

Test Report

of the accredited Testing Laboratory
0274 – TÜV AUSTRIA GMBH – Location Vienna - EMC Electromagnetic Compatibility

Order Confirmation Number: 2025-AT-TC-EE-ET-EX-0-000061

About
the EMC - test listed below

Applicant: Guardian GmbH
Argentinierstraße 20a/Top 2a,
1040 Wien
Österreich

Product: Guardian Ultrasonic

Serial Numbers: ---

Standard: 47 CFR Part 15 Subpart B (eCFR 2/28/2025) ;
ANSI C63.4-2014 ; ANSI C63.4a-2017 ;
47 CFR Part 18 (eCFR 2/28/2025)
MP-5:1986

Michael Emminger



**Examined by / Testing Laboratory
TÜV AUSTRIA GMBH**



Andreas Malek



**Approved by / Testing Laboratory
TÜV AUSTRIA GMBH**

The results of this test report only refer to the provided equipment.

Issued on 17.07.2025 in Vienna / TIC

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1. Applicant

Company: Guardian GmbH

Department: ---

Address: Argentinierstraße 20a/Top 2a,
1040 Wien
Österreich

Contact person: DI Christian Lepuschitz

EUT received on: 18.11.2024 and 25.02.2025 and 16.05.2025 and 16.07.2025

Tests were performed on: 18. and 19.11.2024 and 25.02.2025 and 16.05.2025 and 17.07.2025

2. Description of EUT

EUT: Guardian Ultrasonic

Manufacturer: Guardian GmbH
Argentinierstraße 20a/Top 2a,
1040 Wien
Österreich

Description: Guardian GmbH provided the following configuration for the measurements:

Prototype

Operating mode: The measurements were carried out at the following running states:

Normal operation

Power supply during test: USB-C
(used USB-C (see appendix 2) power supply with 120 VAC / 60 Hz)

Climatic conditions in the emc laboratory: Relative humidity: 35 %
Temperature: 23 °C

3. Standards / Final result

Name	Title	Deviation	Result
47 CFR Part 15 Subpart B (eCFR 2/28/2025)	Radio Frequency Devices	none	OK
47 CFR Part 18 (eCFR 2/28/2025)	INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT	none	OK
ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	none	OK
ANSI C63.4a-2017	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz Amendment 1: Test Site Validation	none	OK
MP-5 :1986	FCC Methods of Measurements of Radio Noise Emissions from Industrial, Scientific, and Medical equipment	none	OK
Result: Opinions and interpretation of testing laboratory OK EUT passed NOK EUT failed			

4. Test results

4. 1.) Conducted emission on the power-supply-line according to § 15.107, § 18.307 and MP-5

Limits

Frequency range	Limit	
Detector	Quasi Peak	Average
0,009 – 0,05 MHz	110 dB μ V	---
0,05 – 0,150 MHz	90 - 80 dB μ V decreasing with the logarithm of frequency	---
0,150 - 0,5 MHz	66 - 56 dB μ V decreasing with the logarithm of frequency	56 - 46 dB μ V decreasing with the logarithm of frequency
0,5 - 5 MHz	56 dB μ V	46 dB μ V
5 - 30 MHz	60 dB μ V	50 dB μ V
Remark: Quasi Peak and Average limits must be both met		

Measuring apparatus parameters 9 kHz – 150 kHz

Parameter	Preview measurement	Final measurement	Parameter	Preview measurement	Final measurement
Start frequency	9 kHz	9 kHz	Detector	QP	QP
Stop frequency	150 kHz	150 kHz	Measuring time	1 s	1 s
Stepsize	100 Hz	100 Hz	RF-attenuation	0dB	0dB
IF- Bandwidth	200 Hz	200 Hz	Preamplifier	20 dB	20 dB

Measuring apparatus parameters 150 kHz – 30 MHz

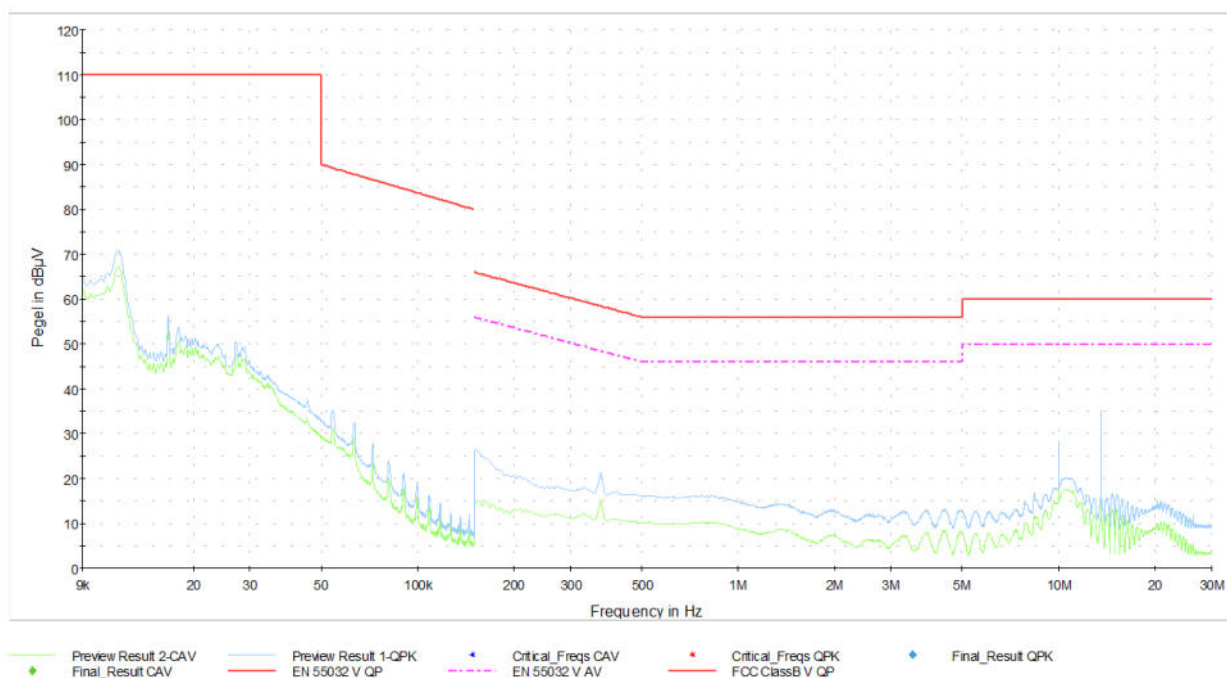
Parameter	Preview measurement	Final measurement	Parameter	Preview measurement	Final measurement
Start frequency	150 kHz	150 kHz	Detector	QP/Cispr AV	QP/Cispr AV
Stop frequency	30 MHz	30 MHz	Measuring time	1 s	1 s
Stepsize	5 kHz	5 kHz	RF-attenuation	0dB	0dB
IF- Bandwidth	9 kHz	9 kHz	Preamplifier	20 dB	20 dB

Measurement uncertaintyExpanded uncertainty $U_c = 2,98 \text{ dB}$ (Uncertainty budget = 3,6 dB)

Operating mode	Measuring result
Normal operation	OK

Test result

4. 1.1.) Final Measurement



Comment: The device does not have its own mains adapter. Tests were performed with an Apple 87 W USB-C Power Adapter peripheral equipment.

