

TEST REPORT

Test report no.: 1-8801-24-01-18_TR1-R01



Deutsche
Akkreditierungsstelle
D-PL-12047-01-00

Testing laboratory

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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 with the registration number:

D-PL-12047-01-00.

ISED Testing Laboratory Recognized Listing Number: DE0001

FCC designation number: DE0002

Applicant

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35578 Wetzlar / GERMANY

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Manufacturer

Leica Camera AG

Am Leitz-Park 5

35578 Wetzlar / GERMANY

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 3 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: **Digital Camera**
Model name: **4246**
FCC ID: **N5A4246**
ISED certification number: **11245A-4246**
Frequency: 5725 MHz to 5850 MHz
Technology tested: WLAN
Antenna: Integrated antenna
Power supply: 7.4 V DC by battery
Temperature range: 0°C to 40°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:



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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. cetecom 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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2.2 Application details

Date of receipt of order:	2025-01-06
Date of receipt of test item:	2025-02-17
Start of test:*	2025-02-17
End of test:*	2025-03-12
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

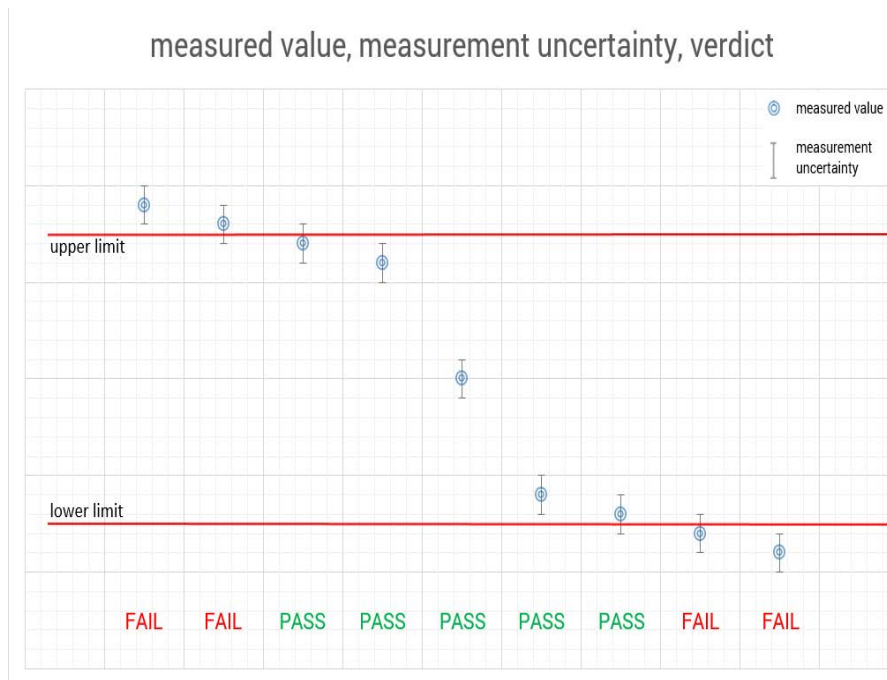
Test standard	Date	Description
FCC - Title 47 CFR Part 15	-/-	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 247 Issue 2	February 2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence - Exempt Local Area Network (LE-LAN) 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

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}	20 °C during room temperature tests No testing under extreme temperature conditions required No testing under extreme temperature conditions required
Relative humidity content	:		55 %
Barometric pressure	:		Not relevant for this kind of testing
Power supply	:	V _{nom} V _{max} V _{min}	7.4 V DC by battery No testing under extreme voltage conditions required No testing under extreme voltage conditions required

6 Test item

6.1 General description

Kind of test item	:	Digital Camera
Model name	:	4246
HMN	:	-/-
PMN	:	4246
HVIN	:	4246
FVIN	:	-/-
S/N serial number	:	Rad. 6118791 Cond. 6118785
Hardware status	:	Prototype
Software status	:	-/-
Firmware status	:	0.25.6.48
Frequency band	:	5725 MHz to 5850 MHz
Type of radio transmission	:	OFDM
Use of frequency spectrum	:	
Type of modulation	:	(D)BPSK, (D)QPSK, 16 – QAM, 64 – QAM
Number of channels	:	5 (20 MHz), 2 (40 MHz), 1 (80 MHz)
Antenna	:	Integrated antenna
Power supply	:	7.4 V DC by battery
Temperature range	:	0°C to 40°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:

1-8801-24-01-01_TR1-A101-R01
1-8801-24-01-01_TR1-A102-R01
1-8801-24-01-01_TR1-A103-R01

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).

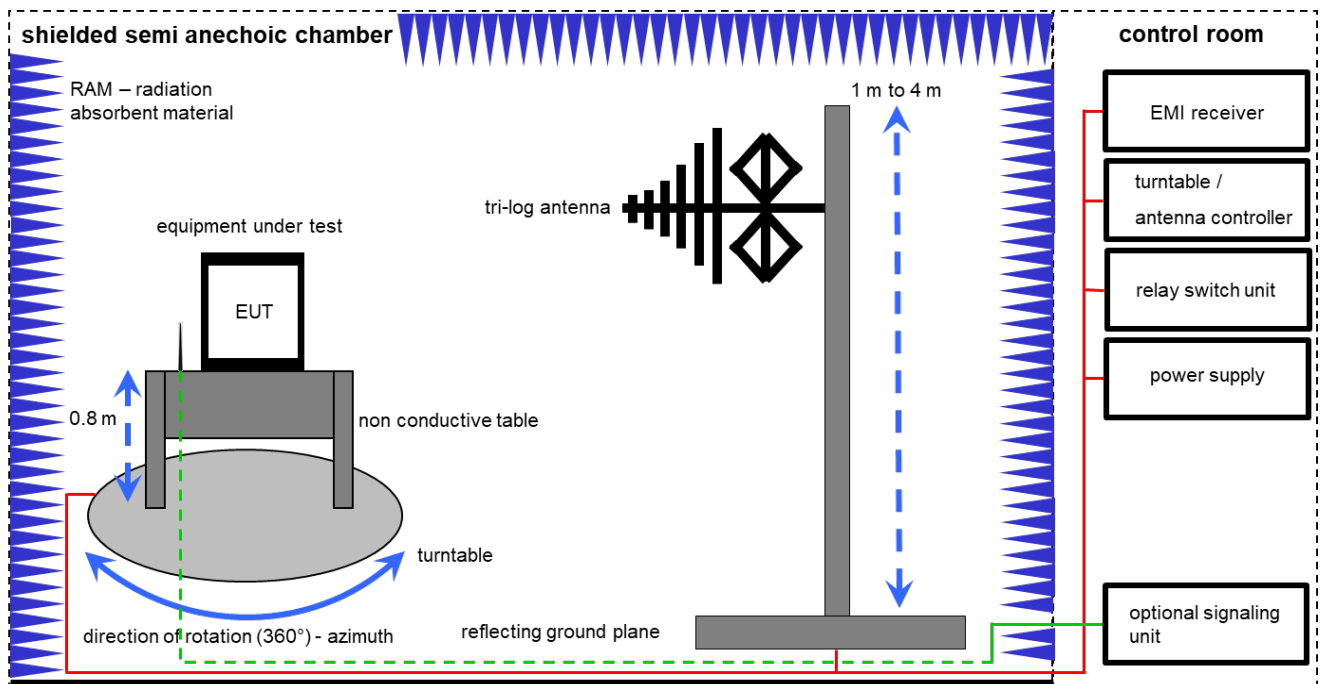
Each block diagram listed can contain several test setup configurations. All devices belonging to a test setup are identified with the same letter syntax. For example: Column Setup and all devices with an A.

Agenda: Kind of Calibration

k/cal	calibration / calibrated	EK	limited calibration
Ne/cnn	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
Ev/chk	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlk!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress
cpu	check prior usage		

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:

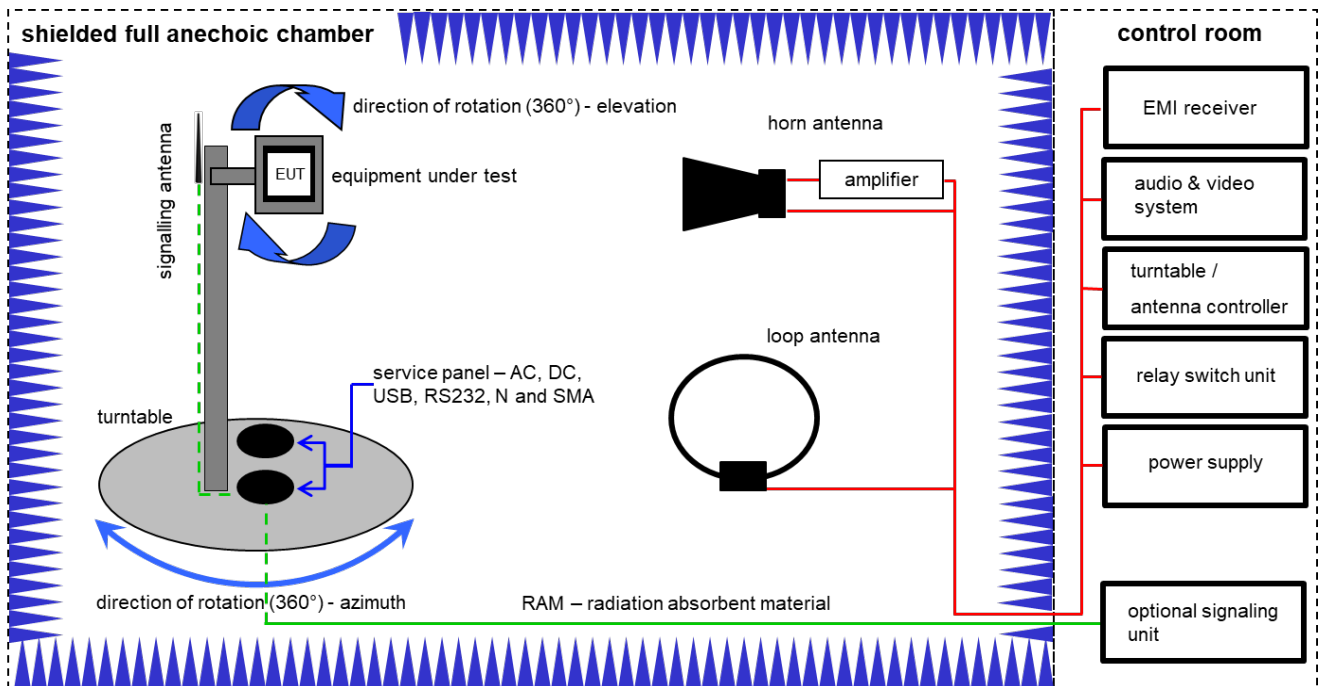
FS [dB μ V/m] = 12.35 [dB μ V/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dB μ V/m] (35.69 μ V/m)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Semi anechoic chamber	Semi anechoic chamber 3000023	MEC Import: MWB AG		40797	cnn	-/-	-/-
2	A	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz VULB9163	Schwarzbeck Mess-Elektronik OHG / Schönaun	371	40798	cal	11.07.2024	11.07.2026
3	A	Turntable	Turntable 2089-4.0	EMCO Elektronik GmbH / Gilching		40799	cnn	-/-	-/-
4	A	Switch-Unit	Switch-Unit 3488A	Hewlett Packard	2719A14505	50160	cpu	-/-	-/-
5	A	Antenna Tower	Antenna Tower 2175	ETS-Lindgren GmbH / Taufkirchen	64762	50279	cnn	-/-	-/-

6	A	Positioning Controller	Positioning Controller 2090	ETS-Lindgren GmbH / Taufkirchen	64672	50280	cnn	-/-	-/-
7	A	EMI Test Receiver	EMI Test Receiver ESR3	Rohde & Schwarz Messgerätebau GmbH / Memmingen	102587	50417	cal	05.12.2024	05.12.2025

7.2 Shielded fully anechoic chamber



Measurement distance: horn antenna 3 meter; loop antenna 3 meter / 1 meter

FS = UR + CA + AF

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

Example calculation:

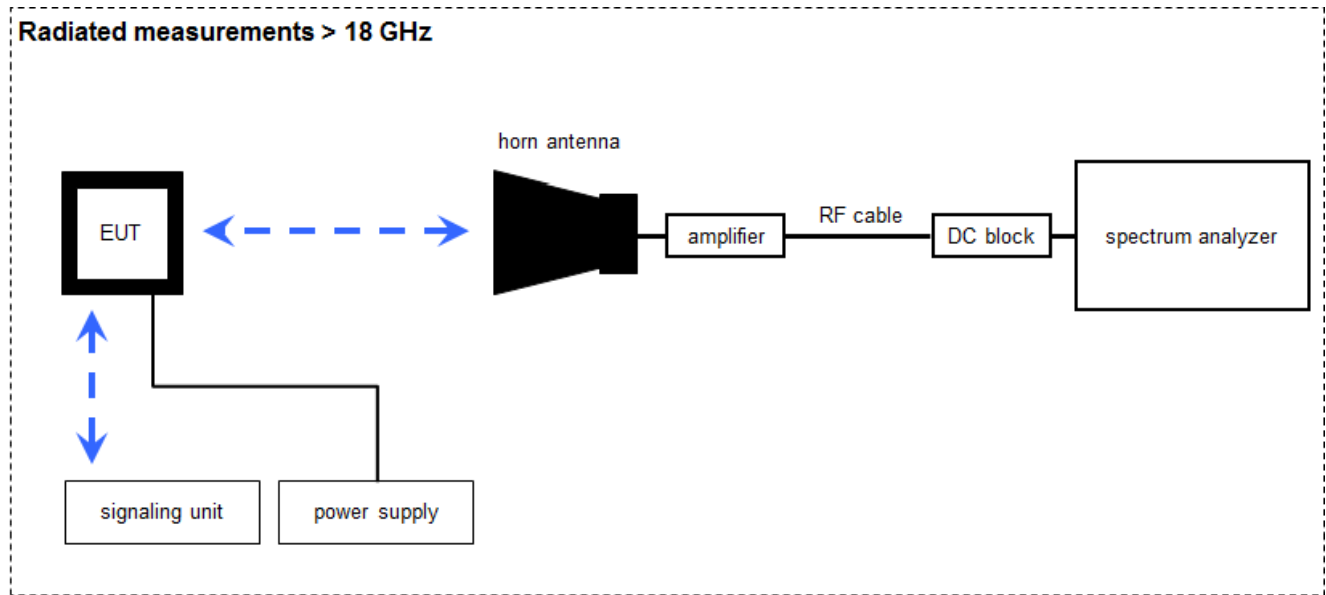
FS [dBμV/m] = 40.0 [dBμV/m] + (-35.8) [dB] + 32.9 [dB/m] = 37.1 [dBμV/m] (71.61 μV/m)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Double-Ridged Waveguide Horn Antenna	Double-Ridged Waveguide Horn Antenna 3115	EMCO Elektronik GmbH / Gilching	8812-3088	40341	cal	10.10.2023	31.10.2025
2	A	Anechoic chamber	Anechoic chamber FAC 3/5m	MEC Import: MWB / TDK	87400/02	40349	cpu	-/-	-/-
3	A	Switch / Control Unit	Switch / Control Unit 3488A	Hewlett Packard	*	40350	cnn	-/-	-/-
4	A	Highpass Filter	Highpass Filter WHK1.1/15G-10SS	Wainwright Instruments GmbH / Andechs	3	40361	cpu	-/-	-/-
5	A	Highpass Filter	Highpass Filter WHKX7.0/18G-8SS	Wainwright Instruments GmbH / Andechs	19	40365	cnn	-/-	-/-
6	A	Broadband Amplifier 0.5-18 GHz	Broadband Amplifier 0.5-18 GHz CBLU5184540	MEC Import: CERNEX	22049	40373	cpu	-/-	-/-
7	A	4U RF Switch Platform	4U RF Switch Platform L4491A	Agilent Technologies Deutschland GmbH / Böblingen	MY50000037	40375	cnn	-/-	-/-
8	A	NEXIO EMV-Software	NEXIO EMV-Software BAT EMC V2022.0.32.0	MEC Import: Nexio		40383	cnn	-/-	-/-
9	A	RF-Amplifier	RF-Amplifier AMF-6F06001800-30-10P-R	MEC Import: NARDA-MITEQ Inc	2011572	40400	cpu	-/-	-/-
10	A	Active Loop Antenna	Active Loop Antenna 6502	EMCO Elektronik GmbH / Gilching	2210	50044	cal	02.08.2023	02.08.2025

11	A	EMI Test Receiver	EMI Test Receiver ESU26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100037	50254	cal	10.12.2024	10.12.2025
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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)

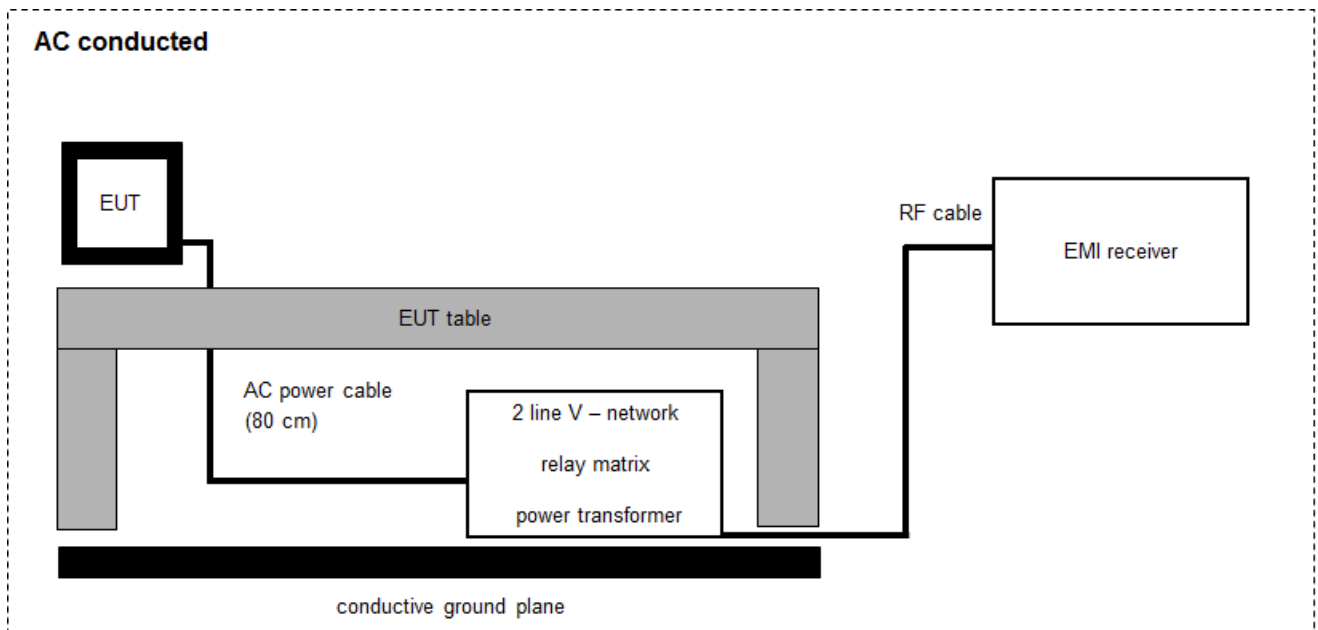
Example calculation:

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.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Broadband LNA 18-50 GHz	Broadband LNA 18-50 GHz CBL18503070PN	MEC Import: CERNEX	25240	40073	chk	22.04.2024	22.04.2026
2	A	Horn Antenna 18,0-40,0 GHz	Horn Antenna 18,0-40,0 GHz LHAF180	MEC Import: Microw.Devel	39180-103-021	40170	cal	24.01.2024	31.01.2026
3	A	Signal- and Spectrum Analyzer 2 Hz - 85 GHz	Signal- and Spectrum Analyzer 2 Hz - 85 GHz FSW85	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101333	40009	cal	27.09.2024	27.09.2025

7.4 AC conducted



$$FS = UR + CF + VC$$

(FS-field strength; UR-voltage at the receiver; CR-loss of the cable and filter; VC-correction factor of the ISN)

Example calculation:

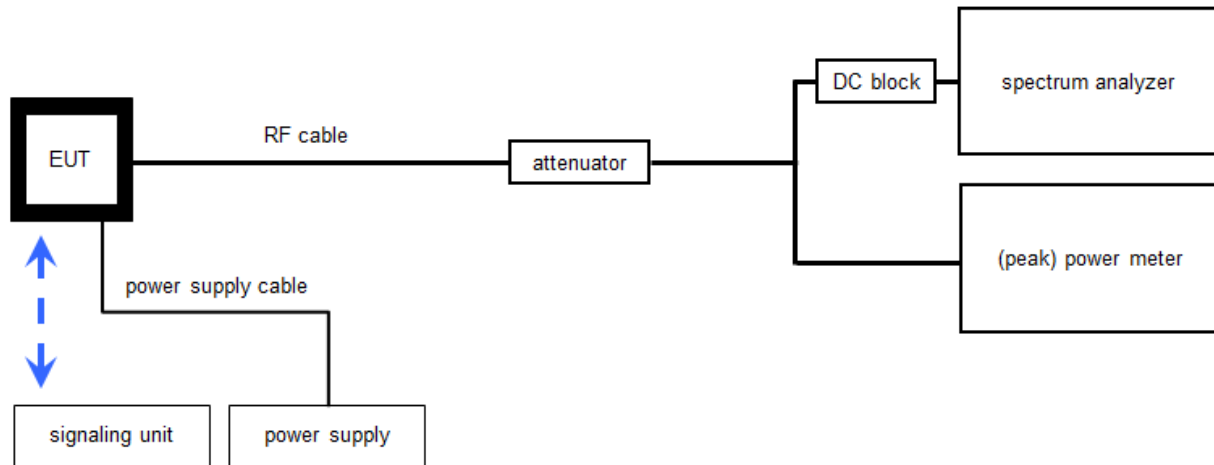
$$FS [dB\mu V/m] = 37.62 [dB\mu V/m] + 9.90 [dB] + 0.23 [dB] = 47.75 [dB\mu V/m] \quad (244.06 \mu V/m)$$

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	EMI Receiver	ESR3	Rohde & Schwarz	102981	300006318	cal	03.12.2024	03.12.2025
2	A	V-ISN	ESH 3-Z5	Rohde & Schwarz	892475/017	300002209	cal	12.12.2023	31.12.2025
3	A	V-ISN	ESH 2-Z5	Rohde & Schwarz	892602/024	300000587	cal	11.12.2024	11.12.2026
4	A	2-Wire ISN	ISN T200	Schaffner	19075	300003422	cpu	-/-	-/-
5	A	4-Wire ISN	ISN T400	Schaffner	22325	300003423	cpu	-/-	-/-
6	A	Shielded wire ISN	ISN ST08	Schaffner	22583	300003433	cal	20.09.2024	20.09.2026
7	A	Unshielded 8 wire ISN	ISN T800	Teseq	26113	300003833	cal	23.07.2024	23.07.2026
8	A	Unshielded 8 wire ISN	ISN T8-Cat. 6	Teseq	26374	300003851	cal	23.07.2024	23.07.2026
9	A	2-Wire ISN	ISN T200A	Teseq	30506	400001792	cal	23.07.2024	31.07.2026
10	A	RF Current probe	9134-1	Solar	108546	300004163	cal	13.12.2022	12.12.2025

7.5 Conducted measurements with peak power meter & spectrum analyzer

Conducted measurements normal conditions



WLAN tester version: 1.1.13; LabView2015

OP = AV + CA
(OP-output power; AV-analyzer value; CA-loss signal path)

Example calculation:

OP [dBm] = 6.0 [dBm] + 11.7 [dB] = 17.7 [dBm] (58.88 mW)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Signal analyzer	Signal analyzer FSV40	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101042	40292	cal	09.12.2024	09.12.2025
2	A	Relais Matrix	USM Switch Matrix	cetecom advanced GmbH / Saarbrücken	C001	40340	cnn	-/-	-/-
3	A	RF-Cable	RF-Cable ST18/SMAM/SMAM/60	Huber & Suhner GmbH / Unterhaching	Batch no. 606844	40386	cpu	-/-	-/-

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 $\pm 45^\circ$ 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	± 4.1 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	2025-03-27	-/-

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)	☒	☐	☐	☐	-/-
§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 conducted	☐	☐	☒	☐	-/-
§15.407(b) RSS - 247 (6.2.x.2)	TX spurious emissions radiated	☒	☐	☐	☐	-/-
§15.109 RSS-Gen	RX 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
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11 Additional comments

Reference documents: CU20010-1 - Dual-band WiFi - Leica PS_Rev03.pdf (antenna gain)
CU20010-1 Appendix to Product Specification - RF Performance Summary.pdf

Special test descriptions: The DUT has been controlled using the QRCT software.

Configuration descriptions: Operating mode vs. data rate vs. power setting:

Test mode:	Data rate:	Power setting:
a-mode (SISO)	6Mbps	8
nHT20-mode (SISO)	MCS0	
nHT40-mode (SISO)	MCS0	
ac80-mode (SISO)	MCS0	

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-3 (5725 MHz to 5850 MHz) channel number & center frequency					
channel	149	153	157	161	165
f _c / MHz	5745	5765	5785	5805	5825

Channels with 40 MHz channel bandwidth:

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency		
channel	151	159
f _c / MHz	5755	5795

Channels with 80 MHz channel bandwidth:

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency	
channel	155
f _c / MHz	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 Identify worst case data rate

Worst case data rates declared by the manufacturer (see section 10).

12.2 Antenna gain

Declaration of the antenna gain:

T _{nom}	V _{nom}	Lowest channel	Middle channel	Highest channel
Gain [dBi] declared by the manufacturer		3.4 dBi		

12.3 Duty cycle

Description:

The duty cycle is necessary to compute the maximum power during an actual transmission. The shown plots and values are to show an example of the measurement procedure. The real value is measured direct during the power measurement or power density measurement. The correction value is shown in each plot of these measurements.

Measurement:

Measurement parameter	
According to: KDB789033 D02, B.	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 Max Output Power and PSD
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9

Results:

See external result file 1-8801-24-01-18_TR1-A201-R1.pdf

12.4 Maximum output power

12.4.1 Maximum output power according to FCC requirements

Description:

Measurement of the maximum output power conducted

Measurement:

Measurement parameter	
According to: KDB789033 D02, E.2.e.	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 Max Output Power and PSD
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9
Standard parts:	FCC: § 15.407 (a)

Limits:

Limits	
Radiated output power	Conducted output power
Band 5725MHz – 5850 MHz	
Conducted power + 6 dBi antenna gain (Antenna gain higher than the Limit: 1dB reduction in the max. conducted output power for each 1 dB of antenna gain in excess of the Limit Exception: fixed point-to-point U-NII devices, no corresponding reduction in transmitter conducted power)	output power $\leq$ 1W/30dBm

Results:

a	Maximum output power conducted [dBm]		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	9.5	9.6	9.6

n HT20	Maximum output power conducted [dBm]		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	9.3	9.5	9.4

n HT40	Maximum output power conducted [dBm]	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	9.3	9.5

ac VHT80	Maximum output power conducted [dBm]	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	9.7	

12.4.2 Maximum output power according to ISED requirements

Description:

Measurement of the maximum output power conducted + radiated

Measurement:

Measurement parameter	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf ISED Max Output Power and PSD
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9
Standard parts:	RSS-248 4.6 RSS-248i 4.6.2 / 4.6.3

Limits:

Radiated output power	Conducted output power for mobile equipment
The lesser one of 200 mW or 10 dBm + 10 log Bandwidth 5.150-5.250 GHz 1 W or 17 dBm + 10 log Bandwidth 5.250-5.350 GHz 1 W or 17 dBm + 10 log Bandwidth 5.470-5.725 GHz (where Bandwidth is the 99% Bandwidth [MHz]) Conducted power + 6dBi antenna gain 5.725-5.825 GHz Devices other than client devices 5925-7125 MHz: ≤ 30dBm Client devices 5925-7125 MHz: ≤ 24dBm	The lesser one of 250mW or 11 dBm + 10 log Bandwidth 5.250-5.350 GHz 250mW or 11 dBm + 10 log Bandwidth 5.470-5.725 GHz (where Bandwidth is the 99% Bandwidth [MHz]) 1W 5.725-5.825 GHz

Results:

a	Maximum output power [dBm]		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	Conducted		
	9.4	9.7	9.5
	Radiated (calculated – see chapter antenna gain)		
	12.8	13.1	12.9

n HT20	Maximum output power [dBm]		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	Conducted		
	9.3	9.4	9.4
	Radiated (calculated – see chapter antenna gain)		
	12.7	12.8	12.8

n HT40	Maximum output power [dBm]	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	Conducted	
	9.4	9.5
	Radiated (calculated – see chapter antenna gain)	
	12.8	12.9

ac VHT80	Maximum output power [dBm]	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	Conducted	
	9.7	
	Radiated (calculated – see chapter antenna gain)	
	13.1	

12.5 Power spectral density

12.5.1 Power spectral density according to FCC requirements

Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated at the lowest, middle and highest channel.

Measurement:

Measurement parameter	
According to: KDB789033 D02, F.	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 Max Output Power and PSD
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9
Standard parts:	FCC: § 15.407 (a)

Limits:

Power Spectral Density
Band 5725MHz – 5850 MHz
power spectral density conducted ≤ 30 dBm in any 500 kHz band
If transmitting antennas of directional gain greater than 6 dBi are used the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

Results:

a	Power spectral density (dBm/1MHz or dBm/500kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	-4.5	-4.4	-4.5

n HT20	Power spectral density (dBm/1MHz or dBm/500kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	-4.8	-4.7	-4.9

n HT40	Power spectral density (dBm/1MHz or dBm/500kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	-8.0	-7.7

ac VHT80	Power spectral density (dBm/1MHz or dBm/500kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	-10.7	

12.5.2 Power spectral density according to ISED requirements

Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated at the lowest, middle and highest channel.

Measurement:

Measurement parameter	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf ISED Max Output Power and PSD
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9
Standard parts:	RSS-248i 4.6.2 / 4.6.3

Limits:

Power Spectral Density
power spectral density conducted ≤ 30 dBm in any 500 kHz band (band 5725 – 5850 MHz) for devices other than client devices power spectral density e.i.r.p. ≤ 5 dBm in any 1 MHz band (band 5925 – 7125 MHz) Ffor client devices power spectral density e.i.r.p. ≤ 1 dBm in any 1 MHz band (band 5925 – 7125 MHz)

Results:

a	Power spectral density (dBm/1MHz or dBm/500kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	-4.5	-4.2	-4.5

n HT20	Power spectral density (dBm/1MHz or dBm/500kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	-4.8	-4.7	-4.8

n HT40	Power spectral density (dBm/1MHz or dBm/500kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	-7.9	-7.6

ac VHT80	Power spectral density (dBm/1MHz or dBm/500kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	-10.7	

12.6 Minimum emission bandwidth for the band 5.725-5.85 GHz

Description:

Measurement of the 6 dB bandwidth of the modulated signal.

Measurement:

Measurement parameter	
According to: KDB789033 D02, C.2.	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 & ISED Minimum Emission BW
Used test setup:	See chapter 7.5 – A
Measurement uncertainty:	See chapter 9

Limits:

FCC	ISED
The minimum 6 dB bandwidth shall be at least 500 kHz.	

Results:

a	6 dB emission bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	15.5	15.1	15.2

n HT20	6 dB emission bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	15.4	15.1	15.2

n HT40	6 dB emission bandwidth (MHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	35.1	35.1

ac VHT80	6 dB emission bandwidth (MHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	75.2	

12.7 Spectrum bandwidth / 26 dB bandwidth

Description:

Measurement of the 26 dB bandwidth of the modulated signal.

Measurement:

Measurement parameter	
According to: KDB789033 D02, C.1.	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 & ISSED Bandwidths
Used test setup:	see chapter 7.5 – A
Measurement uncertainty:	See chapter 9

Limits:

Spectrum Bandwidth – 26 dB Bandwidth
IC: Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band. FCC: Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

Results:

a	26 dB bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	19.7	19.8	19.6
	Lowest frequency		Highest frequency
	5735.2		5834.9

n HT20	26 dB bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	20.7	20.6	20.4
	Lowest frequency		Highest frequency
	5734.5		5835.2

n HT40	26 dB bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Highest channel	
	40.5	40.6	
	Lowest frequency		Highest frequency
	5734.6		5815.1

ac VHT80	26 dB bandwidth (MHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Middle channel		
	82.1		
	Lowest frequency		Highest frequency
	5733.7		5815.8

12.8 Occupied bandwidth / 99% emission bandwidth

Description:

Measurement of the 99% bandwidth of the modulated signal acc. RSS-GEN.

Measurement:

Measurement parameter	
External result file(s)	1-8801-24-01-18_TR1-A201-R1.pdf FCC Part 15.407 & ISED Bandwidths
Test setup:	See sub clause 7.5 – A
Measurement uncertainty:	See chapter 9

Usage:

-/-	ISED
OBW is necessary for Emission Designator	

Results:

a	99% bandwidth (kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	16334	16284	16334

n HT20	99% bandwidth (kHz)		
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	17433	17433	17433

n HT40	99% bandwidth (kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Lowest channel	Highest channel
	35864	35764

ac VHT80	99% bandwidth (kHz)	
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	74925	

12.9 Undesirable emissions for transmitters operating in the 5725 MHz to 5850 MHz band (conducted)

Description:

Measurement of the spectrum mask as per FCC Part 15.407 (b)(4) and KDB 789033 II.G.2 (c) (ii). The measurement is repeated at the lowest, middle and highest channel and performed in a conducted way as defined in KDB 789033 II.G.3 (b).

The highest antenna gain is considered and was added to the Reference Level Offset. Emission levels are further adjusted to consider the number of antenna outputs (2).

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	$\geq 3 \times \text{RBW}$
Span:	See plots!
Trace mode:	Max Hold
Test setup:	See sub clause 7.5 – A
Measurement uncertainty:	See chapter 9

Limits:

FCC Part 15.407 (b)(4)
All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Result:

See external result file 1-8801-24-01-18_TR1-A201-R1.pdf

12.10 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:

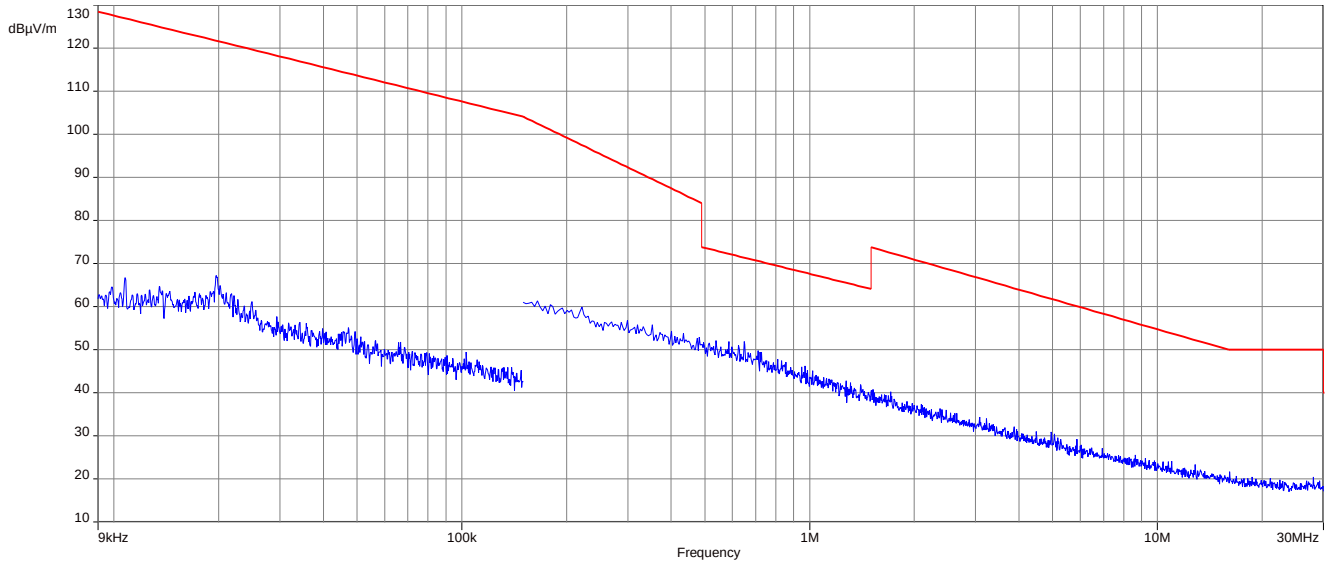
Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (μV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Results:

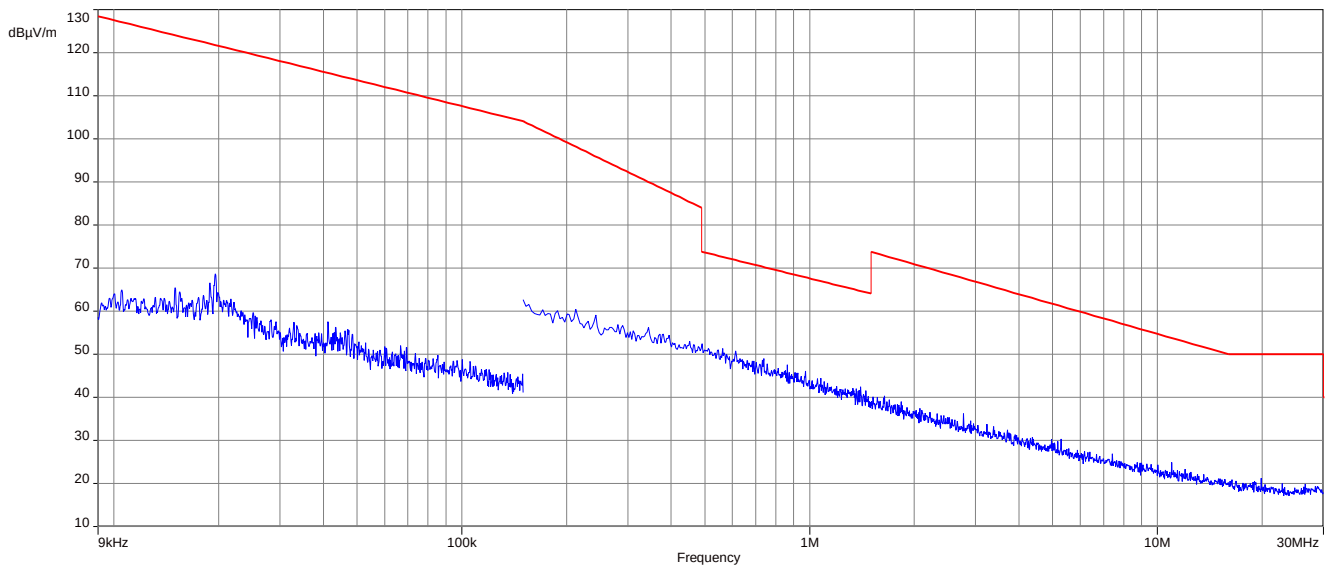
Spurious Emissions Radiated < 30 MHz [dBμV/m]		
F [MHz]	Detector	Level [dBμV/m]
All detected emissions are more than 20 dB below the limit.		

Plots: 20 MHz channel bandwidth

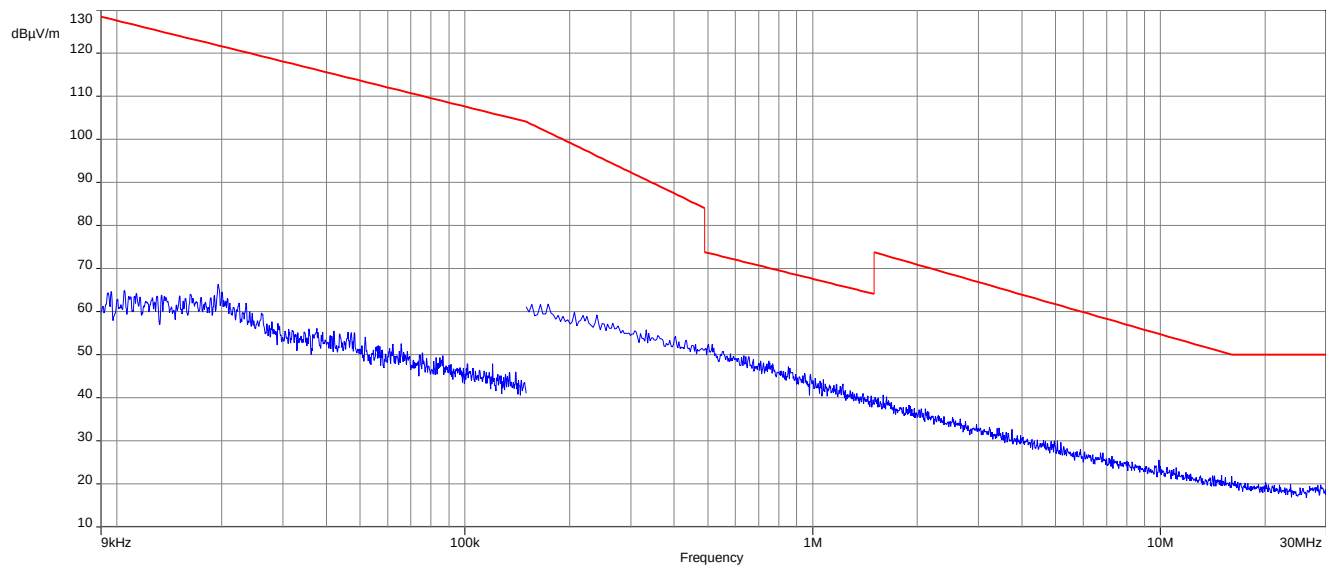
Plot 1: 9 kHz to 30 MHz, U-NII-3; lowest channel



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

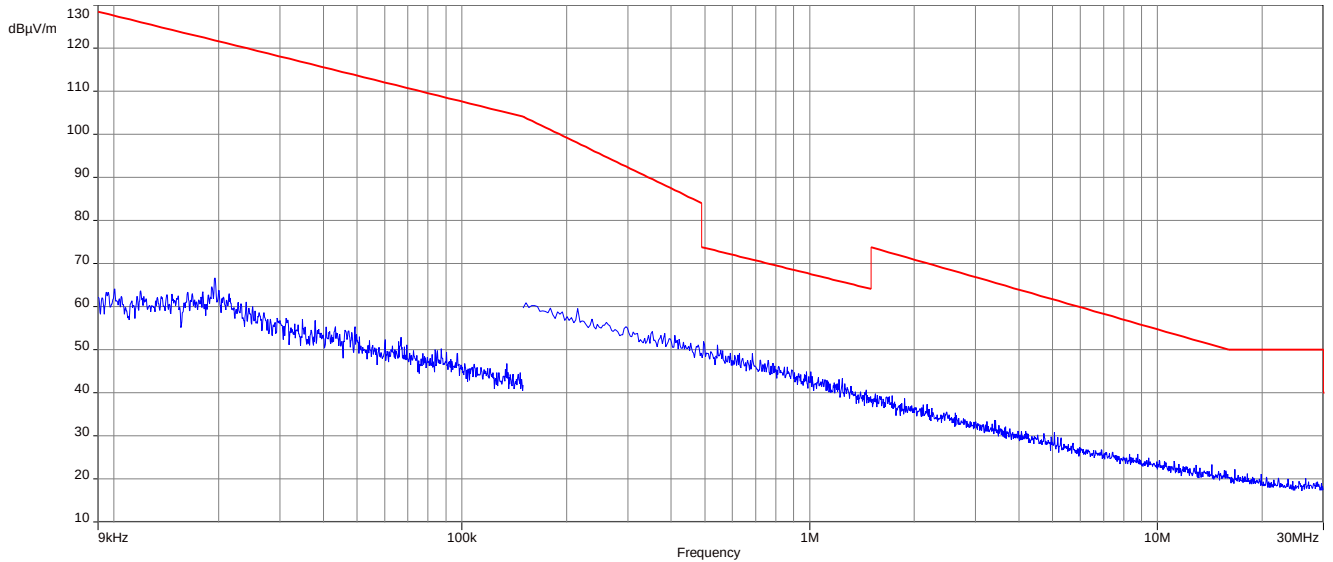


Plot 3: 9 kHz to 30 MHz, U-NII-3; highest channel

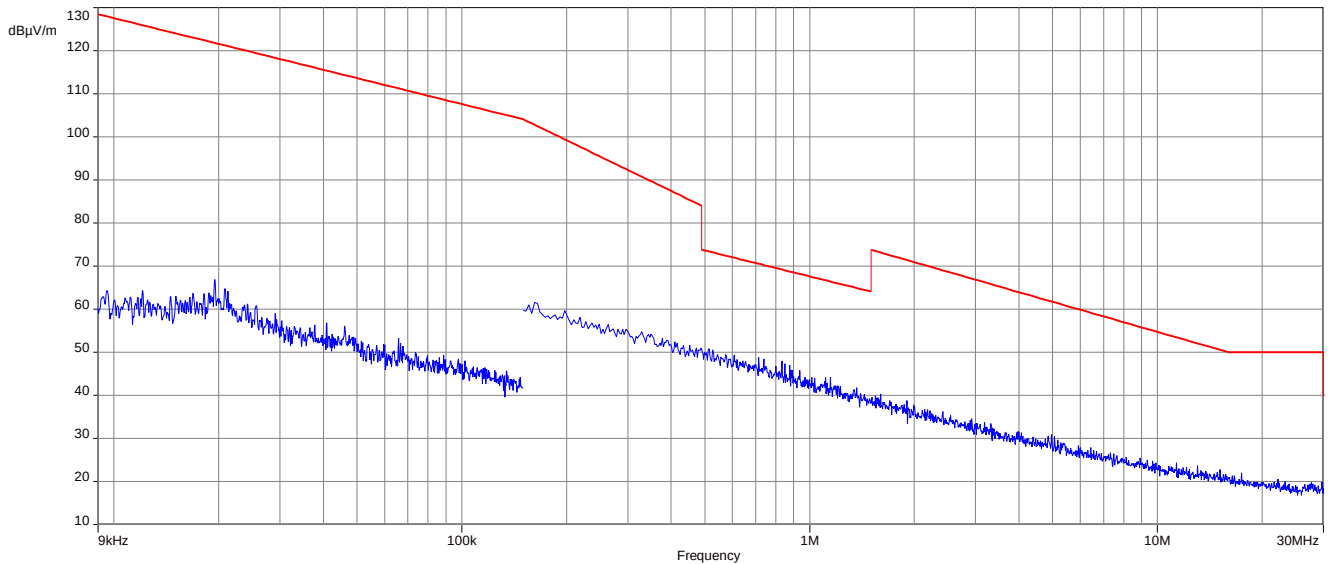


Plots: 40 MHz channel bandwidth

Plot 1: 9 kHz to 30 MHz, U-NII-3; lowest channel

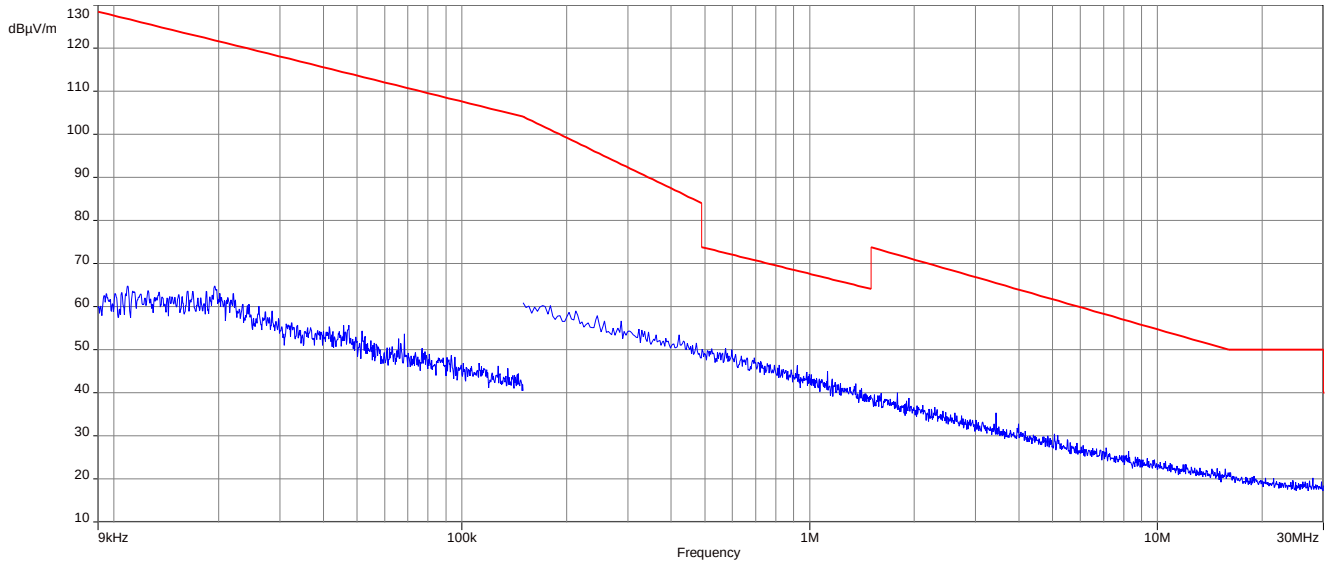


Plot 2: 9 kHz to 30 MHz, U-NII-3; highest channel



Plots: 80 MHz channel bandwidth

Plot 1: 9 kHz to 30 MHz, U-NII-3; middle channel



12.11 Spurious emissions radiated 30 MHz to 1 GHz

Description:

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

Measurement:

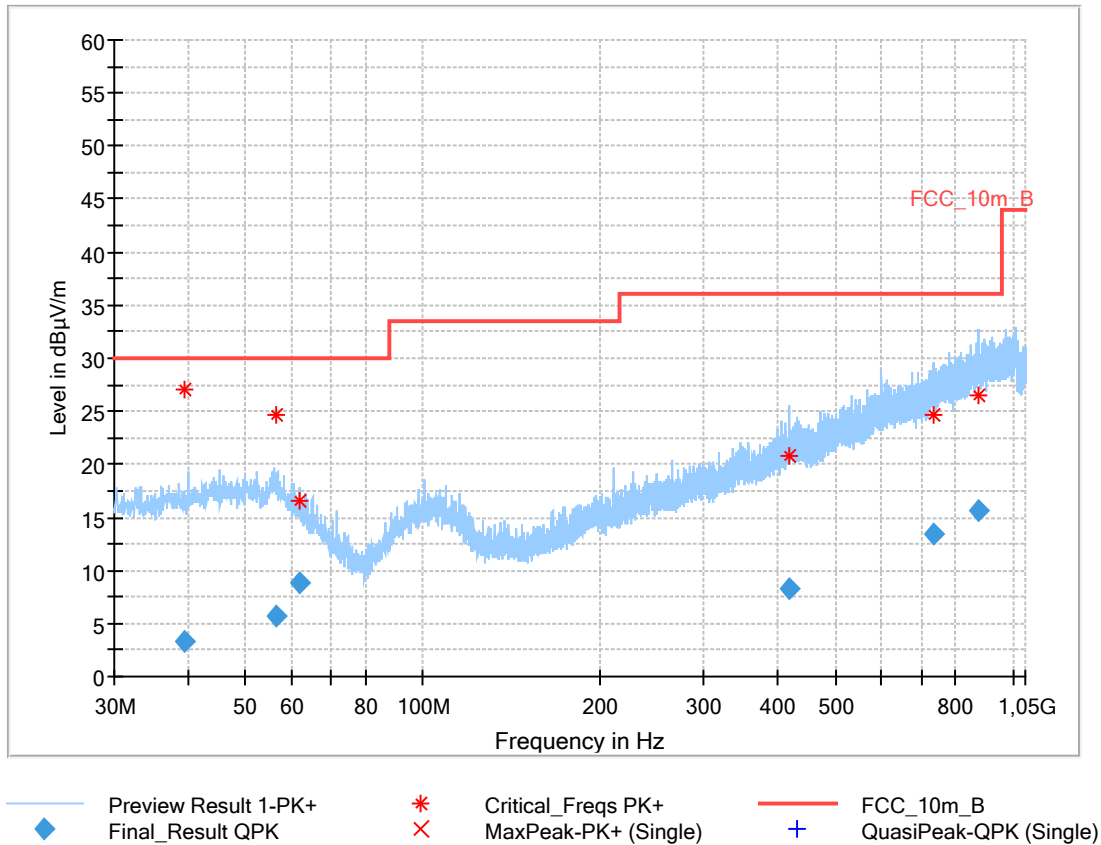
Measurement parameter	
Detector:	Quasi Peak
Sweep time:	Auto
Resolution bandwidth:	120 kHz
Video bandwidth:	500 kHz
Span:	30 MHz to 1 GHz
Test setup:	See sub clause 7.1 – A
Measurement uncertainty:	See chapter 9

Limits:

TX Spurious Emissions Radiated		
§15.209 / RSS-247		
Frequency (MHz)	Field Strength (dB μ V/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: 20 MHz channel bandwidth

Plot 1: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; middle channel

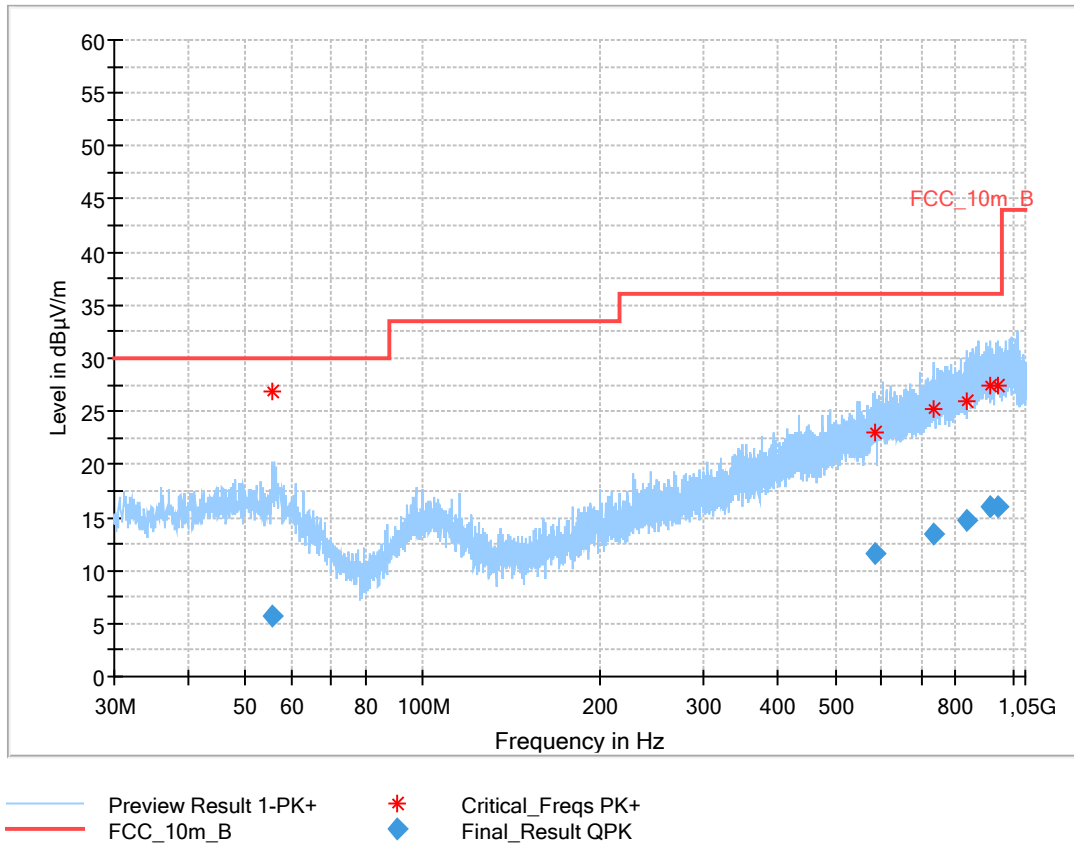


Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.536	3.29	30.0	26.7	1000	120.0	379.0	H	-1	14
56.549	5.70	30.0	24.3	1000	120.0	190.0	V	136	16
61.985	8.81	30.0	21.2	1000	120.0	166.0	V	317	13
417.482	8.25	36.0	27.8	1000	120.0	200.0	V	87	19
735.376	13.43	36.0	22.6	1000	120.0	142.0	V	90	23
871.373	15.62	36.0	20.4	1000	120.0	323.0	H	306	25

Plots: 40 MHz channel bandwidth

Plot 1: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

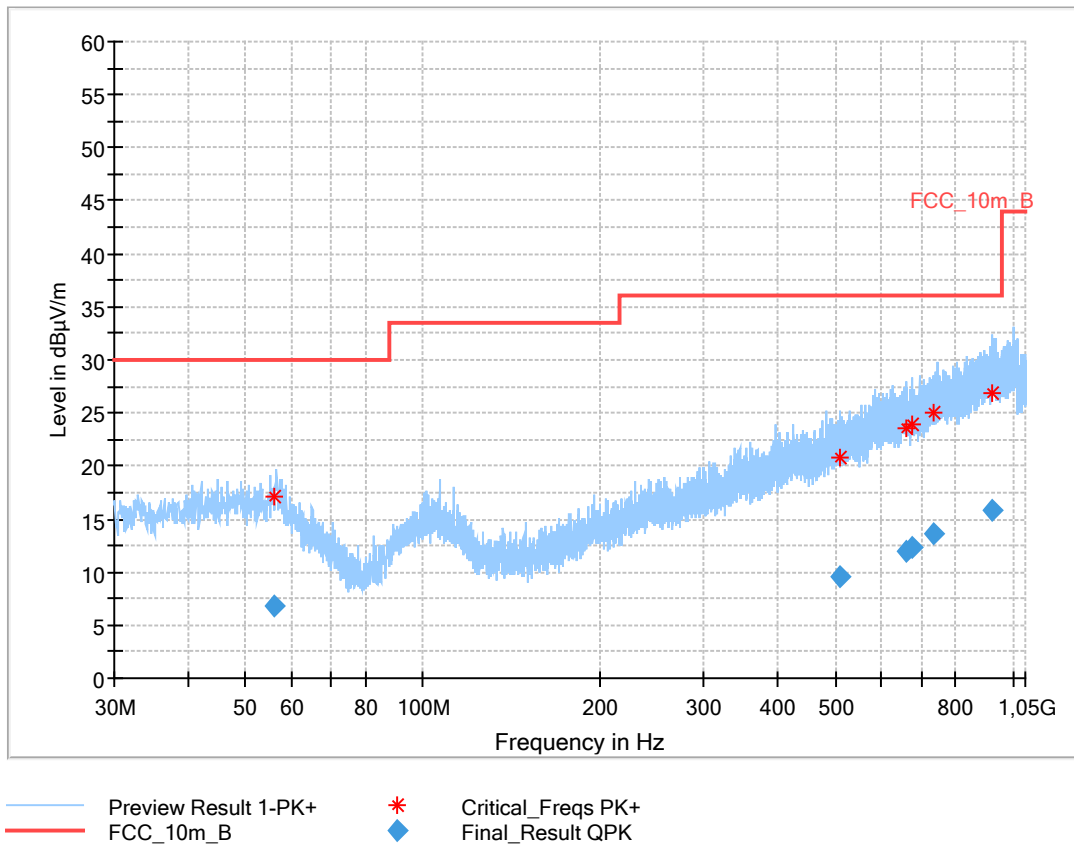


Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
55.703	5.70	30.0	24.3	1000	120.0	160.0	V	198	16
582.965	11.58	36.0	24.4	1000	120.0	195.0	H	149	21
732.911	13.40	36.0	22.6	1000	120.0	195.0	H	194	23
835.932	14.70	36.0	21.3	1000	120.0	168.0	H	187	24
915.881	16.02	36.0	20.0	1000	120.0	110.0	H	142	25
941.519	15.98	36.0	20.0	1000	120.0	176.0	V	163	25

Plots: 80 MHz channel bandwidth

Plot 1: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Results:

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
56.028	6.85	30.0	23.2	1000	120.0	177.0	V	37	16
507.879	9.63	36.0	26.4	1000	120.0	195.0	H	77	20
659.766	11.96	36.0	24.0	1000	120.0	195.0	H	28	22
675.061	12.27	36.0	23.7	1000	120.0	195.0	V	283	22
735.549	13.57	36.0	22.4	1000	120.0	195.0	H	210	23
922.677	15.90	36.0	20.1	1000	120.0	195.0	V	269	25

12.12 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:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / 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 – A 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 [dB μ V/m] / dBm								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
1400	Peak	43.2	1400	Peak	43.2	1400	Peak	43.2
	AVG	38.6		AVG	38.6		AVG	38.6
7660	Peak	46.2	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	40.2		AVG	-/-		AVG	-/-
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

Results: 40 MHz channel bandwidth

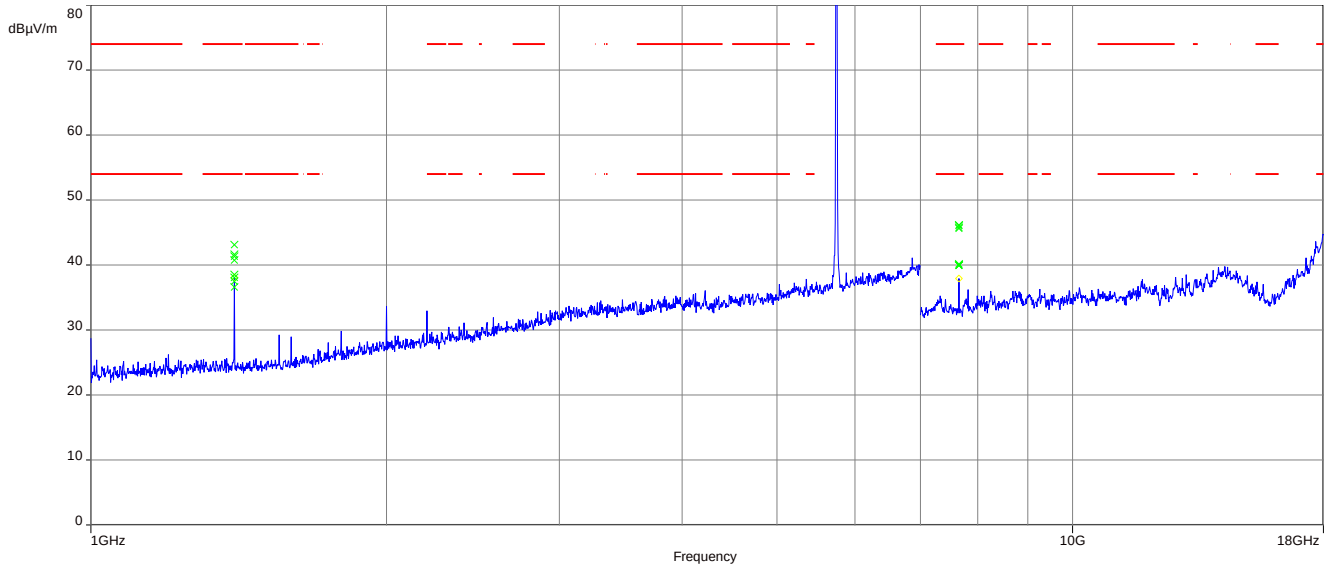
TX Spurious Emissions Radiated [dB μ V/m] / dBm						
U-NII-3 (5725 MHz to 5850 MHz)						
Lowest channel						
F [MHz]	Detector	Level [dB μ V/m]				
1400	Peak	43.2				
	AVG	38.6				
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			

Results: 80 MHz channel bandwidth

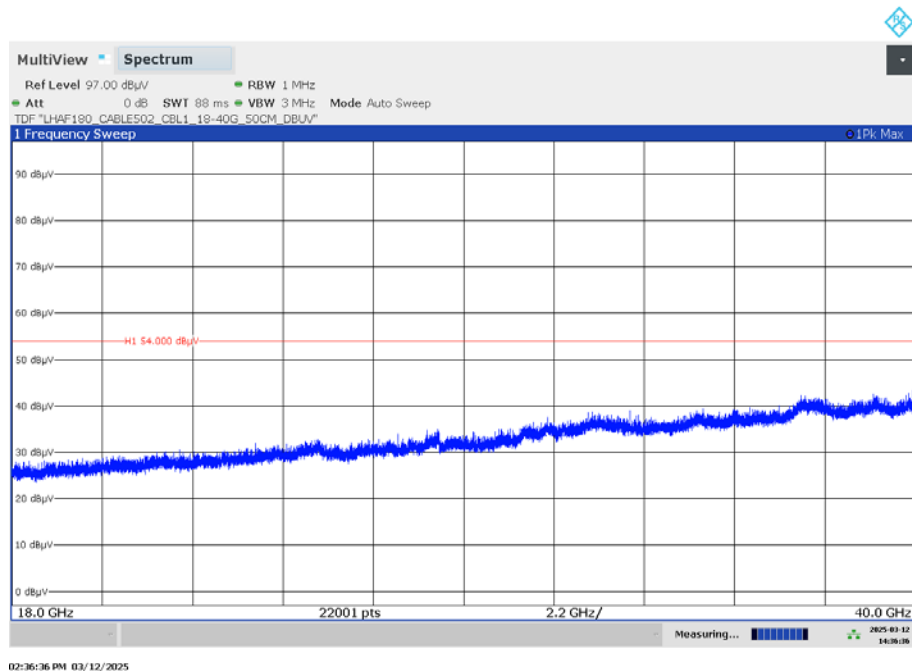
TX Spurious Emissions Radiated [dB μ V/m] / dBm		
U-NII-3 (5725 MHz to 5850 MHz)		
Middle channel		
F [MHz]	Detector	Level [dB μ V/m]
1400	Peak	43.2
	AVG	38.6
For emissions above 18 GHz please take look at the plots.		

Plots: 20 MHz channel bandwidth

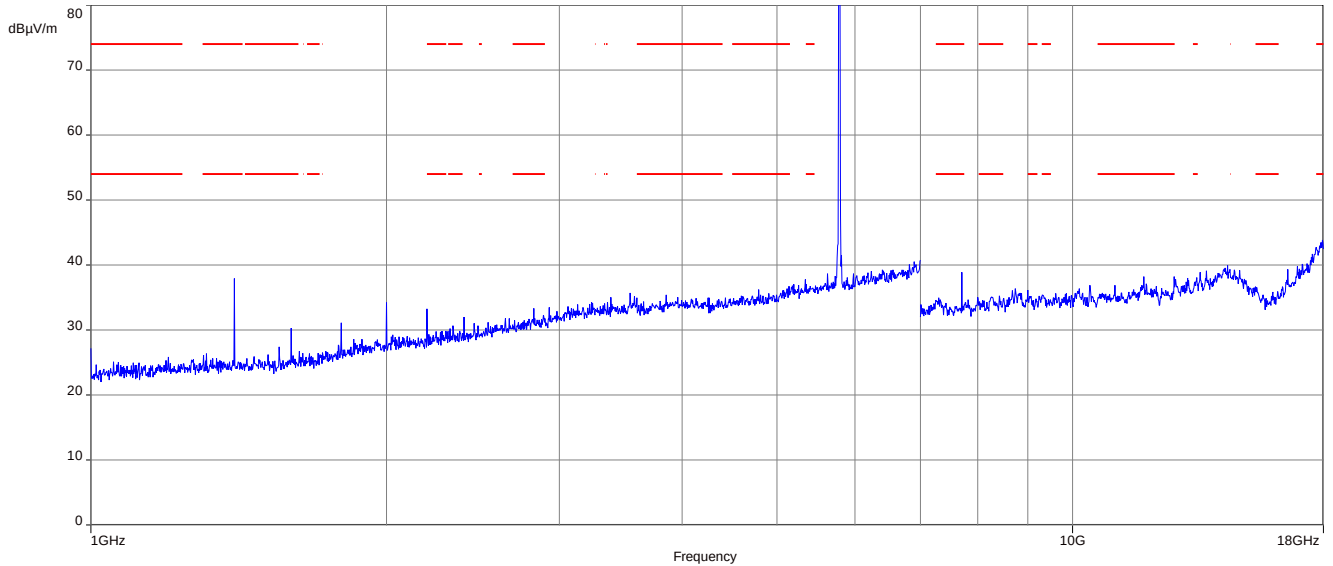
Plot 1: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



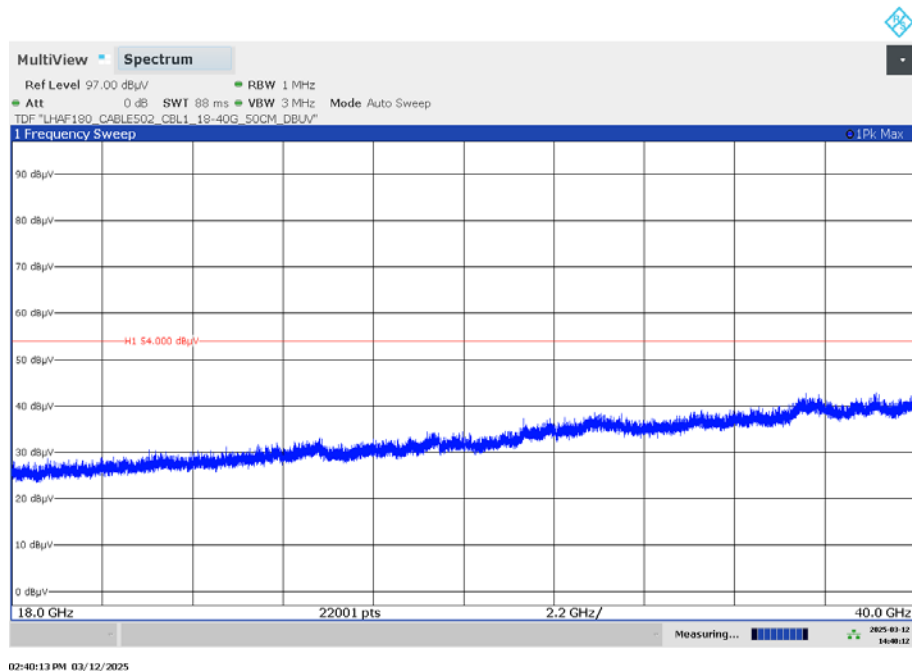
Plot 2: 18 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

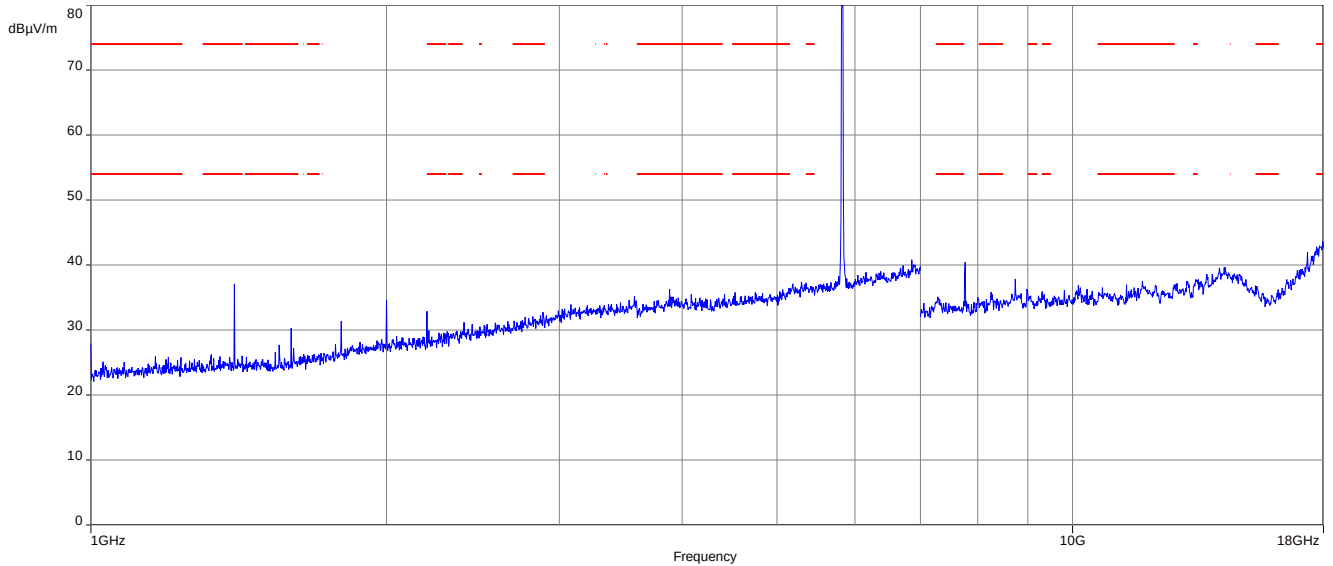
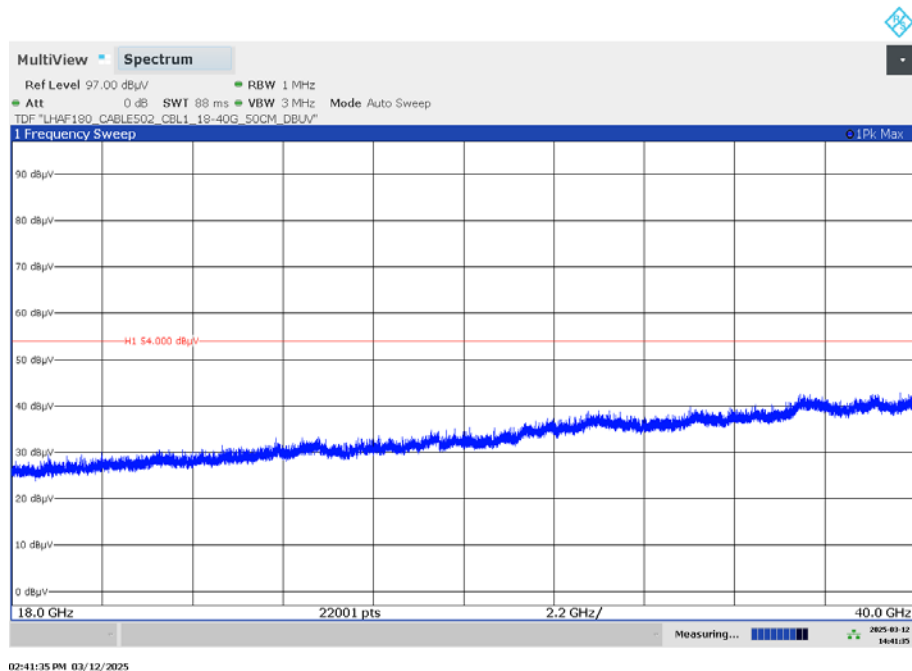


Plot 3: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel



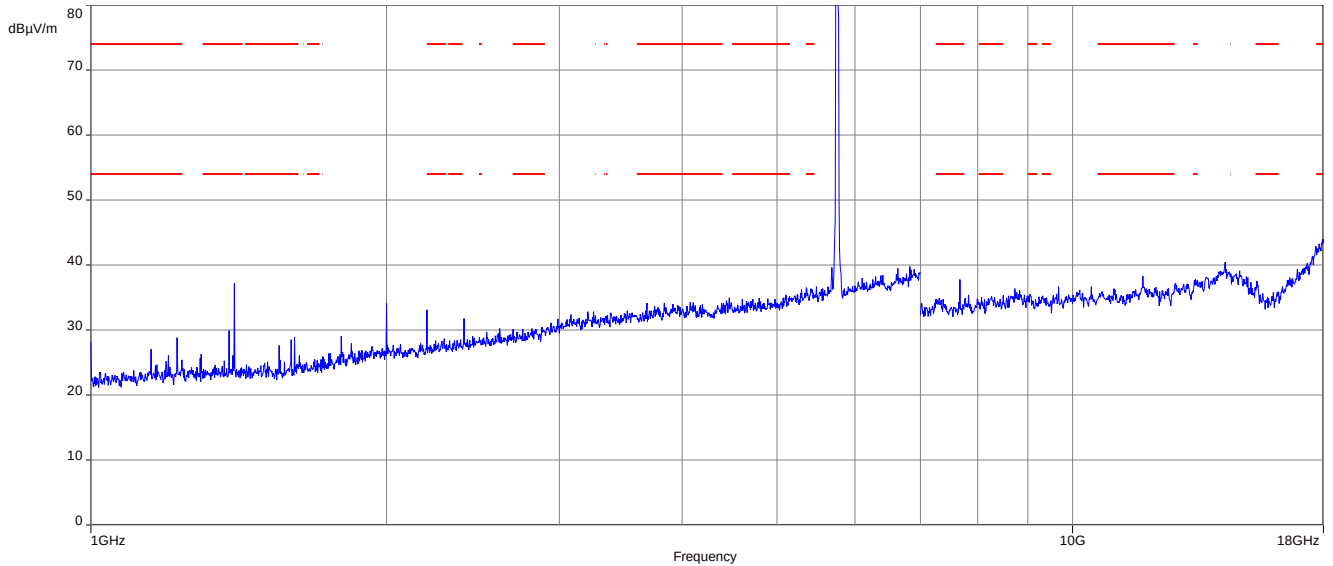
Plot 4: 18 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; middle channel



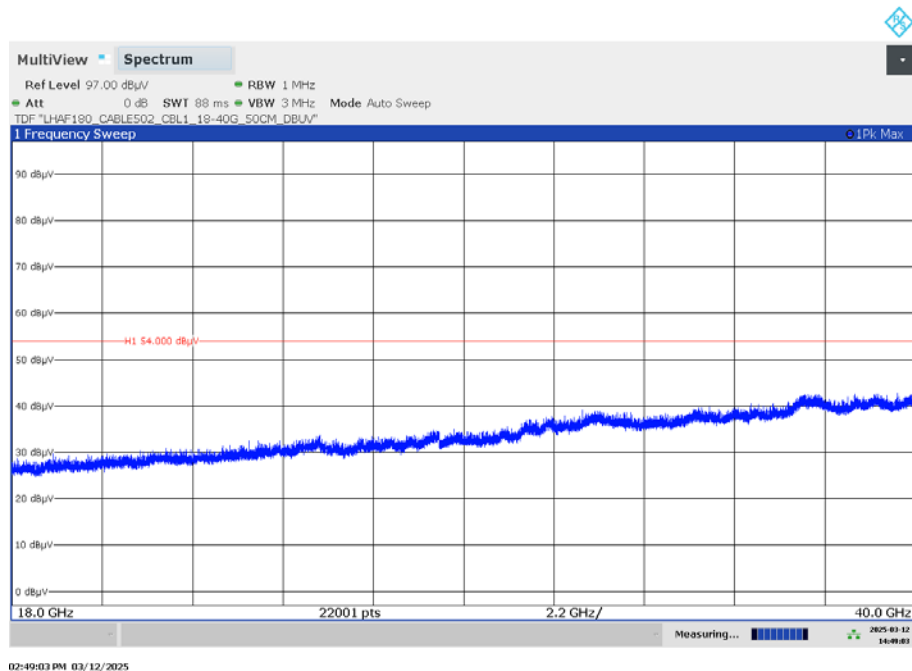
Plot 5: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Plot 6:** 18 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; highest channel

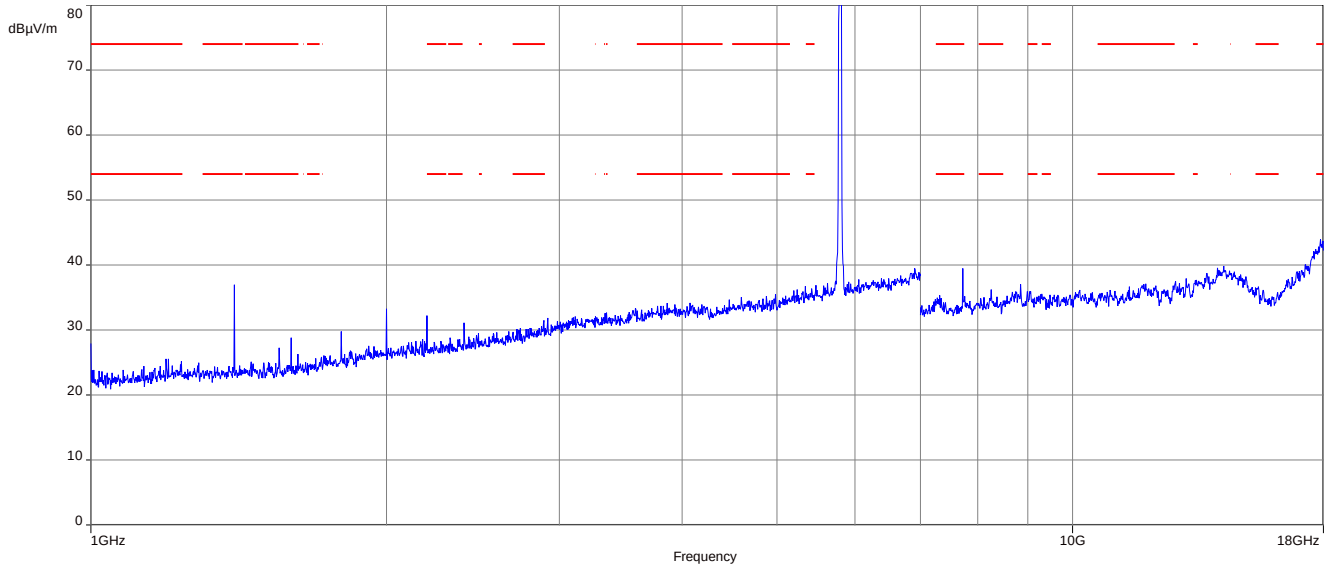
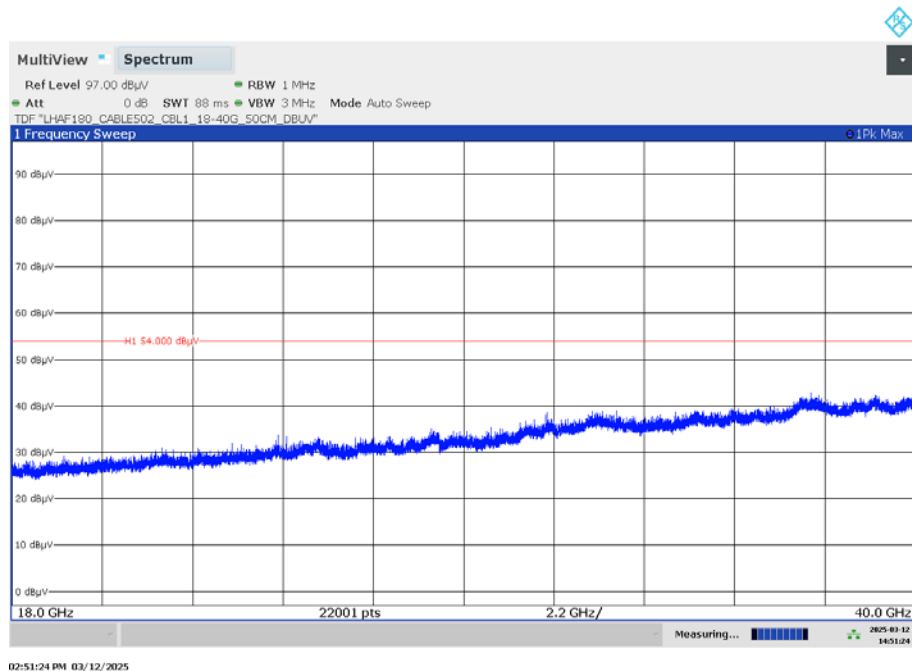
Plots: 40 MHz channel bandwidth

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



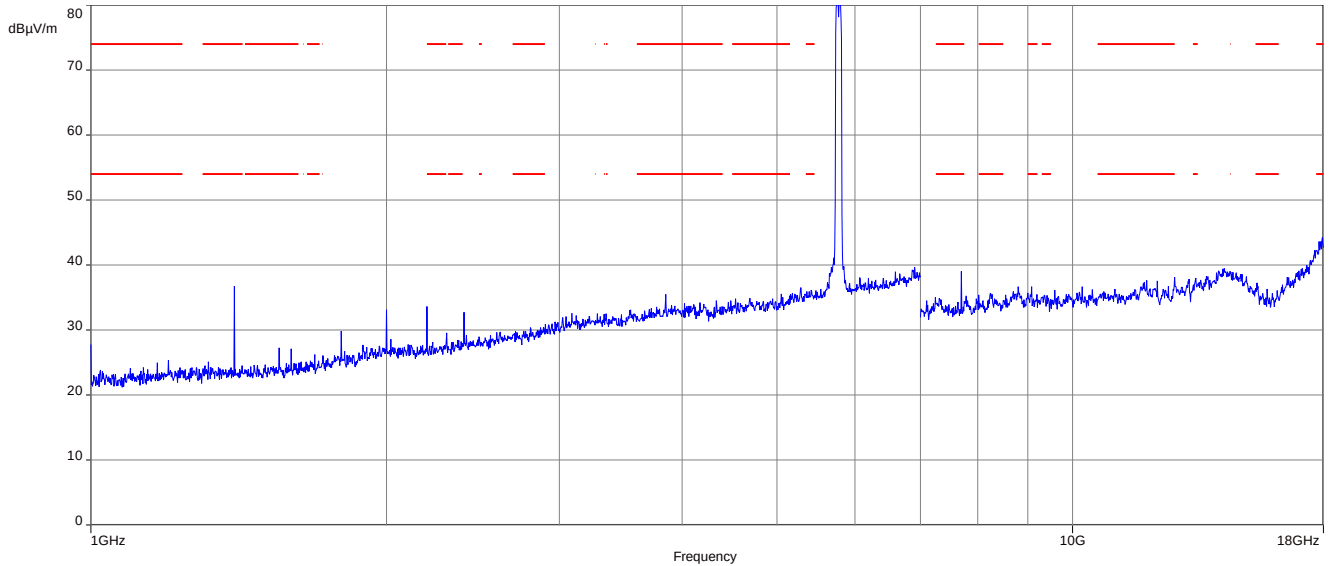
Plot 2: 18 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



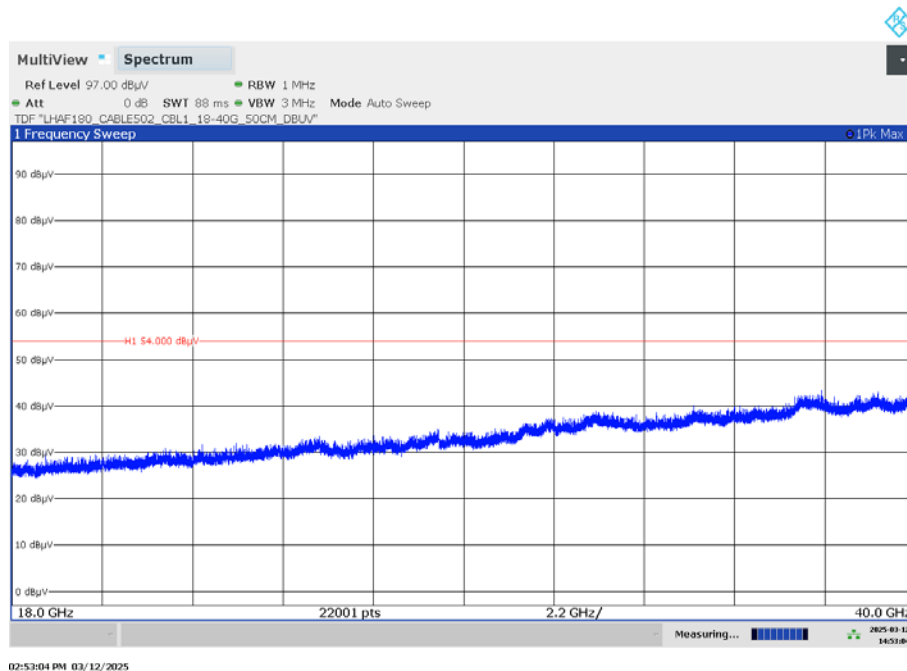
Plot 3: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Plot 4:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; highest channel

Plots: 80 MHz channel bandwidth

Plot 5: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Plot 6: 18 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; middle channel



12.13 Spurious emissions conducted < 30 MHz

Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to middle channel. If critical peaks are found the lowest channel and the highest channel will be measured too. Both power lines, phase and neutral line, are measured. Found peaks are re-measured with average and quasi peak detection to show compliance to the limits.

Measurement:

Measurement parameter	
Detector:	Peak - Quasi Peak / Average
Sweep time:	Auto
Video bandwidth:	9 kHz
Resolution bandwidth:	100 kHz
Span:	150 kHz to 30 MHz
Trace mode:	Max Hold
Test setup:	See sub clause 7.4 – A
Measurement uncertainty:	See chapter 9

Limits:

Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

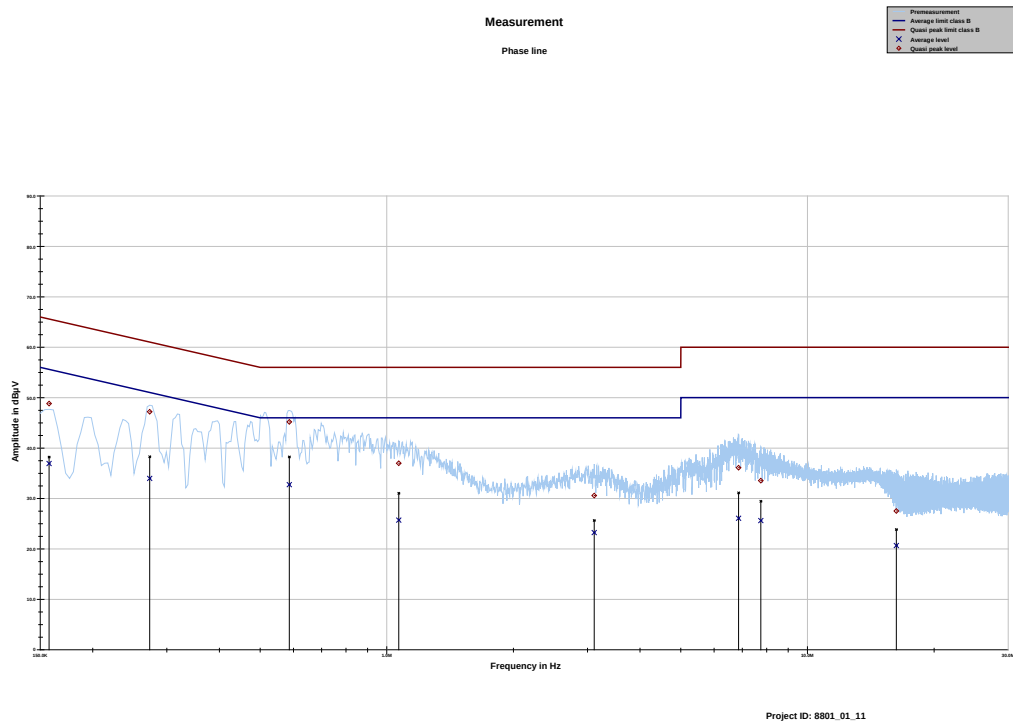
*Decreases with the logarithm of the frequency

Results:

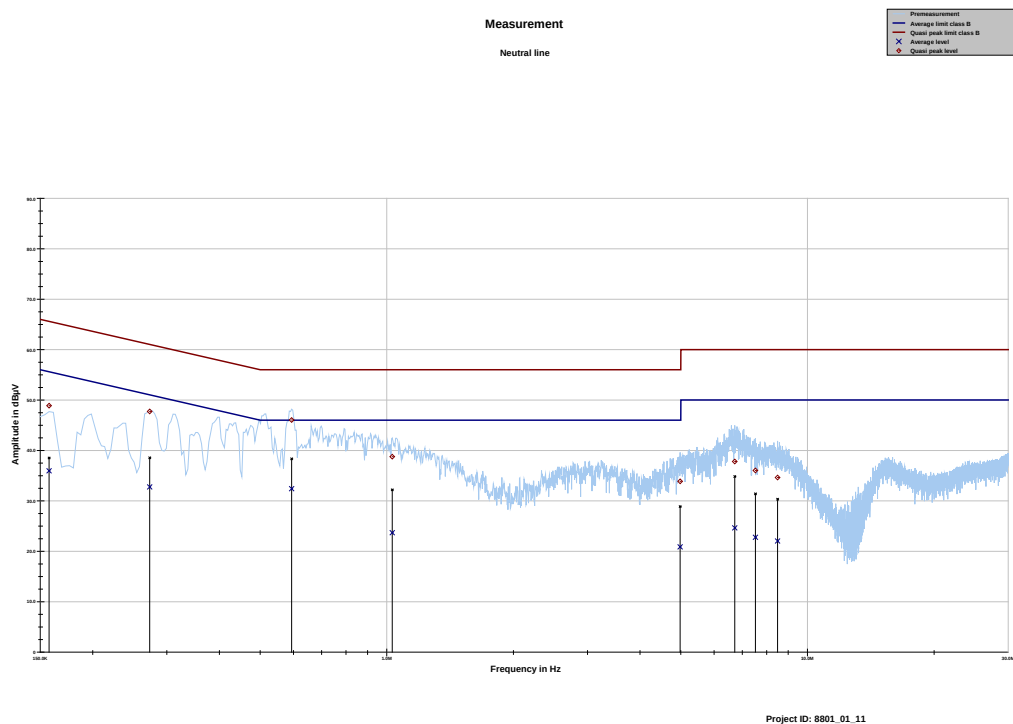
Spurious Emissions Conducted < 30 MHz [dB μ V/m]		
F [MHz]	Detector	Level [dB μ V/m]
All detected emissions are more than 20 dB below the limit.		

Plots:

Plot 1: 150 kHz to 30 MHz, phase line



Plot 2: 150 kHz to 30 MHz, neutral line



13 Observations

No observations except those reported with the single test cases have been made.

14 Glossary

AVG	Average
C	Compliant
C/N₀	Carrier to noise-density ratio, expressed in dB-Hz
CAC	Channel availability check
CW	Clean wave
DC	Duty cycle
DFS	Dynamic frequency selection
DSSS	Dynamic sequence spread spectrum
DUT	Device under test
EMC	Electromagnetic Compatibility
EUT	Equipment under test
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
FHSS	Frequency hopping spread spectrum
FVIN	Firmware version identification number
HMN	Host marketing name
HVIN	Hardware version identification number
HW	Hardware
IC	Industry Canada
Inv. No.	Inventory number
MC	Modulated carrier
NA	Not applicable
NC	Not compliant
NOP	Non occupancy period
NP	Not performed
OBW	Occupied bandwidth
OC	Operating channel
OCW	Operating channel bandwidth
OFDM	Orthogonal frequency division multiplexing
OOB	Out of band
OP	Occupancy period
PMN	Product marketing name
PP	Positive peak
QP	Quasi peak
RLAN	Radio local area network
S/N or SN	Serial number
SW	Software
UUT	Unit under test
WLAN	Wireless local area network

15 Document history

Version	Applied changes	Date of release
R01	Initial release	2025-03-27

END OF TEST REPORT