CERTIFICATE OF COMPLIANCE

Certificate No.:	**Date of Issue:**
K132102.00	30 January 2014
Applicant Name:	RADWARE Ltd.
Applicant Address	22 Raul Wallenberg St., Tel-Aviv, 61131, Israel
Product	Network Switch Load Balancer
Model / Type Ref.	Alteon 6420 XL with Extreme SSL, P/N RODS-HTQ-XL-A4-A, With Single AC P.S., P/N PSS2-5A00V3V, Manufactured by Zippy Tech (See customer's declaration dated 30 January 2014 in ITL test report no. E132102.00 for additional P/N names).
Rating	100-240 VAC; 47-63 Hz
Tested to	ICES-003, Issue 5: 2012, Class A
Test Results are detailed in the Test Report No.	E132102.00

Name:

Signature: _____

Certification Dept.

This is to certify that the product specified herein has been tested & the test results were found to be compliant with the requirements noted above.

Bat-Sheva St. 1 P.O.B. 6117 Lod 7116002 Israel Tel: 972-8-9153100 Fax: 972-8-9153101 standard@itl.co.il | www.itl.co.il

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CERTIFICATE OF COMPLIANCE

Certificate No.:	**Date of Issue:**
K121572.00	7 February 2013
Applicant Name:	RADWARE Ltd.
Applicant Address	22 Raul Wallenberg St., Tel-Aviv, 61131, Israel
Product	Network Application Switch
Model / Type Ref.	RODS-HTQ-D-2AC (See customer's declaration in ITL test report no. E121572.00 for additional model names).
Rating	100 - 240 VAC 50/60 Hz
Tested to	ICES-003 Issue 5: 2012, Class A
Test Results are detailed in the Test Report No.	E121572.00

Signature: _____

Certification Dept.

This is to certify that the product specified herein has been tested & the test results were found to be compliant with the requirements noted above.

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CERTIFICATE OF COMPLIANCE

Certificate No.:	**Date of Issue:**
K132106.00	30 January 2014
Applicant Name:	RADWARE Ltd.
Applicant Address	22 Raul Wallenberg St., Tel-Aviv, 61131, Israel
Product	Network Switch Load Balancer
Model / Type Ref.	Alteon 6420 XL with Extreme SSL, P/N RODS-HTQ-XL-A4-D, With Single DC P.S., P/N DPSS2-5A00V3V, Manufactured by Zippy Tech (See customer's declaration dated 30 January 2014 in ITL test report no. E132106.00 for additional P/N names).
Rating	36-72 VDC
Tested to	ICES-003, Issue 5: 2012, Class A
Test Results are detailed in the Test Report No.	E132106.00

Name:

Signature: _____

Certification Dept.

This is to certify that the product specified herein has been tested & the test results were found to be compliant with the requirements noted above.

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CERTIFICATE OF COMPLIANCE

Certificate No.:	**Date of Issue:**
K121576.00	7 February 2013
Applicant Name:	RADWARE Ltd.
Applicant Address	22 Raul Wallenberg St., Tel-Aviv, 61131, Israel
Product	Network Application Switch
Model / Type Ref.	RODS-HTQ-D-2DC (See customer's declaration in ITL test report no. E121576.00 for additional model names).
Rating	48 VDC
Tested to	ICES-003 Issue 5: 2012, Class A
Test Results are detailed in the Test Report No.	E121576.00

Signature: _____

Certification Dept.

This is to certify that the product specified herein has been tested & the test results were found to be compliant with the requirements noted above.

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CERTIFICATE

Issued Date: May. 21, 2012
Report No.: 124320R-ITUSP01V01

This is to certify that the following designated product

Product	:	**Network Switch**
Trade name	:	**Radware**
Model Number	:	**APSolute Vision DC, Content Inspection Director (CID) DC, DefensePro DC, InFlight DC, On Demand Switch 3(RODS3-DEFDUDC), On Demand Switch 3 (RODS3-S1-DEFDUDC), On Demand Switch 3 (RODS3-S2-DEFDUDC), OnDemand Switch 3 DC, Virtual Director DC, AppDirector DC, AppWall DC, AppXcel DC, AppXMLDC, LinkProof DC, ODS3 DC, SIP Director DC, On Demand Switch 3 (RODS3-DEFAULT), On Demand Switch 3 (RODS3-S1-DEFAULT), On Demand Switch 3 (RODS3-S2-DEFAULT), ODS3, AppDirector, LinkProof, AppWall, AppXcel, AppXML, SIP Director, InFlight, Virtual Director, APSolute Vision, DefensePro, Content Inspection Director (CID), OnDemand Switch 3**
Company Name	:	**Radware Ltd.**

This product, which has been issued the test report listed as above in QuieTek Laboratory, is based on a single evaluation of one sample and confirmed to comply with the requirements of the following EMC standard.

FCC CFR Title 47 Part 15 Subpart B: 2011 Class A, CISPR 22: 2008
ANSI C63.4: 2009

TEST LABORATORY

Vincent Lin / Manager

QuieTek No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL:+886-2-8601-3788 FAX:+886-2-8601-3789 Email:service@quietek.com http://www.quietek.com

Test Report

Product Name : Network Switch
Model No. : APSolute Vision DC, Content Inspection Director (CID) DC, DefensePro DC, InFlight DC, On Demand Switch 3(RODS3-DEFDUDC), On Demand Switch 3 (RODS3-S1-DEFDUDC), On Demand Switch 3 (RODS3-S2-DEFDUDC), OnDemand Switch 3 DC, Virtual Director DC, AppDirector DC, AppWall DC, AppXcel DC, AppXMLDC, LinkProof DC, ODS3 DC, SIP Director DC, On Demand Switch 3 (RODS3-DEFAULT), On Demand Switch 3 (RODS3-S1-DEFAULT), On Demand Switch 3 (RODS3-S2-DEFAULT), ODS3, AppDirector, LinkProof, AppWall, AppXcel, AppXML, SIP Director, InFlight, Virtual Director, APSolute Vision, DefensePro, Content Inspection Director (CID), OnDemand Switch 3

Applicant : Radware Ltd.
Address : 22 Raoul Wallenberg St. Tel Aviv, Israel 69710

Date of Receipt : 2012/04/13
Issued Date : 2012/05/21
Report No. : 124320R-ITUSP01V01
Report Version : V1.0

Testing Laboratory
0914

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.
This report must not be used to claim product endorsement by TAF, NVLAP, NIST or any agency of the Government.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

The following equipment:

Product Name	:	Network Switch
Trade Name	:	Radware
Model Number	:	APSolute Vision DC, Content Inspection Director (CID) DC, DefensePro DC, InFlight DC, On Demand Switch 3 (RODS3-DEFDUDC), On Demand Switch 3 (RODS3-S1-DEFDUDC), On Demand Switch 3 (RODS3-S2-DEFDUDC), OnDemand Switch 3 DC, Virtual Director DC, AppDirector DC, AppWall DC, AppXcel DC, AppXMLDC, LinkProof DC, ODS3 DC, SIP Director DC, On Demand Switch 3 (RODS3-DEFAULT), On Demand Switch 3 (RODS3-S1-DEFAULT), On Demand Switch 3 (RODS3-S2-DEFAULT), ODS3, AppDirector, LinkProof, AppWall, AppXcel, AppXML, SIP Director, InFlight, Virtual Director, APSolute Vision, DefensePro, Content Inspection Director (CID), OnDemand Switch 3

It's herewith confirmed to comply with the requirements of FCC Part 15 Rules. 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 undesired operation.

The result of electromagnetic emission has been evaluated by QuieTek EMC laboratory (NVLAP Lab. Code : 200533-0) and showed in the test report.
(Report No. : 124320R-ITUSP01V01)

It is understood that each unit marketed is identical to the device as tested, and any changes to the device that 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 is responsible for marking this declaration:

_____	_____
Name (Full name)	Position / Title
_____	_____
Date	Legal Signature

Test Report Certification

Issued Date : 2012/05/21
Report No. : 124320R-ITUSP01V01

QuieTek

Product Name	:	Network Switch
Applicant	:	Radware Ltd.
Address	:	22 Raoul Wallenberg St. Tel Aviv, Israel 69710
Manufacturer	:	NEXCOM International Co., LTD
Model No.	:	APSolute Vision DC, Content Inspection Director (CID) DC, DefensePro DC, InFlight DC, On Demand Switch 3 (RODS3-DEFDUDC), On Demand Switch 3 (RODS3-S1-DEFDUDC), On Demand Switch 3 (RODS3-S2-DEFDUDC), OnDemand Switch 3 DC, Virtual Director DC, AppDirector DC, AppWall DC, AppXcel DC, AppXMLDC, LinkProof DC, ODS3 DC, SIP Director DC, On Demand Switch 3 (RODS3-DEFAULT), On Demand Switch 3 (RODS3-S1-DEFAULT), On Demand Switch 3 (RODS3-S2-DEFAULT), ODS3, AppDirector, LinkProof, AppWall, AppXcel, AppXML, SIP Director, InFlight, Virtual Director, APSolute Vision, DefensePro, Content Inspection Director (CID), OnDemand Switch 3
EUT Rated Voltage	:	AC 100-240V, 47-63Hz;DC 36-72V
EUT Test Voltage	:	DC 48V, AC 120V / 60Hz
Trade Name	:	Radware
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart B: 2011, Class A CISPR 22: 2008, ANSI C63.4: 2009
Test Result	:	Complied
Performed Location	:	Quietek Corporation (Linkou Laboratory) No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C. TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By : Joanne lin

(Adm. Specialist / Joanne Lin)

Reviewed By : JoJolee jung

(Assistant Engineer / JoJolee Jung)

Approved By :

(Manager / Vincent Lin)

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

NVLAP Lab Code : 200347-0

LinKou Testing Laboratory :
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

NVLAP Lab Code: 200533-0

Suzhou (China) Testing Laboratory :
No. 99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou,China.
TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098 E-Mail : service@quietek.com

