C-Tick Test Report

Product Name ： Scanner

Model No. ： IRIScan Express 4

Applicant ： AVISION INC.

Address ： No.20, Creation Rd.1, Science Park, Hsinchu, Taiwan 300 R.O.C.

Date of Receipt ： 2015/05/11

Report No. ： 1550256R-ITASP01V00

Issued Date ： 2015/05/25

Report Version ： V1.0

Test Report Certification

Issued Date : 2015/05/25
Report No. : 1550256R-ITASP01V00

Product Name	:	Scanner
Applicant	:	AVISION INC.
Address	:	No.20, Creation Rd.1, Science Park, Hsinchu, Taiwan 300 R.O.C.
Manufacturer	:	1. AVISION INC. 2. AVISION(Suzhou) CO., LTD.
Model No.	:	IRIScan Express 4
EUT Voltage	:	AC 100-240V, 50/60Hz
Trade Name	:	I.R.I.S.
Applicable Standard	:	AS/NZS CISPR 22: 2009+A1: 2010 Class B
Test Result	:	Complied
Performed Location	:	Hsinchu EMC Laboratory N0. 75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan TEL:+886-3-592-8858 / FAX:+886-3-592-8859

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Approved By : Arthur Liu

(Arthur Liu / Deputy Manager)

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**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**DNV**
USA	**:**	**FCC**
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/english/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/index_en.aspx
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :
No. 5, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

TABLE OF CONTENTS

Description Page
1. General Information 5
1.1. EUT Description 5
1.2. Mode of Operation 6
1.3. Tested System Details 7
1.4. Configuration of Tested System 8
1.5. EUT Exercise Software 9
2. Technical Test 10
2.1. Summary of Test Result 10
2.2. List of Test Equipment 11
2.3. Measurement Uncertainty 12
2.4. Test Environment 12
3. Conducted Emission 13
3.1. Test Specification 13
3.2. Test Setup 13
3.3. Limit 13
3.4. Test Procedure 14
3.5. Deviation from Test Standard 14
3.6. Test Result 15
3.7. Test Photograph 17
4. Radiated Emission 18
4.1. Test Specification 18
4.2. Test Setup 18
4.3. Limit 19
4.4. Test Procedure 19
4.5. Deviation from Test Standard 20
4.6. Test Result 21
4.7. Test Photograph 25
5. Attachment 27
EUT Photograph 27

1. General Information

1.1. EUT Description

Product Name	Scanner
Trade Name	I.R.I.S.
Model No.	IRIScan Express 4

Component	
USB Cable	Shielded, 1.2m, one ferrite core bonded.

Note:

1. This EUT is a Scanner.

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: Scan to PC	
Final Test Mode	
Emission	Mode 1: Scan to PC

