Dongguan EMTEK Co., Ltd.
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EMTEK
Access to the World

Certificate of Conformity

NO.: ED130726190E

The following products has been tested by us with the listed standards and found in conformity with the council EMC directive 2004/108/EC.It is possible to use CE marking to demonstrate the conformity with this EMC Directive.

Applicant	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Address	:	Unit 1, 4 Fl, No.903, Tonglong Second Road, Torch Hi-Tech Zone, Xiang'an Industrial District, Xiamen, China
Manufacturer	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Address	:	Unit 1, 4 Fl, No.903, Tonglong Second Road, Torch Hi-Tech Zone, Xiang'an Industrial District, Xiamen, China
EUT	:	Car Kit Power Supply
Trade Mark	:	N/A
M/N	:	P-004B
Test Standards	:	EN 50498: 2010 EN 55022: 2010+AC: 2011 EN 55024: 2010

CE

DONGGUAN EMTEK CO., LTD. CERTIFICATE

(Manager)

August 06, 2013

The certificate is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. logo.

EMC TEST REPORT

For

SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.

Car Kit Power Supply

Model No.: P-004B

Prepared for	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Address	:	Unit 1, 4 Fl, No.903, Tonglong Second Road, Torch Hi-Tech Zone, Xiang'an Industrial District, Xiamen, China
Prepared by	:	DONGGUAN EMTEK CO., LTD.
Address	:	No.281, Guantai Road, Nancheng District, Dongguan, Guangdong, China
		Tel : +86-769-22807078 Fax: +86-769-22807079

Report Number	:	ED130726190E
Date of Test	:	July 26, 2013 to August 06, 2013
Date of Report	:	August 06, 2013

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Appendix I (Photos of EUT) (3 pages)

TEST REPORT DESCRIPTION

Applicant	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Manufacturer	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
EUT	:	Car Kit Power Supply
Model No.	:	P-004B
Input Rating	:	DC 12-24V
Output Rating	:	DC 8.4V, 0.9A

Measurement Procedure Used:

For EMC Directive 2004/108/EC				
Test	Test Requirement	Test Method	Class/Severity	Result
Radiated Emissions (30MHz to 1GHz)	EN50498	2004/104/EC Clause 6.5 and 6.6	6.5.2.1 for board band 6.6.2.1 for narrow band	PASS
Transient Conducted Emissions	EN50498	2004/104/EC & ISO7637-2: 2011	6.9 of 2004/104/EC	N/A
Transient Conducted Immunity	EN50498	2004/104/EC & ISO7637-2: 2011	6.8 of 2004/104/EC Table 1	PASS
Radiated Immunity (20MHz to 2GHz)	EN50498	2004/104/EC & ISO11452-2:2004	6.7 of 2004/104/EC	N/A

For EMC Directive 2004/108/EC				
Test	Test Requirement	Test Method	Class/Severity	Result
Radiated Emissions (30MHz to 1GHz)	EN55022: 2010+AC: 2011	CISPR16-2-3: 2003+ A2: 2005	Clause 5	PASS
ESD	EN55024: 2010	IEC61000-4-2: 2008	±4kV Contact ±2, 4, 8kV Air	PASS
Radiated Immunity (80MHz to 2.7GHz)	EN55024: 2010	IEC61000-4-3: 2006+ A1: 2007+A2: 2010	80MHz to 1GHz (1.4GHz to 2GHz) 3V/m, 80%, 1kHz, Amp. Mod. (2GHz to 2.7GHz) 1V/m, 80%, 1kHz, Amp. Mod.	PASS

The device described above is tested by DONGGUAN EMTEK CO., LTD., SHENZHEN EMTEK CO., LTD. and TUV Rheinland(Guangdong) Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure its performance criterion. The measurement results are contained in this test report and DONGGUAN EMTEK CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the Directive 2004/108/EC requirements.

This report shall not be reproduced in part without written approval of DONGGUAN EMTEK CO., LTD.

Date of Test : July 26, 2013 to August 06, 2013

Prepared by : Ivy Huang/ Engineer

Reviewer : Hong Yang/ Quality Manager

Approved & Authorized Signer : Sam Lv/ Manager

Modified History

Rev.	Summary	Date of Rev.	Report No.
V1.0	Original Report	2013-08-06	ED130726190E

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	Car Kit Power Supply
Model Number	:	P-004B
Trade Mark	:	N/A
Power Supply	:	DC 12V, DC 24V
Applicant	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Address	:	Unit 1, 4 Fl, No.903, Tonglong Second Road, Torch Hi-Tech Zone, Xiang'an Industrial District, Xiamen, China
Manufacturer	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.
Address	:	Unit 1, 4 Fl, No.903, Tonglong Second Road, Torch Hi-Tech Zone, Xiang'an Industrial District, Xiamen, China
Date of received	:	July 26, 2013
Date of Test	:	July 26, 2013 to August 06, 2013

1.2 Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2012.07.04
The certificate is valid until 2015.07.03
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006
The Certificate Registration Number is L3150

Accredited by TUV Product Service Group 2012.09.24
The certificate is valid until 2013.09.24.
Accredited by TUV Rheinland Shenzhen 2011.05.12
The Laboratory has been assessed according to the requirements ISO/IEC 17025: 2005

Accredited by FCC, Aug. 18, 2011
The Certificate Number is 247565

Accredited by Industry Canada, January 13, 2011
The Certificate Number is 9444A.

Name of Firm : DONGGUAN EMTEK CO., LTD.
Site Location : No.281, Guantai Road, Nancheng District, Dongguan, Guangdong, China.

1.3 Measurement Uncertainty

Test Item		Uncertainty
Conducted Emission Uncertainty	:	2.8dB
Power clamp	:	2.6dB
Radiated Emission Uncertainty (3m Chamber)	:	3.3dB (30M~1GHz Polarize: H) 3.2dB (30M~1GHz Polarize: V)
Uncertainty for test site temperature and humidity	:	0.6℃ 4%

2. MEASURING DEVICES AND TEST EQUIPMENT

2.1 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100137	May 18, 2013	1 Year
2.	Bilog Antenna	Schwarzbeck	VULB9163	000141	May 11, 2013	1 Year
3.	Power Amplifier	CDS	RSU-M352	818	May 28, 2013	1 Year
4.	Power Amplifier	HP	8447F	OPT H64	May 28, 2013	1 Year
5.	Color Monitor	SUNSPO	SP-140A	N/A	May 18, 2013	1 Year
6.	Single Line Filter	JIANLI	XL-3	N/A	May 29, 2013	1 Year
7.	Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	May 29, 2013	1 Year
8.	3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	May 29, 2013	1 Year
9.	DC Power Filter	JIANLI	DL-2X50B	N/A	May 29, 2013	1 Year
10.	Cable	Schwarzbeck	PLF-100	519489	May 18, 2013	1 Year
11.	Cable	Rosenberger	CIL02	A0783566	May 18, 2013	1 Year
12.	Cable	Rosenberger	RG 233/U	525178	May 18, 2013	1 Year

2.2 Transient Conducted Immunity Measurement (For ISO 7637-2)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Ultra Compact Simulator	UCS 200 N	EM TEST	V0820103743	March 03, 2013	1 Year
2.	Voltage Drop Simulator	VDS 200 N50	EM TEST	V0927104953	March 03, 2013	1 Year
3.	Oscilloscope	WAVERUNNER640Zi	LeCroy	LCRY2805N55686	March 03, 2013	1 Year
4.	Passive Probe	P5100	Tektronix	-	March 03, 2013	1 Year

2.3 For Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	ESD Tester	TESEQ AG	NSG437	EE166	June 09, 2013	1 Year

2.4 For Radiated Immunity Measurement

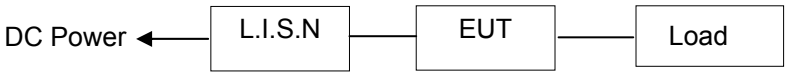
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	RF Power Meter. Dual Channel	BOONTON	4232A	10539	May 18, 2013	1 Year
2.	50ohm Diode Power Sensor	BOONTON	51011EMC	34236/34238	May 18, 2013	1 Year
3.	Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120 L3F	332	May 11, 2013	1 Year
4.	Power Amplifier	PRANA	AP32MT215	N/A	May 28, 2013	1 Year
5.	Power Amplifier	MILMEGA	AS0102-55	N/A	May 28, 2013	1 Year
6.	Signal Generator	AEROFLEX	2023B	N/A	May 20, 2013	1 Year
7.	Field Strength Meter	HOLADAY	HI-6005	N/A	May 18, 2013	1 Year
8.	RS232 Fiber Optic Modem	HOLADAY	HI-4413P	N/A	May 18, 2013	1 Year
9.	Log.-Per. Antenna	SCHWARZBECK	VULP 9118E	N/A	May 11, 2013	1 Year

