



| | | | | | |
|---|---|-----------------------|------------------|---|-----------|
| Test Report No.: | | 16063009.fcc01 | | <i>Page 1 of 44</i> | |
| Client: | Diagnoptics Technologies B.V. Aarhusweg 4-9, 9723JJ Groningen, Netherlands | | | | |
| Test Item: | Digital Transmission System (DTS) BLE | | | | |
| Identification: | AGE Scanner | | Serial Number: | 16430291 (conducted tests) and - (radiated tests) | |
| Project No.: | 16063009 | | Date of Receipt: | November 21, 2016 | |
| Testing Location: | TÜV Rheinland Nederland B.V. Eiberkamp 10 9351VT Leek | | | | |
| Test Specification: | FCC 47 CFR Part 15, Subpart C, Section 15.247 (10-1-15 Edition) ANSI C63.10-2013 | | | | |
| <p>This report shall not be reproduced, except in full, without the written permission of TÜV Rheinland Nederland B.V. The test results relate only to the item(s) tested.</p> | | | | | |
| Test Result: | The test item passed the test specification(s). | | | | |
| Testing Laboratory: | TÜV Rheinland Nederland B.V. Eiberkamp 10 9351 VT Leek | | | | |
| Tested by: |  | | Reviewed by: |  | |
| 2017-01-11 | R. van der Meer / Inspector | | 2017-01-11 | E. van der Wal / Reviewer | |
| Date | Name/Position | Signature | Date | Name/Position | Signature |
| Other Aspects:- | | | | | |
| Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested | | | | | |

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TEST SUMMARY

5.1.1 CONDUCTED MEASUREMENTS AT ANTENNA PORT

RESULT: PASS

5.1.2 6dB BANDWIDTH

RESULT: PASS

5.1.3 PEAK POWER SPECTRAL DENSITY

RESULT: PASS

5.1.4 BAND EDGE CONDUCTED EMISSIONS

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSIONS OF TRANSMITTER

RESULT: PASS

5.2.1 AC POWER LINE CONDUCTED EMISSION OF TRANSMITTER

RESULT: Not Applicable

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1. General Remarks

1.1 Complementary Materials

There is no attachment to this test report.

2. Test Sites

2.1 Test Facilities

The Federal Communications Commission and Industry Canada has reviewed the technical characteristics of the test facilities at TÜV Rheinland Nederland B.V., located in Leek, 9351VT Eiberkamp 10, The Netherlands, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948.

The description of the test facilities has been filed at the Office of the Federal Communications Commission under registration number 90828. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The description of the test facilities has been filed to Industry Canada under registration number 2932G-2. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

Normal test conditions:

| | |
|----------------------|---|
| Temperature (*) | : +15°C to +35°C |
| Relative humidity(*) | : 20 % to 75 % |
| Supply voltage | : 3V, battery operated only (new batteries used). |

When it was impracticable to carry out the tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests are stated separately.

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Kind of Equipment | Manufacturer | Model Name | Inventory number | Calibration date (mm/yyyy) | Calibration due date (mm/yyyy) |
|---|-----------------|-------------------------------------|------------------|----------------------------|--------------------------------|
| For Antenna Port Conducted Emissions | | | | | |
| Temperature-Humiditymeter | Extech | SD500 | A00446 | 04/2016 | 04/2017 |
| Spectrum Analyzer | Rohde & Schwarz | FSV | A01744 | 07/2016 | 07/2017 |
| RF Cable | Huber + Suhner | Sucoflex 102 | A00344 | 05/2016 | 05/2017 |
| For Radiated Emissions | | | | | |
| Measurement Receiver | Rohde & Schwarz | ESCI | A00314 | 03/2016 | 03/2017 |
| RF Cable S-AR | Gigalink | APG0500 | A00447 | 01/2016 | 01/2017 |
| Controller | Maturo | SCU/088/8090811 | A00450 | N/A | N/A |
| Controller | EMCS | DOC202 | A00257 | N/A | N/A |
| Test facility | Comtest | FCC listed: 90828 IC: 2932G-2 | A00235 | 04/2014 | 04/2017 |
| Spectrum Analyzer | Rohde & Schwarz | FSV | A00337 | 06/2016 | 06/2017 |
| Antenna mast | EMCS | AP-4702C | A00258 | N/A | N/A |
| Amplifier for A00209 | EMCS | -- | A00378 | N/A | N/A |
| Temperature-Humiditymeter | Extech | SD500 | A00444 | 04/2016 | 04/2017 |
| Guidehorn 1-18 GHz | EMCO | 3115 | A00009 | 04/2016 | 04/2017 |
| Guidehorn 18-26.5 GHz | EMCO | 3160-09 | A00209 | 04/2016 | 04/2017 |
| Biconilog Testantenna | Teseq | CBL 6111D | A00466 | 06/2016 | 06/2017 |
| 2.4 GHz bandreject filter | BSC | XN-1783 | A00065 | N/A | N/A |
| Bandpass filter 4-10 GHz | Reactel | 7AS-7G-6G-511 | A00131 | N/A | N/A |
| Bandpass filter 10-26 GHz | Reactel | 9HS-10G/26.5G-S11 | A00151 | N/A | N/A |
| Preamplifier 0.5 - 18 GHz | Miteq | AMF-5D-005180-28-13p | A00247 | N/A | N/A |
| Filterbox | EMCS | RFS06S | A00255 | 02/2016 | 02/2017 |

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025:2005 has been confirmed before testing. NA= Not Applicable

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2.3 Measurement Uncertainty

Table 2: Emission Measurement Uncertainty

| Measurement Type | Frequency | Uncertainty |
|---------------------------------|--------------|---------------|
| Antenna Port Conducted Emission | < 6GHz | ±2.5dB |
| | > 6GHz | ±2.7 to ± 4.2 |
| Radiated Emission | | |
| | 30MHz - 1GHz | ±5.22dB |
| | > 1GHz | ±5.22dB |
| | | |

3. General Product Information

3.1 Product Function and Intended Use

The brand Diagnostics Technologies B.V. model AGE Scanner, hereafter referred to as EUT, is a Bluetooth Low Energy (BLE) transmitter used to transmit data to PC, Tablet or smartphone. The transmitter will support and utilizes GFSK modulation techniques. Although the chip used is capable of multiple data-rates only 2 Mbps is used.

The content of this report and measurement results have not been changed other than the way of presenting the data.

3.2 System Details

Details and an overview of the system and all of its components, as it has been tested, may be found below.

| | | |
|-----------------------|---|--|
| EUT | : | Digital Transmission System (DTS), BLE |
| Manufacturer | : | Diagnostics Technologies B.V. |
| Brand | : | Diagnostics |
| Model(s) | : | AGE Scanner |
| Serial Number | : | 16430291 (conducted tests) and unmarked (radiated tests) |
| Voltage input rating | : | - |
| Voltage output rating | : | 3 Vdc (from exchangeable AAA battery) |
| Current input rating | : | -- |
| Antenna | : | Internal, integrated on the PCB |
| Antenna Gain | : | + 5.3 dBi |
| Operating frequency | : | 2402 MHz-2480 MHz. |
| Modulation | : | GFSK |
| Data-rate | : | 2 Mbps |
| Remarks | : | n.a. |

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Table 3: Interfaces present on the EUT

There are no interface ports present on the EUT.

3.3 Countermeasures to achieve compliance

No additional measures were employed to achieve compliance.

4. Test Set-up and Operation Modes

4.1 Test Methodology

The test methodology used is based on the requirements of 47 CFR Part 15, Sections 15.31, 15.33, 15.35, 15.205, 15.207, 15.209, 15.247.

The test methods, which have been used, are based on ANSI C63.10-2013.

4.2 Operation Modes

Testing was performed at the lowest operating frequency (2402 MHz), at the operating frequency in the middle of the specified frequency band (2440 MHz) and at the highest operating frequency (2480 MHz). These operation modes were selected after review of the capabilities and characteristics of the EUT. The test software as mentioned in section 4.4 enabled the settings of these modes.

The EUT has been tested in the modes as described in table below

| Operation Mode | EUT Status | Frequency (MHz) | TX power control setting |
|-----------------------|-------------------|------------------------|---------------------------------|
| Transmit (Tx) | On | 2402 | 0 |
| Transmit (Tx) | On | 2440 | 0 |
| Transmit (Tx) | On | 2480 | 0 |

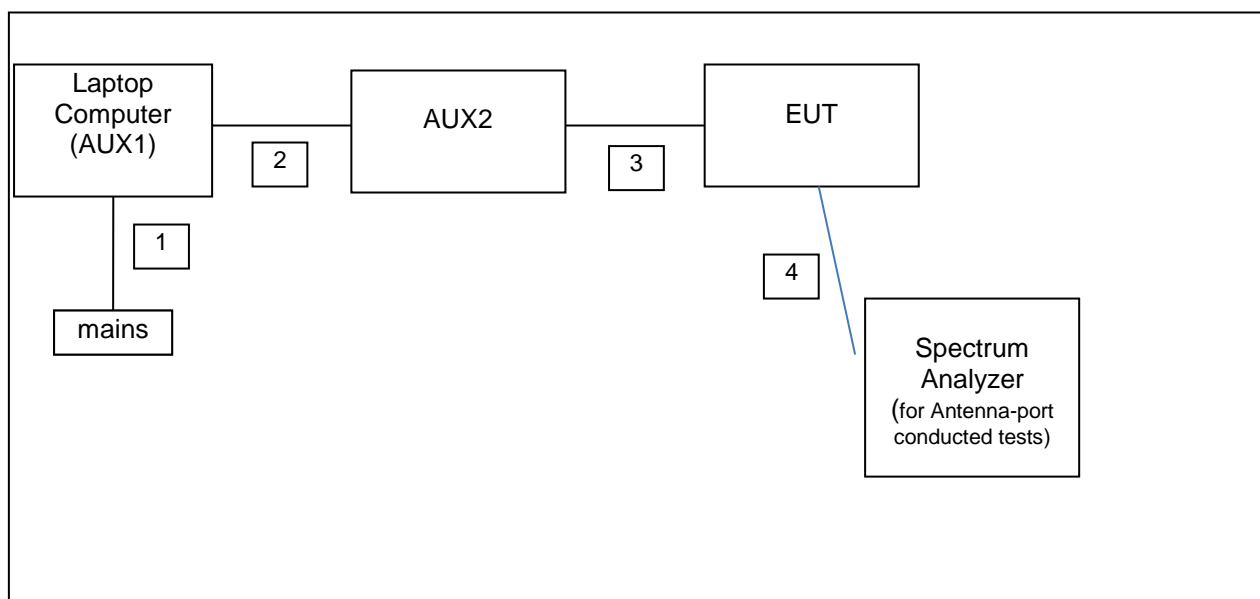
4.3 Physical Configuration for Testing

For programming purposes only the EUT was connected to the usb port of a laptop computer. The laptop computer was used to configure the EUT to continuously transmit at a specified output power and channel as specified in the test data. See section 4.5 for Auxiliary details.

The EUT was tested on a stand-alone basis and the test system was configured in a way that a load condition was emulated by a bicycle wheel that was spun by a controllable speed.

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.10-2013.

Figure 1a: Test Setup Diagram – antenna port conducted tests and programming.



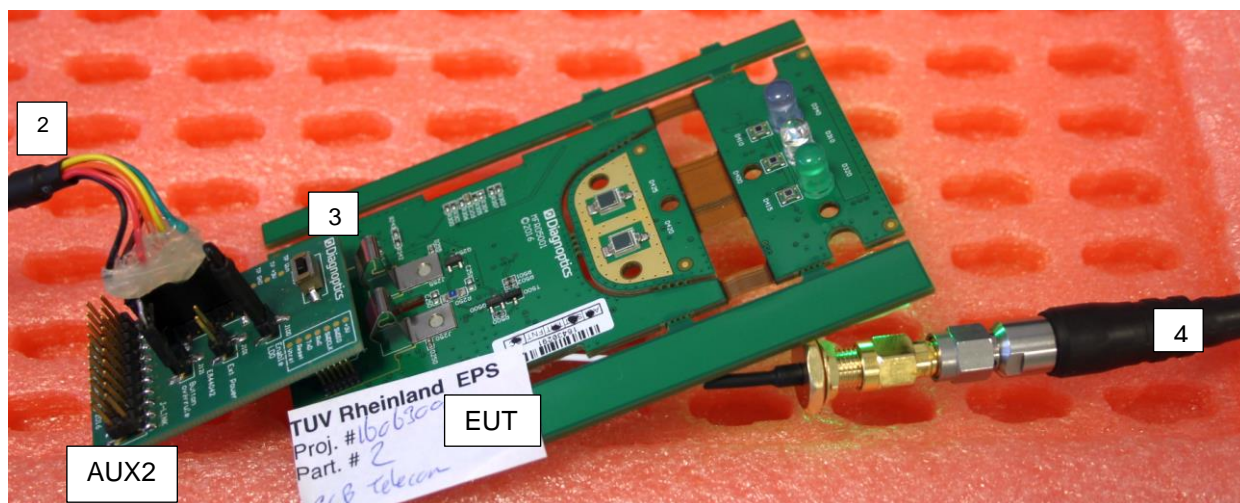
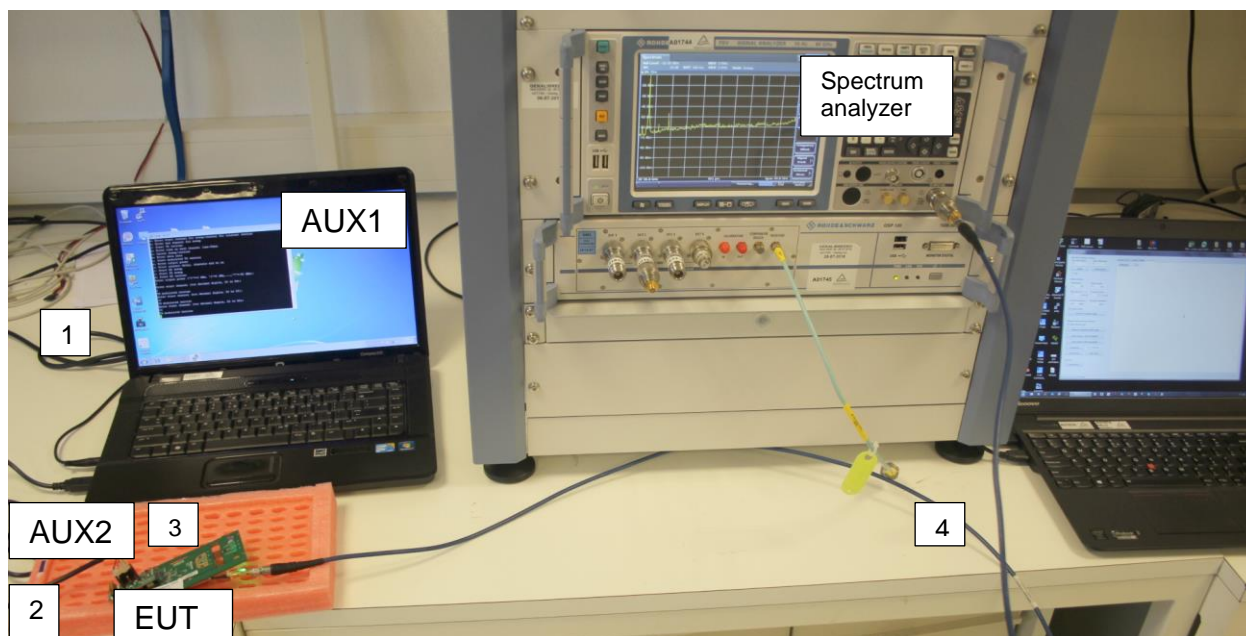
| No. | Port | From | To | Remarks |
|-----|--------------|------------|-------------------|------------------------|
| 1. | Mains | Mains | Laptop (AUX1) | Through a power supply |
| 2. | Data com. | Laptop USB | AUX2 | -- |
| 3. | Data com. | AUX2 | EUT | -- |
| 4. | Antenna port | EUT | Spectrum analyzer | Conducted tests |
| 5. | | | | |

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Figure 2b: Test Setup Photos – conducted tests and programming.



