CE 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-ITCEP01V00

Issued Date ： 2015/05/25

Report Version ： V1.0

CE

Declaration of Conformity

The following products is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). The listed standard as below were applied:

The following Equipment:

Product : Scanner
Trade Name : I.R.I.S.
Model Number : IRIScan Express 4

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). For the evaluation regarding EMC, the following standards were applied:

Emission:

EN 55022: 2010/AC: 2011 Class B	: Emission standard
EN 61000-3-2: 2014 Class A	: Limits for harmonic current emission
EN 61000-3-3: 2013	: Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity:

EN 55024: 2010	: Immunity standard

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

Report No: 1550256R-ITCEP01V00

Statement of Conformity

The certifies that the following designated product

Product	:	Scanner
Trade Name	:	I.R.I.S.
Model Number	:	IRIScan Express 4
Company Name	:	AVISION INC.

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). For the evaluation regarding EMC, the following standards were applied:

Emission:

EN 55022: 2010/AC: 2011 Class B	: Emission standard
EN 61000-3-2: 2014 Class A	Limits for harmonic current emission
EN 61000-3-3: 2013	: Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity:

EN 55024: 2010	: Immunity standard

TEST LABORATORY

Arthur Liu / Deputy Manager

The verification is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. Logo.

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Tel: 886-3-5928858, Fax: 886-3-5928859, E-mail: service@quietek.com

Test Report Certification

Issued Date : 2015/05/25
Report No. : 1550256R-ITCEP01V00

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	:	EN 55022: 2010/AC: 2011 Class B EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 55024: 2010
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

Documented By : Carol Tsai

(Carol Tsai / Engineering Adm. Assistant)

Reviewed By : Eden Chen

(Eden Chen / Assistant Engineer)

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:

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

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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

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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
Immunity	Mode 1: Scan to PC

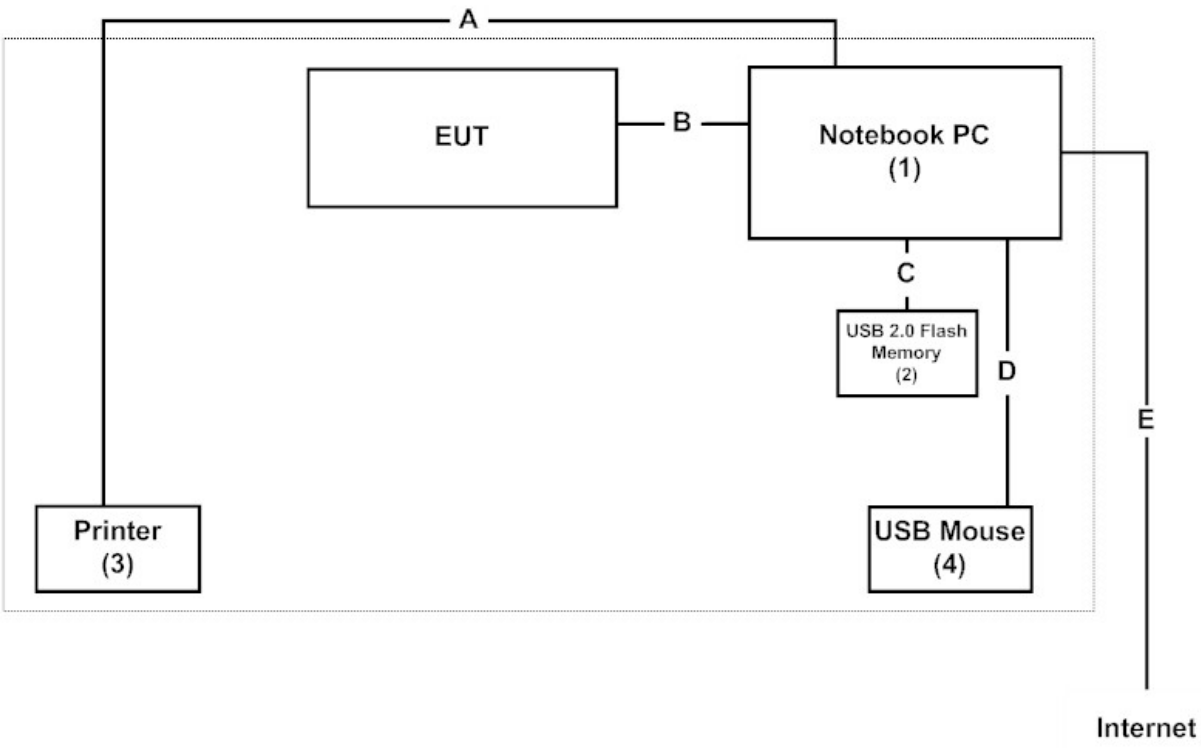
1.3. Tested System Details

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	EN 55022: 2010/AC: 2011	Yes	No
Impedance Stabilization Network	EN 55022: 2010/AC: 2011	No	No
Radiated Emission	EN 55022: 2010/AC: 2011	Yes	No
Power Harmonics	EN 61000-3-2: 2014	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	EN 61000-4-2: 2009	Yes	No
Radiated susceptibility	EN 61000-4-3: 2006+A1: 2008+A2: 2010	Yes	No
Electrical fast transient/burst	EN 61000-4-4: 2004	Yes	No
Surge	EN 61000-4-5: 2006	Yes	No
Conducted susceptibility	EN 61000-4-6: 2014	Yes	No
Power frequency magnetic field	EN 61000-4-8: 2010	Yes	No
Voltage dips and interruption	EN 61000-4-11: 2004	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

Power Harmonics/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2014/03/24

Voltage Fluctuation and Flicker/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2014/03/24

Electrostatic Discharge/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Electrostatic Simulator Discharge	NoiseKen	ESS-2002	ESS04Z3759	2013/07/10
Horizontal Coupling Plane (HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane (VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility/ CB3

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Field strength Meter	WG	EMR-20C	BA-0097	2013/04/11
Power Sensor	Boonton	51011-EMC	31507	2013/11/19
Power Sensor	Boonton	51011-EMC	34359	2013/11/19
RF Power Meter	Boonton	4232A	42201	2013/11/19
Signal Generator	R&S	SML03	103300	2013/05/13
Bilog Antenna	FRANKONIA	BTA-M	06001M	N/A
Horn Antenna	Schwarzbeck	BBHA 9120E	286	N/A
Directional Coupler	WERLATONE	C6021	28565	N/A
Directional Coupler	WERLATONE	C6187	28590	N/A
Power Amplifier	FRANKONIA	FLH200B	1022	N/A
Power Amplifier	FRANKONIA	FLG-50C	1009	N/A

Electrical fast transient/ Burst/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Clamper	HAEFELY	093 506.1	083 593-23	2013/07/11
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2013/07/30

Surge/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Coupling Network	EM TEST	CNV 504	0503-05	2013/12/12
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2013/07/30
Surge Tester	TESEQ	NSG 3060	1424	2013/05/21
Coupling Network	TESEQ	INA 172	SL 403-109	2013/05/21

Conducted susceptibility/ SR4

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Attenuator	Schaffner	INA2070-1	2112	N/A
CDN	Schaffner	CDN M016	16337	2014/03/06
CDN	Schaffner	CDN T400	16905	2014/03/06
CDN	COM-POWER	CDN T8	711899	2014/03/06
Immunity Injection Clamp	Schaffner	KEMZ801	15928	2014/03/06
RF-Synthesizer/Amplifier	Schaffner	NSG 2070-1	1112	2014/02/28

Power frequency magnetic field/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Magnetic Field Testing	Haefely	MAG100	080 938-05	2013/11/11
Triaxial ELF Magnetic Field Meter	F.B.BELL	4090	9852	2013/09/26

Voltage dips and interruption/ SR1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2013/07/30

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.

Harmonic Current Emission

The measurement uncertainty is evaluated as 0.1%.

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as ±4%.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 1.63 %, 2.8×10^{-10} and 2.76%

Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 3.72 dB and 2.78 dB.

Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 2 %.

Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

2.4. Test Environment

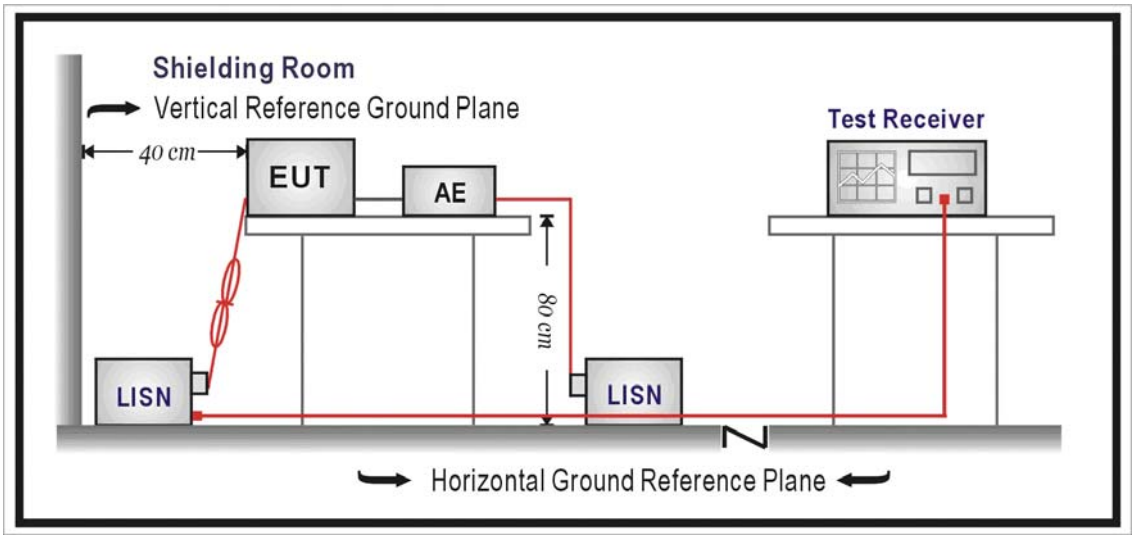
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Power Harmonics	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Voltage Fluctuation and Flicker	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	22
	Humidity (%RH)	30-60	53
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	23
	Humidity (%RH)	10-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission (Main Terminals)

3.1. Test Specification

According to EMC Standard : EN 55022

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

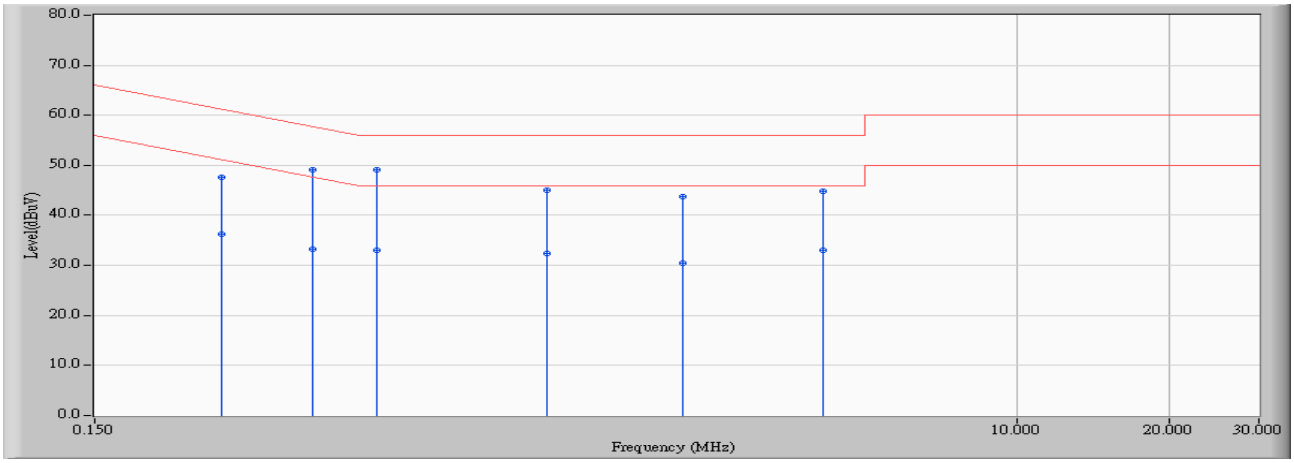
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling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

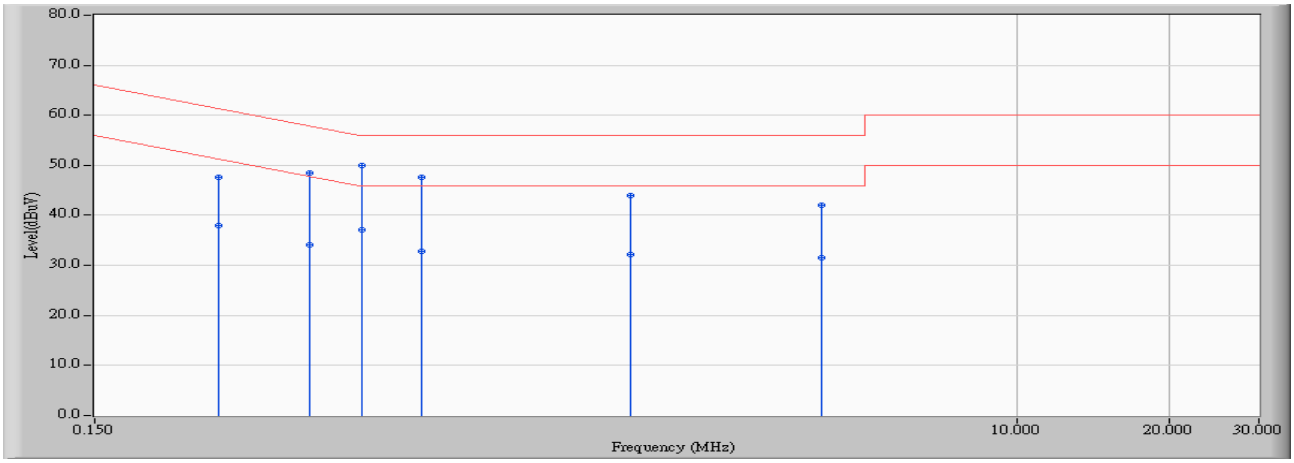


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.267	9.696	37.820	47.516	-13.688	61.205	QUASIPEAK
2		0.267	9.696	26.510	36.206	-14.998	51.205	AVERAGE
3		0.404	9.775	39.260	49.035	-8.738	57.773	QUASIPEAK
4		0.404	9.775	23.500	33.275	-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

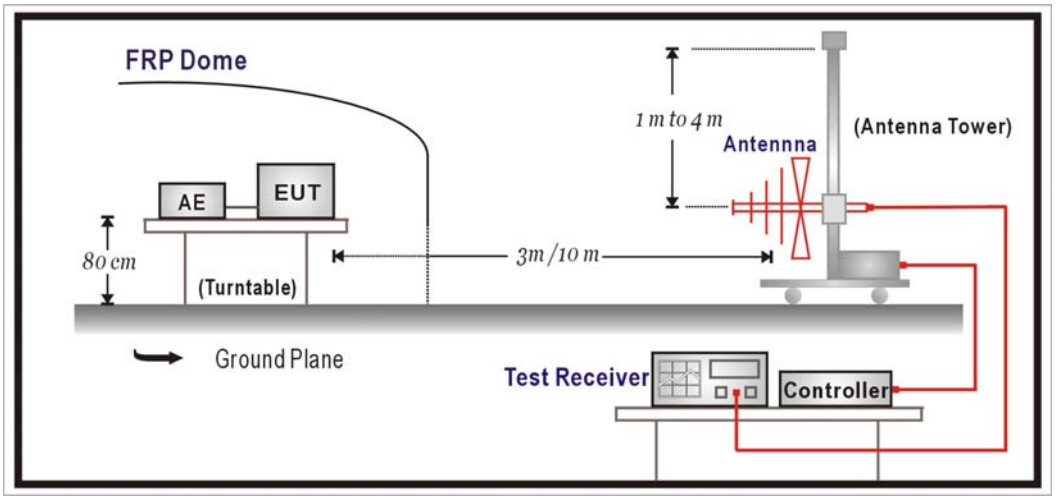
4. Radiated Emission

4.1. Test Specification

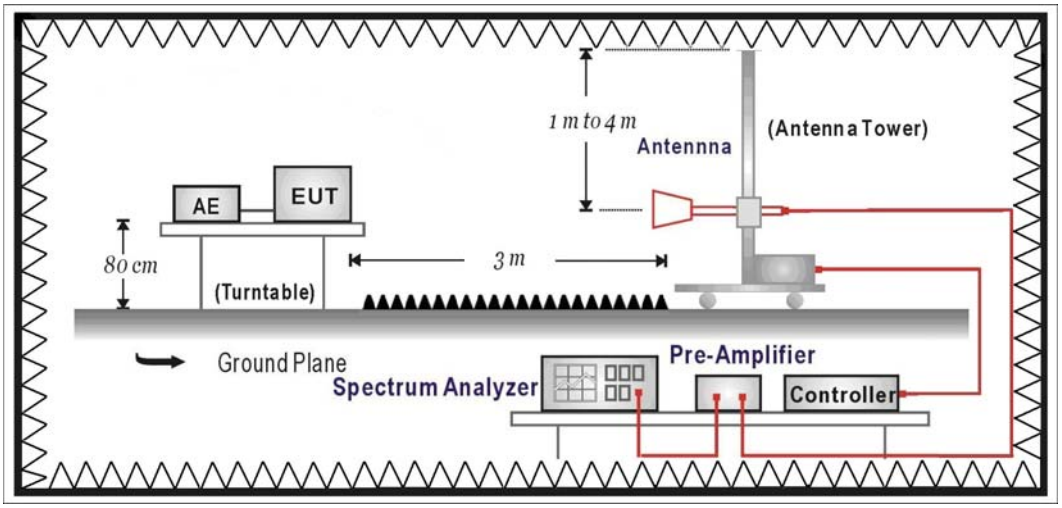
According to EMC Standard : EN 55022

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 (MHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1000 – 3000	3	70	50
3000 – 6000	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.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

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.

