

Prüfbericht-Nr.: <i>Test report no.:</i>	CN23AC9B 001	Auftrags-Nr.: <i>Order no.:</i>	178188391	Seite 1 von 18 <i>Page 1 of 18</i>	
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-10-09		
Auftraggeber: <i>Client:</i>	Shandong Sunsmile Musical Instrument Inc. No. 32, Xinghua East Road, Liaocheng, 252000 Shandong P.R. China				
Prüfgegenstand: <i>Test item:</i>	Guitar/Bass				
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	Refer to page 3				
Auftrags-Inhalt: <i>Order content:</i>	CE-EMC				
Prüfgrundlage: <i>Test specification:</i>	EN 55032:2015+A11+A1 EN 55035:2017+A11				
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-10-09	Keine Fotodokumentation erforderlich No photo documentation required			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003587112-001				
Prüfzeitraum: <i>Testing period:</i>	2023-10-09 - 2023-10-25				
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 1.1				
Prüflaboratorium: <i>Testing laboratory:</i>	TUV Rheinland / CCIC (Qingdao) Co., Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von: <i>tested by:</i>	x <u>Geoff Guo</u> <small>Signed by: Geoff Guo</small>		genehmigt von: <i>authorized by:</i>	x <u>Hunter Yu</u> <small>Signed by: Hunter Yu</small>	
Datum: <i>Date:</i>	2023-10-27		Ausstellungsdatum: <i>Issue date:</i>	2023-10-27	
Stellung / Position:	Project manager		Stellung / Position:	Authorizer	
Sonstiges / <i>Other:</i>	Refer to page 4.				
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>				
<small>* Legende:</small>	<small>P(ass) = entspricht o.g. Prüfgrundlage(n)</small>	<small>F(ail) = entspricht nicht o.g. Prüfgrundlage(n)</small>	<small>N/A = nicht anwendbar</small>	<small>N/T = nicht getestet</small>	
<small>* Legend:</small>	<small>P(ass) = passed a.m. test specification(s)</small>	<small>F(ail) = failed a.m. test specification(s)</small>	<small>N/A = not applicable</small>	<small>N/T = not tested</small>	
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p>					

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Prüfbericht-Nr.: CN23AC9B 001
Test report no.:

Seite 2 von 18
Page 2 of 18

Anmerkungen
Remarks

1	<p>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. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>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. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p>
2	<p>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</p> <p><i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</i></p>
3	<p>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.</p> <p><i>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.</i></p>
4	<p>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.</p> <p><i>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.</i></p>

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 3 von 18

Page 3 of 18

No.	Category	Models	No.	Category	Models	
1	Electric Guitar	Premium Line	44	Electric Bass	SVL	
2		Relic	45		SBS	
3		SOL	46		Custom	
4		SJS	47		SSS	
5		SBG	48		SEMD	
6		SPK	49		SG4	
7		STL	50		Guitar/Bass Kits	Electric Guitar/Bass Kits
8		SST	51	Acoustic Guitar Kits		
9		SJA	52	GK SST		
10		SHS	53	GK STL		
11		SCT	54	GK SJS		
12		SCP	55	GK SFV		
13		SLP	56	GK SLP		
14		SLPP	57	GK SCP		
15		CST	58	GK SSG		
16		SSG	59	GK SES		
17		SAN	60	GK SLD		
18		SIM	61	GK SDO		
19		SFB	62	GK SIM		
20		SES	63	GK SVL		
21		SBD	64	GK SBF		
22		SRC	65	GK SPB		
23		SFV	66	GK SE		
24		Acrylic	67	GK SMS		
25		SL	68	GK SJB		
26		SLT	69	GK SHB		
27		Metal Top	70	GK STB		
28	Electric Bass	Premium Bass	71	Guitar/Bass Package	JS 20	
29		SBF	72		JS 22	
30		SPB	73		JS 30	
31		SJB	74		JS 31	
32		SE	75		JS 31 SST	
33		SBP	76		JS 31 SPB	
34		SBBG	77	Acoustic Guitar/Bass	Jumbo	
35		STB	78		Dreadnought	
36		SBL	79		Roundback	
37		SBN	80		Acoustic Bass	
38		SBC	81		/	Classical
39		CBC	82		/	Resonator
40		SNF	83		/	Mandolin
41		SHB	84		/	Ukulele
42		SMH	85	/	Banjo	
43			SMS			

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 4 von 18

Page 4 of 18

Other aspects:

In electrical characteristics, all above models are the same, the differences among them are appearance and model name.