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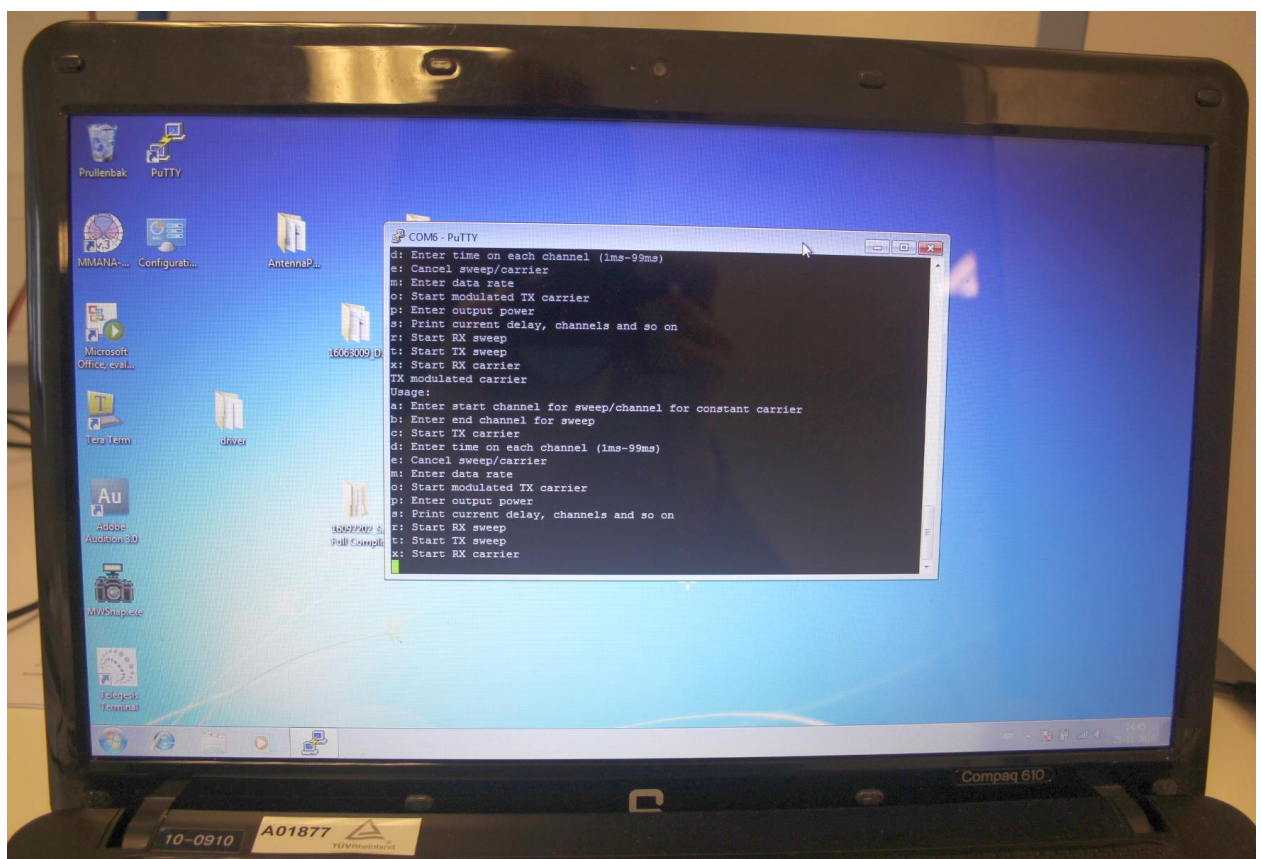
4.4 Test Software

A continuous transmit mode could be initiated by using test software as supplied by the applicant. The test software was used to define various different operational modes of the EUT for the purpose of compliance testing. The version of the test software, as supplied by the applicant and used during all tests is:

Test software : PuTTY

Batch files programmed by the applicant are used to make the required settings.

This software was running on a laptop computer (AUX1). It was used to enable the test operation modes listed in section 4.2 as appropriate.



Photograph of the software (and settings) as used on AUX1

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4.5 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

The auxiliary items were not used during testing, but instead are only used to make the required settings for testing. For setting the transmit frequency, enable modulation etc.

1. AUX1

Product: Laptop Computer
Brand: HP
Model: Compaq 610
Inventory number: A01877
Remark: host for test software

2. AUX2

Product: Serial interface
Brand: Diagnoptics
Model: -
Serial Number: -
Remark: property applicant

3. AUX3

Product: Tablet PC
Brand: Samsung
Model: SM-T550
Serial Number: R52M30LNCWM
Remark: property applicant, used for radiated tests

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5. Test Results

5.1 Conducted Measurements at Antenna Port

5.1.1 Conducted Output Power

RESULT: PASS

Date of testing: 2016-11-22

Requirements:

FCC 15.247(b)(3)

For systems using digital modulation in the 2400-2483.5 MHz band, the maximum peak output power is 1W (+30dBm).

Test procedure:

The Peak Conducted Output Power was measured using the method according to section 11.9.1.1 in ANSI C63.10-2013.

The maximum peak output power (conducted) was measured at the antenna connector with a spectrum analyzer. The final measurement takes into account the loss generated by all the involved cables.

Measurement uncertainty is +/- 2.5 dB.

Notes: $mW = 10^{(dBm/10)}$
 $dBm = 10 \times \log(mW)$

plots : Peak power plots,

Figures 1a, 1b and 1c show plots of the Peak Power outputs, correction factors (= 0.8dB Cableloss) included in the reading.

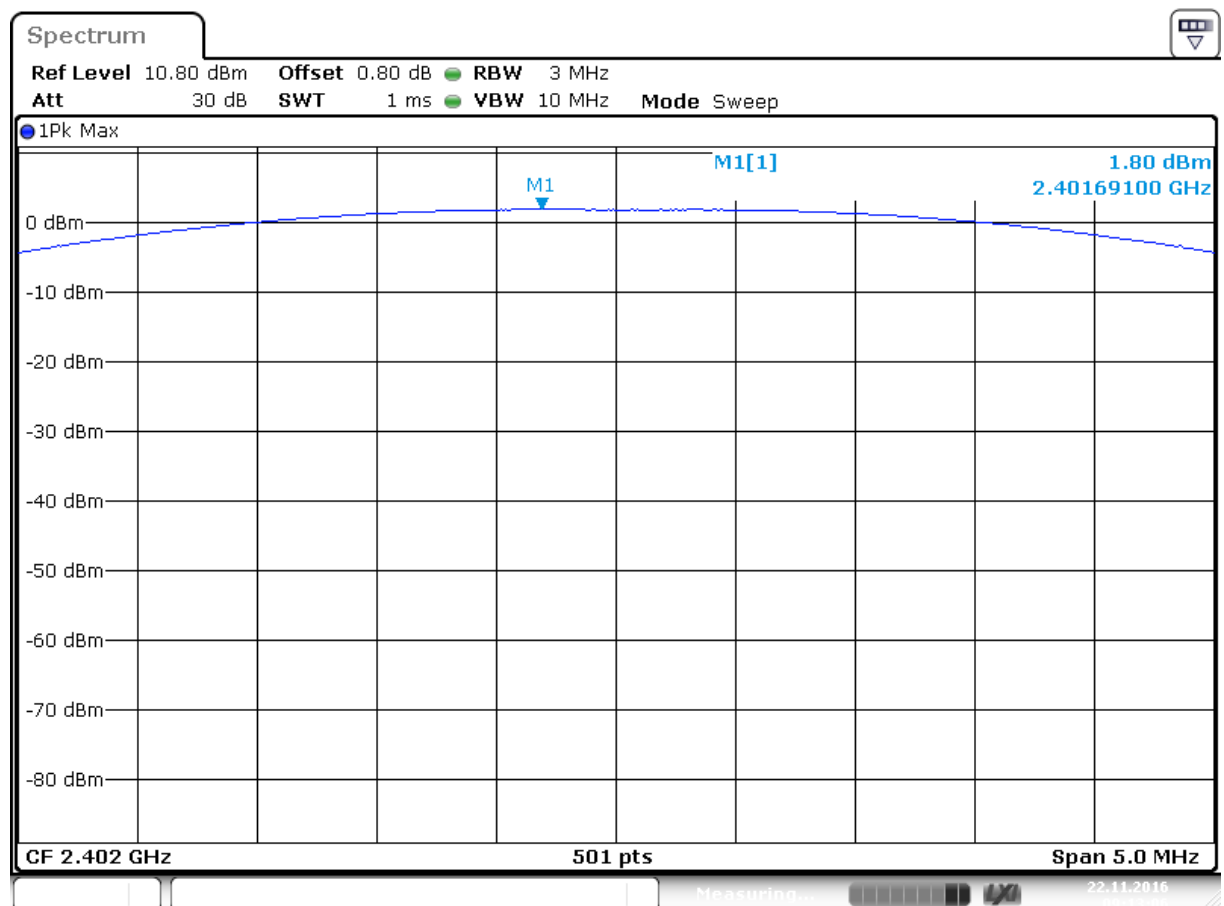
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Conducted Output Power

| Frequency [MHz] | Output Power [dBm] (mW) | Limit [dBm] | Verdict [Pass/Fail] | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Plot number |
|--------------------|----------------------------------|----------------|------------------------|--------------------------|---------------|--------------|----------------|
| 2402 | 1.80 (1.51 mW) | +30 | Pass | +5.3 | 7.10 | 5.13 | 1A |
| 2440 | 1.87 (1.54 mW) | +30 | Pass | +5.3 | 7.17 | 5.21 | 1B |
| 2480 | 1.83 (1.52 mW) | +30 | Pass | +5.3 | 7.13 | 5.16 | 1C |



