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

No. 1 Workshop, M-10, Middle section, Science & Technology Park,
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TEST REPORT

Application No.:	SZEM1802001161CR
Applicant:	Scosche Industries Inc
Address of Applicant:	1550 Pacific Ave, Oxnard, California, 93033 United States
Manufacturer:	Shenzhen Powerqi Technology Co., Ltd.
Address of Manufacturer:	14F No.12 Building, Zhonghaixin Science and Technology Park, Bulan Road, Buji Street, Longgang District, Shenzhen, China
Factory:	Shenzhen Powerqi Technology Co., Ltd.
Address of Factory:	14F No.12 Building, Zhonghaixin Science and Technology Park, Bulan Road, Buji Street, Longgang District, Shenzhen, China
Equipment Under Test (EUT):	
EUT Name:	Wireless Car Charger
Model No.:	MPQ2
Trade mark:	SCOSCHE
FCC ID:	IKQMPQ2
Standard(s) :	47 CFR Part 18
Date of Receipt:	2018-02-07
Date of Test:	2018-02-07 to 2018-02-11
Date of Issue:	2018-02-12
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		2018-02-12		Original

Authorized for issue by:				
				
		Moon Zhang /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

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	AC ADAPTOR MODEL:GW-TCQC3-A1 INPUT:100-240V~50/60Hz 0.8A MAX OUTPUT:DC 5V 3A DC 9V 2A DC 12V 1.5A CAR CHARGER: INPUT:DC 12-24V OUTPUT:DC 5V 2.4A DC 9V 1.8A DC 12V 1.4A
Cable:	USB CABLE:150CM
EUT Function:	wireless charging transmitter
Carrier Frequency	110-205kHz Actual frequency range: 111KHz-175KHz
Antenna Type	Loop antenna
Modulation type:	Load modulation

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adjustable load receiver	Provided by Client	0-10W	Adjustable load receiver
Full load receiver	Provided by Client	10W	Full load receiver
Samsung phone	Provided by Client	SM-G9500	Samsung phone

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

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-09
EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2017-04-14	2018-04-13
Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-28
Pre-amplifier (9kHz-1GHz)	Sonoma Instrument Co	310N	SEM005-04	2017-06-05	2018-06-04
Loop Antenna (9kHz-30MHz)	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
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

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	2018-05-09
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	2017-04-14	2018-04-13
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2017-04-14	2018-04-13

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	2017-04-18	2018-04-17

6 Radio Spectrum Matter Test Results

6.1 Conducted disturbance

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

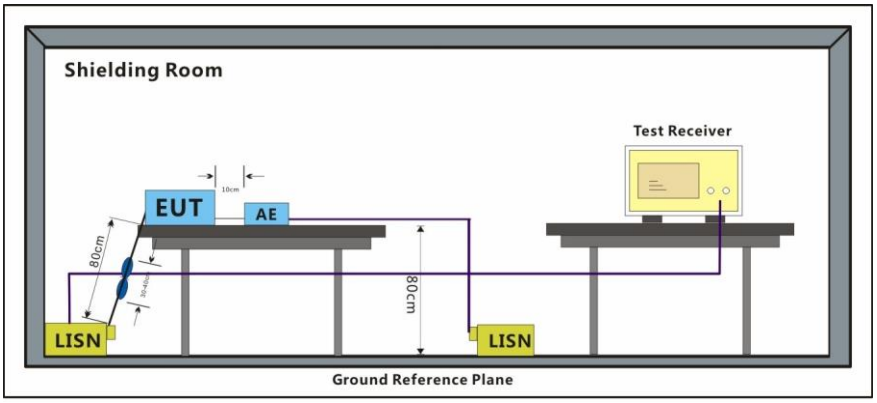
Operating Environment:

Temperature: 19.4 °C Humidity: 52.9 % RH Atmospheric Pressure: 1015 mbar

Test mode a:Powered by adaptor_ Normal Working_ Keep EUT working at normal working.

Test were conducted in three load modes(low, medium and high load mode) and only the worst case is submitted.

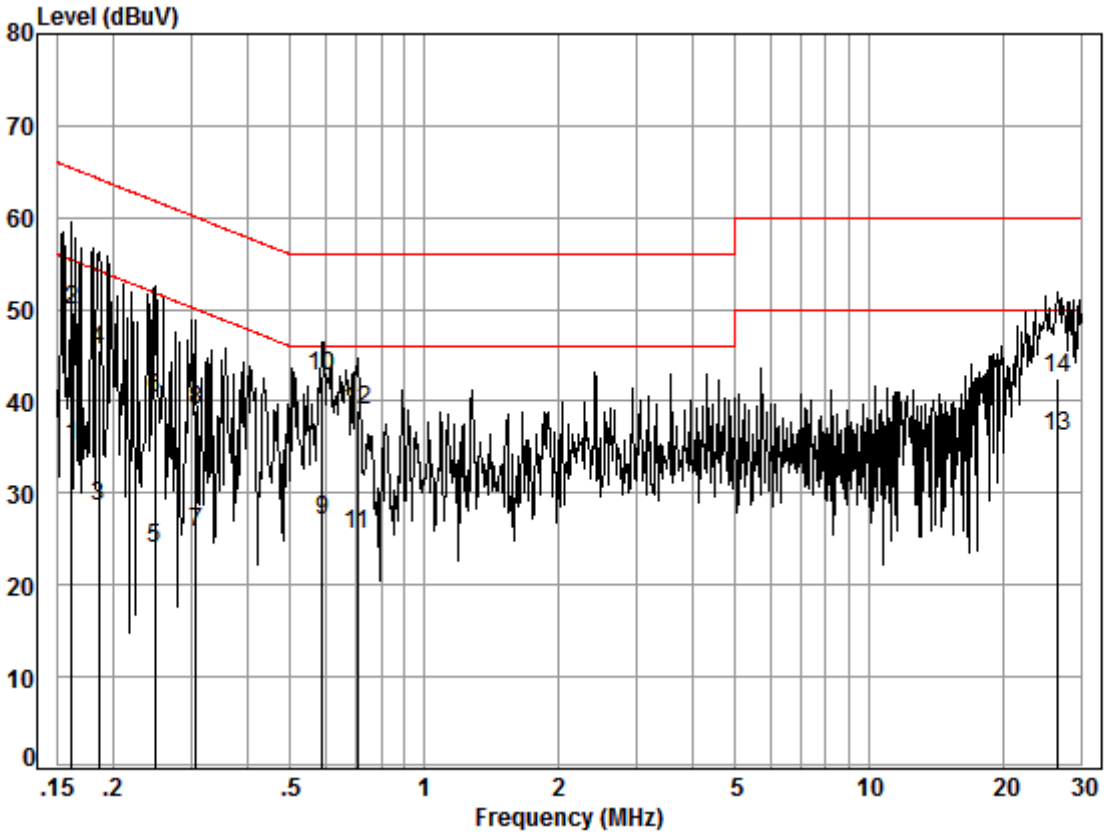
6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and 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.

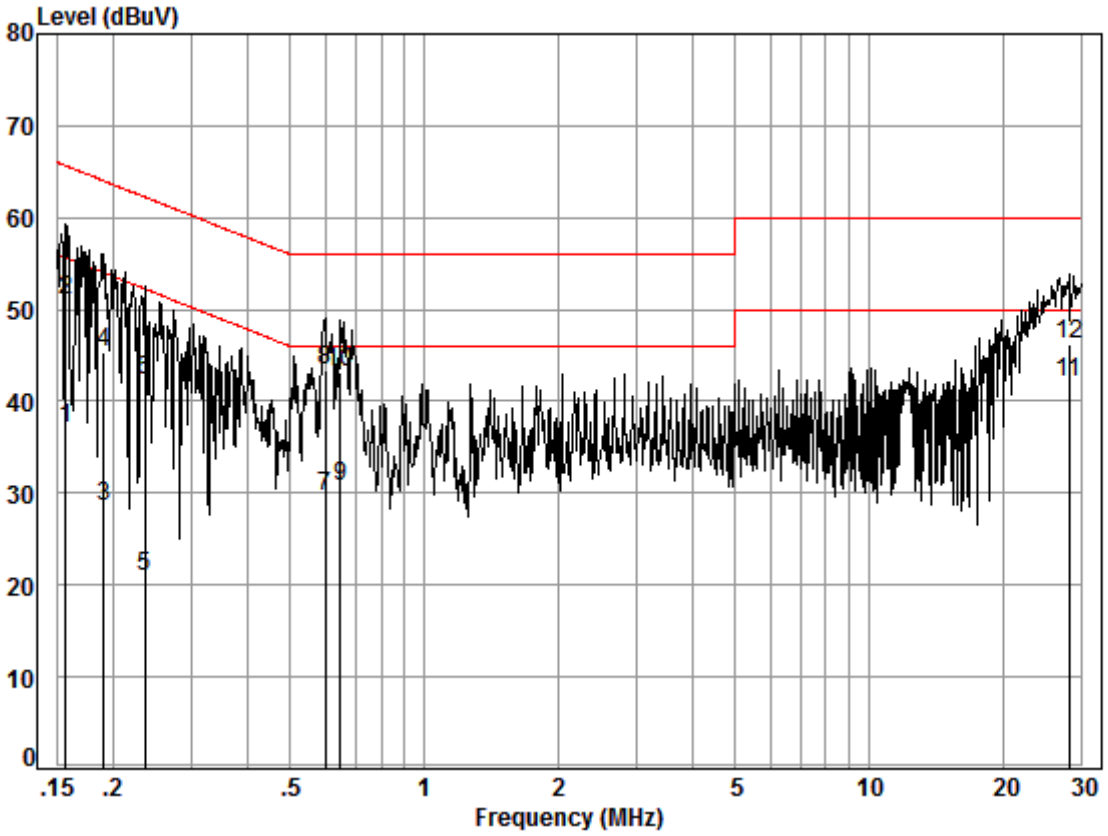
Mode:a; Line:live Line



Site : Shielding Room
Condition: Line
Job No. : 01161CR
Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.02	9.52	25.64	35.18	55.38	-20.20	Average
2	0.16	0.02	9.52	40.29	49.83	65.38	-15.55	QP
3	0.19	0.02	9.51	19.04	28.57	54.24	-25.67	Average
4	0.19	0.02	9.51	36.01	45.54	64.24	-18.70	QP
5	0.25	0.01	9.51	14.39	23.91	51.82	-27.91	Average
6	0.25	0.01	9.51	30.89	40.41	61.82	-21.41	QP
7	0.31	0.01	9.51	16.25	25.77	50.06	-24.29	Average
8	0.31	0.01	9.51	29.58	39.10	60.06	-20.96	QP
9	0.59	0.01	9.53	17.51	27.05	46.00	-18.95	Average
10	0.59	0.01	9.53	33.18	42.72	56.00	-13.28	QP
11	0.71	0.02	9.49	15.91	25.42	46.00	-20.58	Average
12	0.71	0.02	9.49	29.41	38.92	56.00	-17.08	QP
13	26.56	0.03	9.91	26.28	36.22	50.00	-13.78	Average
14	26.56	0.03	9.91	32.65	42.59	60.00	-17.41	QP

Mode:a; Line:Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 01161CR
Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.02	9.58	27.36	36.96	55.65	-18.69	Average
2	0.16	0.02	9.58	41.33	50.93	65.65	-14.72	QP
3	0.19	0.02	9.58	19.03	28.63	54.02	-25.39	Average
4	0.19	0.02	9.58	35.78	45.38	64.02	-18.64	QP
5	0.24	0.01	9.58	11.36	20.95	52.26	-31.31	Average
6	0.24	0.01	9.58	32.79	42.38	62.26	-19.88	QP
7	0.60	0.02	9.62	20.00	29.64	46.00	-16.36	Average
8	0.60	0.02	9.62	33.77	43.41	56.00	-12.59	QP
9	0.65	0.02	9.62	21.05	30.69	46.00	-15.31	Average
10	0.65	0.02	9.62	33.44	43.08	56.00	-12.92	QP
11	28.15	0.03	10.32	31.65	42.00	50.00	-8.00	Average
12	28.15	0.03	10.32	35.88	46.23	60.00	-13.77	QP

6.2 Radiated Emission

Test Requirement: Part 18.305

Test Method: FCC MP-5

Test Site: Measurement Distance: 10m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW
9kHz~150kHz	Quasi-peak	200Hz	≥RBW
150kHz~30MHz	Quasi-peak	9kHz	≥RBW
30MHz~1GHz	Quasi-peak	100kHz	≥RBW

Limit:

Frequency	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009-30MHz	23.52	Quasi-peak	300
30MHz-88MHz	40.0	Quasi-peak	3
88MHz-216MHz	43.5	Quasi-peak	3
216MHz-1000MHz	46.0	Quasi-peak	3

Remark:According to the article 18.305(b), The operating frequency is non-ISM frequency;the RF Power generated by equipment is below 500(watts); According to the clause 18.305(c), the EUT belongs to Consumer equipment.

6.2.1 E.U.T. Operation

Operating Environment:

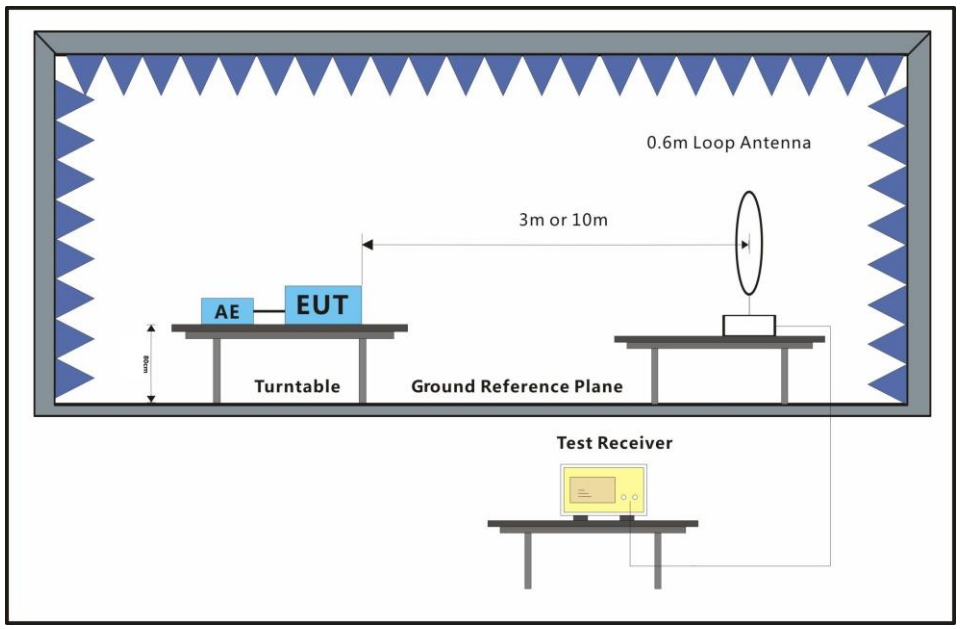
Temperature: 19.6 °C Humidity: 52.4 % RH Atmospheric Pressure: 1015 mbar

Test mode a:Powered by adaptor_ Normal Working_ Keep EUT working at normal working.

b:Powered by car charger_ Normal Working_ Keep EUT working at normal working.

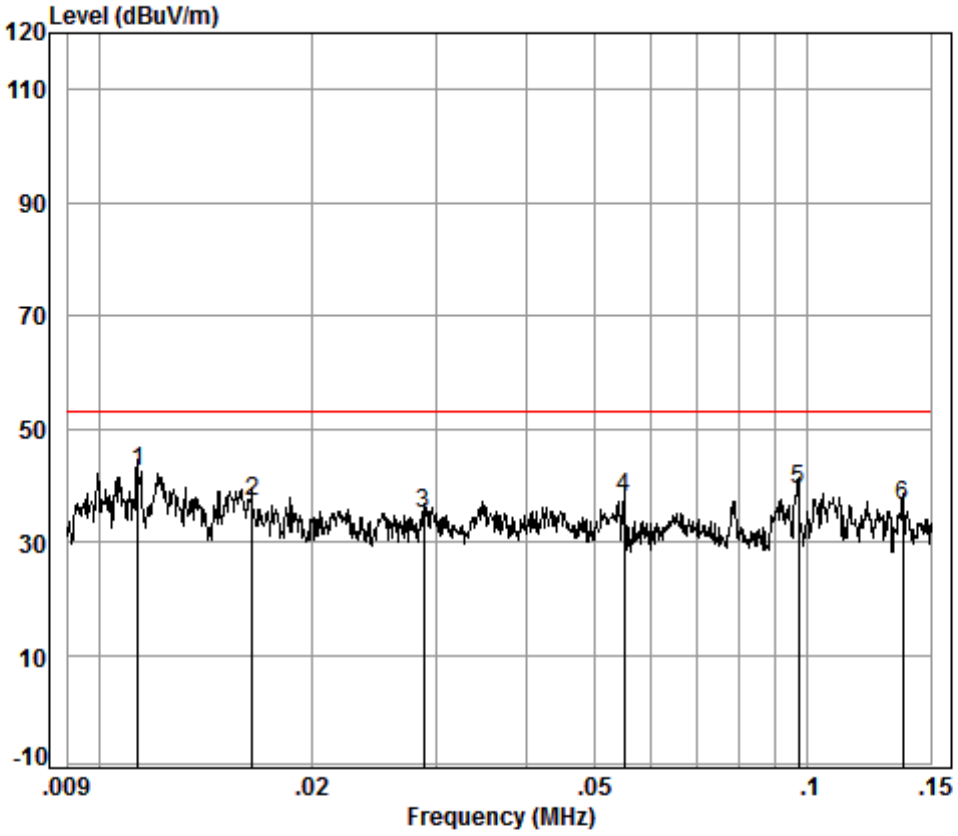
Test were conducted in three load modes(low, medium and high load mode) and only the worst case is submitted.

6.2.2 Test Setup Diagram



6.2.3 Measurement Procedure and Data

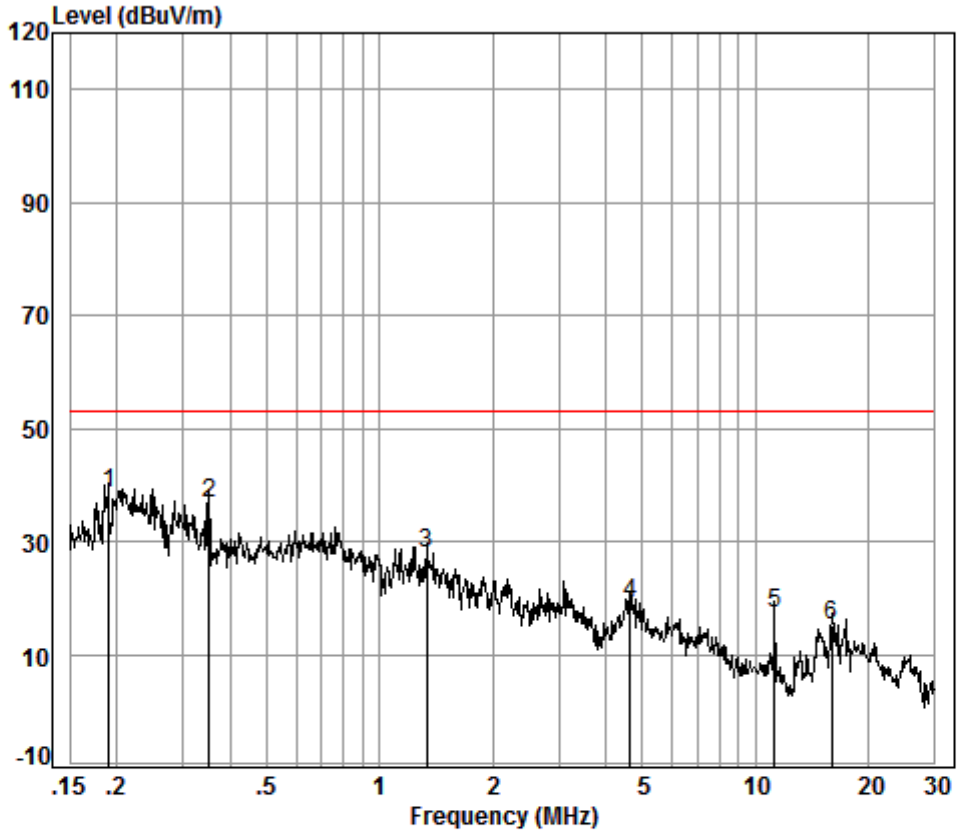
Mode a1:



Condition: 10m
Job No. : 01161CR
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	0.01	0.28	18.52	32.48	56.14	42.46	53.06	-10.60
2	0.02	0.24	16.22	32.49	53.25	37.22	53.06	-15.84
3	0.03	0.18	13.97	32.50	53.23	34.88	53.06	-18.18
4	0.06	0.11	12.33	32.51	57.94	37.87	53.06	-15.19
5	0.10	0.05	12.01	32.52	59.72	39.26	53.06	-13.80
6	0.14	0.06	11.77	32.50	57.19	36.52	53.06	-16.54

Mode a2:



Condition: 10m
Job No. : 01161CR
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	0.19	0.07	11.84	32.51	58.97	38.37	53.06	-14.69
2	0.35	0.10	11.85	32.51	57.34	36.78	53.06	-16.28
3	1.33	0.28	12.04	32.45	47.89	27.76	53.06	-25.30
4	4.65	0.42	11.97	32.48	39.31	19.22	53.06	-33.84
5	11.26	0.52	10.61	32.50	38.67	17.30	53.06	-35.76
6	15.89	0.61	10.22	32.51	36.78	15.10	53.06	-37.96

Remark:

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

2: According to the clause 2.3 of MP-5:1986, the hightest frequency is 205kHz, So the Range of frequency measurements is 9kHz to 30MHz.

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:

L_{300}: Level @ 300m distance. Unit: uV/m;

L_{10}: Level @ 10m distance. Unit: uV/m;

D_{300}: 300m distance. Unit: m

D_{10}: 10m distance. Unit: m

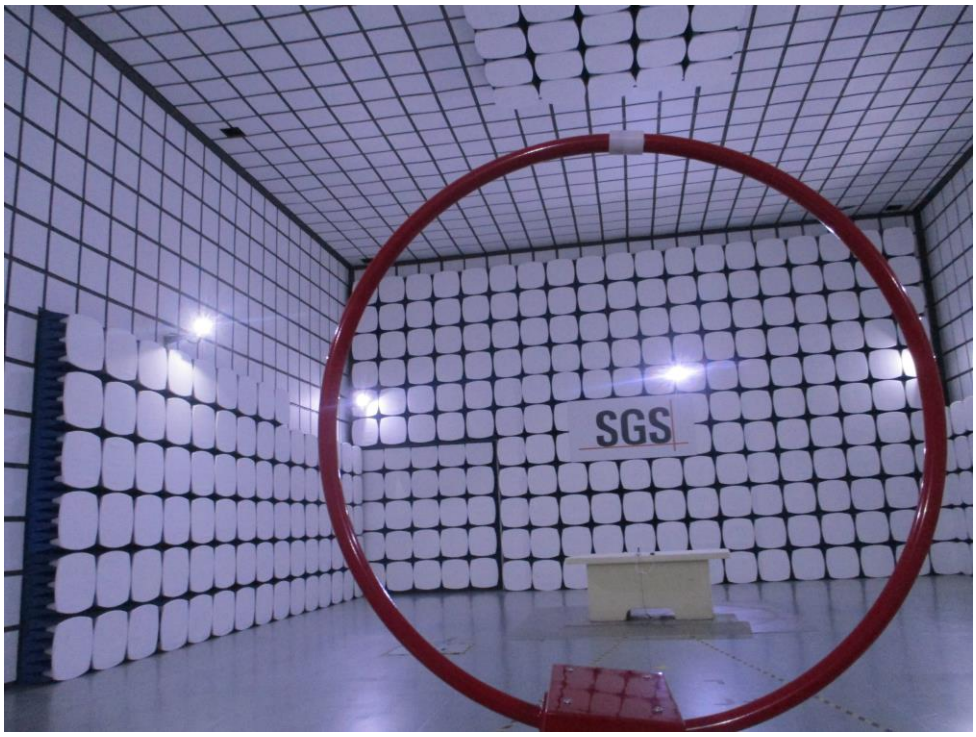
The level at 300m test distance is below:

Frequency (MHz)	Level @ 10m (dBuV/m)	Level @ 10m (uV/m)	Level @ 300m (uV/m)	Level @ 300m (dBuV/m)	Limit @ 300m (dBuV/m)	Margin (dB)
0.01	30.11	32.03	1.07	0.57	23.52	-22.95
0.02	35.13	57.08	1.90	5.59	23.52	-17.93
0.03	33.62	47.97	1.60	4.08	23.52	-19.44
0.08	38.51	84.24	2.81	8.97	23.52	-14.55
0.10	36.66	68.08	2.27	7.12	23.52	-16.40
0.14	36.63	67.84	2.26	7.09	23.52	-16.43
0.17	26.29	20.63	0.69	-3.25	23.52	-26.77
0.33	34.69	54.26	1.81	5.15	23.52	-18.37
0.59	21.62	12.05	0.40	-7.92	23.52	-31.44
1.43	25.19	18.18	0.61	-4.35	23.52	-27.87
3.22	27.99	25.09	0.84	-1.55	23.52	-25.07
23.76	20.67	10.80	0.36	-8.87	23.52	-32.39

7 Photographs

7.1 Conducted disturbance Test Setup

7.2 Radiated emission Test Setup



7.3 EUT Constructional Details (EUT Photos)

Refer to EUT external and internal photos.

- End of the Report -