4. 2.) Radiated emission according to 47 CFR Part 15 Subpart B

Class B Limits

	$\leq 1 \text{ GHz} \rightarrow$ Quasi Peak Limit $> 1 \text{ GHz} \rightarrow$ Average Limit (Peak Limit 20 dB above average Limit)		
Frequency range	Limit	Bandwidth	Measurement distance
30 – 88 MHz	100 $\mu\text{V/m}$	120 kHz	3 m
88 – 216 MHz	150 $\mu\text{V/m}$	120 kHz	3 m
216 – 960 MHz	200 $\mu\text{V/m}$	120 kHz	3 m
960 MHz - 1000 MHz	500 $\mu\text{V/m}$	120 kHz	3 m
Above 1000 MHz	500 $\mu\text{V/m}$	1 MHz	3 m

Measuring apparatus parameters 30 to 1000 MHz

Parameter	Preview measurement	Final measurement	Parameter	Preview measurement	Final measurement
Start frequency	30 MHz	30 MHz	Detector	Quasi Peak	Quasi Peak
Stop frequency	1000 MHz	1000 MHz	Measuring time	1 s	1 s
Stepsize	50 kHz	50 kHz	RF-attenuation	0dB	0dB
IF- Bandwidth	120 kHz	120 kHz	Preamplifier	20 dB	20 dB

Measurement uncertainty

30-200 MHz horizontal: Expanded uncertainty $U_c = 4,06 \text{ dB}$ (Uncertainty budget = 5,06 dB)

30-200 MHz vertical: Expanded uncertainty $U_c = 4,19 \text{ dB}$ (Uncertainty budget = 5,17 dB)

0,2-1 GHz horizontal: Expanded uncertainty $U_c = 4,43 \text{ dB}$ (Uncertainty budget = 5,45 dB)

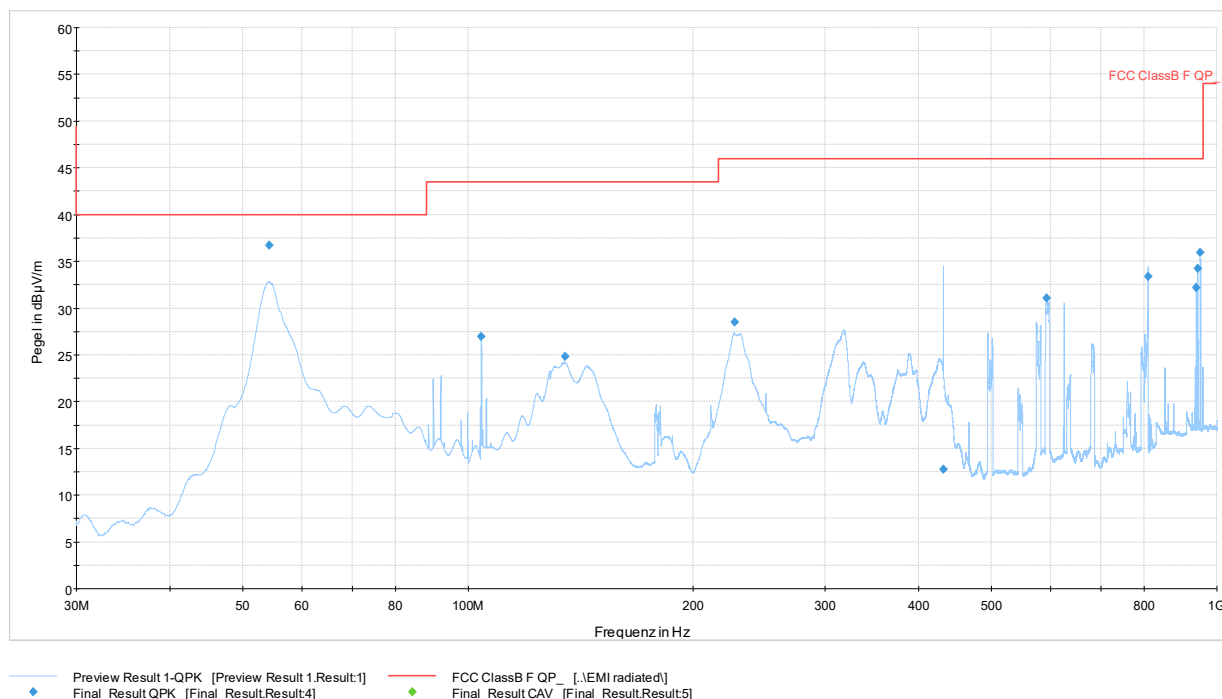
0,2-1 GHz vertical: Expanded uncertainty $U_c = 5,64 \text{ dB}$ (Uncertainty budget = 6,48 dB)

1-18 GHz: Expanded uncertainty $U_c = 4,40 \text{ dB}$ (Uncertainty budget = 5,17 dB)

Operating mode	Measuring result
Normal operation	OK

Test result

4. 2.1.) Measurement diagram with QK-Detector (30 MHz - 1000 MHz)



4. 2.2.) Final Measurement with QP-Detector (30 MHz - 1000 MHz)

Frequency	QuasiPeak	Limit	Margin	Measuring time	Bandwidth	Hight	Pol	Azimut	Corr.
MHz	dBµV/m	dBµV/m	dB	ms	kHz	cm		deg	dB/m
54,270000	36,7	40	3,3	1000,0	120,000	325,0	V	-176,0	15
104,190000	27	43,5	16,5	1000,0	120,000	100,0	H	124,0	13
134,700000	24,8	43,5	18,7	1000,0	120,000	222,0	V	-122,0	10
227,220000	28,5	46	17,5	1000,0	120,000	136,0	V	142,0	13
431,430000	12,8	46	33,2	1000,0	120,000	102,0	H	39,0	18
592,710000	31	46	15	1000,0	120,000	100,0	H	-175,0	21
810,060000	33,4	46	12,6	1000,0	120,000	100,0	H	-134,0	23
939,210000	32,2	46	13,8	1000,0	120,000	100,0	H	-50,0	25
942,300000	34,3	46	11,7	1000,0	120,000	100,0	V	-170,0	25
950,730000	35,9	46	10,1	1000,0	120,000	100,0	V	-51,0	25

4. 3.) Radiated emission according to § 18.305 Field strength limits and MP-5.

