CERTIFICATION

Applicant	：American Power Conversion Holding Inc. Taiwan Branch
Address	：3F., No. 205, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan R.O.C.
Manufacturer	：American Power Conversion Holding Inc. Taiwan Branch
Address	：3F., No. 205, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan R.O.C.
Description of EUT	：Uninterruptible Power System
Trade Name	：APC
Model Number	：BR1500MS
Product Series	：BR1500MXXXXXXXXXX, BR1350MXXXXXXXXXX("X" can be 0-9, A-Z, "-" or blank)
Type of Test	：FCC Part 15 Subpart B
Technical Standard	：**Emission** FCC Part 15 Subpart B Class B CISPR 22：2008 Class B ANSI C63.4：2014
Report Number	：HA170684-FD
Receipt Date	：29-JUN-2017
Issue Date	：26-JUL-2017
Test Result	：**Compliance**

The above equipment was tested by *HongAn TECHNOLOGY CO., LTD.* , for compliance with the requirement set forth in the FCC Rules and Regulation Part 15, Subpart B and the measurement procedures were based on ANSI C63.4.

Note：
1. The results of the test report relate only to the sample tested.
2. The test report shall not be reproduced without the written approval of *HongAn TECHNOLOGY CO., LTD.*

Approved by:

Adam Yang

Adam Yang / Section Manager

HongAn TECHNOLOGY CO., LTD.
HongAn TECHNOLOGY EMC Laboratory
NO.15-1, CWEISHUH KENG, CWEIPIN VILLAGE,
LINKOU DIST, NEW TAIPEI CITY, TAIWAN, R.O.C.

TEL：+886-2-26030362
FAX：+886-2-26019259
E-mail：hatlab@ms19.hinet.net

BSMI Registration No.： SL2-IN-E-0023,SL2-IS-E-0023, SL2-A1-E-0023,SL2-R1-E-0023, SL2-R2-E-0023,SL2-L1-E-0023

FCC Designation No.：TW1071, TW1163
TAF Accreditation No.：1163
VCCI Registration No.：R-2156, C-2329, T-219, G-696

Testing Laboratory
1163

FCC COMPLIANCE TEST REPORT

Technical Statement of Conformity

in accordance with FCC Part 15 Subpart B

The Product

Equipment Under Test	:	Uninterruptible Power System
Model Number	:	BR1500MS
Product Series	:	BR1500MXXXXXXXXXX, BR1350MXXXXXXXXXX ("X" can be 0-9, A-Z, "-" or blank)
Report Number	:	HA170684-FD
Issue Date	:	26-JUL-2017
Test Result	:	Compliance

is produced by

American Power Conversion Holding Inc. Taiwan Branch

3F., No. 205, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan R.O.C.

HongAn TECHNOLOGY CO., LTD.
HongAn TECHNOLOGY EMC Laboratory

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FCC Designation No.: TW1071, TW1163
TAF Accreditation No.: 1163
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Verification

Applicant	:	American Power Conversion Holding Inc. Taiwan Branch
Manufacturer	:	American Power Conversion Holding Inc. Taiwan Branch
Equipment Under Test	:	Uninterruptible Power System
Model Number	:	BR1500MS
Product Series	:	BR1500MXXXXXXXXXX, BR1350MXXXXXXXXXX("X" can be 0-9, A-Z, "-" or blank)
Sample Received Date	:	29-JUN-2017
Test Standards	:	

Emission：

FCC Part 15 Subpart B Class B
CISPR 22：2008 Class B
ANSI C63.4：2014

Remark

This report details the results of the test carried out on one sample. The test results are contained in this test report and HongAn Technology Co., Ltd. assumes full responsibility for the accuracy and completeness of these tests. This report shows the EUT is technically compliant with FCC Part 15 Subpart B and CISPR 22 Class B official requirements. The test procedure is in compliance with ANSI C63.4. This report applies to the above sample only and shall not be reproduced in part without written approval of HongAn Technology Co., Ltd..

Documented by: Mindy Liu **Date:** 26-JUL-2017

Mindy Liu / ADM. Dept. Staff

Tested by: Tom Tang **Date:** 20-JUN-2017

Tom Tang / ENG. Dept. Staff

Approved by: Adam Yang **Date:** 26-JUL-2017

Adam Yang / SEC. Manager

Summary of Test Result

Emission			
Test Standard	**Test Item**	**Test Result**	**Remark**
FCC Part15 Subpart B CISPR22 Class B ANSI C63.4	Conducted Emission	Pass	Highest Emission -LINE Mode L: 6.95MHz, A.V.25.35dBuV, Margin -24.65 dBuV N:1.19MHz,, A.V.32.12dBuV, Margin -13.88 dBuV Highest Emission- Battery mode L: 1.19MHz, A.V.32.12dBuV, Margin -13.88 dBuV N: 1.19MHz, A.V.30.33dBuV, Margin -15.67 dBuV
FCC Part15 Subpart B CISPR22 Class B ANSI C63.4	Radiated Emission (Below 1GHz)	Pass	Highest Emission -Line mode H: 31.14MHz, 24.69dBuV, Margin-5.31 dB Antenna Height 400 cm, Turntable Angle 89° V: 37.01MHz, 26.21dBuV, Margin-3.79 dB Antenna Height 103 cm, Turntable Angle 83° Highest Emission -Battery mode H: 195.78MHz, 22.00dBuV, Margin-8.00 dB Antenna Height 395 cm, Turntable Angle 68° V: 32.28MHz, -26.87dBuV, Margin-3.13 dB Antenna Height 100 cm, Turntable Angle 112°
FCC Part15 Subpart B CISPR22 Class B ANSI C63.4	Radiated Emission (Above 1GHz)	N/A	The highest frequency of the internal sources of the EUT is less than 108MHz, the measurement shall only be made up to 1GHz. Hence, the test item is not required.

Measurement Uncertainty

The following measurement uncertainty has been calculated for Emission Tests performed on the EUT as specified in CISPR 16-4-2:

Test Item		**Uncertainty**
Conducted Emission		± 4.35dB
Radiated Emission	Below 1GHz	± 5.64dB
	Above 1GHz	± 4.91dB

This reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k = 2, providing a level of confidence of approximately 95%.

1 General Description

1.1 Description of Equipment Under Test

Equipment Under Test	:	Uninterruptible Power System
Model Number	:	BR1500MS
Product Series	:	BR1500MXXXXXXXXXX, BR1350MXXXXXXXXXX("X" can be 0-9, A-Z, "-" or blank)
Applicant	:	American Power Conversion Holding Inc. Taiwan Branch
Address of Applicant	:	3F., No. 205, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan R.O.C.
Manufacturer	:	American Power Conversion Holding Inc. Taiwan Branch
Address of Manufacturer	:	3F., No. 205, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan R.O.C.
Power Supply	:	AC 120V ☐Shielded ☒Non-Shielded ☐Detachable, m ☒Un-Detachable, 1.8m ☐w Ferrite Core ☒w/o Ferrite Core
I/O Port	:	USB Type (A*1+C*1) or A*2, Gigabit*2, Surge*4, Battery+Surge*6, Cable In *1, Cable Out *1, Data port*1.
Data Cable	:	☒Data Cable ☒Shielded ☐Non-Shielded ☒Detachable, 1.8m ☐Un-Detachable ☒w Ferrite Core*1 ☐w/o Ferrite Core ☒ Coaxial Cable ☒Shielded ☐Non-Shielded ☒Detachable, 0.9m ☐Un-Detachable ☐w Ferrite Core ☒w/o Ferrite Core
Description of EUT	:	**Dimensions :**368 cm (L) X 1000 cm (W) X 2600 cm (H) **Highest Frequency of the Internal Source :** less than 108MH **Position : ☒Table-top / ☐Floor-standing** **Intended Function：**The EUT is a Uninterruptible Power System. **Product Variance：**The EUT is the most advanced model within the series. HongAn is only responsible for the test result of the main test sample.

1.2 Test Facility

All the Conducted and Radiated Emission Tests are performed at No. 15-1, Cweishuh Keng, Cweipin Village, Linkou, New Taipei City, Taiwan, R.O.C.

1.3 Test Instruments

Instruments Used for Emission Measurement

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
LISN	EMCO	3810/2NM	9702-1819	07-Mar-2017	07-Mar-2018
LISN	Rolf Heine Hochfrequenztechnik	NNB-4/32T	00001	08-Mar-2017	08-Mar-2018
RF Current Probe	FCC	F-33-4	53	26-May-2017	26-May-2018
Impedance Stabilization Network (ISN)	TESEQ	ISN T800	30838	18-Aug-2016	18-Aug-2017
EMI Receiver	R&S	ESCI	100931	21-Jul-2016	21-Jul-2017
Spectrum Analyzer	R&S	FSV 30	101629	11-Jan-2017	11-Jan-2018
Preamplifier	CHASE	CPA 9231A	0405	24-Aug-2016	24-Aug-2017
Preamplifier	HD	HD17187	004	22-May-2017	22-May-2018
Bilog Antenna	TESEQ	CBL6111D	25769	13-Feb-2017	13-Feb-2018
Bilog Antenna	TESEQ	CBL6111D	38521	18-Oct-2016	18-Oct-2017
Double-Ridged Waveguide Horn	EMCO	3115	9912-5992	22-May-2017	22-May-2018

※ The test equipments used are calibrated and can be traced to National ITRI and International Standards.

1.4 Test Methodology

All Conducted and Radiated Emission Tests were performed according to the procedures stated in ANSI C63.4 as indicated in FCC Part 15 Subpart B Sec. 15.31.
Deviations from the test standards as below description : N/A

1.5 Auxiliary Equipments

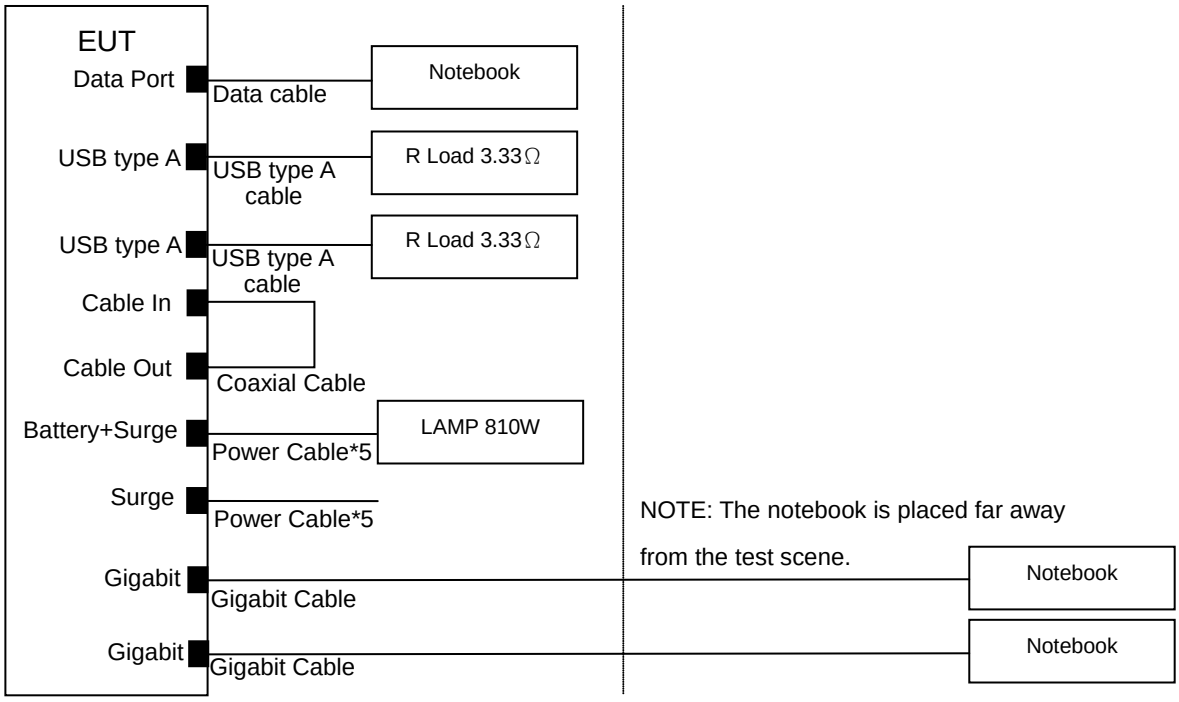
1.5.1 Provided by HongAn Technology Co., Ltd. for Emission Test.

No.	Equipment	Model No.	Serial No.	EMC Approved	Brand	Description	
						Data Cable	Power Cable
01	Notebook	PP2090	CNU3480M1R	CE Mark, FCC DoC, BSMI ID R33001	Hewlett Packard	N/A	AC to Adapter Unshielded*1.8m Adapter to Notebook Unshielded*1.8m
02	Notebook	G42-352TX	CNF0347B16	CE Mark, FCC DoC, BSMI ID R33001	Hewlett Packard	N/A	AC to Adapter Unshielded*1m Adapter Notebook Unshielded*1.8m with EMI core*1
03	Notebook	X553M	N/A	CE Mark, FCC DoC, BSMI ID R31018	ASUS	N/A	N/A
04	LAMP*4	LAMP	200W	N/A	N/A	N/A	N/A
05	LAMP*2	LAMP	10W	N/A	N/A	N/A	N/A
06	USB Type-A Cable*2	N/A	N/A	N/A	N/A	Shielded; Detachable, 1 m; w/o Ferrite Core	N/A
07	RJ45 Cable*2	N/A	N/A	N/A	N/A	Shielded; Detachable, 3 m; w/o Ferrite Core	N/A
08	Power Cable*10	N/A	N/A	N/A	N/A	N/A	Non-Shielded; Detachable, 1.8m w/o Ferrite Core

1.5.2 Provided by the Manufacturer

N/A

1.6 Block Diagram



1.7 Identifying the Final Test Mode

1. Line mode (Full load).
2. Battery mode (Full load).

Note: The additional power cords do not increase the disturbance level by 2dB. Therefore, the Final EMC Assessment was performed for the Line mode and Battery mode.

1.8 Final Test Mode

1. Line mode (Full load).
2. Battery mode (Full load).

1.9 Condition of Power Supply

AC 120 V; 60 Hz

1.10 EUT Configuration

1. Setup the EUT and peripheral as shown in Section 1.6.
2. Turn on the power of all equipments.
3. Activate the selected Final Test Mode shown in Sec. 1.8.

2 Conducted Emission Test

2.1 Test Instruments

Refer to Sec. 1.3 Test Instruments.

2.2 Test Configuration and Procedure

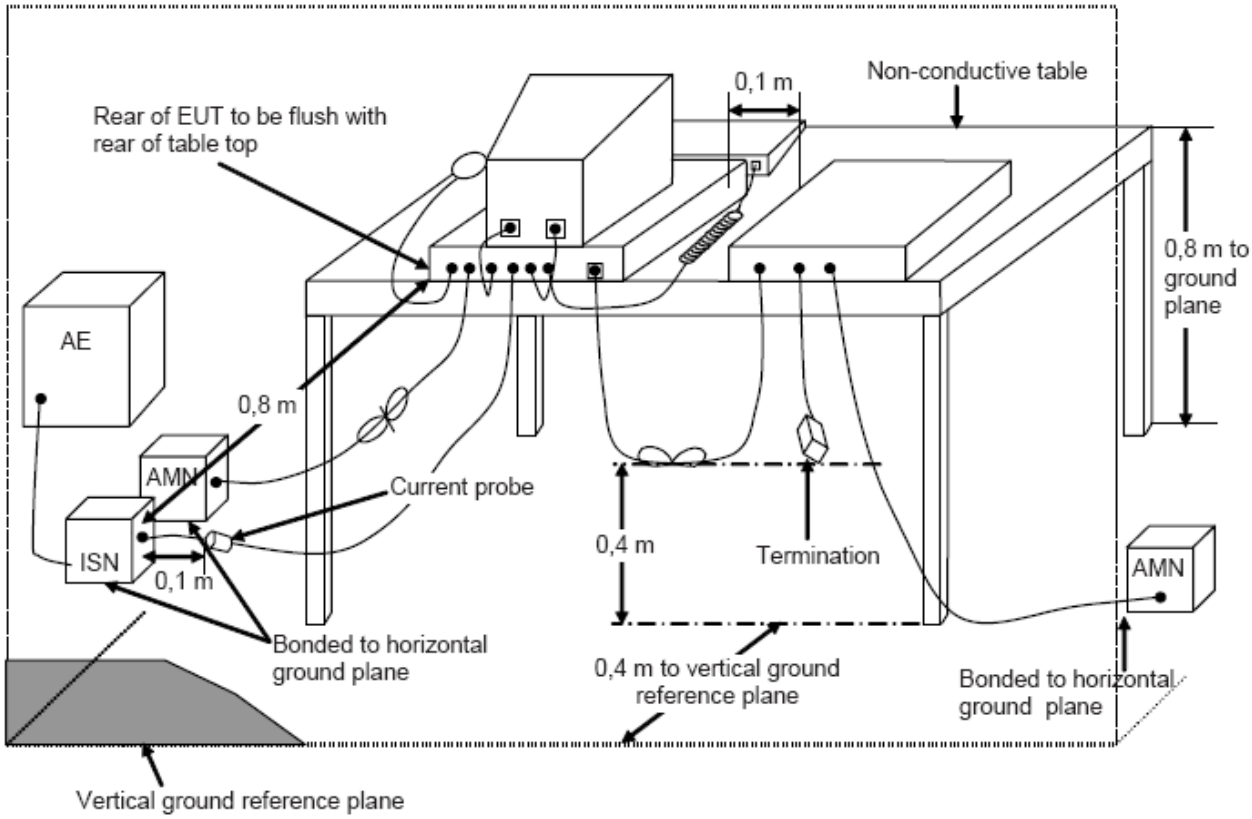


Table-top Equipment

- The EUT was placed on a non-conductive table which was 80 cm above the horizontal coupling plane. The rear of the EUT was 40 cm from the vertical coupling plane.
- The excess interface cables were folded at the cable center into a bundle no longer than 40 cm, so that the bundles were on the table.
- The EUT was connected to the main power through a L.I.S.N. This set up provided 50 ohm / 50 μH coupling impedance for the measuring equipment.
- All auxiliary equipment received power from a second L.I.S.N.
- The conducted emissions were measured between the Line Phase and the PE ground and between the Neutral Phase and the PE ground using an EMI Receiver.
- The values were recorded.

2.3 Conducted Limit

☒ FCC Part 15 B / CISPR 22

Frequency (MHz)	☐ Class A		☒ Class B	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 to 0.50	79	66	66 to 56	56 to 46
0.50 to 5.0	73	60	56	46
5.0 to 30	73	60	60	50

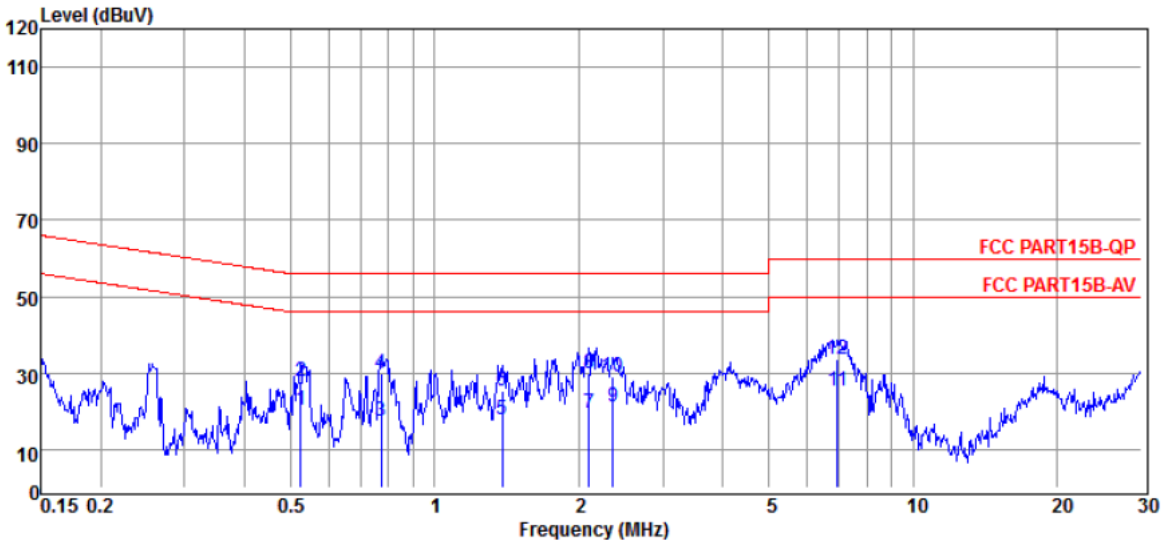
2.4 Test Result

PASS

The final tests data are shown on the following page(s).

Conducted Emission Test Data- Line mode

Test Date	:	18-JUL-2017	Power Line	:	Line
Temperature	:	26℃	Humidity	:	56%

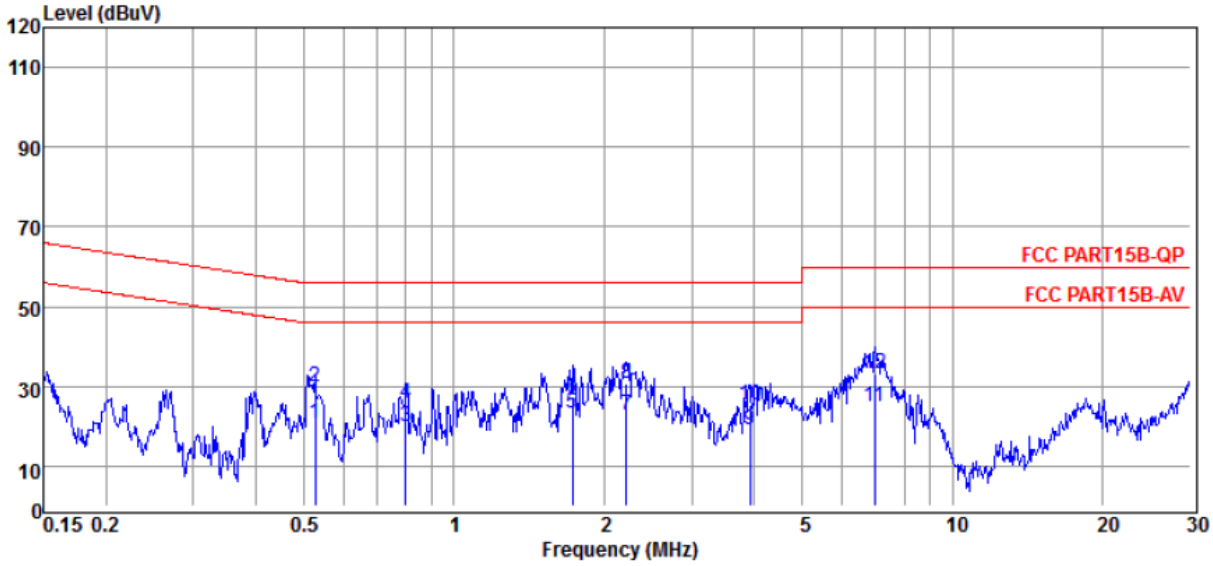


No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV	Limit dBμV	Margin dB	Power Line	Remark
1	0.52	20.36	0.17	20.53	46.00	-25.47	LINE	Average
2	0.52	27.68	0.17	27.85	56.00	-28.15	LINE	QP
3	0.77	17.13	0.19	17.32	46.00	-28.68	LINE	Average
4	0.77	29.57	0.19	29.76	56.00	-26.24	LINE	QP
5	1.38	17.68	0.23	17.91	46.00	-28.09	LINE	Average
6	1.38	24.93	0.23	25.16	56.00	-30.84	LINE	QP
7	2.10	19.32	0.26	19.58	46.00	-26.42	LINE	Average
8	2.10	29.67	0.26	29.93	56.00	-26.07	LINE	QP
9	2.36	20.91	0.29	21.20	46.00	-24.80	LINE	Average
10	2.36	28.91	0.29	29.20	56.00	-26.80	LINE	QP
11	6.95	24.79	0.56	25.35	50.00	-24.65	LINE	Average
12	6.95	33.08	0.56	33.64	60.00	-26.36	LINE	QP

Remark：
1. All readings are Quasi-Peak and Average values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Conducted Emission Test Data- Line mode

Test Date	: 18-JUL-2017	Power Line	: Neutral
Temperature	: 25℃	Humidity	: 56%

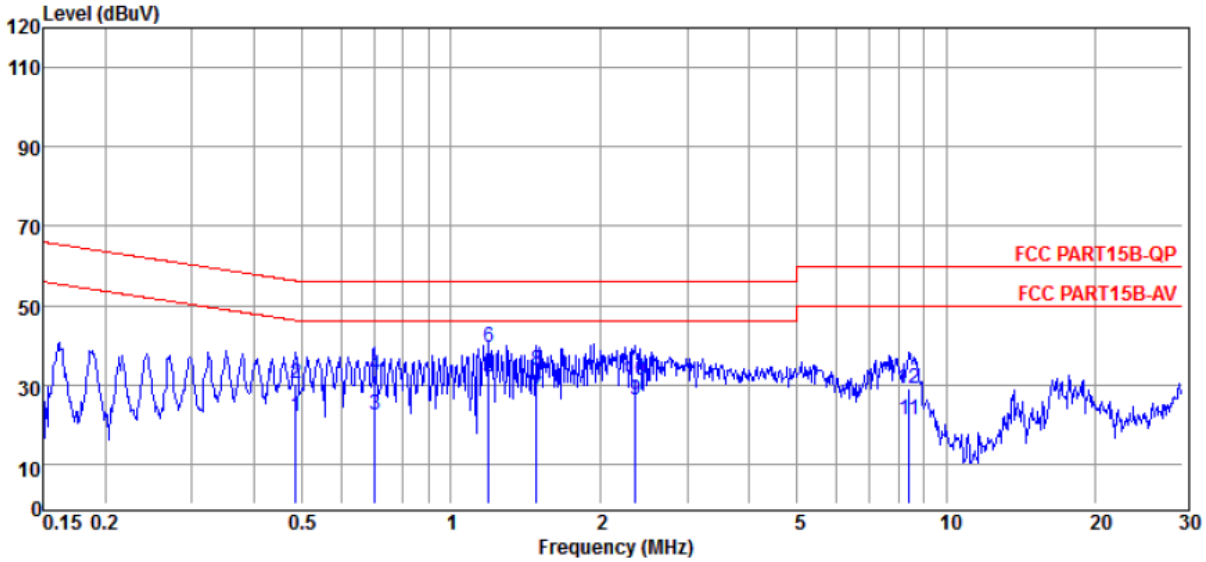


No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV	Limit dBμV	Margin dB	Power Line	Remark
1	0.53	20.66	0.16	20.82	46.00	-25.18	NEUTRAL	Average
2	0.53	29.72	0.16	29.88	56.00	-26.12	NEUTRAL	QP
3	0.80	19.71	0.18	19.89	46.00	-26.11	NEUTRAL	Average
4	0.80	25.71	0.18	25.89	56.00	-30.11	NEUTRAL	QP
5	1.73	22.94	0.24	23.18	46.00	-22.82	NEUTRAL	Average
6	1.73	26.94	0.24	27.18	56.00	-28.82	NEUTRAL	QP
7	2.21	22.38	0.27	22.65	46.00	-23.35	NEUTRAL	Average
8	2.21	30.31	0.27	30.58	56.00	-25.42	NEUTRAL	QP
9	3.92	18.96	0.34	19.30	46.00	-26.70	NEUTRAL	Average
10	3.92	24.96	0.34	25.30	56.00	-30.70	NEUTRAL	QP
11	6.99	24.50	0.52	25.02	50.00	-24.98	NEUTRAL	Average
12	6.99	32.52	0.52	33.04	60.00	-26.96	NEUTRAL	QP

Remark：
1. All readings are Quasi-Peak and Average values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Conducted Emission Test Data- Battery mode

Test Date	:	18-JUL-2017	Power Line	:	Line
Temperature	:	26℃	Humidity	:	56%

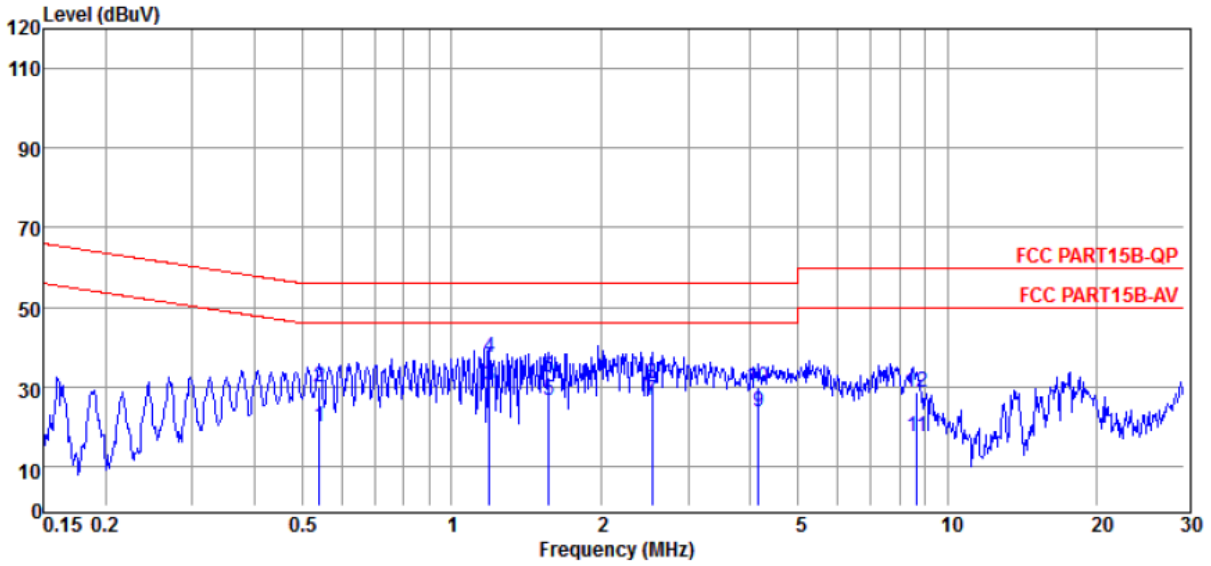


No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV	Limit dBµV	Margin dB	Power Line	Remark
1	0.49	22.03	0.17	22.20	46.23	-24.03	LINE	Average
2	0.49	30.03	0.17	30.20	56.23	-26.03	LINE	QP
3	0.70	22.05	0.19	22.24	46.00	-23.76	LINE	Average
4	0.70	32.05	0.19	32.24	56.00	-23.76	LINE	QP
5	1.19	31.90	0.22	32.12	46.00	-13.88	LINE	Average
6	1.19	39.02	0.22	39.24	56.00	-16.76	LINE	QP
7	1.49	26.60	0.24	26.84	46.00	-19.16	LINE	Average
8	1.49	33.60	0.24	33.84	56.00	-22.16	LINE	QP
9	2.36	25.72	0.29	26.01	46.00	-19.99	LINE	Average
10	2.36	30.72	0.29	31.01	56.00	-24.99	LINE	QP
11	8.41	20.55	0.62	21.17	50.00	-28.83	LINE	Average
12	8.41	28.55	0.62	29.17	60.00	-30.83	LINE	QP

Remark：
1. All readings are Quasi-Peak and Average values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Conducted Emission Test Data- Battery mode

Test Date	: 18-JUL-2017	Power Line	: Neutral
Temperature	: 26℃	Humidity	: 56%



No.	Freq MHz	Reading dBμV	C.F dB	Result dBμV	Limit dBμV	Margin dB	Power Line	Remark
1	0.54	19.58	0.16	19.74	46.00	-26.26	NEUTRAL	Average
2	0.54	29.58	0.16	29.74	56.00	-26.26	NEUTRAL	QP
3	1.19	30.13	0.20	30.33	46.00	-15.67	NEUTRAL	Average
4	1.19	37.17	0.20	37.37	56.00	-18.63	NEUTRAL	QP
5	1.57	26.20	0.23	26.43	46.00	-19.57	NEUTRAL	Average
6	1.57	32.20	0.23	32.43	56.00	-23.57	NEUTRAL	QP
7	2.54	26.33	0.28	26.61	46.00	-19.39	NEUTRAL	Average
8	2.54	30.33	0.28	30.61	56.00	-25.39	NEUTRAL	QP
9	4.16	23.45	0.35	23.80	46.00	-22.20	NEUTRAL	Average
10	4.16	29.45	0.35	29.80	56.00	-26.20	NEUTRAL	QP
11	8.68	16.91	0.59	17.50	50.00	-32.50	NEUTRAL	Average
12	8.68	27.91	0.59	28.50	60.00	-31.50	NEUTRAL	QP

Remark：
1. All readings are Quasi-Peak and Average values.
2. Result = Reading + C.F
3. Margin = Result – Limit

3 Radiated Emission Test – Below 1 GHz

3.1 Test Instruments

Refer to Sec. 1.3 Test Instruments.

3.2 Test Configuration and Procedure

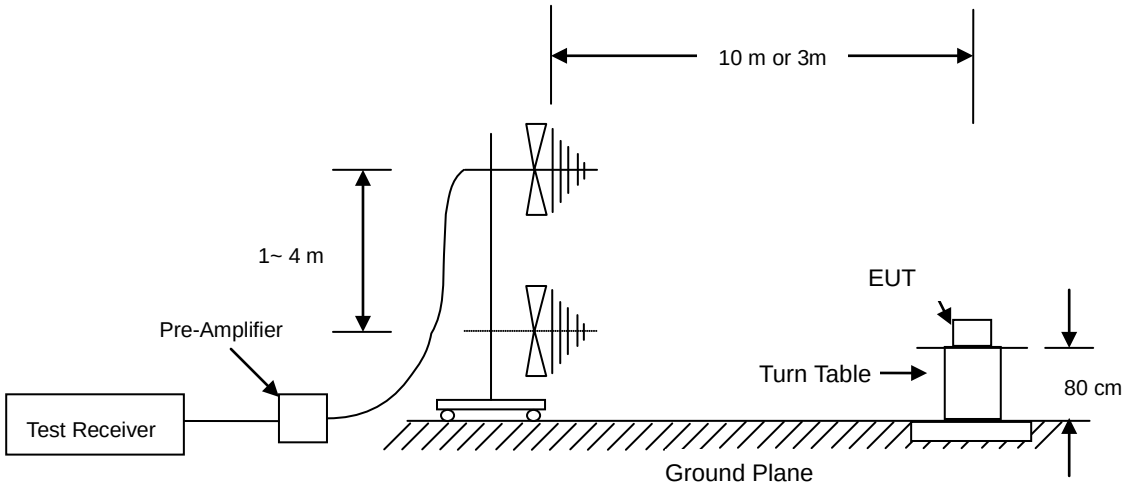


Table-top Equipment

- The EUT was place on a non-conductive turntable which was 80cm above the horizontal ground plane. The EUT was set 10m (or 3m) away from the receiving antenna that was mounted on a non-conductive mast.
- Main cables draped to the ground plane and were routed to the mains power outlet. The mains power outlet was bonded to and did not protrude above the ground plane.
- The antenna was adjusted between 1m and 4m in height above the ground plane and the Antenna-to-EUT azimuth was also varied during the measurements to find the top 6 maximum meter readings within the frequency range limit as indicated in Sec 3.3.
- The radiated emissions were measured when the Antenna-to-EUT polarization was set horizontally and vertically.
- The values were recorded.

3.3 Radiated Limit

☐ FCC Part 15 Subpart B

	☐ Class A (10m)		☐ Class B (3m)	
Frequency (MHz)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)
30 to 88	90	39.0	100	40.0
88 to 216	150	43.5	150	43.5
216 to 960	210	46.5	200	46.0
Above 960	300	49.5	500	54.0

Emission Level (dBμV/m)=20 Log Emission Level (μV/m)

Refer to FCC Part 15 Subpart B clause 15.109(g) :
As an alternative to the radiated emission limits shown in paragraphs (a) and (b) of this section, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, “Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement”.

☒ CISPR 22

	☐ Class A (10m)	☒ Class B (10m)
Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak (dBμV/m)
30 to 230	40.0	30.0
230 to 1000	47.0	37.0

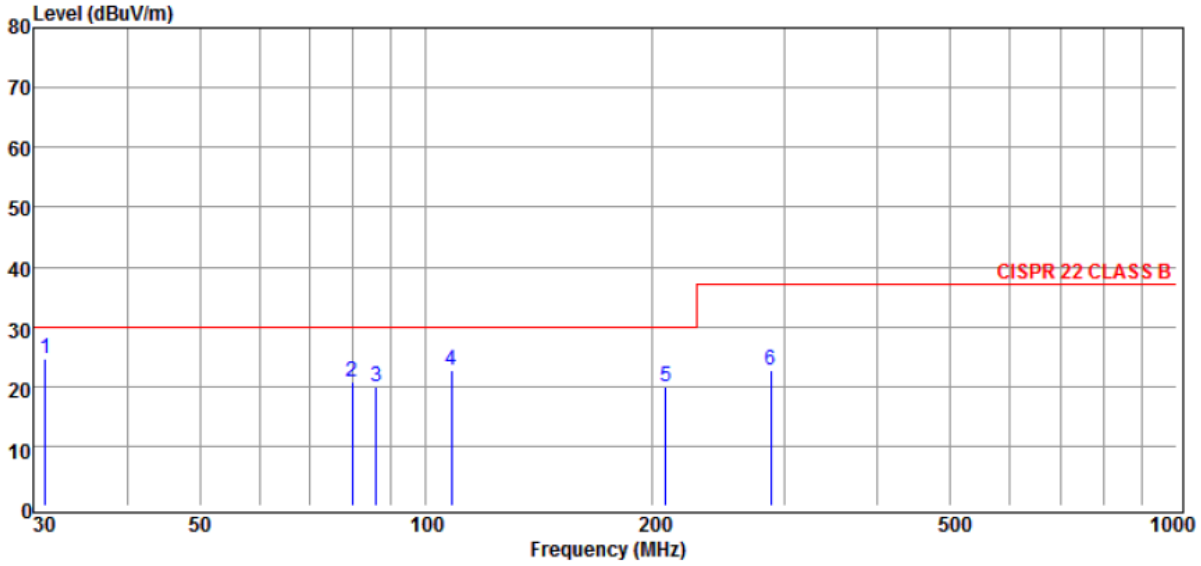
3.4 Test Result

PASS

The final tests data are shown on the following page(s).

Radiated Emission Test Data-- Line mode

Test Date	:	18-JUL-2017	Polarization	:	Horizontal
Temperature	:	26℃	Humidity	:	56%

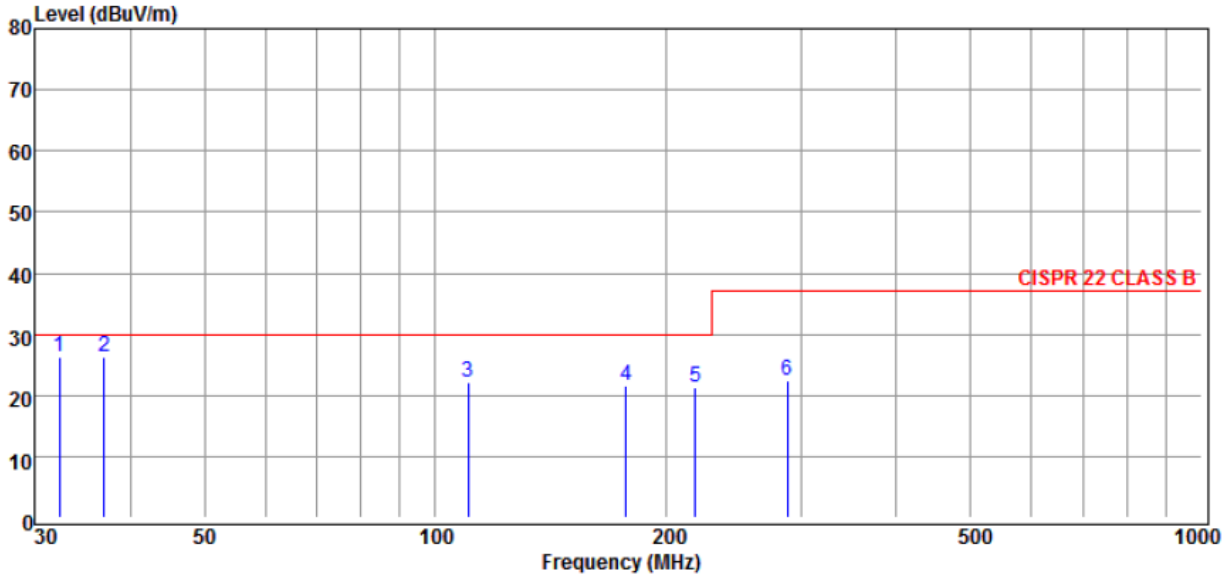


No.	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Antenna	Remark
	MHz	dBμV	dB	dBμV/m	dBμV/m	dB	cm	deg	Pol.	
1	31.14	29.50	-4.81	24.69	30.00	-5.31	400	89	HORIZONTAL	QP
2	79.72	36.30	-15.58	20.72	30.00	-9.28	399	210	HORIZONTAL	QP
3	85.86	34.59	-14.73	19.86	30.00	-10.14	397	147	HORIZONTAL	QP
4	108.16	34.71	-12.11	22.60	30.00	-7.40	395	93	HORIZONTAL	QP
5	208.52	33.17	-13.34	19.83	30.00	-10.17	391	78	HORIZONTAL	QP
6	288.03	31.81	-9.21	22.60	37.00	-14.40	390	127	HORIZONTAL	QP

Remark：
1. All readings are Quasi-Peak values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Radiated Emission Test Data- Line mode

Test Date	:	18-JUL-2017	Polarization	:	Vertical
Temperature	:	26℃	Humidity	:	56%

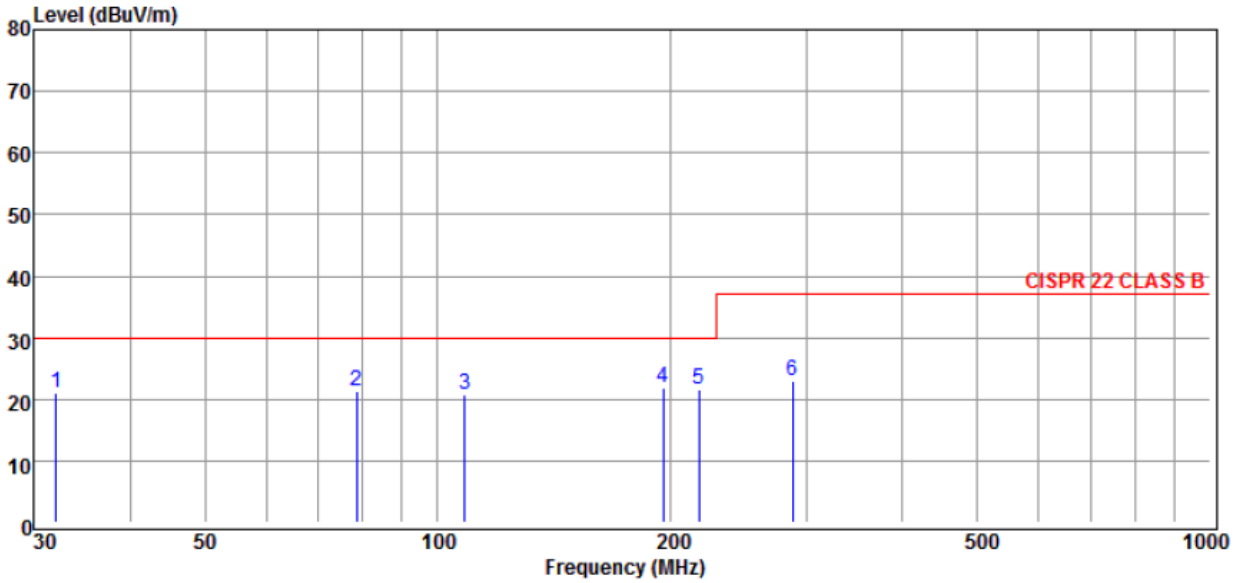


No.	Freq MHz	Reading dBµV	C.F dB	Result dBµV/m	Limit dBµV/m	Margin dB	Height cm	Angle deg	Antenna Pol.	Remark
1	32.34	31.60	-5.43	26.17	30.00	-3.83	100	97	VERTICAL	QP
2	37.01	34.20	-7.99	26.21	30.00	-3.79	103	83	VERTICAL	QP
3	110.47	34.01	-11.91	22.10	30.00	-7.90	105	117	VERTICAL	QP
4	177.64	34.96	-13.49	21.47	30.00	-8.53	106	77	VERTICAL	QP
5	218.55	34.43	-13.23	21.20	30.00	-8.80	107	132	VERTICAL	QP
6	288.01	31.51	-9.21	22.30	37.00	-14.70	110	62	VERTICAL	QP

Remark：
1. All readings are Quasi-Peak values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Radiated Emission Test Data- Battery mode

Test Date	:	18-JUL-2017	Polarization	:	Horizontal
Temperature	:	26℃	Humidity	:	56%

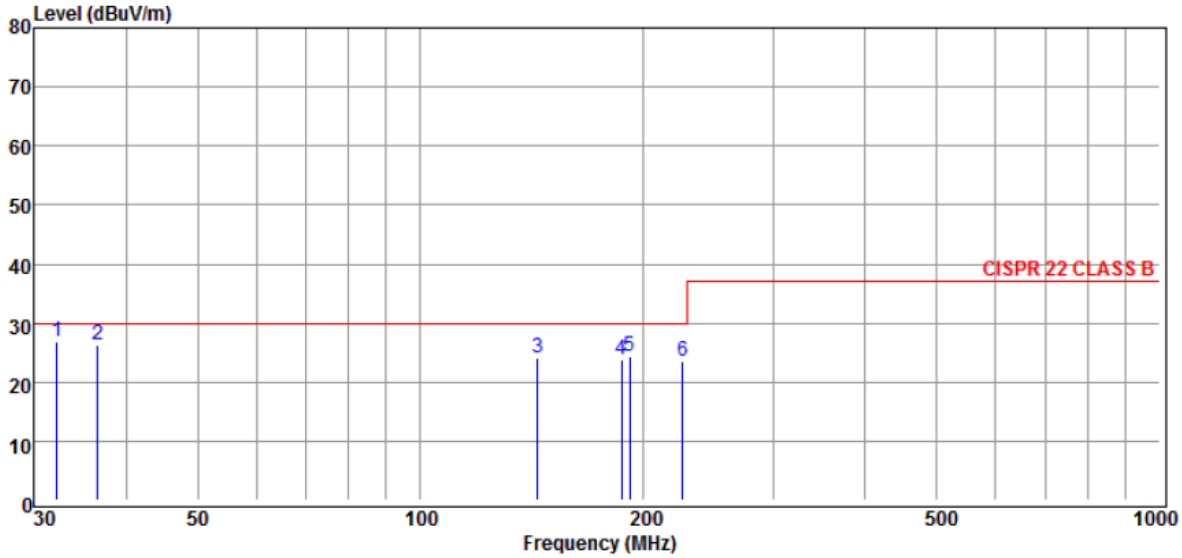


No.	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Antenna	Remark
	MHz	dBμV	dB	dBμV/m	dBμV/m	dB	cm	deg	Pol.	
1	32.05	26.27	-5.31	20.96	30.00	-9.04	400	97	HORIZONTAL	QP
2	78.56	37.04	-15.69	21.35	30.00	-8.65	400	268	HORIZONTAL	QP
3	108.54	32.80	-12.07	20.73	30.00	-9.27	398	123	HORIZONTAL	QP
4	195.78	35.63	-13.63	22.00	30.00	-8.00	395	68	HORIZONTAL	QP
5	218.17	34.95	-13.23	21.72	30.00	-8.28	393	47	HORIZONTAL	QP
6	288.03	32.29	-9.21	23.08	37.00	-13.92	391	187	HORIZONTAL	QP

Remark：
1. All readings are Quasi-Peak values.
2. Result = Reading + C.F
3. Margin = Result – Limit

Radiated Emission Test Data- Battery mode

Test Date	:	18-JUL-2017	Polarization	:	Vertical
Temperature	:	26℃	Humidity	:	56%



No.	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Antenna	Remark
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	Pol.	
1	32.28	32.31	-5.44	26.87	30.00	-3.13	100	112	VERTICAL	QP
2	36.61	33.99	-7.77	26.22	30.00	-3.78	101	128	VERTICAL	QP
3	144.02	35.66	-11.49	24.17	30.00	-5.83	102	177	VERTICAL	QP
4	187.29	37.60	-13.75	23.85	30.00	-6.15	105	79	VERTICAL	QP
5	191.92	38.00	-13.73	24.27	30.00	-5.73	103	183	VERTICAL	QP
6	226.27	36.08	-12.58	23.50	30.00	-6.50	107	39	VERTICAL	QP

Remark：
1. All readings are Quasi-Peak values.
2. Result = Reading + C.F
3. Margin = Result – Limit

4 Radiated Emission Test – Above 1GHz

4.1 Test Instruments

Refer to Sec. 1.3 Test Instruments.

4.2 Test Configuration and Procedure

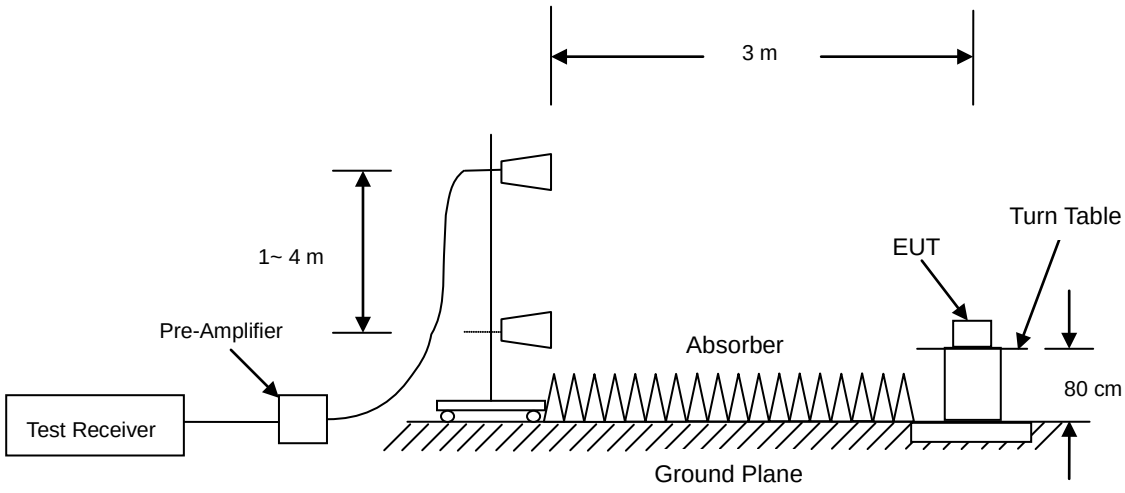


Table-top Equipment

- The EUT was place on a non-conductive turntable which was 80cm above the horizontal ground plane. The EUT was set 3m away from the receiving antenna that was mounted on a non-conductive mast.
- Main cables draped to the ground plane and were routed to the mains power outlet. The mains power outlet was bonded to and did not protrude above the ground plane.
- The antenna was adjusted between 1m and 4m in height above the ground plane and the Antenna-to-EUT azimuth was also varied during the measurements to find the top 6 maximum meter readings within the frequency range limit as indicated in Sec 4.3.
- The radiated emissions were measured when the Antenna-to-EUT polarization was set horizontally and vertically.
- The values were recorded.

4.3 Test Limit

FCC Part 15 Subpart B

Frequency GHz	Class A at 10m			Class B at 3m		
	Field Strength (μV/m)	Average (dBμV/m)	Peak (dBμV/m)	Field Strength (μV/m)	Average (dBμV/m)	Peak (dBμV/m)
Above 1GHz	300	49.5	69.5	500	54	74

Note : 1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBμV/m) = 20 log Emission level (μV/m).

3. The measurement above 1GHz is at close-in 3m, and determine the limit **L2** corresponding to the close-in distance **d2** by applying the following relation: **L2=L1(d1/d2)**, where **L1** is the specified limit in microvolts per meter **(μV/m)** at the distance **d1(10m)**, **L2** is the new limit for distance **d2(3m)**.

So the new Class A limit above 1GHz at 3m is as following table:

Frequency GHz	Class A at 3m	
	Average (dBμV/m)	Peak (dBμV/m)
Above 1GHz	60	80

4.4 Test Result

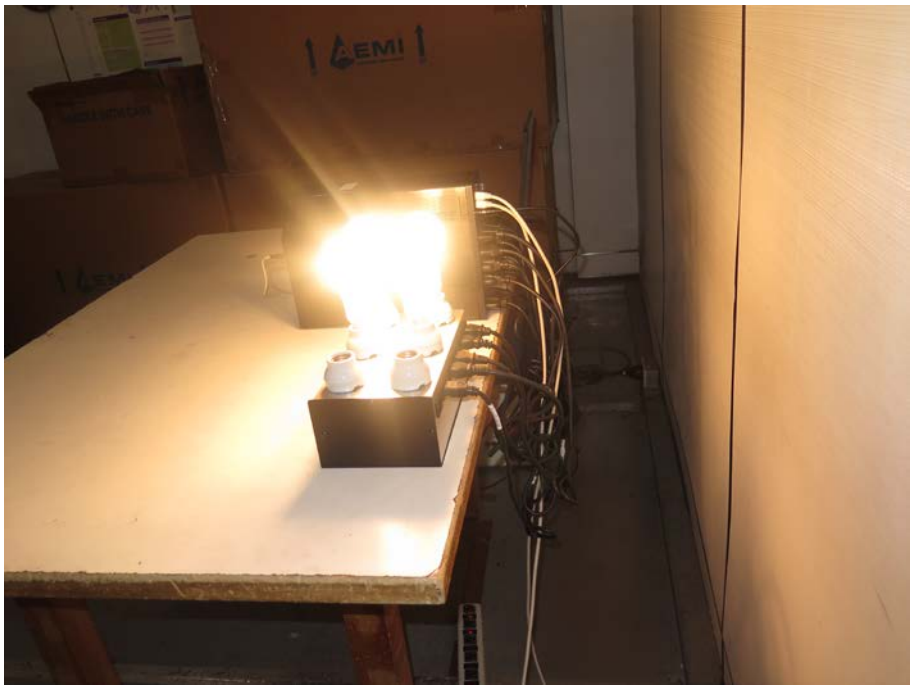
Not applicable

※The highest frequency of the internal sources of the EUT is less than 108MHz. Hence, above 1GHz Radiated Measurement shall not be made.

5 Photographs of Test

5.1 Conducted Emission Test

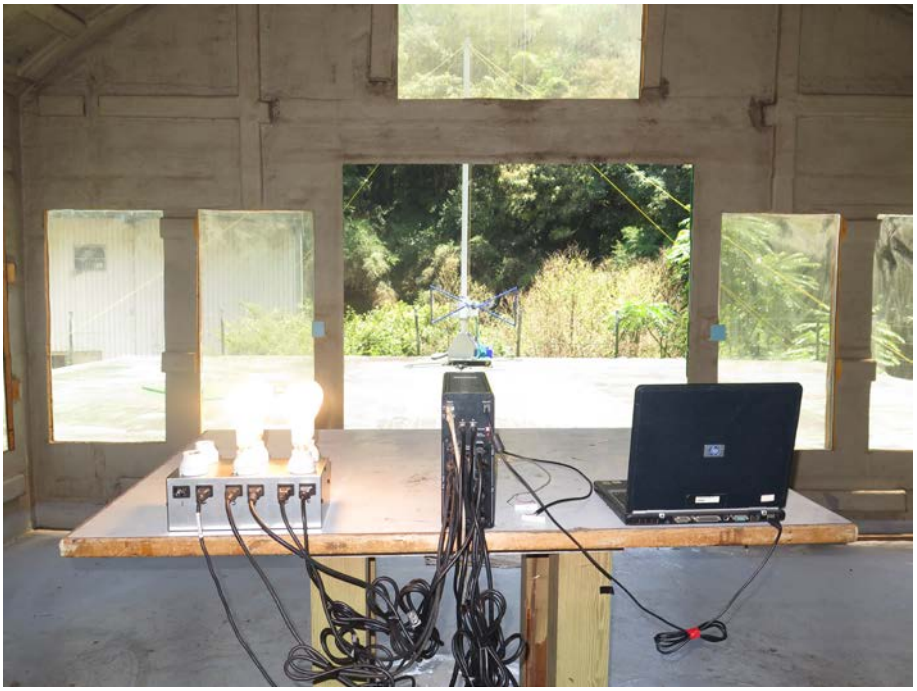
Front View



Rear View

5.2 Radiated Emission Test – Below 1 GHz

Front View



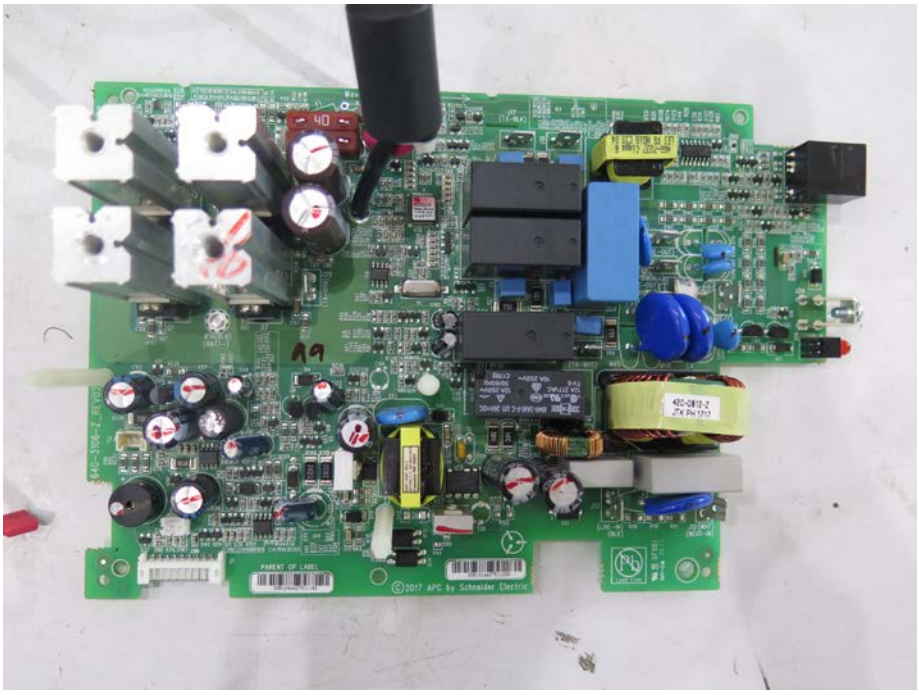
Rear View

6 Photographs of EUT

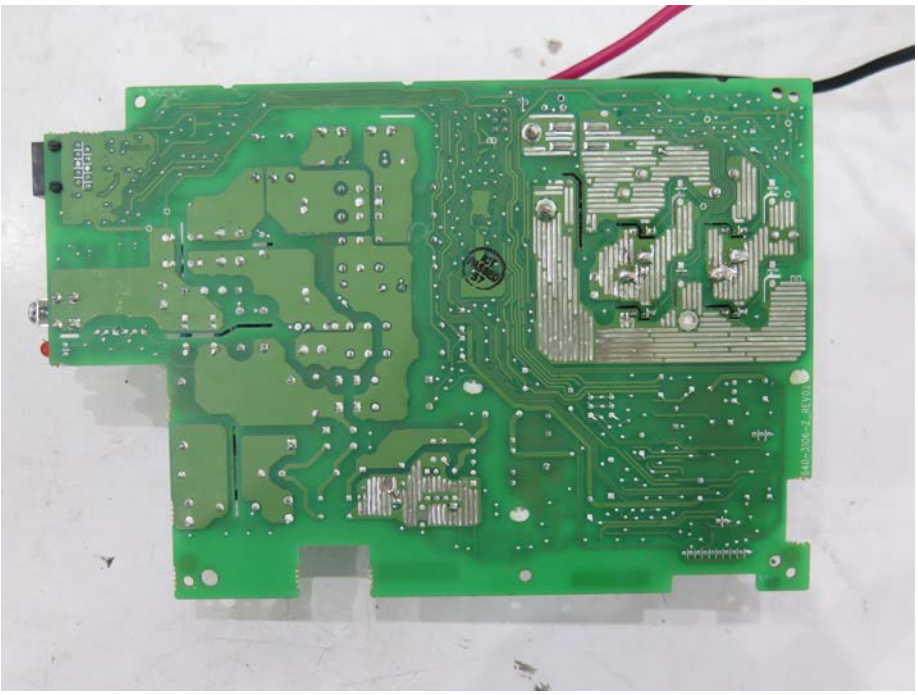
Front View of EUT

Rear View of EUT

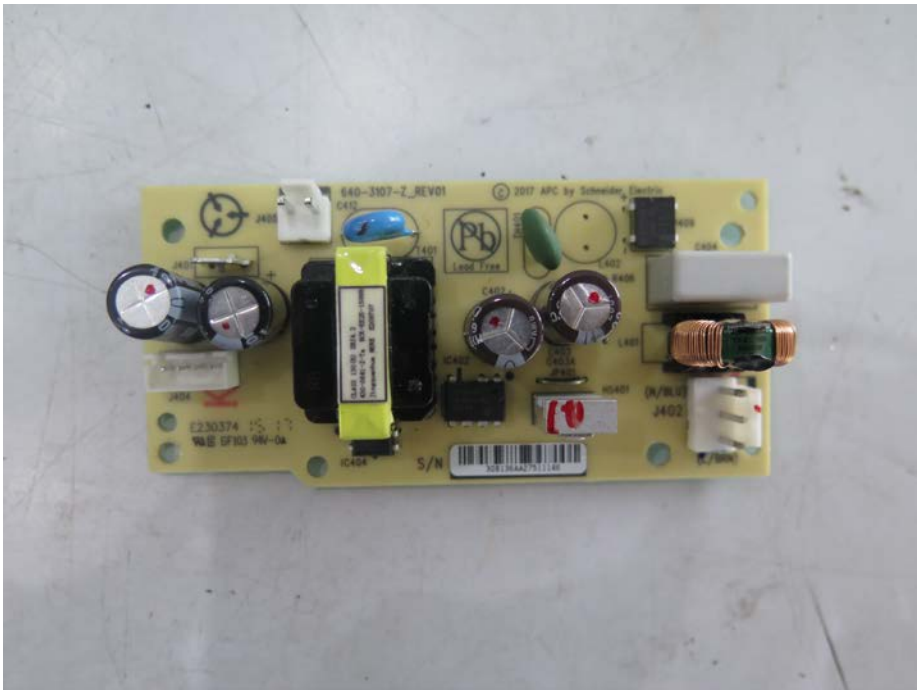
Inside View of EUT



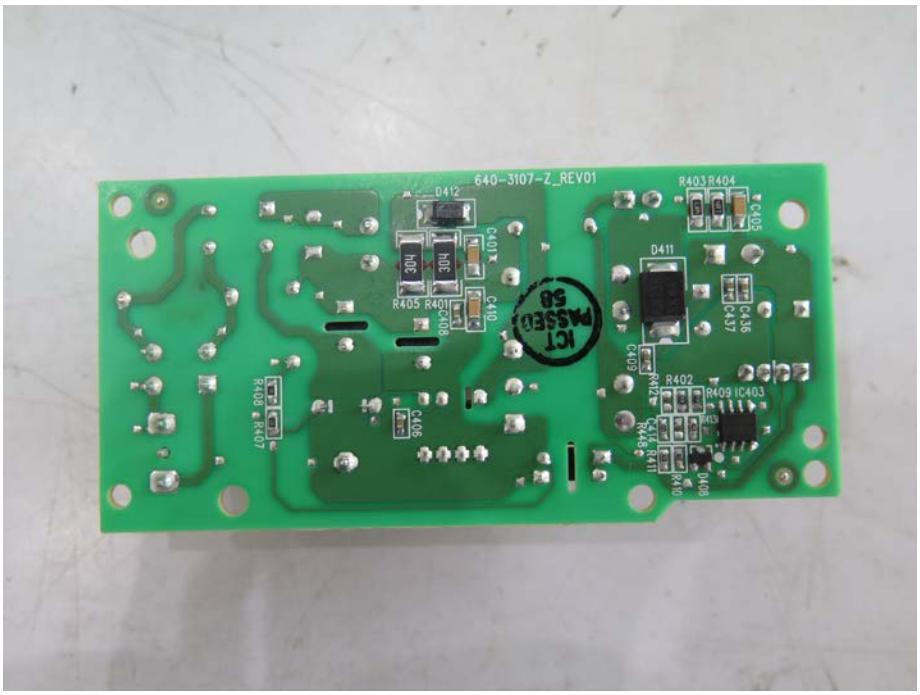
Front View of EUT's PCB 1



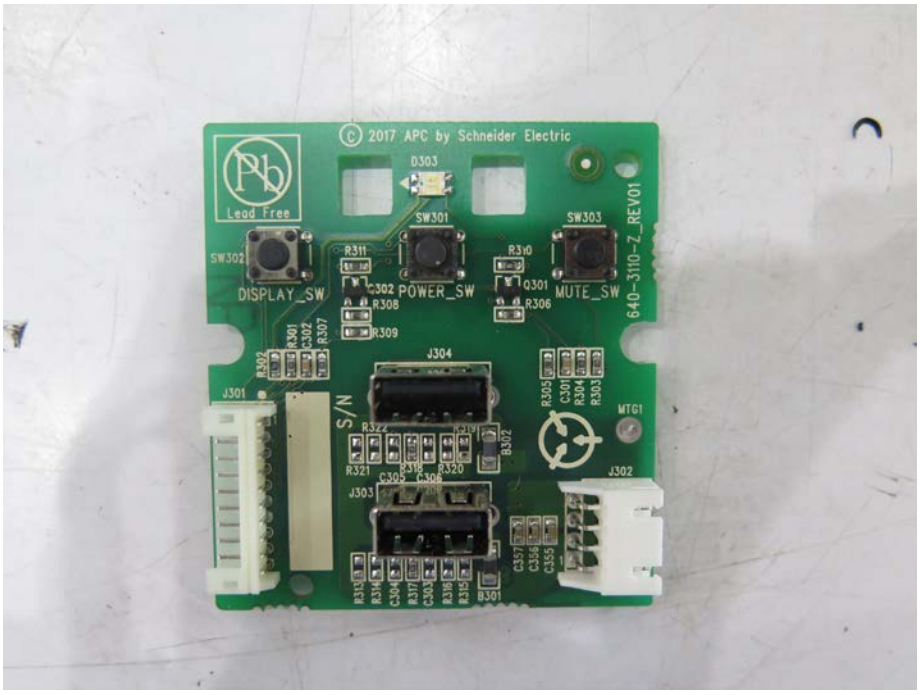
Rear View of the PCB 1



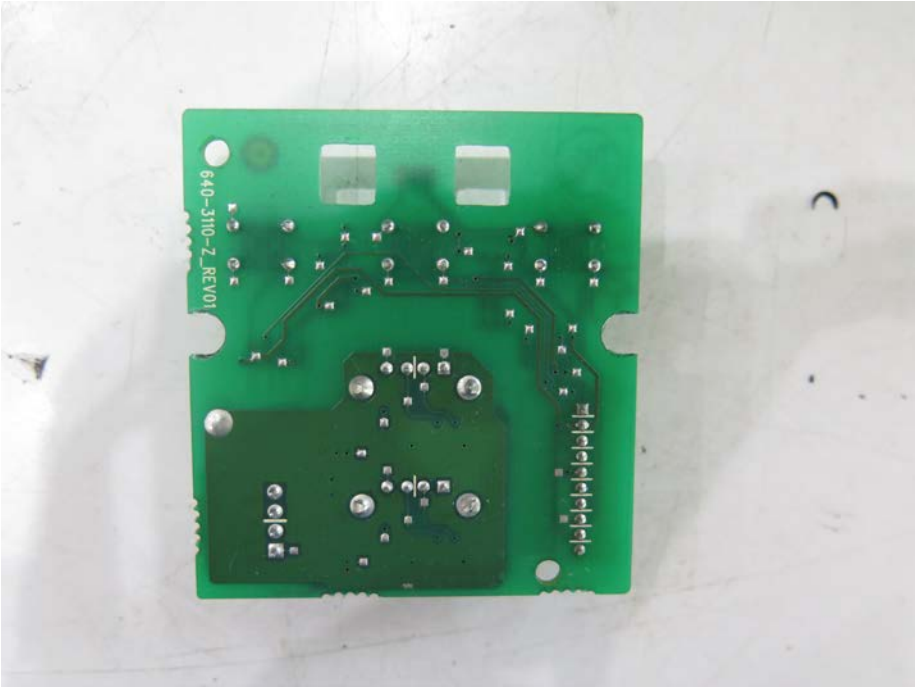
Front View of the PCB 2



Rear View of the PCB 2



Front View of the PCB 3



Rear View of the PCB 3

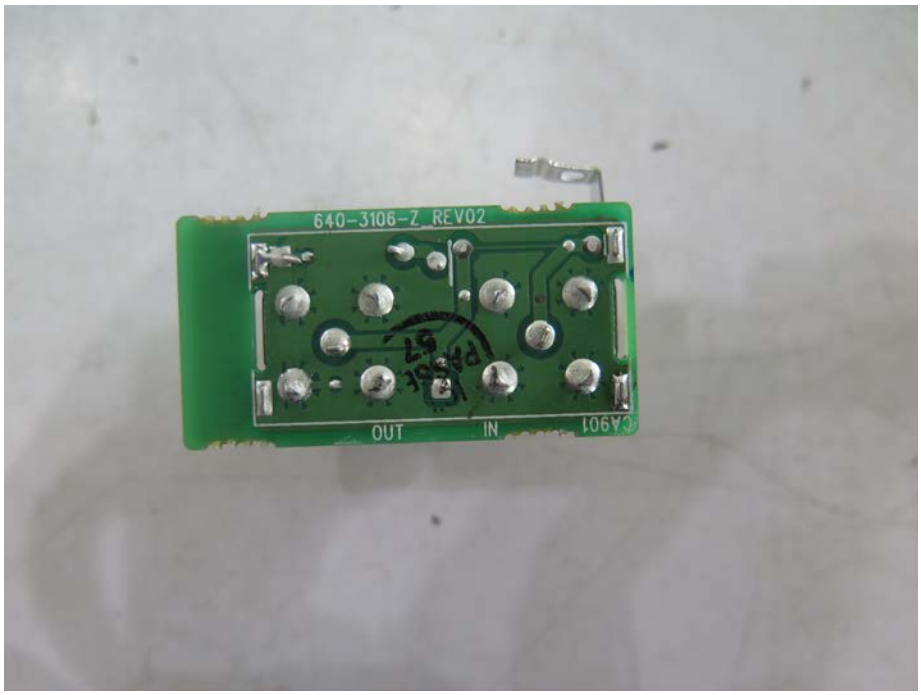
Front View of the PCB 4

Rear View of the PCB 4

Front View of the PCB 5

Rear View of the PCB 5

Front View of the PCB 6



Rear View of the PCB 6

View of the EUT Battery

View of the EUT Battery label

View of the Transformer

View of the Transformer label

View of the Coaxial cable

View of the data cable