dB BW - CH0

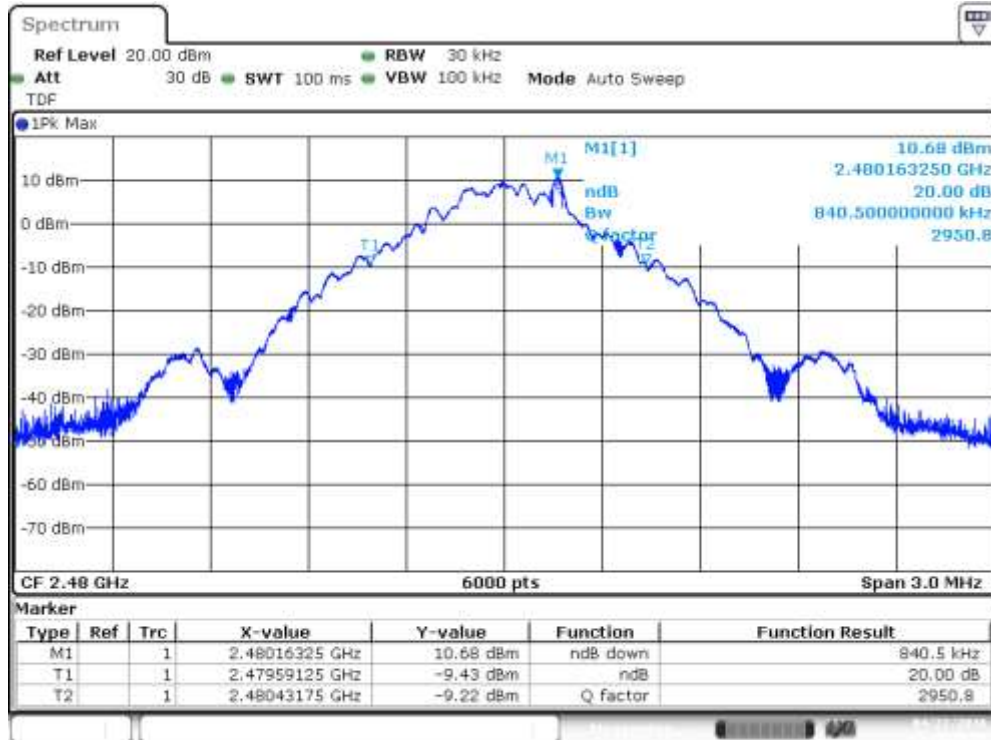


### 20dB BW - CH39

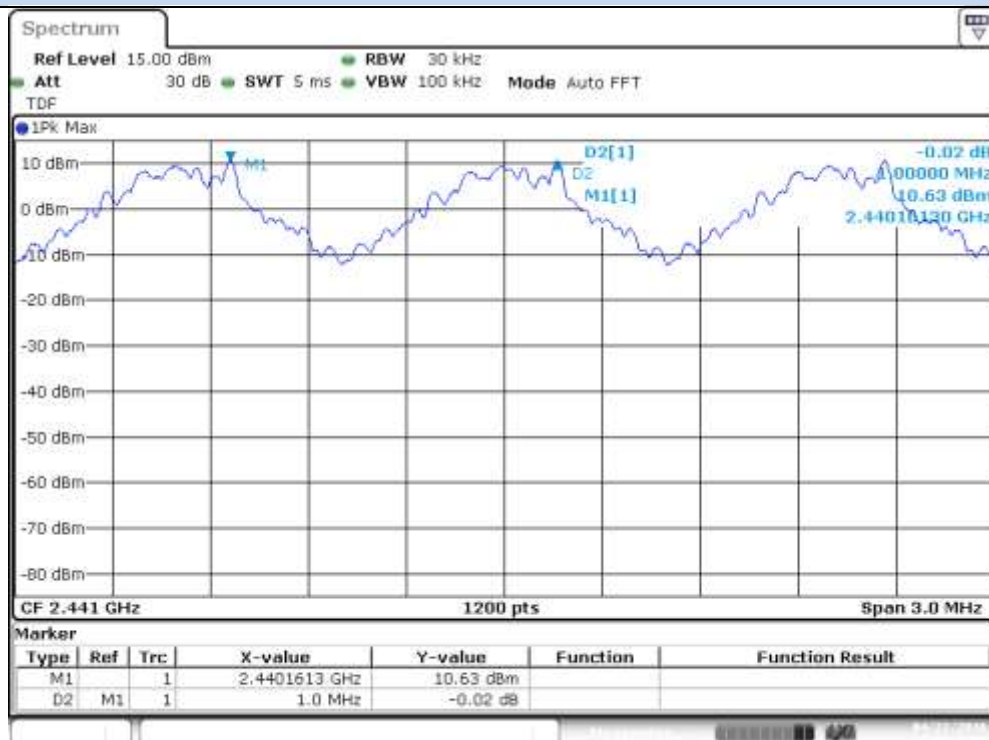


Date: 22/APR/2016 17:17:29

## 20dB BW - CH78



## Freq. Separation



Date: 22 APR 2016 16:43:16

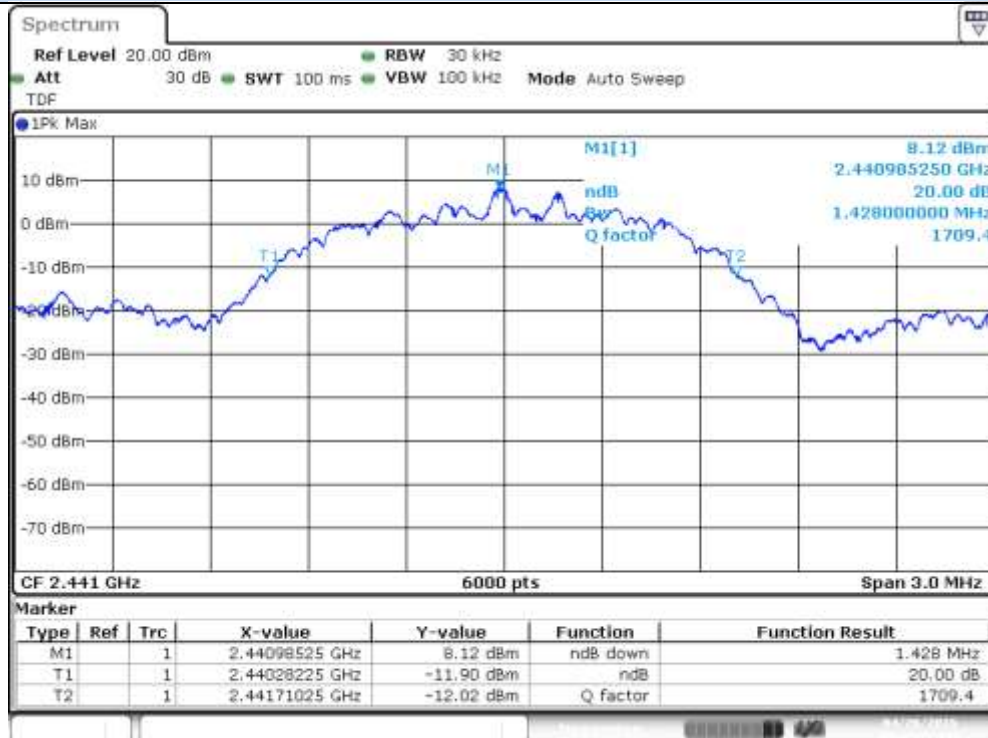
## EDR – $\pi/4$ -DQPSK

### 20dB BW - CH0



Date: 26.APR.2016 09:42:25

### 20dB BW - CH39



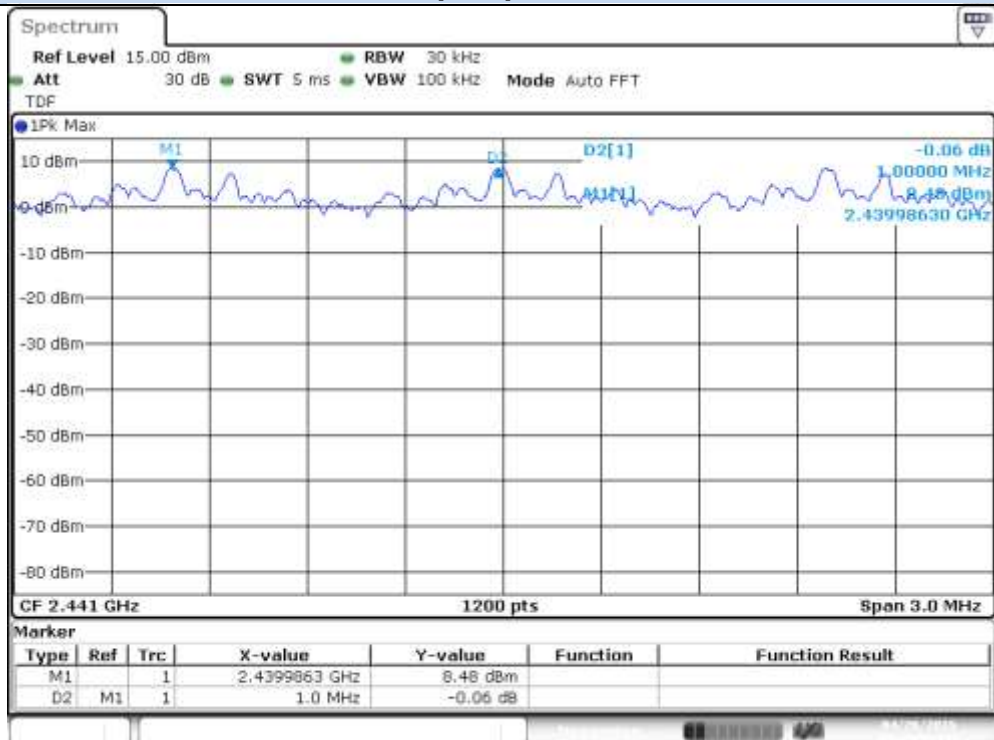
Date: 26.APR.2016 09:57:17

## 20dB BW - CH78



Date: 26.APR.2016 09:45:27

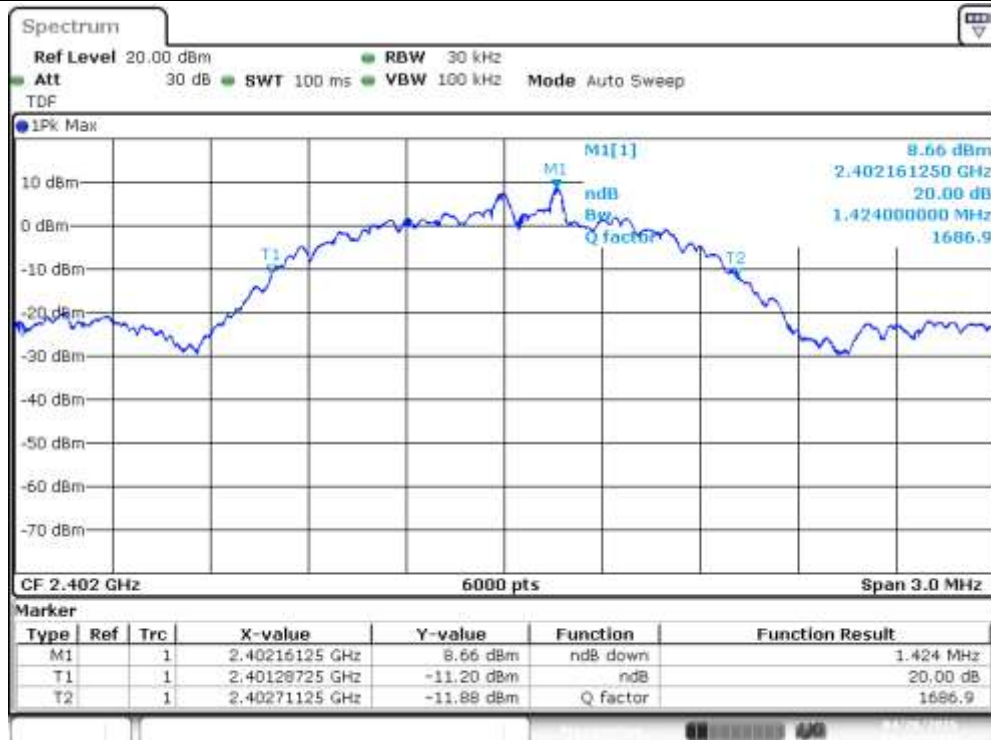
## Freq. Separation



Date: 26.APR.2016 09:09:58

## EDR – 8-DPSK

### 20dB BW - CH0



Date: 26 APR.2016 12:16:16

### 20dB BW - CH39



Date: 26 APR.2016 12:17:22

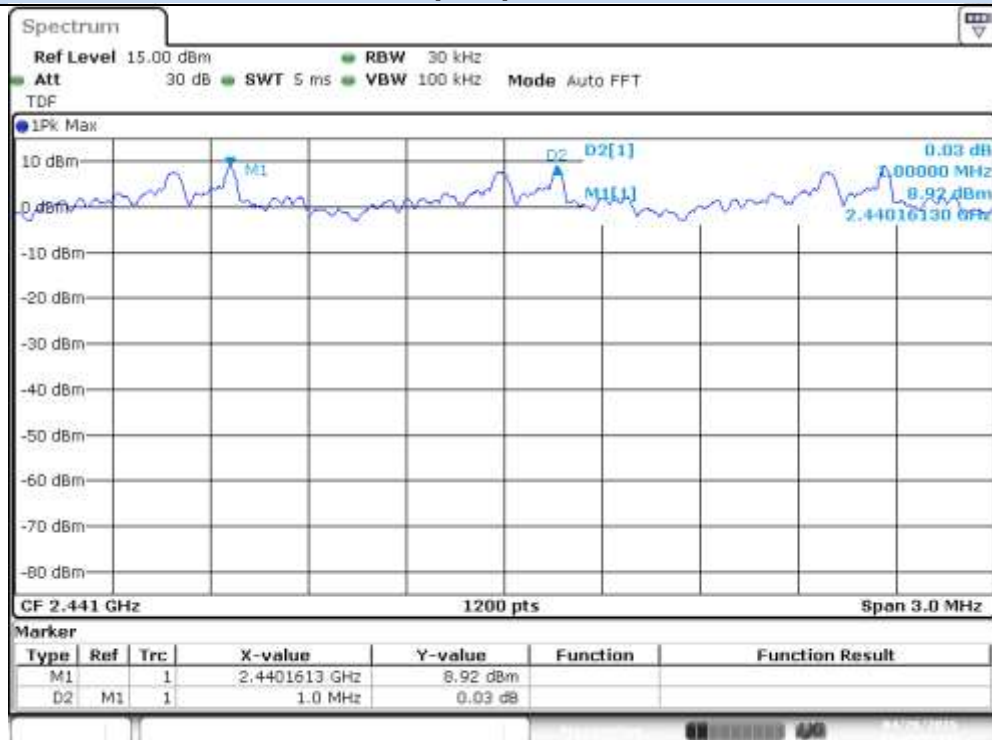


## 20dB BW - CH78



Date: 26.APR.2016 12:18:17

## Freq. Separation



Date: 26.APR.2016 12:09:03

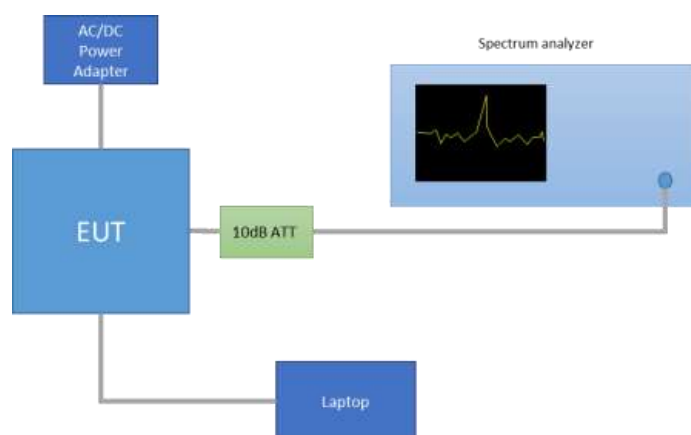
## B.2 Number of hopping channels

### Test limits:

FCC part	RSS part	Limits
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

### Test procedure:

The setup below was used to measure the number of hopping channels. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



### Results tables:

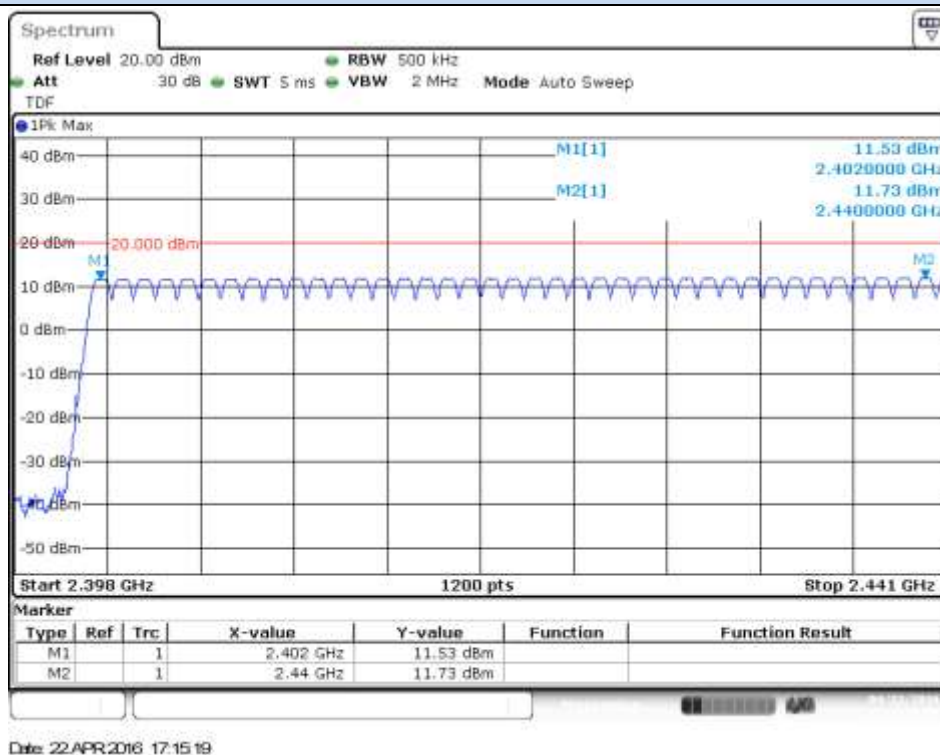
Mode	Number of hopping channels
Basic Rate GFSK	79
EDR $\pi/4$ -DQPSK	79
EDR 8-DPSK	79



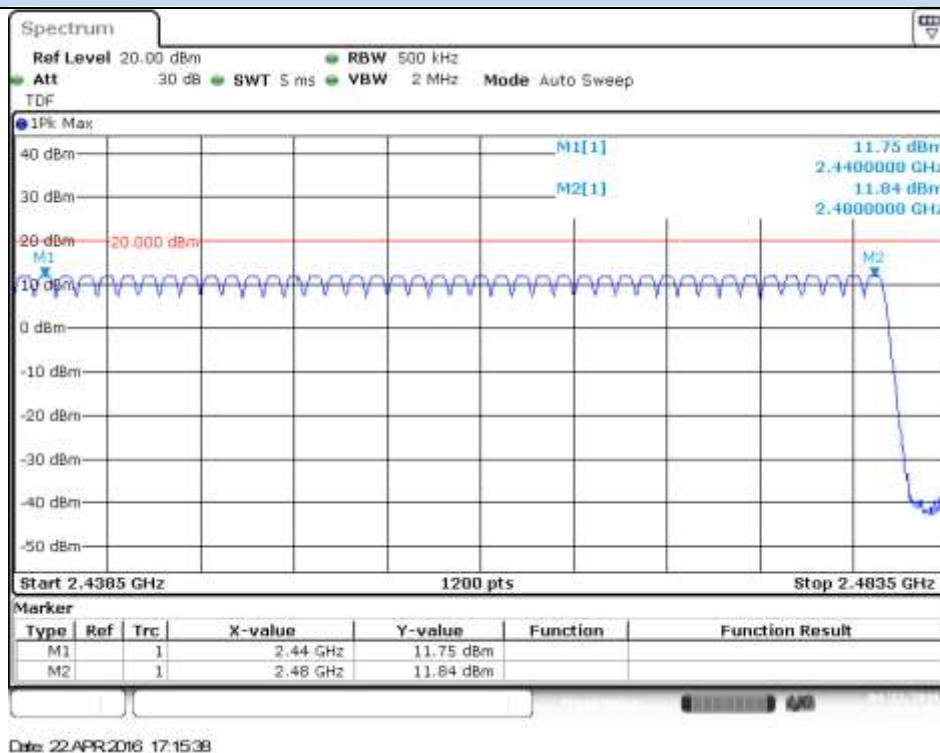
# Results screenshot:

