



Engineering Solutions & Electromagnetic Compatibility Services

**FCC Part 15.247 & Industry Canada RSS-247 Test Report**

|                                                                                                                                                                                                                                                                    |                                                                                                                                              |                                                                                                                        |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------|
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|                                                                                                                                                                                                                                                                    |                                                                                                                                              |                                                                                                                        |                            |
| <b>FCC ID/IC</b>                                                                                                                                                                                                                                                   | OWDTR-0146-E<br>3636B-0146                                                                                                                   | <b>Test Report Date:</b>                                                                                               | March 1, 2017              |
| <b>Platform</b>                                                                                                                                                                                                                                                    | N/A                                                                                                                                          | <b>RTL Work Order #</b>                                                                                                | 2017007                    |
| <b>Model</b>                                                                                                                                                                                                                                                       | XL-200P C1D1<br>Non-Rebanded                                                                                                                 | <b>RTL Quote #</b>                                                                                                     | QRTL17-007A                |
| <b>American National Standard Institute</b>                                                                                                                                                                                                                        | ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices                             |                                                                                                                        |                            |
| <b>FCC Classification</b>                                                                                                                                                                                                                                          | DTS – Part 15 Digital Transmission System                                                                                                    |                                                                                                                        |                            |
| <b>FCC Rule Part(s)/Guidance</b>                                                                                                                                                                                                                                   | FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System (10/01/2015)         |                                                                                                                        |                            |
| <b>Industry Canada</b>                                                                                                                                                                                                                                             | RSS-247 Issue 2 Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices |                                                                                                                        |                            |
| <b>Digital Interface Information</b>                                                                                                                                                                                                                               | Digital Interface was found to be compliant                                                                                                  |                                                                                                                        |                            |
|                                                                                                                                                                                                                                                                    |                                                                                                                                              |                                                                                                                        |                            |
| <b>Frequency Range (MHz)</b>                                                                                                                                                                                                                                       | <b>Output Power (W)*</b>                                                                                                                     | <b>Frequency Tolerance</b>                                                                                             | <b>Emission Designator</b> |
| 2402 – 2480                                                                                                                                                                                                                                                        | 0.05                                                                                                                                         | N/A                                                                                                                    | 1M46FXD                    |

\* power is conducted

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, Industry Canada RSS-247, RSS-Gen, and ANSI C63.10.

Signature: 

Date: March 1, 2017

Typed/Printed Name: Desmond A. Fraser

Position: President

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*These test(s) are accredited under Rhein Tech Laboratories, Inc. ISO/IEC 17025 accreditation issued by ANAB. Refer to certificate and scope of accreditation AT-1445.*

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## 1 General Information

### 1.1 Scope

This is an original FCC and Industry Canada certification application report.

Applicable Standards:

- FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.
- RSS-247 Issue 2: Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

### 1.2 Description of EUT

|                               |                                          |
|-------------------------------|------------------------------------------|
| <b>Equipment Under Test</b>   | XL-200P C1D1 Non-Rebanded Portable Radio |
| <b>Model</b>                  | XL-200P C1D1 Non-Rebanded                |
| <b>Power Supply</b>           | Internal radio battery operated          |
| <b>Modulation Type</b>        | FHSS                                     |
| <b>Frequency Range</b>        | 2402 – 2480 MHz                          |
| <b>Antenna Connector Type</b> | N/A                                      |
| <b>Antenna Type</b>           | Internal chip                            |

### 1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing.

### 1.4 Related Submittal(s)/Grant(s)

This report supports a certification application for Harris Corporation Model XL-200P C1D1 Non-Rebanded, FCC ID: OWDTR-0146-E, IC: 3636B-0146.

### 1.5 Modifications

None.

## 2 Test Information

### 2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

**Table 2-1: Channels Tested**

| Channel | Frequency |
|---------|-----------|
| Low     | 2402      |
| Middle  | 2441      |
| High    | 2480      |

### 2.2 Exercising the EUT

The EUT was supplied with test software to select various transmit/receive modes (for example, high, mid, and low channel, hopping on/off, etc.) for testing, and to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

GFSK, 2-EDR and 3-EDR modes were investigated. Where pertinent, data is presented for the three modes; otherwise, worst-case data is presented. GFSK was found to be worst case for radiated measurements, data for it is presented.

### 2.3 Test Result Summary

**Table 2-2: Test Result Summary – FCC Part 15, Subpart C (Section 15.247)**

| Test                                 | FCC Reference         | IC Reference                    | Pass/Fail or N/A |
|--------------------------------------|-----------------------|---------------------------------|------------------|
| AC Power Conducted Emissions         | FCC 15.207            | RSS-Gen 8.8                     | Pass             |
| Radiated Emissions                   | FCC 15.209            | RSS-247 5.5<br>RSS-Gen 6.13/7.1 | Pass             |
| Maximum Peak Power Output            | FCC 15.247(b)(1)      | RSS-247 5.4<br>RSS-Gen 6.12     | Pass             |
| Antenna Conducted Spurious Emissions | FCC 15.247(d)         | RSS-247 5.5<br>RSS-Gen 6.13     | Pass             |
| Band Edge Measurement                | FCC 15.247(d)         | RSS-247 5.5                     | Pass             |
| Carrier Frequency Separation         | FCC 15.247(a)(1)      | RSS-247 5.1(b)                  | Pass             |
| 20 dB Bandwidth                      | FCC 15.247(a)(1)(ii)  | RSS-247 5.1(a)                  | Pass             |
| Hopping Characteristics              | FCC 15.247(a)(1)(iii) | RSS-247 5.1(d)                  | Pass             |

## 2.4 Tested System Details

The test sample was received on December 16, 2014. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

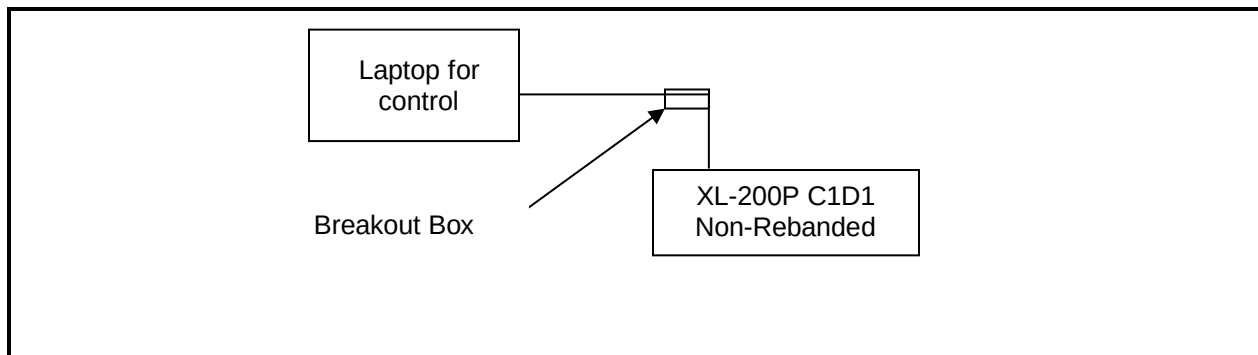
**Table 2-3: Equipment Under Test (EUT)**

| Part                           | Manufacturer       | Model                              | Serial #                  | FCC ID       | RTL Bar Code |
|--------------------------------|--------------------|------------------------------------|---------------------------|--------------|--------------|
| Bluetooth Radio                | Harris Corporation | XL-200P C1D1 Non-Rebanded          | E00236                    | OWDTR-0146-E | 21612        |
| Conducted Port Bluetooth Radio | Harris Corporation | XL-200P C1D1 Non-Rebanded          | OWXD-E00239               | OWDTR-0146-E | 21614        |
| Radio                          | Harris Corporation | XL-200P C1D1 Non-Rebanded (System) | 14035-1000-01/OWXD-E00234 | OWDTR-0146-E | 21564        |

**Table 2-4: Accessory Test Equipment**

| Part               | Manufacturer       | Model              | Serial #               | FCC ID | RTL Bar Code |
|--------------------|--------------------|--------------------|------------------------|--------|--------------|
| Battery Eliminator | Harris Corporation | 14035-4300-01      | N/A                    | N/A    | 21553        |
| Breakout Box       | Harris Corporation | 12082-7980-01      | N/A                    | N/A    | 20599        |
| Battery            | Harris Corporation | BAT-L-CASE-R-HR003 | Engineering Sample #73 | N/A    | 21552        |
| Laptop             | Samsung            | NP300E5A-A01UB     | HJVF93EB903201D        | N/A    | 901550       |

**Figure 2-1: Configuration of Tested System**



### 3 Peak Output Power – FCC 15.247(b)(1), RSS-247 5.4(b), RSS-Gen 6.12

#### 3.1 Power Output Test Procedure

Procedure: C63.10-2013

#### 3.2 Power Output Test Data

Table 3-1: Power Output Test Data

| Frequency (MHz) | Peak Power (dBm) | Peak Power (mW) |
|-----------------|------------------|-----------------|
| 2402            | 17.0             | 50.1            |
| 2441            | 17.0             | 50.1            |
| 2480            | 16.7             | 46.8            |

Table 3-2: Power Output Test Equipment

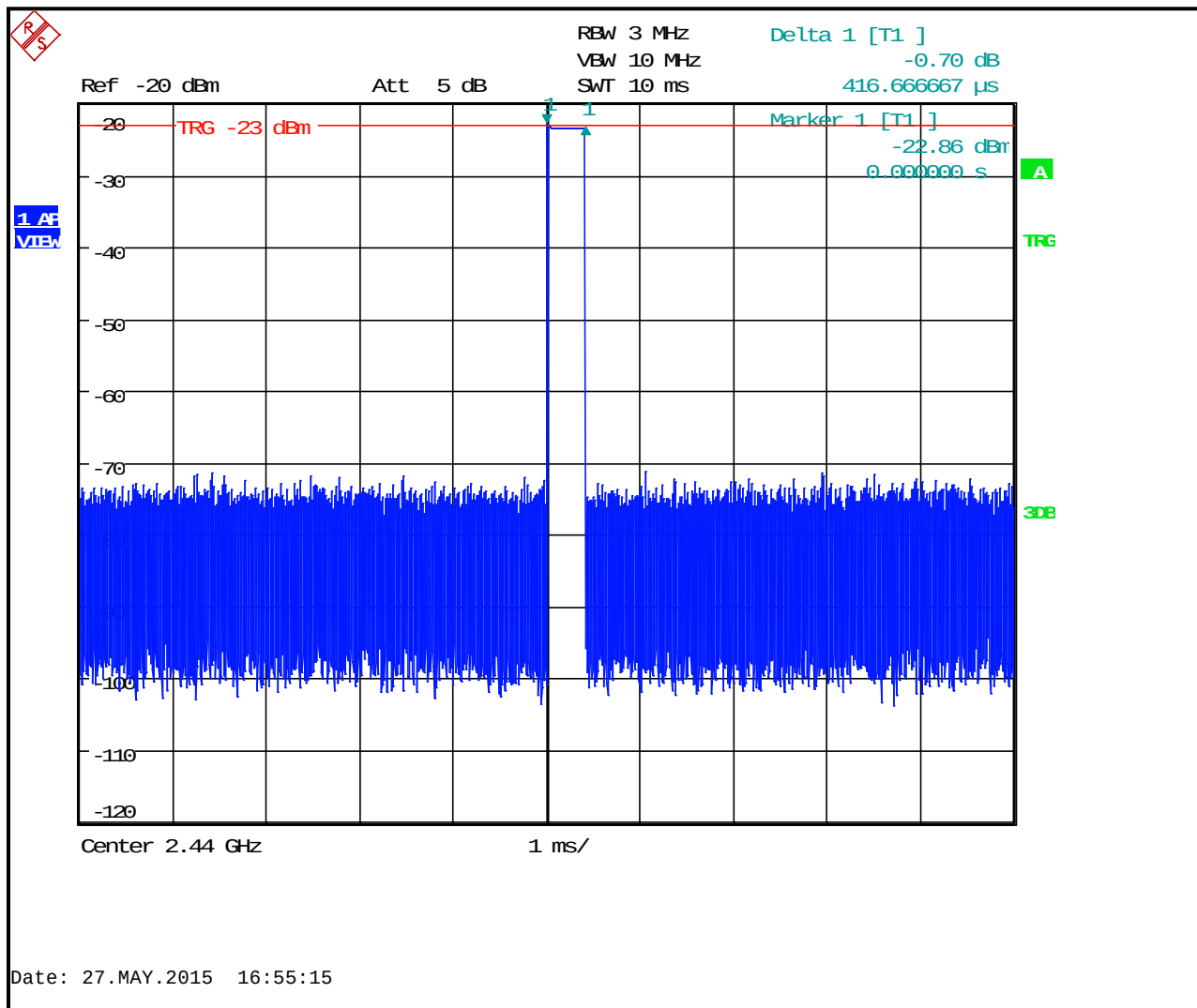
| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901581      | Rohde & Schwarz | FSU   | Spectrum Analyzer | 1166.1660.50  | 11/13/15             |

