EMC TEST REPORT

Report No.: 16071466-CE-E

Applicant	Sources Technology Company Limited
Product Name	earphone
Main Model No.	ST-EP-01MXXX , ST-EP-02MXXX (The XXX represent different colours.)
Serial Model No.	N/A
Test Standard	EN 55032: 2015, EN 55024:2010+A1:2015
Test Date	December 21 to 29, 2016
Issue Date	December 29, 2016
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	

This test report may be reproduced in full only

Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn

Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

This page has been left blank intentionally.

CONTENTS

1. Report Revision History

Report No.	Report Version	Description	Issue Date
16071466-CE-E	NONE	Original	December 29, 2016

2. Customer information

Applicant Name	Sources Technology Company Limited
Applicant Address	Unit D 13/F Hung Cheung Industrial Centre (Phase 1) No.12 Tsing Yeung Circuit Tuen Mun N.T. Hong Kong
Manufacturer Name	Sources Technology Company Limited
Manufacturer Address	Unit D 13/F Hung Cheung Industrial Centre (Phase 1) No.12 Tsing Yeung Circuit Tuen Mun N.T. Hong Kong

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1

4. Equipment Under Test (EUT) Information

Description of EUT:	earphone
EUT:	ST-EP-01MXXX , ST-EP-02MXXX (The XXX represent different colours.)
Serial Model:	N/A
Date EUT received:	December 21, 2016
Test Date(s):	December 21 to 29, 2016
Port:	3.5mm plug
Equipment Category：	Class B
Input Power:	N/A
Trade Name :	N/A

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

Test Results Summary

EN 55032: 2015 Emissions			
Test Standard	**Description**	**Product Class**	**Pass / Fail**
EN 55032: 2015	Conducted Emissions	Class B	Compliance
EN 55032: 2015	Radiated Emissions	Class B	Compliance
EN 61000-3-2: 2014	Harmonic Current Emissions	Class A	N/A*(Note1)
EN 61000-3-3: 2013	Voltage Fluctuations and Flicker	Meets the requirements	N/A

EN 55024:2010+A1:2015 Immunity			
Test Standard	**Description**	**Criterion**	**Pass / Fail**
IEC 61000-4-2:2008	Electrostatic discharge	B	Compliance
IEC 61000-4-3:2006+AMD1:2007+AMD2:2010	RF electromagnetic field	A	Compliance
IEC 61000-4-4:2012	Fast Transients common mode	B	Compliance
IEC 61000-4-5:2014	Surges, line to line and line to ground	C for telecommunication port B for a.c Power Port	Compliance
IEC 61000-4-6:2013	RF common mode 0.15MHz to 80MHz	A	Compliance
IEC 61000-4-11:2004	Voltage dips and interruptions	B for 0.5 period C for 25 periods and 250 periods	Compliance

All measurement uncertainty is not taken into consideration for all presented test result.

*Note1: There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2.

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 Conducted Emissions Test Result

Temperature	24℃
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	December 23, 2016
Tested By :	Loren Luo

Conducted Emission Limit

The main Port

FREQUENCY (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

The Telecommunication Port

FREQUENCY (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97-87	84-74	84-74	74-64
0.50 - 30	87	74	74	64

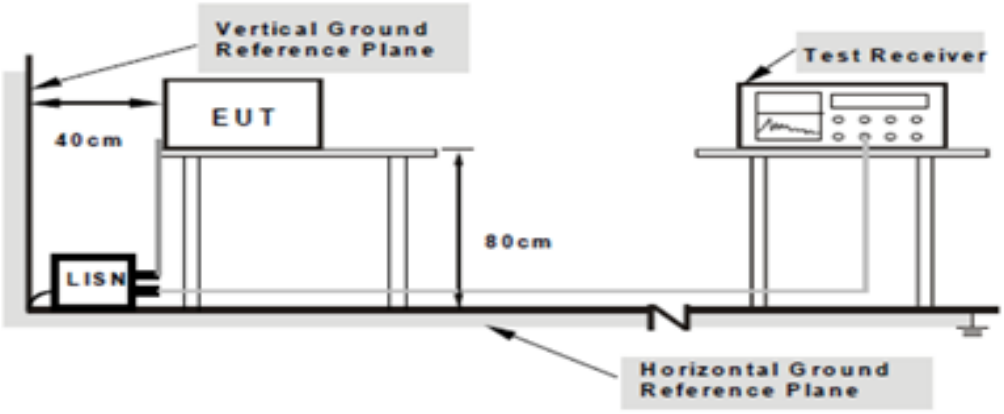
NOTE:

(1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

(3) All emanations 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.

Spec	Item	Requirement	Applicable
EN 55032 Class B	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50	☑

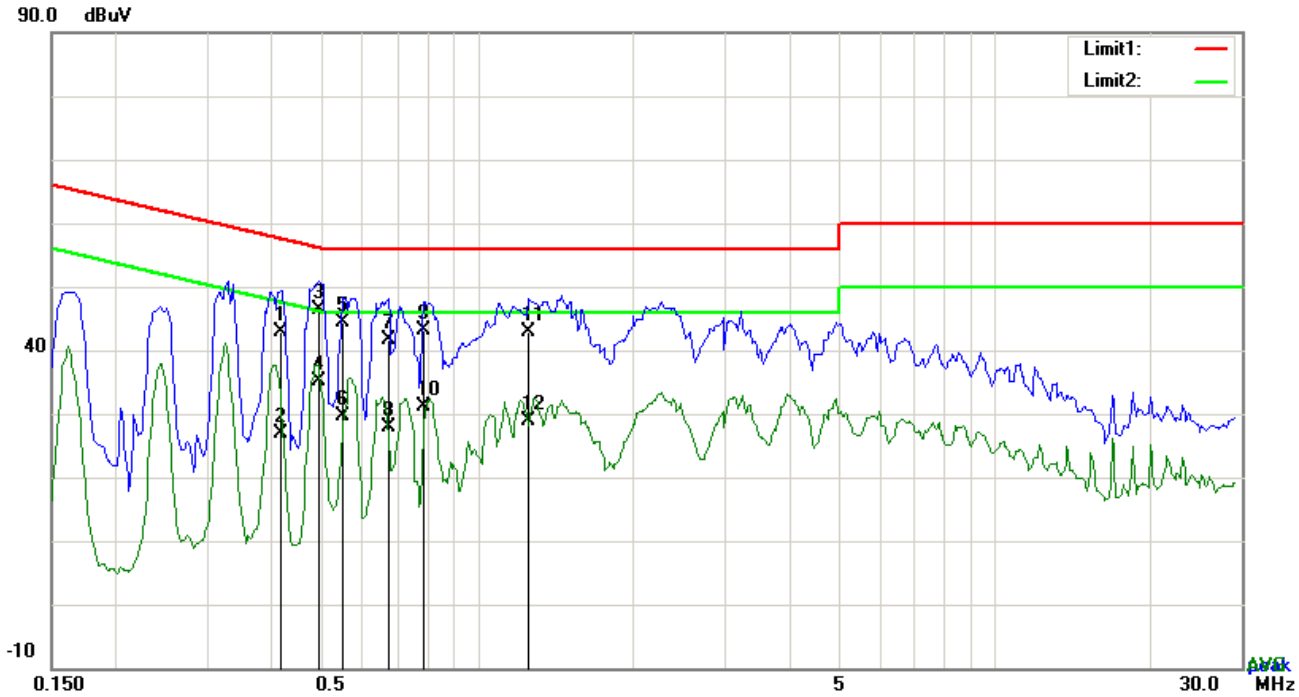
		ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.	
Test Setup	 Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.		
Procedure	- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B. - The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains. - The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. - All other supporting equipment was powered separately from another main supply.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Running Mode

