
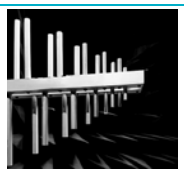
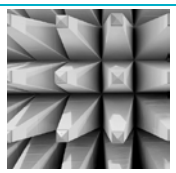

CTC advanced
member of RWTÜV group

Bundesnetzagentur

BNetzA-CAB-02/21-102

TEST REPORT

Test report no.: 1-3700/21-01-09

Testing laboratory

CTC advanced GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: https://www.ctcadvanced.com
e-mail: mail@ctcadvanced.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate starting with the registration number: D-PL-12076-01.

Applicant

Digi International Inc.
9350 Excelsior Blvd, Suite 700
Hopkins, 55343 / UNITED STATES
Phone: -/-
Contact: Dan Kobylarz
e-mail: daniel.kobylarz@digi.com

Manufacturer

Digi International Inc.
9350 Excelsior Blvd, Suite 700
Hopkins, 55343 / UNITED STATES

Test standard/s

FCC - Title 47 CFR Part 15	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 247 Issue 2	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence - Exempt Local Area Network (LE-LAN) Devices

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	**Embedded ARM System on Module**
Model name:	**ConnectCore 6P**
FCC ID:	**MCQ-CCIMX6P**
ISED certification number:	**1846A-CCIMX6P**
Frequency:	UNII bands: 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz; 5470 MHz to 5725 MHz; 5725 MHz to 5850 MHz
Technology tested:	WLAN
Antenna:	External antenna (Ethertronics 1001932)
Power supply:	5.0 V DC by external power supply
Temperature range:	-40°C to +85°C

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorized:

cn=Marco Bertolino, o=CTC advanced GmbH, ou=BTL-211209, email=marco.bertolino@ctcadvanced.com, c=DE
2022.05.03 11:24:08 +02'00'

Marco Bertolino
Lab Manager
Radio Communications

Test performed:

cn=Michael Dorongovski, o=CTC advanced GmbH, ou=DOR-210422, email=Michael.Dorongovski@ctcadvanced.com, c=DE
2022.05.03 10:42:28 +02'00'

Michael Dorongovski
Lab Manager
Radio Communications

1 Table of contents

2 General information

2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CTC advanced GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.
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In no case this test report can be considered as a Letter of Approval.

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

2.2 Application details

Date of receipt of order:	2022-01-11
Date of receipt of test item:	2022-01-05
Start of test:*	2022-01-10
End of test:*	2022-02-25
Person(s) present during the test:	-/-

*Date of each measurement, if not shown in the plot, can be requested. Dates are stored in the measurement software.

2.3 Test laboratories sub-contracted

None

3 Test standard/s, references and accreditations

Test standard	Date	Description
FCC - Title 47 CFR Part 15		FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 247 Issue 2	February 2017	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence - Exempt Local Area Network (LE-LAN) Devices
RSS - Gen Issue 5 incl. Amendment 1 & 2	February 2021	Spectrum Management and Telecommunications Radio Standards Specification - General Requirements for Compliance of Radio Apparatus

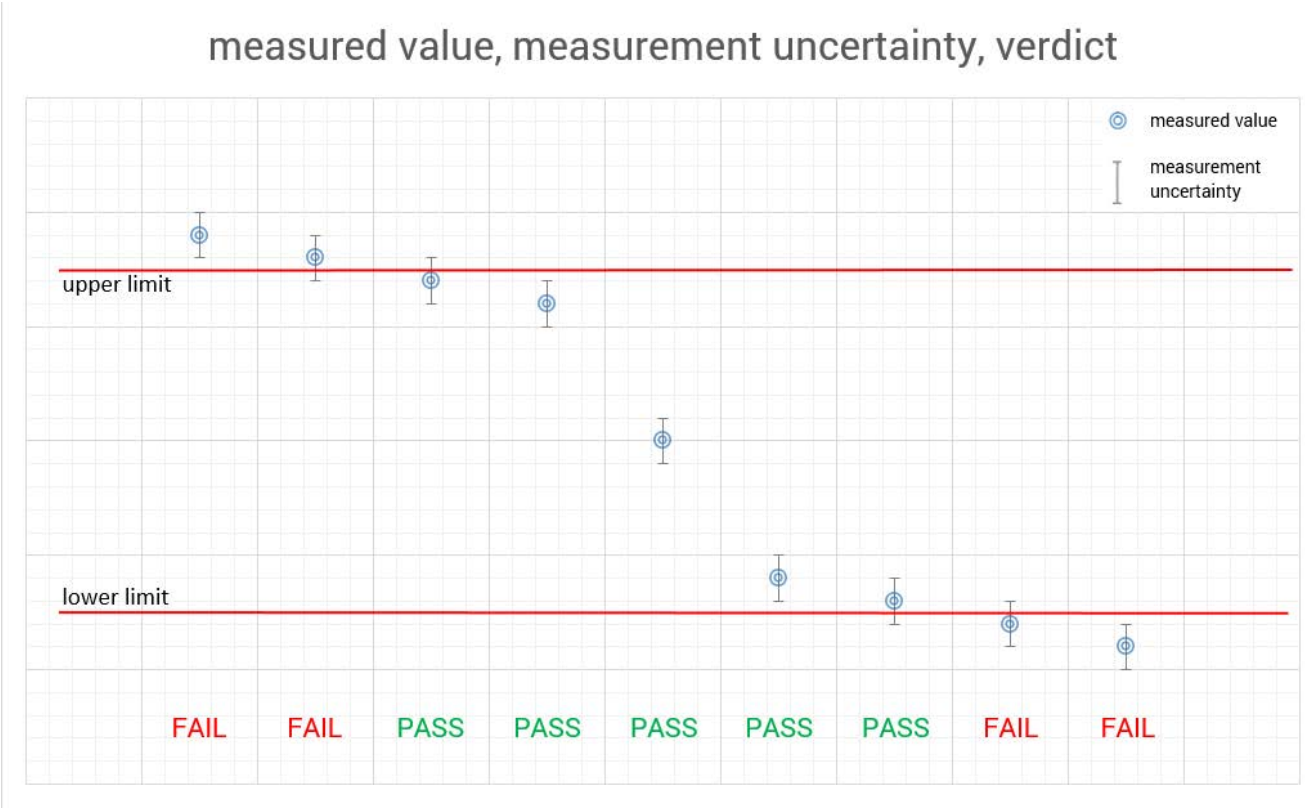
Guidance	Version	Description
KDB 789033 D02	v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E
ANSI C63.4-2014	-/-	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10-2013	-/-	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Accreditation	Description
D-PL-12076-01-04	Telecommunication and EMC Canada https://www.dakks.de/as/ast/d/D-PL-12076-01-04e.pdf
D-PL-12076-01-05	Telecommunication FCC requirements https://www.dakks.de/as/ast/d/D-PL-12076-01-05e.pdf

ISED Testing Laboratory Recognized Listing Number: DE0001
FCC designation number: DE0002

4 Reporting statements of conformity – decision rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3.
The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong."



5 Test environment

Temperature	:	T_{nom} T_{max} T_{min}	+22 °C during room temperature tests No tests under extreme environmental conditions required. No tests under extreme environmental conditions required.
Relative humidity content	:		40 %
Barometric pressure	:		1022 hpa
Power supply	:	V_{nom} V_{max} V_{min}	5.0 V DC by external power supply No tests under extreme environmental conditions required. No tests under extreme environmental conditions required.

6 Test item

6.1 General description

Kind of test item	:	Embedded ARM System on Module
Model name	:	ConnectCore 6P
HMN	:	-/-
PMN	:	ConnectCore 6 Plus
HVIN	:	50001964-01
FVIN	:	82004170
S/N serial number	:	Rad. 0004F3263632
Hardware status	:	50001964-02
Software status	:	U-Boot dub-2017.03-r8.1, Linux 5.4.84
Firmware status	:	DEY-3.0-r3.2
Frequency band	:	UNII bands: 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz; 5470 MHz to 5725 MHz; 5725 MHz to 5850 MHz
Type of radio transmission Use of frequency spectrum	: :	OFDM
Type of modulation	:	CCK, (D)BPSK, (D)QPSK, 16 – QAM, 64 – QAM
Number of channels	:	25 with 20 MHz channel bandwidth 12 with 40 MHz channel bandwidth 6 with 80 MHz channel bandwidth
Antenna	:	External antenna (Ethertronics 1001932)
Power supply	:	5.0 V DC by external power supply
Temperature range	:	-40°C to +85°C

6.2 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup and EUT photos are included in test report: 1-3700/21-01-01_AnnexA
1-3700/21-01-01_AnnexB
1-3700/21-01-01_AnnexD

7 Description of the test setup

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, RF generating and signaling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

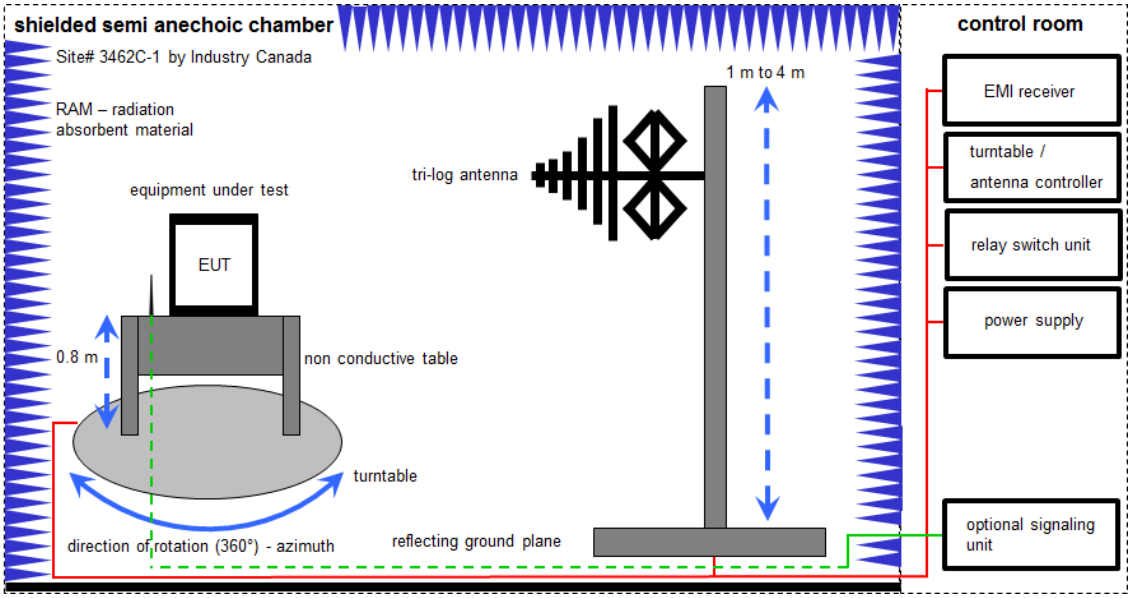
In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

7.1 Shielded semi anechoic chamber

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 30 MHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform to specifications ANSI C63. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



Measurement distance: tri-log antenna 10 meter; EMC32 software version: 10.59.00

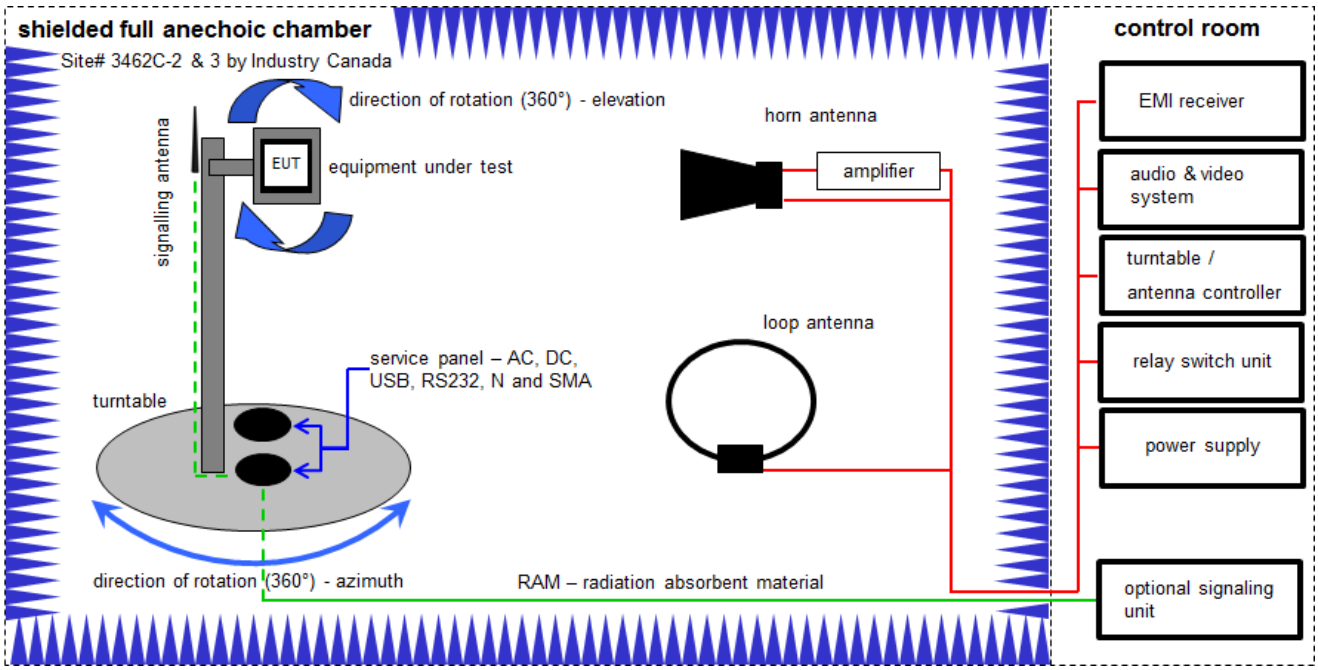
FS = UR + CL + AF
(FS-field strength; UR-voltage at the receiver; CL-loss of the cable; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 12.35 [dBµV/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dBµV/m] (35.69 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Switch-Unit	3488A	HP	2719A14505	300000368	ev	-/-	-/-
2	A	Meßkabine 1	HF-Absorberhalle	MWB AG 300023	-/-	300000551	ne	-/-	-/-
3	A	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw	-/-	-/-
4	A	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw	-/-	-/-
5	A	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw	-/-	-/-
6	A	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck Mess - Elektronik	295	300003787	vIKI!	21.04.2021	20.04.2023
7	A	EMI Test Receiver	ESR3	Rohde & Schwarz	102587	300005771	k	10.12.2020	09.06.2022

7.2 Shielded fully anechoic chamber



Measurement distance: horn antenna 3 meter; loop antenna 3 meter

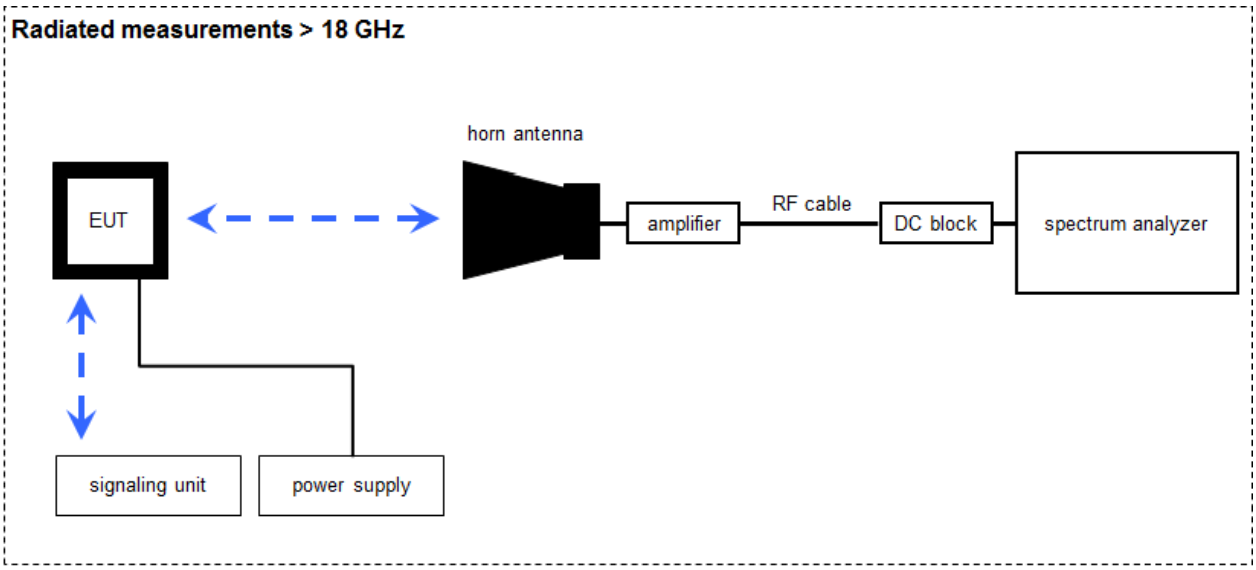
FS = UR + CA + AF
(FS-field strength; UR-voltage at the receiver; CA-loss of the signal path; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 40.0 [dBµV/m] + (-35.8) [dB] + 32.9 [dB/m] = 37.1 [dBµV/m] (71.61 µV/m)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Active Loop Antenna 9 kHz to 30 MHz	6502	EMCO	2210	300001015	vIKI!	01.07.2021	30.06.2023
2	A, B	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev	-/-	-/-
3	B	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	9107-3697	300001605	vIKI!	12.03.2021	11.03.2023
4	A, B	Switch / Control Unit	3488A	HP	*	300000199	ne	-/-	-/-
5	A, B	EMI Test Receiver 20Hz- 26,5GHz	ESU26	R&S	100037	300003555	k	09.12.2021	08.12.2022
6	B	High Pass Filter	VHF-3500+	Mini Circuits	-/-	400000193	ne	-/-	-/-
7	B	Broadband Amplifier 0.5-18 GHz	CBLU5184540	CERNEX	22049	300004481	ev	-/-	-/-
8	A, B	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne	-/-	-/-
9	A, B	NEXIO EMV-Software	BAT EMC V3.21.0.27	EMCO	-/-	300004682	ne	-/-	-/-
10	B	RF-Amplifier	AMF-6F06001800-30-10P-R	NARDA-MITEQ Inc	2011572	300005241	ev	-/-	-/-

7.3 Radiated measurements > 18 GHz



Measurement distance: horn antenna 50 cm

FS = UR + CA + AF
(FS-field strength; UR-voltage at the receiver; CA-loss signal path & distance correction; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 40.0 [dBµV/m] + (-60.1) [dB] + 36.74 [dB/m] = 16.64 [dBµV/m] (6.79 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP	00419	300002268	ev	-/-	-/-
2	A	Std. Gain Horn Antenna 18.0-26.5 GHz	638	Narda	01096	300000486	vlKl!	17.01.2022	31.01.2024
3	A	Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	82-16	300000510	vlKl!	17.01.2022	31.01.2024
4	A	Broadband Low Noise Amplifier 18-50 GHz	CBL18503070-XX	CERNEX	19338	300004273	ev	-/-	-/-
5	A	RF-Cable	ST18/SMAm/SMAm /48	Huber & Suhner	Batch no. 600918	400001182	ev	-/-	-/-
6	A	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	25.01.2022	31.01.2023

8 Sequence of testing

8.1 Sequence of testing radiated spurious 9 kHz to 30 MHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, it is placed on a table with 0.8 m height.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement*

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 1 m.
- At each turntable position the analyzer sweeps with positive-peak detector to find the maximum of all emissions.

Final measurement

- Identified emissions during the pre-measurement are maximized by the software by rotating the turntable from 0° to 360°.
- Loop antenna is rotated about its vertical axis for maximum response at each azimuth about the EUT. (For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT)
- The final measurement is done in the position (turntable and elevation) causing the highest emissions with quasi-peak (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. A plot with the graph of the premeasurement and the limit is stored.

*)Note: The sequence will be repeated three times with different EUT orientations.

8.2 Sequence of testing radiated spurious 30 MHz to 1 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 10 m or 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 m to 3 m.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable position ± 45° and antenna height between 1 and 4 m.
- The final measurement is done with quasi-peak detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

8.3 Sequence of testing radiated spurious 1 GHz to 18 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a 2-axis positioner with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height is 1.5 m.
- At each turntable position and antenna polarization the analyzer sweeps with positive peak detector to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximizes the peaks by rotating the turntable from 0° to 360°. This measurement is repeated for different EUT-table positions (0° to 150° in 30°-steps) and for both antenna polarizations.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

8.4 Sequence of testing radiated spurious above 18 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet.
- The measurement distance is as appropriate (e.g. 0.5 m).
- The EUT is set into operation.

Premeasurement

- The test antenna is handheld and moved carefully over the EUT to cover the EUT's whole sphere and different polarizations of the antenna.

Final measurement

- The final measurement is performed at the position and antenna orientation causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement and the limit is stored.

9 Measurement uncertainty

Measurement uncertainty		
Test case	**Uncertainty**	
Antenna gain	± 3 dB	
Power spectral density	± 1.56 dB	
DTS bandwidth	± 100 kHz (depends on the used RBW)	
Occupied bandwidth	± 100 kHz (depends on the used RBW)	
Maximum output power conducted	± 1.56 dB	
Detailed spurious emissions @ the band edge - conducted	± 1.56 dB	
Band edge compliance radiated	± 3 dB	
Spurious emissions conducted	> 3.6 GHz	± 1.56 dB
	> 7 GHz	± 1.56 dB
	> 18 GHz	± 2.31 dB
	≥ 40 GHz	± 2.97 dB
Spurious emissions radiated below 30 MHz	± 3 dB	
Spurious emissions radiated 30 MHz to 1 GHz	± 3 dB	
Spurious emissions radiated 1 GHz to 12.75 GHz	± 3.7 dB	
Spurious emissions radiated above 12.75 GHz	± 4.5 dB	
Spurious emissions conducted below 30 MHz (AC conducted)	± 2.6 dB	

10 Summary of measurement results

☐	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☒	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Title 47 Part 15 RSS 247, Issue 2	See table	2022-05-03	Tests according to customer demand

Test specification clause	Test case	C	NC	NA	NP	Remark
-/-	Output power verification (cond.)	-/-				Declared
-/-	Antenna gain	-/-				Declared
U-NII Part 15	Duty cycle	-/-				-/-
§15.407(a) RSS - 247 (6.2.x.1)	Maximum output power (conducted & radiated)	☐	☐	☐	☒	-/-
§15.407(a) RSS - 247 (6.2.x.1)	Power spectral density	☐	☐	☐	☒	-/-
RSS - 247 (6.2.4.1)	Spectrum bandwidth 6dB bandwidth	☐	☐	☐	☒	-/-
§15.407(a) RSS - 247 (6.2.x.2)	Spectrum bandwidth 26dB bandwidth	☐	☐	☐	☒	-/-
RSS Gen clause 6.6	Spectrum bandwidth 99% bandwidth	-/-				-/-
§15.205 RSS - 247 (6.2.x.2)	Band edge compliance radiated	☒	☐	☐	☐	-/-
§15.407(b) RSS - 247 (6.2.x.2)	TX spurious emissions radiated	☒	☐	☐	☐	-/-
§15.209(a) RSS-Gen	Spurious emissions radiated < 30 MHz	☒	☐	☐	☐	-/-
§15.107(a) §15.207	Spurious emissions conducted emissions< 30 MHz	☐	☐	☐	☒	-/-
§15.407 RSS - 247 (6.3)	DFS	-/-				-/-

Notes:

C:	Compliant	NC:	Not compliant	NA:	Not applicable	NP:	Not performed

11 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: Settings used for measurements:

Test mode:	Data rate:	Power setting
a-mode (SISO)	6 Mbit/s	Channel 36: 12 Channels 40 to 64: 12.5 Channels 100 to 144: 12 Channels 149 to 165: 13.5
nHT20-mode (SISO)	MCS0	Channels 36 to 140: 12.5 Channel 144: 13.0 Channel 149: 14 Channels 153 to 165: 13.5
nHT40-mode (SISO)	MCS0	Channels 38 and 46: 10 Channels 54 and 62: 11 Channel 102: 9.5 Channels 110: 11 Channels 118 to 142: 12 Channels 151 and 159: 11.5
ac80-mode (SISO)	MCS0	Channel 42: 8 Channel 58: 9 Channel 106: 7.5 Channel 122: 11.5 Channel 138: 11.5 Channel 155: 11.5

EUT selection:

☐ Only one device available

☐ Devices selected by the customer

☒ Devices selected by the laboratory (Randomly)

Provided channels:

Channels with 20 MHz channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency								
channel	**36**	40	44	**48**	**52**	56	60	**64**
f_c / MHz	**5180**	5200	5220	**5240**	**5260**	5280	5300	**5320**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency											
channel	**100**	104	108	112	116	**120**	124	128	132	136	**140**
f_c / MHz	**5500**	5520	5540	5560	5580	**5600**	5620	5640	5660	5680	**5700**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency						
channel	**144**	**149**	153	**157**	161	**165**
f_c / MHz	**5720**	**5745**	5765	**5785**	5805	**5825**

Channels with 40 MHz channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency				
channel	**38**	**46**	**54**	**62**
f_c / MHz	**5190**	**5230**	**5270**	**5310**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency					
channel	**102**	110	**118**	126	**134**
f_c / MHz	**5510**	5550	**5590**	5630	**5670**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency			
channel	**142**	**151**	**159**
f_c / MHz	**5710**	**5755**	**5795**

Channels with 80 MHz channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency		
channel	**42**	**58**
f_c / MHz	**5210**	**5290**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency		
channel	**106**	**122**
f_c / MHz	**5530**	**5610**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency		
channel	**138**	**155**
f_c / MHz	**5690**	**5775**

Note: The channels used for the tests were marked in bold in the list.

Test mode:

☐ No test mode available.
Iperf is used to transmit data to a companion device

☒ Special software is used.
EUT is transmitting pseudo random data by itself

Antennas and transmit operating modes:

☒ Operating mode 1 (single antenna)
- Equipment with 1 antenna,
- Equipment with 2 diversity antennas operating in switched diversity mode by which at any moment in time only 1 antenna is used,
- Smart antenna system with 2 or more transmit/receive chains, but operating in a mode where only 1 transmit/receive chain is used)

☐ Operating mode 2 (multiple antennas, no beamforming)
- Equipment operating in this mode contains a smart antenna system using two or more transmit/receive chains simultaneously but without beamforming.

☐ Operating mode 3 (multiple antennas, with beamforming)
- Equipment operating in this mode contains a smart antenna system using two or more transmit/receive chains simultaneously with beamforming.
  In addition to the antenna assembly gain (G), the beamforming gain (Y) may have to be taken into account when performing the measurements.

12 Measurement results

12.1 Band edge compliance radiated

Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

Measurement:

Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 x RBW
Span:	See plots!
Trace mode:	Max Hold
Test setup:	See sub clause 7.2 – B
Measurement uncertainty:	See chapter 9

Limits:

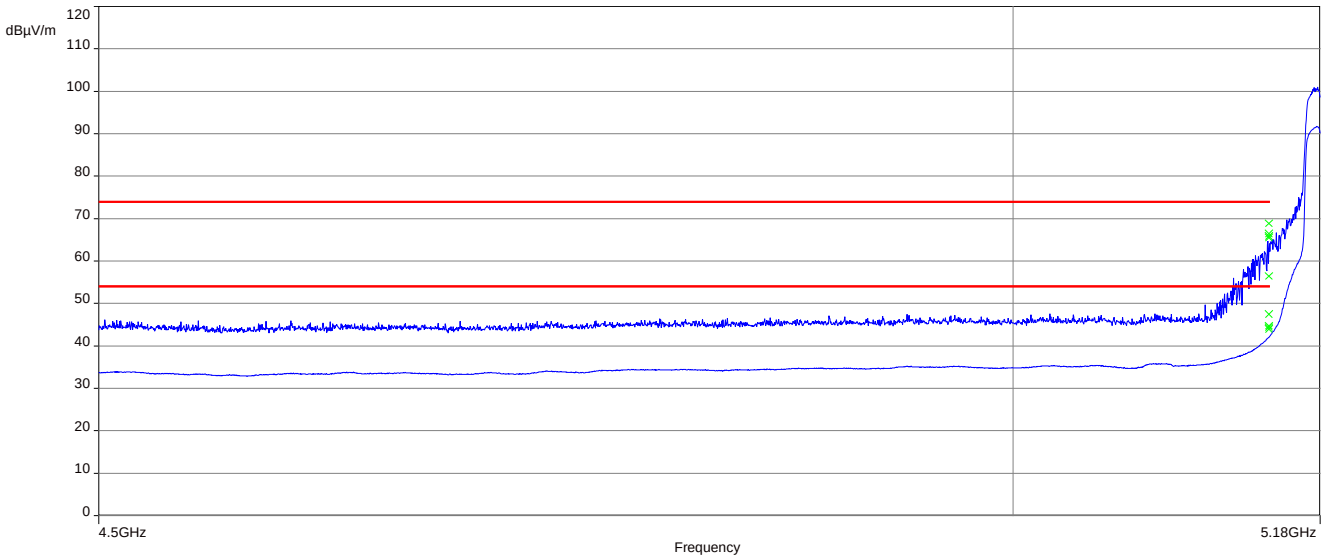
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).
74 dBµV/m (peak) 54 dBµV/m (average)

Result:

Scenario	Band Edge Compliance Radiated [dBµV/m]
band edge	< 74 dBµV/m (peak) < 54 dBµV/m (average)

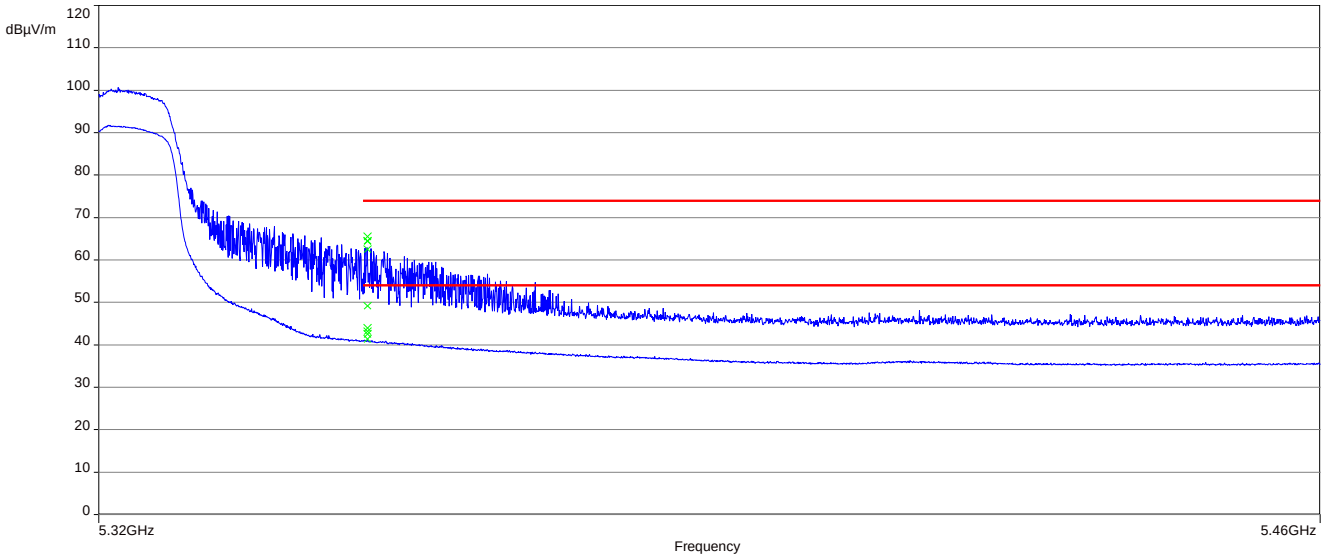
Plots:

Plot 1: lower band edge; U-NII-1; lowest channel; 20 MHz channel bandwidth



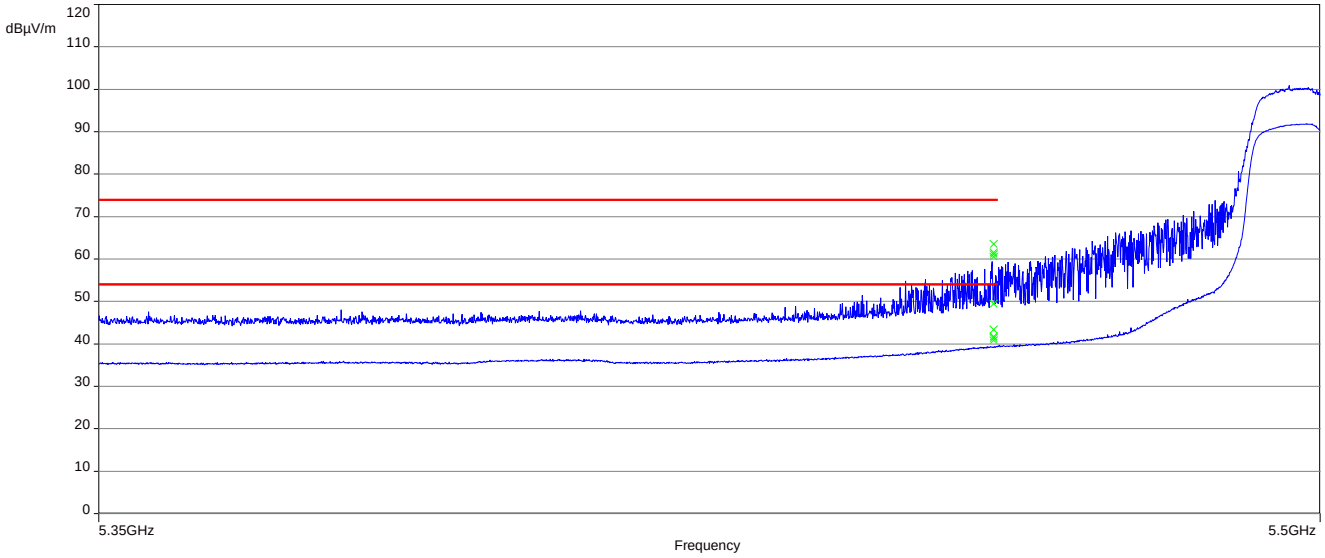
Peak: 69.0 dBuV/m / AVG: 47.4 dBuV/m

Plot 2: upper band edge; U-NII-2A; highest channel; 20 MHz channel bandwidth



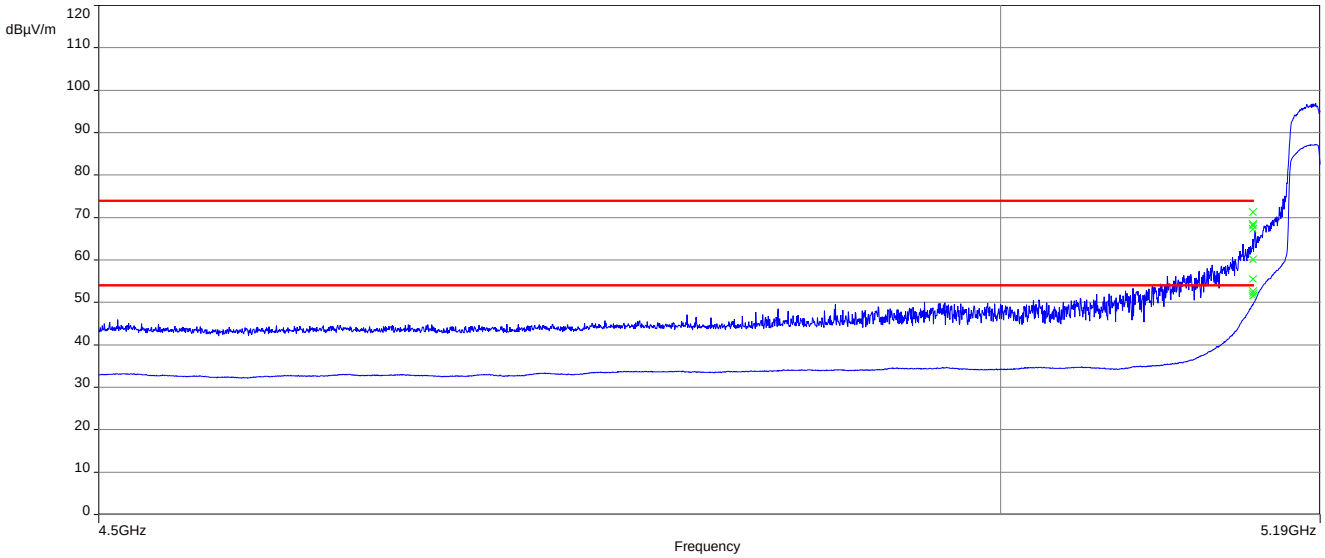
Peak: 65.5 dBuV/m / AVG: 43.9 dBuV/m

Plot 3: lower band edge; U-NII-2C; lowest channel; 20 MHz channel bandwidth



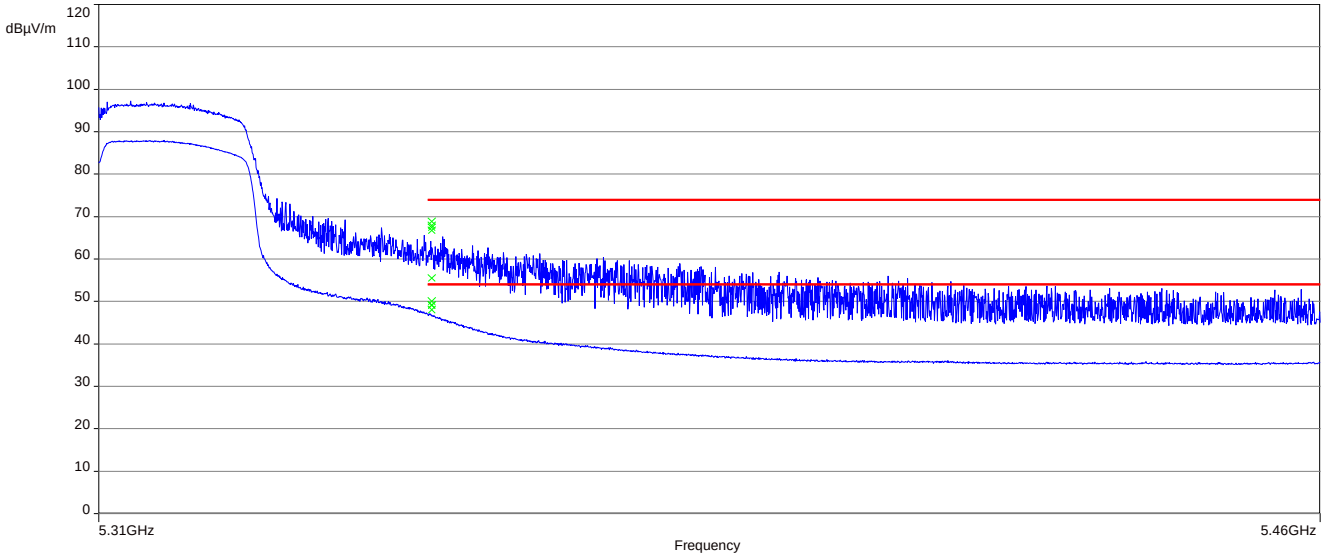
Peak: 63.5 dBuV/m / AVG: 43.4 dBuV/m

Plot 4: lower band edge; U-NII-1; lowest channel; 40 MHz channel bandwidth



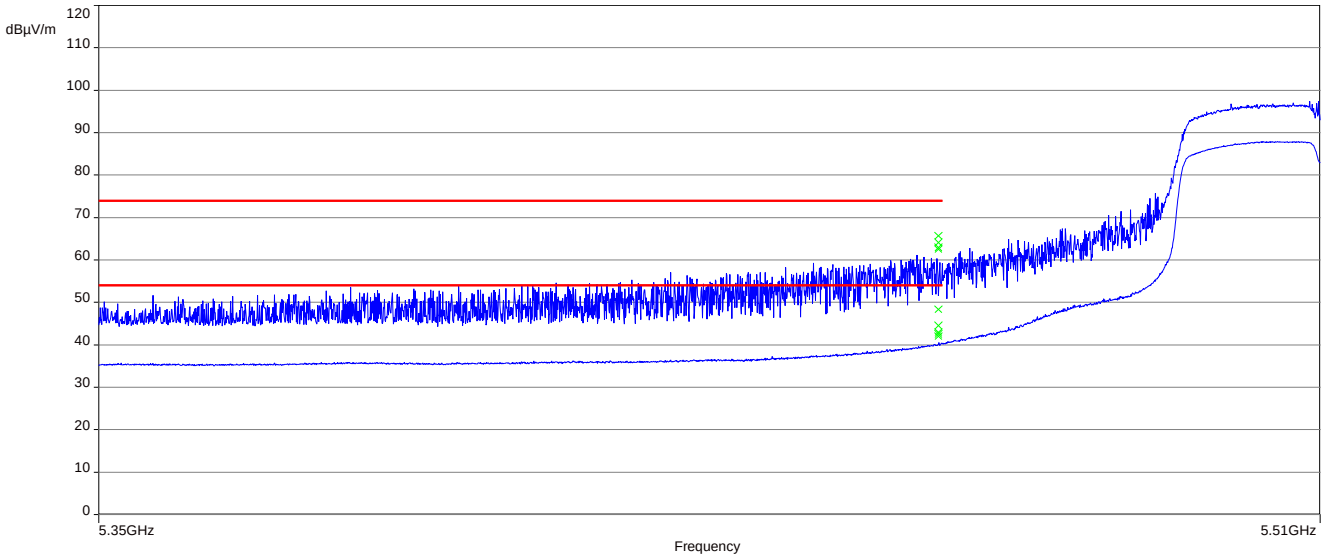
Peak: 71.2 dBuV/m / AVG: 52.0 dBuV/m

Plot 5: upper band edge; U-NII-2A; highest channel; 40 MHz channel bandwidth



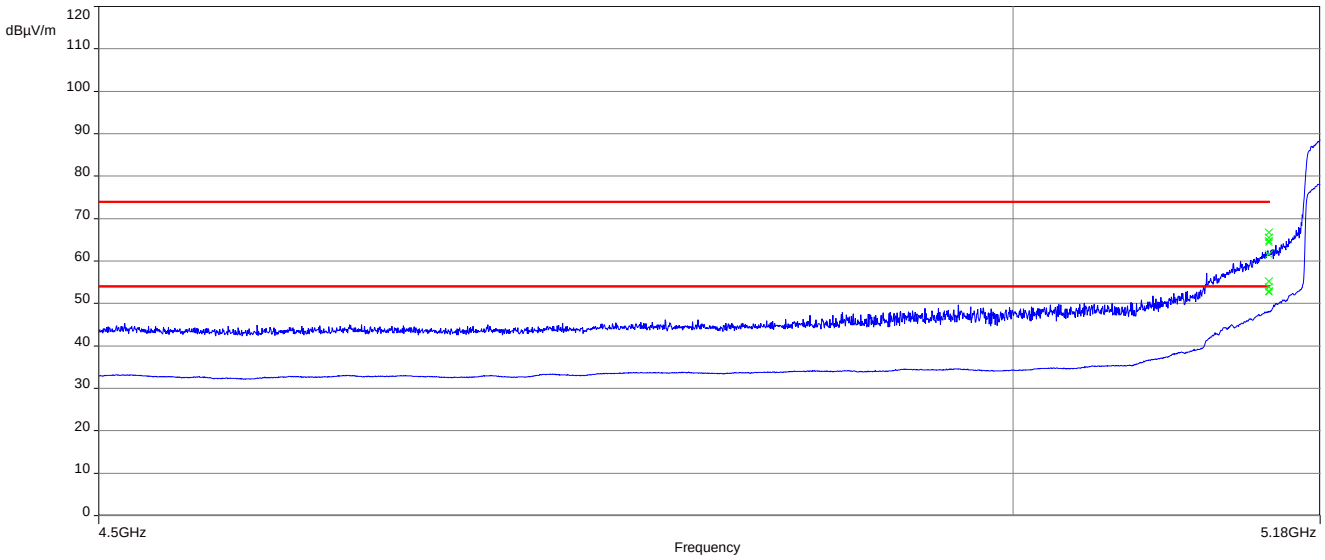
Peak: 68.9 dBuV/m / AVG: 50.0 dBuV/m

Plot 6: lower band edge; U-NII-2C; lowest channel; 40 MHz channel bandwidth



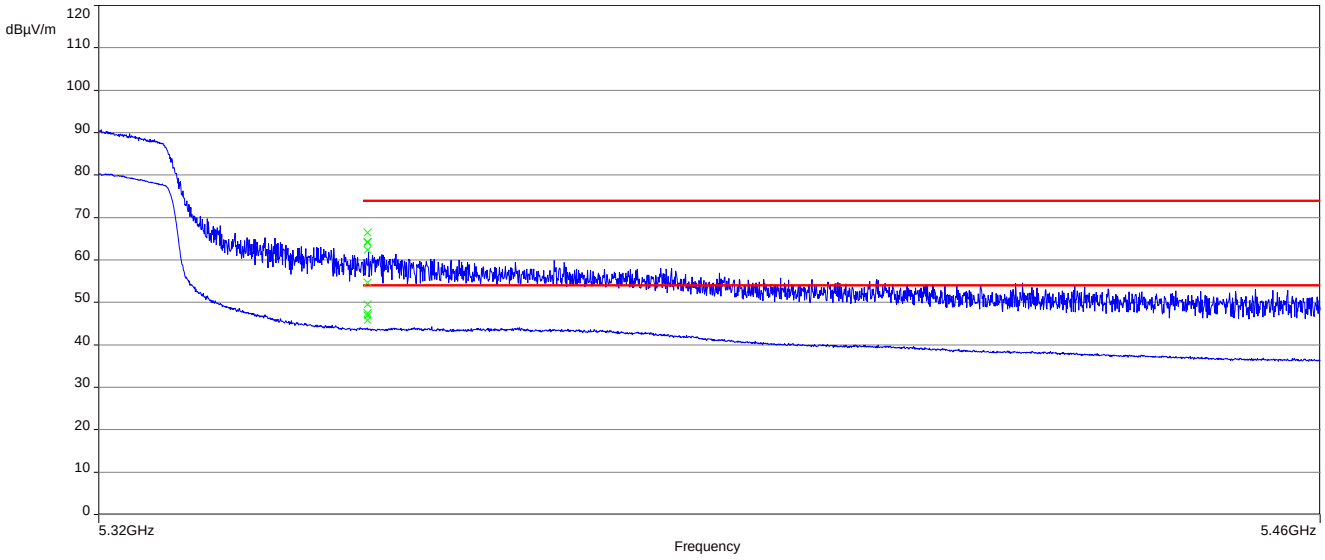
Peak: 65.8 dBuV/m / AVG: 44.6 dBuV/m

Plot 7: lower band edge; U-NII-1; middle channel; 80 MHz channel bandwidth



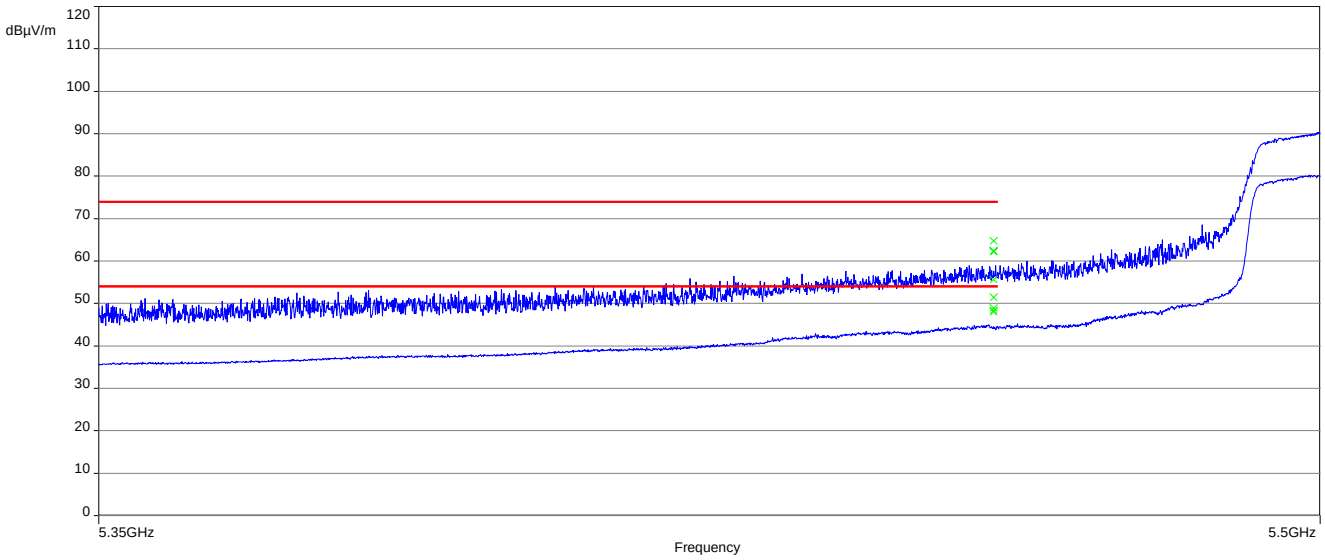
Peak: 66.8 dBuV/m / AVG: 52.5 dBuV/m

Plot 8: upper band edge; U-NII-2A; middle channel; 80 MHz channel bandwidth



Peak: 66.4 dBuV/m / AVG: 49.5 dBuV/m

Plot 9: lower band edge; U-NII-2C; lowest channel; 80 MHz channel bandwidth



Peak: 64.8 dBuV/m / AVG: 51.5 dBuV/m

12.2 Spurious emissions radiated below 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The limits are re-calculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace mode:	Max Hold
Test setup:	See sub clause 7.2 – A
Measurement uncertainty:	See chapter 9

Limits:

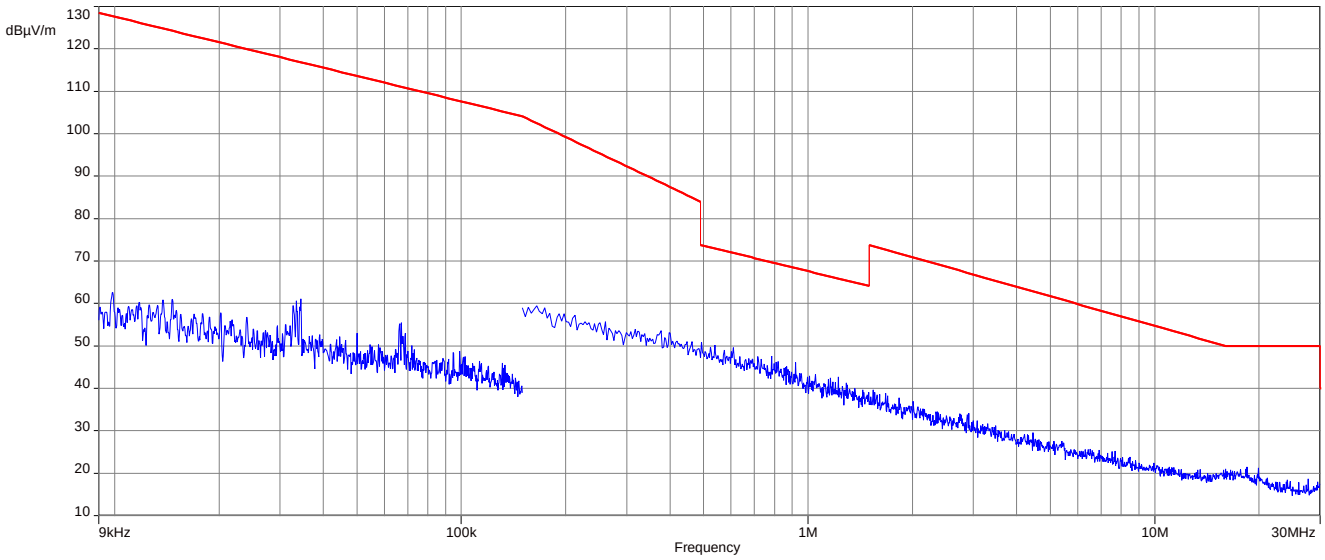
Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Results:

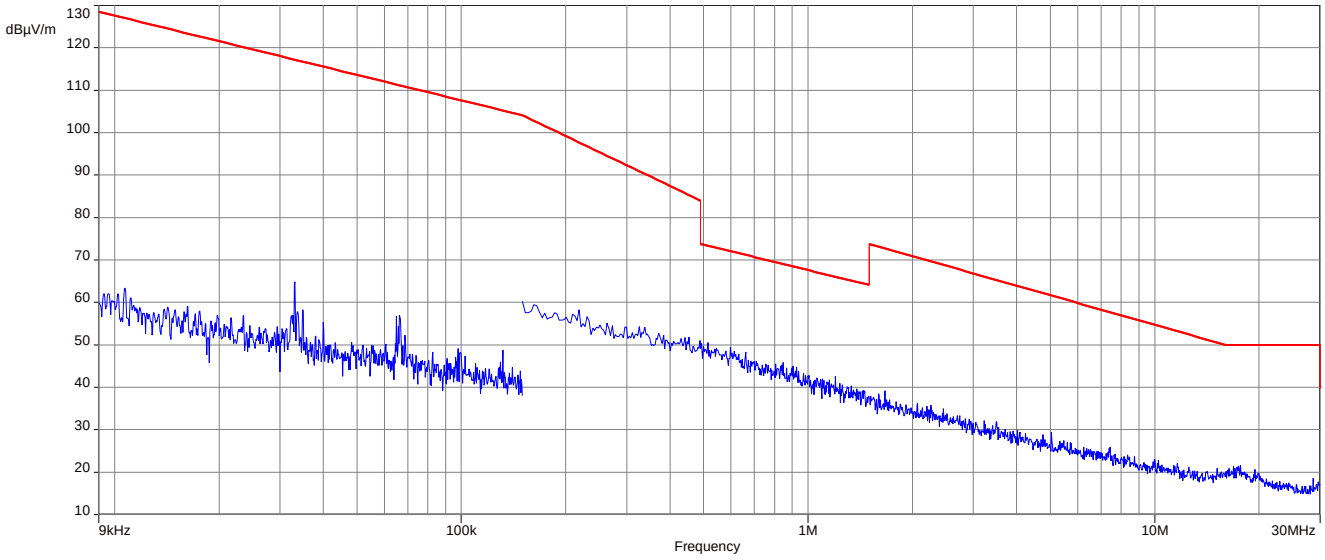
Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
All detected emissions are more than 20 dB below the limit.		

Plots: 20 MHz channel bandwidth

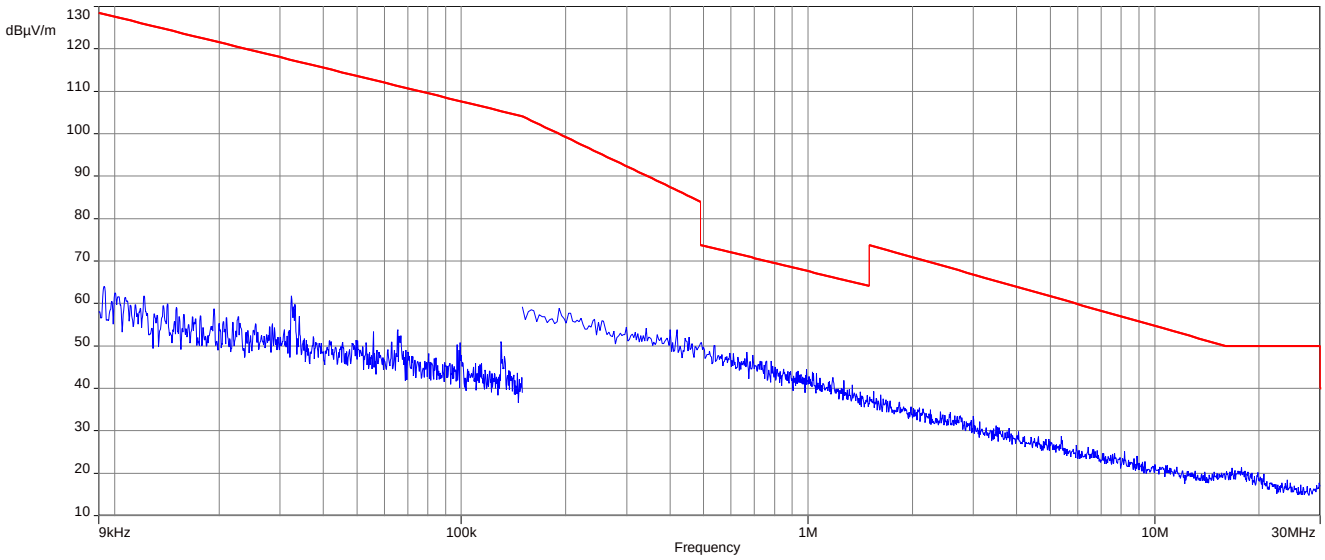
Plot 1: 9 kHz to 30 MHz, U-NII-1; lowest channel



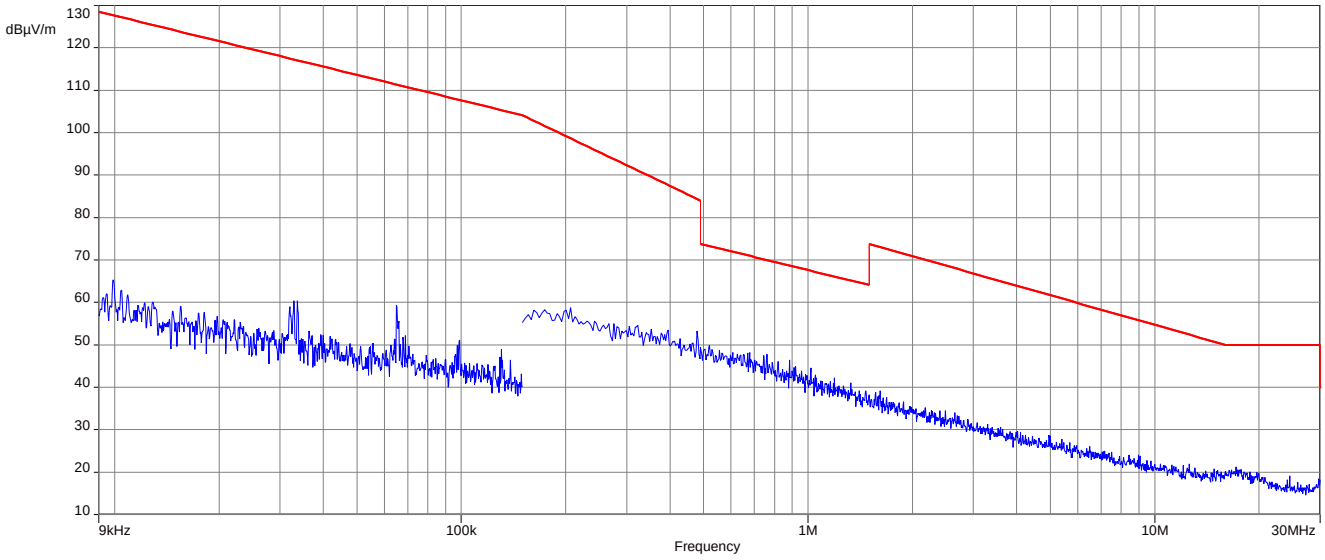
Plot 2: 9 kHz to 30 MHz, U-NII-1; highest channel



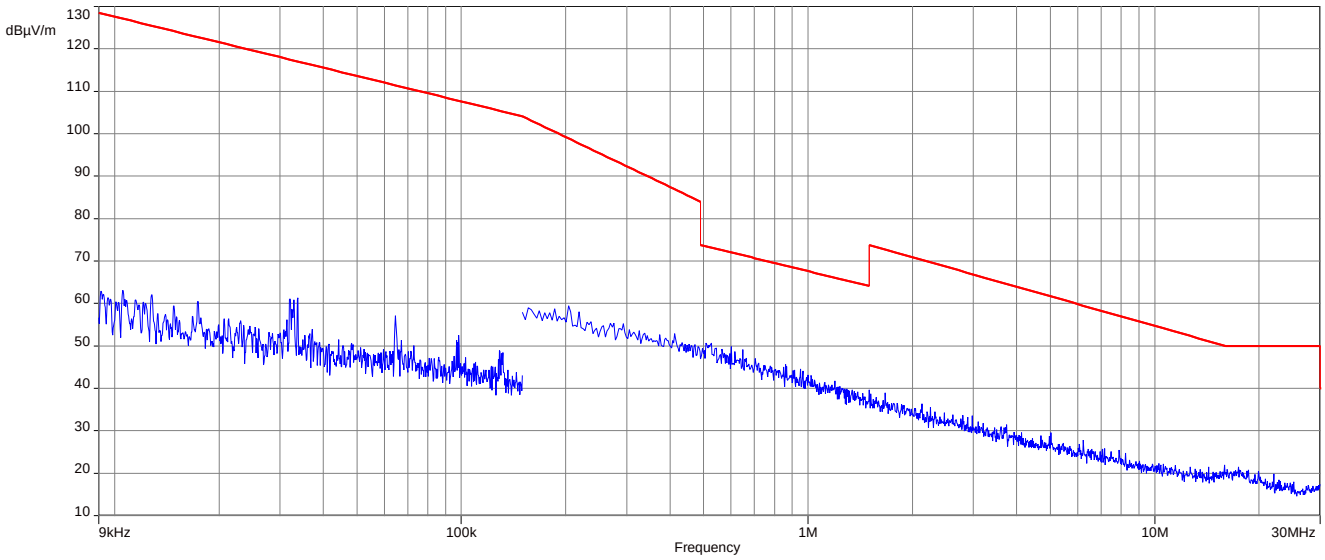
Plot 3: 9 kHz to 30 MHz, U-NII-2A; lowest channel



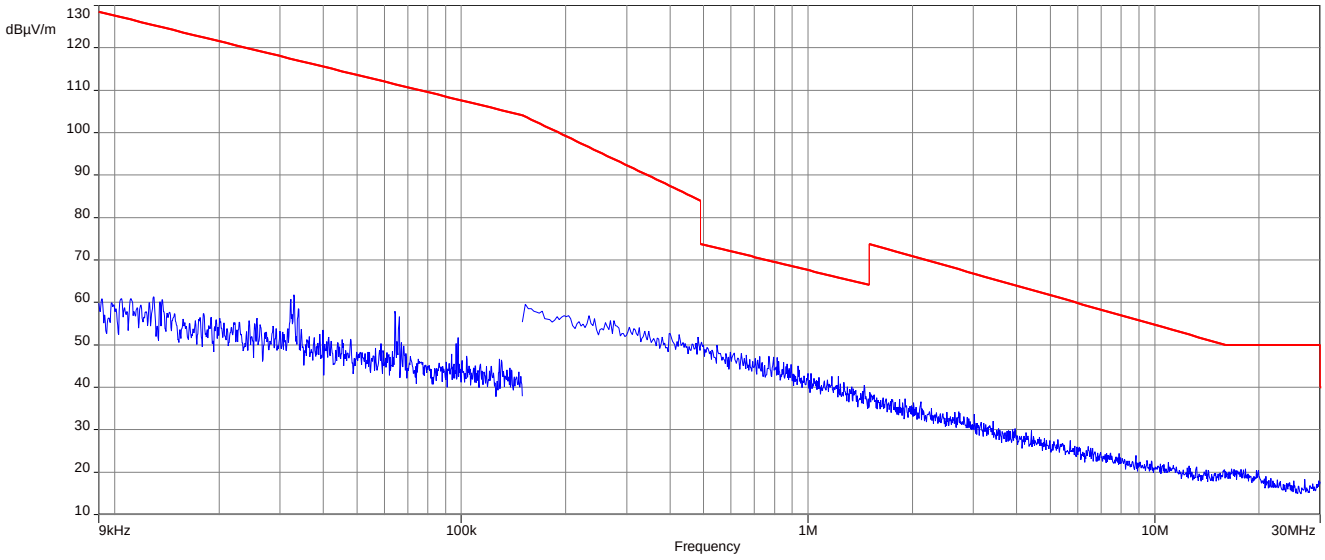
Plot 4: 9 kHz to 30 MHz, U-NII-2A; highest channel



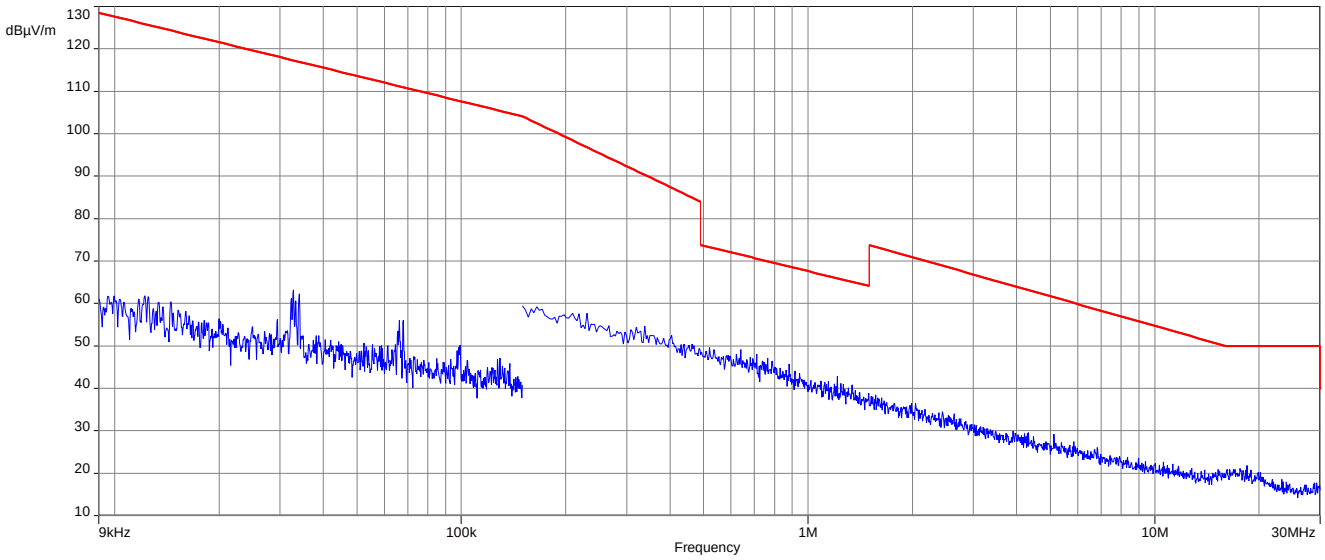
Plot 5: 9 kHz to 30 MHz, U-NII-2C; lowest channel



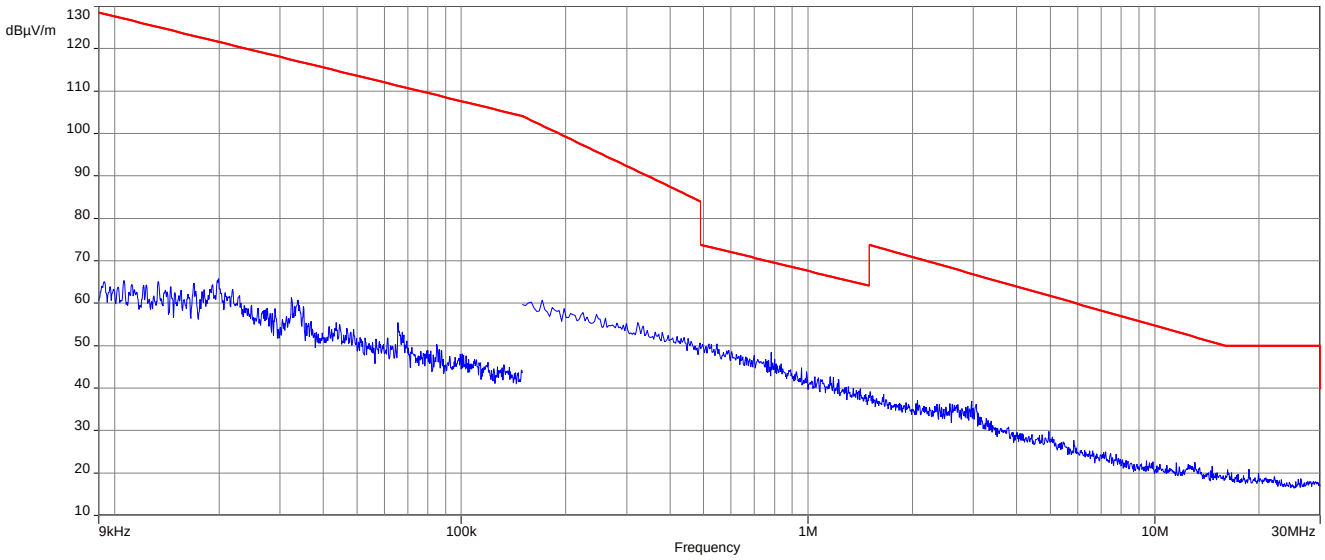
Plot 6: 9 kHz to 30 MHz, U-NII-2C; middle channel



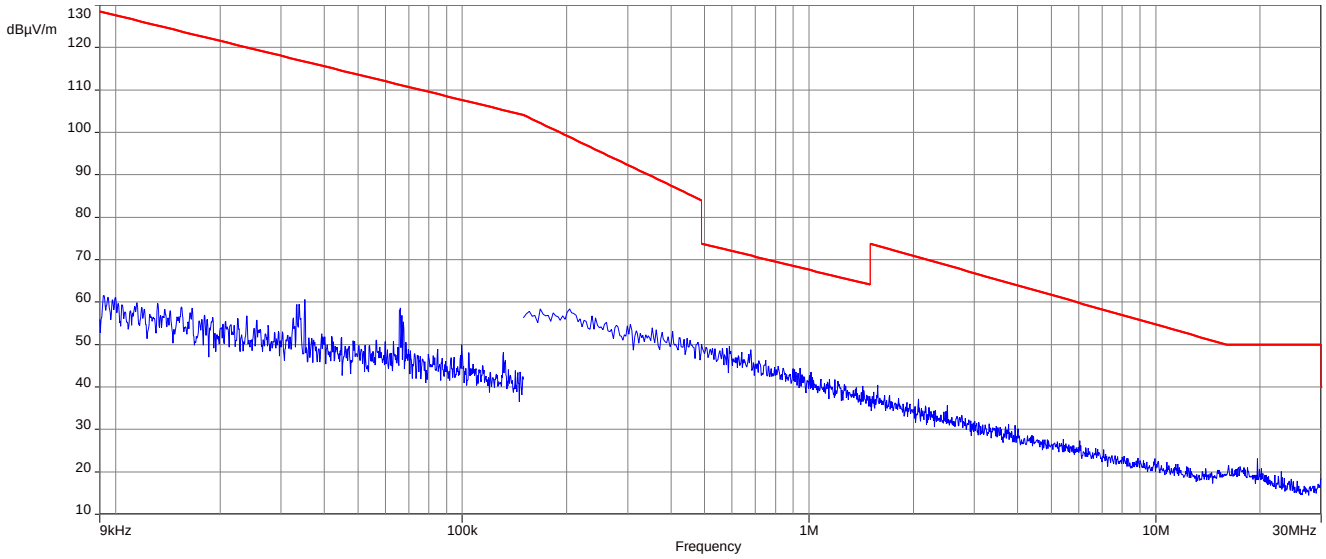
Plot 7: 9 kHz to 30 MHz, U-NII-2C; highest channel



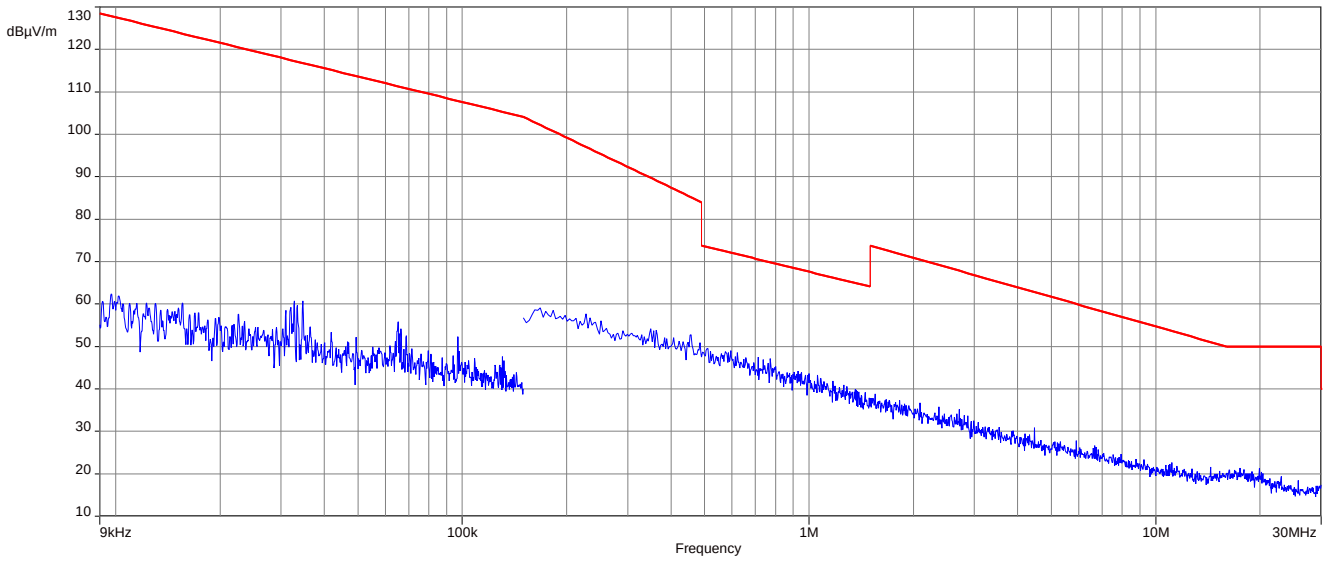
Plot 8: 9 kHz to 30 MHz, U-NII-2C/U-NII-3; Channel 144l



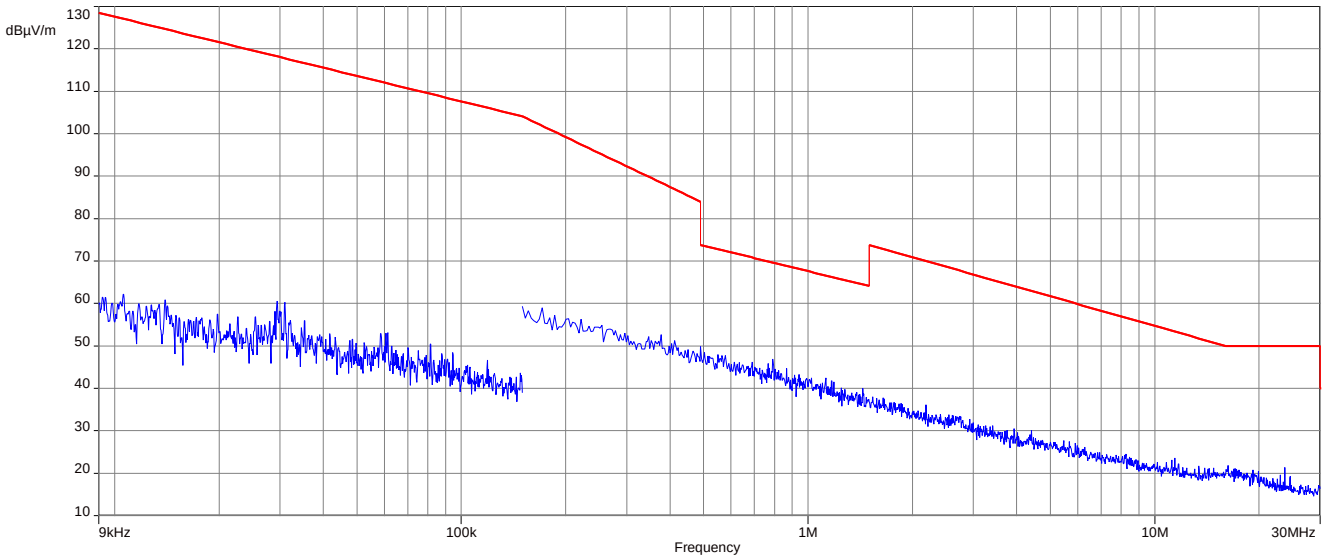
Plot 9: 9 kHz to 30 MHz, U-NII-3; lowest channel



Plot 10: 9 kHz to 30 MHz, U-NII-3; middle channel

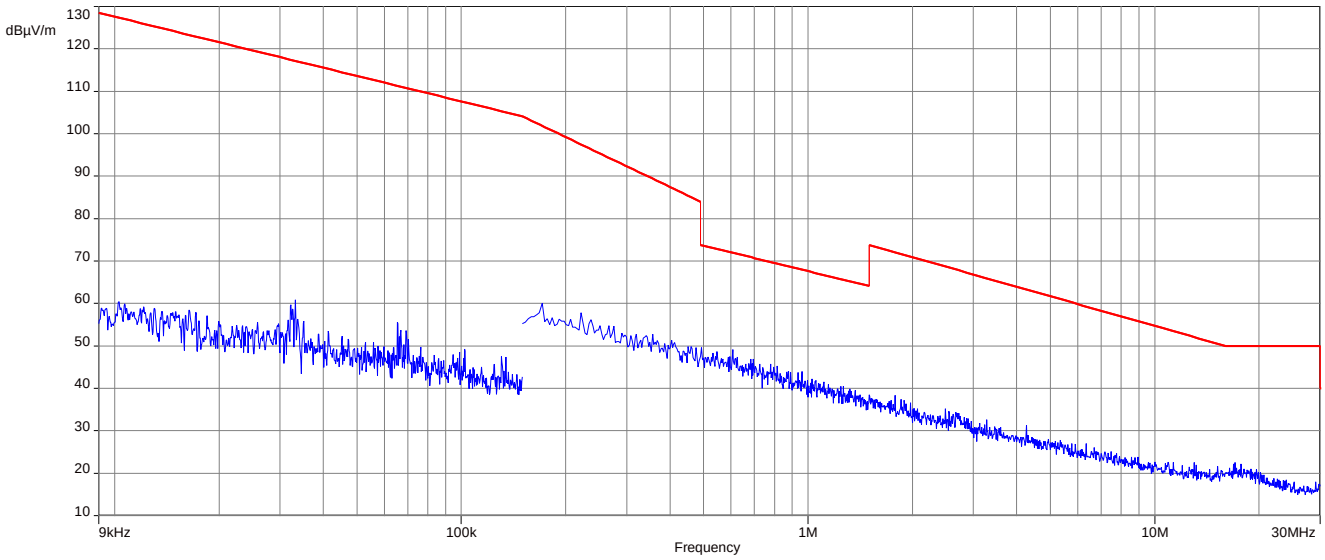


Plot 11: 9 kHz to 30 MHz, U-NII-3; highest channel

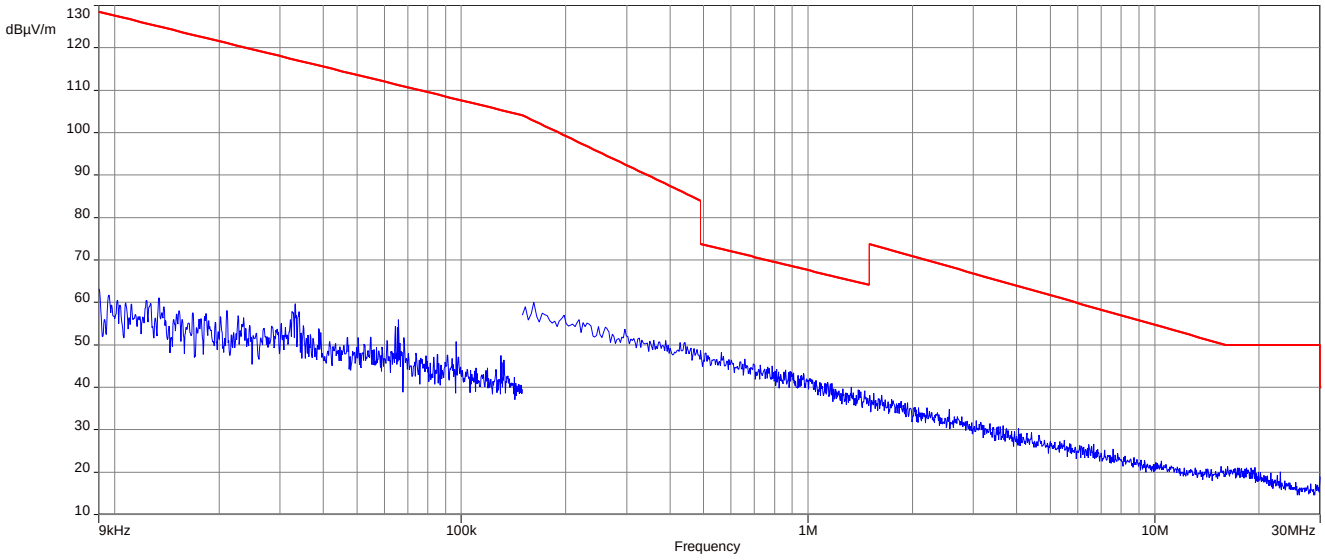


Plots: 40 MHz channel bandwidth

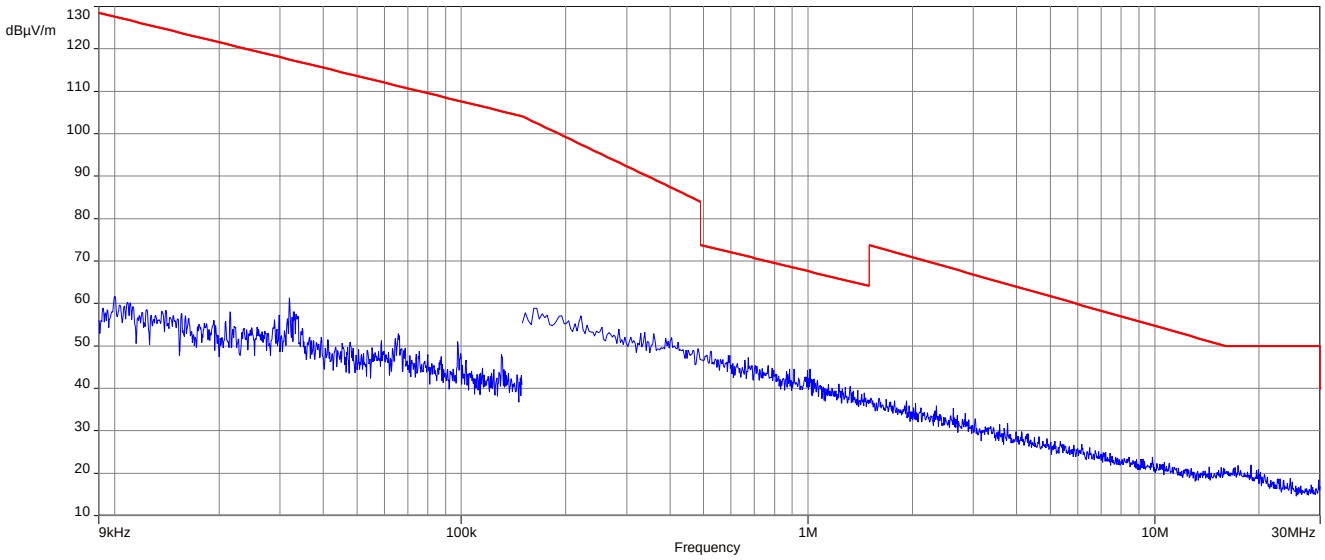
Plot 1: 9 kHz to 30 MHz, U-NII-1; lowest channel



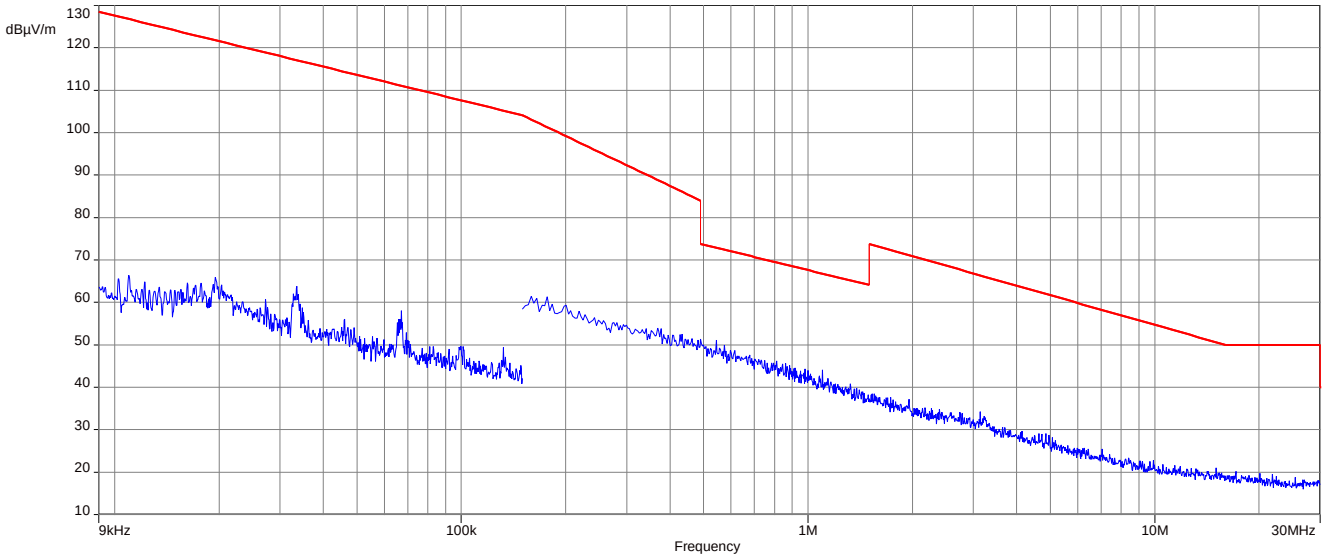
Plot 2: 9 kHz to 30 MHz, U-NII-1; highest channel



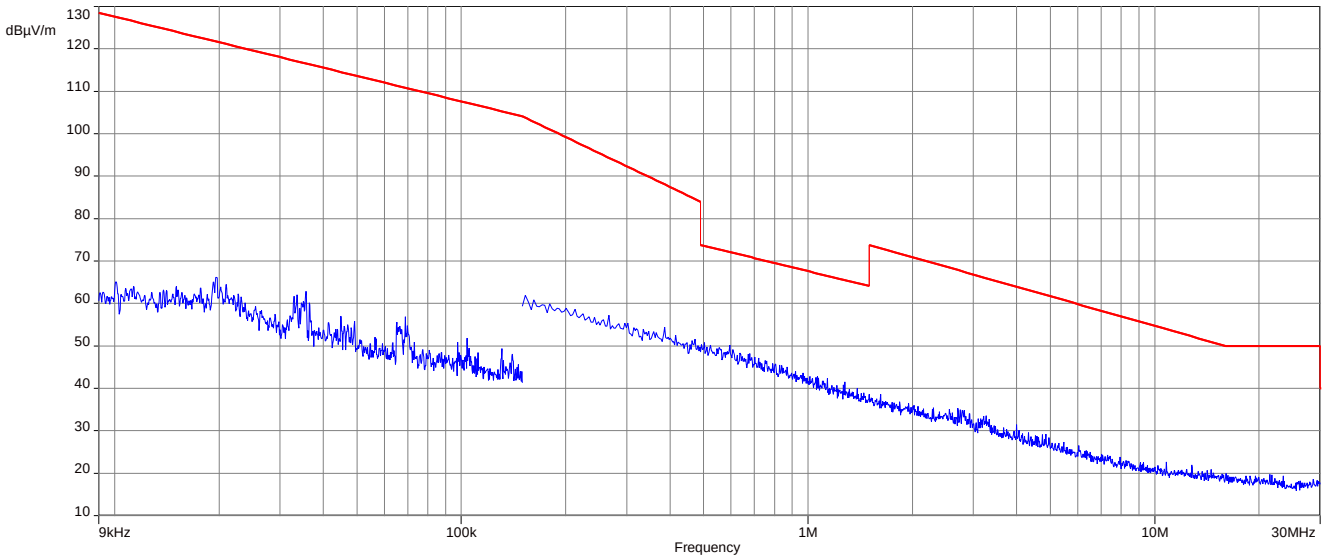
Plot 3: 9 kHz to 30 MHz, U-NII-2A; lowest channel



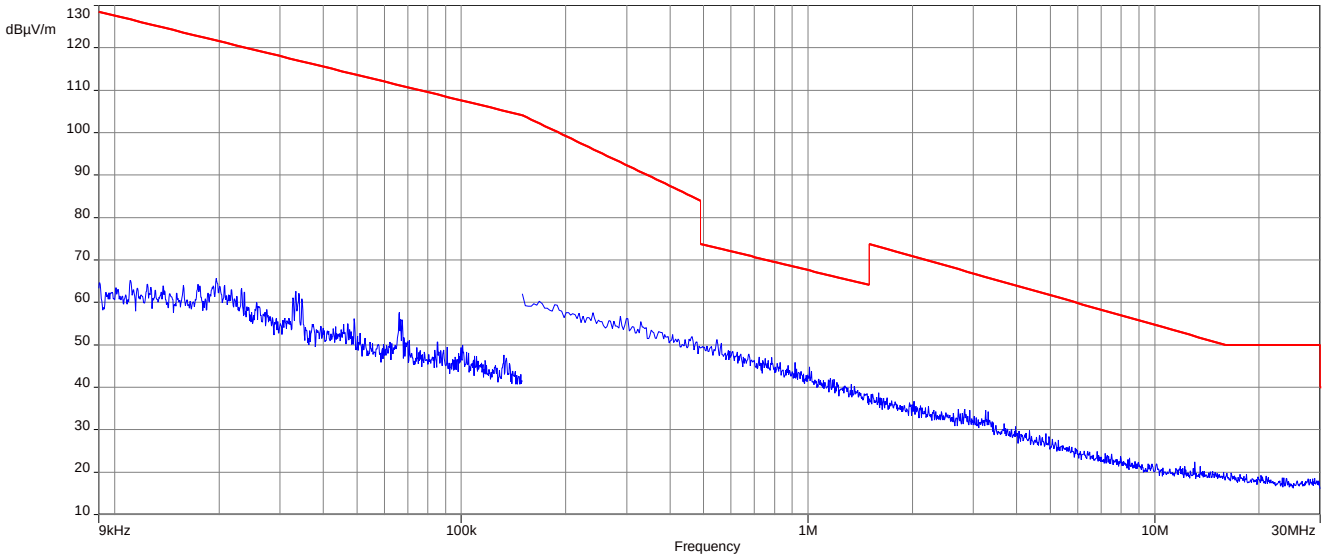
Plot 4: 9 kHz to 30 MHz, U-NII-2A; highest channel



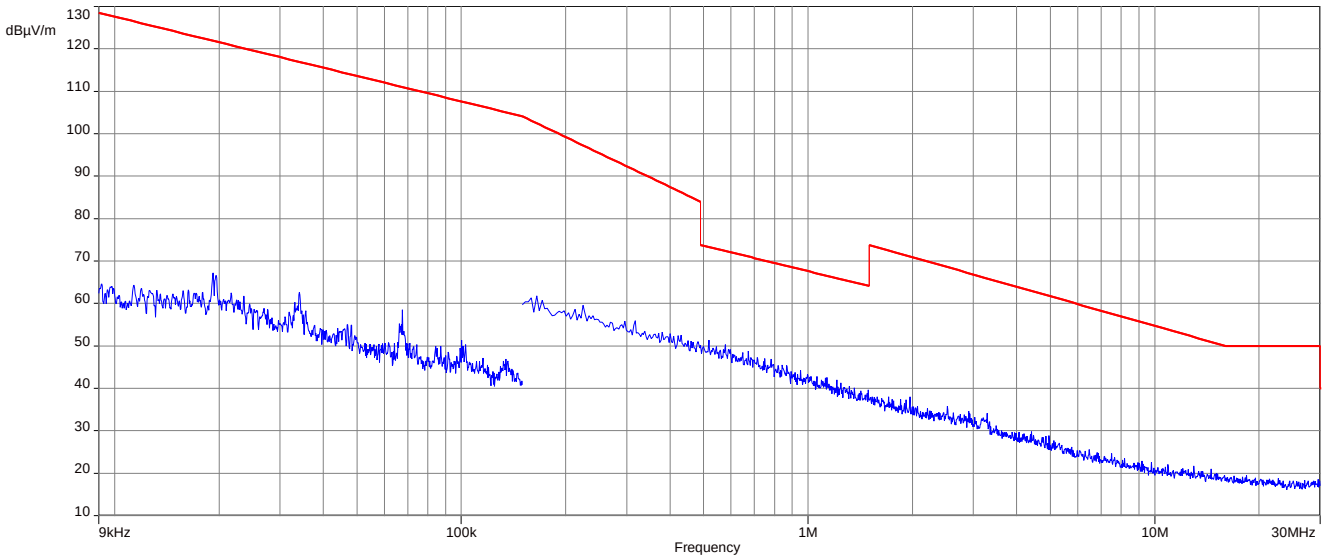
Plot 5: 9 kHz to 30 MHz, U-NII-2C; lowest channel



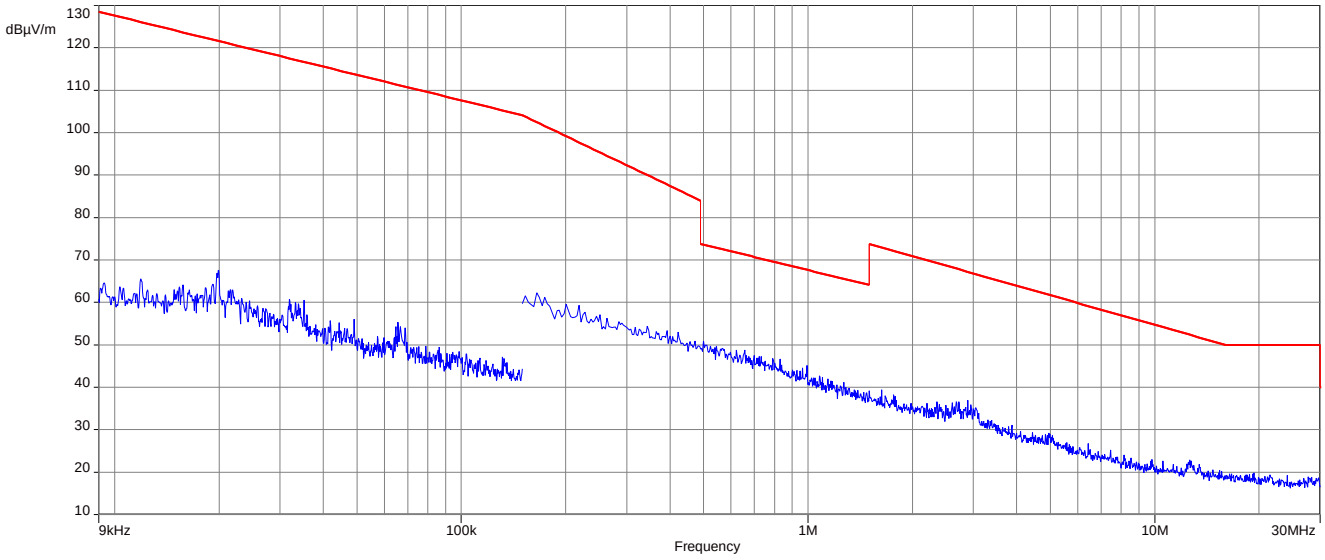
Plot 6: 9 kHz to 30 MHz, U-NII-2C; middle channel



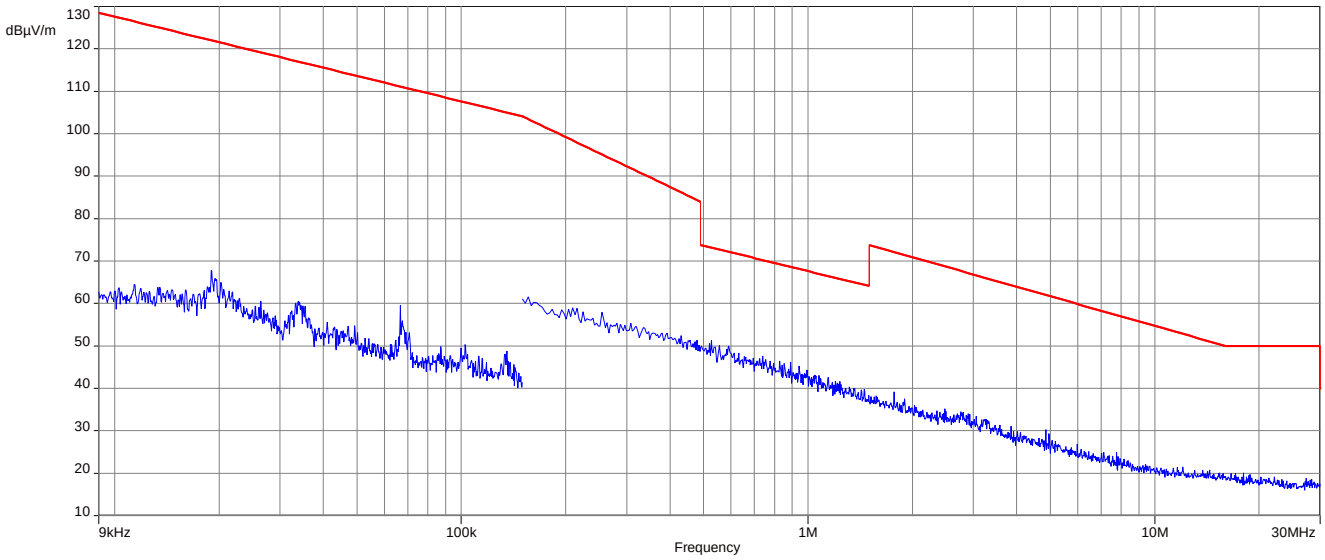
Plot 7: 9 kHz to 30 MHz, U-NII-2C; highest channel



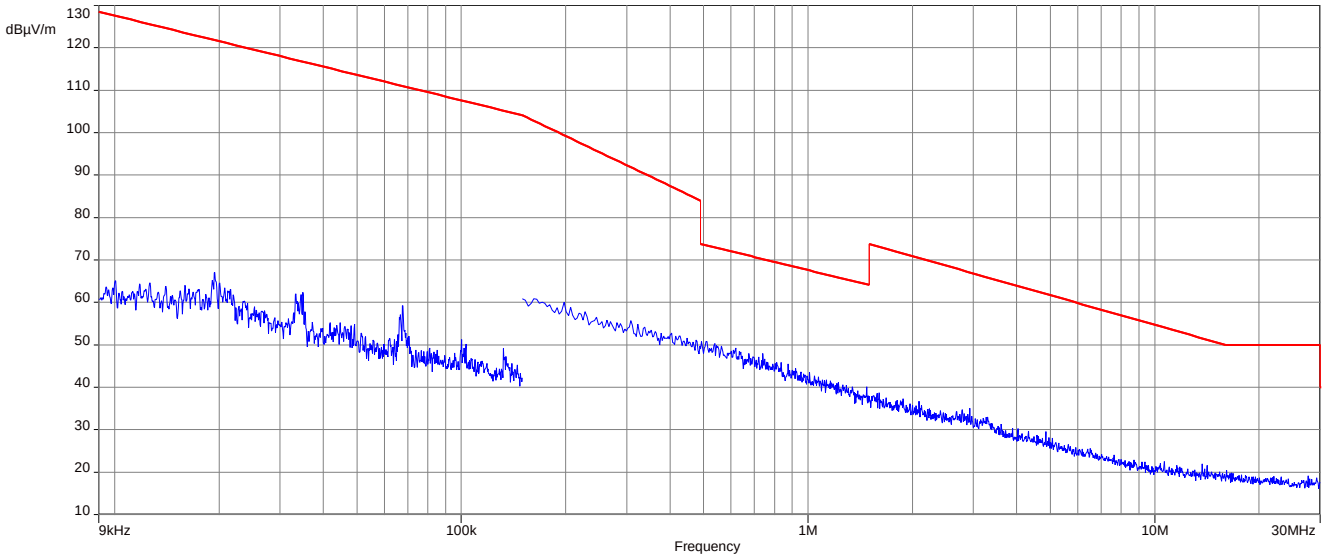
Plot 8: 9 kHz to 30 MHz, U-NII-2C/U-NII-3; Channel 142



Plot 9: 9 kHz to 30 MHz, U-NII-3; lowest channel

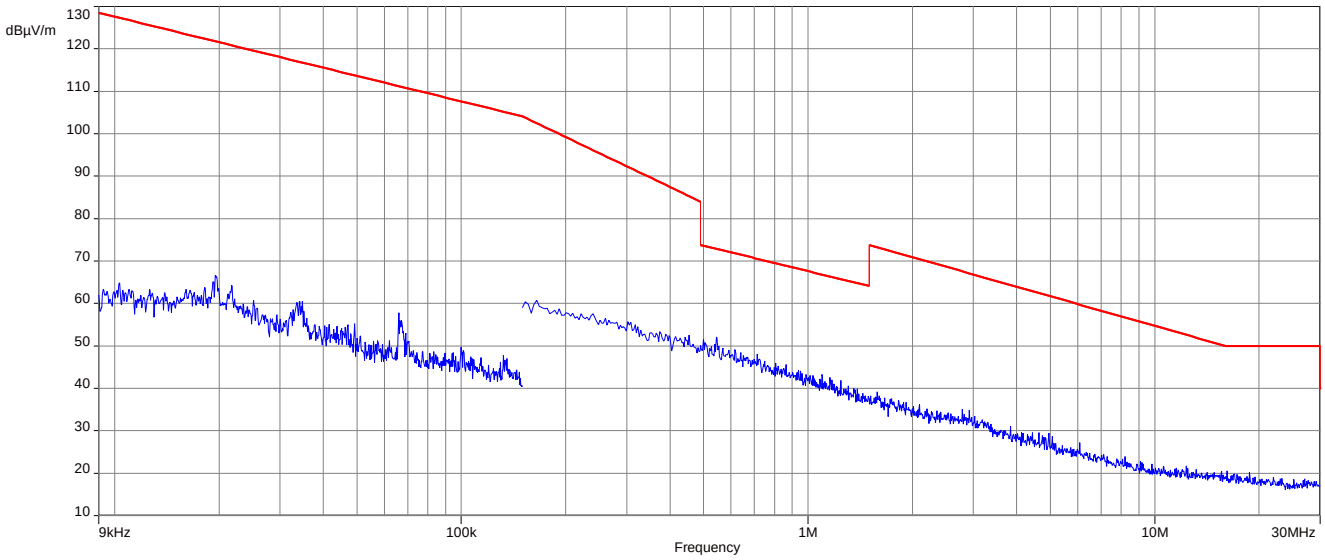


Plot 10: 9 kHz to 30 MHz, U-NII-3; highest channel

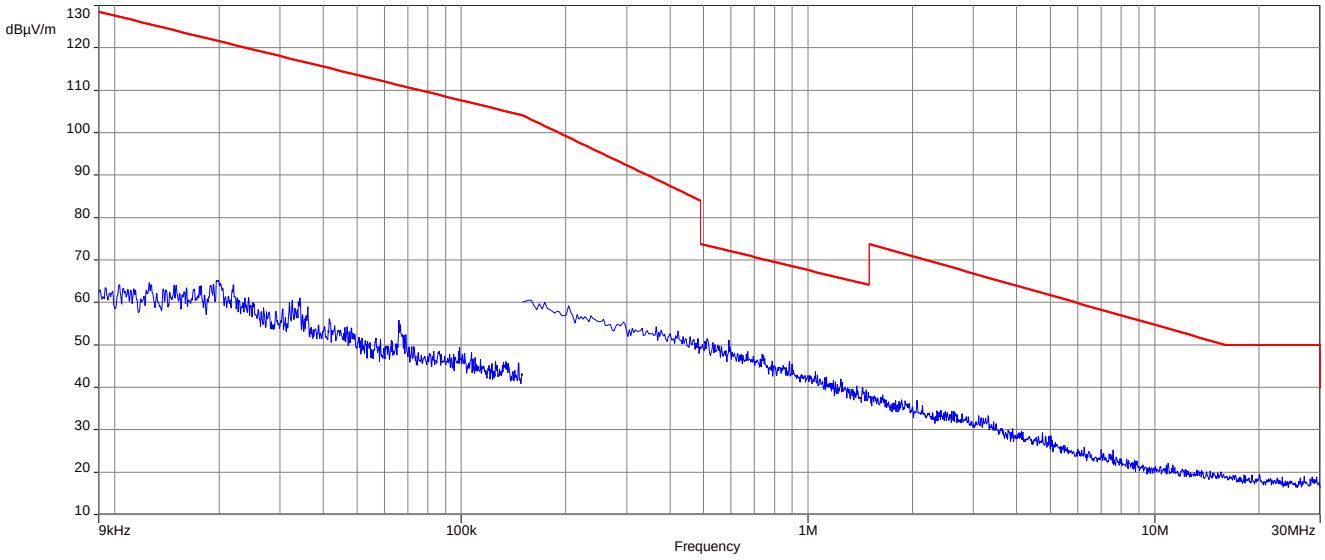


Plots: 80 MHz channel bandwidth

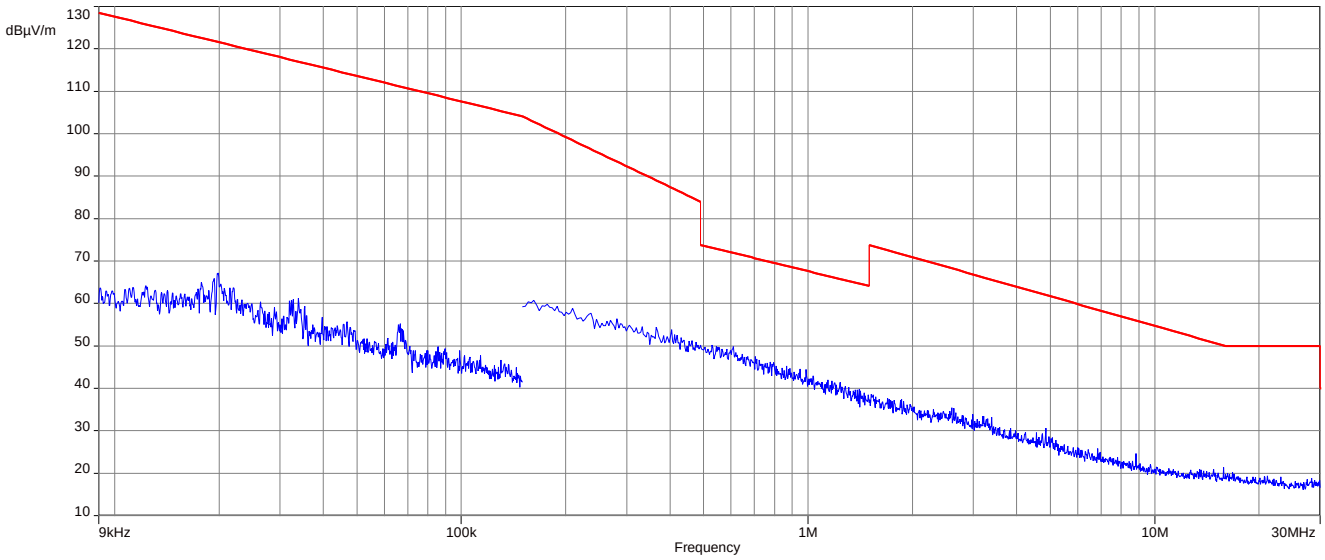
Plot 1: 9 kHz to 30 MHz, U-NII-1; middle channel



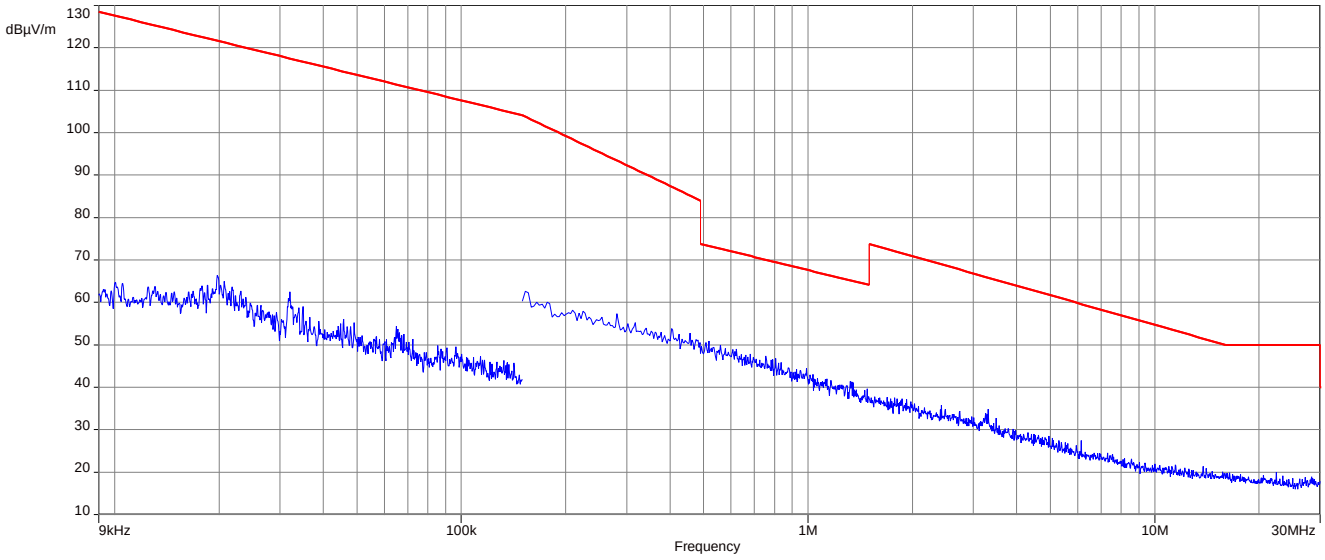
Plot 2: 9 kHz to 30 MHz, U-NII-2A; middle channel



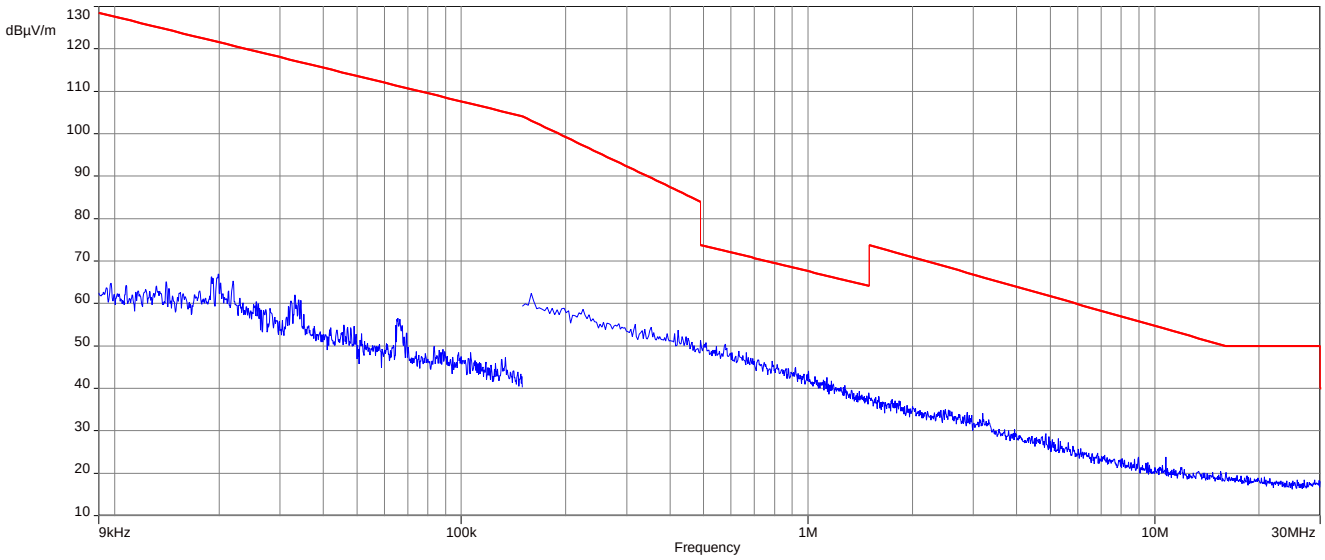
Plot 3: 9 kHz to 30 MHz, U-NII-2C; lowest channel



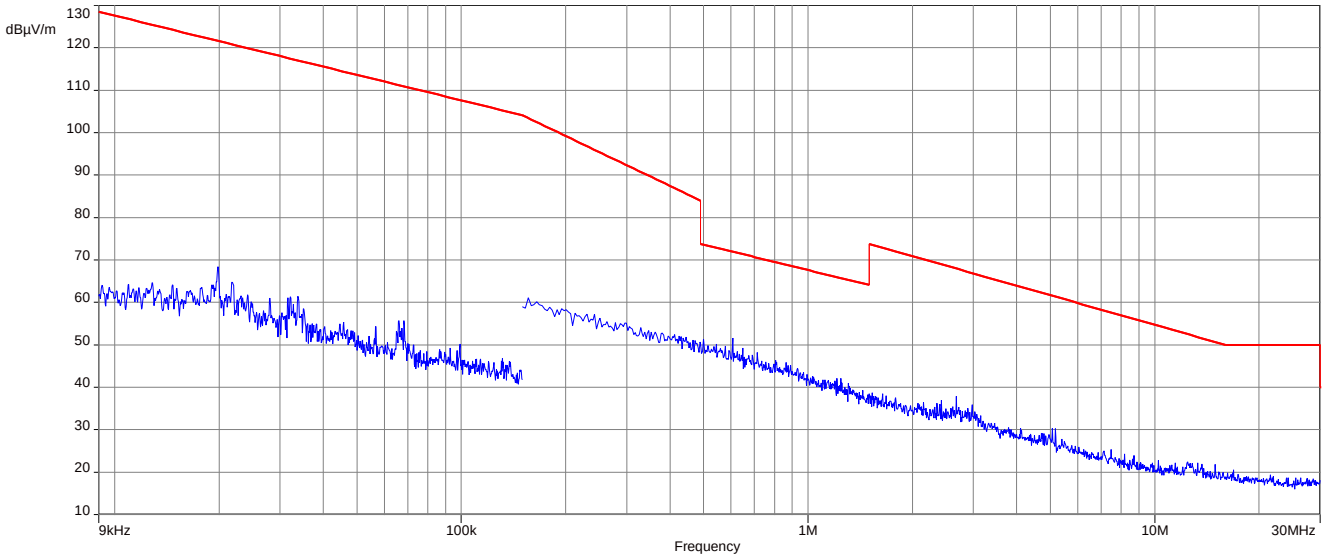
Plot 4: 9 kHz to 30 MHz, U-NII-2C; highest channel



Plot 5: 9 kHz to 30 MHz, U-NII-2C/U-NII-3; channel 138



Plot 6: 9 kHz to 30 MHz, U-NII-3; middle channel



12.3 Spurious emissions radiated 30 MHz to 1 GHz

Description:

Measurement of the radiated spurious emissions and cabinet radiations below 1 GHz.

Measurement:

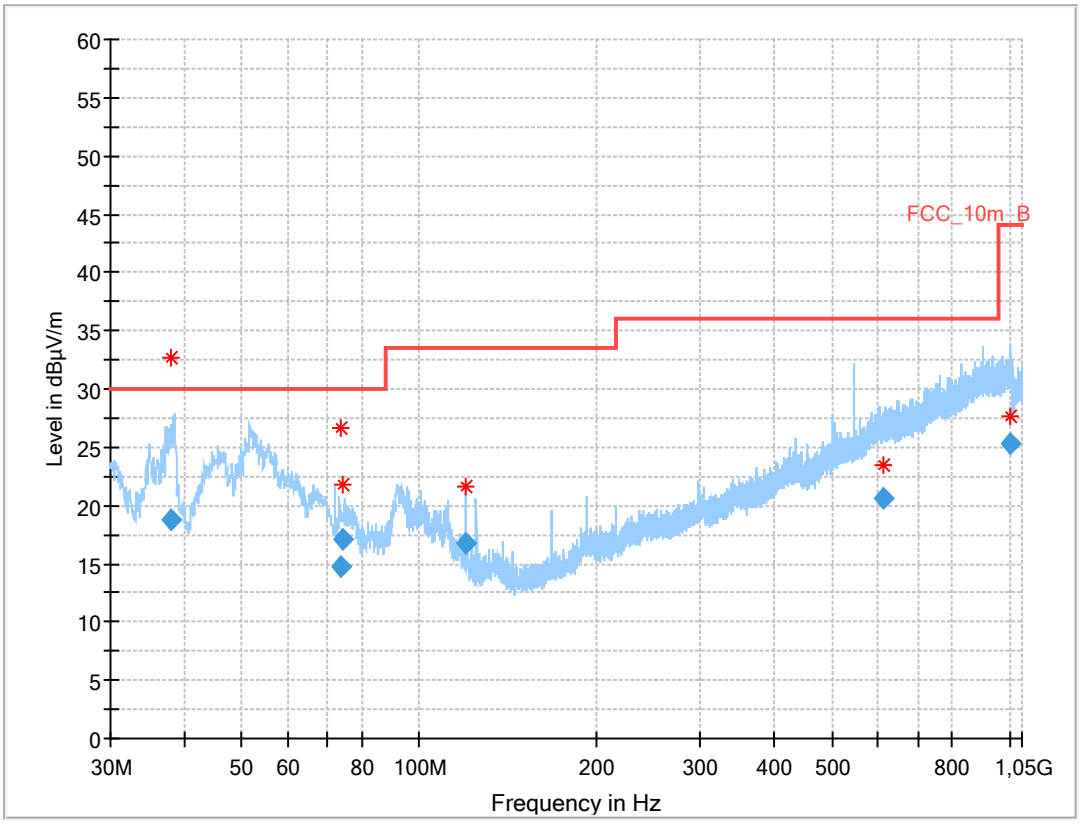
Measurement parameter	
Detector:	Quasi Peak
Sweep time:	Auto
Resolution bandwidth:	120 kHz
Video bandwidth:	500 kHz
Span:	30 MHz to 1 GHz
Test setup:	See sub clause 7.1 – A
Measurement uncertainty:	See chapter 9

Limits:

TX Spurious Emissions Radiated		
§15.209 / RSS-247		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

Plots:

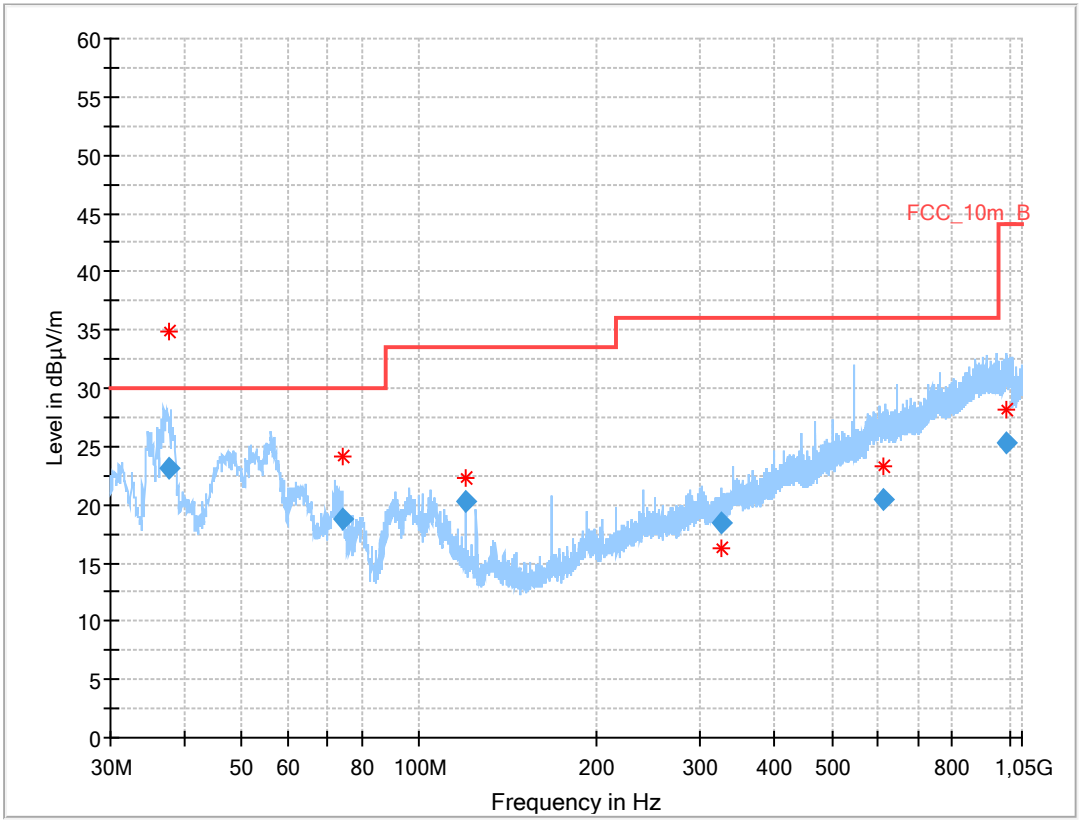
Plot 1: 30 MHz to 1 GHz; vertical & horizontal polarization; valid for all channels of the a-mode



Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.054	18.76	30.0	11.2	1000	120.0	142.0	V	71	14
73.637	14.82	30.0	15.2	1000	120.0	137.0	V	37	8
74.335	17.08	30.0	12.9	1000	120.0	195.0	V	16	8
119.991	16.76	33.5	16.7	1000	120.0	115.0	V	232	11
610.278	20.56	36.0	15.4	1000	120.0	143.0	V	-21	22
1000.306	25.34	44.0	18.7	1000	120.0	195.0	V	142	26

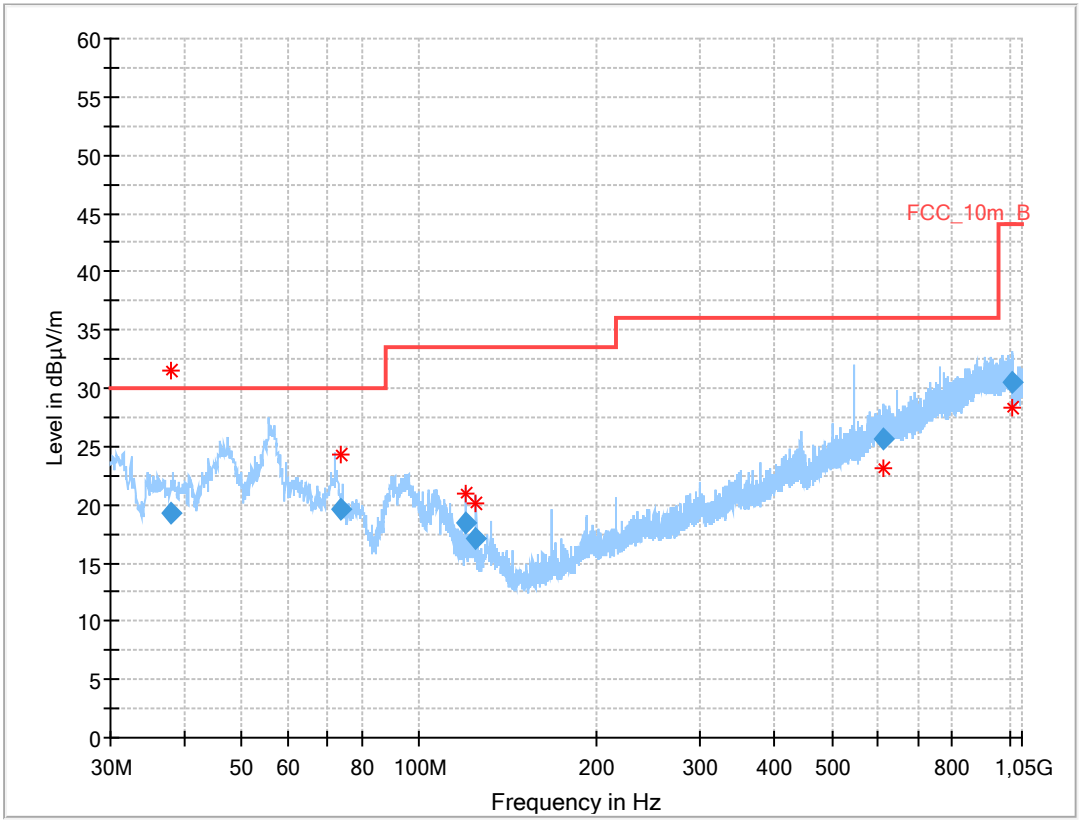
Plot 2: 30 MHz to 1 GHz; vertical & horizontal polarization; valid for all channels of the nHT20-mode and ac20-mode



Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.575	23.18	30.0	6.8	1000	120.0	137.0	V	26	14
74.026	18.83	30.0	11.2	1000	120.0	195.0	V	52	8
120.008	20.24	33.5	13.3	1000	120.0	134.0	V	52	11
324.913	18.42	36.0	17.6	1000	120.0	174.0	V	232	16
612.335	20.48	36.0	15.5	1000	120.0	195.0	H	232	22
989.357	25.34	44.0	18.7	1000	120.0	144.0	V	173	26

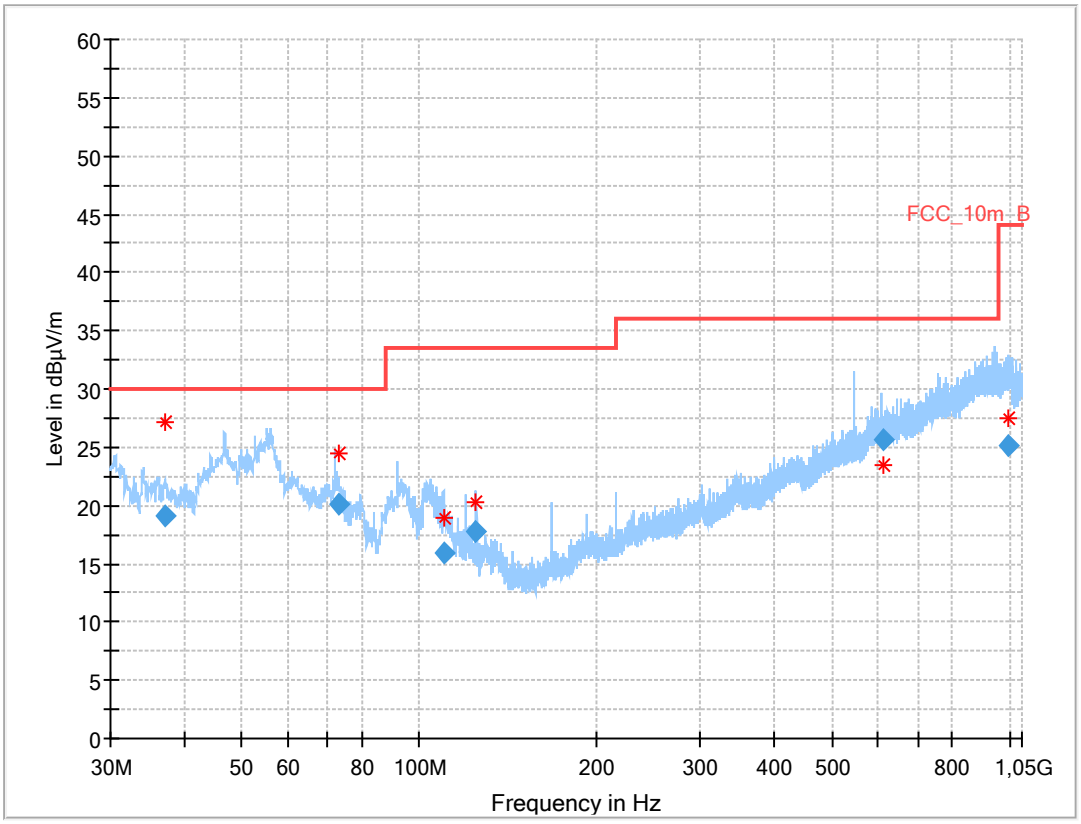
Plot 3: 30 MHz to 1 GHz; vertical & horizontal polarization; valid for all channels of the nHT40-mode and ac40-mode



Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.923	19.28	30.0	10.7	1000	120.0	124.0	V	151	14
73.531	19.62	30.0	10.4	1000	120.0	195.0	V	-23	8
120.018	18.44	33.5	15.1	1000	120.0	98.0	V	297	11
125.006	17.04	33.5	16.5	1000	120.0	115.0	V	232	10
613.077	25.59	36.0	10.4	1000	120.0	195.0	H	142	22
1007.436	30.46	44.0	13.5	1000	120.0	195.0	H	142	26

Plot 4: 30 MHz to 1 GHz; vertical & horizontal polarization; valid for all channels of the ac00-mode



Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.263	19.10	30.0	10.9	1000	120.0	114.0	V	-16	14
73.047	20.11	30.0	9.9	1000	120.0	195.0	V	291	8
110.003	15.87	33.5	17.6	1000	120.0	137.0	V	52	13
125.015	17.80	33.5	15.7	1000	120.0	144.0	V	261	10
613.102	25.59	36.0	10.4	1000	120.0	195.0	H	249	22
993.520	25.22	44.0	18.8	1000	120.0	195.0	H	52	26

12.4 Spurious emissions radiated 1 GHz to 40 GHz

Description:

Measurement of the radiated spurious emissions and cabinet radiations from 1 GHz to 40 GHz.

Measurement:

Measurement parameter	
Detector:	Peak/RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	1 GHz to 40 GHz
Trace mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %
Test setup:	See sub clause 7.2 – B See sub clause 7.3 – A
Measurement uncertainty:	See chapter 9

Limits:

TX Spurious Emissions Radiated		
§15.209 / RSS-247		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

Results: 20 MHz channel bandwidth

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
6907	Peak	60.8		Peak		10640	Peak	53.1
	AVG	57.5		AVG			AVG	44.9

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7013	Peak	60.3		Peak		-/-	Peak	-/-
	AVG	58.3		AVG			AVG	-/-

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7333	Peak	54.5	7466	Peak	54.5	7600	Peak	55.7
	AVG	51.5		AVG	52.2		AVG	53.0
11000	Peak	59.6	11200	Peak	59.9	11400	Peak	58.1
	AVG	48.6		AVG	47.9		AVG	46.3

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-2C/U-NII-3		
Channel 144		
F [MHz]	Detector	Level [dBµV/m]
7626	Peak	56.9
	AVG	53.7
11440	Peak	60.6
	AVG	49.4

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7660	Peak	53.7	7713	Peak	53.5	7766	Peak	54.8
	AVG	51.7		AVG	51.0		AVG	52.6
11487	Peak	61.4	11570	Peak	61.1	11650	Peak	59.8
	AVG	49.5		AVG	50.2		AVG	47.6

Results: 40 MHz channel bandwidth

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
6907	Peak	61.1		Peak		6973	Peak	60.3
	AVG	58.6		AVG			AVG	57.4

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7053	Peak	58.3		Peak		10620	Peak	52.5
	AVG	56.8		AVG			AVG	45.0

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7347	Peak	53.0	7453	Peak	55.3	7560	Peak	56.0
	AVG	50.4		AVG	53.3		AVG	53.0
11020	Peak	55.9	11180	Peak	58.0	11340	Peak	57.4
	AVG	46.9		AVG	48.2		AVG	47.6

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-2C/U-NII-3		
Channel 142		
F [MHz]	Detector	Level [dBµV/m]
7613	Peak	55.2
	AVG	53.4
11420	Peak	59.6
	AVG	49.2

TX Spurious Emissions Radiated [dBµV/m]								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
7673	Peak	55.4		Peak		7727	Peak	54.8
	AVG	53.6		AVG			AVG	52.9
11510	Peak	57.5		Peak		11590	Peak	57.1
	AVG	46.2		AVG			AVG	46.8

Results: 80 MHz channel bandwidth

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-1 (5150 MHz to 5250 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-
	AVG	-/-
-/-	Peak	-/-
	AVG	-/-

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-2A (5250 MHz to 5350 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
10600	Peak	52.0
	AVG	42.4

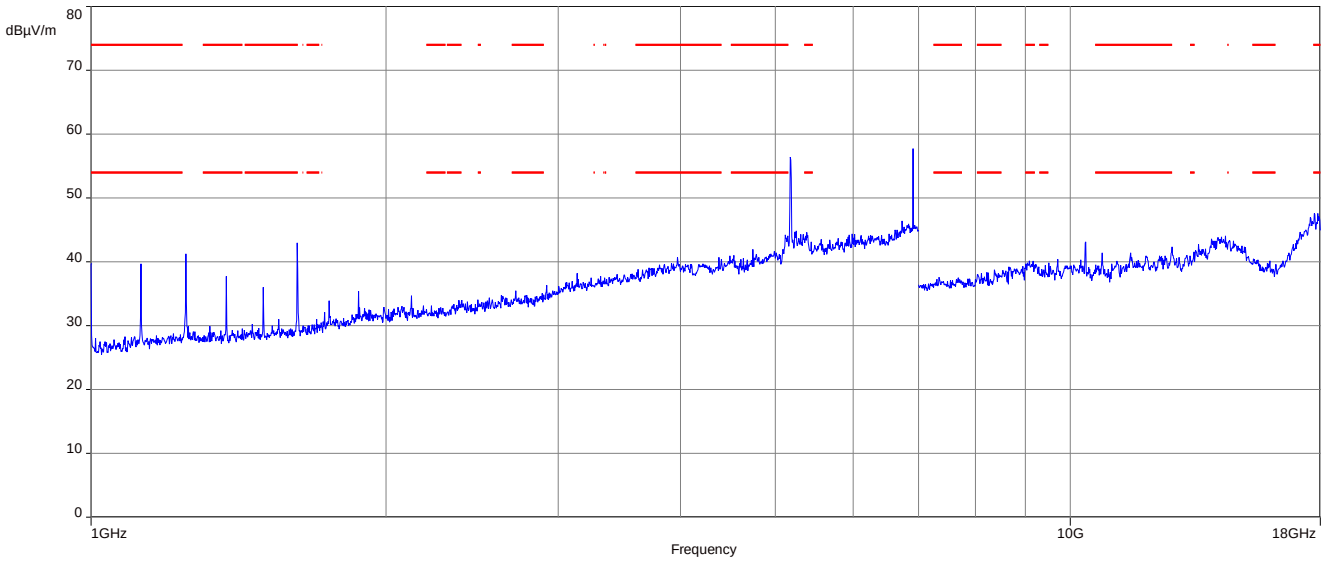
TX Spurious Emissions Radiated [dBµV/m]					
U-NII-2C (5470 MHz to 5725 MHz)					
Lowest channel			Highest channel		
7373	Peak	54.3	7480	Peak	57.7
	AVG	52.1		AVG	52.9
11060	Peak	52.2	11220	Peak	56.1
	AVG	45.5		AVG	46.5

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-2C / U-NII-3		
Channel 138		
F [MHz]	Detector	Level [dBµV/m]
7586	Peak	59.2
	AVG	53.9
11400	Peak	54.1
	AVG	41.0

TX Spurious Emissions Radiated [dBµV/m]		
U-NII-3 (5725 MHz to 5850 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
7678	Peak	55.4
	AVG	53.5
11469	Peak	51.7
	AVG	39.5

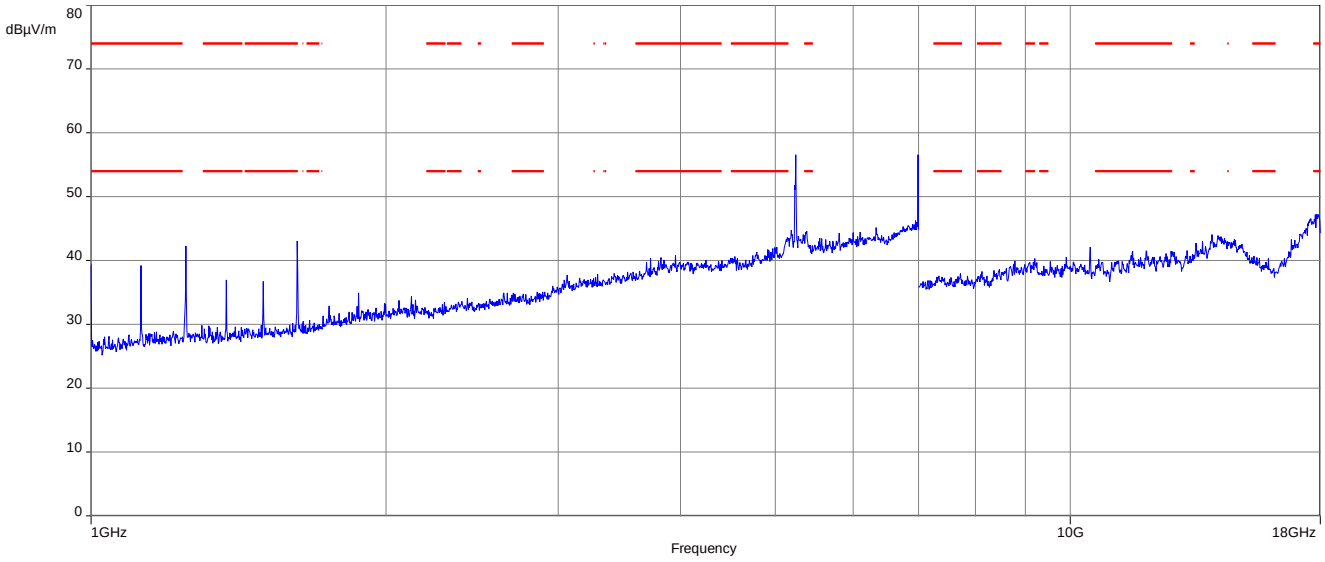
Plots: 20 MHz channel bandwidth

Plot 1: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



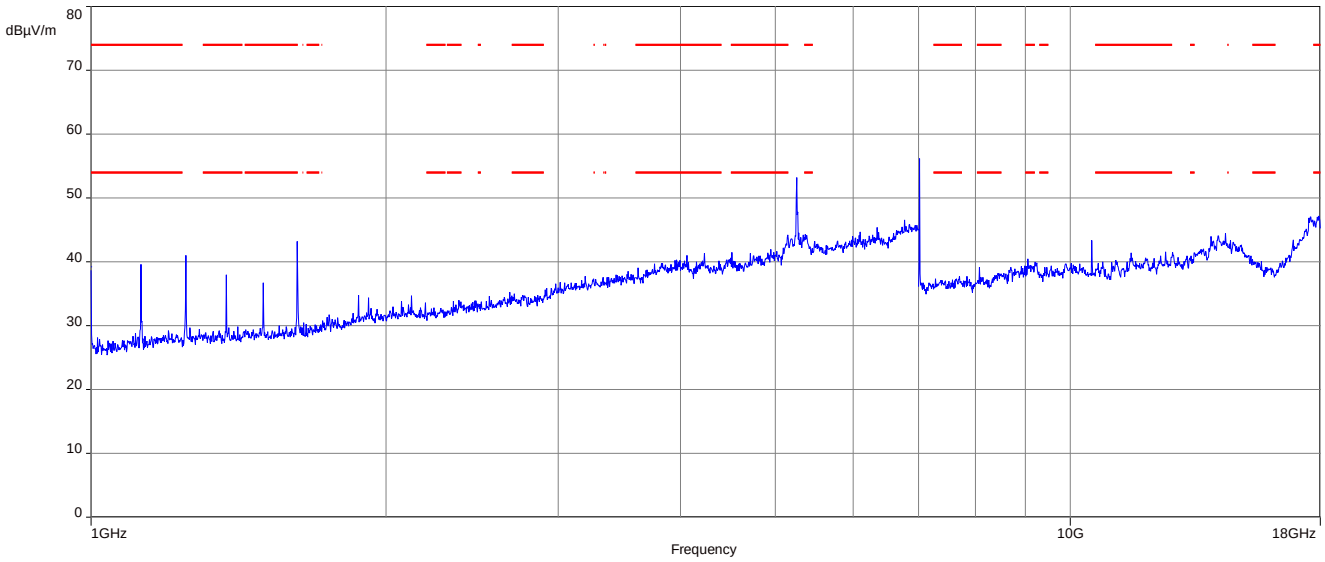
The carrier signal is notched with a band rejection filter.

Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel



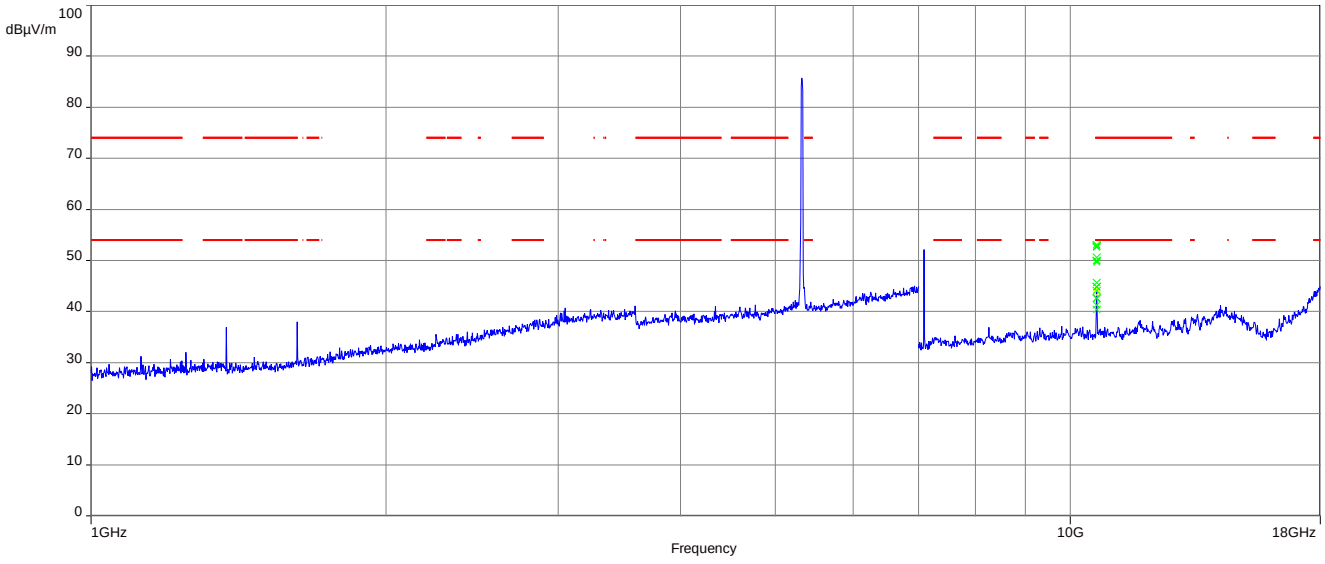
The carrier signal is notched with a band rejection filter.

Plot 3: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

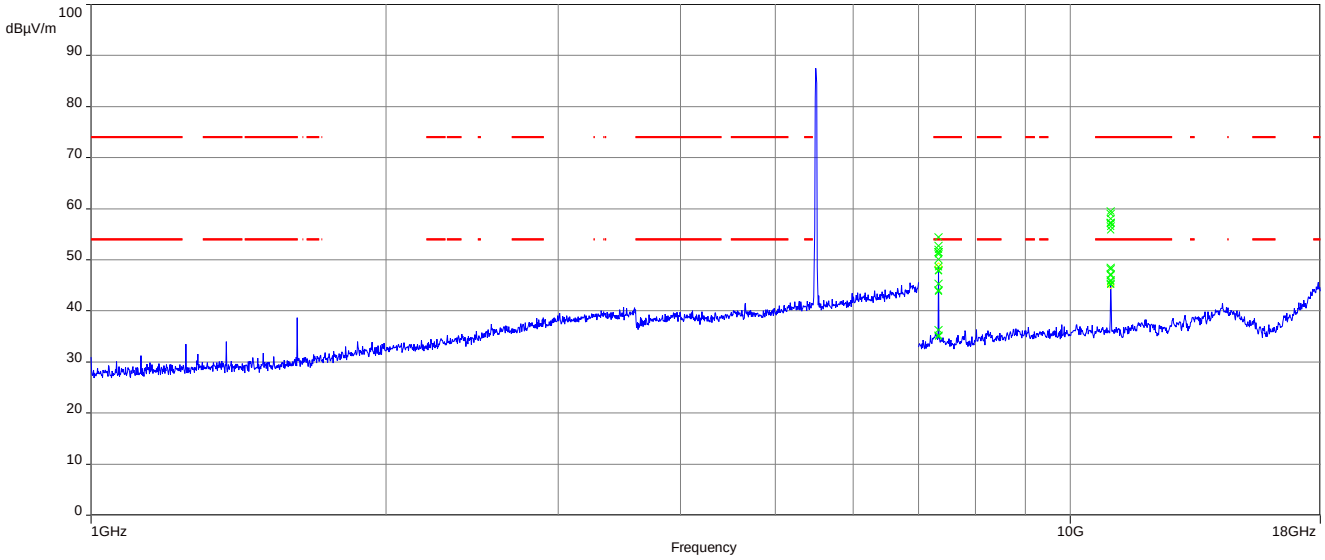


The carrier signal is notched with a band rejection filter.

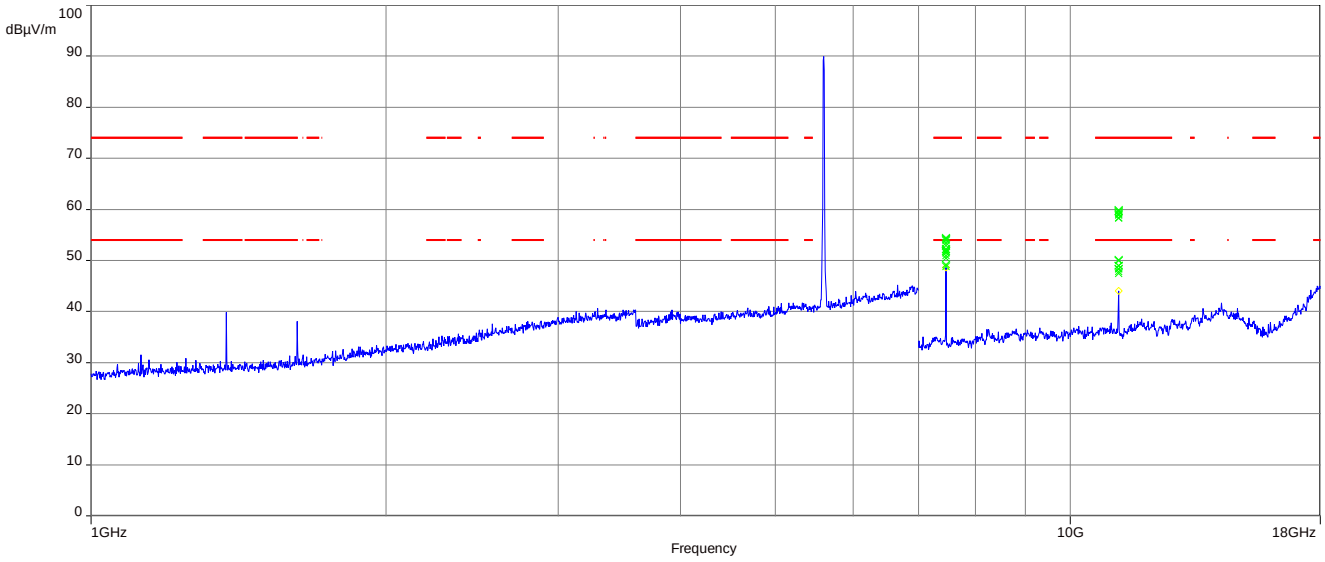
Plot 4: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel



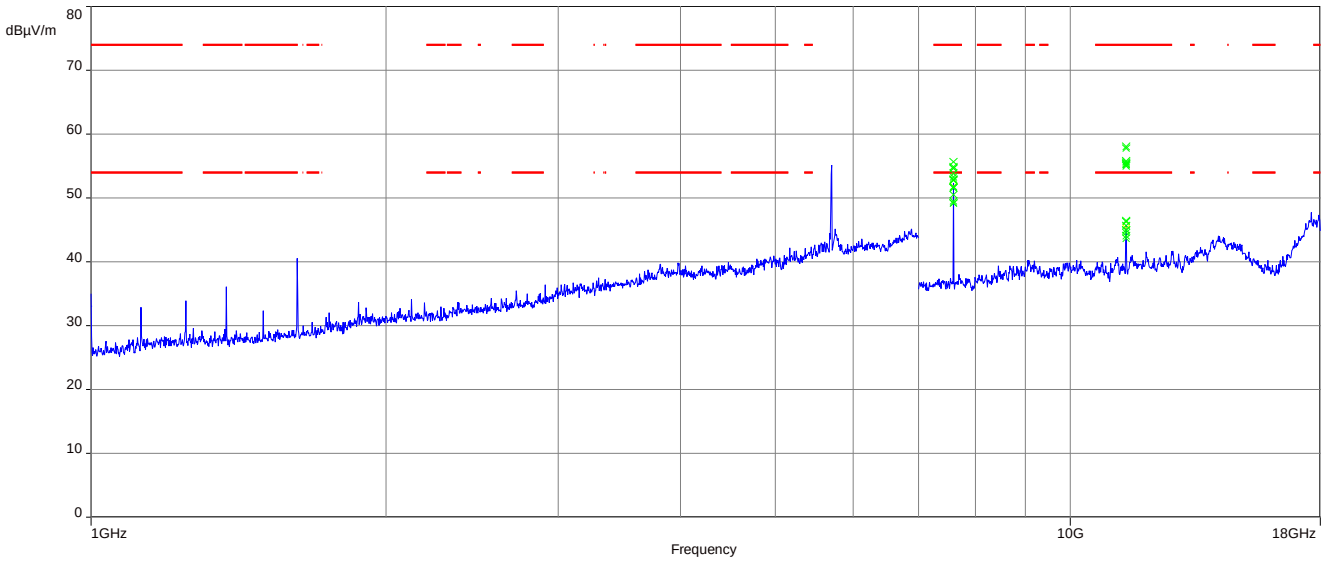
Plot 5: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

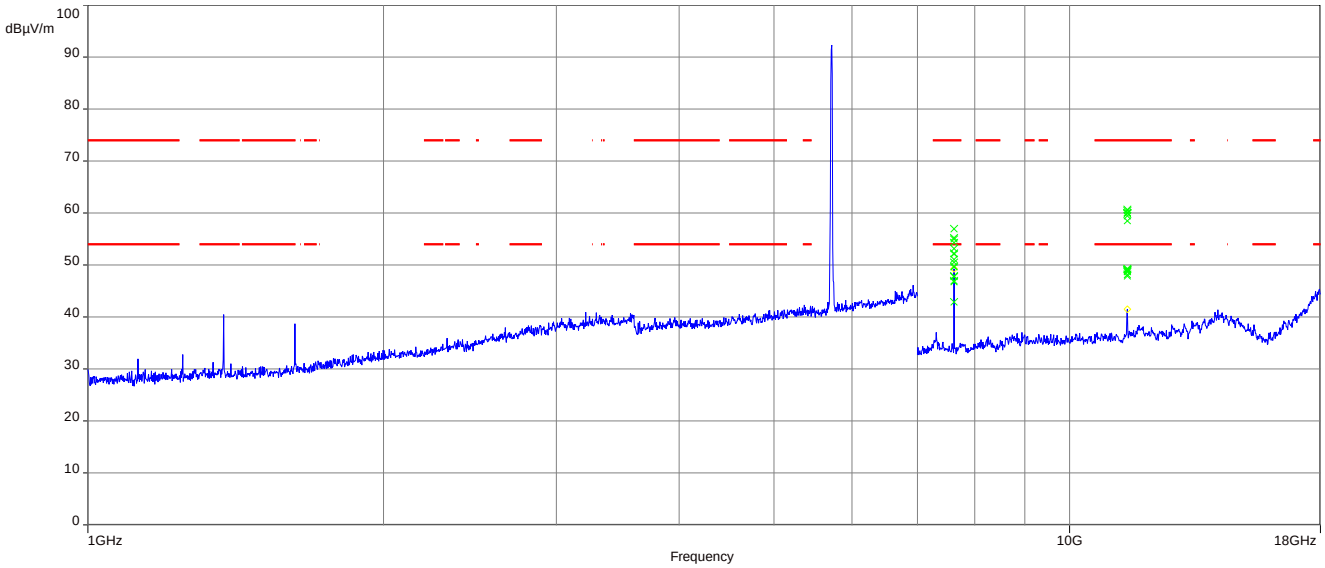


Plot 7: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

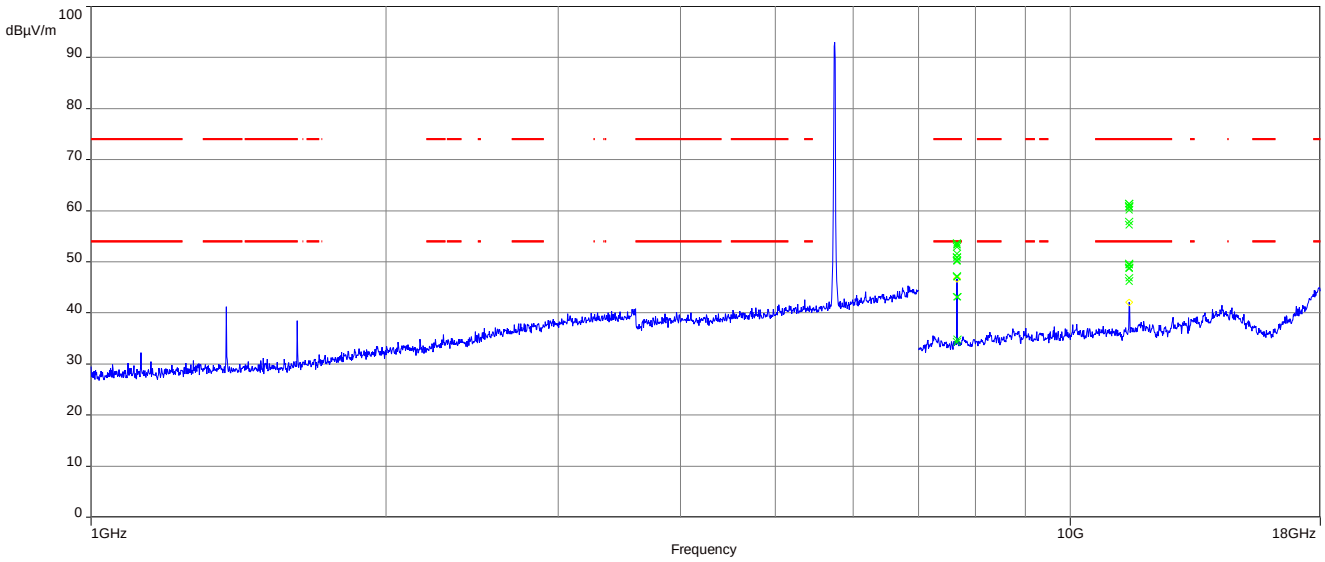


The carrier signal is notched with a band rejection filter.

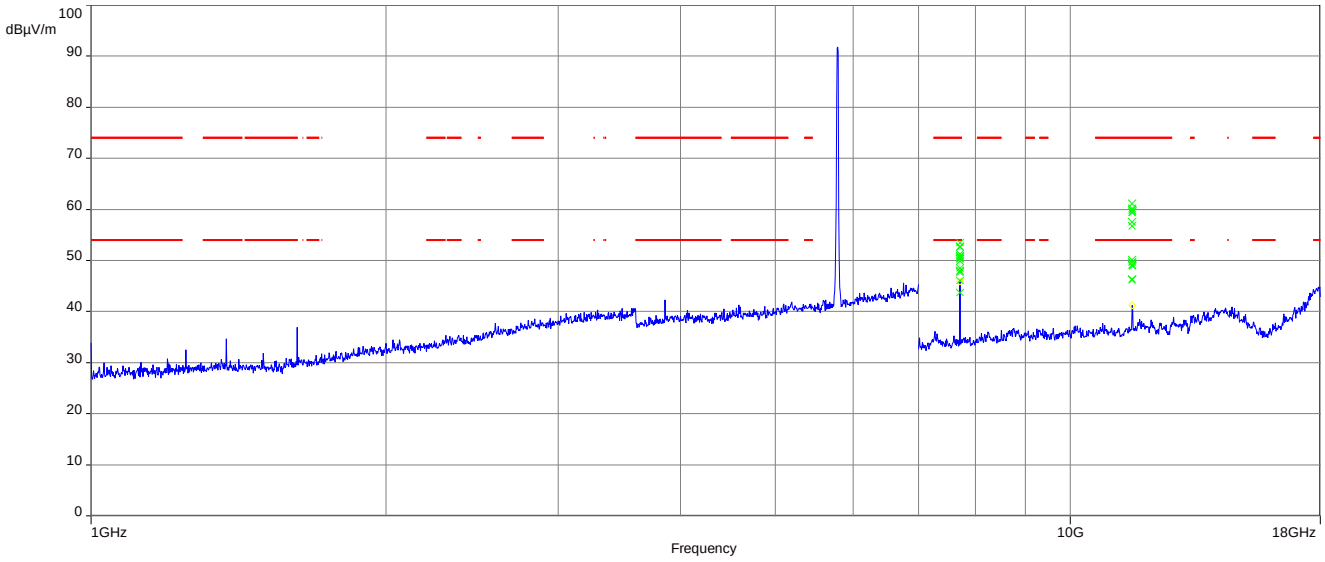
Plot 8: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C/U-NII-3; Channel 144



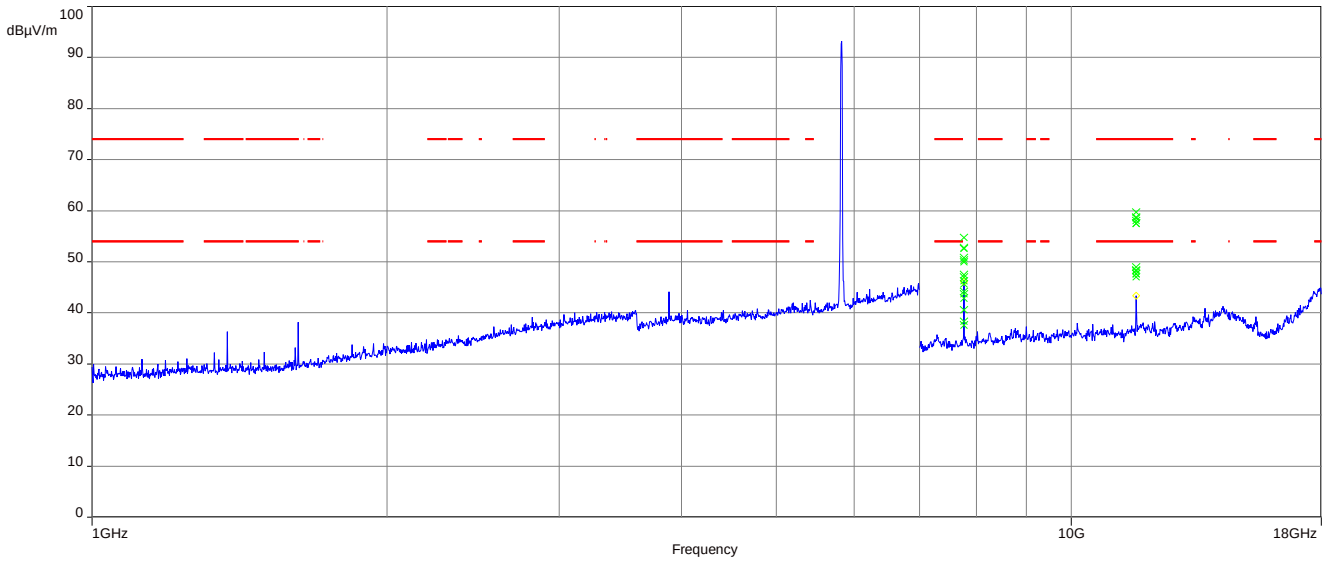
Plot 9: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



Plot 10: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel

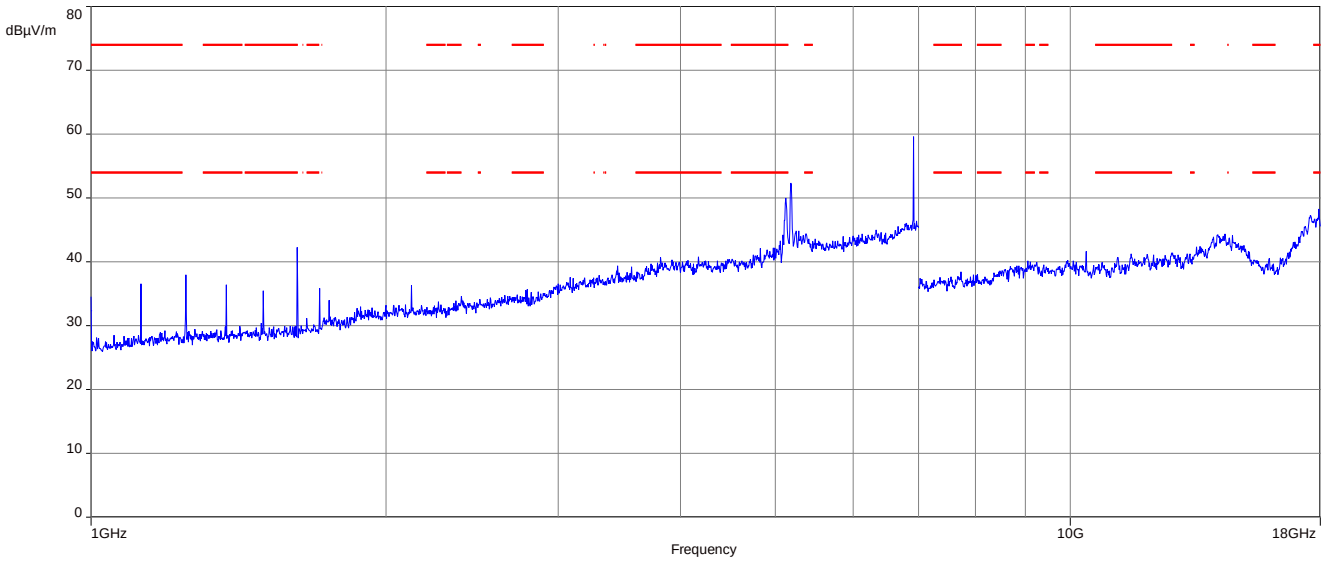


Plot 11: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel



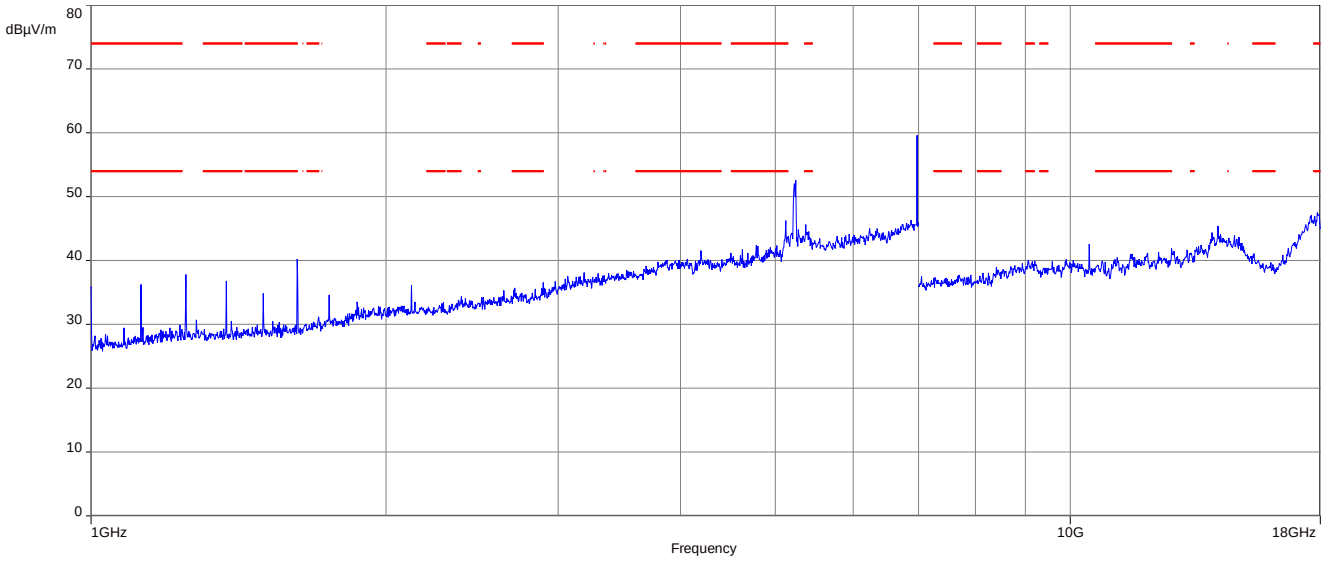
Plots: 40 MHz channel bandwidth

Plot 1: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



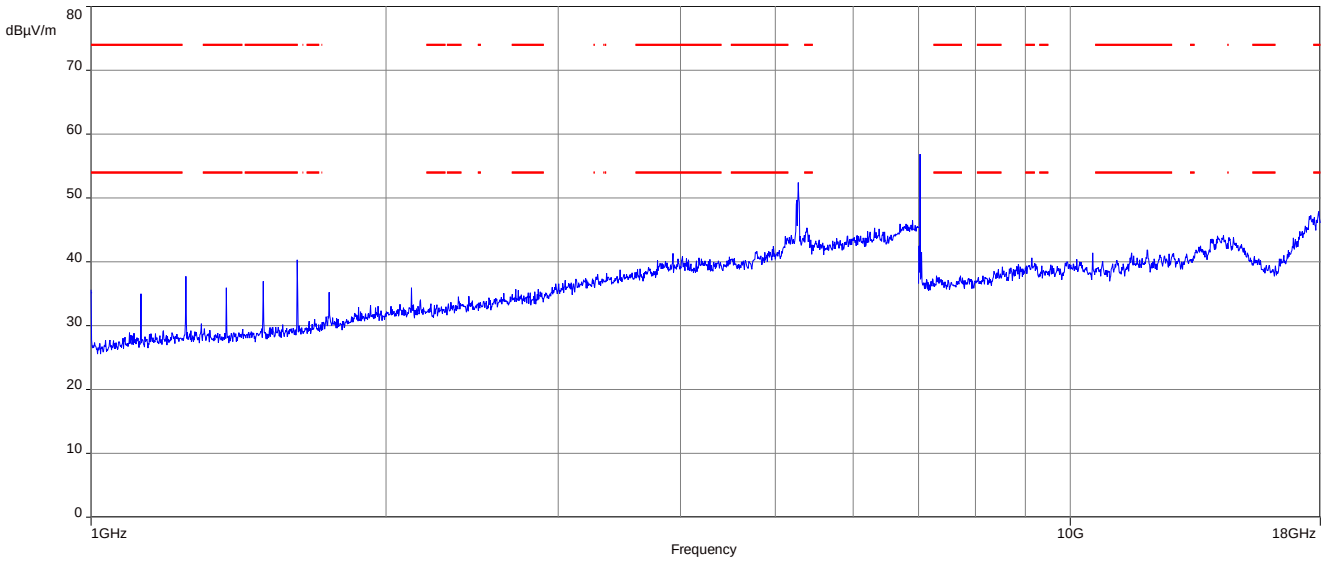
The carrier signal is notched with a band rejection filter.

Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel



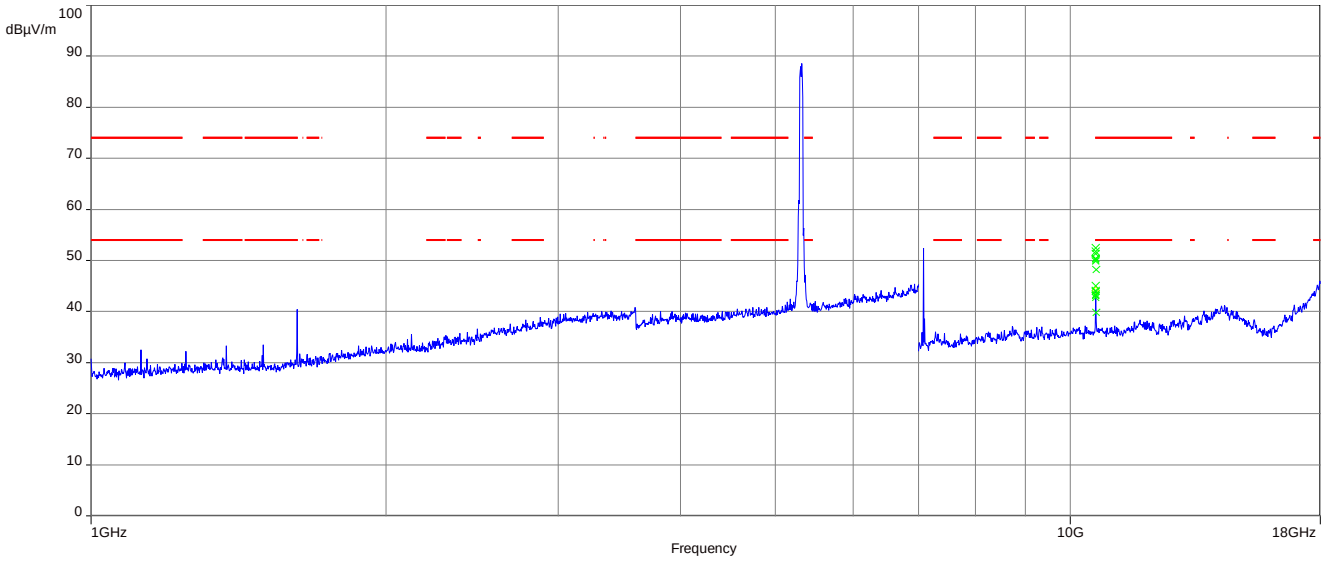
The carrier signal is notched with a band rejection filter.

Plot 3: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

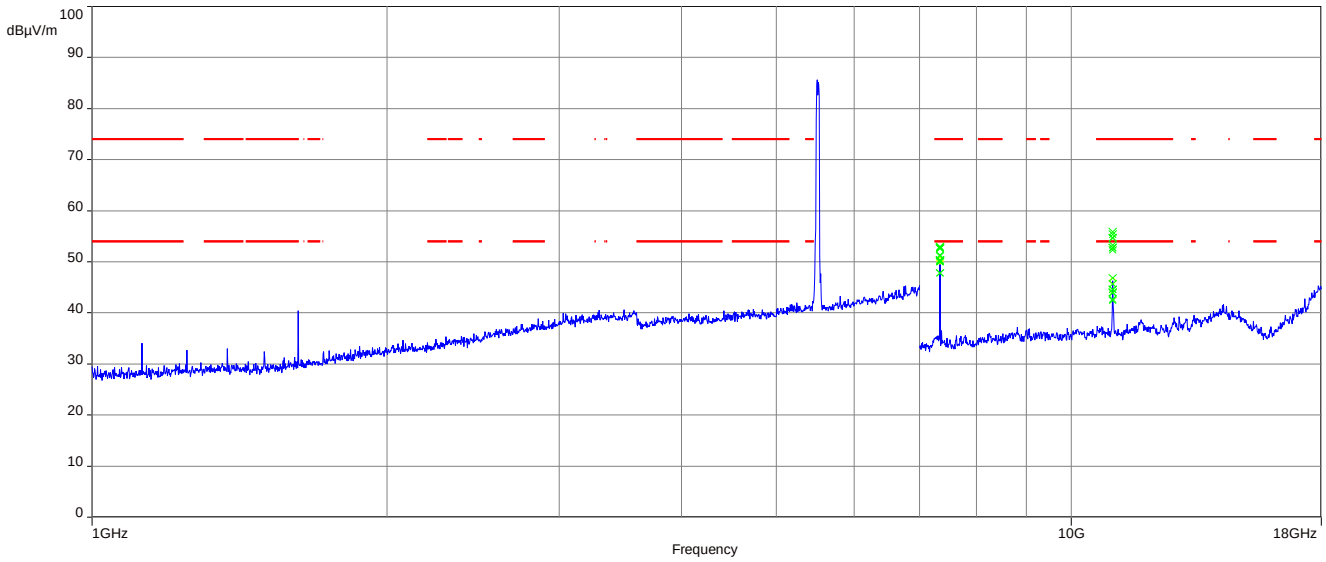


The carrier signal is notched with a band rejection filter.

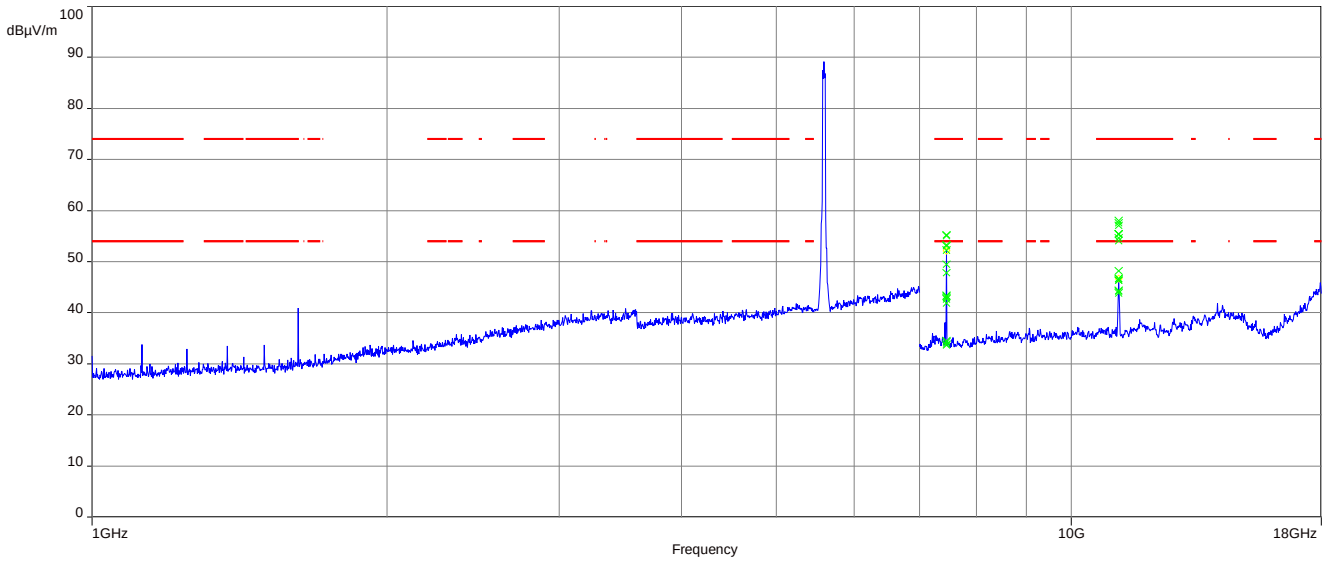
Plot 4: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel



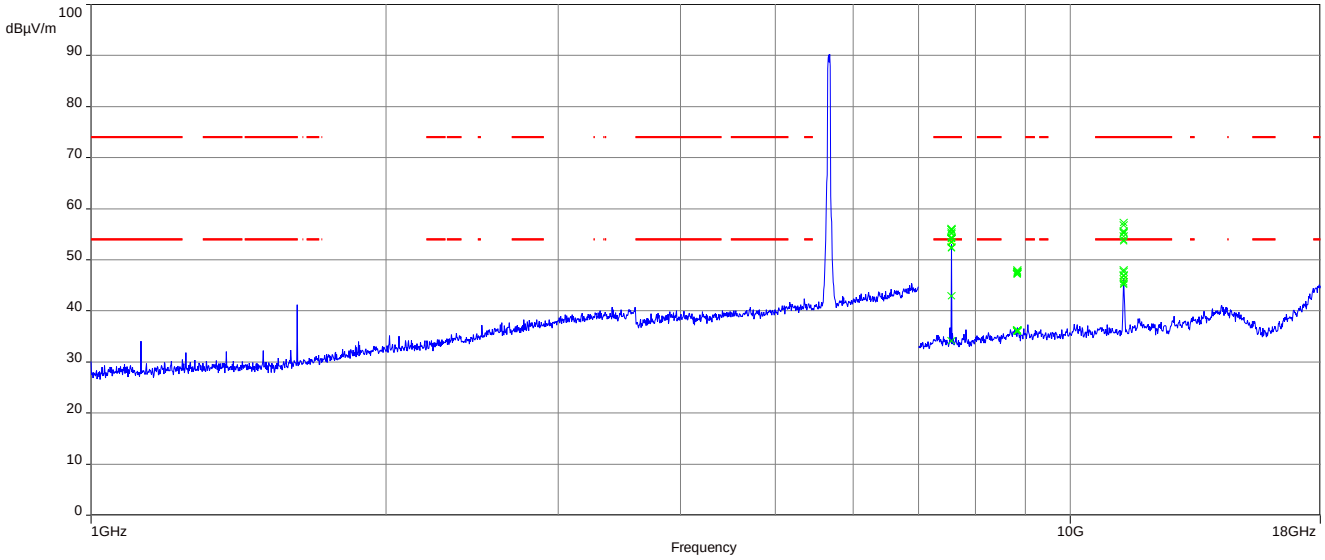
Plot 5: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



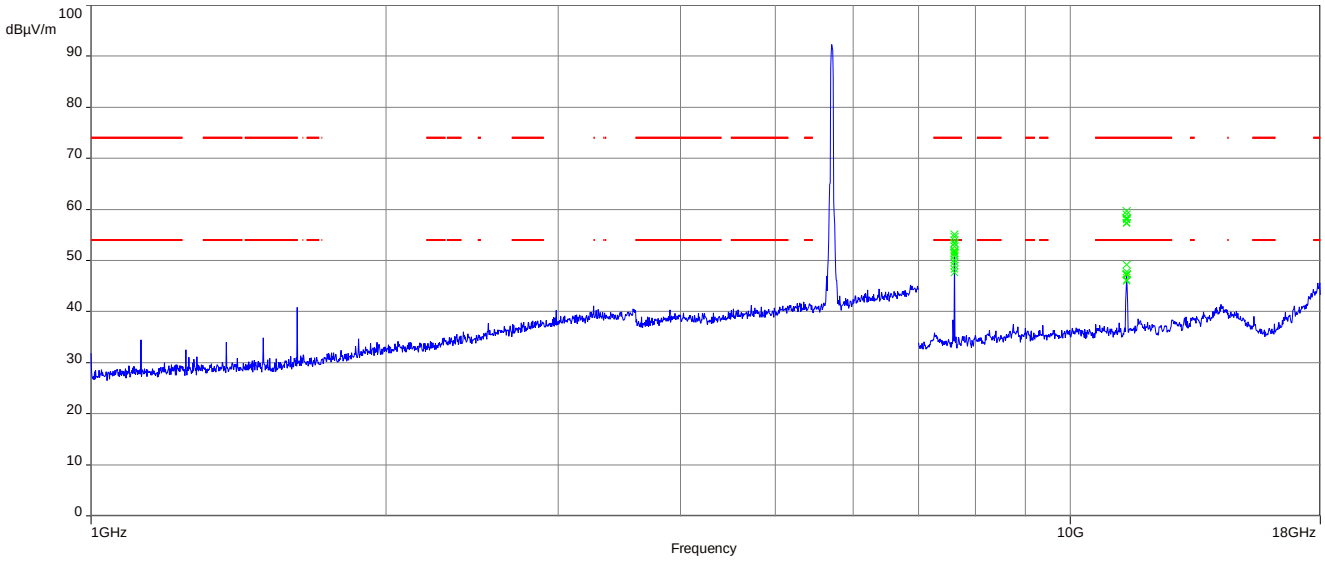
Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel



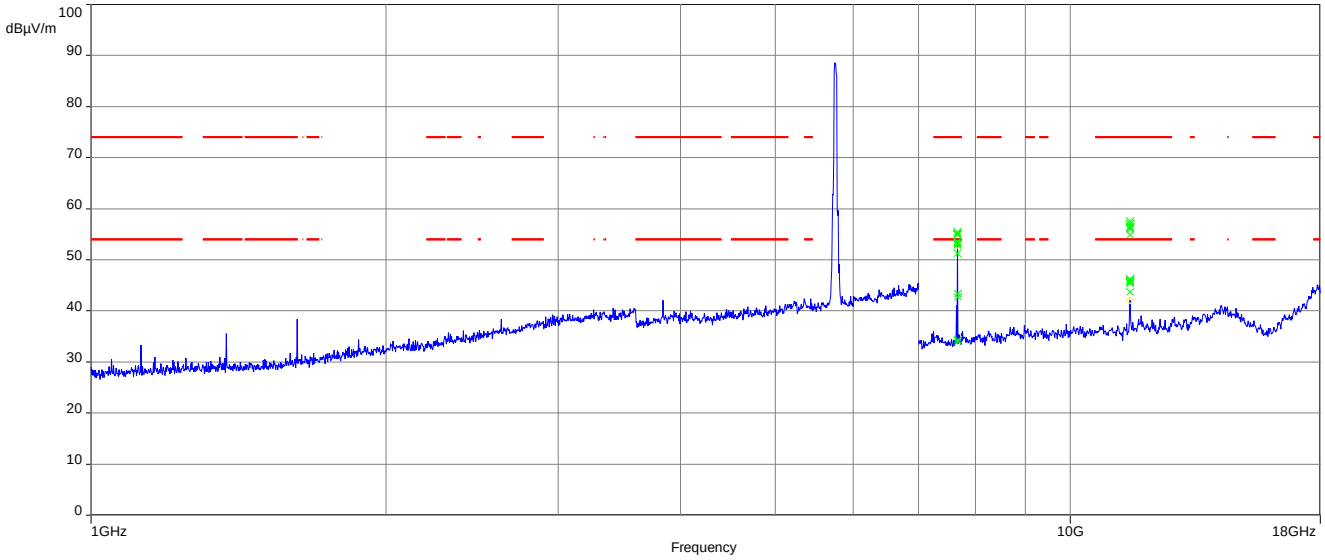
Plot 7: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



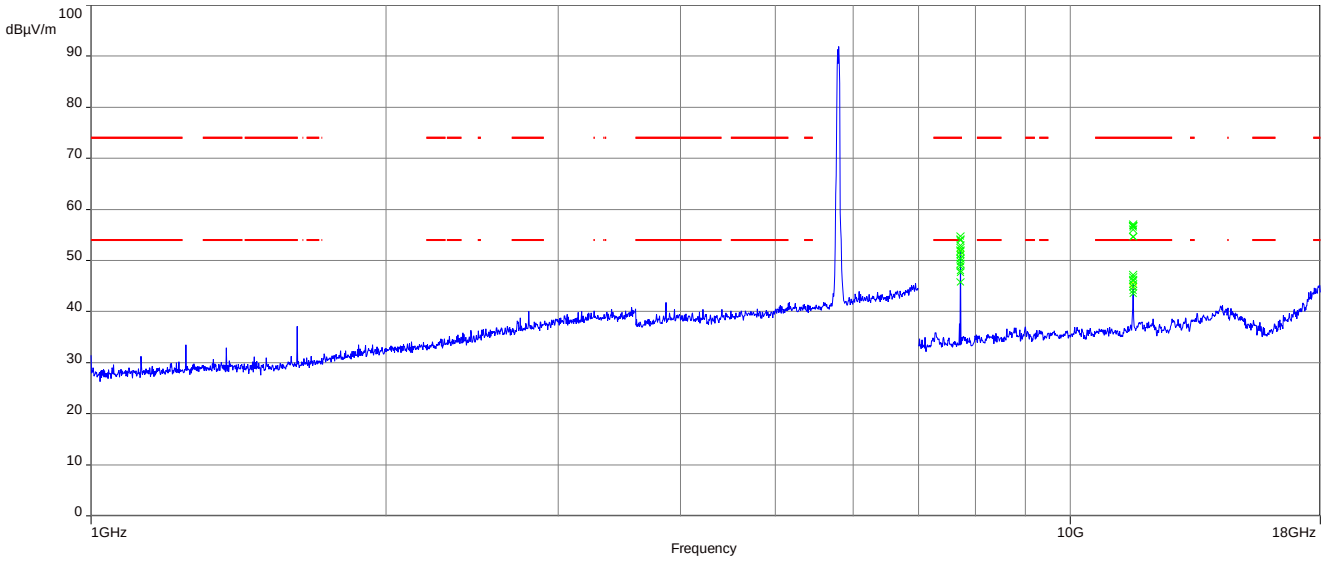
Plot 8: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C/U-NII-3; Channel 142



Plot 9: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

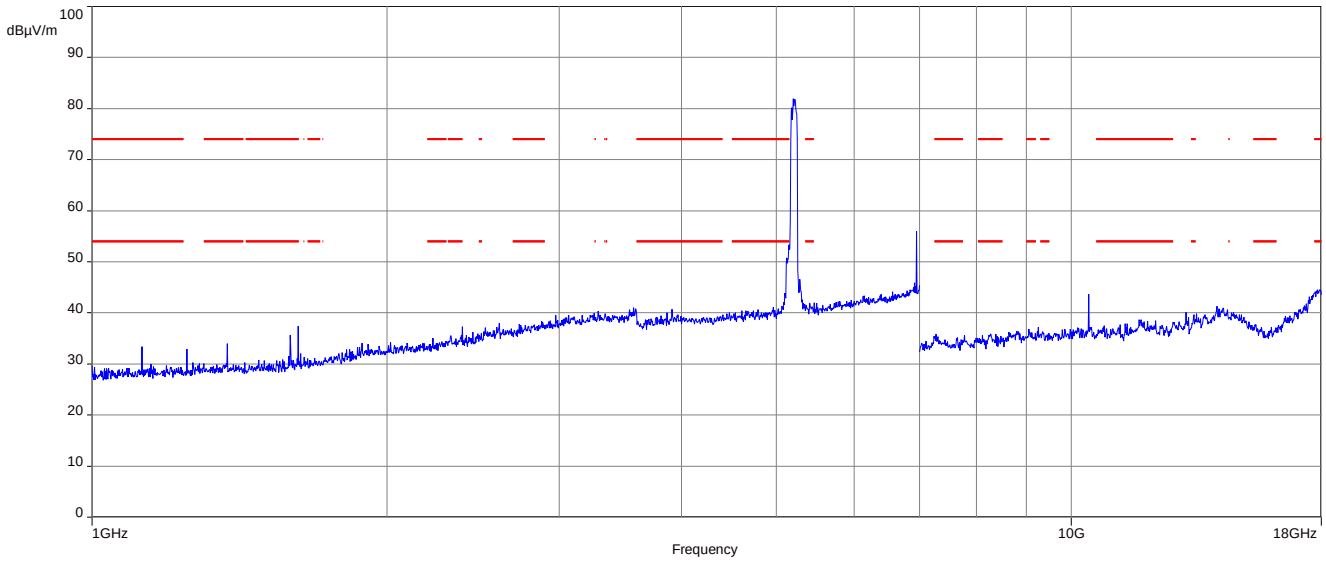


Plot 10: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel

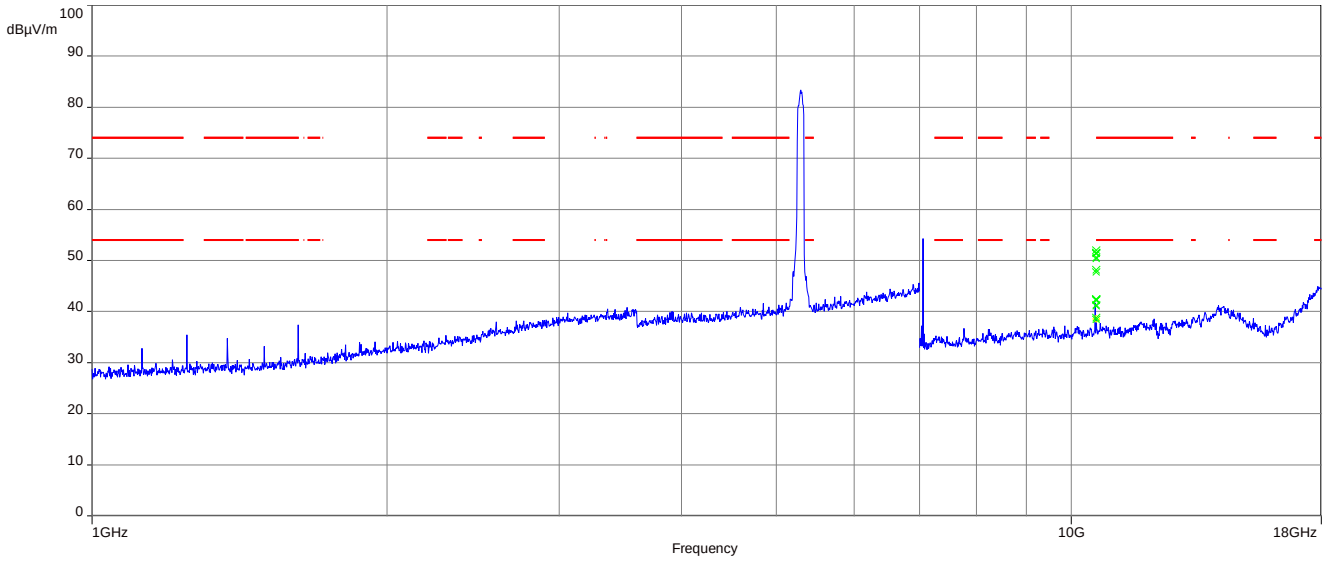


Plots: 80 MHz channel bandwidth

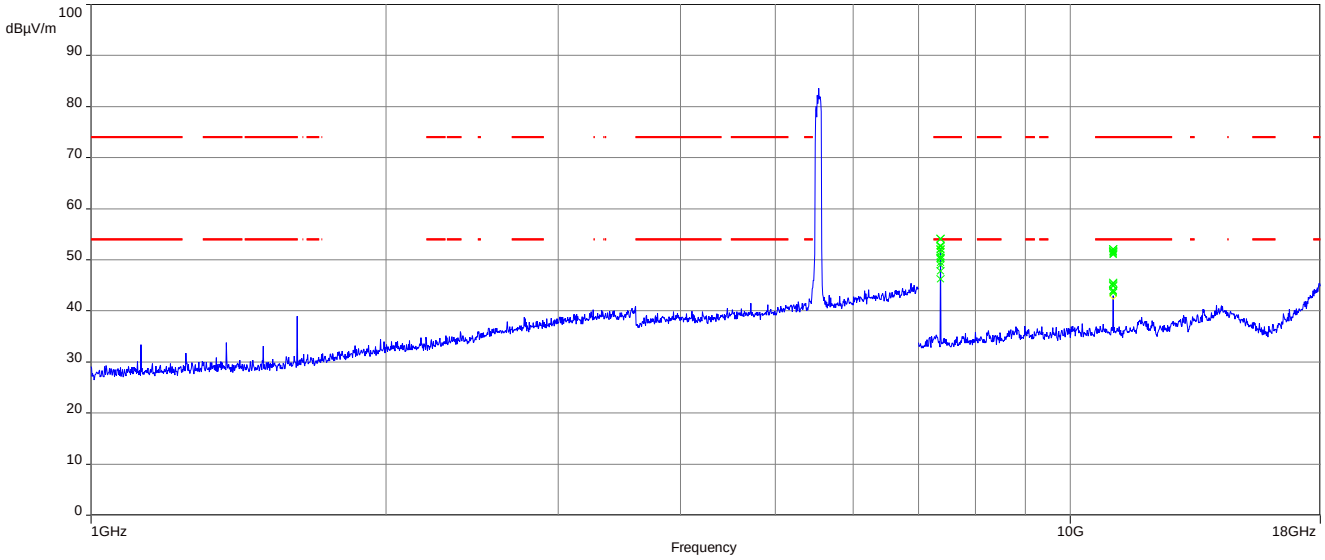
Plot 1: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; middle channel



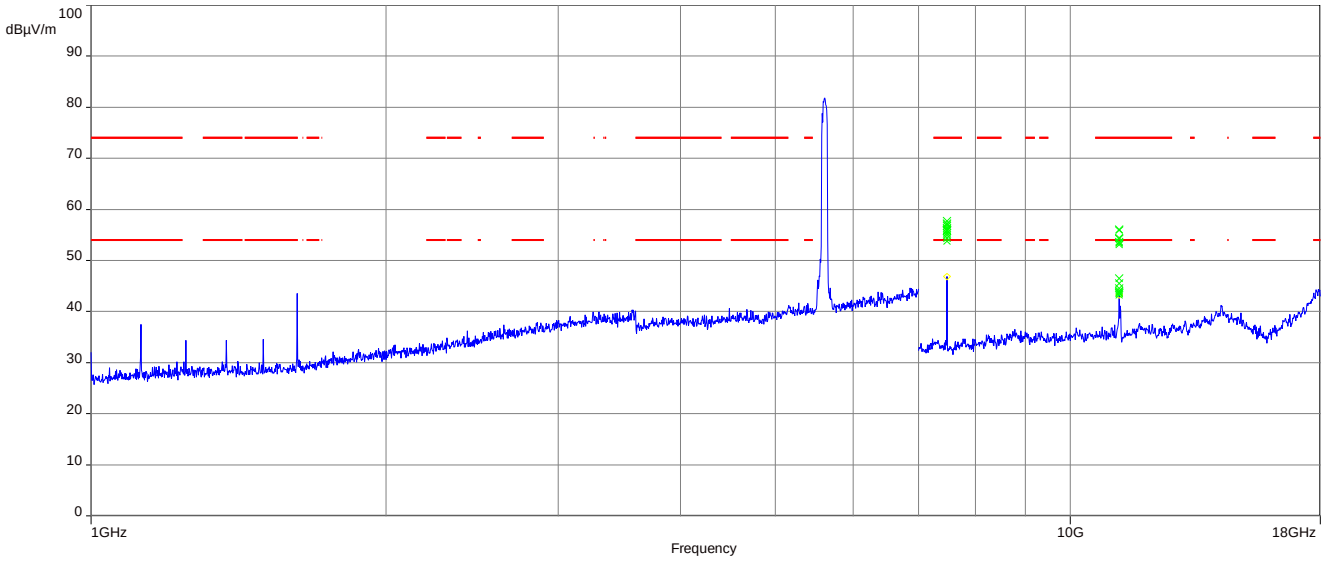
Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; middle channel



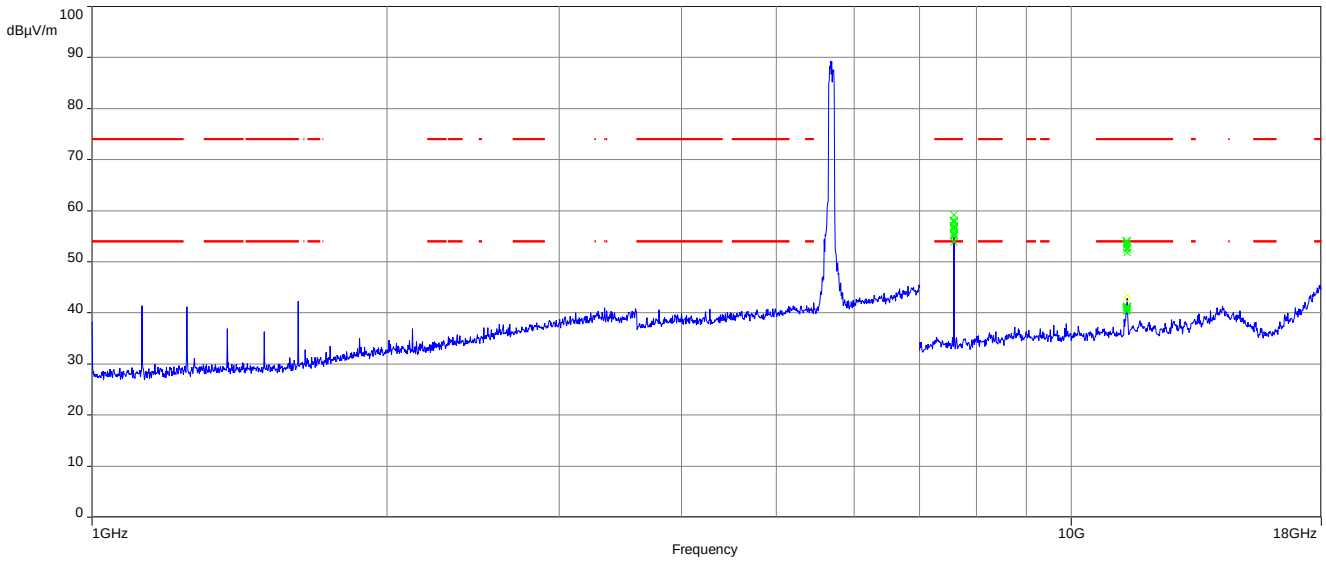
Plot 3: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



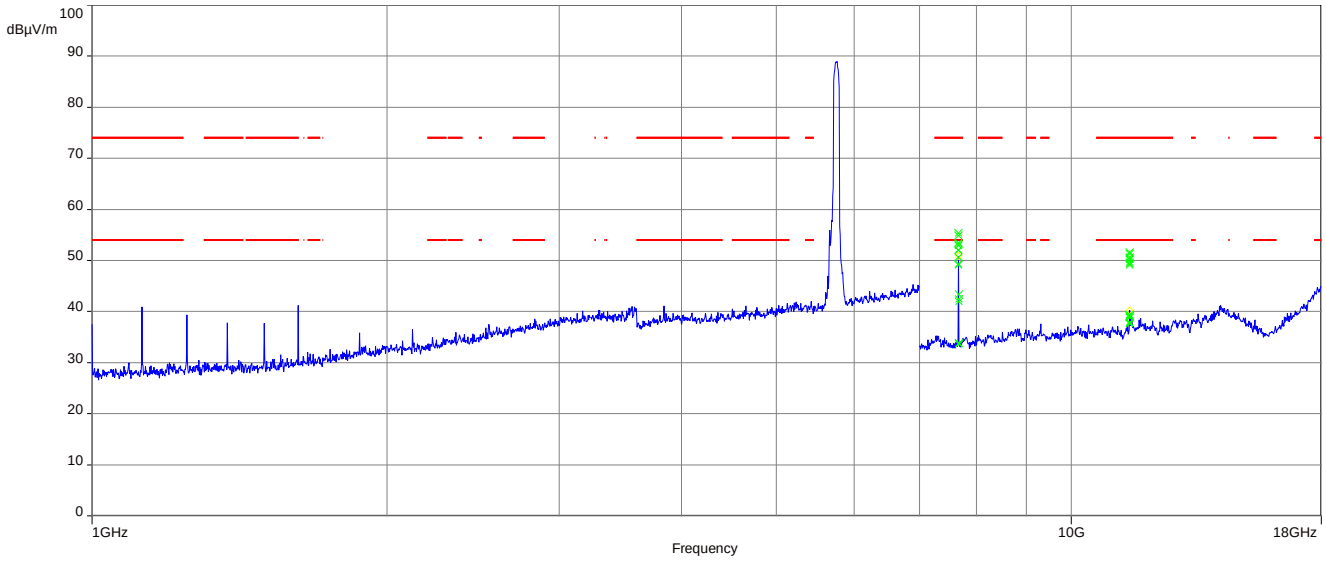
Plot 4: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



Plot 5: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C/U-NII-3; Channel 138

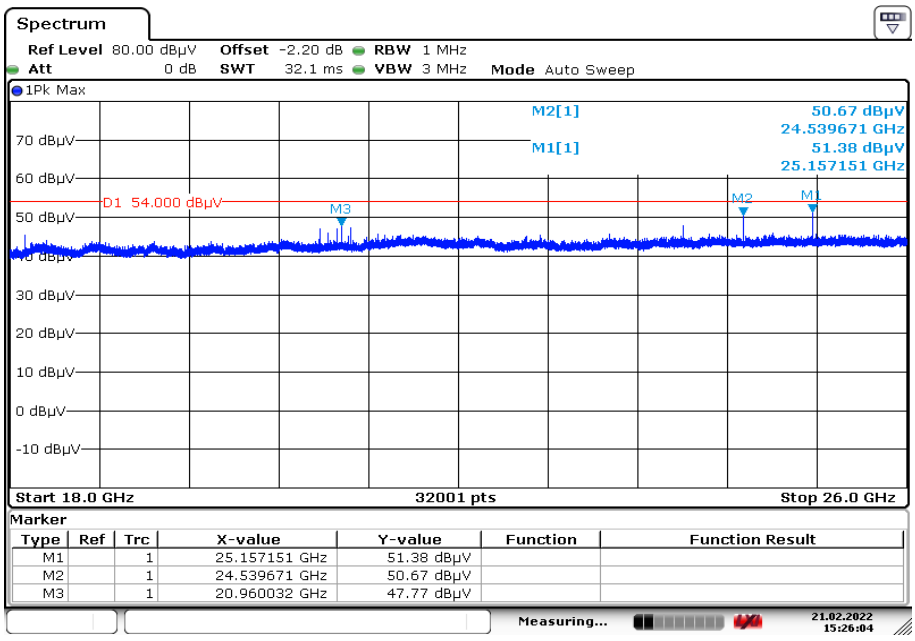


Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Plots: 18 GHz to 40 GHz, valid for all modes

Plot 1: 18 GHz to 26 GHz; vertical & horizontal polarization



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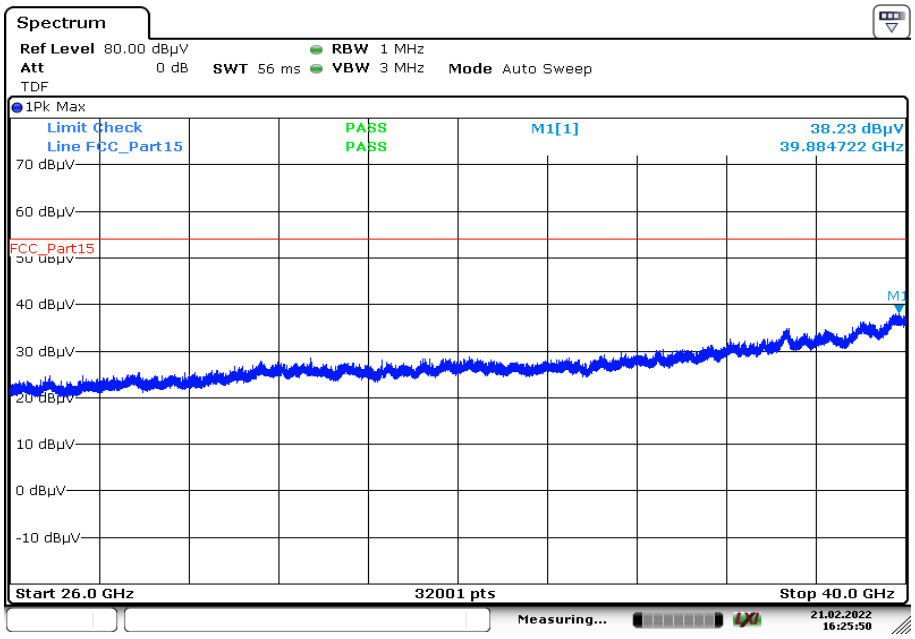
Plot 2: 26 GHz to 40 GHz; vertical & horizontal polarization



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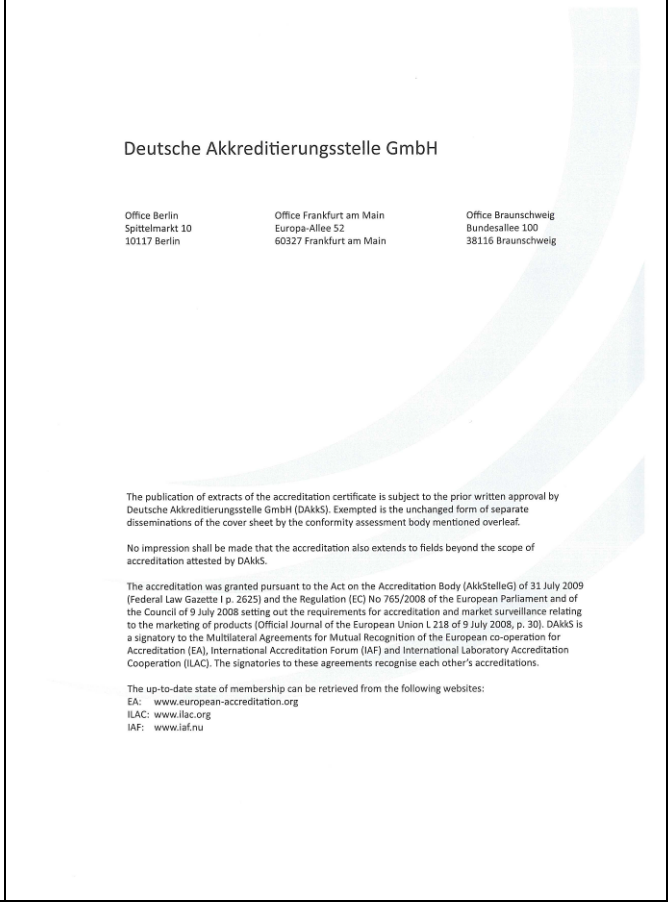
13 Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
GUE	GNSS User Equipment
ETSI	European Telecommunications Standards Institute
EN	European Standard
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
IC	Industry Canada
PMN	Product marketing name
HMN	Host marketing name
HVIN	Hardware version identification number
FVIN	Firmware version identification number
EMC	Electromagnetic Compatibility
HW	Hardware
SW	Software
Inv. No.	Inventory number
S/N or SN	Serial number
C	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
OC	Operating channel
OCW	Operating channel bandwidth
OBW	Occupied bandwidth
OOB	Out of band
DFS	Dynamic frequency selection
CAC	Channel availability check
OP	Occupancy period
NOP	Non occupancy period
DC	Duty cycle
PER	Packet error rate
CW	Clean wave
MC	Modulated carrier
WLAN	Wireless local area network
RLAN	Radio local area network
DSSS	Dynamic sequence spread spectrum
OFDM	Orthogonal frequency division multiplexing
FHSS	Frequency hopping spread spectrum
GNSS	Global Navigation Satellite System
C/N_0	Carrier to noise-density ratio, expressed in dB-Hz

14 Document history

Version	Applied changes	Date of release
-/-	Initial release	2022-05-03

15 Accreditation Certificate – D-PL-12076-01-04

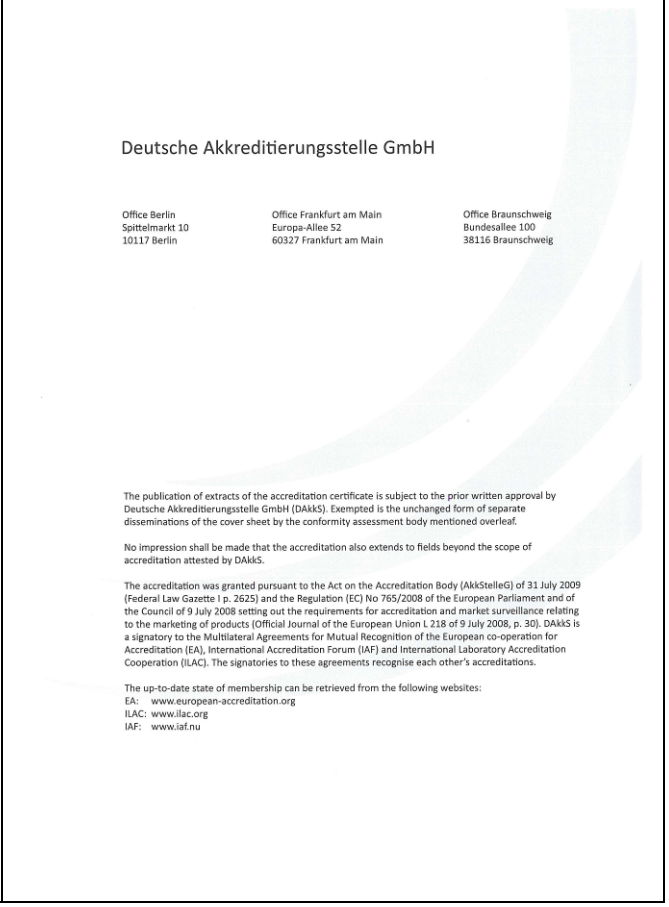
first page	last page
	

Note: The current certificate annex is published on the websites (link see below).

https://www.dakks.de/files/data/as/pdf/D-PL-12076-01-04e.pdf

or
https://ctcadvanced.com/app/uploads/2020/06/D-PL-12076-01-04_Canada_TCEMC.pdf

16 Accreditation Certificate – D-PL-12076-01-05

first page	last page
	

Note: The current certificate annex is published on the websites (link see below).

https://www.dakks.de/files/data/as/pdf/D-PL-12076-01-05e.pdf

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################################ END OF TEST REPORT ################################