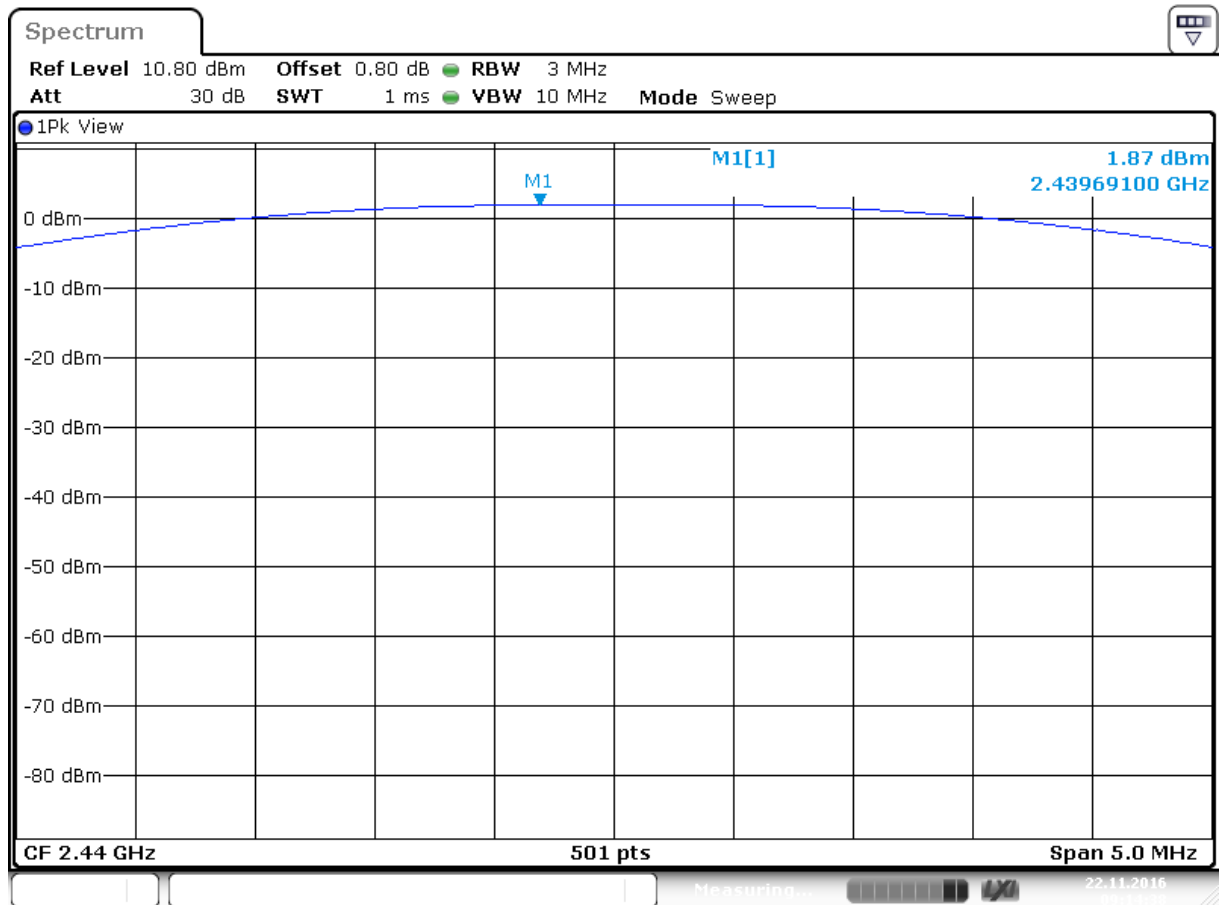
Date: 22 NOV 2016 09:13:06

Plot A

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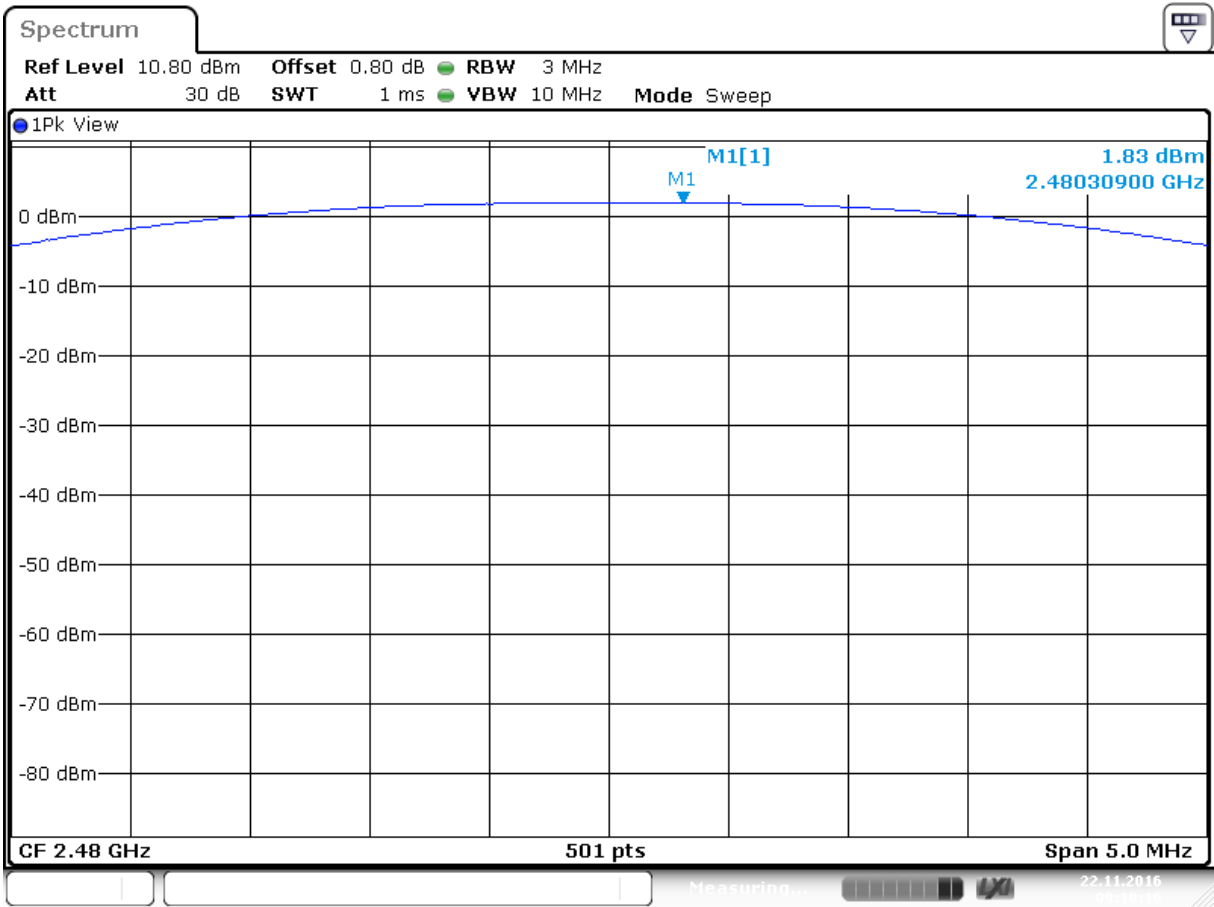
Date: 22 NOV 2016 09:14:38

Plot B

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Date: 22 NOV 2016 09:10:17

Plot C

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5.1.2 6dB Bandwidth

RESULT: PASS

Date of testing:

2016-11-22

Requirements:

FCC 15.247(a)(2)

For systems using digital modulation in the 2400-2483.5MHz band, the 6dB bandwidth shall be at least 500kHz.

Test procedure 6dB bandwidth:

ANSI C63.10-2013 section 11.8.1 Option 1

A spectrum analyzer was connected to the antenna port of the EUT. The spectrum analyzer resolution bandwidth was set to 100kHz, video bandwidth to 300kHz and the span wide enough to capture the modulated carrier.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

A spectrum analyzer was connected to the antenna port of the EUT. The spectrum analyzer resolution bandwidth was set to 1% of the selected span, Video bandwidth was set to 3 times the resolution bandwidth. The span was set to capture the whole modulation process. The Spectrum analyzers automated function for x BW was used.
Measurement uncertainty is +/- 26kHz.

Plots A1,B1 and C1 shown on the next pages are of the 6 dB bandwidth.

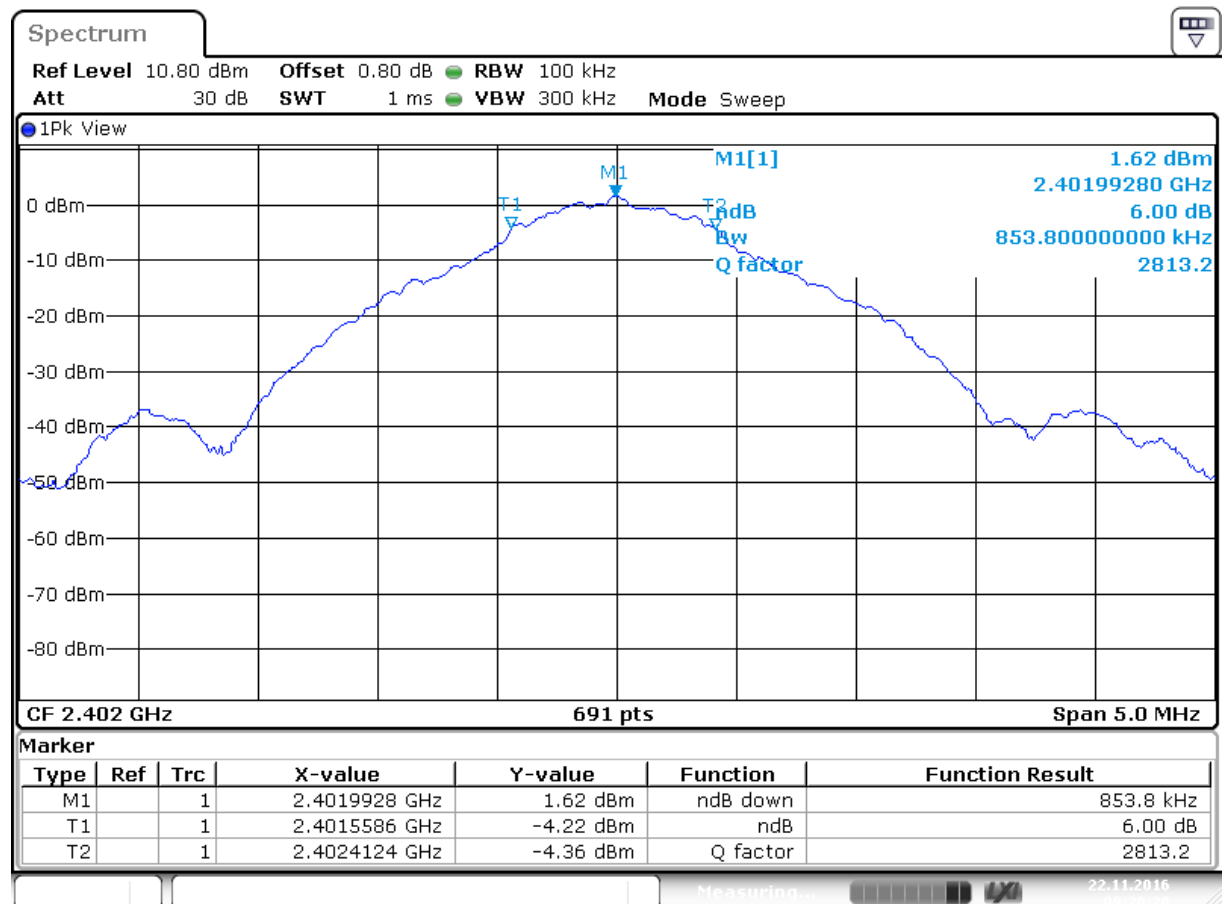
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6dB Bandwidth

| Operating Frequency [MHz] | 6dB Bandwidth [kHz] | Limit [kHz] | Verdict [Pass/Fail] | Plot number |
|---------------------------|---------------------|-------------|---------------------|-------------|
| 2402 | 853.8 | >500 | Pass | A1 |
| 2440 | 832.1 | >500 | Pass | B1 |
| 2480 | 839.4 | >500 | Pass | C1 |



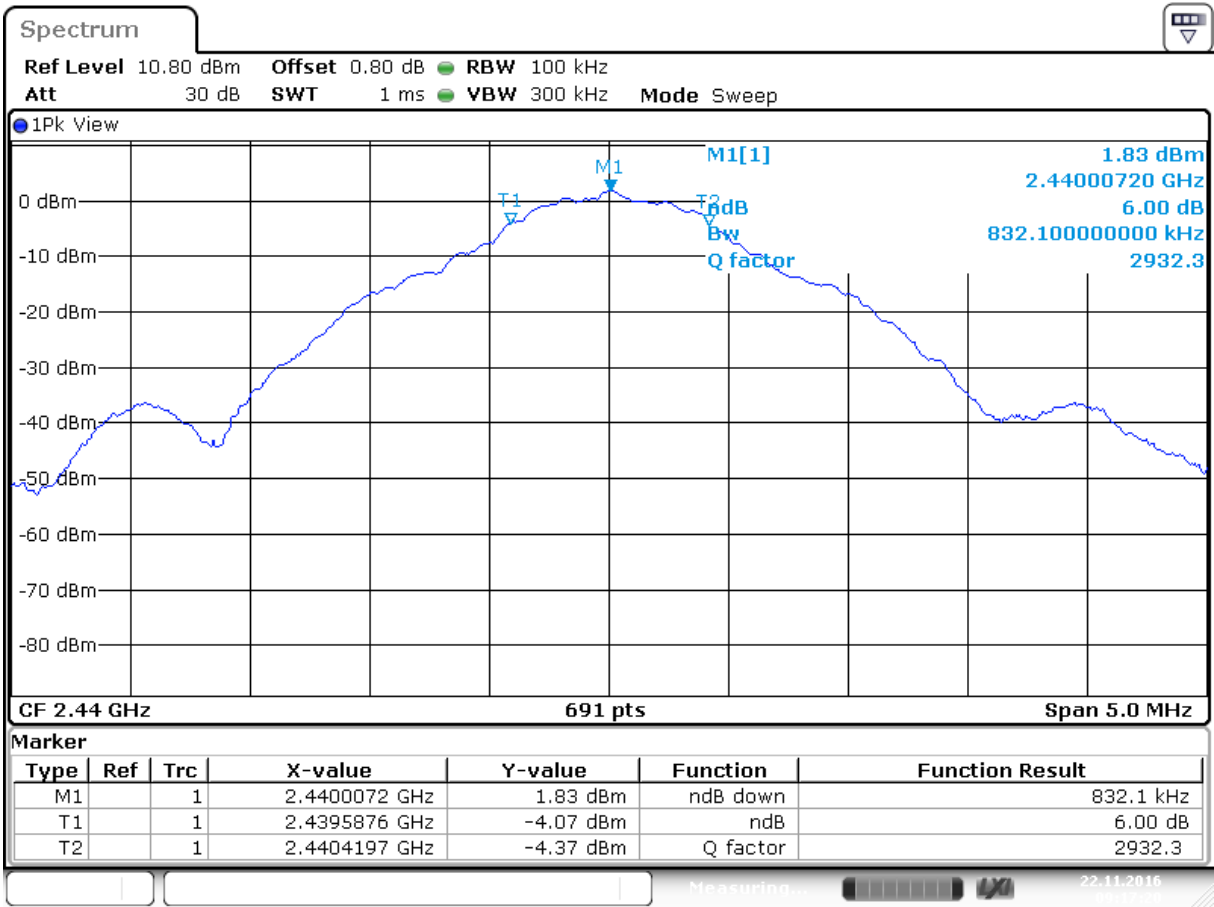
Date: 22 NOV 2016 09:20:20

Plot A1

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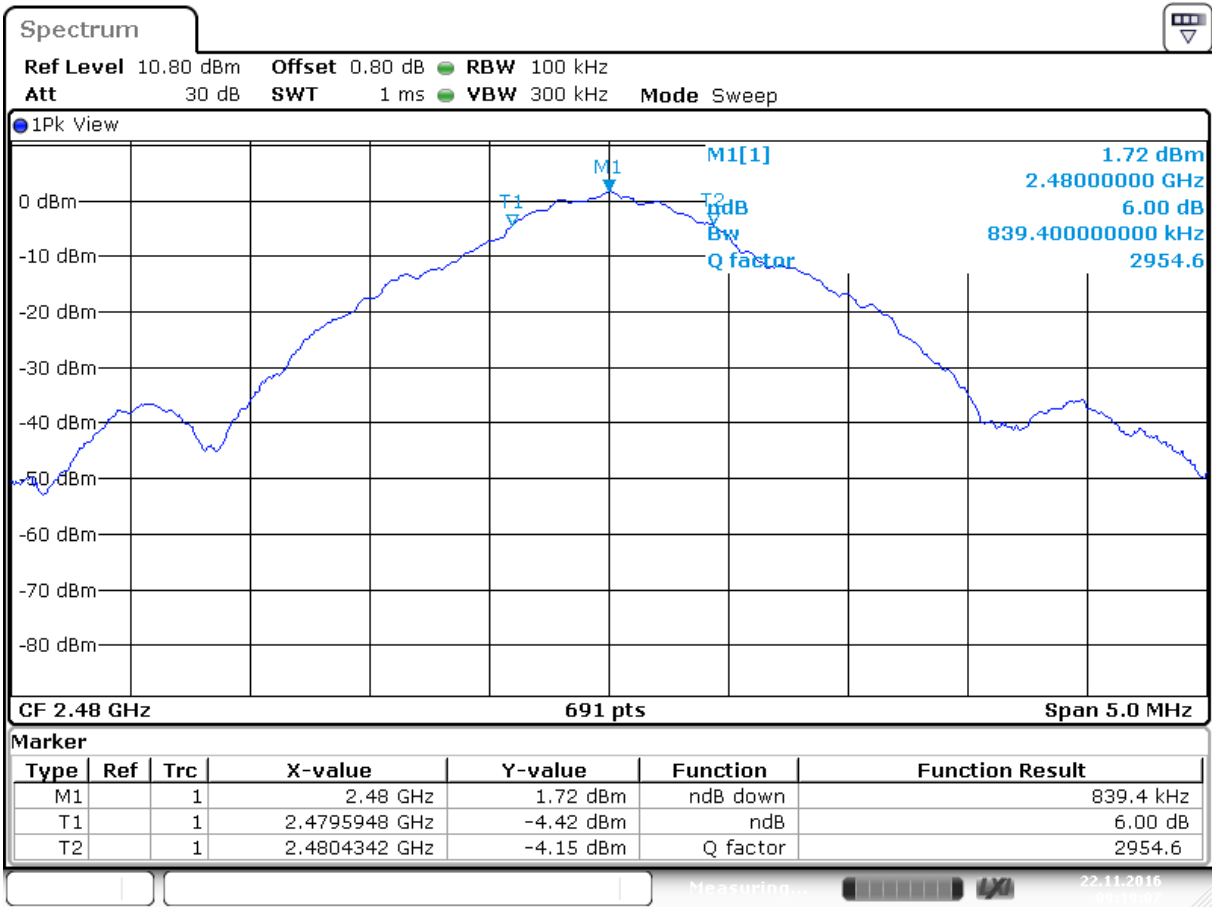
Date: 22.NOV.2016 09:17:21

Plot B1

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Date: 22 NOV 2016 09:19:07

Plot C1

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5.1.3 Peak Power Spectral Density

RESULT: Pass

Date of testing: 2016-11-23

Requirements:

FCC 15.247(e)

For digitally modulated systems, the power spectral density (PSD) conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

Test procedure:

ANSI C63.10-2013

The section 11.10.2 PKPSD peak PSD procedure was used. A spectrum analyzer was connected to the antenna port of the EUT. The analyzer resolution bandwidth was set to 3kHz and the video bandwidth was set to 10kHz. The sweep time was set to auto couple and the trace was allowed to stabilize before making the final measurement. By using the Peak marker function the maximum amplitude was determined. The final measurement takes into account the loss generated by all the involved cables (0.8 dB).

