



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

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Report No.: SZEM160400215901
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TEST REPORT

Application No.: SZEM1604002159BA
Applicant: Flashbay Electronics
Address of Applicant: Blag b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYuan Town, ShenZhen
Manufacturer: Flashbay Electronics
Address of Manufacturer: Blag b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYuan Town, ShenZhen
Factory: Flashbay Electronics
Address of Factory: Blag b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYuan Town, ShenZhen
Equipment Under Test (EUT):
EUT Name: power bank
Model No.: Element
Standards: AS/NZS CISPR 22:2009+A1:2010
Date of Receipt: 2016-04-08
Date of Test: 2016-04-11
Date of Issue: 2016-04-25

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Test Summary

Item	Standard	Method	Class	Result
Conducted Disturbance at Mains Terminals (150kHz-30MHz)	AS/NZS CISPR 22:2009+A1:2010	AS/NZS CISPR 22:2009+A1:2010	Class B	Pass
Radiated Disturbance (30MHz-1GHz)	AS/NZS CISPR 22:2009+A1:2010	AS/NZS CISPR 22:2009+A1:2010	Class B	Pass



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4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under AS/NZS CISPR 22:2009+A1:2010

Method	Item	Status
AS/NZS CISPR 22:2009+A1:2010	Conducted Disturbance at Mains Terminals (150kHz-30MHz)	√
AS/NZS CISPR 22:2009+A1:2010	Conducted Disturbance at Telecommunication Port (150kHz-30MHz)	×
AS/NZS CISPR 22:2009+A1:2010	Radiated Disturbance (30MHz-1GHz)	√
AS/NZS CISPR 22:2009+A1:2010	Radiated Disturbance (above 1GHz)	×

- × Indicates that the test is not applicable
√ Indicates that the test is applicable



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

•CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

• Industry Canada (IC)

The 10m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Conducted Disturbance at Mains Terminals(150kHz-30MHz)						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2015-05-13	2016-05-13
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-09	2016-10-09
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-13	2016-05-13
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2015-08-30	2016-08-30
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2015-08-30	2016-08-30
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2015-08-30	2016-08-30
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-13	2016-05-13
8	Coaxial Cable	SGS	N/A	SEL0025	2015-05-13	2016-05-13

Radiated Disturbance(30MHz-1GHz)						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEL0303	2015-08-01	2016-08-01
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEL0175	2015-05-13	2016-05-13
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0288	2015-05-13	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0275	2015-05-13	2016-05-13
6	Coaxial cable	SGS	N/A	SEL0274	2015-05-13	2016-05-13
7	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2017-01-26
8	Pre-amplifier	Sonoma Instrument Co	310N	SEL0298	2015-05-13	2016-05-13
9	Loop Antenna	ETS-LINDGREN	6502	SEL0802	2015-08-14	2016-08-14



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General used equipment						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEL0101	2015-10-12	2016-10-12
2	Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEL0102	2015-10-12	2016-10-12
3	Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEL0103	2015-10-12	2016-10-12
4	Barometer	Changchun Meteorological Industry Factory	DYM3	SEL0088	2015-05-13	2016-05-13

6 Emission Test Results

6.1 Conducted Disturbance at Mains Terminals(150kHz-30MHz)

Test Requirement:	AS/NZS CISPR 22:2009+A1:2010
Test Method:	AS/NZS CISPR 22:2009+A1:2010
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

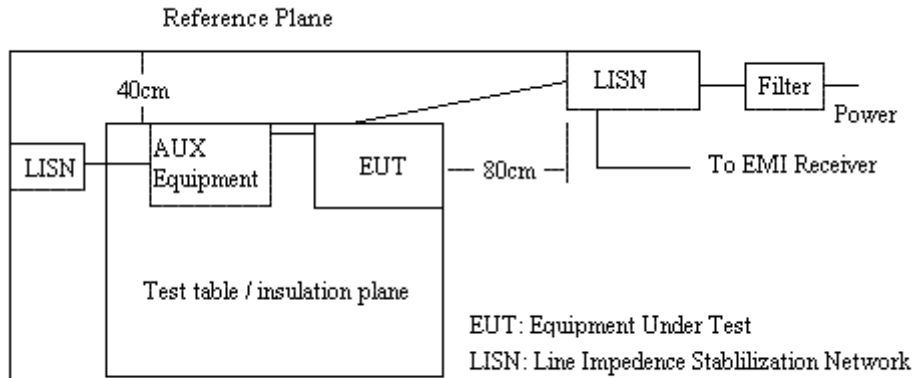
Pretest these mode to find the worst case:

- a: Charge mode, keep EUT being charged with adapter.
- c: Charge and discharge mode, keep EUT being charged with adapter and discharging to the resistor.

