

FCC PART 15B

TEST REPORT

For

Haier Information Technology(Shenzhen)CO.,Ltd

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Shenzhen,Guangdong,China.

FCC ID: 2ACZD-C14XXXX

Report Type: Original Report	Product Type: Laptop
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Report Number: R2SH140704051-00	
Report Date: 2014-08-06	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Haier Information Technology(Shenzhen)CO.,Ltd*'s product, model *C14B* (FCC ID: 2ACZD-C14XXXX) (or the "EUT") in this report is a *Laptop*, which measures approximately: 33.7 cm (L) x 24.1cm (W) x 2.6 cm (H), rated input voltage: DC 19V from adapter. The highest operating frequency is 2.2GHz.

Adapter information:

Model: ADP-65JH HB

Input: AC100-240V,50-60Hz,1.5A

Output: DC19V, 3.42A

Note: The series product, model C14B, C14XXXX are electrically identical, the difference between them is model name, and we select the model C14B for the testing in this report, the details was explained in the attached declaration letter.

** All measurement and test data in this report was gathered from production sample serial number: 140704051. (Assigned by BACL, Dongguan). The EUT was received on 2014-07-07.*

Objective

This report is prepared on behalf of *Haier Information Technology(Shenzhen)CO.,Ltd* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communications Commission's rules.

The objective of the manufacturer is to determine compliance with FCC Part 15B, Class B.

Related Submittal(s)/Grant(s)

No related grant(s).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

No software was used in the test.

Equipment Modifications

No modification was made to the EUT.

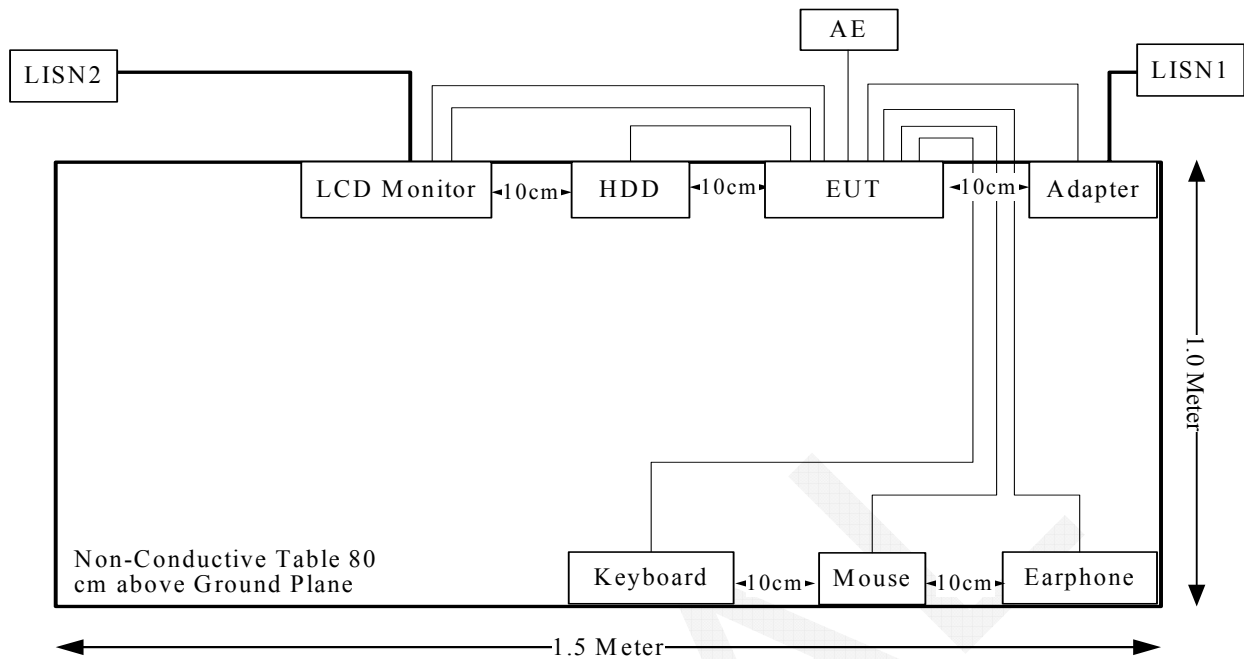
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
TOSHIBA	HDD	DTP105	247BSYVUSRE8
IPOD	EARPHONE	N/A	N/A
DELL	Keyboard	SK-8115	CN-0DJ313-716716-05A-0DSO
DELL	MOUSE	MO56UOA	F0Y02P7Y
SAMSUNG	LCD MONITOR	S22C330H	ZXDCHTHD10149K

External Cable

Cable Description	Length (m)	From / Port	To
Shielded Detachable HDMI Cable	1.2	HDMI Port of EUT (C14B)	LCD MONITOR
Shielded Detachable D-SUB Cable	1.2	D-SUB Port of EUT (C14B)	LCD MONITOR
Shielded Detachable Keyboard Cable	1.8	Keyboard Port of EUT (C14B)	Keyboard
Shielded Detachable MOUSE Cable	1.8	MOUSE Port of EUT (C14B)	MOUSE
Shielded Detachable RJ45 Cable	10	RJ45 Port of EUT (C14B)	AE
Unshielded Detachable AUDIO Cable	1	Audio in Port of EUT	EARPHONE
Shielded Detachable USB Cable	0.5	USB Port of EUT (C14B)	HDD
Shielded Detachable DC POWER Cable	1.8	EUT(ADAPTER)	EUT (C14B)

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 1, then:

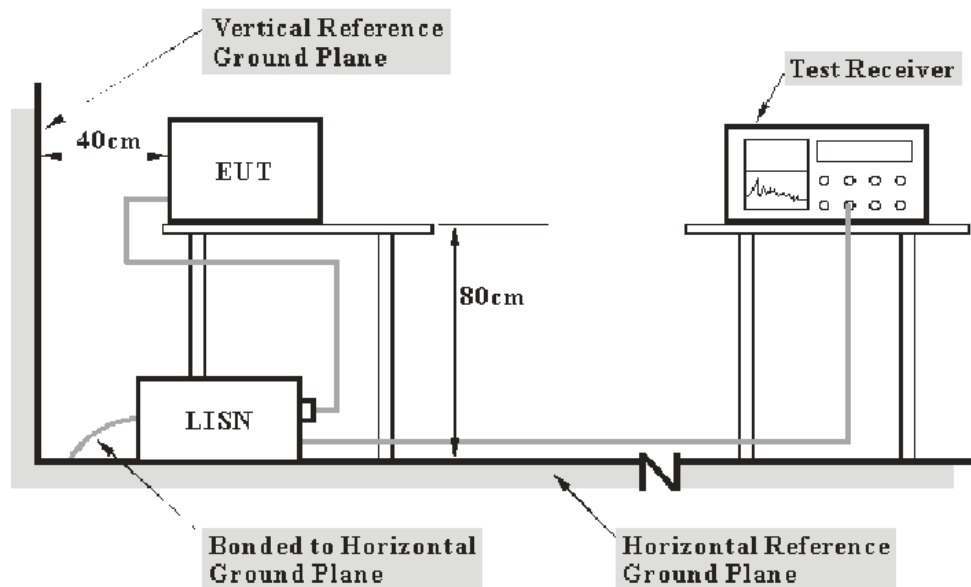
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

Measurement	U_{cispr}
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2013-11-20	2014-11-20
R&S	L.I.S.N	ESH3-Z5	843331/015	2013-09-25	2014-09-25
R&S	Two-line V-network	ENV 216	3560.6550.12	2014-01-22	2015-01-22
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