Limit for ultrasonic < 490 kHz and below 500 watts

	$\leq 1 \text{ GHz} \rightarrow$ Quasi Peak Limit $> 1 \text{ GHz} \rightarrow$ Average Limit (Peak Limit 20 dB above average Limit)		
Frequency range	Limit	Bandwidth	Measurement distance
9 kHz – 30 MHz	$2,400/F(\text{kHz})$ $2,400 / F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$	200 Hz / 9 kHz	300 m

Measuring apparatus parameters 9 to 150 kHz

Parameter	Preview measurement	Parameter	Preview measurement	Final measurement
Start frequency	9 kHz	Detector	Quasi Peak	Quasi Peak
Stop frequency	150 kHz	Measuring time	1 s	1 s
Stepsize	100 Hz	RF-attenuation	0dB	0dB
IF- Bandwidth	200 Hz	Preamplifier	20 dB	20 dB

Measuring apparatus parameters 0,150 to 30 MHz

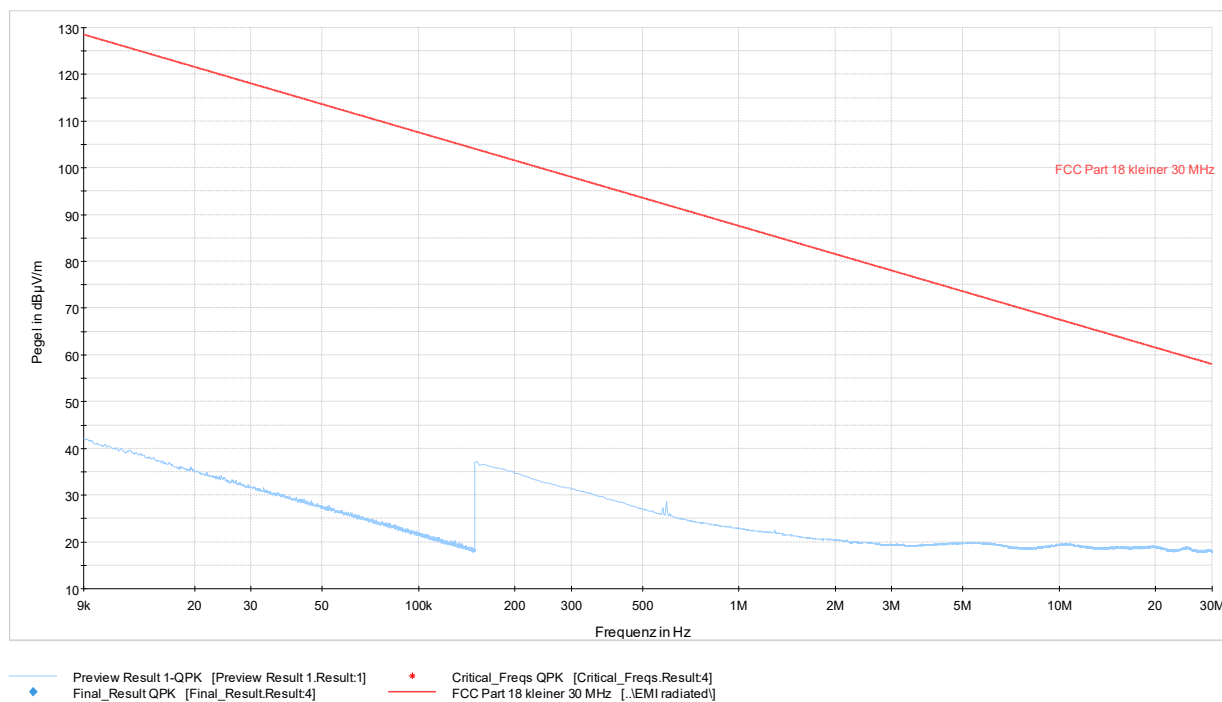
Parameter	Preview measurement	Parameter	Preview measurement	Final measurement
Start frequency	150 kHz	Detector	Quasi Peak	Quasi Peak
Stop frequency	30 MHz	Measuring time	1 s	1 s
Stepsize	4500 Hz	RF-attenuation	0dB	0dB
IF- Bandwidth	9 kHz	Preamplifier	20 dB	20 dB

Operating mode	Measuring result
Normal operation	OK

Grundvorlage / Basic Template: FM-TAGMBH-KBS-0100b_Grundvorlage Prüfbericht akkreditiert-DE-EN, Rev. 04

Test result

4. 3.1.) Measurement diagram with QK-Detector (9 kHz - 30 MHz)



Comment: The emissions at ultrasonic frequencies are very low and therefore not visible in the above plot. The EUT was placed inside the loop antenna for verification.

4. 4.) RF exposure
KDB 447498 D04 v01
§ 18.313

The device is an unintentional radiator.

Radiated emissions are below Class B limits, see section 4.3.

Following Alfonso Tarditi and Tim Harrington „RF Exposure Policies Updates on Draft KDB Publication 447498“ TCB Workshop 26.10.2022; and Alfonso Tarditi and Tim Harrington “RF Exposure Policies Updates” TCB Workshop 26.4.2025; the power is estimated based on Part 15B field strength measurements.

$$P = 4 \pi r^2 \frac{E^2}{Z_0}$$

From section 4.3: worst-case emission 36,7 dBµV/m @ 3 m distance

$$P_{rad} = \frac{4\pi * 3^2 * (68.4 * 10^{-6})^2}{120\pi} = 1.4 * 10^{-9}W$$

The 1 mW blanket exemption applies.

MP-5 3.1 is not applicable.

The device is “Blanket” exempt.

Appendix 1

Test equipment used

☐	Anechoic Chamber with 3m measurement distance	NT-100	☐	Ant. tripod for EN61000-4-3 Model TP1000A	NT-156
☐	Stripline according to ISO 11452-5	NT-108	☐	Power quality analyzer Fluke 1760 (complete set)	NT-160 - NT-173
☐	MA4000 - Antenna mast 1 - 4 m height	NT-110/1			
☐	DS - Turntable 0 - 400 ° Azimuth	NT-111/1	☐	ESCI - Test receiver 9 kHz - 7 GHz	NT-203/1
☐	CO3000 Controller Mast+Turntable	NT-112/1	☐	ESR – Test receiver 20 Hz – 26,5 GHz	NT-207/1
☐	HUF-Z3 - Log. Per. Antenna 200 - 1000 MHz	NT-121	☐	Digital Radio Tester CMW500	NT-208/1
☒	FMZB1513 - Loop Antenna 9 kHz - 30 MHz	NT-122/1	☐	Noise-gen., ITU-R 559-2 20 Hz – 20 kHz	NT-209
☐	HFH-Z6 - Rod Antenna 9 kHz - 30 MHz	NT-123	☐	CMTA - Radiocommunication analyzer ; 0,1 - 1000 MHz	NT-210
☐	Dipole Antenna VHA9103 30 - 300 MHz	NT-124/1a	☐	3271 - Spectrum analyzer 100 Hz - 26,5 GHz	NT-211
☐	Dipole Antenna UHA9105 300 - 1000 MHz	NT-124/1b	☐	Digital Radio Tester Aeroflex 3920	NT-212/1
☐	3115 - Horn Antenna 1 - 18 GHz (immunity)	NT-125	☐	Mixer M28HW 26,5 GHz - 40 GHz	NT-214
☐	3116 - Horn Antenna 18 - 40 GHz	NT-126	☐	RubiSource T&M Timing reference	NT-216
☐	SAS-200/543 - Bicon. Antenna 20 MHz - 300 MHz	NT-127	☐	Radiocommunicationanalyzer SWR 1180 MD	NT-217
☐	AT-1080 - Log. Per. Antenna 80 - 1000 MHz	NT-128	☐	Mixer FS-Z60 40 GHz – 60 GHz	NT-218/1
☐	HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-129	☐	Mixer FS-Z90 60 GHz – 90 GHz	NT-219/1
☐	HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-130	☐	GDS-2504 Digital scope	P-W/OS03
☐	3146 - Log. Per. Antenna 200 – 1000 MHz	NT-131	☐	TPS 2014 Digital scope	NT-222
☐	VULB 9163 Trilog Antenna 30 – 3000 MHz	NT-131/1	☐	Artificial Ear according to IEC 60318	NT-224
☐	Loop Antenna H-Field	NT-132	☐	1 kHz Sound calibrator	NT-225
☐	Horn Antenna 500 MHz - 2900 MHz	NT-133	☐	SRM-3006 Spectrumalyzer	NT-233/1a
☐	Horn Antenna 500 MHz - 6000 MHz	NT-133/1	☐	E-field probe SRM 75 MHz – 3 GHz	NT-234
☐	Log. per. Antenna 800 MHz - 2500 MHz	NT-134	☐	Field Meter NBM-500 incl. E- and H-Field probes	NT-240a-e
☐	Log. per. Antenna 800 MHz - 2500 MHz	NT-135	☐	Magnetometer HP-01	NT-241/1
☐	BiConiLog Antenna 26 MHz – 2000 MHz	NT-137	☐	EFA-3 H-field- / E-field probe	NT-243
☐	Conical Dipol Antenna PCD8250	NT-138	☐	EHP-50F H-field- / E-field probe	NT-243/1
☐	HF 906 - Horn Antenna 1 - 18 GHz (emission)	NT-139	☐	Field Meter EMR-200 100 kHz – 3 GHz	NT-244
☐	HZ-1 Antenna tripod	NT-150	☐	E-field probe 100 kHz – 3 GHz	NT-245
☐	BN 1500 Antenna tripod	NT-151	☐	H-field probe 300 kHz – 30 MHz	NT-246