The worst case for final test:

- a: Charge mode, keep EUT being charged with adapter.

6.1.2 Test Setup



6.1.3 Measurement Data

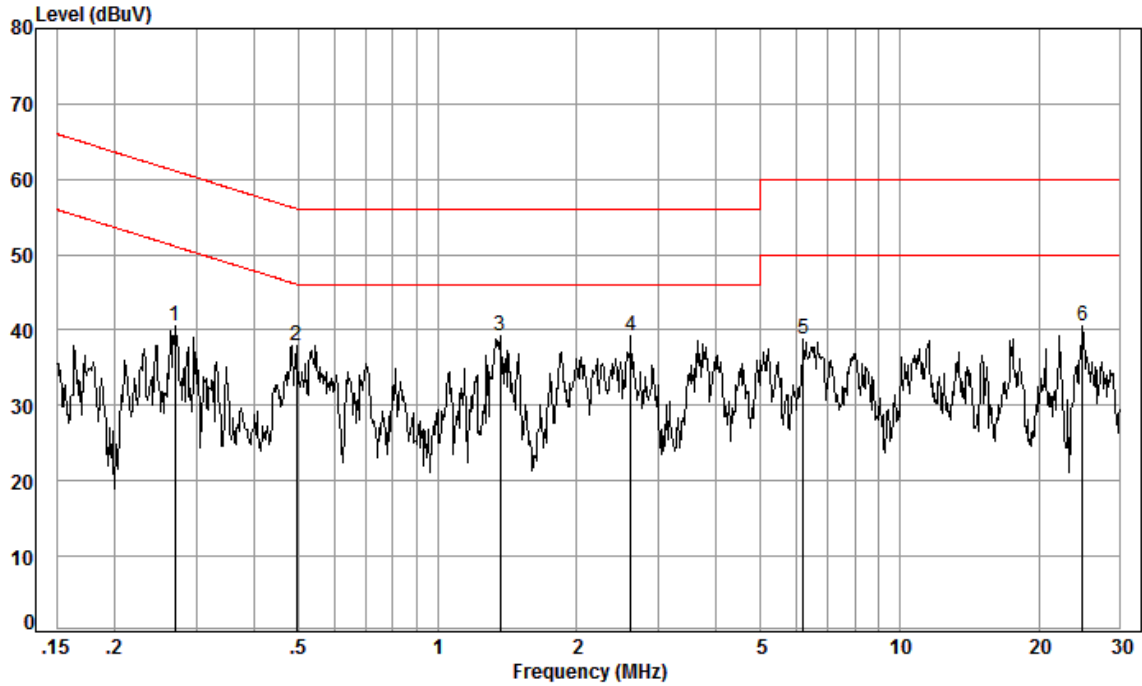
An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