Test Mode:	Running Mode

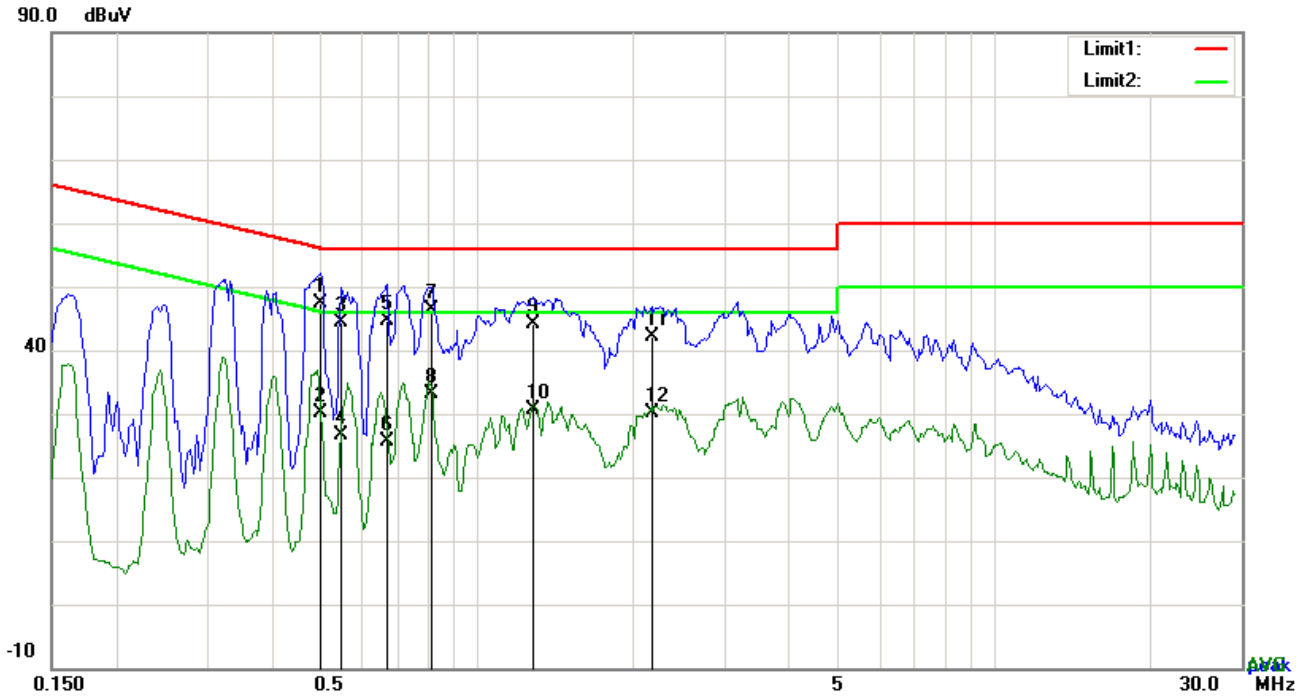


Test Data

Phase Line Plot at 230Vac, 50Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.4191	32.95	QP	10.03	42.98	57.47	-14.49
2	L1	0.4191	16.93	AVG	10.03	26.96	47.47	-20.51
3	L1	0.4932	36.45	QP	10.03	46.48	56.11	-9.63
4	L1	0.4932	25.21	AVG	10.03	35.24	46.11	-10.87
5	L1	0.5478	34.46	QP	10.03	44.49	56.00	-11.51
6	L1	0.5478	19.69	AVG	10.03	29.72	46.00	-16.28
7	L1	0.6726	31.59	QP	10.03	41.62	56.00	-14.38
8	L1	0.6726	17.80	AVG	10.03	27.83	46.00	-18.17
9	L1	0.7857	33.09	QP	10.03	43.12	56.00	-12.88
10	L1	0.7857	21.10	AVG	10.03	31.13	46.00	-14.87
11	L1	1.2537	32.90	QP	10.03	42.93	56.00	-13.07
12	L1	1.2537	18.75	AVG	10.03	28.78	46.00	-17.22

Test Mode:	Running Mode



Test Data

Phase Neutral Plot at 230Vac, 50Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.4971	37.25	QP	10.02	47.27	56.05	-8.78
2	N	0.4971	20.09	AVG	10.02	30.11	46.05	-15.94
3	N	0.5439	34.37	QP	10.02	44.39	56.00	-11.61
4	N	0.5439	16.50	AVG	10.02	26.52	46.00	-19.48
5	N	0.6687	34.60	QP	10.02	44.62	56.00	-11.38
6	N	0.6687	15.56	AVG	10.02	25.58	46.00	-20.42
7	N	0.8169	36.45	QP	10.03	46.48	56.00	-9.52
8	N	0.8169	23.08	AVG	10.03	33.11	46.00	-12.89
9	N	1.2771	34.09	QP	10.03	44.12	56.00	-11.88
10	N	1.2771	20.55	AVG	10.03	30.58	46.00	-15.42
11	N	2.1780	32.05	QP	10.04	42.09	56.00	-13.91
12	N	2.1780	20.15	AVG	10.04	30.19	46.00	-15.81

6.2 Radiated Spurious Emissions

Temperature	24℃
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	December 23, 2016
Tested By :	Loren Luo

Limits below 1 GHz

FREQUENCY (MHz)	dB(μV/m) (At 3m)	dB(μV/m) (At 3m)
	Class A	Class B
30 to 230	50	40
230 to 1000	57	47

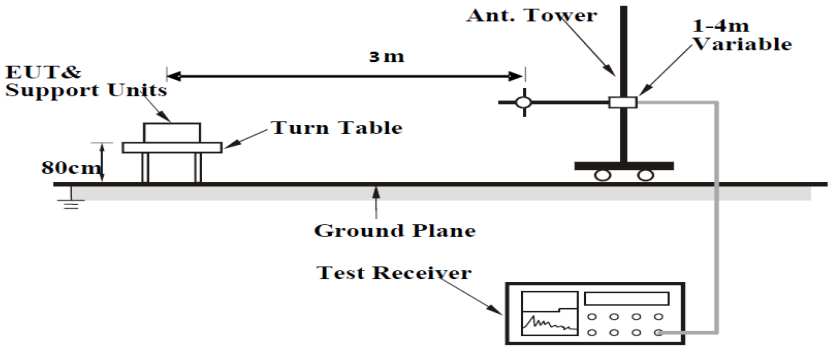
Limits above 1 GHz

FREQUENCY (GHz)	Class A dB(μV/m) (At 3m)		Class B dB(μV/m) (At 3m)	
	Average limit	Peak limit	Average limit	Peak limit
1 to 3	56	76	50	70
3 to 6	60	80	54	74

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level dB (μV/m) = 20 log Emission level (μV/m)

Spec	Item	Requirement	Applicable
EN 55032: Class B	a)	EUT characterisation, over the frequency range from 30 MHz to 1 GHz (for FCC tests, until the 5th harmonic for operating frequencies ≥ 108MHz),, was done in order to minimise radiated emissions testing time while still maintaining high confidence in the test results. The EUT was placed in the chamber, at a height of about 0.8m on a turntable. Its radiated emissions frequency profile was observed, using a spectrum analyzer /receiver with the appropriate broadband antenna placed 3m or 10m away from the EUT. Radiated emissions from the EUT were maximised by rotating the turntable manually, changing the antenna polarisation and manipulating the EUT cables while observing the frequency profile on the spectrum analyzer / receiver. Frequency points at which maximum emissions occurred, clock frequencies and operating frequencies were then	☑

		noted for the formal radiated emissions test at the Open Area Test Site (OATS) or EMC chamber.	
Test Setup			
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. A Quasi-peak measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.		
Remark			
Result	☑ Pass ☐ Fail		

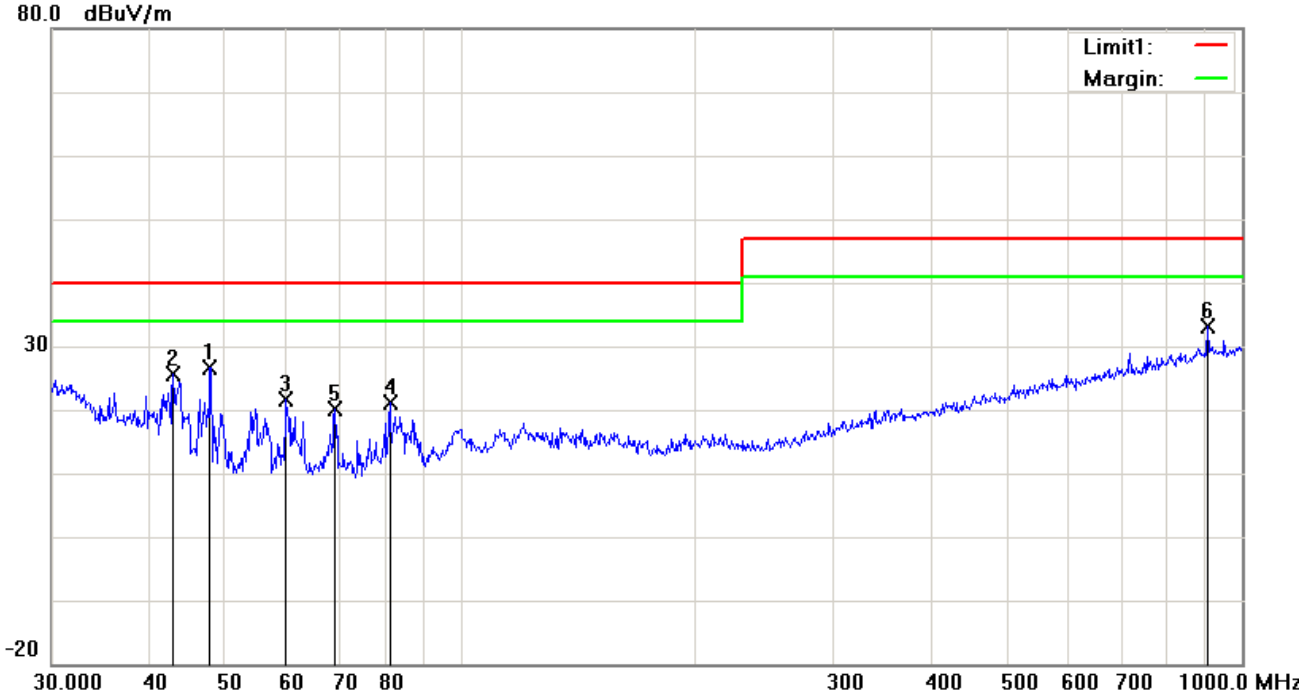
Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode :	Running Mode

