Test Report

Applicant:	JETWAY INFORMATION CO.,LTD
Product Name:	Motherboard&Barebone
Brand Name:	N/A
Model No.:	HBJC1XXF595-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”) NF595XX-YYYY-ZZ（X,Y & Z: Stands for “A-Z” & “0-9”）
Date of Receipt :	Dec. 09, 2015
Date of Test:	Dec. 10-15, 2015
Date of Report:	Dec. 15, 2015
Prepared by:	Most Technology Service Co., Limited

The EMC testing has been performed on the submitted samples and found in compliance with the council EMC directive 2014/30/EU.

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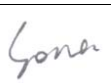
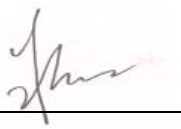
TEST REPORT DECLARATION

Report Number	MTE/SNS/A15121695	
Applicant	JETWAY INFORMATION CO.,LTD	
	9F., No.207, Sec.3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan(R.O.C)	
Product	Product Name	Motherboard&Barebone
	Model No.	HBJC1XXF595-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”)
	Power Supply	DC 19 V by Adapter, 6.32A
Test Result	The EUT was found compliant with the requirement(s) of the standards.	
Standard	EN 55022:2010, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 55024:2010 (IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010, IEC 61000-4-4:2012, IEC 61000-4-5:2014, IEC 61000-4-6:2013, IEC 61000-4-8:2009, IEC 61000-4-11:2004)	

*Note

The above device has been tested by Most Technology Service Co., Limited To determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test record, data evaluation & Equipment Under Test (EUT) configurations represented are contained in this test report and Most Technology Service Co., Limited Is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced except in full, without written approval of Most Technology Service Co., Limited, this document may be altered or revised by Most Technology Service Co., Limited, personal only, and shall be noted in the revision of the document.

Prepared by	
	Sona Shen
Reviewed by	 
	Henry Chen
Approved by	
	Yvette Zhou(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Motherboard&Barebone
Model Number	:	HBJC1XXF595-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”) NF595XX-YYYY-ZZ（X,Y & Z: Stands for “A-Z” & “0-9”）
Remark	:	Used HBJC1XXF595-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”) does all tests.

1.2. Operational Mode(s) of EUT

Order Number	:	Test Mode(s)
1	:	Running PC System
2	:	Ping

1.3. Test Voltage(s) of EUT

Order Number	:	Test Voltage(s)
1	:	DC 19 V by Adapter

2. DESCRIPTION OF TEST STANDARD

The intention of this publication is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

The following referenced standard are indispensable for the application of this report.

Referenced Description below:

EN 55022:2010
Information Technology Equipment-Radio disturbance characteristics-Limits and methods of measurement.

EN 61000-3-2:2014
Limits for harmonic current emissions (equipment input current <= 16 A per phase).

EN 61000-3-3:2013
Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection.

EN 55024:2010
Information technology equipment - Immunity characteristics - Limits and methods of measurement.

3. LABORATORY INFORMATION

3.1. Laboratory Name

Most Technology Service Co., Limited

3.2. Location

No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

3.3. Test facility

3m Anechoic Chamber	:	Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
Shielding Room	:	Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
EMC Lab.	:	Accredited by TUV Rheinland Shenzhen Audit Report: UA 50149851 Mar. 12, 2009 Accredited by Industry Canada Registration Number: 7103A-1 Oct. 22, 2012 Accredited by TIMCO Registration Number: Q1460 March 28, 2010

3.4. Measurement Uncertainty

No.	Item	Uncertainty
1.	Uncertainty for Conducted Disturbance Test	1.25dB
2.	Uncertainty for Radiated Disturbance Test	3.15dB

3.5. Supporting System Details

3.5.1.Personal Computer

EMC CODE	:	Test PC B
M/N	:	Dell E520
S/N	:	5P3B42X
Manufacturer	:	Dell
Power cord	:	Unshielded, detachable, 1.8m

3.5.2.Printer

EMC CODE	:	Test Printer
M/N	:	L11121E
S/N	:	N/A
Manufacturer	:	Canon
Data cord	:	Shielded, detachable, 1.8m
Power cord	:	Unshielded, detachable, 1.8m

3.5.3.Monitor

EMC CODE	:	Test Monitor
M/N	:	220×W8
S/N	:	CJ5A0747100368
Manufacturer	:	PHILIPS
Data cord	:	Shielded, detachable, 1.8m
Power cord	:	Unshielded, detachable, 1.8m

3.5.4.Keyboard

EMC CODE	:	Test Keyboard
M/N	:	SK-2880
S/N	:	BC34C0CJ6UZ888
Manufacturer	:	Hp
Data cord	:	Unshielded, detachable , 1.5m

3.5.5.Mouse

EMC CODE	:	Test Mouse
M/N	:	M-UAE96
S/N	:	LZ6500H049N
Manufacturer	:	LENOVO
Data cord	:	Unshielded, detachable , 1.5m

4. SUMMARY OF TEST RESULTS

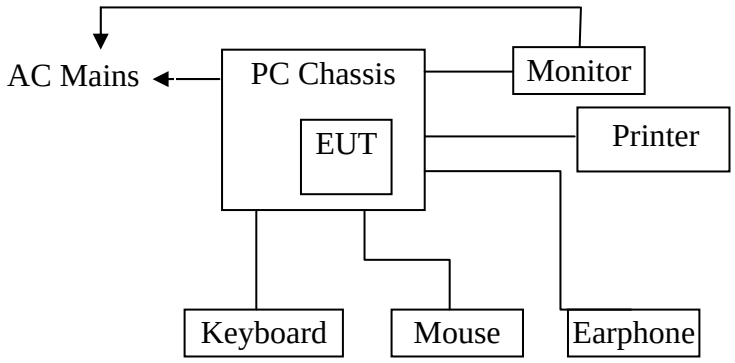
EMISSION			
Test Item	**Standard**	**Limits**	**Results**
Conducted disturbance at mains terminals	EN 55022:2010	Class B	PASS
Radiated disturbance	EN 55022:2010	Class B	PASS
Harmonic current emissions	EN 61000-3-2:2014	Class D	PASS
Voltage fluctuations & flicker	EN 61000-3-3:2013	---	PASS
IMMUNITY (EN 55024:2010)			
Test Item	**Basic Standard**	**Performance Criteria**	**Results**
Electrostatic discharge (ESD)	IEC 61000-4-2:2008	B	PASS
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3:2006 +A1:2007+A2:2010	A	PASS
Electrical fast transient (EFT)	IEC 61000-4-4:2012	B	PASS
Surge (Input a.c. power ports)	IEC 61000-4-5:2014	B	PASS
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2013	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
N/A is an abbreviation for Not Applicable.			

5. BLOCK DIAGRAM OF TEST SETUP

The equipments are installed test to meet EN55022 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. EUT was tested in normal configuration (Please See following Block diagrams)

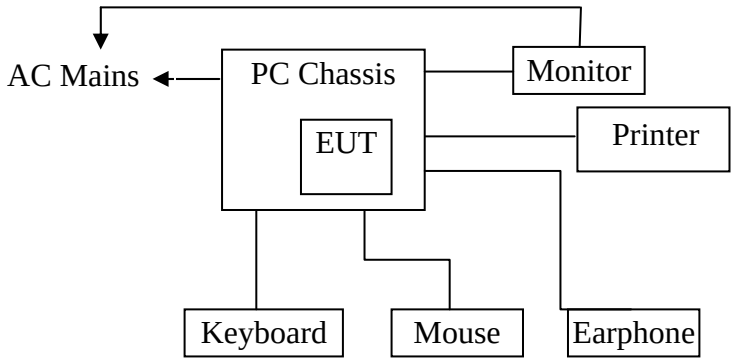
5.1. Block Diagram of connection between EUT and simulation-EMI

Test Mode: Running PC System



(EUT: Motherboard&Barebone)

Test Mode: Ping



(EUT: Motherboard&Barebone)

6. TEST INSTRUMENT USED

6.1. For Conducted Disturbance at Mains Terminals Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100492	Mar. 10, 15	1 Year
2.	L.I.S.N.	Rohde & Schwarz	ENV216	100093	Mar. 10, 15	1 Year
3.	Coaxial Switch	Anritsu Corp	MP59B	6200283933	Mar. 07, 15	1 Year
4.	Terminator	Hubersuhner	50Ω	No.1	Mar. 07, 15	1 Year
5.	RF Cable	SchwarzBeck	N/A	No.1	Mar. 07, 15	1 Year

6.2. For Radiation Test (In Anechoic Chamber)(Below 1000MHz)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESPI	101202	Mar. 10, 15	1 Year
2.	Bilog Antenna	Sunol	JB3	A121206	Mar. 14, 15	1 Year
3.	Cable	Resenberger	N/A	NO.1	Mar. 07, 15	1 Year
4.	Cable	SchwarzBeck	N/A	NO.2	Mar. 07, 15	1 Year
5.	Cable	SchwarzBeck	N/A	NO.3	Mar. 07, 15	1 Year
6.	DC Power Filter	DuoJi	DL2×30B	N/A	N/A	N/A
7.	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
8.	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A

6.3. For Radiation Test (In Anechoic Chamber)(Above 1000MHz)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4408B	MY414400460	Mar. 14, 15	1 Year
2	Pre-Amplifier	DCS	PAP-0118	24001	Mar. 14, 15	1 Year
3	Horn Antenna	Schwarzback	BBHA9120 D	D69250	Mar. 14, 15	1 Year
4	RF Cable	Schwarzback	LL142-10	RF Cable No.1	Mar. 07, 15	1 Year
5	RF Cable	Schwarzback	LL142-0.05	RF Cable No.2	Mar. 07, 15	1 Year
6	DC Power Filter	DuoJi	DL2×30B	N/A	N/A	N/A
7	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
8	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A

6.4. For Harmonic / Flicker Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	AC Power Source	Kikusui	AC40MA	LM003232	Mar. 10, 15	1 Year
2.	Test Analyzer	Kikusui	KHA1000	LM003720	Mar. 10, 15	1 Year
3.	Line Impendence Network	Kikusui	LIN40MA-PCR-L	LM002352	Mar. 10, 15	1 Year

6.5. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	Zhongsheng	ESD-203AX	023K1538	Sept.25, 15	1 Year

6.6. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	IFR	2032	203002/100	Mar. 14, 15	1 Year
2.	Amplifier	A&R	150W1000	301584	NCR	NCR
3.	Dual Directional Coupler	A&R	DC6080	301508	Mar. 14, 15	1 Year
4.	Power Sensor	Anritsu	MA2491A	32263	Mar. 14, 15	1 Year
5.	Power Meter	R&S	NRVS	100444	Mar. 14, 15	1 Year
6.	Field Monitor	A&R	FM5004	300329	Mar. 14, 15	1 Year
7.	Field Probe	A&R	FP5000	300221	Mar. 14, 15	1 Year
8.	Log-periodic Antenna	A&R	AT1080	16512	Mar. 14, 15	1 Year
9.	RF Cable	MIYAZAKI	N/A	No.1/No.2	Mar. 07, 15	1 Year

6.7. For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMCPRO System	EM Test	UCS-500-M4	V0648102026	Mar. 10, 15	1 Year

6.8. For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMCPRO System	EM Test	UCS-500-M4	V0648102026	Mar. 10, 15	1 Year

6.9. For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	IFR	2032	203002/100	Mar. 10, 15	1 Year
2.	Amplifier	A&R	150W1000	301584	NCR	NCR
3.	CDN	FCC	FCC-801-M2-25	47	Mar. 10, 15	1 Year
4.	CDN	FCC	FCC-801-M3-25	107	Mar. 10, 15	1 Year
5.	EM Injection Clamp	FCC	F-203I-23mm	403	Mar. 10, 15	1 Year
6.	RF Cable	MIYAZAKI	N/A	No.1/No.2	Mar. 07, 15	1 Year

6.10. For Magnetic Field Immunity Test

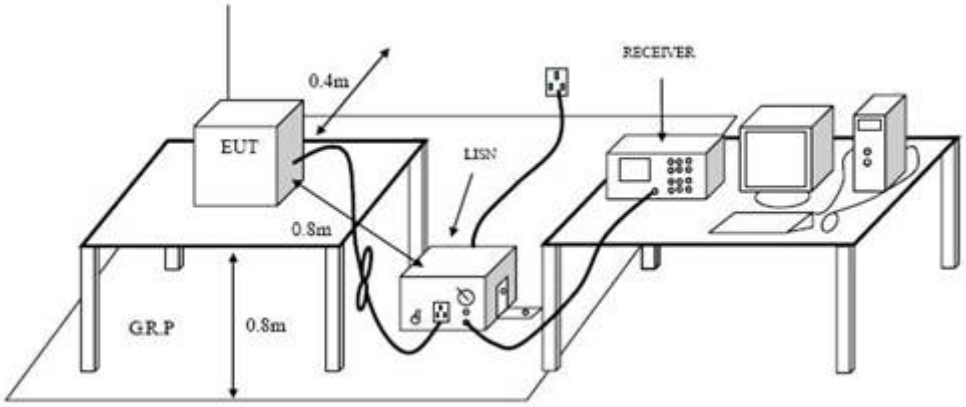
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMCPRO System	EM Test	UCS-500-M4	V0648102026	Mar. 10, 15	1 Year

6.11. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMCPRO System	EM Test	UCS-500-M4	V0648102026	Mar. 10, 15	1 Year

7. CONDUCTED DISTURBANCE AT MAINS TERMINALS TEST

7.1. Configuration of Test System



7.2. Test Standard

EN 55022:2010

7.3. Power Line Conducted Disturbance at Mains Terminals Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

7.4. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to EN 55022 Class B on conducted Disturbance test.
The bandwidth of test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 7.5.

7.5. Conducted Disturbance at Mains Terminals Test Results

7.5.1. Test Results: **PASS**

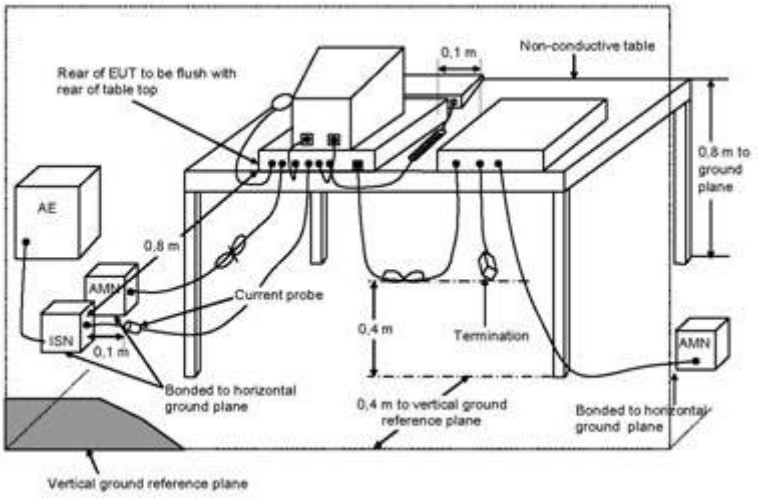
7.5.2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

7.5.3. Emission Level= Correct Factor + Reading Level.

7.5.4. The test data and the scanning waveform are attached within Appendix I.

8. CONDUCTED DISTURBANCE AT TELECOMMUNICATION PORTS TERMINALS TEST

8.1. Configuration of Test System



8.2. Test Standard

EN 55022:2010

8.3. Conducted Disturbance at Telecommunication port Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μA)	Average Level dB(μA)
150kHz ~ 500kHz	84 to 74	74 to 64
500kHz ~ 30MHz	74	64

Notes: 1. The lower limit shall apply at the transition frequencies.
2. The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

8.4. Operating Condition of EUT

8.4.1.Environmental Conditions:
Ambient Temperature: 26℃, Relative Humidity: 60 %

8.4.2.Setup the EUT and the simulators as shown on Section 5.1.

8.4.3.Turn on the power of all equipments.

8.4.4.Let the EUT work in test mode (Running PC System) and test it.

8.5. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. ISN are used for measurements on telecom ports, they shall be nominally 0.8m from the EUT and bonded to a ground reference plane, other units of the equipment under test shall be at least 0.8m form the ISN, an ISN is connected to a telecommunications port during the measurement of conducted disturbances at the mains port,then ISN receiver port shall be teminated in 50-ohm and the LCL Shall be representative of the telecommunications network to which that port attaches, In order to make reliable emission measurements representative of high LAN utilization it is only necessary to create a condition of LAN utilization in excess of 10% and sustain that and pseudo-random messages in order to emulate realistic types of data transmission. If the LAN maintains transmission during idle periods measurements shall also be made during idle periods.

The bandwidth of test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 8.6.

8.6. Conducted Disturbance At Telecommunication Ports Terminals Test Results

8.6.1.Test Results: **PASS**

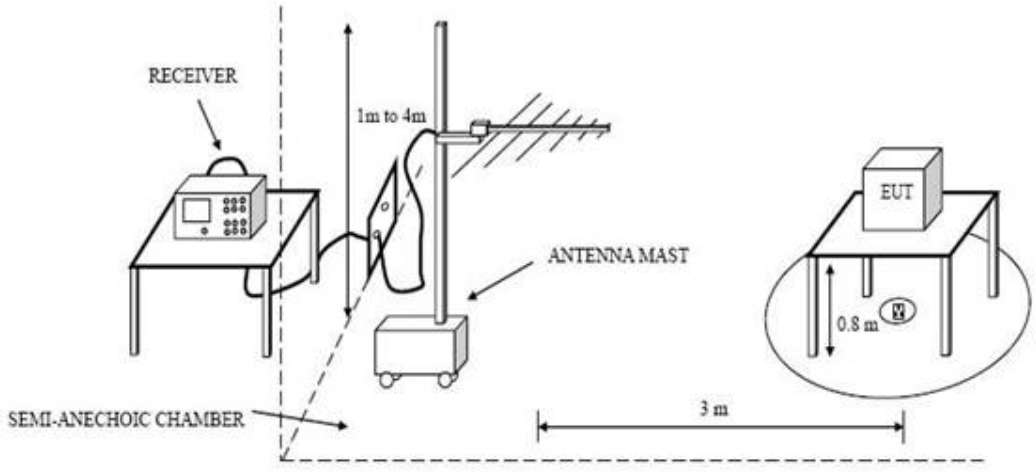
8.6.2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

8.6.3.Emission Level= Correct Factor + Reading Level.

8.6.4.The test data and the scanning waveform are attached within Appendix II.

9. RADIATED DISTURBANCE TEST

9.1. Configuration of Test System



9.2. Test Standard

EN 55022:2010

9.3. Radiated Disturbance Limit

All emanations from a Class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)	
30 ~ 230	3	40(QP)	
230 ~ 1000	3	47(QP)	
1000-3000	3	70(Peak)	50(AV)
3000-6000	3	74(Peak)	54(AV)

Note: 1.The lower limit shall apply at the transition frequencies.
2. Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.

9.4. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to EN 55022 Class B on Radiated Disturbance test.

The bandwidth setting on the test receiver is 120 kHz (frequency range: 30MHz to 1000MHz) and 1MHz (frequency range: above 1000MHz).

The frequency range from 30MHz to 6000MHz is checked. The test result are reported on Section 8.5.

9.5. Radiated Disturbance Test Results

9.5.1. Test Results: **PASS**

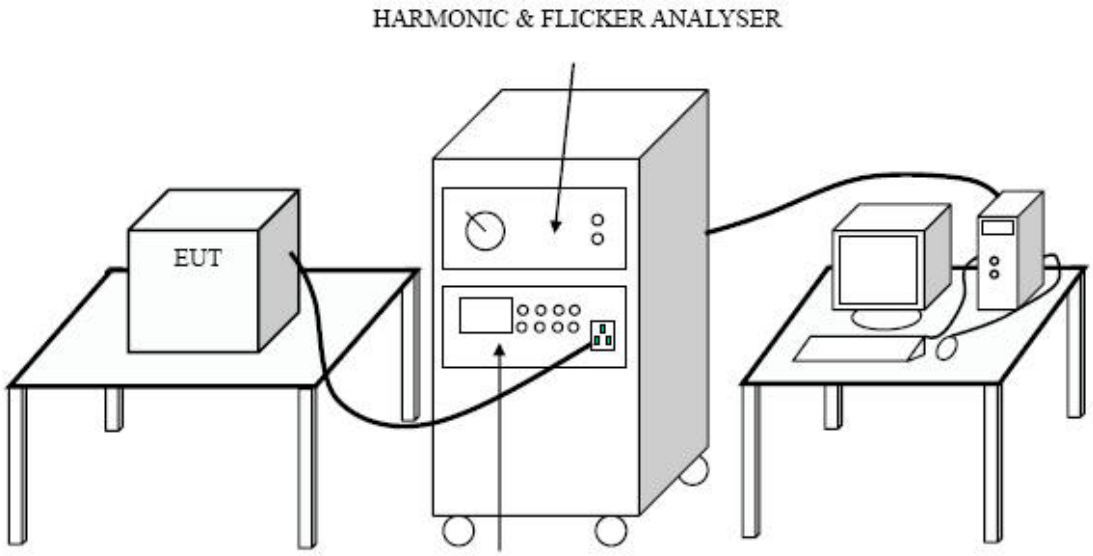
9.5.2. Emission Level= Correct Factor + Reading Level.

9.5.3. All reading are Quasi-Peak values.

9.5.4. The test data and the scanning waveform are attached within Appendix III.

10. HARMONIC CURRENT TEST

10.1. Configuration of Test System



10.2. Test Standard

EN 61000-3-2:2014;

10.3. Test Results

10.3.1. Test Results: **PASS**

10.3.2. All test data on the following pages.

HARMONICS CURRENT TEST REPORT

Company	Jetway	Test Engineer	Deft
Model name	Motherboard		
Type	HBJC1XXF595-YYYY		
Serial No.		Type of test	EN61000-3-2: 2014
			*IEC61000-3-2: 2014
Operating mode	Running PC System+Ping		EN61000-4-7: 2002/A1:2009
Date of test	2015/12/04 9:12:43		*IEC61000-4-7: 2002+A1:2008
Climatic condition	T:23;H:51%	Classification	Class D
Memo		Power analyzer	KHA1000, Ver1.50
		Supply Source	DC 19V by Adapter
		Reference Impedance	

Test Data of Current Harmonics

FINAL TEST RESULT PASS

Voltage	230.52V	THC	0.138A
Current	0.249A	POHC/LIMIT	0.055A/ 0.377A *3
Power	23.23W	Nominal	230V/ 50Hz
		Fundamental current	0.151A
Apparent Power	56.6VA	Measuring period	600s
		Margin	100%

HarmOrder	Limit1(A rms)	Limit2(A rms)	Ave(A rms)	Max(A rms)	Judge
2	1.6200	2.4300	0.0061	0.041	N/A
3	3.4500	5.1750	0.0476	0.070	N/A
4	0.6450	0.9675	0.0074	0.024	N/A
5	1.7100	2.5650	0.0250	0.049	N/A
6	0.4500	0.6750	0.0079	0.018	N/A
7	1.1550	1.7325	0.0213	0.037	N/A
8	0.3450	0.5175	0.0090	0.017	N/A
9	0.6000	0.9000	0.0170	0.029	N/A
10	0.2760	0.4140	0.0104	0.018	N/A
11	0.4950	0.7425	0.0165	0.023	N/A
12	0.2300	0.3450	0.0119	0.018	N/A
13	0.3150	0.4725	0.0164	0.023	N/A
14	0.1971	0.2957	0.0135	0.019	N/A
15	0.2250	0.3375	0.0164	0.020	N/A
16	0.1725	0.2588	0.0147	0.019	N/A
17	0.1985	0.2978	0.0166	0.020	N/A
18	0.1533	0.2300	0.0156	0.019	N/A
19	0.1776	0.2664	0.0167	0.022	N/A
20	0.1380	0.2070	0.0158	0.019	N/A
21	0.2411	0.2411	0.0168	0.020	N/A
22	0.1255	0.1882	0.0160	0.019	N/A
23	0.2201	0.2201	0.0168	0.020	N/A
24	0.1150	0.1725	0.0164	0.022	N/A
25	0.2025	0.2025	0.0167	0.022	N/A
26	0.1062	0.1592	0.0164	0.019	N/A
27	0.1875	0.1875	0.0164	0.019	N/A
28	0.0986	0.1479	0.0162	0.019	N/A
29	0.1746	0.1746	0.0161	0.019	N/A
30	0.0920	0.1380	0.0160	0.019	N/A
31	0.1633	0.1633	0.0157	0.019	N/A
32	0.0863	0.1294	0.0154	0.019	N/A
33	0.1534	0.1534	0.0153	0.018	N/A
34	0.0812	0.1218	0.0150	0.018	N/A
35	0.1446	0.1446	0.0150	0.018	N/A
36	0.0767	0.1150	0.0150	0.018	N/A
37	0.1368	0.1368	0.0152	0.018	N/A
38	0.0726	0.1089	0.0150	0.021	N/A
39	0.1298	0.1298	0.0158	0.021	N/A
40	0.0690	0.1035	0.0174	0.024	N/A

Type of equipment behaviour:Quasi-Stationary

*3 When the POHC value does not exceed the POHC Limit, 150% of the Limit1 value is applied to each Limit1 value.

11. VOLTAGE FLUCTUATIONS & FLICKER TEST

11.1. Configuration of Test System

Same as Section 9.1.

11.2. Test Standard

EN 61000-3-3:2013

11.3. Test Limits

The limits shall be applicable to voltage fluctuations and flicker ata the supply terminal s of the equipment under test, the followinglimites apply:
the value of Pst shall not be greater than 1.0;
the value of Plt shall not be greater than 0.65;
the value of d(t) during a voltage change shall not exceed 3.3% for more than 500ms;
the relative steady-state voltage change, dc, shall not exceed 3.3%;
the maximum relative voltage change dmax, shall not exceed
a) 4% without additional conditions;
b) 6% for equipment which is:
Switched manually, or
Swithced automatically more frequently than twice per day, and also has either a delayed restart(the delay being not less than a few thens of seconds), or manual restart, after a power supply interruption.
c) 7%for equipment which is
Attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart(the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

11.4. Test Results

11.4.1. Test Results: **PASS**

11.4.2. All test data on the following pages.

Voltage Fluctuation and Flicker TEST REPORT

Company	Jetway	Test Engineer	Deft
Model name	Motherboard		
Type	HBJC1XXF595-YYYY-ZZ		
Serial No.		Type of test	EN61000-3-3:1995/A2(2005) *IEC61000-3-3 Ed1.2(2005)
Operating mode	Running PC System+Ping		EN61000-4-15:1998/A1(2003) *IEC61000-4-15 Ed1.1(2003)
Date of test	2015/12/04 8:58:43		
Climatic condition	T:23;H:51%		
Memo		Power analyzer	KHA1000,Ver1.50
		Supply Source	DC 19 V by Adapter
		Reference Impedance	

Test Data of Voltage Fluction and Flicker

FINAL TEST RESULT	PASS
Nominal Voltage	230V
Nominal Frequency	50Hz
Plt Test duration	330s
Flicker Margin	100%
d Measurement Margin	100%

	Pst	dc(%)	dmax(%)	d(t)>3.3%(ms)	Judge
Limit	1.000	3.300	4.000	500	
Seg. 1	0.007	0.004	0.035	0	Pass
Seg. 2	-.---	-.---	-.---	------	
Seg. 3	-.---	-.---	-.---	------	
Seg. 4	-.---	-.---	-.---	------	
Seg. 5	-.---	-.---	-.---	------	
Seg. 6	-.---	-.---	-.---	------	
Seg. 7	-.---	-.---	-.---	------	
Seg. 8	-.---	-.---	-.---	------	
Seg. 9	-.---	-.---	-.---	------	
Seg.10	-.---	-.---	-.---	------	
Seg.11	-.---	-.---	-.---	------	
Seg.12	-.---	-.---	-.---	------	

	Plt	Judge
Limit	0.650	
Measurement	0.003	Pass

12. IMMUNITY PERFORMANCE CRITERIA

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:
Based on the used product standard
Based on the declaration of the manufacturer, requestor or purchaser

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 manufacturer 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 derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

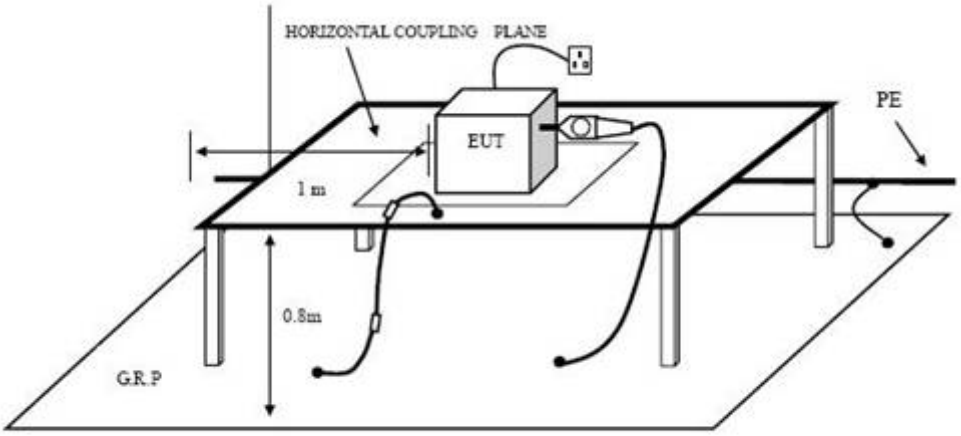
Criterion B:
After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating 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 derived from the product description and documentation, and by what the user may reasonably expect form the equipment if used as intended.

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 manufacturer’s instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

13.ELECTROSTATIC DISCHARGE IMMUNITY TEST

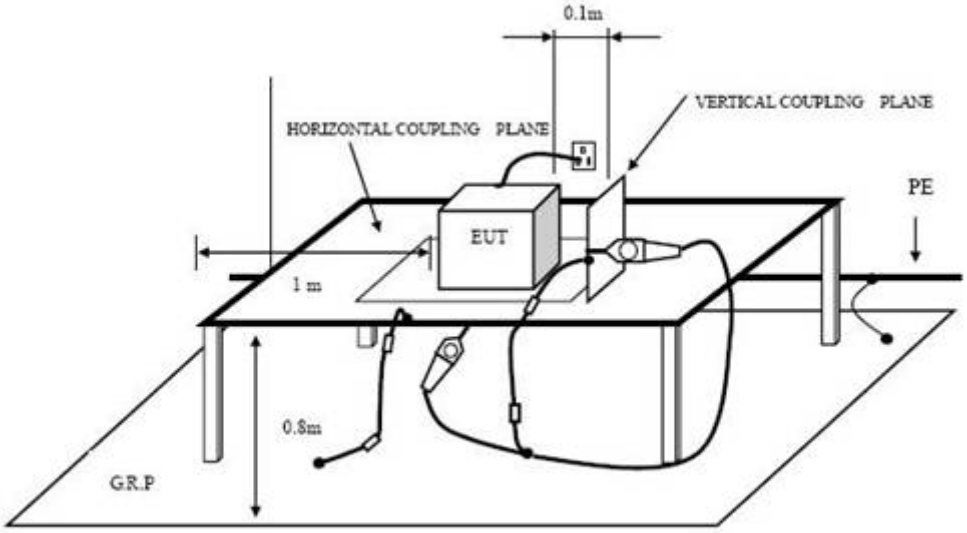
13.1.Configuration of Test System

13.1.1. Configuration of ESD Test System(Direct Discharge)



DIRECT DISCHARGE SETUP

13.1.2.Configuration of ESD Test System(Indirect Discharge)



INDIRECT DISCHARGE SETUP

13.2.Test Standard

EN 55024:2010 (IEC 61000-4-2:2008)
(Severity Level 3 for Air Discharge at 8KV,
Severity Level 2 for Contact Discharge at 4KV)

13.3.Severity Levels and Performance Criterion

13.3.1.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

13.3.2.Performance criterion : **B**

13.4.Test Procedure

13.4.1.Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

13.4.2.Contact Discharge:

All the procedure was same as Section 12.4.1. except that the generator was re-triggered for a new single discharge and repeated 50 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated.

13.5.Test Results

13.5.1.Test Results: **PASS**

13.5.2.Test data on the following pages.

Electrostatic Discharge Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date:*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion :*	*B*
Temperature:	*26℃*	*Humidity:*	*54%*

Air Discharge: ±8KV *# For Air Discharge each Point Positive 10 times and negative 10 times discharge.*

Contact Discharge: ±4KV *# For Contact Discharge each point positive 25 times and negative 25 times discharge*

Test Results Description

Location	***Kind*** *A-Air Discharge C-Contact Discharge*	***Result***
Housing	*A*	*PASS*
Gaps	*A*	*PASS*
HCP	*C*	*PASS*
VCP of Front	*C*	*PASS*
VCP of Rear	*C*	*PASS*
VCP of Left	*C*	*PASS*
VCP of Right	*C*	*PASS*

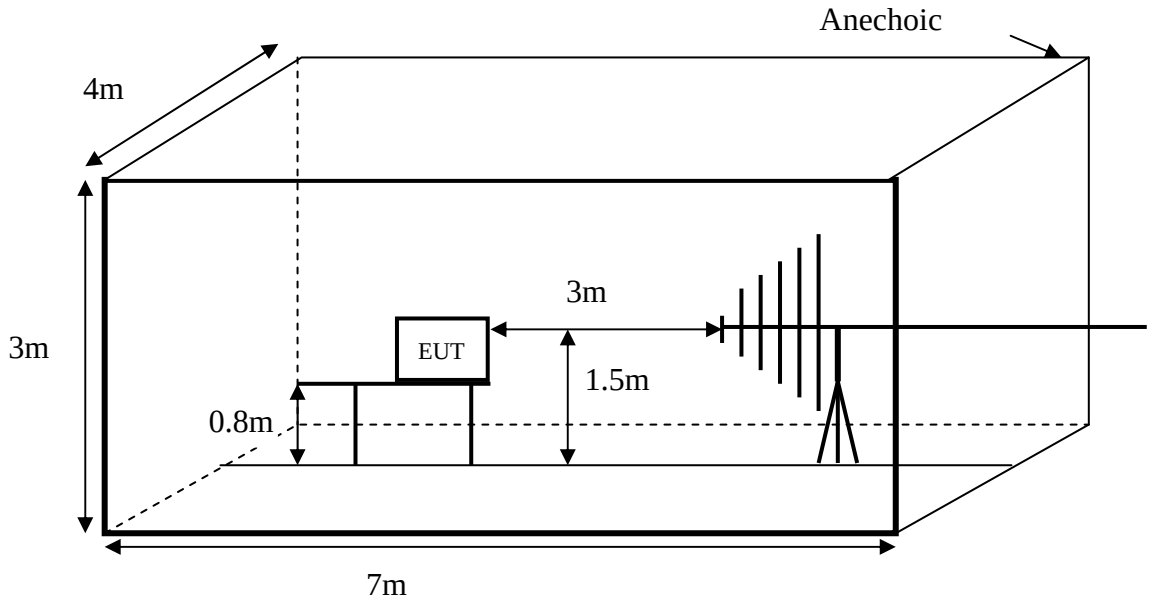
Remark :

Discharge was considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

Reviewer : Henry

14. RF FIELD STRENGTH SUSCEPTIBILITY TEST

14.1. Configuration of Test System



14.2. Test Standard

EN 55024:2010 (IEC 61000-4-3:2006+A1:2007+A2:2010)
(Severity Level: 2 at 3V / m)

14.3. Severity Levels and Performance Criterion

14.3.1. Severity level

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

14.3.2. Performance criterion **: A**

14.4.Test Procedure

Testing was performed in a Fully anechoic chamber as recommended by IEC 61000-4-3. The EUT was placed on an 80 cm high non-conductive table located in the area of field uniformity. The radiating antenna was placed 3m in front of the EUT and Support system, and dwell time of the radiated interference was controlled by an automated, computer-controlled system. The signal source was stepped through the applicable frequency range at a rate no faster than 1% of the fundamental. The signal was amplitude modulated 80% over the frequency range 80 MHz to 1GHz at a level of 3 V/m. The dwell time was set at 1.5 s. Field presence was monitored during testing via a field probe placed in close proximity to the EUT. Throughout testing, the EUT was closely monitored for signs of susceptibility. The test was performed with the antennae oriented in both a horizontal and vertical polarization.

All the scanning conditions are as follows **:**

Condition of Test	Remarks
1. Test Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	80% amplitude modulated with a 1kHz sine wave
3. Scanning Frequency	80 - 1000 MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1.5 Sec.

14.5.Test Results

14.5.1.Test Results: **PASS**

14.5.2.Test data on the following pages.

RF Field Strength Susceptibility Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date:*	*Dec. 09, 2015*
Test Mode:	*1*	*Frequency Range:*	*80-1000MHz*
Field Strength :	*3 V/m*	*Criterion :*	*A*
Temperature:	*25℃*	*Humidity:*	*55%*
Modulation:	*☑AM ☐Pulse ☐none 1 kHz 80%*		

Test Results Description

Frequency Rang 1:
80MHz - 1000 MHz

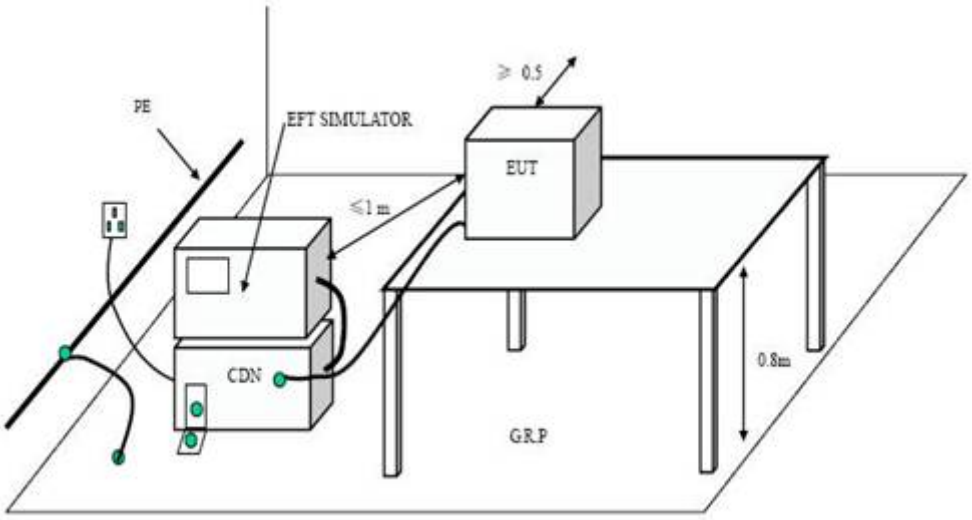
Steps	*1%*	*1%*
	Horizontal	*Vertical*
Front	*PASS*	*PASS*
Right	*PASS*	*PASS*
Rear	*PASS*	*PASS*
Left	*PASS*	*PASS*

Note: No function loss

Reviewer : Henry

15.ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

15.1.Configuration of Test System



15.2.Test Standard

EN 55024:2010 (IEC 61000-4-4:2012)
(Severity Level 2 at 1KV)

15.3.Severity Levels and Performance Criterion

15.3.1.Severity level

Open Circuit Output Test Voltage ±10%		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

15.3.2.Performance criterion **: B**

15.4.Test Procedure

The EUT and its simulators were placed on a the ground reference plane and were insulated from it by an wood support 0.1m ± 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was 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 was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

15.4.1.For input and AC power ports:

The EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage was applied during compliance test and the duration of the test can't less than 2mins.

15.4.2.For signal lines and control lines ports:

It's unnecessary to test.

15.4.3.For DC input and DC output power ports:

It's unnecessary to test.

15.5.Test Results

15.5.1.Test Results: **PASS**

15.5.2.Test data on the following pages.

Electrical Fast Transient/Burst Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date :*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion :*	*B*
Temperature:	*24℃*	*Humidity:*	*56%*

Test Results Description

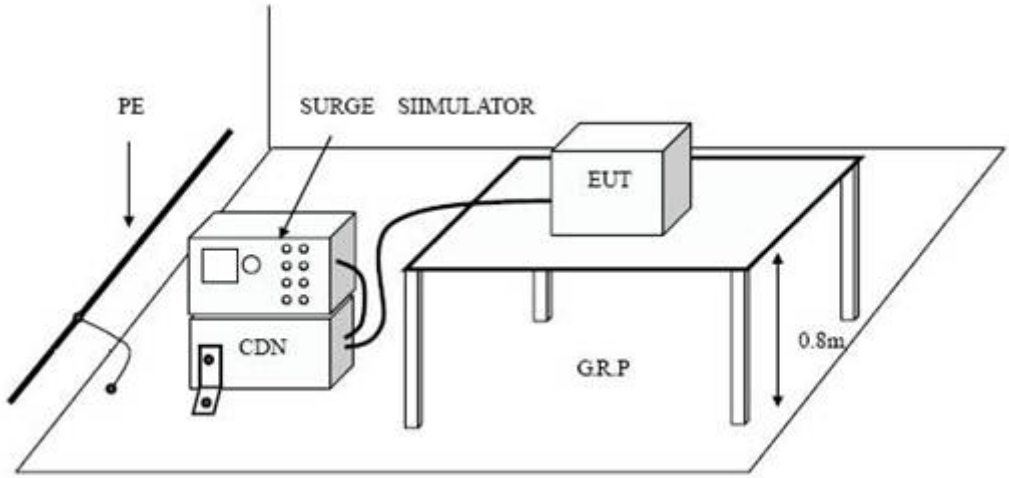
Inject Line	*Voltage KV*	*Inject Time(s)*	*Inject Method*	*Results*	*Inject Line*	*Voltage KV*	*Inject Time(s)*	*Inject Method*	*Results*
L	*±1*	*120*	*Direct*	*PASS*					
N	*±1*	*120*	*Direct*	*PASS*					
PE	*±1*	*120*	*Direct*	*PASS*					
L N	*±1*	*120*	*Direct*	*PASS*					
L PE	*±1*	*120*	*Direct*	*PASS*					
N PE	*±1*	*120*	*Direct*	*PASS*					
L N PE	*±1*	*120*	*Direct*	*PASS*					

Remark:

Reviewer : _____

16. SURGE TEST

16.1. Configuration of Test System



16.2. Test Standard

EN 55024:2010 (IEC 61000-4-5:2014)
(Severity Level **:** Line to Line was Level 2 at 1KV
Line to PE was Level 3 at 2KV)

16.3. Severity Levels and Performance Criterion

16.3.1. Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

16.3.2. Performance criterion **: B**

16.4.Test Procedure

16.4.1.Set up the EUT and test generator as shown on Section 15.1.

16.4.2.For line to line coupling mode, provide a 1KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral line to ground are same except test level is 2KV.

16.4.3.At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.

16.4.4.Different phase angles are done individually.

16.4.5.Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

16.5.Test Results

16.5.1.Test Results: **PASS**

16.5.2.Test data on the following pages.

Surge Immunity Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date :*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion :*	*B*
Temperature:	*25℃*	*Humidity:*	*55%*

Test Results Description

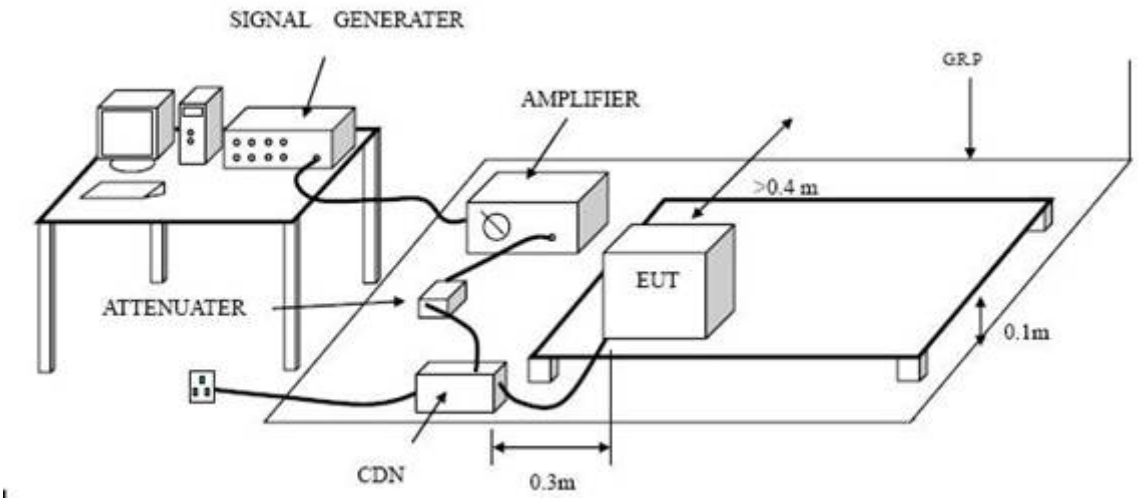
Location	*Polarity*	*Phase Angle*	*No of Pulse*	*Pulse Voltage (KV)*	*Result*
L-N	±	*0*	*5*	*1.0*	*PASS*
	±	*90*	*5*	*1.0*	*PASS*
	±	*180*	*5*	*1.0*	*PASS*
	±	*270*	*5*	*1.0*	*PASS*
L-PE	±	*0*	*5*	*2.0*	*PASS*
	±	*90*	*5*	*2.0*	*PASS*
	±	*180*	*5*	*2.0*	*PASS*
	±	*270*	*5*	*2.0*	*PASS*
N-PE	±	*0*	*5*	*2.0*	*PASS*
	±	*90*	*5*	*2.0*	*PASS*
	±	*180*	*5*	*2.0*	*PASS*
	±	*270*	*5*	*2.0*	*PASS*

Remark:

Reviewer : Henry

17.INJECTED CURRENTS SUSCEPTIBILITY TEST

17.1.Configuration of Test System



17.2.Test Standard

EN 55024:2010 (IEC 61000-4-6:2013)
(Severity Level 2 at 3V (r.m.s.) and frequency is from 0.15MHz to 80MHz)

17.3. Severity Levels and Performance Criterion

17.3.1.Severity level

Level	Voltage Level (e.m.f.) V
1.	1
2.	3
3.	10
X	Special

17.3.2.Performance criterion: **A**

17.4.Test Procedure

17.4.1.Set up the EUT, CDN and test generators as shown on Section 16.1.

17.4.2.Let the EUT work in test mode and test it.

17.4.3.The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

17.4.4.The disturbance signal description below is injected to EUT through CDN.

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

17.4.6.The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.

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

17.4.8.Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

17.5.Test Results

17.5.1.Test Results: **PASS**

17.5.2.Test data on the following pages.

Injected Currents Susceptibility Test Results

Most Technology Service Co., Limited

Power Supply :	*1*	*Test Date:*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion:*	*A*
Temperature:	*24℃*	*Humidity:*	*56%*

Test Results Description

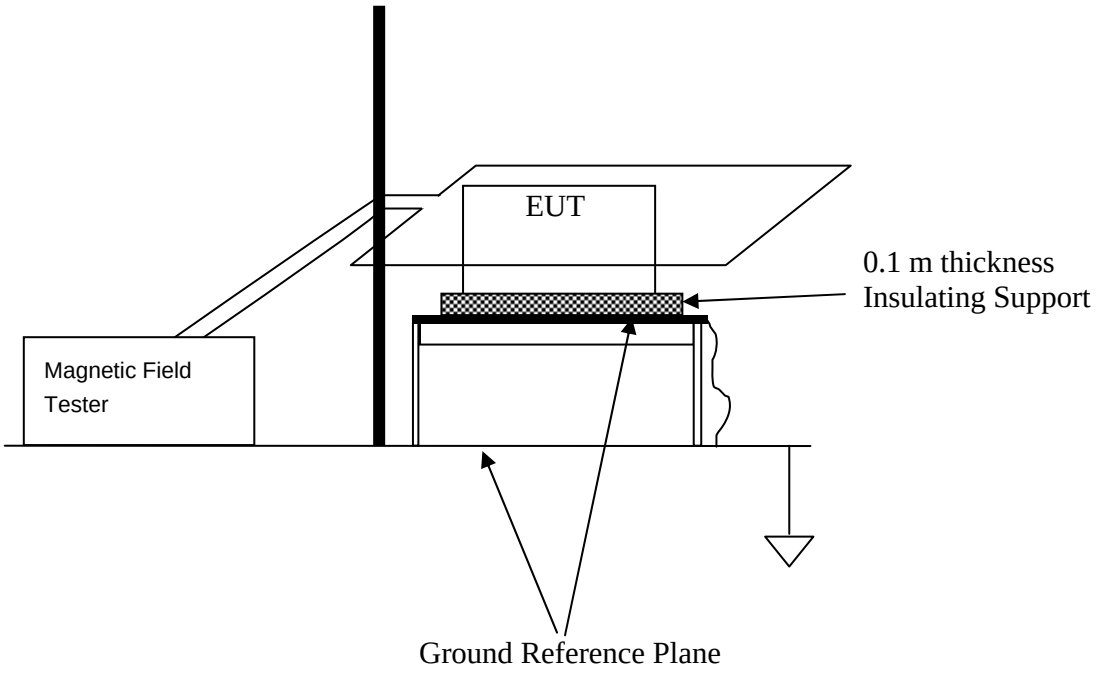
Frequency Range (MHz)	*Injected Position*	*Voltage Level (e.m.f.)*	*Criterion*	*Result*
0.15 ~ 80	*AC Mains*	*3V(rms), Unmodulated*	*A*	*PASS*

Remark : *No function loss*

Reviewer : Henry

18. MAGNETIC FIELD IMMUNITY TEST

18.1. Configuration of Test System



18.2. Test Standard

EN 55024:2010 (IEC 61000-4-8:2009)
(Severity Level 1 at 1A/m)

18.3. Severity Levels and Performance Criterion

18.3.1. Severity level

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

18.3.2. Performance criterion : **A**

18.4. Test Procedure

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 17.1. The induction coil was then rotated by 90° in order to expose the EUT to the test field with different orientations.

18.5. Test Results

18.5.1. Test Results: **PASS**

18.5.2. Test data on the following pages.

Magnetic Field Immunity Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date:*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion :*	*A*
Temperature:	*26℃*	*Humidity:*	*54%*

Test Results Description

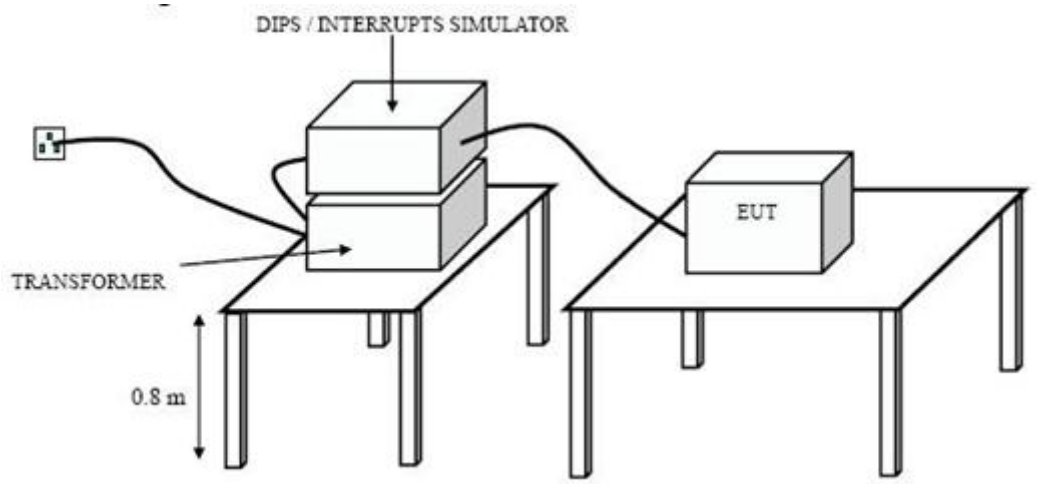
Test Level	*Testing Duration*	*Coil Orientation*	*Criterion*	*Result*
1A/m(50Hz/60Hz)	*5 mins*	*X*	*A*	*PASS*
1A/m(50Hz/60Hz)	*5 mins*	*Y*	*A*	*PASS*
1A/m(50Hz/60Hz)	*5 mins*	*Z*	*A*	*PASS*

Remark: *No function loss*

Reviewer : Henry

19. VOLTAGE DIPS AND INTERRUPTIONS TEST

19.1.Configuration of Test System



19.2.Test Standard

EN 55024:2010 (IEC 61000-4-11:2004)
(Severity level: 0% 250 period
0% 0.5 periods
70% 25 periods)

19.3.Severity Levels and Performance Criterion

19.3.1.Severity level

Test Level %U_T	Voltage dip and short interruptions %U_T	Performance Criterion	Duration (in period)
0	100	C	250
0	100	B	0.5
70	30	C	25

19.3.2.Performance criterion : **B & C**

19.4.Test Procedure

19.4.1.The EUT and test generator were setup as shown on Section 18.1.

19.4.2.The interruptions is introduced at selected phase angles with specified duration.

19.4.3.Record any degradation of performance.

19.5.Test Results

19.5.1.Test Results: PASS

19.5.2.Test data on the following pages.

Voltage Dips And Interruptions Test Results

Most Technology Service Co., Limited

Test Voltage :	*1*	*Test Date:*	*Dec. 09, 2015*
Test Mode :	*1*	*Criterion :*	*B&C*
Temperature:	*25℃*	*Humidity:*	*55%*

Test Results Description

Test Level % U_T	*Voltage Dips & Short Interruptions % U_T*	*Duration (in period)*	*Phase Angle*	*Criterion*	*Result*
0	*100*	*250P*	*0°~360°*	*C*	*PASS*
70	*30*	*25P*	*0°~360°*	*C*	*PASS*
0	*100*	*0.5P*	*0°~360°*	*B*	*PASS*

Remark: *U_T is the rated voltage for the equipment.*

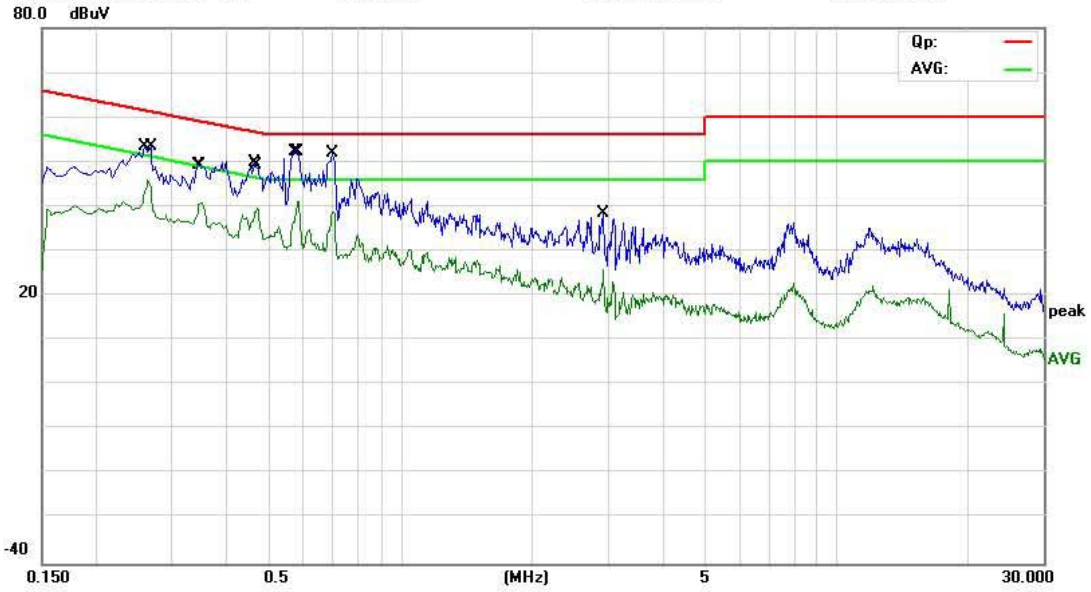
Reviewer : 

APPENDIX I

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Conducted Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#12 Date: 2015-12-9 Time: 16:16:21



Site MOST #1
Limit: EN55022 Class B QP
EUT: Motherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Phase: L1
Power: DC 19 V by Adapter

Temperature: 23.4
Humidity: 52.7 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2580	41.86	11.61	53.47	61.50	-8.03	QP	
2		0.2620	34.46	11.59	46.05	51.37	-5.32	AVG	
3		0.3460	38.29	11.03	49.32	59.06	-9.74	QP	
4		0.3500	29.95	11.00	40.95	48.96	-8.01	AVG	
5		0.4660	39.54	10.23	49.77	56.58	-6.81	QP	
6		0.4700	29.46	10.20	39.66	46.51	-6.85	AVG	
7	*	0.5740	42.27	10.00	52.27	56.00	-3.73	QP	
8		0.5820	31.17	10.00	41.17	46.00	-4.83	AVG	
9		0.6980	41.95	10.00	51.95	56.00	-4.05	QP	
10		0.7020	28.85	10.00	38.85	46.00	-7.15	AVG	
11		2.9340	28.42	9.93	38.35	56.00	-17.65	QP	
12		2.9340	15.82	9.93	25.75	46.00	-20.25	AVG	

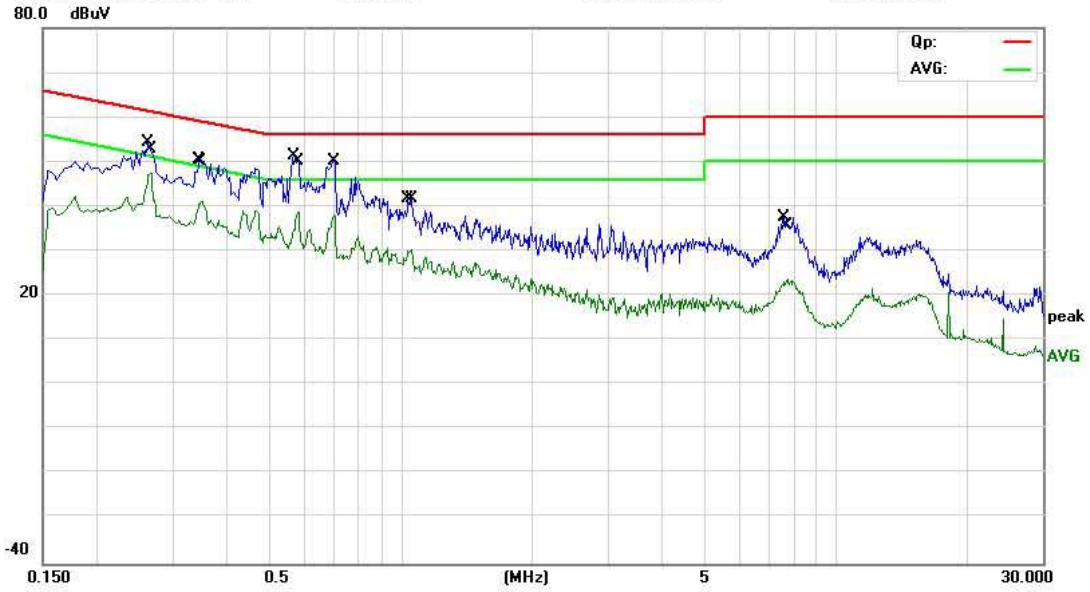
*:Maximum data x:Over limit !:over margin

Engineer Signature: hzy

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Conducted Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#13 Date: 2015-12-9 Time: 16:18:09



Site MOST #1
Limit: EN55022 Class B QP
EUT: Motherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Phase: N
Power: DC 19 V by Adapter

Temperature: 23.4
Humidity: 52.7 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2620	42.87	11.59	54.46	61.37	-6.91	QP	
2	*	0.2660	35.91	11.56	47.47	51.24	-3.77	AVG	
3		0.3460	39.40	11.03	50.43	59.06	-8.63	QP	
4		0.3500	30.17	11.00	41.17	48.96	-7.79	AVG	
5		0.5700	41.48	10.00	51.48	56.00	-4.52	QP	
6		0.5820	28.83	10.00	38.83	46.00	-7.17	AVG	
7		0.7020	40.09	10.00	50.09	56.00	-5.91	QP	
8		0.7020	28.27	10.00	38.27	46.00	-7.73	AVG	
9		1.0380	31.74	9.96	41.70	56.00	-14.30	QP	
10		1.0580	20.50	9.94	30.44	46.00	-15.56	AVG	
11		7.6380	27.02	10.42	37.44	60.00	-22.56	QP	
12		7.7620	13.53	10.34	23.87	50.00	-26.13	AVG	

*:Maximum data x:Over limit l:over margin

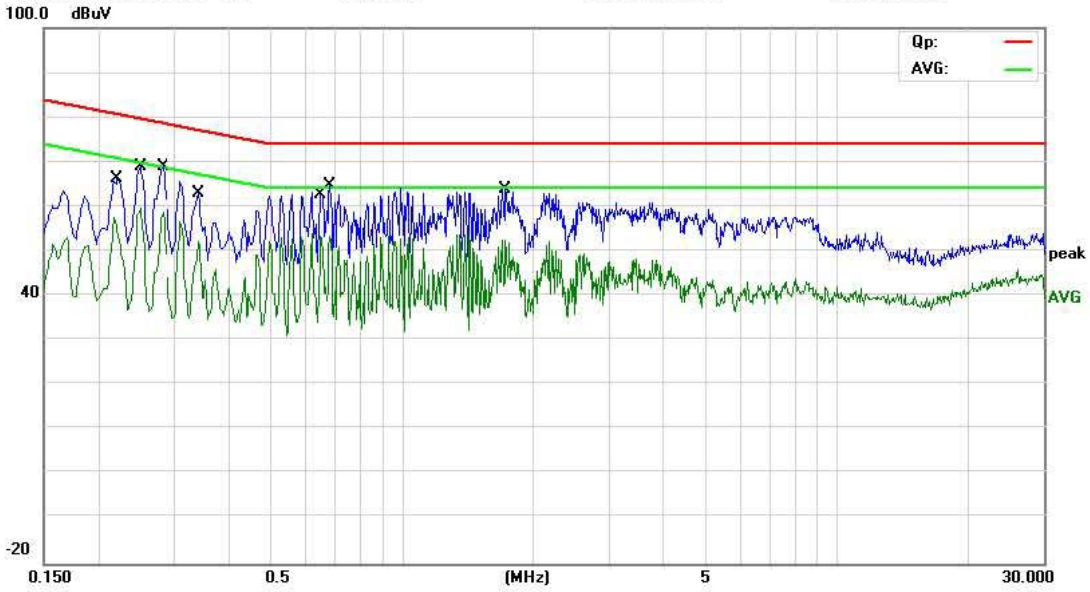
Engineer Signature: hzy

APPENDIX II

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Conducted Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#16 Date: 2015-12-9 Time: 17:47:03



Site MOST #1 Phase: Temperature: 23.4
Limit: EN 55022 Telecom Ports Conduction QP Power:DC 19 V by Adapter Humidity: 52.7 %
EUT: Motherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Ping
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2180	47.55	9.86	57.41	70.89	-13.48	AVG	
2		0.2207	56.47	9.86	66.33	80.79	-14.46	QP	
3		0.2500	59.09	9.80	68.89	79.76	-10.87	QP	
4		0.2500	49.88	9.80	59.68	69.76	-10.08	AVG	
5		0.2820	59.09	9.74	68.83	78.76	-9.93	QP	
6		0.2820	48.93	9.74	58.67	68.76	-10.09	AVG	
7		0.3420	53.36	9.70	63.06	77.15	-14.09	QP	
8		0.3420	42.52	9.70	52.22	67.15	-14.93	AVG	
9		0.6540	43.87	9.60	53.47	64.00	-10.53	AVG	
10	*	0.6860	55.20	9.60	64.80	74.00	-9.20	QP	
11		1.7300	54.51	9.43	63.94	74.00	-10.06	QP	
12		1.7300	43.05	9.43	52.48	64.00	-11.52	AVG	

*:Maximum data x:Over limit !:over margin

Engineer Signature: hzy

APPENDIX III

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#4 Date: 2015-12-3 Time: 10:12:18



Site Chamber #1
Limit: EN 55022 Class B 3M Radiation
EUT: Montherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Polarization: *Vertical*
Power: DC 19 V by Adapter
Distance: 3m

Temperature: 24
Humidity: 50.5 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	49.5328	23.29	10.57	33.86	40.00	-6.14	QP			
2		60.2801	17.60	10.83	28.43	40.00	-11.57	QP			
3		136.4598	16.12	17.37	33.49	40.00	-6.51	QP			
4		175.6516	12.55	16.91	29.46	40.00	-10.54	QP			
5		255.6231	21.68	17.51	39.19	47.00	-7.81	QP			
6		830.4001	13.39	27.00	40.39	47.00	-6.61	QP			

*:Maximum data x:Over limit !:over margin

Engineer Signature: FLY

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#5 Date: 2015-12-3 Time: 10:24:52



Site Chamber #1
Limit: EN 55022 Class B 3M Radiation
EUT: Montherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Polarization: *Horizontal*
Power: DC 19 V by Adapter
Distance: 3m

Temperature: 24
Humidity: 50.5 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		61.7781	16.32	10.96	27.28	40.00	-12.72	QP			
2		134.5592	12.51	17.48	29.99	40.00	-10.01	QP			
3	*	167.8243	15.30	17.23	32.53	40.00	-7.47	QP			
4		248.5519	20.60	17.37	37.97	47.00	-9.03	QP			
5		455.9058	13.30	20.28	33.58	47.00	-13.42	QP			
6		830.4002	9.94	27.00	36.94	47.00	-10.06	QP			

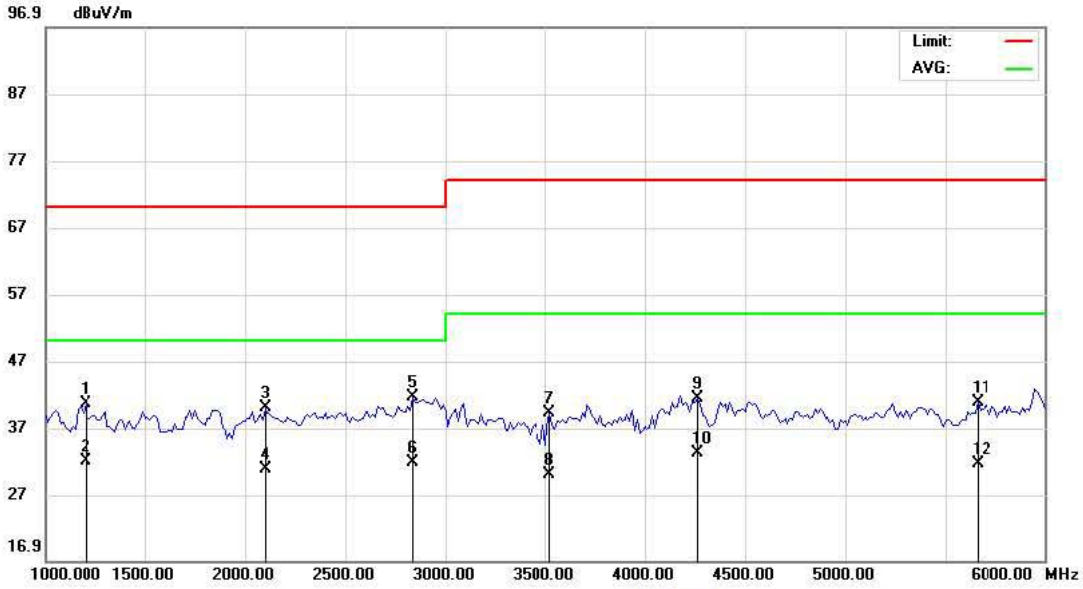
*:Maximum data x:Over limit !:over margin

Engineer Signature: FLY

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Nanshan Shenzhen
Guangdong China
Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#1 Date: 2015-12-03 Time: 10:58:01



Site site #1
Limit: EN55022 Class B 3M Radiation
EUT: Motherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Polarization: *Vertical*
Power: DC 19 V by Adapter
Distance: 3m

Temperature: 25.4
Humidity: 53 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1200.000	49.28	-8.70	40.58	70.00	-29.42	peak			
2	*	1200.000	40.61	-8.70	31.91	50.00	-18.09	AVG			
3		2100.000	47.33	-7.26	40.07	70.00	-29.93	peak			
4		2100.000	38.16	-7.26	30.90	50.00	-19.10	AVG			
5		2837.500	49.80	-8.29	41.51	70.00	-28.49	peak			
6		2837.500	40.10	-8.29	31.81	50.00	-18.19	AVG			
7		3525.000	47.56	-8.42	39.14	74.00	-34.86	peak			
8		3525.000	38.52	-8.42	30.10	54.00	-23.90	AVG			
9		4262.500	48.26	-6.88	41.38	74.00	-32.62	peak			
10		4262.500	40.13	-6.88	33.25	54.00	-20.75	AVG			
11		5662.500	44.71	-3.99	40.72	74.00	-33.28	peak			
12		5662.500	35.56	-3.99	31.57	54.00	-22.43	AVG			

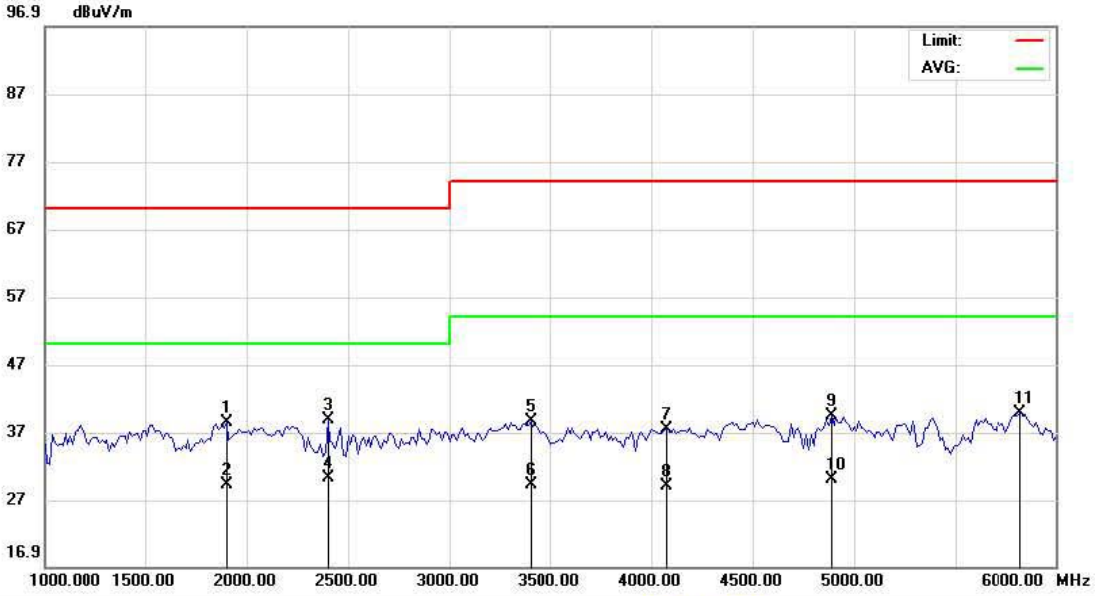
*:Maximum data x:Over limit !:over margin

Engineer Signature: Deft

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
(Nanshan) Shenzhen
Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement

File :HBJC1XXF595-YYYY-ZZ Data :#2 Date: 2015-12-03 Time: 11:09:19



Site site #1
Limit: EN55022 Class B 3M Radiation
EUT: Motherboard&Barebone
M/N: HBJC1XXF595-YYYY-ZZ
Mode: Running PC System+Ping
Note:

Polarization: *Horizontal*
Power: DC 19 V by Adapter
Distance: 3m

Temperature: 25.4
Humidity: 53 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1900.000	45.19	-6.85	38.34	70.00	-31.66	peak			
2		1900.000	36.10	-6.85	29.25	50.00	-20.75	AVG			
3		2400.000	47.21	-8.43	38.78	70.00	-31.22	peak			
4	*	2400.000	38.55	-8.43	30.12	50.00	-19.88	AVG			
5		3400.000	46.56	-8.00	38.56	74.00	-35.44	peak			
6		3400.000	37.18	-8.00	29.18	54.00	-24.82	AVG			
7		4075.000	45.08	-7.71	37.37	74.00	-36.63	peak			
8		4075.000	36.72	-7.71	29.01	54.00	-24.99	AVG			
9		4887.500	44.46	-5.15	39.31	74.00	-34.69	peak			
10		4887.500	35.17	-5.15	30.02	54.00	-23.98	AVG			
11		5825.000	42.89	-3.02	39.87	74.00	-34.13	peak			

*:Maximum data x:Over limit !:over margin

Engineer Signature: Deft

APPENDIX Ⅳ

(Photos of the EUT)

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT



Figure 3
General Appearance of the EUT



Figure 4
Components Side of the PCB

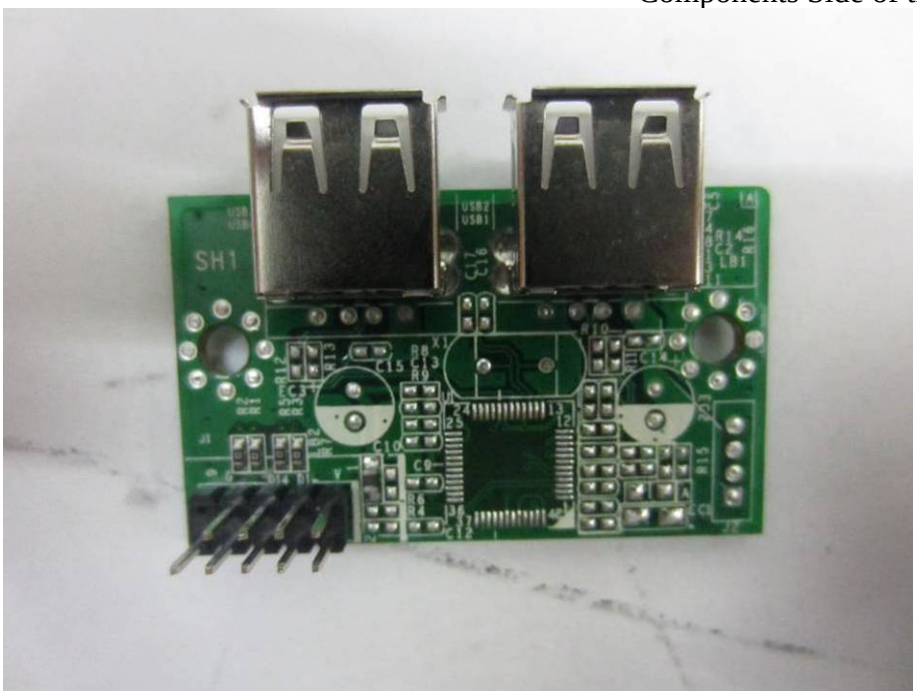


Figure 5
Components Side of the PCB

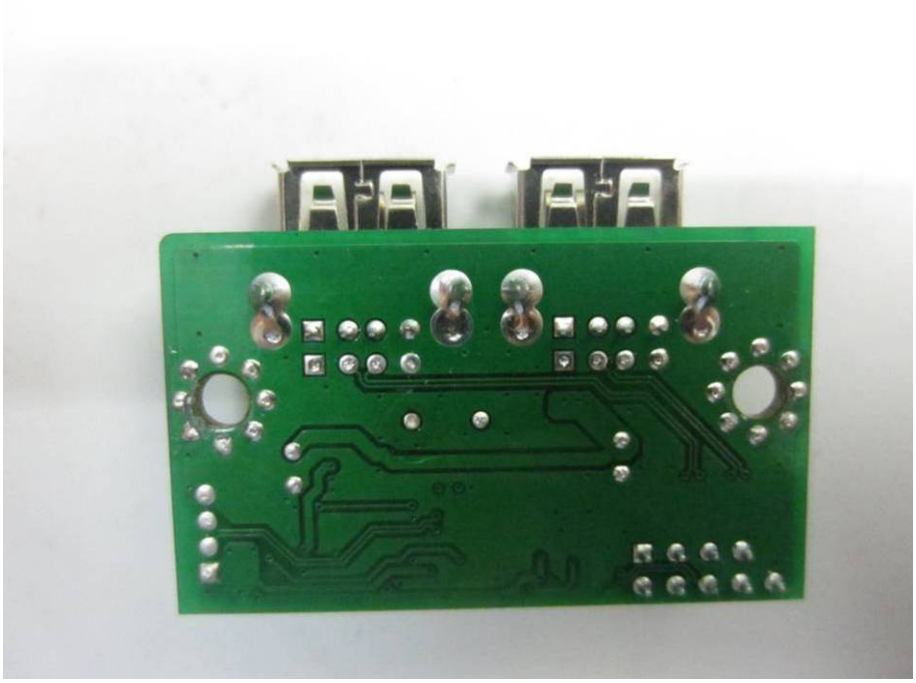


Figure 6
Components Side of the PCB



Figure 7
Components Side of the PCB



Figure 8
Components Side of the PCB



Figure 9
Components Side of the PCB



Figure 10
Components Side of the PCB



Figure 11
Components Side of the PCB



Figure 12
Components Side of the PCB



Figure 13
Components Side of the PCB



Figure 14
Components Side of the PCB



Figure 15
Components Side of the PCB

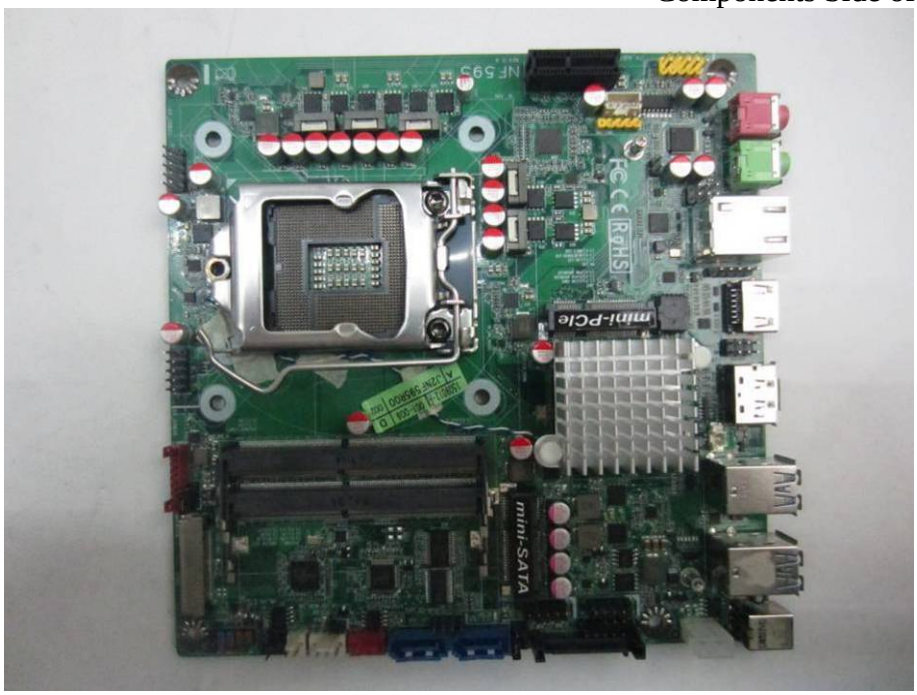


Figure 16
Components Side of the PCB



Figure 17
Components Side of the PCB



Figure 18
Components Side of the PCB



Figure 19
Adapter

