

Prüfbericht-Nr.: Test report no.:	CN24CQ2B 001	Auftrags-Nr.: Order no.:	180304217	Seite 1 von 20 Page 1 of 20
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024.09.02	
Auftraggeber: Client:	Loctek Ergonomic Technology Corp. 588 Qihang South Road Binhai Industrial Zone Yinzhou District, Ningbo, Zhejiang, China			
Prüfgegenstand: Test item:	Millimeter wave radar module			
Bezeichnung / Typ-Nr.: Identification / Type no.:	BPS-MMW-xx (xx: 01-99, represents different shell size and color)			
Auftrags-Inhalt: Order content:	TÜV Rheinland – FCC Service			
Prüfgrundlage: Test specification:	FCC Part 15.203 FCC Part 15.215 FCC Part 15.249			
Wareneingangsdatum: Date of sample receipt:	2024.10.22	Refer to Photo Documentation		
Prüfmuster-Nr.: Test sample no.:	A003734448-008			
Prüfzeitraum: Testing period:	2024.11.04 - 2024.12.21			
Ort der Prüfung: Place of testing:	Refer to section 1.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	genehmigt von: authorized by:			
Datum: Date:	2025.02.05	Ausstelldatum: Issue date:	2025.02.05	
Stellung / Position:	Keda Zhou/PE	Stellung / Position:	Chonghai Liang/Authorizer	
Sonstiges / Other:	FCC ID: 2ARK8-BPSMMW02			
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 specification(s)	F(ail) = failed a.m. test specification(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. <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>				

Prüfbericht-Nr.: CN24CQ2B 001
Test report no.:

Seite 2 von 20
Page 2 of 20

Anmerkungen Remarks

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.

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.

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

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

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.

*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.

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.

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.

Prüfbericht - Nr.: CN24CQ2B 001
Test Report No.:

Seite 3 von 20
Page 3 of 20

Test Summary

4.1.1 ANTENNA REQUIREMENT

Result:

Pass

4.1.2 20dB EMISSION BANDWIDTH

Result:

Pass

4.1.3 FIELD STRENGTH OF FUNDAMENTAL AND HARMONICS, RADIATED EMISSIONS

Result:

Pass

4.1.4 CONDUCTED EMISSION (AC POWER-LINE)

Result:

N/A

Contents

1. TEST SITES	5
1.1 TEST FACILITIES.....	5
1.2 LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
1.3 UNCERTAINTY OF MEASUREMENT	6
2. GENERAL PRODUCT INFORMATION.....	7
2.1 PRODUCT FUNCTION AND INTENDED USE	7
2.2 RATINGS AND SYSTEM DETAILS	7
2.3 INDEPENDENT OPERATION MODES	7
2.4 NOISE GENERATING AND NOISE SUPPRESSING PARTS	7
2.5 SUBMITTED DOCUMENTS	7
3. TEST SET-UP AND OPERATION MODES	8
3.1 PRINCIPLE OF CONFIGURATION SELECTION	8
3.2 TEST OPERATION AND TEST SOFTWARE	8
3.3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	8
3.4 COUNTERMEASURES TO ACHIEVE ERM COMPLIANCE.....	8
3.5 TEST SET-UP.....	9
4. TEST RESULTS	11
4.1 TRANSMITTER REQUIREMENT & TEST SUITES	11
4.1.1 Antenna Requirement.....	11
4.1.2 20dB Emission Bandwidth	12
4.1.3 Field strength of fundamental and harmonics, Radiated Emissions	14
4.1.4 Conducted Emission (AC power-line).....	19
5. LIST OF TABLES	20
6. LIST OF FIGURES	20

Prüfbericht - Nr.: CN24CQ2B 001
Test Report No.:

Seite 5 von 20
Page 5 of 20

1. Test Sites

1.1 Test Facilities

Laboratory A: TÜV Rheinland /CCIC (Ningbo) Co., Ltd.

1st Floor, Building 11, Scholar Innovation Park, No.1188 Zhongguan Road, Zhenhai District, Ningbo 315200 P.R. China

FCC Designation Number: CN1237

FCC Test Firm Registration Number: 647754

IC Company Number: 24297

CAB identifier: CN0047

Laboratory B: MRT Technology (Suzhou) Co., Ltd

D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China.

FCC Designation Number: CN1166

The used test equipment is in accordance with CISPR 16-1 series standards.

