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

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

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TEST REPORT

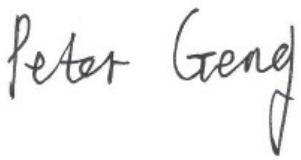
Application No.:	SZEM1711011583CR
Applicant:	SHENZHEN DNS INDUSTRIES CO., LTD.
Address of Applicant:	23/F Building A, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian, Shenzhen, China 518026
Manufacturer:	SHENZHEN DNS INDUSTRIES CO., LTD.
Address of Manufacturer:	23/F Building A, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian, Shenzhen, China 518026
Factory:	HUIZHOU D&S CABLE CO., LTD.
Address of Factory:	LONGJIN DONGJIANG INDUSTRY ZONE, SHUIKOU, HUICHENG, HUIZHOU, GUANGDONG, CHINA
Equipment Under Test (EUT):	
EUT Name:	WIRELESS CHARGER, Wireless charging pad
Model No.:	AC52100N, AC51100N, AWJ-PD1 WH, AWJ-PDBK, 4379187, 4378776, 05061♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark:	Please refer to section 2
FCC ID:	ZBCAC511001N
Standard(s) :	47 CFR Part 18
Date of Receipt:	2017-11-16
Date of Test:	2017-11-20 to 2017-11-27
Date of Issue:	2017-11-30
Test Result:	**Pass***

* 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.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2017-11-30		Original

Authorized for issue by:				
				
		Peter Geng /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 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

N/A: Not applicable

Remark:

Model No.: AC52100N, AC51100N, AWJ-PD1 WH, AWJ-PDBK, 4379187, 4378776, 05061

Only the model AC52100N was tested fully, and the model AC51100N was performed the Radiated Disturbance for discrepancy, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above models, with only difference being model number, appearance.

Details see below:

Trade mark	Model number	Description
DNS, Omars, LBT, IHOME Owltech, nexxtech, iHope ATIVA® Leplus, VIBE, AmazonBasics	AC52100N	 rectangles appearance
	AC51100N	 Square appearance
Air-J	AWJ-PD1 WH	rectangles appearance
Air-J	AWJ-PD1 BK	rectangles appearance
VIBE	4379187	rectangles appearance
VIBE	4378776	rectangles appearance
ROSS	05061	rectangles appearance

3 Contents

4 General Information

4.1 Details of E.U.T.

Rated input:	DC 5V,2A
Rated output:	DC 5V,1A
Operation frequency:	113-183kHz
Modulation type:	Load modulation

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
mobile phone	Samsung	Galaxy S6 Edge+	N/A
Micro USB Cable	PHILIPS	SWR2101	REF. No.SEA0700
Adapter	Apple	A1357 W010A051	REF. No.:SEA0500

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Spurious emissions	0.75dB
2	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
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	2018-05-09
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

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2017-07-13	2018-07-12
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2017-09-27	2018-09-26
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-13

RE in Chamber						
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	SEM001-03	2017-05-10	2018-05-09
2	EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2017-04-14	2018-04-13
3	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-28
4	Pre-amplifier (9kHz-1GHz)	Sonoma Instrument Co	310N	SEM005-04	2017-06-05	2018-06-04
5	Loop Antenna (9kHz-30MHz)	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
6	Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
7	Coaxial Cable	SGS	N/A	SEM029-01	2017-07-13	2018-07-12

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 Emission Test Results

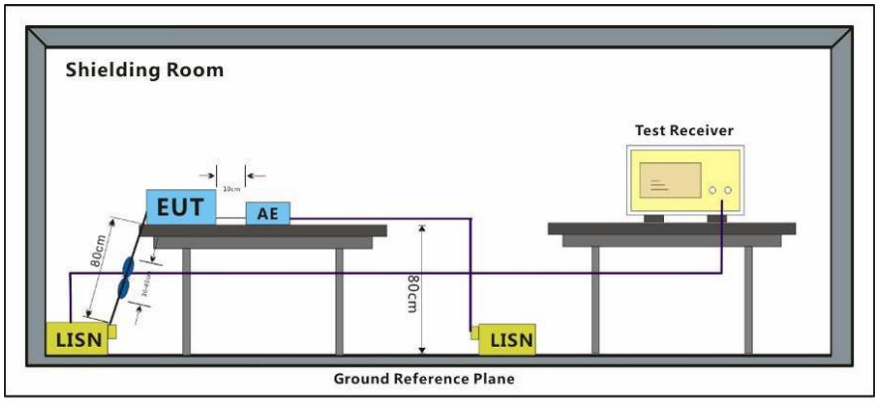
6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Frequency Range: 150kHz to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1005 mbar
Test mode a:Normal Working_Blank

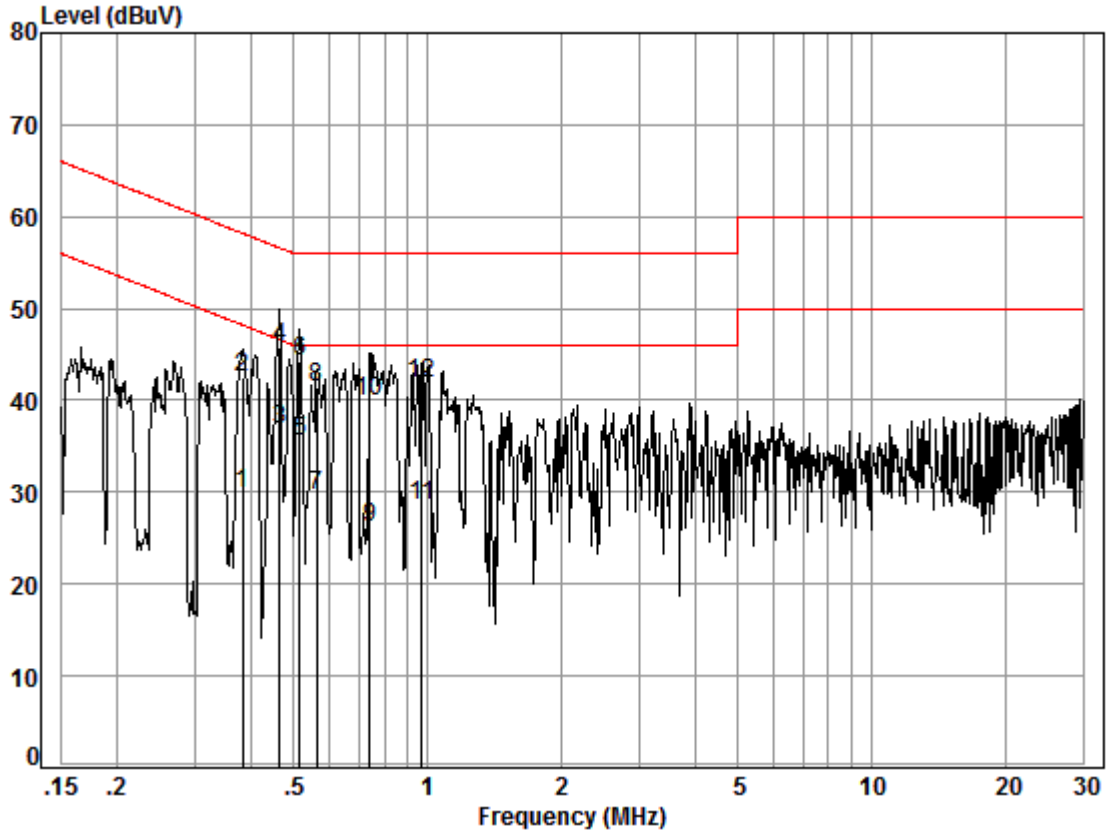
6.1.2 Test Setup Diagram



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.

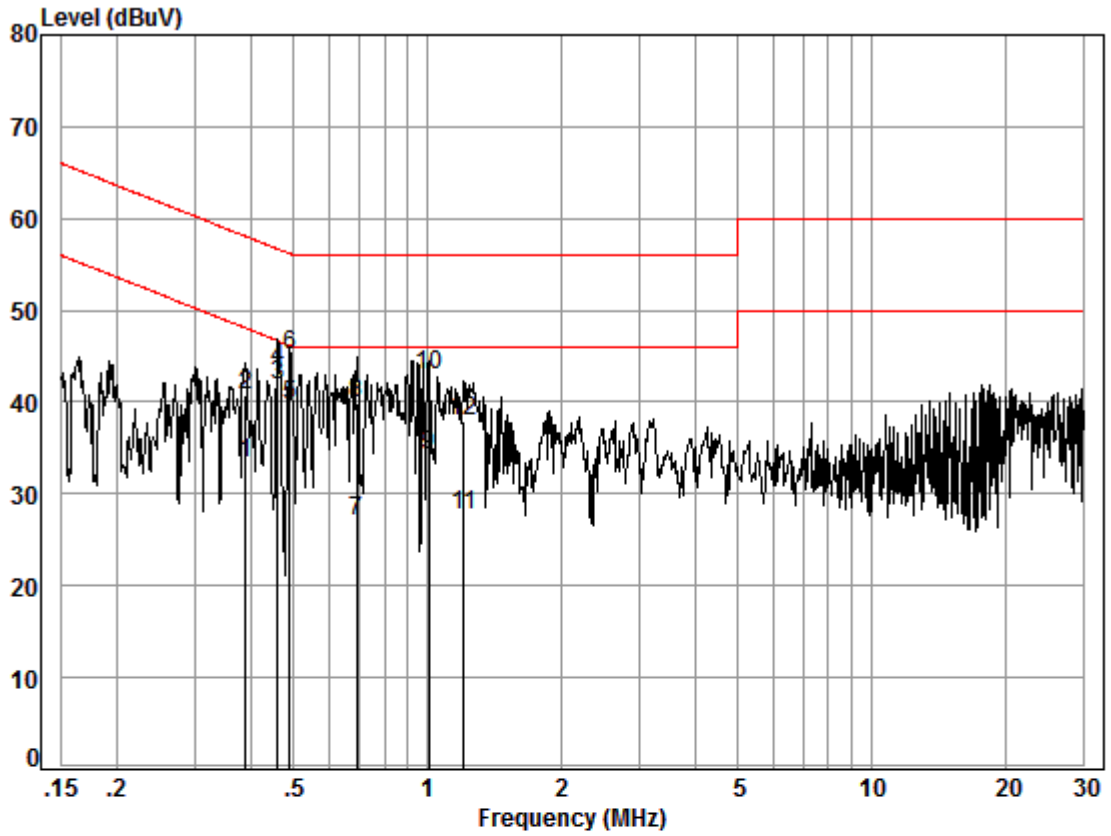
Mode:a; Line:Live Line



Site : Shielding Room
Condition: Line
Job No. : 11583CR
Test mode: a S6

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.38	0.01	9.49	20.26	29.76	48.21	-18.45	Average
2	0.38	0.01	9.49	33.03	42.53	58.21	-15.68	QP
3	0.47	0.01	9.49	27.36	36.86	46.58	-9.72	Average
4	0.47	0.01	9.49	36.35	45.85	56.58	-10.73	QP
5	0.52	0.01	9.50	25.99	35.50	46.00	-10.50	Average
6	0.52	0.01	9.50	34.82	44.33	56.00	-11.67	QP
7	0.56	0.01	9.52	20.16	29.69	46.00	-16.31	Average
8	0.56	0.01	9.52	31.94	41.47	56.00	-14.53	QP
9	0.74	0.02	9.49	16.58	26.09	46.00	-19.91	Average
10	0.74	0.02	9.49	30.41	39.92	56.00	-16.08	QP
11	0.97	0.02	9.50	18.93	28.45	46.00	-17.55	Average
12	0.97	0.02	9.50	32.32	41.84	56.00	-14.16	QP

Mode:a; Line:Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 11583CR
Test mode: a S6

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.39	0.01	9.59	23.65	33.25	48.08	-14.83	Average
2	0.39	0.01	9.59	31.07	40.67	58.08	-17.41	QP
3	0.46	0.01	9.60	32.26	41.87	46.67	-4.80	Average
4	0.46	0.01	9.60	33.88	43.49	56.67	-13.18	QP
5	0.49	0.01	9.60	30.11	39.72	46.19	-6.47	Average
6	0.49	0.01	9.60	35.52	45.13	56.19	-11.06	QP
7	0.69	0.02	9.62	17.40	27.04	46.00	-18.96	Average
8	0.69	0.02	9.62	30.19	39.83	56.00	-16.17	QP
9	1.00	0.02	9.63	24.64	34.29	46.00	-11.71	Average
10	1.00	0.02	9.63	33.40	43.05	56.00	-12.95	QP
11	1.21	0.02	9.64	18.05	27.71	46.00	-18.29	Average
12	1.21	0.02	9.64	28.28	37.94	56.00	-18.06	QP

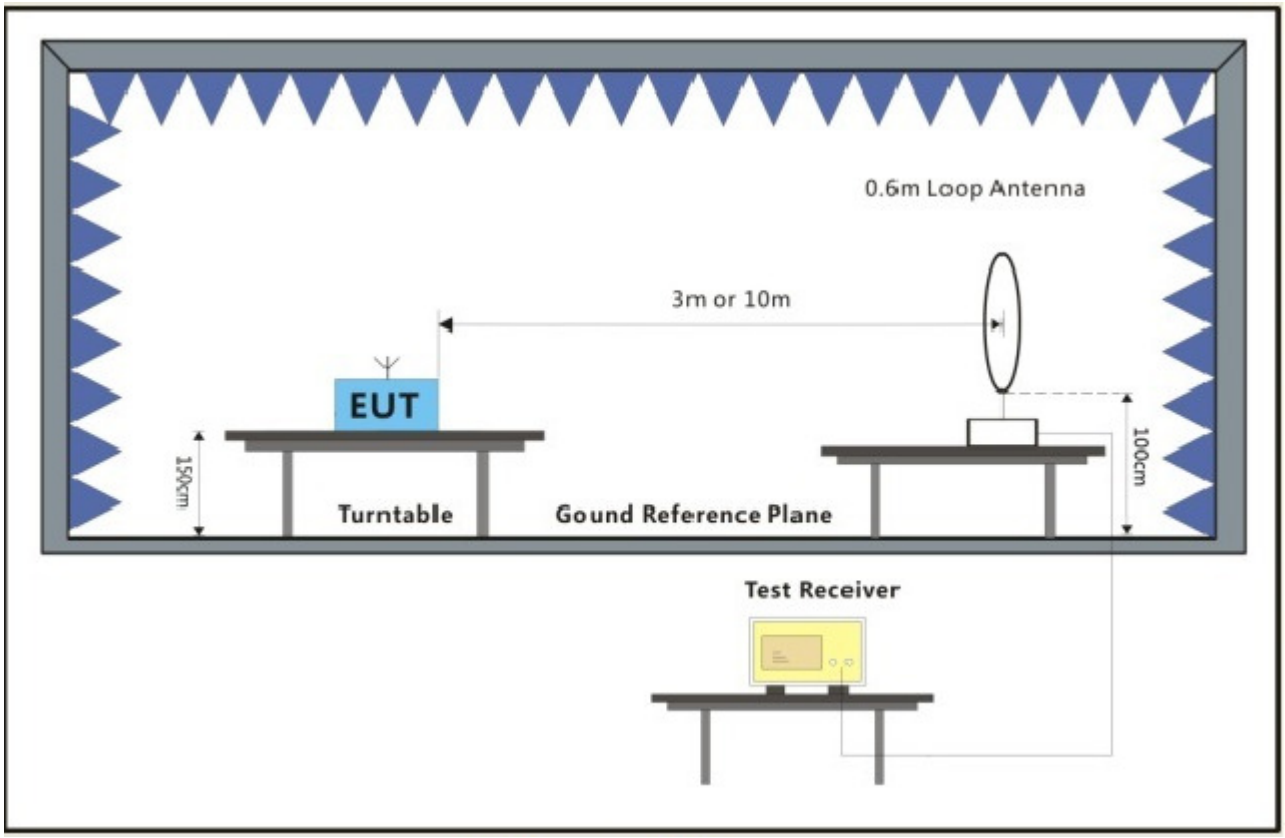
6.2 Radiated Emissions (9kHz-30MHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Frequency Range: 9kHz-30MHz
Measurement Distance: 10m

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar
Test mode a:Normal Working_Blank

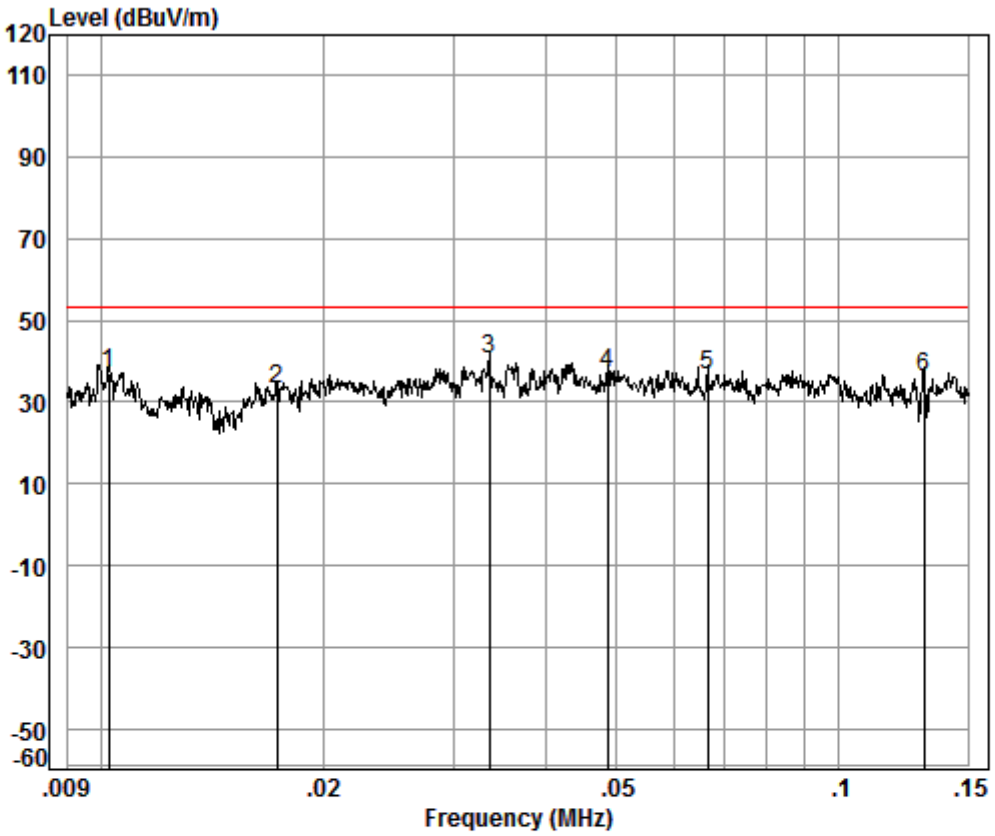
6.2.2 Test Setup Diagram



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.

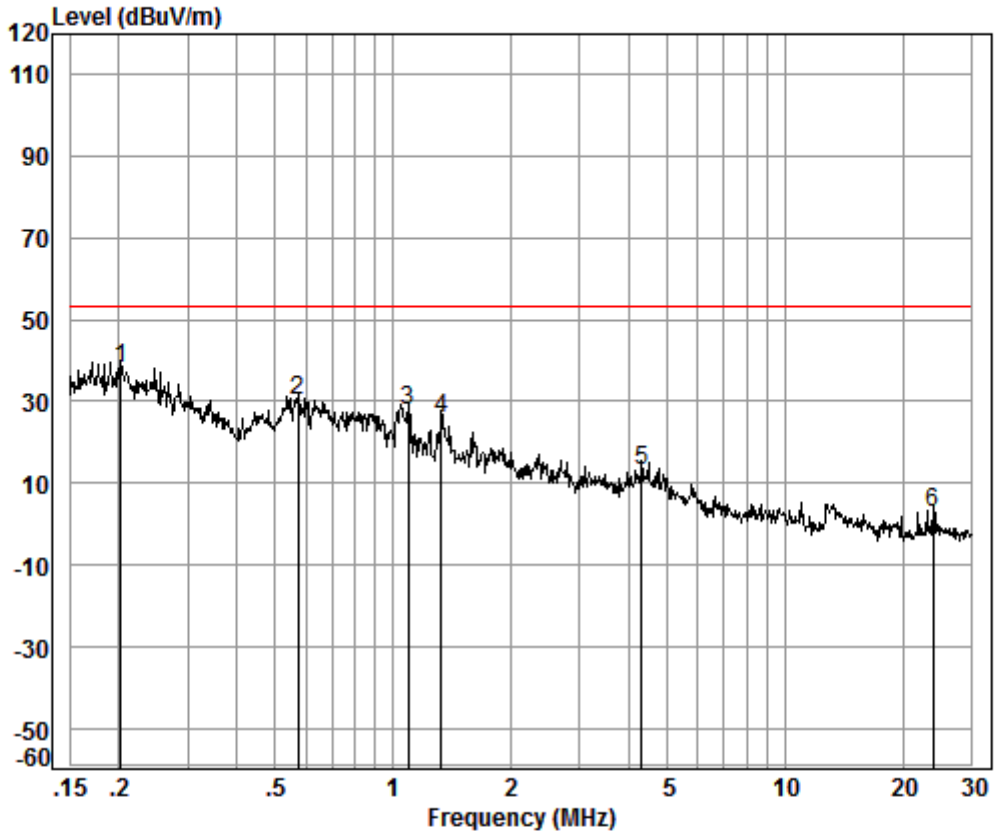
Model: AC51100N
Mode:a; Line:Live Line



Condition: 10m
Job No. : 11583CR
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	0.29	19.15	32.48	50.35	37.31	53.06	-15.75
2	0.02	0.23	15.89	32.49	49.39	33.02	53.06	-20.04
3 pp	0.03	0.16	13.53	32.50	59.24	40.43	53.06	-12.63
4	0.05	0.12	12.48	32.51	56.94	37.03	53.06	-16.03
5	0.07	0.09	12.19	32.51	57.09	36.86	53.06	-16.20
6	0.13	0.06	11.80	32.51	56.99	36.34	53.06	-16.72

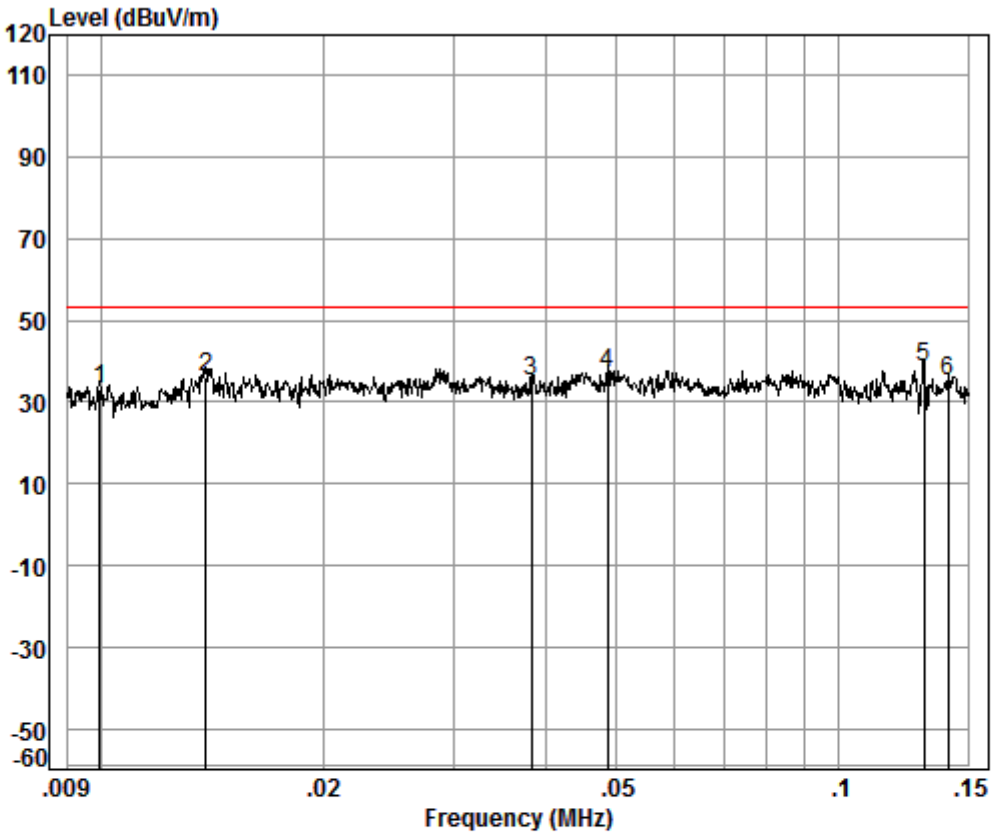
Mode:a; Line:Neutral Line



Condition: 10m
Job No. : 11583CR
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	0.20	0.08	11.87	32.51	58.45	37.89	53.06	-15.17
2	0.57	0.13	11.80	32.48	50.98	30.43	53.06	-22.63
3	1.09	0.24	12.01	32.45	47.79	27.59	53.06	-25.47
4	1.33	0.28	12.04	32.45	45.89	25.76	53.06	-27.30
5	4.31	0.41	12.03	32.48	33.34	13.30	53.06	-39.76
6	23.89	0.72	8.94	32.53	25.69	2.82	53.06	-50.24

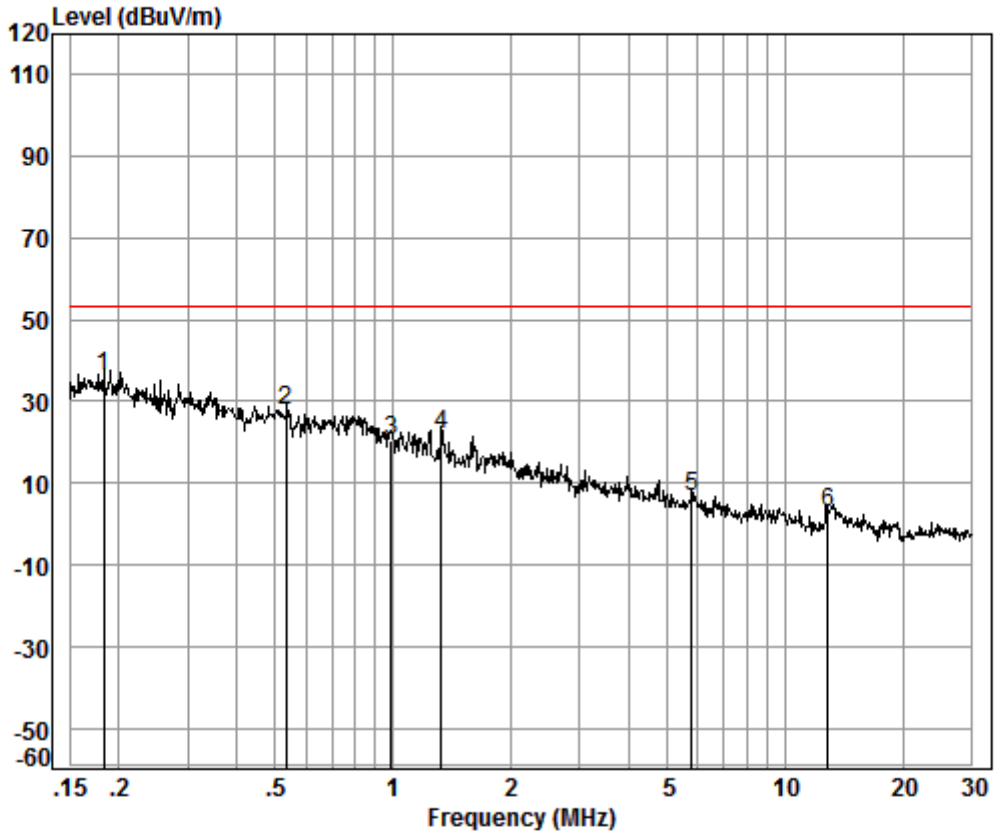
Model: AC52100N
Mode:a; Line:Live Line



Condition: 10m
Job No. : 11583CR
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	0.29	19.33	32.46	45.82	32.98	53.06	-20.08
2	0.01	0.26	17.27	32.49	51.33	36.37	53.06	-16.69
3	0.04	0.15	13.15	32.50	54.47	35.27	53.06	-17.79
4	0.05	0.12	12.48	32.51	56.94	37.03	53.06	-16.03
5 pp	0.13	0.06	11.80	32.51	58.99	38.34	53.06	-14.72
6	0.14	0.06	11.75	32.50	55.80	35.11	53.06	-17.95

Mode:a; Line:Neutral Line



Condition: 10m
Job No. : 11583CR
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	0.18	0.07	11.82	32.51	56.81	36.19	53.06	-16.87
2	0.53	0.12	11.75	32.49	48.34	27.72	53.06	-25.34
3	0.99	0.23	12.00	32.45	40.87	20.65	53.06	-32.41
4	1.33	0.28	12.04	32.45	41.89	21.76	53.06	-31.30
5	5.80	0.44	11.64	32.48	26.90	6.50	53.06	-46.56
6	12.92	0.56	10.51	32.50	24.17	2.74	53.06	-50.32

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:

Model: AC51100N

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	37.31	73.37	2.45	7.77	23.52	-15.75
0.02	33.02	44.77	1.49	3.48	23.52	-20.04
0.03	40.43	105.08	3.50	10.89	23.52	-12.63
0.05	37.03	71.04	2.37	7.49	23.52	-16.03
0.07	36.86	69.66	2.32	7.32	23.52	-16.20
0.13	36.34	65.61	2.19	6.80	23.52	-16.72
0.20	37.89	78.43	2.61	8.35	23.52	-15.17
0.57	30.43	33.23	1.11	0.89	23.52	-22.63
1.09	27.59	23.96	0.80	-1.95	23.52	-25.47
1.33	25.76	19.41	0.65	-3.78	23.52	-27.30
4.31	13.30	4.62	0.15	-16.24	23.52	-39.76
23.89	2.82	1.38	0.05	-26.72	23.52	-50.24

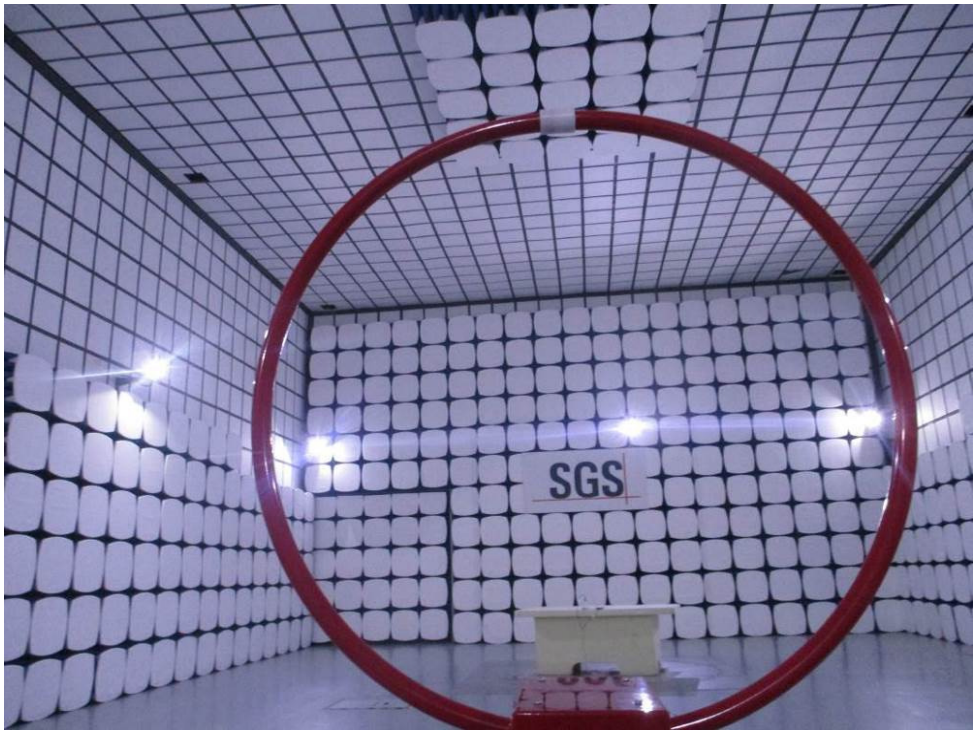
Model: AC52100N

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	32.98	44.57	1.49	3.44	23.52	-20.08
0.01	36.37	65.84	2.19	6.83	23.52	-16.69
0.04	35.27	58.01	1.93	5.73	23.52	-17.79
0.05	37.03	71.04	2.37	7.49	23.52	-16.03
0.13	38.34	82.60	2.75	8.80	23.52	-14.72
0.14	35.11	56.95	1.90	5.57	23.52	-17.95
0.18	36.19	64.49	2.15	6.65	23.52	-16.87
0.53	27.72	24.32	0.81	-1.82	23.52	-25.34
0.99	20.65	10.78	0.36	-8.89	23.52	-32.41
1.33	21.76	12.25	0.41	-7.78	23.52	-31.30
5.80	6.50	2.11	0.07	-23.04	23.52	-46.56
12.92	2.74	1.37	0.05	-26.80	23.52	-50.32

7 Photographs

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

7.2 Radiated Emissions (9kHz-30MHz)



- End of the Report -