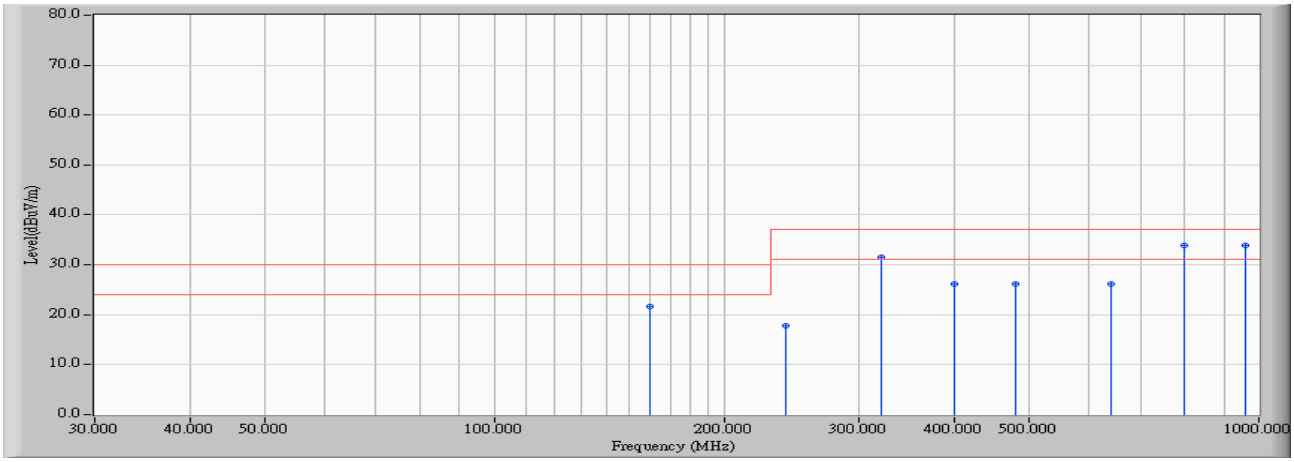
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. 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 230V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

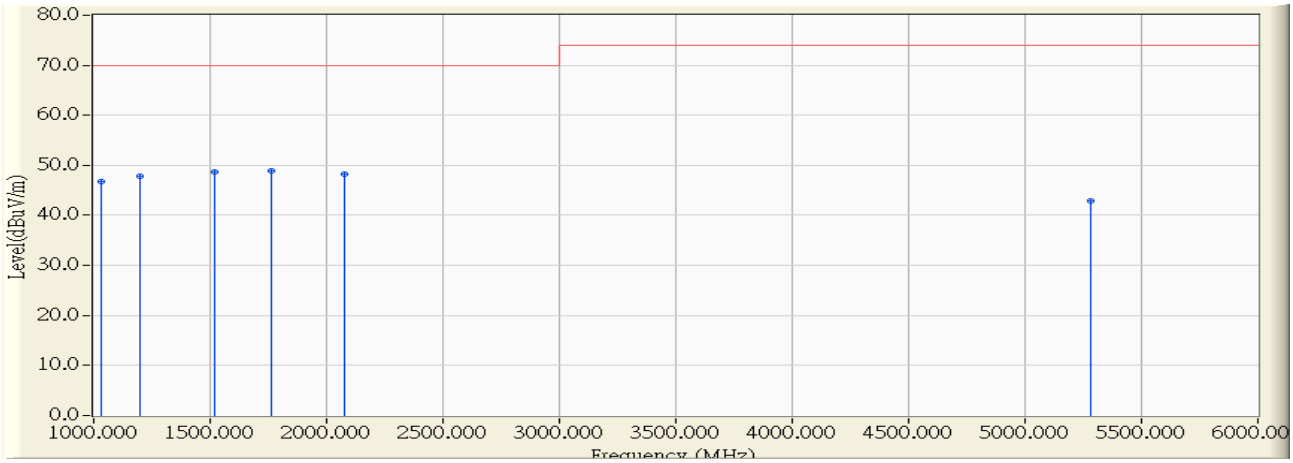


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		160.000	13.588	8.070	21.658	-8.342	30.000	QUASIPEAK
2		240.025	13.917	3.900	17.817	-19.183	37.000	QUASIPEAK
3		320.000	19.408	12.100	31.508	-5.492	37.000	QUASIPEAK
4		400.045	21.726	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 230V/50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

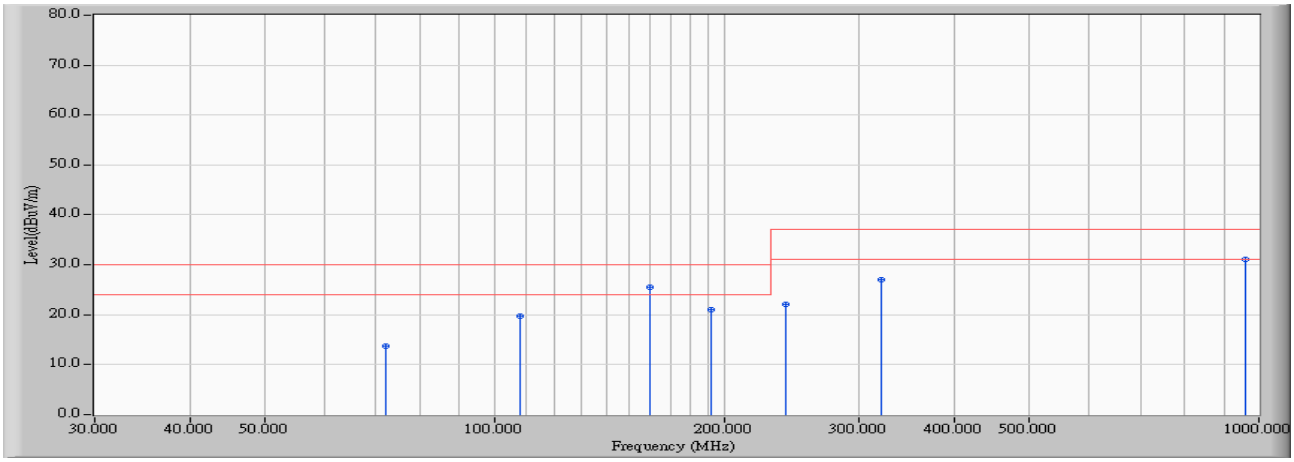


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1030.000	-8.581	55.275	46.694	-23.306	70.000	PEAK
2		1200.000	-7.764	55.514	47.750	-22.250	70.000	PEAK
3		1520.000	-6.258	54.936	48.678	-21.322	70.000	PEAK
4	*	1760.000	-5.484	54.363	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 230V/ 50Hz**
EUT : Scanner	**Note : Mode 1: Scan to PC**

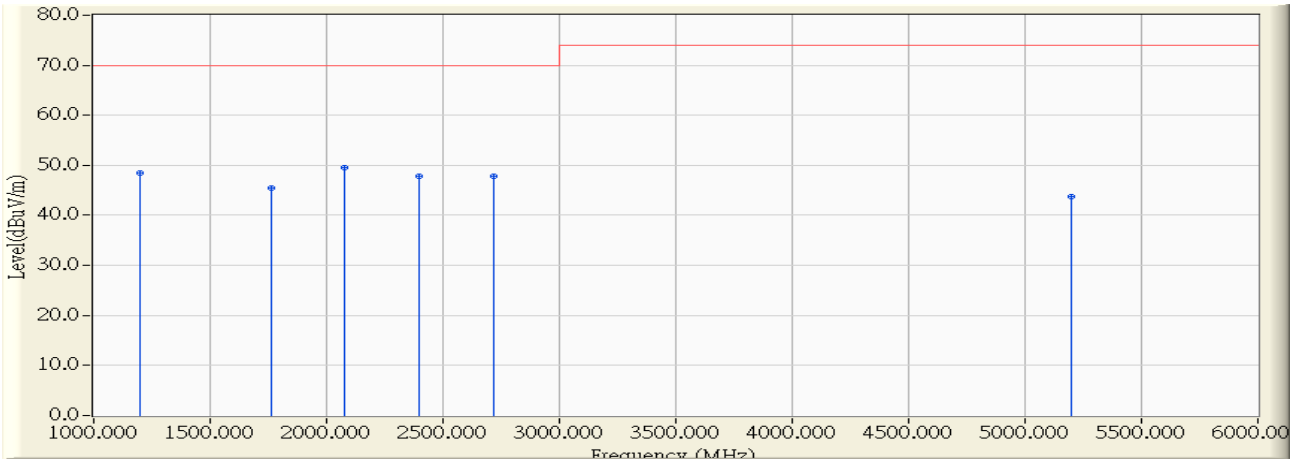


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		71.940	8.563	5.140	13.703	-16.297	30.000	QUASIPEAK
2		108.000	13.515	6.290	19.805	-10.195	30.000	QUASIPEAK
3	*	160.015	15.464	10.040	25.503	-4.497	30.000	QUASIPEAK
4		192.000	12.138	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 230V/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