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1. General Information

1.1. EUT Description

Product Name	Network Switch
Trade Name	Radware
Model No.	APSolute Vision DC, Content Inspection Director (CID) DC, DefensePro DC, InFlight DC, On Demand Switch 3 (RODS3-DEFDUDC), On Demand Switch 3 (RODS3-S1-DEFDUDC), On Demand Switch 3 (RODS3-S2-DEFDUDC), OnDemand Switch 3 DC, Virtual Director DC, AppDirector DC, AppWall DC, AppXcel DC, AppXMLDC, LinkProof DC, ODS3 DC, SIP Director DC, On Demand Switch 3 (RODS3-DEFAULT), On Demand Switch 3 (RODS3-S1-DEFAULT), On Demand Switch 3 (RODS3-S2-DEFAULT), ODS3, AppDirector, LinkProof, AppWall, AppXcel, AppXML, SIP Director, InFlight, Virtual Director, APSolute Vision, DefensePro, Content Inspection Director (CID), OnDemand Switch 3

Component	
CPU	AMD OS2381PCP4DGI CACYC AC 1115EPA9L53971D10125
	AMD OS2381PCP4DGI CACYC AC 1115EPA9L53971D10040
HDD	Western Digital, WD2503ABY-OLWERA1
LAN Card	On Board
DDR-RAM	Apacer, 2GB ECC REG PC2-6400 CL6
Power Supply	AC:EMACS, MRW-3500V-R DC:EMACS, DMRW-3500V-R

Note: The EUT is including thirty-two models for different marketing requirement.

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode
Mode 1: Normal Operation (AC IN) Mode 2: Normal Operation (DC 48V IN)
Final Test Mode
Emission
Mode 1: Normal Operation (AC IN) Mode 2: Normal Operation (DC 48V IN)

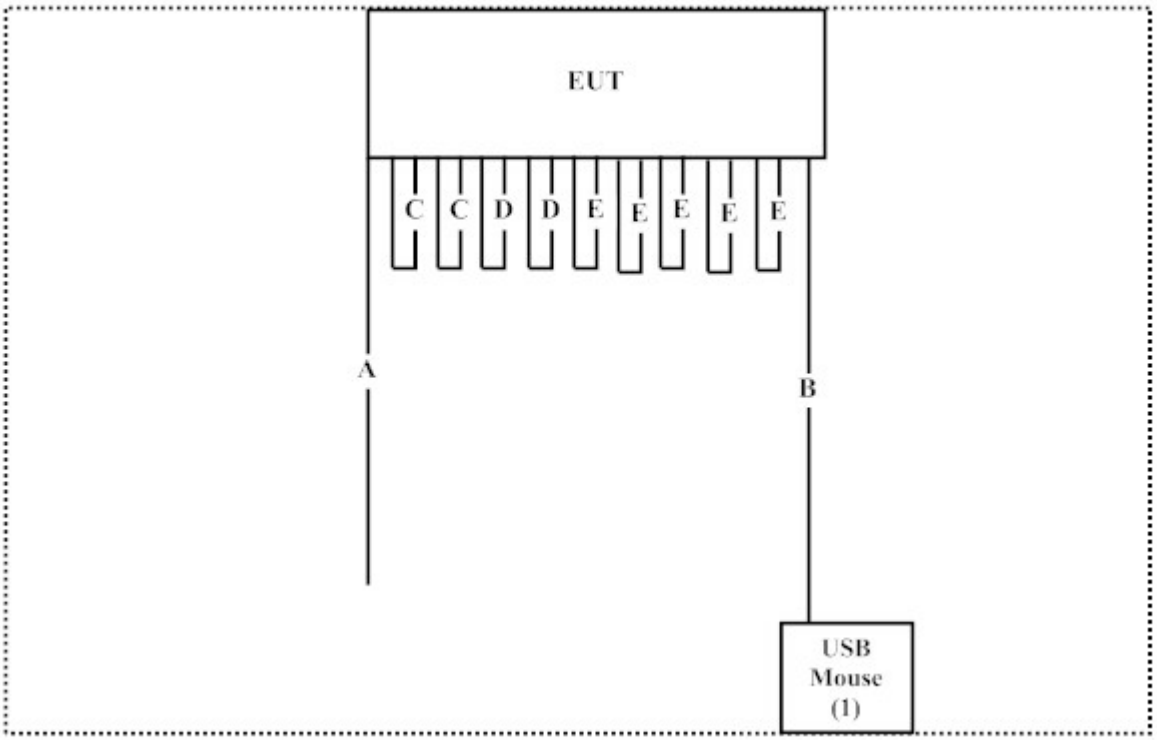
1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	USB Mouse	Logitech	M-U0003	LZ024HR	N/A

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	RS-232 Cable	Shielded, 1.5m
B	USB Mouse Cable	Shielded, 1.8m
C	Fiber Cable	Non-Shielded, 0.33m, two PCS.
D	Fiber Cable	Non-Shielded, 0.45m, two PCS.
E	LAN Cable	Non-Shielded, 0.24m, five PCS.

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	Personal Computer reads data from disk.
4	The EUT will start to operate and display the video figure from the signal source.
5	The EUT will display “video figure” on monitor.
6	Repeat the above procedure (4)

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2011 Class A, ANSI C63.4: 2009	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2011 Class A, ANSI C63.4: 2009	Yes	No

2.2. List of Test Equipment

Conducted Emission / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100366	2011/11/15
LISN	R&S	ESH3-Z5	836679/023	2012/01/12
LISN	R&S	ENV216	100085	2012/02/13
Pulse Limiter	R&S	ESH3-Z2	357.8810.52-1	2011/09/16

Radiated Emission / Site5

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2920	2011/07/22
EMI Test Receiver	R&S	ESCS 30	100149	2012/03/27
Pre-Amplifier	QTK	N/A	N/A	2011/07/01
Spectrum Analyzer	Agilent	E4411B	MY45119837	2011/12/26
Site5 NSA	QTK	N/A	N/A	2011/07/01

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	Agilent	E4440A	MY46185846	2011/12/12
Horn Antenna	ETS-Lindgren	3117	00135205	2012/03/30
Horn Antenna	SCHWARZBECK	9120D	576	2011/11/14
Pre-Amplifier	QuieTek	AP-180C	CHM/071920	2011/07/12
CB7 VSWR	QTK	N/A	N/A	2011/08/25

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

2.4. Test Environment

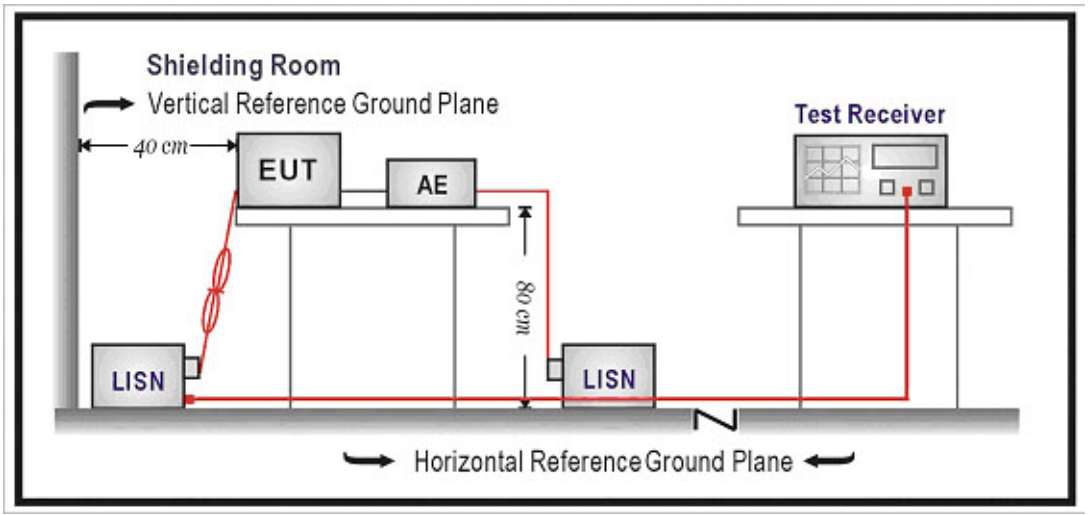
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	23.1
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	26
	Humidity (%RH)	25-75	42
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to Standard : FCC Part 15 Subpart B, ANSI C63.4

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	79	66
0.50-5.0	73	60
5.0 - 30	73	60

Remarks: In the above table, the tighter limit applies at the band edges.

3.4. Test Procedure

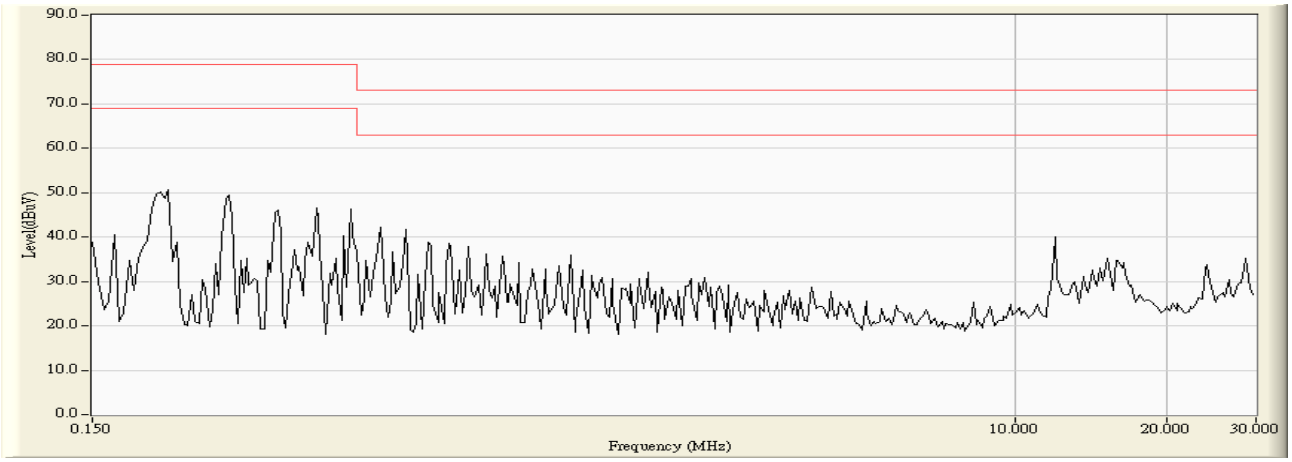
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