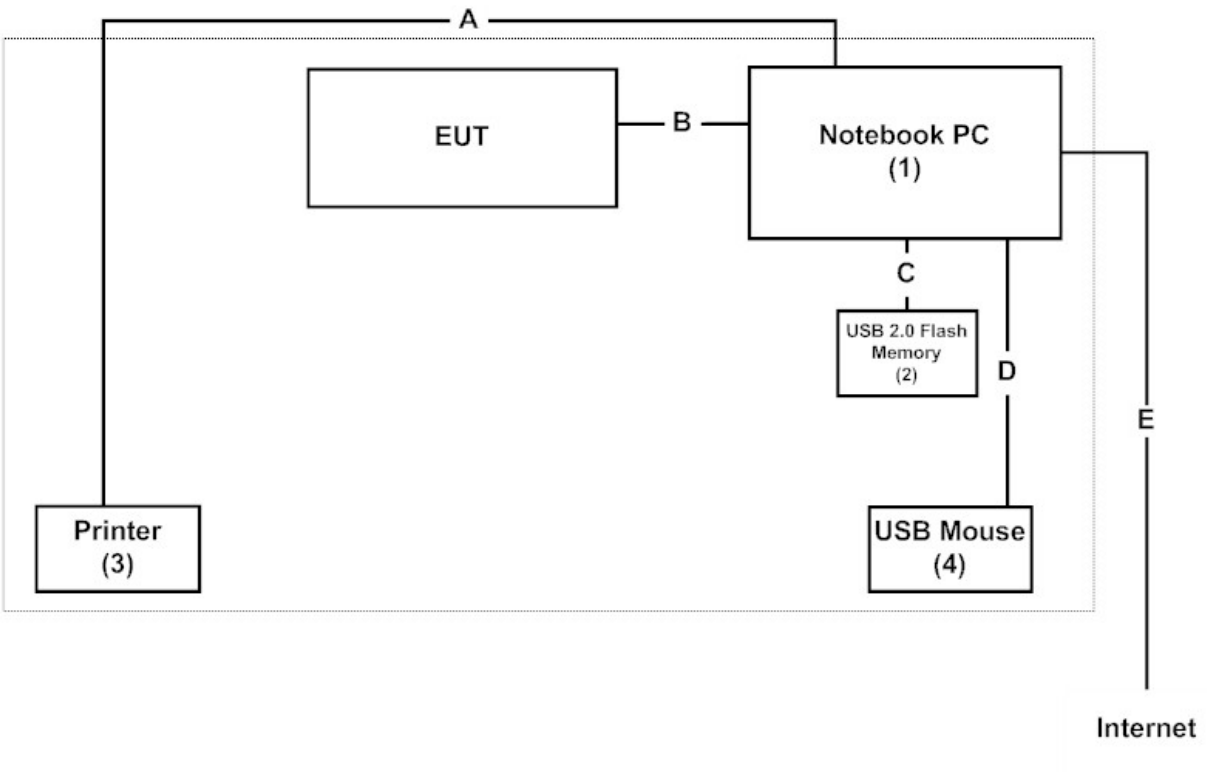
1.3. Tested System Details

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	Notebook PC	HP	NX6320	CNU62D1F5Y	Non-Shielded, 1.8m
2	USB Mouse	Microsoft	Comfort Optical Mouse 1000	1016222-0	--
3	USB 2.0 Flash Memory	Apacer	AH223	N/A	--
4	Printer	HP	C9007A	MY3621M0PS	Non-Shielded, 3.7m, one ferrite core bonded

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	Printer Cable	Shielded, 3m
B	USB Cable	Shielded, 1.2m, one ferrite core bonded.
C	USB Cable	Non-Shielded, 0.9m
D	USB Mouse Cable	Shielded, 1.7m, one ferrite core bonded.
E	LAN Cable	Non-Shielded, 10m

1.5. EUT Exercise Software

1	Test system is in accord with EUT user manual (refer to 1.4 configuration of tested system)
2	Turn on the power of all equipment
3	Boot the notebook PC from Hard Disk.
4	Notebook PC reads test software from disk and then sent to scanner.
5	The EUT will start to operate and scan the video figure into PC.
6	PC will display ” video figure” on monitor.
7	Repeat the above procedure (4) to (6).

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	AS/NZS CISPR 22: 2009+A1: 2010	Yes	No
Impedance Stabilization Network	AS/NZS CISPR 22: 2009+A1: 2010	No	No
Radiated Emission	AS/NZS CISPR 22: 2009+A1: 2010	Yes	No

2.2. List of Test Equipment

Conducted Emission/ SR3

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
LISN	R&S	ENV216	100096	2013/08/12
LISN	R&S	ESH3-Z5	836679/022	2014/01/20
Test Receiver	R&S	ESCS 30	825442/017	2014/01/01
Coaxial Cable	Harbour	RG-400	SR3	2013/08/14
Quietek EMI system	Quietek	Version 2.2	SR3	N/A

Radiated Emission/ Site3 (Under 1GHz)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2797	2013/08/14
Spectrum Analyzer	Advantest	R3132	100803278	2013/11/19
Test Receiver	R&S	ESCS 30	836858/022	2014/01/06
Coaxial Switch	Anritsu	MP59B	M55770	2013/08/14
Coaxial Cable	BELDEN	BELDEN 9913	OATS3	2013/08/14
Quietek EMI system	Quietek	Version 2.2	Site3	N/A

Radiated Emission/ CB1 (Above 1GHz)

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	JS41-00104000-58-5P	1438359	2013/05/08
PSA Series Spectrum analyzer	Agilent	E4440A	MY46187335	2014/01/27
Quietek EMI system	Quietek	Version 2.2	CB1	N/A

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission (Under 1GHz)

The measurement uncertainty is evaluated as ± 3.43 dB.

Radiated Emission (Above 1GHz)

The measurement uncertainty is evaluated as ± 3.65 dB.

