Verification of Conformity

The products

EUT	**: 4 LAN Ports Network Appliance**
Trade Name	**: AAEON**
Model No.	**: xxxxFWS-2252xx-xxx-xxxxxxxx**
	(Where x is 0-9, A-Z, - or blank)

which produced by

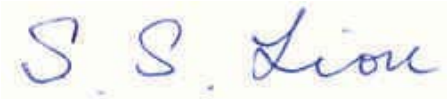
Aaeon Technology Inc.

5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist,

New Taipei City, 231, Taiwan, R.O.C.

Regulation Applied : FCC Rules and Regulations Part 15 Subpart B / CISPR 22
ET Docket No. 95-19 (Doc Procedure)
ICES-003 Issue 5 (August, 2012)

I HEREBY CERTIFY THAT : The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.



Signature
S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

Report Number : 15-11-RBF-042-02

Date of Issue:Nov. 30, 2015

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.
3. The report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

ELECTRONICS TESTING CENTER, TAIWAN
NO. 34. LIN 5. DINGFU VIL., LINKOU DIST.,
NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.

TEL:(02)26023052
INT:+886-2-26023052
FAX:(02)26010910
INT:+886-2-26010910

NVLAP LAB CODE : 200133-0

Designation Number: TW1060

FEDERAL COMMUNICATIONS COMMISSION

Declaration of Conformity (DoC)

The following equipment:

Product Name : 4 LAN Ports Network Appliance

Trade Name : Aaeon

Model Number :xxxxFWS-2252xx-xxx-xxxxxxxx (Where x is 0-9, A-Z, - or blank)

is herewith confirmed to comply with the requirements of FCC Part 15 Rules

The operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesire operation.

The result of electromagnetic emission has been evaluated by ETC EMI Laboratory (NVLAP LAB CODE:200133-0 / FCC Designation Number: TW1060) and showed in the test report: 15-11-RBF-042-02

It is understood that each unit marketed is identical to the device as tested, and any changes to the device which could adversely affect the emission characteristics will require retest.

The following importer/manufacturer is responsible for this declaration:

Company Name :

Company Address :

Telephone : Facsimile :

Person in responsible for marking this declaration:

Name (Full Name) Position/Title

Legal Signature) Date

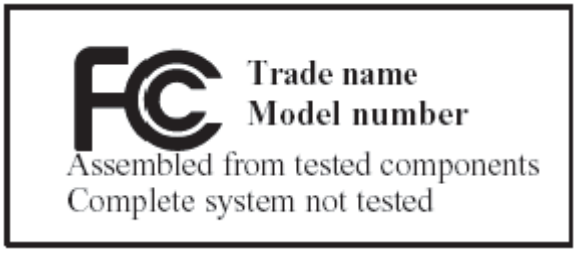
自我符合宣告書請依上述文件製作

宣告者須在美國當地，故所填之公司地址、電話、傳真必須是在美國當地。

FCC Doc Label 樣本參考

一般產品或系統標示如下

若產品需與其他已認可之部品裝配使用則標示如下



EMI TEST REPORT

of

E.U.T. : 4 LAN Ports Network Appliance

Model : xxxxFWS-2252xx-xxx-xxxxxxxx (Where x is 0-9, A-Z, - or blank)

for

APPLICANT : Aaeon Technology Inc.

ADDRESS : 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist, New Taipei City, 231, Taiwan, R.O.C.

Test Performed by

ELECTRONICS TESTING CENTER (ETC) , TAIWAN

NO. 34. LIN 5. DINGFU VIL., LINKOU DIST.,

NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.

TEL : (02)26023052 FAX : (02)26010910

http:// www.etc.org.tw ; e-mail:emc@etc.org.tw

Report Number : 15-11-RBF-042-02

ETC Report No. : 15-11-RBF-042-02

TEST REPORT

Applicant	:	AAEON Technology Inc. 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist, New Taipei City, 231, Taiwan, R.O.C
Manufacturer	:	Aaeon Technology Inc.
Description of Device	:	
a) Type of EUT	:	4 LAN Ports Network Appliance
b) Trade Name	:	AAEON
c) Model No.	:	xxxxFWS-2252xx-xxx-xxxxxxxx (Where x is 0-9, A-Z, - or blank)
d) Power Supply	:	Adapter Model: FSP040-DGAA1 AC Input :100-240V, 1.3A, 50/60Hz DC Output: 12.0V ⎓ 3.33 A MAX (40W MAX)
Regulation Applied		: FCC Rules and Regulations Part 15 Subpart B/ CISPR 22 ET Docket No. 95-19 (DoC Procedure)；ICES-003 Issue 5 (August, 2012)

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.
3. The report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

Date Test Item Received	*:*	*Nov. 16, 2015*
Date Test Campaign Completed	*:*	*Nov. 20, 2015*
Date of Issue	*:*	*Nov. 30, 2015*

Test Engineer *:* _____

(Brian Huang , Engineer)

Approve & Authorized *:* _____

S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

Table of Contents Page

1 GENERAL INFORMATION

1.1 Product Description and Operation

a) Type of EUT : 4 LAN Ports Network Appliance

b) Trade Name : AAEON

c) Model No. : xxxxFWS-2252xx-xxx-xxxxxxxx (Where x is 0-9, A-Z, - or blank)

d) Power Supply : Adapter Model: FSP040-DGAA1
AC Input :100-240V, 1.3A, 50/60Hz
DC Output: 12.0V ⎓ 3.33 A MAX (40W MAX)

1.2 Characteristics of Device

FWS-2252

1.3 Test Methodology

For EUT, both conducted and radiated emissions were performed according to the procedures in ANSI C63.4 (2003).

1.4 Test Facility

The open area test site and the conducted measurement facility used to collect the test data is located at NO. 34. LIN 5. DINGFU, LINKOU DIST., NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.

This site is accredited for measuring devices subject to Declaration of Conformity (DOC) under Parts 15 & 18 via APEC TEL MRA.
FCC Designation Number: TW1060
Expiration date: Oct. 08, 2015.

This site is accredited by the National Voltuntary Laboratory Accreditiation Porgram in accordance with the recognized International Standard ISO/IEC 17025:2005.
NVLAP LAB CODE : 200133-0
The effective date Jun. 30, 2015.

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

Except for Class A digital devices, for equpment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency MHz	Quasi Peak dBμV	Average dBμV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreases with the logarithm of the frequency

(2) Radiated Emission Requirement

For unintentional device, according to FCC §15.109(a), 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 unintentional device, according to CISPR Radiated Emission Limits class B is as following:

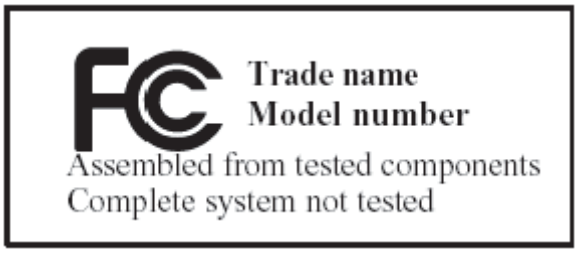
Frequency MHz	Distance Meters	Radiated dBμV/m
30 to 230	10	30
230 to 1000	10	37

2.3 Labeling Requirement

Products sjubject to authorization under a Declaration of Conformity shall be labeled as follows:

(1) The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 of this chapter and the following logo:
(i) IF the product is authorized based on testing of the product or system:

(ii) If the product is authorized based on assembly using separately authorized components, in accordance with Section 15.101(c)(2) or (c)(3), and the resulting product is not separately tested:



(2) Label text and information should be in a size of type large enough to be readily legible, consistent with the dimensions of the equipment and the label. However, the type size for the text is not required to be larger than eight point.

(3) When the device is so small or for such used that it is not practicable to place the statement specified under paragraph (b)(1) of this section on it, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.

(4) The label shall not be a stick-on, paper label. The labelon these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d) of this chapter. “Permanently affixed” means that the label is etched, engraved, stamped, silkscreened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or an a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to the last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

2.4 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion, as a customer would QPly use it.

For radiated emission measuring, the EUT was rotated to obtain the maximum level of radiated emissions. The antenna was varied in height from 1 to 4 meters above ground to obtain the maximum signal strength. Measurement was performed under the condition that a computer program was exercised to simulate data communication of EUT. Three highest emissions were verified with varying placement of the connected cable to maximize the emission from EUT.