## Number of hopping channels

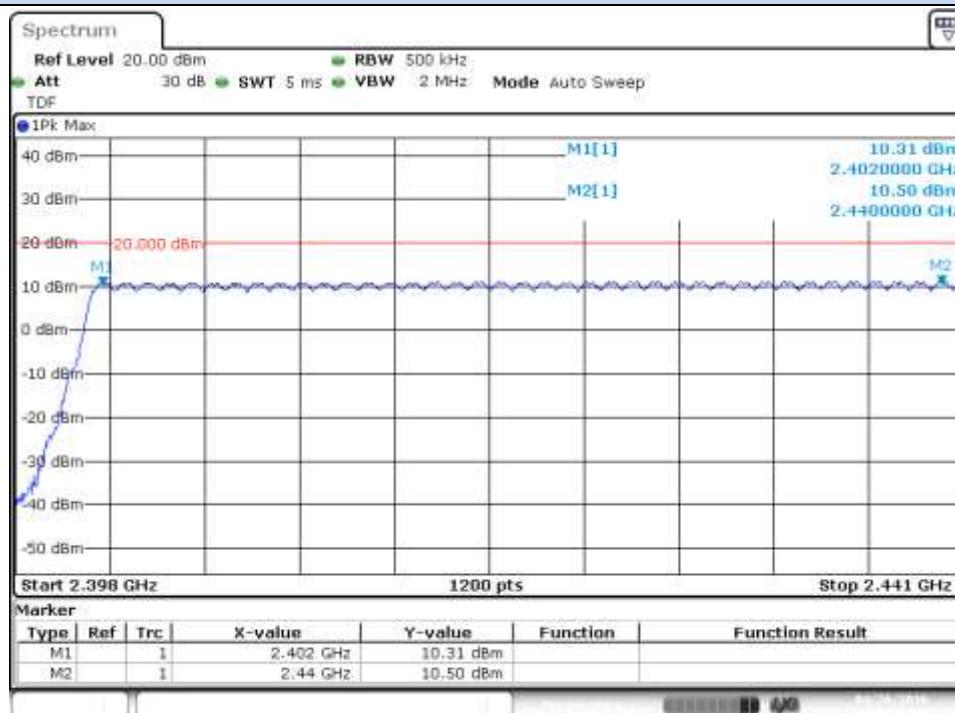
### Basic Rate - GFSK



### Basic Rate - GFSK

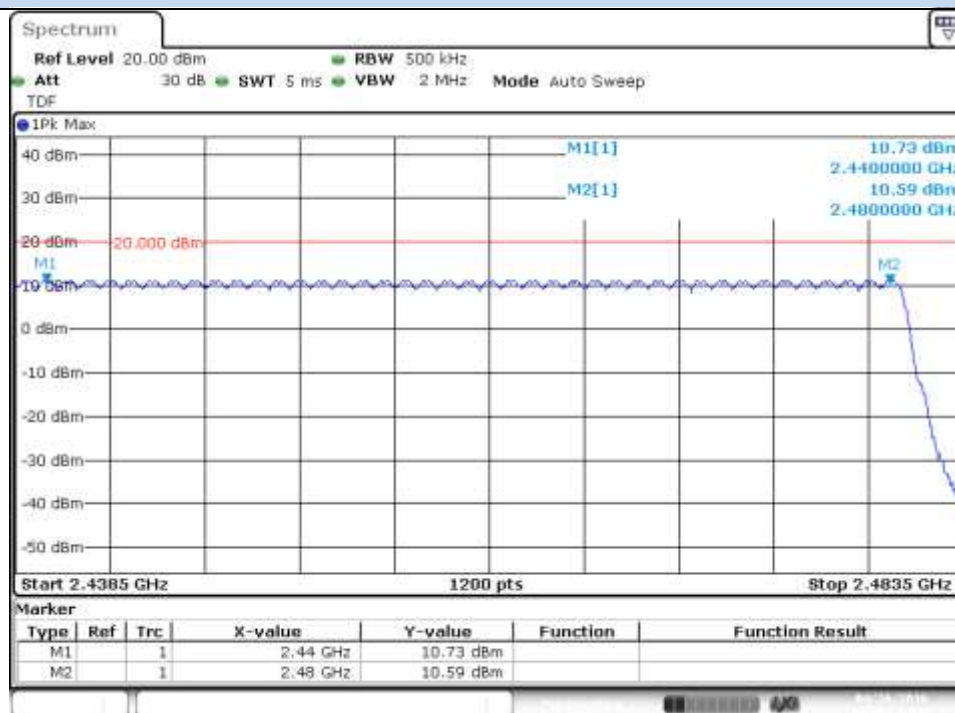


## EDR – $\pi/4$ -DQPSK



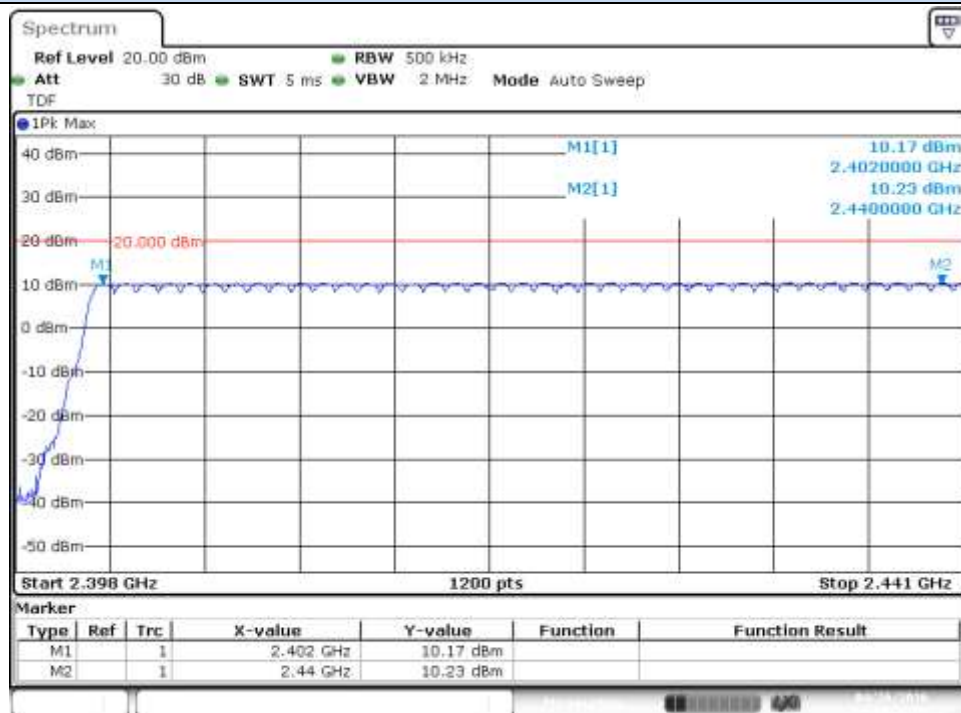
Date: 26.APR.2016 09:17:19

## EDR – $\pi/4$ -DQPSK

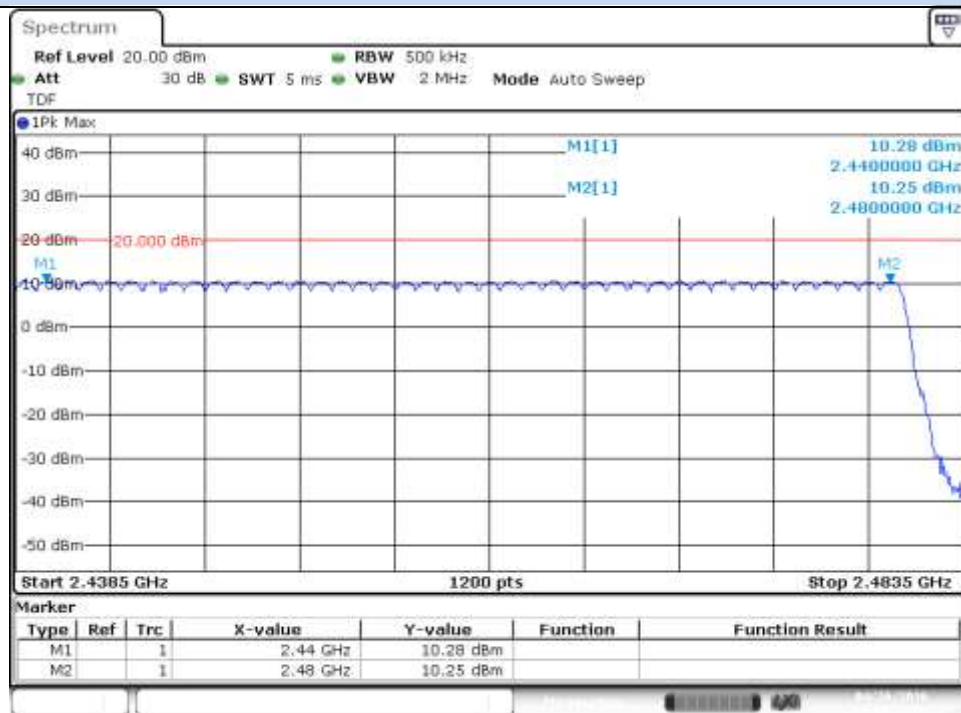


Date: 26.APR.2016 09:17:50

## EDR – 8-DPSK



## EDR – 8-DPSK



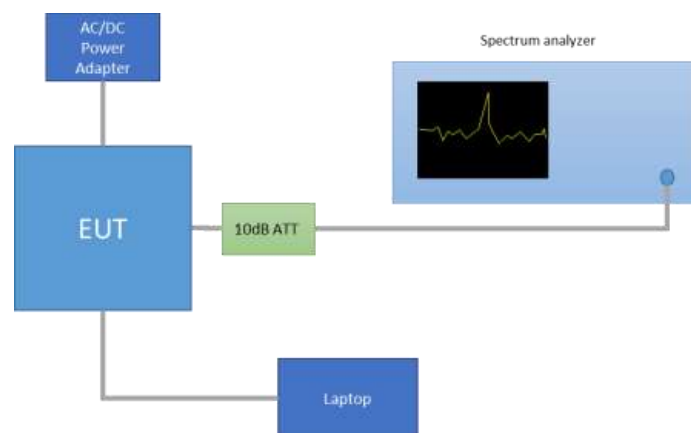
### B.3 Time of Occupancy (Dwell Time)

#### Test limits:

FCC part	RSS part	Limits
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	The average time of occupancy (Dwell Time) on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

#### Test procedure:

The setup below was used to measure the dwell time. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



In the worst case, the system makes 1600 hops per second with 79 channels, providing a 1 timeslot length of 625μs.

A DH1 packet, with independence of the modulation, needs 1 time slot for transmitting and 1 time slot for receiving. Then, the system makes in the worst case  $1600/2 = 800$  hops per second with 79 channels. So each channel appears  $800/79 = 10.13$  times per second and, for a period of  $0.4 \times 79 = 31.6$  seconds, each channel appears  $10.13 \times 31.6 = 320.11$  times.

A DH3 packet, with independence of the modulation, needs 3 time slots for transmitting and 1 time slot for receiving. Then, the system makes in the worst case  $1600/4 = 400$  hops per second with 79 channels. So each channel appears  $400/79 = 5.1$  times per second and, for a period of  $0.4 \times 79 = 31.6$  seconds, each channel appears  $5.1 \times 31.6 = 161.16$  times.

A DH5 packet, with independence of the modulation, needs 5 time slots for transmitting and 1 time slot for receiving. Then, the system makes in the worst case  $1600/6 = 266.67$  hops per second with 79 channels. So each channel appears  $266.67/79 = 3.37$  times per second and, for a period of  $0.4 \times 79 = 31.6$  seconds, each channel appears  $3.37 \times 31.6 = 106.49$  times.

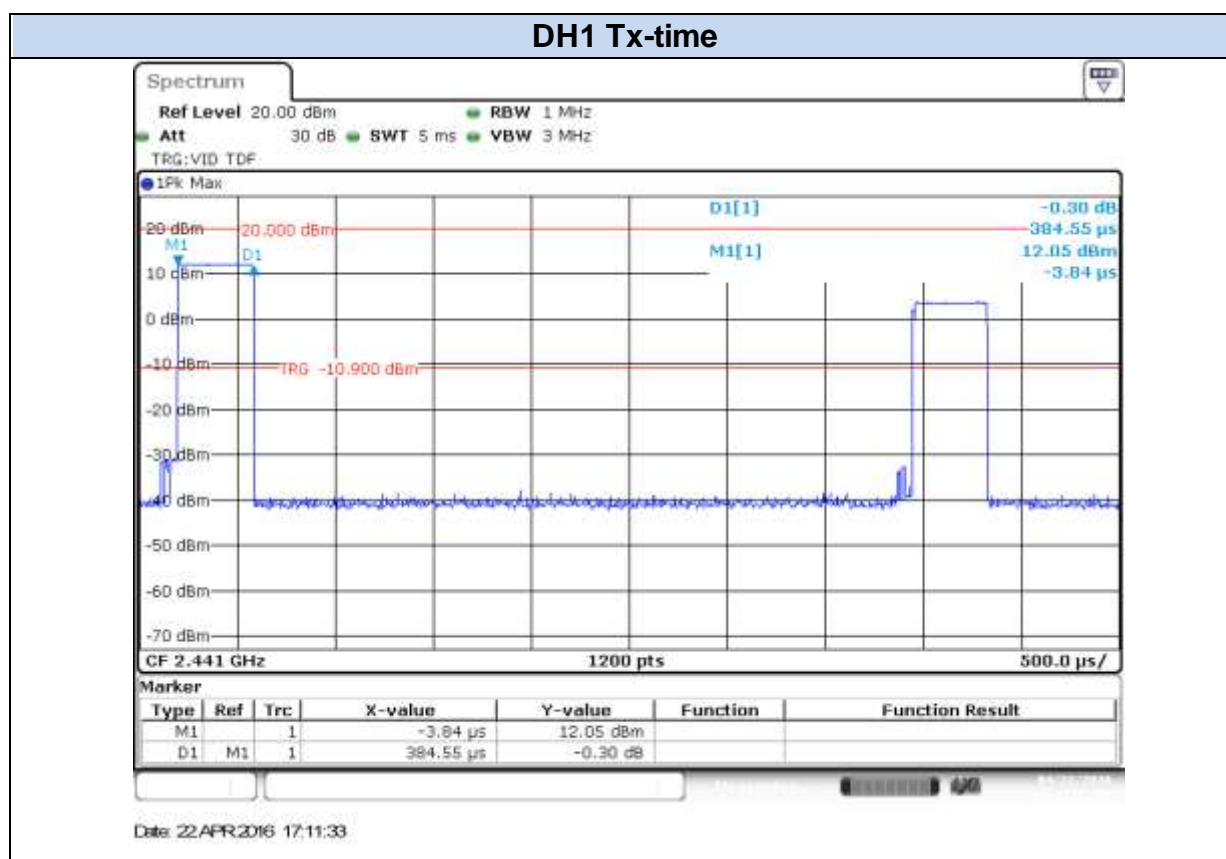
Thus, the total time of occupancy is obtained by multiplying the calculated maximum number of appearances per packet type and the measured Tx-time, as shown in the results screenshots.

### Results tables:

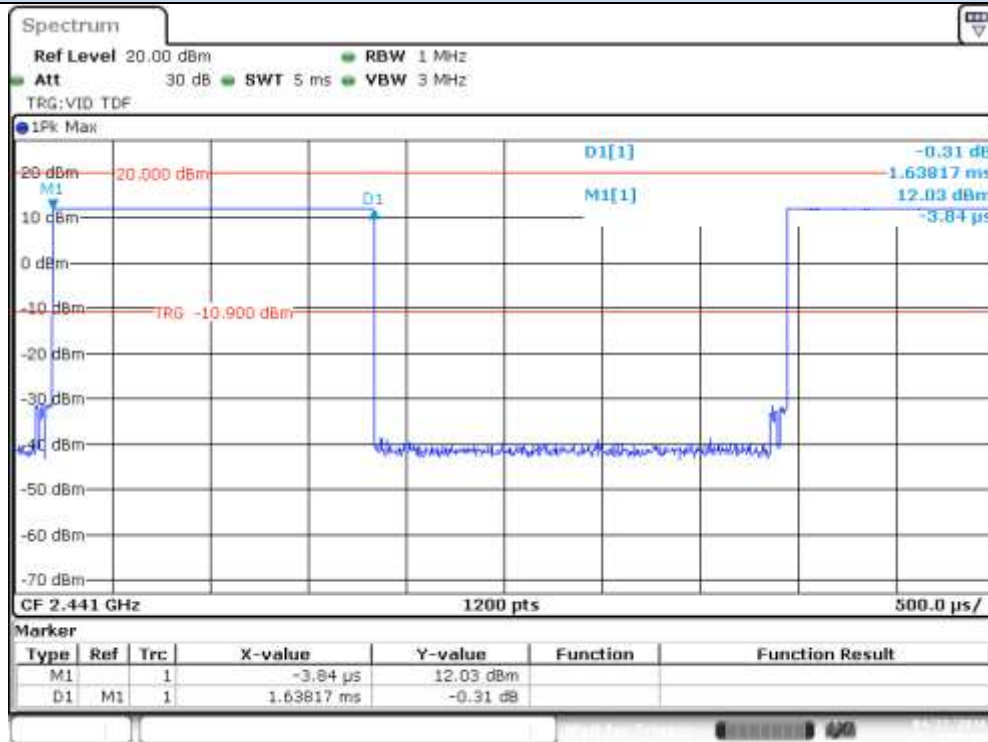
Mode	Packet Type	Times of appearance	Tx-time [ms]	Dwell Time [ms]
Basic Rate GFSK	DH1	320.11	0.385	123.10
	DH3	161.16	1.638	264.01
	DH5	106.49	2.888	307.50
EDR $\pi/4$ -DQPSK	2-DH1	320.11	0.392	125.48
	2-DH3	161.16	1.643	264.79
	2-DH5	106.49	2.890	307.75
EDR 8-DPSK	3-DH1	320.11	0.392	125.48
	3-DH3	161.16	1.643	264.79
	3-DH5	106.49	2.890	307.75

