

Prüfbericht-Nr.: <i>Test report no.:</i>	CN253OYN 001	Auftrags-Nr.: <i>Order no.:</i>	168548034	Seite 1 von 17 <i>Page 1 of 17</i>	
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2025-04-08		
Auftraggeber: <i>Client:</i>	Harman International Industries, Inc 8500 Balboa Blvd, Northridge, California, 91329, United States				
Prüfgegenstand: <i>Test item:</i>	WIRED HEADSET				
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	ENDURANCE RUN 3C (Trademark: JBL)				
Auftrags-Inhalt: <i>Order content:</i>	Type test				
Prüfgrundlage: <i>Test specification:</i>	EN 55032:2015+A11:2020 EN 55032:2015+A1:2020 EN 55035:2017+A11:2020				
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025-04-27				
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003968961-002				
Prüfzeitraum: <i>Testing period:</i>	2025-04-27 – 2025-04-30				
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von: <i>tested by:</i>			genehmigt von: <i>authorized by:</i>		
Datum: <i>Date:</i> 2025-05-12	Signed by: Harry W. C. Wu		Ausstellungsdatum: <i>Issue date:</i> 2025-05-12	Signed by: Alex Lan	
Stellung / Position	Project Manager		Stellung / Position	Authorizer	
Sonstiges / Other:					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested					
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Anmerkungen

Remarks

- | | |
|----------|--|
| 1 | <p>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.</p> <p>Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</p> <p><i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</i></p> <p><i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i></p> |
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| 3 | <p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i></p> |
| 4 | <p>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</p> <p><i>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</i></p> |

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Test report no.

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Test Summary

5.1.1 RADIATED EMISSIONS

RESULT: Pass

5.2.1 ELECTROSTATIC DISCHARGES (ESD)

RESULT: Pass

5.2.2 RADIO FREQUENCY ELECTROMAGNETIC FIELD (RS)

RESULT: Pass

5.2.3 POWER-FREQUENCY MAGNETIC FIELDS

RESULT: Not applicable

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
N/A.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.
2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China

CNAS No.: L3080

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radiated Emission (10m chamber)				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
10m SAC	ETS-Lindgren	SAC10	CT001632-Q1399	2027-10-22
EMI Test Receiver 2	R&S	ESR7	102023	2025-08-18
Below 1G cable #1 in 10m SAC	Calibration frequency range:9 kHz ~1.0 GHz			2025-12-20
EMI Test Receiver 1	R&S	ESR7	102022	2025-08-18
Below 1G cable #2 in 10m SAC	Calibration frequency range:9 kHz ~1.0 GHz			2025-12-20
Bilog Antenna 1	TESEQ	CBL6112D	51321	2025-09-07
Bilog Antenna 2	TESEQ	CBL6112D	51322	2025-09-26
Preamplifier 1 (30-1000MHz)	SCHWARZBECK	BBV9745	00256	2025-10-19
Preamplifier 1 (30-1000MHz)	SCHWARZBECK	BBV9745	115	2025-10-19
Preamplifier 3 (1-18GHz)	R&S	SCU-18F	180077	2025-10-19
Horn Antenna	R&S	HF907	102707	2025-10-19
Above 1G cable #1 in 10m SAC	Calibration frequency range: 9 kHz~6 GHz			2025-12-20
Above 1G cable #2 in 10m SAC	Calibration frequency range: 1 GHz~18 GHz			2025-12-20
Antenna-Preamplifier 40GHz cable (30cm)	Calibration frequency range: 1 GHz~40 GHz			2025-12-14
Preamplifier-Receiver 40GHz cable (50cm)	Calibration frequency range: 1 GHz~40 GHz			2025-12-14
EMC32 test software	R&S	EMC32(Ver.10.60.20)	N/A	N/A
Electrostatic Discharge (ESD)				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
ESD Tester	TESEQ	NSG-437	1282	2025-08-02
Radio Frequency Electromagnetic Field (RS)				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
3m FAC	ETS-Lindgren	FAC3	CT001632-Q1360	2027-09-12
Signal Generator	R&S	SMB100A	115183	2025-08-18
Power Amplifier	R&S	BBA150-BC250	103102	2025-08-18
Power Amplifier	R&S	BBA150-D110E100	103117	2025-08-18
NRP6AN Average power sensor	R&S	NRP6AN	101161	2025-10-11
NRP6AN Average power sensor	R&S	NRP6AN	101162	2025-10-11
Stacked double Log.-Per. Antenna1825022	SCHWARZBECK	STLP 9128E	0153	2026-01-11
Stacked Log.-Per. Antenna	SCHWARZBECK	STLP 9149	00520	2026-01-11
Laser Probe Interface	rf/microwave	FI7000	0351048	2025-08-28