#### Test Personnel:

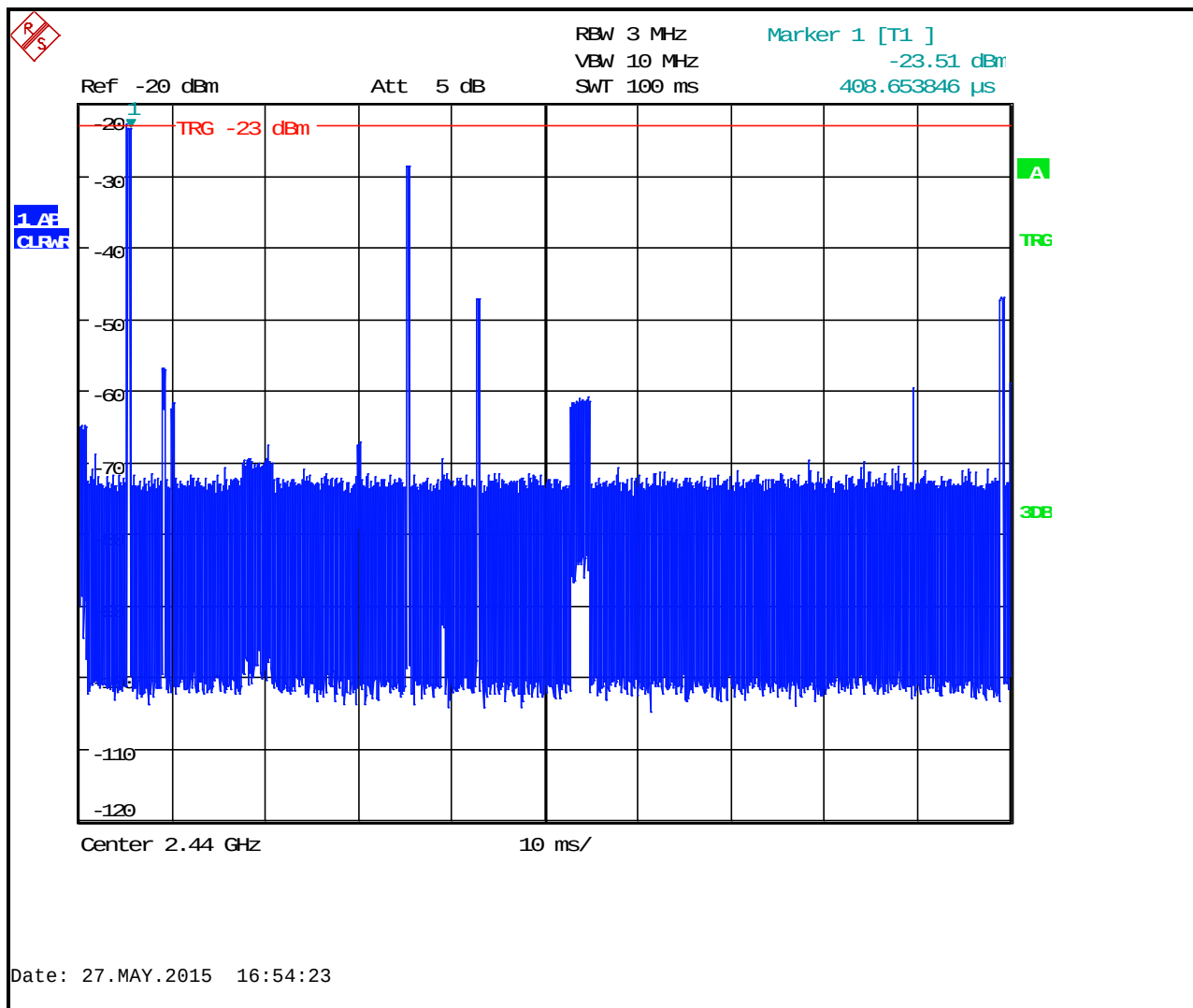
|                                         |                                                                                                  |                                    |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------|
| Daniel W. Baltzell<br>EMC Test Engineer | <br>Signature | February 24, 2015<br>Date of Tests |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------|

#### 4 Duty Cycle Correction

Plot 4-1: Pulse Width - 417us



**Plot 4-2: Single Pulse per 100ms**



**Duty Cycle Calculation:**

$20 \log (0.417/100) = -47.6 \text{ dB correction}$

**Table 4-1: Duty Cycle Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901581      | Rohde & Schwarz | FSU   | Spectrum Analyzer | 1166.1660.50  | 11/13/15             |

**Test Personnel:**

|                    |                                                                                   |              |
|--------------------|-----------------------------------------------------------------------------------|--------------|
| Daniel W. Baltzell |  | May 27, 2015 |
| EMC Test Engineer  | Signature                                                                         | Date of Test |

**5 Antenna Conducted Spurious Emissions – FCC 15.247(d), RSS-247 5.5**

Procedure: C63.10-2013 6.7

No conducted antenna port is available so no conducted data is reported.

**Test Personnel:**

|                    |                                                                                    |                   |
|--------------------|------------------------------------------------------------------------------------|-------------------|
| Daniel W. Baltzell |  | February 24, 2015 |
| EMC Test Engineer  | Signature                                                                          | Date of Test      |

**6 Band-Edge Compliance of RF Conducted Emissions – FCC 15.247(d), RSS-247 5.5**

**6.1 Band Edge Test Procedure**

Procedure: C63.10-2013 6.10

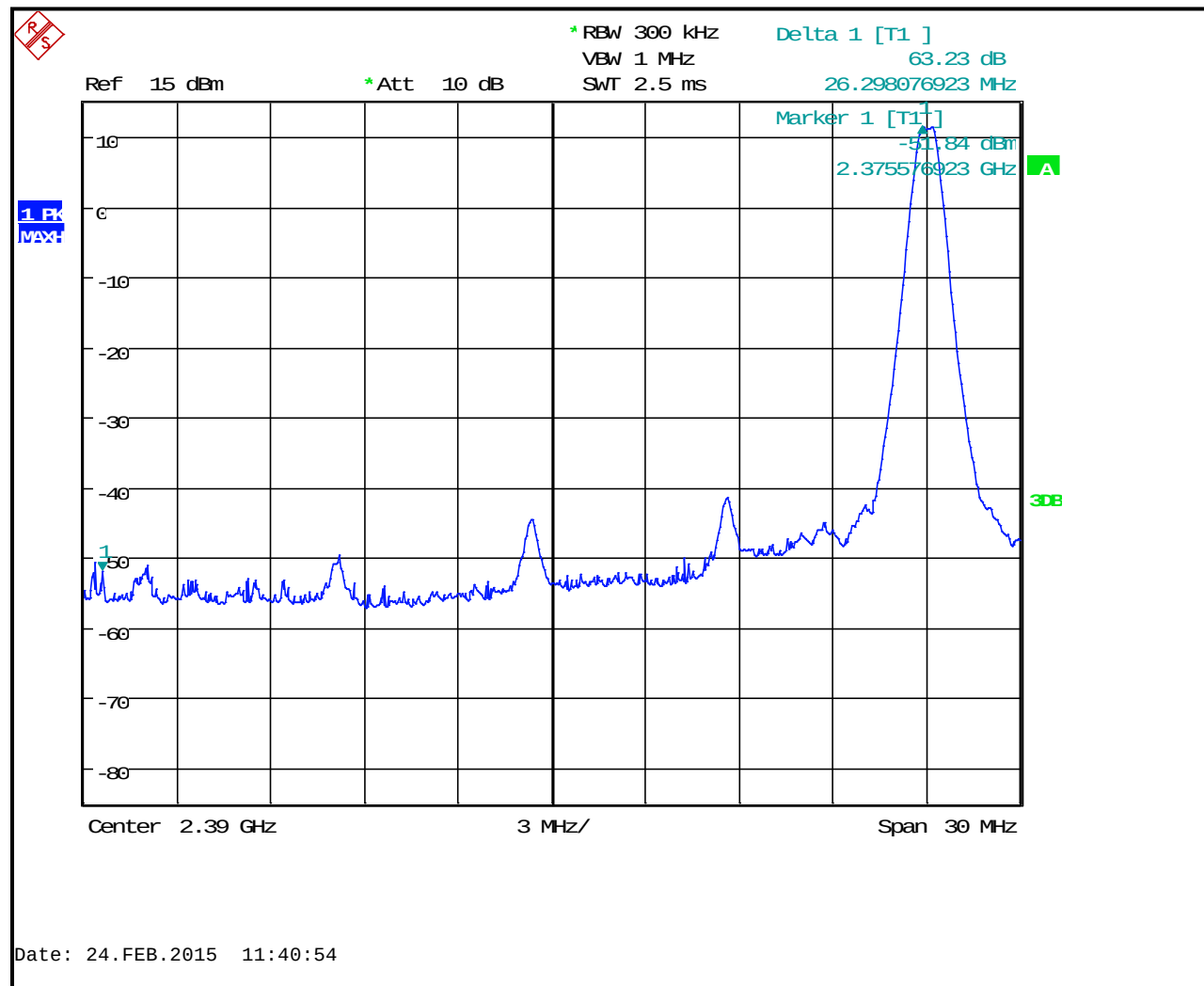
The EUT was connected to the spectrum analyzer through suitable attenuation. The span was set wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The spectrum analyzer was set to the following:

RBW > = 1 % of span  
VBW > = RBW  
Sweep = auto  
Detector function = peak  
Trace = max hold