### Results Screenshot:

## BDR – GFSK

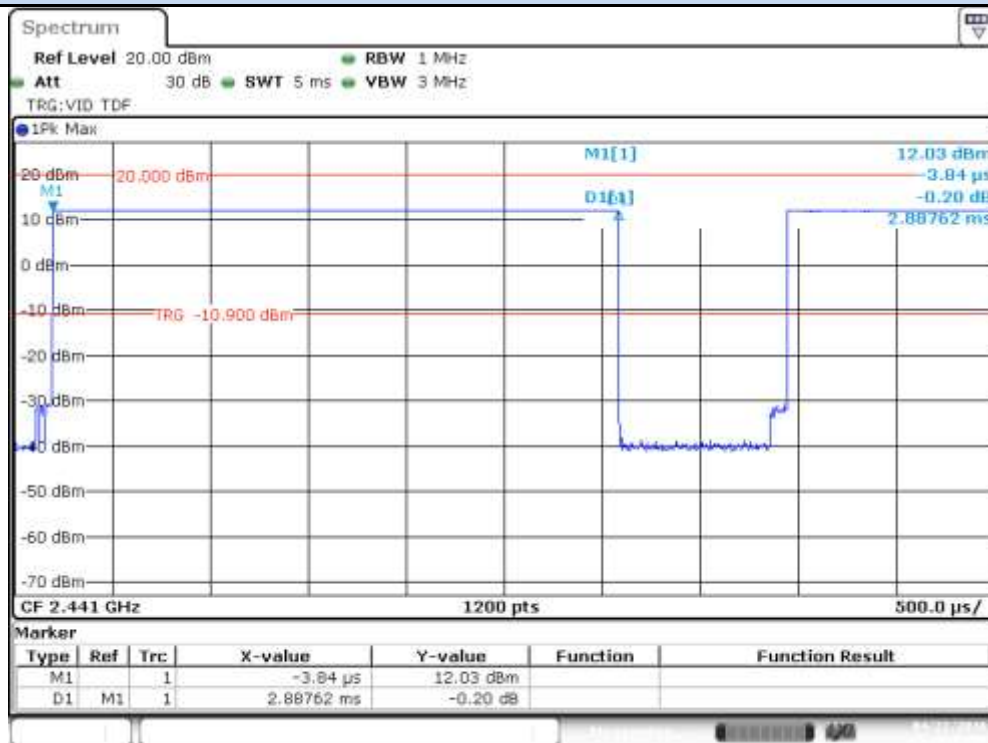


### DH3 Tx-time



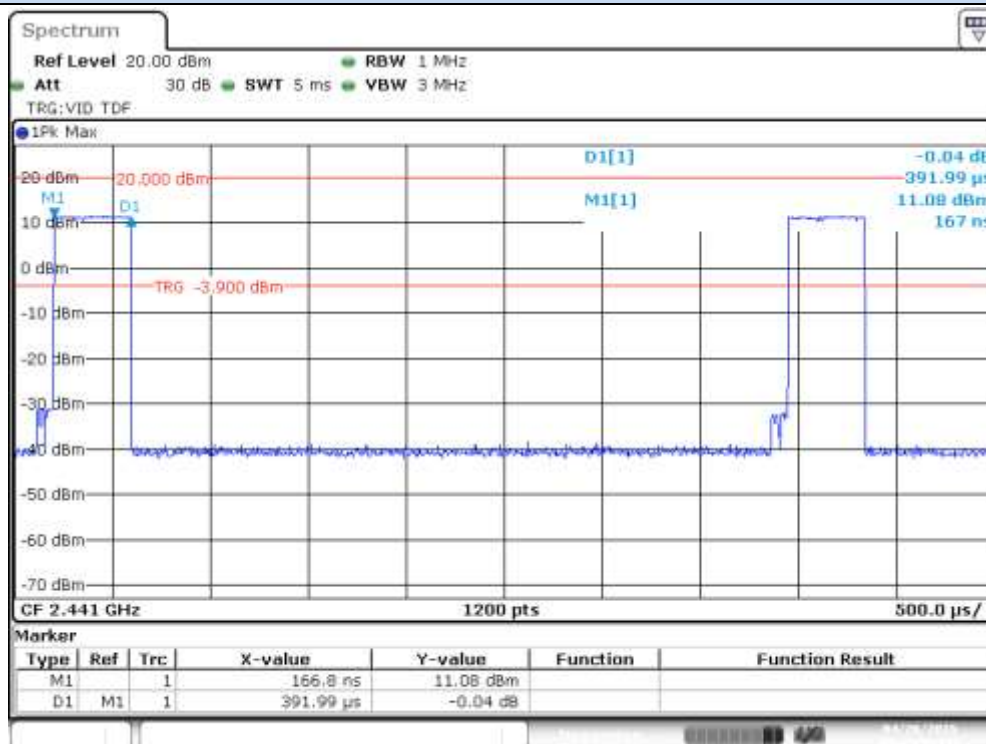
Date: 22 APR 2016 17:13:03

### DH5 Tx-time

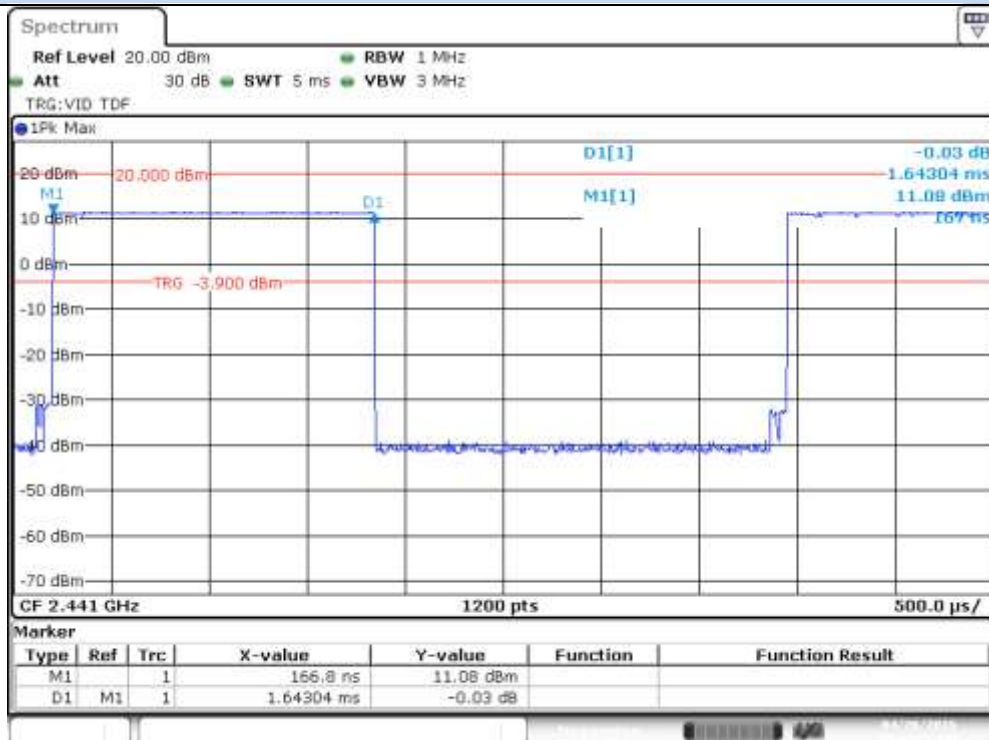


Date: 22 APR 2016 17:14:43

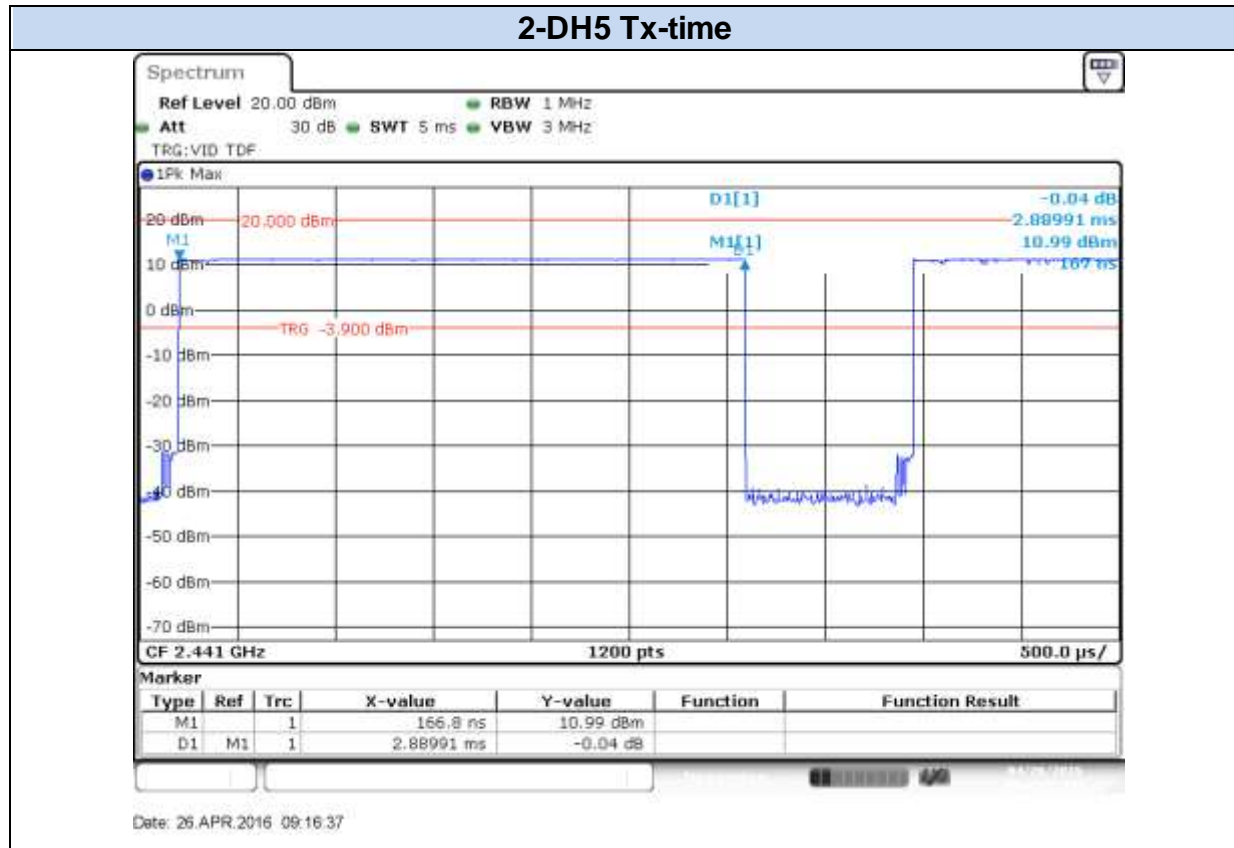


**EDR –  $\pi/4$ -DQPSK****2-DH1 Tx-time**

Date: 26.APR.2016 09:15:18

**2-DH3 Tx-time**

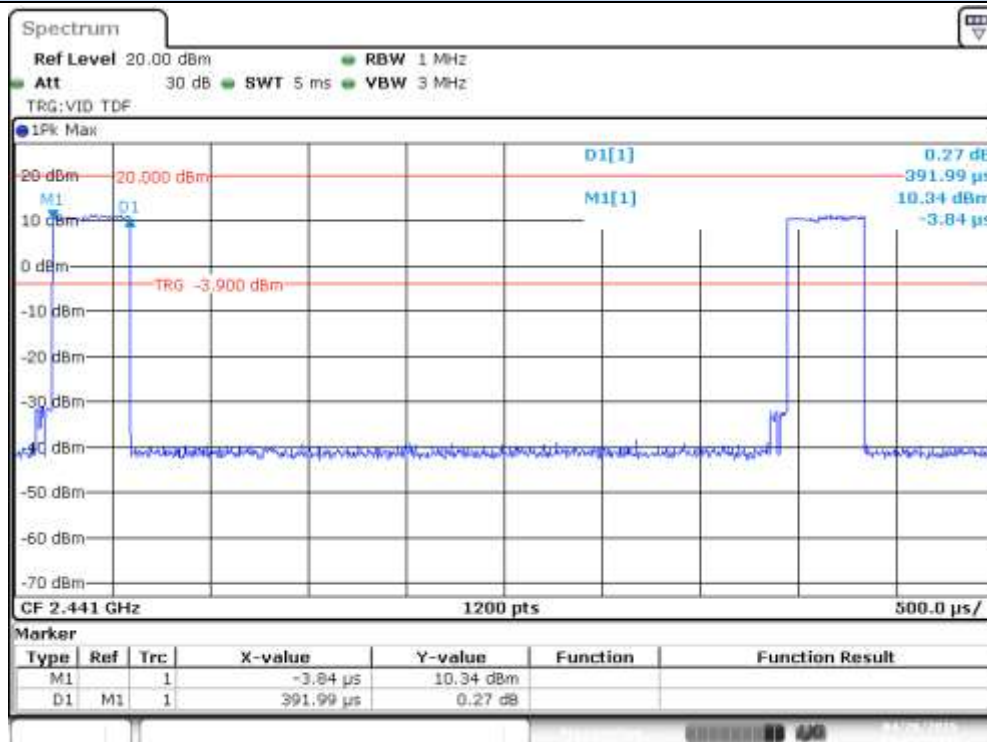
Date: 26.APR.2016 09:14:17





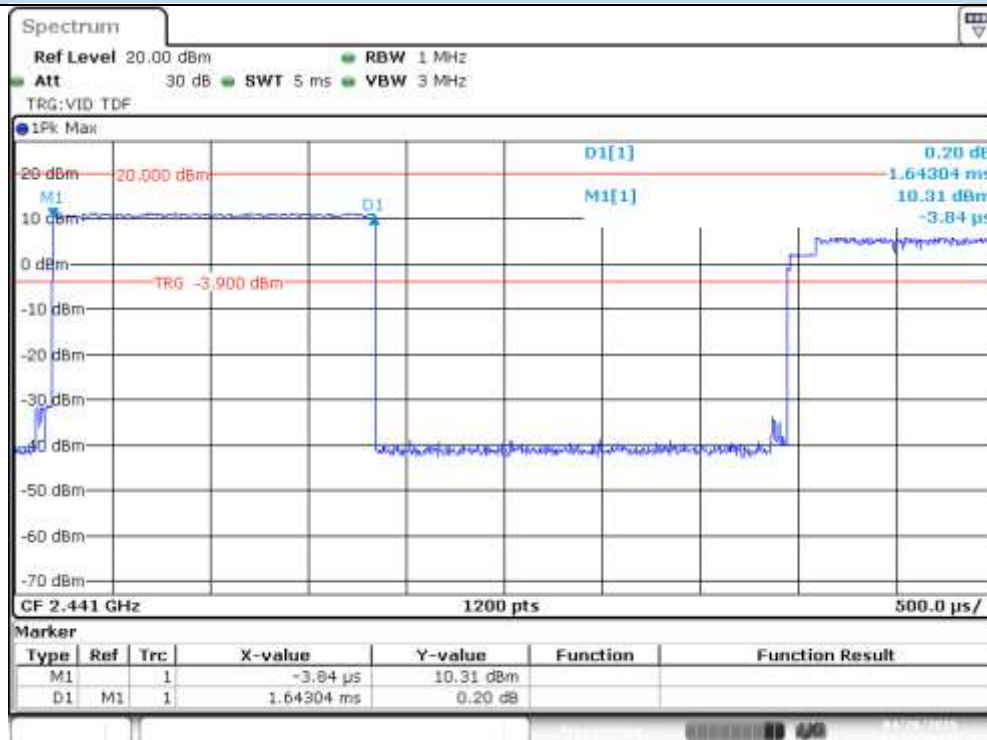
## EDR – 8-DPSK

### 3-DH1 Tx-time

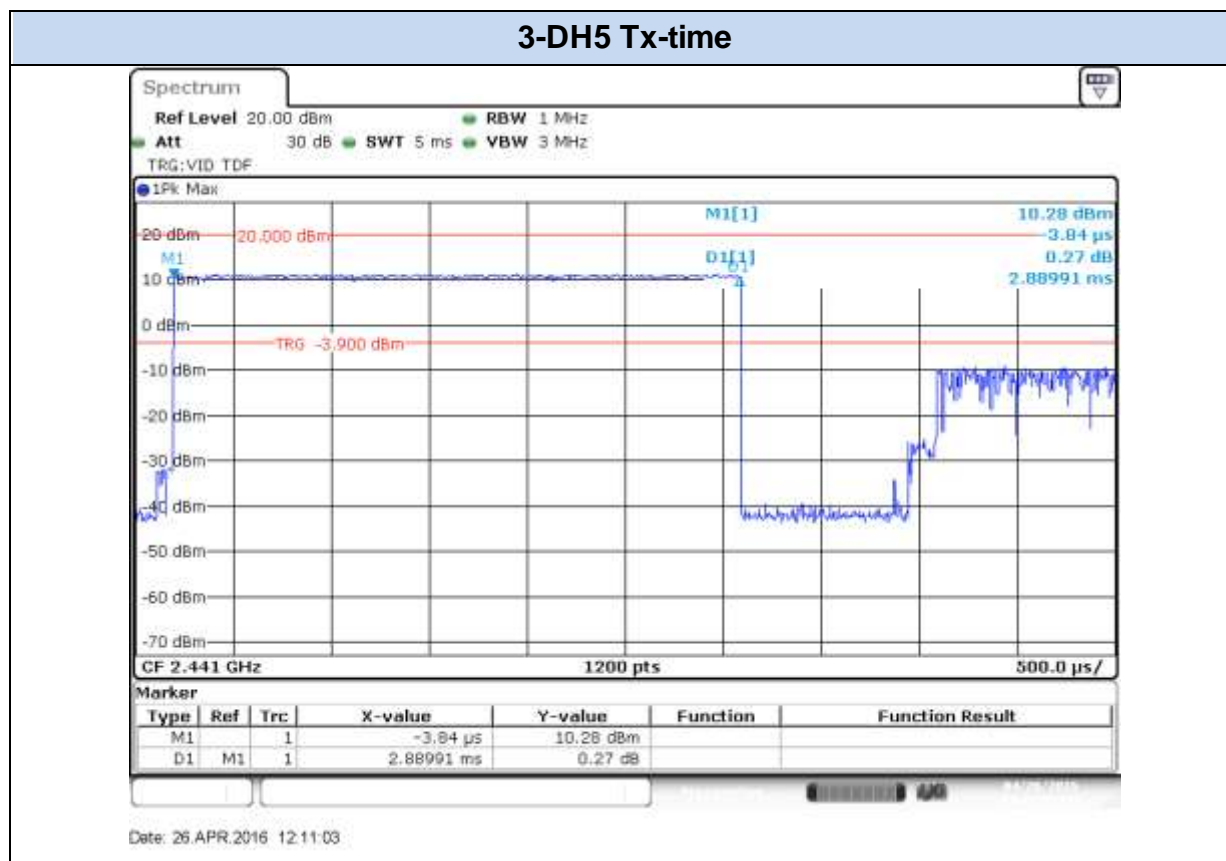


Date: 26.APR.2016 12:12:58

### 3-DH3 Tx-time



Date: 26.APR.2016 12:12:19



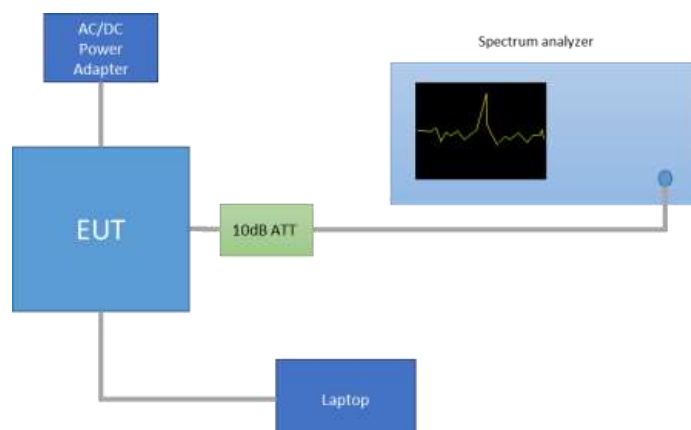
## B.4 Maximum Peak Output Power and antenna gain

### Test limits:

FCC part	RSS part	Limits
15.247 (b) (1)	RSS-247 Clause 5.4 (2)	<p>(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:</p> <p>(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. (...)</p> <p>(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.</p>

### Test procedure:

The setup below was used to measure the maximum peak output power. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



The declared maximum antenna gain is 3dBi.

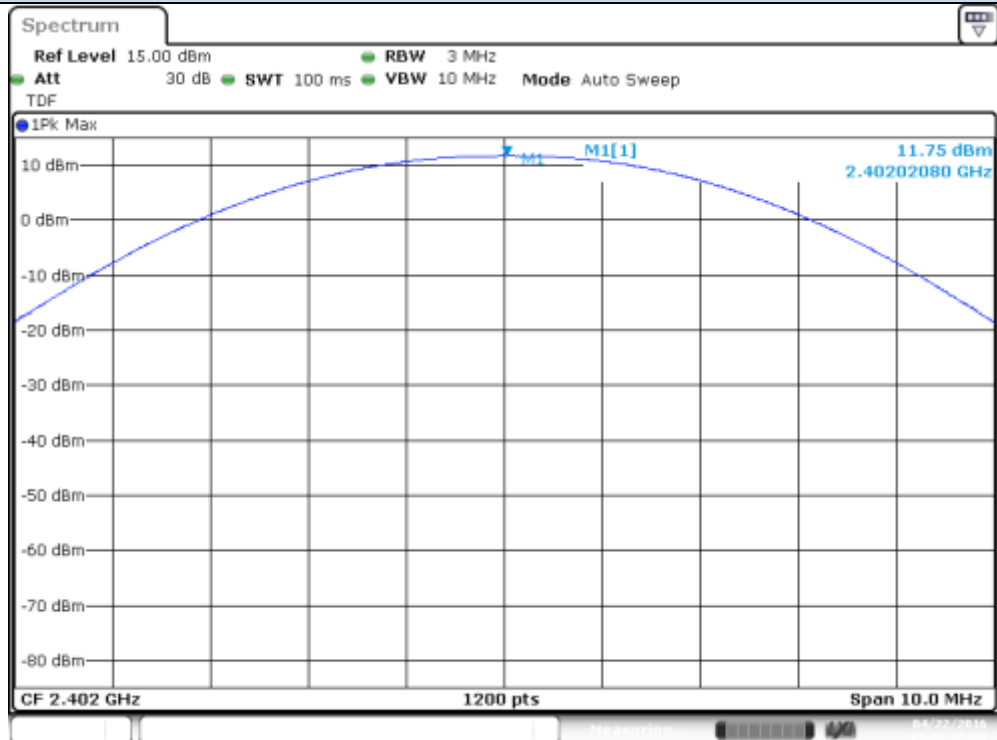
### Results tables:

Mode	Channel Number	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]
Basic Rate GFSK	0	2402	11.75	14.96
	39	2441	12.00	15.85
	78	2480	12.06	16.07
EDR $\pi/4$ -DQPSK	0	2402	11.45	13.96
	39	2441	11.69	14.76
	78	2480	11.75	14.96
EDR 8-DPSK	0	2402	11.16	13.06
	39	2441	11.42	13.87
	78	2480	11.44	13.93

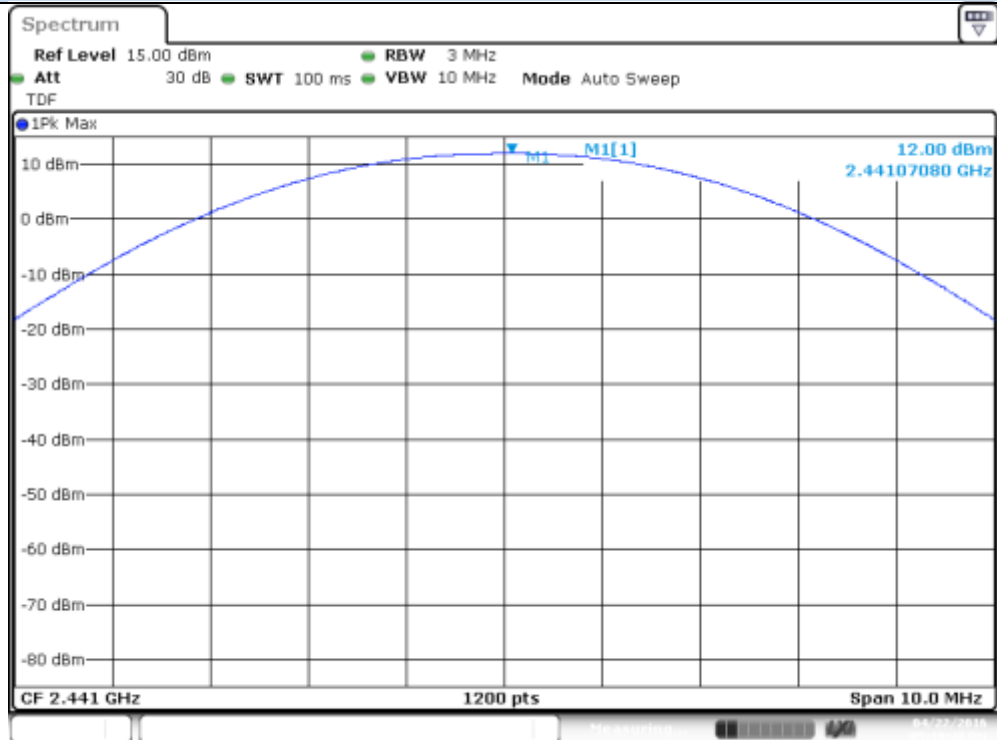
**Results Screenshot:**

## Basic Rate - GFSK

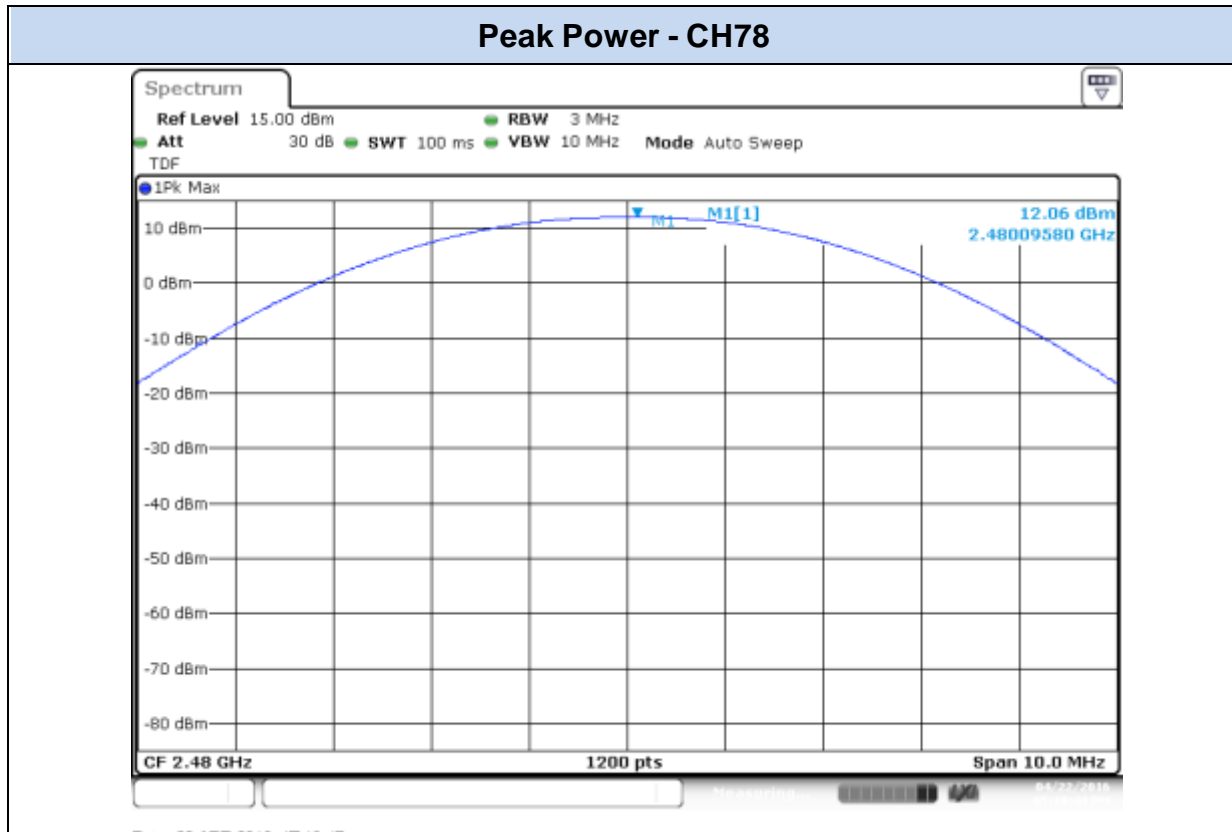
### Peak Power - CH0



### Peak Power - CH39

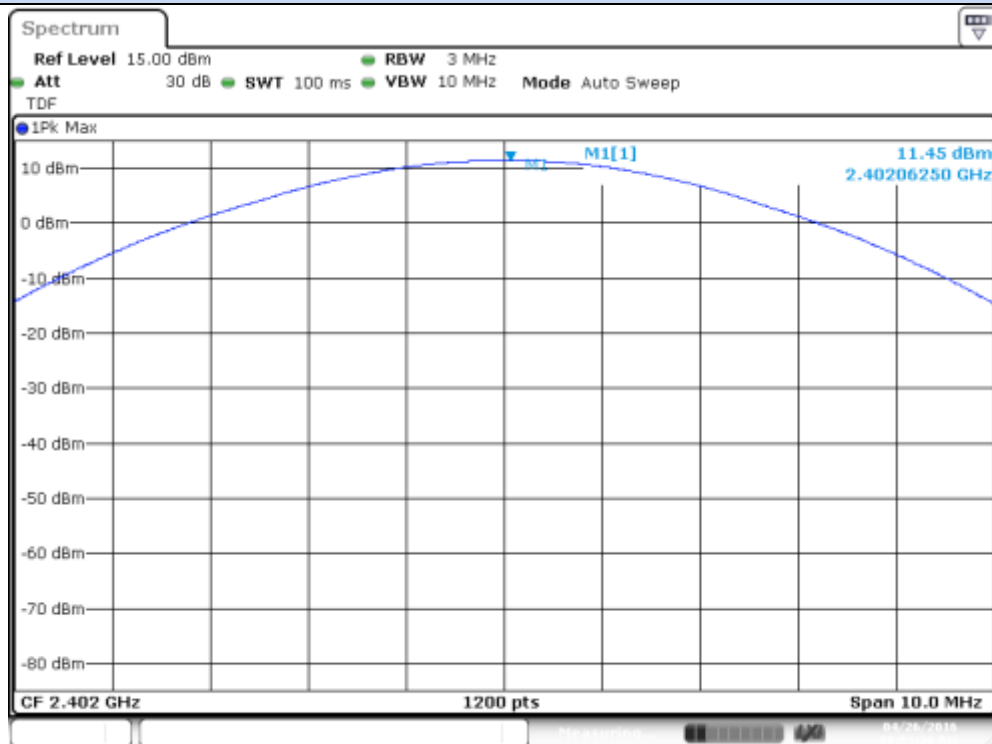


Date: 22 APR 2016 17:19:48

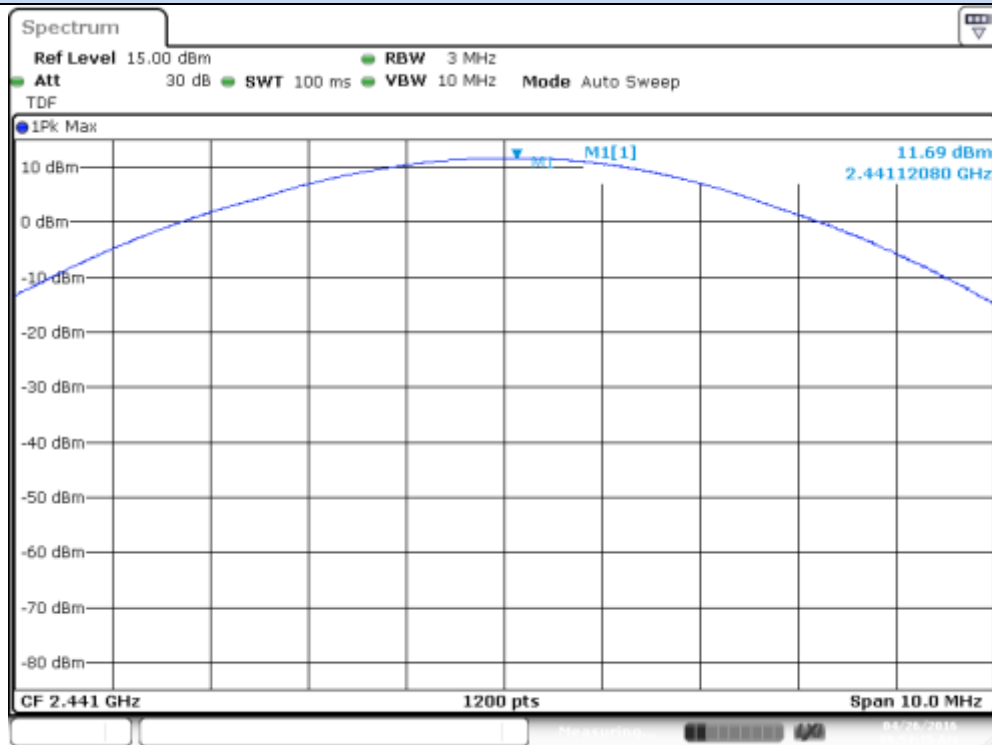


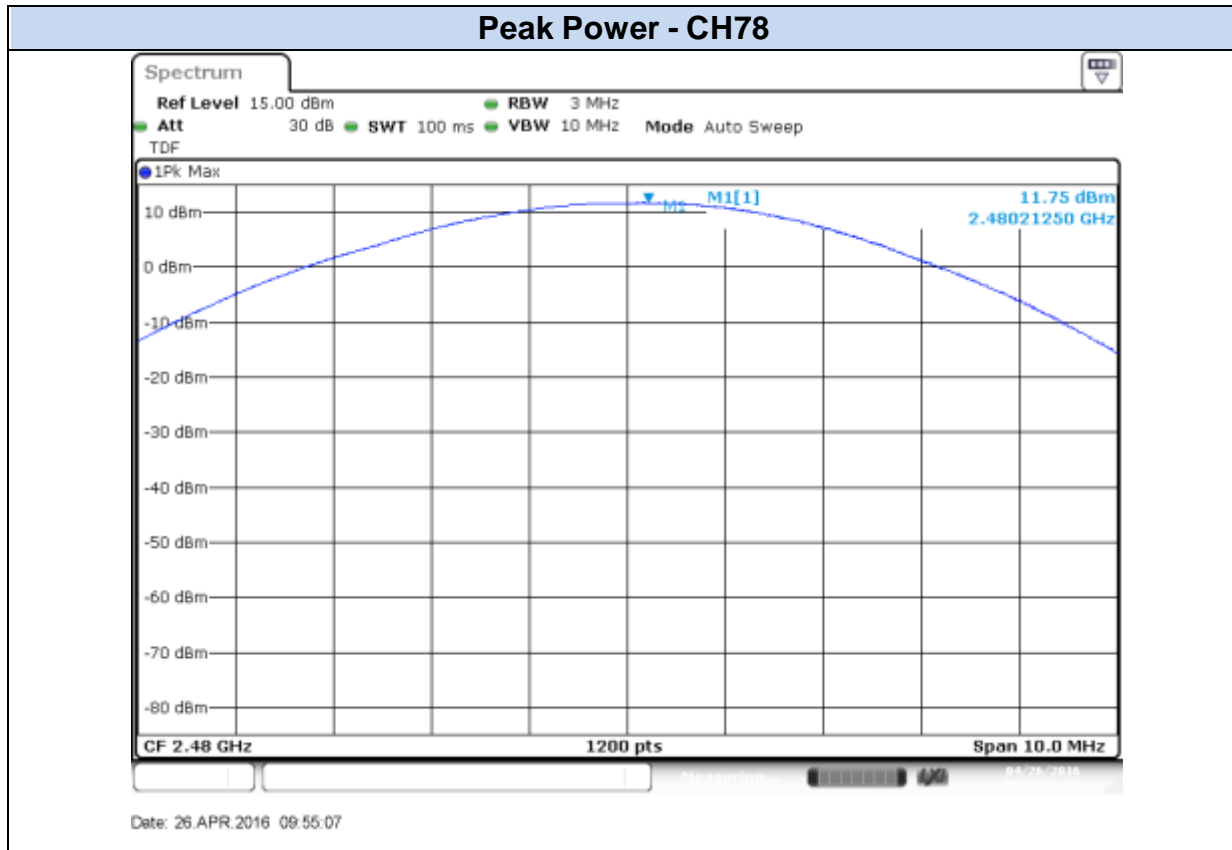
## EDR – $\pi/4$ -DQPSK

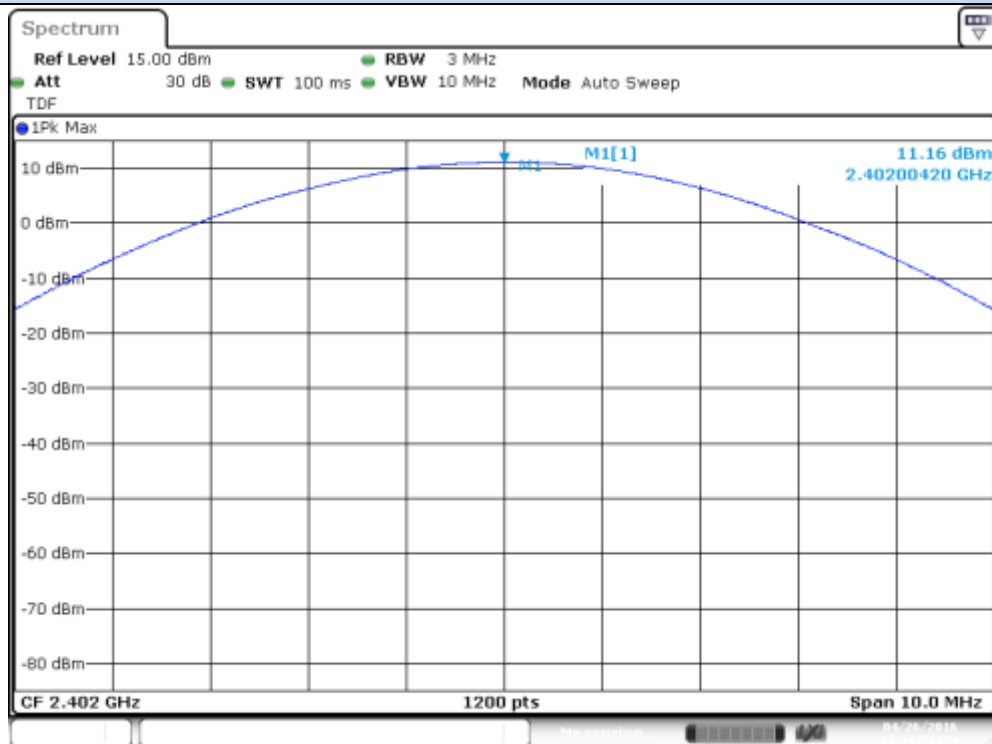
### Peak Power - CH0



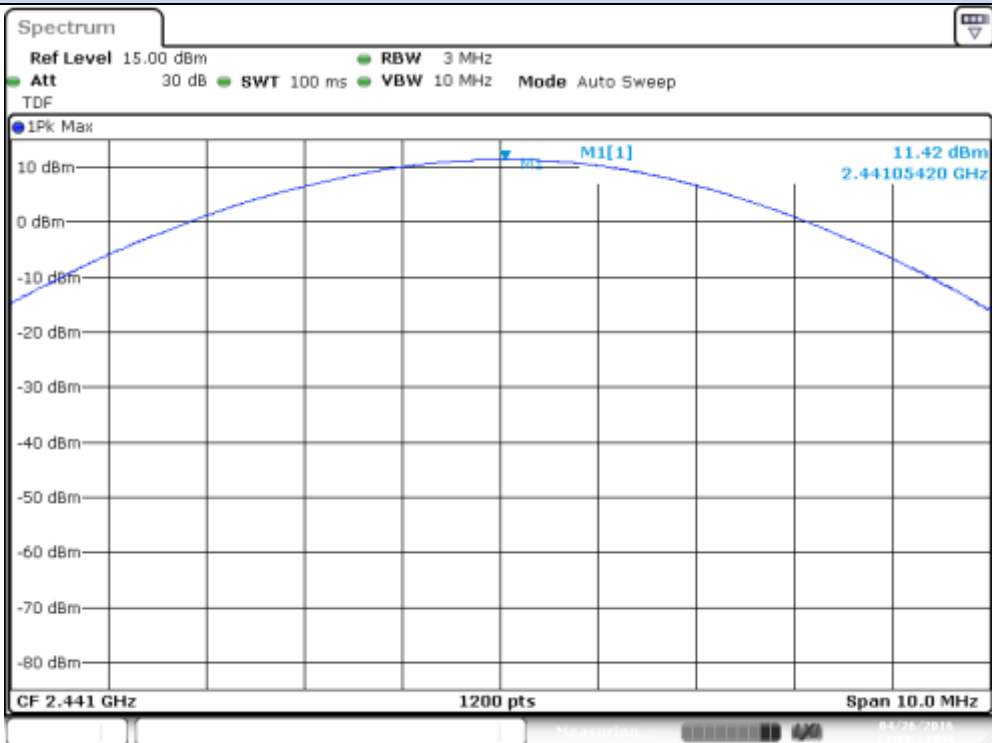
### Peak Power - CH39





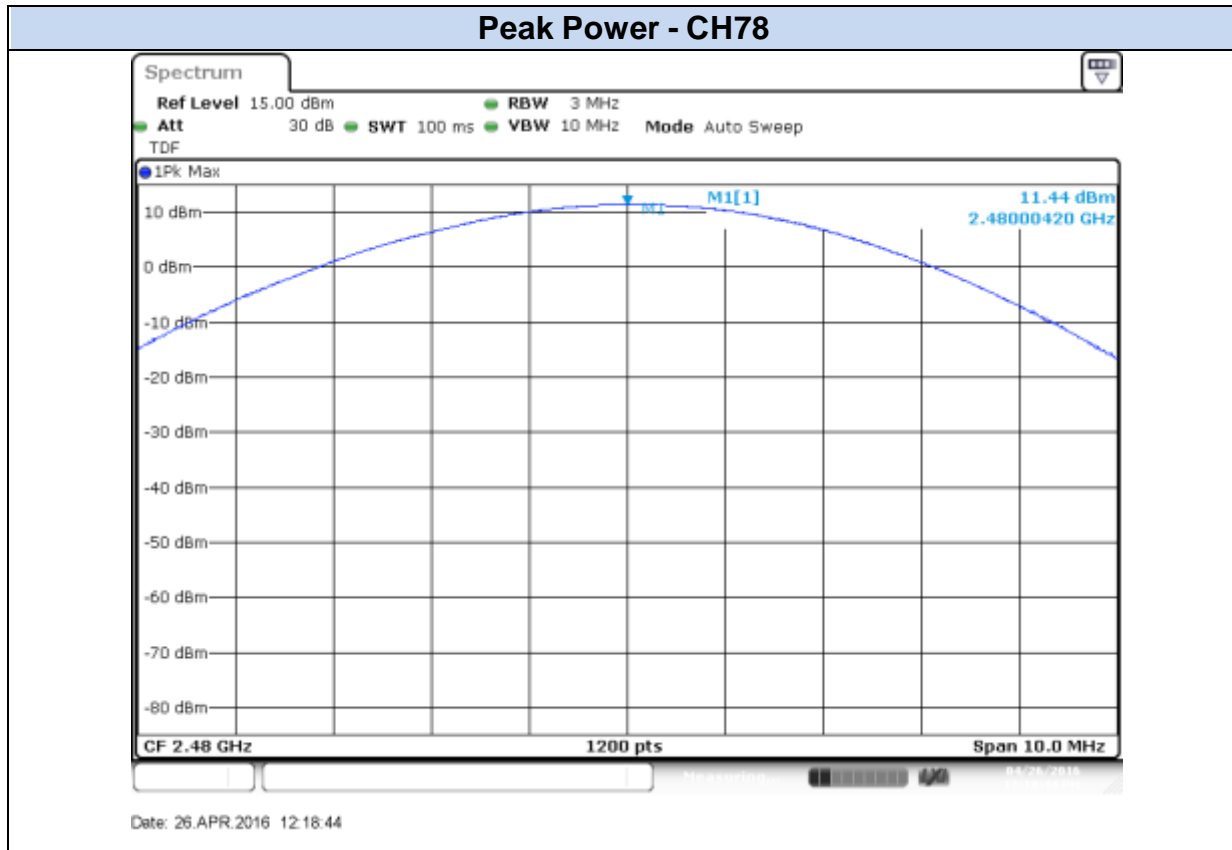
**EDR – 8-DPSK****Peak Power - CH0**

Date: 26.APR.2016 12:19:52

**Peak Power - CH39**

Date: 26.APR.2016 12:19:12





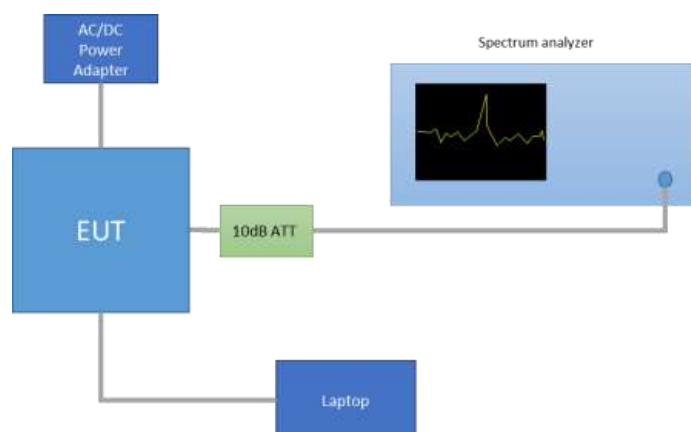
## B.5 Out-of-band emissions (conducted)

### Test limits:

FCC part	RSS part	Limits
15.247 (d)	RSS-247 Clause 5.5	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### Test procedure:

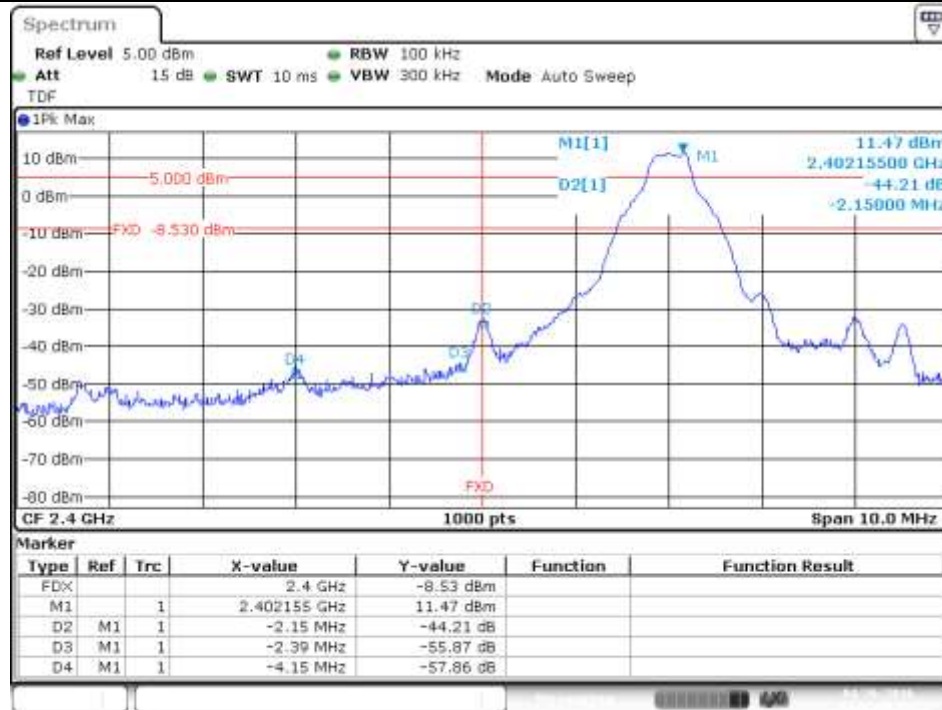
The setup below was used to measure the out-of-band emissions (conducted). The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



