

Prüfbericht-Nr.: <i>Test report no.:</i>	CN25BTXA 001	Auftrags-Nr.: <i>Order no.:</i>	180332390	Seite 1 von 23 <i>Page 1 of 23</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2025.05.06	
Auftraggeber: <i>Client:</i>	Ningbo Dooya Mechanic & Electronic Technology Co., Ltd. No.168 Shengguang Road, Luotuo, Zhenhai, Ningbo 315202 Zhejiang P.R. China			
Prüfgegenstand: <i>Test item:</i>	P-Box			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	DD7006, DD7006A, DD7006B, DD7006C, DD7006E			
Auftrags-Inhalt: <i>Order content:</i>	TÜV Rheinland – FCC Service			
Prüfgrundlage: <i>Test specification:</i>	FCC 47 CFR Part 15.203 FCC 47 CFR Part 15.231 FCC Part 15, Subpart B:2024			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025.05.06	Refer to Photo Documentation		
Prüfmuster-Nr.: <i>Test sample no:</i>	A003994752-001			
Prüfzeitraum: <i>Testing period:</i>	2025.05.19 - 2025.09.19			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 1.1			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	2025.09.29		Ausstelldatum: <i>Issue date:</i> 2025.09.29	
Stellung / Position:	Keda Zhou/PE		Stellung / Position: Chonghai Liang/Authorizer	
Sonstiges / Other:	FCC ID: VYY7006A02 Contains FCC ID: 2AC7Z-ESPWROOM32D			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
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.: CN25BTXA 001
Test report no.:

Seite 2 von 23
Page 2 of 23

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.: CN25BTXA 001
Test Report No.:

Seite 3 von 23
Page 3 of 23

Test Summary

4.1.1 ANTENNA REQUIREMENT

Result:

Pass

4.1.2 DEACTIVATION OF THE TRANSMISSION

Result:

Pass

4.1.3 20DB EMISSION BANDWIDTH

Result:

Pass

4.1.4 FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS

Result:

Pass

4.2.1 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

Result:

Pass

4.2.2 RADIATED DISTURBANCE

Result:

Pass

Prüfbericht - Nr.: CN25BTXA 001

Test Report No.:

Seite 4 von 23

Page 4 of 23

Contents

1. TEST SITES	5
1.1 TEST FACILITIES.....	5
1.2 LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
1.3 UNCERTAINTY OF MEASUREMENT	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 MODES	6
2.4 NOISE GENERATING AND NOISE SUPPRESSING PARTS	6
2.5 SUBMITTED DOCUMENTS	6
3. TEST SET-UP AND OPERATION MODES.....	7
3.1 PRINCIPLE OF CONFIGURATION SELECTION	7
3.2 TEST OPERATION AND TEST SOFTWARE	7
3.3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	7
3.4 COUNTERMEASURES TO ACHIEVE ERM COMPLIANCE.....	7
3.5 TEST SET-UP.....	8
4. TEST RESULTS	9
4.1 TRANSMITTER REQUIREMENT & TEST SUITES	9
4.1.1 <i>Antenna Requirement</i>	9
4.1.2 <i>Deactivation of the Transmission</i>	10
4.1.3 <i>20dB Emission Bandwidth</i>	11
4.1.4 <i>Field strength of fundamental and Unwanted Emissions</i>	12
4.2 OTHER REQUIREMENT & TEST SUITES.....	18
4.2.1 <i>Mains Terminal Continuous Disturbance Voltage</i>	18
4.2.2 <i>Radiated disturbance</i>	21
5. LIST OF TABLES	23
6. LIST OF FIGURES	23

Prüfbericht - Nr.: CN25BTXA 001
Test Report No.:

Seite 5 von 23
Page 5 of 23

1. Test Sites

1.1 Test Facilities

Laboratory: 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

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

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment, Laboratory

Kind of Equipment	Type	Serial No.	Last cal. date	Cal. due date
EMI test receiver	ESR3	102331	2024.10.23	2025.10.22
LISN	ENV216	102250	2024.10.23	2025.10.22
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

1.3 Uncertainty of Measurement

Table 2: Measurement Uncertainty

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

2. General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a P-Box operating at 433.05 - 434.79MHz.

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

2.2 Ratings and System Details

Table 3: General Description of EUT

General Description of EUT	
Rated Voltage:	USB 5V / POE 42-57V
Protection Class:	Class III
Technical Specification of SRD (433MHz)	
Operating Frequency band	433.05 - 434.79MHz
Modulation	GFSK
Antenna Type	PCB Layout Antenna
Antenna Gain	0.79dBi

2.3 Independent Operation Modes

There are some modes:

Mode A: Transmitting on Operating Frequency Band: 433.05 - 434.79MHz

Mode B: Transmitting by 2.4GHz Wi-Fi module

Mode C: Normal Working

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: 2020.

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)

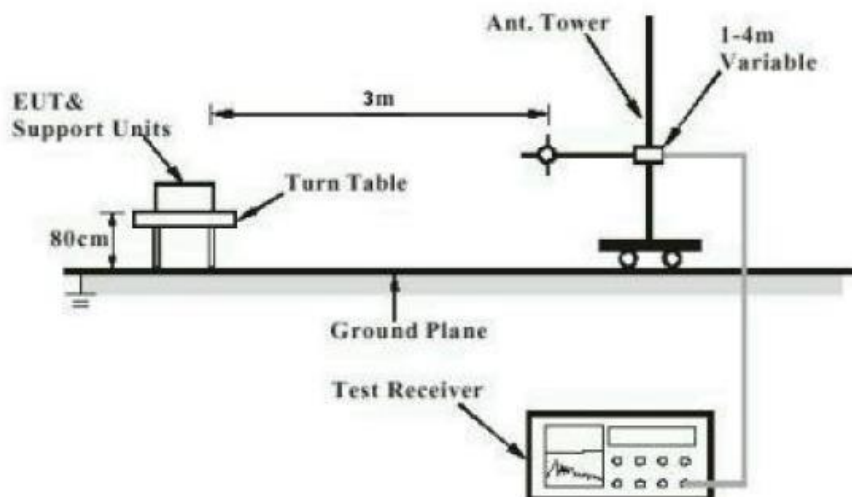


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

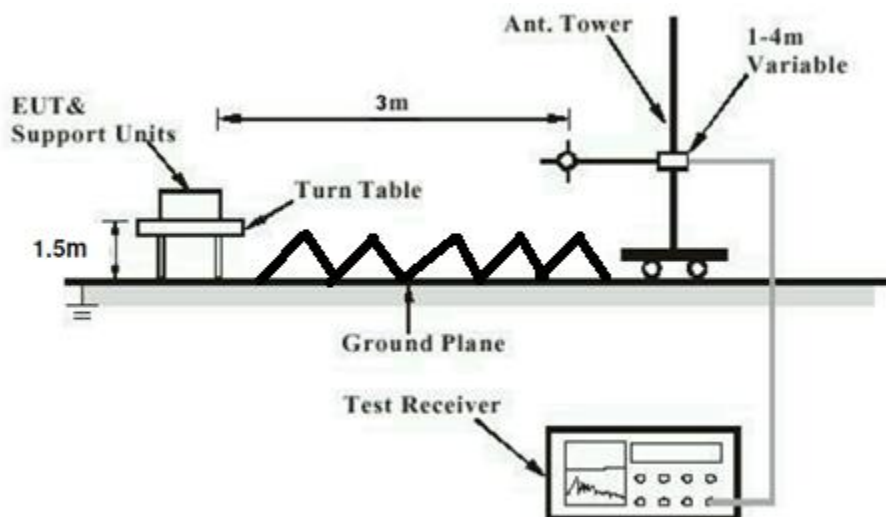
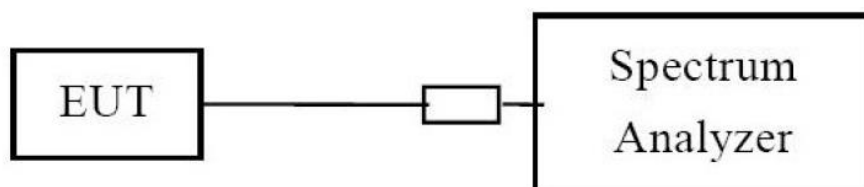


Diagram of Measurement Configuration for Conducted Transmitter Measurement



4. Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

Result:

Pass

Test Specification

Test standard

Limit

: FCC 47 CFR Part 15.203

: the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an integral antenna (PCB antenna, Antenna Gain: 0.79dBi), 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 Deactivation of the Transmission

Result:

Pass

Test Specification

Test standard : FCC 47 CFR Part 15.231

Basic standard : ANSI C63.10: 2020

Test requirement : CFR47 FCC Part 15.231 (a)(1)

Limits	:	A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
--------	---	--

A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Test suite : Shielded Room

Test Setup

Date of testing : 2025.06.17

Test environment: : Normal test conditions

Operational mode : Mode A

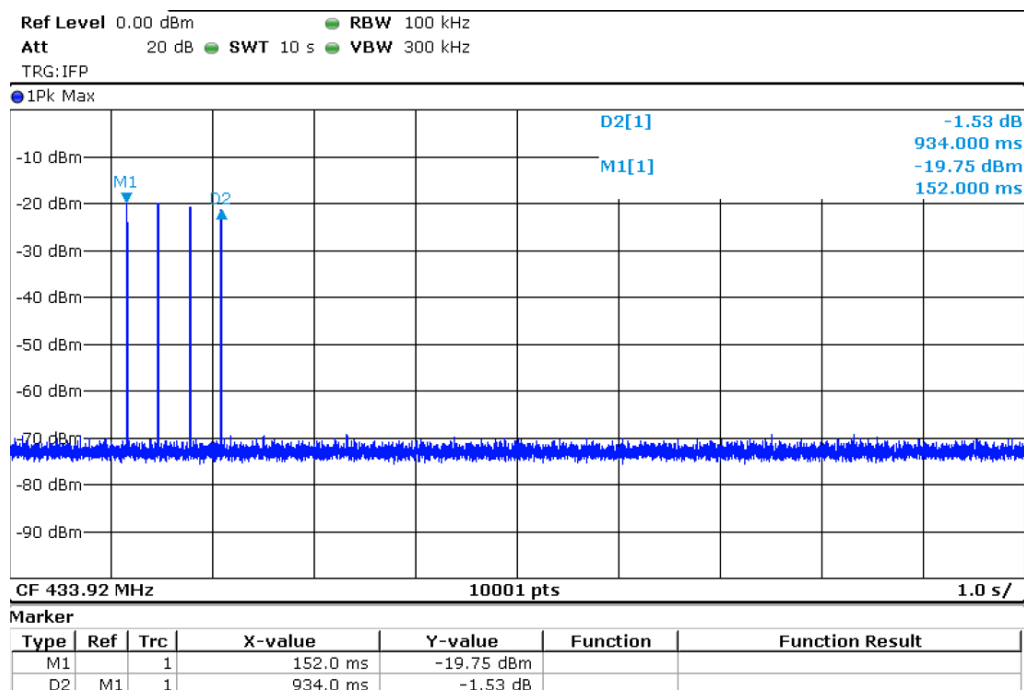
Temperature : 23°C

Relative humidity : 56%

Atmospheric pressure : 101.2 kPa

Figure 1: Test Results of Deactivation of the Transmission

Activated mode	Duration Time (S)	Limit (S)
Manually	0.934	≤5



4.1.3 20dB Emission Bandwidth

Result: Pass

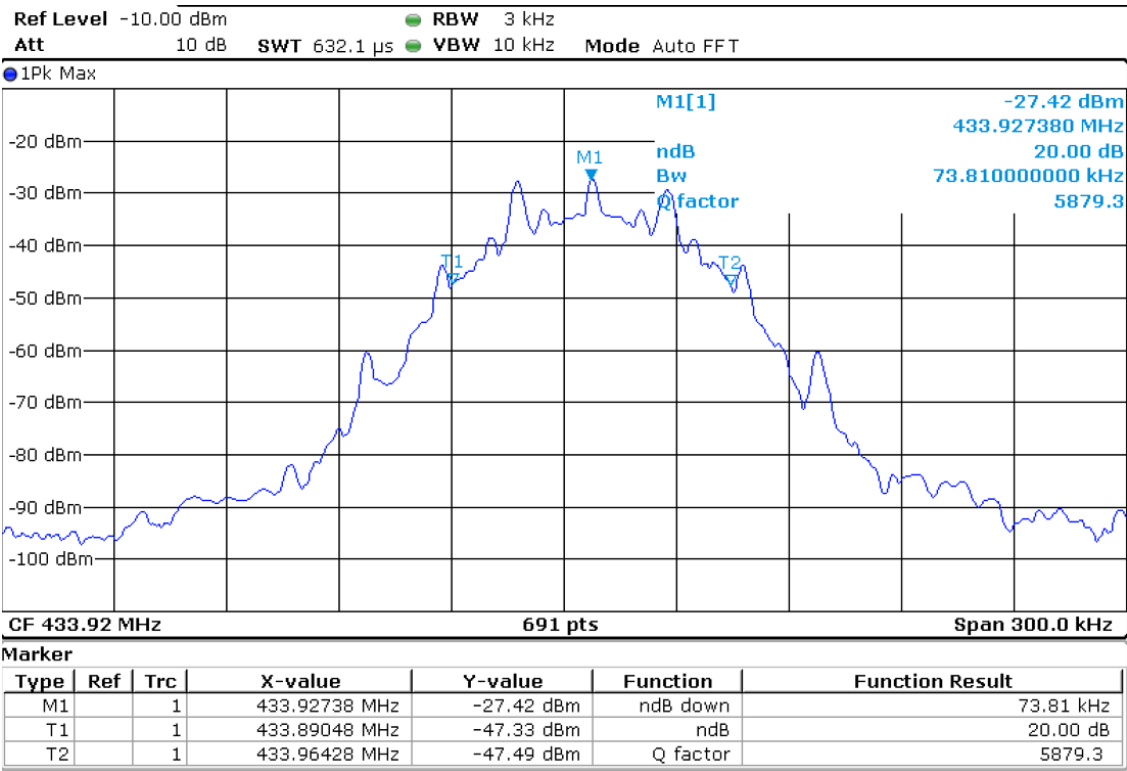
Test Specification
 Test standard : FCC 47 CFR Part 15.231
 Basic standard : ANSI C63.10: 2020
 Test requirement : CFR47 FCC Part 15.231 (c)
 Limit : CFR47 FCC Part 15.231 (c)
 Test suite : Shielded Room

Test Setup

Date of testing : 2025.06.17
 Test environment : Normal test conditions
 Operational mode : Mode A
 Temperature : 23°C
 Relative humidity : 56%
 Atmospheric pressure : 101.2 kPa

Figure 2: Test Results of 20dB Emission Bandwidth

Bandwidth (kHz) : 73.81
 Limit (kHz) : ≤1085



Prüfbericht - Nr.: CN25BTXA 001

Test Report No.:

Seite 12 von 23

Page 12 of 23

4.1.4 Field strength of fundamental and Unwanted Emissions

Result:

Pass

Test Specification

Test standard

: FCC 47 CFR Part 15.231

CFR47 FCC Part 15.205

CFR47 FCC Part 15.209

Basic standard

: ANSI C63.10: 2020

Test requirement

: CFR47 FCC Part 15.231 (b)(1)(2)(3)

Limits

: CFR47 FCC Part 15.231 (b)

Test suite

: 3m Semi Anechoic Room

Test Setup

Date of testing

: 2025.05.19 - 2025.09.19

Test environment

: Normal test conditions

Operational mode

: Mode A, Mode A+Mode B

Temperature

: 23°C

Relative humidity

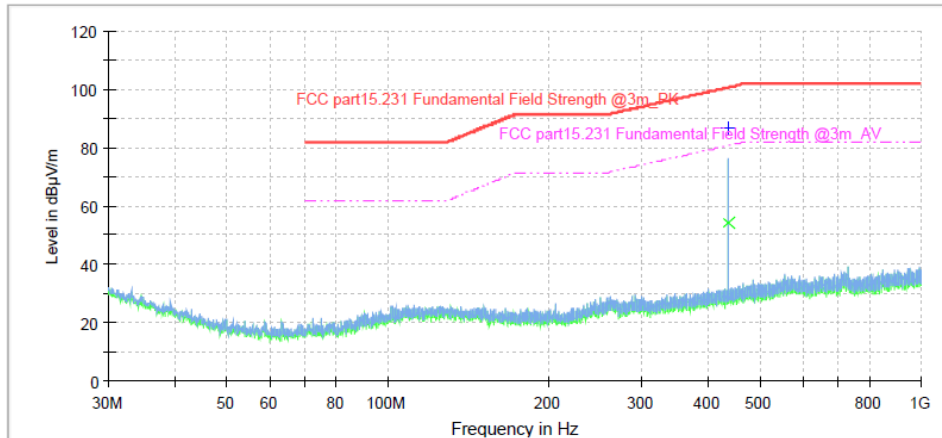
: 56%

Atmospheric pressure

: 101.2 kPa

Figure 3: Field strength of fundamental

Fundamental, Horizontal



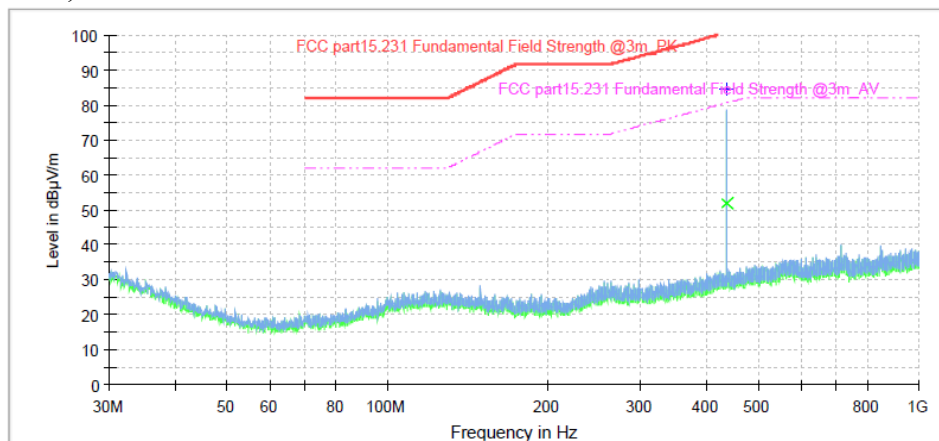
Limit and Margin-PK

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
433.900000	86.9	1000.0	120.000	100.0	H	11.0	24.2	13.7	100.6

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)
433.900000	54.2	1000.0	120.000	100.0	H	11.0	24.2	26.4	80.6

Fundamental, 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)
433.950000	84.6	1000.0	120.000	100.0	V	11.0	24.2	16.0	100.6

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)
433.950000	52.0	1000.0	120.000	100.0	V	11.0	24.2	28.6	80.6

Prüfbericht - Nr.: CN25BTXA 001

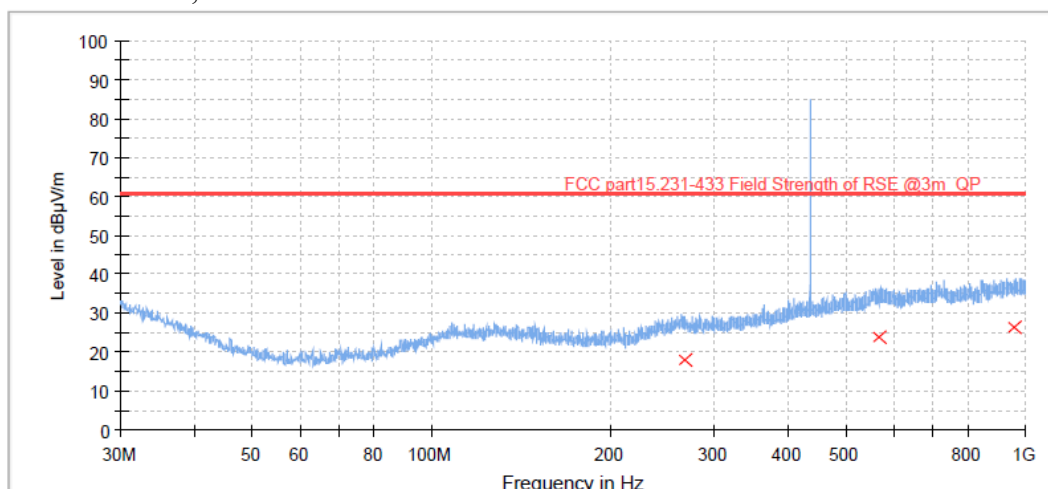
Test Report No.:

Seite 14 von 23

Page 14 of 23

Figure 4: Spectral Diagrams, Radiated Spurious Emission, Mode A

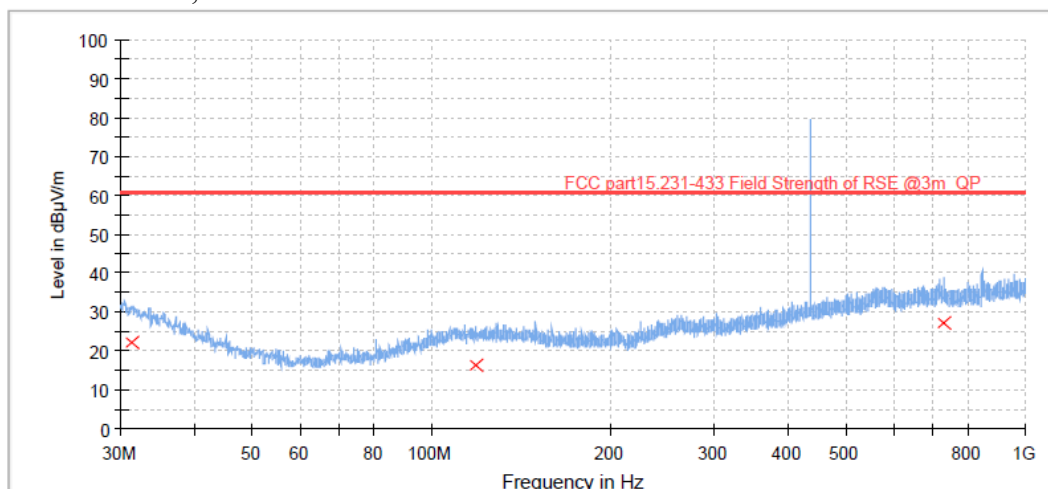
30MHz-1000MHz, Horizontal



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)
267.000000	18.2	1000.0	120.000	100.0	H	11.0	20.6	42.4	60.6
566.140000	23.9	1000.0	120.000	100.0	H	11.0	27.1	36.7	60.6
955.380000	26.3	1000.0	120.000	100.0	H	11.0	29.8	34.3	60.6

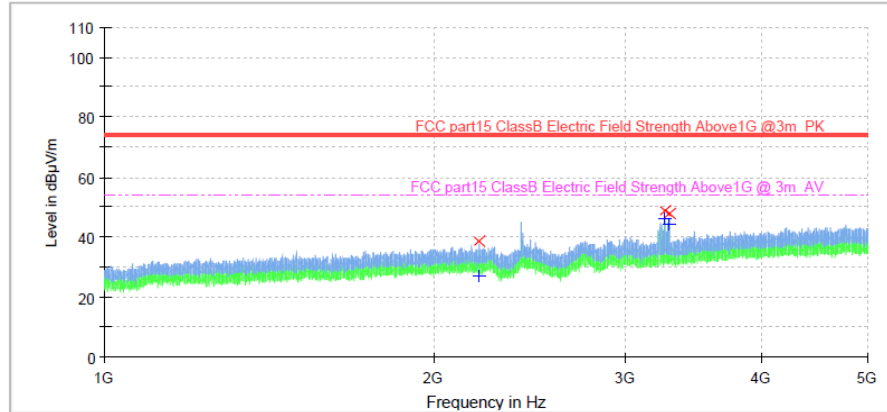
30MHz-1000MHz, Vertical



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	22.0	1000.0	120.000	100.0	V	11.0	24.7	38.6	60.6
118.920000	16.2	1000.0	120.000	100.0	V	11.0	19.0	44.4	60.6
728.780000	27.2	1000.0	120.000	100.0	V	11.0	27.4	33.4	60.6

Above 1GHz, Horizontal



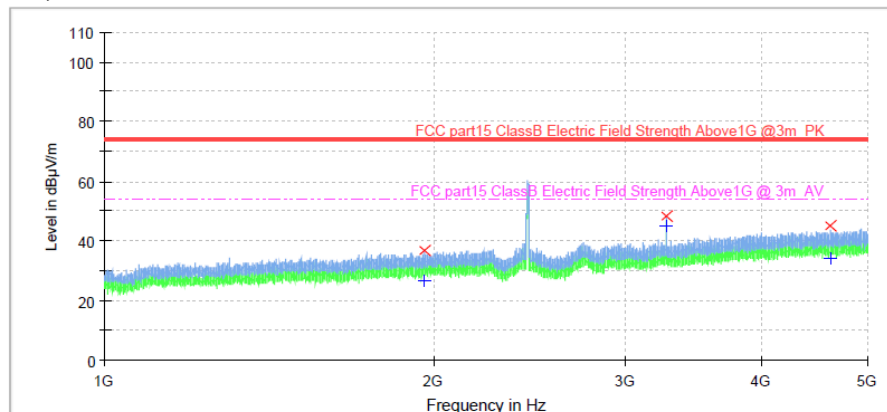
Limit and Margin-PK

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
2204.250000	38.4	1000.0	1000.000	150.0	H	0.0	-6.0	35.6	74.0
3262.625000	48.6	1000.0	1000.000	150.0	H	0.0	-0.5	25.4	74.0
3289.375000	47.7	1000.0	1000.000	150.0	H	0.0	-0.4	26.3	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)
2204.250000	27.1	1000.0	1000.000	150.0	H	0.0	-6.0	26.9	54.0
3262.625000	46.0	1000.0	1000.000	150.0	H	0.0	-0.5	8.0	54.0
3289.375000	44.4	1000.0	1000.000	150.0	H	0.0	-0.4	9.7	54.0

Above 1GHz, 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)
1962.750000	37.0	1000.0	1000.000	150.0	V	0.0	-7.4	37.0	74.0
3269.250000	48.3	1000.0	1000.000	150.0	V	0.0	-0.5	25.7	74.0
4619.500000	45.0	1000.0	1000.000	150.0	V	0.0	3.2	29.1	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)
1962.750000	26.5	1000.0	1000.000	150.0	V	0.0	-7.4	27.5	54.0
3269.250000	45.2	1000.0	1000.000	150.0	V	0.0	-0.5	8.8	54.0
4619.500000	34.1	1000.0	1000.000	150.0	V	0.0	3.2	19.9	54.0

Prüfbericht - Nr.: CN25BTXA 001

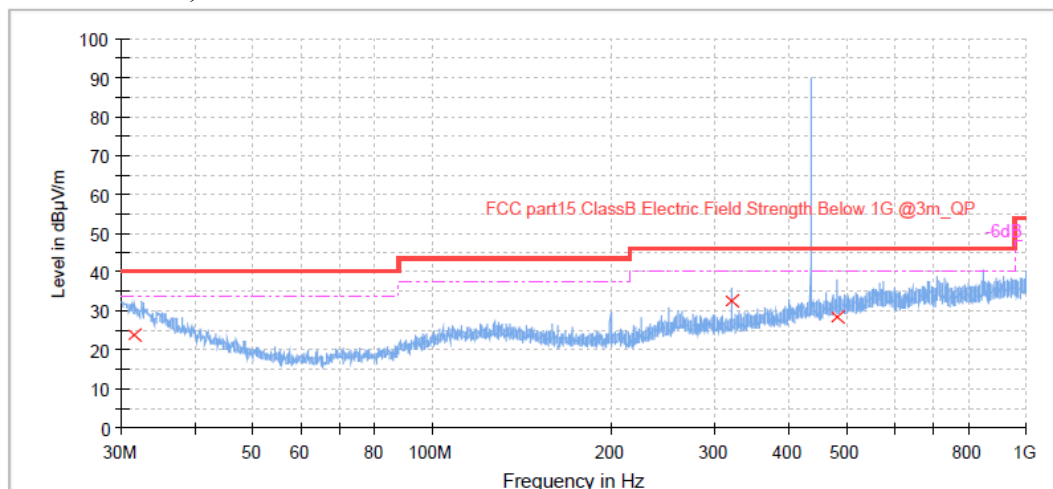
Test Report No.:

Seite 16 von 23

Page 16 of 23

Figure 5: Spectral Diagrams, Radiated Spurious Emission, Mode A+ Mode B

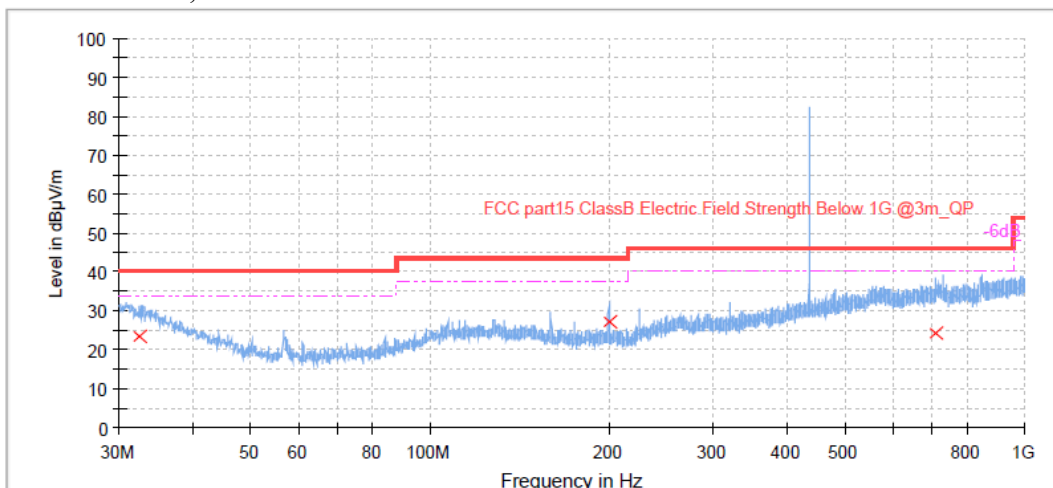
30MHz-1000MHz, Horizontal



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)
31.620000	23.9	1000.0	120.000	100.0	H	11.0	24.5	16.1	40.0
319.980000	32.7	1000.0	120.000	100.0	H	11.0	21.0	13.3	46.0
480.030000	28.4	1000.0	120.000	100.0	H	11.0	25.2	17.6	46.0

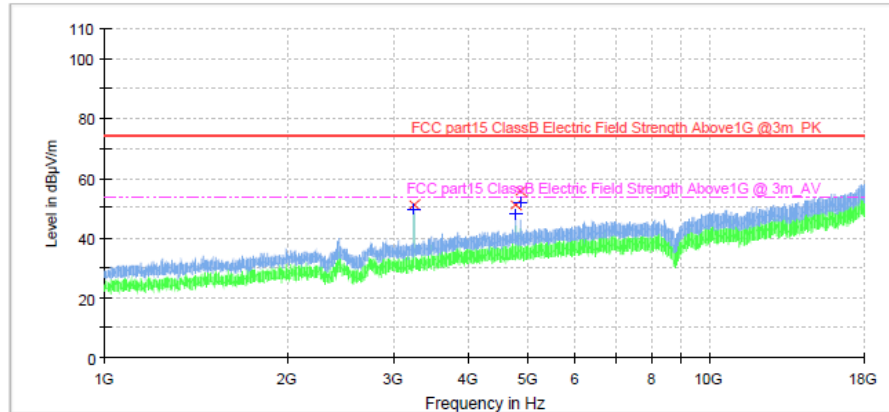
30MHz-1000MHz, Vertical



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)
32.480000	23.3	1000.0	120.000	100.0	V	11.0	24.0	16.7	40.0
200.020000	27.2	1000.0	120.000	100.0	V	11.0	16.4	16.3	43.5
710.080000	24.3	1000.0	120.000	100.0	V	11.0	27.0	21.7	46.0

Above 1GHz, Horizontal



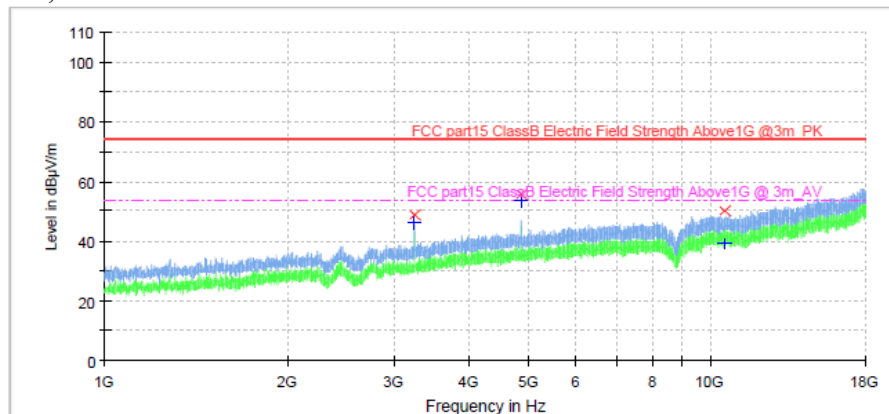
Limit and Margin-PK

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
3249.310000	51.3	1000.0	1000.000	150.0	H	0.0	-0.6	22.7	74.0
4773.470000	50.9	1000.0	1000.000	150.0	H	0.0	3.6	23.1	74.0
4874.405000	55.6	1000.0	1000.000	150.0	H	0.0	3.9	18.4	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)
3249.310000	49.5	1000.0	1000.000	150.0	H	0.0	-0.6	4.5	54.0
4773.470000	48.1	1000.0	1000.000	150.0	H	0.0	3.6	5.9	54.0
4874.405000	52.1	1000.0	1000.000	150.0	H	0.0	3.9	1.9	54.0

Above 1GHz, 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)
3249.310000	48.8	1000.0	1000.000	150.0	V	0.0	-0.6	25.3	74.0
4873.875000	55.6	1000.0	1000.000	150.0	V	0.0	3.9	18.4	74.0
10546.560000	50.3	1000.0	1000.000	150.0	V	0.0	11.7	23.7	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)
3249.310000	46.1	1000.0	1000.000	150.0	V	0.0	-0.6	7.9	54.0
4873.875000	53.3	1000.0	1000.000	150.0	V	0.0	3.9	0.7	54.0
10546.560000	39.2	1000.0	1000.000	150.0	V	0.0	11.7	14.8	54.0

4.2 Other Requirement & Test Suites

4.2.1 Mains Terminal Continuous Disturbance Voltage

Result:

Pass

Date of testing : 2025.09.19
Test procedure : ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards
Frequency range : 0.15 - 30MHz
Limits : FCC Part 15, Subpart B:2024, Class B
Kind of test site : Shielding Room
Operation modes : Mode C
Port : Mains
Temp.& Humidity : 21°C, 63%

The measurement setup was made according to ANSI C63.4:2014+A1:2017 in a shielded room.

The measurement equipment like test receivers, quasi-peak detector and artificial mains network (AMN) are in compliance with ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards.

The tested object was set-up on a wooden table. The EUT was set 0.8m 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 0.3m and 0.4m.

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

Before measurement, a survey was made to determine in which state the maximum disturbance was obtained. And the measurement was made in the state the maximum disturbance was obtained.

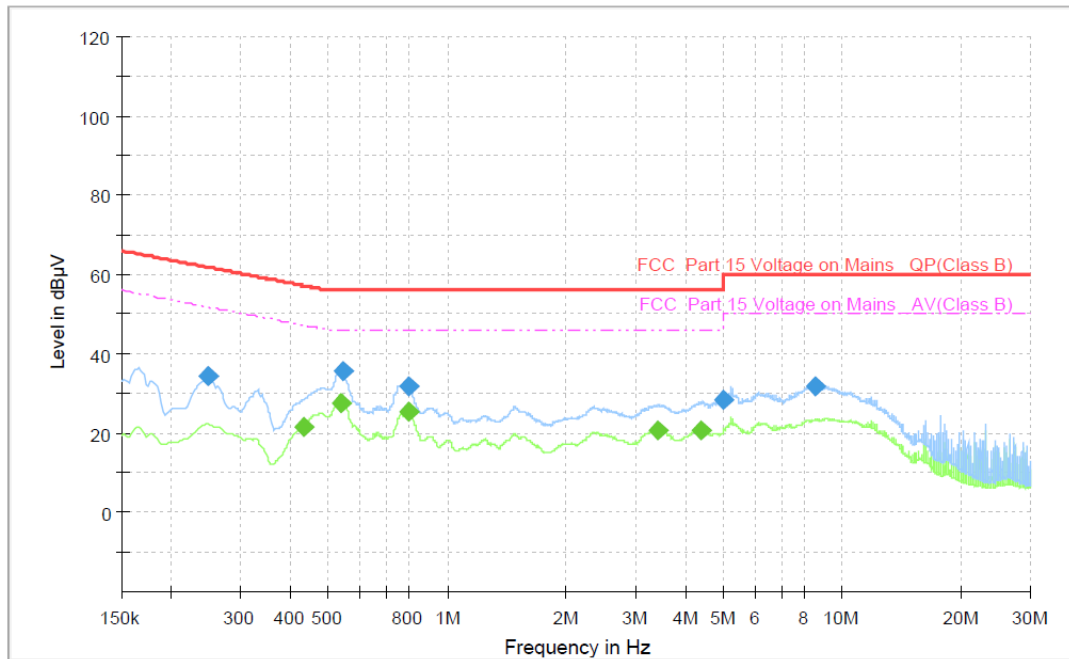
The following figures and tables were those measured by an automatic measuring system. Both Quasi Peak and Average Value were measured. Quasi-Peak and Average Value were measured and listed respectively where they had a maximum in previous scanning survey. In the Figures, “◆” means Quasi-Peak Value and Average Value which were measured in final measurement.

The measurement result is calculated based on the following formula by the test software:
Emission Level = Reading level + Correction (LISN factor + cable loss)

Prüfbericht - Nr.: CN25BTXA 001
Test Report No.:

Seite 19 von 23
Page 19 of 23

Figure 6: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, L



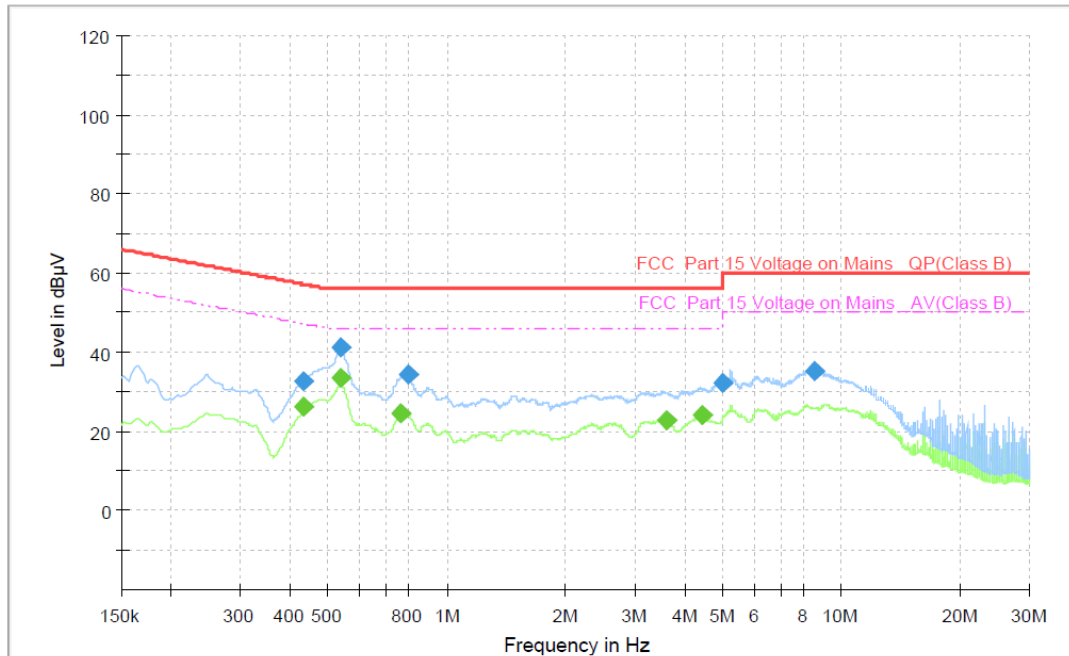
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.249000	34.37	---	61.79	27.42	1000.0	9.000	L1	ON	9.7
0.431250	---	21.53	47.23	25.70	1000.0	9.000	L1	ON	9.7
0.539250	---	27.69	46.00	18.31	1000.0	9.000	L1	ON	9.7
0.541500	35.50	---	56.00	20.50	1000.0	9.000	L1	ON	9.7
0.798000	---	25.39	46.00	20.61	1000.0	9.000	L1	ON	9.7
0.798000	32.02	---	56.00	23.98	1000.0	9.000	L1	ON	9.7
3.412500	---	20.69	46.00	25.31	1000.0	9.000	L1	ON	9.8
4.366500	---	20.78	46.00	25.22	1000.0	9.000	L1	ON	9.8
4.992000	28.41	---	56.00	27.59	1000.0	9.000	L1	ON	9.9
8.574000	31.86	---	60.00	28.14	1000.0	9.000	L1	ON	9.9

Prüfbericht - Nr.: CN25BTXA 001
Test Report No.:

Seite 20 von 23
Page 20 of 23

Figure 7: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, N



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.431250	---	26.25	47.23	20.98	1000.0	9.000	N	ON	9.6
0.431250	32.45	---	57.23	24.77	1000.0	9.000	N	ON	9.6
0.537000	---	33.49	46.00	12.51	1000.0	9.000	N	ON	9.6
0.537000	41.07	---	56.00	14.93	1000.0	9.000	N	ON	9.6
0.764250	---	24.47	46.00	21.53	1000.0	9.000	N	ON	9.6
0.798000	34.37	---	56.00	21.63	1000.0	9.000	N	ON	9.7
3.585750	---	22.86	46.00	23.14	1000.0	9.000	N	ON	9.8
4.434000	---	24.25	46.00	21.75	1000.0	9.000	N	ON	9.8
4.994250	32.27	---	56.00	23.73	1000.0	9.000	N	ON	9.8
8.556000	35.31	---	60.00	24.69	1000.0	9.000	N	ON	9.9

4.2.2 Radiated disturbance

Result:

Pass

Date of testing	: 2025.09.19
Test standard	: FCC Part 15, Subpart B:2024, Class B
Test procedure	: ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards
Frequency range	: 30MHz– 5th harmonic of the highest frequency
Limits	: Quasi-peak limits (3m test distance): 30-88MHz, 40dBμV/m; 88-216MHz, 43.5dBμV/m; 216-960MHz, 46dBμV/m; Above 960MHz, 54dBμV/m. Average limits (3m test distance): Above 1000MHz, 54dBμV/m.
Kind of test site	: Semi-anechoic chamber
Operation modes	: Mode C
Temp.& Humidity	: 21°C, 56%

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 at those critical frequencies during the preview test. In the following figures, “◆” mean final measurement results with quasi-peak detector.

Before measurement, a survey was made to determine in which state the maximum disturbance was obtained. And the measurement was made in the state the maximum disturbance was obtained.

The following figures were those measured and recorded by a test receiver. Peak Value were measured and listed respectively where they had a maximum in previous scanning survey. In the Figures, “◆” means Quasi-Peak Value which were measured in final measurement.

The measurement result is calculated based on the following formula by the test software:
Emission Level = Reading level + Correction (Antenna factor + Cable loss - preamplifier factor (if used))

Prüfbericht - Nr.: CN25BTXA 001

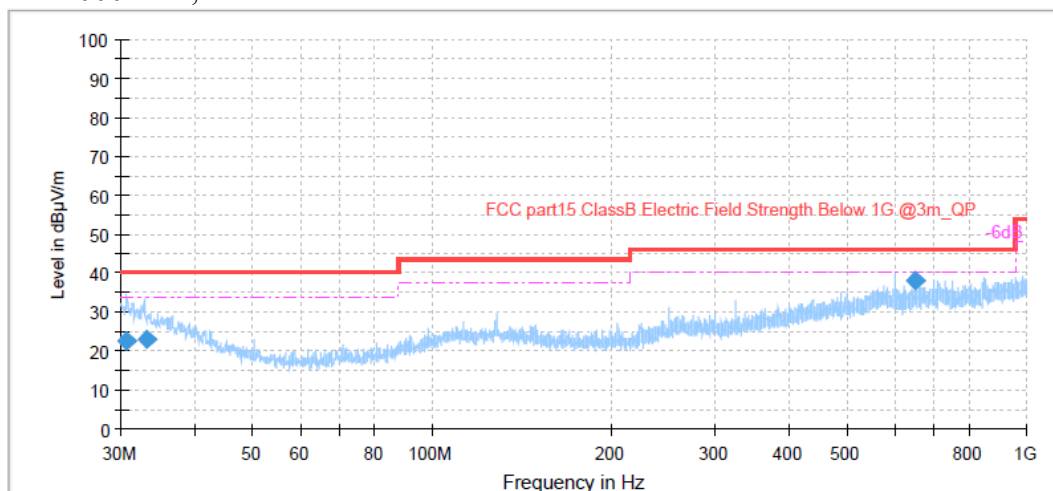
Test Report No.:

Seite 22 von 23

Page 22 of 23

Figure 8: Spectral Diagrams, Radiated disturbance

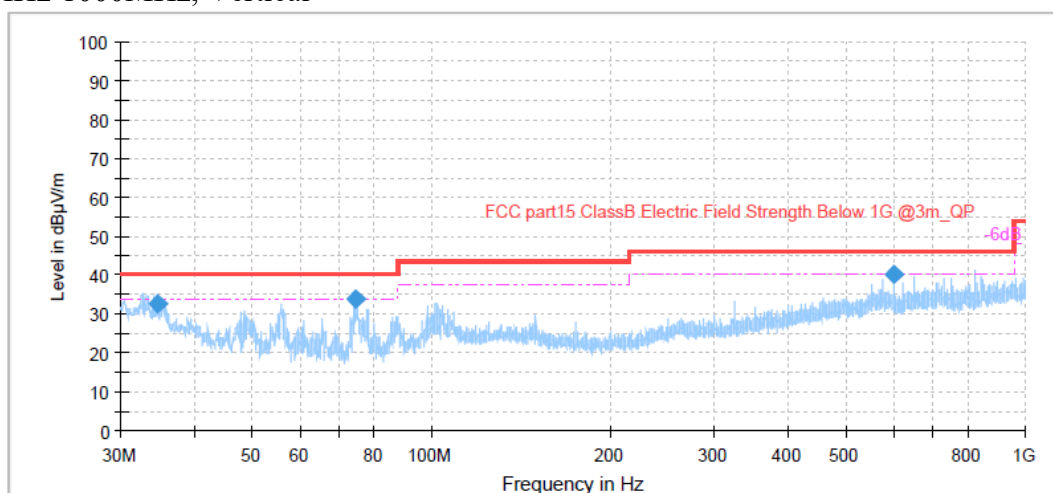
30MHz-1000MHz, Horizontal



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.574444	22.75	40.00	17.25	1000.0	120.000	150.0	H	109.0	25.1
33.076111	23.00	40.00	17.00	1000.0	120.000	182.0	H	13.0	23.7
649.971667	38.08	46.00	7.92	1000.0	120.000	185.0	H	98.0	27.3

30MHz-1000MHz, Vertical



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.654444	32.48	40.00	7.52	1000.0	120.000	100.0	V	316.0	22.7
74.572222	33.85	40.00	6.15	1000.0	120.000	191.0	V	324.0	13.2
600.002778	40.01	47.00	6.99	1000.0	120.000	100.0	V	296.0	26.7

5. List of Tables

Table 1: List of Test and Measurement Equipment, Laboratory	5
Table 2: Measurement Uncertainty	5
Table 3: General Description of EUT	6

6. List of Figures

Figure 1: Test Results of Deactivation of the Transmission	10
Figure 2: Test Results of 20dB Emission Bandwidth	11
Figure 3: Field strength of fundamental.....	13
Figure 4: Spectral Diagrams, Radiated Spurious Emission, Mode A	14
Figure 5: Spectral Diagrams, Radiated Spurious Emission, Mode A+ Mode B	16
Figure 6: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, L	19
Figure 7: Spectral Diagrams, Conducted Emission, 150KHz - 30MHz, N.....	20
Figure 8: Spectral Diagrams, Radiated disturbance.....	22

-- The END --