2.4. Test Environment

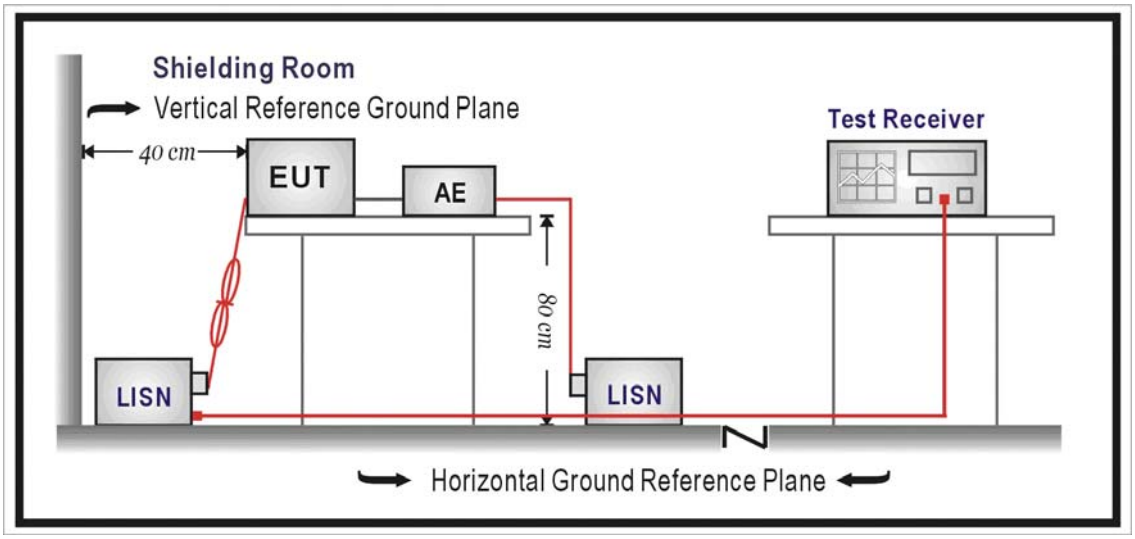
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to EMC Standard : AS/NZS CISPR 22

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50-5.0	56	46
5.0 - 30	60	50

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

3.4. Test Procedure

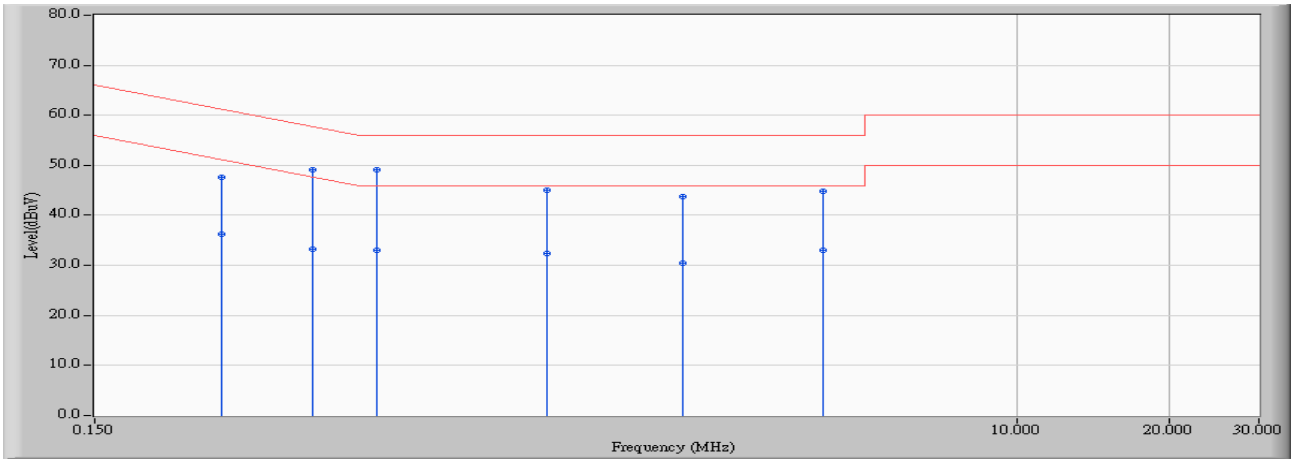
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling 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. Deviation from Test Standard

No deviation.