# Band Edge results Screenshot:

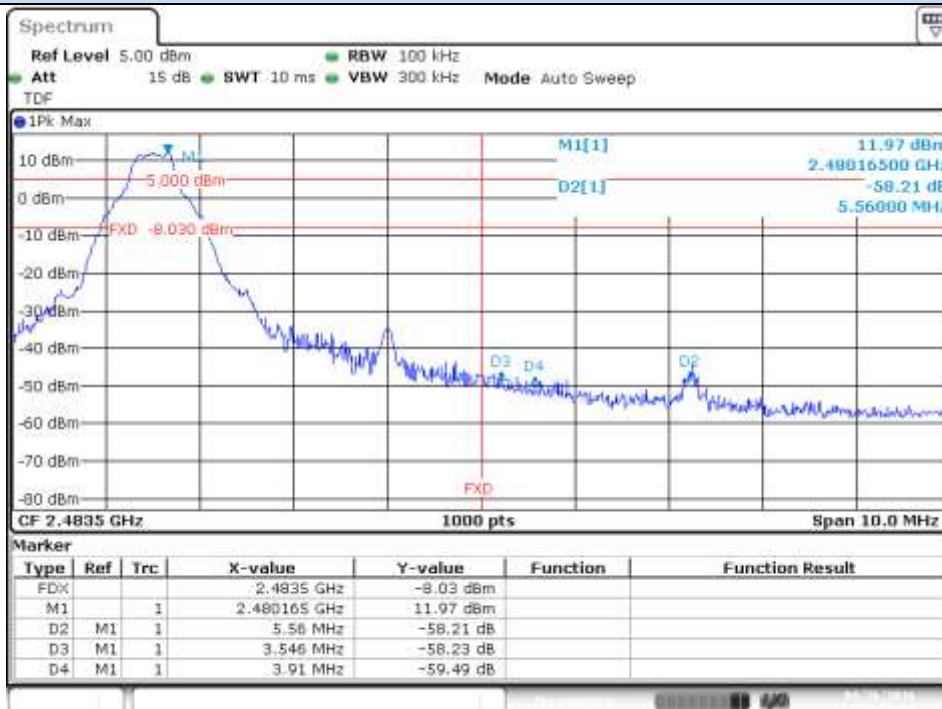
## Basic Rate - GFSK

### BE Low Freq Section - CH0



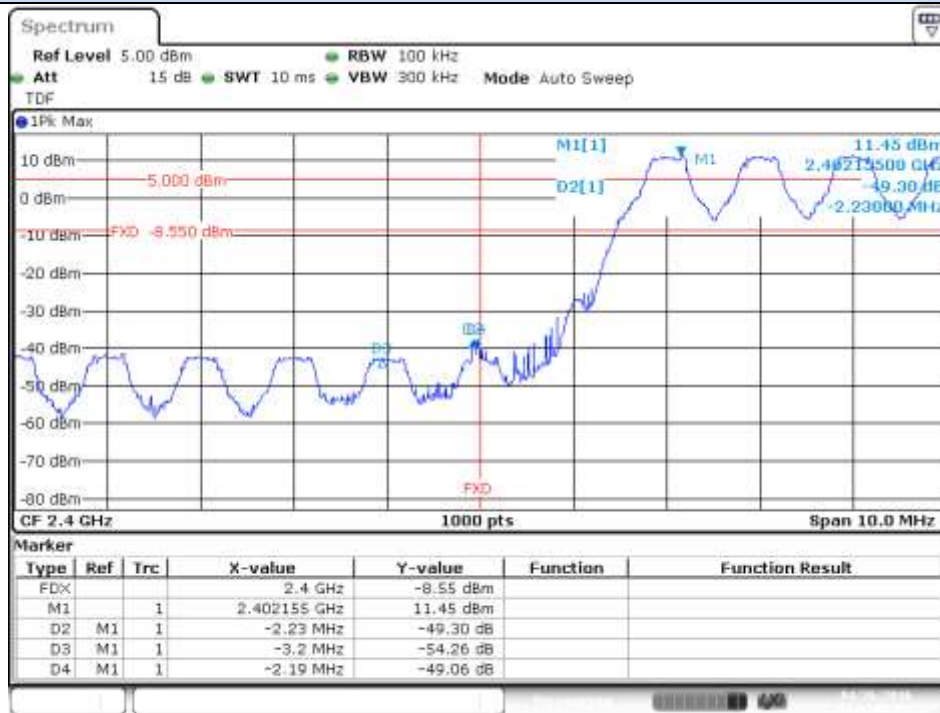
Date: 26.APR.2016 13:37:59

### BE High Freq Section - CH78



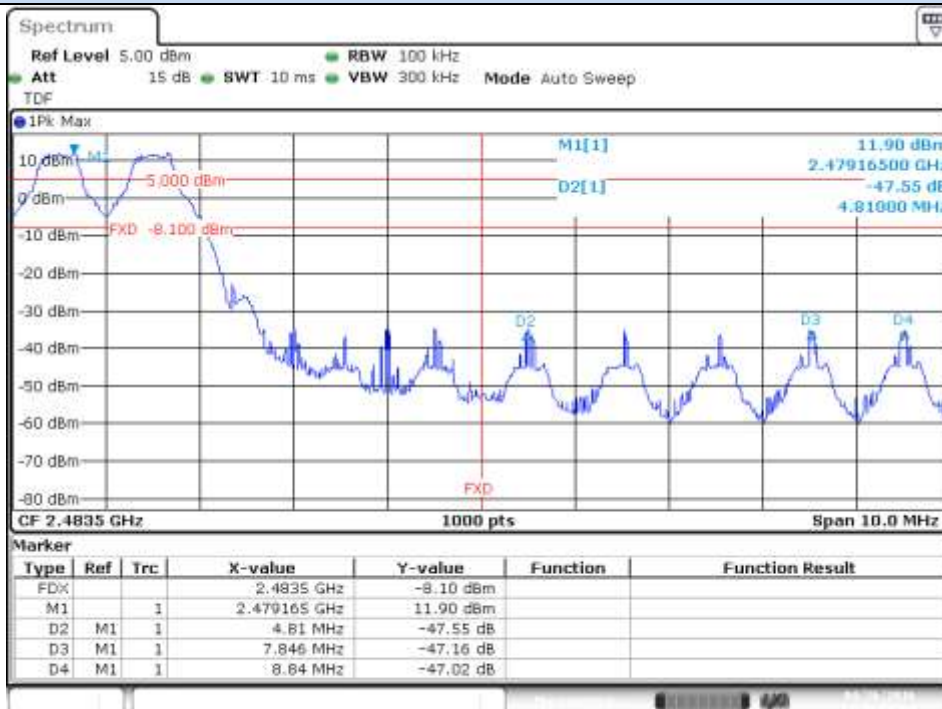
Date: 26.APR.2016 13:51:38

## BE Low Freq Section - Hopping



Date: 26.APR.2016 13:42:51

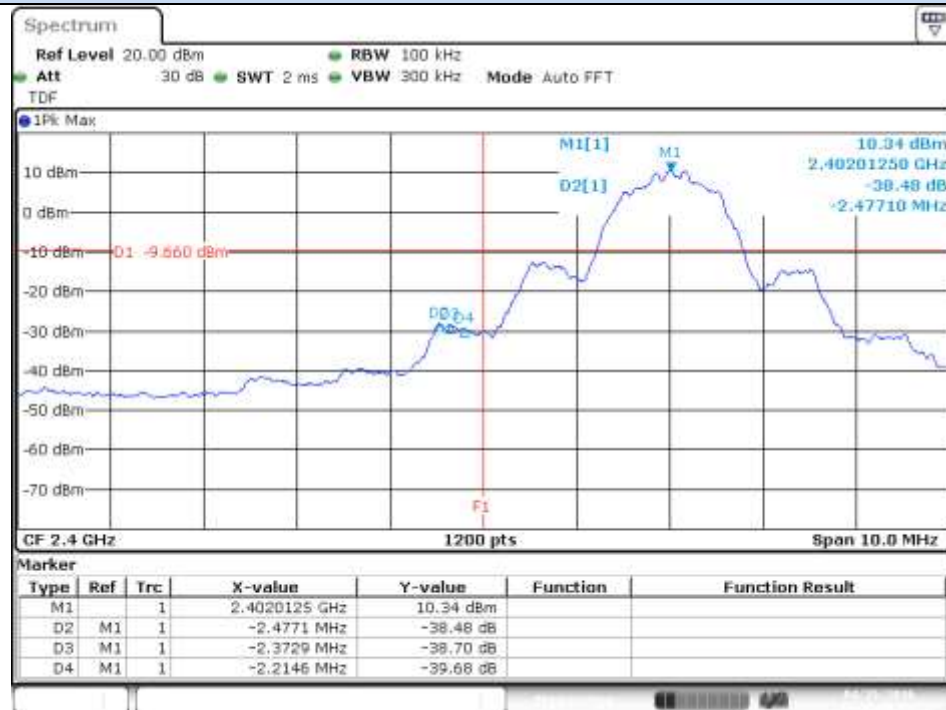
## BE High Freq Section - Hopping



Date: 26.APR.2016 13:49:14

## EDR – $\pi/4$ -DQPSK

### BE Low Freq Section - CH0



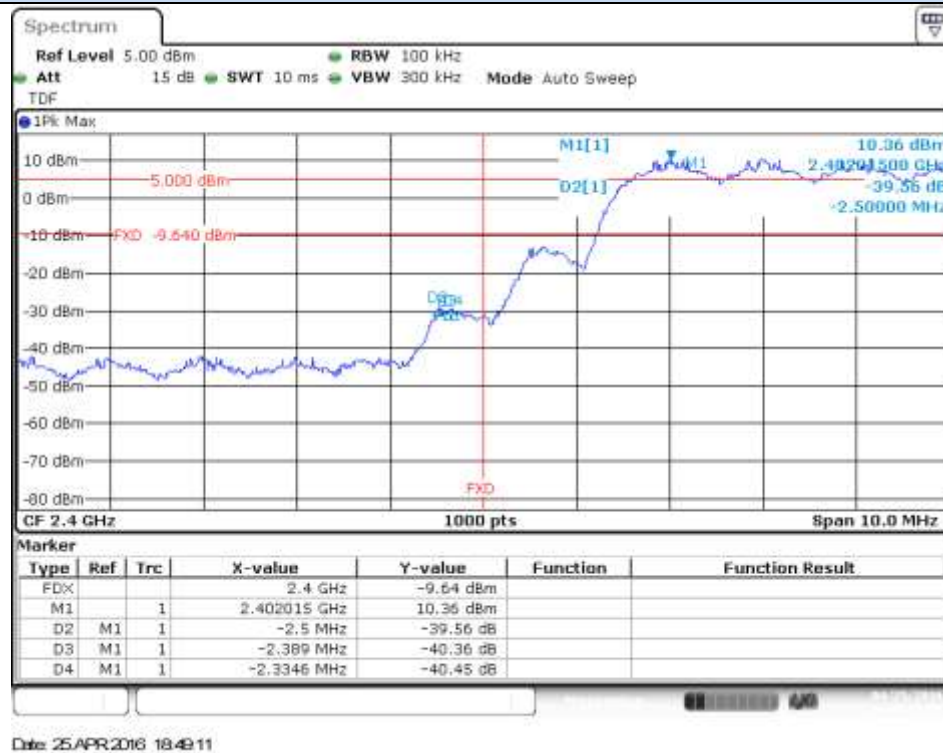
Date: 25.APR.2016 11:50:28

### BE High Freq Section - CH78

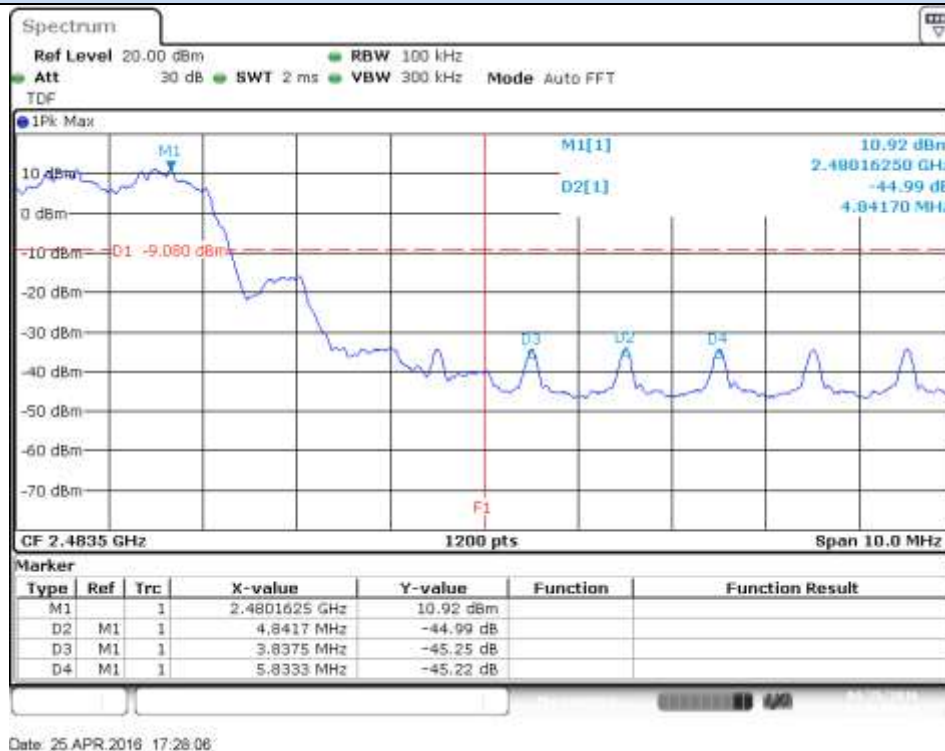


Date: 25.APR.2016 17:28:07

## BE Low Freq Section - Hopping



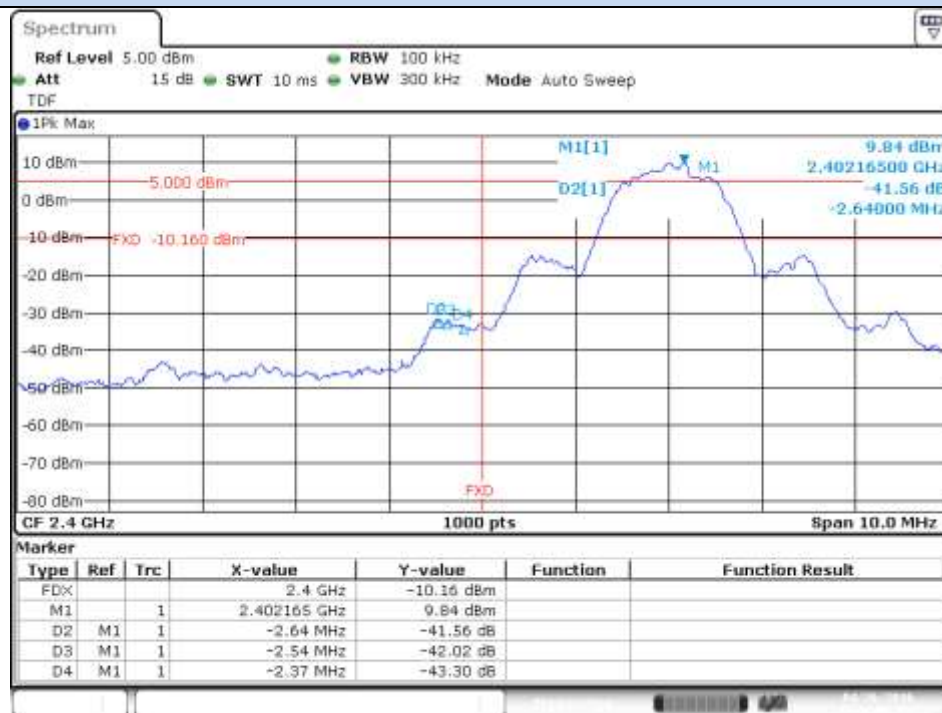
## BE High Freq Section - Hopping





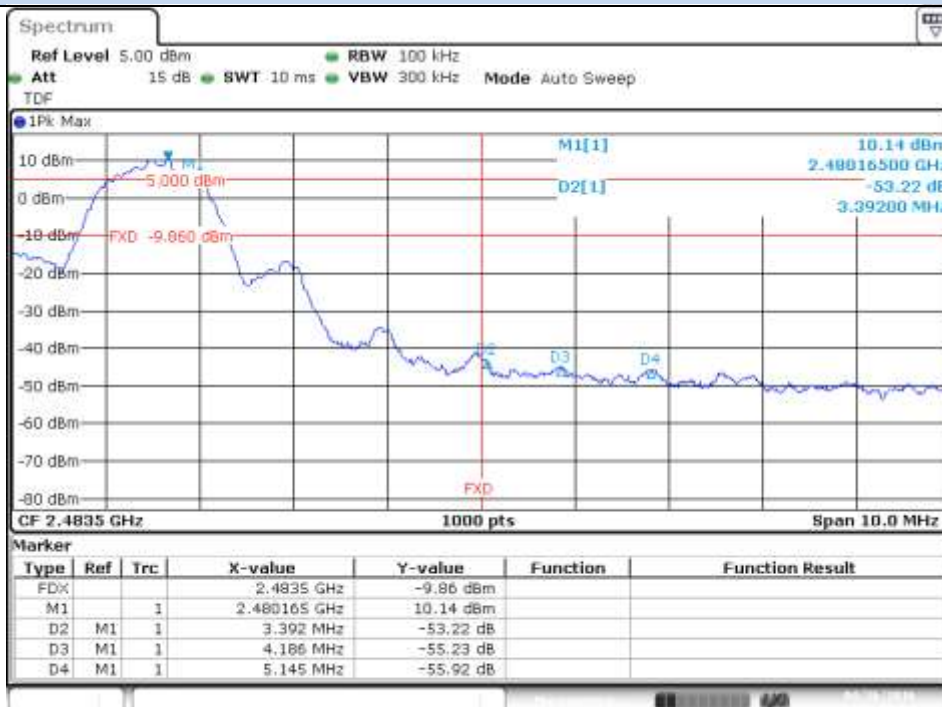
## EDR – 8-DPSK

### BE Low Freq Section - CH0



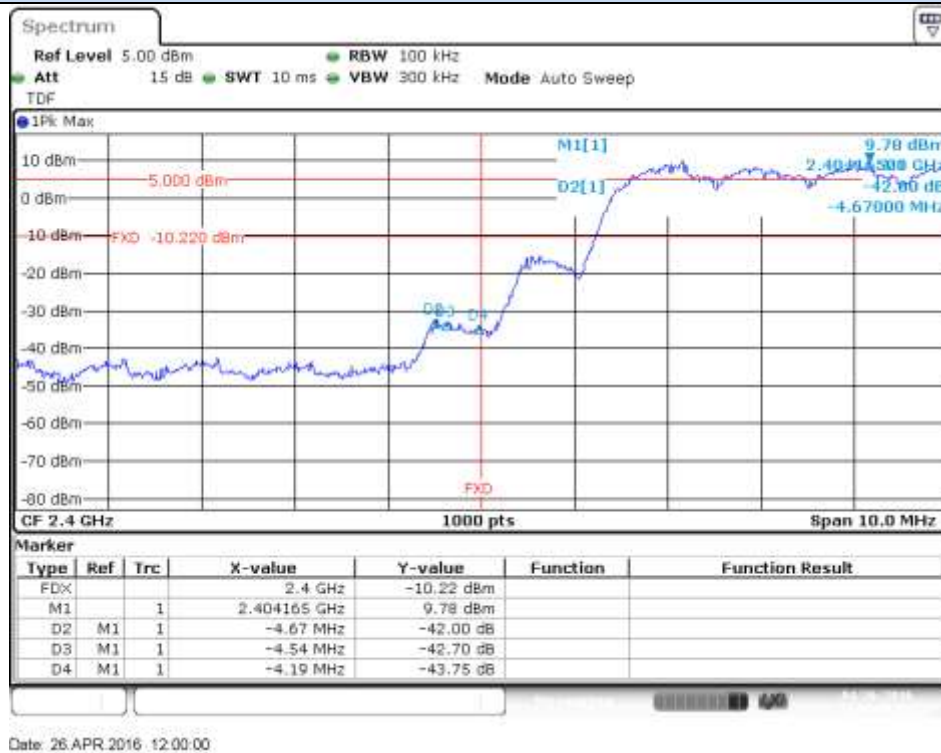
Date: 26.APR.2016 11:54:56

### BE High Freq Section - CH78

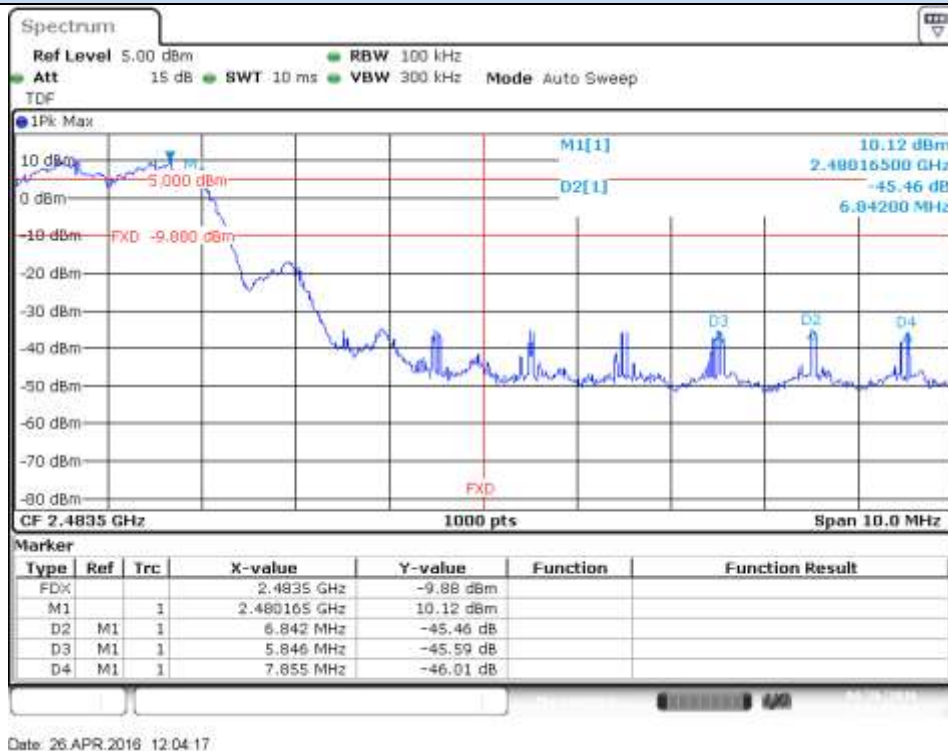


Date: 26.APR.2016 12:01:47

## BE Low Freq Section - Hopping



## BE High Freq Section - Hopping

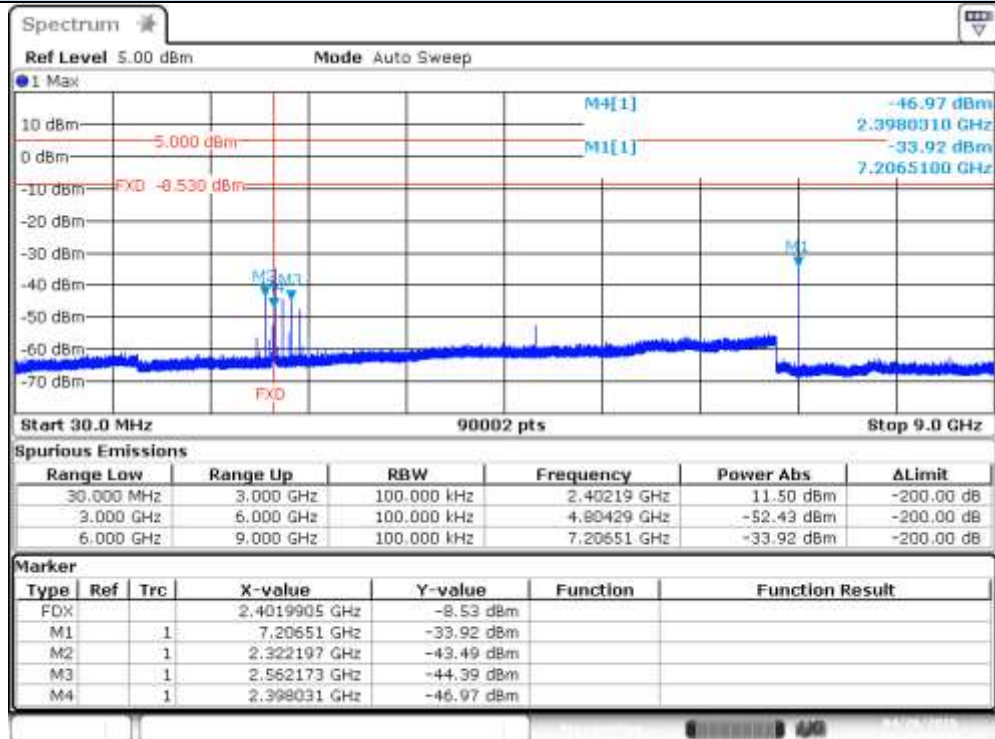




# Conducted Spurious results Screenshot:

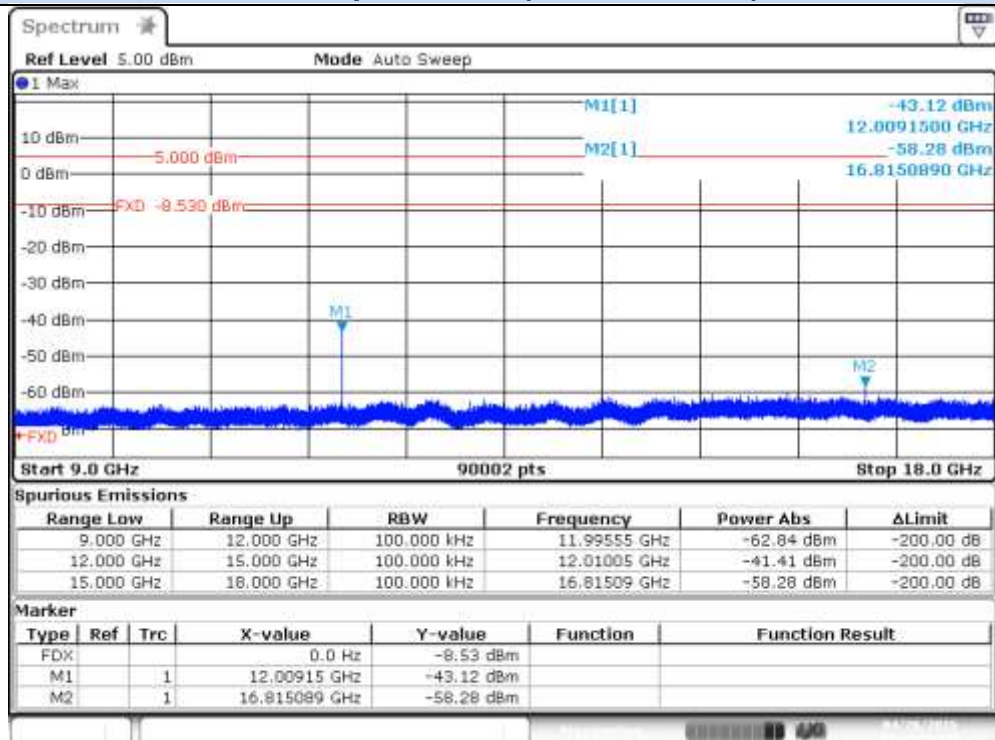
## Basic Rate - GFSK

### Cond Spur – CH0 (30MHz – 9GHz)

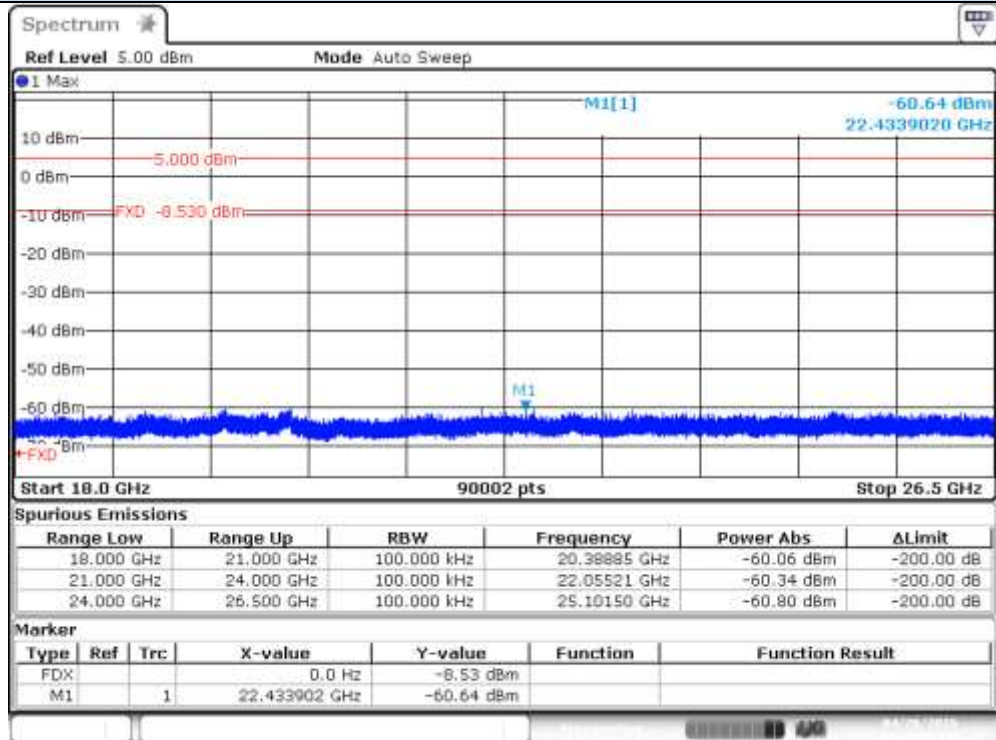


Date: 26 APR 2016 14:23:35

### Cond Spur – CH0 (9GHz – 18GHz)

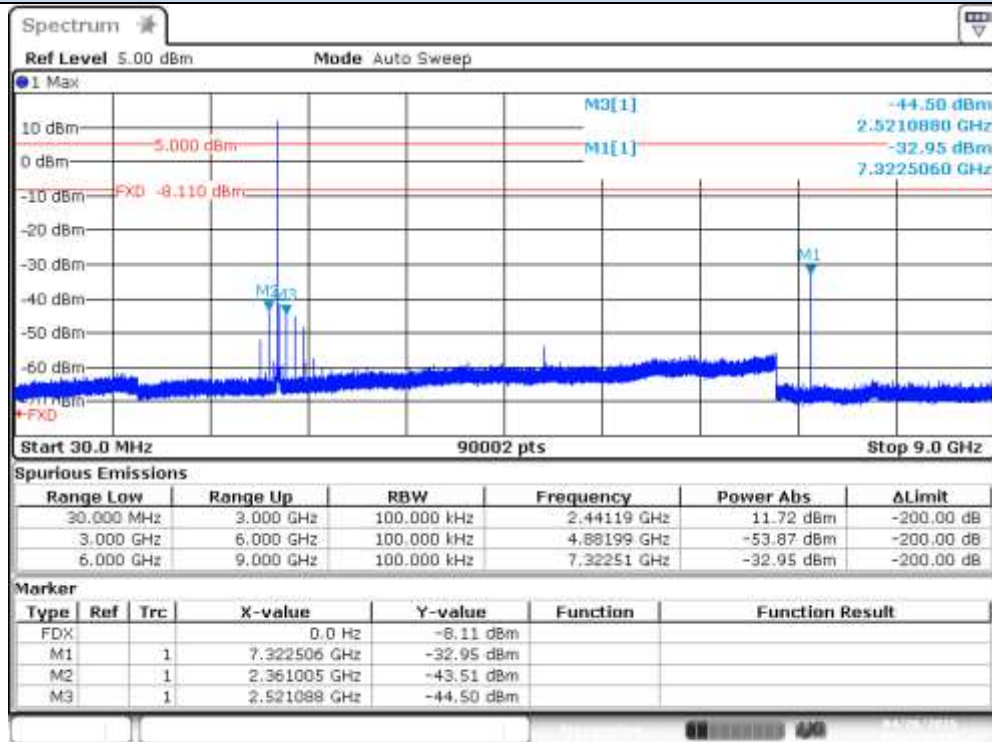


Date: 26 APR 2016 14:27:23

**Cond Spur – CH0 (18GHz – 26.5GHz)**

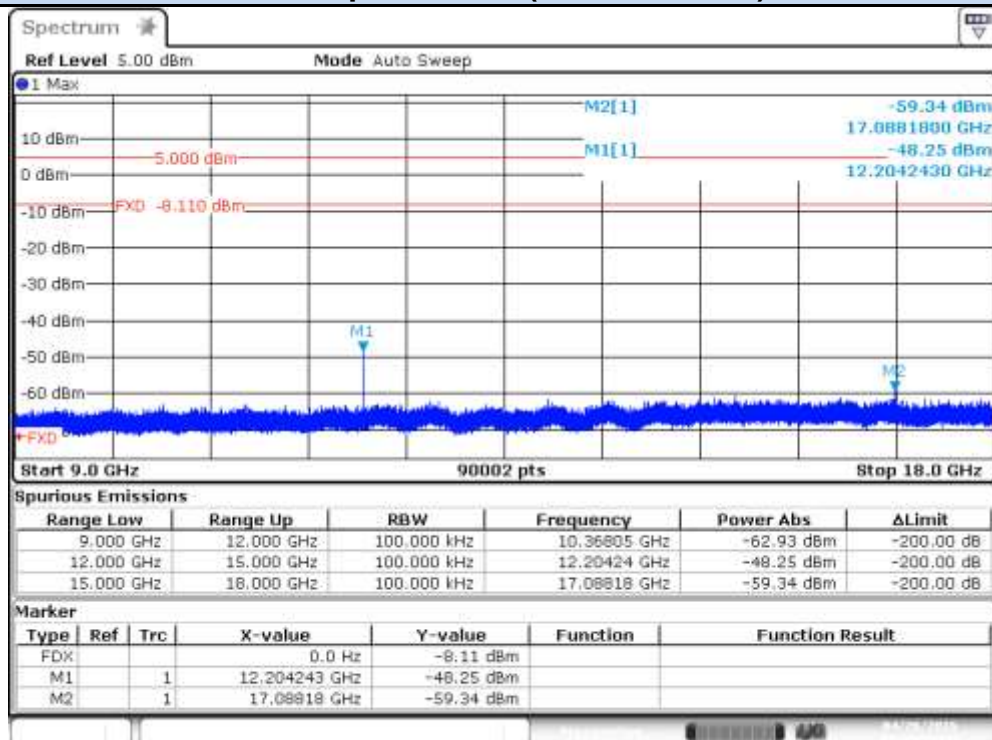
Date: 26.APR.2016 14:28:51

### Cond Spur – CH39 (30MHz – 9GHz)



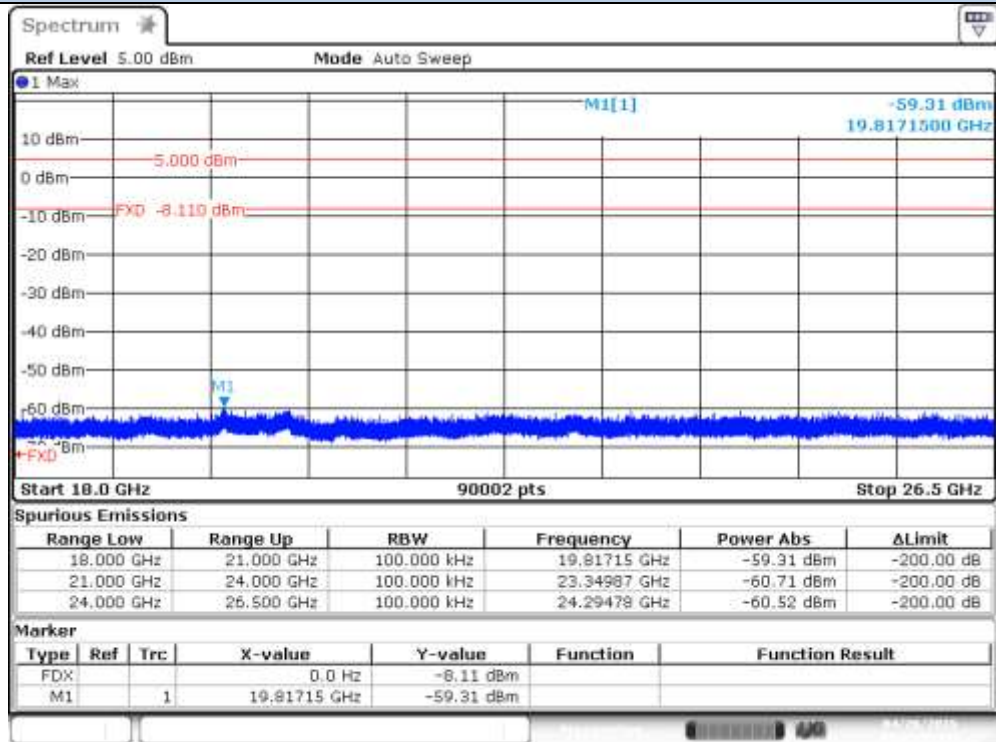
Date: 26.APR.2016 14:32:05

### Cond Spur - CH39 (9GHz – 18GHz)



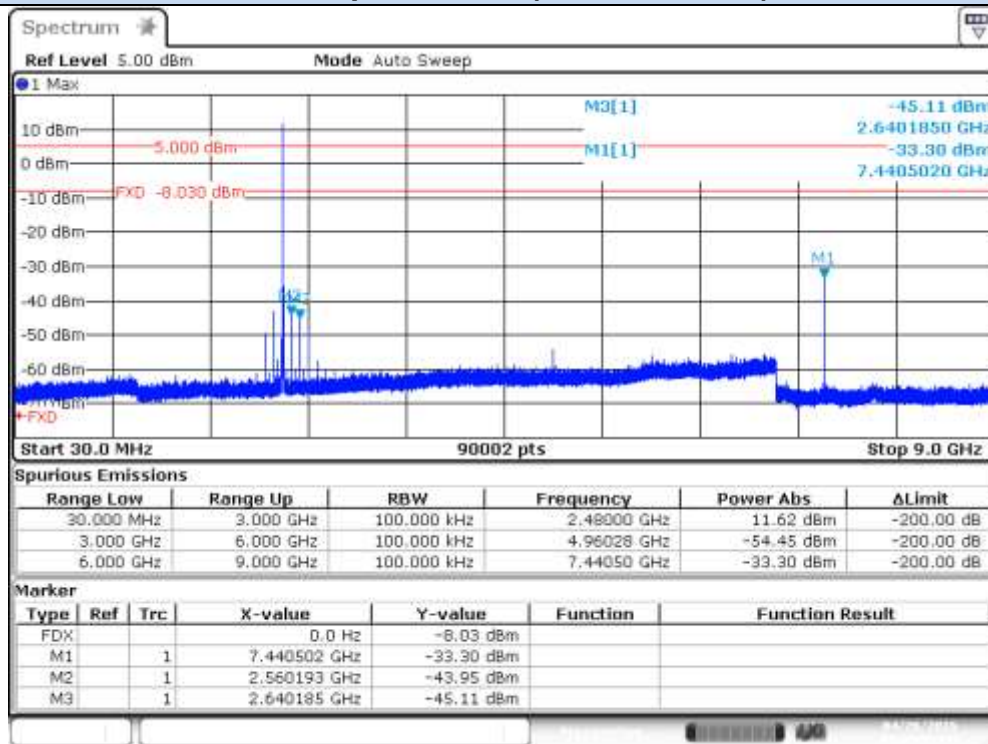
Date: 26.APR.2016 14:35:53

## Cond Spur – CH39 (18GHz – 26.5GHz)



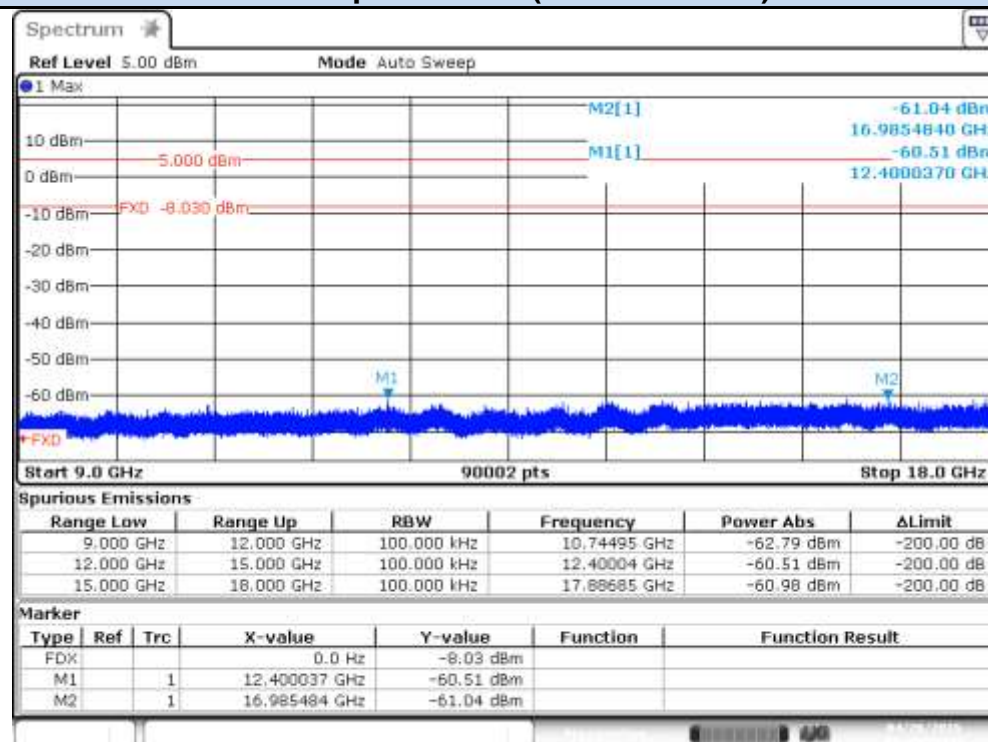
Date: 26.APR.2016 14:37:56

### Cond Spur – CH78 (30MHz – 9GHz)



Date: 26.APR.2016 14:39:56

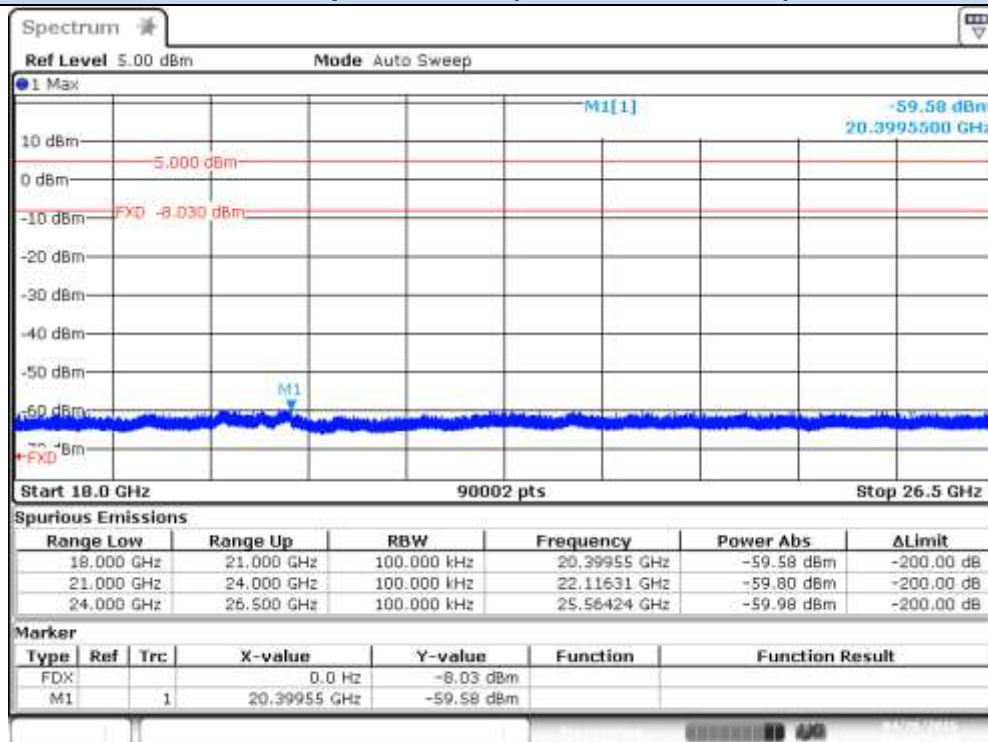
### Cond Spur – CH78 (9GHz – 18GHz)