Measurement uncertainty is +/- 1.1 dB.

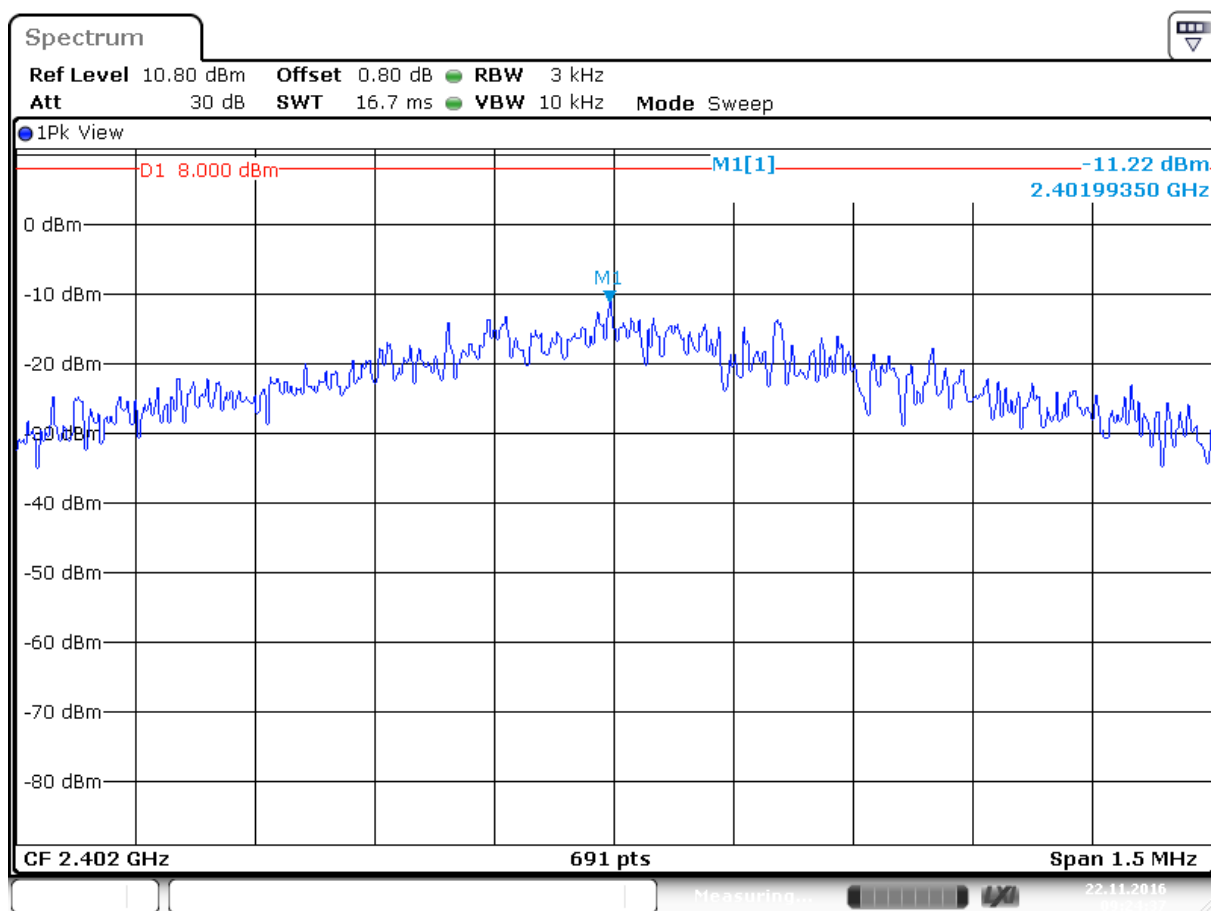
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Peak Power Spectral Density

| Operating Frequency [MHz] | Max PSD [dBm] | Limit [dBm] | Verdict [Pass/Fail] | Plot |
|---------------------------|---------------|-------------|---------------------|------|
| 2402 | -11.2 | 8 | Pass | A |
| 2440 | -12.7 | 8 | Pass | B |
| 2480 | -11.7 | 8 | Pass | C |



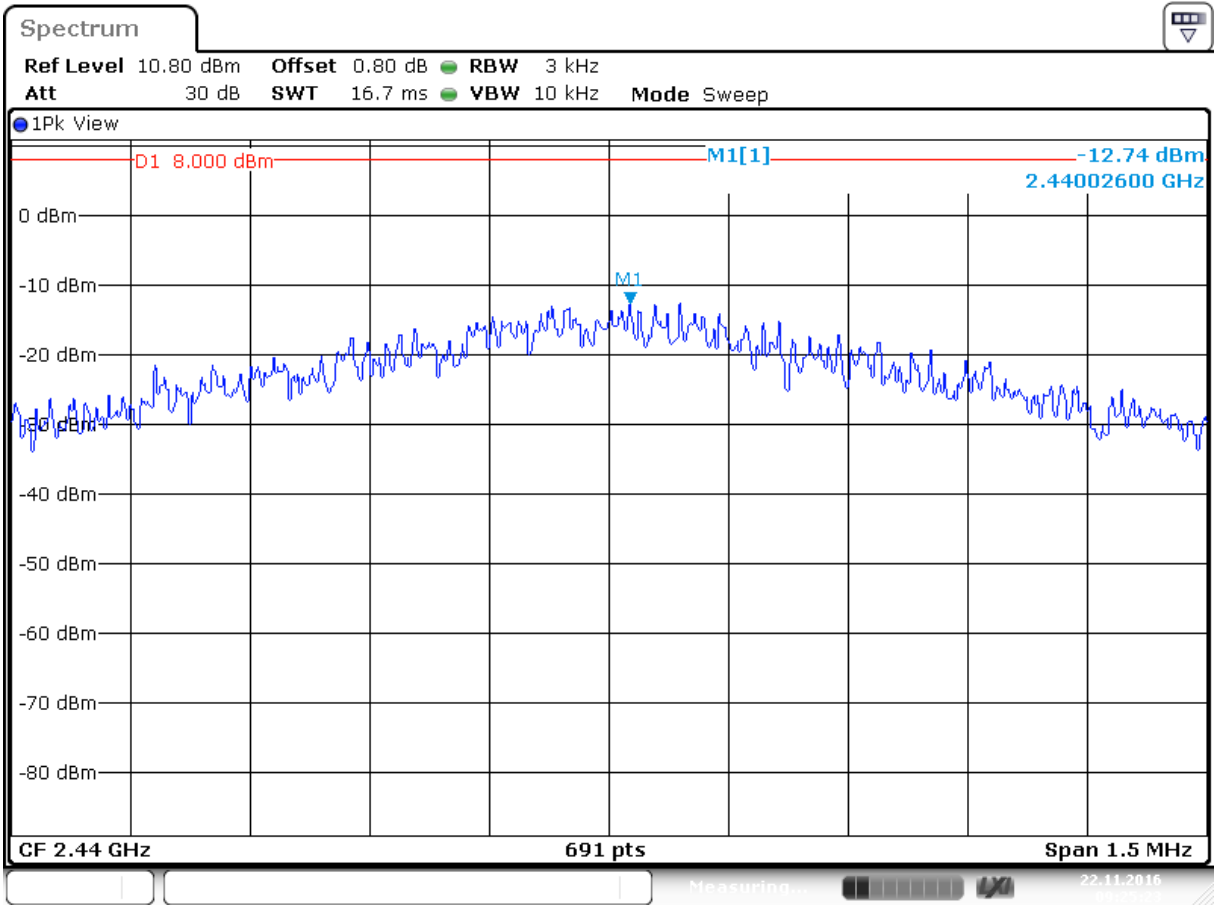
Date: 22 NOV 2016 09:24:38

Plot A

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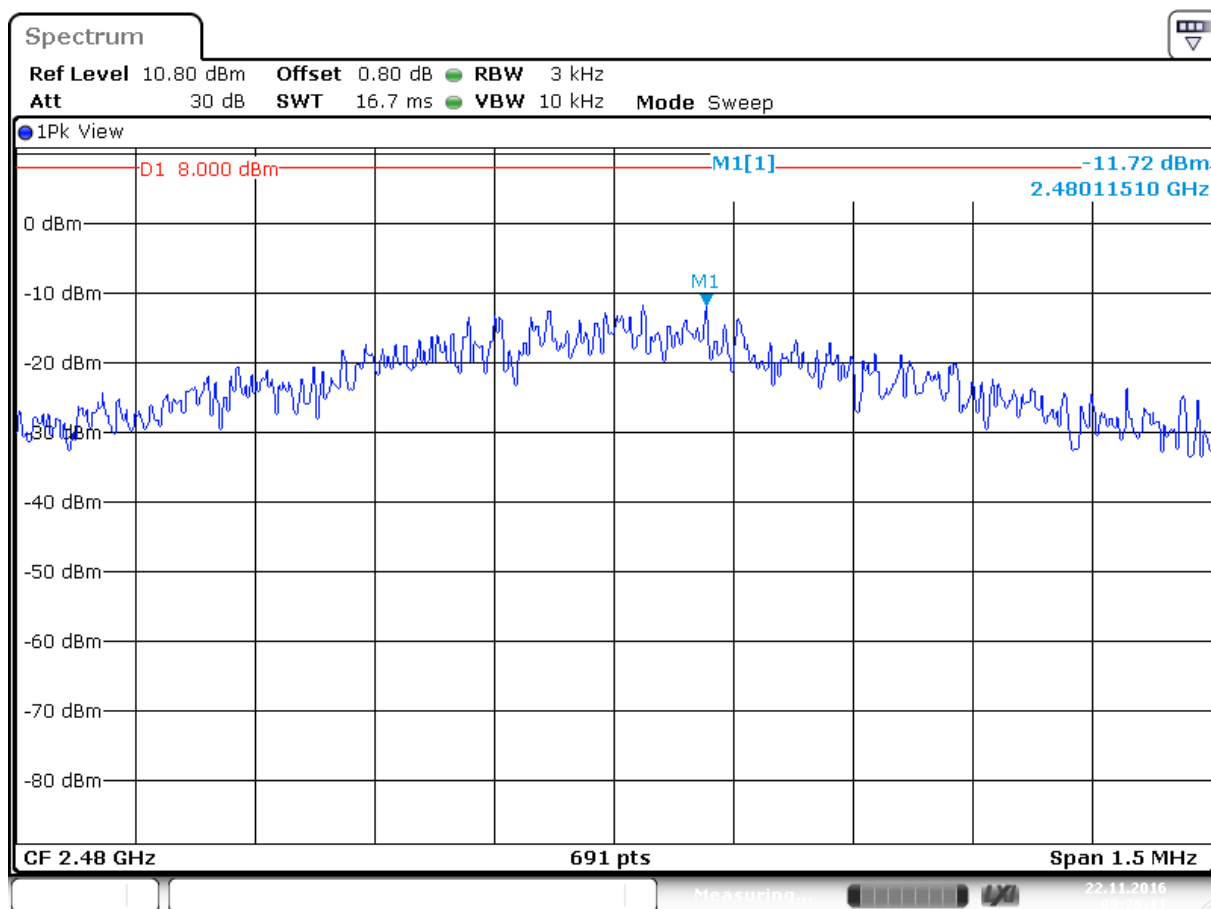
Date: 22 NOV 2016 09:25:23

Plot B

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Date: 22.NOV.2016 09:26:12

Plot C

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5.1.4 Band Edge Conducted Emissions

RESULT: Pass

Date of testing: 2016-11-22

Requirements:

FCC 15.205, FCC 15.209, FCC 15.247(d)

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:

ANSI C63.10-2013
Section 11.13

The marker-delta method, as described in ANSI C63.10 was used.

Measurements were performed using a spectrum analyzer with a suitable span to encompass the peak of the fundamental and using the following settings:
RBW = 100kHz, VBW = 300kHz.

The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

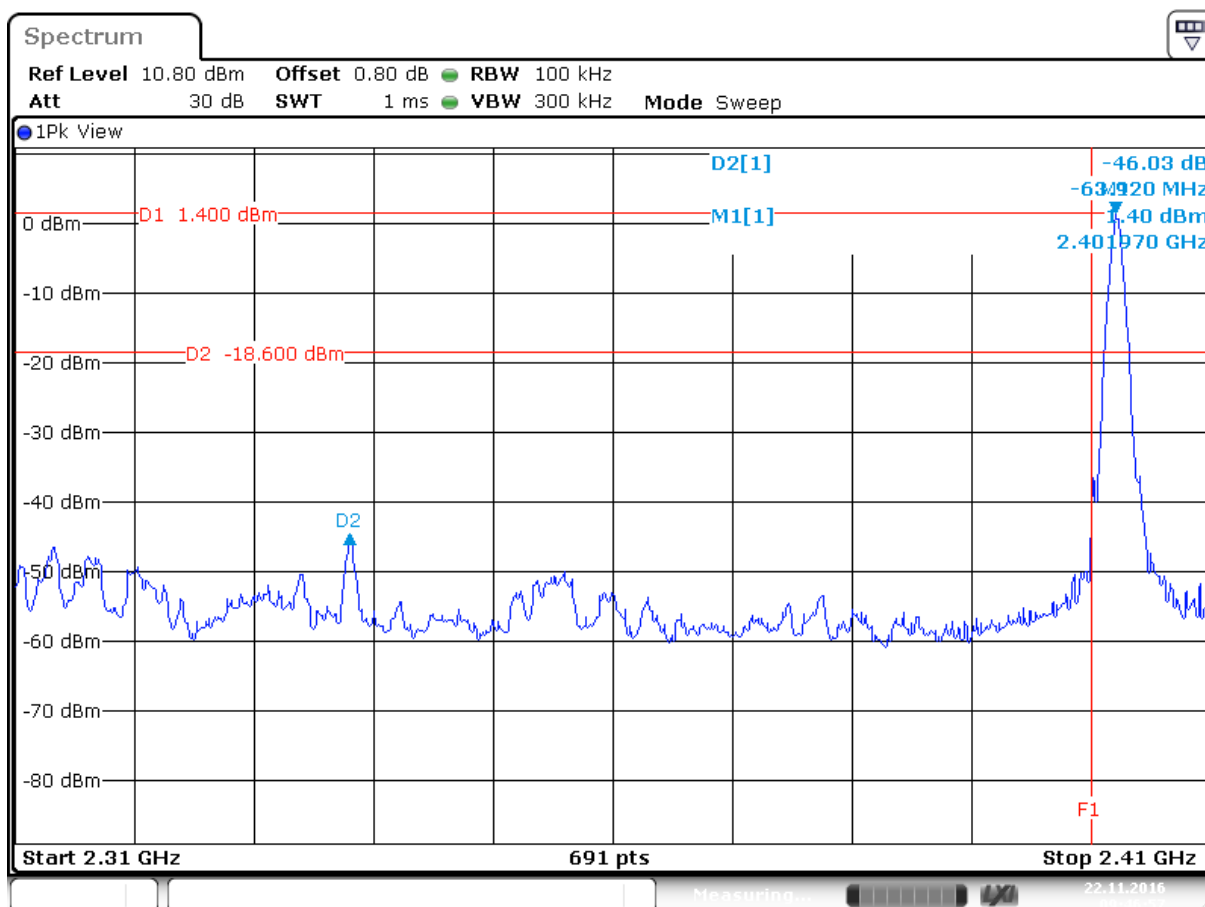
Measurement uncertainty is +/- 2.5 dB.