3.6. Test Result

Site : SR3	**Time : 2013/03/25 - 16:26**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-2_0813 - Line1	**Power : AC 230V/50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

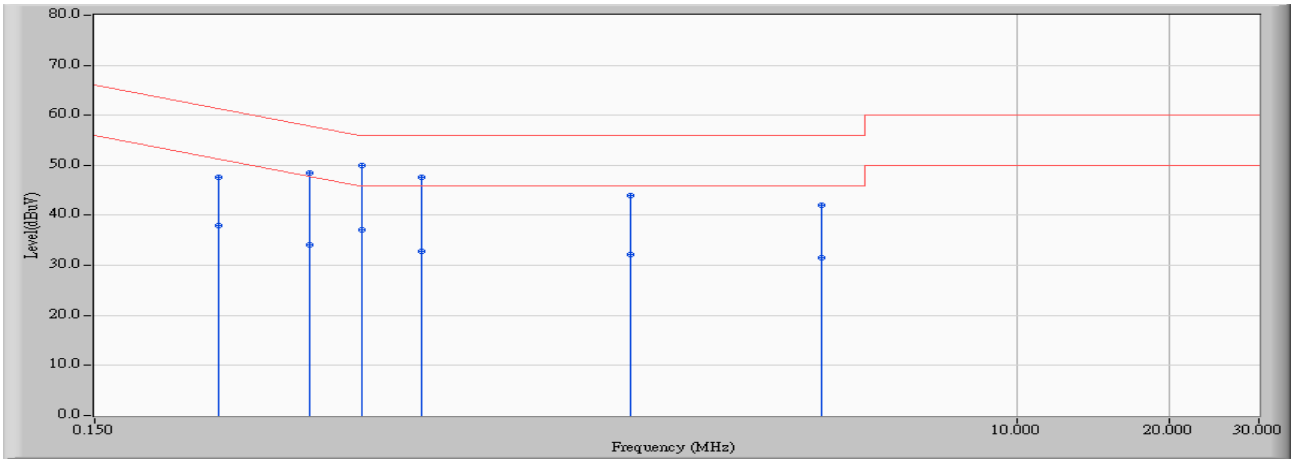


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.267	9.696	37.820	47.516	-13.688	61.205	QUASIPEAK
2		0.267	9.696	26.510	36.206	-14.998	51.205	AVERAGE
3		0.404	9.775	39.260	49.035	-8.738	57.773	QUASIPEAK
4		0.404	9.775	23.500	33.275	-14.498	47.773	AVERAGE
5	*	0.541	9.840	39.320	49.160	-6.840	56.000	QUASIPEAK
6		0.541	9.840	23.210	33.050	-12.950	46.000	AVERAGE
7		1.177	9.944	35.150	45.094	-10.906	56.000	QUASIPEAK
8		1.177	9.944	22.530	32.474	-13.526	46.000	AVERAGE
9		2.181	9.971	33.790	43.761	-12.239	56.000	QUASIPEAK
10		2.181	9.971	20.510	30.481	-15.519	46.000	AVERAGE
11		4.115	10.080	34.830	44.910	-11.090	56.000	QUASIPEAK
12		4.115	10.080	23.030	33.110	-12.890	46.000	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 : SR3	**Time : 2013/03/25 - 16:32**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : SR3_LISN(16A)-2_0813 - Line2	**Power : AC 230V/50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.263	9.691	38.020	47.711	-13.616	61.327	QUASIPEAK
2		0.263	9.691	28.260	37.951	-13.376	51.327	AVERAGE
3		0.400	9.762	38.750	48.512	-9.341	57.853	QUASIPEAK
4		0.400	9.762	24.330	34.092	-13.761	47.853	AVERAGE
5	*	0.505	9.821	40.130	49.951	-6.049	56.000	QUASIPEAK
6		0.505	9.821	27.240	37.061	-8.939	46.000	AVERAGE
7		0.666	9.857	37.860	47.717	-8.283	56.000	QUASIPEAK
8		0.666	9.857	22.920	32.777	-13.223	46.000	AVERAGE
9		1.720	9.937	34.030	43.967	-12.033	56.000	QUASIPEAK
10		1.720	9.937	22.330	32.267	-13.733	46.000	AVERAGE
11		4.095	10.031	32.070	42.101	-13.899	56.000	QUASIPEAK
12		4.095	10.031	21.440	31.471	-14.529	46.000	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.

