

RADIO TEST REPORT

No. 1718488STO-002, Ed. 1

RF Performance

EQUIPMENT UNDER TEST

Equipment: Thermostat
Type/Model: ViCare Radiator Thermostat Valve
Manufacturer: Viessmann Werke GmbH & Co.
Tested by request of: Danfoss A/S

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: 2018-03-19

Tested by: *Per Larsson*
Per Larsson

Approved by: *Matti Virkki*
Matti Virkki

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Revision History

Edition	Date	Description	Changes
1	2018-03-19	First release	

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1 CLIENT INFORMATION

The EUT has been tested by request of

Company	Danfoss A/S
	Nordborgvej 81
	DK-6430 Nordborg
	DENMARK
Name of contact	Hans Schou Christensen
	Phone +45 74882114

2 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment:	Thermostat
Type/Model:	ViCare Radiator Thermostat Valve
Brand name:	Viessmann Werke GmbH & Co.
Serial number:	No visible
Manufacturer:	Viessmann Werke GmbH & Co .

Transmitter frequency range: 2405 – 2480 MHz

Receiver frequency range: 2405 – 2480 MHz

Frequency agile or hopping:	☐ Yes	☒ No
Antenna:	☒ Internal antenna	☐ External antenna
Antenna connector:	☒ None, internal antenna	☐ Yes, type xxx
Antenna gain:	0 dBi	
Rating RF output power:	11 dBm	
Type of modulation:	DSSS (Zigbee)	
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 stand by mode supported:	☐ Yes	☒ No

2.2 Additional information about the EUT

The EUT consists of the following units:

Unit	Type	Serial number
Thermostat	ViCare Radiator Thermostat Valve	No visible

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	HP Elite Book 850	HP	HP5CG54451CL
USB to serial programming cable	Not known	Not known	Not known
USB Zigbee dongle	Not known	Not known	Not known

2.4 Test signals and operation modes

Continuous signal

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

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,
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 #
5 m CHAMBER	Semi-anechoic 5 m	2042G-3

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 removed 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)	Antenna gain	PASS
	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 1.3 dB at 4811.0 MHz. See clause 6.6 – 6.7. The measured result is below the upper limit, but by a margin less than half of the uncertainty interval. It is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance.	
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 was more than 1 MHz See clause 8.4.	
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 at least 9.9 dB at 2445 MHz. See clause 10.4.	
FCC §15.247(e) RSS-247 5.5	Radiated band edge	PASS
	The EUT complies with the limits. The margin to the limit was at least 1.4 dB at 2484 MHz. See clause 5.4.	
FCC §15.247(e) RSS-247 5.5	Band edge	PASS
	The EUT complies with the limits. The margin to the limit was at least 18.8 dB at 2402 MHz. See clause 7.4.	

5 RADIATED BAND EDGE

Date of test:	2017-12-05	Test location:	5mSAC
EUT Serial:	V60	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	1.4 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 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.

EUT was evaluated in three orthogonal orientations.

5.2 Test conditions

Test set-up:

Test receiver set-up:

Preview test:

Final test:

MHz. VBW 3 MHz

Measuring distance:

Measuring angle:

Antenna

Height above ground plane:

Polarisation:

Type:

Antenna tilt:

1 GHz – 26.5 GHz

Peak,

RBW 1 MHz

VBW 3 MHz

Peak,

RBW 1 MHz

VBW 3 MHz

Average

Peak value + 20 x LOG (Duty cycle) / RBW 1

3 m

0 – 359°

1 – 4 m

Vertical and Horizontal

Horn

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:

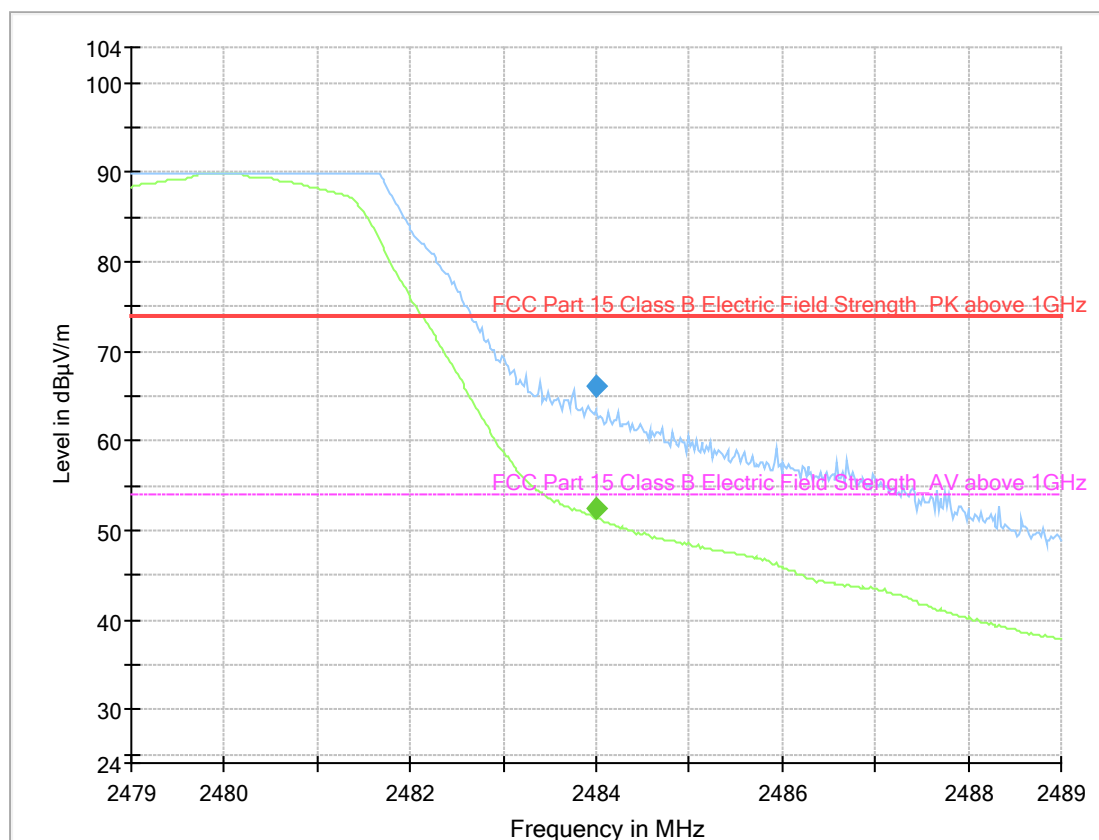
Reference: CFR 47 §15.209, RSS-Gen section 8.9

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

Frequency range [MHz]	Field strength at 3 m (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

5.4 Test results

Full Spectrum



Upper band edge sweep

Field strength of band edge, high channel

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Detector	EUT Orientation	Polarization H/V	Margin [dB]
2484.0	52.6	54.0	Average	Vertical	H	1.4*
2484.0	66.1	73.9	Peak	Vertical	H	7.8

* The measured result is below the upper limit, but by a margin less than half of the uncertainty interval. It is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance.

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

Date of test:	2017-12-05	Test location:	5mSAC
EUT Serial:	V60	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	1.3 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.

Pre scan was made in three orthogonal EUT orientations.

Results from vertical orientation are presented below, which was found to give worst spurious emissions.

6.2 Test conditions

Test set-up:

Test receiver set-up:

Preview test:

Final test:

EUT height above ground plane:

Measuring distance:

Measuring angle:

Antenna

Height above ground plane:

Polarisation:

Type:

30 MHz to 1000 MHz

Peak,

RBW 120 kHz

VBW 1 MHz

Quasi-Peak,

RBW 120 kHz

VBW 1 MHz

0.8 m

3 m

0 – 359°

1 – 4 m

Vertical and Horizontal

Bilog

Test set-up:

Test receiver set-up:

Preview test:

Final test:

MHz VBW 3 MHz

EUT height above ground plane:

Measuring distance:

Measuring angle:

Antenna

Height above ground plane:

Polarisation:

Type:

Antenna tilt:

1 GHz – 26.5 GHz

Peak,

RBW 1 MHz

VBW 3 MHz

Average,

RBW 1 MHz

VBW 3 MHz

Peak,

RBW 1 MHz

VBW 3 MHz

Average Peak value + 20 x LOG (Duty cycle) / RBW 1

1.5 m

3 m

0 – 359°

1 – 4 m

Vertical and Horizontal

Horn

Activated

6.3 Requirements

Within restricted bands and receive mode:

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 (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))

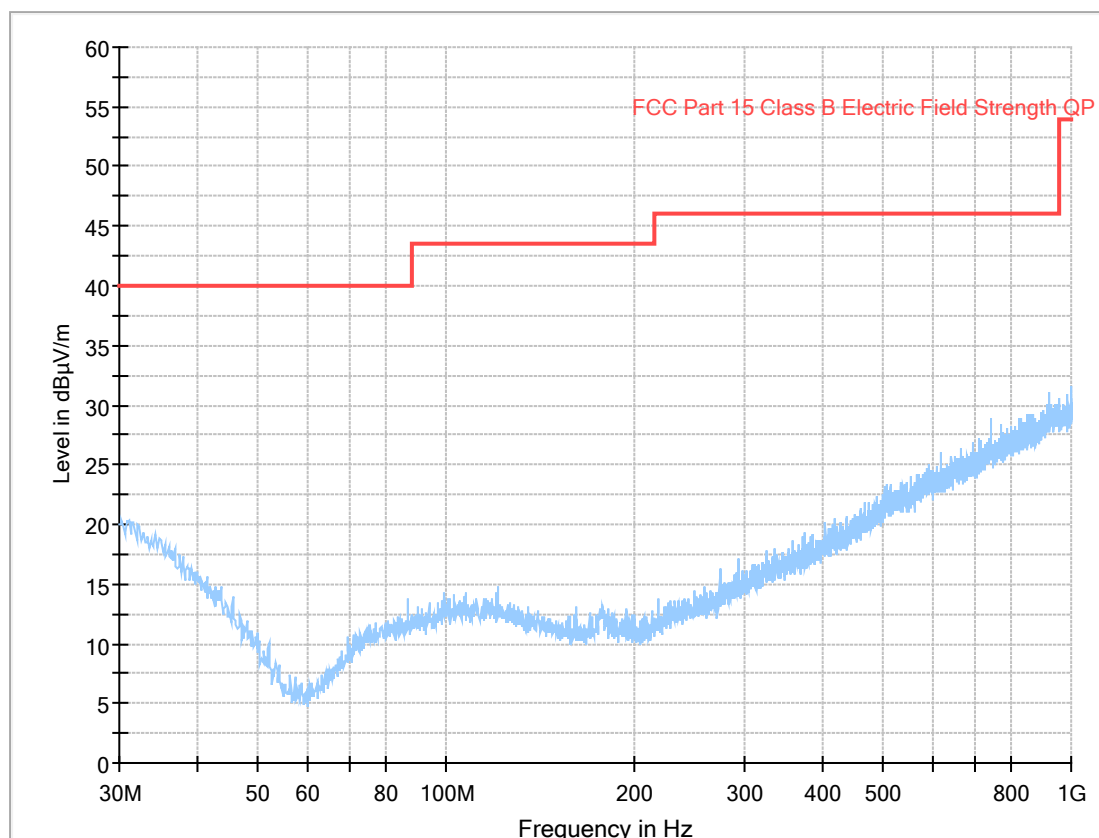
Outside the restricted bands:

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.

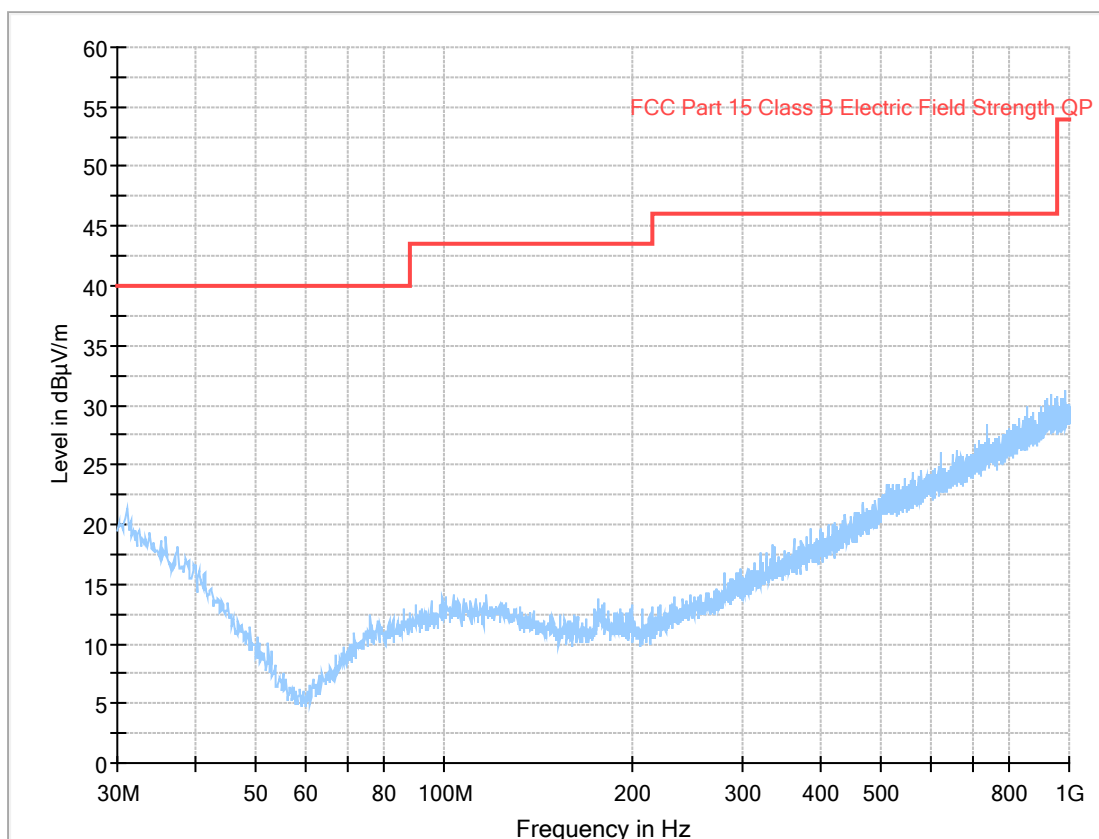
6.4 Test results 30 MHz – 1000 MHz, TX

Full Spectrum



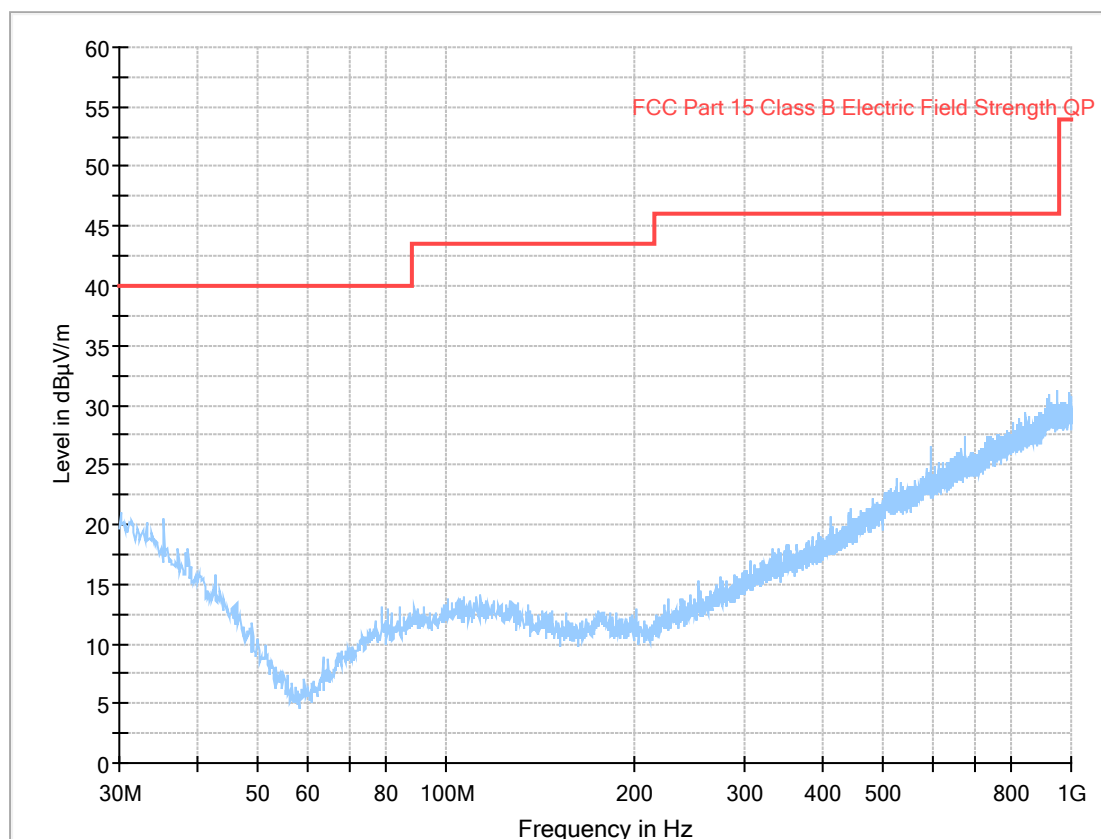
Diagram, Peak overview sweep, 30 – 1000 MHz at 3 m distance. TX low channel

Full Spectrum



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 mid channel

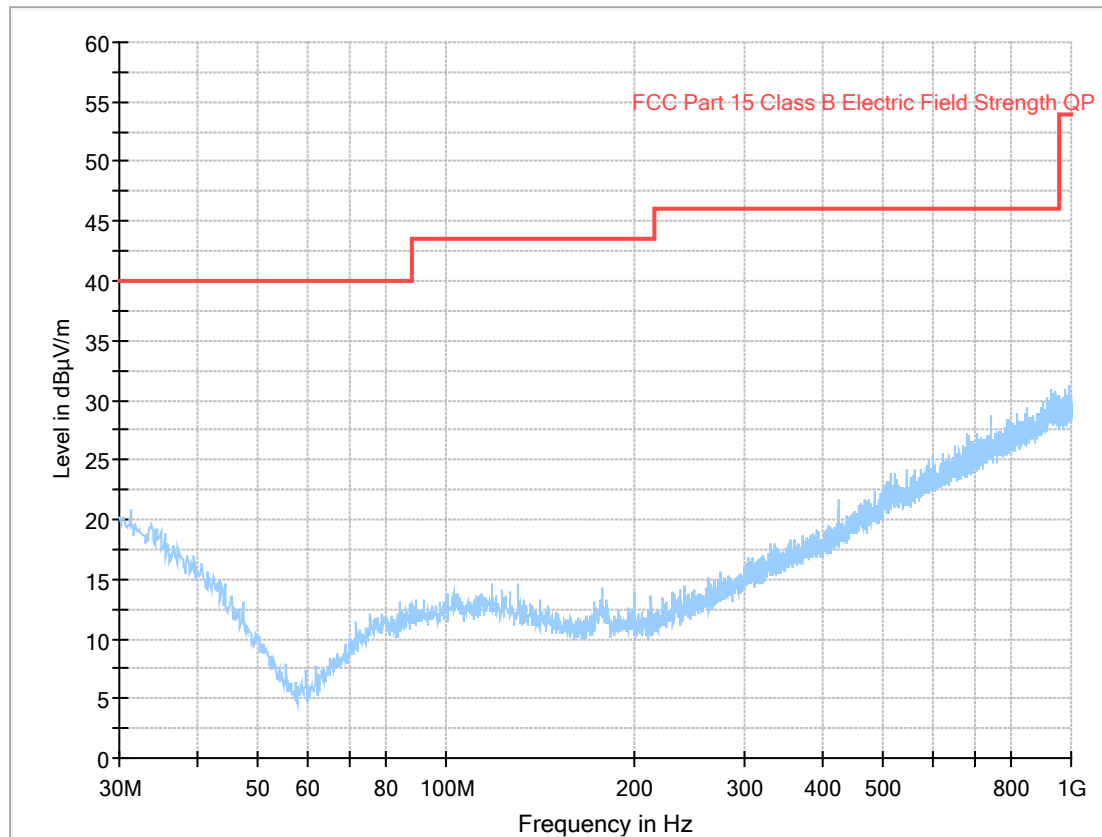
Measurement results, Quasi Peak

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]

6.5 Test results 30 MHz – 1000 MHz, RX

Full Spectrum



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

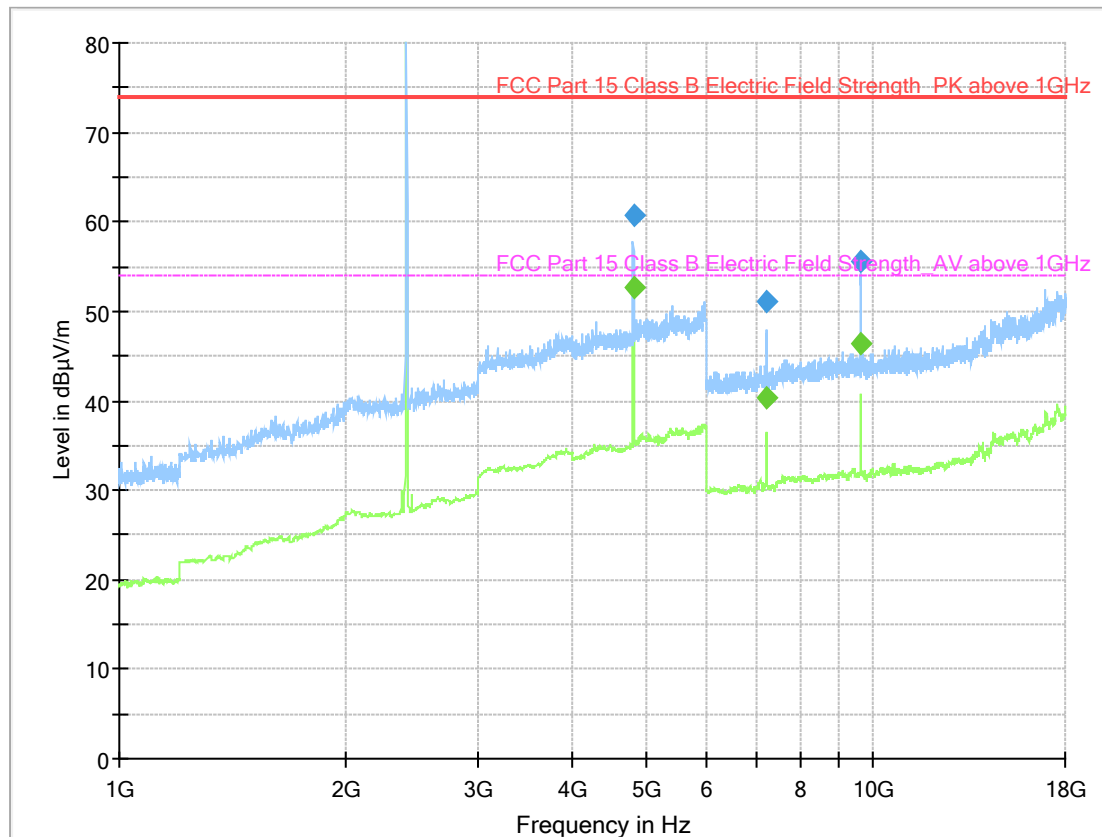
Measurement results, Quasi Peak

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

Full Spectrum



Diagram, Peak overview sweep, 1– 18 GHz at 3 m distance. TX low channel.

Measurement results, Peak, TX low channel

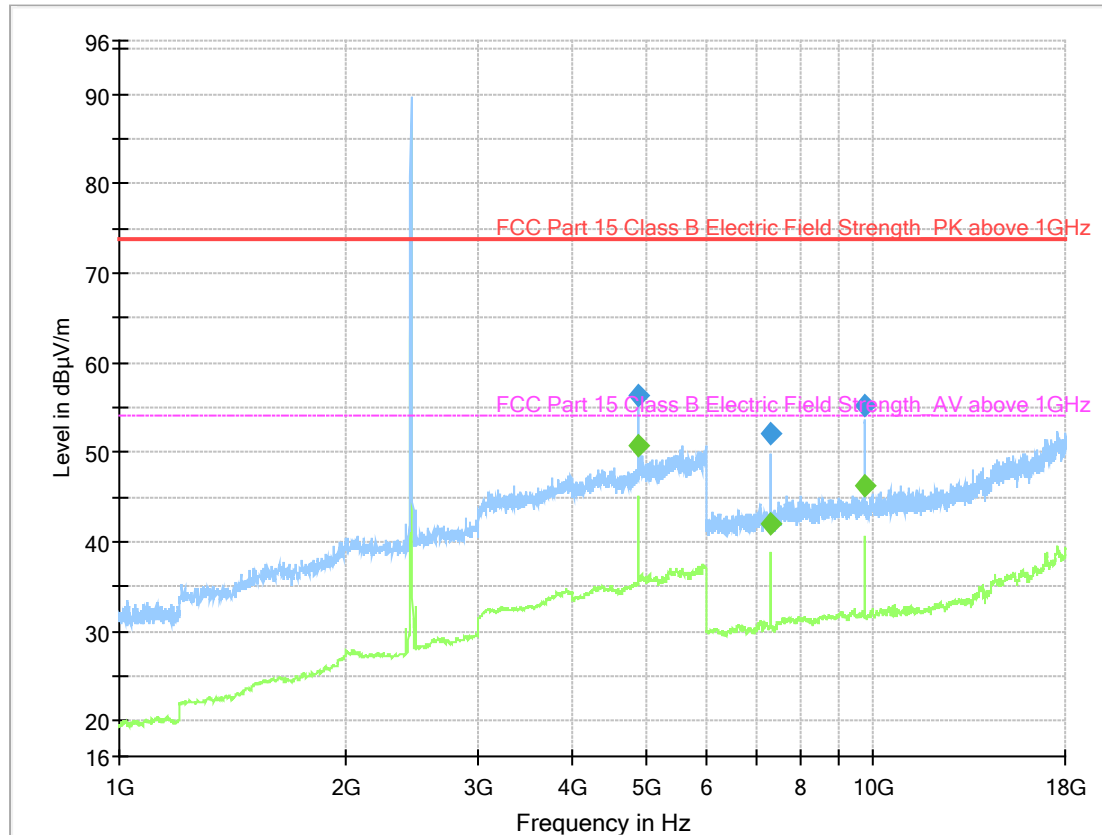
Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Polarization H/V	Margin [dB]
4811.0	60.7	73.9	V	13.2
7216.6	51.0	73.9	V	22.9
9618.0	55.7	73.9	V	18.2

Measurement results, Average, TX low channel

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Polarization H/V	Margin [dB]
4811.0	52.7	54.0	V	1.3*
7216.6	40.3	54.0	V	13.7
9618.0	46.5	54.0	V	7.6

Note*: The measured result is below the upper limit, but by a margin less than half of the uncertainty interval. It is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance.

Full Spectrum



Diagram, Peak overview sweep, 1– 18 GHz at 3 m distance. TX mid channel.

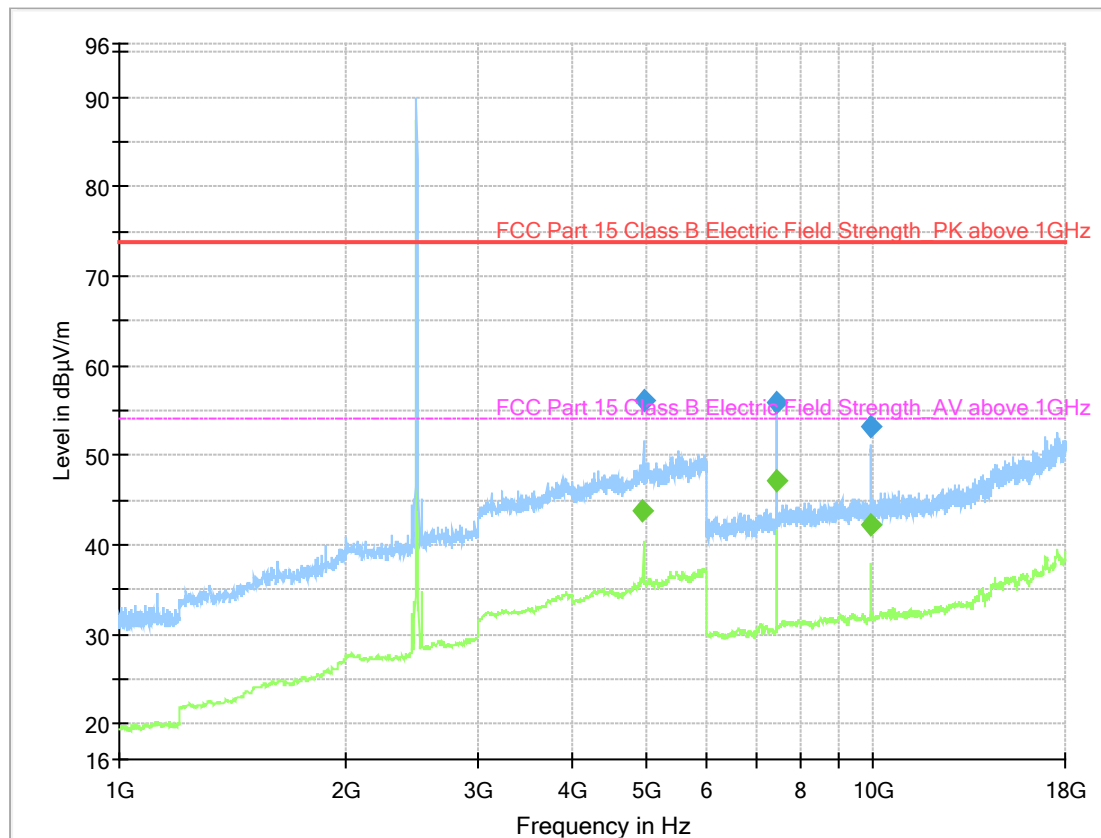
Measurement results, Peak, TX middle channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
4881.2	56.3	73.9	V	17.6
7321.6	52.1	73.9	V	21.8
9757.7	55.2	73.9	V	18.8

Measurement results, Average, TX mid channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
4879.0	50.8	54.0	V	3.2
7321.6	41.9	54.0	V	12.1

Full Spectrum



Diagram, Peak overview sweep, 1– 18 GHz at 3 m distance. TX high channel.

Measurement results, Peak, TX high channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
4961.1	56.0	73.9	V	17.9
7441.7	55.8	73.9	V	18.1
9917.8	53.2	73.9	V	20.7

Measurement results, Average, TX high channel

Frequency [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Polarization H/V	Margin [dB]
4958.9	43.7	54.0	V	10.3
7438.5	47.2	54.0	V	6.8
9917.8	42.1	54.0	V	11.9

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

Full Spectrum

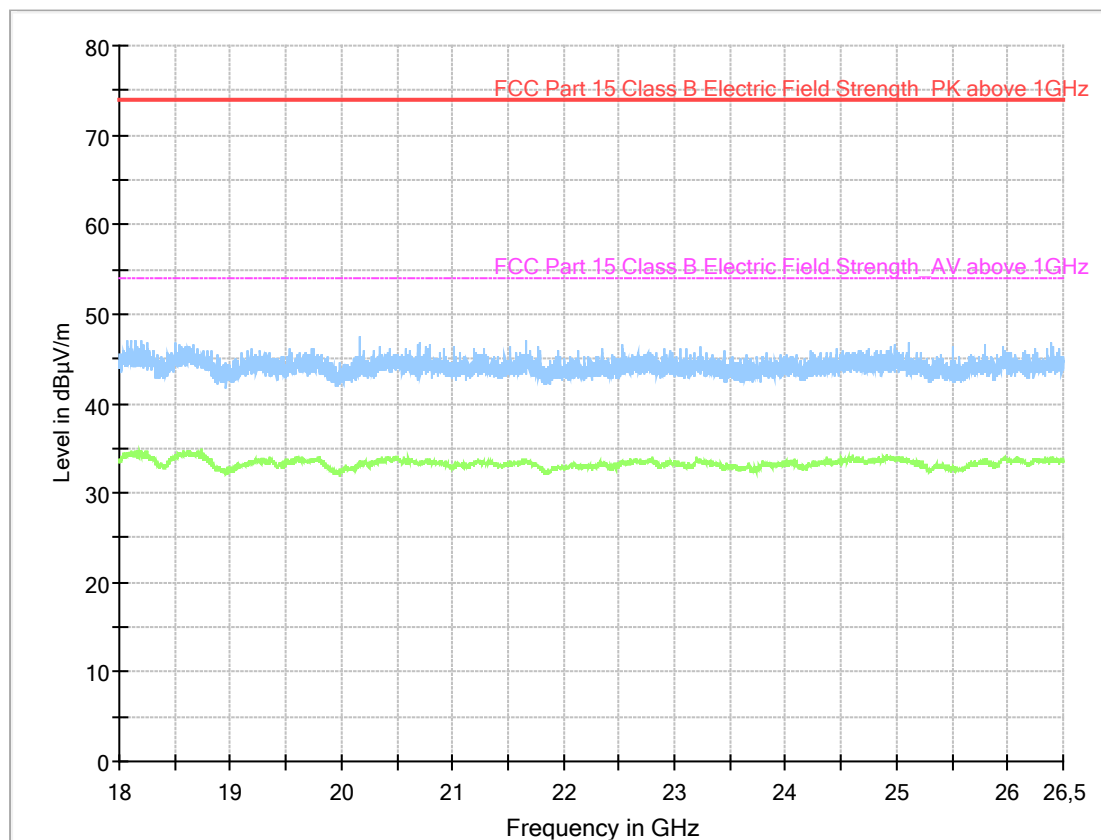


Diagram. Peak overview sweep. 18– 26.5 GHz at 3 m distance. TX low channel.

Full Spectrum

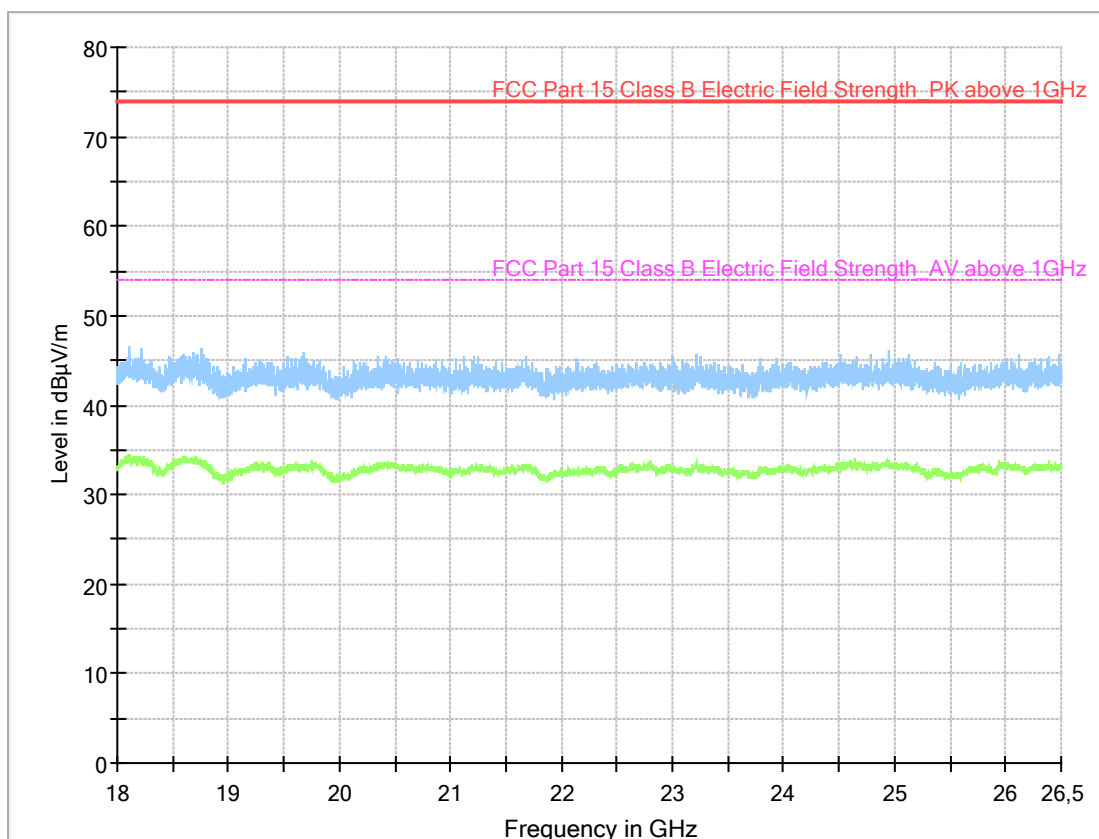


Diagram. Peak overview sweep. 18– 26.5 GHz at 3 m distance. TX mid channel.

Full Spectrum

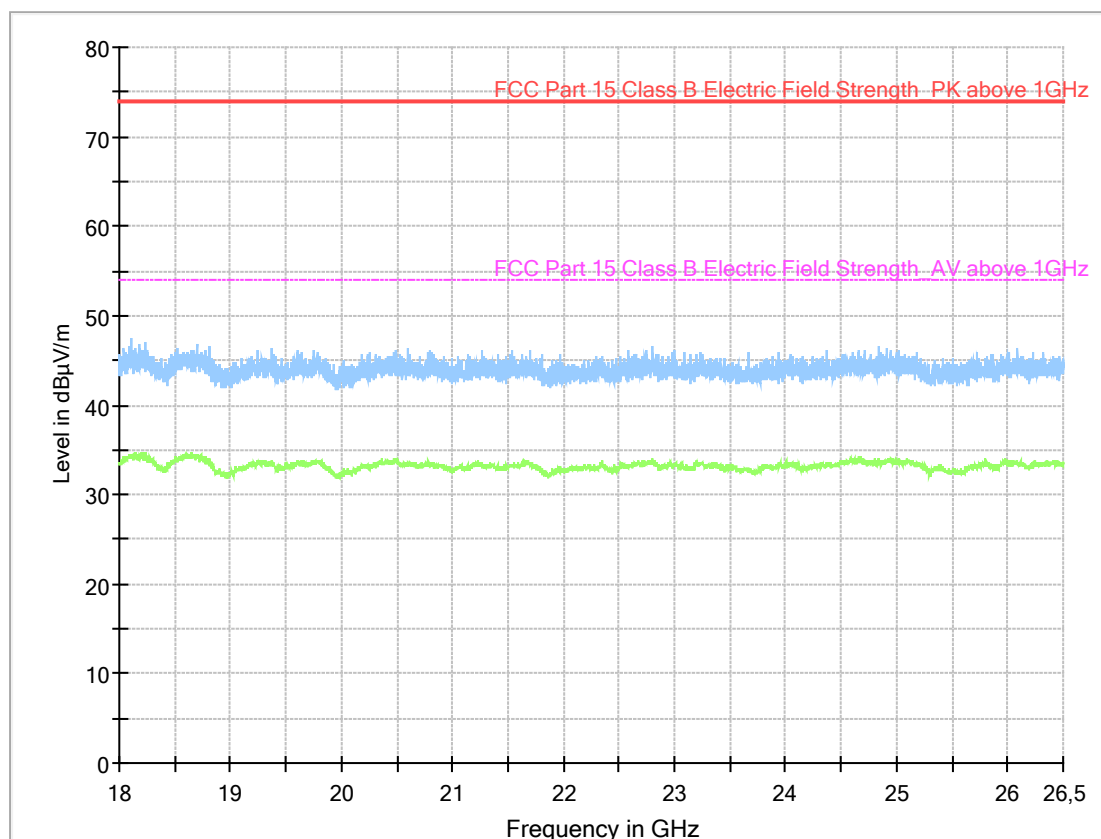


Diagram. Peak overview sweep. 18– 26.5 GHz at 3 m distance. TX high channel.

6.7 Test results 1 GHz – 18 GHz. RX

Full Spectrum

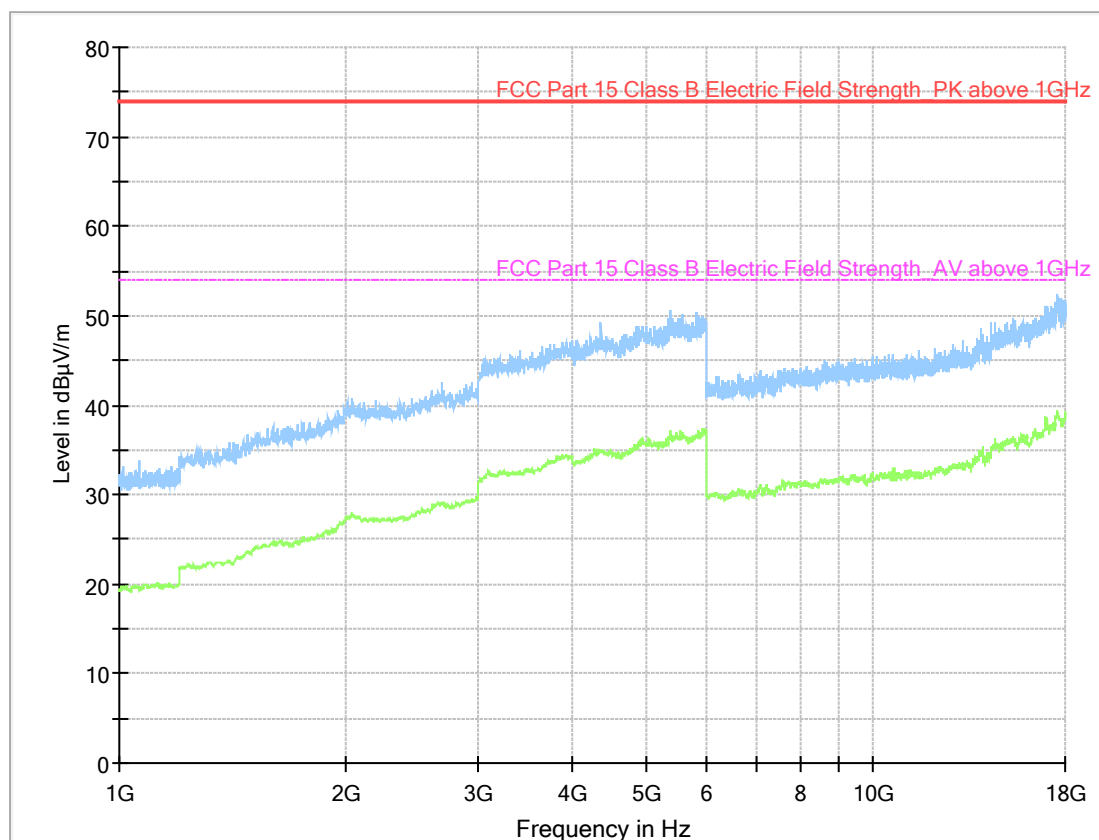


Diagram. Peak overview sweep. 1– 18 GHz at 3 m distance. RX mid channel.

No emissions are found above noise floor.

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

7 CONDUCTED BAND EDGE MEASUREMENT

Date of test:	2018-01-15	Test location:	Wireless center
EUT Serial:	V56	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
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 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

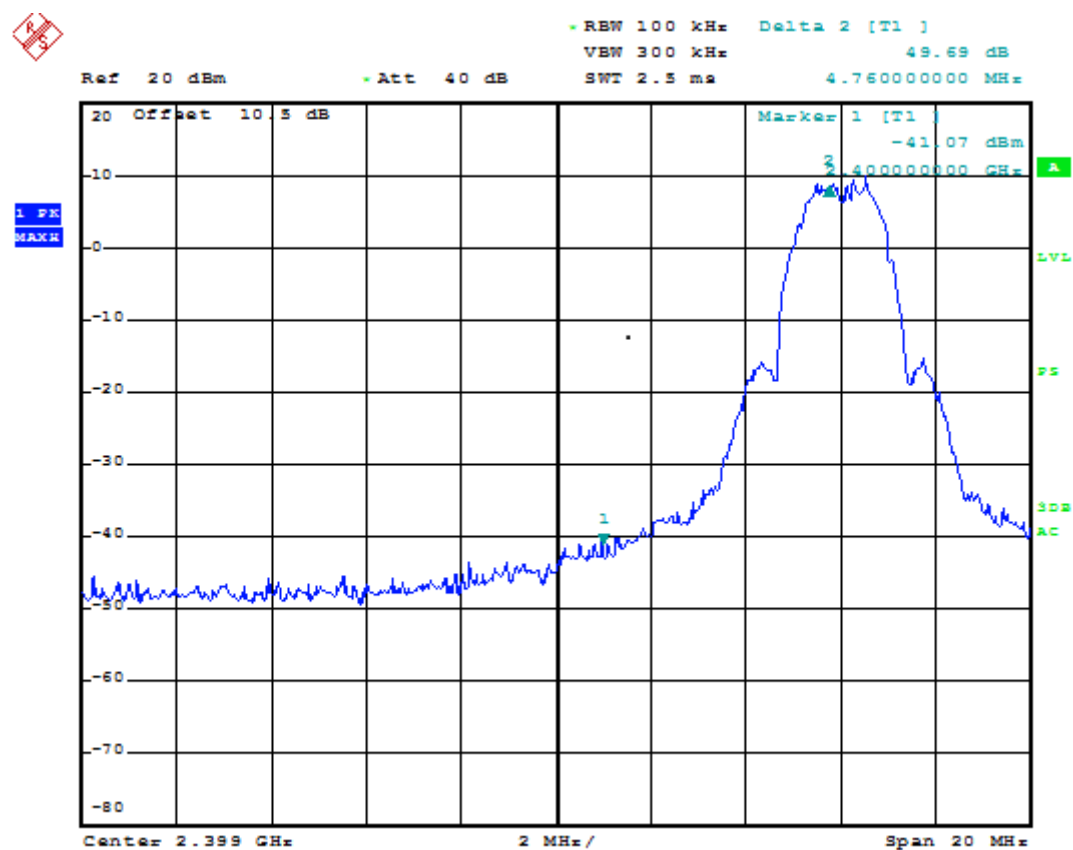
Detector: Peak,
RBW: 100 kHz
VBW: 300 kHz
Span: 20 MHz

7.3 Requirement

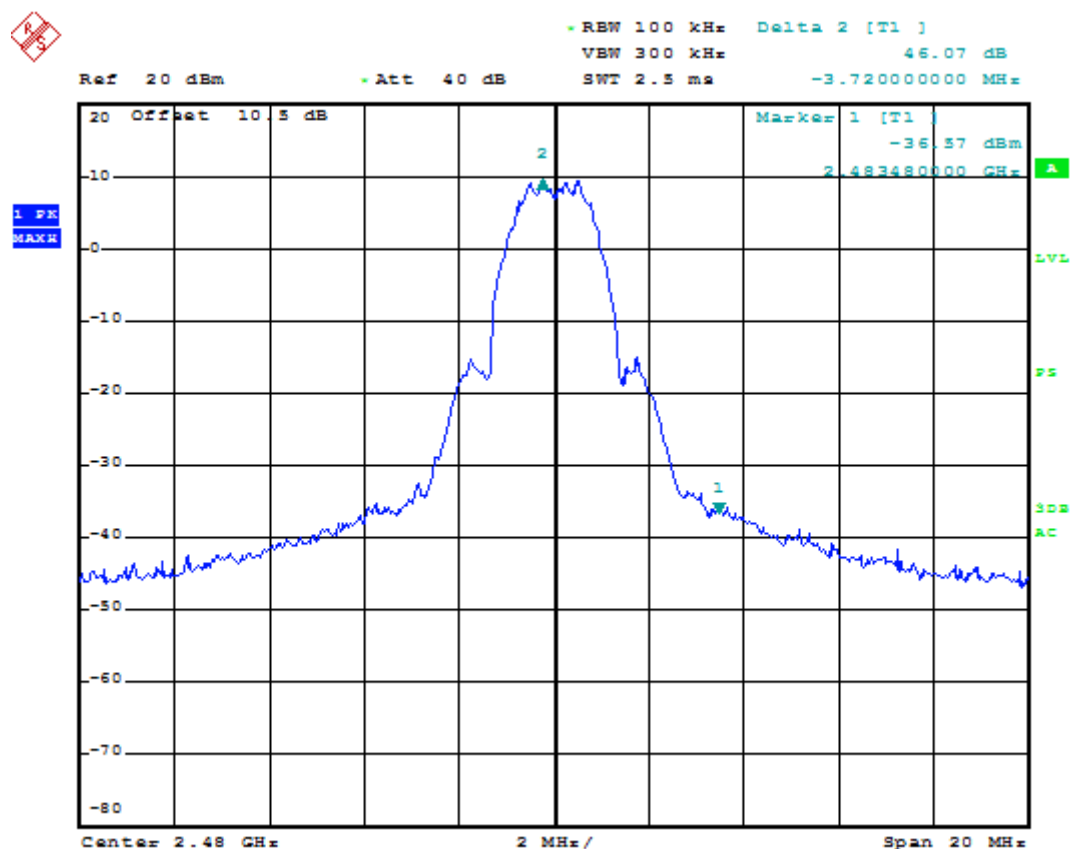
Reference: CFR 47 §15.247(d), RSS-247 5.5,

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 30 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



Screenshot: Lower band edge sweep, low channel channel



Screenshot: Upper band edge sweep, high channel

Test results

Band edge	Delta [dBc]	Limit [dBc]	Margin [dB]
Lower	46,7	30.0	16,7
Upper	46,1	30.0	16,1

8 MAXIMUM CONDUCTED OUTPUT POWER

Date of test:	2018-01-15	Test location:	Wireless center
EUT Serial:	V56	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	>10 dB

8.1 Test set-up and test procedure.

The test method is in accordance with ANSI C63.10-2013 section 11.9.2.

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 DTSSs 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

Test result

Channel [MHz]	Output power [dBm]
2405	11.2
2445	11
2480	10.8

9 OCCUPIED 6 DB BANDWIDTH

Date of test:	2018-01-15	Test location:	Wireless center
EUT Serial:	V56	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	>1 MHz

9.1 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.

9.2 Test conditions

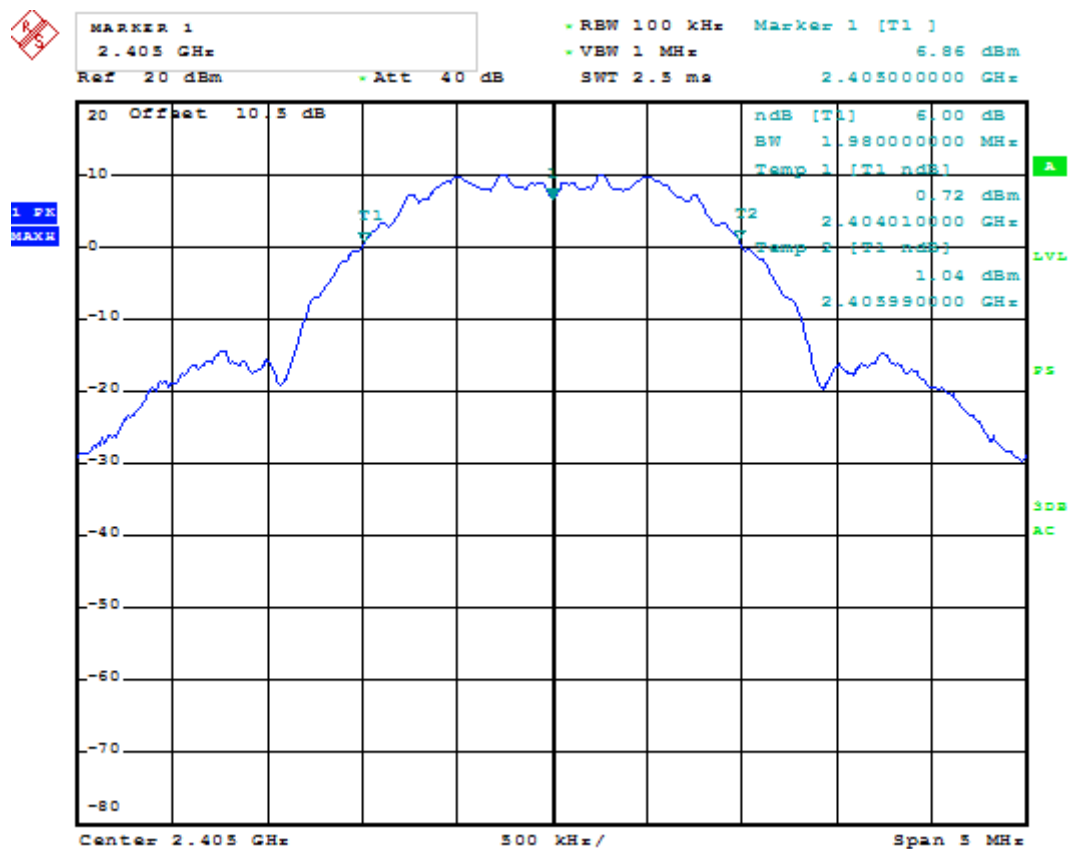
Detector: Peak.
 RBW: 100 kHz
 VBW: 3 x RBW
 Span: >1.5 x OBW

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

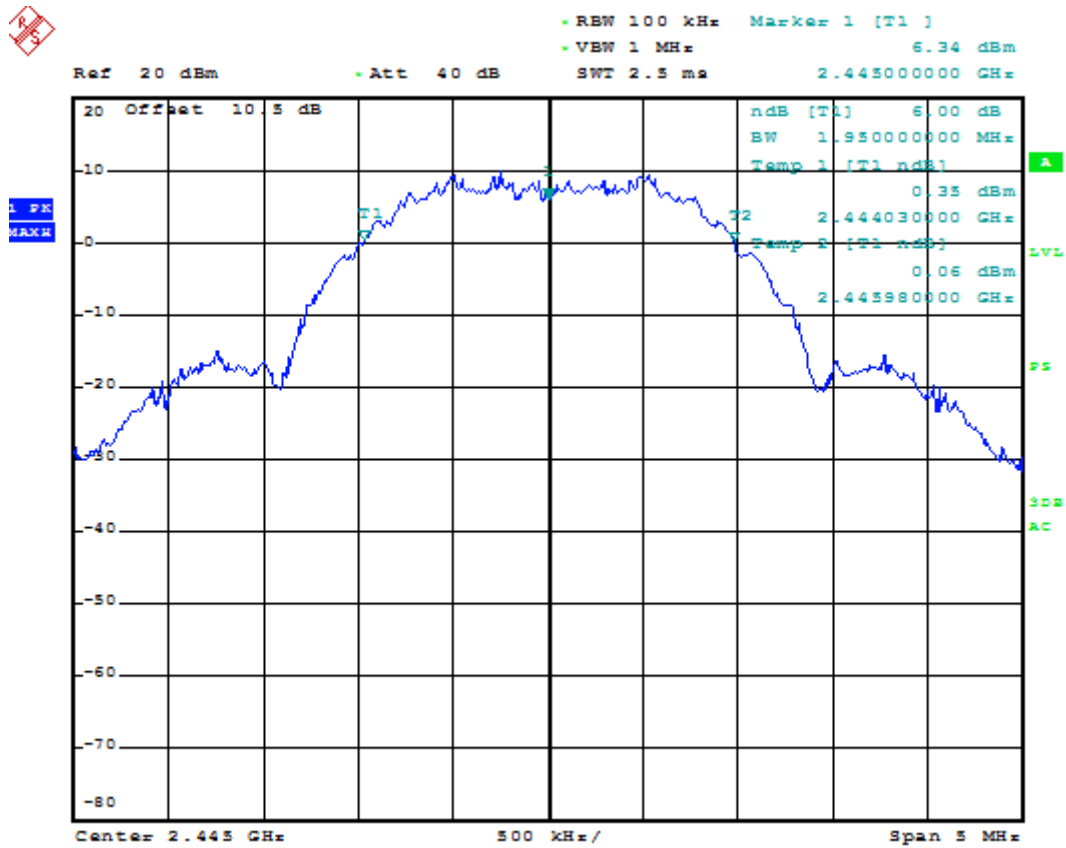
9.3 Requirements

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

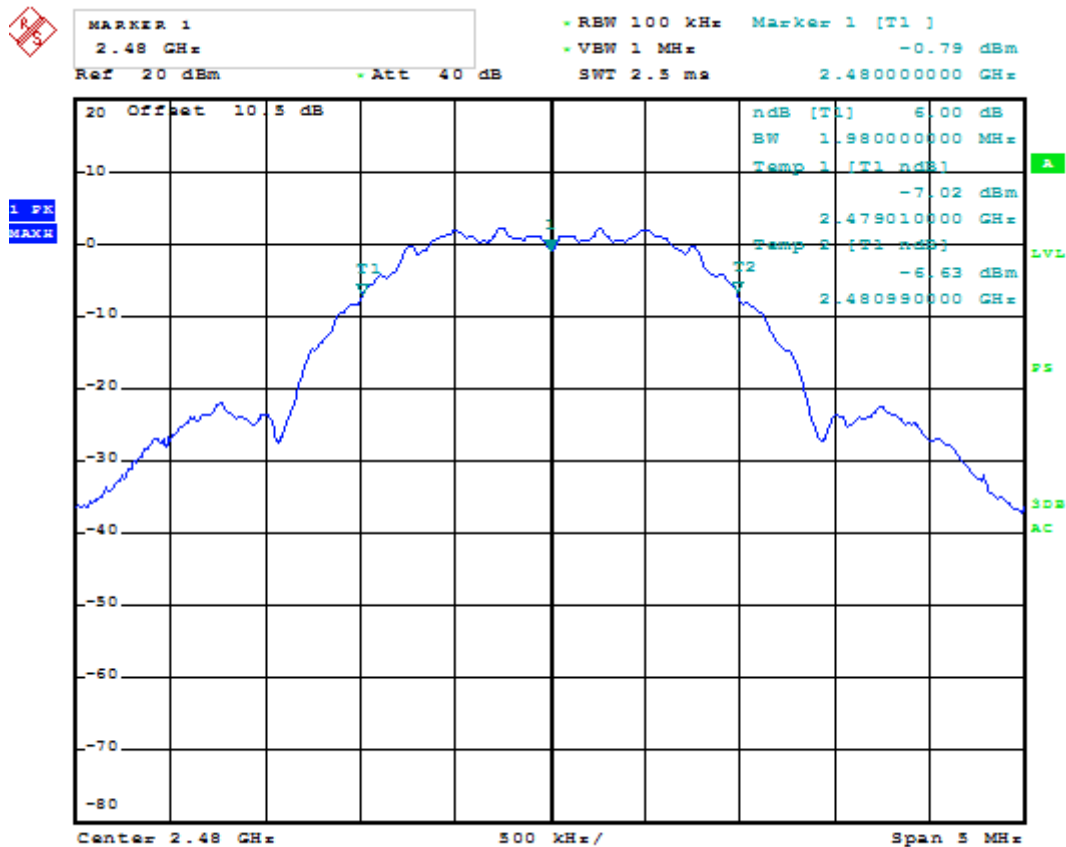
9.4 Test results



Screenshot: Occupied 6 dB bandwidth Measurement. low channel



Screenshot: Occupied 6 dB bandwidth Measurement. middle channel



Screenshot: Occupied 6 dB bandwidth Measurement. high channel

Test result

Channel [MHz]	6 dB BW [MHz]
2405	1.98
2445	1.95
2480	1.98

10 99 % BANDWIDTH

Date of test:	2018-01-15	Test location:	Wireless center
EUT Serial:	V56	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	N/A

10.1 Test set-up and test procedure.

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

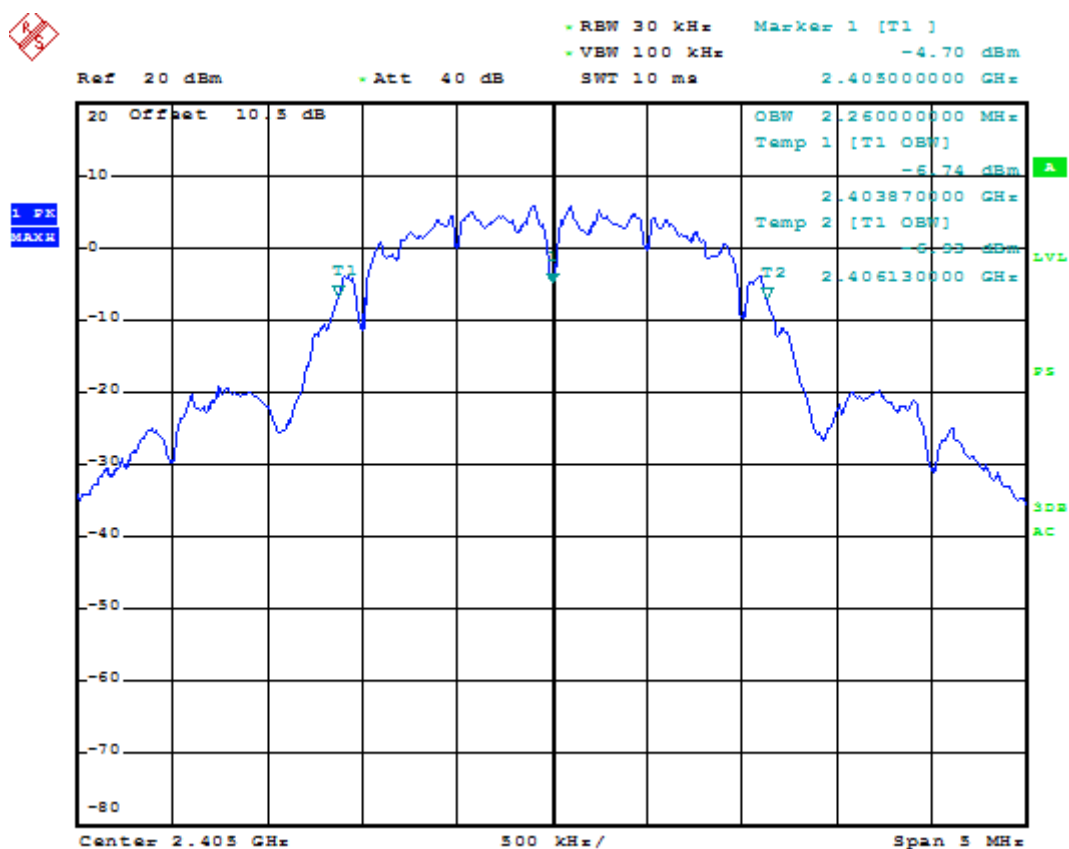
The EUT was connected to spectrum analyser via rf-cable and attenuator. Spectrum analyser with occupied bandwidth measurement function is used to determine the occupied bandwidth.

10.2 Test conditions

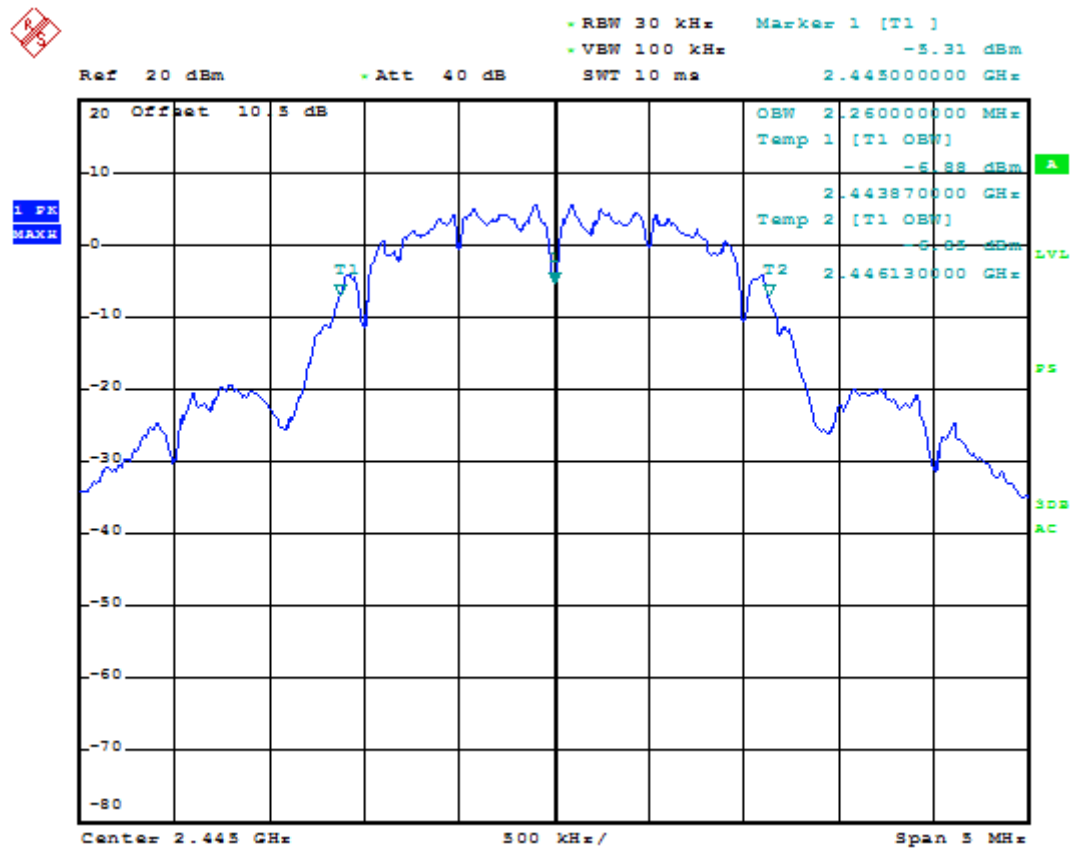
Detector: Peak.
RBW: 1 – 5 % of OBW
VBW: 3 x RBW

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

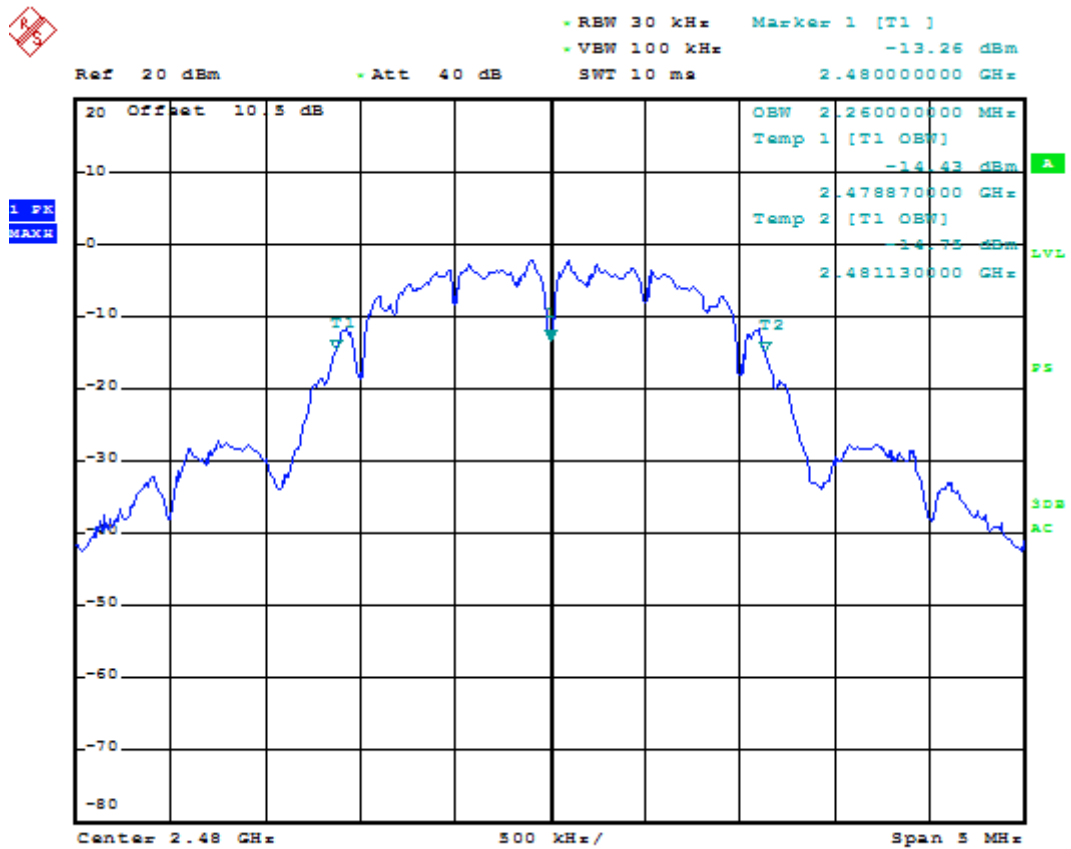
10.3 Test results



Screenshot: 99 % bandwidth Measurement. low channel



Screenshot: 99 % bandwidth Measurement. middle channel



Screenshot: 99 % bandwidth Measurement. high channel

Test result

Channel [MHz]	99 % BW [MHz]
2405	2.26
2445	2.26
2480	2.26

11 PEAK POWER SPECTRAL DENSITY

Date of test:	2018-01-15	Test location:	Wireless center
EUT Serial:	V56	Ambient temp:	21 °C
Tested by:	PLA	Relative humidity:	35 %
Test result:	Pass	Margin:	9.9 dB

11.1 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.

11.2 Test conditions

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

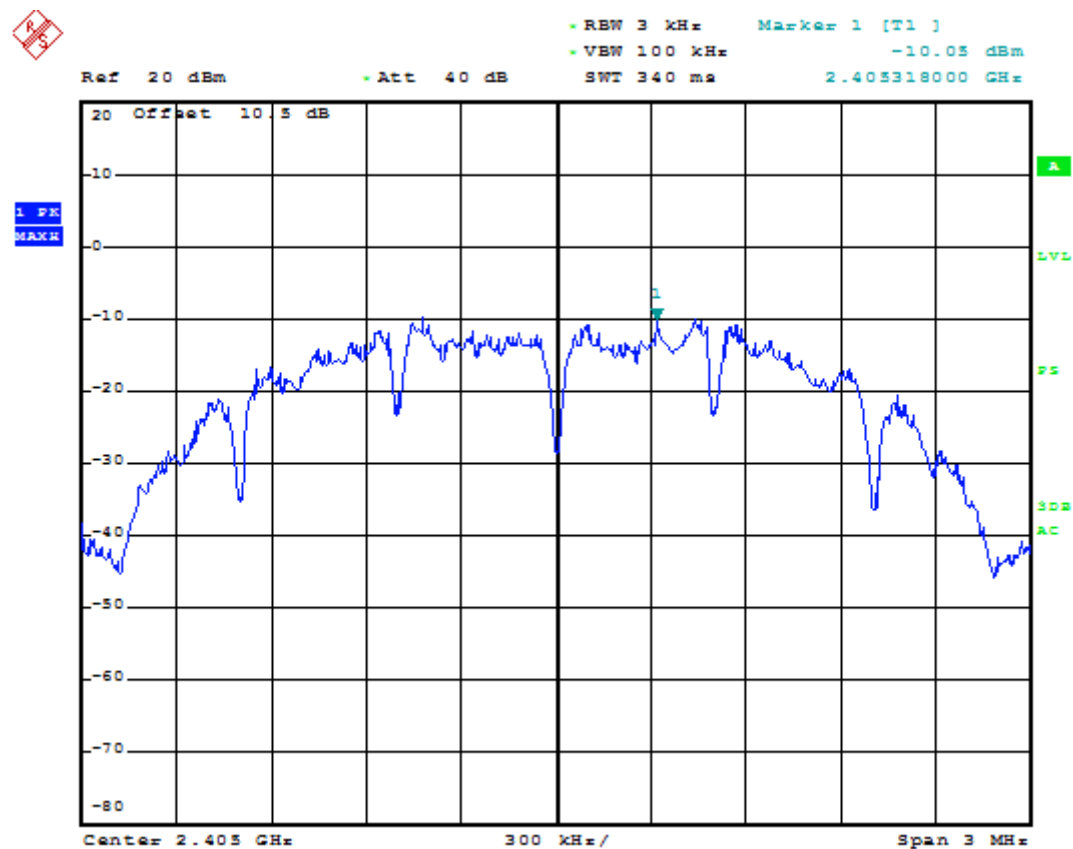
The EUT was set up in order to emit maximum disturbances.

11.3 Requirements

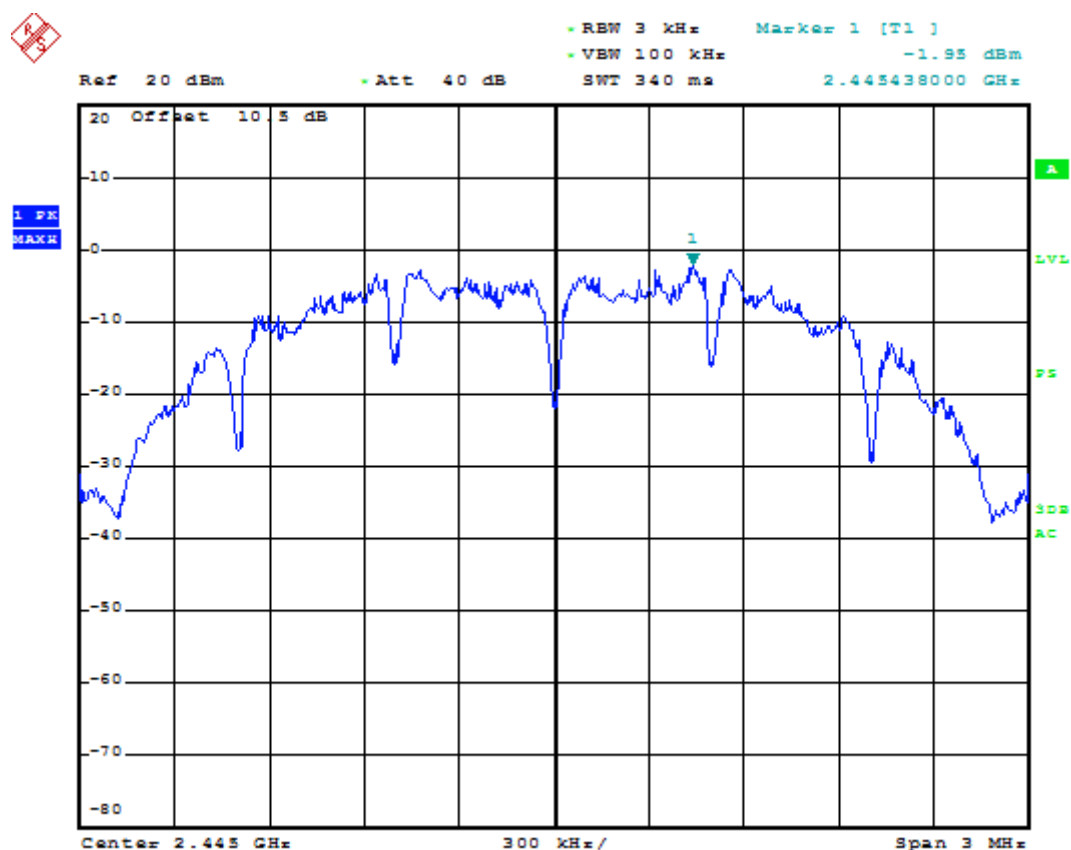
Reference: CFR 47§15.247(3). RSS-247 5.2(2)

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.

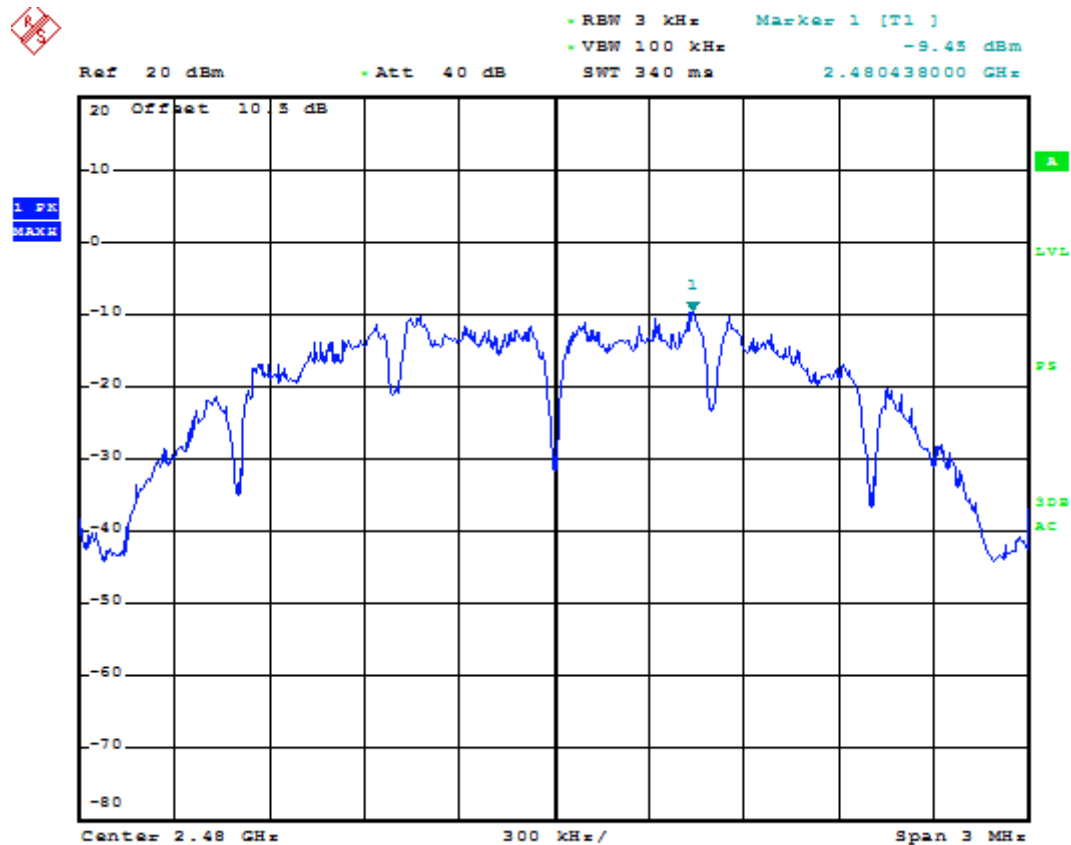
11.4 Test results



Screenshot: Peak power spectral density. low channel



Screenshot: Peak power spectral density. middle channel



Screenshot: Peak power spectral density. high channel

Test result

Channel [MHz]	PSD [dBm/3kHz]
2405	-10.0
2445	-1.9
2480	-9.4

12 TEST EQUIPMENT

Conducted measurements

Equipment type	Manufacturer	Model	Inv. No.	Last Cal. date	Cal. interval
Receiver	Rohde & Schwarz	ESCI	12798	July-2017	1 year
Attenuator 10 dB	Narda	J1	9444	June-2017	1 year
Coaxial cable	Huber + Suhner	Sucoflex 100	39094	Mars-2017	1 year
Signal analyzer	Rohde & Schwarz	FSV	32594	July-2017	1 year

5m 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	32286	July-2017	1 year
Horn antenna with preamplifier	Bonn	31247		Jan-2017	3 years
Antenna	Rohde & Schwarz	HL562	32310	Mars-2017	3 years
Coaxial cable	Rosenberger	FP1-2/X1	39053	April-2017	1 year
Coaxial cable	Rohde & Schwarz	40 GHz	39127	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	39141	Nov-2017	1 year
Coaxial cable	Huber+Suhner	Sucoflex	39142	Nov-2017	1 year
Horn antenna	Rohde & Schwarz	HF907	32296	July-2017	3 years
Preamplifier	Rohde & Schwarz	TS-Pre1	32297	July-2017	3 years

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 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 %.

14 TEST SET UP AND EUT PHOTOS

EUT photos and test set up photos are in separate documents. EUT photo is in 1718488STOAnnex1-003. Ed 1 and test set up photos are in 1718488STOAnnex2-004. Ed 1.