



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

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Report No.: SZEM180800739001
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TEST REPORT

Application No.: SZEM1808007390CR
Applicant: ShenZhen KaiXingHui Technology Co., Ltd.
Address of Applicant: 206, 2nd Floor G Bldg. Hengchangrong Xinghui Industrial Park, Huaning Rd, Dalang St. Longhua Dist. Shenzhen, China
Manufacturer: ShenZhen KaiXingHui Technology Co., Ltd.
Address of Manufacturer: 206, 2nd Floor G Bldg. Hengchangrong Xinghui Industrial Park, Huaning Rd, Dalang St. Longhua Dist. Shenzhen, China
Factory: ShenZhen KaiXingHui Technology Co., Ltd.
Address of Factory: 206, 2nd Floor G Bldg. Hengchangrong Xinghui Industrial Park, Huaning Rd, Dalang St. Longhua Dist. Shenzhen, China
Equipment Under Test (EUT):
EUT Name: Wireless charger
Model No.: X1, X2, X3 ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID: 2AOSUX1
Standard(s) : 47 CFR Part 18
Date of Receipt: 2018-08-14
Date of Test: 2018-08-15 to 2018-08-17
Date of Issue: 2018-08-20

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



Keny Xu
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.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-08-20		Original

Authorized for issue by:				
				
		Leo Li /Project Engineer		
				
		Eric Fu /Reviewer		



2 Test Summary

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Radiated Emissions (9kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass

Remark:

Model No.: X1, X2, X3

Only the model X1 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on model number.



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 5.0V or DC 9V from USB port Input: DC 5.0V/2A, DC 9V/1.67A Output: 5.0W(DC 5.0V/1A), 7.5W(DC 5.0V1.5A), 10W(DC 9.0V/1.1A)
Cable:	USB cable: 100cm shielded
Operation frequency:	109.455-175.321kHz
Antenna type:	Inductive Loop Coil Antenna
Modulation type:	Load modulation
Remark:	Tests were conducted in both load modes and the worst case (10W) is reported only.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	SAMSUNG	EP-TA200	R37J8YA7W71DK3
iPhone 8	Apple	A1863	F4GVQ656JC6D
Mobile Phone	SAMSUNG	SM-G9500	R28J9140LPB

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF conducted power	$\pm 0.75\text{dB}$
5	RF power density	$\pm 2.84\text{dB}$
6	Conducted Spurious emissions	$\pm 0.75\text{dB}$
7	RF Radiated power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious emission test	$\pm 4.5\text{dB}$ (Below 1GHz)
		$\pm 4.8\text{dB}$ (Above 1GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



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 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 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 disturbance					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2017-05-10	2020-05-09
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2018-07-12	2019-07-11
LISN	Rohde & Schwarz	ENV216	SEM007-01	2017-09-27	2018-09-26
LISN	ETS-LINDGREN	3816/2	SEM007-02	2018-04-02	2019-04-01
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2018-04-02	2019-04-01

Radiated emission					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2018-07-12	2019-07-11
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2018-04-02	2019-04-01
Trilog-Broadband Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-01-26	2019-01-25
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2018-04-13	2019-04-12
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

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	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-28
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07

6 Radio Spectrum Matter Test Results

6.1 Conducted disturbance

Test Requirement 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

6.1.1 E.U.T. Operation

Operating Environment:

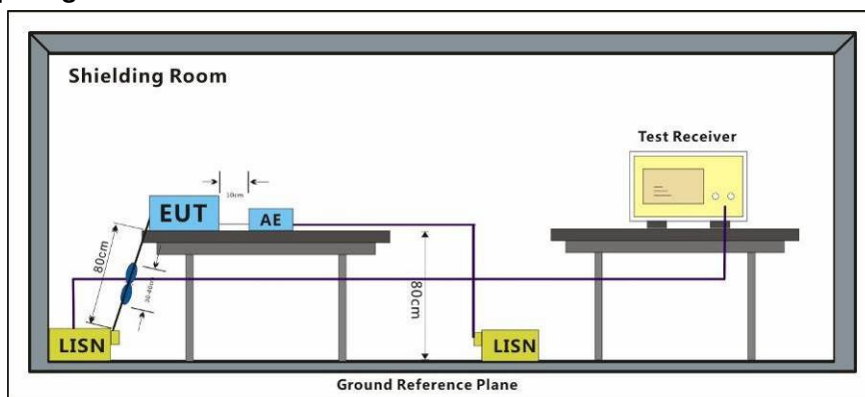
Temperature: 20.4 °C Humidity: 51.1 % RH Atmospheric Pressure: 1000 mbar

Pretest these a: Normal Working_9V
mode to find the b: Normal Working_5V
worst case:

Test were conducted in three load modes and only the worst case is submitted.

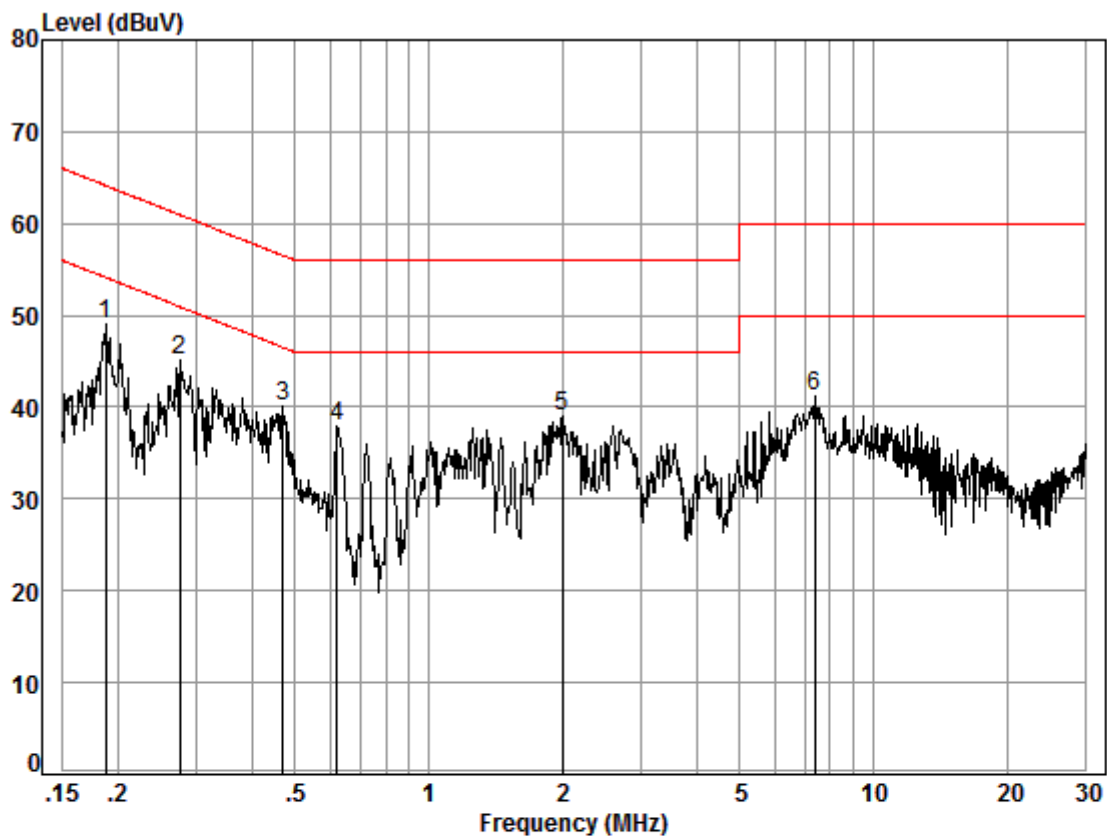
The worst case a: Normal Working_9V
for final test:

6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and Data

Mode:a; Line:Live Line



Site : Shielding Room

Condition: Line

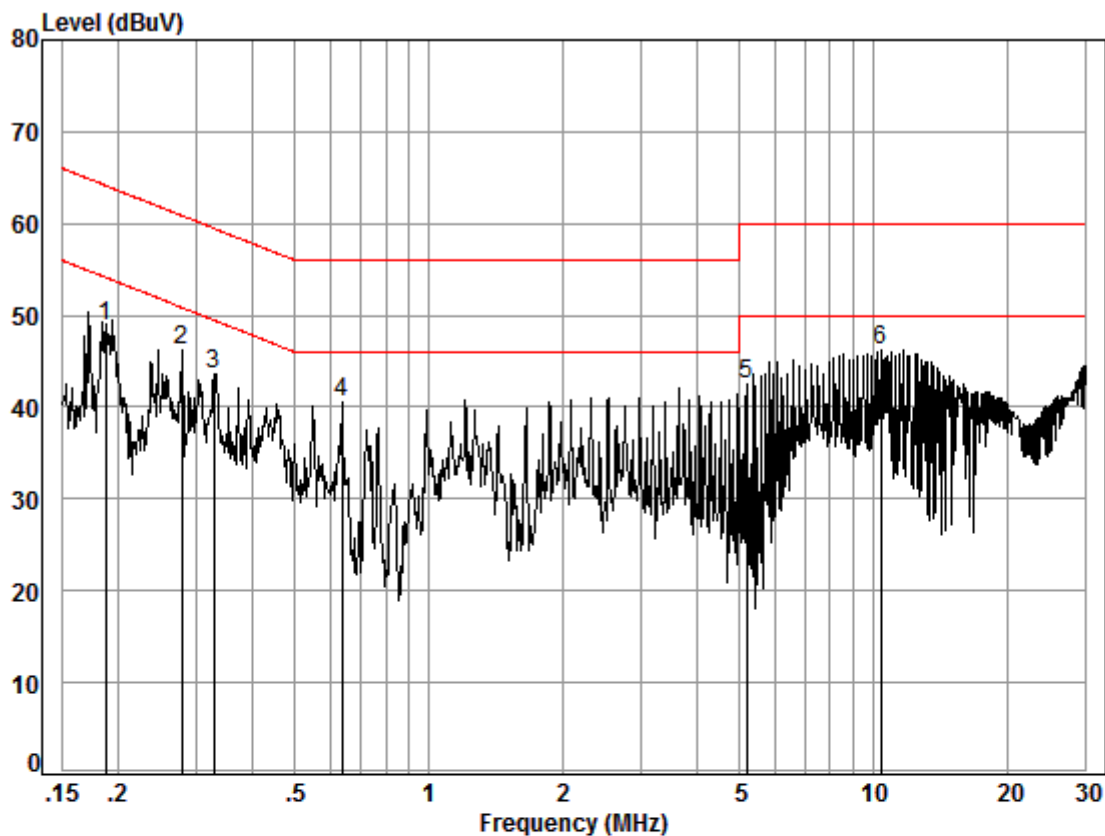
Job No. : 07390CR

Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19	0.03	9.51	39.43	48.97	54.15	-5.18	Peak
2	0.28	0.03	9.51	35.49	45.03	50.94	-5.91	Peak
3	0.47	0.04	9.49	30.66	40.19	46.49	-6.30	Peak
4	0.62	0.06	9.52	28.37	37.95	46.00	-8.05	Peak
5	2.00	0.15	9.51	29.42	39.08	46.00	-6.92	Peak
6	7.41	0.18	9.60	31.33	41.11	50.00	-8.89	Peak



Mode:a; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 07390CR

Test mode: a

	Freq	Cable	LISN	Read	Level	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19	0.03	9.58	39.25	48.86	54.15	-5.29	Peak
2	0.28	0.03	9.58	36.62	46.23	50.85	-4.62	Peak
3	0.33	0.03	9.58	34.04	43.65	49.49	-5.84	Peak
4	0.64	0.06	9.62	30.80	40.48	46.00	-5.52	Peak
5	5.19	0.20	9.69	32.63	42.52	50.00	-7.48	Peak
6	10.40	0.20	9.79	36.19	46.18	50.00	-3.82	Peak



6.1 Radiated emission

Test Requirement: 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Frequency Range: 9kHz-30MHz
Limit:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified	Any ISM frequency	Below 500	25	300
(miscellaneous).		500 or more	$25 \times \text{SQRT}(\text{power}/500)$	300 (1)
	Any non-ISM frequency	Below 500	15	300
		500 or more	$15 \times \text{SQRT}(\text{power}/500)$	300 (1)
Industrial heaters and RF stabilized arc	On or below 5,725 MHz	Any	10	1,600
welders.	Above 5,725 MHz	Any	(2)	(2)
Medical diathermy	Any ISM frequency	Any	25	300
	Any non-ISM frequency	Any	15	300
Ultrasonic	Below 490 kHz	Below 500	$2,400/F(\text{kHz})$	300
		500 or more	$2,400/F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$	300 (3)
	490 to 1,600 kHz	Any	$24,000/F(\text{kHz})$	30
	Above 1,600 kHz	Any	15	30
Induction cooking ranges	Below 90 kHz	Any	1,500	30 (4)
	On or above 90 kHz	Any	300	30 (4)

(1) Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

(2) Reduced to the greatest extent possible.

(3) Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment is not permitted the increase in field strength

(4) otherwise permitted here for over 500 watts.

Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Pretest these a: Normal Working_9V

mode to find the b: Normal Working_5V

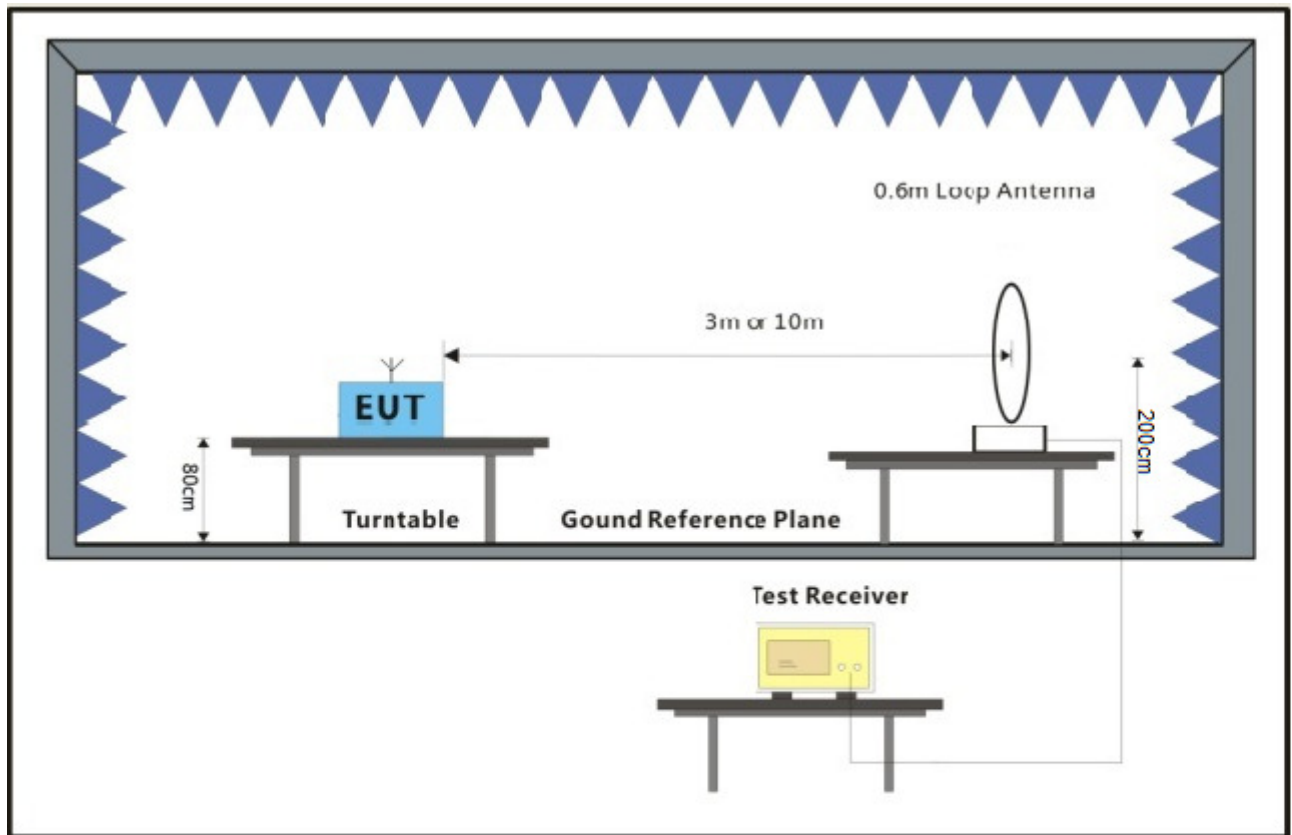
worst case:

Test were conducted in three load modes and only the worst case is submitted.

The worst case a: Normal Working_9V

for final test:

6.1.2 Test Setup Diagram

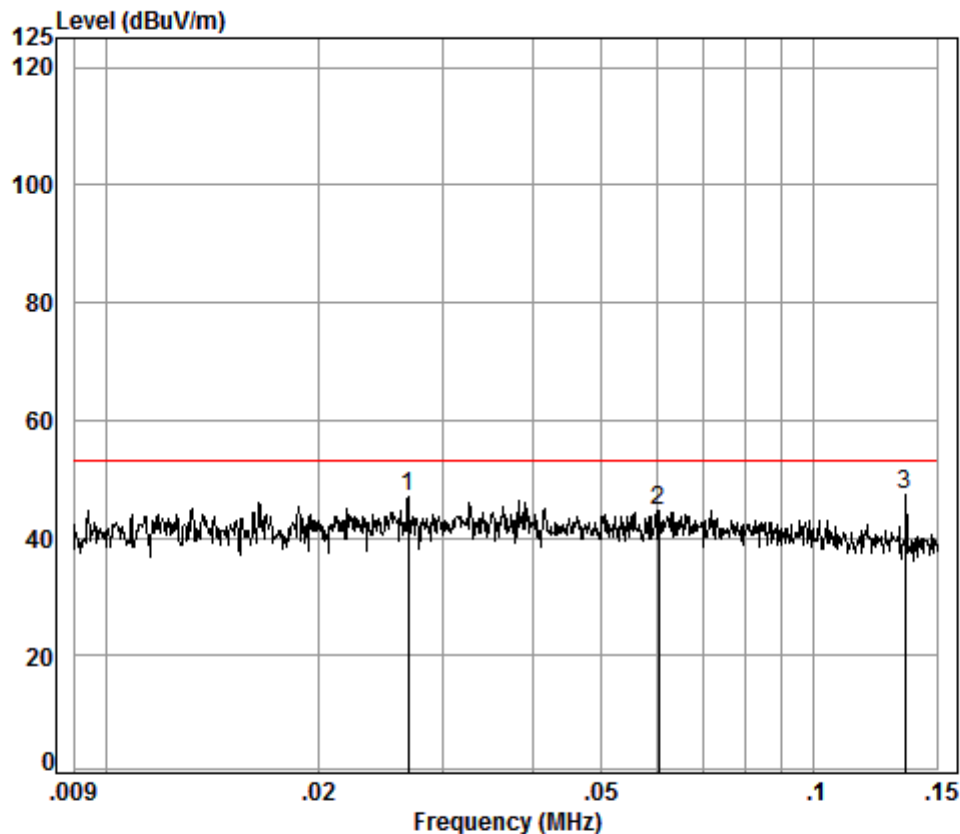


6.1.3 Measurement Procedure and Data



Mode a:

9kHz-150kHz



Condition: 10m

Job No. : 07390CR

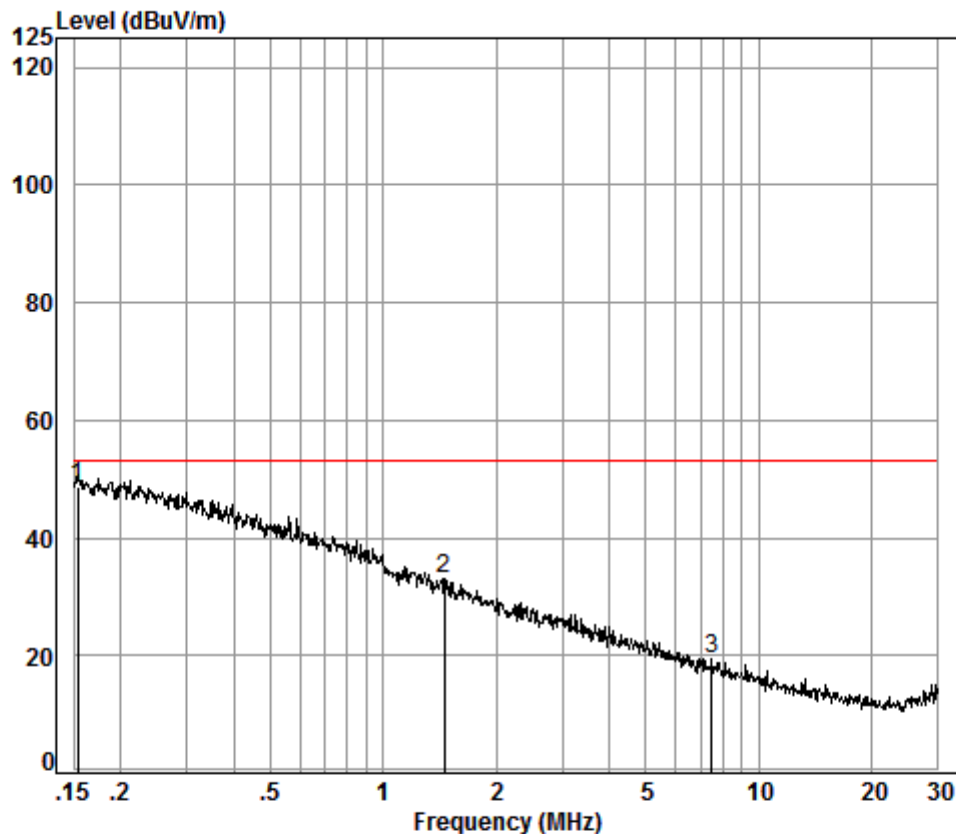
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.03	0.19	14.18	31.94	64.47	46.90	53.06	-6.16
2	0.06	0.10	12.26	32.40	64.81	44.77	53.06	-8.29
3 pp	0.13	0.06	11.78	32.67	68.06	47.23	53.06	-5.83