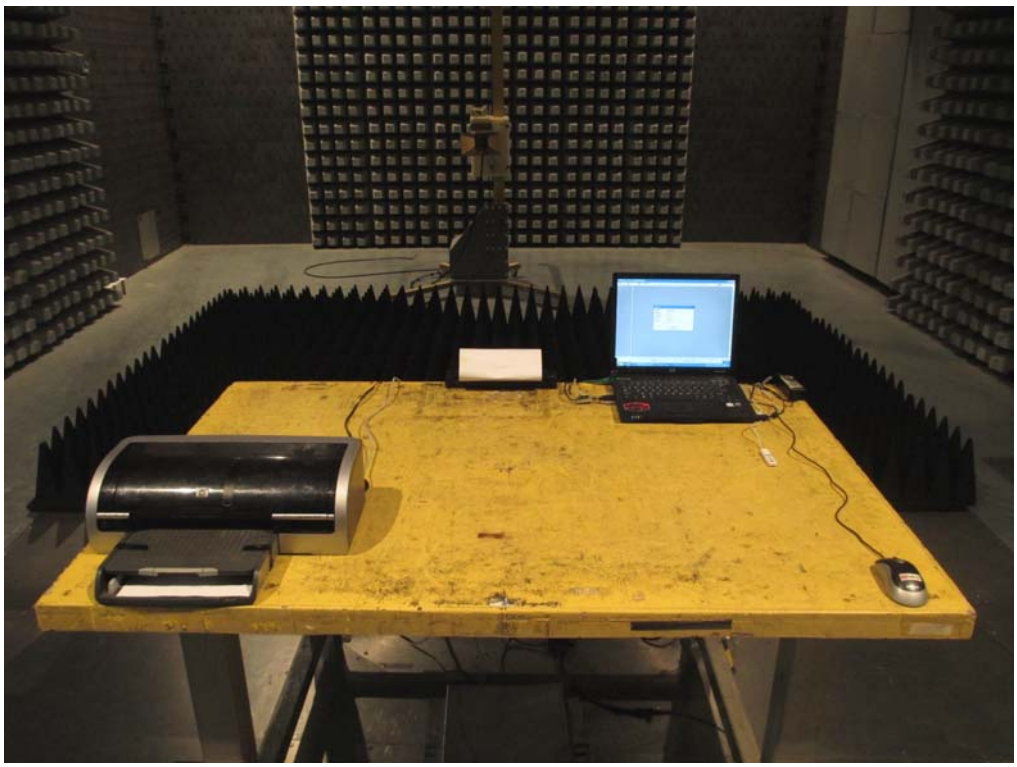
Description : Front View of Radiated Emission Test Setup

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

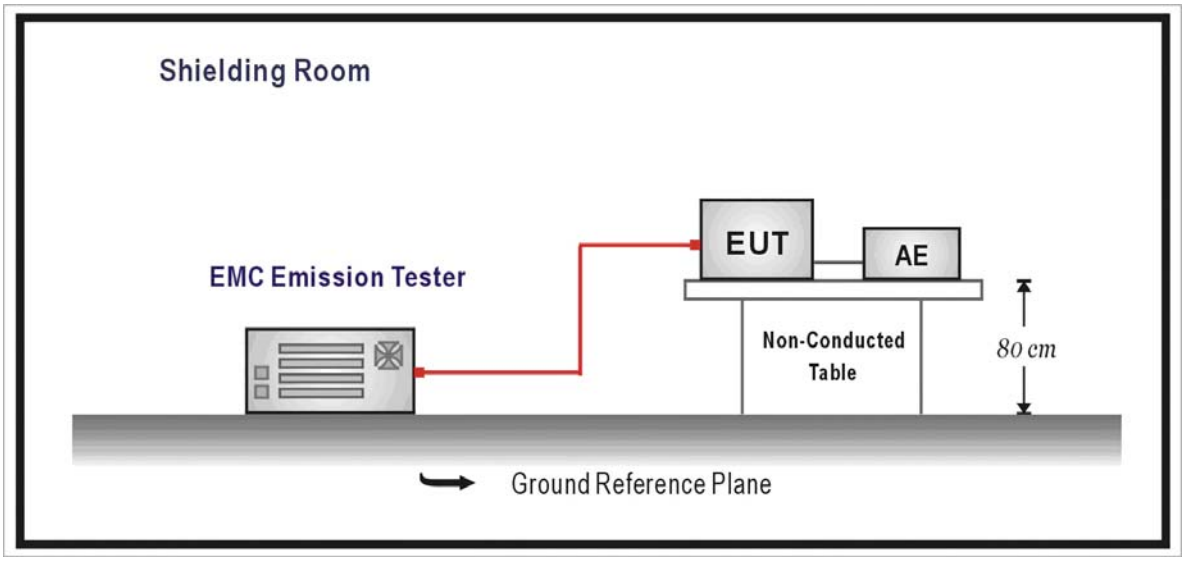
Description : Back View of Radiated Emission Test-Horn

5. Harmonic Current Emission

5.1. Test Specification

According to EMC Standard : EN 61000-3-2

5.2. Test Setup



5.3. Limit

(a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	8 ≤ n ≤ 40	0.23 * 8/n
11	0.33		
13	0.21		
15 ≤ n ≤ 39	0.15 * 15/n		

(b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

(c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	30 · λ*
5	10
7	7
9	5
11 ≤ n ≤ 39 (odd harmonics only)	3
∗λ is the circuit power factor	

(d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
11 ≤ n ≤ 39 (odd harmonics only)	3.85/n	See limit of Class A

5.4. Test Procedure

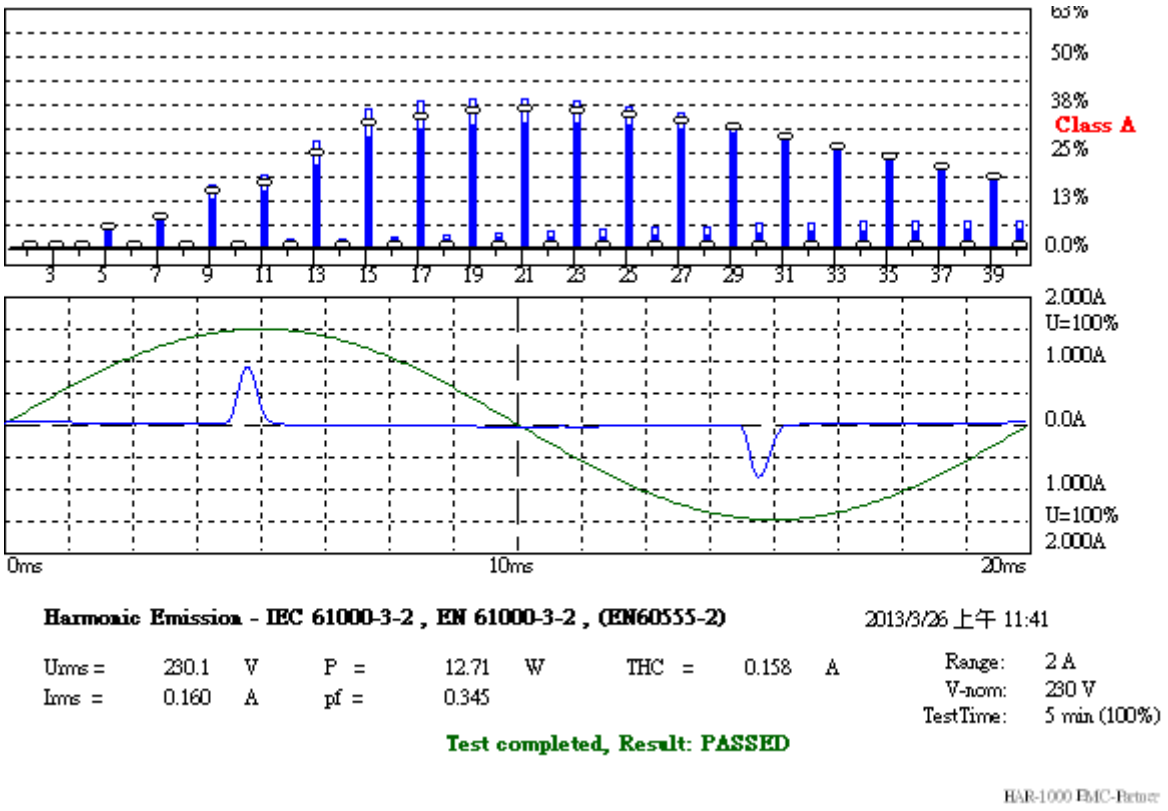
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

5.5. Deviation from Test Standard

No deviation.

5.6. Test Result

Product	Scanner		
Test Item	Power Harmonics		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/26	Test Site	SR1



Full Bar : Actual Values

Empty Bar : Maximum Values

Blue : Current , Green : Voltage , Red : Failed

Urms =	230.1V	Freq =	50.000	Range:	2 A
Irms =	0.160A	Ipk =	0.967A	cf =	6.037
P =	12.71W	S =	36.85VA	pf =	0.345
THDi =	93.2 %	THDu =	0.10 %	Class A	

Test - Time : 5min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.0695		0.0775			
2	100	0.0000	0.0000	0.0016	0.1469	1.0800	
3	150	0.0604	2.6259	0.0686	2.9828	2.3000	
4	200	0.0000	0.0000	0.0017	0.3974	0.4300	
5	250	0.0596	5.2282	0.0676	5.9322	1.1400	
6	300	0.0000	0.0000	0.0018	0.6104	0.3000	
7	350	0.0582	7.5572	0.0658	8.5449	0.7700	
8	400	0.0000	0.0000	0.0020	0.8492	0.2300	
9	450	0.0564	14.089	0.0635	15.869	0.4000	
10	500	0.0000	0.0000	0.0021	1.1278	0.1840	
11	550	0.0540	16.368	0.0607	18.385	0.3300	
12	600	0.0000	0.0000	0.0023	1.5126	0.1533	
13	650	0.0513	24.435	0.0573	27.262	0.2100	
14	700	0.0000	0.0000	0.0024	1.8576	0.1314	
15	750	0.0483	32.199	0.0536	35.726	0.1500	
16	800	0.0000	0.0000	0.0027	2.3353	0.1150	
17	850	0.0450	34.016	0.0497	37.538	0.1324	
18	900	0.0000	0.0000	0.0028	2.7466	0.1022	
19	950	0.0416	35.108	0.0455	38.449	0.1184	
20	1000	0.0000	0.0000	0.0031	3.3171	0.0920	
21	1050	0.0380	35.489	0.0413	38.509	0.1071	
22	1100	0.0000	0.0000	0.0032	3.7948	0.0836	
23	1150	0.0344	35.146	0.0370	37.809	0.0978	
24	1200	0.0000	0.0000	0.0033	4.2990	0.0767	
25	1250	0.0308	34.227	0.0328	36.485	0.0900	
26	1300	0.0000	0.0000	0.0034	4.8297	0.0708	
27	1350	0.0273	32.746	0.0289	34.717	0.0833	
28	1400	0.0000	0.0000	0.0034	5.2013	0.0657	
29	1450	0.0239	30.812	0.0251	32.411	0.0776	
30	1500	0.0000	0.0000	0.0035	5.7718	0.0613	
31	1550	0.0207	28.560	0.0216	29.769	0.0726	
32	1600	0.0000	0.0000	0.0034	5.9443	0.0575	
33	1650	0.0178	26.038	0.0183	26.855	0.0682	
34	1700	0.0000	0.0000	0.0034	6.3158	0.0541	
35	1750	0.0150	23.319	0.0155	24.116	0.0643	
36	1800	0.0000	0.0000	0.0033	6.4485	0.0511	
37	1850	0.0126	20.731	0.0131	21.479	0.0608	
38	1900	0.0000	0.0000	0.0031	6.3025	0.0484	
39	1950	0.0105	18.160	0.0110	19.043	0.0577	
40	2000	0.0000	0.0000	0.0029	6.3689	0.0460	

5.7. Test Photograph

Test Mode : Mode 1: Scan to PC

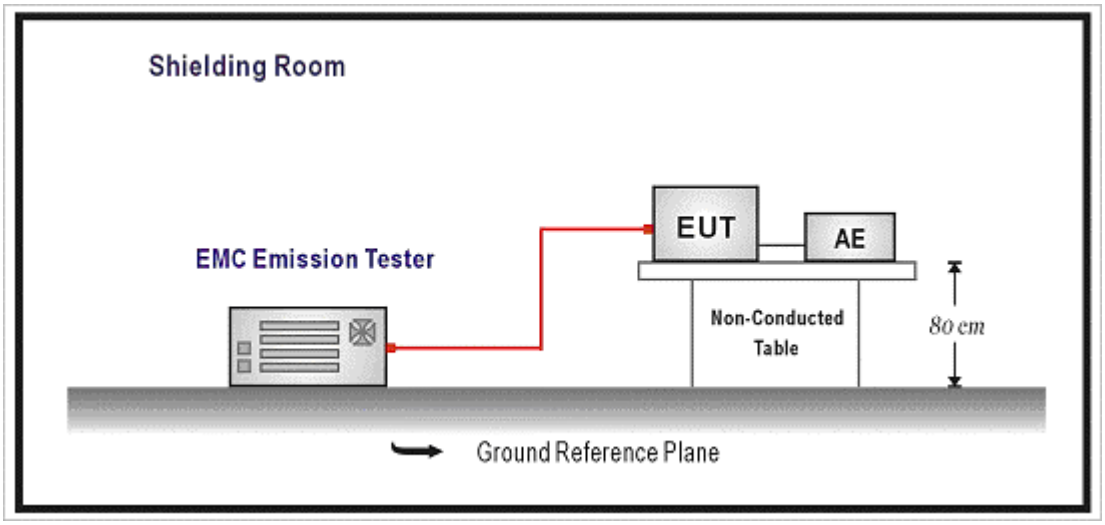
Description : Power Harmonics Test Setup

6. Voltage Fluctuation and Flicker

6.1. Test Specification

According to EMC Standard : EN 61000-3-3

6.2. Test Setup



6.3. Limit

The following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change, d_c, shall not exceed 3.3 %;
- the maximum relative voltage change, d_{max}, shall not exceed;

a) 4 % without additional conditions;

b) 6 % for equipment which is:

- switched manually, or
- switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE The cycling frequency will be further limited by the P_{st} and P_{1t} limit.

For example: a d_{max} of 6%producing a rectangular voltage change characteristic twice per hour will give a P_{1t} of about 0.65.

c) 7 % for equipment which is:

- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

P_{st} and P_{1t} requirements shall not be applied to voltage changes caused by manual switching.

6.4. Test Procedure

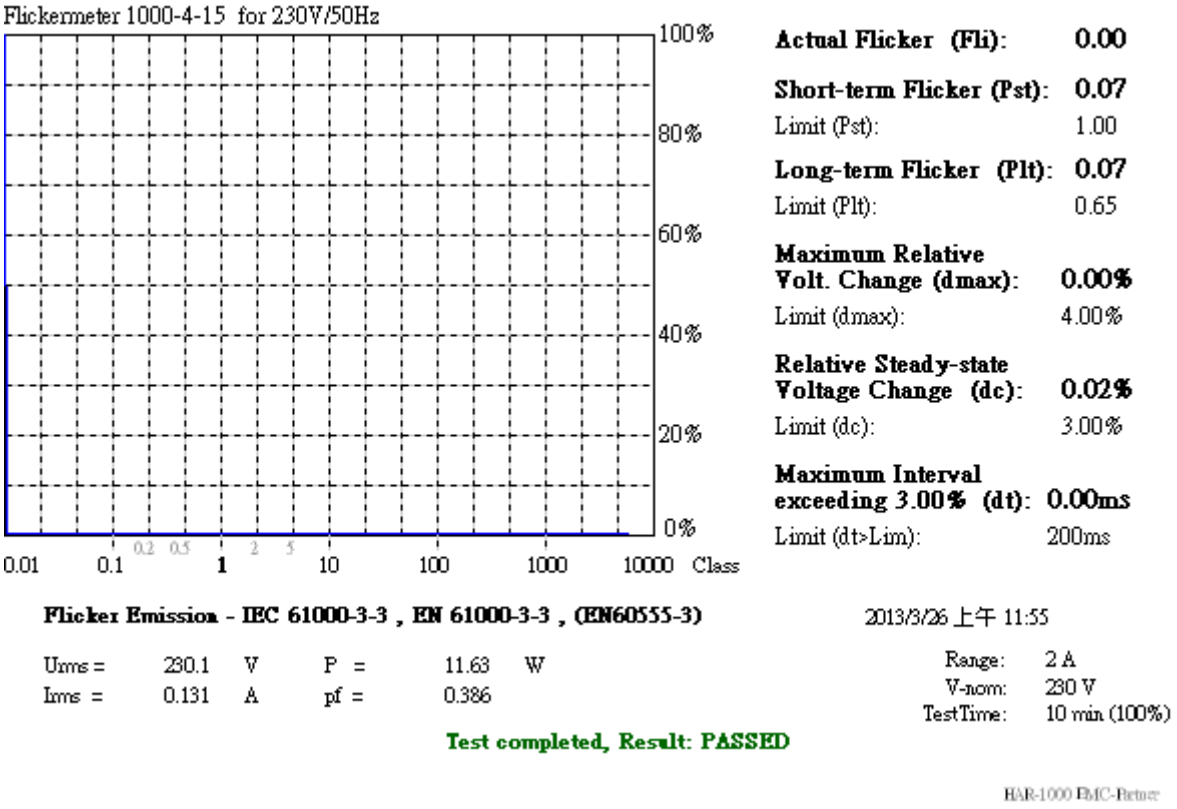
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

6.5. Deviation from Test Standard

No deviation.

6.6. Test Result

Product	Scanner		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/26	Test Site	SR1



Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Urms = 230.1V Freq = 50.000 Range: 2 A
Irms = 0.131A Ipk = 0.668A cf = 5.104
P = 11.63W S = 30.11VA pf = 0.386

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.00 %
dtLim: 3.00 % dt>Lim: 200ms

Test completed, Result: PASSED

6.7. Test Photograph

Test Mode : Mode 1: Scan to PC

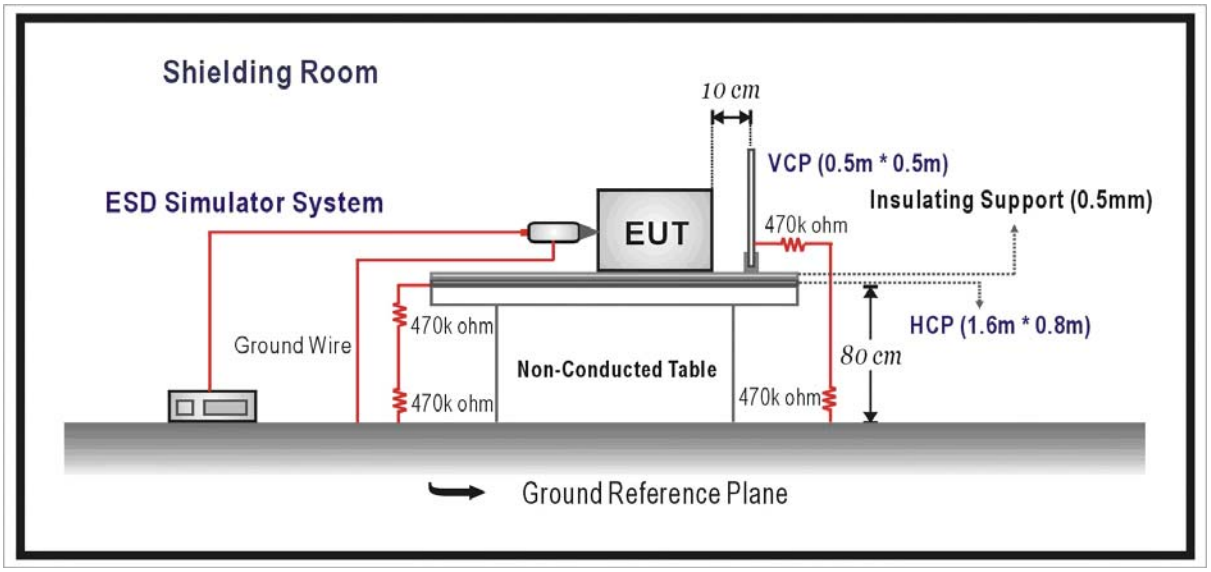
Description : Voltage Fluctuation and Flicker Test Setup

7. Electrostatic Discharge

7.1. Test Specification

According to Standard : EN 61000-4-2

7.2. Test Setup



7.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

7.4. Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

7.5. Deviation from Test Standard

No deviation.

7.6. Test Result

Product	Scanner		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/29	Test Site	SR1

Item	Amount of Discharge	Voltage kV	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8	B	A	Pass
	10	-8	B	A	Pass
Contact Discharge	25	+4	B	A	Pass
	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(HCP)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Front)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Left)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Back)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Right)	25	-4	B	A	Pass

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

The Contact discharges were applied-at least total 200 discharges at a minimum of four test points.

7.7. Test Photograph

Test Mode : Mode 1: Scan to PC

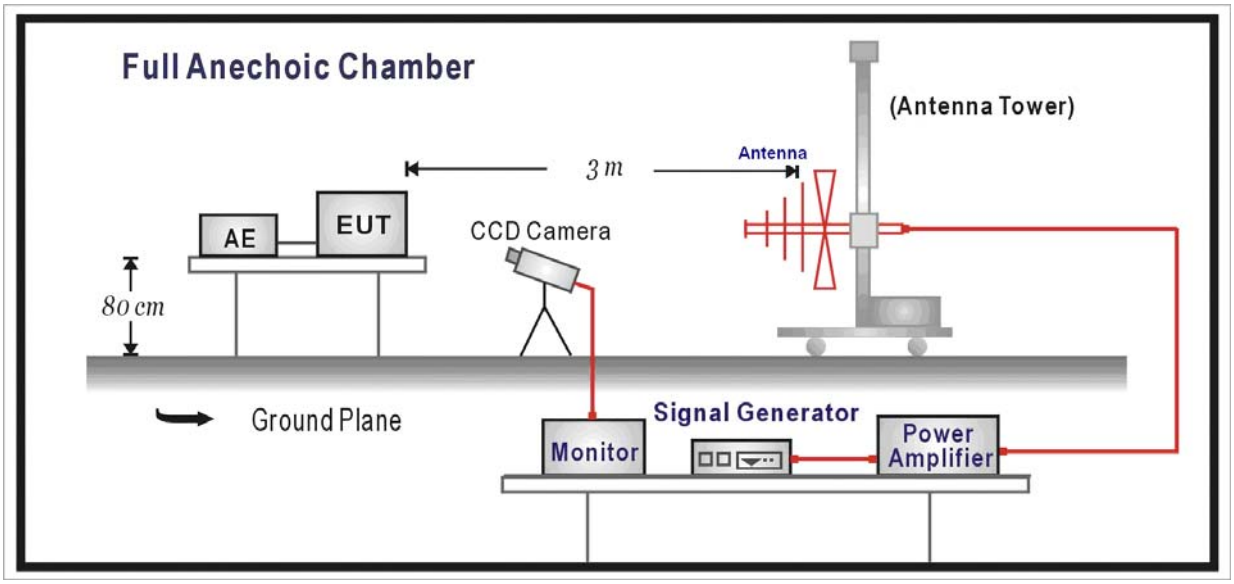
Description : Electrostatic Discharge (ESD) Test Setup

8. Radiated Susceptibility

8.1. Test Specification

According to Standard : EN 61000-4-3

8.2. Test Setup



8.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency Electromagnetic Field Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	80-1000 3 80	A

8.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.
Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.
In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3 V/m Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz - 1000MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%

8.5. Deviation from Test Standard

No deviation.

8.6. Test Result

Product	Scanner		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/29	Test Site	CB3

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	270	V	3	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

8.7. Test Photograph

Test Mode : Mode 1: Scan to PC

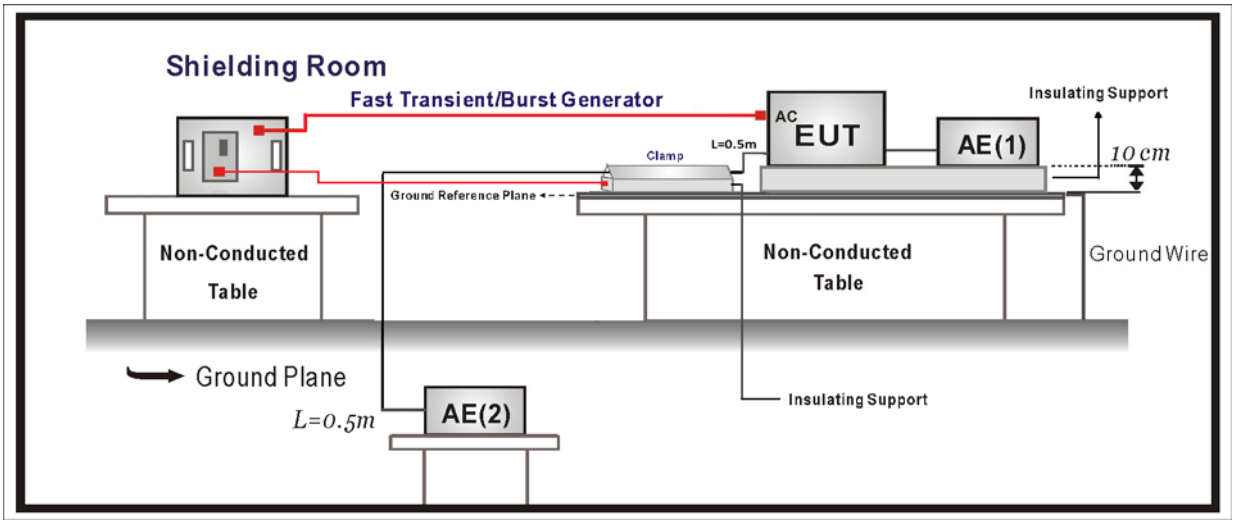
Description : Radiated Susceptibility (RS) Test Setup

9. Electrical Fast Transient/Burst

9.1. Test Specification

According to Standard : EN 61000-4-4

9.2. Test Setup



9.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5	B

9.4. Test Procedure

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.
The minimum area of the ground reference plane is 1m*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:
The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:
The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.
Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

9.5. Deviation from Test Standard

No deviation.

9.6. Test Result

Product	Scanner		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/27	Test Site	SR1

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L+N+PE	±	1	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

9.7. Test Photograph

Test Mode : Mode 1: Scan to PC

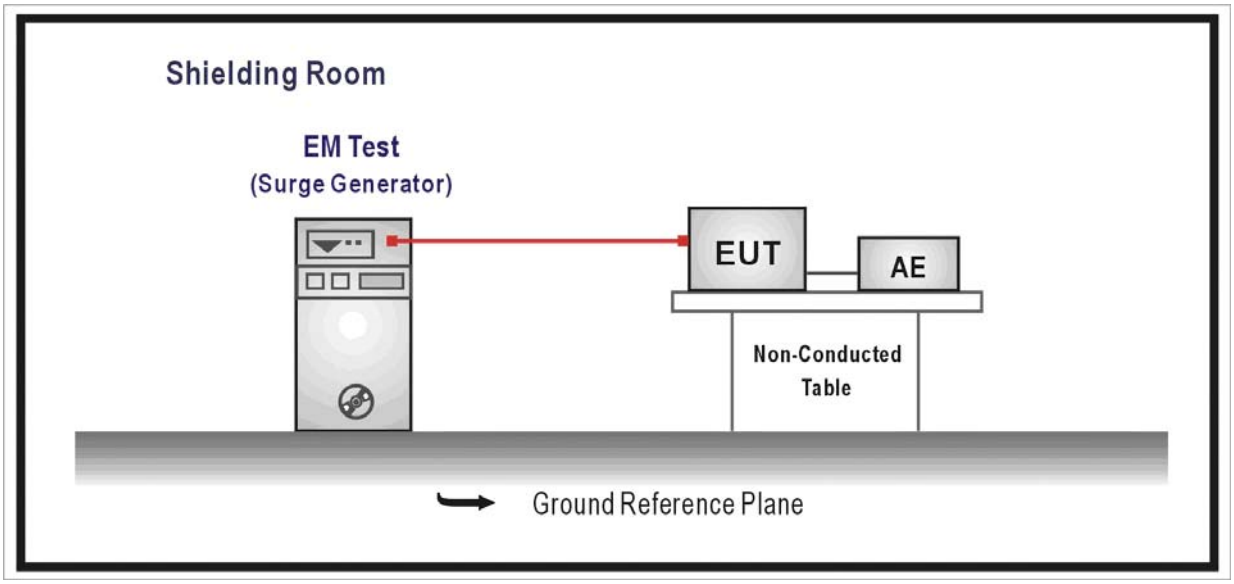
Description : Electrical Fast Transient/Burst (EFT/B) Test Setup

10. Surge

10.1. Test Specification

According to Standard : EN 61000-4-5

10.2. Test Setup



10.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports(See 1) and 2))				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 1	B
Input DC Power Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 0.5	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) ± 1 ± 2	B

Notes:

1) Applicable only to ports which according to the manufacturer's may directly to outdoor cables.
2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.

10.4. Test Procedure

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0^0, 90^0, 180^0, 270^0 and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

10.5. Deviation from Test Standard

No deviation.

10.6. Test Result

Product	Scanner		
Test Item	Surge		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/28	Test Site	SR1

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1	60	Direct	B	A	Pass
L-N	±	90	1	60	Direct	B	A	Pass
L-N	±	180	1	60	Direct	B	A	Pass
L-N	±	270	1	60	Direct	B	A	Pass
L-PE	±	0	2	60	Direct	B	A	Pass
L-PE	±	90	2	60	Direct	B	A	Pass
L-PE	±	180	2	60	Direct	B	A	Pass
L-PE	±	270	2	60	Direct	B	A	Pass
N-PE	±	0	2	60	Direct	B	A	Pass
N-PE	±	90	2	60	Direct	B	A	Pass
N-PE	±	180	2	60	Direct	B	A	Pass
N-PE	±	270	2	60	Direct	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

10.7. Test Photograph

Test Mode : Mode 1: Scan to PC

Description : Surge Test Setup

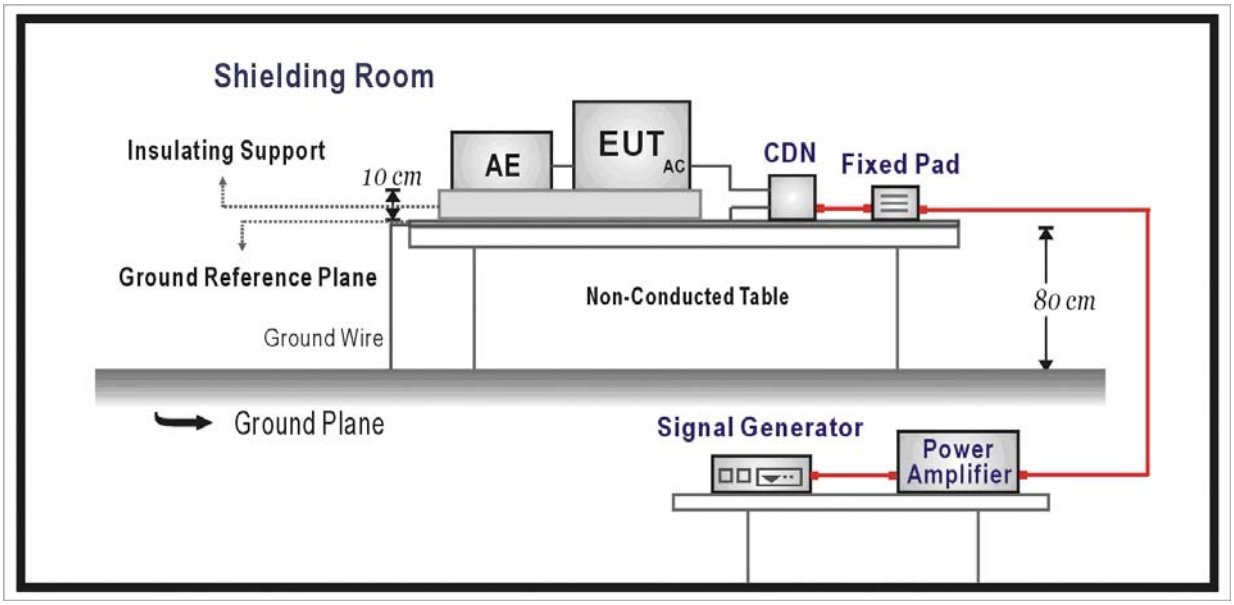
11. Conducted Susceptibility

11.1. Test Specification

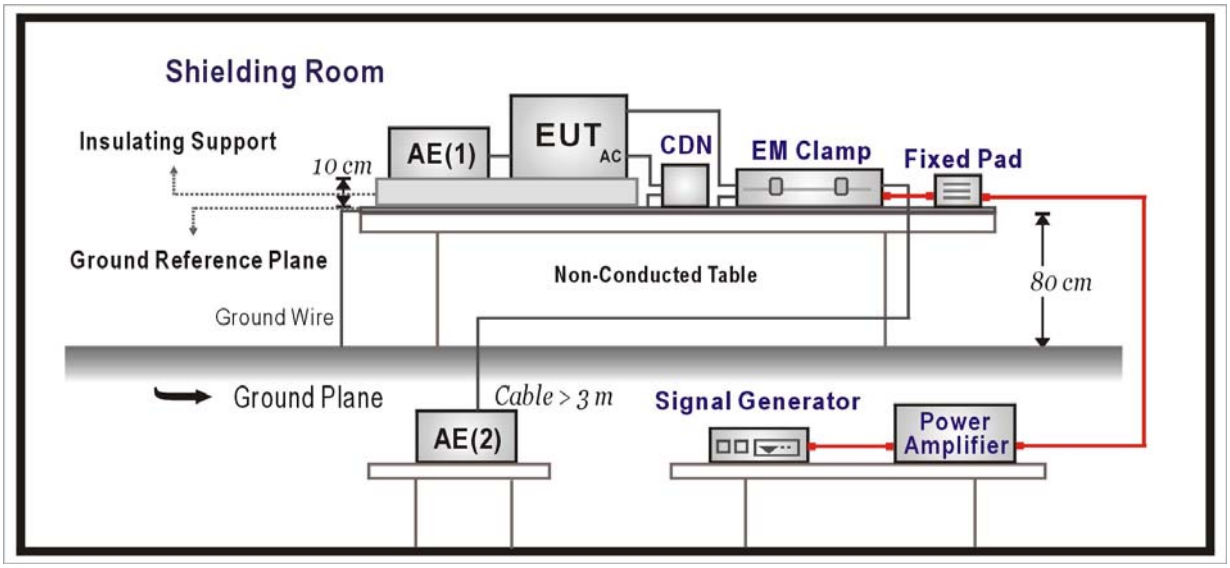
According to Standard : EN 61000-4-6

11.2. Test Setup

CDN Test Mode



EM Clamp Test Mode



11.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A

11.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.
For Signal Ports and Telecommunication Ports
The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.
For Input DC and AC Power Ports
The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.
Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	130dBuV(3V) Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	0.15MHz – 80MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%

11.5. Deviation from Test Standard

No deviation.

11.6. Test Result

Product	Scanner		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/28	Test Site	SR4

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3)	CDN	AC IN	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.
  ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

11.7. Test Photograph

Test Mode : Mode 1: Scan to PC

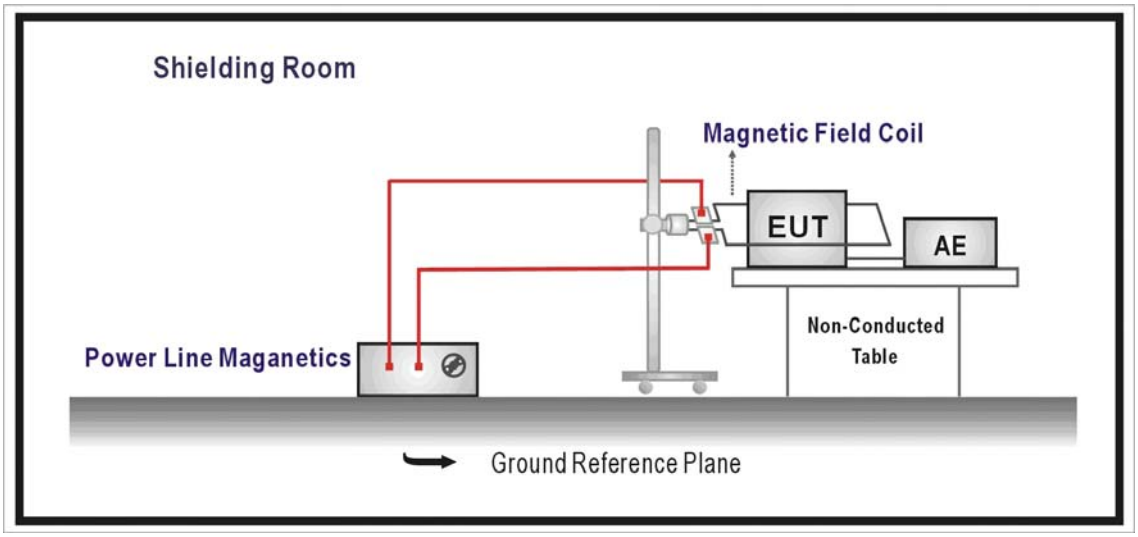
Description : Conducted Susceptibility (CS) Test Setup

12. Power Frequency Magnetic Field

12.1. Test Specification

According to Standard : EN 61000-4-8

12.2. Test Setup



12.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

12.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 1 minute by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

12.5. Deviation from Test Standard

No deviation.

12.6. Test Result

Product	Scanner		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/27	Test Site	SR1

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	Pass
Y Orientation	50	1	A	A	Pass
Z Orientation	50	1	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ A/m.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

12.7. Test Photograph

Test Mode : Mode 1: Scan to PC

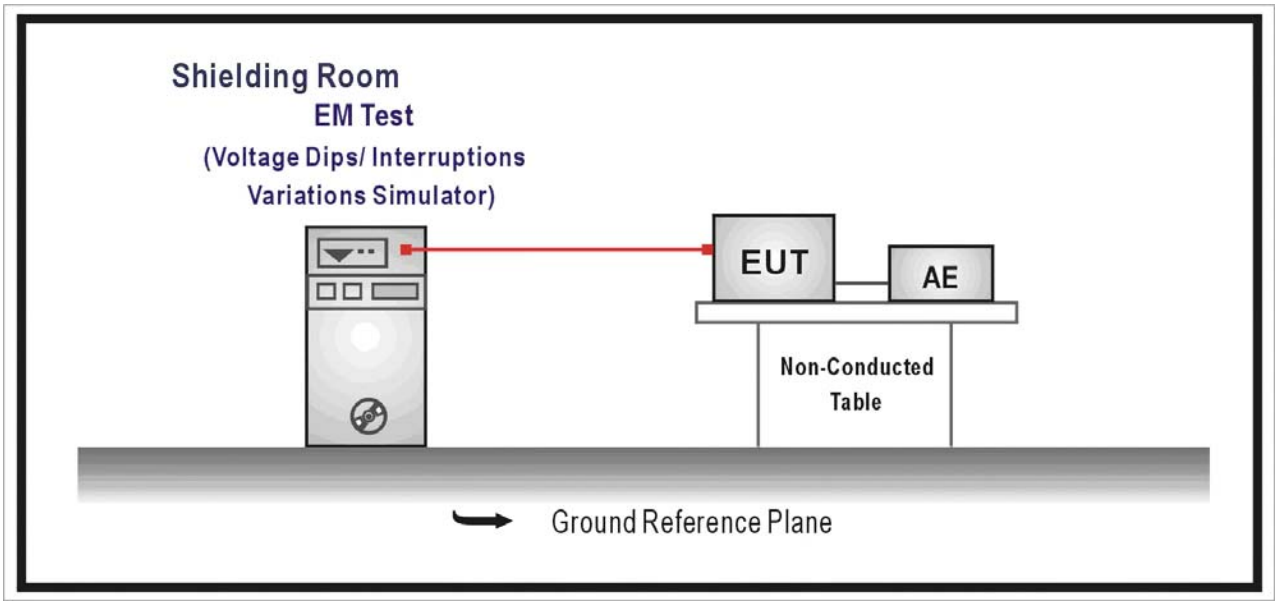
Description : Power Frequency Magnetic Field Test Setup

13. Voltage Dips and Interruption

13.1. Test Specification

According to Standard : EN 61000-4-11

13.2. Test Setup



13.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
	Voltage Dips	% Reduction Period	30 25	C
		% Reduction Period	>95 0.5	B
	Voltage Interruptions	% Reduction Period	>95 250	C

13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 25 Periods, for 95% voltage dip of supplied voltage and duration 0.5 Periods with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 250 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0^0, 45^0, 90^0 ,135^0 ,180^0 ,225^0, 270^0 ,315^0 of the voltage.

13.5. Deviation from Test Standard

No deviation.

13.6. Test Result

Product	Scanner		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/27	Test Site	SR1

AC 100V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	C	Pass
>95	45	250	C	C	Pass
>95	90	250	C	C	Pass
>95	135	250	C	C	Pass
>95	180	250	C	C	Pass
>95	225	250	C	C	Pass
>95	270	250	C	C	Pass
>95	315	250	C	C	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☒ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Scanner		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: Scan to PC		
Date of Test	2013/03/27	Test Site	SR1

AC 240V/ 50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	C	Pass
>95	45	250	C	C	Pass
>95	90	250	C	C	Pass
>95	135	250	C	C	Pass
>95	180	250	C	C	Pass
>95	225	250	C	C	Pass
>95	270	250	C	C	Pass
>95	315	250	C	C	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☒ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

13.7. Test Photograph

Test Mode : Mode 1: Scan to PC

Description : Voltage Dips and Interruption Test Setup

14. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo