Prüfbericht-Nr.: *Test report No.:*	**60360725 001**	**Auftrags-Nr.:** *Order No.:*	168154778	Seite 1 von 24 *Page 1 of 24*
Kunden-Referenz-Nr.: *Client reference No.:*	N/A	**Auftragsdatum:** *Order date:*	04.03.2020	
Auftraggeber: *Client:*	**ASAP TECHNOLOGY (jiangxi) CO., LTD** No.5, Shuguang Rd, West Zone, Ji'an County Industrial Park, Ji'an, Jiangxi 343100 China			
Prüfgegenstand: *Test item:*	Wireless Charging Stand			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	LACA128, NS-MWPC10KS, NS-MWPC10xxxxxx, MD-MWPC10xxxxxx, DX-MWPC10xxxxxx, PT-MWPC10xxxxxx, RF-MWPC10xxxxxx ('x' can be A-Z, a-z, 0-9, - or blank only for different models) (Trademark: INSIGNIA)			
Auftrags-Inhalt: *Order content:*	FCC and IC approval			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.201 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 2: Subpart J Section 2.1091		RSS-216 issue 2 Janyary 2016 RSS-GEN issue 5 March 2019 RSS-102 issue 5 March 2015	

Wareneingangsdatum: *Date of receipt:*	17.03.2020	Refer to photos document
Prüfmuster-Nr.: *Test sample No.:*	A001069150-025 to 026	
Prüfzeitraum: *Testing period:*	18.03.2020 - 07.04.2020	
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von / *tested by:*

06.05.2020 Jonathan Li / Project Manager

Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

kontrolliert von / *reviewed by:*

06.05.2020 Winnie Hou / Technical Certifier

Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

FCC ID: 2APXNLACA128
IC: 24654-LACA128, HVIN: NS-MWPC10KS-C

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient	5 = poor
	P(ass) = passed a.m. test specifications(s)		F(ail) = failed a.m. test specifications(s)	N/A = not applicable	N/T = not tested

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 99% BANDWIDTH
RESULT: Pass

5.1.3 RADIATED SPURIOUS EMISSIONS
RESULT: Pass

5.1.4 CONDUCTED EMISSIONS
RESULT: Pass

Contents

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Registration No.: 694916

IC Registration No.: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Radio Spectrum Testing				
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
Wireless Connectivity Tester	R&S	CMW270	101375	20.08.2020
Signal Analyzer	R&S	FSV 40	101441	20.08.2020
Vector Signal Generator	R&S	SMBV100A	263301	21.08.2020
Signal Generator	R&S	SMB100A	115186	21.08.2020
OSP	R&S	OSP 150	101017	17.12.2020
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V10.50.10)	N/A	N/A
Power Meter	R&S	NRP2	107105	17.12.2020
Wideband Power Sensor	R&S	NRP-Z81	105350	17.12.2020
Humid & Temp Programmable Tester	BOST	NTH090-60	19040801	16.04.2020
Shielding Room 8#	Albatross	SR8	APC17151-SR8	23.07.2020
Unwanted Emission Testing				
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
EMI Test Receiver	R&S	ESR 7	102021	19.08.2020
Signal Analyzer	R&S	FSV 40	101439	21.08.2020
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	21.08.2020
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	20.08.2020
Amplifier	R&S	SCU-18F	180070	20.08.2020
Amplifier	R&S	SCU40A	100475	20.08.2020
Trilog Broadband Antenna (30 MHz - 1 GHz)	Schwarzbeck	VULB9162	193	02.09.2020

Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	02.09.2020
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	02.09.2020
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	01.09.2020
Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18313	02.09.2020
Test software	R&S	V10.40.10-EMC32	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	07.06.2020
Conducted Emissions				
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
EMI Test Receiver	R&S	ESR3	102428	03.09.2020
Artificial Mains Network	R&S	ENV216	102333	19.08.2020
Attenuator	R&S	ESH2Z31	100300	19.08.2020
EMC32 test software	R&S	EMC32(Ver.10.50.01)	N/A	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Test	**Parameters**	**Expanded uncertainty (U_{lab})**	**Expanded uncertainty (U_{cispr})**
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 3.70 dB ± 3.30 dB	± 3.8 dB ± 3.4 dB
Radiated Emission (3m SAC)	Level accuracy (30MHz to 1000MHz)	± 4.52 dB	± 6.3 dB
	Level accuracy (above 1000MHz)	± 4.37 dB	N/A

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The device is a Wireless Charging Stand.

All the models are identical except the model name is different.

For details, refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Wireless Charging Stand
Type Designation	LACA128, NS-MWPC10KS, NS-MWPC10xxxxxx, MD-MWPC10xxxxxx, DX-MWPC10xxxxxx, PT-MWPC10xxxxxx, RF-MWPC10xxxxxx ('x' can be A-Z, a-z, 0-9, - or blank only for different models)
Trademark	INSIGNIA
FCC ID	2APXNLACA128
IC	24654-LACA128
Input Voltage	DC 5V@3A/9V@2A/12V@1.5A via AC/DC Adapter
Test voltage	AC 120V, 60Hz
Technical Specification of WPT	
Operating Frequency	110-205KHz
Extreme Temperature Range	0°C - +40°C
Modulation	FSK
Antenna Type	Coil Antenna
Wireless output	10W maximum

3.3 Independent Operation Modes

The basic operation modes are:

A. On, Wireless charging

B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- FCC/IC Label and Location Info
- Block Diagram

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

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.
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.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5&6. All testing were performed according to the procedures in ANSI C63.10: 2013 & ANSI C63.4: 2014

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Electrical Load	ASAP TECHNOLOGY (jiangxi) CO., LTD	N/A	N/A	N/A
Mobile Phone	Apple	N/A	N/A	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

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

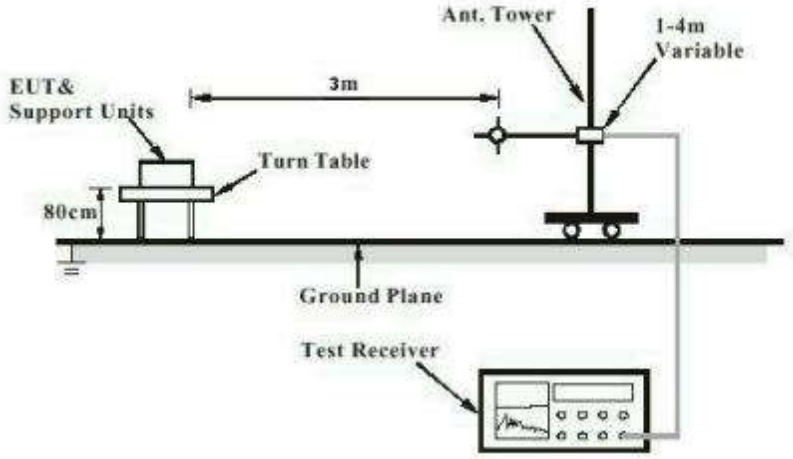


Diagram of Measurement Configuration for Conducted Transmitter Measurement

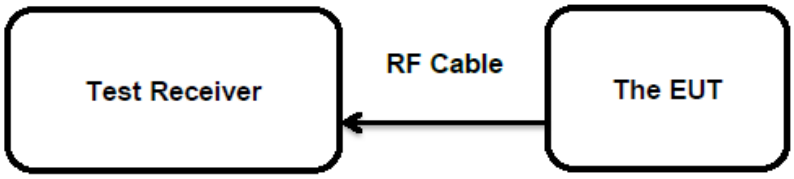
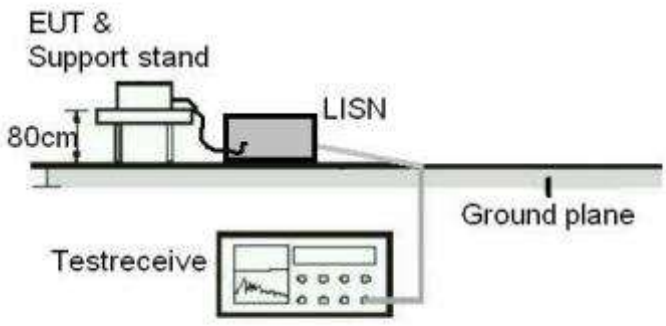


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard	:	Part 15.203 RSS-Gen Clause 6.8
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the EUT has an internal antenna, the directional gain of antenna is 0 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.

5.1.2 99% Bandwidth

RESULT: **Pass**

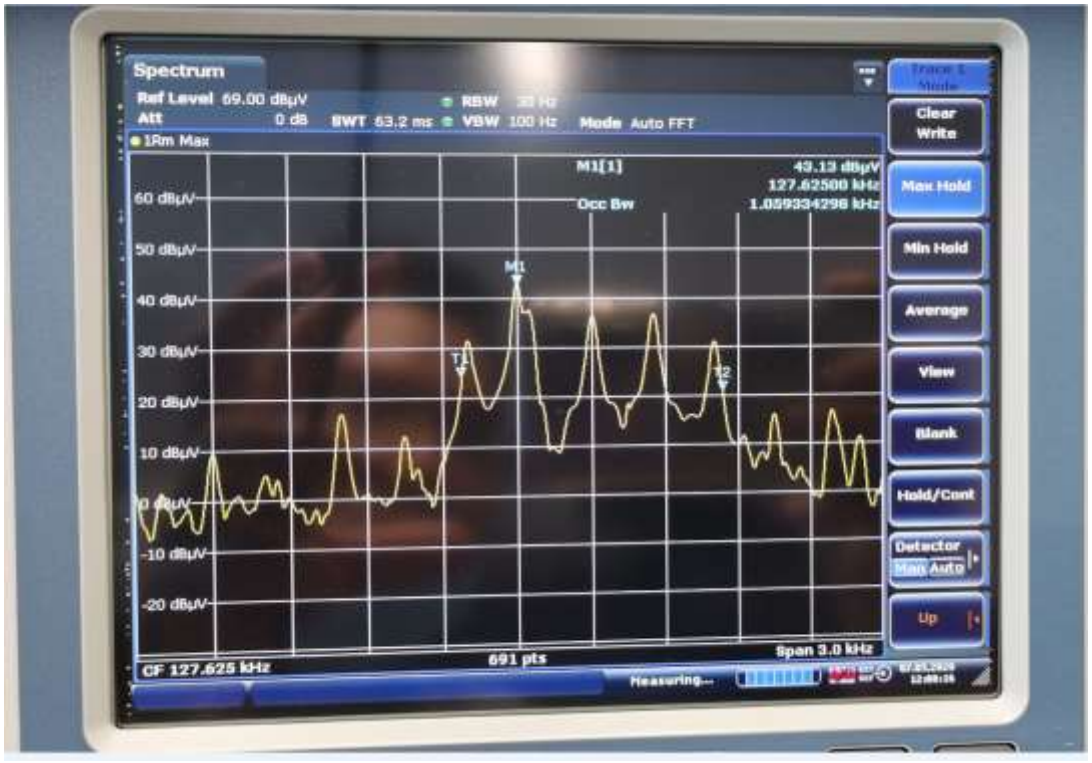
Test Specification

Test standard	:	RSS-Gen Clause 6.7
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	23.03.2020
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For details refer to following test result.



5.1.3 Radiated Spurious Emissions

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.201 RSS-216 Clause 6.2.2.2
Basic standard	:	ANSI C63.10: 2013 & ANSI C63.4:2014
Limits	:	Refer to 15.209(a) RSS-Gen Issue 5 Table 4
Kind of test site	:	3m Semi-anechoic Chamber

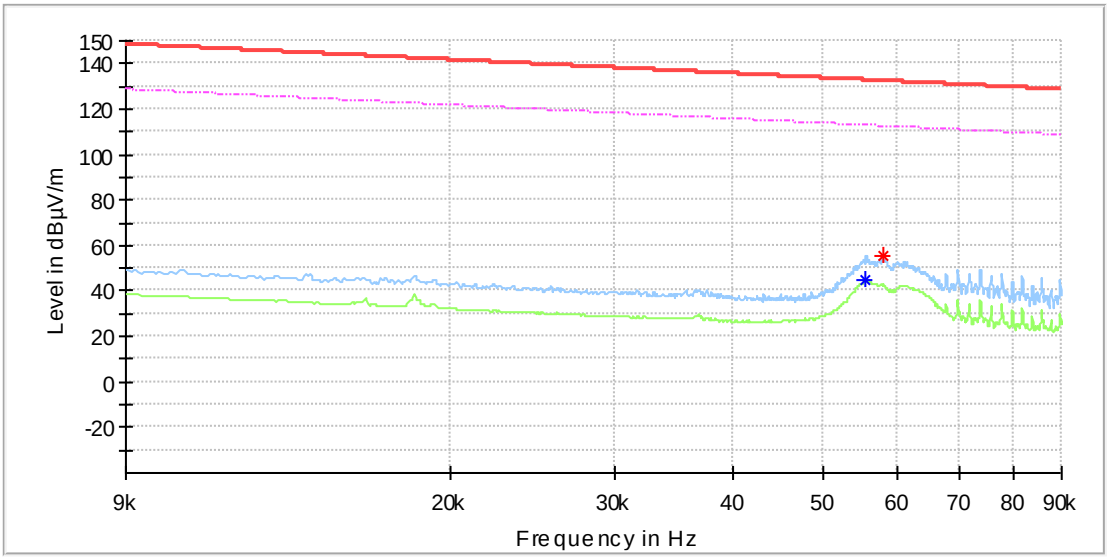
Test Setup

Date of testing	:	19.03.2020, 27.03.2020
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Ambient temperature	:	23 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Refer to following test plots for details of test result.

