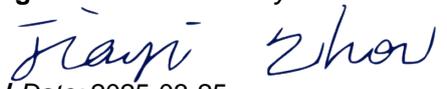


Prüfbericht-Nr.: Test Report No.:	CN25WNUS 001	Auftrags-Nr.: Order No.:	326071880	Seite 1 von 28 Page 1 of 28
Kunden-Referenz-Nr.: Client Reference No.:	1288983	Auftragsdatum: Order date.:	2025-01-07	
Auftraggeber: Client:	IKEA of Sweden AB Box 702, SE-343 81, Älmhult, Sweden			
Prüfgegenstand: Test item:	SOLSKYDD Bluetooth speaker 45			
Bezeichnung / Typ-Nr.: Identification / Type No.:	E2506			
Auftrags-Inhalt: Order content:	TÜV Rheinland EMC service			
Prüfgrundlage: Test specification:	FCC 47 CFR Part 15, Subpart B:2023 Class B ICES-003:2020			
Wareneingangsdatum: Date of receipt:	2025-01-07	Refer to the EUT photos file		
Prüfmuster-Nr.: Test sample No.:	A003905685-012			
Prüfzeitraum: Testing period:	Refer to test report			
Ort der Prüfung: Place of testing:	Refer to clause 1.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: / tested by:	genehmigt von: / authorized by:			
				
Datum: / Date: 2025-03-25	Datum: / Date: 2025-03-25			
Stellung: / Position: Jiuyu Huang/Project engineer	Stellung: / Position: Jiayi Zhou/Authorizer			
Sonstiges / Other:	FCC ID: FHO-E2506 IC: 10912A-E2506 Test Firm Name: TÜV Rheinland (Shanghai) Co., Ltd. Designation Number: CN1396 Test Firm Registration Number: 930979			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* 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 specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
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. This test report only relates to the a. m. 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.				

Prüfbericht - Nr.: CN25WNUS 001
Test Report No.:

Seite 2 von 28
Page 2 of 28

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.</i></p> <p><i>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. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature</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. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature</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.</i></p> <p><i>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 bezueglich 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.: CN25WNUS 001
Test Report No.:

Seite 3 von 28
Page 3 of 28

Revision history of test report:

Report number	Issue date	Contents and reason for change if appropriate
CN25WNUS 001	2025-03-25	Initial release.

Contents

1	TEST SITES	5
1.1	TEST FACILITIES.....	5
2	GENERAL PRODUCT INFORMATION	6
2.1	PRODUCT FUNCTION AND INTENDED USE.....	6
2.2	RATINGS AND SYSTEM DETAILS.....	6
2.3	INDEPENDENT OPERATION MODESS	6
2.4	DESCRIPTION OF INTERCONNECTING CABLES	6
2.5	NOISE GENERATING AND NOISE SUPPRESSING PARTS	6
2.6	HIGHEST FREQUENCY GENERATED OR USED IN THE DEVICE OR ON WHICH THE DEVICE OPERATES OR TUNES .	6
2.7	SUBMITTED DOCUMENTS.....	6
3	TEST SET-UP AND OPERATION MODES	7
3.1	PRINCIPLE OF CONFIGURATION SELECTION	7
3.2	EQUIPMENT AND CABLE ARRANGEMENT.....	7
3.3	TEST SOFTWARE	8
3.4	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	8
3.5	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	8
4	CONFORMITY DECISION RULE	9
5	TEST RESULTS EMISSION	10
5.1	EMISSION IN THE FREQUENCY RANGE UP TO 30 MHz	10
5.1.1	<i>Mains Terminal Continuous Disturbance Voltage</i>	10
5.2	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz.....	16
5.2.1	<i>Radiated emission (30 MHz - 1 GHz)</i>	16
5.2.2	<i>Radiated emission (Above 1 GHz)</i>	22
6	LIST OF TEST AND MEASUREMENT INSTRUMENTS	27
7	LIST OF FIGURES	28

Prüfbericht - Nr.: CN25WNUS 001
Test Report No.:

Seite 5 von 28
Page 5 of 28

1 Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland (Shanghai) Co., Ltd.

Address: Workshop 14, North Half of Workshop 10 and Workshop 16, Pingqian (Taicang) Modern Industrial Park, No.525, Yuewang Lingang South Road, Shaxi, Taicang, Jiangsu, China

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

Refer to Clause 6 for test and measurement instruments.

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a SOLSKYDD Bluetooth speaker. For the further information, refer to the user's manual.

2.2 Ratings and System Details

Rated input : AC 100-240 V, 50-60 Hz; 1200-600 mA
Protection class : II

2.3 Independent Operation Modess

The basic operation modes are following:

Mode 1: Continuous playing 1 kHz audio signal by Bluetooth.

Mode 2: Continuously playing 1 kHz audio signal by AUX Line in.

2.4 Description of interconnecting cables

None.

2.5 Noise Generating and Noise Suppressing Parts

Refer to the circuit diagram for further information.

2.6 Highest frequency generated or used in the device or on which the device operates or tunes

The highest frequency used in the EUT is 2.4 GHz.

2.7 Submitted Documents

Circuit diagram, user's manual and rating label.

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.

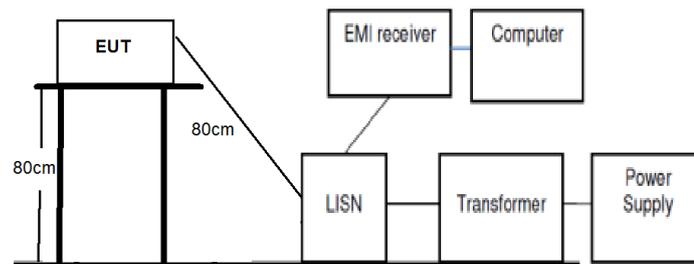
Refer to the related paragraph of this report.

The sequence of testing:

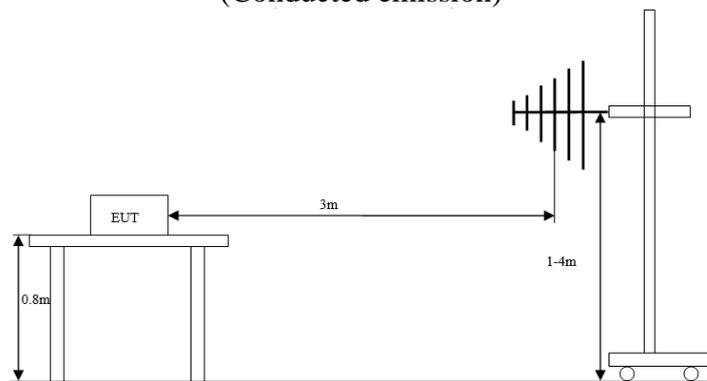
1. Radiated emission tests were performed on 2025-02-28.
2. Conducted emission tests were performed on 2025-02-26.

3.2 Equipment and cable arrangement

Block diagram for both conducted emission and radiated emission tests is as follows:



(Conducted emission)



(Radiated emission)

3.3 Test Software

No special test software was used during the tests.

3.4 Special Accessories and Auxiliary Equipment

During the tests, the below equipment were used.

No.	Equipment	Model	Manufacturer
1	Cell phone	HONOR 60	HONOR
2	Laptop	ThinkPad T14 Gen 3	Lenovo

3.5 Countermeasures to achieve EMC Compliance

No other special measure is employed to achieve the requirement.

4 Conformity Decision Rule

For all EMI tests included in this report, as measurement uncertainties are less than the values U_{CISPR} given in CISPR 16-4-2, compliance with the limits is determined by comparing measurement results directly with corresponding limits without taking into consideration of measurement uncertainties.

5 Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Mains Terminal Continuous Disturbance Voltage

Result:	Passed
Date of testing	: 2025-02-26
Test procedure	: FCC 47 CFR Part 15, Subpart B:2023, ICES-003:2020, ANSI C63.4-2014 and CISPR 16-2-1
Frequency range	: 0.15 – 30 MHz
Limits	: Quasi-peak limit: 0.15 - 0.5 MHz, 66 to 56 dB μ V (decrease with the logarithm of frequency); 0.5 - 5 MHz, 56 dB μ V; 5 - 30 MHz, 60 dB μ V Average limit: 0.15 - 0.5 MHz, 56 to 46 dB μ V (decrease with the logarithm of frequency); 0.5 – 5 MHz, 46 dB μ V; 5 – 30 MHz, 50 dB μ V
Bandwidth of EMI receiver for final measurement	: 9 kHz
Measurement time for final measurement	: 1 s
Kind of test site	: Shielded room
Input voltage	: AC 120 V, 60 Hz
Operational mode	: Mode as defined in clause 2.3
Ambient condition	: Temperature: 22.4 °C; Relative humidity: 50 %
Expanded measurement uncertainty ($k=2$)	: 2.33 dB

The measurement setup was made according to ANSI C63.4-2014 in a shielded room.

The measurement equipment like test receivers, quasi-peak detector and artificial mains network (AMN) are in compliance with CISPR 16-1 series standards.

The tested object was set-up on a wooden support. The EUT was set 0.8 m away from the AMN. The cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3 m and 0.4 m.

The disturbance voltage test was performed on the neutral line and phase line of the power supply of the EUT respectively.

The following figures and tables were those measured by an automatic measuring system. Both quasi-peak and average measurements were performed. In the following spectral diagram, “◆” mean Quasi-Peak Value and “◆” mean Average Value results.

Prüfbericht - Nr.: CN25WNUS 001

Test Report No.:

Seite 11 von 28

Page 11 of 28

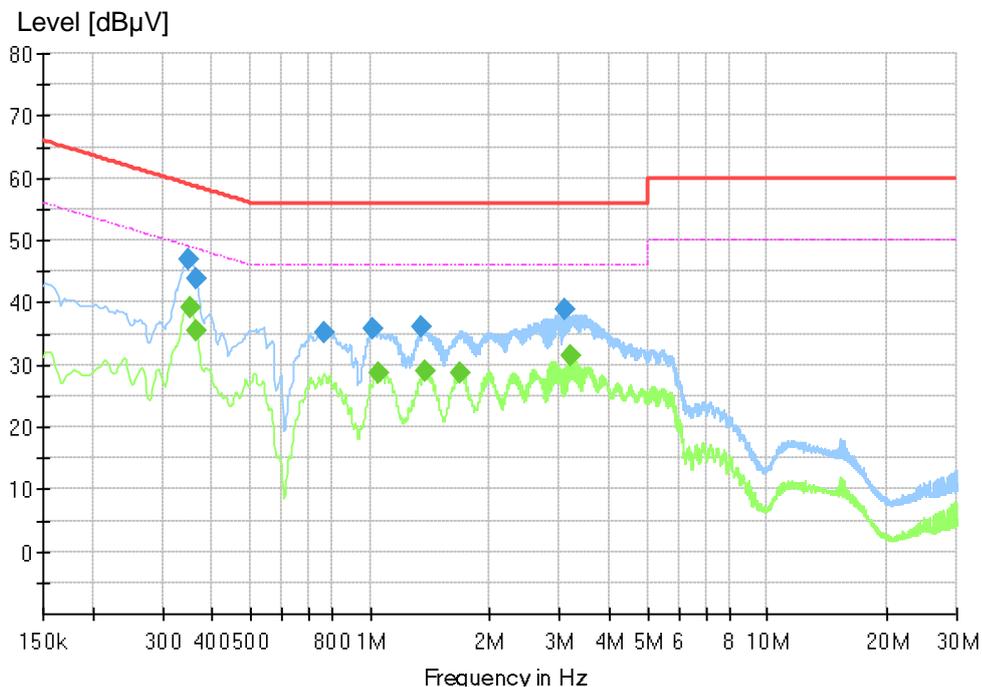
Notes on following tables of conducted emission results and conversions:

Level (dB μ V): final measurement results by using quasi-peak detector and average detector

Transd (dB): transducer factor including cable loss, insertion loss of artificial mains network and gain of pre-amplifier (if used)

Margin: Limit (dB μ V) - Level (dB μ V)

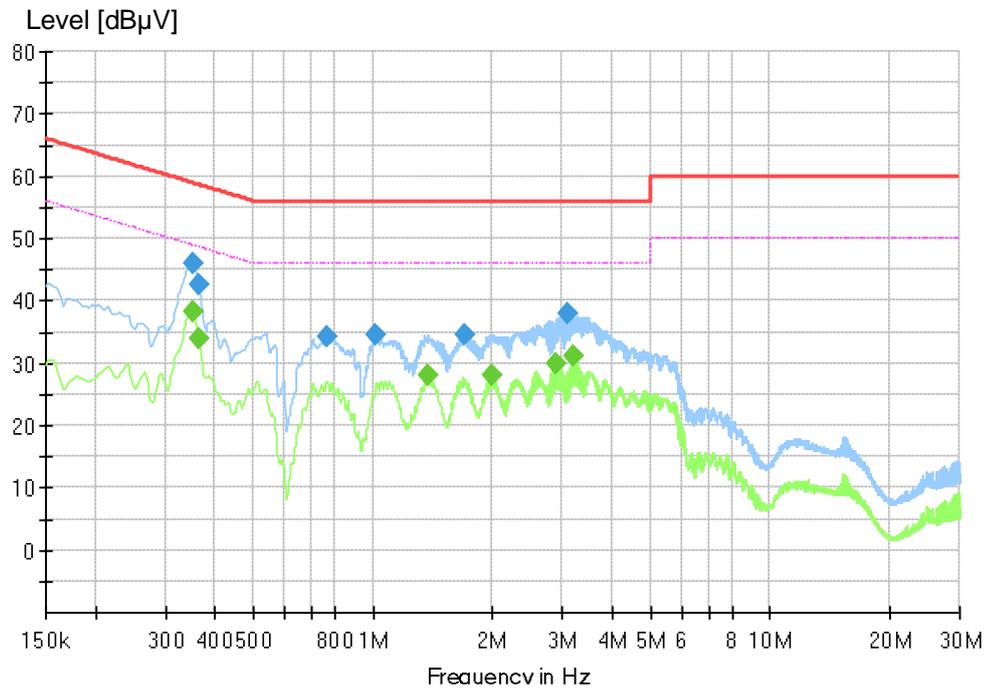
Figure 1: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L line, mode 1



Final measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.350250	46.78	---	58.96	12.18	1000.0	9.000	L1	10.3
0.363750	43.85	---	58.64	14.79	1000.0	9.000	L1	10.3
0.766500	35.13	---	56.00	20.87	1000.0	9.000	L1	10.4
1.020750	35.72	---	56.00	20.28	1000.0	9.000	L1	10.7
1.351500	35.94	---	56.00	20.06	1000.0	9.000	L1	10.4
3.102000	38.73	---	56.00	17.27	1000.0	9.000	L1	10.2
0.352500	---	39.15	48.90	9.76	1000.0	9.000	L1	10.3
0.363750	---	35.35	48.64	13.29	1000.0	9.000	L1	10.3
1.047750	---	28.73	46.00	17.27	1000.0	9.000	L1	10.7
1.378500	---	28.96	46.00	17.04	1000.0	9.000	L1	10.4
1.684500	---	28.77	46.00	17.23	1000.0	9.000	L1	10.2
3.210000	---	31.60	46.00	14.40	1000.0	9.000	L1	10.2

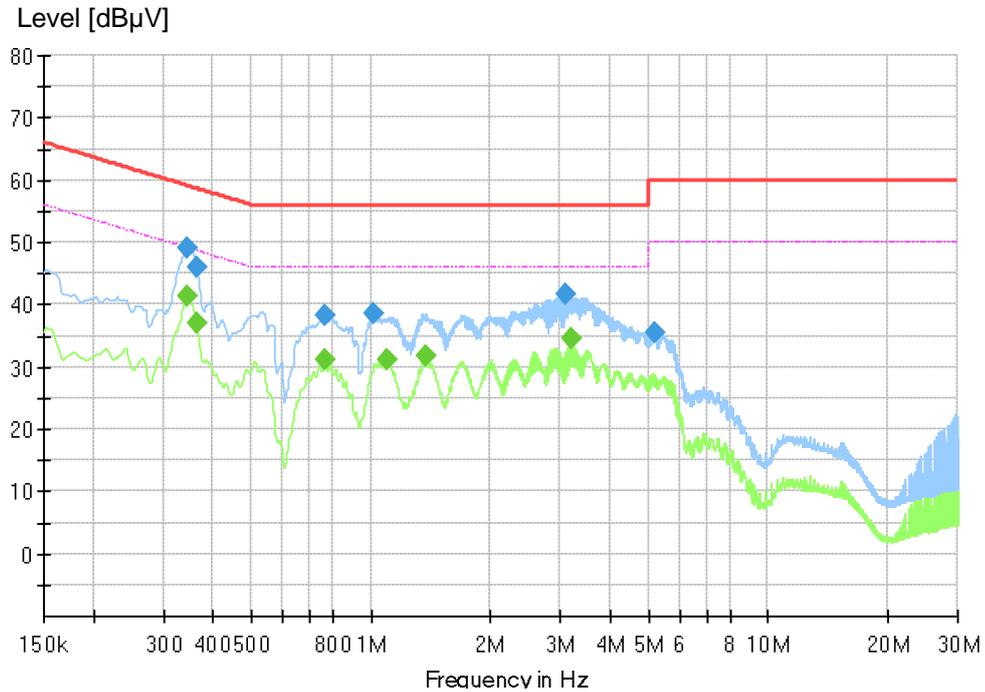
Figure 2: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N line, mode 1



Final measurement result:

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.352500	45.85	---	58.90	13.06	1000.0	9.000	N	10.4
0.363750	42.57	---	58.64	16.07	1000.0	9.000	N	10.4
0.764250	34.12	---	56.00	21.88	1000.0	9.000	N	10.4
1.018500	34.42	---	56.00	21.58	1000.0	9.000	N	10.4
1.707000	34.68	---	56.00	21.32	1000.0	9.000	N	10.5
3.102000	38.06	---	56.00	17.94	1000.0	9.000	N	10.6
0.352500	---	38.11	48.90	10.79	1000.0	9.000	N	10.4
0.363750	---	34.03	48.64	14.61	1000.0	9.000	N	10.4
1.376250	---	28.01	46.00	17.99	1000.0	9.000	N	10.4
1.986000	---	28.09	46.00	17.91	1000.0	9.000	N	10.5
2.904000	---	30.01	46.00	15.99	1000.0	9.000	N	10.6
3.210000	---	31.00	46.00	15.00	1000.0	9.000	N	10.6

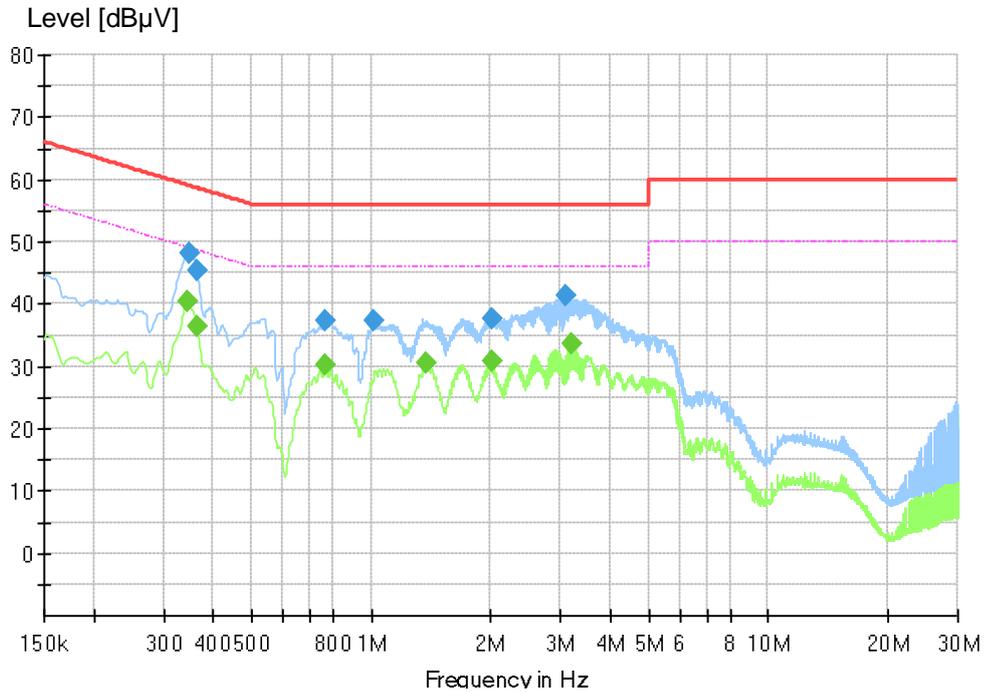
Figure 3: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L line, mode 2



Final measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.345750	49.04	---	59.06	10.03	1000.0	9.000	L1	10.3
0.363750	45.94	---	58.64	12.70	1000.0	9.000	L1	10.3
0.764250	38.12	---	56.00	17.88	1000.0	9.000	L1	10.4
1.018500	38.59	---	56.00	17.41	1000.0	9.000	L1	10.7
3.104250	41.64	---	56.00	14.36	1000.0	9.000	L1	10.2
5.183250	35.39	---	60.00	24.61	1000.0	9.000	L1	10.4
0.345750	---	41.35	49.06	7.72	1000.0	9.000	L1	10.3
0.363750	---	36.91	48.64	11.73	1000.0	9.000	L1	10.3
0.764250	---	31.00	46.00	15.00	1000.0	9.000	L1	10.4
1.092750	---	31.01	46.00	14.99	1000.0	9.000	L1	10.7
1.374000	---	31.84	46.00	14.16	1000.0	9.000	L1	10.4
3.185250	---	34.53	46.00	11.47	1000.0	9.000	L1	10.2

Figure 4: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N line, mode 2



Final measurement result:

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.348000	48.23	---	59.01	10.78	1000.0	9.000	N	10.4
0.363750	45.29	---	58.64	13.35	1000.0	9.000	N	10.4
0.764250	37.19	---	56.00	18.81	1000.0	9.000	N	10.4
1.018500	37.41	---	56.00	18.59	1000.0	9.000	N	10.4
2.013000	37.73	---	56.00	18.27	1000.0	9.000	N	10.5
3.102000	41.36	---	56.00	14.64	1000.0	9.000	N	10.6
0.345750	---	40.53	49.06	8.53	1000.0	9.000	N	10.4
0.363750	---	36.25	48.64	12.39	1000.0	9.000	N	10.4
0.764250	---	30.06	46.00	15.94	1000.0	9.000	N	10.4
1.376250	---	30.43	46.00	15.57	1000.0	9.000	N	10.4
2.010750	---	30.77	46.00	15.23	1000.0	9.000	N	10.5
3.210000	---	33.75	46.00	12.25	1000.0	9.000	N	10.6

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated emission (30 MHz - 1 GHz)

Result:	Passed
----------------	---------------

Date of testing	: 2025-02-28
Test procedure	: FCC 47 CFR Part 15, Subpart B:2023, ICES-003:2020, ANSI C63.4-2014 and CISPR 16-2-3
Frequency range	: 30 – 1000 MHz
Limits	: Quasi-peak limits (3 m distance) (See Note 1): 30 – 88 MHz, 40 dB μ V/m; 88 – 216 MHz, 43.5 dB μ V/m; 216 – 960 MHz, 46 dB μ V/m; Above 960 MHz, 54 dB μ V/m.
Bandwidth of EMI receiver for final measurement	: 120 kHz
Measurement time for final measurement	: 1 s
Kind of test site	: Semi-anechoic chamber
Operational mode	: Mode as defined in clause 2.3
Input voltage	: AC 120 V; 60 Hz
Ambient condition	: Temperature: 21.2 °C; Relative humidity: 49 %
Expanded measurement uncertainty ($k=2$)	: 5.40 dB

The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3 m. 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 0.8 m high wooden table above the reference ground plane. The wooden table was rotated 360° around and the height of the antenna was varied from 1 m to 4 m 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 at those critical frequencies during the preview test. In the following spectral diagram, “×” means quasi-peak test results.

Prüfbericht - Nr.: CN25WNUS 001
Test Report No.:

Seite 17 von 28
Page 17 of 28

Notes on following tables of radiated emission results and conversions:

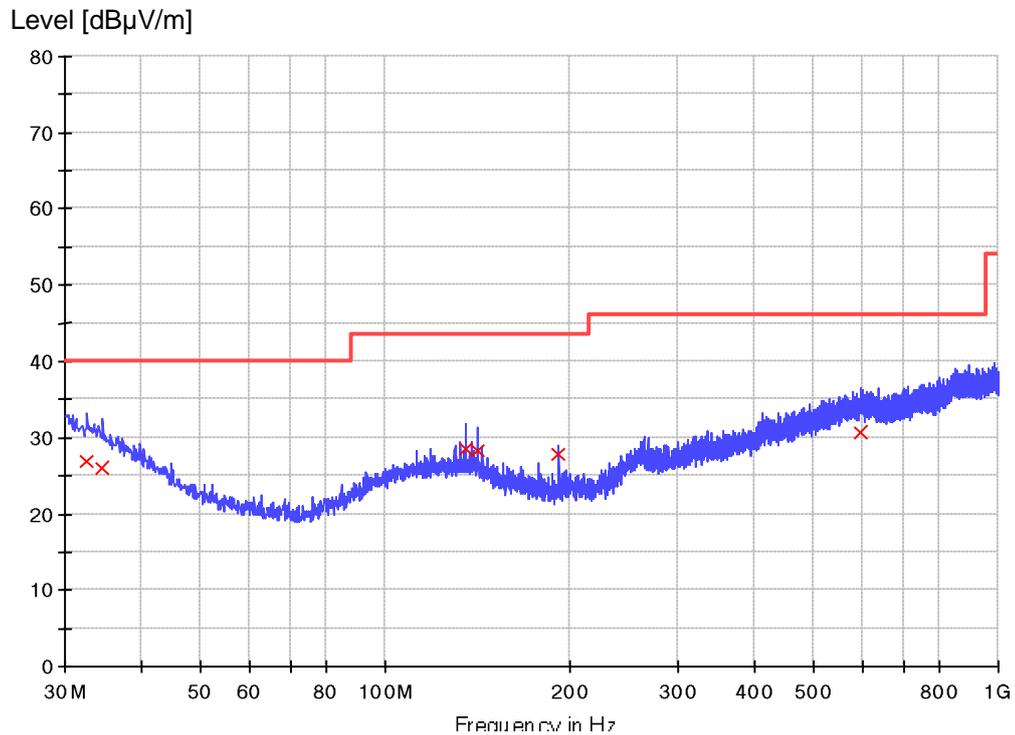
QuasiPeak (dB μ V/m): final measurement results by using quasi-peak detector

Corr. (dB): correction factor including: antenna factor, cable loss, and gain of pre-amplifier (if used)

Margin: Limit (dB μ V/m) - QuasiPeak (dB μ V/m)

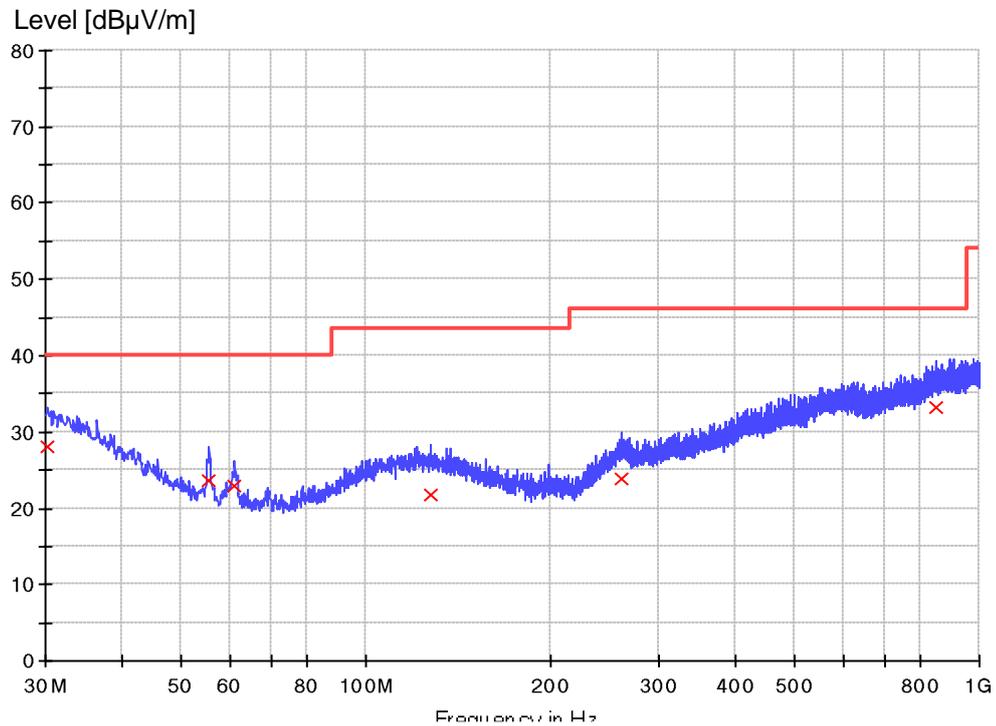
Note 1: The class B limits of FCC 47 CFR Part 15, Subpart B:2023 is stricter than those ICES-003:2020 Table 2 for 3 m test distance. Therefore, the former limits are used in following figures and tables.

Figure 5: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, horizontal polarization, mode 1



Final Quasi-peak measurement result:

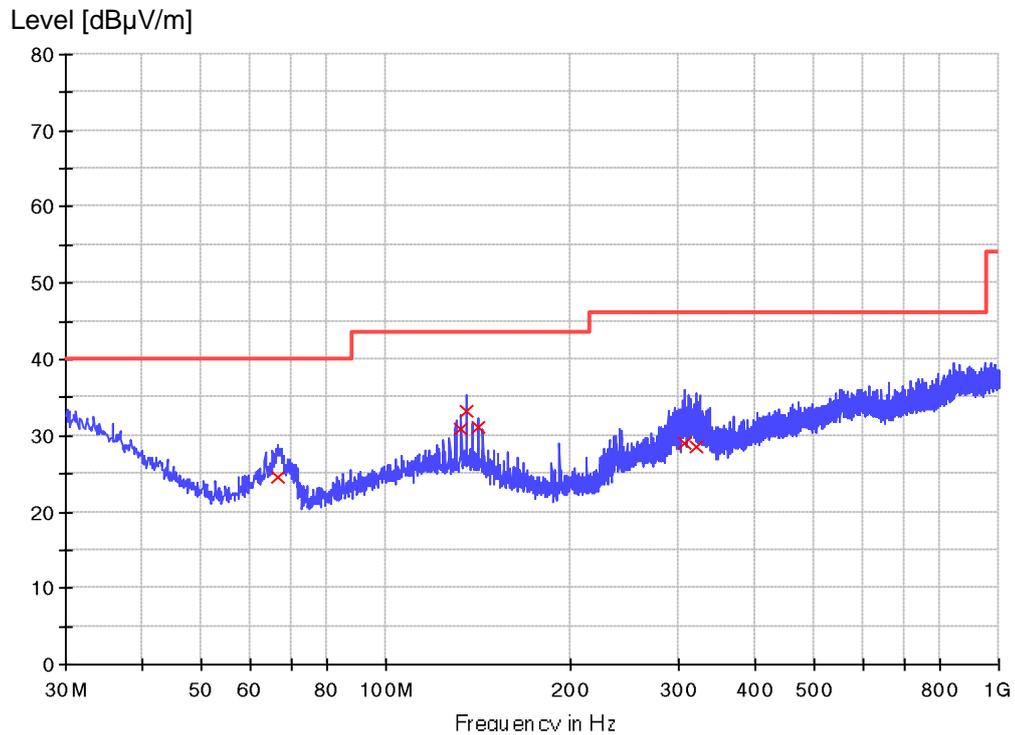
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
32.546250	26.9	1000.0	120.000	200.0	H	-154.0	23.6	13.1	40.0
34.607500	25.9	1000.0	120.000	180.0	H	-169.0	22.7	14.1	40.0
135.487500	28.7	1000.0	120.000	100.0	H	-112.0	18.4	14.9	43.5
141.186250	28.4	1000.0	120.000	200.0	H	174.0	18.2	15.1	43.5
191.990000	27.9	1000.0	120.000	150.0	H	157.0	15.9	15.6	43.5
597.935000	30.7	1000.0	120.000	200.0	H	101.0	26.9	15.3	46.0

Figure 6: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, vertical polarization, mode 1


Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.242500	28.0	1000.0	120.000	100.0	V	175.0	24.7	12.0	40.0
55.462500	23.5	1000.0	120.000	110.0	V	112.0	13.6	16.5	40.0
61.040000	23.0	1000.0	120.000	100.0	V	-66.0	12.8	17.0	40.0
127.727500	21.8	1000.0	120.000	200.0	V	-14.0	18.7	21.7	43.5
261.466250	23.9	1000.0	120.000	100.0	V	58.0	20.9	22.1	46.0
851.468750	33.3	1000.0	120.000	120.0	V	123.0	29.0	12.7	46.0

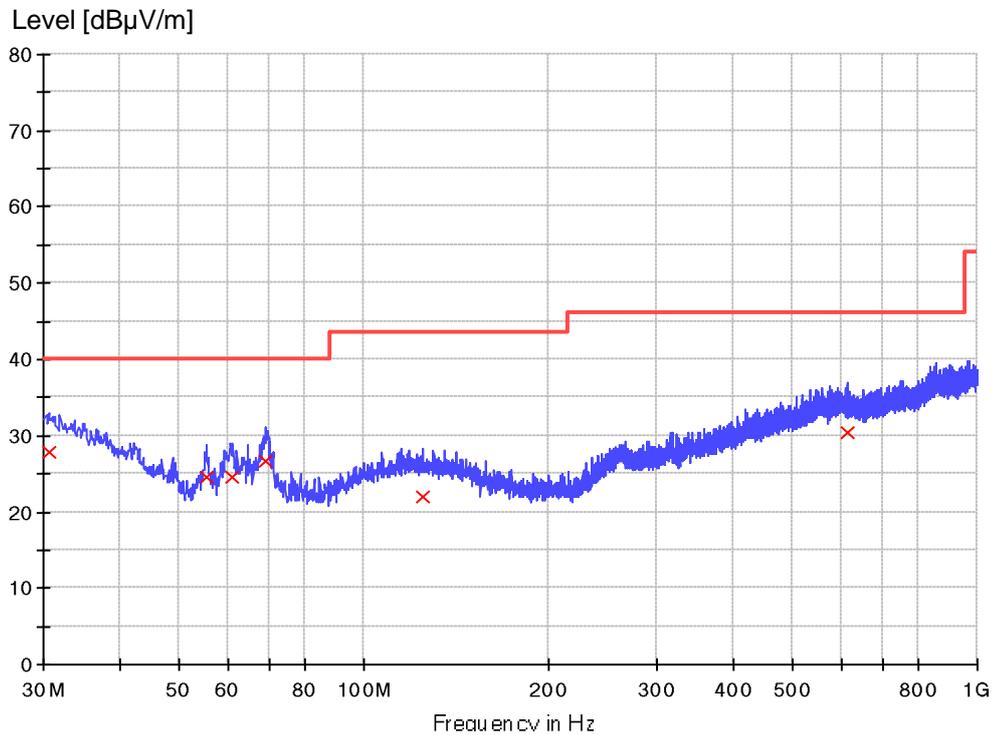
Figure 7: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, horizontal polarization, mode 2



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
66.617500	24.5	1000.0	120.000	200.0	H	-171.0	12.6	15.5	40.0
132.698750	30.9	1000.0	120.000	190.0	H	-48.0	18.5	12.6	43.5
135.487500	33.2	1000.0	120.000	180.0	H	147.0	18.4	10.3	43.5
141.186250	31.1	1000.0	120.000	100.0	H	114.0	18.2	12.4	43.5
306.692500	29.0	1000.0	120.000	200.0	H	156.0	20.4	17.0	46.0
320.515000	28.5	1000.0	120.000	100.0	H	154.0	20.9	17.5	46.0

Figure 8: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, vertical polarization, mode 2



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.606250	27.9	1000.0	120.000	100.0	V	-159.0	24.5	12.1	40.0
55.341250	24.5	1000.0	120.000	110.0	V	147.0	13.6	15.5	40.0
61.161250	24.6	1000.0	120.000	130.0	V	18.0	12.8	15.4	40.0
69.163750	26.7	1000.0	120.000	100.0	V	28.0	12.6	13.4	40.0
124.575000	22.0	1000.0	120.000	150.0	V	27.0	18.7	21.5	43.5
614.425000	30.5	1000.0	120.000	150.0	V	53.0	27.0	15.5	46.0

5.2.2 Radiated emission (Above 1 GHz)

Result:	Passed
----------------	---------------

Date of testing	: 2025-02-08
Port	: Enclosure
Test procedure	: FCC 47 CFR Part 15, Subpart B:2023, ANSI C63.4-2014 and CISPR 16-2-3 ICES-003:2020
Limit	: Above 1 GHz, Peak limit: 74 dB μ V/m; Average limit: 54 dB μ V/m
Frequency range	: 1-18 GHz Note: The highest frequency in the EUT is 2.4 GHz. According to FCC Part 15 subpart B §15.33 (b) (1), the upper frequency for radiated emission measurement is 12 GHz. The actual test frequency is up to 18 GHz.
Bandwidth of EMI receiver for final measurement	: 1000 kHz
Measurement time for final measurement	: 1 s
Test distance	: 3 m
Kind of test site	: Semi-anechoic chamber
Operational mode	: Mode as defined in clause 2.3
Input voltage	: AC 120 V; 60 Hz
Earthing	: No earthing
Ambient condition	: Temperature: 21.2 °C; Relative humidity: 49 %

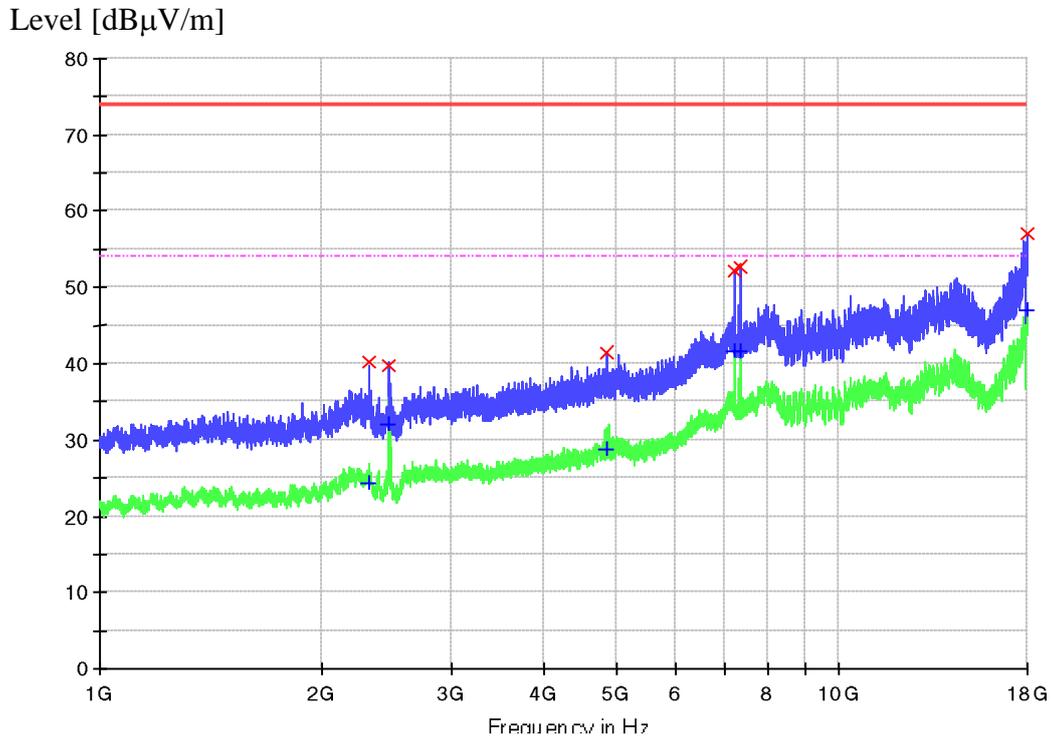
The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3 m. The normalized site attenuation of the semi-anechoic chamber is regularly calibrated to ensure the radiated disturbance test results are valid. During the test, the EUT was placed on a poly table, which is 0.8 m high. The wooden table was rotated 360° around and the antenna was varied from 1 m to 4 m 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. The final test was performed with peak detector and average detector at those critical frequencies during the preview test. In the following figure, “× (red)” means measurement results with peak detector and “+ (blue)” means measurement results with average detector.

Notes on following tables of radiated emission results and conversions:

- Peak (dB μ V/m): final measurement results by using peak detector
- Average (dB μ V/m): final measurement results by using average detector
- Corr. (dB): correction factor including: antenna factor, cable loss, and gain of pre-amplifier (if used)
- Margin: Limit PK (dB μ V/m) - Peak (dB μ V/m)
- Limit CAV (dB μ V/m) – Average (dB μ V/m)

Figure 9: Spectral Diagrams and measurement results, 1-18 GHz, horizontal polarization, mode 1



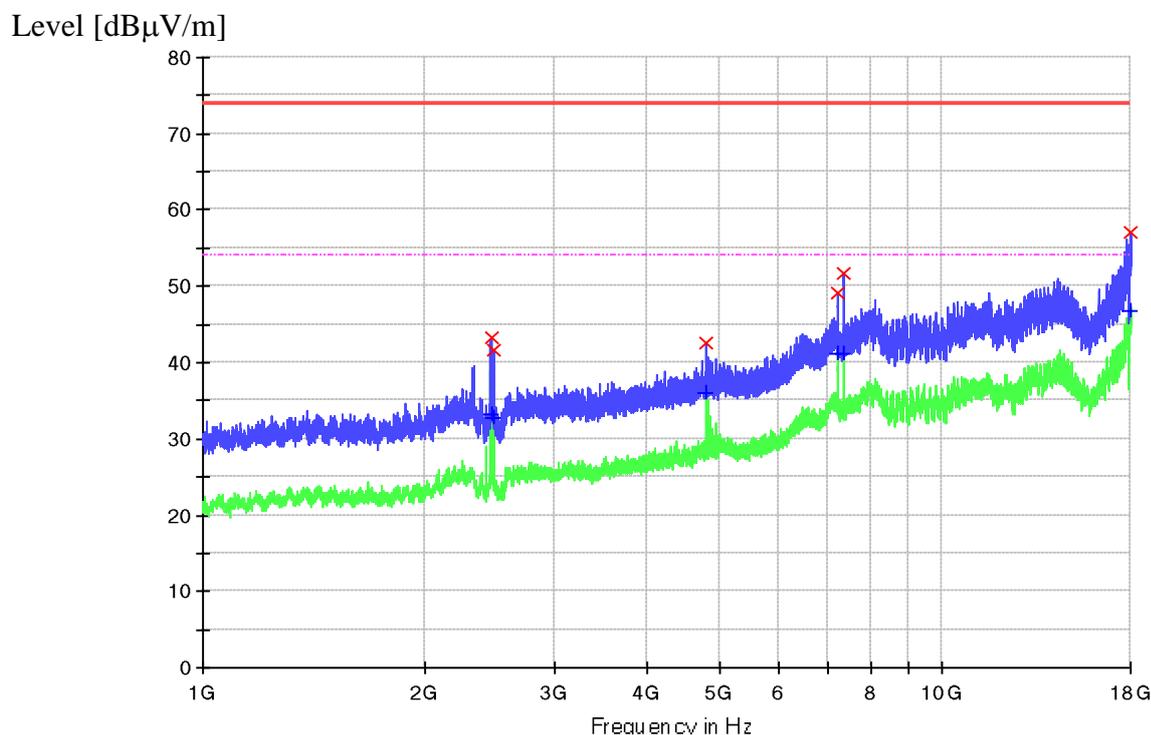
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
2314.312500	40.3	1000.0	1000.000	200.0	H	14.0	-15.8	33.7	74.0
2465.718750	39.7	1000.0	1000.000	200.0	H	165.0	-16.2	34.3	74.0
4849.968750	41.4	1000.0	1000.000	150.0	H	178.0	-11.3	32.6	74.0
7238.468750	52.1	1000.0	1000.000	100.0	H	25.0	-6.3	21.9	74.0
7341.531250	52.7	1000.0	1000.000	150.0	H	-98.0	-6.5	21.3	74.0
17971.312500	57.0	1000.0	1000.000	100.0	H	-11.0	11.9	17.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
2314.312500	24.3	1000.0	1000.000	200.0	H	14.0	-15.8	29.7	54.0
2465.718750	32.1	1000.0	1000.000	200.0	H	165.0	-16.2	21.9	54.0
4849.968750	28.7	1000.0	1000.000	150.0	H	178.0	-11.3	25.3	54.0
7238.468750	41.7	1000.0	1000.000	100.0	H	25.0	-6.3	12.3	54.0
7341.531250	41.7	1000.0	1000.000	150.0	H	-98.0	-6.5	12.3	54.0
17971.312500	47.0	1000.0	1000.000	100.0	H	-11.0	11.9	7.1	54.0

Figure 10: Spectral Diagrams and measurement results, 1-18 GHz, vertical polarization, mode 1



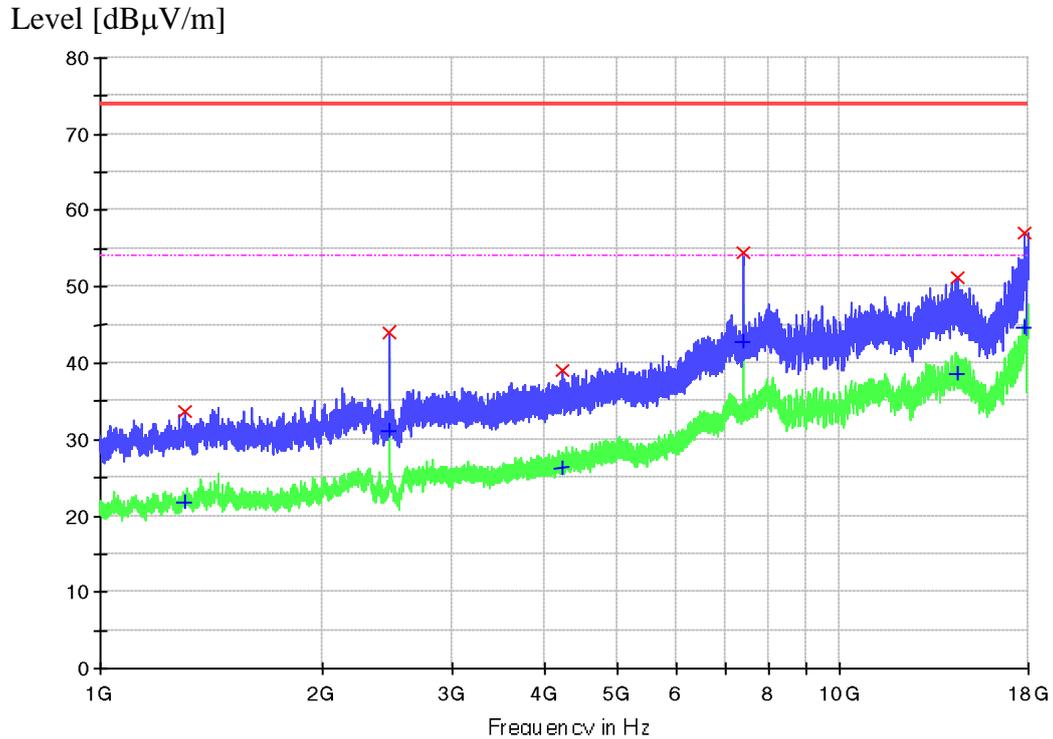
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
2452.968750	43.3	1000.0	1000.000	100.0	V	-144.0	-16.2	30.7	74.0
2469.968750	41.7	1000.0	1000.000	150.0	V	-169.0	-16.2	32.3	74.0
4805.875000	42.7	1000.0	1000.000	100.0	V	-179.0	-11.4	31.3	74.0
7220.406250	49.2	1000.0	1000.000	200.0	V	-124.0	-6.2	24.8	74.0
7347.906250	51.6	1000.0	1000.000	150.0	V	56.0	-6.4	22.4	74.0
17979.812500	57.1	1000.0	1000.000	100.0	V	77.0	12.0	16.9	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
2452.968750	33.3	1000.0	1000.000	100.0	V	-144.0	-16.2	20.7	54.0
2469.968750	32.8	1000.0	1000.000	150.0	V	-169.0	-16.2	21.2	54.0
4805.875000	36.0	1000.0	1000.000	100.0	V	-179.0	-11.4	18.0	54.0
7220.406250	41.3	1000.0	1000.000	200.0	V	-124.0	-6.2	12.7	54.0
7347.906250	41.3	1000.0	1000.000	150.0	V	56.0	-6.4	12.7	54.0
17979.812500	46.7	1000.0	1000.000	100.0	V	77.0	12.0	7.3	54.0

Figure 11: Spectral Diagrams and measurement results, 1-18 GHz, horizontal polarization, mode 2

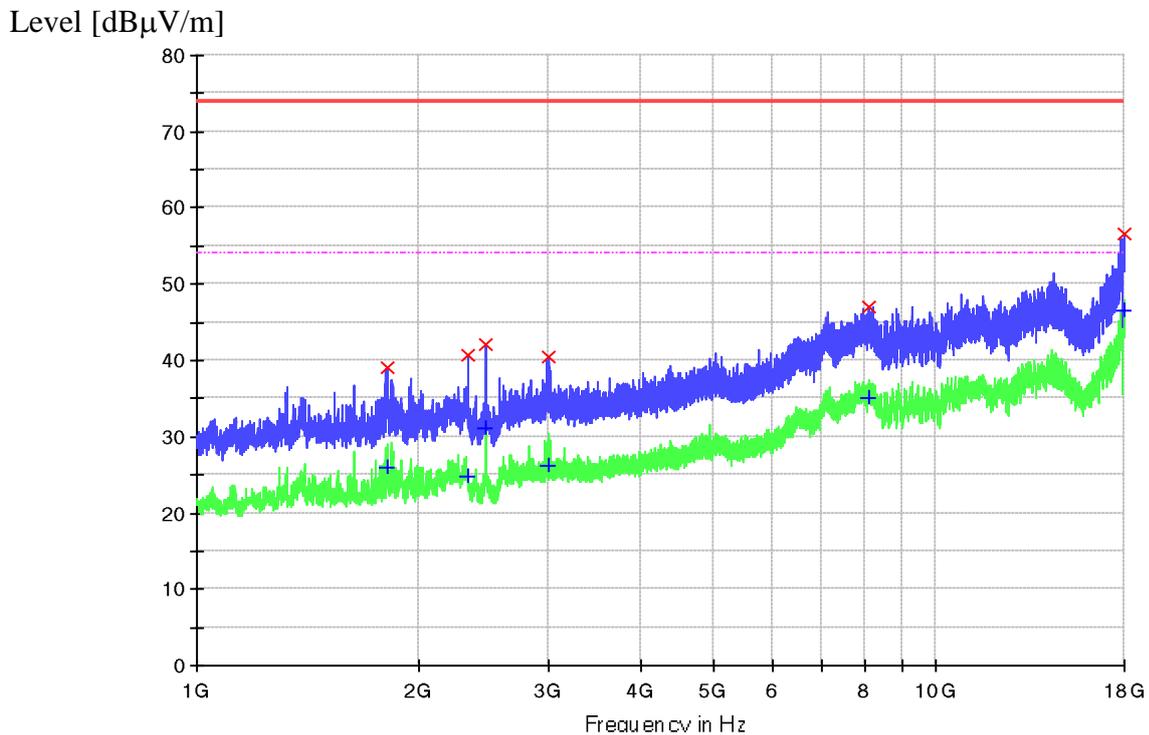


Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1303.875000	33.6	1000.0	1000.000	200.0	H	11.0	-19.0	40.4	74.0
2458.281250	43.9	1000.0	1000.000	100.0	H	136.0	-16.2	30.1	74.0
4224.687500	39.1	1000.0	1000.000	200.0	H	56.0	-12.9	34.9	74.0
7407.937500	54.4	1000.0	1000.000	150.0	H	55.0	-6.2	19.6	74.0
14415.656250	51.3	1000.0	1000.000	200.0	H	14.0	2.4	22.7	74.0
17817.250000	57.2	1000.0	1000.000	100.0	H	-147.0	8.9	16.8	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1303.875000	21.9	1000.0	1000.000	200.0	H	11.0	-19.0	32.1	54.0
2458.281250	31.0	1000.0	1000.000	100.0	H	136.0	-16.2	23.0	54.0
4224.687500	26.3	1000.0	1000.000	200.0	H	56.0	-12.9	27.7	54.0
7407.937500	42.9	1000.0	1000.000	150.0	H	55.0	-6.2	11.1	54.0
14415.656250	38.6	1000.0	1000.000	200.0	H	14.0	2.4	15.4	54.0
17817.250000	44.6	1000.0	1000.000	100.0	H	-147.0	8.9	9.4	54.0

Figure 12: Spectral Diagrams and measurement results, 1-18 GHz, vertical polarization, mode 2

Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1808.562500	39.0	1000.0	1000.000	100.0	V	114.0	-18.7	35.0	74.0
2328.656250	40.8	1000.0	1000.000	150.0	V	168.0	-15.9	33.2	74.0
2455.093750	42.2	1000.0	1000.000	100.0	V	47.0	-16.2	31.8	74.0
2988.468750	40.5	1000.0	1000.000	150.0	V	96.0	-15.1	33.5	74.0
8128.843750	47.1	1000.0	1000.000	100.0	V	93.0	-4.2	26.9	74.0
17980.875000	56.7	1000.0	1000.000	100.0	V	-52.0	12.0	17.3	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1808.562500	26.0	1000.0	1000.000	100.0	V	114.0	-18.7	28.0	54.0
2328.656250	24.8	1000.0	1000.000	150.0	V	168.0	-15.9	29.2	54.0
2455.093750	31.2	1000.0	1000.000	100.0	V	47.0	-16.2	22.8	54.0
2988.468750	26.2	1000.0	1000.000	150.0	V	96.0	-15.1	27.8	54.0
8128.843750	35.0	1000.0	1000.000	100.0	V	93.0	-4.2	19.0	54.0
17980.875000	46.5	1000.0	1000.000	100.0	V	-52.0	12.0	7.5	54.0

6 List of Test and Measurement Instruments

Equip. no.	Equipment name	Model	Serial no.	Manufacturer	Cal. date	Due date
EMC-S-028	EMI measurement software	EMC32-E+ (10.60.20)	100150	Rohde & Schwarz	N/A	N/A
EMC-C-366	Thermohygrometer	608-H1	2485149174	testo	2024-07-26	2025-07-26
EMC-C-195	EMI test receiver	ESR3	102794	Rohde & Schwarz	2024-08-03	2025-08-03
EMC-C-190	Artificial mains network	ENV432	101514	Rohde & Schwarz	2024-10-11	2025-10-11
EMC-S-032	EMI measurement software	EMC32-MEB (10.60.20)	100697	Rohde & Schwarz	N/A	N/A
EMC-C-155	BiLog antenna	CBL 6112D	40530	Teseq	2023-04-20	2026-04-20
EMC-C-121	Thermohygrometer	608-H1	1241320265	testo	2024-06-25	2025-06-25
EMC-C-066	EMI test receiver	ESCI	100280	Rohde & Schwarz	2024-10-17	2025-10-17
EMC-C-001	3 m semi-anechoic chamber	SAC3	FJ129002	Frankonia	2023-12-03	2026-12-03
EMC-C-176	Preamplifier	EMC184045SE	980596	EMCI Taiwan	2024-07-24	2025-07-24
EMC-C-161	Spectrum analyser	FSV40	101258	Rohde & Schwarz	2024-07-15	2025-07-15
EMC-C-018	Double ridged horn antenna	BBHA 9120 D	9120D-434	Schwarzbeck	2021-03-24	2026-03-24

7 List of Figures

Figure 1: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L line, mode 1	12
Figure 2: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N line, mode 1	13
Figure 3: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, L line, mode 2	14
Figure 4: Spectral Diagrams, Conducted Emission, 150 kHz – 30 MHz, N line, mode 2	15
Figure 5: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, horizontal polarization, mode 1.....	18
Figure 6: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, vertical polarization, mode 1.....	19
Figure 7: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, horizontal polarization, mode 2.....	20
Figure 8: Spectral Diagrams and measurement results, 30 MHz - 1 GHz, vertical polarization, mode 2.....	21
Figure 9: Spectral Diagrams and measurement results, 1-18 GHz, horizontal polarization, mode 1	23
Figure 10: Spectral Diagrams and measurement results, 1-18 GHz, vertical polarization, mode 1	24
Figure 11: Spectral Diagrams and measurement results, 1-18 GHz, horizontal polarization, mode 2	25
Figure 12: Spectral Diagrams and measurement results, 1-18 GHz, vertical polarization, mode 2	26

End of test report