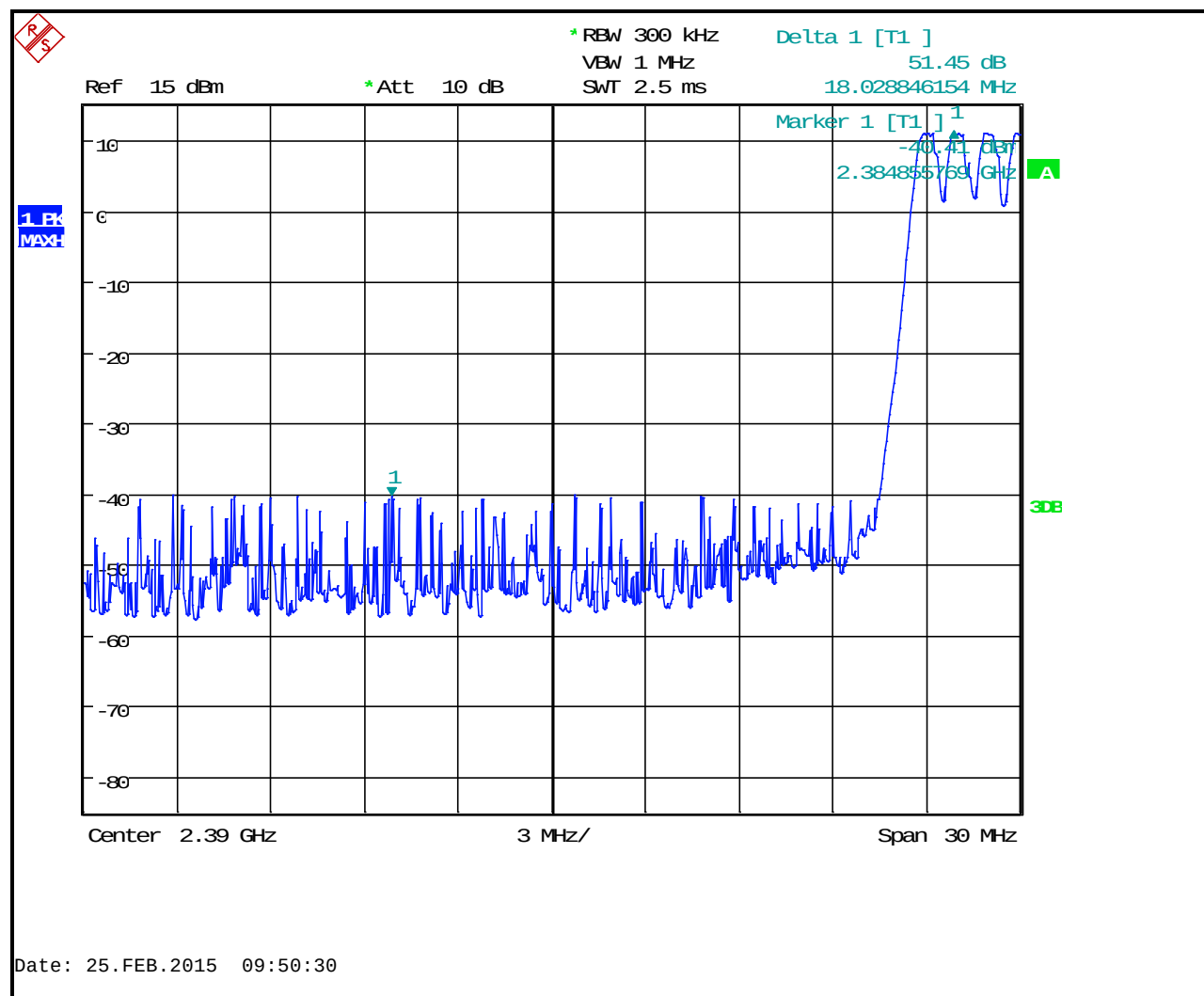
The trace was allowed to stabilize. The marker was set on the emission at the band edge. The marker-delta was used to show the delta between the maximum in-band emission and the emission at the band edge, and was compared to the 20 dBc requirement of 15.247(d) (when using peak emissions). This measurement was taken in both fixed frequency and hopping modes.

## 6.2 Test Results

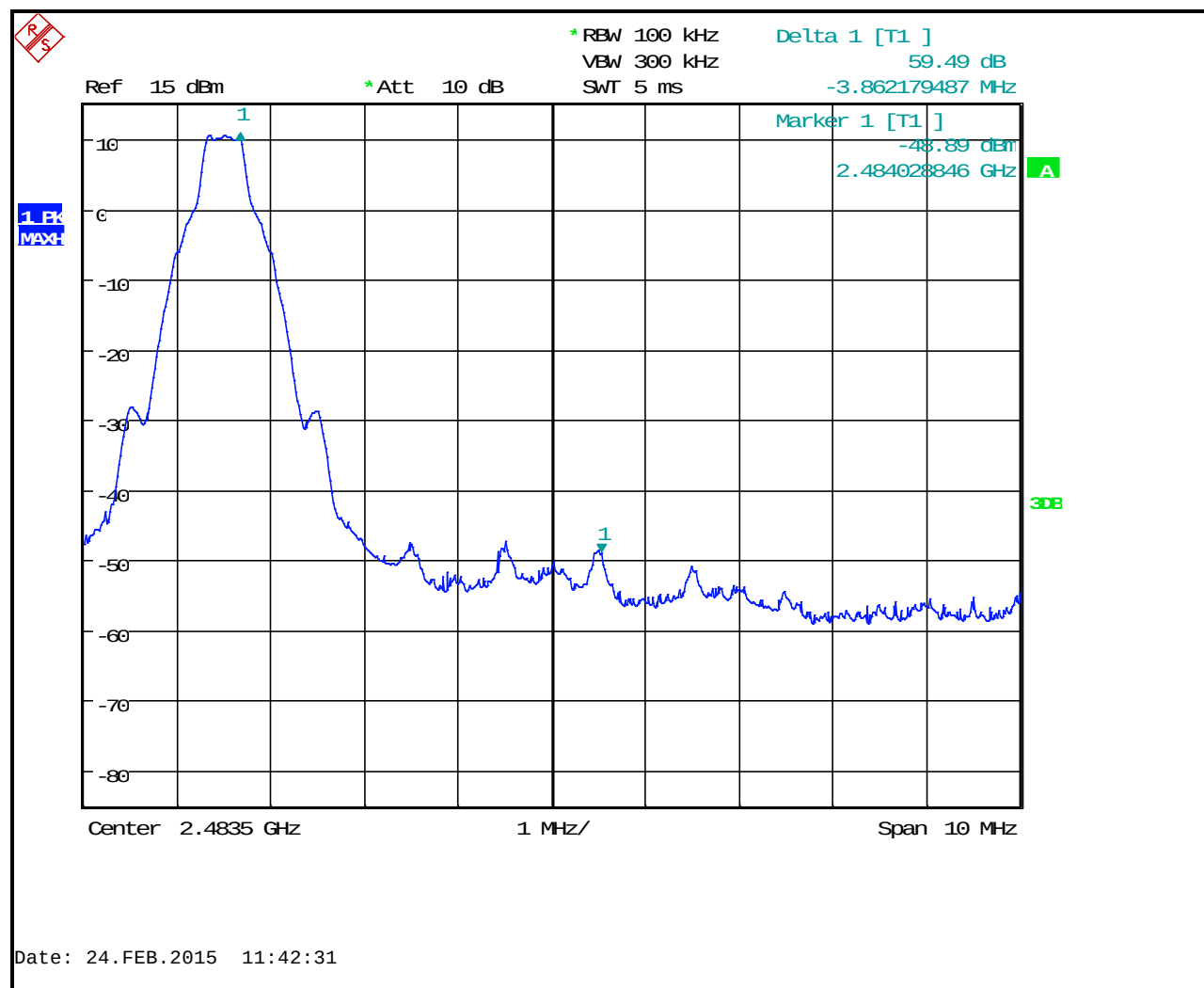
Plot 6-1: Lower Band Edge TX Frequency - 2402 MHz



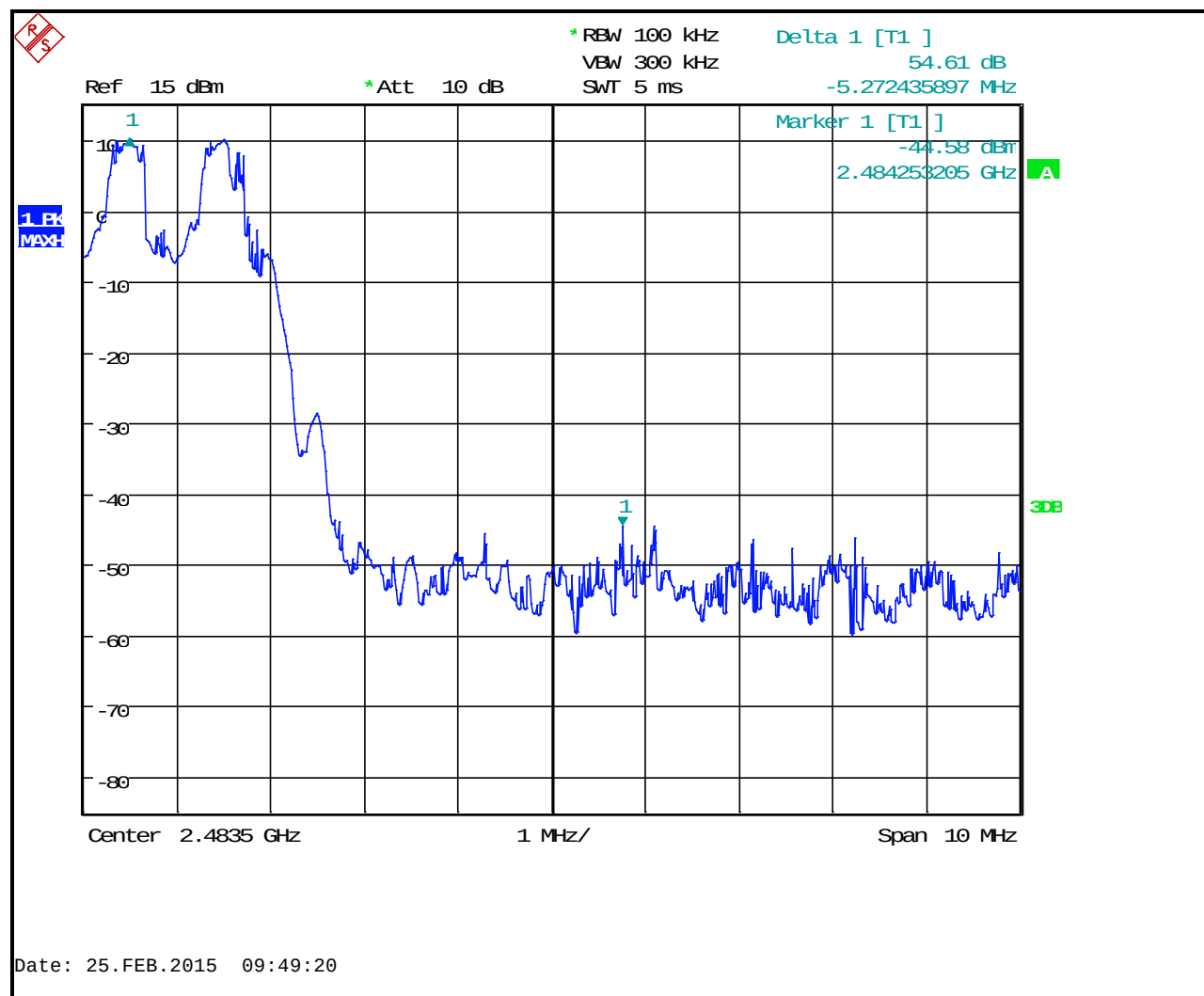
**Plot 6-2: Lower Band Edge TX Frequency - 2402 MHz (Hopping)**



**Plot 6-3: Upper Band Edge TX Frequency - 2480 MHz**



**Plot 6-4: Upper Band Edge TX Frequency - 2480 MHz (Hopping)**



**Table 6-1: Band-Edge Compliance of RF Conducted Emissions Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901581      | Rohde & Schwarz | FSU   | Spectrum Analyzer | 1166.1660.50  | 11/13/15             |

**Test Personnel:**

|                                                    |                                                                                                         |                                                        |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <p>Daniel W. Baltzell</p> <p>EMC Test Engineer</p> | <br><p>Signature</p> | <p>February 24 &amp; 25, 2015</p> <p>Dates of Test</p> |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------|

### 6.3 Radiated Band Edge Emissions

**Table 6-2: Radiated Band Edge Emissions Test Data**

| Frequency (MHz) | Peak Spectrum Analyzer Level (1 MHz RBW/ 3 MHz VBW) (dBuV) | Average Analyzer Detector (1 MHz RBW/ 3 MHz VBW) (dBuV) | Site Correction Factor (dB/m) with duty cycle correction -47.6 dB | Corrected Average Level (dBuV/m) | Delta Measurement from Plots (dB) | Average Limit (dBuV/m) | Margin (dB) |
|-----------------|------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------|----------------------------------|-----------------------------------|------------------------|-------------|
| 2402.0          | 56.6                                                       | 56.2                                                    | -16.6                                                             | 39.6                             | 51.5                              | 54.0                   | -65.9       |
| 2480.0          | 59.8                                                       | 59.7                                                    | -15.4                                                             | 44.3                             | 54.6                              | 54.0                   | -64.3       |