Competence Center:
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Appendix 1 (continued)

Test equipment used

☐ E-field probe 3 MHz – 18 GHz	NT-247	☐ Prana N-MT 500 - RF-Amplifier 80 - 1000 MHz / 500 W	NT-332/1
☐ H-field probe 27 MHz – 1 GHz	NT-248	☐ BBA150 RF-Amplifier 1 GHz - 6 GHz	NT-333/1
☐ ELT-400 1 Hz – 400 kHz	NT-249	☐ APA01 – RF-Amplifier 0,5 GHz – 2,5 GHz	NT-334
☐ MDS 21 - Absorbing clamp 30 - 1000 MHz	NT-250	☐ Preamplifier 1 GHz - 4 GHz	NT-335
☐ CDN EMCL-35 EM Injection clamp	NT-251/1	☐ Preamplifier for GPS MKU 152 A	NT-336
☐ FCC-203I-DCN Ferrite decoupling network	NT-252	☐ Preamplifier 1 GHz – 18 GHz	NT-337/1
☐ PR50 Current Probe	NT-253	☐ DC Block 10 MHz – 18 GHz Model 8048	NT-338
☐ i310s Current Probe	NT-254/1	☐ 2-97201 Electronic load	NT-341
☐ Fluke 87 V True RMS Multimeter	NT-260	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-344
☐ Model 2000 Digital Multimeter	NT-261	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-345
☐ Fluke 87 V Digital Multimeter	NT-262/1	☐ VDS 200 Mobil-impuls-generator	NT-350
☐ ESH2-Z5-U1 Artificial mains network 4x25A	NT-300	☐ LD 200 Mobil-impuls-generator	NT-351
☐ ESH3-Z5-U1 Artificial mains network 2x10A	NT-301	☐ MPG 200 Mobil-Impuls-Generators	NT-352
☐ ESH3-Z6-U1 Artificial mains network 1x100A	NT-302	☐ EFT 200 Mobil-impuls-generator	NT-353
☐ ESH3-Z6-U1 Artificial mains network 1x100A	NT-302a	☐ AN 200 S1 Artificial Network	NT-354
☐ EZ10 T-Artificial Network	NT-305	☐ FP-EFT 32M 3 ph. Coupling filter (Burst)	NT-400/1
☐ SMA100A - Signal generator 9 kHz - 6 GHz	NT-310/1	☐ PHE 4500 - Mains impedance network	NT-401
☐ RefRad Reference generator	NT-312	☐ IP 6.2 Coupling filter for data lines (Surge)	NT-403
☐ SMP 02 Signal generator 10 MHz - 20 GHz	NT-313	☐ TK 9421 High Power Volt. Probe 150 kHz - 30 MHz	NT-409
☐ 40 MHz Arbitrary Generator TGA1241	NT-315	☐ ESH2-Z3 - Probe 9 kHz - 30 MHz	NT-410
☐ Artificial mains network NSLK 8127-PLC	NT-316	☐ CN-EFT1000 - Capacitive clamp (Burst)	NT-411/1
☐ PSURGE 4.1 Surge generator	NT-324	☐ Highpass-Filter 100 MHz – 3 GHz	NT-412
☐ IMU4000 Immunity test system	NT-325/1a-e	☐ Highpass-Filter 600 MHz – 4 GHz	NT-413
☐ VCS 500-M6 Surge-Generator	NT-326	☐ Highpass-Filter 1250 MHz – 4 GHz	NT-414
☐ Oscillatory Wave Simulator incl. Coupling networks	NT-328a+b+c	☐ Highpass-Filter 1800 MHz – 16 GHz	NT-415
☐ BTA-250 - RF-Amplifier 9 kHz - 220 MHz / 250 W	NT-330		

