



Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community,
Fenghuang Street, Guangming District, Shenzhen, China

FCC PART 15 SUBPART C TEST REPORT

FCC PART 15.225

Report Reference No.....: GRCTR230302001.1-03

FCC ID.....: 2BAAY-AS11W101

Compiled by

(position+printed name+signature).....: Testing Engineer Jimmy Wang

Supervised by

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Approved by

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Date of issue.....: Apr. 20, 2023

Testing Laboratory Name.....: Shenzhen GUOREN Certification Technology Service Co., Ltd.

Address.....: 101#, Building K & Building T, The Second Industrial Zone, Jiazitang
Community, Fenghuang Street, Guangming District, Shenzhen, China

Applicant's name.....: Shenzhen TIMXON Energy Technology Co., Ltd.

Address.....: 1703-1705, Building 3, Nantai Yunchuanggu, Guangming, Shenzhen

Test specification.....:

Standard.....: FCC Part 15.225

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Test item description.....: AS 48A Smart AC Charging Point (A cover)

Trade Mark.....: TIMXON

Manufacturer.....: Shenzhen TIMXON Energy Technology Co., Ltd.

Model/Type reference.....: EAW-AS11W101-20

Listed Models: EAW-AS11W101-10,EAW-AS09P101-20,EAW-AS09P101-10

Modulation Type.....: ASK

Operation Frequency.....: 13.56MHz

Rating.....: AC 240V 60Hz

Result.....: **PASS**

TEST REPORT

Equipment under Test : AS 48A Smart AC Charging Point (A cover)

Model /Type : EAW-AS11W101-20

Listed Models : EAW-AS11W101-10,EAW-AS09P101-20,EAW-AS09P101-10

Applicant : **Shenzhen TIMXON Energy Technology Co., Ltd.**

Address : 1703-1705, Building 3, Nantai Yunchuanggu, Guangming, Shenzhen

Manufacturer : **Shenzhen TIMXON Energy Technology Co., Ltd.**

Address : 1703-1705, Building 3, Nantai Yunchuanggu, Guangming, Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	2023/03/10	Initial Issue	Sam Wang
001	2023/04/20	Change the structure, add radiated emission below 1GHz and conducted emission tests.	Sam Wang

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1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.225](#): Operation within the band 13.110–14.010 MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	Apr. 12, 2023
Testing commenced on	:	Apr. 12, 2023
Testing concluded on	:	Apr. 20, 2023

2.2 Product Description

Product Name:	AS 48A Smart AC Charging Point (A cover)
Model/Type reference:	EAW-AS11W101-20
Listed Models	EAW-AS11W101-10, EAW-AS09P101-20, EAW-AS09P101-10 (The products are identical in interior structure, electrical circuits and components, just model names and color is different.)
Power supply:	AC 240V 60Hz
Firmware Version.....	V1.0
Hardware Version.....	V1.0
13.56MHz RFID	
Operation frequency:	13.56MHz
Modulation :	ASK
No. of Channel :	1
Antenna type:	PCB Antenna
Antenna gain:	0.00 dBi
Remark: *When the information provided by the customer was used to calculate test results, if the information provided by the customer is not accurate, shenzhen GUOREN Certification Technology Service Co., Ltd. does not assume any responsibility.	

2.3 Equipment Under Test

Power supply system utilised

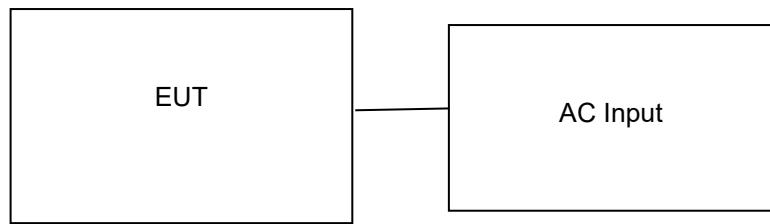
Power supply voltage	:	<input checked="" type="radio"/> 240V / 60 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input type="radio"/> Other (specified in blank below)	

/

2.4 Short description of the Equipment under Test (EUT)

This is a AS 48A Smart AC Charging Point (A cover).
 For more details, refer to the user's manual of the EUT.