Electric Field Probe Kit	rf/microwave	FL7006/KIT	0350352/0351122	2025-08-28
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

Test equipments for audio test

A	Manufacturer	M/N	S/N	Calibrated until
Audio Analyzer Unit	R&S	UPV	104669	2026-02-09
ABT-SET - artificial ear	B&K	4185	1105	2026-02-14
ABT-SET - artificial mouth	B&K	4227	1106	2026-02-14
ABT-SET - Microphone	B&K	4182	1107	2026-02-14
ABT-SET – Audio calibrator	B&K	4231	1108	2026-02-14
ABT-SET – Audio amplifier	B&K	2690-0S2	1109	2026-02-14

2.3 Uncertainty of Measurement

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Table 1: Measurement Uncertainty levels

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cisp})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 3.70 dB ± 3.30 dB	± 3.8 dB ± 3.4 dB
Radiated Emission (10m SAC)	Level accuracy (30MHz to 1000MHz)	± 4.66 dB	± 6.3 dB
	Level accuracy (above 1000MHz)	± 4.35 dB	N/A
Mains Harmonic	Current	$\pm 4.60\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.64\%$	N/A

As U_{lab} in all applicable tests listed above are less than U_{cisp} according to CISPR 16-4-2:2011,

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a wired headset used for audio entertainment in house or similar environment.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	WIRED HEADSET
Type Designation	ENDURANCE RUN 3C
Trade Mark	JBL
Input Voltage	Powered by USB-C input port
Highest operating frequency	20kHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, audio input via USB-C
- B. On, microphone
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

For details refer to the Circuit Diagram.

3.5 Submitted Documents

- Block Diagram
- Schematics
- Rating Label
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Immunity: The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5 and chapter 7.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N or Rating
Mobile Phone	HTC	D626w	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

5 Test Results ERM

5.1 Test Results of Emissions Requirement

5.1.1 Radiated Emissions

RESULT:

Pass

Test Specification

Test standard	: EN 55032: 2015+A11:2020
Frequency range	: 30 - 1000MHz*
Classification	: Class B
Limit	: Table A.4 and A.5 of EN 55032: 2015+A11:2020
Kind of test site	: 10m Semi-Anechoic Chamber
Test ports	: Enclosure

Test Setup

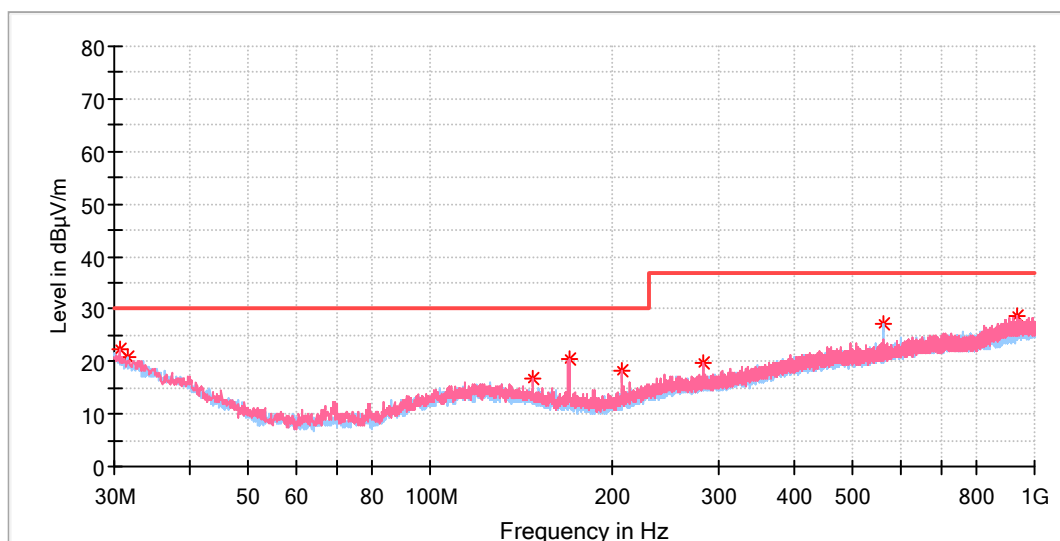
Date of testing	: 2025-04-27 to 2025-04-30
Test voltage	: Powered by USB-C input port
Operation mode	: A+B
Earthing	: Not connected
Test configuration	: Table-top
Ambient temperature	: Refer to test data
Relative humidity	: Refer to test data
Atmospheric pressure	: Refer to test data

