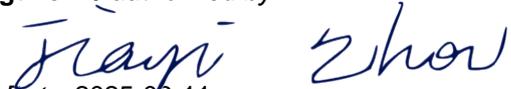


<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>CN259JQX 001</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	<b>326071558</b>	<b>Seite 1 von 28</b> <i>Page 1 of 28</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	<b>1288983</b>	<b>Auftragsdatum:</b> <i>Order date.:</i>	<b>2025-01-06</b>	
<b>Auftraggeber:</b> <i>Client:</i>	<b>IKEA of Sweden AB</b> Box 702, SE-343 81, Älmhult, Sweden			
<b>Prüfgegenstand:</b> <i>Test item:</i>	<b>KULGLASS</b>			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	<b>E2508</b>			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	<b>TÜV Rheinland EMC service</b>			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	<b>FCC 47 CFR Part 15, Subpart B:2023 Class B</b> <b>ICES-003:2020</b> <b>ICES-005:2018</b>			
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	<b>2025-01-07</b>	Refer to the EUT photos file		
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	<b>A003901704-001</b> <b>A003901695-001~002</b>			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	<b>2025-02-08</b>			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	<b>Refer to clause 1.1</b>			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	<b>TÜV Rheinland (Shanghai) Co., Ltd.</b>			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	<b>Pass</b>			
<b>geprüft von: / tested by:</b>	<b>genehmigt von: / authorized by:</b>			
				
<b>Datum: / Date:</b> 2025-03-11	<b>Datum: / Date:</b> 2025-03-11			
<b>Stellung: / Position:</b> Project engineer	<b>Stellung: / Position:</b> Authorizer			
<b>Sonstiges / Other:</b>	FCC ID: FHO-E2508 IC: 10912A-E2508 Test Firm Name: TÜV Rheinland (Shanghai) Co., Ltd. Designation Number: CN1396 Test Firm Registration Number: 930979			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	<b>Prüfmuster vollständig und unbeschädigt</b> <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 specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
<b>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.</b> <i>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.</i>				

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**Anmerkungen**  
*Remarks*

- |          |  |
|----------|--|
| <b>1</b> | <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.<br/>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>   |
| <b>2</b> | <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: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></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: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></i></p> |
| <b>3</b> | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.<br/>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>  |
| <b>4</b> | <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>  |

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**Revision history of test report:**

<b>Report number</b>	<b>Issue date</b>	<b>Contents and reason for change if appropriate</b>
CN259JQX 001	2025-03-11	Initial release.

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## **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 KULGLASS 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; 1000 mA  
Output : Audio 20 W, Lighting Max. 15 W (Excluded)  
Protection class : II

### 2.3 Independent Operation Modess

The basic operation mode is the below,

1. Continuous playing 1 kHz audio signal by Bluetooth.
2. Light on

### 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.

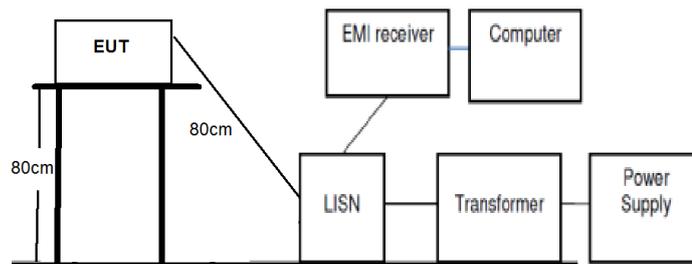
Refer to the related paragraph of this report.

The sequence of testing:

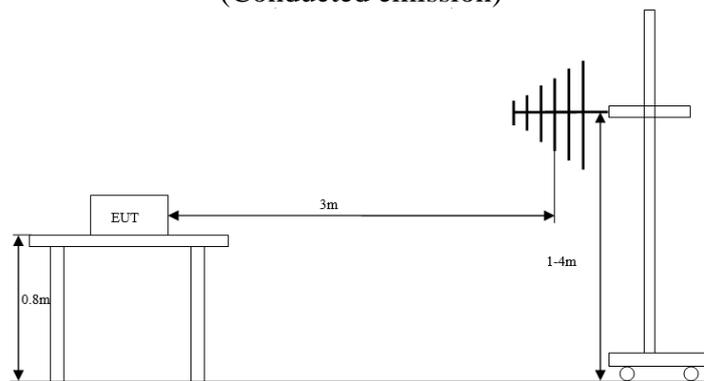
1. Radiated emission tests were performed on 2025-02-08.
2. Conducted emission tests were performed on 2025-02-08.

#### 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	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  $U_{\text{CISPR}}$  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	: 2025-02-08
Test procedure	: FCC 47 CFR Part 15, Subpart B:2023, ICES-003:2020, ICES-005:2018, 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 $\mu$ V (decrease with the logarithm of frequency); 0.5 - 5 MHz, 56 dB $\mu$ V; 5 - 30 MHz, 60 dB $\mu$ V Average limit: 0.15 - 0.5 MHz, 56 to 46 dB $\mu$ V (decrease with the logarithm of frequency); 0.5 – 5 MHz, 46 dB $\mu$ V; 5 – 30 MHz, 50 dB $\mu$ 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	: Modes 1 and 2 as defined in clause 2.3
Ambient condition	: Temperature: 20.1 °C; Relative humidity: 44.2 %
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.