14.0 dB at 0.190505MHz in the **Neutral** conducted mode

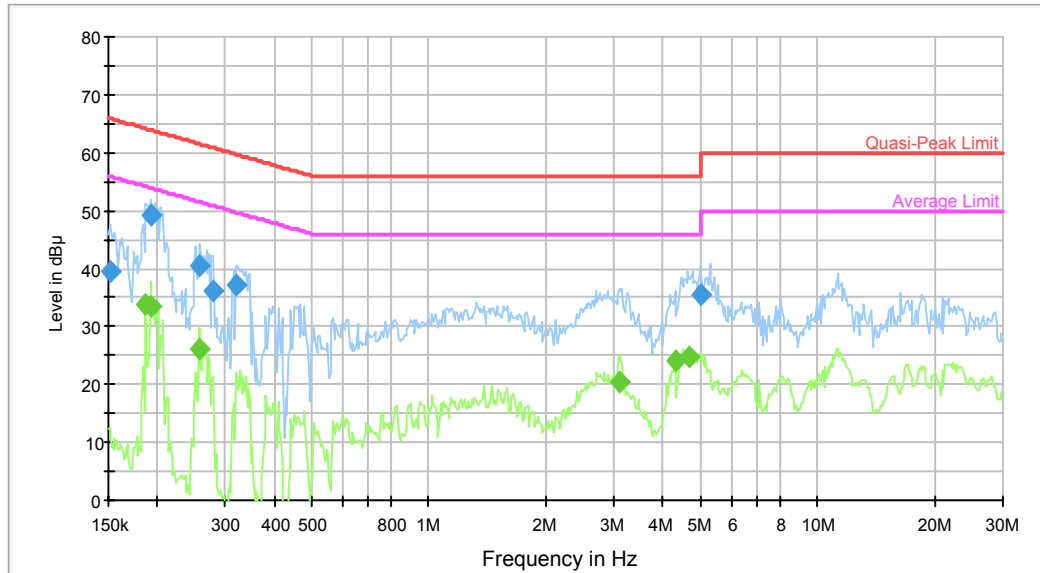
Test Data**Environmental Conditions**

Temperature:	31.1 °C
Relative Humidity:	61 %
ATM Pressure:	100 kPa

The testing was performed by Jone Lv on 2014-07-30.