3.2 Devices for Tested System

Description	Manufacturer	Model	Description
4 LAN Ports Network Appliance	1.Aaeon Technology Inc.	4 LAN Ports Network Appliance	1.8m Unshielded AC Adapter Power Cord 3m Unshielded RS232 Cable 3m Unshielded RJ45 Cable
Notebook PC	HP	2139211-VS	2.6m Unshielded AC Adapter Power Cord
USB Mouse	DELL	MS111-L	1.5m Unshielded Cable
Keyboard	DELL	KB212-B	1.5m Unshielded Cable
PRINTER	HP	THINKJET	1.8m Unshielded AC Adapter Power Cord
2.5inch HDD	WD	C4B	0.4m Unshielded USB Cable
2.5inch HDD	BUFFALO	HD-PCT500U3B	0.5m Unshielded USB Cable
2.5inch HDD	WD	HD-PCTU3	1.2m Unshielded USB Cable
Earphone	---	---	2.3m Unshielded Cable

Remark "*" means equipment under test.

3.3 Configuration of Tested System

Please Refer to test setup photos.

3.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz ~ 30MHz	2.5dB(Mains)
Conducted emission at telecommunication ports	150kHz ~ 30MHz	2.22dB(Voltage)
		2.88dB(Current)
Radiated emissions	30MHz ~ 1GHz	3.90dB(30MHz≦f≦300MHz)
		3.95dB(300MHz＜f≦1GHz)
	Above 1GHz	4.42dB(1GHz≦f≦18GHz)
		4.86dB(18GHz≦f≦40GHz)

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

3.5 Deviation Statement

(If any deviation from additions to or exclusions from test method must be stated)

4 RADIATED EMISSION MEASUREMENT

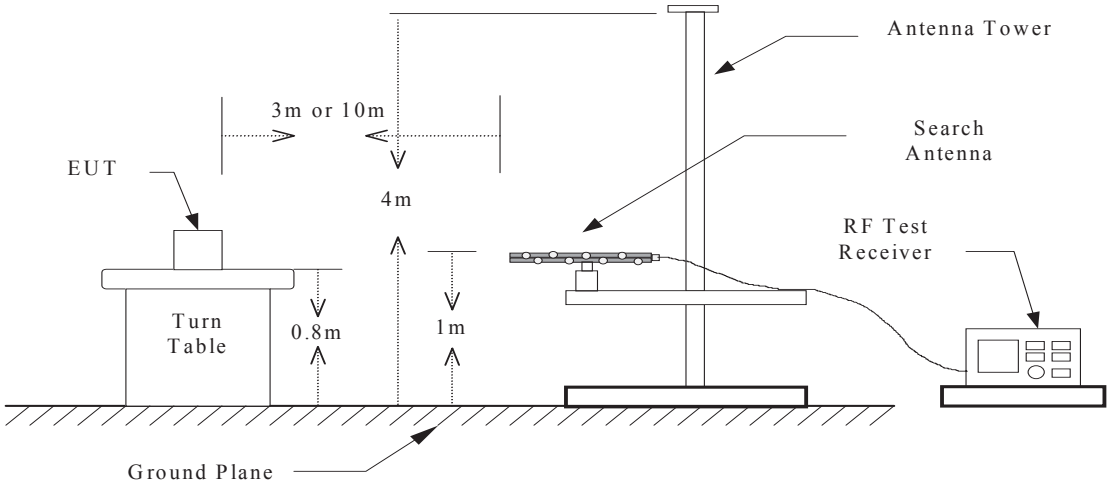
4.1 Applicable Standard

For unintentional radiator digital devices, the radiated emission shall comply with §15.109(a). And according to §15.109 (g), as an alternative to the radiated emission limits is CISPR 22.

4.2 Measurement Procedure

1. Setup the configuration per figure 1.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2015/09/09	2016/09/08
EMI Test Receiver	Rohde & Schwarz	ESL	2015/03/26	2016/03/25
Bi-Log Antenna	ETC	MCTD 2786	2015/07/01	2016/06/30
Double Ridged Antenna	EMCO	3115	2014/10/22	2015/10/21
Amplifier	HP	83051A	2014/10/22	2015/10/21
Amplifier	HP	8447D	2014/11/10	2015/11/09

Note: The standards used to perform this calibration are traceable to NML/ROC, NIST/USA and NPL/UK.

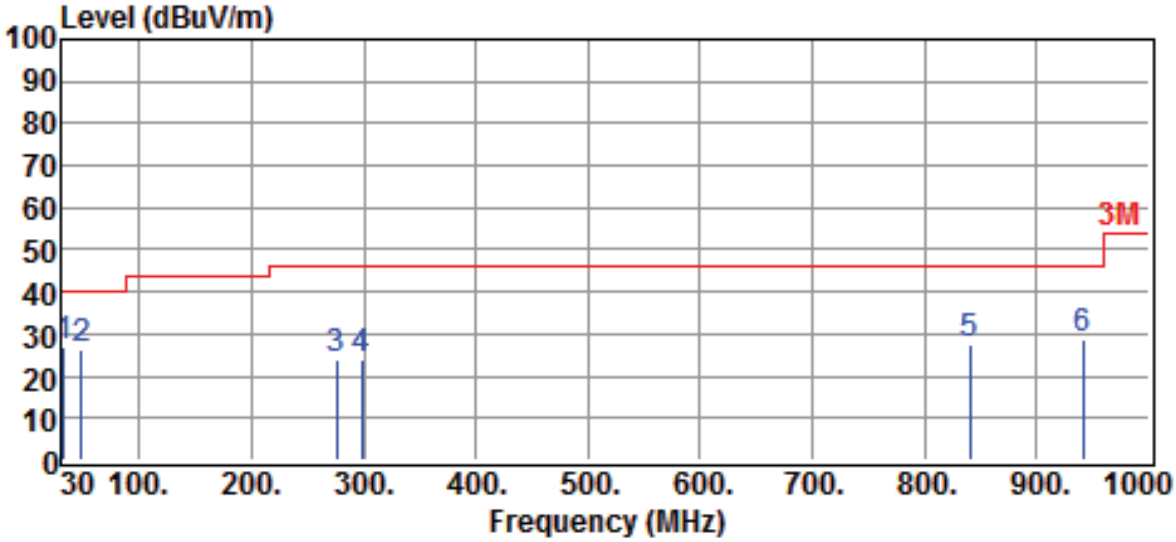
Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	1 MHz
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10Hz

4.4 Radiated Emission Data

A. Other spurious emissions

(30MHz to 1GHz)

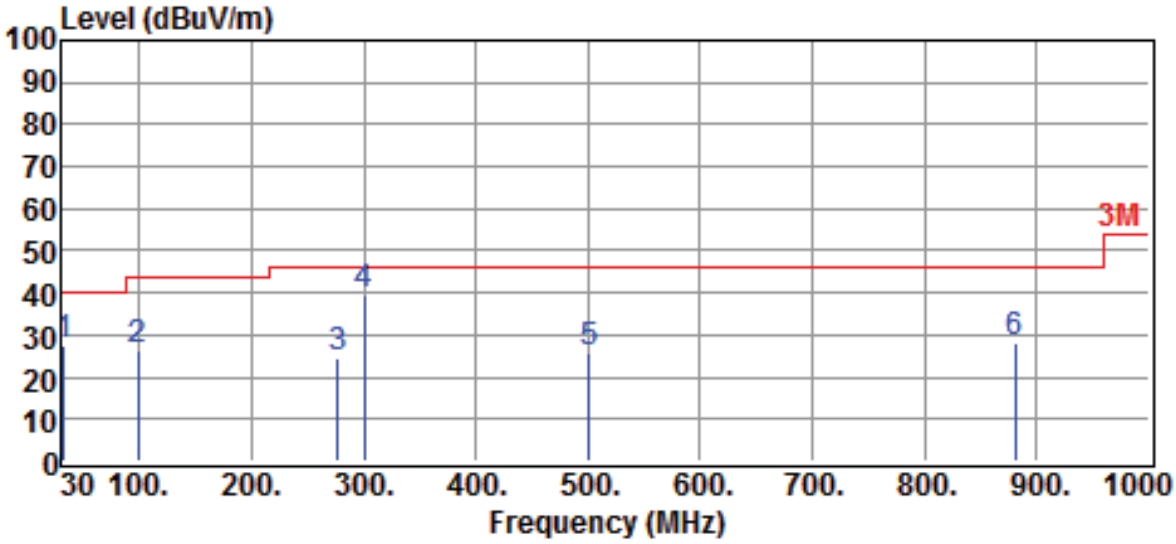


Site	: OPEN SITE	Date	:2015-11-26
Limit	: 3M	Ant. Pol.	:HORIZONTAL
EUT	: FWS-2252	Model	:FWS-2252
Power Rating	: 120V60Hz	Temp.	:28˚C
Engineer	: Brian Huang	Humi.	:56 %
Test Mode	:		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
32.9100	12.6	14.5	27.1	40.0	-12.9	QP
48.4300	14.9	11.3	26.2	40.0	-13.8	QP
275.4100	4.9	19.1	24.0	46.0	-22.0	QP
297.7200	3.2	20.7	23.9	46.0	-22.1	QP
839.9500	4.8	22.6	27.4	46.0	-18.6	QP
940.8300	4.5	23.9	28.4	46.0	-17.6	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result



Site	: OPEN SITE	Date	:2015-11-26
Limit	: 3M	Ant. Pol.	:VERTICAL
EUT	: FWS-2252	Model	:FWS-2252
Power Rating	: 120V60Hz	Temp.	:28˚C
Engineer	: Brian Huang	Humi.	:56 %
Test Mode	:		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
32.9100	13.3	14.5	27.8	40.0	-12.2	QP
98.8700	16.7	9.8	26.5	43.5	-17.0	QP
277.3500	5.2	19.3	24.5	46.0	-21.5	QP
300.6300	19.1	20.7	39.8	46.0	-6.2	QP
501.4200	7.2	18.4	25.6	46.0	-20.4	QP
880.6900	5.3	23.0	28.3	46.0	-17.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result

B. Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz were too low to be measured with a pre-amplifier of 35 dB.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

Corrected Factor = Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

5 CONDUCTED EMISSION MEASUREMENT

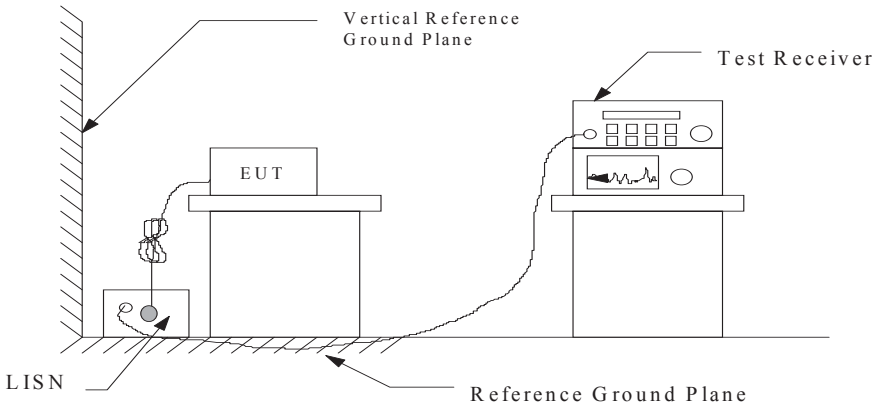
5.1 Description

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to §15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

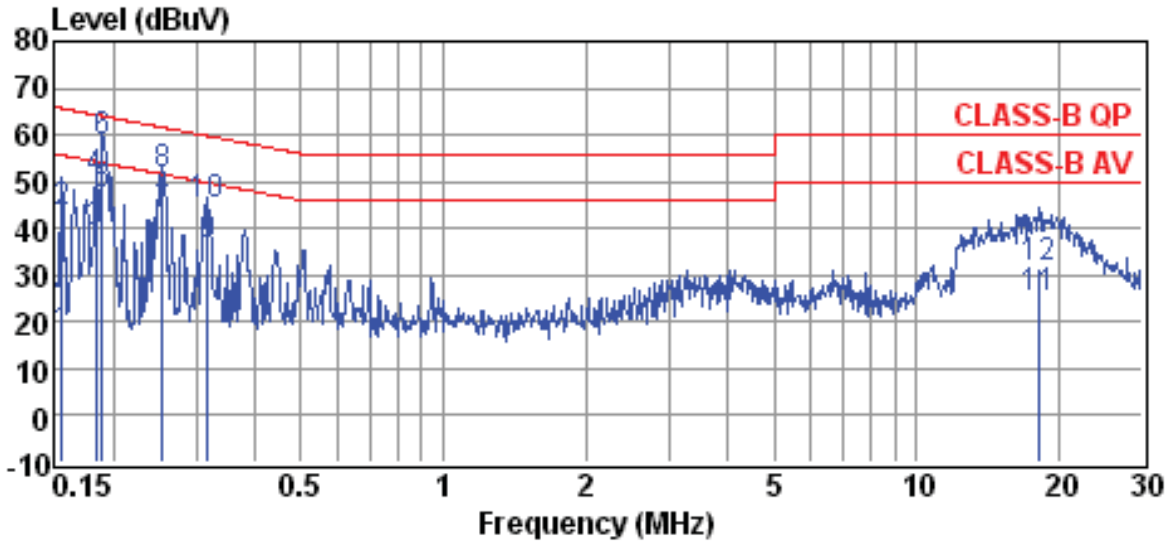
5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 3 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

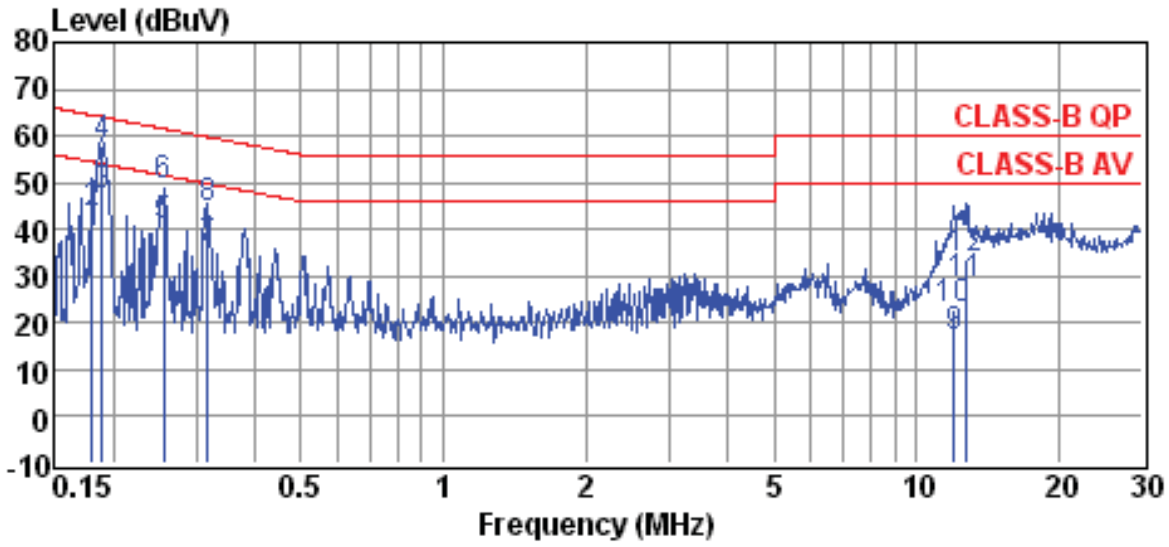


Site	: conducted #1	Date	: 11-26-2015
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 24 ℃ / 53%	Test Mode	: Operation mode
EUT	: FWS-2252	Power Rating	: AC 120V60Hz
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1565	-3.31	20.18	16.87	55.65	-38.78	Average
0.1565	23.33	20.18	43.51	65.65	-22.14	QP
0.1844	18.72	20.18	38.90	54.28	-15.38	Average
0.1844	30.24	20.18	50.42	64.28	-13.86	QP
0.1894	27.15	20.18	47.33	54.06	-6.73	Average
0.1894	38.11	20.18	58.29	64.06	-5.77	QP
0.2548	22.66	20.19	42.85	51.60	-8.75	Average
0.2548	31.25	20.19	51.44	61.60	-10.16	QP
0.3166	15.95	20.20	36.15	49.80	-13.65	Average
0.3166	24.65	20.20	44.85	59.80	-14.95	QP
18.2320	4.20	20.91	25.11	50.00	-24.89	Average
18.2320	10.51	20.91	31.42	60.00	-28.58	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss



Site	: conducted #1	Date	: 11-26-2015
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 24 ℃ / 53%	Test Mode	: Operation mode
EUT	: FWS-2252	Power Rating	: AC 120V60Hz
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1806	5.76	20.17	25.93	54.46	-28.53	Average
0.1806	23.38	20.17	43.55	64.46	-20.91	QP
0.1894	26.80	20.17	46.97	54.06	-7.09	Average
0.1894	37.79	20.17	57.96	64.06	-6.10	QP
0.2562	20.49	20.18	40.67	51.56	-10.89	Average
0.2562	28.96	20.18	49.14	61.56	-12.42	QP
0.3166	15.87	20.19	36.06	49.80	-13.74	Average
0.3166	23.99	20.19	44.18	59.80	-15.62	QP
11.9960	-4.02	20.80	16.78	50.00	-33.22	Average
11.9960	2.16	20.80	22.96	60.00	-37.04	QP
12.7840	7.19	20.84	28.03	50.00	-21.97	Average
12.7840	12.74	20.84	33.58	60.00	-26.42	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dB μV is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dB μV.

RESULT = 22.5 + 0.1 = 22.6 dB μV

Level in μV = Common Antilogarithm[(22.6 dB μV)/20]

= 13.48 μV

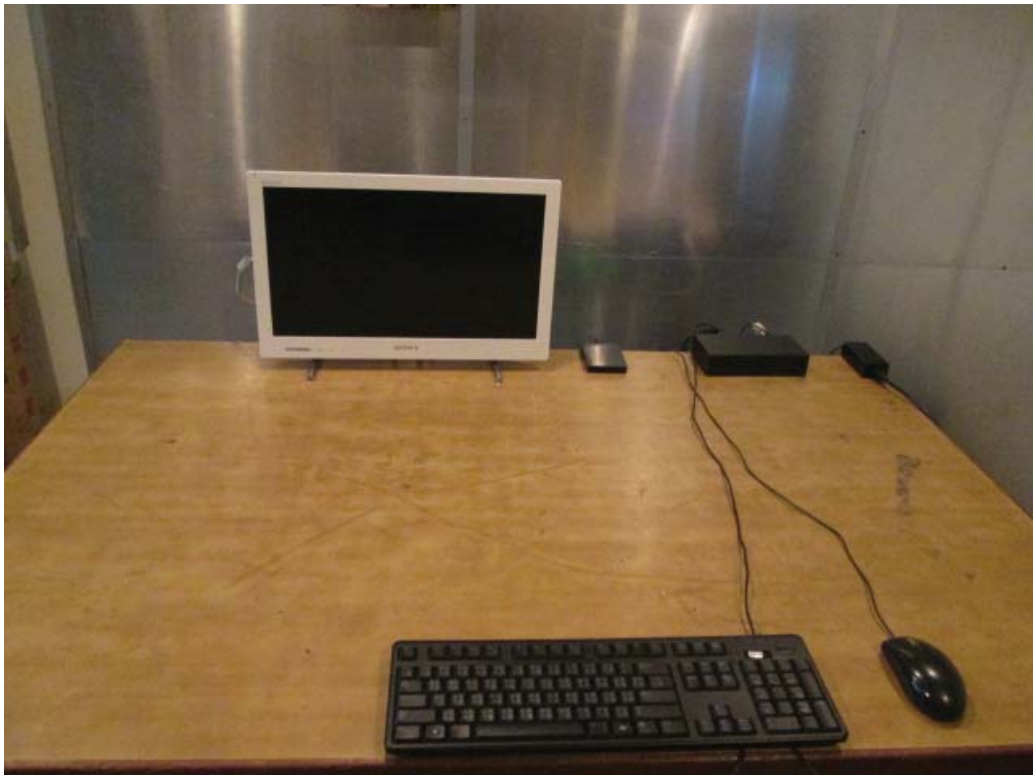
5.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test .

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2015/09/09	2016/09/08
LISN	EMCO	3625/2	2014/10/29	2015/10/28
LISN	Rohde & Schwarz	ESH2-Z5	2015/04/09	2016/04/08

5.6 Photos of Conduction Measuring Setup

(1)



(2)

CONSTRUCTED PHOTOS of EUT

(A)EUT

1.

2.

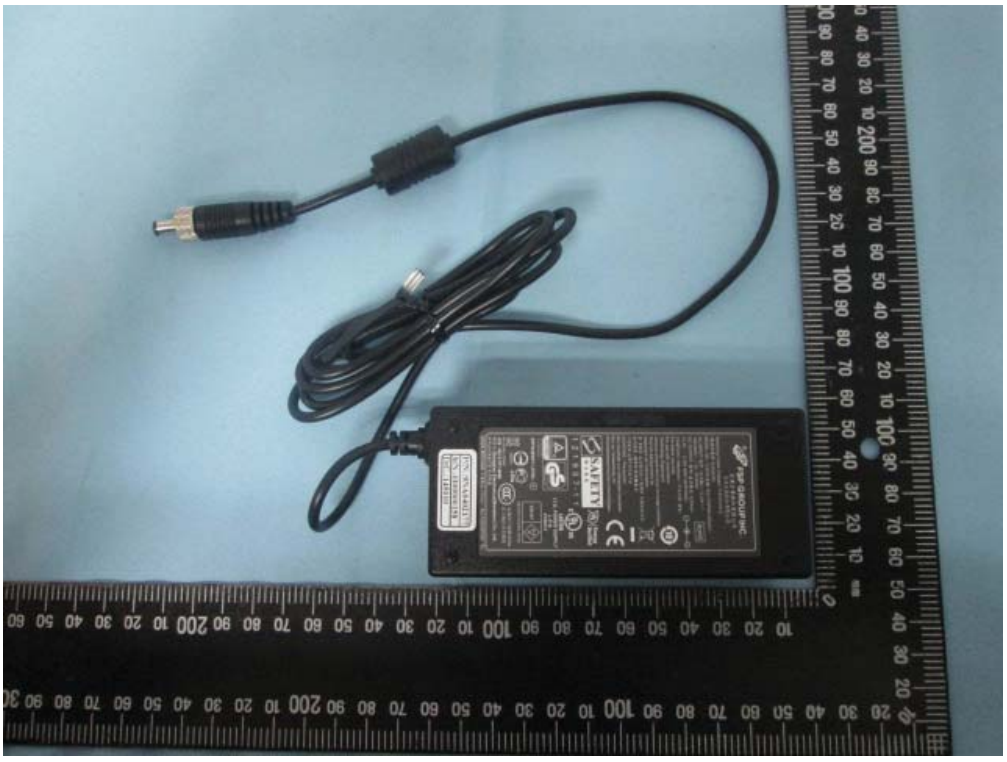
CONSTRUCTED PHOTOS of EUT

3.

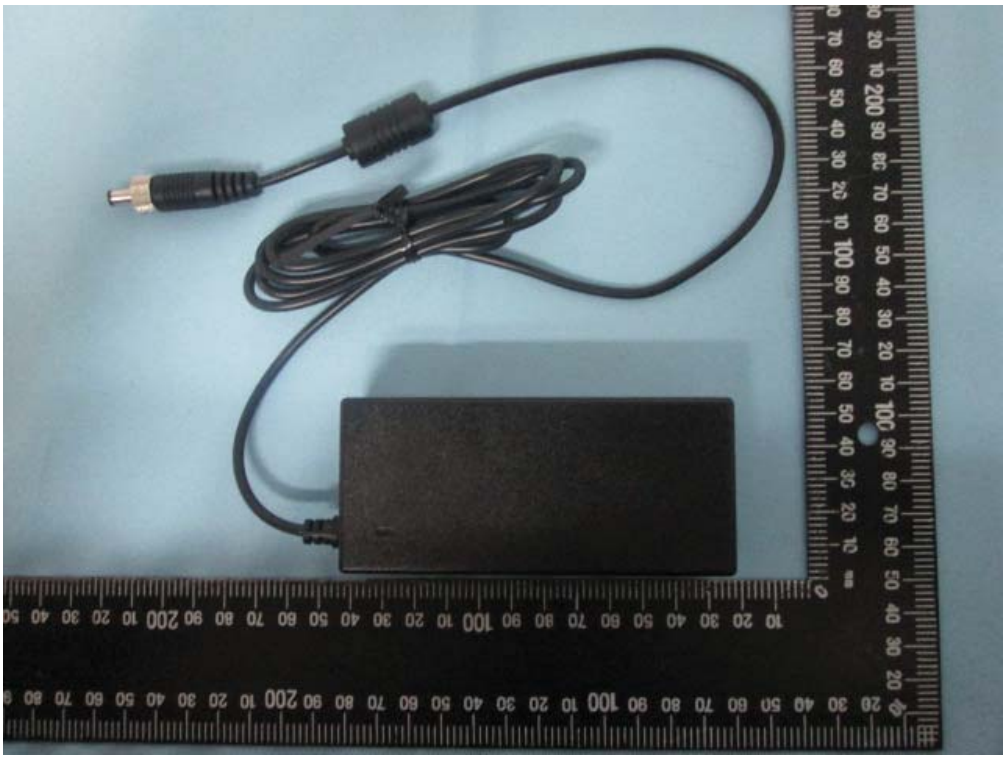
CONSTRUCTED PHOTOS of EUT

(B)Adapter

1.



2



CONSTRUCTED PHOTOS of EUT

3.