RADIO TEST REPORT

No. 1808371STO-002, Ed. 2

RF Performance

EQUIPMENT UNDER TEST

Equipment:	Rechargeable Li-Ion Battery with BLE
Type/Model:	BLi 200C
Manufacturer:	Husqvarna AB
Additional type/model*:	BLi100C, BLi300C
Tested by request of:	Husqvarna AB

*See opinions and interpretations clause 2.5

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 (2016): Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15 (2016): Subpart B: Unintentional radiators

RSS-GEN Issue 4 (2014): General requirements of compliance of radio apparatus (2014)

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: 2018-07-02

Tested by: Per Larsson — Per Larsson

Approved by: Stefan Andersson — Stefan Andersson

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Revision History

Edition	Date	Description	Changes
1	2018-05-07	First release	
	2018-07-02	Second release	Added additional models. Corrected typo errors for antenna calibration and chamber name.

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1 CLIENT INFORMATION

The EUT has been tested by request of

Company	Husqvarna AB Drottninggatan 2 SE-561 82 Huskvarna Sweden
Name of contact	Andreas Birgersson Phone +46 73 917 59 19
Client observer	Andreas Birgersson

2 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment:	Rechargeable Li-Ion Battery with BLE
Type/Model:	BLi 200C
Brand name:	Husqvarna AB
Serial number:	20181033893
Manufacturer:	Husqvarna AB

Transmitter frequency range:	2402 – 2480 MHz
Receiver frequency range:	2402 – 2480 MHz

Frequency agile or hopping:	☐ Yes	☒ No
Antenna:	☒ Internal antenna	☐ External antenna
Antenna connector:	☒ None, internal antenna	☐ Yes,
Antenna gain:	3.3 dBi	
Rating RF output power:	0 dBm (measured conducted)	
Type of modulation:	BLE	
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: <-10°C to +40°C	
Transmitter stand by mode supported:	☐ Yes	☒ No

2.2 Additional information about the EUT

The EUT consists of the following units:

Unit	Type	Serial number
Rechargeable Li-Ion Battery with BLE	BLi 200C	20181033893

The EUT was tested with the following cables:

Port:	Type:	Length: [m]	Specifications:
USB to serial converter	DC port connection	1.5	USB to serial

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	Manufacturer
USB to serial converter	PCM 200-009-03-AV1	BMZ

2.4 Test signals and operation modes

Continuous signal BLE.

2.5 Opinions and interpretations

The following types are also included as additional types in this report:
BLi100C and BLi300C.
The differences as compared to the tested type are (according to the manufacturer):
BLi100C, BLi200C and BLi300C use the same type of PCB and radio but have different battery capacity (i.e: number of parallel cells) and have minor mechanical differences.

Capacity differences are as followed;
BLi100C 2.6 Ah, BLi200C 5.2 Ah and BLi300C 9.4 Ah.

The difference is considered not to imply different Radio-characteristics when compared to the tested type. Therefore, these types are not tested, but considered to have the same Radio-characteristics as the tested type.

2.6 Modifications made to improve EMC-characteristics

No modifications made.

3 TEST SPECIFICATIONS

3.1 Standards

Requirements:

47 CFR Part 15 (2016): Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15 (2016): Subpart B: Unintentional radiators

RSS-GEN Issue 4 (2014): General requirements of compliance of radio apparatus (2014).

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

RSS-GEN Issue 4 (2014) and RSS-247 Issue 2 (2017) are not within Intertek's scope of accreditation.

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

3.3 Test site

Measurements were performed at:

Intertek Semko AB.
Torshamnsgatan 43,
P.O. 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

Measurement chambers

Measurement Chamber	Type of chamber	IC Site filing #
Radio chamber 3mFAC	FAR	2042G-4
BJÖRKHALLEN / 3mSAC	Semi-anechoic 3 m	2042G-1

4 TEST SUMMARY

The results in this report apply only to sample tested:

Requirement	Description	Result
FCC §15.203 **RSS-GEN 8.3**	**Antenna requirement**	**PASS**
	The EUT has integrated non detachable antenna which can't be remove without breaking the EUT.	
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**	**NA**
	Battery operated equipment.	
FCC §15.247 (b)(4) **RSS-247 5.4(4), 5.4(5)**	**Field strength of fundamental and antenna gain**	**PASS**
	The EUT complies with the limits. Antenna gain is less than 6 dBi.	
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**	**PASS**
	The EUT complies with the limits. The margin to the limit was more than 20 dB. See clause 6.4 – 6.5.	
FCC §15.247(d), 15.209(a) **RSS-GEN 8.9** **RSS-247 5.5**	**Radiated emission of electromagnetic fields in the frequency range above 1 GHz**	**PASS**
	The EUT complies with the limits. The margin to the limit was at least 10.5 dB at 7211.5 GHz. See clause 6.6 – 6.7.	
FCC §15.247(a)(2) **RSS-GEN 6.6** **RSS-247 5.2(1)**	**Occupied bandwidth**	**PASS**
	The EUT complies with the limits. The margin to the limit is at least 0.218 MHz See clause 9.4 and 10.	
FCC §15.247(b) **RSS-247 5.4(4)**	**Conducted output power**	**PASS**
	The EUT complies with the limits. The margin to the limit was more than 10 dB. See clause 8.4.	
FCC §15.247(e) **RSS-247 5.2(2)**	**Peak power spectral density**	**PASS**
	The EUT complies with the limits. The margin to the limit was more than 10 dB. See clause 11.4.	
FCC §15.247(e) **RSS-247 5.5**	**Band edge**	**PASS**
	The EUT complies with the limits. The margin to the limit was more than 20 dB. See clause 5.4.	

5 RADIATED BAND EDGE

Date of test:	2018-03-29	**Test location:**	Radio chamber
EUT Serial:	20181033893	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	>20 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 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 and average detector was activated.
Portable device: Pre scan was made in three orthogonal EUT orientations.

EUT was evaluated in three orthogonal orientations.

5.2 Test conditions

Test set-up:	**1 GHz –4 GHz**		
Test receiver set-up:			
Preview test:	Peak,	RBW 1 MHz	VBW 3 MHz
Final test:	Peak,	RBW 1 MHz	VBW 3 MHz
	Average	Peak value + 20 x LOG (Duty cycle) / RBW 1	
MHz. VBW 3 MHz			
Measuring distance:	3 m		
Measuring angle:	0 – 359°		
Antenna			
Height above ground plane:	1 – 4 m		
Polarisation:	Vertical and Horizontal		
Type:	Horn		
Antenna tilt:	Activated		

5.3 Requirement

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

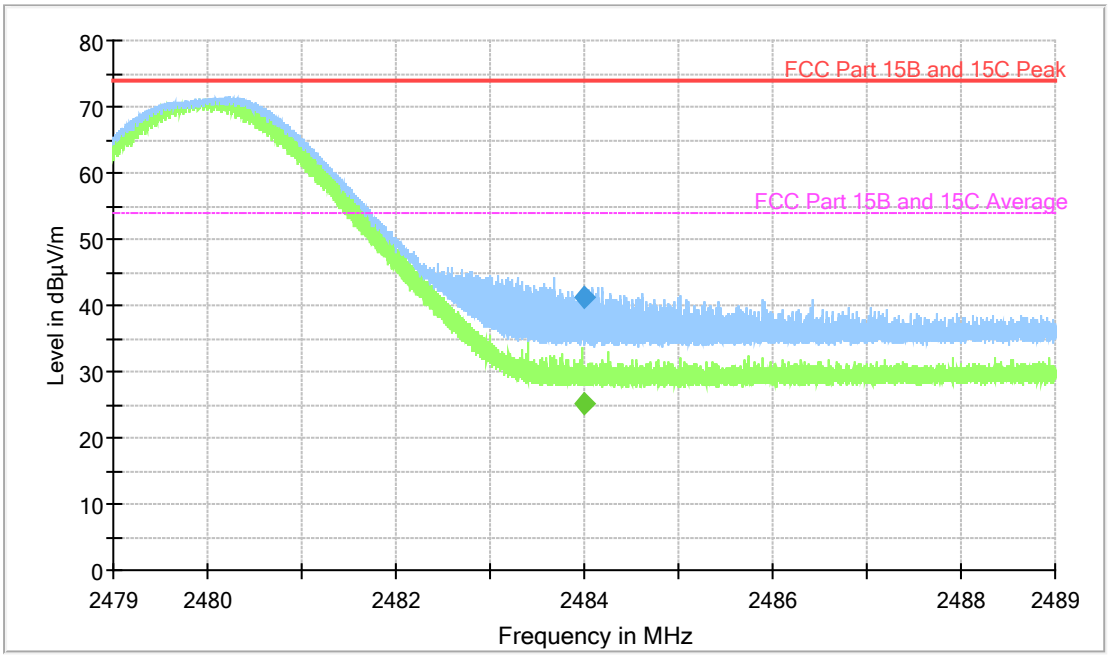
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either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

Within restricted bands:
Reference: CFR 47 §15.209, 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

5.4 Test results



Upper band edge sweep

6 RADIATED RF EMISSION IN THE FREQUENCY-RANGE 30 MHZ TO 26.5 GHZ

Date of test:	2018-03-29	**Test location:**	Björkhallen and Radio chamber
EUT Serial:	20181033893	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
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.
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.

6.2 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:	3 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	Peak value + 20 x LOG (Duty cycle) / 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 – 4 m		
Polarisation:	Vertical and Horizontal		
Type:	Horn		
Antenna tilt:	Activated		

6.3 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

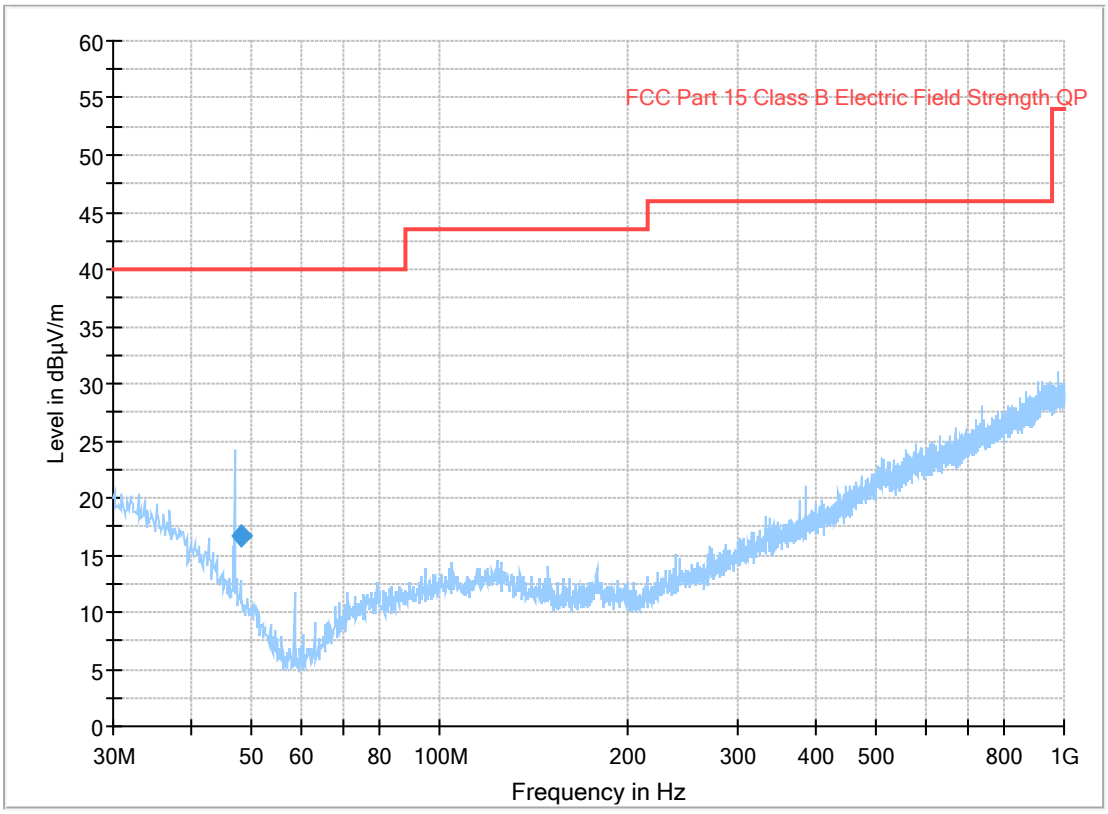
The values for 10 m measuring distance are calculated by subtracting 10.5 dB from the 3 m limit.
(i.e. an extrapolation factor of 20 dB/decade according to CFR 47 §15.31(f)(1))

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

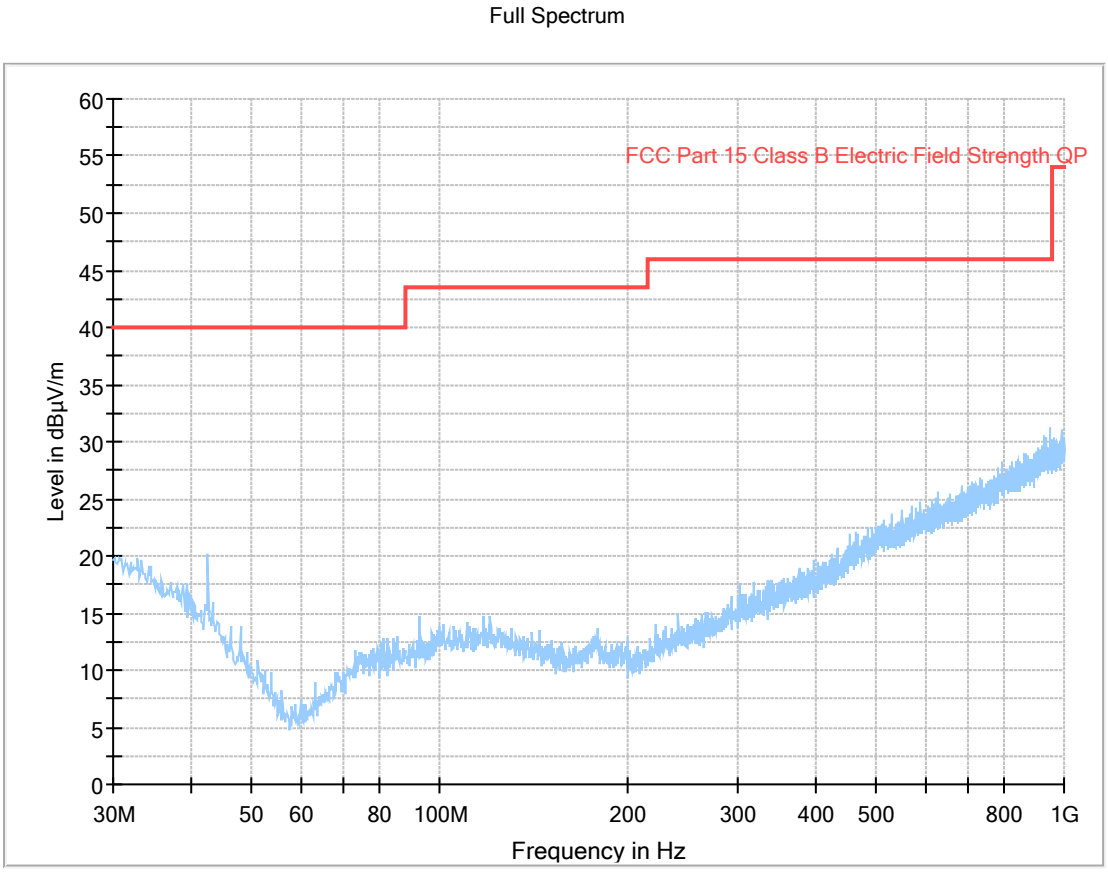
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either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

6.4 Test results 30 MHz – 1000 MHz, TX

Full Spectrum

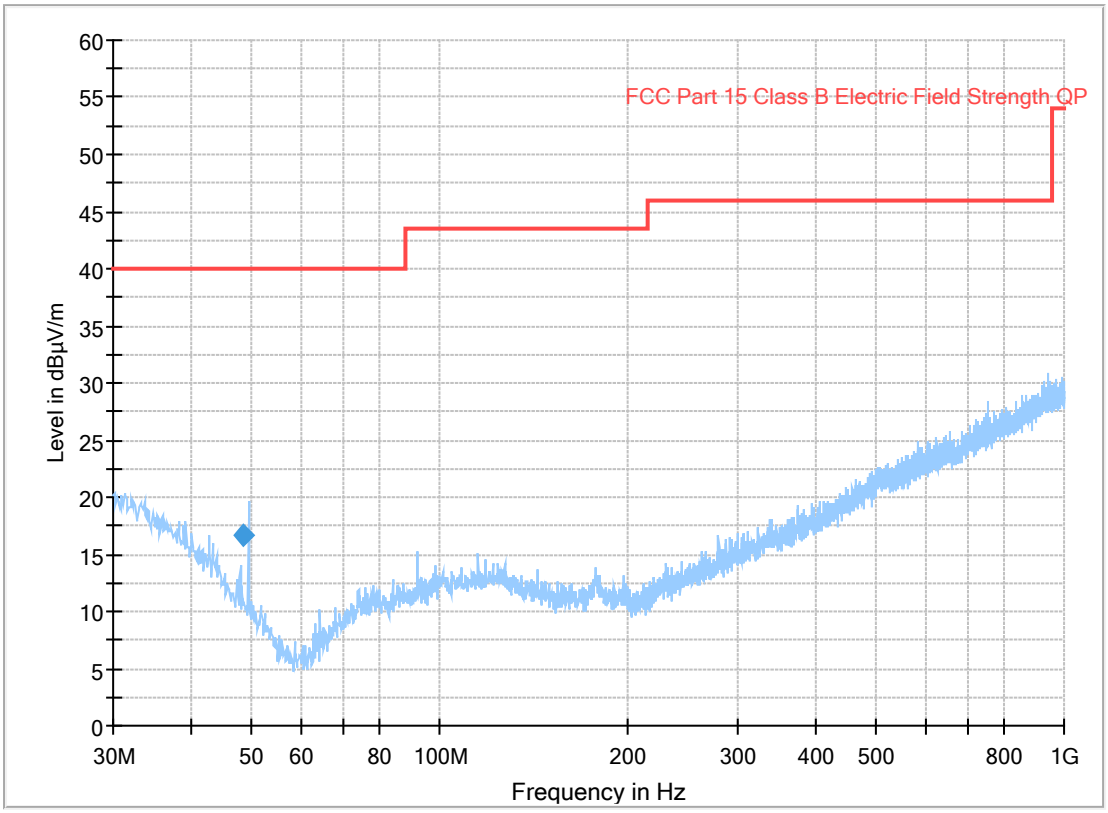


Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. TX low channel



Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. TX mid channel

Full Spectrum



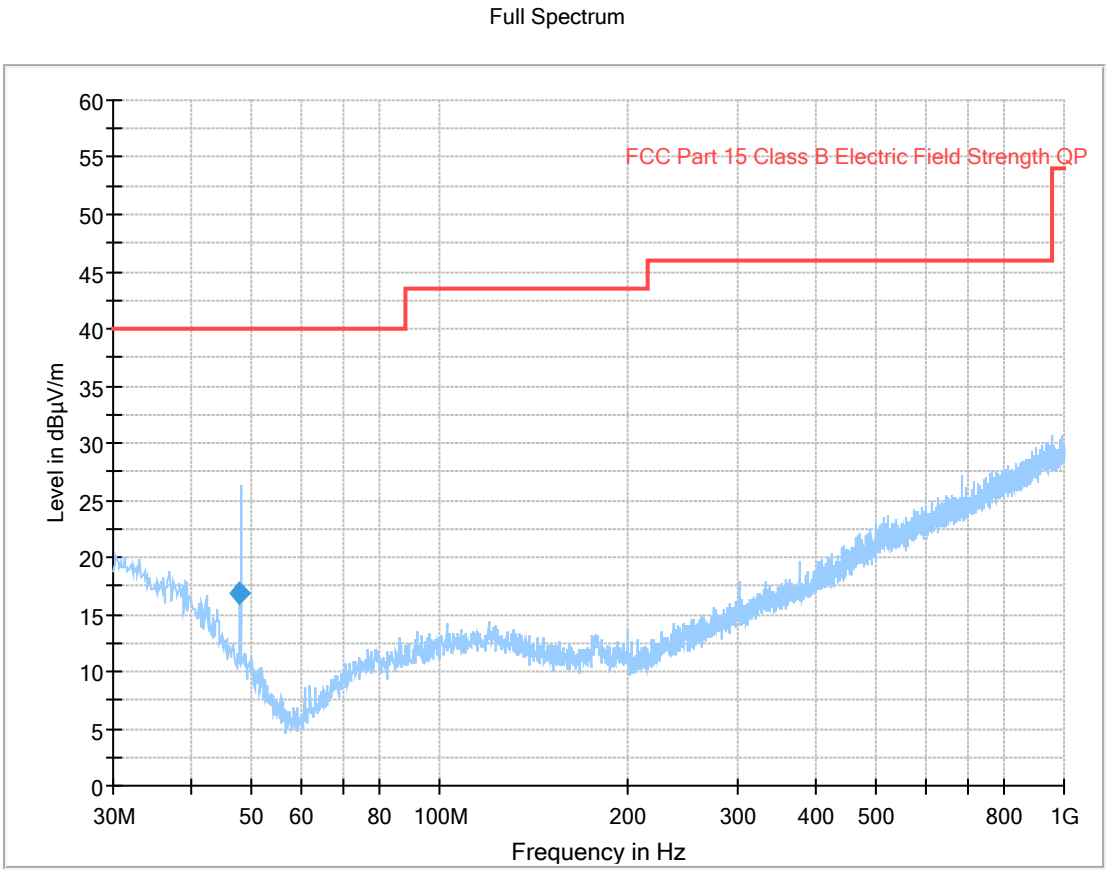
Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. TX high channel

Measurement results, Quasi Peak

All disturbances have a margin of more than 20 dB to the limits.

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

6.5 Test results 30 MHz – 1000 MHz, RX



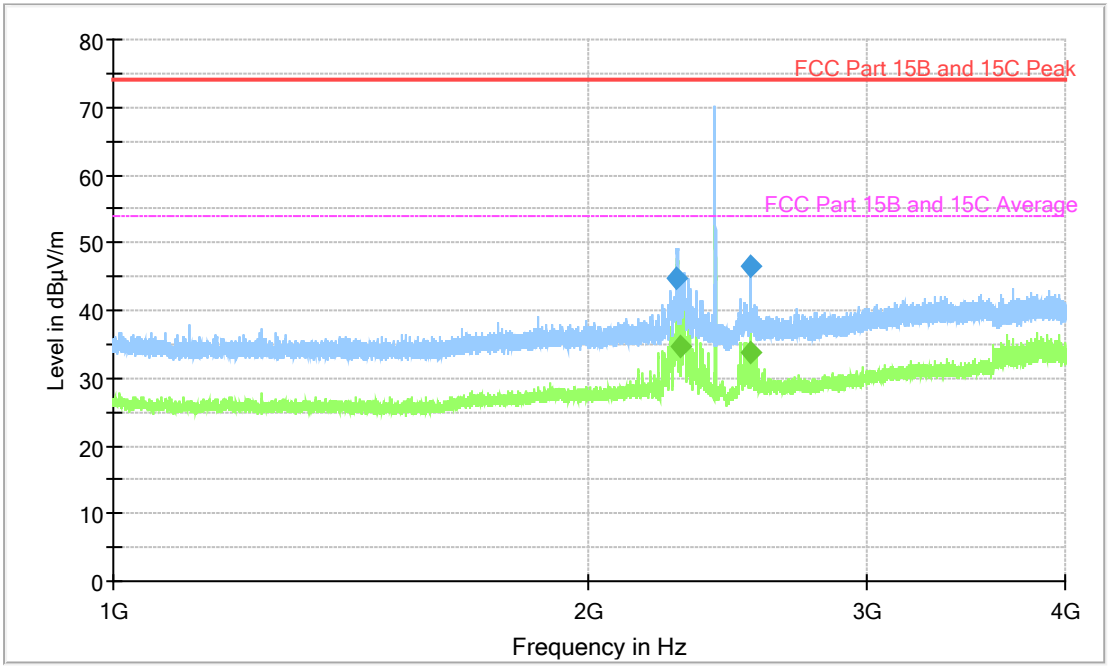
Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. RX high channel

Measurement results, Quasi Peak

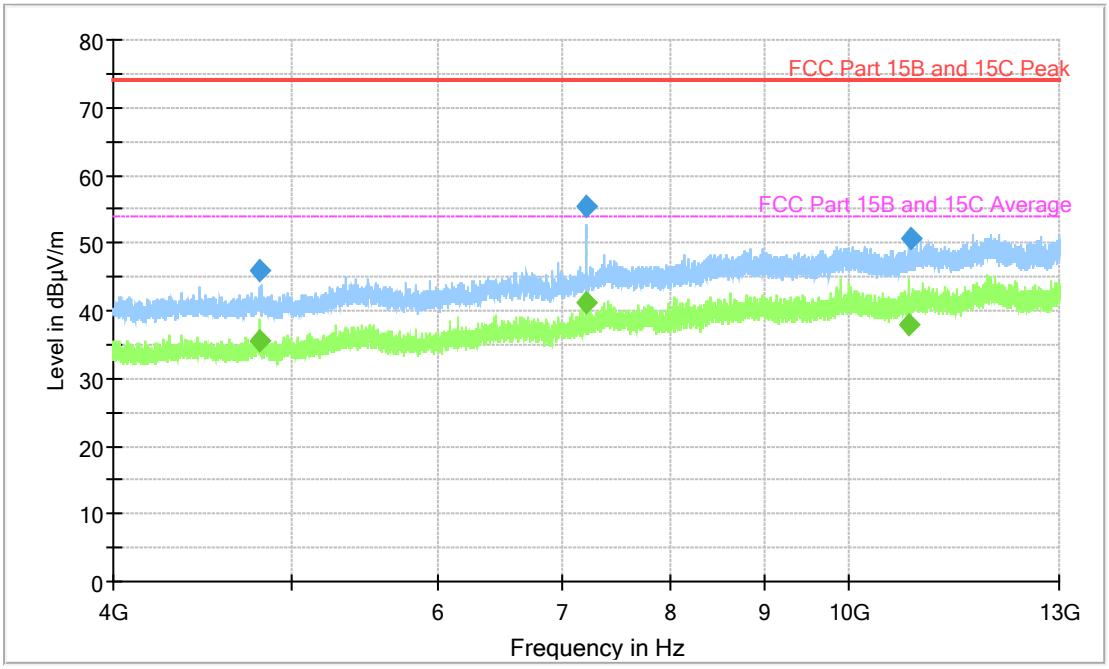
No emissions are found above noise floor or closer than 20 dB from limit.

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

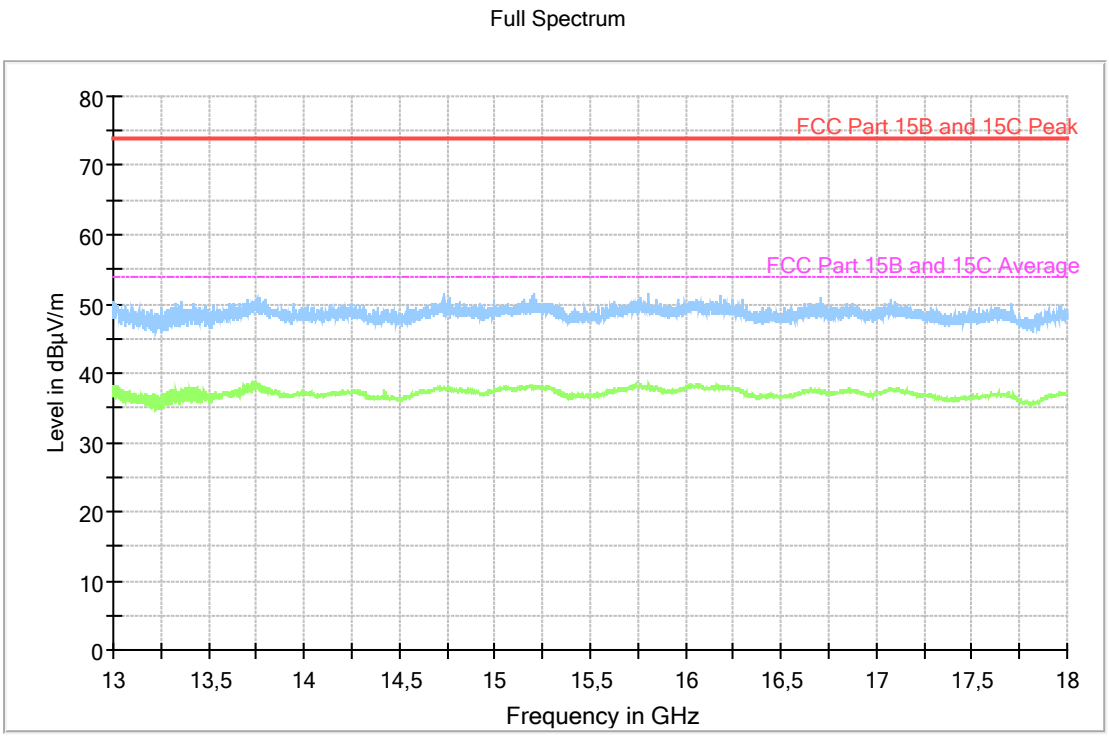
6.6 Test results 1 GHz – 26.5 GHz, TX



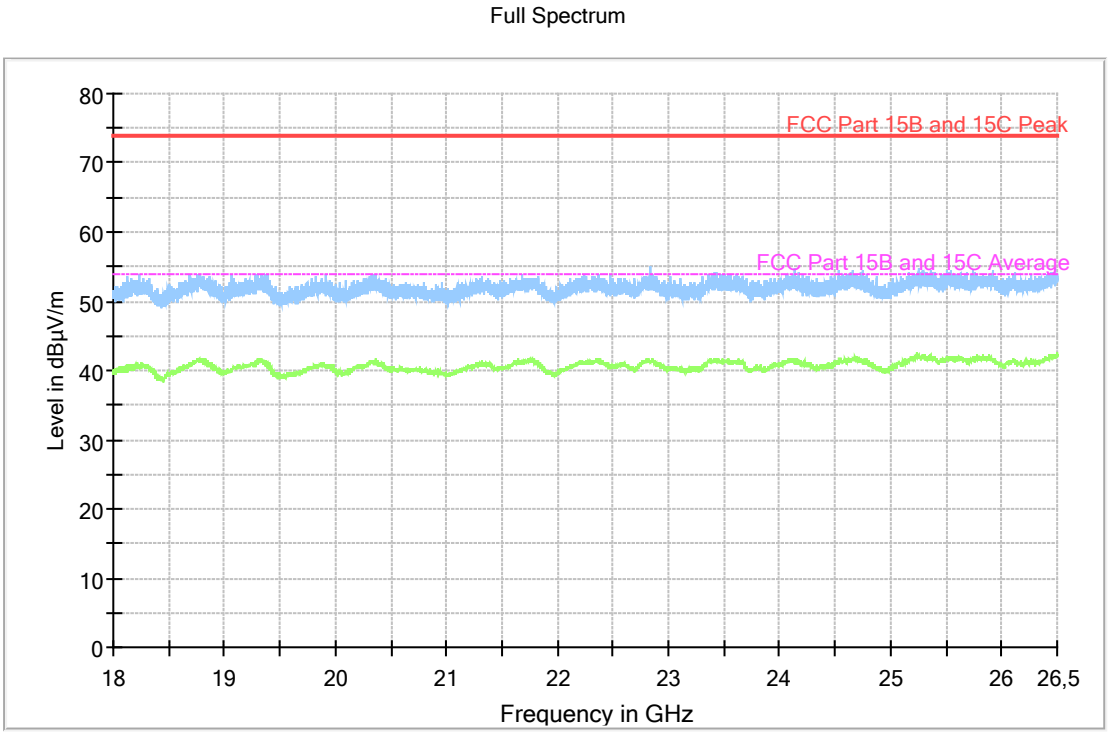
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX low channel,. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.



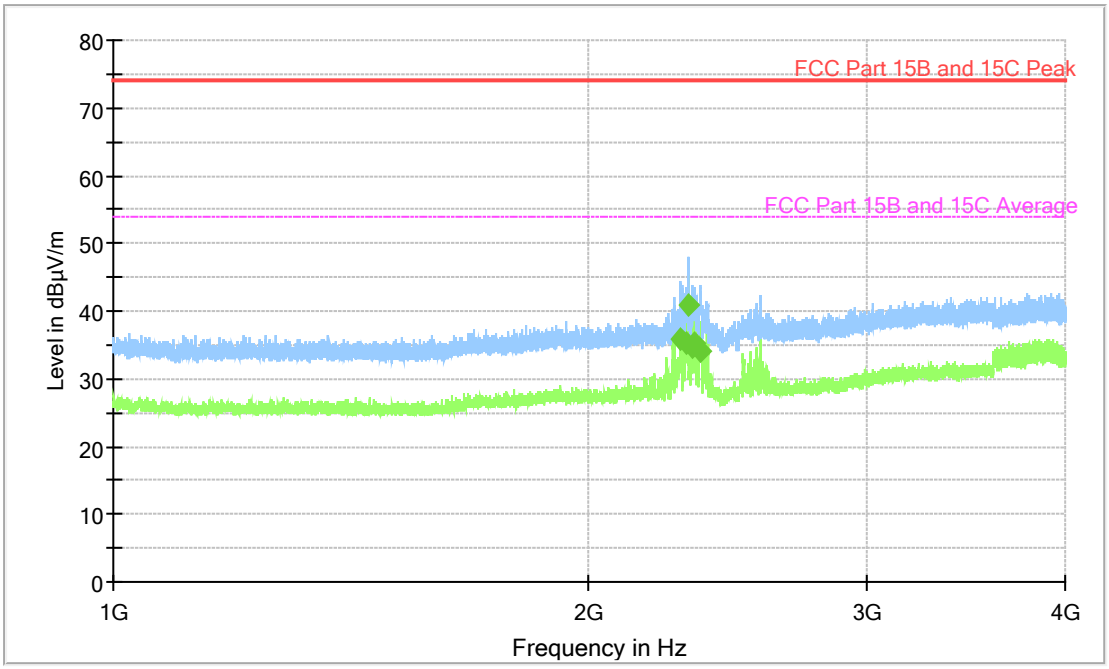
Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX low channel,. Emissions below 4000 MHz are attenuated by high-pass filter K&L 4410-X4500/18000-0.



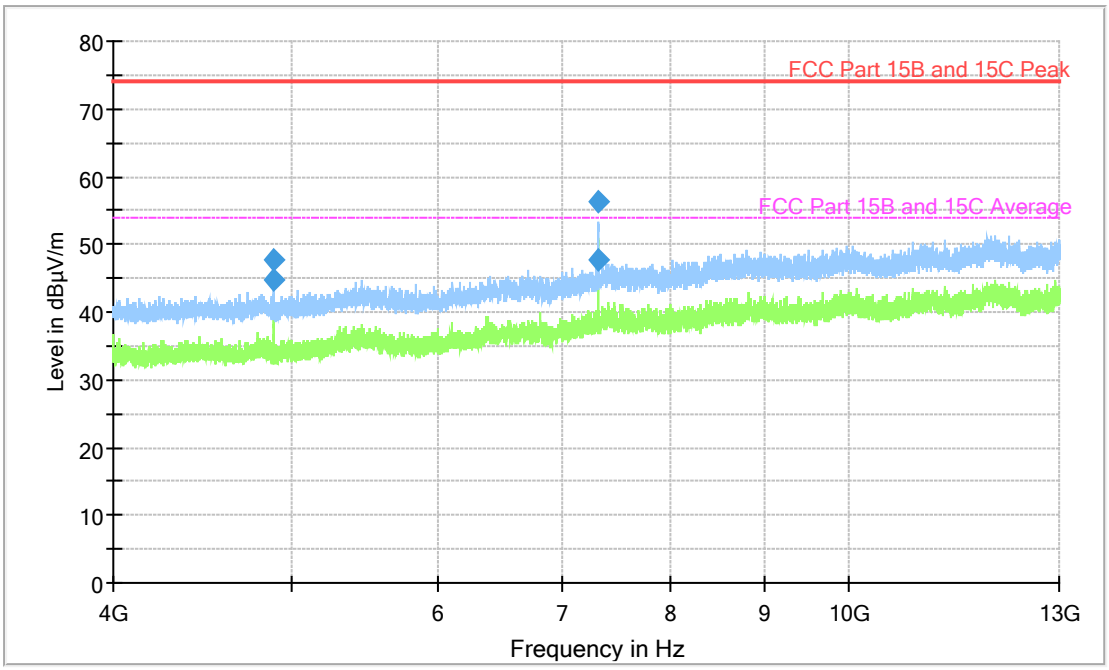
Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX low channel



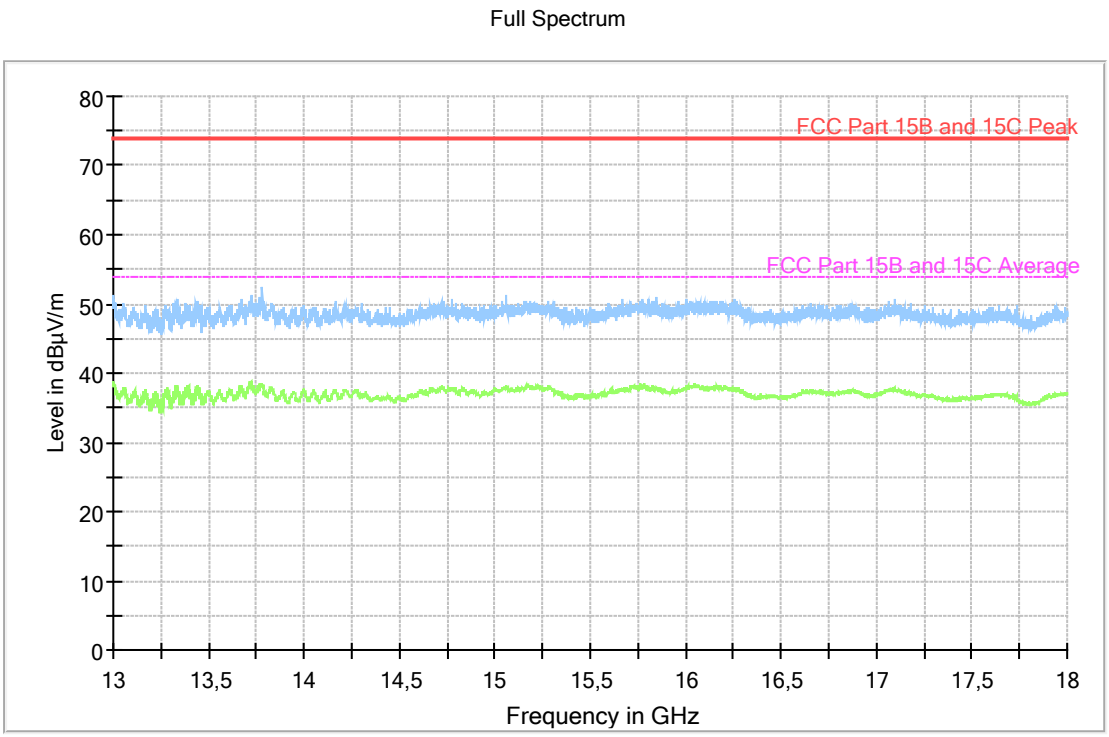
Diagram, Peak overview sweep, 18 -26.5 GHz at 3 m distance. TX low channel



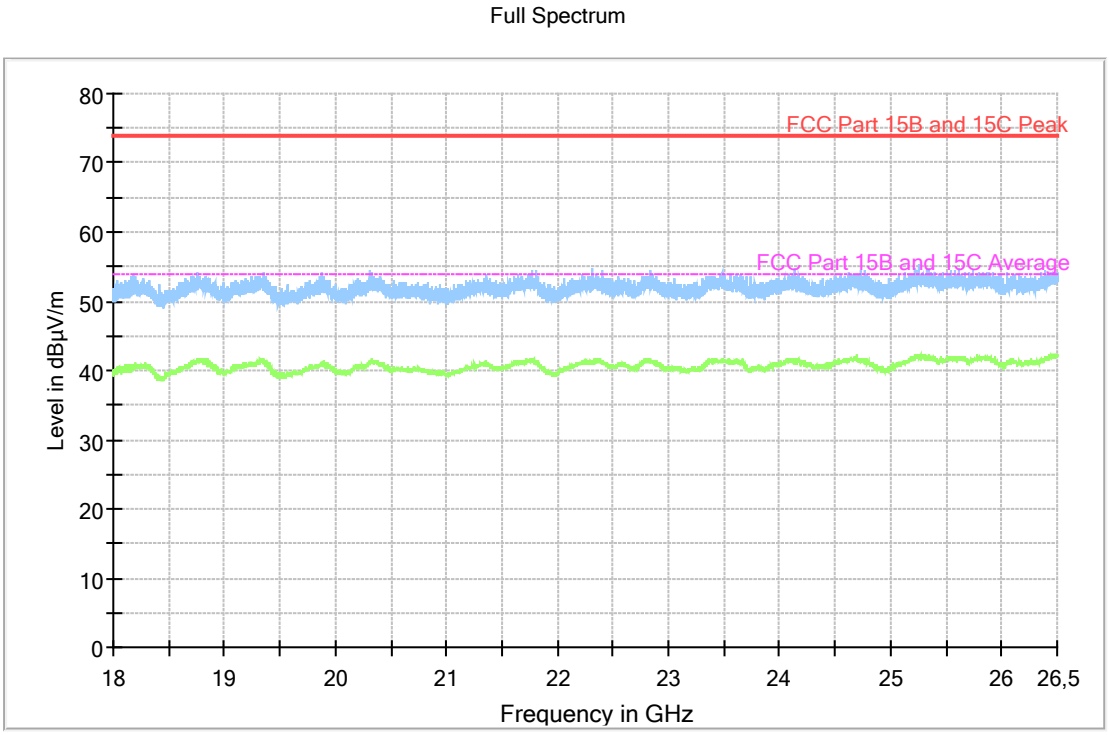
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX mid channel,. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.



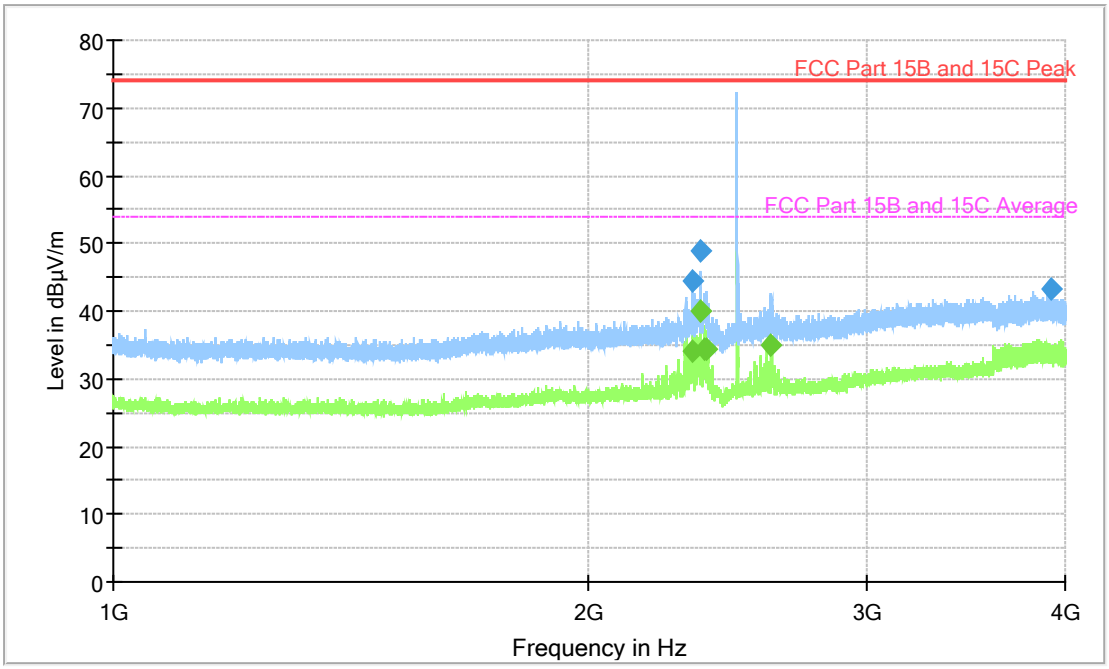
Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX mid channel,. Emissions below 4000 MHz are attenuated by high-pass filter K&L 4410-X4500/18000-0.



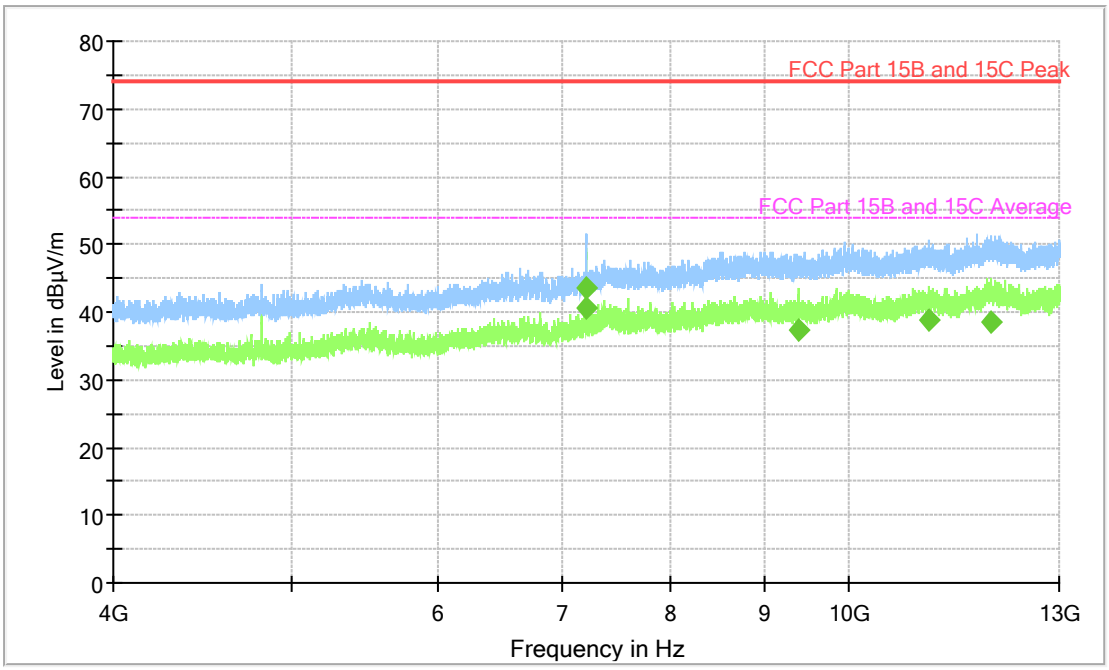
Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX mid channel



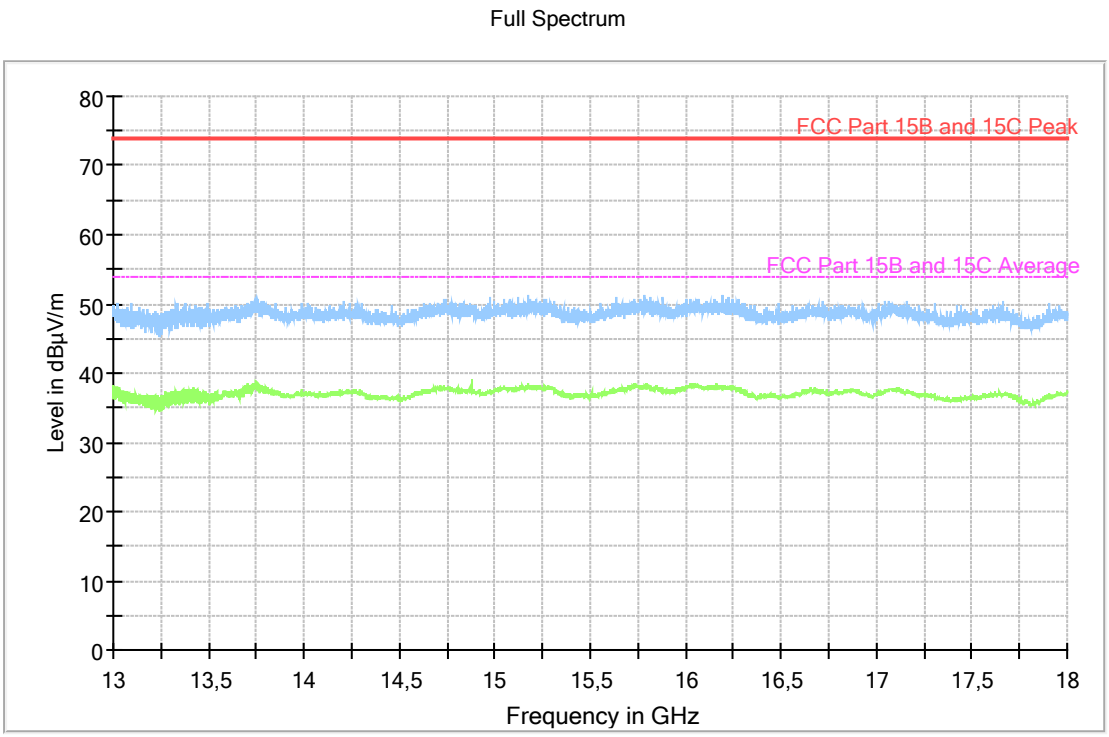
Diagram, Peak overview sweep, 18 -26.5 GHz at 3 m distance. TX mid channel



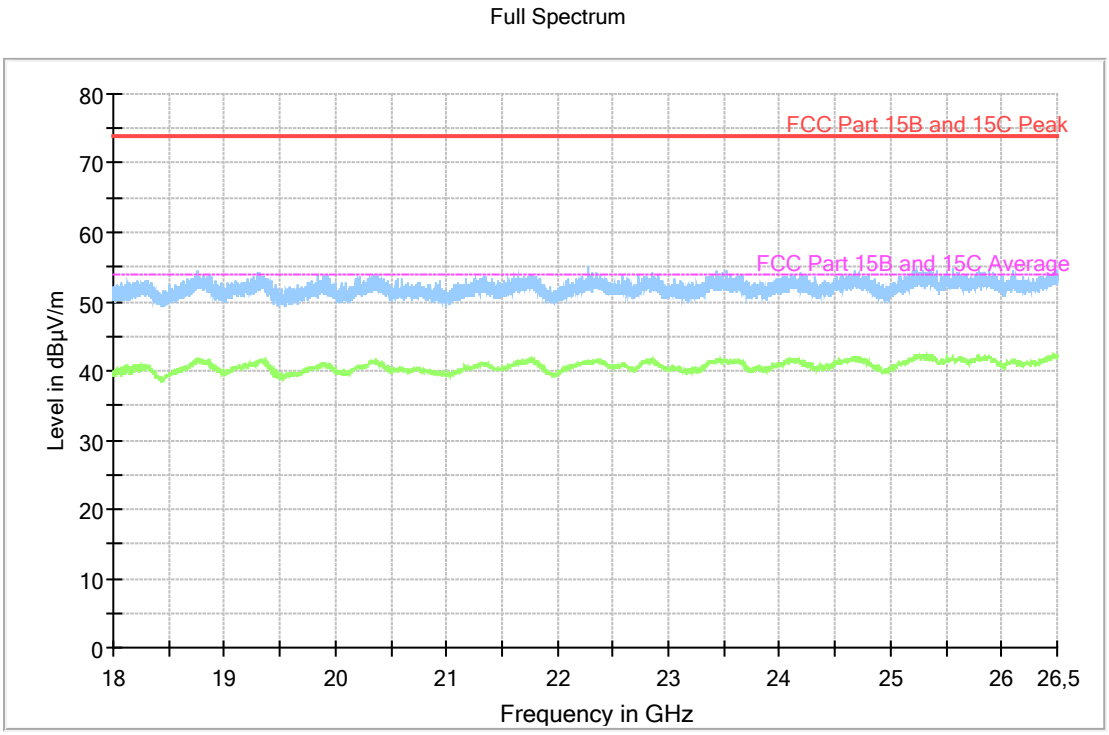
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX high channel. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.



Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. TX high channel,. Emissions below 4000 MHz are attenuated by high-pass filter K&L 4410-X4500/18000-0.



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



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

Measurement results, Peak, TX low channel

All measured results have a margin to the limit of more than 20 dB.

Measurement results, Average, TX low channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
2286.8	34.5	54.0	H	19.5
4803.7	35.6	54.0	H	18.4
7207.0	41.2	54.0	H	12.8
10789.9	37.8	54.0	H	16.2

Measurement results, Peak, TX middle channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
7320.6	47.7	74.0	V	26.3

Measurement results. Average. TX mid channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
2286.9	36.0	54.0	H	18.0
2302.2	35.1	54.0	H	18.9
2312.3	40.9	54.0	H	13.2
2326.1	34.6	54.0	H	19.4
2329.0	35.4	54.0	H	18.7
2351.3	34.2	54.0	H	19.8

Measurement results, Peak, TX high channel

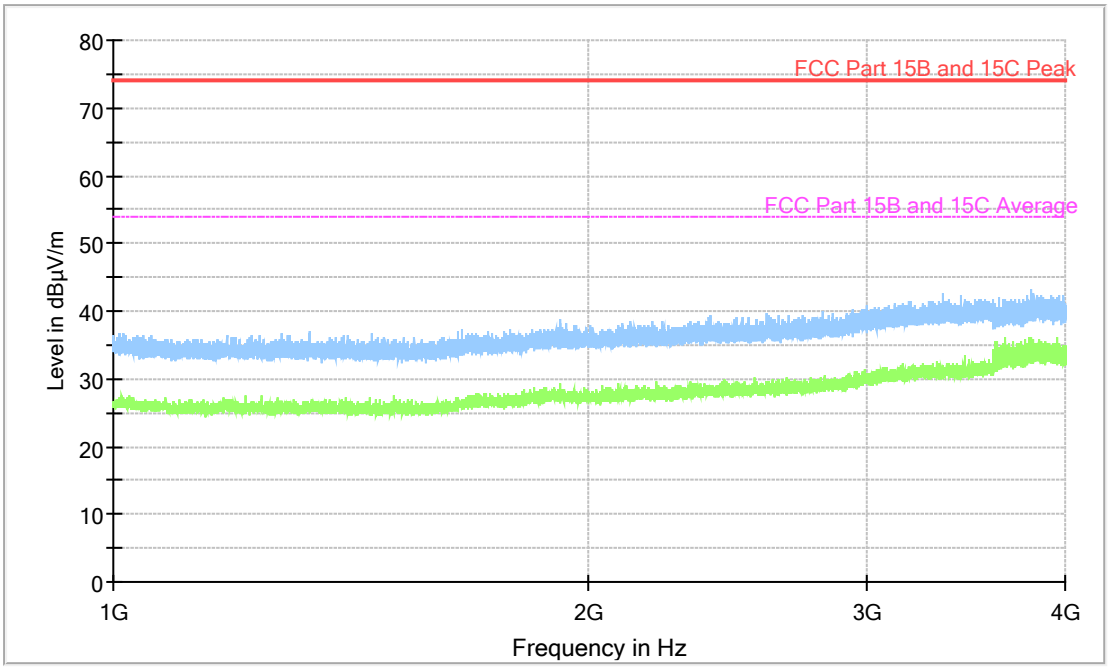
All disturbances have a margin to the limit of more than 20 dB.

Measurement results, Average, TX high channel

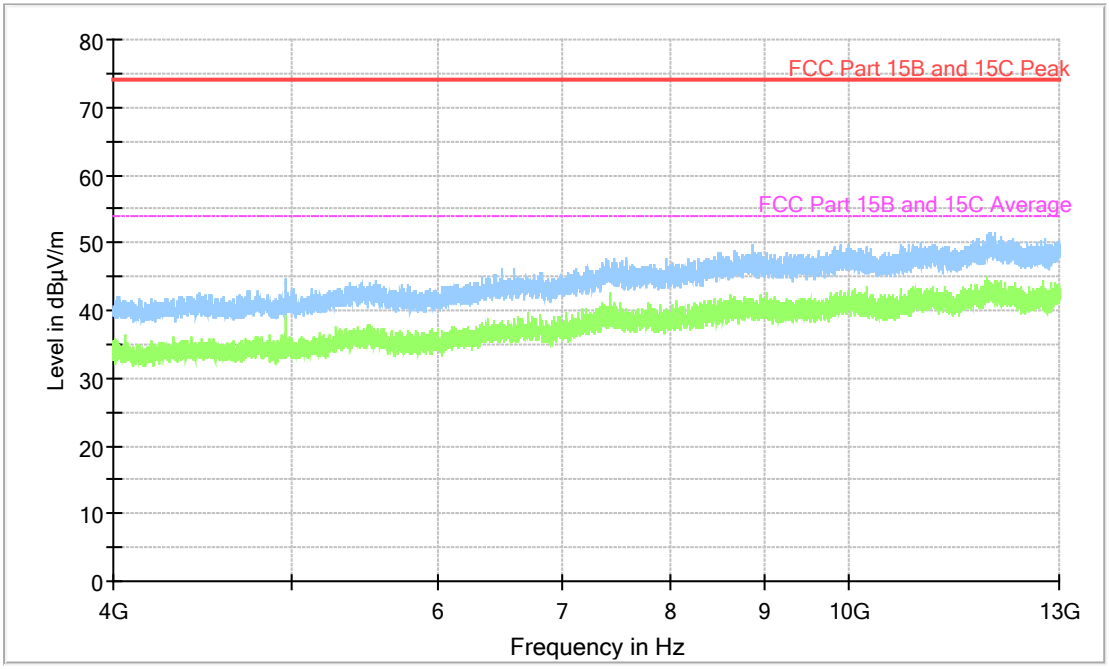
Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
2327.3	34.1	54.0	H	19.9
2351.9	40.1	54.0	H	13.9
2365.3	34.4	54.0	H	19.6
2369.0	34.5	54.0	H	19.5
2607.8	34.9	54.0	V	19.1
2327.3	34.1	54.0	H	19.9
7210.9	40.5	54.0	H	13.5
7211.5	43.5	54.0	V	10.5
9395.8	37.3	54.0	H	16.7
11050.6	38.8	54.0	H	15.2
11951.2	38.4	54.0	V	15.6

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

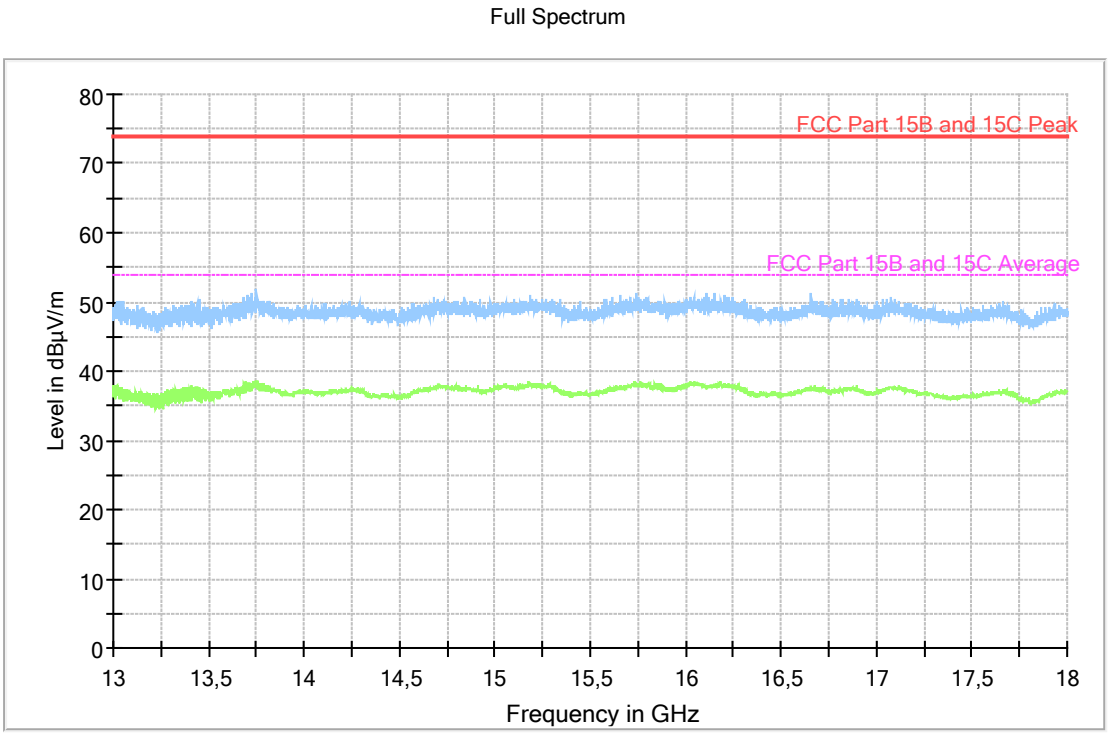
6.7 Test results 1 GHz – 26.5 GHz, RX



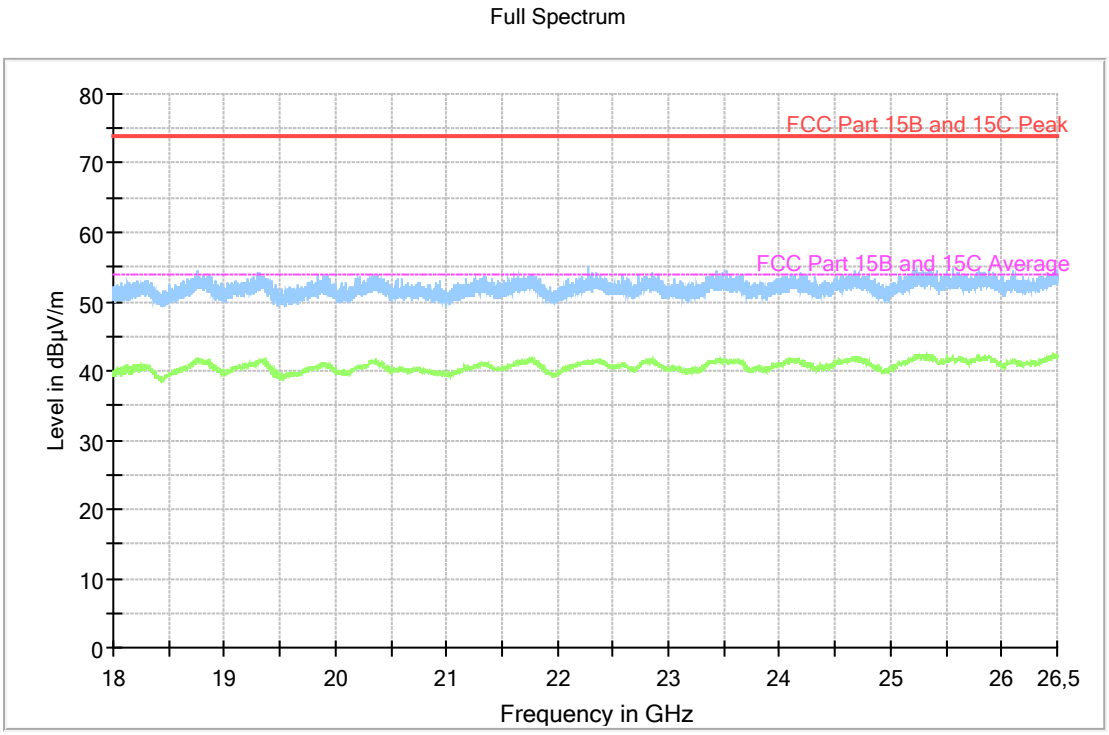
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. RXCarrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.



Diagram, Peak overview sweep, 4– 13 GHz at 3 m distance. RX Emissions below 4000 MHz are attenuated by high-pass filter K&L 4410-X4500/18000-0.



Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. RX



Diagram, Peak overview sweep, 18 – 26.5 GHz at 3 m distance, RX

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

7 CONDUCTED BAND EDGE MEASUREMENT

Date of test:	2018-04-12	**Test location:**	Radio
EUT Serial:	07/18	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	>20 dB

7.1 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.

7.2 Test conditions

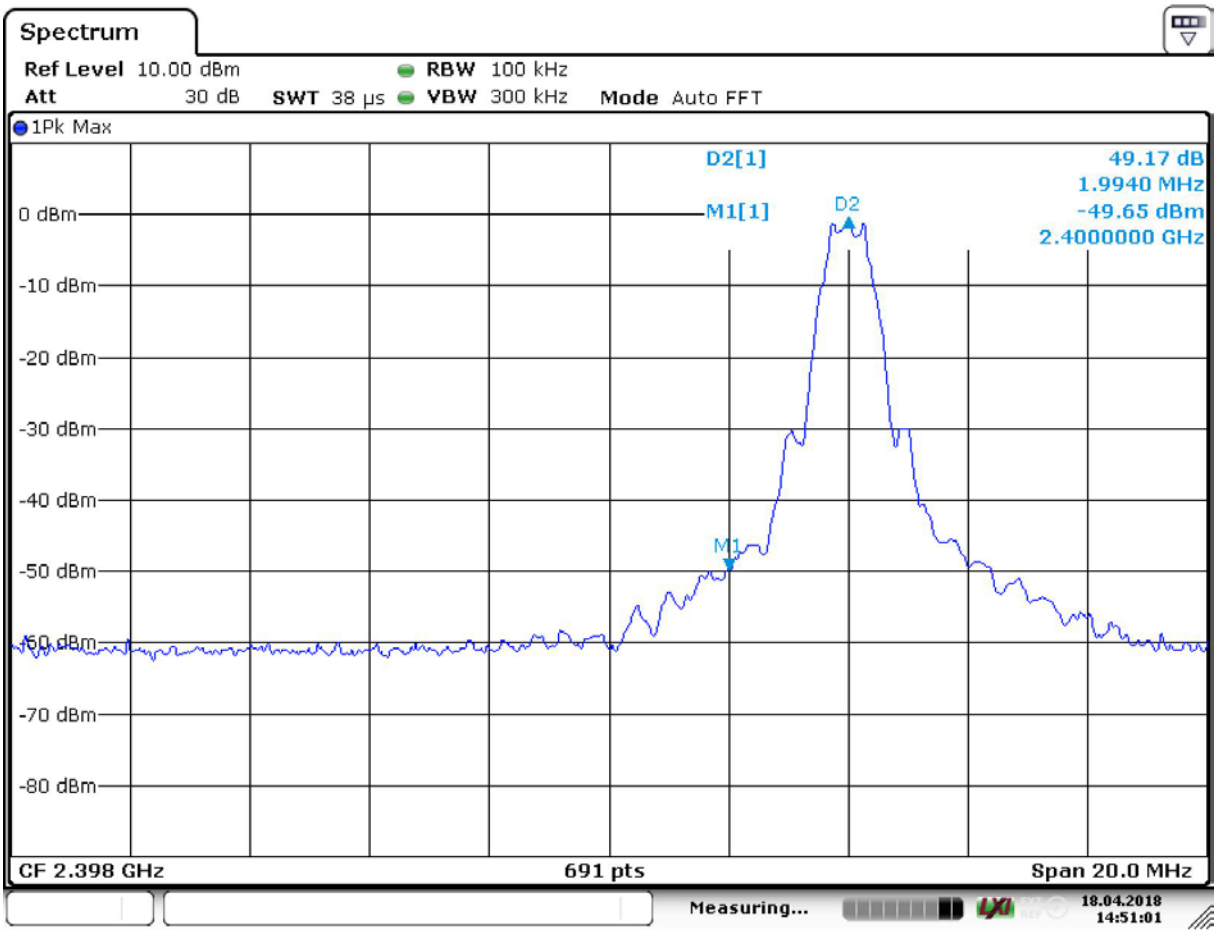
Detector: Peak,
RBW: 100 kHz
VBW: 300 kHz
Span: 20 MHz

7.3 Requirement

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

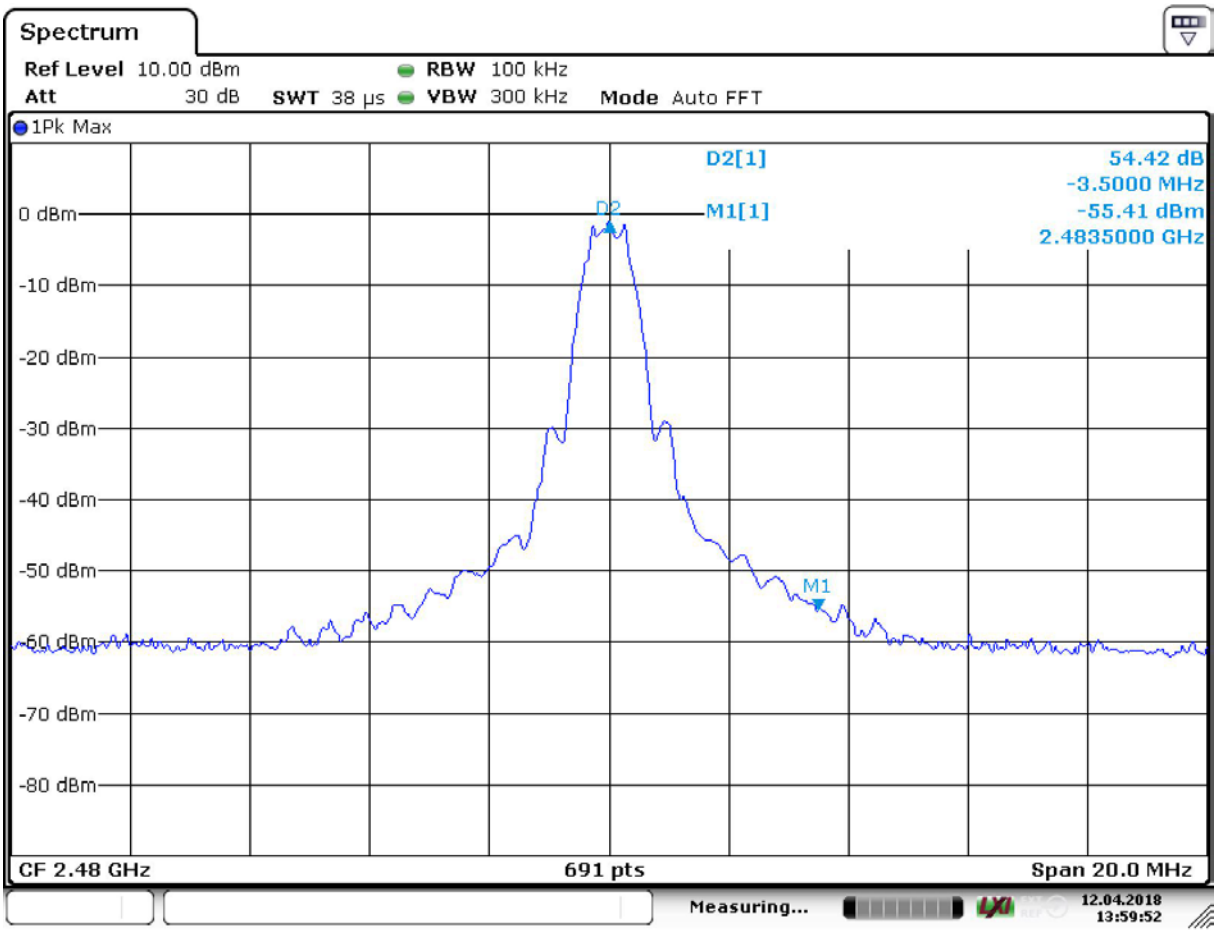
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either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

7.4 Test results



Date: 18.APR.2018 14:51:01

Screenshot: Lower band edge sweep, single channel



Date: 12.APR.2018 13:59:53

Screenshot: Upper band edge sweep, single channel

Test results

Band edge	Delta [dBc]	Limit [dBc]	Margin [dB]
Lower	49.2	20.0	>20.0
Upper	54.4	20.0	>20.0

8 PEAK CONDUCTED OUTPUT POWER

Date of test:	2018-04-12	**Test location:**	Radio
EUT Serial:	07/18	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	>20 dB

8.1 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.

8.2 Test conditions

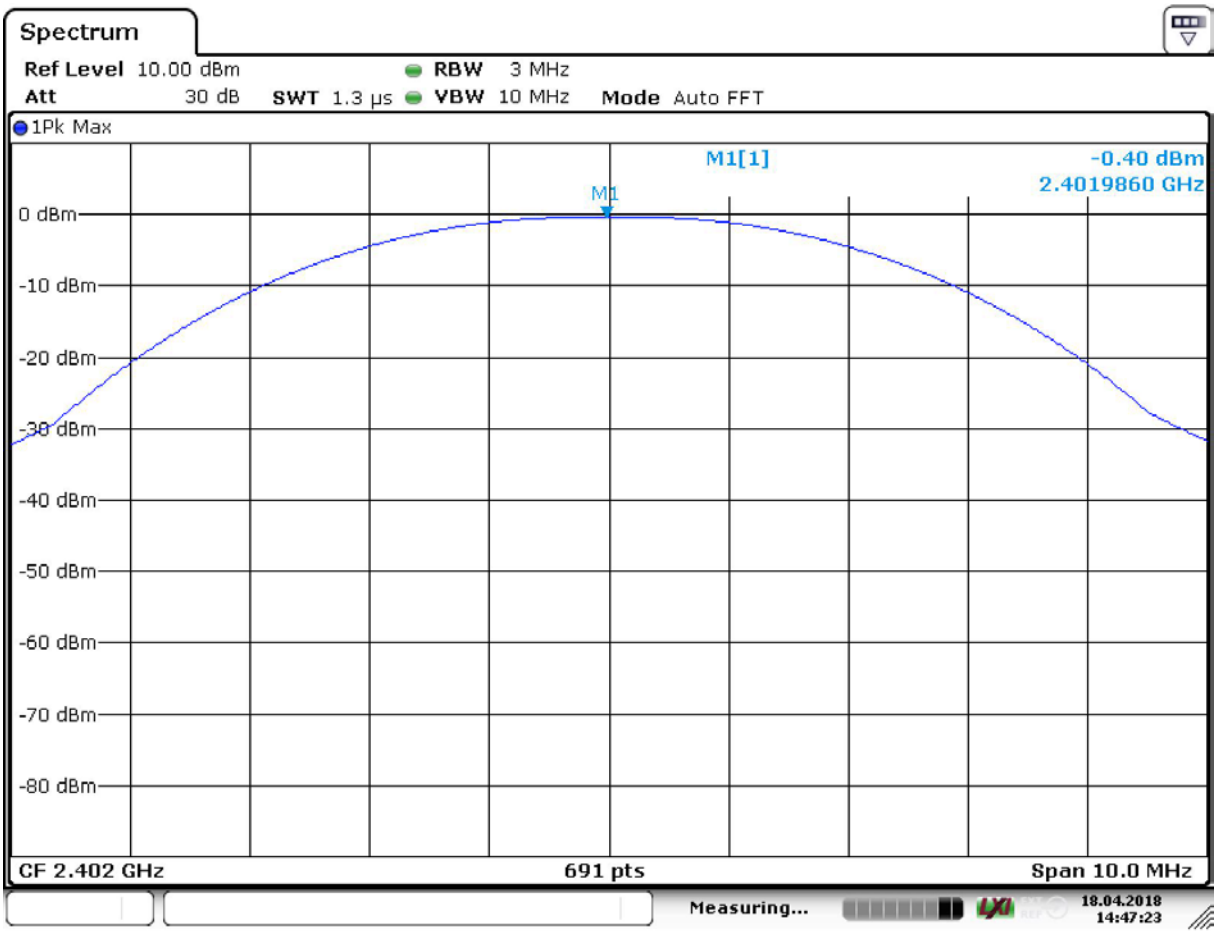
Detector: Peak,
RBW: >OBW
VBW: 3 x RBW
Span: >3 x OBW

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

8.3 Requirements

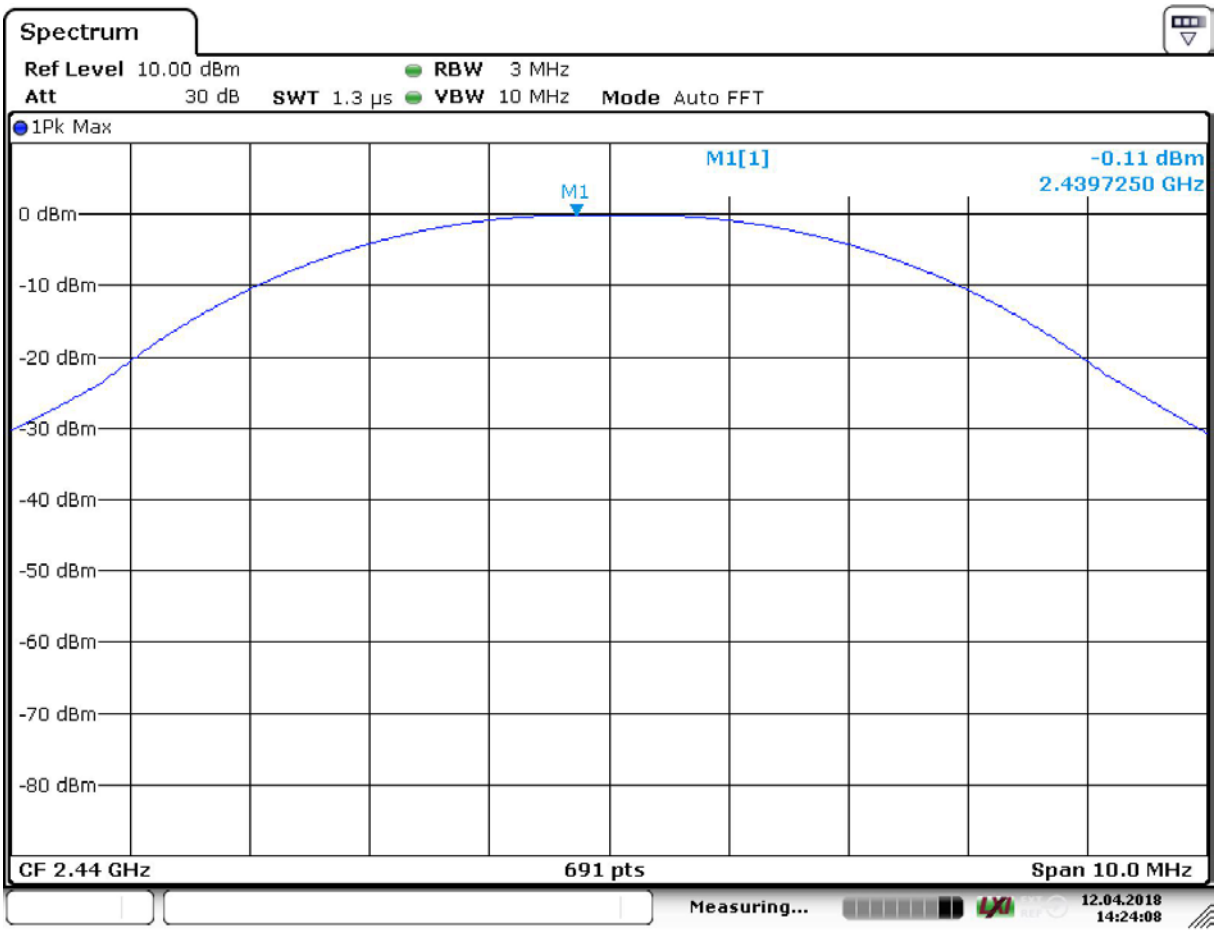
Reference: CFR 47§15.247(b)(3), RSS-247 5.4
For DTSs employing digital modulation techniques operating in the bands 902 – 128 MHz, 2400 – 2483.5 MHz and 5725 – 5850 MHz, the maximum peak conducted output power shall not exceed 1W.

8.4 Test results



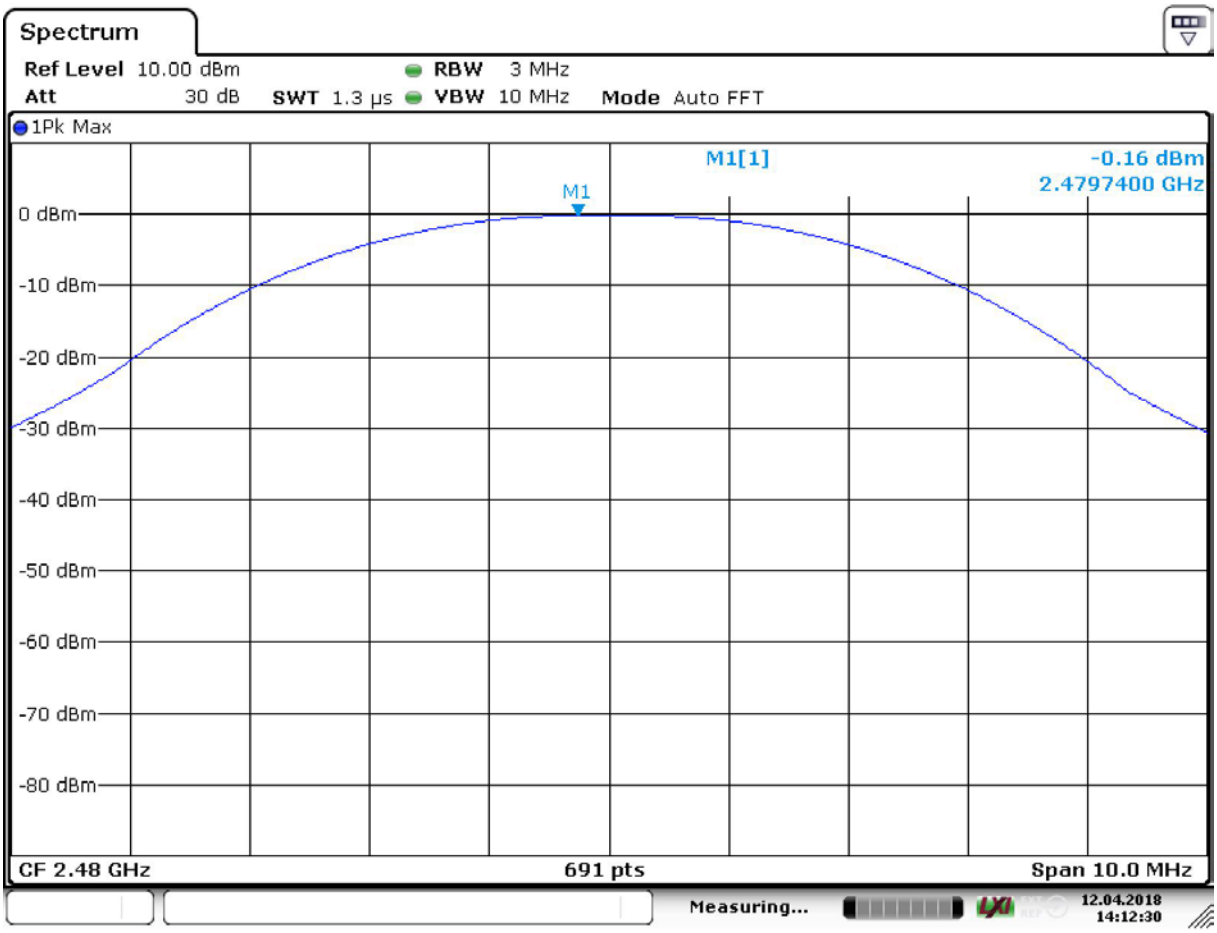
Date: 18.APR.2018 14:47:23

Screenshot: Output power, low channel



Date: 12.APR.2018 14:24:08

Screenshot: Output power, middle channel



Date: 12.APR.2018 14:12:30

Screenshot: Output power, high channel

Test result

Channel [MHz]	Output power [dBm]
2402	-0.4
2445	-0.1
2480	-0.2

9 OCCUPIED 6 DB BANDWIDTH

Date of test:	2018-04-12	**Test location:**	Radio
EUT Serial:	07/18	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	0.218 MHz

9.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 6.9.2

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

9.2 Test conditions

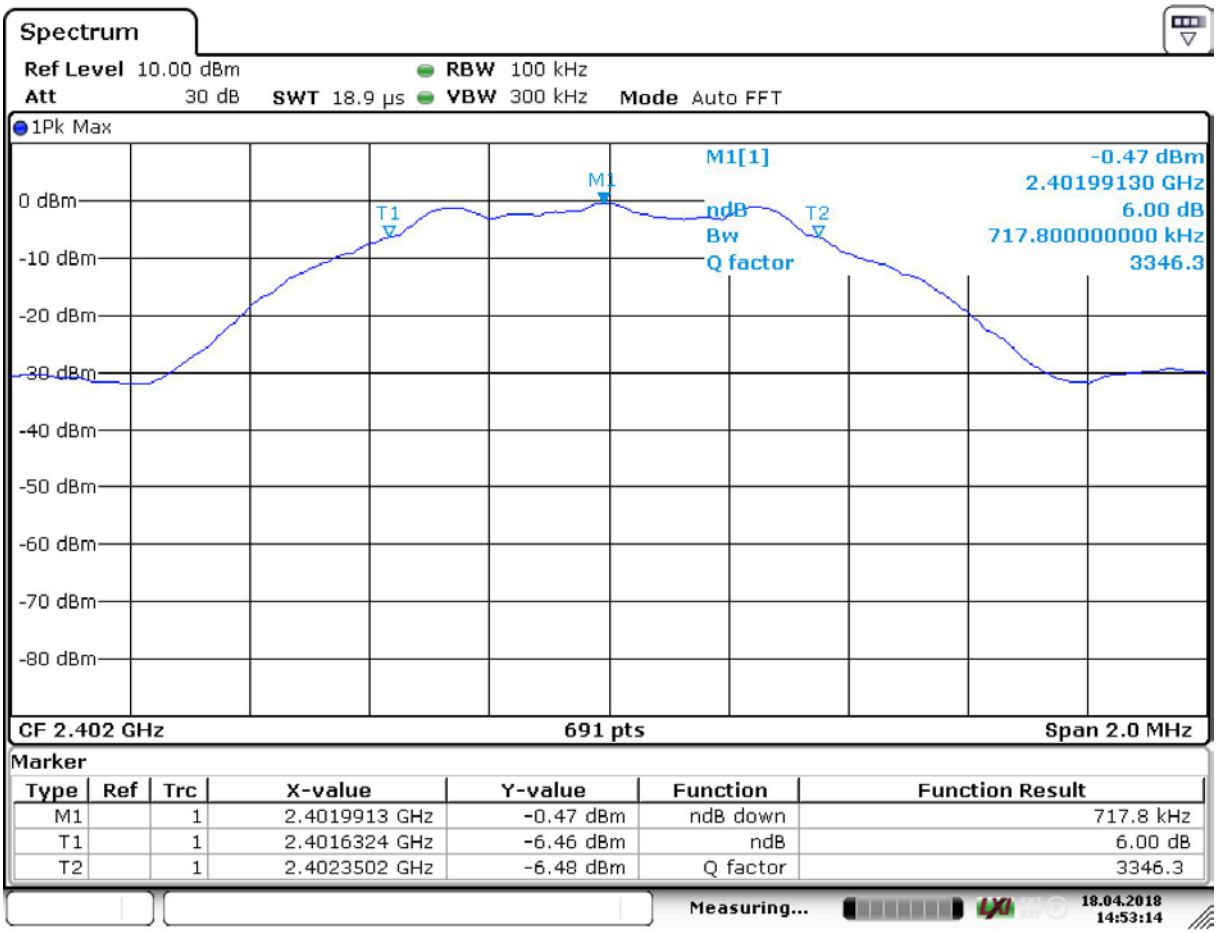
Detector: Peak,
RBW: 100 kHz
VBW: 3 x RBW
Span: >1,5 x OBW

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

9.3 Requirements

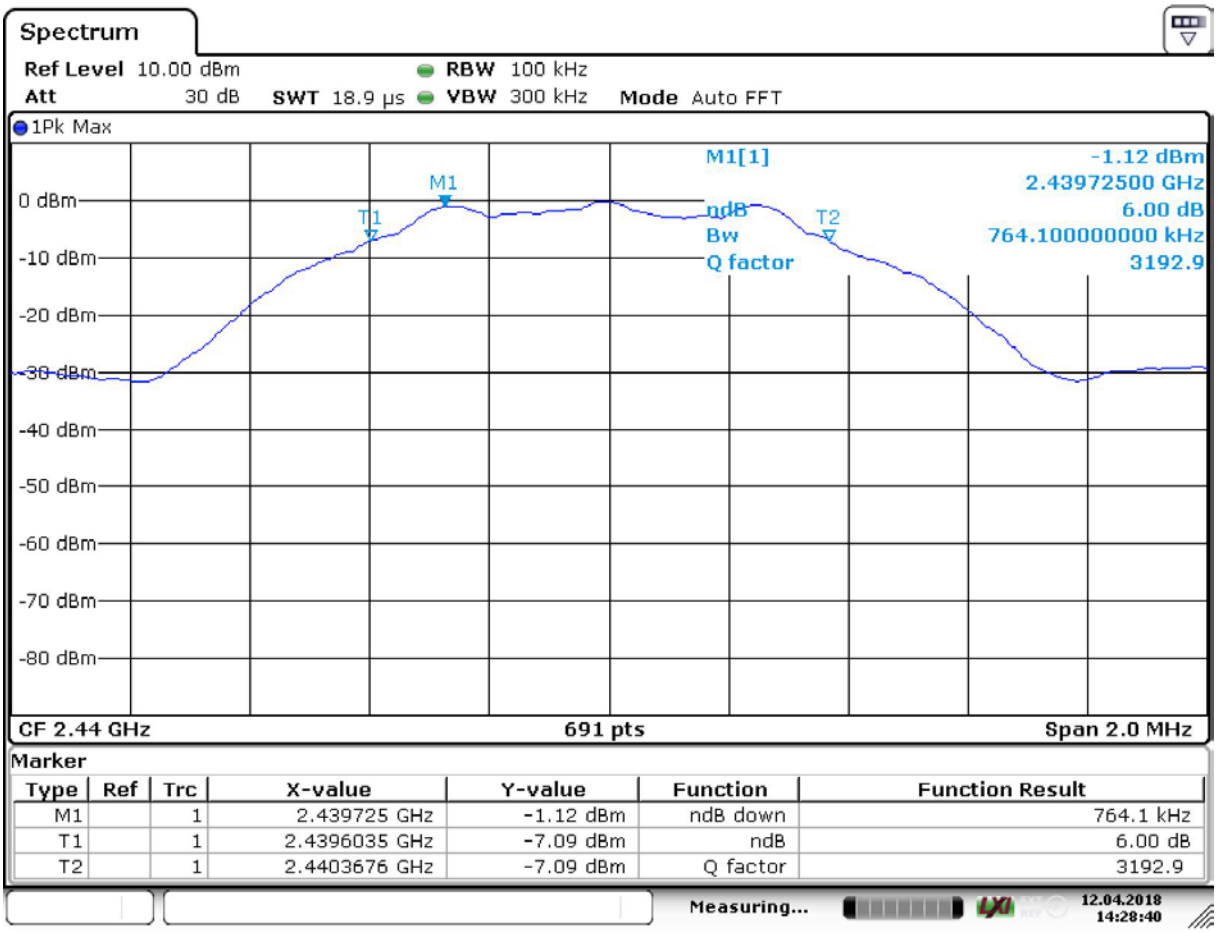
Reference: CFR 47§15.247(a)(2), RSS-247 5.2(1)
The minimum 6 dB bandwidth shall be 500 kHz.

9.4 Test results



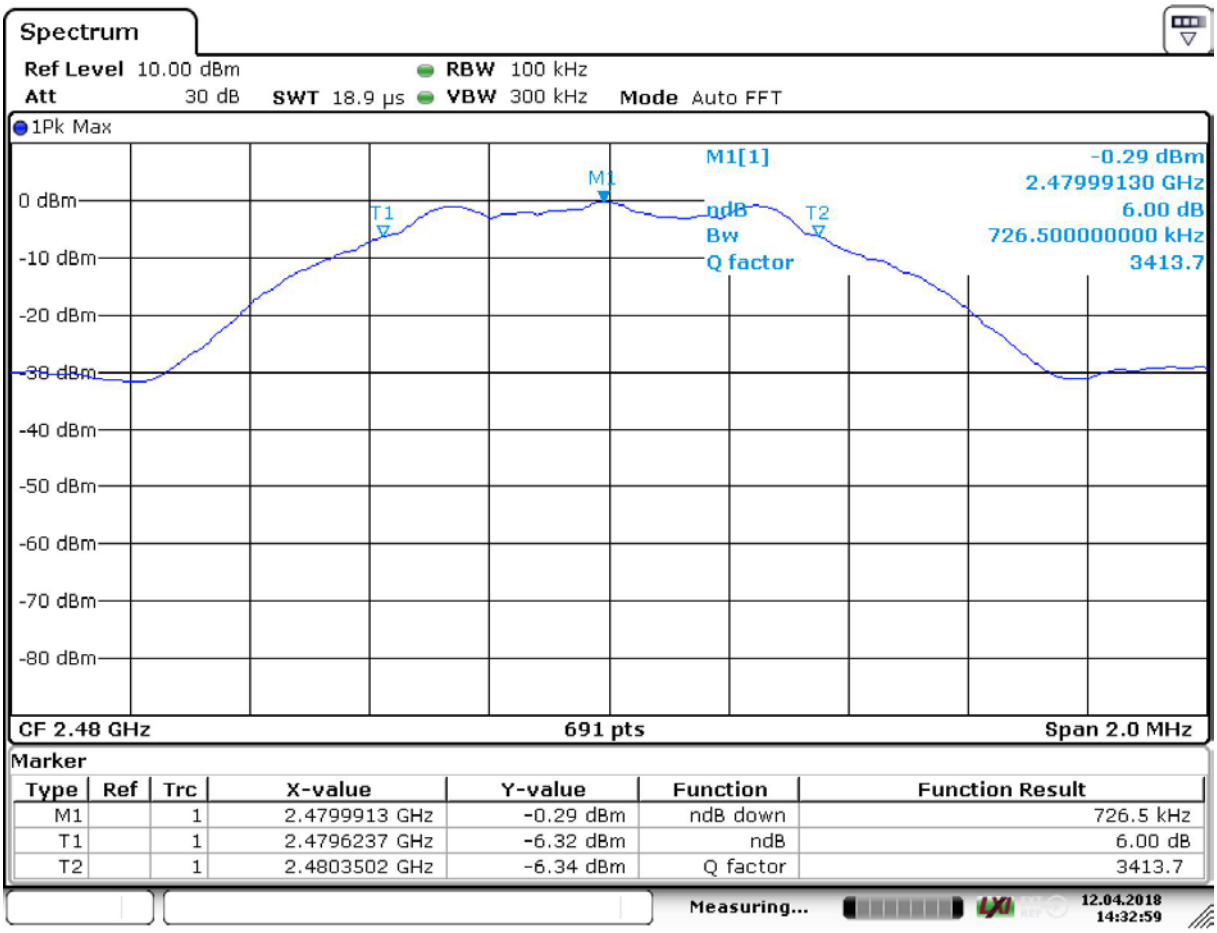
Date: 18.APR.2018 14:53:15

Screenshot: Occupied 6 dB bandwidth Measurement, low channel



Date: 12.APR.2018 14:28:40

Screenshot: Occupied 6 dB bandwidth Measurement, middle channel



Date: 12.APR.2018 14:32:59

Screenshot: Occupied 6 dB bandwidth Measurement, high channel

Test result

Channel [MHz]	6 dB BW [MHz]
2402	0.718
2445	0.764
2480	0.727

10 99 % BANDWIDTH

Date of test:	2018-04-12	**Test location:**	Radio
EUT Serial:	07/18	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	NA

10.1 Test set-up and test procedure.

The test method is in accordance with RSS-GEN section 6.6.

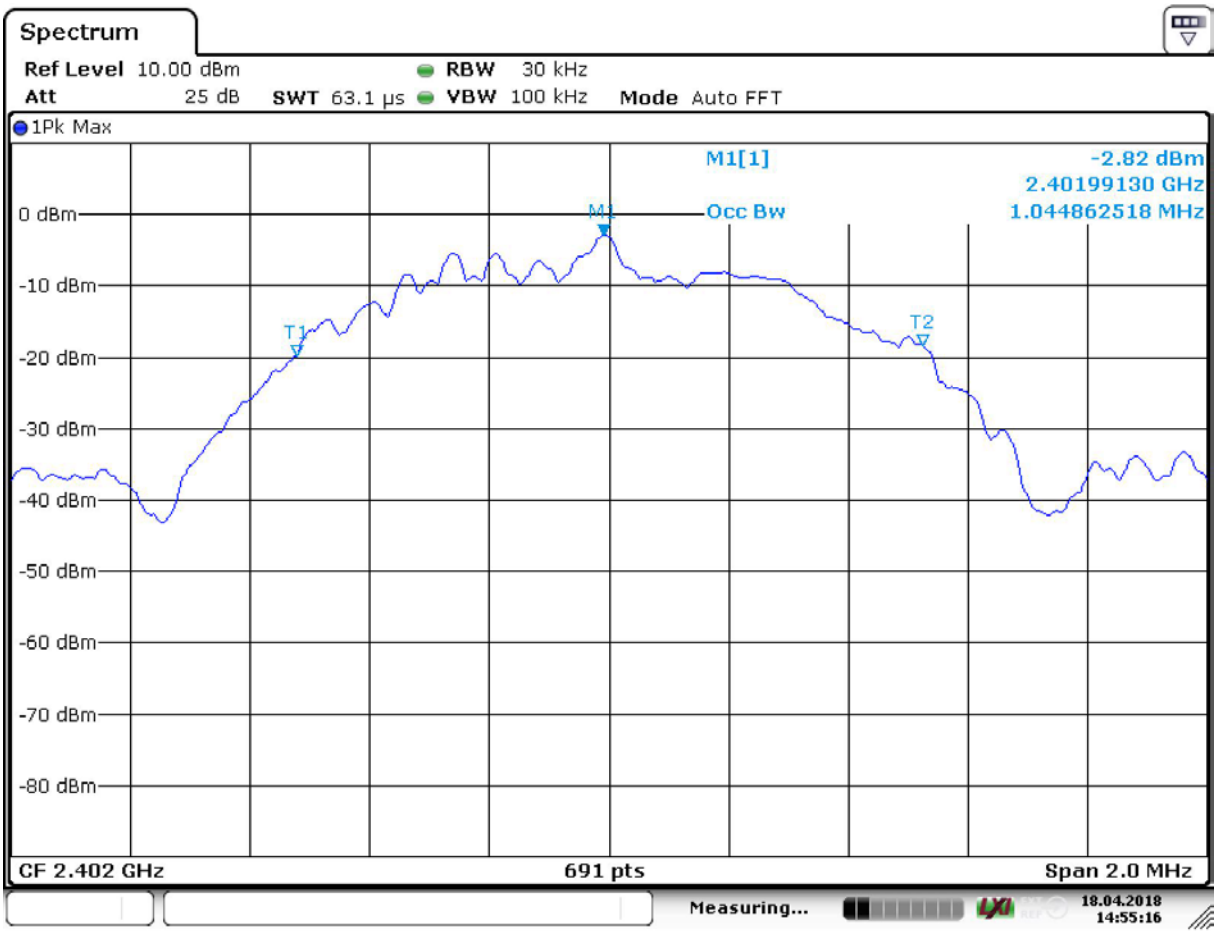
The EUT was connected to spectrum analyser via rf-cable and attenuator. Spectrum analyser with occupied bandwidth measurement function is used to determine the occupied bandwidth.

10.2 Test conditions

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

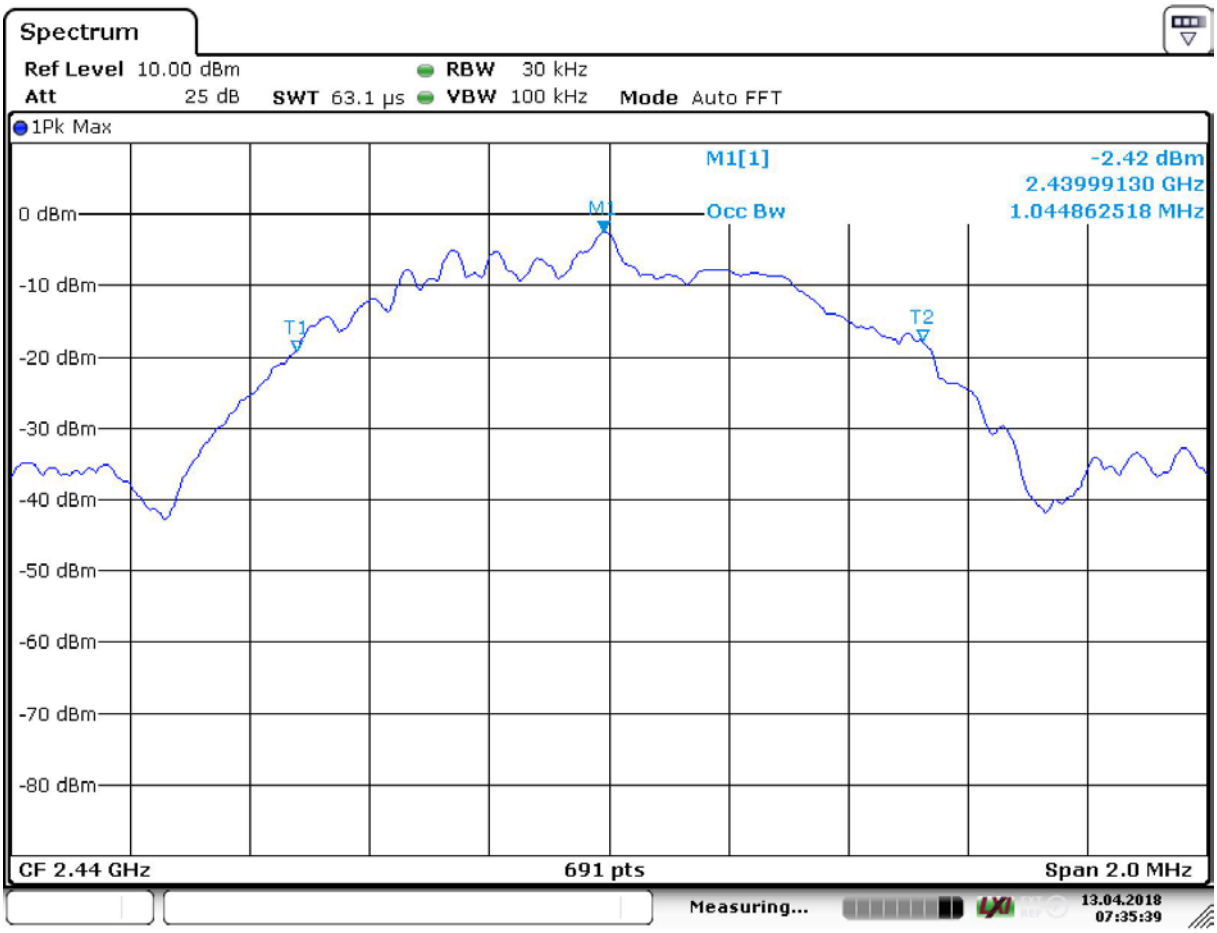
The EUT was set up in order to emit maximum disturbances.

10.3 Test results



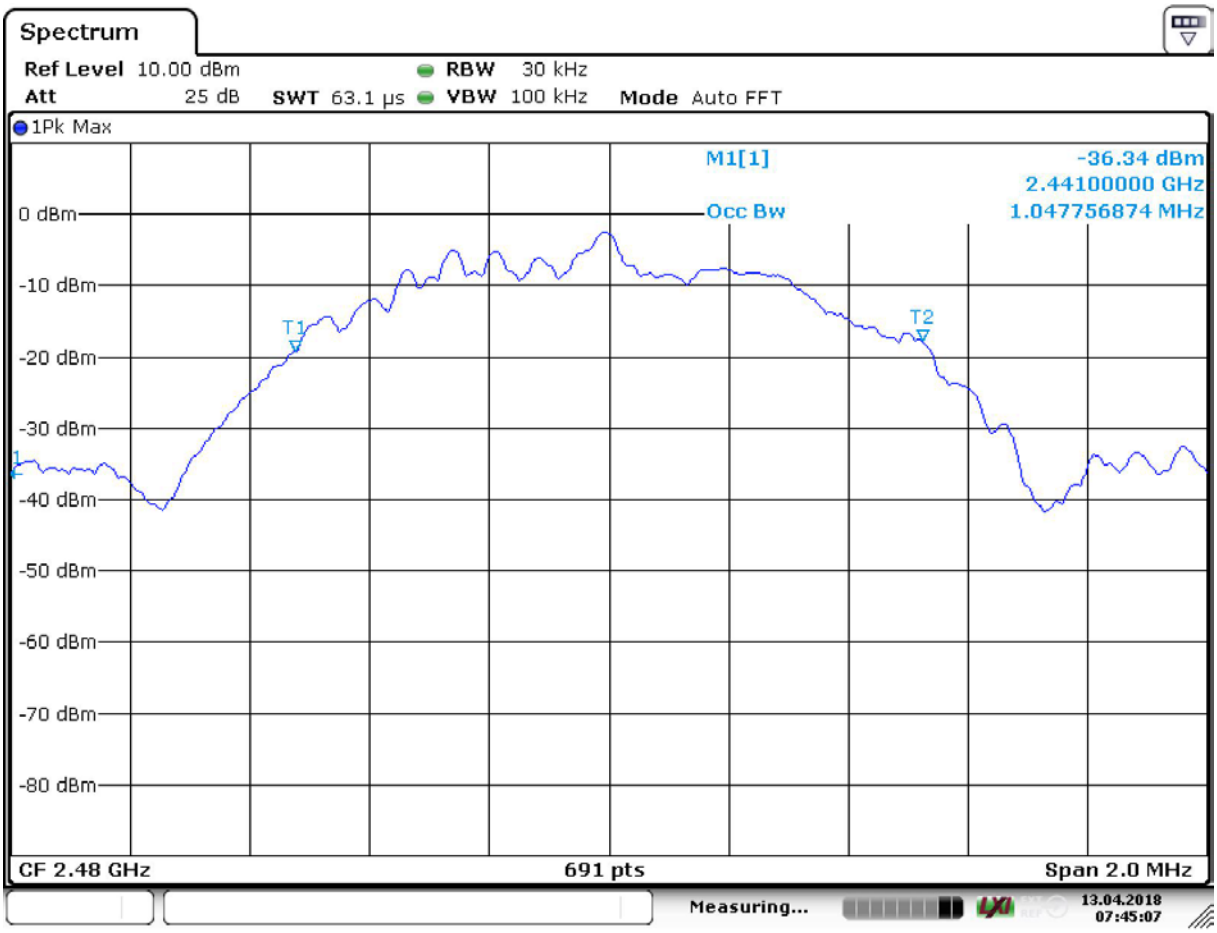
Date: 18.APR.2018 14:55:16

Screenshot: 99 % bandwidth Measurement, low channel



Date: 13.APR.2018 07:35:40

Screenshot: 99 % bandwidth Measurement, middle channel



Date: 13.APR.2018 07:45:07

Screenshot: 99 % bandwidth Measurement, high channel

Test result

Channel [MHz]	99 % BW [MHz]
2402	1.04
2445	1.04
2480	1.05

11 PEAK POWER SPECTRAL DENSITY

Date of test:	2018-04-12	**Test location:**	Radio
EUT Serial:	07/18	**Ambient temp:**	21 °C
Tested by:	PLA	**Relative humidity:**	20 %
Test result:	Pass	**Margin:**	>20 dB

11.1 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.

11.2 Test conditions

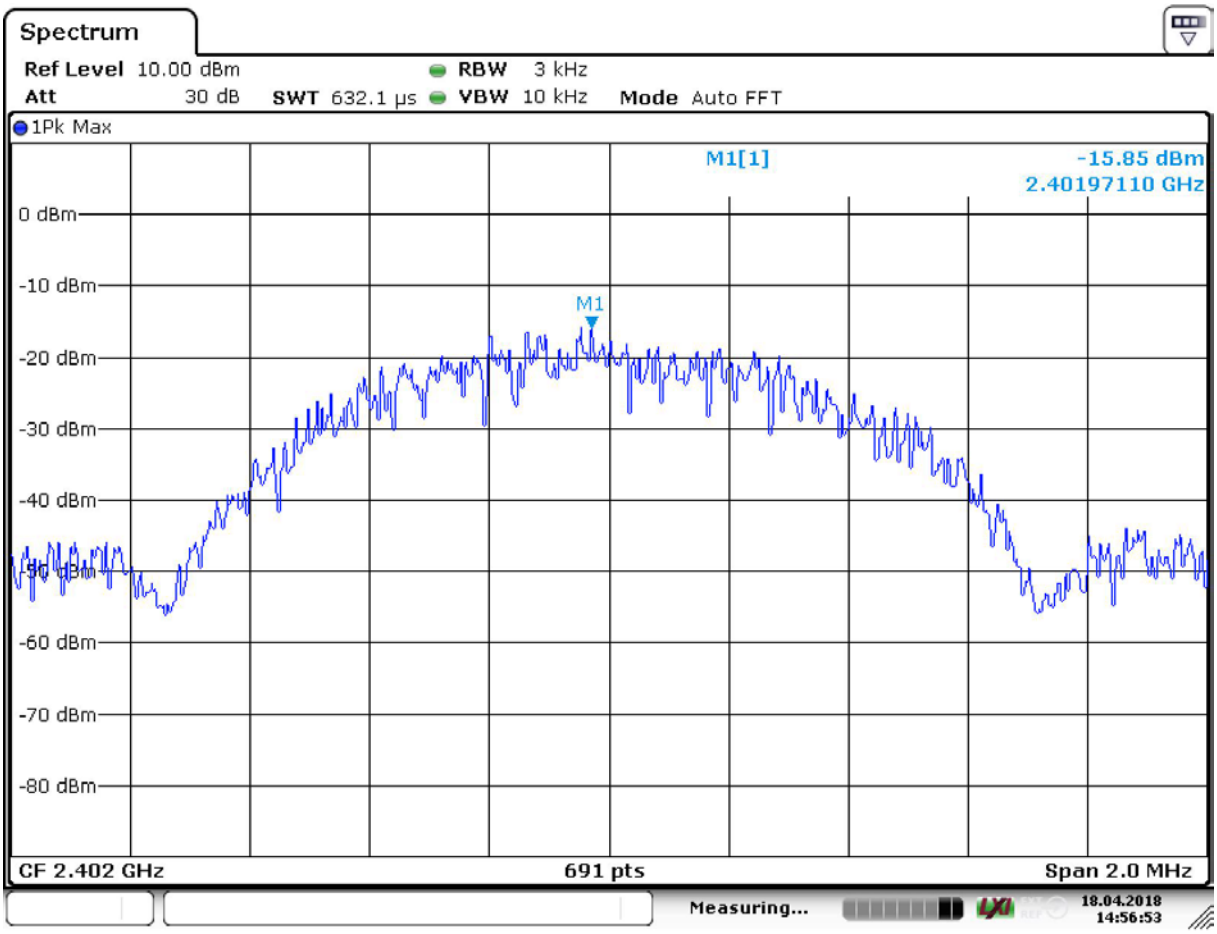
Detector: Peak,
RBW: 3 kHz
VBW: >3 x RBW
Span: 1.5 x 6 dB bandwidth

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

11.3 Requirements

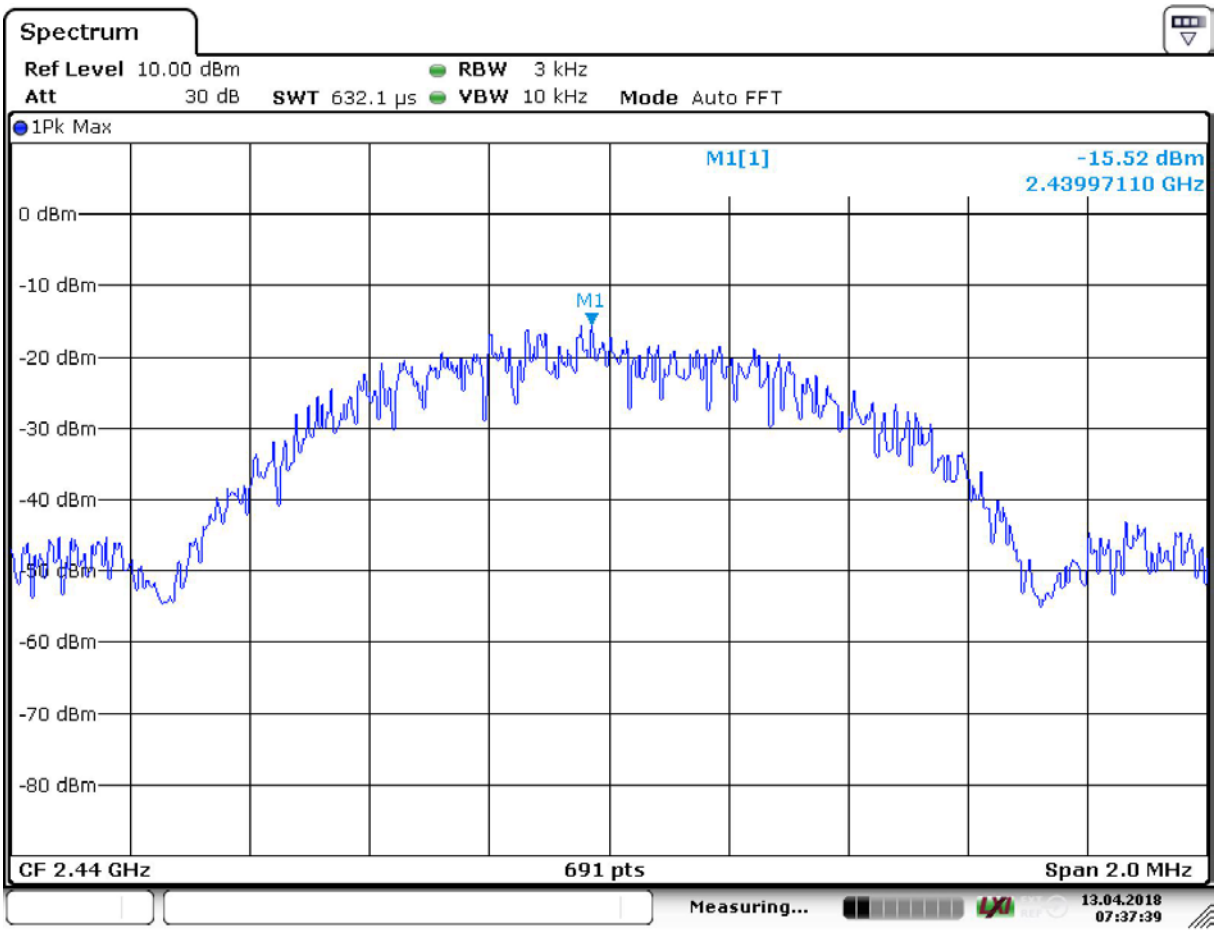
Reference: CFR 47§15.247(3), RSS-247 5.2(2)
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

11.4 Test results



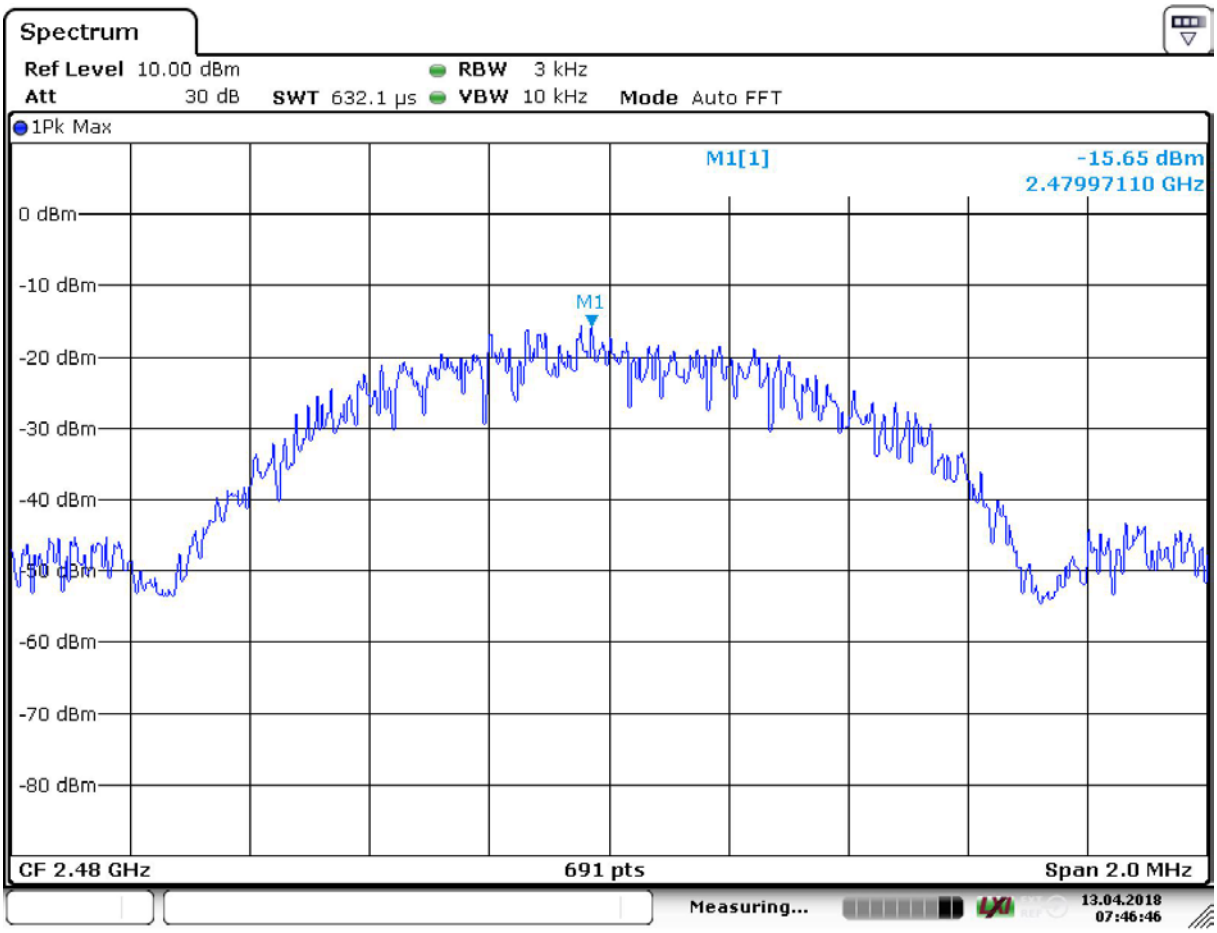
Date: 18.APR.2018 14:56:53

Screenshot: Peak power spectral density, low channel



Date: 13.APR.2018 07:37:39

Screenshot: Peak power spectral density, middle channel



Date: 13.APR.2018 07:46:46

Screenshot: Peak power spectral density, high channel

Test result

Channel [MHz]	PSD [dBm/3kHz]
2402	-15.9
2445	-15.5
2480	-15.7

12 TEST EQUIPMENT

3m SAC

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 - 9	--	--	--
Receiver	Rohde & Schwarz	ESU40	13178	July-2017	1 year
Receiver	Rohde & Schwarz	ESIB26	32288	July-2017	1 year
Horn antenna with preamplifier	Bonn	31247	4936	Jan-2017	3 years
Antenna	Rohde & Schwarz	HL562	30711	Jan-2018	3 years
Coaxial cable	Huber + Suhner	Sucoflex 104	39138	July-2017	1 year
Coaxial cable	Huber + Suhner	Sucoflex 104	39131	July-2017	1 year
Preamplifier	Rohde & Schwarz	TS-PRE1	32306	July-2017	1 year
Horn antenna	Bonn	BLMA	31247	Jan-2017	3 years
Coaxial cable	Huber+Suhner	Sucoflex	39057	April-2017	1 year
Coaxial cable	Huber+Suhner	Sucoflex	39054	April-2017	1 year
Coaxial cable	Huber+Suhner	Sucoflex	39057	April-2017	1 year
Horn antenna	Rohde & Schwarz	HF907	32307	July-2017	3 years
Preamplifier	Rohde & Schwarz	TS-Pre1	32306	July-2017	3 years

Wireless Center and 3m FAC

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 - Version 10	--	--	--
Signal analyzer	Rohde & Schwarz	ESU 40	13178	jan-2018	1 year
Measurement cable	Huber + Suhner	Sucoflex 104 PE	39138	July-2017	1 year
Measurement cable	Huber + Suhner	Sucoflex 104	5191	July-2017	1 year
Measurement cable	Huber + Suhner	Sucoflex 104	39119	July-2017	1 year
Horn antenna	EMCO	3115	4628	Nov-2015	3 years
Pre amplifier	Sangus	00101400-23-10P -6-S ; AFS44-12002400-32-10P -44	12335	July-2017	1 year
Horn antenna	EMCO	3160-08	30099	Oct-2016	3 years
Horn antenna	EMCO	3160-09	30101	Oct-2016	3 years
2,4 GHz band reject filter:	K&L MICROWAVE INC	6N45-2450/T100-0/0	12389	Mars-2018	1 year
4 GHz high pass filter	K&L MICROWAVE INC	4410-X4500/18000-0/0	5133	August-2017	1 year

13 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 3 m	± 5.1 dB
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
Uncertainty for the frequency range 26 to 40 GHz at 3 m	± 5.7 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2011.
The measurement uncertainty is given with a confidence of 95 %.

14 TEST SET UP AND EUT PHOTOS

EUT photos are in separate document 1808371STO-003 Annex 1.
Test set up photos are in separate document 1808371STO-004 Annex 2.