

Prüfbericht-Nr.: <i>Test report no.:</i>	CN243MN4 001	Auftrags-Nr.: <i>Order no.:</i>	180274440	Seite 1 von 23 Page 1 of 23
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023.10.27	
Auftraggeber: <i>Client:</i>	Changyou Technology (Zhejiang) Co.,Ltd. 1005 Xianggang Rd, Paidong Industrial, Liushi Town, Wenzhou City, 325604 Zhejiang P.R. China			
Prüfgegenstand: <i>Test item:</i>	DIN Rail Smart Switch			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	TO-Q-SY1-JZT, TO-Q-SY2-JZT			
Auftrags-Inhalt: <i>Order content:</i>	TÜV Rheinland – EMC Service			
Prüfgrundlage: <i>Test specification:</i>	FCC Part 15, Subpart B:2023			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023.11.17	Refer to Photo Documentation		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003604340-004			
Prüfzeitraum: <i>Testing period:</i>	2023.11.20-2024.01.04			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
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>	2024.05.22		Ausstellungsdatum: <i>Issue date:</i>	2024.05.22
Stellung / Position:	Chonghai Liang/PE		Stellung / Position:	Season Yang/Authorizer
Sonstiges / <i>Other:</i>	FCC ID: 2BEKX-SYZ Contains FCC ID: 2ANDL-ZSU			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	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 above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 2 von 23
Page 2 of 23

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. TÜV 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, TÜV 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. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p> |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p> |

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 3 von 23
Page 3 of 23

Test Summary

5.1 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

Result:

Pass

5.2 RADIATED DISTURBANCE

Result:

Pass

Prüfbericht - Nr.: CN243MN4 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	MEASUREMENT UNCERTAINTY	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	PHYSICAL CONFIGURATION FOR TESTING.....	7
3.3	TEST OPERATION AND TEST SOFTWARE	7
3.4	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	7
3.5	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	7
4	CONFORMITY DECISION RULE.....	8
5	TEST RESULTS EMISSION	9
5.1	MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE	9
5.2	RADIATED DISTURBANCE.....	14
6	LIST OF TABLES	23
7	LIST OF FIGURES	23

Prüfbericht - Nr.: CN243MN4 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.**

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

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

No.	Equipment	Model	Serial no.	Last cal. date	Cal. due date
1.	EMI test receiver	ESR7	101929	2023.10.30	2024.10.29
2.	Bilog Antenna	CBL6112D	49033	2024.03.17	2027.03.16
3.	Horn antenna	HF907	102653	2023.07.20	2026.07.19
4.	Pre-amplifier	SCU-18F	180051	2023.10.30	2024.10.29
5.	EMI test receiver	ESR3	102331	2023.10.30	2024.10.29
6.	LISN	ENV216	102250	2023.10.30	2024.10.29

1.3 Measurement Uncertainty

Table 2: Measurement Uncertainty

Test Item	Expanded Measurement Uncertainty (k=2)
Conducted Emission (9-150kHz)	3.70dB
Conducted Emission (150k-30MHz)	3.30dB
Disturbance Power	4.27dB
Radiated Emission (30-1000MHz)	4.39dB
Radiated Emission (1-18GHz)	4.67dB
Radiated Emission (CDNE method)	4.05dB

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is a DIN Rail Smart Switch which contains a 2.4GHz Zigbee module. It belongs to Class B category according to FCC Part 15. For the further information, refer to the user's manual.

2.2 Ratings and System Details

Rated Voltage Range	: AC 90-240V, 50/60Hz	For both models
Rated Current	: Max. 63A	For both models
Protection Class	: Class II	For both models

Other aspects:

1. The rated current printed on the model TO-Q-SY1-JZT can be 6A, 10A, 16A, 25A, 32A, 40A, 50A or 63A, just for marketing purpose, no technical differences.
2. In electrical characteristics, the models TO-Q-SY1-JZT and TO-Q-SY2-JZT are based on the same circuit diagram and PCB Layout. TO-Q-SY1-JZT is based on TO-Q-SY2-JZT but with the removal of the temperature sensing resistor.
3. Therefore, all tests in this report were performed on the model TO-Q-SY2-JZT.

Refer to the user's manual for further information.

2.3 Independent Operation Modes

The basic operation modes are: "On (with Wireless connected)" or "Off".

Refer to the user's manual for further information.

2.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram for more information.

2.5 Submitted Documents

Circuit diagram, PCB layout, user's manual etc.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

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

Refer to the related paragraph of this report.

3.2 Physical Configuration for Testing

Refer to the related paragraph of this report.

3.3 Test Operation and Test Software

Refer to related paragraph of this report. Software EMC32 V10.30 was used.

3.4 Special Accessories and Auxiliary Equipment

None.

3.5 Countermeasures to achieve EMC Compliance

The tested sample contained noise suppression components to achieve EMC compliance. No other special measure is employed to achieve the requirement.

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 8 von 23
Page 8 of 23

4 Conformity Decision Rule

For all EMI tests (when 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.

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 9 von 23
Page 9 of 23

5 Test Results EMISSION

5.1 Mains Terminal Continuous Disturbance Voltage

Result:	Pass
---------	------

Date of testing : 2023.12.06
Kind of test site : Shielding Room
Port : Mains
Basic Standard : ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards
Frequency Range : 0.15 – 30MHz
Limit : FCC Part 15, Subpart B:2023, Class B
Ambient Condition : Temperature: 20 °C ; Relative Humidity: 50 %

Test Setup

Input Voltage : AC 120, 60Hz / 230V, 50Hz
Operational mode : Normal working
Test Setup : ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards

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 length of the power cord of the tested object was about 0.8m.

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.: CN243MN4 001

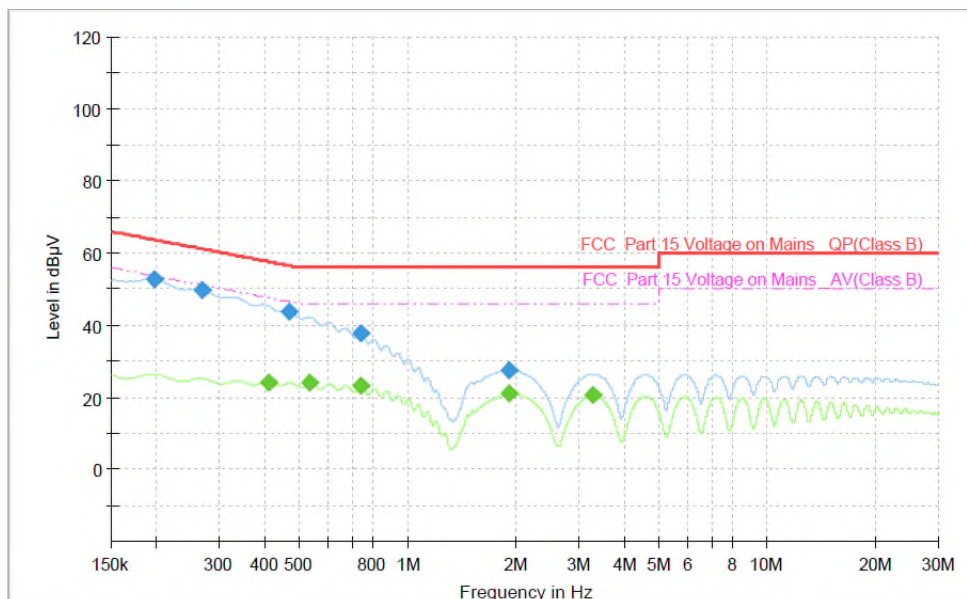
Test Report No.:

Seite 10 von 23

Page 10 of 23

Figure 1: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, AC 120V

Full Spectrum



Final Result

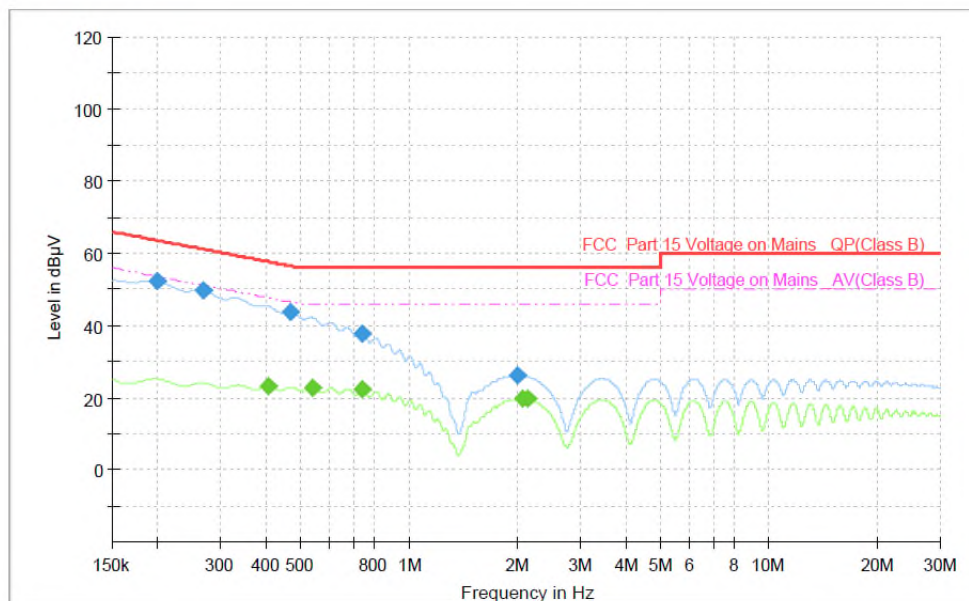
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.197250	52.70	---	63.73	11.03	1000.0	9.000	L1	ON	9.6
0.267000	49.90	---	61.21	11.31	1000.0	9.000	L1	ON	9.6
0.408750	---	24.30	47.67	23.37	1000.0	9.000	L1	ON	9.6
0.469500	43.80	---	56.52	12.73	1000.0	9.000	L1	ON	9.6
0.534750	---	24.10	46.00	21.90	1000.0	9.000	L1	ON	9.6
0.737250	37.66	---	56.00	18.34	1000.0	9.000	L1	ON	9.6
0.739500	---	23.19	46.00	22.81	1000.0	9.000	L1	ON	9.6
1.914000	---	20.92	46.00	25.08	1000.0	9.000	L1	ON	9.7
1.916250	27.40	---	56.00	28.60	1000.0	9.000	L1	ON	9.7
3.277500	---	20.52	46.00	25.48	1000.0	9.000	L1	ON	9.8

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 11 von 23
Page 11 of 23

Figure 2: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, AC 120V

Full Spectrum



Final Result

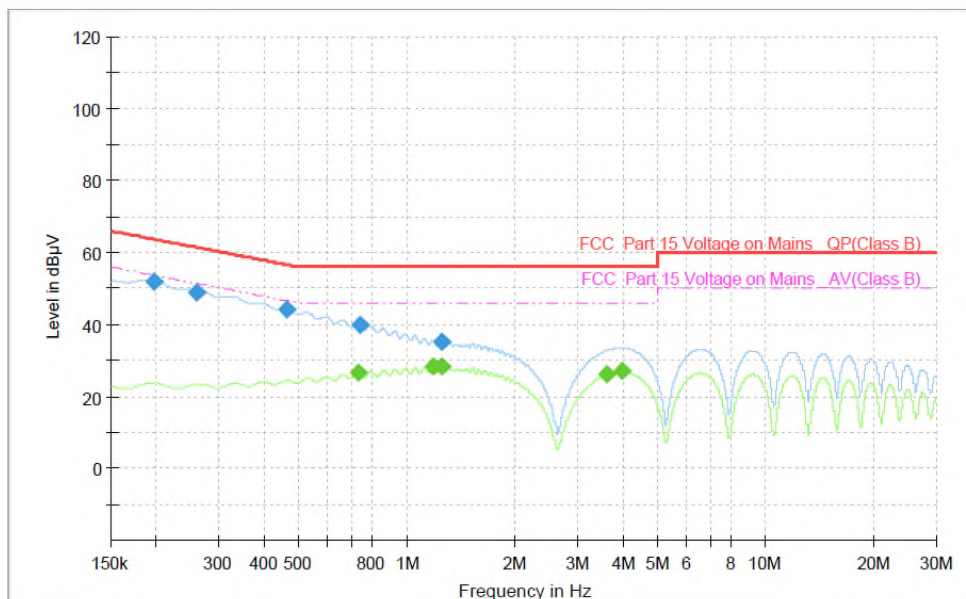
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.199500	52.41	---	63.63	11.22	1000.0	9.000	N	ON	9.6
0.267000	49.79	---	61.21	11.42	1000.0	9.000	N	ON	9.6
0.406500	---	23.39	47.72	24.33	1000.0	9.000	N	ON	9.6
0.469500	43.92	---	56.52	12.60	1000.0	9.000	N	ON	9.6
0.537000	---	23.01	46.00	22.99	1000.0	9.000	N	ON	9.6
0.739500	37.97	---	56.00	18.03	1000.0	9.000	N	ON	9.6
0.741750	---	22.31	46.00	23.69	1000.0	9.000	N	ON	9.6
1.999500	26.15	---	56.00	29.85	1000.0	9.000	N	ON	9.7
2.062500	---	19.84	46.00	26.16	1000.0	9.000	N	ON	9.7
2.130000	---	19.66	46.00	26.34	1000.0	9.000	N	ON	9.7

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 12 von 23
Page 12 of 23

Figure 3: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, AC 230V

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.197250	51.72	---	63.73	12.01	1000.0	9.000	L1	ON	9.6
0.260250	48.99	---	61.42	12.44	1000.0	9.000	L1	ON	9.6
0.462750	44.09	---	56.64	12.56	1000.0	9.000	L1	ON	9.6
0.730500	---	26.69	46.00	19.31	1000.0	9.000	L1	ON	9.6
0.737250	39.78	---	56.00	16.23	1000.0	9.000	L1	ON	9.6
1.182750	---	28.31	46.00	17.69	1000.0	9.000	L1	ON	9.7
1.250250	---	28.20	46.00	17.80	1000.0	9.000	L1	ON	9.7
1.250250	35.24	---	56.00	20.76	1000.0	9.000	L1	ON	9.7
3.601500	---	26.19	46.00	19.81	1000.0	9.000	L1	ON	9.8
3.970500	---	27.03	46.00	18.97	1000.0	9.000	L1	ON	9.8

Prüfbericht - Nr.: CN243MN4 001

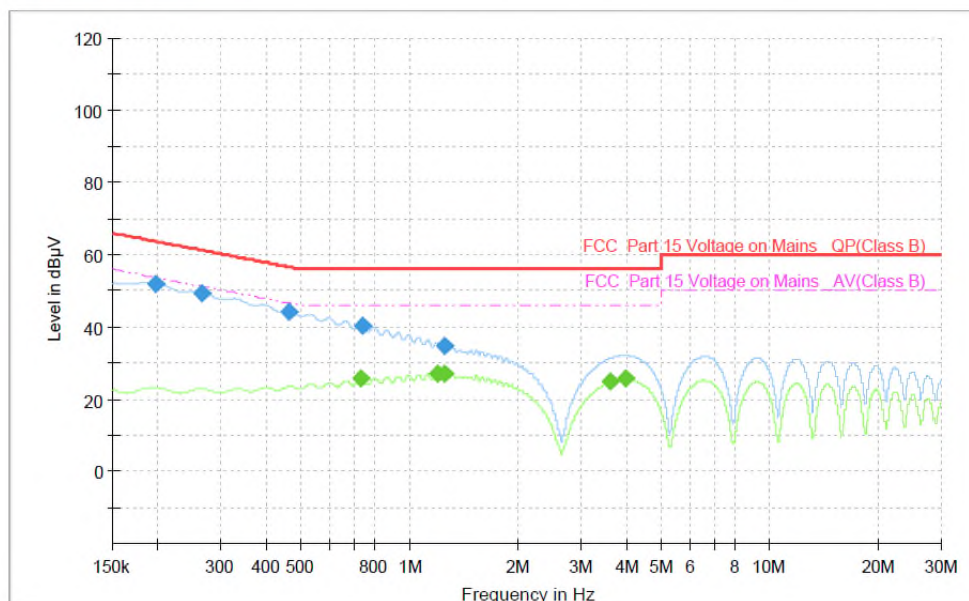
Test Report No.:

Seite 13 von 23

Page 13 of 23

Figure 4: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, AC 230V

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.197250	51.94	---	63.73	11.78	1000.0	9.000	N	ON	9.6
0.264750	49.54	---	61.28	11.74	1000.0	9.000	N	ON	9.6
0.462750	44.39	---	56.64	12.25	1000.0	9.000	N	ON	9.6
0.732750	---	25.64	46.00	20.36	1000.0	9.000	N	ON	9.6
0.737250	40.31	---	56.00	15.69	1000.0	9.000	N	ON	9.6
1.189500	---	27.03	46.00	18.97	1000.0	9.000	N	ON	9.7
1.250250	34.98	---	56.00	21.02	1000.0	9.000	N	ON	9.7
1.252500	---	26.96	46.00	19.04	1000.0	9.000	N	ON	9.7
3.601500	---	24.86	46.00	21.14	1000.0	9.000	N	ON	9.8
3.988500	---	25.68	46.00	20.32	1000.0	9.000	N	ON	9.8

Prüfbericht - Nr.: CN243MN4 001

Test Report No.:

Seite 14 von 23

Page 14 of 23

5.2 Radiated disturbance

Result:

Pass

Date of testing : 2024.01.02-2024.01.04
Test procedure : ANSI C63.4:2014+A1:2017 and CISPR 16-1 series standards
Frequency range : 30MHz – 5th harmonic of the highest frequency
Limits : FCC Part 15, Subpart B:2023, Class B
Kind of test site : Semi-anechoic chamber
Input Voltage : AC 120, 60Hz / 230V, 50Hz
Operation modes : Normal working
Ambient Condition : Temperature: 21 °C ; Relative Humidity: 53 %

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.

According to the clause 15.33 “Frequency range of radiated measurements” of FCC Part 15, Subpart B:2023 Class B, The highest frequency in the EUT is 2480 MHz, therefore the EUT’s upper frequency of measurement range is about 12.5GHz.

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.

The test was performed on the input voltage AC 120V, 60Hz / 230V, 50Hz.

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.

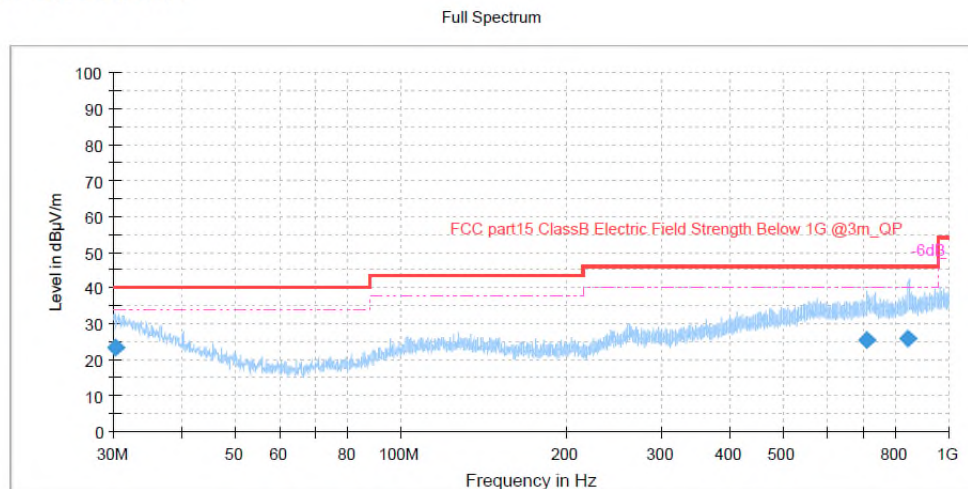
The measurement result is calculated based on the following formula by the test software:
Emission Level = Reading level + Correction (Antenna factor + Cable loss - preamplifier factor(if used))

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 15 von 23
Page 15 of 23

Figure 5: Spectral Diagrams, Radiated Emission, Below 1GHz, Horizontal, AC 120V

Full Spectrum



Final Result

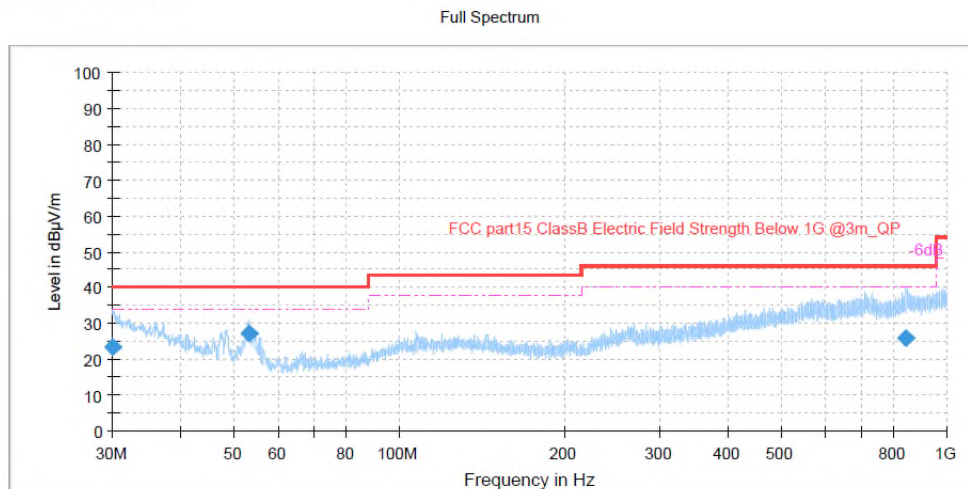
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.160000	23.29	40.00	16.71	1000.0	120.000	237.0	H	337.0	25.9
710.570556	25.48	46.00	20.52	1000.0	120.000	150.0	H	129.0	27.8
844.701667	25.84	46.00	20.16	1000.0	120.000	136.0	H	57.0	29.4

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 16 von 23
Page 16 of 23

Figure 6: Spectral Diagrams, Radiated Emission, Below 1GHz, Vertical, AC 120V

Full Spectrum



Final Result

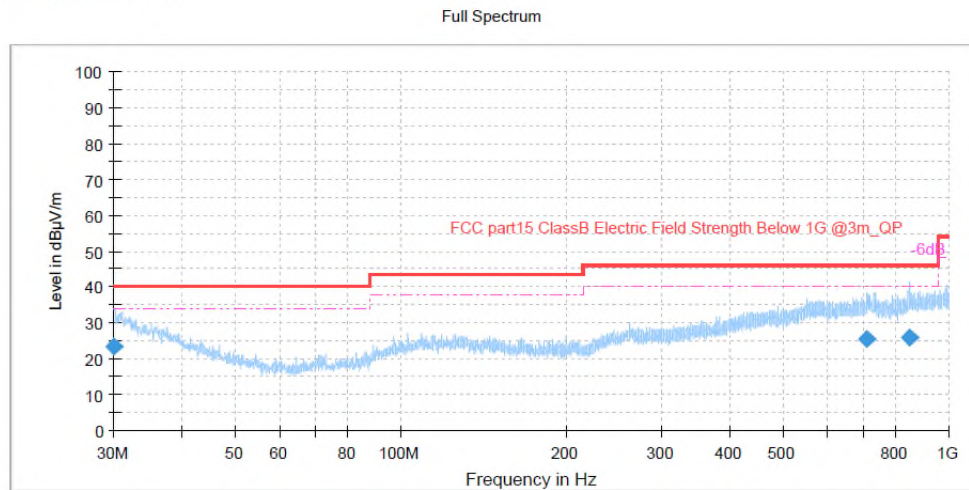
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.040000	23.44	40.00	16.56	1000.0	120.000	150.0	V	-3.0	25.9
53.058333	27.39	40.00	12.61	1000.0	120.000	100.0	V	185.0	14.5
844.540000	25.84	46.00	20.16	1000.0	120.000	225.0	V	114.0	29.4

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 17 von 23
Page 17 of 23

Figure 7: Spectral Diagrams, Radiated Emission, Below 1GHz, Horizontal, AC 230V

Full Spectrum



Final Result

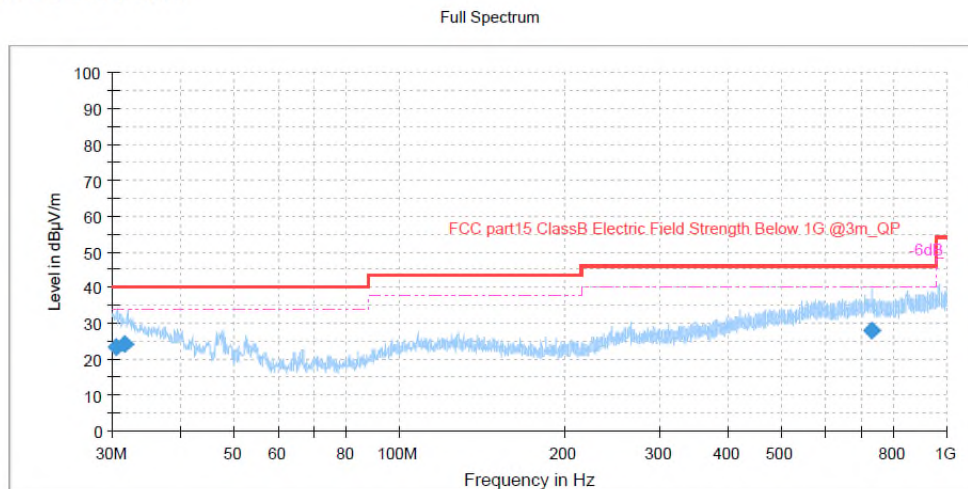
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.080000	23.34	40.00	16.66	1000.0	120.000	111.0	H	5.0	25.9
709.838889	25.35	46.00	20.65	1000.0	120.000	150.0	H	24.0	27.8
846.123889	25.79	46.00	20.21	1000.0	120.000	150.0	H	200.0	29.3

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 18 von 23
Page 18 of 23

Figure 8: Spectral Diagrams, Radiated Emission, Below 1GHz, Vertical, AC 230V

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.332778	23.27	40.00	16.73	1000.0	120.000	139.0	V	328.0	25.8
31.626111	24.26	40.00	15.74	1000.0	120.000	158.0	V	18.0	24.8
729.550000	28.08	46.00	17.92	1000.0	120.000	134.0	V	103.0	28.0

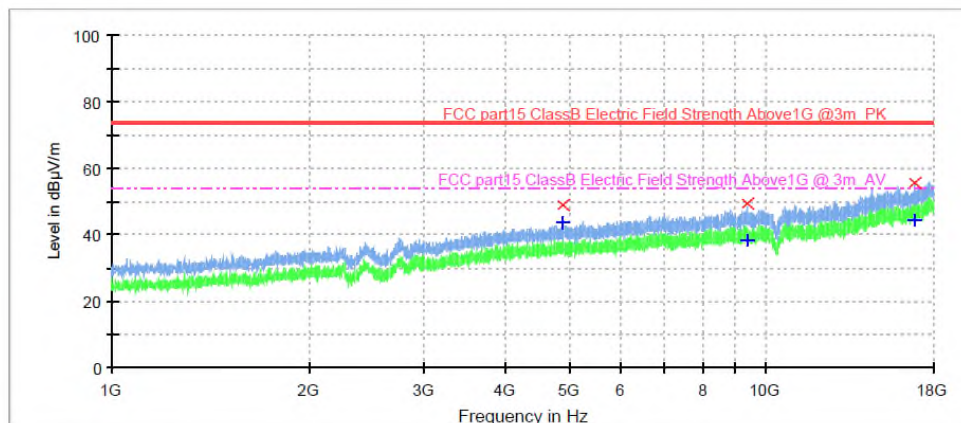
Prüfbericht - Nr.: CN243MN4 001

Seite 19 von 23

Test Report No.:

Page 19 of 23

Figure 9: Spectral Diagrams, Radiated Emission, Above 1GHz, Horizontal, AC 120V



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)
4902.560000	48.9	1000.0	1000.000	100.0	H	0.0	3.3	25.1	74.0
9363.470000	49.3	1000.0	1000.000	100.0	H	0.0	9.6	24.7	74.0
16893.935000	55.5	1000.0	1000.000	100.0	H	0.0	18.4	18.5	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)
4902.560000	43.5	1000.0	1000.000	100.0	H	0.0	3.3	10.5	54.0
9363.470000	38.4	1000.0	1000.000	100.0	H	0.0	9.6	15.6	54.0
16893.935000	44.3	1000.0	1000.000	100.0	H	0.0	18.4	9.7	54.0

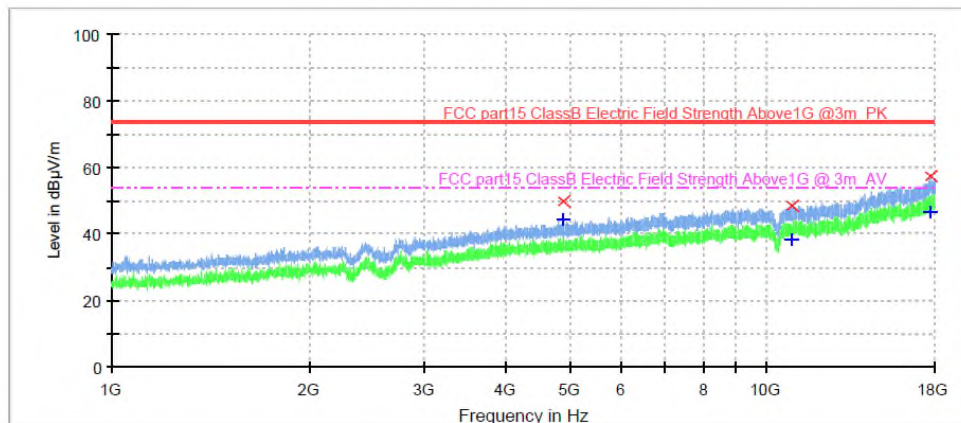
Prüfbericht - Nr.: CN243MN4 001

Test Report No.:

Seite 20 von 23

Page 20 of 23

Figure 10: Spectral Diagrams, Radiated Emission, Above 1GHz, Vertical, AC 120V



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)
4902.560000	49.6	1000.0	1000.000	200.0	V	162.0	3.3	24.4	74.0
10911.530000	48.6	1000.0	1000.000	200.0	V	0.0	11.4	25.4	74.0
17797.060000	57.5	1000.0	1000.000	200.0	V	0.0	21.3	16.5	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)
4902.560000	44.6	1000.0	1000.000	200.0	V	162.0	3.3	9.4	54.0
10911.530000	38.4	1000.0	1000.000	200.0	V	0.0	11.4	15.6	54.0
17797.060000	46.8	1000.0	1000.000	200.0	V	0.0	21.3	7.2	54.0

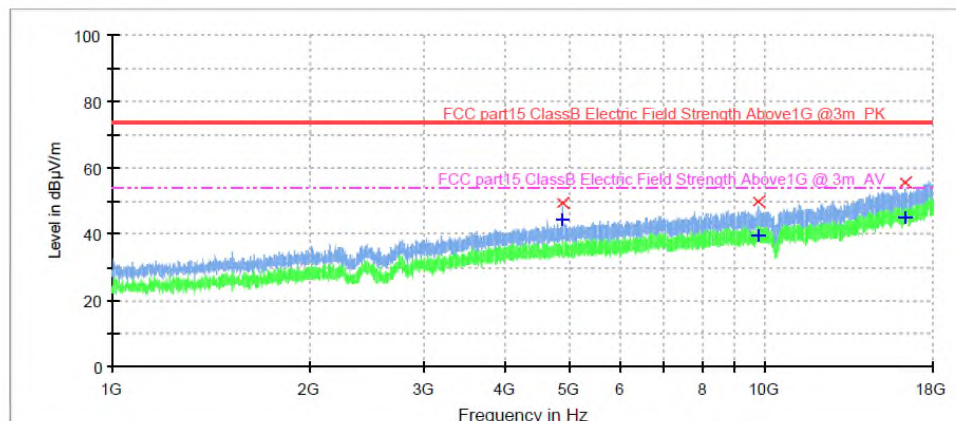
Prüfbericht - Nr.: CN243MN4 001

Seite 21 von 23

Test Report No.:

Page 21 of 23

Figure 11: Spectral Diagrams, Radiated Emission, Above 1GHz, Horizontal, AC 230V



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)
4903.095000	49.4	1000.0	1000.000	100.0	H	0.0	3.3	24.7	74.0
9747.560000	49.8	1000.0	1000.000	100.0	H	108.0	9.9	24.2	74.0
16398.810000	55.4	1000.0	1000.000	100.0	H	120.0	17.3	18.6	74.0

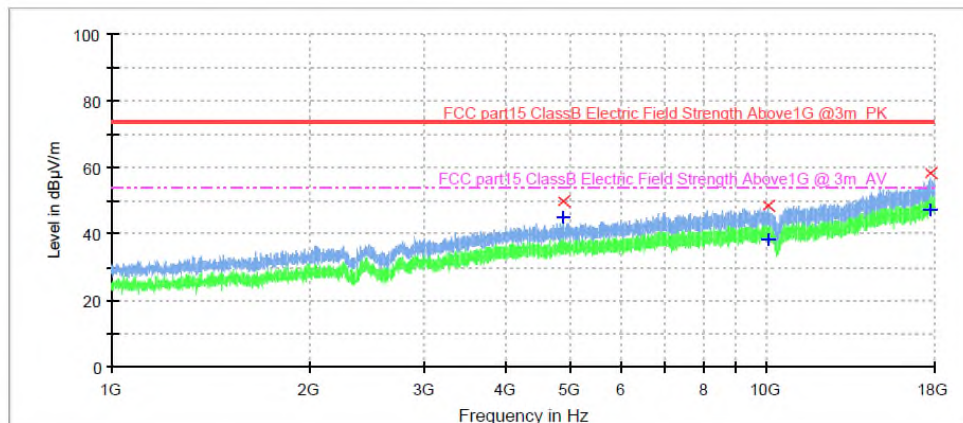
Limit and Margin-AV

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
4903.095000	44.3	1000.0	1000.000	100.0	H	0.0	3.3	9.7	54.0
9747.560000	39.5	1000.0	1000.000	100.0	H	108.0	9.9	14.5	54.0
16398.810000	44.7	1000.0	1000.000	100.0	H	120.0	17.3	9.3	54.0

Prüfbericht - Nr.: CN243MN4 001
Test Report No.:

Seite 22 von 23
Page 22 of 23

Figure 12: Spectral Diagrams, Radiated Emission, Above 1GHz, Vertical, AC 230V



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)
4902.560000	49.8	1000.0	1000.000	200.0	V	0.0	3.3	24.2	74.0
10073.220000	48.6	1000.0	1000.000	200.0	V	0.0	10.4	25.4	74.0
17783.780000	58.3	1000.0	1000.000	200.0	V	0.0	21.2	15.7	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)
4902.560000	44.8	1000.0	1000.000	200.0	V	0.0	3.3	9.2	54.0
10073.220000	38.1	1000.0	1000.000	200.0	V	0.0	10.4	15.9	54.0
17783.780000	47.0	1000.0	1000.000	200.0	V	0.0	21.2	7.0	54.0

6 List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Measurement Uncertainty.....	5

7 List of Figures

Figure 1: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, AC 120V	10
Figure 2: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, AC 120V	11
Figure 3: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, AC 230V	12
Figure 4: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, AC 230V	13
Figure 5: Spectral Diagrams, Radiated Emission, Below 1GHz, Horizontal, AC 120V	15
Figure 6: Spectral Diagrams, Radiated Emission, Below 1GHz, Vertical, AC 120V	16
Figure 7: Spectral Diagrams, Radiated Emission, Below 1GHz, Horizontal, AC 230V	17
Figure 8: Spectral Diagrams, Radiated Emission, Below 1GHz, Vertical, AC 230V	18
Figure 9: Spectral Diagrams, Radiated Emission, Above 1GHz, Horizontal, AC 120V	19
Figure 10: Spectral Diagrams, Radiated Emission, Above 1GHz, Vertical, AC 120V	20
Figure 11: Spectral Diagrams, Radiated Emission, Above 1GHz, Horizontal, AC 230V	21
Figure 12: Spectral Diagrams, Radiated Emission, Above 1GHz, Vertical, AC 230V	22

-- The END --