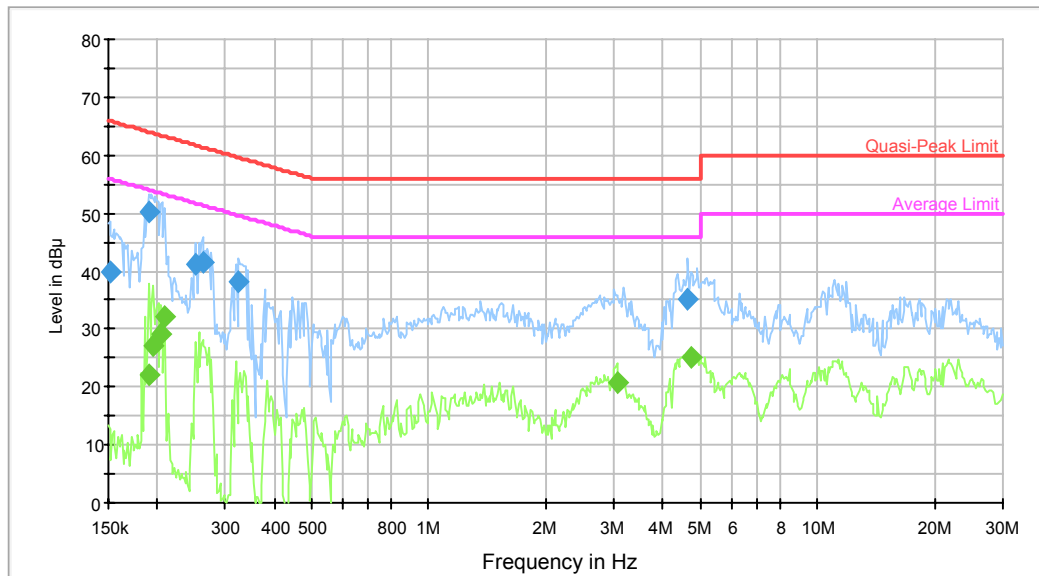
Test mode: All system

AC 120V/60Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.151200	39.5	9.000	L1	10.1	26.5	65.9	Compliance
0.192030	49.1	9.000	L1	10.6	14.9	63.9	Compliance
0.257874	40.3	9.000	L1	10.7	21.2	61.5	Compliance
0.279263	36.2	9.000	L1	10.7	24.6	60.8	Compliance
0.319773	37.2	9.000	L1	10.7	22.5	59.7	Compliance
4.997188	35.6	9.000	L1	10.7	20.4	56.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.187494	33.9	9.000	L1	10.6	20.2	54.1	Compliance
0.192030	33.6	9.000	L1	10.6	20.4	53.9	Compliance
0.255827	26.3	9.000	L1	10.7	25.3	51.6	Compliance
3.098088	20.4	9.000	L1	10.6	25.6	46.0	Compliance
4.295123	24.0	9.000	L1	10.7	22.0	46.0	Compliance
4.688581	24.7	9.000	L1	10.7	21.3	46.0	Compliance

AC 120V/60Hz, Neutral:

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.151200	39.8	9.000	N	10.3	26.2	65.9	Compliance
0.190505	50.0	9.000	N	11.1	14.0	64.0	Compliance
0.251783	41.3	9.000	N	11.2	20.4	61.7	Compliance
0.262017	41.6	9.000	N	11.2	19.8	61.4	Compliance
0.324910	38.1	9.000	N	11.1	21.5	59.6	Compliance
4.651370	35.1	9.000	N	10.8	20.9	56.0	Compliance

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.190505	22.2	9.000	N	11.1	31.8	54.0	Compliance
0.195114	27.0	9.000	N	11.2	26.8	53.8	Compliance
0.204669	29.0	9.000	N	11.3	24.5	53.4	Compliance
0.209621	32.1	9.000	N	11.3	21.1	53.2	Compliance
3.049107	20.8	9.000	N	10.7	25.2	46.0	Compliance
4.726090	25.2	9.000	N	10.8	20.8	46.0	Compliance

FCC §15.109 - RADIATED EMISSIONS

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisp} of Table 2, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cisp} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