2.5 Block Diagram of Test Setup



2.6 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.7 Modifications

The report is on the basis of the original report GRCTR221202009-03, change the applicant, manufacturer, product name and model name, the data are from the original report GRCTR221202009-03.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiaxitang Community, Fenghuang Street, Guangming District, Shenzhen, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 920798 Designation Number: CN1304

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6202.01

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

ISED#: 27264 CAB identifier: CN0115

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

CNAS-Lab Code: L15631

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories for the Competence of Testing and Calibration Laboratories.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	15-35 °C
Relative Humidity	30-60 %
Air Pressure	950-1050mbar

3.4 Test Description

FCC PART 15 .225		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 2.1049	20dB Bandwidth	PASS
FCC Part 15.225(a) (b) (c)	In-band Emissions	PASS
FCC Part 15.225(d)/15.207	Out-of-band Emissions	PASS
FCC Part 15.225(e)	Frequency Stability Tolerance	PASS

3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen GUOREN Certification Technology Service Co., Ltd.quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GUOREN Certification Technology Service Co., Ltd.:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

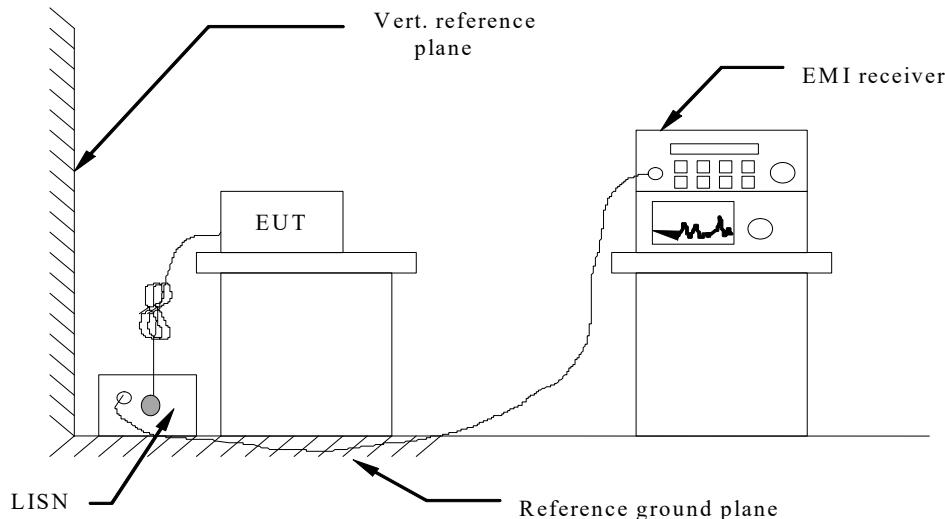
3.6 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	GRCTEE009	2022/10/12	2023/10/11
LISN	R&S	ENV216	GRCTEE010	2022/10/12	2023/10/11
EMI Test Receiver	R&S	ESPI	GRCTEE017	2022/10/12	2023/10/11
EMI Test Receiver	R&S	ESCI	GRCTEE008	2022/10/12	2023/10/11
Spectrum Analyzer	Agilent	N9020A	GRCTEE002	2022/10/12	2023/10/11
Spectrum Analyzer	R&S	FSP	GRCTEE003	2022/10/12	2023/10/11
Vector Signal generator	Agilent	N5181A	GRCTEE007	2022/10/12	2023/10/11
Analog Signal Generator	R&S	SML03	GRCTEE006	2022/10/12	2023/10/11
Climate Chamber	QIYA	LCD-9530	GRCTES016	2022/10/12	2023/10/11
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	GRCTEE018	2020/10/25	2023/10/24
Horn Antenna	Schwarzbeck	BBHA 9120D	GRCTEE019	2020/10/25	2023/10/24
Loop Antenna	Zhinan	ZN30900C	GRCTEE020	2020/10/25	2023/10/24
Horn Antenna	Beijing Hangwei Dayang	OBH100400	GRCTEE049	2021/1/18	2024/1/17
Amplifier	Schwarzbeck	BBV 9745	GRCTEE021	2022/10/12	2023/10/11
Amplifier	Taiwan chengyi	EMC051845B	GRCTEE022	2022/10/12	2023/10/11
Temperature/Humidity Meter	Huaguan	HG-308	GRCTES037	2022/10/12	2023/10/11
Directional coupler	NARDA	4226-10	GRCTEE004	2022/10/12	2023/10/11
High-Pass Filter	XingBo	XBLBQ-GTA18	GRCTEE053	2022/10/12	2023/10/11
High-Pass Filter	XingBo	XBLBQ-GTA27	GRCTEE054	2022/10/12	2023/10/11
Automated filter bank	Tonscend	JS0806-F	GRCTEE055	2022/10/12	2023/10/11
Power Sensor	Agilent	U2021XA	GRCTEE070	2022/10/12	2023/10/11
EMI Test Software	ROHDE & SCHWARZ	ESK1-V1.71	GRCTEE060	N/A	N/A
EMI Test Software	Fera	EZ-EMC	GRCTEE061	N/A	N/A

4 TEST CONDITIONS AND RESULTS

4.1 AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2013
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
- 4 The EUT received power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

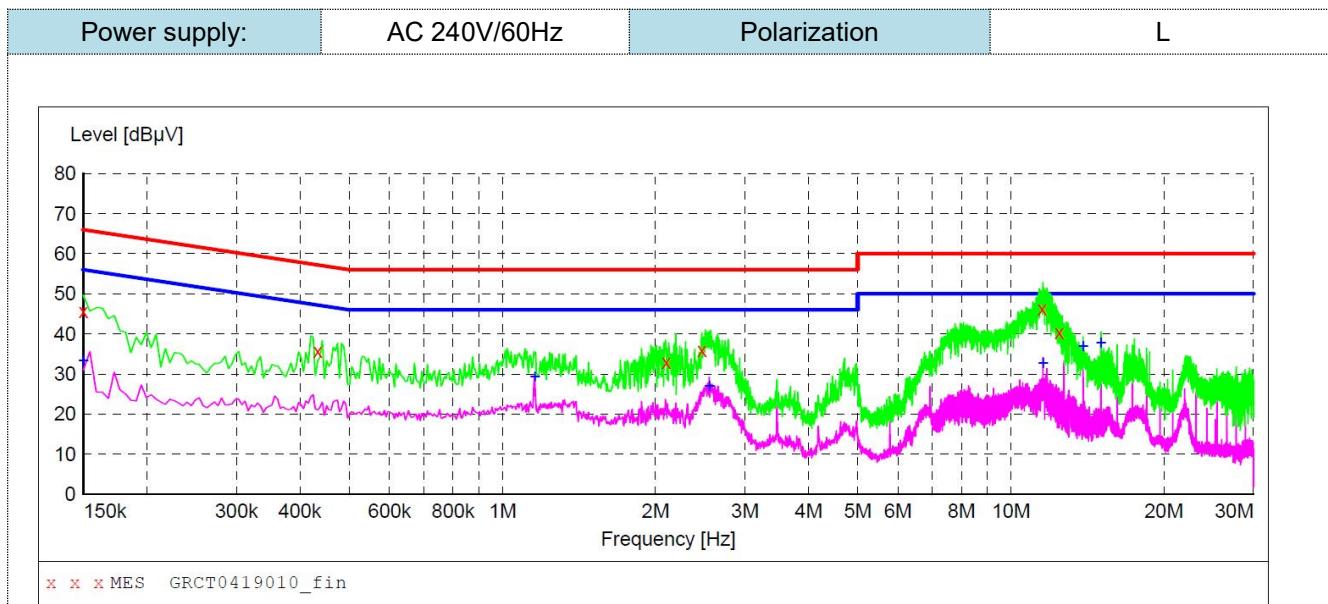
AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST RESULTS



MEASUREMENT RESULT: "GRCT0419010_fin"

4/19/2023 5:17PM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.150000	45.70	9.7	66	20.3	QP	L1	GND
0.433500	35.70	9.8	57	21.5	QP	L1	GND
2.103000	32.90	9.8	56	23.1	QP	L1	GND
2.472000	35.90	9.7	56	20.1	QP	L1	GND
11.526000	46.20	9.7	60	13.8	QP	L1	GND
12.466500	40.50	9.7	60	19.5	QP	L1	GND

MEASUREMENT RESULT: "GRCT0419010_fin2"