Therefore, all EMC tests were performed on the model SST.

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 5 von 18

Page 5 of 18

TEST SUMMARY

4.1.1 RADIATED EMISSION

Result:

Passed

5.1.1 ELECTROSTATIC DISCHARGE

Result:

Passed

5.1.2 RF ELECTROMAGNETIC FIELD IMMUNITY TEST

Result:

Passed

Contents

1	TEST SITES	7
1.1	TEST FACILITIES.....	7
1.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	7
2	GENERAL PRODUCT INFORMATION	8
2.1	PRODUCT FUNCTION AND INTENDED USE	8
2.2	RATINGS AND SYSTEM DETAILS.....	8
2.3	INDEPENDENT OPERATION MODES.....	8
2.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	8
2.5	SUBMITTED DOCUMENTS.....	8
3	TEST SET-UP AND OPERATION MODES.....	9
3.1	PRINCIPLE OF CONFIGURATION SELECTION	9
3.2	PHYSICAL CONFIGURATION FOR TESTING.....	9
3.3	TEST OPERATION AND TEST SOFTWARE	9
3.4	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
3.5	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	9
4	TEST RESULTS EMISSION	10
4.1	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz.....	10
4.1.1	<i>Radiated Emission</i>	10
5	TEST RESULTS IMMUNITY	12
5.1	ENCLOSURE	13
5.1.1	<i>Electrostatic Discharge</i>	13
5.1.2	<i>RF Electromagnetic Field Immunity Test</i>	14
6	PHOTOGRAPHS OF THE TEST SET-UP	15
7	LIST OF TABLES.....	18
8	LIST OF FIGURES.....	18
9	LIST OF PHOTOGRAPHS	18

1 Test Sites

1.1 Test Facilities

Laboratory: Qingdao Supervision & Testing Center of Product Quality
Address: No. 173 Shenzhen Road, Laoshan District, Qingdao 266061, Shandong

The used test equipment is in accordance with CISPR 16-1 series standards for measurement of radio interference.

The performed tests have been conducted by “Qingdao Supervision & Testing Center of Product Quality”, under supervision of TÜV Rheinland’s engineer.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipments

Kind of Equipment	Type	Serial No.	Calibrated until
Radiated emission:			
EMI receiver	ESU40	100159	2023-10-19
Antenna	HL562	100457	2023-11-28
ESD:			
ESD Simulator	ESD 30N	P1427135922	2023-11-15
RF electromagnetic field immunity test:			
Signal Generator	SMF100A	101058	2023-10-19
High Gain Log-periodic Antenna	HL046E	100062	2024-01-15
Log Periodic Antenna	SWB-STLP9149AM9144	9149-043	2024-01-15
Power Amplifier	BBA150-BC1000	101168	2024-10-10
Power Amplifier	BBA150-D400+E200	101183	2024-10-10

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 8 von 18

Page 8 of 18

2 General Product Information

2.1 Product Function and Intended Use

The EUTs (equipment under test) are Guitars/Basses. For the further information, refer to the user's manual.

2.2 Ratings and System Details

System input voltage : DC 9V from battery for acoustics box

2.3 Independent Operation Modes

The basic operation modes are: "ON" and "OFF".
Refer to the user's manual for further information.

2.4 Noise Generating and Noise Suppressing Parts

Refer to the circuit diagram for further information.

2.5 Submitted Documents

Circuit diagram and rating label, etc.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

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

Refer to the related paragraph of this report.

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

Refer to the related paragraph of this report.

3.2 Physical Configuration for Testing

Refer to the related paragraph of this report.

3.3 Test Operation and Test Software

Refer to the related paragraph of this report. No software was used.