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Test equipment used

☐	RF-Attenuator 10 dB DC – 18 GHz / 50 W	NT-417/1	☐	95242-1 – Current probe 1 MHz – 400 MHz	NT-468
☐	RF-Attenuator 6 dB DC – 18 GHz / 50 W	NT-418	☐	94106-1L-1 – Current probe 100 kHz – 450 MHz	NT-471
☐	RF-Attenuator 3 dB DC – 18 GHz / 50 W	NT-419	☐	WHKX12-2700-3000-18000 3 GHz Highpass filter	NT-472
☐	RF-Attenuator 20 dB DC - 1000 MHz / 25 W	NT-421	☐	WHKX10-3870-4500-18000 4,5 GHz Highpass filter	NT-473
☐	RF-Attenuator 30 dB DC - 1000 MHz / 1 W	NT-423	☐	CDN S9 USB3.0 Coupling decoupling network	NT-474
☐	RF-Attenuator 30 dB	NT-424	☐	CDN S2 XLR3-1 Coupling decoupling network	NT-475
☐	RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-425	☐	CDN S8 RJ45 Coupling decoupling network	NT-476
☐	RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-426	☐	GA 1240 Power amplifier according to EN 61000-4-16	NT-480
☐	RF-Attenuator 6 dB	NT-428	☐	Coupling networks according to EN 61000-4-16	NT-481 - NT-483
☐	RF-Attenuator 0 dB - 81 dB	NT-429	☐	Van der Hoofden Test Head	NT-484
☐	WRU 27 - Band blocking 27 MHz	NT-430	☐	WRCJV12-5820-5850-5950-5980 5,9 GHz Band Reject Filter	NT-490
☐	WHJ450C9 AA - High pass 450 MHz	NT-431	☐	WHKX10-5670-6300-18000 6 GHz Highpass filter	NT-491
☐	WHJ250C9 AA - High pass 250 MHz	NT-432	☐	WHK12-935-1000-7000 1 GHz Highpass filter	NT-492
☐	RF-Load 150 W	NT-433	☐	EMC Video/Audiosystem	NT-511/1
☐	Impedance transducer 1:4 ; 1:9 ; 1:16	NT-435	☐	EMC32 Version 10.60.20 Test software	NT-520/1
☐	RF-Attenuator DC – 18 GHz 6 dB	NT-436	☐	SRM-TS Version 1.3 software for SRM-3000	NT-522
☐	RF-Attenuator DC – 18 GHz 6 dB	NT-437	☐	SRM-TS Version 1.3.1 software for SRM-3006	NT-522/1
☐	RF-Attenuator DC – 18 GHz 10 dB	NT-438	☐	Spitzenberger und Spies Test software V4.1	NT-525
☐	RF-Attenuator DC – 18 GHz 20 dB	NT-439	☐	Vertical coupling plane (ESD)	NT-531
☐	ESH3-Z2 - Pulse limiter 9 kHz - 30 MHz	NT-441	☐	Test cable #4 for EN 61000-4-6	NT-553
☐	Power Divider 6 dB/1 W/50 Ohm	NT-443	☐	Test cable #3 for conducted emission	NT-554
☐	Directional coupler 0,1 MHz – 70 MHz	NT-444	☐	Test cable #5+#6 ESD-cable (2x470k)	NT-555 + NT-556
☐	Directional coupler 0,1 MHz – 70 MHz	NT-445	☐	Test cable #8 Sucoflex 104EA	NT-559
☐	Tube imitations according to EN 55015	NT-450	☐	Test cable #9 (for outdoor measurements)	NT-580
☐	FCC-801-M3-16A Coupling decoupling network	NT-458	☐	Test cable #10 (for outdoor measurements)	NT-581
☐	FCC-801-M2-50A Coupling decoupling network	NT-459	☐	Test cable #13 Sucoflex 104PE	NT-584
☐	FCC-801-M5-25 Coupling decoupling network	NT-460	☐	Test cable #21 for SRM-3000	NT-592
☐	FCC-801-T4 Coupling decoupling network	NT-463	☐	Shield chamber	NT-600
☐	FCC-801-C1 Coupling decoupling network	NT-464	☐	Climatic chamber	M-1200
☐	SW 9605 - Current probe 150 kHz – 30 MHz	NT-465/1			

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Test equipment used

☒	Anechoic Chamber 3 m / 5 m measuring distance	EMV-100	☐	HF- Amplifier 9 kHz-225 MHz BBL200	EMV-300/1
☒	Turntabel 6 m diameter	EMV-101	☐	HF- Amplifier 80 -1000 MHz BBA150	EMV-301
☒	Antenna mast + controller	EMV-102+ EMV-103	☐	HF- Amplifier 0,8 - 6 GHz BBA150	EMV-302
☒	EMC Video/Audiosystem	EMV-104	☐	High Power Ant. 20-200 MHz HPBA-2510	EMV-303/1
☒	EMC Software EMC32 Version 10.6.2	EMV-105	☐	High Power Ant. 20-200 MHz S12018-21	EMV-303/2
☐	Hornantenna 1 – 18 GHz HF 907	EMV-110	☐	Log.per Antenna 80-2700 MHz STLP 9128 E special	EMV-304
☐	Antennapre.amp. 1 – 18 GHz BBV 9718 D	EMV-111/1	☐	Log.per Antenna 0,7 – 9 GHz STLP9149	EMV-305
☒	Trilog Antenna 30-3000 MHz VULB9163	EMV-112	☐	HF- Amplifier 9 kHz-250 MHz BBA150 (low noise)	EMV-306
☐	Monopol 9 kHz – 30 MHz VAMP 9243	EMV-113	☐	ISO11451-2 TLS 10 kHz – 30 MHz	EMV-307
☐	Antennapre.amp 18 – 40 GHz BBV 9721	EMV-114	☐	Load Dump Generator LD 200N	EMV-350
☐	Hornantenna 200 – 2000 MHz AH-220	EMV-115	☐	Ultra Compact Symulator UCS 200N100	EMV-351
☐	DC Artificial Network PVDC 8300	EMV-150	☐	Automotive Power fail module PFM 200N100.1	EMV-352
☒	AC Artificial Network NNLK 8121 RC	EMV-151	☐	Voltage Drop Symulator VDS 200Q100	EMV-353
☐	AC Artificial Network NNLK 140	EMV- 153a-d	☐	Arb. Generator AutoWave	EMV-354
☒	EMI Receiver ESW44	EMV-200/1	☐	Ultra Compact Symulator UCS 500N7	EMV-355
☐	Signalgenerator 9 kHz – 40 GHz N5173B	EMV-201	☐	Coupling decoupling network CNI 503B7 / 32 A	EMV-356
☒	GPS Frequency normal LBE-1420	EMV-202/1	☐	Coupling decoupling network CNI 503B7 / 63 A	EMV-357
☐	DC Power supply N5745A	EMV-203	☐	Telecom Surge Generator TSurge 7	EMV-358
☐	Spektrum Analyzator FSV40	EMV-205	☐	Coupling decoupling network CNI 508N2	EMV-359
☐	Thd Multimeter Model 2015	EMV-206	☐	Coupling decoupling network CNV 504N2.2	EMV-360
☐	Poweramplifier PAS15000	EMV- 207/abc	☐	Immunity generator NSG4060/NSG4060-1	EMV-361
☐	Inrush Current Source	EMV- 208/abc	☐	Coupling network CDND M316-2	EMV-362
☐	Arb.-generator Sycore	EMV-209	☐	Coupling network CT419-5	EMV-363
☐	Harmonics/Flicker analyzer ARS 16/3	EMV-210	☐	ESD Generator NSG 437	EMV-364
☐	Power Supply Regatron AC	EMV-214	☒	Pulse Limiter VTSD 9561-F BNC	EMV-405
☐	Power Supply Regatron DC	EMV-215	☐	Transient emission BSM200N40+BS200N100	EMV- 450+451
☐	Harmonics/Flicker analyser Zimmer	EMV-216	☐	Cap. Coupling Clamp HFK	EMV-455
☐	Flicker Impedanz Newtons4th 753	EMV-218	☐	Mag. Field System MS100N+MC26100+MC2630	EMV- 456-458
☐	Comemso	EMV-219			

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Appendix 1 (continued)

Test equipment used

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☐	Coupling network CDN M2-100A	EMV-459
☐	Coupling network CDN M3-32A	EMV-460
☐	Coupling network CDN M5-100A	EMV-461
☐	Current Clamp CIP 9136A	EMV-462
☐	DC Artificial Network HV-AN 150	EMV-464+465
☐	Coupling Clamp EM 101	EMV-466
☐	Decoupling Clamp FTC 101	EMV-467
☐	Power attenuator 10 dB / 250 Watt	EMV-469/2
☐	HV AMN NNHV 8123 800A	EMV-472
☐	HV AMN NNHV 8123 800A	EMV-473

Appendix 2 Photodocumentation

Description: view #1

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Appendix 2 Photodocumentation