Results: All out of band spurious emissions are more than 20 dB below the fundamental.
See the figures on the following pages.

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Date: 22 NOV 2016 09:46:57

Plot: Band Edge Conducted Emission, Spectral Diagram, 2402 MHz

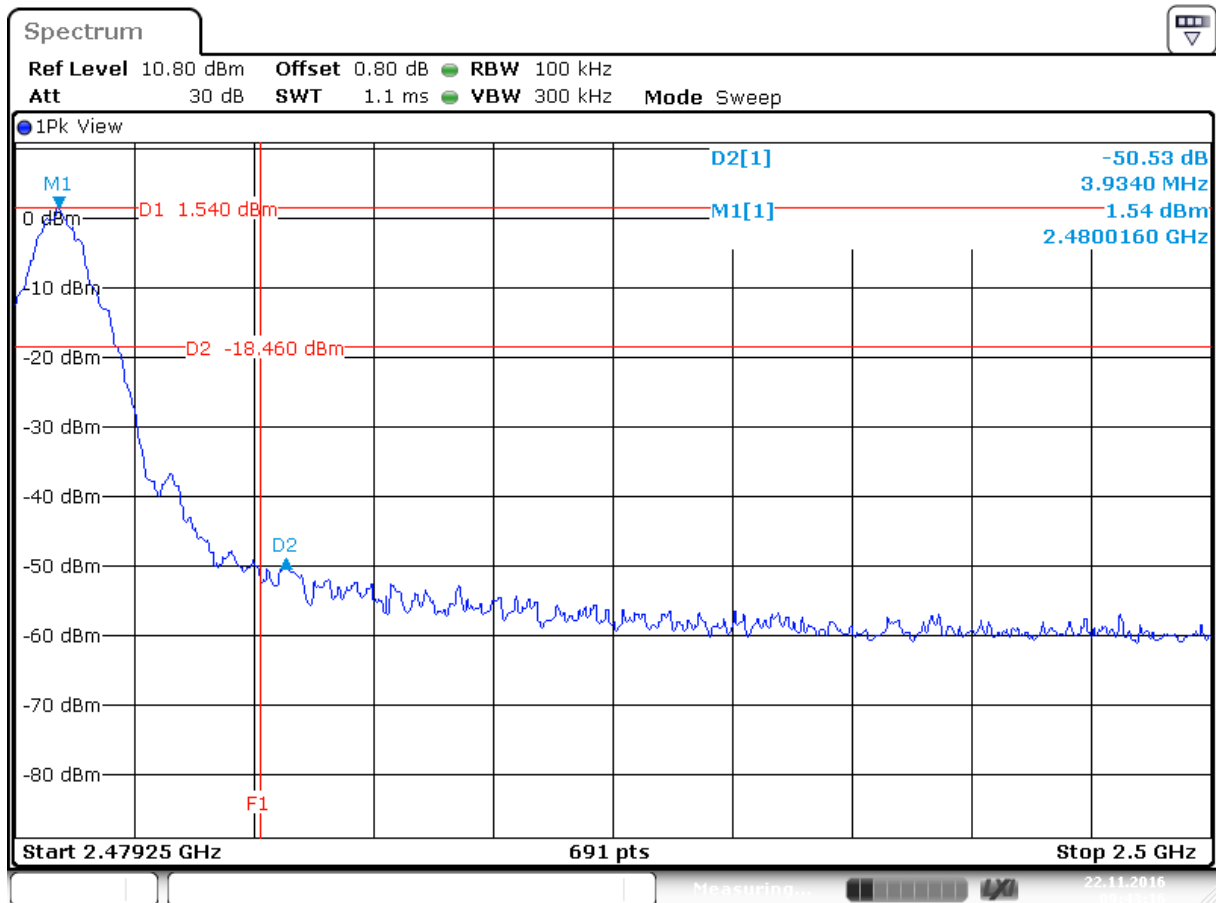
Plot showing more than 20 dB band edge attenuation.

F1 shows the band edge frequency of 2400 MHz.

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Date: 22 NOV 2016 09:43:16

Plot: Band Edge Conducted Emission, Spectral Diagram, 2480 MHz.
Plot showing more than 20 dB band edge attenuation.
F1 shows the band edge frequency of 2483.5 MHz.

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5.1.5 Radiated Spurious Emissions of Transmitter

RESULT: Pass

Date of testing: 2016-11-29

Frequency range: 30 MHz - 25GHz

Requirements:

FCC 15.209 and FCC 15.247(d)

Radiated emissions which fall outside the operation frequency band and outside restricted bands shall either meet the limit specified in FCC 15.209(a) or be attenuated at least 20dB below the power level in the 100kHz bandwidth within the band that contains the highest level of the desired power (the less severe limit applies).

Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) must comply with the radiated emission limits specified in FCC 15.209(a)

Test procedure:

ANSI C63.10-2013

The EUT is considered as floor-standing equipment not typically installed with its base in direct electrical contact with, or connected to, a metal floor or grid. The EUT was placed on the test site turntable with insulation material in-between of 4mm thickness to prevent electric contact.

Before final measurements of radiated emissions were performed, the EUT was scanned to determine its emission spectrum profile. The physical arrangement of the test system, the associated cabling were varied in order to ensure that maximum emission amplitudes were attained.

The spectrum was examined from 30MHz to the 10th harmonic of the highest fundamental transmitter frequency (25GHz). Final radiated emission measurements were made at 3m distance.

At each frequency where a spurious emission was found, the EUT was rotated 360° and the antenna was raised and lowered from 1 to 4m in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations.

The highest emission amplitudes relative to the appropriate limit were recorded in this report. Field strength values of radiated emissions at frequencies not listed in the tables are more than 20 dB below the applicable limit. The levels are expressed in dBm which are derived from $\text{dBm} = E(\text{dB}\mu\text{V/m}) - 95.2\text{dB}$. Where Peak (Pk) values were at least 6 dB under the Average (Av) limits, Av value was not tested. Where Average values were tested, Average values were measured using a 10Hz Video Bandwidth.

Test Report No.:

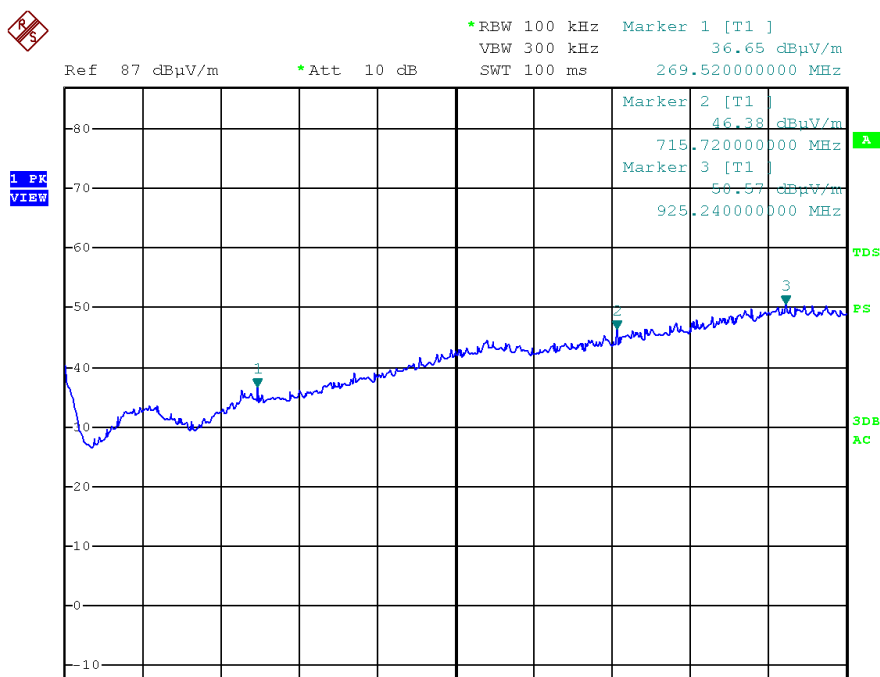
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Radiated Emissions, 30MHz - 1GHz, Horizontal and Vertical Antenna Orientations

| Frequency [MHz] | EUT Orientation | Antenna Orientation | Level QP [dBμV/m] | Limit QP [dBμV/m] | Verdict [Pass/Fail] |
|-----------------|-----------------|---------------------|-------------------|-------------------|---------------------|
| 108.50 | Horizontal | Horizontal | 24.7 | 43.5 | Pass |
| 269.52 | Side | Horizontal | 25.0 | 46.0 | Pass |
| 639.16 | Vertical | Horizontal | 36.8 | 46.0 | Pass |
| 715.72 | Vertical | Horizontal | 27.4 | 46.0 | Pass |
| 828.24 noise | Vertical | Horizontal | 40.7 | 46.0 | Pass |
| 925.24 noise | Vertical | Horizontal | 43.2 | 46.0 | Pass |

- Notes:
- Level QP = Reading QP + Factor
 - Tested in modes as described in section 4.2, the 6 highest values noted. Preliminary measurements indicated that the radiated emissions from EUT were not affected by the EUT's operating mode or frequency.
 - *^R refers to a frequency in a restricted band
 - Quasi Peak detector used with a bandwidth of 120 kHz.
 - Measurement uncertainty is +/- 5.22 dB.



ORI

Date: 29.NOV.2016 08:57:54

Plot of the emissions (Peak detector values shown)

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Radiated Emissions, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, 2402 MHz.

| Frequency [MHz] | Antenna Orientation | Detector | Bandwidth (MHz) | Level [dBm] | Limit [dBm] | Result |
|-------------------------|---------------------|----------|-----------------|-------------|---------------------------|--------|
| 1440.5 ^{*R} | Horizontal | Pk | 1 | -61.1 | --41.2 (Av) -21.2 (Pk) | Pass |
| 2310-2390 ^{*R} | Horizontal | Pk | 1 | -67.6 | -41.2 (Av) -21.2 (Pk) | Pass |
| 4696.5 | Vertical | Pk | 1 | -57.1 | -41.2 (Av) -21.2 (Pk) | Pass |
| 4876.5 | Vertical | Pk | 1 | -51.5 | -41.2 (Av) -21.2 (Pk) | Pass |
| 11392.5 ^{*R} | Vertical | Pk | 1 | -48.2 | -41.2 (Av) -21.2 (Pk) | Pass |
| 14008 | Horizontal | Pk | 1 | -47.9 | -41.2 (Av) -21.2 (Pk) | Pass |
| 17886 ^{*R} | Horizontal | Pk | 1 | -39.3 | -21.2 (Pk) | Pass |
| 17886 ^{*R} | Horizontal | Av | 1 | -53.0 | -41.2 (Av) | Pass |
| 22053 ^{*R} | Vertical | Pk | 1 | -43.7 | -21.2 (Pk) | Pass |
| 22053 ^{*R} | Vertical | Av | 1 | -53.0 | -41.2 (Av) | Pass |

Radiated Emissions, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, 2440 MHz.

| Frequency [MHz] | Antenna Orientation | Detector | Bandwidth (MHz) | Level [dBm] | Limit [dBm] | Result |
|---------------------------|---------------------|----------|-----------------|-------------|--------------------------|--------|
| 1440 ^{*R} | Horizontal | Pk | 1 | -60.0 | -41.2 (Av) -21.2 (Pk) | Pass |
| 2310-2390 ^{*R} | Horizontal | Pk | 1 | -60.6 | -41.2 (Av) -21.2 (Pk) | Pass |
| 2483.5-2500 ^{*R} | Vertical | Pk | 1 | -65.4 | -41.2 (Av) -21.2 (Pk) | Pass |
| 4705.5 | Vertical | Pk | 1 | -58.1 | -41.2 (Av) -21.2 (Pk) | Pass |
| 4876.5 | Vertical | Pk | 1 | -52.7 | -41.2 (Av) -21.2 (Pk) | Pass |
| 11544.5 ^{*R} | Vertical | Pk | 1 | -48.2 | -41.2 (Av) -21.2 (Pk) | Pass |
| 13968 | Vertical | Pk | 1 | -46.6 | -41.2 (Av) -21.2 (Pk) | Pass |
| 17877 ^{*R} | Vertical | Pk | 1 | -40.0 | -21.2 (Pk) | Pass |
| 17877 ^{*R} | Vertical | Av | 1 | -53.0 | -41.2 (Av) | Pass |

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Radiated Emissions, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, 2480 MHz.

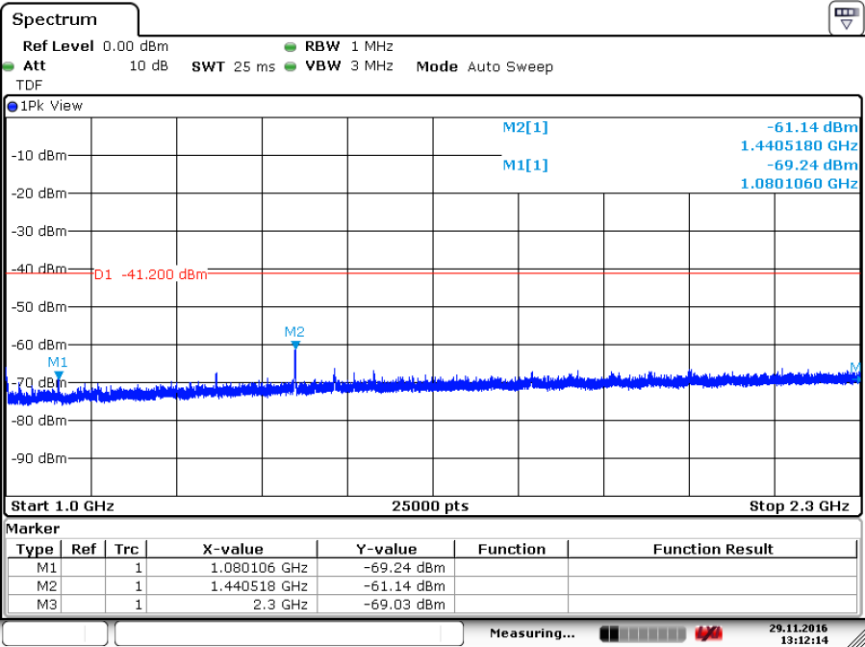
| Frequency [MHz] | Antenna Orientation | Detector | Bandwidth (MHz) | Level [dBm] | Limit [dBm] | Result |
|---------------------------|---------------------|----------|-----------------|-------------|--------------------------|--------|
| 1549 ^{*R} | Horizontal | Pk | 1 | -46.9 | -41.2 (Av) -21.2 (Pk) | Pass |
| 2483.5-2500 ^{*R} | Vertical | Pk | 1 | -63.1 | -41.2 (Av) -21.2 (Pk) | Pass |
| 4957.5 ^{*H} | Vertical | Pk | 1 | -54.0 | -41.2 (Av) -21.2 (Pk) | Pass |
| 11518.5 ^{*R} | Vertical | Pk | 1 | -48.4 | -41.2 (Av) -21.2 (Pk) | Pass |
| 13765 | Vertical | Pk | 1 | -46.7 | -41.2 (Av) -21.2 (Pk) | Pass |
| 17971 ^{*R} | Vertical | Pk | 1 | -39.8 | -21.2 (Pk) | Pass |
| 17971 ^{*R} | Vertical | Av | 1 | -53.0 | -41.2 (Av) | Pass |

Radiated field strength measurements (1 - 25 GHz, E-field), EUT normal operation

| Frequency [MHz] | Antenna Orientation | Detector | Bandwidth (MHz) | Level [dBm] | Limit [dBm] | Result |
|---------------------------|---------------------|----------|-----------------|-------------|--------------------------|--------|
| 2310-2390 ^{*R} | Horizontal | Pk | 1 | -62.1 | -41.2 (Av) -21.2 (Pk) | Pass |
| 2483.5-2500 ^{*R} | Horizontal | Pk | 1 | -64.7 | -41.2 (Av) -21.2 (Pk) | Pass |
| 5122.2 | Vertical | Pk | 1 | -57.9 | -41.2 (Av) -21.2 (Pk) | Pass |
| 11510.6 | Vertical | Pk | 1 | -48.1 | -41.2 (Av) -21.2 (Pk) | Pass |
| 13728 | Vertical | Pk | 1 | -46.6 | -41.2 (Av) -21.2 (Pk) | Pass |
| 17825 | Vertical | Pk | 1 | -40.2 | -21.2 (Pk) | Pass |
| 17825 | Vertical | Av | 1 | -53.0 | -41.2 (Av) | Pass |

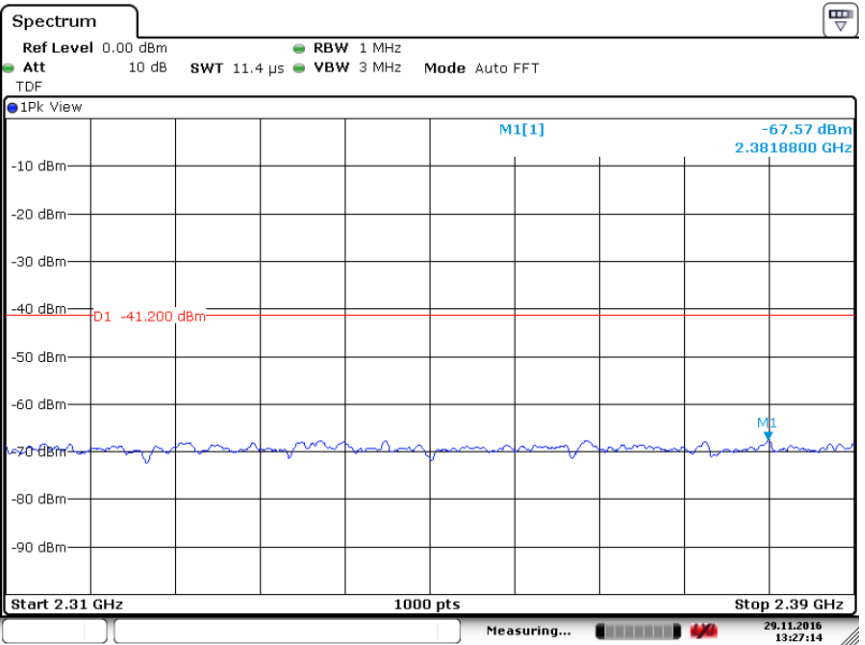
- Notes:
- *R refers to a frequency in a restricted band,
 - *H refers to a frequency which is a harmonic of the fundamental.
 - Field strength values of radiated emissions not listed in the tables above are more than 20 dB below the applicable limit.
 - From pre-test it was shown that the EUT in sideways position (Z- position), was the worst case situation
 - Measurement uncertainty is +/- 5.5 dB.
 - a selection of plots is provided on the next pages

Plots of the radiated emissions



Date: 29.NOV.2016 13:12:14

Plot of the emissions at 2402 MHz, Horizontal polarization, Peak values shown



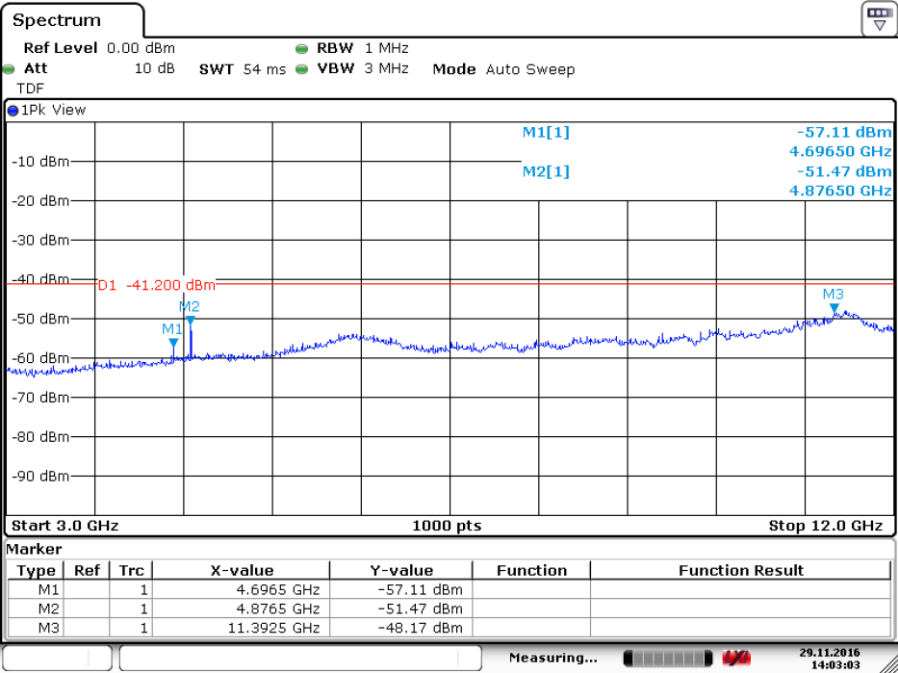
Date: 29.NOV.2016 13:27:14

Plot of the emissions in the restricted band 2.31 -2.39GHz at 2402 MHz,
Horizontal polarization, Peak values shown

Test Report No.:

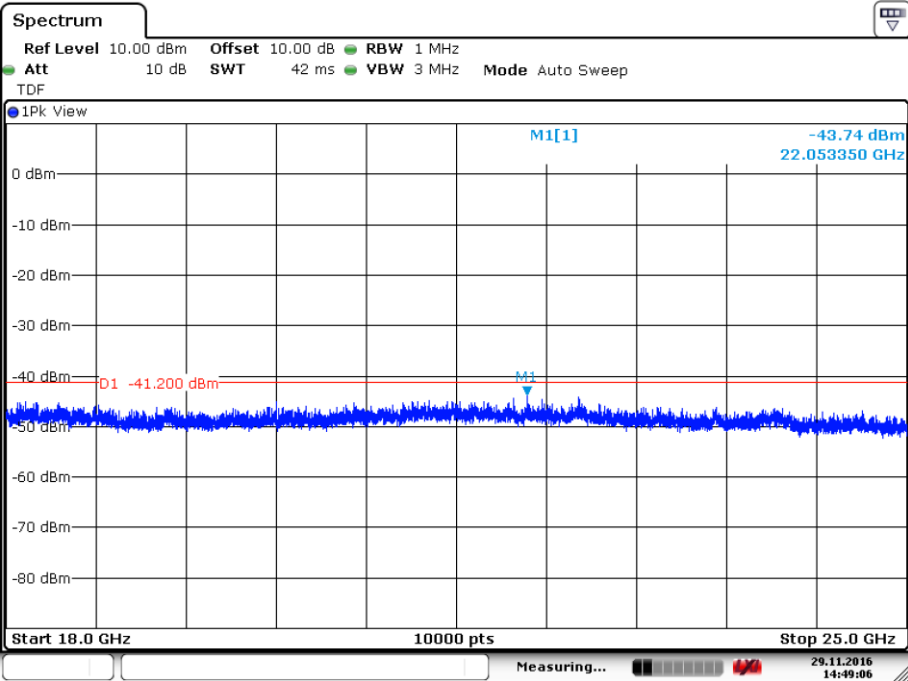
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Date: 29.NOV.2016 14:03:02

Plot of the emissions at 2402 MHz, Vertical polarization, Peak values shown



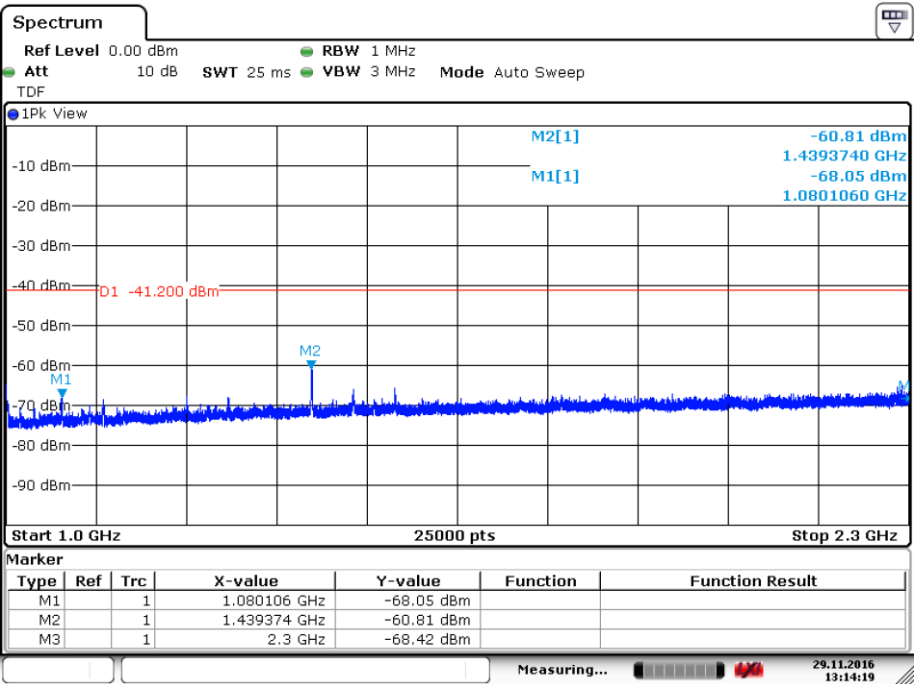
Date: 29.NOV.2016 14:49:06

Plot of the emissions at 2402 MHz, Vertical polarization, Peak values shown

Test Report No.:

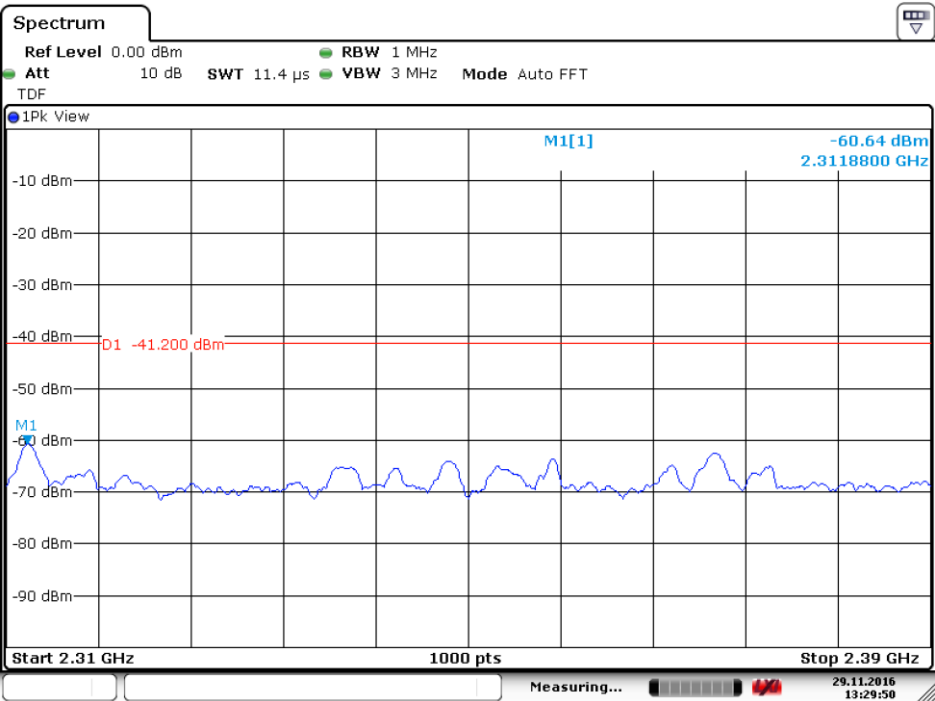
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Date: 29.NOV.2016 13:14:19

Plot of the emissions at 2440 MHz, Horizontal polarization, Peak values shown



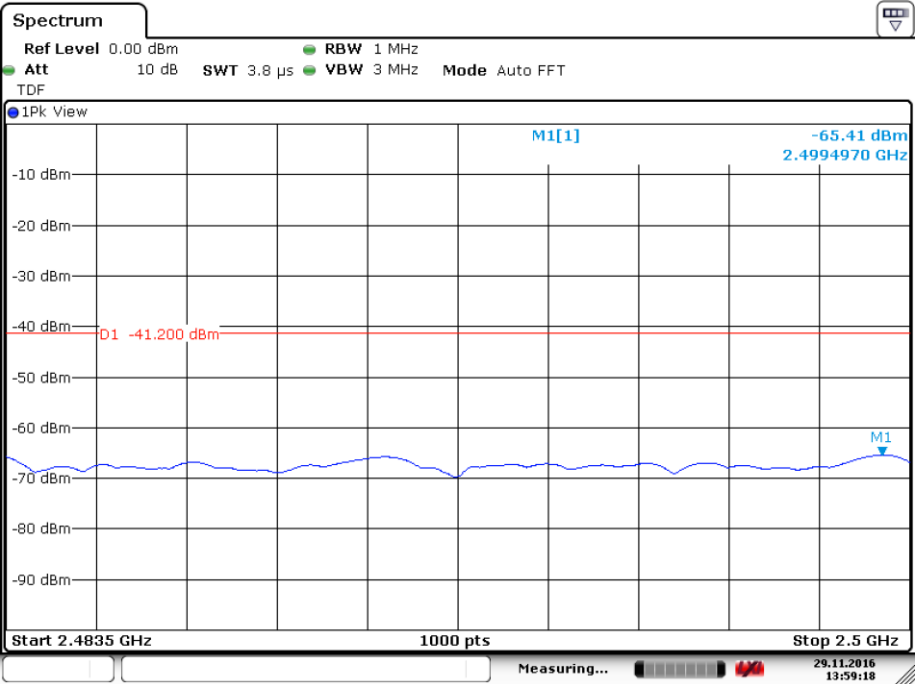
Date: 29.NOV.2016 13:29:50

Plot of the emissions in the restricted band 2.31 -2.39GHz at 2440 MHz,
Horizontal polarization, Peak values shown

Test Report No.:

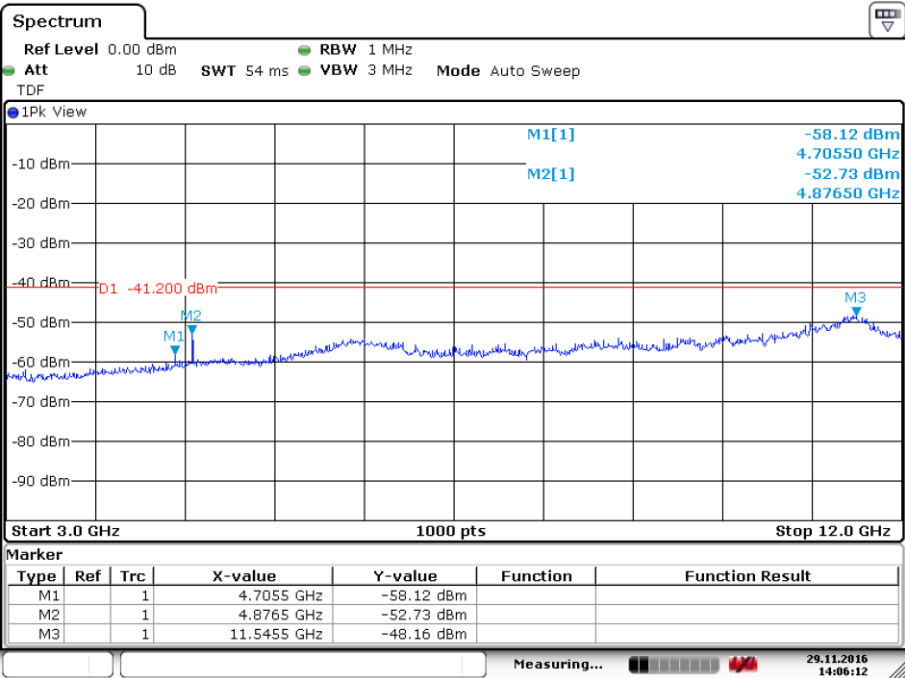
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Date: 29.NOV.2016 13:59:18

Plot of the emissions in the restricted band 2.4835-2.5GHz at 2440 MHz,
Vertical polarization, Peak values shown



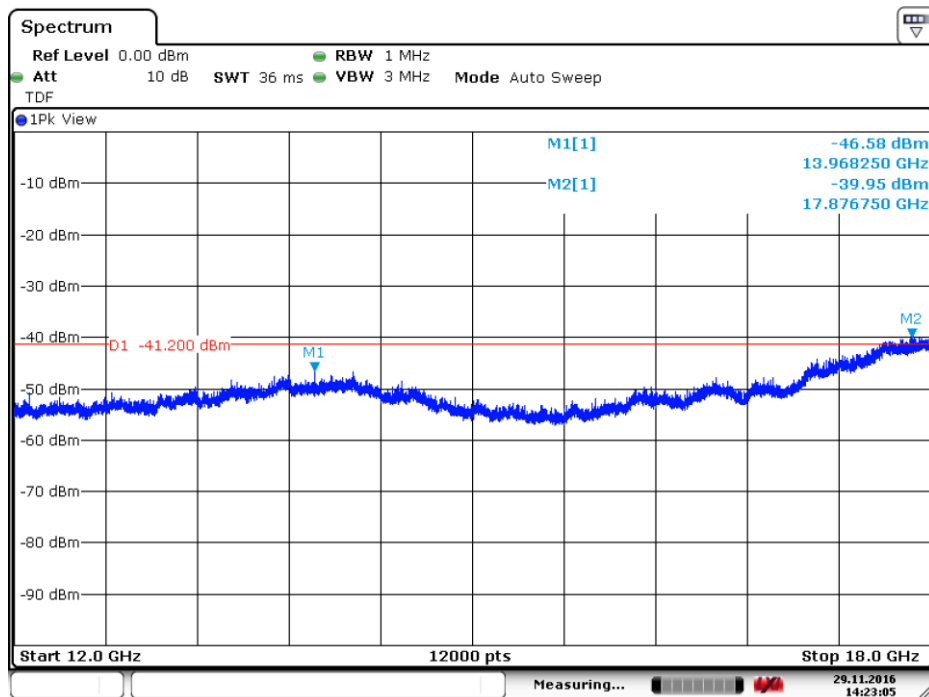
Date: 29.NOV.2016 14:06:12

Plot of the emissions at 2440 MHz, Vertical polarization, Peak values shown

Test Report No.:

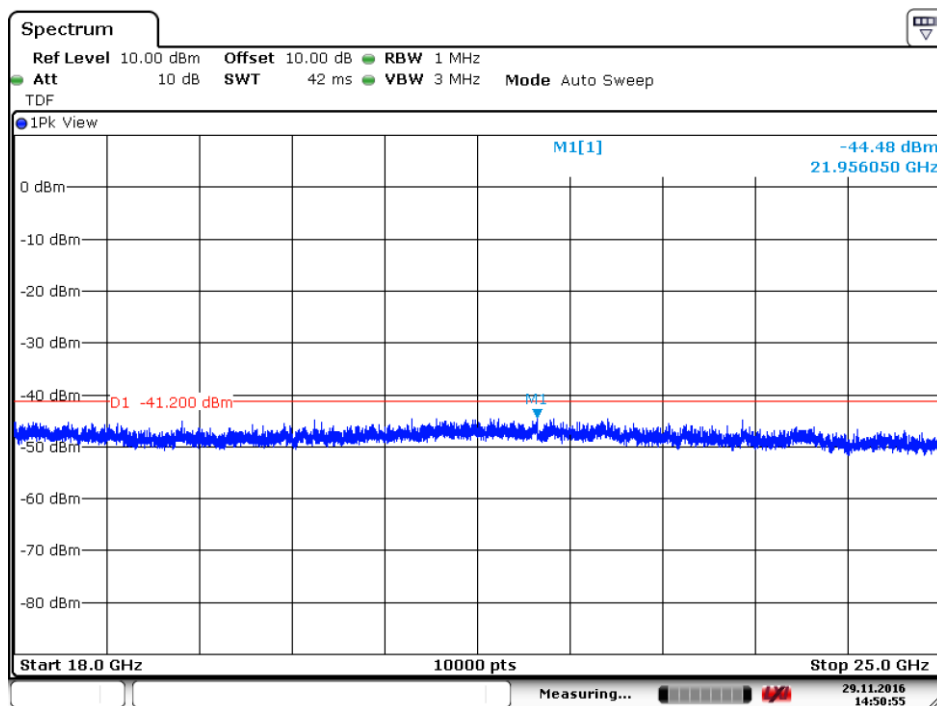
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Date: 29.NOV.2016 14:23:05

Plot of the emissions at 2440 MHz, Vertical polarization, Peak values shown



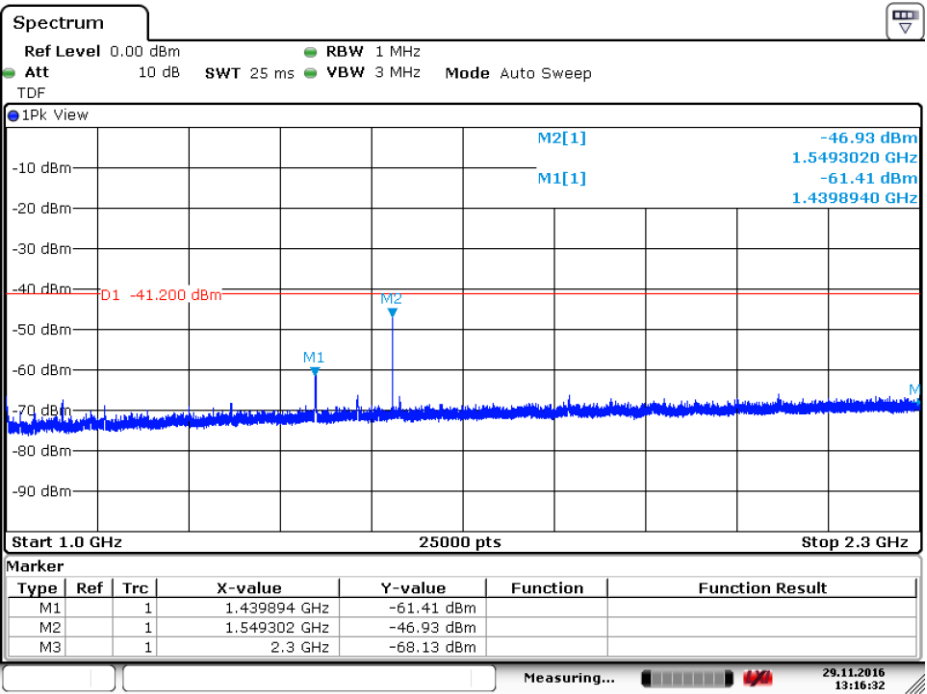
Date: 29.NOV.2016 14:50:55

Plot of the emissions at 2440 MHz, Vertical polarization, Peak values shown

Test Report No.:

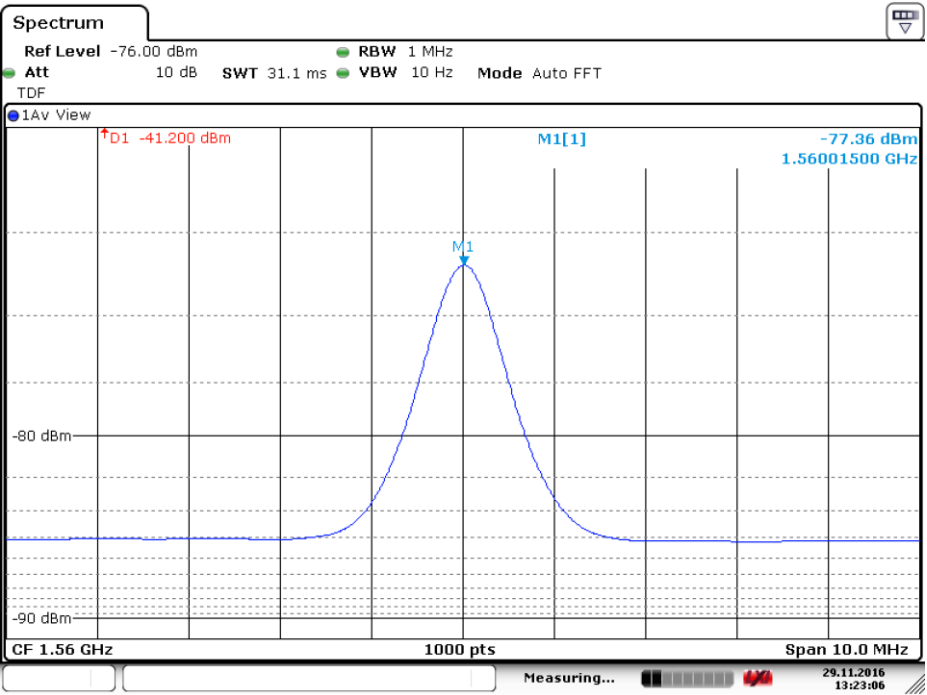
16063009.fcc01

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Date: 29.NOV.2016 13:16:32

Plot of the emissions at 2480 MHz, Vertical polarization, Peak values shown



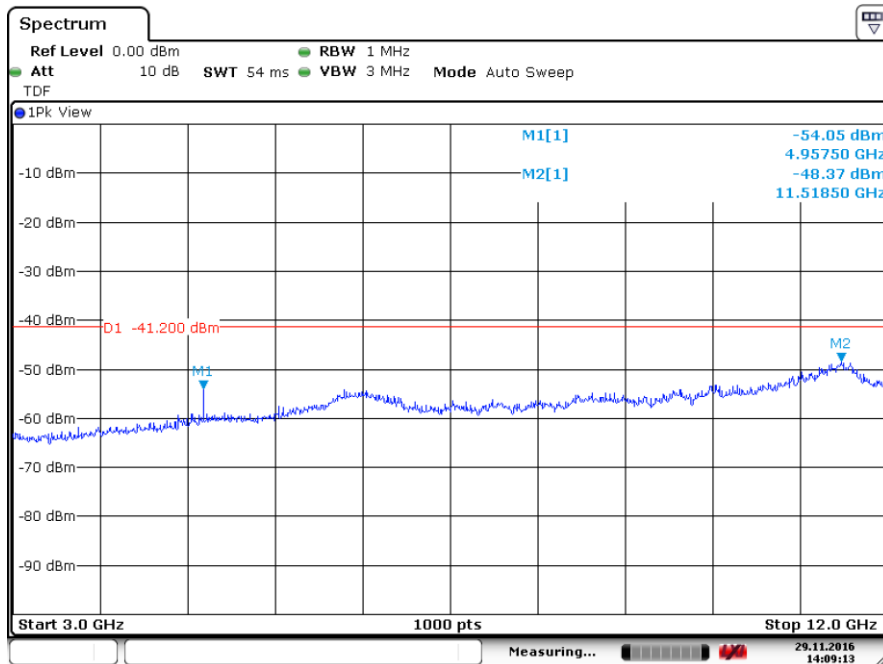
Date: 29.NOV.2016 13:23:06

Plot of the emissions at 2480 MHz, Vertical polarization, Average values shown

Test Report No.:

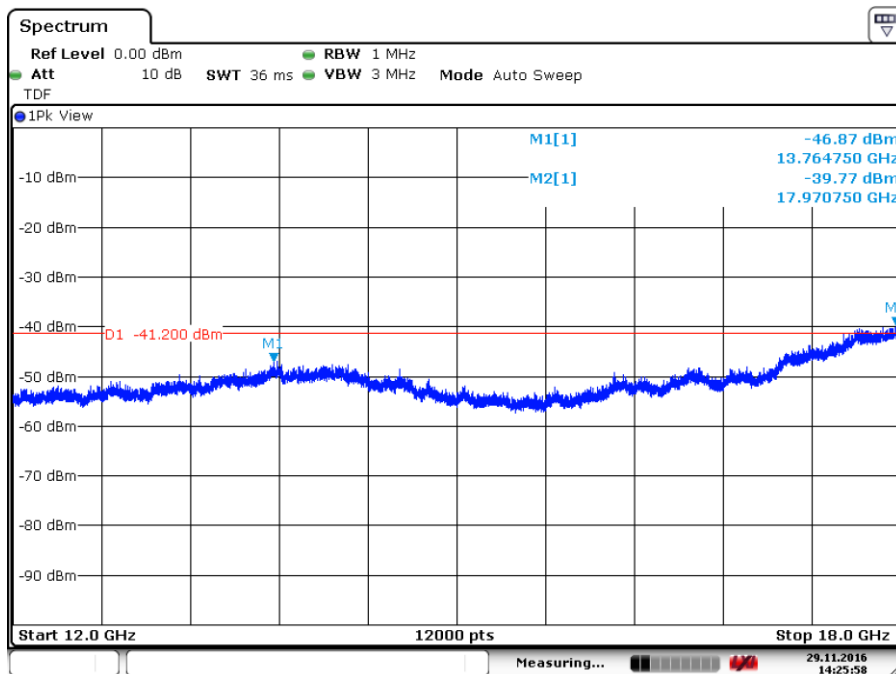
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Date: 29.NOV.2016 14:09:13

Plot of the emissions at 2480 MHz, Vertical polarization, Peak values shown



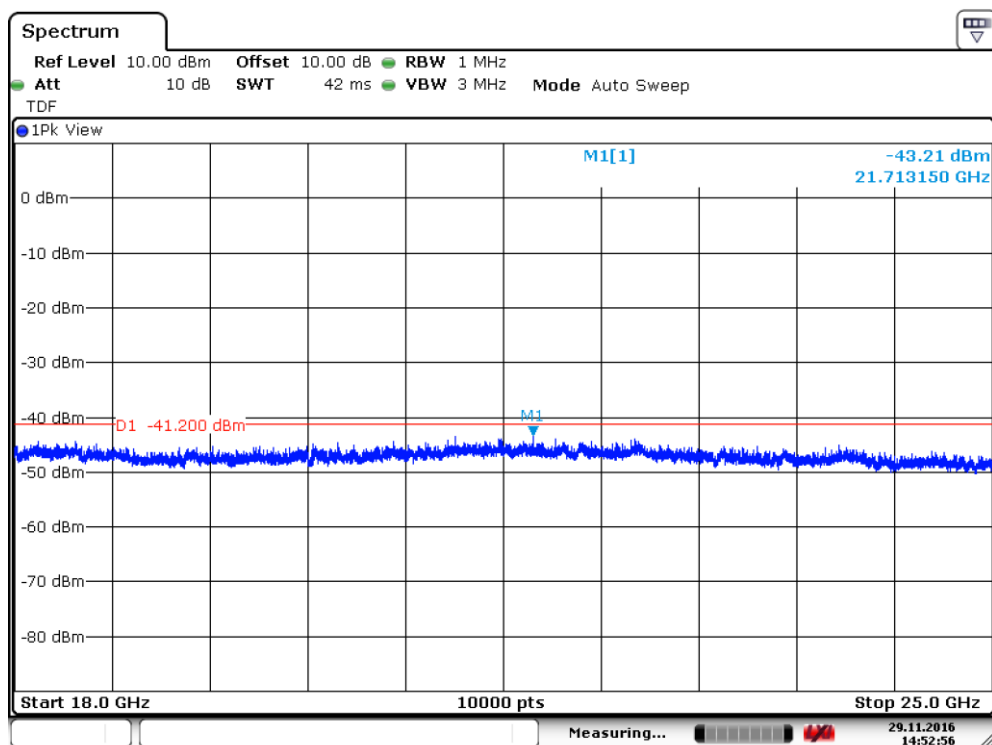
Date: 29.NOV.2016 14:25:58

Plot of the emissions at 2480 MHz, Vertical polarization, Peak values shown

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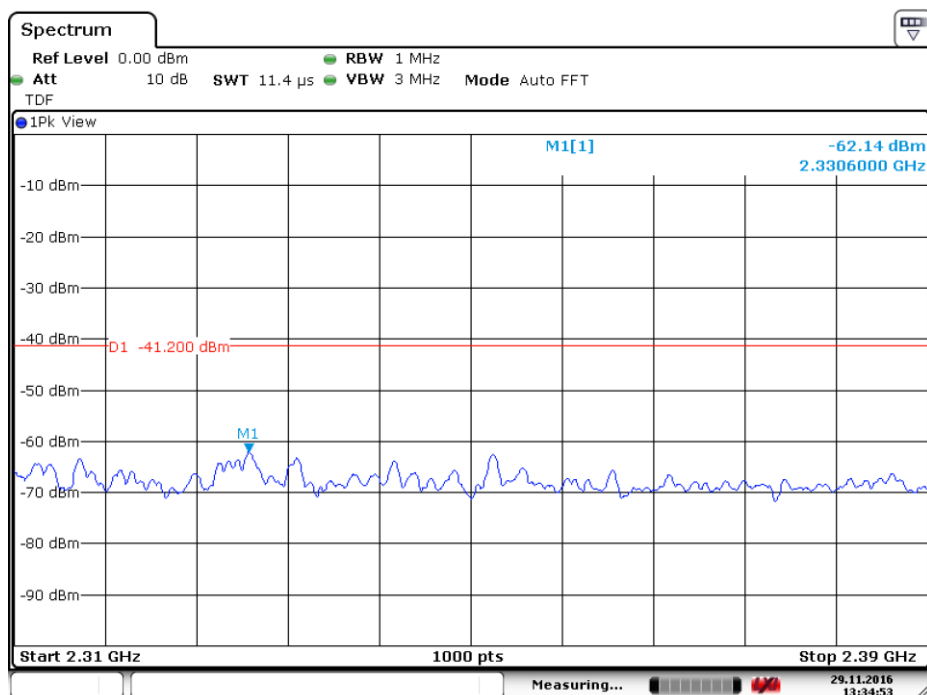
Date: 29.NOV.2016 14:52:56

Plot of the emissions at 2480 MHz, Vertical polarization, Peak values shown

Test Report No.:

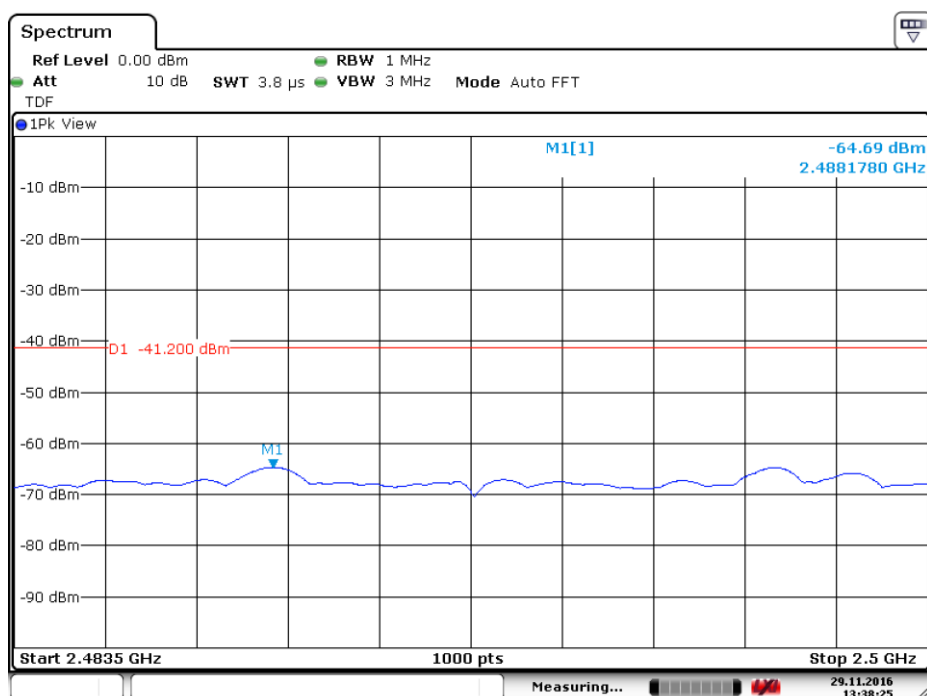
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Date: 29.NOV.2016 13:34:53

Plot Radiated unwanted emissions in the range 1 – 2.35 GHz in Normal operation mode (Peak values, Antenna Vertical position shown).



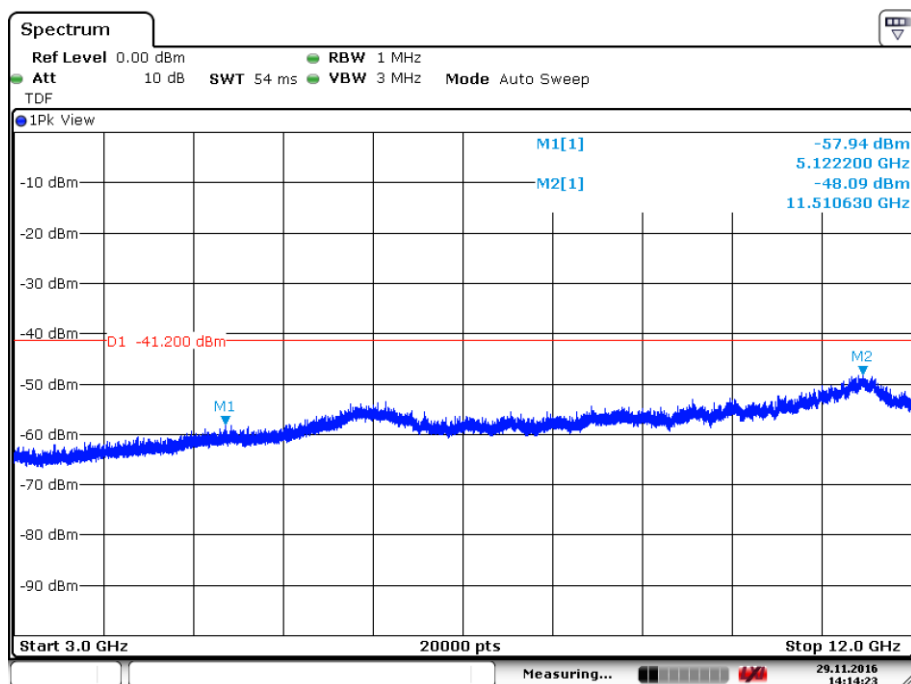
Date: 29.NOV.2016 13:38:25

Plot Radiated unwanted emissions in the range 2.4835 – 2.5 GHz in Normal operation mode (Peak values, Antenna Vertical position shown).

Test Report No.:

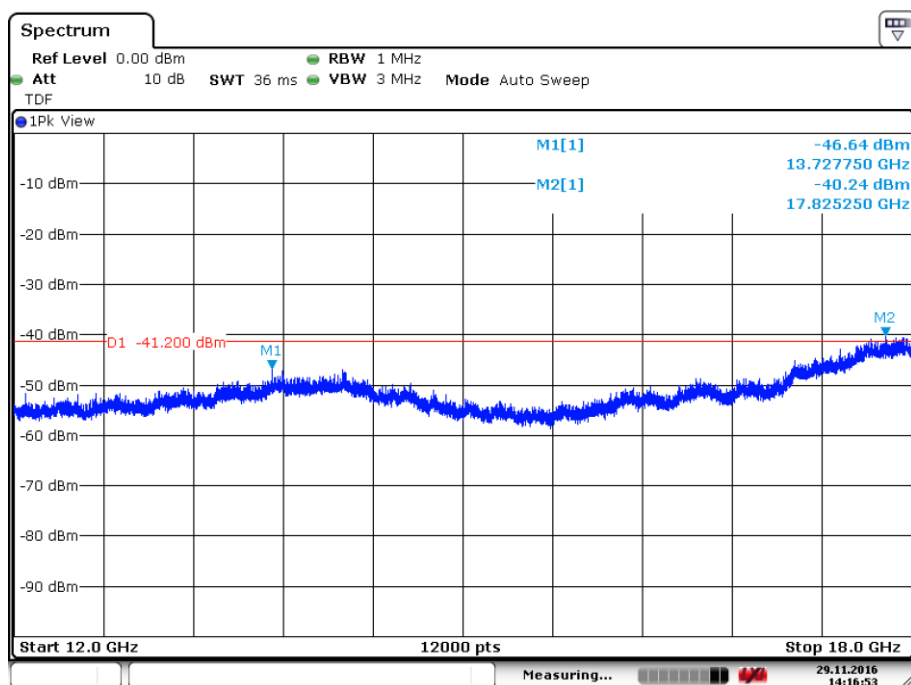
16063009.fcc01

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Date: 29.NOV.2016 14:14:23

Plot Radiated unwanted emissions in the range 3 – 12 GHz in Normal operation mode (Peak values, Antenna Vertical position shown).



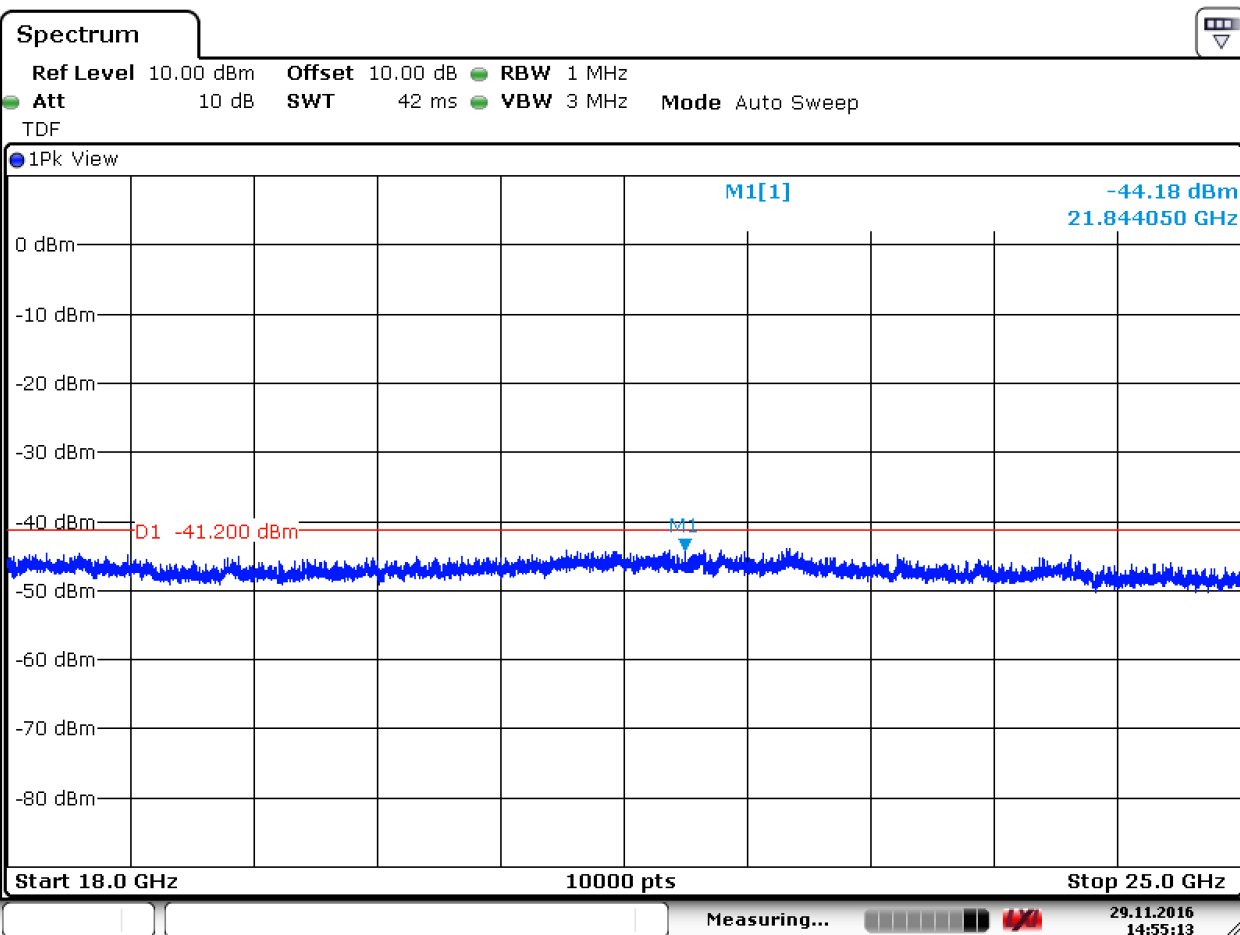
Date: 29.NOV.2016 14:16:53

Plot Radiated unwanted emissions in the range 12 – 18 GHz in Normal operation mode (Peak values, Antenna Vertical position shown).

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Date: 29.NOV.2016 14:55:13

Plot Radiated unwanted emissions in the range 18 – 25 GHz in Normal operation mode
(Peak values, Antenna Vertical position shown).

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5.2 AC Power Line Conducted Measurements

RESULT: Not Applicable.

EUT is battery (non rechargeable) operated only.

End of report