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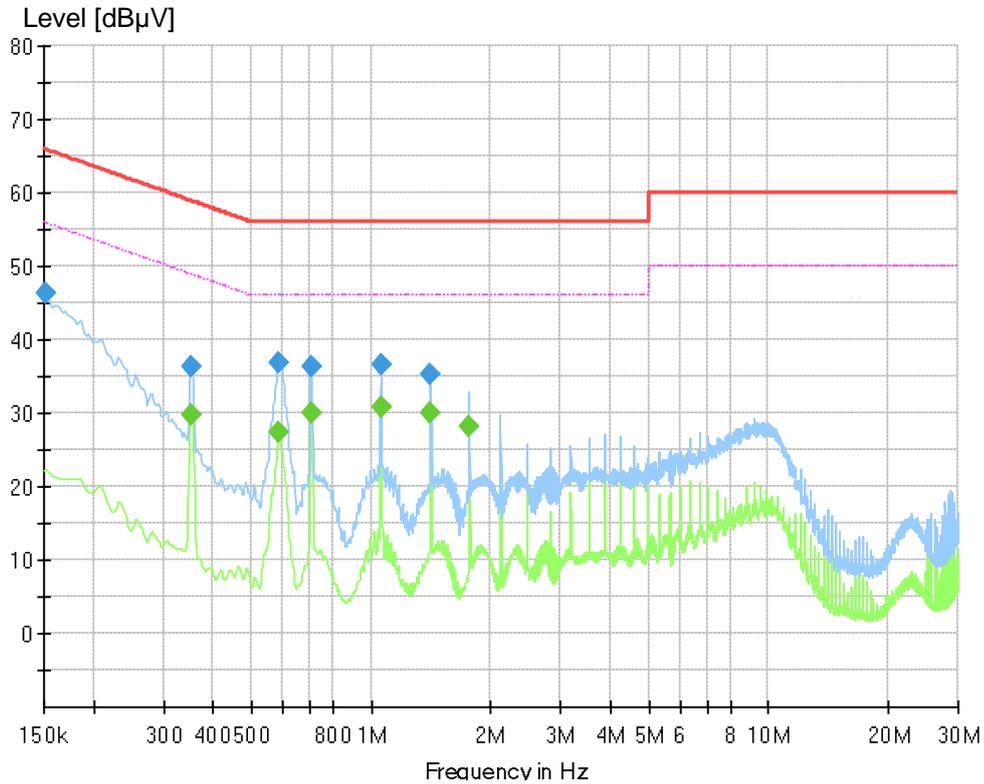
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The following figures and tables were those measured by an automatic measuring system. Both quasi-peak and average measurements were performed. In the following spectral diagram, “◆” mean Quasi-Peak Value and “◇” mean Average Value results.

Notes on following tables of conducted emission results and conversions:

Level (dB $\mu$ 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 $\mu$ V) - Level (dB $\mu$ V)

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



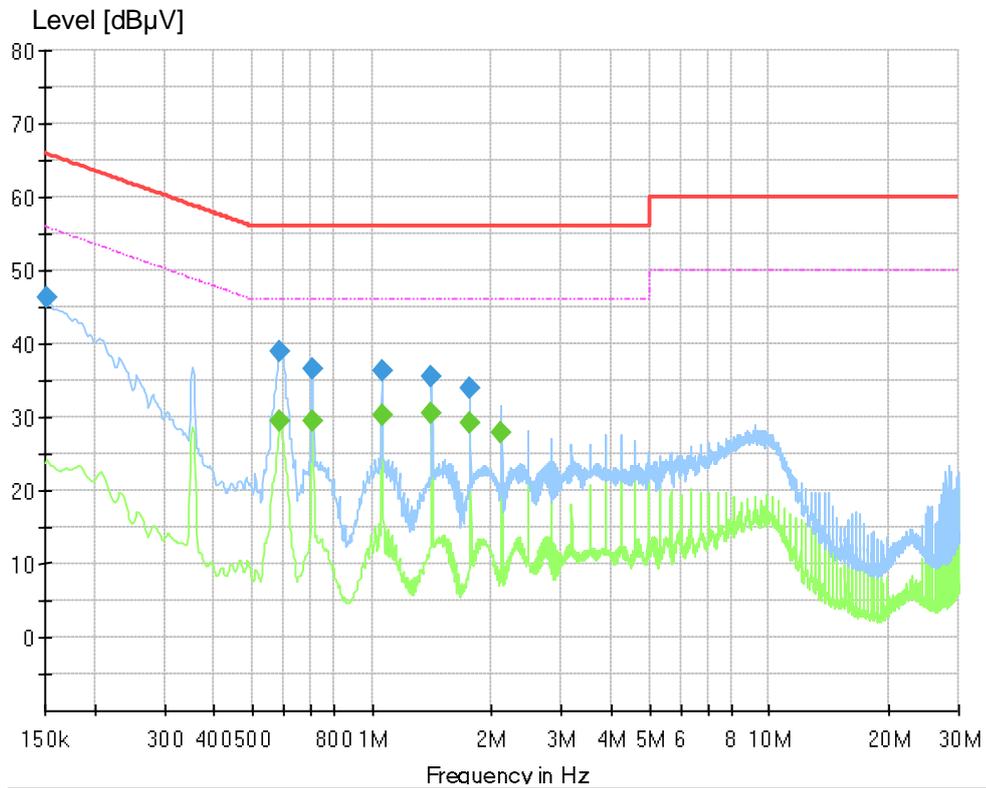
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	46.29	65.88	19.58	1000.0	9.000	L1	10.3
0.352500	36.41	58.90	22.49	1000.0	9.000	L1	10.3
0.586500	36.97	56.00	19.03	1000.0	9.000	L1	10.3
0.705750	36.30	56.00	19.70	1000.0	9.000	L1	10.3
1.059000	36.59	56.00	19.41	1000.0	9.000	L1	10.7
1.412250	35.32	56.00	20.68	1000.0	9.000	L1	10.4