**Table 6-3: Radiated Band Edge Test Equipment**

| RTL Asset # | Manufacturer        | Model             | Part Type                | Serial Number | Calibration Due Date |
|-------------|---------------------|-------------------|--------------------------|---------------|----------------------|
| 901592      | Insulated Wire Inc. | KPS-1503-3600-KPR | SMK RF Cables 20'        | NA            | 9/3/15               |
| 901581      | Rohde & Schwarz     | FSU               | Spectrum Analyzer        | 1166.1660.50  | 11/13/15             |
| 900772      | EMCO                | 3161-02           | Horn Antenna (2 - 4 GHz) | 9804-1044     | 4/09/18              |
| 900886      | EMI Shop            | WRT000-0003       | Turntable OATS           | N/A           | Not Required         |

**Test Personnel:**

|                                         |                                                                                                  |                                            |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------|
| Daniel W. Baltzell<br>EMC Test Engineer | <br>Signature | February 24-April 4, 2015<br>Dates of Test |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------|

## **7 20 dB Bandwidth – FCC 15.247(a)(1), RSS-247 5.1(a)**

### **7.1 20 dB Bandwidth Test Procedure**

Procedure: C63.10-2013 6.9

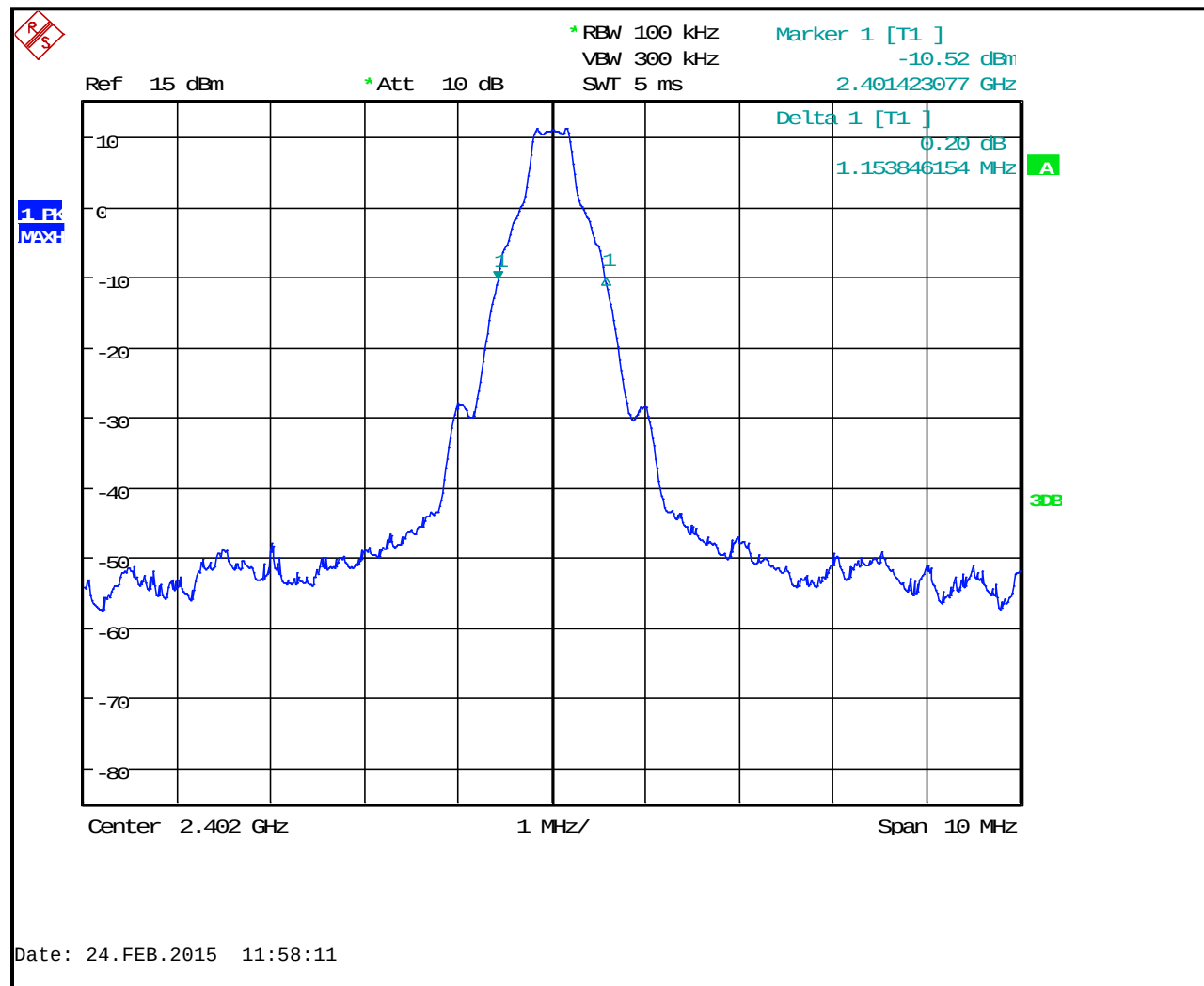
### **7.2 20 dB Modulated Bandwidth Test Data**

**Table 7-1: 20 dB Modulated Bandwidth Test Data**

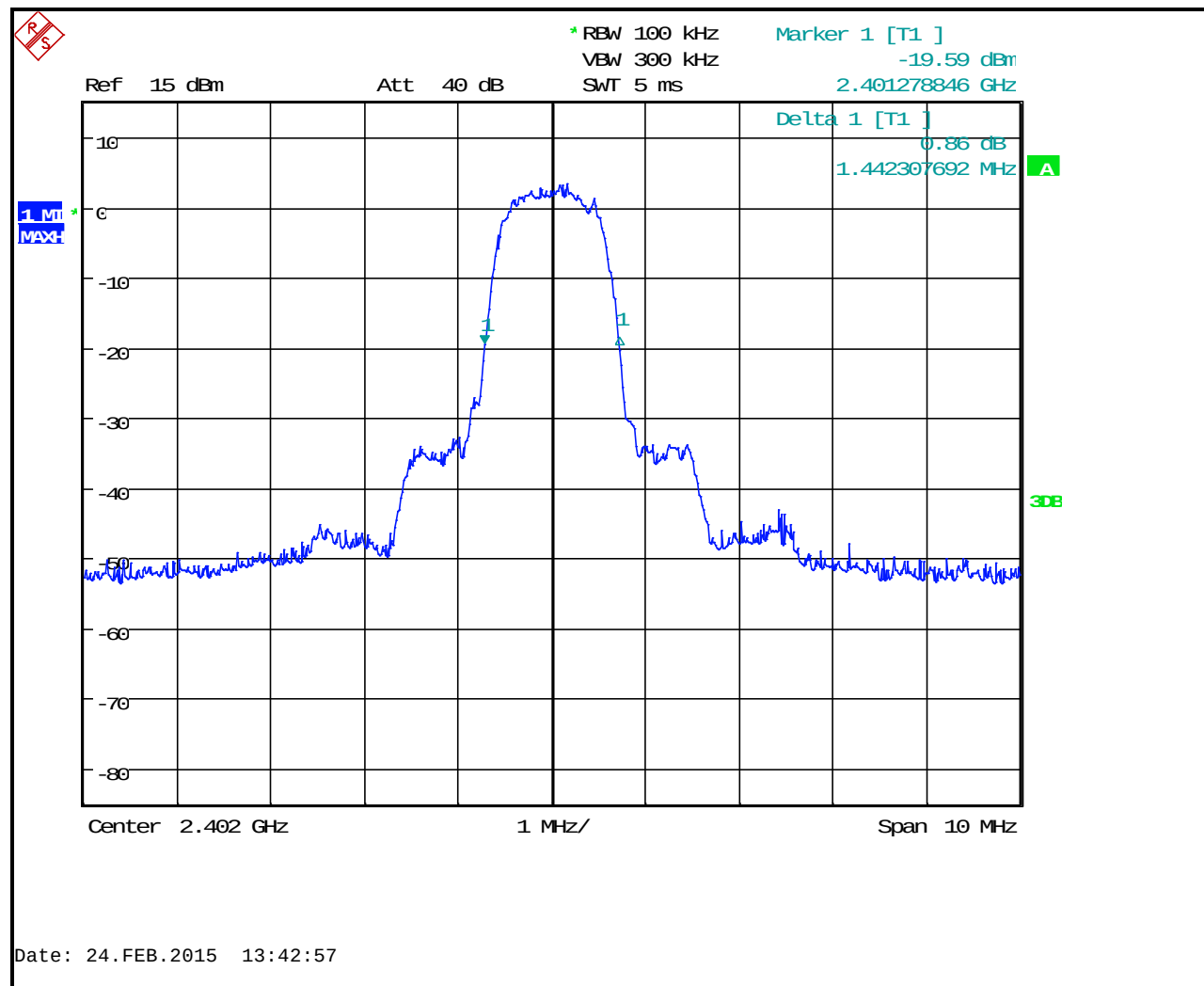
| <b>Frequency (MHz)</b> | <b>20 dB Bandwidth (MHz)</b> |
|------------------------|------------------------------|
| 2402                   | 1.46                         |
| 2441                   | 1.46                         |
| 2480                   | 1.46                         |

### 7.3 20 dB Bandwidth Plots

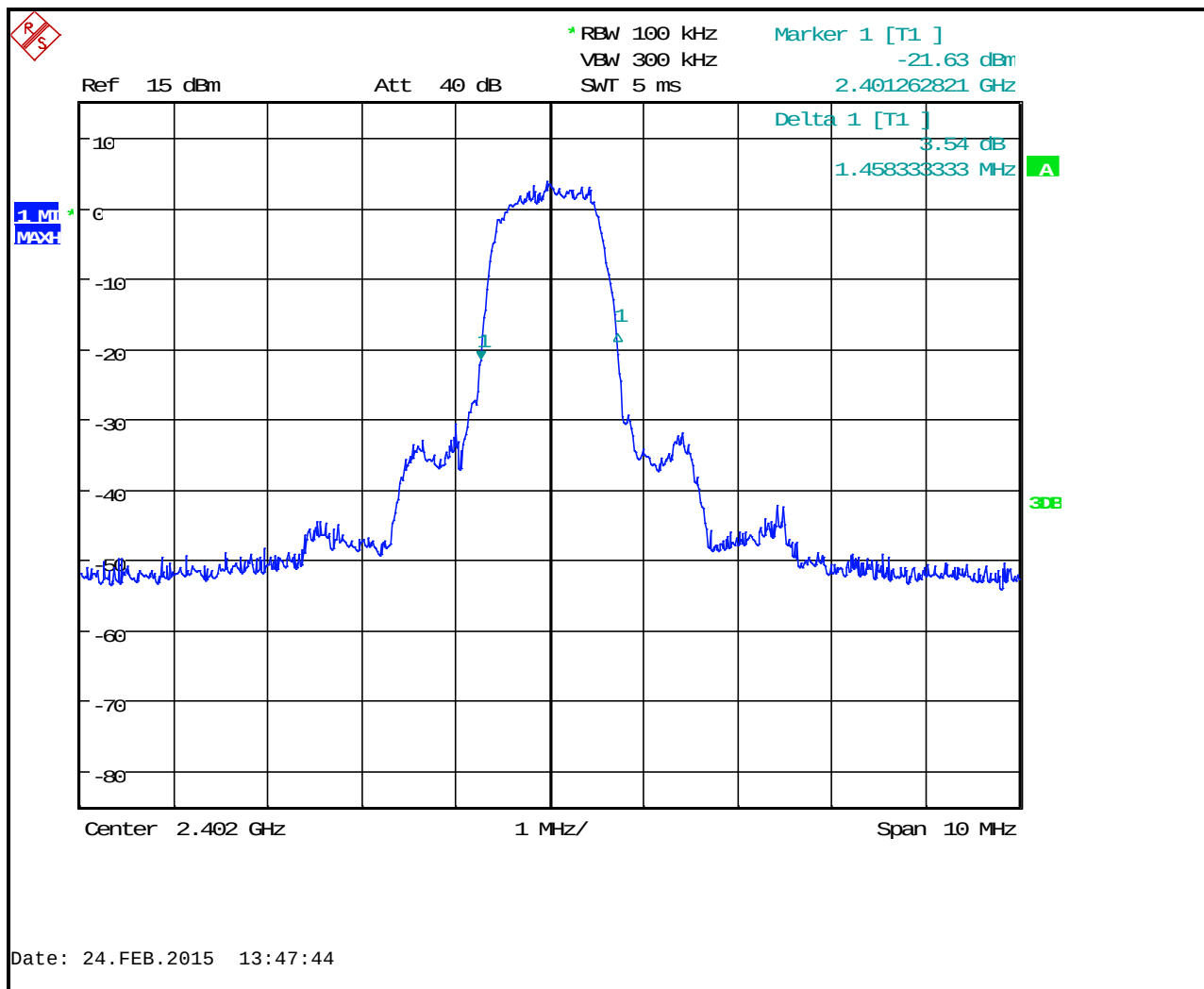
Plot 7-1: 20 dB Bandwidth - 2402 MHz; GFSK