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Mode:a;Line:Live Line



Site : Shielding Room
Condition: CE Line
Job No. : 2159BA
Test Mode: a

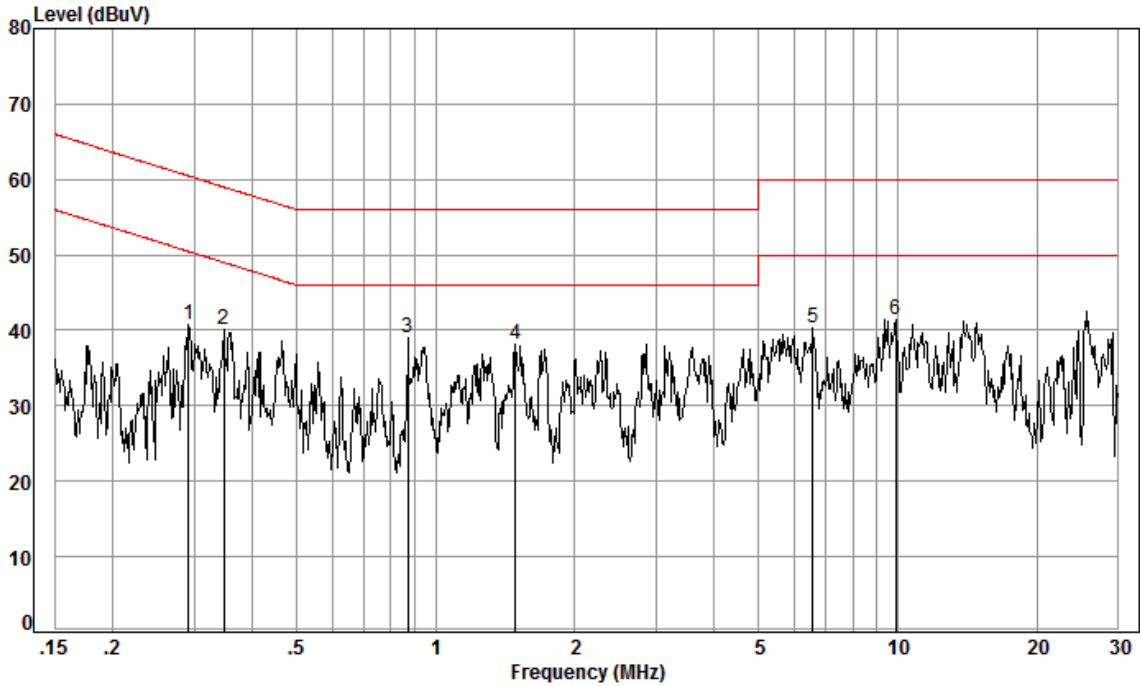
	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.27	0.06	9.84	30.71	40.61	51.12	-10.51 Peak
2	0.49	0.05	9.86	28.02	37.93	46.10	-8.17 Peak
3	1.37	0.03	9.92	29.22	39.17	46.00	-6.83 Peak
4	2.62	0.06	10.00	29.09	39.15	46.00	-6.85 Peak
5	6.19	0.19	10.14	28.58	38.91	50.00	-11.09 Peak
6	24.92	1.87	9.88	28.89	40.64	50.00	-9.36 Peak



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Mode:a;Line:Neutral Line



Site : Shielding Room
Condition: CE Neutral
Job No. : 2159BA
Test Mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.29	0.06	9.86	30.75	40.67	50.46	-9.79 Peak
2	0.35	0.05	9.87	30.21	40.13	49.00	-8.87 Peak
3	0.87	0.03	10.00	29.00	39.03	46.00	-6.97 Peak
4	1.49	0.04	10.08	28.01	38.13	46.00	-7.87 Peak
5	6.56	0.21	10.13	29.96	40.30	50.00	-9.70 Peak
6	9.91	0.51	10.13	30.84	41.48	50.00	-8.52 Peak



6.2 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	AS/NZS CISPR 22:2009+A1:2010
Test Method:	AS/NZS CISPR 22:2009+A1:2010
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz-230MHz	30 dB(μ V/m) quasi-peak
230MHz-1GHz	37 dB(μ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.2.1 E.U.T. Operation