3.7. Test Photograph

Test Mode : Mode 1: Scan to PC

Description : Front View of Conducted Emission Test Setup

Test Mode : Mode 1: Scan to PC

Description : Back View of Conducted Emission Test Setup

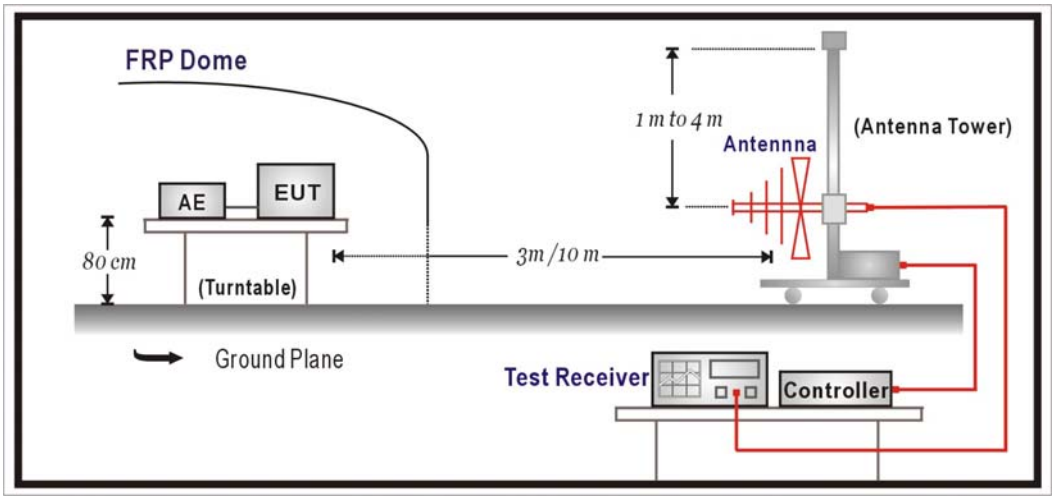
4. Radiated Emission

4.1. Test Specification

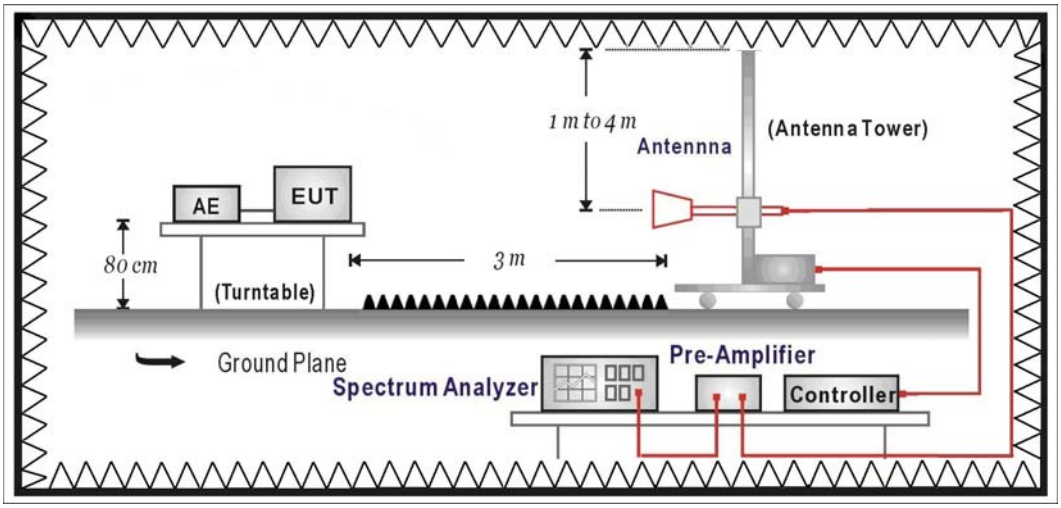
According to EMC Standard : AS/NZS CISPR 22

4.2. Test Setup

Under 1GHz Test Setup



Above 1GHz Test Setup



4.3. Limit

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Limits			
Frequency (GHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1 – 3	3	70	50
3 – 6	3	74	54

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.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 6 GHz, whichever is lower

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. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
All cable leaving the table-top EUT for a connection outsidethe test site (for example, mains cable, telephone lines, connections to auxiliary equipment located outside the test area) shall be fitted with ferrite clamps placed on the floor at the point where the cable reached the floor.