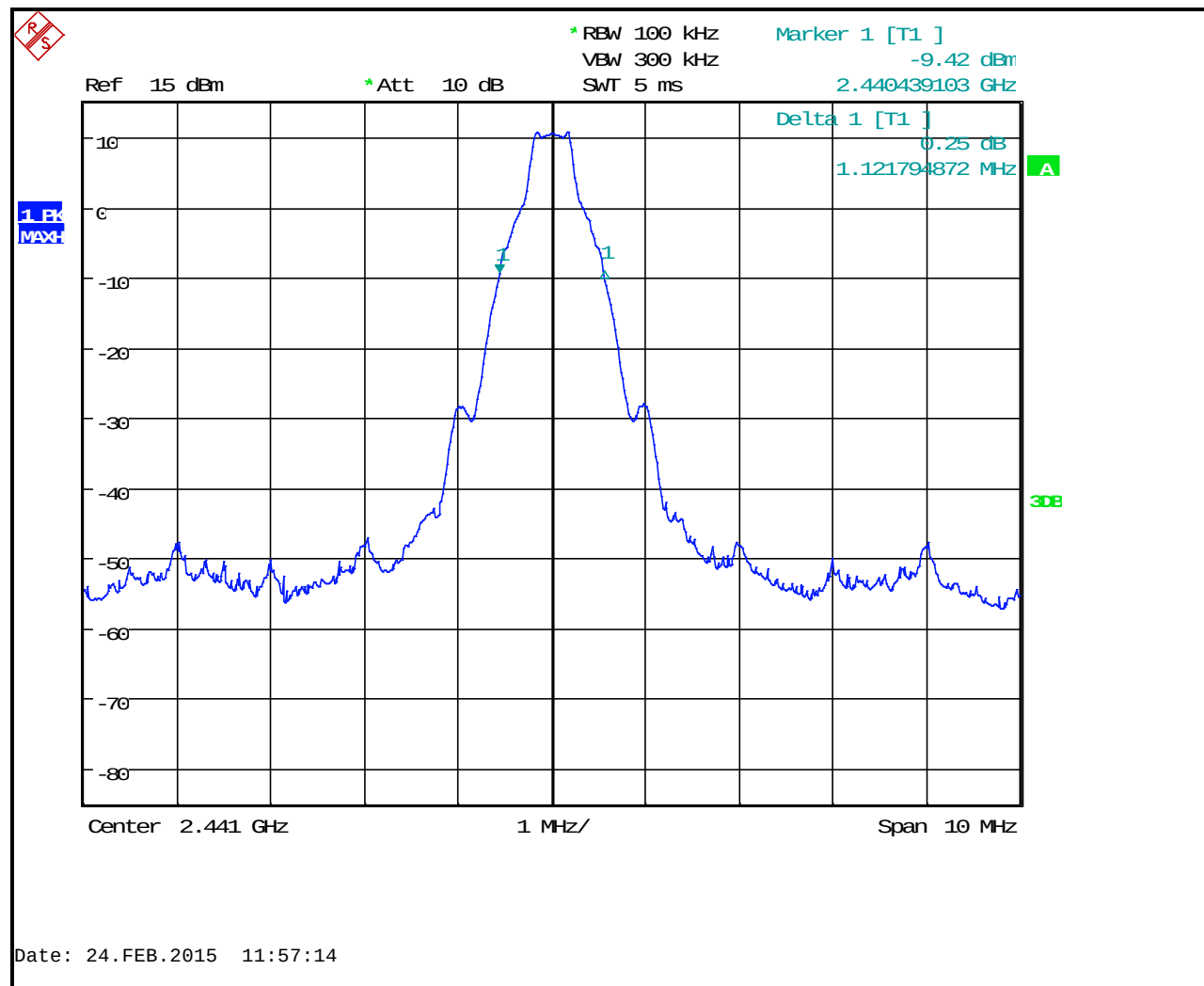
Plot 7-2: 20 dB Bandwidth - 2402 MHz; 2-EDR



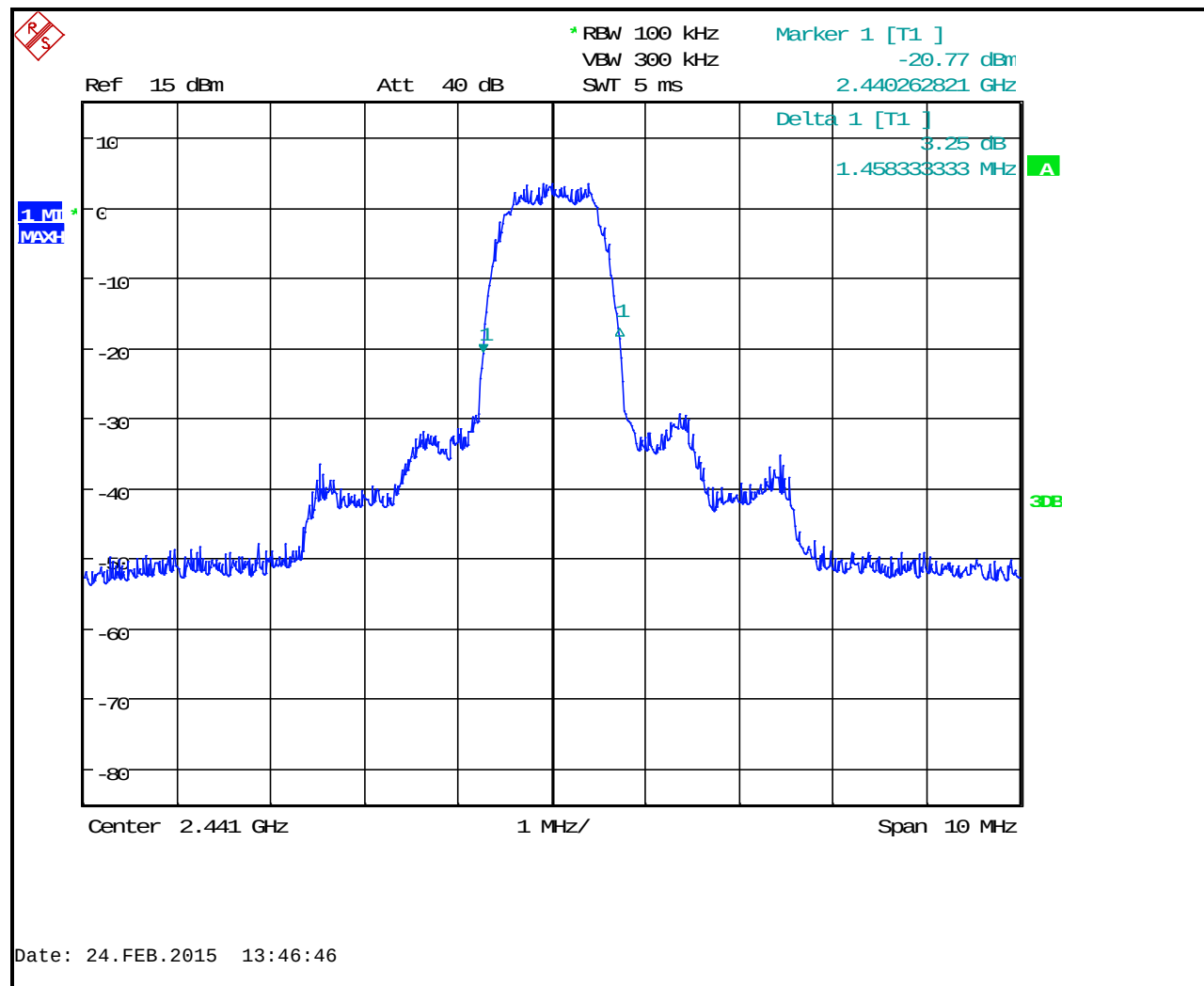
Plot 7-3: 20 dB Bandwidth - 2402 MHz; 3-EDR



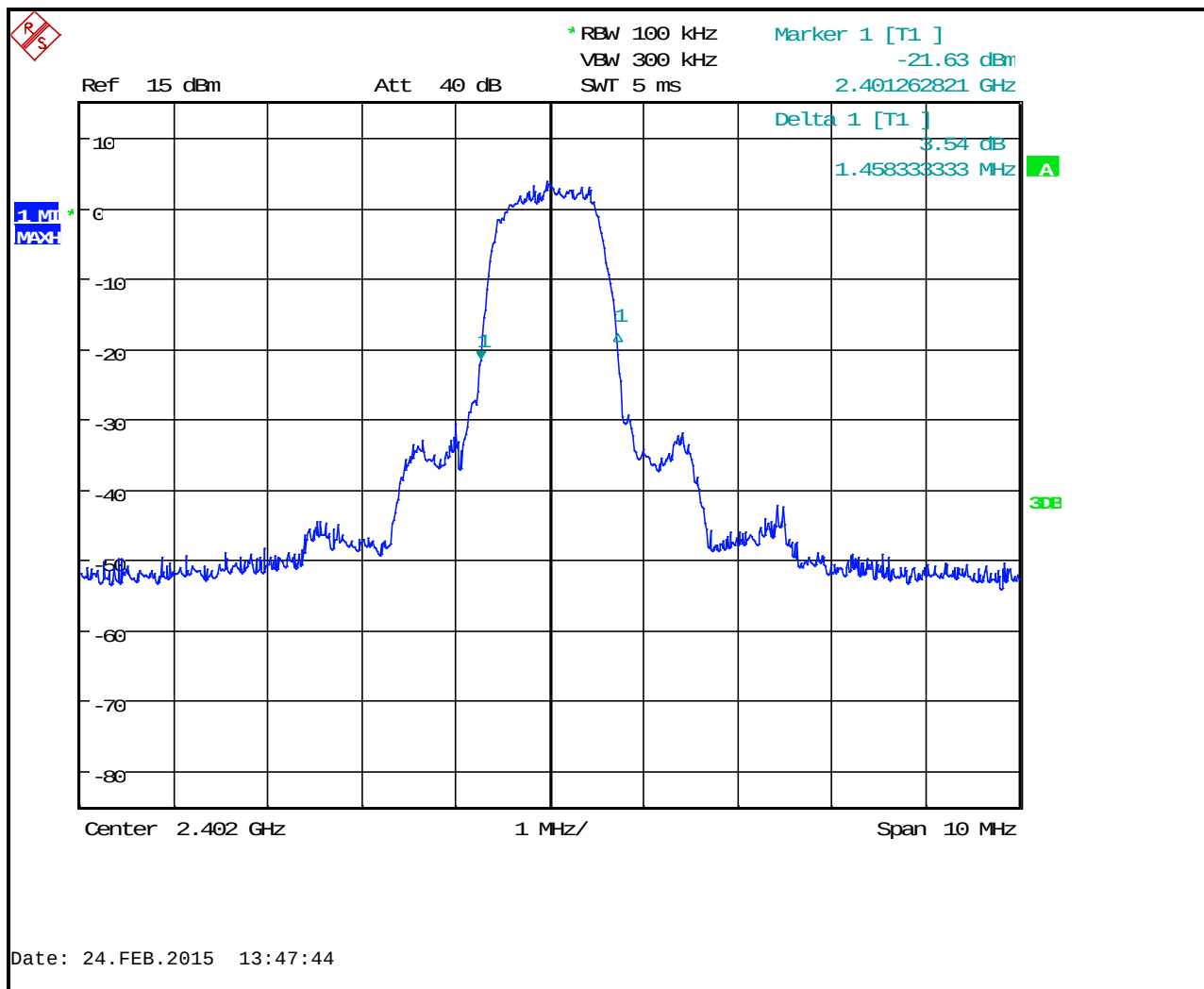
Plot 7-4: 20 dB Bandwidth - 2441 MHz; GFSK