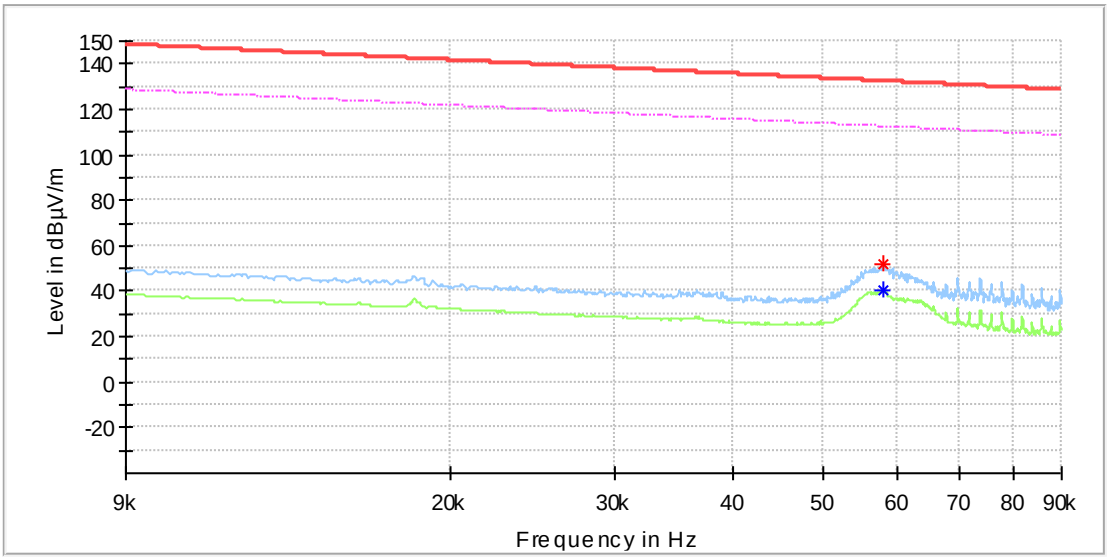
9KHz – 90KHz

X axis



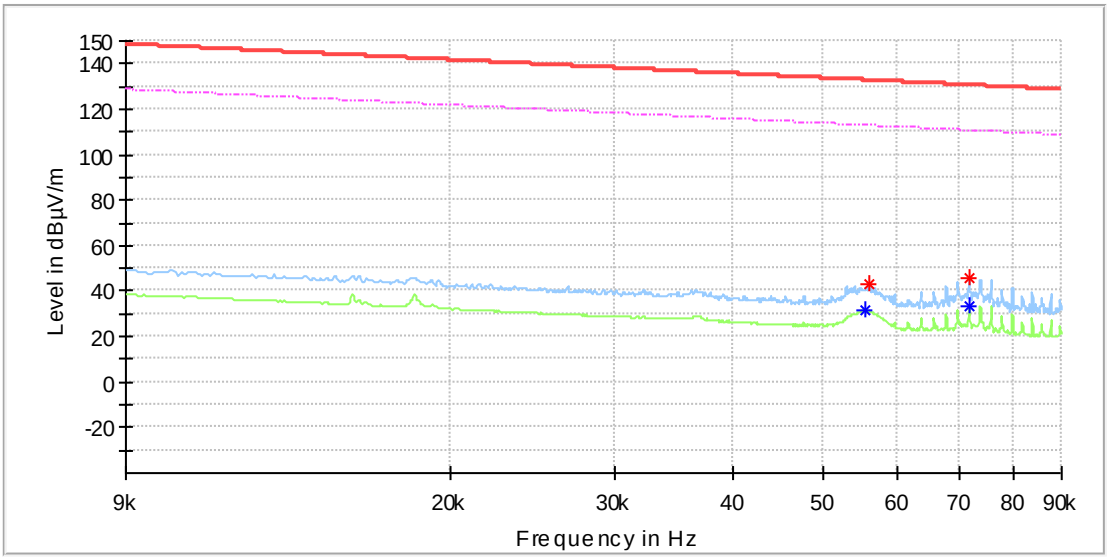
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.055633	---	44.77	112.70	67.93	100.0	287.0	20.0	0.0
0.057889	55.71	---	132.34	76.64	100.0	310.0	20.0	0.0

Y axis



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.057889	---	40.41	112.35	71.94	100.0	239.0	20.0	0.0
0.058063	52.10	---	132.32	80.22	100.0	239.0	20.0	0.0

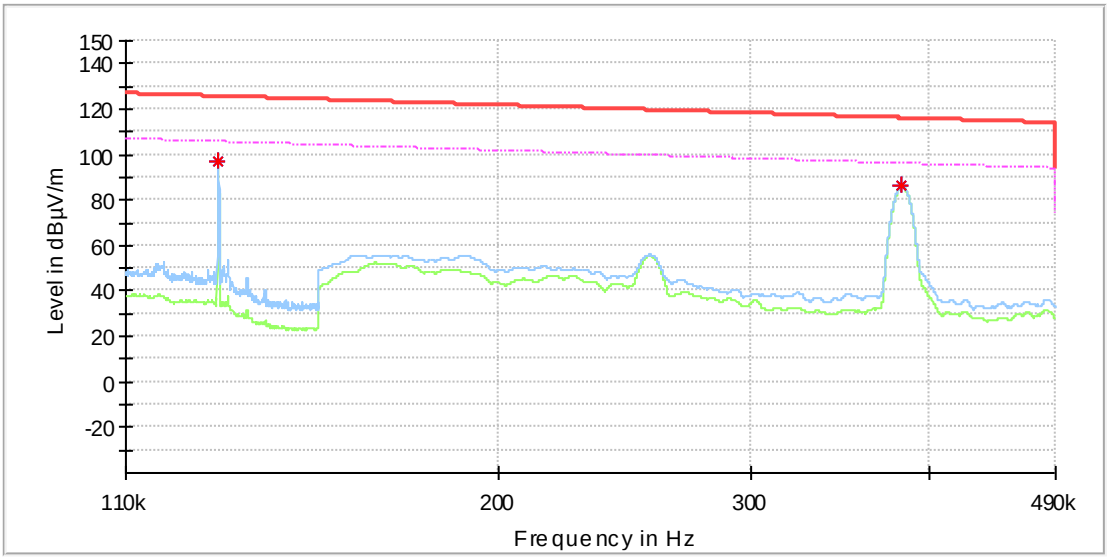
Z axis



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.055633	---	31.47	112.70	81.22	100.0	190.0	20.0	0.0
0.056154	43.21	---	132.61	89.39	100.0	167.0	20.0	0.0
0.071717	---	33.44	110.49	77.05	100.0	25.0	20.0	0.0
0.071717	45.99	---	130.48	84.49	100.0	25.0	20.0	0.0

110KHz – 490KHz

X axis

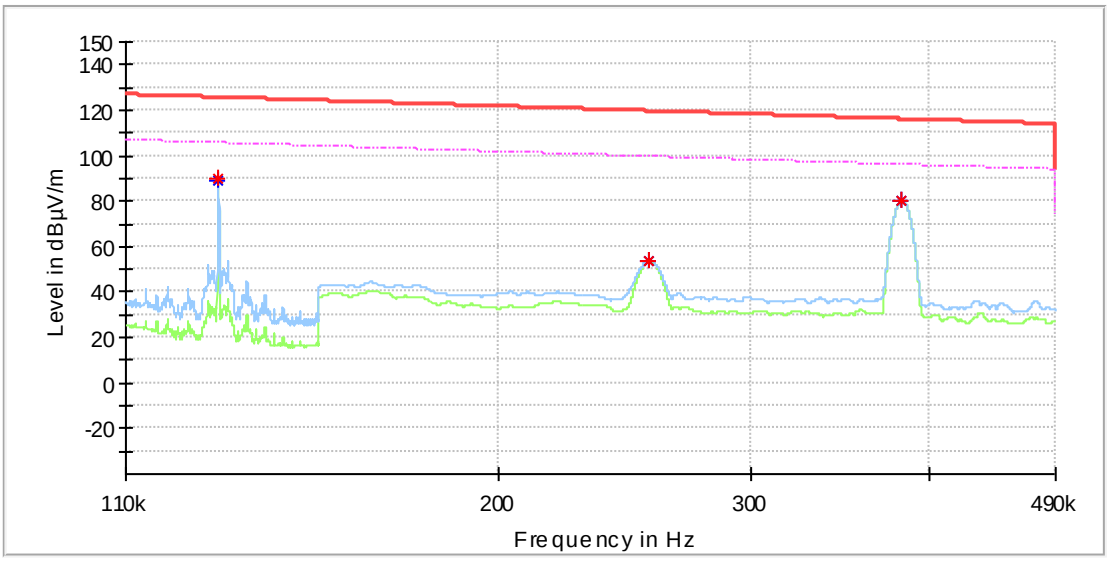


Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.127629	97.36	---	125.48	28.12	100.0	31.0	20.0	0.0
0.127629	---	97.23	105.49	8.25	100.0	31.0	20.0	0.0
0.382900	86.16	---	115.94	29.79	100.0	210.0	20.0	0.0
0.382900	---	86.04	95.94	9.90	100.0	210.0	20.0	0.0

Y axis

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.127629	93.07	---	125.48	32.41	100.0	285.0	20.0	0.0
0.127629	---	92.95	105.49	12.54	100.0	285.0	20.0	0.0
0.382900	80.49	---	115.94	35.45	100.0	120.0	20.0	0.0
0.382900	---	80.40	95.94	15.54	100.0	120.0	20.0	0.0

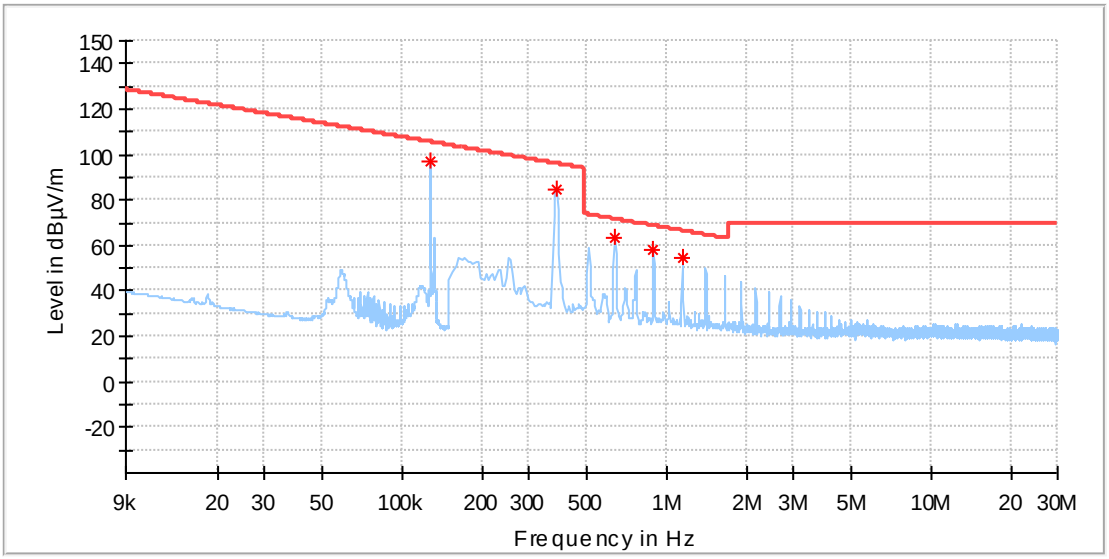
Z axis



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)
0.127629	89.64	---	125.48	35.84	100.0	25.0	20.0	0.0
0.127629	---	89.40	105.49	16.09	100.0	25.0	20.0	0.0
0.255150	---	53.45	99.47	46.02	100.0	237.0	20.0	0.0
0.255150	54.03	---	119.47	65.43	100.0	237.0	20.0	0.0
0.382750	80.07	---	115.94	35.87	100.0	209.0	20.0	0.0
0.382750	---	80.03	95.95	15.91	100.0	209.0	20.0	0.0

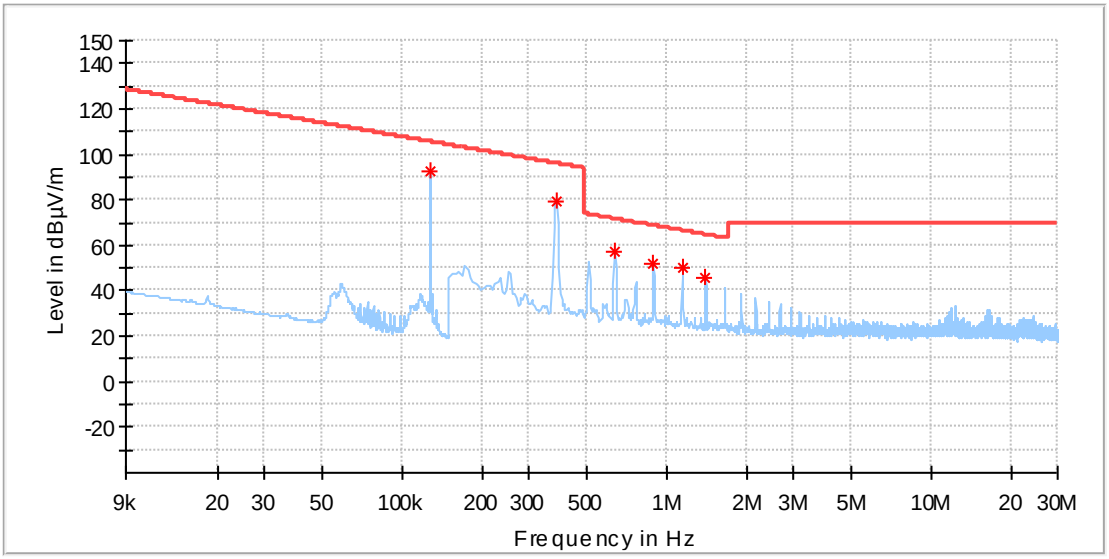
9KHz – 30MHz

X axis



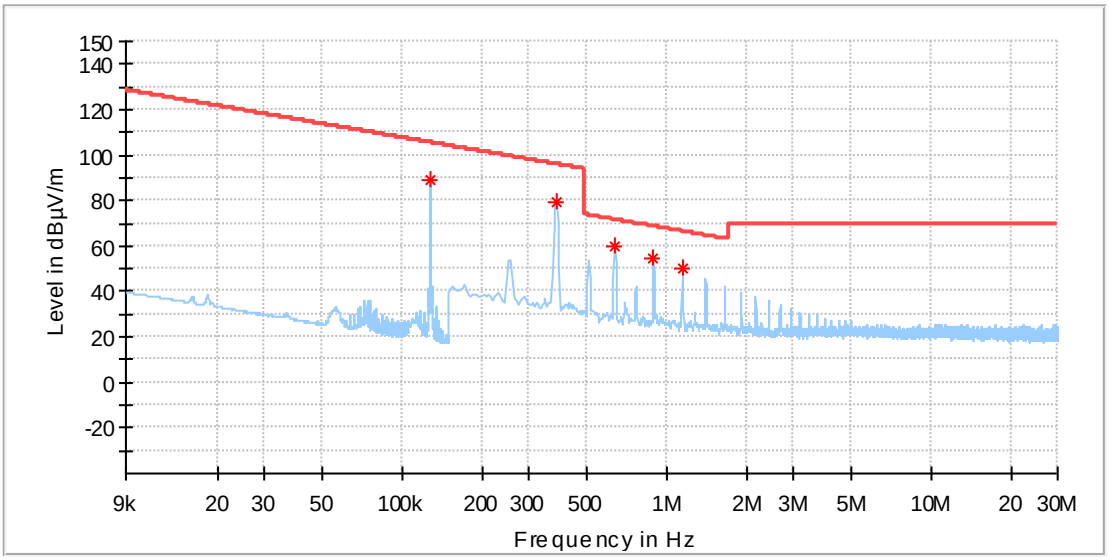
Frequency (MHz)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)	Trd Corr. (dB/m)
0.127641	96.64	105.48	8.84	100.0	26.0	20.0	0.0	20.0
0.382655	84.79	95.95	11.16	100.0	198.0	20.0	0.0	20.0
0.637258	63.54	71.52	7.98	100.0	30.0	20.0	0.0	20.0
0.891860	58.23	68.60	10.36	100.0	19.0	20.0	0.0	20.0
1.146463	54.89	66.42	11.53	100.0	19.0	20.0	0.0	20.0

Y axis



Frequency (MHz)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)	Trd Corr. (dB/m)
0.127641	92.38	105.48	13.11	100.0	281.0	20.0	0.0	20.0
0.382655	79.03	95.95	16.92	100.0	115.0	20.0	0.0	20.0
0.637258	57.24	71.52	14.28	100.0	298.0	20.0	0.0	20.0
0.891860	52.33	68.60	16.26	100.0	298.0	20.0	0.0	20.0
1.146463	50.45	66.42	15.97	100.0	126.0	20.0	0.0	20.0
1.401066	45.31	64.68	19.37	100.0	115.0	20.0	0.0	20.0

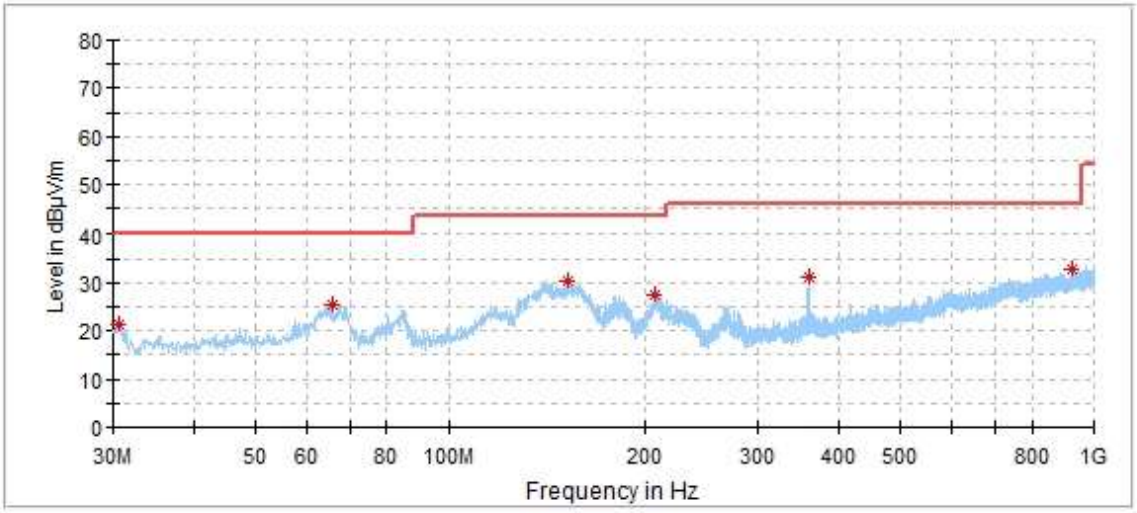
Z axis



Frequency (MHz)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Preamp (dB)	Trd Corr. (dB/m)
0.127641	88.81	105.48	16.67	100.0	24.0	20.0	0.0	20.0
0.382655	79.69	95.95	16.26	100.0	220.0	20.0	0.0	20.0
0.637258	59.61	71.52	11.90	100.0	26.0	20.0	0.0	20.0
0.891860	54.20	68.60	14.40	100.0	26.0	20.0	0.0	20.0
1.146463	49.84	66.42	16.58	100.0	32.0	20.0	0.0	20.0

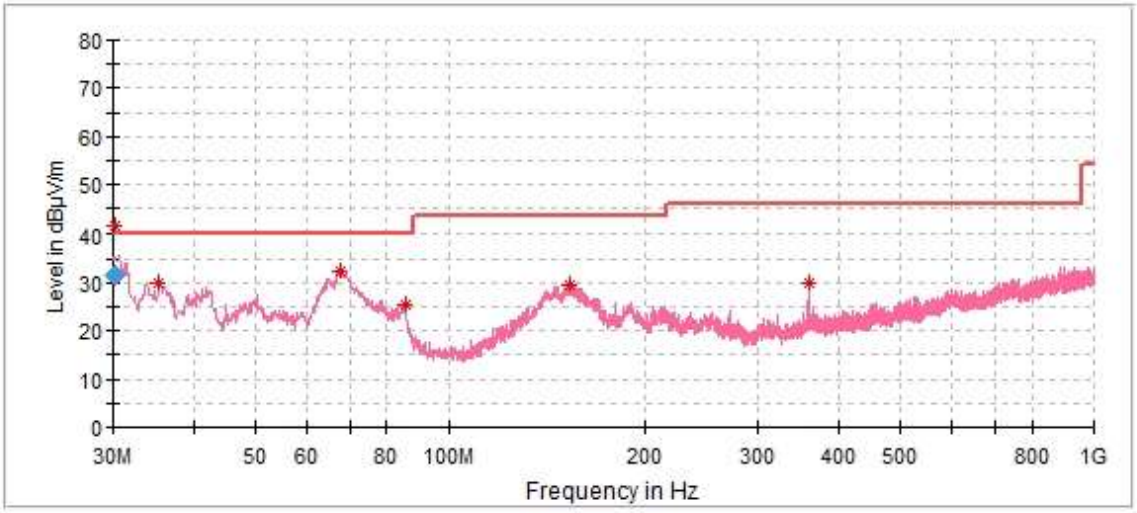
30MHz - 1GHz

Horizontal



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
152.317000	30.38	43.50	13.12	100.0	H	25.0
208.189000	27.47	43.50	16.03	100.0	H	139.0
359.412000	31.15	46.00	14.85	100.0	H	154.0
30.679000	21.52	40.00	18.48	100.0	H	219.0
65.987000	25.52	40.00	14.48	300.0	H	166.0
927.347000	32.75	46.00	13.25	400.0	H	105.0

Vertical



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.120000	41.35	40.00	4.27	125.0	V	20.0
35.335000	29.88	40.00	10.12	100.0	V	260.0
67.636000	32.23	40.00	7.77	100.0	V	53.0
85.581000	25.37	40.00	14.63	100.0	V	133.0
153.287000	29.50	43.50	14.00	100.0	V	244.0
359.412000	29.98	46.00	16.02	200.0	V	72.0

5.1.4 Conducted emissions

RESULT: **Pass**

Test Specification

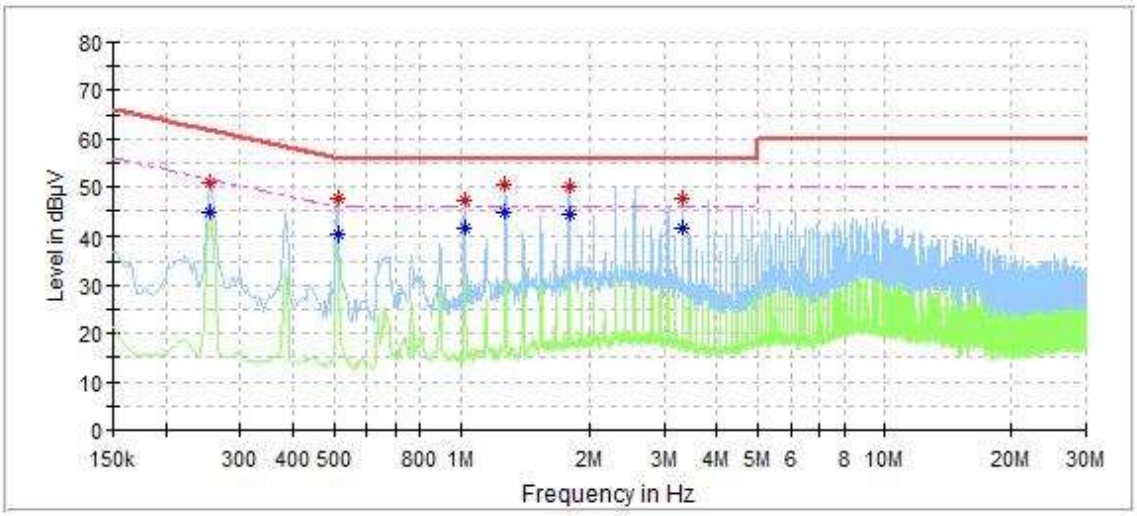
Test standard	:	FCC Part 15.201
		RSS-216 Clause 6.2.2.1
Basic standard	:	ANSI C63.4:2014
Frequency range	:	150KHz - 30MHz
Classification	:	Class B
Limit		FCC Part 15.207 (a)
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	03.04.2020
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Earthing	:	Not connected
Ambient temperature	:	23 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

