Shenzhen Huatongwei International Inspection Co., Ltd.
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CNASL1225

FCC TEST REPORT

47 CFR FCC Part 15 Subpart B

FCC ID ..... :	**T37PL9667-Q1**
Report Reference No. ..... :	**TRE14030081 R/C:99701**
Compiled by (position+printed name+signature) . :	File administrators Jerome Luo
Supervised by (position+printed name+signature) . :	Test Engineer Yingchun Shan
Approved by (position+printed name+signature) . :	Manager Wenliang Li
Date of issue ..... :	Mar 21, 2014
Testing Laboratory Name..... :	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address ..... :	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Applicant's name ..... :	**Asoka USA Corporation**
Address ..... :	2620 Augustine Drive Suite 230 Santa Clara, CA 95054 USA
Test specification:	
Standard..... :	**47 CFR FCC Part 15 Subpart B - Unintentional Radiators** **ANSI C63.4: 2009**
TRF Originator ..... :	Shenzhen Huatongwei International Inspection CO., Ltd
Master TRF ..... :	Dated 2006-06

Test item description .....:	PlugLink HD AV Pass-Through Adapter
Trade Mark..... :	/
Model/Type reference ..... :	PL9667-Q1
Operation Frequency ..... :	From 2MHz to 30MHz
Listed Models ..... :	/
Result ..... :	**PASS**

T E S T R E P O R T

Test Report No. :	**TRE13080071**	Mar 21, 2014 Date of issue

Equipment under Test	:	PlugLink HD AV Pass-Through Adapter
Model /Type	:	PL9667-Q1
Listed Models	:	/
Applicant	:	Asoka USA Corporation.
Address	:	2620 Augustine Drive Suite 230 Santa Clara, CA 95054 USA
Manufacturer	:	Asoka Shenzhen Limited
Address		Room 1701,17/F., Fiyta Hi Tech Building, Gao-Xin Rd, South, Shenzhen , P R China

Test Result according to the standards on page 4:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2009 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the
Range of 9 kHz to 40GHz

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar 18,2014
Testing commenced on	:	Mar 19, 2014
Testing concluded on	:	Mar 21, 2014

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage	:	●	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		○	Other (specified in blank below)		

AC 120V/60Hz

2.3. Short description of the Equipment under Test (EUT)

The EUT PlugLink HD AV Pass-Through Adapter is an In-House BPL device.

For more details, refer to the user's manual of the EUT.

Sample Type: Prototype

2.4. EUT operation mode

The EUT has been tested under typical operating condition.

2.5. Related Submittal(s) / Grant (s)

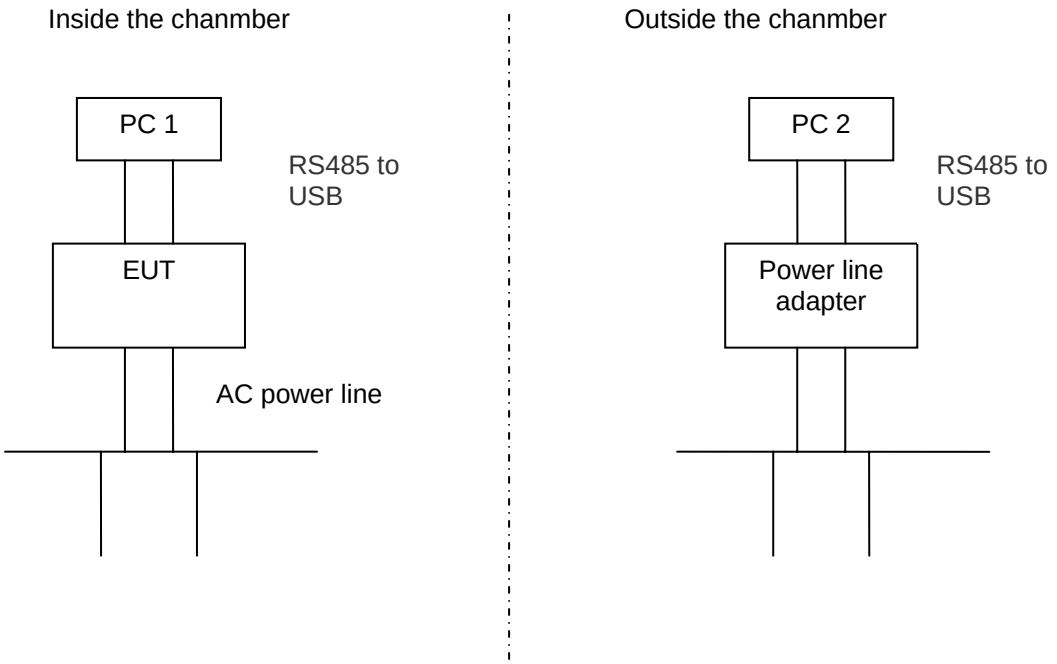
This submittal(s) (test report) is intended for FCC ID: **T37PL9667-Q1** filing to comply with the FCC Part 15, Subpart B Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

2.7. Configuration of Tested System

Configuration of Tested System



Equipment Used in Tested System

No.	Equipment	Manufacturer	Model No.	Serial No.	Notes
1	PC	DELL	DIMENSION E520	1RNN42X	
2	Notebook PC	DELL	D600	CN-0X2034-48643-428-1379	
3	PlugLink HD AV Pass-Through Adapter	ASOKA	PL9667-Q1	/	

2.8. Product Information

As the product operation frequency band from 2MHz to 30MHz.

