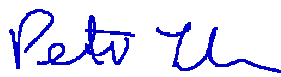




Report No. REP121822

FCC TEST REPORT / ISED TEST REPORT

Product	In vitro diagnostic (IVD) analyzer	
Name and address of the applicant	DiaSorin Italia S.p.A Via Crescentino, snc I- 13040 Saluggia (VC), Italy	
Name and address of the manufacturer	DiaSorin Italia S.p.A Via Crescentino, snc I- 13040 Saluggia (VC), Italy	
Model	LIAISON XL (REF I0050-20)	
Rating	8 - 3.3 A / 100 - 240 V AC / 50 - 60 Hz	
Trademark	DiaSorin	
Serial number	1014300016	
FCC ID IC	2BRB8LIAISONXL20 34319-LIAISONXL20	
Additional information	Radio Frequency Identification (RFID) - 13.56 MHz	
Tested according to	FCC Part 15.225 Low Power Transmitter, Operation within the band 13.110 - 14.010 MHz ISED RSS-210, Issue 11 Low Power Licence-Exempt Radio Apparatus, B.6 Band 13.110 - 14.010 MHz	
Order number	REP121822	
Arrival of EUT	2025-09-05	
Tested in period	2025-09-10, 2025-09-12, 2025-10-15, 2025-10-16	
Issue date	2025-11-06	
Name and address of the testing laboratory	Nemko GmbH Reetzstraße 58 D-76327 Pfinztal Germany Tel.: + 49 (0) 7240 - 63 - 0 Fax: + 49 (0) 7240 - 63 - 11  Bundesnetzagentur BNetzA-CAB-17/21-17	FCC No: 973501 ISED No: 10921A
 Prepared by [F. Hupbauer]  Approved by [Dipl.-Ing. P. Lukas]		

MS-R-8-178 rev. 03 / 2024-06-19 / FCC Radio

Template version: B

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1 TEST INFORMATION

1.1 Test item

Name:	LIAISON XL
Model/version:	LIAISON XL (REF I0050-20)
Serial number:	1014300016
FCC ID:	2BRB8LIAISONXL20
IC:	34319-LIAISONXL20
Software version:	50.00.02.00 (Instrument setup) HTML-Developer2_STC34 (Interpreter for running macros) LXL_Nemko_RFID_Lia5.mac (Macro for addressing RFID modules)
Type of Power Supply:	Entire Unit: 100 - 240 V AC / 50 - 60 Hz RFID Modules: 24 V DC

RFID:

Frequency Range:	13.553 - 13.567 MHz
Number of Channels:	1
Operating Modes:	Transmitter
Type of Modulation:	ASK
User Frequency Adjustment:	None
Maximum field strength @ 3m:	56.84 dB μ V/m
Antenna Connector:	Integral antenna
Number of Antennas	Module 1: 4 identical antennas Module 2: 34 identical antennas
Type of Antenna	Loop antenna
Antenna Diversity Supported	None

Description of test item

The LIAISON XL is a fully automated, non-patient contact immunoassay analyzer system for in-vitro diagnostic use. The main modules are the cuvette loader with oscillating conveyor, the incubator, the washer, the measuring chamber, the reagent module with RFID reader, the starter reagent module with RFID reader, the sample module with barcode scanner and the two pipettor arms.

The system incorporates two RFID modules each with 4 identical antennas on module 1 for the starter bay and 34 identical antennas on module 2 for the reagent bay that are switched via multiplexers.

1.2 Normal test condition

Temperature:	18 - 23 °C
Relative humidity:	60 - 64 %
Atmospheric pressure	995 - 1010 mbar
Normal test voltage:	120 V / 60 Hz

The values are the limit registered during the test period.

1.3 Test Engineer(s)

Frederic Hupbauer
Sören Marahrens

1.4 Description of modification for Modification Filing

Not applicable.

1.5 Family List Rational

Not Applicable.

1.6 Antenna Requirement

Is the antenna detachable?

☐ Yes ☒ No

If detachable, is the antenna connector non-standard?

☐ Yes ☐ No

Type of antenna connector: N/A

Ref. FCC §15.203

1.7 Worst-Case Configuration and Mode

The modules were set to continuous operation and the maximum output level was set in the software.

For every antenna with the highest output with and without tag was tested.

The radiated measurements are tested on three axes.

The worst-case-scenario is reported.

1.1 Decision rule

Decision rule is the Simple Acceptance Method (see MS-D-8-047).

1.2 Comments

The radiated measurements are tested on three axes.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards. The tests were conducted for the purpose of demonstrating compliance with FCC CFR 47 Part 15, Paragraph 15.225, ISED RSS-210 Issue 11 and RSS-Gen, Issue 5+Amd.1-2019+Amd.2-2021.

Tests were performed in accordance with ANSI C63.4-2014+C63.4a-2017 and ANSI C63.10-2020+Cor.1-2023.

Radiated tests were performed in a semi-anechoic shielded room ($f < 1$ GHz) and a fully anechoic shielded room ($f > 1$ GHz) at a measuring distance of 3 m. A description of the test facility is on file with the FCC and ISED.

Test setup photo document: REP121822TRFFCC Annex - Test set-up photos

☒ New Submission

☒ Production Unit

☐ Class II Permissive Change

☐ Pre-production Unit

DXT Equipment Code

☐ Family Listing



THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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2.2 Test summary

Name of test	FCC Part 15 reference	RSS-210 Issue 11 & RSS-Gen Issue 5	Result
Supply Voltage Variations	15.31 (e)	6.11 (RSS-Gen)	Complies
Antenna Requirement	15.203	6.8 (RSS-Gen)	N/A ¹
AC Power Line Conducted Emission	15.207 (a)	8.8 (RSS-Gen)	Complies
Occupied Bandwidth	N/A	6.7 (RSS-Gen)	--
Fundamental Field Strength	15.225 (a)	B.6 (a i)	Complies
Band Emissions	15.225 (b)(c)	B.6 (a ii)(a iii)	Complies
Spurious Emissions	15.225 (d) 15.209	B.6 (a iv) 6.13 (RSS-Gen) 8.9 (RSS-Gen)	Complies
Frequency Stability	15.225 (e)	B.6 (b)	Complies

¹ The tested equipment has integral loop antennas only

RSS Gen Issue 5 covers section 6 & 8

RSS 210 Issue 11 covers section B.6

3 TEST RESULTS

3.1 AC Power Line Conducted Emission

Para. No.: 15.207 (a)

Para. No.: 8.8

Test Performed By: S. Marahrens

Date of Test: 2025-09-10

Measurement procedure: ANSI C63.4-2014+C63.4a-2017 using 50 μ H/50 ohms LISN.

Test Results: Complies.

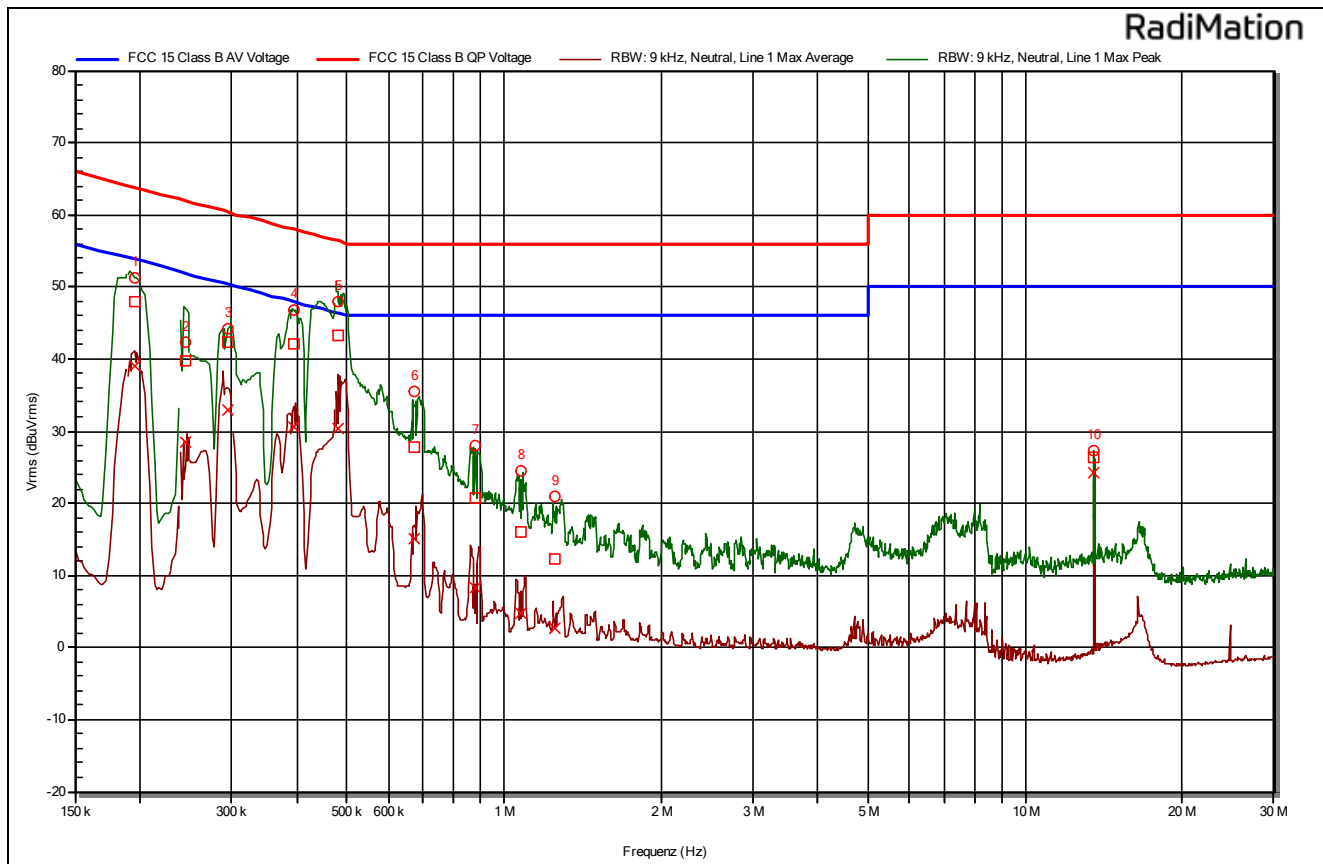
Test Equipment Used: 1-1313, 1-1260, 1-0365, 1-1118, 1-0604, 1-0361

Measurement Data: See attached graph.