Mode a:

150kHz-30MHz



Condition: 10m

Job No. : 07390CR

Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	0.15	0.07	11.72	32.67	69.73	48.85	53.06	-4.21
2	1.46	0.29	12.05	32.65	53.27	32.96	53.06	-20.10
3	7.49	0.46	11.20	32.66	40.54	19.54	53.06	-33.52



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The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$$L_{300} / L_{10} = D_{10} / D_{300}$$

Note:

L₃₀₀: Level @ 300m distance. Unit: uV/m;

L₁₀: Level @ 10m distance. Unit: uV/m;

D₃₀₀: 300m distance. Unit: m

D₁₀: 10m distance. Unit: m

The level at 300m test distance is below:

Frequency (MHz)	Level @ 10m (dBuV/m)	Level @ 10m (uV/m)	Level @ 300m (uV/m)	Level @ 300m (dBuV/m)	Limit @ 300m (dBuV/m)	Margin (dB)
0.03	46.90	221.31	7.38	17.36	23.52	-6.16
0.06	44.77	173.18	5.77	15.23	23.52	-8.29
0.13	47.23	229.88	7.66	17.69	23.52	-5.83
0.15	48.85	277.01	9.23	19.31	23.52	-4.21
1.46	32.96	44.46	1.48	3.42	23.52	-20.10
7.49	19.54	9.48	0.32	-10.00	23.52	-33.52

Remark:

1 This product belong to any non-ISM frequency equipment, the field strength limit is 15uV/m at 300 meter

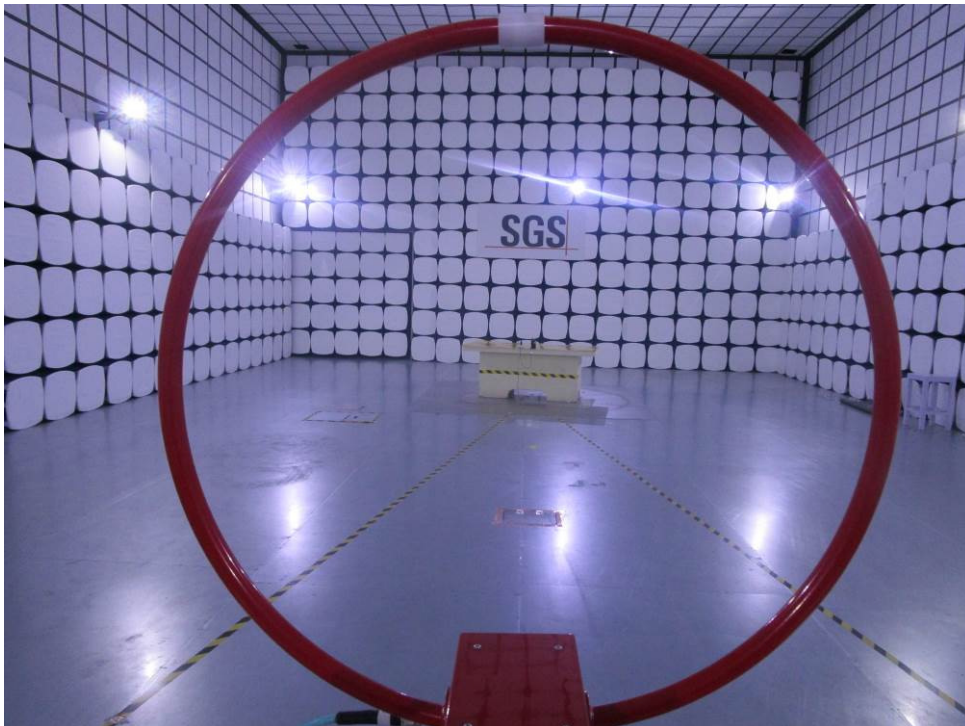
2 Limit: $20\log(15\text{uV/m})=23.52\text{dBuV/m}$

7 Photographs

7.1 Conducted disturbance Test Setup



7.2 Radiated emission Test Setup





7.3 EUT Constructional Details (EUT Photos)

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1808007390CR.

- End of the Report -