



TESTING CERT #3478.01



# TEST REPORT

|                           |                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| EUT Description           | 1x1 802.11ac + BT 4.2 combo, PCIe M.2 2230 adapter card                                                                              |
| Brand Name                | Intel® Dual-Band Wireless-AC 3168                                                                                                    |
| Model Name                | 3168NGW                                                                                                                              |
| Serial Number             | TA#: H84692-006<br>WF MAC: 34:13:E8:4F:20:63 / 34:13:EB:4F:12:3A<br>BT MAC: 34:13:E8:4F:20:67 / 34:13:E8:4F:12:3E<br>(see section 4) |
| FCC/IC ID                 | FCC ID: PD93168NG / PD93168NGU<br>IC ID: 1000M-3168NG                                                                                |
| Antenna type              | SkyCross WIMAX/WLAN Reference Antenna                                                                                                |
| Hardware/Software Version | HW: TF1 – cfg 51.12<br>Test SW: DRTU version 1.8.4-02432<br>Op SW: 99.0.17.7                                                         |
| Date of Sample Receipt    | 2016-01-17                                                                                                                           |
| Date of Test              | 2016-01-19 / 2016-01-27                                                                                                              |
| Features                  | 802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.2<br>(see section 5)                                                            |

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

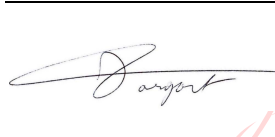
|                     |                                                                                  |
|---------------------|----------------------------------------------------------------------------------|
| Reference Standards | FCC CFR Title 47 Part 15C<br>RSS-247 issue 1, RSS-Gen issue 4<br>(see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

|                    |                |
|--------------------|----------------|
| Test Report number | 160107-01.TR04 |
| 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

  
Digitally signed by Olivier FARGANT  
DN: cn=Olivier FARGANT, o=Intel  
Mobile Communications, ou=WRF  
Lab, email=olivier.fargant@intel.com,  
c=FR  
Date: 2016.02.23 15:19:38 +01'00'

Olivier FARGANT  
(RF Test Lead)

Reviewed by

  
Digitally signed by Jose M. FORTES  
DN: cn=Jose M. FORTES, o=Inter Mobile  
Communications, ou=WRF Lab,  
email=jose.m.fortes.lopez@intel.com,  
c=FR  
Date: 2016.02.23 17:00:32 +01'00'

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 (DWEEL 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>71</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 Issue 1 - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
5. RSS-Gen Issue 4 - General Requirements for Compliance of Radio Apparatus.
6. ANSI C63.10-2009 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 | 22°C ± 2°C |
| Humidity    | 35% ± 5%   |

#### 4. Test samples

| Sample | Control #     | Description                               | Model              | Serial #                     | Date of reception | Note                     |
|--------|---------------|-------------------------------------------|--------------------|------------------------------|-------------------|--------------------------|
| #01    | 160107-01.S07 | WiFi/BT Module                            | 3168NGW            | WF MAC:<br>34:13:E8:4F:20:63 | 2016-01-07        | Used for conducted tests |
|        | 160107-01.S14 | Extender board                            | PC00495            | ASS0495-001,<br>4950414-064  | 2016-01-07        |                          |
|        | 160107-01.S19 | Switching power supply<br>SINPRO 5V<br>6A | SPU60-102          | 08741187 1350                | 2016-01-07        |                          |
|        | 15040201.S14  | Laptop                                    | Dell Latitude      | 27081704053                  | 2015-04-15        |                          |
| #02    | 160107-01.S03 | WiFi/BT High End Module                   | 3168NGW            | WF MAC:<br>34:13:EB:4F:12:3A | 2016-07-01        | Used for radiated tests  |
|        | 160107-01.S11 | Extender board                            | PC00495            | 4955013-097                  | 2016-07-01        |                          |
|        | 160107-01.S27 | USB Cable                                 | E154336            | NA                           | 2015-05-12        |                          |
|        | 150818-01.S14 | PCI Cable                                 | Blue cable 1 meter | NA                           | 2015-05-12        |                          |
|        | 160107-01.S28 | Laptop                                    | Dell E5440         | BJSYN32                      | 2016-01-15        |                          |
|        | 160107-01.S26 | AC/DC Adapter                             | SPU60-102          | 07990509 1249                | 2016-01-15        |                          |

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)<br>5.3GHz (5250.0 – 5350.0 MHz)<br>5.6GHz (5470.0 – 5725.0 MHz)<br>5.8GHz (5725.0 – 5850.0 MHz) |
| BDR/EDR 2.1<br>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)<br>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    | 2016-02-19 | O.Fargant   | First Issue |

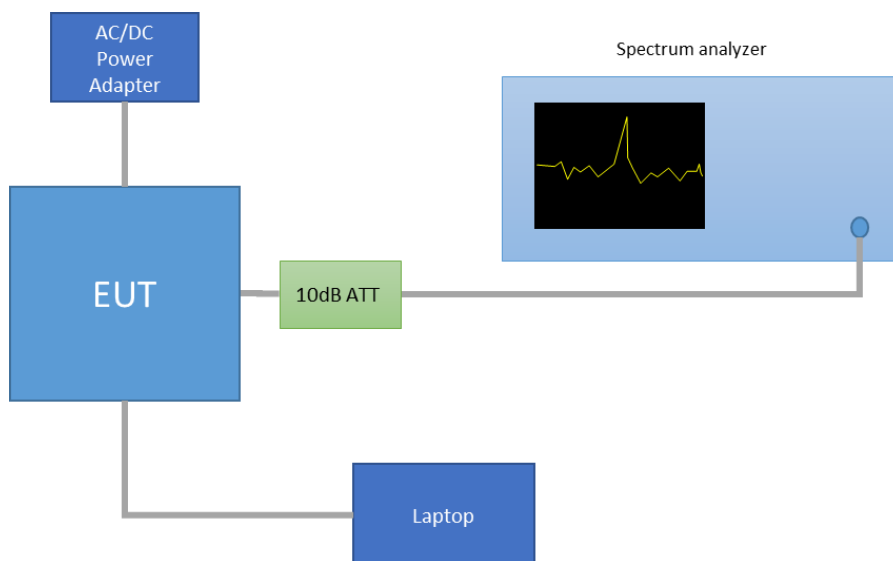
# Annex A. Test & System Description

## A.1 Measurement system

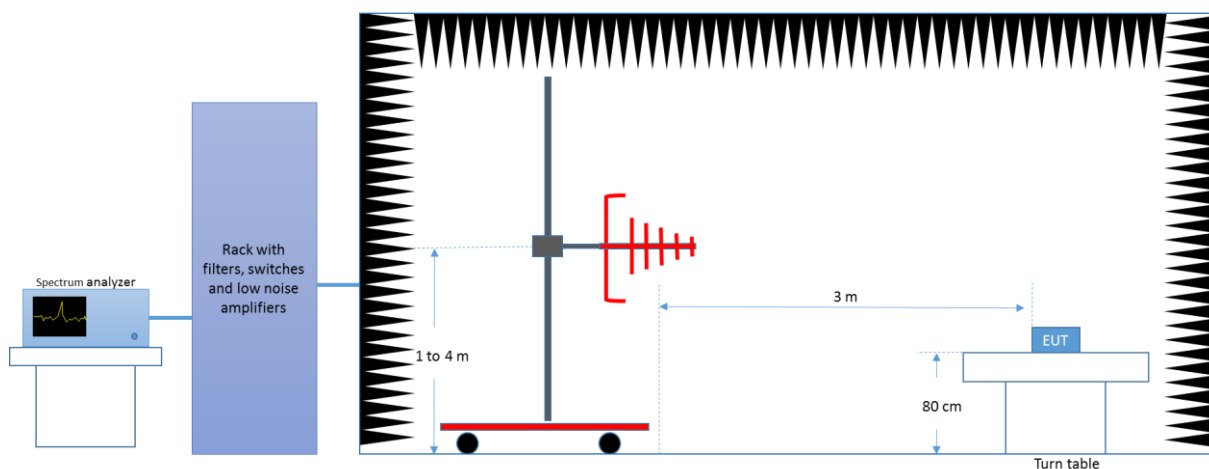
Measurements were performed using the following setups.

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.

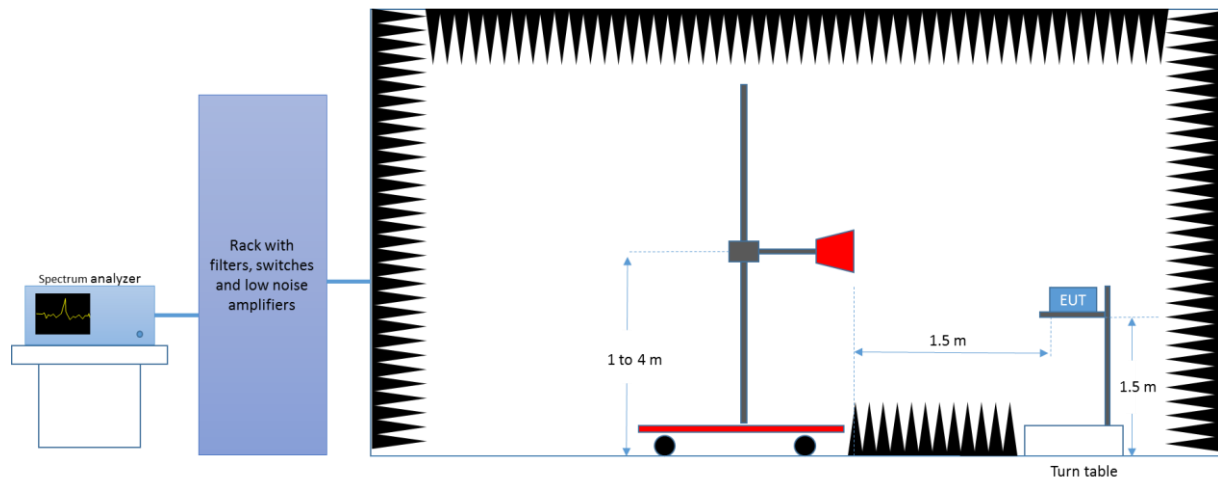
### Conducted Setup



### Radiated Setup < 1GHz



*Radiated Setup > 1GHz*



## 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 | 2014-05-09 | 2016-05-09    |
| 0137 | Log antenna<br>30 MHz – 1 GHz    | 3142E      | 00156946                 | ETS Lindgren    | 2014-03-05 | 2016-03-05    |
| 0138 | Horn antenna<br>1 GHz – 6.4 GHz  | 3117       | 00152266                 | ETS Lindgren    | 2014-03-04 | 2016-03-04    |
| 0141 | Horn Antenna<br>6.4 GHz – 18 GHz | 3117-PA    | 00157736                 | ETS Lindgren    | 2014-06-03 | 2016-06-03    |
| 0248 | Horn Antenna<br>1 GHz – 18 GHz   | 3117-PA    | 00167062                 | ETS Lindgren    | 2014-08-13 | 2016-08-13    |
| 0139 | Horn Antenna<br>18GHz – 26GHz    | 114514     | 00167100                 | ETS Lindgren    | 2014-04-25 | 2016-04-25    |
| 0140 | Horn Antenna<br>26GHz – 40GHz    | 120722     | 00169638                 | ETS Lindgren    | 2014-08-14 | 2016-08-14    |
| 0135 | Anechoic chamber                 | FACT 3     | RFD_FA_100               | ETS Lindgren    | 2014-05-06 | 2016-05-06    |
| 0329 | Measurement Software             | EMC32      | 1300.7027.00<br>(100401) | Rohde & Schwarz | N/A        | N/A           |
| 0133 | Spectrum analyzer                | FSV40      | 101358                   | Rohde & Schwarz | 2014-05-09 | 2016-05-09    |
| 0296 | DC Power Supply                  | 6673A      | MY41000318               | Agilent         | N/A        | N/A           |

## A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

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

# Annex B. Test Results

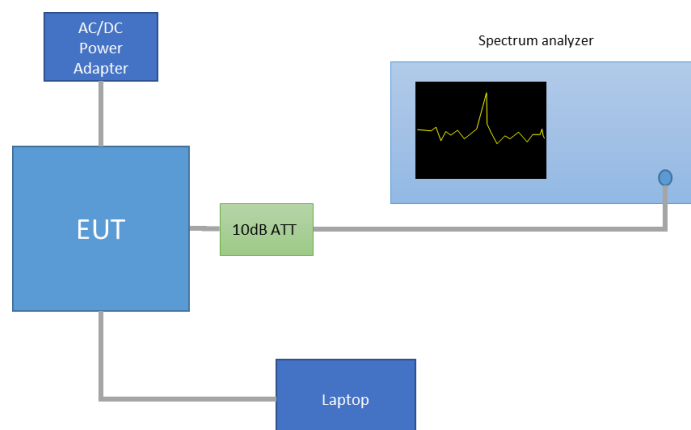
## B.1 20dB Bandwidth and Carrier frequency separation

### Test limits:

| FCC part       | RSS part                             | Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.247 (a) (1) | RSS-247<br>Clause 5.1<br>(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.



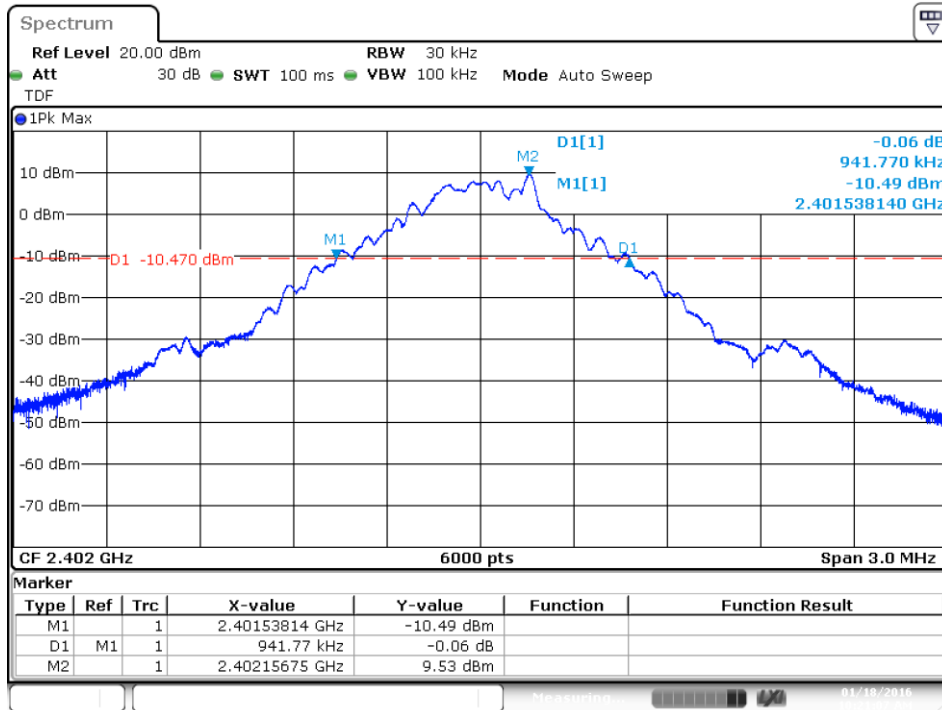
### Results tables:

| Mode               | Channel Number | Frequency [MHz] | 20dB BW [MHz] | Freq. Separation [kHz] |
|--------------------|----------------|-----------------|---------------|------------------------|
| Basic Rate GFSK    | 0              | 2402            | 0.942         | 1000.0                 |
|                    | 39             | 2441            | 0.939         |                        |
|                    | 78             | 2480            | 0.941         |                        |
| EDR $\pi/4$ -DQPSK | 0              | 2402            | 1.482         | 1000.0                 |
|                    | 39             | 2441            | 1.476         |                        |
|                    | 78             | 2480            | 1.480         |                        |
| EDR 8-DPSK         | 0              | 2402            | 1.423         | 1000.0                 |
|                    | 39             | 2441            | 1.431         |                        |
|                    | 78             | 2480            | 1.435         |                        |