For the measurement records, refer to the follow test plots.

Remark:*- The highest frequency of internal sources of EUT is less than 108MHz, the measurement shall only be made up to 1GHz.

EUT Information

EUT Name: WIRED HEADSET
Model: ENDURANCE RUN 3C
Test Mode: Type-C playing + MIC
Test Standard: EN 55032
Test By./Review By: Steve Lan / Shower Dai
Tem./Hum./Pressure: 22.7°C/50.3%/101kPa
Remark: 10m SAC



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.646667	22.50	30.00	7.50	100.0	V	0.0	-4.5
31.508889	20.81	30.00	9.19	100.0	H	317.0	-6.1
147.423889	16.67	30.00	13.33	200.0	V	327.0	-10.5
170.057222	20.60	30.00	9.40	100.0	V	268.0	-11.4
207.132778	18.30	30.00	11.70	100.0	V	313.0	-11.2
282.577222	19.79	37.00	17.21	100.0	V	268.0	-7.9
561.613889	27.19	37.00	9.81	200.0	H	269.0	-4.0
938.512778	28.68	37.00	8.32	100.0	V	325.0	3.8

5.2 Test Results of Immunity Requirement

5.2.1 Electrostatic Discharges (ESD)

RESULT:

Pass

Test Specification

Test standard	: EN 55035:2017+A11:2020
Basic standard	: IEC 61000-4-2:2008
Test Requirement	: Table 1 of EN 55035:2017+A11:2020
Test level	: Contact discharge: $\pm 4.0\text{kV}$ Air discharge: $\pm 2\text{kV}$, $\pm 4\text{kV}$, $\pm 8\text{kV}$
Position	: All exposed surfaces
Criterion	: Clause 8 and Annex G of EN 55035:2017+A11:2020

Test Setup

Date of testing	: 2025-04-27 to 2025-04-30
Test voltage	: Powered by USB-C input port
Operation mode	: A+B
Test ports	: Enclosure
Earthing	: Not connected
Test configuration	: Table-top
Ambient temperature	: 23.6 °C
Relative humidity	: 53.8 %
Atmospheric pressure	: 101 kPa

Table 4: Test result of Electrostatic Discharges (ESD)

Operation mode	Test Voltage	Location	Result
A+B	$\pm 4.0\text{kV}$ / Contact	HCP	A*
		VCP	A*
		Conducted Enclosure	A*
	$\pm 2\text{kV}$, $\pm 4\text{kV}$, $\pm 8\text{kV}$ / Air	Non-conducted Enclosure	A*
		Button	A*
		Slot	A*

*Remark: No degradation was observed during and after the tests.

5.2.2 Radio Frequency Electromagnetic Field (RS)

RESULT:

Pass

Test Specification

Test standard	: EN 55035:2017+A11:2020
Basic standard	: IEC 61000-4-3:2006+A1+A2
Test Requirement	: Table 1 of EN 55035:2017+A11:2020
Test level	: 3V/m, (unmodulated, rms)
Modulation	: 80% AM by a sinusoidal signal of 1kHz
Frequency range	: 80MHz -1GHz for swept test 1800MHz, 2600MHz, 3500MHz, 5000MHz for spot test
Criterion	: Clause 8 and Annex G of EN 55035:2017+A11:2020