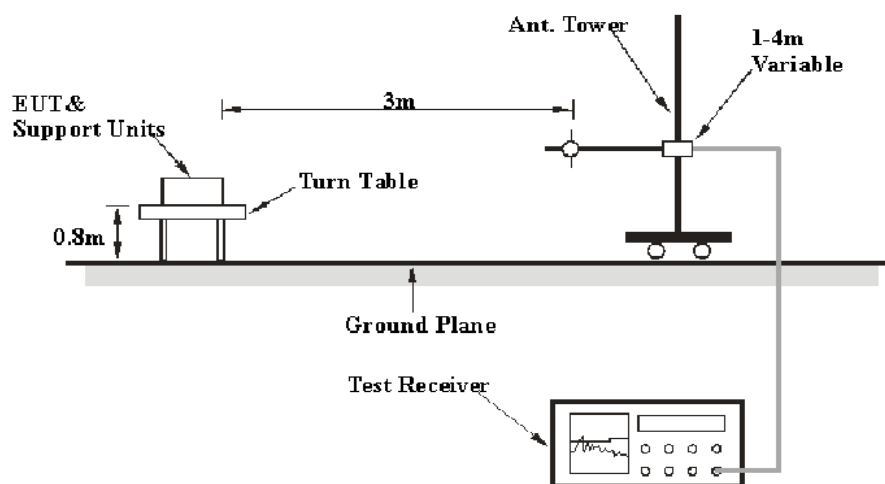
6G~18GHz: 5.23 dB

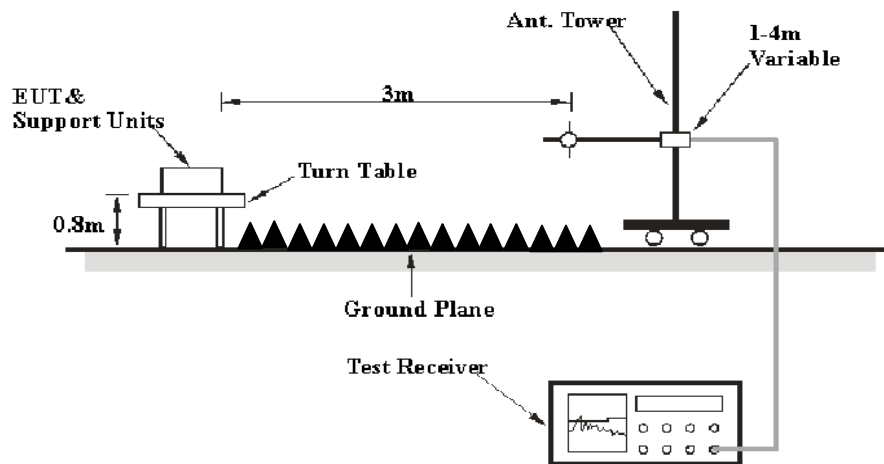
Table 2 – Values of U_{cisp}

Measurement	U_{cisp}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1 GHz:



Above 1GHz:

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15.109, Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

According to FCC 15.33 requirements, the system was measured from 30 MHz to 11GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

For the radiated emissions test, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in Quasi-peak detection mode for 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2014-05-09	2015-05-09
Sunol Sciences	Antenna	JB3	A060611-1	2011-09-06	2014-09-05
HP	Amplifier	8447E	2434A02181	2013-09-06	2014-09-06
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09
ETS-Lindgren	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2014-02-19	2015-02-19
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109, Class B, with the worst margin reading of:

3.10 dB at 32.9100 MHz in the Vertical polarization

Test Data

Environmental Conditions

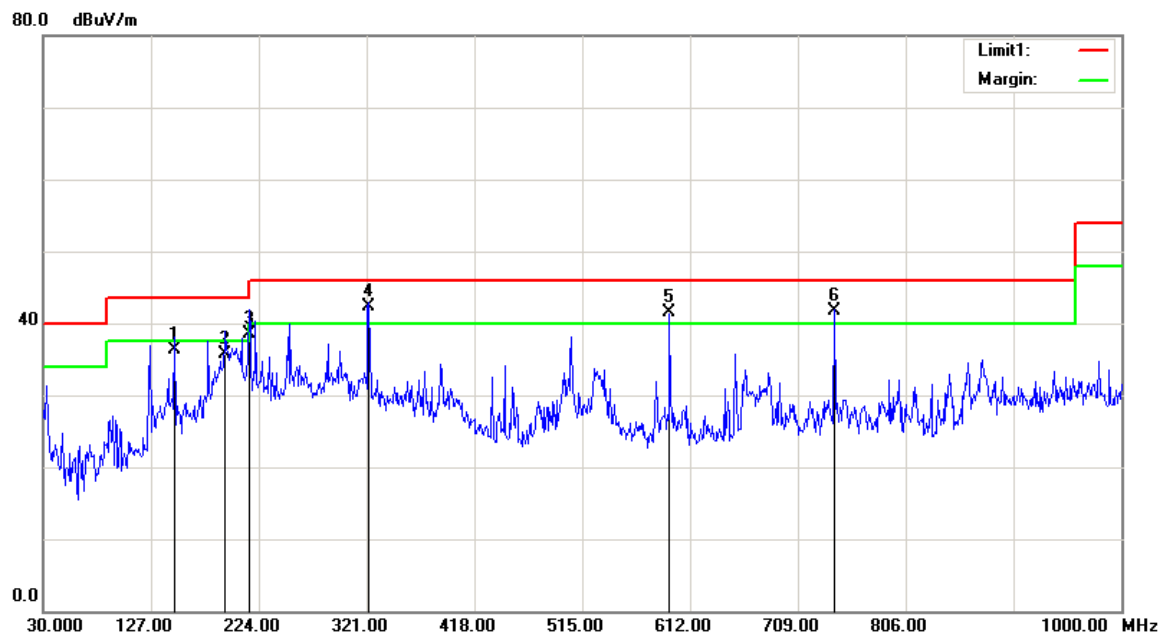
Temperature:	27.1 °C
Relative Humidity:	53 %
ATM Pressure:	99.8 kPa

The testing was performed by Jone Lv on 2014-07-31&2014-08-01.

Test mode: All system

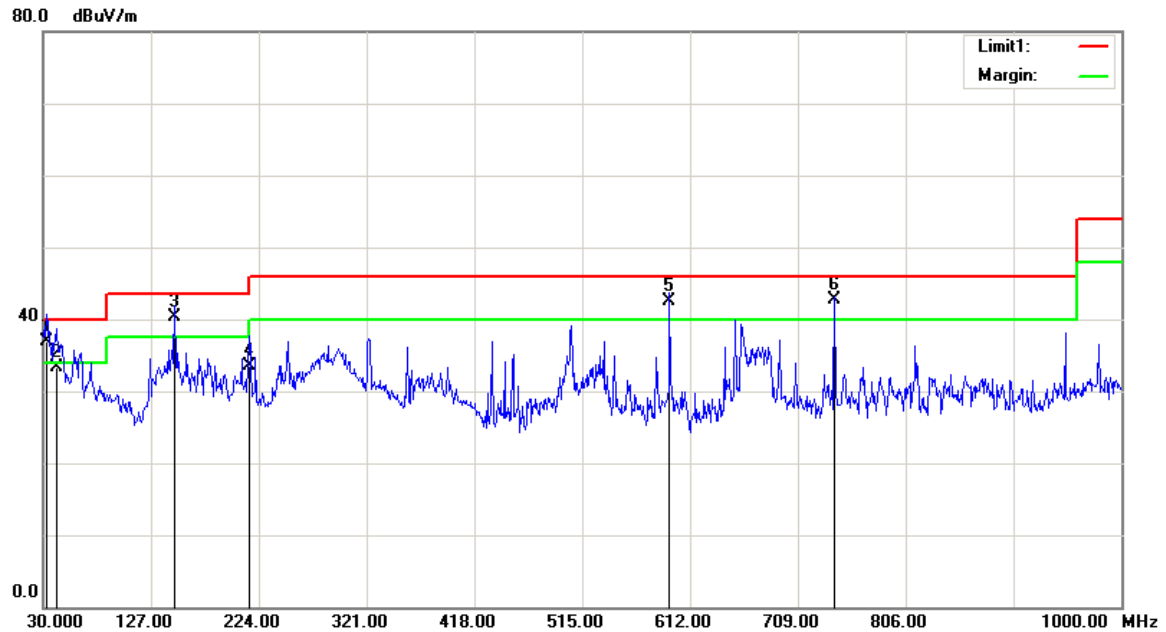
1)Below 1GHz:

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
148.3400	43.79	QP	-7.39	36.40	43.50	7.10
193.9300	44.01	QP	-8.21	35.80	43.50	7.70
215.2700	47.01	QP	-8.51	38.50	43.50	5.00*
322.9400	47.36	QP	-5.06	42.30	46.00	3.70*
593.5700	41.67	QP	-0.17	41.50	46.00	4.50*
741.9800	39.66	QP	2.04	41.70	46.00	4.30*

*Within measurement uncertainty!

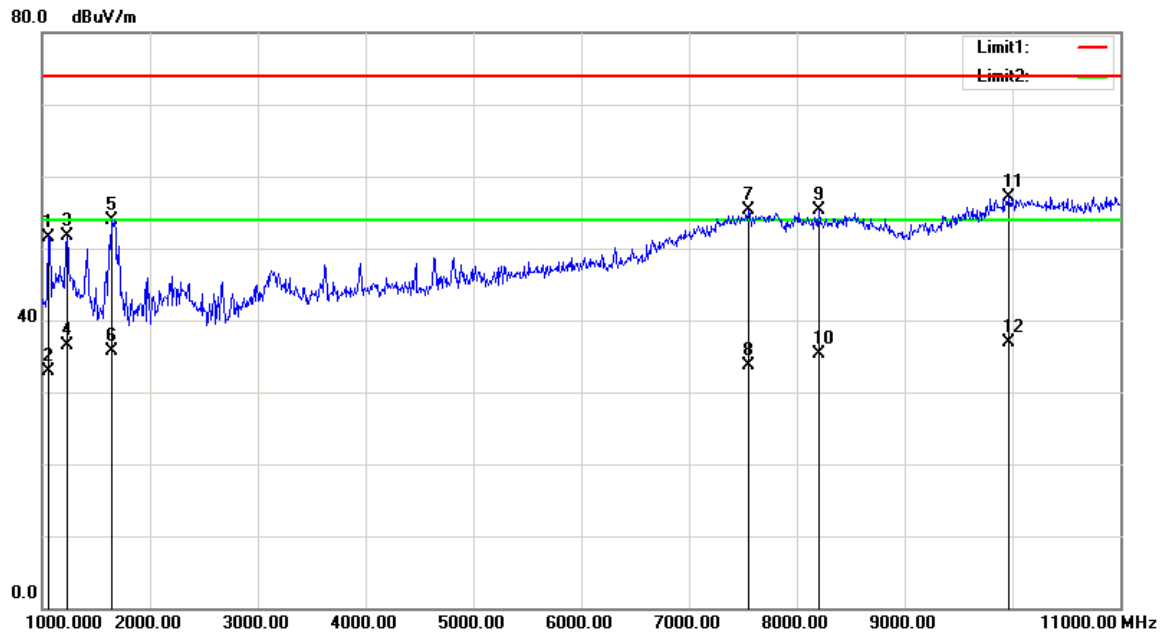
Vertical:

Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
32.9100	37.54	QP	-0.64	36.90	40.00	3.10*
42.6100	41.44	QP	-8.14	33.30	40.00	6.70
148.3400	47.69	QP	-7.39	40.30	43.50	3.20*
215.2700	42.11	QP	-8.51	33.60	43.50	9.90*
593.5700	42.67	QP	-0.17	42.50	46.00	3.50*
741.9800	40.76	QP	2.04	42.80	46.00	3.20*

