

FCC, ISED Test Report (Part 15C, RSS-Gen, RSS-216) WPT

Test report no.:	LAB-1050A (v4.0)	Date of report:	14-Aug-2025
Number of pages:	48	Lab project responsible:	Oliver Flecke
Test period:	07-Apr-2025 to 24-Apr-2025		

Applicant:	Molex Technologies GmbH, Mizarstrasse 3, 12529 Schönefeld, Germany, Mr. Dominik Liedmann		
Manufacturer:	Molex Technologies GmbH, Mizarstrasse 3, 12529 Schönefeld, Germany		
EUT identification:	Molex, WCH-PF30 (WCH-307b, WCH-307c, WCH-307d)		
FCC ID:	RK7WCH-PF30	ISED ID:	4774A-WCHPF30

Testing laboratory:	Molex CVS Lab, Molex CVS Bochum GmbH, Meesmannstr.103, 44807 Bochum, Germany		
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	e-mail:	Product.Validation.Bochum@molex.com	
	FCC designation no.:	DE0017	ISED recognition no.: DE0015
	Laboratory manager:	Robert Müller	

Test result:	The EUT complies with the requirements made in the referred test documents.
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Approver:	Ines Baufeld	Technical review:	Frank Wittmann
Title:	Laboratory Quality Manager	Title:	Senior Test Engineer EMC

Signature:  **Signature:** 

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Lab project responsible: Oliver Flecke
Date of issue: 14-Aug-2025
Report no.: LAB-1050A (v4.0)

FCC, ISED Test Report (RK7WCH-PF30, 4774A-WCHPF30)
Template Version 11.0
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Version History

Report Number	Date	Comment
LAB-1050A (v1.0)	11-Jul-2025	1 st approved version
LAB-1050A (v2.0)	11-Jul-2025	2 nd approved version, SW version corrected
LAB-1050A (v3.0)	12-Aug-2025	3 rd approved version, added plots for 5 W OBW measurement results
LAB-1050A (v4.0)	14-Aug-2025	4 th approved version, updated EUT information as declared by manufacturer

Former issued versions of this report are declared as invalid.

1. Summary for FCC Part 15C Test Report

Date of receipt	07-Apr-2025
Testing completed	24-Apr-2025
The customer's contact person	Mr. Dominik Liedmann
Test samples / setup pictures	LAB-1050C_FCC_EUT_&_WPT_Test_Setup_Photo_Report
HW change / difference document	1.3_WCH-PF30_Difference_document_1.0
Notes	none

1.1. EUT and accessory Information

The EUT is an inductive wireless power transfer device (wireless charger) with transmitter and load modulation operating at 127.55 kHz. The EUT is tested with an artificial load, continuous maximum load 15 W and maximum duty cycle of 100 %.

The following test samples provided by the customer were tested.

ID	Description	Manufacturer	Type	S/N	HW Version	SW Version
250394	WPT Device	Molex	WCH-PF30	PA-01250690021	01	01
250395	WPT Device	Molex	WCH-PF30	PA-01250690019	01	01

The following accessories have been provided by the customer and belong to the equipment under test (EUT).

ID	Description	Manufacturer	Type	S/N	HW Version	SW Version
230571	System power cable	Molex	-	-	-	-
230577	System power cable	Molex	-	-	-	-
230676	Load receiver (15 W)	Molex	TREC-CF	00000356A5A9	2.0	-
230678	Load receiver (15 W)	Molex	TREC-CF	00000356A58E	2.0	-
NOV16024E	Load receiver (5 W)	Molex	-	0001	1.0	-
DAB2220069	Load receiver (5 W)	Molex	-	-	1.0	-
230802	Rubber mat	Molex	-	-	-	-
230805	Rubber mat	Molex	-	-	-	-

1.2. Technical characteristics

Power Supply	Lead-acid battery (vehicle regulated) – 12 V DC		
Voltage Range	$U_{nom} = 13.2 \text{ V}$	$U_{min} = 11.2 \text{ V}$	$U_{max} = 15.2 \text{ V}$
Charging cut-off Voltage @ 15W	$U_{cut-off} = 9.0 \text{ V}$ (wireless power transfer is stopped for $U < U_{cut-off}$)		
Temperatures Range	$-40 \text{ }^{\circ}\text{C} \dots +85 \text{ }^{\circ}\text{C}$ (WPT $+60 \text{ }^{\circ}\text{C}$)		
Radio Type	WPT transceiver		
Product Category	Category I radio apparatus (type 3)		
Operating Frequency Range	127.55 kHz		
Communication Frequency	Same as operating frequency range		
Operating Channels	Not channelized		
Antenna Type	Integral inductive loop coils (no customization allowed)		
Antenna Gain [dBi]	n.a.		
Modulation Type	5 W mode: H-field for charging is not modulated 15 W mode: H-field for charging is digital modulated		
Modulation Technique	5 W mode: H-field for charging is not modulated 15 W mode: H-field for charging is FSK modulated		

The above technical information was provided by the applicant. For more details, please refer to the User's manual of the EUT.

1.3. Applied standards

Standard / Rule Part	Version	Year
CFR 47, FCC Part 15C	-	Jul-2025
ANSI C63.10	-	Sep-2020 (+COR1 2023)
ANSI C63.10a	-	Aug-2024
ANSI C63.30	-	Mar-2021
ISED RSS-Gen	Issue 5 +AMD1 +AMD2	Feb-2021
ISED RSS-216	Issue 3	Sep-2024

Deviations or clarifications to these standards are noted in the related test result under “test method and limit”.

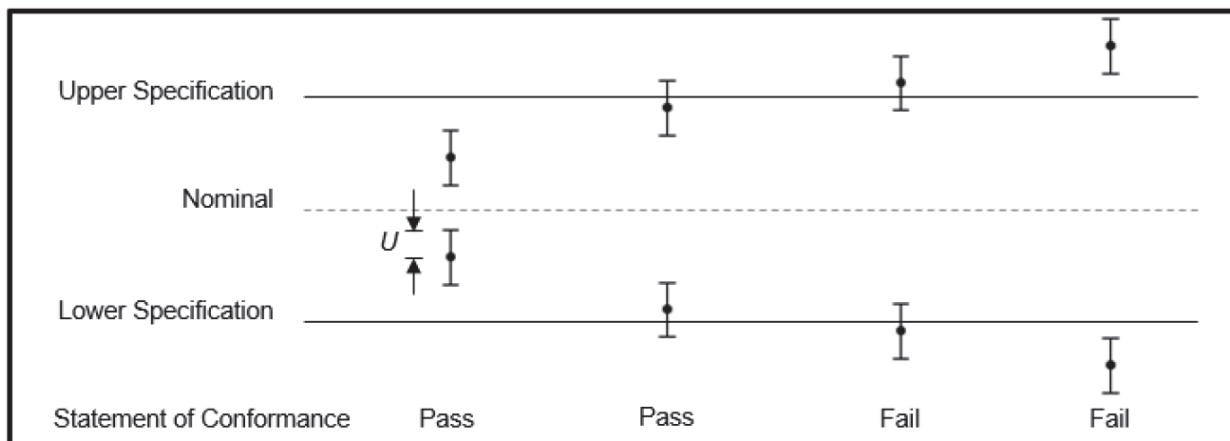
1.4. Measurement uncertainties

Parameter	Measurement Uncertainty	Maximum Uncertainty
Radio Frequency	$\pm 1.0 \times 10^{-7}$	$\pm 1 \times 10^{-5}$
Total RF Power, conducted	± 0.79 dB	± 1.5 dB
RF Power density, conducted	± 0.79 dB	± 3.0 dB
Spurious emissions, conducted	± 1.67 dB	± 3.0 dB
All emissions, radiated	± 5.21 dB	± 6.0 dB
Temperature	± 1.0 °C	± 3.0 °C
Humidity	± 2.0 %	± 5.0 %

These uncertainties represent an expanded uncertainty expressed approximately at the 95 % confidence level using a coverage factor of $k=2$

1.5. Decision Rule

Unless it is inherent in the requested customer specification or test standard, the “Binary Statement for Simple Acceptance” as defined in ILAC G8:2019 clause 4.2.1 is applied as decision rule for the conformity statement, see the following picture. Therefore, the measured values are compared directly with the limit values without taking the measurement uncertainty into account.



U = 95% expanded measurement uncertainty

1.6. Risk Assessment

Following the guidance of ILAC G8:2019 clause 5.2, the level of specific risk of False Accept or False Reject considering different decision rules and respectively expanded measurement uncertainties can be expressed as follows.

Decision Rule	Distance of Measurement Value to Limit	Probability of wrong Conformity Statement
6 Sigma	3 x Measurement Uncertainty	< 1 ppm
3 Sigma	1.5 x Measurement Uncertainty	< 0.16 %
ILAC G8:2009 Rule	1 x Measurement Uncertainty	< 2.5 %
ISO 14253.1:2017	0.83 x Measurement Uncertainty	< 5 %
Simple Acceptance, ILAC G8:2009 4.2.1	Measurement Value on Limit Line	50 % "worst case" scenario

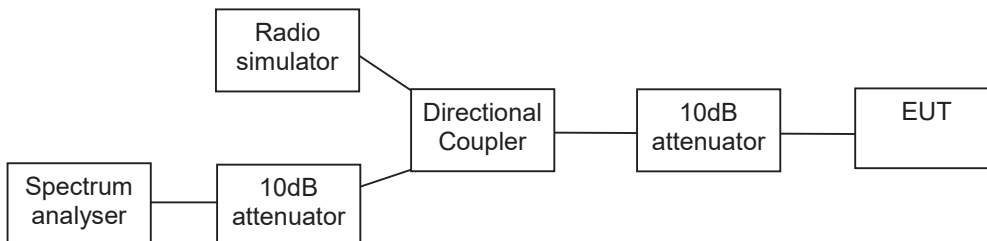
1.7. Summary of test results

Section	Section in CFR 47	Section in RSS-Gen	Section in RSS-216	Name of the test	Result
3	15.205, 15.209	8.9, 8.10	5.3.3.1, 5.3.1 (Type 3 WPT devices)	Radiated emissions below 30 MHz	PASSED
4	15.205, 15.209	8.9, 8.10	5.3.3.2, 5.3.1 (Type 3 WPT devices)	Radiated emissions above 30 MHz	PASSED
-	15.207	-	5.3.2	AC powerline conducted emissions	NA
5	-	-	5.5	Frequency stability, temperature variation	PASSED
6	-	-	5.5	Frequency stability, voltage variation	PASSED
7	15.215 (c)	6.7	-	Occupied bandwidth	PASSED

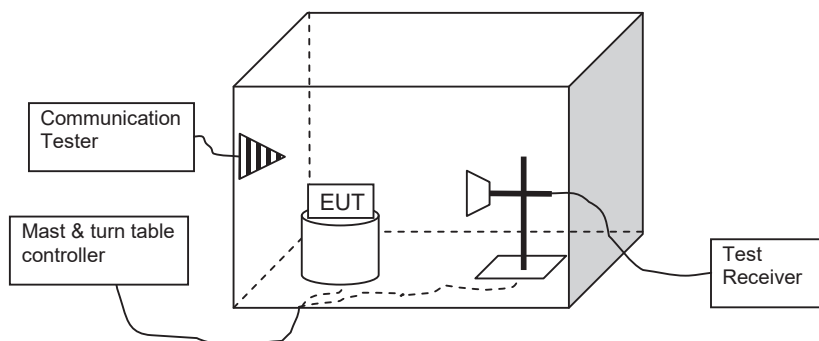
PASSED: The EUT complies with the essential requirements in the standard.
 FAILED: The EUT does not comply with the essential requirements in the standard.
 NP: The test was not performed.
 NA: The test was not applicable.

2. Test setups

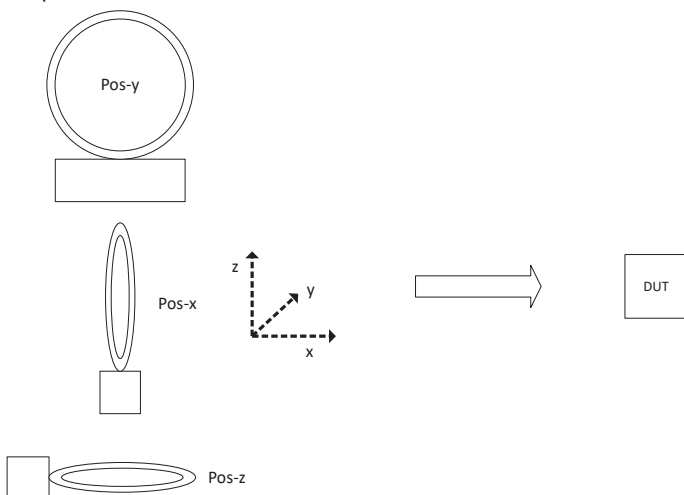
2.1. Conducted radio test setup (Setup 1)



2.2. Radiated emissions test setup (Setup 2)



Loop Antenna orientation:



3. Radiated emissions below 30 MHz

EUT with DUT number	250394
Accessories with DUT numbers	230577, 230678, 230805, DAB2220069
Operation voltage	13.2 V / DC
Result	PASSED
Remarks	none
Temperature / humidity	+15 °C to +35 °C / 20 % to 75 %
Date of measurement	15-Apr-2025 to 24-Apr-2025
Test responsible	Frank Wittmann
Test system SW / version / configuration	Rohde & Schwarz EMC32 / 11.70.00 / v2.2

3.1. Test method and limit

The measurement is made according to ANSI C63.10, ANSI C63.30 and RSS-216 (Annex A) as follows:

- ⇒ The measurement distance is 3 m with a shielded loop antenna. The magnetic field to electric field conversion factor is 51.5 dB ($\text{dB}\mu\text{A/m} = \text{dB}\mu\text{V/m} - 51.5 \text{ dB}$).
- ⇒ The FCC limit has been adjusted with the distance correction factor according to 15.31(f)(2). (+40 dB for 30 m distance and +80 dB for 300 m distance)
- ⇒ The measurement is divided into the Preliminary Measurement and the Final Measurement.
The Preliminary Measurement and the Final Measurement are performed with the measuring antenna at 1m height. The equipment under test (EUT) is located on an 80 cm table, which is rotated by 360 degrees. The DUT is positioned in horizontal position on the test table.
- ⇒ During the Preliminary Measurement, the suspected frequencies are searched by using the PK detector and the measuring antenna is turned in 3 orthogonal positions (x-, y-, z-pos) to find out worst case position.
In the Final Measurement the exact frequency and amplitude of these emissions are re-measured by using the applicable QP and AV detector.
- ⇒ The Final Measurement is performed if the Preliminary Measurement results are closer than 20 dB to the permissible limit.
- ⇒ The measurement results are obtained as described in the following formula: $E [\text{dB}\mu\text{V/m}] = U_{\text{RX}} + A_{\text{CF}}$
Where U_{RX} is receiver reading and A_{CF} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{\text{CF}} = L_{\text{CABLES}} + \text{AF} - G_{\text{PREAMP}}$).
- ⇒ Example values for calculation of one final QP measurement frequency at 127.704 kHz, see result in 3.2.1:
 $E [\text{dB}\mu\text{V/m}] = 55.38 + 22.30 = 77.68$

FCC limits for radiated emission measurements at 3 m measurement distance.

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [$\text{dB}\mu\text{V/m}$]	Detector
0.009 – 0.090	2400 / F[kHz] (* 10000)	48.5 to 13.8 (+80 dB)	AV
0.090 – 0.110			QP
0.110 – 0.490			AV
0.490 – 1.705	24000 / F[kHz] (* 100)	33.8 to 23.0 (+40 dB)	QP
1.705 – 30.00	30 (* 100)	29.5 (+40 dB)	QP

ISED limits for radiated emission measurements at 3 m measurement distance.

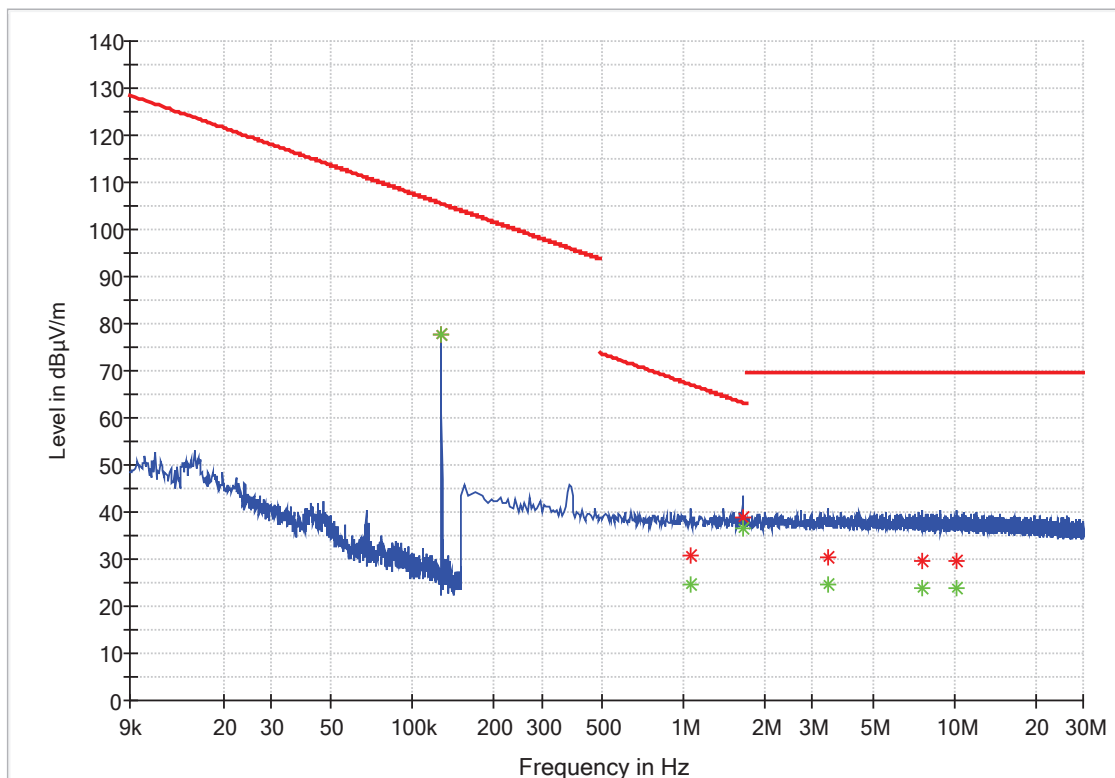
Frequency range [MHz]	Limit [$\text{dB}\mu\text{A/m}$]	Limit [$\text{dB}\mu\text{V/m}$]	Detector
0.009 – 0.070	69	120.5	QP
0.070 – 0.150	69 - 39	120.5 to 90.5	QP
0.150 – 30.00	39 - 7	90.5 to 58.5	QP

3.2. Test results (FCC)

3.2.1 5 W not modulated

DUT horizontal, Antenna x-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	77.68	105.48	27.80	15000.0	0.200	100.0	X-Pos	281.0	22.3	PASSED
1.065400	30.65	67.05	36.40	15000.0	9.000	100.0	X-Pos	245.0	22.2	PASSED
1.657425	38.66	63.22	24.55	15000.0	9.000	100.0	X-Pos	285.0	22.2	PASSED
3.403650	30.54	69.54	39.00	15000.0	9.000	100.0	X-Pos	259.0	22.3	PASSED
7.622450	29.75	69.54	39.79	15000.0	9.000	100.0	X-Pos	305.0	22.5	PASSED
10.174625	29.77	69.54	39.77	15000.0	9.000	100.0	X-Pos	165.0	22.6	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

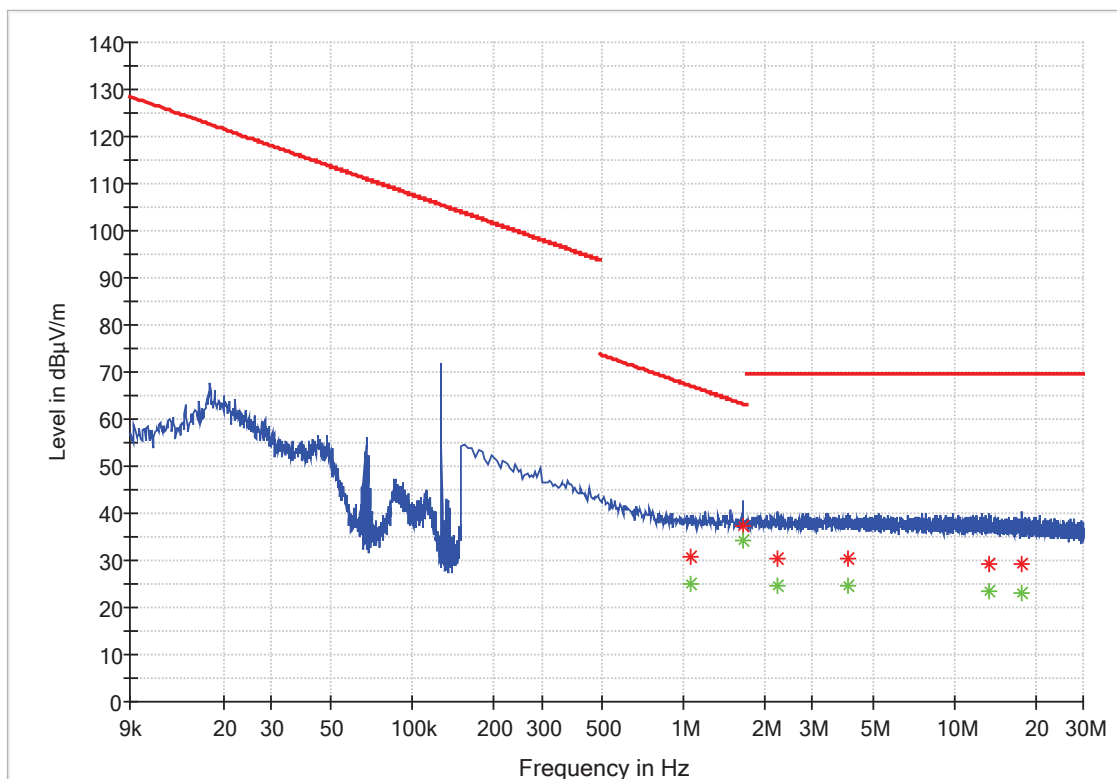
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	77.69	105.48	27.79	15000.0	0.200	100.0	X-Pos	281.0	22.3	PASSED
1.065400	24.75	67.05	42.30	15000.0	9.000	100.0	X-Pos	245.0	22.2	PASSED
1.657425	36.40	63.22	26.81	15000.0	9.000	100.0	X-Pos	285.0	22.2	PASSED
3.403650	24.50	69.54	45.04	15000.0	9.000	100.0	X-Pos	259.0	22.3	PASSED
7.622450	23.94	69.54	45.60	15000.0	9.000	100.0	X-Pos	305.0	22.5	PASSED
10.174625	23.87	69.54	45.67	15000.0	9.000	100.0	X-Pos	165.0	22.6	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna y-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
1.070375	30.89	67.01	36.13	15000.0	9.000	100.0	Y-Pos	226.0	22.2	PASSED
1.657425	37.23	63.22	25.98	15000.0	9.000	100.0	Y-Pos	9.0	22.2	PASSED
2.224575	30.42	69.54	39.12	15000.0	9.000	100.0	Y-Pos	27.0	22.2	PASSED
4.040450	30.36	69.54	39.18	15000.0	9.000	100.0	Y-Pos	342.0	22.3	PASSED
13.562600	29.40	69.54	40.14	15000.0	9.000	100.0	Y-Pos	54.0	22.8	PASSED
17.905775	29.13	69.54	40.41	15000.0	9.000	100.0	Y-Pos	201.0	23.0	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

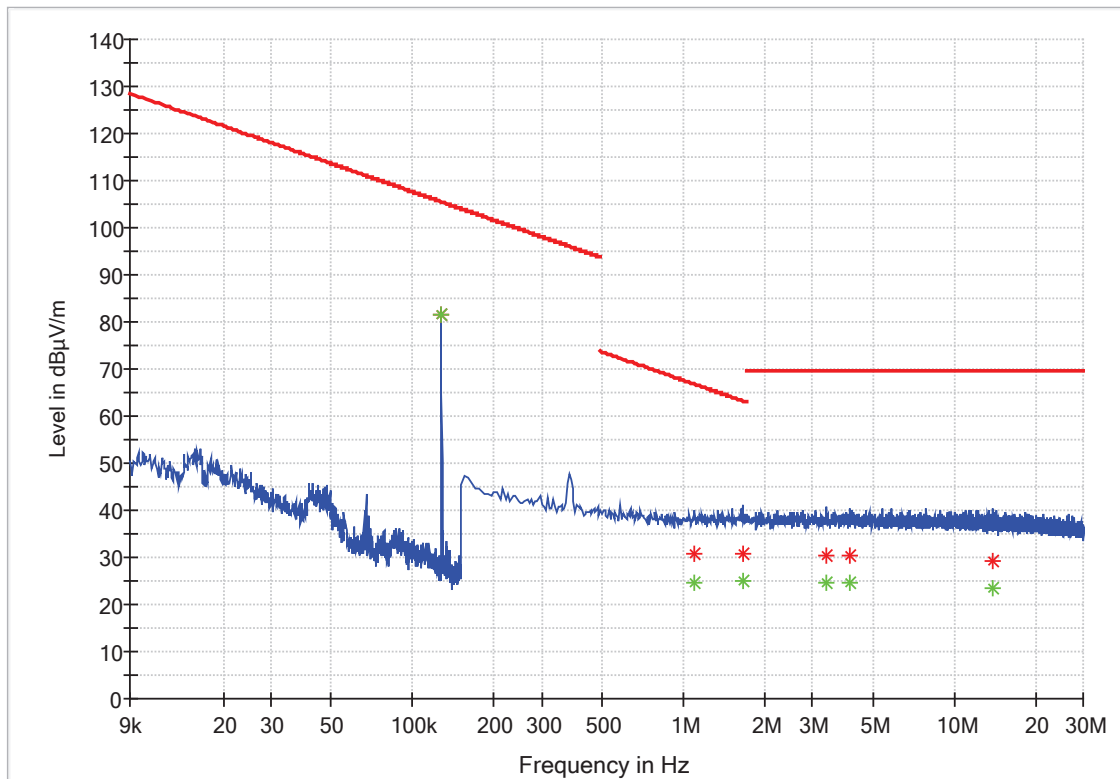
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
1.070375	24.84	67.01	42.17	15000.0	9.000	100.0	Y-Pos	226.0	22.2	PASSED
1.657425	34.28	63.22	28.93	15000.0	9.000	100.0	Y-Pos	9.0	22.2	PASSED
2.224575	24.62	69.54	44.92	15000.0	9.000	100.0	Y-Pos	27.0	22.2	PASSED
4.040450	24.50	69.54	45.04	15000.0	9.000	100.0	Y-Pos	342.0	22.3	PASSED
13.562600	23.48	69.54	46.06	15000.0	9.000	100.0	Y-Pos	54.0	22.8	PASSED
17.905775	23.20	69.54	46.34	15000.0	9.000	100.0	Y-Pos	201.0	23.0	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna z-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	81.37	105.48	24.11	15000.0	0.200	100.0	Z-Pos	294.0	22.3	PASSED
1.095250	30.68	66.81	36.14	15000.0	9.000	100.0	Z-Pos	177.0	22.2	PASSED
1.652450	30.75	63.24	32.49	15000.0	9.000	100.0	Z-Pos	158.0	22.2	PASSED
3.378775	30.41	69.54	39.13	15000.0	9.000	100.0	Z-Pos	75.0	22.3	PASSED
4.100150	30.38	69.54	39.16	15000.0	9.000	100.0	Z-Pos	336.0	22.3	PASSED
13.841200	29.34	69.54	40.20	15000.0	9.000	100.0	Z-Pos	117.0	22.8	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

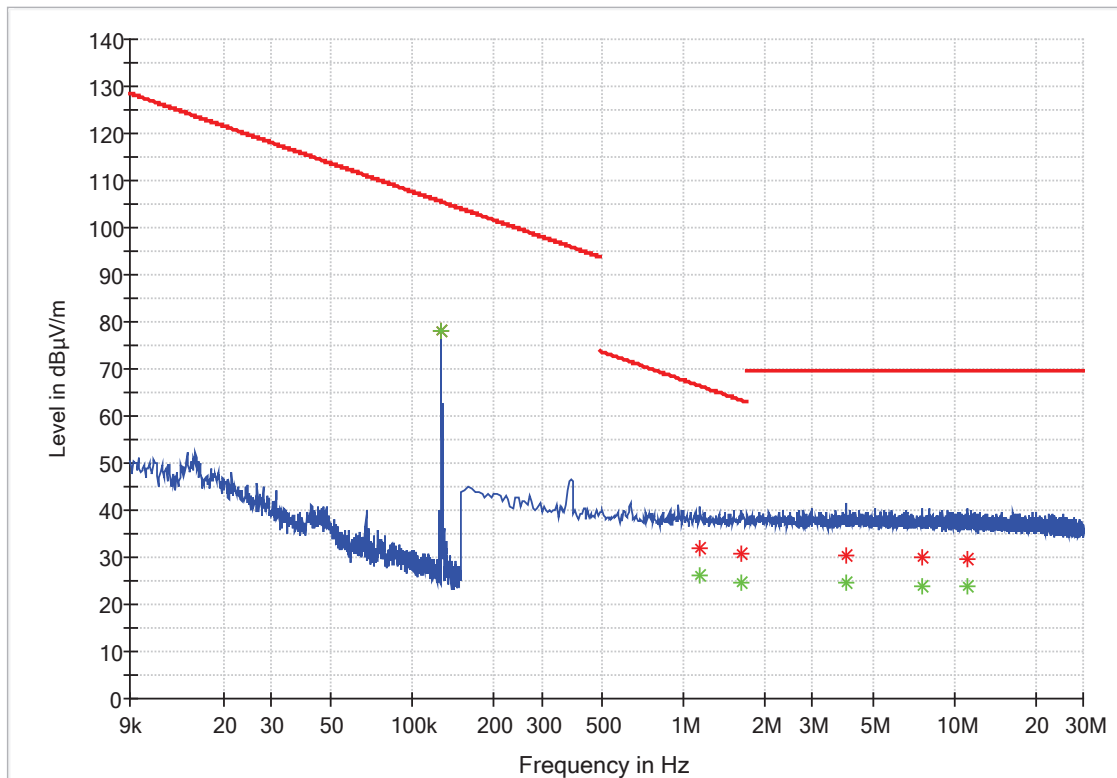
Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	81.38	105.48	24.10	15000.0	0.200	100.0	Z-Pos	294.0	22.3	PASSED
1.095250	24.79	66.81	42.02	15000.0	9.000	100.0	Z-Pos	177.0	22.2	PASSED
1.652450	24.94	63.24	38.30	15000.0	9.000	100.0	Z-Pos	158.0	22.2	PASSED
3.378775	24.46	69.54	45.08	15000.0	9.000	100.0	Z-Pos	75.0	22.3	PASSED
4.100150	24.49	69.54	45.05	15000.0	9.000	100.0	Z-Pos	336.0	22.3	PASSED
13.841200	23.49	69.54	46.05	15000.0	9.000	100.0	Z-Pos	117.0	22.8	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

3.2.2 15 W modulated

DUT horizontal, Antenna x-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	78.25	105.48	27.23	15000.0	0.200	100.0	X-Pos	279.0	22.3	PASSED
1.149975	31.75	66.39	34.64	15000.0	9.000	100.0	X-Pos	120.0	22.2	PASSED
1.627575	30.67	63.37	32.70	15000.0	9.000	100.0	X-Pos	109.0	22.2	PASSED
4.015575	30.42	69.54	39.12	15000.0	9.000	100.0	X-Pos	16.0	22.3	PASSED
7.577675	29.88	69.54	39.66	15000.0	9.000	100.0	X-Pos	338.0	22.5	PASSED
11.249225	29.56	69.54	39.98	15000.0	9.000	100.0	X-Pos	147.0	22.7	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

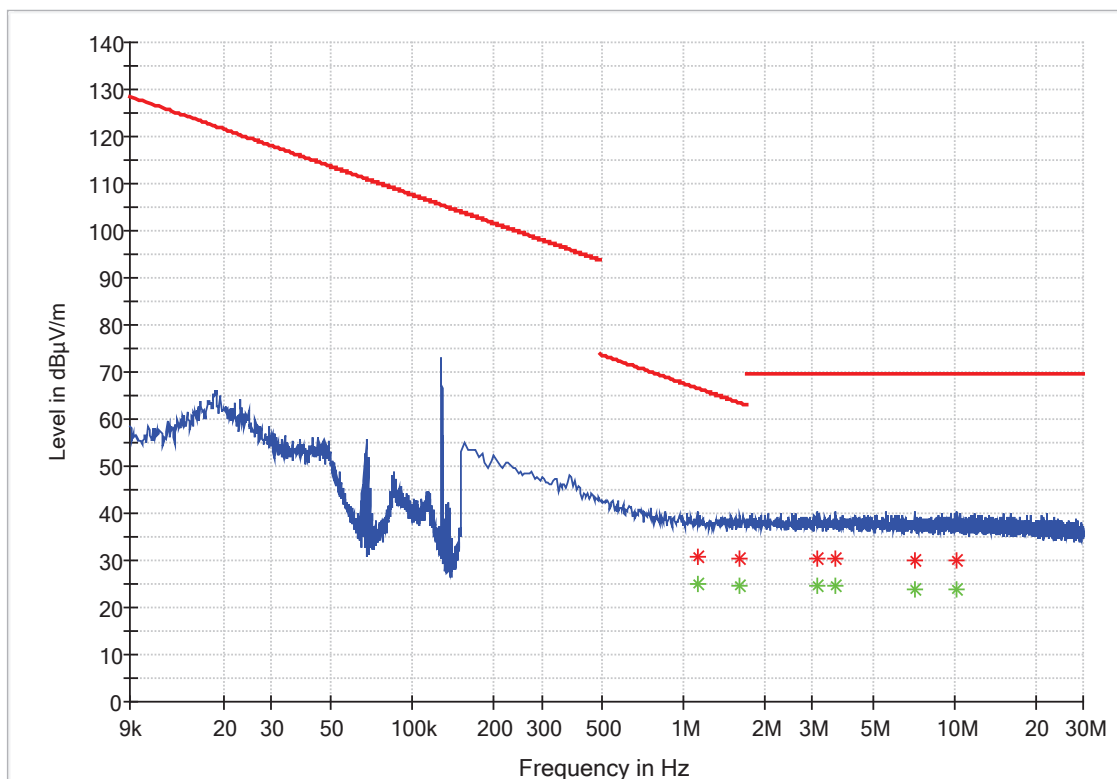
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	78.27	105.48	27.21	15000.0	0.200	100.0	X-Pos	279.0	22.3	PASSED
1.149975	26.02	66.39	40.37	15000.0	9.000	100.0	X-Pos	120.0	22.2	PASSED
1.627575	24.66	63.37	38.71	15000.0	9.000	100.0	X-Pos	109.0	22.2	PASSED
4.015575	24.48	69.54	45.06	15000.0	9.000	100.0	X-Pos	16.0	22.3	PASSED
7.577675	23.90	69.54	45.64	15000.0	9.000	100.0	X-Pos	338.0	22.5	PASSED
11.249225	23.70	69.54	45.84	15000.0	9.000	100.0	X-Pos	147.0	22.7	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna y-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
1.125100	30.86	66.58	35.72	15000.0	9.000	100.0	Y-Pos	109.0	22.2	PASSED
1.622600	30.54	63.40	32.86	15000.0	9.000	100.0	Y-Pos	339.0	22.2	PASSED
3.130025	30.41	69.54	39.13	15000.0	9.000	100.0	Y-Pos	225.0	22.3	PASSED
3.627525	30.34	69.54	39.20	15000.0	9.000	100.0	Y-Pos	177.0	22.3	PASSED
7.204550	29.94	69.54	39.60	15000.0	9.000	100.0	Y-Pos	49.0	22.4	PASSED
10.239300	29.85	69.54	39.69	15000.0	9.000	100.0	Y-Pos	150.0	22.6	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

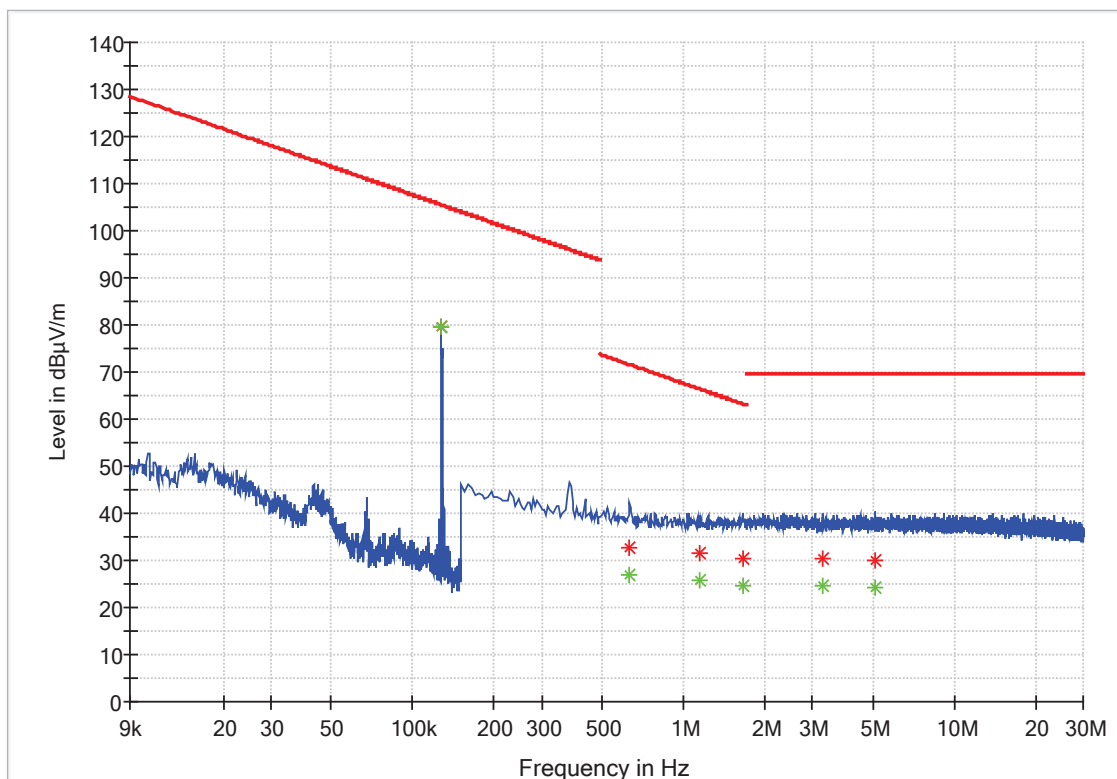
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
1.125100	24.88	66.58	41.70	15000.0	9.000	100.0	Y-Pos	109.0	22.2	PASSED
1.622600	24.67	63.40	38.73	15000.0	9.000	100.0	Y-Pos	339.0	22.2	PASSED
3.130025	24.49	69.54	45.05	15000.0	9.000	100.0	Y-Pos	225.0	22.3	PASSED
3.627525	24.46	69.54	45.08	15000.0	9.000	100.0	Y-Pos	177.0	22.3	PASSED
7.204550	23.99	69.54	45.55	15000.0	9.000	100.0	Y-Pos	49.0	22.4	PASSED
10.239300	23.93	69.54	45.61	15000.0	9.000	100.0	Y-Pos	150.0	22.6	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna z-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	79.53	105.48	25.95	15000.0	0.200	100.0	Z-Pos	292.0	22.3	PASSED
0.632575	32.50	71.58	39.08	15000.0	9.000	100.0	Z-Pos	289.0	22.2	PASSED
1.149975	31.59	66.39	34.80	15000.0	9.000	100.0	Z-Pos	319.0	22.2	PASSED
1.652450	30.47	63.24	32.78	15000.0	9.000	100.0	Z-Pos	225.0	22.2	PASSED
3.279275	30.27	69.54	39.27	15000.0	9.000	100.0	Z-Pos	105.0	22.3	PASSED
5.115050	30.08	69.54	39.46	15000.0	9.000	100.0	Z-Pos	105.0	22.3	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	79.54	105.48	25.94	15000.0	0.200	100.0	Z-Pos	292.0	22.3	PASSED
0.632575	27.01	71.58	44.57	15000.0	9.000	100.0	Z-Pos	289.0	22.2	PASSED
1.149975	25.81	66.39	40.58	15000.0	9.000	100.0	Z-Pos	319.0	22.2	PASSED
1.652450	24.68	63.24	38.56	15000.0	9.000	100.0	Z-Pos	225.0	22.2	PASSED
3.279275	24.45	69.54	45.09	15000.0	9.000	100.0	Z-Pos	105.0	22.3	PASSED
5.115050	24.29	69.54	45.25	15000.0	9.000	100.0	Z-Pos	105.0	22.3	PASSED

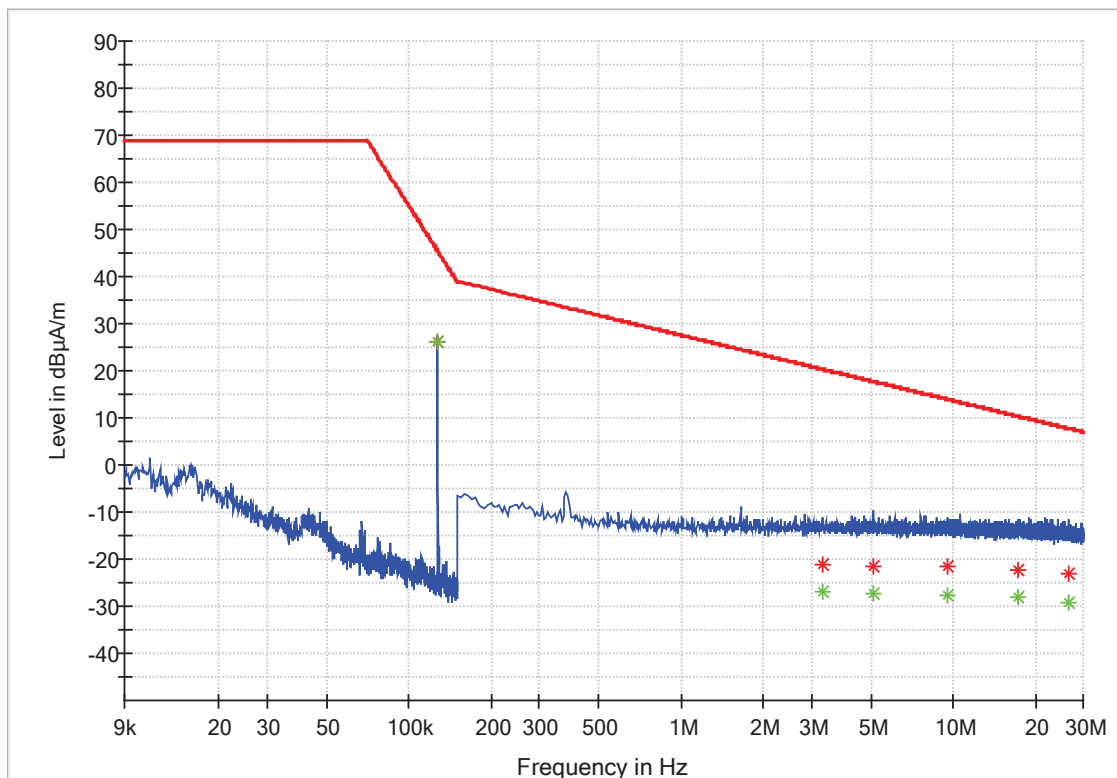
No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

3.3. Test results (ISED)

3.3.1 5 W not modulated

DUT horizontal, Antenna x-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	26.18	45.33	19.15	15000.0	0.200	100.0	X-Pos	285.0	-29.3	PASSED
3.289225	-21.09	20.35	41.44	15000.0	9.000	100.0	X-Pos	185.0	-29.3	PASSED
5.050375	-21.46	17.76	39.22	15000.0	9.000	100.0	X-Pos	15.0	-29.2	PASSED
9.478125	-21.38	13.96	35.34	15000.0	9.000	100.0	X-Pos	195.0	-28.9	PASSED
17.199325	-22.29	10.36	32.65	15000.0	9.000	100.0	X-Pos	255.0	-28.5	PASSED
26.477700	-23.16	7.75	30.91	15000.0	9.000	100.0	X-Pos	343.0	-28.3	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

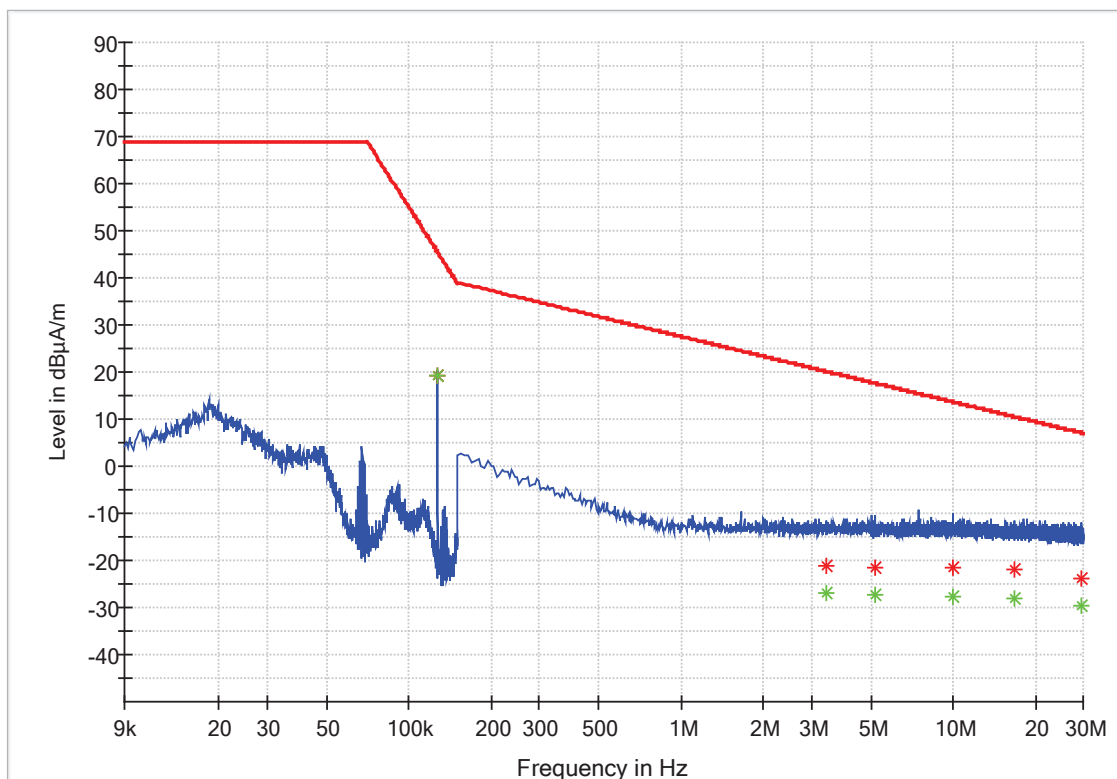
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	26.19	45.33	19.14	15000.0	0.200	100.0	X-Pos	285.0	-29.3	PASSED
3.289225	-26.96	20.35	47.31	15000.0	9.000	100.0	X-Pos	185.0	-29.3	PASSED
5.050375	-27.29	17.76	45.05	15000.0	9.000	100.0	X-Pos	15.0	-29.2	PASSED
9.478125	-27.50	13.96	41.46	15000.0	9.000	100.0	X-Pos	195.0	-28.9	PASSED
17.199325	-28.22	10.36	38.58	15000.0	9.000	100.0	X-Pos	255.0	-28.5	PASSED
26.477700	-29.18	7.75	36.93	15000.0	9.000	100.0	X-Pos	343.0	-28.3	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna y-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	19.34	45.33	25.99	15000.0	0.200	100.0	Y-Pos	15.0	-29.3	PASSED
3.403650	-21.13	20.14	41.28	15000.0	9.000	100.0	Y-Pos	311.0	-29.3	PASSED
5.139925	-21.41	17.65	39.07	15000.0	9.000	100.0	Y-Pos	313.0	-29.2	PASSED
9.920900	-21.64	13.68	35.33	15000.0	9.000	100.0	Y-Pos	95.0	-28.9	PASSED
16.885900	-22.10	10.47	32.58	15000.0	9.000	100.0	Y-Pos	191.0	-28.5	PASSED
29.532350	-23.91	7.09	31.01	15000.0	9.000	100.0	Y-Pos	1.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

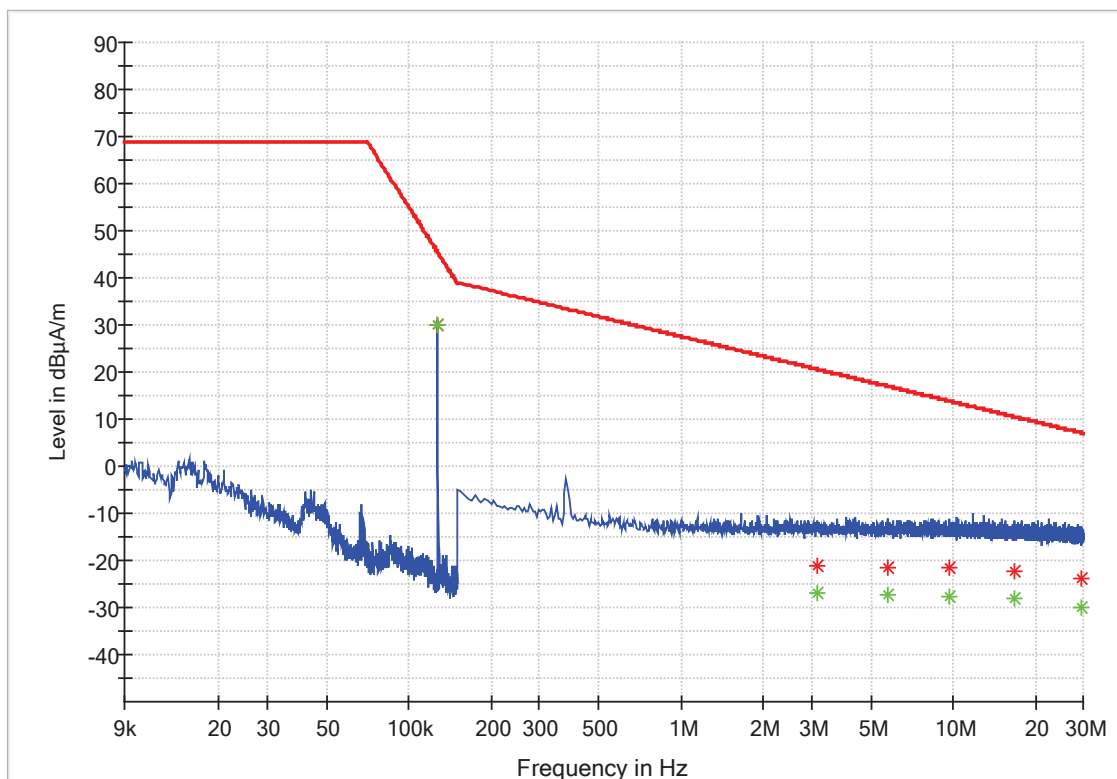
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	19.37	45.33	25.96	15000.0	0.200	100.0	Y-Pos	15.0	-29.3	PASSED
3.403650	-26.99	20.14	47.13	15000.0	9.000	100.0	Y-Pos	311.0	-29.3	PASSED
5.139925	-27.25	17.65	44.91	15000.0	9.000	100.0	Y-Pos	313.0	-29.2	PASSED
9.920900	-27.51	13.68	41.19	15000.0	9.000	100.0	Y-Pos	95.0	-28.9	PASSED
16.885900	-28.15	10.47	38.62	15000.0	9.000	100.0	Y-Pos	191.0	-28.5	PASSED
29.532350	-29.80	7.09	36.89	15000.0	9.000	100.0	Y-Pos	1.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna z-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	29.85	45.33	15.48	15000.0	0.200	100.0	Z-Pos	294.0	-29.3	PASSED
3.179775	-21.03	20.56	41.59	15000.0	9.000	100.0	Z-Pos	345.0	-29.3	PASSED
5.731950	-21.51	17.00	38.50	15000.0	9.000	100.0	Z-Pos	139.0	-29.2	PASSED
9.657225	-21.66	13.85	35.51	15000.0	9.000	100.0	Z-Pos	305.0	-28.9	PASSED
16.766500	-22.27	10.51	32.79	15000.0	9.000	100.0	Z-Pos	226.0	-28.5	PASSED
29.646775	-23.81	7.07	30.88	15000.0	9.000	100.0	Z-Pos	45.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

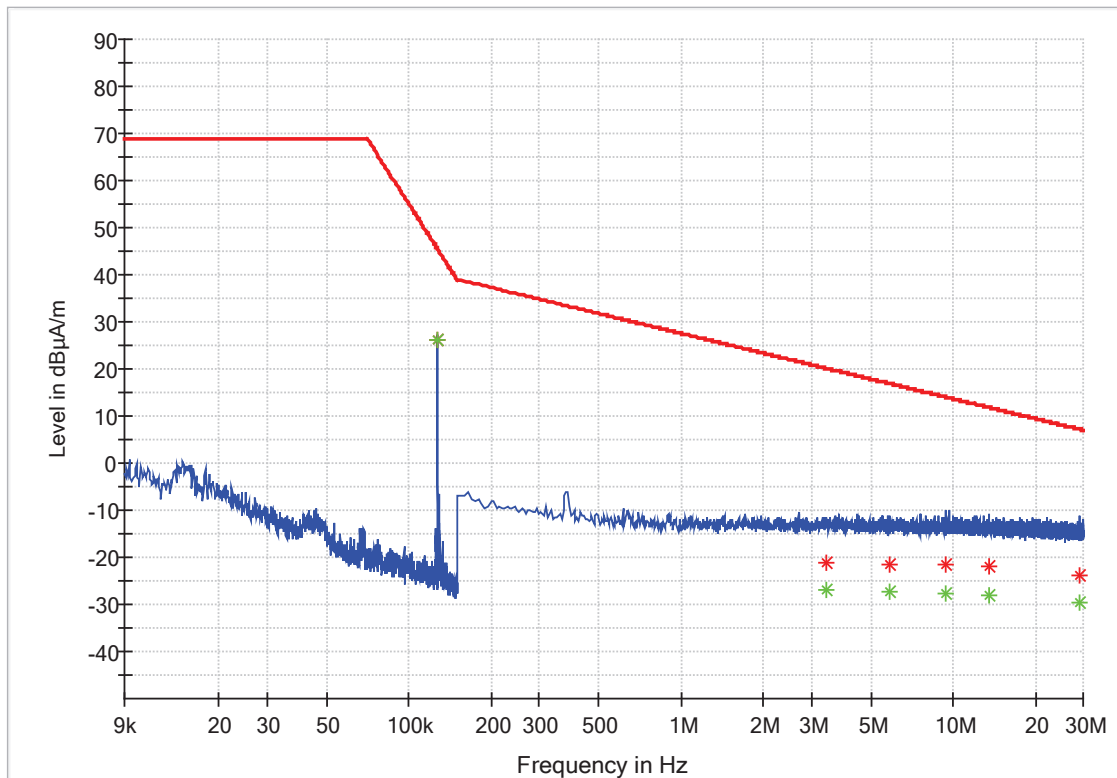
Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	29.86	45.33	15.48	15000.0	0.200	100.0	Z-Pos	294.0	-29.3	PASSED
3.179775	-27.05	20.56	47.60	15000.0	9.000	100.0	Z-Pos	345.0	-29.3	PASSED
5.731950	-27.34	17.00	44.33	15000.0	9.000	100.0	Z-Pos	139.0	-29.2	PASSED
9.657225	-27.54	13.85	41.39	15000.0	9.000	100.0	Z-Pos	305.0	-28.9	PASSED
16.766500	-28.24	10.51	38.75	15000.0	9.000	100.0	Z-Pos	226.0	-28.5	PASSED
29.646775	-29.82	7.07	36.89	15000.0	9.000	100.0	Z-Pos	45.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

3.3.2 15 W modulated

DUT horizontal, Antenna x-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	26.16	45.33	19.17	15000.0	0.200	100.0	X-Pos	285.0	-29.3	PASSED
3.408625	-21.09	20.14	41.22	15000.0	9.000	100.0	X-Pos	144.0	-29.3	PASSED
5.811550	-21.41	16.91	38.32	15000.0	9.000	100.0	X-Pos	21.0	-29.2	PASSED
9.423400	-21.60	13.99	35.59	15000.0	9.000	100.0	X-Pos	345.0	-28.9	PASSED
13.567575	-22.09	11.79	33.88	15000.0	9.000	100.0	X-Pos	0.0	-28.7	PASSED
29.024900	-23.82	7.20	31.02	15000.0	9.000	100.0	X-Pos	234.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

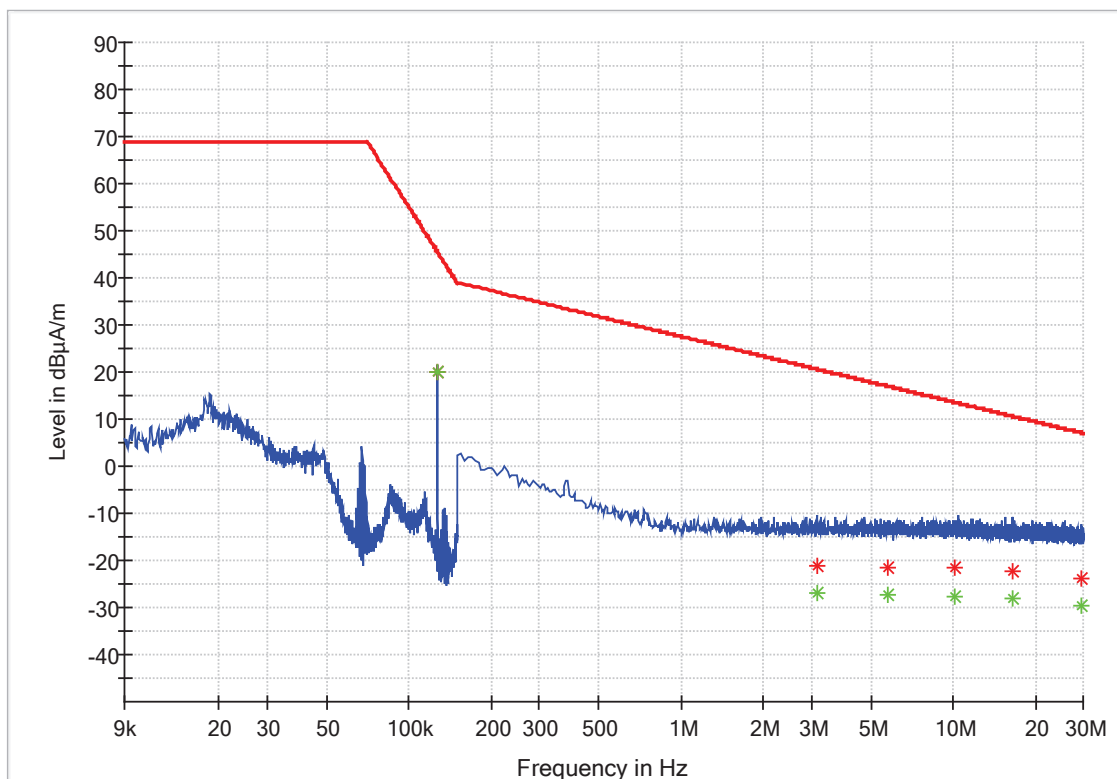
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	26.18	45.33	19.15	15000.0	0.200	100.0	X-Pos	285.0	-29.3	PASSED
3.408625	-26.95	20.14	47.09	15000.0	9.000	100.0	X-Pos	144.0	-29.3	PASSED
5.811550	-27.27	16.91	44.19	15000.0	9.000	100.0	X-Pos	21.0	-29.2	PASSED
9.423400	-27.52	13.99	41.52	15000.0	9.000	100.0	X-Pos	345.0	-28.9	PASSED
13.567575	-27.92	11.79	39.71	15000.0	9.000	100.0	X-Pos	0.0	-28.7	PASSED
29.024900	-29.74	7.20	36.94	15000.0	9.000	100.0	X-Pos	234.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna y-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	20.09	45.33	25.24	15000.0	0.200	100.0	Y-Pos	0.0	-29.3	PASSED
3.139975	-21.15	20.63	41.78	15000.0	9.000	100.0	Y-Pos	120.0	-29.3	PASSED
5.717025	-21.47	17.01	38.49	15000.0	9.000	100.0	Y-Pos	65.0	-29.2	PASSED
10.104975	-21.68	13.57	35.25	15000.0	9.000	100.0	Y-Pos	136.0	-28.9	PASSED
16.428200	-22.26	10.64	32.90	15000.0	9.000	100.0	Y-Pos	183.0	-28.6	PASSED
29.442800	-23.81	7.11	30.93	15000.0	9.000	100.0	Y-Pos	338.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

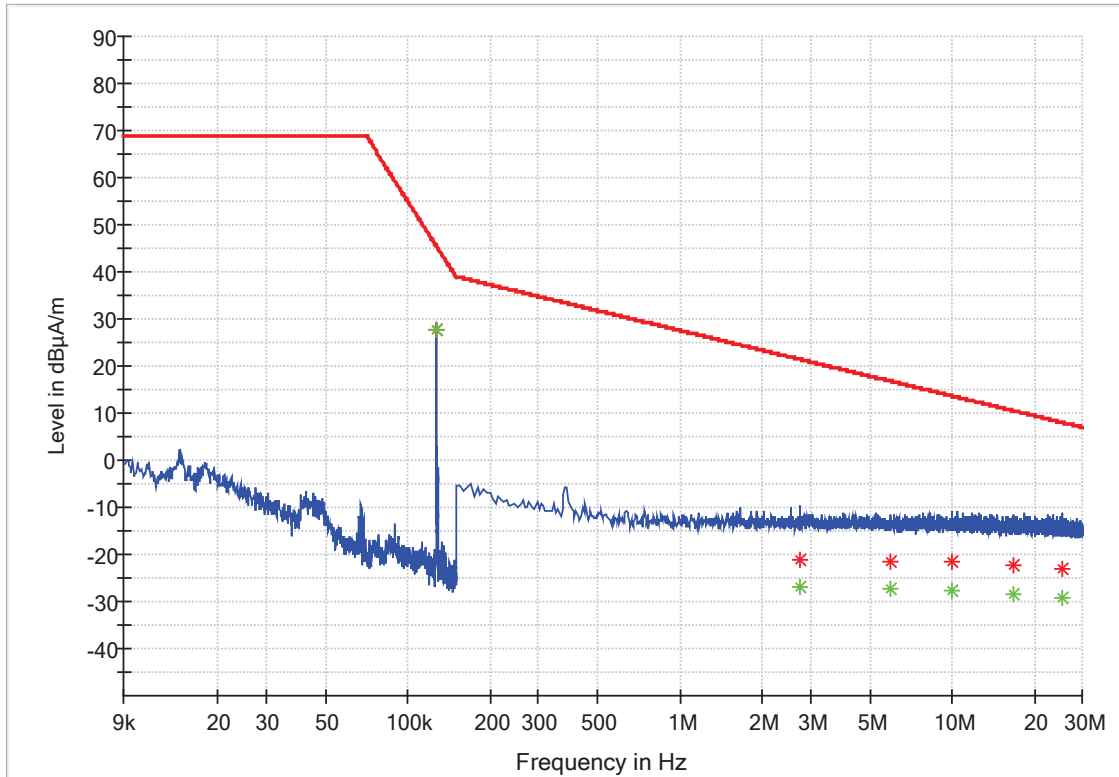
CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	20.13	45.33	25.21	15000.0	0.200	100.0	Y-Pos	0.0	-29.3	PASSED
3.139975	-27.03	20.63	47.66	15000.0	9.000	100.0	Y-Pos	120.0	-29.3	PASSED
5.717025	-27.41	17.01	44.42	15000.0	9.000	100.0	Y-Pos	65.0	-29.2	PASSED
10.104975	-27.57	13.57	41.14	15000.0	9.000	100.0	Y-Pos	136.0	-28.9	PASSED
16.428200	-28.22	10.64	38.86	15000.0	9.000	100.0	Y-Pos	183.0	-28.6	PASSED
29.442800	-29.79	7.11	36.91	15000.0	9.000	100.0	Y-Pos	338.0	-28.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

DUT horizontal, Antenna z-position

Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 10 kHz)



Quasi-Peak detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	27.84	45.33	17.50	15000.0	0.200	100.0	Z-Pos	285.0	-29.3	PASSED
2.756900	-21.18	21.42	42.59	15000.0	9.000	100.0	Z-Pos	15.0	-29.3	PASSED
5.891150	-21.50	16.83	38.33	15000.0	9.000	100.0	Z-Pos	105.0	-29.2	PASSED
9.915925	-21.69	13.69	35.37	15000.0	9.000	100.0	Z-Pos	303.0	-28.9	PASSED
16.811275	-22.36	10.50	32.86	15000.0	9.000	100.0	Z-Pos	21.0	-28.5	PASSED
25.522500	-23.16	7.98	31.14	15000.0	9.000	100.0	Z-Pos	283.0	-28.3	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

CISPR-Average detector (< 150 kHz: RBW 200 Hz, > 150 kHz: RBW 9 kHz)

Frequency [MHz]	Level [dBμA/m]	Limit [dBμA/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Orientation	Azimuth [deg]	Transducer [dB]	Result
0.127704	27.85	45.33	17.48	15000.0	0.200	100.0	Z-Pos	285.0	-29.3	PASSED
2.756900	-27.09	21.42	48.51	15000.0	9.000	100.0	Z-Pos	15.0	-29.3	PASSED
5.891150	-27.47	16.83	44.30	15000.0	9.000	100.0	Z-Pos	105.0	-29.2	PASSED
9.915925	-27.57	13.69	41.26	15000.0	9.000	100.0	Z-Pos	303.0	-28.9	PASSED
16.811275	-28.31	10.50	38.80	15000.0	9.000	100.0	Z-Pos	21.0	-28.5	PASSED
25.522500	-29.13	7.98	37.11	15000.0	9.000	100.0	Z-Pos	283.0	-28.3	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

4. Radiated emissions above 30 MHz

EUT with DUT number	250394
Accessories with DUT numbers	230577, 230678, 230805, DAB2220069
Operation voltage	13.2 V / DC
Result	PASSED
Remarks	none
Temperature / humidity	+15 °C to +35 °C / 20 % to 75 %
Date of measurement	15-Apr-2025 to 24-Apr-2025
Test responsible	Frank Wittmann
Test system SW / version / configuration	Rohde & Schwarz EMC32 / 11.70.00 / v2.2

4.1. Test method and limit

The measurement is made according to ANSI C63.10, ANSI C63.30 and RSS-216 (Annex A) as follows:

- ⇒ The EUT is placed on a nonconductive table in the centre of the turntable.
- ⇒ The DUT is positioned in horizontal position on the test table.
- ⇒ The measurement is divided into the Preliminary Measurement and the Final Measurement.
The Preliminary Measurement and the Final Measurement is performed in 3 m distance without floor absorbers by rotating the turntable of 360 degrees and moving the antenna height between 1-4 m.
- ⇒ During the Preliminary Measurement the suspected frequencies are searched by using the PK detector.
In the Final Measurement the exact frequency and amplitude of these emissions are re-measured by using the applicable QP detector.
- ⇒ The Final Measurement is performed if the Preliminary Measurement results are closer than 20 dB to the permissible limit.
- ⇒ The measurement results are obtained as described in the following formula: $E \text{ [dB}\mu\text{V/m]} = U_{RX} + A_{CF}$
Where U_{RX} is receiver reading and A_{CF} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{CF} = L_{CABLES} + AF - G_{PREAMP}$).
- ⇒ For ISED measurements the measured E-field at 3 m distance is extrapolated to 10 m limit distance according to subclause 9.3.2.3 of ANSI C63.30: $E_{10m} \text{ [dB}\mu\text{V/m]} = E_{3m} \text{ [dB}\mu\text{V/m]} - 20 * \log_{10} (10m/3m)$.
Where $A_{EXT} = -20 * \log_{10} (10m/3m)$ is the extrapolation factor, which is included as well in the total correction factor ($A_{CF} = L_{CABLES} + AF - G_{PREAMP} - A_{EXT}$).
- ⇒ Example values for calculation of one final QP measurement frequency at 30.38 MHz, see result in 4.2:
 $E \text{ [dB}\mu\text{V/m]} = 34.51 - 15.10 = 19.41$

FCC limits for radiated emission measurements at 3 m measurement distance.

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	Detector
30 – 88	100	40	QP
88 – 216	150	43.5	QP
216 – 960	200	46	QP
960 – 1000	500	54	QP

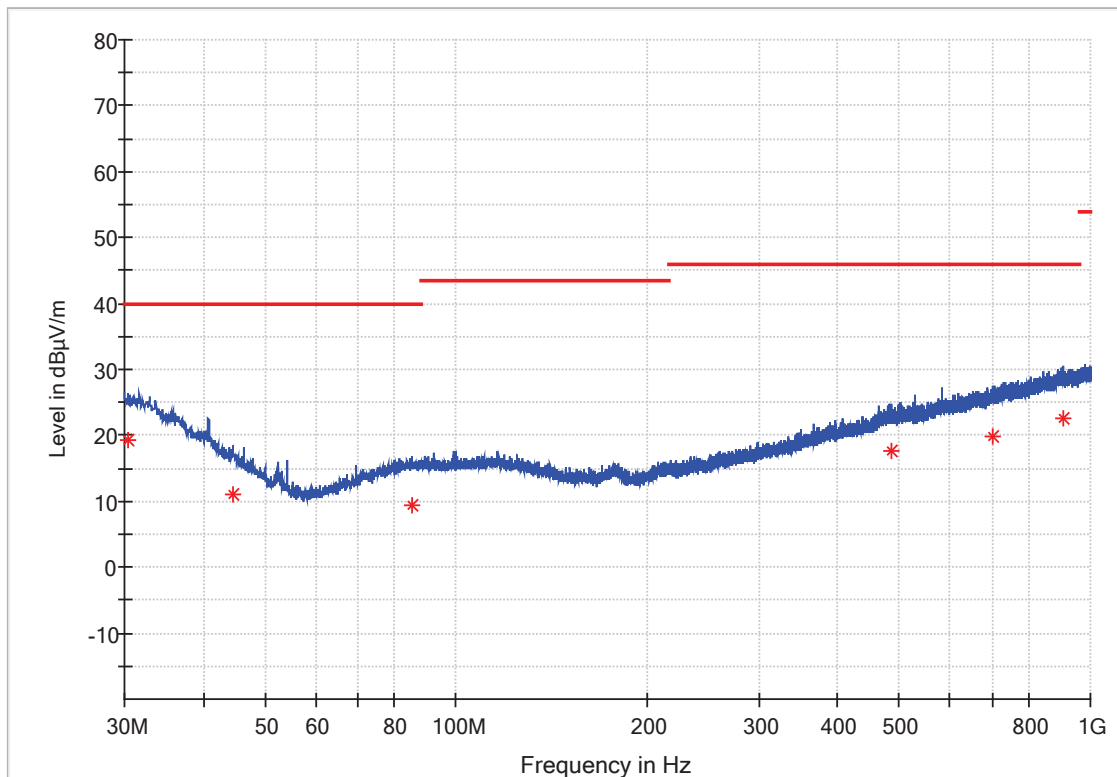
ISED limits for radiated emission measurements at 10 m measurement distance.

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	Detector
30 – 230	31.62	30	QP
230 – 1000	70.79	37	QP

4.2. Test results (FCC)

4.2.1 15 W modulated

Peak detector (RBW 300 kHz)



Quasi-Peak detector (RBW 120 kHz)

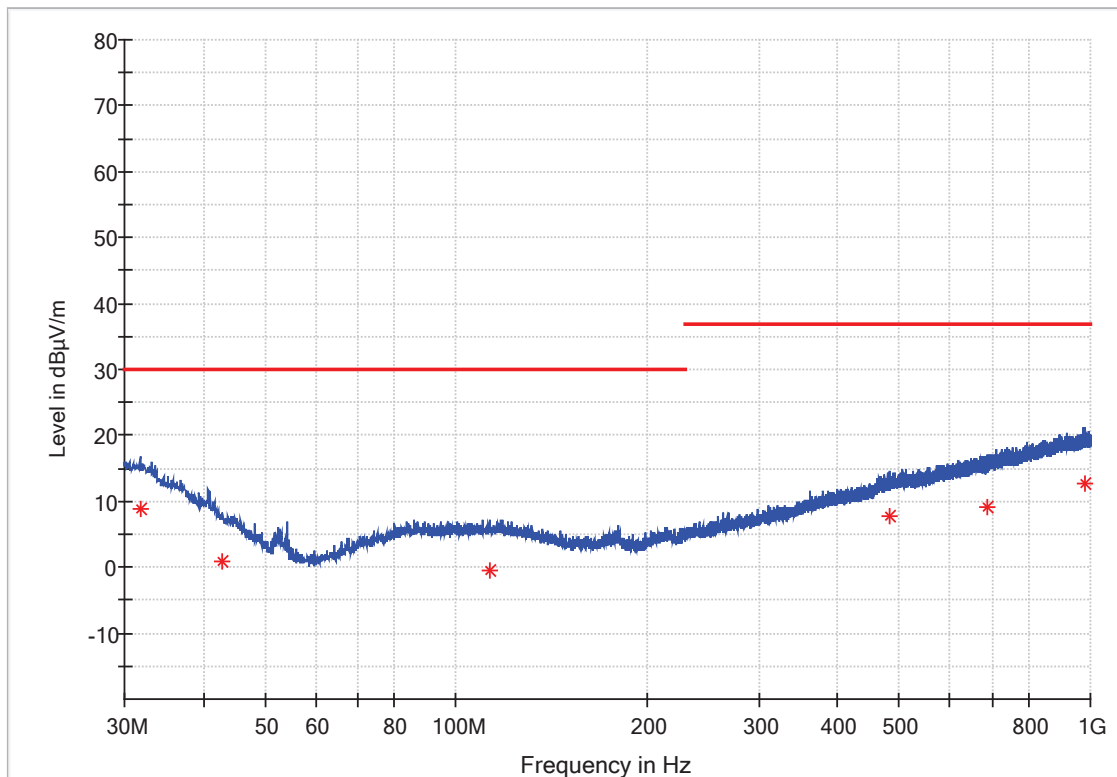
Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Polarization	Azimuth [deg]	Transducer [dB]	Result
30.388000	19.41	40.00	20.59	15000.0	120.000	316.0	H	82.0	-15.1	PASSED
44.550000	10.91	40.00	29.09	15000.0	120.000	204.0	H	49.0	-24.3	PASSED
85.241500	9.50	40.00	30.50	15000.0	120.000	383.0	H	211.0	-24.7	PASSED
487.064000	17.66	46.02	28.36	15000.0	120.000	175.0	H	135.0	-16.1	PASSED
700.027500	19.74	46.02	26.28	15000.0	120.000	205.0	H	309.0	-12.4	PASSED
908.577500	22.53	46.02	23.49	15000.0	120.000	295.0	V	46.0	-9.4	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

4.3. Test results (ISED)

4.3.1 15 W modulated

Peak detector (RBW 300 kHz)



Quasi-Peak detector (RBW 120 kHz)

Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Meas. Time [ms]	Bandwidth [kHz]	Height [cm]	Antenna Polarization	Azimuth [deg]	Transducer [dB]	Result
31.746000	8.76	30.00	21.24	15000.0	120.000	265.0	V	96.0	-26.5	PASSED
42.901000	0.93	30.00	29.07	15000.0	120.000	115.0	H	69.0	-33.7	PASSED
112.789500	-0.54	30.00	30.54	15000.0	120.000	265.0	V	118.0	-34.4	PASSED
482.165500	7.71	37.00	29.29	15000.0	120.000	145.0	V	195.0	-26.7	PASSED
685.817000	9.01	37.00	27.99	15000.0	120.000	235.0	V	63.0	-23.2	PASSED
983.219000	12.77	37.00	24.23	15000.0	120.000	267.0	V	218.0	-19.2	PASSED

No further emissions found less than 20 dB to the regulatory limit and no emission found in the restricted bands of operation.

5. Frequency stability, temperature variation

EUT with DUT number	250395
Accessories with DUT numbers	250571, 120676, 250802, NOV16024E
Operation voltage	13.2 V / DC
Result	PASSED
Remarks	none
Temperature / humidity	+15 °C to +35 °C / 20 % to 75 %
Date of measurement	07-Apr-2025 to 24-Apr-2025
Test responsible	Sebastian Kattinger
Test system SW / version	Emissions_Radio_CE/FCC / v1.98

5.1. Test reference and limit

The measurement is made according to ANSI C63.30 and RSS-216 as follows:

- ⇒ The EUT is placed in the chamber.
- ⇒ The climate chamber temperature is set to the maximum value and allowed to stabilize.
- ⇒ The transmit frequency is measured.
- ⇒ Temperature is lowered to the next temperature value and is allowed to stabilize.
- ⇒ The steps 3-4 are repeated for each temperature.

The ISED requirement for frequency stability is that the EUT emission still comply with the applicable emission limit by considering possible frequency shifts under temperature variation, see test result in section 4 for validation.

5.2. Test results (ISED)

Temperature [°C]	Time [min]	Frequency [MHz]	Deviation [%]	Result
+50	0	127.65312	0.0809	PASSED
	2	127.65312	0.0809	PASSED
	5	127.65312	0.0809	PASSED
	10	127.65523	0.0825	PASSED
+20	0	127.65714	0.0840	PASSED
	2	127.65714	0.0840	PASSED
	5	127.65733	0.0841	PASSED
	10	127.65523	0.0825	PASSED
-20	0	127.65733	0.0841	PASSED
	2	127.65944	0.0858	PASSED
	5	127.65733	0.0841	PASSED
	10	127.65944	0.0858	PASSED

6. Frequency stability, voltage variation

EUT with DUT number	250395
Accessories with DUT numbers	250571, 120676, 250802, NOV16024E
Operation voltage	13.2 V / DC
Result	PASSED
Remarks	none
Temperature / humidity	+15 °C to +35 °C / 20 % to 75 %
Date of measurement	07-Apr-2025 to 24-Apr-2025
Test responsible	Sebastian Kattinger
Test system SW / version	Emissions_Radio_CE/FCC / v1.98

6.1. Test reference and limit

The measurement is made according to ANSI C63.30 and RSS-216 as follows:

- ⇒ The EUT is placed in the chamber.
- ⇒ The climate chamber temperature is set to +20 °C allowed to stabilize.
- ⇒ The EUT is connected to an adjustable power supply.
- ⇒ The frequency stability was measured at nominal voltage and at 85 % and 115 %.

The ISED requirement for frequency stability is that the EUT emission still comply with the applicable emission limit by considering possible frequency shifts under voltage variation, see test result in section 4 for validation.

6.2. Test results (ISED)

Voltage [V]	Frequency [kHz]	Deviation [%]	Result
Nominal (13.2)	127.65523	0.0825	PASSED
Minimum (11.2)	127.65714	0.0840	PASSED
Maximum (15.2)	127.65523	0.0825	PASSED

7. Occupied bandwidth

EUT with DUT number	250395
Accessories with DUT numbers	250571, 120676, 250802, NOV16024E
Operation voltage	13.2 V / DC
Result	PASSED
Remarks	none
Temperature / humidity	+15 °C to +35 °C / 20 % to 75 %
Date of measurement	08-Apr-2025 to 22-Apr-2025
Test responsible	Sebastian Kattinger
Test system SW / version	Emissions_Radio_CE/FCC / v1.98

7.1. Test method and limit

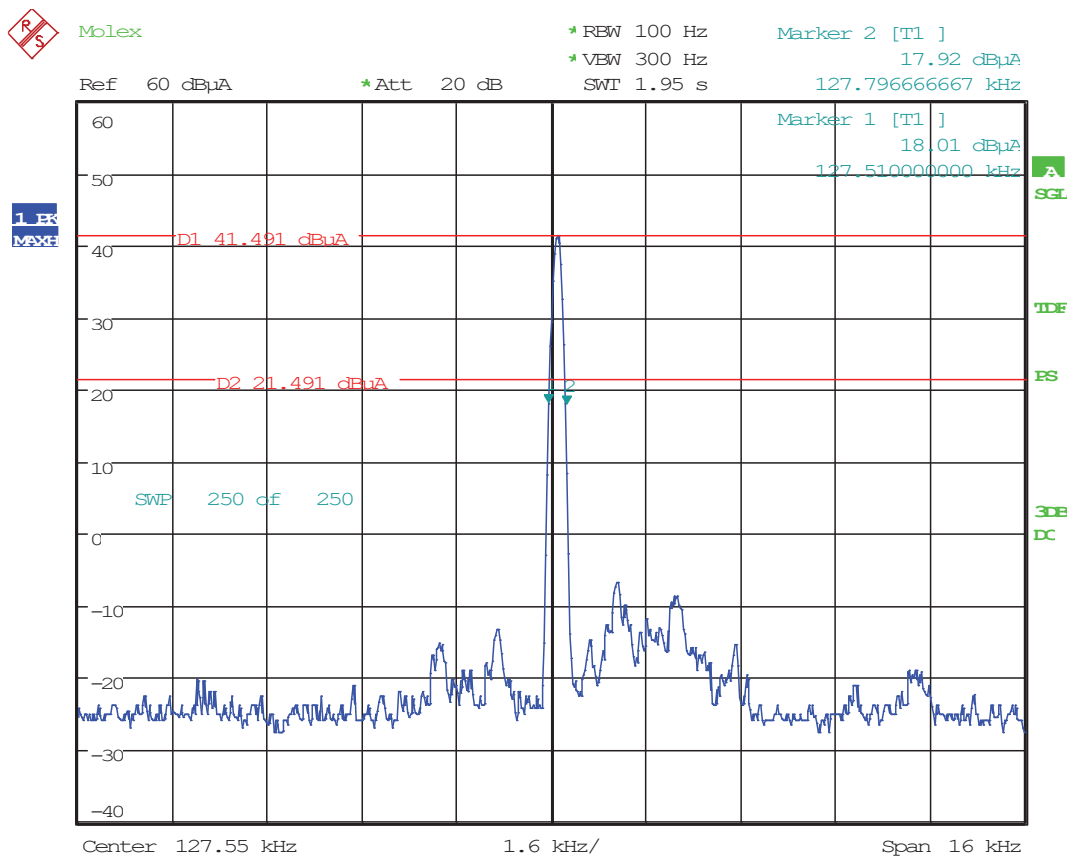
The measurement is made according to FCC 15.215(c) and RSS-Gen.

FCC and ISSED limits for occupied bandwidth measurements

20 dB Bandwidth Limit [kHz]	99 % Bandwidth Limit [kHz]
N.A.	N.A.

7.2. Test result 20 dB OBW (FCC)

7.2.1 5 W unmodulated

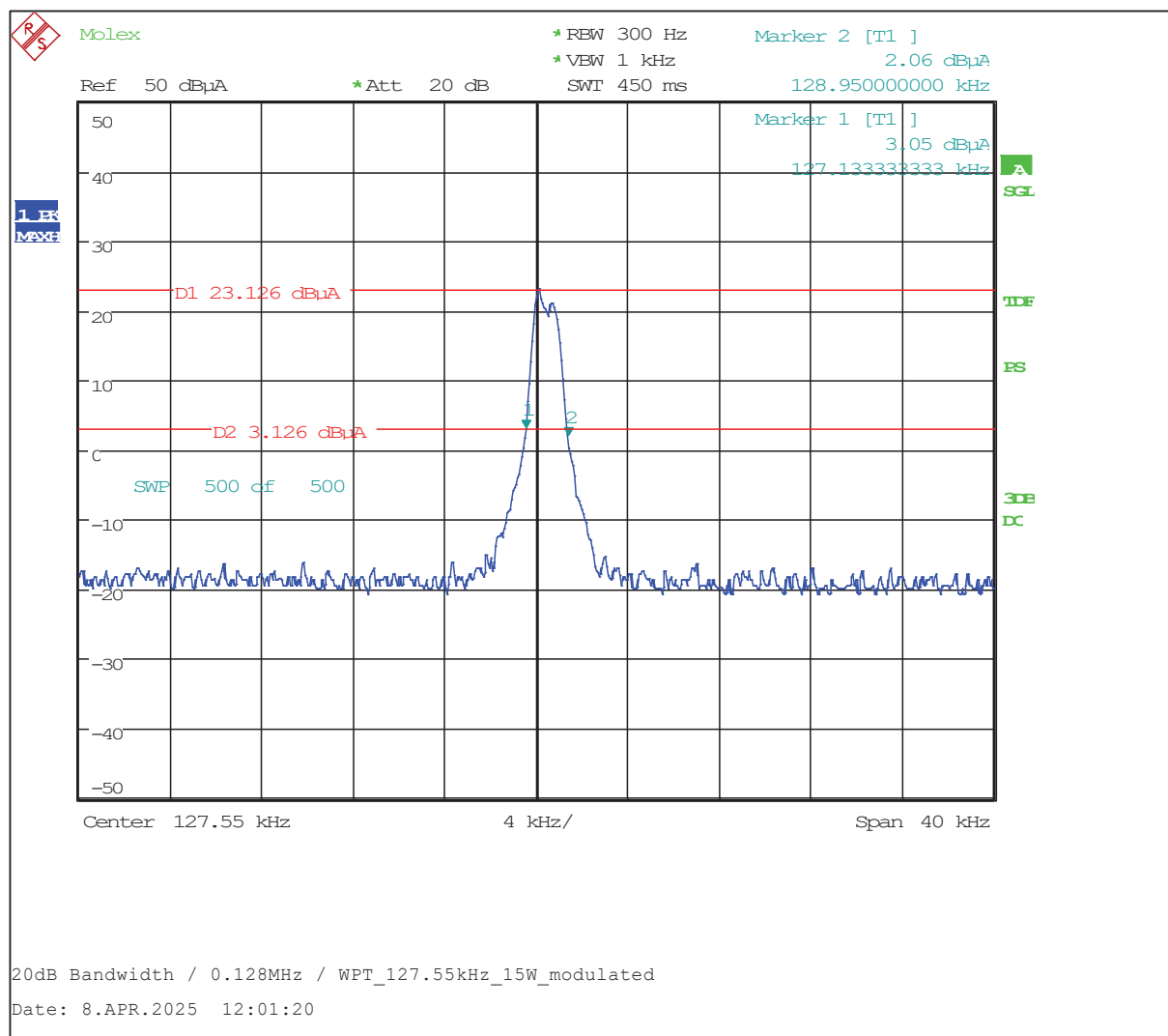


20dB Bandwidth / 0.128MHz / WPT_127.55kHz_5W_unmodulated

Date: 22.APR.2025 08:44:11

Frequency [kHz]	20 dB OBW [Hz]
127.55	286.66

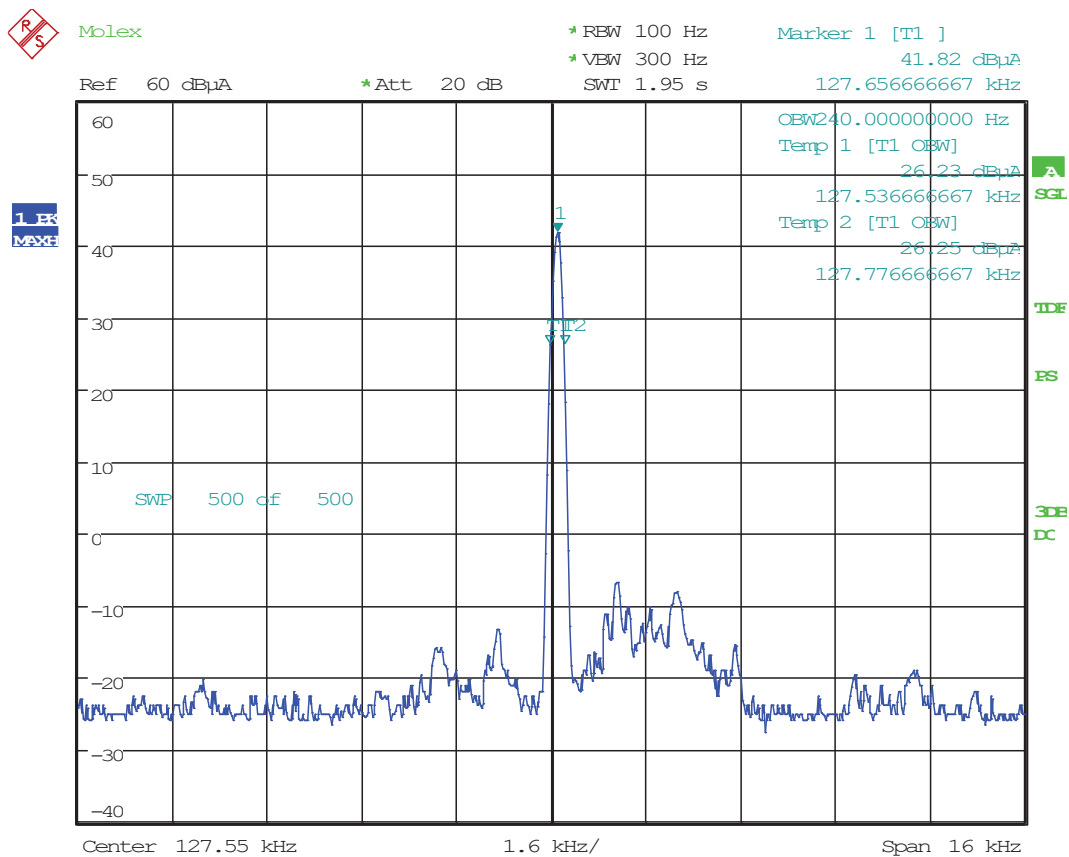
7.2.2 15 W modulated



Frequency [kHz]	20 dB OBW [kHz]
127.55	1.82

7.3. Test result 99 % OBW (ISED)

7.3.1 5 W unmodulated

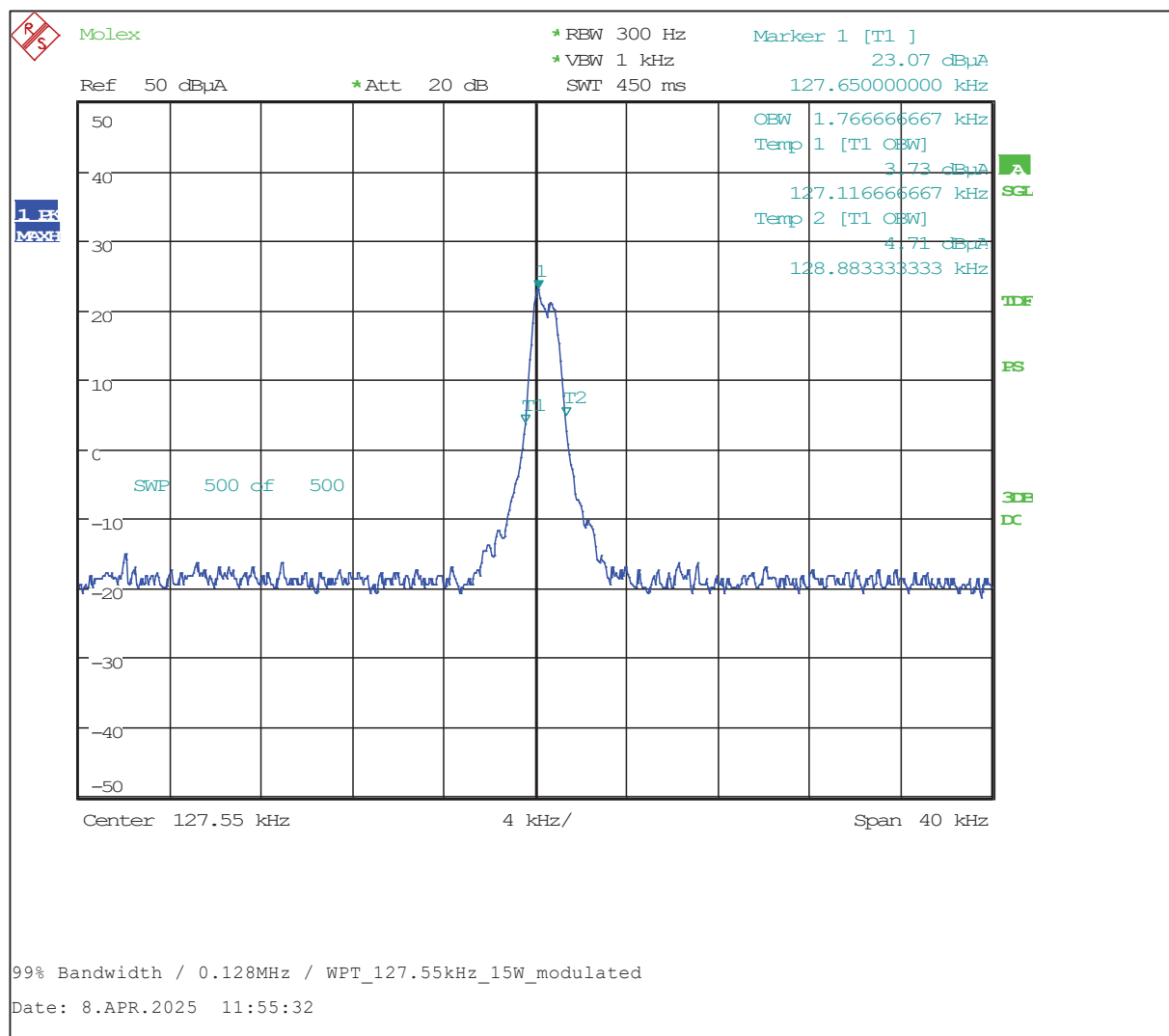


99% Bandwidth / 0.128MHz / WPT_127.55kHz_5W_unmodulated

Date: 22.APR.2025 08:33:52

Frequency [kHz]	99 % Bandwidth [Hz]
127.55	240.00

7.3.2 15 W modulated



Frequency [kHz]	99 % Bandwidth [kHz]
127.55	1.76

8. Test Equipment

8.1. Conducted radio

Equipment	Manufacturer	Type	SERIAL-NO.	Actual Calibration	Next Calibration
Signal Generator	ROHDE & SCHWARZ	SMB100A	181275	07.05.2025	07.05.2026
Vector Signal Generator	ROHDE & SCHWARZ	SMBV100A	263158	30.04.2025	30.04.2026
EMI Test Receiver	ROHDE & SCHWARZ	ESU26	100077	06.05.2025	06.05.2026
Power Supply	Hewlett Packard - Agilent	E3632A	MY40011318	31.05.2023	31.05.2026
Climatic Chamber	Vötsch	VT4002	521/85094	14.12.2022	14.12.2025

8.1.1 Passive devices

Equipment*	Manufacturer	Type	SERIAL-NO.
Loop antenna 6 cm	ETS-Lindgreen	7405-901B	Radio 0001
10 dB attenuator	Pasternack	PE7001-10	Radio 0002
RF-cable 2m	Huber & Suhner	Sucoflex 104	563441/4
RF-cable 20 cm	Huber & Suhner	Sucoflex 104	199784/4
Directional coupler	Tyco electronics	M/A-COM 0.5 – 18 GHz	96341

*Passive components included in used signal path.

8.2. Radiated Emission

Equipment	Manufacturer	Type	SERIAL-NO.	Actual Calibration	Next Calibration
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB-1519	1519-056	03.04.2023	03.04.2026
Bilog Antenna	ROHDE & SCHWARZ	HL562E	100191	21.02.2023	21.02.2026
Horn Antenna	Schwarzbeck	BBHA-9120-D	01617	22.01.2025	22.01.2028
MW Antenna	Schwarzbeck	BBHA-9170	01617	25.01.2023	25.02.2026
Antenna	Schwarzbeck Mess-Elektronik	VAMP-9243	9243-486	02.05.2024	02.05.2027
Signal Generator	ROHDE & SCHWARZ	SML01	100652	26.04.2024	26.04.2027
Signal Generator	ROHDE & SCHWARZ	SMB100A	181275	07.05.2025	07.05.2026
Vector Signal Generator	ROHDE & SCHWARZ	SMBV100A	263158	30.04.2025	30.04.2026
Power Supply	Hewlett Packard - Agilent	E3632A	KR75303301	31.05.2023	31.05.2026
EMI Test Receiver	ROHDE & SCHWARZ	ESU26	100077	06.05.2025	06.05.2026
EMI Test Receiver	ROHDE & SCHWARZ	ESW44	101733	05.05.2025	05.05.2026
Temp. / Humidity Logger	Lufft	Opus 10	13262	10.01.2023	10.01.2026
Antenna	ROHDE & SCHWARZ	HK-116: 20-300MHz	825177/0017	08.01.2025	08.01.2028
Antenna	ROHDE & SCHWARZ	HK-116: 20-300MHz	100401	05.10.2023	05.10.2026
Antenna	ROHDE & SCHWARZ	HL223	832369/006	08.01.2025	08.01.2028
Antenna	ROHDE & SCHWARZ	HL223	100731	08.01.2025	08.01.2028
Antenna	Schwarzbeck	UBA 9116	9116-396	30.06.2023	30.06.2026
Antenna	Emco	3115	9810-5588	07.03.2024	07.03.2027

8.2.1 Passive devices

Equipment*	Manufacturer	Type	SERIAL-NO.
OSP Switch Unit	ROHDE & SCHWARZ	OSP-320	103089
OSP Switch Unit	ROHDE & SCHWARZ	OSP-230	101023
Low Noise Amplifier	Miteq	LNA-40-00100800-15-10P	15383
RF Attenuator	Huber & Suhner	3dB DC-18GHz	751933 No.1
RF Attenuator	Huber & Suhner	3dB DC-18GHz	751933 No.2
RF Cable	Huber & Suhner	Sucoflex 104	506968
RF Cable	Huber & Suhner	Sucoflex 104	506967
RF Cable	Huber & Suhner	Sucoflex 126EA	517430
RF Cable	Huber & Suhner	Sucoflex 126PEA	0815

*Passive components included in used signal paths.

END OF REPORT