Date: 26.APR.2016 14:40:50



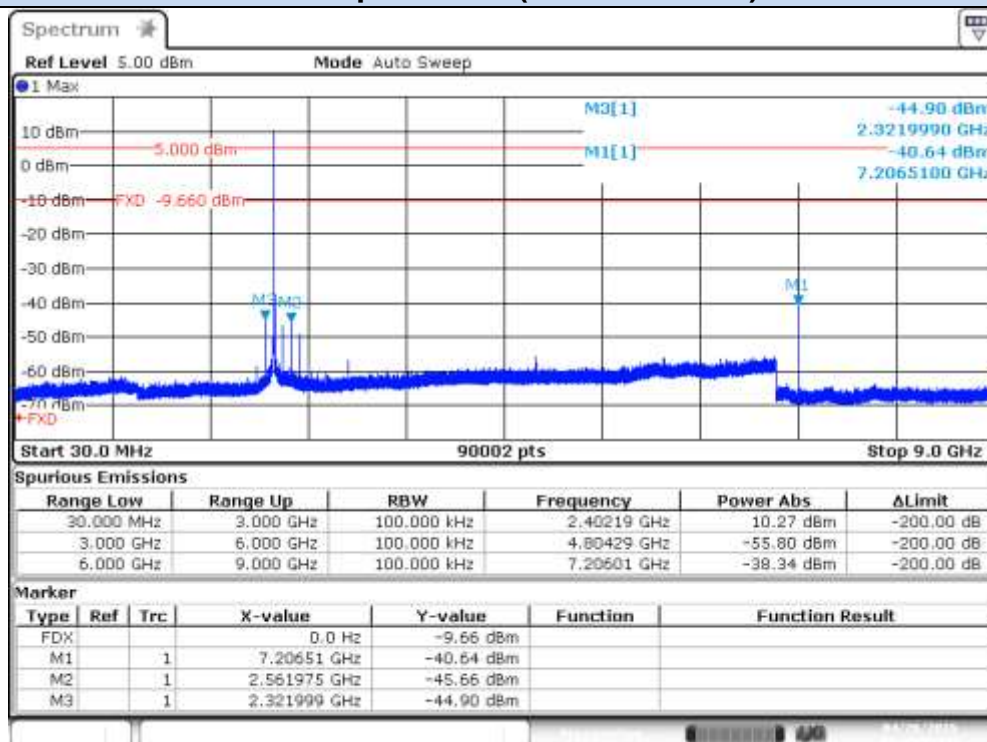
## Cond Spur – CH78 (18GHz – 26.5GHz)



Date: 26.APR.2016 14:58:04

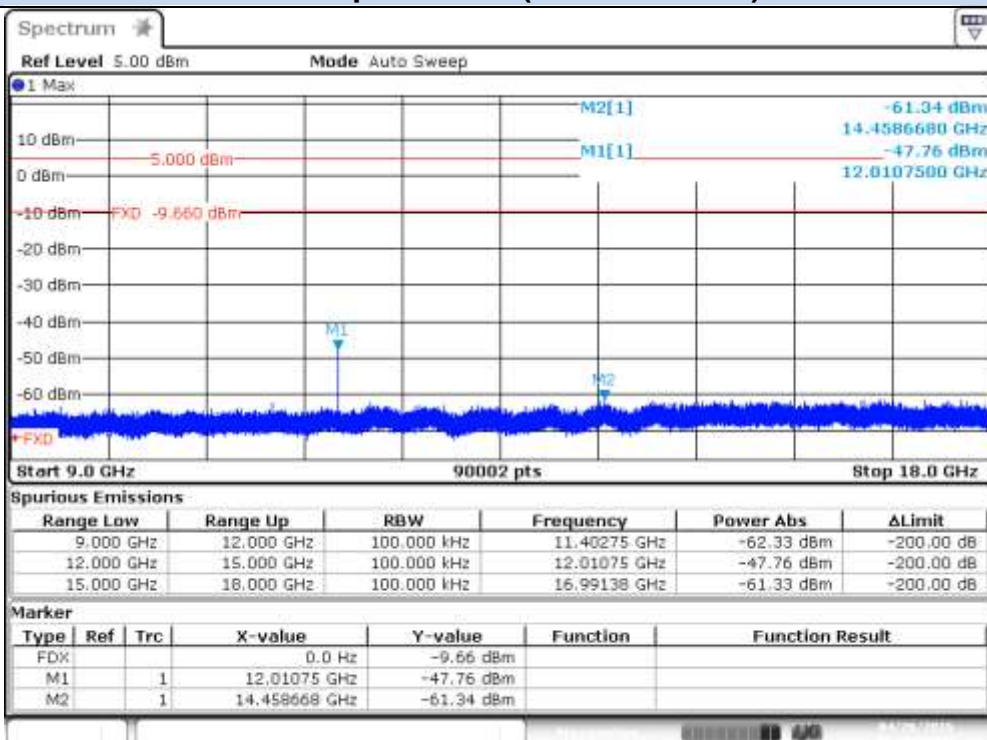
## EDR – $\pi/4$ -DQPSK

### Cond Spur – CH0 (30MHz – 9GHz)

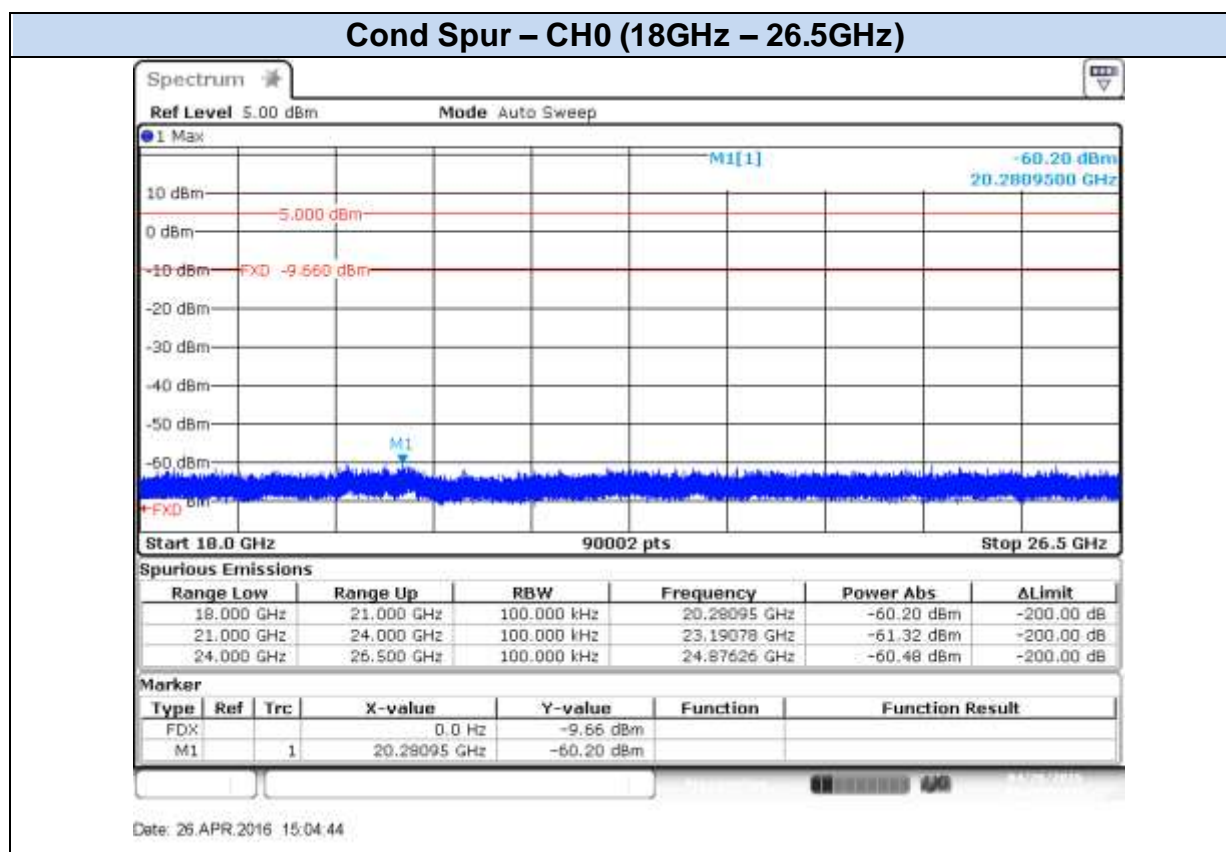


Date: 26.APR.2016 15:03:04

### Cond Spur – CH0 (9GHz – 18GHz)

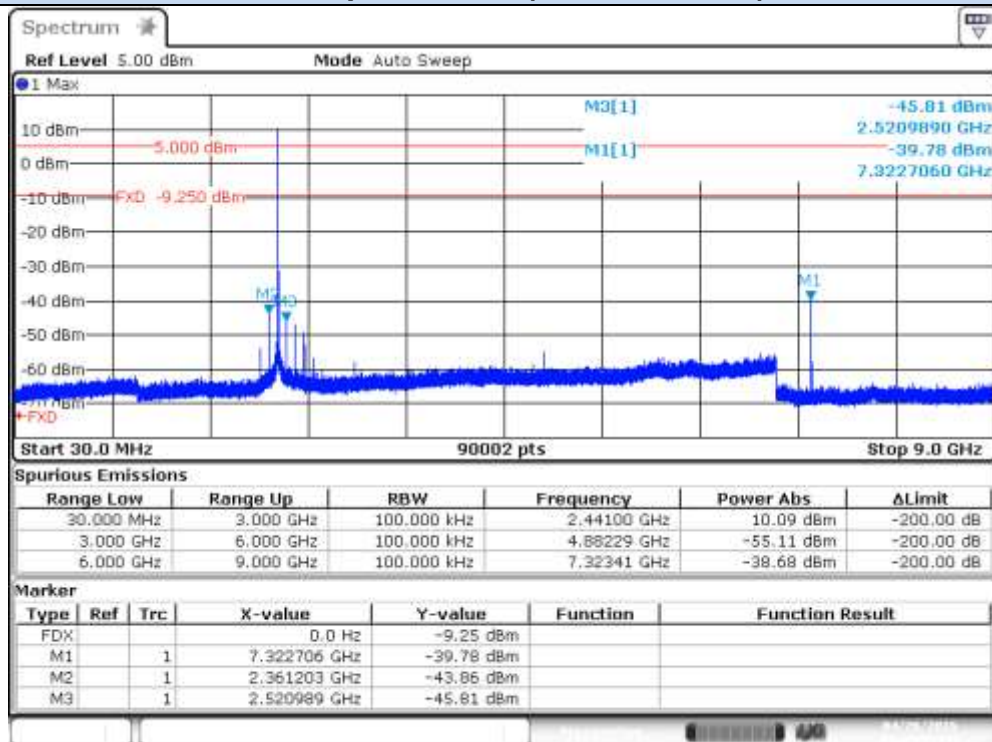


Date: 26.APR.2016 15:03:59



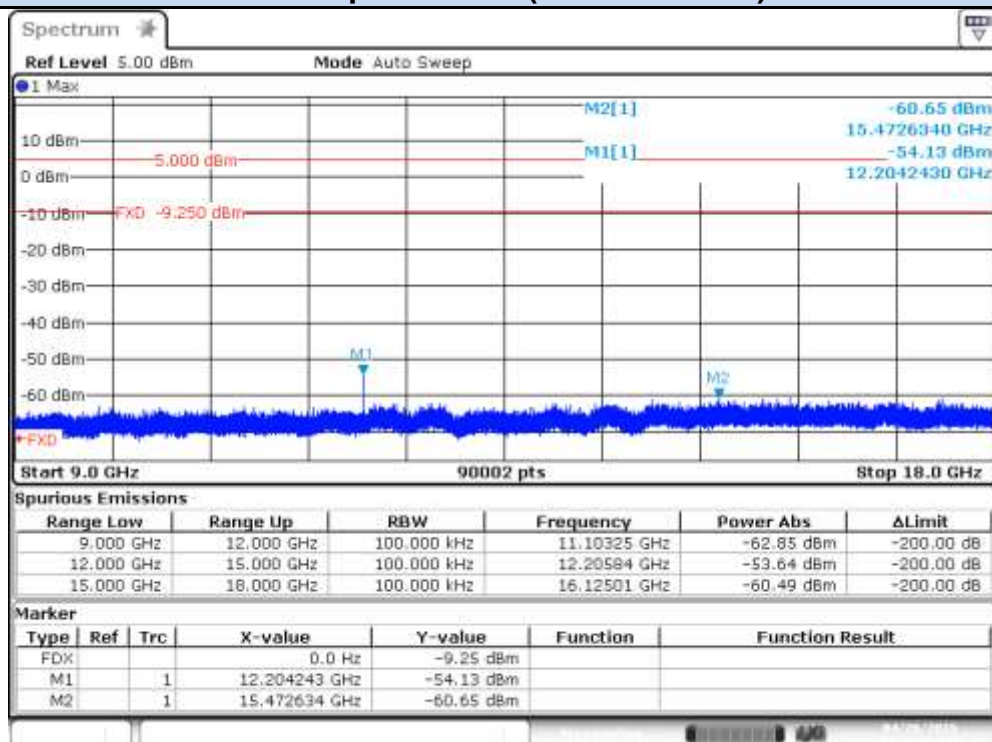


### Cond Spur – CH39 (30MHz – 9GHz)

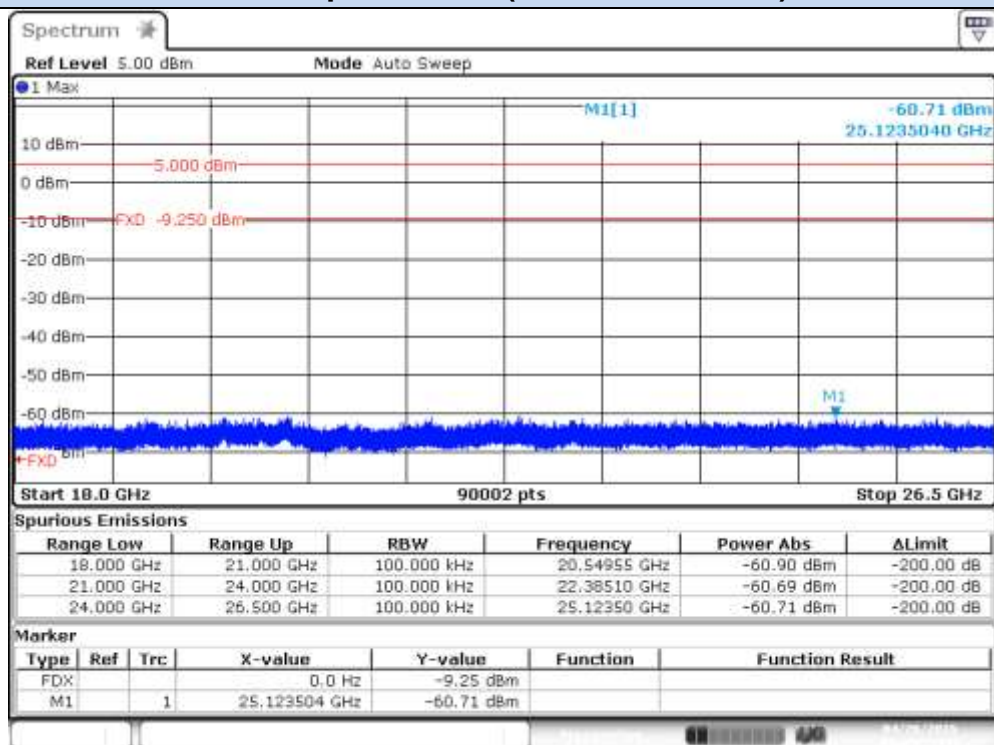


Date: 26.APR.2016 15:06:55

### Cond Spur - CH39 (9GHz – 18GHz)

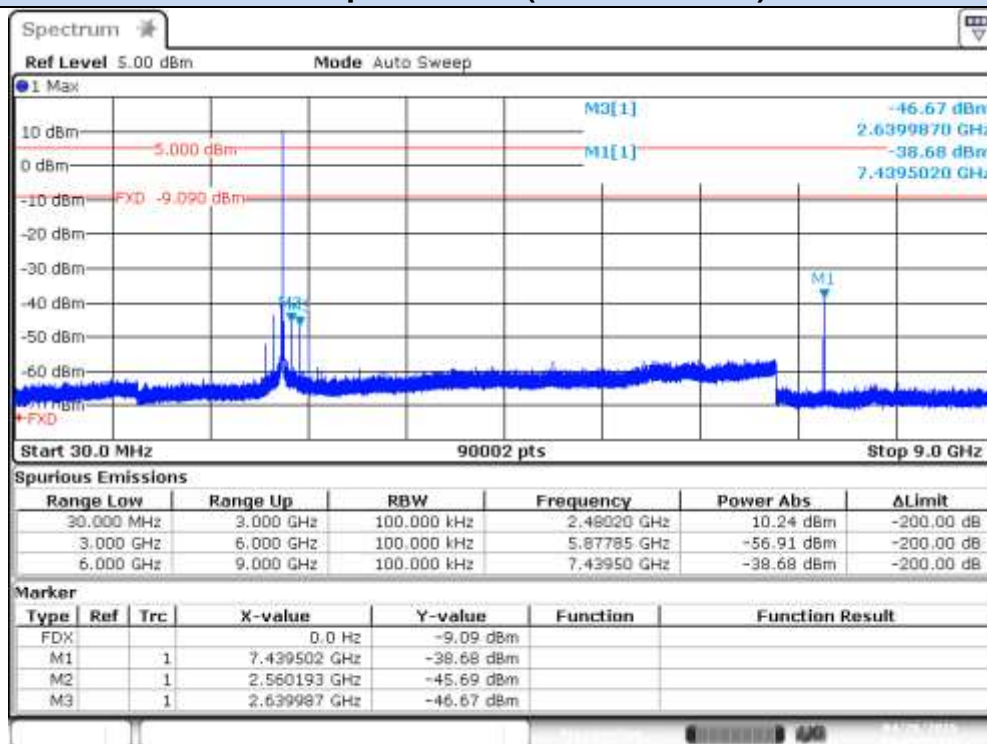


Date: 26.APR.2016 15:07:36

**Cond Spur – CH39 (18GHz – 26.5GHz)**

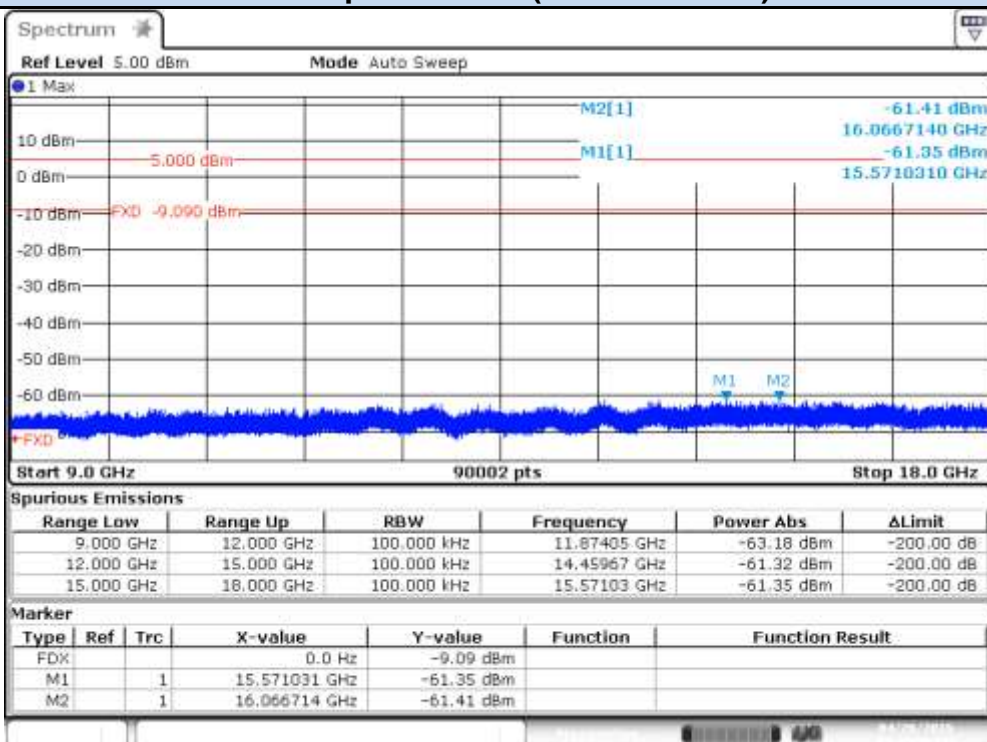
Date: 26.APR.2016 15:08:21

### Cond Spur – CH78 (30MHz – 9GHz)

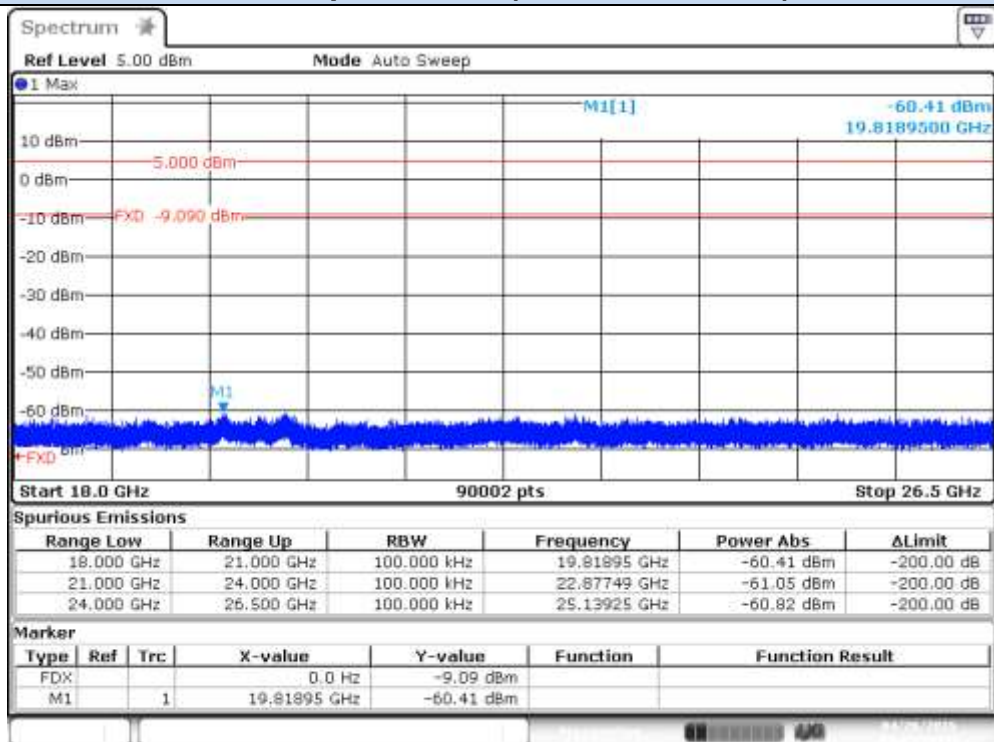


Date: 26.APR.2016 15:10:07

### Cond Spur – CH78 (9GHz – 18GHz)



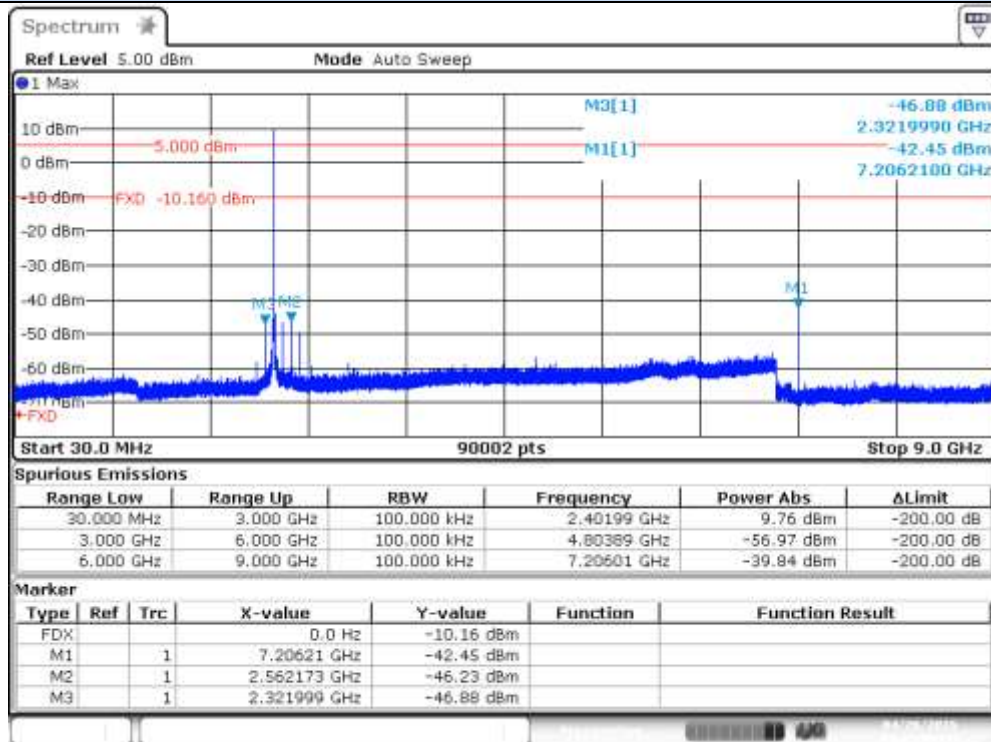
Date: 26.APR.2016 15:10:45

**Cond Spur – CH78 (18GHz – 26.5GHz)**

Date: 26.APR.2016 15:11:20

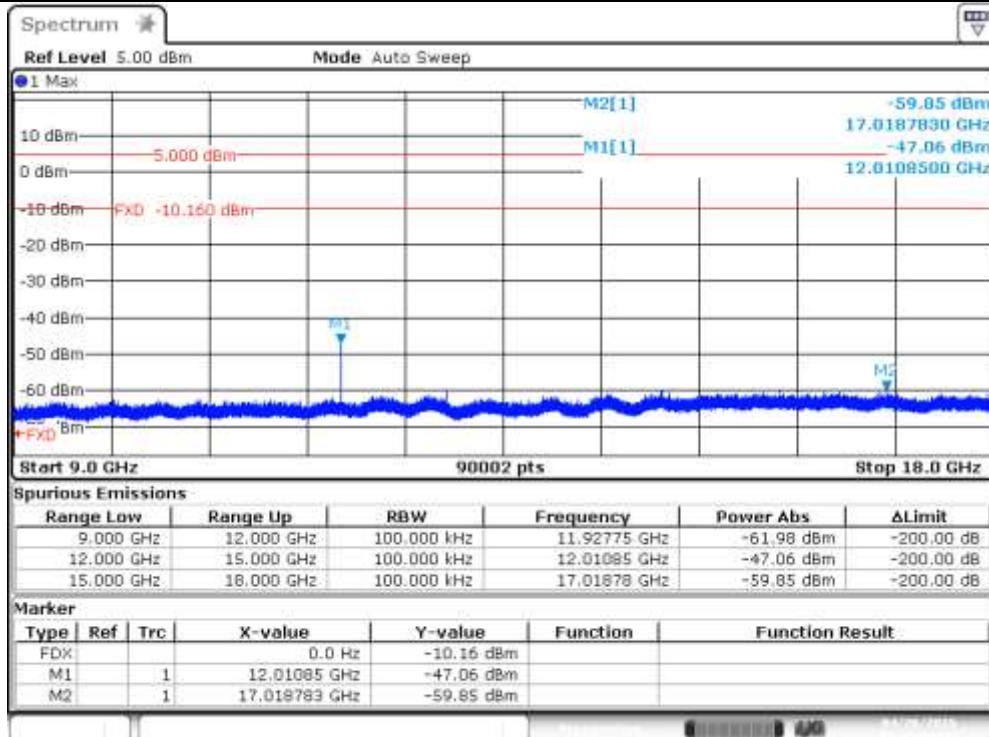
## EDR – 8-DPSK

### Cond Spur – CH0 (30MHz – 9GHz)



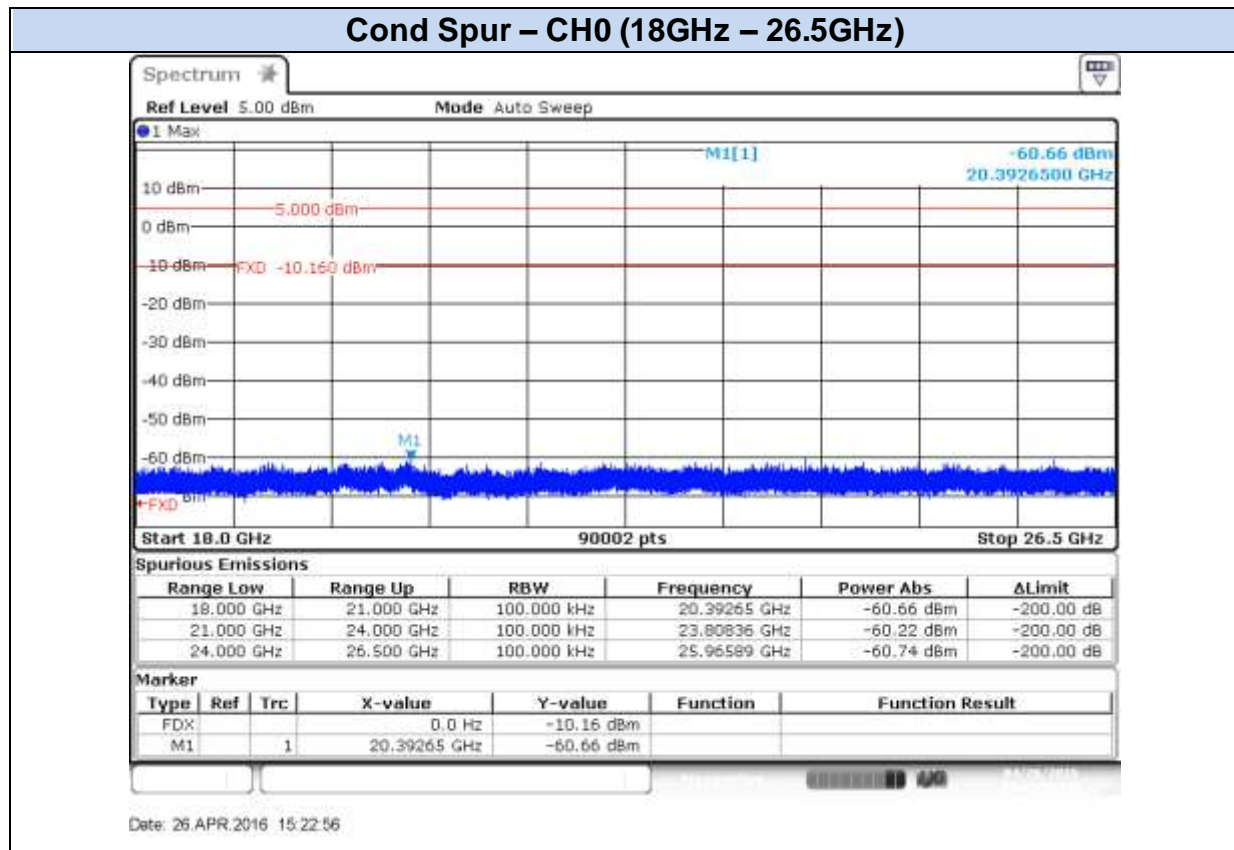
Date: 26.APR.2016 15:13:48

### Cond Spur – CH0 (9GHz – 18GHz)

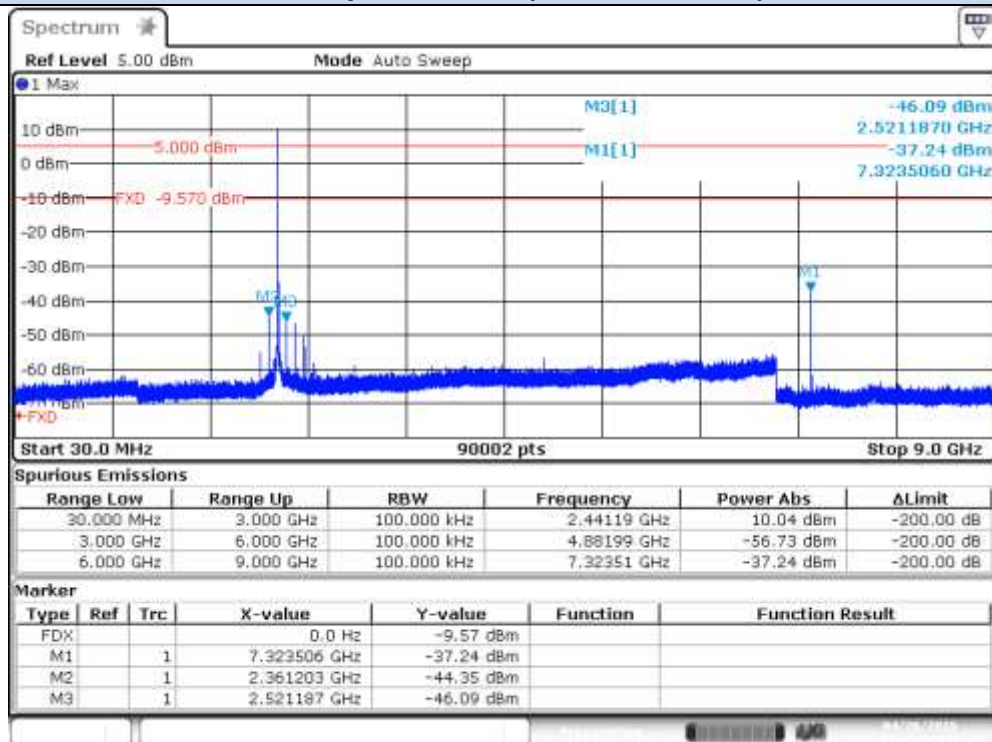


Date: 26.APR.2016 15:22:25



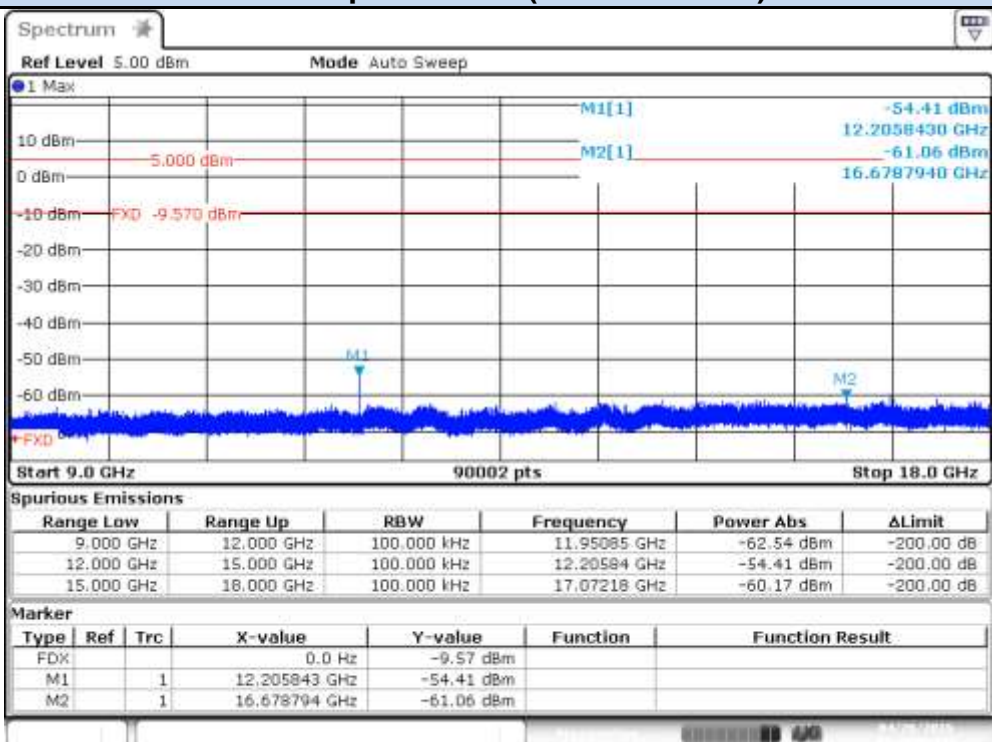


### Cond Spur – CH39 (30MHz – 9GHz)



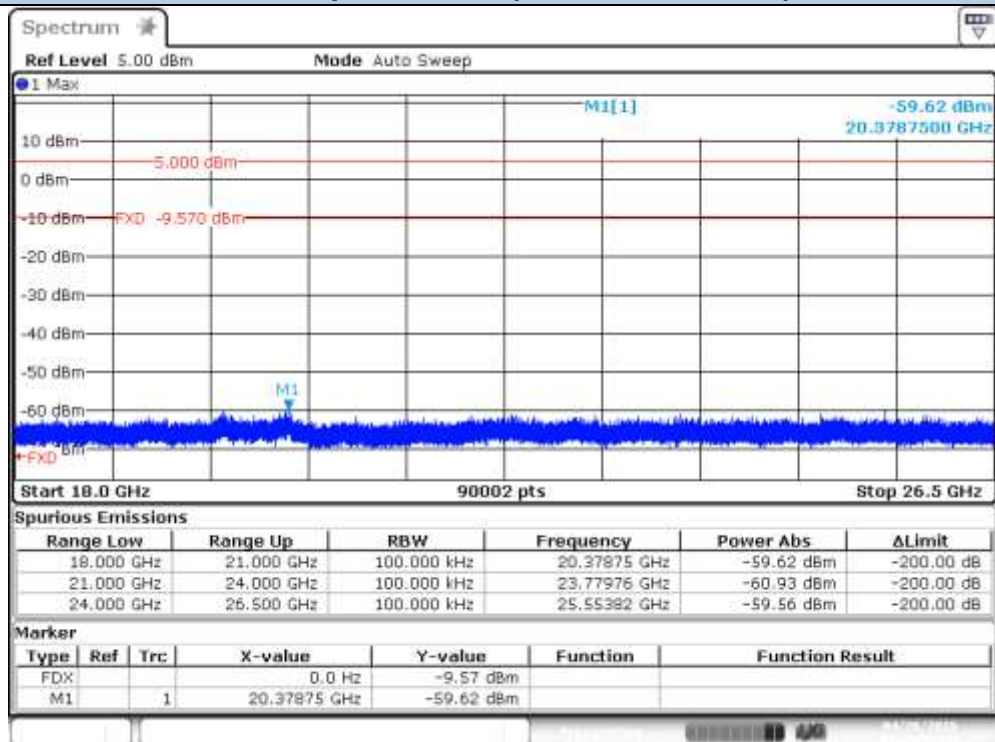
Date: 26.APR.2016 15:25:24

### Cond Spur - CH39 (9GHz – 18GHz)



Date: 26.APR.2016 15:26:09

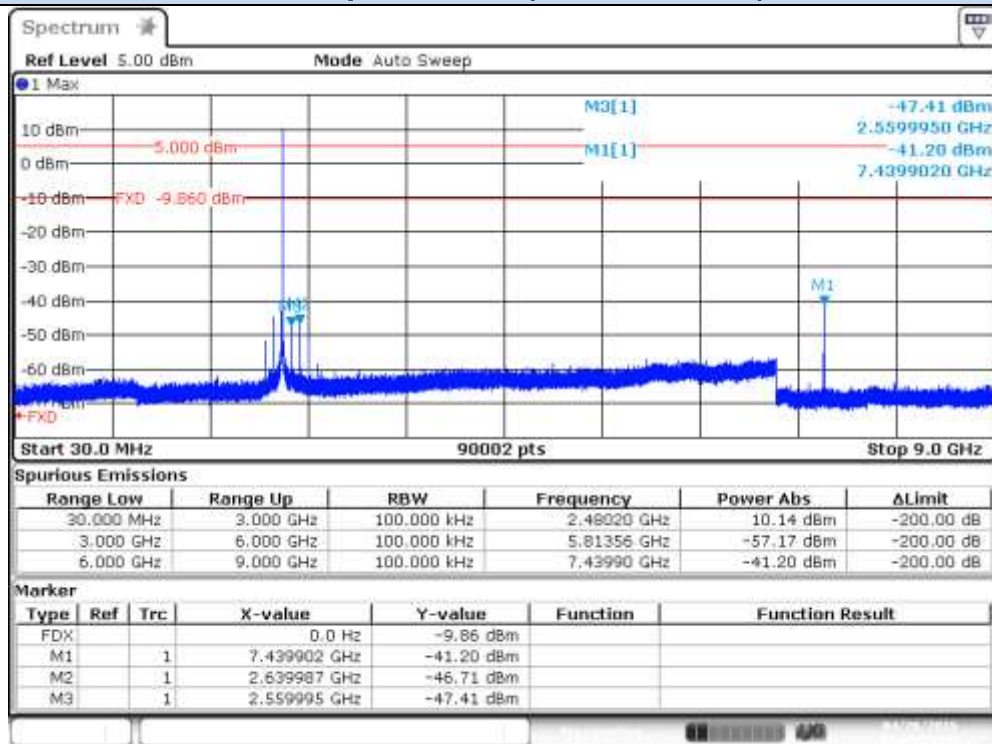
## Cond Spur – CH39 (18GHz – 26.5GHz)



Date: 26.APR.2016 15:26:55

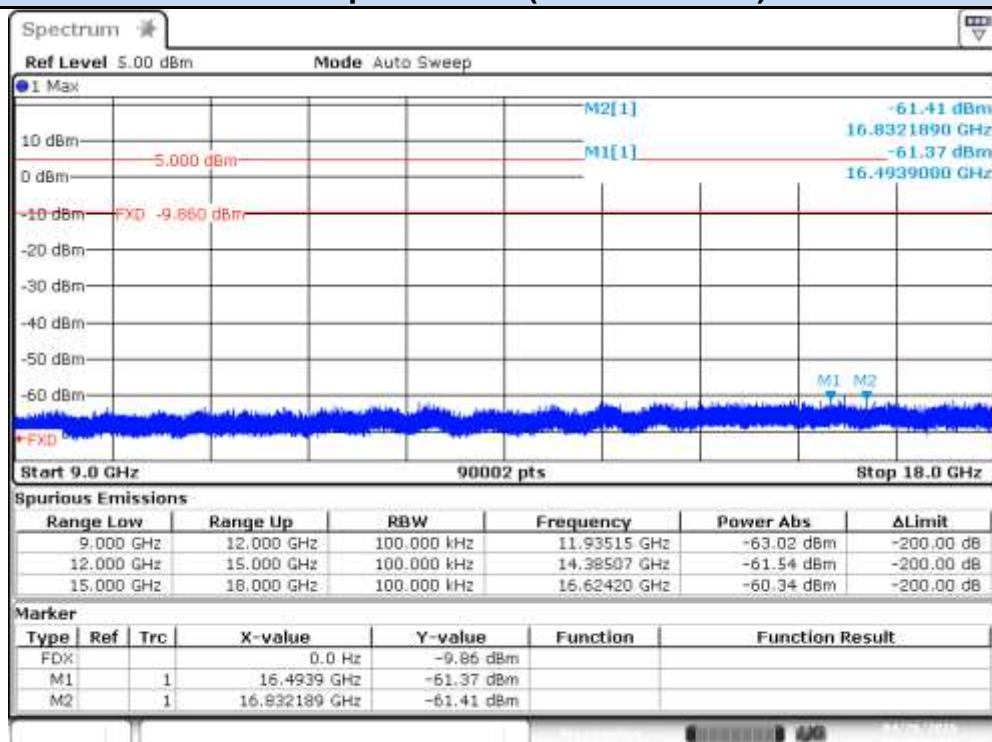


### Cond Spur – CH78 (30MHz – 9GHz)



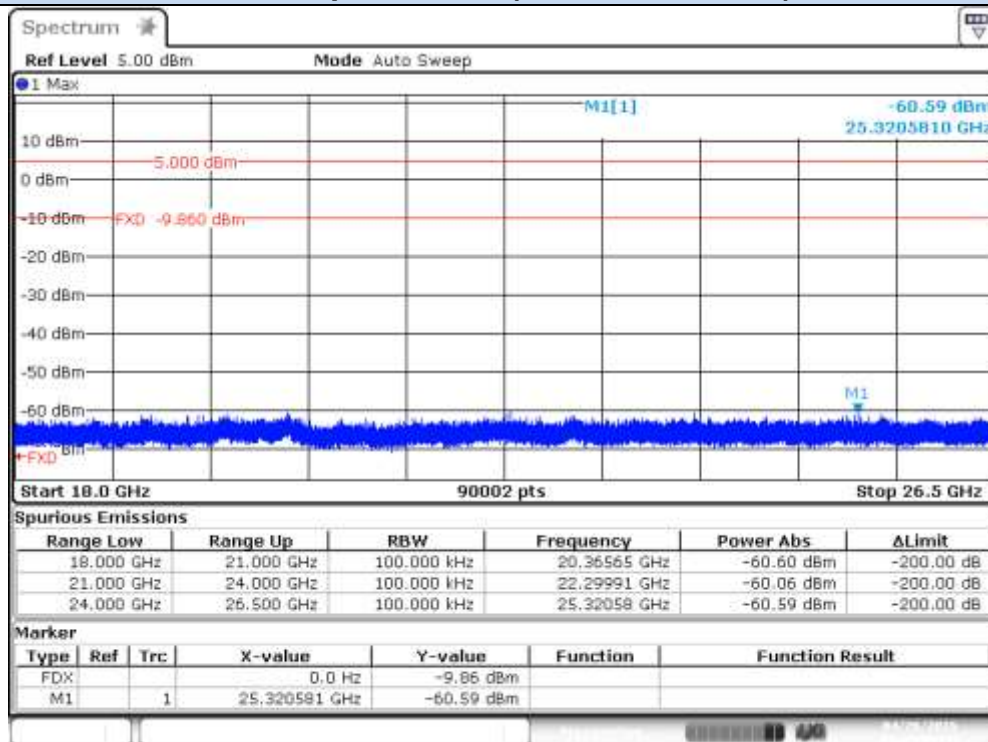
Date: 26.APR.2016 15:28:25

### Cond Spur – CH78 (9GHz – 18GHz)



Date: 26.APR.2016 15:29:06

## Cond Spur – CH78 (18GHz – 26.5GHz)



Date: 26.APR.2016 15:29:40

## B.6 Radiated spurious emission

### Standard references:

FCC part	RSS part	Limits			
15.247 (d)	RSS-247 Clause 5.5	Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):			
		Freq Range (MHz)	Field Strength ( $\mu\text{V/m}$ )	Field Strength ( $\text{dB}\mu\text{V/m}$ )	Meas. Distance (m)
		0.009-0.490	$2400/f(\text{kHz})$	-	300
		0.490-1.705	$24000/f(\text{kHz})$	-	300
		1.705-30.0	30	-	30
		30-88	100	40	3
		88-216	150	43.5	3
		216-960	200	46	3
		Above 960	500	54	3
		<p>The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> <p>For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</p>			

### Test procedure:

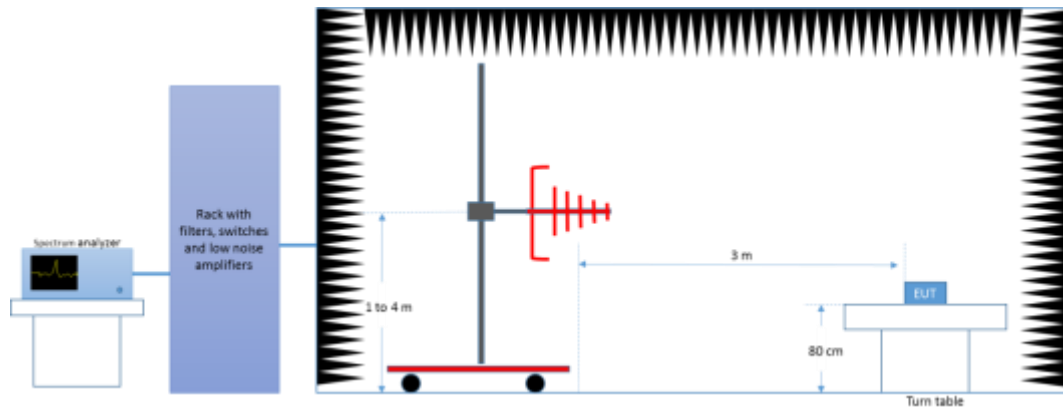
The setups below were used to measure the radiated spurious emissions.

Depending of the frequency range and bands being tested, different antennas and filters were used.