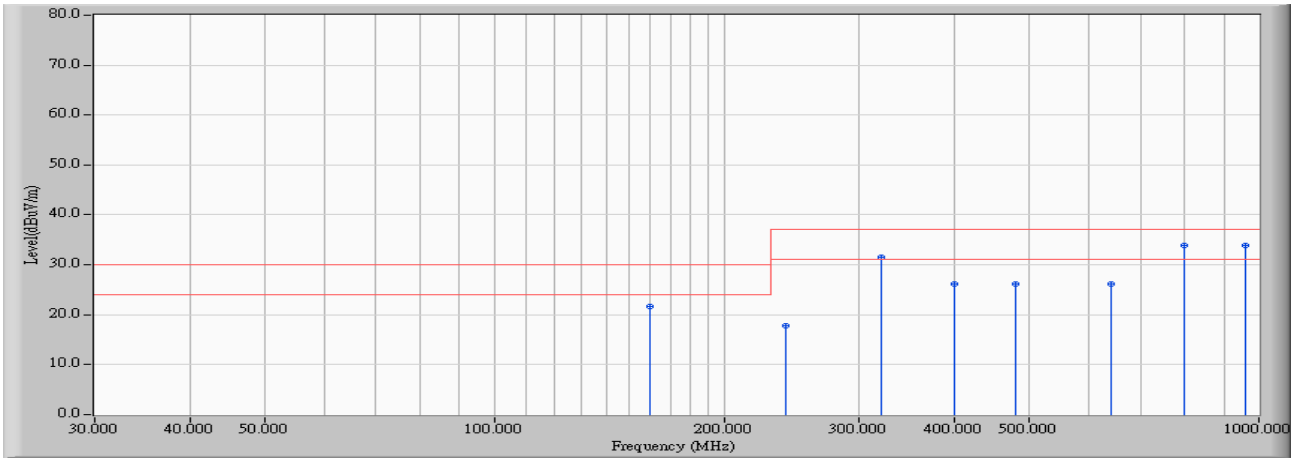
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.
Radiated emissions were invested over the frequency range from 1GHz to 6GHz using a receiver bandwidth of 1MHz. Radiated was performed at an antenna to EUT distance of 3 meters.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Site : SITE3	**Time : 2013/03/25 - 10:50**
Limit : CISPR_B_10M_QP	**Margin : 6**
Probe : Site3_10M-3_0815 - HORIZONTAL	**Power : AC 240V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

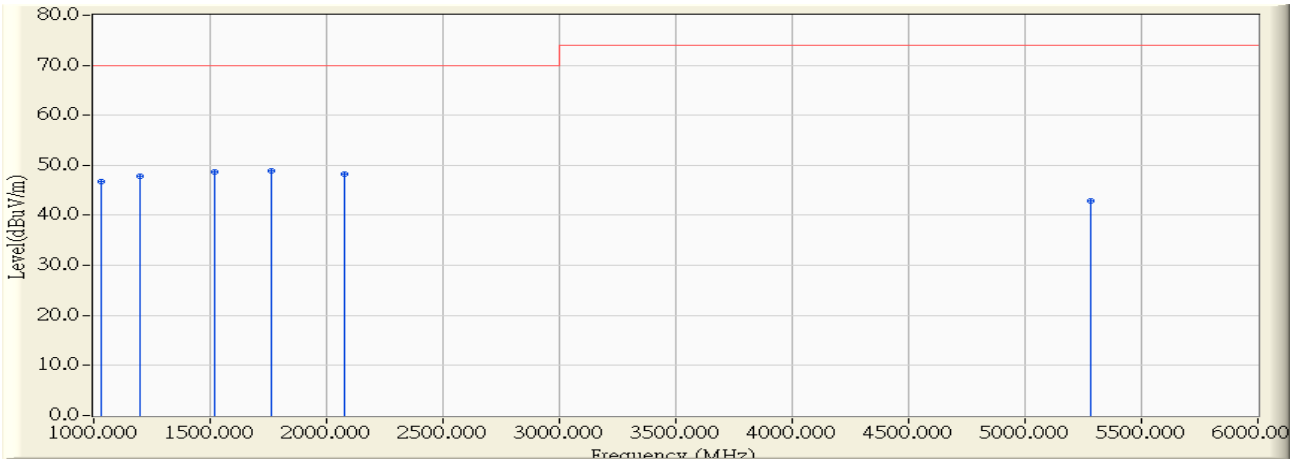


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		160.000	13.588	8.070	21.658	-8.342	30.000	QUASIPEAK
2		240.025	13.917	3.900	17.817	-19.183	37.000	QUASIPEAK
3		320.000	19.408	12.100	31.508	-5.492	37.000	QUASIPEAK
4		400.045	21.726	4.420	26.146	-10.854	37.000	QUASIPEAK
5		480.050	22.690	3.420	26.109	-10.891	37.000	QUASIPEAK
6		640.070	24.247	1.920	26.167	-10.833	37.000	QUASIPEAK
7		800.000	30.914	2.960	33.874	-3.126	37.000	QUASIPEAK
8	*	960.000	32.763	1.120	33.883	-3.117	37.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/03/26 - 14:34**
Limit : CISPR_22_B_(Above_1G)_3M_PK	**Margin : 0**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - HORIZONTAL	**Power : AC 240V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