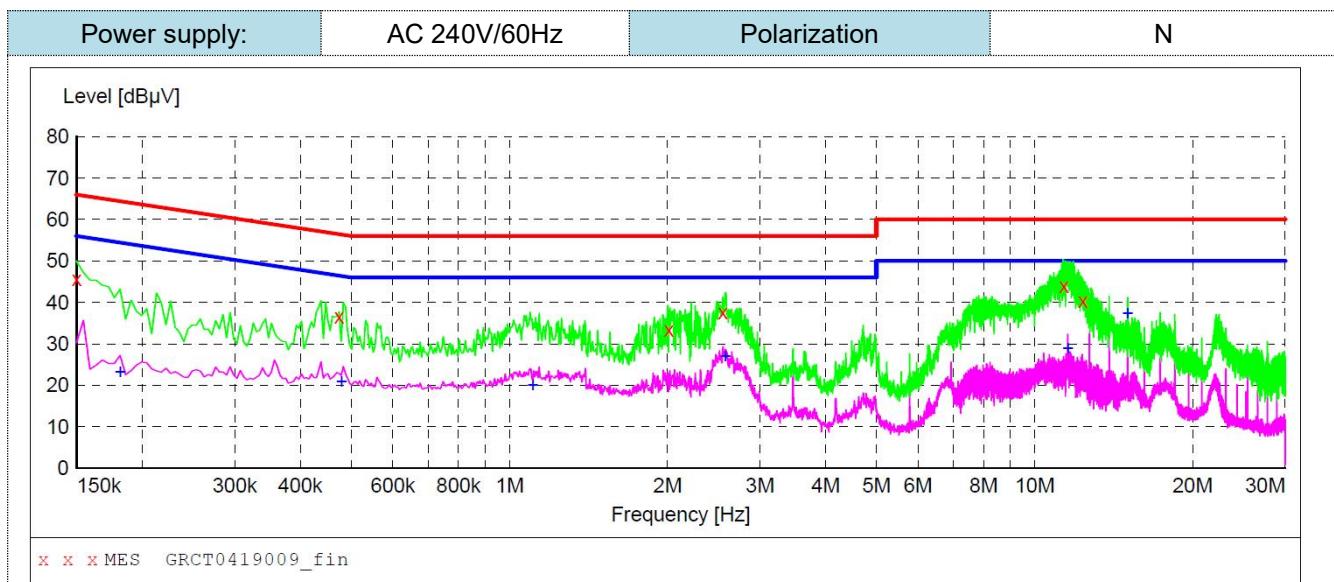
4/19/2023 5:17PM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.150000	33.50	9.7	56	22.5	AV	L1	GND
1.158000	29.40	9.6	46	16.6	AV	L1	GND
2.553000	27.00	9.7	46	19.0	AV	L1	GND
11.562000	32.70	9.7	50	17.3	AV	L1	GND
13.875000	37.00	9.8	50	13.0	AV	L1	GND
15.031500	37.80	9.8	50	12.2	AV	L1	GND

Note: 1). Level (dB μ V) = Reading (dB μ V) + Transducer (dB)

2). Transducer (dB) = insertion loss of LISN (dB) + Cable loss (dB)

3). Margin(dB) = Limit (dB μ V) - Level (dB μ V)



MEASUREMENT RESULT: "GRCT0419009_fin"

4/19/2023 5:14PM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.150000	45.60	9.7	66	20.4	QP	N	GND
0.474000	36.60	9.8	56	19.8	QP	N	GND
2.013000	33.40	9.9	56	22.6	QP	N	GND
2.553000	37.50	9.7	56	18.5	QP	N	GND
11.377500	43.90	9.7	60	16.1	QP	N	GND
12.381000	40.40	9.7	60	19.6	QP	N	GND

MEASUREMENT RESULT: "GRCT0419009_fin2"

4/19/2023 5:14PM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.181500	23.30	9.7	54	31.1	AV	N	GND
0.478500	21.00	9.8	46	25.4	AV	N	GND
1.108500	20.20	9.6	46	25.8	AV	N	GND
2.575500	27.00	9.7	46	19.0	AV	N	GND
11.566500	28.90	9.7	50	21.1	AV	N	GND
15.031500	37.40	9.8	50	12.6	AV	N	GND

Note: 1). Level (dB μ V) = Reading (dB μ V) + Transducer (dB)

2). Transducer (dB) = insertion loss of LISN (dB) + Cable loss (dB)

3). Margin(dB) = Limit (dB μ V) - Level (dB μ V)

4.2 Radiated Emission

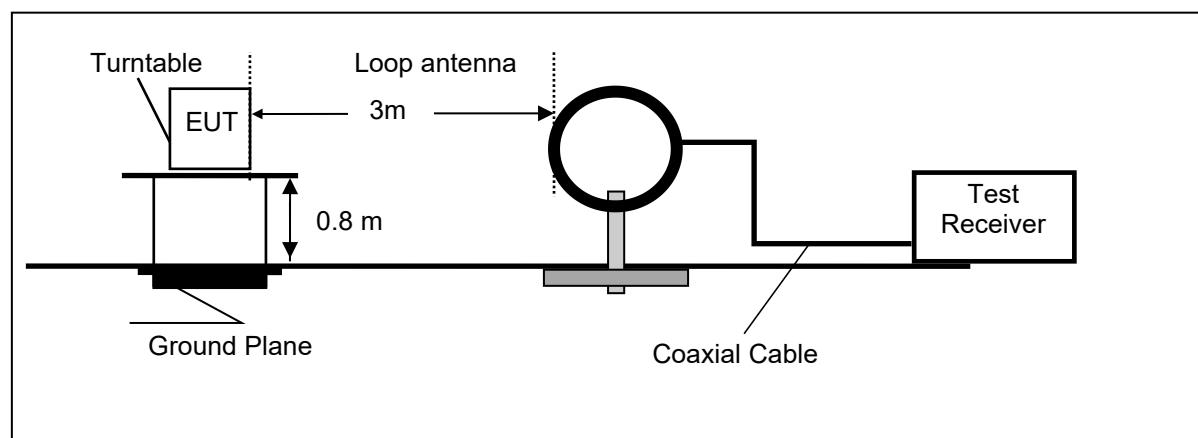
LIMIT

- a The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.
- b Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- c Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- d The field strength of any emissions appearing outside of the 13.110– 14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

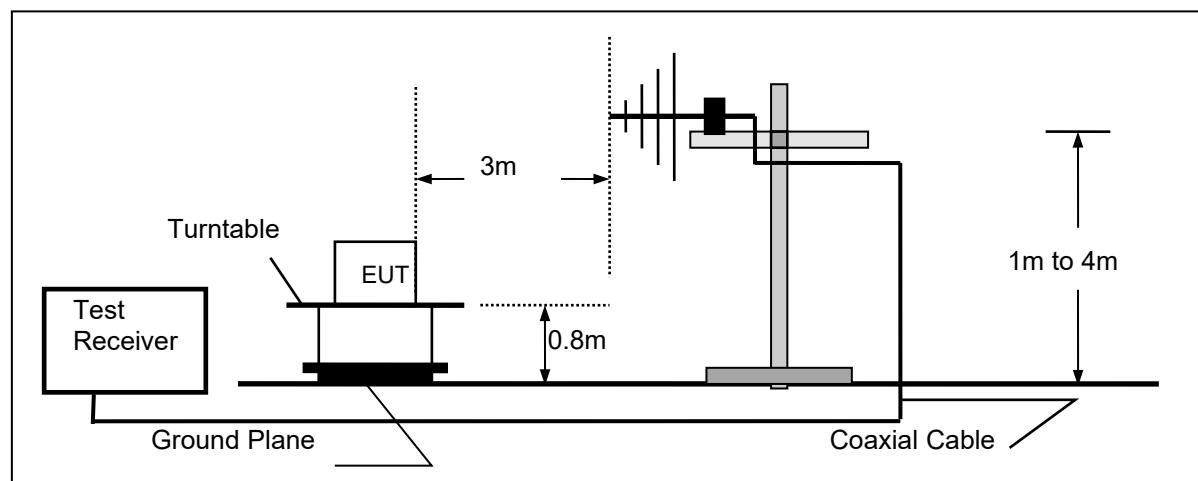
Frequency (MHz)	Distance (Meters)	Radiated (dBuV/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-13.110	3	69.54	30
13.110-13.410	3	80.50	106
13.410-13.553	3	90.47	334
13.553-13.567	3	124.00	15848
13.567-13.710	3	90.47	334
13.710-14.010	3	80.50	106
14.010-30.0	3	69.54	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



TEST PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 9 KHz –1GHz.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 1GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

Transd=AF +CL-AG

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

TEST RESULTS

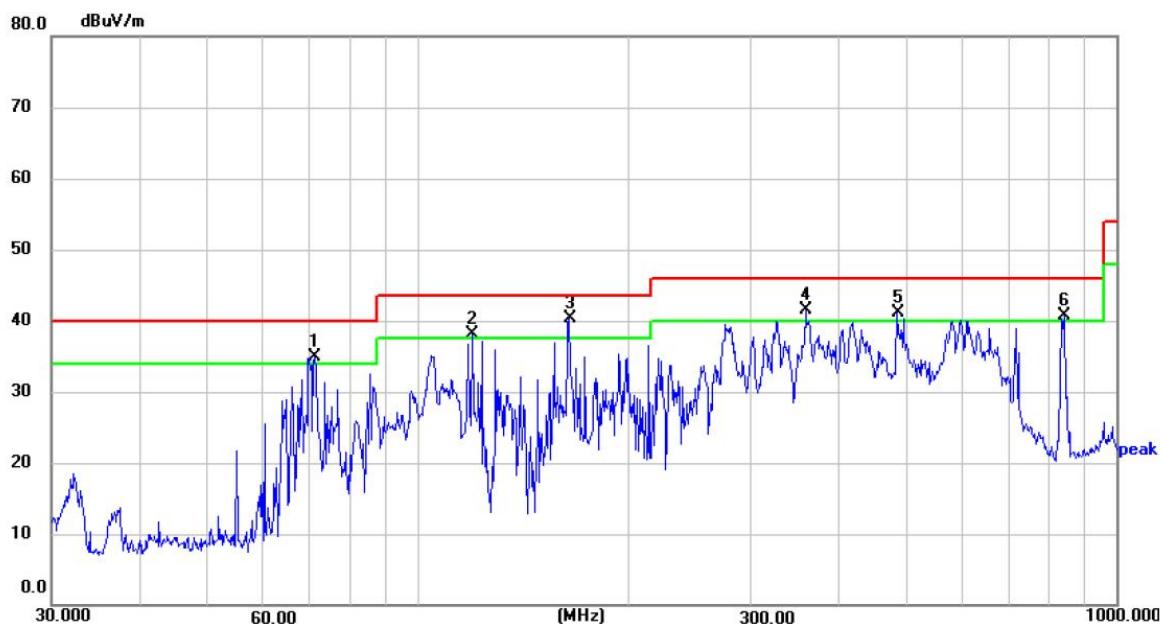
Remark:

1. This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
2. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz

Horizontal

Radiated Emission Measurement



Site LAB

Polarization: **Horizontal**

Temperature: 25(C)

Limit: FCC Part15 RE-Class B_30-1000MHz

Power: AC240V/60Hz

Humidity: 53 %

EUT:

Distance: 3m

M/N:

Mode:

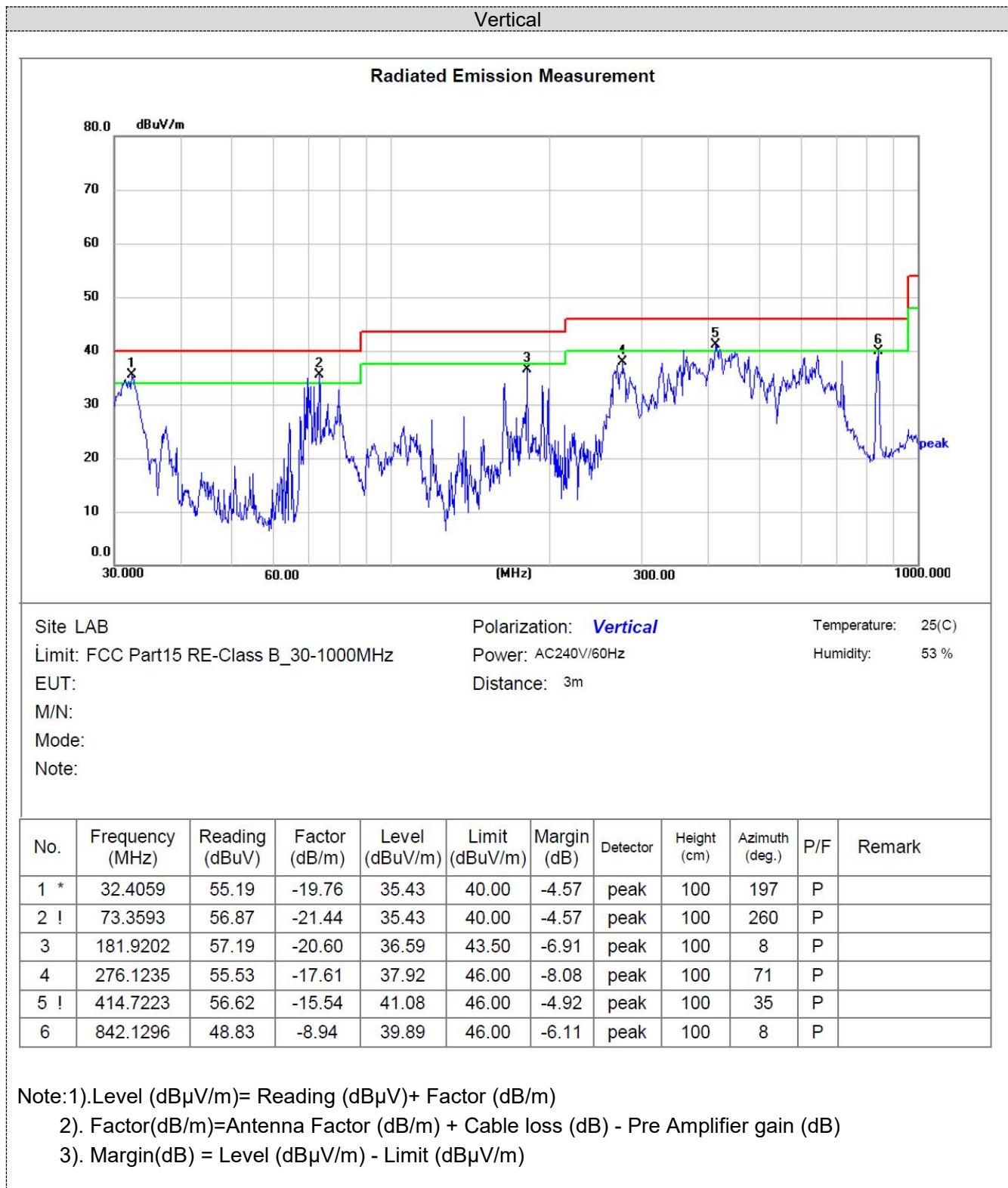
Note:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	71.3300	55.84	-20.86	34.98	40.00	-5.02	peak	200	351	P	
2 !	119.8556	58.11	-19.93	38.18	43.50	-5.32	peak	200	351	P	
3 *	164.9075	61.91	-21.63	40.28	43.50	-3.22	peak	200	1	P	
4 !	359.1860	57.83	-16.39	41.44	46.00	-4.56	peak	100	358	P	
5 !	485.6093	55.64	-14.57	41.07	46.00	-4.93	peak	200	55	P	
6 !	842.1296	49.56	-8.94	40.62	46.00	-5.38	peak	100	190	P	

Note: 1).Level (dB μ V/m)= Reading (dB μ V)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Level (dB μ V/m) - Limit (dB μ V/m)



In-band Emissions and Out-of-band Emissions below 30MHz

Frequency(MHz)						13.56			
No.	Frequency (MHz)	Emission Level (dBuV/m)	Detector	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Correction Factor (dB/m)
1	13.15	41.08	PK	80.5	39.42	21.06	20.37	-0.35	20.02
2	13.55	42.45	PK	90.47	48.02	22.39	20.42	-0.36	20.06
3	13.56	62.53	PK	124	61.47	42.47	20.42	-0.36	20.06
4	13.57	42.36	PK	90.47	48.11	22.30	20.42	-0.36	20.06
5	13.75	41.84	PK	80.5	38.66	21.78	20.44	-0.38	20.06
6	27.12	40.32	PK	69.54	29.22	20.24	20.48	-0.40	20.08

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)
3. Margin value = Limit value- Emission level.
4. The other emission levels were very low against the limit.

4.3 20dB Bandwidth

Limit

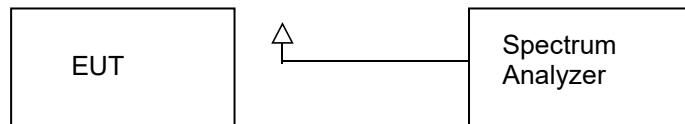
No limit for 20dB bandwidth.

Test Procedure

The 20dB bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Test Configuration



Test Results

Modulation	Frequency(MHz)	20dB bandwidth (KHz)	Result
ASK	13.56MHz	4.056	Pass

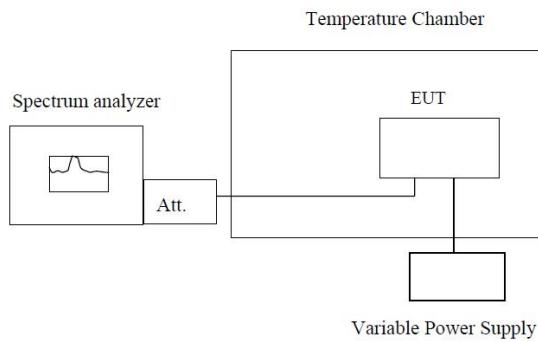


4.4 Frequency Stability

LIMIT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

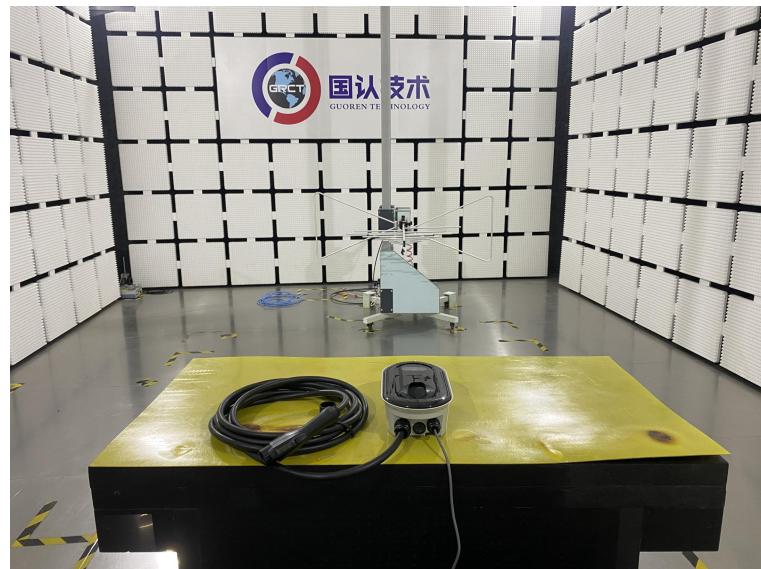
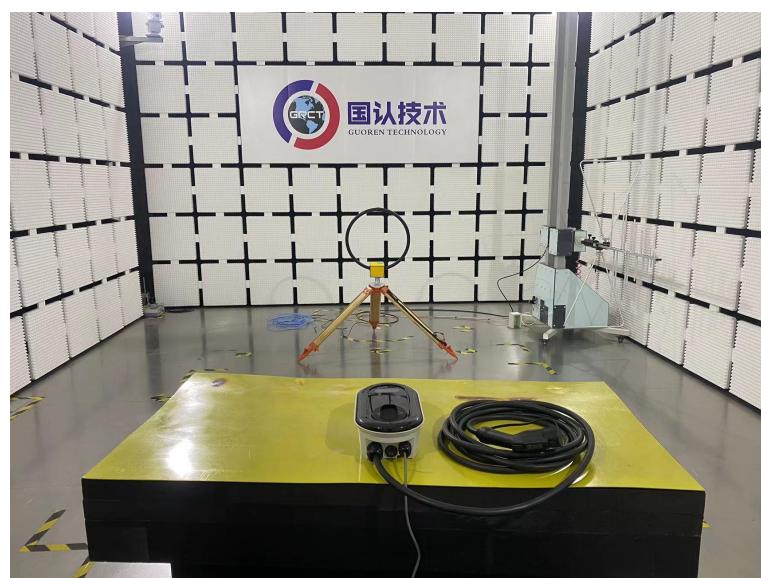
TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
7. Reduce the input voltage to specified extreme voltage variation (+/- 15%) or endpoint, record the maximum frequency change.

TEST RESULTS

Reference Frequency: 13.56MHz				
Voltage (V)	Temperature (°C)	Frequency (MHz)	Frequency Deviation(Hz)	Deviation (%)
240V	+20(Ref)	13.560123	123	0.000907080
	-20	13.560146	146	0.001076696
	-10	13.560137	137	0.001010324
	0	13.560128	128	0.000943953
	10	13.560115	115	0.000848083
	20	13.560164	164	0.001209440
	25	13.560172	172	0.001268437
	30	13.560153	153	0.001128319
	40	13.560145	145	0.001069322
	50	13.560102	102	0.000752212
264V	20	13.560155	155	0.001143068
216V	20	13.560119	119	0.000877581

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. **GRCTR230302001.1-01**.

***** **End of Report** *****