

TEST REPORT



Applicant	Shenzhen SOFAR SOLAR Co., Ltd.
Address	401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, Guangdong, P.R.China.

Manufacturer or Supplier	Shenzhen SOFAR SOLAR Co., Ltd.	
Address	401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, Guangdong, P.R.China.	
Product	Rechargeable Li-ion Battery	
Brand Name	AMASSTORE	
Model	GTX5000	
Additional Model & Model Difference	N/A	
Date of tests	Jan. 09, 2020 ~ Apr. 10, 2020	

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

- EN 55032:2015, CLASS B
- EN 55035:2017

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Ryan Lu Project Engineer / EMC Department	Approved by Madison Luo Assistant Manager / EMC Department
	 Date: Jul. 03, 2020

This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



Table of Contents

RELEASE CONTROL RECORD 4

1 SUMMARY OF TEST RESULTS 5

1.1 MEASUREMENT UNCERTAINTY 6

2 GENERAL INFORMATION 7

2.1 GENERAL DESCRIPTION OF EUT 7

2.2 DESCRIPTION OF TEST MODES 8

2.3 TEST PROGRAM USED AND OPERATION DESCRIPTIONS 8

2.4 MISCELLANEOUS 8

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS 9

2.6 DESCRIPTION OF SUPPORT UNITS 9

3 CONDUCTED EMISSION MEASUREMENT AT TELECOMMUNICATION PORTS 10

3.1 LIMIT OF CONDUCTED ASYMMETRIC MODE DISTURBANCE AT TELECOMMUNICATION PORTS 10

3.2 TEST INSTRUMENTS 10

3.3 TEST PROCEDURE 11

3.4 TEST SETUP 12

3.5 SUPPLEMENTARY INFORMATION 13

3.6 TEST RESULTS 14

4 RADIATED EMISSION MEASUREMENT 15

4.1 LIMITS OF RADIATED EMISSION MEASUREMENT 15

4.2 TEST INSTRUMENTS 17

4.3 TEST PROCEDURE 18

4.4 TEST SETUP 20

4.5 SUPPLEMENTARY INFORMATION 20

4.6 TEST RESULTS (BELOW 1GHZ) 21

5 IMMUNITY TEST 23

5.1 GENERAL DESCRIPTION 23

5.1.1 GENERAL PERFORMANCE CRITERIA DESCRIPTION 24

5.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD) (EN55035) 25

5.2.1 TEST SPECIFICATION 25

5.2.2 TEST INSTRUMENTS 25

5.2.3 TEST PROCEDURE 25

5.2.4 DEVIATION FROM TEST STANDARD 26

5.2.5 TEST SETUP 26

5.2.6 TEST RESULTS 27

5.3 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS) (EN55035) 29

5.3.1 TEST SPECIFICATION 29

5.3.2 TEST INSTRUMENTS 29

5.3.3 TEST PROCEDURE 30

5.3.4 DEVIATION FROM TEST STANDARD 30

5.3.5 TEST SETUP 31

5.3.6 TEST RESULTS 33

5.4 ELECTRICAL FAST TRANSIENT (EFT) (EN55035) 34

5.4.1 TEST SPECIFICATION 34

5.4.2 TEST INSTRUMENTS 34

5.4.3 TEST PROCEDURE 34

5.4.4 DEVIATION FROM TEST STANDARD 34

5.4.5 TEST SETUP 35

5.4.6 TEST RESULTS 36

5.5 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS) (EN55035) 37

5.5.1 TEST SPECIFICATION 37

5.5.2 TEST INSTRUMENTS 37

5.5.3 TEST PROCEDURE 38



5.5.4	DEVIATION FROM TEST STANDARD	38
5.5.5	TEST SETUP	39
5.5.6	TEST RESULTS.....	40
5.6	POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST (EN55035)	41
5.6.1	TEST SPECIFICATION.....	41
5.6.2	TEST INSTRUMENTS	41
5.6.3	TEST PROCEDURE.....	41
5.6.4	DEVIATION FROM TEST STANDARD	41
5.6.5	TEST SETUP	42
5.6.6	TEST RESULTS.....	43
6	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	44
7	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	49



BUREAU
VERITAS

Test Report No.: CE200109N021-1

RELEASE CONTROL RECORD

Issue No.	Description	Date Issued
CE200109N021-1	Original release	Jul. 03, 2020



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Emission			
Standard	Test Item	Result	Remarks
EN 55032:2015, CLASS B	Conducted Test (Telecom port)	PASS	Minimum passing margin is -25.67dB at 10.23900 MHz
	Radiated test (30MHz~1GHz)	PASS	Minimum passing margin is -9.47dB at 127.975 MHz

Remarks: EN 55032:2015 versions is required by client and it will also remark in report that it comply with previous standard EN 55032:2012 + AC:2013.

IMMUNITY (EN55035:2017)			
Standard	Test Type	Result	Remarks
IEC 61000-4-2:2008 ED. 2.0	Electrostatic discharge immunity test	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-3:2010 ED. 3.2	Radiated, radio-frequency, electromagnetic field immunity test	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-4:2012 ED. 3.0	Electrical fast transient / burst immunity test.	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-6:2013 ED. 4.0	Immunity to conducted disturbances, induced by radio-frequency fields	PASS	Meets the requirements of Performance Criterion A
IEC 61000-4-8:2009 ED. 2.0	Power frequency magnetic field immunity test.	PASS	Power Frequency Magnetic Field Test, 50 Hz, 1A/m, Performance Criterion A



1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Disturbance Voltage at the telecom Terminals Emission	30MHz ~ 2150 MHz	+ /-4.70 dB
Radiated Disturbance Test	30MHz ~ 1000MHz	+/- 3.99 dB



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Rechargeable Li-ion Battery
TEST MODEL	GTX5000
ADDITIONAL MODELS	N/A
POWER SUPPLY	DC 51.2V, 100Ah, 5120Wh from Battery Charging: DC 56.16V 50A Max Discharging: DC 51.2V 75A Max
CABLE SUPPLIED	N/A
OPERATING FREQUENCY	Below 108MHz

NOTE:

1. For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
3. Please refer to the EUT photo document (Reference No.: 200109N021) for detailed product photo.



2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the **Data Transmitting** mode for all tests.

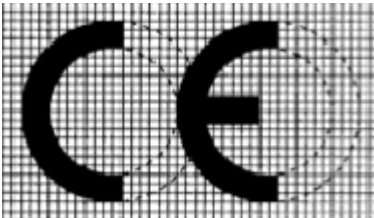
2.3 TEST PROGRAM USED AND OPERATION DESCRIPTIONS

- a. Turned on the power of all equipment.
- b. EUT was operated according to the type described in manufacturer's specifications or the user's manual.

2.4 MISCELLANEOUS

➤ Affix CE marking

The marking must be placed visibly and legibly on the product or, if not possible due to the nature of the product, be affixed to the packaging and the accompanying document. The CE marking shall consist of the initials 'CE' taking the following form:



The various components of the CE marking must have the same vertical dimension, and may not be smaller than 5 mm. If the CE marking is reduced or enlarged, the proportions given in the graduated drawing above must be respected.

When the product is subject to other Directives covering other aspects and which also provide for the 'CE' marking, the accompanying documents must indicate that the product also conforms to those other Directives.

However, when one or more of those Directives allow the manufacturer, during a transitional period, to choose which arrangements to apply, the 'CE' marking has to indicate conformity only with the Directives applied by the manufacturer. In this case, the particularities of the Directives applied, as published in the Official Journal of the European Union, must be given in the documents, notices or instructions required by the Directives and accompanying such products.



2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturers, the EUT must comply with the requirements of the following standards:

EN 55032:2015, CLASS B

EN 55035:2017

IEC 61000-4-2:2008 ED. 2.0

IEC 61000-4-3:2010 ED. 3.2

IEC 61000-4-4:2012 ED. 3.0

IEC 61000-4-6:2013 ED. 4.0

IEC 61000-4-8:2009 ED. 2.0

All applicable tests have been performed and recorded as per the above standards.

2.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as a dependent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	Latitude 5280	77K2GH2	N/A
2	Notebook	DELL	Inspiron 14-3442	4Q3WB12	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 0.8m, DC Line: Unshielded, Detachable 1.8m.
2	AC Line: Unshielded, Detachable 0.8m, DC Line: Unshielded, Detachable 1.8m.



3 CONDUCTED EMISSION MEASUREMENT AT TELECOMMUNICATION PORTS

3.1 LIMIT OF CONDUCTED ASYMMETRIC MODE DISTURBANCE AT TELECOMMUNICATION PORTS

FOR CLASS A EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 - 87	84 - 74	53 - 43	40 - 30
0.5 - 30.0	87	74	43	30

FOR CLASS B EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 - 64	40 - 30	30 - 20
0.5 - 30.0	74	64	30	20

NOTE: (1) The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Impedance Stabilization Network	TESEQ	ISN T800	27957	Sep. 18,19	Sep. 17,20
Impedance Stabilization Network	TESEQ	ISN T400A	30448	May 26, 19	May 25, 20
Coupling Decoupling Network	TESEQ	CDN ST08A	32256	Mar. 13, 20	Mar. 12,21
RF Current Probe	FCC	F-51	120418	Mar. 13, 20	Mar. 12,21
Current Probe	Rohde&Schwarz	EZ-17	100913	Aug. 23,19	Aug. 22,20
Capacitive Voltage Probe	TESEQ	CVP 2200A	42032	May 28, 19	May 27, 20
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Mar. 13, 20	Mar. 12,21
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 13, 20	Mar. 12,21
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Mar. 13, 20	Mar. 12,21
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

NOTES: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in Shielded Room 553.



3.3 TEST PROCEDURE

For using ISN:

- a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to ISN directly to reference ground plane.
- b. If voltage measurement is used, measure voltage at the measurement port of the ISN, correct the reading by adding the ISN voltage division factor, and compare to the voltage limit.
- c. If current measurement is used, measure current with the current probe and compare to the current limit.
- d. It is not necessary to apply the voltage and the current limit if the ISN is used. A 50 Ω load has to be connected to the measurement port of the ISN during the current measurement.
- e. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT.

For using a 150 Ω load to the outside surface of the shield cable:

- a. Break the insulation and connect a 150 Ω resistor from the outside surface of the shield cable to ground, and apply a ferrite tube or clamp between 150 Ω connection and AE.
- b. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AE with the shield cable.
- c. Measure current with a current probe and compare to the current limit. The common mode impedance towards the right of the 150 Ω resistor.
- d. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT.

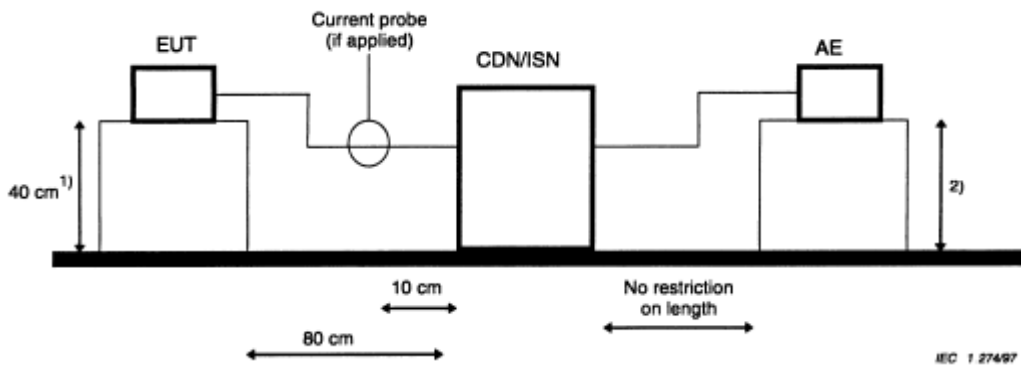


For using a combination of current probe and capacitive voltage probe:

- a. The EUT is placed 0.4 meters from the conducting wall of the shielded room and connected to AE with a cable. The cable contains more than four balanced pairs or to unbalanced cable.
- b. Measure current with a current probe and compare to the current limit.
- c. Measure voltage with a capacitive probe and adjust the measured voltage as follows:
- d. – current margin ≤ 6 dB – subtract the actual current margin from measured voltage;
- e. – current margin > 6 dB – subtract 6 dB from measured voltage.
- f. Compare adjusted voltage with the applicable voltage limit.
- g. Both the measured current and the adjusted voltage shall be below the applicable current and voltage limits.
- h. The disturbance levels and the frequencies of at least six highest disturbances are recorded from be measured each telecommunication port, which comprises the EUT

3.4 TEST SETUP

For using ISN:

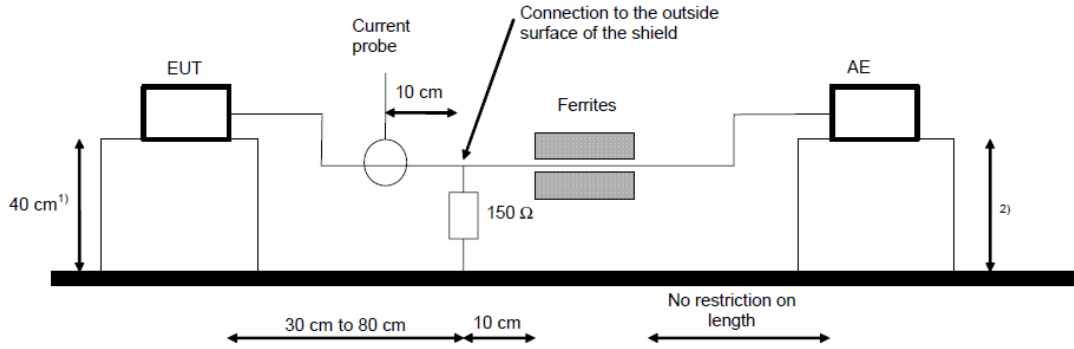


AE = Associated equipment
EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal).

2) Distance to the reference groundplane is not critical.

For using a 150 Ω load to the outside surface of the shield cable:



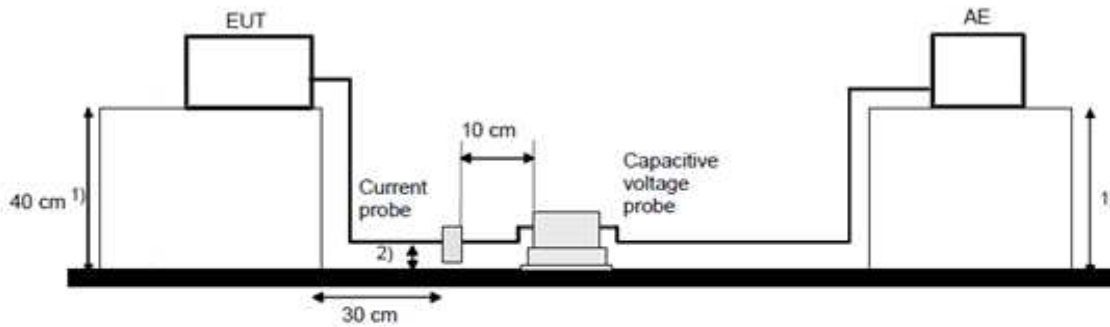
AE = Associated equipment

EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal).

2) Distance to the reference groundplane is not critical.

For using a combination of current probe and capacitive voltage probe:



AE = Associated equipment

EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal)

2) Distance 4 ± 1 cm from the reference groundplane.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

3.5 SUPPLEMENTARY INFORMATION

No deviation.

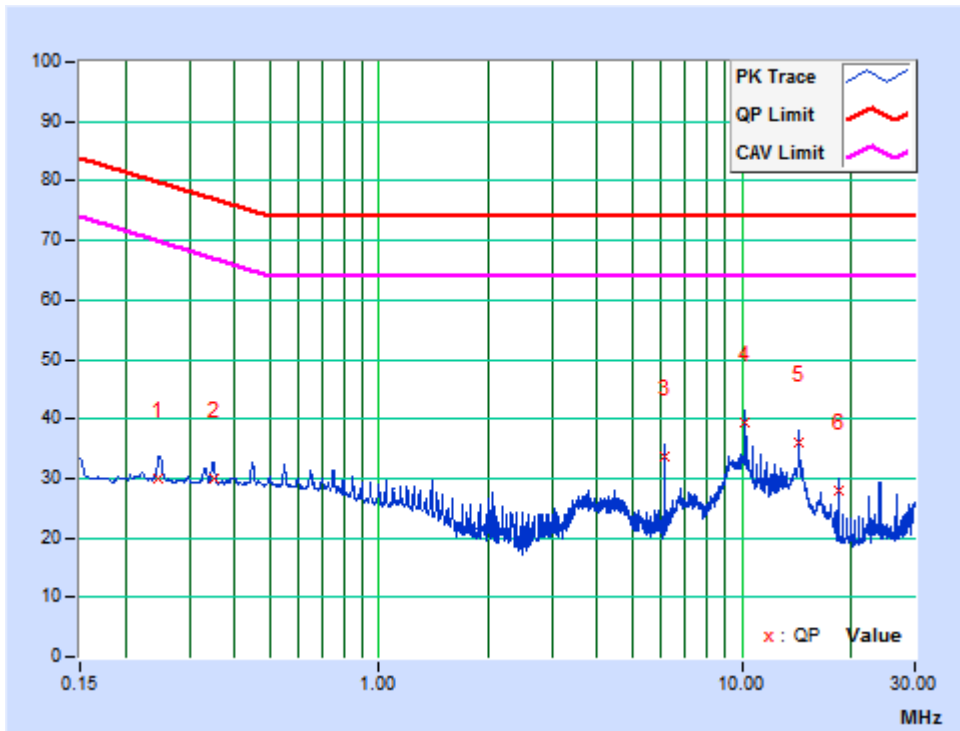


3.6 TEST RESULTS

TEST MODE	Data Transmitting	6dB BANDWIDTH	9 kHz
TEST VOLTAGE	DC 51.2V from Battery	PHASE	T8
ENVIRONMENTAL CONDITIONS	25deg. C, 56% RH,	TEST BY	Ming Bai

No.	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.24748	10.06	19.93	15.94	29.99	26.00	79.84	69.84	-49.85	-43.84
2	0.35025	9.93	20.10	16.05	30.03	25.98	76.96	66.96	-46.92	-40.97
3	6.14400	9.71	24.05	23.98	33.76	33.69	74.00	64.00	-40.24	-30.31
4	10.23900	9.78	29.45	28.55	39.23	38.33	74.00	64.00	-34.77	-25.67
5	14.33625	9.85	26.12	25.12	35.97	34.97	74.00	64.00	-38.03	-29.03
6	18.43125	9.92	18.12	17.92	28.04	27.84	74.00	64.00	-45.96	-36.16

REMARKS: The emission levels of other frequencies were very low against the limit.





4 RADIATED EMISSION MEASUREMENT

4.1 LIMITS OF RADIATED EMISSION MEASUREMENT FOR FREQUENCY BELOW 1000 MHz

For Other equipment

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	Quasi-Peak dBuV/m	Quasi-Peak dBuV/m
30 – 230	40	30
230 – 1000	47	37

FREQUENCY (MHz)	Class A (at 3m)	Class B (at 3m)
	Quasi-Peak dBuV/m	Quasi-Peak dBuV/m
30 – 230	50	40
230 – 1000	57	47

For FM receivers

Distance (m)	Source	Frequency Range (MHz)	Limits dB (uV/m)	
			Quasi-peak	
10	Local oscillator	≤1000	Fundamental	50
		30 to 300	Harmonics	42
	Other	300 to 1000	Harmonics	46
		30 to 230		30
230 to 1000		37		
3	Local oscillator	≤1000	Fundamental	60
		30 to 300	Harmonics	52
	Other	300 to 1000	Harmonics	56
		30 to 230		40
230 to 1000		47		



FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	Up to 5 times of the highest frequency or 6 GHz, whichever is less

FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
1 to 3	76	56	70	50
3 to 6	80	60	74	54

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
 3. All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

**4.2 TEST INSTRUMENTS****FREQUENCY RANGE BELOW 1GHz**

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU26	100005	May 20,19	May 19, 20
EMI Test Receiver	Rohde&Schwarz	ESR7	101564	Mar. 12,20	Mar. 11, 21
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-555	Nov. 24, 19	Nov. 23, 20
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 01, 19	Nov. 30, 20
Preamplifier	EMCI	EMC1135	980378	Mar. 15,20	Mar. 14,21
Preamplifier	EMCI	EMC1135	980423	Mar. 15,20	Mar. 14,21
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8.8m	NSEMC006	Apr. 20,19	Apr. 19,20
Test Software	ADT	ADT_Radiated_V8.7.07	N/A	N/A	N/A

- NOTES:** 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

FREQUENCY RANGE ABOVE 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00085519	Nov. 24, 19	Nov. 23, 20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170147	Jun. 23,19	Jun. 22,20
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Mar. 12,20	Mar. 11,21
Broadband Preamplifier (1~18GHz)	SCHWARZBECK	BBV9718	266	Apr. 21,19	Apr. 20,20
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 09,19	Nov. 08,20
Test Software	ADT	ADT_Radiated_V8.7.07	N/A	N/A	N/A

- NOTES:** 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



4.3 TEST PROCEDURE

<Frequency Range below 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
5. Margin value = Emission level – Limit value.



<Frequency Range above 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter-to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test receiver/spectrum was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

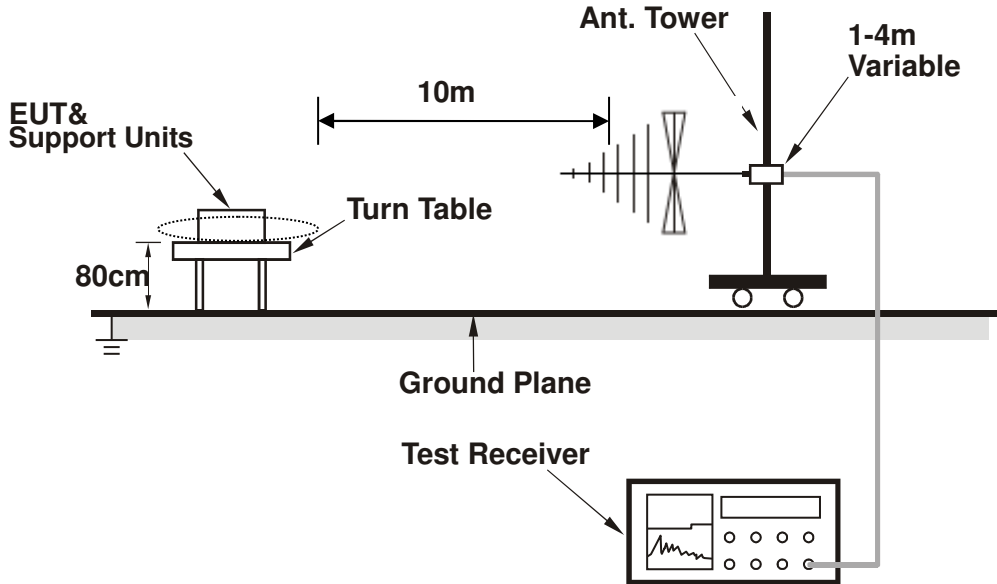
NOTE:

1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
3. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
5. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
6. Margin value = Emission level – Limit value.

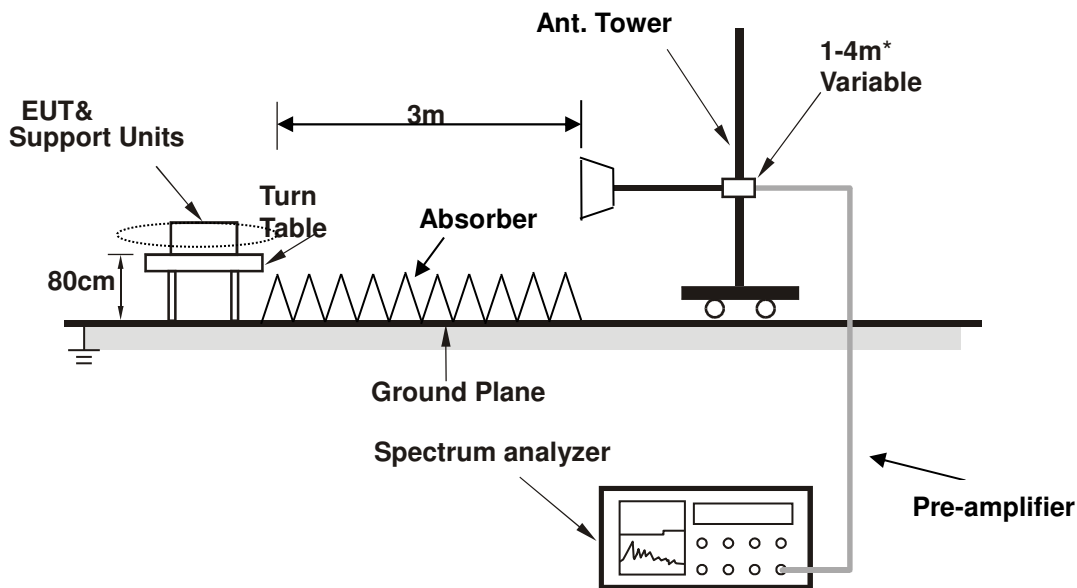


4.4 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

4.5 SUPPLEMENTARY INFORMATION

The more stringent measurement method of paragraph 8.3.2 in ANSI C63.4:2014 was applied for the test.

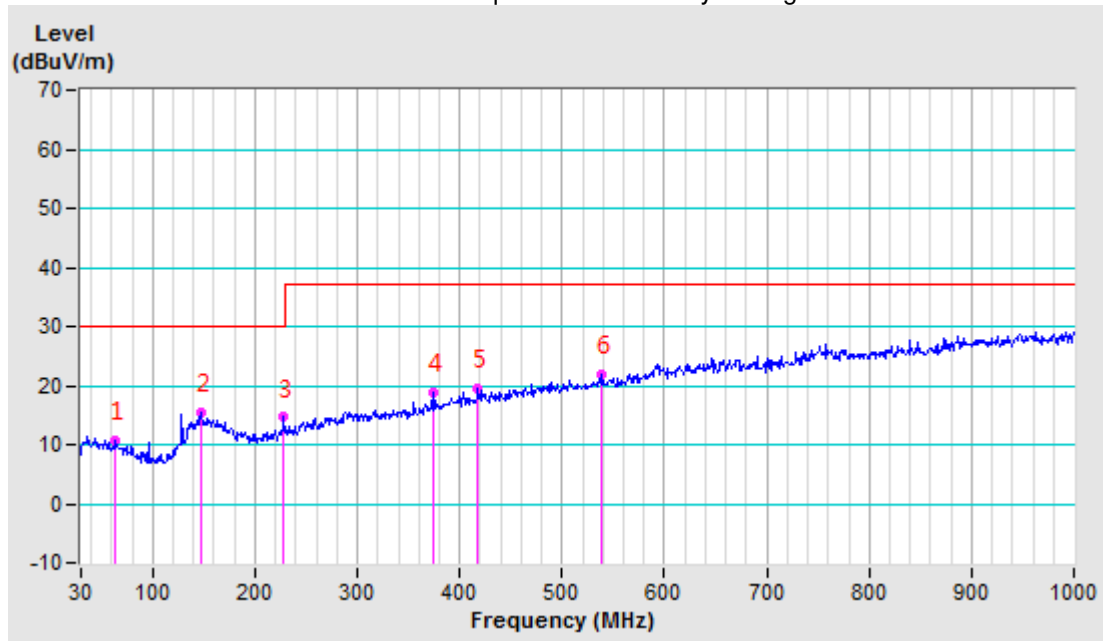


4.6 TEST RESULTS (Below 1GHz)

TEST MODE	Data Transmitting	FREQUENCY RANGE	30-1000MHz
TEST VOLTAGE	DC 51.2V from Battery	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 55% RH	TESTED BY: Kamiko	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	63.829	-21.58	32.33	10.75	30.00	-19.25	200	250
2	147.370	-16.19	31.54	15.35	30.00	-14.65	200	35
3	228.365	-17.68	32.29	14.61	30.00	-15.39	400	189
4	373.380	-12.85	31.76	18.91	37.00	-18.09	200	23
5	417.758	-11.44	30.99	19.55	37.00	-17.45	400	237
6	538.765	-8.81	30.78	21.97	37.00	-15.03	200	23

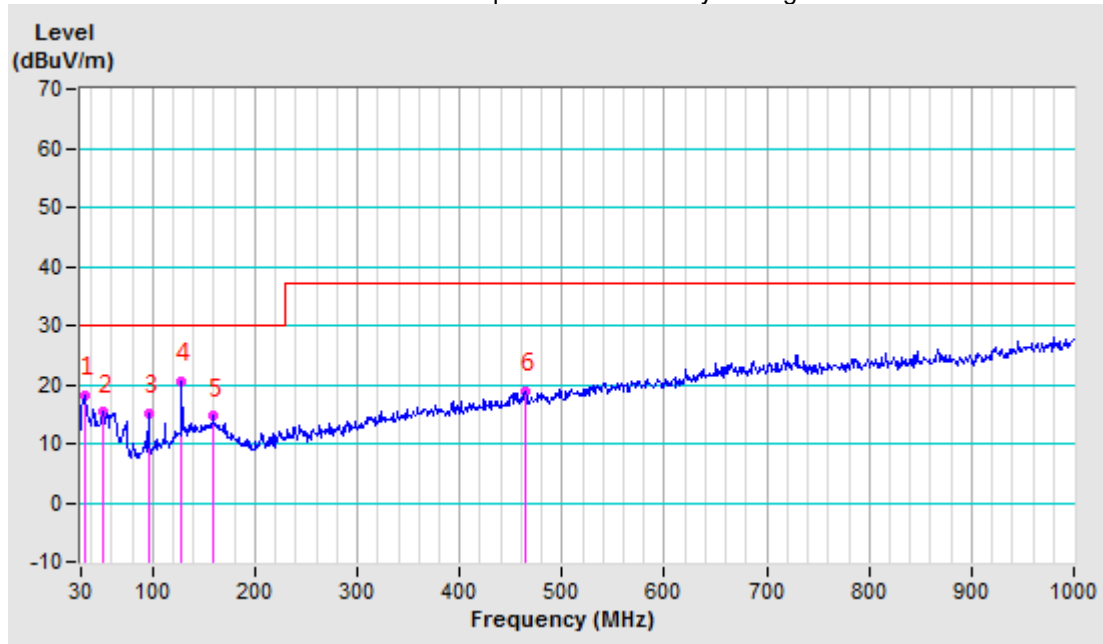
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	Data Transmitting	FREQUENCY RANGE	30-1000MHz
TEST VOLTAGE	DC 51.2V from Battery	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 55% RH	TESTED BY: Kamiko	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	34.074	-18.12	36.28	18.16	30.00	-11.84	100	97
2	51.341	-17.98	33.24	15.26	30.00	-14.74	100	345
3	95.963	-20.61	35.71	15.10	30.00	-14.90	100	337
4	127.975	-17.56	38.09	20.53	30.00	-9.47	100	337
5	159.405	-15.47	30.05	14.58	30.00	-15.42	100	286
6	464.242	-10.60	29.39	18.79	37.00	-18.21	300	358

REMARKS: The emission levels of other frequencies were very low against the limit.





5 IMMUNITY TEST

5.1 GENERAL DESCRIPTION

Product Standard:	EN 55035:2017	
Basic Standard, Specification, and Performance Criteria:	IEC 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80-1000 MHz, 3V/m, 80% AM (1kHz), 1800 MHz,3V/m, 80% AM (1kHz), 2600 MHz,3V/m, 80% AM (1kHz), 3500 MHz,3V/m, 80% AM (1kHz), 5000 MHz,3V/m, 80% AM (1kHz)
	IEC 61000-4-4	Electrical Fast Transient/Burst - EFT AC Power line: 1kV, DC Power line: 0.5kV Signal line: 0.5kV Performance Criterion B
	IEC 61000-4-6	Conducted Radio Frequency Disturbances Test – CS: 0.15-10 MHz, 3Vrms, 10MHz-30MHz, 3Vrms-1Vrms, 30MHz-80MHz, 1Vrms 80% AM, 1kHz
	IEC 61000-4-8	Power Frequency Magnetic Field Test, 50 Hz, 1A/m, Performance Criterion A



5.1.1 GENERAL PERFORMANCE CRITERIA DESCRIPTION

According to Clause 8.2, 8.3, 8.4 of EN55035:2017 standard, the following describes the general performance criteria.

CRITERION A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
	For audio output device: The measured acoustic interference ratio and/or the measured electrical interference during the test shall be -20dB or better(see note1)
CRITERION B	<p>During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.</p> <p>After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.</p> <p>If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
CRITERION C	<p>Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer’s instructions. A reboot or re-start operation is allowed.</p> <p>Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

Note 1: This performance criterion only using for Continuous induced RF disturbances and Continuous RF electromagnetic field disturbances item.



5.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD) (EN55035)

5.2.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge: 8 kV (Direct) Contact Discharge: 4 kV (Indirect & Direct)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: 20 times at each test point Contact Discharge: 20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1-second

5.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	TESEQ	NSG 437	279	Mar. 13,20	Mar. 12,21
Test Software	TESEQ	V03.03	N/A	N/A	N/A
ESD Generator	EM TEST	Dito	V1211112265	Nov. 30,19	Nov. 29,20
Test Software	EM TEST	V 2.31	N/A	N/A	N/A

- NOTES:**
- The test was performed in ESD Room.
 - The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

5.2.3 TEST PROCEDURE

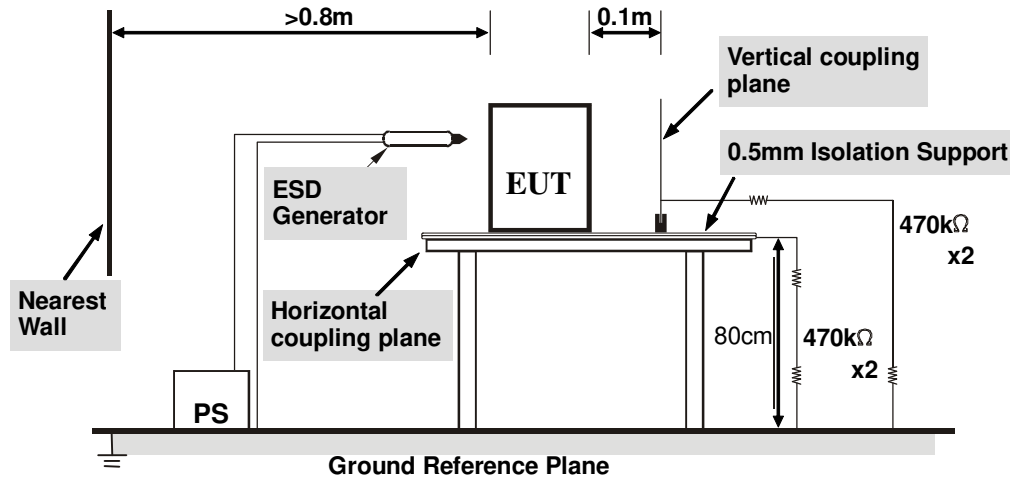
The basic test procedure was in accordance with IEC 61000-4-2:

- Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.
- The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- The time interval between two successive single discharges was at least 1 second.
- The discharge return cable of the generator shall be kept at a distance of at least 0.2 m from the EUT whilst the discharge is being applied and should not be held by the operator.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the EUT. The ESD generator was positioned horizontal at a distance of 0.1 meters from the EUT with the discharge electrode touching the HCP.
- At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP



NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **Ground Reference Plane**. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **Horizontal Coupling Plane** (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.



5.2.6 TEST RESULTS

TEST VOLTAGE	DC 51.2V from Battery	ENVIRONMENTAL CONDITIONS	24.1eg. C, 47.2% RH, 101.5kPa
TESTED BY	Dragon		

Direct Discharge Application				
Test Level (kV)	Polarity	Test Point	Test Result of Contact Discharge	Test Result of Air Discharge
4	+ /-	All metal port	A	N/A
8	+ /-	All non-metal port	N/A	A

Indirect Discharge Application				
Discharge Level (kV)	Polarity	Test Point	Test Result of HCP	Test Result of VCP
4	+ /-	HCP	A	N/A
4	+ /-	VCP	N/A	A

NOTE: A: There was no change compared with initial operation during the test.

ESD TEST POINT
(○ - Direct Contact Discharge; ✦ - Air Discharge)





5.3 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS) (EN55035)

5.3.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	80-1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Antenna Height:	1.5m
Dwell Time:	at least 3 seconds

5.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Agilent	N5181A	MY50142530	Sep. 12, 19	Sep. 11, 20
Antenna Log-Periodic	AR	ATR80M6G	0337307	N/A	N/A
Antenna Log-Periodic	AR	ATS700M11G	0336821	N/A	N/A
Switch Controller	AR	SC1000	0337343	N/A	N/A
RF Power Meter	ESE	4242	13984	Sep. 12, 19	Sep. 11, 20
Power Sensor	ESE	51011EMC	35716	Sep. 12, 19	Sep. 11, 20
Power Sensor	ESE	51011EMC	35715	Sep. 12, 19	Sep. 11, 20
E-Field probe	Narda	NBM-520	2403/01B	Sep. 25, 19	Sep. 24, 20
Power Amplifier	TESEQ	CBA 1G-150	T44029	N/A	N/A
Power Amplifier	TESEQ	CBA 3G-100	T44030	N/A	N/A
Power Amplifier	TESEQ	CBA 6G-050	1041204	N/A	N/A
Dual Directional Coupler	TESEQ	C5982	95208	Sep. 21, 19	Sep. 20, 20
Dual Directional Coupler	TESEQ	C6187	95175	Sep. 21, 19	Sep. 20, 20
Dual Directional Coupler	TESEQ	CPH-274F	M251304-01	Sep. 21, 19	Sep. 20, 20
Test Software	Tonscend	TS+	2.5.0.0	N/A	N/A
Test Software	ADT	BVADT_RS_V7 .6.4-DG	N/A	N/A	N/A
Audio analyzer	Rohde&Schwarz	UPV	101346	Jun. 13, 19	Jun. 12, 20
EAR SIMULATOR	B&K	4192	2764719	Aug. 10, 19	Aug. 09, 20
Sound Calibrator	B&K	Type 4231	2463874	Jul. 25, 19	Jul. 24, 20
Conditioning Amplifier	B&K	2690A0S2	2437856	Sep. 10, 19	Sep. 09, 20
Universal Radio Communication Tester	Rohde&Schwarz	CMU 200	119669	Mar. 12, 20	Mar. 11, 21

- NOTES:**
1. The test was performed in RS chamber.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



5.3.3 TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

- a. The testing was performed in a fully-anechoic chamber.
- b. The frequency range is swept from 80 MHz to 1000 MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz, with the signal 80% amplitude modulated with a 1kHz sine wave.
- c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5s.
- d. The field strength levels were 3V/m.
- e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

For Broadcast reception function:

- f. **Group1:** Equipment in which the desired RF broadcast signal enters the equipment through a coaxial broadcast receiver tuner port. These coaxial ports are intended to be connected via a coaxial cable to an antenna or a cable distribution system.
- g. **Group 2:** Broadcast reception equipment which is not included in Group 1.
- h. AM/FM/DAB equipment with a coaxial broadcast receiver tuner port is classified as Group 2 equipment if the manufacturer declares that the equipment is not intended to be connected to a CATV or other cable distribution network.
- i. The broadcast reception function shall be tested in each reception mode for which the receiver is designed, for example analogue reception, DVB-T, DVB-T2, DVB-C, DVB-C2, DVB-S, DVB-S2. The receiver shall be tuned to one channel and provided with an appropriate wanted signal on that channel or other input typical of normal use.

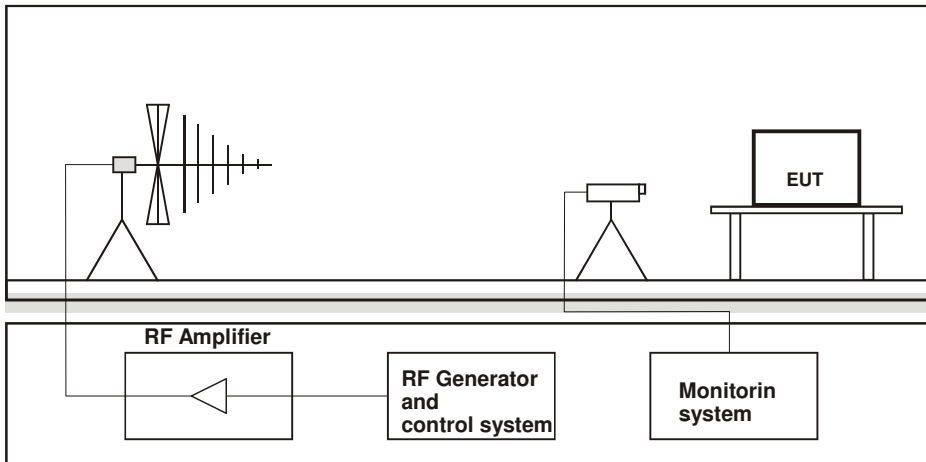
5.3.4 DEVIATION FROM TEST STANDARD

No deviation.

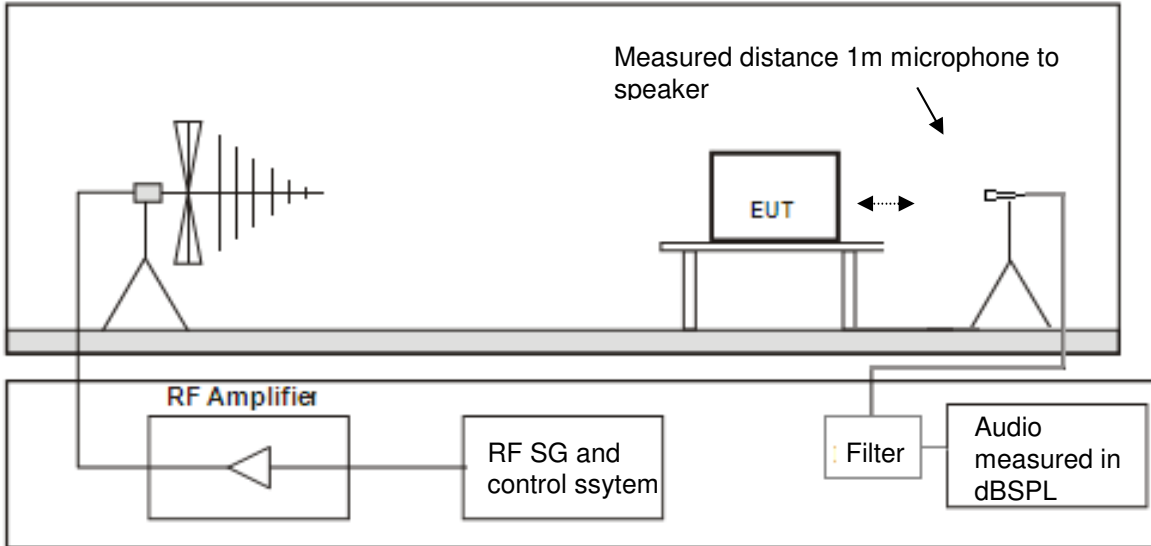


5.3.5 TEST SETUP

For Picture monitoring:

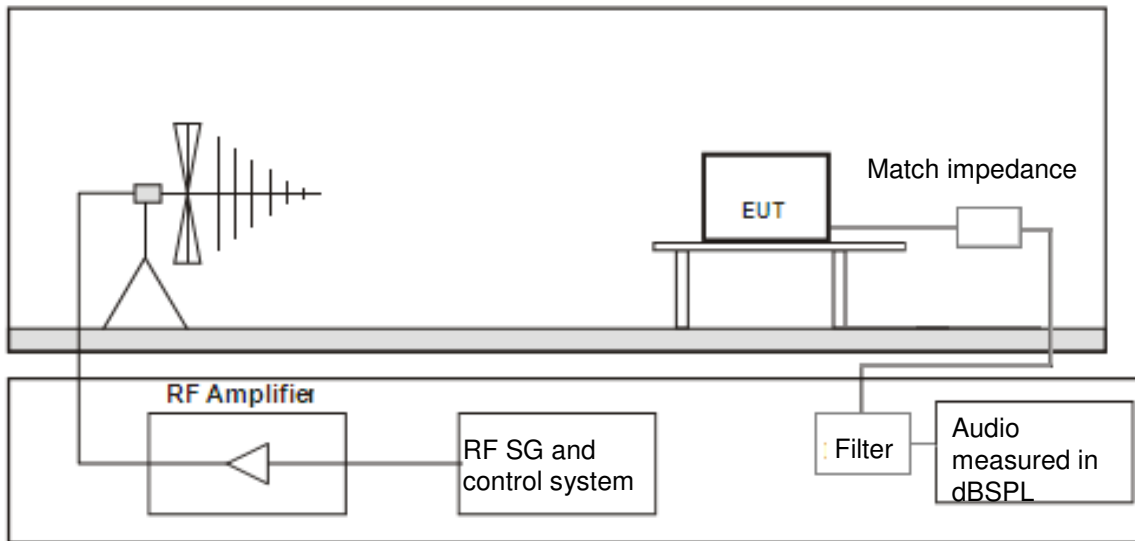


For Acoustic mode:





For Electrical mode:



NOTE:

1. The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.
2. Filter: 1kHz 3dB band pass filter.
3. The measurement distance: EUT to interference antenna was 3m.



5.3.6 TEST RESULTS

TEST MODE	Data Transmitting	TEST VOLTAGE	DC 51.2V from Battery
ENVIRONMENTAL CONDITIONS	22.8deg.C, 57.6% RH	TESTED BY: Dragon	

Field Strength (V/m)	Test Frequency Note (MHz)	Polarization of antenna (Horizontal / Vertical)	Test Distance (m)	Test Result	Remark
3	80-1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz	H&V	3	A	0, 90, 180, 270

Note#1:

Tested Israel SII Frequencies 89,100,107,144,163,196,244,315,434,460,600,825,845,880MHz

NOTE: A: There was no change compared with initial operation during the test.



5.4 ELECTRICAL FAST TRANSIENT (EFT) (EN55035)

5.4.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-4
Test Voltage:	Signal/Control Line: 0.5kV
Polarity:	Positive & Negative
Impulse Frequency:	100 kHz : only for single lines of xDSL equipment 5 kHz : other
Impulse Waveshape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	1 min.

5.4.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Combination wave Module	TESEQ	CDN 3061	1361	Mar. 13,20	Mar. 12,21
Telecom Surge Module	TESEQ	NSG 3060 Mainframe	1404	Mar. 13,20	Mar. 12,21
Automated 3- Phase Coupling/ Decoupling Network	TESEQ	CDN 3063	2131	Mar. 13,20	Mar. 12,21
CDN	TESEQ	CDN HSS-2	34275	Mar. 13,20	Mar. 12,21
CDN	TESEQ	CDN 118	30741	Mar. 13,20	Mar. 12,21
Test Software	TESEQ	CDM 3061_0002.30	1361	N/A	N/A
Test Software	TESEQ	HVM 3060_0002.30	293	N/A	N/A
EFT Tester	HAEFELY	PEFT4010	150546	Mar. 13,20	Mar. 12,21
EFT Coupling Clamp	HAEFELY	IP4A	150407	Mar. 13,20	Mar. 12,21
Test Software	HAEFELY	SWPE4010 1.22	N/A	N/A	N/A

- NOTES:** 1. The test was performed in EMS Room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

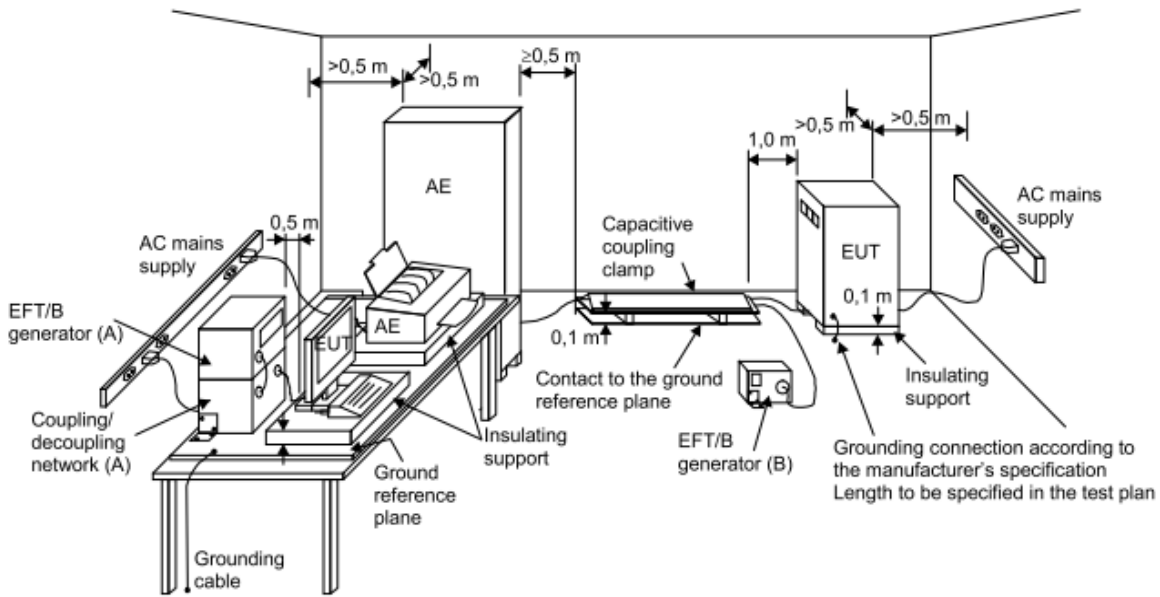
5.4.3 TEST PROCEDURE

- a Both positive and negative polarity discharges were applied.
- b The distance between any coupling devices and the EUT should be (0.5 – 0/+0.1) m for table-top equipment testing, and (1.0 ± 0.1) m for floor standing equipment.
- c The duration time of each test sequential was 1 minute.
- d The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.

5.4.4 DEVIATION FROM TEST STANDARD

No Deviation.

5.4.5 TEST SETUP



- (A) location for supply line coupling
- (B) location for signal lines coupling

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



5.4.6 TEST RESULTS

TEST VOLTAGE	DC 51.2V from Battery	ENVIRONMENTAL CONDITIONS	22.6deg. C, 54.5% RH
TESTED BY	Wang		

Pulse Voltage	0.5 kV		kV		kV		kV	
Pulse Polarity	+	-	+	-	+	-	+	-
Signal Line	A	A	/	/	/	/	/	/

NOTE: A: There was no change compared with initial operation during the test.



5.5 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS) (EN55035)

5.5.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-6
Frequency Range:	0.15 MHz – 80MHz
Field Strength:	3 V _{r.m.s} , 3 V _{r.m.s} - 1V _{r.m.s} , 1V _{r.m.s} ,
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Coupled Cable:	Signal Cable
Coupling Device:	CDN-T8

5.5.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Rohde&Schwarz	SMB 100A	102382	Mar. 12,20	Mar. 11,21
CDN	Luthi	L-801M2/M3	2015	Sep. 18,19	Sep. 17,20
CDN(AUX)	TESEQ	CDN M016	27452	Sep. 18,19	Sep. 17,20
CDN	TESEQ	T200A	26944	Mar. 13,20	Mar. 12,21
CDN	TESEQ	T400A	26536	Mar. 13,20	Mar. 12,21
CDN	TESEQ	ST08A	32256	Mar. 13,20	Mar. 12,21
6dB 150Watt Attenuator	Bird	150-A-FFN-06	1507	Sep. 18,19	Sep. 17,20
Power Amplifier	PRANA	DR 220	1512-1788	NA	NA
Electromagnetic Injection Clamp	Luthi	EM101	35640	Sep. 25,19	Sep. 24,20
Test Software	Tonscend	TS+	2.5.0.0	N/A	N/A
Test Software	ADT	BVADT_CS_V 7.6.2	N/A	N/A	N/A
Audio analyzer	Rohde&Schwarz	UPV	101346	Jun. 13,19	Jun. 12,20
EAR SIMULATOR	B&K	4192	2764719	Aug. 10,19	Aug.09,20
Sound Calibrator	B&K	Type 4231	2463874	Jul. 25,19	Jul.24,20
Conditioning Amplifier	B&K	2690A0S2	2437856	Sep. 10,19	Sep.09,20
Universal Radio Communication Tester	Rohde&Schwarz	CMU 200	119669	Mar. 12,20	Mar. 11,21

- NOTES:** 1. The test was performed in CS test room.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



5.5.3 TEST PROCEDURE

- a. The EUT shall be tested within its intended operating and climatic conditions.
- b. An artificial hand was placed on the hand-held accessory and connected to the ground reference plane.
- c. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.
- d. The frequency range is swept from 0.15 MHz - 10 MHz, 10 MHz – 30 MHz and 30 MHz – 80MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. Where the frequency is swept incrementally, the step size shall not exceed 1 % of the preceding frequency value.
- e. The dwell time of the amplitude modulated carrier at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5 s. The sensitive frequencies (e.g. clock frequencies) shall be analyzed separately.
- f. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

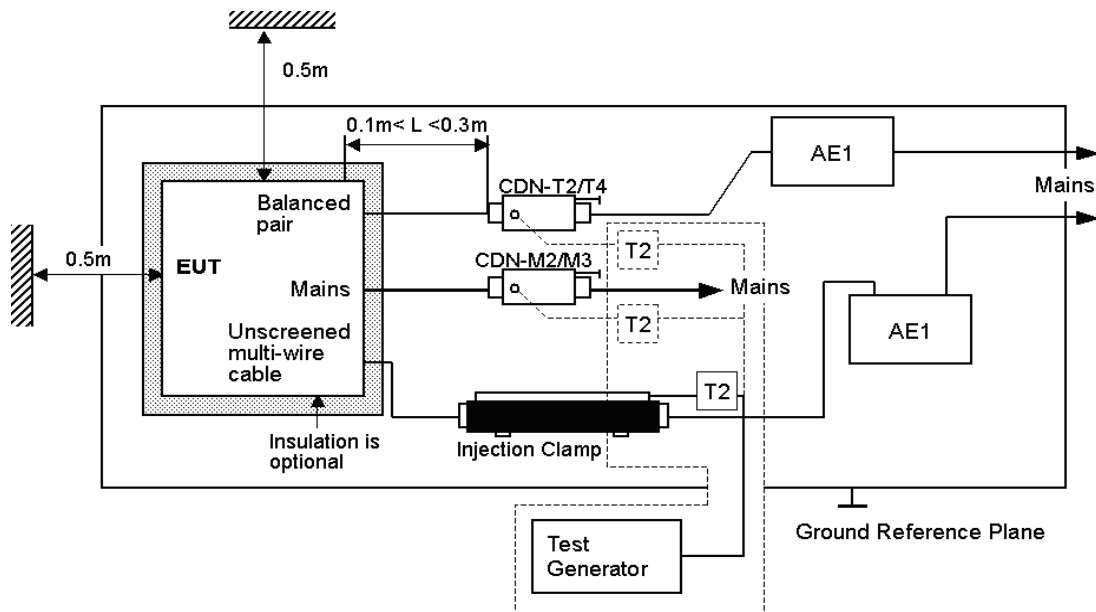
For Broadcast reception function:

- j. **Group 1:** Equipment in which the desired RF broadcast signal enters the equipment through a coaxial broadcast receiver tuner port. These coaxial ports are intended to be connected via a coaxial cable to an antenna or a cable distribution system.
- k. **Group 2:** Broadcast reception equipment which is not included in Group 1.
- l. AM/FM/DAB equipment with a coaxial broadcast receiver tuner port is classified as Group 2 equipment if the manufacturer declares that the equipment is not intended to be connected to a CATV or other cable distribution network.
- m. The broadcast reception function shall be tested in each reception mode for which the receiver is designed, for example analogue reception, DVB-T, DVB-T2, DVB-C, DVB-C2, DVB-S, DVB-S2. The receiver shall be tuned to one channel and provided with an appropriate wanted signal on that channel or other input typical of normal use.

5.5.4 DEVIATION FROM TEST STANDARD

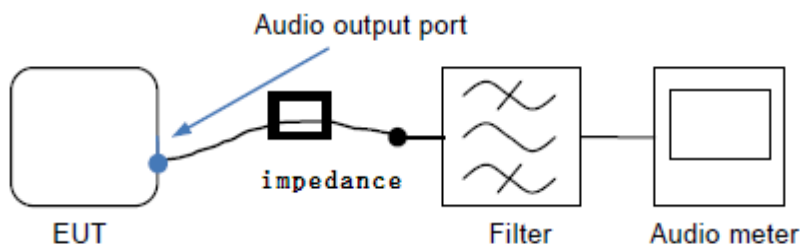
No deviation.

5.5.5 TEST SETUP

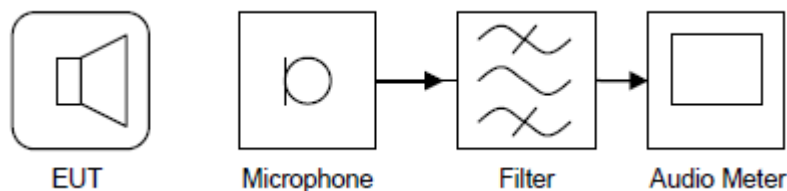


NOTE: The EUT clearance from any metallic obstacles shall be at least 0.5m.
All non-excited input ports of the CDNs shall be terminated by 50Ω loads.

For Electrical measurements setup:



For Acoustic measurements setup:



NOTE:

1. The EUT installed in a representative system was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.
2. Filter: 1kHz 3dB band pass filter.



5.5.6 TEST RESULTS

TEST MODE	Data Transmitting	TEST VOLTAGE	DC 51.2V from Battery
ENVIRONMENTAL CONDITIONS	25.1deg. C, 51.6% RH	TESTED BY: Dragon	

Voltage (V)	Test Frequency Note#1 (MHz)	Tested Line	Injection Method.	Test Result	Remark
1.0	0.15–80 MHz	Signal Line	CDN-T8	A	Pass

Note#1: Tested Israel SII Frequencies 0.2,0.53,1,1.5,7.1,13.56,21,27.12,40.68,65,68 MHz

NOTE: A: There was no change compared with initial operation during the test.



5.6 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST (EN55035)

5.6.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-8
Frequency Range:	50Hz
Field Strength:	1A/m,
Observation Time:	1 minute
Inductance Coil:	Rectangular type, 1mx1m

5.6.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Magnetic Field Tester	HAEFELY	MAG100.1	150579	Sep. 18,19	Sep. 17,20
Test Software	N/A	N/A	N/A	N/A	N/A

- NOTES:** 1. The test was performed in EMS Room 843.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

5.6.3 TEST PROCEDURE

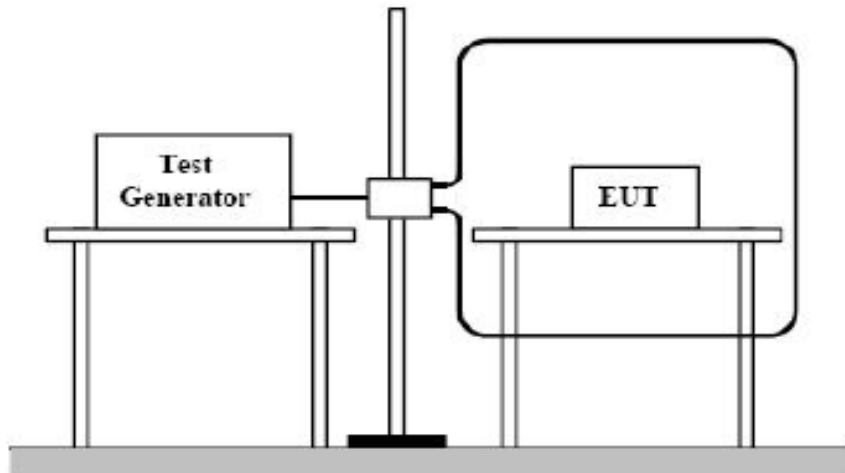
- The equipment is configured and connected to satisfy its functional requirements.
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation.



5.6.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.



5.6.6 TEST RESULTS

TEST VOLTAGE	DC 51.2V from Battery	ENVIRONMENTAL CONDITIONS	22.7deg. C, 50.6% RH
TESTED BY	Wang		

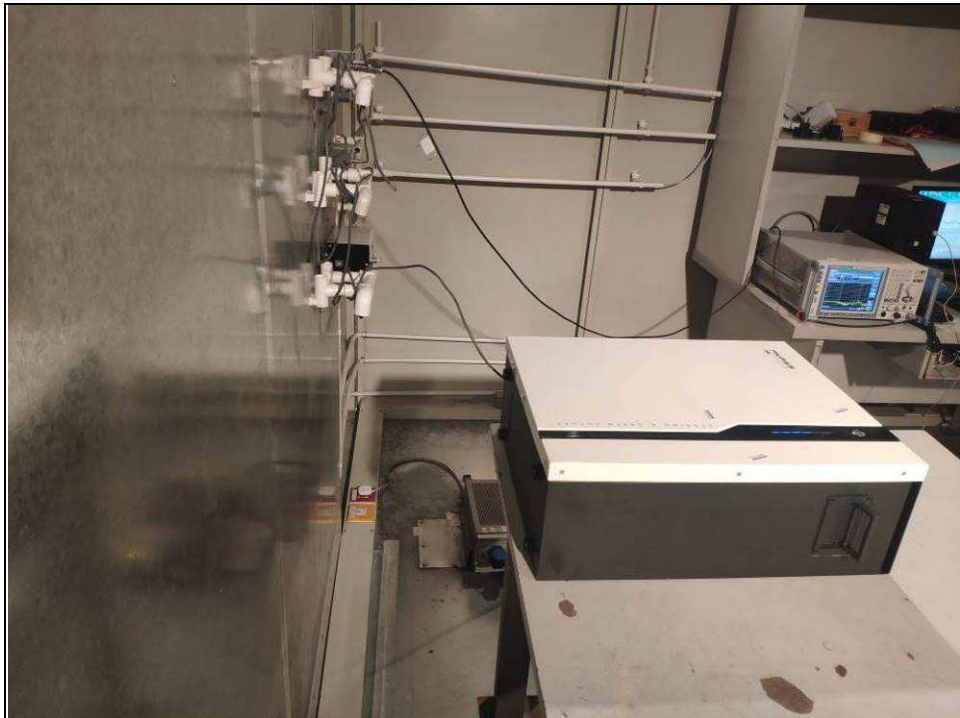
Magnetic field direction	Testing result	Remark
X - Axis	A	1A/m
Y - Axis	A	1A/m
Z - Axis	A	1A/m

NOTE: A: There was no change compared with initial operation during the test.

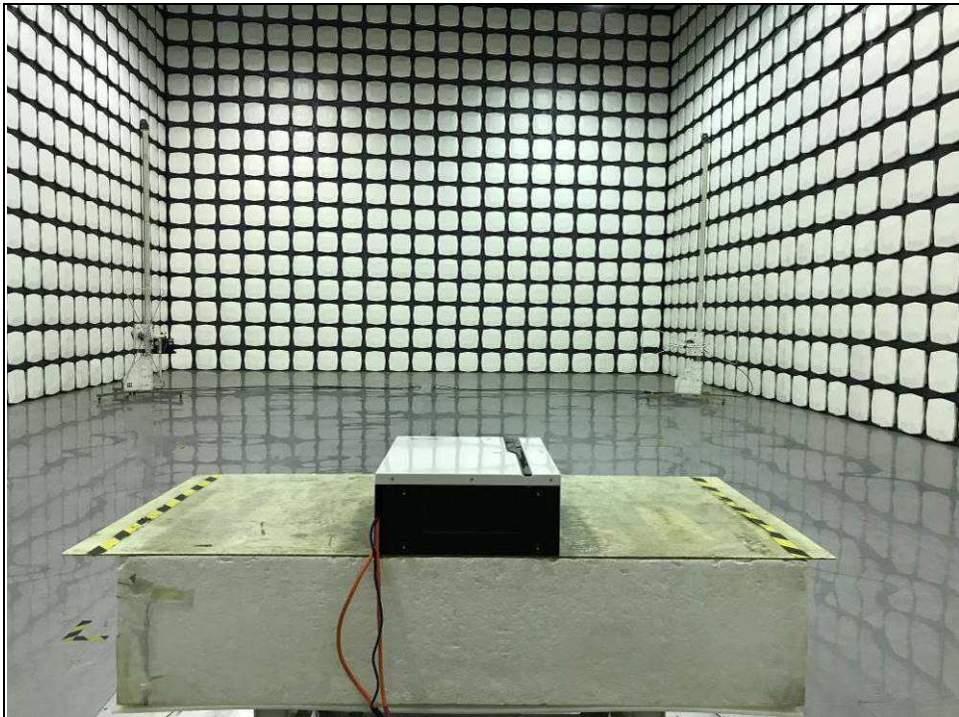
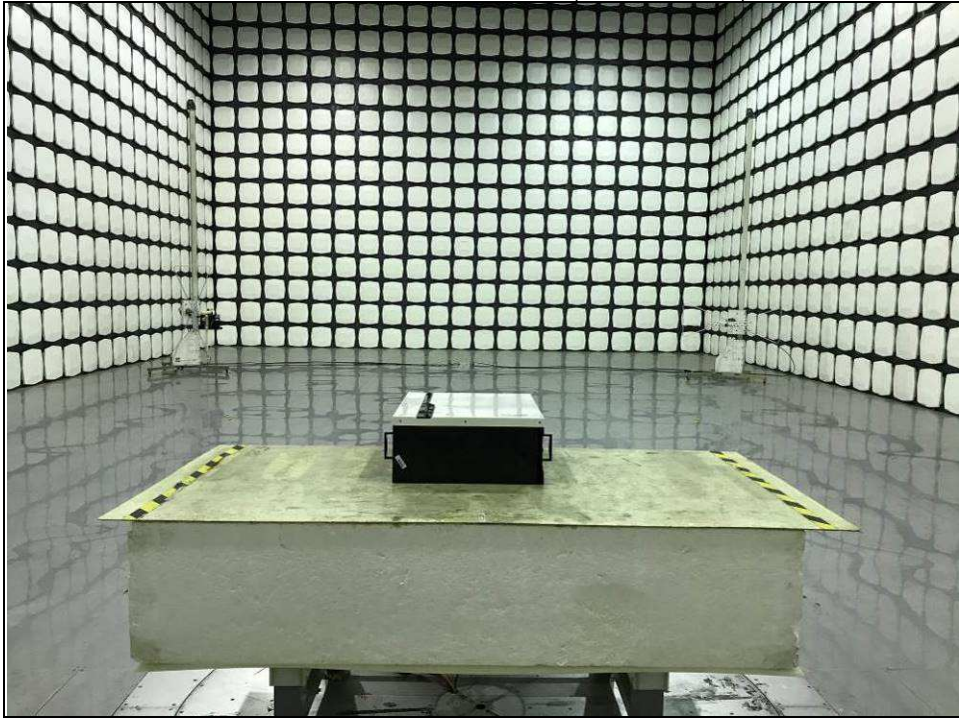


6 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST (TELECOM PORT)



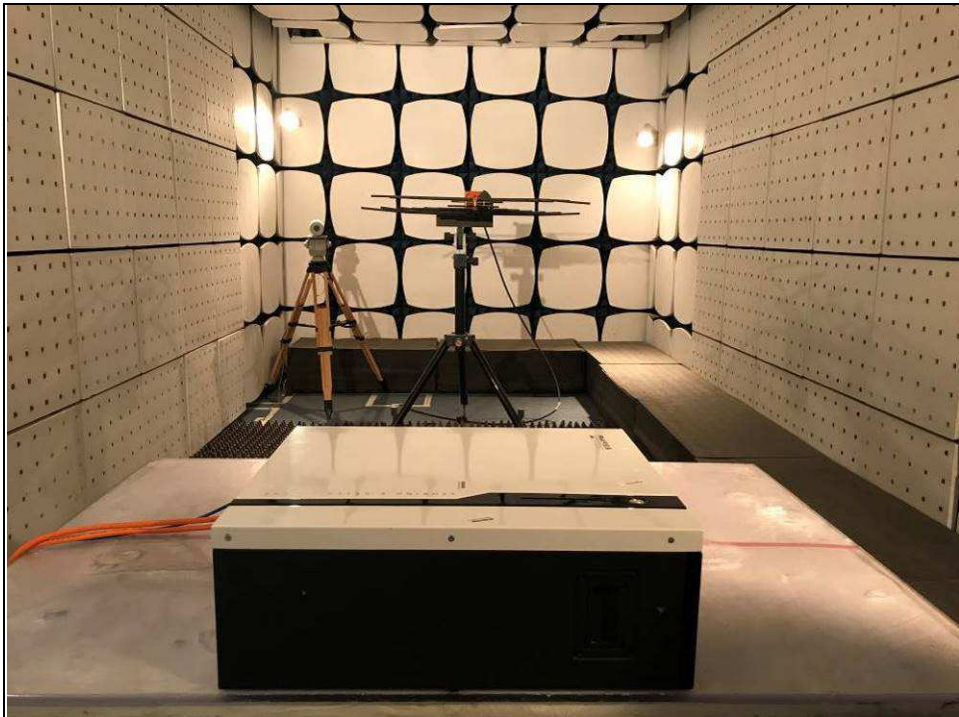
RADIATED EMISSION TEST (30MHz-1GHz)



ESD TEST



RS TEST



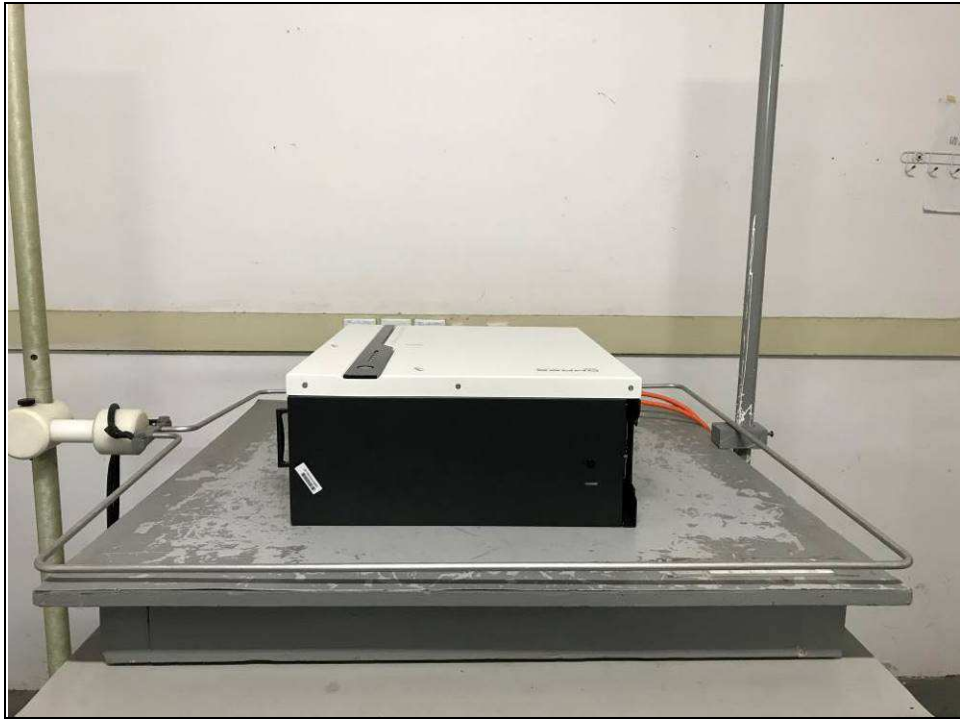
EFT TEST



CS TEST



POWER-FREQUENCY MAGNETIC FIELDS TEST





**BUREAU
VERITAS**

Test Report No.: CE200109N021-1

7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

End