# Results screenshot:

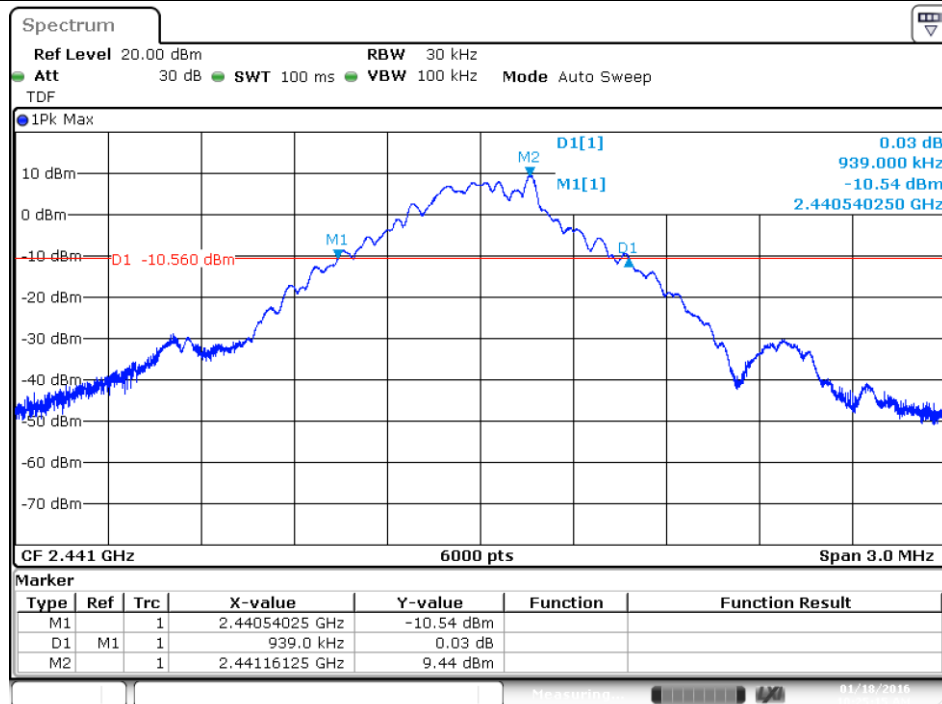
## Basic Rate - GFSK

### 20dB BW - CH0



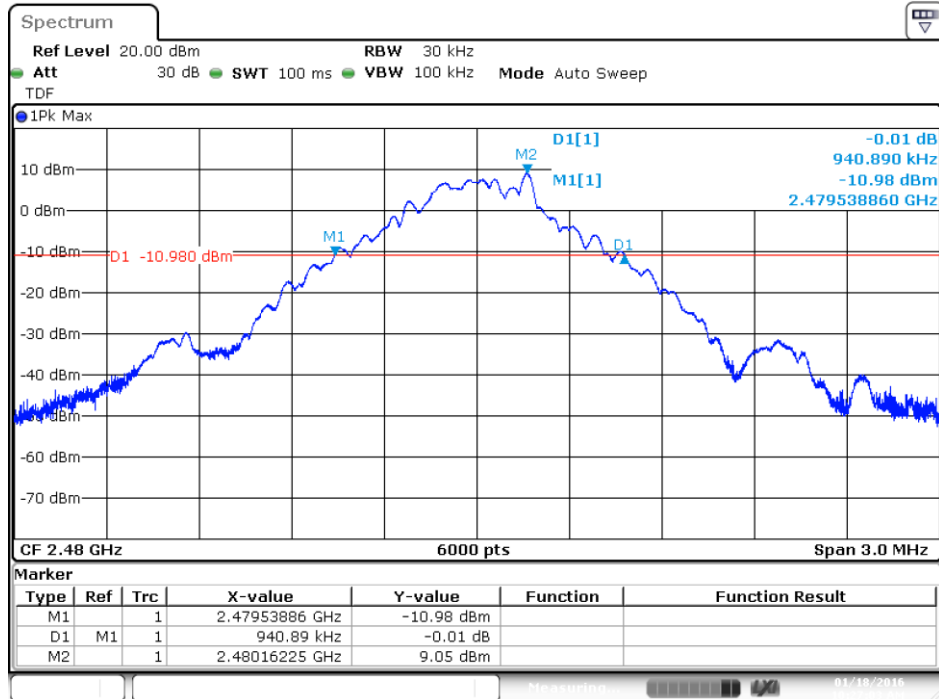
Date: 18.JAN.2016 10:21:08

### 20dB BW - CH39



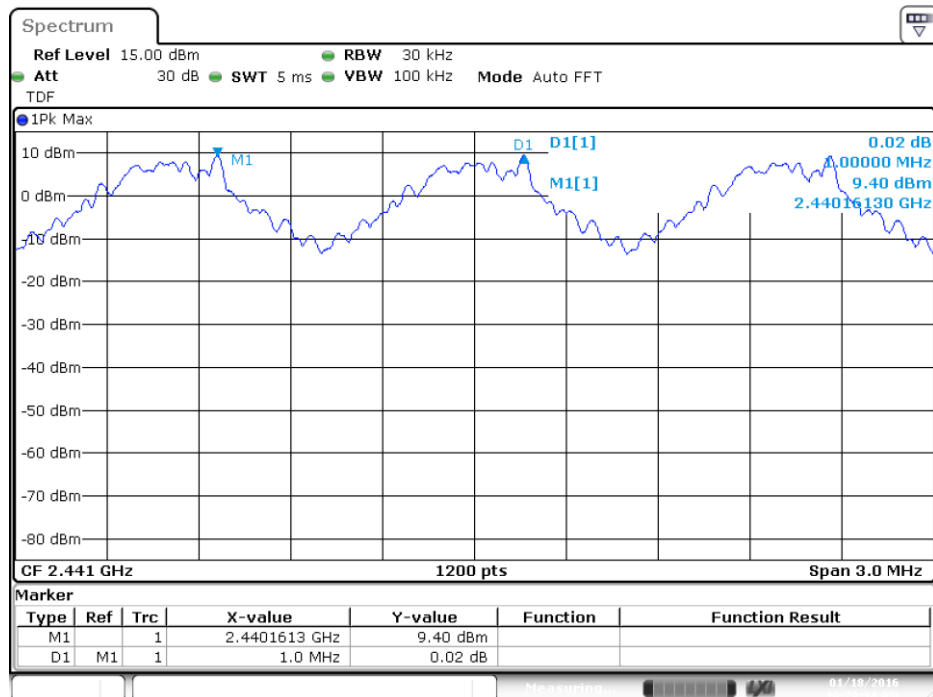
Date: 18.JAN.2016 10:25:15

## 20dB BW - CH78



Date: 18.JAN.2016 10:27:04

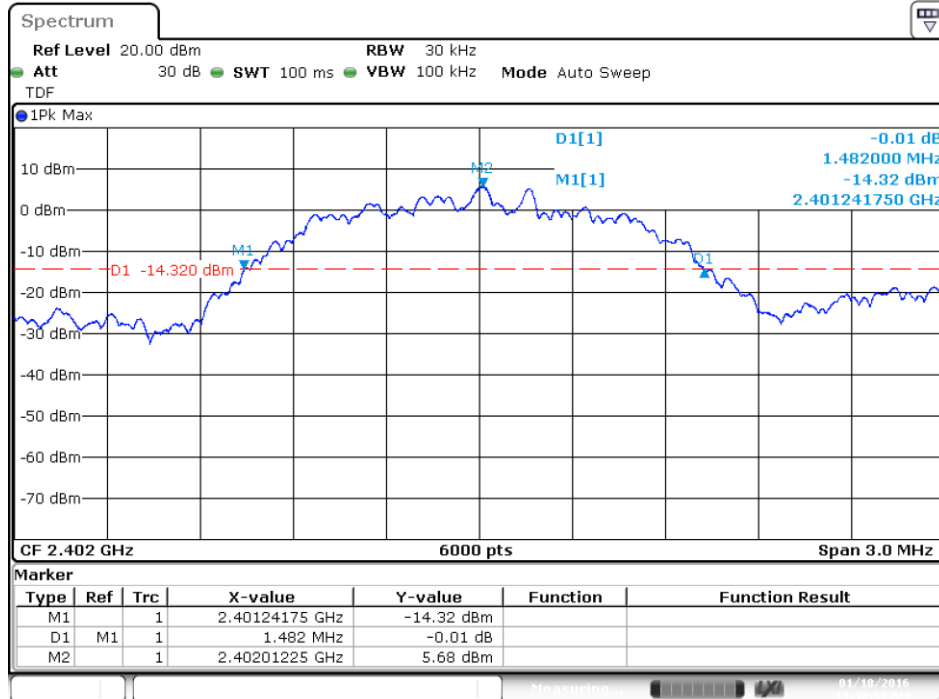
## Freq. Separation



Date: 18.JAN.2016 10:29:35

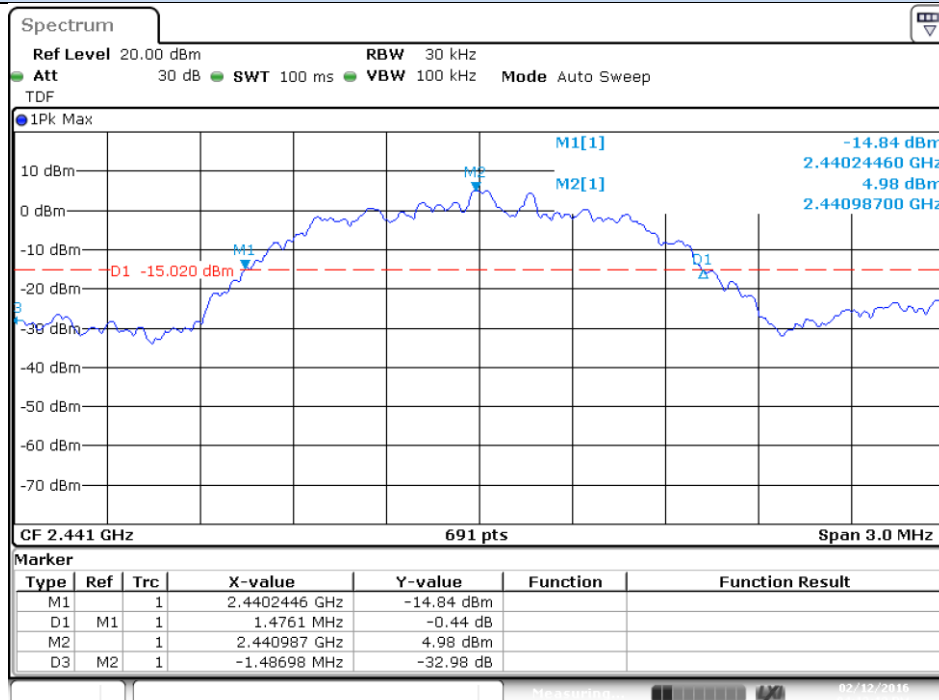
## EDR – $\pi/4$ -DQPSK

### 20dB BW - CH0

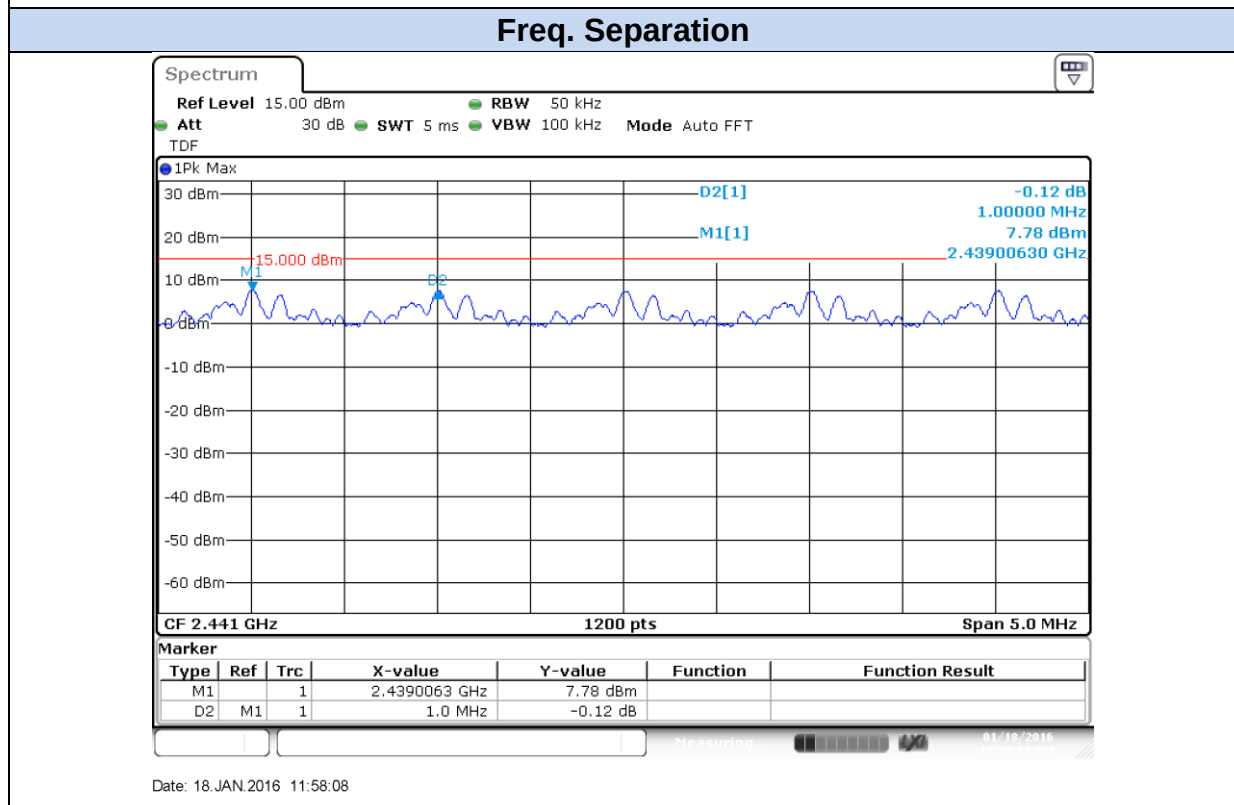
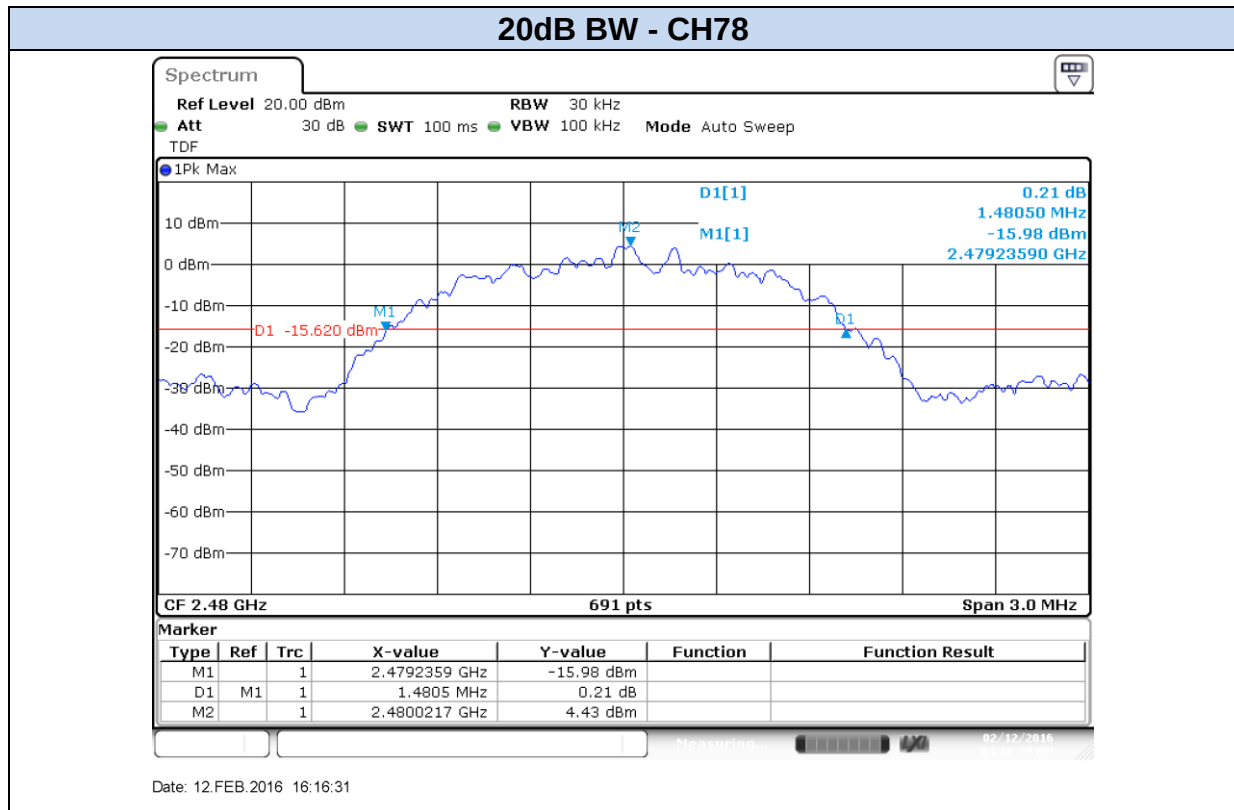


Date: 18.JAN.2016 11:40:34

### 20dB BW - CH39

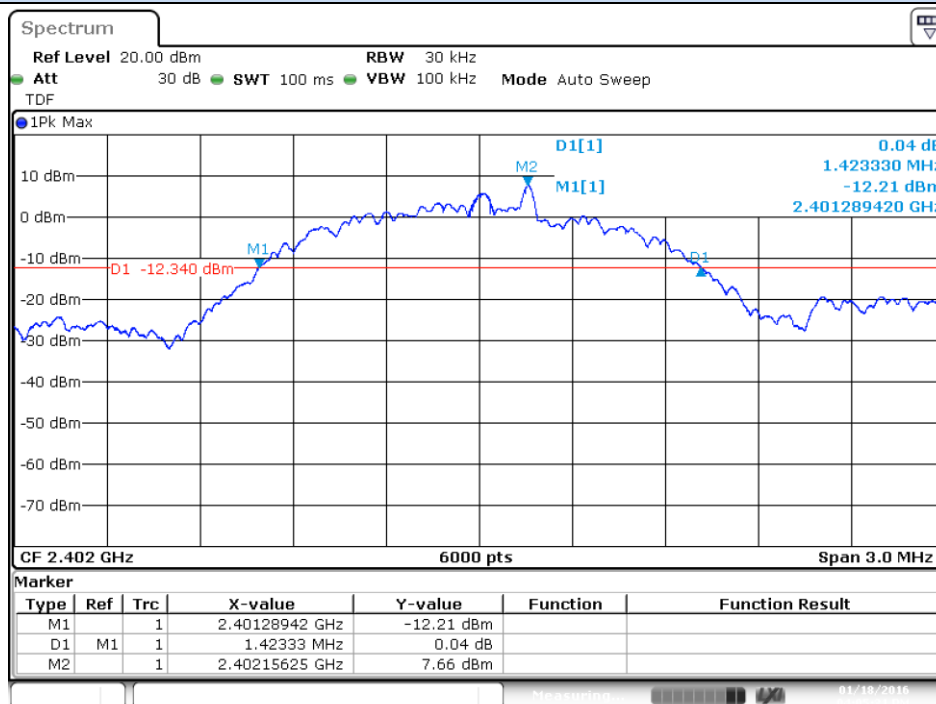


Date: 12.FEB.2016 16:13:12



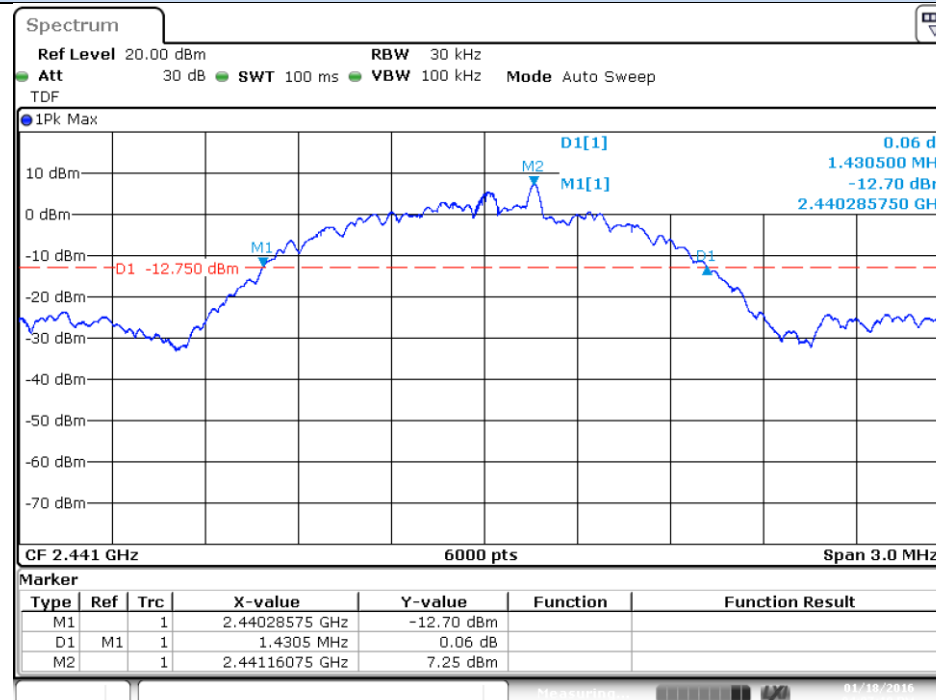
## EDR – 8-DPSK

### 20dB BW - CH0

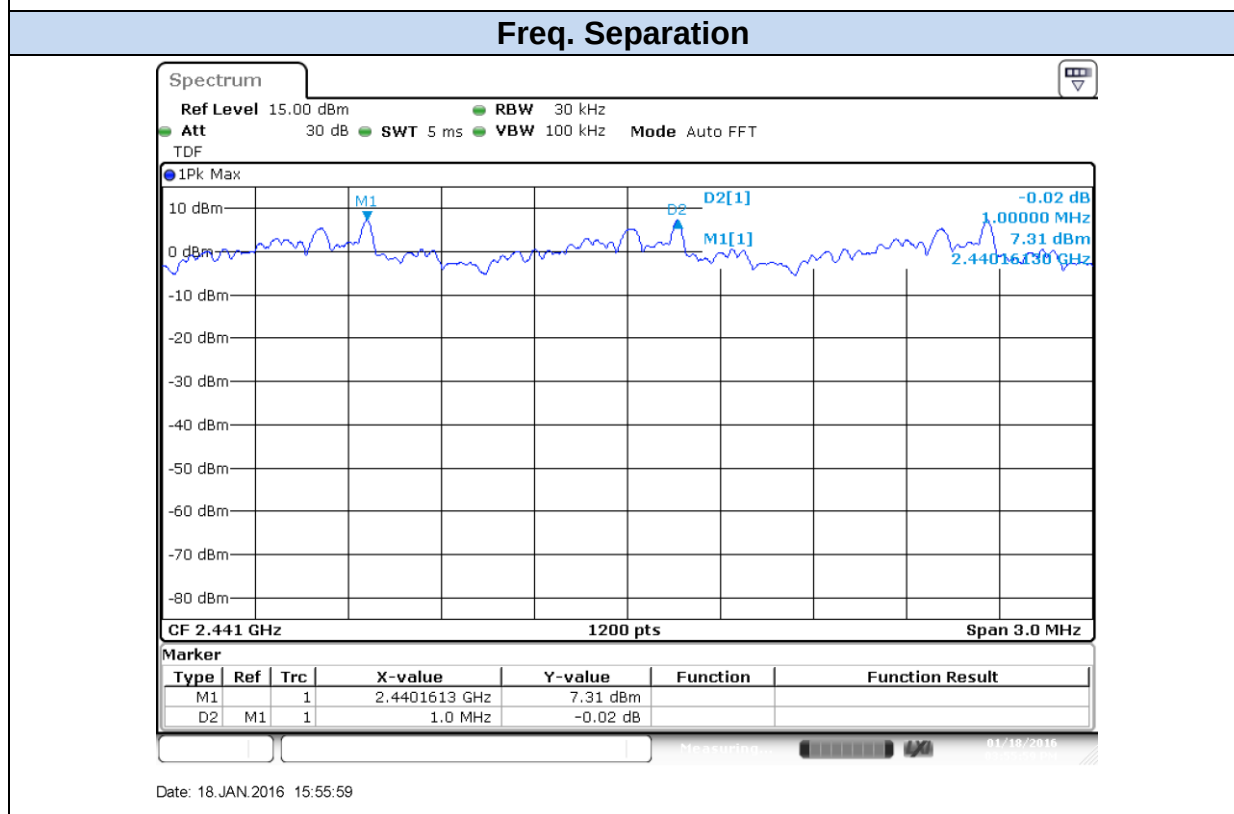
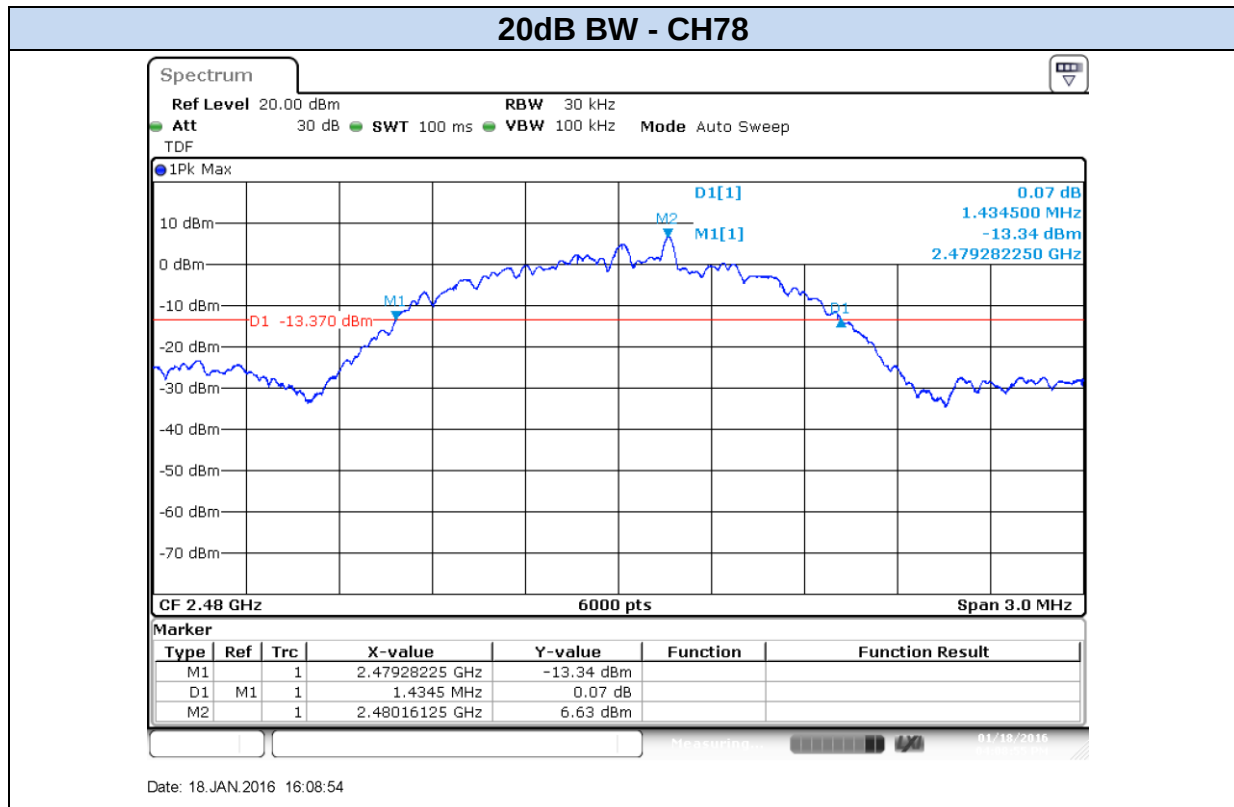