The test item of Radiated Emissions above 40GHz was performed in Laboratory B. The other test items were performed in Laboratory A.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment, Laboratory A

Kind of Equipment	Type	Serial No.	Last cal. date	Cal. due date
EMI test receiver	ESR7	101929	2024.10.23	2025.10.22
Spectrum analyzer	FSV40	101412	2024.10.23	2025.10.22
Bilog Antenna	CBL6112D	49033	2024.03.17	2027.03.16
Horn antenna	HF907	102653	2023.07.20	2026.07.19
Pre-amplifier	SCU-18F	180051	2024.10.23	2025.10.22
Broad-Band Horn Antenna	BBHA 9170	899	2024.01.05	2027.01.04
Pre-amplifier	LNPA_1840G-50	SK2021040801	2024.10.28	2025.10.27

Table 2: List of Test and Measurement Equipment, Laboratory B

Kind of Equipment	Type	Serial No.	Last cal. date	Cal. due date
Waveguide Harmonic Mixer	M1970V	MRTSUE06271	2022.09.23	2025.09.22
Waveguide Harmonic Mixer	M1970W	MRTSUE06272	2022.09.30	2025.09.29
mmWave Antenna	261U-25/383	MRTSUE06273	N/A	N/A

Prüfbericht - Nr.: CN24CQ2B 001

Test Report No.:

Seite 6 von 20

Page 6 of 20

Kind of Equipment	Type	Serial No.	Last cal. date	Cal. due date
Signal Analyzer	N9030B	MRTSUE06395	2022.06.22	2025.06.21
mmWave Antenna	LB-15-25-A	MRTSUE06409	N/A	N/A
mmWave Antenna	LB-10-25-A	MRTSUE06410	N/A	N/A
V-band Low Noise Amplifier	TMLA-050075-3350-15	MRTSUE07226	2024.12.07	2025.12.06

1.3 Uncertainty of Measurement

Table 3: Measurement Uncertainty, Laboratory A

Test Item	Expanded Measurement Uncertainty (k=2)
Conducted Emission (9-150kHz)	3.70dB
Conducted Emission (150k-30MHz)	3.30dB
Radiated Emission (30-1000MHz)	4.39dB
Radiated Emission (1-18GHz)	4.67dB
Radiated Emission (18-40GHz)	4.75dB

Table 4: Measurement Uncertainty, Laboratory B

Test Item	Expanded Measurement Uncertainty (k=2)
Radiated Emission (40-50GHz)	3.96dB
Radiated Emission (50-75GHz)	4.01dB
Radiated Emission (75-110GHz)	3.99dB

2. General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a Millimeter wave radar module operating at 24.0 – 24.25GHz.

For more detail information, refer to the user's manual.

2.2 Ratings and System Details

Table 5: General Description of EUT

General Description of EUT	
FCC ID:	2ARK8-BPSMMW02
Rated Voltage:	DC 33V
Protection Class:	Class III
Technical Specification of SRD (24GHz)	
Operating Frequency band	24.0 – 24.25GHz
Modulation	FMCW
Antenna Type	PCB Antenna
Antenna Gain	9 dBi

2.3 Independent Operation Modes

There are some modes:

Mode A: Transmitting on Operating Frequency Band: 24.0 – 24.25GHz

Mode B: 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, Schematics, PCB Layout, Label, User Manual etc.

3. Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

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.

3.2 Test Operation and Test Software

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power was selected according to the instruction given by the manufacturer. The setting of the RF output power expected by the customer shall be fixed on the firmware of the final end product.

All testing were performed according to the procedures in ANSI C63.10: 2013.

Test Software EMC32 V10.30 was used in the radiated emission test.

More details refer to the related paragraph of this report.

3.3 Special Accessories and Auxiliary Equipment

None.

3.4 Countermeasures to Achieve ERM Compliance

The test sample which has been tested contained the noise suppression parts as described in the Circuit Diagram. No additional measures were employed to achieve compliance.

3.5 Test set-up

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

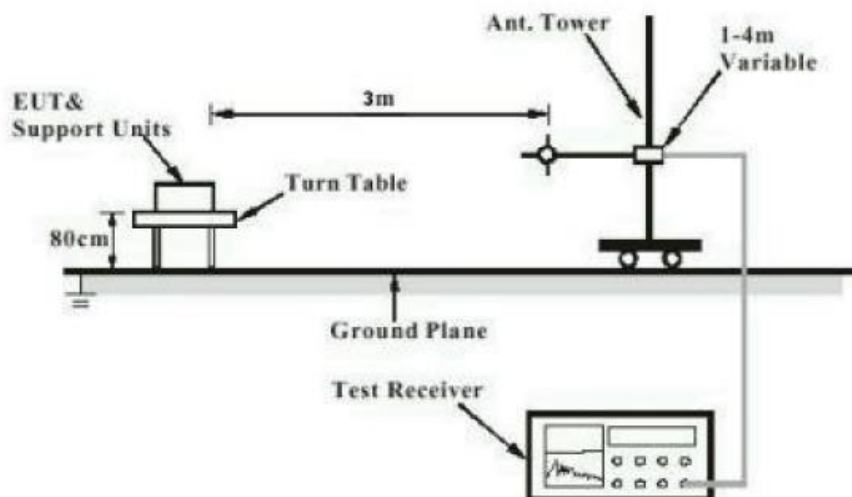


Diagram of Measurement Configuration for Radiation Test (1GHz – 40GHz)

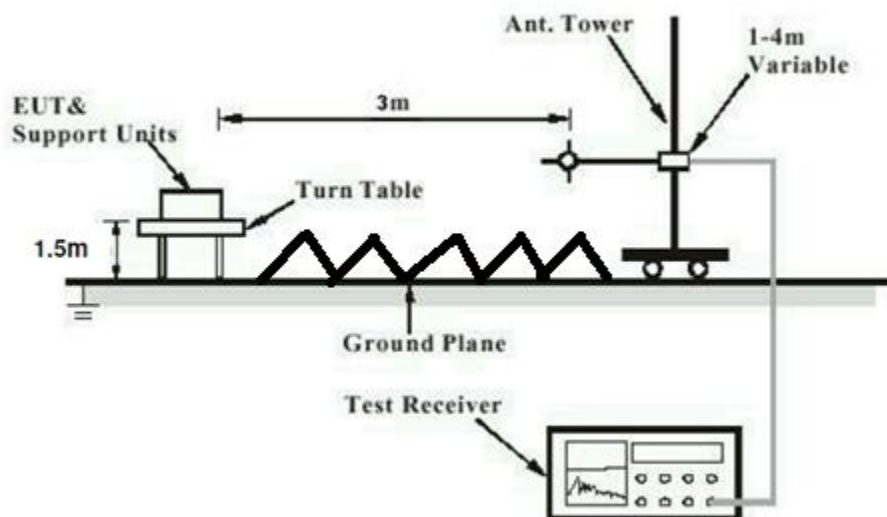


Diagram of Measurement Configuration for Radiation Test (40GHz – 50GHz)

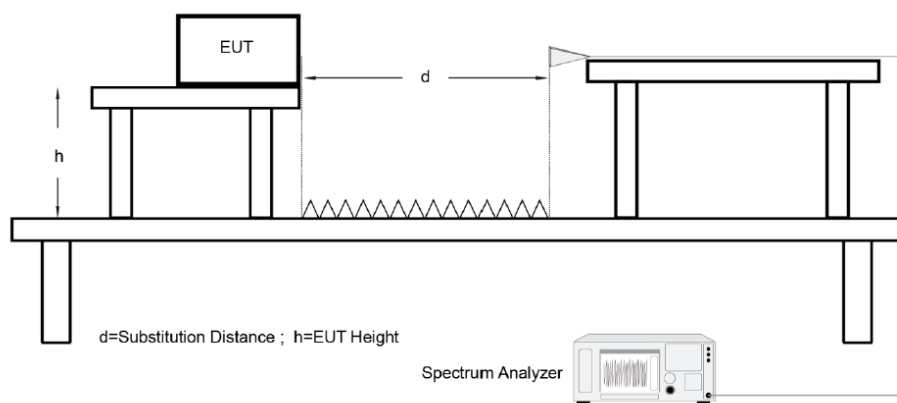


Diagram of Measurement Configuration for Radiation Test (Above 50GHz)

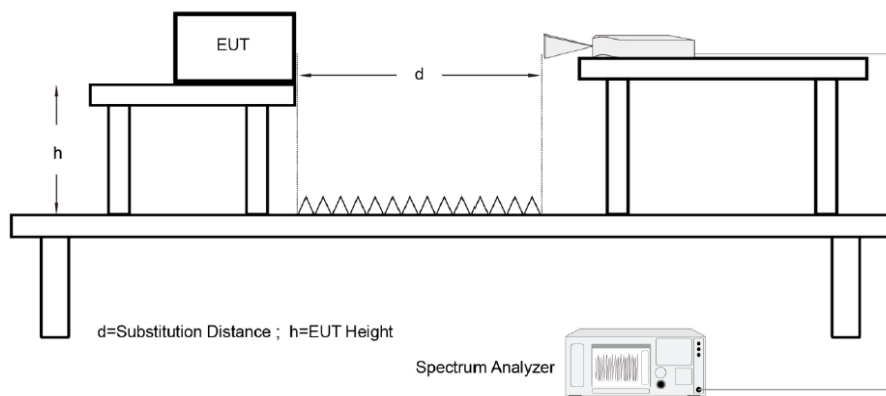
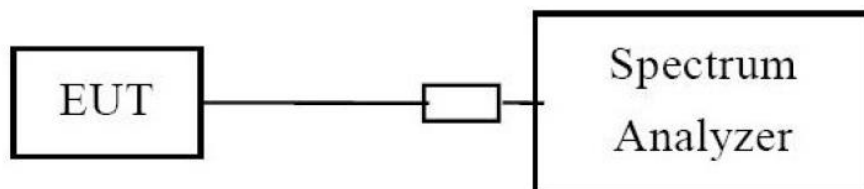


Diagram of Measurement Configuration for Conducted Transmitter Measurement



4. Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

Result:

Pass

Test Specification

Test standard

Limit

: FCC Part 15.203

: The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator

According to the manufacturer declared, the EUT has an integral antenna (PCB antenna, Peak Gain: 9 dBi), and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore, the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

4.1.2 20dB Emission Bandwidth

Result:

Pass

Test Specification

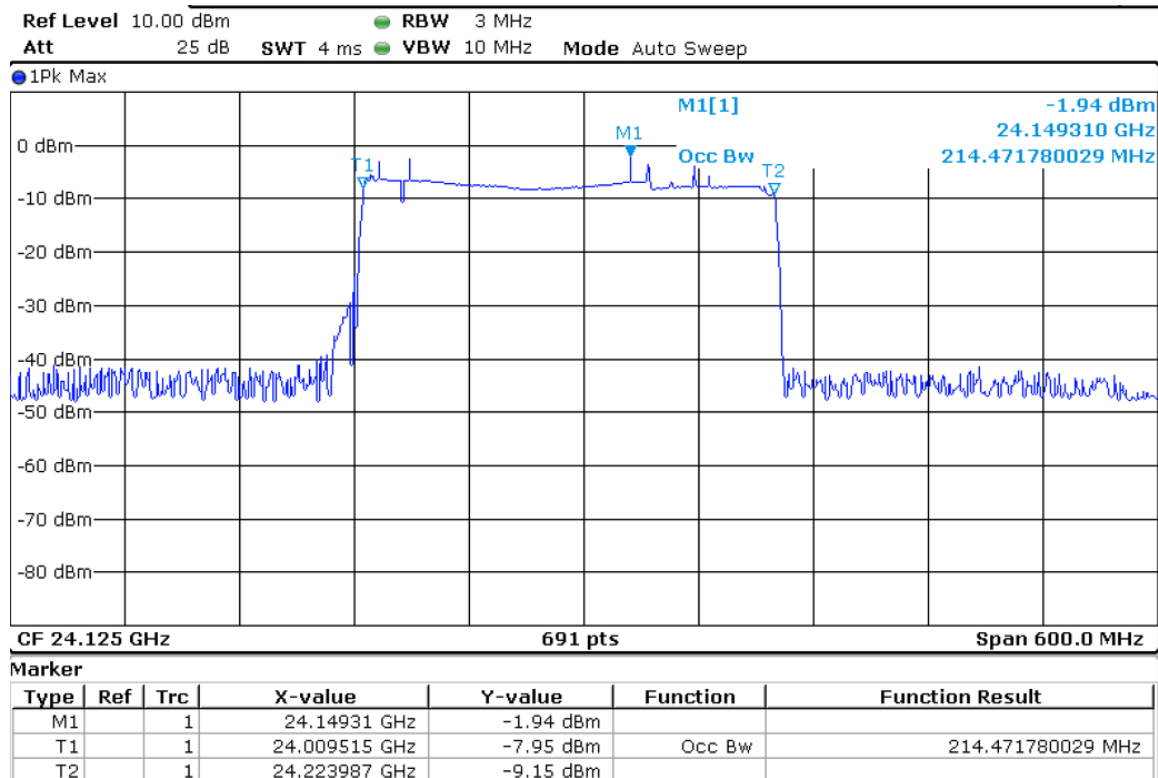
Test standard : FCC Part 15.215
Basic standard : ANSI C63.10: 2013
Test requirement : FCC Part 15.215 (c)
Limit : FCC Part 15.215 (c)
Test suite : 3m Semi Anechoic Room

Test Setup

Date of testing : 2024.11.22
Test environment : Normal test conditions
Operational mode : Mode A
Temperature : 23°C
Relative humidity : 56%
Atmospheric pressure : 101.2 kPa

Figure 1: Test Results of 99% Occupied Bandwidth

Bandwidth (MHz)	F _l (GHz)	F _h (GHz)	Limit (GHz)
214.47	24.009515	24.223987	N/A

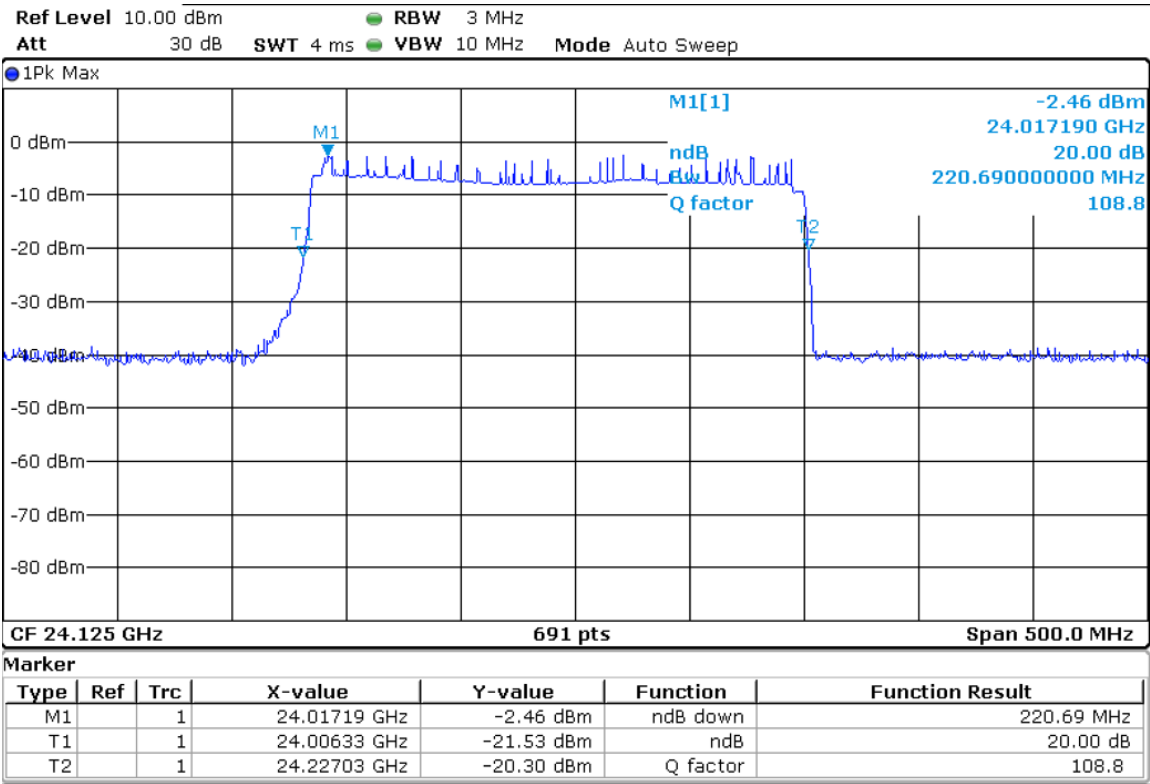


Prüfbericht - Nr.: CN24CQ2B 001
 Test Report No.:

Seite 13 von 20
 Page 13 of 20

Figure 2: Test Results of 20dB Emission Bandwidth

Bandwidth (MHz)	F _l (GHz)	F _h (GHz)	Limit (GHz)
220.69	24.00633	24.22703	≥24.0, ≤24.25



Prüfbericht - Nr.: CN24CQ2B 001

Test Report No.:

Seite 14 von 20

Page 14 of 20

4.1.3 Field strength of fundamental and harmonics, Radiated Emissions

Result:

Pass

Test Specification

Test standard

: FCC Part 15.249

FCC Part 15.205

FCC Part 15.209

Basic standard

: ANSI C63.10: 2013

Test requirement

: FCC Part 15.205 (a)

FCC Part 15.249 (a)(d)

Limits

: FCC Part 15.205 (b)

FCC Part 15.209 (a)

FCC Part 15.249 (a)

Test suite

: 3m Semi Anechoic Room

Test Setup

Date of testing

: 2024.11.15 - 2024.11.27

Test environment

: Normal test conditions

Operational mode

: Mode A

Temperature

: 21°C

Relative humidity

: 68%

Atmospheric pressure

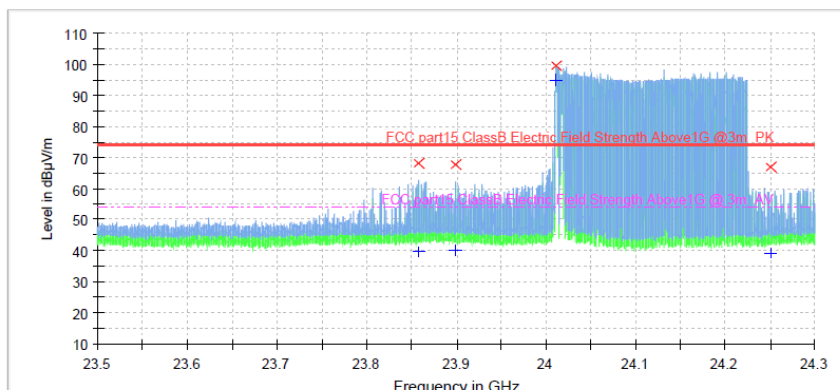
: 101.2 kPa

Table 6: Test Result of Field strength of fundamental

Mode	Field strength (dBuV/m)	Polarization	Detector	Limit (dBuV/m)	Verdict
A	99.5	Horizontal	Peak	≤127.96	Pass
	95.0	Horizontal	Average	≤107.96	Pass
	92.3	Vertical	Peak	≤127.96	Pass
	72.6	Vertical	Average	≤107.96	Pass

Figure 3: Spectral Diagrams, Restricted frequency bands

Horizontal



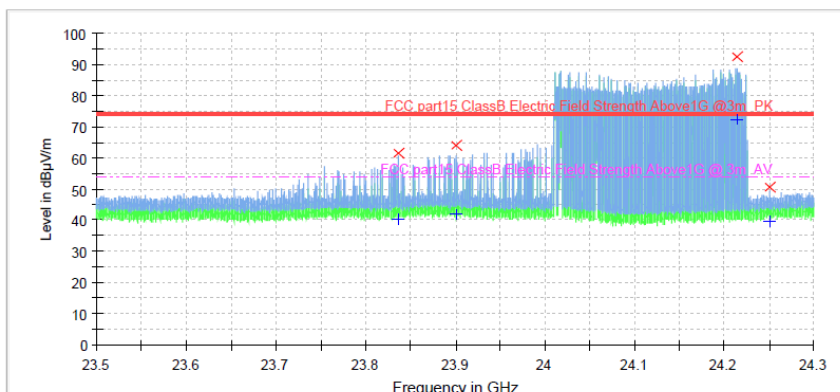
Limit and Margin-PK

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
23857.575000	68.3	1000.0	1000.000	150.0	H	0.0	-4.8	5.7	74.0
23899.175000	67.9	1000.0	1000.000	150.0	H	0.0	-4.8	6.1	74.0
24012.125000	99.5	1000.0	1000.000	150.0	H	0.0	-4.7	-25.5	74.0
24250.000000	67.0	1000.0	1000.000	150.0	H	0.0	-4.8	7.0	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23857.575000	39.9	1000.0	1000.000	150.0	H	0.0	-4.8	14.2	54.0
23899.175000	40.0	1000.0	1000.000	150.0	H	0.0	-4.8	14.0	54.0
24012.125000	95.0	1000.0	1000.000	150.0	H	0.0	-4.7	-41.0	54.0
24250.000000	39.1	1000.0	1000.000	150.0	H	0.0	-4.8	14.9	54.0

Vertical



Limit and Margin-PK

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
23836.525000	61.4	1000.0	1000.000	150.0	V	0.0	-4.8	12.6	74.0
23900.000000	63.8	1000.0	1000.000	150.0	V	0.0	-4.8	10.2	74.0
24214.950000	92.3	1000.0	1000.000	150.0	V	0.0	-4.8	-18.3	74.0
24250.000000	50.5	1000.0	1000.000	150.0	V	0.0	-4.8	23.5	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
23836.525000	40.2	1000.0	1000.000	150.0	V	0.0	-4.8	13.8	54.0
23900.000000	41.7	1000.0	1000.000	150.0	V	0.0	-4.8	12.4	54.0
24214.950000	72.6	1000.0	1000.000	150.0	V	0.0	-4.8	-18.6	54.0
24250.000000	39.9	1000.0	1000.000	150.0	V	0.0	-4.8	14.1	54.0

Prüfbericht - Nr.: CN24CQ2B 001

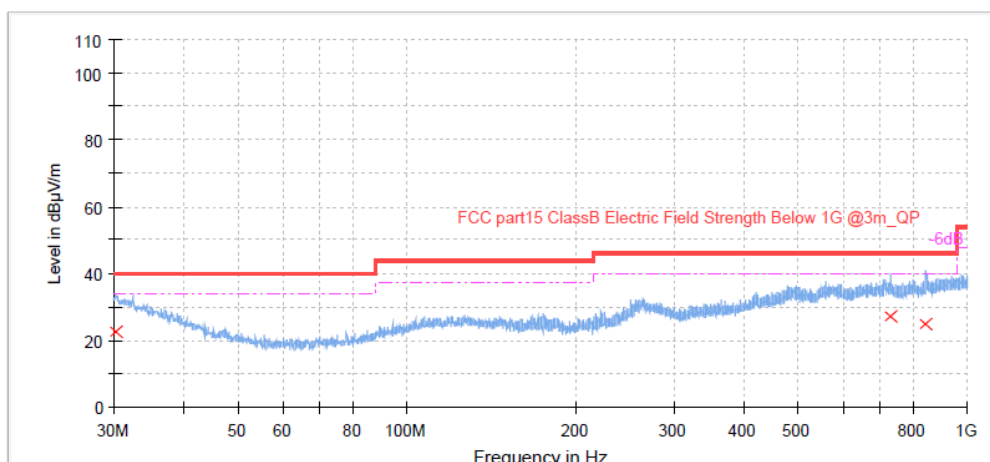
Test Report No.:

Seite 16 von 20

Page 16 of 20

Figure 4: Spectral Diagrams, Radiated Spurious Emission, 30MHz-1000MHz

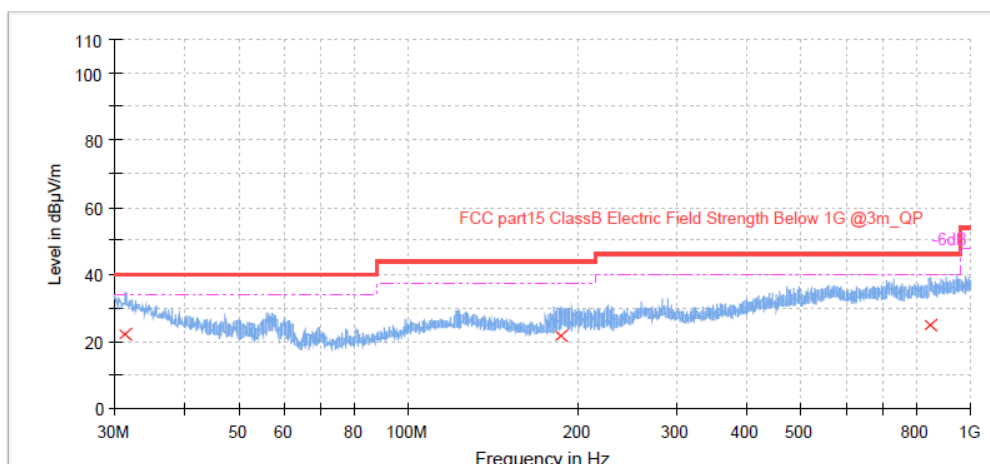
Horizontal



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.160000	22.6	1000.0	120.000	100.0	H	11.0	25.3	17.4	40.0
728.450000	27.4	1000.0	120.000	100.0	H	11.0	27.4	18.6	46.0
844.910000	24.7	1000.0	120.000	100.0	H	11.0	28.4	21.3	46.0

Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.400000	22.1	1000.0	120.000	100.0	V	11.0	24.7	17.9	40.0
186.440000	21.5	1000.0	120.000	100.0	V	11.0	16.0	22.0	43.5
845.020000	24.8	1000.0	120.000	100.0	V	11.0	28.4	21.2	46.0

Prüfbericht - Nr.: CN24CQ2B 001

Seite 17 von 20

Test Report No.:

Page 17 of 20

Table 7: Test Results of Radiated Spurious Emission, above 1GHz

1GHz-18GHz, Horizontal

Limit and Margin-PK

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)
1583.310000	51.7	1000.0	1000.000	155.0	H	-1.0	-8.8	22.4	74.0
1728.345000	51.2	1000.0	1000.000	155.0	H	-1.0	-8.1	22.8	74.0
4015.375000	46.7	1000.0	1000.000	155.0	H	-1.0	2.8	27.3	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1583.310000	43.4	1000.0	1000.000	155.0	H	-1.0	-8.8	10.6	54.0
1728.345000	27.4	1000.0	1000.000	155.0	H	-1.0	-8.1	26.6	54.0
4015.375000	32.5	1000.0	1000.000	155.0	H	-1.0	2.8	21.5	54.0

1GHz-18GHz, Vertical

Limit and Margin-PK

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)
1580.655000	46.7	1000.0	1000.000	155.0	V	-1.0	-8.8	27.4	74.0
1724.095000	50.4	1000.0	1000.000	155.0	V	-1.0	-8.1	23.6	74.0
4115.250000	46.6	1000.0	1000.000	155.0	V	-1.0	3.1	27.4	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
1580.655000	39.3	1000.0	1000.000	155.0	V	-1.0	-8.8	14.7	54.0
1724.095000	44.0	1000.0	1000.000	155.0	V	-1.0	-8.1	10.0	54.0
4115.250000	32.6	1000.0	1000.000	155.0	V	-1.0	3.1	21.4	54.0

18GHz-40GHz, Horizontal

Limit and Margin-PK

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)
26638.435000	50.1	1000.0	1000.000	150.0	H	0.0	-4.5	23.9	74.0
28404.625000	52.5	1000.0	1000.000	150.0	H	0.0	-2.3	21.5	74.0
33798.750000	53.9	1000.0	1000.000	150.0	H	0.0	-1.1	20.1	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
26638.435000	39.5	1000.0	1000.000	150.0	H	0.0	-4.5	14.5	54.0
28404.625000	41.7	1000.0	1000.000	150.0	H	0.0	-2.3	12.3	54.0
33798.750000	43.1	1000.0	1000.000	150.0	H	0.0	-1.1	10.9	54.0

18GHz-40GHz, Vertical

Limit and Margin-PK

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dB μ V/m)
19122.000000	48.9	1000.0	1000.000	150.0	V	0.0	-8.5	25.1	74.0
28409.435000	52.6	1000.0	1000.000	150.0	V	0.0	-2.3	21.4	74.0
33719.685000	54.4	1000.0	1000.000	150.0	V	0.0	-1.1	19.6	74.0

Limit and Margin-AV

Frequency (MHz)	Average (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dB μ V/m)
19122.000000	38.3	1000.0	1000.000	150.0	V	0.0	-8.5	15.7	54.0
28409.435000	42.2	1000.0	1000.000	150.0	V	0.0	-2.3	11.8	54.0
33719.685000	43.3	1000.0	1000.000	150.0	V	0.0	-1.1	10.7	54.0

40GHz-100GHz

Frequency (GHz)	Reading Level @ 0.75m (dBμV)	Factor (dB)	Measure Level @ 0.75m (dBμV/m)	Measure Level @ 3m (dBμV/m)	Limit (dBμV/m)	Margin	Detector	Polarities	Result
48.048	28.600	46.14	74.74	62.70	87.96	25.26	Peak	Horizontal	Pass
48.048	9.236	46.14	55.38	43.33	67.96	24.63	Average	Horizontal	Pass
49.159	26.680	45.78	72.46	60.42	74.00	13.58	Peak	Vertical	Pass
49.145	7.211	45.78	52.99	40.95	54.00	13.05	Average	Vertical	Pass
52.763	61.340	2.99	64.33	52.29	74.00	21.71	Peak	Horizontal	Pass
58.067	59.310	9.10	68.41	56.37	74.00	17.63	Peak	Horizontal	Pass
72.500	72.840	8.63	81.47	69.43	87.96	18.53	Peak	Horizontal	Pass
72.338	44.894	8.61	53.50	41.46	67.96	26.50	Average	Horizontal	Pass
52.795	58.820	2.99	61.81	49.77	74.00	24.23	Peak	Horizontal	Pass
58.018	57.120	9.10	66.22	54.18	74.00	19.82	Peak	Horizontal	Pass
72.434	71.840	8.63	80.47	68.43	87.96	19.53	Peak	Vertical	Pass
72.478	44.616	8.63	53.25	41.20	67.96	26.76	Average	Vertical	Pass
96.480	35.540	44.50	80.04	68.00	87.96	19.96	Peak	Horizontal	Pass
96.480	25.037	44.50	69.54	57.50	67.96	10.46	Average	Horizontal	Pass
96.480	35.050	44.50	79.55	67.51	87.96	20.45	Peak	Vertical	Pass
96.480	24.844	44.50	69.34	57.30	67.96	10.66	Average	Vertical	Pass

Notes:

1. For 40-50GHz & 75-100GHz, Measure Level @ 0.75m = Reading Level @0.75m + Factor
2. For 50-75GHz, Measure Level @ 0.75m = Reading Level @0.75m + Factor - Amplifier Factor
3. Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
3. Measure Level @ 3m = Measure Level @ 0.75m + 20 * log(0.75m / 3m)
4. Test Distance "d" = 0.75m, Test height "h" = 0.45m

Prüfbericht - Nr.: CN24CQ2B 001
Test Report No.:

Seite 19 von 20
Page 19 of 20

4.1.4 Conducted Emission (AC power-line)

Result:

N/A

Test Specification
Test standard : FCC Part 15.207
Basic standard : ANSI C63.10: 2013
Port : AC Mains
Frequency range : 0.15 – 30MHz
Limits : FCC Part 15.207
Kind of test site : Shielding Room

The EUT is powered by DC power supply, so this requirement does not apply.

5. List of Tables

Table 1: List of Test and Measurement Equipment, Laboratory A	5
Table 2: List of Test and Measurement Equipment, Laboratory B.....	5
Table 3: Measurement Uncertainty, Laboratory A	6
Table 4: Measurement Uncertainty, Laboratory B	6
Table 5: General Description of EUT	7
Table 6: Test Result of Field strength of fundamental.....	14
Table 7: Test Results of Radiated Spurious Emission, above 1GHz	17

6. List of Figures

Figure 1: Test Results of 99% Occupied Bandwidth.....	12
Figure 2: Test Results of 20dB Emission Bandwidth	13
Figure 3: Spectral Diagrams, Restricted frequency bands	15
Figure 4: Spectral Diagrams, Radiated Spurious Emission, 30MHz-1000MHz.....	16

-- The END --