Final Average measurement result:

Frequency (MHz)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.352500	29.79	48.90	19.11	1000.0	9.000	L1	10.3
0.586500	27.33	46.00	18.67	1000.0	9.000	L1	10.3
0.705750	30.03	46.00	15.97	1000.0	9.000	L1	10.3
1.059000	30.81	46.00	15.19	1000.0	9.000	L1	10.7
1.412250	30.00	46.00	16.00	1000.0	9.000	L1	10.4
1.765500	28.15	46.00	17.85	1000.0	9.000	L1	10.2

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



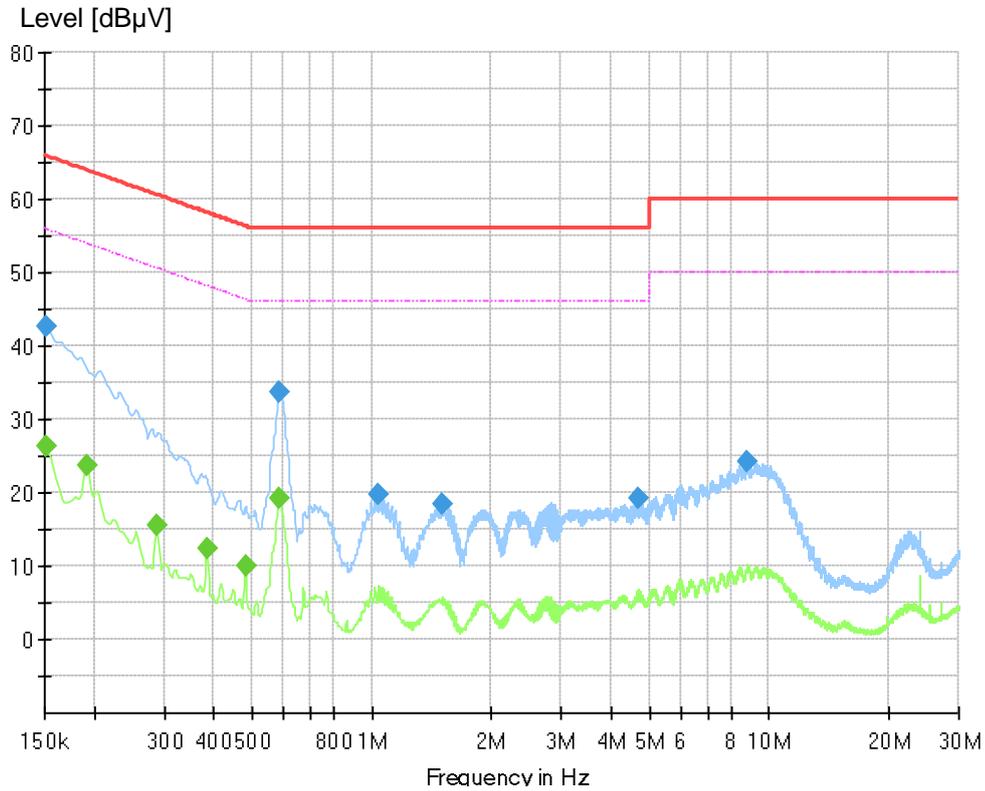
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	46.19	65.88	19.69	1000.0	9.000	N	10.2
0.586500	39.03	56.00	16.97	1000.0	9.000	N	10.3
0.705750	36.46	56.00	19.54	1000.0	9.000	N	10.4
1.059000	36.31	56.00	19.69	1000.0	9.000	N	10.4
1.412250	35.61	56.00	20.39	1000.0	9.000	N	10.4
1.765500	33.92	56.00	22.08	1000.0	9.000	N	10.5

Final Average measurement result:

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.586500	29.38	46.00	16.62	1000.0	9.000	N	10.3
0.705750	29.52	46.00	16.48	1000.0	9.000	N	10.4
1.059000	30.37	46.00	15.63	1000.0	9.000	N	10.4
1.412250	30.40	46.00	15.60	1000.0	9.000	N	10.4
1.765500	29.23	46.00	16.77	1000.0	9.000	N	10.5
2.118750	27.85	46.00	18.15	1000.0	9.000	N	10.5