Test Setup

Date of testing	: 2025-04-27 to 2025-04-30
Test voltage	: Powered by USB-C input port
Operation mode	: A+B
Test ports	: Enclosure
Earthing	: Not connected
Test configuration	: Table-top
Ambient temperature	: 24.2 °C
Relative humidity	: 53.2 %
Atmospheric pressure	: 101.4 kPa

Table 5: Test result of Radio Frequency Electromagnetic Field (RS), for swept test

Test Frequency Band	Test port	Polarity	Location	Result
80MHz – 1000MHz	Enclosure	Vertical / Horizontal	Front	A*
			Rear	A*
			Left	A*
			Right	A*

Table 6: Test result of Radio Frequency Electromagnetic Field (RS), for spot test

Test Frequency	Test port	Polarity	Location	Result
1800MHz 2600MHz 3500MHz 5000MHz	Enclosure	Vertical / Horizontal	Front	A*
			Rear	A*
			Left	A*
			Right	A*

*Remark: No degradation was observed during and after the tests.

5.2.3 Power-Frequency Magnetic Fields

RESULT:

Not applicable

Test Specification

Test standard	: EN 55035:2017+A11:2020
Basic standard	: IEC 61000-4-8: 2009
Test Requirement	: Clause 4.2.3 of EN 55035:2017+A11:2020
Test Frequency	: 50 & 60Hz
Test level	: 1A/m (r.m.s.)
Criterion	: Clause 8 and Annex G of EN 55035:2017+A11:2020

Exemption Conditions:

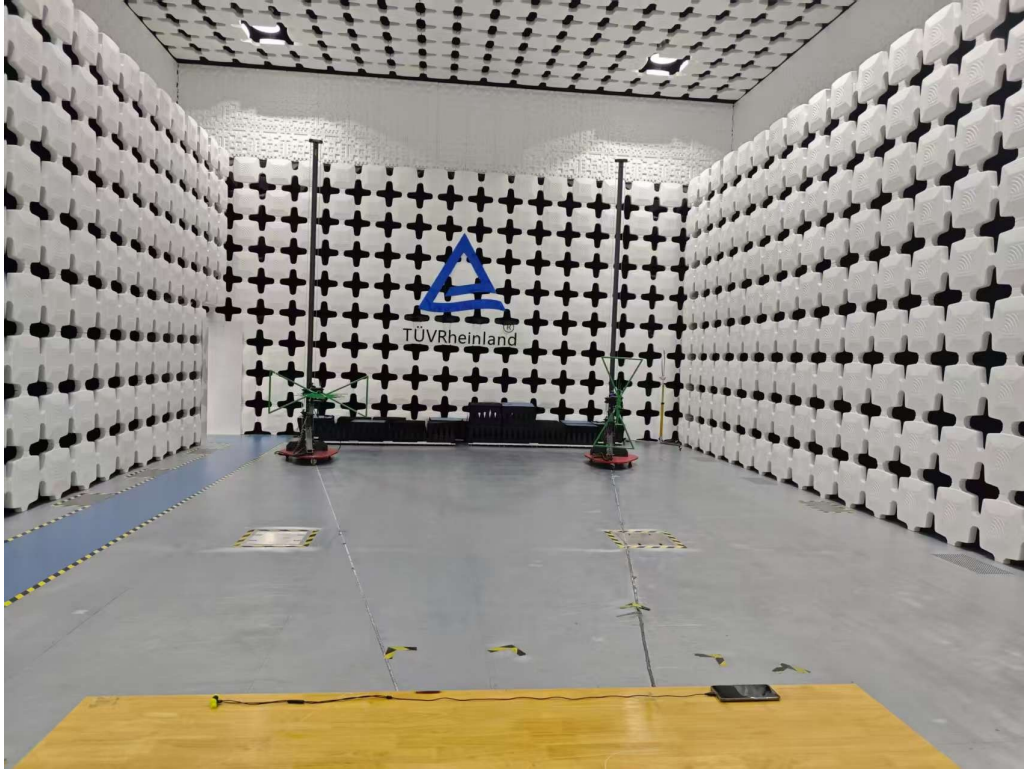
According to note a of table 1, clause 5 of EN 55035:2017+A11:2020, this test applicable only to equipment containing devices intrinsically susceptible to magnetic fields, such as CRT monitors, Hall effect elements, electro-dynamic microphones, magnetic field sensors or audio frequency transformers.

Conclusion:

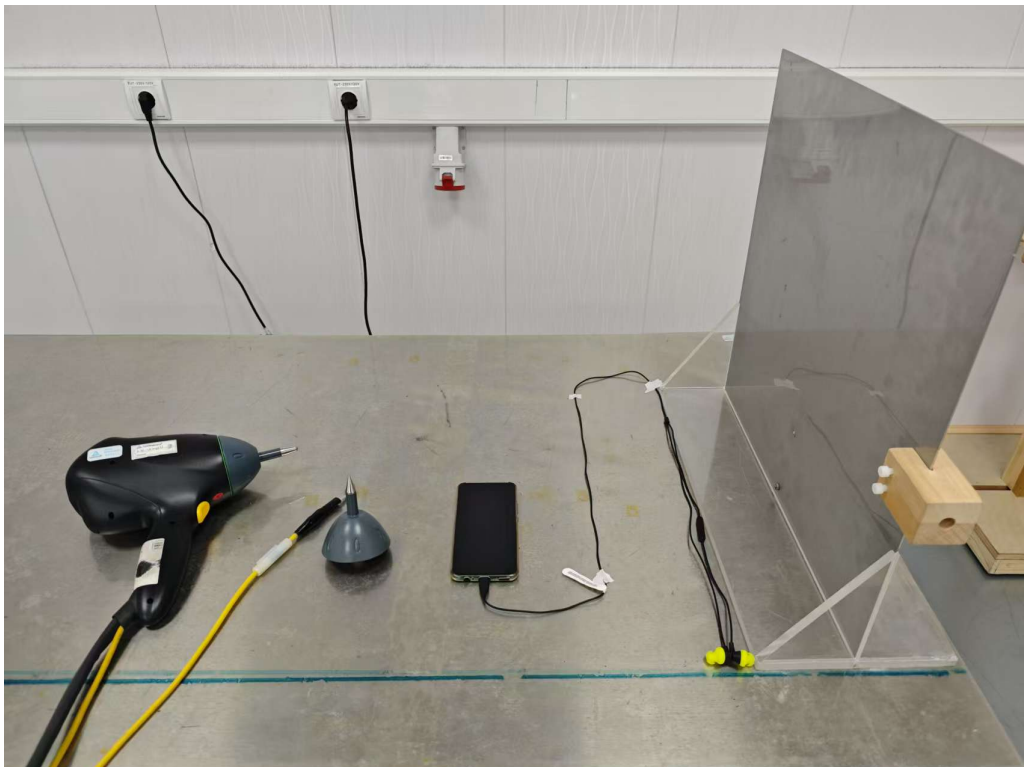
The EUT doesn't containing devices intrinsically susceptible to magnetic fields, hence this requirement is not applicable.

6 Photographs of the Test Set-Up

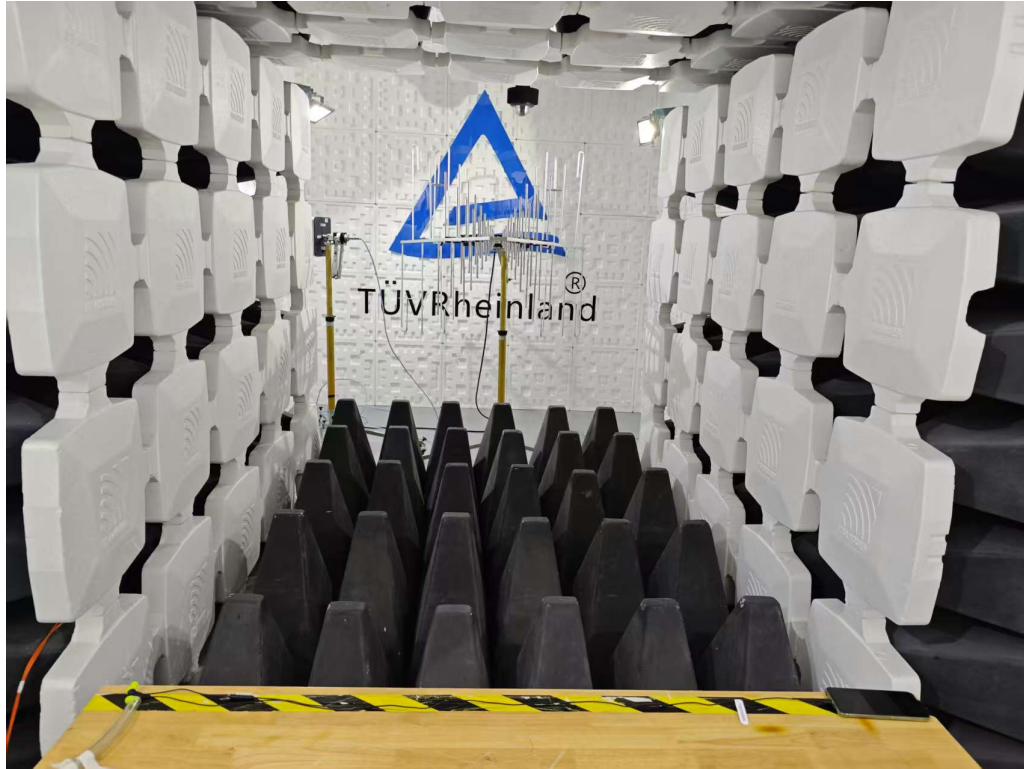
Photograph 1: Set-up for Radiated Emission, Below 1GHz