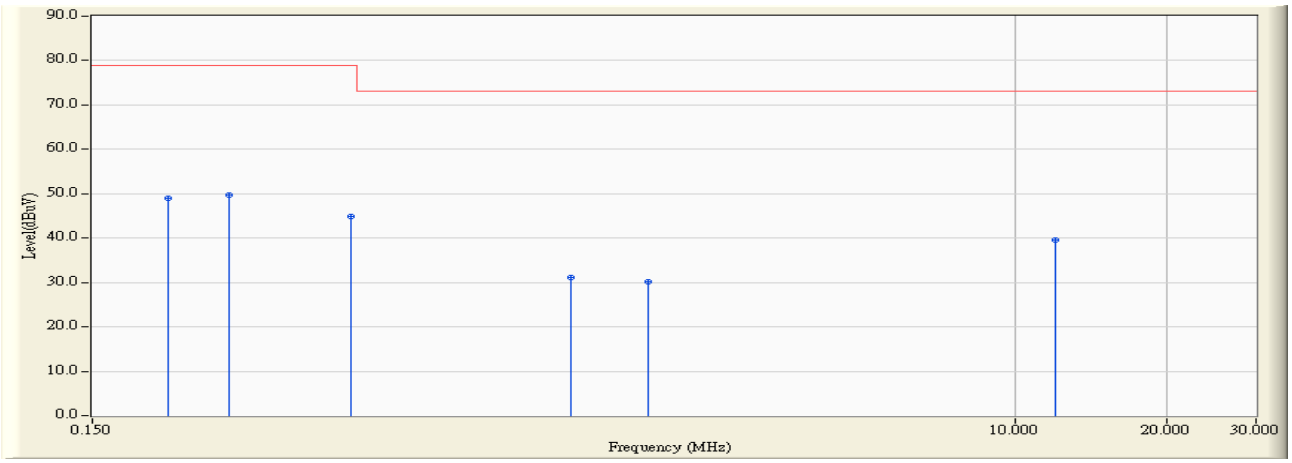
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Test Result

Site : SR1	**Time : 2012/05/08 - 05:05**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Network Switch	**Probe : ENV_216_L1 - Line1**
Power : AC 120V/60Hz	**Note : Mode 1**



Site : SR1	**Time : 2012/05/08 - 05:06**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Switch	**Probe : ENV_216_L1 - Line1**
Power : AC 120V/60Hz	**Note : Mode 1**

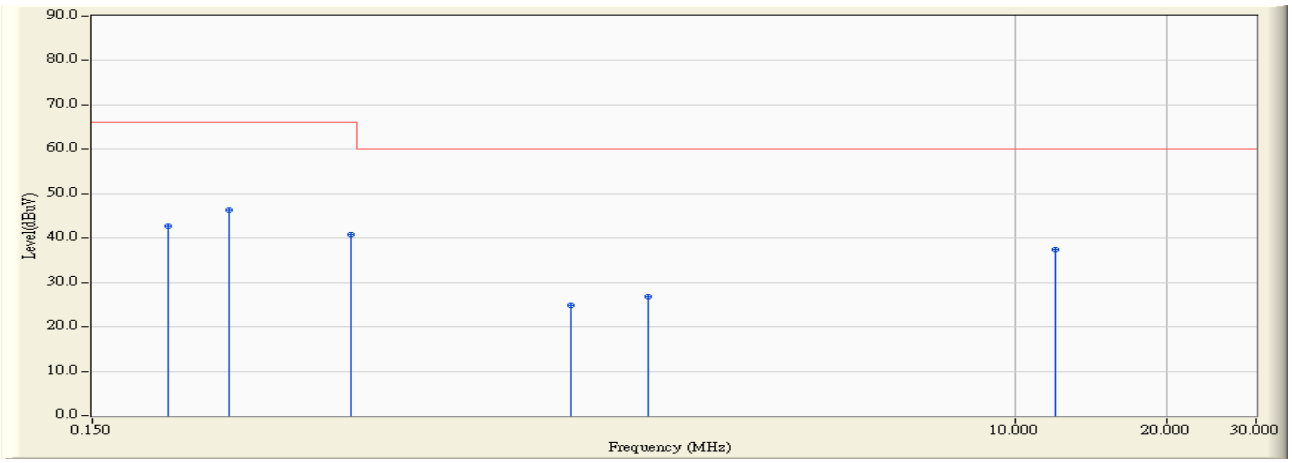


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.212	9.820	39.170	48.990	-30.010	79.000	QUASIPEAK
2	*	0.279	9.820	39.790	49.610	-29.390	79.000	QUASIPEAK
3		0.486	9.820	35.130	44.950	-34.050	79.000	QUASIPEAK
4		1.322	9.820	21.270	31.090	-41.910	73.000	QUASIPEAK
5		1.880	9.830	20.450	30.280	-42.720	73.000	QUASIPEAK
6		12.002	10.010	29.570	39.580	-33.420	73.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/08 - 05:06**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Switch	**Probe : ENV_216_L1 - Line1**
Power : AC 120V/60Hz	**Note : Mode 1**

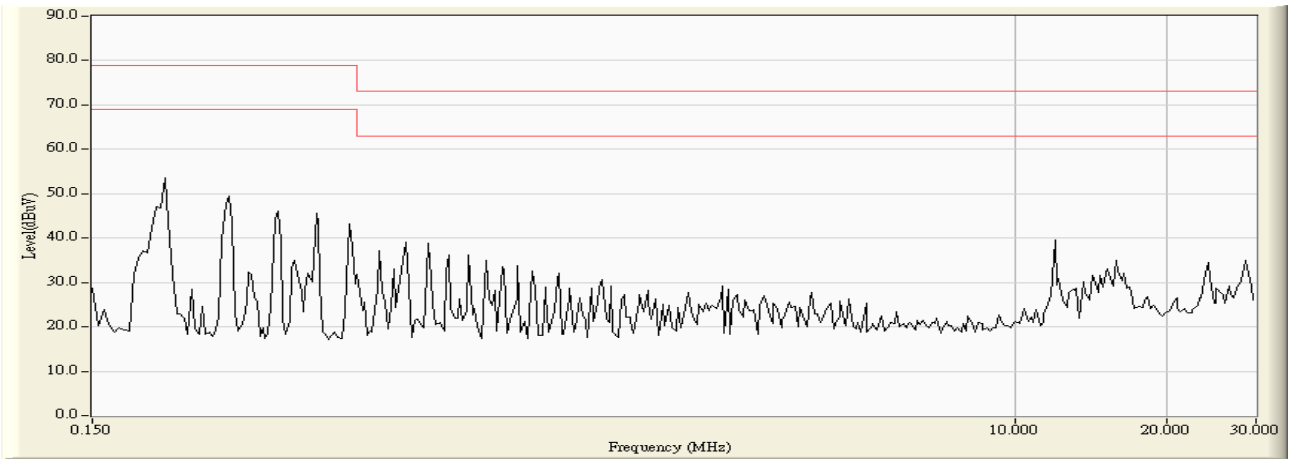


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.212	9.820	32.770	42.590	-23.410	66.000	AVERAGE
2	*	0.279	9.820	36.480	46.300	-19.700	66.000	AVERAGE
3		0.486	9.820	30.880	40.700	-25.300	66.000	AVERAGE
4		1.322	9.820	14.960	24.780	-35.220	60.000	AVERAGE
5		1.880	9.830	16.990	26.820	-33.180	60.000	AVERAGE
6		12.002	10.010	27.380	37.390	-22.610	60.000	AVERAGE

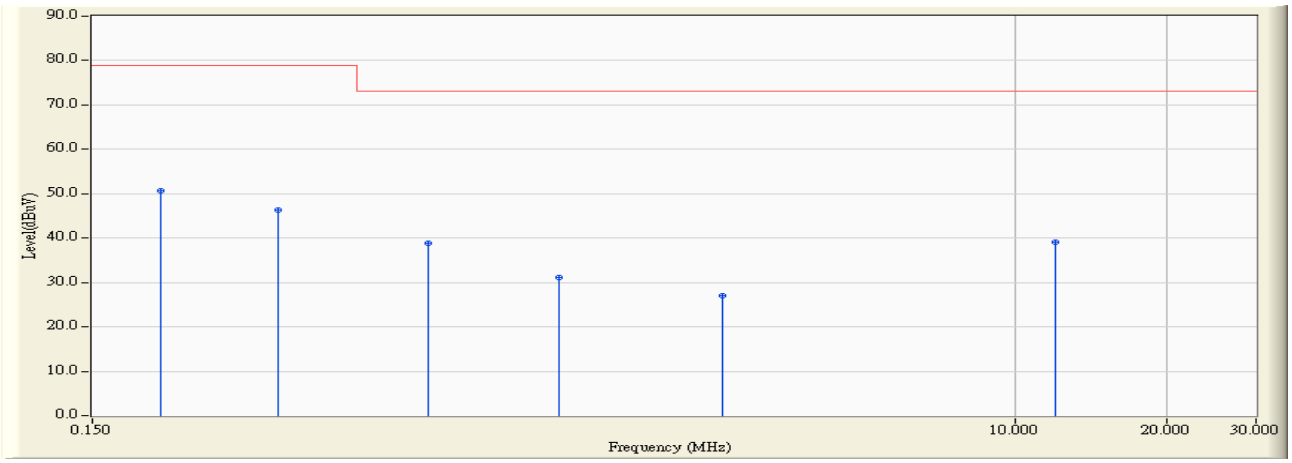
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/08 - 05:07**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Network Switch	**Probe : ENV_216_N - Line2**
Power : AC 120V/60Hz	**Note : Mode 1**



