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

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TEST REPORT

Application No.:	SZEM1804003545CR
Applicant:	Huizhou Artsun Industrial Company Limited
Address of Applicant:	No.2, Floor 14th,Unit one, Ruihe Commercial Square, No.1 Yandayi Road,Henan'an District, Huizhou, 516007, China
Manufacturer:	HUIZHOU VOLANT ROC ELECTRONICS TECH CO.,LTD
Address of Manufacturer:	C BUILDING, QIANLI INDSUTRIAL AREA, SANDONG TOWN, HUIZHOU CITY, GUANGDONG PROVINCE, CHINA
Equipment Under Test (EUT):	
EUT Name:	GRAVITY PHONE HOLDER & WIRELESS CHARGER 2-IN-1 KIT
Model No.:	VCW-502K
FCC ID:	2ALU4DX502A03
Trade mark:	AUTO DRIVE
Standard(s) :	47 CFR Part 18
Date of Receipt:	2018-05-21
Date of Test:	2018-05-24 to 2018-05-25
Date of Issue:	2018-06-01
Test Result:	**Pass***

* 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.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2018-06-01		Original

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

2 Test Summary

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted disturbance	47 CFR Part 18	FCC MP-5	Part 18.307	Pass
Radiated emission	47 CFR Part 18	FCC MP-5	Part 18.305	Pass

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4 General Information

4.1 Details of E.U.T.

Power supply:	Input: 5V/2A, 9V/1.67A
Baseline Power Profile:	5W
Operation frequency:	110-148kHz
Antenna Type:	Loop Antenna
Modulation type:	Load modulation

4.2 Description of Support Units

escription	Manufacturer	Model No.	Serial No.
Adapter	Huawei	HW-059200CHQ	N/A
Dummy load	E-Charging	N/A	N/A
Mobile phone	SAMSUNG	SM-G9500	R28J9140LPB

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious emission test	4.5dB (Below 1GHz)
		4.8dB (Above 1GHz)
9	Temperature test	1°C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	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	2017-07-13	2018-07-12
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	2017-07-13	2018-07-12
EMI Test Receiver (9kHz-3GHz)	Rohde & Schwarz	ESR	SEM004-03	2018-04-02	2019-04-01
Trilog-Broadband Antenna (30MHz-1GHz)	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

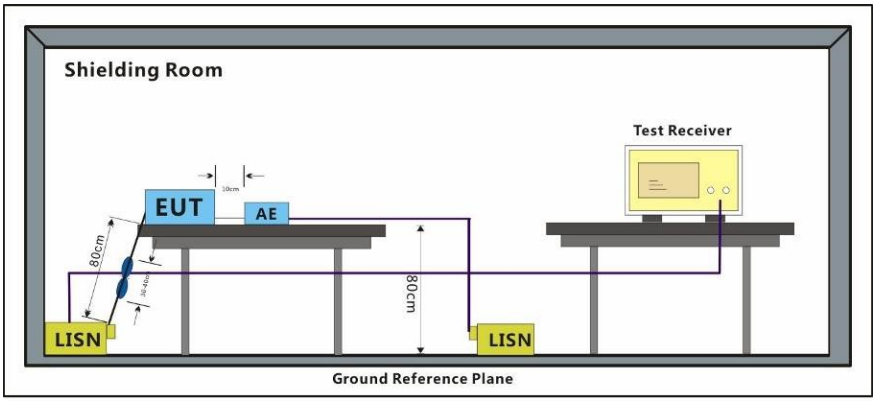
Test Requirement Part 18.307
Test Method: FCC MP-5
Frequency Range: 150kHz to 30MHz
Limit:

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

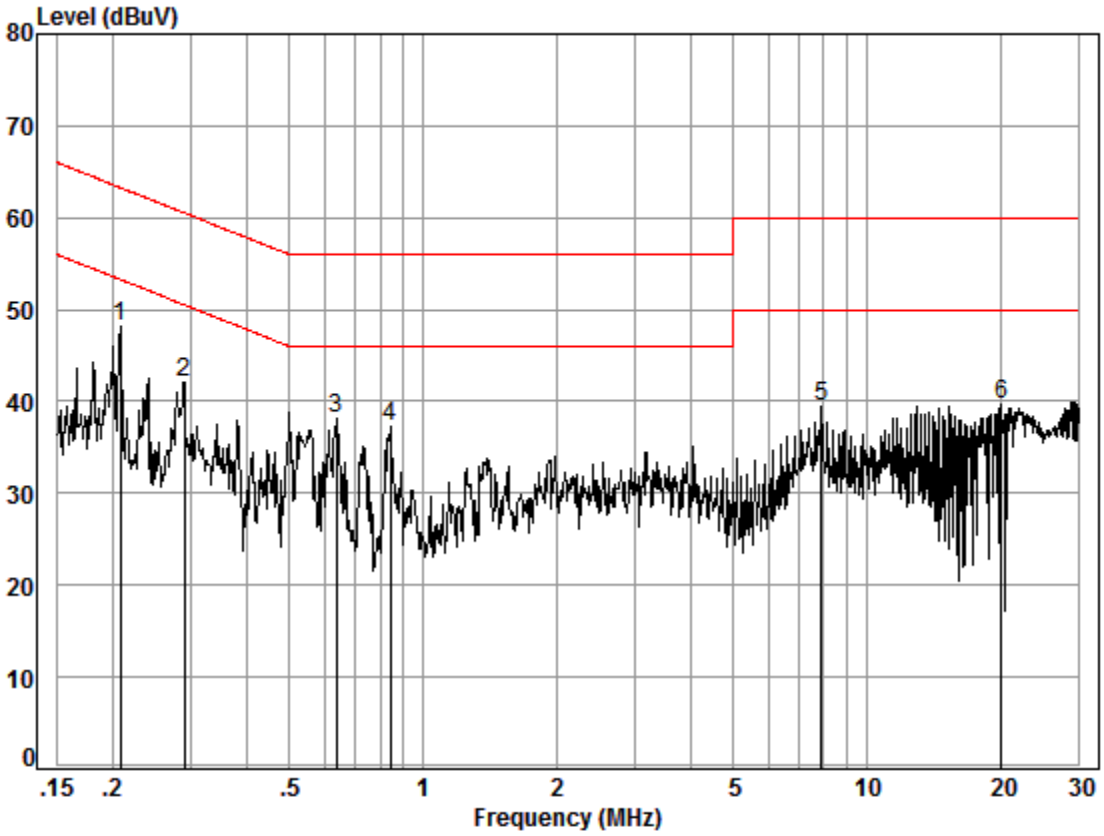
Operating Environment:
Temperature: 22 °C Humidity: 49.9 % RH Atmospheric Pressure: 1015 mbar
Test mode a: Normal Working mode,keep charging with mobile phone in low battery
b: Normal Working mode,keep charging with mobile phone in intermediate battery
c: Normal Working mode,keep charging with mobile phone in full battery
d: Normal Working mode,keep EUT working with full load.
e: Normal Working mode,keep EUT working with half load
f: Normal Working mode,keep EUT working with no load
Test Worse case a:Normal Working mode,keep EUT working with full load.

6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and Data

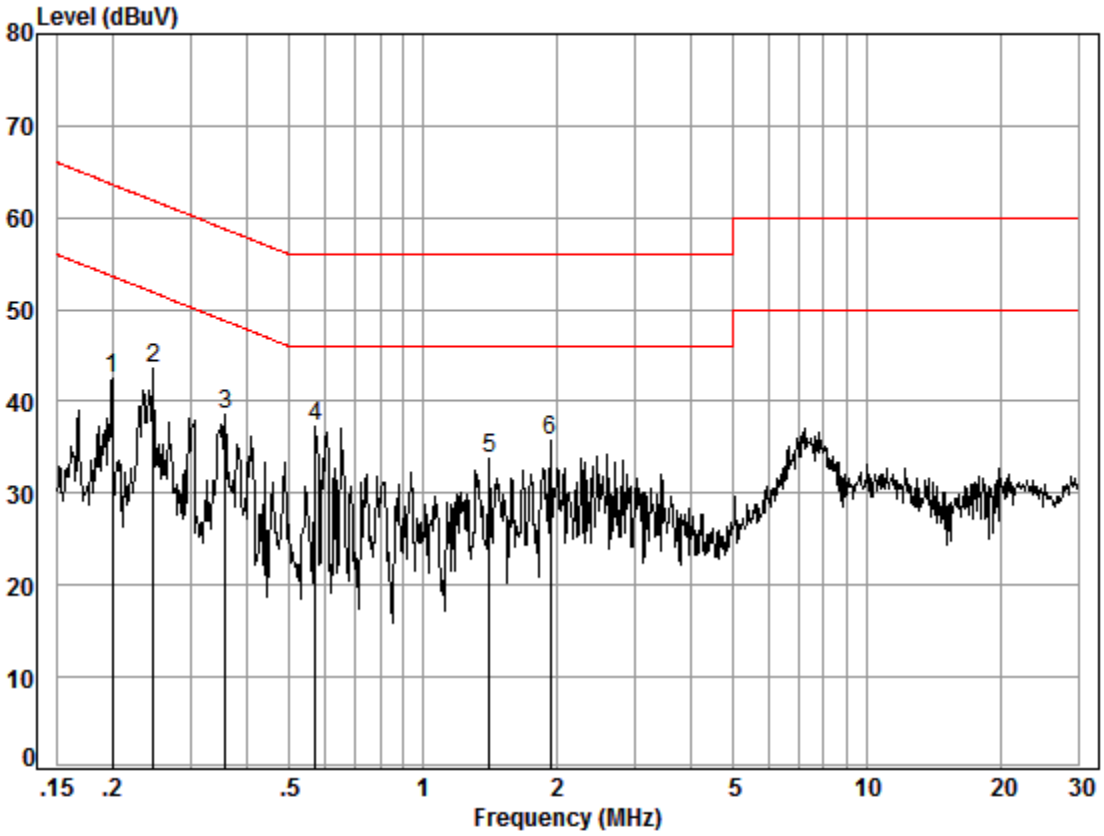
Model:a; Line:Live Line



Site : Shielding Room
Condition: Line
Job No. : 03545CR
Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.21	0.03	9.50	38.65	48.18	53.27	-5.09	Peak
2	0.29	0.03	9.51	32.55	42.09	50.54	-8.45	Peak
3	0.64	0.06	9.51	28.51	38.08	46.00	-7.92	Peak
4	0.84	0.08	9.50	27.60	37.18	46.00	-8.82	Peak
5	7.89	0.18	9.60	29.67	39.45	50.00	-10.55	Peak
6	20.16	0.27	9.74	29.76	39.77	50.00	-10.23	Peak

Model:a; Line: Nature Line



Site : Shielding Room
Condition: Neutral
Job No. : 03545CR
Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20	0.03	9.57	32.91	42.51	53.62	-11.11	Peak
2	0.25	0.03	9.58	33.97	43.58	51.86	-8.28	Peak
3	0.36	0.03	9.58	28.88	38.49	48.74	-10.25	Peak
4	0.57	0.05	9.61	27.69	37.35	46.00	-8.65	Peak
5	1.41	0.13	9.63	24.04	33.80	46.00	-12.20	Peak
6	1.94	0.15	9.65	25.85	35.65	46.00	-10.35	Peak

6.2 Radiated emission

Test Requirement Part 18.305
Test Method: FCC MP-5
Test Method: FCC OST/MP-5:1986
Frequency Range: 9kHz-30MHz
Limit:

Equipment	Operating frequency	RF Power gen-erated by equip- ment (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 × SQRT(power/500)	300 (1)
	Any non-ISM frequency	Below 500	15	300
		500 or more	15 × SQRT(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(kHz)	300
		500 or more	2,400/F(kHz) ×	300 (3)
			SQRT(power/500).	
	490 to 1,600 kHz	Any	24,000/F(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 μV/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 μV/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 miscella-neous ISM equipment.

6.2.1 E.U.T. Operation

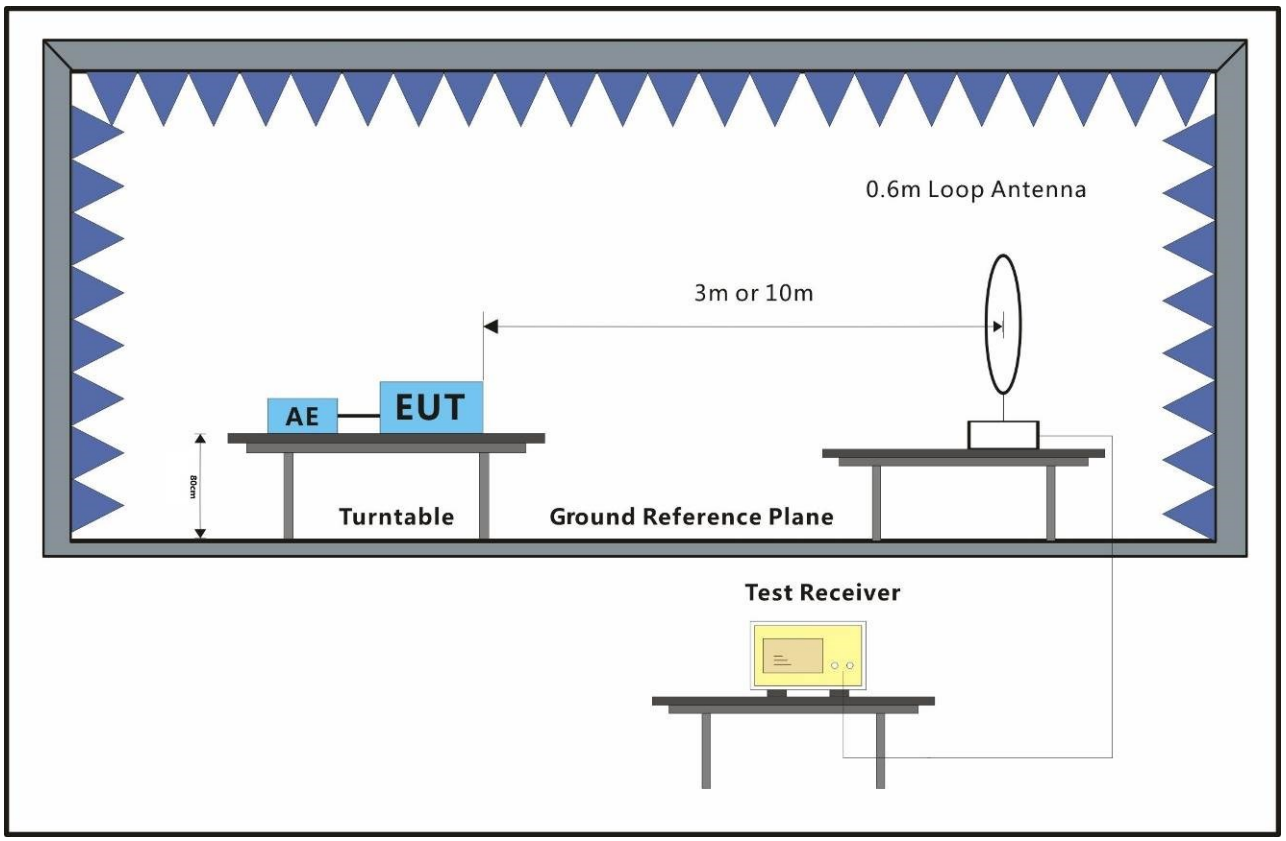
Operating Environment:

Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1015 mbar

Test mode a: Normal Working mode,keep charging with mobile phone in low battery
b: Normal Working mode,keep charging with mobile phone in intermediate battery
c: Normal Working mode,keep charging with mobile phone in full battery
d: Normal Working mode,keep EUT working with full load.
e: Normal Working mode,keep EUT working with half load
f: Normal Working mode,keep EUT working with no load

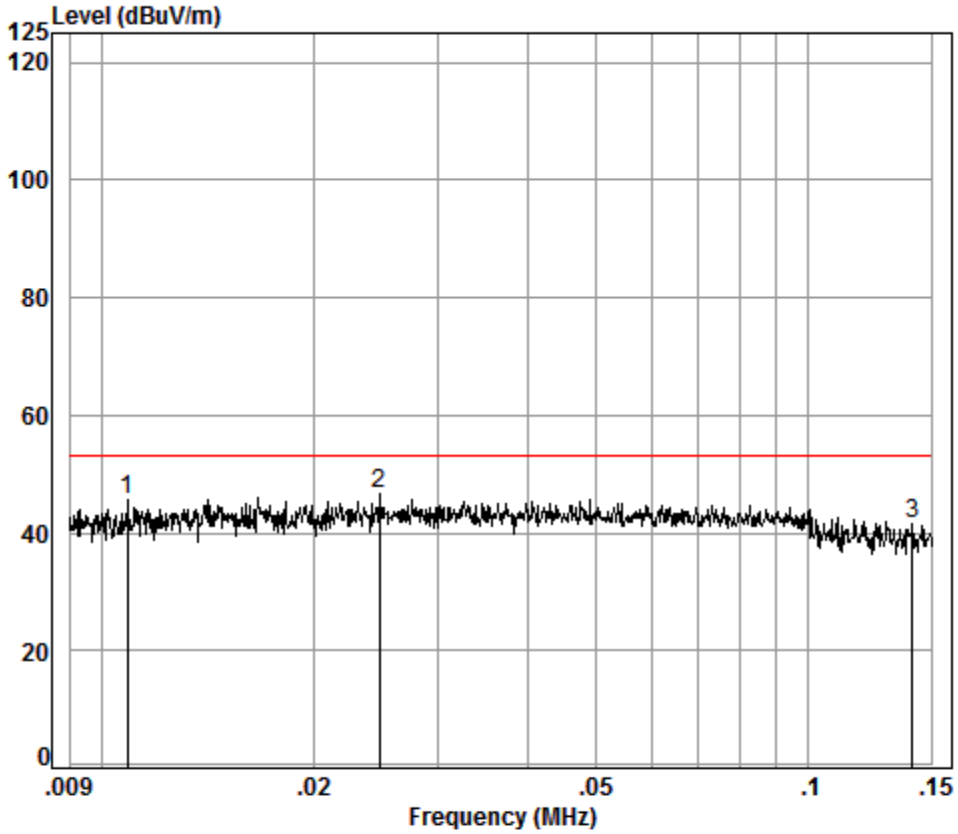
Test Worse case a:Normal Working mode,keep EUT working with full load.

6.2.2 Test Setup Diagram



6.2.3 Measurement Procedure and Data

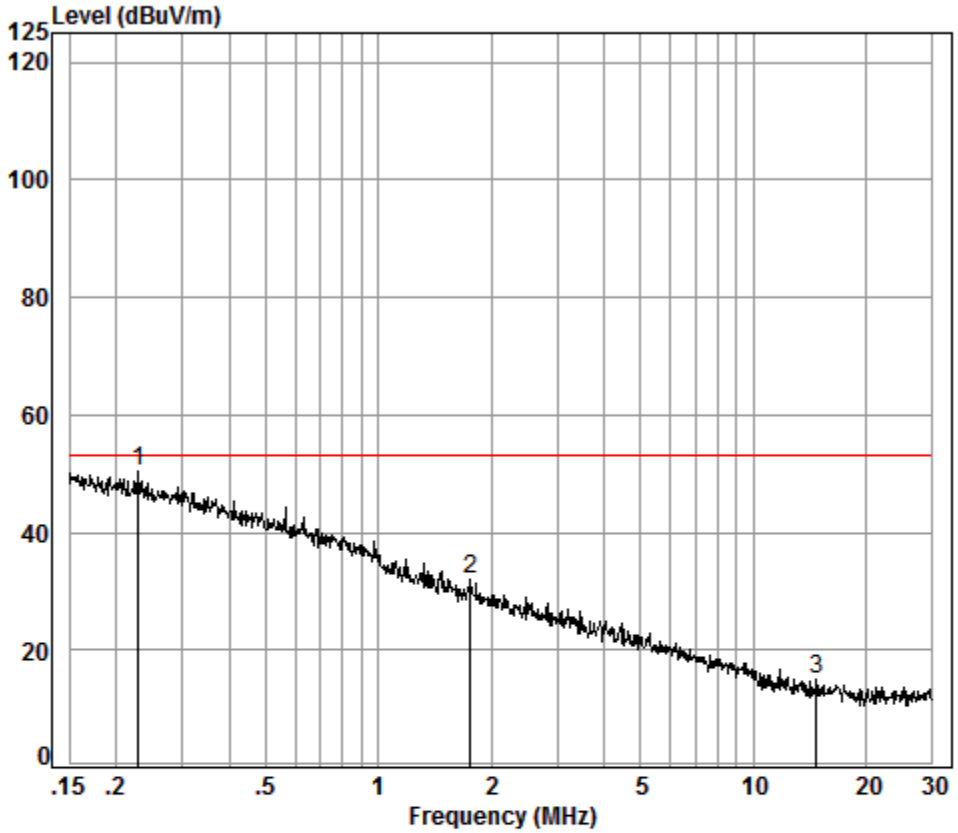
Model:a; 0.009-0.15



Condition: 10m
Job No. : 03545CR
Test Mode: a

	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	0.01	0.28	18.78	0.00	26.45	45.51	53.06	-7.55
2 pp	0.02	0.20	14.40	0.00	31.99	46.59	53.06	-6.47
3	0.14	0.06	11.75	0.00	29.74	41.55	53.06	-11.51

Model:a; 0.15-30



Condition: 10m
Job No. : 03545CR
Test Mode: a

	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	0.23	0.08	11.95	0.00	38.53	50.56	53.06	-2.50
2	1.76	0.32	12.08	0.00	19.71	32.11	53.06	-20.95
3	14.67	0.59	10.42	0.00	4.04	15.05	53.06	-38.01

Remark:

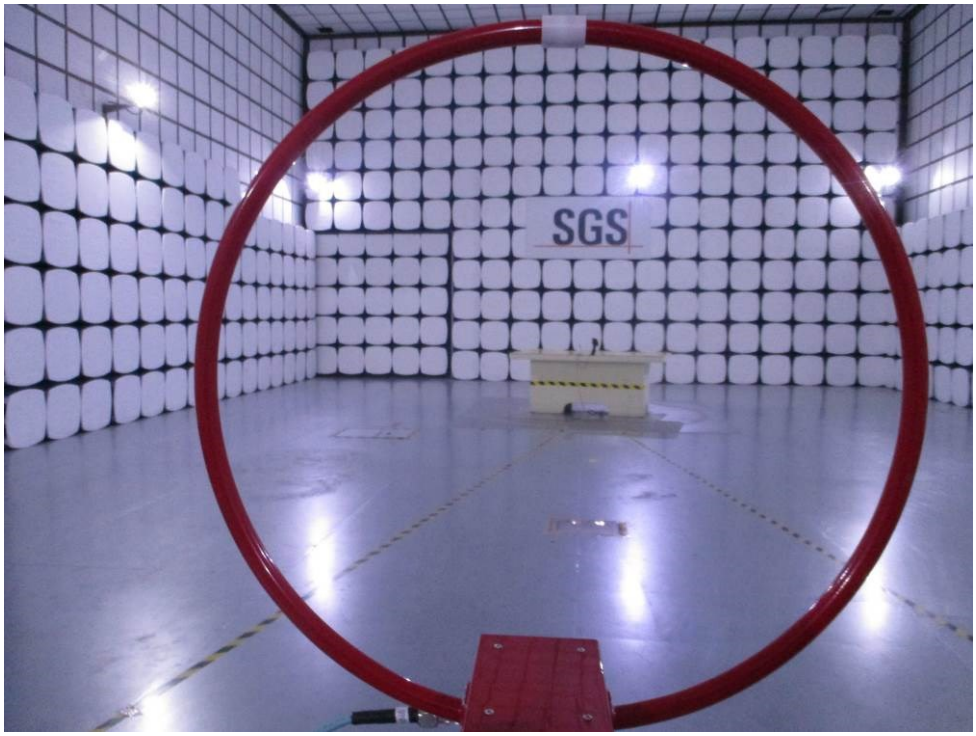
1.The loop antenna rotated about both Vertical and Horizontal to find the maximum emission, so only the worst position(Vertical) was record.

2.All modes have been tested and only record the worst test result of charging with mobile phone in low battery.

7 Photographs

7.1 Conducted disturbance Test Setup

7.2 Radiated emission Test Setup



7.3 EUT Constructional Details (EUT Photos)

Please refer to external and internal photos for details.

- End of the Report -