Input voltage to EUT: 120V/60Hz and 240V/50Hz

Highest measured value (L1 and N):

Diagram 120V/60Hz



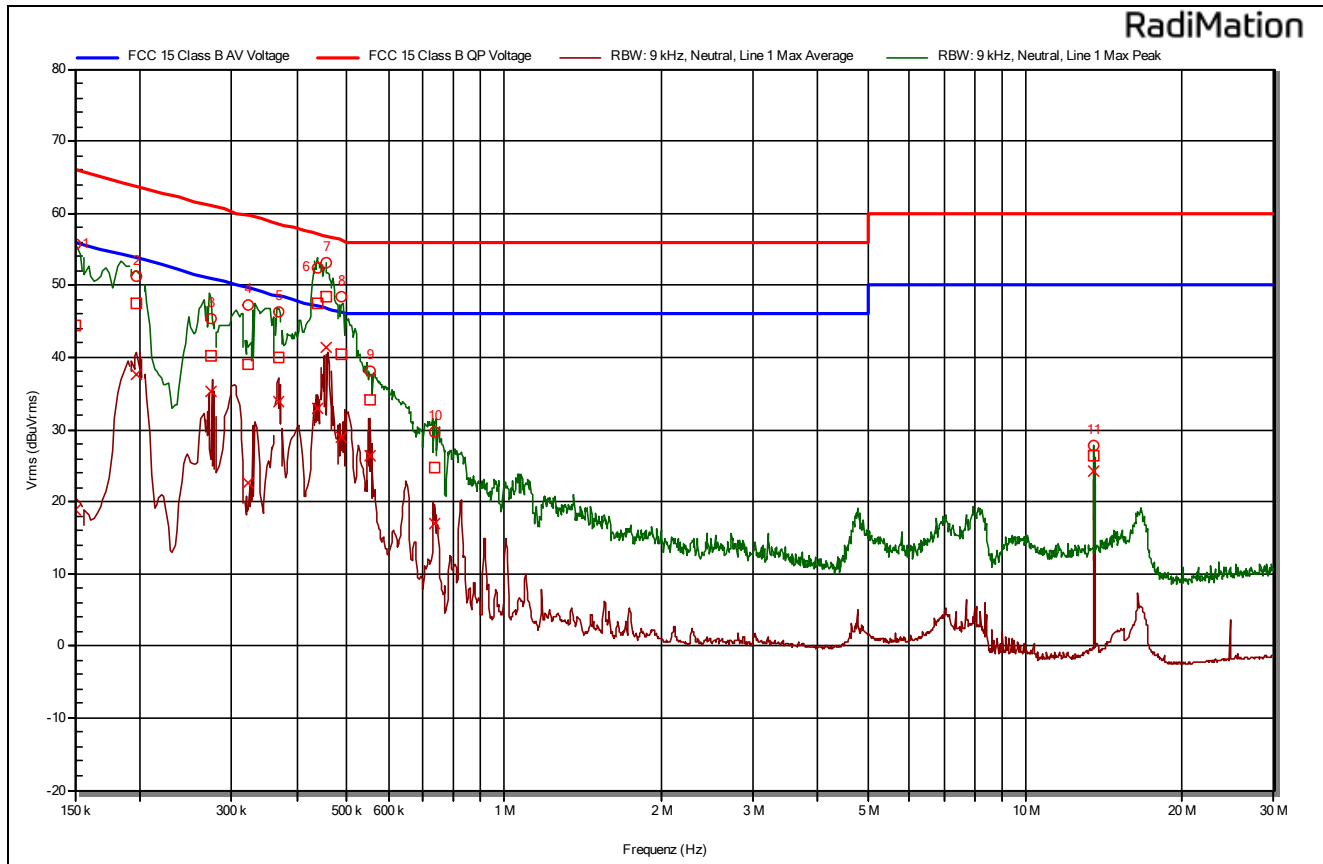
Final measurements QP with Quasi-Peak-Detector 120V/60Hz

Peak Number	Frequency (MHz)	Quasi-Peak (dBUVrms)	Quasi-Peak Limit (dBUVrms)	Quasi-Peak Correction (dB)	Quasi-Peak Difference (dB)	LISN
1	0.1950	47.96	63.82	9.7	-15.87	Line 1
2	0.2445	39.76	61.94	9.7	-22.19	Line 1
3	0.2962	42.30	60.35	9.7	-18.05	Neutral
4	0.3952	42.01	57.95	9.7	-15.94	Neutral
5	0.4807	43.18	56.33	9.7	-13.14	Line 1
6	0.6720	27.81	56.00	9.7	-28.19	Line 1
7	0.8790	20.67	56.00	9.7	-35.33	Line 1
8	1.0747	16.00	56.00	9.7	-40.00	Line 1
9	1.2525	12.21	56.00	9.7	-43.79	Line 1
10	13.5600	26.32	60.00	10.0	-33.68	Neutral

Final measurements AV with Average-Detector 120V/60Hz

Peak Number	Frequency (MHz)	Average (dBUVrms)	Average Limit (dBUVrms)	Average Correction (dB)	Average Difference (dB)	LISN
1	0.1950	39.15	53.82	9.7	-14.67	Line 1
2	0.2445	28.38	51.94	9.7	-23.56	Line 1
3	0.2962	32.94	50.35	9.7	-17.41	Neutral
4	0.3952	30.56	47.95	9.7	-17.39	Neutral
5	0.4807	30.34	46.33	9.7	-15.99	Line 1
6	0.6720	15.18	46.00	9.7	-30.82	Line 1
7	0.8790	8.34	46.00	9.7	-37.66	Line 1
8	1.0747	4.72	46.00	9.7	-41.28	Line 1
9	1.2525	2.59	46.00	9.7	-43.41	Line 1
10	13.5600	24.35	50.00	10.0	-25.65	Neutral

Diagram 240V/50Hz



Final measurements QP with Quasi-Peak-Detector 240V/50Hz

Peak Number	Frequency (MHz)	Quasi-Peak (dBuVrms)	Quasi-Peak Limit (dBuVrms)	Quasi-Peak Correction (dB)	Quasi-Peak Difference (dB)	LISN
1	0.1500	44.51	66.00	9.7	-21.49	Neutral
2	0.1972	47.53	63.73	9.7	-16.20	Line 1
3	0.2737	40.13	61.00	9.7	-20.88	Line 1
4	0.3232	38.99	59.62	9.7	-20.63	Neutral
5	0.3682	40.00	58.54	9.7	-18.54	Line 1
6	0.4380	47.47	57.10	9.7	-9.63	Neutral
7	0.4560	48.51	56.77	9.7	-8.25	Neutral
8	0.4875	40.48	56.21	9.7	-15.73	Line 1
9	0.5527	34.00	56.00	9.7	-22.00	Line 1
10	0.7350	24.61	56.00	9.7	-31.39	Line 1
11	13.5600	26.27	60.00	10.0	-33.73	Neutral

Final measurements AV with Average-Detector 240V/50Hz

Peak Number	Frequency (MHz)	Average (dBUVrms)	Average Limit (dBUVrms)	Average Correction (dB)	Average Difference (dB)	LISN
1	0.1500	18.94	56.00	9.7	-37.06	Neutral
2	0.1972	37.69	53.73	9.7	-16.04	Line 1
3	0.2737	35.27	51.00	9.7	-15.73	Line 1
4	0.3232	22.65	49.62	9.7	-26.97	Neutral
5	0.3682	33.82	48.54	9.7	-14.72	Line 1
6	0.4380	32.97	47.10	9.7	-14.13	Neutral
7	0.4560	41.29	46.77	9.7	-5.47	Neutral
8	0.4875	29.04	46.21	9.7	-17.17	Line 1
9	0.5527	26.31	46.00	9.7	-19.69	Line 1
10	0.7350	16.86	46.00	9.7	-29.14	Line 1
11	13.5600	24.36	50.00	10.0	-25.64	Neutral

The complete correction factor (CF) is made up of the correction factor of the instruments used.
For calculating the disturbance voltage U and the Margin the following formulas were employed:

$$U = U_M + CF \quad \text{with: } CF = VDF_{AMN} + a_{Cb1} + a_{Cb2} + a_{Cb3} + a_{PL}$$

U Value in dBμV (Quasi-peak or Average in the table)

U_M Measured value at receiver input in dBμV

CF Correction factor (Quasi-peak correction or Average correction in the table)

VDF_{AMN} Voltage division factor of AMN in dB

a_{Cb1} Cable loss of cable from AMN to wall in dB

a_{Cb2} Cable loss of cable from wall to coax switch in dB

a_{Cb3} Cable loss of cable from coax switch to pulse limiter in dB

a_{PL} Attenuation Pulse limiter in dB

$$\text{Margin} = \text{Result} - \text{Limit}$$

3.2 Occupied Bandwidth

Para. No.: N/A

Para. No.: 6.7

Test Performed by: F. Hupbauer

Date of Test: 2025-10-15

Test Results: Complies

Test Equipment Used: 1-0923, 1-0872, 1-0611, 1-0361

Measurement Data:

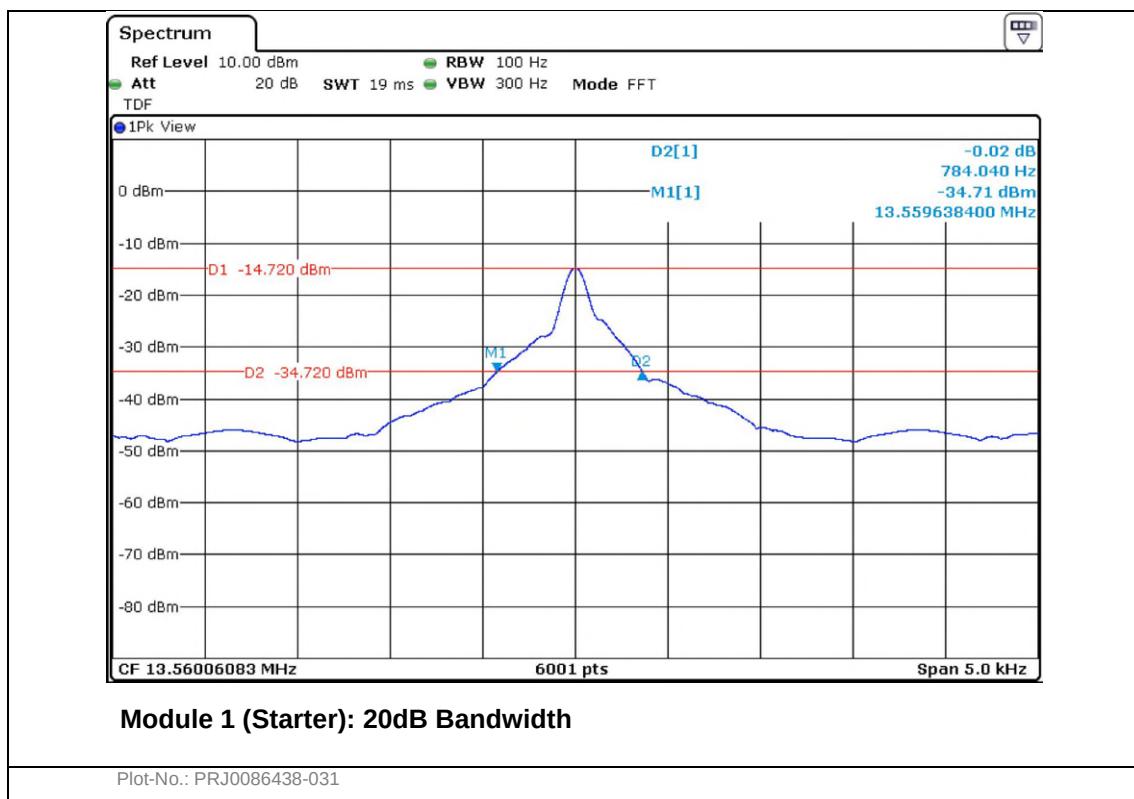
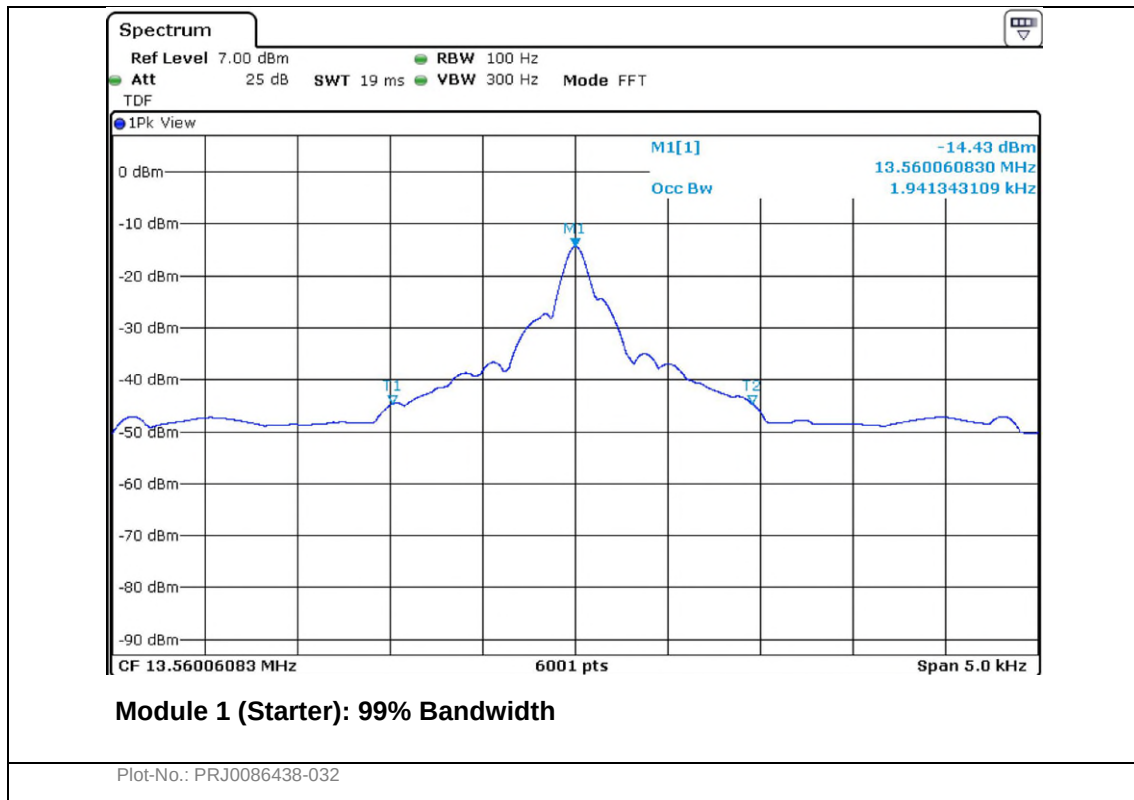
Module	Frequency (MHz)	99% Bandwidth (Hz)	20dB Bandwidth (Hz)
Module 1 (Starter)	13.56	1941	784
Module 2 (Reagent)	13.56	1336	472

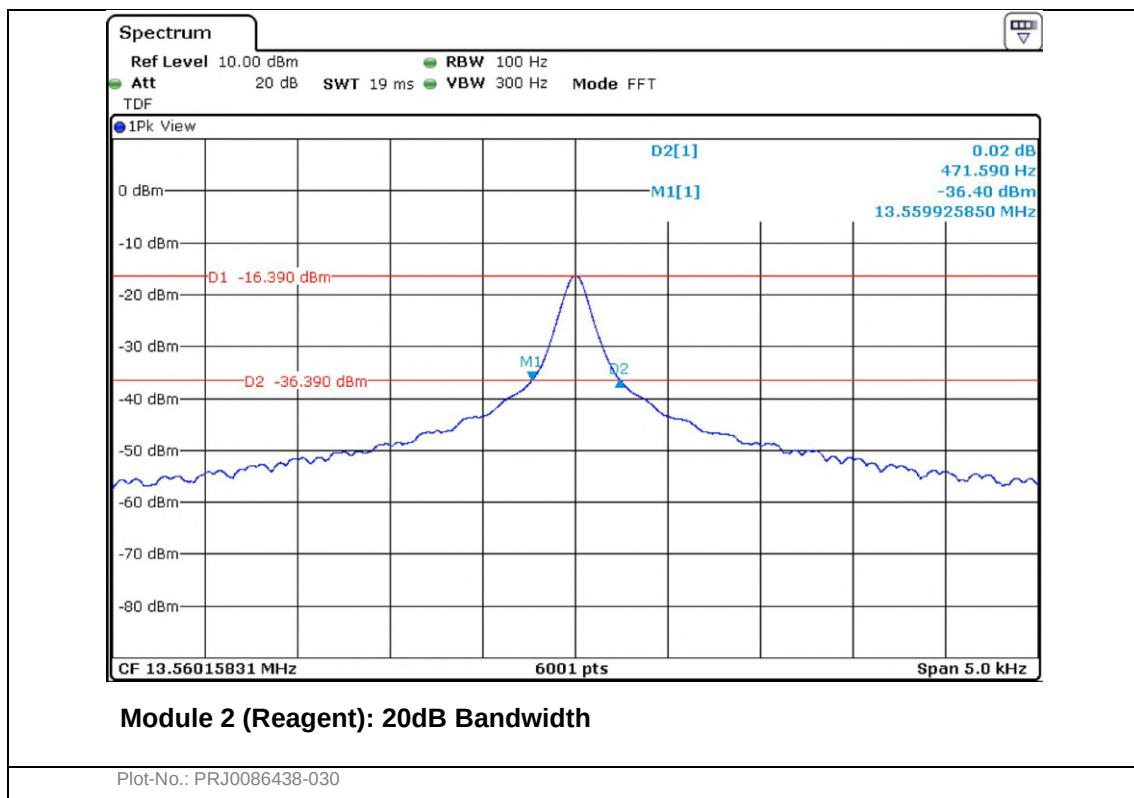
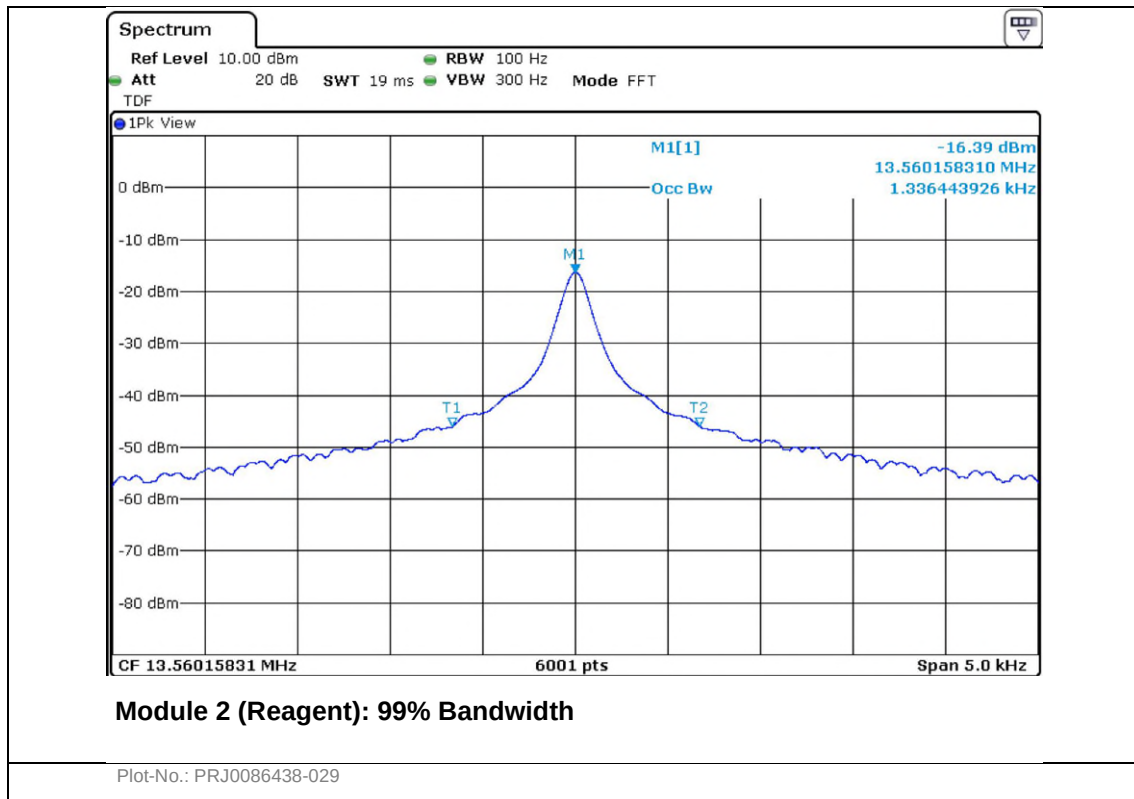
Requirements:

No requirements for bandwidth for this frequency band.

Measurement data are reported for information only.

Occupied Bandwidth Plots





3.3 Fundamental Field Strength and Band Emissions

Para. No.: 15.225 (a)

Para. No.: B.6 (a i)

Test Performed By: F. Hupbauer

Date of Test: 2025-10-15

Test Results: Complies

Test Equipment Used: 1-1289, 1-1260, 1-0619, 1-0611, 1-0361, 1-0806, 1-0080

Measurement data:

Maximum field strength

Module	RF channel (MHz)	Measured PK value (dB μ V/m) @ 3m	Converted Limit (dB μ V/m) @ 3m
Module 1 (Starter)	13.56	56.84	124.0
Module 2 (Reagent)	13.56	56.11	124.0

The limit line given in the graph is corrected to 3 m distance.

Radiated measurements are performed at 3 m distance.

Detachable antenna?

☐ Yes ☒ No

If detachable, is the antenna connector non-standard?

☐ Yes ☐ No

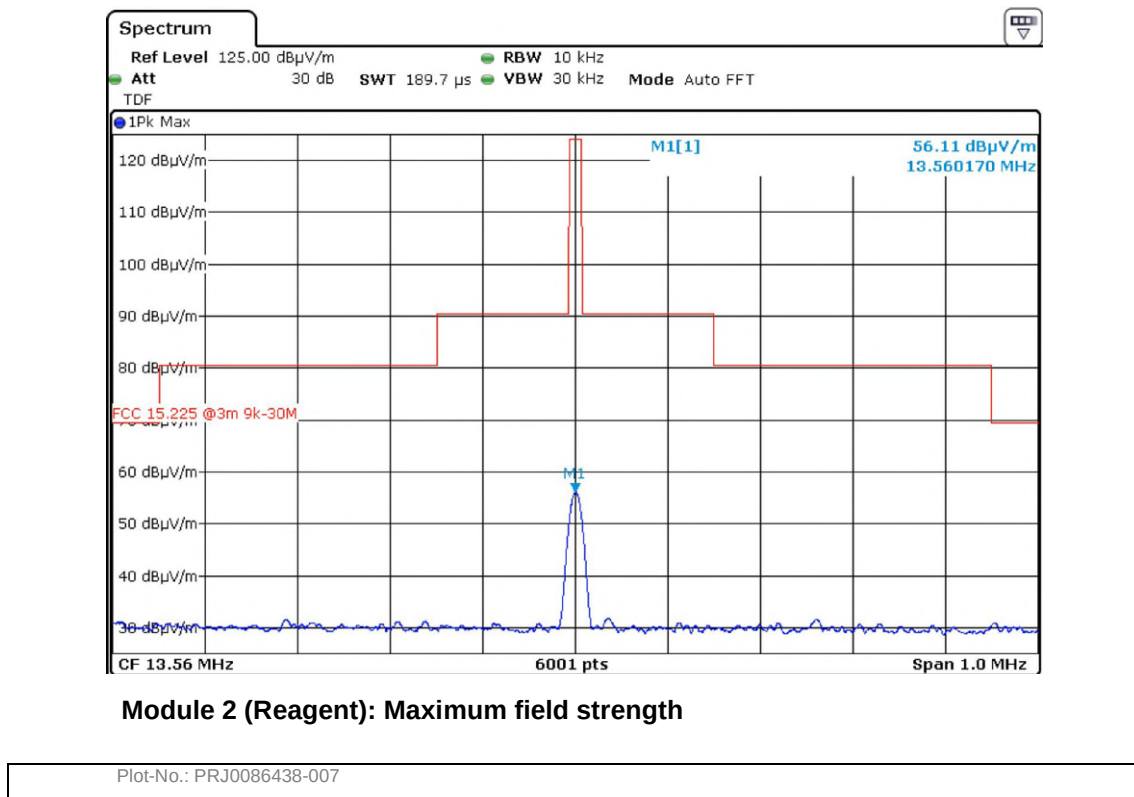
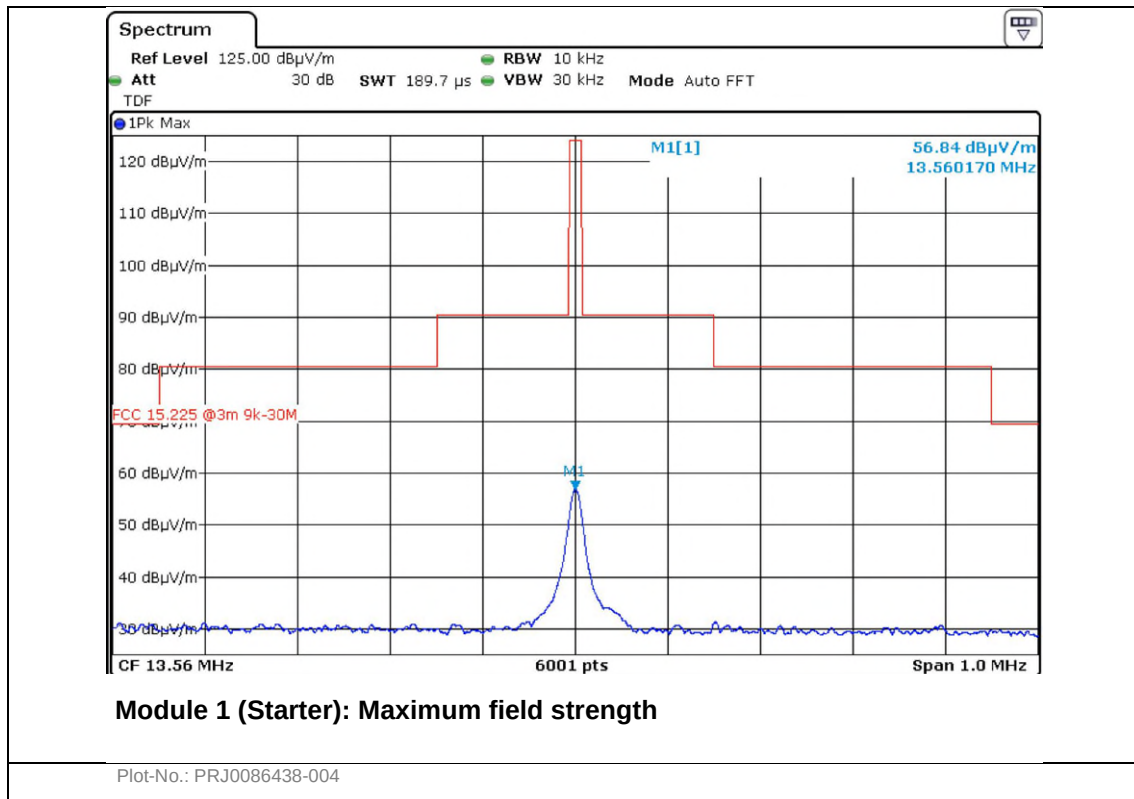
Integral loop antenna

Requirements:

The maximum field strength within band 13.553 - 13.567 MHz at 30 meters shall be ≤ 84.0 dB μ V/m (at 3 meters ≤ 124.0 dB μ V/m).

(b) 334 microvolts/m (50.5 dB μ V/m) at 30 meters, within the bands 13.410 - 13.553 MHz and 13.567 - 13.710 MHz. (at 3 meters ≤ 90.5 dB μ V/m).

(c) 106 microvolts/m (40.5 dB μ V/m) at 30 meters, within the bands 13.110 - 13.410 MHz and 13.710 - 14.010 MHz. (at 3 meters ≤ 80.5 dB μ V/m).



3.4 Spurious Emissions

Para. No.: 15.209 / 15.225 (b, c, d)

Para. No.: B.6 (a ii, a iii, a iv)

Test Performed By: F. Hupbauer

Date of Test: 2025-09-12, 2025-10-15

Test Results: Complies

Test Equipment Used:

9 kHz - 30 MHz: 1-1289, 1-1260, 1-0619, 1-0611, 1-0361, 1-0806, 1-0080

30 MHz - 200 MHz: 1-0040, 1-0995, 1-1260, 1-1000, 1-0619, 1-0604, 1-0361, 1-0806, 1-0807, 1-0080

200 MHz - 1 GHz: 1-0055, 1-1260, 1-1000, 1-0619, 1-0604, 1-0361, 1-0806, 1-0807, 1-0080

Measurement Data:

Radiated Emissions with loop antenna, 9 kHz - 30 MHz

measured at a distance of 3 m.

All modules are operating simultaneously at 13.56 MHz

Measured with Peak Detector:

Frequency	Dist. corr. factor	Measured Field strength, Peak @ 3m	Duty cycle corr. factor	Calculated Field strength, Peak @ 300m	Limit @ 300m	Margin
kHz	dB	dB μ V/m	dB	dB μ V/m	dB μ V/m	dB
10.816	80	76.29	-	-3.71	48.2	51.91

The maximum is observed in coplanar horizontal polarization.

Frequency	Dist. corr. factor	Measured Field strength, Peak @ 3m	Duty cycle corr. factor	Calculated Field strength, Peak @ 30m	Limit @ 30m	Margin
MHz	dB	dB μ V/m	dB	dB μ V/m	dB μ V/m	dB
0.222	40	48.28	-	8.28	29.5	21.22

The maximum is observed in coaxial vertical polarization.

Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

The limit line given in the graph is corrected to 3 m distance using 40 dB/decade according to 15.31 (f) (2).

Requirement:

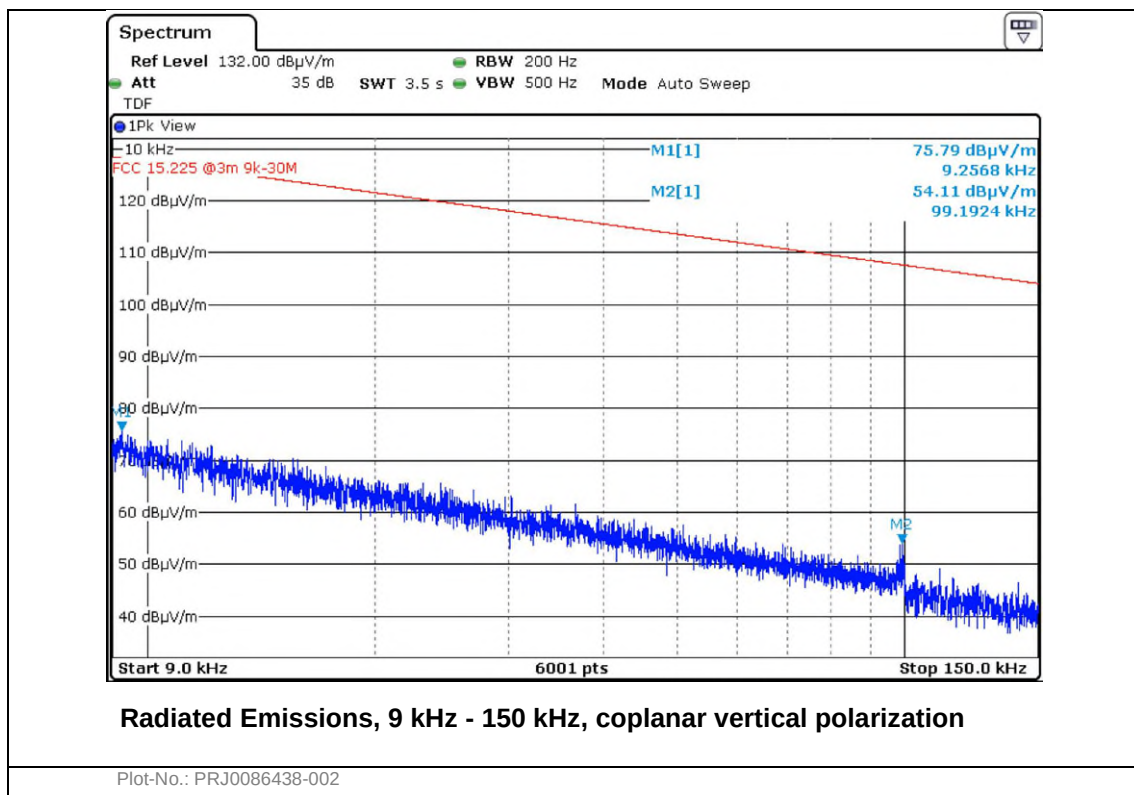
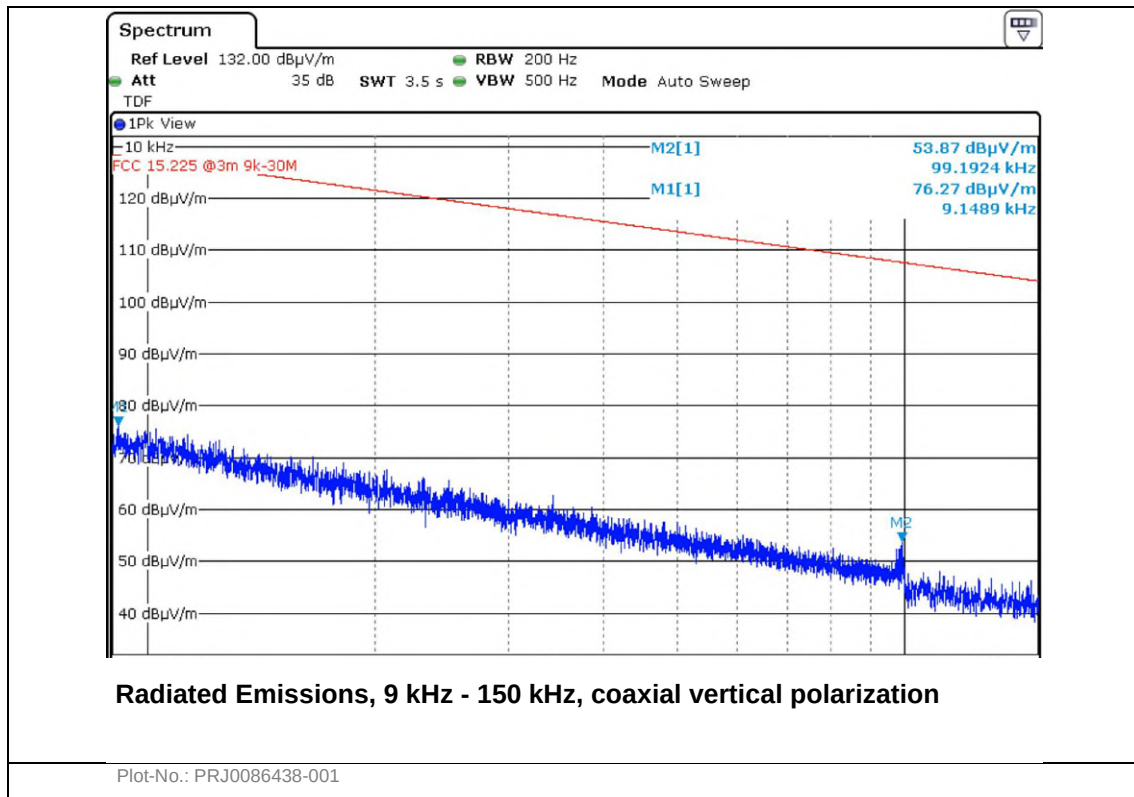
(d) The field strength of any emissions appearing outside of the 13.110 - 14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

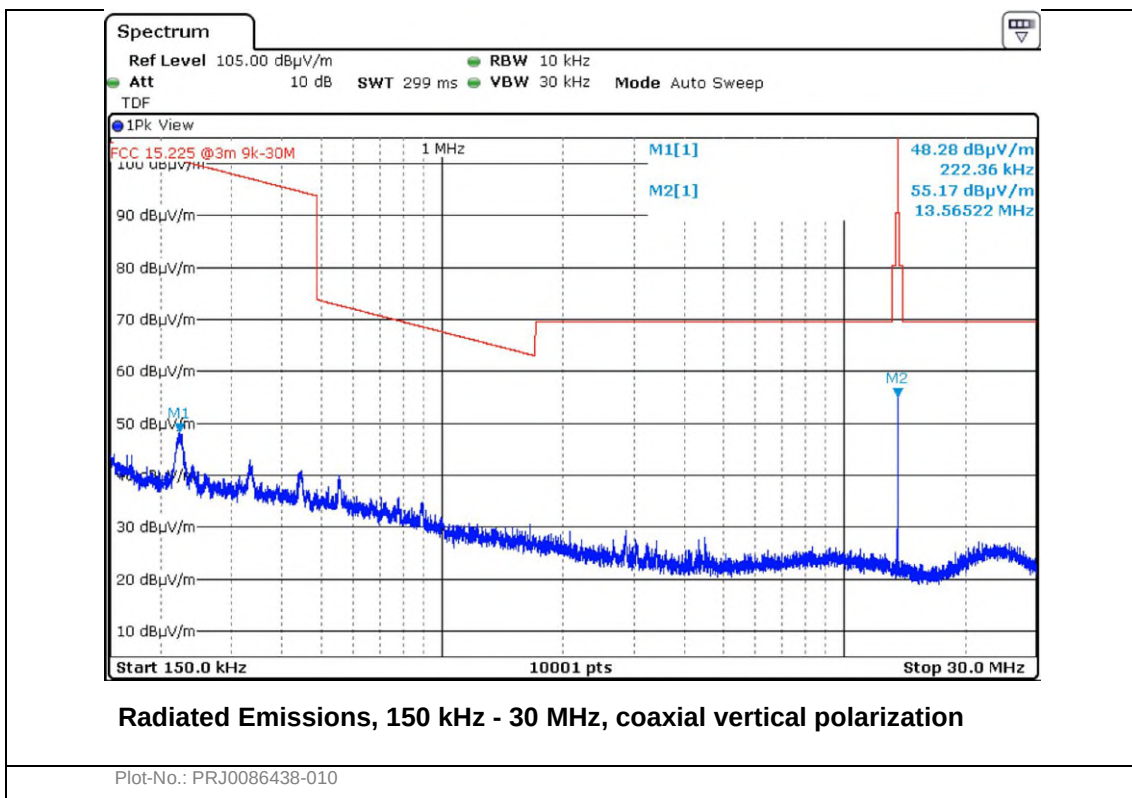
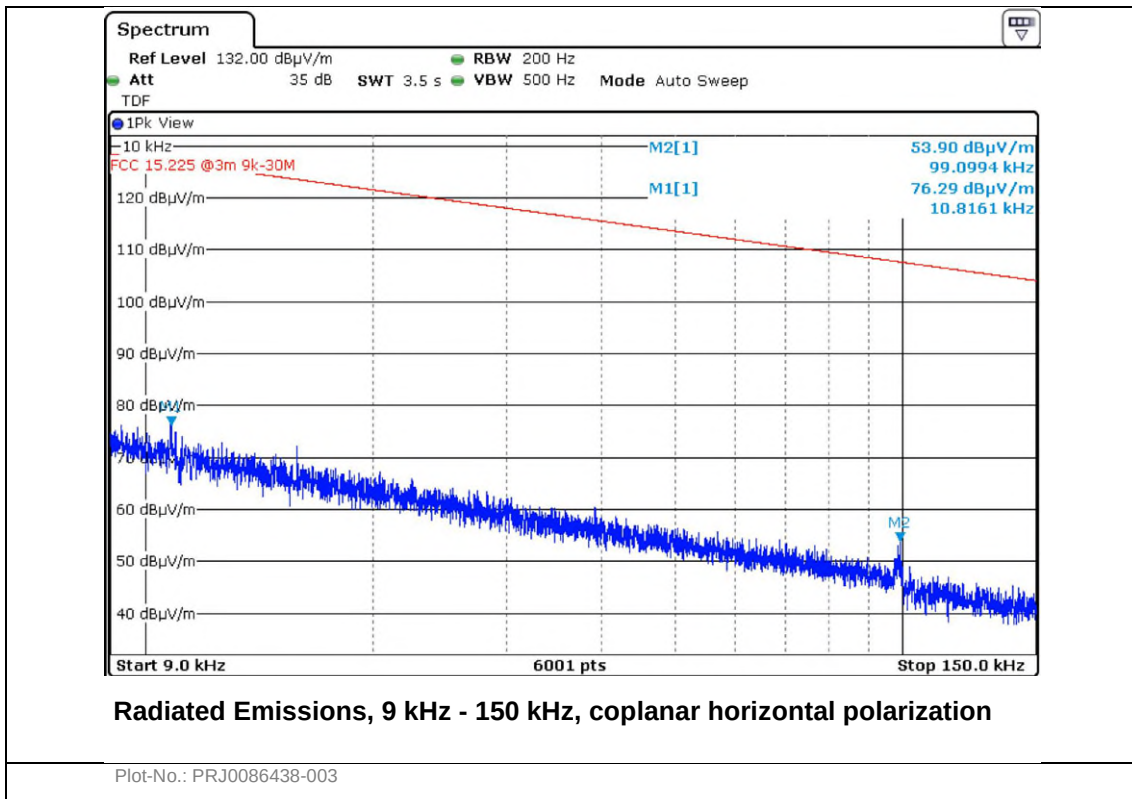
Requirements/Limit according §15.209

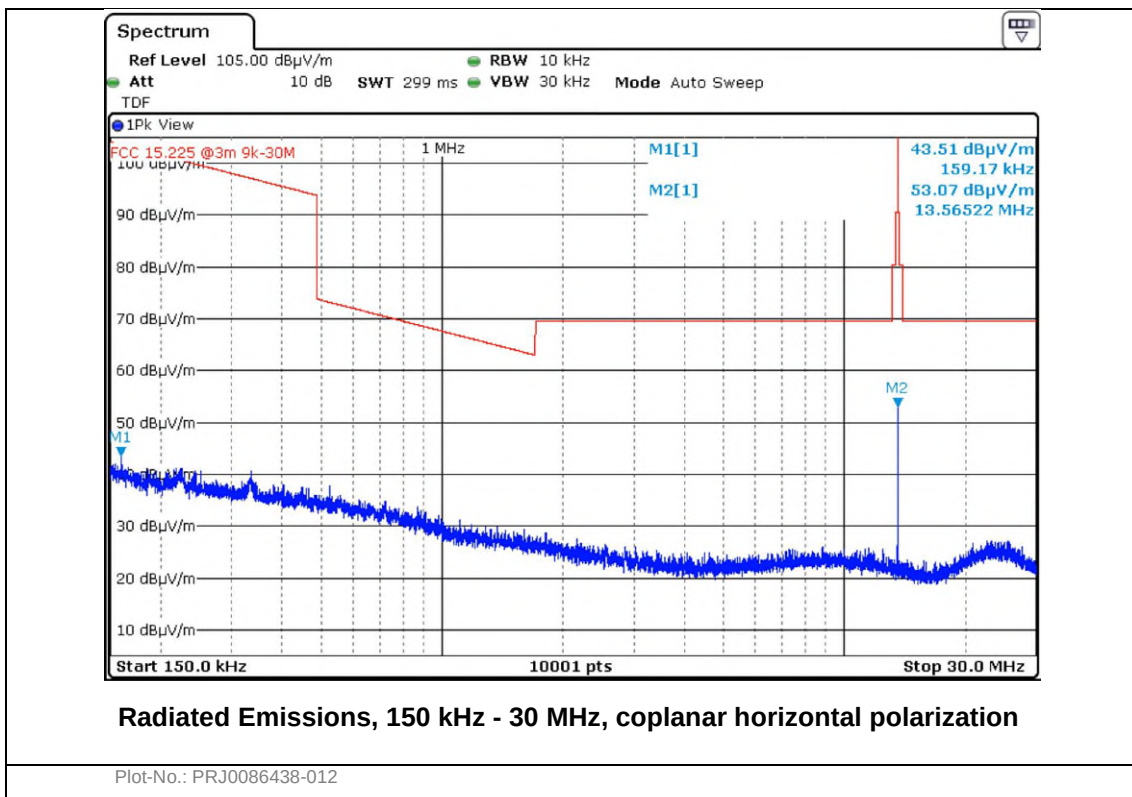
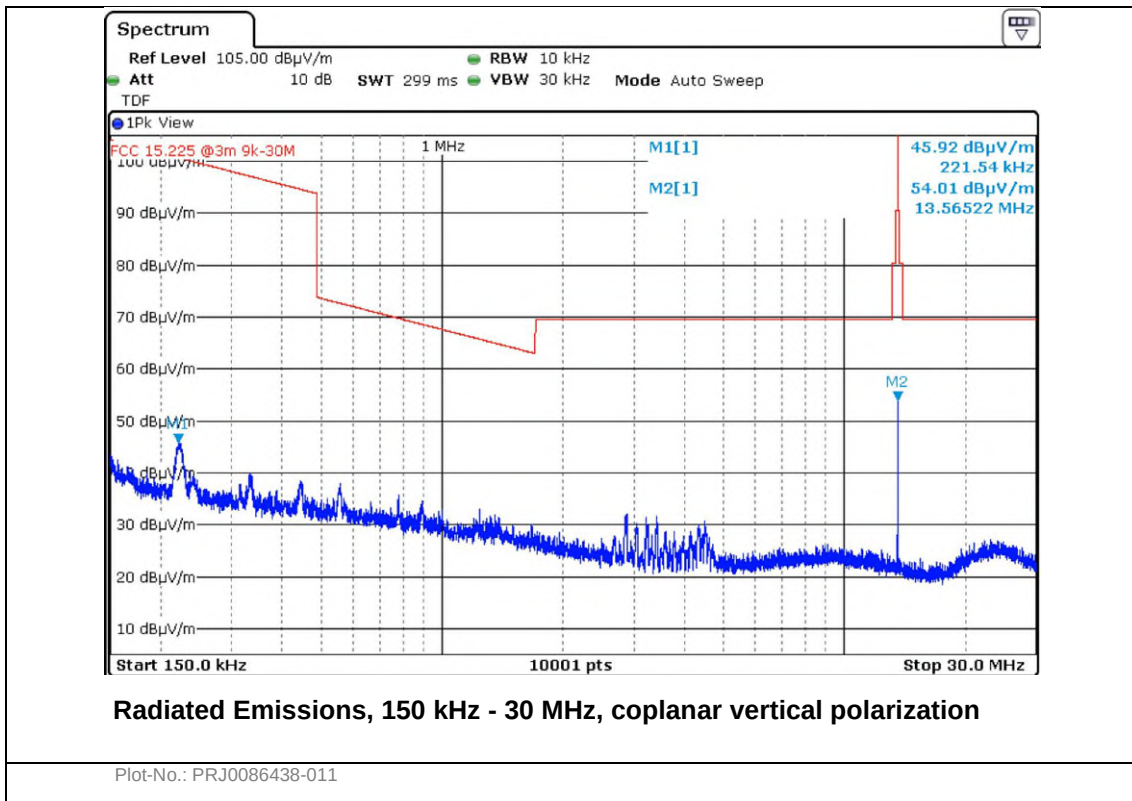
FCC	Part 15.209 @ frequencies defined in §15.205		
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10		
	Radiated emission limit		
Frequency (MHz)	Quasi Peak (µV/m)	Quasi Peak (dBµV/m)	@ Measurement distance (meters)
0.009 – 0.490	2400/f(kHz)	20log(2400/f(kHz))	300
0.490 – 1.705	24000/f(kHz)	20log(24000/f(kHz))	30
1.705 – 30	30	29.5	30
30 – 88	100	40.0	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

Radiated emissions 9 kHz - 30 MHz.

Measuring distance 3 m, measured with Peak detector.

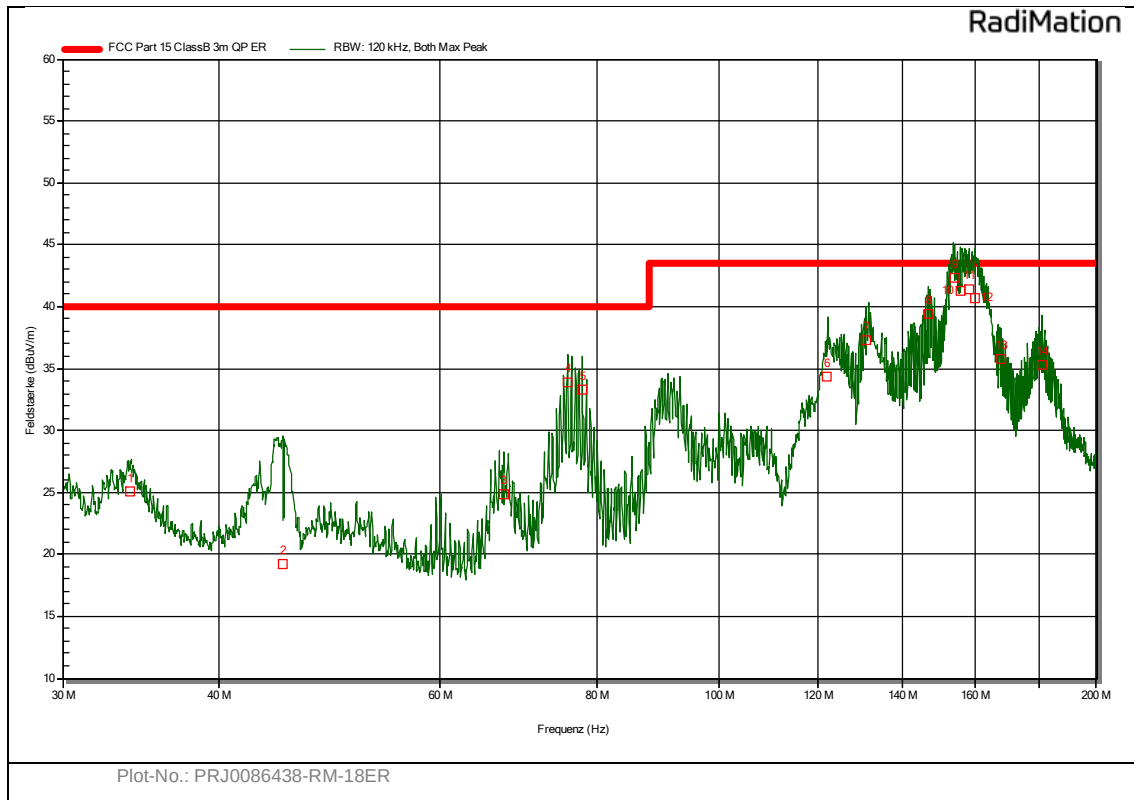






Radiated emissions 30 - 200 MHz.

Measuring distance 3 m, measured with Quasi Peak detector.

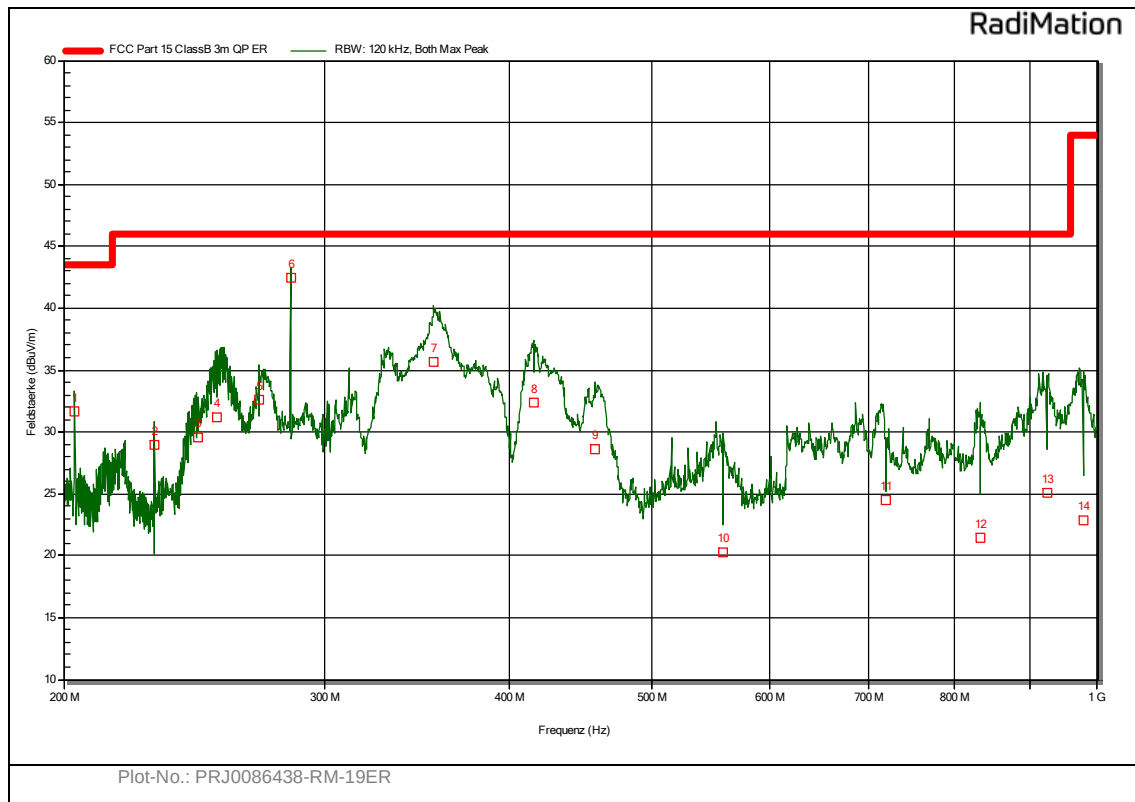


Final measurements QP with Quasi-Peak-Detector

Peak Number	Frequency (MHz)	Quasi-Peak (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Quasi-Peak Correction (dB)	Quasi-Peak Difference (dB)	Angle (Grad)	Height (m)	Polarization
1	33.99	25.09	40.00	19.2	-14.91	22.0	1.00	Vertical
2	45.00	19.23	40.00	16.9	-20.77	22.0	1.00	Vertical
3	67.38	24.87	40.00	15.1	-15.13	22.0	1.00	Vertical
4	75.78	33.83	40.00	14.9	-6.17	0.0	1.00	Vertical
5	77.91	33.27	40.00	14.9	-6.73	337.0	1.00	Vertical
6	122.04	34.41	43.50	17.6	-9.09	0.0	1.00	Vertical
7	131.07	37.26	43.50	18.1	-6.24	0.0	1.00	Vertical
8	146.85	39.39	43.50	18.7	-4.11	0.0	1.00	Vertical
9	154.23	42.34	43.50	18.9	-1.16	359.0	1.00	Vertical
10	155.82	41.33	43.50	18.8	-2.17	359.0	1.00	Vertical
11	158.43	41.41	43.50	18.8	-2.09	359.0	1.00	Vertical
12	159.96	40.72	43.50	18.8	-2.78	349.0	1.00	Vertical
13	167.91	35.71	43.50	19.1	-7.79	67.0	1.00	Vertical
14	181.05	35.30	43.50	19.7	-8.20	0.0	1.00	Vertical

Radiated emissions 200 - 1000 MHz.

Measuring distance 3 m, measured with Quasi Peak detector.



Final measurements QP with Quasi-Peak-Detector

Peak Number	Frequency (MHz)	Quasi-Peak (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Quasi-Peak Correction (dB)	Quasi-Peak Difference (dB)	Angle (Grad)	Height (m)	Polarization
1	203.42	31.62	43.50	11	-11.88	359.0	1.00	Vertical
2	230.51	28.98	46.00	11.9	-17.02	360.0	1.00	Vertical
3	246.32	29.52	46.00	12.5	-16.48	22.0	1.00	Horizontal
4	253.73	31.19	46.00	12.7	-14.81	22.0	1.00	Horizontal
5	271.19	32.64	46.00	13.4	-13.36	22.0	1.00	Vertical
6	284.78	42.50	46.00	13.7	-3.50	278.0	1.00	Vertical
7	355.73	35.67	46.00	16.0	-10.33	90.0	1.00	Horizontal
8	416.00	32.35	46.00	18.2	-13.65	112.0	1.00	Horizontal
9	457.25	28.64	46.00	18.3	-17.36	45.0	1.00	Horizontal
10	558.41	20.25	46.00	19.6	-25.75	22.0	1.00	Vertical
11	718.67	24.50	46.00	22.3	-21.50	270.0	1.00	Horizontal
12	833.93	21.50	46.00	23.1	-24.50	22.0	2.49	Horizontal
13	924.17	25.10	46.00	24.0	-20.90	0.0	2.50	Horizontal
14	978.17	22.85	54.00	24.7	-31.15	0.0	2.50	Vertical

Restricted Bands of operation

Restricted Bands of operation for FCC and ISED are defined in FCC Part 15.205 and ISED RSS-GEN, Issue 5 clause 8.10.

Generally, no fundamentals are allowed in the restricted bands, and all emissions must comply with the limits in FCC 15.209 or RSS-GEN, Issue 5, clause 8.9.

FCC (MHz)	ISED (MHz)	FCC (GHz)	ISED (GHz)
0.090-0.110		0.96-1.24 1.3-1.427	0.96-1.427
0.495-0.505		1.435-1.6265	
2.1735-2.1905		1.6455-1.6465	
	3.020-3.026	1.660-1.710	
4.125-4.128		1.7188-1.7222	
4.17725-4.17775		2.2-2.3	
4.20725-4.20775		2.31-2.39	
	5.677-5.683	2.4835-2.5	
6.215-6.218		2.69-2.9	2.655-2.9
6.26775-6.26825		3.26-3.267	
6.31175-6.31225		3.332-3.339	
8.291-8.294		3.3458-3.358	
8.362-8.366		3.6-4.4	3.5-4.4
8.37625-8.38675		4.5-5.15	
8.41425-8.41475		5.35-5.46	
12.29-12.293		7.25-7.75	
12.51975-12.52025		8.025-8.5	
12.57675-12.57725		9.0-9.2	
13.36-13.41		9.3-9.5	
16.42-16.423		10.6-12.7	
16.69475-16.69525		13.25-13.4	
16.80425-16.80475		14.47-14.5	
25.5-25.67		15.35-16.2	
37.5-38.25		17.7-21.4	
73-74.6		22.01-23.12	
74.8-75.2		23.6-24.0	
108-121.94 123-138	108-138	31.2-31.8	
149.9-150.05		36.43-36.5	
156.52475-156.52525		Above 38.6	
156.7-156.9			
162.0125-167.17			
167.72-173.2			
240-285			
322-335.4			
399.9-410			
608-614			

Frequencies in **Bold** text are specific for FCC or ISED, all other frequencies are common.

3.5 Supply Voltage Variations and Frequency Stability

Para. No.: 15.225 (e)

Para. No.: B.6 (b)

Test Performed By: F. Hupbauer

Date of Test: 2025-10-15, 2025-10-16

Test Results: Complies

Test Equipment Used: 1-0923, 1-0872, 1-0611, 1-0964, 1-0929, 1-0380

Measurement Data:

Module 1 (Starter)

Temperature	Module supply voltage	Given Frequency (MHz)	Measured Value (MHz)	Deviation (%)
+50 °C	24.0 V DC	13.56	13.560003	0.00002212
+40 °C	24.0 V DC	13.56	13.560038	0.00028024
+30 °C	24.0 V DC	13.56	13.560058	0.00042773
+20 °C	24.0 V DC	13.56	13.560063	0.00046460
+20 °C	27.6 V DC	13.56	13.560062	0.00045723
+20 °C	20.4 V DC	13.56	13.560062	0.00045723
+10 °C	24.0 V DC	13.56	13.560113	0.00083333
+0 °C	24.0 V DC	13.56	13.560117	0.00086283
-10 °C	24.0 V DC	13.56	13.560101	0.00074484
-20 °C	24.0 V DC	13.56	13.560042	0.00030973

Module 2 (Reagent)

Temperature	Module supply voltage	Given Frequency (MHz)	Measured value (MHz)	Deviation (%)
+50 ° C	24.0 V DC	13.56	13.560121	0.00089233
+40 ° C	24.0 V DC	13.56	13.560149	0.00109882
+30 ° C	24.0 V DC	13.56	13.560193	0.00142330
+20 ° C	24.0 V DC	13.56	13.560160	0.00117994
+20 ° C	27.6 V DC	13.56	13.560160	0.00117994
+20 ° C	20.4 V DC	13.56	13.560160	0.00117994
+10 ° C	24.0 V DC	13.56	13.560255	0.00188053
+0 ° C	24.0 V DC	13.56	13.560264	0.00194690
-10 ° C	24.0 V DC	13.56	13.560256	0.00188791
-20 ° C	24.0 V DC	13.56	13.5601389	0.00102434

Requirement:

(e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage and for a variation in the supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Output Power		±0.8 dB
Power Spectral Density		±0.8 dB
Out of Band Emissions, Conducted	< 3.6 GHz	±0.8 dB
	> 3.6 GHz	±1.2 dB
Spurious Emissions, Radiated	9 kHz - 30 MHz	±4.37 dB
	30 MHz - 200 MHz	±3.42 dB
	200 MHz - 1 GHz	±3.95 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		±1.62 dB
Spectrum Mask Measurements	Frequency	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2.

5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

Valid for tests performed on 2025-09-10 and 2025-09-12:

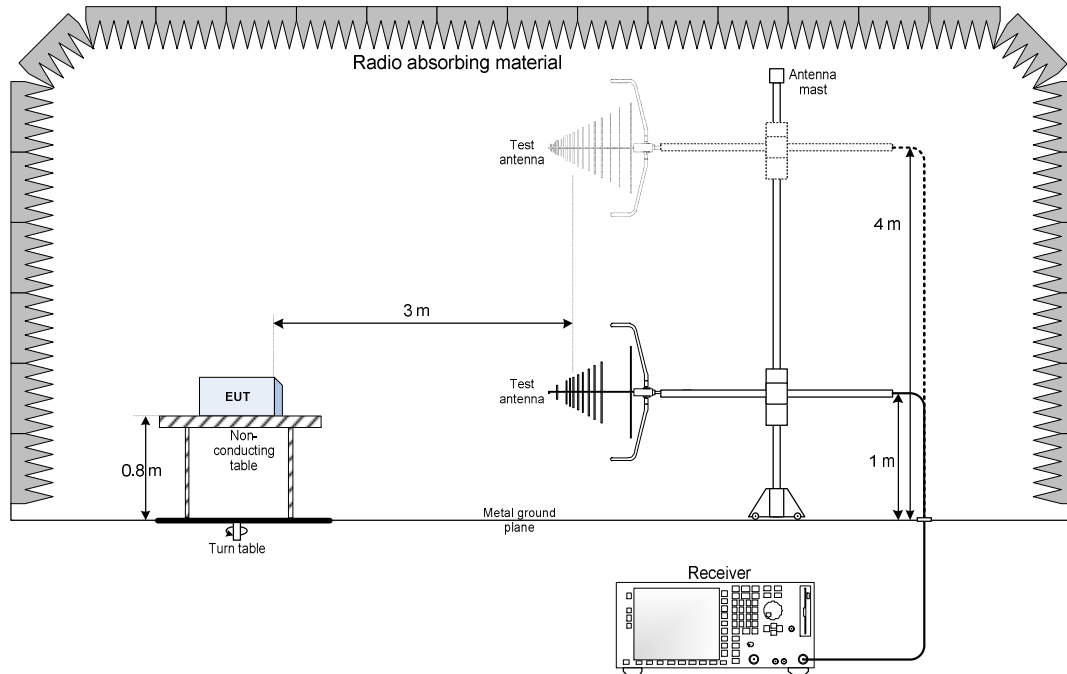
Inv.-Nr.	Instrument/ancillary	Manufacturer	Type	Serial number	Cal. Date	Cal. Due	Mon.
1-0040	Biconical antenna	Rohde & Schwarz	HK116	888945/007	03.08.2023	02.08.2026	36
1-0054	Pulse limiter	Rohde & Schwarz	ESH3-Z2	3MSE/0099	23.09.2024	22.09.2025	12
1-0055	LogPer antenna	Rohde & Schwarz	HL223	826517/014	10.11.2022	09.11.2025	36
1-0080	Turntable	H. Deisel	DS 420	1361114	N / A	N / A	
1-0200	Trilog antenna	Schwarzbeck	VULB 9163	VULB 9163-107	04.10.2024	03.01.2027	27
1-0361	Semi anechoic chamber	Reinhold & Mahla	3m	1124	08.10.2024	07.10.2027	36
1-0365	Coaxial cable (to SAC)	SSB electronic	Aircom plus	none	29.09.2022	28.09.2025	36
1-0380	Digital thermometer	Fluke	52 II	74380217	29.10.2024	28.10.2025	12
1-0604	EMI test receiver	Rohde & Schwarz	ESU8	100203	24.09.2024	23.09.2025	12
1-0611	Spectrum analyzer	Rohde & Schwarz	FSV 40	100898	24.09.2024	23.09.2025	12
1-0619	Coaxial cable (to SAC)	Huber+Suhner	SF106/2x11N-651/2m	70168/6	28.09.2023	27.09.2026	36
1-0624	EMI-Software Radimation	DARE	Radimation	not applicable	N / A	N / A	
1-0782	Antenna cable	Huber & Suhner	FB142A106000 2020	75193-01	29.09.2023	28.09.2026	36
1-0794	Coaxial cable	Rosenberger	FB142A001000 2020	65627-01	29.09.2023	28.09.2026	36
1-0806	Controller	Innco	CO 3000	821/34571114/L	N / A	N / A	
1-0807	Antenna mast	Innco	MA-400-XPET	4681114	N / A	N / A	
1-0872	10 dB Attenuator	mini circuits	BW-S10-2W263+	1437	27.09.2022	26.09.2025	36
1-0923	Coaxial cable	HARBOUR	RG316 MIL	#001	29.09.2022	28.09.2025	36
1-0924	Coaxial cable	HARBOUR	RG316 MIL	#002	29.09.2022	28.09.2025	36
1-0925	Coaxial cable	HARBOUR	RG316 MIL	#003	29.09.2022	28.09.2025	36
1-0929	Power supply	ELEKTRO-AUTOMATIK	PS 2042-20 B	2772230129	N / A	N / A	
1-0964	Climate chamber	Weiss Umwelttechnik	WK3-1000/70	58226174700010	29.10.2024	28.10.2025	12
1-0995	6 dB Attenuator	mini circuits	UNAT-6+	15542	04.10.2024	03.01.2027	27
1-1000	Low Noise Preamplifier	Nemko GmbH	BBV 30M1G	001	26.09.2024	25.09.2025	12
1-1118	Coaxial cable (to switch)	-	RG 213	-	29.09.2022	28.09.2025	36
1-1260	Coaxial cable	Harbour Industries	EA02-07-07-7M	23080362	28.09.2023	27.09.2026	36
1-1275	Artificial mains network, 3ph	Rohde & Schwarz	ENV 4200	100037	24.09.2024	23.09.2025	12
1-1289	Loop Antenna	Seibersdorf	PLA-R	PLAR039/X	28.03.2025	27.09.2026	18
1-1313	Artificial mains network, 1ph	Rohde & Schwarz	ENV 216	103191	27.11.2024	26.11.2025	12

Valid for tests performed on 2025-10-15 and 2025-10-16:

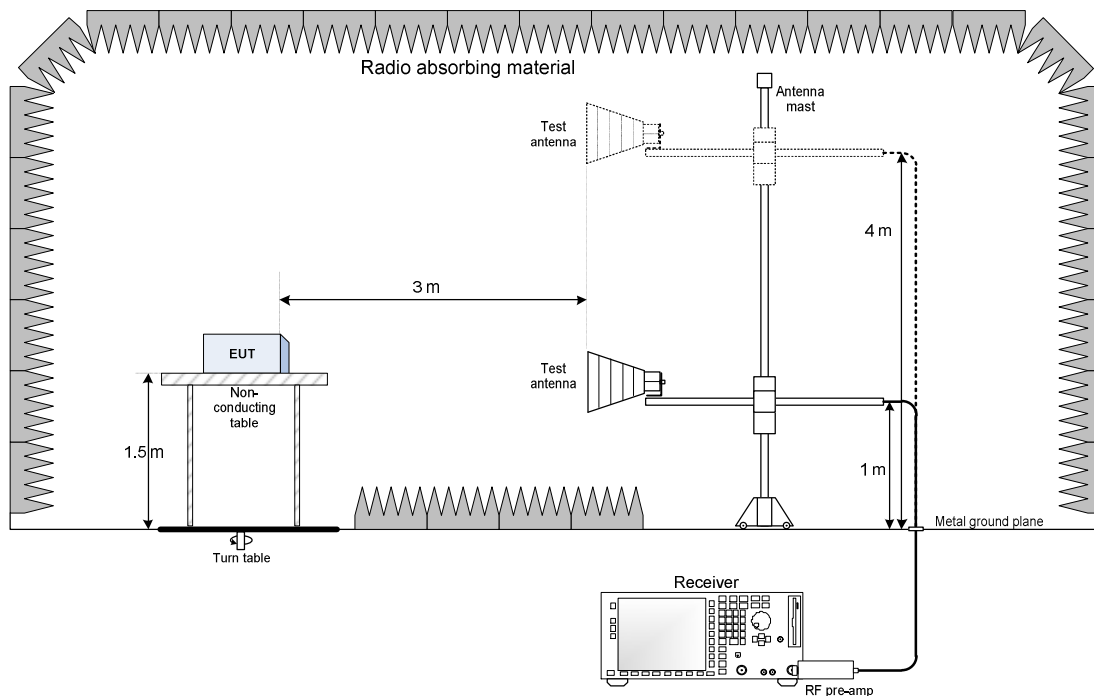
Inv.-Nr.	Instrument/ancillary	Manufacturer	Type	Serial number	Cal. Date	Cal. Due	Mon.
1-0040	Biconical antenna	Rohde & Schwarz	HK116	888945/007	03.08.2023	02.08.2026	36
1-0054	Pulse limiter	Rohde & Schwarz	ESH3-Z2	3MSE/0099	24.09.2025	23.09.2026	12
1-0055	LogPer antenna	Rohde & Schwarz	HL223	826517/014	10.11.2022	09.11.2025	36
1-0080	Turntable	H. Deisel	DS 420	1361114	N / A	N / A	
1-0200	Trilog antenna	Schwarzbeck	VULB 9163	VULB 9163-107	04.10.2024	03.01.2027	27
1-0361	Semi anechoic chamber	Reinhold & Mahla	3m	1124	08.10.2024	07.10.2027	36
1-0365	Coaxial cable (to SAC)	SSB electronic	Aircom plus	none	25.09.2025	24.09.2028	36
1-0380	Digital thermometer	Fluke	52 II	74380217	29.10.2024	28.10.2025	12
1-0604	EMI test receiver	Rohde & Schwarz	ESU8	100203	23.09.2025	22.09.2026	12
1-0611	Spectrum analyzer	Rohde & Schwarz	FSV 40	100898	01.10.2025	30.09.2026	12
1-0619	Coaxial cable (to SAC)	Huber+Suhner	SF106/2x11N-651/2m	70168/6	28.09.2023	27.09.2026	36
1-0624	EMI-Software Radimation	DARE	Radimation	not applicable	N / A	N / A	
1-0782	Antenna cable	Huber & Suhner	FB142A106000 2020	75193-01	29.09.2023	28.09.2026	36
1-0794	Coaxial cable	Rosenberger	FB142A001000 2020	65627-01	29.09.2023	28.09.2026	36
1-0806	Controller	Innco	CO 3000	821/34571114/L	N / A	N / A	
1-0807	Antenna mast	Innco	MA-400-XPET	4681114	N / A	N / A	
1-0872	10 dB Attenuator	mini circuits	BW-S10-2W263+	1437	24.09.2025	23.09.2028	36
1-0923	Coaxial cable	HARBOUR	RG316 MIL	#001	23.09.2025	22.09.2028	36
1-0924	Coaxial cable	HARBOUR	RG316 MIL	#002	23.09.2025	22.09.2028	36
1-0925	Coaxial cable	HARBOUR	RG316 MIL	#003	23.09.2025	22.09.2028	36
1-0929	Power supply	ELEKTRO-AUTOMATIK	PS 2042-20 B	2772230129	N / A	N / A	
1-0964	Climate chamber	Weiss Umwelttechnik	WK3-1000/70	58226174700010	29.10.2024	28.10.2025	12
1-0995	6 dB Attenuator	mini circuits	UNAT-6+	15542	04.10.2024	03.01.2027	27
1-1000	Low Noise Preamplifier	Nemko GmbH	BBV 30M1G	001	24.09.2025	23.09.2026	12
1-1118	Coaxial cable (to switch)	-	RG 213	-	25.09.2025	24.09.2026	36
1-1260	Coaxial cable	Harbour Industries	EA02-07-07-7M	23080362	28.09.2023	27.09.2026	36
1-1275	Artificial mains network, 3ph	Rohde & Schwarz	ENV 4200	100037	23.09.2025	22.09.2026	12
1-1289	Loop Antenna	Seibersdorf	PLA-R	PLAR039/X	28.03.2025	27.09.2026	18
1-1313	Artificial mains network, 1ph	Rohde & Schwarz	ENV 216	103191	23.09.2025	22.09.2026	12

6 BLOCK DIAGRAM

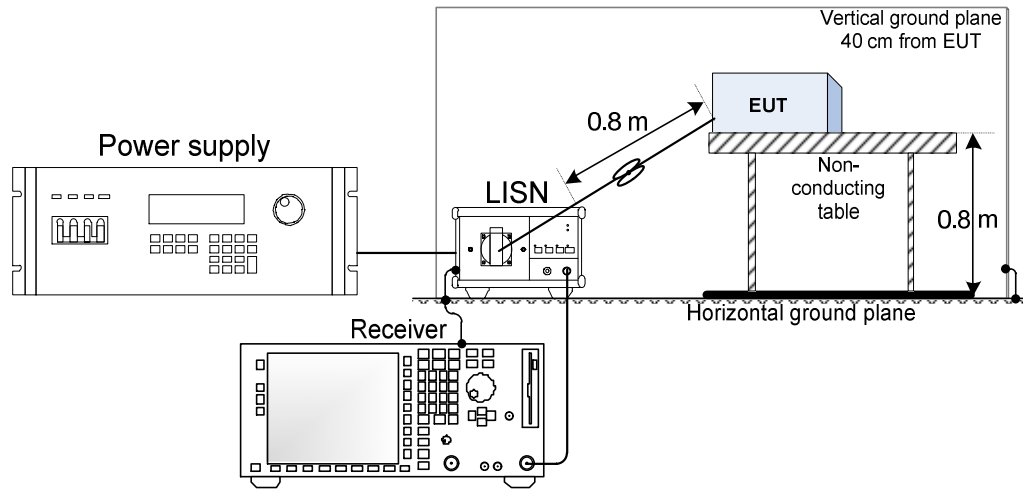
6.1 Radiated emissions set-up for frequencies below 1 GHz



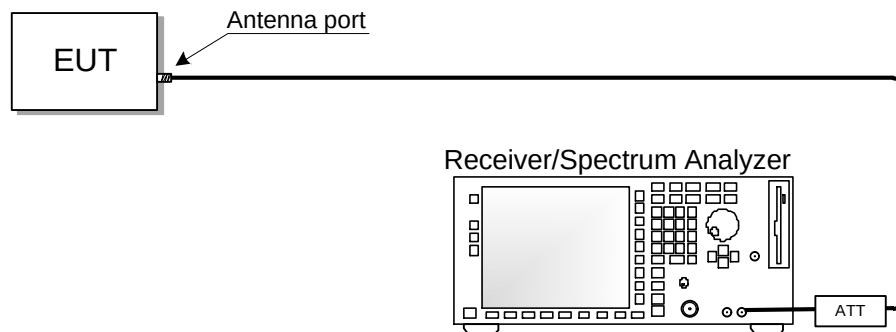
6.2 Radiated emissions set-up for frequencies above 1 GHz



6.3 Power Line Conducted Emissions set-up



6.4 Antenna port set-up



7 Revision history

Version	Date	Comment	Sign
00	2025-11-06	First version	FH

- End of test report -