Site : SR1	**Time : 2012/05/08 - 05:07**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Switch	**Probe : ENV_216_N - Line2**
Power : AC 120V/60Hz	**Note : Mode 1**

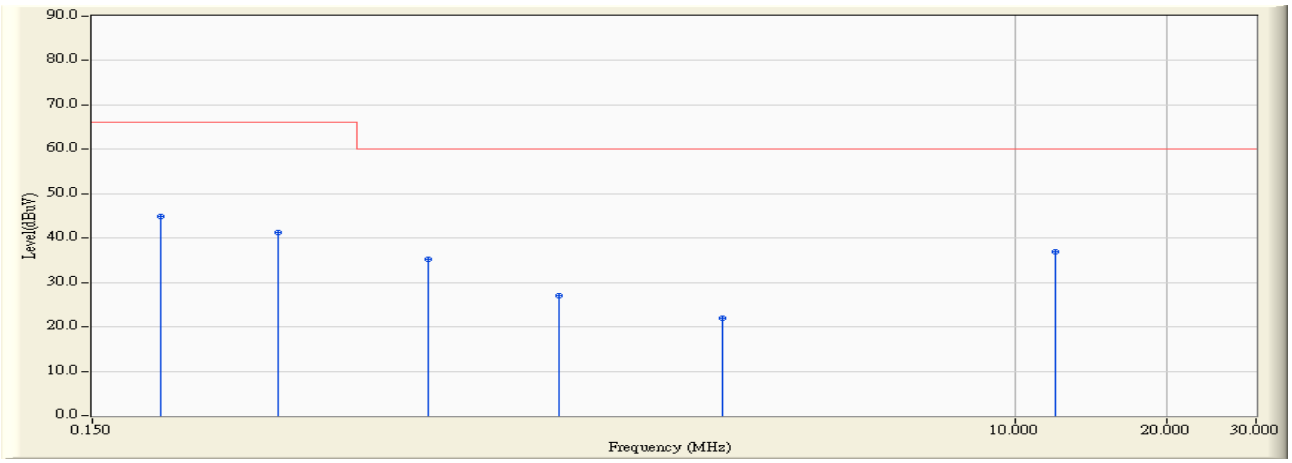


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	9.860	40.890	50.750	-28.250	79.000	QUASIPEAK
2		0.349	9.870	36.570	46.440	-32.560	79.000	QUASIPEAK
3		0.693	9.870	29.030	38.900	-34.100	73.000	QUASIPEAK
4		1.252	9.870	21.250	31.120	-41.880	73.000	QUASIPEAK
5		2.638	9.880	17.150	27.030	-45.970	73.000	QUASIPEAK
6		12.002	10.090	28.930	39.020	-33.980	73.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/08 - 05:07**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Switch	**Probe : ENV_216_N - Line2**
Power : AC 120V/60Hz	**Note : Mode 1**

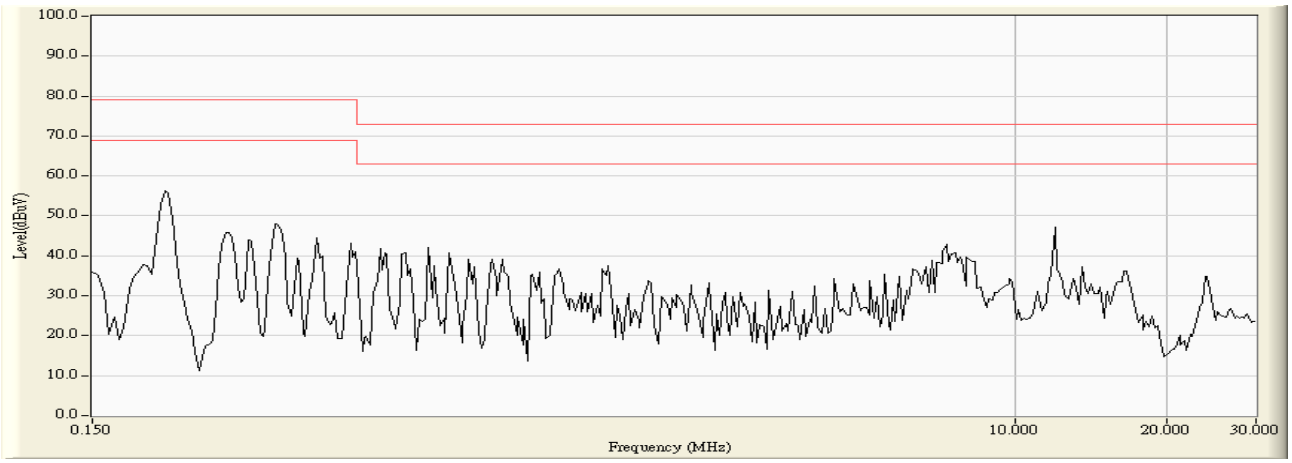


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	9.860	34.950	44.810	-21.190	66.000	AVERAGE
2		0.349	9.870	31.350	41.220	-24.780	66.000	AVERAGE
3		0.693	9.870	25.330	35.200	-24.800	60.000	AVERAGE
4		1.252	9.870	17.090	26.960	-33.040	60.000	AVERAGE
5		2.638	9.880	11.970	21.850	-38.150	60.000	AVERAGE
6		12.002	10.090	26.750	36.840	-23.160	60.000	AVERAGE

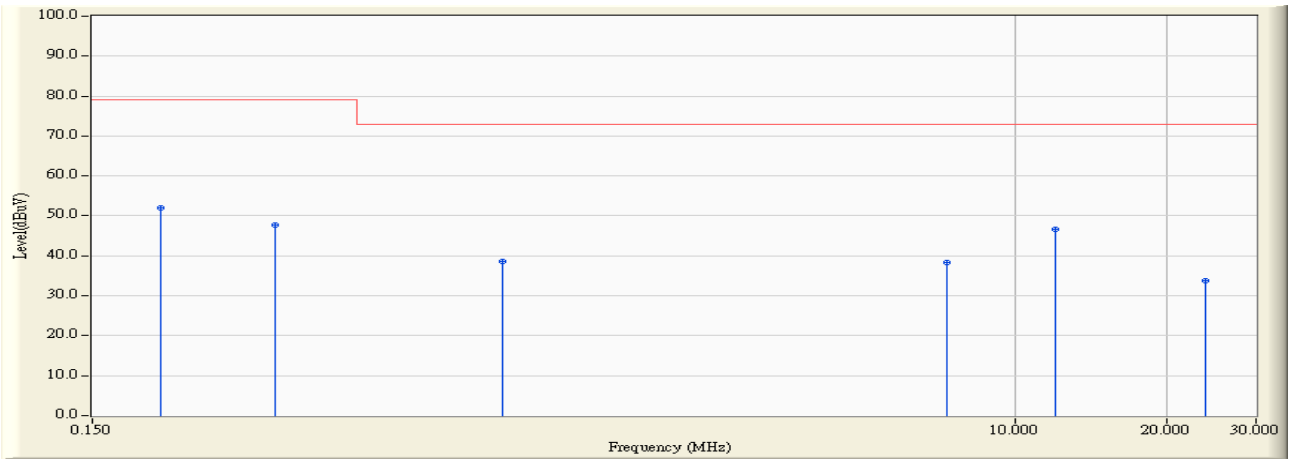
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/09 - 16:53**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Network Switch	**Probe : 8226_176(+) - Line1**
Power : DC 48V	**Note : Mode 2**



Site : SR1	**Time : 2012/05/09 - 16:55**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Switch	**Probe : 8226_176(+) - Line1**
Power : DC 48V	**Note : Mode 2**

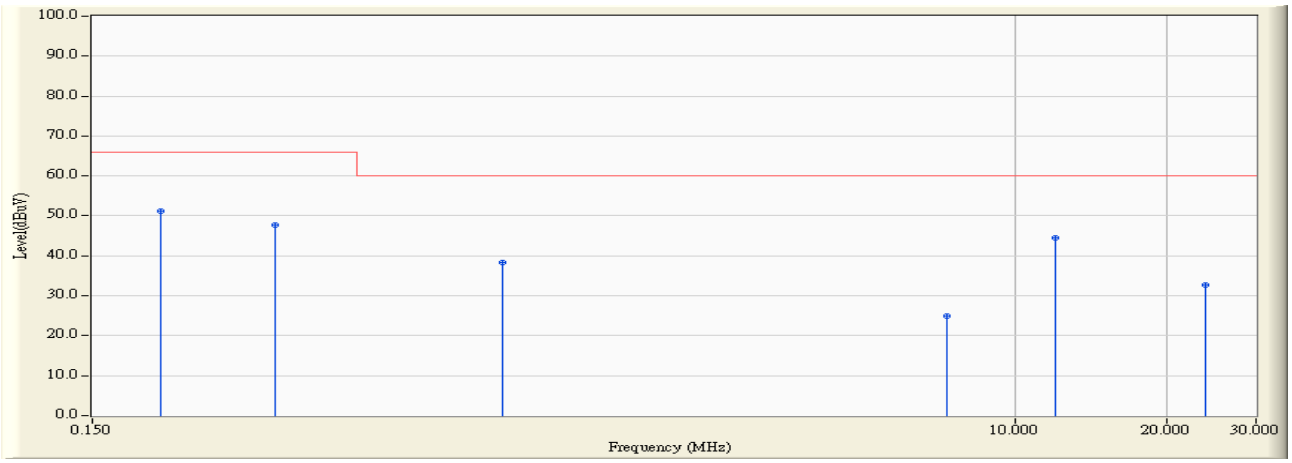


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.205	0.250	51.830	52.080	-26.920	79.000	QUASIPEAK
2		0.345	0.238	47.550	47.788	-31.212	79.000	QUASIPEAK
3		0.970	0.230	38.350	38.580	-34.420	73.000	QUASIPEAK
4		7.338	0.303	38.030	38.333	-34.667	73.000	QUASIPEAK
5	*	12.002	0.390	46.290	46.680	-26.320	73.000	QUASIPEAK
6		23.888	0.620	33.210	33.830	-39.170	73.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/09 - 16:55**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Switch	**Probe : 8226_176(+) - Line1**
Power : DC 48V	**Note : Mode 2**