Test Mode :	Running Mode

Below 1GHz



Test Data

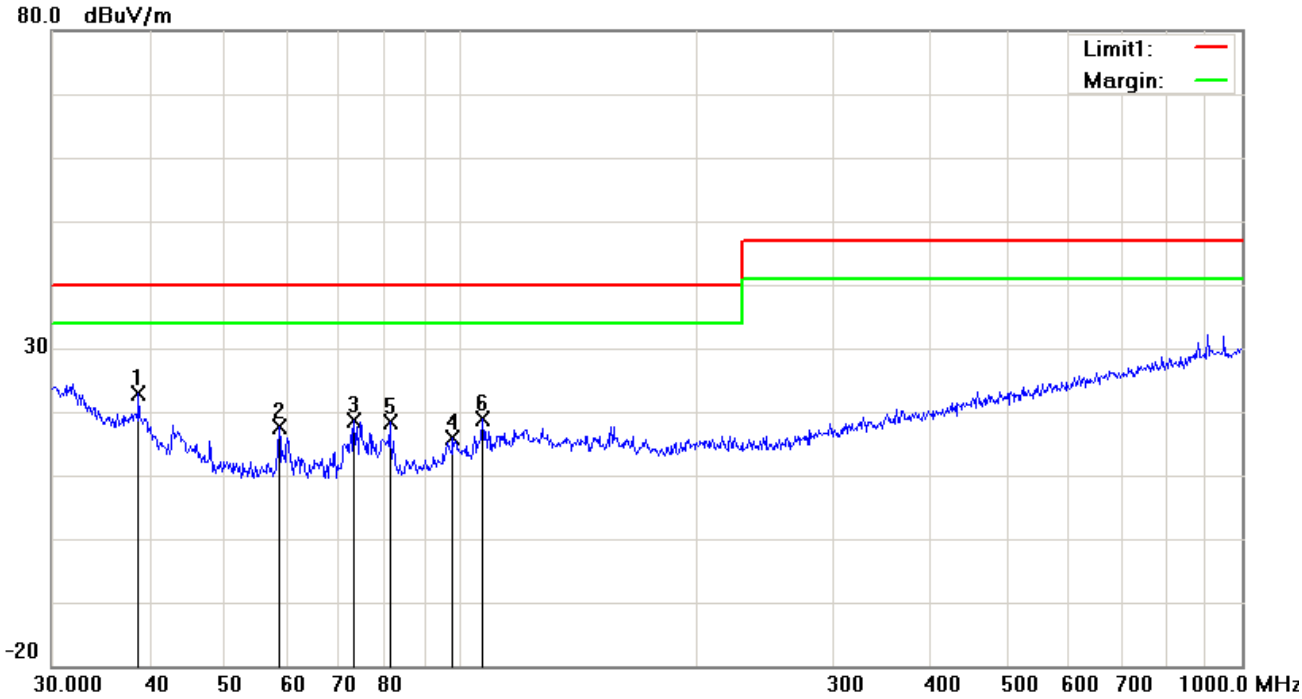
Horizontal Polarity Plot @3m

No	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	H	47.8260	38.84	peak	-12.20	26.64	40.00	-13.36	189	181
2	H	42.8998	35.27	peak	-9.53	25.74	40.00	-14.26	149	126
3	H	59.8588	35.86	peak	-14.34	21.52	40.00	-18.48	209	18
4	H	81.2117	34.75	peak	-13.71	21.04	40.00	-18.96	112	308
5	H	69.1141	33.73	peak	-13.66	20.07	40.00	-19.93	138	295
6	H	903.3094	28.49	peak	4.73	33.22	47.00	-13.78	120	252

Above 1GHz

Note: The frequency that above 1GHz is mainly from the environment noise.

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	38.7518	29.67	peak	-6.68	22.99	40.00	-17.01	193	126
2	V	58.6126	31.87	peak	-14.20	17.67	40.00	-22.33	135	318
3	V	73.1025	32.37	peak	-13.68	18.69	40.00	-21.31	205	179
4	V	97.7983	27.17	peak	-11.39	15.78	40.00	-24.22	202	275
5	V	81.2117	32.18	peak	-13.71	18.47	40.00	-21.53	108	181
6	V	106.7587	28.45	peak	-9.60	18.85	40.00	-21.15	145	274

Above 1GHz

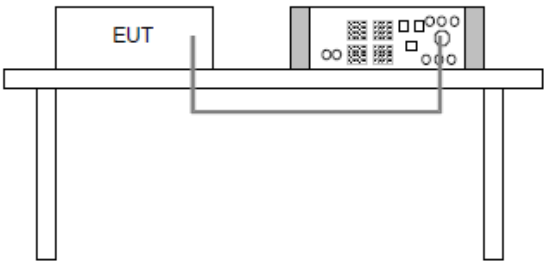
Note: The frequency that above 1GHz is mainly from the environment noise.

6.3 Voltage Fluctuation and Flicker Result

Temperature	24℃
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	December 23, 2016
Tested By :	Loren Luo

Limits of voltage fluctuation and flicks measurement

Test item	LimiT	Remark
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3.3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

Spec	Item	Requirement	Applicable
EN 61000-3-3:2013	a)		☐
Test Setup	 For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.		
Procedure	1. The power supply to EUT was switched on and allowed to warm up to its normal operating condition. 2. The voltage fluctuations and flickers measuring equipment was set to 230 Vac with 50 Hz. 3. The EUT was observed during, and checked after the test to determine the result.		
Remark			
Result	☐ Pass ☐ Fail		

Test Data ☐ Yes ☑ N/A

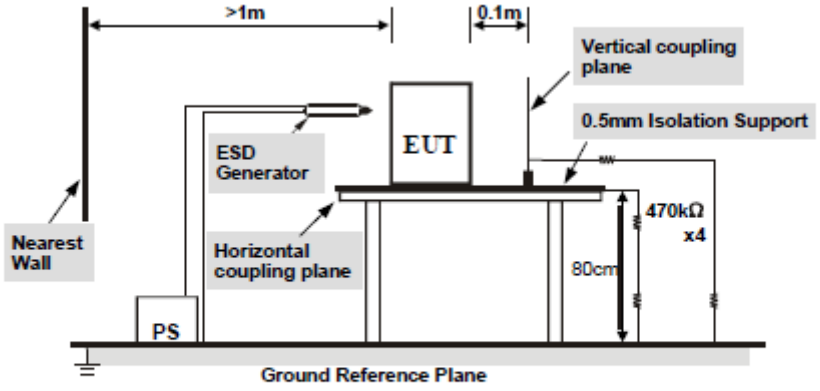
Test Plot ☐ Yes (See below) ☑ N/A

6.4 Electrostatic Discharge Test Result

Temperature	24℃
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	December 23, 2016
Tested By :	Loren Luo

Discharge Type	Test Severity Level
Air Discharges	±2kV, ±4kV, ±8kV
Contact Discharges	±2kV, ±4kV
Indirect Discharge HCP	±2kV, ±4kV
Indirect Discharge VCP	±2kV, ±4kV

Spec	Item	Requirement	Applicable
IEC 61000-4-2:2008	a)	1. The test set-up was in accordance with the standard. 2. The electrostatic discharge (ESD) gun was loaded with the correct charging / discharge network specified by the standard. 3. A 0.8m high, non-metallic table, with a Horizontal Coupling Plane (HCP) placed on the tabletop, was used as a test bench. The EUT and supporting equipment were placed on the test bench, isolated from the HCP by a thin insulating sheet (0.5mm thick). 4. The HCP was grounded to the ground plane via two 470 k " bleed" resistors at each end of the ground cable. 5. A Vertical Coupling Plane (VCP) was also used during the test. The VCP was also grounded to the ground plane in a similar manner as the HCP.	☑

Test Setup	 For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.
Procedure	- Direct Air & Contact Discharges - Applications of direct air and contact discharges to the discharge points specified by the customer were carried out in the following manner: - The EUT was switched on and allowed to warm up to its normal operating condition. - The test discharge points are shown in the ESD Test Points Section of Annex B. - For air discharges, the charged rounded electrode was positioned at a distance away from the test point and moved towards the EUT at a steady rate until a discharge was made or until the electrode touched the EUT, whichever occurs first. - For contact discharges, the pointed electrode was applied directly to the test point, in contact with the conductive surface of the EUT. The discharges were then made with the electrode in contact with the EUT. - The required number of positive and negative discharges was applied at each test point; with a one second interval between discharges. - The EUT was monitored during the test in accordance with the Pass / Fail criteria declared by the customer. - Indirect Coupling Plane Discharges - Indirect applications of discharges using the HCP & VCP were performed on the sides of the EUT in the following manner: - The EUT was switched on and allowed to warm up to its normal

	operating condition. - The discharges to the HCP / VCP were made 0.1m away from one side of the EUT. - The required numbers of positive and negative discharges were applied at each test point; with a one second interval between discharges. - The EUT was monitored during the test in accordance with the Pass / Fail criteria declared by the customer. - The test was then repeated on the remaining necessary sides of the EUT.
Remark	
Result	☑ Pass ☐ Fail