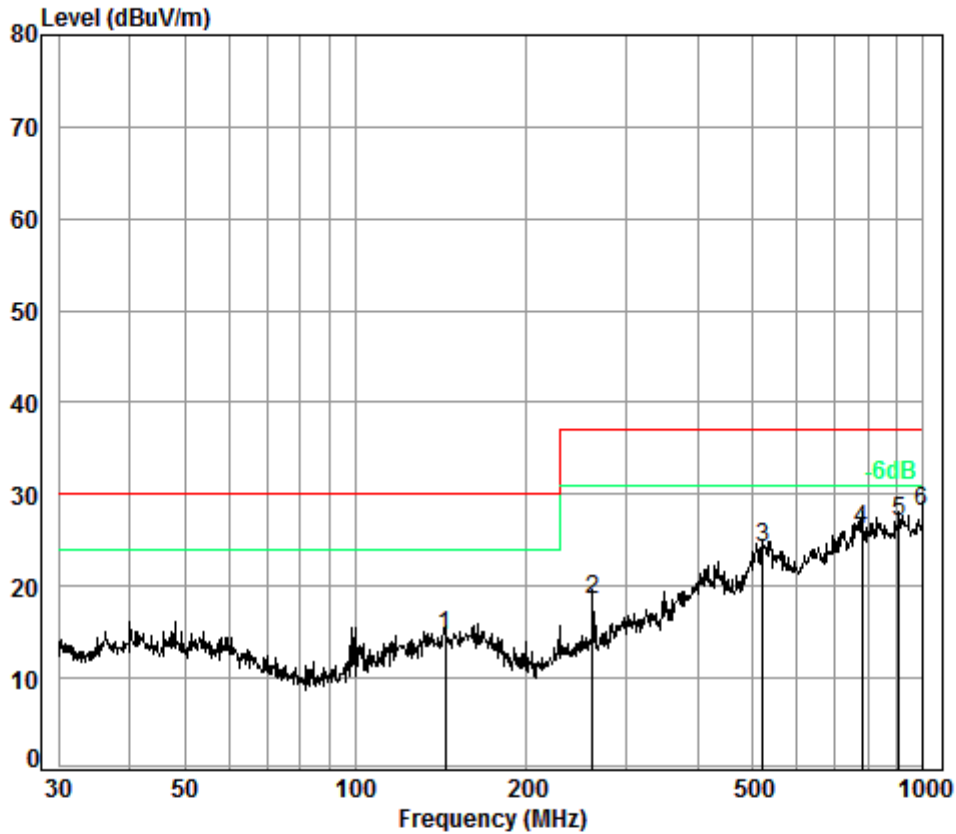
Operating Environment:					
Temperature:	23.0 °C	Humidity:	56 % RH	Atmospheric Pressure:	1015 mbar
	a: Charge mode, keep EUT being charged with adapter.				
Pretest these mode to find the worst case:	b: Discharge mode, keep EUT discharging to the resistor.				
	c: Charge and discharge mode, keep EUT being charged with adapter and discharging to the resistor.				
The worst case for final test:	c: Charge and discharge mode, keep EUT being charged with adapter and discharging to the resistor.				

6.2.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



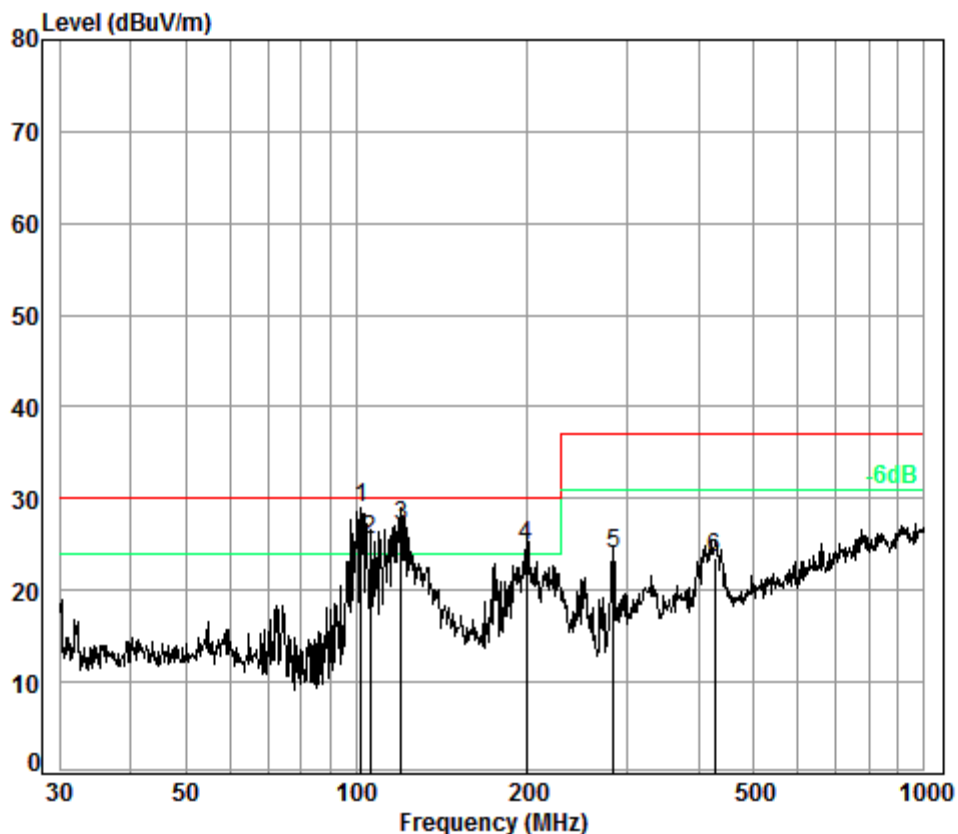
Mode:c;Polarization:Horizontal



Condition: 10m Horizontal
Job No. : 2159BA
Test Mode: c

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	143.83	7.42	13.01	32.80	26.99	14.62	30.00	-15.38
2	261.06	7.91	11.52	32.80	31.93	18.56	37.00	-18.44
3	520.89	8.70	17.19	32.82	31.08	24.15	37.00	-12.85
4	779.61	9.25	21.09	32.72	28.52	26.14	37.00	-10.86
5	906.48	9.50	22.31	32.60	27.89	27.10	37.00	-9.90
6 pp	996.50	9.60	22.84	32.60	28.39	28.23	37.00	-8.77

Mode:c;Polarization:Vertical



Condition: 10m Vertical

Job No. : 2159BA

Test Mode: c

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp	102.00	7.21	9.59	32.80	45.00	29.00	30.00	-1.00
2		105.64	7.23	9.95	32.80	41.18	25.56	30.00	-4.44
3		119.86	7.30	11.47	32.80	41.00	26.97	30.00	-3.03
4		199.29	7.60	9.32	32.80	40.73	24.85	30.00	-5.15
5		283.98	8.01	12.26	32.80	36.43	23.90	37.00	-13.10
6		428.02	8.37	15.63	32.73	32.23	23.50	37.00	-13.50

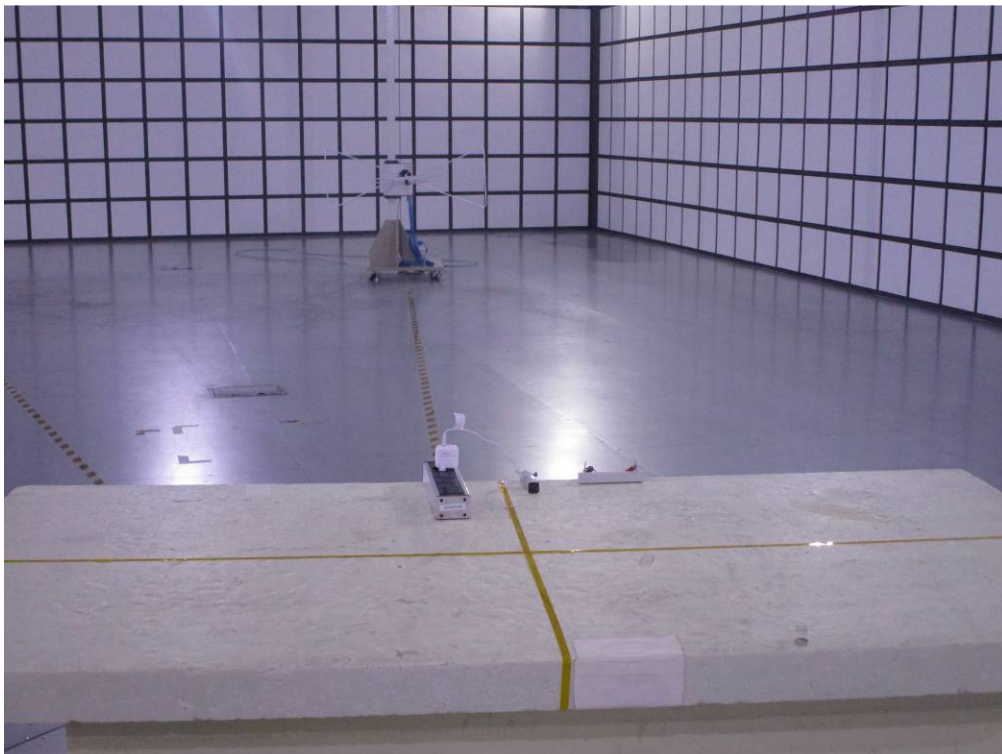


7 Photographs

7.1 Conducted Disturbance at Mains Terminals(150kHz-30MHz) Test Setup



7.2 Radiated Disturbance(30MHz-1GHz) Test Setup



7.3 EUT Constructional Details