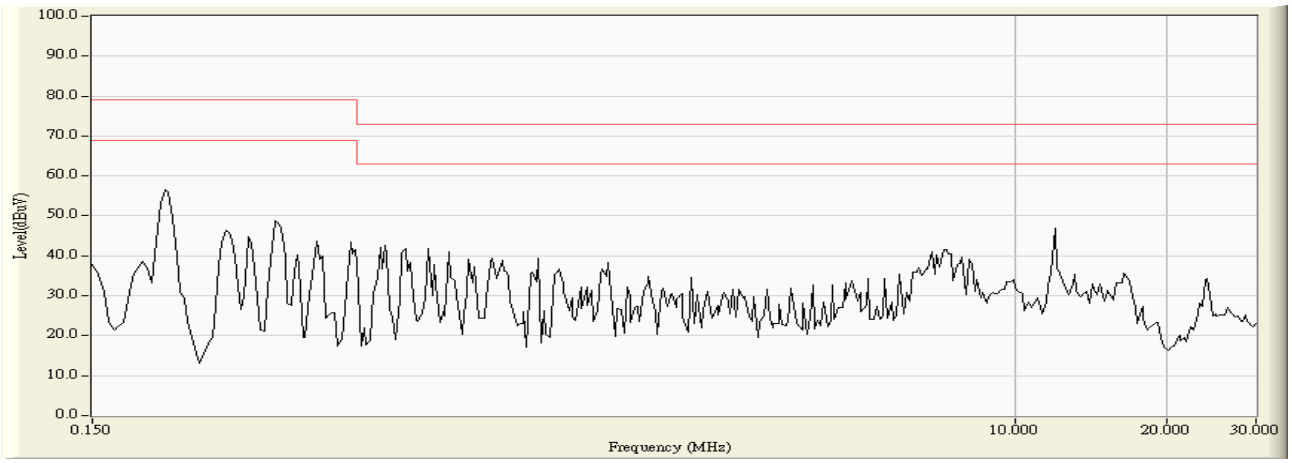


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	0.250	50.830	51.080	-14.920	66.000	AVERAGE
2		0.345	0.238	47.390	47.628	-18.372	66.000	AVERAGE
3		0.970	0.230	38.040	38.270	-21.730	60.000	AVERAGE
4		7.338	0.303	24.610	24.913	-35.087	60.000	AVERAGE
5		12.002	0.390	44.130	44.520	-15.480	60.000	AVERAGE
6		23.888	0.620	32.020	32.640	-27.360	60.000	AVERAGE

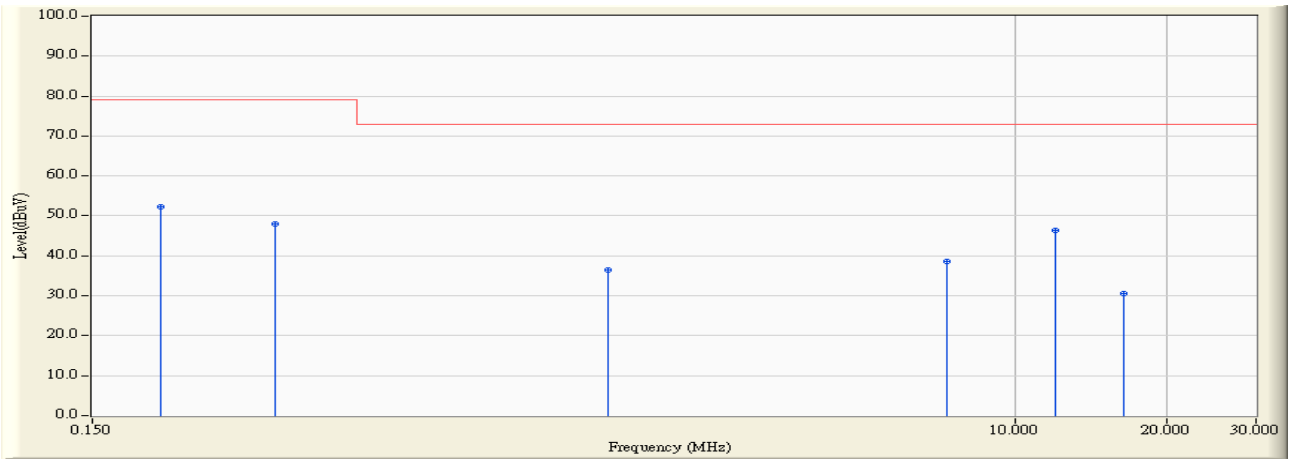
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/09 - 16:56**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Network Switch	**Probe : 8226_177(-) - Line1**
Power : DC 48V	**Note : Mode 2**



Site : SR1	**Time : 2012/05/09 - 16:57**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Network Switch	**Probe : 8226_177(-) - Line1**
Power : DC 48V	**Note : Mode 2**

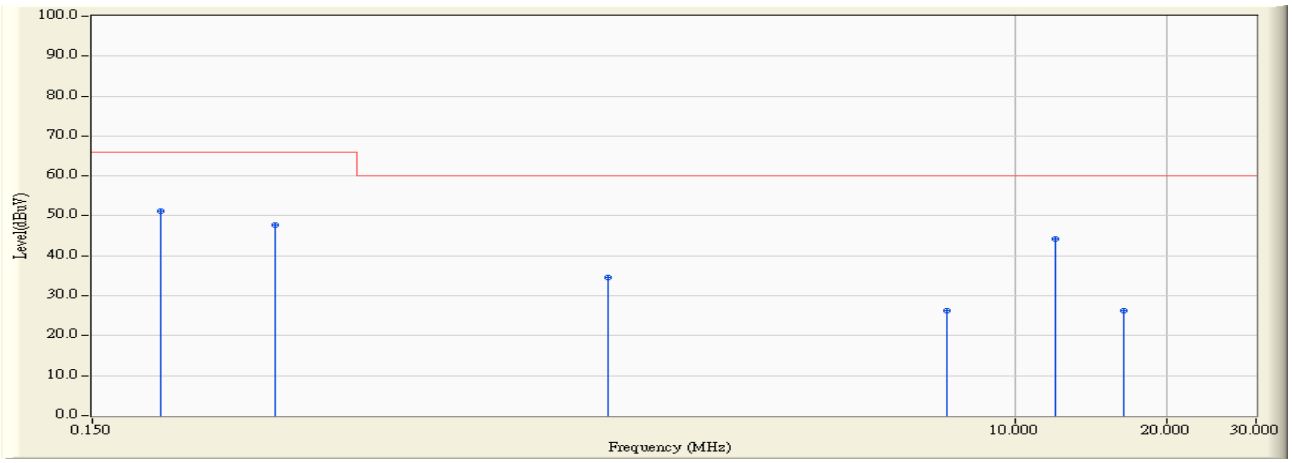


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.205	0.290	51.870	52.160	-26.840	79.000	QUASIPEAK
2		0.345	0.278	47.610	47.888	-31.112	79.000	QUASIPEAK
3		1.568	0.270	36.230	36.500	-36.500	73.000	QUASIPEAK
4		7.334	0.323	38.350	38.673	-34.327	73.000	QUASIPEAK
5	*	12.002	0.410	46.030	46.440	-26.560	73.000	QUASIPEAK
6		16.388	0.475	30.090	30.565	-42.435	73.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR1	**Time : 2012/05/09 - 16:57**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Network Switch	**Probe : 8226_177(-) - Line1**
Power : DC 48V	**Note : Mode 2**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	0.290	50.960	51.250	-14.750	66.000	AVERAGE
2		0.345	0.278	47.480	47.758	-18.242	66.000	AVERAGE
3		1.568	0.270	34.210	34.480	-25.520	60.000	AVERAGE
4		7.334	0.323	26.070	26.393	-33.607	60.000	AVERAGE
5		12.002	0.410	43.910	44.320	-15.680	60.000	AVERAGE
6		16.388	0.475	25.850	26.325	-33.675	60.000	AVERAGE

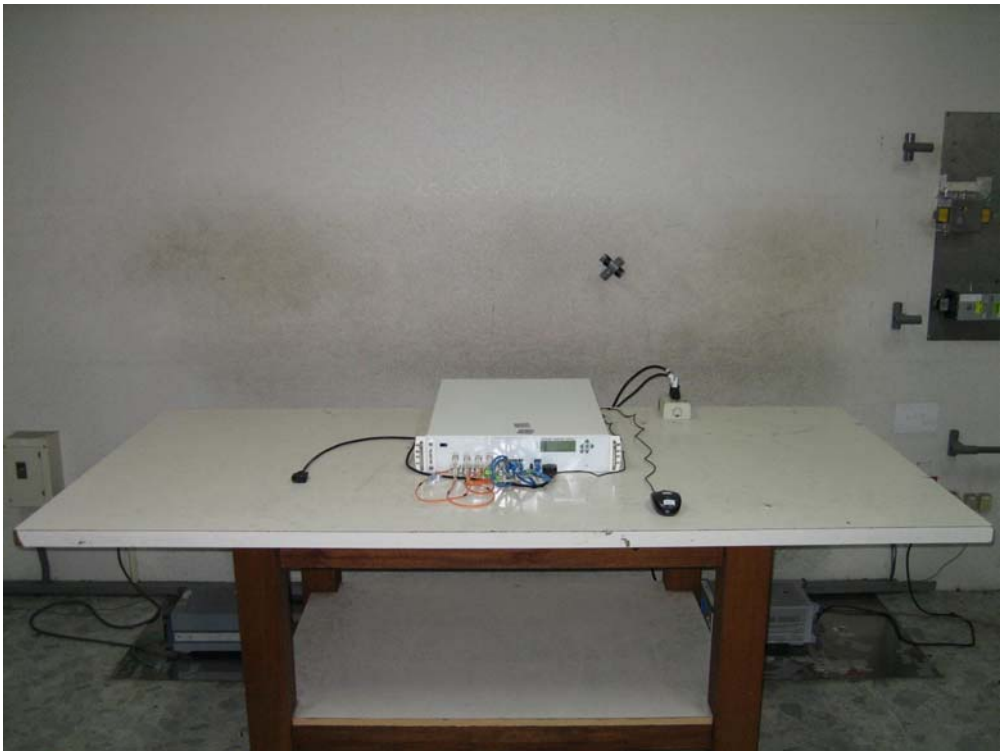
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3.6. Test Photograph

Test Mode : Mode 1: Normal Operation (AC IN)

Description : Front View of Conducted Test



Test Mode : Mode 1: Normal Operation (AC IN)

Description : Back View of Conducted Test

Test Mode : Mode 2: Normal Operation (DC 48V IN)

Description : Front View of Conducted Test

Test Mode : Mode 2: Normal Operation (DC 48V IN)

Description : Back View of Conducted Test

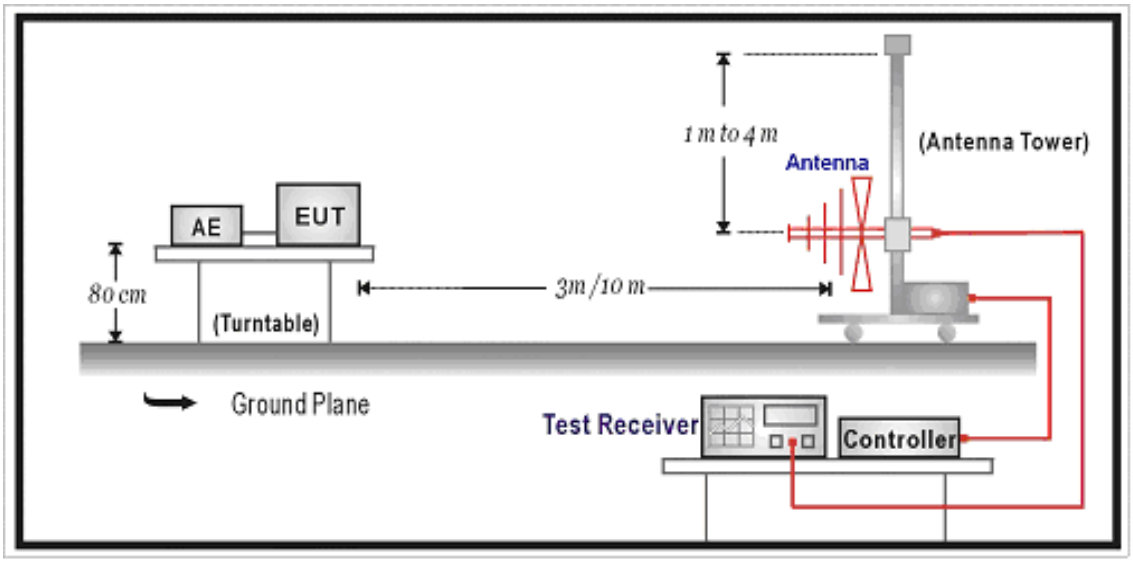
4. Radiated Emission

4.1. Test Specification

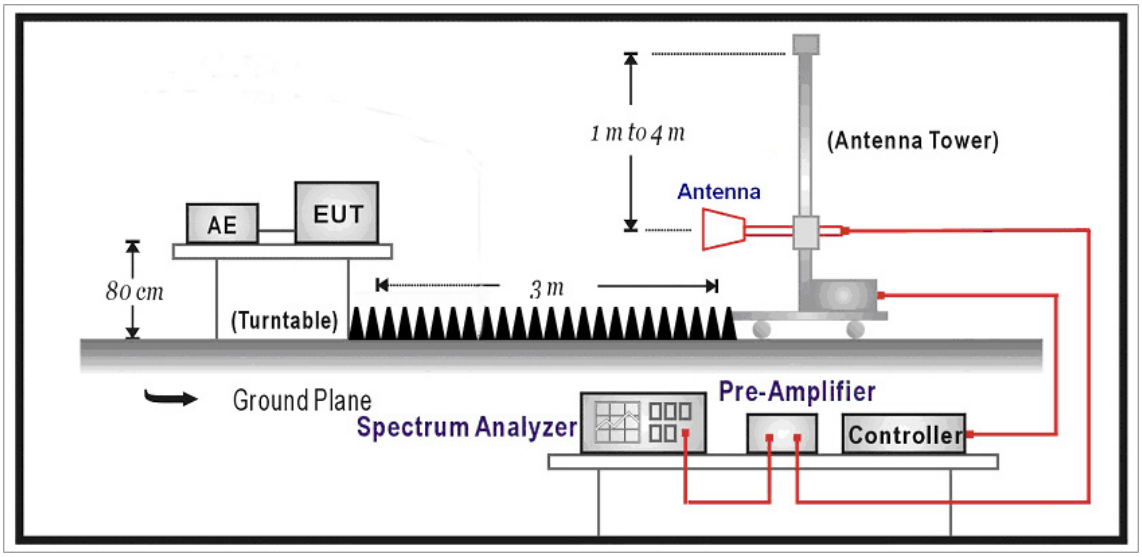
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Under 1GHz test shall not exceed the following value:

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	40
230 – 1000	10	47

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)		
Frequency (MHz)	Distance(m)	dBuV/m
30-88	10	39
88-216	10	43.5
216-960	10	46.4
Above 960	10	49.5

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.

The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the folowing table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

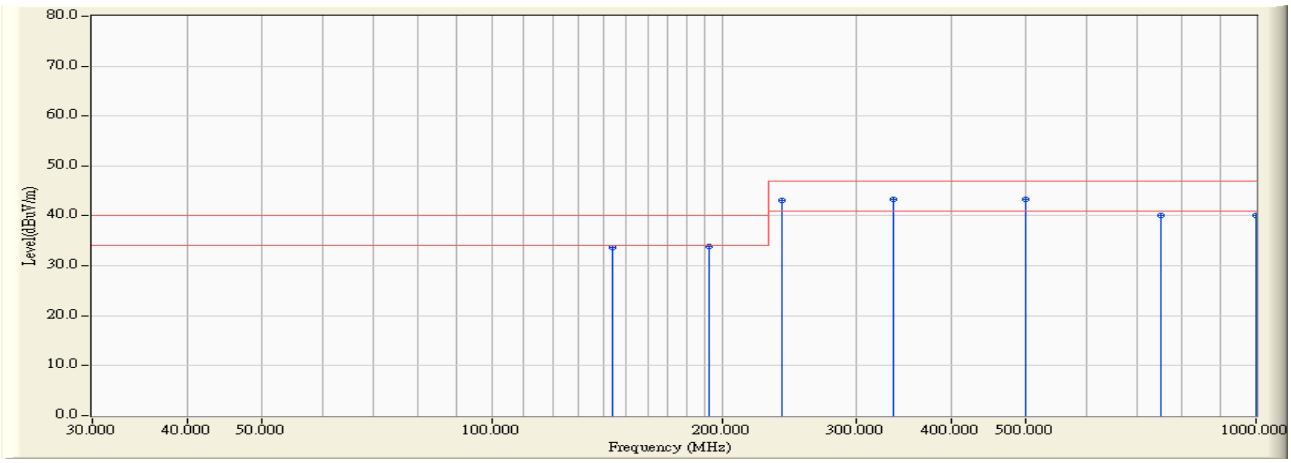
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

4.5. Test Result

Site : Site5	**Time : 2012/05/12 - 16:50**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Switch	**Probe : Site5_CBL6112_10M_0726 - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1**

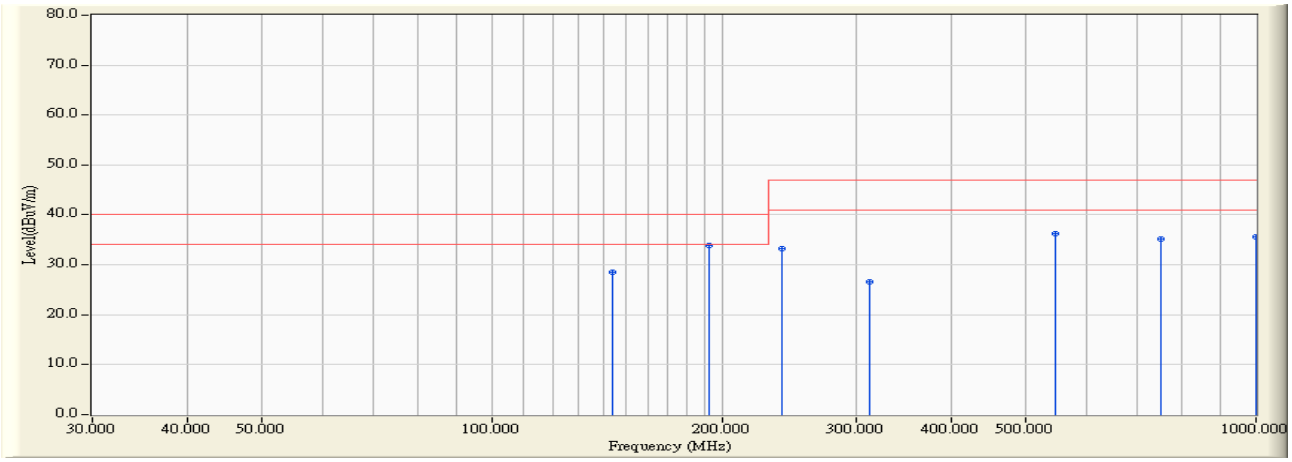


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		144.000	13.093	20.500	33.594	-6.406	40.000	QUASIPEAK
2		192.123	11.245	22.600	33.845	-6.155	40.000	QUASIPEAK
3		240.000	13.919	29.200	43.119	-3.881	47.000	QUASIPEAK
4		336.000	18.039	25.200	43.239	-3.761	47.000	QUASIPEAK
5	*	500.000	22.501	20.900	43.401	-3.599	47.000	QUASIPEAK
6		750.000	26.600	13.400	40.000	-7.000	47.000	QUASIPEAK
7		1000.000	29.000	11.000	40.000	-7.000	47.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site5	**Time : 2012/05/12 - 16:36**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Switch	**Probe : Site5_CBL6112_10M_0726 - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1**

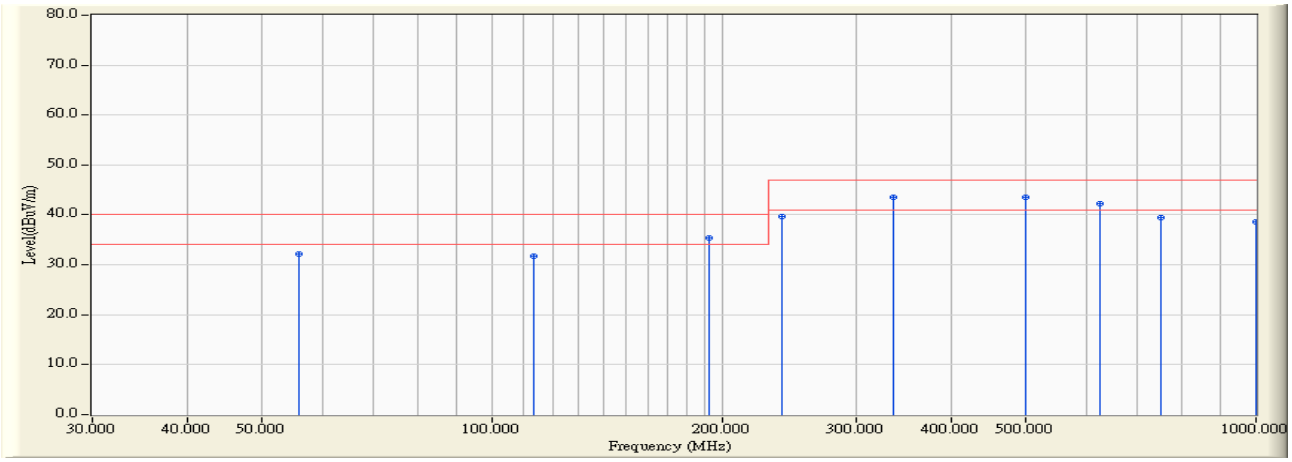


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		144.000	13.093	15.400	28.494	-11.506	40.000	QUASIPEAK
2	*	192.045	11.242	22.600	33.842	-6.158	40.000	QUASIPEAK
3		240.000	13.919	19.400	33.319	-13.681	47.000	QUASIPEAK
4		312.500	17.167	9.500	26.667	-20.333	47.000	QUASIPEAK
5		547.500	24.020	12.300	36.320	-10.680	47.000	QUASIPEAK
6		750.000	26.600	8.600	35.200	-11.800	47.000	QUASIPEAK
7		1000.000	29.000	6.500	35.500	-11.500	47.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site5	**Time : 2012/05/12 - 17:41**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Switch	**Probe : Site5_CBL6112_10M_0726 - HORIZONTAL**
Power : DC 48V	**Note : Mode 2**

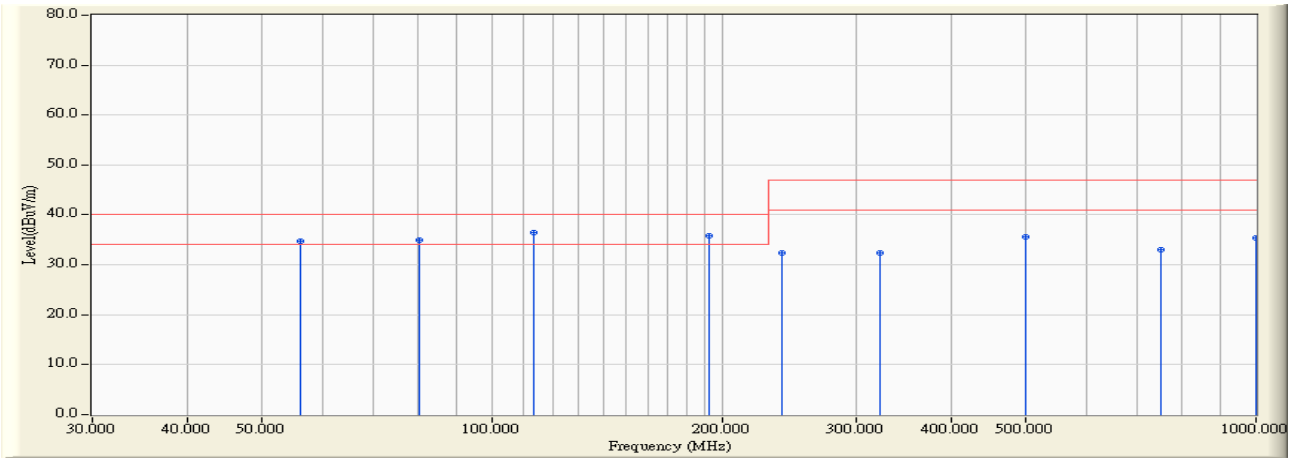


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		55.800	7.607	24.500	32.106	-7.894	40.000	QUASIPEAK
2		113.400	13.500	18.300	31.799	-8.201	40.000	QUASIPEAK
3		192.040	11.242	24.100	35.342	-4.658	40.000	QUASIPEAK
4		240.000	13.919	25.800	39.719	-7.281	47.000	QUASIPEAK
5	*	336.000	18.039	25.600	43.639	-3.361	47.000	QUASIPEAK
6		500.000	22.501	21.000	43.501	-3.499	47.000	QUASIPEAK
7		625.000	24.650	17.600	42.250	-4.750	47.000	QUASIPEAK
8		750.000	26.600	12.800	39.400	-7.600	47.000	QUASIPEAK
9		1000.000	29.000	9.700	38.700	-8.300	47.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : Site5	**Time : 2012/05/12 - 17:23**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Network Switch	**Probe : Site5_CBL6112_10M_0726 - VERTICAL**
Power : DC 48V	**Note : Mode 2**

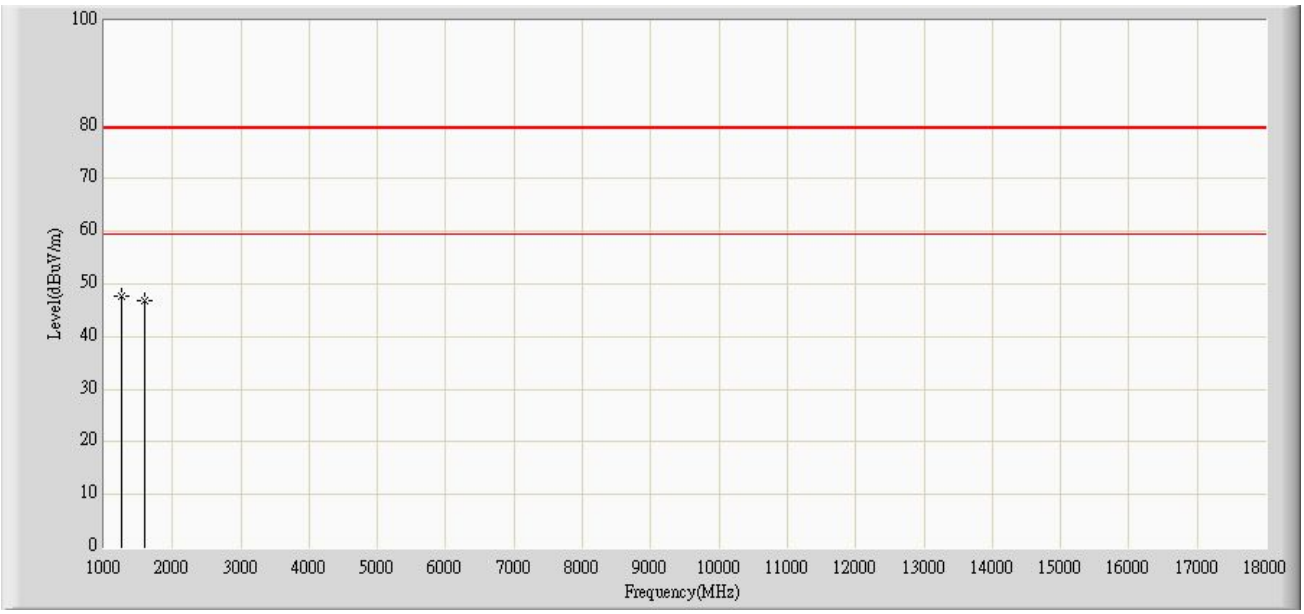


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		56.240	7.499	27.300	34.798	-5.202	40.000	QUASIPEAK
2		80.500	8.513	26.400	34.913	-5.087	40.000	QUASIPEAK
3	*	113.400	13.500	23.000	36.499	-3.501	40.000	QUASIPEAK
4		192.030	11.242	24.500	35.742	-4.258	40.000	QUASIPEAK
5		240.000	13.919	18.400	32.319	-14.681	47.000	QUASIPEAK
6		322.250	17.522	14.800	32.322	-14.678	47.000	QUASIPEAK
7		500.000	22.501	13.000	35.501	-11.499	47.000	QUASIPEAK
8		750.000	26.600	6.500	33.100	-13.900	47.000	QUASIPEAK
9		1000.000	29.000	6.400	35.400	-11.600	47.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site: CB7	**Time: 2012/05/07 - 11:08**
Limit: FCC_A_(Above_1G)	**Margin: 0**
Probe: CB7_Horn_3117_1204	**Polarity: Horizontal**
EUT: Network Switch	**Power: AC 120V/60Hz**
Note: Mode 1	

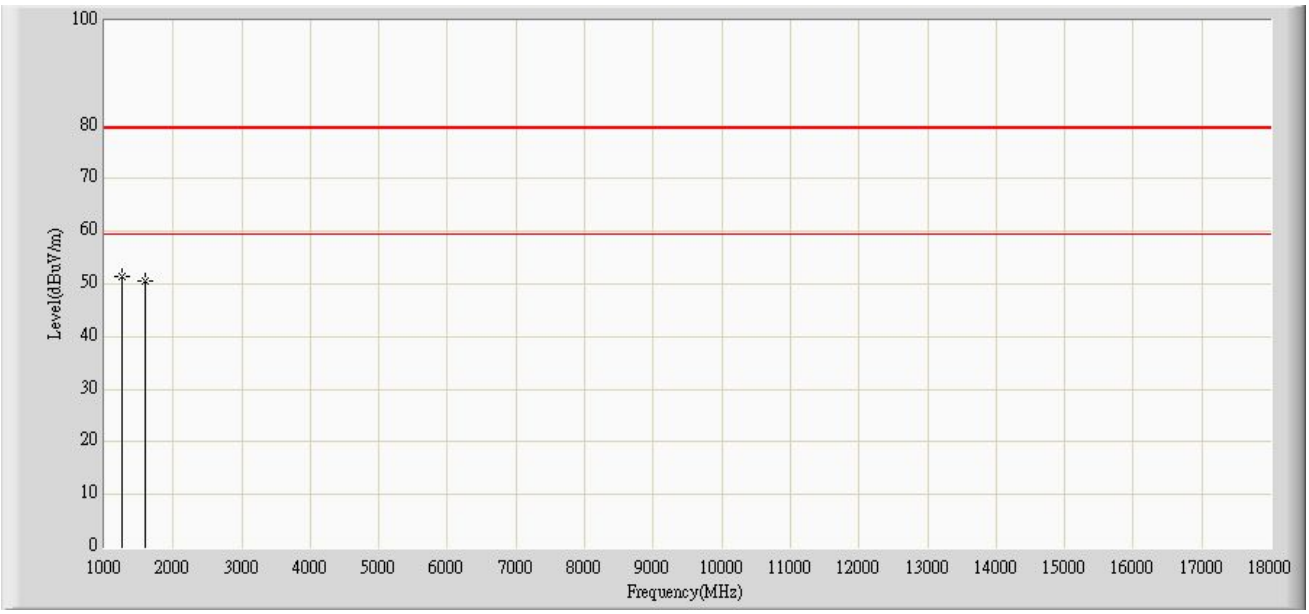


		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	1250.000	47.577	52.000	-31.923	79.500	-4.423	PK
2		1600.000	46.947	50.200	-32.553	79.500	-3.253	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	**Time: 2012/05/07 - 11:09**
Limit: FCC_A_(Above_1G)	**Margin: 0**
Probe: CB7_Horn_3117_1204	**Polarity: Vertical**
EUT: Network Switch	**Power: AC 120V/60Hz**
Note: Mode 1	

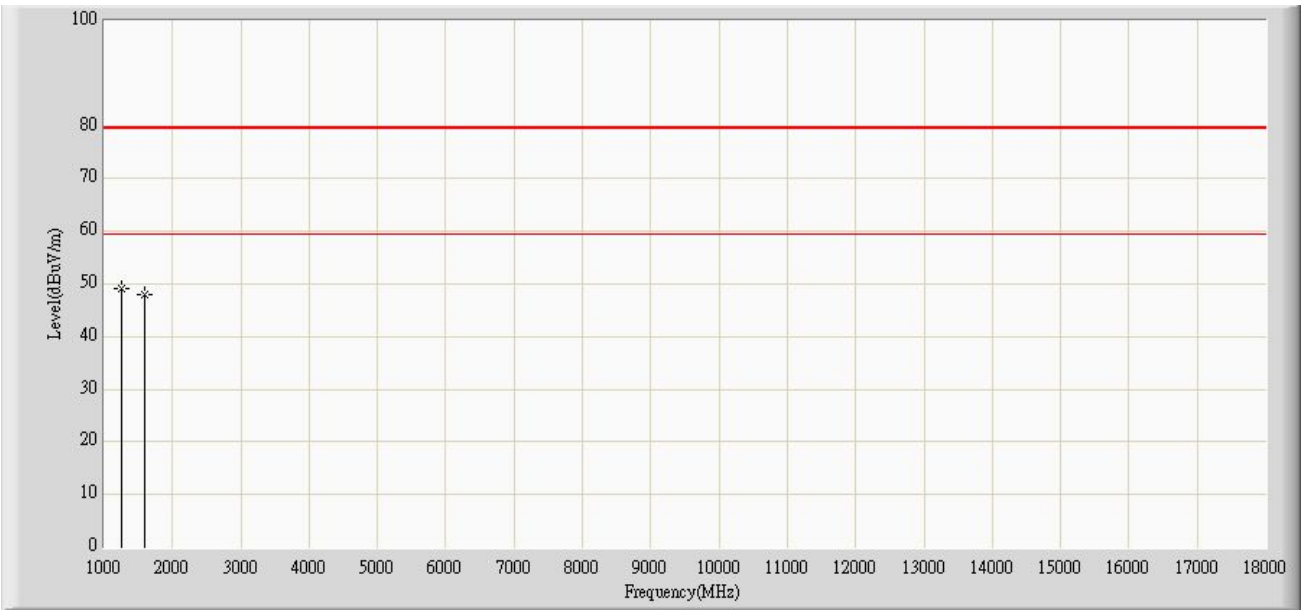


		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	1250.000	51.577	56.000	-27.923	79.500	-4.423	PK
2		1600.000	50.547	53.800	-28.953	79.500	-3.253	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	**Time: 2012/05/07 - 11:40**
Limit: FCC_A_(Above_1G)	**Margin: 0**
Probe: CB7_Horn_3117_1204	**Polarity: Horizontal**
EUT: Network Switch	**Power: DC 48V**
Note: Mode 2	

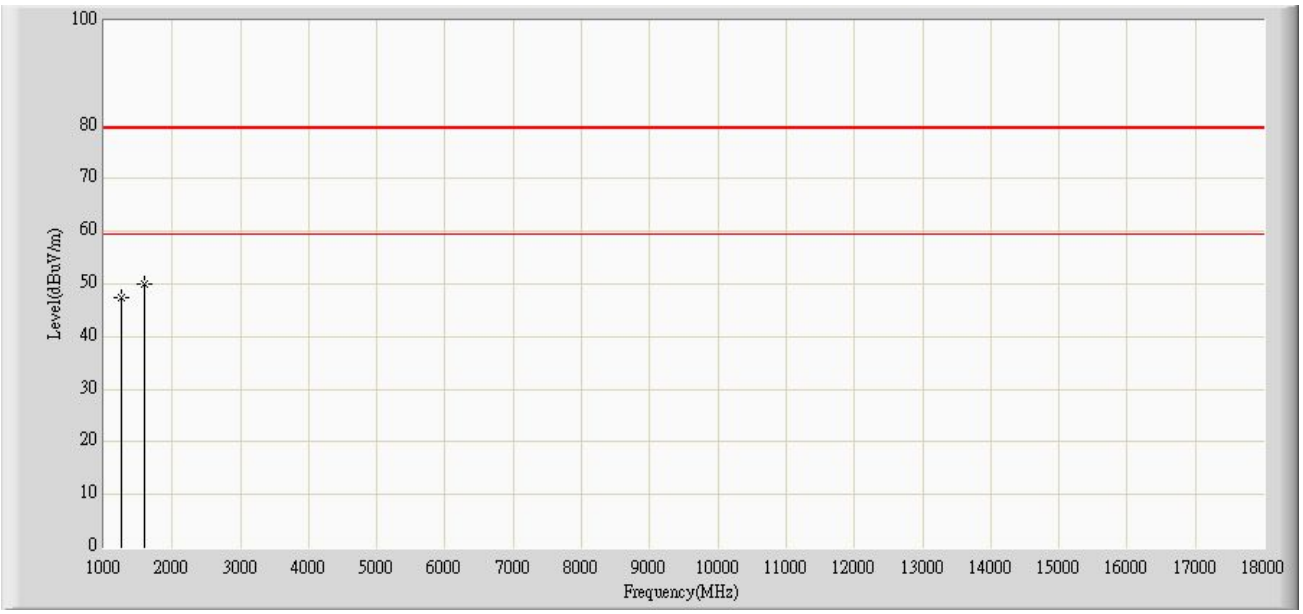


		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1	*	1255.000	49.235	53.620	-30.265	79.500	-4.385	PK
2		1595.000	47.945	51.220	-31.555	79.500	-3.275	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	**Time: 2012/05/07 - 11:41**
Limit: FCC_A_(Above_1G)	**Margin: 0**
Probe: CB7_Horn_3117_1204	**Polarity: Vertical**
EUT: Network Switch	**Power: DC 48V**
Note: Mode 2	



		Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		1255.000	47.335	51.720	-32.165	79.500	-4.385	PK
2	*	1595.000	50.075	53.350	-29.425	79.500	-3.275	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4.6. Test Photograph

Test Mode : Mode 1: Normal Operation (AC IN)

Description : Front View of Radiated Test

Test Mode : Mode 1: Normal Operation (AC IN)

Description : Back View of Radiated Test

Test Mode : Mode 1: Normal Operation (AC IN)

Description : Front View of High Frequency Radiated Test

Test Mode : Mode 2: Normal Operation (DC 48V IN)

Description : Front View of Radiated Test

Test Mode : Mode 2: Normal Operation (DC 48V IN)

Description : Back View of Radiated Test

Test Mode : Mode 2: Normal Operation (DC 48V IN)

Description : Front View of High Frequency Radiated Test

5. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo

(3) EUT Photo

(4) EUT Photo

(5) EUT Photo

(6) EUT Photo