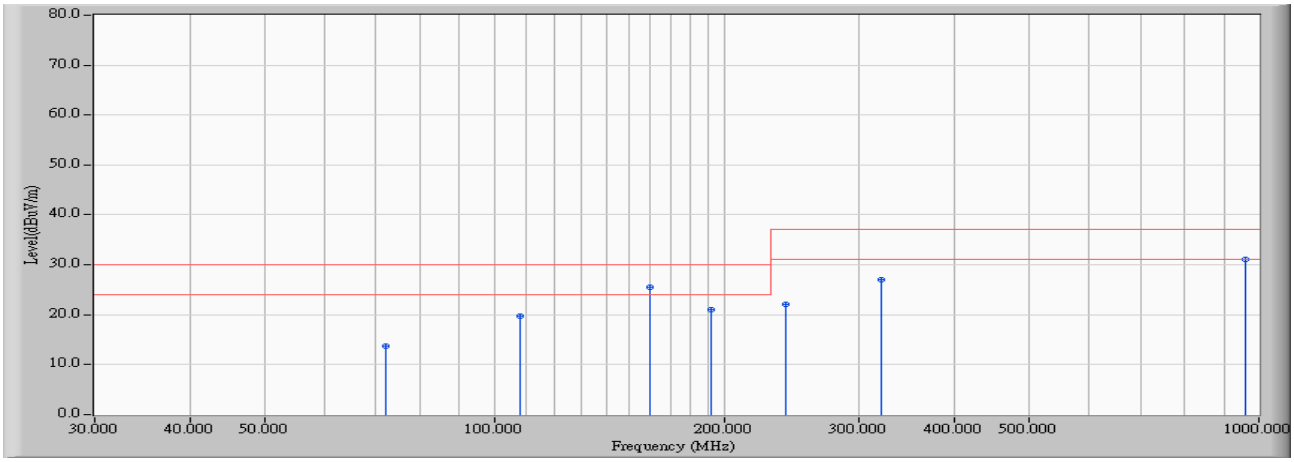


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1030.000	-8.581	55.275	46.694	-23.306	70.000	PEAK
2		1200.000	-7.764	55.514	47.750	-22.250	70.000	PEAK
3		1520.000	-6.258	54.936	48.678	-21.322	70.000	PEAK
4	*	1760.000	-5.484	54.363	48.879	-21.121	70.000	PEAK
5		2080.000	-4.430	52.585	48.155	-21.845	70.000	PEAK
6		5280.000	3.167	39.731	42.898	-31.102	74.000	PEAK

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
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : SITE3	**Time : 2013/03/25 - 10:35**
Limit : CISPR_B_10M_QP	**Margin : 6**
Probe : Site3_10M-3_0815 - VERTICAL	**Power : AC 240V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

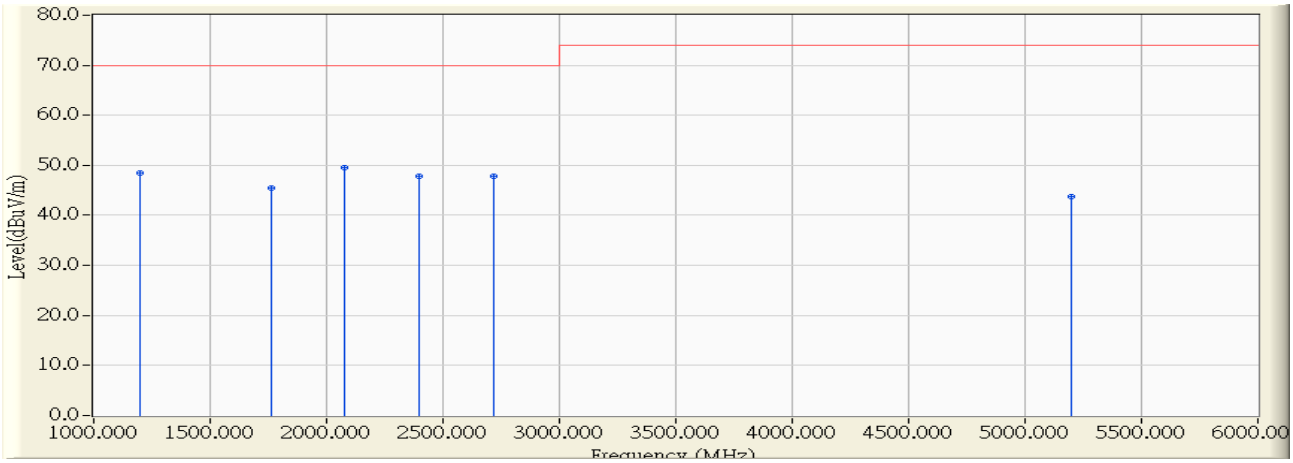


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		71.940	8.563	5.140	13.703	-16.297	30.000	QUASIPEAK
2		108.000	13.515	6.290	19.805	-10.195	30.000	QUASIPEAK
3	*	160.015	15.464	10.040	25.503	-4.497	30.000	QUASIPEAK
4		192.000	12.138	8.930	21.068	-8.932	30.000	QUASIPEAK
5		240.000	15.243	6.900	22.143	-14.857	37.000	QUASIPEAK
6		320.025	16.956	10.140	27.096	-9.904	37.000	QUASIPEAK
7		960.100	30.127	1.070	31.197	-5.803	37.000	QUASIPEAK

Note:

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

Site : CB1	**Time : 2013/03/26 - 14:38**
Limit : CISPR_22_B_(Above_1G)_3M_PK	**Margin : 0**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - VERTICAL	**Power : AC 240V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1200.000	-7.764	56.185	48.421	-21.579	70.000	PEAK
2		1760.000	-5.484	50.928	45.444	-24.556	70.000	PEAK
3	*	2080.000	-4.430	53.997	49.567	-20.433	70.000	PEAK
4		2400.000	-3.282	51.074	47.792	-22.208	70.000	PEAK
5		2720.000	-2.181	50.093	47.912	-22.088	70.000	PEAK
6		5200.000	3.021	40.717	43.738	-30.262	74.000	PEAK

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
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

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4.7. Test Photograph

Test Mode : Mode 1: Scan to PC

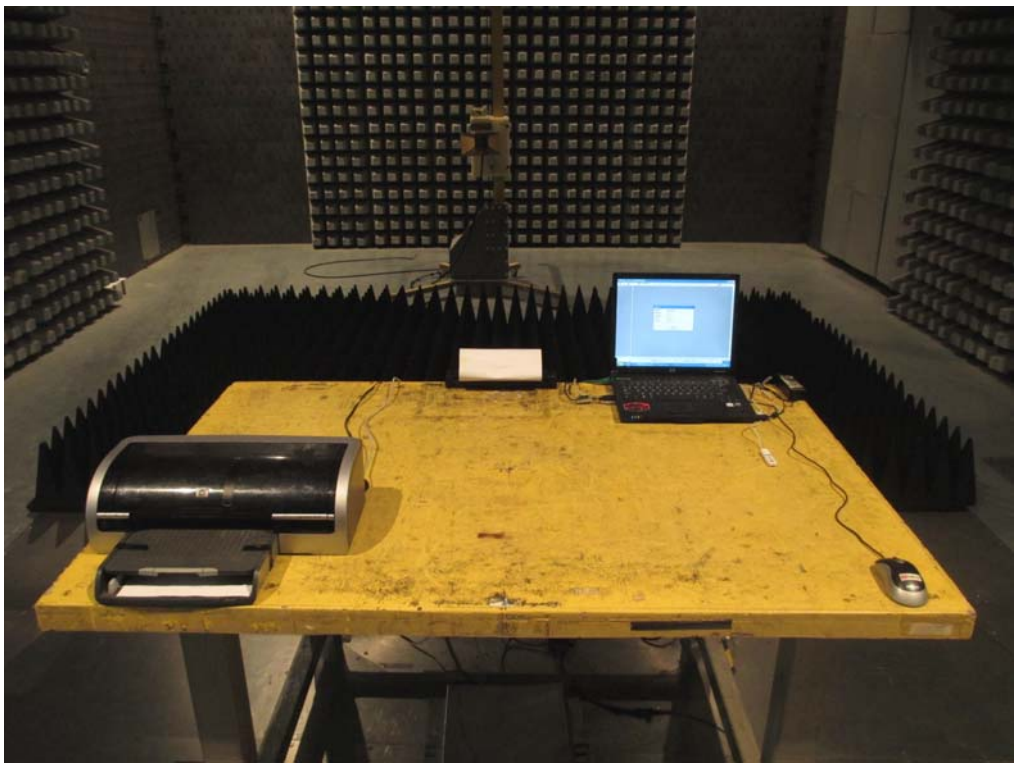
Description : Front View of Radiated Emission Test Setup

Test Mode : Mode 1: Scan to PC

Description : Back View of Radiated Emission Test Setup

Test Mode : Mode 1: Scan to PC

Description : Front View of Radiated Emission Test-Horn



Test Mode : Mode 1: Scan to PC

Description : Back View of Radiated Emission Test-Horn

5. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo