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The Netherlands
Chamber of Commerce
51565536
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telefication

FCC and IC Test report for parts 15.109, 15.209, 15.247, RSS-247, RSS-Gen

Product name	: Smart Shower
Applicant	: Kinetron B.V.
FCC ID	: 2AYZV-0000KSS
ISED ID	: 27009-0000KSS

Test report No. : 201001435 001 Ver 2.0

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001.

Telefication is a Wireless Device Testing laboratory recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

Telefication is a registered Conformity Assessment body (CAB) under the Japan-EC MRA (Agreement on Mutual Recognition between Japan and the European Community). The registration number is: 201.

Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

Testing Location

Test Site	Kiwa Telefication BV
Test Site location	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands Tel. +31 88998 3393
Test Site FCC	NL0001

Revision History

Version	Date	Remarks	By
v0.50	22-04-2021	First draft	K.K.
v1.00	30-04-2021	Release version	K.K.
v2.00	02-07-2021	Updated Applicant and trademark	K.K

Table of Contents

Summary of Test results

FCC	ISED	Description	Section in report	Verdict
15.247(d) 15.225(d) 15.209 (a) 15.109	RSS-Gen 8.9	Radiated spurious emissions	3.1	Pass
15.205 (a)	RSS Gen 8.10	Spurious emissions in the restricted bands	3.1	Pass
15.247 (a)	RSS-247 5.2(a)	6 dB bandwidth	3.2	Pass
--	RSS-Gen 6.7	99% bandwidth	3.3	Pass
15.247 (b)	RSS-247 5.4 (d)	RF output power	3.4	Pass
15.247 (e)	RSS-247 5.2 (b)	Power spectral density	3.5	Pass
15.247 (d)	RSS-247 5.5	Band edge	3.6	Pass

1 General Description

1.1 Applicant

Client name:	Kinetron B.V.
Address	Docklands 9, Tilburg, The Netherlands
Zip code:	5026 SL
Telephone:	+31 (0)6 28 66 08 18
E-mail:	r.vansteenwijk@kinetron.nl
Contact name:	Robbert Van Steenwijk

1.2 Manufacturer

Manufacturer name:	Kinetron B.V.
Address:	Docklands 9, Tilburg, The Netherlands
Zip code:	5026 SL
Telephone:	+31 (0)6 28 66 08 18
E-mail:	r.vansteenwijk@kinetron.nl
Contact name:	Robbert Van Steenwijk

1.3 Tested Equipment Under Test (EUT)

Product name:	Smart Shower
Trademark:	HAI
FCC ID:	2AYZV-0000KSS
IC ID:	27009-0000KSS
Product type:	BT flow meter
Model(s):	Smart Shower
Batch and/or serial No.	--
Software version:	--
Hardware version:	V 1.5
Date of receipt	03-03-2021
Tests started:	03-03-2021
Testing ended:	04-03-2021

1.4 Product specifications of Equipment under test

Tx Frequency:	BLE: 2400 – 2483.5 MHz
Rx frequency:	BLE: 2400 – 2483.5 MHz
Antenna type and Gain	PCB meandering antenna / -9.98dBi
Type of modulation:	BLE: GFSK
Emission designator	2M08F1D

Note: The antenna gain is declared by the manufacturer

1.5 Environmental conditions

Test date	03-03-2021	04-03-2021
Ambient temperature	20.9 °C	20.5 %
Humidity	34.6 °C	40.3 %

1.6 Measurement standards

- ANSI C63.4:2014
- ANSI C63.10:2013

1.7 Applicable standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart B §15.109
- FCC Part 15 Subpart C §15.209
- FCC Part 15 Subpart C §15.247
- RSS-247 Issue 2
- RSS-Gen Issue 5

1.8 Observation and remarks

None.

1.9 Conclusions

The sample of the product showed NO NON-COMPLIANCES to the specifications stated in paragraph 1.7 of this report.

The results of the test as stated in this report, are exclusively applicable to the product items as identified in this report. Telefication accepts no responsibility for any properties of product items in this test report, which are not supported by the tests as specified in paragraph 1.7 *"Applicable standards".*

All conducted tests are performed by:

Name : Koray Korcum and Raoul Tolud under supervision of Paul van Wanrooij

Review of test methods and report by:

Name : Paul van Wanrooij

The above conclusions have been verified by the following signatory:

Date : 02-07-2021

Name : ing. R. van Barneveld

Function : Test Engineer

Signature :

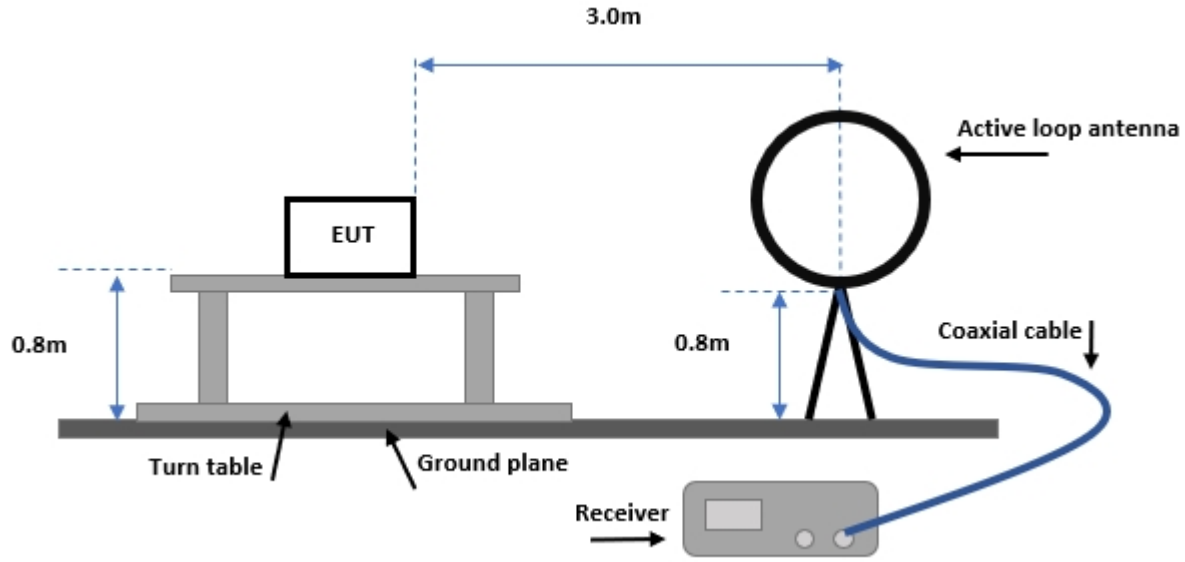
2 Test configuration of the Equipment Under Test

2.1 Test mode

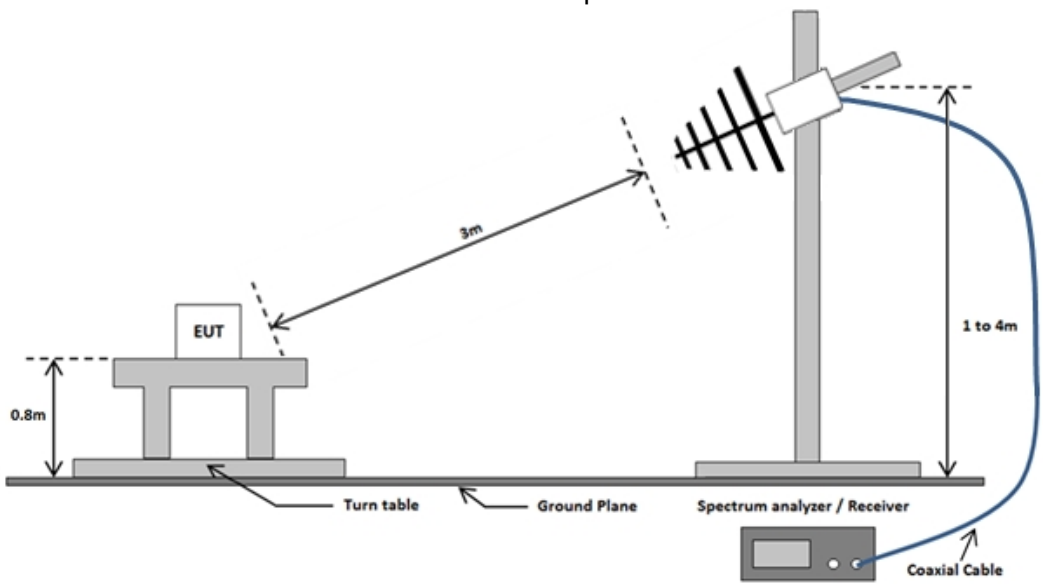
The applicant provided test mode firmware for the BLE radio, in which it was possible to configure the radio to transmit continuously.

2.2 Test setups

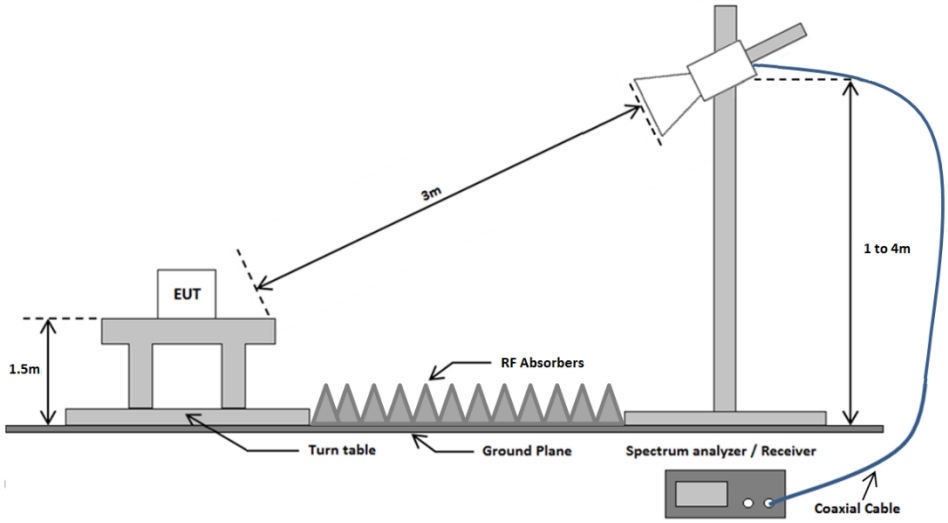
Radiated emissions test setup 9 kHz – 30 MHz



Radiated emissions test setup 30 MHz - 1 GHz



Radiated emissions test setup above 1 GHz



2.3 Equipment used in the test configuration

Description	Manufacturer	Model	ID	Used at Par.
EMI Receiver	Rohde & Schwarz	ESCI	TE11128	3.1
Spectrum analyzer	Rohde & Schwarz	FSP40	TE11125	3.1
Spectrum Analyzer	Rohde & Schwarz	FSV40	TE01269	3.2 – 3.6
3.0 GHz HPF	Wainwright	WHK3.0/18G-10EF	TE01140	3.1
Active loop antenna	EMCO	6502	TE11171	3.1
Biconilog antenna	Chase	CBL6112A	TE00967	3.1
Horn antenna	EMCO	3115	TE00531	3.1
Preamplifier 1-18 GHz	µComp Nordic	MCNA-40-0010800-25-10P	TE11175	3.1
Horn antenna	FLANN-MICROWAVE	20240-25	TE 00818	3.1
Preamplifier 18-26 GHz	Miteq	JS4-18004000-33-8P	TE 11131	3.1

2.4 Sample calculations

All formulas for data conversions and conversion factors are reported in chapter 4 of this test report.

3 Test results

3.1 Radiated spurious emissions

3.1.1 Limit

Frequency (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance(m)
0.009 – 0.490	2400/F(kHz)	20*{log[2400]-log[F(kHz)]}	300*
0.490 – 1.705	24000/F(kHz)	20*{log[24000]-log[F(kHz)]}	30*
1.705 – 13.11 14.01 – 30.0	30	29.5	30*
30 -88	100	40	3
88 - 216	150	43,5	3
216-960	200	46	3
Above 960	500	54	3

*Note: Limit lines in the plots corrected to 3m measurement distance according to the method described in ANSI C63.10-2013, clause 6.4

3.1.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.1.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.1.4 Test procedure

9 kHz – 30 MHz: According to ANSI C63.4-2014, section 5.4.2 and 8.2.3
30 MHz to 26.5 GHz: According to ANSI C63.4-2014, section 8.3

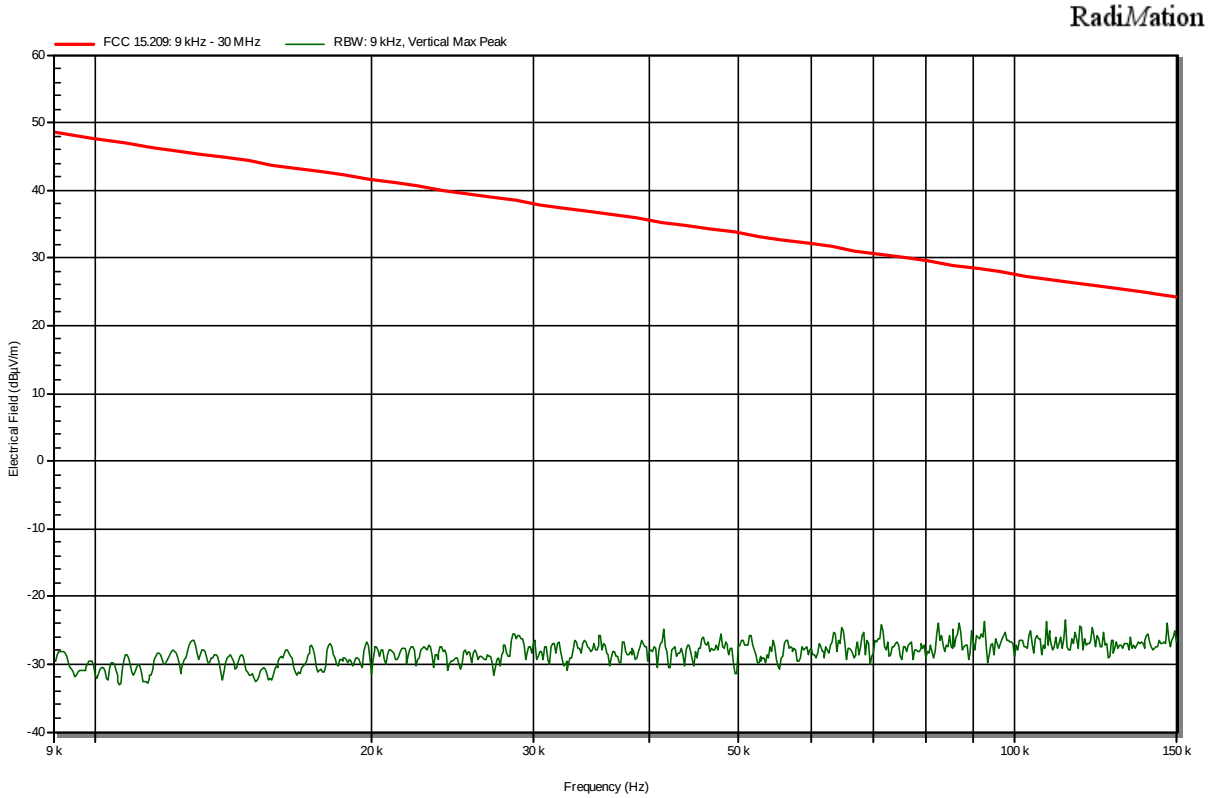
9 kHz to 30 MHz: IRN 026 – Method 10
30 MHz to 1 GHz: IRN 026 – Method 1
1 GHz to 18 GHz: IRN 026 – Method 2
18 to 26.5 GHz: IRN 026 – Method 3

3.1.5 Measurement Uncertainty

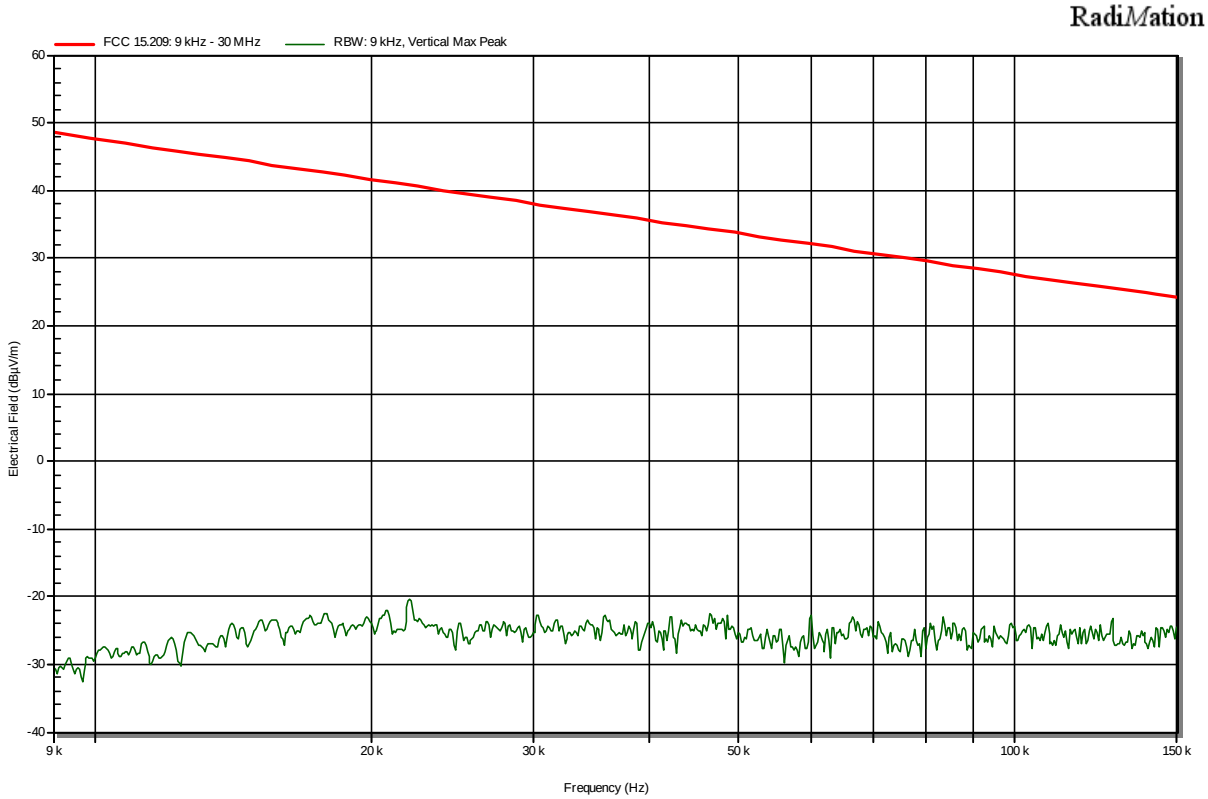
Frequency range	Polarization	Uncertainty
9 kHz – 30 MHz	--	±1.6 dB
30 – 200 MHz	Horizontal	±4.5 dB
	Vertical	±5.4 dB
200 -1000 MHz	Horizontal	±3.6 dB
	Vertical	±4.6 dB
1 – 18 GHz	Horizontal	±5.7 dB
	Vertical	±5.7 dB
18 – 26.5 GHz	Horizontal	±4.9 dB
	Vertical	±4.9 dB

3.1.6 Plots of the Radiated Spurious Emissions Measurement

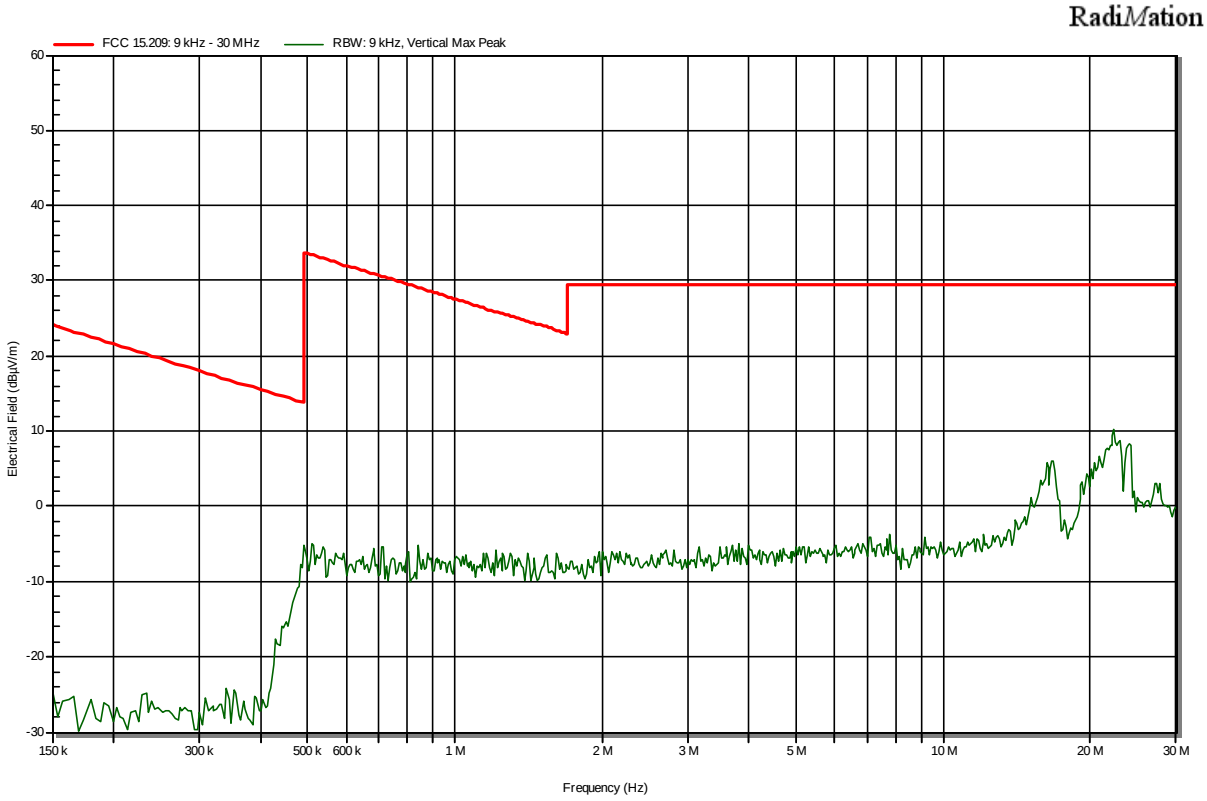
9 – 150 kHz (Perpendicular)



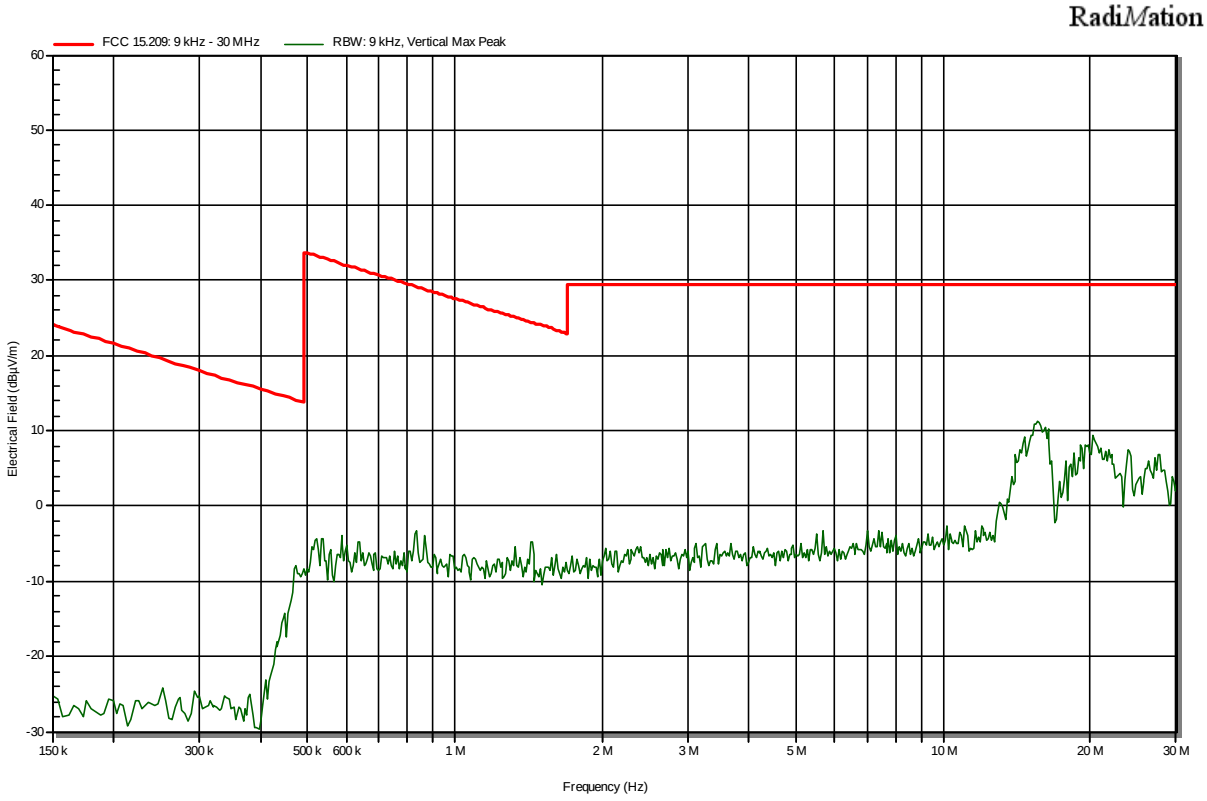
9 – 150 kHz (Orthogonal)



150 kHz – 13.11 MHz (Perpendicular)

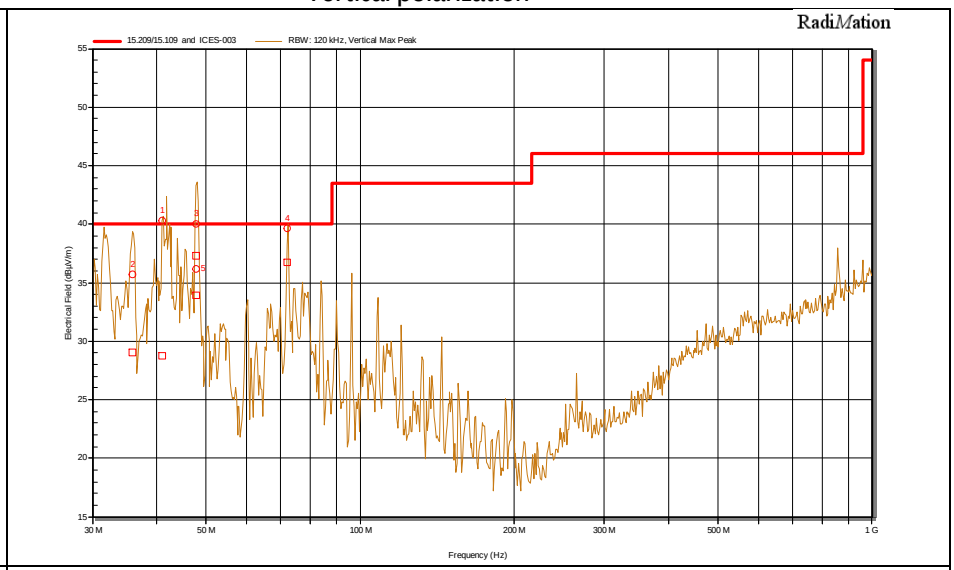
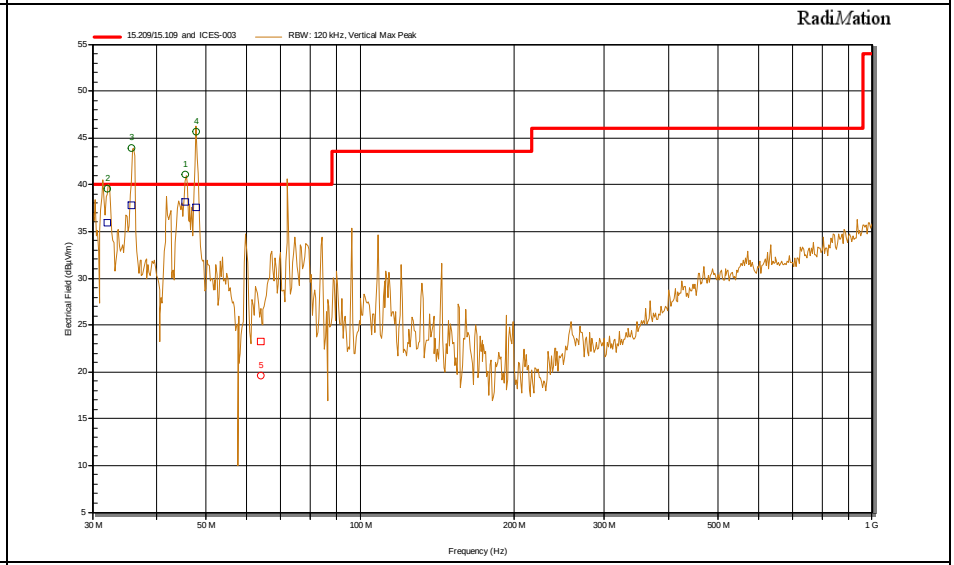
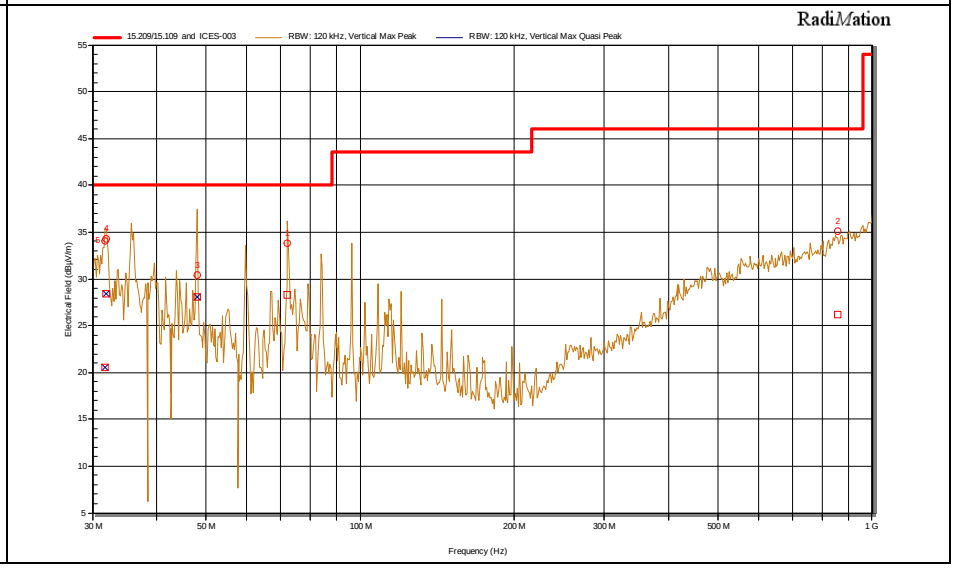


150 kHz – 13.11 MHz (Orthogonal)



30 - 1000 MHz

Vertical polarization

Low ch	
Mid ch	
High ch	

30 – 1 000 MHz Vertical High channel peak measurements table

Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
48,013 MHz	30,5 dBµV/m	40 dBµV/m	28,1 dBµV/m	40 dBµV/m	Pass	358 degrees	1 m	Vertical
31,837 MHz	34,3 dBµV/m	40 dBµV/m	28,4 dBµV/m	40 dBµV/m	Pass	338 degrees	1 m	Vertical
31,699 MHz	34,1 dBµV/m	40 dBµV/m	20,5 dBµV/m	40 dBµV/m	Pass	97 degrees	1 m	Vertical

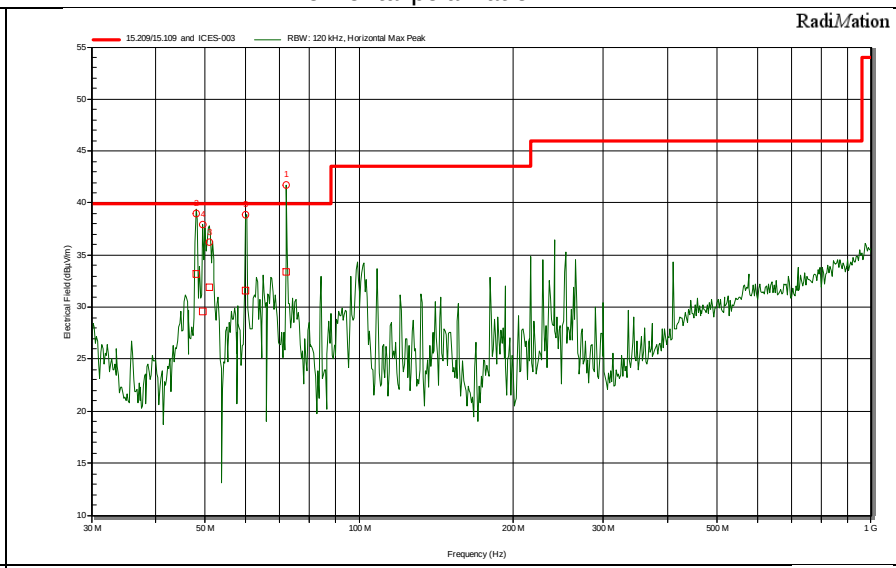
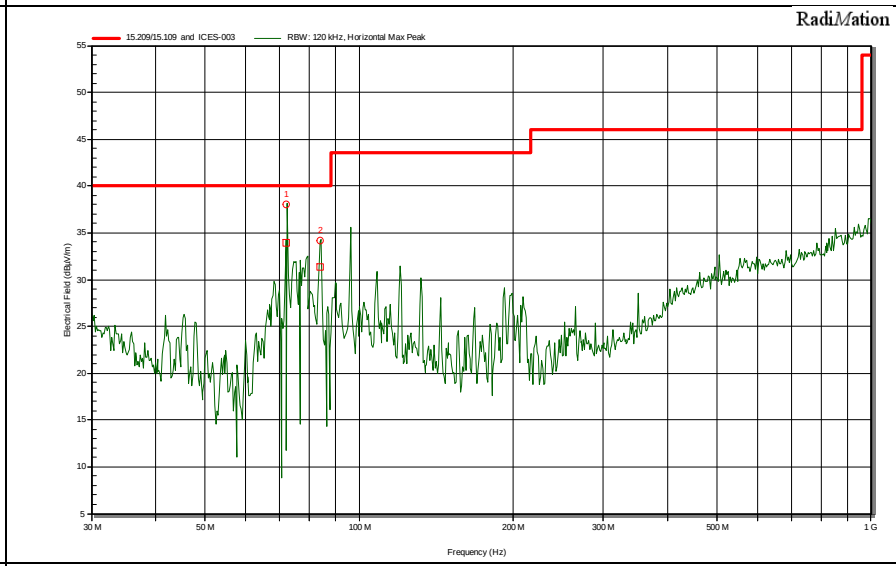
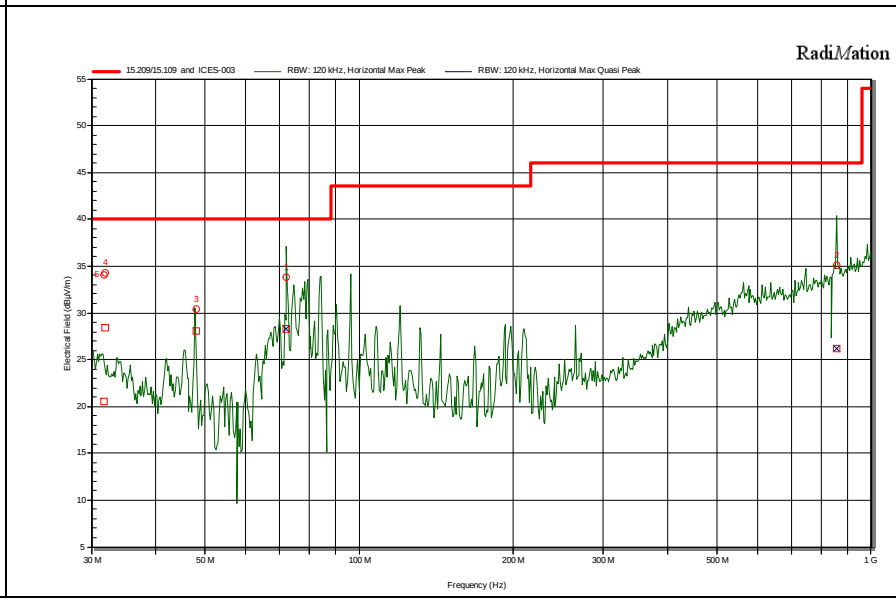
30 – 1 000 MHz Vertical Mid channel peak measurements table

Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
45,601 MHz	41,1 dBµV/m	40 dBµV/m	38,1 dBµV/m	40 dBµV/m	Pass	190 degrees	1 m	Vertical
32,066 MHz	39,5 dBµV/m	40 dBµV/m	35,9 dBµV/m	40 dBµV/m	Pass	236 degrees	1 m	Vertical
35,825 MHz	43,9 dBµV/m	40 dBµV/m	37,8 dBµV/m	40 dBµV/m	Pass	252 degrees	1 m	Vertical
47,724 MHz	45,7 dBµV/m	40 dBµV/m	37,6 dBµV/m	40 dBµV/m	Pass	276 degrees	1,5 m	Vertical

30 – 1 000 MHz Vertical Low channel peak measurements table

Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
41,059 MHz	40,3 dBµV/m	40 dBµV/m	28,7 dBµV/m	40 dBµV/m	Pass	236 degrees	1 m	Vertical
35,851 MHz	35,7 dBµV/m	40 dBµV/m	29 dBµV/m	40 dBµV/m	Pass	267 degrees	1 m	Vertical
47,907 MHz	40 dBµV/m	40 dBµV/m	37,3 dBµV/m	40 dBµV/m	Pass	244 degrees	1,5 m	Vertical
71,96 MHz	39,7 dBµV/m	40 dBµV/m	36,7 dBµV/m	40 dBµV/m	Pass	226 degrees	2 m	Vertical
47,734 MHz	36,1 dBµV/m	40 dBµV/m	33,9 dBµV/m	40 dBµV/m	Pass	198 degrees	2,5 m	Vertical

Horizontal polarization

Low ch	
Mid ch	
High ch	

30 – 1 000 MHz Horizontal High channel peak measurements table

Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
72,024 MHz	33,8 dBµV/m	40 dBµV/m	28,3 dBµV/m	40 dBµV/m	Pass	291 degrees	2,5 m	Horizontal
856,16 MHz	35,1 dBµV/m	46 dBµV/m	26,2 dBµV/m	46 dBµV/m	Pass	307 degrees	4 m	Horizontal

30 – 1 000 MHz Horizontal Mid channel peak measurements table

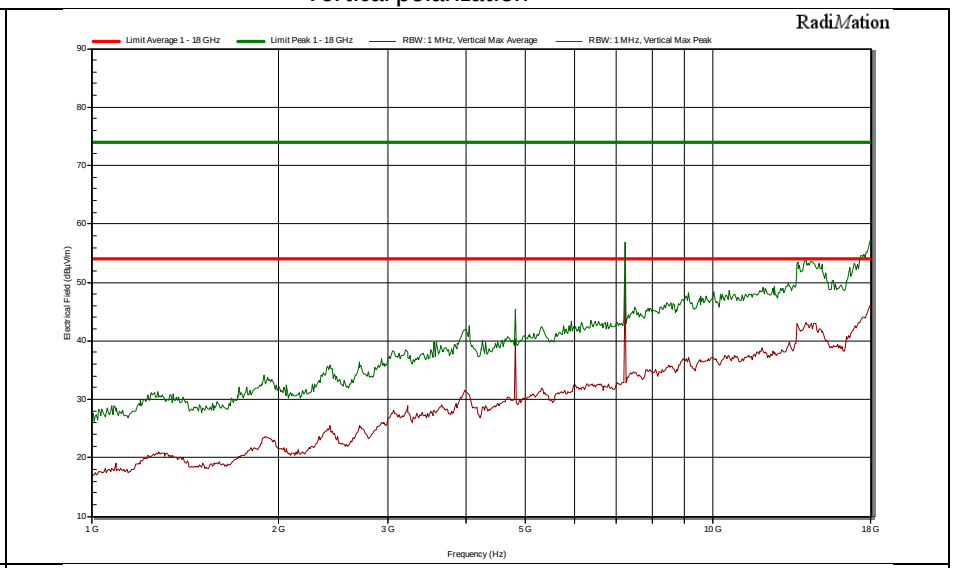
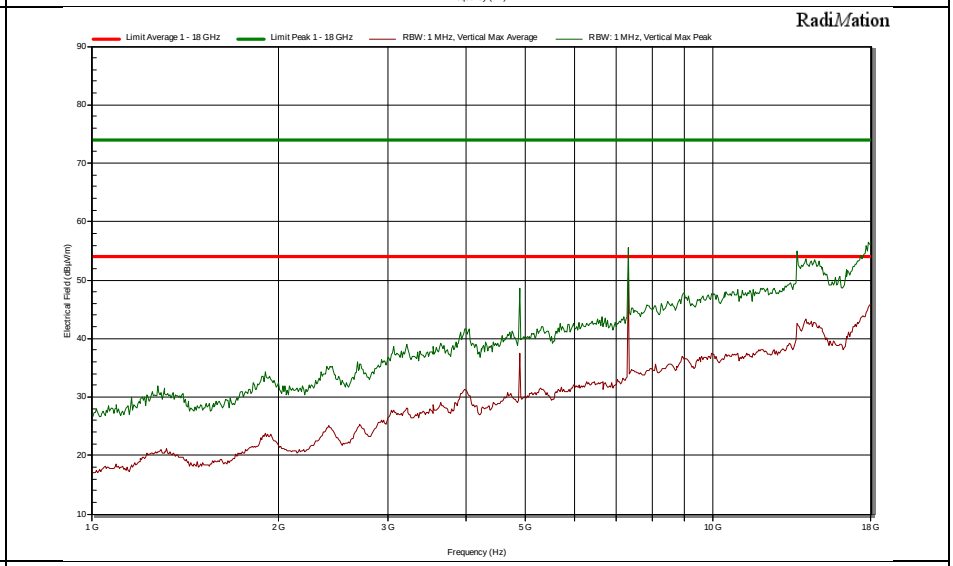
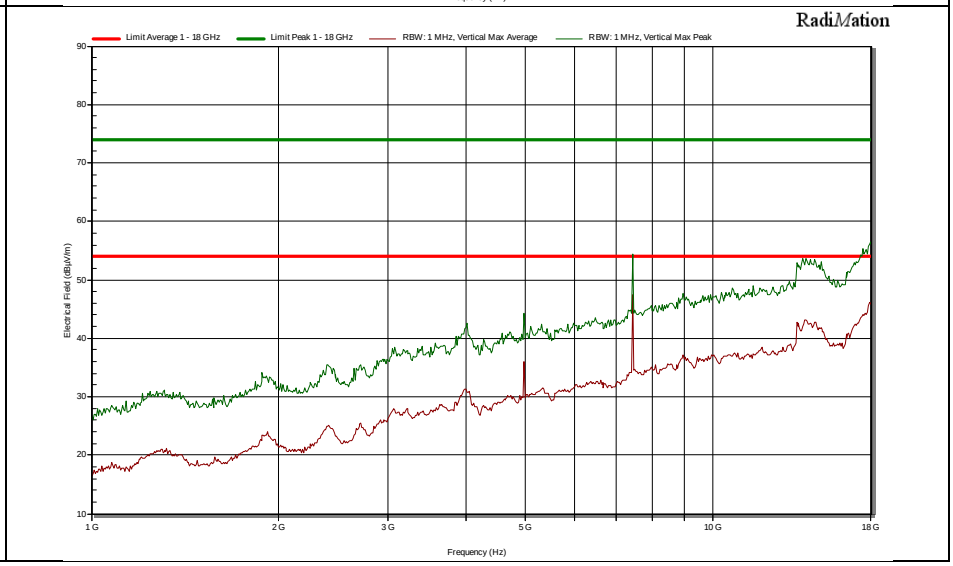
Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
71,991 MHz	38,1 dBµV/m	40 dBµV/m	33,9 dBµV/m	40 dBµV/m	Pass	143 degrees	2 m	Horizontal
83,988 MHz	34,2 dBµV/m	40 dBµV/m	31,3 dBµV/m	40 dBµV/m	Pass	142 degrees	2 m	Horizontal

30 – 1 000 MHz Horizontal Low channel peak measurements table

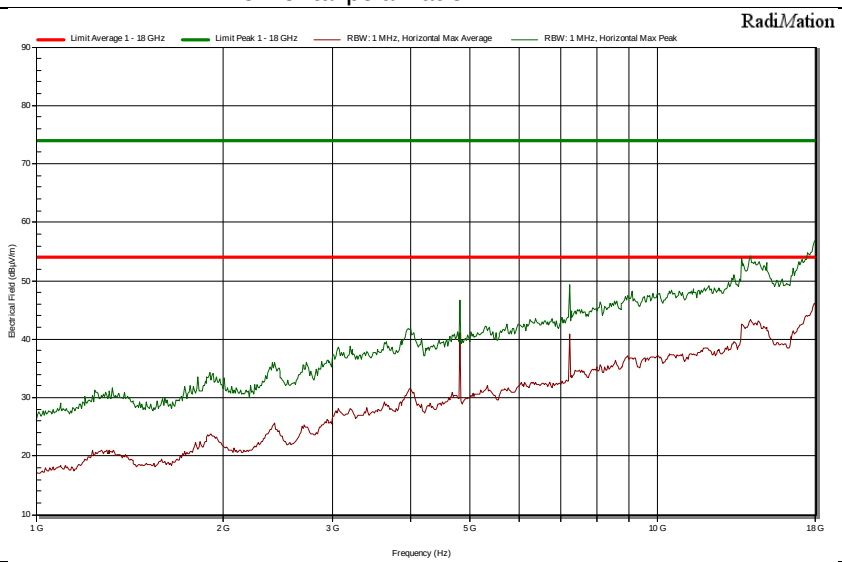
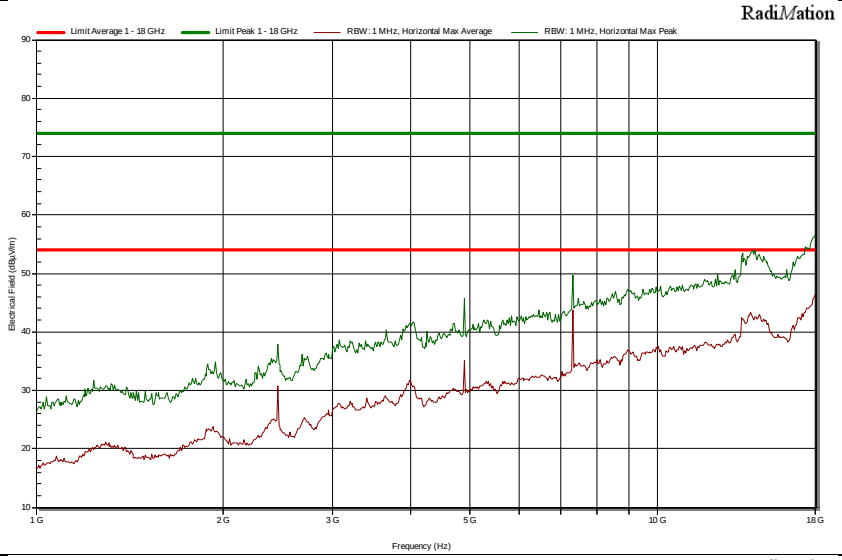
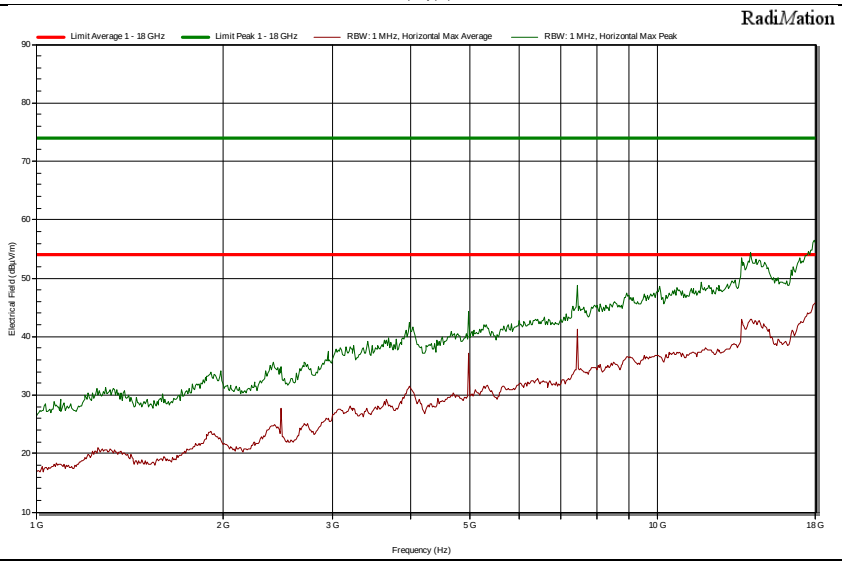
Frequency	Peak	Peak Limit	Quasi-Peak	Quasi-Peak Limit	Status	Angle	Height	Polarization
72,053 MHz	41,7 dBµV/m	40 dBµV/m	33,4 dBµV/m	40 dBµV/m	Pass	103 degrees	2,5 m	Horizontal
47,991 MHz	39 dBµV/m	40 dBµV/m	33,2 dBµV/m	40 dBµV/m	Pass	88 degrees	3 m	Horizontal
50,949 MHz	36,2 dBµV/m	40 dBµV/m	31,9 dBµV/m	40 dBµV/m	Pass	132 degrees	4 m	Horizontal
49,433 MHz	37,9 dBµV/m	40 dBµV/m	29,6 dBµV/m	40 dBµV/m	Pass	272 degrees	4 m	Horizontal
60,062 MHz	38,9 dBµV/m	40 dBµV/m	31,6 dBµV/m	40 dBµV/m	Pass	296 degrees	4 m	Horizontal

1 - 18 GHz

Vertical polarization

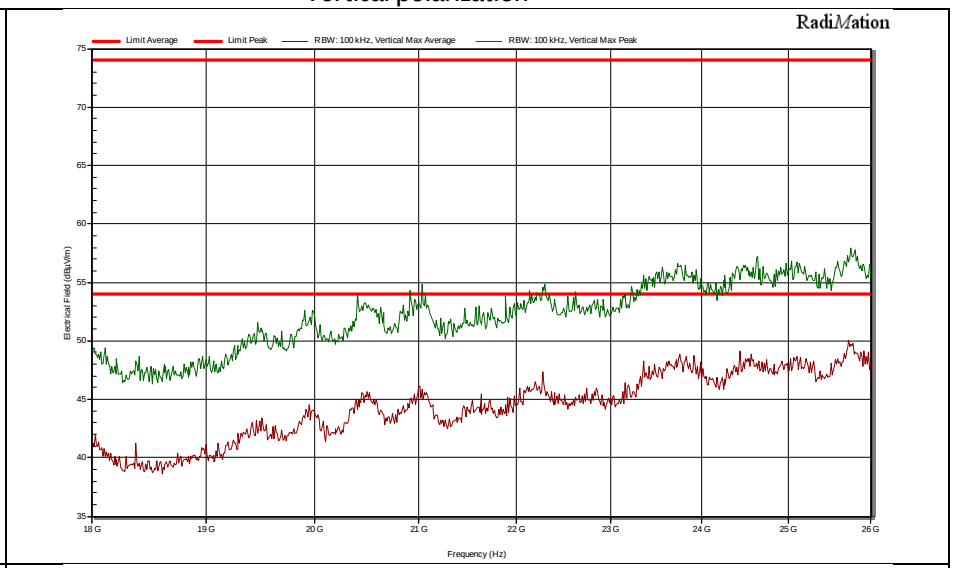
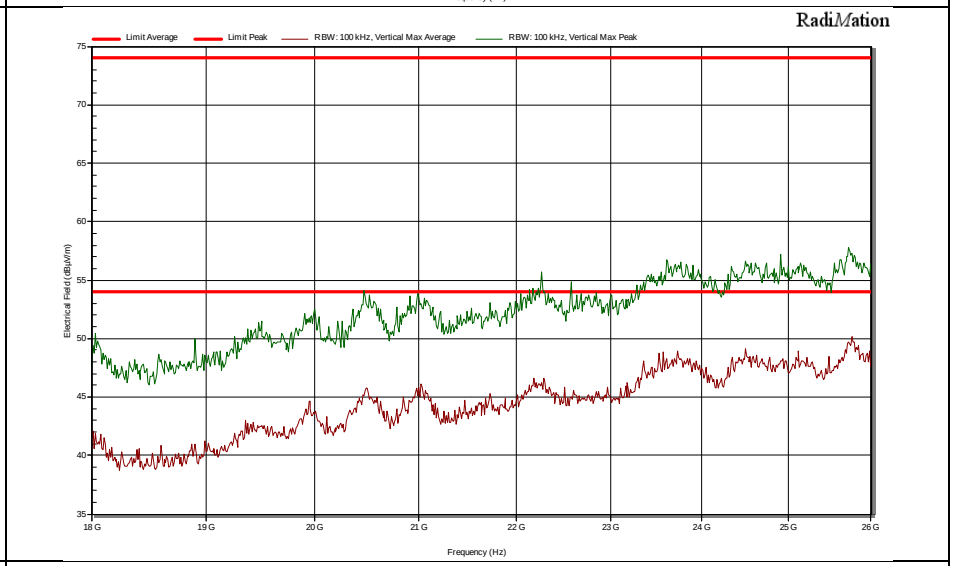
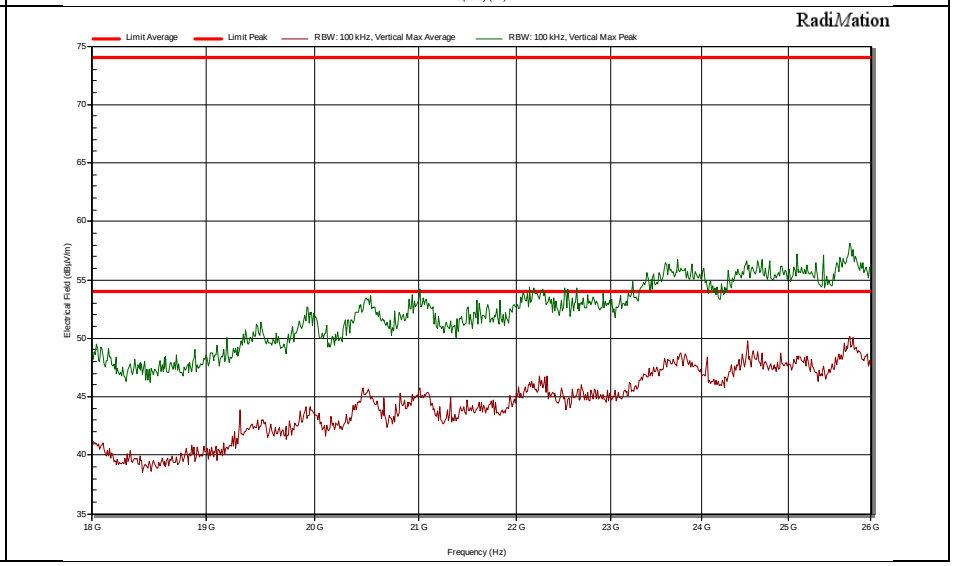
Low ch	
Mid ch	
High ch	

Horizontal polarization

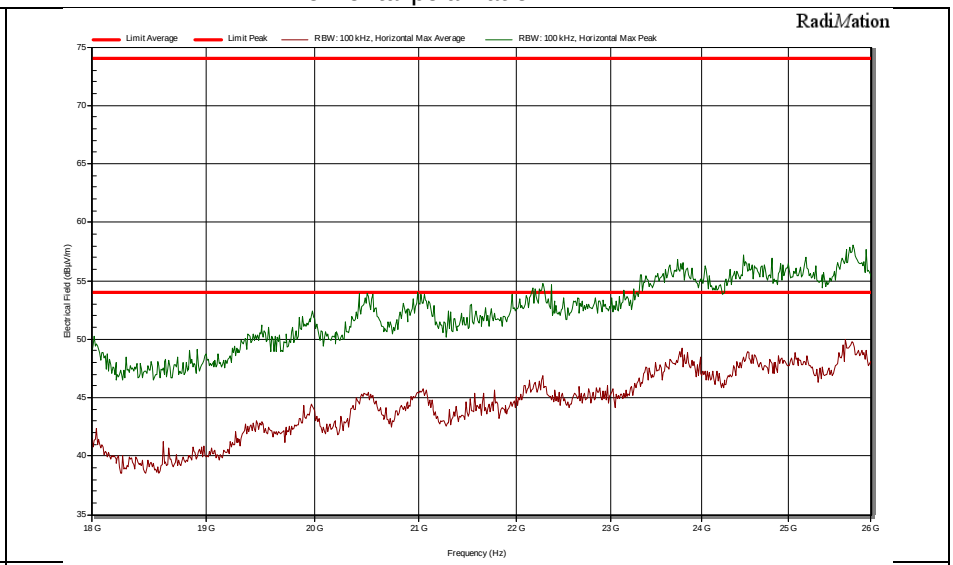
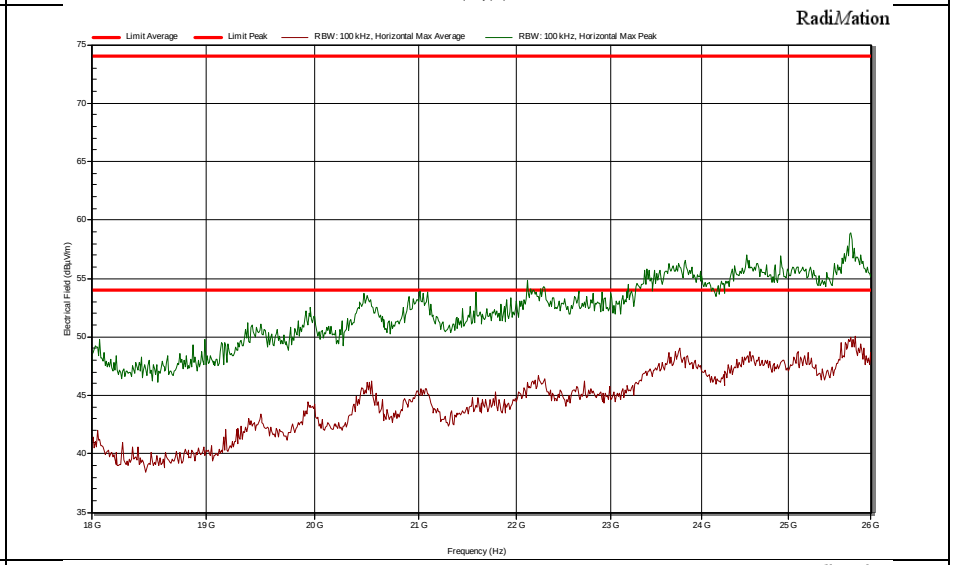
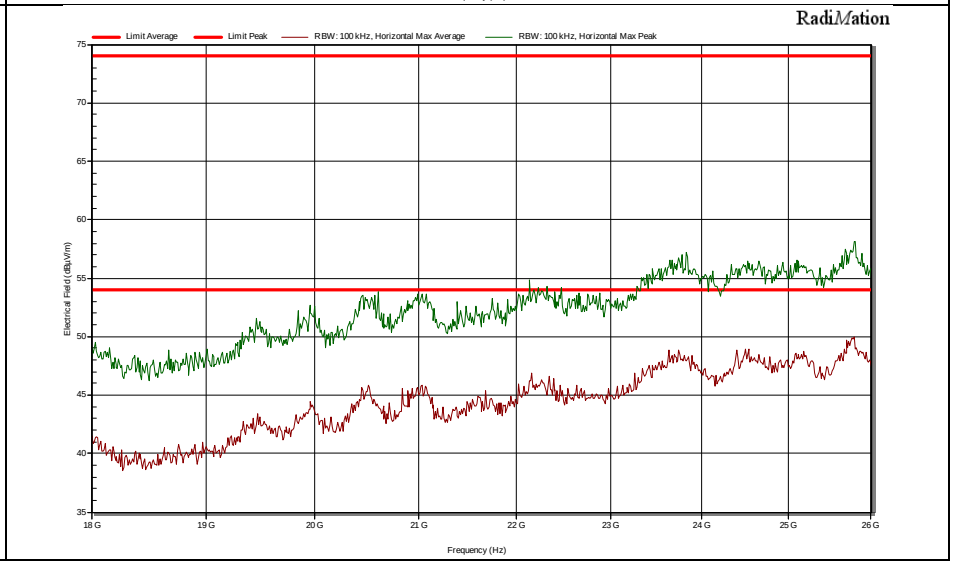
Low ch	
Mid ch	
High ch	

18 - 26 GHz

Vertical polarization

Low ch	
Mid ch	
High ch	

Horizontal polarization

Low ch	
Mid ch	
High ch	

3.2 6dB bandwidth Measurement

3.2.1 Limit

The minimum 6 dB Bandwidth shall be at least 500 kHz.

3.2.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.2.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.2.4 Test procedure

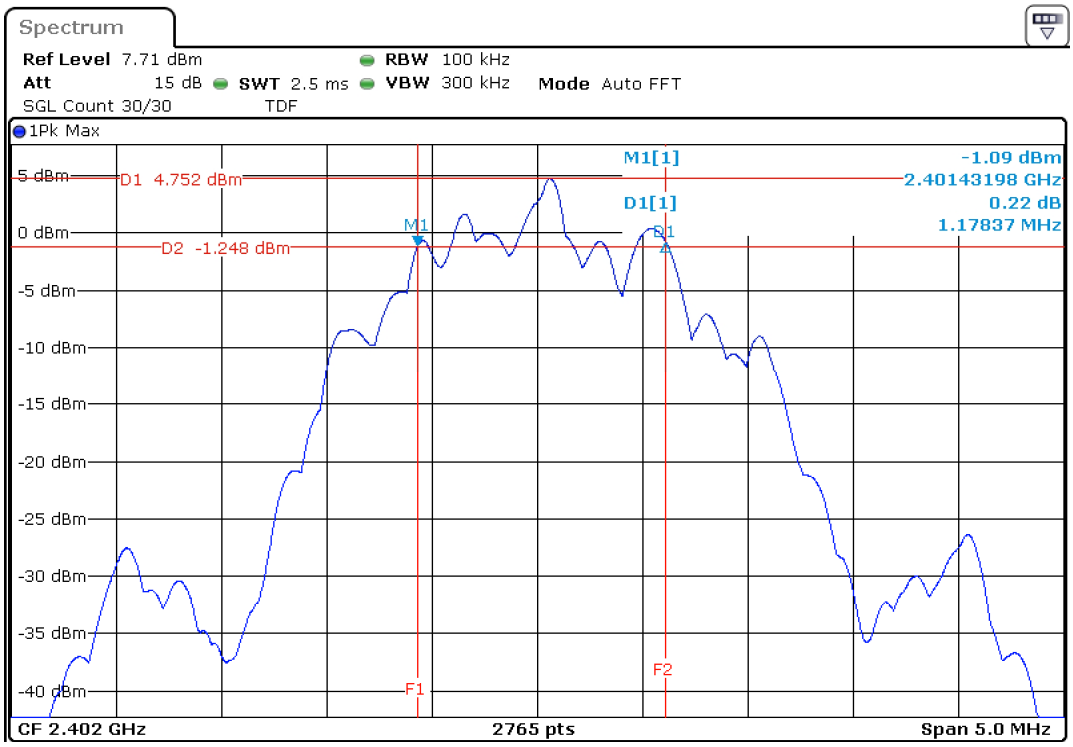
Tests according to ANSI C63.10
IRN 017 - Occupied bandwidth (Hz) Method 4 – DTS Bandwidth.

3.2.5 Test Results of the 6 dB bandwidth Measurement

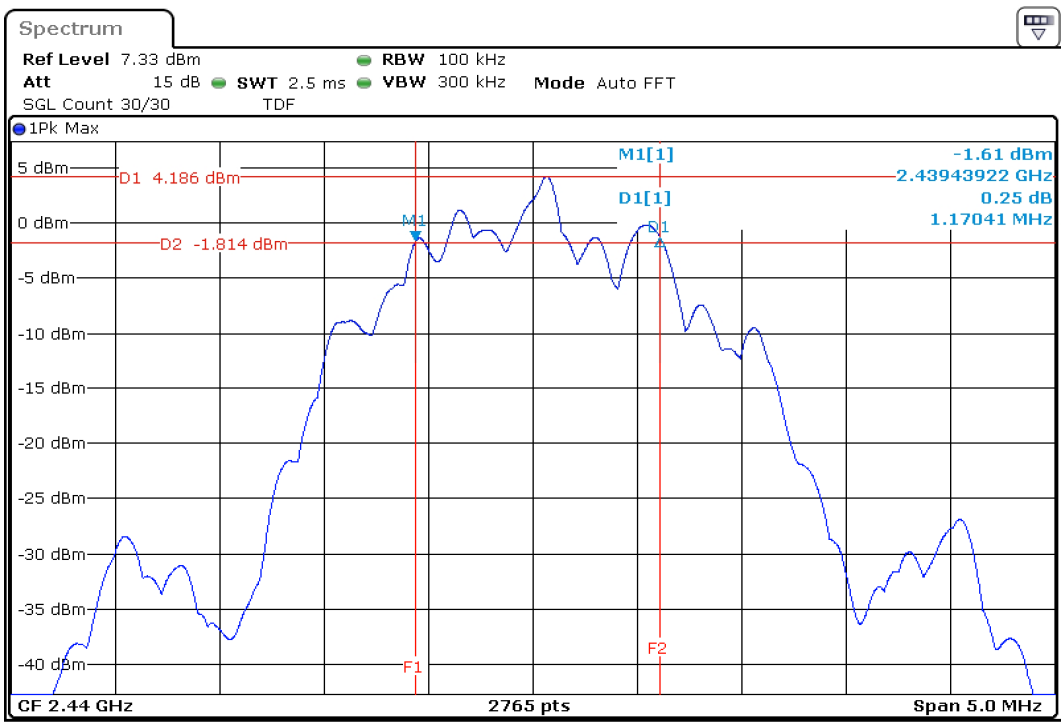
Technology Std.	Channel	Frequency (MHz)	Data rate	6dB bandwidth (kHz)
Bluetooth Low energy	37	2402	2 Mbps	1178.36
	18	2440	2 Mbps	1170.41
	39	2480	2 Mbps	1185.60
Uncertainty	± 58 kHz			

3.2.6 Plots of the 6 dB bandwidth Measurement

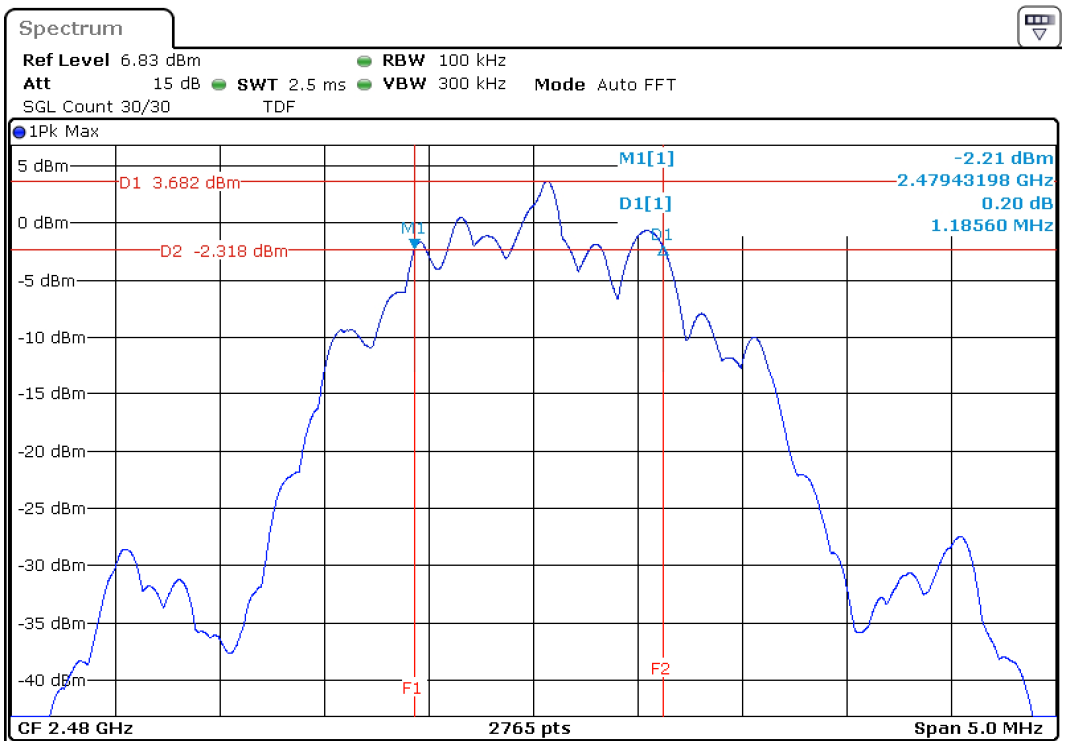
6 dB Bandwidth (Channel 37)



6 dB Bandwidth (Channel 17)



6 dB Bandwidth (Channel 39)



3.3 99% Occupied Bandwidth

3.3.1 Limit

According to RSS-Gen 6.7

3.3.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.3.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.3.4 Test procedure

IRN 017 - Occupied bandwidth (Hz) Method 1 – XX % power bandwidth.

1. Set the centre frequency to the nominal EUT channel centre frequency
2. Set span = 1.5 times to 0.5 times the Occupied Bandwidth
3. Set VBW ≥ 3x RBW
4. Video averaging is not permitted. Where practical, detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

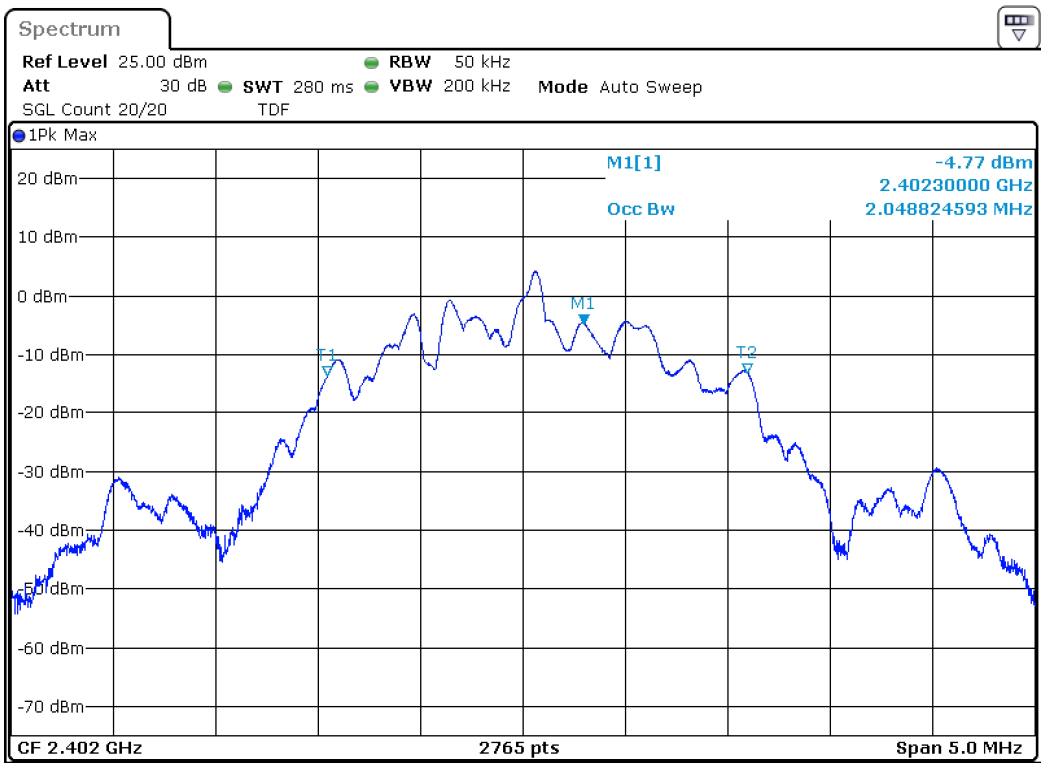
3.3.5 Test results of the 99% occupied bandwidth measurement

Technology Std.	Channel	Frequency (MHz)	Data rate	99% bandwidth (kHz)
Bluetooth Low energy	37	2402	2 Mbps	2048.82
	18	2440	2 Mbps	2050.63
	39	2480	2 Mbps	2052.44
Uncertainty	± 12 kHz			

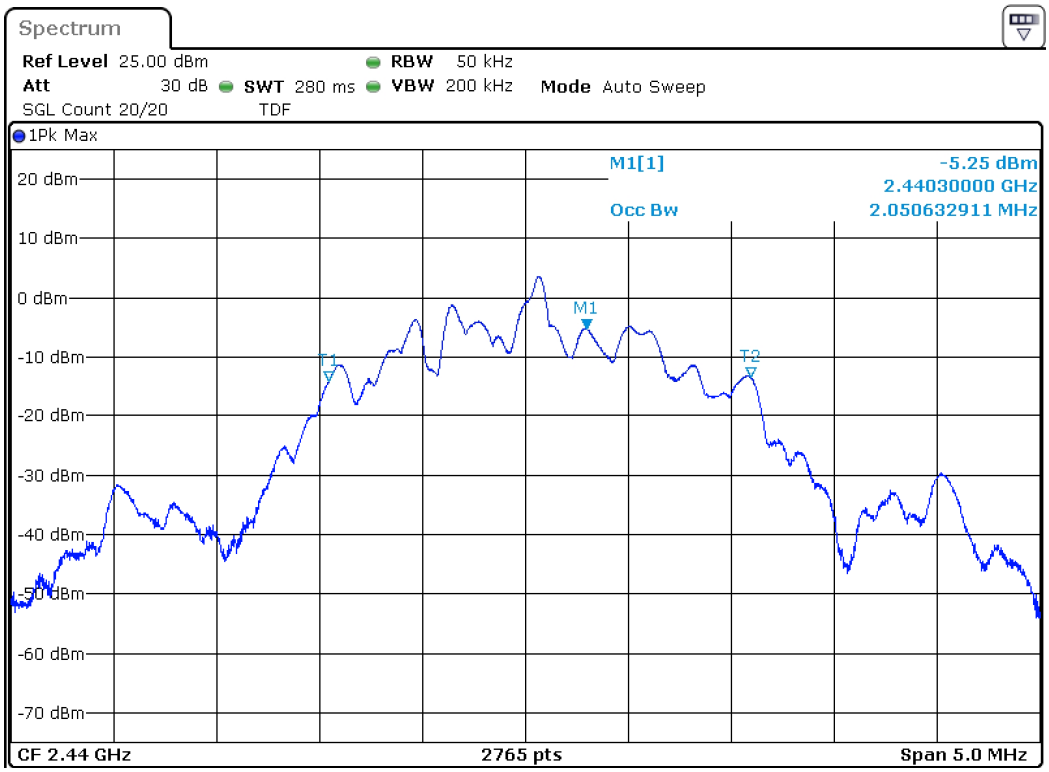
3.3.6 Plots of the 99% occupied bandwidth measurement

See Next page

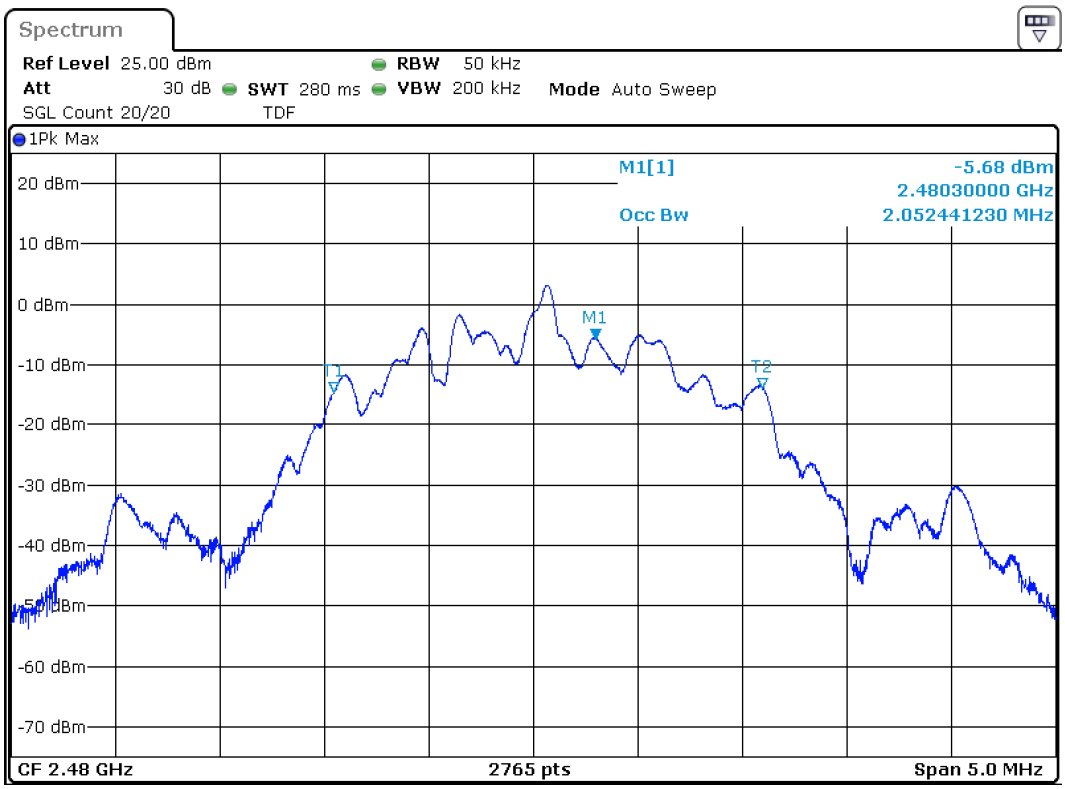
Channel 37



Channel 18



Channel 39


Spectrum
Ref Level 25.00 dBm
RBW 50 kHz
Att 30 dB
SWT 280 ms
VBW 200 kHz
Mode Auto Sweep
SGL Count 20/20
TDF
1Pk Max
M1[1]
-5.68 dBm
2.48030000 GHz
Occ Bw
2.052441230 MHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 2.48 GHz
2765 pts
Span 5.0 MHz

3.4 Output Power Measurement

3.4.1 Limit

For systems using digital modulation in the 2400-2483.5 MHz, the limit for the peak output power is 30 dBm. If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point to point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.4.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.4.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.4.4 Test procedure

The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05.
IRN 014 - RF power (W) - Method 1 – AVGSA (DTS) according to ANSI C63.10.

3.4.5 Test results of Output Power Measurement

Peak method

Technology Std.	Channel	Frequency (MHz)	Data rate	Peak output power (dBm)
Bluetooth Low Energy	37	2402	1 Mbps	4.85
	18	2440	1 Mbps	4.42
	39	2480	1 Mbps	3.94
Uncertainty	± 0.9 dB			

3.4.6 Plots of Peak Output Power Measurement

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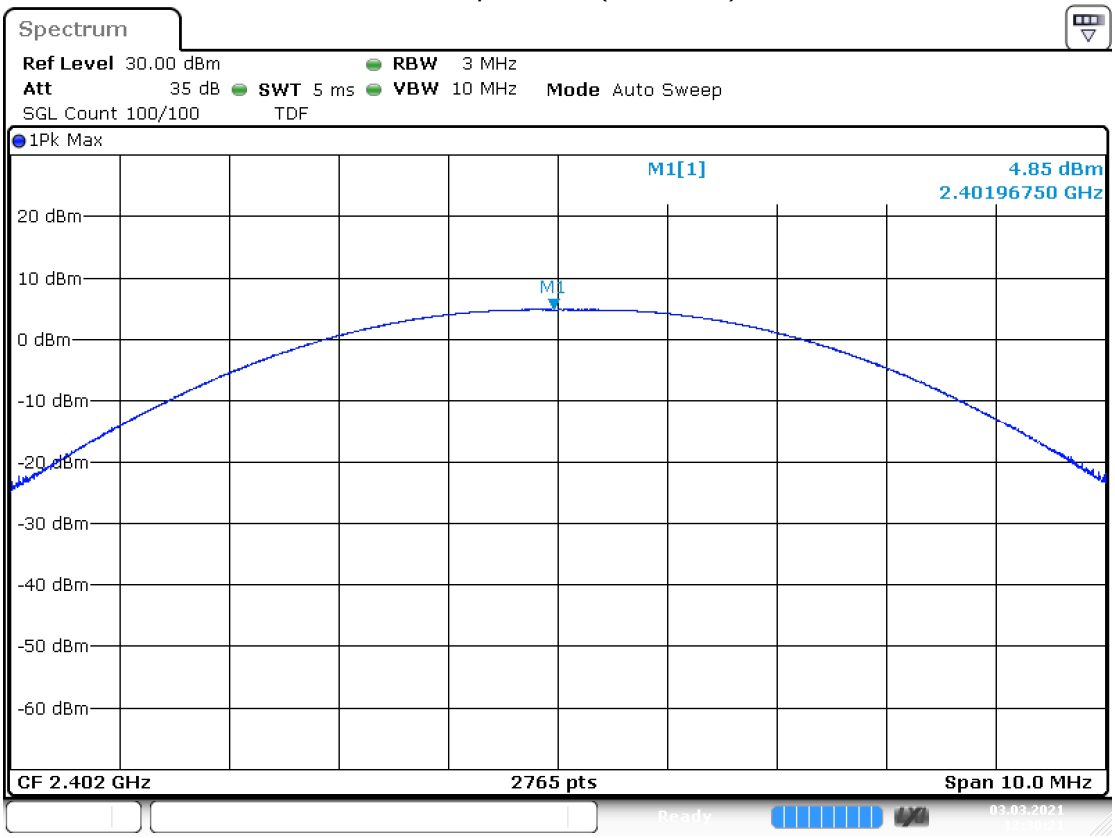
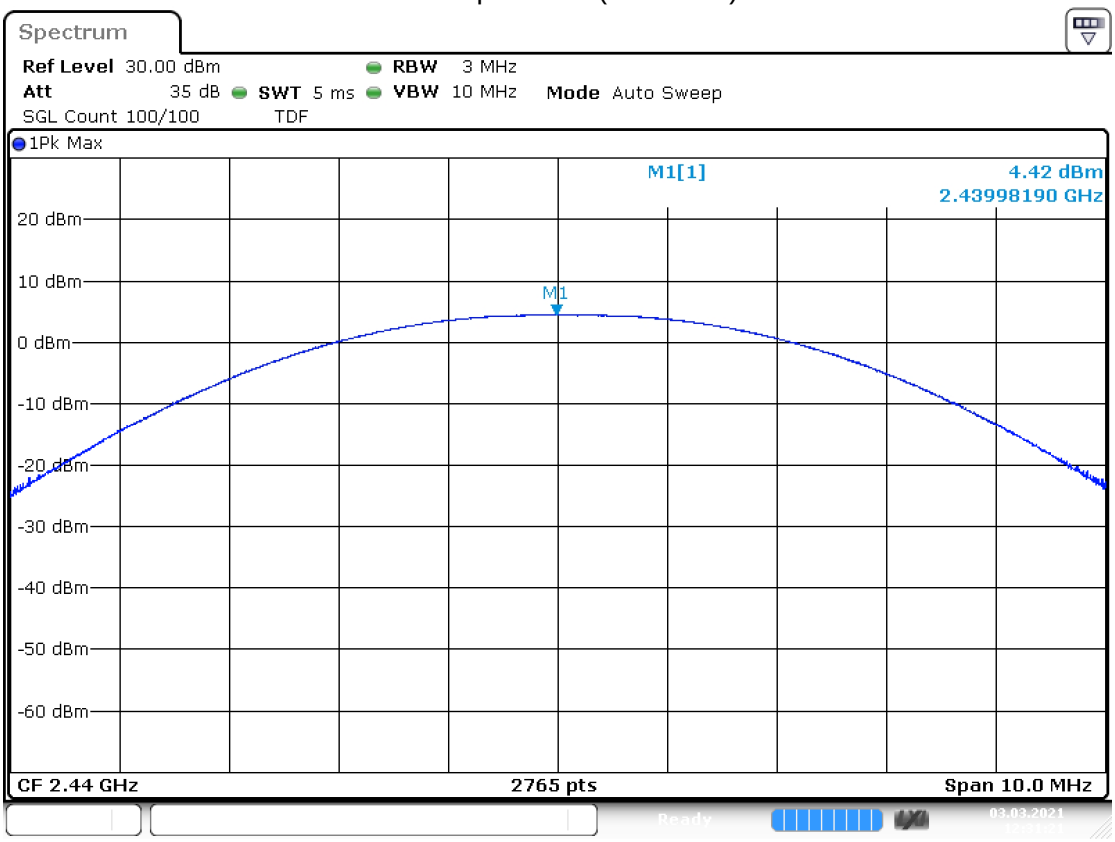
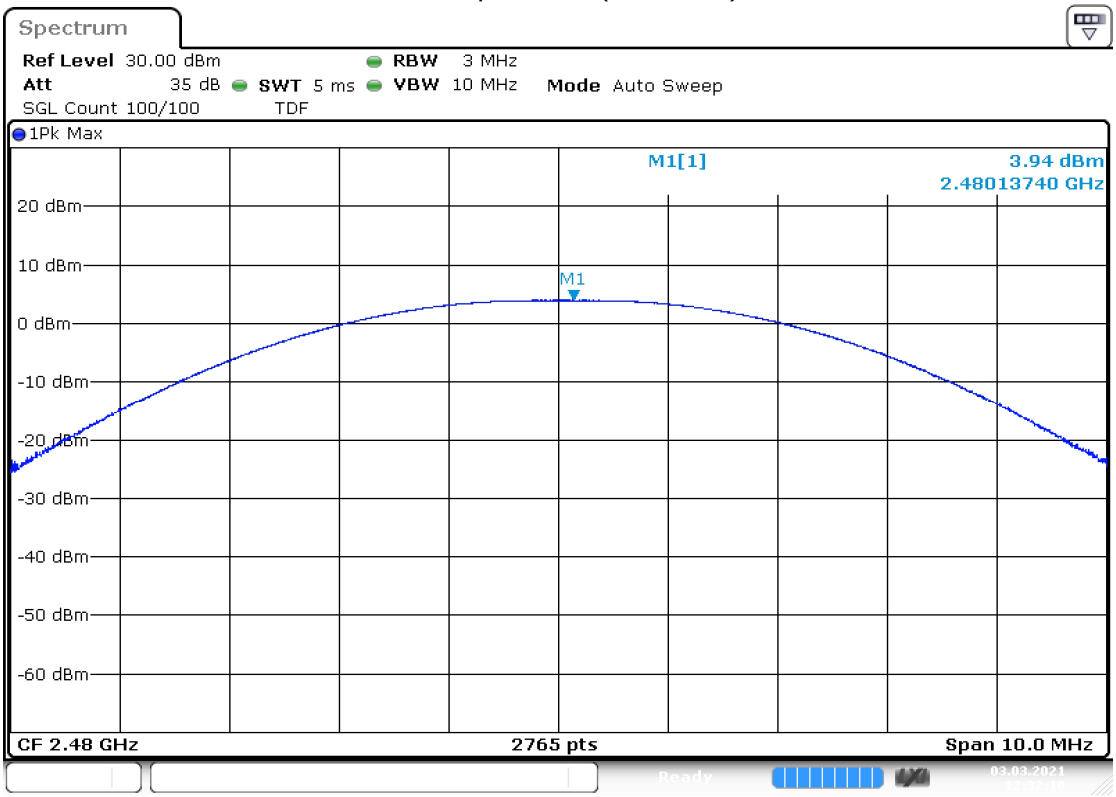
Peak Output Power (Channel 37)



Peak Output Power (Channel 18)



Peak Output Power (Channel 39)



3.5 Power Spectral Density

3.5.1 Limit

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band at any time interval of continuous transmission.

3.5.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.5.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.5.4 Test procedure

The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05.
IRN 030 - Spectral power density (W per n.Hz) - Method 5 – Peak method PKPSD (PSD in 3 kHz band)

3.5.5 Test results of Power Spectral Density Measurement

Peak Power spectral density

Technology Std.	Channel	Frequency (MHz)	Data rate	PSD (dBm/3 kHz)
Bluetooth Low Energy	37	2402	1 Mbps	-13.25
	18	2440	1 Mbps	-13.30
	39	2480	1 Mbps	-13.74
Uncertainty	±2 dB			

3.5.6 Plots of the Power Spectral Density Measurements

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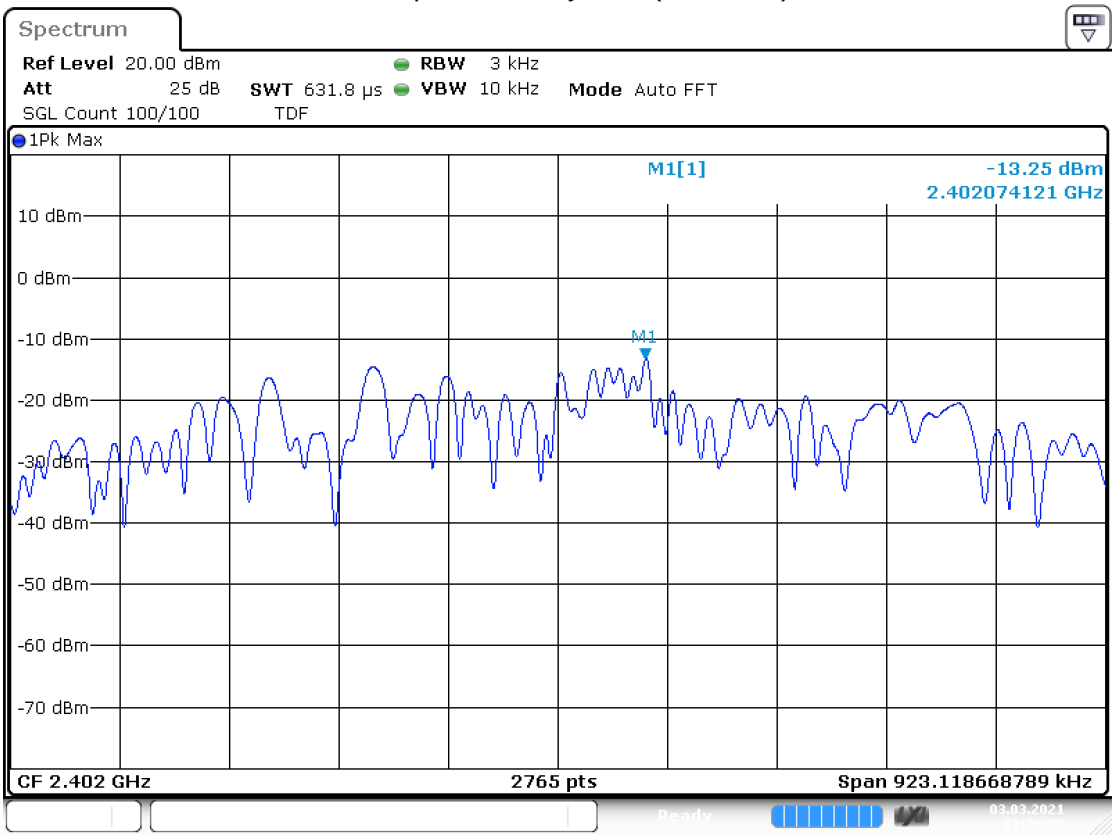
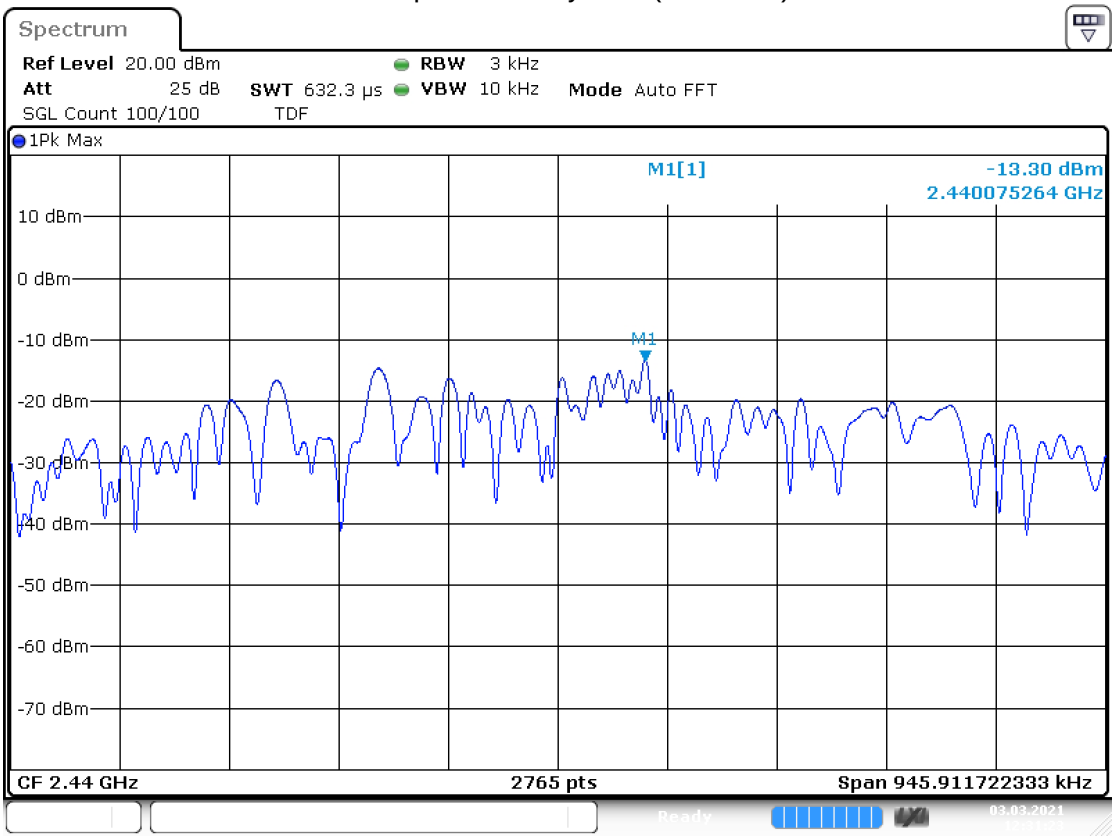
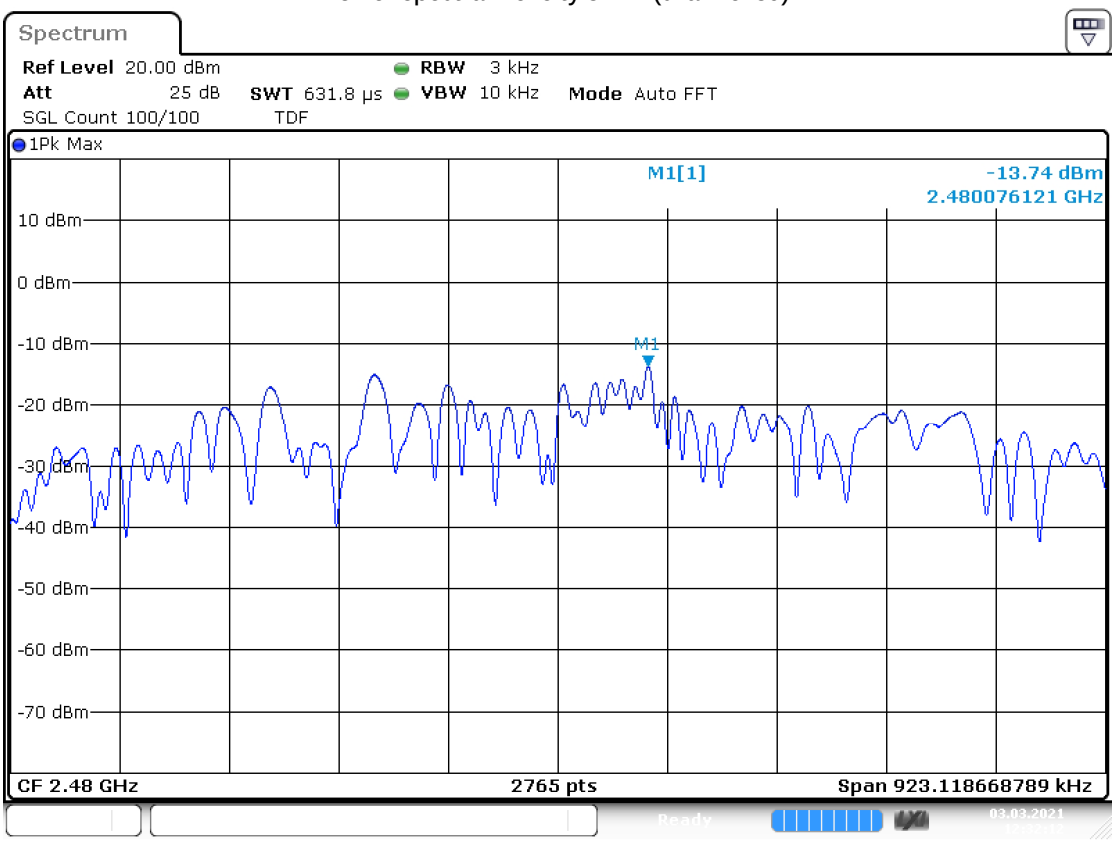
Power Spectral Density 3 kHz (channel 37)



Power Spectral Density 3 kHz (channel 17)



Power Spectral Density 3 kHz (channel 39)



3.6 Band edge Measurement

3.6.1 Limit

Band edge:
At the edge of the authorized band the RF power shall be at least 20 dB down.

3.6.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.6.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.6.4 Test procedure

The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05, sections 11.3 and 12.1. IRN 026 - Radiated electrical disturbance (V per m) Method 6 – Radiated electrical disturbance at the Authorized band edge.

3.6.5 Plots of the Band edge Measurements

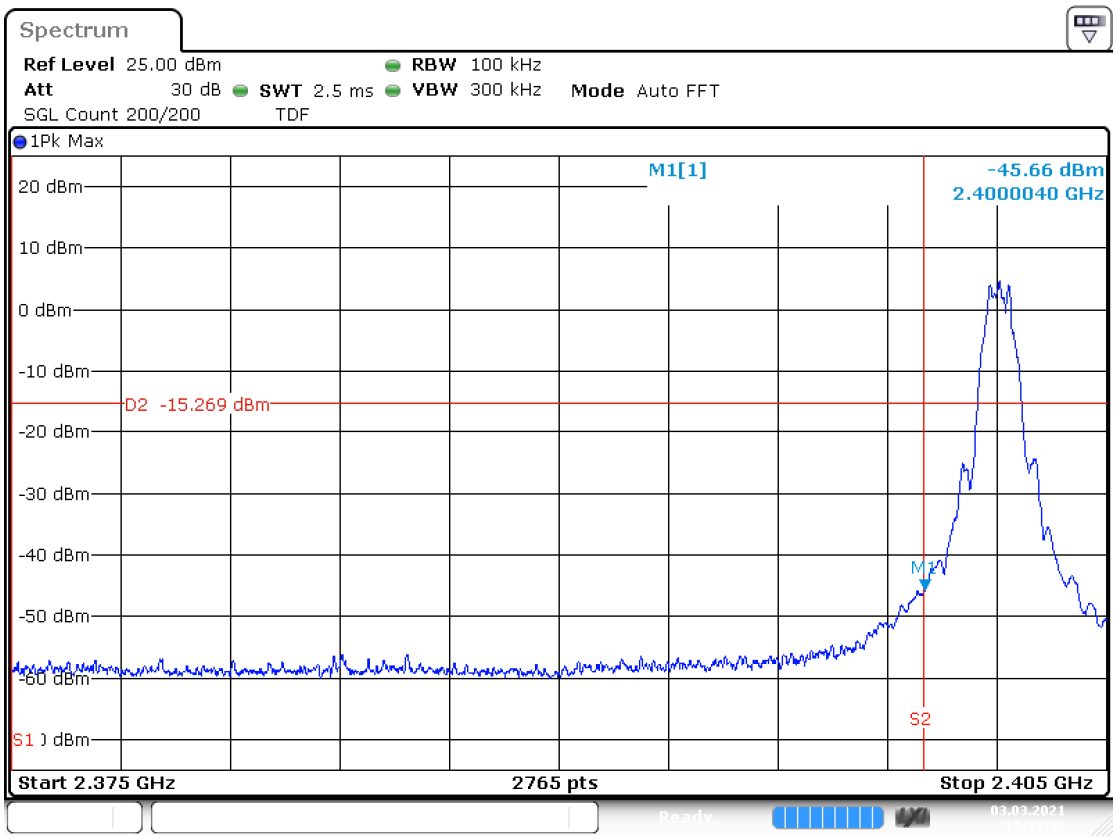
See next page

3.6.6 Test results of band edge measurements

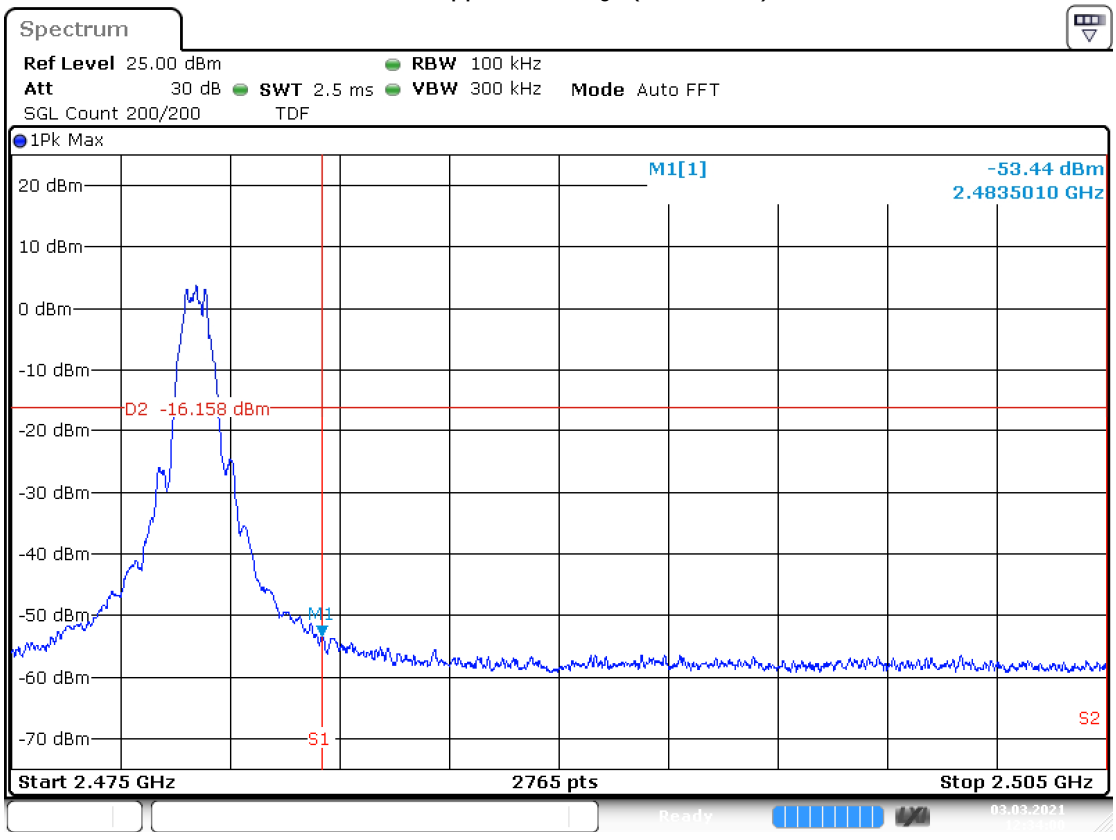
Peak method

Technology Std.	Channels	Frequency (MHz)	Data rate	Attenuation (dB)
Bluetooth Low Energy	37	2402	1 Mbps	-45.66
	39	2480	1 Mbps	-53.44
Uncertainty	±2.53 dB			

BLE Lower band edge (Channel 37)



BLE Upper band edge (Channel 39)



4 Sample calculations

All formulas for data conversions and conversion factors are reported in this chapter.

Conducted emission Measurement:

U_{lisn} (dBµV) = U (dBµV) + Corr. (dB)

Where:
U = Measuring receiver voltage
LISN insertion loss = Voltage division factor of LISN
Corr. = sum of single correction factors of used LISN, cables and pulse limiter.
Linear interpolation will be used for frequencies in between the values in the table.

Frequency (Mhz)	Voltage division LISN (db)	Insertion Loss Pulse limiter (dB)	Cable loss (dB)	Corr. (dB)
	TE 00208 SN: 892785/004 Rohde & Schwarz ESH3-Z5	TE 00756 SN: 5SM03153 Rohde & Schwarz ESH3-Z2	TE 11134	
0,15	0,09	9,87	0,02	9,98
0,2	0,1	9,87	0,03	10
0,3	0,1	9,87	0,03	10
0,5	0,1	9,87	0,08	10,05
0,7	0,12	9,87	0,25	10,24
0,8	0,12	9,87	0,25	10,24
1	0,13	9,87	0,11	10,11
2	0,16	9,87	0,15	10,18
3	0,19	9,87	0,21	10,27
5	0,26	9,88	0,21	10,35
7	0,36	9,89	0,25	10,5
8	0,39	9,89	0,25	10,53
10	0,46	9,91	0,29	10,66
15	0,77	9,93	0,34	11,04
20	0,95	9,96	0,37	11,28
25	1,12	9,99	0,43	11,54
30	1,1	10,04	0,45	11,59

Field Strength Measurement:

E (dBµV/m) = U(dBµV) + AF (dB/m) + Corr. (dB)

Where:
E = Electric field strength
U = Measuring receiver voltage
AF = Antenna factor
CL = Cable loss

Corr. = sum of single correction factors of used cable and amplifier (if applicable).
Linear interpolation will be used for frequencies in between the values in the table.
Tables shows an extract of the values.

Frequency (Mhz)	AF (dB/m) TE 00967 Chase CBL6112A SN: 2308	Cable loss (dB) Id: SAR cable	Corr. (dB)
30	18,6	0,68	19,28
100	10,7	1,15	11,85
150	10,6	1,41	12,01
200	9,3	1,63	10,93
250	12,6	1,93	14,53
300	13,3	2,12	15,42
350	14,6	2,2	16,8
400	15,5	2,29	17,79
450	16,9	2,53	19,43
500	17,5	2,67	20,17
550	18,4	2,9	21,3
600	18,8	3,02	21,82
650	19,2	3,09	22,29
700	19	3,22	22,22
750	19,8	3,56	23,36
800	19,7	3,69	23,39
900	20,4	3,81	24,21
950	20,8	3,91	24,71
1000	21,2	4,3	25,5

Frequency (Mhz)	AF (dB/m) TE 00531 Emco 3115 SN: 9412-4377	Gain (dB) TE 11132 Miteq JS4-18004000-30-8P-A1	Cable loss (dB) TE 01315	Corr. (dB)
1000	23,6	40,4	2,0	66
1500	25,1	40,5	2,4	68
2000	27,1	40,5	2,7	70,3
2500	28,6	40,7	3,2	72,5
3000	30,5	40,7	3,2	74,4
3500	31,2	40,7	3,4	75,3
4000	32,7	40,9	4,9	78,5
4500	32,4	40,9	4,4	77,7
5000	33,2	40,7	4,6	78,5
5500	34,0	40,5	4,5	79
6000	34,6	40,0	5,2	79,8
6500	34,3	39,4	5,9	79,6
7000	35,2	38,6	5,7	79,5
7500	36,4	39,2	5,9	81,5
8000	37,0	38,9	6,3	82,2
8500	37,5	38,4	6,4	82,3
9000	38,1	37,4	6,5	82
9500	37,8	37,0	7,1	81,9
10000	38,2	36,5	7,3	82
10500	38,1	36,7	7,6	82,4
11000	38,3	36,9	8,3	83,5
11500	38,5	37,6	8,1	84,2
12000	39,1	38,3	8,4	85,8
12500	38,7	38,5	8,3	85,5
13000	39,2	38,9	9,2	87,3
13500	40,5	40,2	8,3	89
14000	41,1	40,0	8,2	89,3
14500	41,4	40,1	8,2	89,7
15000	40,2	41,4	8,3	89,9
15500	37,9	41,4	8,6	87,9
16000	37,5	42,8	9,2	89,5
16500	38,6	42,3	8,8	89,7
17000	41,1	43,1	9,4	93,6
17500	42,7	43,2	9,4	95,3
18000	44,0	44,2	9,8	98

Frequency (Mhz)	AF (dB/m) TE 00531 Emco 3115 SN: 9412-4377	Gain (dB) TE 11132 Miteq JS4-18004000-30-8P-A1	Cable loss (dB) TE 01315	Corr. (dB)
18000	31,3	26,2	9,8	67,3
19000	31,5	26,1	9,6	67,2
20000	31,7	25,9	11	68,6
21000	31,9	24,3	10,7	66,9
22000	32,1	18,3	10,5	60,9
23000	32,2	18,9	10,8	61,9
24000	32,3	23,6	11,4	67,3
25000	32,4	24,5	11,6	68,5
26000	32,5	25,3	11,7	69,5