3.4 Special Accessories and Auxiliary Equipment

An acoustics box was used during EMC tests.

3.5 Countermeasures to achieve EMC Compliance

No special measure is employed to achieve the requirement.

4 Test Results EMISSION

4.1 Emission in the Frequency Range above 30 MHz

4.1.1 Radiated Emission

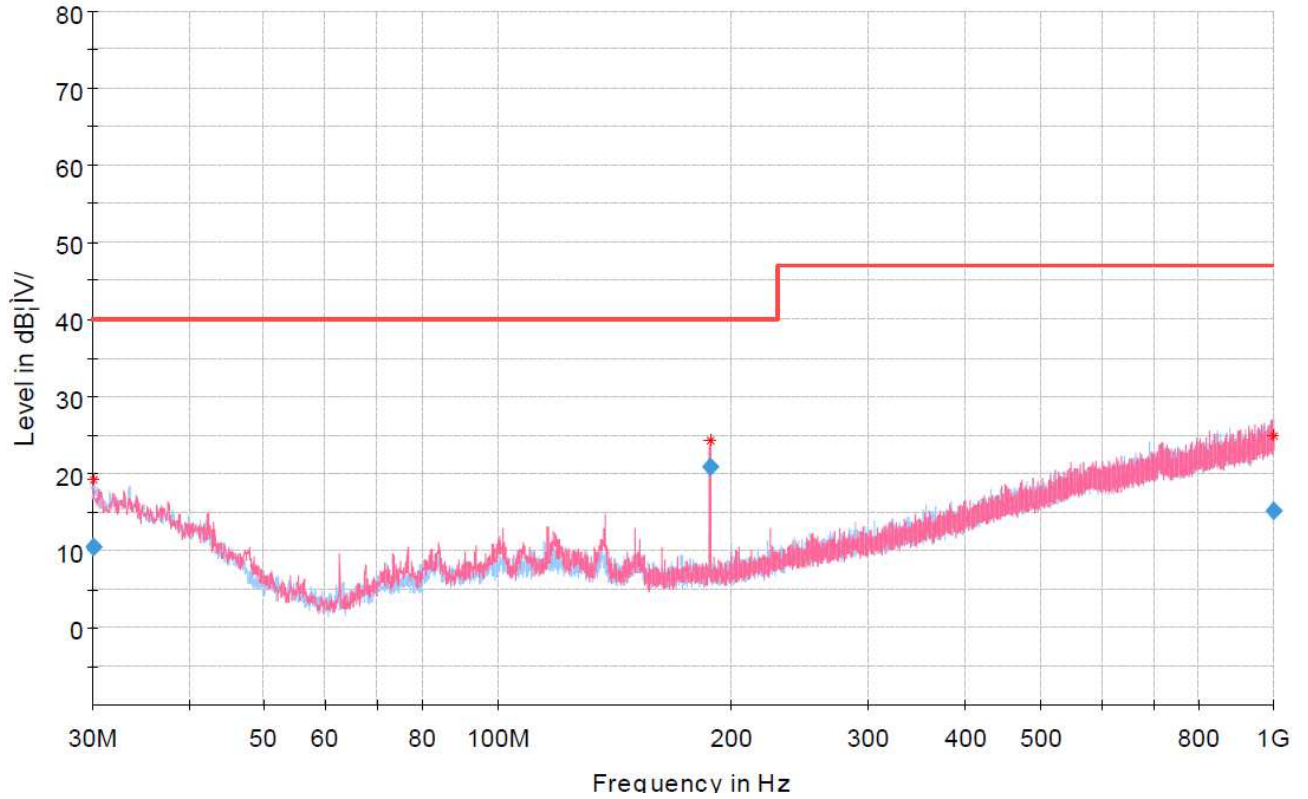
Result:	Passed
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Date of testing	: 2023-10-09
Test procedure	: EN 55032:2015+A11+A1
Frequency range	: 30 – 1000MHz
Limits	: Quasi-peak limits (3m test distance), Class B. 30-230MHz, 40dB μ V/m; 230-1000MHz, 47dB μ V/m.
Kind of test site	: Semi-anechoic chamber
Operation modes	: ON
Ambient conditions	: Temperature: 20°C, relative humidity: 50%
Expanded measurement uncertainty ($k=2$)	: 4.6dB (Horizontal), 4.2dB (Vertical)

The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3m. The normalized site attenuation of the semi-anechoic chamber is regularly calibrated to ensure the radiated disturbance test results are valid. During the test, the EUT was placed on a wooden table, which is 0.8m high. The wooden table was rotated 360° around and the antenna was varied from 1m to 4m to find the maximum disturbance. The test was performed with the antenna both in its horizontal and vertical polarizations.

The following figures and tables were those measured by an automatic measurement system. A preview test was firstly performed with peak detector. The final test was performed with quasi-peak detector at those critical frequencies during the preview test.

Figure 1: Spectral diagrams and measurement results for 30-1000MHz, Horizontal and Vertical polarization



Final quasi-peak measurement results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Comment
30.120000	10.46	40.00	29.54	1000.0	120.000	100.0	H	38.0	20.2	13:55:35 - 2023/10/9
187.539232	20.91	40.00	19.09	1000.0	120.000	100.0	V	123.0	9.7	13:56:37 - 2023/10/9
998.839244	15.01	47.00	31.99	1000.0	120.000	100.0	H	321.0	26.5	13:58:02 - 2023/10/9

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 12 von 18

Page 12 of 18

5 Test Results I M M U N I T Y

Result:

Passed

During the immunity tests, the EUT was operated under conditions specified by clause 3.1 of this report.

For EN 55035:2017+A11:

Performance criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion B: During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Date of testing: 2023-10-15

Room temperature: 20°C

Relative Humidity: 50%

5.1 Enclosure

5.1.1 Electrostatic Discharge

Result:	Passed
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The ESD test was carried out according to EN 55035:2017+A11. Test setup and all the equipment used are in accordance with the requirements of IEC 61000-4-2.

The EUT is placed on 0.8m wood table above the ground plane. The reference ground plane is connected to the protective earth. The size of the ground plane is more than 2m x 2m.

- Test procedure : IEC 61000-4-2
- Charge voltage : ±4.0kV (Contact Discharge), ±8.0kV (Air Discharge)
- Polarity : Positive / negative
- Number of discharges : 10 for each polarity at each discharge point
- Performance criteria : B

Table 2: ESD, Positive / Negative Polarity

Position	Kind of Discharge	Result	Remarks
Non-metallic part of enclosure, Gap	Air discharge ±8kV	Passed	No disturbance of function
Enclosure for metal	Contact discharge ±4kV	Passed	Ditto
Coupling plane (HCP & VCP)	Contact discharge ±4kV	Passed	Ditto

Prüfbericht - Nr.: CN23AC9B 001

Test Report No.:

Seite 14 von 18

Page 14 of 18

5.1.2 RF Electromagnetic Field Immunity Test

Result:	Passed
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This immunity test was performed in accordance with EN 55035:2017+A11. Test setup and test method are in accordance with IEC 61000-4-3.

During the test, the sample was in its normal operations and the test was performed both at horizontal and vertical polarizations.

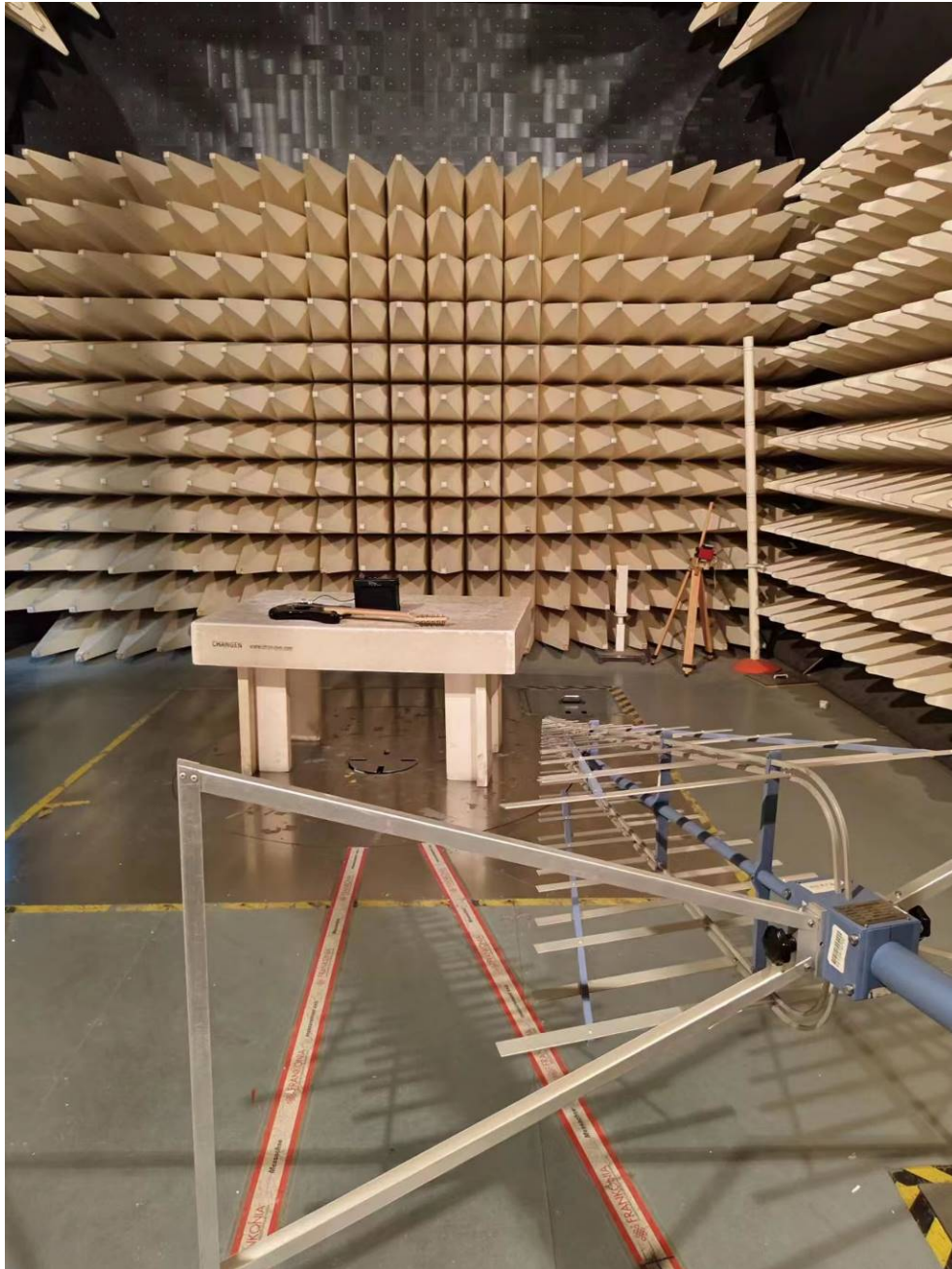
- Basic standard : IEC 61000-4-3
- Modulation : 80% 1kHz AM
- Frequency scan speed : Frequency step: 1%; Dwell time: 2s
- Performance criteria : A

Table 3: RF electromagnetic field immunity test results

Frequency range	Test level	Polarization	Result	Remarks
80MHz to1000MHz	3V/m	Horizontal	Pass	No disturbance of function
1800MHz, 2600MHz 3500MHz, 5000MHz	3V/m	Vertical	Pass	Ditto

6 Photographs of the Test Set-Up

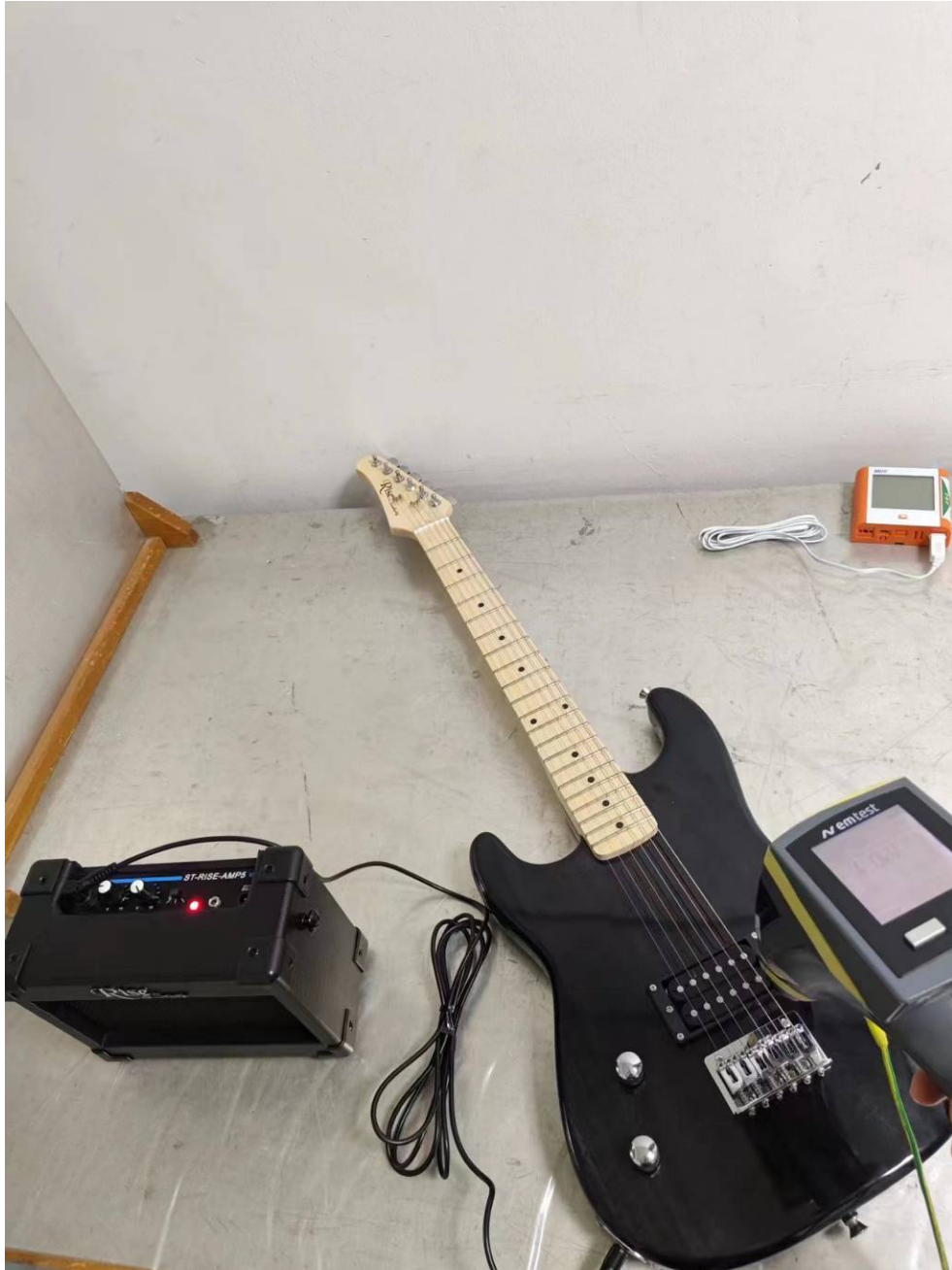
Photograph 1: Set-up for radiated emission



Prüfbericht - Nr.: CN23AC9B 001
Test Report No.:

Seite 16 von 18
Page 16 of 18

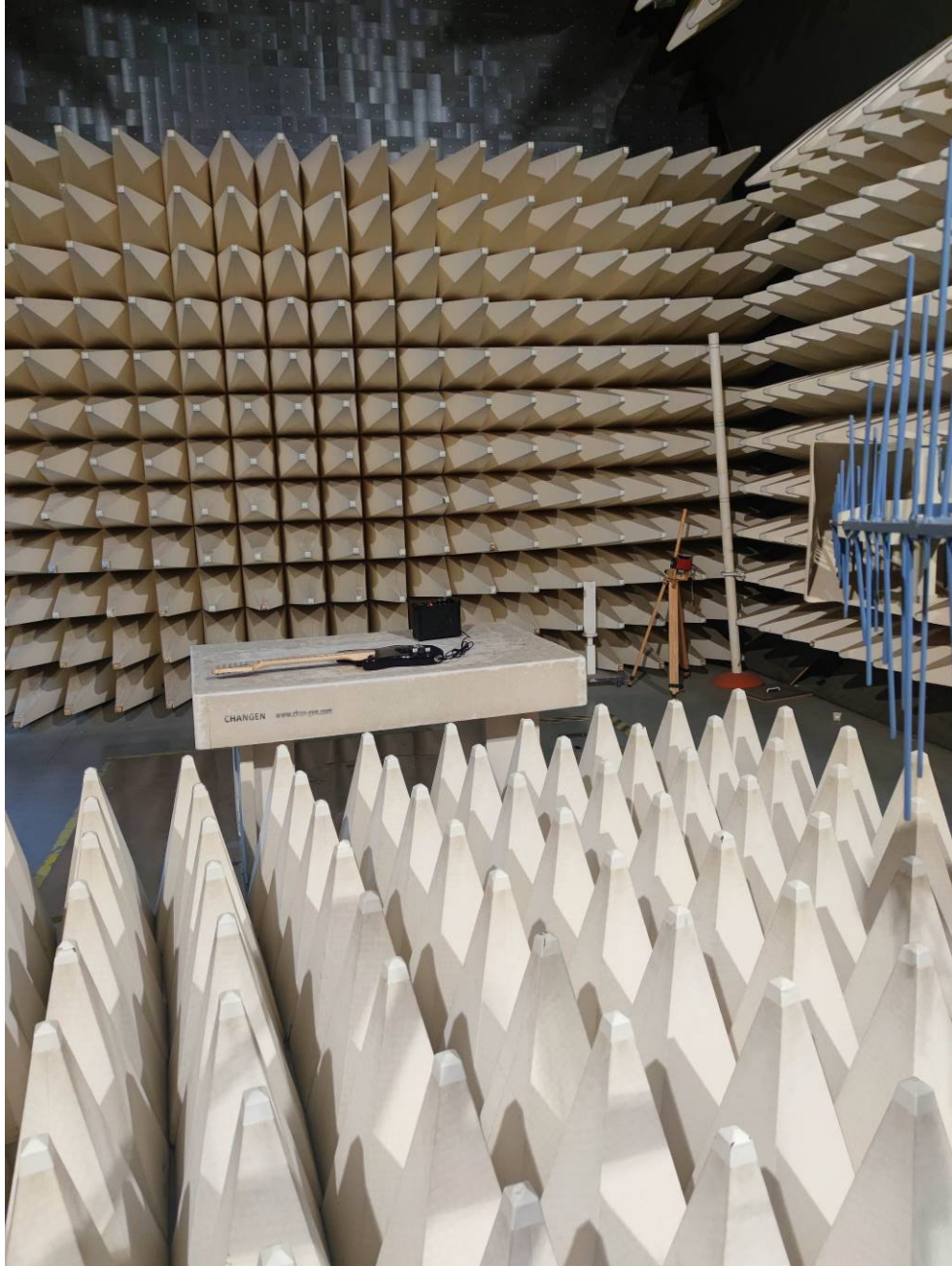
Photograph 2: Set-up for ESD



Prüfbericht - Nr.: CN23AC9B 001
Test Report No.:

Seite 17 von 18
Page 17 of 18

Photograph 3: Set-up for RF electromagnetic field immunity



7 List of Tables

Table 1: List of Test and Measurement Equipments.....	7
Table 2: ESD, Positive / Negative Polarity	13
Table 3: RF electromagnetic field immunity test results.....	14

8 List of Figures

Figure 1: Spectral diagrams and measurement results for 30-1000MHz, Horizontal and Vertical polarization.....	11
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9 List of Photographs

Photograph 1: Set-up for radiated emission.....	15
Photograph 2: Set-up for ESD	16
Photograph 3: Set-up for RF electromagnetic field immunity.....	17