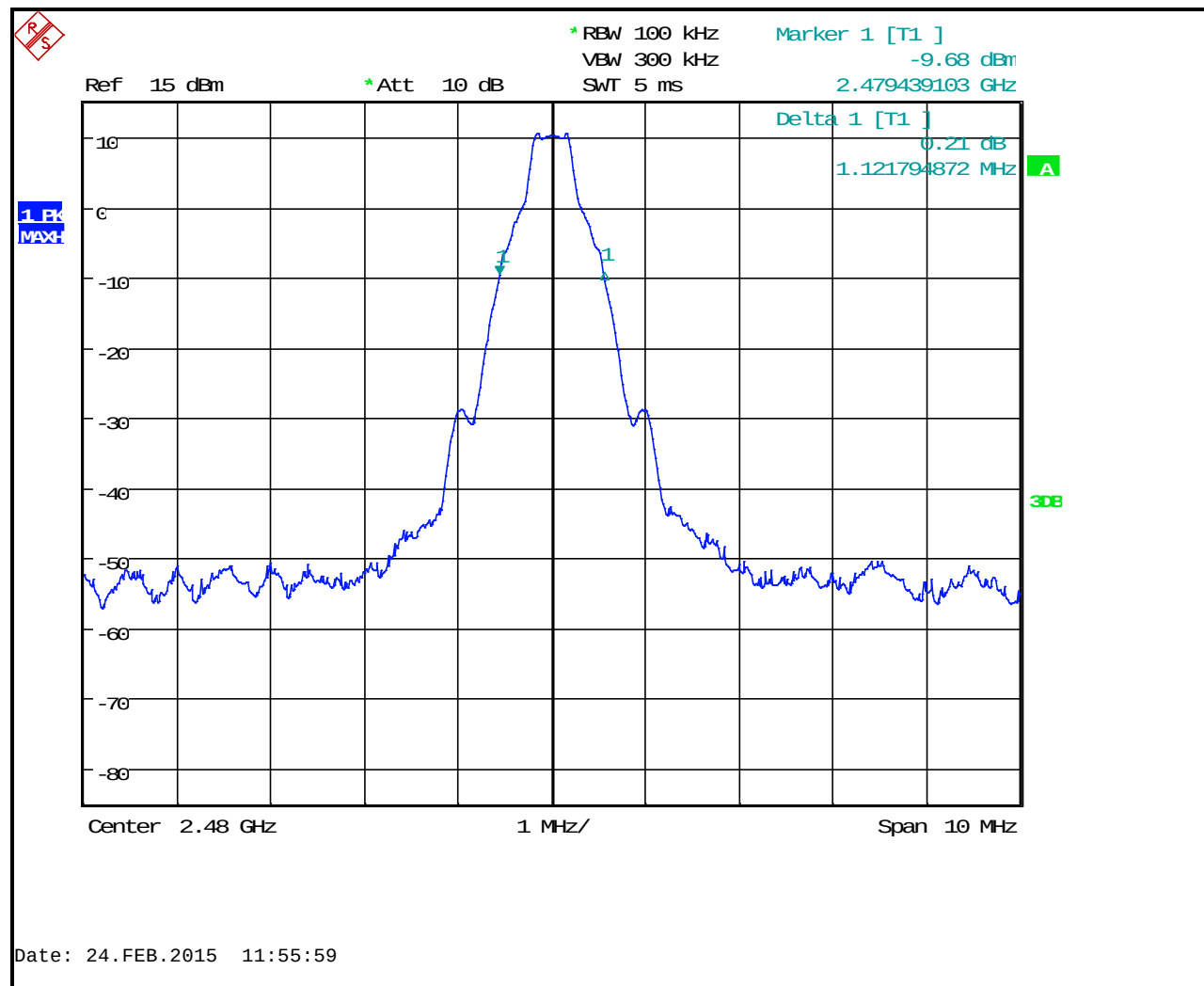
**Plot 7-5: 20 dB Bandwidth - 2441 MHz; 2-EDR**



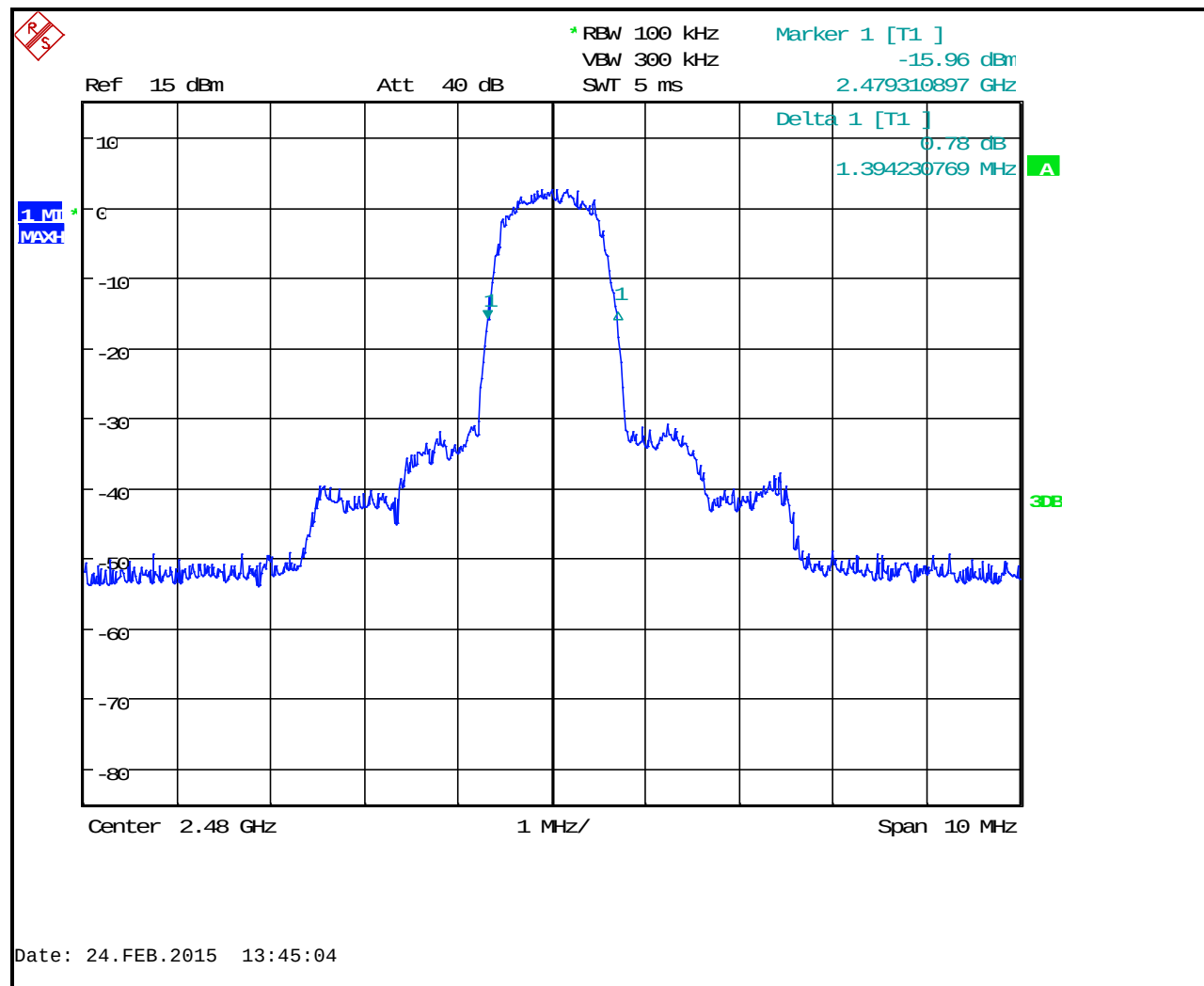
Plot 7-6: 20 dB Bandwidth - 2441 MHz; 3-EDR



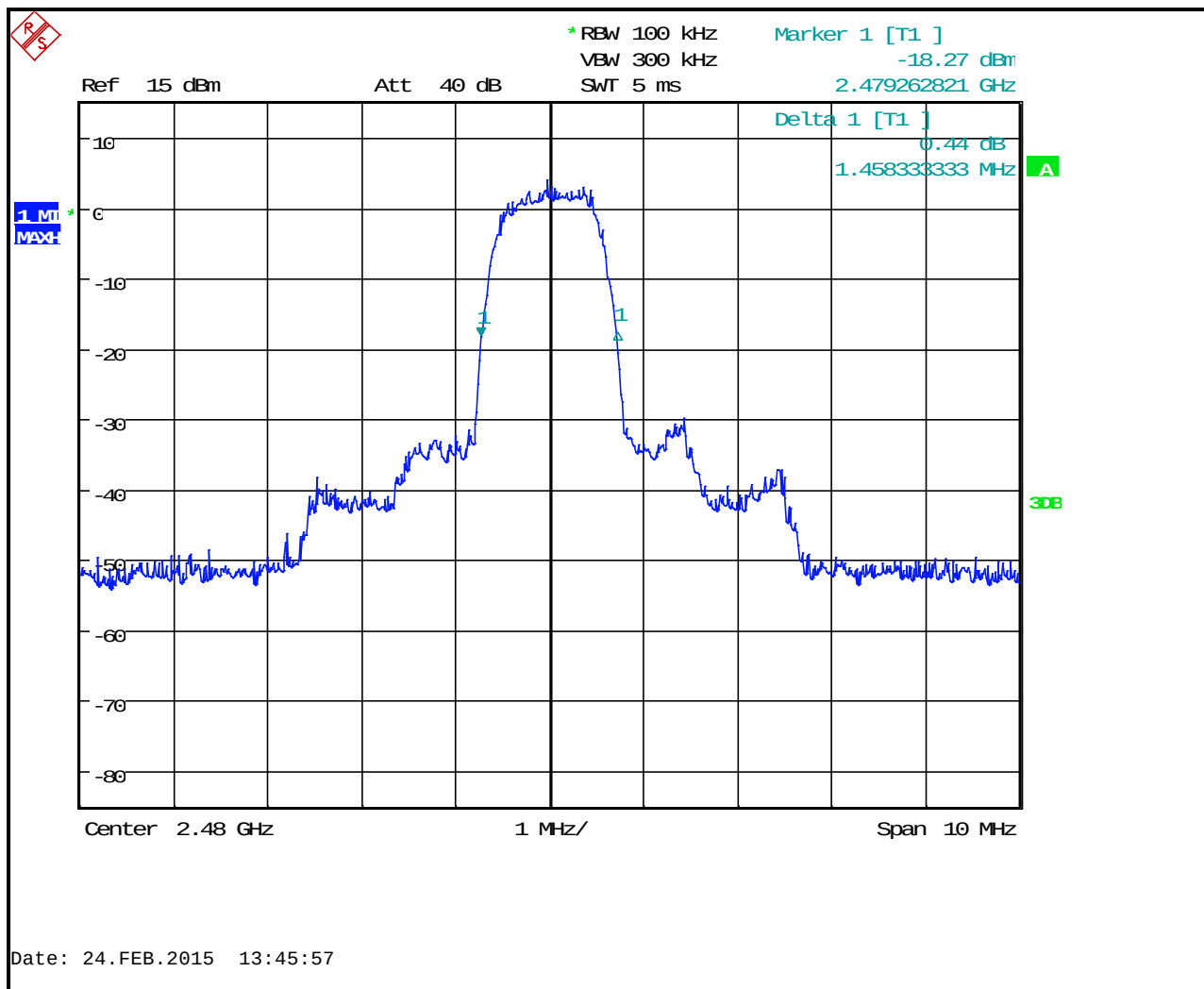
**Plot 7-7: 20 dB Bandwidth - 2480 MHz; GFSK**