Date: 18.JAN.2016 16:05:31

### 20dB BW - CH39



Date: 18.JAN.2016 16:07:19



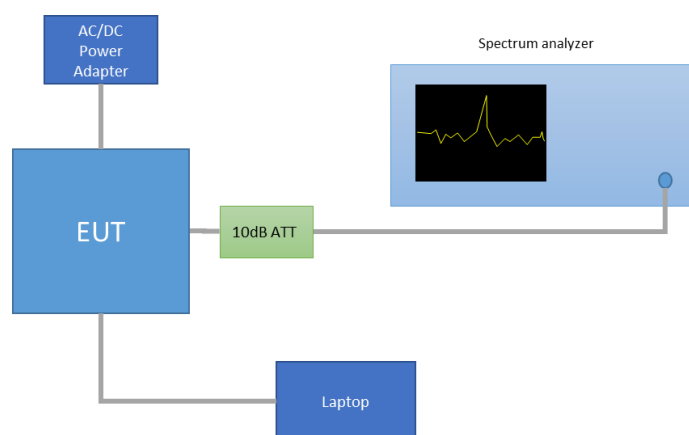
## B.2 Number of hopping channels

### Test limits:

| FCC part                | RSS part                     | Limits                                                                                |
|-------------------------|------------------------------|---------------------------------------------------------------------------------------|
| 15.247<br>(a) (1) (iii) | RSS-247<br>Clause 5.1<br>(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.



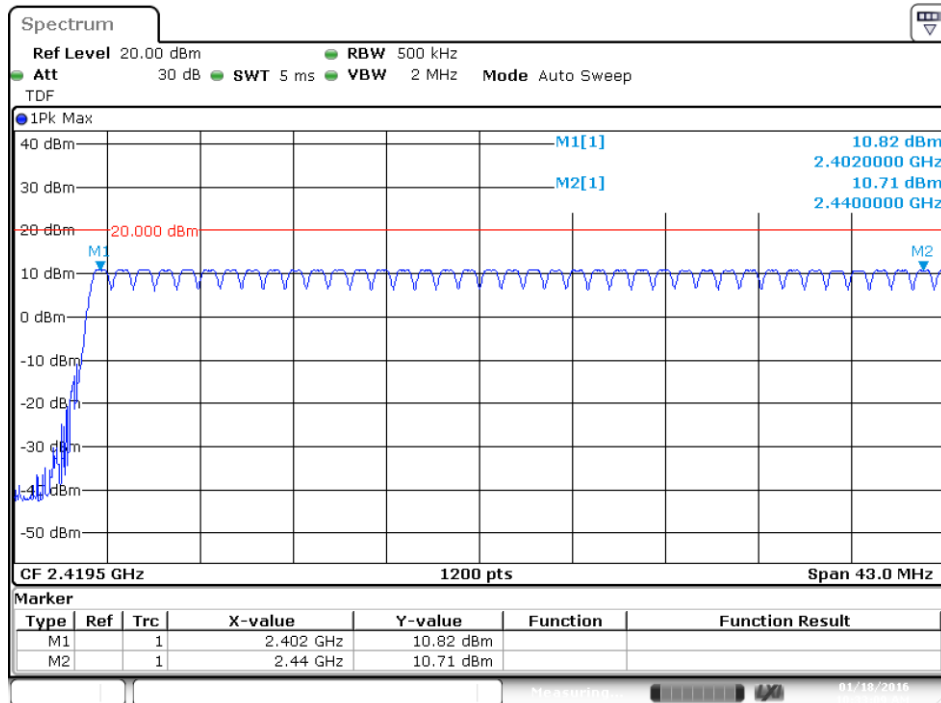
### Results tables:

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

**Results screenshot:**

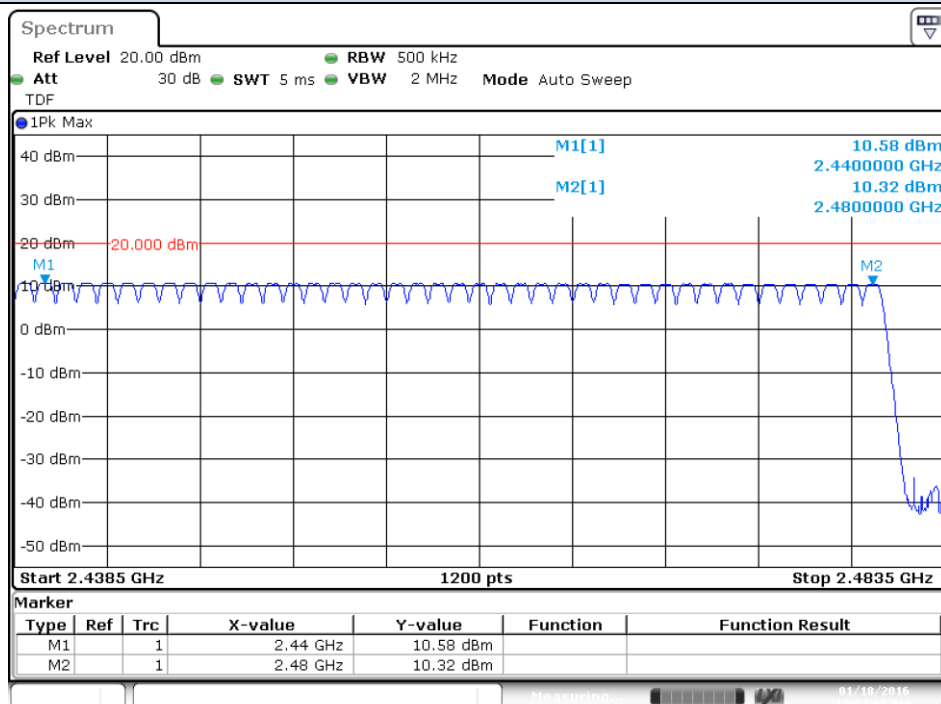
## Number of hopping channels

### Basic Rate - GFSK

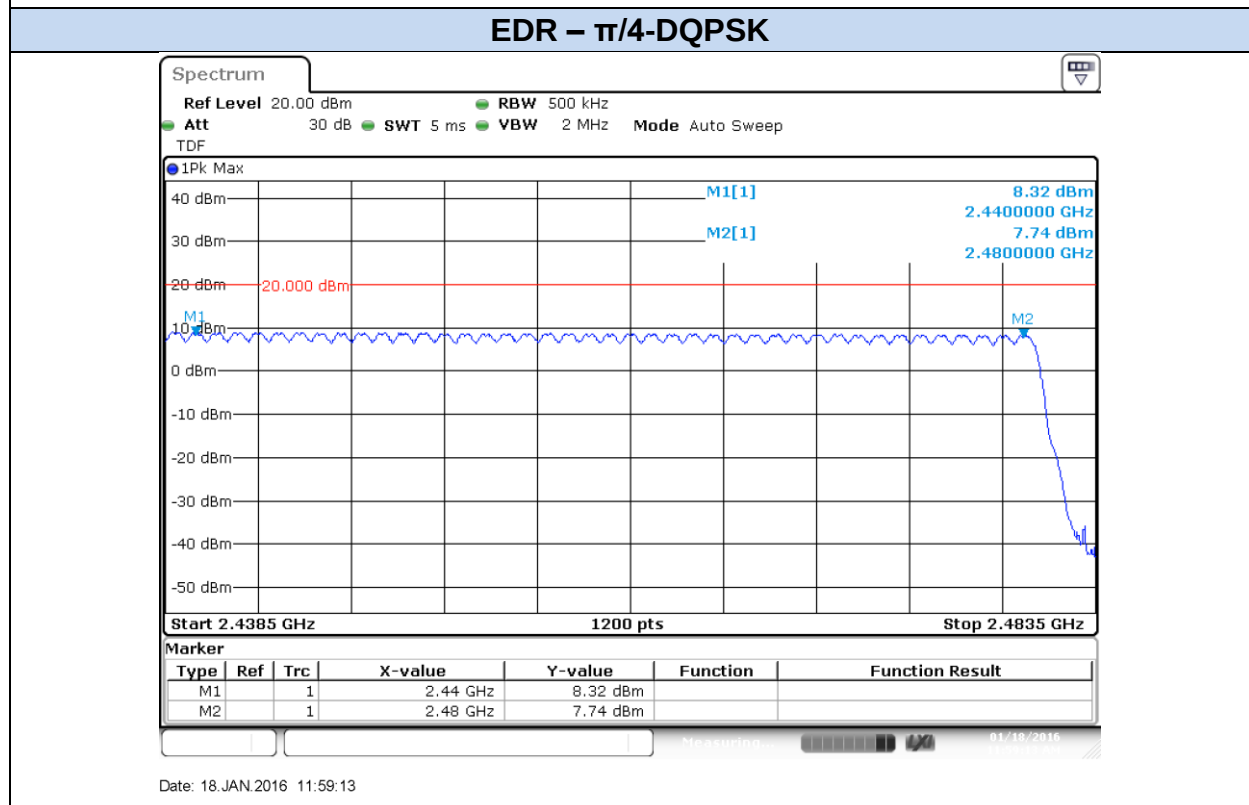
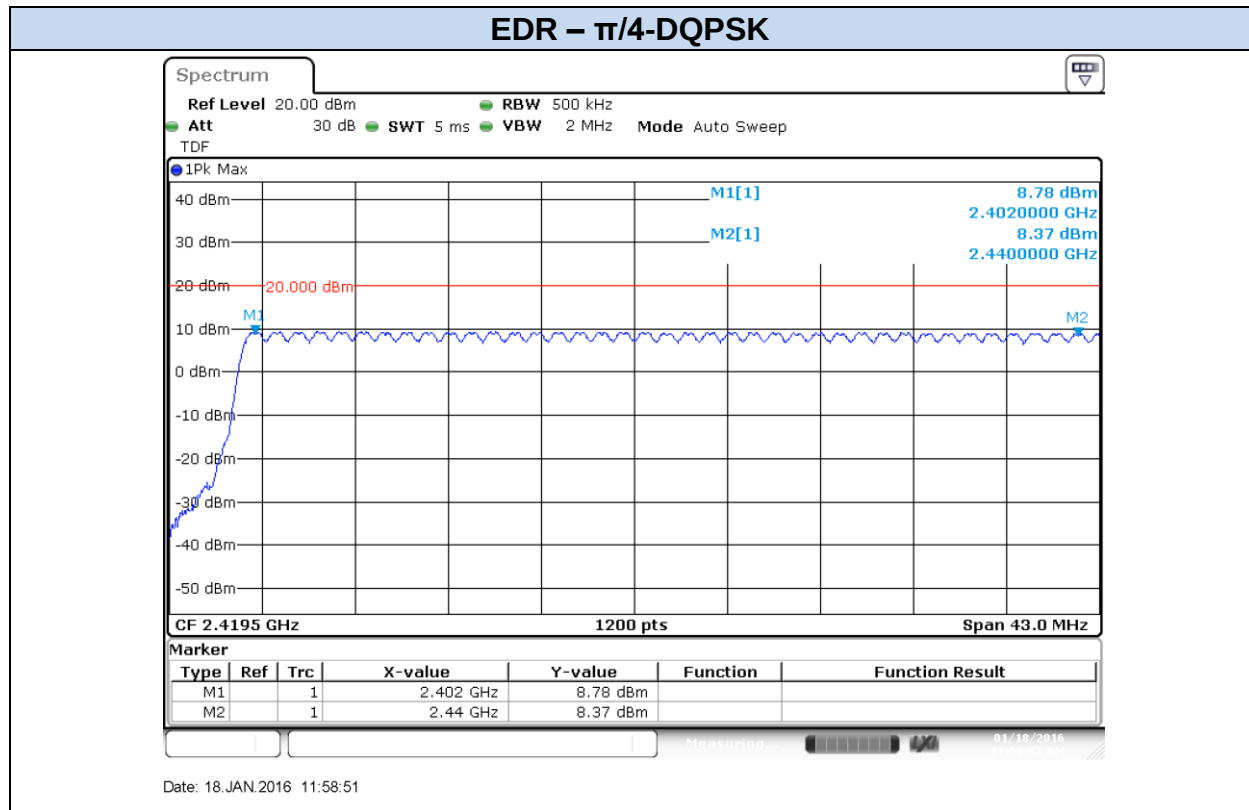


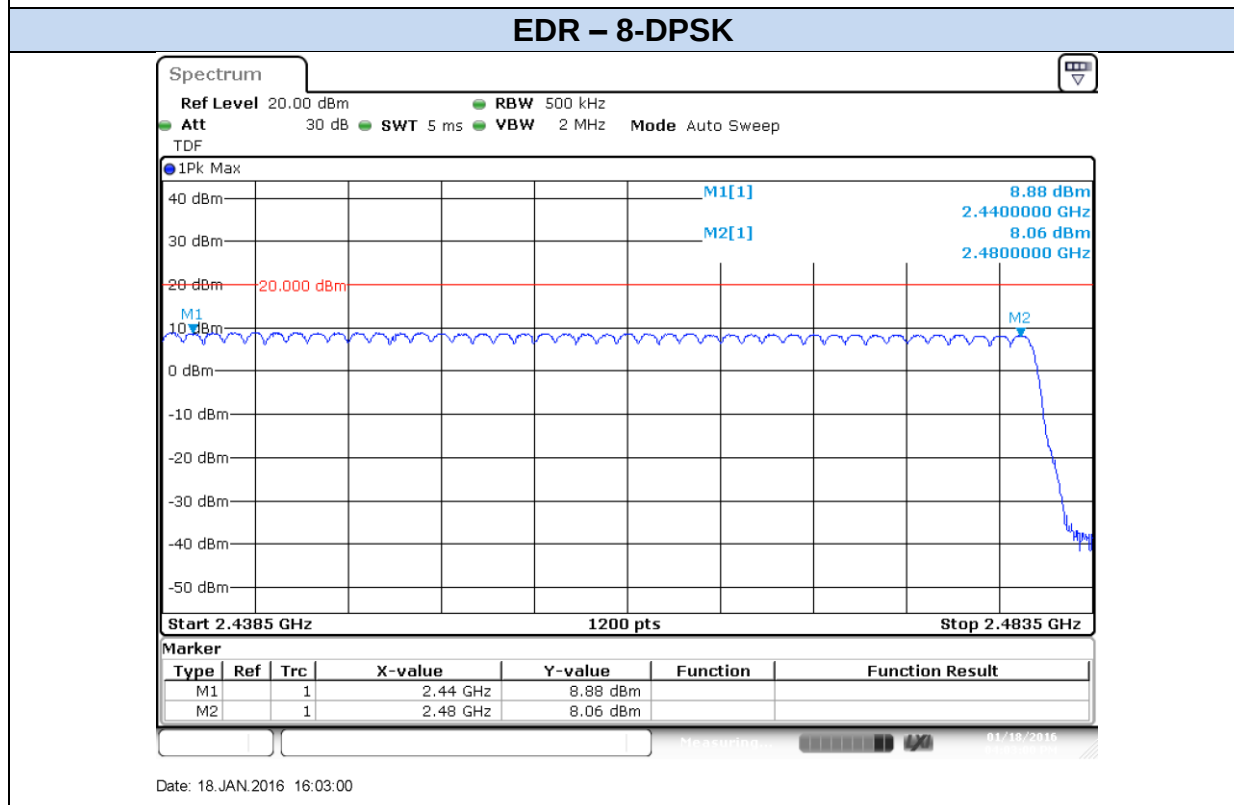
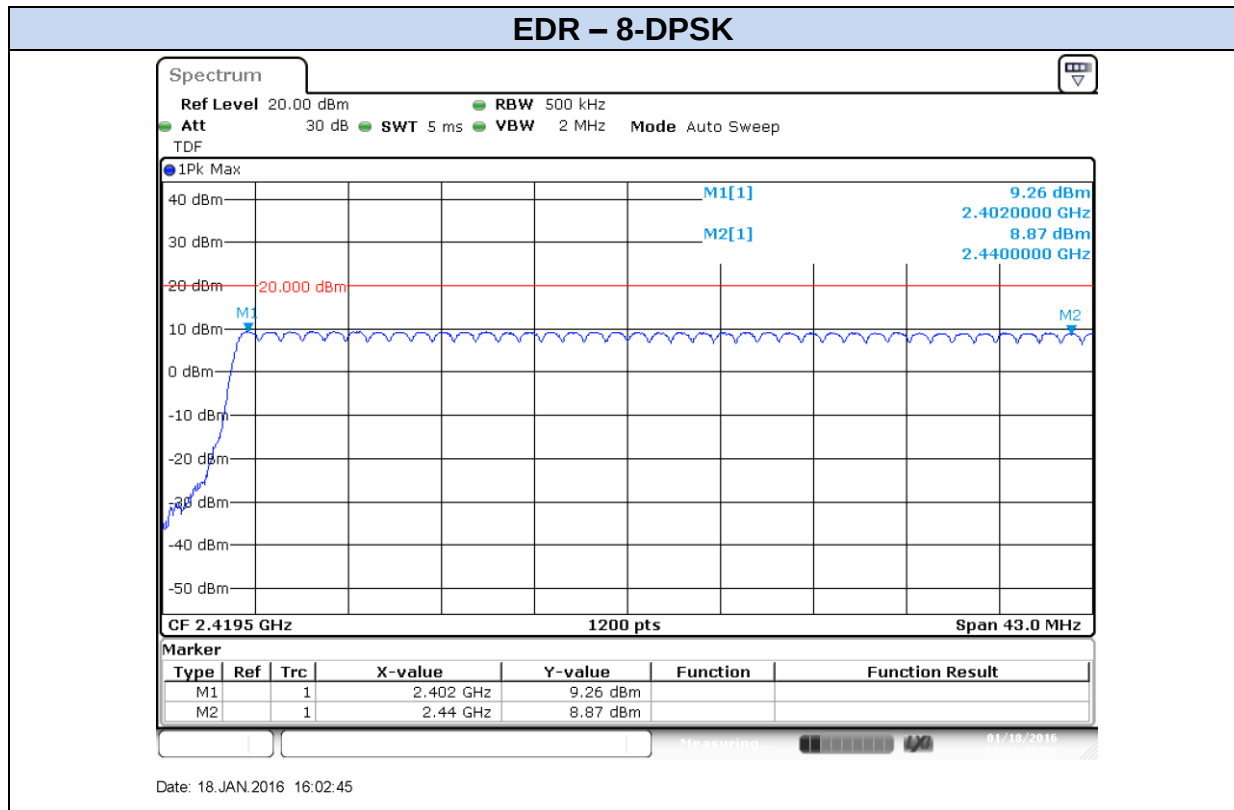
Date: 18.JAN.2016 10:33:09

### Basic Rate - GFSK



Date: 18.JAN.2016 10:34:05





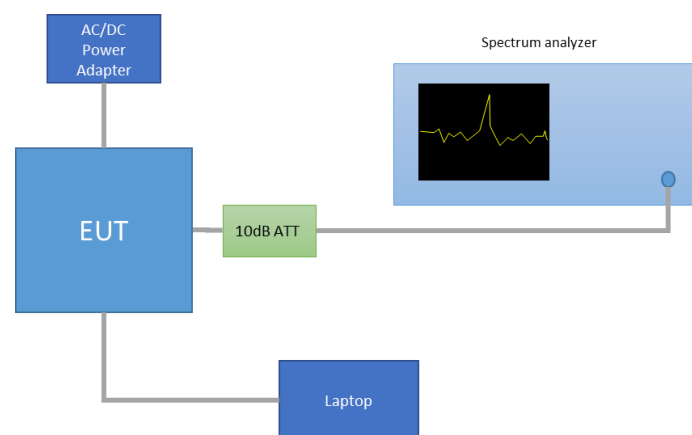
### B.3 Time of Occupancy (Dwell Time)

#### Test limits:

| FCC part                | RSS part                     | Limits                                                                                                                                                                                |
|-------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.247<br>(a) (1) (iii) | RSS-247<br>Clause<br>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.

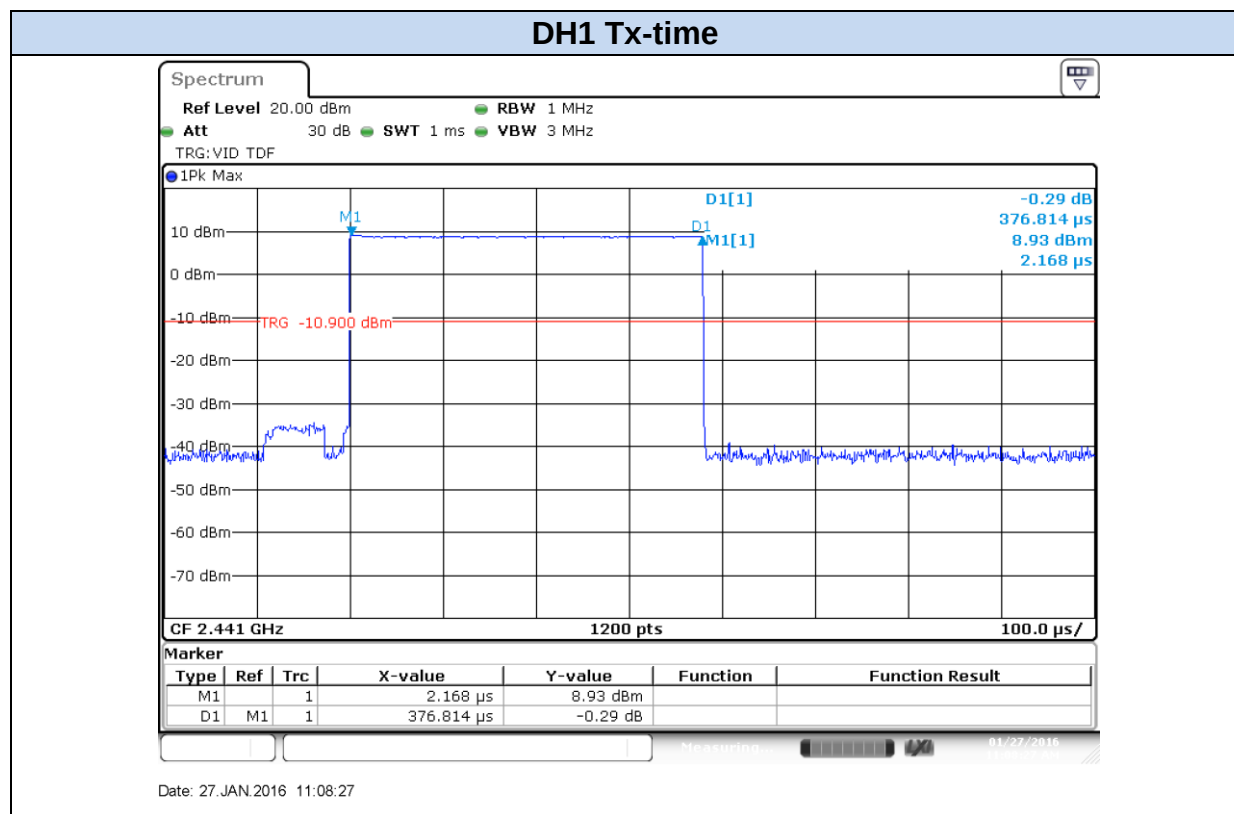
Thus, the total time of occupancy is obtained by multiplying the calculated maximum number of appearances per packet type and the measured Tx-time, as shown in the results screenshots.

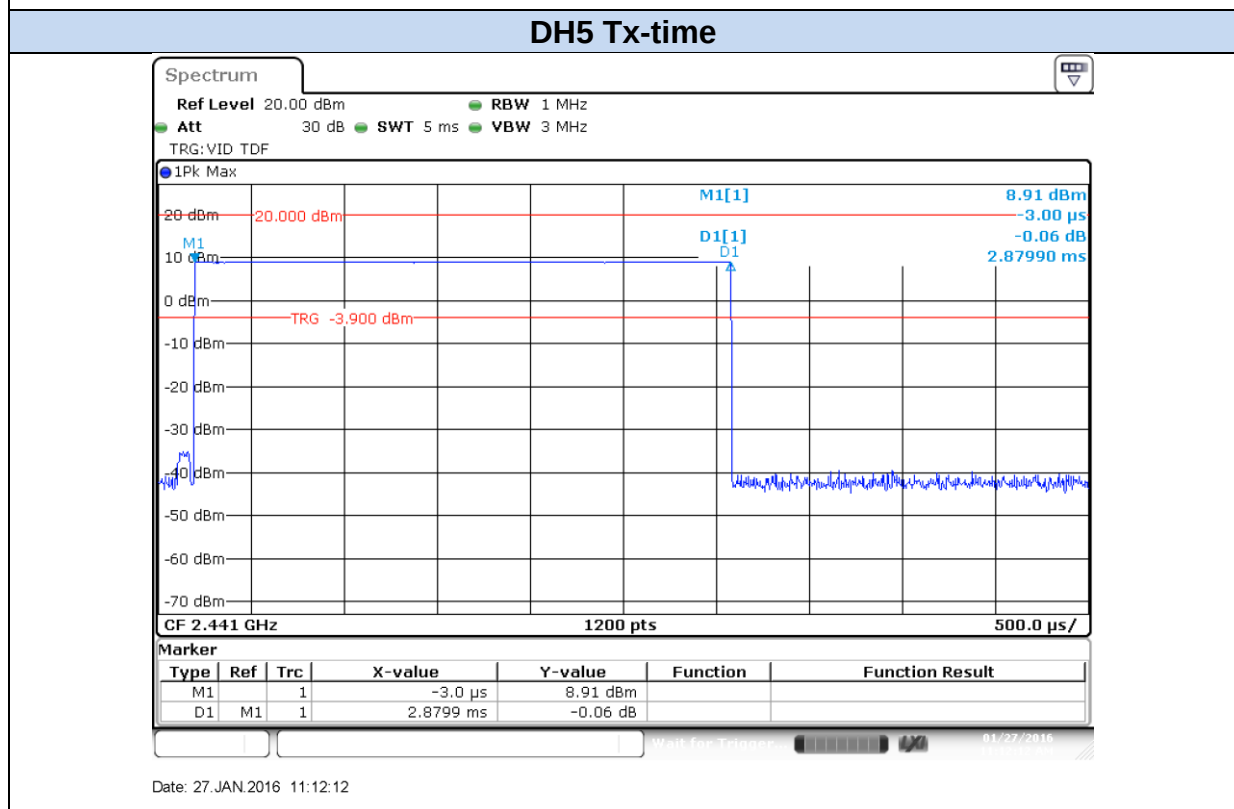
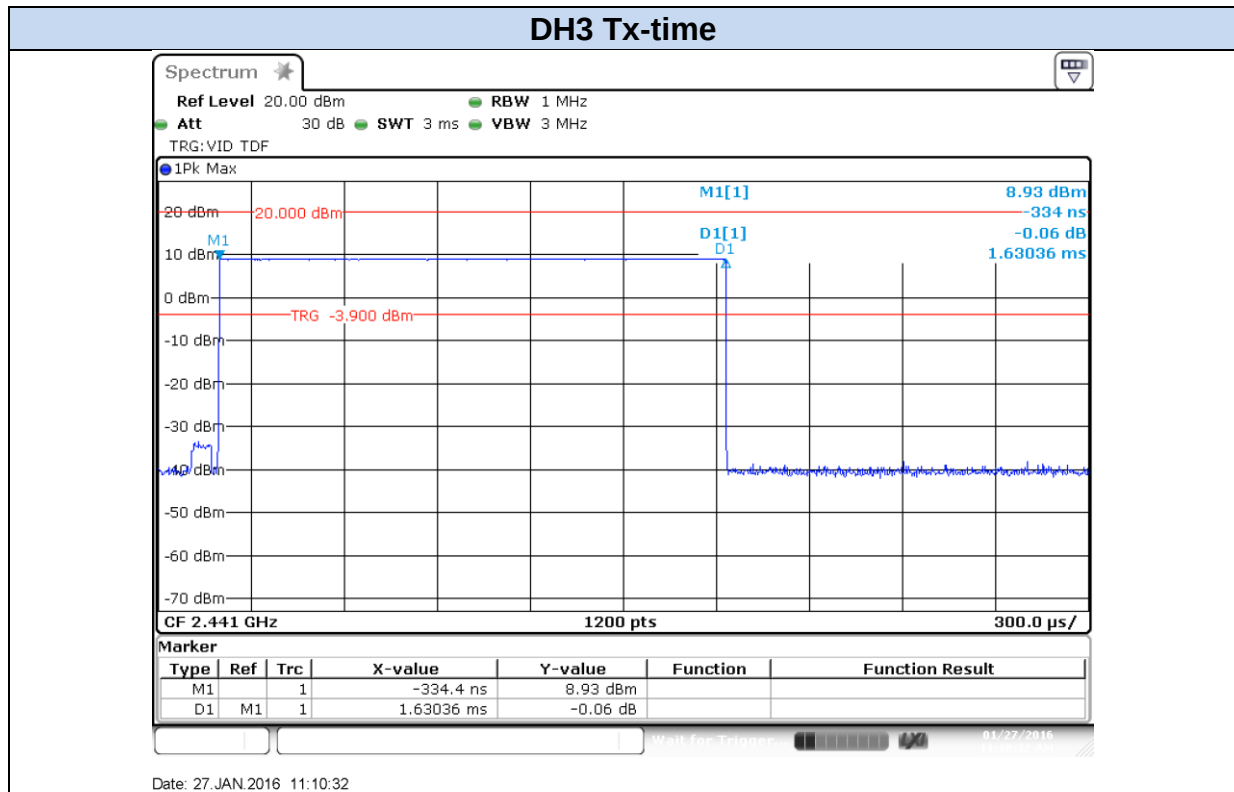
### Results tables:

| Mode                  | Packet Type | Times of appearance | Tx-time [ms] | Dwell Time [ms] |
|-----------------------|-------------|---------------------|--------------|-----------------|
| Basic Rate<br>GFSK    | DH1         | 320.11              | 0.377        | 120.68          |
|                       | DH3         | 161.16              | 1.630        | 262.69          |
|                       | DH5         | 106.49              | 2.880        | 306.69          |
| EDR<br>$\pi/4$ -DQPSK | 2-DH1       | 320.11              | 0.389        | 124.52          |
|                       | 2-DH3       | 161.16              | 1.635        | 263.50          |
|                       | 2-DH5       | 106.49              | 2.882        | 306.80          |
| EDR<br>8-DPSK         | 3-DH1       | 320.11              | 0.389        | 124.52          |
|                       | 3-DH3       | 161.16              | 1.635        | 263.50          |
|                       | 3-DH5       | 106.49              | 2.886        | 307.33          |

### Results Screenshot:

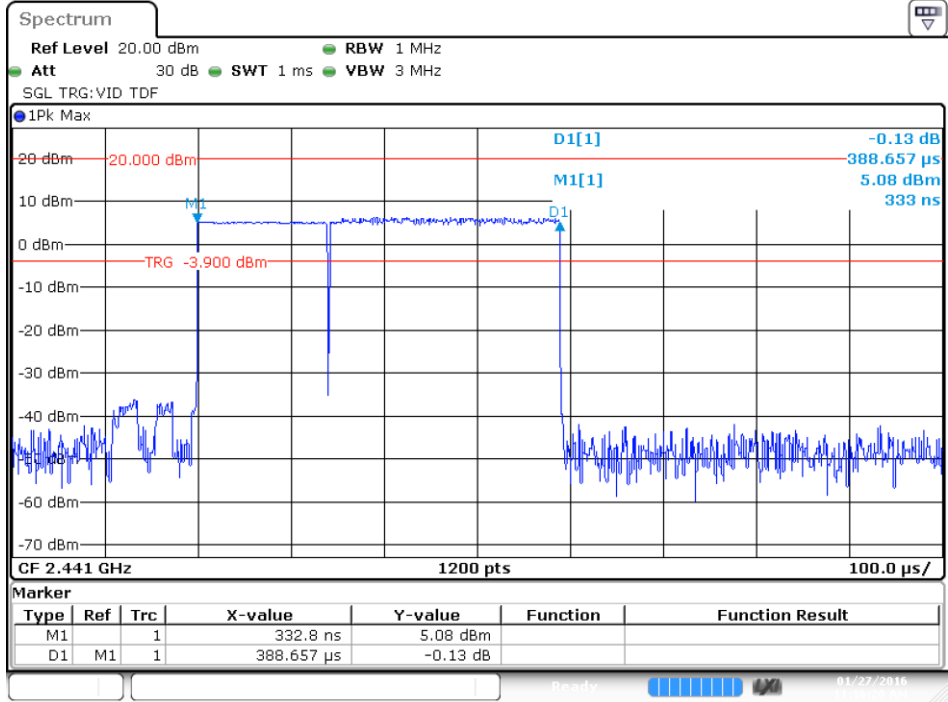
## BDR – GFSK





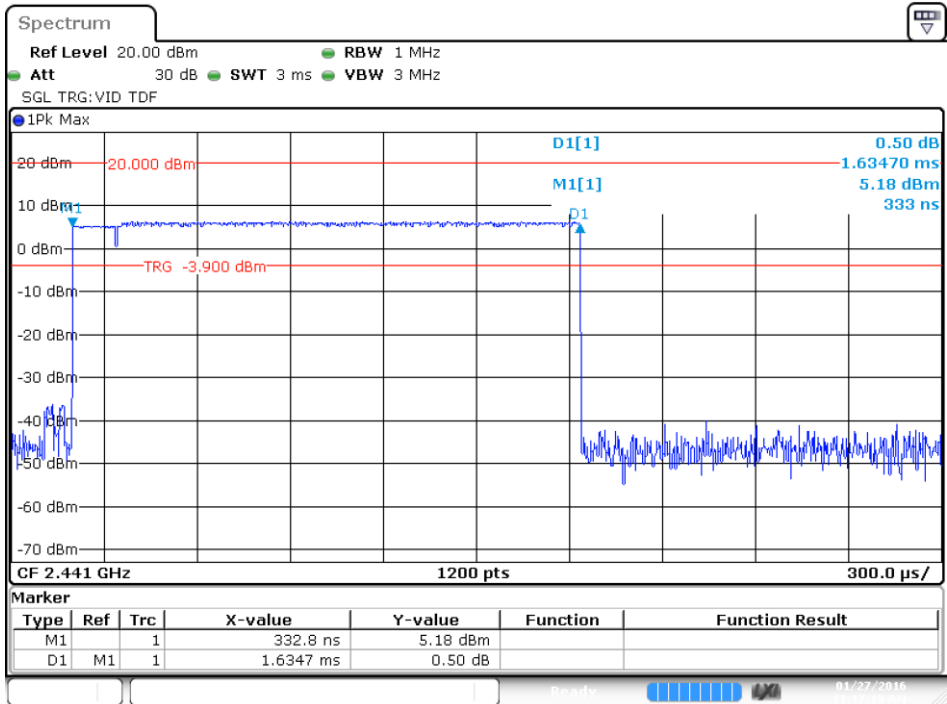
EDR –  $\pi/4$ -DQPSK

2-DH1 Tx-time

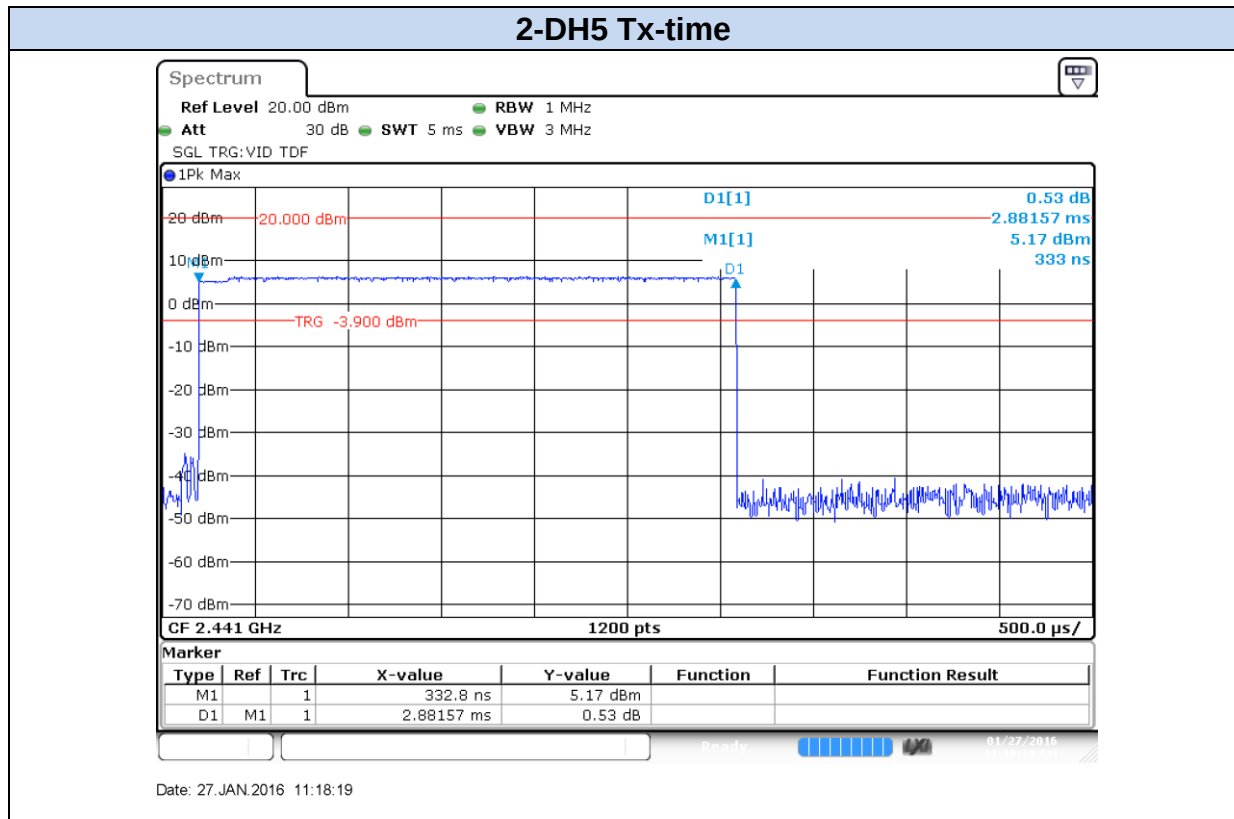


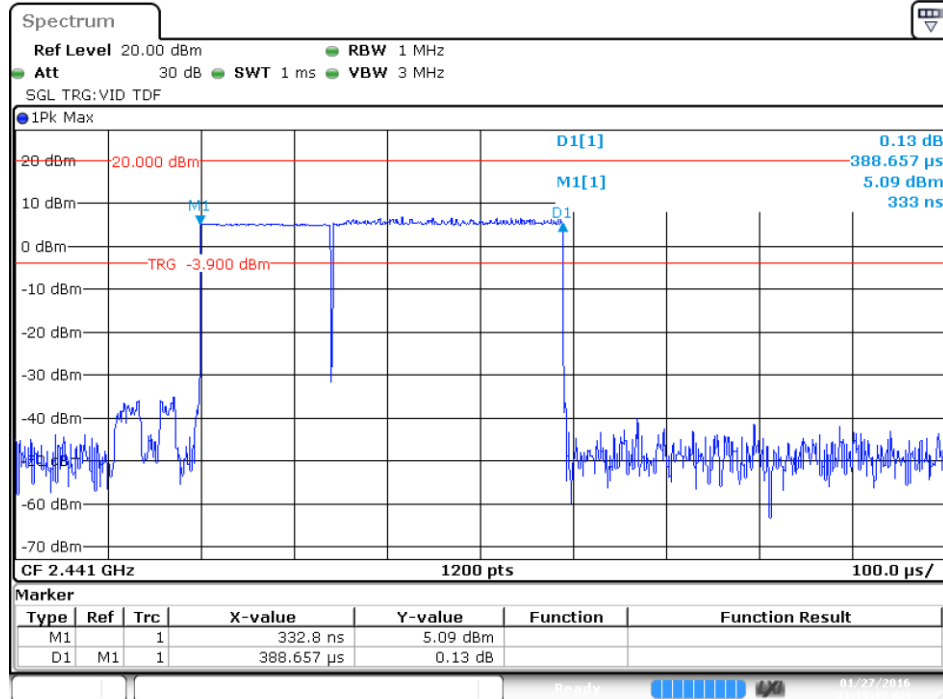
Date: 27.JAN.2016 11:16:20

2-DH3 Tx-time

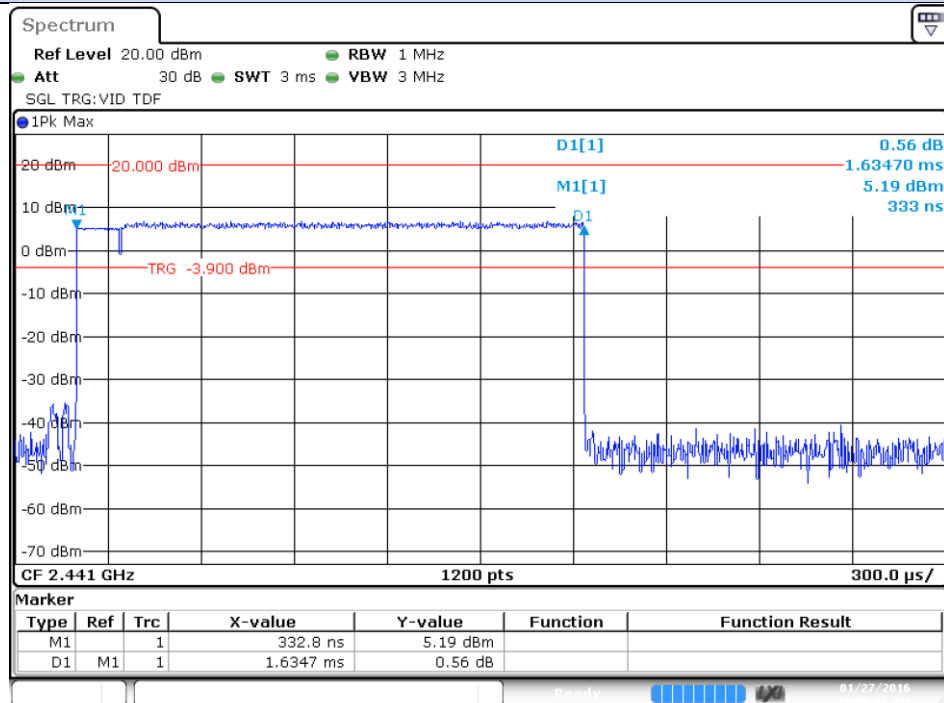


Date: 27.JAN.2016 11:17:19

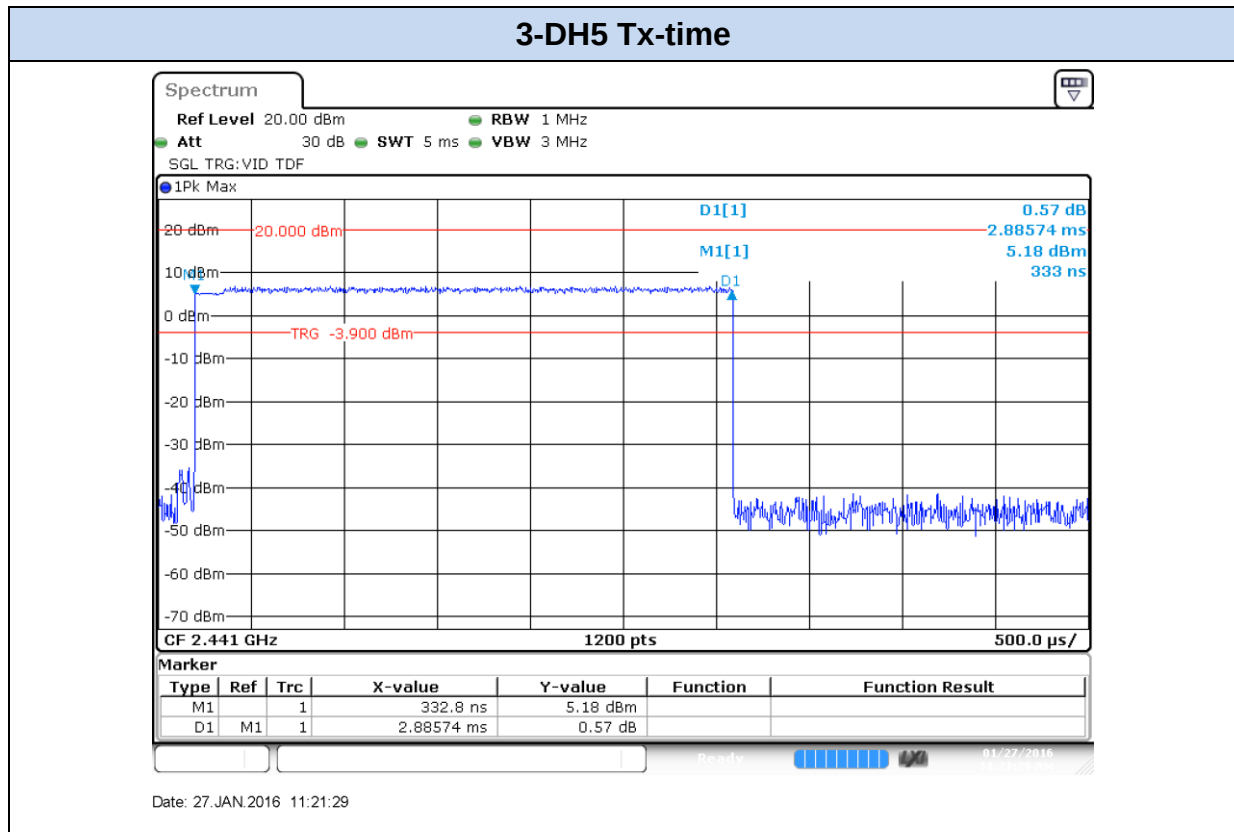


**EDR – 8-DPSK****3-DH1 Tx-time**

Date: 27.JAN.2016 11:19:17

**3-DH3 Tx-time**

Date: 27.JAN.2016 11:20:08



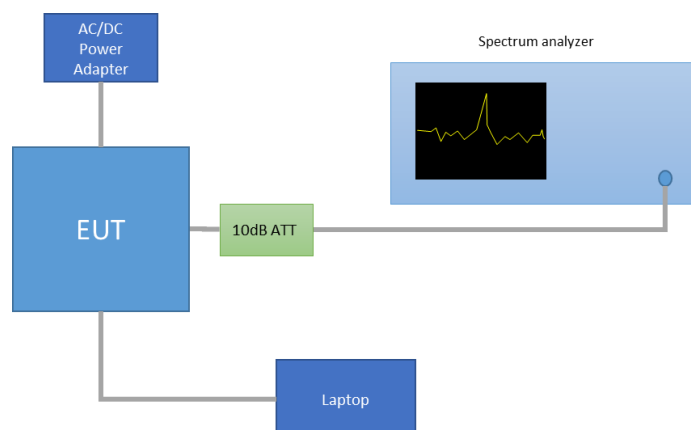
## B.4 Maximum Peak Output Power and antenna gain

### Test limits:

| FCC part          | RSS part                     | Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.247<br>(b) (1) | RSS-247<br>Clause 5.4<br>(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.<br/>(...)</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.

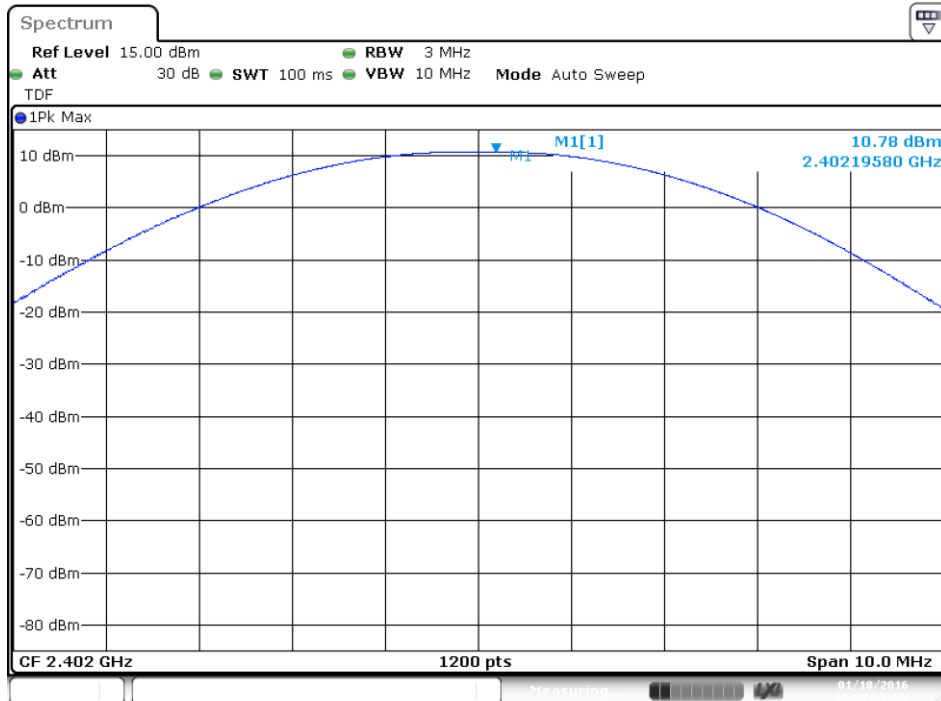
### Results tables:

| Mode                  | Channel Number | Frequency [MHz] | Peak Power [dBm] |
|-----------------------|----------------|-----------------|------------------|
| Basic Rate<br>GFSK    | 0              | 2402            | 10.78            |
|                       | 39             | 2441            | 10.69            |
|                       | 78             | 2480            | 10.43            |
| EDR<br>$\pi/4$ -DQPSK | 0              | 2402            | 10.22            |
|                       | 39             | 2441            | 9.98             |
|                       | 78             | 2480            | 9.58             |
| EDR<br>8-DPSK         | 0              | 2402            | 10.36            |
|                       | 39             | 2441            | 10.14            |
|                       | 78             | 2480            | 9.75             |

**Results Screenshot:**

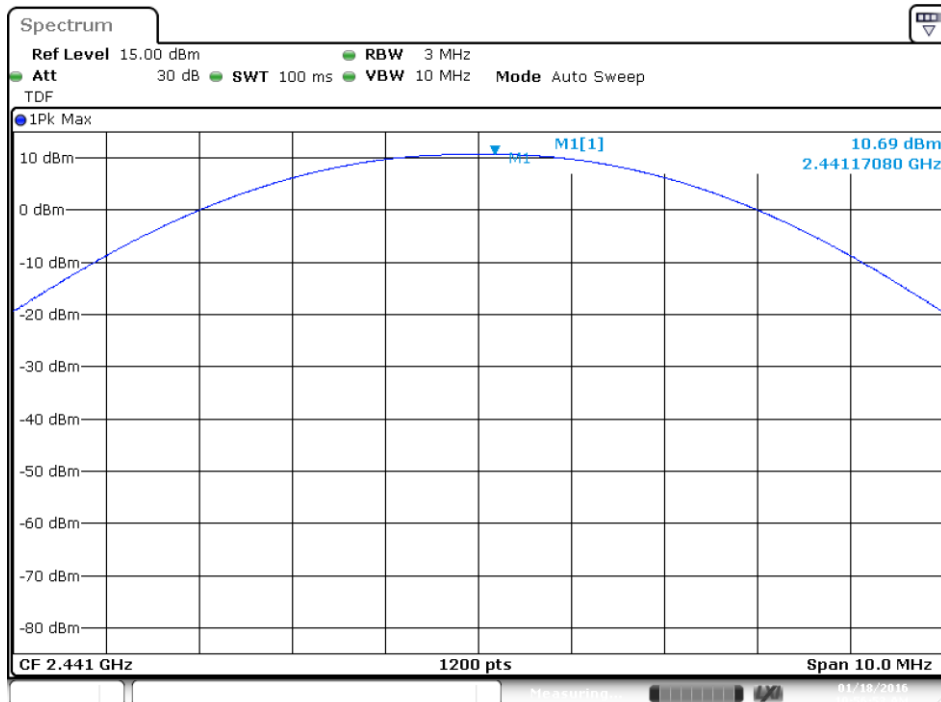
## Basic Rate - GFSK

### Peak Power - CH0

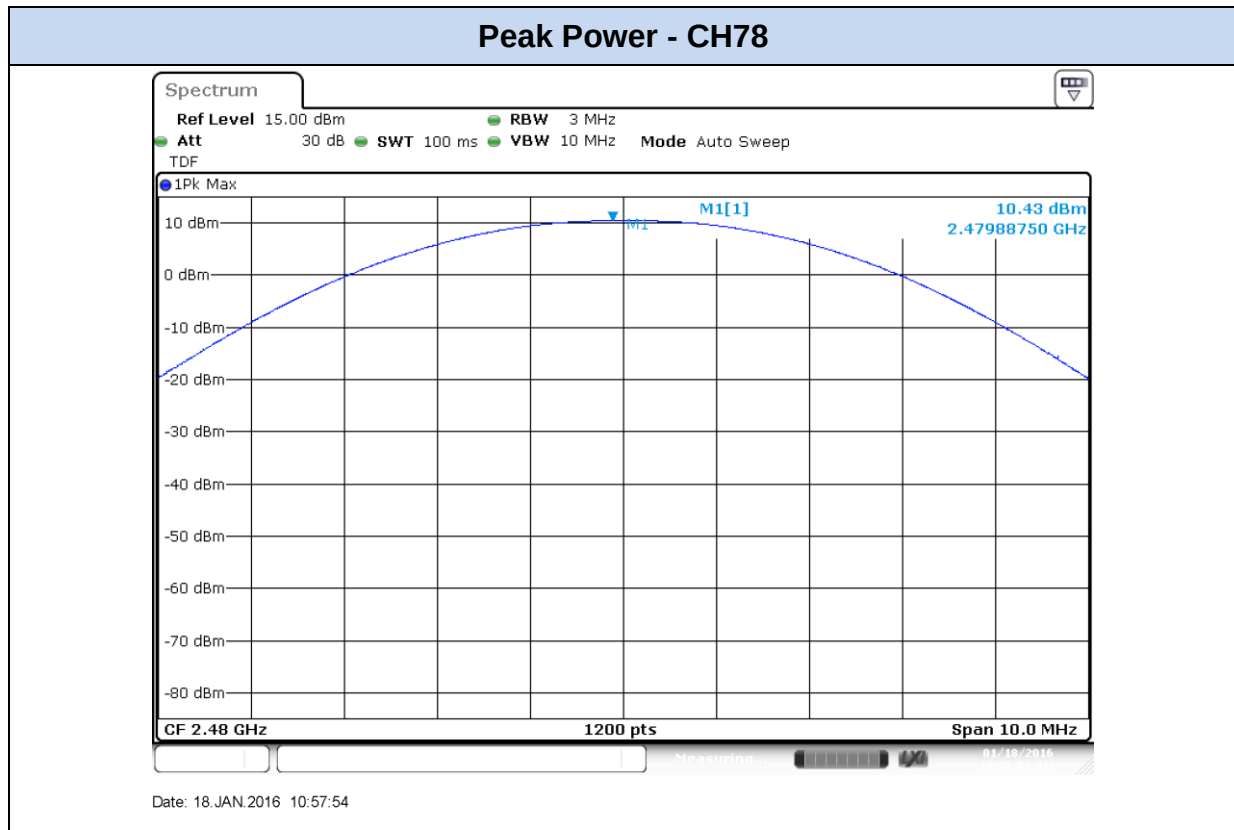


Date: 18. JAN 2016 10:55:00

### Peak Power - CH39

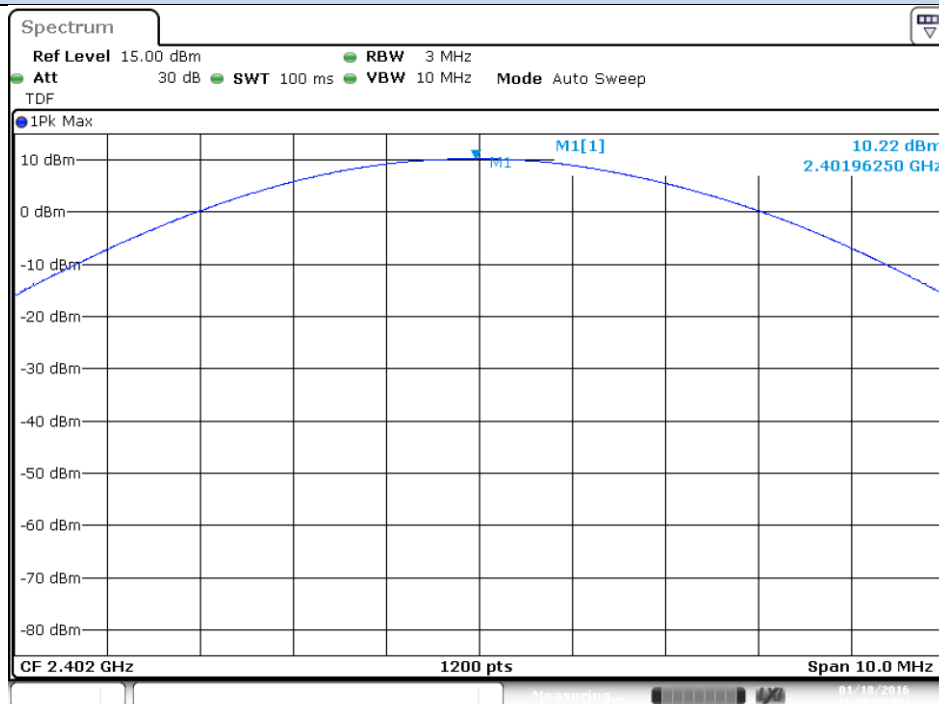


Date: 18. JAN 2016 10:56:53



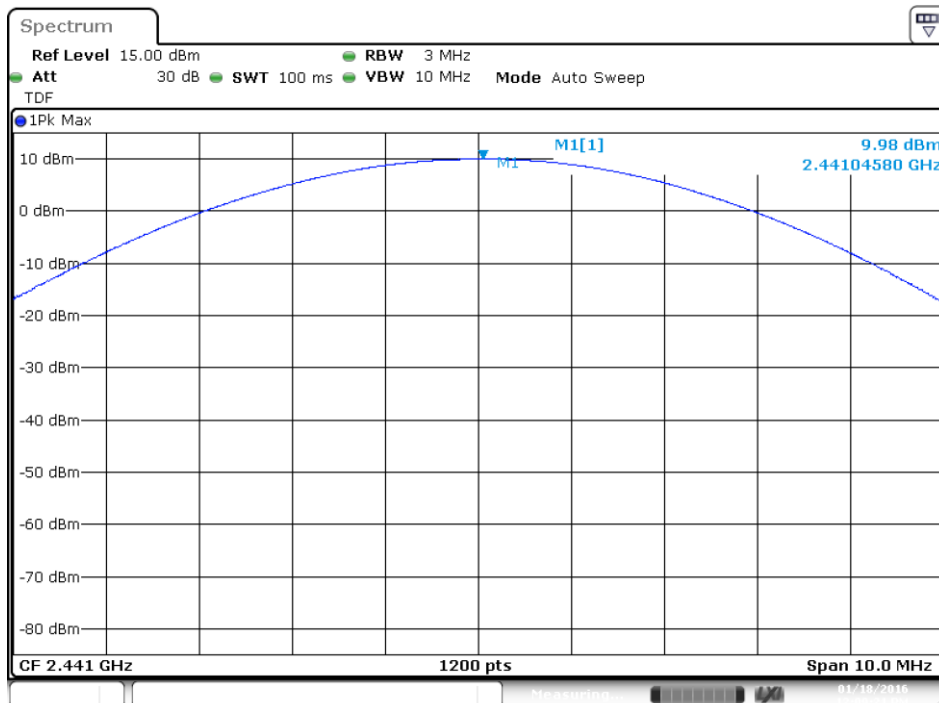
## EDR – $\pi/4$ -DQPSK

### Peak Power - CH0

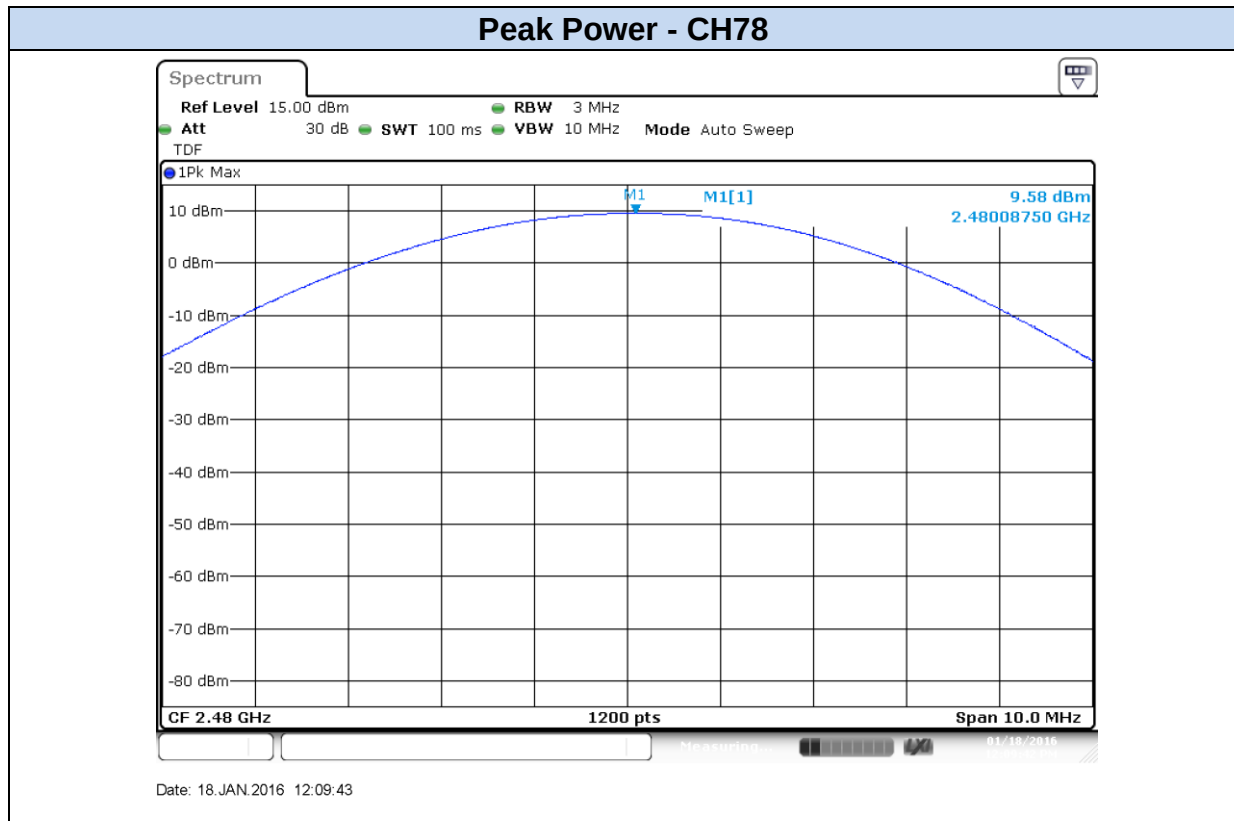


Date: 18.JAN.2016 12:08:50

### Peak Power - CH39

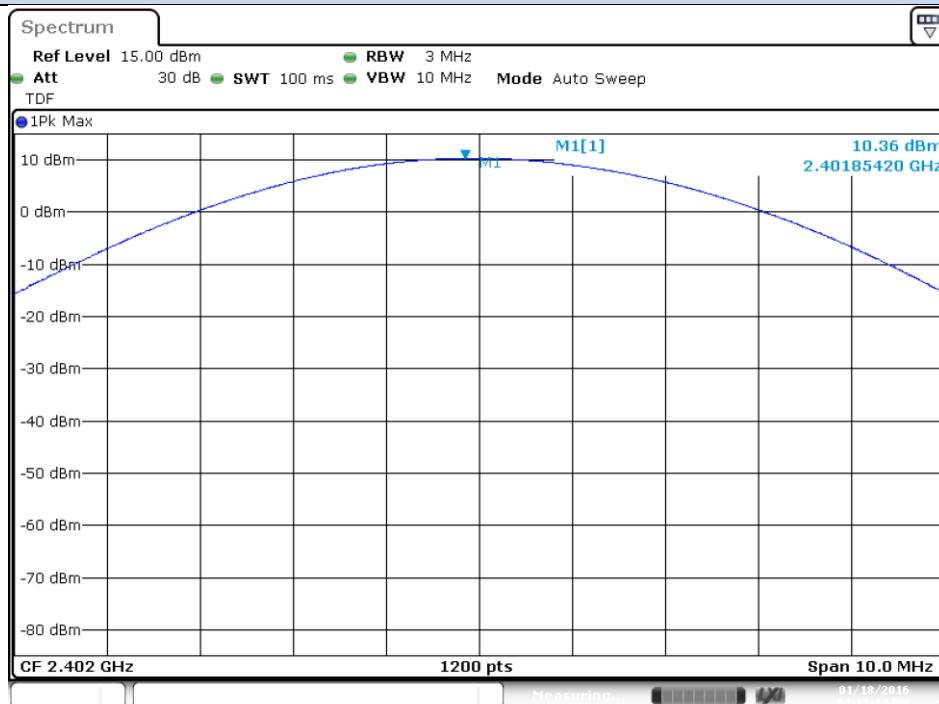


Date: 18.JAN.2016 12:09:22



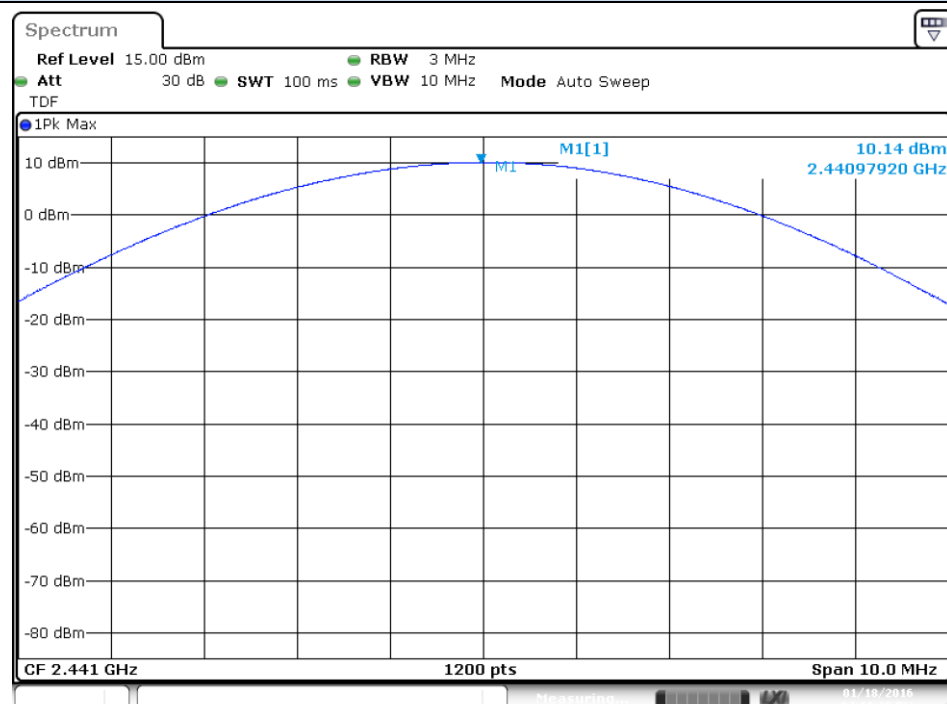
## EDR – 8-DPSK

### Peak Power - CH0

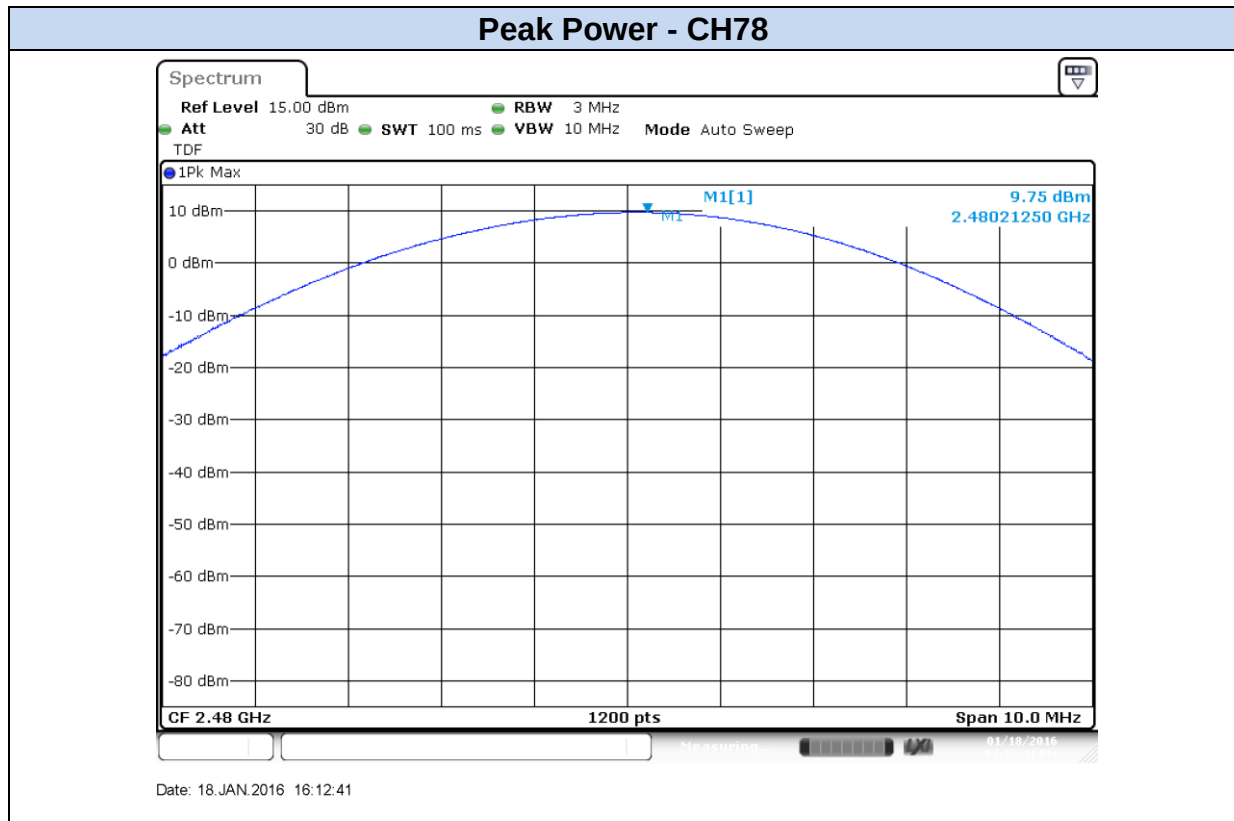


Date: 18.JAN.2016 16:12:15

### Peak Power - CH39



Date: 18.JAN.2016 16:11:16



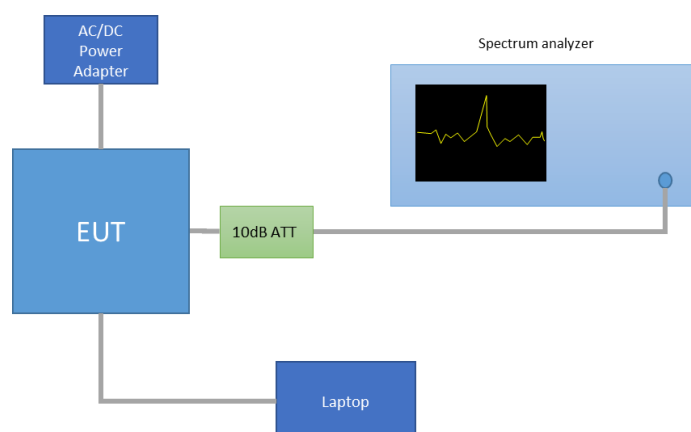
## B.5 Out-of-band emissions (conducted)

### Test limits:

| FCC part   | RSS part              | Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.247 (d) | RSS-247<br>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:

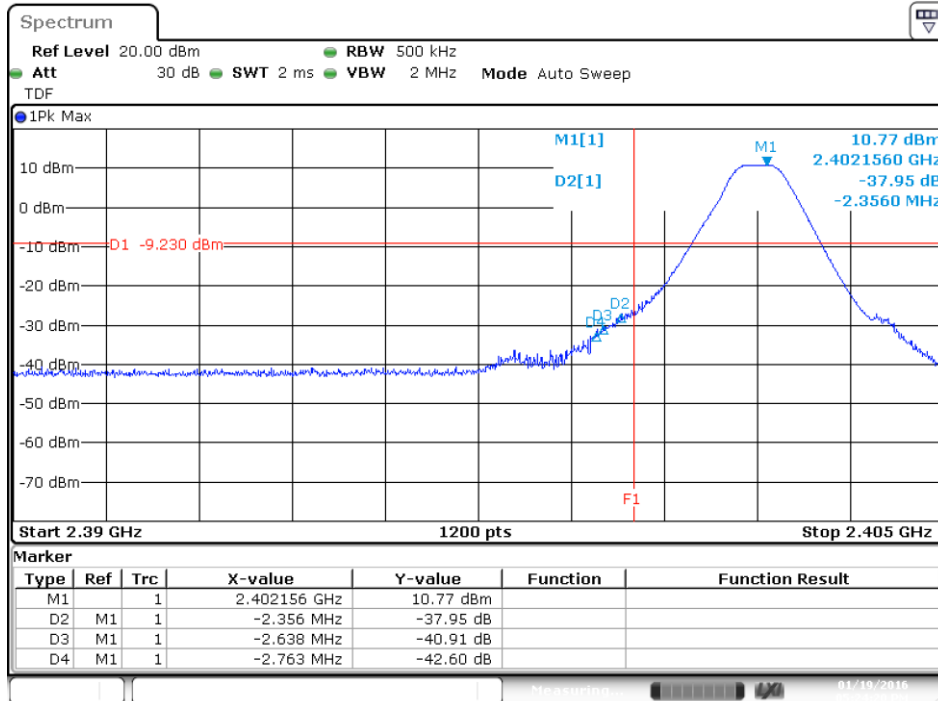
The setup below was used to measure the out-of-band emissions (conducted). The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



# Band Edge results Screenshot:

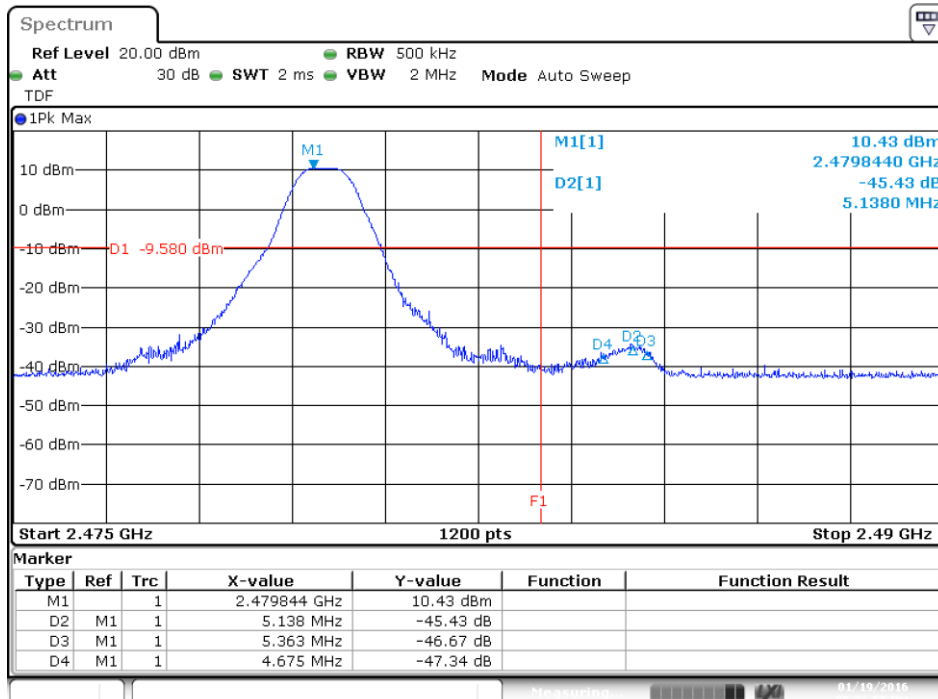
## Basic Rate - GFSK

### BE Low Freq Section - CH0



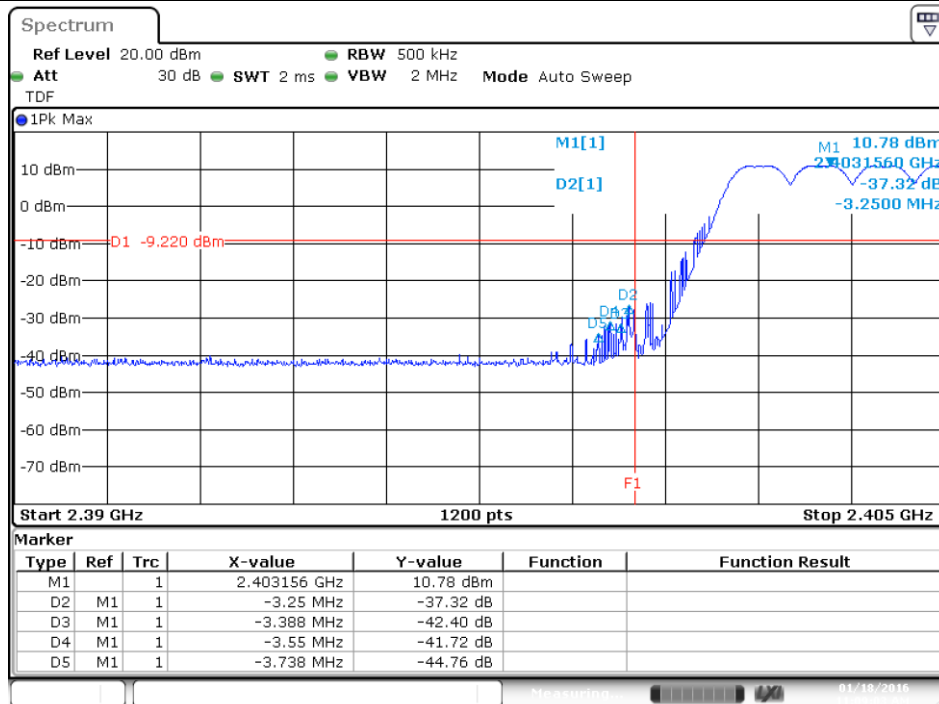
Date: 19.JAN.2016 17:24:20

### BE High Freq Section - CH78



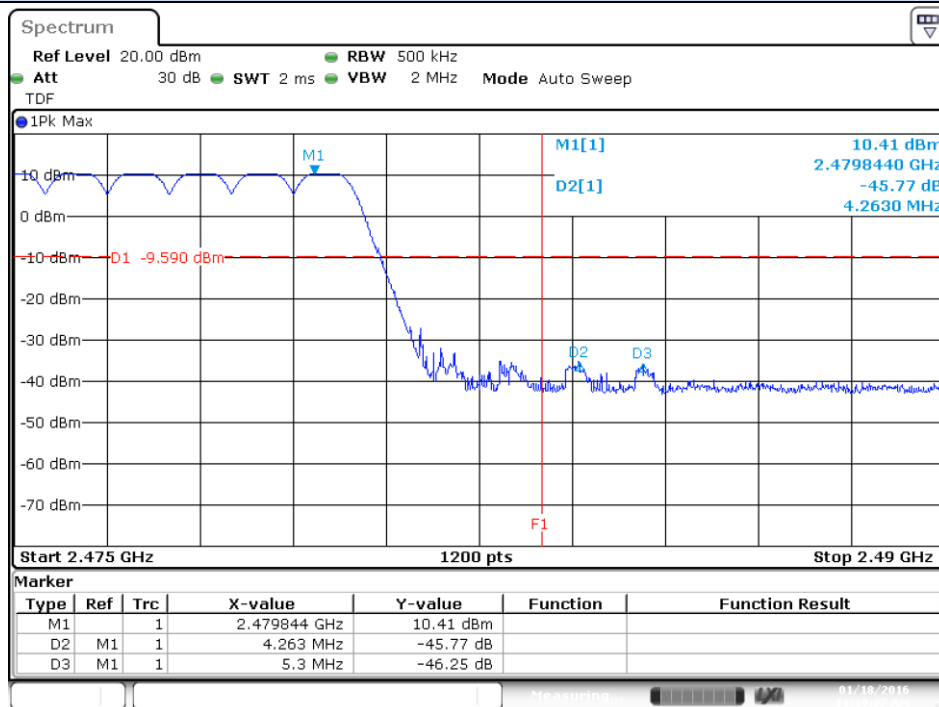
Date: 19.JAN.2016 17:26:56

## BE Low Freq Section - Hopping



Date: 18.JAN.2016 11:09:03

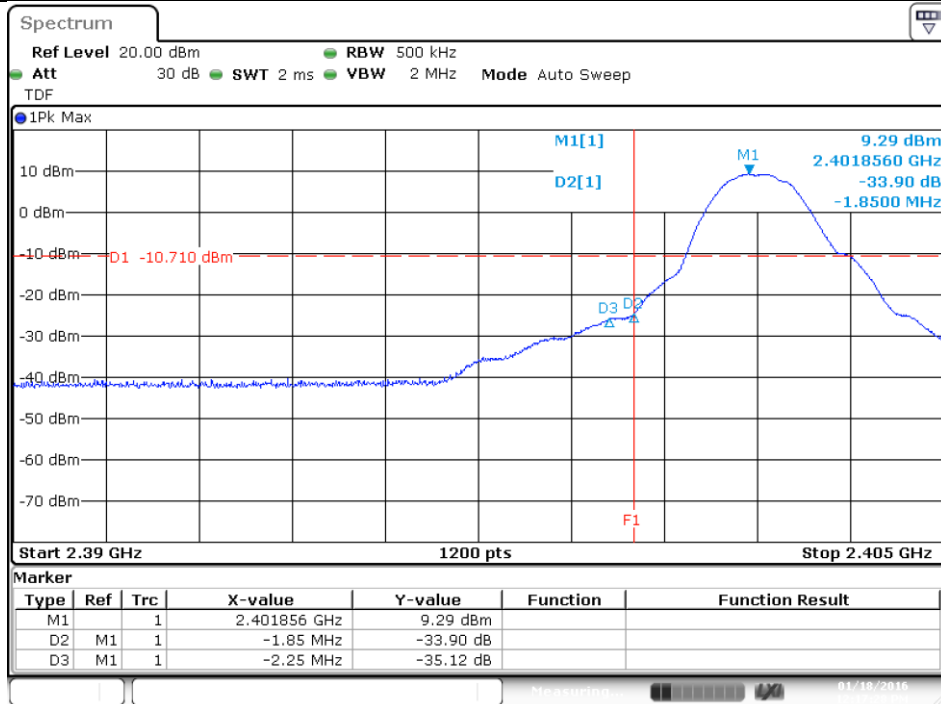
## BE High Freq Section - Hopping



Date: 18.JAN.2016 11:10:27

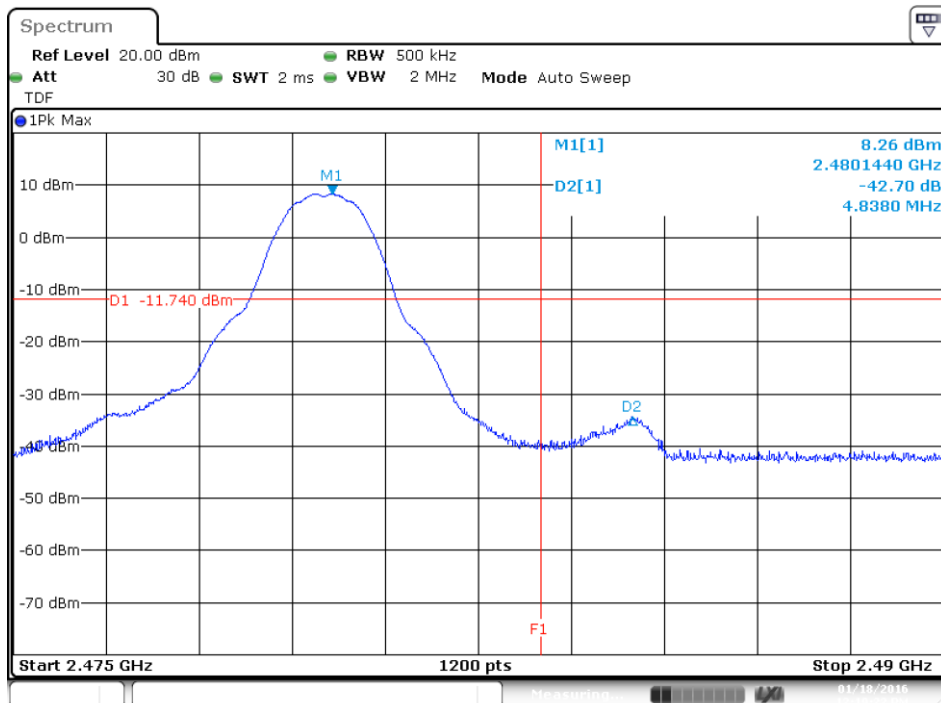
## EDR – $\pi/4$ -DQPSK

### BE Low Freq Section - CH0



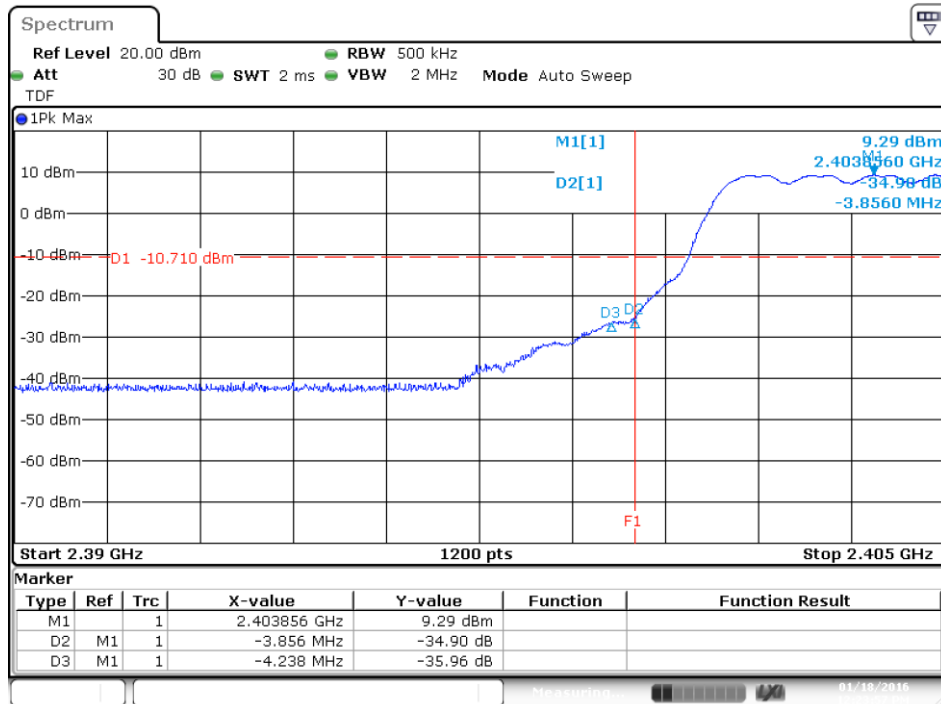
Date: 18. JAN.2016 12:17:28

### BE High Freq Section - CH78



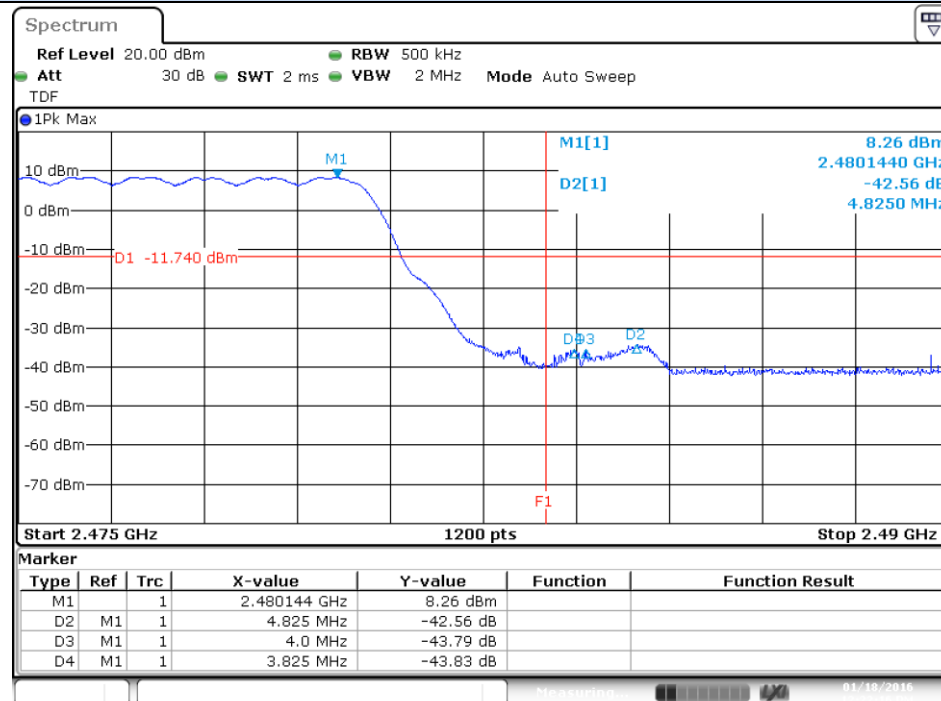
Date: 18. JAN.2016 12:19:23

## BE Low Freq Section - Hopping



Date: 18.JAN.2016 12:23:57

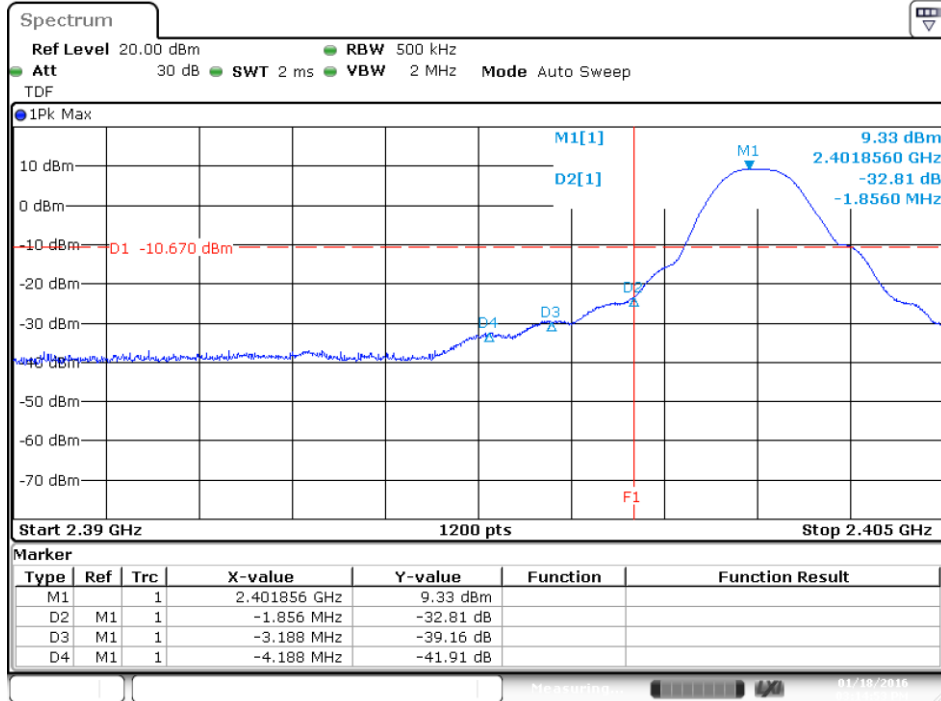
## BE High Freq Section - Hopping



Date: 18.JAN.2016 12:22:16

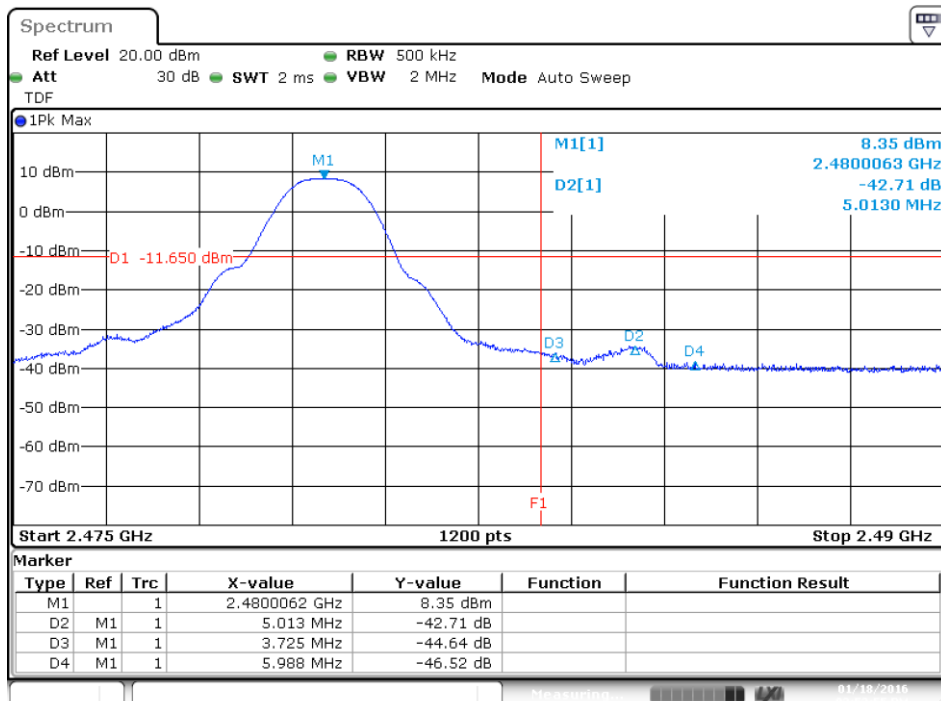
## EDR – 8-DPSK

### BE Low Freq Section - CH0



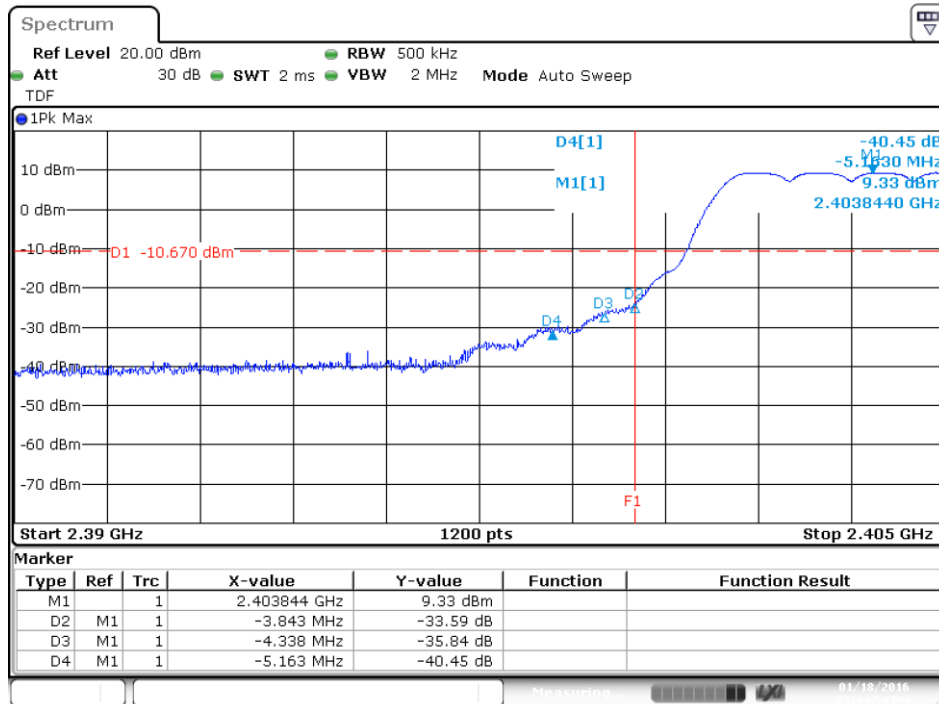
Date: 18.JAN.2016 15:14:53

### BE High Freq Section - CH78



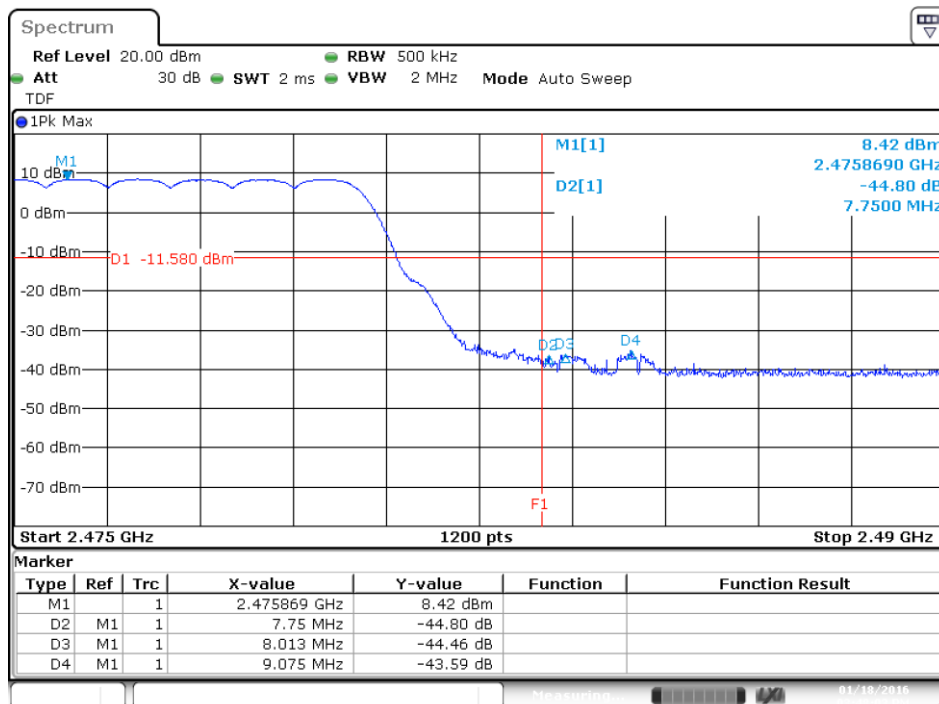
Date: 18.JAN.2016 15:53:56

## BE Low Freq Section - Hopping



Date: 18.JAN.2016 15:44:54

## BE High Freq Section - Hopping

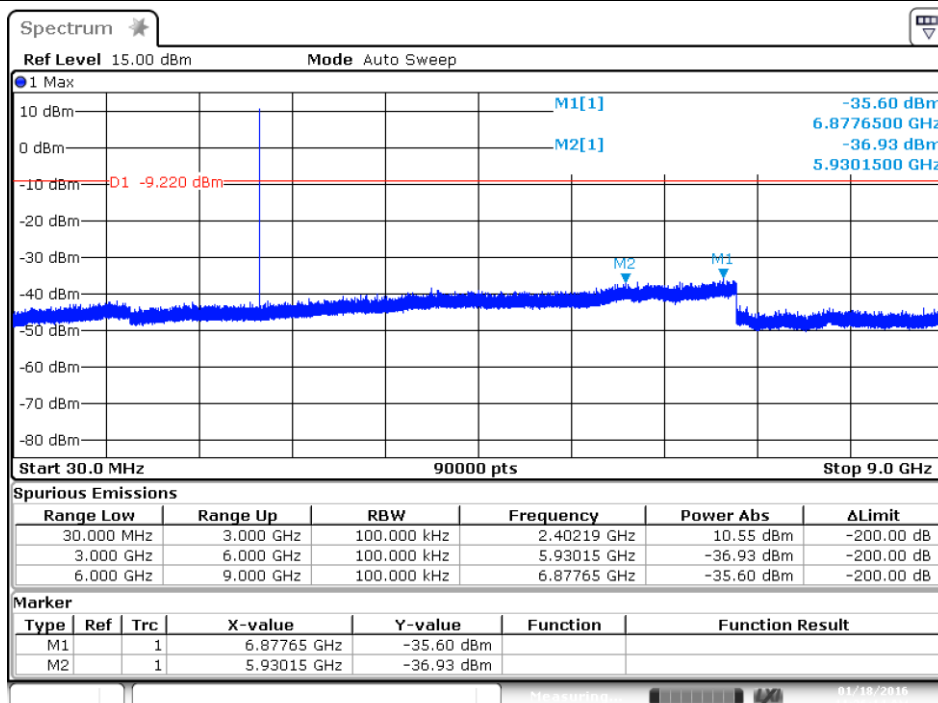


Date: 18.JAN.2016 15:48:03

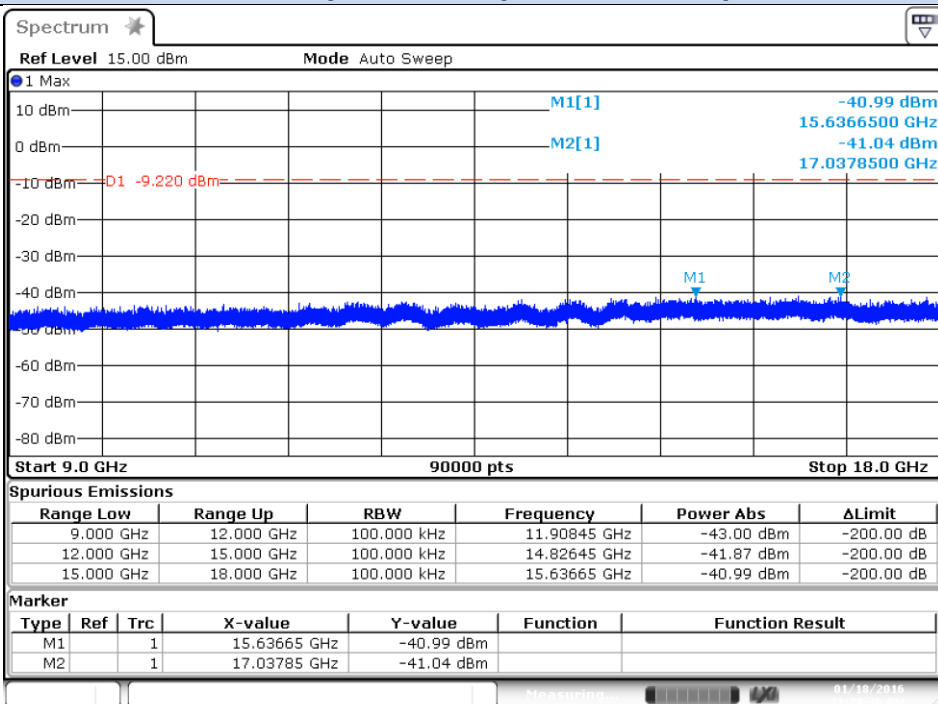
# Conducted Spurious results Screenshot:

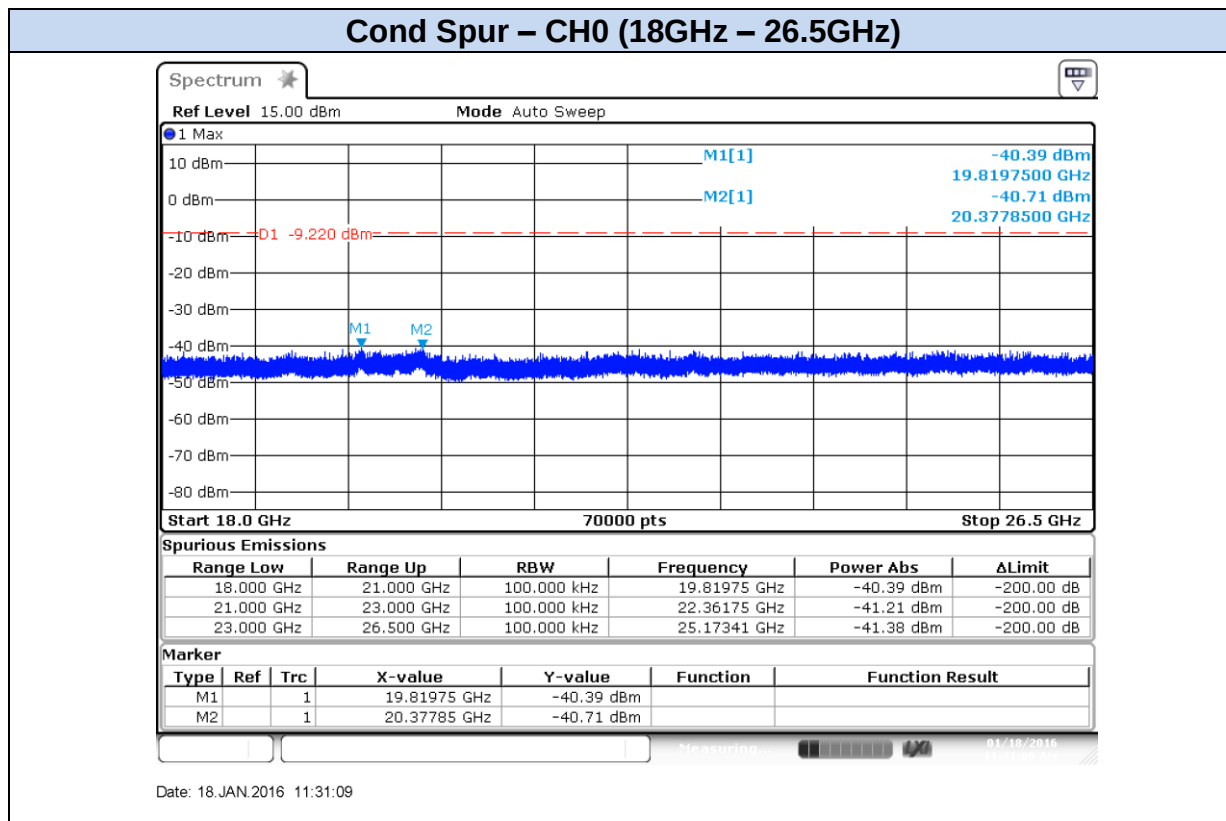
## Basic Rate - GFSK

### Cond Spur – CH0 (30MHz – 9GHz)

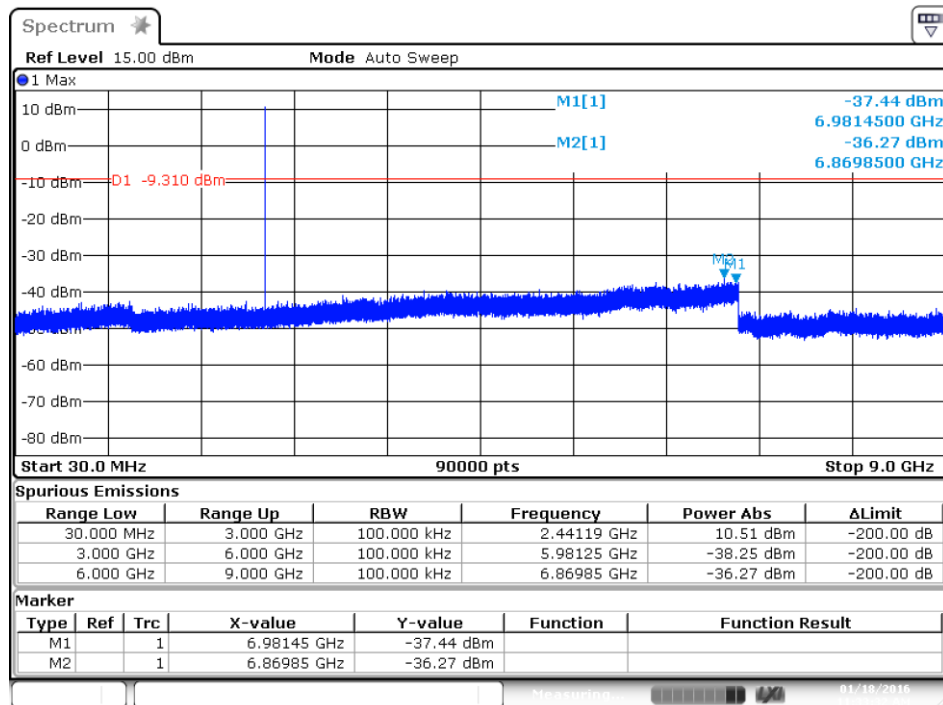


### Cond Spur – CH0 (9GHz – 18GHz)



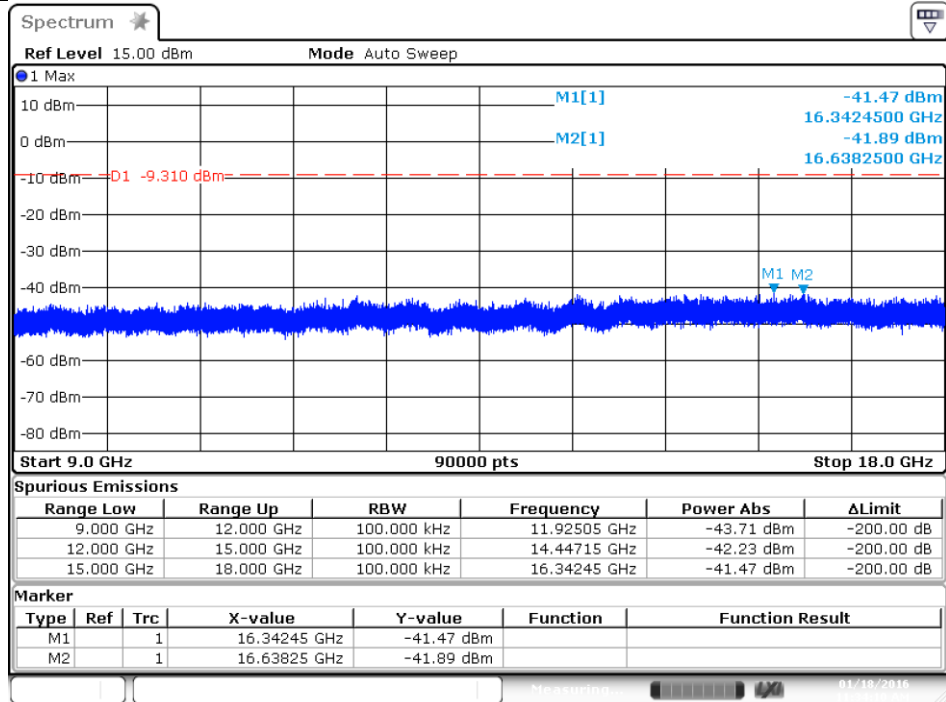


### Cond Spur – CH39 (30MHz – 9GHz)

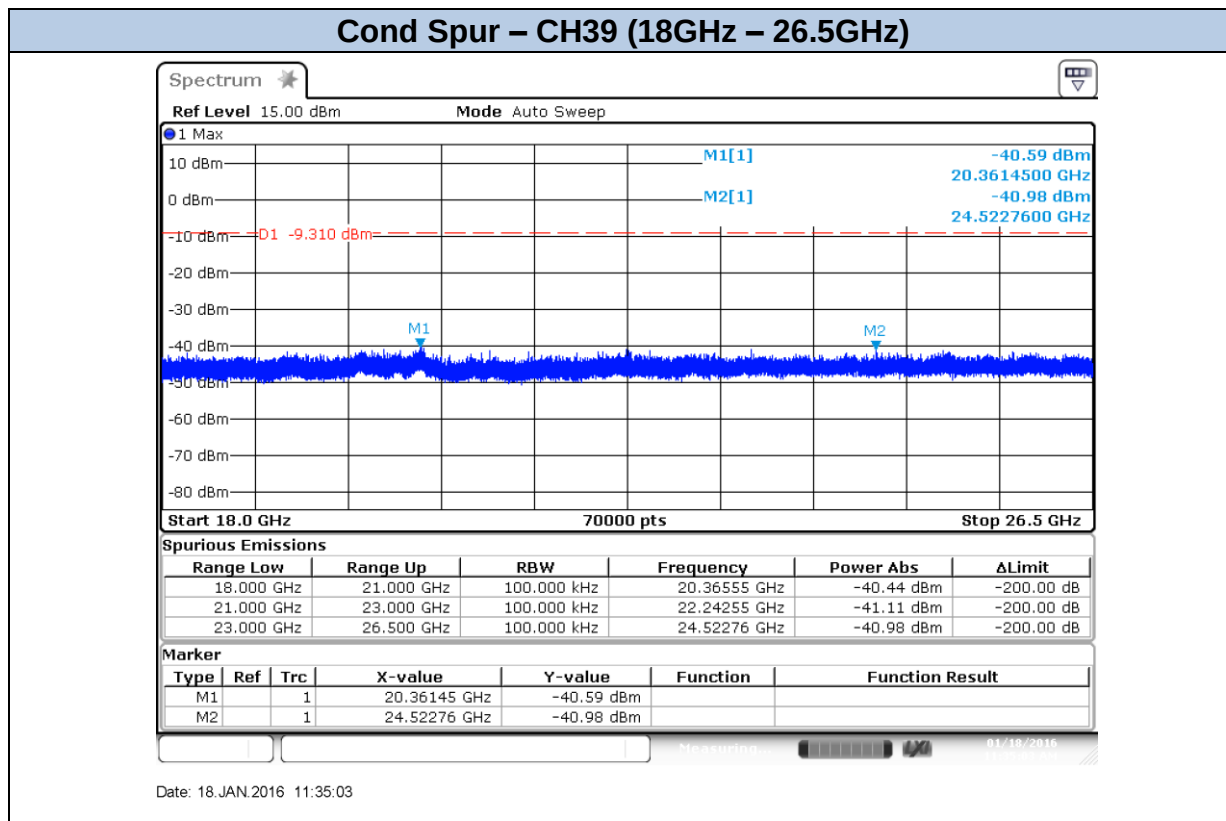


Date: 18.JAN.2016 11:33:32

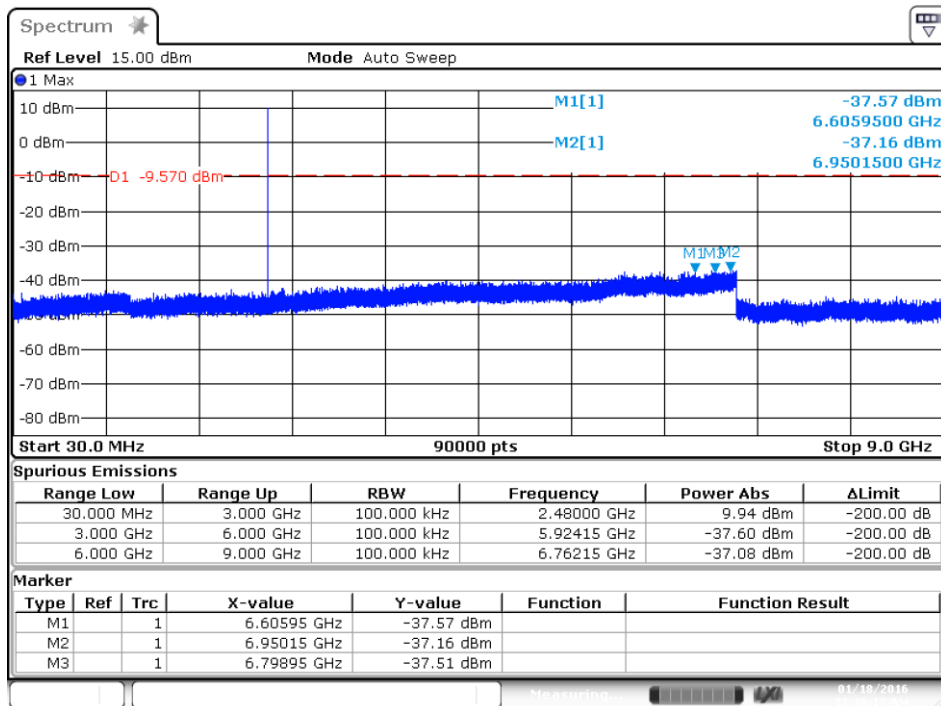
### Cond Spur - CH39 (9GHz – 18GHz)



Date: 18.JAN.2016 11:34:10

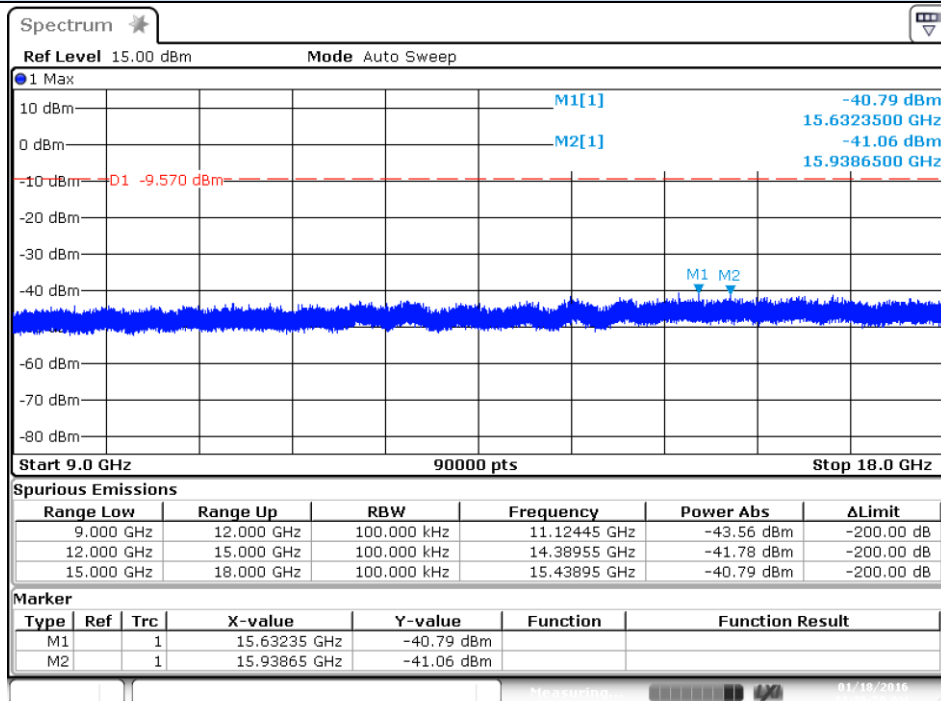


## Cond Spur – CH78 (30MHz – 9GHz)



Date: 18.JAN.2016 11:36:12

## Cond Spur – CH78 (9GHz – 18GHz)



Date: 18.JAN.2016 11:36:50