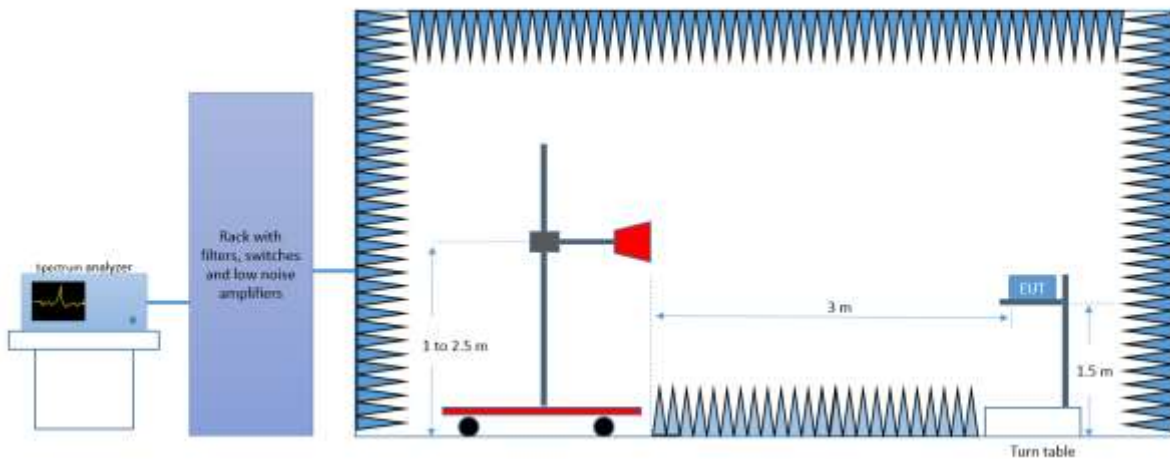
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emission was measured on the worst case configuration found.

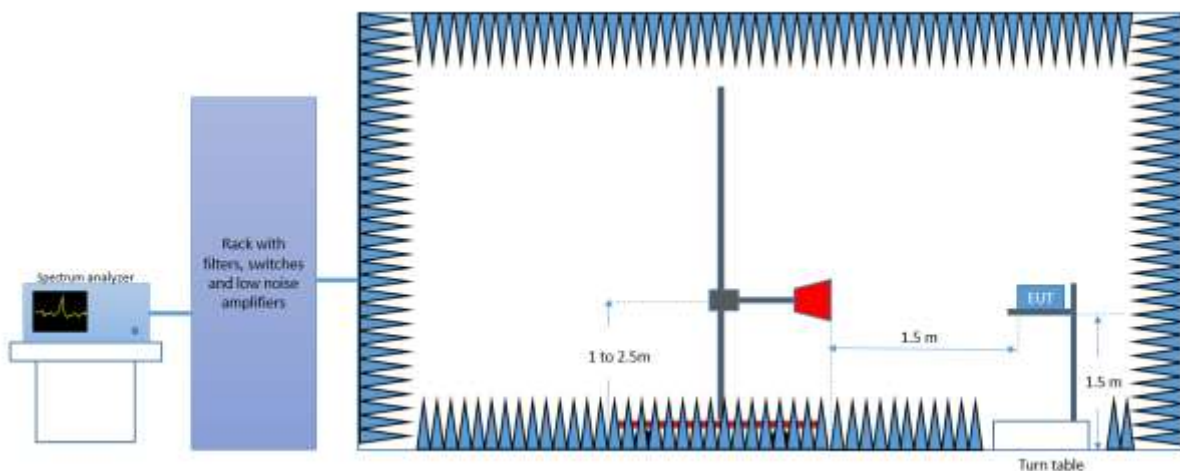
### *Radiated Setup < 1GHz*

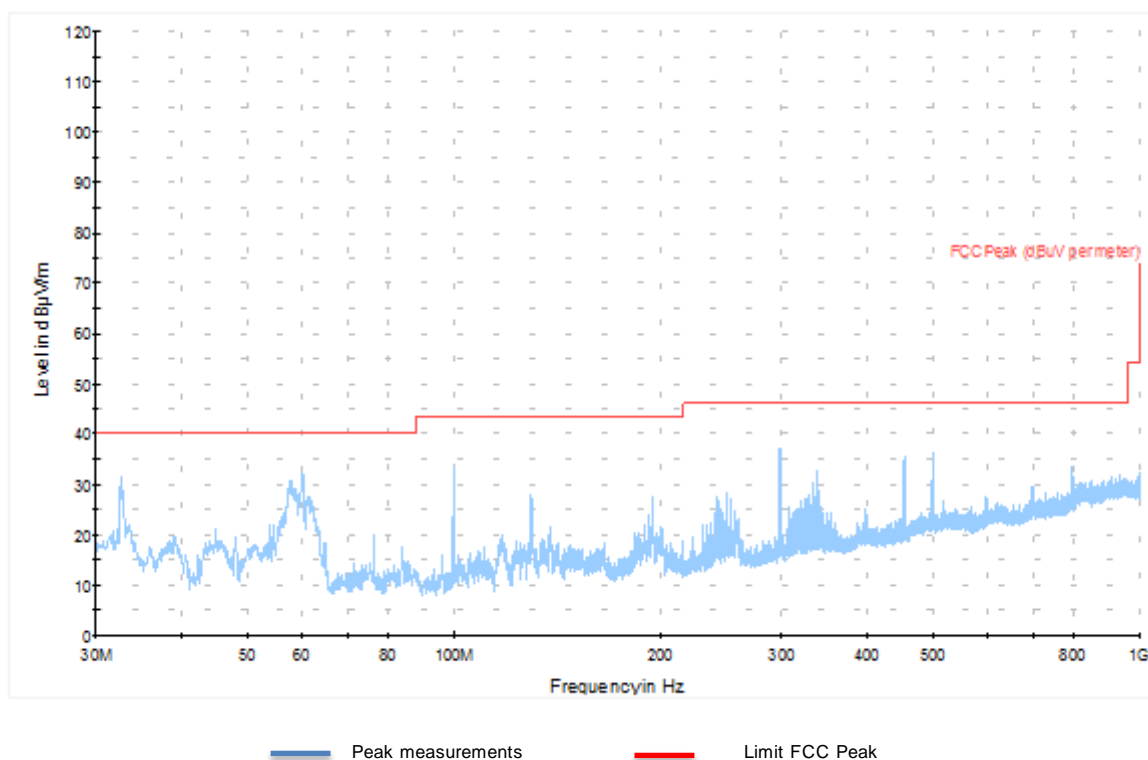


### *Radiated Setup 1GHz - 18GHz*



### *Radiated Setup 18 GHz - 25 GHz*



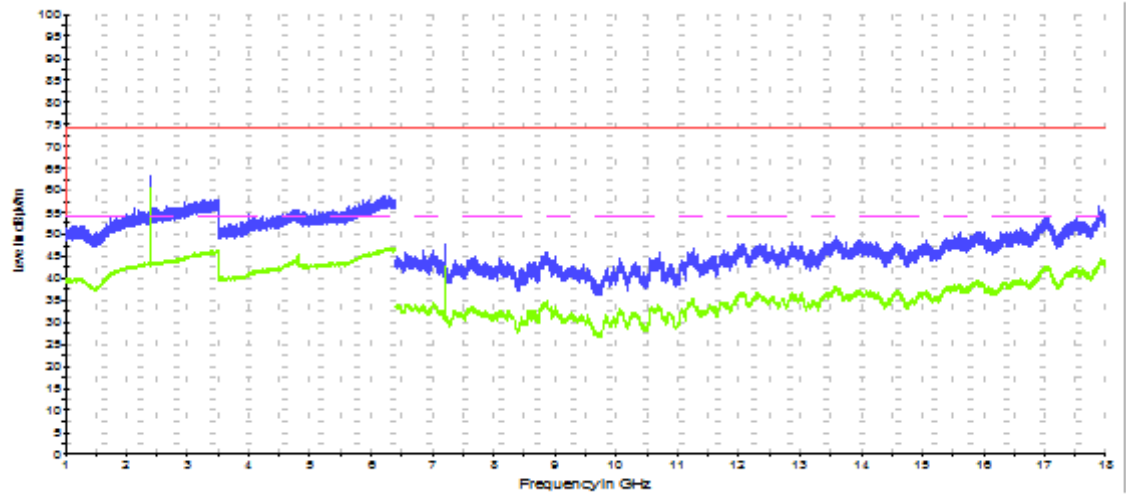
**Test result:****30 MHz – 1 GHz****Radiated Spurious – All Modes**

Frequency	Max Peak	Limit	Margin
MHz	dBuV/m	dBuV/m	dB
60.07	32.45	40.06	7.61

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.

## BR – GFSK – 1 GHz – 18 GHz

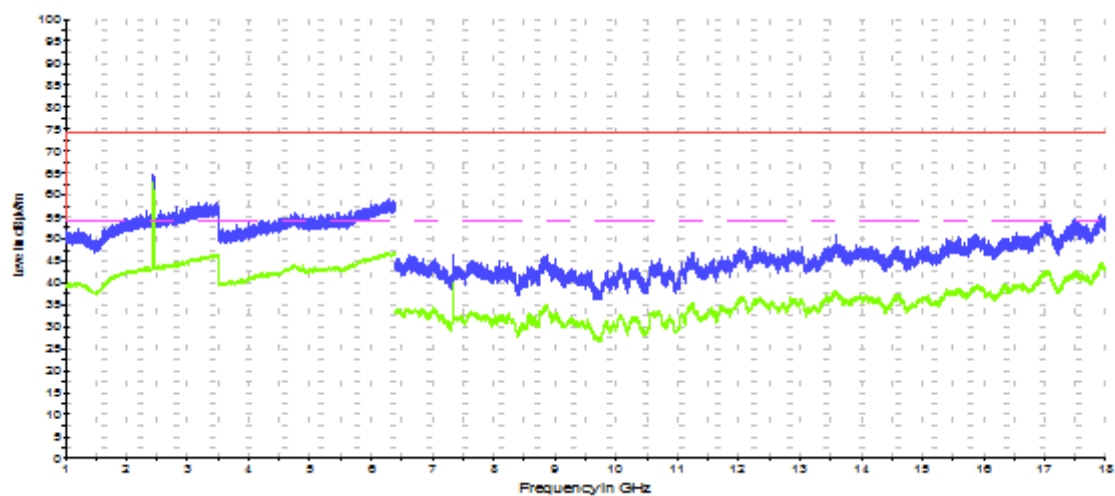
### Radiated Spurious – Ch0 DH5



— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

Frequency MHz	Max Peak dBuV/m	Avg dBuV/m	Limit dBuV/m	Margin dB
6390	58.1	-	74	15.9
6390	-	46.9	54	7.1

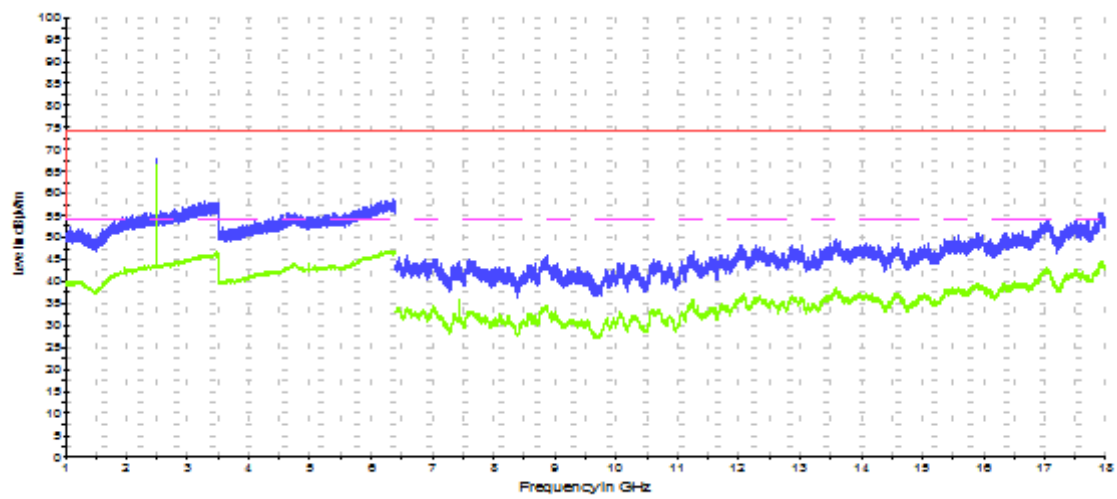
### Radiated Spurious – Ch39 DH5



— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 — Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6392	58.3	-	74	15.7
6392	-	46.7	54	7.3

### Radiated Spurious – Ch78 DH5



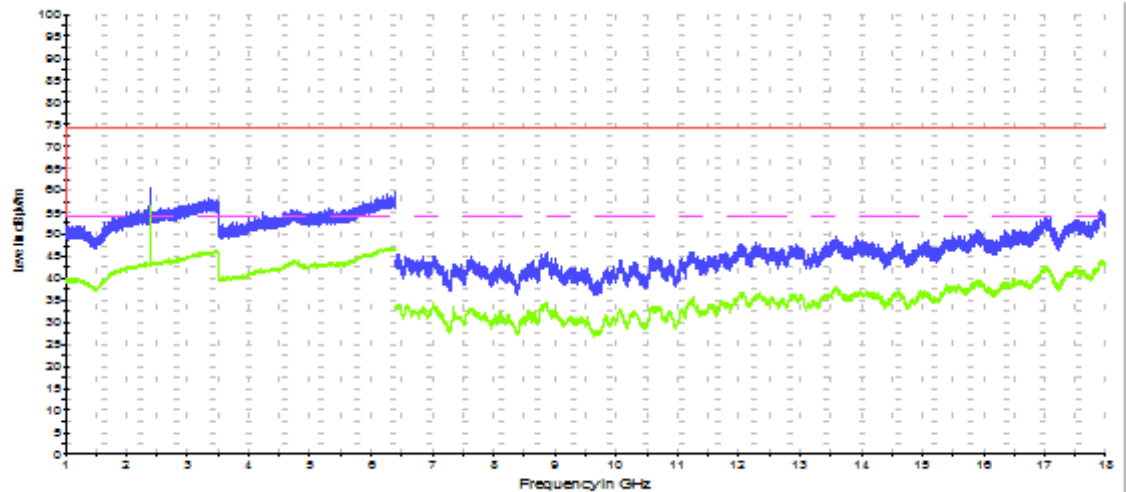
— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6392	59.1	-	74	14.9
6392	-	46.7	54	7.3



## EDR – $\pi/4$ -DQPSK – 1 GHz – 18 GHz

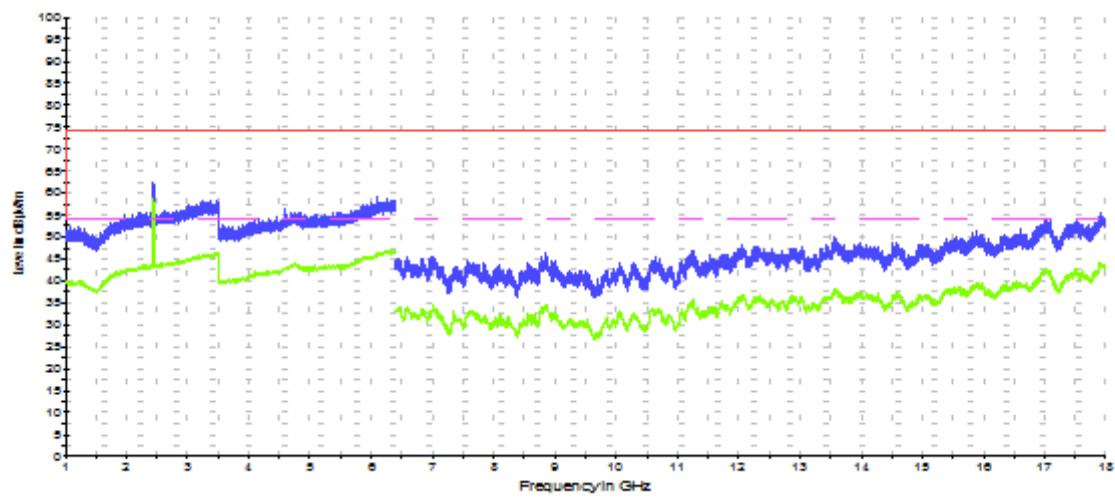
### Radiated Spurious – Ch0 2DH5



— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

Frequency MHz	Max Peak dBuV/m	Avg dBuV/m	Limit dBuV/m	Margin dB
6382	59.5	-	74	14.5
6382	-	46.8	54	7.2

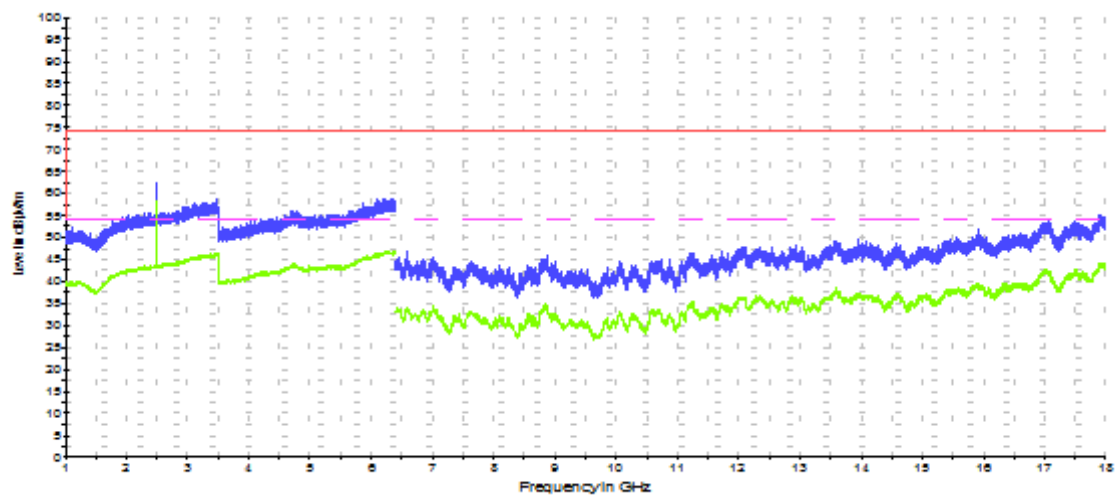
## Radiated Spurious – Ch39 2DH5



— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6218	59.3	-	74	14.7
6218	-	46.9	54	7.1

### Radiated Spurious – Ch78 2DH5

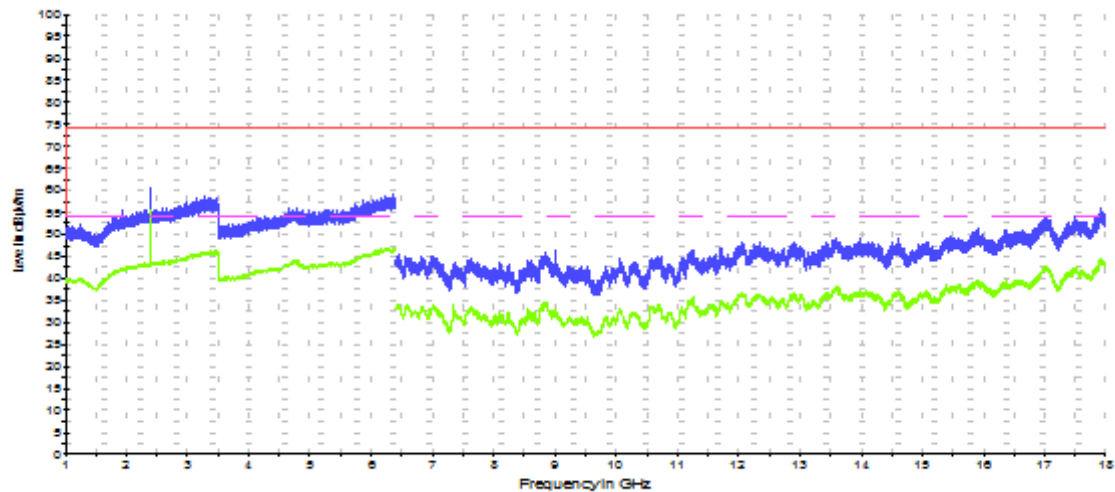


— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 — Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6370	58.9	-	74	15.1
6370	-	46.9	54	7.1

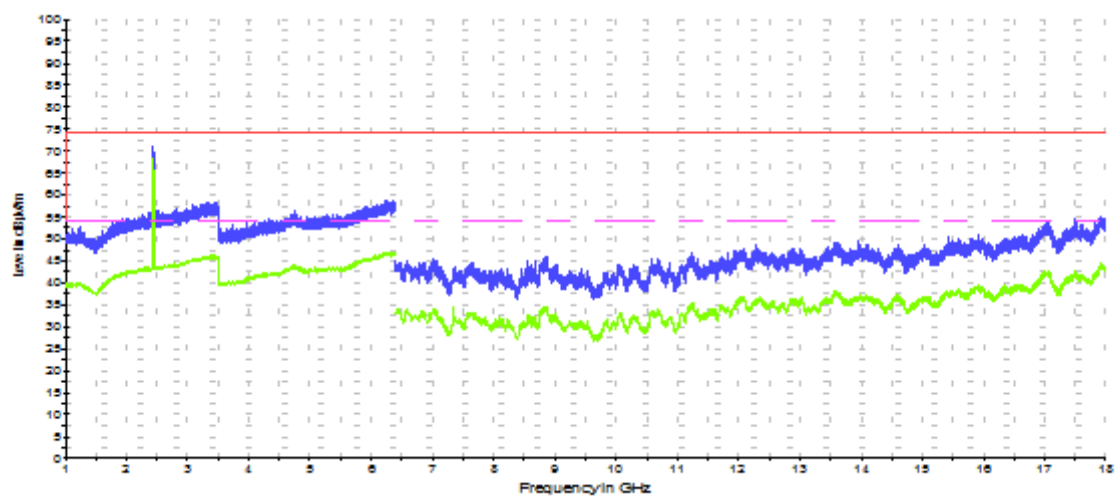
## EDR – 8-DPSK – 1 GHz – 18 GHz

### Radiated Spurious – Ch0 3DH5



— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

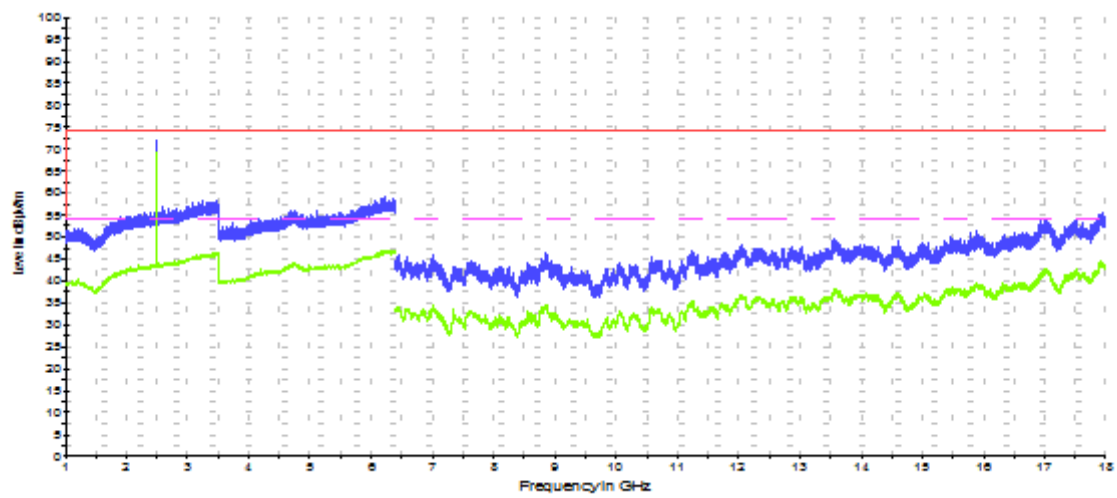
Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6384	59.4	-	74	14.6
6384	-	46.7	54	7.3

**Radiated Spurious – Ch39 3DH5**

— Peak measurements      — AVG measurements      — Limit FCC Peak      - - - Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6235	58.9	-	74	15.1
6235	-	46.9	54	7.1

### Radiated Spurious – Ch78 3DH5

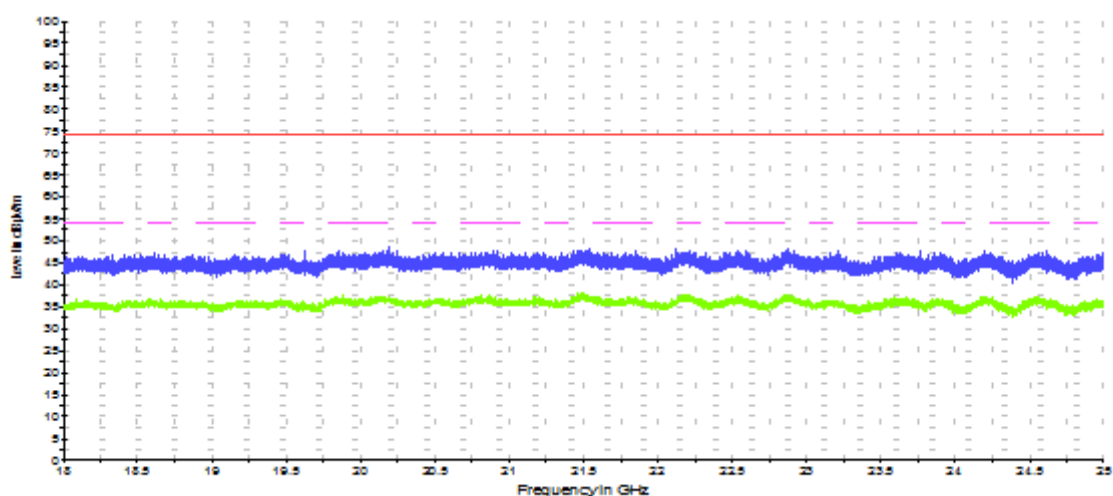


— Peak measurements     
 — AVG measurements     
 — Limit FCC Peak     
 - - - Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
6316	58.8	-	74	15.2
6316	-	46.8	54	7.2

## 18 GHz – 25 GHz

### Radiated Spurious – All Modes



— Peak measurements
 — AVG measurements
 — Limit FCC Peak
 - - Limit FCC Avg

Frequency	Max Peak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
21498	47.6	-	74	26.4
21498	-	38.1	54	15.9

Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.