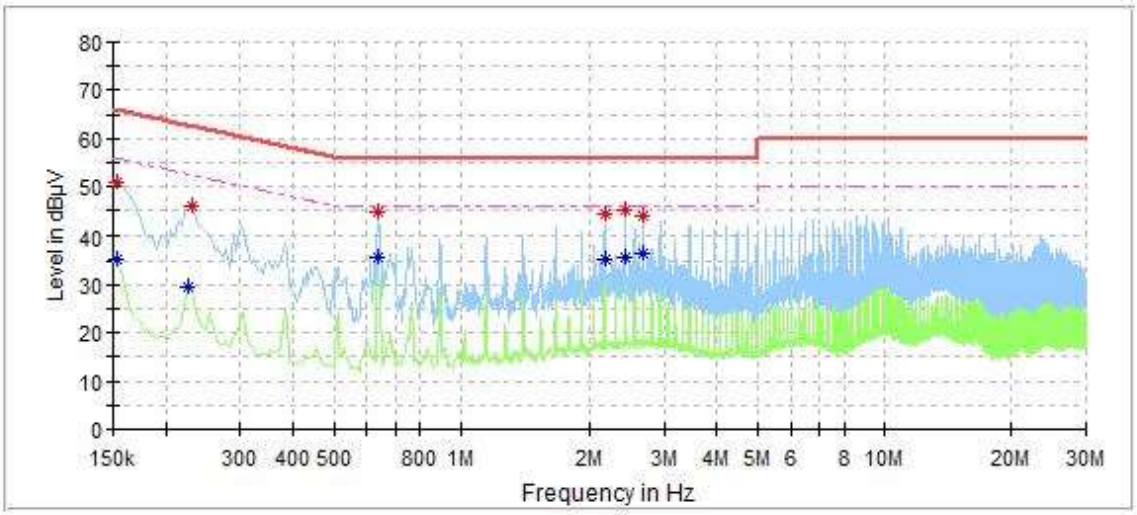
Refer to following test plots for details of test result.

L Line



Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.254000	---	44.71	51.63	6.91	L1	9.6
0.254000	50.95	---	61.63	10.67	L1	9.6
0.512000	---	40.28	46.00	5.72	L1	9.7
0.512000	47.43	---	56.00	8.57	L1	9.7
1.020000	47.11	---	56.00	8.89	L1	9.7
1.020000	---	41.43	46.00	4.57	L1	9.7
1.276000	50.37	---	56.00	5.63	L1	9.7
1.276000	---	44.68	46.00	1.32	L1	9.7
1.788000	---	44.36	46.00	1.64	L1	9.7
1.788000	50.14	---	56.00	5.86	L1	9.7
3.320000	---	41.37	46.00	4.63	L1	9.8
3.320000	47.65	---	56.00	8.35	L1	9.8

N Line



Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	---	35.48	55.78	20.30	N	9.6
0.154000	50.69	---	65.78	15.09	N	9.6
0.226000	---	29.57	52.60	23.02	N	9.6
0.230000	46.02	---	62.45	16.43	N	9.6
0.640000	---	35.59	46.00	10.41	N	9.7
0.640000	44.70	---	56.00	11.30	N	9.7
2.168000	---	35.33	46.00	10.67	N	9.7
2.172000	44.26	---	56.00	11.75	N	9.7
2.424000	---	35.80	46.00	10.20	N	9.8
2.424000	45.31	---	56.00	10.69	N	9.8
2.680000	---	36.35	46.00	9.65	N	9.8
2.680000	43.80	---	56.00	12.20	N	9.8

6 Photographs of the Test Set-Up

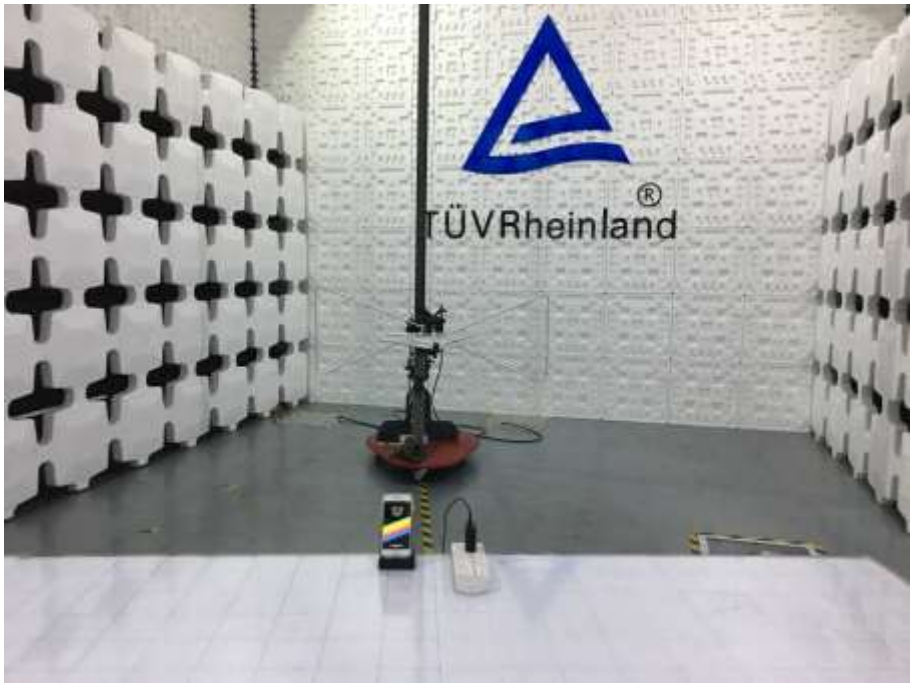
Refer to test photo document.

7 List of Tables

Appendix A: Photographs of the Test Set-Up

Photograph 1: Set-up photo for Radiated Emission, 9KHz - 30MHz

Photograph 2: Set-up photo for Radiated Emission, 30MHz - 1GHz



Photograph 3: Set-up photo for Conducted Emission on AC Mains