

Test Report

Report Number:

F201626E1

Equipment under Test (EUT):

Deepmax Z2

Applicant:

LORENZ Detecting Systems GmbH & Co. KG

Manufacturer:

LORENZ Detecting Systems GmbH & Co. KG



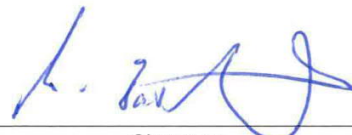
Deutsche
Akkreditierungsstelle
D-PL-17186-01-01
D-PL-17186-01-02
D-PL-17186-01-03

References

- [1] **ANSI C63.4:2014** American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
- [2] **FCC 47 CFR Part 2:** General Rules and Regulations
- [3] **FCC 47 CFR Part 15:** Radio Frequency Devices (Subpart B)
- [4] **ICES-003 Issue 6: (January 2016)** Spectrum Management and Telecommunications. Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus) —Limits and Methods of Measurement

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.

Tested and written by:	Michael DINTER		27.10.2020
	Name	Signature	Date
Reviewed and approved by:	Manuel BASTERT		27.10.2020
	Name	Signature	Date

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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.

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1 Identification

1.1 Applicant

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Country:	Germany
Name for contact purposes:	Mr. Lorenz ROATZSCH
Phone:	0511-55106-70
eMail address:	mail@metaldetectors.de
Applicant represented during the test by the following person:	Mr. Lorenz ROATZSCH (only some parts of the tests)

1.2 Manufacturer

Name:	LORENZ Detecting Systems GmbH & Co. KG
Address:	Röpkestr. 12, 30173 Hannover
Country:	Germany
Name for contact purposes:	Mr. Lorenz ROATZSCH
Phone:	0511-55106-70
eMail address:	mail@metaldetectors.de
Manufacturer represented during the test by the following person:	Mr. Lorenz ROATZSCH (only some parts of the tests)

1.3 Test Laboratory

The tests were carried out by: **PHOENIX TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

Accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) in compliance with DIN EN ISO/IEC 17025 under Reg. No. D-PL-17186-01-06 and D-PL-17186-01-05, FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623, CAB Identifier DE0003 and ISD# 3469A.

1.4 EUT (Equipment under Test)

Test object: *	Metal detector
Model name: *	Lorenz Deepmax Z2
Model number: *	Lorenz Deepmax Z2 STANDARD DETECTING KIT Includes 1 m x 1 m frame coil and 35 cm DD-coil
FCC ID: *	2AXXCDEEPMAXZ2
Order number: *	-
Serial number: *	204876142662
PCB identifier: *	DMAXX 456 FOV. brd
Hardware version: *	1.1
Software version: *	2.02

* Declared by the applicant

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

EUT						
Power supply EUT: *	NiMH 12V/2450 mAh FDK HR-3UWX					
Supply voltage EUT: *	U _{nom} =	12 V DC	U _{min} =	10 V DC	U _{max} =	14 V DC
Temperature range: *	-5 to 50 °C					
Lowest / highest internal clock frequency: *	Lowest: 7.3 MHz (the frame coil works with approximately 600 Hz) Highest: 43.8 MHz for the metal detector and 1575 MHz for the GPS receiver					

* Declared by the applicant

Ports / Connectors				
Identification			Length during test	Shielding (Yes / No)
	EUT	Ancillary		
Measuring Probe 1 1 x 1 m Sonde	Binder 99 4226 00 07	Measuring probe 1 x 1 m Sonde	appr. 3 m*	yes
Measuring Probe 2 35 cm DD-Sonde	Binder 99 4226 00 07	Measuring probe 35 cm DD-Sonde	appr. 2.5 m*	yes
12 V Battery pack with integrated GPS Receiver	Neutrik XLR connector	Battery NiMH Battery GPS Receiver: u-blox SAM-M8Q-0-10	appr. 1.7m*	no
Headset	Neutrik XLR connector	Philips Stereo Headphones	appr. 1.10 m*	no

Ancillary Equipment	
AC adapter *1	AC Adapter from laptop Lenovo ThinkPad X200 Tablet Model:42T4416
Laptop *1	Lenovo ThinkPad X200 Tablet

*1 Provided by the laboratory

*2 Provided by the applicant

Built-in GPS receiver
u-blox SAM-M8Q-0-10

1.6 Dates

Date of receipt of test sample:	08.10.2020
Start of test:	08.10.2020
End of test:	09.10.2020

2 Operational States

Description of function of the EUT:

The EUT is a handheld metal detector with GPS recorder.

The following states were defined as the operating conditions:

The tests were carried out in 2 operation modes:

Mode A: Detecting mode with 2 different antennas.

- During the emission measurement the equipment under test (EUT) was in detecting mode. The pulse repetition rate was set to 0.6 / 1.2 kHz. The recorded data was stored at the internal memory. For the emission measurement the following probes were used:

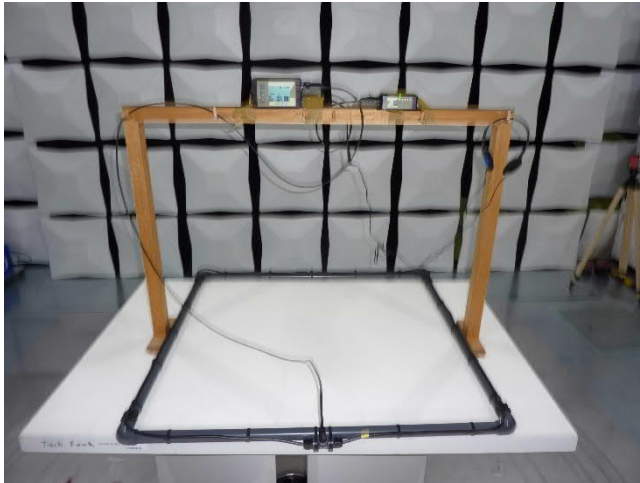
Probe 1: 1 m *1 m frame coil (~0.6 Hz)

Probe 2: 35 cm DD-coil (~1.2 kHz)

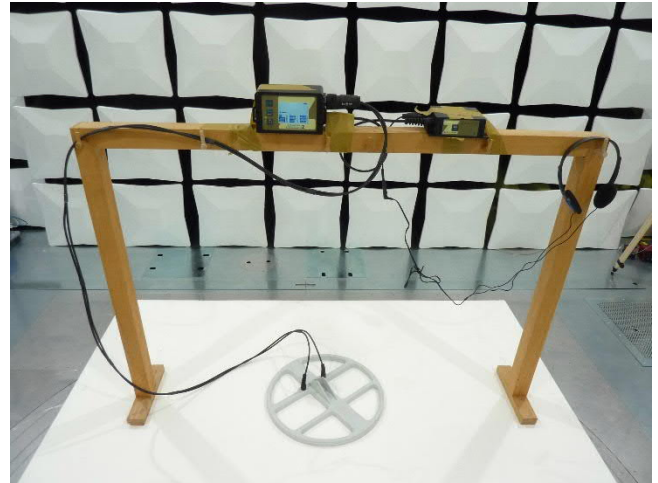
Mode B: Data exchange mode.

- During the emission test the EUT was supplied by a 12 V_{DC} battery and not via 5 V_{DC} USB connection. The EUT was in data exchange mode connected via USB/RS232 interface to a Laptop PC. A terminal program H-Term delivered by the applicant was used to read out the recorded data of the EUT in an endless loop.

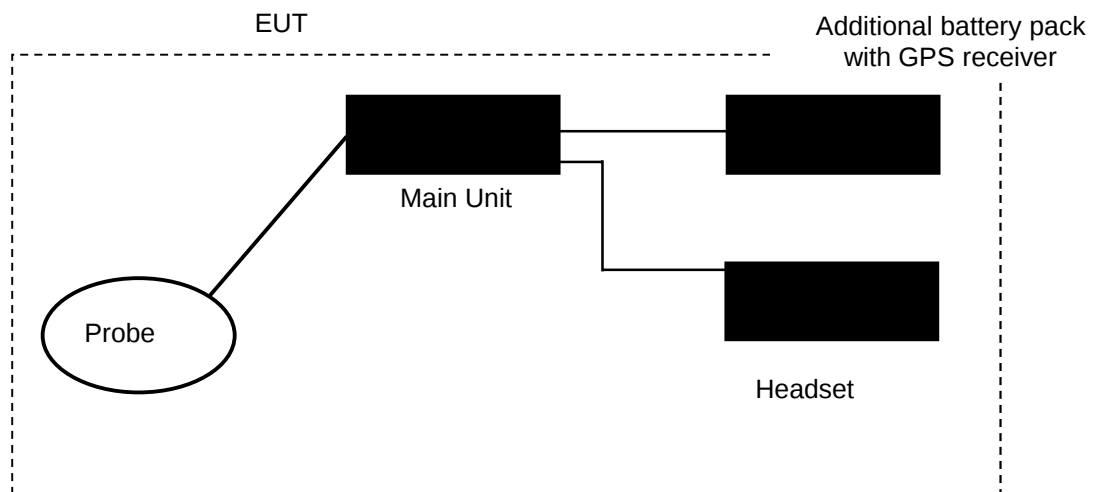
The physical boundaries of the EUT are shown below.



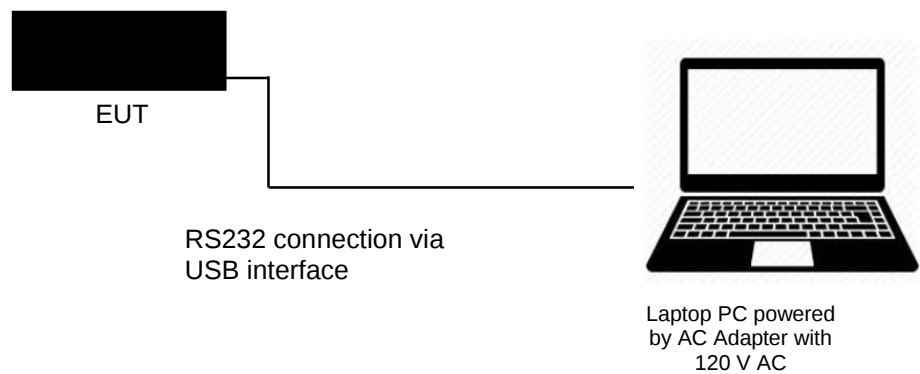
Mode A Probe 1:
1 m * 1 m frame coil (~1 kHz)



Mode A Probe 2:
35 cm DD-coil (~2 kHz)



Physical
Boundary of the EUT
Mode B



3 Additional Information

Remark: The manufacturer declares that the batteries were charged by an external certified charger and there are no other functions in operation during charging. Therefore, no additional test was carried out in charge mode.

4 Overview

Conducted emissions FCC 47 CFR Part 15 section 15.107 (a),(b) [3] / ICES-003 Issue 6 section 6.1 [4]					
Application	Frequency range	Limits	Reference standard	Remark	Status
AC supply line	0.15 to 0.5 MHz 0.5 to 30 MHz	79 dBμV (QP) 66 dBμV (AV) 73 dBμV (QP) 60 dBμV (AV)	ANSI C63.4	Class A	-
AC supply line	0.15 to 0.5 MHz 0.5 to 5 MHz 5 to 30 MHz	66 to 56 dBμV (QP)* 56 to 46 dBμV (AV)* 56 dBμV (QP) 46 dBμV (AV) 60 dBμV (QP) 50 dBμV (AV)	ANSI C63.4	Class B	Passed
*: Decreases with the logarithm of the frequency					
Radiated emissions FCC 47 CFR Part 15 section 15.109 (a),(b) [3] / ICES-003 Issue 6 section 6.2 [4]					
Application	Frequency range	Limits	Reference standard	Remark	Status
Radiated Emission	30 to 88 MHz 88 to 216 MHz 216 to 960 MHz 960 to 1000 MHz above 1000 MHz	39.0 dBμV /m QP at 10 m 43.5 dBμV /m QP at 10 m 46.5 dBμV /m QP at 10 m 49.5 dBμV /m QP at 10 m 49.5 dBμV /m AV at 10 m and 69.5 dBμV /m PK at 10 m	ANSI C63.4	Class A	-
Radiated Emission	30 to 88 MHz 88 to 216 MHz 216 to 960 MHz 960 to 1000 MHz above 1000 MHz	40.0 dBμV/m QP at 3 m 43.5 dBμV/m QP at 3 m 46.0 dBμV/m QP at 3 m 54.0 dBμV/m QP at 3 m 54.0 dBμV/m AV at 3 m and 74.0 dBμV/m PK at 3 m	ANSI C63.4	Class B	Passed

Remark: As declared by the applicant the highest internal clock frequency is 1.575 GHz.
Therefore the radiated emission measurement must be carried out up to 5th of the highest internal clock frequency up to 7.875 GHz, in this case the measurement was carried out up to 13 GHz.

The EUT was classified as CLASS B equipment by the applicant.

5 Results

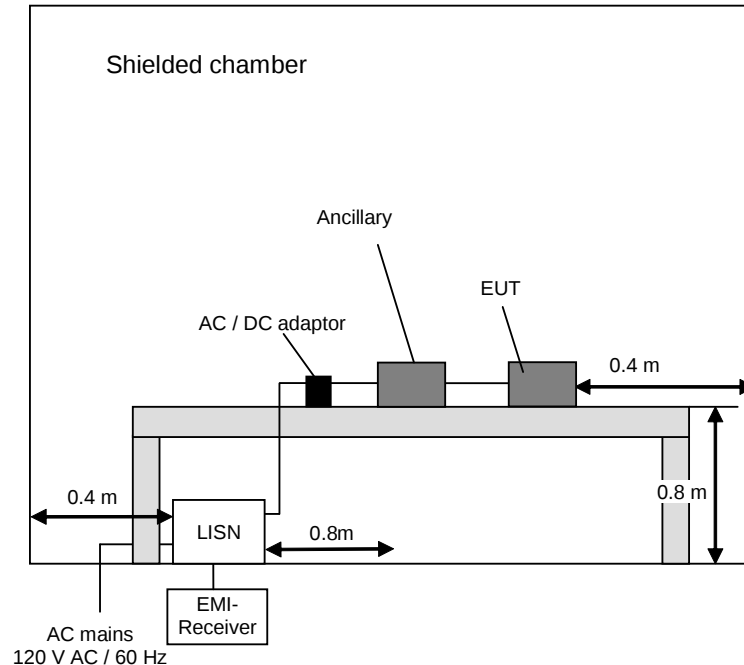
5.1 Conducted emissions on power supply lines

5.1.1 Test method

This test will be carried out in a shielded chamber. Tabletop devices will 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 will be placed directly on the ground plane. The setup of the Equipment under test will be in accordance to [1].

The frequency range 150 kHz to 30 MHz will be measured with an EMI Receiver set to MAX Hold mode with peak and average detector and a resolution bandwidth of 9 kHz. A scan will be carried out on the phase (or plus pole in case of DC powered devices) of the AC mains network. If levels detected 10 dB below the appropriate limit, this emission will be measured with the average and quasi-peak detector on all lines.

Frequency range	Resolution bandwidth
150 kHz to 30 MHz	9 kHz



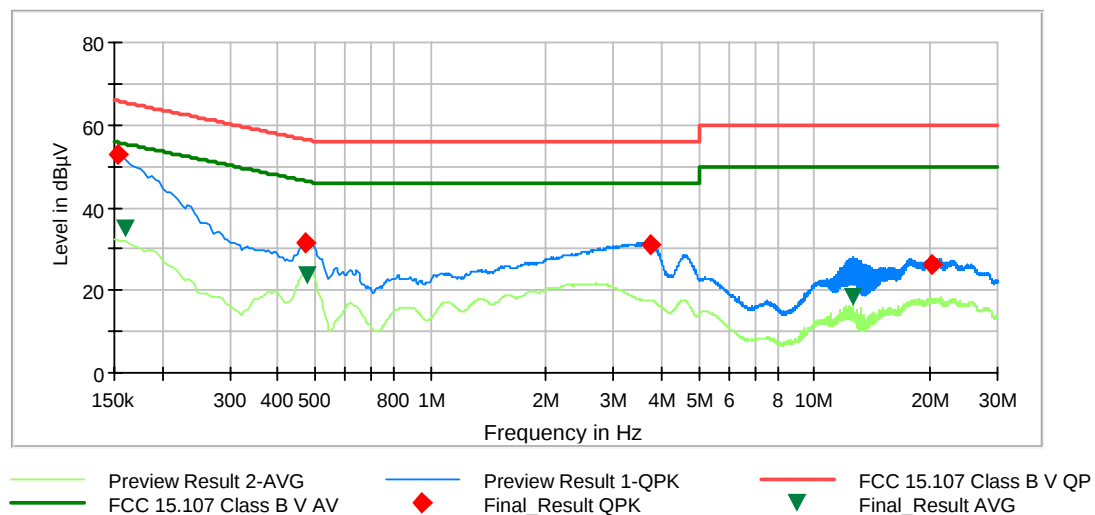
5.1.2 Results conducted emission measurement on AC mains

Ambient temperature:	21 °C
Relative humidity:	54 %

Date:	08.10.2020
Tested by:	M. DINTER

Test mode B: Data exchange mode.

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 ▼.



Final result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Transducer (dB)
0.153600	52.75	---	65.80	13.05	5000.0	9.0	L1	GND	9.9
0.160800	---	35.16	55.42	20.26	5000.0	9.0	L1	GND	9.8
0.470850	31.49	---	56.50	25.01	5000.0	9.0	L1	GND	9.8
0.478050	---	23.42	46.37	22.95	5000.0	9.0	N	GND	9.8
3.745050	31.14	---	56.00	24.86	5000.0	9.0	N	GND	10.3
12.64065	---	18.40	50.00	31.60	5000.0	9.0	L1	GND	10.6
20.33475	26.41	---	60.00	33.59	5000.0	9.0	L1	GND	10.8

Measurement uncertainty: ± 2.76 dB

Test result Passed

Test equipment (please refer to chapter 6 for details)
1 - 8

5.2 Radiated emissions

5.2.1 Test method

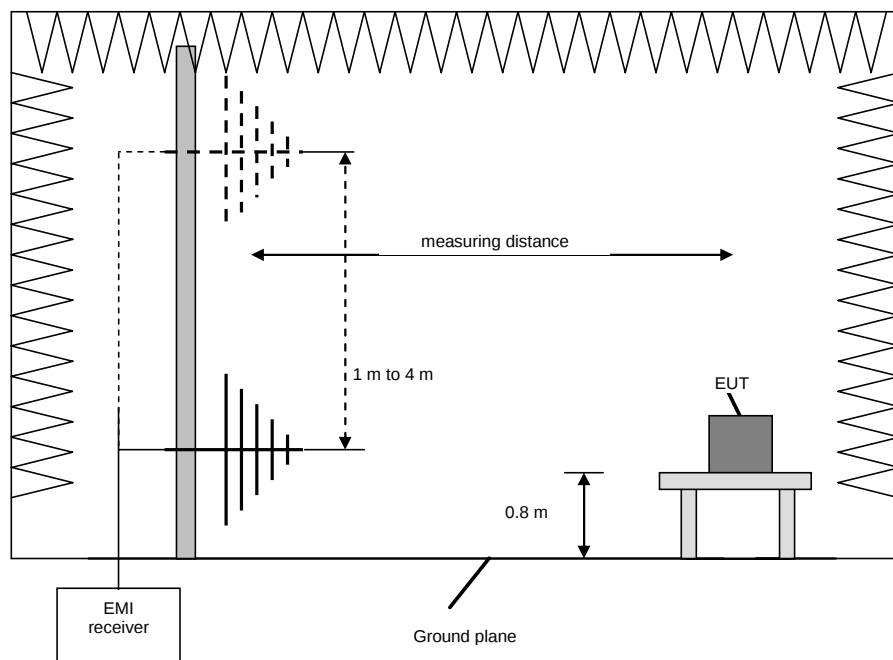
Preliminary and final measurement (30 MHz to 1 GHz)

The preliminary and final measurements were conducted in a semi-anechoic chamber with a metal ground plane in a 3 m distance.

During the test the EUT will be rotated in the range of 0 ° to 360 °, the measuring antenna will be 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 will be set to the following values:

Test	Frequency range	Resolution bandwidth
Preliminary measurement	30 MHz to 1 GHz	100 kHz
Frequency peak search	+ / - 1 MHz	10 kHz
Final measurement	30 MHz to 1 GHz	120 kHz



Procedure preliminary measurement:

The following procedure is used:

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

Procedure final measurement:

The following procedure is used:

1. Select the highest frequency peaks to the limit for the final measurement.
2. The software will determine the exact peak frequencies by doing a partial scan with reduced RBW with +/- 10 times the RBW of the pre-scan of the selected peaks.
3. If the EUT is portable or ceiling mounted, find the worst case EUT position (x,y,z) for the final test.
4. The worst measurement antenna height is found by the measurement software by varying the measurement antenna height by +/- 0.5 m from the value obtained in the preliminary measurement, and to monitor the emission level.
5. The worst azimuth turntable position is found by varying the turntable azimuth by +/- 30° from the value obtained in the preliminary measurement, and to monitor the emission level.
6. The final measurement is performed at the worst case antenna height and the worst case turntable azimuth
7. Steps 2 – 6 will be repeated for each frequency peak selected in step 1.

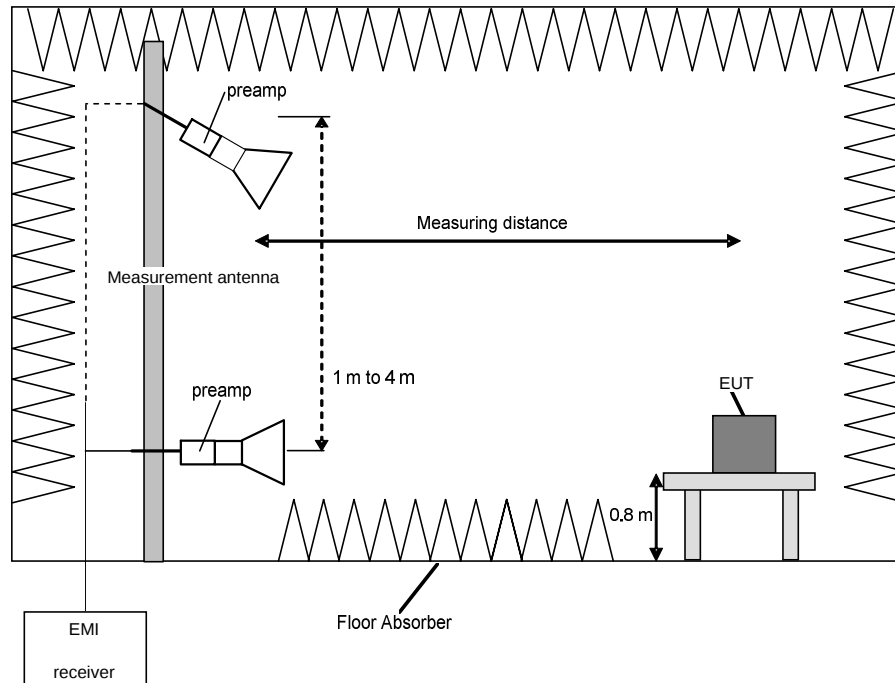
Preliminary and final measurement (1 – 40 GHz)

The preliminary and final measurements were conducted in a semi-anechoic chamber with floor absorbers between EUT and measurement antenna in a 3 m distance.

During the test the EUT will be rotated in the range of 0 ° to 360 °, the measuring antenna will be 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. For each height the angle of the antenna will be tilted so that the measurement antenna is always aiming at the EUT.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Test	Frequency range	Resolution bandwidth
Preliminary measurement	1 - 40 GHz	1 MHz
Frequency peak search	+ / - 10 MHz	100 kHz
Final measurement	1 - 40 GHz	1 MHz



Procedure preliminary measurement:

The following procedure is used:

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

Procedure final measurement:

The following procedure is used:

1. Select the highest frequency peaks to the limit for the final measurement.
2. The software will determine the exact peak frequencies by doing a partial scan with reduced RBW with +/- 10 times the RBW 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 measurement antenna height is found by the measurement software by varying the measurement antenna height by +/- 0.5 m from the worst-case value obtained in the preliminary measurement, and to monitor the emission level.
5. The worst azimuth turntable position is found by varying the turntable azimuth by +/- 30° from the worst-case value obtained in the preliminary measurement, and to monitor the emission level.
6. The final measurement is performed at the worst-case antenna height and the worst-case turntable azimuth.
7. Steps 2 – 6 will be repeated for each frequency peak selected in step 1.

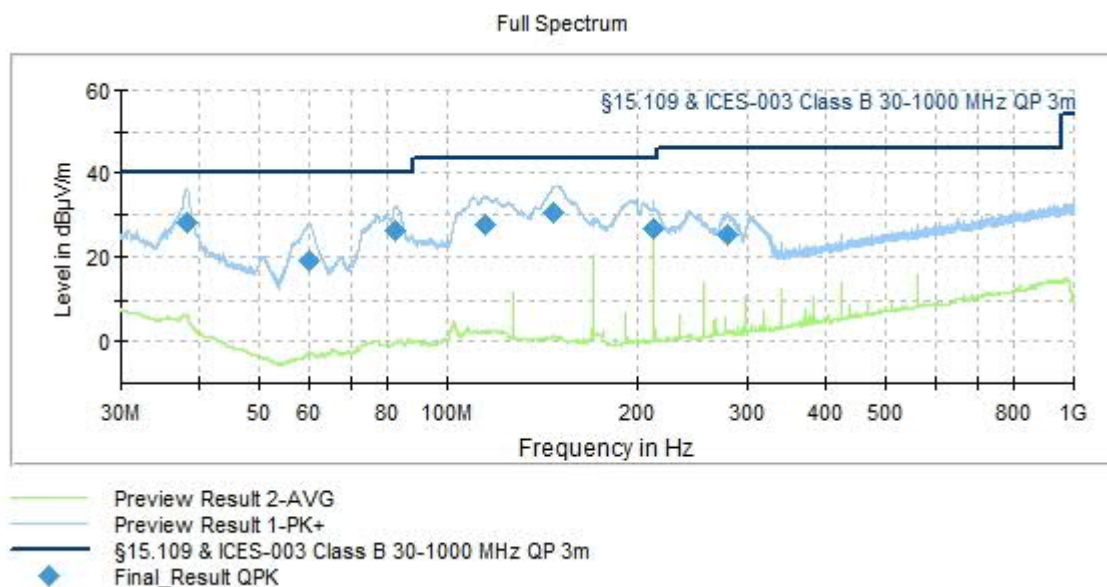
5.2.2 Result final measurement from 30 MHz to 1 GHz

Ambient temperature:	21 °C
Relative humidity:	54 %

Date:	08.10.2020 - 09.10.2020
Tested by:	M. DINTER

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.

Test mode A: Probe 1: 1 m *1 m frame coil (~1 kHz).



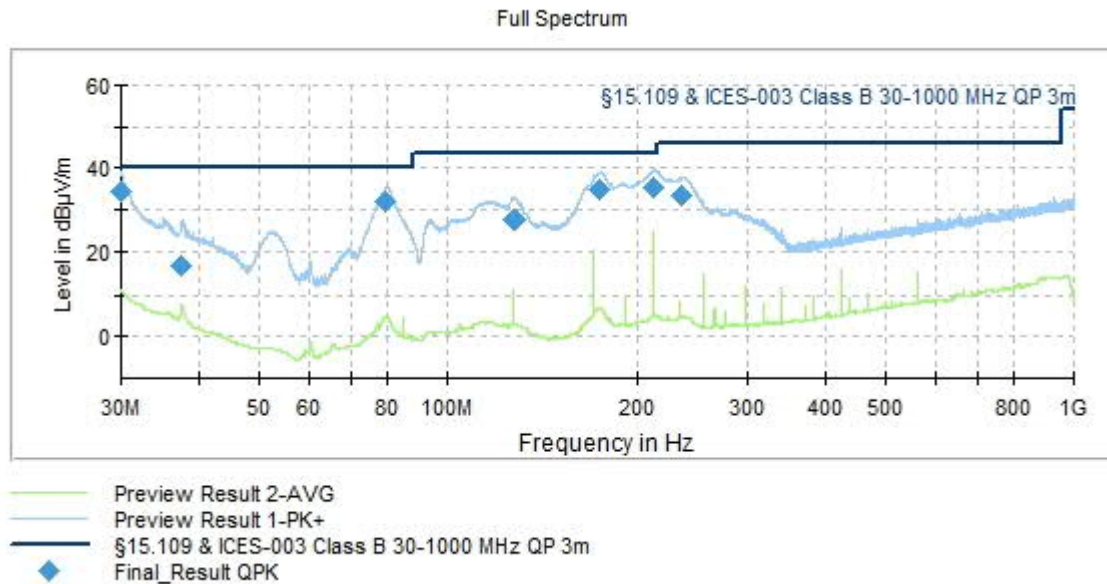
The results of the standard subsequent measurement in a semi anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above-mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.230000	28.36	40.00	11.64	1000.0	120.000	102.0	V	59.0	20.9
59.880000	18.76	40.00	21.24	1000.0	120.000	102.0	V	207.0	12.2
82.740000	26.28	40.00	13.72	1000.0	120.000	389.0	H	48.0	16.2
114.920000	27.63	43.52	15.89	1000.0	120.000	144.0	H	137.0	17.8
146.640000	30.44	43.52	13.08	1000.0	120.000	130.0	H	138.0	15.9
212.640000	26.62	43.52	16.90	1000.0	120.000	102.0	H	321.0	16.1
278.360000	25.34	46.02	20.68	1000.0	120.000	100.0	H	158.0	18.6
Measurement uncertainty: ± 4.8 dB									

Test: Passed

Test mode A Probe 2: 35 cm DD-coil (~2 kHz)



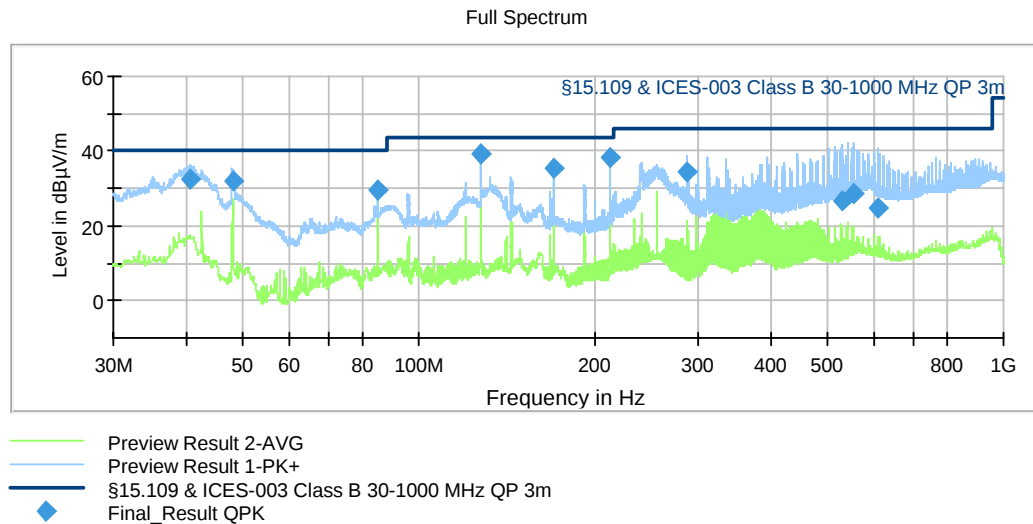
The results of the standard subsequent measurement in a semi anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above-mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.000000	34.63	40.00	5.37	1000.0	120.000	100.0	V	100.0	25.4
37.550000	16.44	40.00	23.56	1000.0	120.000	100.0	V	118.0	21.3
79.740000	32.20	40.00	7.80	1000.0	120.000	215.0	H	-2.0	16.0
127.600000	27.51	43.52	16.01	1000.0	120.000	132.0	H	170.0	17.2
174.330000	34.78	43.52	8.74	1000.0	120.000	109.0	H	182.0	18.1
212.670000	35.44	43.52	8.08	1000.0	120.000	100.0	H	227.0	16.1
235.920000	33.62	46.02	12.40	1000.0	120.000	237.0	H	174.0	17.5
Measurement uncertainty: ± 4.8 dB									

Test: Passed

Test mode B: Data exchange mode.



The results of the standard subsequent measurement in a semi anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above-mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.625000	32.37	40.00	7.63	1000.0	120.000	100.0	V	259.0	22.2
48.015000	32.10	40.00	7.90	1000.0	120.000	100.0	V	276.0	17.9
85.070000	29.62	40.00	10.38	1000.0	120.000	209.0	H	205.0	15.7
127.595000	39.26	43.52	4.26	1000.0	120.000	196.0	H	214.0	18.6
170.125000	35.21	43.52	8.31	1000.0	120.000	131.0	H	103.0	17.1
212.665000	38.34	43.52	5.18	1000.0	120.000	104.0	H	140.0	16.2
288.000000	34.53	46.02	11.49	1000.0	120.000	100.0	H	177.0	20.7
529.100000	26.67	46.02	19.35	1000.0	120.000	154.0	H	139.0	26.5
552.075000	28.44	46.02	17.58	1000.0	120.000	169.0	H	-3.0	28.4
611.715000	24.90	46.02	21.12	1000.0	120.000	132.0	H	213.0	28.3
Measurement uncertainty: ± 4.8 dB									

Test: Passed

The correction factor was calculated as follows.

Corr. (dB) = cable attenuation (dB) + 6 dB attenuator (dB) + antenna factor (dB)

Therefore, the reading can be calculated as follows:

Reading (dBµV/m) = result QuasiPeak (dBµV/m) - Corr. (dB)

Test equipment (please refer to chapter 6 for details)
1 - 3, 9 - 17

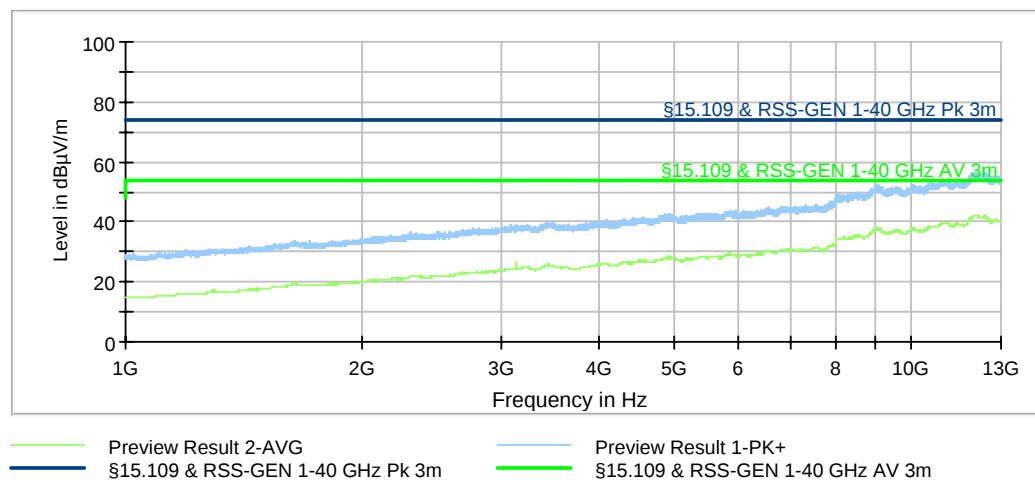
5.2.3 Result final measurement above 1 GHz

Ambient temperature:	21 °C
Relative humidity:	54 %

Date:	08.10.2020 - 09.10.2020
Tested by:	M. DINTER

Test mode A: Probe 1: 1 m *1 m frame coil (~1 kHz).

Full Spectrum

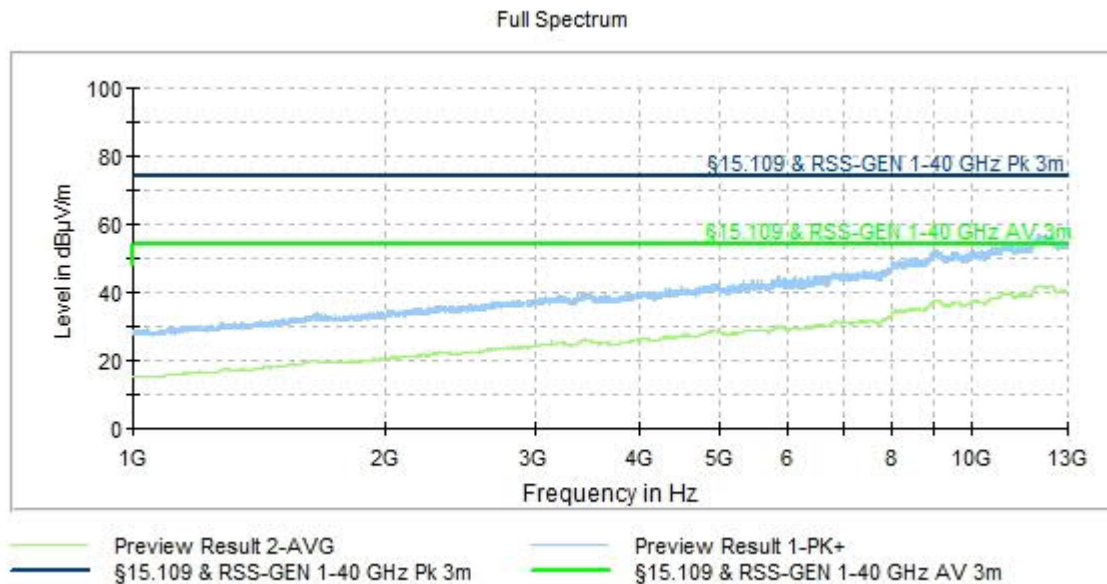


The results of the standard subsequent measurement above 1 GHz in a semi anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above-mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m) PK/AV	Margin (dB)	Meas. Time (ms)	Band-width (MHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
There was no significant emission above the noise floor of the system found. Therefore, no final measurement was carried.										
Measurement uncertainty: ± 5.1 dB										

Test mode A Probe 2: 35 cm DD-coil (~2 kHz)



The results of the standard subsequent measurement above 1 GHz in a semi anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above-mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m) PK/AV	Margin (dB)	Meas. Time (ms)	Band-width (MHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
There was no significant emission above the noise floor of the system found. Therefore, no final measurement was carried.										
Measurement uncertainty: ± 5.1 dB										

Test result: Passed

The correction factor was calculated as follows.

Corr. (dB) = cable attenuation (dB) + preamplifier (dB) + antenna factor (dB)

Therefore the reading can be calculated as follows:

Reading (dBµV/m) = result Peak or Average (dBµV/m) - Corr. (dB)

Remark: Tests in Test mode B (data exchange mode) were not carried out because the GPS receiver was not connected and the highest internal frequency of the EUT was below 108 MHz.

Test equipment (please refer to chapter 6 for details)
18 - 28

6 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	Software	-	Spitzenberger & Spies	-	480114	Calibration not necessary	
2	EMC test system	EMC D 30000 / PAS	Spitzenberger & Spies	A4507 00/1 1110	481301	Calibration not necessary	
3	Contol unit	SyCore 1k4	Spitzenberger & Spies	A4507 12/0 1110	481302	Calibration not necessary	
4	Transient Filter Limiter	CFL 9206A	Teseq	38268	481982	12.02.2020	02.2022
5	LISN	NSLK8128	Schwarzbeck	8128161	480138	11.02.2020	02.2022
6	EMI Test Receiver	ESR7	Rohde & Schwarz	101939	482558	18.02.2020	02.2022
7	Shielded chamber M155	SK3	Albatross Projects		482786	Calibration not necessary	
8	Software	EMC32	Rohde & Schwarz	100619	483182	Calibration not necessary	
9	Attenuator 6 dB	WA2-6	Weinschel	8254	410119	Calibration not necessary	
10	Antenna (Bilog)	CBL6111D	Schaffner / Teseq	25761	480894	19.10.2017	10.2020
11	Software	EMC32	Rohde & Schwarz	100970	482972	Calibration not necessary	
12	RF Switch Matrix	OSP220	Rohde & Schwarz		482976	Calibration not necessary	
13	Turntable	TT3.0-3t	Maturo	825/2612/.01	483224	Calibration not necessary	
14	Antenna support	BAM 4.5-P-10kg	Maturo	222/2612.01	483225	Calibration not necessary	
15	Controller	NCD	Maturo	474/2612.01	483226	Calibration not necessary	
16	Semi Anechoic Chamber M276	SAC5-2	Albatross Projects	C62128-A540-A138-10-0006	483227	Calibration not necessary	
17	EMI Test receiver	ESW44	Rohde & Schwarz	101828	482979	14.11.2019	11.2021
18	Antenna mast	AS615P	Deisel	615/310	480187	Calibration not necessary	
19	Fully anechoic chamber M20	B83117-E2439-T232	Albatross Projects	103	480303	Calibration not necessary	
20	Turntable	DS420 HE	Deisel	420/620/00	480315	Calibration not necessary	
21	Multiple Control Unit	MCU	Maturo	MCU/043/971107	480832	Calibration not necessary	
22	Antenna (Log.Per.)	HL050	Rohde & Schwarz	100438	481170	09.10.2017	10.2020
23	Software	EMC32	Rohde & Schwarz		483261	Calibration not necessary	
24	Preamplifier 100 MHz - 16 GHz	AFS6-00101600-23-10P-6-R	Narda MITEQ	2011215	482333	13.02.2020	02.2022
25	RF-cable No.3	Sucoflex 106B	Suhner	0563/6B / Kabel 3	480670	Calibration not necessary	
26	HF-Cable	Sucoflex 104	Suhner	517402	482392	Calibration not necessary	
27	RF-Cable No. 40	Sucoflex 106B	Suhner	0708/6B / Kabel 40	481330	Calibration not necessary	
28	EMI Receiver / Spectrum Analyser	ESW44	Rohde & Schwarz	101635	482467	18.02.2020	02.2022

7 Test site Validation

Test equipment	PM. No.	Frequency range	Type of validation	According to	Val. Date	Val Due
OATS Outdoor	480293	9 kHz – 30 MHz	-	ANSI C63.4-2014	-	-
Semi anechoic chamber M276	483227	30 – 1000 MHz	NSA	ANSI C63.4a-2017	19.09.2019	18.09.2021
Semi anechoic chamber M276	483227	1 -18 GHz	SVSWR	CISPR 16-1-4 + Cor1:2010 + A1:2012 +A2:2017	01.10.2019	30.09.2021
Shielded chamber M155	482784	9 kHz – 30 MHz	GND-Plane	ANSI C63.4-2014	25.09.2020	24.09.2022

8 Report History

Report Number	Date	Comment
F201626E1	27.10.2020	Initial Test Report
-	-	-

9 List of Annexes

Annex A	Test Setup Photos	6 pages
Annex B	EUT External Photos	8 pages
Annex C	EUT Internal Photos	6 pages