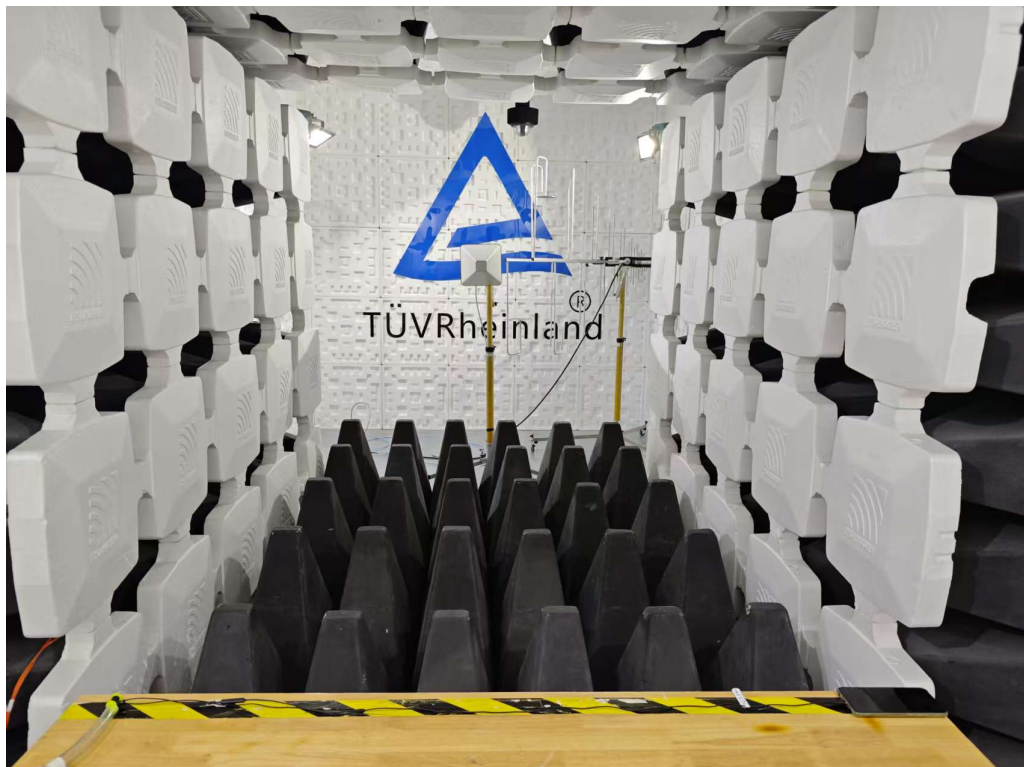
Photograph 2: Setup for Electrostatic Discharges (ESD)



Photograph 3: Set-up for Radio Frequency Electromagnetic Fields (RS, 80MHz-1GHz)



Photograph 4: Set-up for Radio Frequency Electromagnetic Fields (RS, 1GHz-6GHz)



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