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.:	SZEM1809008176CR (GZEM1808005112CR)
Applicant:	Xiamen Paltier Electronic Technology Co., LTD
Address of Applicant:	Unit 01, 3rd floor, No.1726 Gangzhong Road, Xiamen Free Trade Zone, Xiamen, China
Manufacturer:	Xiamen Paltier Electronic Technology Co., LTD
Address of Manufacturer:	Unit 01, 3rd floor, No.1726 Gangzhong Road, Xiamen Free Trade Zone, Xiamen, China
Factory:	Xiamen Paltier Electronic Technology Co., LTD
Address of Factory:	4th floor, building 1st, ZhenNan Seven Road, XinMin Town, Tong'An district, Xiamen China
Equipment Under Test (EUT):	
EUT Name:	Desktop Smart Cup
Model No.:	PT-502
Trade mark:	paltier
FCC ID:	2AQ87PT-502
Standard(s) :	47 CFR Part 18
Date of Receipt:	2018-09-06
Date of Test:	2018-09-06 to 2018-09-11
Date of Issue:	2018-09-12
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		2018-09-12		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
Radiated Emissions (30MHz-1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V from adapter input AC 120V/60Hz Adapter Model: R481-1204000CG Input: 100-240V~50/60Hz 1.5A Output: DC 12V 4000mA for WPC Input: DC 9V/1.67A Output: 10W(DC 9V/1.1A)
Cable:	DC cable: 150cm unshielded
Operation frequency:	119.8-149.0kHz
Antenna type:	Inductive Loop Coil Antenna
Modulation type:	Load modulation

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Mobile Phone	SAMSUNG	SM-G9500	R28J9140LPB

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 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℃
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	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

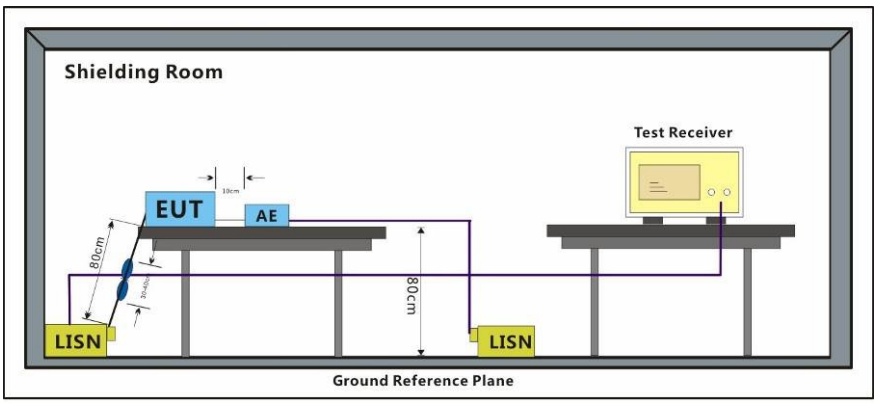
Test Requirement 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Limit:

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

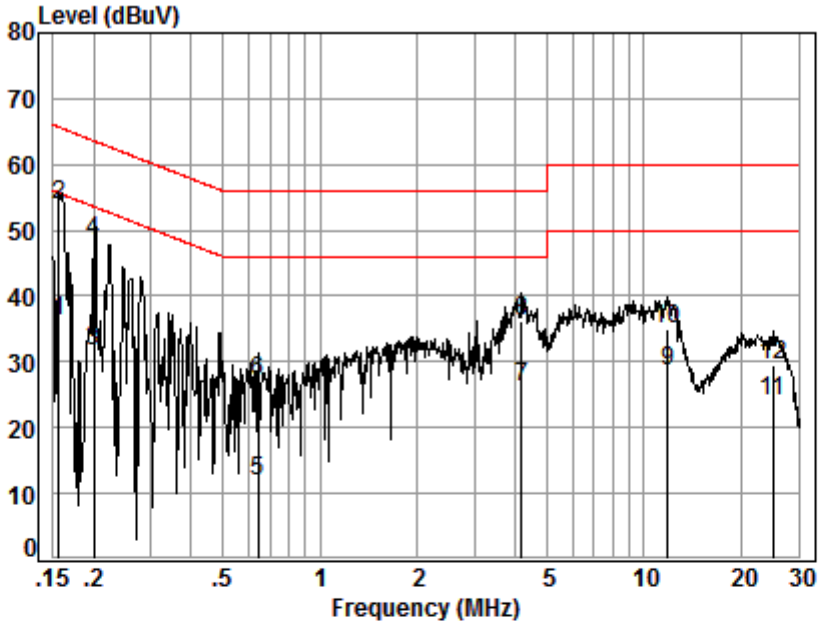
Operating Environment:
Temperature: 20.9 °C Humidity: 58.8 % RH Atmospheric Pressure: 1010 mbar
Test mode b:Charge mode_Keep the EUT charging

6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and Data

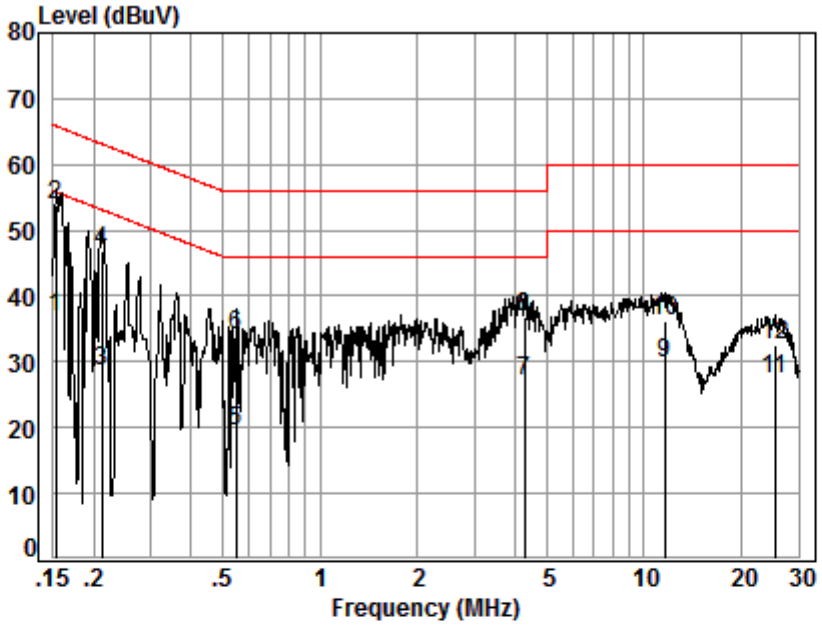
Mode:b; Line:Live Line



Site : Shielding Room
Condition: LINE
Job No. : 08176CR
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.01	9.51	26.56	36.08	55.69	-19.61	Average
2	0.16	0.01	9.51	44.37	53.89	65.69	-11.80	QP
3	0.20	0.02	9.50	22.15	31.67	53.58	-21.91	Average
4	0.20	0.02	9.50	38.90	48.42	63.58	-15.16	QP
5	0.64	0.07	9.51	2.22	11.80	46.00	-34.20	Average
6	0.64	0.07	9.51	17.43	27.01	56.00	-28.99	QP
7	4.18	0.16	9.54	16.31	26.01	46.00	-19.99	Average
8	4.18	0.16	9.54	26.35	36.05	56.00	-19.95	QP
9	11.87	0.19	9.66	18.77	28.62	50.00	-21.38	Average
10	11.87	0.19	9.66	25.23	35.08	60.00	-24.92	QP
11	24.92	0.26	9.88	14.01	24.15	50.00	-25.85	Average
12	24.92	0.26	9.88	19.35	29.49	60.00	-30.51	QP

Mode:b; Line:Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 08176CR
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.01	9.58	27.08	36.67	55.82	-19.15	Average
2	0.15	0.01	9.58	44.35	53.94	65.82	-11.88	QP
3	0.21	0.02	9.57	19.02	28.61	53.14	-24.53	Average
4	0.21	0.02	9.57	37.19	46.78	63.14	-16.36	QP
5	0.55	0.06	9.61	9.66	19.33	46.00	-26.67	Average
6	0.55	0.06	9.61	24.45	34.12	56.00	-21.88	QP
7	4.29	0.16	9.68	17.13	26.97	46.00	-19.03	Average
8	4.29	0.16	9.68	26.92	36.76	56.00	-19.24	QP
9	11.56	0.18	9.83	19.94	29.95	50.00	-20.05	Average
10	11.56	0.18	9.83	26.19	36.20	60.00	-23.80	QP
11	25.32	0.26	10.23	17.00	27.49	50.00	-22.51	Average
12	25.32	0.26	10.23	22.01	32.50	60.00	-27.50	QP

6.2 Radiated emission (9kHz-30MHz)

Test Requirement: 47 CFR Part 18
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.

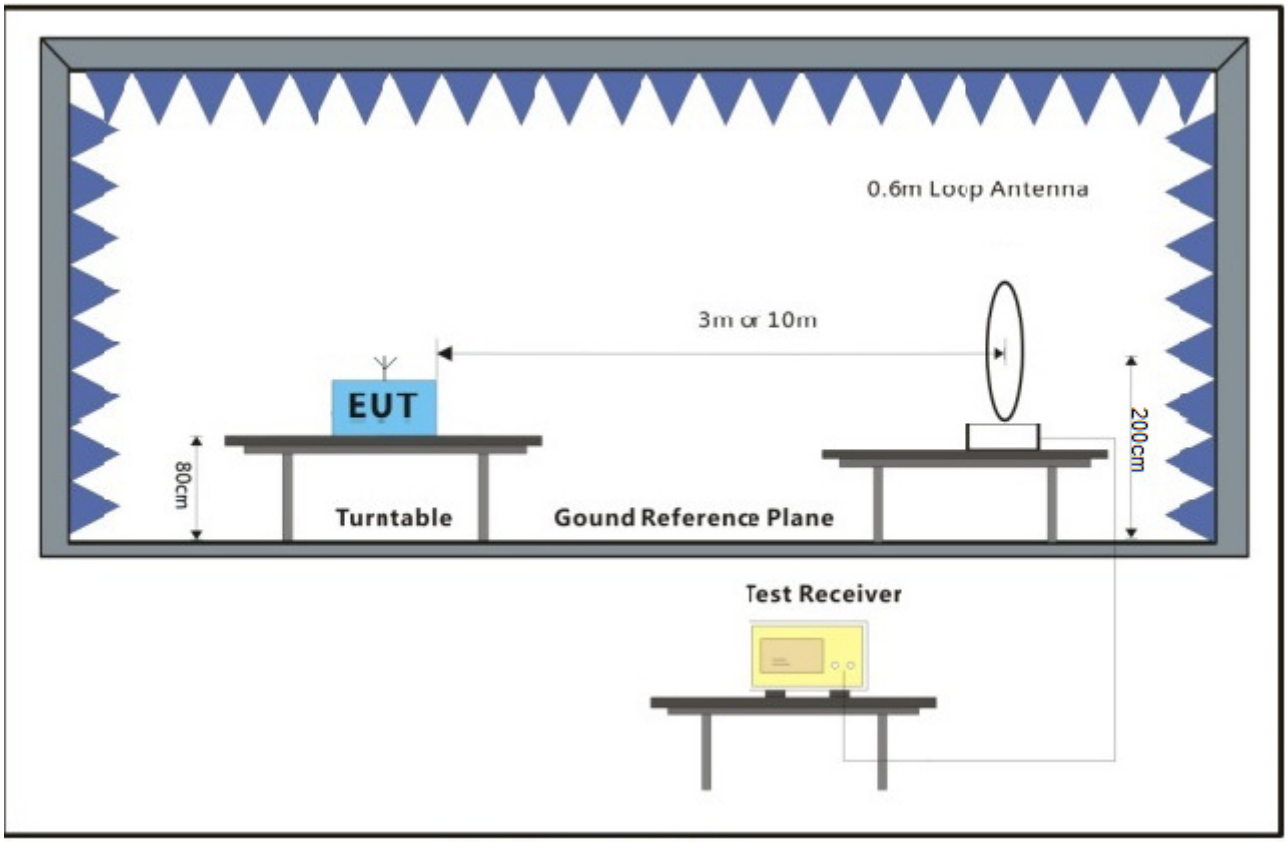
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1010 mbar

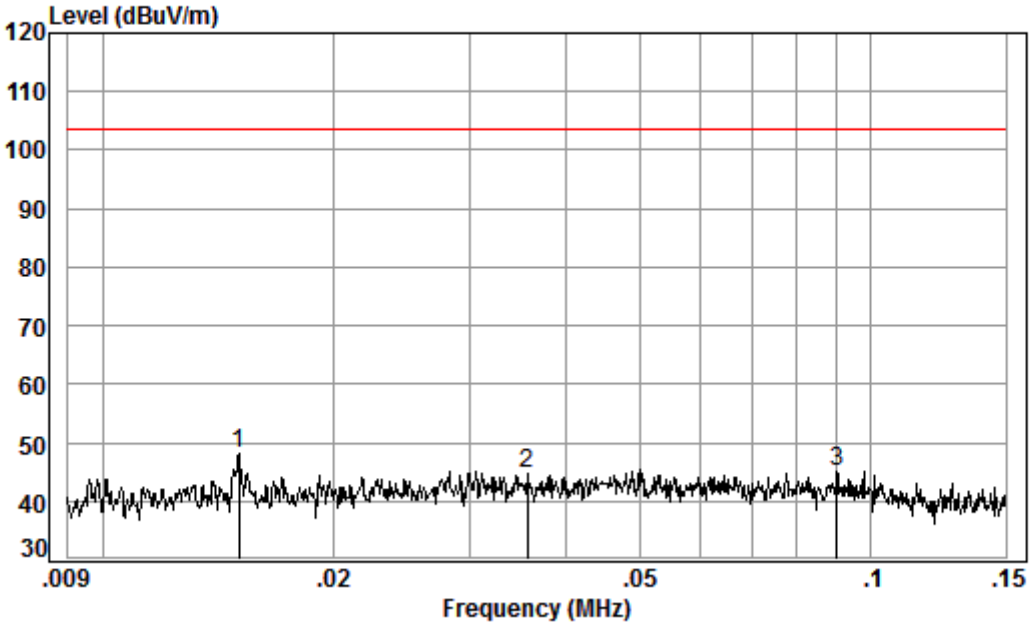
Test mode b:Charge mode_Keep the EUT charging

6.2.2 Test Setup Diagram



6.2.3 Measurement Procedure and Data

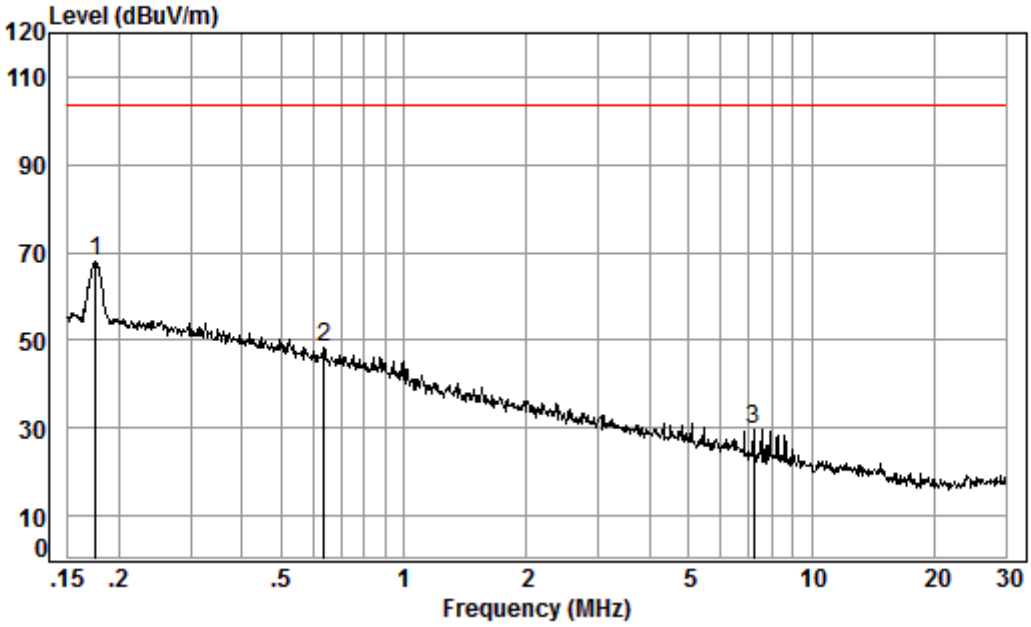
Mode b:
9kHz-150kHz



Condition: 3m
Job No. : 08176CR
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	0.02	0.00	16.78	32.55	64.00	48.23	103.52	-55.29
2	0.04	0.00	13.35	32.56	63.86	44.65	103.52	-58.87
3	0.09	0.00	12.04	32.56	65.51	44.99	103.52	-58.53

Mode b:
150kHz-30MHz



Condition: 3m
Job No. : 08176CR
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	0.00	11.79	32.56	88.80	68.03	103.52	-35.49
2	0.64	0.00	11.88	32.56	68.97	48.29	103.52	-55.23
3	7.21	0.00	11.27	32.52	51.12	29.87	103.52	-73.65

Mode b:

Freq (MHz)	Spurious Emission Level(dBuA/m)	Limit(dBuA/m)	Over Limit
0.02	-3.27	52.02	-55.29
0.04	-6.85	52.02	-58.87
0.09	-6.51	52.02	-58.53
0.18	16.53	52.02	-35.49
0.64	-3.21	52.02	-55.23
7.21	-21.63	52.02	-73.65

6.3 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Frequency Range: 30MHz to 1GHz
Measurement Distance: 10m

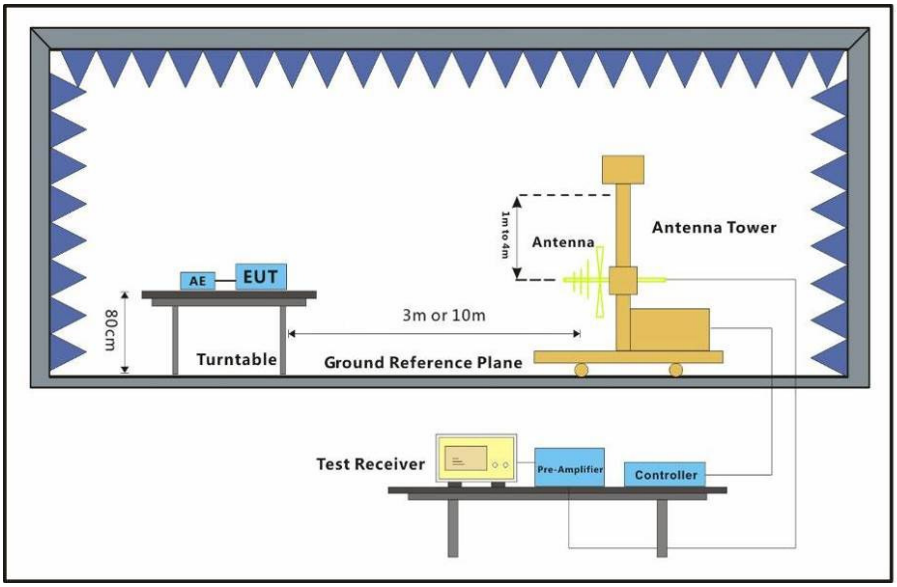
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1010 mbar

Test mode: b:Charge mode_Keep the EUT charging

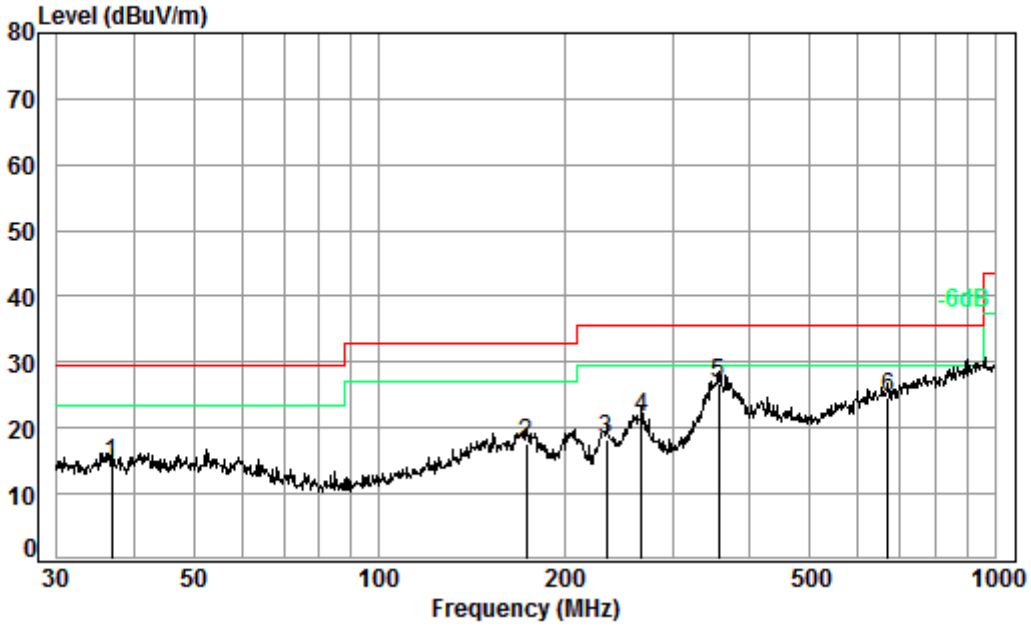
6.3.2 Test Setup Diagram



6.3.3 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.

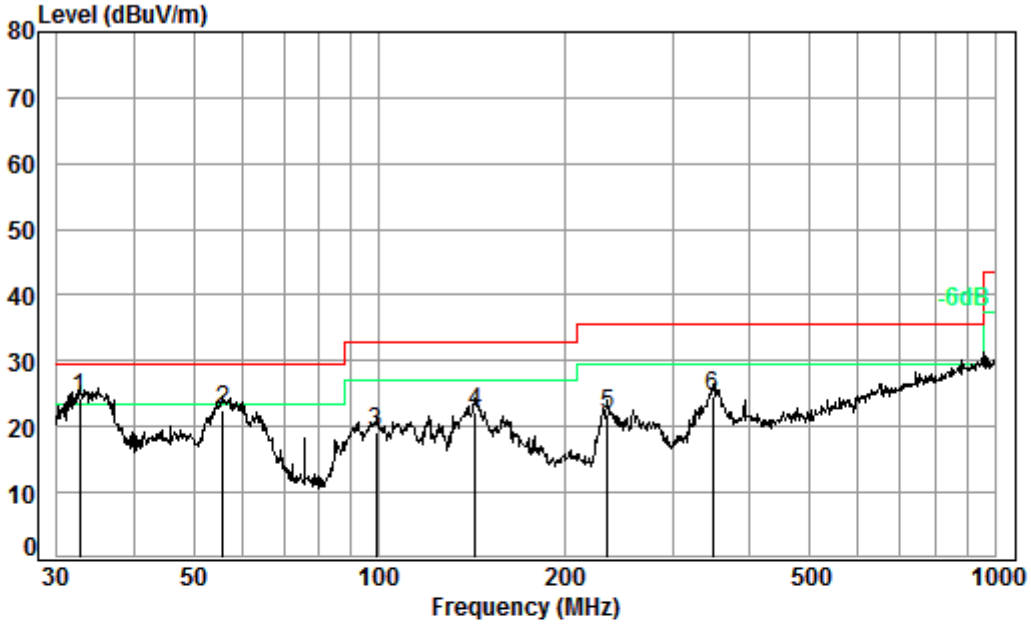
Mode:b; Polarization:Horizontal



Condition: 10m HORIZONTAL
Job No. : 08176CR
Test Mode: b

	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	36.90	6.79	12.91	32.57	27.46	14.59	29.50	-14.91
2	173.81	7.53	11.84	32.52	30.89	17.74	33.00	-15.26
3	234.17	7.77	10.90	32.49	32.16	18.34	35.60	-17.26
4	266.61	7.90	11.73	32.47	34.32	21.48	35.60	-14.12
5 pp	356.68	8.19	13.99	32.43	36.94	26.69	35.60	-8.91
6	670.49	9.02	19.79	32.40	28.33	24.74	35.60	-10.86

Mode:a; Polarization:Vertical



Condition: 10m VERTICAL
Job No. : 08176CR
Test Mode: b

	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	32.63	6.74	12.56	32.59	37.49	24.20	29.50	-5.30
2	55.80	6.98	12.31	32.53	35.80	22.56	29.50	-6.94
3	98.83	7.19	9.31	32.64	35.45	19.31	33.00	-13.69
4	143.33	7.41	12.98	32.52	34.33	22.20	33.00	-10.80
5	234.99	7.78	10.93	32.49	35.67	21.89	35.60	-13.71
6	348.03	8.16	13.80	32.43	34.98	24.51	35.60	-11.09

7 Photographs

7.1 Test Setup

Please refer to Test Setup.

7.2 EUT Constructional Details (EUT Photos)

Please refer to external and internal Photos.

- End of the Report -