3. TEST RECORD

3.1 Radiated Emission Measurement

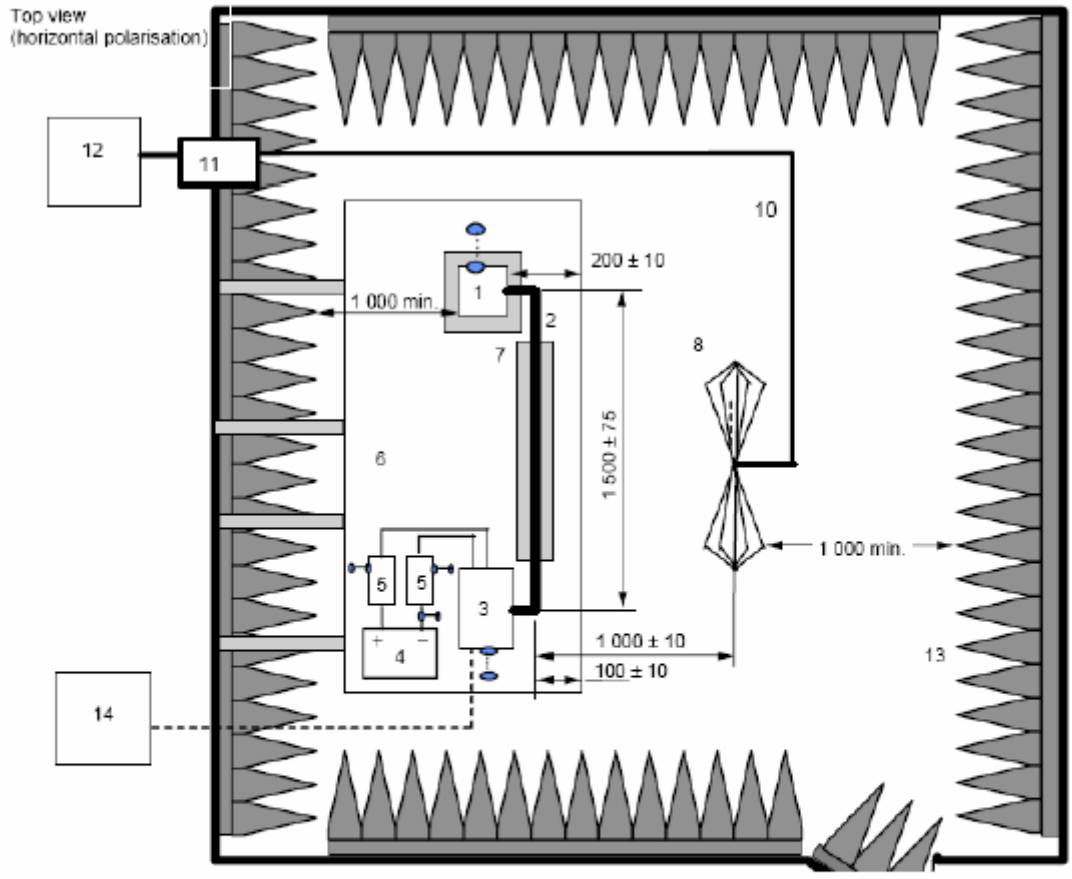
3.1.1 Block Diagram of Test

3.1.1.1 Block diagram of connection between the EUT and simulators



(EUT: Car Kit Power Supply)

3.1.1.2 Block diagram of test setup



Key

1. EUT (grounded locally if required in test plan)	8. Antenna
2. Test harness	10. High-quality coaxial cable
3. Load simulator	11. Bulkhead connector
4. Power supply (location optional)	12. Measuring instrument
5. Artificial network (AN)	13. RF absorber material
6. Ground plane (bonded to shielded enclosure)	14. Stimulation and monitoring system
7. Low relative permittivity support	

3.1.2 Measuring Standard

EN50498, Clause 6.5 and 6.6 of 2004/104/EC

3.1.3 Radiated Emission Limits

3.1.3.1 Annex I 6.5.2(For broadband emissions):

Limit E(dBμV/m) at frequency F (MHz)		
30-75MHz	75-400MHz	400-1000MHz
E=62-25, 13 log(F/30)	E=52+15, 13 log(F/75)	E=63

3.1.3.1 Annex I 6.5.2(For narrowband emissions):

Limit E(dBμV/m) at frequency F (MHz)		
30-75MHz	75-400MHz	400-1000MHz
E=52-25, 13 log(F/30)	E=42+15, 13 log(F/75)	E=53

3.1.4 EUT Configuration on Test

The 2004/104/EC regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT	:	Car Kit Power Supply
Model No.	:	P-004B
Manufacturer	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.

3.1.5 Operating Condition of EUT

3.1.5.1 Turn on the power.

3.1.5.2 Let the EUT work in test mode (Full Load) and measure it.

3.1.6 Test Procedure

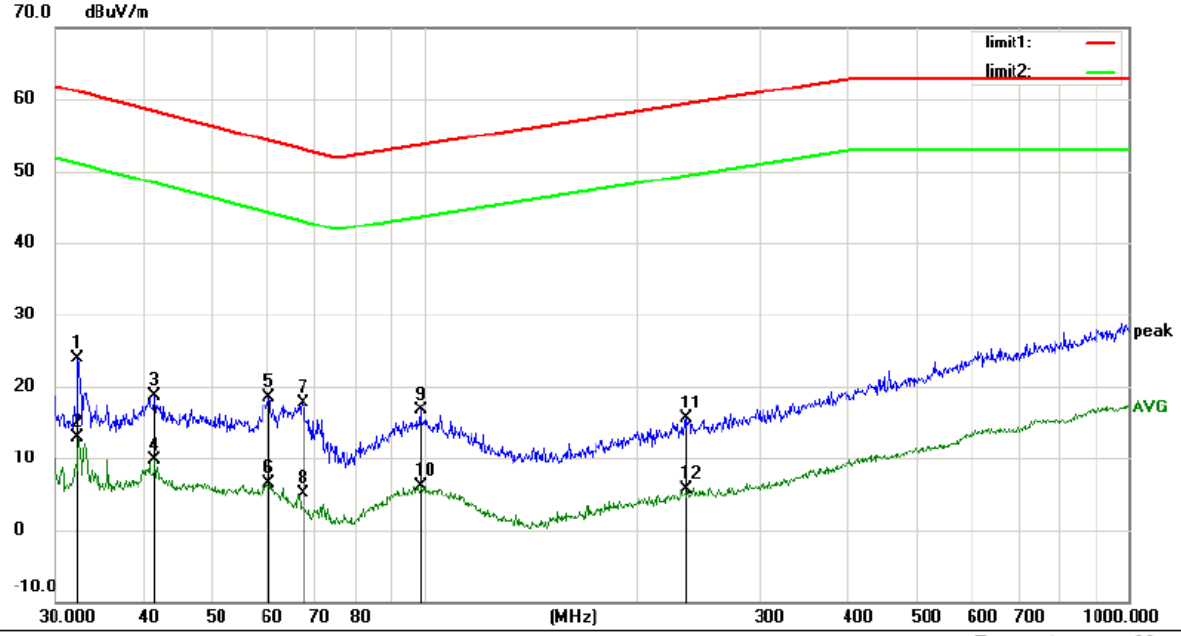
The EUT was insulated placed 50mm above the ground plane, the ground plan was in a height of 1m to the reference plane of semi-anechoic chamber and with electrical connection. No additional electric connection was made between the EUT and ground plane as the EUT will not be intended to be bonded to the bodywork of the vehicle. The EUT was powered by 12V vehicle battery through 5 uH/50 Ohm L.I.S.N.

3.1.7 Test Results

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

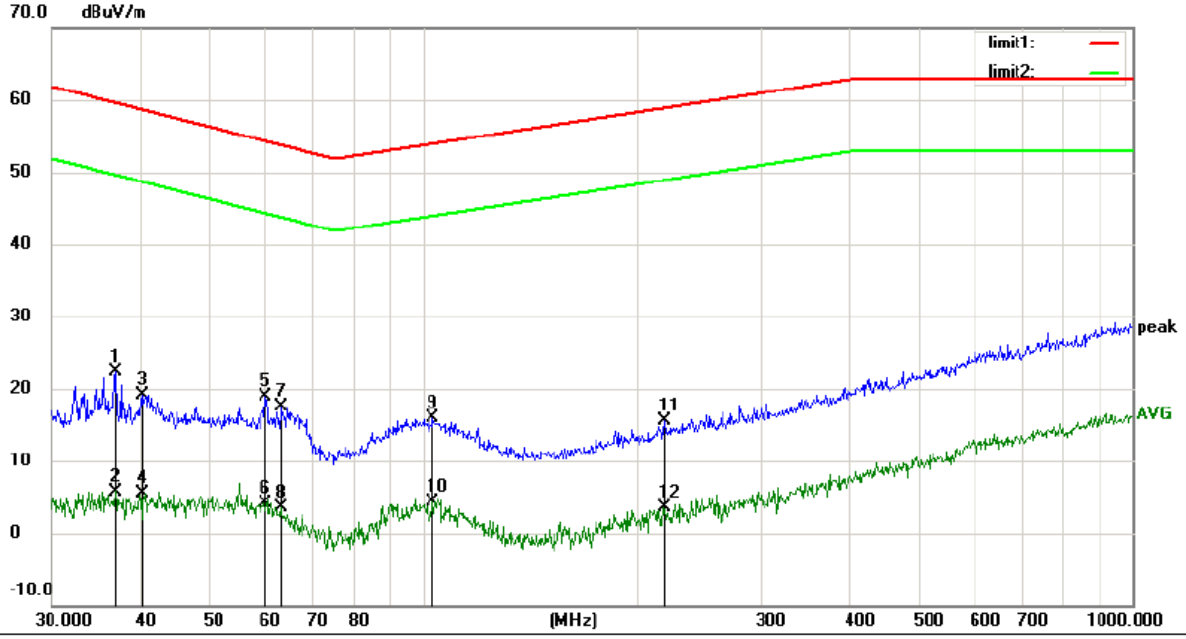
Please refer to the scanning waveform in the following pages.



