PHOENIX TESTLAB

Königswinkel 10
32825 Blomberg, Germany
Phone: +49 (0) 52 35 / 95 00-0
Fax: +49 (0) 52 35 / 95 00-10
office@phoenix-testlab.de
www.phoenix-testlab.de

Test Report

Report Number:

F240384E4

Equipment under Test (EUT):

Two Wire Transmitter
Liquiline CM42B

Applicant:

Endress+Hauser Conducta GmbH+Co.KG

Manufacturer:

Endress+Hauser Conducta GmbH+Co.KG

ilac-MRA

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-17186-01-00

References

[1] **ANSI C63.10-2020**, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

[2] **FCC CFR 47 Part 15**, Radio Frequency Devices

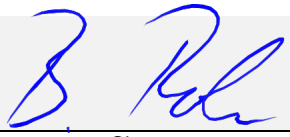
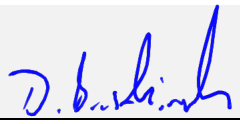
[3] **558074 D01 15.247 Meas Guidance v05r02 (April 2019),** GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

[4] **RSS-247, Issue 3 (2023-08)** Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

[5] **RSS-Gen, Issue 5 Amendment 2 (2021-02)** General Requirements for Compliance of Radio Apparatus

Test Result

The requirements of the tests performed as shown in the overview (clause 4) were fulfilled by the equipment under test. The complete test results are presented in the following.
“Passed” indicates that the equipment under test conforms with the relevant limits of the testing standard without taking any measurement uncertainty into account as stated in [**1**]. However, the measurement uncertainty is calculated and shown in this test report.

Tested by:		Bernward ROHDE 10.02.2025
	Signature	
Written by:		Daniel BRUSCHINSKI 10.02.2025
	Signature	
Reviewed and approved by:		Manuel BASTERT 10.02.2025
	Signature	

This test report is only valid in its original form.

The test results herein refer only to the tested sample. PHOENIX TESTLAB GmbH is not responsible for any generalisations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the PHOENIX TESTLAB Logo and the TEST REPORT NUMBER.

Contents: Page

1 Identification

1.1 Applicant

Name:	Endress+Hauser Conducta GmbH+Co. KG
Address:	Dieselstrasse 24, 70839 Gerlingen
Country:	Germany
Name for contact purposes:	Mr. Henryk HOFMANN
Phone:	+49 7156 209 10211
eMail address:	henryk.hofmann@endress.com
Applicant represented during the test by the following person:	Mr. Henryk HOFMANN, Mr Janis VEITS

1.2 Manufacturer

Name:	Endress+Hauser Conducta GmbH+Co. KG
Address:	Dieselstrasse 24, 70839 Gerlingen
Country:	Germany
Name for contact purposes:	Mr. Henryk HOFMANN
Phone:	+49 7156 209 10211
eMail address:	henryk.hofmann@endress.com
Manufacturer represented during the test by the following person:	Mr. Henryk HOFMANN, Mr Janis VEITS

1.3 Test Laboratory

The tests were carried out by:

PHOENIX TESTLAB GmbH
Königswinkel 10
32825 Blomberg
Germany

accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation listed in the annex of the certificate D-PL-17186-01-00. FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623, CAB Identifier DE0003 and ISED# 3469A.

1.4 EUT (Equipment under Test)

Test object: *	Two Wire Transmitter
Model name: *	Liquiline CM42B
Model number: *	CM42B
Order number: *	CM42B
FCC ID: *	2AKGY-CM42B (FCC Grantee Code: 2AKGY, Product Code: -CM42B)
IC certification number: *	22173-CM42B (IC company number: 22173, Product number: CM42B)
PMN: *	CM42B
HVIN: *	CM42B
FVIN: *	SoftDevice S132 Version: 7.2.0

* Declared by the applicant

		EUT number	
		1	2
Serial number: *		WB000805G00	-
PCB identifier: *	Board 1	VXCM1	-
	Board 2	VICO1	-
	Board 3	VD2W1	-
Hardware version: *	Board 1	Vx.04.xx	
	Board 2	Vx.03.xx	
	Board 3	Vx.04.xx	
Software version: *		SoftDevice S132 Version: 7.2.0	-

* Declared by the applicant

One EUT was used for all tests.

Note: PHOENIX TESTLAB GmbH does not take samples. The samples used for tests are provided exclusively by the applicant.

1.5 Technical Data of Equipment

General EUT data			
Power supply EUT: *	DC		
Supply voltage EUT: *	U_{nom}= 24 V_{DC}	U_{min}= 17 V_{DC}	U_{max}= 30 V_{DC}
Temperature range: *	-30 °C to +70 °C		
Lowest / highest internal clock frequency:	32 kHz * / 2480 MHz		

* Declared by the applicant

Ports / Connectors				
Identification	Connector		Length during test	Shielding (Yes / No)
	EUT	Ancillary		
SA1 – Current output *	Fixed cable feed-through	4 mm laboratory plug	5 m	No
SA2 – Current output *	Fixed cable feed-through	4 mm laboratory plug	5 m	No
Sensor input	Fixed cable feed-through	Memocheck CYP02E	5 m	Yes
Cable feed-through 4 *	Left open	Left open	-	-
Cable feed-through 5 *	Left open	Left open	-	-
Functional earth	Customized screw connector	4 mm laboratory plug	5 m	No

* Declared by the applicant

Bluetooth® low energy frequencies			
Channel 00	2402 MHz	Channel 01	2404 MHz
Channel 02	2406 MHz	Channel 03	2408 MHz
…	…	…	…
…	…	…	…
Channel 18	2438 MHz	Channel 19	2440 MHz
…	…	…	…
…	…	…	…
Channel 36	2474 MHz	Channel 37	2476 MHz
Channel 38	2478 MHz	Channel 39	2480 MHz

Bluetooth® low energy radio mode			
Fulfils radio specification: *1	Bluetooth® low energy (BLE) 5.4		
Radio chip: *1	Nordic nRF 52832		
Antenna type: *1	PCB Trace Antenna		
Antenna name: *1	Folded lambda / 4 monopole		
Antenna gain: *2	-1.5 dBi		
Antenna connector: *1	-		
Supply voltage radio module: *1	U_{nom} = 3.0 V_{DC}	U_{min} = 1.7 V_{DC}	U_{max} = 3.5 V_{DC}
Type of modulation: *1	BLE (1 Mbps PHY)	GFSK	
Operating frequency range: *1	BLE (1 Mbps PHY)	2402 – 2480 MHz	
Number of channels: *1	BLE (1 Mbps PHY)	40 (2 MHz channel spacing)	

*1 declared by the applicant
*2 based on the antenna test report F240384E8 by PHOENIX TESTLAB GmbH

1.5.1 Ancillary Equipment / Equipment used for testing

Equipment used for testing	
AC adapter *1	PHOENIX CONTACT MINI-PS.100-240AC/24DC/1.3
Test laptop *1	Fujitsu Lifebook U748
USB-to-BLE-adapter *2	USB_BT_053
Test software *2	“MasterTestGUI”

*1 Provided by the laboratory
*2 Provided by the applicant

Ancillary Equipment	
Sensor *	Memocheck CYP02E
-	-

* Provided by the applicant

1.6 Dates

Date of receipt of test sample:	12.11.2024
Start of test:	12.11.2024
End of test:	20.11.2024

2 Operational States

2.1 Description of function of the EUT

The device is a two-wire transmitter for connecting digital sensors with Memosens technology or analog sensors. It is configurable and has a current output of 4...20 mA with optional HART communication. It can be operated via a local display or optionally via smartphone or other mobile devices using Bluetooth (BLE).

2.1.1 Operation modes

Operation mode #	Radio technology	Frequency [MHz]	Channel / Band	Modulation / Mode	Data rate	Power setting
1	Bluetooth© LE	2402	0	GFSK	1 Mbps	“+4 dBm”
2	Bluetooth© LE	2440	19	GFSK	1 Mbps	“+4 dBm”
3	Bluetooth© LE	2480	39	GFSK	1 Mbps	“+4 dBm”

3 Additional Information

The EUT was not labeled as required by FCC / IC.

4 Overview

Application	Frequency range [MHz]	FCC 47 CFR Part 15 section [2]	RSS-247 [4] RSS-Gen [5]	Tested EUT	Status
Maximum peak conducted output power	2400.0 - 2483.5	15.247 (b) (3), (4)	5.4 (d) [4]	1	Passed
Maximum conducted output power	2400.0 - 2483.5	15.247 (b) (3), (4)	5.4 (d) [4]	1	Passed
DTS Bandwidth / 99% Bandwidth	2400.0 - 2483.5	15.247 (a) (2)	5.2 (a) [4]	1	Passed
Peak Power Spectral Density	2400.0 - 2483.5	15.247 (e)	5.2 (b) [4]	1	Passed
Average Power Spectral Density	2400.0 - 2483.5	15.247 (e)	5.2 (b) [4]	1	Passed
Band edge compliance	2400.0 - 2483.5	15.247 (d) 15.205 (a) 15.209 (a)	5.5 [4]	1	Passed
Maximum unwanted emissions	0.009 – 26,500 *	15.247 (d) 15.205 (a) 15.209 (a)	8.9 [5]	1	Passed *
Antenna Requirement	-	15.203 15.247 (b)	6.8 [5] 5.4 (f) (ii) [4]	1	Passed
Conducted emissions on supply line	0.15 – 30	15.207 (a)	8.8 [5]	1	Passed

*: The highest operating radio frequency of the EUT is 2.480 GHz.
Therefore, the radiated emission measurement must be carried out up to 10th of the highest operating radio frequency in this case 26.5 GHz.

5 Results

5.1 Test setups

5.1.1 Radiated: 9 kHz to 30 MHz

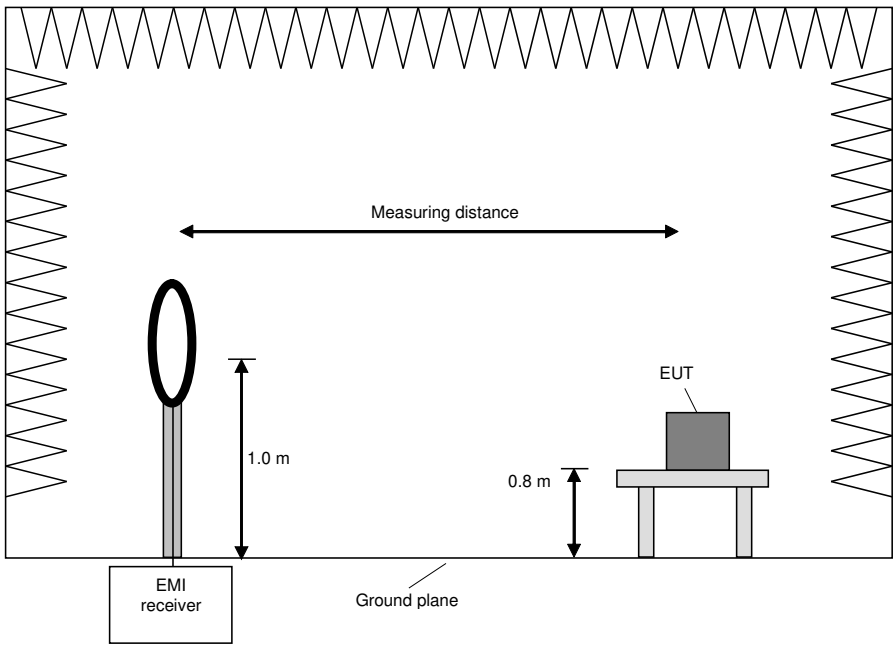
5.1.1.1 Preliminary measurement 9 kHz to 30 MHz

In the first stage a preliminary measurement is performed in a semi-anechoic chamber at a measuring distance of 3 meters. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices are placed directly on the turntable / ground plane. The setup of the equipment under test is in accordance with [1].

The frequency range 9 kHz to 30 MHz is monitored with an EMI receiver while the system and its cables are manipulated to find out the configuration with the maximum emission levels if applicable. The EMI receiver is set to MAX hold mode. The EUT and the measuring antenna are rotated around their vertical axis to find the maximum emission levels.

The resolution bandwidth of the EMI receiver is set to the following values:

Frequency range	Resolution bandwidth
9 kHz to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz



Procedure preliminary measurement:

Pre-scans are performed in the frequency range 9 kHz to 150 kHz and 150 kHz to 30 MHz.
The following procedure is used:

1) Monitor the frequency range with the measuring antenna facing the EUT and an EUT / turntable azimuth of 0 °.
2) Manipulate the system cables to produce the maximum levels of emissions.
3) Rotate the EUT by 360 ° to maximize the detected signals.
4) Measure the frequencies of the highest detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency values.
5) If the EUT is portable or ceiling mounted, repeat steps 1 to 4 with other orientations (x,y,z) of the EUT.
6) Rotate the measuring antenna and repeat steps 1 to 5.

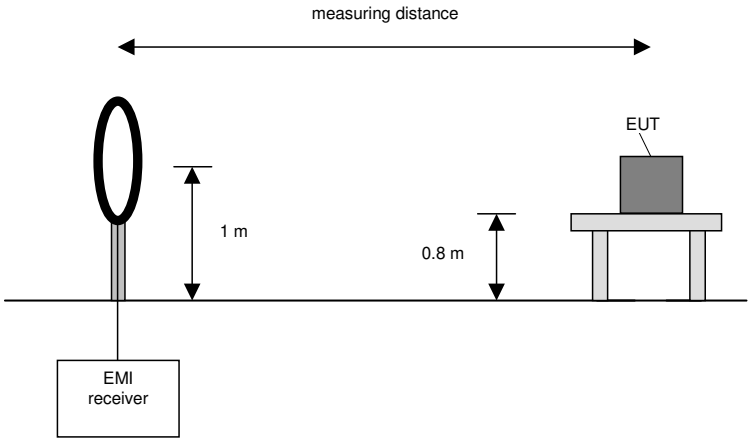
5.1.1.2 Final measurement 9 kHz to 30 MHz

In the second stage a final measurement is performed on an open area test site with no conducting ground plane at a measuring distance of 3 m, 10 m, or 30 m. If the standard requires larger measuring distances for a given frequency, the results are extrapolated according to section 15.31 (f) (2) [2]. The final measurement is performed with an EMI receiver set to Quasi-Peak detector, except for the frequency bands 9 kHz to 90 kHz and 110 kHz to 490 kHz where an Average detector is used according section 15.209 (d) [2].

At the frequencies, which were detected during the preliminary measurements, the final measurement is performed while rotating the EUT and the measuring antenna in the range of 0 ° to 360 ° around their vertical axis until the maximum level value is found.

The resolution bandwidth of the EMI receiver is set to the following values:

Frequency range	Resolution bandwidth	Measuring time
9 kHz to 150 kHz	200 Hz	1 s
150 kHz to 30 MHz	9 kHz	1 s



Procedure final measurement:

The following procedure is used:

1) Monitor the selected frequencies from the preliminary measurement with the measuring antenna facing the EUT and an EUT azimuth of 0 °.
2) Rotate the EUT by 360 ° to maximize the detected signals.
3) Rotate the measuring antenna and repeat steps 1 to 2 until the maximum value is found and note it.
4) If the EUT is portable or ceiling mounted, repeat steps 1 to 3 with other orientations (x,y,z) of the EUT.

5.1.2 Radiated: 30 MHz to 1 GHz

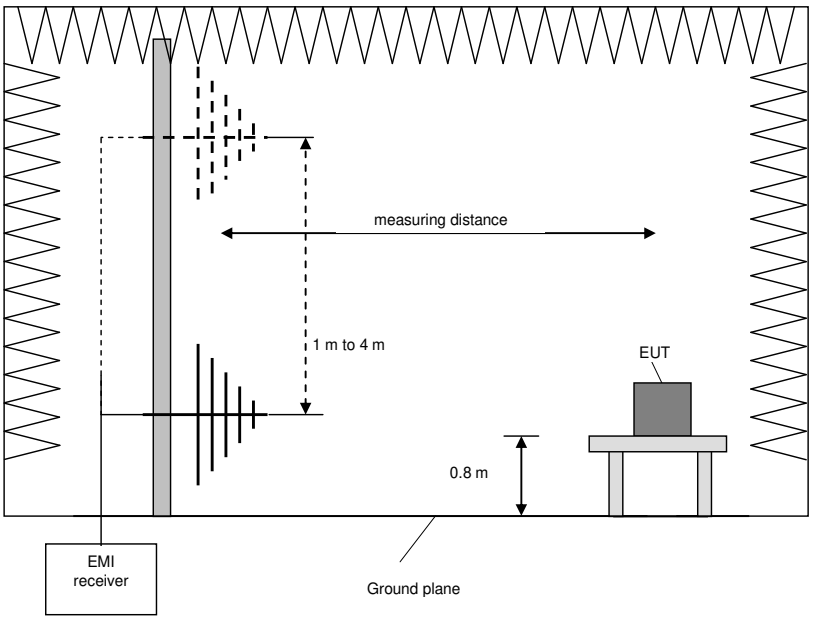
5.1.2.1 Preliminary and final measurement 30 MHz to 1 GHz

The preliminary and final measurements are performed in a semi-anechoic chamber with a metal ground plane at a measuring distance of 3 meters. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices are placed directly on the turntable / ground plane. The setup of the equipment under test is in accordance with [1].

During the tests the EUT is rotated in the range of 0 ° to 360 °, the measuring antenna is set to horizontal and vertical polarization and raised and lowered in the range from 1 m to 4 m to find the maximum level of emissions.

The resolution bandwidth of the EMI receiver is set to the following values:

Test	Frequency range	Step-size	Resolution bandwidth	Measuring time	Detector
Preliminary measurement	30 MHz to 1 GHz	30 kHz	120 kHz	-	Peak Average
Frequency peak search	± 120 kHz	10 kHz	120 kHz	1 s	Peak
Final measurement	30 MHz to 1 GHz	-	120 kHz	1 s	QuasiPeak



Procedure preliminary measurement:

The following procedure is used:

1) Set the measuring antenna to 1 m height.
2) Monitor the frequency range at horizontal polarization of the measuring antenna and an EUT / turntable azimuth of 0 °.
3) Rotate the EUT by 360° to maximize the detected signals.
4) Repeat steps 2 to 3 with the vertical polarization of the measuring antenna.
5) Increase the height of the measuring antenna for 0.5 m and repeat steps 2 to 4 until the final height of 4 m is reached.
6) The highest values for each frequency are saved by the software, including the measuring antenna height and polarization and the turntable azimuth for that value.

Procedure final measurement:

The following procedure is used:

1) Select the highest frequency peaks (lowest margin to the limit) for the final measurement.
2) The software determines the exact peak frequencies by doing a partial scan with reduced step size of the pre-scan of the selected peaks.
3) If the EUT is portable or ceiling mounted, find the worst-case EUT orientation (x,y,z) for the final test.
4) The worst-case measuring antenna height is found via varying the height by +/- 0.5 m from the value obtained in the preliminary measurement while monitoring the emission level.
5) The worst-case turntable position is found via varying the turntable azimuth by +/- 30° from the value obtained in the preliminary measurement while monitoring the emission level.
6) The final measurement is performed at the worst-case measuring antenna height and the worst-case turntable azimuth.
7) Steps 2 to 6 are repeated for each frequency peak selected in step 1.

5.1.3 Radiated: 1 GHz to 40 GHz

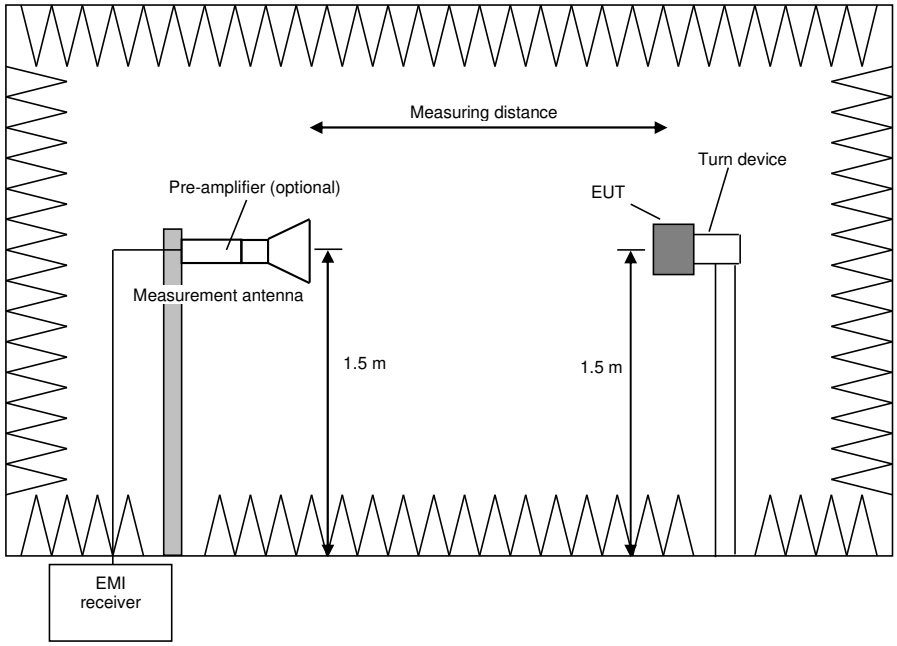
5.1.3.1 Preliminary and final measurement 1 GHz to 40 GHz

The preliminary and final measurements are performed in a fully anechoic chamber at a measuring distance of 3 meters. Table-top devices are set up on a non-conducting turn device at the height of 1.5 m. The setup of the equipment under test is in accordance with [1].

During the tests the EUT is rotated in the range of 0 ° to 360 ° and the measuring antenna is set to horizontal and vertical polarization to find the maximum level of emissions. After these steps, the measurement is repeated after reorientating the EUT in 30 ° steps.

The resolution bandwidth of the EMI receiver is set to the following values:

Test	Frequency range	Step-size	Resolution bandwidth	Measuring time	Detector
Preliminary measurement	1 GHz - 40 GHz	250 kHz	1 MHz	-	Peak Average
Final measurement	1 GHz - 40 GHz	-	1 MHz	100 ms	Peak Average



Procedure preliminary measurement:

The following procedure is used:

1) Monitor the frequency range at horizontal polarisation of the measuring antenna and an EUT / turntable azimuth of 0 °.
2) Rotate the EUT by 360° to maximize the detected signals.
3) Repeat steps 1 to 2 with the vertical polarisation of the measuring antenna.
4) Repeat steps 1 to 3 with the EUT reorientated by an angle of 30° (60°, 90°, 120° and 150°), according to 6.6.5.4 in [1].
5) The highest values for each frequency are saved by the software, including the measuring antenna polarization, the turntable azimuth and the turn device elevation for that value.

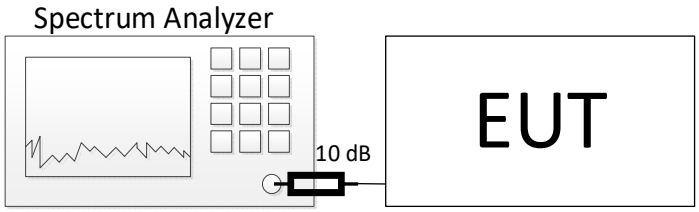
Procedure final measurement:

The following procedure is used:

1) Set the turntable and the turn device to the position which leads to the highest emission for the first frequency identified in the preliminary measurements.
2) Set the measurement antenna to the polarisation which leads to the highest emission for the first frequency identified in the preliminary measurements.
3) Set the spectrum analyser to EMI mode with Peak and Average detector activated.
4) The worst-case turntable position is found via varying the turntable azimuth by +/- 30° from the value obtained in the preliminary measurement while monitoring the emission level.
5) The final measurement is performed at the worst-case turntable azimuth.
6) Repeat steps 1 to 5 for each frequency detected during the preliminary measurements.

5.1.4 Conducted: Antenna port

Test setup (conducted)		
Used	Antenna connector	Comment
☒	Temporary antenna connector	As provided by the applicant
☐	Normal antenna connector	-



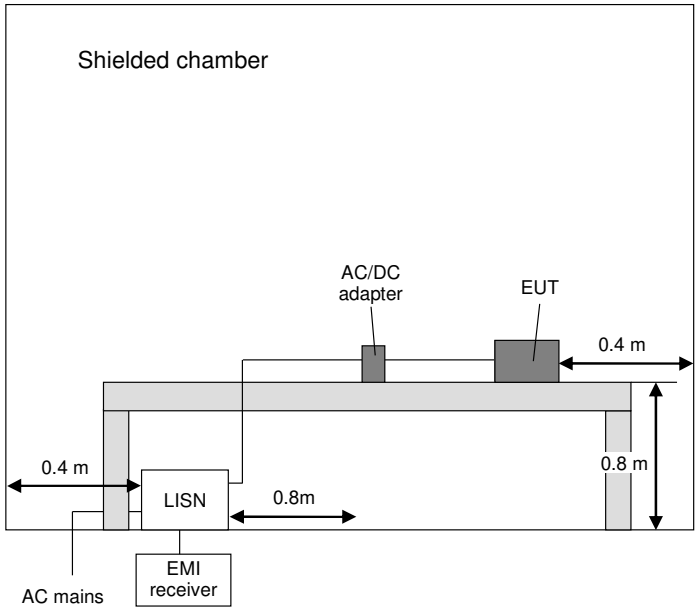
The 10 dB external attenuation are considered in all relevant plots

5.1.5 Conducted: AC power line

The test is carried out in a shielded chamber. Table-top devices are set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm above the ground plane. Floor-standing devices are placed directly on the ground plane. In case of DC powered equipment, which is not exclusively powered by a battery, it is connected to the LISN via a suitable AC/DC adaptor. The setup of the equipment under test is in accordance with [1].

The frequency range 150 kHz to 30 MHz is measured with an EMI receiver set to MAX hold mode with Peak and Average detectors and a resolution bandwidth of 9 kHz. A scan is carried out on the phase and neutral line of the AC mains network. If emissions less than 10 dB below the appropriable limit are detected, these emissions are measured with an Average and Quasi-Peak detector on all lines.

Frequency range	Resolution bandwidth	Measuring time
150 kHz to 30 MHz	9 kHz	5 s



5.2 Duty cycle

5.2.1 Test setup (Duty cycle)

Test setup (Duty cycle)			
Used	Setup	See sub-clause	Comment
☐	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.2.2 Test method (Duty cycle)

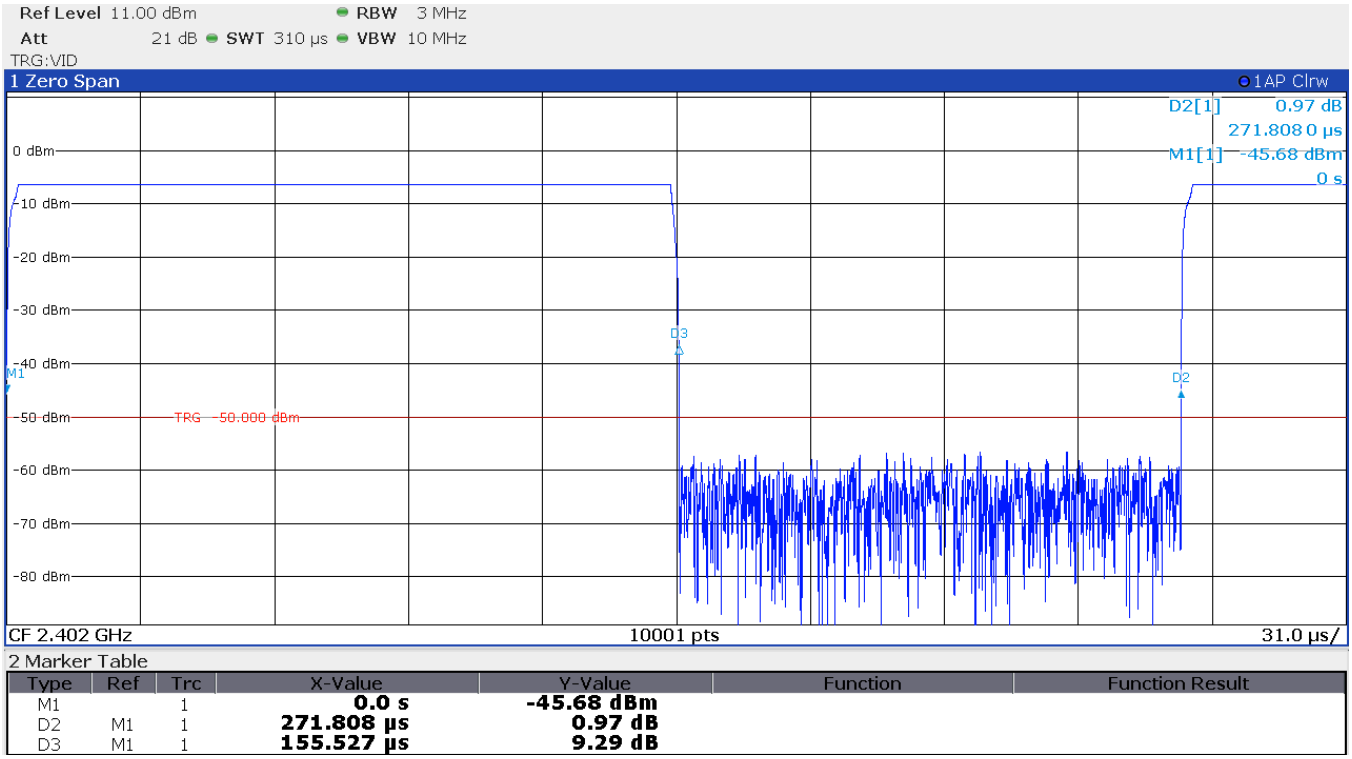
Test method (Duty cycle)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☐	11.6. a)	Diode detector	No limitation	-
☒	11.6. b)	Zero span	No limitation	-

5.2.3 Test results (Duty cycle)

Ambient temperature:	23 °C
Relative humidity:	31 %

Date:	12.11.2024
Tested by:	B. ROHDE

Measurement plot (operation mode 1):



TX_{on} [µs]	TX_{ges} [µs]	RBW [MHz]	50/T [kHz]	50/T < RBW?
155.5	271.8	3	183.9	☒

Sweep points	Sweep time [µs]	Meas points	Meas points >100?	Duty cycle %	$DCCF_{Power}$ [dB]	$DCCF_{Fieldstrength}$ [dB]
10001	310	10001	☒	57.2	2.4	4.9

The DCCF (duty cycle correction factor) is calculated by:

$$DCCF_{Power} = 10 * log_{10}\left(\frac{1}{Duty\ cycle}\right)$$

$$DCCF_{Fieldstrength} = 20 * log_{10}\left(\frac{1}{Duty\ cycle}\right)$$

For average power measurements a correction factor of 2.4 dB is used.
For average field strength measurements a correction factor of 4.9 dB is used.

Test equipment (please refer to chapter 7 for details)
1

5.3 DTS bandwidth

5.3.1 Test setup (DTS bandwidth)

Test setup (DTS bandwidth)			
Used	Setup	See sub-clause	Comment
☐	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.3.2 Test method (DTS bandwidth)

Test method (DTS bandwidth)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☒	11.8.1	Option 1	No limitations	-
☐	11.8.2	Option 2	No limitations	6 dB down function

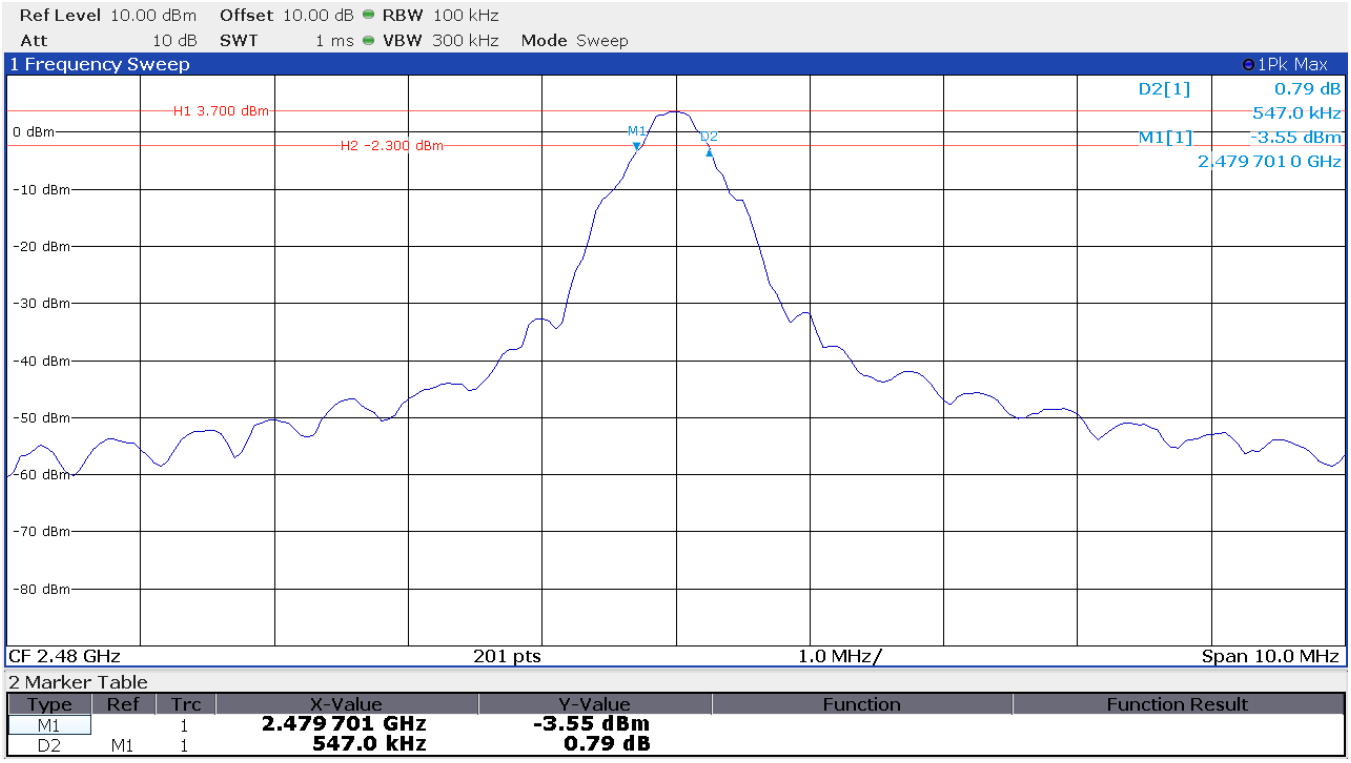
The test results are shown on the following page.

5.3.3 Test results (DTS bandwidth)

Ambient temperature:	23 °C
Relative humidity:	31 %

Date:	12.11.2024
Tested by:	B. ROHDE

Worst case plot (operation mode 1):



Operation mode #	DTS bandwidth [MHz]	Minimum DTS bandwidth Limit [MHz]
1	**0.547**	0.5
2	0.547	0.5
3	0.547	0.5

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1

5.4 Occupied bandwidth – power bandwidth (99%)

5.4.1 Test Setup (Occupied bandwidth – power bandwidth (99%))

Test setup (Occupied bandwidth – power bandwidth (99%))			
Used	Setup	See sub-clause	Comment
☐	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.4.2 Test method (Occupied bandwidth – power bandwidth (99%))

Test method (Occupied bandwidth – power bandwidth (99%))				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☐	6.9.2	Relative measurement procedure	-	n-dB down
☒	6.9.3	Power bandwidth (99%)	*1	99% power function

*1 See RSS-GEN Issue 5 (2018-05) sub-clause 6.7 for details.

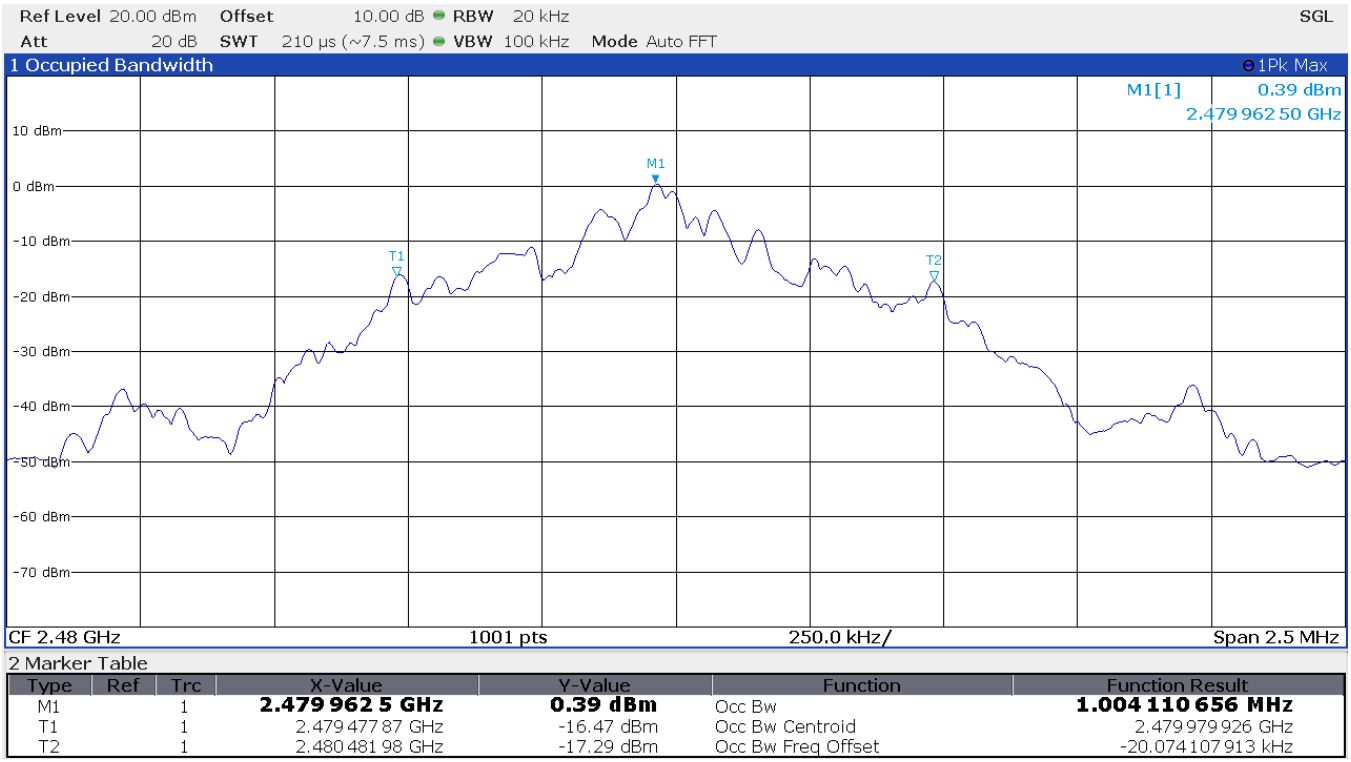
The test results are shown on the following page.

5.4.3 Test results (Occupied bandwidth – power bandwidth (99%))

Ambient temperature:	23 °C
Relative humidity:	31 %

Date:	12.11.2024
Tested by:	B. ROHDE

Worst case plot (operation mode 3):



Operation mode #	99% bandwidth [MHz]
1	1.001242
2	1.003687
3	**1.004111**

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1

5.5 DTS fundamental emission output power

5.5.1 Test setup (DTS fundamental emission output power)

Test setup (DTS fundamental emission output power)			
Used	Setup	See sub-clause	Comment
☐	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.5.2 Test method (DTS fundamental emission output power)

Test method (Maximum peak conducted output power)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☒	11.9.1.1	RBW ≥ DTS bandwidth	-	Zero span mode
☐	11.9.1.2	PKPM1 Peak power meter method*1	-	-

*1 VBW of the peak power meter has to be > OBW of the fundamental.

Test method (Maximum conducted (average) output power)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☐	11.9.2.2.2	Method AVGSA-1	D ≥ 98%	-
☐	11.9.2.2.3	Method AVGSA-1A (alternative)	D ≥ 98%	-
☒	11.9.2.2.4	Method AVGSA-2	Constant D (±2%)	-
☐	11.9.2.2.5	Method AVGSA-2A (alternative)	Constant D (±2%)	-
☐	11.9.2.2.6	Method AVGSA-3A	-	-
☐	11.9.2.2.7	Method AVGSA-3A (alternative)	-	-
☐	11.9.2.3.1	Method AVGPM	Constant D (±2%)	-
☐	11.9.2.3.2	Method AVGPM-G	-	-

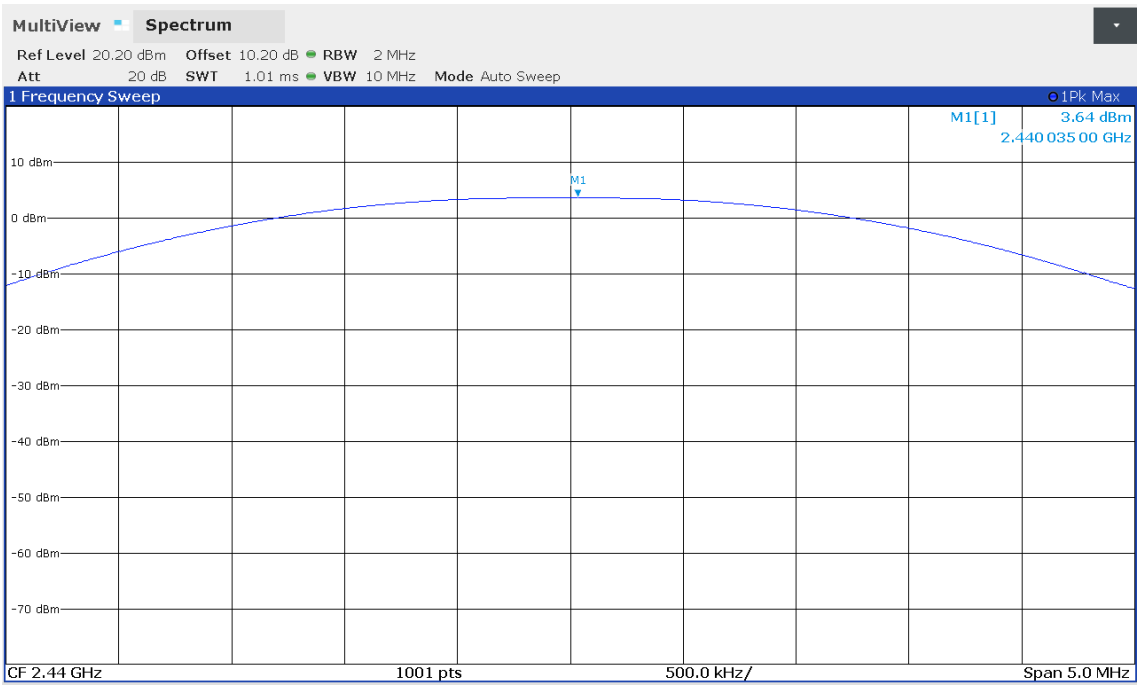
5.5.3 Test results (DTS fundamental emission output power)

Ambient temperature:	23 °C / 20°
Relative humidity:	31 % / 30

Date:	12.11.2024 / 09.01.2025
Tested by:	B. ROHDE

5.5.3.1 Maximum peak conducted output power:

Worst case plot (operation mode 2):

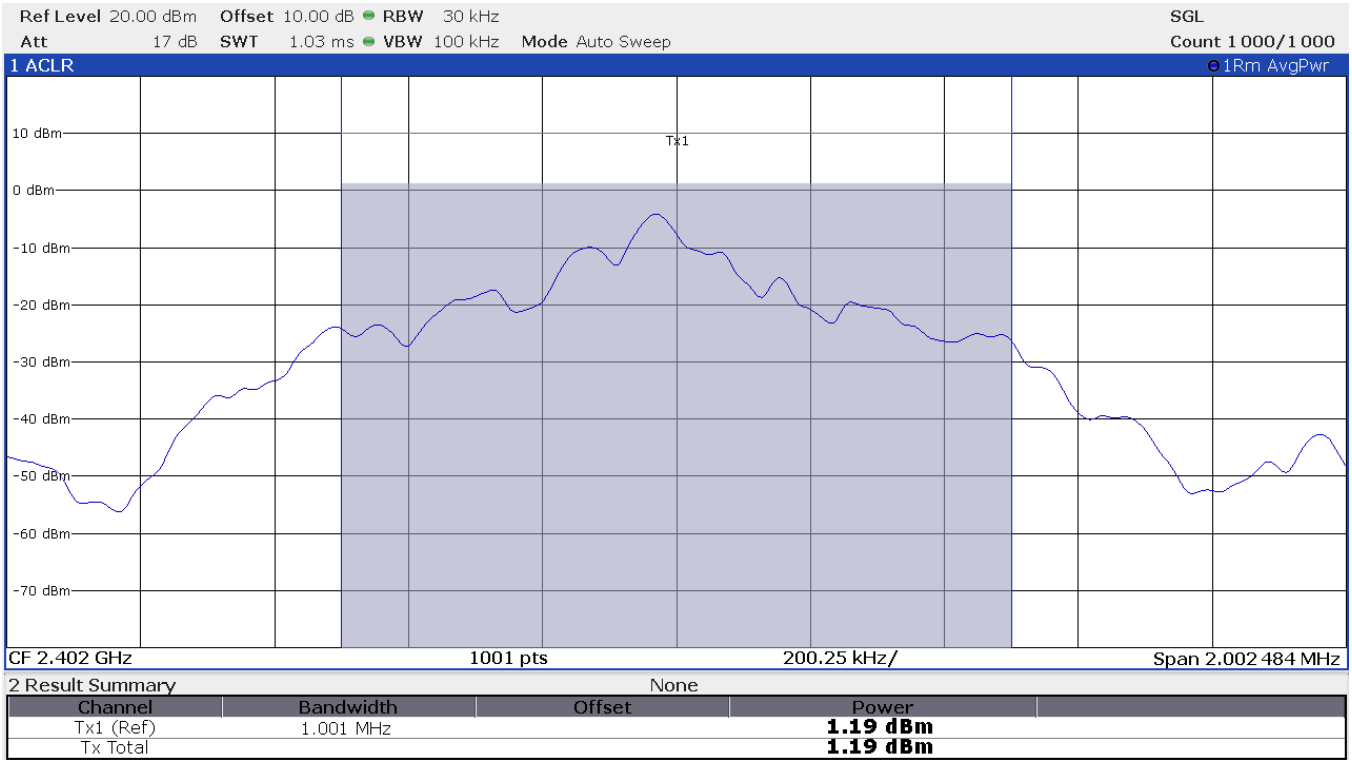


Operation mode	Reading [dBm]	Corr. Fact. [dB]	Result [dBm]	Limit [dBm]
1	3.6	0.0	3.6	30
2	3.6	0.0	3.6	30
3	3.5	0.0	3.6	30

Test result: Passed

5.5.3.2 Maximum conducted (average) output power

Worst case plot (operation mode 1):



Operation mode	Reading [dBm]	Corr. Fact. [dB]	DCCF [dB]	Result [dBm]	Limit [dBm]
1	1.2	0.0	2.4	**3.6**	30
2	1.0	0.0	2.4	3.4	30
3	0.9	0.0	2.4	3.3	30

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1

5.6 DTS maximum power spectral density.

5.6.1 Test setup (DTS maximum PSD level in the fundamental emission)

Test setup (DTS fundamental emission output power)			
Used	Setup	See sub-clause	Comment
☐	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.6.2 Test method (DTS maximum PSD level in the fundamental emission)

Test method (Maximum *peak* power spectral density level in the fundamental emission)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☒	11.10.2	Method PKPSD (peak PSD)	No limitations	-

Test method (Maximum *average* power spectral density level in the fundamental emission)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☐	11.10.3	Method AVGPSD-1	D ≥ 98%	-
☐	11.10.4	Method AVGPSD-1A (alternative)	D ≥ 98%	-
☒	11.10.5	Method AVGPSD-2	Constant D (±2%)	-
☐	11.10.6	Method AVGPSD-2A (alternative)	Constant D (±2%)	-
☐	11.10.7	Method AVGPSD-3	No limitations	-
☐	11.10.8	Method AVGPSD-3A (alternative)	No limitations	-

The test results are shown on the following page.

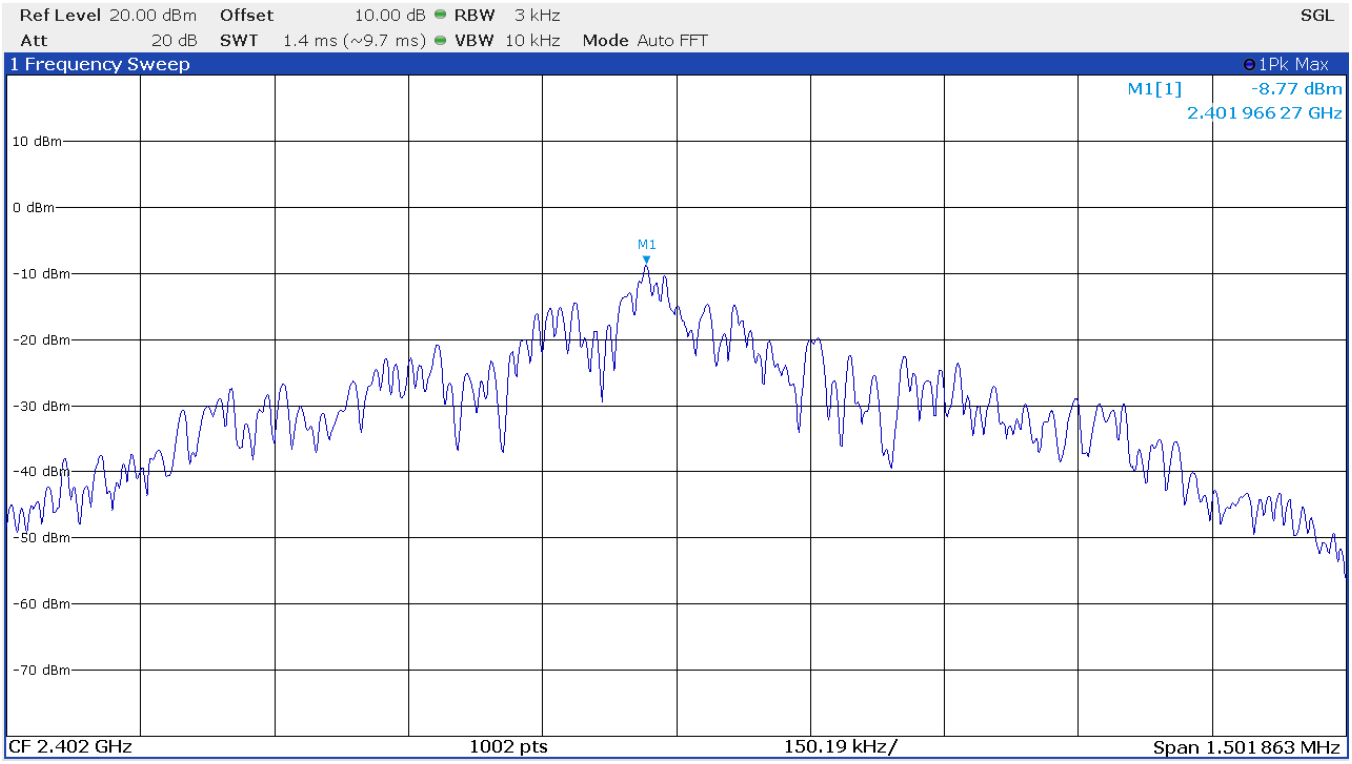
5.6.3 Test results (DTS maximum PSD level in the fundamental emission)

Ambient temperature:	23 °C
Relative humidity:	31 %

Date:	12.11.2024
Tested by:	B. ROHDE

5.6.3.1 Maximum peak PSD

Worst case plot (operation mode 1):

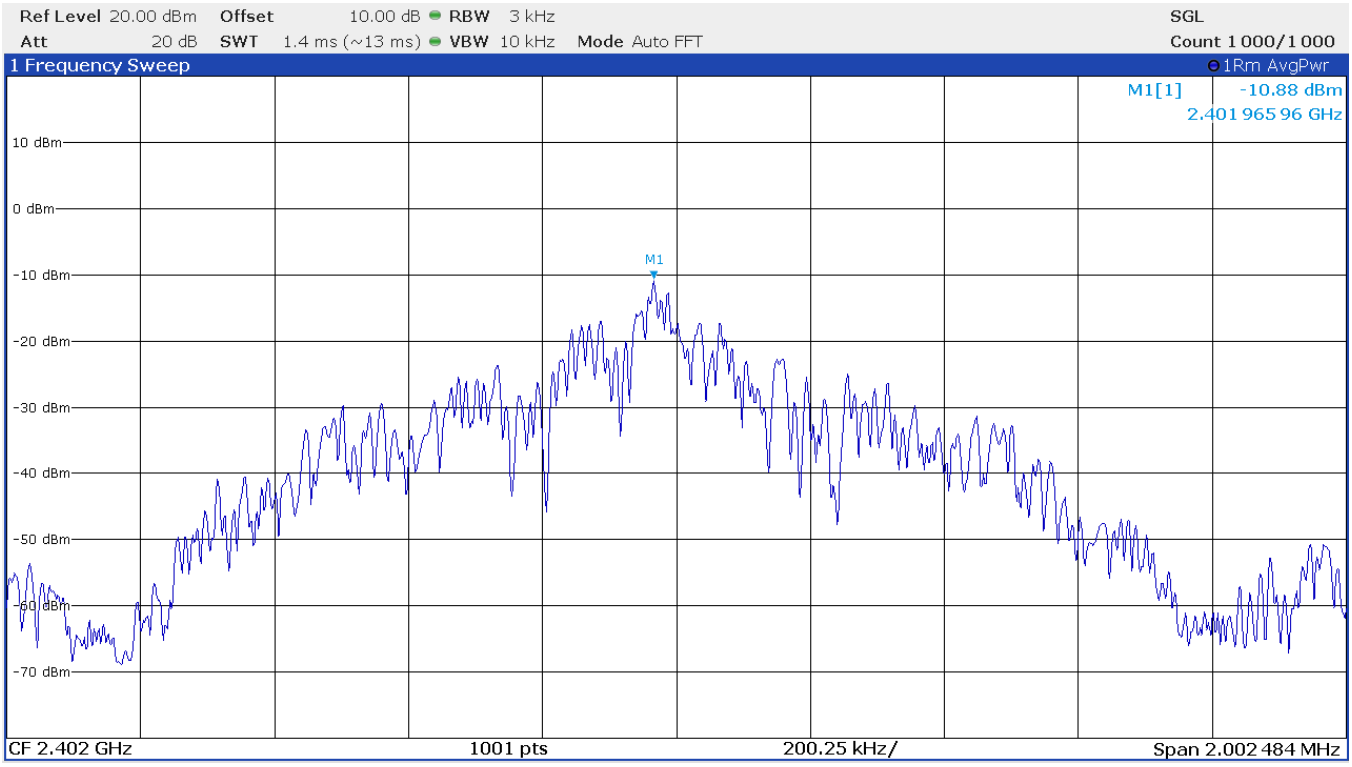


Operation mode	Reading [dBm/3 kHz]	Corr. Fact. [dB]	Result [dBm/3 kHz]	Limit [dBm/3 kHz]
1	-8.8	0.0	**-8.8**	8.0
2	-9.0	0.0	-9.0	8.0
3	-9.1	0.0	-9.1	8.0

Test result: Passed

5.6.3.2 Maximum average PSD

Worst case plot (operation mode 1):



Operation mode	Reading [dBm/3 kHz]	Corr. Fact. [dB]	DCCF [dB]	Result [dBm/3 kHz]	Limit [dBm/3 kHz]
1	-10.9	0.0	2.4	**-8.5**	8.0
2	-11.3	0.0	2.4	-8.9	8.0
3	-11.6	0.0	2.4	-9.2	8.0

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1

5.7 DTS band-edge emission measurements

5.7.1 Test setup (Band edge – unrestricted bands)

Test setup (Band edge – unrestricted bands)			
Used	Setup	See sub-clause	Comment
☒	Radiated: 1 GHz to 40 GHz	5.1.3	-
☒	Conducted: Antenna port	5.1.4	-

5.7.2 Test method (Band edge – unrestricted bands)

Test method (Band edge – unrestricted bands)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☒	11.11.	20 dBc (Peak)	Peak power	*1
☐	11.11.	30 dBc (Average)	RMS power	*2

*1 As declared in “47 CFR 15.247(d)” In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits

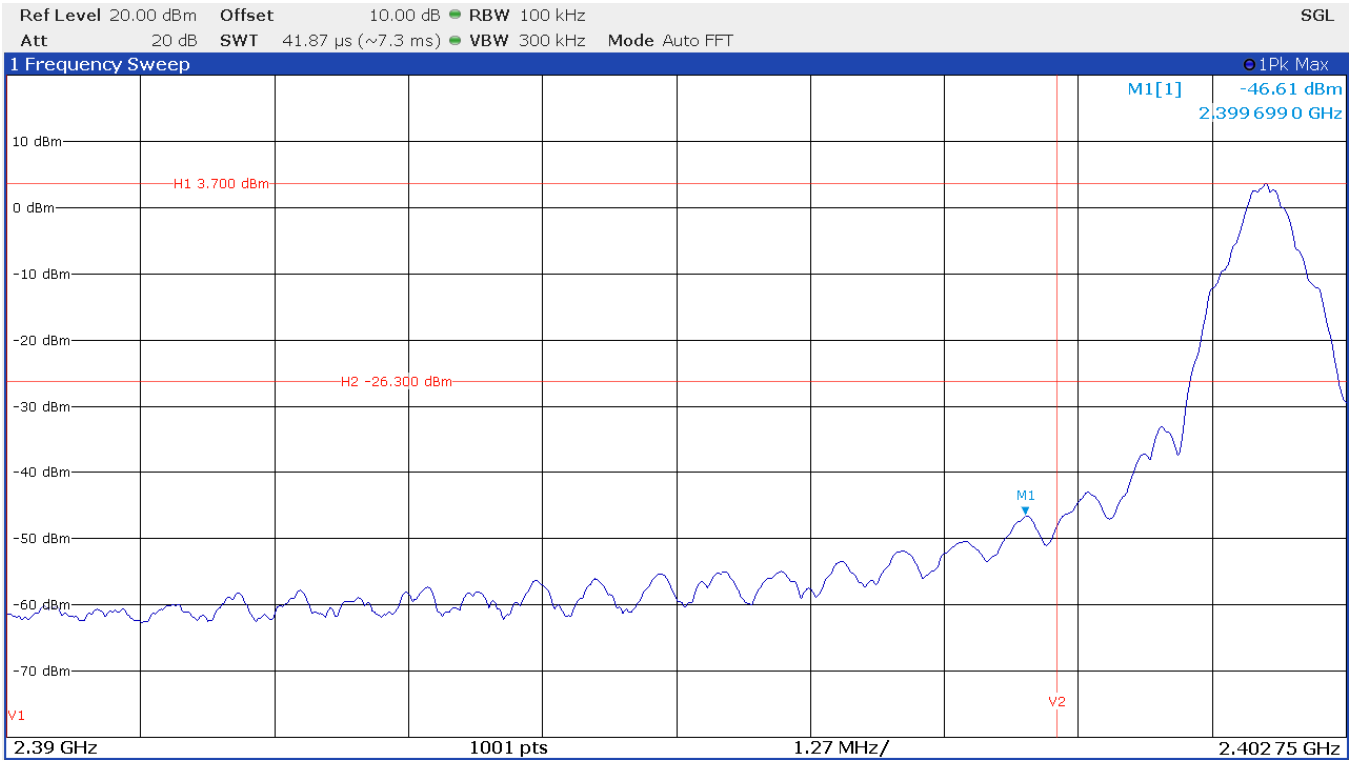
*2 If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.7.3 Test results (Band edge – unrestricted bands)

Ambient temperature:	23 °C
Relative humidity:	31 %

Date:	12.11.2024
Tested by:	B. ROHDE

Measurement plot lower band edge (operation mode 1, conducted measurement):



Lower band edge (operation mode 1, conducted measurement):

Frequency [MHz]	Reference [dB(µV/m)]	Limit [dB(µV/m)]	Unrestricted band emission [dB(µV/m)]	Margin [dB]
2399.699	3.7	-26.3	-46.6	20.3

Test result: Passed

Test equipment (please refer to chapter 7 for details)
1

5.7.4 Test setup (Band edge – restricted bands)

Test setup (Band edge – restricted bands)			
Used	Setup	See sub-clause	Comment
☒	Radiated: 1 GHz to 40 GHz	5.1.3	
☐	Conducted: Antenna port	5.1.4	

5.7.5 Test method (Band edge – restricted bands)

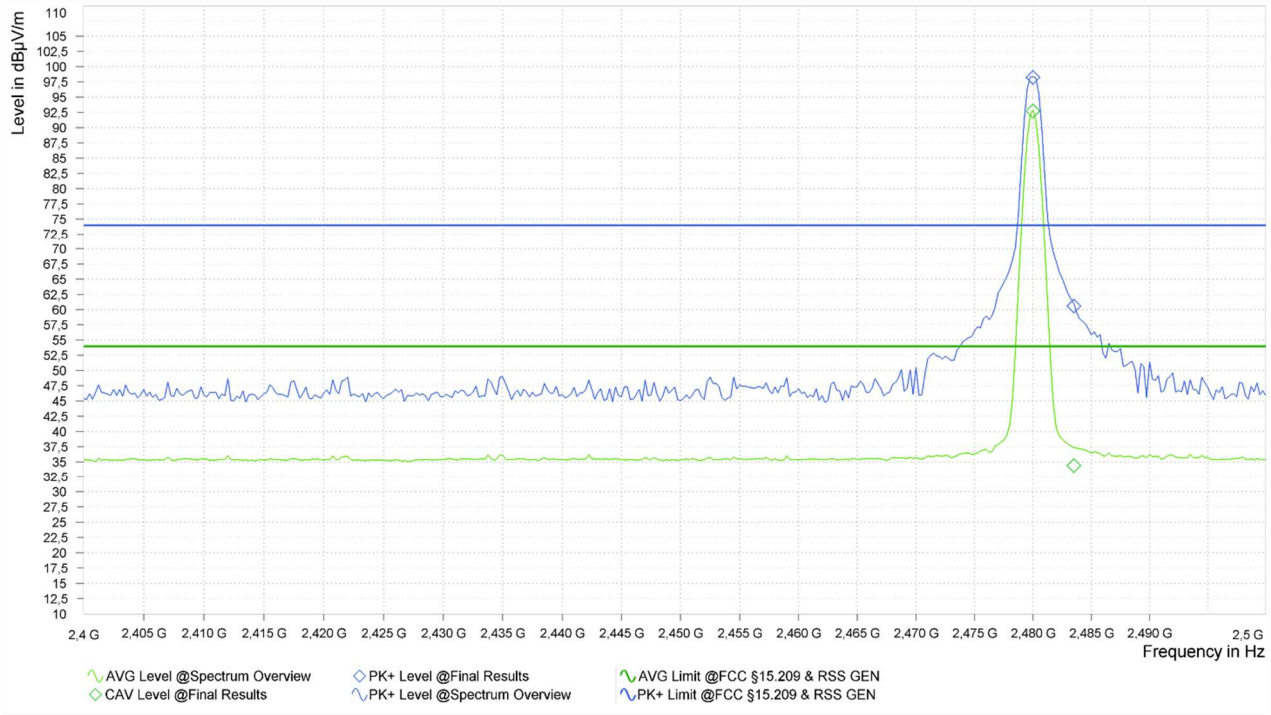
Test method (Band edge – restricted bands)				
Used	Sub-Clause [1]	Name of method	Applicability	Comment
☒	11.12.1	Standard method	No limitations	
☐	11.12.3.1	Marker-delta method		See 6.10.6 [3] 2 MHz from band
☐	11.12.3.2	Integration method		2 MHz from band

5.7.6 Test results (Band edge – restricted bands)

Ambient temperature:	22 °C
Relative humidity:	31 %

Date:	14.11.2024
Tested by:	B. ROHDE

Measurement plot upper band edge (operation mode 3, radiated measurement):



Upper band edge (operation mode 3, radiated measurement):

Frequency [MHz]	Result (Pk) [dB(µV/m)]	Result (Av) [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]
2483.500	60.6	-	74.0	13.4
2483.500	-	34.4	54.0	19.6

Test result: Passed

Test equipment (please refer to chapter 7 for details)
2 - 10

5.8 Radiated emissions

5.8.1 Test setup (Maximum unwanted emissions)

Test setup (Maximum unwanted emissions)			
Used	Setup	See sub-clause	Comment
☒	Radiated: 9 kHz to 30 MHz / 30 MHz to 1 GHz / 1 GHz to 40 GHz	5.1.1 / 5.1.2 / 5.1.3	-
☐	Conducted: Antenna port	5.1.4	-

5.8.2 Test method (Maximum unwanted emissions)

☒ Test method (radiated) see sub-clauses 5.1.1 to 5.1.3 as described herein

5.8.3 Test results (Maximum unwanted emissions)

5.8.3.1 Test results preliminary measurement 9 kHz to 30 MHz

Ambient temperature:	22 °C
Relative humidity:	31 %

Date:	13.11.2024
Tested by:	B. ROHDE

Position of EUT: For tests for f between 9 kHz to 30 MHz, the EUT was set-up on a table with a height of 80 cm. The distance between EUT and antenna was 3 m.

Cable guide: For detail information of test set-up and the cable guide refer to the pictures in the annex A in the test report.

Test record: The measurement value was already corrected by 40 dB/decade as described in 47 CFR 15.31(f)(2) regarding to the measurement distance as requested in 47 CFR 15.209(a)

Remark: The EUT was tested in nominal position.

Calculations:

Result @ norm. dist. [dBµV/m] = Reading [dBµV] + AF [dB/m] + Distance corr. fact. [dB]

Result @ norm. dist. [dBµA/m] = Result @ norm. dist. [dBµV/m] – 20 x $\log_{10}$ (377 Ω)

Margin [dB] = Limit [dB(µV|µA)/m] - Result [dB(µV|µA)/m]

Measurement plot:

Spurious emissions from 9 kHz to 30 MHz (operation mode 1):

Remark: No emissions closer than 20 dB to the limit, so no final measurement will be carried out.

Test result: Passed

Test equipment (please refer to chapter 7 for details)
3 - 5, 7 - 9, 11

5.8.3.2 Test results (30 MHz – 1 GHz)

Ambient temperature:	22 °C
Relative humidity:	31 %

Date:	13.11.2024
Tested by:	B. ROHDE

Position of EUT: For tests for f between 30 MHz to 1 GHz, the EUT was set-up on a table with a height of 80 cm. The distance between EUT and antenna was 3 m.

Cable guide: For detail information of test set-up and the cable guide refer to the pictures in the annex A in the test report.

Test record: Plots for each frequency range are submitted below.

Remark: All 3 orthogonal planes were tested separately

Calculations:

Result [dBµV/m] = Reading [dBµV] + Correction [dB/m]

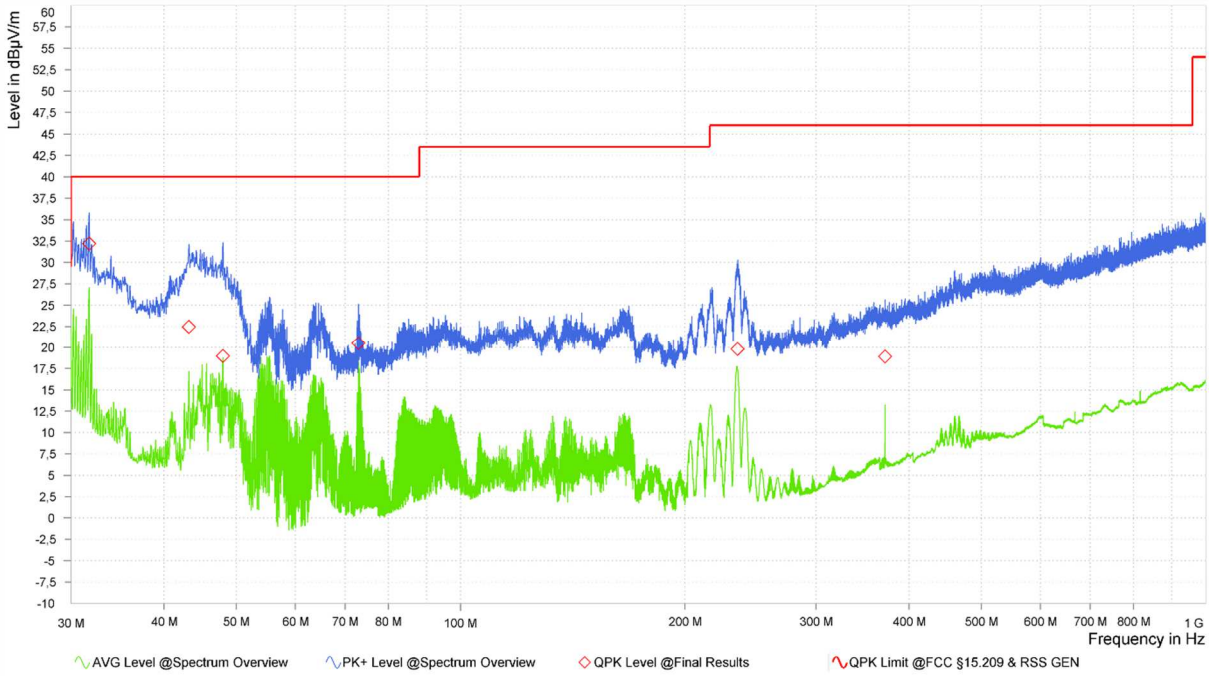
Correction [dB/m] = AF [dB/m] + Cable attenuation [dB] + optional preamp gain [dB]

Margin [dB] = Limit [dBµV/m] - Result [dBµV/m]

The measured points and the limit line in the following diagram refer to the standard measurement of the emitted interference in compliance with the above-mentioned standard. The measured points marked with "◇" are the measured results of the standard subsequent measurement in a semi-anechoic chamber.

Worst case plot:

Spurious emissions from 30 MHz to 1 GHz (operation mode 1 – position 1):



Result tables:

Operation mode 1 – position 1:

Frequency [MHz]	Result (QP) [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Correction [dB/m]	Polarization (H/V)	Azimuth [deg]	Antenna height [m]
31.740	32.2	40.0	7.8	25.6	V	347	1.27
43.200	22.5	40.0	17.5	18.1	V	294	1.00
48.000	19.0	40.0	21.0	14.9	V	41	1.03
72.960	20.5	40.0	19.5	15.1	V	343	1.51
235.440	19.8	46.0	26.2	16.9	V	13	1.34
371.280	18.9	46.0	27.1	20.9	V	85	2.27

Operation mode 2 – position 2:

Frequency [MHz]	Result (QP) [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Correction [dB/m]	Polarization (H/V)	Azimuth [deg]	Antenna height [m]
30.320	20.8	40.0	19.2	26.5	V	70	1.00
43.210	25.2	40.0	14.8	18.1	V	120	1.00
56.970	18.6	40.0	21.4	12.0	V	372	1.62
64.470	16.8	40.0	23.2	13.7	V	342	1.25
77.460	15.9	40.0	24.1	15.8	V	342	1.32
161.110	16.0	43.5	27.5	15.3	H	78	1.62
227.950	13.1	46.0	32.9	16.5	V	332	1.00
371.270	18.7	46.0	27.3	20.9	V	238	2.64

Operation mode 3 – position 3:

Frequency [MHz]	Result (QP) [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Correction [dB/m]	Polarization (H/V)	Azimuth [deg]	Antenna height [m]
31.000	20.2	40.0	19.8	26.1	H	228	2.20
43.210	25.3	40.0	14.7	18.1	V	230	1.01
44.990	26.0	40.0	14.0	16.9	V	98	1.00
58.210	13.0	40.0	27.0	12.1	V	18	2.23
63.960	20.2	40.0	19.8	13.9	V	36	1.40
234.440	19.2	46.0	26.8	16.8	V	34	1.00
371.270	19.0	46.0	27.0	20.9	V	146	2.38

Test result: Passed

Test equipment (please refer to chapter 7 for details)
3 - 9, 12 - 13

5.8.3.3 Test results (radiated 1 GHz to 40 GHz)

Ambient temperature:	22 °C
Relative humidity:	31 %

Date:	14.11.2024
Tested by:	B. ROHDE

Position of EUT: For tests for f between 1 GHz and the 10th harmonic, the EUT was set-up on a positioner device with a height of 150 cm. The distance between EUT and antenna was 3 m.

Cable guide: For detail information of test set-up and the cable guide refer to the pictures in the annex A in the test report.

Test record: Plots for each frequency range are submitted below.

Remark: -

Calculation:

Max Peak [dBµV/m] = Reading [dBµV] + Correction [dB/m]

Average [dBµV/m] = Reading [dBµV] + Correction [dB/m]

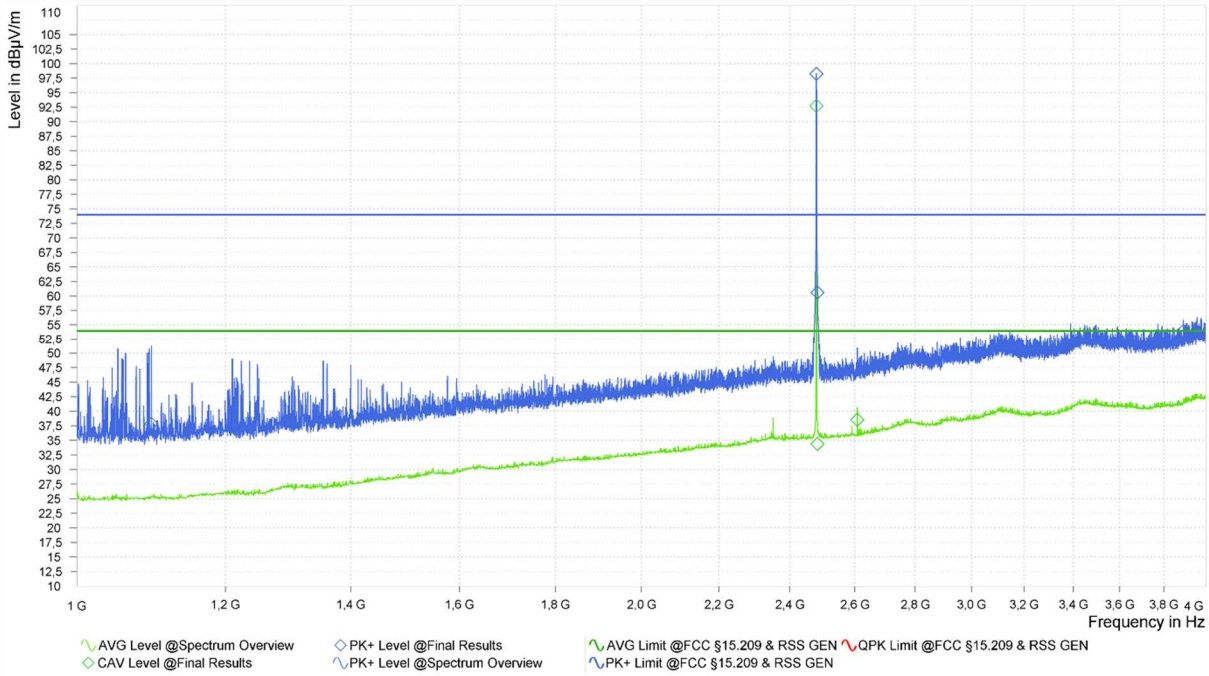
Correction [dB/m] = AF [dB/m] + Cable attenuation [dB] + optional preamp gain [dB]+DCCF* [dB]
* (if applicable – only for Average values, that are fundamental related)

Margin [dB] = Limit [dBµV/m] – Max Peak | Average [dBµV/m]

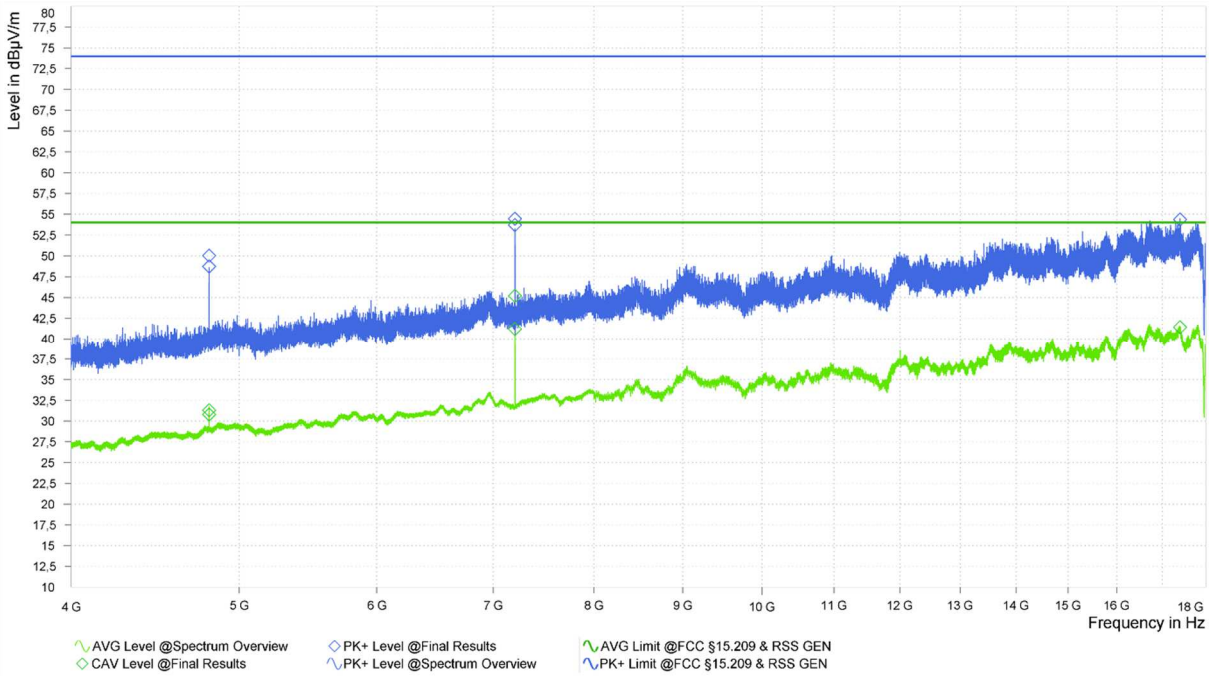
The curves in the diagram only represent the maximum measured value for each frequency point of all preliminary measurements, which were carried out with various EUT and antenna positions.
The top measured curve represents the peak measurement. The measured points marked with " ◇ " are frequency points for the final peak detector measurement. These values are indicated in the following table. The bottom measured curve represents the average measurement. The measured points marked with " ◇ " are frequency points for the final average detector measurement.

Worst case plots:

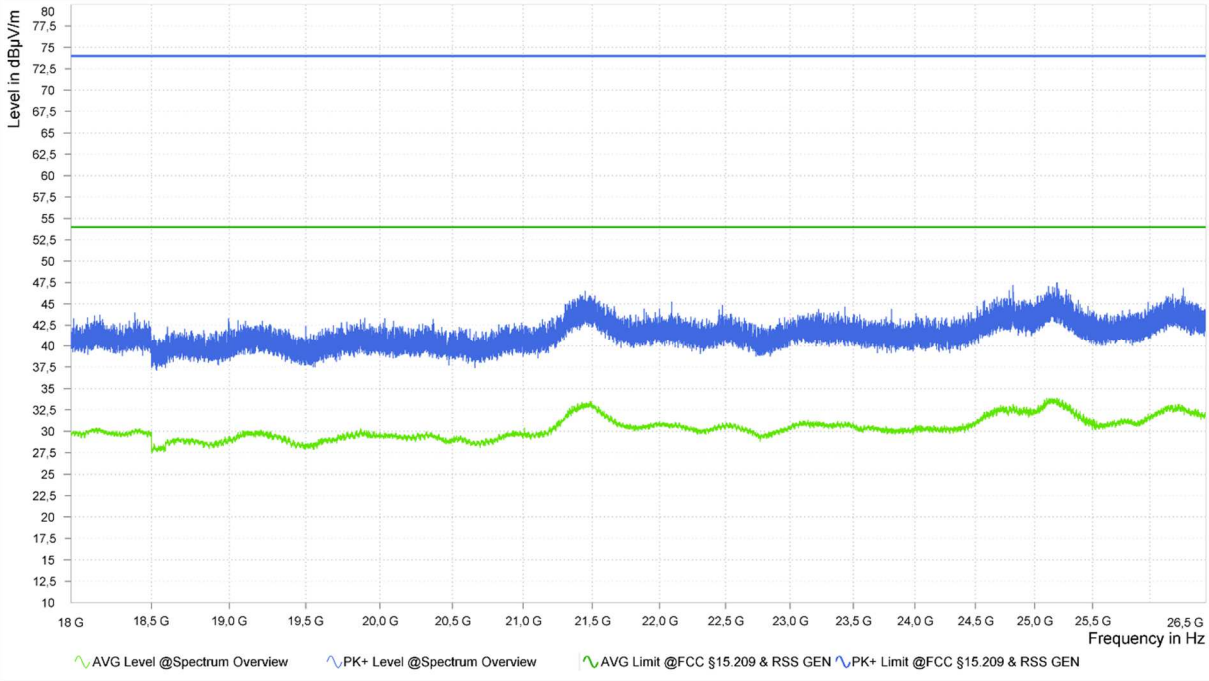
Spurious emissions from 1 GHz to 4 GHz (operation mode 3):



Spurious emissions from 4 GHz to 18 GHz (operation mode 1):



Spurious emissions from 18 GHz to 26.5 GHz (operation mode 1):



Result tables:

Operation mode 1:

Frequency [MHz]	MaxPeak [dB(µV/m)]	Average [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Pol [H/V]	Azimuth [deg]	Elevation [deg]	Corr. [dB/m]
1241.500	38.3	-	74.0	35.7	V	135	53	26.7
1540.750	41.5	-	74.0	32.5	H	119	105	29.6
2402.000	98.8	-	Fund.	-	V	47	124	34.5
2402.000	-	93.3	Fund.	-	V	47	124	34.5
3962.500	54.9	-	74.0	19.1	H	123	144	40.0
4803.750	48.7	-	74.0	25.3	V	218	150	8.6
4803.750	-	35.7	54.0	18.3	V	218	150	13.5
4804.000	50.0	-	74.0	24.0	V	216	150	8.6
4804.000	-	36.2	54.0	17.8	V	216	150	13.5
7205.250	53.7	-	74.0	20.3	H	158	60	12.2
7205.250	-	46.1	54.0	7.9	H	158	60	17.1
7206.000	54.5	-	74.0	19.5	H	160	60	12.2
7206.000	-	50.1	54.0	3.9	H	160	60	17.1
17400.250	54.4	-	74.0	19.6	V	171	90	28.4
17400.250	-	41.4	54.0	12.6	V	171	90	28.4

Operation mode 2:

Frequency [MHz]	MaxPeak [dB(µV/m)]	Average [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Pol [H/V]	Azimuth [deg]	Elevation [deg]	Corr. [dB/m]
2440.000	97.8	-	Fund.	-	H	244	80	34.6
2440.000	-	92.3	Fund.	-	H	244	80	34.6
4880.000	53.4	-	74.0	20.6	V	18	60	8.8
4880.000	-	39.0	54.0	15.0	V	218	150	13.7
7319.500	53.6	-	74.0	20.4	H	186	120	13.2
7319.500	-	47.1	54.0	6.9	V	216	150	18.1
7320.000	53.2	-	74.0	20.8	H	186	120	13.2
7320.000	-	48.4	54.0	5.6	H	158	60	18.1
17391.000	54.0	-	74.0	20.0	V	150	60	28.3
17391.000	-	41.4	54.0	12.6	V	150	60	28.3
17791.750	54.0	-	74.0	20.0	V	38	60	28.2
17791.750	-	41.2	54.0	12.8	V	38	60	28.2

Operation mode 3:

Frequency [MHz]	MaxPeak [dB(µV/m)]	Average [dB(µV/m)]	Limit [dB(µV/m)]	Margin [dB]	Pol [H/V]	Azimuth [deg]	Elevation [deg]	Corr. [dB/m]
1095.750	37.9	-	74.0	36.1	H	244	105	25.7
2480.000	98.2	-	Fund.	-	H	209	66	34.6
2480.000	-	92.7	Fund.	-	H	209	66	34.6
2483.500	60.6	-	74.0	13.4	H	209	60	34.6
2483.500	-	34.4	54.0	19.6	H	210	63	34.6
2608.000	-	38.5	54.0	15.5	H	216	69	34.9
3892.000	54.0	-	74.0	20.0	H	14	348	39.4
4960.000	51.5	-	74.0	22.5	H	150	120	8.9
4960.000	-	39.0	54.0	15.0	V	218	150	13.8
7440.000	51.3	-	74.0	22.7	H	214	60	13.8
7440.000	-	45.5	54.0	8.5	V	216	150	18.7
7440.500	50.8	-	74.0	23.2	H	214	60	13.8
7440.500	-	42.9	54.0	11.1	H	158	60	18.7
15792.250	52.7	-	74.0	21.3	V	120	104	26.1
15792.250	-	40.1	54.0	13.9	V	120	104	26.1
17389.500	54.1	-	74.0	19.9	H	90	182	28.3
17389.500	-	41.3	54.0	12.7	H	90	182	28.3
17815.000	55.1	-	74.0	18.9	V	30	112	28.5
17815.000	-	41.5	54.0	12.5	V	30	112	28.5

Test result: Passed

Test equipment (please refer to chapter 7 for details)
2 - 9, 14 - 17

5.9 AC power-line conducted emissions

5.9.1 Test setup (Conducted emissions on power supply lines)

Test setup (Conducted emissions on power supply lines)			
Used	Setup	See sub-clause	Comment
☒	Conducted: AC power line	5.1.5	-

5.9.2 Test method (Conducted emissions on power supply lines)

Test setup (Conducted emissions on power supply lines)				
Used	Clause [3]	Name of method	Sub-clause	Comment
☒	6.2.3.2	Tabletop equipment testing	-	AC power adaptor *
☐	6.2.3.3	Floor-standing equipment testing	-	-

* The AC power adaptor as declared in clause 1.5.1 of this test report was used for the tests.
The power adaptor was supplied by $120V_{AC}$ 60Hz.

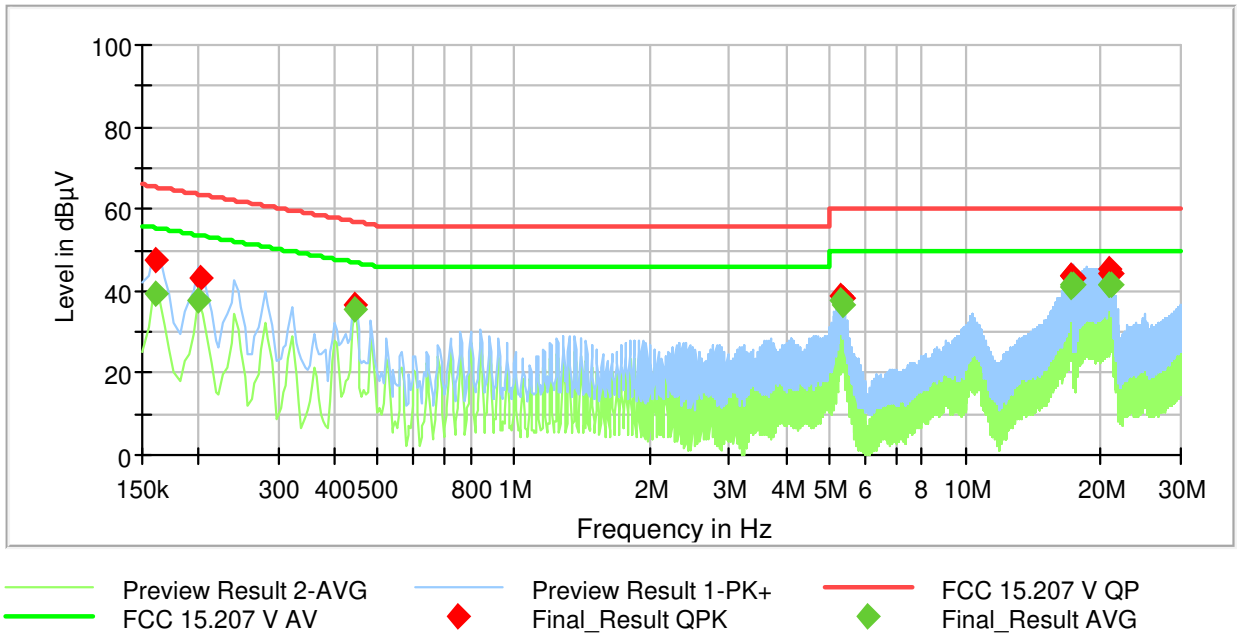
The EUT was tested in normal operation mode.

5.9.3 Test results (Conducted emissions on power supply lines)

Ambient temperature:	22 °C
Relative humidity:	27 %

Date:	20.11.2024
Tested by:	B. ROHDE

The curves in the diagrams below only represent for each frequency point the maximum measured value of all preliminary measurements which were made for each power supply line. The top measured curve represents the peak measurement and the bottom measured curve the average measurement. The quasi-peak measured points are marked by ◆ and the average measured points by ▼.



Frequency [MHz]	QuasiPeak [dB(µV)]	Average [dB(µV)]	Limit [dB(µV)]	Margin [dB]	Line	PE	Corr. [dB]
0.161	47.3	-	65.4	18.1	L1	GND	9.8
0.161	-	39.4	55.4	16.0	L1	GND	9.8
0.201	43.4	-	63.6	20.1	L1	GND	9.8
0.200	-	37.6	53.6	16.0	L1	GND	9.8
0.443	36.8	-	57.0	20.3	L1	GND	9.9
0.442	-	35.3	47.0	11.7	L1	GND	9.9
5.295	39.0	-	60.0	21.0	L1	GND	10.3
5.295	-	37.4	50.0	12.6	L1	GND	10.3
5.334	38.2	-	60.0	21.8	L1	GND	10.3
5.336	-	36.7	50.0	13.3	L1	GND	10.3
17.166	43.5	-	60.0	16.5	L1	GND	10.9
17.167	-	40.9	50.0	9.1	L1	GND	10.9
17.209	43.7	-	60.0	16.3	L1	GND	10.9
17.207	-	41.4	50.0	8.6	L1	GND	10.9
17.246	43.2	-	60.0	16.8	L1	GND	10.8
17.248	-	41.7	50.0	8.3	L1	GND	10.8
20.819	44.5	-	60.0	15.5	N	GND	11.0
20.819	-	41.5	50.0	8.5	L1	GND	10.9
20.858	45.1	-	60.0	14.9	L1	GND	10.9
20.859	-	41.6	50.0	8.4	L1	GND	10.9
20.940	44.5	-	60.0	15.5	N	GND	11.0
20.939	-	41.7	50.0	8.3	L1	GND	10.9

Test result: Passed

Test equipment (please refer to chapter 7 for details)
18 - 23

6 Measurement Uncertainties

Conducted measurements		
Measurement method	Standard used for calculating measurement uncertainty	Expanded measurement uncertainty (95 %) U_{lab}
Frequency error	ETSI TR 100 028	4.5×10^{-8}
Bandwidth measurements	-	9.0×10^{-8}
Conducted emissions using a spectrum analyzer		
< 3.6 GHz	ETSI TR 100 028	2.3 dB
3.6 – 8 GHz	ETSI TR 100 028	2.8 dB
8 – 22 GHz	ETSI TR 100 028	3.2 dB
22 – 40 GHz	ETSI TR 100 028	3.6 dB
Power measurements		
Power meter	ETSI TR 100 028	0.9 dB
Conducted emissions from 150 kHz to 30 MHz with LISN	CISPR 16-4-2	2.8 dB

Radiated measurements		
Frequency error		
(Semi-) Anechoic chamber	ETSI TR 100 028	4.5×10^{-8}
OATS	ETSI TR 100 028	4.5×10^{-8}
Test fixture	ETSI TR 100 028	4.5×10^{-8}
Bandwidth measurements		
(Semi-) Anechoic chamber	-	9.0×10^{-8}
OATS	-	9.0×10^{-8}
Test fixture	-	9.1×10^{-8}
Radiated field strength M20		
CBL6112B @ 3 m 30 MHz – 1 GHz	CISPR 16-4-2	5.3 dB
R&S HL050 @ 3 m		
1 – 6 GHz	CISPR 16-4-2	5.1 dB
6 – 18 GHz	CISPR 16-4-2	5.4 dB
Flann Standard Gain Horns 12 – 40 GHz	-	5.9 dB
Radiated field strength M276		
R&S HL562E @ 3 m 30 MHz – 1 GHz	CISPR 16-4-2	4.8 dB
R&S HL050 @ 3 m	-	
1 – 6 GHz	CISPR 16-4-2	5.1 dB
6 – 18 GHz	CISPR 16-4-2	5.4 dB
Flann Standard Gain Horns 12 – 40 GHz	-	5.9 dB
OATS		
Field strength measurements below 30 MHz on OATS without ground plane	-	4.4 dB

7 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	EMI receiver / Spectrum analyser	ESW44	Rohde & Schwarz	101635	482467	27.02.2024	02.2026
2	Log.-Per. antenna	HL050	Rohde & Schwarz	100908	482977	22.09.2022	09.2025
3	EMC test software	Elektra V5.05.00	Rohde & Schwarz	-	483755	Calibration not necessary	
4	RF switch matrix	OSP220	Rohde & Schwarz	101391	482976	Calibration not necessary	
5	Turntable	TT3.0-3t	Maturo	825/2612/.01	483224	Calibration not necessary	
6	Antenna support	BAM 4.5-P-10kg	Maturo	222/2612.01	483225	Calibration not necessary	
7	Controller	NCD	Maturo	474/2612.01	483226	Calibration not necessary	
8	Semi anechoic chamber M276	SAC5-2	Albatross Projects	C62128-A540-A138-10-0006	483227	Calibration not necessary	
9	EMI test receiver	ESW44	Rohde & Schwarz	101828	482979	21.02.2024	02.2026
10	Positioner	TG1.5-10kg	Maturo	110/2648.01	483042	Calibration not necessary	
11	Loop antenna	HFH2-Z2	Rohde & Schwarz	832609/014	480059	21.02.2024	02.2026
12	Attenuator 6 dB	WA2-6	Weinschel		482793	Calibration not necessary	
13	Ultralog antenna	HL562E	Rohde & Schwarz	101079	482978	24.04.2024	04.2027
14	Low noise amplifier 100 MHz - 18 GHz	LNA-30-00101800-25-10P	Narda-Miteq	2110917	482967	20.02.2024	02.2026
15	Low noise amplifier 18 GHz - 26.5 GHz	LNA-30-18002650-20-10P	Narda-Miteq	2110911	482969	19.02.2024	02.2026
16	Standard gain horn 18 GHz - 26 GHz	20240-20	Flann	266399	483026	Calibration not necessary	
17	High-pass filter	WHKX4.0/18G-8SS	Wainwright	1	480587	Calibration not necessary	
18	LISN	NSLK8128	Schwarzbeck	8128161	480138	28.02.2024	02.2026
19	AC power supply	AC6803A AC Quelle 2000VA	Keysight	JPVJ002509	482350	Calibration not necessary	
20	Software	EMC32	Rohde & Schwarz	100061	481022	Calibration not necessary	
21	Shielded chamber M4	B83117-S1-X158	Siemens	190075	480088	Calibration not necessary	
22	EMI receiver / Spectrum analyser	ESIB 26	Rohde & Schwarz	100292	481182	22.02.2024	02.2026
23	Transient filter limiter	CFL 9206A	Teseq GmbH	38268	481982	28.03.2024	03.2026

8 Test site Verification

Test equipment	PM. No.	Frequency range	Type of validation	According to	Val. Date	Val Due
Shielded chamber M4	480088	9 kHz – 30 MHz	GND-Plane	ANSI C63.4-2014	08.11.2022	07.11.2025
Semi anechoic chamber M276	483227	30 – 1000 MHz	NSA	ANSI C63.4-2014 ANSI C63.4a-2017	01.03.2023	28.02.2026
Semi anechoic chamber M276	483227	1 -18 GHz	SVSWR	CISPR 16-1-4 + Cor1:2010 + A1:2012 +A2:2017	28.02.2023	27.02.2026

9 Report History

Report Number	Date	Comment
F240384E4	10.02.2025	Initial Test Report
-	-	-
-	-	-

10 List of Annexes

Annex A	Test Setup Photos	13 pages
Annex B	EUT External Photos	9 pages
Annex C	EUT Internal Photos *	4 pages

* The internal EUT photos were partly provided by the applicant.

----- end of test report -----