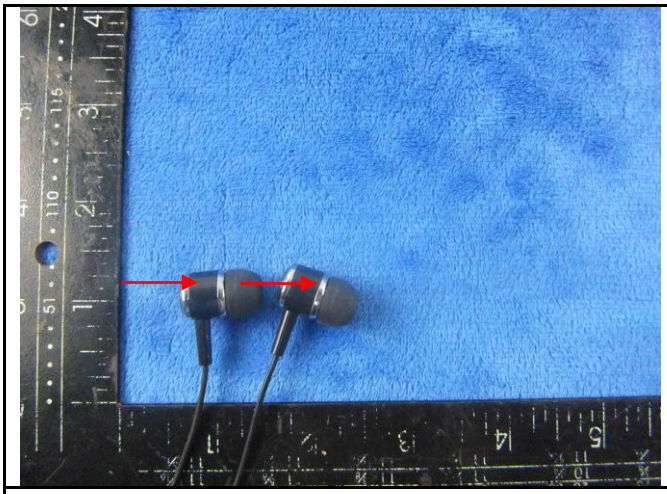
Test Data ☐ Yes ☑ N/A

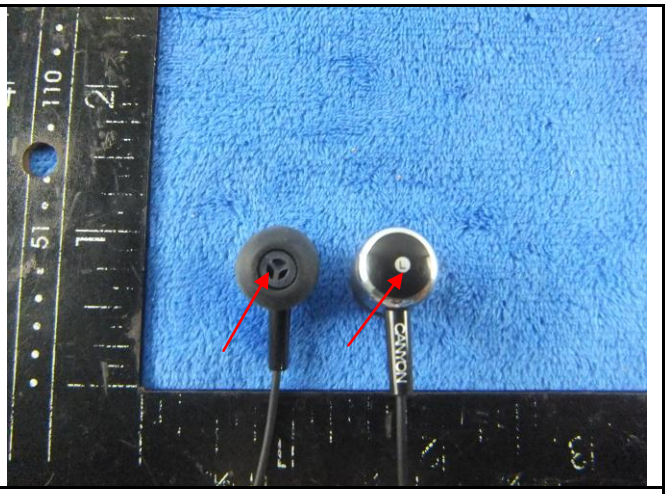
Test Plot ☑ Yes (See below) ☐ N/A

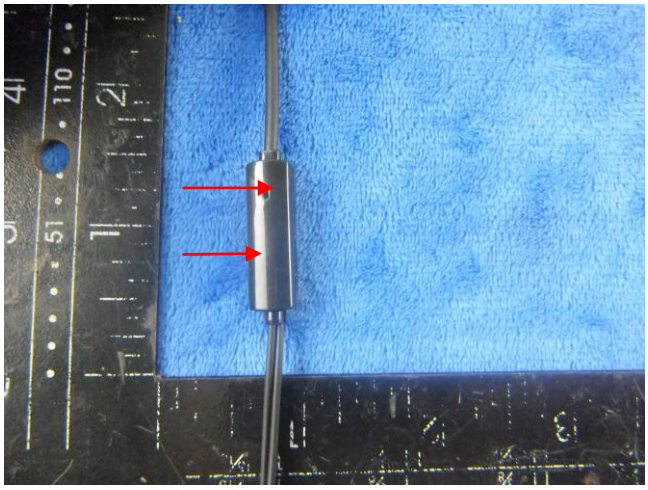
Test Mode :	Running Mode

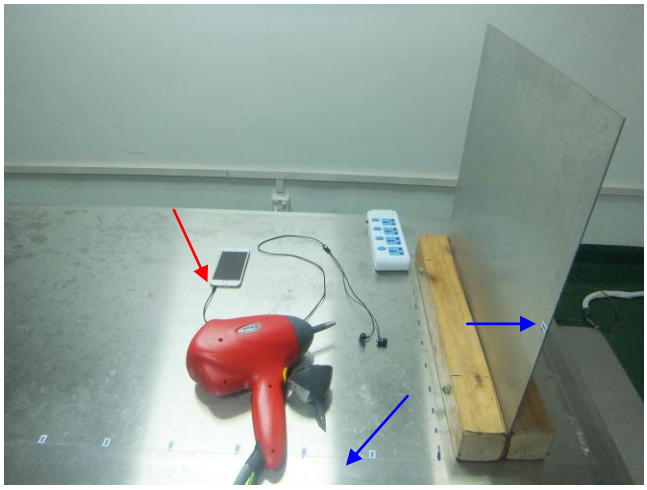
Air Discharge: →

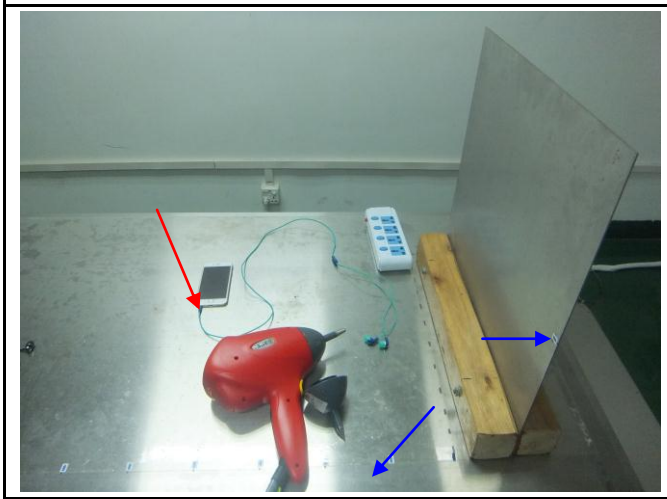
Contact Discharge: →











For Air Discharge: (10 times per point and polarity and test level)

1. Plastic Surface include EUT adapter (15 points)
2. MIC (2point)
3. Port (5 points)

For Indirect Discharge: (10 times per point and polarity and test level)

1. HCP (1 point)
2. VCP (1 point)

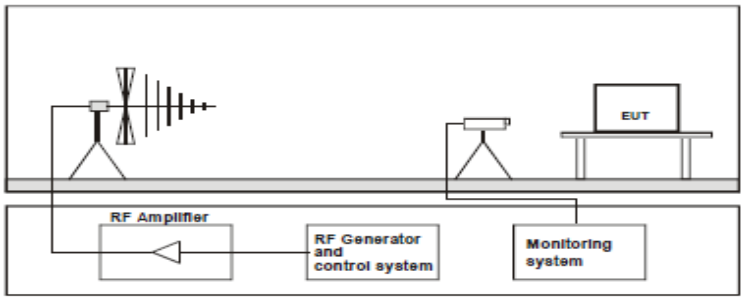
Performance Criterion	Observation	Result
☐ A ☒ B	Note ☒ 1 ☐ 2	Pass

NOTE: 1.There was no change compared with initial operation during the test.

2. The loss of function of the EUT during the test and it was recovered by itself operation after the test

6.5 RF Electromagnetic Field Test Result

Temperature	24℃
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	December 23, 2016
Tested By :	Loren Luo

Spec	Item	Requirement	Applicable
IEC 61000-4-3:2006+AMD1:2007+AMD2:2010	a)	All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range from 80MHz-2.7GHz, test level ranges from 3V/m to 10V/m, is ±0.74V/m.	☑
Test Setup	 For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.		
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The EUT was exercised and monitored in the manner specified by the customer. 3. All test instruments were PC controlled, via their IEEE 488.2 bus interfaces, and the test conducted in the following manner: a. The testing frequencies were swept over the required frequency range, with a step frequency equal to 1% of fundamental. The sweep rate was 1.0×10^{-3} decades/s. b. For each frequency tested, the signal generator output level was		

	adjusted automatically until the unmodulated field strength registered by the field monitor reached the desired level. This level was held constant for the specified dwell time. 4. The EUT was continuously monitored during the test in accordance with the Pass / Fail criteria declared by the customer. 5. The test was done in both horizontal and vertical antenna polarizations, and for all necessary sides of the EUT.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Test Mode :	Running Mode

Test Result:

Sides Tested	Frequency Range	Test Severity Level	Result
Front (H)	80 MHz – 1 GHz	3V/m, 80% AM (1kHz)	Pass
Front (V)		3V/m, 80% AM (1kHz)	Pass
Back (H)		3V/m, 80% AM (1kHz)	Pass
Back (V)		3V/m, 80% AM (1kHz)	Pass
Right (H)		3V/m, 80% AM (1kHz)	Pass
Right (V)		3V/m, 80% AM (1kHz)	Pass
Left (H)		3V/m, 80% AM (1kHz)	Pass
Left (V)		3V/m, 80% AM (1kHz)	Pass

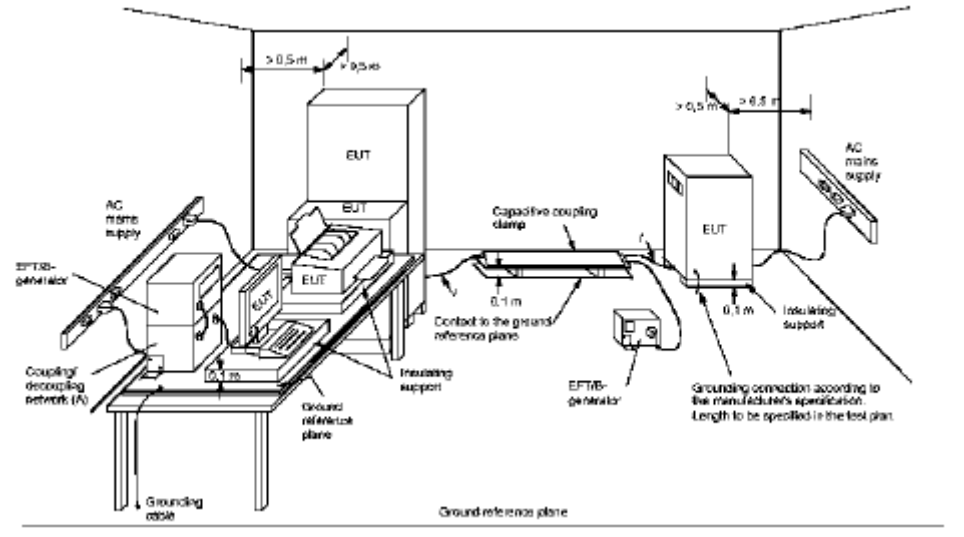
Performance Criterion	Observation	Result
☒A ☐B	Note ☒1 ☐2	Pass

NOTE: 1.There was no change compared with initial operation during the test.