Plot 7-8: 20 dB Bandwidth - 2480 MHz; 2-EDR



Plot 7-9: 20 dB Bandwidth - 2480 MHz; 3-EDR



**Table 7-2: 20 dB Bandwidth Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901581      | Rohde & Schwarz | FSU   | Spectrum Analyzer | 1166.1660.50  | 11/13/15             |

**Test Personnel:**

|                    |                                                                                   |                   |
|--------------------|-----------------------------------------------------------------------------------|-------------------|
| Daniel W. Baltzell |  | February 24, 2015 |
| EMC Test Engineer  | Signature                                                                         | Date of Test      |

**8 Carrier Frequency Separation - 15.247(a)(1), RSS-247 5.1(b)**

**8.1 Carrier Frequency Separation Test Procedure**

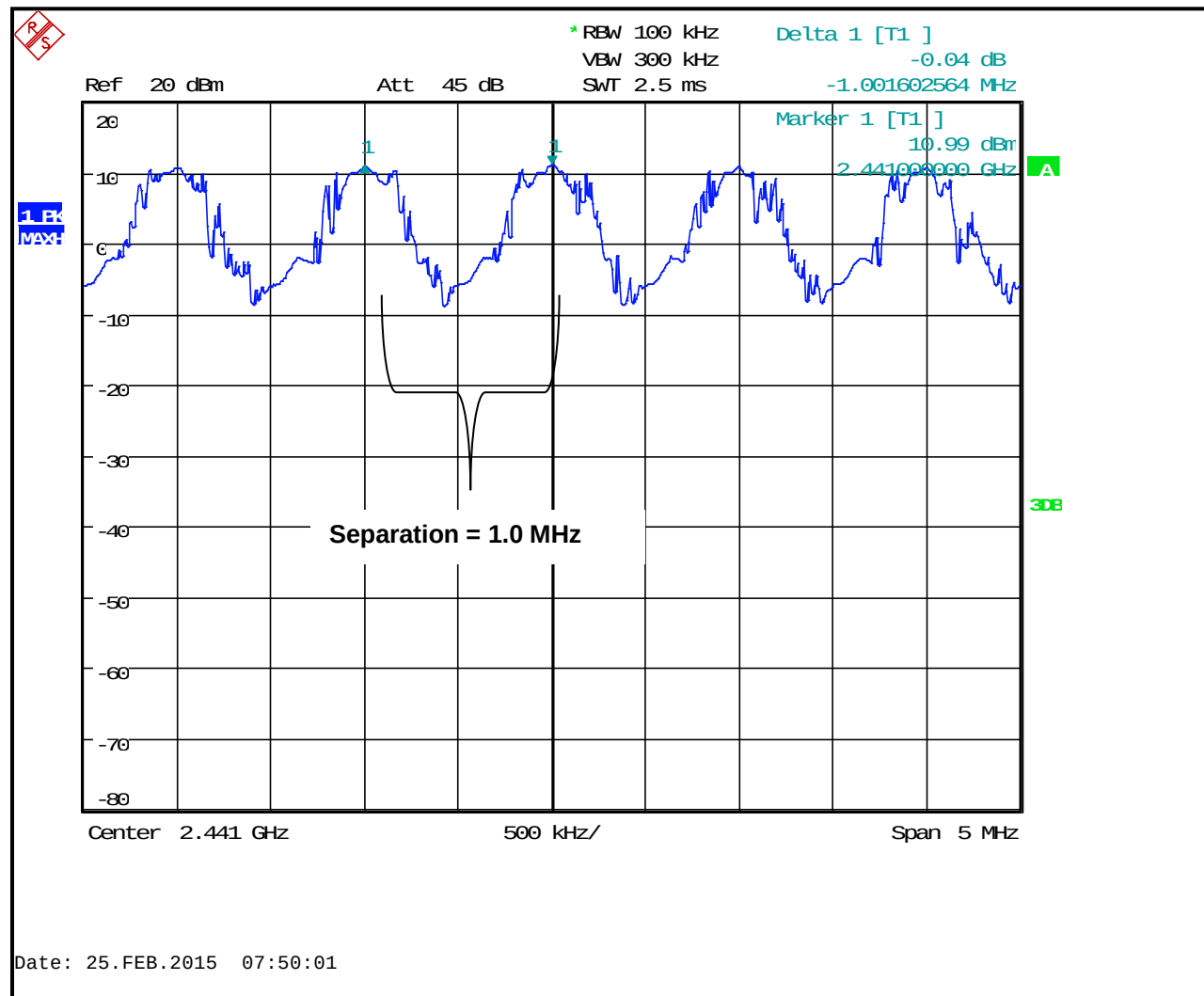
Procedure: C63.10-2013 7.8.2

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 greater, provided the systems operate with an output power no greater than 125 mW.

Measured frequency separation = 1.0 MHz

## 8.2 Carrier Frequency Separation Test Data

Plot 8-1: Carrier Frequency Separation



## 9 Hopping Characteristics – FCC 15.247(a)(1)(iii), RSS-247 5.1(d)

### 9.1 Hopping Characteristics Test Procedure

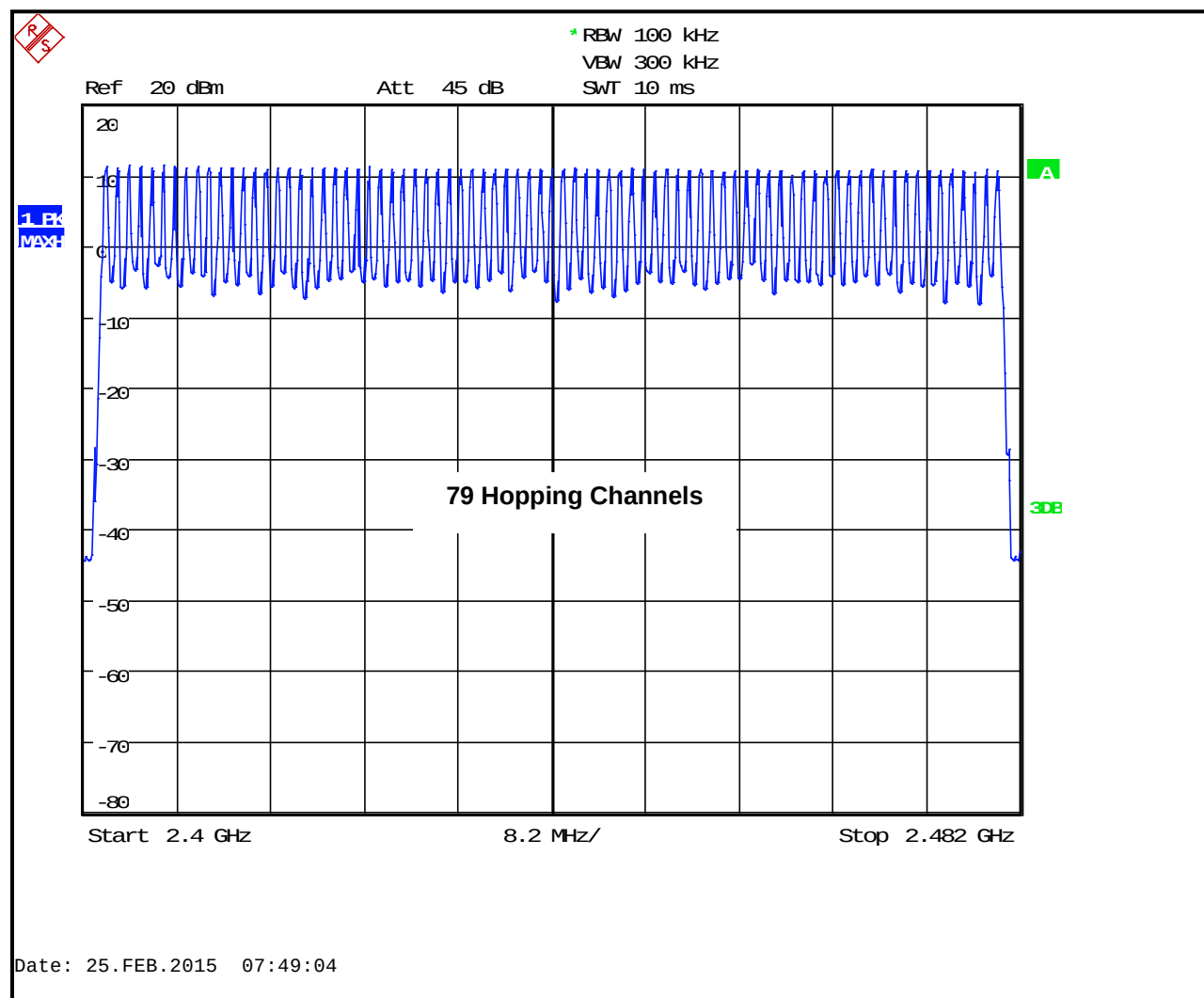
Procedure: C63.10-2013 7.8.3

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

### 9.2 Number of Hopping Frequencies

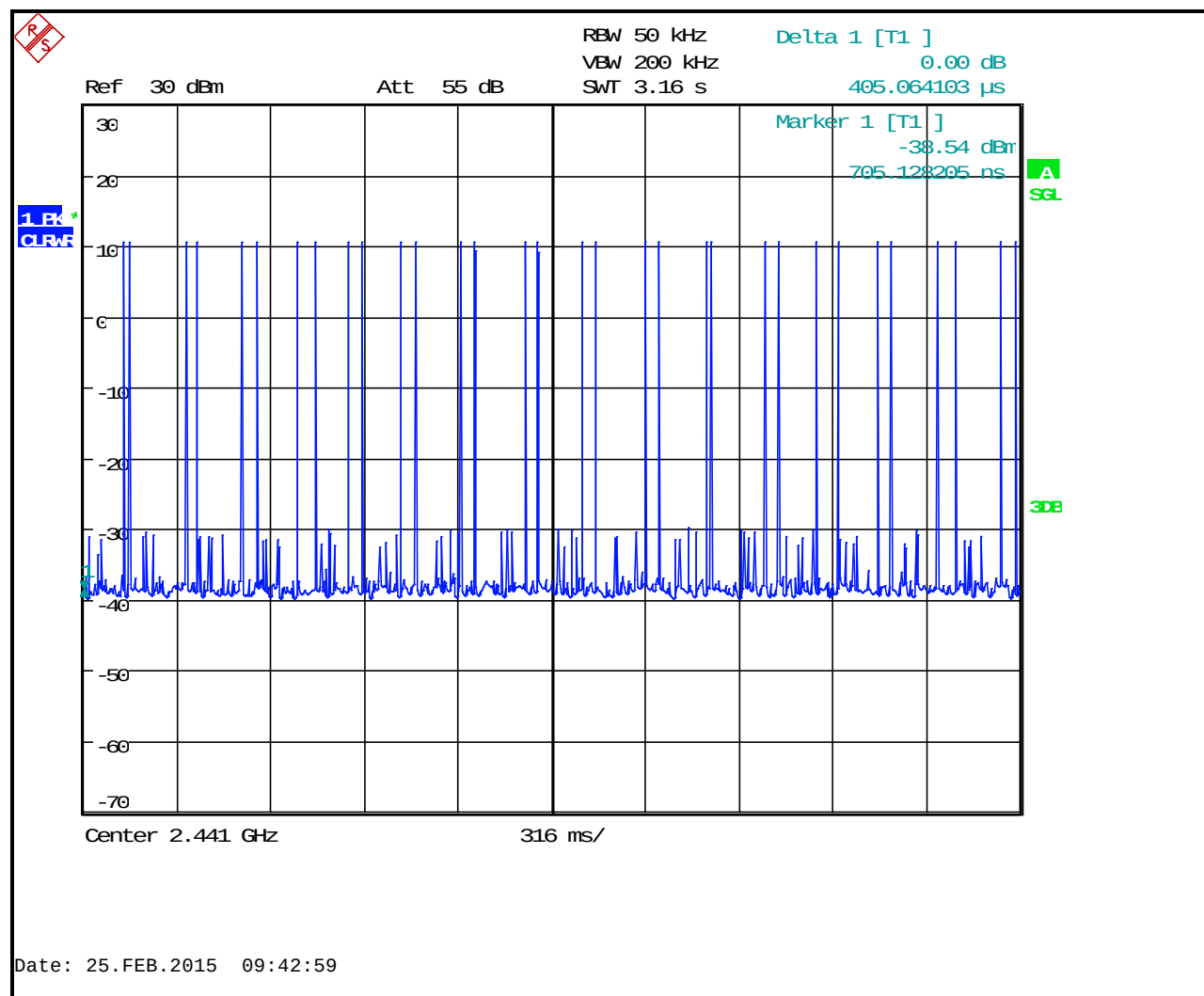
Measured number of hopping frequencies = 79

