

RADIO TEST REPORT

No. 1613920STO-002, Ed. 2

RF Performance

EQUIPMENT UNDER TEST

Equipment: Battery monitoring system
Type/Model: BattByte
Manufacturer: Northstar Battery COLLC
Tested by request of: SiteTel Sweden AB

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 (2015): Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15 (2015): 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: 2018-01-25

Tested by:


Robert Hietala

Approved by:


Matti Virkki

Revision History

Edition	Date	Description	Changes
1	2016-09-12	First release	
2	2018-01-25	Second release	Updated RSS-247 to issue 2

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1 CLIENT INFORMATION

The EUT has been tested by request of

Company SiteTel Sweden AB
Box 7039
192 07 Sollentuna
Sweden

Name of contact Karin Ögren
Phone +46 8 410 102 09

2 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment: Battery monitoring system
Type/Model: BattByte
Brand name: BattByte
Serial number: XX1000000013 and XX1000000035
Manufacturer: SiteTel Sweden 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: -1.8 dBi
Rating RF output power: -0.3 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: -40°C to +80°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	UPS battery	XX1000000013	With internal antenna
Unit 2	UPS battery	XX1000000035	With temporary SMA connector

During the tests the EUT supported following software:

Software	Version	Comment
nRFgo Studio	1.21.2.10	Used for Direct Test Mode access

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	Serial no.
Laptop computer	B590	Lenovo	WB14001765

2.4 Test signals and operation modes

During the tests the EUT was in Bluetooth "Direct Test Mode" transmitting a PRBS9 signal with a payload of 37 bytes and a duty cycle of 70 %.

2.5 Modifications made during the tests.

No modifications have been made during the tests.

3 TEST SPECIFICATIONS

3.1 Standards

Requirements:

47 CFR Part 15 (2015): Subpart C: Intentional radiators. Section 15.247

47 CFR Part 15 (2015): 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-247 Issue 2 (2017) is 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,
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 #
STORA HALLEN	Semi-anechoic 10 m and 3 m	2042G-2

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 The EUT has integrated non detachable antenna which can't be remove without breaking the EUT.	PASS
FCC §15.207 RSS-GEN 8.8 table 3	Conducted continuous emission in the frequency range 150 kHz to 30 MHz, AC Power input port	NA
FCC §15.247 (b)(4) RSS-247 5.4(4), 5.4(5)	Field strength of fundamental and antenna gain The EUT complies with the limits. Antenna gain is less than 6 dBi.	PASS
FCC §15.247 (d), 15.209(a), 15.109 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. See clause 5.4.	PASS
FCC §15.247(d), 15.209(a), 15.109 RSS-GEN 8.9 RSS-247 5.5	Radiated emission of electromagnetic fields in the frequency range above 1 GHz The EUT complies with the limits. See clause 5.5 – 5.6.	PASS
FCC §15.247(a)(1) RSS-GEN 6.6 RSS-247 5.1	Occupied bandwidth The EUT complies with the limits. See clause 8.4 and 9.3.	PASS
FCC §15.247(b) RSS-247 5.4	Conducted output power The EUT complies with the limits. See clause 7.4.	PASS
FCC §15.247(a)(1) RSS-247 5.1(2)	Carrier frequency separation	NA
FCC §15.247(a)(1) RSS-247 5.1	Number of hopping frequencies	NA
FCC §15.247(a)(1) RSS-247 5.1	Time of occupancy	NA
FCC §15.247(d) RSS-247 5.5	Band edge The EUT complies with the limits. See clause 6.4.	PASS

NA = Not Applicable

5 RADIATED RF EMISSION IN THE FREQUENCY-RANGE 30 MHZ TO 26 GHZ

Date of test:	2016-08-22	Test location:	Stora Hallen, Wireless Center
EUT Serial:	XX1000000013	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	71 %
Test result:	Pass	Margin:	6.4 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.

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

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

Final test:

Average, RBW 1 MHz. VBW 3 MHz

Final test:

Peak, RBW 1 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

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 (dB μ V/m)	Field strength at 10 m (dB μ V/m)	Detector (dB μ V/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))

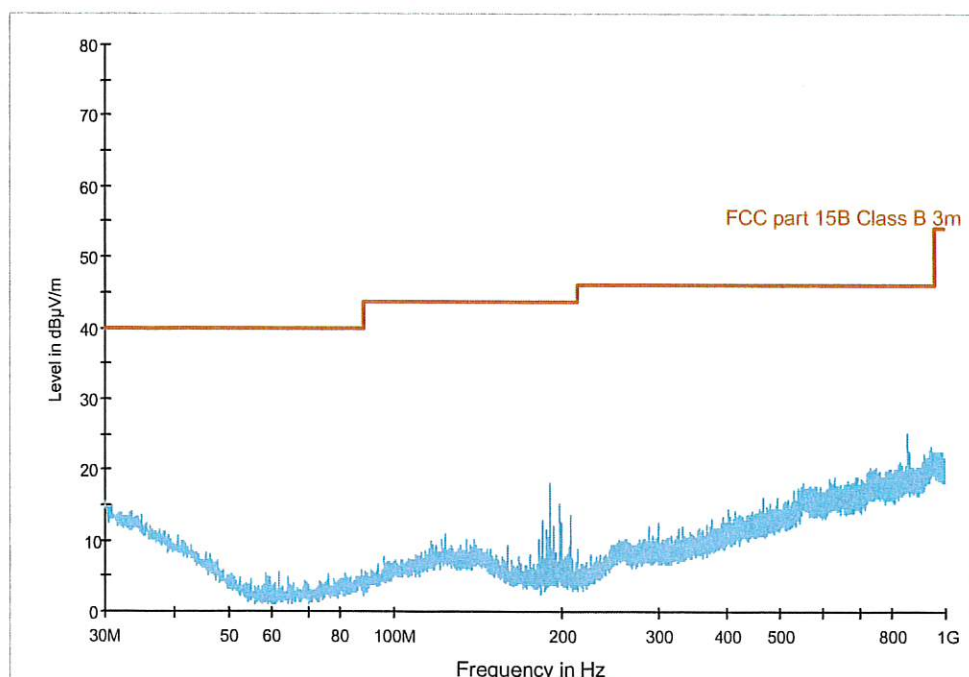
Outside the restricted bands:

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.

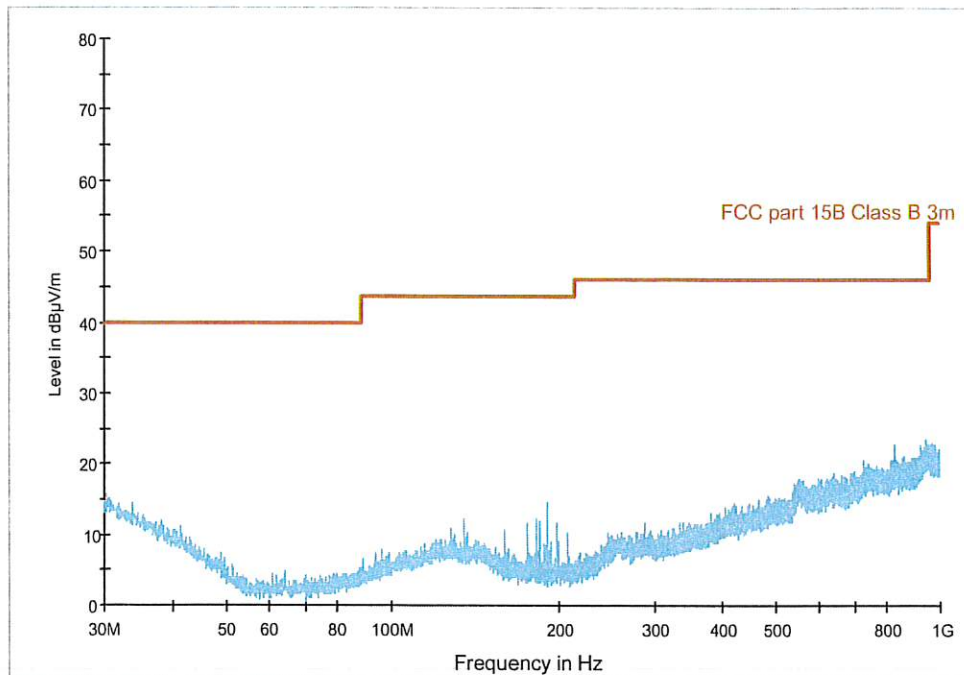
5.4 Test results 30 MHz – 1000 MHz, RX

Radio FCC 30 - 1000 MHz FCC class B 10m continuous TT rotation

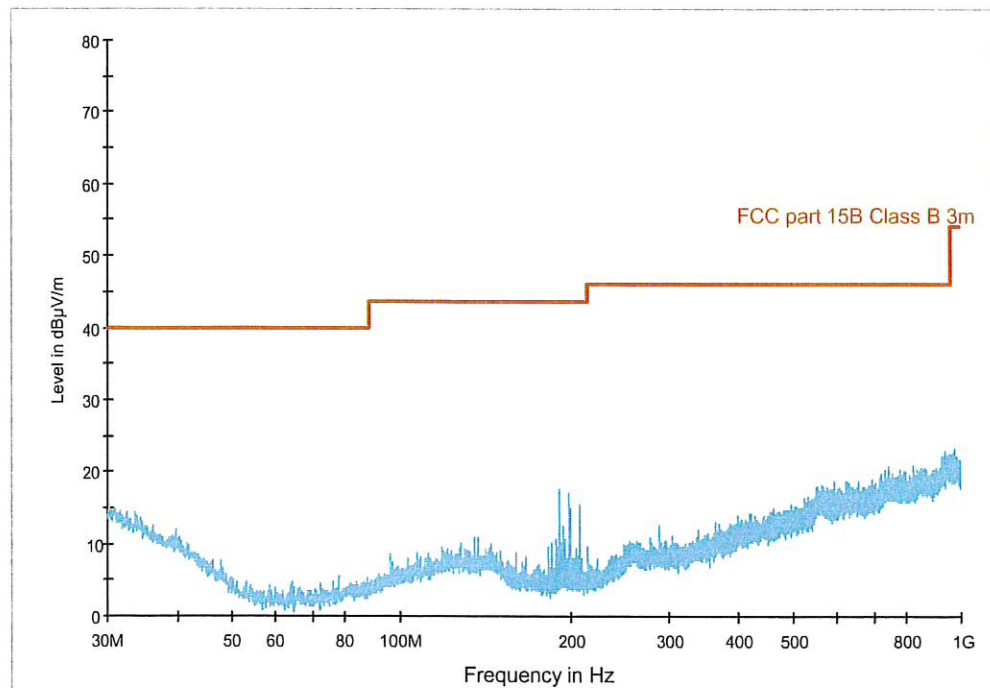


Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. RX low channel.

Radio FCC 30 - 1000 MHz FCC class B 10m continuous TT rotation

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

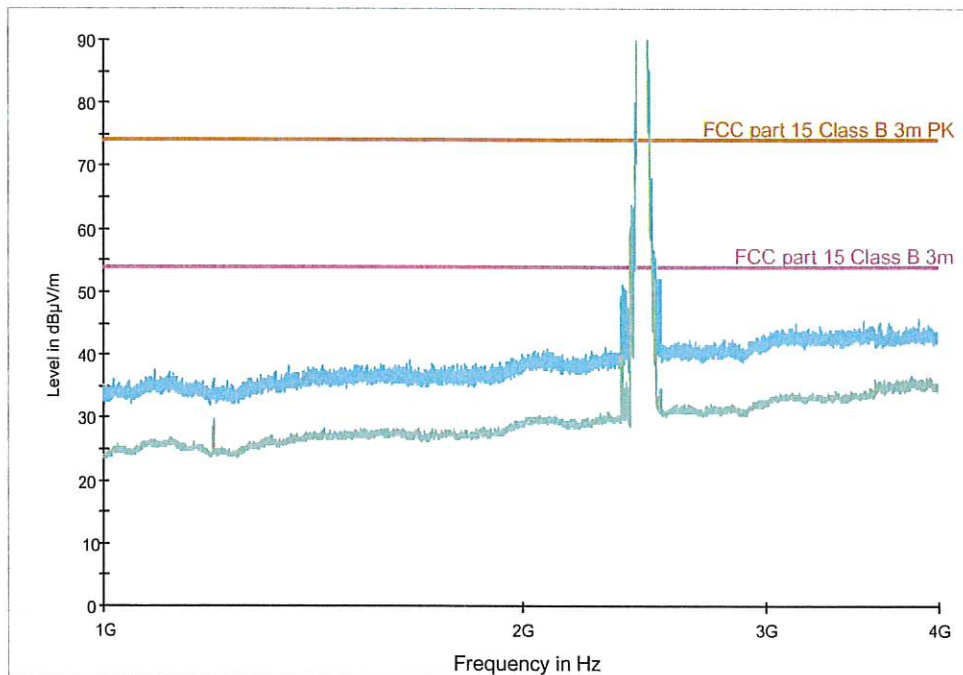
Radio FCC 30 - 1000 MHz FCC class B 10m continuous TT rotation

**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.

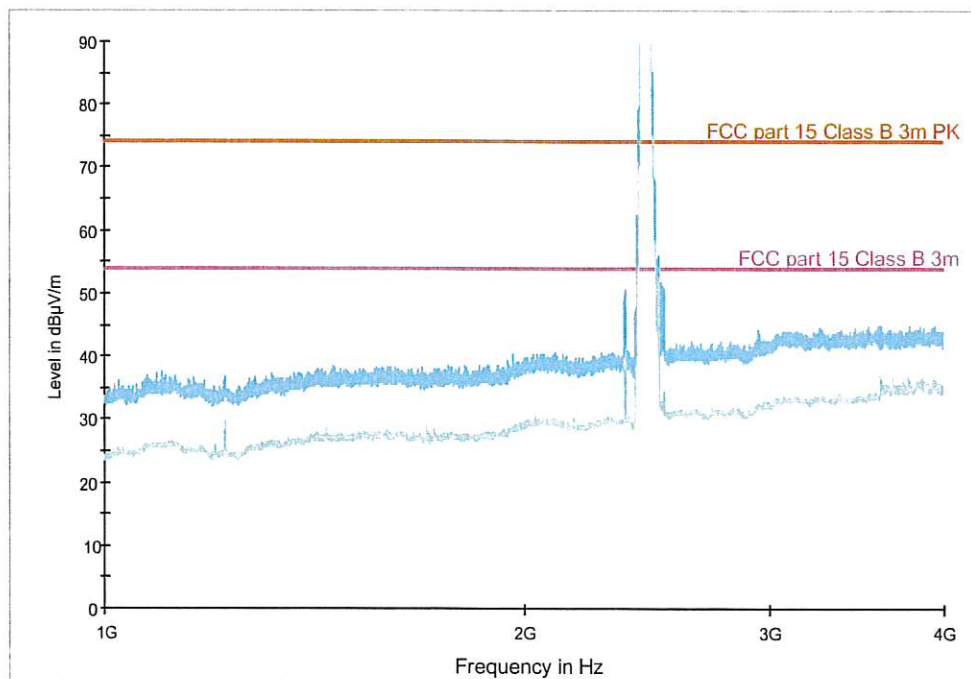
5.5 Test results 1 GHz – 26 GHz, TX

FCC 1 G - 4 G class B 3m ESU40 Continuous TT rotation



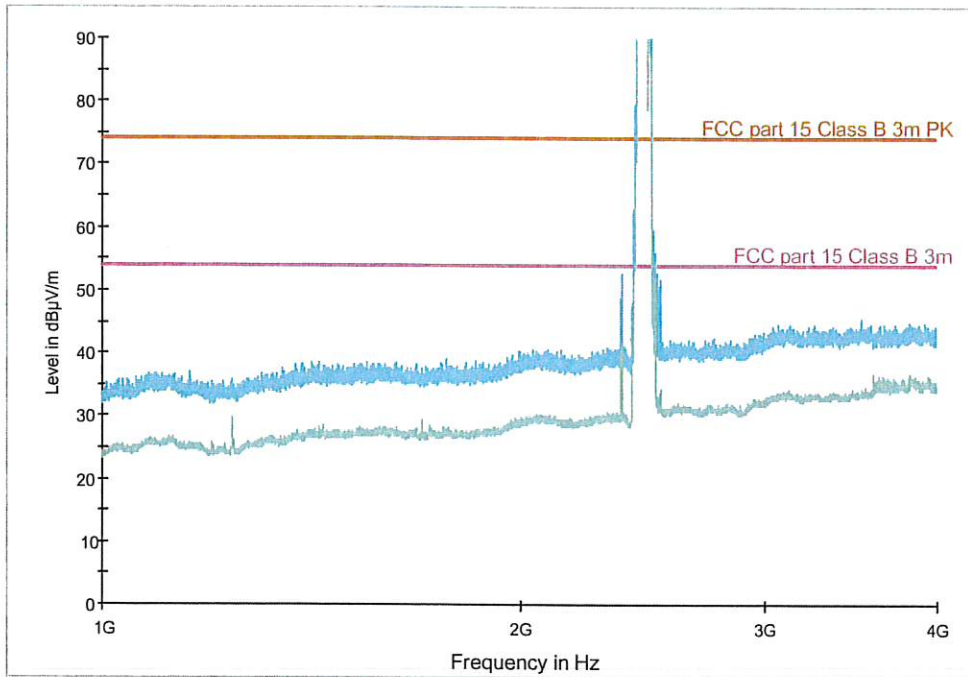
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX low channel. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.

FCC 1 G - 4 G class B 3m ESU40 Continuous TT rotation



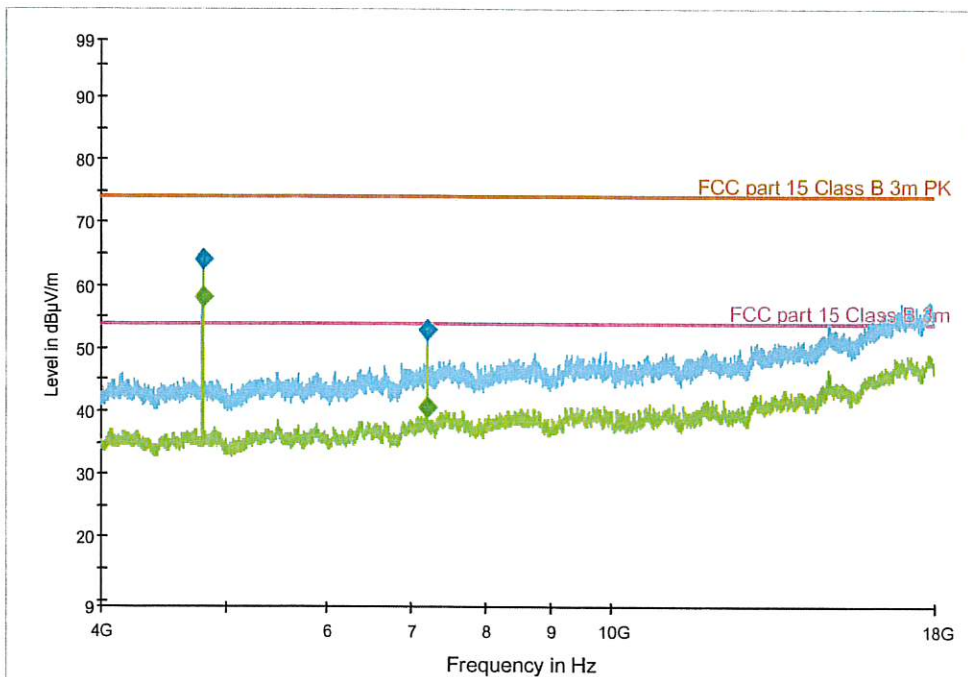
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX mid channel. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.

FCC 1 G - 4 G class B 3m ESU40 Continuous TT rotation



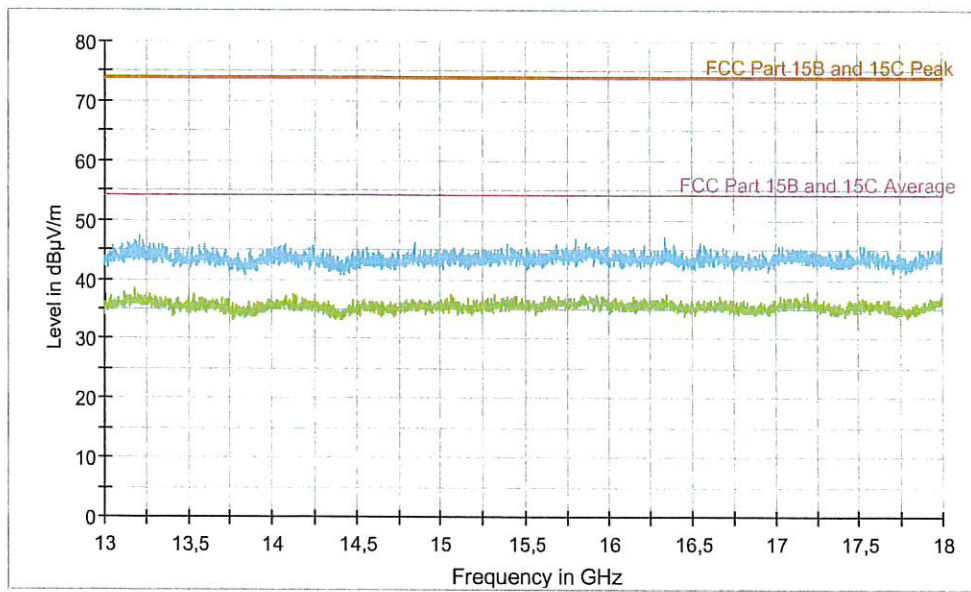
Diagram, Peak overview sweep, 1– 4 GHz at 3 m distance. TX high channel. Carrier is attenuated by band rejection filter K&L 6N45-2450/T 100-0/0.

FCC 4 G - 18 G class B 3m ESU40 Continuous TT rotation



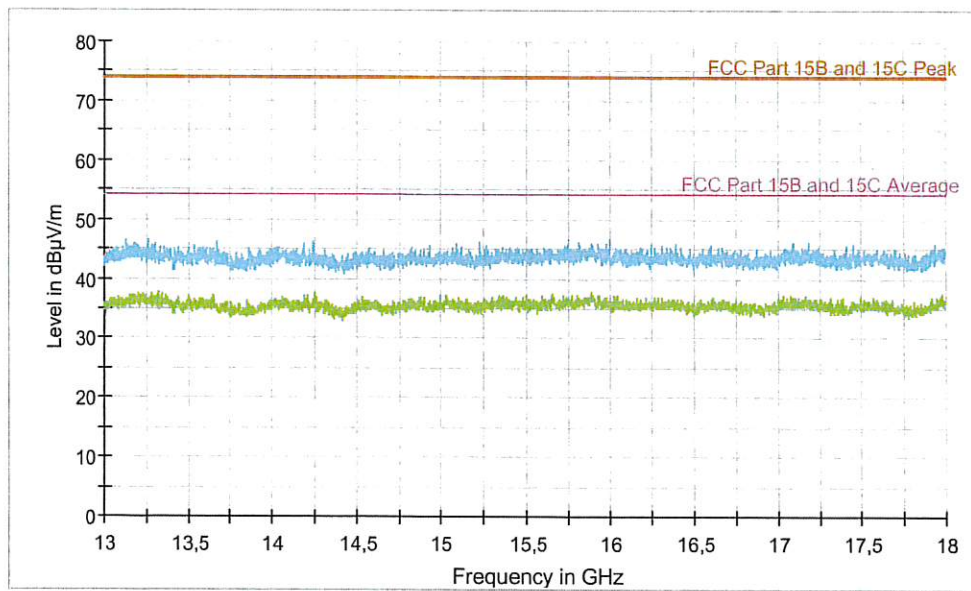
Diagram, Peak overview sweep, 4– 18 GHz at 3 m distance. TX low channel. Emissions below 4000 MHz are attenuated by high-pass filter K&L 4410-X4500/18000-0.

Full Spectrum

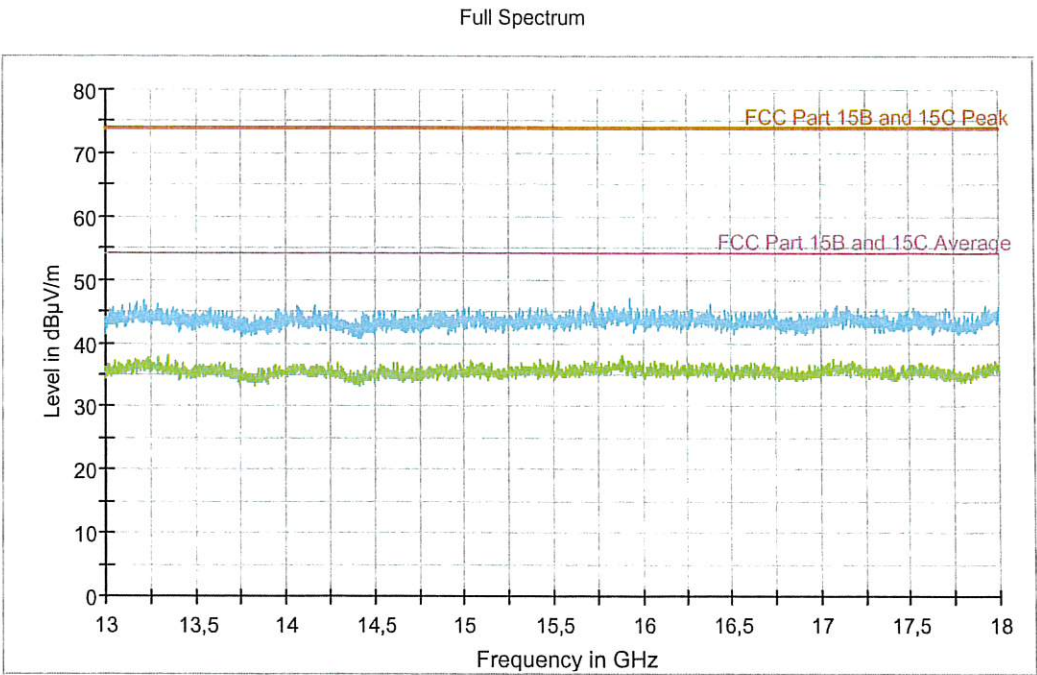


Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX low channel.

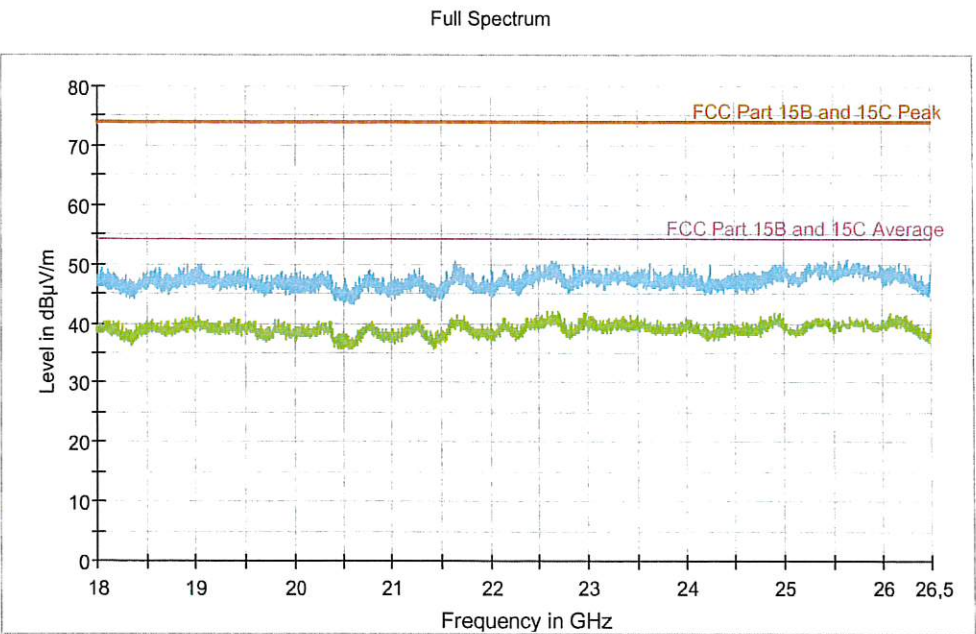
Full Spectrum



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

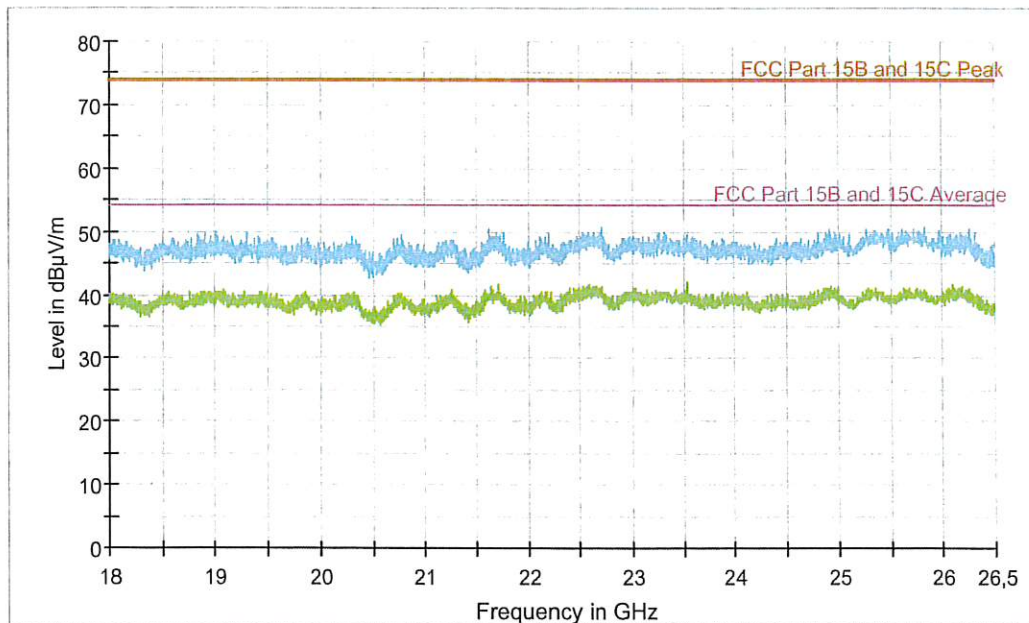


Diagram, Peak overview sweep, 13 – 18 GHz at 3 m distance. TX high channel.



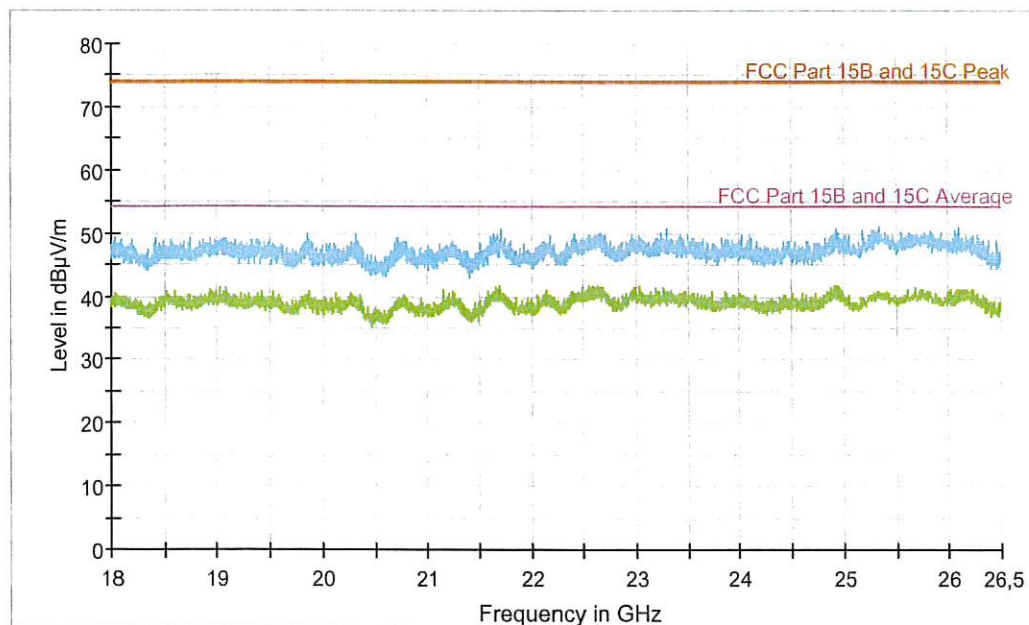
Diagram, Peak overview sweep, 18 – 26.5 GHz at 3 m distance. TX low channel.

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]	EUT orientation	Polarization H/V	Margin [dB]
4803.6	64.1	74.0	--	H	9.9
7205.1	53.0	74.0	--	H	21.0

Measurement results, Average, TX low channel

Frequency [MHz]	Corr. Factor* [dB]	Level [dB μ V/m]	Limit [dB μ V/m]	EUT orientation	Polarization H/V	Margin [dB]
4803.6	-31.9	32.2	54.0	--	H	21.8
7205.1	-31.9	21.1	54.0	--	H	32.9

Measurement results, Peak, TX middle channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	EUT orientation	Polarization H/V	Margin [dB]
4880.6	65.4	74.0	--	H	8.6

Measurement results, Average, TX mid channel

Frequency [MHz]	Corr. Factor* [dB]	Level [dB μ V/m]	Limit [dB μ V/m]	EUT orientation	Polarization H/V	Margin [dB]
4880.6	-31.9	33.5	54.0	--	H	20.5

Measurement results, Peak, TX high channel

Frequency [MHz]	Level [dB μ V/m]	Limit [dB μ V/m]	EUT orientation	Polarization H/V	Margin [dB]
4960.4	67.6	74.0	--	H	6.4

Measurement results, Average, TX high channel

Frequency [MHz]	Corr. Factor* [dB]	Level [dB μ V/m]	Limit [dB μ V/m]	EUT orientation	Polarization H/V	Margin [dB]
4960.4	-31.9	35.7	54.0	--	H	18.3

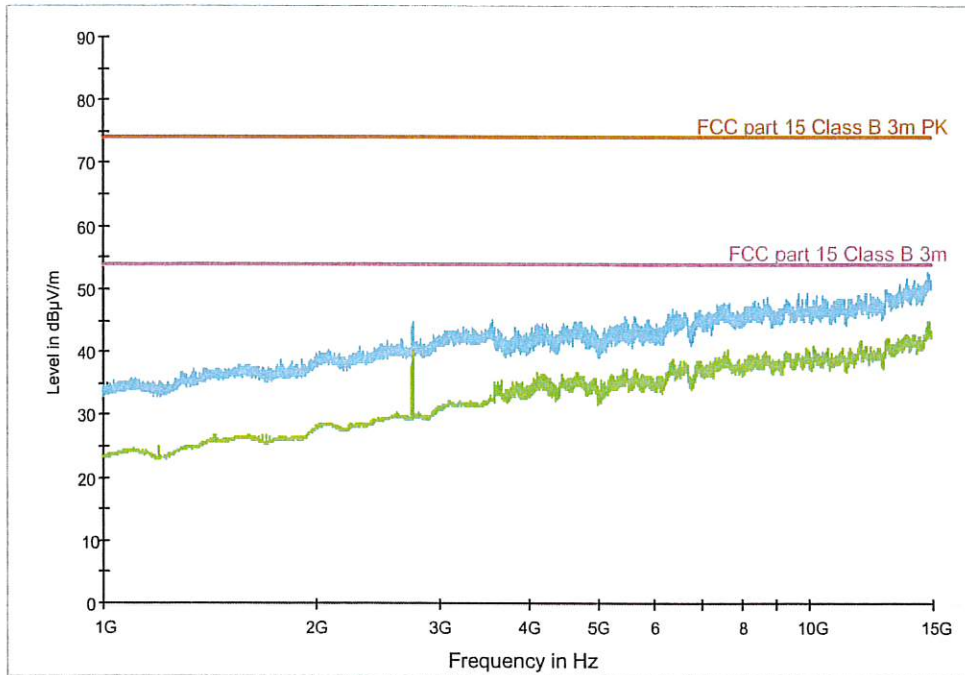
All other measured disturbances have a margin of more than 20 dB to the limits.

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

*Correction factor from measured peak level, see section 11.

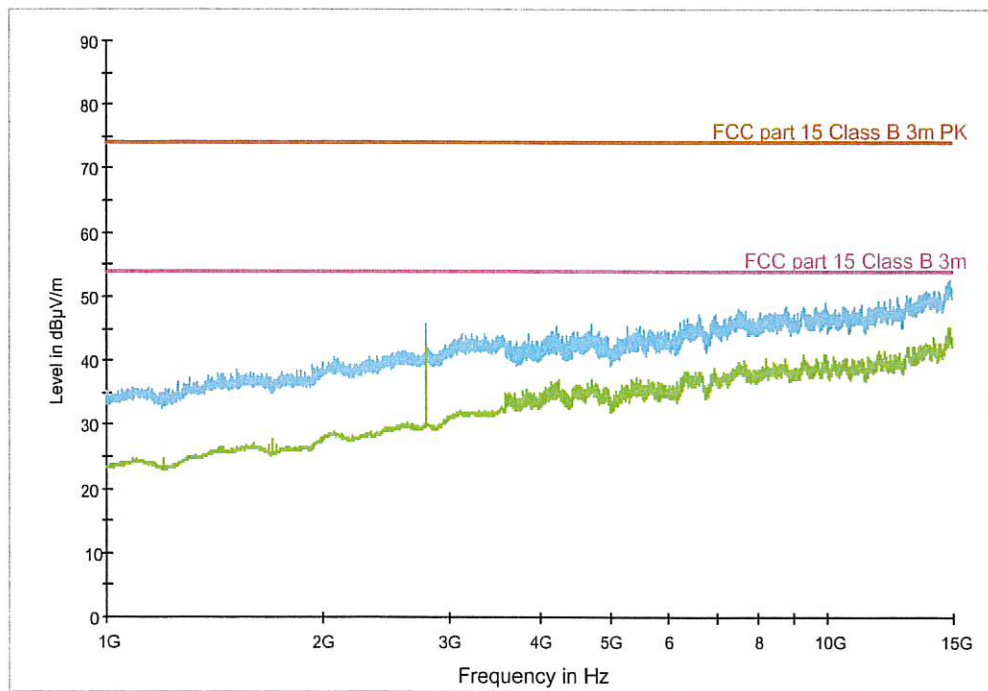
5.6 Test results 1 GHz – 15 GHz, RX

FCC 1 G - 15 G class B 3m ESU40 Continuous TT rotation



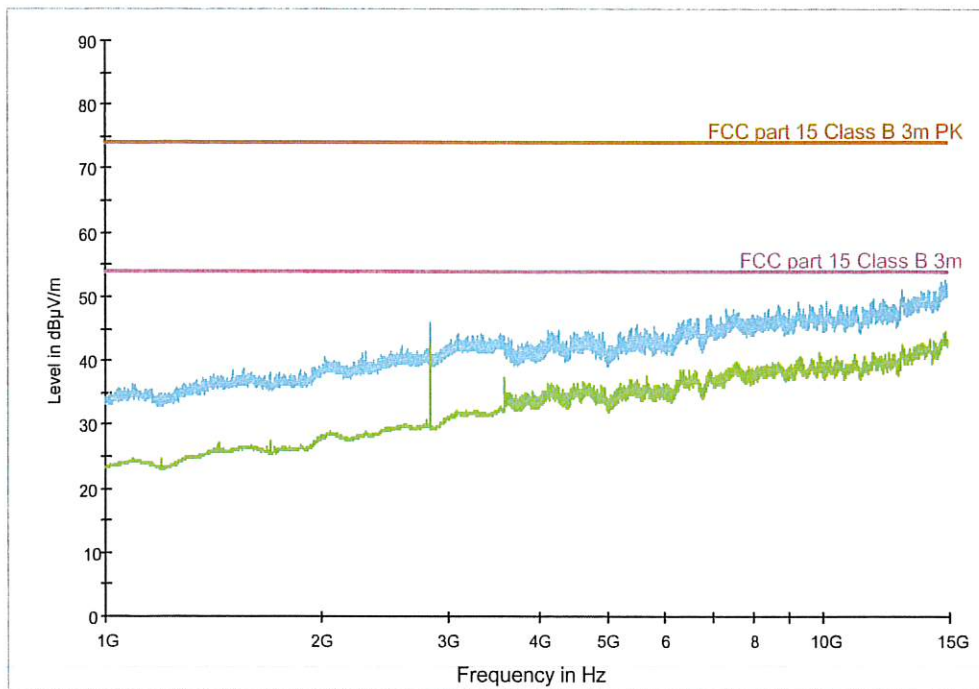
Diagram, Peak overview sweep, 1– 15 GHz at 3 m distance. RX low channel.

FCC 1 G - 15 G class B 3m ESU40 Continuous TT rotation



Diagram, Peak overview sweep, 1– 15 GHz at 3 m distance. RX mid channel.

FCC 1 G - 15 G class B 3m ESU40 Continuous TT rotation



Diagram, Peak overview sweep, 1– 15 GHz at 3 m distance. RX high channel.

Measurement results, RX

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

6 CONDUCTED BAND EDGE MEASUREMENT

Date of test:	2016-08-11	Test location:	Wireless Center
EUT Serial:	XX1000000035	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	37 %
Test result:	Pass	Margin:	> 10 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. Measurements are made with EUT on single channel.

6.2 Test conditions

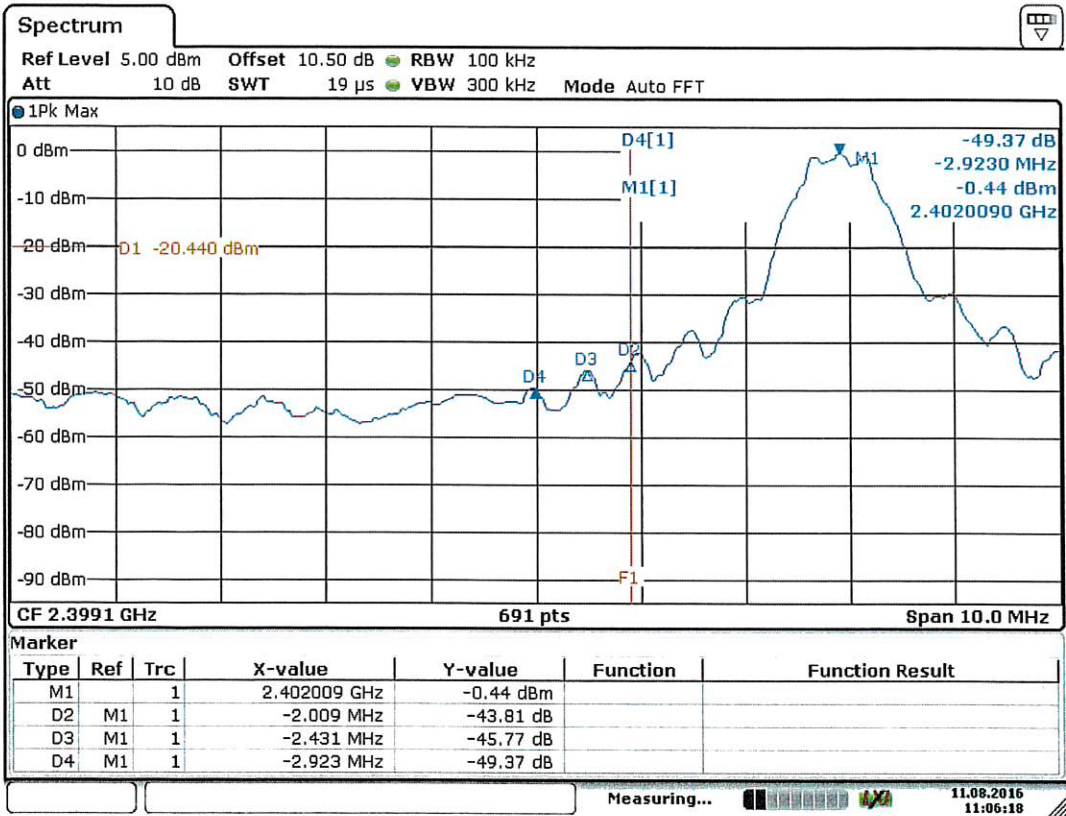
Detector: Peak
RBW: 100 kHz
VBW: 300 kHz
Span: 10 MHz

6.3 Requirement

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

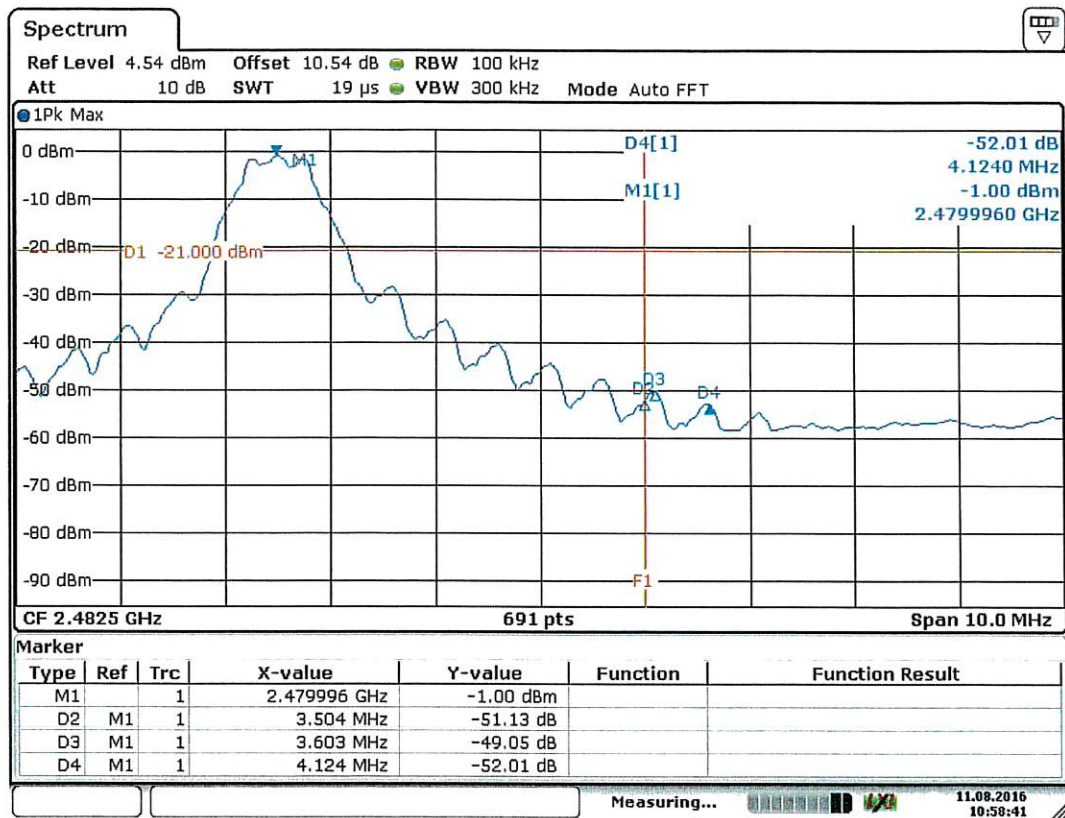
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either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

6.4 Test results



Date: 11 AUG 2016 11:06:19

Screenshot: Lower band edge sweep, single channel



Date: 11 AUG 2016 10:58:41

Screenshot: Upper band edge sweep, single channel

Test results

Band edge	EUT mode of operation	Delta [dBc]	Limit [dBc]	Margin [dB]
Lower	Single channel	43.8	20.0	23.8
Upper	Single channel	49.1	20.0	29.1

7 PEAK CONDUCTED OUTPUT POWER

Date of test:	2016-08-11	Test location:	Wireless Center
EUT Serial:	XX1000000035	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	37 %
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.

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

7.2 Test conditions

Detector: Peak
RBW: 3 MHz
VBW: 10 MHz
Span: 10 MHz

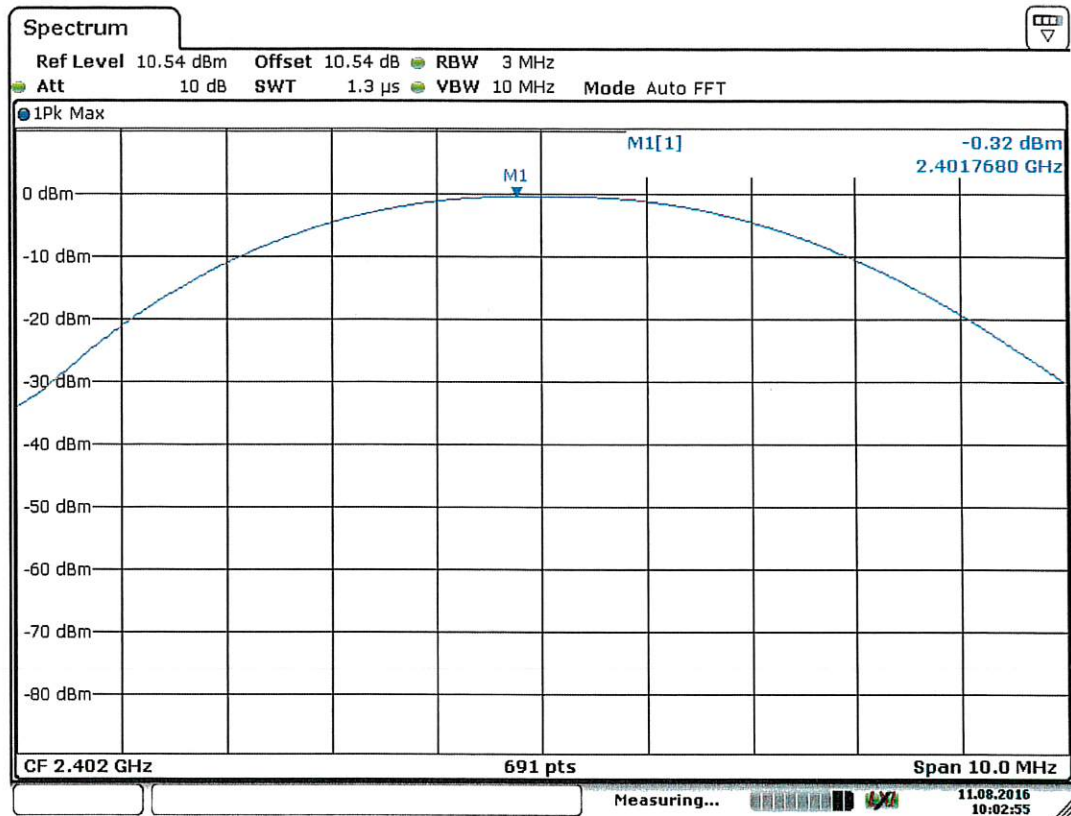
The EUT was set up in order to emit maximum disturbances.

7.3 Requirements

Reference: CFR 47 §15.247(b)(1), RSS-247 5.4

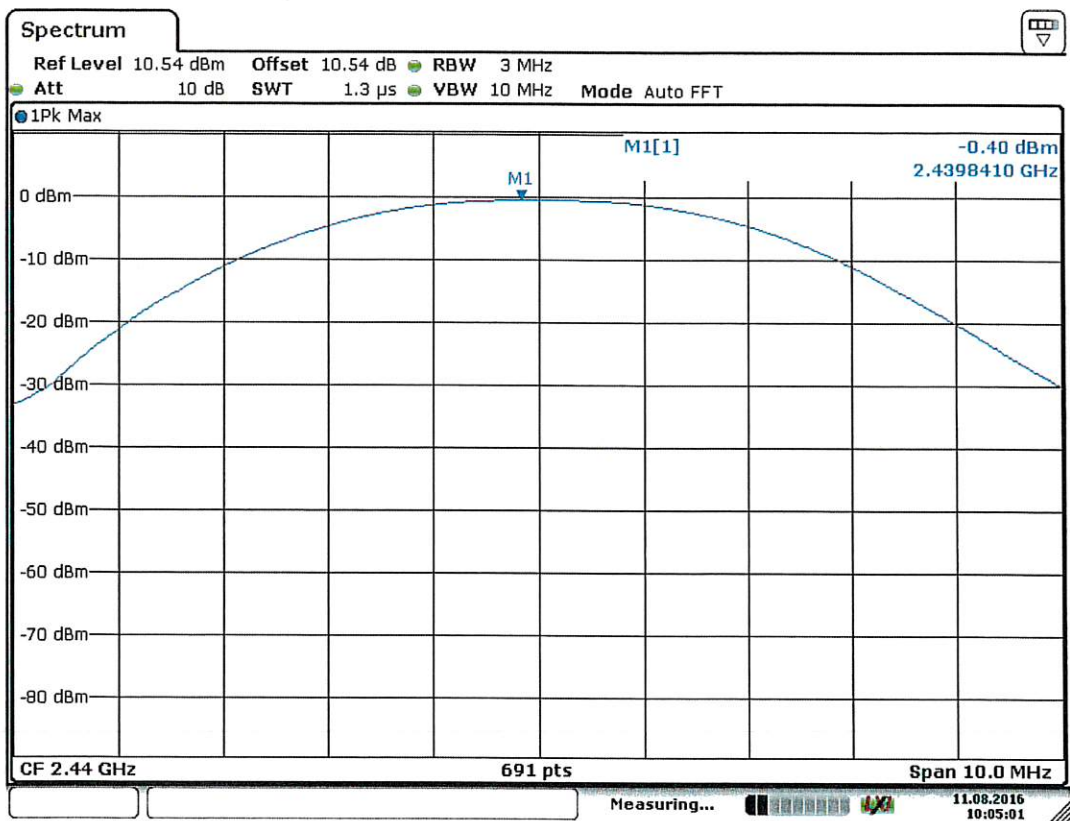
The maximum peak conducted output power of the intentional radiator shall not exceed 1 watt.

7.4 Test results



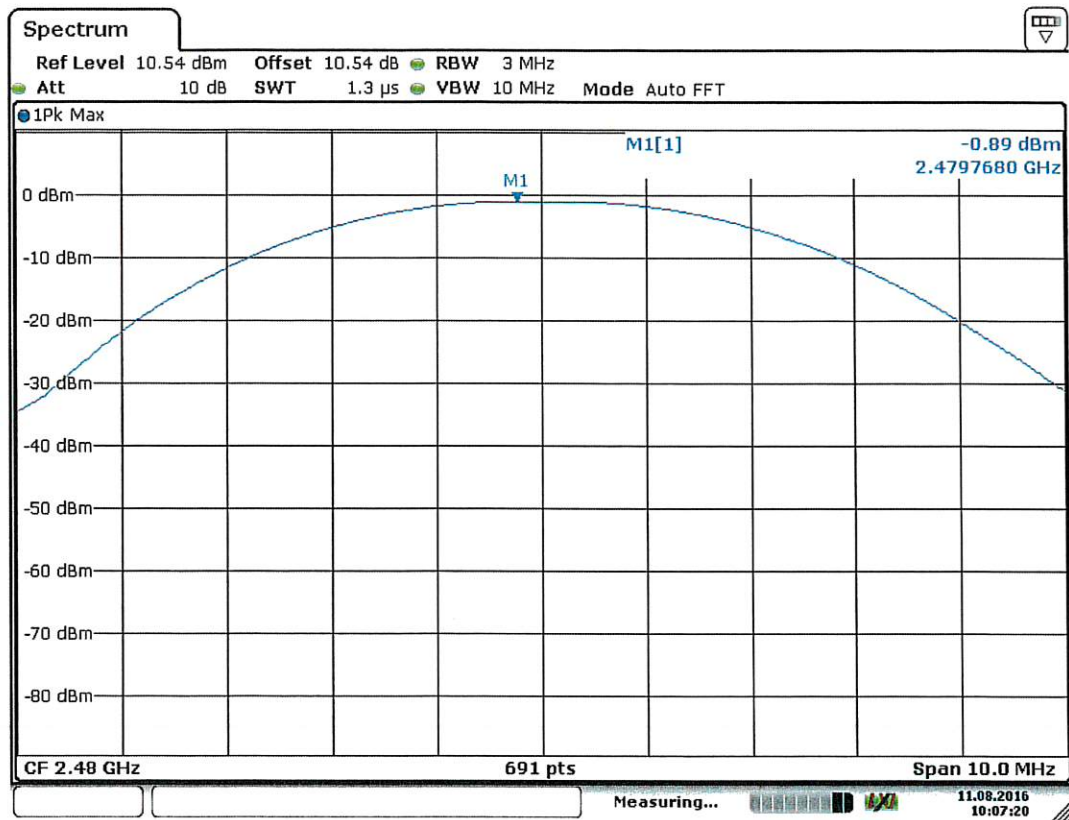
Date: 11 AUG 2016 10:02:55

Screenshot: Output power, low channel



Date: 11 AUG 2016 10:05:02

Screenshot: Output power, middle channel



Date: 11 AUG 2016 10:07:21

Screenshot: Output power, high channel

Test result

Channel [MHz]	Output power [dBm]
2402	-0.3
2440	-0.4
2480	-0.9

8 OCCUPIED 6 DB BANDWIDTH

Date of test:	2016-08-11	Test location:	Wireless Center
EUT Serial:	XX1000000035	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	37 %
Test result:	Pass	Margin:	180.2 kHz

8.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 11.8.1, option 2.

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

8.2 Test conditions

Detector: Peak
RBW: 100 kHz
VBW: 300 kHz
Span: 5 MHz

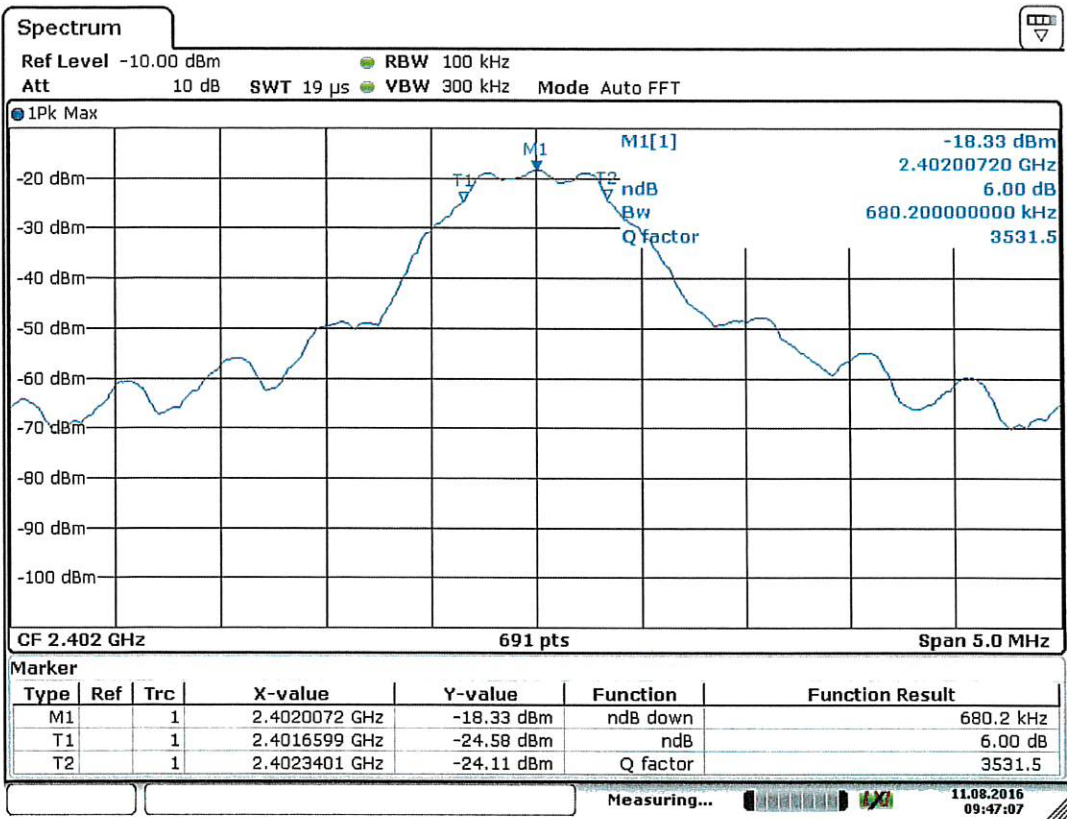
The EUT was set up in order to emit maximum disturbances.

8.3 Requirements

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

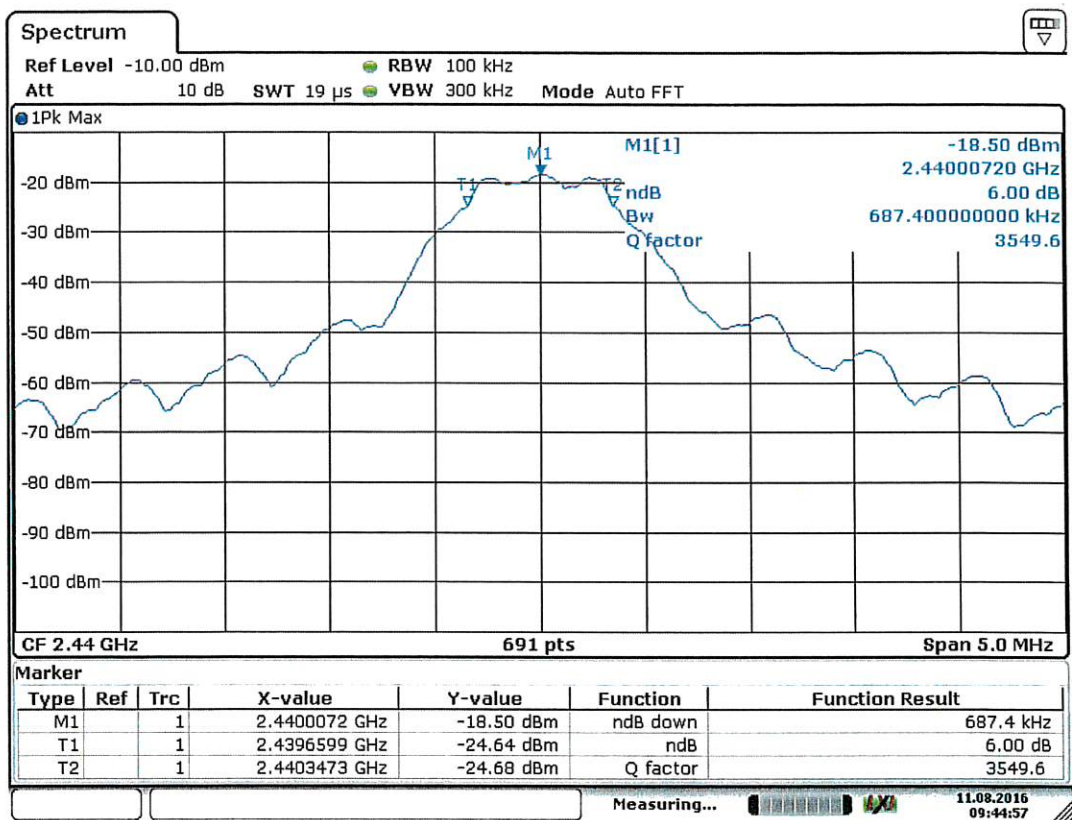
The minimum 6 dB bandwidth shall be 500 kHz.

8.4 Test results



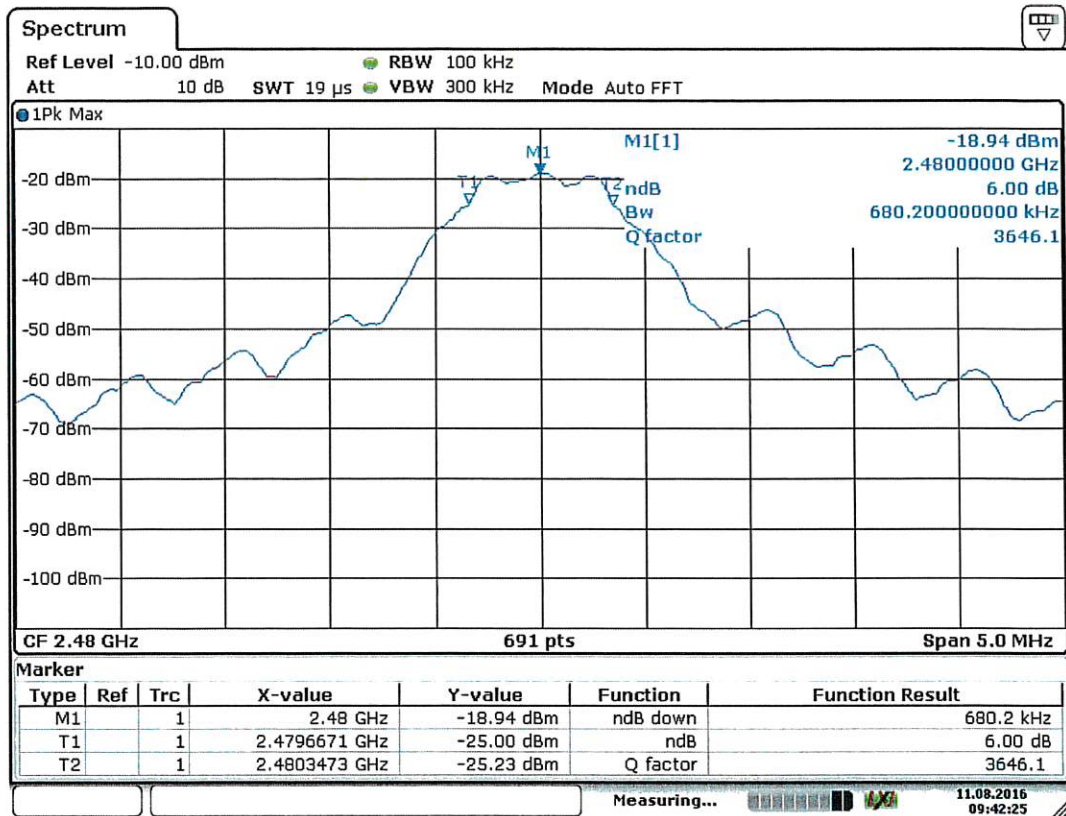
Date: 11 AUG 2016 09:47:06

Screenshot: Occupied bandwidth Measurement, low channel



Date:11 AUG 2016 09:44:57

Screenshot: Occupied bandwidth Measurement, middle channel



Date: 11 AUG 2016 09:42:25

Screenshot: Occupied bandwidth Measurement, high channel**Test result**

Channel [MHz]	6 dB BW [kHz]
2402	680.2
2440	687.4
2480	680.2

9 99 % BANDWIDTH

Date of test:	2016-08-11	Test location:	Wireless Center
EUT Serial:	XX1000000035	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	37 %
Test result:	Pass	Margin:	--

9.1 Test set-up and test procedure.

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

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

9.2 Test conditions

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

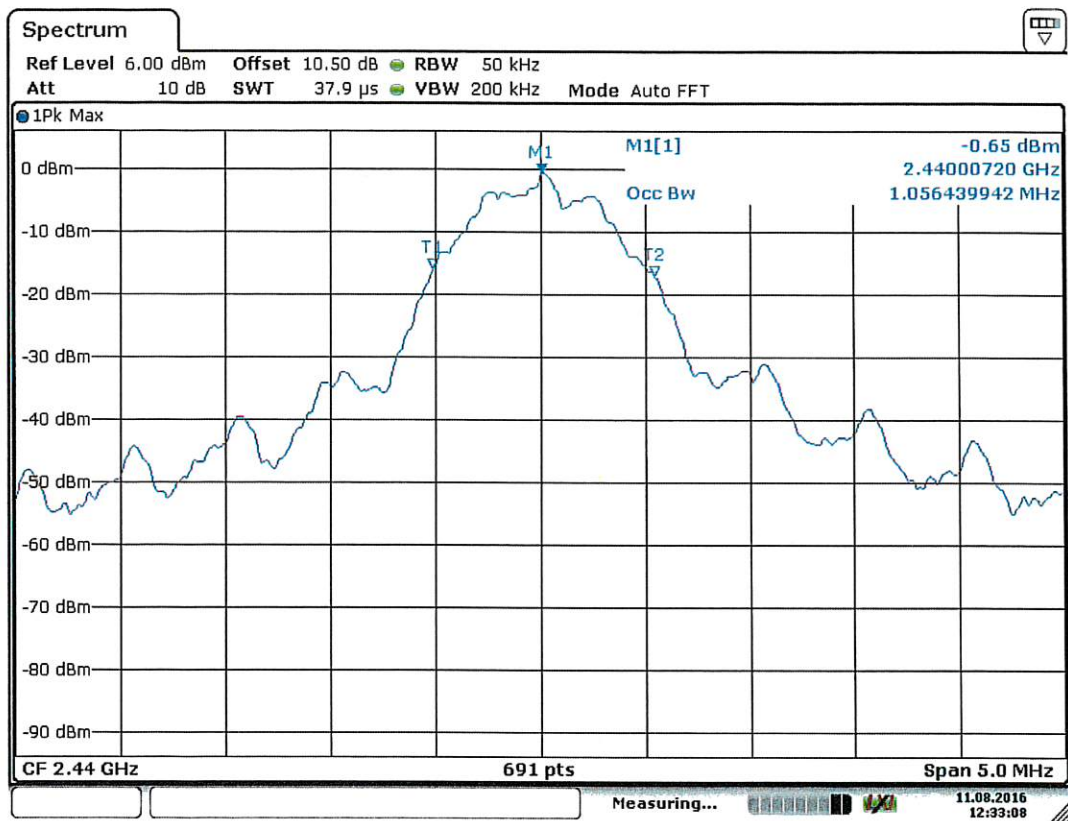
The EUT was set up in order to emit maximum disturbances.

9.3 Test results



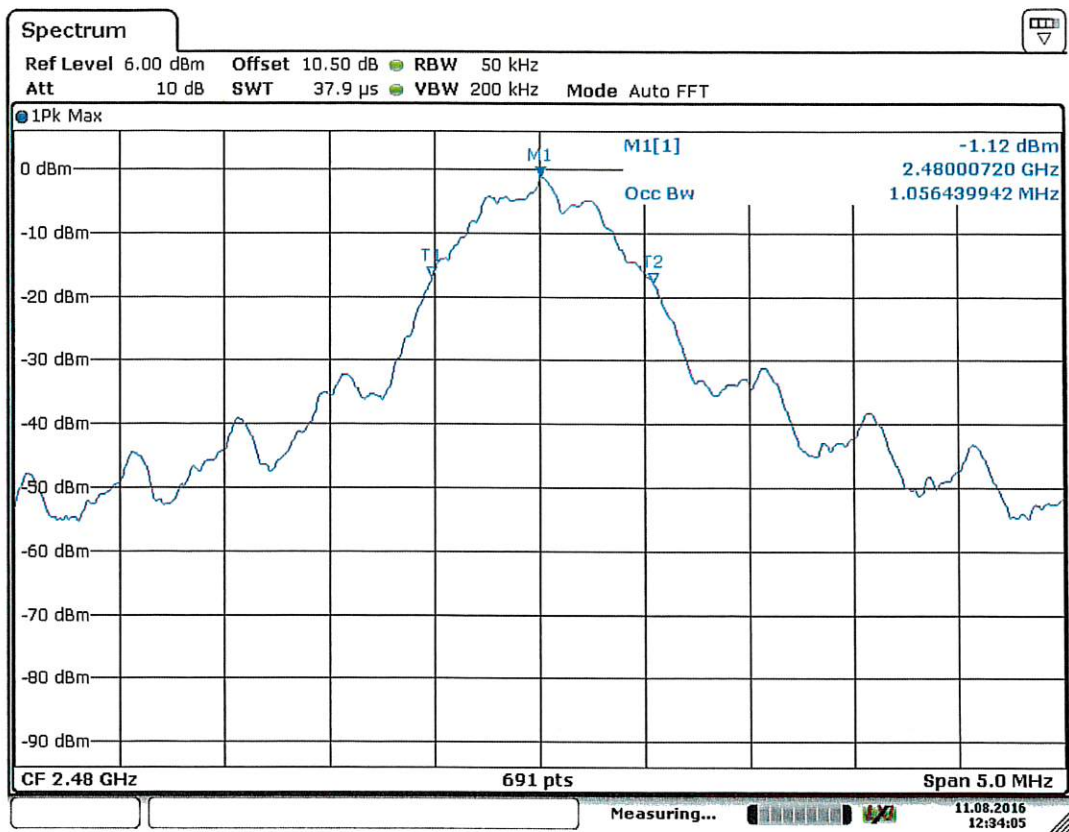
Date: 11.AUG 2016 12:32:03

Screenshot: Occupied bandwidth Measurement, low channel



Date: 11.AUG.2016 12:33:08

Screenshot: Occupied bandwidth Measurement, middle channel



Date: 11 AUG 2016 12:34:05

Screenshot: Occupied bandwidth Measurement, high channel**Test result**

Channel [MHz]	99 % BW [MHz]
2402	1.05
2440	1.06
2480	1.06

10 PEAK POWER SPECTRAL DENSITY

Date of test:	2016-08-11	Test location:	Wireless Center
EUT number:	XX1000000035	Ambient temp:	21 °C
Tested by:	Robert Hietala	Relative humidity:	37 %
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

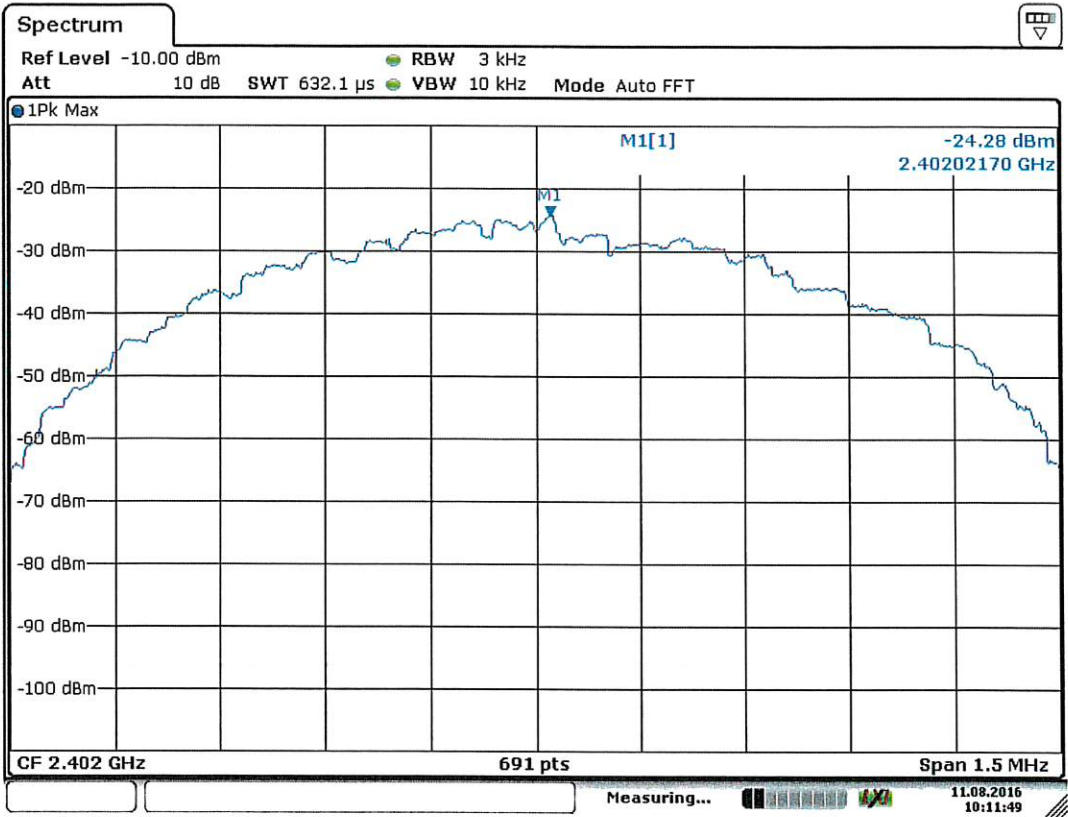
The EUT was set up in order to emit maximum disturbances.

10.3 Requirements

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

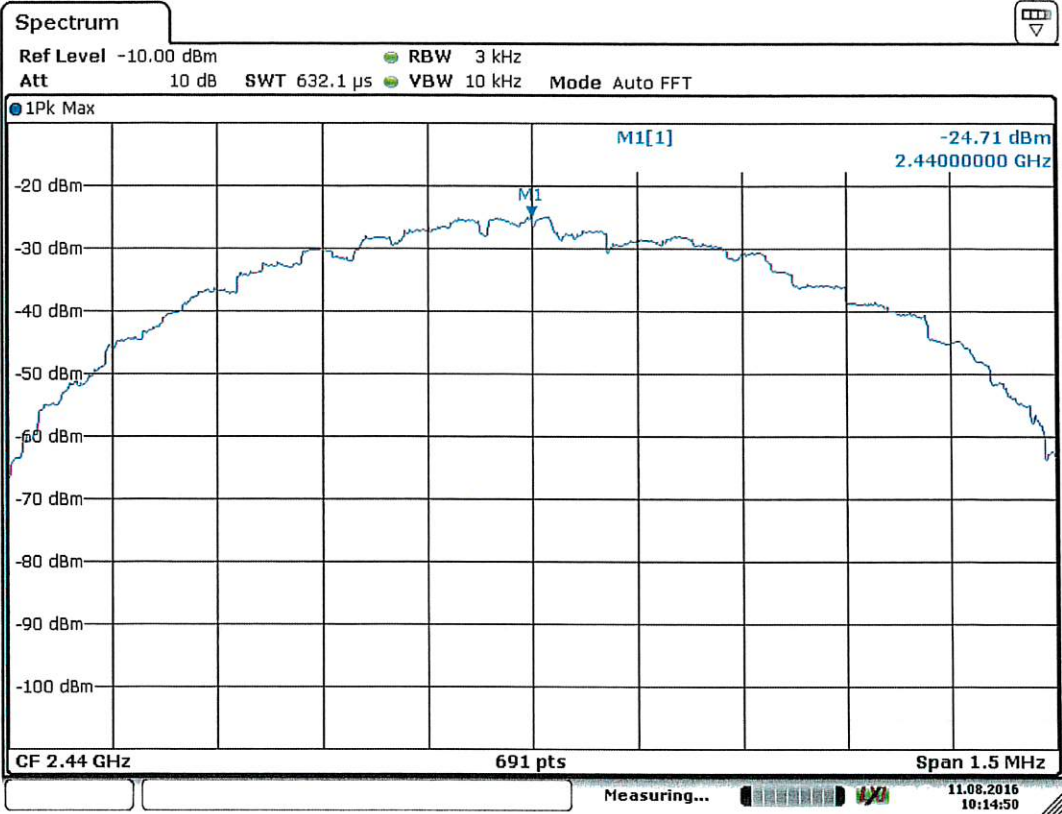
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

10.4 Test results



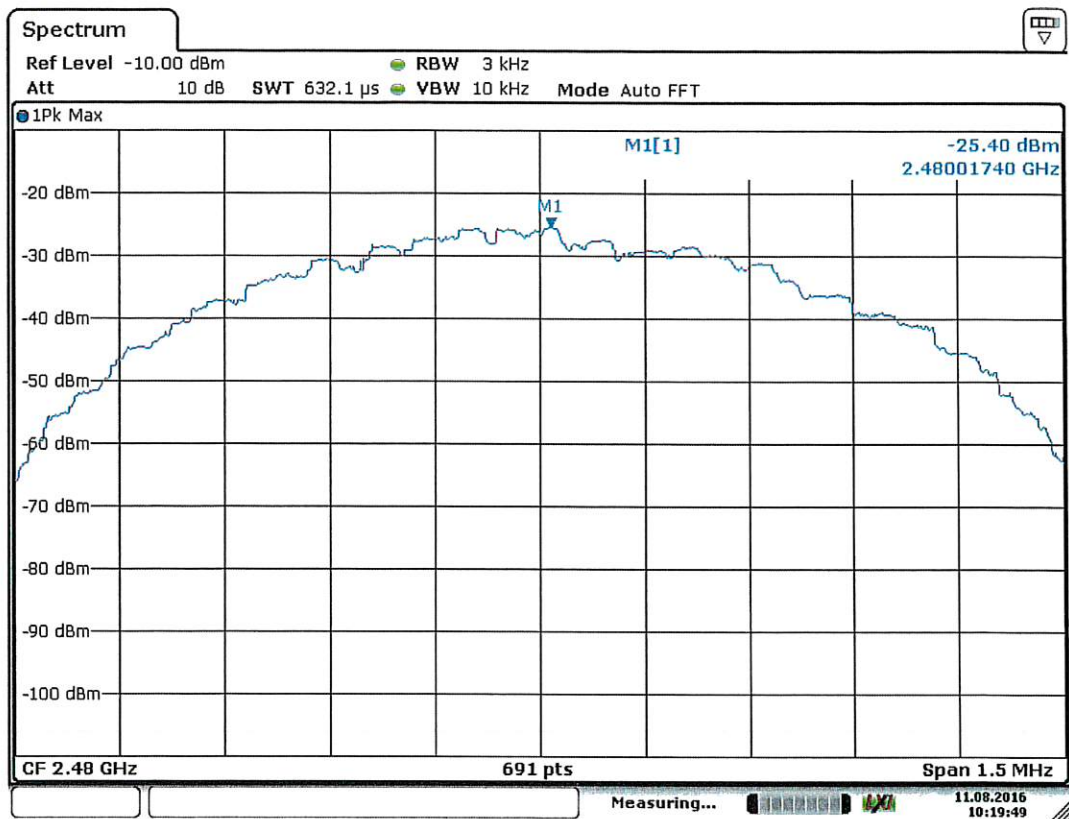
Date: 11 AUG 2016 10:11:50

Screenshot: Peak power spectral density, low channel



Date: 11 AUG 2016 10:14:50

Screenshot: Peak power spectral density, middle channel



Date: 11 AUG 2016 10:19:49

Screenshot: Peak power spectral density, high channel**Test result**

Channel [MHz]	PSD [dBm/3kHz]
2402	-24.3
2444	-24.7
2480	-25.4

11 DUTY CYCLE DECLARATION

Date of test:	2016-09-06	Test location:	Wireless Center
EUT Serial:	--	Ambient temp:	--
Tested by:	Robert Hietala	Relative humidity:	--
Test result:	--	Margin:	--

11.1 Duty cycle declaration

According to the client the information listed below is the worst case scenario of the duty cycle for normal mode of operation.

The packet length is 476 μ s; the chipset used is capable of sending six (6) packets per connection event.

Connection interval is 7.5 ms; the minimum number of frequencies hops is 15.

11.2 Duty cycle correction factor

Duty cycle correction factor is calculated using the equation: δ (dB) = 20 log (duty cycle).

Given the information provided by the client the duty cycle correction factor is calculated as follows:

$$\delta \text{ (dB)} = 20 * \log \left(\frac{6 * 476 \mu s}{15 * 7.5 ms} \right)$$

$$\delta \text{ (dB)} = -31.9$$

The duty cycle correction factor is -31.9 dB.

12 TEST EQUIPMENT

Stora Hallen

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 -- 8.51.0	--	--	--
Receiver	Rohde & Schwarz	ESU 8	12866	07-2016	1 year
Receiver	Rohde & Schwarz	ESU 40	13178	07-2016	1 year
BiLog antenna	Chase	CBL6110A	971	07-2016	3 year
Preamplifier	HP	--	7992 / 7993	06-2016	1 year
Horn antenna	Rohde & Schwarz	HF907	31246	06-2016	1 year
2,4 GHz band reject filter:	K&L MICROWAVE INC	6N45-2450/T100-0/0	12389	03-2016	1 year
4 GHz high pass filter	K&L MICROWAVE INC	4410-X4500/18000-0/0	5133	07-2016	1 year

Wireless Center and 3m FAC

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Measurement software	Rohde & Schwarz	EMC32 – 9.21.0	--	--	--
Signal analyzer	Rohde & Schwarz	FSIQ 40	12793	07-2016	1 year
Measurement cable	Huber + Suhner	Sucoflex 104 PE	39071	07-2016	1 year
Measurement cable	Huber + Suhner	Sucoflex 104 PE	39084	07-2016	1 year
Measurement cable	Huber + Suhner	Sucoflex 104	39033	07-2016	1 year
Measurement cable	Huber+ Suhner	Sucoflex 104	39119	07-2016	1 year
Measurement cable	Huber+ Suhner	Sucoflex 102	39138	07-2016	1 year
Horn antenna	EMCO	3115	4936	04-2014	3 years
Pre amplifier	Sangus	00101400-23-10P -6-S ; AFS44-12002400-32-10P -44	12335	07-2016	1 year
Horn antenna	EMCO	3160-08	30099	10-2013	3 years
Horn antenna	EMCO	3160-09	30101	10-2013	3 years
Signal analyzer:	Rohde & Schwarz	FSV 30	32594	07-2016	1 year
Signal generator:	Rohde & Schwarz	SMB100A	32592	07-2016	1 year
Signal analyzer	Rohde & Schwarz	FSIQ 40	12793	07-2016	1 year
2,4 GHz band reject filter:	K&L MICROWAVE INC	6N45-2450/T100-0/0	12389	03-2016	1 year
4 GHz high pass filter	K&L MICROWAVE INC	4410-X4500/18000-0/0	5133	08-2016	1 year
Temperature chamber:	Vötsch	VC4018	12282	month-year	1 year
Multimeter	Fluke	179	33105	10-2015	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 1613920STO-002 Annex 1.

Test set up photos are in separate document 1613920STO-002 Annex 2.