Product:
Series Number: Y12126702199
Operation frequency: 2MHz-30MHz;

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 01, 2009. Valid time is until Feb. 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sep. 30, 2015.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date Jun. 01, 2012, valid time is until Jun. 01, 2015.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec 31,2013, valid time is until Dec.31, 2016.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2012. Valid time is until Dec. 29, 2015.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.65 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.35 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.5. Equipments Used during the Test

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100106	2013/10/26
2	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	2013/10/26
3	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	2013/10/26
4	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	N/A

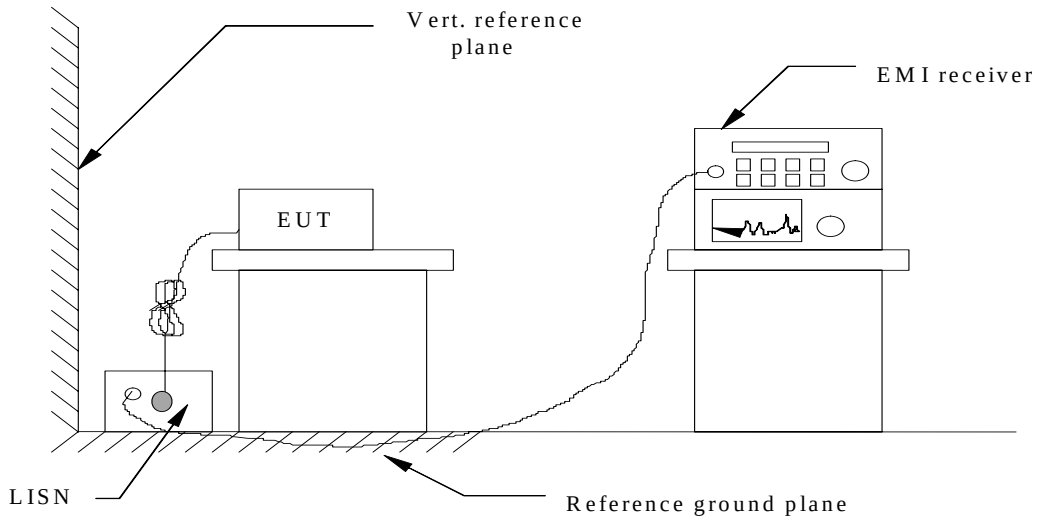
Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2013/10/26
2	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2013/10/26
3	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A
4	TURNTABLE	ETS	2088	2149	N/A
5	ANTENNA MAST	ETS	2075	2346	N/A
6	EMI TEST OFTWARE	ROHDE & SCHWARZ	ESK1	N/A	N/A
7	HORN ANTENNA	ROHDE &SCHWARZ	HF906	100039	2013/10/26
8	Amplifer	Sonoma	310N	E009-13	2013/10/26
9	JS amplifer	ROHDE &SCHWARZ	JS4-00101800-28-5A	F201504	2013/10/26
10	High pass filter	Compliance Direction systems	BSU-6	34202	2013/10/26

The calibration interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
4 The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

CONDUCTED POWER LINE EMISSION LIMIT

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

For unintentional device, according to § 15.107(c) Line Conducted Emission Limits is as following：

Frequency (KHz)	Maximum RF Line Voltage	
535-1705	1000μV	60dBμV

For In-House BPL devices operating as unintentional radiators below 30 MHz, the conducted emissions shall be measured in the 535 – 1705 kHz band as specified in Section 15.107(c). For In- House BPL devices operating as unintentional radiators above 30 MHz, the conducted emissions shall be measured as specified in Section 15.107(a).

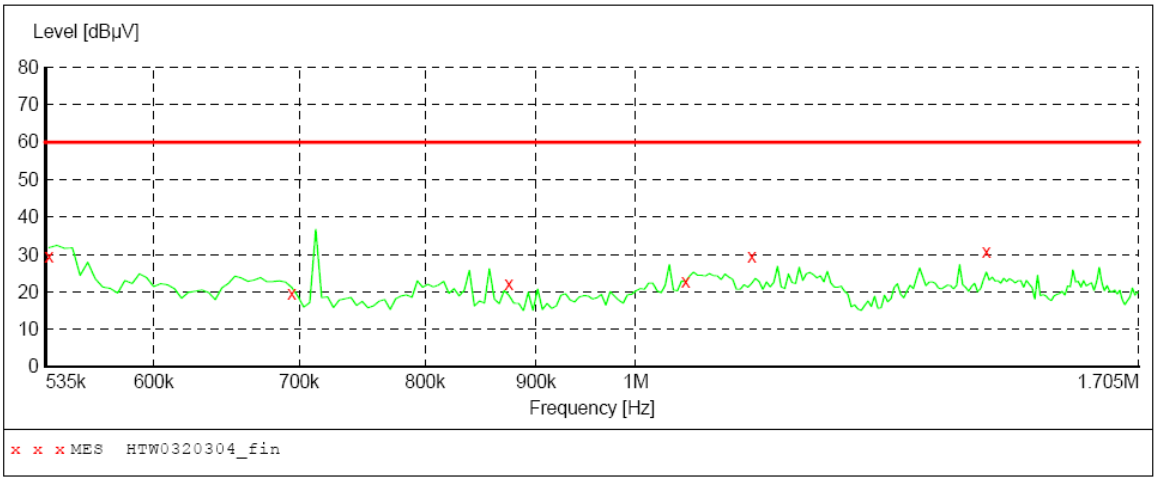
TEST CONDITION

The data rate was set at the maximum rate used by the EUT, and the operating frequency of the EUT as unintentional radiator was blow 30MHz.

TEST RESULTS

Operating frequency blow 30MHz

SCAN TABLE: "Voltage (9K-30M) FIN"
Short Description: 150K-30M Voltage

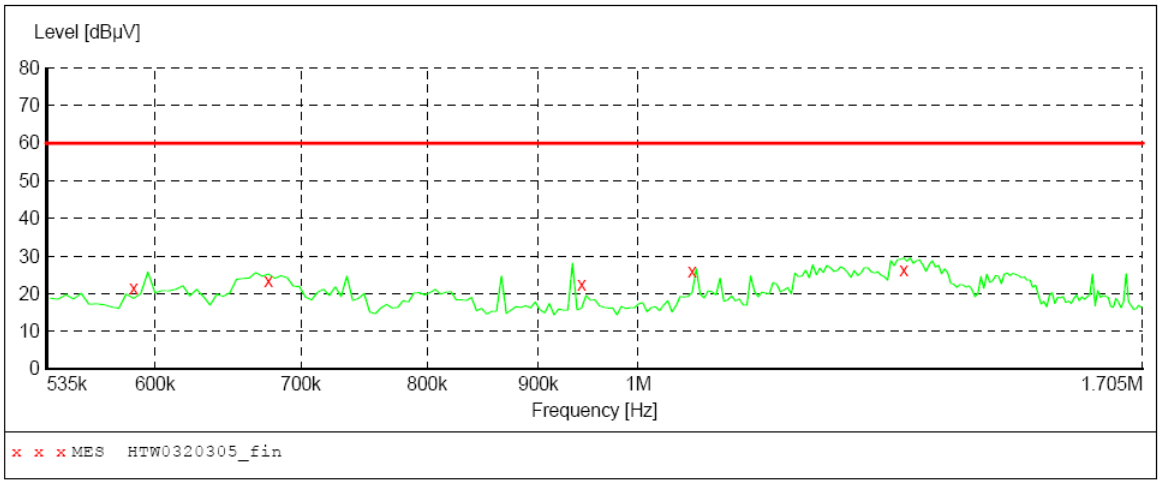


MEASUREMENT RESULT: "HTW0320304_fin"