2. The loss of function of the EUT during the test and it was recovered by itself operation after the test

6.6 Fast Transients Common Mode Test Result

Temperature	25℃
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	December 24, 2016
Tested By :	Loren Luo

Spec	Item	Requirement	Applicable
IEC 61000-4-4:2012	a)	All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, test level ranges from ±0.5kV to ±1kV, is ±1.2%.	☑
Test Setup			
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. D.C./A.C. Power Line Test a. The EFT/B test system has a built-in coupling/decoupling network which couples the generated EFT bursts into the EUT power supply lines connected to it. b. The EFT bursts were coupled to the selected lines (one at a		

	time) of the EUT for the necessary test duration. 3. I/O Signal & Control Line Test The interference impulses were capacitively coupled to the EUT's signal cables for the necessary test duration. 4. The EUT was monitored during the test in accordance with the Pass / Fail criteria declared by the customer. 5. The test was performed with EFT bursts in the positive and negative polarities and repeated on all necessary lines.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Test Mode :	Running Mode

Test Result:

EUT AC Voltage Rating: 230Vac, 50Hz

Test Point	Polarity	Test Level (kV)	Injected Method	Performance Criterion	Observation	Result
☒ L	+/-	1	Direct	☒ A ☐ B	Note ☒ 1 ☐ 2	Pass
☒ N	+/-	1	Direct	☒ A ☐ B	Note ☒ 1 ☐ 2	Pass
☒ L– N	+/-	1	Direct	☒ A ☐ B	Note ☒ 1 ☐ 2	Pass

NOTE: 1.There was no change compared with initial operation during the test.

2. The loss of function of the EUT during the test and it was recovered by itself operation after the test.

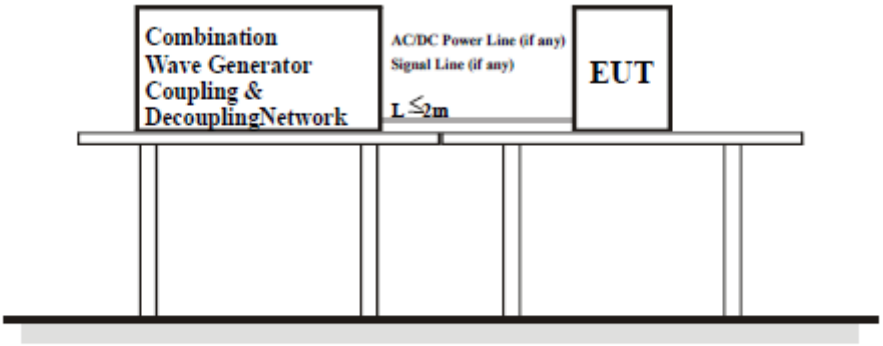
6.7 Surges, line to line and line to ground Test Result

Temperature	25℃
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	December 24, 2016
Tested By :	Loren Luo

Surges Test Details	Repetition Rate	At least 1 per minute
	Test Voltage	Power line line to line: 1kV; line to ground: 2kV Telecommunication line: 0.5 kV;
	Surge Input/Output	Power Line: L1-L2 / L1-PE / L2-PE Telecommunication line: T-Ground / R-Ground
	Open-Circuit Voltage Waveform	1.2/50μs
	Short-Circuit Current Waveform	8/20μs
	Phase Angels	0º, 90º, 180º and 270º

Spec	Item	Requirement	Applicable
IEC 61000-4-5:2014	a)	1. The EUT was placed on a 0.8m high, non-conductive table. 2. The test was performed using a voltage surge generator, mains, and signal line coupling/decoupling networks that were compliant with the standard. 3. The voltage surge generator and coupling/decoupling networks were connected to the same protective earth. 4. The test level was set with the surge generator’ s HV output open-circuited.	☑

		5. For testing of the mains line, the mains coupling/decoupling network was inserted into the line. The voltage surge generator HV output cables were connected to the mains coupling/decoupling network, which has the necessary resistor/capacitor configurations (as required by the standard) built-in. The settings on the mains coupling/decoupling network were selected to give the required resistor/capacitor configuration as follows: a. An 18μF capacitor in series with the output of the generator for differential (line-to-line) mode testing. b. A 10 Ohm resistor and 9μF capacitor in series with the output of the generator for common (line-to-ground) mode testing 6. For testing of the signal lines, the signal line coupling/decoupling network was inserted into the line. The voltage surge generator HV output cables were connected to the signal line coupling/decoupling network, which has the necessary resistor/capacitor/gas arrestor configurations (as required by the standard) built-in. The settings on this network were selected to give the required resistor/capacitor/gas arrestor configuration as reflected in the standard.	

Test Setup	 For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.
Procedure	1. The power supply to EUT was switched on and allowed to warm up to its normal operating condition. 2. The surge generator phase shifter was set to 90° (for positive surges) or 270° (for negative surges). 3. The correct open-circuit test level was set with the surge generator disconnected from the coupling network. 4. The output of the generator was then reconnected back to the coupling network. 5. Five discharges, generated by the voltage surge generator, were made on each relevant line, for each polarity, at each test level, with the relevant discharge interval. 6. The EUT was observed during, and checked after the test to determine the result.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Test Mode :	Running Mode

Test Result:

Test Point	Polarity	Test Level (kV)	Coupling Method	Performance Criterion	Observation	Result
☒ L1 - L2	+/-	1	Capacitive	☒A ☐B	Note ☒1 ☐2	Pass
☐ L1 - PE	+/-	2	Capacitive	☐A ☐B	Note ☐1 ☐2	N/A
☐ L2 - PE	+/-	2	Capacitive	☐A ☐B	Note ☐1 ☐2	N/A

NOTE: 1.There was no change compared with initial operation during the test.

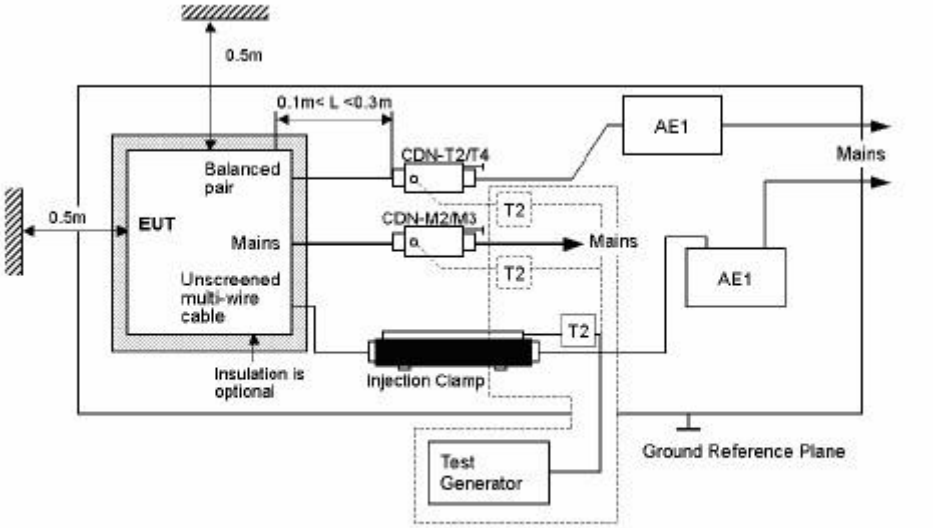
2. The loss of function of the EUT during the test and it was recovered by itself operation after the test.

6.8 RF Common Mode 0.15MHz to 80MHz Test Result

Temperature	25℃
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	December 24, 2016
Tested By :	Loren Luo

Conducted Immunity Details	Frequency Step	50 kHz in the range 150 kHz to 5 MHz, 1% frequency increment of the momentary frequency in the range 5 MHz to 80 MHz
	Sweep Rate	≤ 1.5 X 10^{-3} decades/s

Spec	Item	Requirement	Applicable
IEC 61000-4-6:2013	a)	1. The EUT and auxiliary equipment were placed on top of the GRP and isolated from it by a 0.1m thick insulating support as shown in Annex B. 2. The test system includes a RF signal generator, a power amplifier, attenuators, a spectrum analyzer and various types of Coupling and Decoupling Networks (CDNs). 3. The EUT' s Cables under Test (CUT) were cut in order to insert the CDNs into the line. The cable lengths were kept as short as possible to maintain a distance of 0.1m to 0.3m between the EUT and the CDNs. 4. The interconnecting cables between the EUT, CDNs and auxiliary equipment were kept at a height of 3cm to 5cm above the GRP. 5. The CDNs were placed on the GRP, in direct	☑

		electrical contact with it.	
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.		
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The interfering signal was swept from 150 kHz to 80 MHz, with a step frequency equal to 1% of fundamental. The sweep rate was ≤ 1.5 X 10^{-3} decades/s. 3. The output power level from the power amplifier to the CDN was adjusted through the signal generator so that the incident power reached the same level as that established during calibration. Once the incident power to the CDN reached the calibrated level, the 80% AM 1 kHz AF was switched on for the specified dwell time. 4. The EUT was continuously monitored during the test in accordance with the PASS/FAIL criteria declared by the customer.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Test Mode :	Running Mode

Test Result:

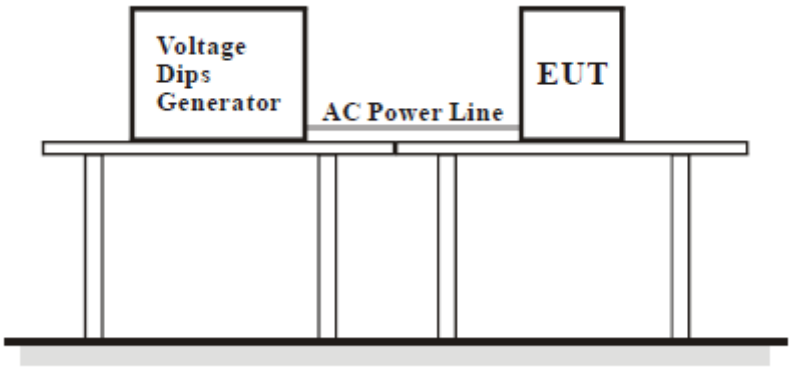
Frequency Band (MHz)	Field Strength (Vrms)	Cable	Injection Method	Performance Criterion	Observation	Result
0.15 ~ 80	3	Power Line	CDN-M2	☒A ☐B	Note ☒1 ☐2	Pass

NOTE: 1.There was no change compared with initial operation during the test.

2. The loss of function of the EUT during the test and it was recovered by itself operation after the test.

6.9 Voltage Dips and Interruptions Test Result

Temperature	25℃
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	December 24, 2016
Tested By :	Loren Luo

Spec	Item	Requirement	Applicable
IEC 61000-4-11:2004	a)	1. The proper severity level shall be selected before performing this testing. 2. SIEMIC Work Instruction on this test must be referenced for the table of the Summary of Test Levels.	☑
Test Setup			
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The EUT shall continue to work as normal during the testing		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Test Mode :	Running Mode

Test Result:

Interruption at phase angles of 0, 45, 90, 135, 180, 225, 270 and 315 degree in a 10 sec-interval.

Test Power: 230Vac, 50Hz					
	Duration (in Period)	Residual Voltage (%)	Criterion	Observation	Result
Voltage Dip	0.5 cycle	0	B	B	Pass
Voltage Dip	25 cycle	70	C	B	Pass
Short Interruptions	250 cycle	0	C	B	Pass

Note: The EUT shall be tested for each selected combination of test level and duration with a sequence of three dips/interruptions with a minimum interval of 10 s (between each test event).

Annex A. TEST INSTRUMENT

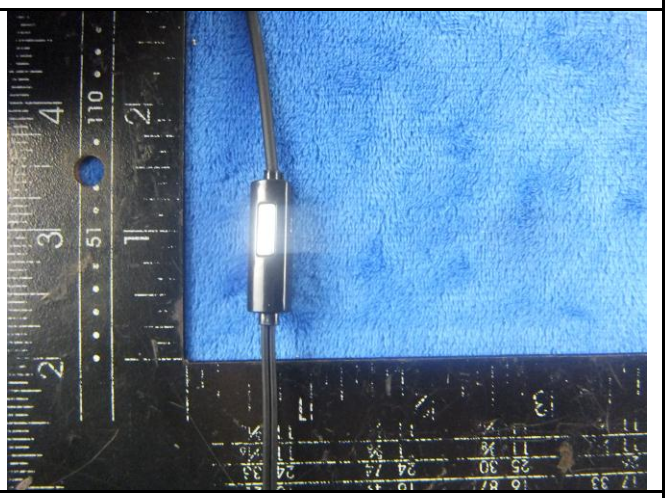
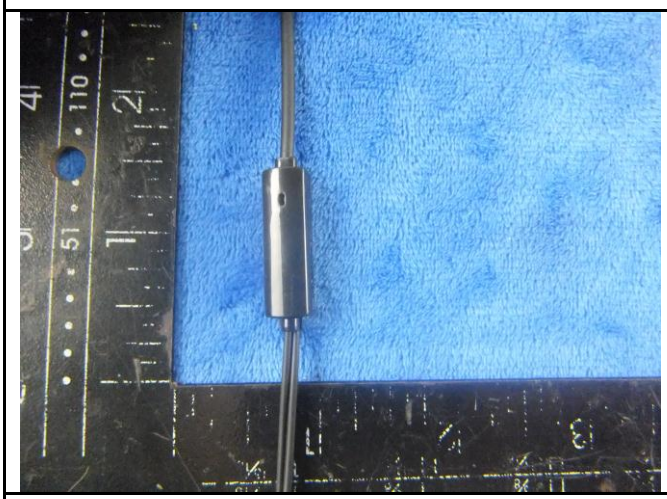
Instrument	Model	Serial #	Cal Date	Cal Due	In use
Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/16/2016	09/15/2017	☑
Line Impedance Stabilization Network	LI-125A	191106	09/24/2016	09/23/2017	☑
Line Impedance Stabilization Network	LI-125A	191107	09/24/2016	09/23/2017	☑
LISN	ISN T800	34373	09/24/2016	09/23/2017	☑
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/16/2016	09/15/2017	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	☑
Electrostatic Discharge Immunity					
ESD Generator	NSG 437	603	09/20/2016	09/19/2017	☑
RF Electromagnetic Field Immunity					
Agilent Signal Generator	SMH052	828960/003	09/16/2016	09/15/2017	☑
Power Amplifier	SMC150D	R1553-0313	03/09/2016	03/08/2017	☑
Power Amplifier	S41-25D	R1553-0314	05/27/2016	05/26/2017	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	☑
B&K Audio Power Amplifier	2716-C-001	2610968	05/19/2016	05/18/2017	☑
B&K Conditioning Amplifier	2690-0S2	2637864	05/19/2016	05/18/2017	☑
B&K Mouth Simulator	4227	2630625	05/19/2016	05/18/2017	☑
B&K Sound Calibrator	4231	2637487	05/19/2016	05/18/2017	☑
B&K 1/2″ Pressure-field Microphone	4192	2641691&2629494	05/19/2016	05/18/2017	☑
B&K Ear Simulator for Telephonometry	4185	2553601	05/23/2016	05/22/2017	☑
B&K Telephone Test Head	4206 B	2637006	05/23/2016	05/22/2017	☑
Fast Transients Common Mode & Surges Immunity					

EMC Immunity Test System	EMC PRO Plus	1112214	09/16/2016	09/15/2017	☑
Capacitor Clamp	CCL-A	1112111	09/20/2016	09/19/2017	☐
I/O Line Coupler/De-coupler	CM-I/OCD	1112214	09/20/2016	09/19/2017	☐
CM-TELCD Telecom Coupler/De-coupler	CM-TELCD	1112216	09/20/2016	09/19/2017	☐
Harmonic/ Fluctuations & Flicker/ Voltage Dips Immunity					
AC SOURCE	3001 IX	54140	09/16/2016	09/15/2017	☑
Harmonic& Flicker Tester	PACS-1	1319A01862	09/16/2016	09/15/2017	☑
RF Common Mode Immunity					
Agilent Signal Generator	SMH052	828960/003	09/16/2016	09/15/2017	☑
Power Amplifier	SCCX75	R15550213	05/27/2016	05/26/2017	☑
CDN	M225E	511061	05/27/2016	05/26/2017	☑
CDN	M325E	521114	05/27/2016	05/26/2017	☑
CDN	T4E	581323	05/27/2016	05/26/2017	☐
CDN	T2E	581001	05/27/2016	05/26/2017	☐
CDN	T8	581547	05/27/2016	05/26/2017	☐
Attenuator	MANA-061100	N/A	08/31/2016	08/30/2017	☑
B&K Audio Power Amplifier	2716-C-001	2610968	05/19/2016	05/18/2017	☑
B&K Conditioning Amplifier	2690-0S2	2637864	05/19/2016	05/18/2017	☑
B&K Mouth Simulator	4227	2630625	05/19/2016	05/18/2017	☑
B&K Sound Calibrator	4231	2637487	05/19/2016	05/18/2017	☑
B&K 1/2″ Pressure-field Microphone	4192	2641691&2629494	05/19/2016	05/18/2017	☑
B&K Ear Simulator for Telephonometry	4185	2553601	05/19/2016	05/18/2017	☑
B&K Telephone Test Head	4206 B	2637006	05/19/2016	05/18/2017	☑

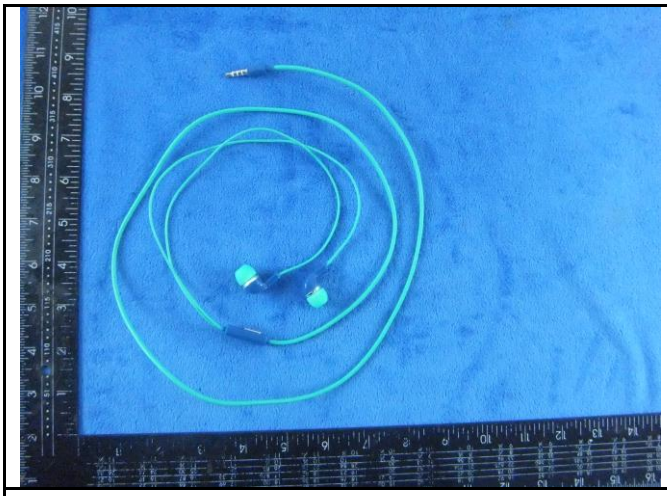
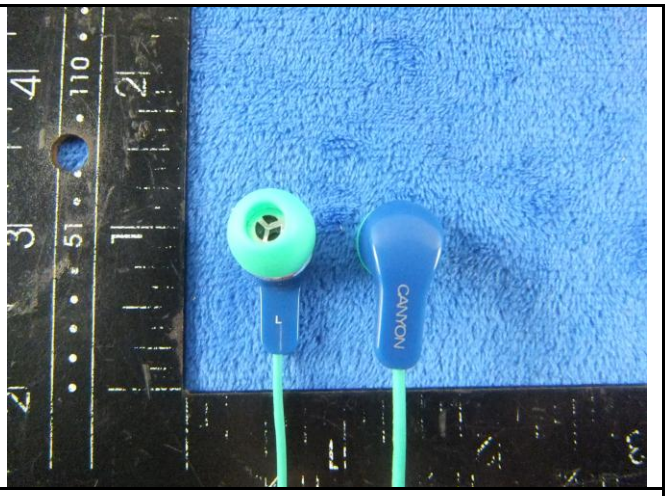
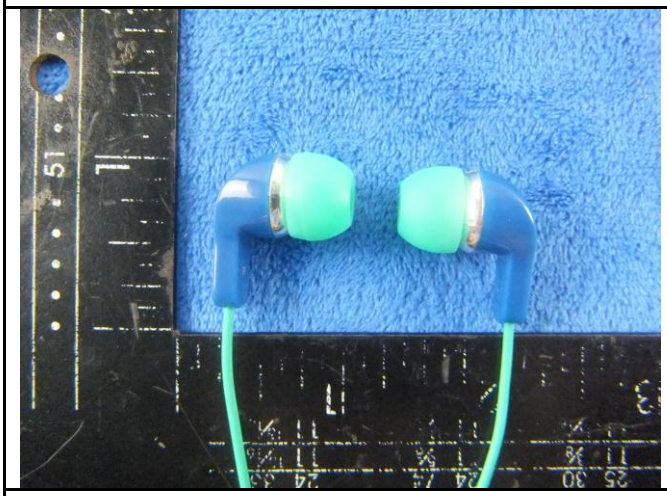
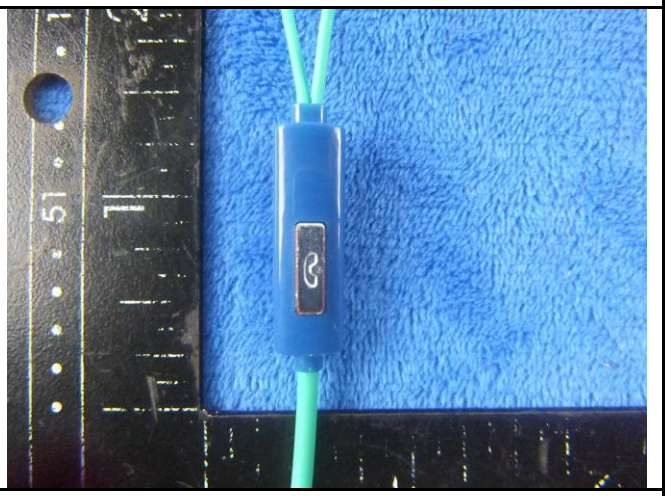
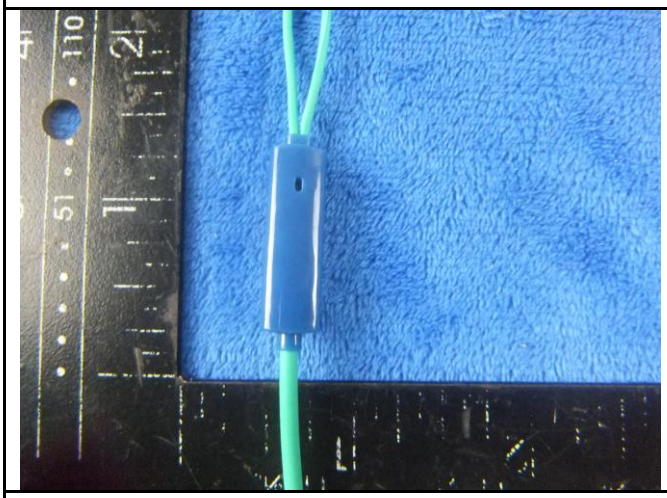
Annex B. EUT and Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

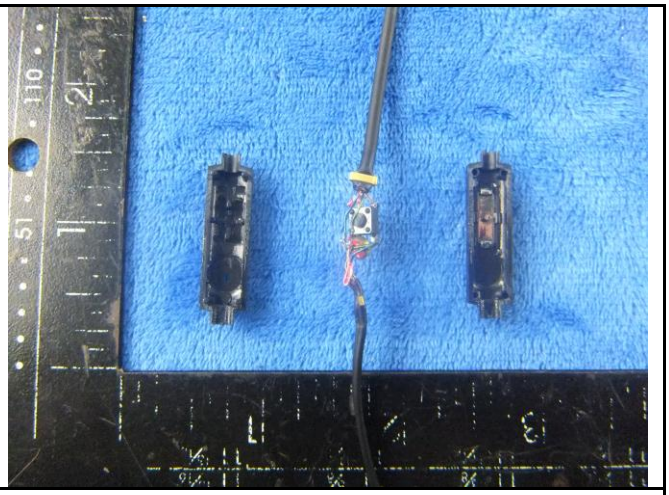
Shape 01:

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Whole Top View</td><td>EUT(earplug) – Front/Rear View</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>EUT(earplug) - Left/Right View</td><td>EUT(push-button) – Front View</td></tr>
<tr><td>  </td><td></td></tr>
<tr><td>EUT(push-button) - Rear View</td><td></td></tr>
</table>

Shape 02:

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Whole Top View</td><td>EUT(earplug) – Front/Rear View</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>EUT(earplug) - Left/Right View</td><td>EUT(push-button) – Front View</td></tr>
<tr><td>  </td><td></td></tr>
<tr><td>EUT(push-button) - Rear View</td><td></td></tr>
</table>

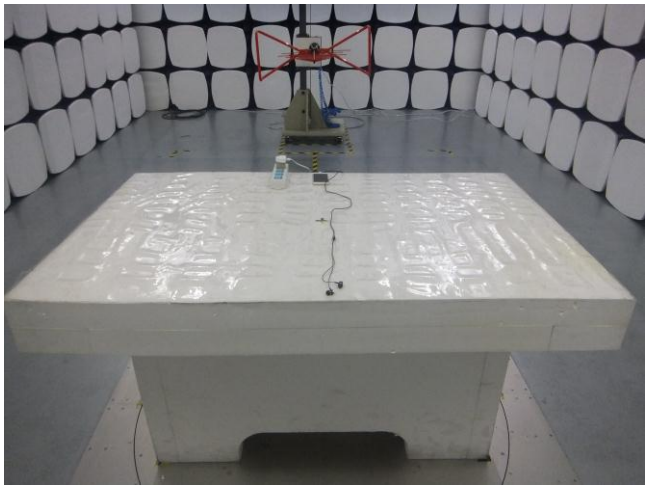
Annex B.ii. Photograph: EUT Internal Photo

	
Cover Off(earplug) - Top View	Cover Off(push-button) - Top View

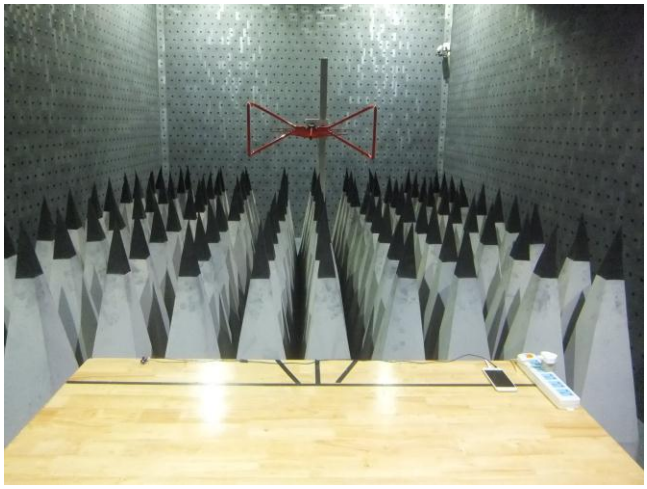
Annex B.iii. Photograph: Test Setup Photo

Conducted Emission – Front View

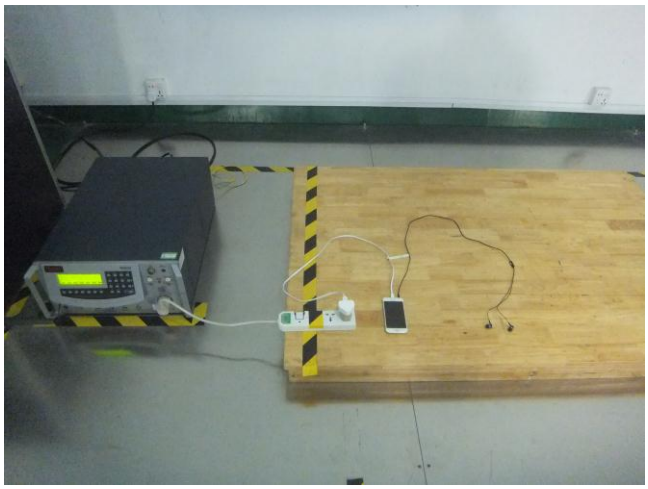
Conducted Emission – Rear View



Radiated Emission-Below 1 GHz



RF Electromagnetic Field Immunity Test Setup



Fast Transients Common Mode& Surges

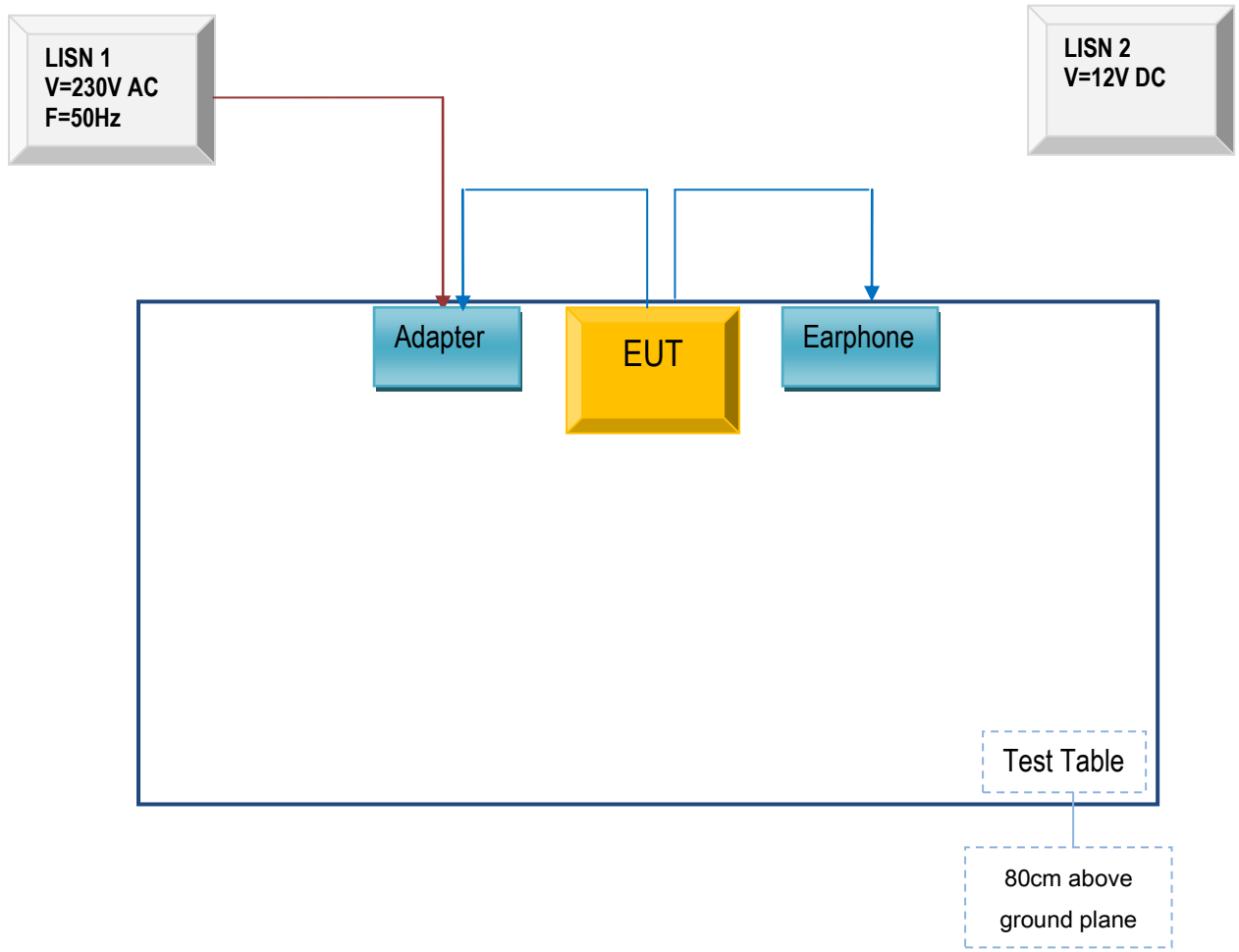
RF Common Mode Immunity Test Setup

	
Electrostatic Discharge Test Setup（Shape A）	Electrostatic Discharge Test Setup （Shape B）

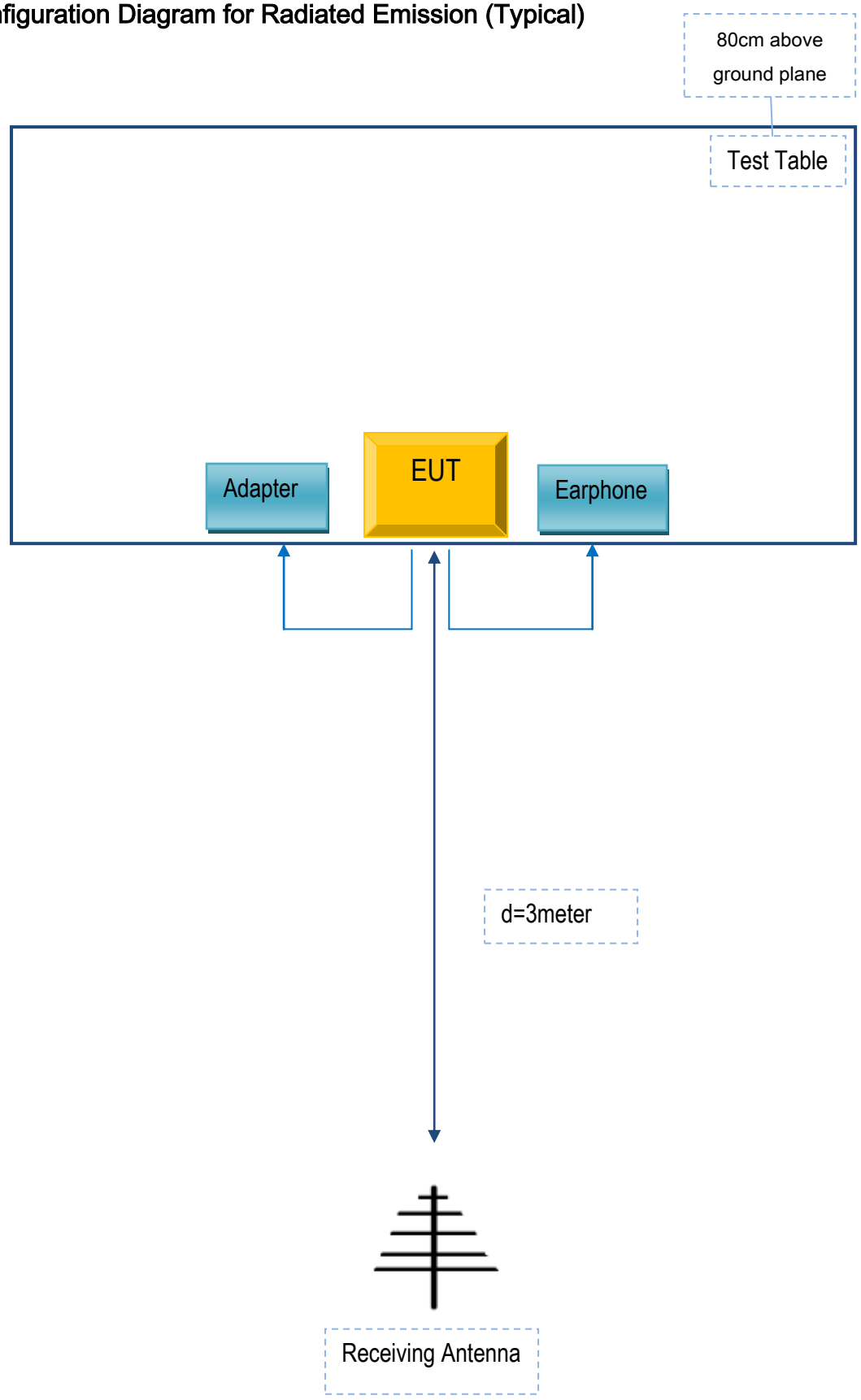
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.i. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions (Typical)



Block Configuration Diagram for Radiated Emission (Typical)



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
N/A	N/A	N/A	N/A	N/A

Annex D. User Manual / Block Diagram / Schematics / Partlist

N/A

Annex E. DECLARATION OF SIMILARITY

N/A