Test Report

Product Name ： Motherboard

Model No. ： IMBM-B75A

Applicant ： ASUSTeK COMPUTER INC.

Address ： No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt ： 2012/04/24

Issued Date ： 2012/05/10

Report No. ： 123018R-ITCEP07V03

Report Version ： V0.1-Draft

Testing Laboratory
0914

Test Report Certification

Issued Date : 2012/05/10
Report No. : 123018R-ITCEP07V03

QuieTek

Product Name	:	Motherboard
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer	:	1. INFO-TEK ELECTRONICS(SUZHOU)CO.,LTD 2. Cal-Comp Electronics and Communications (suzhou) Co., Ltd 3. Danriver Technology (Guangzhou) Inc. 4. BOATEK ELECTRONIC CO.,LTD. 5. Global Brands Manufacture (Dongguan) Ltd 6. AAEON Technology Inc.
Address	:	1. 183 Jinfeng Rd., Suzhou, Jiangsu, PRC 2. Wujiang Export Processing Zone, No688,Pangjin Road, Wujiang Economic Development Zone, Jiangsu Province, China. 3. No.16 Baoying Dadao, Guangzhou Free Trade Zone. People's Republic of China 4. No.124 bubugao road, wu sha kong bavillage, chang an, dong guan, guang dong province 5. Yue Yuen Industrial Estate, Huang Jiang Town Dong Guan City, Guang Dong Province 6. 5F, No. 135, Lane 235, Pao Chiao Rd. Hsin-Tien Dist, New Taipei City, 231
Model No.	:	IMBM-B75A
EUT Rated Voltage	:	Power by PC
EUT Test Voltage	:	AC 230 V / 50 Hz
Trade Name	:	ASUS
Applicable Standard	:	EN 55022:2006+A1: 2007 Class A EN 55024: 1998+A1: 2001+A2: 2003 EN 61000-3-2:2006+A2: 2009 EN 61000-3-3:2008
Test Result	:	Complied
Performed Location	:	Quietek Corporation (Linkou Laboratory) No. 5-22, Rueishu Keng, Linkou Dist., New Taipei City 24451, Taiwan. R.O.C TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By : Jinn Chen
(Senior Adm. Specialist / Jinn Chen)

Reviewed By : Kakira Wu
(Assistant Engineer / Kakira Wu)

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, Rueishu Keng, 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	Motherboard
Trade Name	ASUS
Model No.	IMBM-B75A

Component	
CPU	Intel, Core i5-3330S, Speed: 2.7GHz
Motherboard	ASUS, IMBM-B75A
HDD	Seagate, ST500DM002
DVD R/W	SONY, DRU-880S
VGA Card	On Board
LAN Card	On Board
Sound Card	On Board
Power Supply	ENERMAX, EMR1350EWT-AS
DDR-RAM (4GB*4)	ATP, AQ12M64B8BKK05
Power Cord	Non-shielded, 1.8m

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: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case Mode 2: Intel i5-3330S 2.7GHz, HDMI2+HDMI3 1920*1200/60Hz, Close Case	
Final Test Mode	
Emission	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case
Immunity	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

1.3. Tested System Details

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

EMI:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	PP04X	2D2ZM1S	Non-Shielded, 1.8m
2	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
3	Monitor	DELL	U2410	CN-0J257M-728-01I-04NL	Non-Shielded, 1.8m
4	Monitor	DELL	U2410	CN-0J257M-72872-985-0A6L	Non-Shielded, 1.8m
5	Monitor	DELL	U2410	CN-0J257M-728-01I-04PL	Non-Shielded, 1.8m
6	Monitor	DELL	U2410	CN-0J257M-728-01I-038L	Non-Shielded, 1.8m
7	Printer	EPSON	StyLus C63	FAPY094321	Non-Shielded, 1.8m
8	HDD(1T)	ADATA	ASH02-1TU-CBK	1B3320071974	N/A
9	HDD(1T)	ADATA	ASH02-1TU-CBK	1B3320071985	N/A
10	HDD(1T)	ADATA	ASH02-1TU-CBK	1B3320071971	N/A
11	USB 3.0	WD	WDBACW0010HBK-SESN	WCAV5M998567	Non-Shielded, 1.8m
12	USB 3.0	WD	WDBACW0010HBK-SESN	WCAV5R656531	Non-Shielded, 1.8m
13	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
14	IPod nano	Apple	A1236	YM823SUQY0P	N/A
15	Modem	ACEEX	DM-1414	0102027559	Non-Shielded, 1.8m
16	Keyboard	Logitech	Y-SAH83	867893-0121	N/A
17	Mouse	Logitech	M-SBM96B	810-000439	N/A

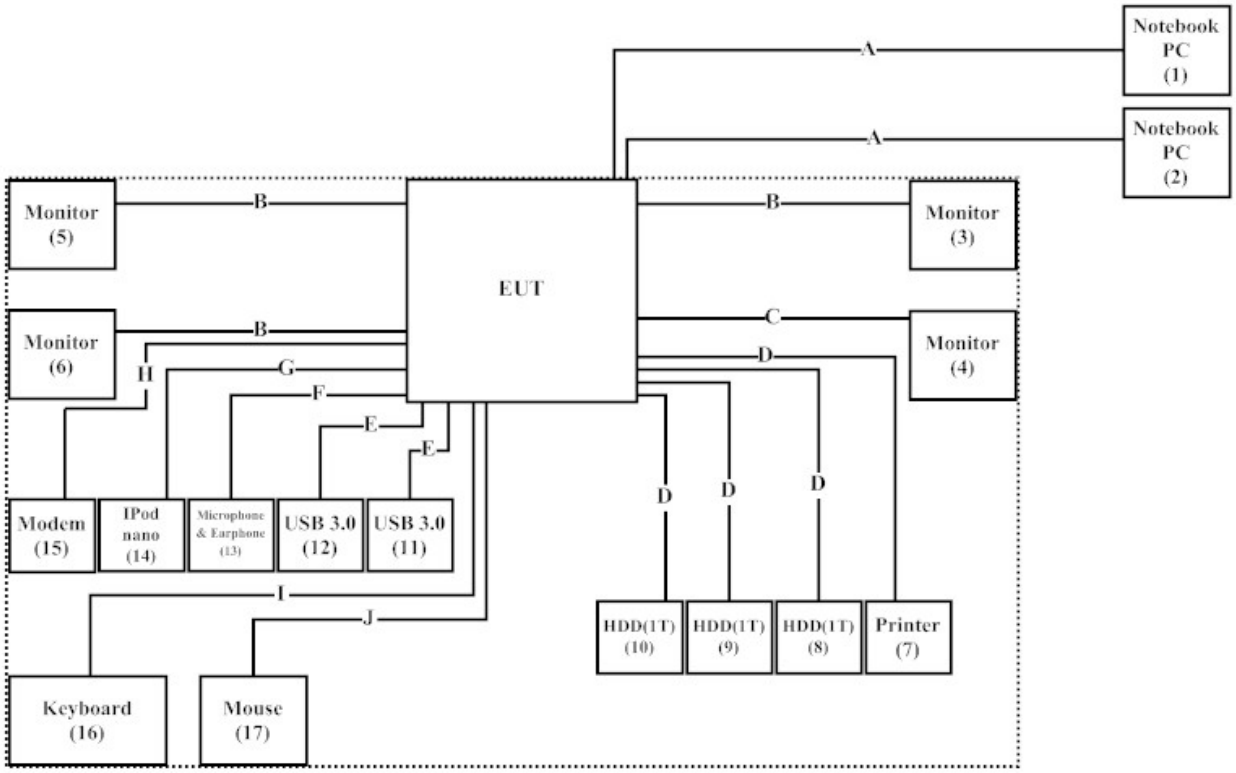
EMS:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	PP04X	2D2ZM1S	Non-Shielded, 1.8m
2	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
3	Monitor	DELL	U2410f	CN-082WXD-72872-23E-ACDL	Non-Shielded, 1.8m
4	Monitor	LG	W2261VT	907YHZK07303	Non-Shielded, 1.8m
5	Monitor	DELL	U2410f	CN-082WXD-72872-23E-A9JL	Non-Shielded, 1.8m
6	Monitor	LG	W2261VT	907YHPB07296	Non-Shielded, 1.8m
7	IPod nano	Apple	A1199	YM708A72VQ5	Non-Shielded, 1.8m
8	IPod nano	Apple	A1199	SU7047UXVQ5	N/A
9	IPod nano	Apple	A1199	5U704829VQ5	N/A
10	IPod nano	Apple	A1199	YM709RC3VQ5	N/A
11	USB 3.0	BUFFALO	HD-H1.0TU3	15476991119601	Non-Shielded, 1.8m
12	USB 3.0	BUFFALO	HD-H1.0TU3	15476991119984	Non-Shielded, 1.8m
13	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
14	IPod nano	Apple	A1199	YM7333SUVQ5	N/A
15	Modem	ACEEX	DM-1414	0102027533	Non-Shielded, 1.8m
16	Keyboard	Logitech	Y-S0002	SY134UK	N/A
17	Mouse	HP	M-S69	N/A	N/A

1.4. Configuration of Tested System

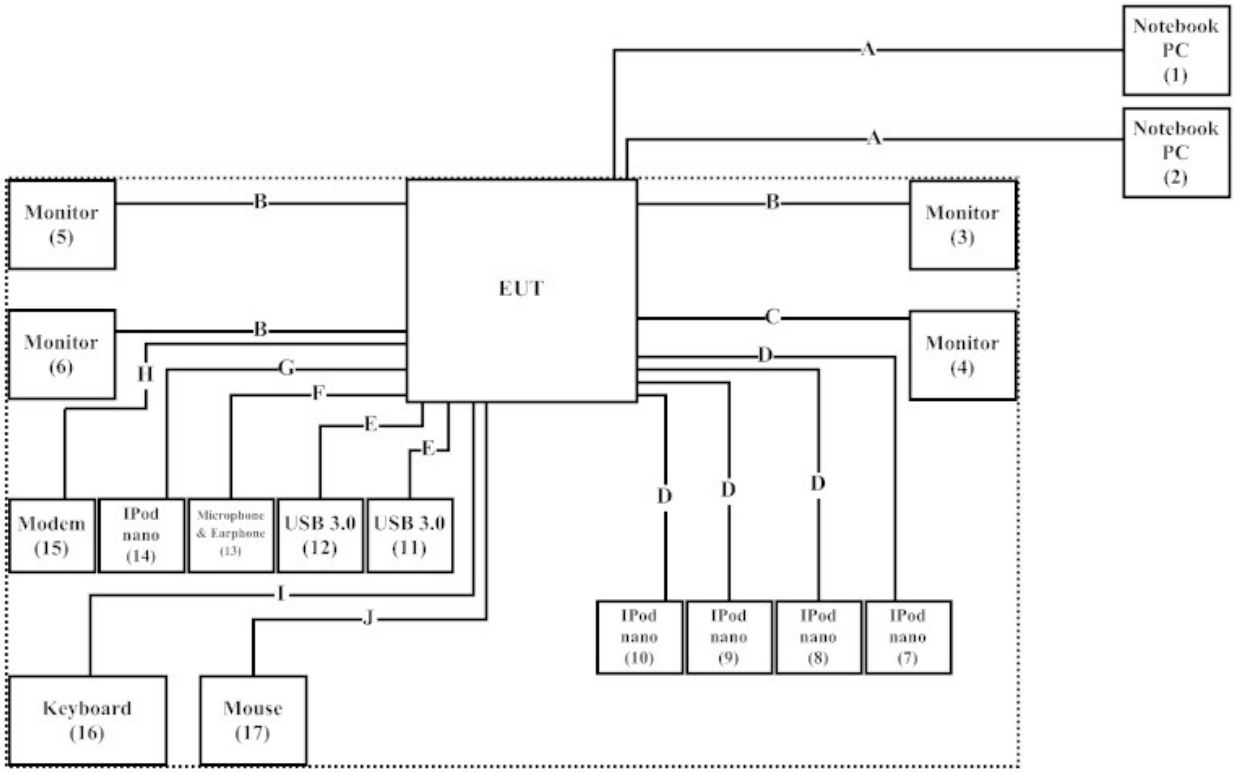
EMI:

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 3m, two PCS.
B	HDMI Cable	Shielded, 1.8m, three PCS.
C	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
D	USB Cable	Shielded, 1.8m, four PCS.
E	USB 3.0 Cable	Shielded, 1m, two PCS.
F	Microphone & Earphone Cable	Non-Shielded, 1.6m
G	Audio Cable	Non-Shielded, 1.6m
H	RS-232 Cable	Shielded, 1.5m
I	Keyboard Cable	Shielded, 1.8m
J	Mouse Cable	Shielded, 1.8m

EMS:

Connection Diagram


Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 3m, two PCS.
B	HDMI Cable	Shielded, 1.8m, three PCS.
C	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
D	USB Cable	Shielded, 1.2m, four PCS.
E	USB 3.0 Cable	Shielded, 1m, two PCS.
F	Microphone & Earphone Cable	Non-Shielded, 1.6m
G	Audio Cable	Non-Shielded, 1.6m
H	RS-232 Cable	Shielded, 1.5m
I	Keyboard Cable	Shielded, 1.8m
J	Mouse Cable	Shielded, 1.8m

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	Personal Computer sends “H” pattern to Monitor.
5	Personal Computer reads and writes data into and from modem.
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 55022:2006+A1: 2007	Yes	No
Impedance Stabilization Network	EN 55022:2006+A1: 2007	Yes	No
Radiated Emission	EN 55022:2006+A1: 2007	Yes	No
Power Harmonics	EN 61000-3-2:2006+A2: 2009	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3:2008	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4: 2011	Yes	No
Surge	IEC 61000-4-5: 2005	Yes	No
Conducted susceptibility	IEC 61000-4-6: 2008	Yes	No
Power frequency magnetic field	IEC 61000-4-8: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11: 2004	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

Impedance Stabilization Network / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2011/11/23
EMI Test Receiver	R&S	ESCS 30	100366	2011/11/15
LISN	R&S	ENV216	100085	2012/02/13
LISN	R&S	ESH3-Z5	836679/023	2012/01/12
Pulse Limiter	R&S	ESH3-Z2	100324	2011/09/16
RF Current Probe	FCC	F-65 10KHz~1GHz	198	2011/10/25
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2011/07/09
Impedance Stabilization Network	Teseq	ISN T800	30303	2012/03/10

Radiated Emission / Site1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2918	2011/07/22
EMI Test Receiver	R&S	ESCS 30	100121	2012/03/07
Pre-Amplifier	QTK	N/A	N/A	2011/07/06
CXA Signal Analyzer	Agilent	N9000A	MY50510072	2012/02/24
Site1 NSA	QTK	N/A	N/A	2011/07/06

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

Power Harmonics / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2011/09/13
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2011/09/13

Voltage Fluctuation and Flicker / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2011/09/13
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2011/09/13

Electrostatic Discharge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	TC-815R	ESS0929097	2011/06/16
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility / CB5

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AF-BOX	R&S	AF-BOX ACCUST	100007	N/A
Audio Analyzer	R&S	UPL 16	100137	2012/05/09
Biconilog Antenna	EMCO	3149	00071675	N/A
Directional Coupler	A&R	DC 6180	22735	N/A
Dual Microphone Supply	B&K	5935	2426784	2012/04/21
Mouth Simulator	B&K	4227	2439692	2012/04/21
Power Amplifier	A&R	30S1G3	309453	N/A
Power Amplifier	A&R	100W10000M7	A285000010	N/A
Power Amplifier	SCHAFFNER	CBA9413B	4020	N/A
Power Amplifier	AR	75A250A	0325371	N/A
Power Meter	R&S	NRVD(P.M)	100219	2012/05/09
Pre-Amplifier	A&R	150A220	23067	N/A
Probe Microphone	B&K	4182	2278070	2012/04/21
Signal Generator	R&S	SMT03	100170	2012/05/09
Calibration of field	QTK	N/A	N/A	2011/05/12

Electrical fast transient/burst / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2011/11/30

Surge / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2011/11/30

Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Schaffner NSG 2070 RF-Generator	Schaffner	N/A	N/A	2012/04/07

Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Induction Coil Interface	Schaffner	INA 2141	6002	N/A
Magnetic Loop Coil	Schaffner	INA 702	160	N/A

Voltage dips and interruption / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TRANSIENT TEST SYSTEM	EMC PARTNER	TRA2000IN6	1138	2011/11/30

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Impedance Stabilization Network

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

Harmonic Current Emission

The measurement uncertainty is evaluated as 4.7 (mA/A).

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as 0.27 (mV/V).

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 3.0 % and 3.8%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 3.57 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 4 %, and 2.5%.

Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 3.5 % and 0.1%.

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 2.0 dB and 2.61 dB.

Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 2.0 %.

Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, 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 3.5 % and 0.1%.

2.4. Test Environment

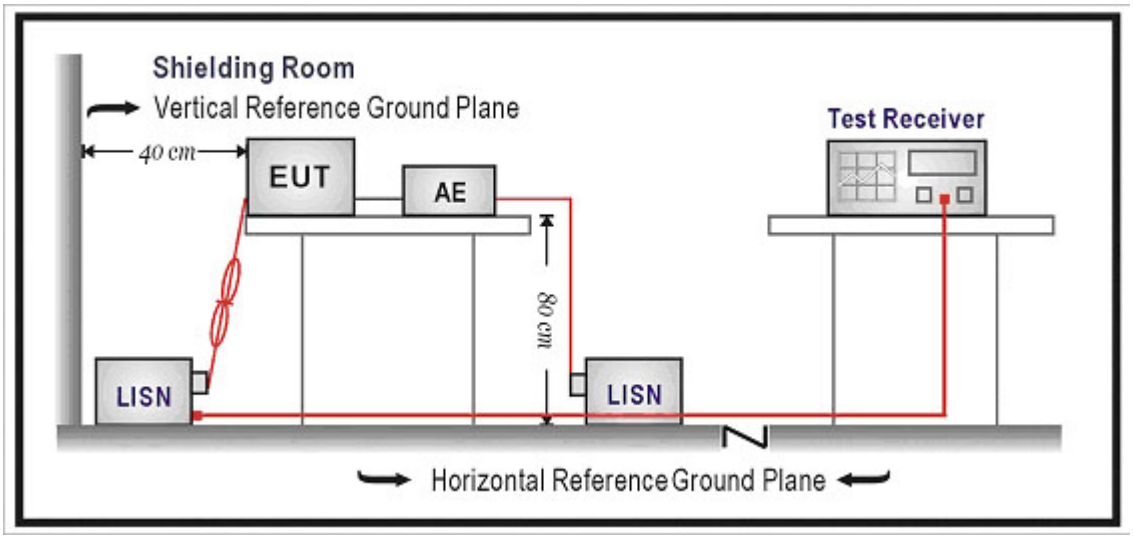
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	24.3
	Humidity (%RH)	25-75	68
	Barometric pressure (mbar)	860-1060	950-1000
Impedance Stabilization Network	Temperature (°C)	15-35	24.3
	Humidity (%RH)	25-75	68
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	22.9
	Humidity (%RH)	25-75	70
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	21
	Humidity (%RH)	30-60	46
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	46
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	51
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	24
	Humidity (%RH)	10-75	51
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	21
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	51
	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	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

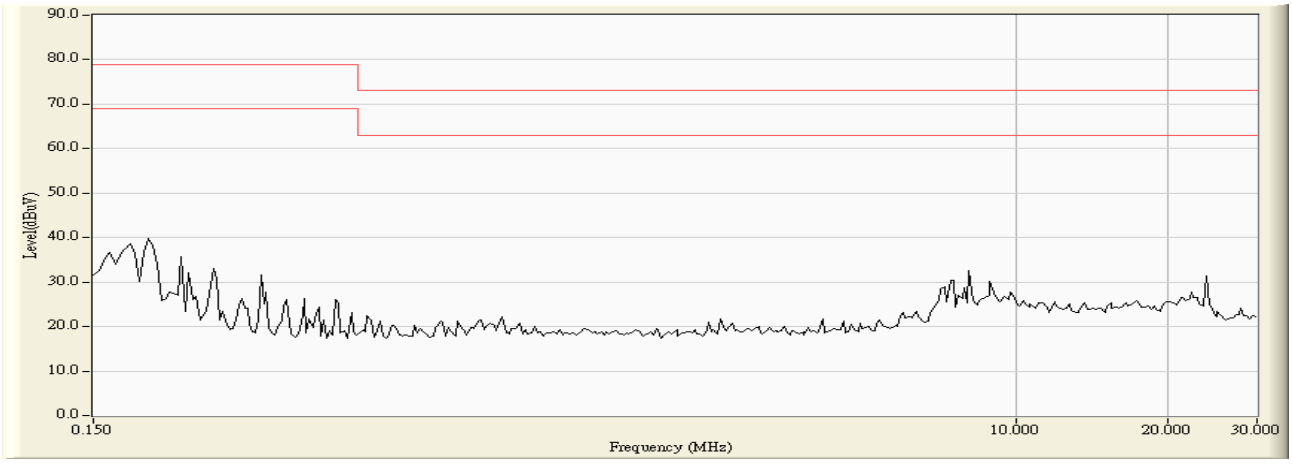
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling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

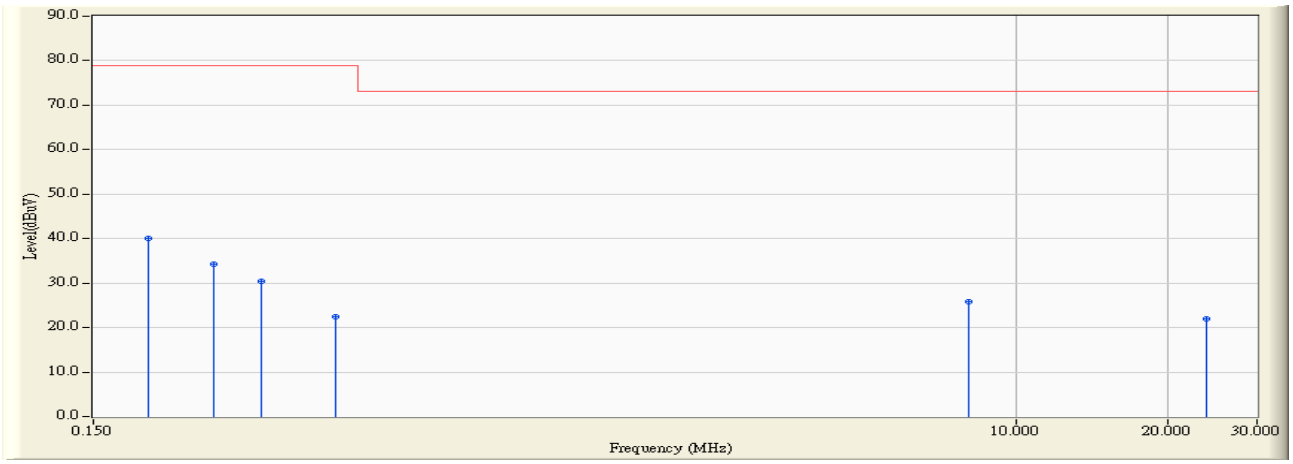
No deviation.

3.6. Test Result

Site : SR1	**Time : 2012/05/03 - 09:29**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Motherboard	**Probe : ENV_216_L1 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1**



Site : SR1	**Time : 2012/05/03 - 09:29**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Motherboard	**Probe : ENV_216_L1 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1**

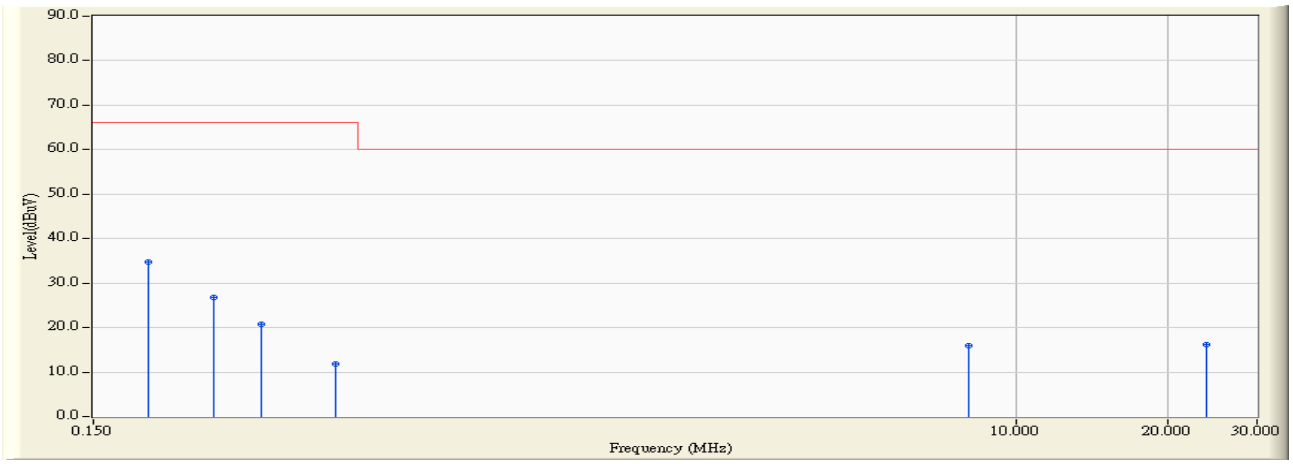


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.193	9.820	30.270	40.090	-38.910	79.000	QUASIPEAK
2		0.259	9.820	24.510	34.330	-44.670	79.000	QUASIPEAK
3		0.322	9.820	20.630	30.450	-48.550	79.000	QUASIPEAK
4		0.451	9.820	12.550	22.370	-56.630	79.000	QUASIPEAK
5		8.080	9.950	15.750	25.700	-47.300	73.000	QUASIPEAK
6		23.896	10.140	11.810	21.950	-51.050	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 : 2012/05/03 - 09:30**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Motherboard	**Probe : ENV_216_L1 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1**

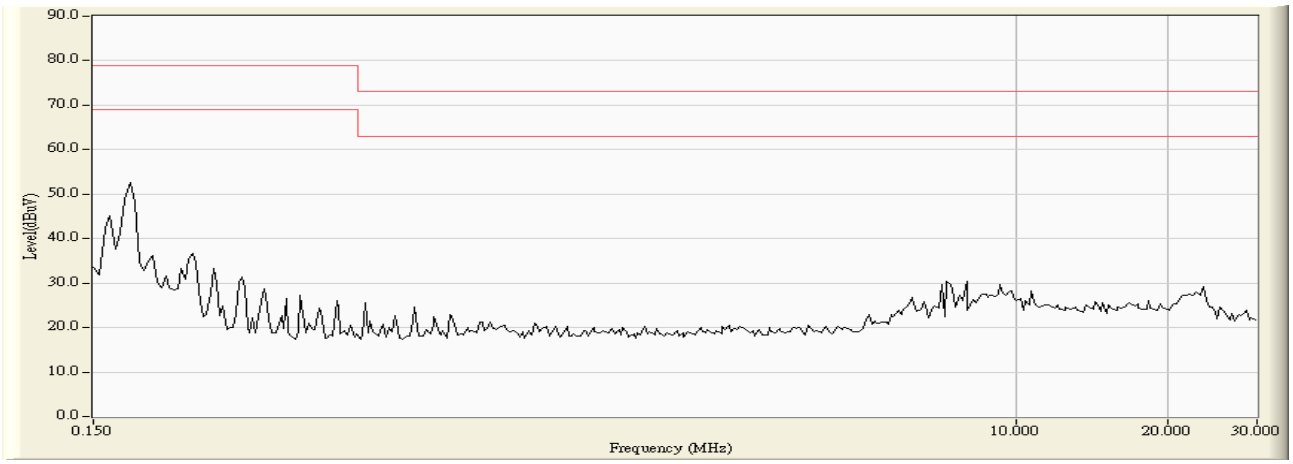


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.193	9.820	24.940	34.760	-31.240	66.000	AVERAGE
2		0.259	9.820	16.990	26.810	-39.190	66.000	AVERAGE
3		0.322	9.820	10.970	20.790	-45.210	66.000	AVERAGE
4		0.451	9.820	1.990	11.810	-54.190	66.000	AVERAGE
5		8.080	9.950	6.080	16.030	-43.970	60.000	AVERAGE
6		23.896	10.140	6.080	16.220	-43.780	60.000	AVERAGE

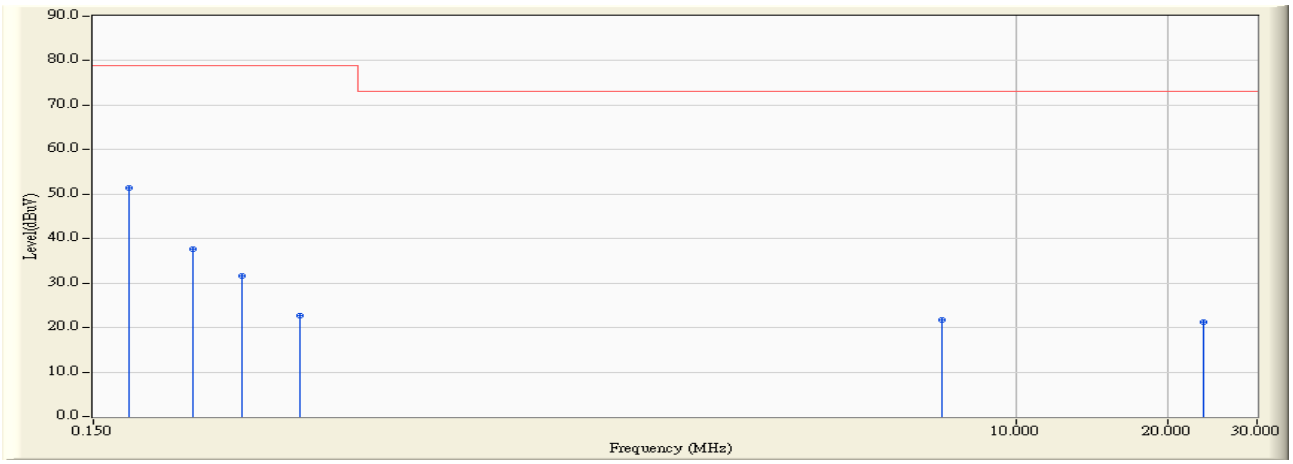
Note:

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 : 2012/05/03 - 09:30**
Limit : CISPR_A_00M_QP	**Margin : 10**
EUT : Motherboard	**Probe : ENV_216_N - Line2**
Power : AC 230V/50Hz	**Note : Mode 1**



Site : SR1	**Time : 2012/05/03 - 09:30**
Limit : CISPR_A_00M_QP	**Margin : 0**
EUT : Motherboard	**Probe : ENV_216_N - Line2**
Power : AC 230V/50Hz	**Note : Mode 1**

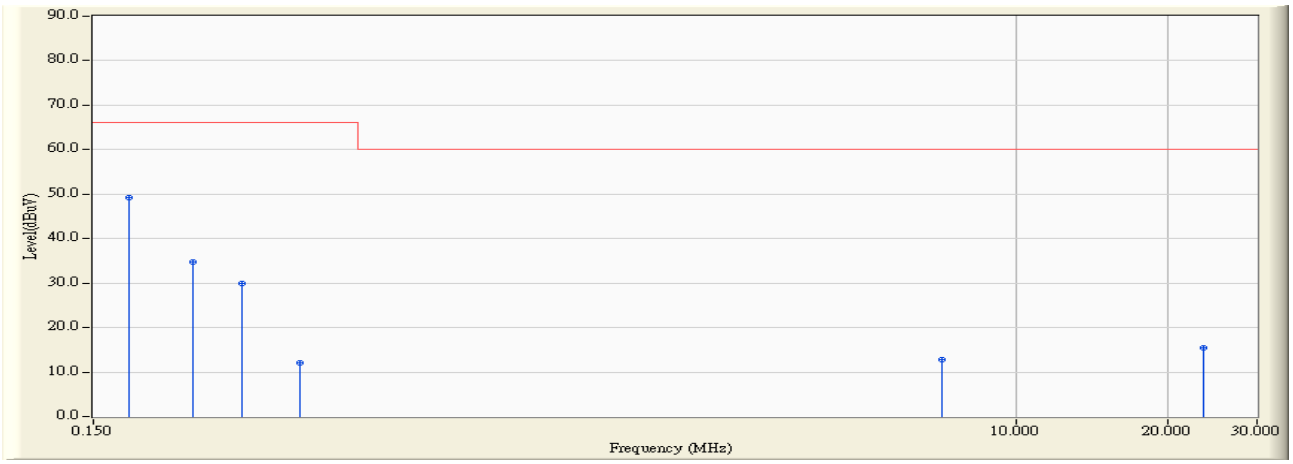


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.177	9.860	41.430	51.290	-27.710	79.000	QUASIPEAK
2		0.236	9.860	27.790	37.650	-41.350	79.000	QUASIPEAK
3		0.295	9.865	21.790	31.655	-47.345	79.000	QUASIPEAK
4		0.384	9.870	12.750	22.620	-56.380	79.000	QUASIPEAK
5		7.150	9.969	11.650	21.619	-51.381	73.000	QUASIPEAK
6		23.451	10.310	10.970	21.280	-51.720	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 : 2012/05/03 - 09:32**
Limit : CISPR_A_00M_AV	**Margin : 0**
EUT : Motherboard	**Probe : ENV_216_N - Line2**
Power : AC 230V/50Hz	**Note : Mode 1**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.177	9.860	39.480	49.340	-16.660	66.000	AVERAGE
2		0.236	9.860	24.940	34.800	-31.200	66.000	AVERAGE
3		0.295	9.865	20.120	29.985	-36.015	66.000	AVERAGE
4		0.384	9.870	2.130	12.000	-54.000	66.000	AVERAGE
5		7.150	9.969	2.920	12.889	-47.111	60.000	AVERAGE
6		23.451	10.310	5.050	15.360	-44.640	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

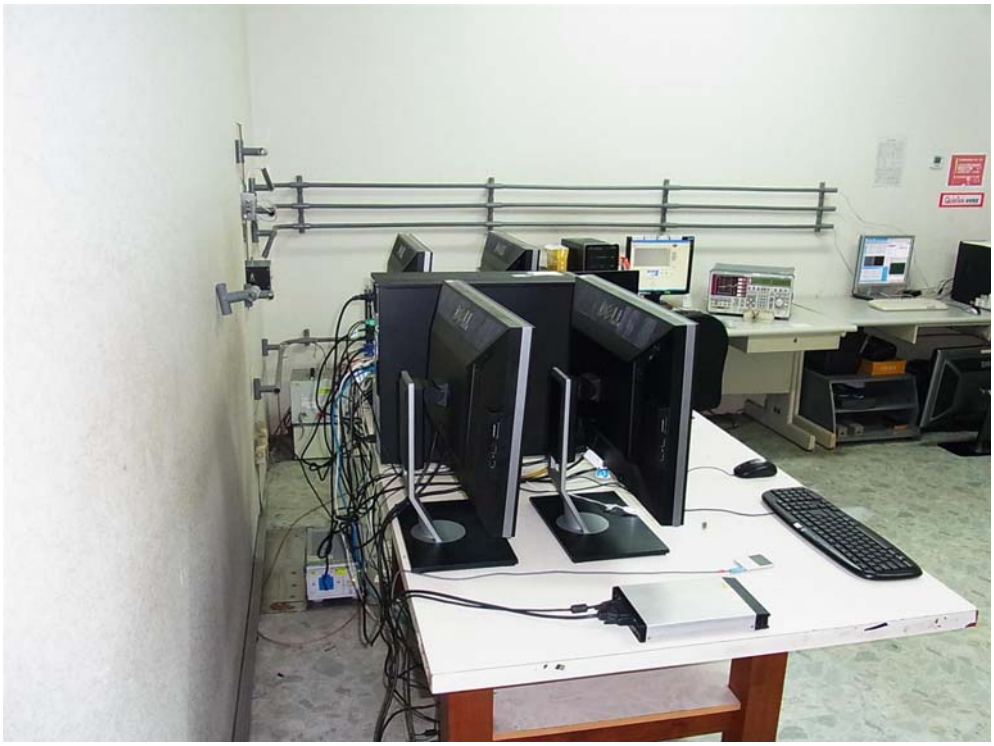
3.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Front View of Conducted Test

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Back View of Conducted Test

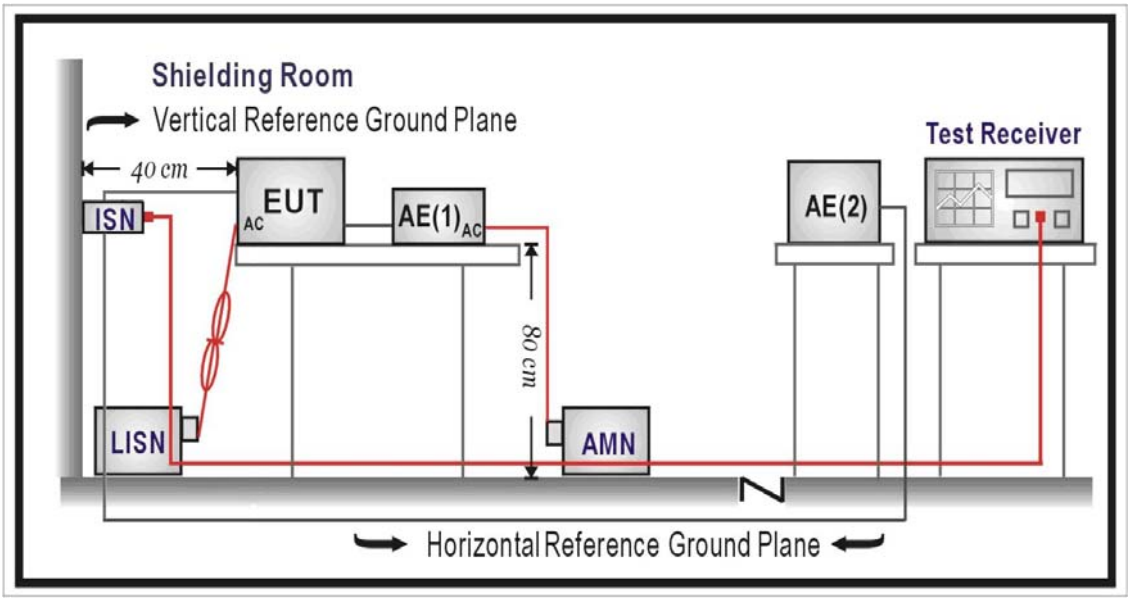


4. Conducted Emissions (Telecommunication Ports)

4.1. Test Specification

According to EMC Standard : EN 55022

4.2. Test Setup



4.3. Limit

Frequency (MHz)	Voltage Limits		Current Limits	
	QP (dBuV)	AV (dBuV)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	97 – 87	84 – 74	53 – 43	40 – 30
0.50 - 30	87	74	43	30

Remarks:

The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz.

4.4. Test Procedure

Telecommunication Port:

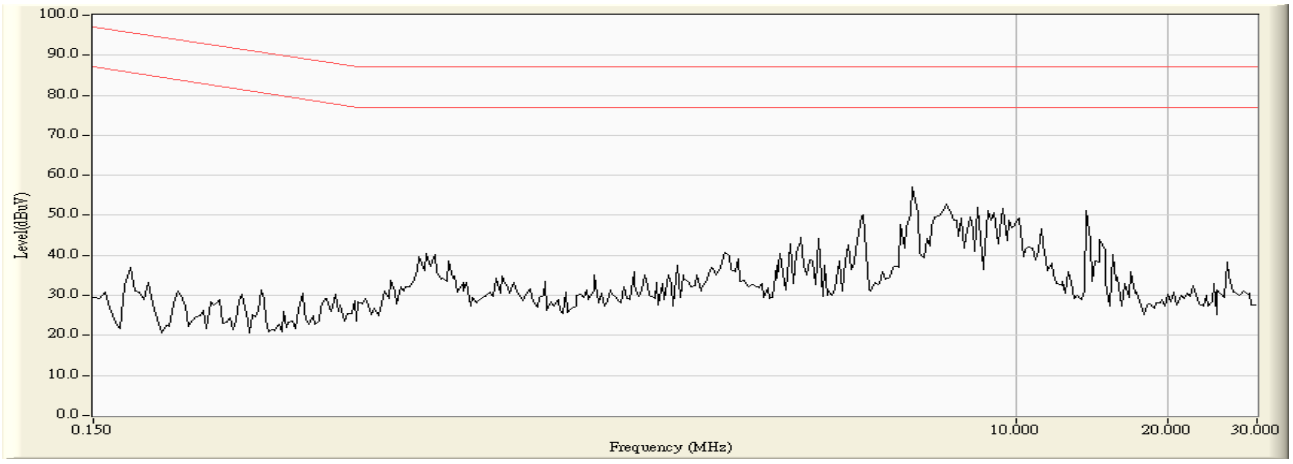
The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.
Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz.
The 75dB LCL ISN is used for cat. 6 cable, the 65dB LCL ISN is used for cat. 5 cable, 55dB LCL ISN is used for cat. 3.

4.5. Deviation from Test Standard

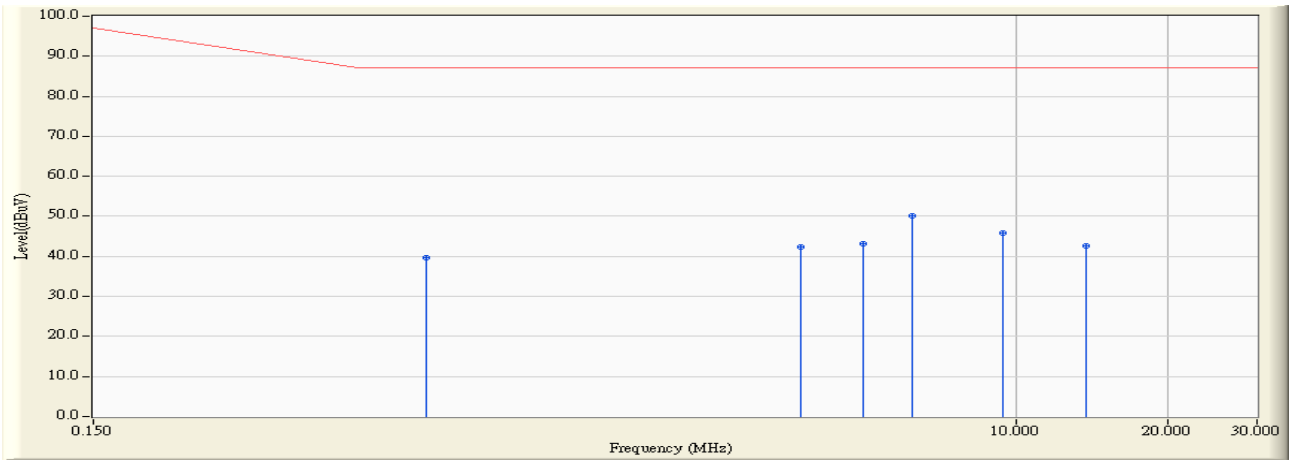
No deviation.

4.6. Test Result

Site : SR1	**Time : 2012/05/03 - 09:34**
Limit : ISN_Voltage_A_00M_QP	**Margin : 10**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN10M**



Site : SR1	**Time : 2012/05/03 - 09:34**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN10M**

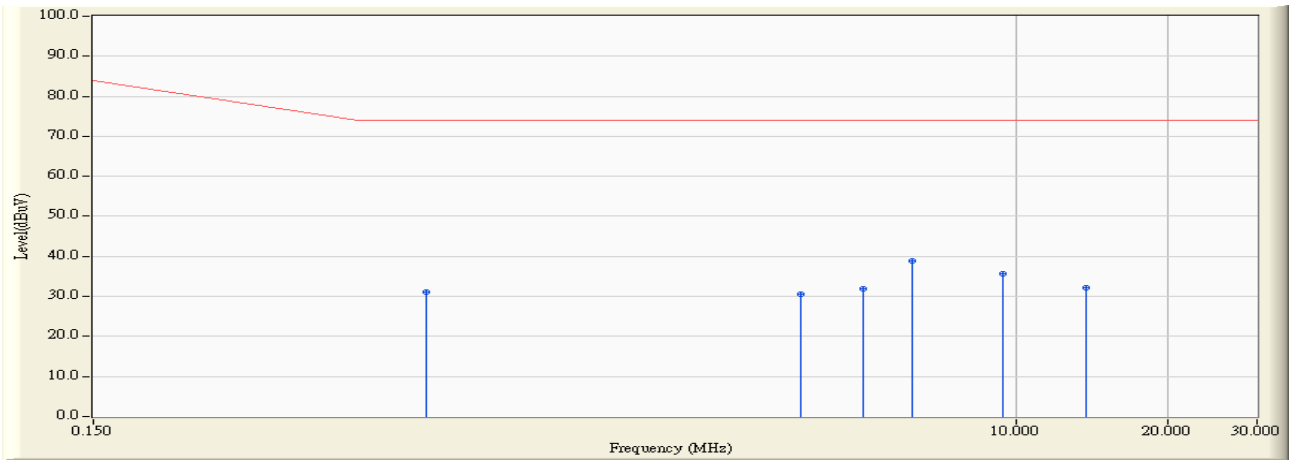


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.685	10.001	29.610	39.611	-47.389	87.000	QUASIPEAK
2		3.752	9.840	32.450	42.290	-44.710	87.000	QUASIPEAK
3		5.002	9.826	33.210	43.036	-43.964	87.000	QUASIPEAK
4	*	6.252	9.843	40.270	50.113	-36.887	87.000	QUASIPEAK
5		9.404	9.894	35.830	45.724	-41.276	87.000	QUASIPEAK
6		13.752	9.922	32.650	42.572	-44.428	87.000	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 : 2012/05/03 - 09:34**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN10M**

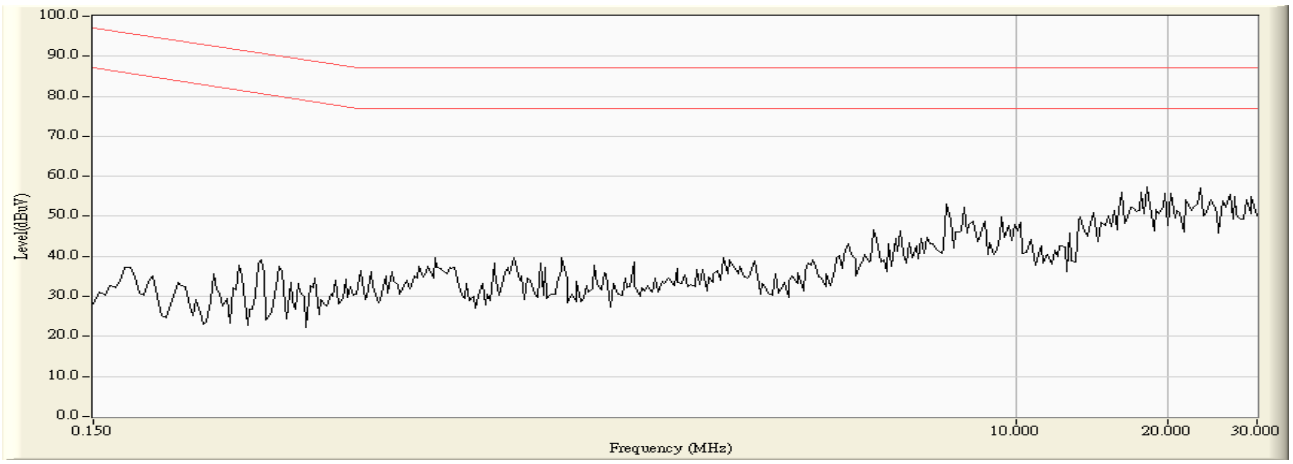


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.685	10.001	21.170	31.171	-42.829	74.000	AVERAGE
2		3.752	9.840	20.790	30.630	-43.370	74.000	AVERAGE
3		5.002	9.826	22.170	31.996	-42.004	74.000	AVERAGE
4	*	6.252	9.843	28.930	38.773	-35.227	74.000	AVERAGE
5		9.404	9.894	25.850	35.744	-38.256	74.000	AVERAGE
6		13.752	9.922	22.170	32.092	-41.908	74.000	AVERAGE

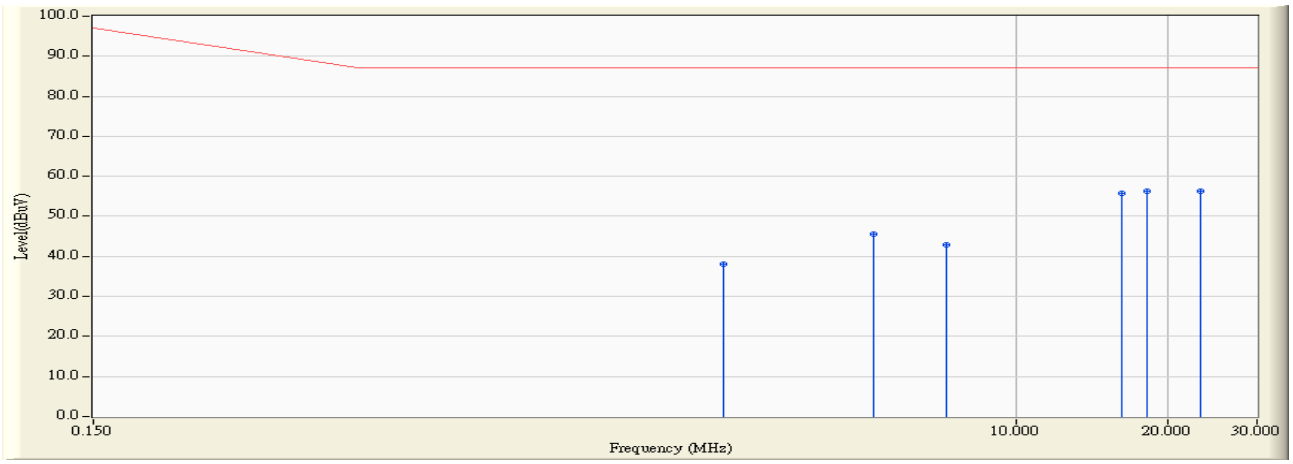
Note:

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 : 2012/05/03 - 09:34**
Limit : ISN_Voltage_A_00M_QP	**Margin : 10**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 100M**



Site : SR1	**Time : 2012/05/03 - 09:34**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 100M**

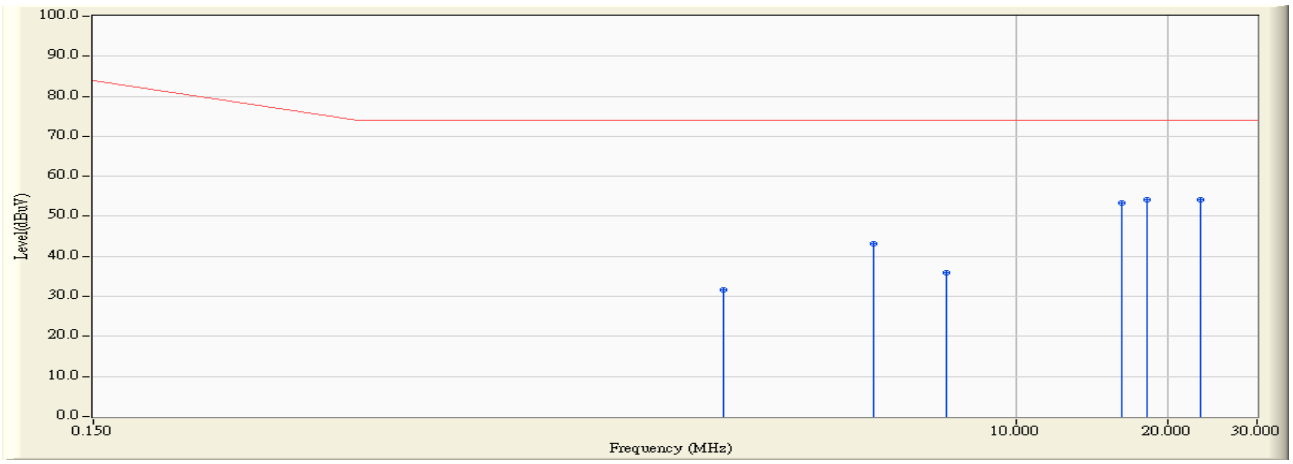


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		2.642	9.860	28.270	38.130	-48.870	87.000	QUASIPEAK
2		5.236	9.829	35.830	45.659	-41.341	87.000	QUASIPEAK
3		7.287	9.862	33.110	42.972	-44.028	87.000	QUASIPEAK
4		16.228	9.952	45.770	55.722	-31.278	87.000	QUASIPEAK
5	*	18.244	10.021	46.250	56.271	-30.729	87.000	QUASIPEAK
6		23.130	10.140	46.090	56.230	-30.770	87.000	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 : 2012/05/03 - 09:35**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 100M**

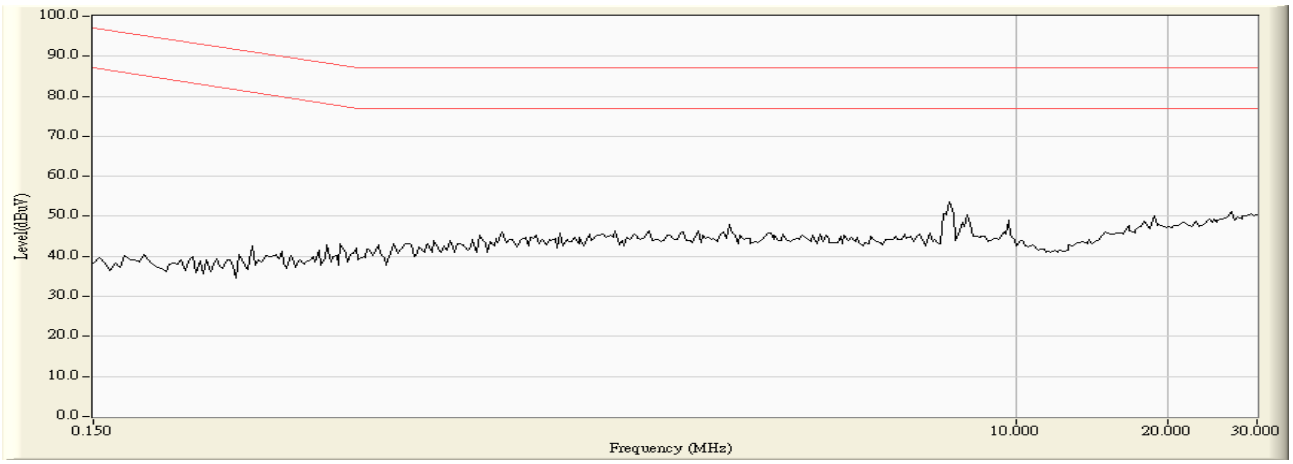


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		2.642	9.860	21.710	31.570	-42.430	74.000	AVERAGE
2		5.236	9.829	33.340	43.169	-30.831	74.000	AVERAGE
3		7.287	9.862	26.000	35.862	-38.138	74.000	AVERAGE
4		16.228	9.952	43.310	53.262	-20.738	74.000	AVERAGE
5	*	18.244	10.021	44.200	54.221	-19.779	74.000	AVERAGE
6		23.130	10.140	44.060	54.200	-19.800	74.000	AVERAGE

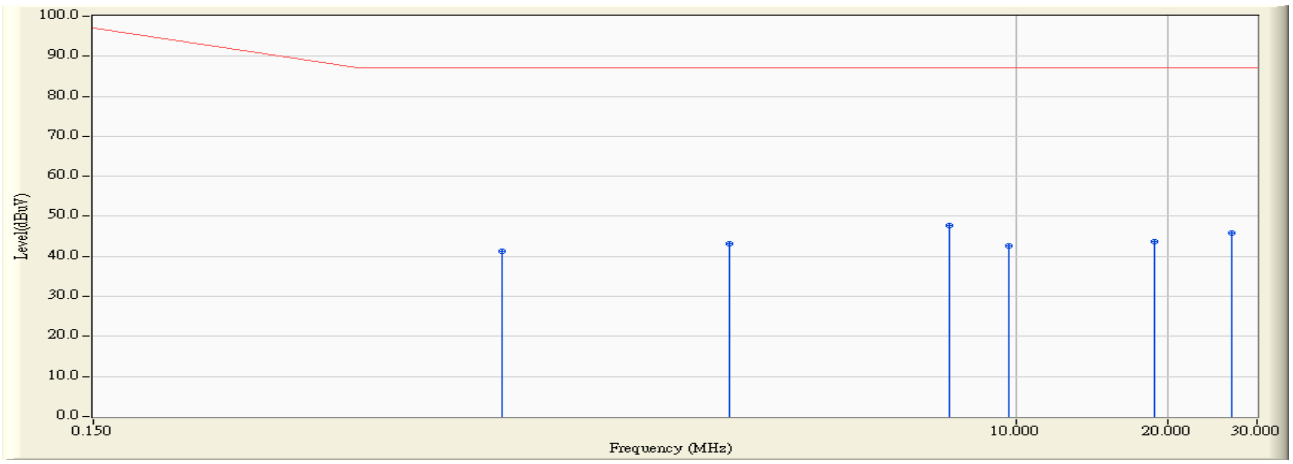
Note:

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 : 2012/05/03 - 09:35**
Limit : ISN_Voltage_A_00M_QP	**Margin : 10**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 1G**



Site : SR1	**Time : 2012/05/03 - 09:35**
Limit : ISN_Voltage_A_00M_QP	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 1G**

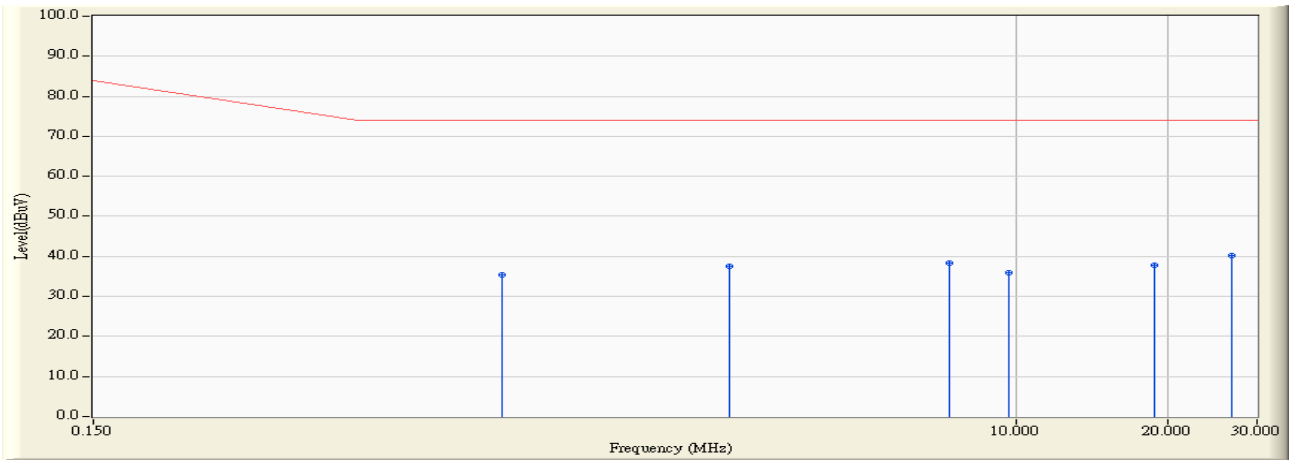


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.963	9.948	31.250	41.198	-45.802	87.000	QUASIPEAK
2		2.712	9.860	33.250	43.110	-43.890	87.000	QUASIPEAK
3	*	7.377	9.864	37.770	47.634	-39.366	87.000	QUASIPEAK
4		9.701	9.897	32.750	42.647	-44.353	87.000	QUASIPEAK
5		18.806	10.044	33.550	43.594	-43.406	87.000	QUASIPEAK
6		26.716	10.220	35.610	45.830	-41.170	87.000	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 : 2012/05/03 - 09:35**
Limit : ISN_Voltage_A_00M_AV	**Margin : 0**
EUT : Motherboard	**Probe : TESEQ_T8 - Line1**
Power : AC 230V/50Hz	**Note : Mode 1, ISN 1G**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.963	9.948	25.480	35.428	-38.572	74.000	AVERAGE
2		2.712	9.860	27.680	37.540	-36.460	74.000	AVERAGE
3		7.377	9.864	28.350	38.214	-35.786	74.000	AVERAGE
4		9.701	9.897	26.070	35.967	-38.033	74.000	AVERAGE
5		18.806	10.044	27.730	37.774	-36.226	74.000	AVERAGE
6	*	26.716	10.220	29.980	40.200	-33.800	74.000	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

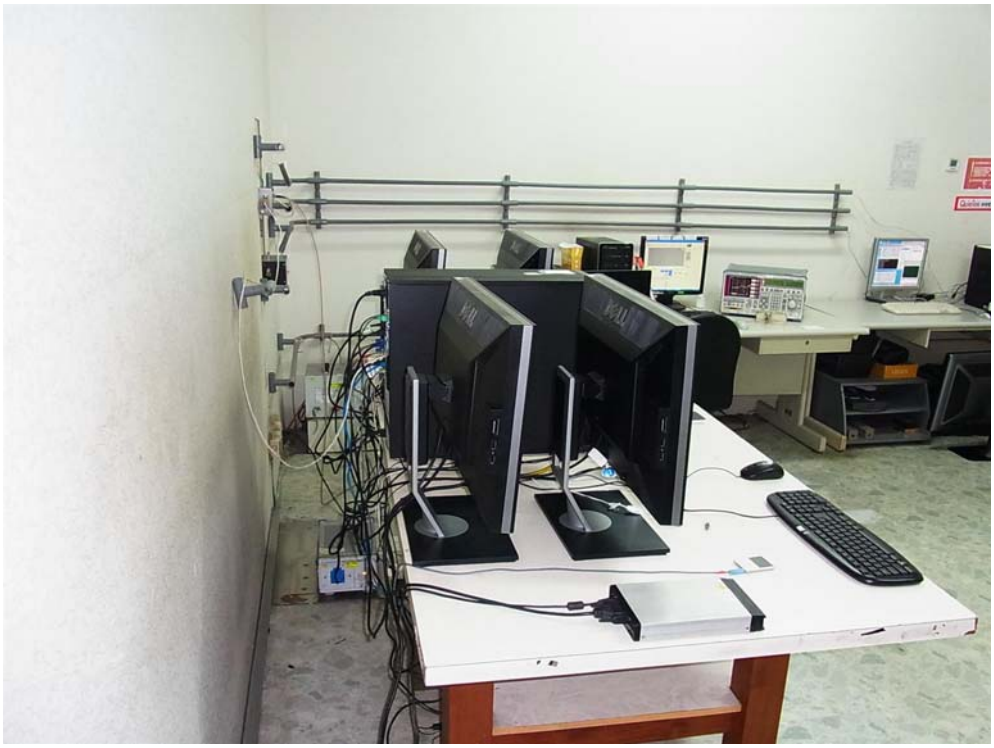
4.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Front View of ISN Test

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Back View of ISN Test



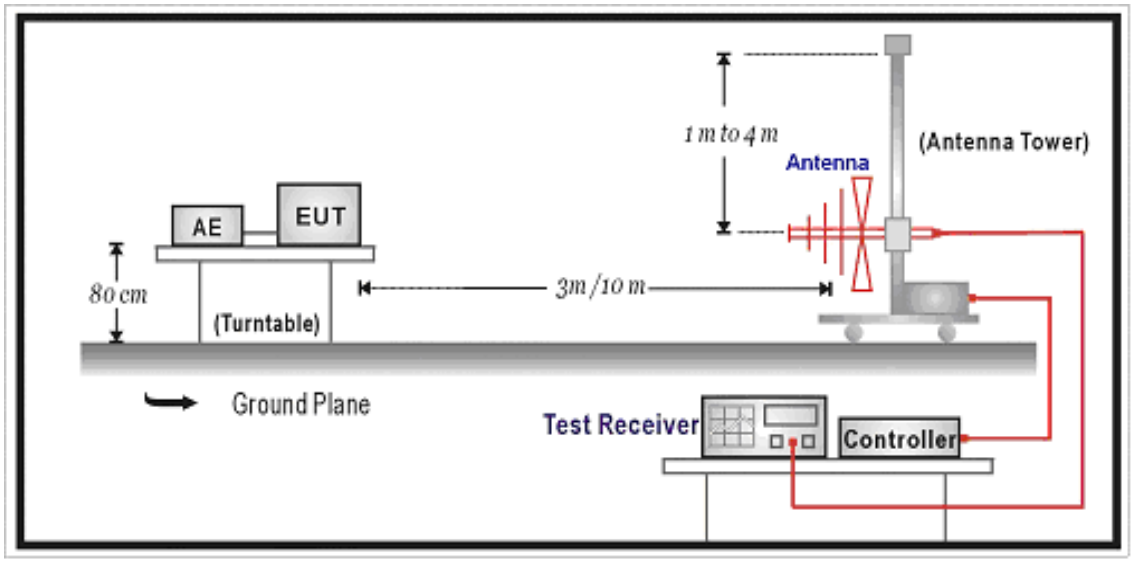
5. Radiated Emission

5.1. Test Specification

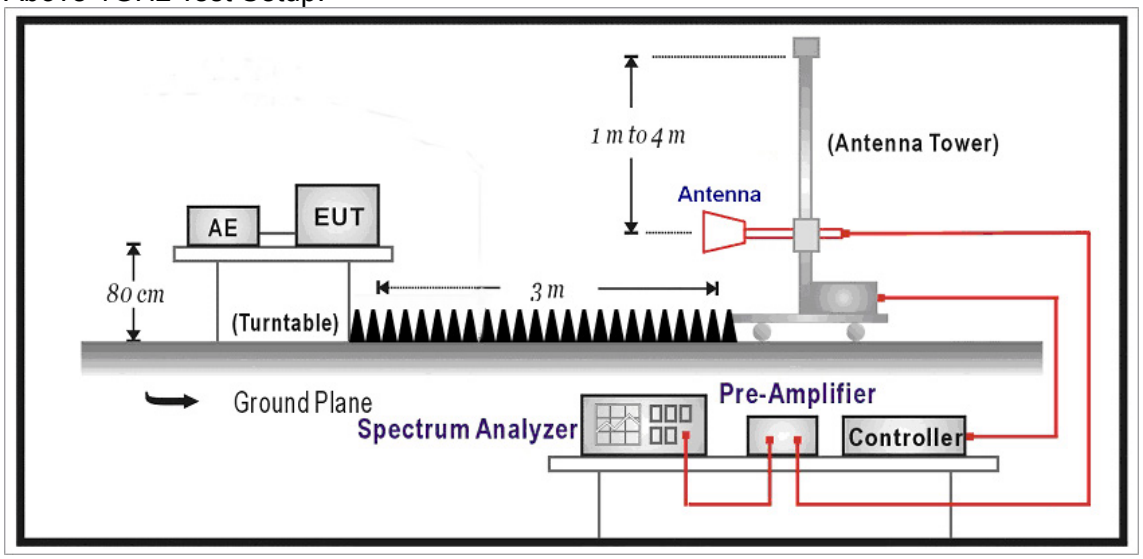
According to EMC Standard : EN 55022

5.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



5.3. Limit

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

Limits			
Frequency (GHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1 – 3	3	76	56
3 – 6	3	80	60

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

5.4. Test Procedure

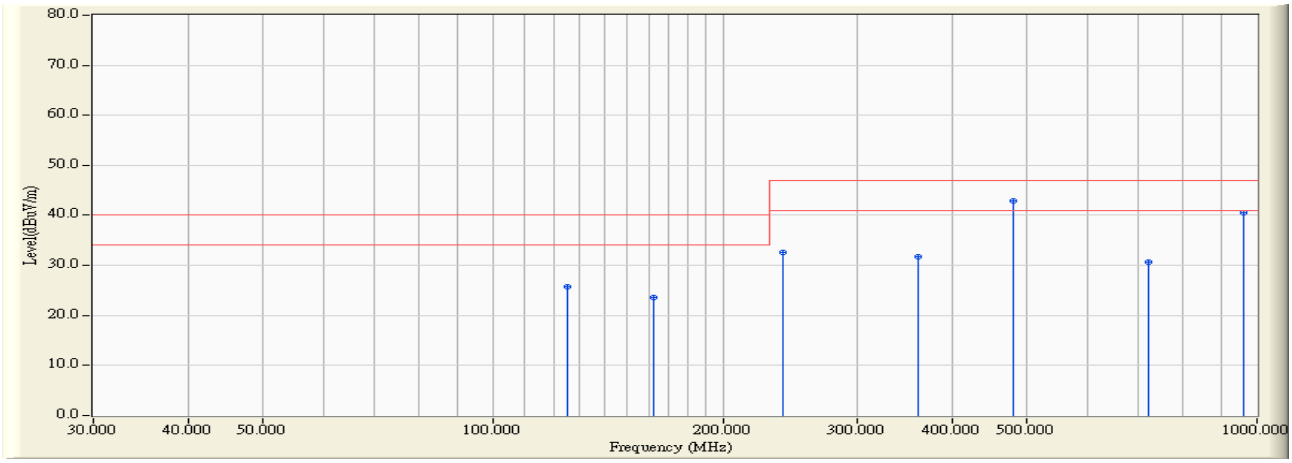
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3/10 meters.
The antenna can move up and down 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.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz and above 1GHz using a receiver bandwidth of 1MHz.
30MHz to1GHz Radiated was performed at an antenna to EUT distance of 10 meters.
Above1GHz Radiated was performed at an antenna to EUT distance of 3 meters.
It is placed with absorb on the ground between EUT and Antenna.

5.5. Deviation from Test Standard

No deviation.

5.6. Test Result

Site : Site1	**Time : 2012/05/02 - 10:04**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Motherboard	**Probe : Site1_CBL6112_10M_0726 - HORIZONTAL**
Power : AC 120V/60Hz	**Note : Mode 1**

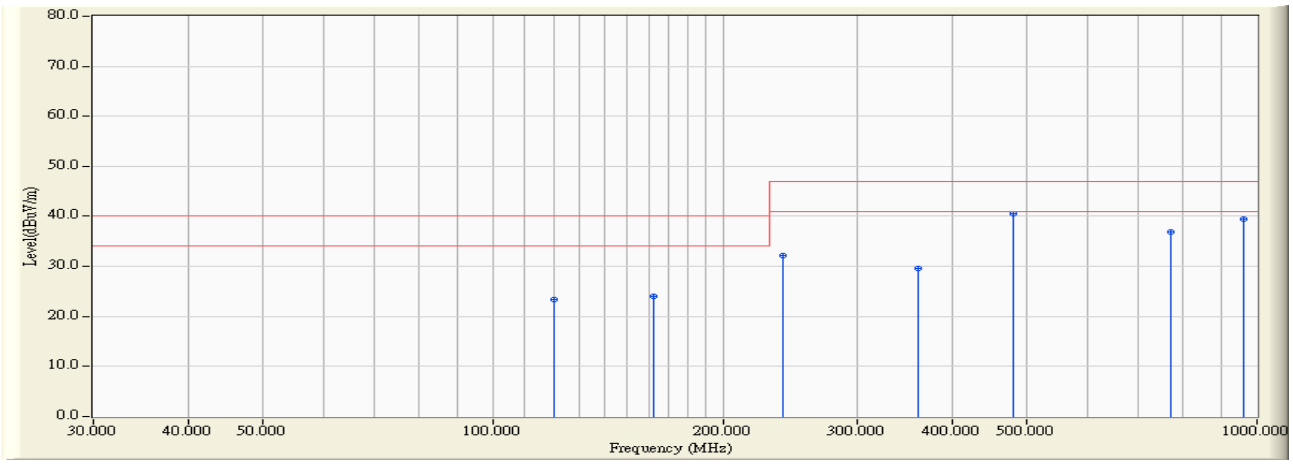


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	14.019	11.800	25.819	-14.181	40.000	QUASIPEAK
2		162.000	12.220	11.300	23.520	-16.480	40.000	QUASIPEAK
3		240.000	14.204	18.400	32.604	-14.396	47.000	QUASIPEAK
4		360.012	19.063	12.600	31.663	-15.337	47.000	QUASIPEAK
5	*	480.018	22.272	20.700	42.972	-4.028	47.000	QUASIPEAK
6		720.000	26.020	4.600	30.620	-16.380	47.000	QUASIPEAK
7		960.040	28.842	11.800	40.642	-6.358	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 : Site1	**Time : 2012/05/02 - 10:04**
Limit : CISPR_A_10M_QP	**Margin : 6**
EUT : Motherboard	**Probe : Site1_CBL6112_10M_0726 - VERTICAL**
Power : AC 120V/60Hz	**Note : Mode 1**

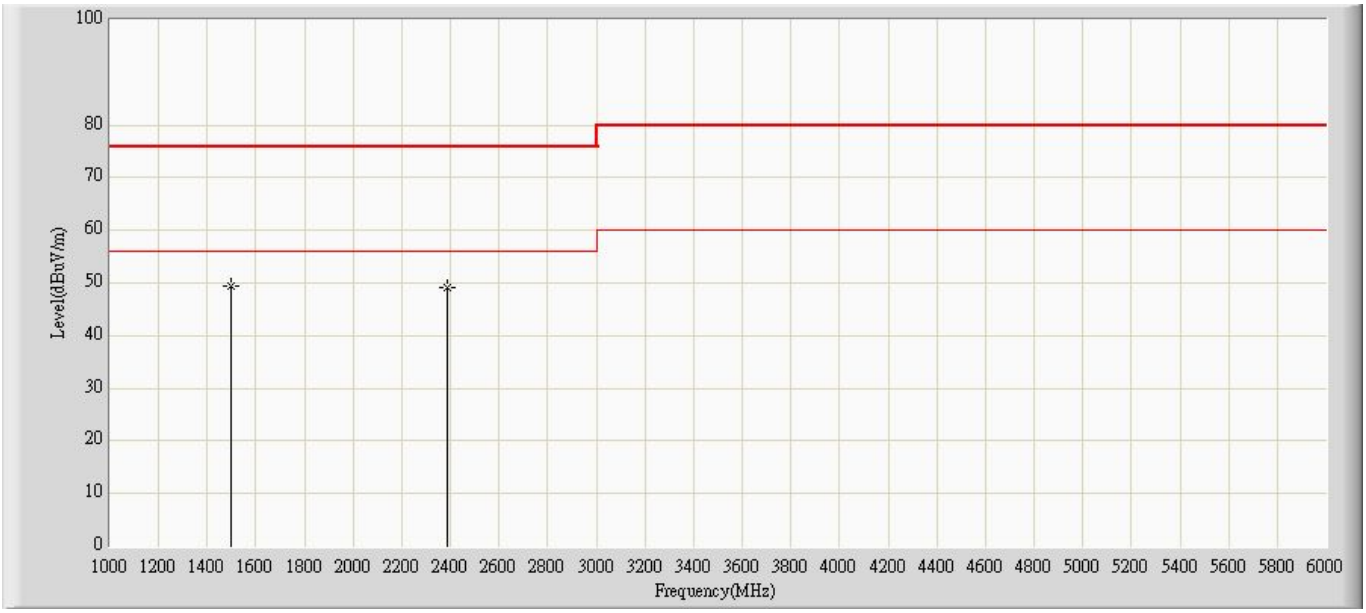


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		120.000	13.802	9.600	23.402	-16.598	40.000	QUASIPEAK
2		162.000	12.220	11.700	23.920	-16.080	40.000	QUASIPEAK
3		240.000	14.204	17.900	32.104	-14.896	47.000	QUASIPEAK
4		360.000	19.063	10.500	29.563	-17.437	47.000	QUASIPEAK
5	*	480.022	22.272	18.300	40.573	-6.427	47.000	QUASIPEAK
6		770.037	26.619	10.200	36.819	-10.181	47.000	QUASIPEAK
7		960.041	28.842	10.700	39.542	-7.458	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: 2012/04/27 - 16:58
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Horizontal
EUT : Motherboard	Power: AC 230V/50Hz
Note : Mode 1	

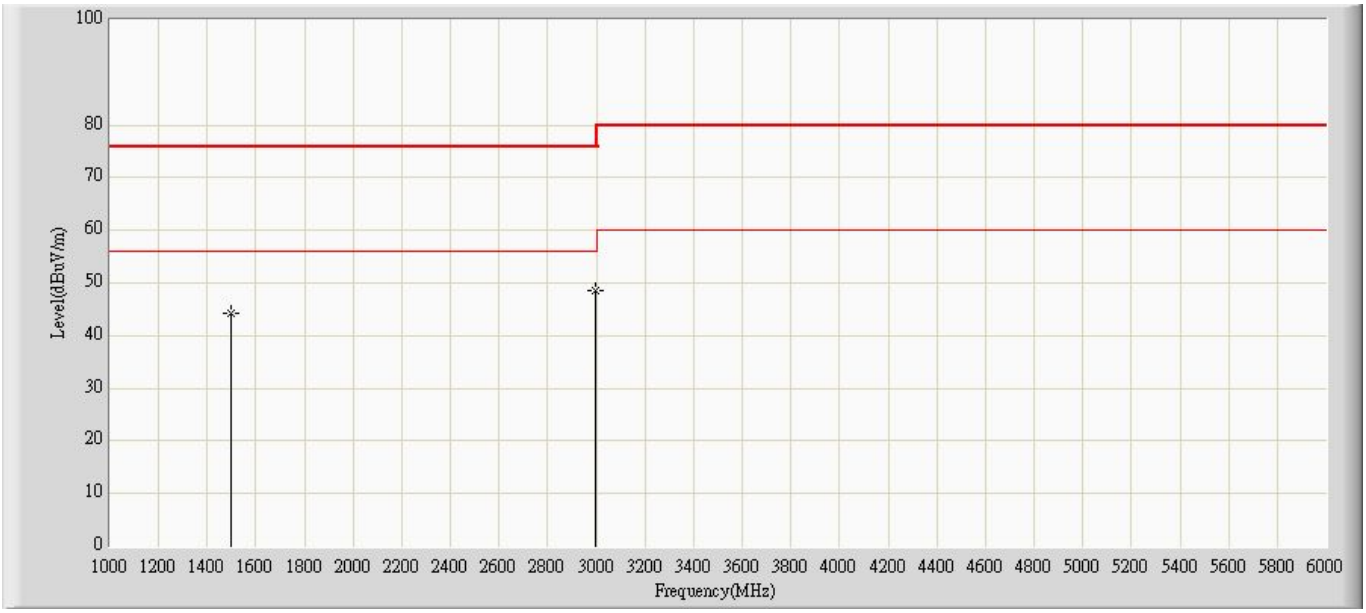


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	1500.000	49.434	53.440	-26.566	76.000	-4.006	PK
2			2387.000	49.039	48.610	-26.961	76.000	0.429	PK

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: 2012/04/27 - 17:10
Limit: EN55022_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1204	Polarity: Vertical
EUT : Motherboard	Power: AC 230V/50Hz
Note : Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1500.000	44.174	48.180	-31.826	76.000	-4.006	PK
2		*	2998.000	48.530	46.670	-27.470	76.000	1.860	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).

5.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Front View of Radiated Test

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Back View of Radiated Test

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

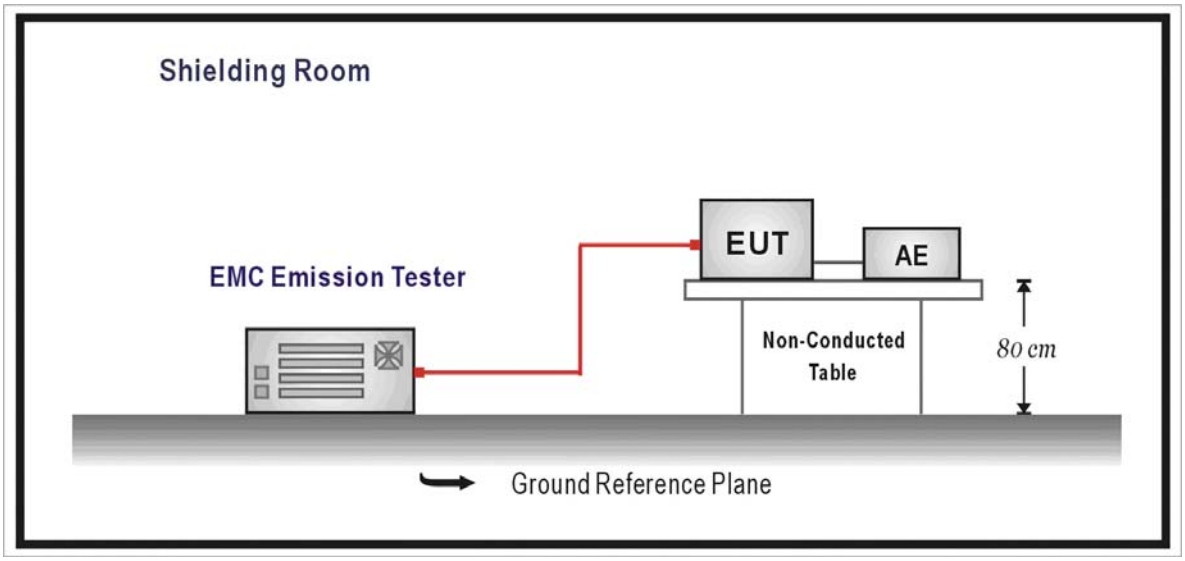
Description : Front View of High Frequency Radiated Test

6. Harmonic Current Emission

6.1. Test Specification

According to EMC Standard : EN 61000-3-2

6.2. Test Setup



6.3. 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

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

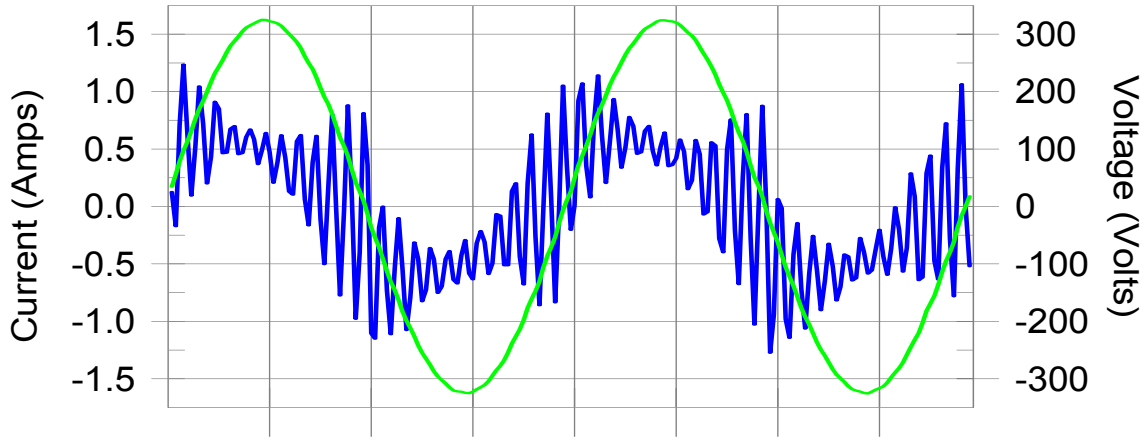
No deviation.

6.6. Test Result

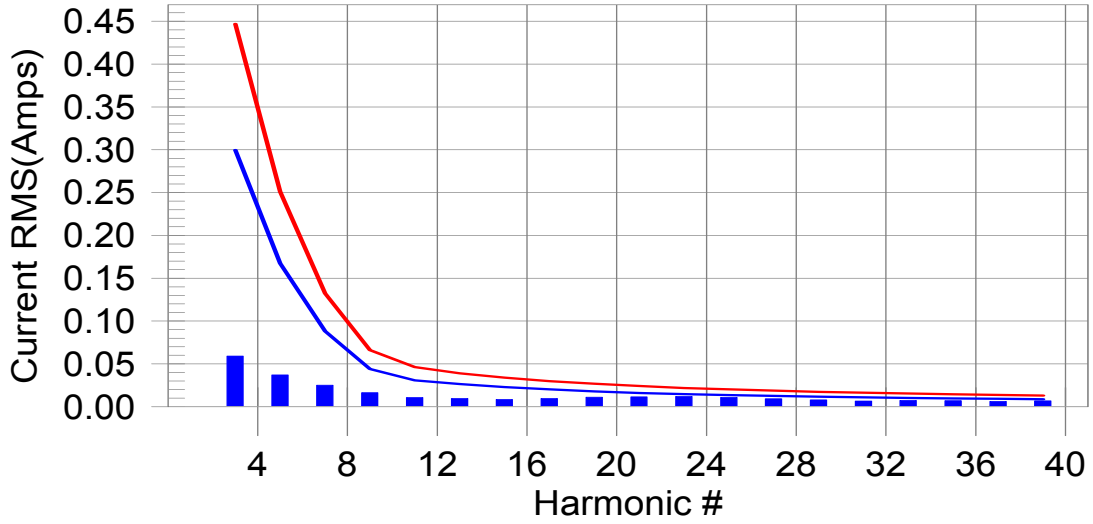
Product	Motherboard		
Test Item	Power Harmonics		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/07	Test Site	No.3 Shielded Room

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class D limit line European Limits



Test result: Pass Worst harmonic was #23 with 79.28% of the limit.

Test Result: Pass Source qualification: Normal
THC(A): 0.08 I-THD(%): 19.32 POHC(A): 0.026 POHC Limit(A): 0.038
Highest parameter values during test:

V_RMS (Volts):	229.61	Frequency(Hz):	50.00
I_Peak (Amps):	1.457	I_RMS (Amps):	0.584
I_Fund (Amps):	0.429	Crest Factor:	2.505
Power (Watts):	88.1	Power Factor:	0.658

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000						
3	0.058	0.300	19.4	0.059	0.447	13.23	Pass
4	0.000						
5	0.036	0.167	21.6	0.037	0.251	14.74	Pass
6	0.000						
7	0.025	0.088	27.9	0.025	0.132	18.98	Pass
8	0.000						
9	0.015	0.044	34.7	0.016	0.066	24.86	Pass
10	0.000						
11	0.010	0.031	32.7	0.011	0.046	23.27	Pass
12	0.000						
13	0.009	0.026	33.9	0.010	0.039	24.89	Pass
14	0.000						
15	0.008	0.023	35.8	0.008	0.034	25.03	Pass
16	0.000						
17	0.009	0.020	45.7	0.010	0.030	32.04	Pass
18	0.000						
19	0.011	0.018	60.3	0.011	0.027	41.86	Pass
20	0.000						
21	0.011	0.016	69.4	0.012	0.024	47.67	Pass
22	0.000						
23	0.012	0.015	79.3	0.012	0.022	55.26	Pass
24	0.000						
25	0.010	0.014	74.9	0.011	0.020	54.08	Pass
26	0.000						
27	0.008	0.013	67.3	0.009	0.019	49.02	Pass
28	0.000						
29	0.007	0.012	63.6	0.008	0.017	45.66	Pass
30	0.000						
31	0.006	0.011	54.1	0.007	0.016	40.27	Pass
32	0.000						
33	0.007	0.010	68.0	0.007	0.015	48.04	Pass
34	0.000						
35	0.006	0.010	66.1	0.007	0.015	48.20	Pass
36	0.000						
37	0.005	0.009	59.8	0.006	0.014	46.67	Pass
38	0.000						
39	0.006	0.009	72.5	0.007	0.013	53.08	Pass
40	0.000						

1.Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2:According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

6.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

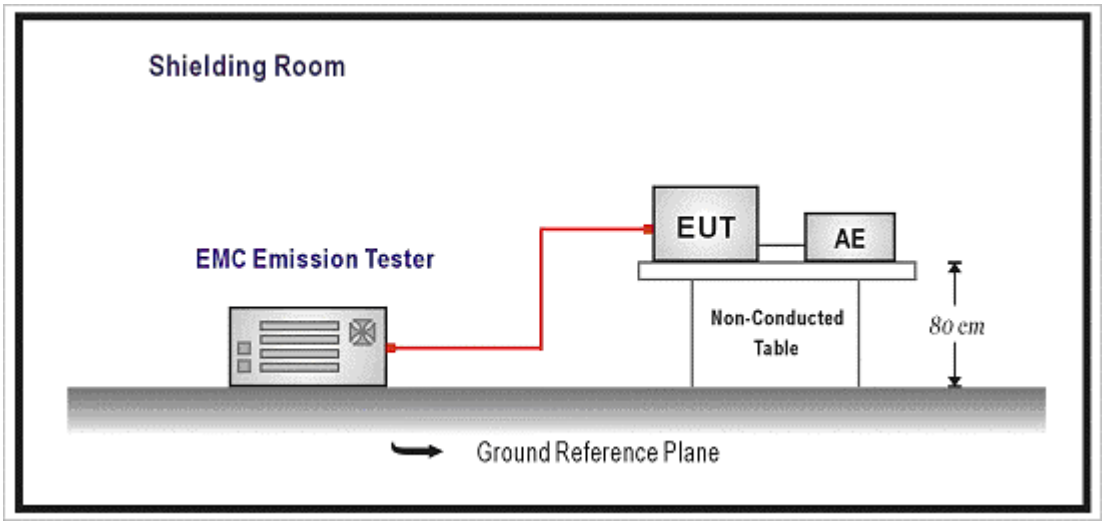
Description : Power Harmonics Test Setup

7. Voltage Fluctuation and Flicker

7.1. Test Specification

According to EMC Standard : EN 61000-3-3

7.2. Test Setup



7.3. 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.

7.4. 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.

7.5. Deviation from Test Standard

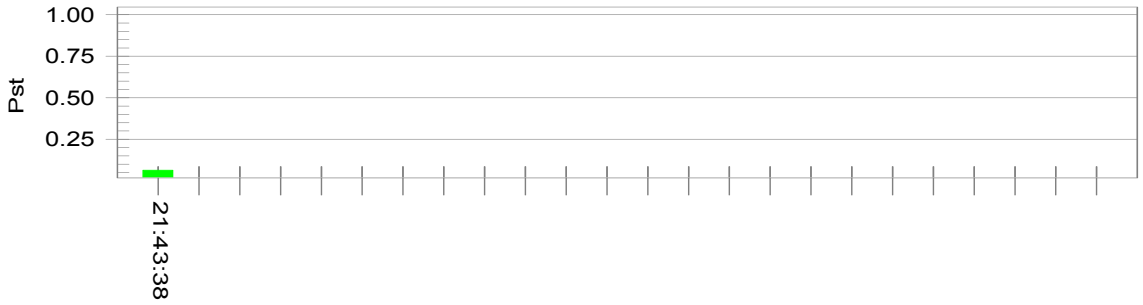
No deviation.

7.6. Test Result

Product	Motherboard		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/07	Test Site	No.3 Shielded Room

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.40			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

7.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

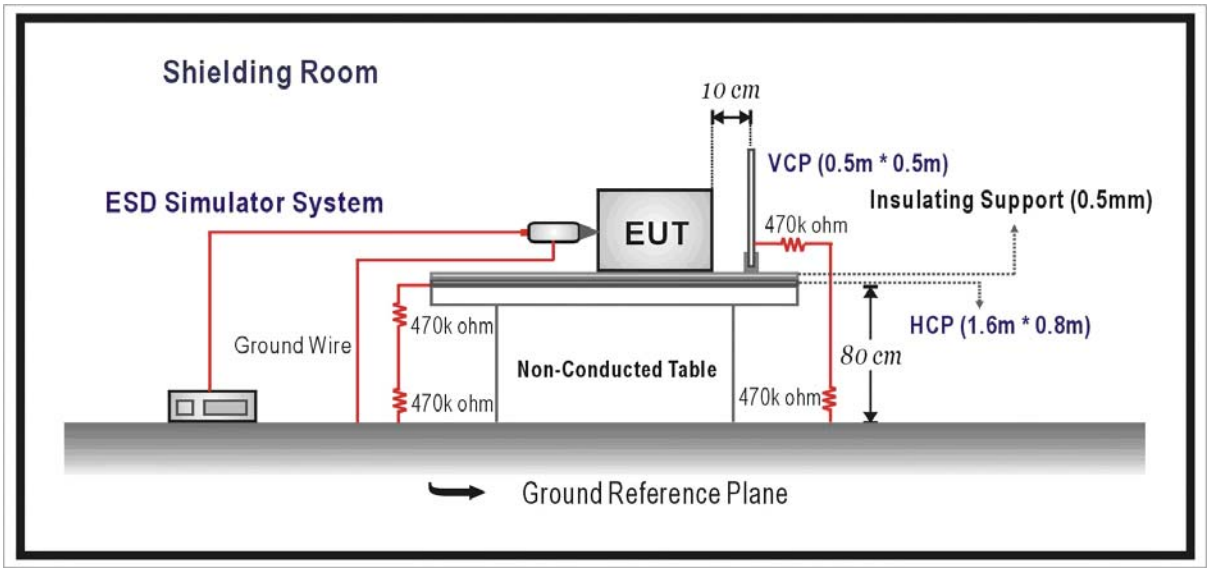
Description : Flicker Test Setup

8. Electrostatic Discharge

8.1. Test Specification

According to Standard : IEC 61000-4-2

8.2. Test Setup



8.3. Limit

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

8.4. 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.

8.5. Deviation from Test Standard

No deviation.

8.6. Test Result

Product	Motherboard		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/08	Test Site	No.6 Shielded Room

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

8.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

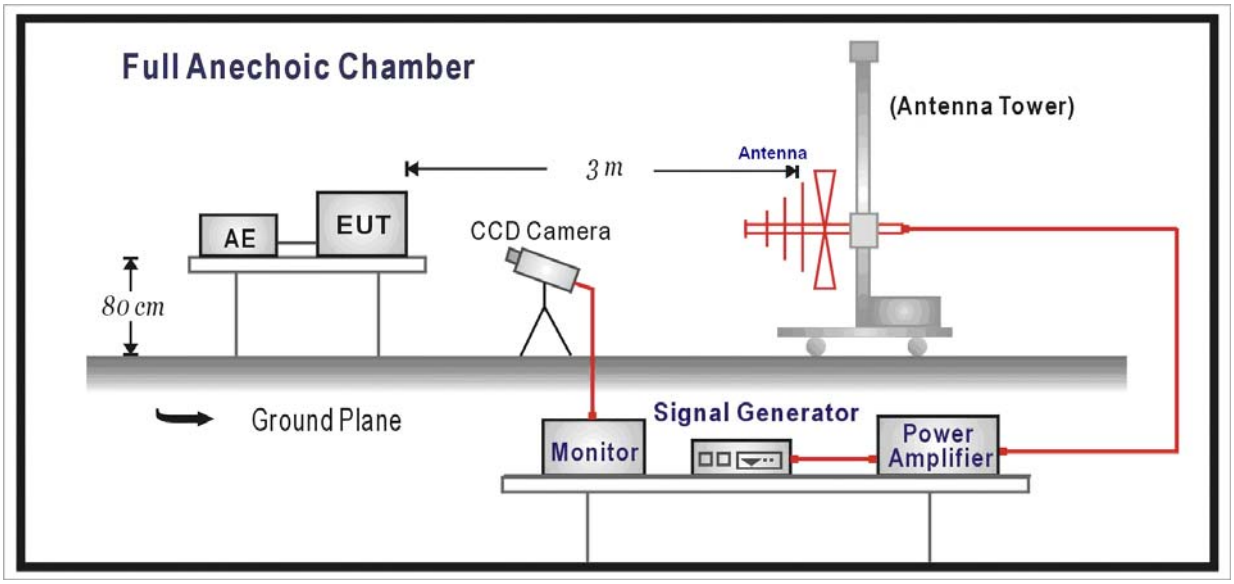
Description : ESD Test Setup

9. Radiated Susceptibility

9.1. Test Specification

According to Standard : IEC 61000-4-3

9.2. Test Setup



9.3. Limit

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

9.4. 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%
6.	The rate of Swept of Frequency	1.5 x 10^{-3} decades/s

9.5. Deviation from Test Standard

No deviation.

9.6. Test Result

Product	Motherboard		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/04	Test Site	Chamber5

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	FRONT	H	3	A	A	PASS
80-1000	FRONT	V	3	A	A	PASS
80-1000	BACK	H	3	A	A	PASS
80-1000	BACK	V	3	A	A	PASS
80-1000	RIGHT	H	3	A	A	PASS
80-1000	RIGHT	V	3	A	A	PASS
80-1000	LEFT	H	3	A	A	PASS
80-1000	LEFT	V	3	A	A	PASS
80-1000	UP	H	3	A	A	PASS
80-1000	UP	V	3	A	A	PASS
80-1000	DOWN	H	3	A	A	PASS
80-1000	DOWN	V	3	A	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.

☒ 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
  ☐ There was no observable degradation in performance.
  ☐ 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.

9.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

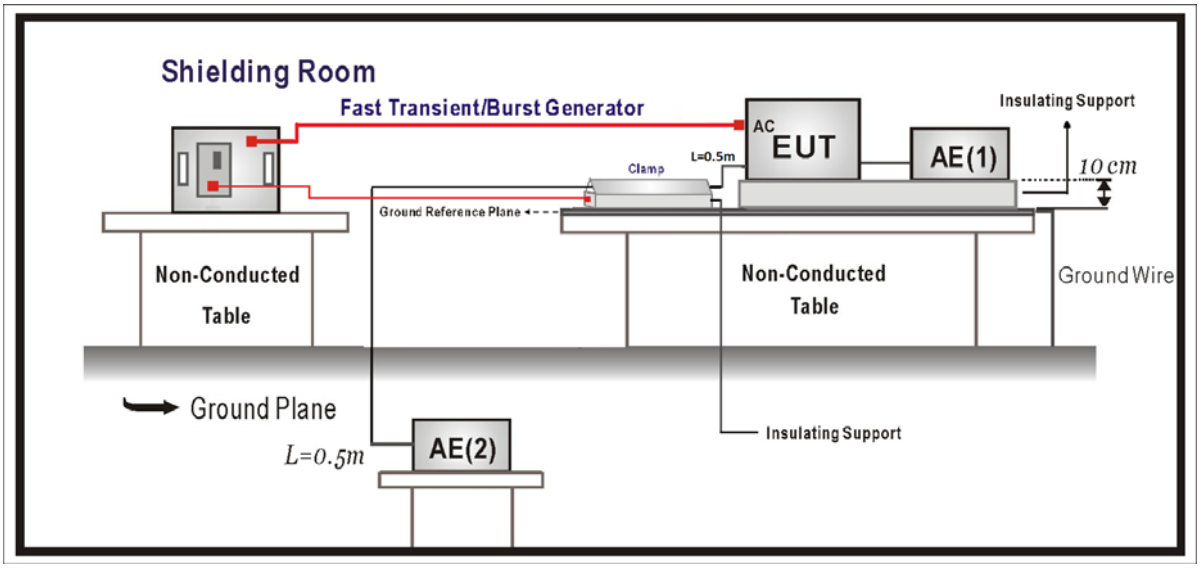
Description : Radiated Susceptibility Test Setup

10. Electrical Fast Transient/Burst

10.1. Test Specification

According to Standard : IEC 61000-4-4

10.2. Test Setup



10.3. 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

10.4. 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.

10.5. Deviation from Test Standard

No deviation.

10.6. Test Result

Product	Motherboard		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/04	Test Site	No.3 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N-PE	±	1kV	60	Direct	B	A	PASS
LAN	±	0.5kV	60	Clamp	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.

☒ 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: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : EFT/B Test Setup

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

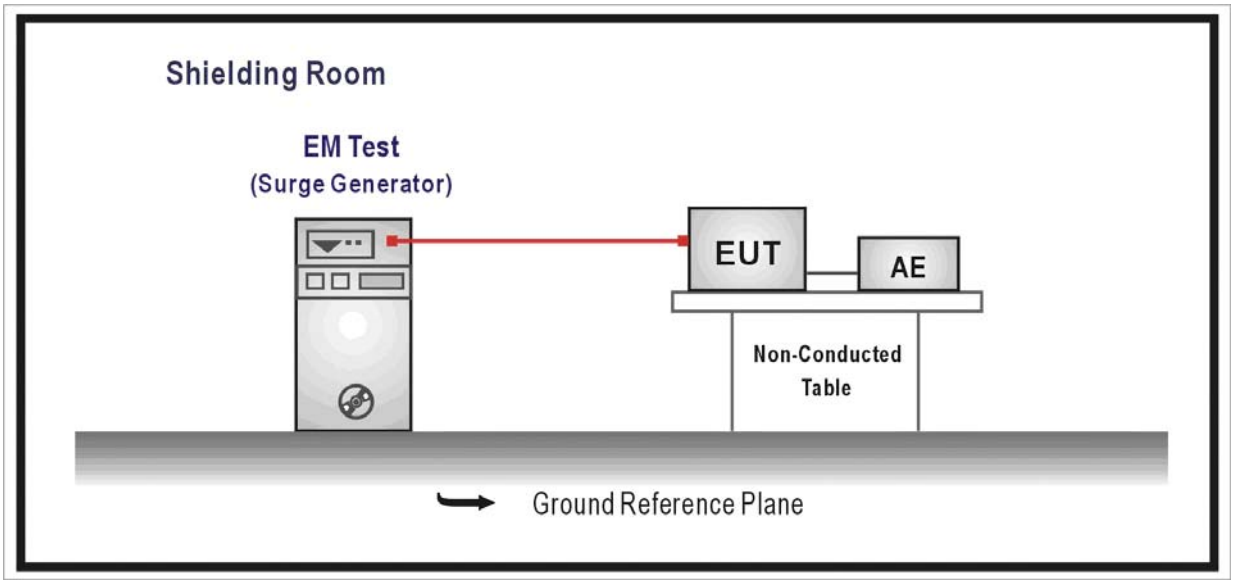
Description : EFT/B Test Setup - Clamp

11. Surge

11.1. Test Specification

According to Standard : IEC 61000-4-5

11.2. Test Setup



11.3. 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.

11.4. 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.

11.5. Deviation from Test Standard

No deviation.

11.6. Test Result

Product	Motherboard		
Test Item	Surge		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/04	Test Site	No.3 Shielded Room

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

☒ 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.

11.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : SURGE Test Setup

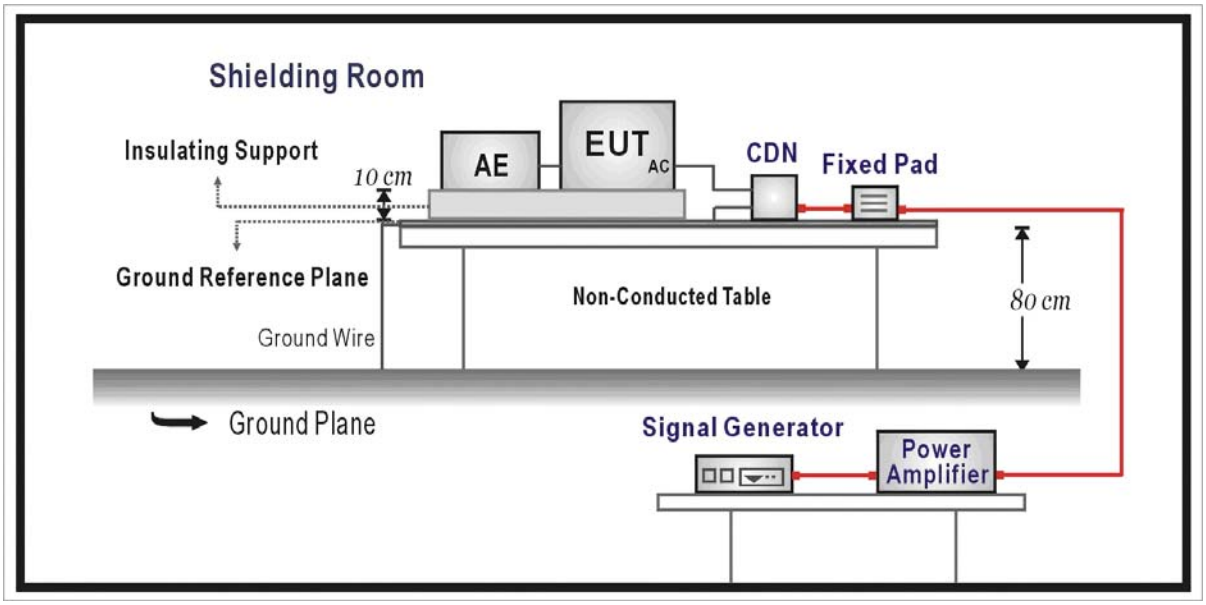
12. Conducted Susceptibility

12.1. Test Specification

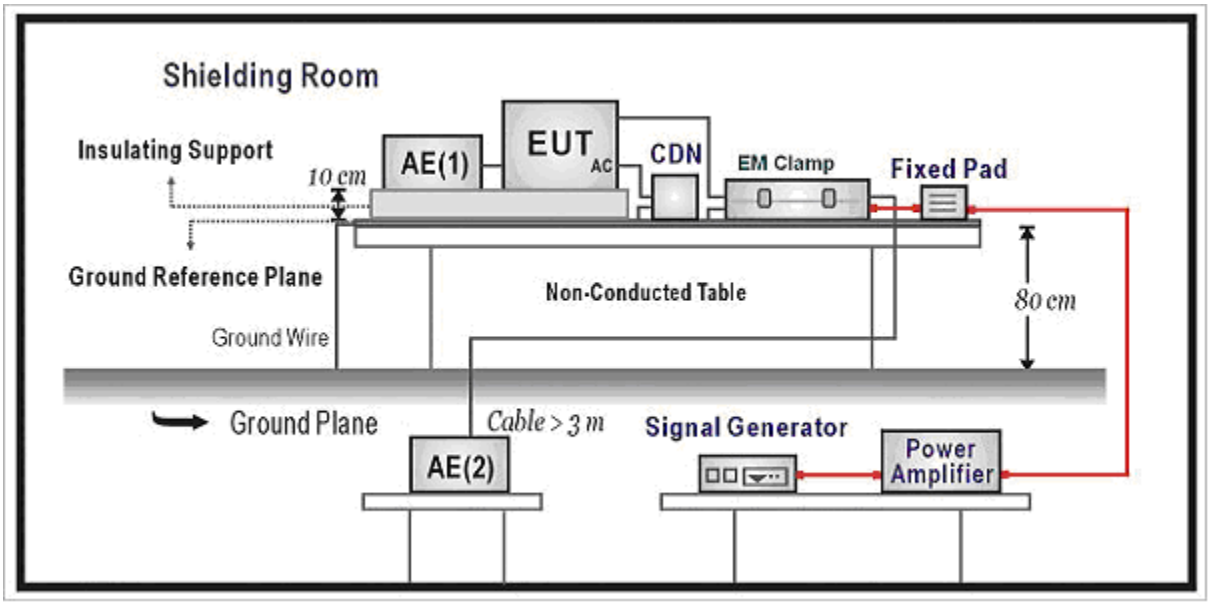
According to Standard : IEC 61000-4-6

12.2. Test Setup

CDN Inject Method



EM Clamp Inject Method



12.3. 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

12.4. 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%
6.	The rate of Swept of Frequency	1.5 x 10^{-3} decades/s

12.5. Deviation from Test Standard

No deviation.

12.6. Test Result

Product	Motherboard		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/04	Test Site	No.6 Shielded Room

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

☒ 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.

12.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Conducted Susceptibility Test Setup

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

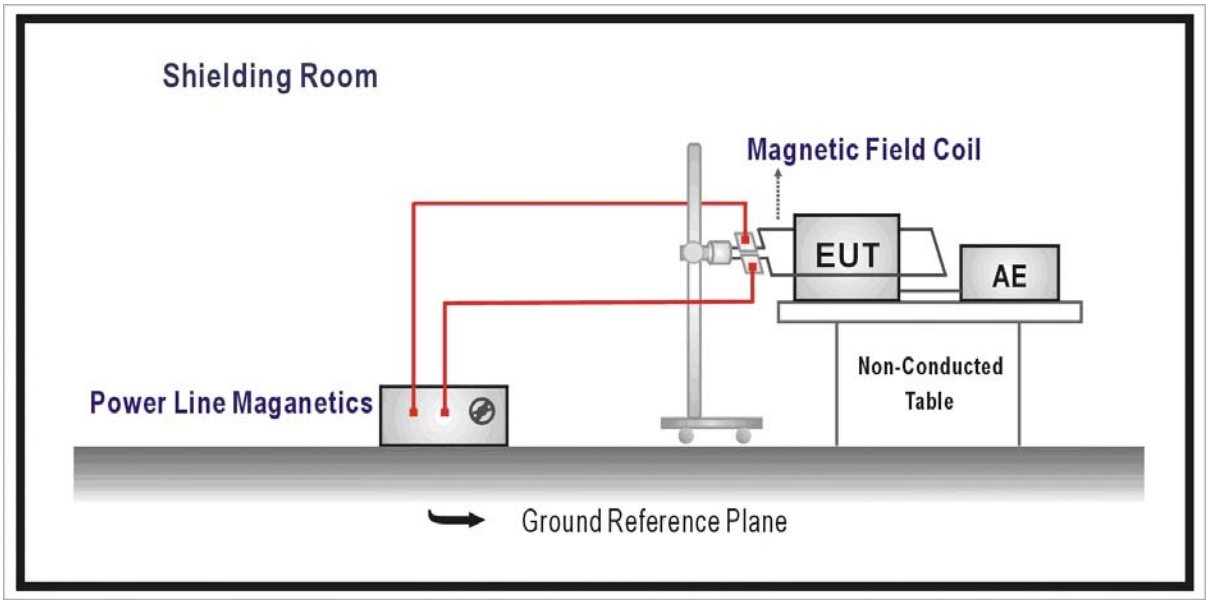
Description : Conducted Susceptibility Test Setup - CDN

13. Power Frequency Magnetic Field

13.1. Test Specification

According to Standard : IEC 61000-4-8

13.2. Test Setup



13.3. Limit

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

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 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 10 minutes 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).

13.5. Deviation from Test Standard

No deviation.

13.6. Test Result

Product	Motherboard		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/07	Test Site	No.3 Shielded Room

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 _____ kV of Line _____.

☒ 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: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

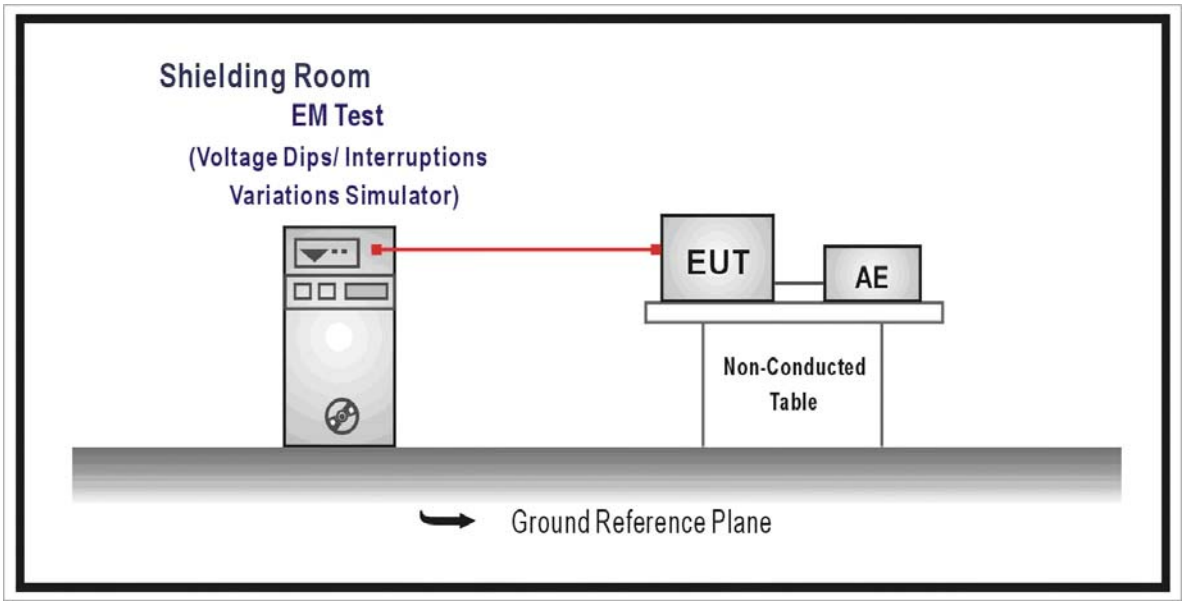
Description : Power Frequency Magnetic Field Test Setup

14. Voltage Dips and Interruption

14.1. Test Specification

According to Standard : IEC 61000-4-11

14.2. Test Setup



14.3. 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

14.4. 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.

14.5. Deviation from Test Standard

No deviation.

14.6. Test Result

Product	Motherboard		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case		
Date of Test	2012/05/04	Test Site	No.3 Shielded Room

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 _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

14.7. Test Photograph

Test Mode : Mode 1: Intel i5-3330S 2.7GHz, D-SUB+HDMI1 1920*1200/60Hz, Close Case

Description : Voltage Dips Test Setup

15. Attachment

➢ EUT Photograph

(1) EUT Photo

(2) EUT Photo

(3) EUT Photo