

FCC Measurement/Technical Report on

Vehicle Basic Central Platform

BCP-01 (HW113 D03)

FCC ID: 2AA98-BCP01D03
IC: 11505A-BCP01D03

Test Report Reference: MDE_VIS_2404_FCC_01_rev01

Test Laboratory:

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Germany



Deutsche
Akkreditierungsstelle
D-PL-12140-01-00

Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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Table of Contents

1	Applied Standards and Test Summary	3
1.1	Applied Standards	3
1.2	FCC-IC Correlation Table	4
1.3	Measurement Summary	5
2	Revision History / Signatures	6
3	Administrative Data	7
3.1	Testing Laboratory	7
3.2	Project Data	7
3.3	Applicant Data	7
3.4	Manufacturer Data	7
4	Test object Data	8
4.1	General EUT Description	8
4.2	EUT Main components	8
4.3	Ancillary Equipment	9
4.4	Auxiliary Equipment	9
4.5	EUT Setups	9
4.6	Operating Modes / Test Channels	9
4.7	Product labelling	10
5	Test Results	11
5.1	Occupied Bandwidth (99%)	11
5.2	Wanted Emissions (Carrier)	16
5.3	Spurious Emissions Radiated	22
6	Test Equipment	31
7	Antenna Factors, Cable Loss and Sample Calculations	33
7.1	LISN R&S ESH3-Z5 (150 kHz – 30 MHz)	33
7.2	Antenna R&S HFH2-Z2 (9 kHz – 30 MHz)	34
7.3	Antenna R&S HL562 (30 MHz – 1 GHz)	35
7.4	Antenna R&S HF907 (1 GHz – 18 GHz)	36
7.5	Antenna EMCO 3160-09 (18 GHz – 26.5 GHz)	37
7.6	Antenna EMCO 3160-10 (26.5 GHz – 40 GHz)	38
8	Measurement Uncertainties	39
9	Photo Report	40

1 APPLIED STANDARDS AND TEST SUMMARY

1.1 APPLIED STANDARDS

Type of Authorization

Certification for an Intentional Radiator.

Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 15 (10-1-24 Edition). The following subparts are applicable to the results in this test report.

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 15, Subpart C – Intentional Radiators

§ 15.201 Equipment authorization requirement

§ 15.207 Conducted limits

§ 15.209 Radiated emission limits; general requirements

1.2 FCC-IC CORRELATION TABLE

Correlation of measurement requirements for FCC and IC for general radio equipment

Measurement	FCC reference	IC reference
Transmitter spurious radiated emissions	§ 15.209 (a)	RSS-Gen Issue 5 & AMD 1 & AMD 2: 6.13/8.9/8.10; RSS-210 Issue 10: 7.2/7.3
Restricted Bands	§ 15.205	RSS-Gen Issue 5 & AMD 1 & AMD 2: 8.10; RSS-210 Issue 10: 7.1;
Wanted Emission (Carrier)	§ 15.209	RSS-210 Issue 10: 7.3 RSS-Gen Issue 5: 6.12, 8.9
Occupied bandwidth	§2.1049	RSS-Gen Issue 5 & AMD 1 & AMD 2: 6.7

Note: This EUT is subject to RSS-210, 7.3

1.3 MEASUREMENT SUMMARY

47 CFR CHAPTER I FCC PART 15 § 2.1049

Subpart C §15.209

Occupied Bandwidth (99% and 20 dB)

The measurement was performed according to
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024

Final Result

OP-Mode	Setup	Date	FCC	IC
Radio Technology, Operating Mode				
RF ID 125 kHz, Operating Mode 1 Remark: None	S01_AA01	2025-10-10	Passed	Passed
RF ID 125 kHz, Operating Mode 2 Remark: None	S01_AA01	2025-10-10	Passed	Passed

47 CFR CHAPTER I FCC PART 15 § 15.209

Subpart C §15.209

Wanted Emissions (Carrier)

The measurement was performed according to
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024

Final Result

OP-Mode	Setup	Date	FCC	IC
Radio Technology, Operating Mode				
RF ID 125 kHz, Operating Mode 1 Remark: None	S01_AA01	2025-09-05	Passed	Passed
RF ID 125 kHz, Operating Mode 2 Remark: None	S01_AA01	2025-09-05	Passed	Passed

47 CFR CHAPTER I FCC PART 15 § 15.209

Subpart C §15.209

Spurious Emissions Radiated

The measurement was performed according to
ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024

Final Result

OP-Mode	Setup	Date	FCC	IC
Radio Technology, Operating Mode, Measurement range				
RF ID 125 kHz, Operating Mode 1, 30 MHz - 1 GHz Remark: None	S01_AA01	2025-09-12	Passed	Passed
RF ID 125 kHz, Operating Mode 2, 30 MHz - 1 GHz Remark: None	S01_AA01	2025-09-12	Passed	Passed
RF ID 125 kHz, Operating Mode 1, 9 kHz - 30 MHz Remark: None	S01_AA01	2025-09-03	Passed	Passed
RF ID 125 kHz, Operating Mode 2, 9 kHz - 30 MHz Remark: None	S01_AA01	2025-09-05	Passed	Passed

N/A: Not applicable

N/P: Not performed

2 REVISION HISTORY / SIGNATURES

Report version control			
Version	Release date	Change Description	Version validity
initial	2025-10-10	--	valid
rev01	2026-02-04	C63.10 version added on page 5	valid

COMMENT: -



(responsible for accreditation scope)
Dipl.-Ing. Robert Machulec



(responsible for testing and report)
MSc. Joel Asongwe



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3 ADMINISTRATIVE DATA

3.1 TESTING LABORATORY

Company Name: 7layers GmbH
Address: Borsigstr. 11
40880 Ratingen
Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no: DAKKS D-PL-12140-01-01 | -02 | -03
FCC Designation Number: DE0015
FCC Test Firm Registration: 929146
ISED CAB Identifier: DE0007; ISED#: 3699A

Responsible for accreditation scope: Dipl.-Ing. Robert Machulec

Report Template Version: 2020-06-15

3.2 PROJECT DATA

Responsible for testing and report: MSc. Joel Asongwe
Employees who performed the tests: documented internally at 7Layers
Date of Report: 2026-02-04
Testing Period: 2025-09-03 to 2025-10-10

3.3 APPLICANT DATA

Company Name: Visteon Electronics Germany GmbH
Address: Amalienbadstr. 41a
76227 Karlsruhe
Germany
Contact Person: Borislava Medzhidieva

3.4 MANUFACTURER DATA

Company Name: Please see Applicant Data
Address:
Contact Person:

4 TEST OBJECT DATA

4.1 GENERAL EUT DESCRIPTION

Kind of Device product description	125 kHz Transmitter and Tagging System
Product name	Vehicle Basic Central Platform
Type	BCP-01 (HW113 D03)
Declared EUT data by the supplier	
Power Supply Type	DC Car Battery
Nominal Voltage / Frequency	13.5 V
Test Voltage / Frequency	13.5 V
Highest internal frequency	100 MHz
General Description	Electronic Control Unit (ECU) featured Immobilizer and Gateway, Base Central Controller
Ports	DC Connector, Ethernet connector, CAN, Enclosure,
Special software used for testing	Special test software based on serial software
Operating mode 1	Transmitter is on, working on Keyless mode
Operating mode 2	Transmitter is on, working on Immobilizer mode

4.2 EUT MAIN COMPONENTS

Sample Name	Sample Code	Description
EUT aa01	DE1105021aa01	Radiated sample
Sample Parameter	Value	
Serial No.	BCP5707251715	
HW Version	113.000.003 D03	
SW Version	176.xxx.xxx	
Comment	-	

NOTE: The short description is used to simplify the identification of the EUT in this test report.

4.3 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

Device	Details (Manufacturer, Type Model, HW, SW, S/N)	Description
ANC1-8	SUMIDA CA antenna 415 [μH], M01-080420 1504, 4A0AEB1, Serial Numbers: 1702, 1703, 1704, 3687, 3590, 1706, 1705, 3650	Antennas 1 to 8 CA Antennas (keyless)
ANC9	BMW Ignition Start coil, S/N: 6995617	Immobiliser Antenna

4.4 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Auxiliary Equipment can influence the test results.

Description	Details (Manufacturer, Type, S/N, HW, SW)	Reason for using
Identifier	BMW 5A1C6B9 Marquardt, S/N: 2120000003302036, HW: HW I370 B Sample, SW: SW 201325 - I370	KeyFOB
FBD	Continental, A2C96549607 220620, S/N: 220620	433 MHz Receiver

4.5 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

Setup	Combination of EUTs	Description and Rationale
S01_AA01	EUT ab01 + ANC1-9+ FBD, Identifier	Radiated setup

4.6 OPERATING MODES / TEST CHANNELS

This chapter describes the operating modes of the EUTs used for testing.

Using a customer SW the device is set to transmitting at 125 kHz

4.7 PRODUCT LABELLING

4.7.1 FCC ID LABEL

Please refer to the documentation of the applicant.

4.7.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

5 TEST RESULTS

5.1 OCCUPIED BANDWIDTH (99%)

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10

5.1.1 TEST DESCRIPTION

The Equipment Under Test (EUT) was set up to perform the occupied bandwidth measurements.

The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Resolution Bandwidth (RBW): 300 Hz
- Video Bandwidth (VBW): 1 kHz
- Span: 50 kHz
- Trace: Maxhold
- Sweeps: 2000
- Sweep time: 6.3 ms
- Detector: RMS

The 99 % measurement function of the spectrum analyser function was used to determine the 99 % bandwidth.

5.1.2 TEST REQUIREMENTS / LIMITS

-

5.1.3 TEST PROTOCOL

Ambient temperature: 24 °C
Humidity: 43 %
Pressure: 1001 hPa

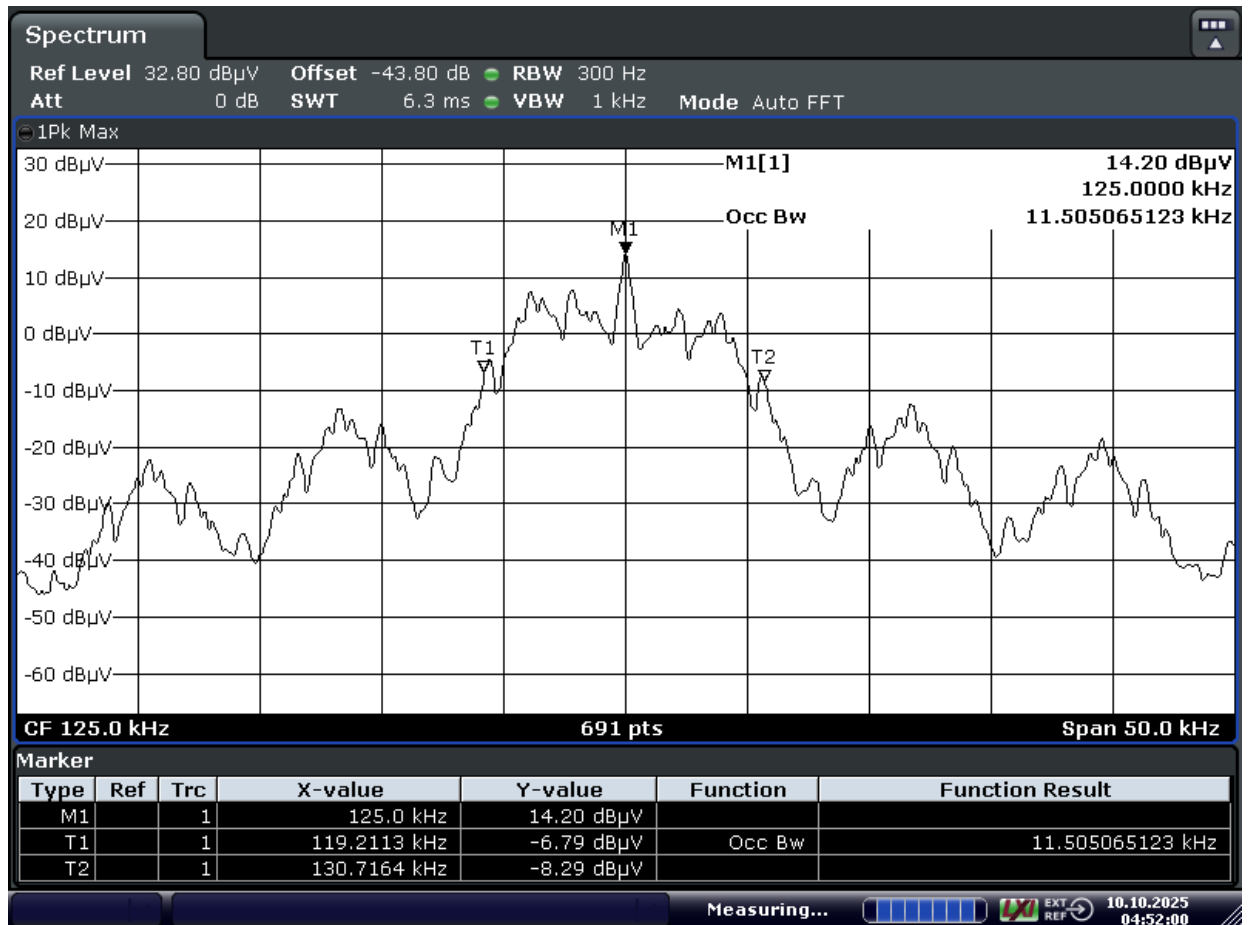
RF ID 125 kHz

Band	Operating Mode	Frequency [kHz]	99 % Bandwidth [kHz]
125 kHz	Mode 1	125.0	11.5
125 kHz	Mode 2	125.0	11.5
Band	Operating Mode	Frequency [kHz]	20 dB Bandwidth [kHz]
125 kHz	Mode 1	125.0	9.841
125 kHz	Mode 2	125.0	9.841

Remark: Please see next sub-clause for the measurement plot.

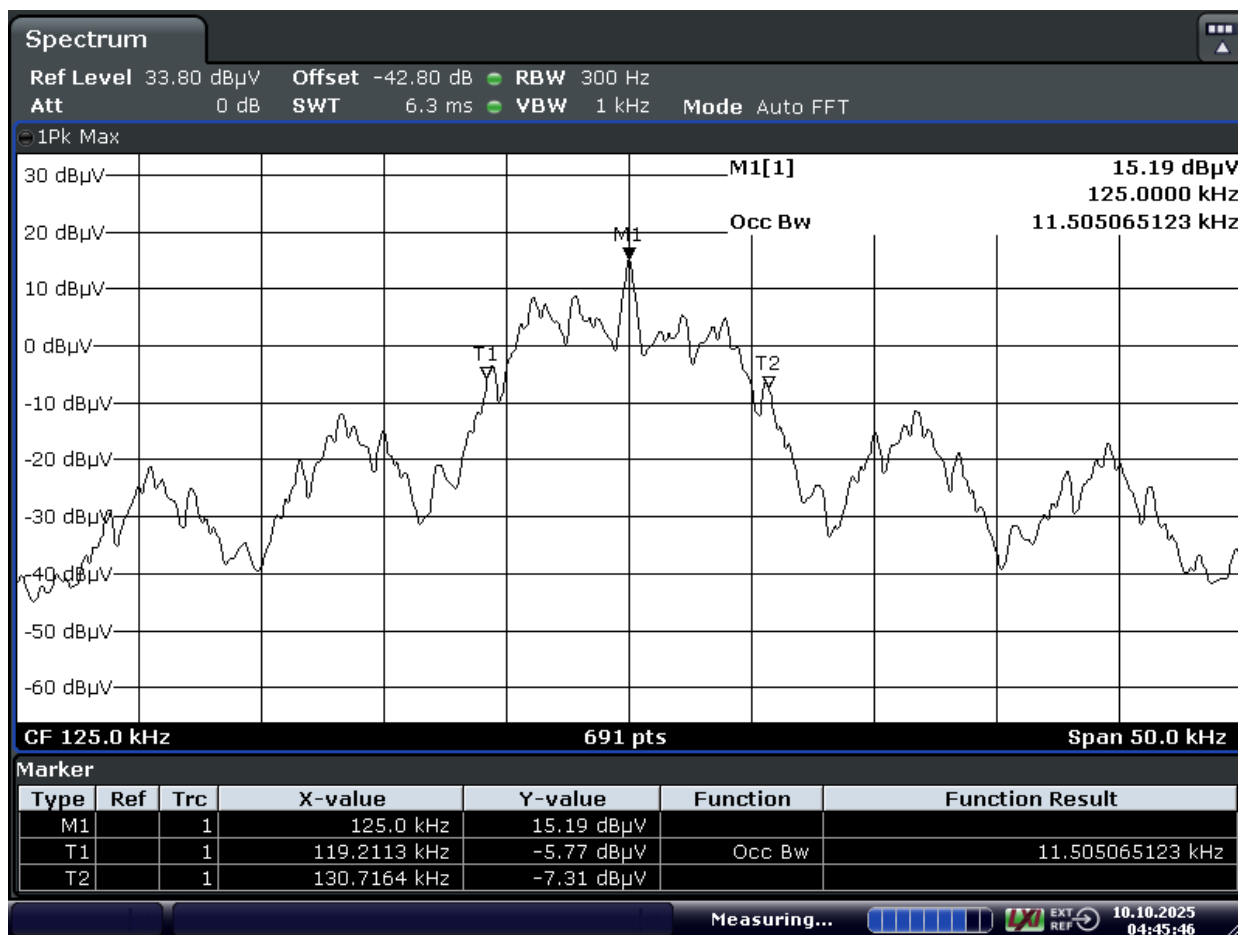
5.1.4 MEASUREMENT PLOTS

Radio Technology = RF ID 125 kHz, Operating Mode = Mode 1
(S01_AA01)
OCCUPIED BANDWIDTH (99%)



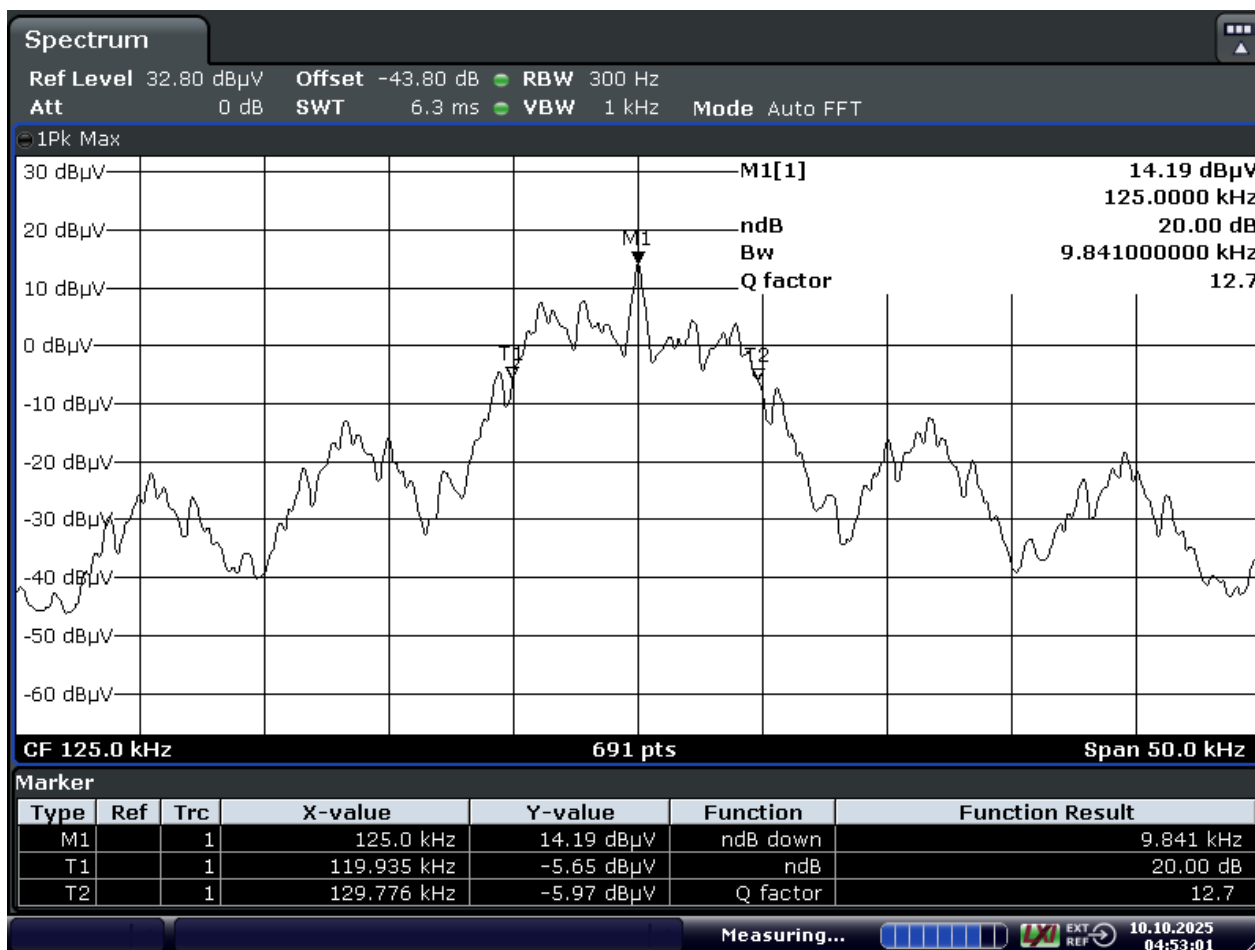
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Radio Technology = RF ID 125 kHz, Operating Mode = Mode 2
(S01_AA01)
OCCUPIED BANDWIDTH (99%)



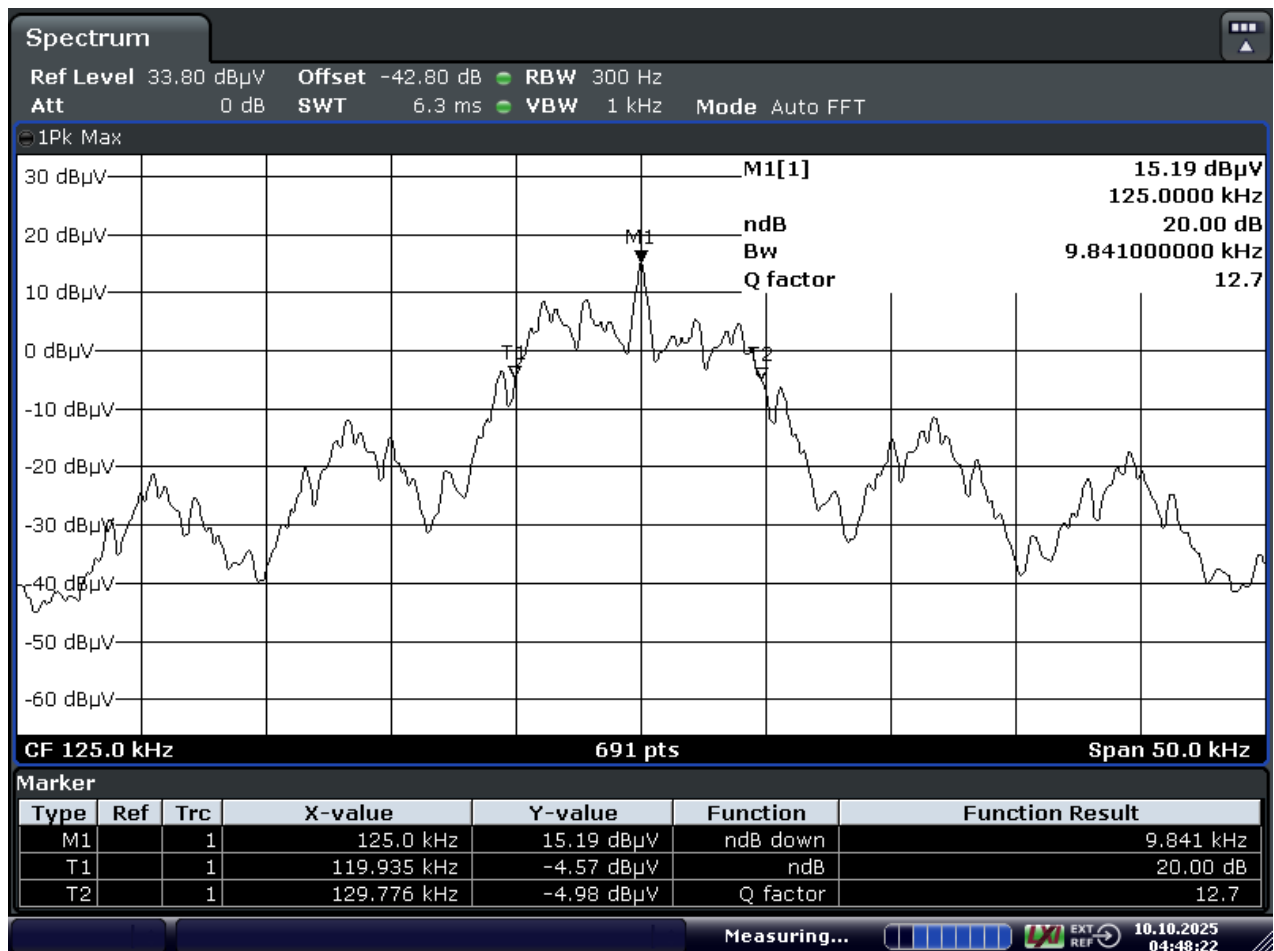
Date: 10.OCT.2025 04:45:46

Radio Technology = RF ID 125 kHz, Operating Mode = Mode 1
 (S01_AA01)
 OCCUPIED BANDWIDTH (20 dB)



Date: 10.OCT.2025 04:53:01

Radio Technology = RF ID 125 kHz, Operating Mode = Mode 2
(S01_AA01)
OCCUPIED BANDWIDTH (20 dB)



Date: 10.OCT.2025 04:48:23

5.1.5 TEST EQUIPMENT USED

- Radio Lab

5.2 WANTED EMISSIONS (CARRIER)

Standard **FCC Part 15 Subpart C**

The test was performed according to:
ANSI C63.10

5.2.1 TEST DESCRIPTION

Please see test description for the test case "Spurious Radiated Emissions", abstract 1.

5.2.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

The fundamental emission of the EUT must be outside the restricted bands of operation as defined in §15.205.

Frequency in MHz	Limit (μV/m)	Measurement distance (m)	Limits (dBμV/m)
0.009 – 0.49	2400/F(kHz)@300m	3	(48.5 – 13.8)@300m
0.49 – 1.705	24000/F(kHz)@30m	3	(33.8 – 23.0)@30m
1.705 – 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit (μV/m)	Measurement distance (m)	Limits (dBμV/m)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 – 26000	500@3m	3	54.0@3m
26000 – 40000	500@3m	1	54.0@3m

(d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor: $\text{Limit (dBμV/m)} = 20 \log (\text{Limit (μV/m)}/1\mu\text{V/m})$

5.2.3 TEST PROTOCOL

Ambient temperature: 25 °C
 Air Pressure: 997 hPa
 Humidity: 45 %

Band	EUT Position	Operating Mode	Frequency [kHz]	Output Power [dBμV/m]	Limit [dBμV/m]	Margin to Limit [dB]
125 kHz	Horizontal	Mode 1	125.00	14.2	45.7	31.5
125 kHz	Vertical	Mode 1	125.00	11.2	45.7	34.5
125 kHz	Horizontal	Mode 2	125.00	15.2	45.7	30.5
125 kHz	Vertical	Mode 2	125.00	11.5	45.7	34.2

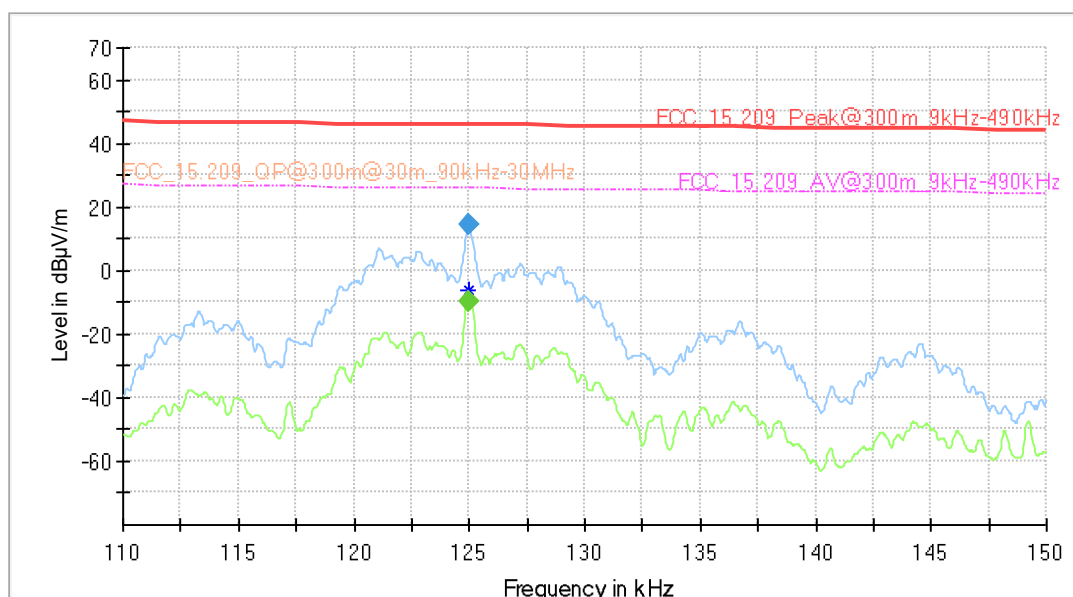
Remark: Please see next sub-clause for the measurement plot.

5.2.4 MEASUREMENT PLOTS

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 1
(S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Keyless
Operator Name:	ASO
Comment:	EUT Horizontal
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star: = critical frequency; Rhombus: blue = final QP



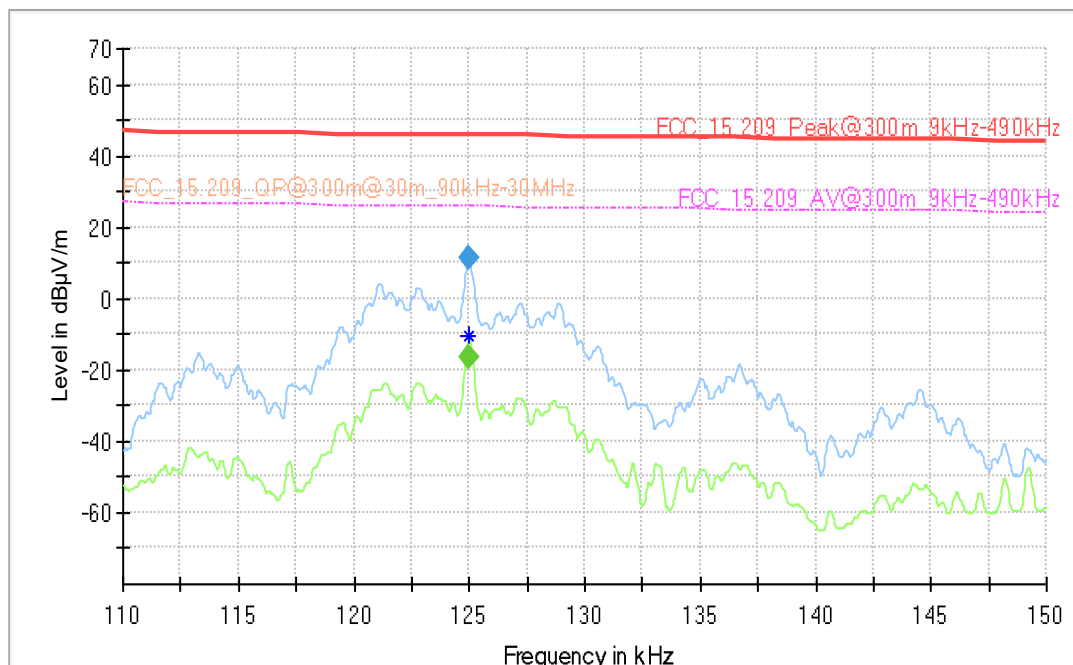
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.125000	---	-10.1	25.69	35.8	1000.0	0.200	100.0	7	-58.7
0.125000	14.2	---	45.69	31.5	1000.0	0.200	100.0	7	-58.7

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 1
 (S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Keyless
Operator Name:	ASO
Comment:	EUT Vertical
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star: = critical frequency; Rhombus: blue = final QP



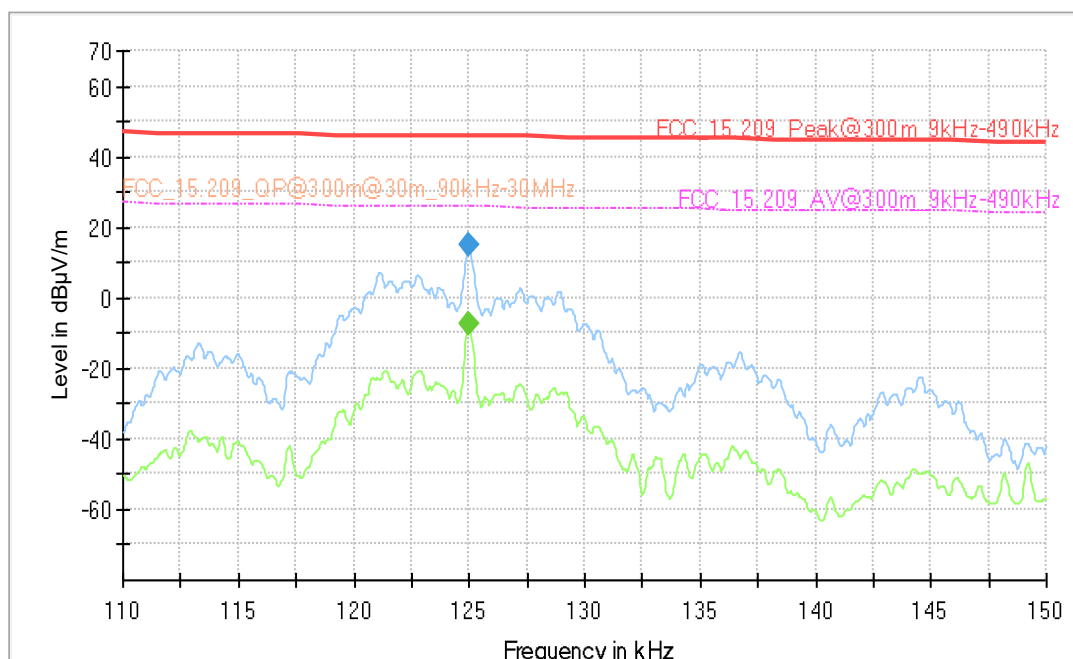
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.125000	---	-16.4	25.69	42.1	1000.0	0.200	300.0	96	-58.7
0.125000	11.2	---	45.69	34.5	1000.0	0.200	300.0	96	-58.7

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 2
(S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Immobilizer
Operator Name:	ASO
Comment:	EUT Horizontal
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star = critical frequency; Rhombus: blue = final QP



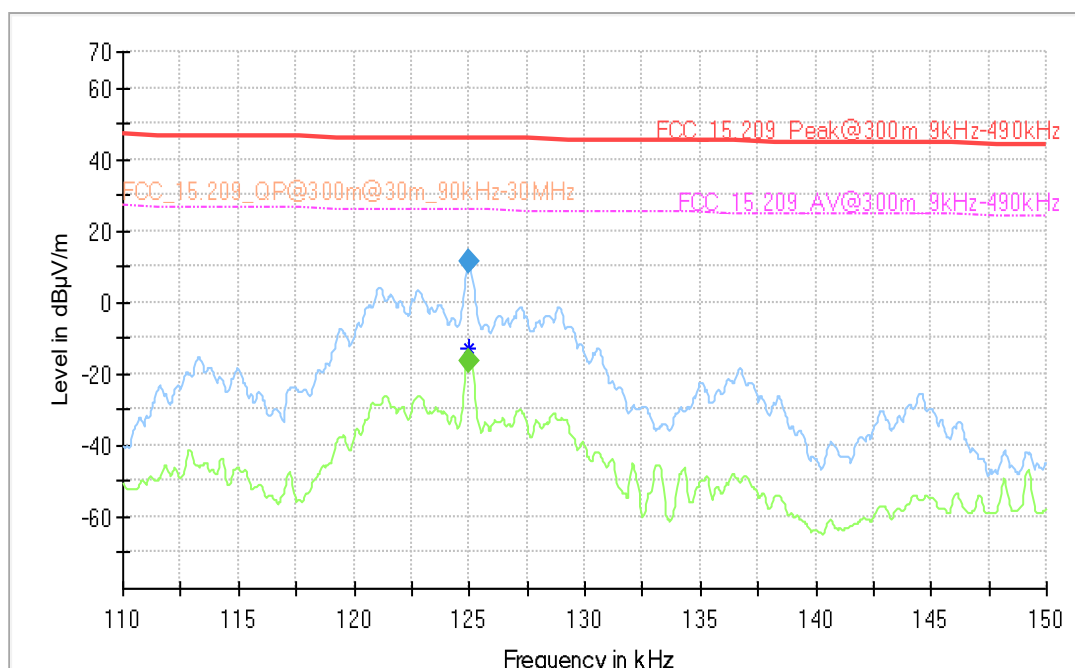
Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.125000	---	-7.5	25.69	33.2	1000.0	0.200	100.0	155	-58.7
0.125000	15.2	---	45.69	30.5	1000.0	0.200	100.0	155	-58.7

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 2
(S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Immobilizer
Operator Name:	ASO
Comment:	EUT Vertical
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star: = critical frequency; Rhombus: blue = final QP



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
0.125000	---	-16.6	25.69	42.3	1000.0	0.200	300.0	86	-58.7
0.125000	11.5	---	45.69	34.2	1000.0	0.200	300.0	86	-58.7

5.2.5 TEST EQUIPMENT USED

- Radiated Emissions SAC up to 1 GHz

5.3 SPURIOUS EMISSIONS RADIATED

Standard **FCC Part 15 Subpart C**

The test was performed according to:
 ANSI C63.10

5.3.1 TEST DESCRIPTION

The test set-up was made in accordance to the general provisions of ANSI C63.10 in a typical installation configuration. The measurements were performed according the following sub-chapters of ANSI C63.10:

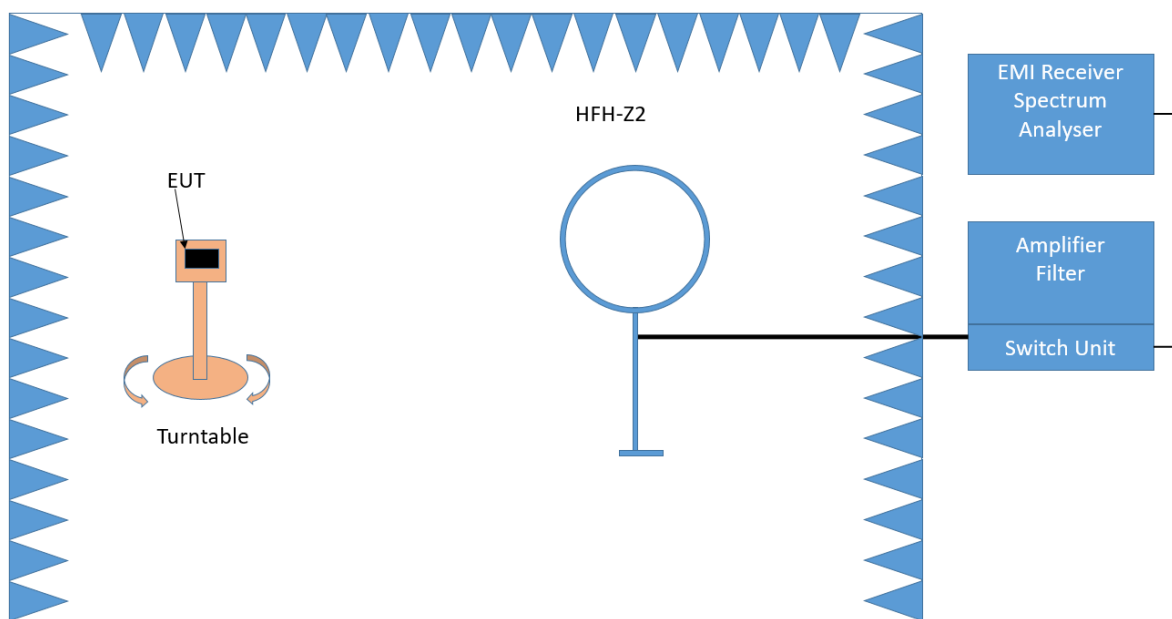
- < 30 MHz: Chapter 6.4
- 30 MHz – 1 GHz: Chapter 6.5
- > 1 GHz: Chapter 6.6 (procedure according 6.6.5 used)

The measurement procedure is implemented into the EMI test software EMC32 from R&S. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is also performed at 3 axes. A pre-check is performed while the EUT is powered.

Below 1 GHz:

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

1. Measurement up to 30 MHz



Test Setup; Spurious Emission Radiated (SAC), 9 kHz – 30 MHz

The Loop antenna HFH2-Z2 is used.

Step 1: pre measurement

- Anechoic chamber
- Antenna distance: 3 m
- Antenna height: 1 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 - 0.15 MHz and 0.15 - 30 MHz
- Frequency steps: 0.05 kHz and 2.25 kHz
- IF-Bandwidth: 0.2 kHz and 9 kHz
- Measuring time / Frequency step: 100 ms (FFT-based)

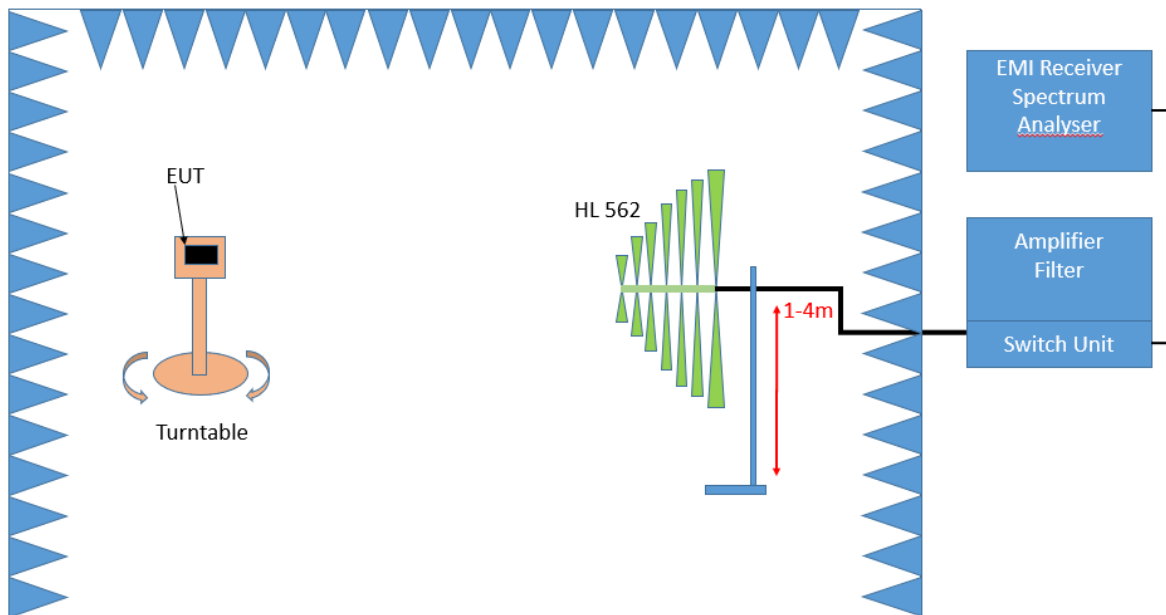
Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Detector: Quasi-Peak (9 kHz - 150 kHz, Peak / Average 150 kHz- 30 MHz)
- Frequency range: 0.009 - 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF-Bandwidth: 0.2 - 10 kHz
- Measuring time / Frequency step: 1 s

2. Measurement above 30 MHz and up to 1 GHz



Test Setup; Spurious Emission Radiated (SAC), 30 MHz- 1GHz

Step 1: Preliminary scan

This is a preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Antenna distance: 3 m
- Detector: Peak-Maxhold / Quasipeak (FFT-based)
- Frequency range: 30 – 1000 MHz
- Frequency steps: 30 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 ms
- Turntable angle range: -180° to 90°
- Turntable step size: 90°
- Height variation range: 1 – 4 m
- Height variation step size: 1.5 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: Adjustment measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will slowly vary by 360° . During this action, the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position, the antenna height will also slowly vary between 1 – 4 meter. During this action, the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: 360°
- Height variation range: 1 – 4 m
- Antenna Polarisation: max. value determined in step 1

Step 3: Final measurement with QP detector

With the settings determined in step 2, the final measurement will be performed:

EMI receiver settings for step 3:

- Detector: Quasi-Peak (< 1 GHz)
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement.

5.3.2 TEST REQUIREMENTS / LIMITS

FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (μV/m)	Measurement distance (m)	Limits (dBμV/m)
0.009 – 0.49	2400/F(kHz)@300m	3	(48.5 – 13.8)@300m
0.49 – 1.705	24000/F(kHz)@30m	3	(33.8 – 23.0)@30m
1.705 – 30	30@30m	3	29.5@30m

The measured values are corrected with an inverse linear distance extrapolation factor (40 dB/decade) according FCC 15.31 (2).

Frequency in MHz	Limit (μV/m)	Measurement distance (m)	Limits (dBμV/m)
30 – 88	100@3m	3	40.0@3m
88 – 216	150@3m	3	43.5@3m
216 – 960	200@3m	3	46.0@3m
960 – 26000	500@3m	3	54.0@3m
26000 – 40000	500@3m	1	54.0@3m

(c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission.

(d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

§15.35(b) ..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor: $\text{Limit (dB}\mu\text{V/m)} = 20 \log (\text{Limit } (\mu\text{V/m})/1\mu\text{V/m})$

5.3.3 TEST PROTOCOL

Ambient temperature: 23-25 °C
 Air Pressure: 997-1005 hPa
 Humidity: 41-45 %

EUT Horizontal

Ch. Center Freq. [kHz]	Operating Mode	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin to Limit [dB]
125.0	Mode 1	50.4	4.8	QP	120	40.0	35.2
125.0	Mode 1	249.99	33.8	QP	120	46.0	12.2
125.0	Mode 1	839.25	18.0	QP	120	46.0	28.0

EUT Horizontal

Ch. Center Freq. [kHz]	Operating Mode	Spurious Freq. [MHz]	Spurious Level [dBμV/m]	Detector	RBW [kHz]	Limit [dBμV/m]	Margin to Limit [dB]
125.0	Mode 2	50.37	5.0	QP	120	40.0	35.0
125.0	Mode 2	75.0	16.0	QP	120	40.0	24.0

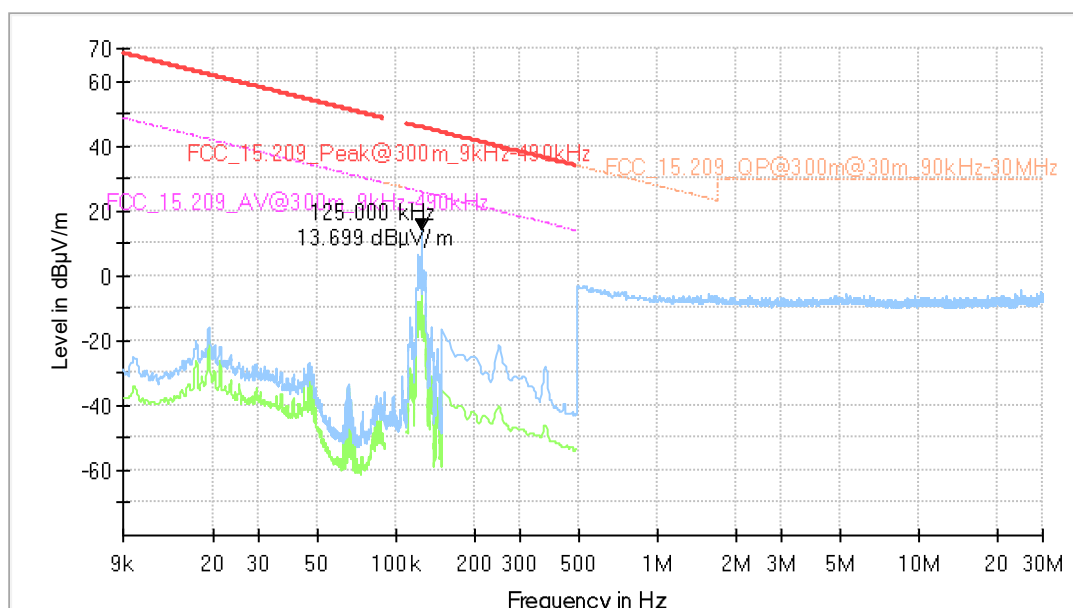
Remark: Please see next sub-clause for the measurement plot.

5.3.4 MEASUREMENT PLOTS

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 1,
Measurement range = 9 kHz - 30 MHz
(S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Keyless
Operator Name:	ASO
Comment:	EUT Horizontal
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star: = critical frequency; Rhombus: blue = final QP



Final Result

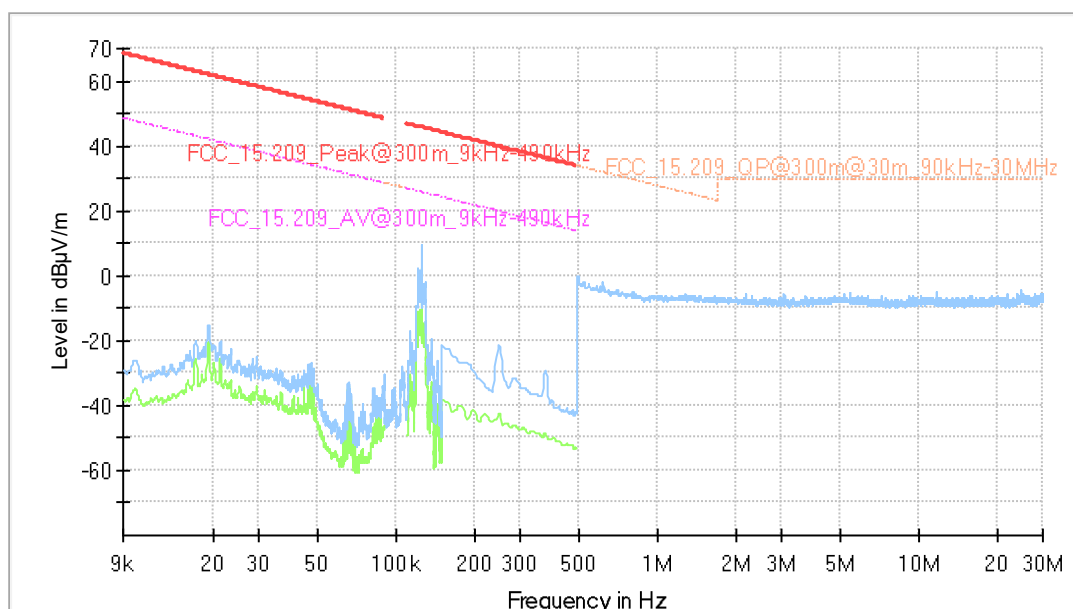
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

Note: The peak value near to the limit line is the transmitter carrier at 125 kHz.

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 2,
 Measurement range = 9 kHz - 30 MHz
 (S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Immobilizer
Operator Name:	ASO
Comment:	EUT Horizontal
x-Orientation (indicate h=100)	loop plane vertical, vector in measurement axis directed to EUT
y-Orientation (indicate h=200)	loop plane vertical, vector perpendicular to measurement axis
z-Orientation (indicate h=300)	loop plane horizontal, normal vector directed to ground
Legend:	Trace: blue = Peak; green = AV, Star = critical frequency; Rhombus: blue = final QP



Final Result

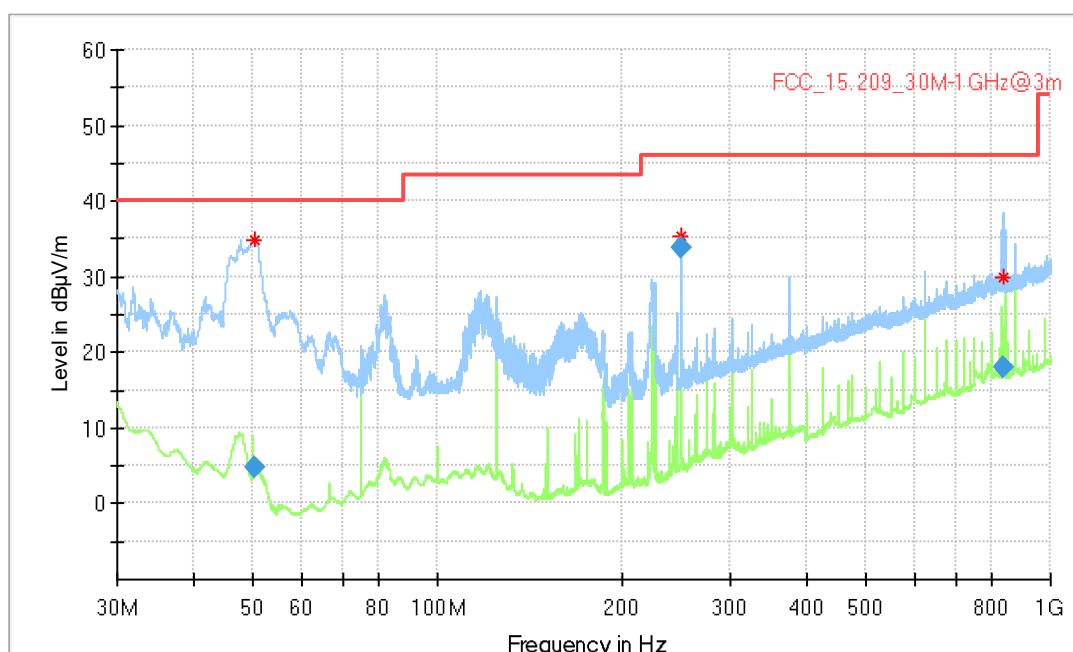
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---	---	---

Note: The peak value near to the limit line is the transmitter carrier at 125 kHz.

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 1,
 Measurement range = 30 MHz - 1 GHz
 (S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Keyless
Operator Name:	ASO
Comment:	EUT Horizontal
Legend:	Trace (preview): blue = PK, green = QP; Star: red or blue = critical frequency; Rhombus: blue = final QP



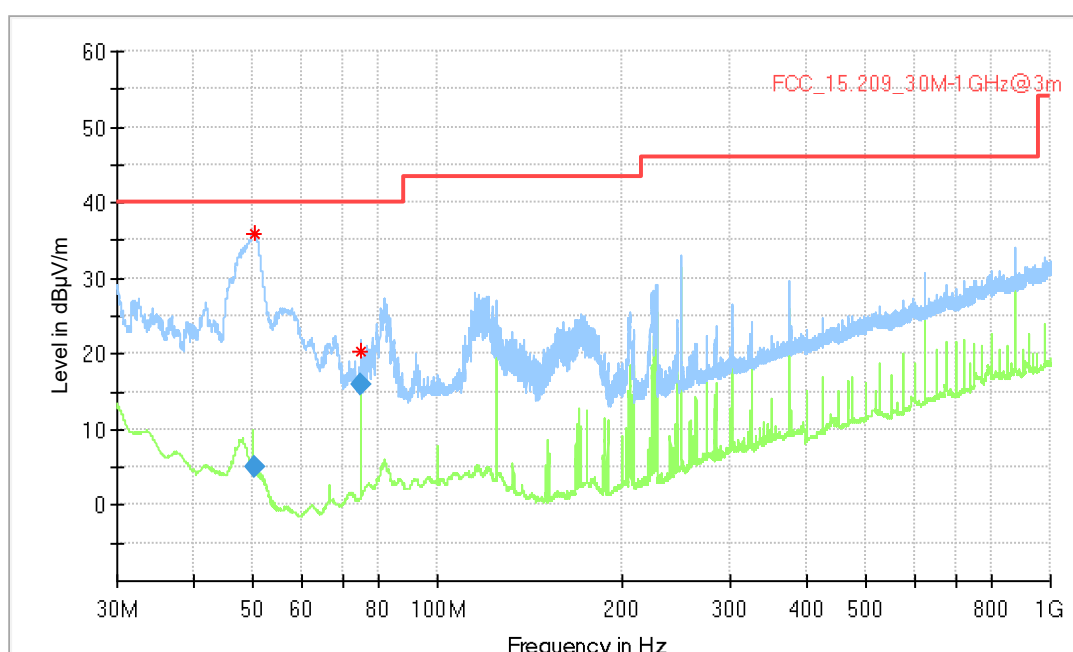
Final Result

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
50.400000	4.8	40.00	35.2	1000.0	120.000	119.0	V	-92	6.9
249.990000	33.8	46.00	12.2	1000.0	120.000	132.0	H	123	11.9
839.250000	18.0	46.00	28.0	1000.0	120.000	147.0	V	143	24.6

Radio Technology = RF ID 125 kHz, Operating Mode = Operating Mode 2,
 Measurement range = 30 MHz - 1 GHz
 (S01_AA01)

Common Information

Test Description:	Radiated Emissions, Test Site: Semi Anechoic Chamber @ 3 m
Test Standard:	FCC 15.209
EUT / Setup Code:	DE1105021aa01
Operating Conditions:	13.5 V DC, Immobilizer
Operator Name:	ASO
Comment:	EUT Horizontal
Legend:	Trace (preview): blue = PK, green = QP; Star: red or blue = critical frequency; Rhombus: blue = final QP



Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
50.370000	5.0	40.00	35.0	1000.0	120.000	102.0	V	-84	6.9
75.000000	16.0	40.00	24.0	1000.0	120.000	380.0	H	-183	9.6

5.3.5 TEST EQUIPMENT USED

- Radiated Emissions SAC up to 1 GHz

6 TEST EQUIPMENT

- 1 Radiated Emissions SAC up to 1 GHz
Radiated emission tests up to 1 GHz in a semi anechoic room

Ref.No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
1.1	Opus10 TPR (8253.00)	T/P Logger 13	Lufth Mess- und Regeltechnik GmbH	13936	2023-11	2025-11
1.2	ESW44	EMI Receiver / Spectrum Analyzer	Rohde & Schwarz GmbH & Co. KG	101603	2024-02	2026-02
1.3	Anechoic Chamber 01	SAC/FAR, 10.58 m x 6.38 m x 6.00 m	Frankonia	none		
1.4	HL 562 ULTRALOG	Biconical-log-per antenna (30 MHz - 3 GHz) with HL 562E biconicals	Rohde & Schwarz GmbH & Co. KG	830547/003	2024-10	2027-10
1.5	DS 420S	Turn Table 2 m diameter	HD GmbH	420/573/99		
1.6	AM 4.0	Antenna Mast 4 m	Maturo GmbH	AM4.0/180/11920513		

2 Radio Lab

Lab to perform conducted tests

Ref. No.	Device Name	Description	Manufacturer	Serial Number	Last Calibration	Calibration Due
2.1	MFS	Rubidium Frequency Standard	Datum-Beverly	5489/001	2025-09	2027-09
2.2	Opus10 THI (8152.00)	T/H Logger 03	Lufft Mess- und Regeltechnik GmbH	7482	2025-09	2027-09
2.3	FSV30	Signal Analyzer 10 Hz - 30 GHz	Rohde & Schwarz	103005	2025-08	2027-08

The calibration interval is the time interval between "Last Calibration" and "Calibration Due"

7 ANTENNA FACTORS, CABLE LOSS AND SAMPLE CALCULATIONS

This chapter contains the antenna factors with their corresponding path loss of the used measurement path for all antennas as well as the insertion loss of the LISN.

7.1 LISN R&S ESH3-Z5 (150 KHZ – 30 MHZ)

Frequency		Corr.	LISN insertion loss ESH3- Z5	cable loss (incl. 10 dB atten- uator)
MHz		dB	dB	dB
0.15		10.1	0.1	10.0
5		10.3	0.1	10.2
7		10.5	0.2	10.3
10		10.5	0.2	10.3
12		10.7	0.3	10.4
14		10.7	0.3	10.4
16		10.8	0.4	10.4
18		10.9	0.4	10.5
20		10.9	0.4	10.5
22		11.1	0.5	10.6
24		11.1	0.5	10.6
26		11.2	0.5	10.7
28		11.2	0.5	10.7
30		11.3	0.5	10.8

Sample calculation

$$U_{\text{LISN}} (\text{dB } \mu\text{V}) = U (\text{dB } \mu\text{V}) + \text{Corr. (dB)}$$

U = Receiver reading

LISN Insertion loss = Voltage Division Factor of LISN

Corr. = sum of single correction factors of used LISN, cables, switch units (if used)

Linear interpolation will be used for frequencies in between the values in the table.

7.2 ANTENNA R&S HFH2-Z2 (9 KHZ – 30 MHZ)

Frequency MHz	AF HFH-Z2) dB (1/m)	Corr. dB	cable loss 1 (inside chamber) dB	cable loss 2 (outside chamber) dB	cable loss 3 (switch unit) dB	cable loss 4 (to receiver) dB	distance corr. (-40 dB/ decade) dB	d _{Limit} (meas. distance (limit) m	d _{used} (meas. distance (used) m
0.009	20.50	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.01	20.45	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.015	20.37	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.02	20.36	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.025	20.38	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.03	20.32	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.05	20.35	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.08	20.30	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.1	20.20	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.2	20.17	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.3	20.14	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.49	20.12	-79.6	0.1	0.1	0.1	0.1	-80	300	3
0.490001	20.12	-39.6	0.1	0.1	0.1	0.1	-40	30	3
0.5	20.11	-39.6	0.1	0.1	0.1	0.1	-40	30	3
0.8	20.10	-39.6	0.1	0.1	0.1	0.1	-40	30	3
1	20.09	-39.6	0.1	0.1	0.1	0.1	-40	30	3
2	20.08	-39.6	0.1	0.1	0.1	0.1	-40	30	3
3	20.06	-39.6	0.1	0.1	0.1	0.1	-40	30	3
4	20.05	-39.5	0.2	0.1	0.1	0.1	-40	30	3
5	20.05	-39.5	0.2	0.1	0.1	0.1	-40	30	3
6	20.02	-39.5	0.2	0.1	0.1	0.1	-40	30	3
8	19.95	-39.5	0.2	0.1	0.1	0.1	-40	30	3
10	19.83	-39.4	0.2	0.1	0.2	0.1	-40	30	3
12	19.71	-39.4	0.2	0.1	0.2	0.1	-40	30	3
14	19.54	-39.4	0.2	0.1	0.2	0.1	-40	30	3
16	19.53	-39.3	0.3	0.1	0.2	0.1	-40	30	3
18	19.50	-39.3	0.3	0.1	0.2	0.1	-40	30	3
20	19.57	-39.3	0.3	0.1	0.2	0.1	-40	30	3
22	19.61	-39.3	0.3	0.1	0.2	0.1	-40	30	3
24	19.61	-39.3	0.3	0.1	0.2	0.1	-40	30	3
26	19.54	-39.3	0.3	0.1	0.2	0.1	-40	30	3
28	19.46	-39.2	0.3	0.1	0.3	0.1	-40	30	3
30	19.73	-39.1	0.4	0.1	0.3	0.1	-40	30	3

Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

distance correction = $-40 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values

7.3 ANTENNA R&S HL562 (30 MHZ – 1 GHZ)

($d_{\text{Limit}} = 3 \text{ m}$)

Frequency	AF R&S HL562	Corr.
MHz	dB (1/m)	dB
30	18.6	0.6
50	6.0	0.9
100	9.7	1.2
150	7.9	1.6
200	7.6	1.9
250	9.5	2.1
300	11.0	2.3
350	12.4	2.6
400	13.6	2.9
450	14.7	3.1
500	15.6	3.2
550	16.3	3.5
600	17.2	3.5
650	18.1	3.6
700	18.5	3.6
750	19.1	4.1
800	19.6	4.1
850	20.1	4.4
900	20.8	4.7
950	21.1	4.8
1000	21.6	4.9

cable loss 1 (inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit)	cable loss 4 (to receiver)	distance corr. (-20 dB/ decade)	d_{Limit} (meas. distance (limit))	d_{used} (meas. distance (used))
dB	dB	dB	dB	dB	m	m
0.29	0.04	0.23	0.02	0.0	3	3
0.39	0.09	0.32	0.08	0.0	3	3
0.56	0.14	0.47	0.08	0.0	3	3
0.73	0.20	0.59	0.12	0.0	3	3
0.84	0.21	0.70	0.11	0.0	3	3
0.98	0.24	0.80	0.13	0.0	3	3
1.04	0.26	0.89	0.15	0.0	3	3
1.18	0.31	0.96	0.13	0.0	3	3
1.28	0.35	1.03	0.19	0.0	3	3
1.39	0.38	1.11	0.22	0.0	3	3
1.44	0.39	1.20	0.19	0.0	3	3
1.55	0.46	1.24	0.23	0.0	3	3
1.59	0.43	1.29	0.23	0.0	3	3
1.67	0.34	1.35	0.22	0.0	3	3
1.67	0.42	1.41	0.15	0.0	3	3
1.87	0.54	1.46	0.25	0.0	3	3
1.90	0.46	1.51	0.25	0.0	3	3
1.99	0.60	1.56	0.27	0.0	3	3
2.14	0.60	1.63	0.29	0.0	3	3
2.22	0.60	1.66	0.33	0.0	3	3
2.23	0.61	1.71	0.30	0.0	3	3

($d_{\text{Limit}} = 10 \text{ m}$)

30	18.6	-9.9
50	6.0	-9.6
100	9.7	-9.2
150	7.9	-8.8
200	7.6	-8.6
250	9.5	-8.3
300	11.0	-8.1
350	12.4	-7.9
400	13.6	-7.6
450	14.7	-7.4
500	15.6	-7.2
550	16.3	-7.0
600	17.2	-6.9
650	18.1	-6.9
700	18.5	-6.8
750	19.1	-6.3
800	19.6	-6.3
850	20.1	-6.0
900	20.8	-5.8
950	21.1	-5.6
1000	21.6	-5.6

0.29	0.04	0.23	0.02	-10.5	10	3
0.39	0.09	0.32	0.08	-10.5	10	3
0.56	0.14	0.47	0.08	-10.5	10	3
0.73	0.20	0.59	0.12	-10.5	10	3
0.84	0.21	0.70	0.11	-10.5	10	3
0.98	0.24	0.80	0.13	-10.5	10	3
1.04	0.26	0.89	0.15	-10.5	10	3
1.18	0.31	0.96	0.13	-10.5	10	3
1.28	0.35	1.03	0.19	-10.5	10	3
1.39	0.38	1.11	0.22	-10.5	10	3
1.44	0.39	1.20	0.19	-10.5	10	3
1.55	0.46	1.24	0.23	-10.5	10	3
1.59	0.43	1.29	0.23	-10.5	10	3
1.67	0.34	1.35	0.22	-10.5	10	3
1.67	0.42	1.41	0.15	-10.5	10	3
1.87	0.54	1.46	0.25	-10.5	10	3
1.90	0.46	1.51	0.25	-10.5	10	3
1.99	0.60	1.56	0.27	-10.5	10	3
2.14	0.60	1.63	0.29	-10.5	10	3
2.22	0.60	1.66	0.33	-10.5	10	3
2.23	0.61	1.71	0.30	-10.5	10	3

Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + \text{AF (dB 1/m)} + \text{Corr. (dB)}$
 U = Receiver reading
 AF = Antenna factor
 Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)
 distance correction = $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$
 Linear interpolation will be used for frequencies in between the values in the table.
 Tables show an extract of values.

7.4 ANTENNA R&S HF907 (1 GHZ – 18 GHZ)

Frequency	AF R&S HF907	Corr.
MHz	dB (1/m)	dB
1000	24.4	-19.4
2000	28.5	-17.4
3000	31.0	-16.1
4000	33.1	-14.7
5000	34.4	-13.7
6000	34.7	-12.7
7000	35.6	-11.0

cable loss 1 (relay + cable inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit, atten- uator & pre-amp)	cable loss 4 (to receiver)		
dB	dB	dB	dB		
0.99	0.31	-21.51	0.79		
1.44	0.44	-20.63	1.38		
1.87	0.53	-19.85	1.33		
2.41	0.67	-19.13	1.31		
2.78	0.86	-18.71	1.40		
2.74	0.90	-17.83	1.47		
2.82	0.86	-16.19	1.46		

Frequency	AF R&S HF907	Corr.
MHz	dB (1/m)	dB
3000	31.0	-23.4
4000	33.1	-23.3
5000	34.4	-21.7
6000	34.7	-21.2
7000	35.6	-19.8

cable loss 1 (relay inside chamber)	cable loss 2 (inside chamber)	cable loss 3 (outside chamber)	cable loss 4 (switch unit, atten- uator & pre-amp)	cable loss 5 (to receiver)	used for FCC 15.247
dB	dB	dB	dB	dB	
0.47	1.87	0.53	-27.58	1.33	
0.56	2.41	0.67	-28.23	1.31	
0.61	2.78	0.86	-27.35	1.40	
0.58	2.74	0.90	-26.89	1.47	
0.66	2.82	0.86	-25.58	1.46	

Frequency	AF R&S HF907	Corr.
MHz	dB (1/m)	dB
7000	35.6	-57.3
8000	36.3	-56.3
9000	37.1	-55.3
10000	37.5	-56.2
11000	37.5	-55.3
12000	37.6	-53.7
13000	38.2	-53.5
14000	39.9	-56.3
15000	40.9	-54.1
16000	41.3	-54.1
17000	42.8	-54.4
18000	44.2	-54.7

cable loss 1 (relay inside chamber)	cable loss 2 (High Pass)	cable loss 3 (pre- amp)	cable loss 4 (inside chamber)	cable loss 5 (outside chamber)	cable loss 6 (to receiver)
dB	dB	dB	dB	dB	dB
0.56	1.28	-62.72	2.66	0.94	1.46
0.69	0.71	-61.49	2.84	1.00	1.53
0.68	0.65	-60.80	3.06	1.09	1.60
0.70	0.54	-61.91	3.28	1.20	1.67
0.80	0.61	-61.40	3.43	1.27	1.70
0.84	0.42	-59.70	3.53	1.26	1.73
0.83	0.44	-59.81	3.75	1.32	1.83
0.91	0.53	-63.03	3.91	1.40	1.77
0.98	0.54	-61.05	4.02	1.44	1.83
1.23	0.49	-61.51	4.17	1.51	1.85
1.36	0.76	-62.36	4.34	1.53	2.00
1.70	0.53	-62.88	4.41	1.55	1.91

Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Tables show an extract of values.

7.5 ANTENNA EMCO 3160-09 (18 GHZ – 26.5 GHZ)

Frequency	AF EMCO 3160-09	Corr.	cable loss 1 (inside chamber)	cable loss 2 (pre- amp)	cable loss 3 (inside chamber)	cable loss 4 (switch unit)	cable loss 5 (to receiver)
MHz	dB (1/m)	dB	dB	dB	dB	dB	dB
18000	40.2	-23.5	0.72	-35.85	6.20	2.81	2.65
18500	40.2	-23.2	0.69	-35.71	6.46	2.76	2.59
19000	40.2	-22.0	0.76	-35.44	6.69	3.15	2.79
19500	40.3	-21.3	0.74	-35.07	7.04	3.11	2.91
20000	40.3	-20.3	0.72	-34.49	7.30	3.07	3.05
20500	40.3	-19.9	0.78	-34.46	7.48	3.12	3.15
21000	40.3	-19.1	0.87	-34.07	7.61	3.20	3.33
21500	40.3	-19.1	0.90	-33.96	7.47	3.28	3.19
22000	40.3	-18.7	0.89	-33.57	7.34	3.35	3.28
22500	40.4	-19.0	0.87	-33.66	7.06	3.75	2.94
23000	40.4	-19.5	0.88	-33.75	6.92	3.77	2.70
23500	40.4	-19.3	0.90	-33.35	6.99	3.52	2.66
24000	40.4	-19.8	0.88	-33.99	6.88	3.88	2.58
24500	40.4	-19.5	0.91	-33.89	7.01	3.93	2.51
25000	40.4	-19.3	0.88	-33.00	6.72	3.96	2.14
25500	40.5	-20.4	0.89	-34.07	6.90	3.66	2.22
26000	40.5	-21.3	0.86	-35.11	7.02	3.69	2.28
26500	40.5	-21.1	0.90	-35.20	7.15	3.91	2.36

Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

7.6 ANTENNA EMCO 3160-10 (26.5 GHZ – 40 GHZ)

Frequency	AF EMCO 3160-10	Corr.	cable loss 1 (inside chamber)	cable loss 2 (outside chamber)	cable loss 3 (switch unit)	cable loss 4 (to receiver)	distance corr. (-20 dB/ decade)	d _{Limit} (meas. distance (limit))	d _{used} (meas. distance (used))
GHz	dB (1/m)	dB	dB	dB	dB	dB	dB	m	m
26.5	43.4	-11.2	4.4				-9.5	3	1.0
27.0	43.4	-11.2	4.4				-9.5	3	1.0
28.0	43.4	-11.1	4.5				-9.5	3	1.0
29.0	43.5	-11.0	4.6				-9.5	3	1.0
30.0	43.5	-10.9	4.7				-9.5	3	1.0
31.0	43.5	-10.8	4.7				-9.5	3	1.0
32.0	43.5	-10.7	4.8				-9.5	3	1.0
33.0	43.6	-10.7	4.9				-9.5	3	1.0
34.0	43.6	-10.6	5.0				-9.5	3	1.0
35.0	43.6	-10.5	5.1				-9.5	3	1.0
36.0	43.6	-10.4	5.1				-9.5	3	1.0
37.0	43.7	-10.3	5.2				-9.5	3	1.0
38.0	43.7	-10.2	5.3				-9.5	3	1.0
39.0	43.7	-10.2	5.4				-9.5	3	1.0
40.0	43.8	-10.1	5.5				-9.5	3	1.0

Sample calculation

$E \text{ (dB } \mu\text{V/m)} = U \text{ (dB } \mu\text{V)} + AF \text{ (dB 1/m)} + Corr. \text{ (dB)}$

U = Receiver reading

AF = Antenna factor

Corr. = sum of single correction factors of used cables, switch unit, distance correction, amplifier (if applicable)

Linear interpolation will be used for frequencies in between the values in the table.

distance correction = $-20 * \text{LOG} (d_{\text{Limit}} / d_{\text{used}})$

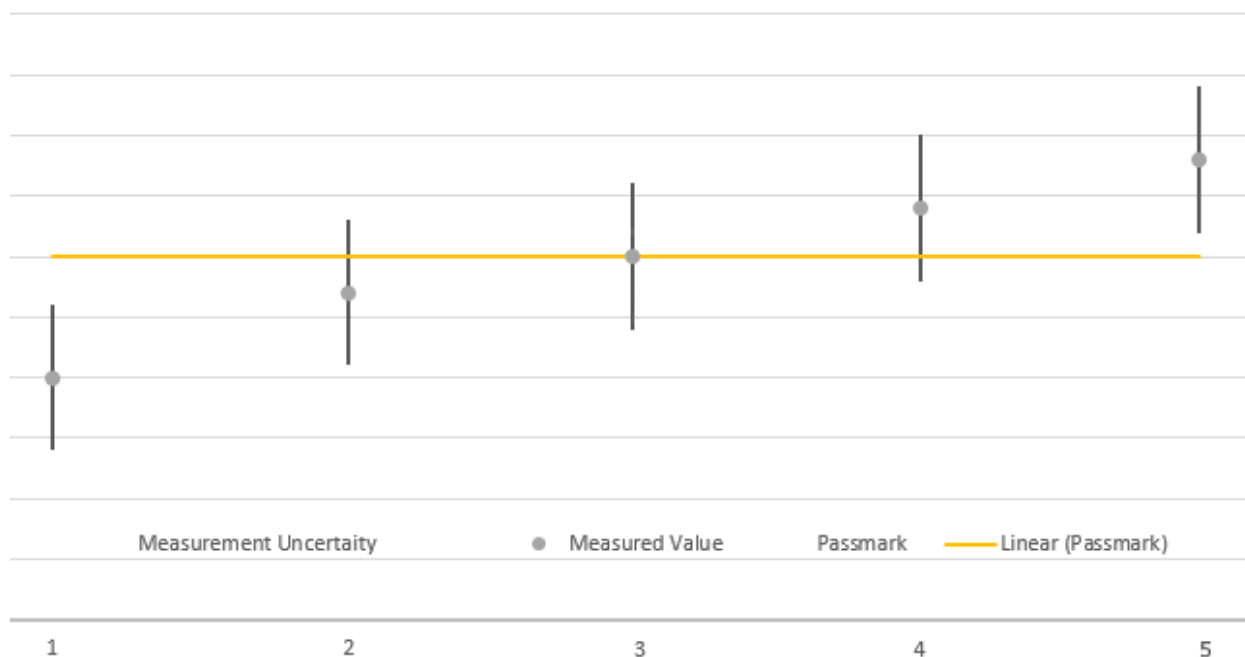
Linear interpolation will be used for frequencies in between the values in the table.

Table shows an extract of values.

8 MEASUREMENT UNCERTAINTIES

Parameter	Uncertainty
Radio frequency	± 0.5 ppm
RF power, conducted	± 1.0 dB
Conducted spurious emission of transmitter, valid up to 6 GHz	± 2.0 dB
Conducted emission of receivers	± 2.0 dB
Radiated emission of transmitter, valid up to 6 GHz	± 4.5 dB
Radiated emission of receiver, valid up to 6 GHz	± 4.5 dB
RF level uncertainty for a given BER	± 1.5 dB
Occupied Bandwidth	$\pm 4.5\%$
Temperature	± 0.3 °C
Humidity	$\pm 3\%$

The measurement uncertainties for all parameters are calculated with an expansion factor (coverage factor) $k = 1.96$. This means, that the true value is in the corresponding interval with a probability of 95 %.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	equal to pass mark	within pass mark	Passed
4	above pass mark	within pass mark	Failed
5	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

9 PHOTO REPORT

Please see separate photo report.