Test Report

Applicant:	Jetway Information Co.,Ltd
Product Name:	Motherboard/Barebone
Brand Name:	N/A
Model No.:	NF592XX-YYYY-ZZ(X,Y & Z: Stands for “A-Z” & “0-9”) HBJC1XXF592-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”)
Date of Receipt :	Feb. 15, 2016
Date of Test:	Feb. 16-25, 2016
Date of Report:	Feb. 25, 2016
Prepared by:	Most Compliance Laboratory Limited

The testing has been performed on the submitted samples and found in compliance with the council FCC Rules and Regulations Part 15 Subpart B

Most Compliance Laboratory Limited
OFFICE 11, 10 GREAT RUSSELL STREET, LONDON WC1B 3BQ

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TEST REPORT FOR FCC COMPLIANCE DECLARATION

Report Number	MTE/SNS/S16020237	
Applicant	Jetway Information Co.,Ltd	
	9F., No.207, Sec.3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan(R.O.C)	
Manufacturer	Candid International Co., Ltd	
	North Industrial Park, Overseas Chinese Economic Development Zone, Changshan, Zhangzhou City, Fujian Province, China	
Product	Product Name	Motherboard/Barebone
	Model No.	NF592XX-YYYY-ZZ（X,Y & Z：Stands for “A-Z” & “0-9”）
	By ATX Power supply	AC 230/50Hz
Test Result	The EUT was found compliant with the requirement(s) of the standards.	
Standard	FCC Rules and Regulations Part 15 Subpart B Class B	

*Note

The above device has been tested by Most Compliance Laboratory 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 Compliance Laboratory 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 Compliance Laboratory Limited, this document may be altered or revised by Most Compliance Laboratory 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	:	NF592XX-YYYY-ZZ(X,Y & Z: Stands for “A-Z” & “0-9”) HBJC1XXF592-YYYY-ZZ (X,Y & Z: Stands for “A-Z” & “0-9”)
Remark	:	Used NF592XX-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+Ping+load

1.3. Test Voltage(s) of EUT

Order Number	:	Test Voltage(s)
1	:	AC 230/50Hz

2. LABORATORY INFORMATION

2.1. Laboratory Name

Most Compliance Laboratory Limited

2.2. Location

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

2.3. 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

2.4. Measurement Uncertainty

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

2.5. Supporting System Details

2.5.1.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

2.5.2.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

2.5.3.Keyboard

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

2.5.4.Mouse

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

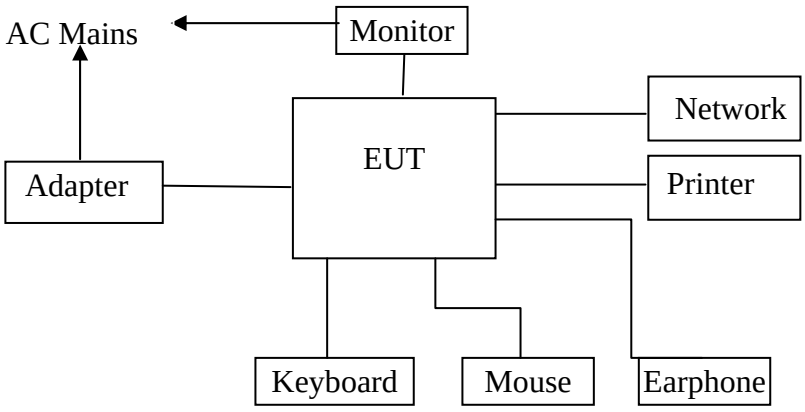
3. SUMMARY OF TEST RESULTS

EMISSION			
Test Item	**Standard**	**Limits**	**Results**
Conducted disturbance at mains terminals	FCC Subpart 15 B Section 15.107	Class B	PASS
Radiated disturbance	FCC Subpart 15 B Section 15.109	Class B	PASS
N/A is an abbreviation for Not Applicable.			

4. BLOCK DIAGRAM OF TEST SETUP

The equipments are installed test to meet ANSI C63.4:2009 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)

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



(EUT: Motherboard/Barebone)

5. TEST INSTRUMENT USED

5.1. 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

5.2. For Radiation Test (In Anechoic Chamber)

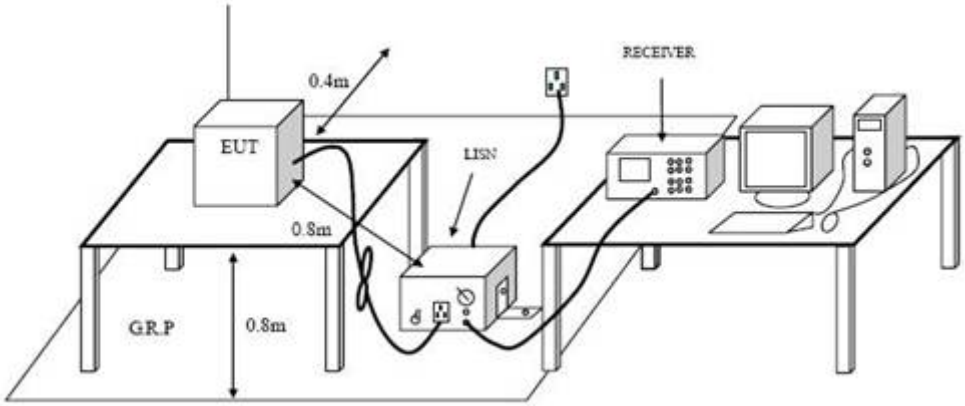
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESPI	101202	Mar. 10, 15	1 Year
2.	Bilog Antenna	Sunol	JB3	A121206	Mar. 14, 15	1 Year
3.	Cable	Resenberger	N/A	NO.1	Mar. 07, 15	1 Year
4.	Cable	SchwarzBeck	N/A	NO.2	Mar. 07, 15	1 Year
5.	Cable	SchwarzBeck	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

5.3. 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. CONDUCTED DISTURBANCE AT MAINS TERMINALS TEST

6.1. Configuration of Test System



6.2. Test Standard

FCC Subpart 15 B Section 15.107

6.3. Power Line Conducted Disturbance at Mains Terminals Limit

Frequency (MHz)	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

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

6.4. 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 ANSI C63.4:2009 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 6.5.

6.5. Conducted Disturbance at Mains Terminals Test Results

6.5.1. Test Results: **PASS**

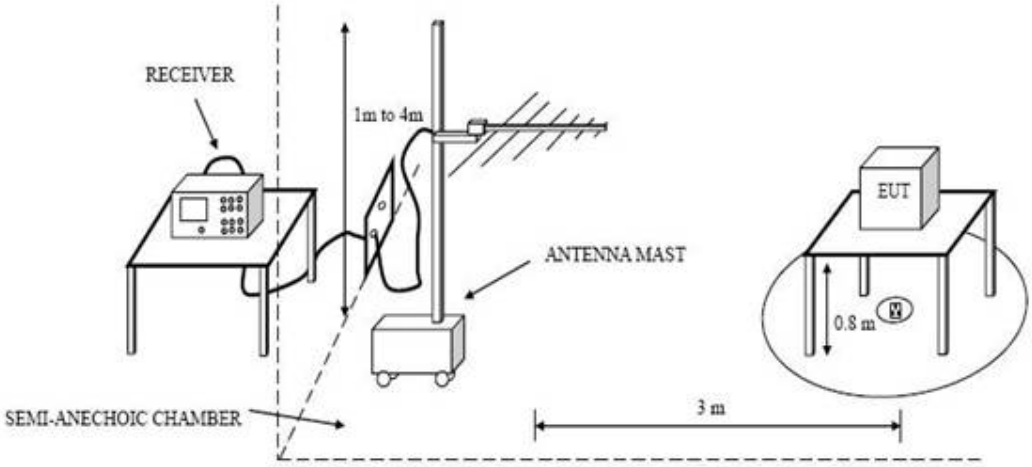
6.5.2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

6.5.3. Emission Level= Correct Factor + Reading Level.

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

7. RADIATED DISTURBANCE TEST

7.1. Configuration of Test System



7.2. Test Standard

FCC Subpart 15 B Section 15.109

7.3. Radiated Disturbance Limit

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)	
30 ~ 88	3	40.0	
88~216	3	43.5	
216~960	3	46.0	
960 ~ 1000	3	54.0	
1000-18000	3	74(peak)	54(AV)

Note: 1. Emission level (dB)μV = 20 log Emission level μV/m
2.The lower limit shall apply at the transition frequencies.
3. Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.

7.4. 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 ANSI C63.4:2009 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 18000MHz is checked. The test result are reported on Section 7.5.

7.5. Radiated Disturbance Test Results

7.5.1. Test Results: **PASS**

7.5.2. Emission Level= Correct Factor + Reading Level.

7.5.3. All reading are Quasi-Peak values.

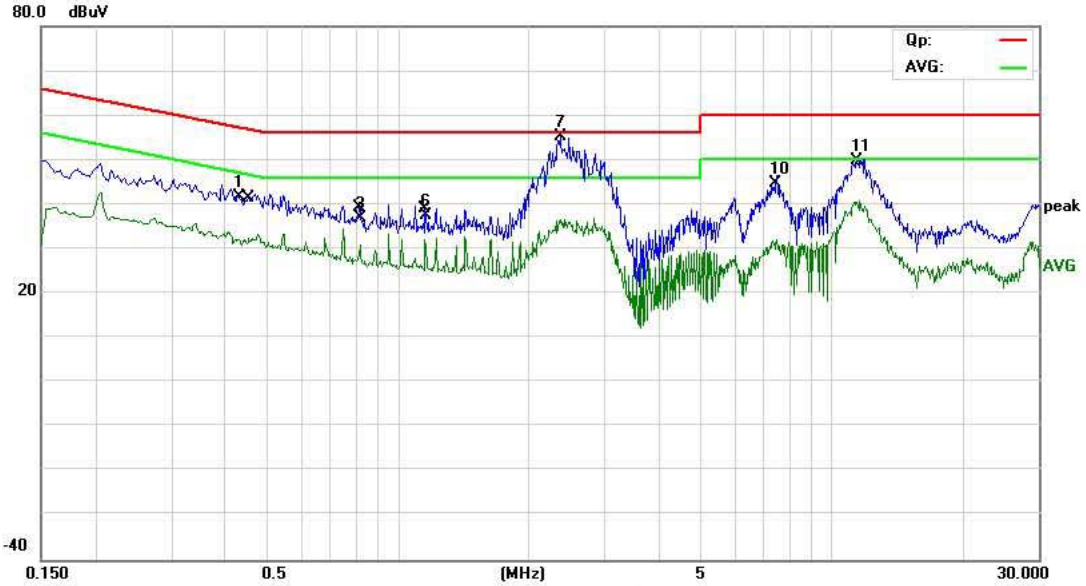
7.5.4. The test data and the scanning waveform are attached within Appendix II.

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 :NF592XX-YYYY-ZZ Data :#4 Date: 2016-1-21 Time: 13:54:20



Site MOST #1 Phase: N Temperature: 23.4

Limit: FCC Part15 B Class B QP Power: AC 120V/60Hz Humidity: 52.7 %

EUT: Mothboad/Barebone

M/N: NF592XX-YYYY-ZZ

Mode: Running PC System+Ping+load

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4305	31.99	9.64	41.63	57.24	-15.61	QP	
2		0.4460	22.55	9.64	32.19	46.95	-14.76	AVG	
3		0.8220	27.35	9.64	36.99	56.00	-19.01	QP	
4		0.8220	18.88	9.64	28.52	46.00	-17.48	AVG	
5		1.1580	22.40	9.65	32.05	46.00	-13.95	AVG	
6		1.1620	27.83	9.65	37.48	56.00	-18.52	QP	
7	*	2.3700	45.64	9.67	55.31	56.00	-0.69	QP	
8		2.3820	27.12	9.67	36.79	46.00	-9.21	AVG	
9		7.3660	22.26	9.74	32.00	50.00	-18.00	AVG	
10		7.4340	35.01	9.74	44.75	60.00	-15.25	QP	
11		11.4540	40.05	9.82	49.87	60.00	-10.13	QP	
12		11.4540	30.76	9.82	40.58	50.00	-9.42	AVG	

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

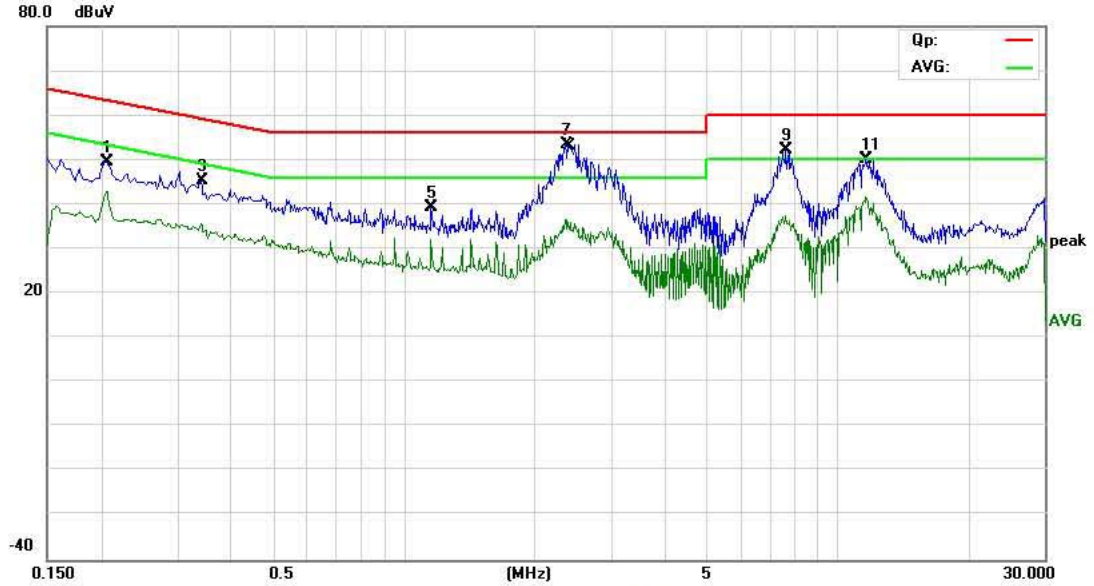
Engineer Signature: Deft

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 :NF592XX-YYYY-ZZ Data :#5 Date: 2016-1-21 Time: 14:01:19



Site MOST #1
Limit: FCC Part15 B Class B QP
EUT: Mothboad/Barebone
M/N: NF592XX-YYYY-ZZ
Mode: Running PC System+Ping+load
Note:

Phase: L1
Power: AC 230V/50Hz

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		0.2060	40.00	9.60	49.60	63.37	-13.77	QP	
2		0.2060	33.39	9.60	42.99	53.37	-10.38	AVG	
3		0.3420	35.84	9.59	45.43	59.15	-13.72	QP	
4		0.3420	26.28	9.59	35.87	49.15	-13.28	AVG	
5		1.1580	29.68	9.60	39.28	56.00	-16.72	QP	
6		1.1580	22.46	9.60	32.06	46.00	-13.94	AVG	
7	*	2.3540	43.85	9.61	53.46	56.00	-2.54	QP	
8		2.3820	27.01	9.61	36.62	46.00	-9.38	AVG	
9		7.6100	42.55	9.66	52.21	60.00	-7.79	QP	
10		7.6100	27.83	9.66	37.49	50.00	-12.51	AVG	
11		11.6500	40.45	9.69	50.14	60.00	-9.86	QP	
12		11.6500	31.98	9.69	41.67	50.00	-8.33	AVG	

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

Engineer Signature: Deft

APPENDIX II

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 :NF592XX-YYYY-ZZ Data :#11 Date: 2016/2/18 Time: 10:19:08



Site Chamber #1
Limit: FCC Part15 B 3M Radiation
EUT: Motherboard/Barebone
M/N: NF592XX-YYYY-ZZ
Mode: Running PC System+Ping+Load
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz
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		34.0365	12.50	20.29	32.79	40.00	-7.21	QP			
2		58.6126	22.86	10.73	33.59	40.00	-6.41	QP			
3		257.4222	16.41	17.55	33.96	46.00	-12.04	QP			
4		444.8514	12.69	20.20	32.89	46.00	-13.11	QP			
5	*	595.1329	20.02	22.90	42.92	46.00	-3.08	QP			
6	!	890.7278	15.18	27.31	42.49	46.00	-3.51	QP			

*: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

Radiated Emission Measurement

File :NF592XX-YYYY-ZZ Data :#12 Date: 2016/2/18 Time: 10:29:32



Site Chamber #1
Limit: FCC Part15 B 3M Radiation
EUT: Motherboard/Barebone
M/N: NF592XX-YYYY-ZZ
Mode: Running PC System+Ping+Load
Note:

Polarization: *Horizontal*
Power: AC 120V/60Hz
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		93.7682	16.43	12.08	28.51	43.50	-14.99	QP			
2		170.7926	15.69	17.16	32.85	43.50	-10.65	QP			
3		252.9481	18.73	17.46	36.19	46.00	-9.81	QP			
4		297.2238	18.47	19.33	37.80	46.00	-8.20	QP			
5		444.8514	16.23	20.20	36.43	46.00	-9.57	QP			
6	*	890.7278	13.50	27.31	40.81	46.00	-5.19	QP			

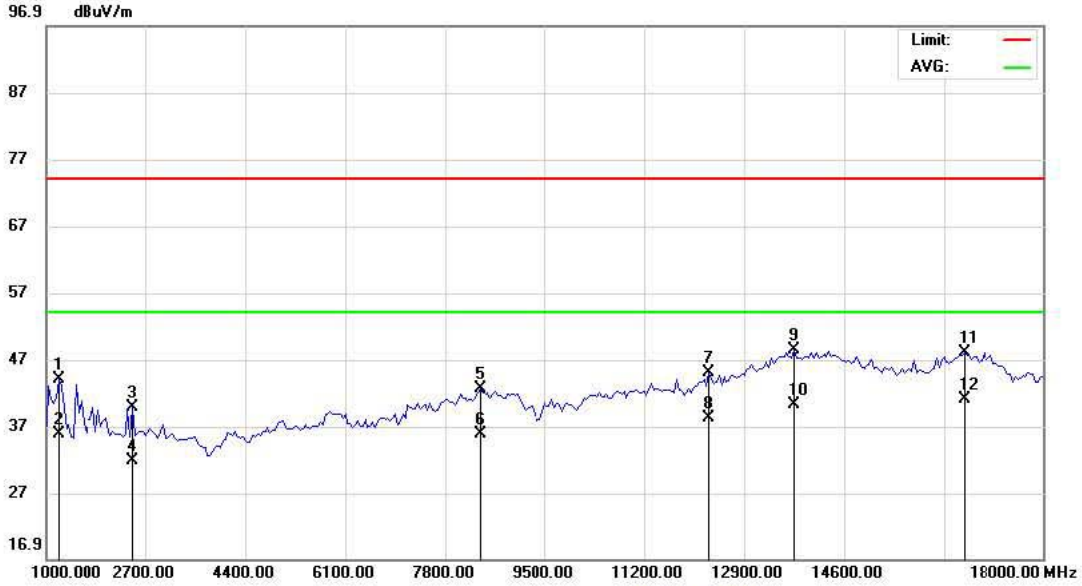
*:Maximum data x:Over limit l:over margin

Engineer Signature: hzy

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

Radiated Emission Measurement

File :NF592XX-YYYY-ZZ Data :#3 Date: 2016-1-21 Time: 13:58:34



Site site #1
Limit: FCC 1000M-18000M PEAK
EUT: Motherboard/Barebone
M/N: NF592XX-YYYY-ZZ
Mode: Running PC System+Ping+Load
Note:

Polarization: *Horizontal*
Power: AC 230V/50HZ
Distance: 3m

Temperature: 23.0
Humidity: 51.8 %

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		1212.500	52.63	-8.71	43.92	74.00	-30.08	peak			
2		1212.500	44.52	-8.71	35.81	54.00	-18.19	AVG			
3		2487.500	48.13	-8.29	39.84	74.00	-34.16	peak			
4		2487.500	40.08	-8.29	31.79	54.00	-22.21	AVG			
5		8395.000	43.18	-0.53	42.65	74.00	-31.35	peak			
6		8395.000	36.41	-0.53	35.88	54.00	-18.12	AVG			
7		12305.00	44.47	0.61	45.08	74.00	-28.92	peak			
8		12305.00	37.53	0.61	38.14	54.00	-15.86	AVG			
9		13750.00	44.86	3.45	48.31	74.00	-25.69	peak			
10		13750.00	36.72	3.45	40.17	54.00	-13.83	AVG			
11		16640.00	42.26	5.73	47.99	74.00	-26.01	peak			
12	*	16640.00	35.31	5.73	41.04	54.00	-12.96	AVG			

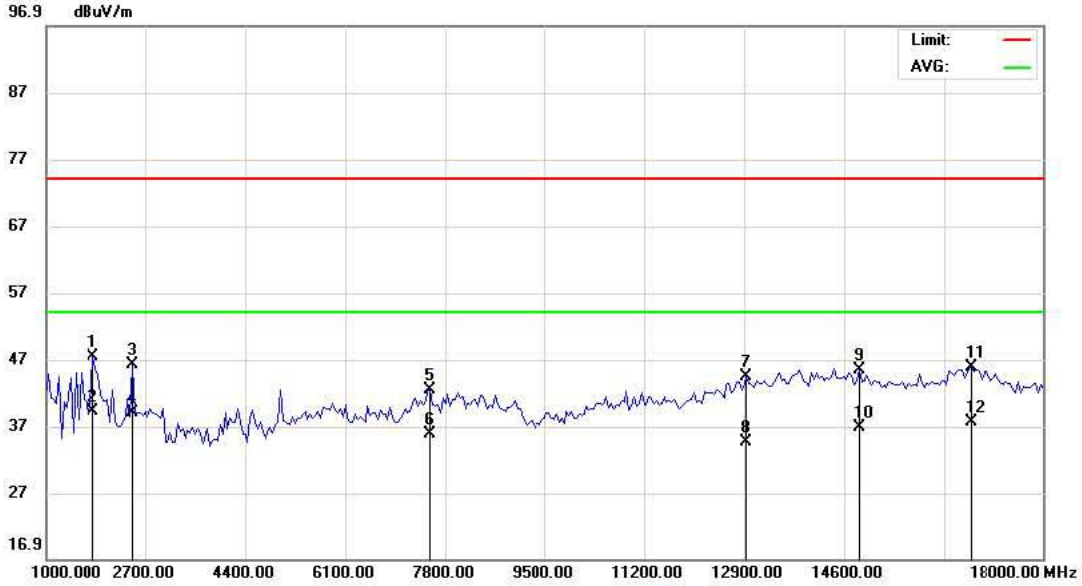
*:Maximum data x:Over limit l:over margin

Engineer Signature: Deft

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 :NF592XX-YYYY-ZZ Data :#4 Date: 2016-1-21 Time: 14:06:05



Site site #1
Limit: FCC 1000M-18000M PEAK
EUT: Motherboard/Barebone
M/N: NF592XX-YYYY-ZZ
Mode: Running PC System+Ping+Load
Note:

Polarization: *Vertical*
Power: AC 230V/50HZ
Distance: 3m

Temperature: 24.0
Humidity: 51.1 %

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		1807.500	54.88	-7.53	47.35	74.00	-26.65	peak			
2	*	1807.500	46.71	-7.53	39.18	54.00	-14.82	AVG			
3		2487.500	54.46	-8.29	46.17	74.00	-27.83	peak			
4		2487.500	47.29	-8.29	39.00	54.00	-15.00	AVG			
5		7545.000	45.10	-2.71	42.39	74.00	-31.61	peak			
6		7545.000	38.59	-2.71	35.88	54.00	-18.12	AVG			
7		12942.50	41.87	2.48	44.35	74.00	-29.65	peak			
8		12942.50	32.16	2.48	34.64	54.00	-19.36	AVG			
9		14855.00	42.02	3.40	45.42	74.00	-28.58	peak			
10		14855.00	33.49	3.40	36.89	54.00	-17.11	AVG			
11		16767.50	39.73	6.16	45.89	74.00	-28.11	peak			
12		16767.50	31.52	6.16	37.68	54.00	-16.32	AVG			

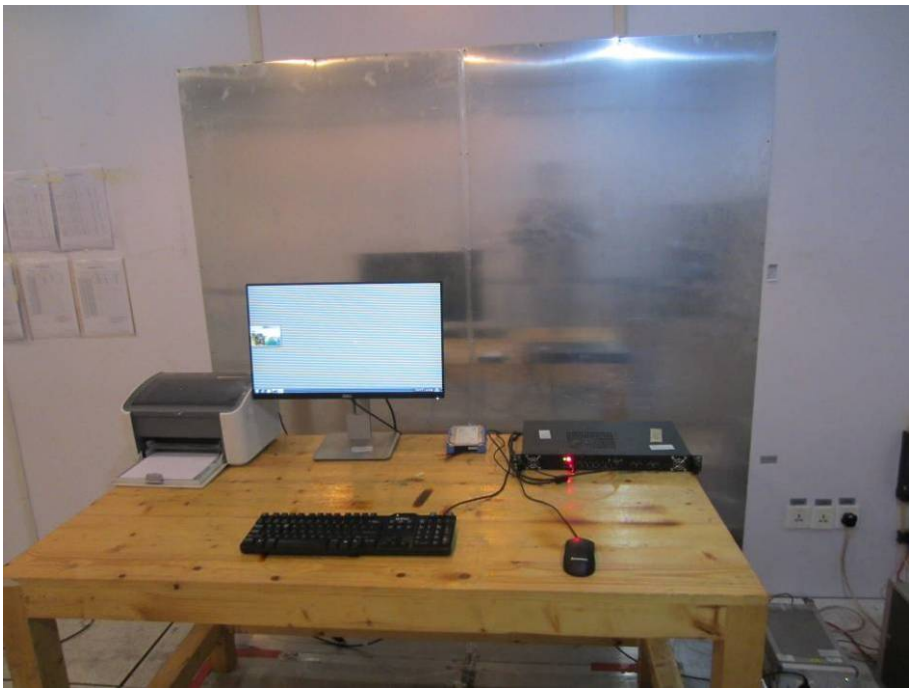
*:Maximum data x:Over limit l:over margin

Engineer Signature: Deft

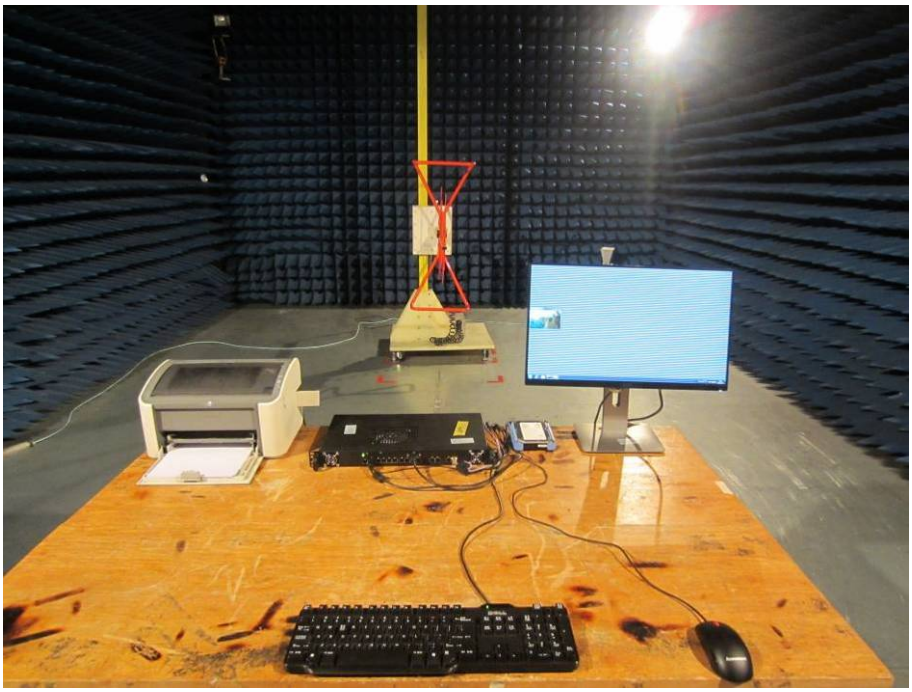
APPENDIX III

(Test Photos)

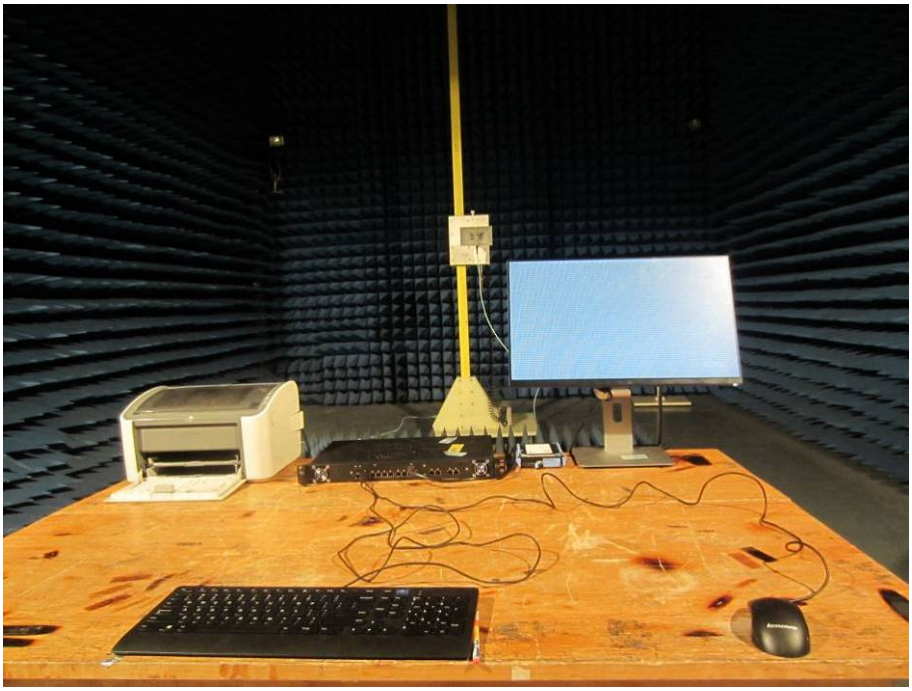
Conducted Test Setup Photograph



Radiated Test Setup Photograph



Radiated Test Setup Photograph



APPENDIX IV

(Photos of the EUT)

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT



Figure 3
Inside of the EUT



Figure 4
Inside of the EUT



Figure 5
Inside of the EUT

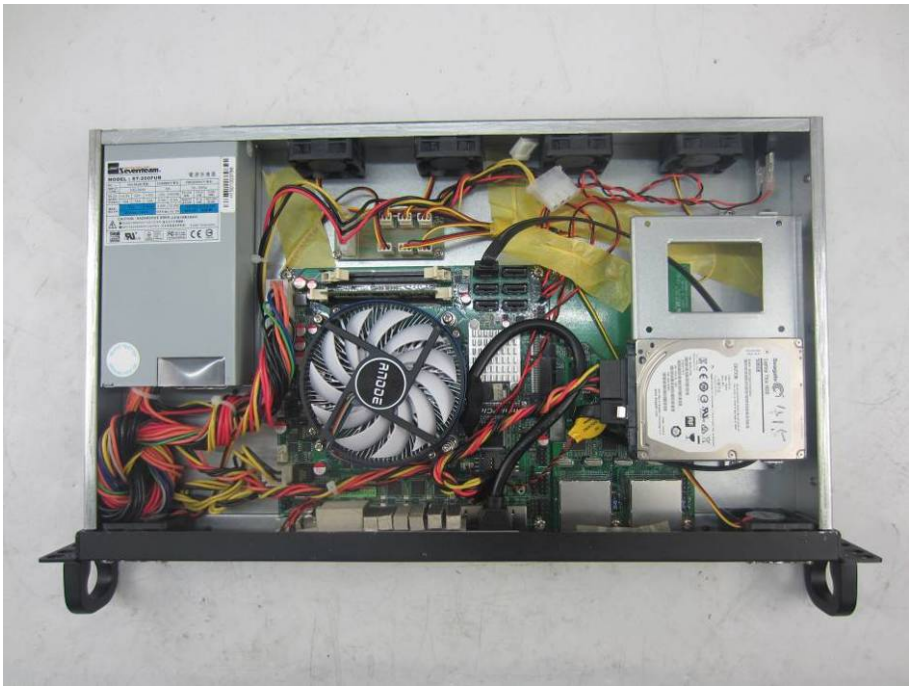


Figure 6
Label of the EUT



Figure 7
Label of the EUT



Figure 8
Components Side of the PCB



Figure 9
Components Side of the PCB

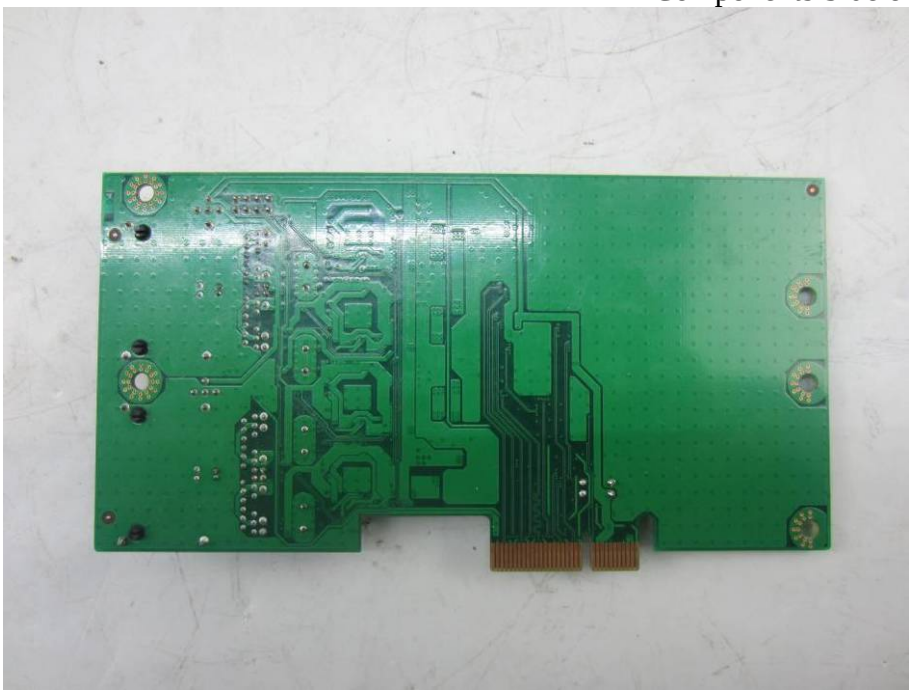


Figure 10
Components Side of the PCB



Figure 11
Components Side of the PCB

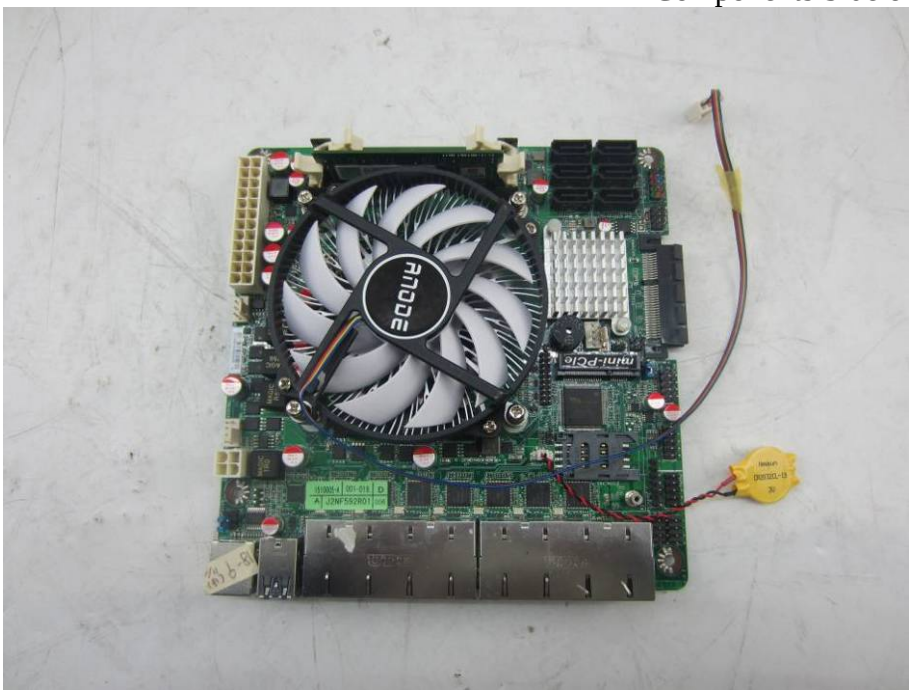


Figure 12
Components Side of the PCB

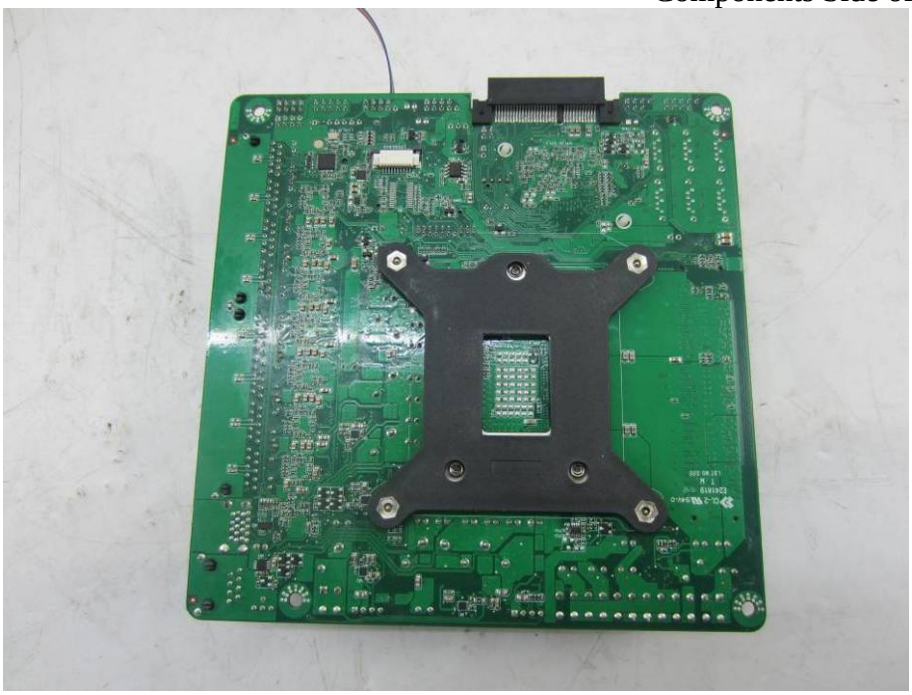


Figure 13
Components Side of the PCB



Figure 14
Components Side of the PCB



Figure 15
Components Side of the PCB



Figure 16
Components Side of the PCB

