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Report No.: SZEM171001074501
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TEST REPORT

Application No.: SZEM1710010745CR
Applicant: SHENZHEN DNS INDUSTRIES CO., LTD.
Address of Applicant: 23/F Building A, Shenzhen International Innovation Center, No.1006
Shennan Road, Futian, Shenzhen, 518026 China
Manufacturer: SHENZHEN DNS INDUSTRIES CO., LTD.
Address of Manufacturer: 23/F Building A, Shenzhen International Innovation Center, No.1006
Shennan Road, Futian, Shenzhen, 518026 China
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 with quick charger
Model No.: WC15BK, AC51800, AC52800, S75WC18, OMWLAC52BK, 3S-1047♣
♣ 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: ZBCAC51WC15BK

Standard(s) : 47 CFR Part 18

Date of Receipt: 2017-10-19

Date of Test: 2017-11-03 to 2017-11-10

Date of Issue: 2017-11-17

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



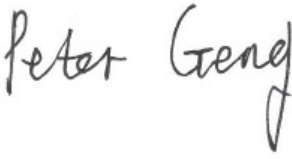

Jack Zhang
EMC Laboratory Manager

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.

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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2017-11-17		Original

Authorized for issue by:				
				
		<hr/>		
		Peter Geng /Project Engineer		
				
		<hr/>		
		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.: WC15BK, AC51800, AC52800, S75WC18, OMWLAC52BK, 3S-1047

Only the model WC15BK was fully tested, and the model AC52800 was performed the Radiated Disturbance for discrepancy, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on model number, appearance.

Details see below:

Trade mark	Model number	Description
DNS, LBT, iHope, Owltech, nexxtech, ATIVA® iHope Leplus, VIBE, AmazonBasics Tzumi, Xindao	WC15BK	 Square appearance
	AC51800	
	AC52800	 rectangles appearance
DNS	S75WC18	rectangles appearance
omars	OMWLAC52BK	rectangles appearance
3SIXT	3S-1047	Square appearance



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4 General Information

4.1 Details of E.U.T.

Power supply:	Input: DC 5V/3A, DC 9V/2A, DC 12V/2A Output: DC 5V/2A, DC 9V/1.1A, DC 12V/1.25A
Operation Frequency:	119-167kHz
Antenna Type	Loop antenna
Modulation type:	Load modulation

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Micro USB Cable	PHILIPS	SWR2101	REF. No.SEA0700
AC charger	provided by client	AC25N20E	
E-Charging	provided by client	DC 9V/1.1A, DC 5V/2A	
Samsung phone	provided by SGS	Galaxy S6 Edge+	

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction emission	3.45dB (9kHz to 150kHz)
		3.0dB (150kHz to 30MHz)
2	Radiated emission	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-6GHz)
3	Temperature test	1 °C
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
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-09
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	2017-04-14	2018-04-13
Trilog-Broadband Antenna(30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-28
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	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

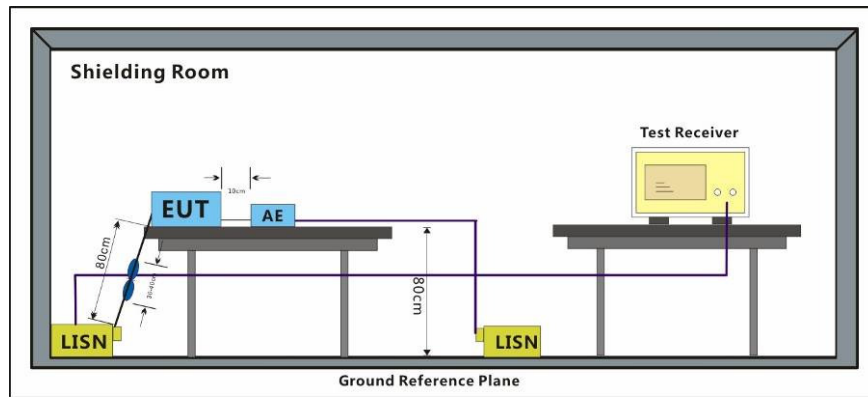
Operating Environment:

Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Normal Working_Blank

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

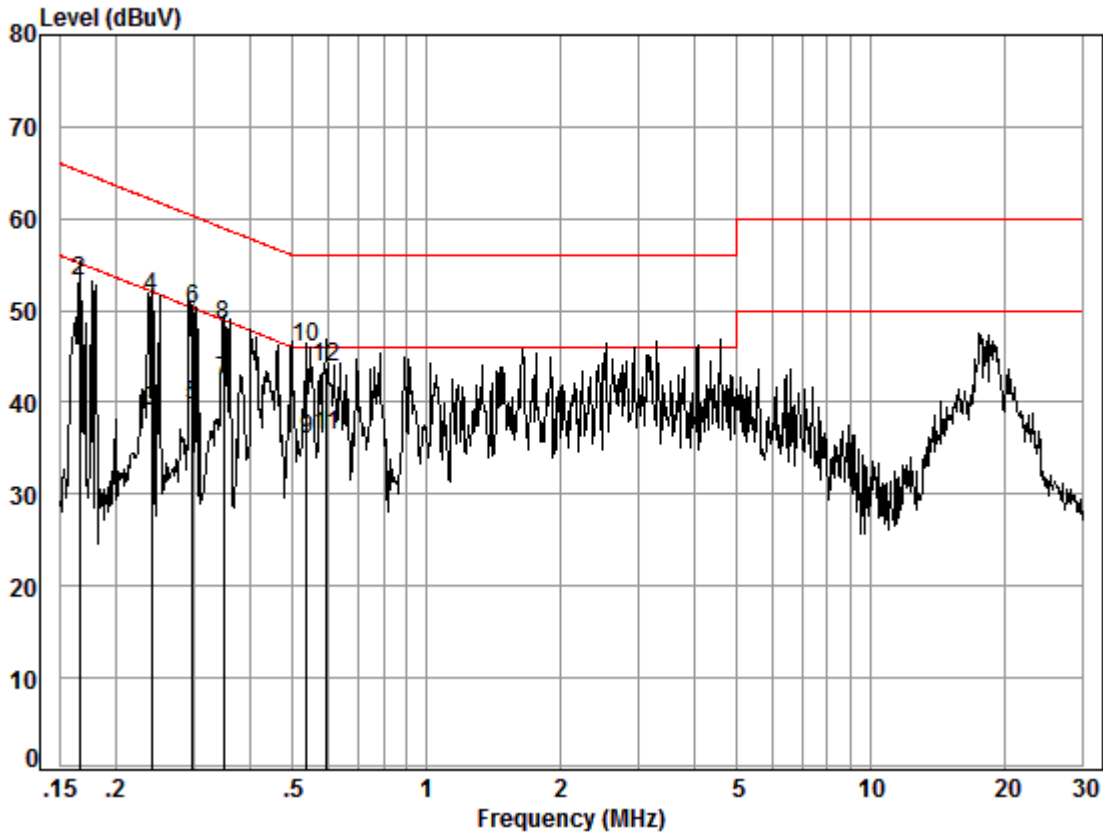
6.1.2 Test Setup Diagram



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.

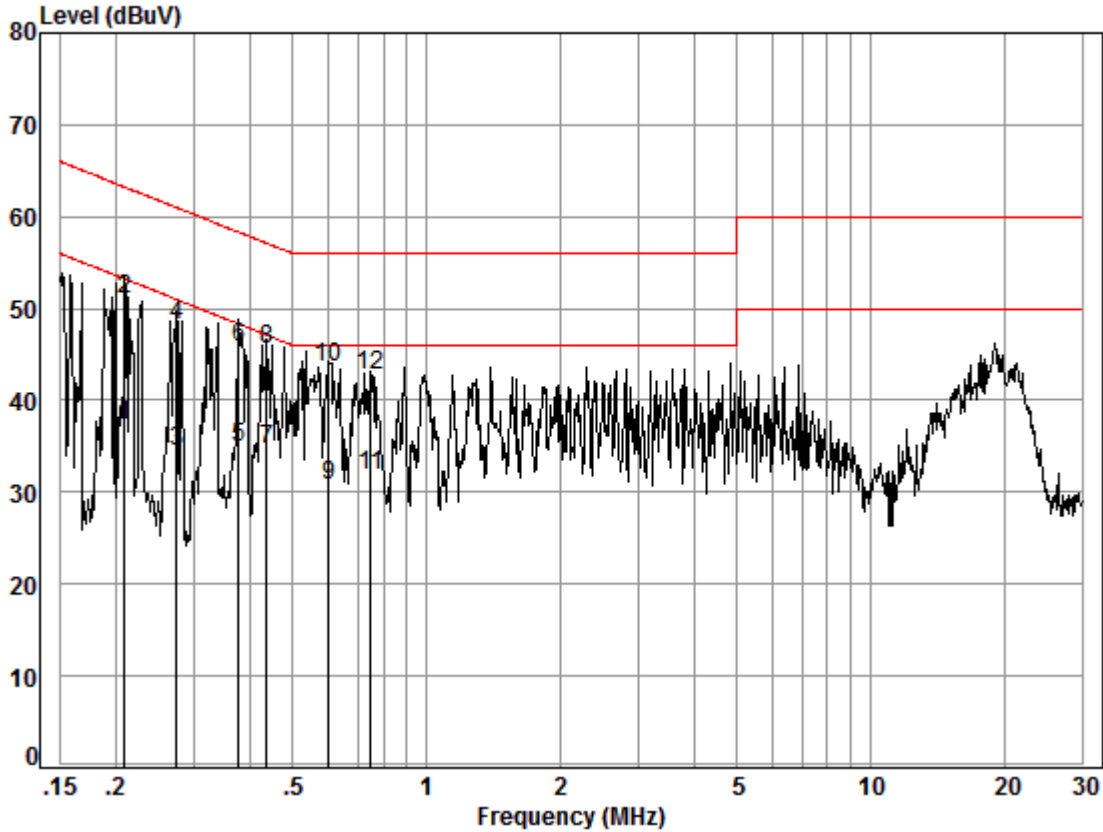
Mode:a; Line:Live Line(DC 9V, 1.1A)



Site : Shielding Room
Condition: Line
Job No. : 10745CR
Test mode: a load

	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	9.52	36.67	46.21	55.16	-8.95	Average
2	0.17	0.02	9.52	43.65	53.19	65.16	-11.97	QP
3	0.24	0.01	9.51	29.55	39.07	52.08	-13.01	Average
4	0.24	0.01	9.51	41.90	51.42	62.08	-10.66	QP
5	0.30	0.01	9.51	30.10	39.62	50.32	-10.70	Average
6	0.30	0.01	9.51	40.71	50.23	60.32	-10.09	QP
7	0.35	0.01	9.50	32.72	42.23	48.96	-6.73	Average
8	0.35	0.01	9.50	38.83	48.34	58.96	-10.62	QP
9	0.54	0.01	9.51	26.45	35.97	46.00	-10.03	Average
10	0.54	0.01	9.51	36.40	45.92	56.00	-10.08	QP
11	0.60	0.02	9.53	26.80	36.35	46.00	-9.65	Average
12	0.60	0.02	9.53	34.19	43.74	56.00	-12.26	QP

Mode:a; Line:Neutral Line(DC 9V, 1.1A)



Site : Shielding Room
Condition: Neutral
Job No. : 10745CR
Test mode: a load

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.21	0.02	9.57	27.60	37.19	53.23	-16.04	Average
2	0.21	0.02	9.57	41.48	51.07	63.23	-12.16	QP
3	0.27	0.01	9.58	24.95	34.54	50.98	-16.44	Average
4	0.27	0.01	9.58	38.61	48.20	60.98	-12.78	QP
5	0.38	0.01	9.59	25.35	34.95	48.34	-13.39	Average
6	0.38	0.01	9.59	36.21	45.81	58.34	-12.53	QP
7	0.44	0.01	9.59	25.01	34.61	47.11	-12.50	Average
8	0.44	0.01	9.59	35.99	45.59	57.11	-11.52	QP
9	0.60	0.02	9.62	21.19	30.83	46.00	-15.17	Average
10	0.60	0.02	9.62	34.04	43.68	56.00	-12.32	QP
11	0.75	0.02	9.61	22.18	31.81	46.00	-14.19	Average
12	0.75	0.02	9.61	33.13	42.76	56.00	-13.24	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

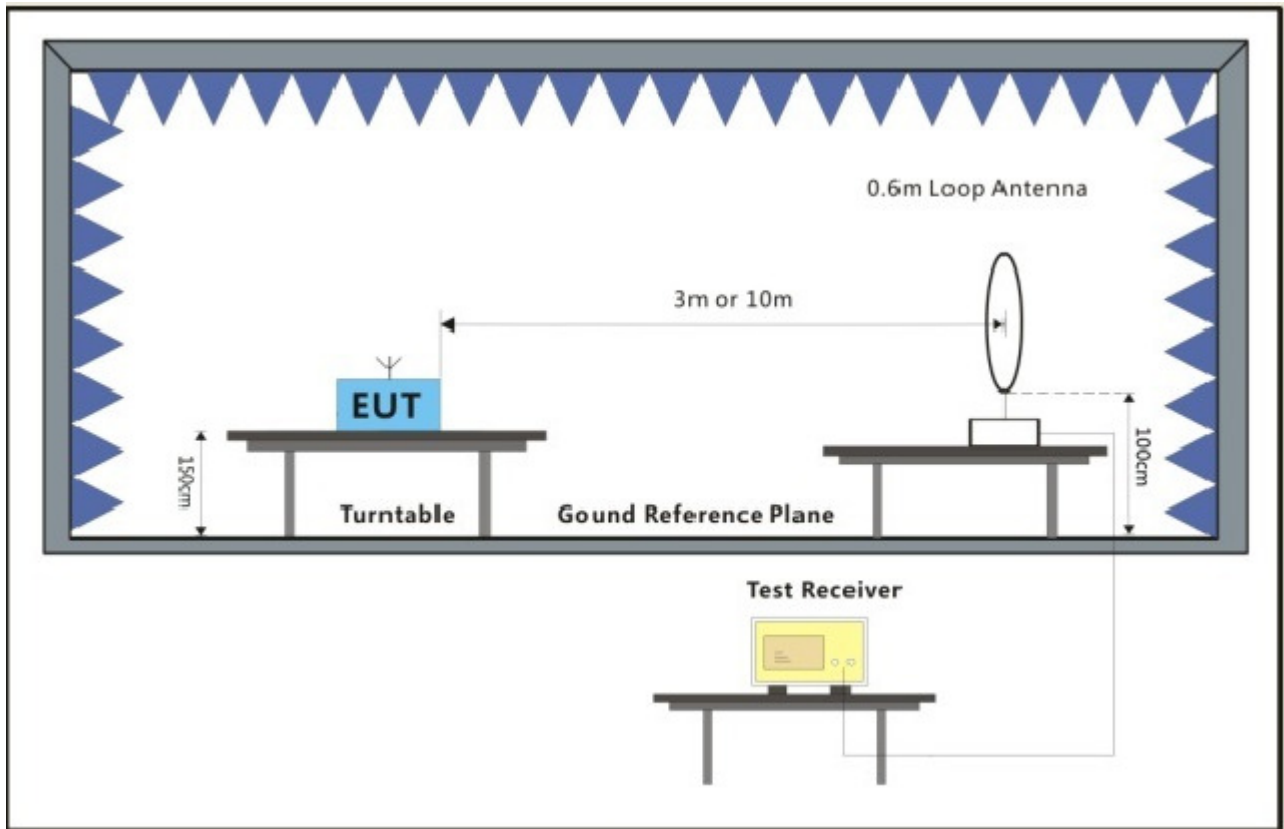
Operating Environment:

Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar

Test mode a:Normal Working_Blank

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

6.2.2 Test Setup Diagram

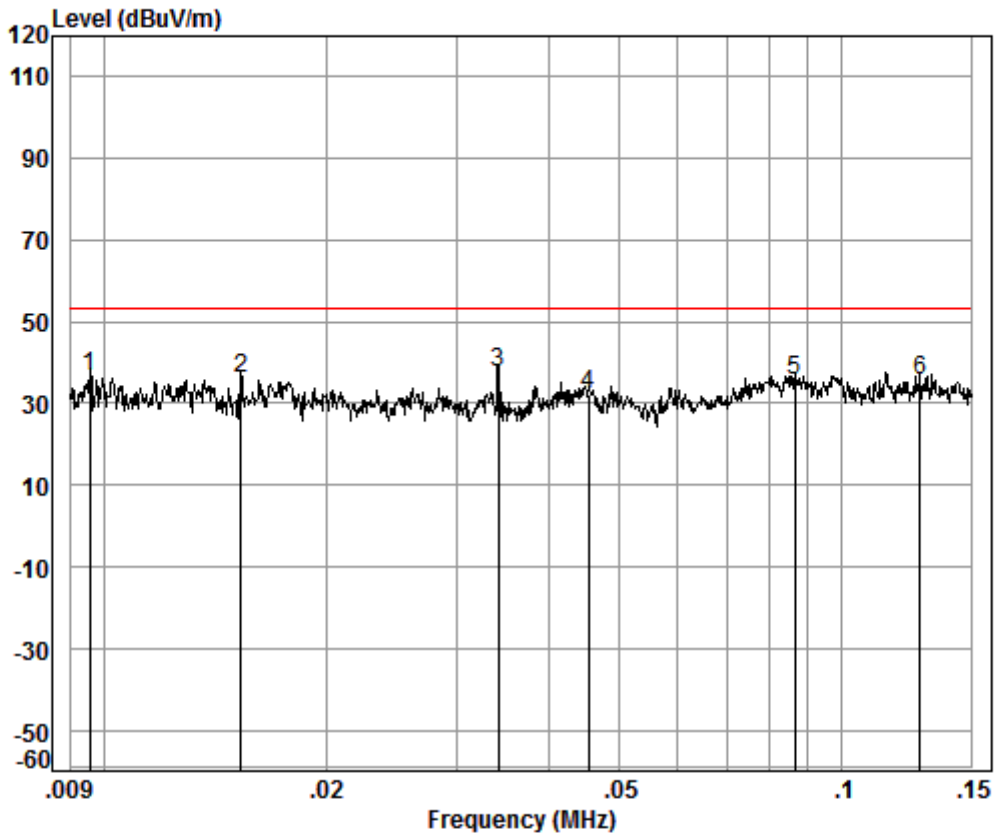


6.2.3 Measurement Data

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 a: (DC 9V, 1.1A)



Condition: 10m

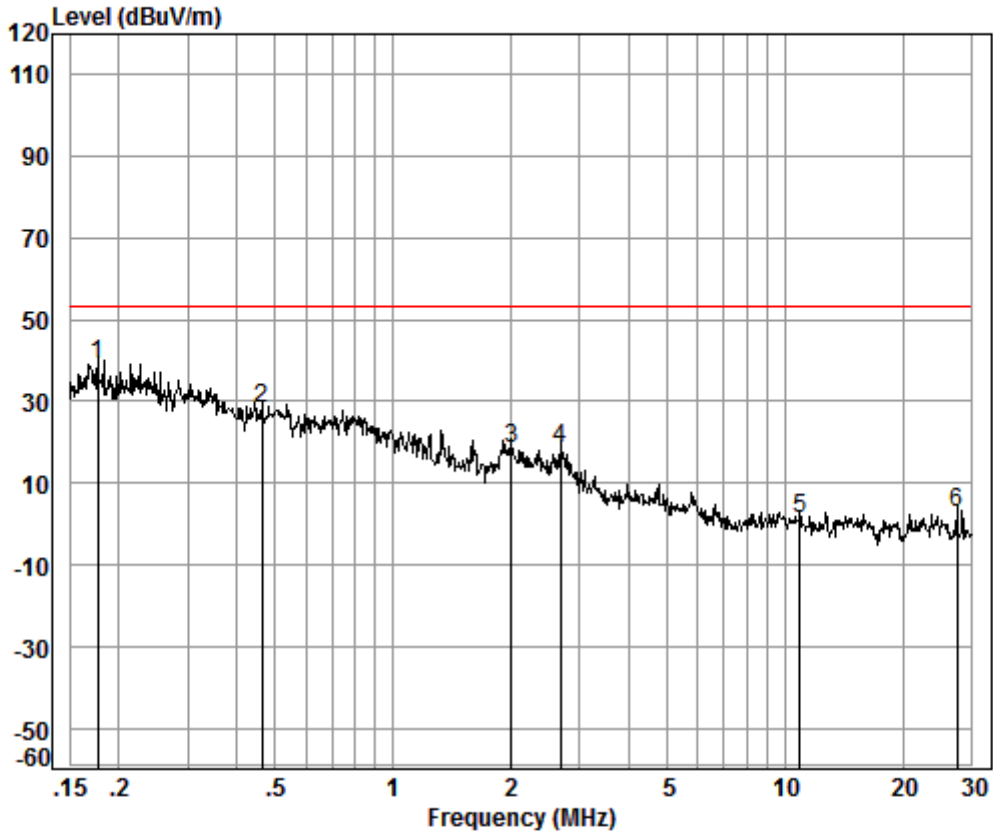
Job No. : 10745CR

Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.01	0.29	19.59	32.31	49.03	36.60	53.06	-16.46
2	0.02	0.24	16.65	32.49	51.54	35.94	53.06	-17.12
3 pp	0.03	0.16	13.47	32.50	56.43	37.56	53.06	-15.50
4	0.05	0.13	12.68	32.51	51.82	32.12	53.06	-20.94
5	0.09	0.07	12.05	32.52	55.90	35.50	53.06	-17.56
6	0.13	0.06	11.82	32.51	56.20	35.57	53.06	-17.49



Mode a: (DC 9V, 1.1A)



Condition: 10m

Job No. : 10745CR

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	11.79	32.50	59.62	38.98	53.06	-14.08
2	0.46	0.11	11.73	32.49	48.77	28.12	53.06	-24.94
3	2.00	0.34	12.10	32.46	38.73	18.71	53.06	-34.35
4	2.68	0.37	12.17	32.47	38.48	18.55	53.06	-34.51
5	10.90	0.51	10.64	32.49	22.42	1.08	53.06	-51.98
6	27.56	0.76	8.26	32.54	26.16	2.64	53.06	-50.42



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)
0.01	36.60	67.61	2.25	7.06	23.52	-16.46
0.02	35.94	62.66	2.09	6.40	23.52	-17.12
0.03	37.56	75.51	2.52	8.02	23.52	-15.50
0.05	32.12	40.36	1.35	2.58	23.52	-20.94
0.09	35.50	59.57	1.99	5.96	23.52	-17.56
0.13	35.57	60.05	2.00	6.03	23.52	-17.49
0.18	38.98	88.92	2.96	9.44	23.52	-14.08
0.46	28.12	25.47	0.85	-1.42	23.52	-24.94
2.00	18.71	8.62	0.29	-10.83	23.52	-34.35
2.68	18.55	8.46	0.28	-10.99	23.52	-34.51
10.90	1.08	1.13	0.04	-28.46	23.52	-51.98
27.56	2.64	1.36	0.05	-26.90	23.52	-50.42

7 Photographs

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



7.2 Radiated Emissions (9kHz-30MHz) Test Setup