Site Chamber #1 Polarization: **Horizontal** Temperature: 26
Limit: RE_E-mark_B_QP Power: DC 12V Humidity: 55 %
Mode:Full Load
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		32.2925	39.03	-15.12	23.91	61.20	-37.29	peak			
2		32.2925	27.95	-15.12	12.83	51.20	-38.37	AVG			
3		41.5670	32.86	-14.12	18.74	58.44	-39.70	peak			
4		41.5670	23.82	-14.12	9.70	48.44	-38.74	AVG			
5		60.2801	33.47	-15.04	18.43	54.38	-35.95	peak			
6		60.2801	21.63	-15.04	6.59	44.38	-37.79	AVG			
7	*	67.2022	35.42	-17.78	17.64	53.20	-35.56	peak			
8		67.2022	22.96	-17.78	5.18	43.20	-38.02	AVG			
9		98.8326	31.17	-14.38	16.79	53.81	-37.02	peak			
10		98.8326	20.57	-14.38	6.19	43.81	-37.62	AVG			
11		235.8164	29.68	-14.26	15.42	59.53	-44.11	peak			
12		235.8164	20.00	-14.26	5.74	49.53	-43.79	AVG			

*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: **Vertical** Temperature: 26

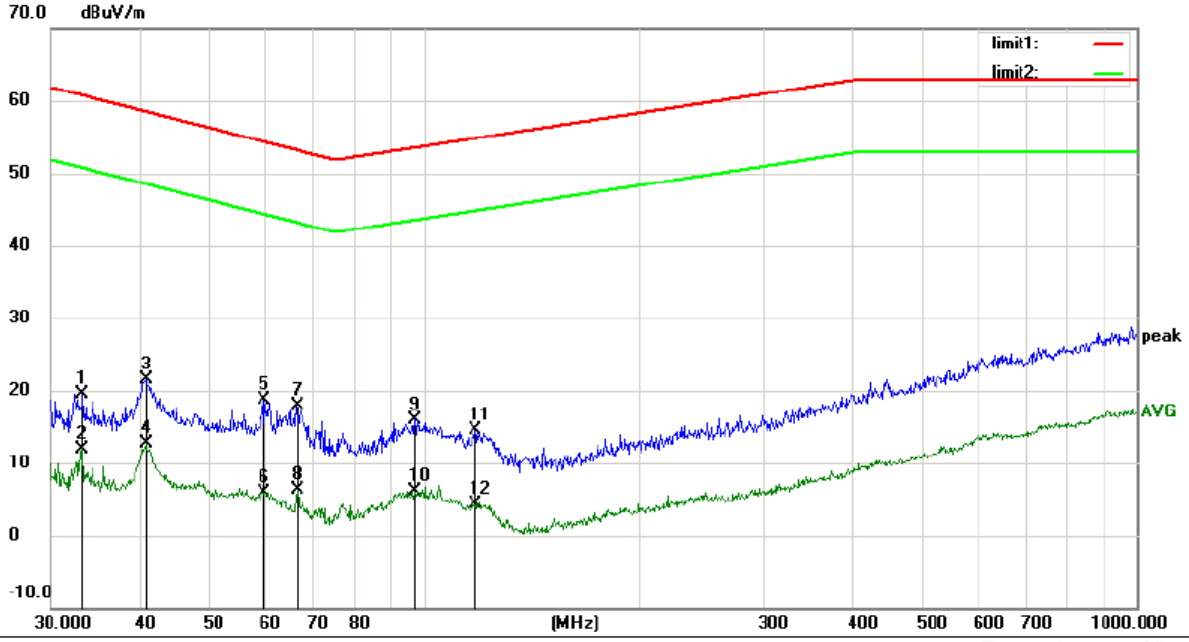
Limit: RE_E-mark_B_QP Power: DC 12V Humidity: 55 %

Mode:Full Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		36.8953	36.72	-14.44	22.28	59.74	-37.46	peak			
2		36.8953	20.24	-14.44	5.80	49.74	-43.94	AVG			
3		40.2757	33.26	-14.12	19.14	58.79	-39.65	peak			
4		40.2757	19.56	-14.12	5.44	48.79	-43.35	AVG			
5	*	60.0691	33.94	-14.96	18.98	54.42	-35.44	peak			
6		60.0691	19.11	-14.96	4.15	44.42	-40.27	AVG			
7		63.3132	33.67	-16.23	17.44	53.85	-36.41	peak			
8		63.3132	19.73	-16.23	3.50	43.85	-40.35	AVG			
9		103.4421	30.49	-14.60	15.89	54.11	-38.22	peak			
10		103.4421	18.85	-14.60	4.25	44.11	-39.86	AVG			
11		219.0753	30.60	-15.15	15.45	59.04	-43.59	peak			
12		219.0753	18.71	-15.15	3.56	49.04	-45.48	AVG			

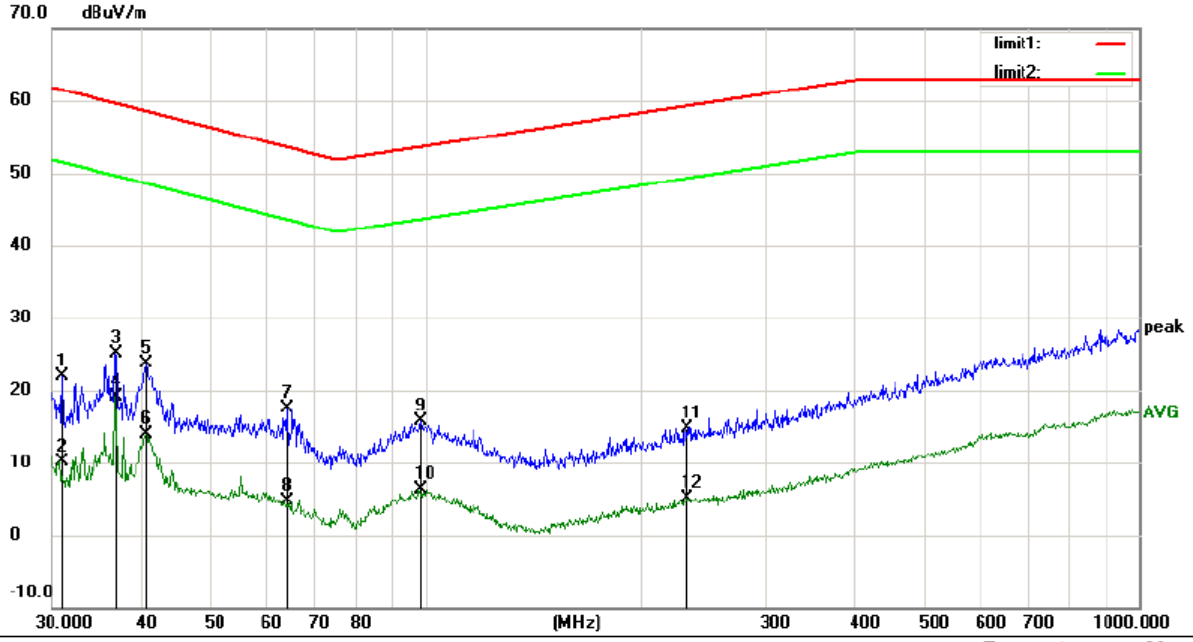
*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: **Horizontal** Temperature: 26
Limit: RE_E-mark_B_QP Power: DC 24V Humidity: 55 %
Mode:Full Load
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		33.2112	34.57	-15.00	19.57	60.89	-41.32	peak			
2		33.2112	27.00	-15.00	12.00	50.89	-38.89	AVG			
3		40.8446	35.56	-14.13	21.43	58.63	-37.20	peak			
4		40.8446	26.85	-14.13	12.72	48.63	-35.91	AVG			
5		59.6493	33.60	-14.91	18.69	54.50	-35.81	peak			
6		59.6493	20.89	-14.91	5.98	44.50	-38.52	AVG			
7	*	66.2662	35.38	-17.41	17.97	53.35	-35.38	peak			
8		66.2662	23.72	-17.41	6.31	43.35	-37.04	AVG			
9		97.1148	30.49	-14.49	16.00	53.70	-37.70	peak			
10		97.1148	20.54	-14.49	6.05	43.70	-37.65	AVG			
11		118.1862	31.14	-16.65	14.49	54.99	-40.50	peak			
12		118.1862	20.99	-16.65	4.34	44.99	-40.65	AVG			

*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: Vertical Temperature: 26
Limit: RE_E-mark_B_QP Power: DC 24V Humidity: 55 %
Mode:Full Load
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.0706	36.86	-15.04	21.82	61.62	-39.80	peak			
2		31.0706	25.19	-15.04	10.15	51.62	-41.47	AVG			
3		36.7662	39.65	-14.46	25.19	59.78	-34.59	peak			
4	*	36.7662	33.64	-14.46	19.18	49.78	-30.60	AVG			
5		40.7016	37.90	-14.13	23.77	58.67	-34.90	peak			
6		40.7016	27.99	-14.13	13.86	48.67	-34.81	AVG			
7		63.9828	34.04	-16.49	17.55	53.73	-36.18	peak			
8		63.9828	21.19	-16.49	4.70	43.73	-39.03	AVG			
9		98.4866	30.06	-14.40	15.66	53.79	-38.13	peak			
10		98.4866	20.61	-14.40	6.21	43.79	-37.58	AVG			
11		231.7180	29.10	-14.48	14.62	59.41	-44.79	peak			
12		231.7180	19.67	-14.48	5.19	49.41	-44.22	AVG			

*:Maximum data x:Over limit !:over margin Operator: Snake

3.2 Transient Conducted Emission Measurement

There is no need for Transient conducted emission test to be performed on this product in accordance with 8.5 of Annex I of this Directive(2004/104/EC):

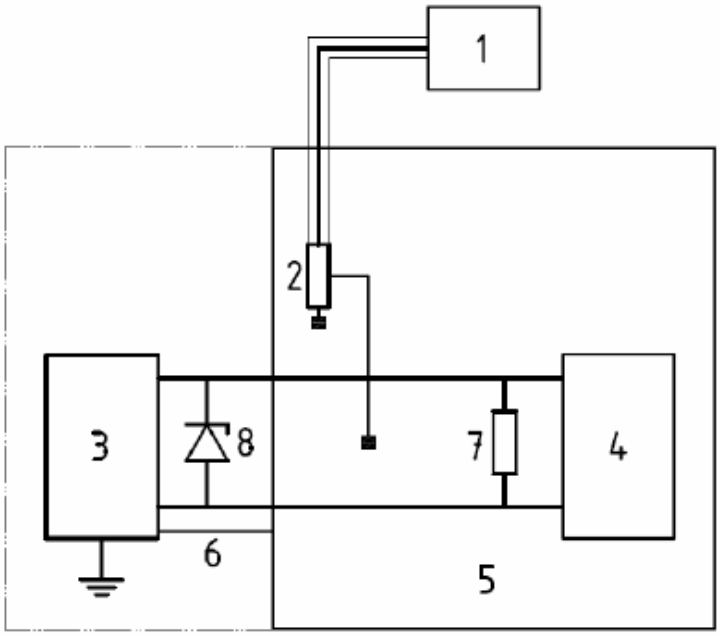
"ESAs that are not switched, contain no switches or do not include loads need not be tested for conducted emission and shall be deemed to comply with paragraph 6.9 of this Annex."

Performance Criteria Description in A.4 of ISO 7637-2

Criterion A:
all functions of a device/system perform as designed during and after exposure to disturbance.
Criterion B:
all functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A.
Criterion C:
one or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed.
Criterion D:
one or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device/system is reset by simple "operator/use" action.
Criterion E:
one or more functions of a device/system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device/system.

3.3 Transient Conducted Immunity Measurement

3.3.1 Block Diagram of Test



Key	
1. oscilloscope	5. ground plane
2. voltage probe	6. Ground connection
3. test pulse generator with internal power supply resistance *Ri*	7. optional resistor (*Rv*)[a]
4. EUT	8. optional diode bridge[b]
a For simulation of vehicle system loading for load dump test pulses 5a and 5b only. If used, the value of *Rv* shall be specified in the test plan (typical value 0,7 Ω to 40 Ω). b For simulation of load dump waveform for alternator with centralized load dump suppression for pulse 5b only	

3.3.2 Measuring Standard

EN50498, Clause 6.8 of 2004/104/EC & ISO 7637-2

3.3.3 Transient Conducted Immunity Limits

Table 1 of 2004/104/EC

Test pulse number	Immunity test level	Functional status for systems	
		Related to immunity-related functions	Not related to immunity-related functions
1	III	C	D
2a	III	B	D
2b	III	C	D
3a	III	A	D
3b	III	A	D
4	III	B for ESA which must be operational during engine start phases other or C	D

3.3.4 Operating Condition of EUT

3.3.4.1 Turn on the power.

3.3.4.2 Let the EUT work in test mode (Full Load) and measure it.

3.3.5 Test Procedure

Refer to item 3.1.6.

3.3.6 Test Results

PASS.

These test result outsourced to TUV Rheinland(Guangdong) Ltd.

Please refer to the data in the following page.

Test Results(For 12V):

Test pulse number	Immunity Test Level for 12V(min. voltage)	Number of pulses / duration	Required functional status	Functional status of the systems during the test
1	-75 V	5000	D	C
2a	+37V	5000	D	A
2b	+10V	10	D	C
3a	-112V	1h	D	A
3b	+75 V	1h	D	A
4	-6 V	1	D	C

Functional status C: The EUT stops charging during the pulse. After the pulse the EUT re-starts by itself.

Test Results(For 24V):

Test pulse number	Immunity Test Level for 12V(min. voltage)	Number of pulses / duration	Required functional status	Functional status of the systems during the test
1	-75 V	5000	D	C
2a	+37V	5000	D	A
2b	+10V	10	D	C
3a	-112V	1h	D	A
3b	+75 V	1h	D	A
4	-6 V	1	D	B

Functional status C: The EUT stops charging during the pulse. After the pulse the EUT re-starts by itself.

3.4 Radiated Immunity Measurement (20MHz-2GHz)

3.4.1 Measuring Standard

Clause 6.7 of 2004/104/EC

3.4.2 Test Results

There is no immunity related function in the EUT, radiated Immunity test was not applicable according to 8.3 of 2004/104/EC.

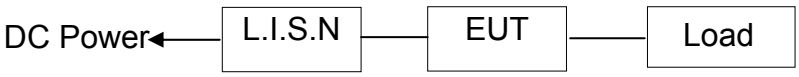
The ESAs with no immunity-related functions need not be tested for immunity to radiated disturbances and shall be deemed to comply with paragraph 6.7 of Annex IX to this Directive.

4. TEST RECORD(FOR EMC DIRECTIVE 2004/108/EC)

4.1 Radiated Emission Measurement

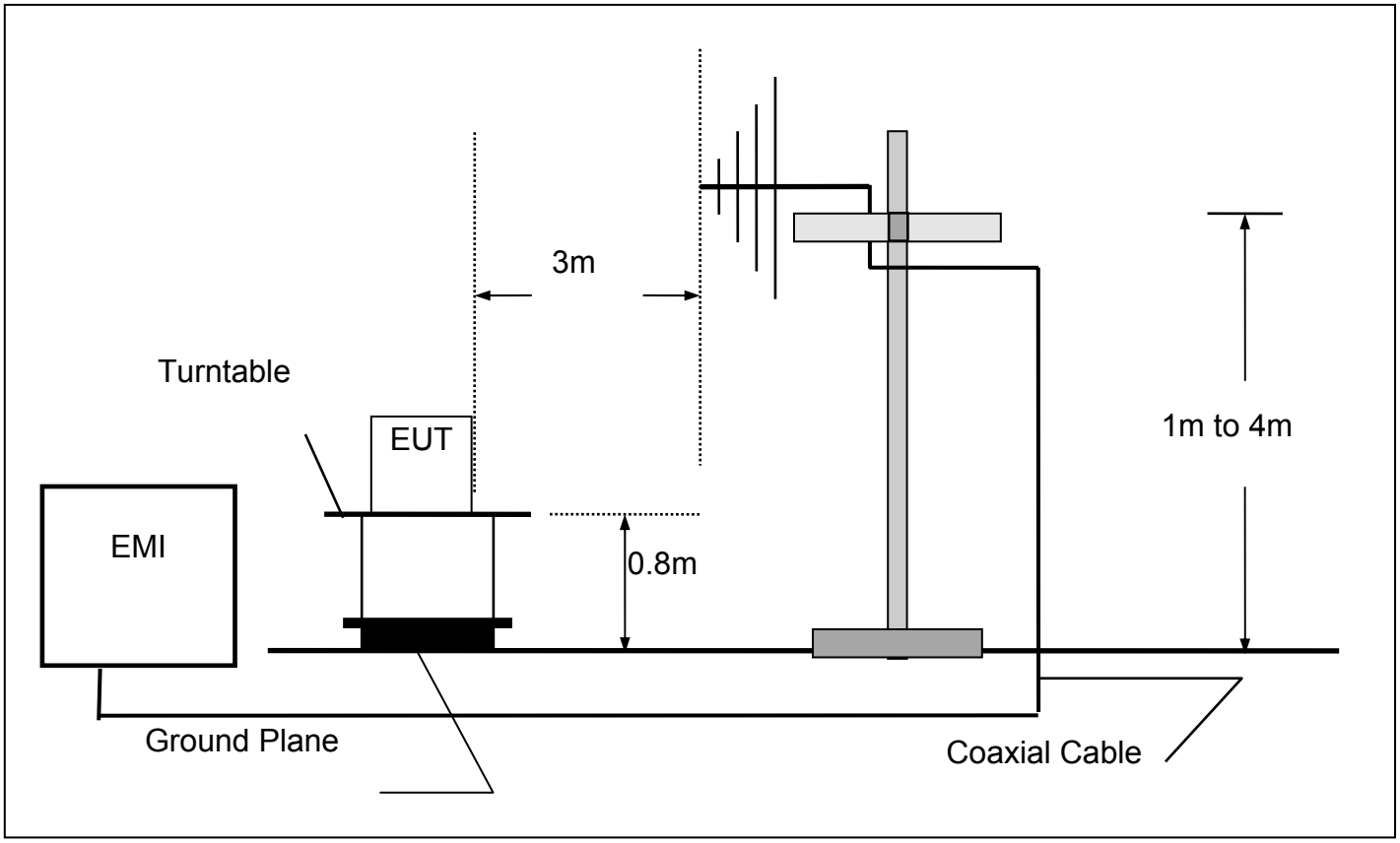
4.1.1 Block Diagram of Test

4.1.1.1 Block diagram of connection between the EUT and simulators



(EUT: Car Kit Power Supply)

4.1.1.2 Block diagram of test setup (In chamber)



(EUT: Car Kit Power Supply)

4.1.2 Measuring Standard

EN55022: 2010+AC: 2011

4.1.3 Radiated Emission Limits

All device or system, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

4.1.4 EUT Configuration on Test

The EN55022 regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT	:	Car Kit Power Supply
Model No.	:	P-004B
Manufacturer	:	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.

4.1.5 Operating Condition of EUT

4.1.5.1 Turn on the power.

4.1.5.2 Let the EUT work in test mode (Full Load) and measure it.

4.1.6 Test Procedure

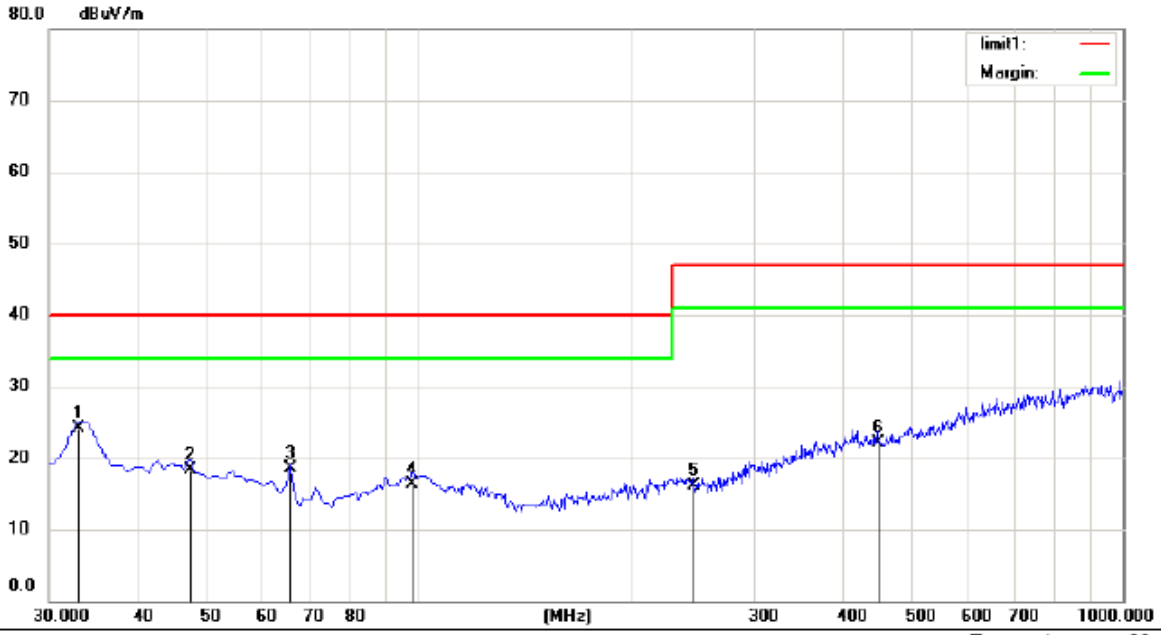
The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarizations of the antenna are set on test.
The bandwidth of the Receiver (ESCI) is set at 120kHz.

4.1.7 Test Results

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

Please refer to the scanning waveform in the following pages.



Site Chamber #1 Polarization: **Horizontal** Temperature: 26

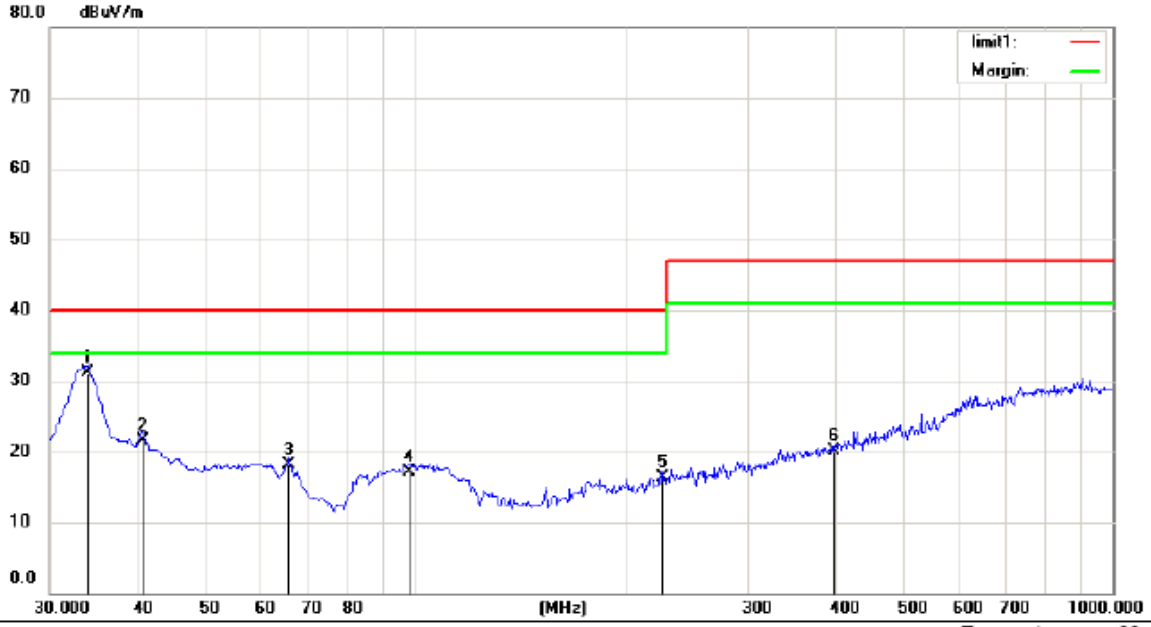
Limit: (RE)EN55022_class B_3m Power: DC 12V Humidity: 55 %

Mode:Full Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	32.9100	39.18	-15.05	24.13	40.00	-15.87	QP			
2		47.4600	32.53	-14.26	18.27	40.00	-21.73	QP			
3		65.8900	35.82	-17.25	18.57	40.00	-21.43	QP			
4		97.9000	30.83	-14.44	16.39	40.00	-23.61	QP			
5		246.3100	30.17	-13.97	16.20	47.00	-30.80	QP			
6		448.0700	31.33	-9.17	22.16	47.00	-24.84	QP			

*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: **Vertical** Temperature: 26

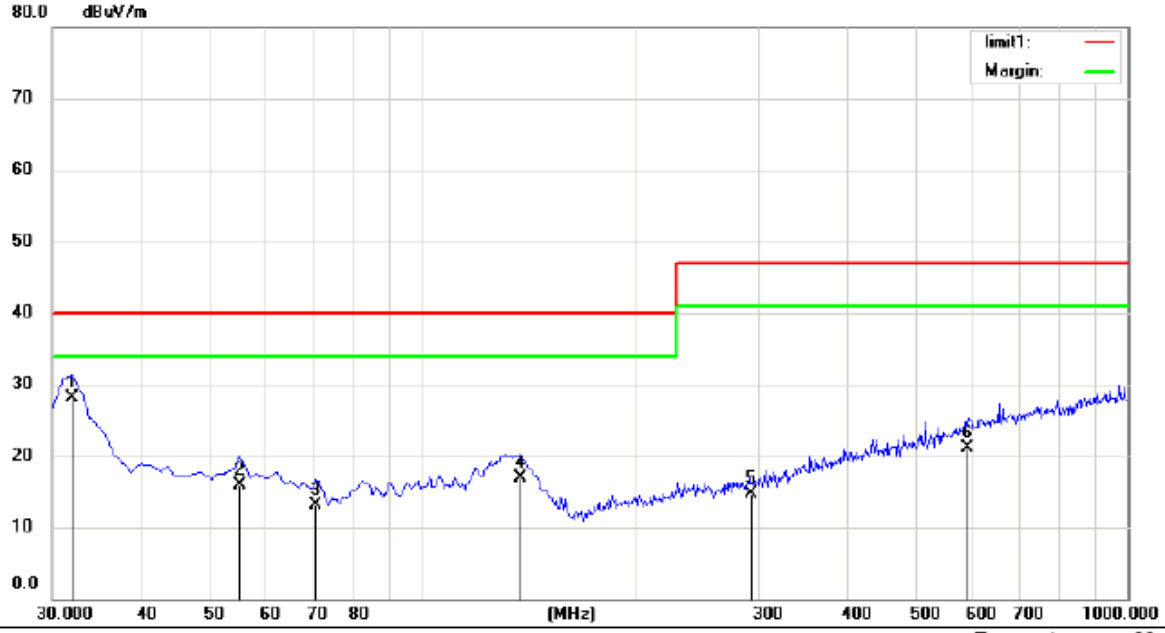
Limit: (RE)EN55022_class B_3m Power: DC 12V Humidity: 55 %

Mode:Full Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	33.8800	45.93	-14.75	31.18	40.00	-8.82	QP			
2		40.6700	35.56	-14.13	21.43	40.00	-18.57	QP			
3		65.8900	35.26	-17.25	18.01	40.00	-21.99	QP			
4		97.9000	31.45	-14.44	17.01	40.00	-22.99	QP			
5		225.9400	31.00	-14.77	16.23	40.00	-23.77	QP			
6		398.6000	30.14	-10.02	20.12	47.00	-26.88	QP			

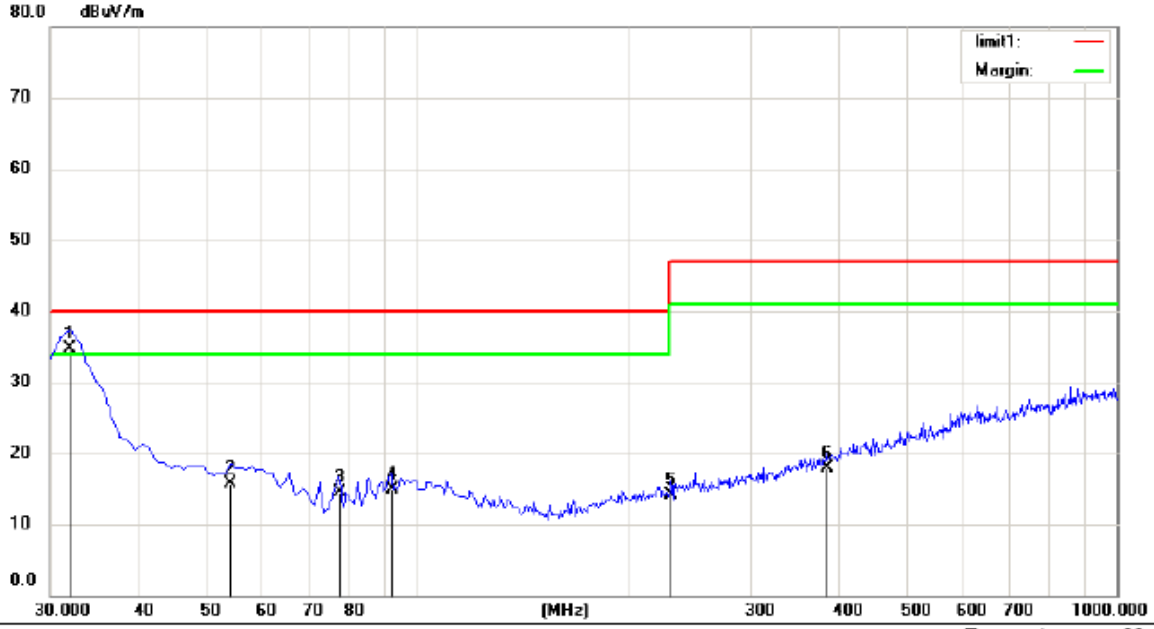
*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: **Horizontal** Temperature: 26
Limit: (RE)EN55022_class B_3m Power: DC 24V Humidity: 55 %
Mode:Full Load
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.9400	43.30	-15.17	28.13	40.00	-11.87	QP			
2		55.2200	30.50	-14.63	15.87	40.00	-24.13	QP			
3		70.7400	32.10	-19.05	13.05	40.00	-26.95	QP			
4		137.6700	35.70	-18.78	16.92	40.00	-23.08	QP			
5		292.8700	27.60	-12.86	14.74	47.00	-32.26	QP			
6		592.6000	26.90	-5.76	21.14	47.00	-25.86	QP			

*:Maximum data x:Over limit !:over margin Operator: Snake



Site Chamber #1 Polarization: Vertical Temperature: 26

Limit: (RE)EN55022_class B_3m Power: DC 24V Humidity: 55 %

Mode:Full Load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.9400	49.60	-14.95	34.65	40.00	-5.35	QP			
2		54.2500	30.30	-14.59	15.71	40.00	-24.29	QP			
3		77.5300	33.80	-19.39	14.41	40.00	-25.59	QP			
4		92.0800	30.10	-15.21	14.89	40.00	-25.11	QP			
5		230.7900	28.70	-14.52	14.18	47.00	-32.82	QP			
6		385.9900	28.40	-10.44	17.96	47.00	-29.04	QP			

*:Maximum data x:Over limit !:over margin Operator: Snake

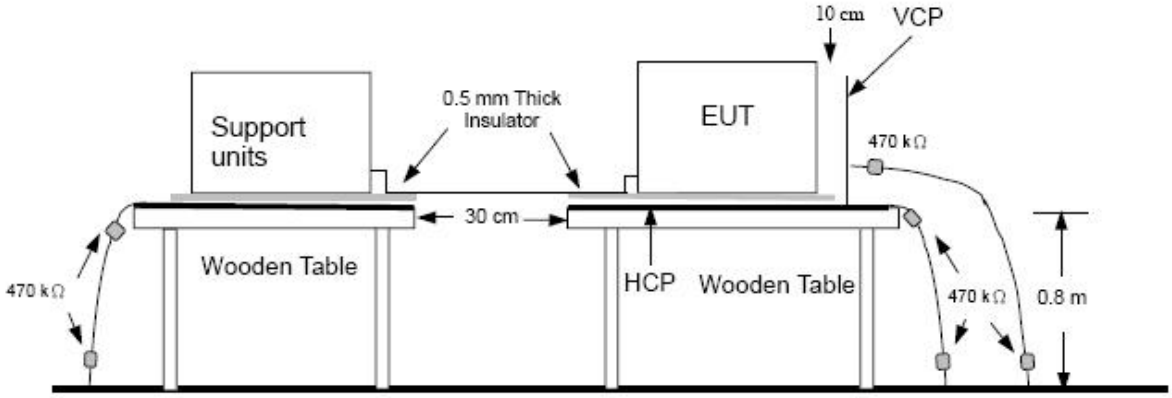
4.2 Electrostatic Discharge Measurement

4.2.1 Block Diagram of Test Setup

4.2.1.1 Block Diagram of connection between the EUT and simulators

(EUT: Car Kit Power Supply)

4.2.1.2 Block Diagram of ESD Test Setup



(EUT: Car Kit Power Supply)

4.2.2 Test Standard

EN 55024: 2010
(IEC 61000-4-2: 2008 (Severity Level: 2 / Contact Discharge: ±4KV, Severity Level: 3 / Air Discharge: ±8KV))

4.2.3 Severity Levels and Performance Criterion

4.2.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

4.2.3.2 Performance criterion**: B**

4.2.4 EUT Configuration

The configuration of EUT is listed in Section 1.1

4.2.5 Operating Condition of EUT

4.2.5.1 Setup the EUT as shown in Section 4.1.1.

4.2.5.2 Turn on the power of all equipments.

4.2.5.3 Let the EUT work in test mode (Full Load) and measure it.

4.2.6 Test Procedure

4.2.6.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

4.2.6.2 Contact Discharge:

All the procedure shall be same as Section 4.2.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

4.2.6.3 Indirect discharge for horizontal coupling plane:

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

4.2.6.4 Indirect discharge for vertical coupling plane:

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

4.2.7 Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

DONGGUAN EMTEK CO., LTD.

