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

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TEST REPORT

Application No.:	SZEM1708008497RG
Applicant:	Hisense International Co., Ltd.
Address of Applicant:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China
Manufacturer:	Hisense Communications Co., Ltd.
Address of Manufacturer:	218 Qianwangang Road, Economic & Technological Development Zone, Qingdao, Shandong Province, P.R. China
Factory:	Hisense Communications Co., Ltd.
Address of Factory:	218 Qianwangang Road, Economic & Technological Development Zone, Qingdao, Shandong Province, P.R. China
Equipment Under Test (EUT):	
EUT Name:	Smart Phone
Model No.:	Hisense F23
Trade mark:	Hisense
Standards:	47 CFR Part 15,Subpart B:2016
Date of Receipt:	2017-08-14
Date of Test:	2017-08-16 to 2017-08-17
Date of Issue:	2017-08-22
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

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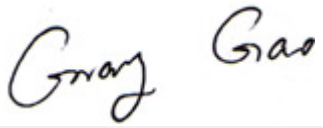
Jack Zhang
EMC Laboratory Manager

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.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2017-08-22		Original

Authorized for issue by:				
				
		Gray Gao /Project Engineer		
				
		Eric Fu /Reviewer		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15,Subpart B:2016	ANSI C63.4	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15,Subpart B:2016	ANSI C63.4	Class B	Pass

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Model No.: Hisense F23

This test report (Ref. No.: SZEM170800849701) is only valid with the original test report (Ref. No.: HKEM170100005601).

According to the declaration from the applicant, the model in this report and model in original report was identical, with only difference on the silk screen.

Review this report and original report, this report updated the below standards.

Original report standard	The newest report standard
47 CFR PART 15,SUBPART B:2015	47 CFR PART 15,SUBPART B:2016

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report Conducted Emissions at Mains Terminals (150kHz-30MHz) and Radiated Emission(30MHz-1GHz) were fully retested on Model Hisense F23 and shown the data in this report.

Therefore other original data were kept in this report HKEM170100005601.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Model: CC10-050200U Input: AC100-240V 50/60Hz 0.35A Output:DC5.0V 2A
Cable:	USB cable: 100cm shielded. earphone cable: 150cm unshielded
Internal source	1300MHz

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	3.0dB (150kHz to 30MHz)
2	Radiated Emission	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-6GHz)
3	Temperature test	1℃
4	Humidity test	3%

4.4 Test Location

All tests were performed at:

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

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 –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2017-05-10	2018-05-10
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
LISN	ETS-LINDGREN	3816/2	SEM007-02	2017-04-14	2018-04-13
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2017-04-14	2018-04-13

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-10
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
EMI Test Receiver (9kHz-3GHz)	Rohde & Schwarz	ESR	SEM004-03	2017-04-14	2018-04-13
Trilog-Broadband Antenna(30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-29
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2017-06-05	2018-06-04

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-18

6 Emission Test Results

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

Test Requirement:	47 CFR Part 15,Subpart B:2016
Test Method:	ANSI C63.4
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

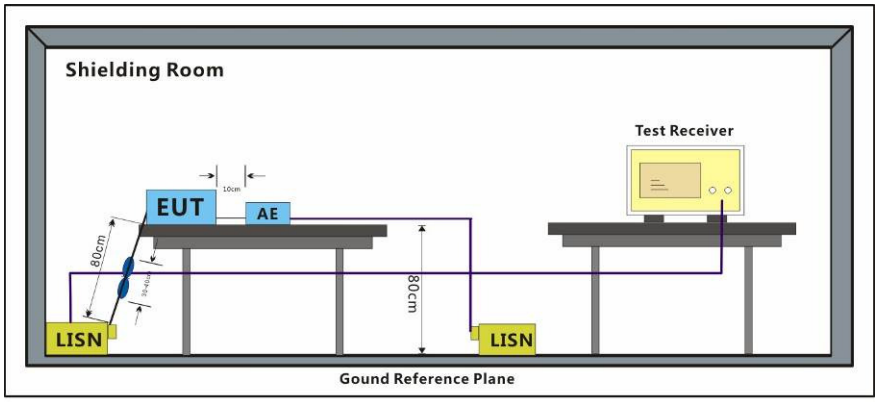
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1005 mbar