Plot 9-1: Number of Hopping Frequencies (2402 - 2480 MHz)





**Plot 9-3: Number of Pulses in 3.16 Second Sweep**



**Table 9-1: Hopping Characteristics Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901581      | Rohde & Schwarz | FSU   | Spectrum Analyzer | 1166.1660.50  | 11/13/15             |

**Test Personnel:**

|                                         |                                                                                                  |                                   |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|
| Daniel W. Baltzell<br>EMC Test Engineer | <br>Signature | February 25, 2015<br>Date of Test |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|

## 10 Radiated Emissions Test Results - FCC Rules and Regulations Part 15.247(d), RSS-247 5.5

### 10.1 Limits of Radiated Emissions Measurement

| Frequency (MHz) | Field Strength (uV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 0.009-0.490     | 2400/f (kHz)          | 300                      |
| 0.490-1.705     | 2400/f (kHz)          | 30                       |
| 1.705-30.0      | 30                    | 30                       |
| 30-88           | 100                   | 3                        |
| 88-216          | 150                   | 3                        |
| 216-960         | 200                   | 3                        |
| Above 960       | 500                   | 3                        |

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any circumstances of modulation.

### 10.2 Radiated Emissions Measurement Test Procedure

Before final measurements of radiated emissions were made on the open-field three/ten meter range, the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10<sup>th</sup> harmonic of the highest fundamental transmitter frequency.

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

### 10.2.1 Radiated Emissions Harmonics/Spurious Test Data

**Table 10-1: Radiated Emissions Harmonics/Spurious - 2402 MHz - Average**

| Emission Frequency (MHz) | Calculated Average (dBuV)<br>Peak – 47.6 duty cycle correction | Site Correction Factor (dB/m) | Average Emission Level (dBuV/m) | Average Limit (dBuV/m) | Average Margin (dB) |
|--------------------------|----------------------------------------------------------------|-------------------------------|---------------------------------|------------------------|---------------------|
| 4804.0                   | -24.4                                                          | 38.5                          | 14.1                            | 54.0                   | -39.9               |
| 12012.0                  | -33.7                                                          | 49.0                          | 15.3                            | 54.0                   | -38.7               |
| 19218.0                  | -34.0                                                          | 48.5                          | 14.5                            | 54.0                   | -39.5               |

**Table 10-2: Radiated Emissions Harmonics/Spurious - 2402 MHz - Peak**

| Emission Frequency (MHz) | Peak Analyzer Reading (dBuV)<br>(1 MHz RBW/VBW) | Site Correction Factor (dB/m) | Peak Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dB) |
|--------------------------|-------------------------------------------------|-------------------------------|------------------------------|---------------------|------------------|
| 4804.0                   | 23.2                                            | 38.5                          | 61.7                         | 74.0                | -12.3            |
| 12012.0                  | 13.9                                            | 49.0                          | 62.9                         | 74.0                | -11.1            |
| 19218.0                  | 13.6                                            | 48.5                          | 62.1                         | 74.0                | -11.9            |

**Table 10-3: Radiated Emissions Harmonics/Spurious - 2441 MHz - Average**

| Emission Frequency (MHz) | Calculated Average (dBuV)<br>Peak – 47.6 duty cycle correction | Site Correction Factor (dB/m) | Average Emission Level (dBuV/m) | Average Limit (dBuV/m) | Average Margin (dB) |
|--------------------------|----------------------------------------------------------------|-------------------------------|---------------------------------|------------------------|---------------------|
| 4882.0                   | -28.5                                                          | 38.7                          | 10.2                            | 54.0                   | -43.8               |
| 7323.0                   | -34.7                                                          | 44.0                          | 9.3                             | 54.0                   | -44.7               |
| 12205.0                  | -34.8                                                          | 48.8                          | 14.0                            | 54.0                   | -40.0               |
| 19528.0                  | -34.5                                                          | 47.7                          | 13.2                            | 54.0                   | -40.8               |

**Table 10-4: Radiated Emissions Harmonics/Spurious – 2441 MHz - Peak**

| Emission Frequency (MHz) | Peak Analyzer Reading (dBuV)<br>(1 MHz RBW/VBW) | Site Correction Factor (dB/m)<br>– 47.6 duty cycle correction | Peak Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dB) |
|--------------------------|-------------------------------------------------|---------------------------------------------------------------|------------------------------|---------------------|------------------|
| 4882.0                   | 19.1                                            | 38.7                                                          | 57.8                         | 74.0                | -16.2            |
| 7323.0                   | 12.9                                            | 44.0                                                          | 56.9                         | 74.0                | -17.1            |
| 12205.0                  | 12.8                                            | 48.8                                                          | 61.6                         | 74.0                | -12.4            |
| 19528.0                  | 13.1                                            | 47.7                                                          | 60.8                         | 74.0                | -13.2            |

**Table 10-5: Radiated Emissions Harmonics/Spurious - 2480 MHz - Average**

| Emission Frequency (MHz) | Calculated Average (dBuV)<br>Peak – 47.6 duty cycle correction | Site Correction Factor (dB/m) | Average Emission Level (dBuV/m) | Average Limit (dBuV/m) | Average Margin (dB) |
|--------------------------|----------------------------------------------------------------|-------------------------------|---------------------------------|------------------------|---------------------|
| 4960.0                   | -28.4                                                          | 38.9                          | 10.5                            | 54.0                   | -43.5               |
| 7440.1                   | -34.4                                                          | 44.1                          | 9.7                             | 54.0                   | -44.3               |
| 12400.0                  | -34.7                                                          | 48.7                          | 14.0                            | 54.0                   | -40.0               |
| 19840.0                  | -34.0                                                          | 49.0                          | 15.0                            | 54.0                   | -39.0               |
| 22320.0                  | -33.6                                                          | 51.0                          | 17.4                            | 54.0                   | -36.6               |

**Table 10-6: Radiated Emissions Harmonics/Spurious – 2480 MHz - Peak**

| Emission Frequency (MHz) | Peak Analyzer Reading (dBuV)<br>(1 MHz RBW/VBW) | Site Correction Factor (dB/m)<br>– 47.6 duty cycle correction | Peak Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dB) |
|--------------------------|-------------------------------------------------|---------------------------------------------------------------|------------------------------|---------------------|------------------|
| 4960.0                   | 19.2                                            | 38.9                                                          | 58.1                         | 74.0                | -15.9            |
| 7440.1                   | 13.2                                            | 44.1                                                          | 57.3                         | 74.0                | -16.7            |
| 12400.0                  | 12.9                                            | 48.7                                                          | 61.6                         | 74.0                | -12.4            |
| 19840.0                  | 13.6                                            | 49.0                                                          | 62.6                         | 74.0                | -11.4            |
| 22320.0                  | 14.0                                            | 51.0                                                          | 65.0                         | 74.0                | -9.0             |

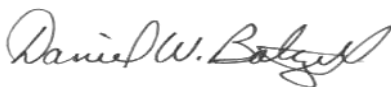
**Table 10-7: Radiated Emissions Harmonics/Spurious – Hopping Mode**

| <b>Emission Frequency (MHz)</b> | <b>Peak Analyzer Level (dBuV)<br/>(1 MHz RBW/VBW)</b> | <b>Average Analyzer Reading (dBuV)<br/>Peak – 47.6 duty cycle correction</b> | <b>Site Correction Factor (dB/m)</b> | <b>Average Emission Level (dBuV/m)</b> | <b>Average Limit (dBuV/m)</b> | <b>Average Margin (dB)</b> |
|---------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------|----------------------------------------|-------------------------------|----------------------------|
| 4824.0                          | 23.0                                                  | -24.6                                                                        | 28.5                                 | 3.9                                    | 54.0                          | -50.1                      |
| 4826.0                          | 19.2                                                  | -28.4                                                                        | 28.5                                 | 0.1                                    | 54.0                          | -53.9                      |
| 4828.0                          | 20.8                                                  | -26.8                                                                        | 28.5                                 | 1.7                                    | 54.0                          | -52.3                      |
| 4890.0                          | 19.6                                                  | -28.0                                                                        | 29.8                                 | 1.8                                    | 54.0                          | -52.2                      |
| 4892.0                          | 19.2                                                  | -28.4                                                                        | 29.8                                 | 1.4                                    | 54.0                          | -52.6                      |
| 4958.0                          | 19.2                                                  | -28.4                                                                        | 29.8                                 | 1.4                                    | 54.0                          | -52.6                      |

**Table 10-8: Radiated Emissions Test Equipment**

| RTL Asset # | Manufacturer            | Model             | Part Type                         | Serial Number | Calibration Due Date |
|-------------|-------------------------|-------------------|-----------------------------------|---------------|----------------------|
| 900151      | Rohde and Schwarz       | HFH2-Z2           | Loop Antenna (9 kHz - 30 MHz)     | 827525/019    | 3/4/16               |
| 900932      | Hewlett Packard         | 8449B OPT H02     | Preamplifier (1 - 26.5 GHz)       | 3008A00505    | 9/5/15               |
| 900878      | Rhein Tech Laboratories | AM3-1197-0005     | 3 meter antenna mast, polarizing  | OATS1         | N/A                  |
| 901592      | Insulated Wire Inc.     | KPS-1503-3600-KPR | SMK RF Cables 20'                 | NA            | 9/3/15               |
| 901593      | Insulated Wire Inc.     | KPS-1503-360-KPR  | SMK RF Cables 36"                 | NA            | 9/3/15               |
| 901594      | Insulated Wire Inc.     | KPS-1503-360-KPR  | SMK RF Cables 36"                 | NA            | 9/3/15               |
| 901242      | Rhein Tech Laboratories | WRT-000-0003      | Wood rotating table               | N/A           | N/A                  |
| 901581      | Rohde & Schwarz         | FSU               | Spectrum Analyzer                 | 1166.1660.50  | 11/13/15             |
| 900791      | Chase                   | CBL6111B          | Bilog Antenna (30 MHz – 2000 MHz) | N/A           | 6/11/17              |
| 900321      | EMCO                    | 3161-03           | Horn Antennas (4 – 8 GHz)         | 9508-1020     | 4/09/18              |
| 900323      | EMCO                    | 3160-07           | Horn Antennas (8.2 – 12 GHz)      | 9605-1054     | 4/09/18              |
| 900356      | EMCO                    | 3160-08           | Horn Antennas (12.4 – 18 GHz)     | 9607-1044     | 4/09/18              |
| 901218      | EMCO                    | 3160-09           | Horn Antenna (18 - 26 GHz)        | 960281-003    | 4/14/18              |
| 900772      | EMCO                    | 3161-02           | Horn Antenna (2 - 4 GHz)          | 9804-1044     | 4/09/18              |

**Test Personnel:**

|                                         |                                                                                                  |                               |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------|
| Daniel W. Baltzell<br>EMC Test Engineer | <br>Signature | April 4, 2015<br>Date of Test |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------|

**11 Conclusion**

The data in this measurement report shows that the **Harris Corporation Model XL-200P C1D1 Non-Rebanded, FCC ID: OWDTR-0146-E, IC: 3636B-0146**, complies with the applicable requirements of FCC Part 15 and Part 2, and IC RSS-247.