Technical Compliance Statement

Ref. No.: ACWE-RC120174 (ACWE-G1207026)

For the following equipment

Applicant	:	**AAEON Technology Inc.**
Manufacturer #1	:	**AAEON Technology Inc.**
Manufacturer #2	:	**Info-Tek Electronics (Suzhou) Co., Ltd.**
Manufacturer #3	:	**Cal-Comp Electronics and Communications (Suzhou) Co., Ltd.**
Manufacturer #4	:	**Danriver Technology (GZ) Inc.**
Manufacturer #5	:	**Boatek Electronic Co., Ltd.**
Manufacturer #6	:	**Global Brands Manufacture Ltd.**
Product	:	**Motherboard**
Model Number	:	**(1) IMBM-H61A (2)LMH61A (3) xxxxIMBM-H61Axxxxxxxxxxx (4) LMH61Axxxxxxx**
Brand	:	**(1) AAEON (2) ASUS**

We, **AUDIX Technology (Wujiang) Co., Ltd. EMC Dept.** hereby certify that the above products has been tested by us with the listed standards and found in compliance with the council EMC directive 2004/108/EC. It is possible to use CE marking to demonstrate the compliance with this EMC Directive. The test data & results are issued on the EMC test report No. **ACWE-E1208002.**

Emission: **EN 55022:2010 and AS/NZS CISPR22:2009**
EN 61000-3-2:2006+A1:2009+A2:2009 and EN 61000-3-3:2008

Immunity: **EN 55024:2010**
(IEC 61000-4-2:2008, IEC 61000-4-3:2008,
IEC 61000-4-4:2004+Corr.1:2006+Corr.2:2007, IEC 61000-4-5:2005,
IEC 61000-4-6:2008, IEC 61000-4-8:2009, IEC 61000-4-11:2004)

Aug.20, 2012

Allen Wang / Senior Manager
AUDIX Technology (Wujiang) Co., Ltd. EMC Dept.

Deutscher Akkreditierungs Rat
DAR
DAT-P-264/07-00

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

EMC TEST REPORT
For

AAEON Technology Inc.

Motherboard

Model No. : (1) IMBM-H61A (2)LMH61A
(3) xxxxIMBM-H61Axxxxxxxxxxxx
(4) LMH61Axxxxxxx

Brand : (1) AAEON (2) ASUS

Prepared for

AAEON Technology Inc.
5F, No.135, Lane 235, Pao Chiao Rd, Hsin-Tien Dist., New Taipei City, Taiwan, R.O.C.

Prepared by

Audix Technology (Wujiang) Co., Ltd. EMC Dept.
No.1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone
Jiangsu China 215200

Tel.: +86-512-63403993
Fax: +86-512-63403339

Report Number	:	ACWE-E1208002
Date of Test	:	Jul.30~Aug.02, 2012
Date of Report	:	Aug.08, 2012

TABLE OF CONTENTS

Description Page

TEST REPORT VERIFICATION

Applicant	:	AAEON Technology Inc.
Manufacturer#1	:	AAEON Technology Inc.
Manufacturer#2	:	Info-Tek Electronics (Suzhou) Co., Ltd.
Manufacturer#3	:	Cal-Comp Electronics and Communications (Suzhou) Co., Ltd.
Manufacturer#4	:	Danriver Technology (GZ) Inc.
Manufacturer#5	:	Boatek Electronic Co., Ltd.
Manufacturer#6	:	Global Brands Manufacture Ltd.
EUT Description	:	Motherboard
(A) Model No.	:	(1) IMBM-H61A (2)LMH61A (3) xxxxIMBM-H61Axxxxxxxxxxx (4) LMH61Axxxxxxx
(B) Brand	:	(1) AAEON (2) ASUS
(C) Test Voltage	:	AC 230V, 50Hz (Via PC)

Applicable standards:

Emission: **EN 55022:2010 and AS/NZS CISPR22:2009**
EN 61000-3-2:2006+A1:2009+A2:20009 and EN 61000-3-3:2008

Immunity: **EN 55024:2010**
(IEC 61000-4-2:2008, IEC 61000-4-3:2008,
IEC 61000-4-4:2004+Corr.1:2006+Corr.2:2007, IEC 61000-4-5:2005,
IEC 61000-4-6:2008, IEC 61000-4-8:2009, IEC 61000-4-11:2004)

(Note: The EN55022 emission measurement results are deemed satisfactory evidence of compliance with AS/NZS CISPR 22 regulations)

The device described above is tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept. to determine the Maximum emission levels emanating from the device, its ensured severity levels, and performance criterion. This test report contains the measurement results, and Audix Technology (Wujiang) Co., Ltd. EMC Dept. assumes full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliance with the requirements of EN 55022、EN 61000-3-2, -3 and EN 55024 standards.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: Jul.30~Aug.02, 2012 Date of Report: Aug.08, 2012

Prepared by : Candy Tang
(Candy Tang/Assistant Administrator)

Reviewer : Kin Lin
(Kin Lin/Deputy Manager)

Approved & Authorized Signer : Allen Wang
(Allen Wang/Senior Manager)

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT has been tested according to the applicable standards and test results are referred as below.

EMISSION			
Description of Test Item	**Standard**	**Limits**	**Results**
Conducted disturbance at main terminal	EN 55022:2010 and AS/NZS CISPR22:2009	Class B	PASS
Conducted common mode disturbance at telecommunication port	EN 55022:2010 and AS/NZS CISPR22:2009	Class B	PASS
Radiated disturbance	EN 55022:2010 and AS/NZS CISPR22:2009	Class B	PASS
Harmonic current emissions	EN 61000-3-2:2006 +A1:2009+A2:2009	Class D	PASS
Voltage fluctuations & flicker	EN 61000-3-3:2008	P_{st}=1 dc(%)=3.3% dMax.(%)=4% d(t)>3.3%=500ms	PASS
IMMUNITY (EN55024:2010)			
Description of Test Item	**Basic Standard**	**Performance Criteria**	**Results**
Electrostatic discharge (ESD)	IEC 61000-4-2:2008	B	PASS
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3:2008	A	PASS
Electrical fast transient (EFT)	IEC 61000-4-4:2004 +Corr.1:2006+Corr.2:2007	B	PASS
Surge	IEC 61000-4-5:2005	B	PASS
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2008	A	PASS
Power frequency magnetic field	IEC 61000-4-8:2009	A	PASS
Voltage dips, >95% reduction	IEC 61000-4-11:2004	B	PASS
Voltage dips, 30% reduction		C	PASS
Voltage interruptions		C	PASS

1.2 Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1 Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2 Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3 Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.

2 GENERAL INFORMATION

2.1 Description of Device (EUT)

Product	:	Motherboard
Model Number	:	(1) IMBM-H61A (2)LMH61A (3) xxxxIMBM-H61Axxxxxxxxxxxx (4) LMH61Axxxxxxx ("x" can be 0-9, A-Z, a-z, - or blank) Remark: The difference of the models is only for different marketing.
Test Model Number	:	IMBM-H61A
Brand	:	(1) AAEON (2) ASUS
Applicant	:	AAEON Technology Inc. 5F, No.135, Lane 235, Pao Chiao Rd, Hsin-Tien Dist., New Taipei City, Taiwan, R.O.C.
Manufacturer # 1	:	AAEON Technology Inc. 5F, No.135, Lane 235, Pao Chiao Rd, Hsin-Tien Dist., New Taipei City, Taiwan, R.O.C.
Manufacturer # 2	:	Info-Tek Electronics (Suzhou) Co., Ltd. 183 Jinfeng Rd., Suzhou, Jiangsu, PRC
Manufacturer # 3	:	Cal-Comp Electronics and Communications (Suzhou) Co., Ltd. Wujiang Export Processing Zone, No.688, Pangjin Road, Wujiang Economic Development Zone, Jiangsu Province, China
Manufacturer # 4	:	Danriver Technology (GZ) Inc. No.16, Baoying Dadao, Guangzhou Free Trade Zone, Guangdong, P.R.China
Manufacturer # 5	:	Boatek Electronic Co., Ltd. No.124 bubugao road, wu sha kong bacillage, chang an, dong guan, Guangdong province
Manufacturer # 6	:	Global Brands Manufacture Ltd. EMS Business unit Global Brands Manufacture Limited Yuyuan Industrial Estate, Huangjiang Town, Dongguan City, Guangdong, P.R.China
Date of Receipt of Sample	:	Jul.30, 2012
Date of Test	:	Jul.30~Aug.02, 2012

2.2 EUT's Specification under application

Model Number	:	IMBM-H61A
CPU	:	Intel Confidential QBQ1 ES 2.46GHz Socket 1155
Chipset	:	South Bridge: Intel H61(B3)
Memory Size	:	Min: 512 MB, Max: 16 GB
Row (CS) number	:	Rows: 4 Rows Max: 4 GB/Row
System Memory	:	DIMM_A1 DIMM_A2 DIMM_B1 DIMM_B2 Type DDR3-1066/1333/1600
Expansion Slots	:	Slots PCI: 1 PCIEX1: 1 PCIEX1_1 PCIEX16 slot PCIEX16 PCIEX16 (BLUE)
Graphics	:	Integrated Gfx in North bridge On board Gfx. Chipset name: Intel H61 Max. UMA Memory Size: 1024M MB
D-Sub Max. resolution	:	1920*1200@75 Hz
DVI Max. resolution	:	1920*1200@60 Hz
Audio	:	Azalia CODEC: 6 channels IC: ALC887-VD2-CG (Colay with ALC886) 3 x Audio Jack w/BTX Type (Mic-in, Line-out, Line-in) on Rear IOsupport Jack detection & ANTI POP Function
Network	:	Dual Lan Gigabit: RTL8111F-VB-CG*2 PCIe Manageability WOL*(S3*.S4*.S5*) PXE* (must have) Support 2 GBE LAN Port
Storage	:	South Bridge: Intel H61 built-in Connectors SATA1 Color: Light Blue SATA2 Color: Light Blue SATA3 Color: Light Blue
USB	:	Standard USB2.0 Number of ports USB 2.0 Ports: 8 mid-board: 4 ports back panel: 4 ports

Back I/O Ports : (1) USB 2.0 port*4
(2) RJ-45 port*2 (10M/bps, 100M/bps, 1000M/bps)
(3) PS-2 port*2
(4) Audio port*3
(5) D-Sub port*1
(6) DVI port*1
(7) RS-232 port*2

Highest Working Frequency : 2.46 GHz

Remark:
EUT with the following modes were pre-scanned at the test voltage AC120V/60Hz for Conducted & Radiated Disturbance Measurements. Please refer all test data to appendix II & III.

Conducted & Radiated Disturbance Measurements

Mode	Test Condition
1	DVI 1920*1200@60Hz 75.8 kHz
2	D-Sub 1920*1200@75Hz 94.7 kHz
3	**DVI + D-Sub 1600*1200@60Hz 75.8 kHz**
4	DVI + D-Sub 1280*1024@75Hz 80.8 kHz
5	DVI + D-Sub 640*480@60Hz 30.3 kHz

Finally, the worst test mode (Mode 3) was demonstrated at AC230V/50Hz for all EMC items and record in the report.

2.3 List of all the components under test

Product	:	Brand/Model Number/Specification
CPU	:	Intel Confidential QBQ1 ES 2.46GHz
Motherboard (EUT)	:	**AAEON/ASUS, IMBM-H61A**
HDD	:	WD, WD1600AVVS-73L2B0, 160G
RAM	:	Kingston, KVR1333D3N9/1GB
Switching Power Supply	:	Brand: Antec Model No.: BP430 Input: AC 100V-240V, 8A-4A, 47Hz-63Hz Output: DC(+5V/20A; +3.3V/20A; +12V1/17A; +12V2/16A; -12V/0.8A; +5Vsb/2.5A; +3.3V, +5V max. load: 115W +12V1, +12V2 max. load: 384W)

2.4 Operating Condition of EUT

EUT Exercise Program and Condition	
Operating System	Windows 7
Test Program	"BurnIn Test. Exe" V.6.0
Graphic Controller	Display scrolling "H" pattern (Font: Arial, Size: 11) with respective resolution.
Audio Controller	Run the program "Windows Media Player" and play 1kHz audio signal.
LAN Controller (10M/bps)	Data transfer to host PC (pin test)
LAN Controller (100M/bps & 1G/bps)	Data transfer to host PC (tfgen.exe.)
One USB Port	Write operation to USB peripherals (WINTHRAX.exe.)
Other USB Ports	Read operation to USB peripherals (WINTHRAX.exe.)
PS-2 Port	Write operation to PS-2 peripherals.
RS-232 Port	Data transfer to Modem.

2.5 Tested Supporting System Details

2.5.1 PS-2 Mouse

Manufacturer	:	Logitech
Model Number	:	M-SBM96B
BSMI ID	:	T41126
Data Cable	:	Shielded, Undetachable, 1.5m

2.5.2 PS-2 Keyboard

Manufacturer	:	HP
Model Number	:	KB-0316
Serial Number	:	382925-AA1
BSMI ID	:	R33001
Data Cable	:	Shielded, Undetachable, 1.5m

2.5.3 LCD Monitor #1

Manufacturer	:	DELL
Model Number	:	3008WFPt
Serial Number	:	CN-ORW915-71618-84T-102L
BSMI ID	:	R3A002
D-Sub Cable	:	Shielded, Detachable, 1.8m, 2 ferrite cores
AC Power Cord	:	Unshielded, Detachable, 1.8m

2.5.4 LCD Monitor #2

Manufacturer	:	DELL
Model Number	:	U3011t
Serial Number	:	CN-0PH5NY-74445-17F-060L
BSMI ID	:	R43004
D-Sub Cable (Only for RS&CS Measurement)	:	Shielded, Detachable, 1.8m, 2 ferrite cores
DVI Cable	:	Shielded, Detachable, 1.8m, 2 ferrite cores
AC Power Cord	:	Unshielded, Detachable, 1.8m

2.5.5 LCD Monitor #3

Manufacturer	:	DELL
Model Number	:	U3011t
Serial Number	:	CN-0PH5NY-74445-17F-112L
BSMI ID	:	R43004
DVI Cable (Only for RS&CS Measurement)	:	Shielded, Detachable, 1.8m, 2 ferrite cores
AC Power Cord	:	Unshielded, Detachable, 1.8m

2.5.6 Earphone & Microphone

Manufacturer	:	SOMIC
Model Number	:	SM-301
Serial Number	:	N/A
Audio Cable	:	Unshielded, Undetachable, 0.8m

2.5.7 Walkman

Manufacturer	:	WINGO
Model Number	:	WG-2317
Serial Number	:	o243183545
Audio Cable	:	Shielded, Detachable, 1.8m

2.5.8 Printer

Manufacturer	:	HP
Model Number	:	DESKJET3918
Serial Number	:	CN64R1N251
BSMI ID	:	R33001
USB Cable	:	Shielded, Detachable, 2.0m
AC Adapter	:	HP/090-4397 I/P: AC100-240V, 50-60Hz, 500mA, O/P: DC +32Vdc, 500mA max; +15Vdc, 530mA max AC Cord: Unshielded,Detachable, 1.8m DC Cord: Unshielded, Undetachable, 1.8m, 1 ferrite core

2.5.9 USB HDD # 1

Manufacturer	:	BUFFALO
Model Number	:	HD-HX1.OTU3-AP
Serial Number	:	45564800502568
BSMI ID	:	D33093
Data Cable	:	Shielded, Detachable, 1.0m

2.5.10 USB HDD # 2

Manufacturer	:	BUFFALO
Model Number	:	HD-HX1.OTU3-AP
Serial Number	:	45564800402011
BSMI ID	:	D33093
Data Cable	:	Shielded, Detachable, 1.0m

2.5.11 USB HDD # 3

Manufacturer	:	BUFFALO
Model Number	:	HD-HX1.OTU3-AP
Serial Number	:	45564800402028
BSMI ID	:	D33093
Data Cable	:	Shielded, Detachable, 1.0m

2.5.12 Modem #1

Manufacturer	:	ACEEX
Model Number	:	MODEM1414
Serial Number	:	950110299
Data Cable	:	Shielded, Detachable, 1.5m
Adapter	:	HUACHENG/ HC-1609 DC Cord: Shielded, Undetachable, 1.5m

2.5.13 Modem #2

Manufacturer	:	ACEEX
Model Number	:	MODEM1414
Serial Number	:	980034389
Data Cable	:	Shielded, Detachable, 1.5m
Adapter	:	HUACHENG/ HC-1609 DC Cord: Shielded, Undetachable, 1.5m

2.5.14 Host PC

Manufacturer	:	Lenovo
Model Number	:	2746-BAC(SL500)
Power Cord	:	Unshielded, Detachable, 0.5 m
AC Adapter	:	M/N: 92P1211 Brand: Lenovo Input: AC 100-240V, 50-60Hz, 2.0A-1.2A Output: DC 20V,3.25A DC Cord: Shielded, Undetachable, 1.8m, 1 ferrite core.

2.5.15 AC Power Cord: Unshielded, Detachable, 1.8m (Connecting to PC)

For Conducted Disturbance Measurement:

2.5.16 RJ-45 Cable *2: Unshielded, Detachable, 9m (Connecting between Host PC and ISN)

2.5.17 RJ-45 Cable *2: Unshielded, Detachable, 2m (Connecting between EUT and ISN)

For Radiated Disturbance Measurement (10m Chamber):

2.5.18 RJ-45 Cable *2: Unshielded, Detachable, 25m (Connecting between EUT and PC)

2.6 Description of Test Facility

Name of Firm	:	**Audix Technology (Wujiang) Co., Ltd. EMC Dept.**
Site Location	:	No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200
Test Facilities	:	**No.1 10m semi-anechoic chamber** **No.1 conducted shielding enclosure** **The Complex Immunity Test Room** **RS&CS Test Room**
NVLAP Lab Code	:	200786-0 (NVLAP is a NATA accredited body under Mutual Recognition Agreement) Valid date on Sep.30, 2012
DAR-Registration No.	:	DAT-P-264/07-00 Valid date on Dec.14, 2012

2.7 Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
No.1 Conducted Shielding Enclosure		
Conducted Disturbance Measurement at mains	0.15MHz ~ 30MHz	± 2.82dB
Conducted Disturbance Measurement at telecommunication port	0.15MHz ~ 30MHz	± 2.76dB
At 10m Semi-Anechoic Chamber		
Radiated Disturbance Measurement (Distance 10m)	30MHz ~ 1000MHz	± 3.04dB (Horizontal)
		± 3.30dB (Vertical)
Radiated Disturbance Measurement (Distance 3m)	1000MHz ~ 6000MHz	± 4.72dB

Remark：Uncertainty = $ku_c(y)$

3 CONDUCTED DISTURBANCE MEASUREMENT

3.1 Test Equipment

The following test equipments were used during the conducted emission measurement：

3.1.1 For AC Mains Port

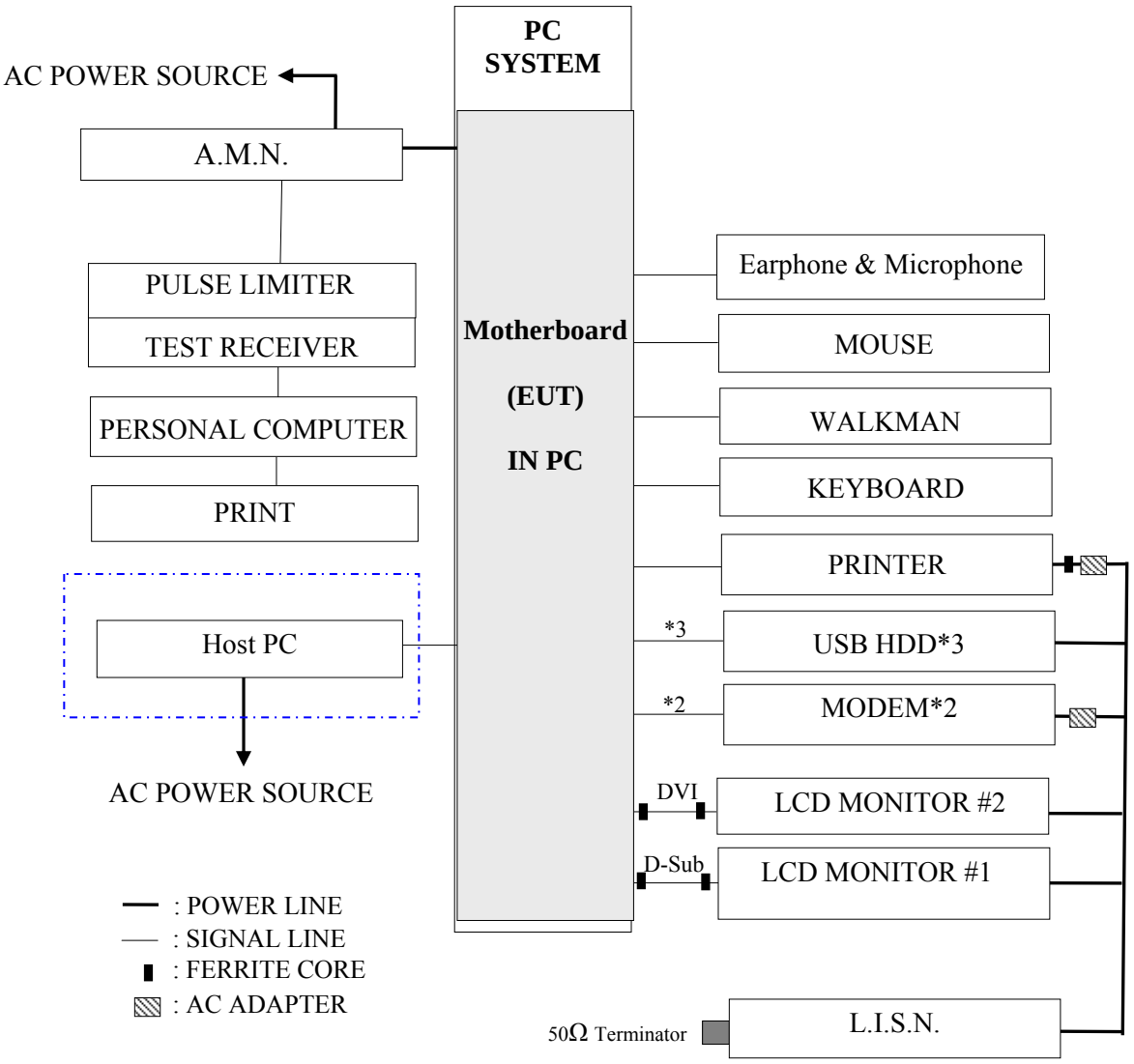
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100351	2012-01-05	2013-01-04
2.	A.M.N.	R&S	ESH2-Z5	100153	2012-02-14	2013-02-13
3.	L.I.S.N	Kyoritsu	KNW-407	8-1793-4	2011-08-06	2012-08-05
4.	Pulse Limiter	R&S	ESH3-Z2	100605	2011-08-06	2012-08-05
5.	50Ω Terminator	Tektronis	MS4630B	001-con	2012-01-05	2013-01-04
6.	RF Cable	Harbour Industries	RG400	002	2012-03-24	2013-03-23

3.1.2 For Telecommunication Port

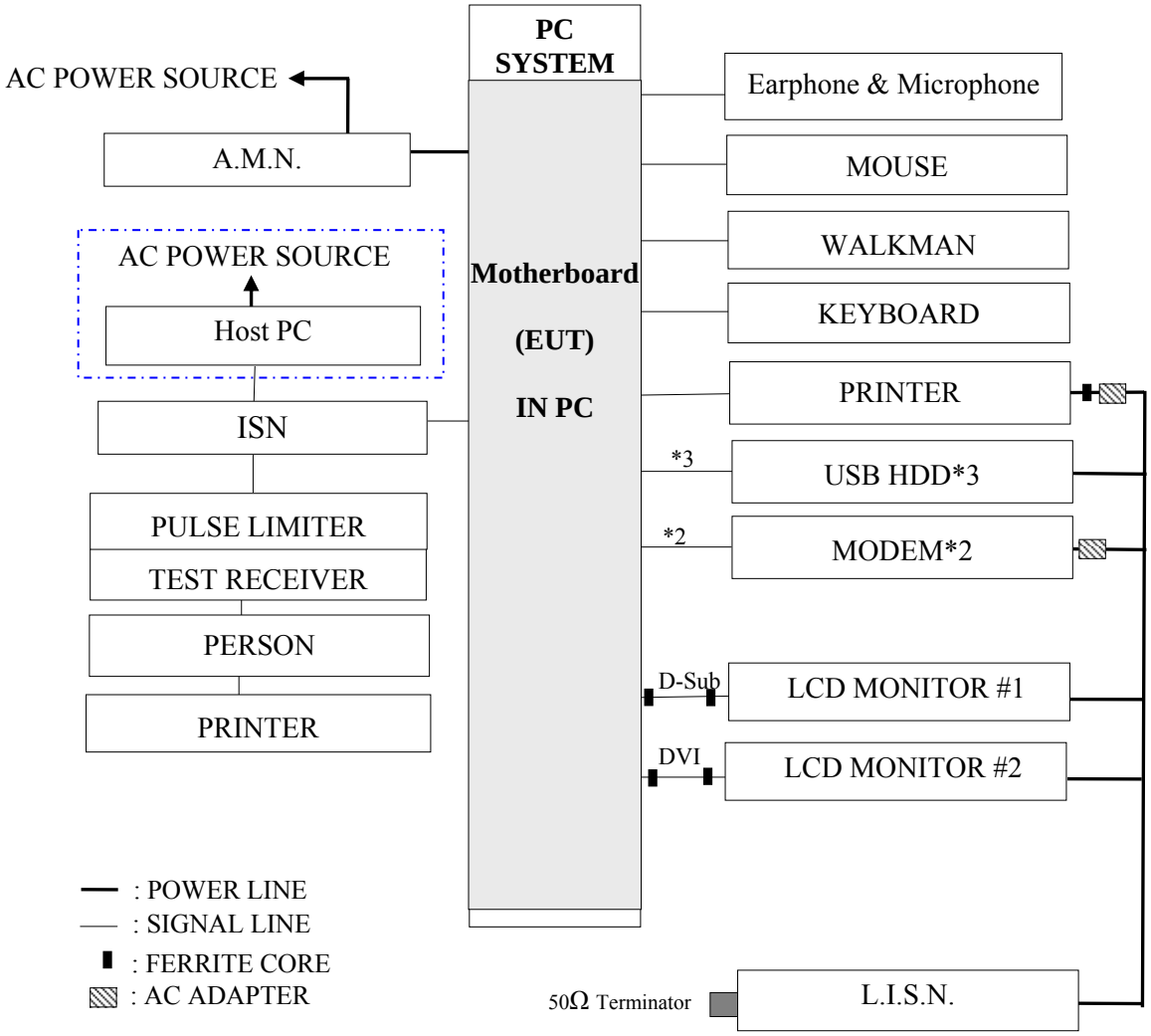
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100351	2012-01-05	2013-01-04
2.	A.M.N.	R&S	ESH2-Z5	100153	2012-02-14	2013-02-13
3.	L.I.S.N	Kyoritsu	KNW-407	8-1793-4	2011-08-06	2012-08-05
4.	I.S.N.	FCC	FCC-TLISN -T8-02	20389	2012-03-16	2013-03-15
5.	50Ω Terminator	Tektronis	MS4630B	001-con	2012-01-05	2013-01-04
6.	Pulse Limiter	R&S	ESH3-Z2	100605	2011-08-06	2012-08-05
7.	RF Cable	Harbour Industries	RG400	002	2012-03-24	2013-03-23

3.2 Block Diagram of Test Setup

3.2.1 Block Diagram of Test Setup for AC mains Port



3.2.2 Block Diagram of Test Setup for RJ-45 Port



3.3 Limits for Conducted Disturbance Voltage

3.3.1 Limits for conducted disturbance at the mains ports (Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark 1. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
2. The lower limit applies at the band edges.

3.3.2 Limits for conducted common mode disturbance at the telecommunication ports (Class B)

Frequency	Voltage Limits		Current Limits	
	Quasi-Peak Level	Average Level	Quasi-Peak Level	Average Level
0.15MHz ~ 0.5MHz	84 ~ 74 dBμV	74 ~ 64 dBμV	40 ~ 30 dBμA	30 ~ 20 dBμA
0.5MHz ~ 30MHz	74 dBμV	64 dBμV	30 dBμA	20 dBμA

Remark 1. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
2. The lower limit applies at the band edges.

3.4 Test Procedure

The measuring process is according to EN 55022, Class B and laboratory internal procedure TKC-301-015.

3.4.1 For AC Mains Port

In the conducted emission measurement, the EUT and all peripheral devices were set up on a non-metallic table which was 0.8 meters height above the ground plane, and 0.4 meters far away from the vertical plane. The EUT was powered by AC mains through Artificial Main Network (A.M.N), other peripheral devices were powered by AC mains through the second Line Impedance Stabilization Network (L.I.S.N). For the measurement, the A.M.N measuring port was terminated by a 50Ω measuring equipment and the second L.I.S.N measuring port was terminated by a 50Ω resistive load. All measurements were done on the phase and neutral line of the EUT's power cord. All cables or wires placement were verified to find out the maximum emission.

3.4.2 For Telecommunication Port

The setup is the same as conduction besides this, connecting between AE and telecommunication port through ISN. Each phase of telecommunication wire is measured to evaluate the maximum conducted emission in accordance with clause 9 of EN 55022.

The resolution bandwidth of measuring receiver was set at 9 kHz.

The required frequency band (0.15 MHz ~ 30 MHz) was pre-scanned with peak detector, the final measurement was measured with quasi-peak detector and average detector.

The emission level is calculated automatically by the test system which uses the following equation:

Emission level (dBμV) = Meter-Reading (dBμV) + A.M.N /I.S.N factor (dB) + Cable loss (dB). (Cable loss include pulse limiter loss)

3.5 Measurement Results

PASSED.

(All the emissions not reported below are too low against the prescribed limits.)
The worst mode was measured and reported as follows:

3.5.1 AC main Ports Measurement Results

Test Date：Jul.30, 2012 Temperature：22.4℃ Humidity：70%

Item	Test Condition	Reference Test Data No.	
		Neutral	Line
1	**DVI + D-Sub 1600*1200@60Hz 75.8 kHz**	**# 11**	**※# 12**

NOTE 1 - '※'means the worst test mode**.**

NOTE 2 - The worst emission is detected at 0.20 MHz with emission level of 40.03 dB (μV) (limit is 53.69 dB (μV)) with AV detector, when the Line of the EUT is connected to A.M.N

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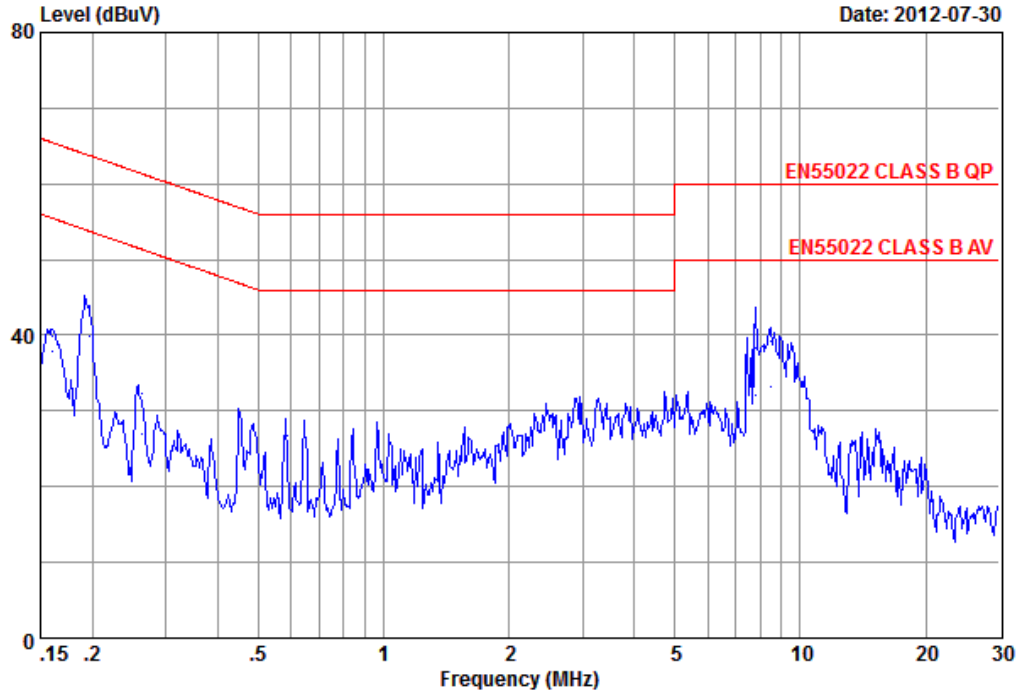
Data: 11 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 11
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: NEUTRAL
Limit	: EN55022 CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: DVI+D-Sub 1600*1200@60Hz 75.8kHz		
Memo	:		

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16	0.17	9.88	29.91	39.96	65.46	25.50	QP
2	0.16	0.17	9.88	27.91	37.96	55.46	17.50	Average
3	0.20	0.17	9.89	33.40	43.46	63.74	20.28	QP
4	0.20	0.17	9.89	29.90	39.96	53.74	13.78	Average
5	0.26	0.18	9.89	16.90	26.97	51.37	24.40	Average
6	0.26	0.18	9.89	22.30	32.37	61.37	29.00	QP
7	0.59	0.19	9.90	16.61	26.70	56.00	29.30	QP
8	0.59	0.19	9.90	11.61	21.70	46.00	24.30	Average
9	7.82	0.46	9.93	21.59	31.98	50.00	18.02	Average
10	7.82	0.46	9.93	27.89	38.28	60.00	21.72	QP
11	8.52	0.48	9.93	28.90	39.31	60.00	20.69	QP
12	8.52	0.48	9.93	22.90	33.31	50.00	16.69	Average

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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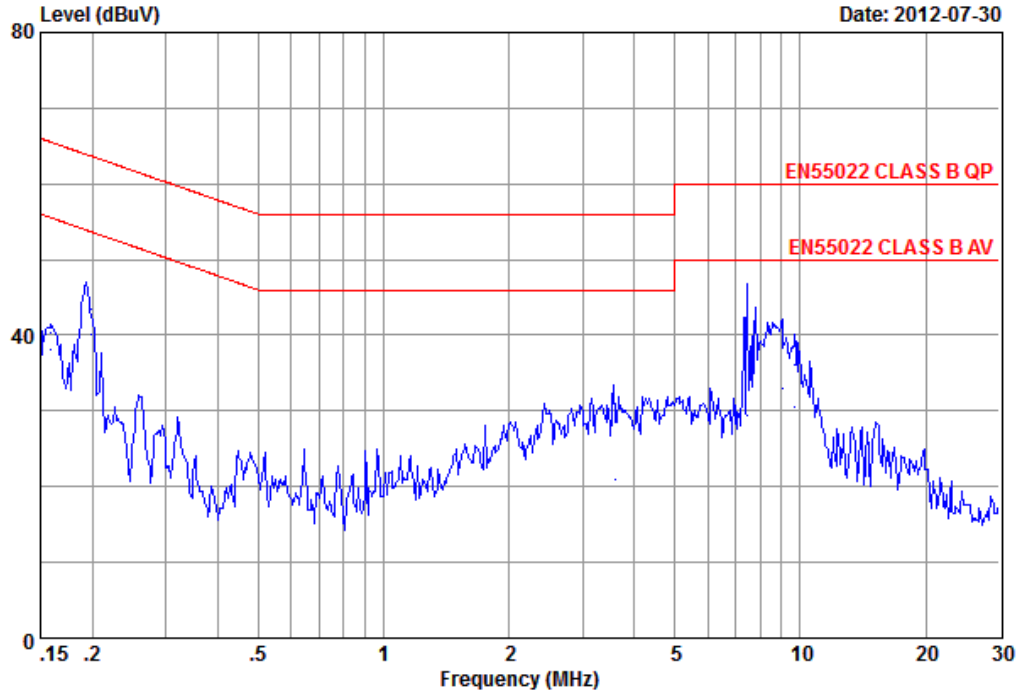
Data: 12 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 12
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: LINE
Limit	: EN55022 CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: DVI+D-Sub 1600*1200@60Hz 75.8kHz		
Memo	:		

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16	0.23	9.88	30.20	40.31	65.52	25.21	QP
2	0.16	0.23	9.88	27.90	38.01	55.52	17.51	Average
3	0.20	0.24	9.89	33.30	43.43	63.69	20.26	QP
4	0.20	0.24	9.89	29.90	40.03	53.69	13.66	Average
5	3.58	0.50	9.89	20.60	30.99	56.00	25.01	QP
6	3.58	0.50	9.89	10.60	20.99	46.00	25.01	Average
7	7.44	0.62	9.92	18.90	29.44	50.00	20.56	Average
8	7.44	0.62	9.92	32.90	43.44	60.00	16.56	QP
9	9.08	0.65	9.93	22.31	32.89	50.00	17.11	Average
10	9.08	0.65	9.93	29.91	40.49	60.00	19.51	QP
11	9.71	0.66	9.94	19.90	30.50	50.00	19.50	Average
12	9.71	0.66	9.94	25.60	36.20	60.00	23.80	QP

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

3.5.2 Telecommunication Ports Measurement Results

Test Date：Jul.30, 2012 Temperature：22.4℃ Humidity：70%

Item	Test Condition	Reference Test Data No.
1	RJ-45 10M/bps Full 1	# 13
2	RJ-45 100M/bps Full 1	# 14
3	RJ-45 1000M/bps Full 1	# 15
※4	**RJ-45 10M/bps Full 2**	**# 16**

NOTE 1 - '※'means the worst test mode**.**

NOTE 2 - The worst emission is detected at 7.50 MHz with emission level of 56.15 dB (μV) and with AV detector (limit is 64.00 dB (μV)), when the RJ-45 port (under 10M/bps Full 2) of the EUT is connected to I.S.N.

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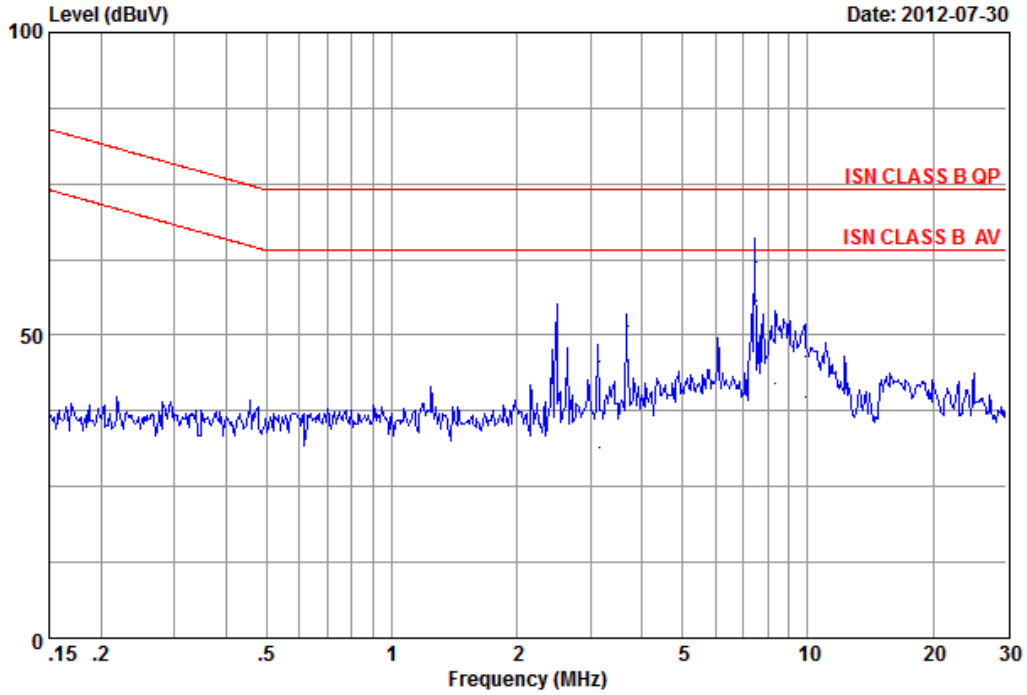
Data: 13 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 13
AMN/LISN	: ISNT8-02(20389)-1203	Phase	:
Limit	: ISN CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: RJ-45 10Mbps Full 1		
Memo	:		

	Freq. (MHz)	ISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	2.50	9.89	9.90	33.30	53.09	74.00	20.91	QP
2	2.50	9.89	9.90	27.90	47.69	64.00	16.31	Average
3	3.15	9.89	9.88	11.61	31.38	64.00	32.62	Average
4	3.15	9.89	9.88	25.91	45.68	74.00	28.32	QP
5	3.69	9.90	9.89	23.90	43.69	64.00	20.31	Average
6	3.69	9.90	9.89	31.70	51.49	74.00	22.51	QP
7	7.50	9.93	9.93	42.39	62.25	74.00	11.75	QP
8	7.50	9.93	9.93	35.89	55.75	64.00	8.25	Average
9	8.37	9.93	9.93	22.30	42.16	64.00	21.84	Average
10	8.37	9.93	9.93	32.90	52.76	74.00	21.24	QP
11	9.86	9.95	9.94	19.90	39.79	64.00	24.21	Average
12	9.86	9.95	9.94	26.60	46.49	74.00	27.51	QP

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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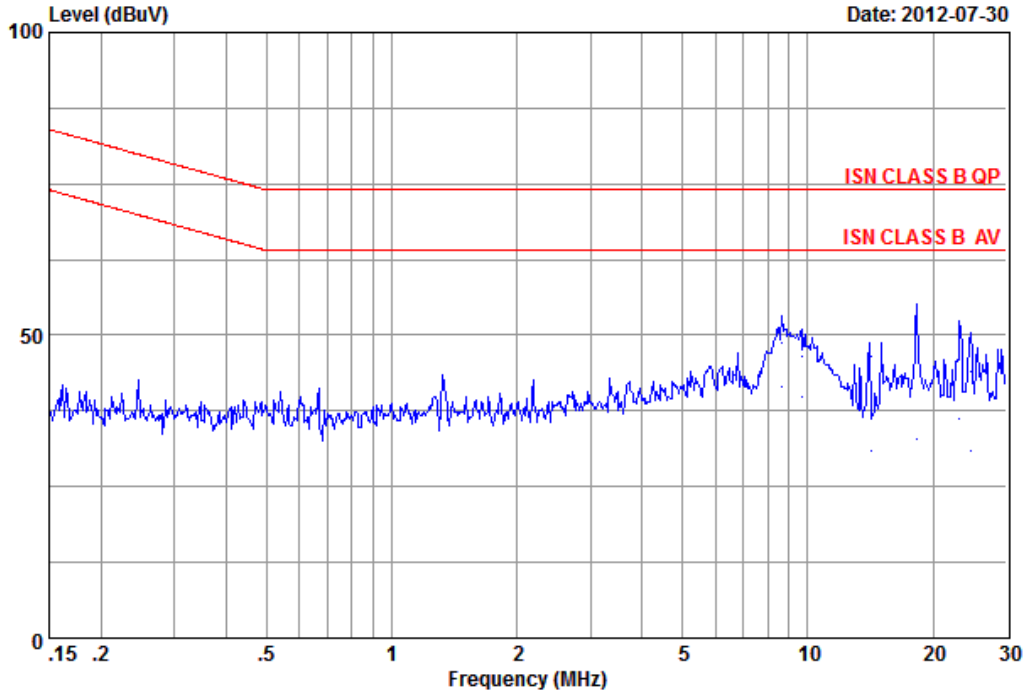
Data: 14 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 14
AMN/LISN	: ISNT8-02(20389)-1203	Phase	:
Limit	: ISN CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: RJ-45 100Mbps Full 1		
Memo	:		

	Freq. (MHz)	ISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	8.69	9.94	9.93	28.90	48.77	74.00	25.23	QP
2	8.69	9.94	9.93	21.60	41.47	64.00	22.53	Average
3	9.66	9.95	9.94	19.89	39.78	64.00	24.22	Average
4	9.66	9.95	9.94	26.59	46.48	74.00	27.52	QP
5	14.15	10.01	10.00	10.90	30.91	64.00	33.09	Average
6	14.15	10.01	10.00	26.60	46.61	74.00	27.39	QP
7	18.25	10.08	10.06	32.90	53.04	74.00	20.96	QP
8	18.25	10.08	10.06	12.60	32.74	64.00	31.26	Average
9	23.14	10.20	10.11	30.90	51.21	74.00	22.79	QP
10	23.14	10.20	10.11	15.90	36.21	64.00	27.79	Average
11	24.66	10.23	10.13	10.60	30.96	64.00	33.04	Average
12	24.66	10.23	10.13	23.60	43.96	74.00	30.04	QP

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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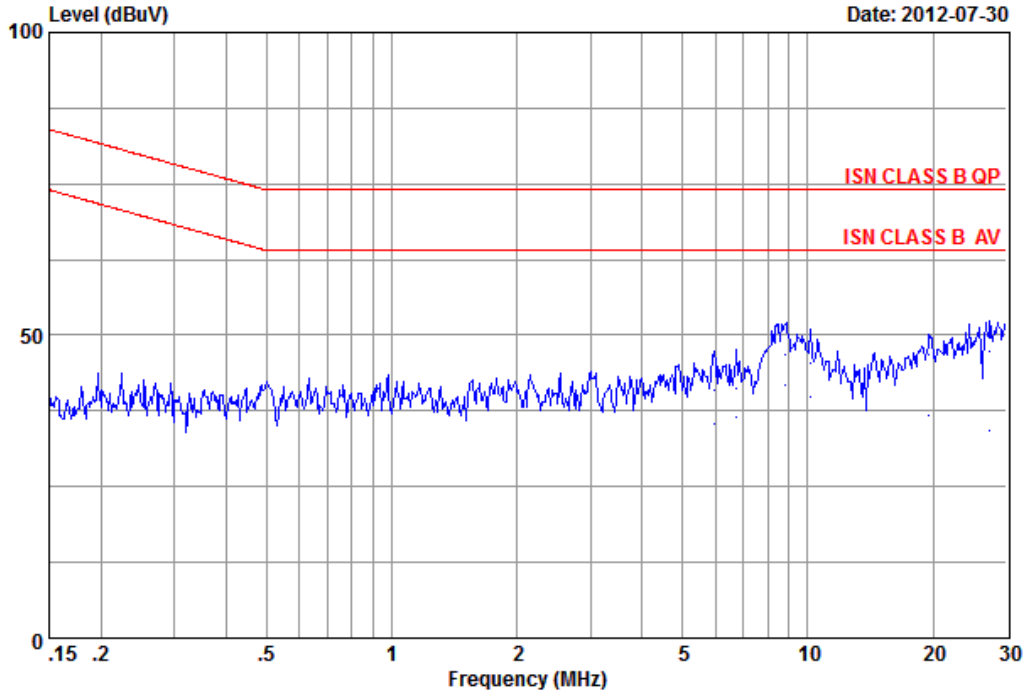
Data: 15 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 15
AMN/LISN	: ISNT8-02(20389)-1203	Phase	:
Limit	: ISN CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: RJ-45 1000Mbps Full 1		
Memo	:		

	Freq. (MHz)	ISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	5.96	9.91	9.92	21.20	41.03	74.00	32.97	QP
2	5.96	9.91	9.92	15.60	35.43	64.00	28.57	Average
3	6.74	9.92	9.92	21.30	41.14	74.00	32.86	QP
4	6.74	9.92	9.92	16.60	36.44	64.00	27.56	Average
5	8.86	9.94	9.93	21.90	41.77	64.00	22.23	Average
6	8.86	9.94	9.93	26.90	46.77	74.00	27.23	QP
7	10.13	9.95	9.94	19.90	39.79	64.00	24.21	Average
8	10.13	9.95	9.94	25.60	45.49	74.00	28.51	QP
9	19.54	10.11	10.07	26.60	46.78	74.00	27.22	QP
10	19.54	10.11	10.07	16.60	36.78	64.00	27.22	Average
11	27.42	10.32	10.15	26.90	47.37	74.00	26.63	QP
12	27.42	10.32	10.15	13.90	34.37	64.00	29.63	Average

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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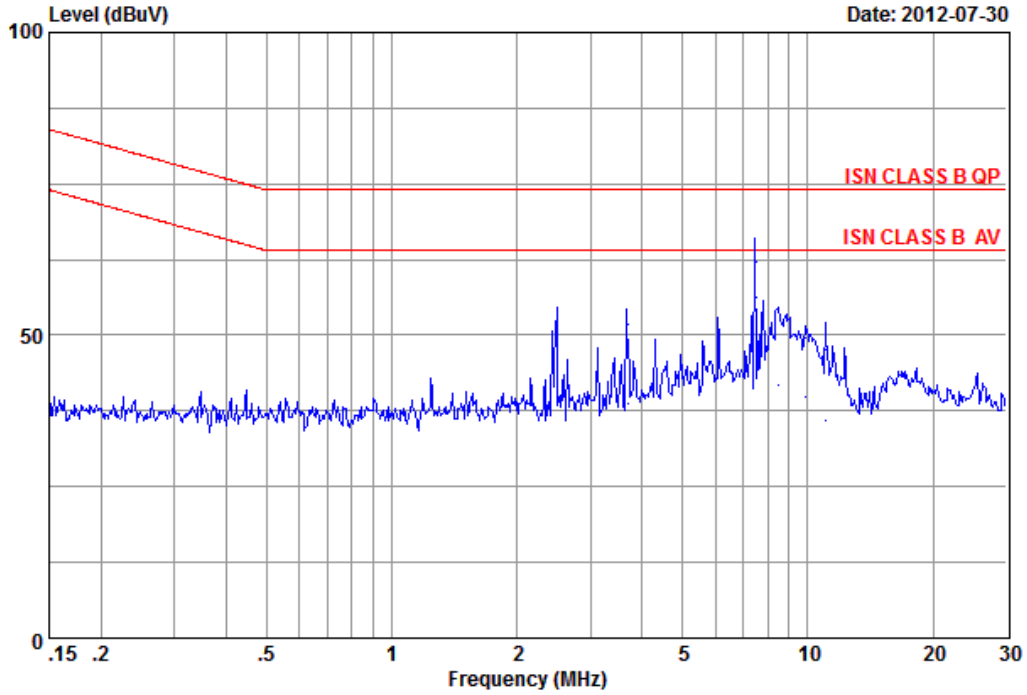
Data: 16 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 16
AMN/LISN	: ISNT8-02(20389)-1203	Phase	:
Limit	: ISN CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test mode	: RJ-45 10Mbps Full 2		
Memo	:		

	Freq. (MHz)	ISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	2.50	9.89	9.90	31.40	51.19	74.00	22.81	QP
2	2.50	9.89	9.90	25.50	45.29	64.00	18.71	Average
3	3.70	9.90	9.89	18.90	38.69	64.00	25.31	Average
4	3.70	9.90	9.89	31.90	51.69	74.00	22.31	QP
5	7.50	9.93	9.93	36.29	56.15	64.00	7.85	Average
6	7.50	9.93	9.93	42.19	62.05	74.00	11.95	QP
7	8.52	9.94	9.93	33.90	53.77	74.00	20.23	QP
8	8.52	9.94	9.93	21.90	41.77	64.00	22.23	Average
9	9.91	9.95	9.94	19.90	39.79	64.00	24.21	Average
10	9.91	9.95	9.94	29.60	49.49	74.00	24.51	QP
11	11.03	9.96	9.95	15.91	35.82	64.00	28.18	Average
12	11.03	9.96	9.95	27.61	47.52	74.00	26.48	QP

1.Emission Level= AMN Factor + Cable Loss + Reading.
2.If the average limit is met when useing a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4 RADIATED DISTURBANCE MEASUREMENT

4.1 Test Equipment

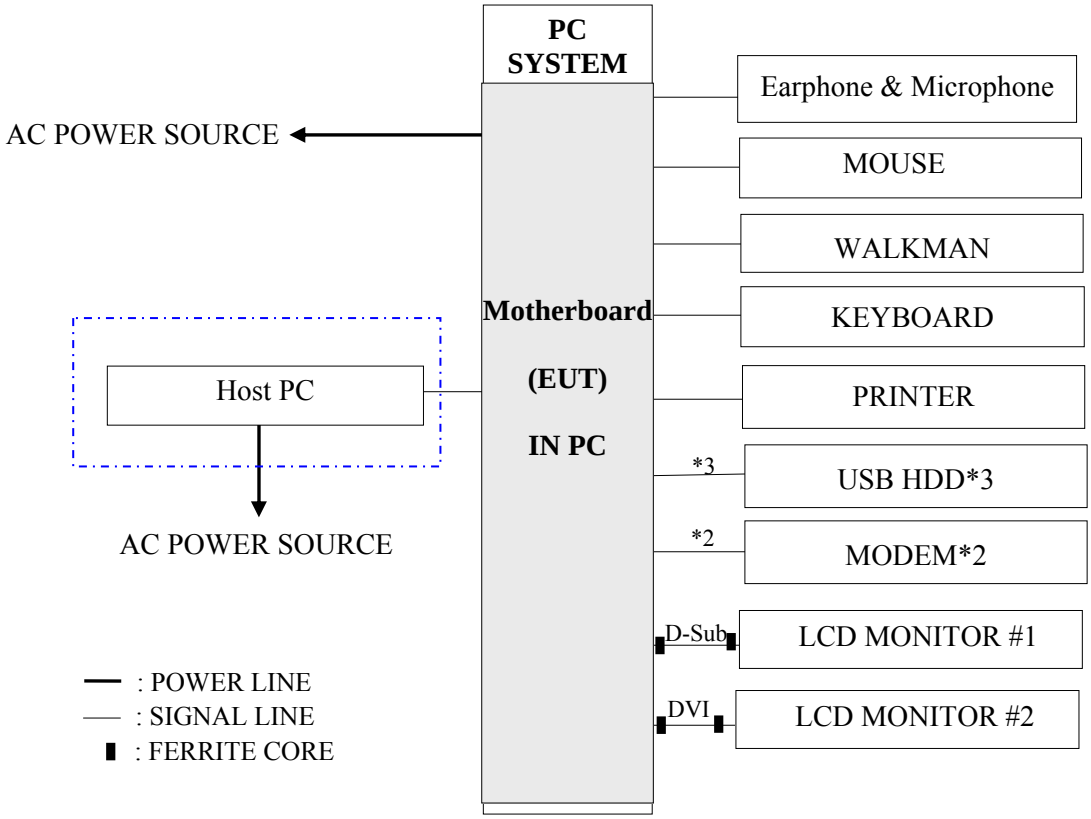
The following test equipments were used during the radiated emission measurement：

(At 10m Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY45107028	2012-01-05	2013-01-04
2.	Spectrum Analyzer	Agilent	E7405A	MY45107030	2012-01-05	2013-01-04
3.	Spectrum Analyzer	Agilent	E4447A	MY45300134	2012-01-05	2013-01-04
4.	Pre-Amplifier	Agilent	8447D	2944A10923	2011-08-14	2012-08-13
5.	Pre-Amplifier	Agilent	8447D	2944A10922	2011-08-14	2012-08-13
6.	Bi-log Antenna (Horizontal)	Schaffner	CBL6112D	22251	2012-04-25	2013-04-24
7.	Bi-log Antenna (Vertical)	Schaffner	CBL6112D	22253	2012-05-04	2013-05-03
8.	Horn Antenna	ESCO	3115	00062593	2012-05-04	2013-05-03
9.	Test Receiver	R&S	ESCI	100351	2012-01-05	2013-01-04
10.	50Ω Coaxial Switch # 1	ANRITSU	MP59B	6200547935	2011-08-14	2012-08-13
11.	50Ω Coaxial Switch # 2	ANRITSU	MP59B	6200547937	2011-08-14	2012-08-13
12.	50Ω Coaxial Switch # 3	ANRITSU	MP59B	6200547938	2011-08-14	2012-08-13
13.	Microwave amplifier	Agilent	8449B	3008A02229	2011-11-10	2012-11-09
14.	RF Cable	Yuhang	CSYH	001	2011-08-14	2012-08-13
15.	RF Cable	Yuhang	CSYH	002	2011-08-14	2012-08-13
16.	RF Cable	Yuhang	CSYH	003	2011-08-14	2012-08-13
17.	RF Cable	Yuhang	CSYH	004	2011-08-14	2012-08-13
18.	RF Cable	Yuhang	CSYH	005	2012-03-24	2013-03-23
19.	RF Cable	Yuhang	CSYH	006	2012-03-24	2013-03-23
20.	RF Cable	Yuhang	CSYH	008	2012-03-24	2013-03-23
21.	RF Cable	Yuhang	CSYH	009	2012-03-24	2013-03-23
22.	RF Cable	Huber+Suhner	SUCOFLEX 102	28571	2012-03-24	2013-03-23
23.	RF Cable	Huber+Suhner	SUCOFLEX 102	28579	2012-03-24	2013-03-23

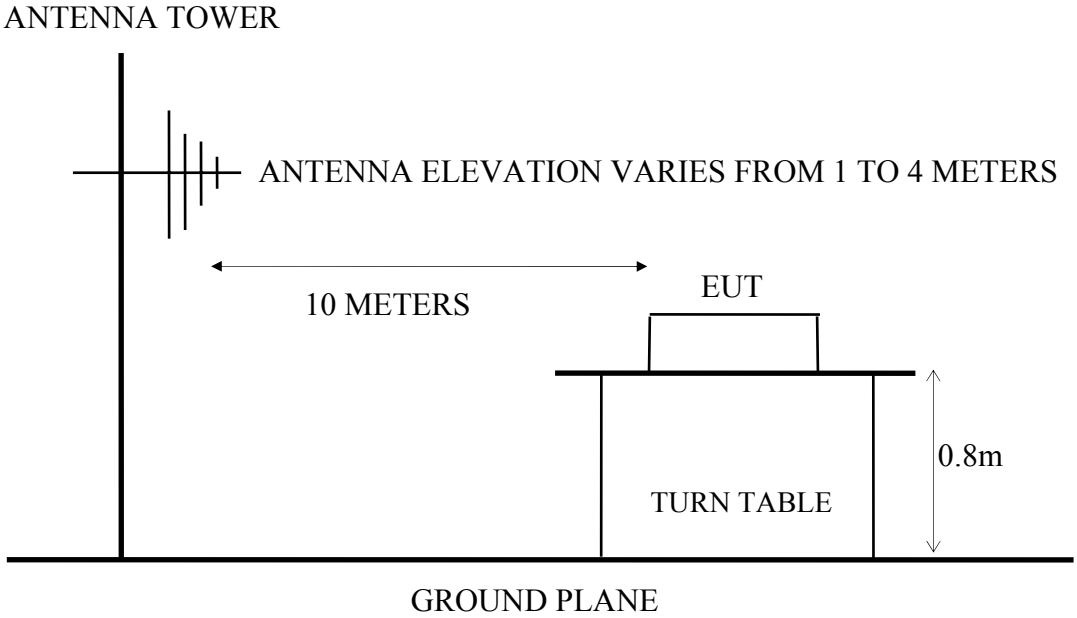
4.2 Block Diagram of Test Setup

4.2.1 Block Diagram of connection between EUT and simulators



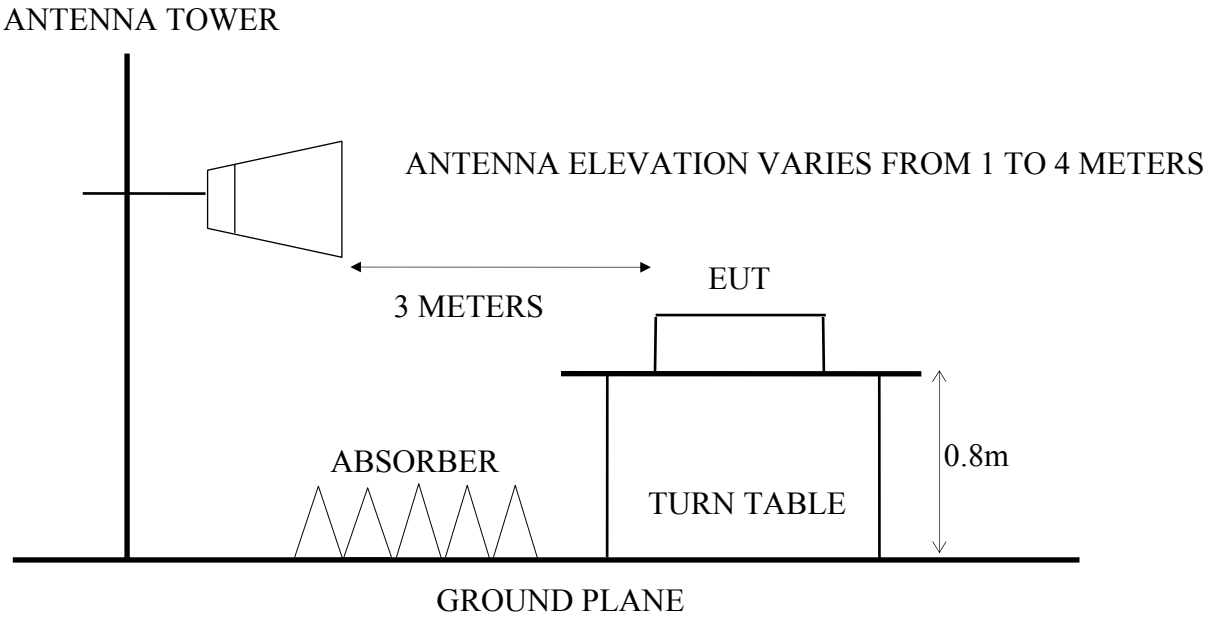
4.2.2 No. 1 10m m Semi-Anechoic Chamber Setup Diagram (Test distance: 10m)

For 30MHz~1000MHz



4.2.3 No. 1 10m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m)

For Above 1GHz



4.3 Limits for Radiated Disturbance

4.3.1 Limits for Radiated Disturbance (30MHz~1000MHz, Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37

Note： (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 E.U.T.

4.3.2 Limits for Radiated Disturbance (1GHz~6GHz, Class B)

FREQUENCY (GHz)	DISTANCE (Meters)	AVERAGE LIMITE (dBμV/m)	PEAK LIMITE (dBμV/m)
1~ 3	3	50	70
3~ 6	3	54	74

Note： (1) The lower limit applies at the transition frequency.

4.4 Test Procedure

The measuring process is according to EN 55022(CISPR Pub. 22) and laboratory internal procedure TKC-301-024.

In the radiated disturbance measurement, the EUT and all simulators were set up on a non-metallic turn table which was 0.8 meters above the ground plane. Measurement distance between EUT and receiving antennas was set at 10 meters at 30MHz~1000MHz and 3 meters at 1000MHz~6000MHz. The specified distance is the distance between the antennas and the closest periphery of EUT. During the radiated measurement, the EUT was rotated 360° and receiving antennas were moved from 1 ~ 4 meters for finding maximum emission. Two receiving antennas were used for both horizontal and vertical polarization detection for 30MHz~1GHz, One receiving antennas was used for both horizontal and vertical polarization detection for 1GHz~6GHz (the absorbing material was added when testing of 1GHz~6GHz was done). All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver (or spectrum analyzer) was set to:

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz
RBW (1 MHz), VBW (1MHz) for Peak detector above 1GHz
RBW (1 MHz), VBW (10 Hz) for Average detector above 1GHz

which is defined against CISPR16-1-1 section.

The required frequency band (30 MHz ~ 6000 MHz) was pre-scanned with peak detector; all final measurements were measured with quasi-peak detector below 1GHz, measured with average detector and peak detector above 1GHz.

The emission level is calculated automatically by the test system which uses the following equation:

1. For 30-1000MHz measurement:
   Emission Level (dBμV/m) = Meter-Reading (dBμV)+Antenna Factor (dB/m)+Cable Loss (dB)

2. For 1000-6000MHz measurement:
   Emission Level (dBμV/m) = Meter-Reading (dBμV)+Antenna Factor (dB/m)+Cable Loss(dB)
   -Pre-amplifier factor (dBμV)

In chapter 7.6.6.1 the standard EN 55016-2-3 requires to include the values of w in the test report:
"w: The dimension of the line tangent to the EUT formed by Θ_{3dB} at the measurement distance *d*.
Equation (10) shall be used to calculate w for each actual antenna and measurement distance used.
The values of w hall be included in the test report. This calculation may be based on the manufacturer-provided receive-antenna beamwidth specifications:
$w=2 \times d \times \tan(0{,}5 \times \Theta_{3dB})$

Frequency	3115 Horn	
GHz	Θ_{3dB}	d=3m
	(°)	w (M)
1.00	66	3.90
2.00	54	3.06
4.00	50	2.80
6.00	34	1.83

The values of w. are greater than chapter 7.6.6.1 of Table 2, the minimum dimension of w. (Wmin) requirements.

4.5 Measurement Results

PASSED

(All the emissions not reported below are too low against the prescribed limits.)
The worst mode was measured and reported as follows:

4.5.1 For 30MHz~1GHz frequency range

Test Date: Aug.01, 2012 Temperature: 24.6℃ Humidity: 53%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz	# 13	# 14

NOTE 1 - 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 2 - The worst emission at horizontal polarization was detected at 162.50 MHz with emission level of 25.01 dBμV/m (limit is 30.00 dBμV/m), when the antenna was 1.5m height and the turntable was at 94°. The worst emission at vertical polarization was detected at 160.95 MHz with emission level of 24.81 dBμV/m (limit is 30.00 dBμV/m), when the antenna was 1.0m height and the turntable was at 245°.

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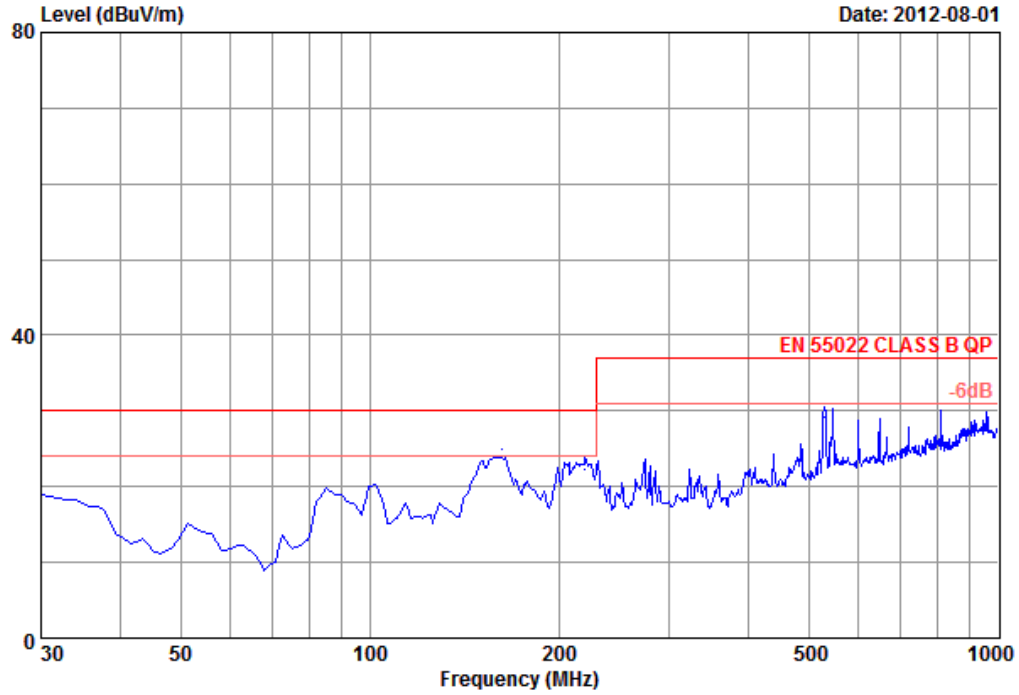
Data: 13 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No. : NO.1 10m Semi-Anechoic Chamber
Dis./Ant. : 10m . 6112D(22251)-1204
Env./Ins. : 24.6*C 53%/ESCI
EUT. : Motherboard
M/N : IMBM-H61A
Power Rating: 230Vac/50Hz
Test Mode : DVI+D-Sub 1600*1200@60Hz 75.8KHz
Memo :

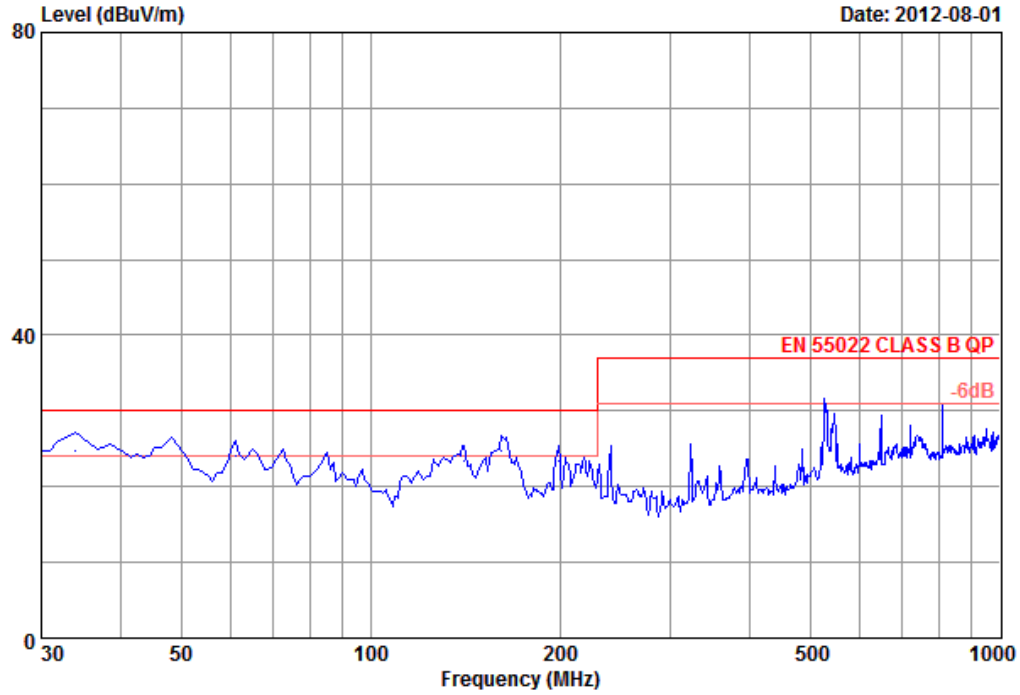
Data NO. : 13
Ant.pol : HORIZONTAL
Engineer : Kevin

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	162.50	11.27	1.85	11.89	25.01	30.00	4.99	QP
2	220.12	10.60	2.16	9.47	22.23	30.00	7.77	QP
3	528.58	17.50	3.58	8.20	29.28	37.00	7.72	QP
4	546.04	17.54	3.53	6.09	27.16	37.00	9.84	QP
5	647.89	18.52	3.96	5.14	27.62	37.00	9.38	QP
6	809.88	20.00	4.42	4.62	29.04	37.00	7.96	QP

Remarks: 1.Emission Level= Antenna factor + Cable loss + Reading
2.The emission level that are 20dB below the offical limit are not reported

Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing Eest Road,Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel:0512-63403993 Fax:0512-63403339

Data: 14 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No. : NO.1 10m Semi-Anechoic Chamber
Dis./Ant. : 10m . 6112D(22253)1206
Env./Ins. : 24.6*C 53%/ESCI
EUT. : Motherboard
M/N : IMBM-H61A
Power Rating: 230Vac/50Hz
Test Mode : DVI+D-Sub 1600*1200@60Hz 75.8KHz
Memo :

Data NO. : 14
Ant.pol : VERTICAL
Engineer : Kevin

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	33.88	16.36	0.61	7.80	24.77	30.00	5.23	QP
2	61.04	6.12	0.93	17.12	24.17	30.00	5.83	QP
3	140.58	12.30	1.40	9.69	23.39	30.00	6.61	QP
4	160.95	10.16	1.46	13.19	24.81	30.00	5.19	QP
5	198.78	9.43	1.60	12.45	23.48	30.00	6.52	QP
6	526.64	18.24	2.75	9.72	30.71	37.00	6.29	QP

Remarks: 1.Emission Level= Antenna factor + Cable loss + Reading
2.The emission level that are 20dB below the offical limit are not reported

4.5.2 For above 1GHz frequency range

Test Date: Aug.01, 2012 Temperature: 24.6℃ Humidity: 53%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz	# 15	# 16

NOTE - The highest internal frequency of the EUT is 2.46GHz, according to EN55022:2010 section 6.2, the measurement shall be made up to 6GHz.

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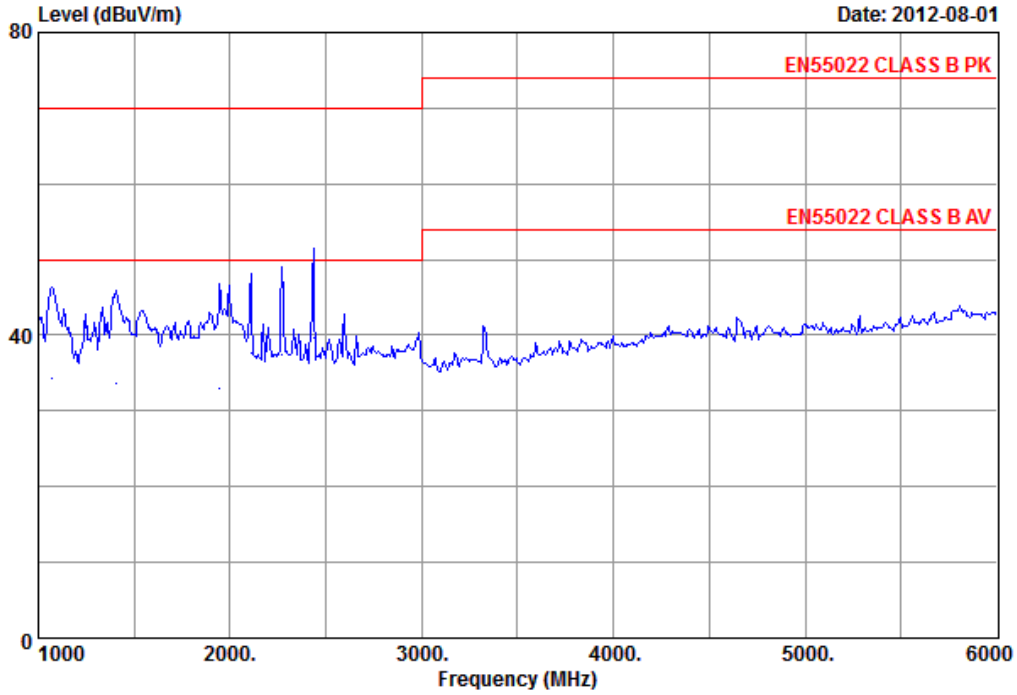
Data: 15 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 15
Dis./Ant.	: 3m . 3115(62593)-1205	Ant.pol	: HORIZONTAL
Limit	: EN55022 CLASS B PK		
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test Mode	: DVI+D-Sub 1600*1200@60Hz 75.8KHz		
Memo	:		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m	Limits (dBuV/m)	Margin (dB)	Remark
1	1070.00	25.87	5.35	50.63	35.40	46.45	70.00	23.55	Peak
2	1070.00	25.87	5.35	38.60	35.40	34.42	50.00	15.58	Average
3	1410.00	26.21	6.16	36.60	35.40	33.57	50.00	16.43	Average
4	1410.00	26.21	6.16	48.93	35.40	45.90	70.00	24.10	Peak
5	1945.00	28.37	7.15	32.59	35.22	32.89	50.00	17.11	Average
6	1945.00	28.37	7.15	46.45	35.22	46.75	70.00	23.25	Peak
7	2110.00	28.58	7.44	36.90	35.30	37.62	50.00	12.38	Average
8	2110.00	28.58	7.44	47.46	35.30	48.18	70.00	21.82	Peak
9	2270.00	28.54	7.69	36.60	35.42	37.41	50.00	12.59	Average
10	2270.00	28.54	7.69	48.11	35.42	48.92	70.00	21.08	Peak
11	2435.00	28.51	7.86	50.61	35.54	51.44	70.00	18.56	Peak
12	2435.00	28.51	7.86	38.90	35.54	39.73	50.00	10.27	Average

Remarks: 1.Emission Level= Antenna factor + Cable loss + Reading - Preamp
2.The emission level that are 20dB below the offical
limit are not reported

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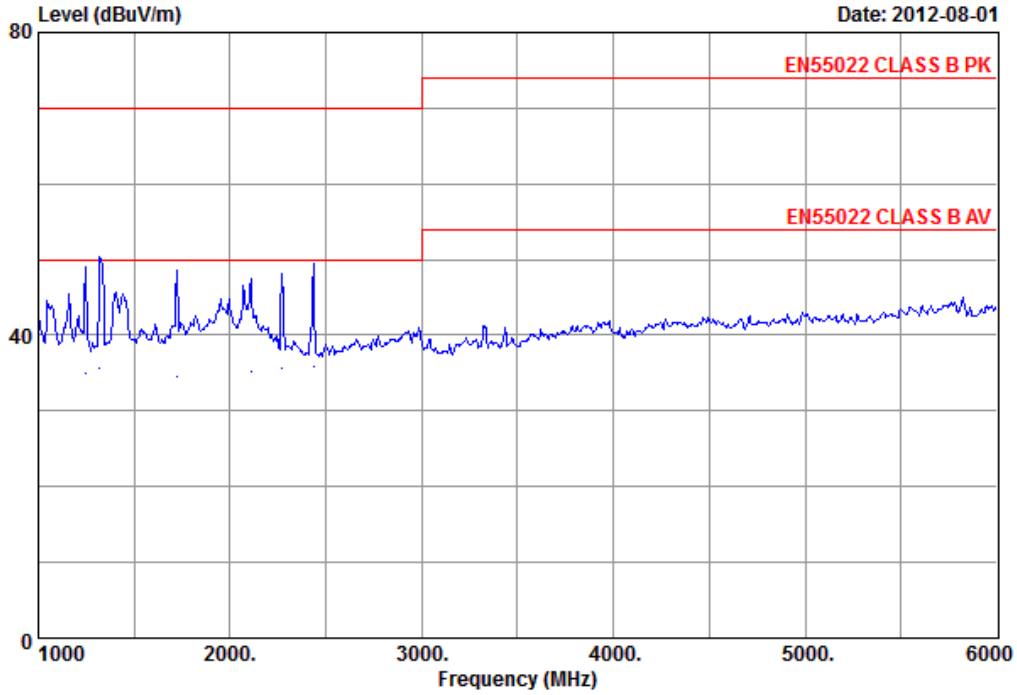
Tel:0512-63403993 Fax:0512-63403339

Data: 16 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 16
Dis./Ant.	: 3m . 3115(62593)-1205	Ant.pol	: VERTICAL
Limit	: EN55022 CLASS B PK		
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 230Vac/50Hz		
Test Mode	: DVI+D-Sub 1600*1200@60Hz 75.8KHz		
Memo	:		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m	Limits (dBuV/m)	Margin (dB)	Remark
1	1245.00	26.04	5.79	52.53	35.40	48.96	70.00	21.04	Peak
2	1245.00	26.04	5.79	38.60	35.40	35.03	50.00	14.97	Average
3	1320.00	26.13	5.97	53.62	35.40	50.32	70.00	19.68	Peak
4	1320.00	26.13	5.97	38.90	35.40	35.60	50.00	14.40	Average
5	1720.00	27.30	6.73	49.89	35.32	48.60	70.00	21.40	Peak
6	1720.00	27.30	6.73	35.90	35.32	34.61	50.00	15.39	Average
7	2110.00	28.58	7.44	46.69	35.30	47.41	70.00	22.59	Peak
8	2110.00	28.58	7.44	34.60	35.30	35.32	50.00	14.68	Average
9	2270.00	28.54	7.69	47.37	35.42	48.18	70.00	21.82	Peak
10	2270.00	28.54	7.69	34.90	35.42	35.71	50.00	14.29	Average
11	2435.00	28.51	7.86	48.74	35.54	49.57	70.00	20.43	Peak
12	2435.00	28.51	7.86	35.10	35.54	35.93	50.00	14.07	Average

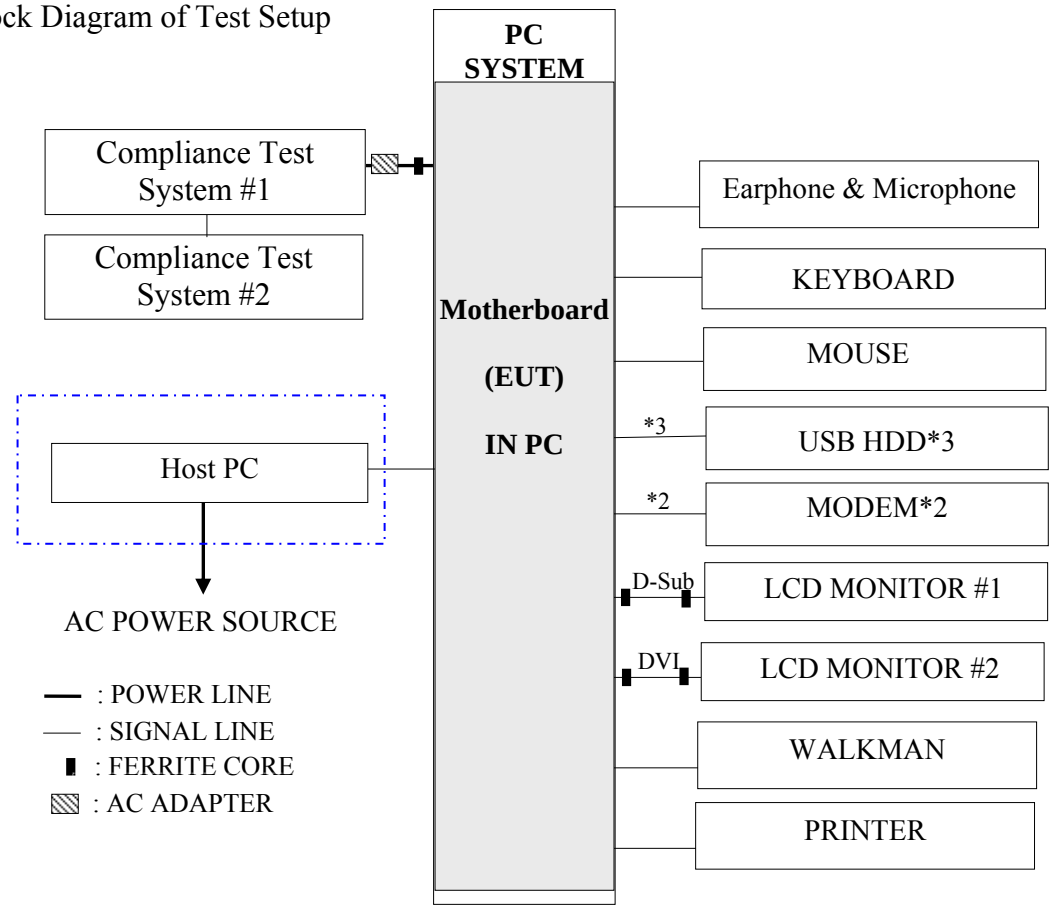
Remarks: 1.Emission Level= Antenna factor + Cable loss + Reading - Preamp
2.The emission level that are 20dB below the offical
limit are not reported

5 POWER HARMONICS AND FLICKER MEASUREMENTTEST EQUIPMENT

5.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Compliance Test System #1	California Instrument	5001iX	57305	2011-08-10	2012-08-09
2.	Compliance Test System #2	California Instrument	PASC-1	72485	2011-08-10	2012-08-09

5.2 Block Diagram of Test Setup



5.3 Test Standard

EN 61000-3-2:2006+A1:2009+A2:2009 and EN 61000-3-3:2008

5.4 Test Procedure

The measuring process is according to EN 61000-3-2:2006+A1:2009+A2:2009 and EN 61000-3-3:2008 and laboratory internal procedure TKC-301-026.

5.5 Test Results

5.5.1 The limits for Class D equipment are valid for all applications having an active input power is >75W, due to the EUT measured active input power is <75W, therefore, no limits apply for this equipment according to EN 61000-3-2.

5.5.2 **PASSED. (Complied with Class D limit).**

EUT with the following test modes were measured during this section testing and all the test results are listed in next page.

Test Date: Jul.31, 2012 Temperature: 26.2℃ Humidity: 45%

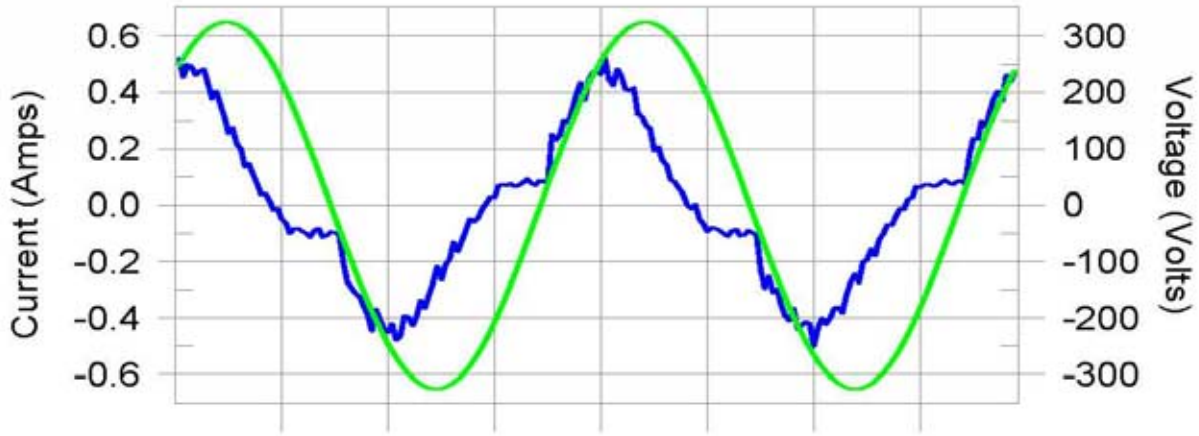
Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Harmonics – Class-D per Ed. 3.2 (2009)(Run time)

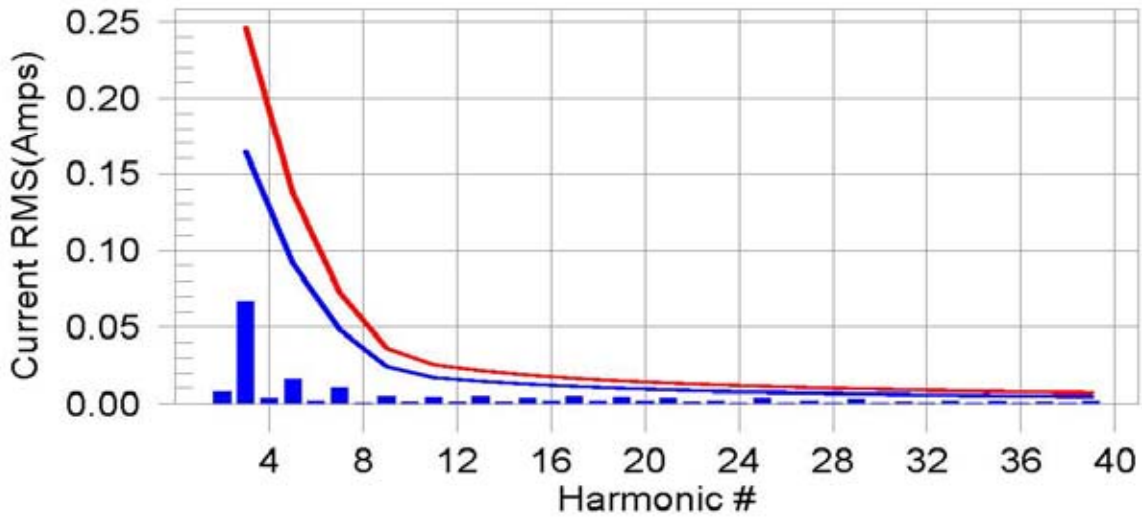
EUT: Motherboard **Tested by: Lion**
Test category: Class-D per Ed. 3.2 (2009) (European limits) **Test Margin: 100**
Test date: 2012-07-31
Test duration (min): 5
Comment: M/N:IMBM-H61A Test mode: DVI+D-Sub 1600*1200@60Hz 75.8KHz
Customer: ASUSTeK COMPUTER INC.

Test Result: N/L **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class D limit line **European Limits**



Test result: N/L Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary (Run time)

EUT: Motherboard **Tested by: Lion**
Test category: Class-D per Ed. 3.2 (2009) (European limits) **Test Margin: 100**
Test date: 2012-07-31
Test duration (min): 5
Comment: M/N:IMBM-H61A Test mode: DVI+D-Sub 1600*1200@60Hz 75.8KHz
Customer: ASUSTeK COMPUTER INC.

Test Result: N/L **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.000**
Highest parameter values during test:

V_RMS (Volts):	230.15	Frequency(Hz):	50.00
I_Peak (Amps):	0.561	I_RMS (Amps):	0.278
I_Fund (Amps):	0.266	Crest Factor:	2.086
Power (Watts):	48.3	Power Factor:	0.764

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.008						
3	0.065	0.164	0.0	0.067	0.246	0.00	N/L
4	0.004						
5	0.015	0.092	0.0	0.016	0.138	0.00	N/L
6	0.002						
7	0.010	0.048	0.0	0.010	0.072	0.00	N/L
8	0.001						
9	0.005	0.024	0.0	0.005	0.036	0.00	N/L
10	0.001						
11	0.005	0.017	0.0	0.005	0.025	0.00	N/L
12	0.002						
13	0.005	0.014	0.0	0.005	0.021	0.00	N/L
14	0.001						
15	0.004	0.013	0.0	0.004	0.019	0.00	N/L
16	0.002						
17	0.005	0.011	0.0	0.005	0.016	0.00	N/L
18	0.002						
19	0.004	0.010	0.0	0.005	0.015	0.00	N/L
20	0.002						
21	0.003	0.009	0.0	0.004	0.013	0.00	N/L
22	0.001						
23	0.001	0.008	0.0	0.002	0.012	0.00	N/L
24	0.000						
25	0.004	0.007	0.0	0.004	0.011	0.00	N/L
26	0.001						
27	0.002	0.007	0.0	0.002	0.010	0.00	N/L
28	0.001						
29	0.003	0.006	0.0	0.003	0.010	0.00	N/L
30	0.001						
31	0.001	0.006	0.0	0.001	0.009	0.00	N/L
32	0.001						
33	0.002	0.006	0.0	0.002	0.008	0.00	N/L
34	0.001						
35	0.001	0.005	0.0	0.002	0.008	0.00	N/L
36	0.001						
37	0.001	0.005	0.0	0.001	0.008	0.00	N/L
38	0.001						
39	0.002	0.005	0.0	0.002	0.007	0.00	N/L
40	0.000						

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

EUT: Motherboard **Tested by: Lion**
Test category: Class-D per Ed. 3.2 (2009) (European limits) **Test Margin: 100**
Test date: 2012-07-31
Test duration (min): 5
Comment: M/N:IMBM-H61A Test mode: DVI+D-Sub 1600*1200@60Hz 75.8KHz
Customer: ASUSTeK COMPUTER INC.

Test Result: N/L **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	230.15	Frequency(Hz):	50.00
I_Peak (Amps):	0.561	I_RMS (Amps):	0.278
I_Fund (Amps):	0.266	Crest Factor:	2.086
Power (Watts):	48.3	Power Factor:	0.764

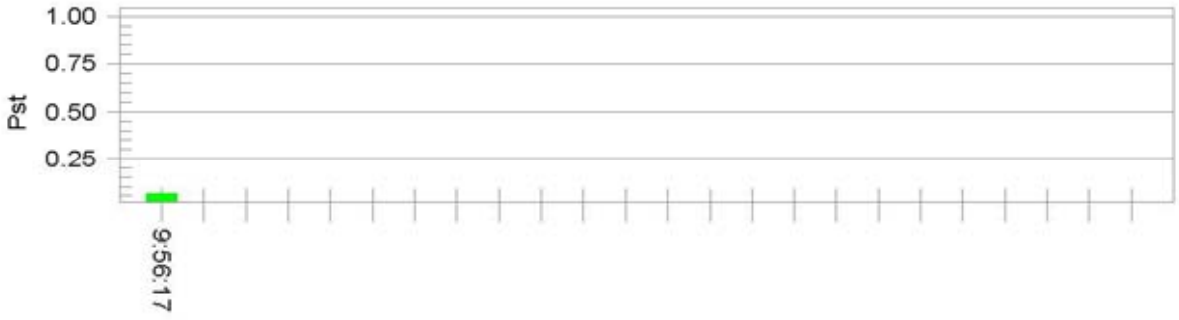
Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.062	0.460	13.53	OK
3	0.514	2.071	24.83	OK
4	0.035	0.460	7.65	OK
5	0.064	0.920	6.91	OK
6	0.024	0.460	5.23	OK
7	0.024	0.690	3.45	OK
8	0.006	0.460	1.36	OK
9	0.014	0.460	3.11	OK
10	0.015	0.460	3.28	OK
11	0.012	0.230	5.29	OK
12	0.015	0.230	6.58	OK
13	0.011	0.230	4.70	OK
14	0.008	0.230	3.63	OK
15	0.009	0.230	3.86	OK
16	0.009	0.230	3.96	OK
17	0.007	0.230	3.08	OK
18	0.016	0.230	6.95	OK
19	0.010	0.230	4.31	OK
20	0.016	0.230	7.07	OK
21	0.008	0.230	3.55	OK
22	0.003	0.230	1.24	OK
23	0.004	0.230	1.54	OK
24	0.003	0.230	1.14	OK
25	0.006	0.230	2.40	OK
26	0.004	0.230	1.75	OK
27	0.008	0.230	3.35	OK
28	0.003	0.230	1.21	OK
29	0.007	0.230	2.93	OK
30	0.002	0.230	0.91	OK
31	0.003	0.230	1.19	OK
32	0.004	0.230	1.68	OK
33	0.004	0.230	1.88	OK
34	0.003	0.230	1.47	OK
35	0.003	0.230	1.39	OK
36	0.002	0.230	0.85	OK
37	0.005	0.230	2.23	OK
38	0.002	0.230	0.95	OK
39	0.004	0.230	1.54	OK
40	0.006	0.230	2.41	OK

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: Motherboard **Tested by: Lion**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 2012-07-31
Test duration (min): 10
Comment: M/N:IMBM-H61A Test mode: DVI+D-Sub 1600*1200@60Hz 75.8KHz
Customer: ASUSTeK COMPUTER INC.

Test Result: Pass **Status: Test Completed**

Pst and limit line **European Limits**



Plt and limit line

Parameter values recorded during the test:

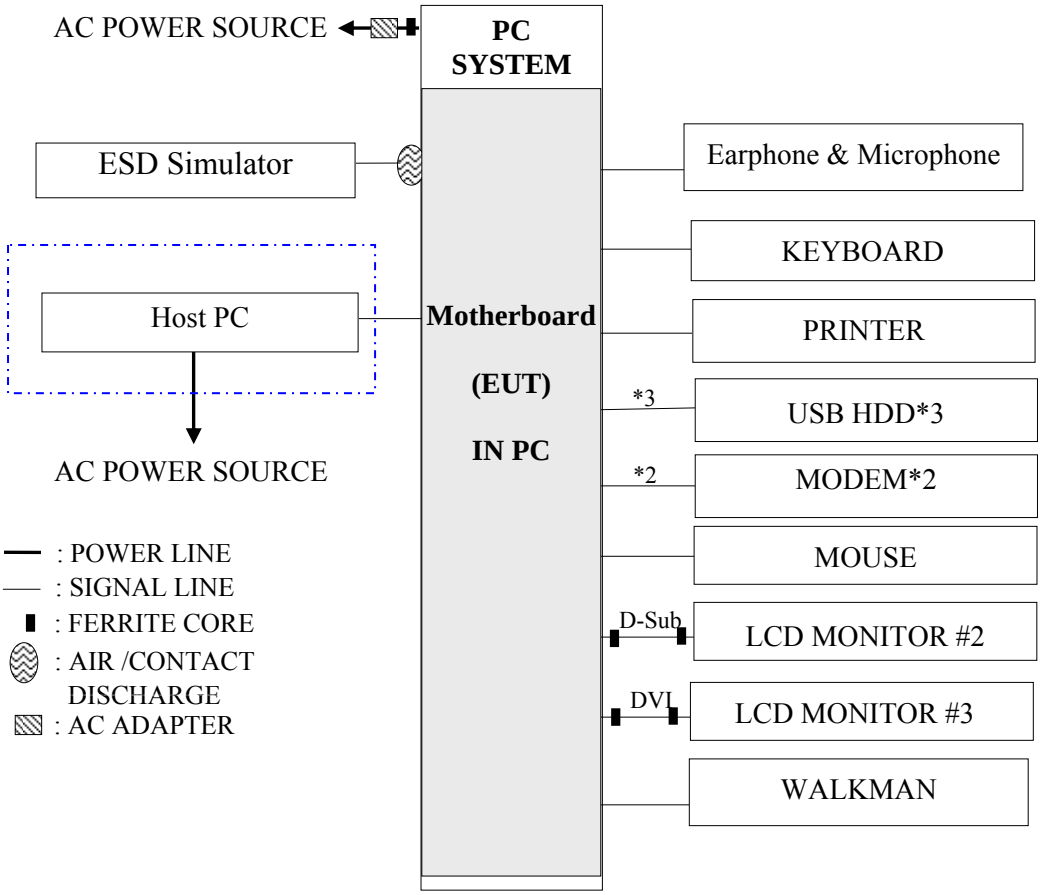
Vrms at the end of test (Volt):	230.07			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass

6 ELECTROSTATIC DISCHARGE IMMUNITY TEST

6.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	ESD SIMULATOR	NoiseKen	ESS-2000	ESS07X7519	2011-11-01	2012-10-31

6.2 Block Diagram of Test Setup



6.3 Test Standard

EN 55024: 2010【EN 61000-4-2:2008】

6.4 Severity Levels and Performance Criterion

6.4.1 Severity level

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X	Special	Special

Test Level **:** Contact Discharge(level 2): ±4kV, Air Discharge(level 3): ±8Kv

6.4.2 Performance criterion：B

6.5 Test Procedure

The measuring process is according to EN 55024:2010 (EN 61000-4-2:2008) and laboratory internal procedure TKC-301-020.

6.5.1 Air Discharge：

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the ESD generator discharge electrode shall be removed from the EUT. The generator is then ret rigged for a new single discharge and repeated 10 discharges each at positive and negative polarity for each reselected test point. This procedure shall be repeated until all the air discharge completed.

6.5.2 Contact Discharge：

All the procedure shall be same as 6.5.1. Except that the tip of the discharge electrode shall touch the EUT conductive surfaces & repeated 25 discharges each at positive and negative polarity for each test point before the discharge switch is operated.

6.5.3 Indirect discharge for horizontal coupling plane：

At least 25 discharges each at positive and negative polarity shall be applied to the horizontal coupling plane, at points on each side of the EUT. The ESD generator positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

6.5.4 Indirect discharge for vertical coupling plane：

At least 25 discharges each at positive and negative polarity shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m×0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

6.5.5 For above tests, the voltage was increased from the minimum to the selected test level.

6.6 Test Results

PASSED. (Complied with Criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Electrostatic Discharge Immunity Test Results

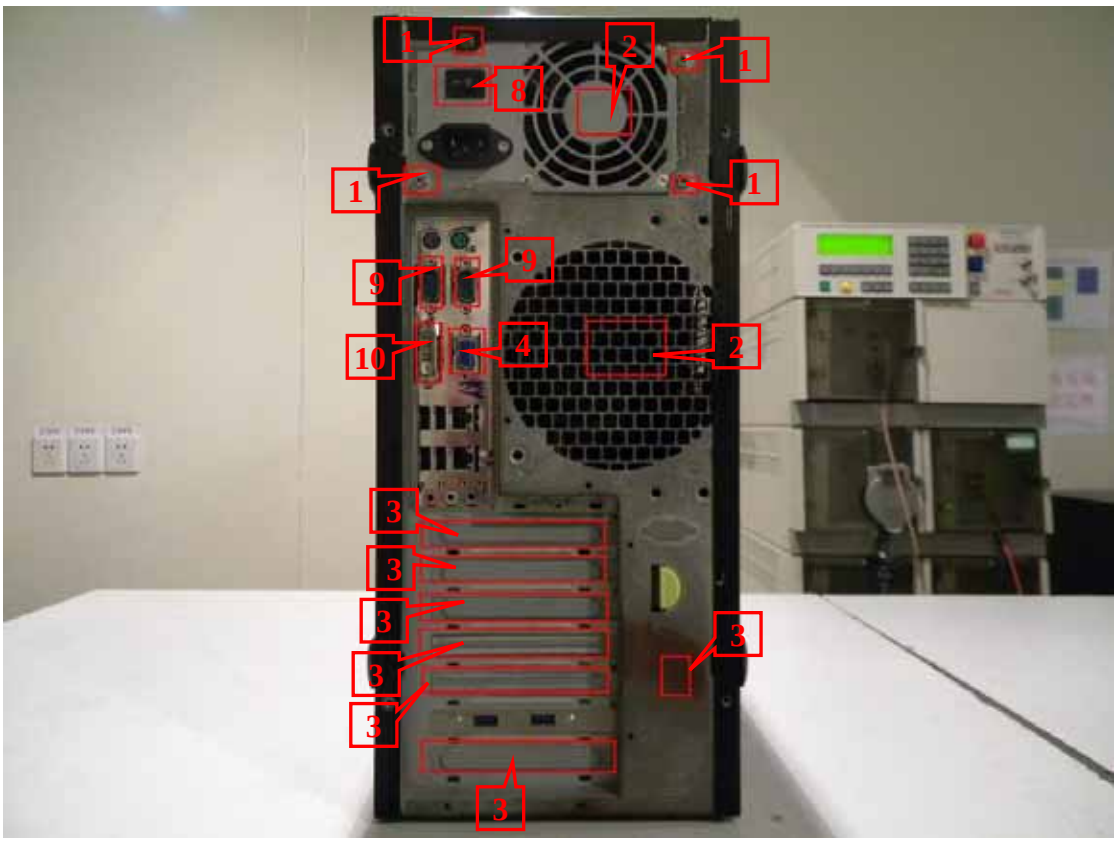
Applicant	*ASUSTeK COMPUTER INC.*			*Date of Test*	*2012.07.30*		
EUT	*Motherboard*			*I/P Volt.*	*AC: 230 V ; 50 Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*26.2℃*	*Humidity*	*45％*	*Atmosphere Pressure*	*101kPa*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*						
Working Condition	*Refer to section 2.4*				*Results*	*PASS*	

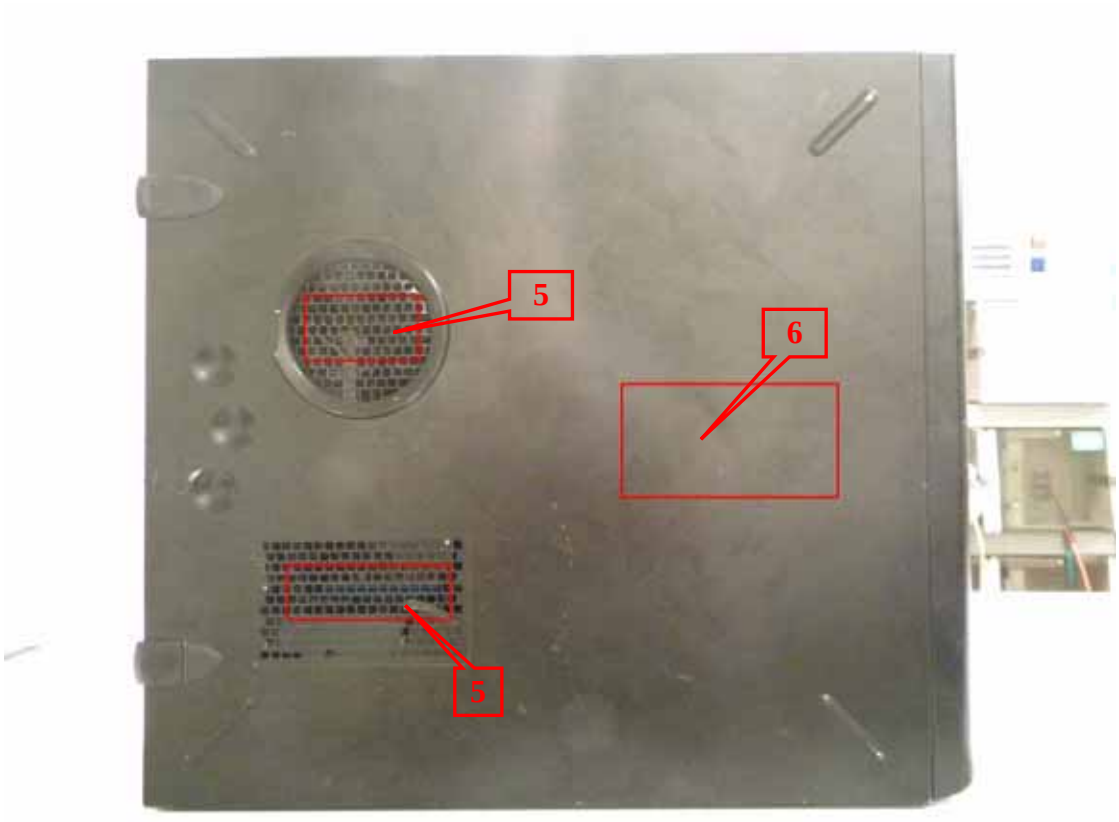
Item	*Amount of Discharges*	*Discharge Voltage*	*Performance Criterion*
Contact Discharge	*850*	*+ 2kV, + 4kV*	*A*
		- 2kV, - 4kV	*A*
Air Discharge	*240*	*+ 2kV, + 4kV, + 8kV*	*A*
		- 2kV, - 4kV, - 8kV	*A*
Indirect Discharge (HCP)	*50*	*+ 2kV, + 4kV*	*A*
		- 2kV, - 4kV	*A*
Indirect Discharge (VCP Front)	*50*	*+ 2kV, + 4kV*	*A*
		- 2kV, - 4kV	*A*
Indirect Discharge (VCP Left)	*50*	*+ 2kV, + 4kV*	*A*
		- 2kV, - 4kV	*A*
Indirect Discharge (VCP Back)	*50*	*+ 2kV, + 4kV*	*A*
		- 2kV, - 4kV	*A*
Indirect Discharge (VCP Right)	*50*	*+ 2kV, + 4kV*	*A*
		-2kV,+4kV	*A*

Test Points	*1.*	*Screw×4*	*Contact Discharge*	*2.*	*Cover×2*	*Contac Discharge*
	3.	*Metal×7*	*Contact Discharge*	*4.*	*D-Sub*	*Contact/ Air Discharge*
	5.	*Cover×2*	*Air Discharge*	*6.*	*Metal×3*	*Air Discharge*
	7.	*Button×2*	*Air Discharge*	*8.*	*Power Switch*	*Air Discharge*
	9.	*RS-232×2*	*Contact/ Air Discharge*	*9.*	*DVI*	*Contact/ Air Discharge*

Engineer :Lion

Photos of Discharge Points:



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7 RF FIELD STRENGTH IMMUNITY TEST

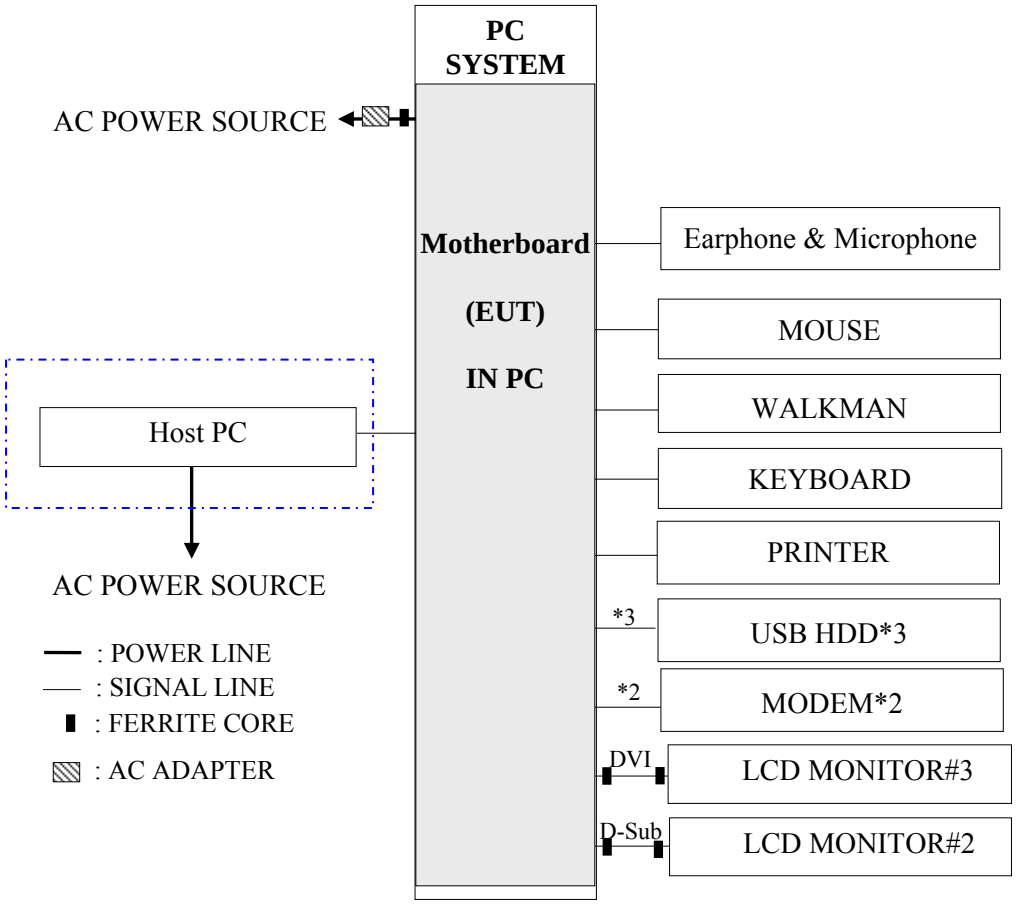
7.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Signal Generator	Agilent	8648C	3847M01438	2012-01-05	2013-01-04
2.	Power Amplifier	AR	100W1000M1	19343	NCR	NCR
3.	Power Sensor	Agilent	8481D	MY41093045	2012-01-05	2013-01-04
4.	Power Meter	Agilent	E4419B	MY45100928	2012-01-05	2013-01-04
5.	Log-Periodic Antenna	AR	AT1080	0323131	NCR	NCR
6.	Direction Coupler	AR	DC6180A	322333	NCR	NCR

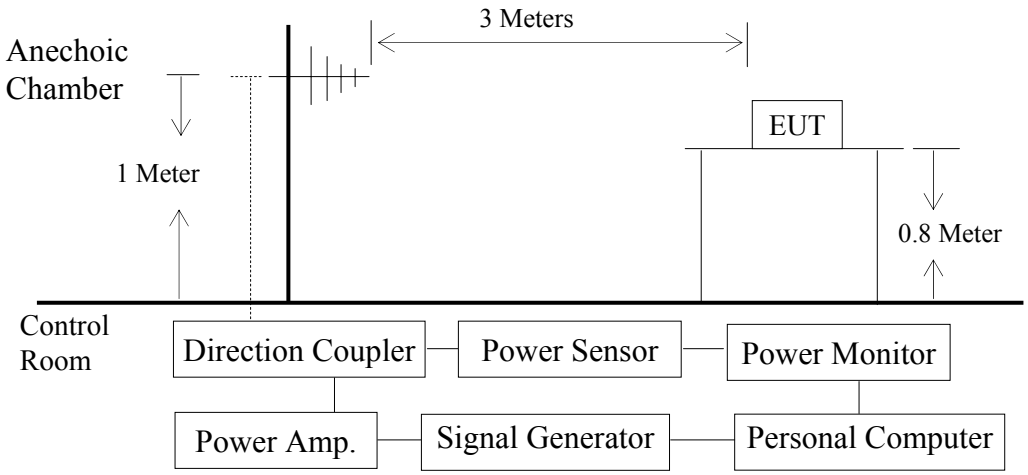
NCR: Non-Calibration Requirement.

7.2 Block Diagram of Test Setup

7.2.1 Block Diagram of connection between EUT and simulators.



7.2.2 R/S Test Setup



7.3 Test Standard

EN 55024:2010【EN 61000-4-3:2008】

7.4 Severity Levels and Performance Criterion

7.4.1 Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

Test Level：2; Field strength: 3V/m

7.4.2 Performance criterion：**A**

7.5 Test Procedure

The measuring process is according to EN 55024:2010 (EN 61000-4-3:2008) and laboratory internal procedure TKC-301-021.

The field sensor is placed on the EUT table (0.8 meter above the ground) which is 3 meter away from the transmitting antenna. Through the signal generator, power amplifier and transmitting antenna to produce a uniformity field strength (3V/m measured by field sensor) around the EUT table from frequency range 80MHz to 1000MHz and records the signal generator‘s output level at the same time for whole measured frequency range. Then, put EUT and its simulators on the EUT turn table and keep them 3 meter away from the transmitting antenna which is mounted on an antenna tower and fixes at 1 meter height above the ground. Using the recorded signal generator’s output level to measure the EUT from frequency range 80MHz to 1000MHz and both horizontal & vertical polarization of antenna must be set and measured. Each of the four sides of EUT must be faced this transmitting antenna and measures individually.

A CCD camera was put inside the chamber and through its display to monitor the EUT operational situation to judge the EUT performance criterion during measurement.

All the scanning conditions are as follows：

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Unmodulated, Severity Level 2)
2. Amplitude Modulated	1kHz, 80%AM
3. Scanning Frequency	80 – 1000MHz
4. Step Size	1% increments
5. The Rate of Sweep	0.0015 decade/s
6. Dwell Time	3 sec.

7.6 Test Results

PASSED. (Complied with Criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

RF Field Strength Immunity Test Results

Applicant	*ASUSTeK COMPUTER INC.*	*Date of Test*	*2012.08.02*		
EUT	*Motherboard*	*I/P Volt.*	*AC: 230 V ; 50Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*22.1℃*	*Humidity*	*49 %*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*				
Working Condition	*Refer to section 2.4*		*Results*	*PASS*	

Frequency Range (MHz)	*E.U.T. Position (Angle)*	*Ant. Polarity (Hor. or Ver.)*	*Field Strength (V/m)*	*Performance Criterion*	*Remark*
80~1000	*0*	*H*	*3*	*A*	
80~1000	*90*	*H*	*3*	*A*	
80~1000	*180*	*H*	*3*	*A*	
80~1000	*270*	*H*	*3*	*A*	
80~1000	*0*	*V*	*3*	*A*	
80~1000	*90*	*V*	*3*	*A*	
80~1000	*180*	*V*	*3*	*A*	
80~1000	*270*	*V*	*3*	*A*	

Engineer : Kin

8 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

8.1 Test Equipment

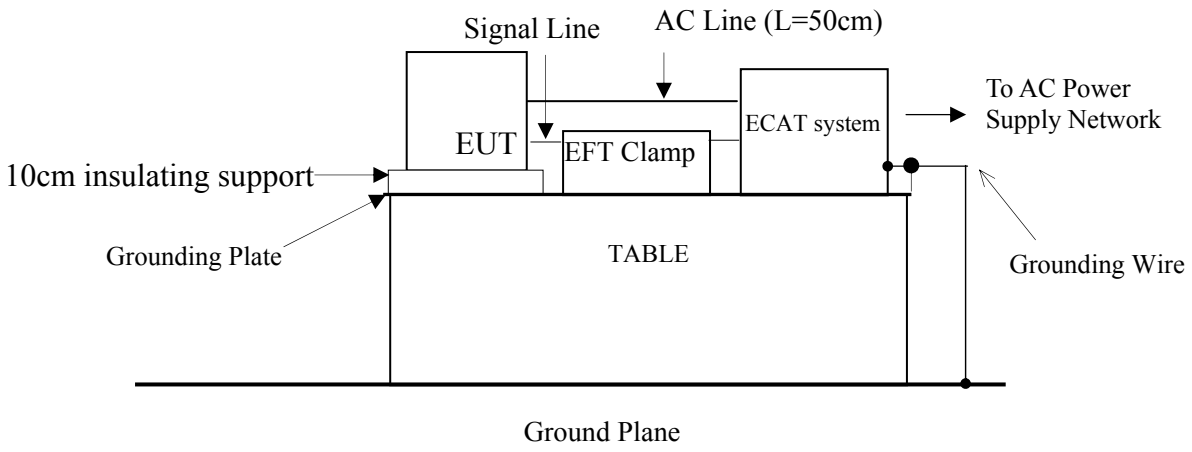
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	ECAT System (EFT Module)	KEYTEK	E411	0605189	2011-08-06	2012-08-05

8.2 Block Diagram of Test Setup

8.2.1 Block Diagram of connection between EUT and simulators.

Same as section 7.2.1.

8.2.2 EFT Test Setup



Remark: Combination wave generator and decoupling networks are included in test.

8.3 Test Standard

EN 55024:2010【IEC 61000-4-4:2004+Corr.1:2006+Corr.2:2007】

8.4 Severity Levels and Performance Criterion

8.4.1 Severity levels

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (input/output) signal, data and control ports	
	Voltage peak kV	Repetition rate kHz	Voltage peak kV	Repetition rate kHz
1.	0.5	5 or 100	0.25	5 or 100
2.	1	5 or 100	0.5	5 or 100
3.	2	5 or 100	1	5 or 100
4.	4	5 or 100	2	5 or 100
X[a]	Special	Special	Special	Special
Note 1 : Use of 5kHz repetition rates is traditional; however, 100kHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types. Note 2 : With some products, there may be no clear distinction between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes.				
[a] "X" is an open level. The level has to be specified in the dedicated equipment specification.				

Severity Level: 2

8.4.2 Performance criterion：**B**

8.5 Test Procedure

The measuring process is according to EN 55024:2010
(IEC 61000-4-4:2004+Corr.1:2006+Corr.2:2007) and laboratory internal procedure TKC-301-023.

The EUT and its simulators shall be placed 0.1m high above the ground reference plane which was a min. 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

8.5.1 For AC Mains port

The EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines, and the length of the power line between the coupling device and the EUT shall be 0.5m or less. Both polarities of the test voltage should be applied during compliance test and the duration of the test can't less than 1min.

8.5.2 For telecommunication port

The I/O interface cable of the EUT is connected to its simulator through a capacitive coupling clamp that is 0.5 meter long. The capacitive coupling clamp is impressed with burst noise for 1min and indirectly couples burst to I/O interface cable.

8.6 Test Results

PASSED. (Complied with Criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Electrical Fast Transient / Burst Immunity Test Results

Applicant	*ASUSTeK COMPUTER INC.*	*Date of Test*	*2012.07.30*		
EUT	*Motherboard*	*I/P Volt.*	*AC: 230 V ; 50 Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*26.2℃*	*Humidity*	*45 %*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*				
Working Condition	*Refer to section 2.4*		*Results*	*PASS*	

Inject Place: Power Supply Line

Inject Line	*Voltage (kV)*	*Inject Time(s)*	*Inject Method*	*Performance Criterion*
L1	*+0.5, +1.0*	*60*	*Direct*	*A*
L1	*-0.5, -1.0*	*60*	*Direct*	*A*
L2	*+0.5, +1.0*	*60*	*Direct*	*A*
L2	*-0.5, -1.0*	*60*	*Direct*	*A*
PE	*+0.5, +1.0*	*60*	*Direct*	*A*
PE	*-0.5, -1.0*	*60*	*Direct*	*A*
L1,L2	*+0.5, +1.0*	*60*	*Direct*	*A*
L1,L2	*-0.5, -1.0*	*60*	*Direct*	*A*
L1,PE	*+0.5, +1.0*	*60*	*Direct*	*A*
L1,PE	*-0.5, -1.0*	*60*	*Direct*	*A*
L2,PE	*+0.5, +1.0*	*60*	*Direct*	*A*
L2,PE	*-0.5, -1.0*	*60*	*Direct*	*A*
L1,L2,PE	*+0.5, +1.0*	*60*	*Direct*	*A*
L1,L2,PE	*-0.5, -1.0*	*60*	*Direct*	*A*
／	／	／	／	／
／	／	／	／	／
／	／	／	／	／
／	／	／	／	／

Inject Place: I/O Cable

Inject Line	*Voltage (kV)*	*Inject Time(s)*	*Inject Method*	*Performance Criterion*
I/O	*+0.25,+0.5*	*60*	*Clamp*	*A*
I/O	*-0.25,-0.5*	*60*	*Clamp*	*A*
／	／	／	／	／
／	／	／	／	／
／	／	／	／	／
／	／	／	／	／
／	／	／	／	／
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／	／	／	／	／
／	／	／	／	／

Note: I/O Port: LAN 1, LAN 2

Engineer: Lion

9 SURGE IMMUNITY TEST

9.1 Test Equipment

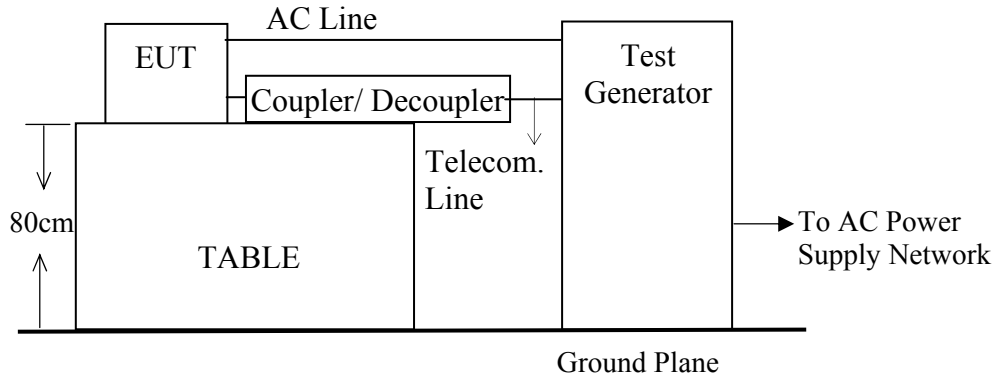
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	ECAT System	KEYTEK	E501B	0605187	2011-08-06	2012-08-05
2.	Coupling Decoupling Network	Thermo Electron Corp.	CM-I/OCD& HS	0604248	2011-08-06	2012-08-05
3.	Coupling Decoupling Network	Thermo Electron Corp.	CM-TELCD	0604221	2011-08-06	2012-08-05

9.2 Block Diagram of Test Setup

9.2.1 Block Diagram of connection between EUT and simulators.

Same as section 7.2.1.

9.2.2 Test Setup



Remark: Test generator includes control center、surge combination and coupler.

9.3 Test Standard

EN 55024:2010【EN 61000-4-5:2005】

9.4 Severity Levels and Performance Criterion

9.4.1 Test Levels

Level	Open-circuit test Voltage +/- 10%, kV
1.	0.5
2.	1.0
3.	2.0
4.	4.0
X	Special

Test Level：

(1) For AC Main: line to earth - ± 2kV, line to line - ± 1kV, waveform 1.2/50 (8/20) Tr/Thμs.

(2) For Telecom port: ± 1kV directly connect outdoor cable ± 4kV with primary protection wave form 10/700 Tr/Thμs.

Note: According to the requirement of Table 2 note(g) of EN55024 2010, Where the coupling network for the 10/700 μs waveform affects the functioning of high speed data ports, the test shall be carried out using a 1,2/50 (8/20) μs waveform and appropriate coupling network.

9.4.2 Performance Criterion

(1) For AC Main: B
(2) For Telecom Port: C

9.5 Test Procedure

The measuring process is according to EN 55024: 2010 (EN 61000-4-5:2005) and laboratory internal procedure TKC-301-022.

For AC Mains ports:

9.5.1 Set up the EUT and test generator as shown on section 9.2.

9.5.2 For line to line coupling mode, provided a 0.5/1kV 1.2/50 μs voltage surge (at open-circuit condition) and 8/20 μs current surge to EUT selected points.

9.5.3 At least 5 positive and 5 negative (polarity) tests with a Maximum 1/min repetition rate were conducted during test.

9.5.4 Different phase angles were done individually.

9.5.5 Repeat procedure 9.5.2. to 9.5.4. except the open-circuit test voltages 0.5kV/1kV/2kV for line to earth coupling mode test.

9.5.6 Record the EUT Operating situation during compliance test and decide the EUT immunity criterion for above each test.

For Telecommunication ports:

9.5.7 Set up the EUT and test generator as shown on section 9.2.

9.5.8 For line to line coupling mode, provided a 0.5/1kV 1.2/50 μs voltage surge (at open-circuit condition) and 8/20 μs current surge to EUT selected points.

9.5.9 At least 5 positive and 5 negative (polarity) tests with a Maximum 1/min repetition rate were conducted during test.

9.5.10 Repeat procedure 9.5.8. to 9.5.9 for line to earth coupling mode test.

9.5.11 Record the EUT Operating situation during compliance test and decide the EUT immunity criterion for above each test.

9.6 Test Results

PASSED. (Complied with Criterion A).

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Note: Due to the coupling network could not be connected with high speed function during test, the waveform 1,2/50 (8/20) μs was used to carry out.

Surge Immunity Test Results

Applicant	*ASUSTeK COMPUTER INC.*	*Date of Test*	*2012.07.30*		
EUT	*Motherboard*	*I/P Volt.*	*AC: 230 V ; 50Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*26.2℃*	*Humidity*	*45 %*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*				
Working Condition	*Refer to section 2.4*		*Results*	*PASS*	

Input and Output AC Power Port

Location	*Polarity*	*Phase Angle*	*No of Pulse*	*Pulse Voltage*	*Performance Criterion*
L-N	+	*0*	*5*	*0.5kV, 1.0kV*	*A*
	+	*90*	*5*	*0.5kV, 1.0kV*	*A*
	+	*180*	*5*	*0.5kV, 1.0kV*	*A*
	+	*270*	*5*	*0.5kV, 1.0kV*	*A*
	—	*0*	*5*	*0.5kV, 1.0kV*	*A*
	—	*90*	*5*	*0.5kV, 1.0kV*	*A*
	—	*180*	*5*	*0.5kV, 1.0kV*	*A*
	—	*270*	*5*	*0.5kV, 1.0kV*	*A*
L-PE	+	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
N-PE	+	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
L, N-PE	+	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	+	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*0*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*90*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*180*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*
	—	*270*	*5*	*0.5kV, 1.0kV, 2.0kV*	*A*

Engineer: Lion

Surge Immunity Test Results

Applicant	ASUSTeK COMPUTER INC.	Date of Test	2012.07.30		
EUT	Motherboard	I/P Volt.	AC: 230 V ; 50Hz		
Model No.	IMBM-H61A	Temp.	26.2℃	Humidity	45 %
Test Mode	DVI + D-Sub 1600*1200@60Hz 75.8 kHz				
Working Condition	Refer to section 2.4		Results	PASS	

Telecom Line Coupling

Line	Polarity	No of Pulse	Pulse Voltage	Performance Criterion
T1	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
R1	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
T2	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
R2	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
T1, R1	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
T2, R2	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A
T1, R1, T2, R2	+	5	0.5kV 1kV	N/A
	—	5	0.5kV 1kV	N/A

[ ]DC Input and Output Power Port/[√]I/O Signal Cable

Location	Polarity	No of Pulse	Pulse Voltage	Performance Criterion
Differential	+	5	0.5kV 1kV	N/A
Mode	—	5	0.5kV 1kV	N/A
Common	+	5	0.5kV 1kV	A
Mode	—	5	0.5kV 1kV	A

Note：
1. N/A means not applicable.
2. I/O Port: LAN 1, LAN 2

Engineer: Lion

10 CONDUCTED DISTURBANCE IMMUNITY TEST

10.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Signal Generator	Agilent	8648C	3847M01438	2012-01-05	2013-01-04
2.	Power Amplifier	EMPOWER	2012 BBS0D3FEL	1013 D/C 0715	NCR	NCR
3.	Attenuator	ShanghaiHuaxiang	DC-1GHz	6092701	2012-01-05	2013-01-04
4.	CDN-M2	FCC	FCC-801-M2-25A	6041	NCR	NCR
5.	CDN-M3	FCC	FCC-801-M3-25A	6042	2012-01-05	2013-01-04
6.	Decoupling Network	FCC	F-203I-23MM-DCN	196	NCR	NCR
7.	EM Injection Clamp	FCC	F-203I-03MM	503	2012-01-05	2013-01-04

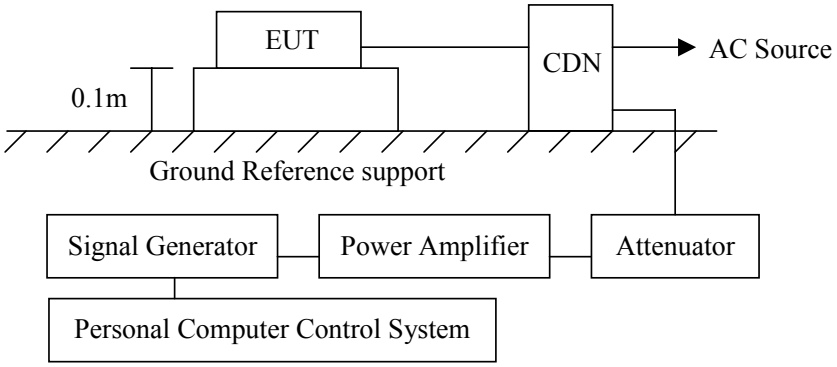
NCR: Non-Calibration Requirement.

10.2 Block Diagram of Test Setup

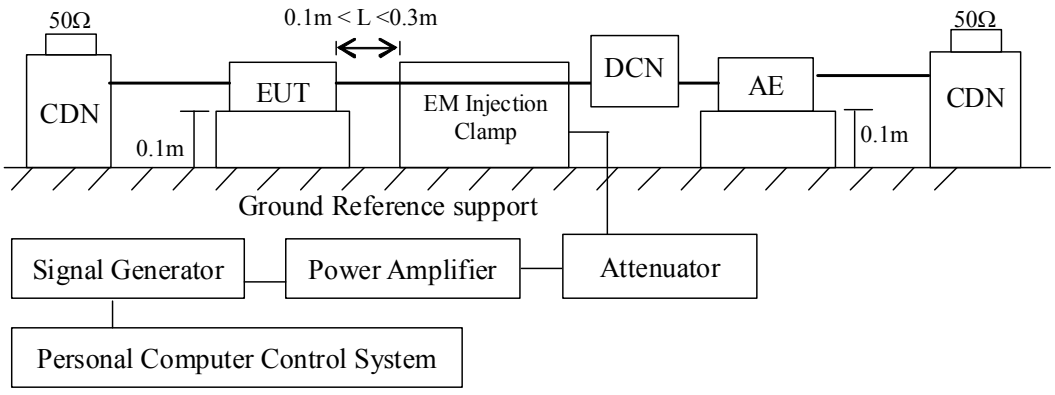
10.2.1 Block Diagram of connection between EUT and simulators.

Same as Section 7.2.1.

10.2.2 Common Mode Test Setup



10.2.3 EM Clamp Mode Test Setup



10.3 Test Standard

EN 55024:2010【EN 61000-4-6:2008】

10.4 Severity Levels and Performance Criterion

10.4.1 Severity levels

Frequency range 0.15MHz - 80MHz		
Level	Voltage level (e.m.f.)	
	U_0 dB(μV)	U_0 V
1.	120	1
2.	130	3
3.	140	10
X[a]	Special	
[a] X is an open level.		

Severity Level：0.15-80MHz, 3V, 80%AM (1kHz)

10.4.2 Performance criterion：**A**

10.5 Test Procedure

The measuring process is according to EN 55024:2010 (EN 61000-4-6:2008) and laboratory internal procedure TKC-301-027.

For AC Mains port

10.5.1 Set up the EUT, CDN and test generators as shown on section 10.2.2.

10.5.2 The EUT and supporting equipment were placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) was placed on the ground plane making contact with it at about 0.1-0.3m from EUT. Cables between CDN and EUT were as short as possible.

10.5.3 The disturbance signal described below was injected to EUT through CDN.

10.5.4 The EUT operates within its operational mode(s) under intended climatic conditions after power on.

10.5.5 The frequency range was swept from 150 kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.

10.5.6 The rate of sweep shall not exceed 1.5*10^3decades/s. Where the frequency was swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

10.5.7 Recording the EUT Operating situation during compliance testing and decide the EUT immunity criterion.

For Telecommunication Port

10.5.8 Set up the EUT, EM Injection Clamp and test generators as shown on section 10.2.3.

10.5.9 The EUT and supporting equipment were placed on an insulating support 0.1m high above a ground reference plane. EM Injection Clamp (coupling and decoupling device) was placed on the ground plane making contact with it at about 0.1-0.3m from EUT. Cables between CDN and EUT were as short as possible.

10.5.10 The DCN was placed on between AE and EUT, the EUT and AE of power through CDN, CDN terminated with 50Ω at the RF disturbance input port.

10.5.11 The disturbance signal described below was injected to EUT though EM Injection Clamp.

10.5.12 Repeat above procedure from 10.5.9 to 10.5.11.

10.6 Test Results

PASSED. (Complied with Criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Inject Currents Immunity Test Results

Applicant	*ASUSTeK COMPUTER INC.*	*Date of Test*	*2012.07.30*		
EUT	*Motherboard*	*I/P Volt.*	*AC: 230V ; 50Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*22.1℃*	*Humidity*	*49％*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*				
Working Condition	*Refer to section 2.4*		*Results*	*PASS*	

Frequency Range (MHz)	*Inject Position*	*Strength*	*Performance Criterion*	*Remark*
0.15MHz~80MHz	*Main*	*3V*	*A*	*Power*
0.15MHz~80MHz	*I/O*	*3V*	*A*	

I/O Port: LAN 1, LAN 2	
	Engineer : Kin

11 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

11.1 Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Plus Immunity Test System	KEYTEK	EMC pro	0604251	2012-01-05	2013-01-04
2.	Magnetic Field Immunity Loop	FCC	F-1000-4-8-/ 9/10-L-1M	6008	2012-01-05	2013-01-04

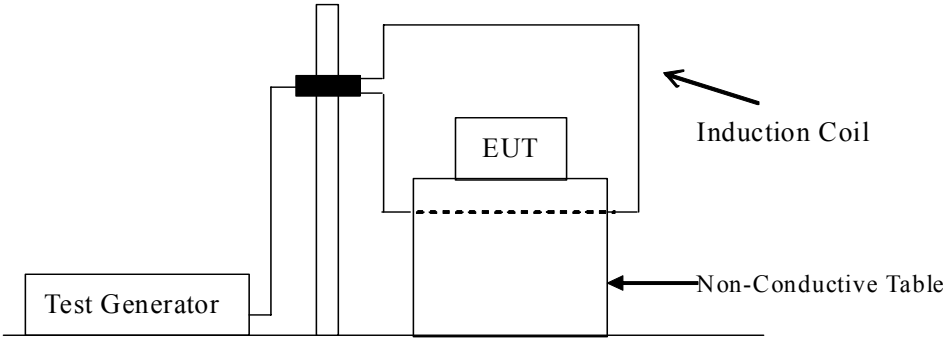
NCR: Non-Calibration Requirement.

11.2 Block Diagram of Test Setup

11.2.1 Block Diagram of connection between EUT and simulators.

Same as section 7.2.1.

11.2.2 Test Setup



11.3 Test Standard

EN 55024:2010
【EN 61000-4-8:2009, Test Level: 50Hz, 1A/m】

11.4 Severity Levels and Performance Criterion

11.4.1 Severity level

Level	Magnetic Field Strength Continuous Field A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X	Special

11.4.2 Performance criterion：**A**

11.5 Test Procedure

The measuring process is according to EN 55024:2010 (EN 61000-4-8:2009) and laboratory internal procedure TKC-301-012.

The EUT was placed on 1m high table that above the ground reference plane which is the min. size 1m x 1m and 0.65mm thickness metallic. And subjected to the test magnetic field by using the induction coil of standard dimensions (1m x 1m). The induction coil rotated by 90 degrees in order to expose the EUT to the test field with different orientations. All cables of EUT exposed to magnetic field for 1m of their length.

11.6 Test Results

PASSED. (Complied with Criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Power Frequency Magnetic Field Immunity Test Results

Applicant	*ASUSTeK COMPUTER INC.*	*Date of Test*	*2012.07.30*		
EUT	*Motherboard*	*I/P Volt.*	*AC: 230 V ; 50 Hz*		
Model No.	*IMBM-H61A*	*Temp.*	*26.2℃*	*Humidity*	*45 %*
Test Mode	*DVI + D-Sub 1600*1200@60Hz 75.8 kHz*				
Working Condition	*Refer to section 2.4*		*Results*	*PASS*	

Power Frequency Magnetic Field	*Testing Duration*	*Coil Orientation*	*Performance Criterion*	*Remark*
50Hz,1A/m	*1 Min.*	*X-axis*	*A*	
50Hz,1A/m	*1 Min.*	*Y-axis*	*A*	
50Hz,1A/m	*1 Min.*	*Z-axis*	*A*	

Engineer: Lion

12 VOLTAGE DIPS AND INTERRUPTIONS IMMUNITY TEST

12.1 Test Equipment

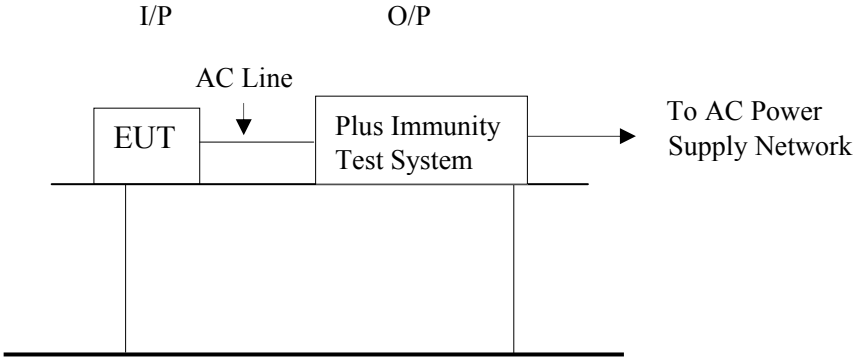
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Plus Immunity Test System	KEYTEK	EMC pro	0604251	2012-01-05	2013-01-04

12.2 Block Diagram of Test Setup

12.2.1 Block Diagram of connection between EUT and simulators.

Same as section 7.2.1.

12.2.2 Test Setup



12.3 Test Standard

EN 55024:2010【EN 61000-4-11:2004】

12.4 Severity Levels and Performance Criterion

12.4.1 Preferred severity levels and durations for voltage dips

Class[a]	**Test level and durations for voltage dips (t_s) (50Hz/60Hz)**				
Class 1	Case-by-case according to the equipment requirements				
Class 2	0% during ½ cycle	0% during 1 cycle	70% during 25/30[c] cycles		
Class 3	0% during ½ cycle	0% during 1 cycle	40% during 10/12[c] cycles	70% during 25/30[c] cycles	80% during 250/300[c] cycles
Class X[b]	X	X	X	X	X

[a] Classes as per IEC 61000-2-4.
[b] To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
[c] "25/30 cycles" means "25 cycles for 50Hz test" and "30 cycles for 60Hz test".

12.4.2 Preferred severity levels and durations for short interruptions

Class[a]	**Test level and durations for short interruptions (t_s) (50Hz/60Hz)**
Class 1	Case-by-case according to the equipment requirements
Class 2	0% during 250/300[c] cycles
Class 3	80% during 250/300[c] cycles
Class X[b]	X

[a] Classes as per IEC 61000-2-4.
[b] To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
[c] "250/300 cycles" means "250 cycles for 50Hz test" and "300 cycles for 60Hz test".

Severity Level：Voltage dips : Voltage interruptions >95% reduction: 250period; Dips 30% reduction: 25period; >95% reduction: 0.5period

12.4.3 Performance criterion：

1) Voltage dips >95% reduction performance criterion **B.**
2) Voltage dips 30% reduction performance criterion **C.**
3) Voltage interruption >95% reduction performance criterion **C.**

12.5 Test Procedure

The measuring process is according to EN 55024:2010 (EN 61000-4-11:2004) and laboratory internal procedure TKC-301-003.

12.5.1 Set up the EUT and test generator as shown on section 12.2.

12.5.2 The interruption was introduced at selected phase angles with specified duration. There was a 10s minimum interval between each test event.

12.5.3 After each test a full functional check was performed before the next test.

12.5.4 Repeat procedures 12.5.2.. & 12.5.3. for voltage dips, only the test level and duration was changed.

12.5.5 Record any degradation of performance.

12.6 Test Results

PASSED.

(Voltage interruptions complied with criterion C, Voltage dips Complied with criterion A)

EUT was tested with the following test mode and all the test results are listed in next page.

Item	Test Condition
1	DVI + D-Sub 1600*1200@60Hz 75.8 kHz

Voltage Dips and Interruptions Immunity Test Results

Applicant	ASUSTeK COMPUTER INC.	Date of Test	2012.07.30		
EUT	Motherboard	I/P Volt.	AC: 230 V ; 50 Hz		
Model No.	IMBM-H61A	Temp.	26.2℃	Humidity	45 %
Test Mode	DVI + D-Sub 1600*1200@60Hz 75.8 kHz				
Working Condition	Refer to section 2.4		Results	PASS	

Type of Test	Test Voltage	Phase Angle	% Reduction	Period	Performance Criterion
Voltage Interruption	230	0	>95%	250	C
		45	>95%	250	C
		90	>95%	250	C
		135	>95%	250	C
		180	>95%	250	C
		225	>95%	250	C
		270	>95%	250	C
		315	>95%	250	C
Voltage Dips	230	0	30%	25	A
		45	30%	25	A
		90	30%	25	A
		135	30%	25	A
		180	30%	25	A
		225	30%	25	A
		270	30%	25	A
		315	30%	25	A
	230	0	>95%	0.5	A
		45	>95%	0.5	A
		90	>95%	0.5	A
		135	>95%	0.5	A
		180	>95%	0.5	A
		225	>95%	0.5	A
		270	>95%	0.5	A
		315	>95%	0.5	A

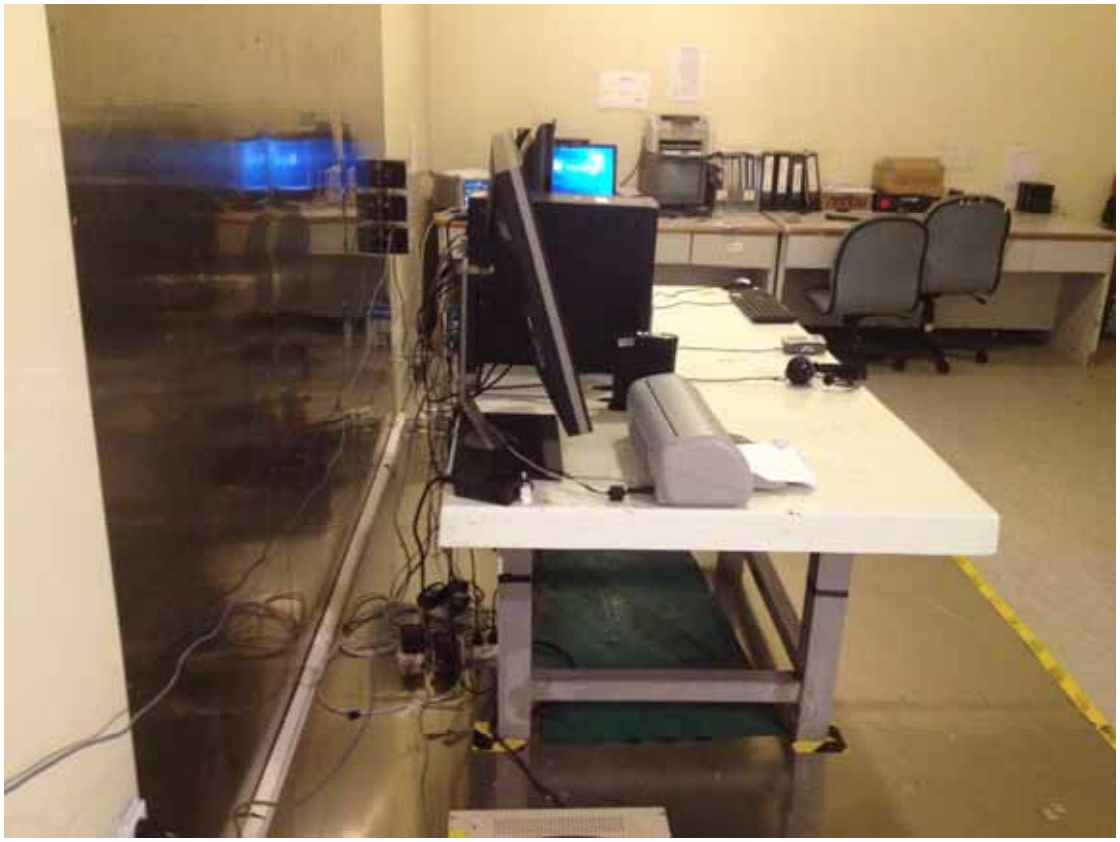
Note:
The performance criterion "C" means the power of the EUT is turned off, and it can be recovered by itself during the test interval .

Engineer :Lion

13 PHOTOGRAPHS

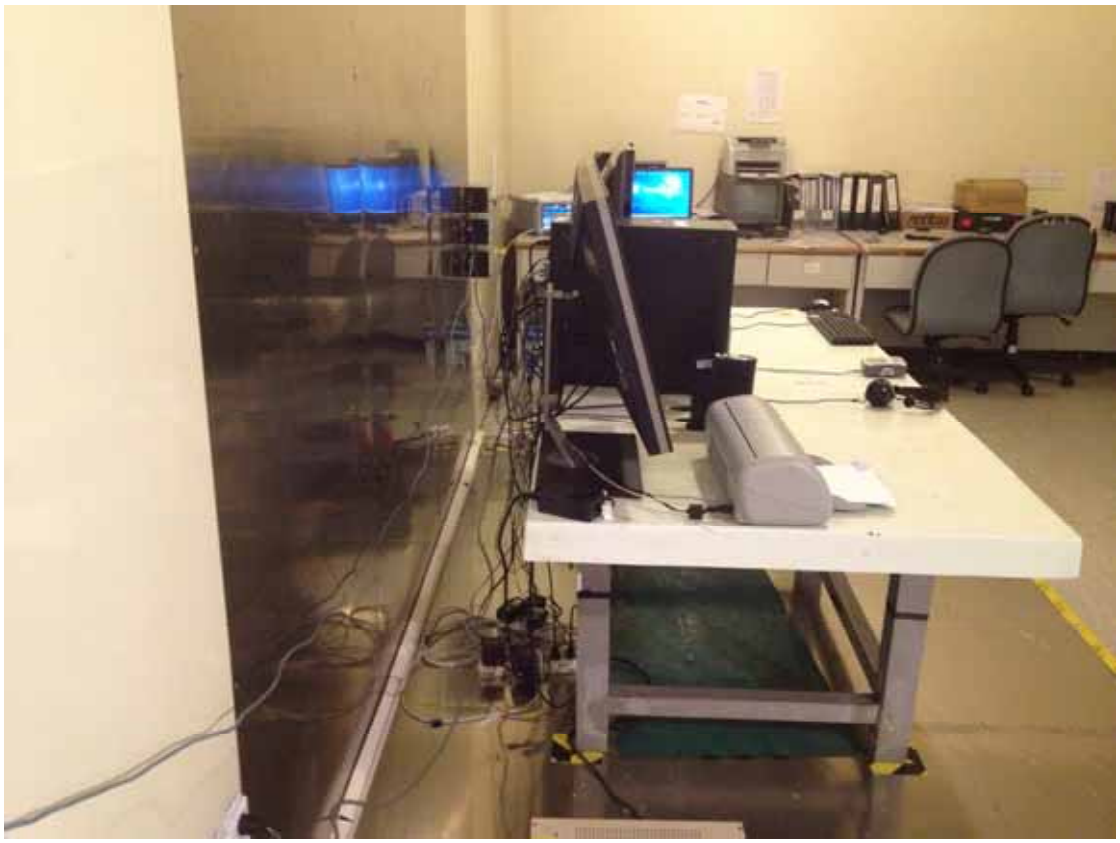
13.1 Photos of Conducted Disturbance Measurement

Front View of Conducted Measurement (AC Mains Port)



Side View of Conducted Measurement (AC Mains Port)

Front View of Conducted Emission Measurement (Telecommunication port)



Side View of Conducted Emission Measurement (Telecommunication port)

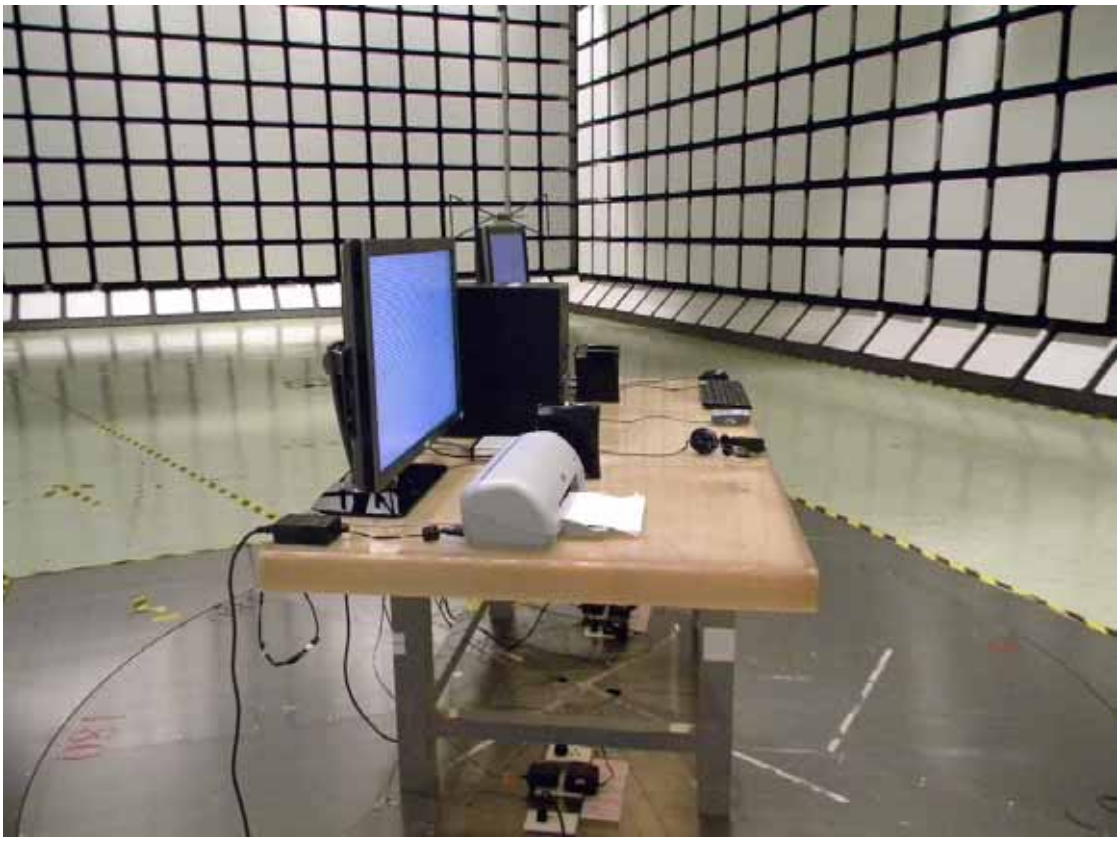
13.2 Photos of Radiated Disturbance Measurement

For 30MHz ~1GHz

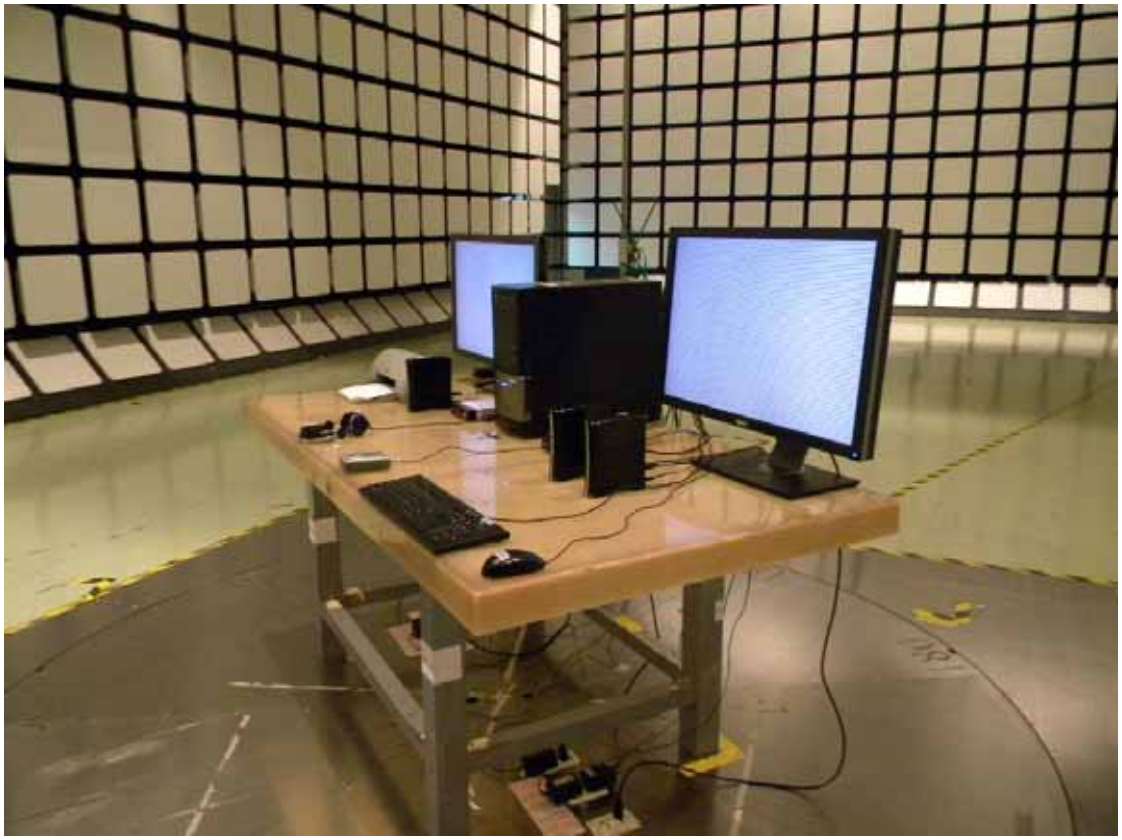
Front View of Radiated Disturbance Measurement

Back View of Radiated Disturbance Measurement

Test Mode: DVI + D-Sub 1600*1200@60Hz 75.8kHz



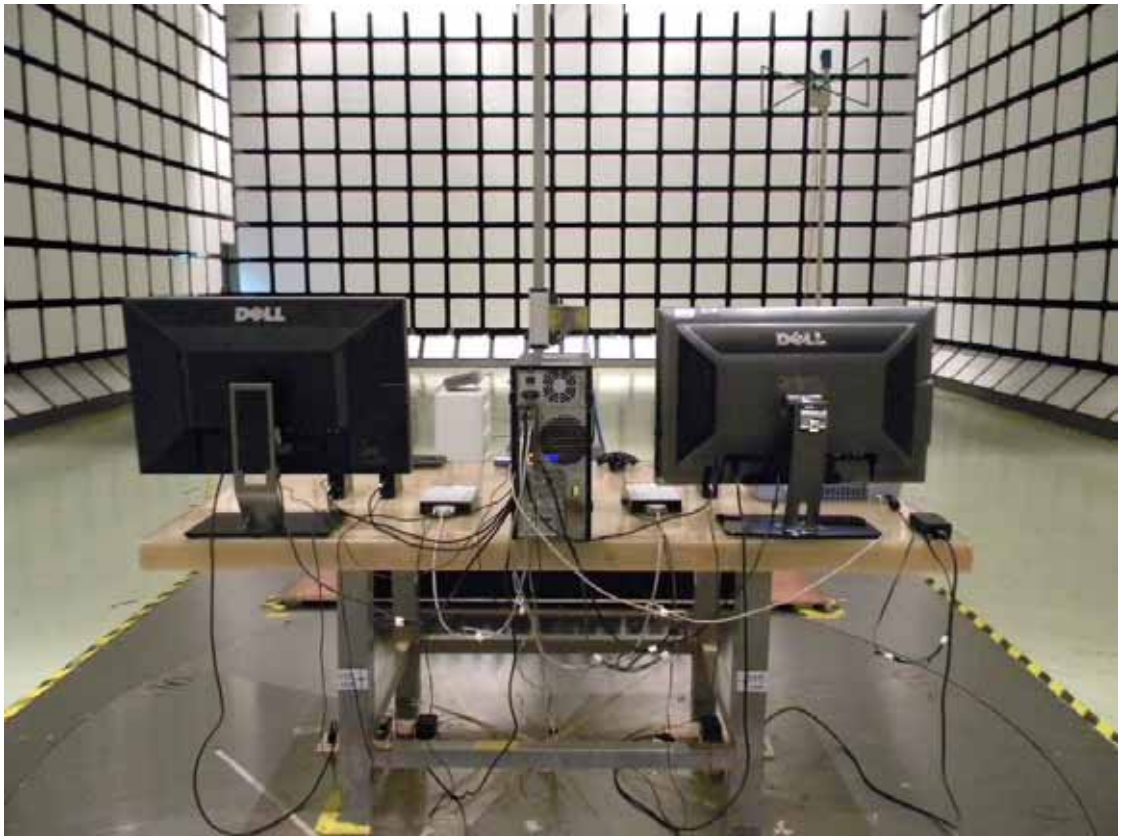
Setup with Maximum Detected Emission at Horizontal Polarization



Setup with Maximum Detected Emission at Vertical Polarization

For above 1GHz

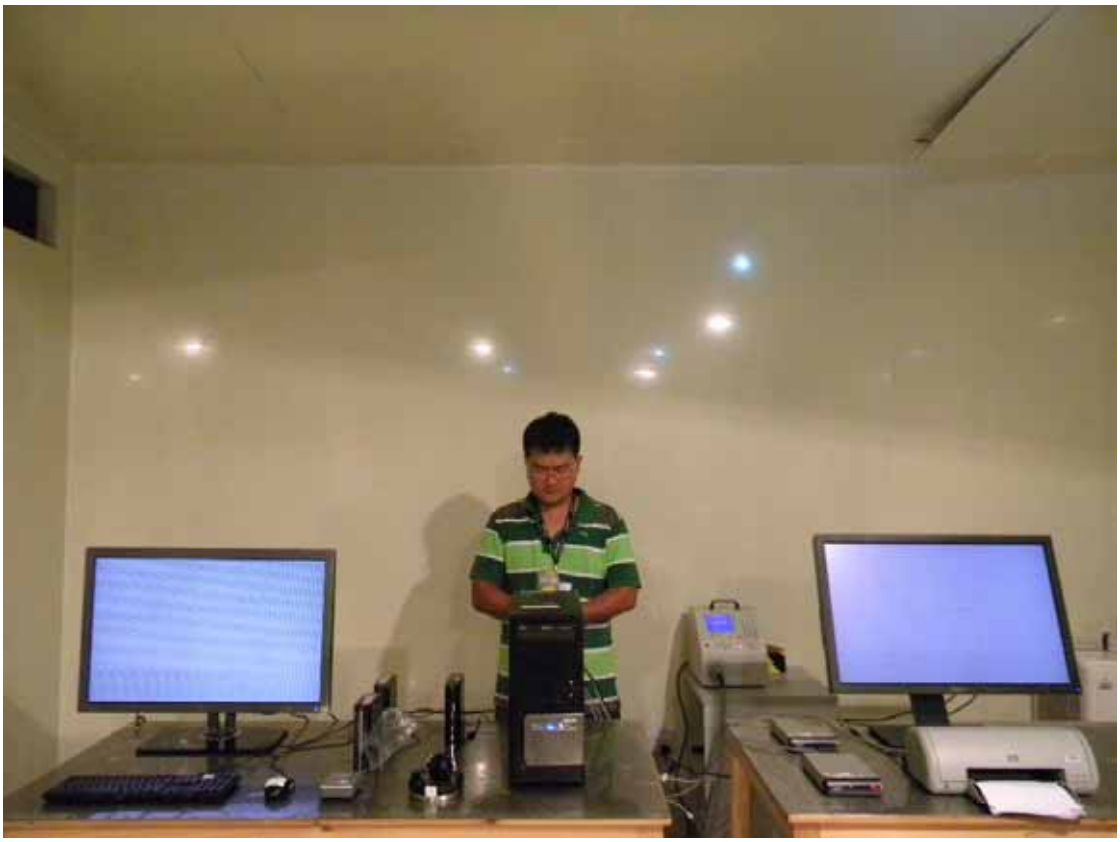
Front View of Radiated Measurement



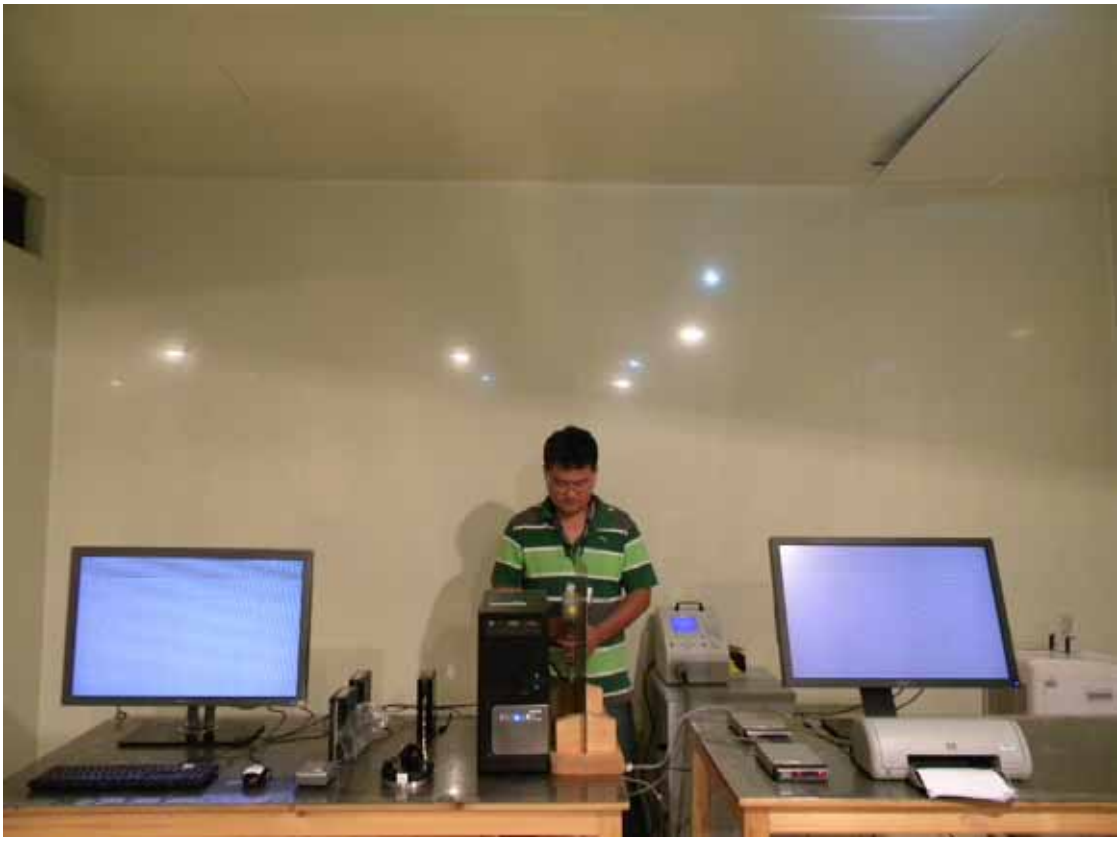
Back View of Radiated Measurement

13.3 Photos of Harmonic & Flicker Measurement

13.4 Photos of Electrostatic Discharge Immunity Test



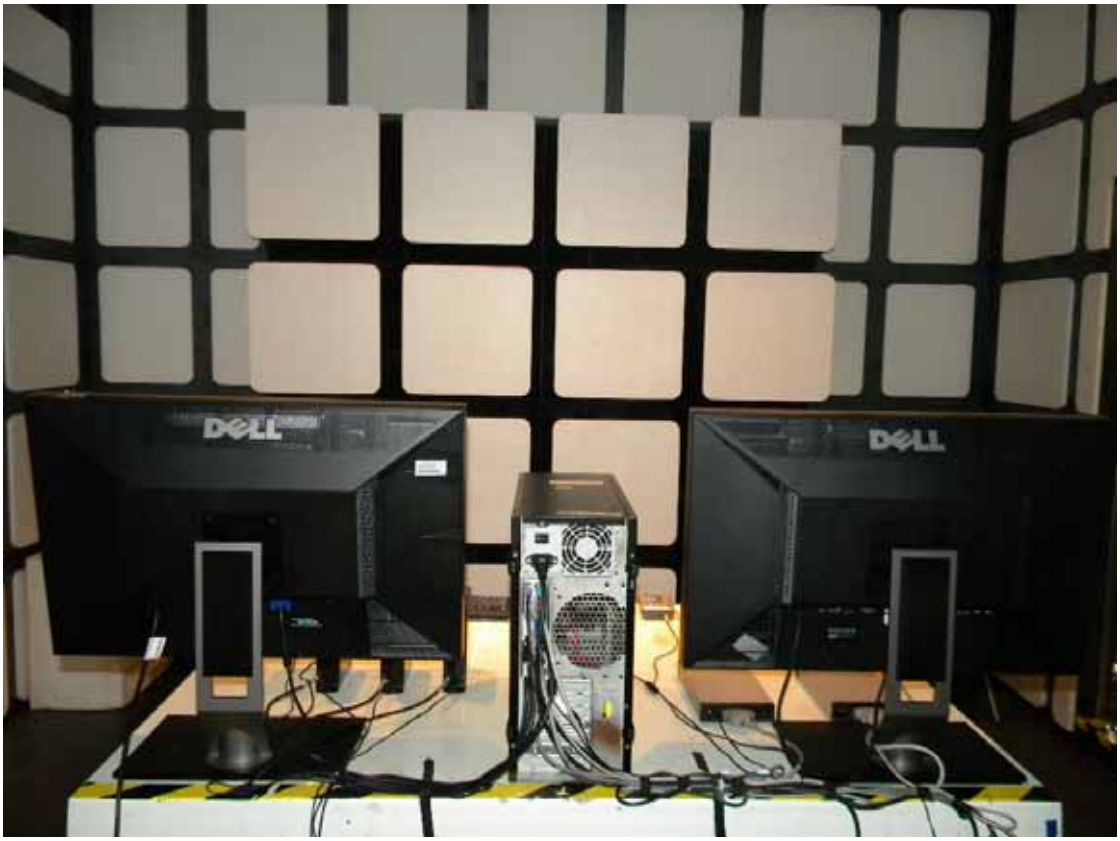
Contact & Air Discharge



VCP & HCP

13.5 Photos of RF Field Strength Immunity Test

Front View of R/S Test



Back View of R/S Test

13.6 Photos of Electrical Fast Transient Immunity Test

For AC Mains port

For Telecommunication port

13.7 Photos of Surge Immunity Test

For AC Mains port

For Telecommunication port

13.8 Photos of Conducted Disturbance Immunity Test

For AC Mains port

For Telecommunication port

13.9 Photos of Power Frequency Magnetic Field Immunity Test

13.10 Photos of Voltage Dips and Interruptions Immunity Test

13.11 Photos of Host PC for RJ-45 Ping Test

APPENDIX I

Photos of EUT

Figure 1
General Appearance (Motherboard, Front View)

Figure 2
General Appearance (Motherboard, Back View)

Figure 3
General Appearance (Motherboard, Fan Set Remove)

Figure 4
Fan Set

Figure 5
General Appearance (Motherboard, I/O Ports)

Figure 6
CPU

Figure 7
Crystal Oscillator

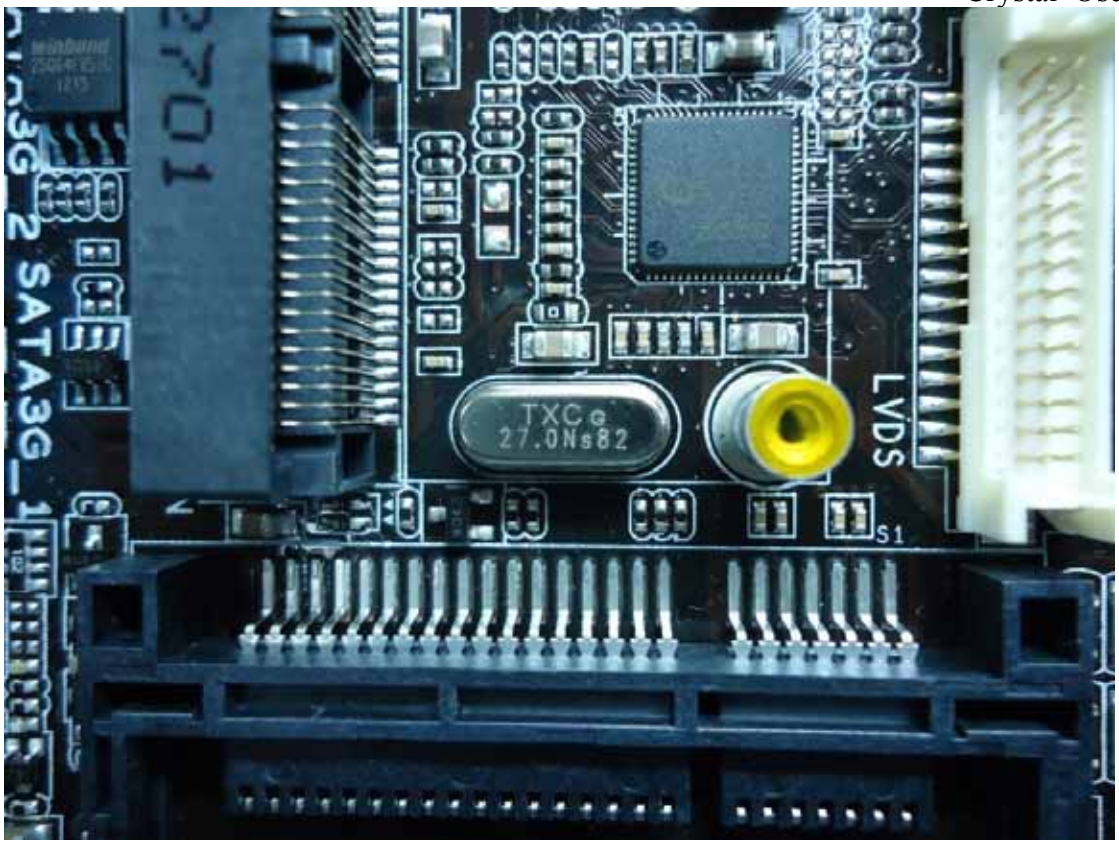


Figure 8
Crystal Oscillator

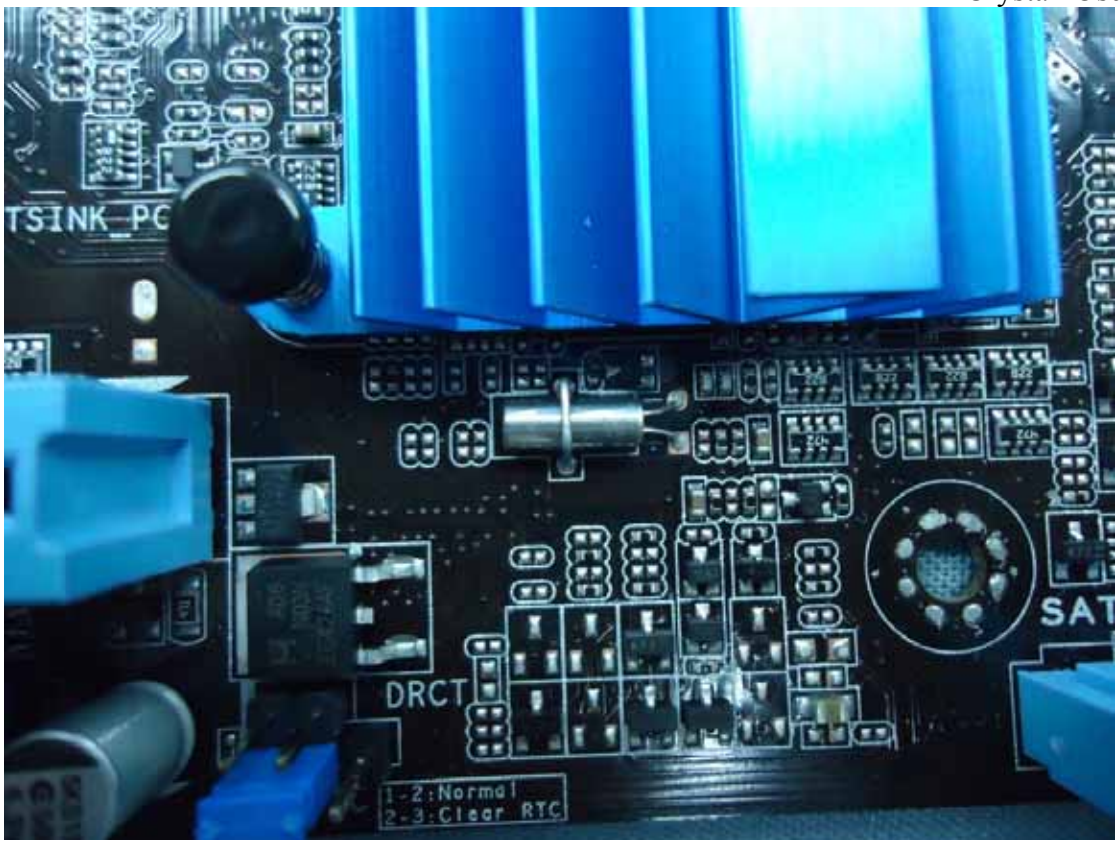


Figure 9
Crystal Oscillator

Figure 10
Crystal Oscillator

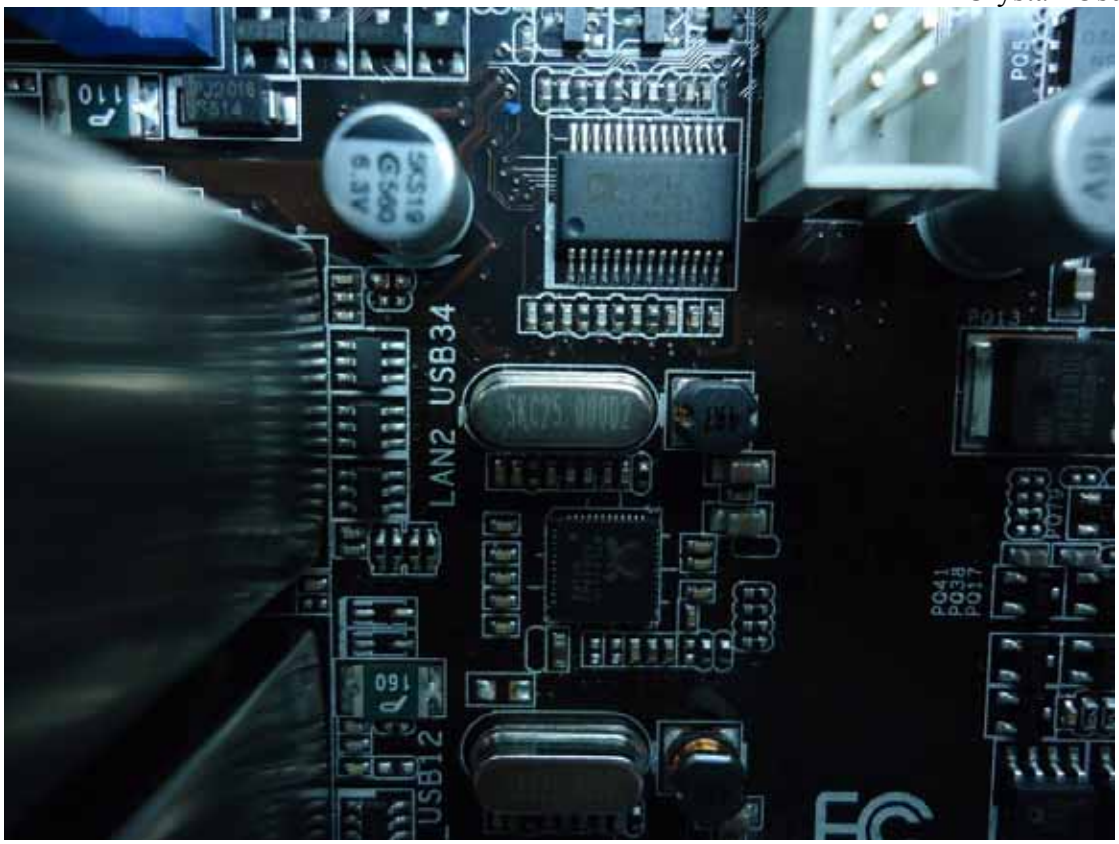
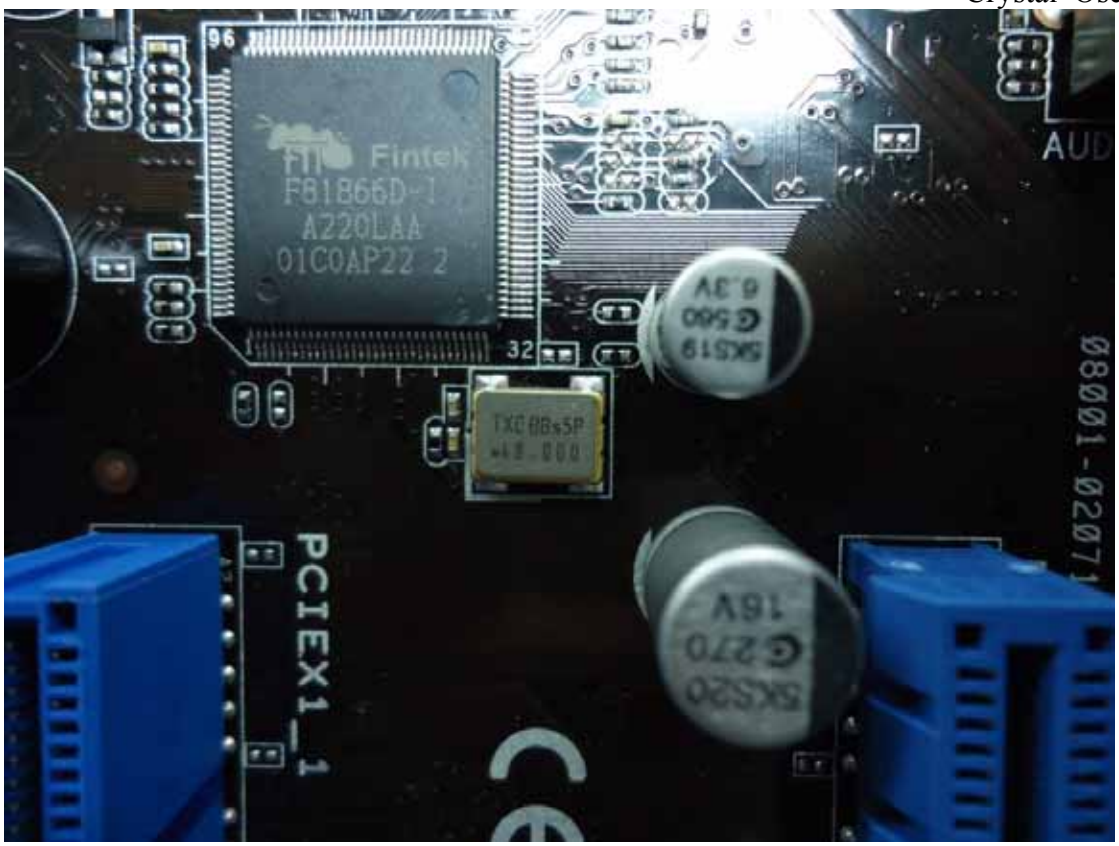


Figure 11
Crystal Oscillator

Figure 12
Crystal Oscillator

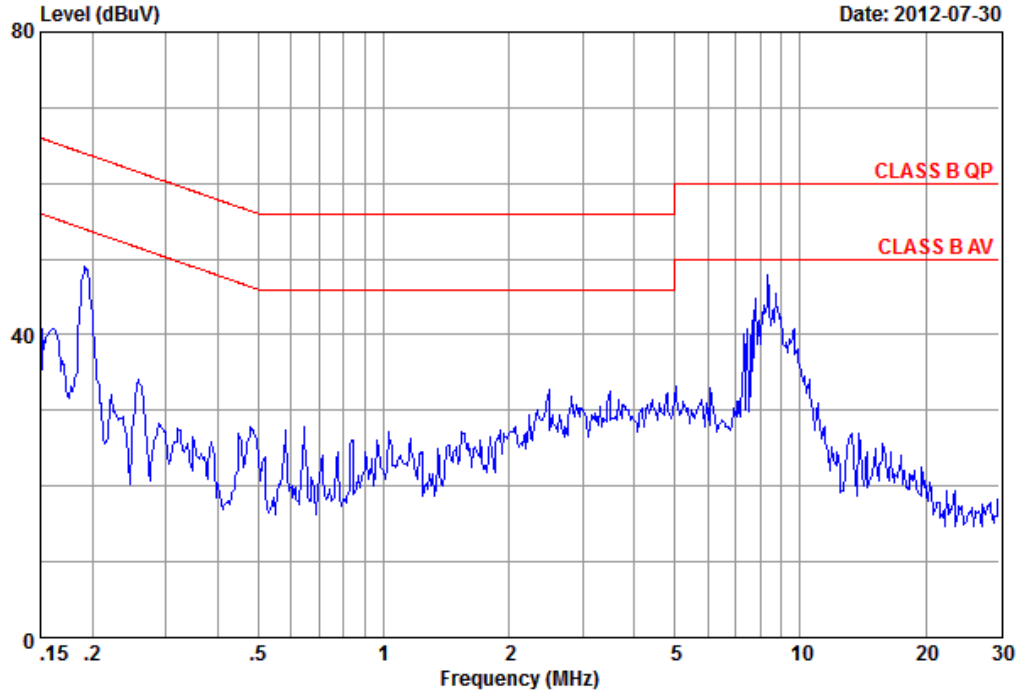


APPENDIX II

Conducted Emission Pre-Scanned Data
at
Conducted Shielding Enclosure

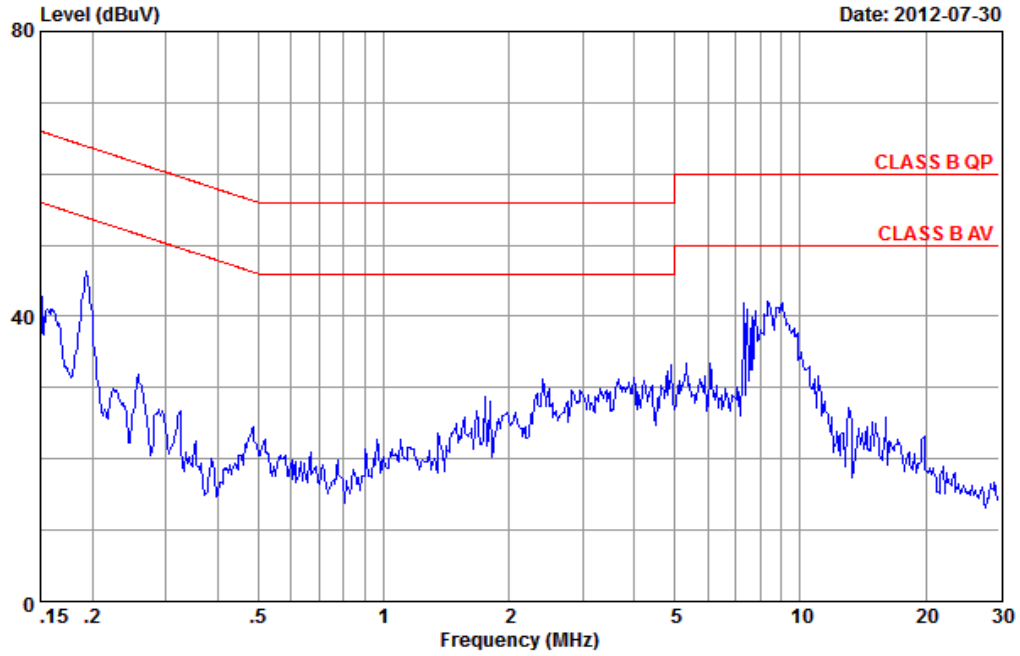
Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339

Data: 1 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 1
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: NEUTRAL
Limit	: CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test mode	: DVI 1920*1200@60Hz 75.8kHz		
Memo	:		

Data: 2 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 2
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: LINE
Limit	: CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test mode	: DVI 1920*1200@60Hz 75.8kHz		
Memo	:		

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Economic Development Zone,JiangSu,China
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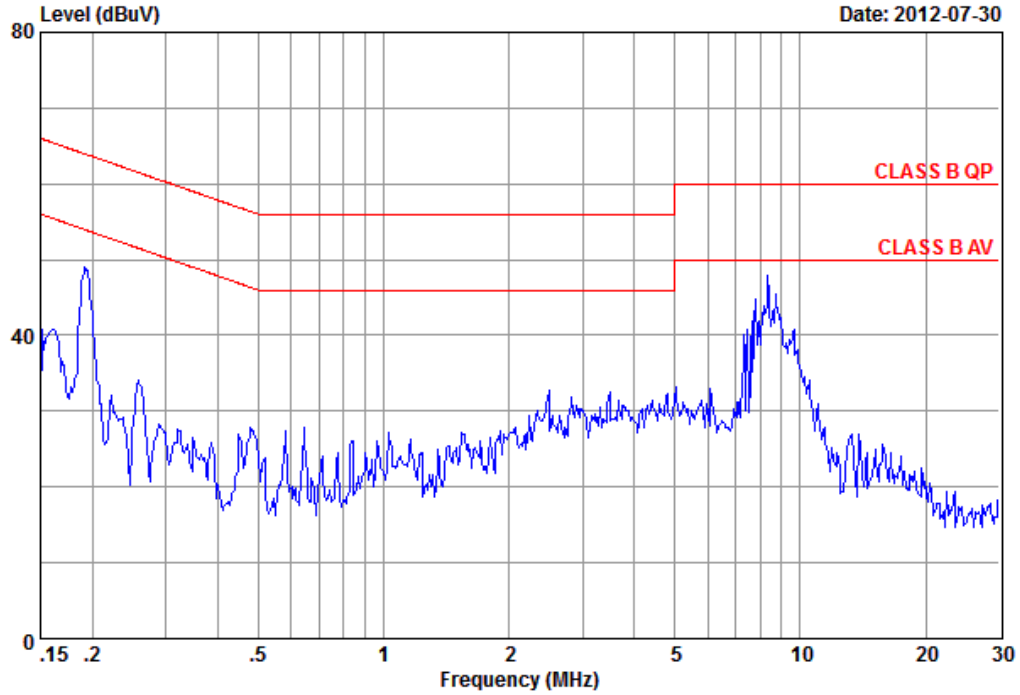
Data: 17 File: F:\2012Test Data\Report\07\G1207026.EM6 (18)



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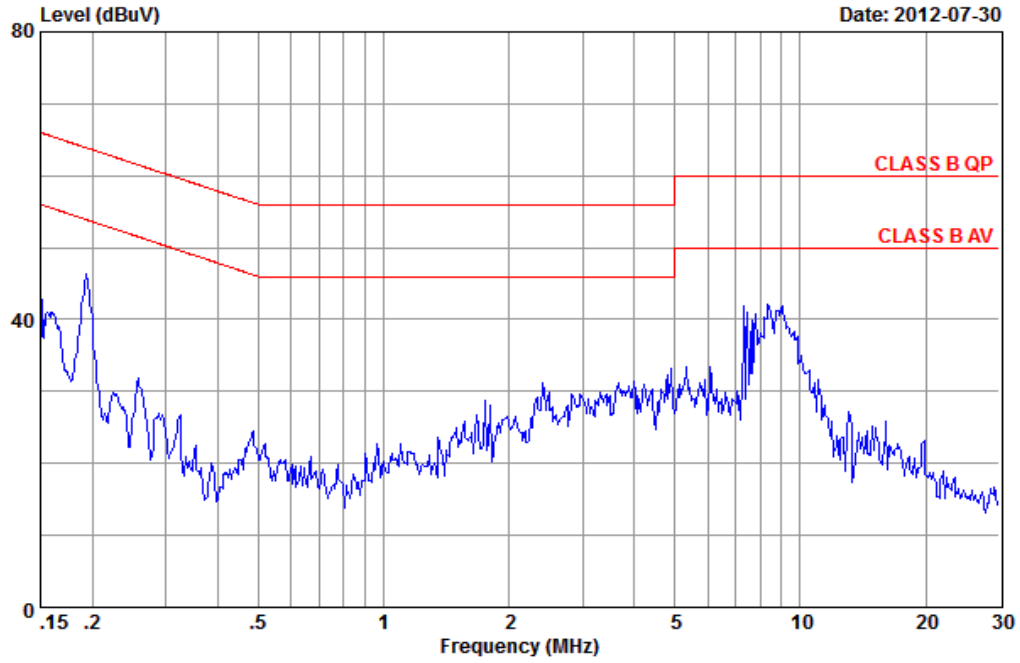
AMN/LISN	:	ESH2-Z5(100153)-1205	Phase	:	NEUTRAL
Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	D-Sub 1920*1200@75Hz 94.7kHz			
Memo	:				

Data: 18 File: F:\2012Test Data\Report\07\G1207026.EM6 (18)



Site no.	:	No.1 Conducted shielding Enclosure	Data no.	:	18
AMN/LISN	:	ESH2-Z5(100153)-1205	Phase	:	LINE
Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	D-Sub 1920*1200@75Hz 94.7kHz			
Memo	:				

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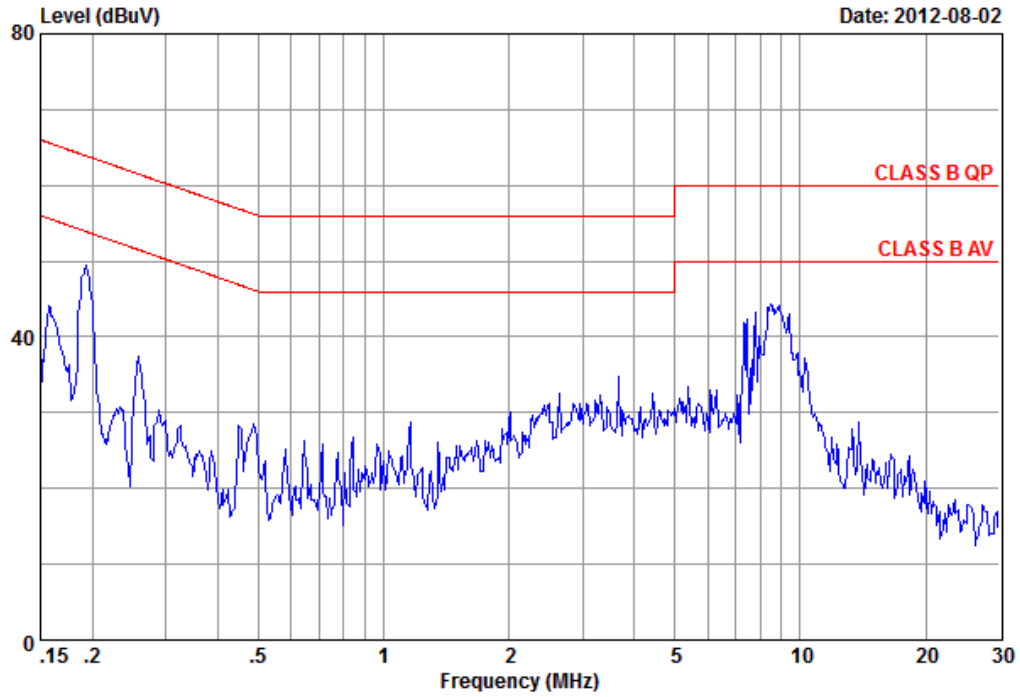
Data: 3 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



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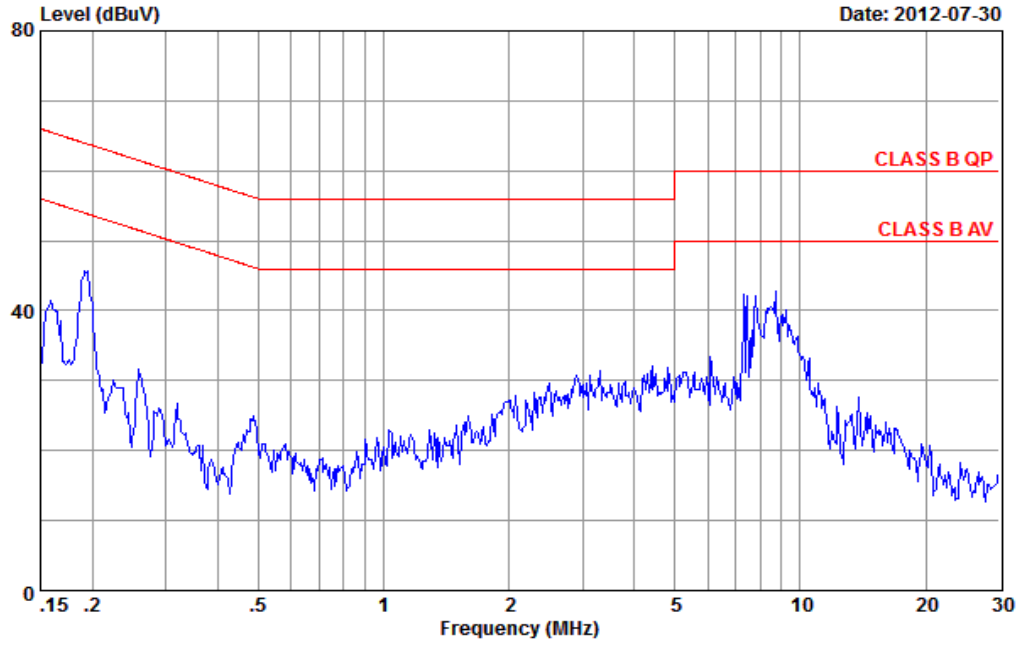
Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	DVI+D-Sub 1600*1200@60Hz 75.8kHz			
Memo	:				

Data: 4 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	:	No.1 Conducted shielding Enclosure	Data no.	:	4
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Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	DVI+D-Sub 1600*1200@60Hz 75.8kHz			
Memo	:				

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No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
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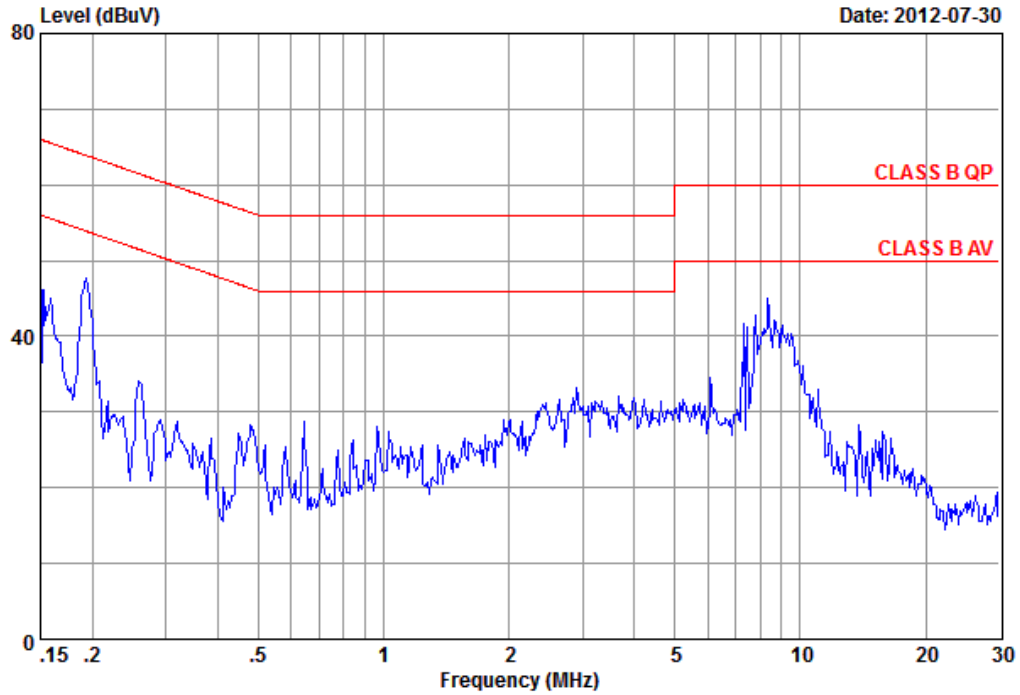
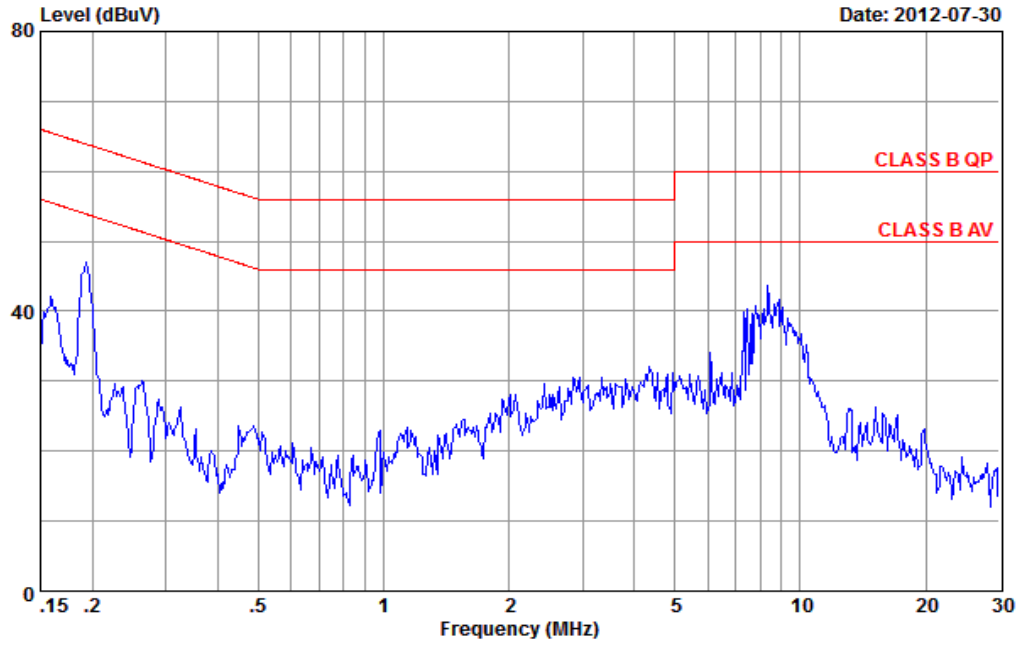
Data: 5 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 5
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: NEUTRAL
Limit	: CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test mode	: DVI+D-Sub 1280*1024@75Hz 80.8kHz		
Memo	:		

Data: 6 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 6
AMN/LISN	: ESH2-Z5(100153)-1205	Phase	: LINE
Limit	: CLASS B QP		
Env. / Ins.	: 22.4*C&70%/ESCI	Engineer	: KM.Tong
EUT	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test mode	: DVI+D-Sub 1280*1024@75Hz 80.8kHz		
Memo	:		

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
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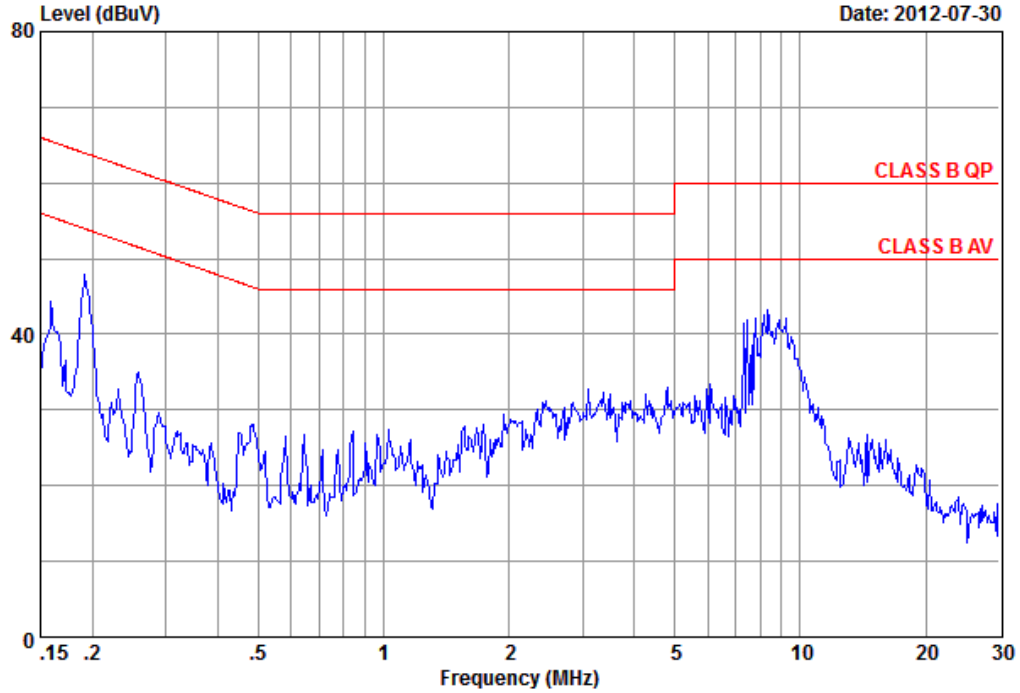
Data: 7 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	:	No.1 Conducted shielding Enclosure	Data no.	:	7
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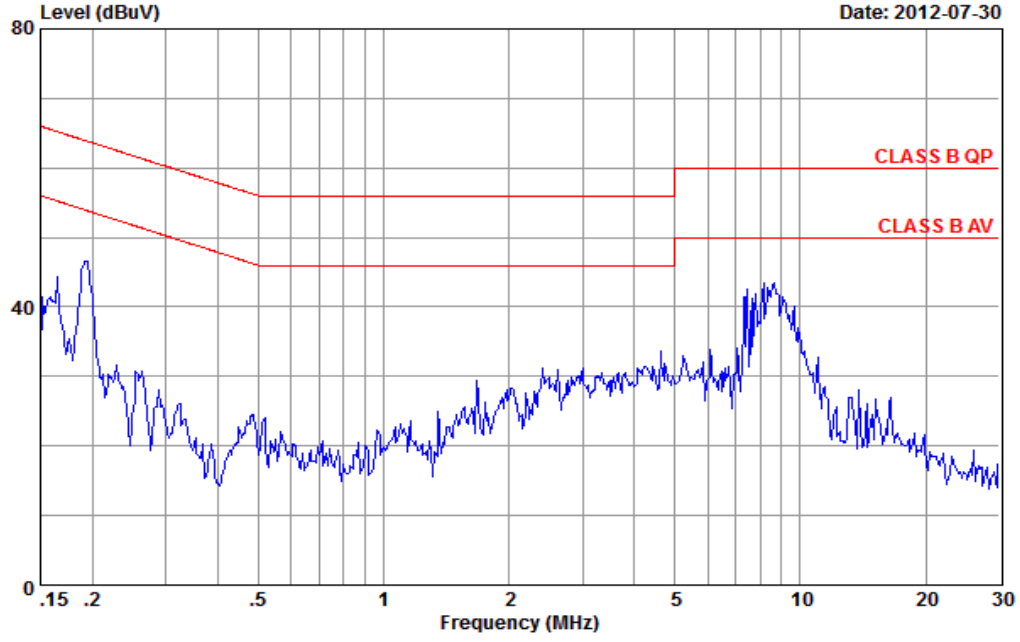
Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	DVI+D-Sub 640*480@60Hz 30.3kHz			
Memo	:				

Data: 8 File: F:\2012Test Data\Report\07\G1207026.EM6 (16)



Site no.	:	No.1 Conducted shielding Enclosure	Data no.	:	8
AMN/LISN	:	ESH2-Z5(100153)-1205	Phase	:	LINE
Limit	:	CLASS B QP			
Env. / Ins.	:	22.4*C&70%/ESCI	Engineer	:	KM.Tong
EUT	:	Motherboard			
M/N	:	IMBM-H61A			
Power Rating	:	120Vac/60Hz			
Test mode	:	DVI+D-Sub 640*480@60Hz 30.3kHz			
Memo	:				

APPENDIX III

Radiated Emission Pre-Scanned Data
at
10m Semi-Anechoic Chamber

Audix Technology(Wujiang)Co.,Ltd.
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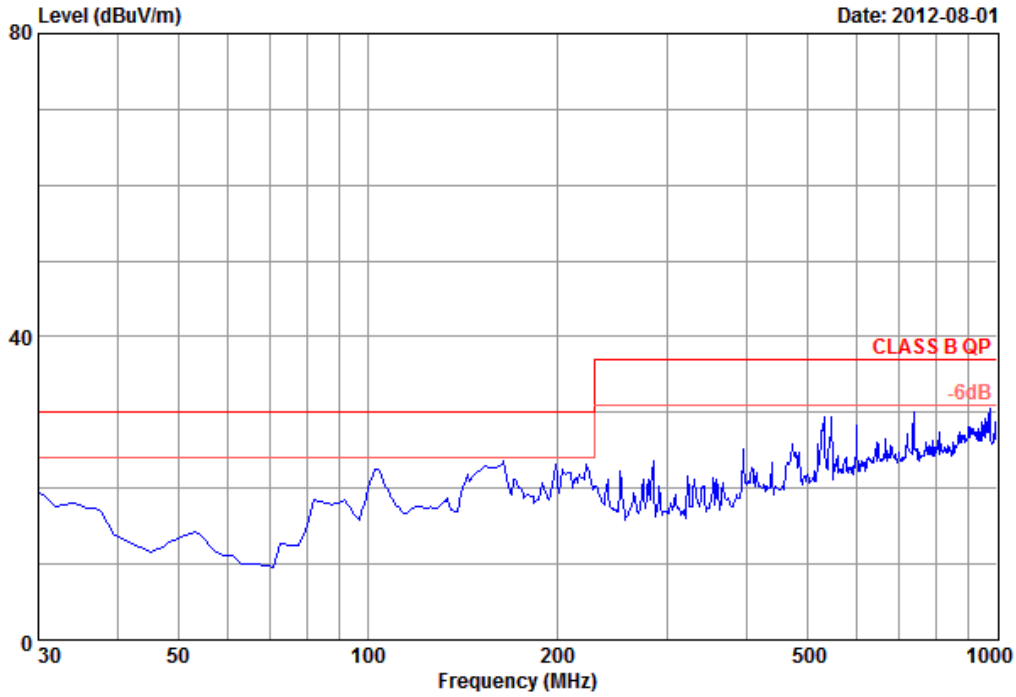
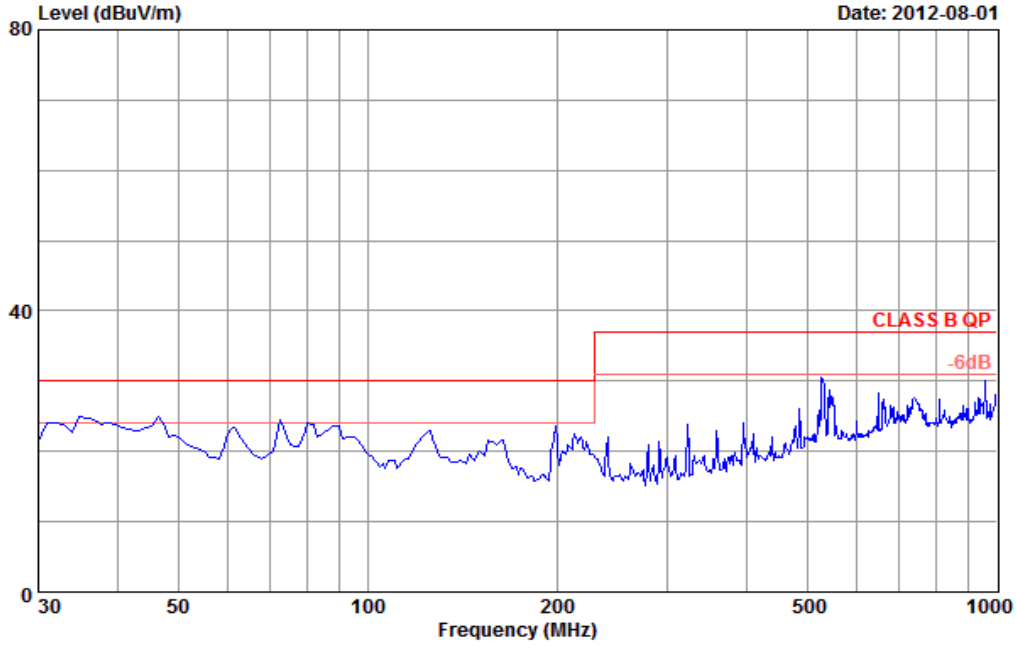
Data: 9 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No. : NO.1 10m Semi-Anechoic Chamber
Dis./Ant. : 10m . 6112D(22251)-1204
Env./Ins. : 24.6*C 53%/ESCI
EUT. : Motherboard
M/N : IMBM-H61A
Power Rating: 120Vac/60Hz
Test Mode : DVI 1920*1200@60Hz 75.8KHz
Memo :

Data NO. : 9
Ant.pol : HORIZONTAL
Engineer : Kevin

Data: 10 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No. : NO.1 10m Semi-Anechoic Chamber
Dis./Ant. : 10m . 6112D(22253)1206
Env./Ins. : 24.6*C 53%/ESCI
EUT. : Motherboard
M/N : IMBM-H61A
Power Rating: 120Vac/60Hz
Test Mode : DVI 1920*1200@60Hz 75.8KHz
Memo :

Data NO. : 10
Ant.pol : VERTICAL
Engineer : Kevin

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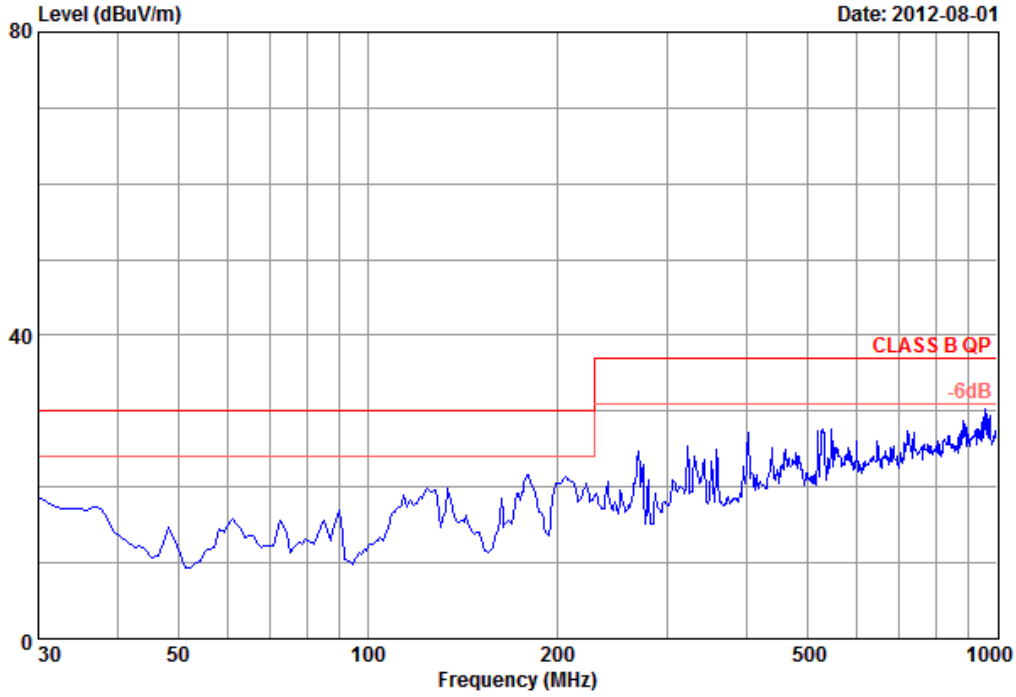
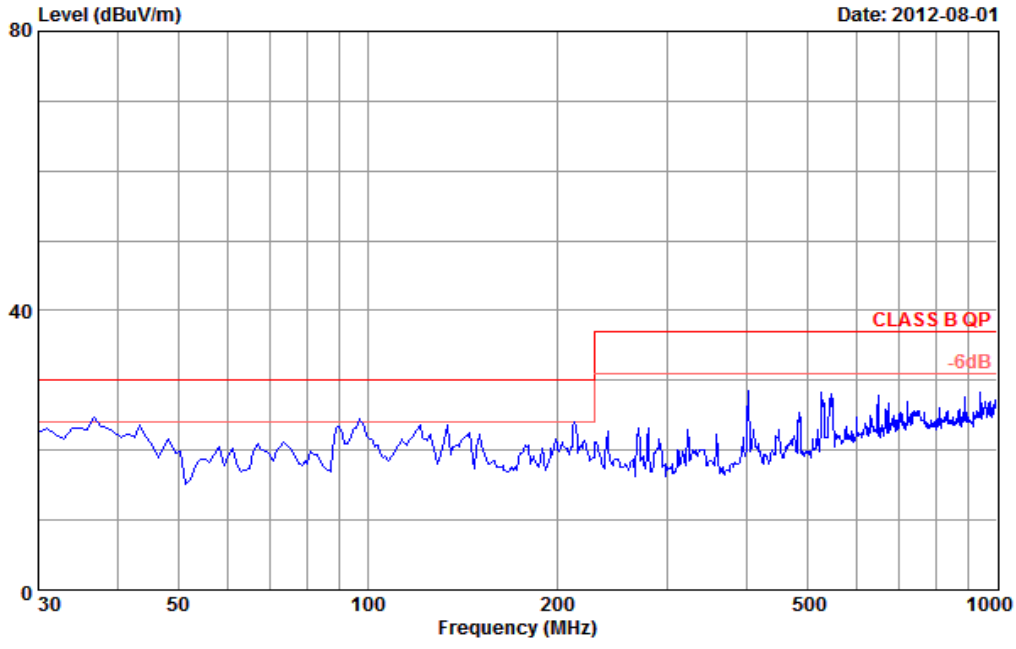
Data: 7 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 7
Dis./Ant.	: 10m . 6112D(22251)-1204	Ant.pol	: HORIZONTAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: D-Sub 1920*1200@75Hz 94.7KHz		
Memo	:		

Data: 8 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 8
Dis./Ant.	: 10m . 6112D(22253)1206	Ant.pol	: VERTICAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: D-Sub 1920*1200@75Hz 94.7KHz		
Memo	:		

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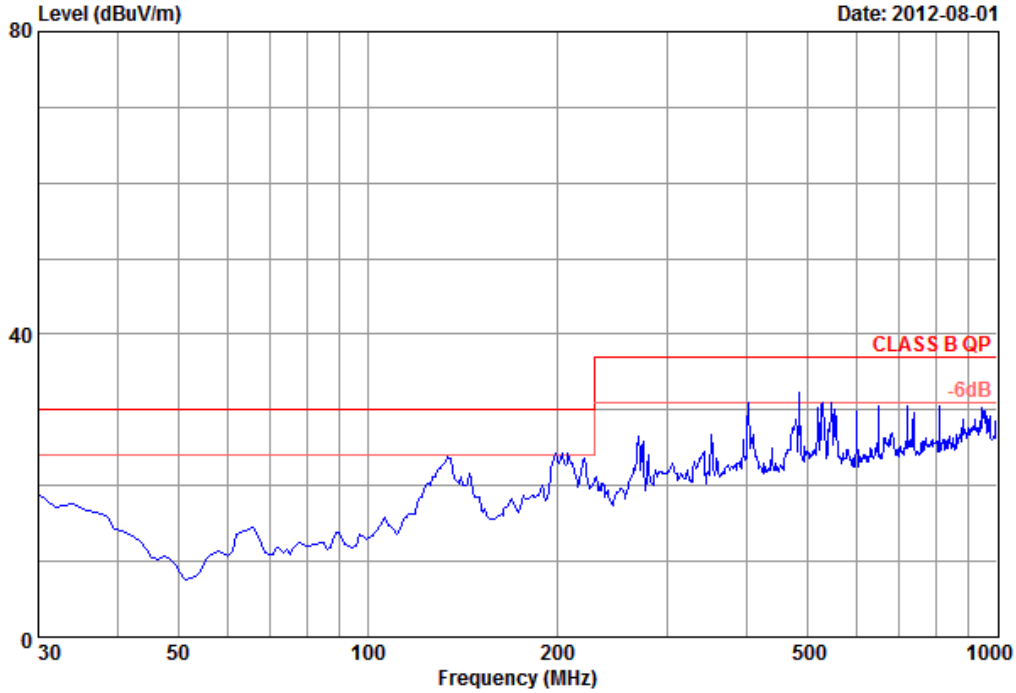
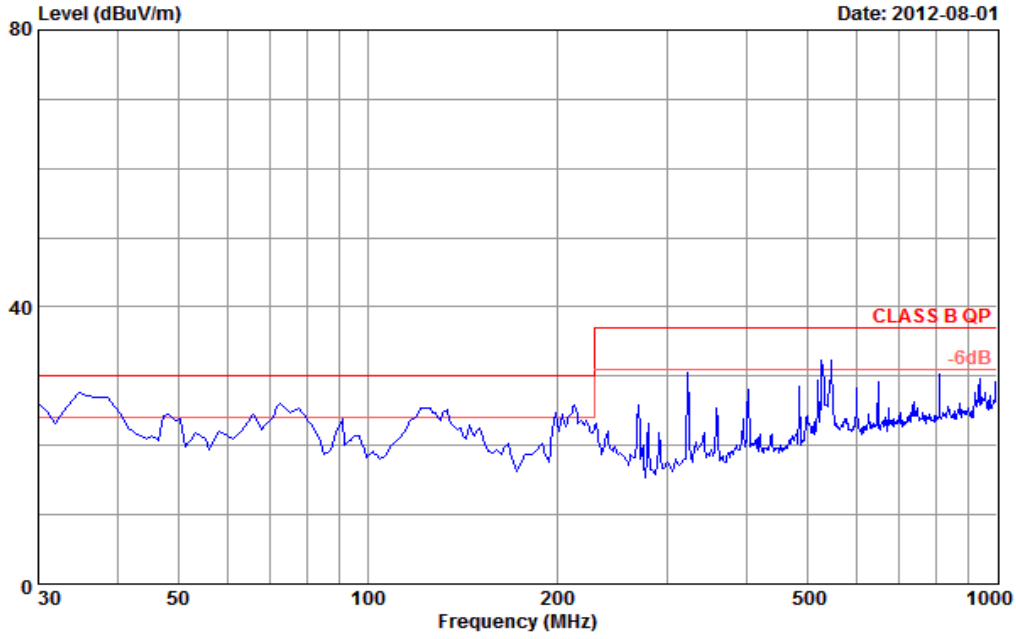
Data: 1 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 1
Dis./Ant.	: 10m . 6112D(22251)-1204	Ant.pol	: HORIZONTAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 1600*1200@60Hz 75.8KHz		
Memo	:		

Data: 2 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 2
Dis./Ant.	: 10m . 6112D(22253)1206	Ant.pol	: VERTICAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 1600*1200@60Hz 75.8KHz		
Memo	:		

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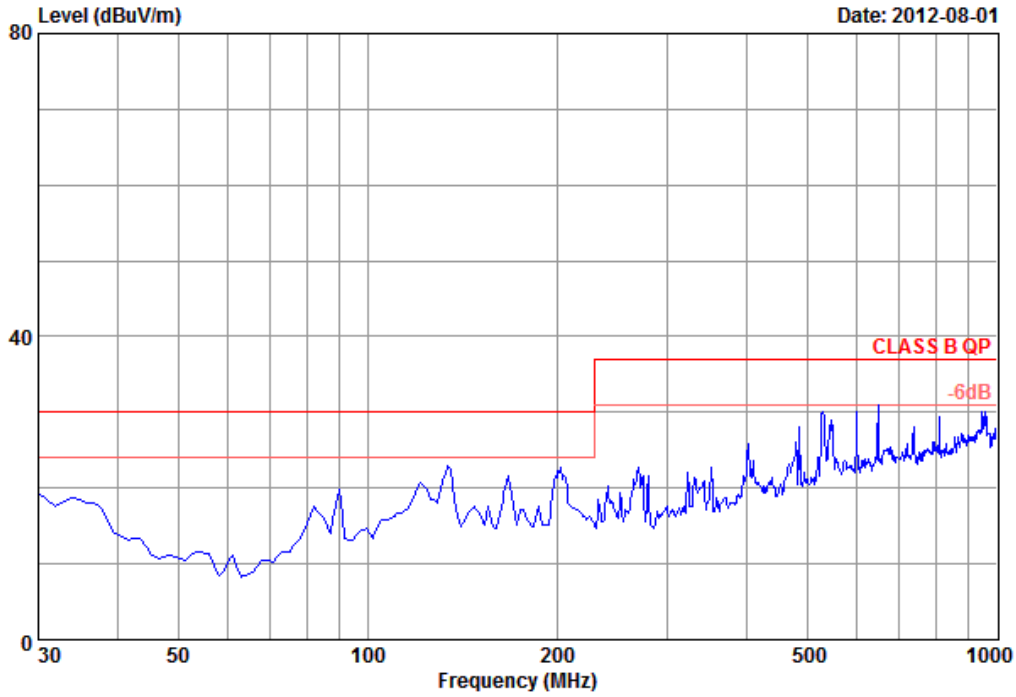
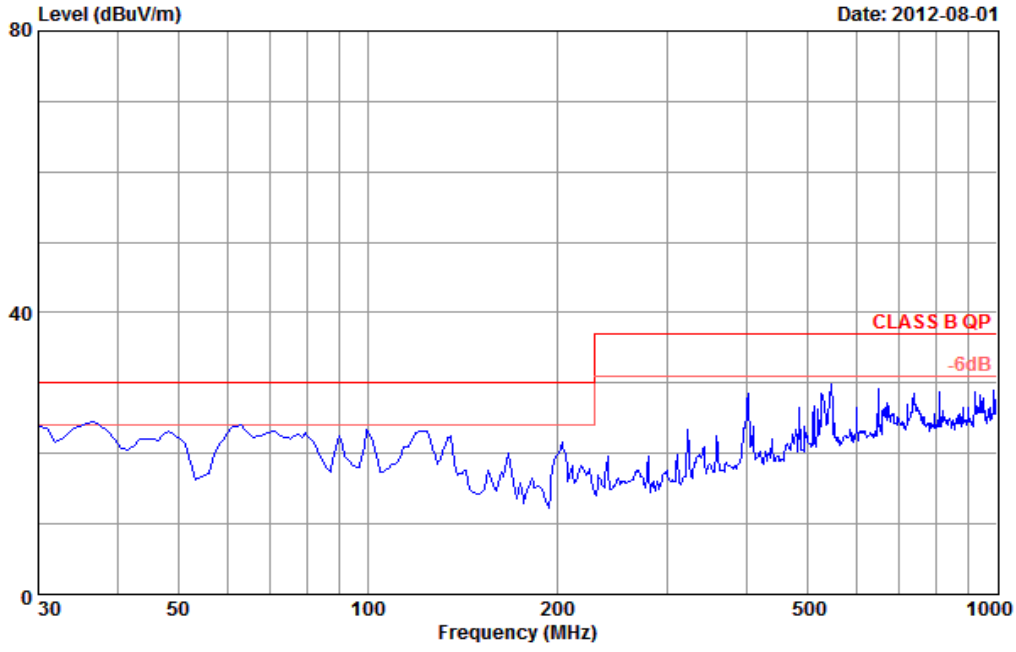
Data: 3 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 3
Dis./Ant.	: 10m . 6112D(22251)-1204	Ant.pol	: HORIZONTAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 1280*1024@75Hz 80.8KHz		
Memo	:		

Data: 4 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 4
Dis./Ant.	: 10m . 6112D(22253)1206	Ant.pol	: VERTICAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 1280*1024@75Hz 80.8KHz		
Memo	:		

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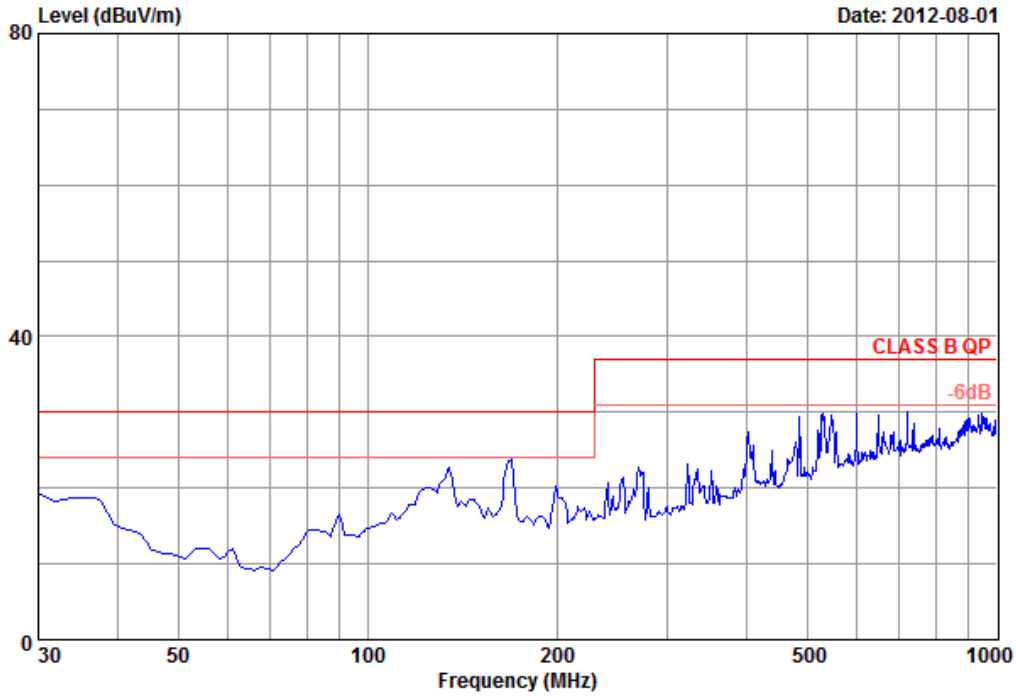
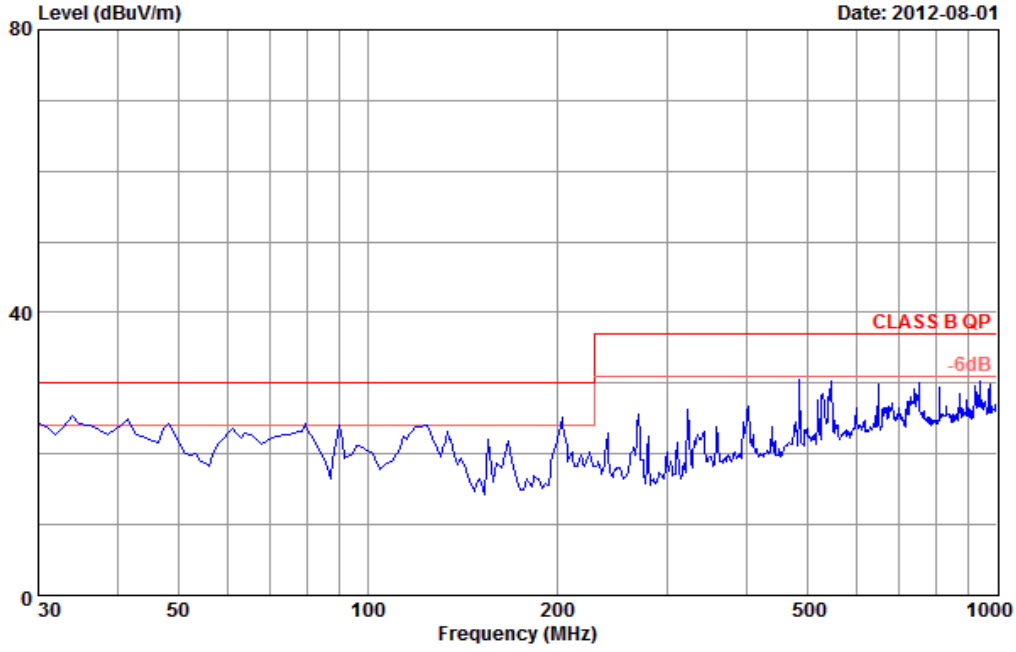
Data: 5 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 5
Dis./Ant.	: 10m . 6112D(22251)-1204	Ant.pol	: HORIZONTAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 640*480@60Hz 30.3KHz		
Memo	:		

Data: 6 File: G:\TEST DATA\2012\Report\07\G1207026.EM6 (18)



Site No.	: NO.1 10m Semi-Anechoic Chamber	Data NO.	: 6
Dis./Ant.	: 10m . 6112D(22253)1206	Ant.pol	: VERTICAL
Env./Ins.	: 24.6*C 53%/ESCI	Engineer	: Kevin
EUT.	: Motherboard		
M/N	: IMBM-H61A		
Power Rating	: 120Vac/60Hz		
Test Mode	: DVI+D-Sub 640*480@60Hz 30.3KHz		
Memo	:		