3/20/2014 9:44AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.537000	29.50	10.3	60	30.5	QP	N	GND
0.694500	19.70	10.3	60	40.3	QP	N	GND
0.874500	22.10	10.2	60	37.9	QP	N	GND
1.054500	22.80	10.3	60	37.2	QP	N	GND
1.131000	29.60	10.3	60	30.4	QP	N	GND
1.450500	30.80	10.3	60	29.2	QP	N	GND

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0320305_fin"

3/20/2014 9:46AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.586500	21.60	10.3	60	38.4	QP	L1	GND
0.676500	23.50	10.3	60	36.5	QP	L1	GND
0.942000	22.60	10.2	60	37.4	QP	L1	GND
1.059000	26.00	10.3	60	34.0	QP	L1	GND
1.324500	26.20	10.3	60	33.8	QP	L1	GND

Remark：

(1) Measuring frequencies from 0.15 MHz to the 30 MHz。

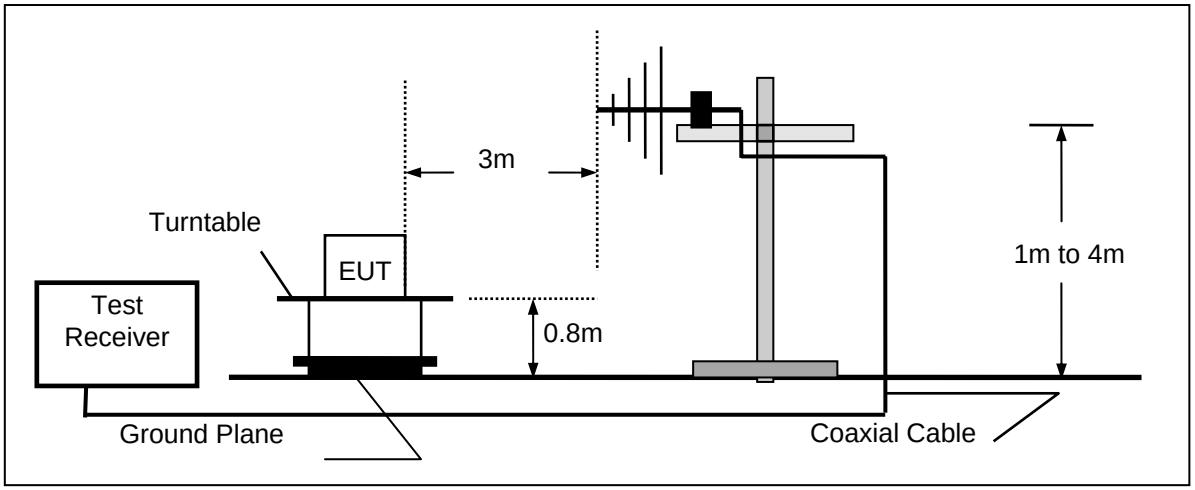
(2) Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) The IF bandwidth of EMI Test Receiver was 9KHz for measuring from 0.15 MHz to 30MHz

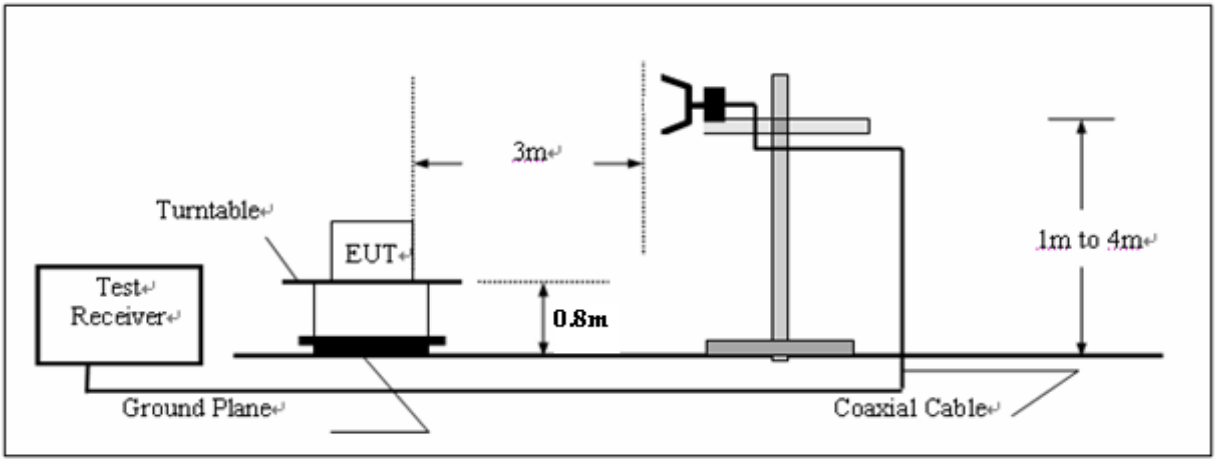
4.2. Radiated Emission Test

TEST CONFIGURATION

a) Radiated Emission Test Set-Up, Frequency below 1000MHz



b) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

For example

Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
300.00	40	58.1	12.2	1.6	31.90	-18.1

Transd=AF +CL-AG

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

TEST CONDITION

The data rate was set at the maximum rate used by the EUT.

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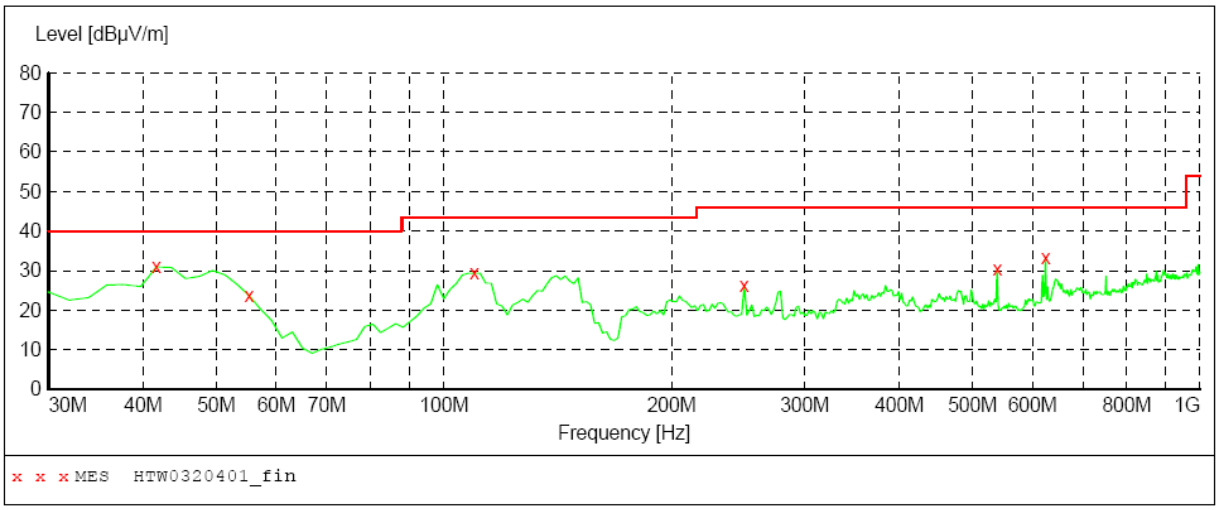
The highest fundamental frequency of the EUT is 166MHz, according to § 15.33(a), the radiated emission

test was performed within the frequency band 30MHz – 2000MHz. The unintentional operating frequency range is 2MHz – 30MHz.

TEST RESULTS

SCAN TABLE: "test Field(30M-1G)QP"

```
Short Description:              Field Strength(30M-1G)
Start      Stop       Step       Detector  Meas.     IF       Transducer
Frequency  Frequency  Width                Time      Bandw.
30.0 MHz   1.0 GHz    60.0 kHz   QuasiPeak 1.0 s     120 kHz  HL562
```



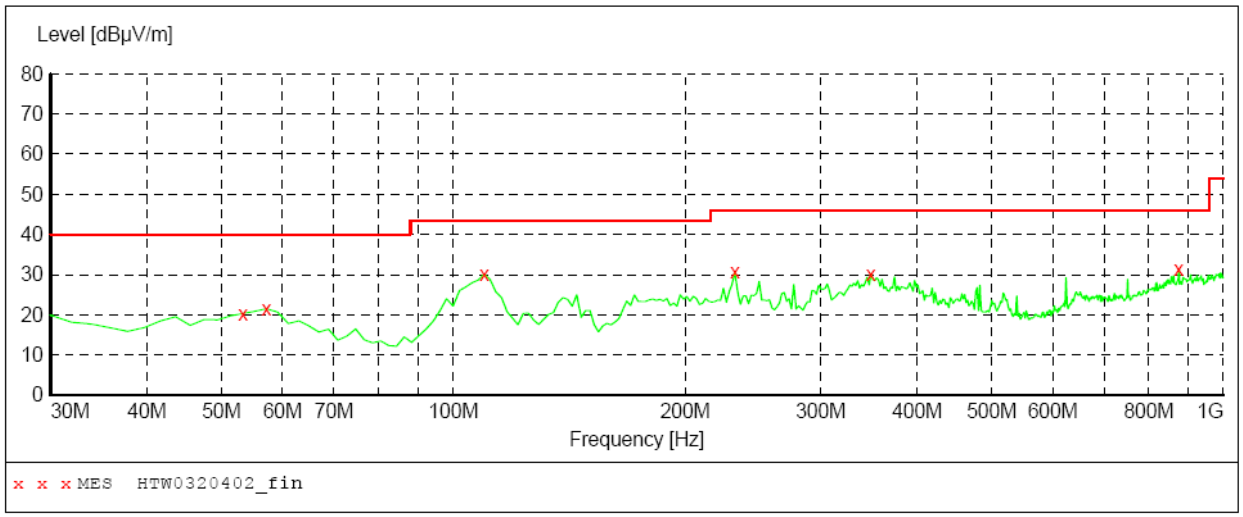
MEASUREMENT RESULT: "HTW0320401_fin"

3/20/2014 8:44AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
41.663327	30.90	-16.2	40.0	9.1	QP	100.0	33.00	VERTICAL
55.270541	23.60	-22.4	40.0	16.4	QP	100.0	14.00	VERTICAL
109.699399	29.40	-18.1	43.5	14.1	QP	100.0	117.00	VERTICAL
249.659319	26.30	-16.9	46.0	19.7	QP	100.0	77.00	VERTICAL
539.298597	30.30	-11.5	46.0	15.7	QP	100.0	179.00	VERTICAL
624.829659	33.20	-9.0	46.0	12.8	QP	100.0	214.00	VERTICAL

SCAN TABLE: "test Field(30M-1G)QP"

```
Short Description:              Field Strength(30M-1G)
Start      Stop       Step       Detector  Meas.     IF       Transducer
Frequency  Frequency  Width                Time      Bandw.
30.0 MHz   1.0 GHz    60.0 kHz   QuasiPeak 1.0 s     120 kHz HL562
```



MEASUREMENT RESULT: "HTW0320402_fin"

3/20/2014 8:47AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.326653	20.30	-21.9	40.0	19.7	QP	300.0	181.00	HORIZONTAL
57.214429	21.50	-23.1	40.0	18.5	QP	300.0	204.00	HORIZONTAL
109.699399	30.00	-18.1	43.5	13.5	QP	300.0	164.00	HORIZONTAL
232.164329	30.60	-17.8	46.0	15.4	QP	100.0	125.00	HORIZONTAL
348.797595	30.20	-14.7	46.0	15.8	QP	100.0	195.00	HORIZONTAL
875.591182	31.30	-4.4	46.0	14.7	QP	100.0	0.00	HORIZONTAL

Remark：

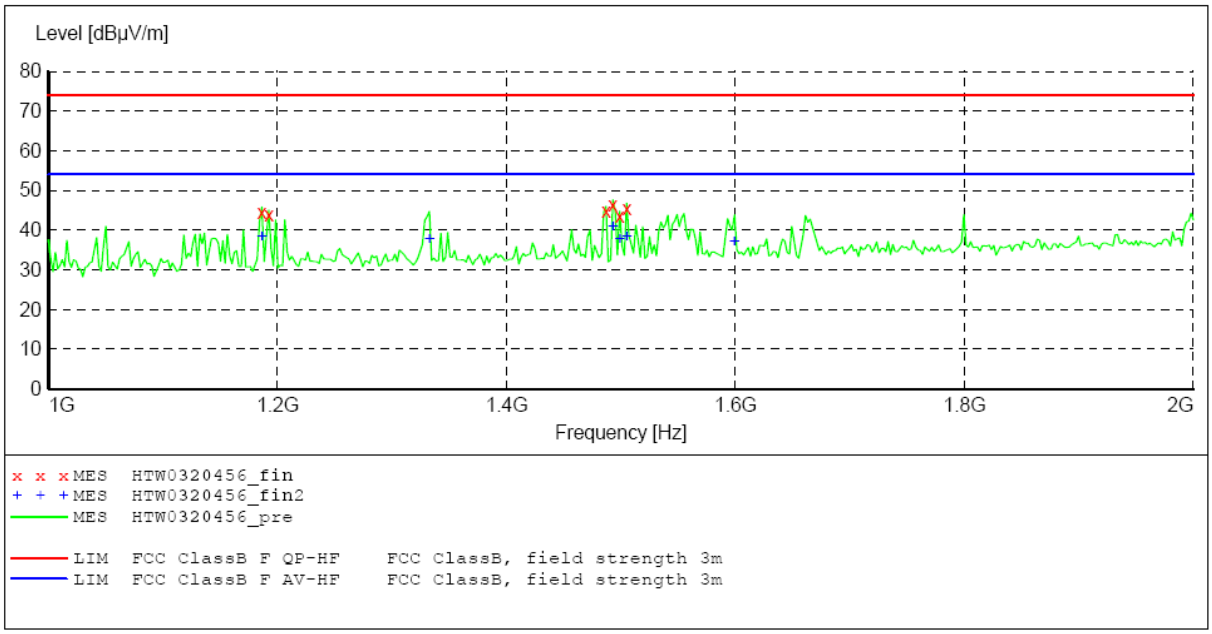
(1) Measuring frequencies from 30 MHz to the 1 GHz。

(2) Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) The IF bandwidth of EMI Test Receiver was 120KHz for measuring from 30 MHz to 1 GHz and 1 MHz for measuring above 1 GHz

Sweep TABLE: "test Field(1G-2G)QP"

```
Short Description: Field Strength(1G-2G)
Start      Stop       Detector  IF      Transducer
Frequency  Frequency            Bandw.
1.0 GHz    2.0 GHz    MaxPeak   1 MHz   HF906
```



MEASUREMENT RESULT: "HTW0320456_fin"

3/20/2014 10:21PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1186.372745	45.80	-11.3	74.0	28.2	PK	100.0	358.00	VERTICAL
1192.384770	45.10	-11.3	74.0	28.9	PK	100.0	360.00	VERTICAL
1486.937948	46.30	-10.1	74.0	27.7	PK	100.0	356.00	VERTICAL
1492.985972	47.60	-10.1	74.0	26.4	PK	100.0	0.00	VERTICAL
1498.997996	44.80	-10.1	74.0	29.2	PK	100.0	19.00	VERTICAL
1505.010020	46.80	-10.0	74.0	27.2	PK	100.0	358.00	VERTICAL

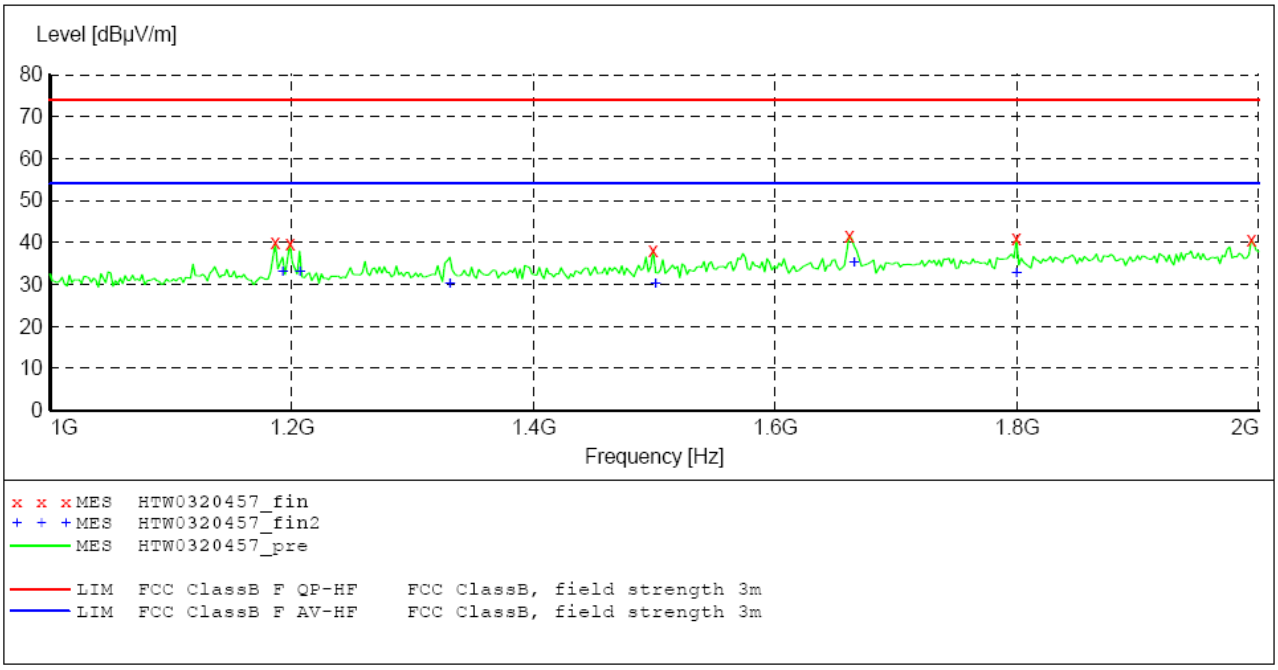
MEASUREMENT RESULT: "HTW0320456_fin2"

3/20/2014 10:21PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1186.372745	39.40	-11.3	54.0	14.6	AV	100.0	358.00	VERTICAL
1332.665331	39.00	-10.7	54.0	15.0	AV	100.0	191.00	VERTICAL
1492.985972	42.40	-10.1	54.0	11.6	AV	100.0	0.00	VERTICAL
1498.997996	38.90	-10.1	54.0	15.1	AV	100.0	6.00	VERTICAL
1505.310020	39.60	-10.0	54.0	14.4	AV	100.0	3.00	VERTICAL
1599.898397	38.10	-9.3	54.0	15.9	AV	100.0	360.00	VERTICAL

Sweep TABLE: "test Field(1G-2G)QP"

```
Short Description: Field Strength(1G-2G)
Start      Stop       Detector  IF      Transducer
Frequency  Frequency             Bandw.
1.0 GHz    2.0 GHz    MaxPeak   1 MHz    HF906
```



MEASUREMENT RESULT: "HTW0320457_fin"

3/20/2014 10:22PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1186.372745	39.90	-11.3	74.0	34.1	PK	100.0	214.00	HORIZONTAL
1198.396794	39.80	-11.3	74.0	34.2	PK	100.0	201.00	HORIZONTAL
1498.997996	38.20	-10.1	74.0	35.8	PK	100.0	318.00	HORIZONTAL
1651.322645	41.70	-8.8	74.0	32.3	PK	100.0	149.00	HORIZONTAL
1799.899198	40.90	-7.9	74.0	33.1	PK	100.0	7.00	HORIZONTAL
1993.987976	40.70	-6.6	74.0	33.3	PK	100.0	214.00	HORIZONTAL

MEASUREMENT RESULT: "HTW0320457_fin2"

3/20/2014 10:22PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1192.384770	33.20	-11.3	54.0	20.8	AV	100.0	136.00	HORIZONTAL
1201.396794	32.30	-11.3	54.0	21.7	AV	100.0	86.00	HORIZONTAL
1330.661323	30.20	-10.7	54.0	23.8	AV	100.0	294.00	HORIZONTAL
1501.002004	30.20	-10.0	54.0	23.8	AV	100.0	318.00	HORIZONTAL
1667.330661	35.20	-8.8	54.0	18.8	AV	100.0	33.00	HORIZONTAL
1799.899198	32.90	-7.9	54.0	21.1	AV	100.0	7.00	HORIZONTAL

Remark：

(1) Measuring frequencies from 1 GHz to the 2 GHz。

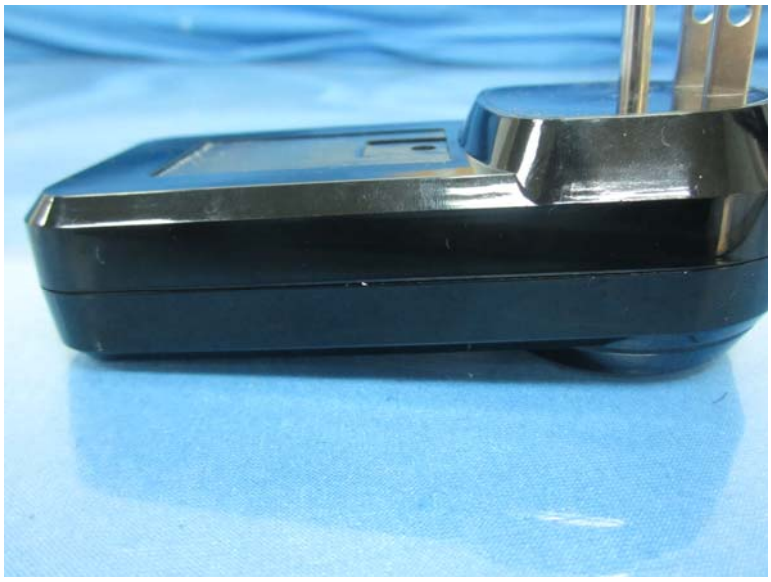
(2) Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) The RBW of EMI Test Receiver was 1MHz and the VBW was 3MHz for measuring from 1 GHz to 2 GHz.

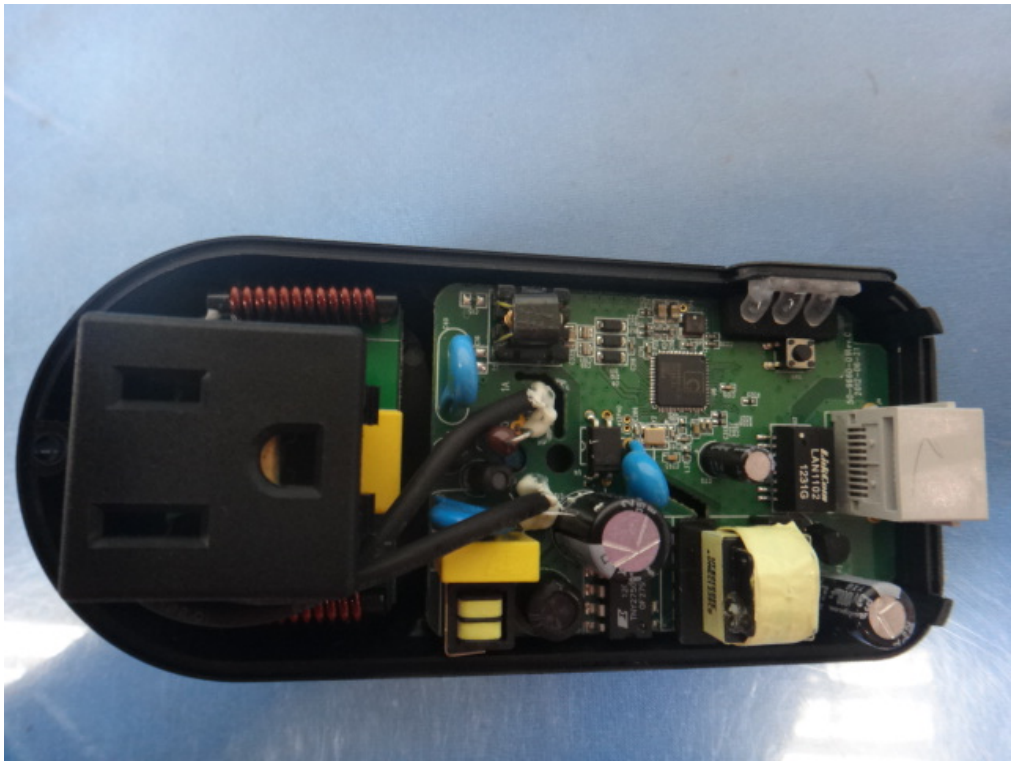
5. Test Setup Photos of the EUT

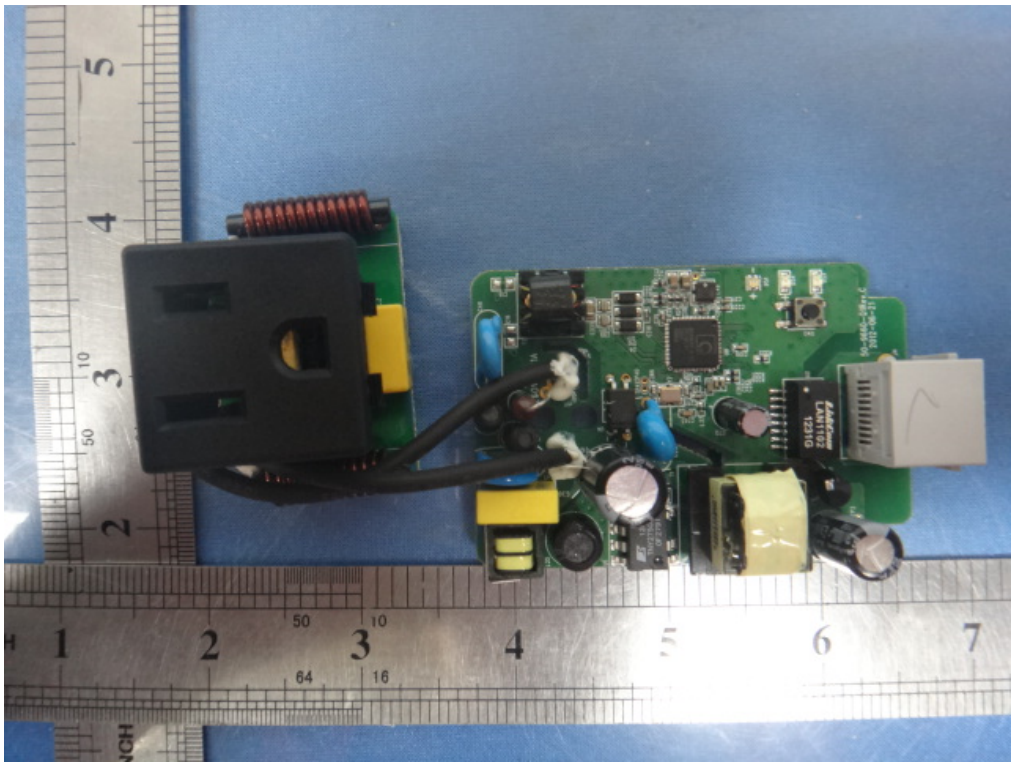
6. External and Internal Photos of the EUT

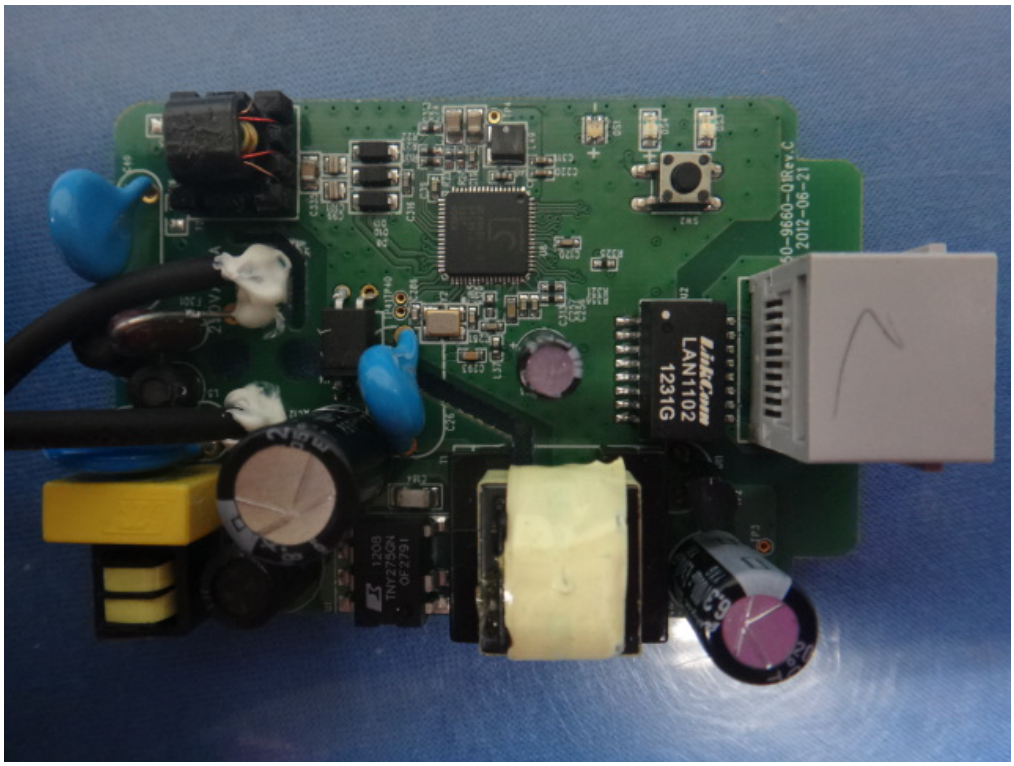
EXternal Photos

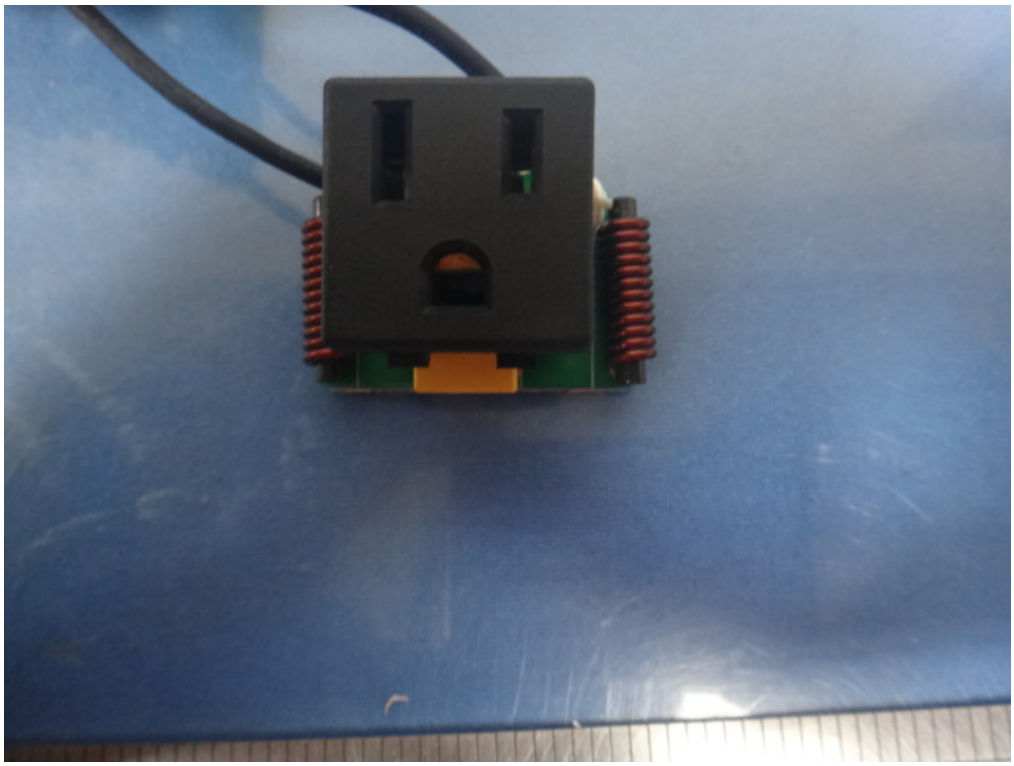


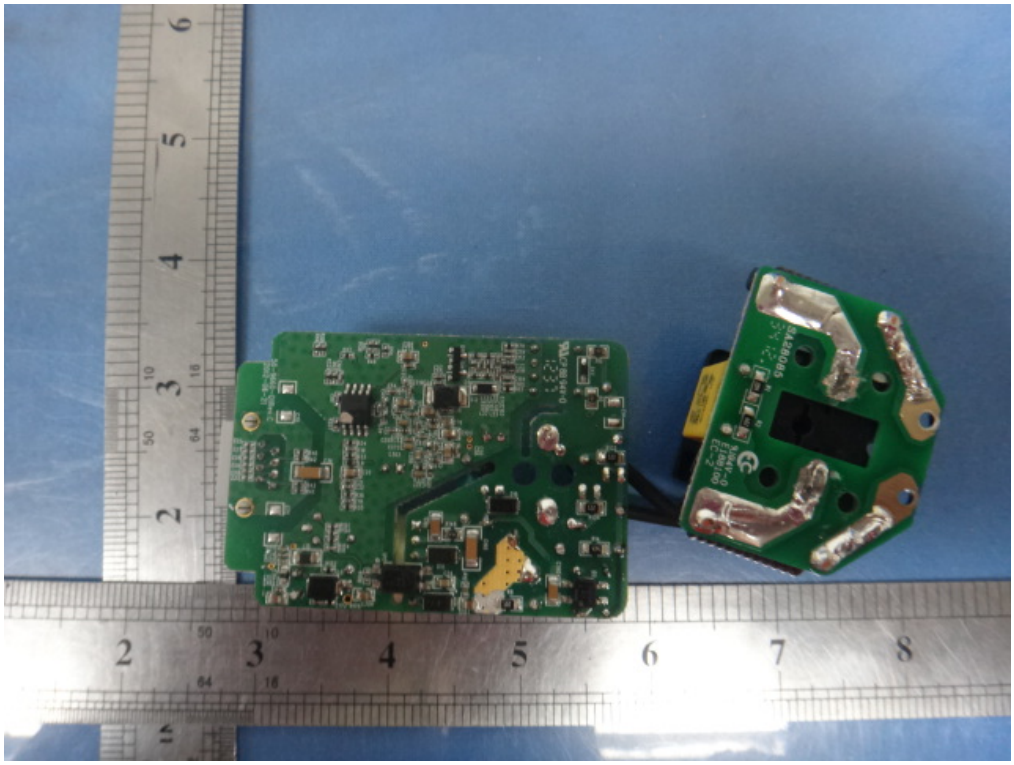
Internal Photos

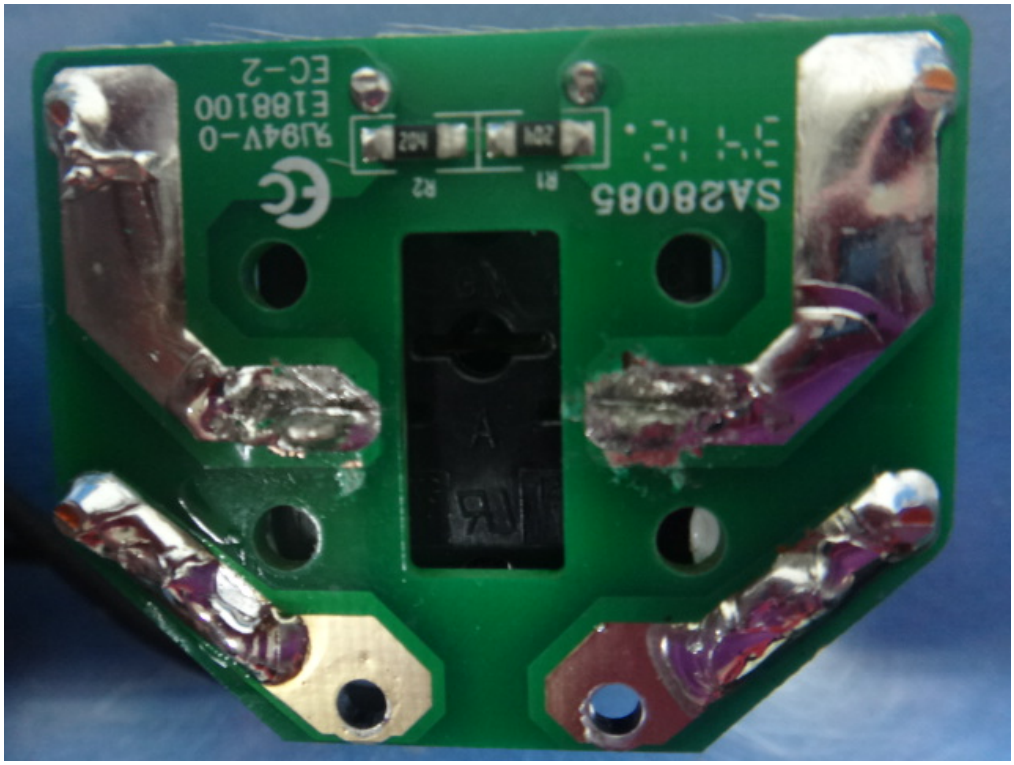





LAN1102
1231G







.....End of Report.....