Pretest these mode to find the worst case:	a:BT+ WiFi+ MP4 play + earphone + charger b: BT+ WiFi+camera record(front/rear) + earphone + charger c: PC (write/read) mode d: FM mode
The worst case for final test:	b: BT+ WiFi+camera record(front/rear) + earphone + charger

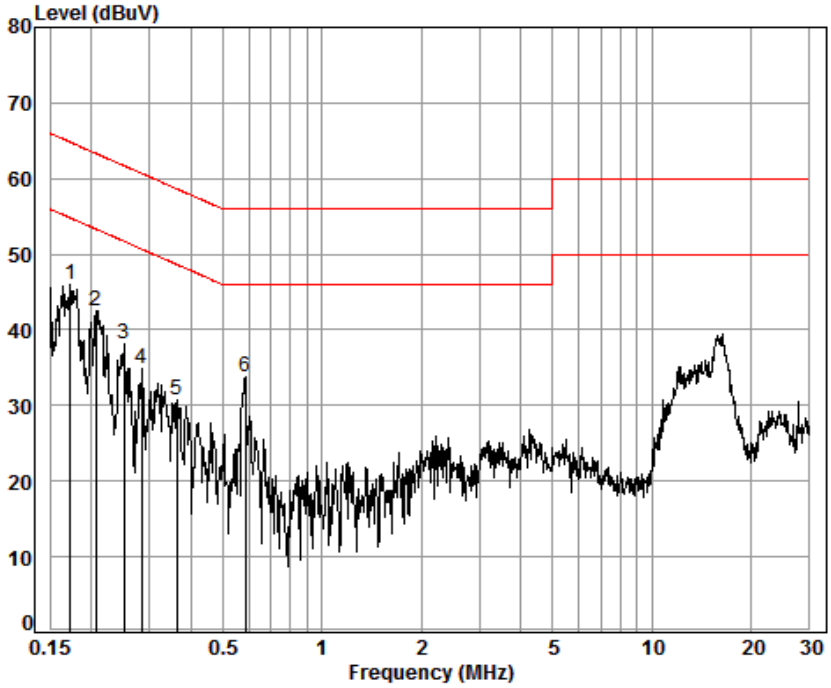
6.1.2 Test Setup Diagram



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.

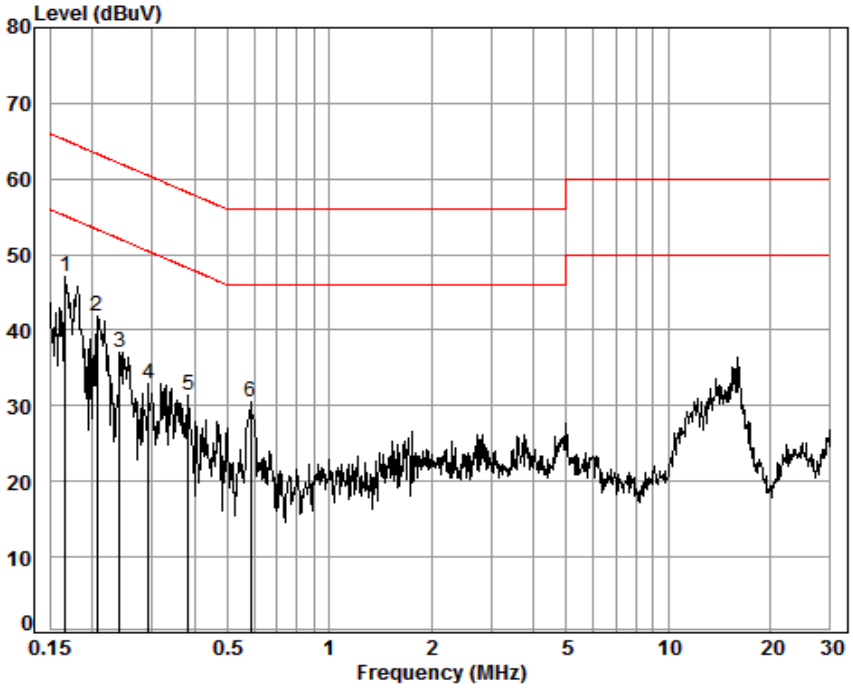
Mode:b; Line:Live Line



Site : Shielding Room
Condition: Line
Job No. : 08497RG
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17	0.02	9.63	36.26	45.91	54.81	-8.90	Peak
2	0.21	0.02	9.63	32.95	42.60	53.36	-10.76	Peak
3	0.25	0.01	9.63	28.42	38.06	51.69	-13.63	Peak
4	0.28	0.01	9.63	25.28	34.92	50.68	-15.76	Peak
5	0.36	0.01	9.63	21.19	30.83	48.65	-17.82	Peak
6	0.59	0.01	9.63	24.24	33.88	46.00	-12.12	Peak

Mode:b; Line:Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 08497RG
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17	0.02	9.63	37.53	47.18	55.12	-7.94	Peak
2	0.21	0.02	9.63	32.18	41.83	53.36	-11.53	Peak
3	0.24	0.01	9.63	27.45	37.09	52.04	-14.95	Peak
4	0.29	0.01	9.63	23.21	32.85	50.46	-17.61	Peak
5	0.38	0.01	9.63	21.66	31.30	48.21	-16.91	Peak
6	0.59	0.01	9.63	20.88	30.52	46.00	-15.48	Peak

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15,Subpart B:2016
Test Method:	ANSI C63.4
Frequency Range:	30MHz to 1GHz
Measurement Distance:	10m
Limit:	
30MHz -88MHz	29.5(dBμV/m) quasi-peak
88MHz-216MHz	33.1(dBμV/m) quasi-peak
216MHz-960MHz	35.6(dBμV/m) quasi-peak
960MHz-1000MHz	43.5(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

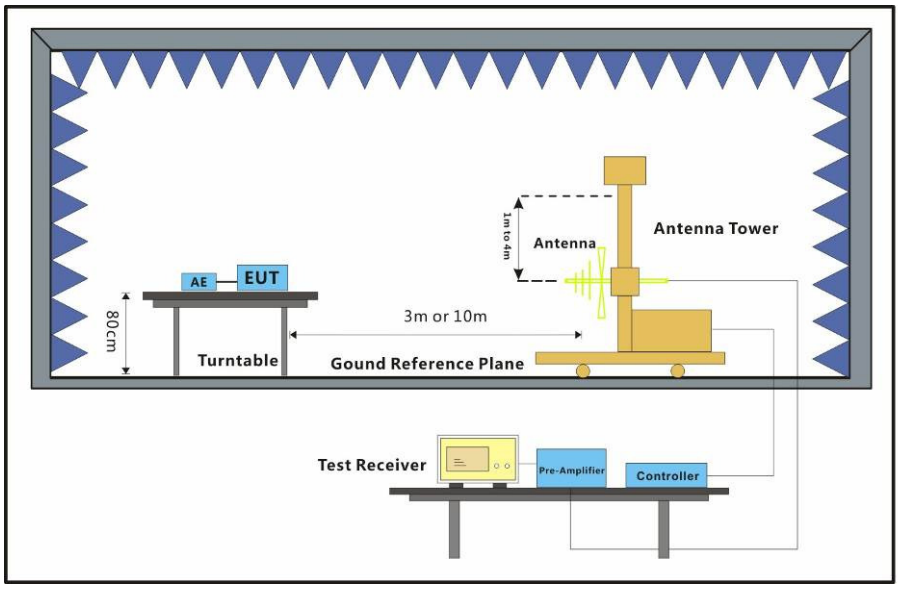
Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1000 mbar

Pretest these mode to find the worst case:
a:BT+ WiFi+ MP4 play + earphone + charger
b: BT+ WiFi+camera record(front/rear) + earphone + charger
c: PC (write/read) mode
d: FM mode

The worst case for final test:
b: BT+ WiFi+camera record(front/rear) + earphone + charger
c: PC (write/read) mode

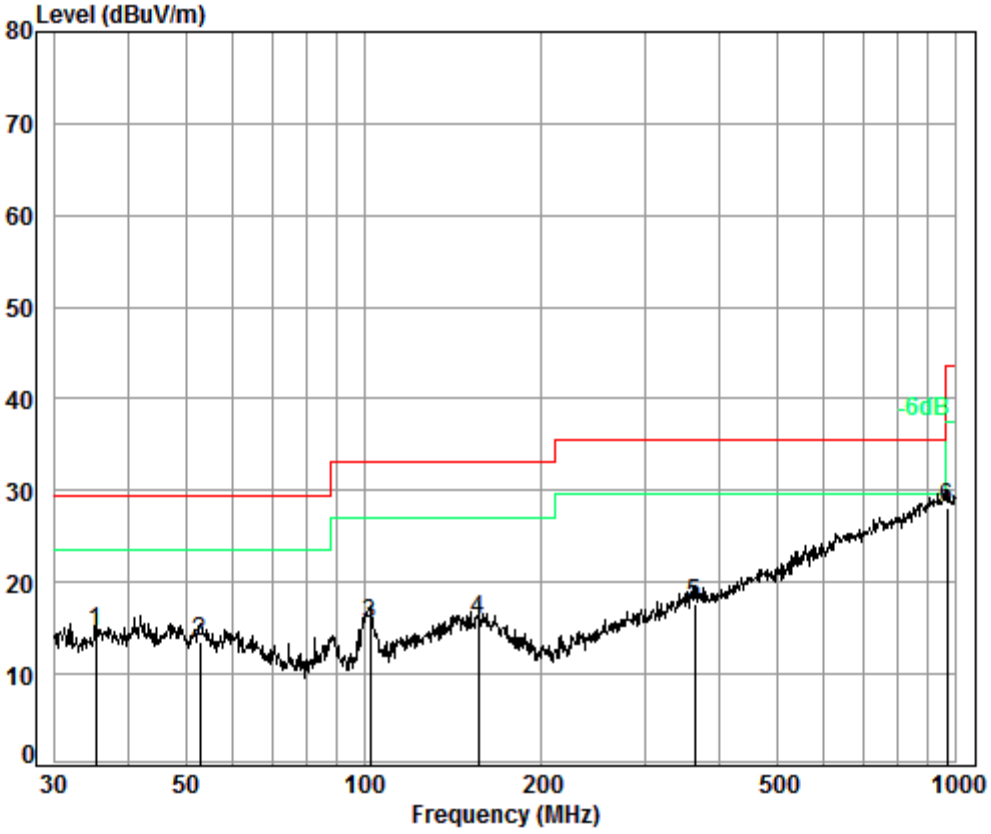
6.2.2 Test Setup Diagram



6.2.3 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.

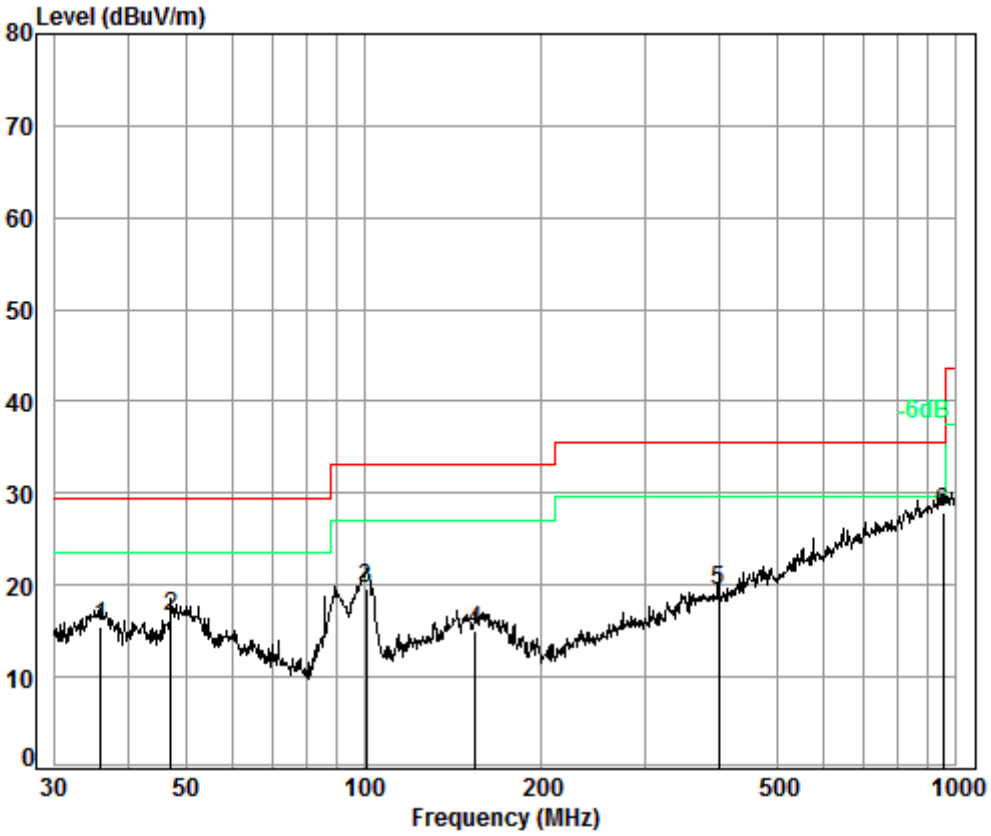
Mode:b; Polarization:Horizontal



Condition: 10m HORIZONTAL
Job No. : 08497RG
Test Mode: b

	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	35.25	6.71	12.68	32.49	27.75	14.65	29.50	-14.85
2	52.95	6.96	12.54	32.43	26.48	13.55	29.50	-15.95
3	102.36	7.21	9.63	32.54	31.10	15.40	33.10	-17.70
4	156.46	7.48	13.40	32.43	27.36	15.81	33.10	-17.29
5	361.71	8.30	14.10	32.35	27.59	17.64	35.60	-17.96
6	965.54	9.60	22.78	30.88	26.65	28.15	43.50	-15.35

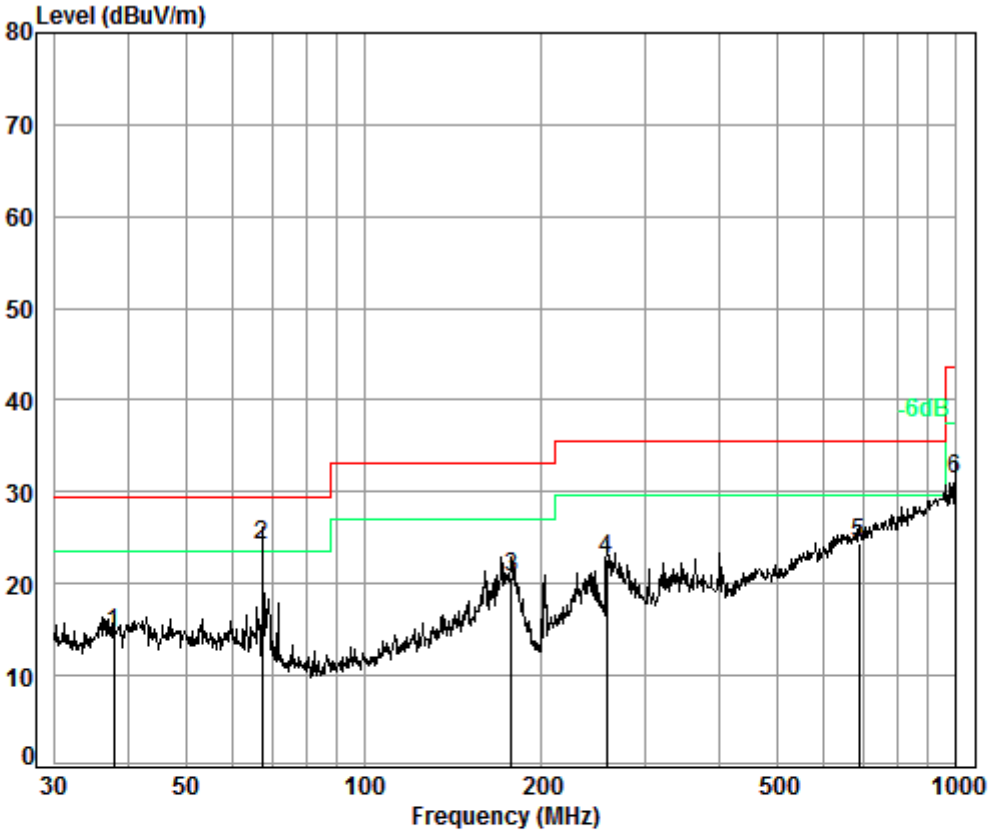
Mode:b; Polarization:Vertical



Condition: 10m VERTICAL
Job No. : 08497RG
Test Mode: b

	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	36.00	6.72	12.78	32.48	28.50	15.52	29.50	-13.98
2	47.33	6.85	12.84	32.43	29.21	16.47	29.50	-13.03
3	100.93	7.21	9.49	32.55	35.56	19.71	33.10	-13.39
4	154.28	7.47	13.40	32.43	26.51	14.95	33.10	-18.15
5	397.63	8.30	14.82	32.33	28.60	19.39	35.60	-16.21
6 pp	952.09	9.58	22.74	30.98	26.51	27.85	35.60	-7.75

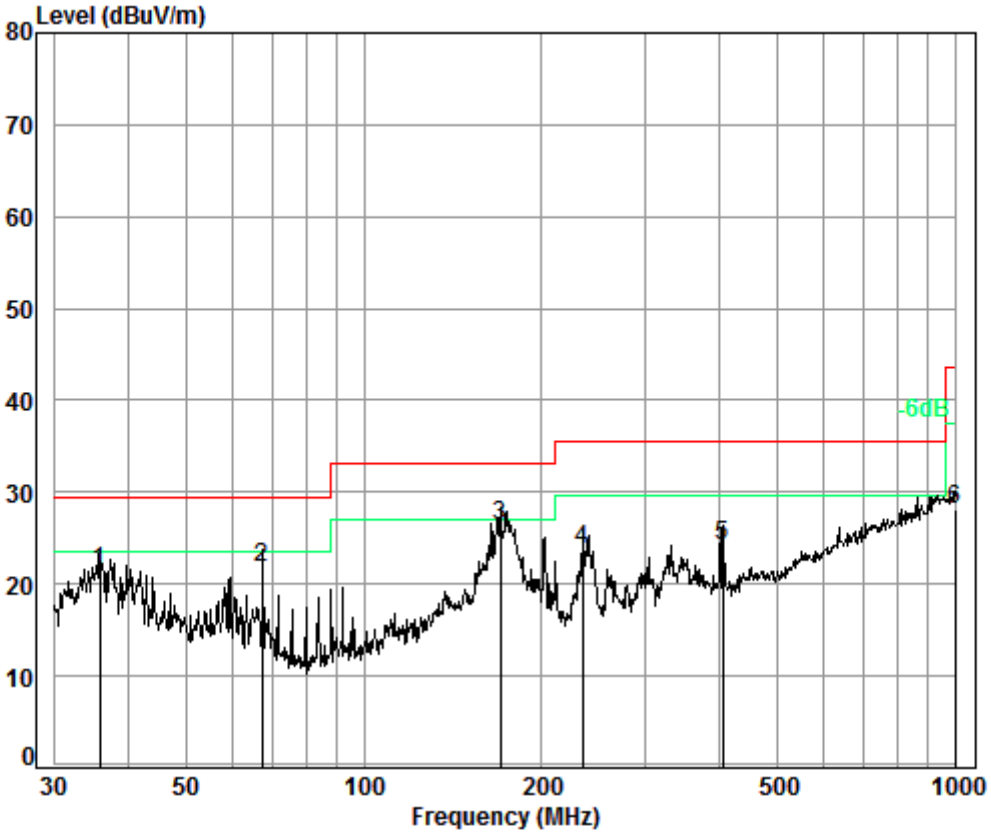
Mode:c; Polarization:Horizontal



Condition: 10m HORIZONTAL
Job No. : 08497RG
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	37.81	6.76	13.03	32.47	27.29	14.61	29.50	-14.89
2 pp	67.44	6.95	10.54	32.46	39.16	24.19	29.50	-5.31
3	177.51	7.50	11.29	32.45	34.45	20.79	33.10	-12.31
4	257.42	7.89	11.42	32.41	35.76	22.66	35.60	-12.94
5	687.15	9.12	19.97	32.27	27.64	24.46	35.60	-11.14
6	996.50	9.60	22.84	30.65	29.62	31.41	43.50	-12.09

Mode:c; Polarization:Vertical

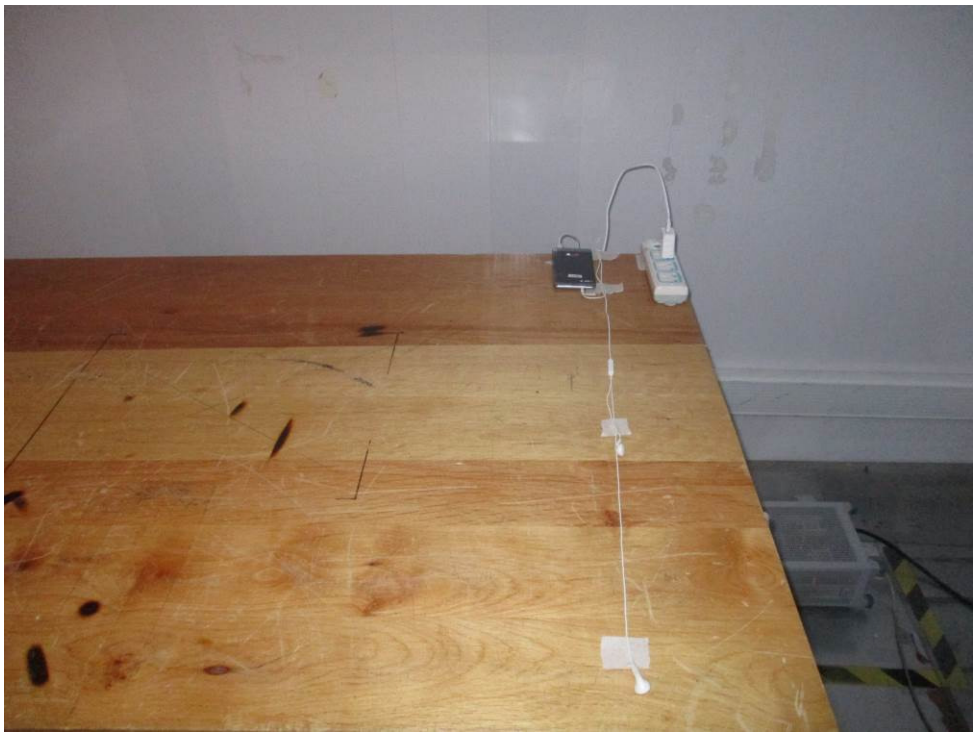


Condition: 10m VERTICAL
Job No. : 08497RG
Test Mode: c

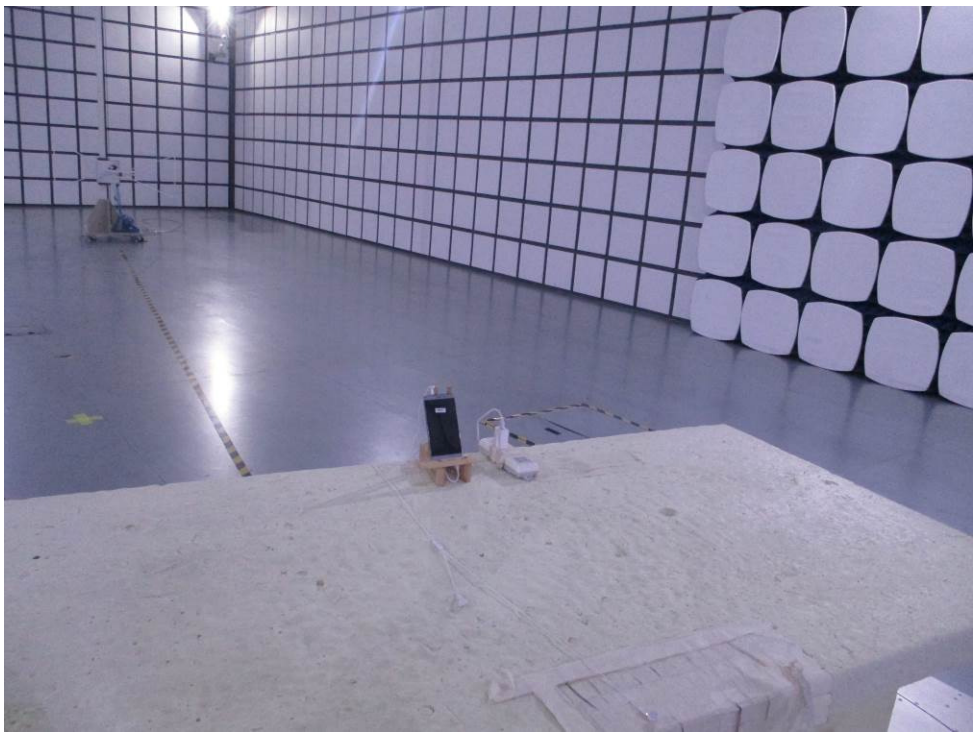
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.75	6.72	12.75	32.49	34.37	21.35	29.50	-8.15
2	67.44	6.95	10.54	32.46	36.72	21.75	29.50	-7.75
3 pp	170.19	7.50	12.39	32.44	38.98	26.43	33.10	-6.67
4	234.17	7.77	10.90	32.43	37.59	23.83	35.60	-11.77
5	404.67	8.31	14.99	32.33	33.30	24.27	35.60	-11.33
6	996.50	9.60	22.84	30.65	26.37	28.16	43.50	-15.34

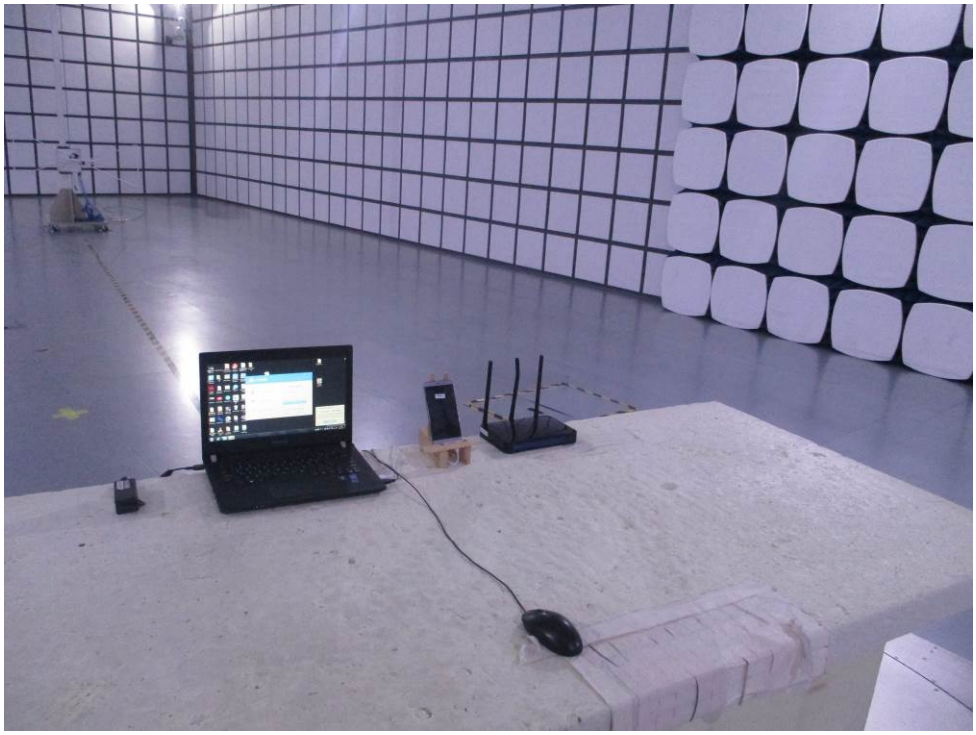
7 Photographs

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



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





7.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1708008497RG.