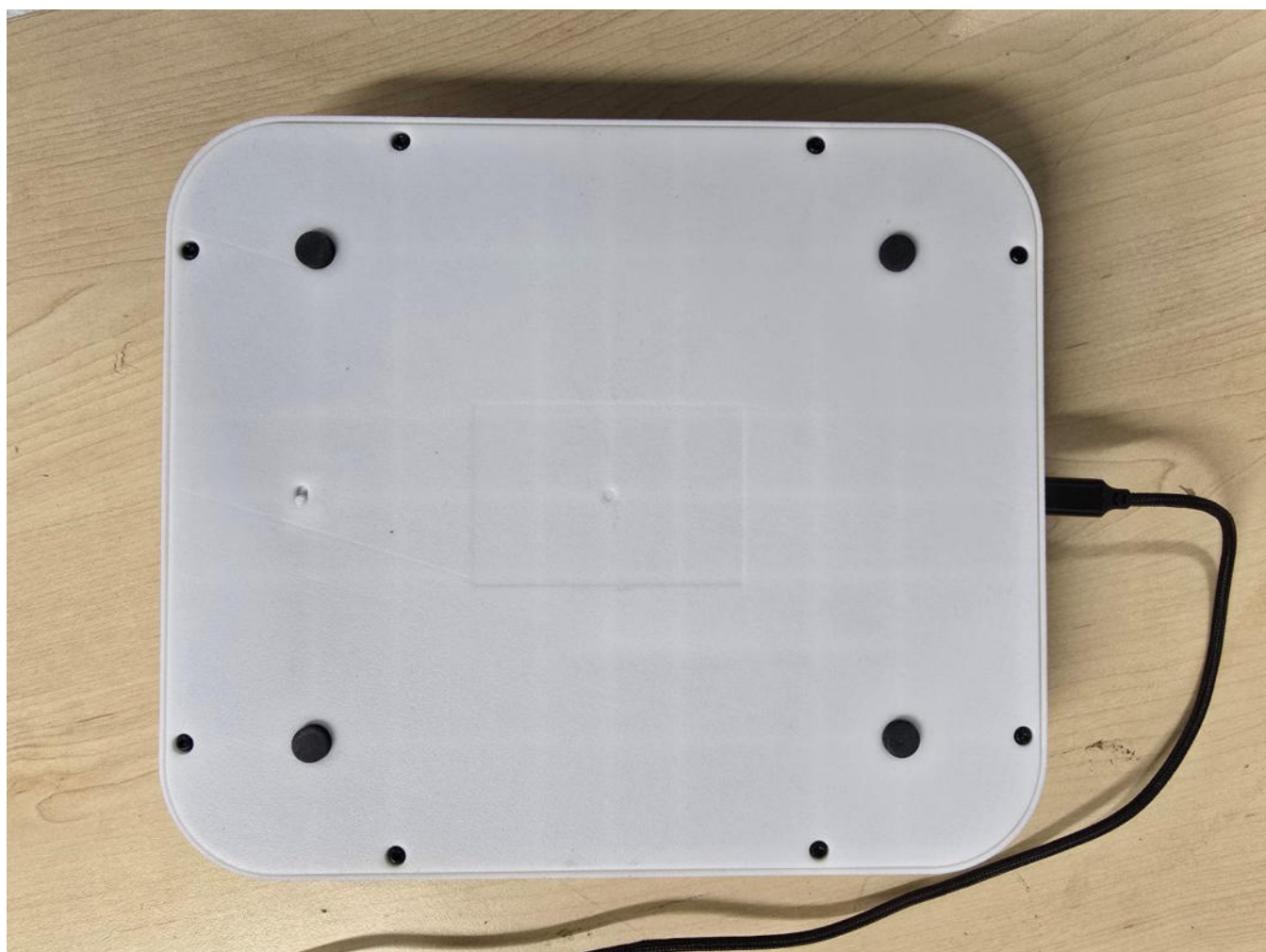
Description: view #2

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Appendix 2 Photodocumentation

Description: view #3

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Appendix 2 Photodocumentation

Description: view #4

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Photodocumentation

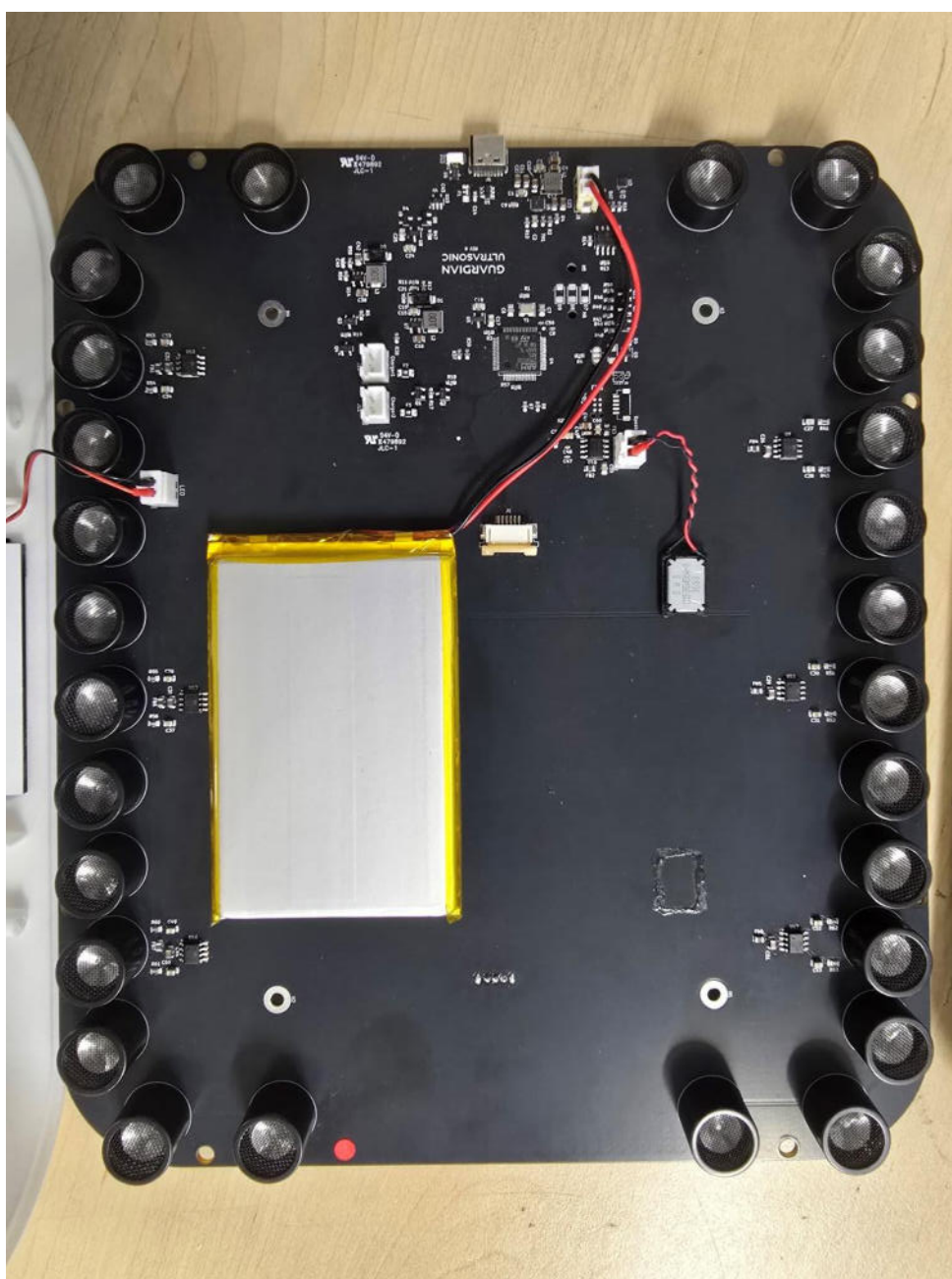
Description: case opened view #1

Competence Center:
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Description: case opened view #2

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Description: case opened view #3

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Photodocumentation

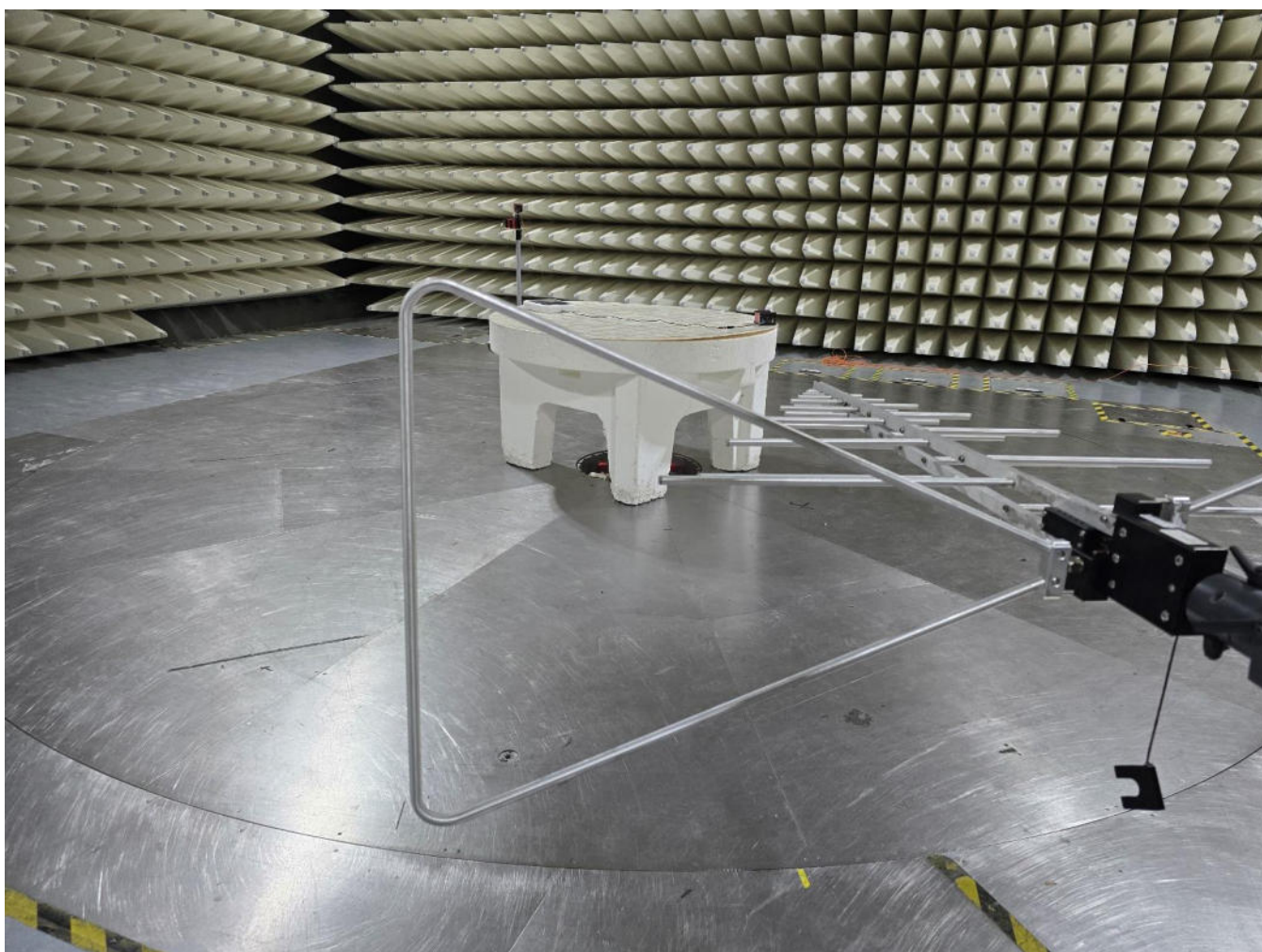
Competence Center:
Electrical & Environmental

Description: test setup absorber chamber view #1

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Photodocumentation

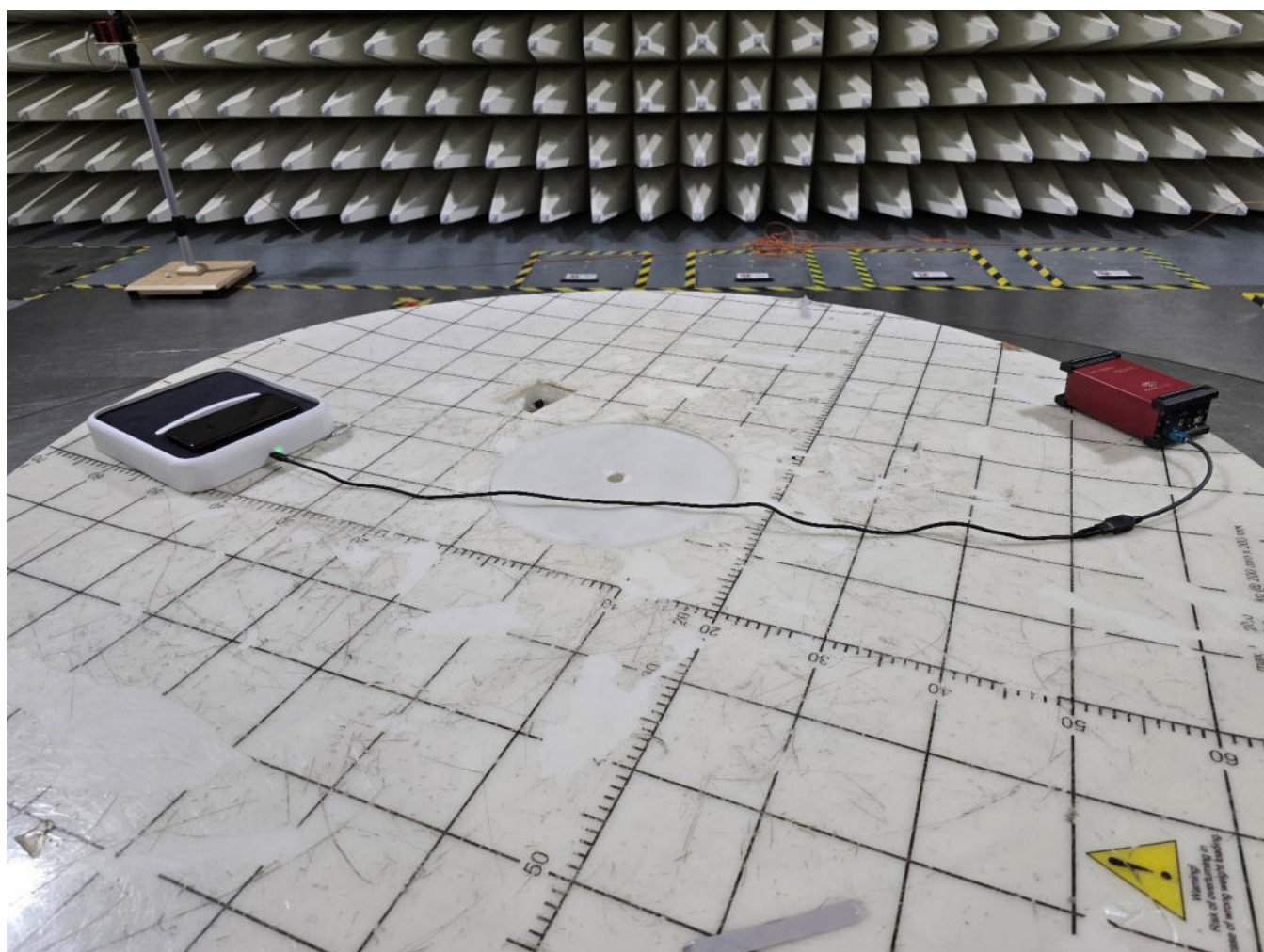
Competence Center:
Electrical & Environmental

Description: test setup absorber chamber view #2

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Photodocumentation

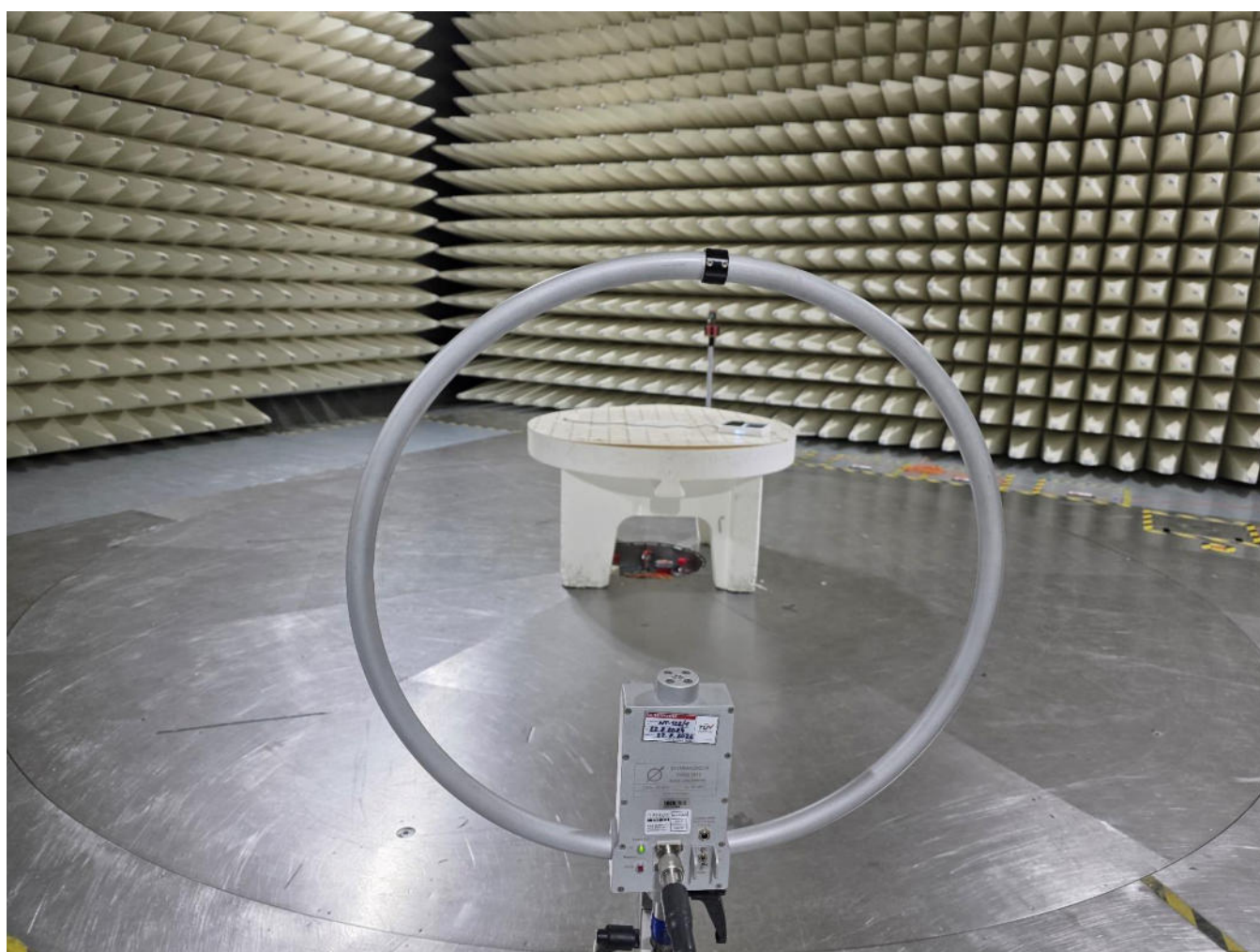
Competence Center:
Electrical & Environmental

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Description: test setup radiated emission 9 kHz – 30
MHz

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Appendix 2 Photodocumentation

Description: auxiliary equipment #1, view #1

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Description: auxiliary equipment #1, view #2

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Competence Center:
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Description: auxiliary equipment #2, view #1

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Description: auxiliary equipment #2, view #2

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Appendix 3

Calibration Data for FCC Part 15 and FCC Part 18 radiated emission measurements

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Receiver	Rohde & Schwarz	ESW44	EMV-200/1	30.12.2024	30.12.2025
Anechoic Chamber	Frankonia	---	EMV-100	17.01.2025	17.01.2026
Horn antenna	Rohde & Schwarz	HF907	EMV-110	05.03.2024	05.03.2026
Pre. Amp.	Schwarzbeck	BBV9718D	EMV-111/1	20.03.2024	20.03.2025
Trilog Antenna	Schwarzbeck	VULB9163	EMV-112	14.11.2023	14.11.2025
LISN	Schwarzbeck	NNLK 8121 RC	EMV-151	6.11.2023	6.11.2025
Impulse Limiter	Schwarzbeck	VTSD 9561-F BNC	EMV-405	26.02.2025	26.02.2026
Loop Antenna	Schwarzbeck	FMZB1513	NT-122/1	22.08.2024	22.08.2026

Appendix 4

Peripheral Equipment

Description	Brand Name	Type	Model
USB-C power supply	Apple	87 W USB-C Power Adapter	A1719
LWL-USB transceiver	Frankonia	LWL-USB-2.0	LWL-USB-2.0

--- END OF TEST REPORT ---