Applicant :	SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD.	Test Date :	July 29, 2013
EUT :	Car Kit Power Supply	Temperature :	22℃
M/N :	P-004B	Humidity :	50%
Power Supply	DC 12V, DC 24V	Test Engineer	Bruce
Test Mode :	Full Load	Criterion :	B

Air Discharge: ±2, 4, 8KV

Contact Discharge: ±2, 4KV # For each point positive 10 times and negative 10 times

Location	**Kind** A-Air Discharge C-Contact Discharge	**Result**
Slot of EUT 8 points	A	PASS
HCP	C	PASS
VCP of Front	C	PASS
VCP of Rear	C	PASS
VCP of Left	C	PASS
VCP of Right	C	PASS

Remark :	Test Equipment : ESD Tester (TESEQ AG, NSG437)

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

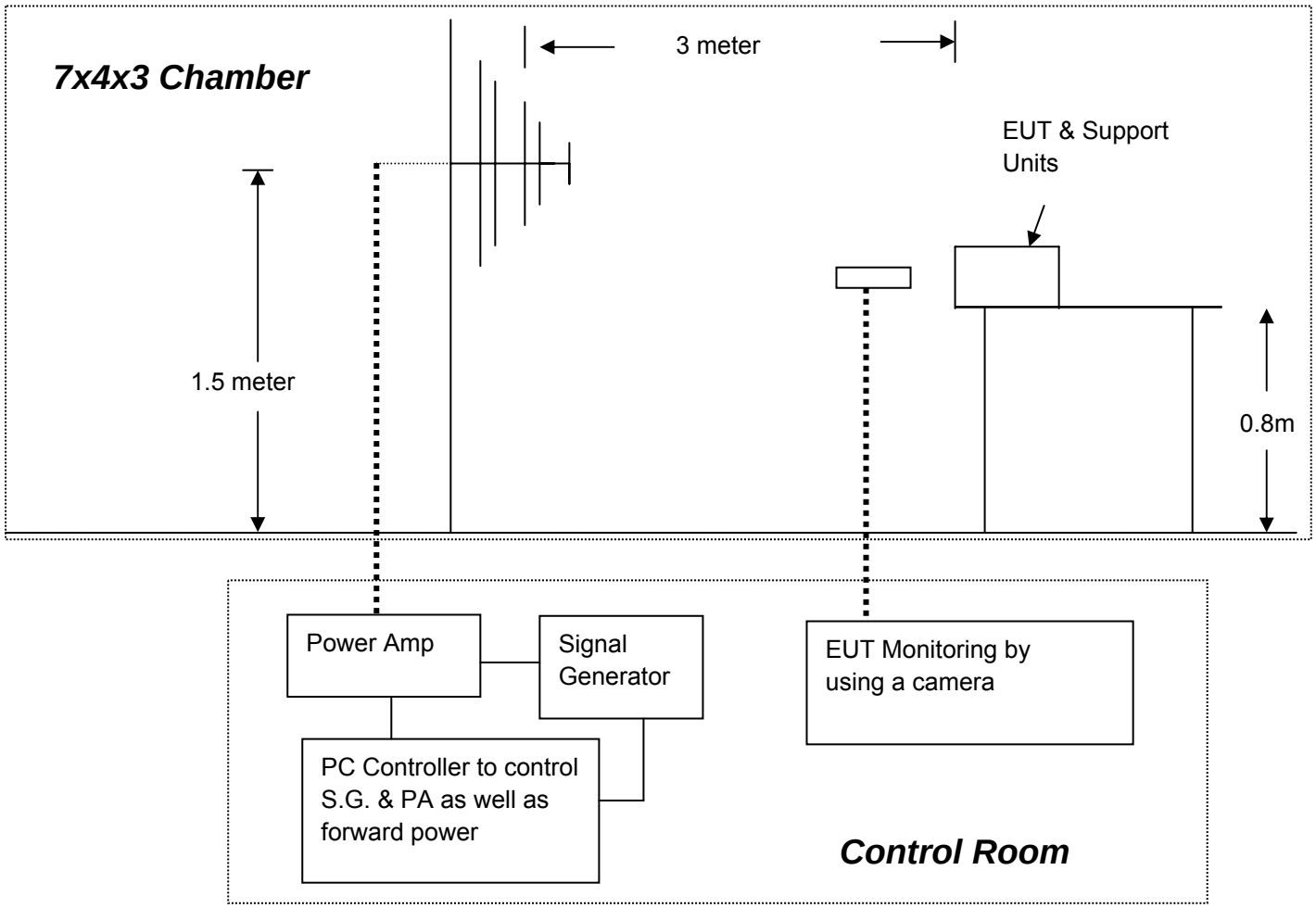
4.3 Radiated Immunity Measurement

4.3.1 Block Diagram of Test Setup

4.3.1.1 Block diagram of connection between the EUT and simulators

(EUT: Car Kit Power Supply)

4.3.1.2 Block diagram of R/S test set up



(EUT: Car Kit Power Supply)

4.3.2 Test Standard

EN 55024: 2010
(IEC61000-4-3: 2006+A1: 2007+A2: 2010)

4.3.3 Severity Levels and Performance Criterion

4.3.3.1 Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

4.3.3.2 Performance criterion: A

4.3.4 EUT Configuration

The configurations of EUT are listed in Section 1.1.

4.3.5 Operating Condition of EUT

4.3.5.1 Turn on the power of all equipments.

4.3.5.2 Let the EUT work in test mode (Full Load) and measure it.

4.3.6 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows**:**

Condition of Test	Remarks
1. Fielded Strength	3 V/m and 1 V/m
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80M – 1GHz, 1.4G-2.7GHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

4.3.7 Test Results

PASS.

These test result outsourced to SHENZHEN EMTEK CO., LTD.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

SHENZHEN EMTEK CO., LTD.

Applicant: SOMETHING HIGH ELECTRIC(XIAMEN) CO., LTD. Test Date :July 28, 2013

EUT : Car Kit Power Supply Temperature : 22℃

M/N : P-004B Humidity : 52%

Power Supply: DC 12V Criterion: A

Test Engineer: Andy

Modulation: ☑ AM ☐ Pulse ☐none 1 KHz 80%

Test Mode : Full Load

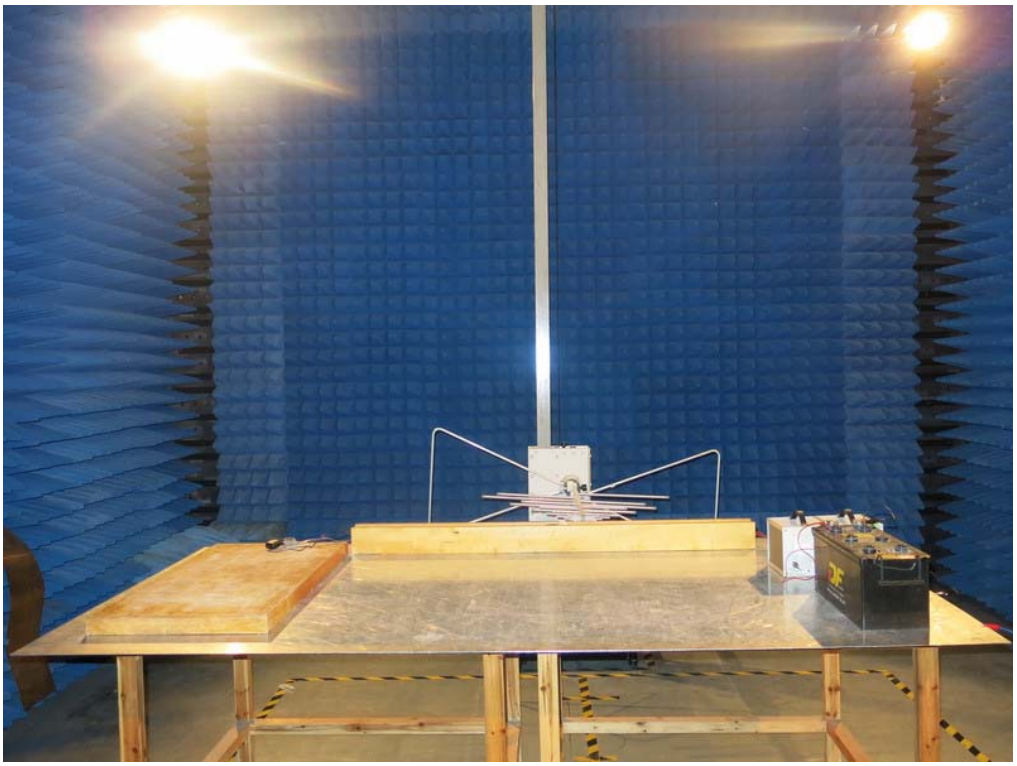
Field Strength: 3 V/m	Frequency Rang : 80M-1000MHz, 1.4G-2.0GHz	
Steps	1 %	
	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS
Field Strength: 1 V/m	Frequency Rang : 2.0G-2.7GHz	
Steps	1 %	
	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Test Equipment :
1. Signal Generator : 2023B (AEROFLEX)
2. Power Amplifier : AS0102-55 (MILMEGA)& AP32MT215 (PRANA)
3. Log.-Per. Antenna: VULP 9118E(SCHWARZBECK)
4. Broad-Band Horn Antenna: BBHA9120L3F (SCHWARZBECK)
5. RF Power Meter. Dual Channel : 4232A (BOONTON)
6. Field Strength Meter: HI-6005(HOLADAY)

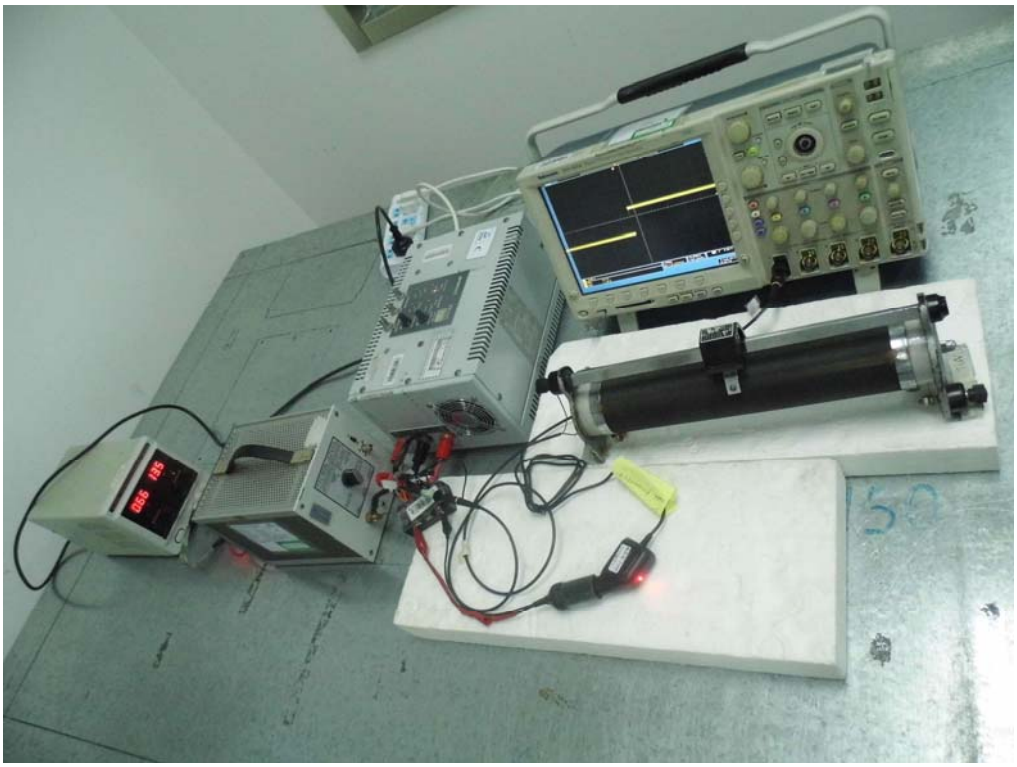
Note:

5. PHOTOGRAPH

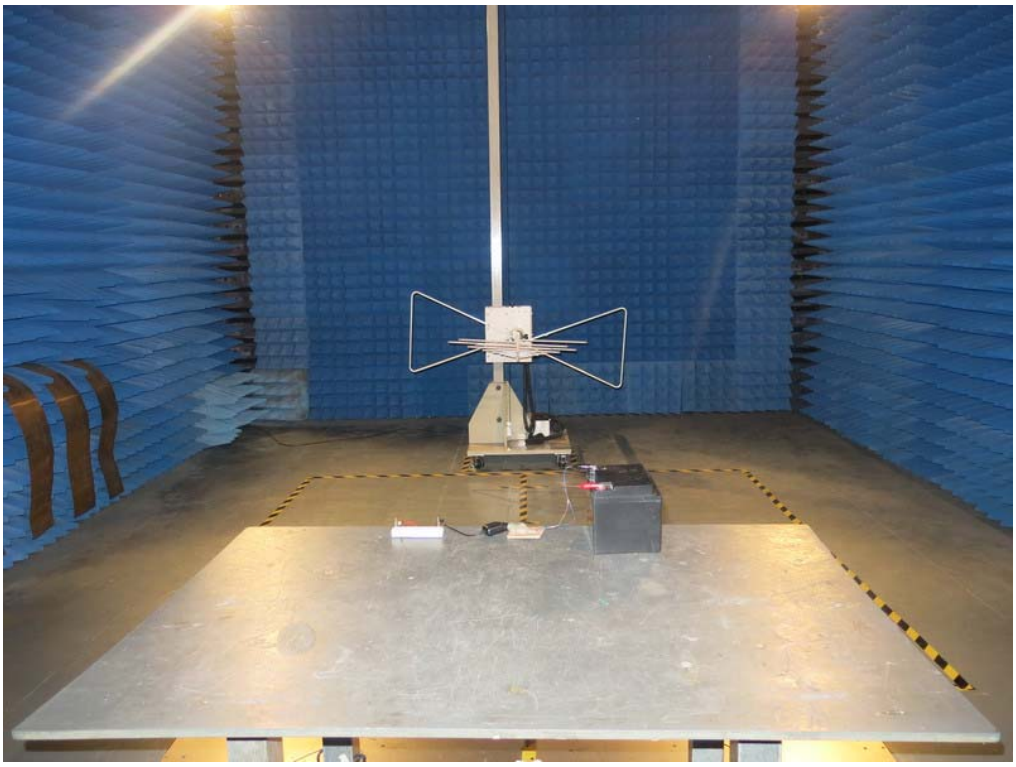
5.1 Photo of Radiated Emission Measurement(EN50498)



5.2 Photo of Transient Conducted Immunity Measurement (EN50498)

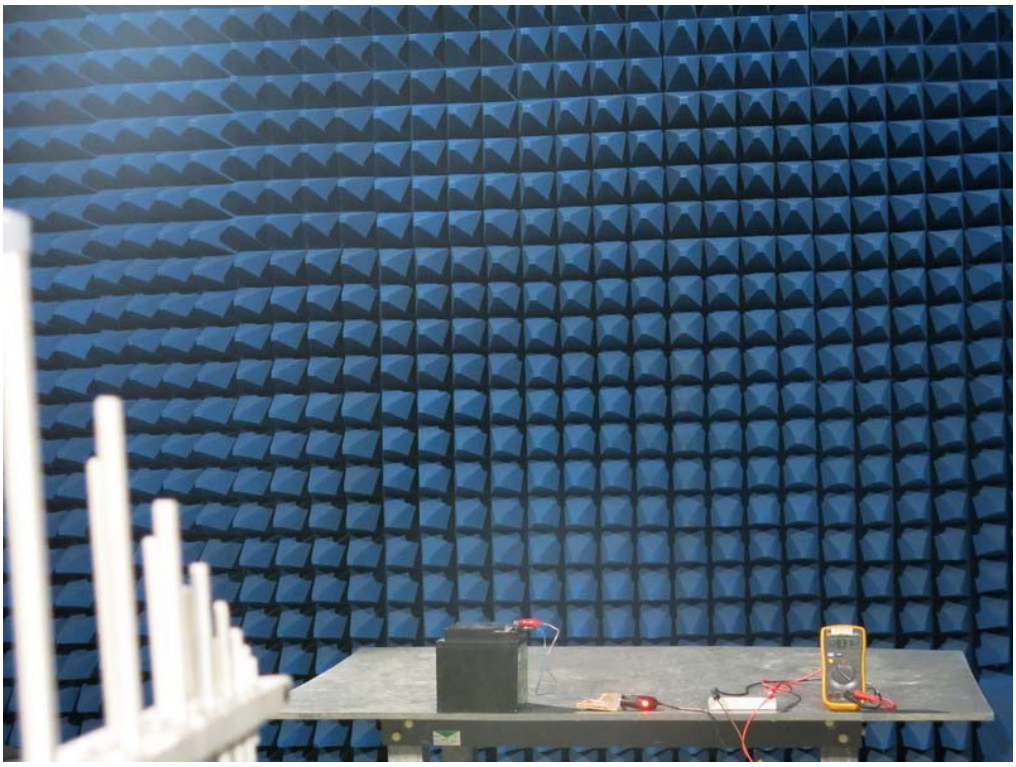


5.3 Photo of Radiated Emission Measurement(EN55022)



5.4 Photo of Electrostatic Discharge Measurement(EN55024)

5.5 Photo of Radiated Immunity Measurement(EN55024)



APPENDIX I
(Photos of EUT)