

RADIO TEST REPORT

No. 2010320STO-303

RF Performance

EQUIPMENT UNDER TEST

Equipment: Radio module with Bluetooth Low Energy 1 Mbit
Type/Model: NeoNatalie Live
Manufacturer: Laerdal Medical AS
Tested by request of: Laerdal Global Health AS

SUMMARY

Referring to the emission limits, and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards:

47 CFR Part 15: Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15: Subpart B: Unintentional radiators

RSS-GEN Issue 5 Amendment 1 (2019): General requirements of compliance of radio apparatus

RSS-247 Issue 2 (2017): Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

For details, see clause 2 – 4.

Date of issue: June 12, 2020

Tested by:



Robert Hietala

Approved by:



Therese Littman

Revision History

Test report number	Date	Description	Changes
2010320STO-303	June 12, 2020	First release	--

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1 CLIENT INFORMATION

The EUT has been tested by request of

Company Laerdal Global Health AS
P.O. Box 377
Tanke Svilandsgt. 30, 4002 Stavanger
Norway

Name of contact Lars Roger Solem
Phone +47 938 41 408

2 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment: Radio module with Bluetooth Low Energy 1 Mbit

Type/Model: NeoNatalie Live

Brand name: Laerdal

Serial number: No visible serial number

Manufacturer: Laerdal Medical AS

Transmitter frequency range: 2402 – 2480 MHz

Receiver frequency range: 2402 – 2480 MHz

Number of channels: 39

Antenna: Internal antenna External antenna

Antenna connector: None, internal antenna Yes

Antenna gain: +0.5 dBi

Rating RF output power: -12.1 dBm (measured conducted)

Type of modulation: GFSK

Temperature range: Category I (General): -20°C to +55°C
 Category II (Portable equipment): -10°C to +55°C
 Category III (Equipment for normal indoor use): +5°C to +35°C
 Other: 0°C to +40°C

Transmitter standby mode supported: Yes No

2.2 Additional information about the EUT

The EUT consists of the following units:

Unit	Type	Serial number	Comment
Unit 1	Radio module	No visible serial	Radiated emission
Unit 2	Radio module	No visible serial	Fitted with temporary SMA connector for conducted emission

During the tests the EUT supported following software:

Software	Version	Comment
Direct Test Mode (DTM)	--	Nordic Semiconductor AS

2.3 Peripheral equipment

Peripheral equipment is equipment needed for correct operation of the EUT, but not included as part of the testing and evaluation of the EUT.

Equipment	Type / Model	Serial number	Comment
Laptop computer	Lenovo T440s	--	Used to program the units.

2.4 Companion Device

Type/model	Manufacturer	Serial number	Comment
CMW 500	Rohde & Schwarz	1201.0002K50-168416-nU	Used during receiver blocking

2.5 Test signals and mode of operation

The tests were performed on the following channels:

Low channel = 2402 MHz

Middle channel = 2440 MHz

High channel = 2480 MHz

During all TX tests the EUT was in DTM (Direct Test Mode) transmitting a continuous signal with a PRBS9 payload model with 37 bytes as payload length.

2.6 Modifications made to improve EMC-characteristics

No modifications have been made during the tests.

3 TEST SPECIFICATIONS

3.1 Standards

Requirements:

47 CFR Part 15: Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15: Subpart B: Unintentional radiators

RSS-GEN Issue 5 Amendment 1 (2019): General requirements of compliance of radio apparatus.

RSS-247 Issue 2 (2017): Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Test methods:

ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Additions, deviations and exclusions from standards and accreditation

No additions, deviations or exclusions have been made from standards and accreditation.

3.3 Test site

Measurements were performed at:

Intertek Semko AB
 Torshamnsgatan 43
 Box 1103
 SE-164 22 Kista

Intertek Semko AB is a FCC listed test site with site registration number 90913
 Intertek Semko AB is a FCC accredited conformity assessment body with designation number SE0002
 Intertek Semko AB is an Industry Canada listed test facility with IC assigned code 2042G
 Intertek Semko AB is an ISED recognized wireless testing laboratory with CAB identifier SE0003.

Measurement chambers

Measurement Chamber	Type of chamber	IC Site filing #
STORA HALLEN	Semi-anechoic 10 m and 3 m	2042G-2
Radiohallen	Fully anechoic 3 m	2042G-4

4 TEST SUMMARY

The results in this report apply only to sample tested:

Requirement	Description	Result
FCC §15.203 RSS-GEN 8.3 FCC §15.247 (b)(4) RSS-247 5.4(4), 5.4(5)	Antenna The EUT has integrated non detachable antenna which can't be remove without breaking the EUT.	PASS
	The antenna gain is less than 6 dBi	
FCC Part 15.205 RSS-GEN 8.10	Restricted bands of operations The transmit frequency, including fundamental components of modulation, of license-exempt radio apparatus shall not fall within the restricted frequency bands listed in CFR 47 §15.205 and in RSS-GEN section 8.10	PASS
	EUT operates in unrestricted 2402 – 2480 MHz frequency band.	
FCC §15.207, 15.107 RSS-GEN 8.8 table 3	Conducted continuous emission in the frequency range 150 kHz to 30 MHz, AC Power input port Battery operated equipment.	NA
FCC §15.247 (d), 15.209(a) RSS-GEN 8.9 RSS-247 5.5	Radiated emission of electromagnetic fields in the frequency range 30 – 1000 MHz The EUT complies with the limits. The margin to the limit was at least 10 dB. See clause 5.4 – 5.5.	PASS
	Radiated emission of electromagnetic fields in the frequency range above 1 GHz The EUT complies with the limits. The margin to the limit was at least 10 dB. See clause 5.6 – 5.7.	
FCC §15.247(d), 15.209(a) RSS-GEN 8.9 RSS-247 5.5	Occupied bandwidth The EUT complies with the limits. The margin to the limit is at least 215.430 kHz. See clause 8.4.	PASS
	Conducted output power The EUT complies with the limits. The margin to the limit was at least 10 dB. See clause 7.4.	
FCC §15.247(a)(2) RSS-GEN 6.7 RSS-247 5.2(1)	Peak power spectral density The EUT complies with the limits. The margin to the limit was at least 10 dB. See clause 10.4.	PASS
	Conducted Band edge The EUT complies with the limits. The margin to the limit was at least 20 dB. See clause 6.4.	
FCC §15.247(b) RSS-247 5.4(4)	Conducted Band edge The EUT complies with the limits. The margin to the limit was at least 20 dB. See clause 6.4.	PASS

NA = Not Applicable

5 RADIATED RF EMISSION IN THE FREQUENCY-RANGE 30 MHz TO 26.5 GHz

Date of test:	2020-04-07	Test location:	Stora Hallen and Radiohallen
EUT Serial:	No visible serial	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	22 %
Test result:	Pass	Margin:	> 10 dB

5.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013.
The EUT was set up in order to emit maximum disturbances.

The EUT was placed on an insulating support 0.8 and 1.5 m above the turntable which is part of the reference ground plane.

Overview sweeps were performed with the measurement receiver in max-hold mode and the peak detector activated in the frequency-range 30 – 1000 MHz. Above 1 GHz additionally the average detector was activated.

Portable device: Pre scan was made in three orthogonal EUT orientations.

5.2 Test conditions

Test set-up:

30 MHz to 1000 MHz

Test receiver set-up:

Preview test: Peak RBW 120 kHz VBW 1 MHz
Final test: Quasi-Peak RBW 120 kHz VBW 1 MHz

EUT height above ground plane: 0.8 m

Measuring distance: 10 m

Measuring angle: 0 – 359°

Antenna

Height above ground plane: 1 – 4 m

Polarisation: Vertical and Horizontal

Type: Bilog

Test set-up:

1 GHz – 26.5 GHz

Test receiver set-up:

Preview test: Peak RBW 1 MHz VBW 3 MHz
Average RBW 1 MHz VBW 3 MHz

Final test: Peak RBW 1 MHz VBW 3 MHz
Average RBW 1 MHz VBW 3 MHz

EUT height above ground plane: 1.5 m

Measuring distance: 3 m

Measuring angle: 0 – 359°

Antenna

Height above ground plane: 1.5 m

Polarisation: Vertical and Horizontal

Type: Horn

Antenna tilt: The EUT is rotated around its axis as described in ANSI C63.10 (2013) clause 6.6.5.

5.3 Requirements

Within restricted bands and receive mode:
 Reference: CFR 47 §15.209, §15.109, RSS-Gen section 8.9

Field strength of emissions must comply with limits shown in table below

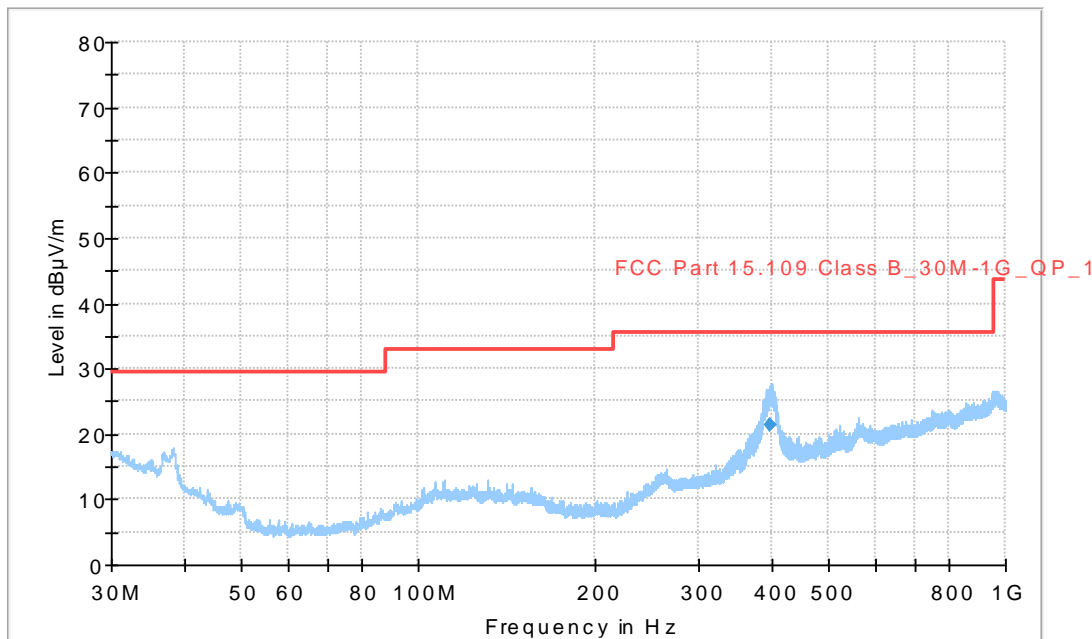
Frequency range [MHz]	Field strength at 3 m (dBµV/m)	Field strength at 10 m (dBµV/m)	Detector (dBµV/m)
30 – 88	40.0	29.5	Quasi Peak
88 – 216	43.5	33.0	Quasi Peak
216 – 960	46.0	35.5	Quasi Peak
960 – 1000	54.0	43.5	Quasi Peak
Above 1000	54.0 / 74.0	43.5 / 63.5	Average / Peak

The values for 10 m measuring distance are calculated by subtracting 10.5 dB from the 3 m limit. (i.e. an extrapolation factor of 20 dB/decade according to CFR 47 §15.31(f)(1))

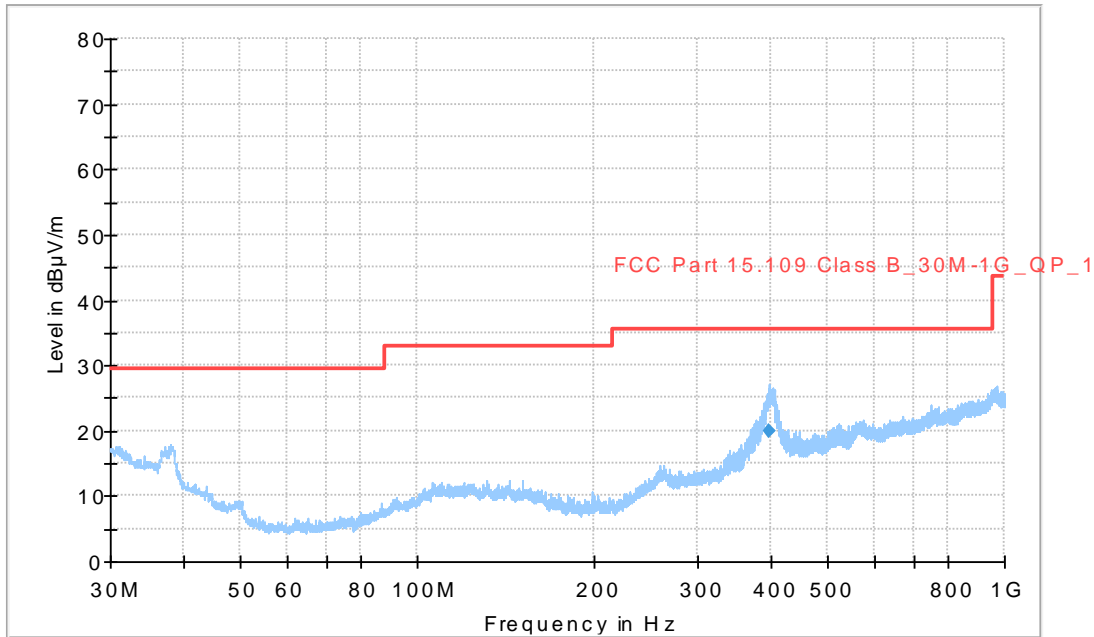
Outside the restricted bands:
 Reference: CFR 47 §15.247(d), RSS-247 5.5,

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits.

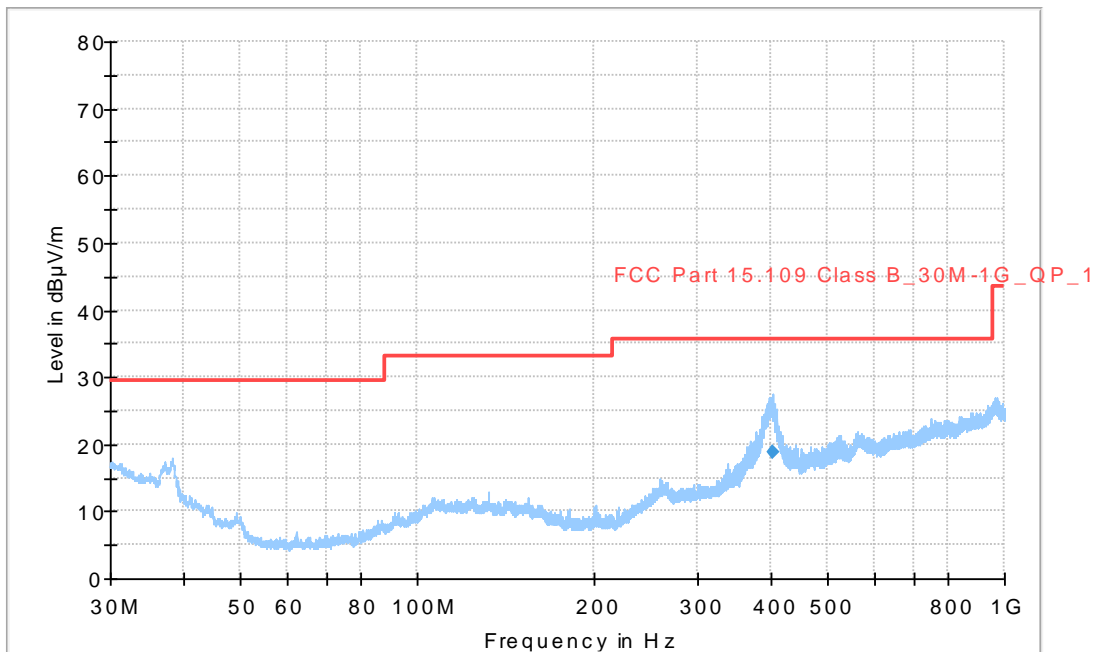
5.4 Test results 30 MHz – 1000 MHz, TX



Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. TX low channel.



Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. TX mid channel.



Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. TX high channel.

Measurement results, Quasi Peak, low channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
396.810	21.4	35.6	H	14.1

Measurement results, Quasi Peak, mid channel

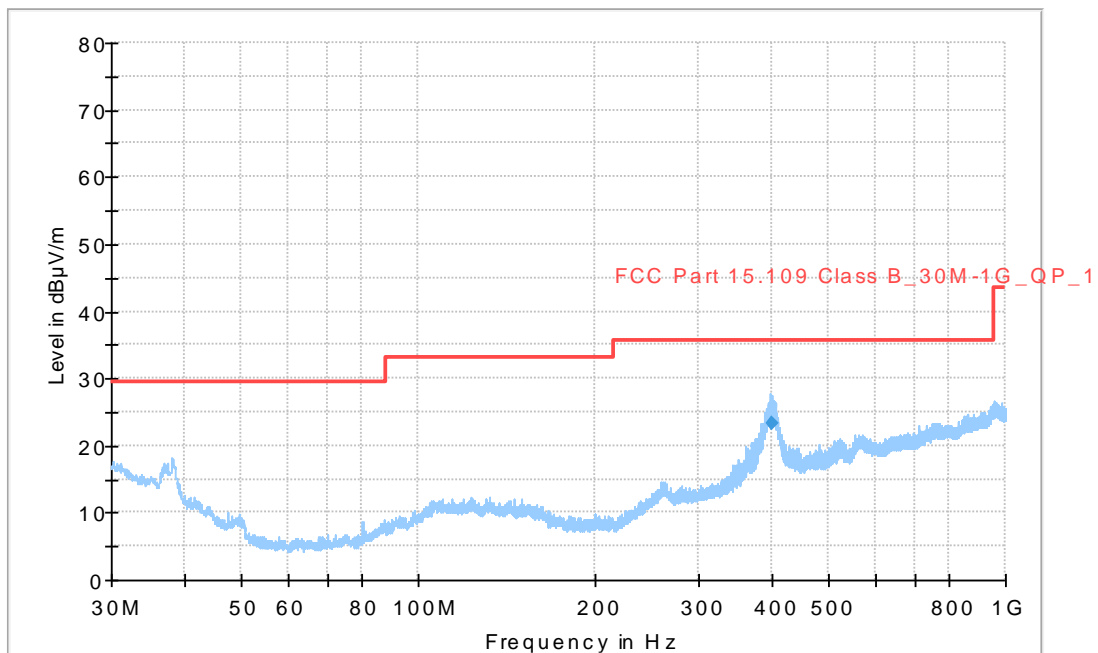
Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
396.900	20.0	35.6	H	15.6

Measurement results, Quasi Peak, high channel

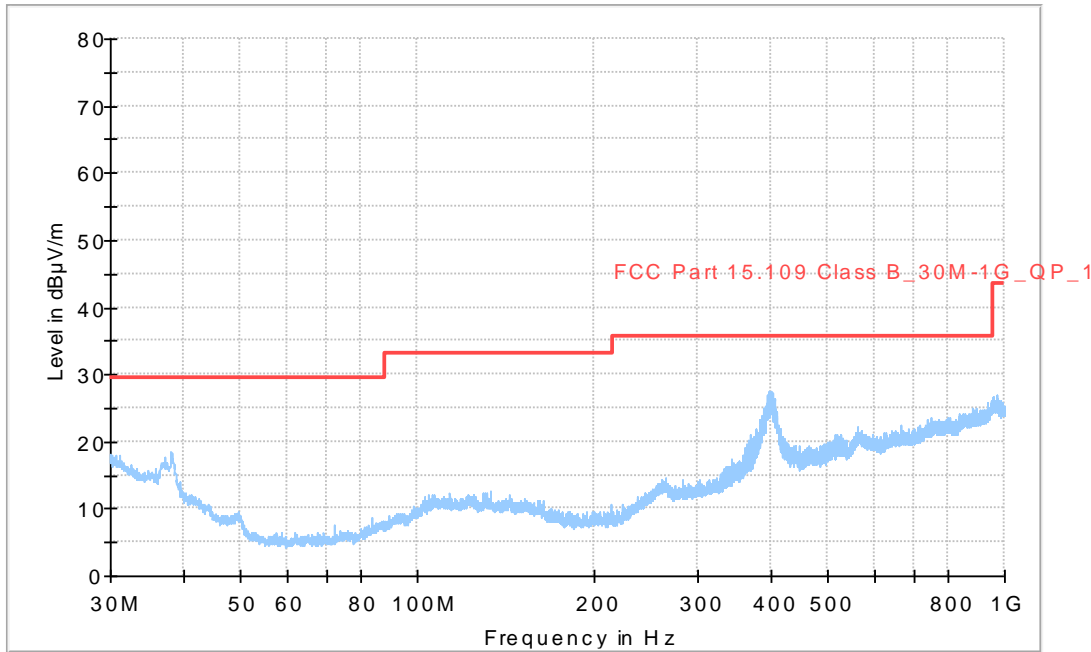
Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
403.340	18.8	35.6	H	16.8

Result [dBµV/m] = Analyser reading [dBµV] + Antenna factor [1/m] - Amplifier gain [dB] + Cable loss [dB]

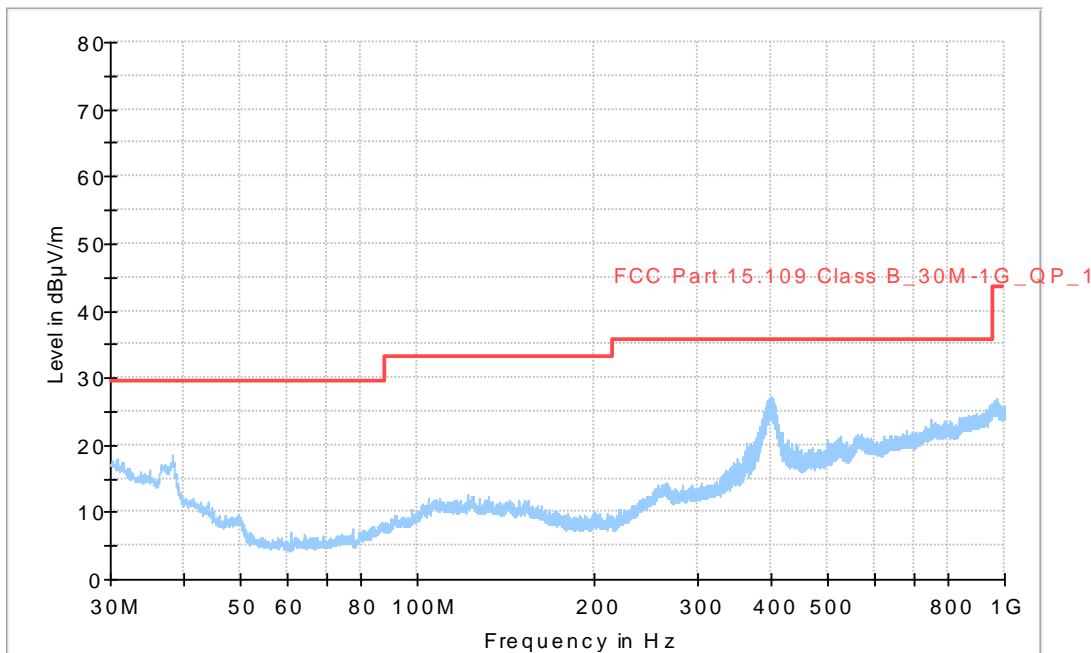
5.5 Test results 30 MHz – 1000 MHz, RX



Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. RX low channel.



Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. RX mid channel.



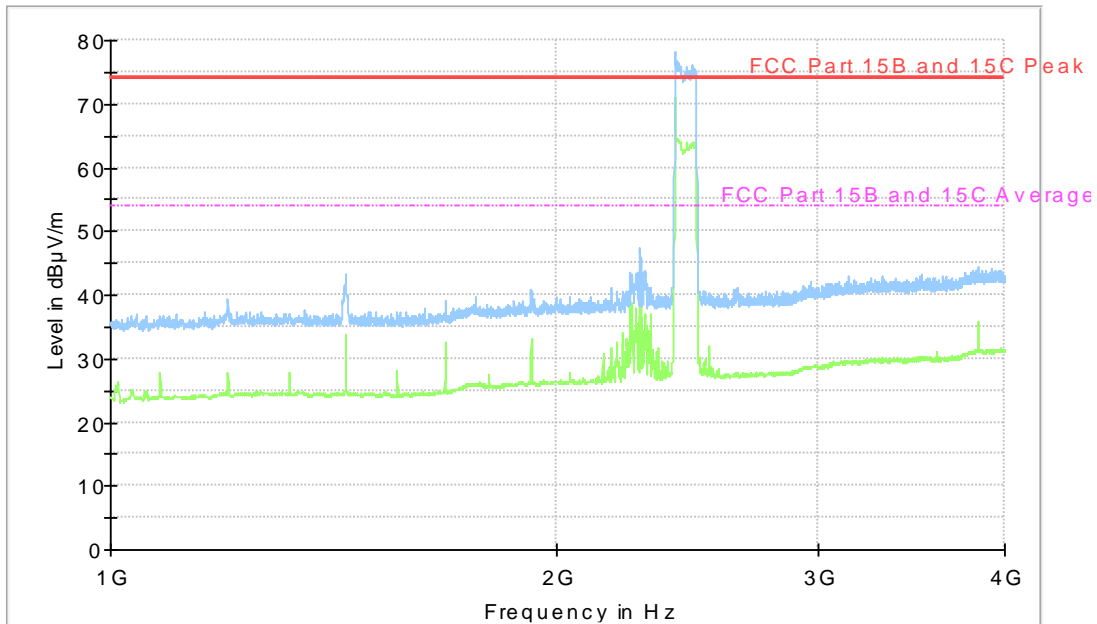
Diagram, Peak overview sweep, 30 – 1000 MHz at 10 m distance. RX high channel.

Measurement results, Quasi Peak, low channel

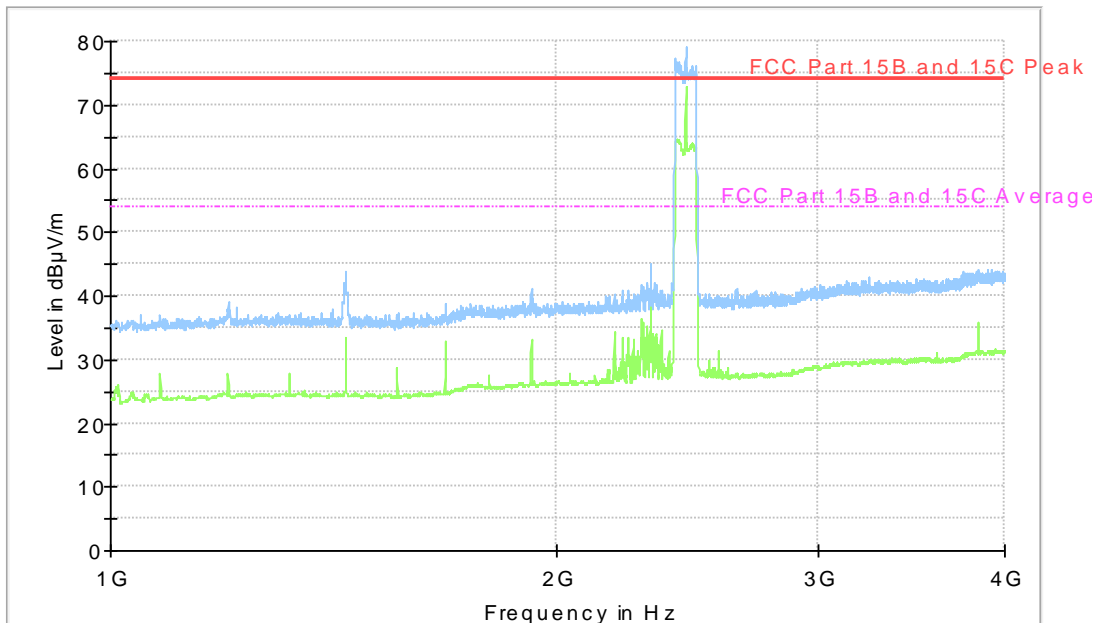
Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
401.070	23.2	35.6	H	12.3

Result [dBµV/m] = Analyser reading [dBµV] + Antenna factor [1/m] - Amplifier gain [dB] + Cable loss [dB]

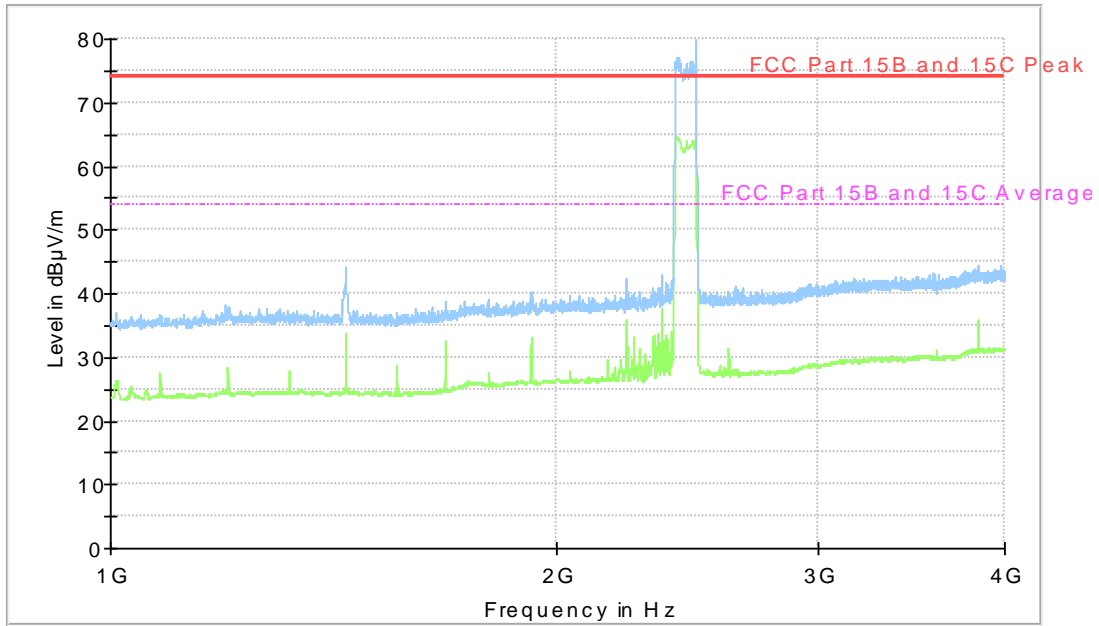
5.6 Test results 1 GHz – 26.5 GHz, TX



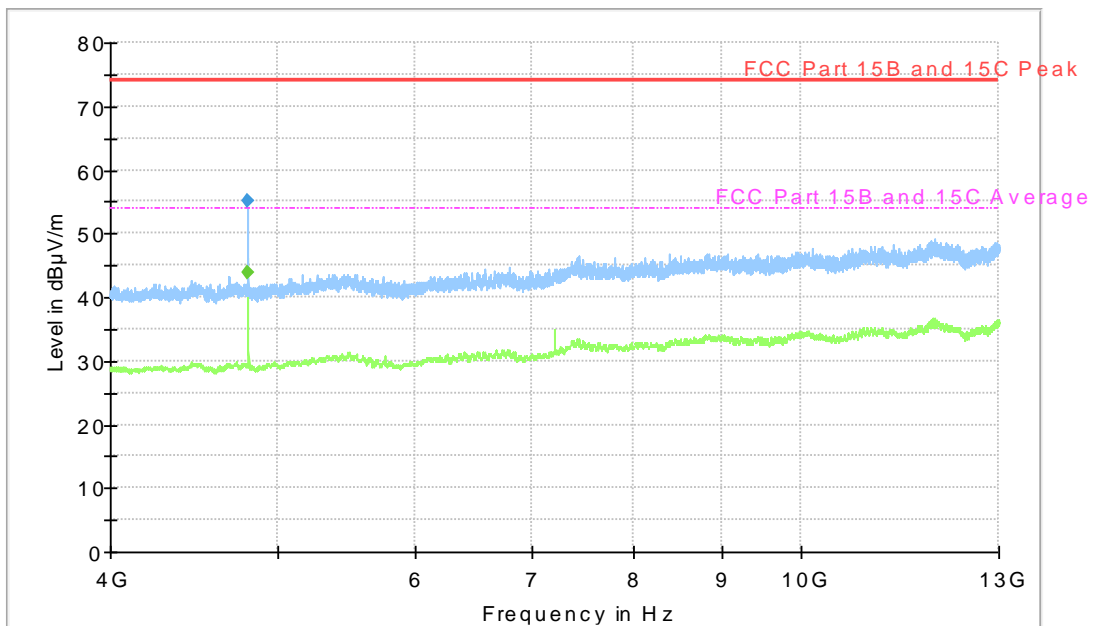
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX low channel. Carrier is attenuated by a band rejection filter.



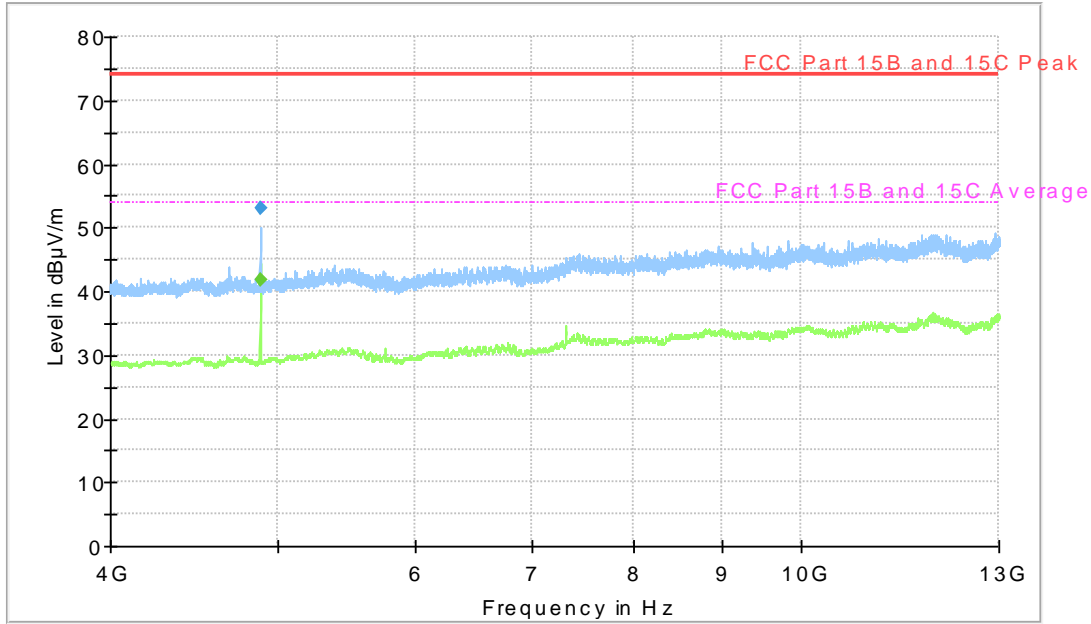
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX mid channel. Carrier is attenuated by a band rejection filter.



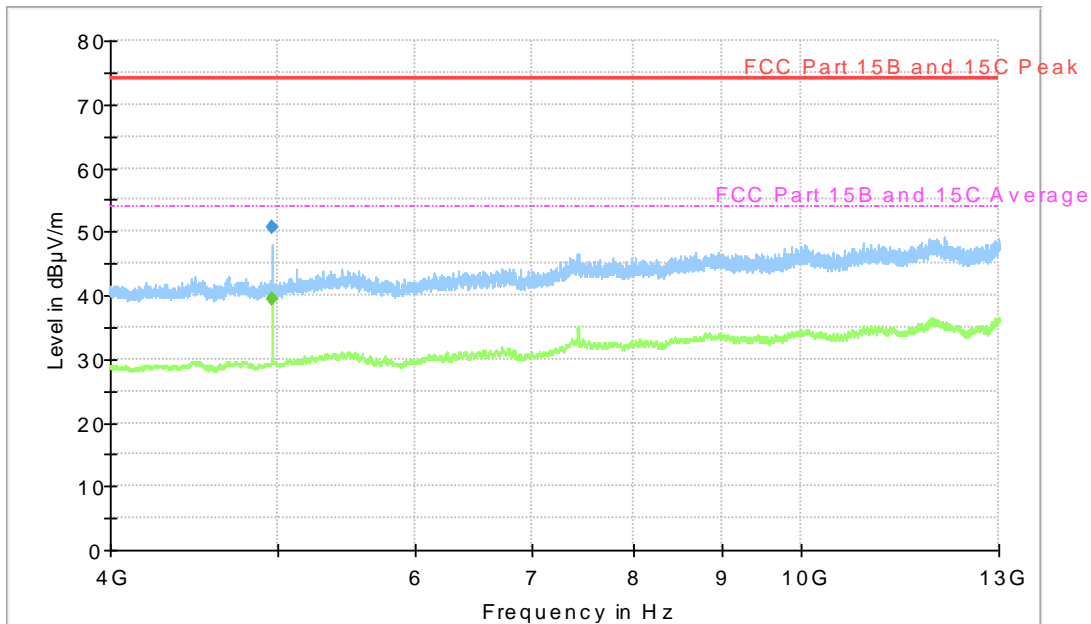
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX high channel. Carrier is attenuated by a band rejection filter.



Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX low channel. Emissions below 4000 MHz are attenuated by a high-pass filter.

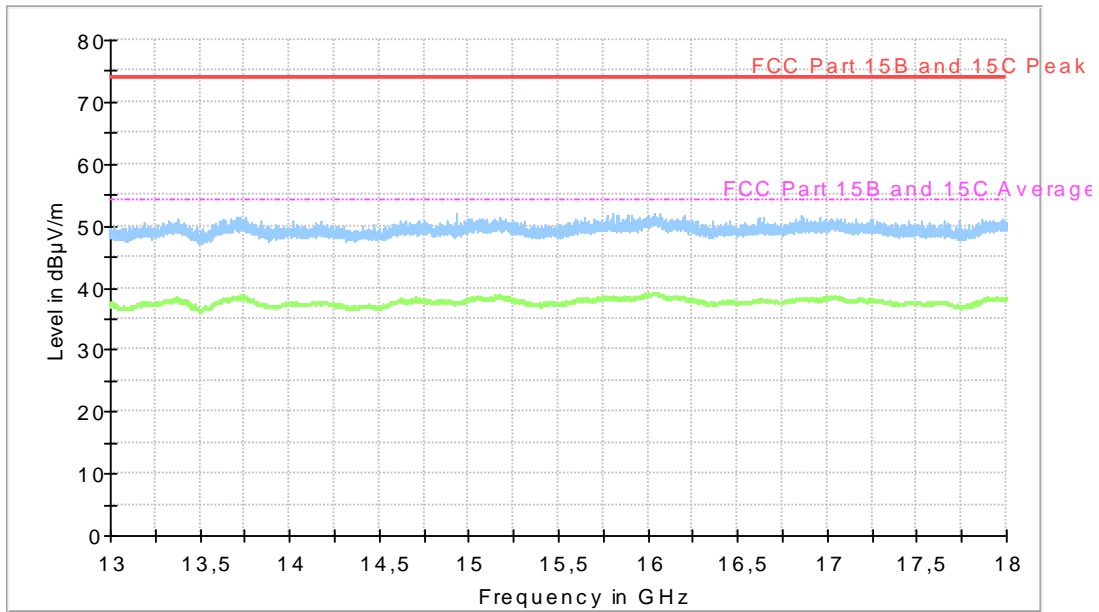


Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX mid channel. Emissions below 4000 MHz are attenuated by a high-pass filter.



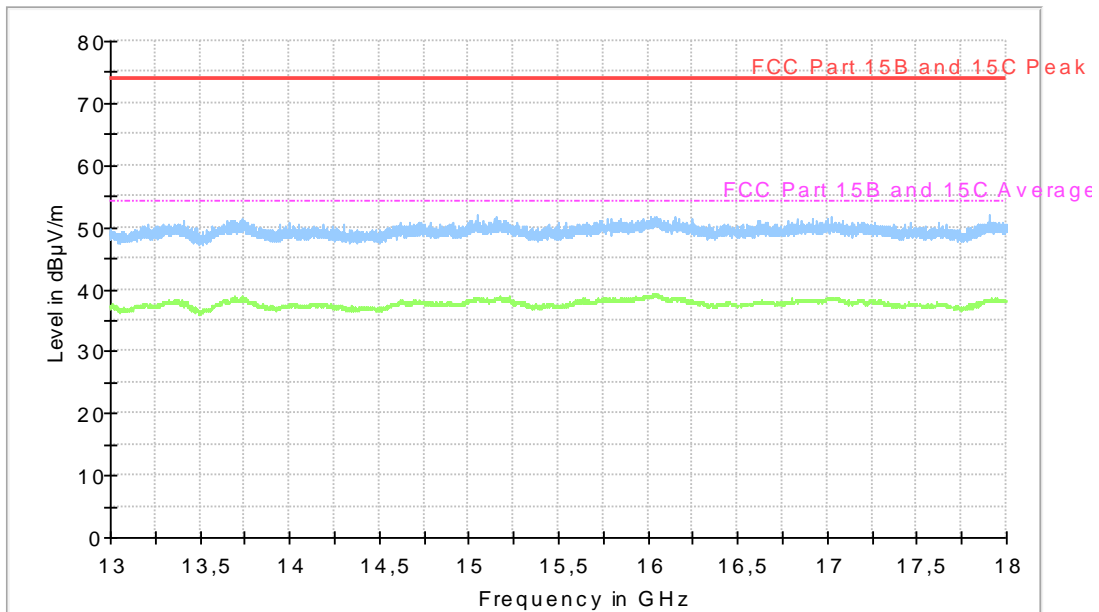
Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX high channel. Emissions below 4000 MHz are attenuated by a high-pass filter.

Full Spectrum



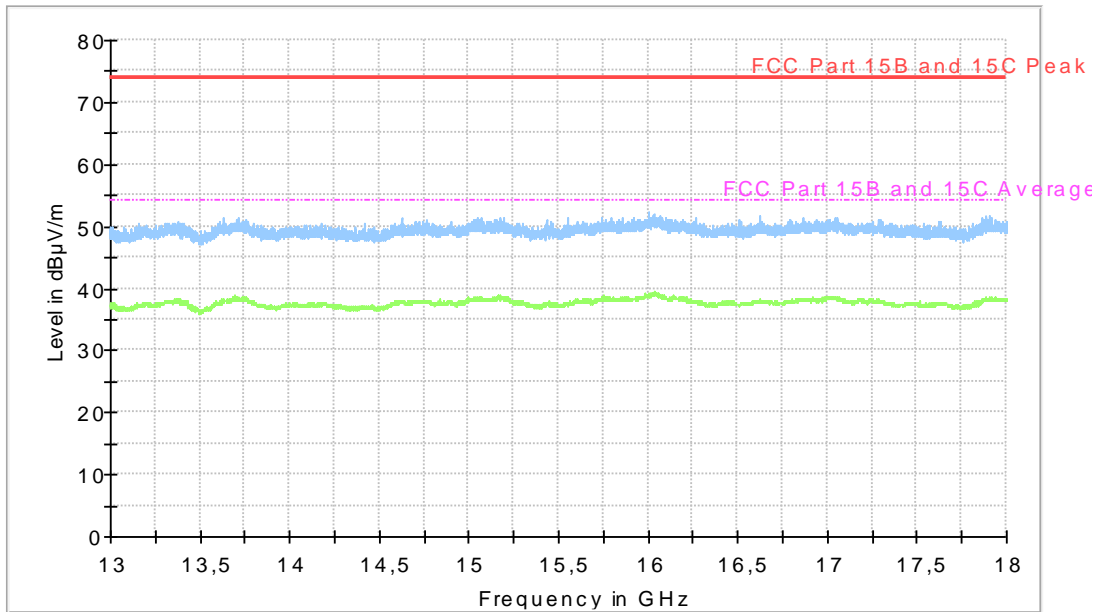
Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX low channel.

Full Spectrum



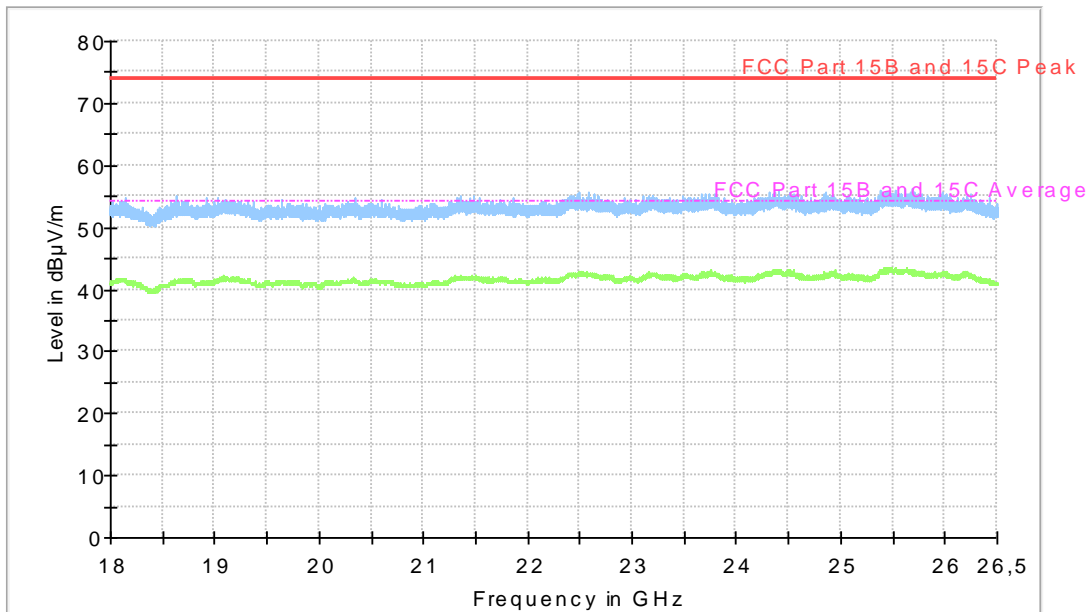
Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX mid channel.

Full Spectrum



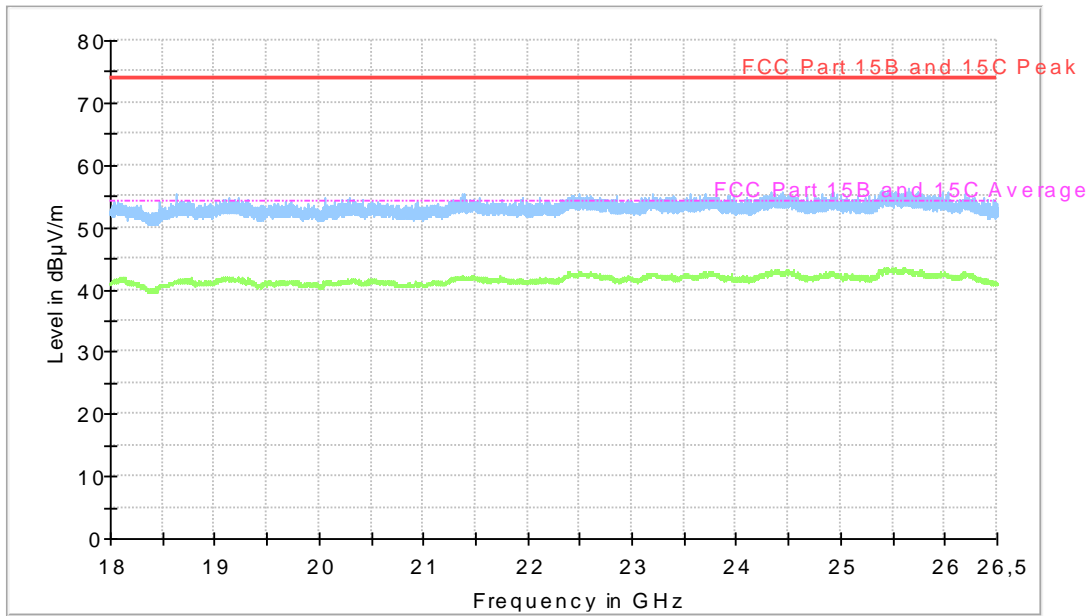
Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX high channel.

Full Spectrum



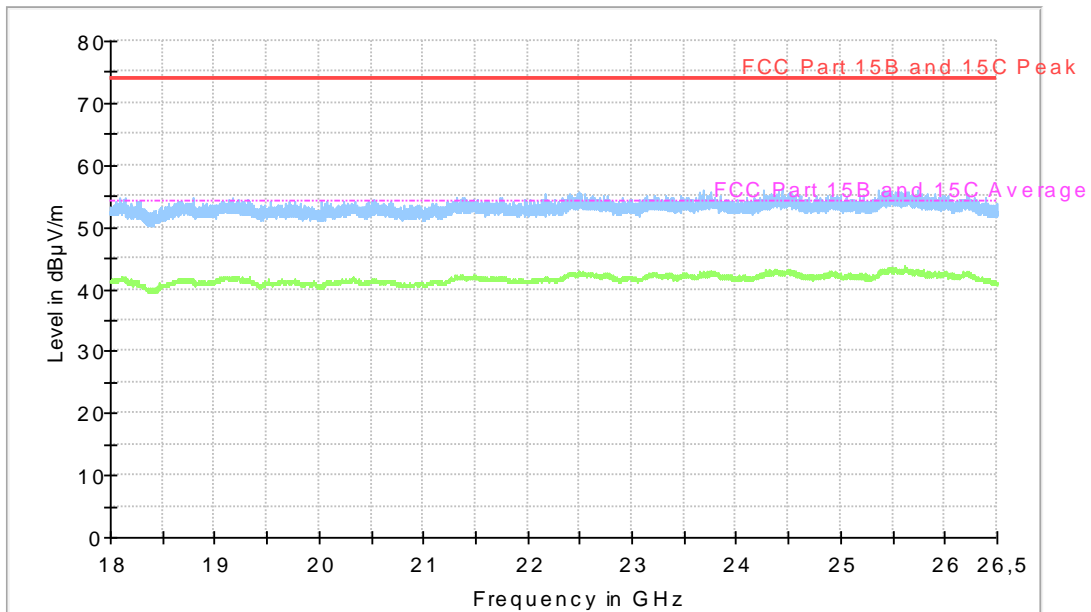
Diagram, Peak overview sweep, 18 – 26.5 GHz at 3 m distance. TX low channel.

Full Spectrum



Diagram, Peak overview sweep, 18 – 26.5 GHz at 3 m distance. TX mid channel.

Full Spectrum



Diagram, Peak overview sweep, 18 – 26.5 GHz at 3 m distance. TX high channel.

Measurement results, Peak, TX low channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
4803.8	55.1	74.0	V	18.9

Measurement results, Average, TX low channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
4804.0	43.9	54.0	V	10.1

Measurement results, Peak, TX middle channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
4879.8	53.1	74.0	V	20.9

Measurement results, Average, TX middle channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
4879.5	41.9	54.0	V	12.1

Measurement results, Peak, TX high channel

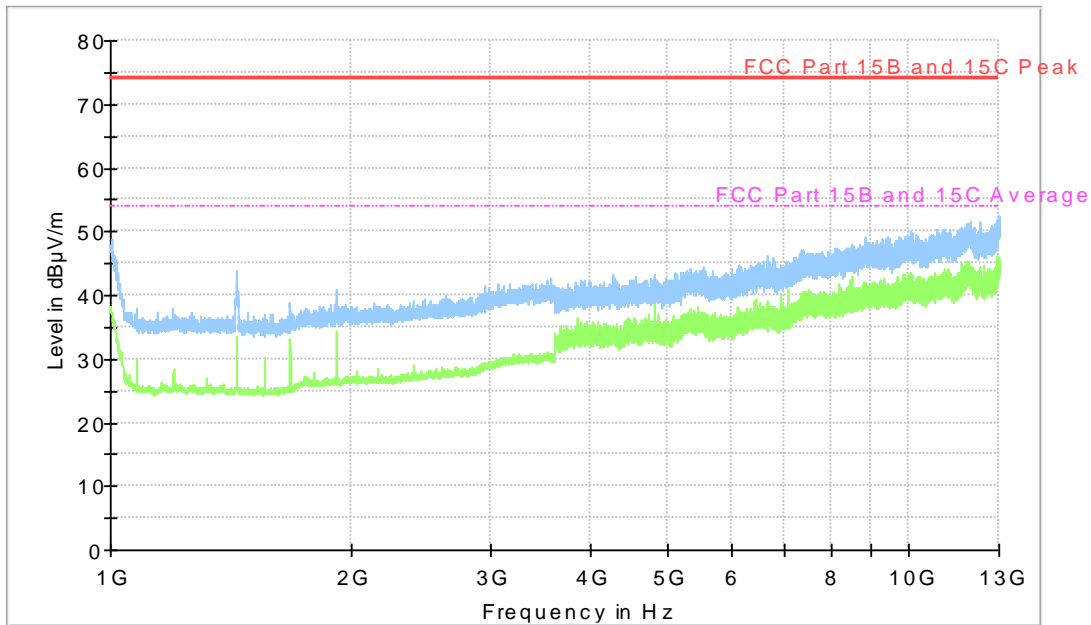
Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
2484.0	51.0	74.0	V	23.0
4959.7	50.8	74.0	V	23.2

Measurement results, Average, TX high channel

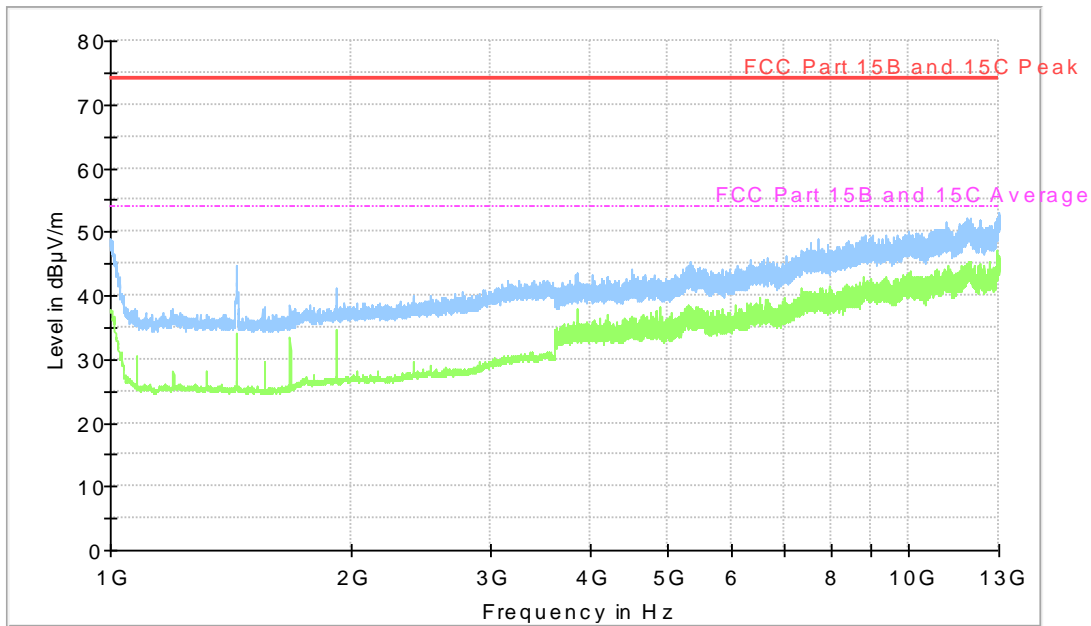
Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	Polarization H/V	Margin [dB]
2484.0	36.3	54.0	V	17.7
4960.0	39.5	54.0	V	14.5

Result [dB μ V/m] = Analyser reading [dB μ V] + Antenna factor [1/m] - Amplifier gain [dB] + Cable loss [dB]

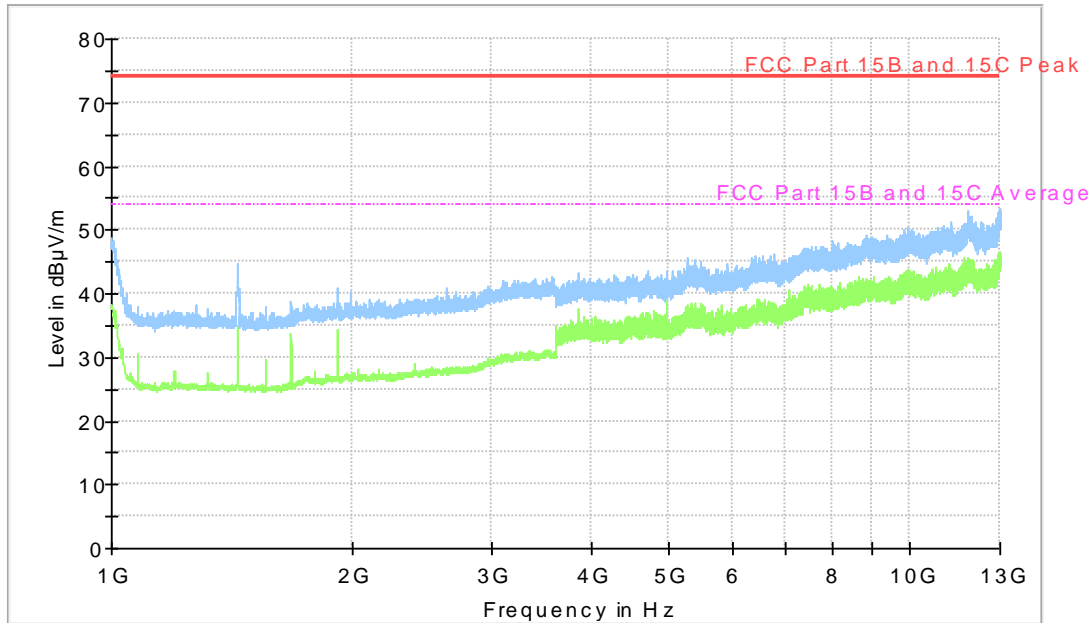
5.7 Test results 1 GHz – 13 GHz, RX



Diagram, Peak overview sweep, 1 – 13 GHz at 3 m distance. RX low channel.



Diagram, Peak overview sweep, 1 – 13 GHz at 3 m distance. RX mid channel.



Diagram, Peak overview sweep, 1 – 13 GHz at 3 m distance. RX high channel.

No emissions are found above noise floor or closer than 20 dB from limit.

Result [dBµV/m] = Analyser reading [dBµV] + Antenna factor [1/m] - Amplifier gain [dB] + Cable loss [dB]

6 CONDUCTED BAND EDGE MEASUREMENT

Date of test:	2020-06-01	Test location:	Radiolabbet
EUT Serial:	No visible serial	Ambient temp:	22 °C
Tested by:	Robert Hietala	Relative humidity:	24 %
Test result:	Pass	Margin:	> 20 dB

6.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 6.10.4.

The EUT was connected to spectrum analyser via rf-cable and attenuator.

The EUT was set up in order to emit maximum disturbances.

6.2 Test conditions

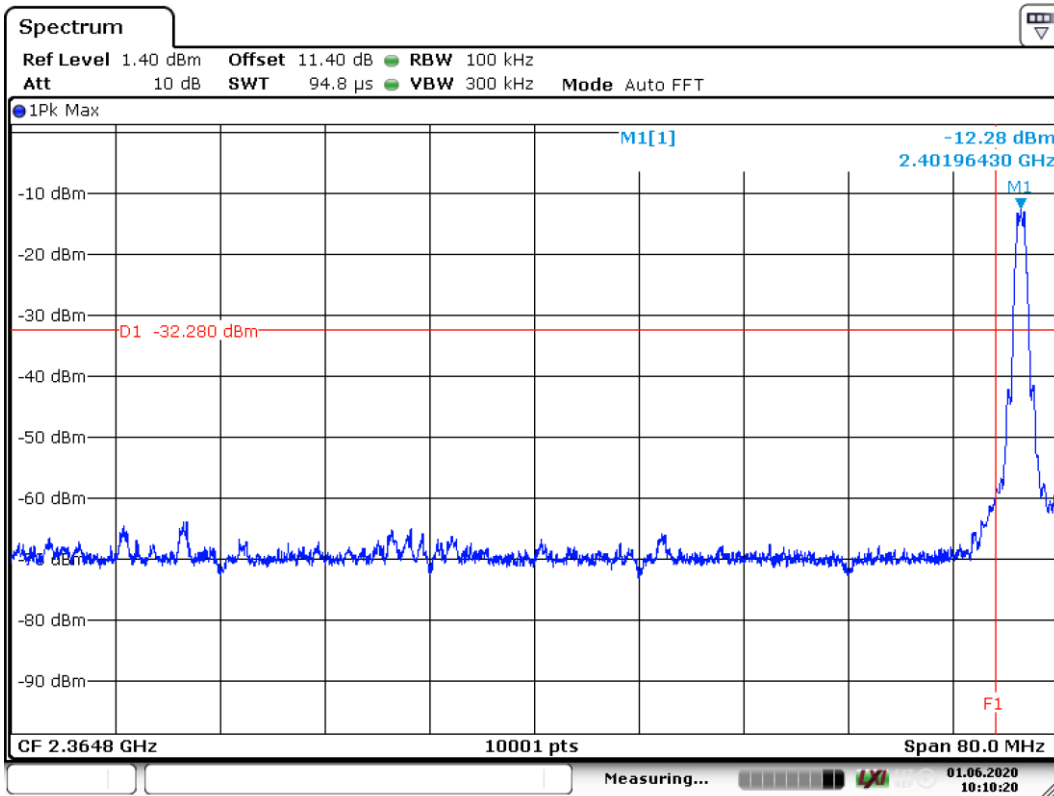
Detector: Peak,
 RBW: 100 kHz
 VBW: 300 kHz
 Span: 80 MHz

6.3 Requirement

Reference: CFR 47 §15.247(d), RSS-247 5.5,

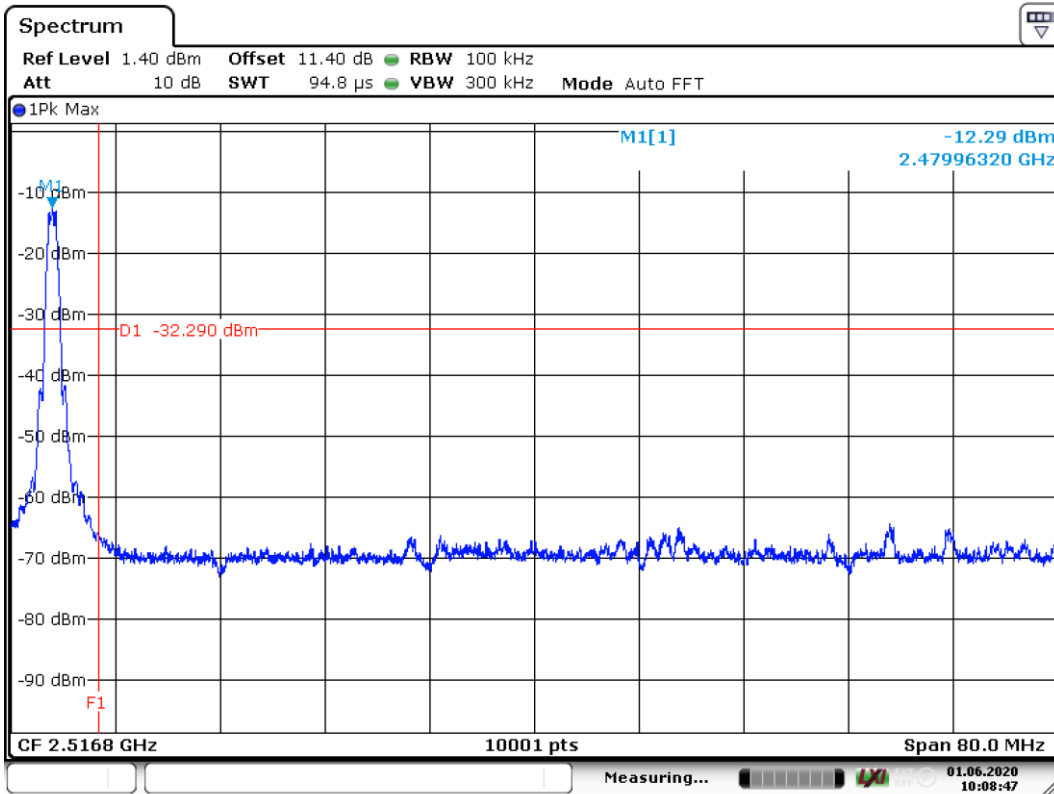
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

6.4 Test results



Date: 1. JUN.2020 10:10:20

Screenshot: Lower band edge sweep, single channel



Date: 1. JUN.2020 10:08:48

Screenshot: Upper band edge sweep, single channel

7 PEAK CONDUCTED OUTPUT POWER

Date of test:	2020-06-01	Test location:	Radiolabbet
EUT Serial:	No visible serial	Ambient temp:	22 °C
Tested by:	Robert Hietala	Relative humidity:	24 %
Test result:	Pass	Margin:	> 10 dB

7.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 11.9.1.1.

The EUT was connected to spectrum analyser via rf-cable and attenuator.

7.2 Test conditions

Detector: Peak,
 RBW: >OBW
 VBW: 3 x RBW
 Span: >3 x OBW

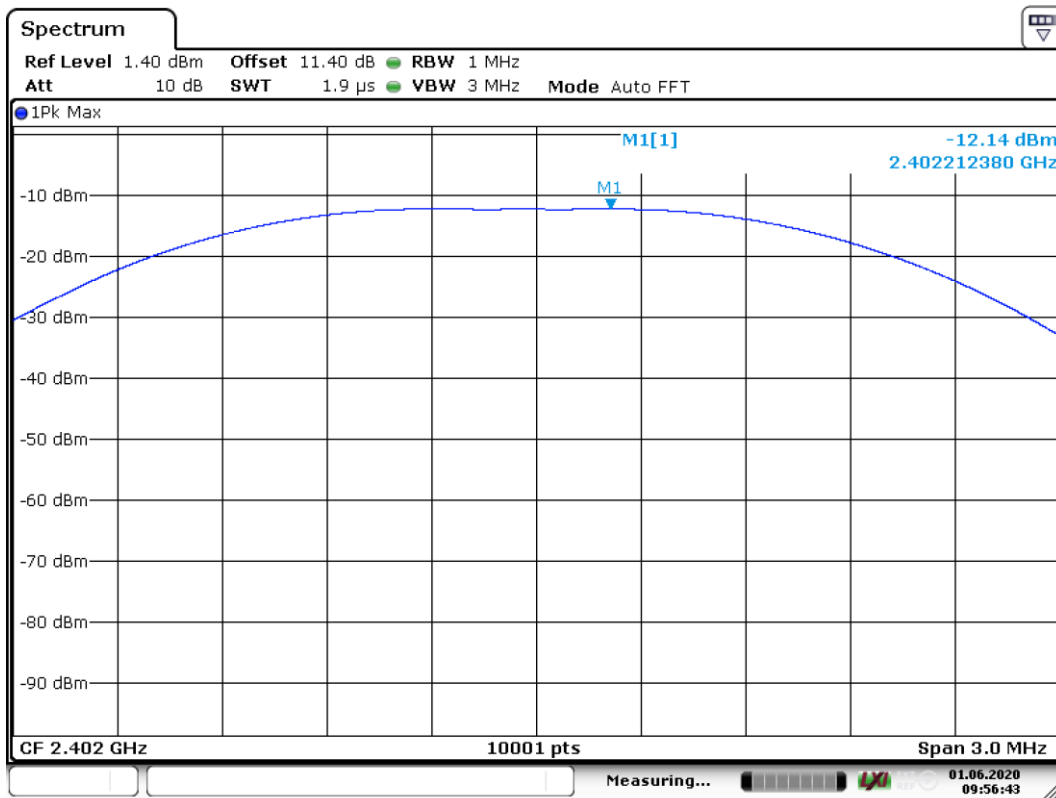
The EUT was set up in order to emit maximum disturbances.

7.3 Requirements

Reference: CFR 47§15.247(b)(3), RSS-247 5.4

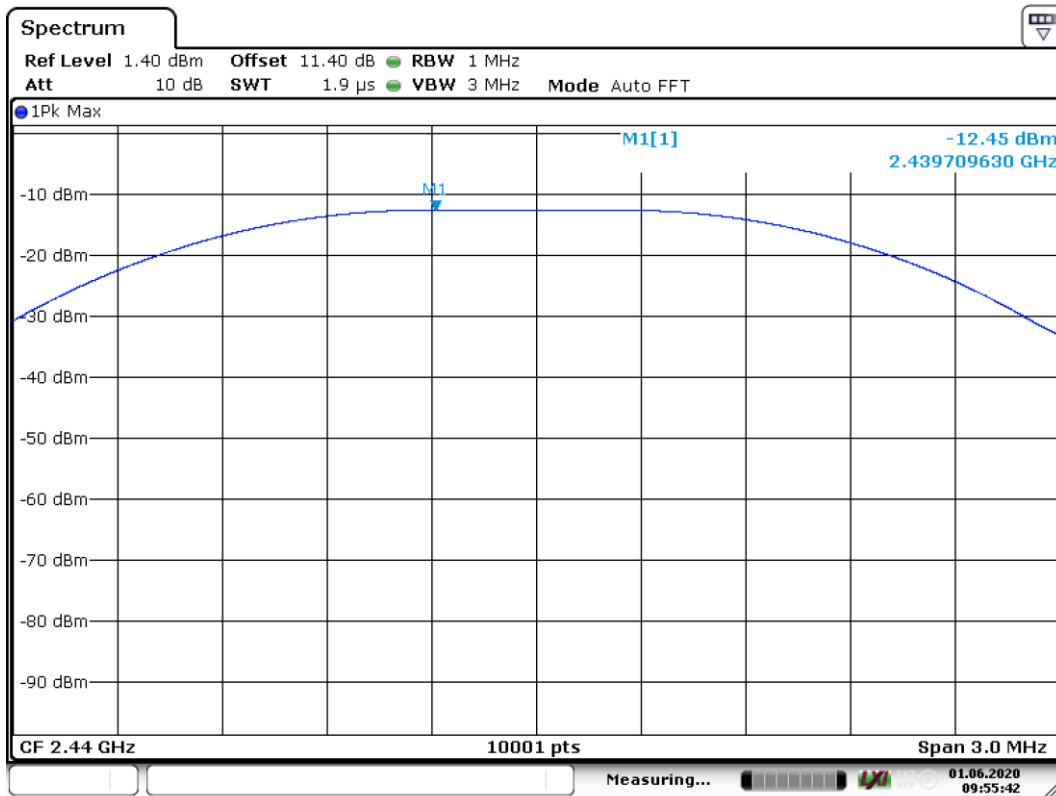
For DTSs employing digital modulation techniques operating in the bands 902 – 128 MHz, 2400 – 2483.5 MHz and 5725 – 5850 MHz, the maximum peak conducted output power shall not exceed 1W.

7.4 Test results



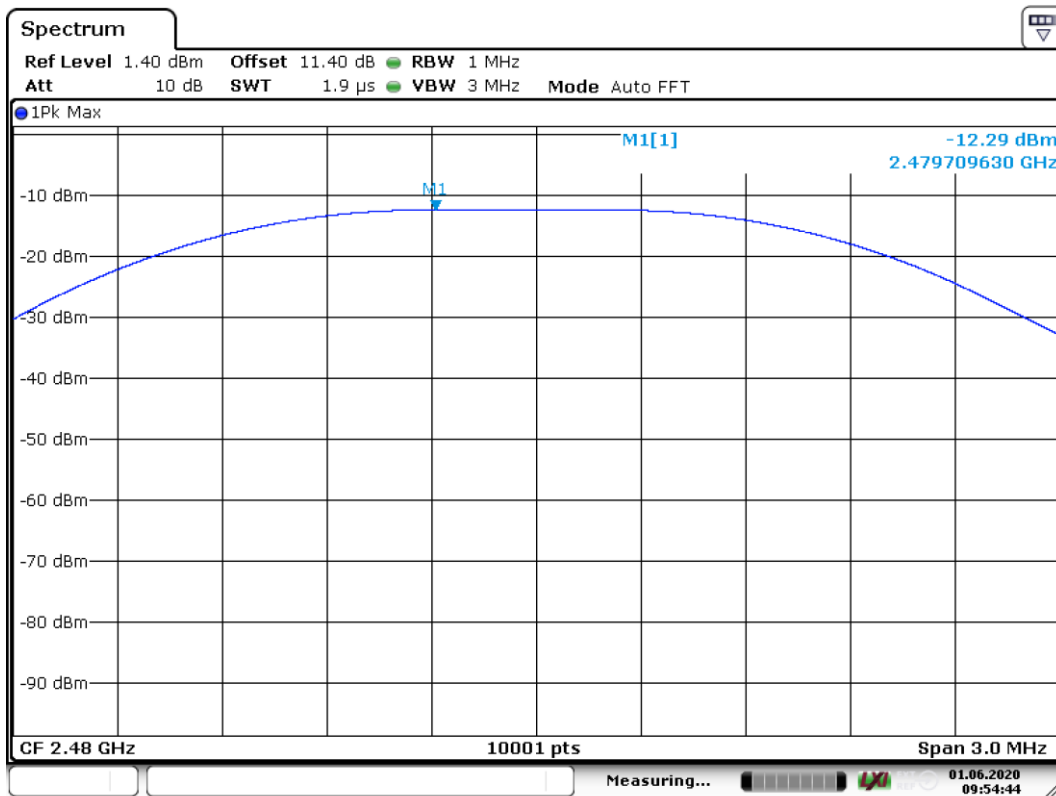
Date: 1.JUN.2020 09:56:44

Screenshot: Output power, low channel



Date: 1.JUN.2020 09:55:43

Screenshot: Output power, middle channel



Date: 1.JUN.2020 09:54:44

Screenshot: Output power, high channel

Test result

Channel [MHz]	Output power [dBm]
2402	-12.1
2440	-12.5
2480	-12.3

8 OCCUPIED 6 DB BANDWIDTH

Date of test:	2020-06-01	Test location:	Radiolabbet
EUT Serial:	No visible serial	Ambient temp:	22 °C
Tested by:	Robert Hietala	Relative humidity:	24 %
Test result:	Pass	Margin:	215.430 kHz

8.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 11.8.1.

The EUT was connected to spectrum analyser via rf-cable and attenuator.

8.2 Test conditions

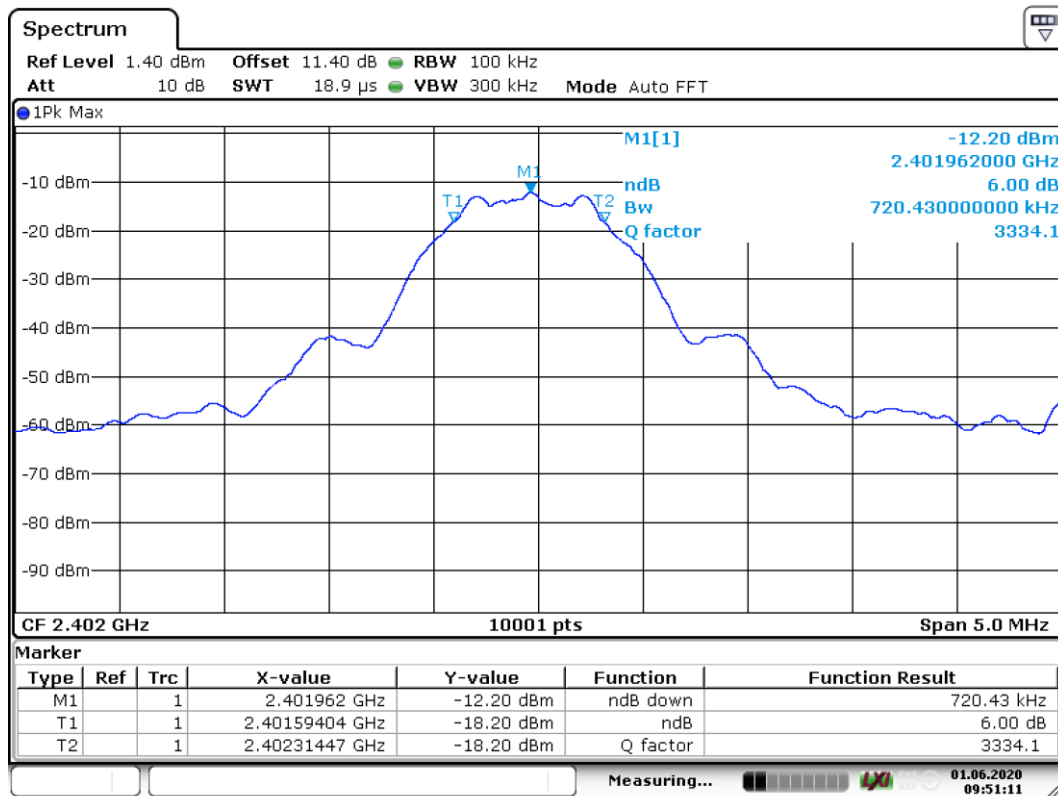
Detector: Peak
 RBW: 100 kHz
 VBW: 3 x RBW
 Span: >1,5 x OBW

The EUT was set up in order to emit maximum disturbances.

8.3 Requirements

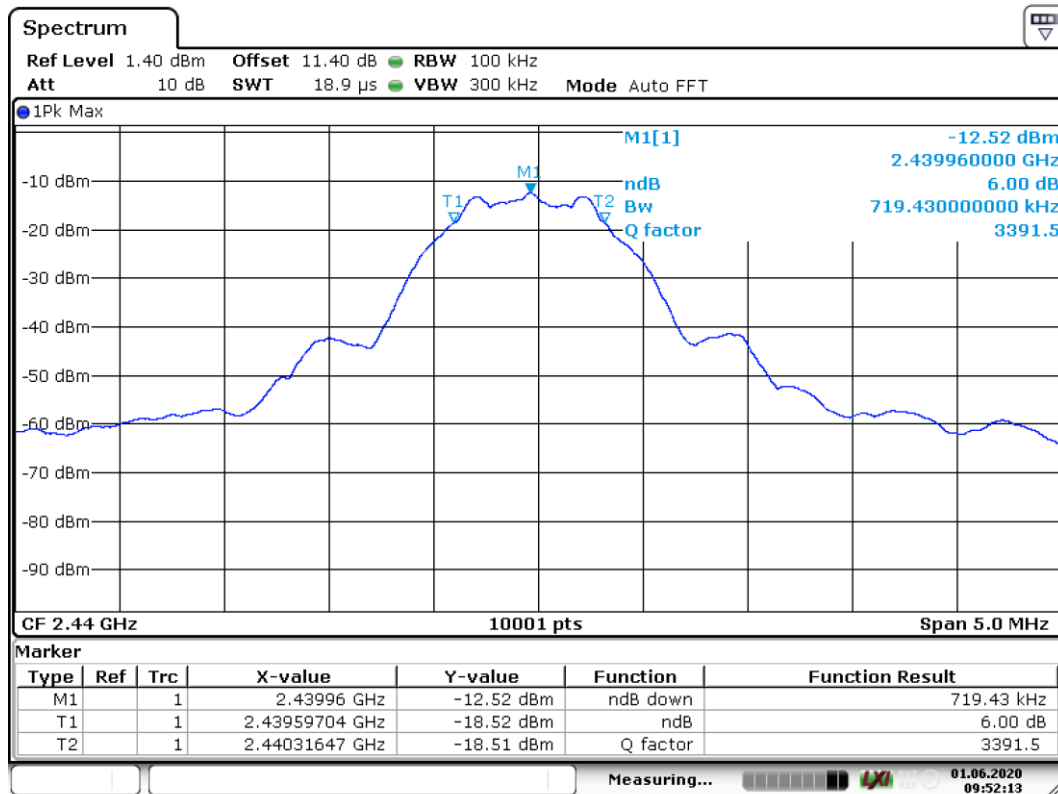
Reference: CFR 47§15.247(a)(2), RSS-247 5.2(1)
 The minimum 6 dB bandwidth shall be 500 kHz.

8.4 Test results



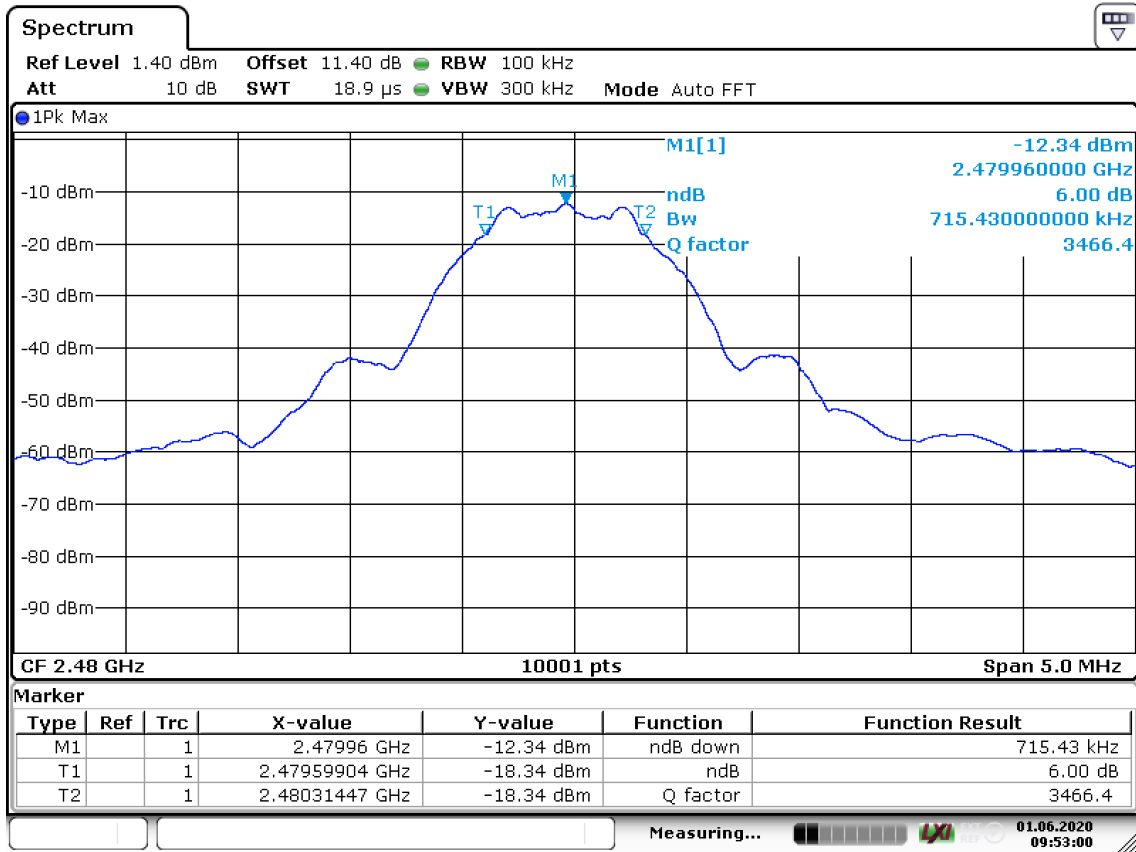
Date: 1.JUN.2020 09:51:11

Screenshot: Occupied 6 dB bandwidth Measurement, low channel



Date: 1.JUN.2020 09:52:13

Screenshot: Occupied 6 dB bandwidth Measurement, middle channel



Date: 1.JUN.2020 09:53:01

Screenshot: Occupied 6 dB bandwidth Measurement, high channel

Test result

Channel [MHz]	6 dB BW [kHz]
2402	720.430
2440	719.430
2480	715.430

9 99 % BANDWIDTH

Date of test:	2020-06-01	Test location:	Radiolabbet
EUT Serial:	No visible serial	Ambient temp:	22 °C
Tested by:	Robert Hietala	Relative humidity:	24 %
Test result:	Pass	Margin:	--

9.1 Test set-up and test procedure.

The test method is in accordance with RSS-GEN section 6.7.

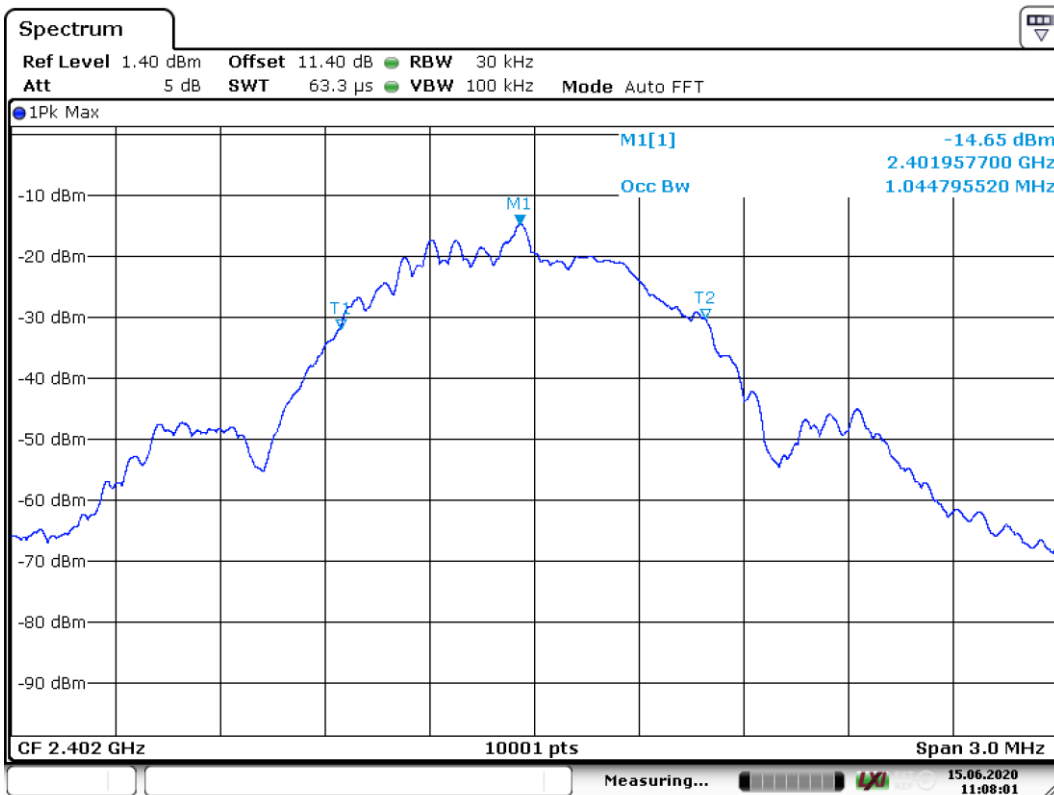
The EUT was connected to spectrum analyser via rf-cable and attenuator. Spectrum analyser with occupied bandwidth measurement function is used to determine the occupied bandwidth.

9.2 Test conditions

Detector: Peak
 RBW: 1 – 5 % of OBW
 VBW: 3 x RBW

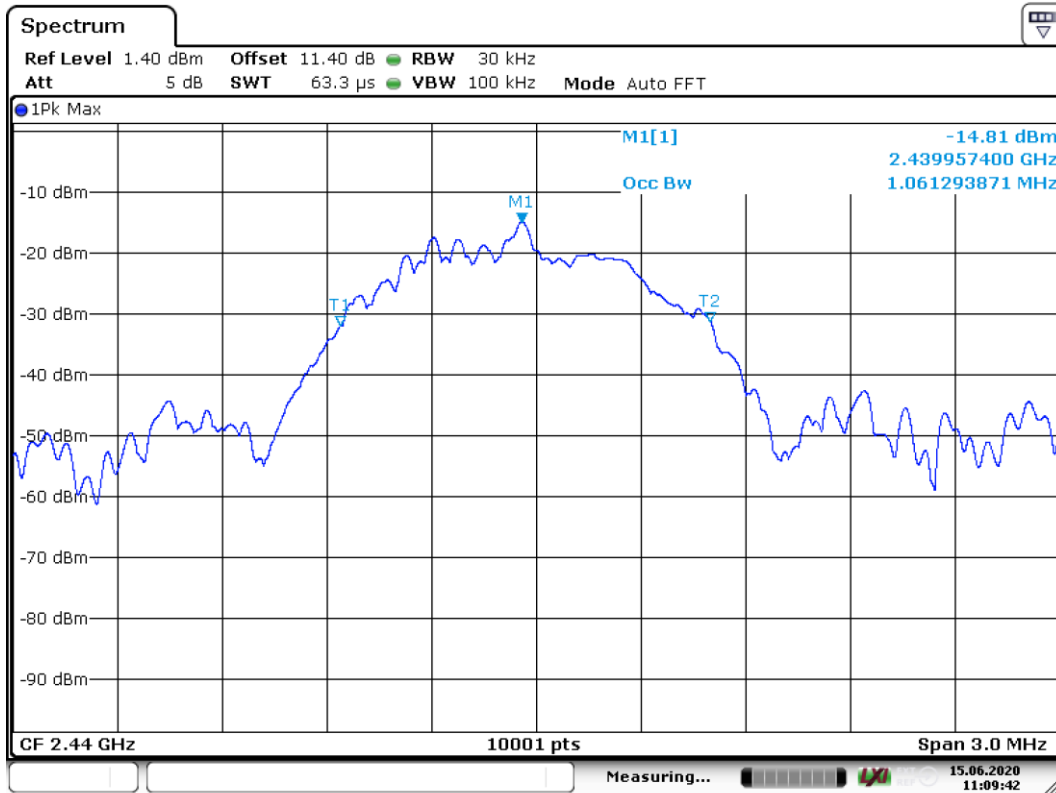
The EUT was set up in order to emit maximum disturbances.

9.3 Test results



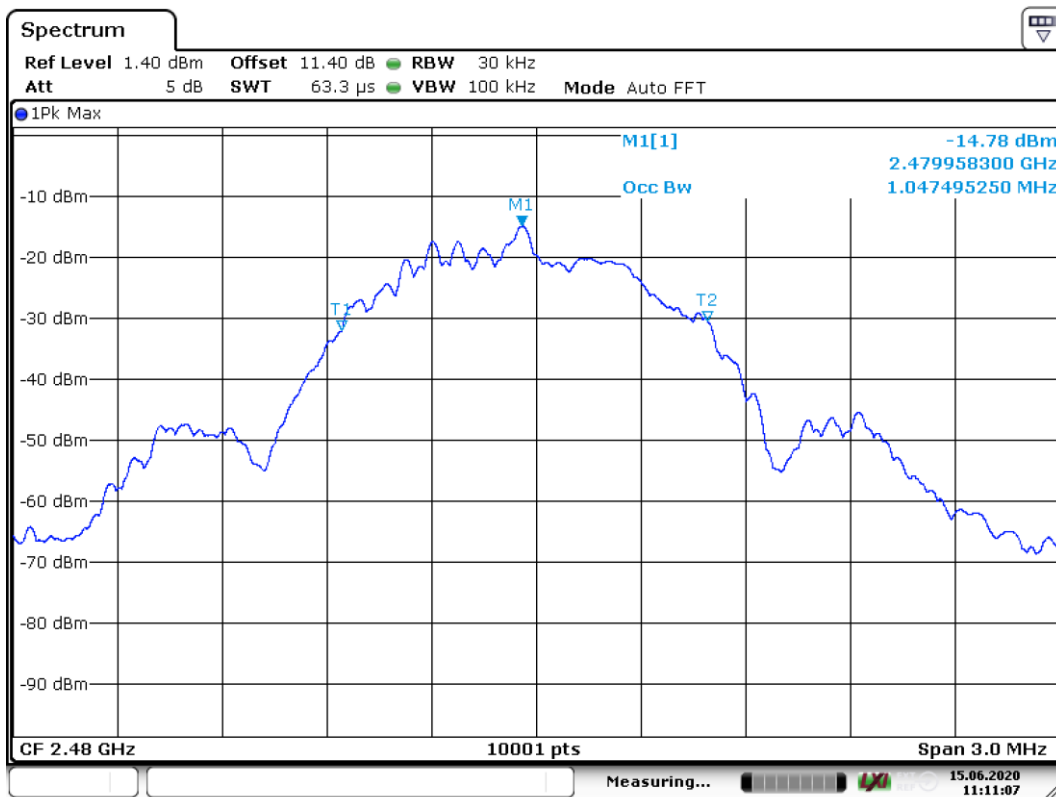
Date: 15.JUN.2020 11:08:02

Screenshot: 99 % bandwidth Measurement, low channel



Date: 15.JUN.2020 11:09:42

Screenshot: 99 % bandwidth Measurement, middle channel



Date: 15.JUN.2020 11:11:07

Screenshot: 99 % bandwidth Measurement, high channel

Test result

Channel [MHz]	99 % BW [kHz]
2402	1044.796
2440	1061.294
2480	1047.495

10 PEAK POWER SPECTRAL DENSITY

Date of test:	2020-06-01	Test location:	Radiolabbet
EUT number:	No visible serial	Ambient temp:	22 °C
Tested by:	Robert Hietala	Relative humidity:	24 %
Test result:	Pass	Margin:	> 10 dB

10.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 11.10.2.

The EUT was connected to spectrum analyser via rf-cable and attenuator.

10.2 Test conditions

Detector: Peak,
 RBW: 3 kHz
 VBW: >3 x RBW
 Span: 1.5 x 6 dB bandwidth

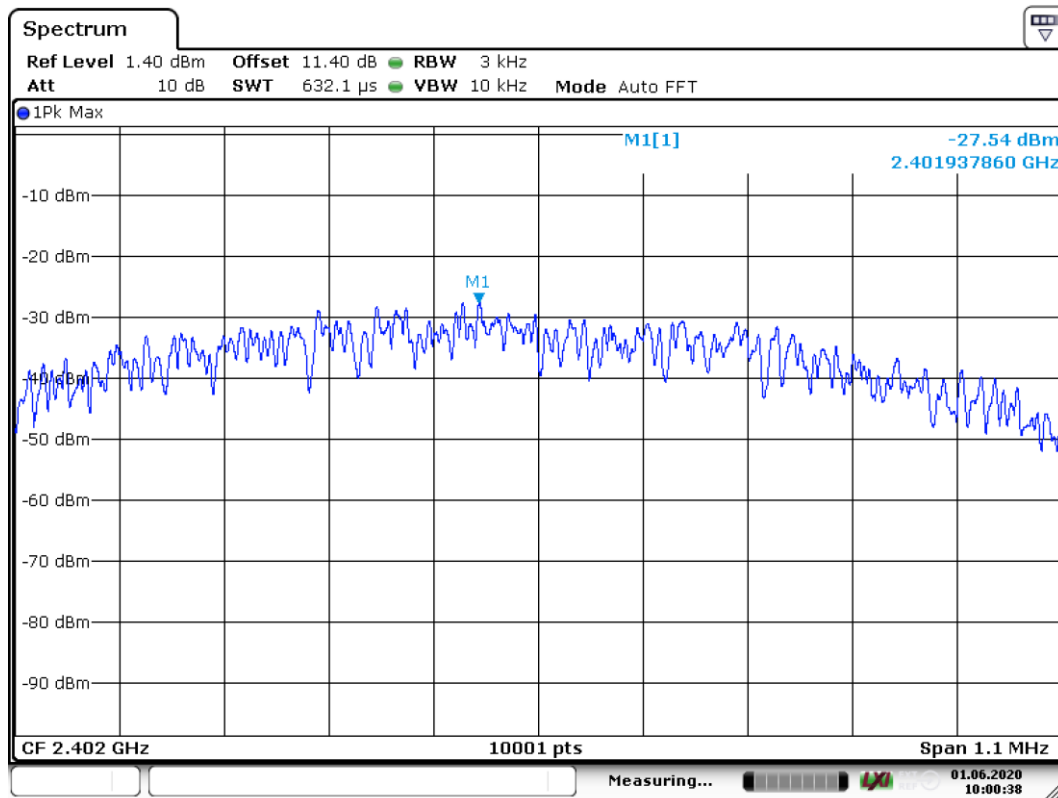
The EUT was set up in order to emit maximum disturbances.

10.3 Requirements

Reference: CFR 47§15.247(3), RSS-247 5.2(2)

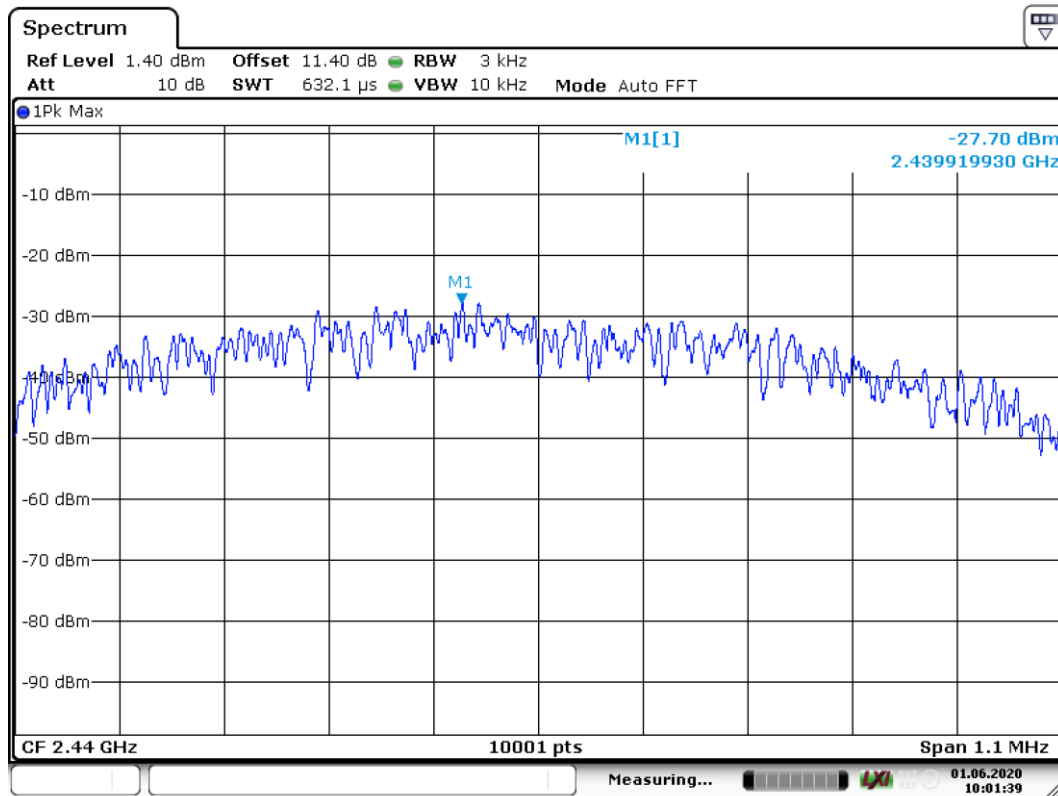
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

10.4 Test results



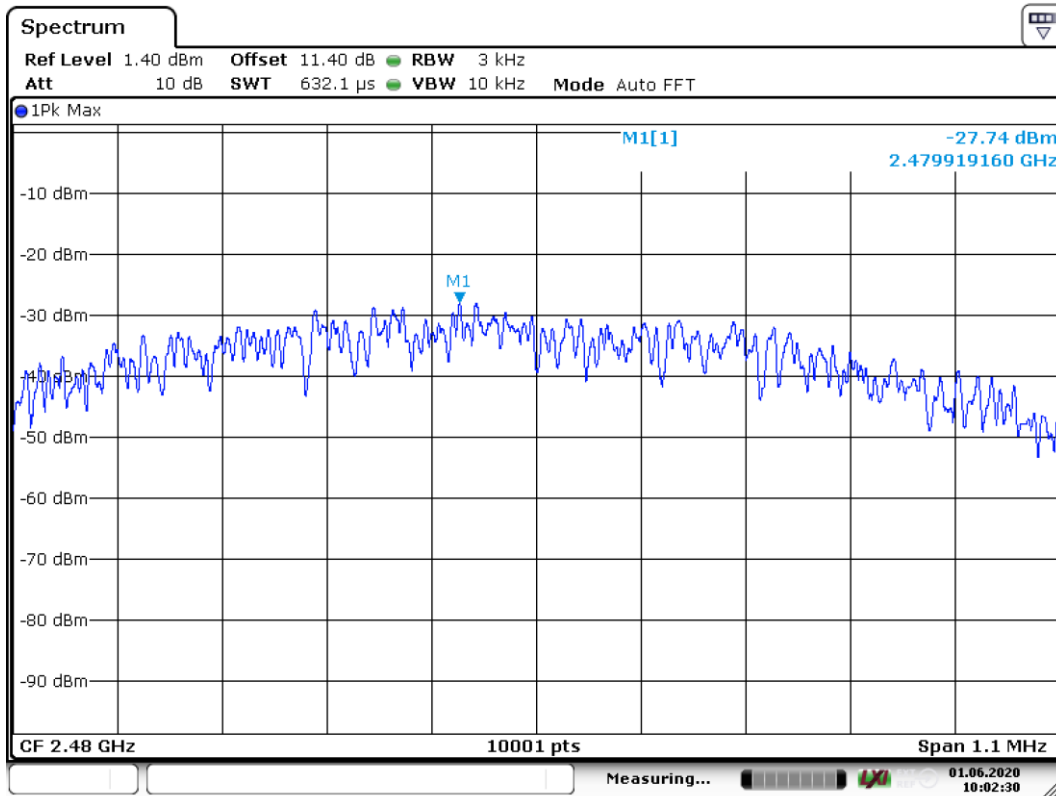
Date: 1.JUN.2020 10:00:38

Screenshot: Peak power spectral density, low channel



Date: 1.JUN.2020 10:01:40

Screenshot: Peak power spectral density, middle channel



Date: 1.JUN.2020 10:02:31

Screenshot: Peak power spectral density, high channel

Test result

Channel [MHz]	PSD [dBm/3kHz]
2402	-27.5
2440	-27.7
2480	-27.7

11 TEST EQUIPMENT

Stora Hallen

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 - 10.35.02	--	--	--
Receiver	Rohde & Schwarz	ESW 44	33890	June-2019	1 year
BiLog antenna	Chase	CBL6110A	971	Sep-2017	3 years
Measurement cable	Rosenberger	(UFB293C) LA5-S003-10000	39163	April-2019	1 year
Measurement cable	Rosenberger	LA5-S003-7000 (UFB293C)	39162	Jan-2020	1 year
Temperature reader	Vaisala	HMI 41	31215	June-2019	1 year

Radiohallen (3m FAC) and Radiolabbet

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 - 10.50.40	--	--	--
Receiver	Rohde & Schwarz	ESU 40	12793	June-2019	1 year
Measurement cable	Megaphase	G916-K1K1-79	9462	July-2018	2 years
Measurement cable	Rosenberger	LU7-S020-4000	39146	Dec-2019	1 year
Measurement cable	Midwest Microwave	MCN-KMKM-46-150-CS	9664	July-2019	1 year
Measurement cable	Huber + Suhner	Sucoflex 104	5191	July-2019	1 year
Horn antenna	EMCO	3115	4936	July-2017	3 year
Pre-amplifier	Sangus	00101400-23-10P -6-S ; AFS44-12002400-32-10P -44	12335	June-2019	1 year
Horn antenna	EMCO	3160-08	30099	Sep-2016	3 years
Horn antenna	EMCO	3160-09	30101	Sep-2016	3 years
2,4 GHz band reject filter:	Wainwright Instr. GmbH	WRCGV10-2381-2401-2479-2499-40SS	33938	Oct-2019	1 year
4 GHz high pass filter	K&L MICROWAVE INC	4410-X4500/18000 -0/0	5133	Aug-2019	1 year
10 dB Attenuator:	Huber+Suhner	5910_N-50-010	32696	Apr-2019	1 year
Temperature reader	Vaisala	HM 40	32879	Aug-2019	1 year

12 MEASUREMENT UNCERTAINTY

Continuous conducted disturbances with AMN in the frequency range 9 kHz to 30 MHz ± 3.7 dB

Measurement uncertainty for radiated disturbance

Uncertainty for the frequency range 30 to 1000 MHz at 10 m	± 5.0 dB
Uncertainty for the frequency range 1.0 to 18 GHz at 3 m	± 4.7 dB
Uncertainty for the frequency range 18 to 26 GHz at 3 m	± 4.8 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2011.

The measurement uncertainty is given with a confidence of 95 %.

13 TEST SET UP AND EUT PHOTOS

EUT photos are in separate document 2010320STO-304.

Test set up photos are in separate document 2010320STO-305.