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



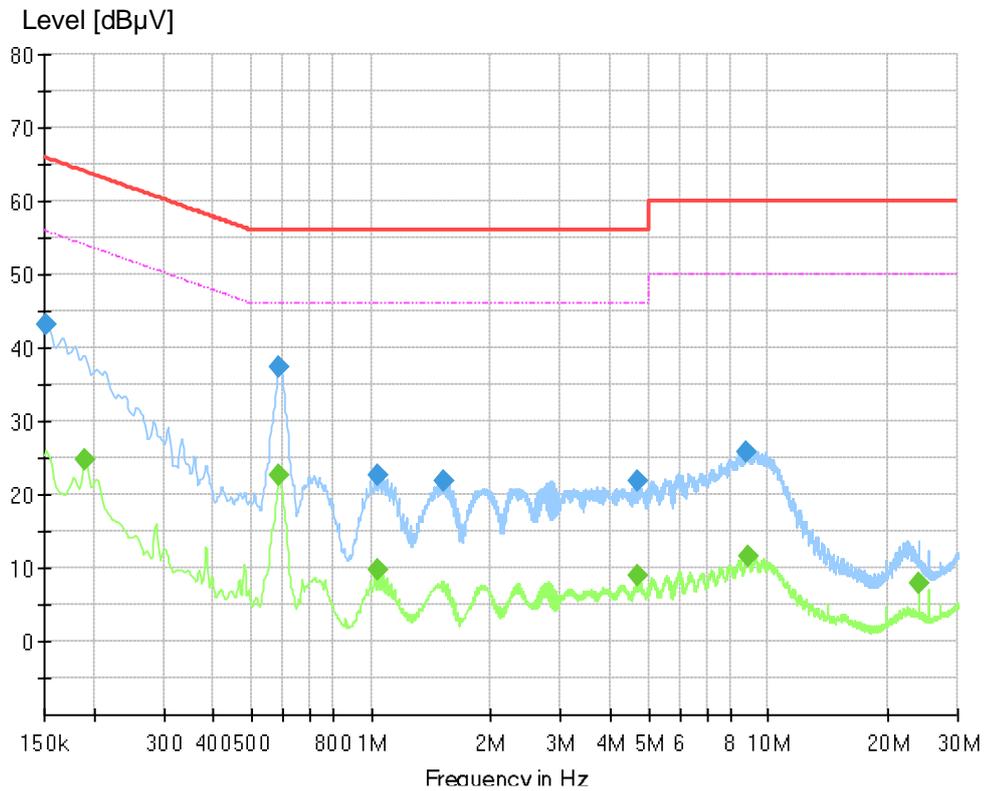
Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	42.59	65.88	23.29	1000.0	9.000	L1	10.3
0.586500	33.81	56.00	22.19	1000.0	9.000	L1	10.3
1.043250	19.61	56.00	36.39	1000.0	9.000	L1	10.7
1.500000	18.47	56.00	37.53	1000.0	9.000	L1	10.3
4.681500	19.31	56.00	36.69	1000.0	9.000	L1	10.3
8.832750	24.20	60.00	35.80	1000.0	9.000	L1	10.8

Final Average measurement result:

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	26.23	55.88	29.64	1000.0	9.000	L1	10.3
0.192750	23.78	53.92	30.14	1000.0	9.000	L1	10.3
0.287250	15.43	50.60	35.18	1000.0	9.000	L1	10.3
0.384000	12.46	48.19	35.73	1000.0	9.000	L1	10.3
0.480750	9.99	46.33	36.34	1000.0	9.000	L1	10.3
0.586500	19.32	46.00	26.68	1000.0	9.000	L1	10.3

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



Final Quasi-peak measurement result:

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152250	43.03	65.88	22.84	1000.0	9.000	N	10.2
0.586500	37.39	56.00	18.61	1000.0	9.000	N	10.3
1.043250	22.66	56.00	33.34	1000.0	9.000	N	10.4
1.524750	21.91	56.00	34.09	1000.0	9.000	N	10.4
4.706250	21.72	56.00	34.28	1000.0	9.000	N	10.7
8.835000	25.87	60.00	34.13	1000.0	9.000	N	10.9

Final Average measurement result:

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190500	24.78	54.02	29.23	1000.0	9.000	N	10.7
0.586500	22.62	46.00	23.38	1000.0	9.000	N	10.3
1.043250	9.69	46.00	36.31	1000.0	9.000	N	10.4
4.706250	8.82	46.00	37.18	1000.0	9.000	N	10.7
8.877750	11.62	50.00	38.38	1000.0	9.000	N	10.9
24.000000	7.87	50.00	42.13	1000.0	9.000	N	11.5

## 5.2 Emission in the Frequency Range above 30 MHz

### 5.2.1 Radiated emission (30 MHz - 1 GHz)

<b>Result:</b>	<b>Passed</b>
----------------	---------------

Date of testing	: 2025-02-08
Test procedure	: FCC 47 CFR Part 15, Subpart B:2023, ICES-003:2020, ICES-005:2018, ANSI C63.4-2014 and CISPR 16-2-3
Frequency range	: 30 – 1000 MHz
Limits	: Quasi-peak limits (3 m distance): 30 – 88 MHz, 40 dB $\mu$ V/m; 88 – 216 MHz, 43.5 dB $\mu$ V/m; 216 – 1000 MHz, 46 dB $\mu$ V/m (see Note 1)
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	: Modes 1 and 2 as defined in clause 2.3
Input voltage	: AC 120 V; 60 Hz
Ambient condition	: Temperature: 20.1 °C; Relative humidity: 43.1 %
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.

*Note 1: The class B limits of ICES-005:2018 is stricter than those ICES-003:2020 and FCC 47 CFR Part 15, Subpart B:2023 for 3 m test distance. Therefore, the former limits are used in following figures and tables.*

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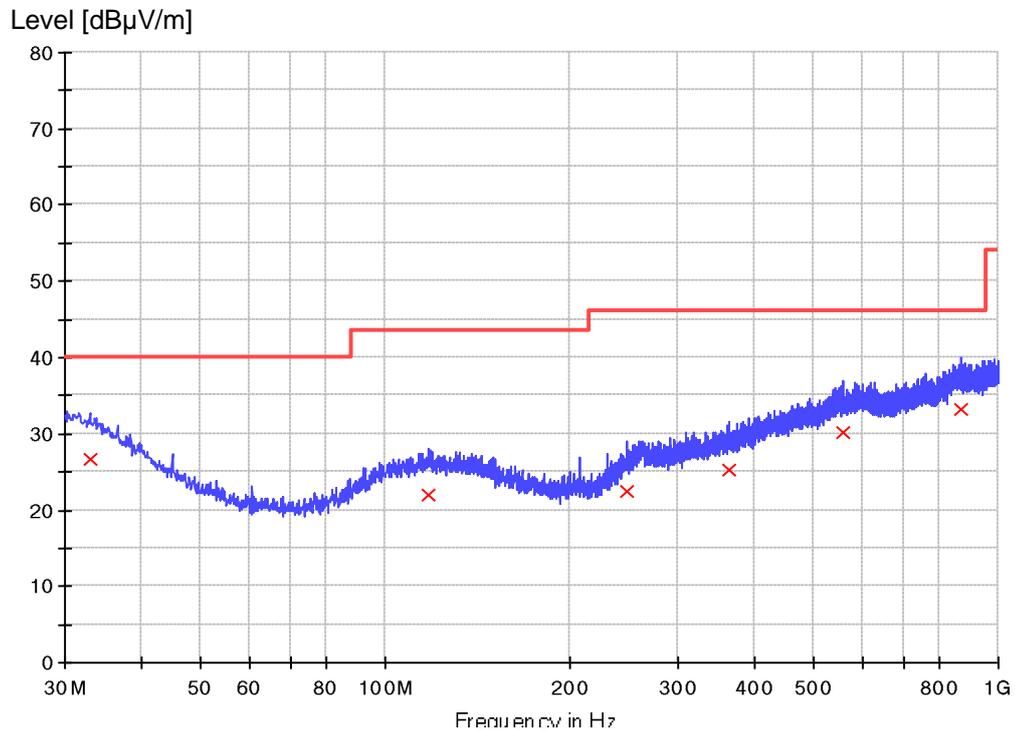
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Notes on following tables of radiated emission results and conversions:

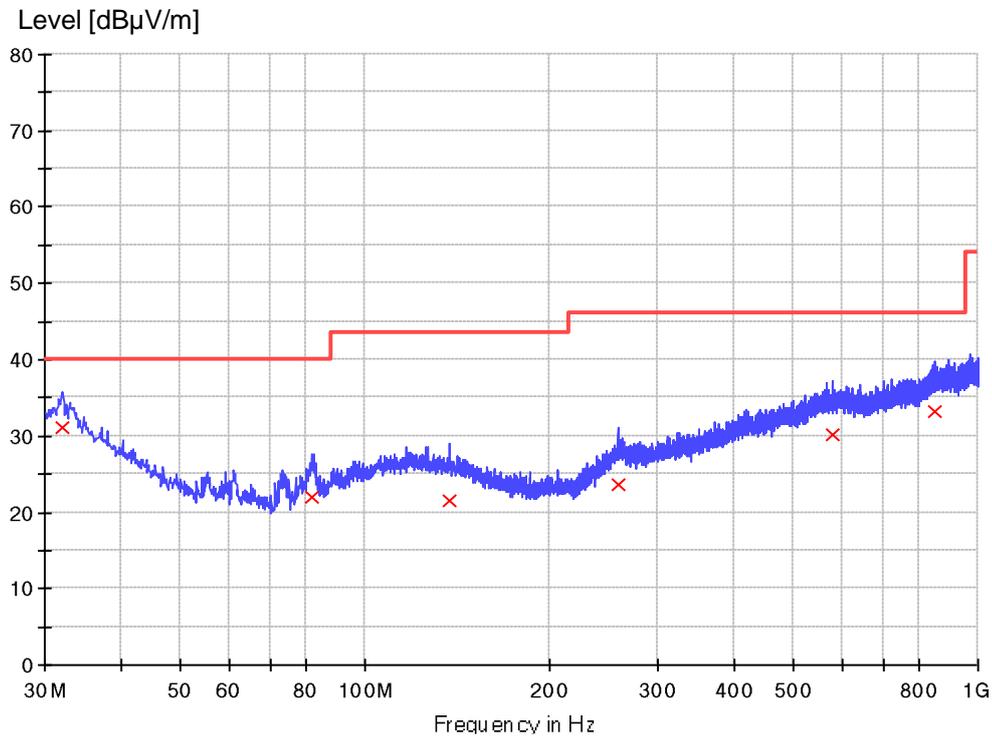
QuasiPeak (dB $\mu$ V/m): final measurement results by using quasi-peak detector

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

Margin: Limit (dB $\mu$ V/m) - QuasiPeak (dB $\mu$ V/m)

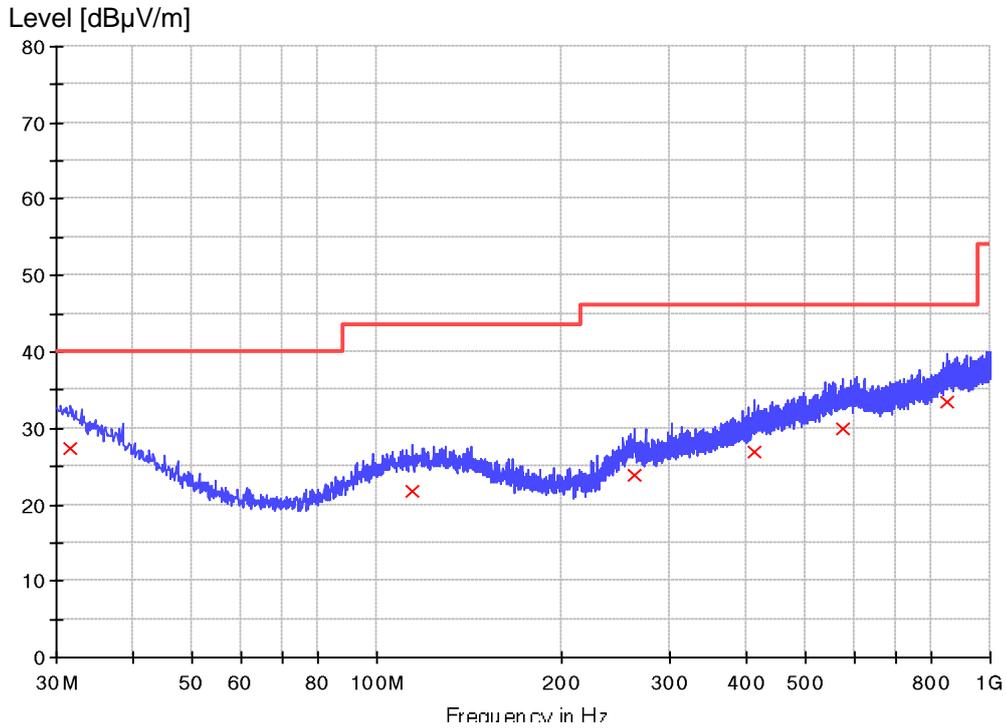
**Figure 5: Spectral Diagrams and measurement results, 30 MHz to 1 GHz, horizontal polarization, mode 1**

**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/)
32.910000	26.7	1000.0	120.000	100.0	H	-52.0	23.5	13.3	40.0
117.421250	21.9	1000.0	120.000	130.0	H	157.0	18.9	21.6	43.5
248.007500	22.3	1000.0	120.000	130.0	H	-137.0	19.3	23.7	46.0
364.650000	25.2	1000.0	120.000	140.0	H	5.0	22.0	20.8	46.0
559.498750	30.1	1000.0	120.000	110.0	H	-178.0	26.6	15.9	46.0
867.231250	33.3	1000.0	120.000	150.0	H	-111.0	28.7	12.7	46.0

**Figure 6: Spectral Diagrams and measurement results, 30 MHz to 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/)
32.061250	31.1	1000.0	120.000	110.0	V	-76.0	23.8	8.9	40.0
81.895000	22.0	1000.0	120.000	130.0	V	25.0	14.1	18.0	40.0
137.306250	21.5	1000.0	120.000	150.0	V	-176.0	18.3	22.1	43.5
258.071250	23.7	1000.0	120.000	110.0	V	-98.0	20.6	22.3	46.0
580.475000	30.3	1000.0	120.000	130.0	V	137.0	26.5	15.8	46.0
847.225000	33.3	1000.0	120.000	110.0	V	-52.0	28.9	12.7	46.0

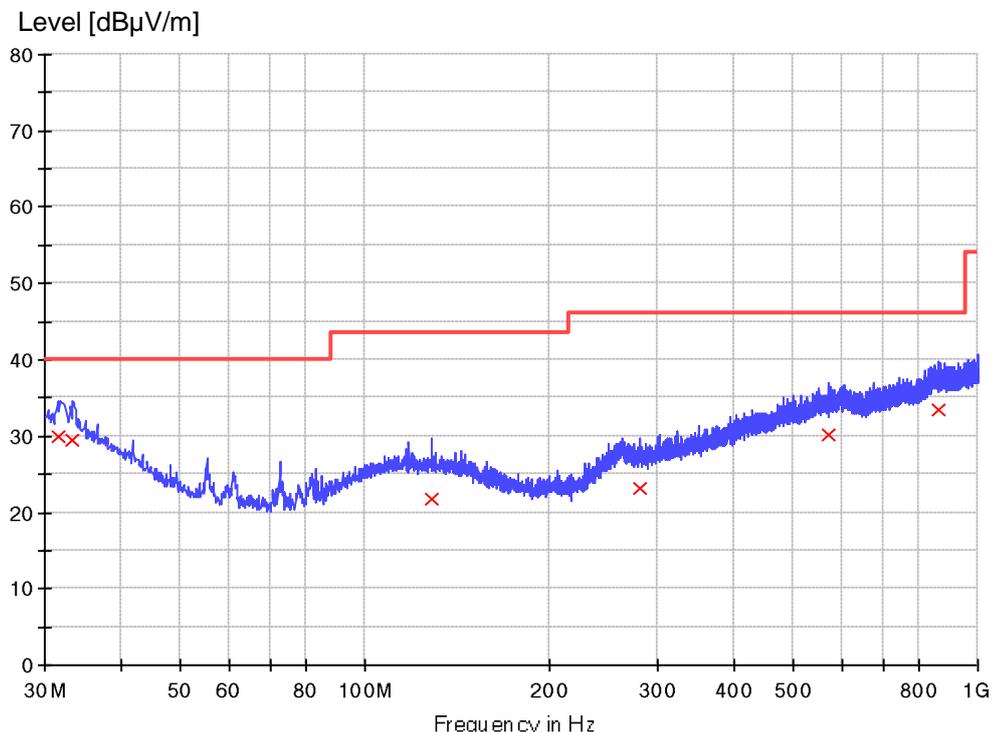
**Figure 7: Spectral Diagrams and measurement results, 30 MHz to 1 GHz, horizontal polarization, mode 2**



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/)
31.697500	27.4	1000.0	120.000	150.0	H	169.0	24.0	12.6	40.0
114.268750	21.8	1000.0	120.000	110.0	H	62.0	18.8	21.7	43.5
262.436250	23.9	1000.0	120.000	130.0	H	6.0	20.9	22.1	46.0
413.756250	27.0	1000.0	120.000	120.0	H	-26.0	23.8	19.1	46.0
573.685000	30.0	1000.0	120.000	120.0	H	68.0	26.4	16.0	46.0
849.528750	33.4	1000.0	120.000	120.0	H	-176.0	29.0	12.7	46.0

**Figure 8: Spectral Diagrams and measurement results, 30 MHz to 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/)
31.576250	29.9	1000.0	120.000	100.0	V	43.0	24.1	10.1	40.0
33.273750	29.6	1000.0	120.000	110.0	V	-37.0	23.3	10.4	40.0
128.333750	21.8	1000.0	120.000	150.0	V	140.0	18.7	21.7	43.5
280.138750	23.1	1000.0	120.000	110.0	V	88.0	20.0	22.9	46.0
570.411250	30.1	1000.0	120.000	110.0	V	-147.0	26.4	15.9	46.0
862.260000	33.4	1000.0	120.000	130.0	V	101.0	28.8	12.6	46.0

### 5.2.2 Radiated emission (Above 1 GHz)

<b>Result:</b>	<b>Passed</b>
----------------	---------------

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 $\mu$ V/m; Average limit: 54 dB $\mu$ 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 1 as defined in clause 2.3
Input voltage	: AC 120 V; 60 Hz
Earthing	: No earthing
Ambient condition	: Temperature: 20.1 °C; Relative humidity: 43.1 %
Expanded measurement uncertainty ( $k=2$ )	: 5.08 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 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, “x(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 $\mu$ V/m): final measurement results by using peak detector
- Average (dB $\mu$ 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)

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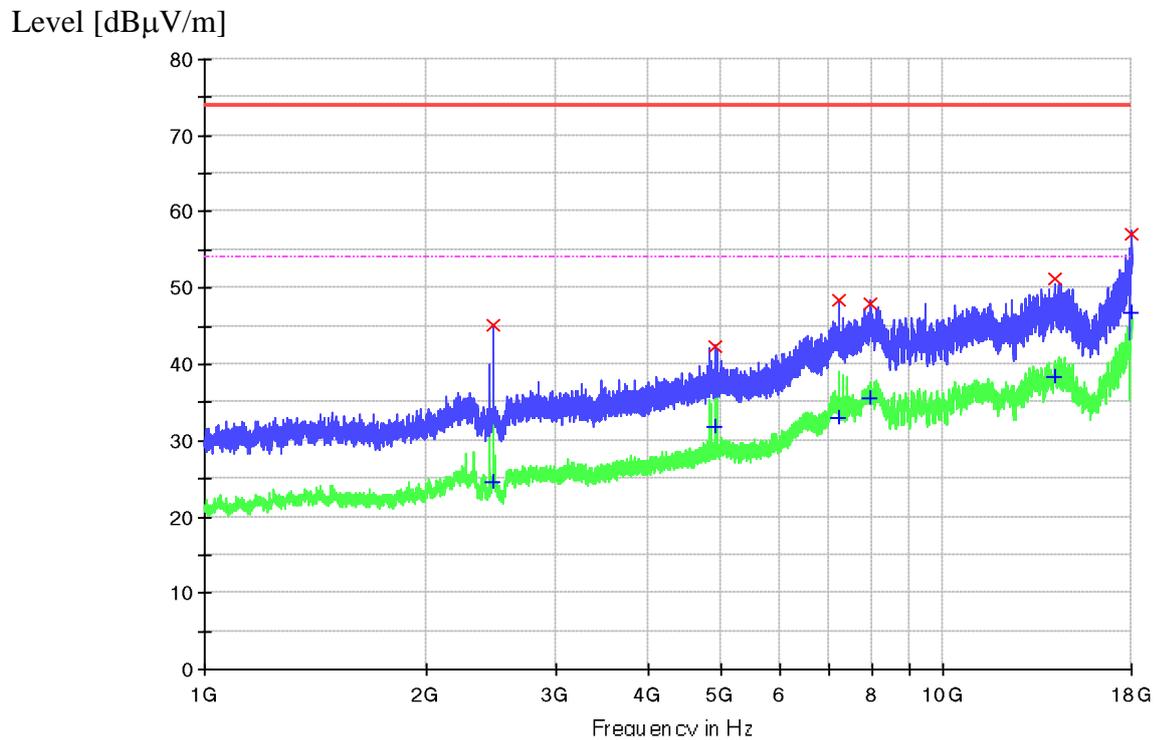
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Margin: Limit PK (dB $\mu$ V/m) - Peak (dB $\mu$ V/m)  
Limit CAV (dB $\mu$ V/m) – Average (dB $\mu$ V/m)

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



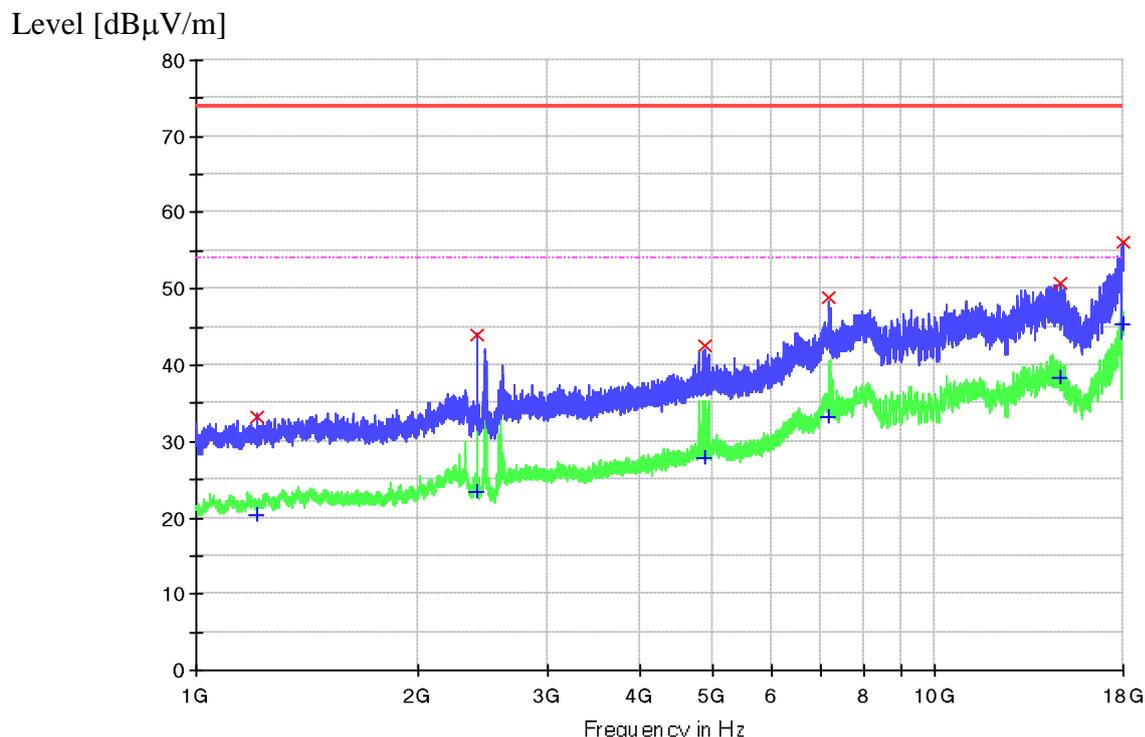
Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
2463.062500	45.2	1000.000	100.0	H	139.0	-16.2	28.8	74.0
4925.937500	42.3	1000.000	120.0	H	72.0	-11.2	31.7	74.0
7237.937500	48.4	1000.000	140.0	H	26.0	-6.3	25.6	74.0
7981.156250	48.0	1000.000	150.0	H	-1.0	-3.6	26.0	74.0
14205.281250	51.3	1000.000	140.0	H	166.0	1.5	22.7	74.0
17976.093750	57.0	1000.000	110.0	H	-49.0	12.0	17.0	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
2463.062500	24.5	1000.000	100.0	H	139.0	-16.2	29.6	54.0
4925.937500	31.9	1000.000	120.0	H	72.0	-11.2	22.2	54.0
7237.937500	33.0	1000.000	140.0	H	26.0	-6.3	21.1	54.0
7981.156250	35.5	1000.000	150.0	H	-1.0	-3.6	18.5	54.0
14205.281250	38.5	1000.000	140.0	H	166.0	1.5	15.5	54.0
17976.093750	46.8	1000.000	110.0	H	-49.0	12.0	7.2	54.0

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



Final Peak measurement results:

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1207.187500	33.1	1000.000	120.0	V	-58.0	-19.7	40.9	74.0
2404.625000	44.1	1000.000	150.0	V	-126.0	-16.0	29.9	74.0
4880.250000	42.5	1000.000	150.0	V	119.0	-11.3	31.5	74.0
7205.000000	49.0	1000.000	140.0	V	-12.0	-6.1	25.0	74.0
14773.718750	50.8	1000.000	140.0	V	-114.0	1.6	23.2	74.0
17993.093750	56.2	1000.000	100.0	V	-128.0	12.3	17.8	74.0

Final Average measurement results:

Frequency (MHz)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1207.187500	20.4	1000.000	120.0	V	-58.0	-19.7	33.6	54.0
2404.625000	23.4	1000.000	150.0	V	-126.0	-16.0	30.6	54.0
4880.250000	27.9	1000.000	150.0	V	119.0	-11.3	26.1	54.0
7205.000000	33.1	1000.000	140.0	V	-12.0	-6.1	20.9	54.0
14773.718750	38.3	1000.000	140.0	V	-114.0	1.6	15.7	54.0
17993.093750	45.3	1000.000	100.0	V	-128.0	12.3	8.7	54.0

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## **6 Photographs of the Test Set-Up**

Refer to the test setup file.

## 7 List of Test and Measurement Instruments

Equip.	Description	Model	Manufacturer	Last Date DD.MM.YYYY	Due Date DD.MM.YYYY
9061503	Shielded enclosure	10.055x3.605x3.000	Frankonia	08.11.2023	08.11.2028
9023229	EMI test receiver	ESR3	Rohde&Schwarz	03.08.2024	03.08.2025
G1830003	Artificial mains network	ENV432	Rohde&Schwarz	11.10.2024	11.10.2025
G1824248	Dual display multimeter	F45	Fluke	28.06.2024	28.06.2025
9062744	EMI measurement software	EMC32-E+ (10.60.20)	Rohde&Schwarz	NA*	NA*
G1811378	3m semi-anechoic chamber	SAC3	Frankonia	03.12.2023	03.12.2026
G1811391	EMI test receiver	ESCI	Rohde&Schwarz	17.10.2024	17.10.2025
G1811425	Bilog antenna	CBL 6112D	Teseq	20.04.2023	20.04.2026
9062745	EMI measurement software	EMC32-MEB (10.60.20)	Rohde&Schwarz	NA*	NA*
9042162	EMI test receiver	ESR7	Rohde&Schwarz	21.01.2025	21.01.2026
9053499	Signal conditioning unit	SCU18F	Rohde & Schwarz	11.10.2024	11.10.2025
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	15.07.2024	15.07.2025
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	24.07.2024	24.07.2025
G1822694	Double ridged broadband horn antenna	BBHA 9120 D	Schwarzbeck	24.03.2021	24.03.2026

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**End of test report**