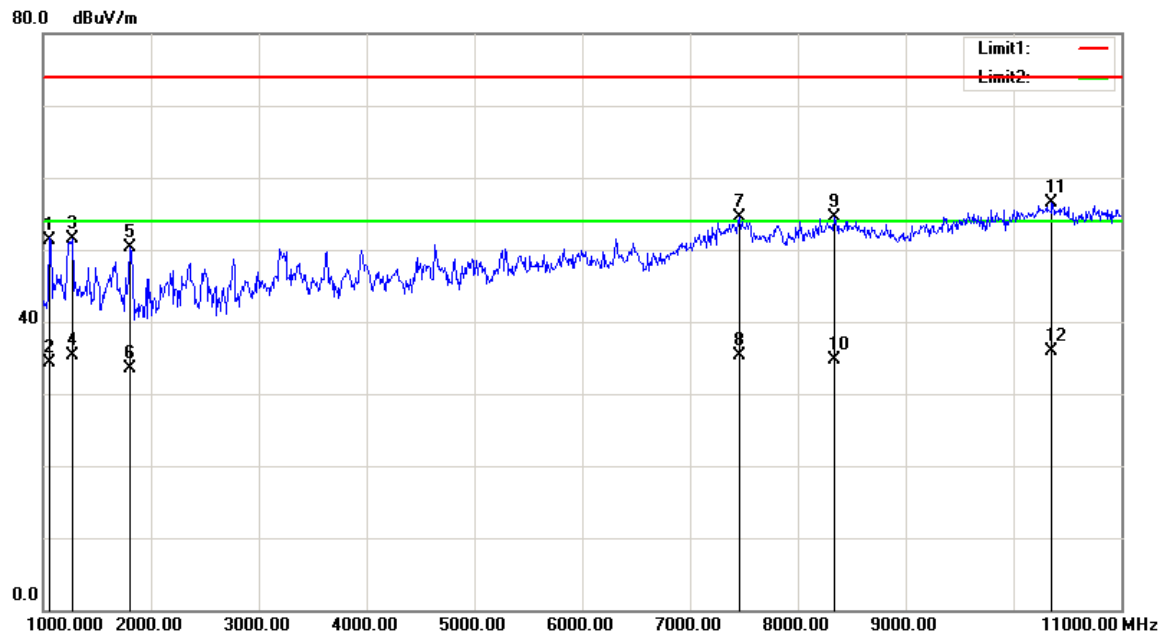
*Within measurement uncertainty!

2) Above 1GHz:

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1060.120	53.69	peak	-2.09	51.60	74.00	22.40
1060.120	34.90	AVG	-2.09	32.81	54.00	21.19
1230.461	53.26	peak	-1.51	51.75	74.00	22.25
1230.461	38.03	AVG	-1.51	36.52	54.00	17.48
1641.283	53.65	peak	0.34	53.99	74.00	20.01
1641.283	35.32	AVG	0.34	35.66	54.00	18.34
7553.106	39.02	peak	16.23	55.25	74.00	18.75
7553.106	17.46	AVG	16.23	33.69	54.00	20.31
8204.409	38.67	peak	16.62	55.29	74.00	18.71
8204.409	18.59	AVG	16.62	35.21	54.00	18.79
9967.936	36.89	peak	20.19	57.08	74.00	16.92
9967.936	16.63	AVG	20.19	36.82	54.00	17.18

Vertical:

Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1065.130	53.33	peak	-2.08	51.25	74.00	22.75
1065.130	36.36	AVG	-2.08	34.28	54.00	19.72
1270.541	52.77	peak	-1.35	51.42	74.00	22.58
1270.541	36.67	AVG	-1.35	35.32	54.00	18.68
1801.603	49.65	peak	0.68	50.33	74.00	23.67
1801.603	32.90	AVG	0.68	33.58	54.00	20.42
7462.926	38.67	peak	15.81	54.48	74.00	19.52
7462.926	19.42	AVG	15.81	35.23	54.00	18.77
8334.669	37.74	peak	16.85	54.59	74.00	19.41
8334.669	17.77	AVG	16.85	34.62	54.00	19.38
10358.717	36.83	peak	19.73	56.56	74.00	17.44
10358.717	16.08	AVG	19.73	35.81	54.00	18.19

DECLARATION OF SIMILARITY

Haier

Haier Information Technology(Shenzhen)CO.,Ltd
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first Road No.009, Nanshan, Shenzhen, Guangdong

Tel: 0532-88937842

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DECLARATION OF SIMILARITY

Date : 2014-07-04

Dear Sir or Madam:

We, Haier Information Technology(Shenzhen)CO.,Ltd, hereby declare that product: Laptop, model: C14XXXX is electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics as model name: C14B which was tested by BACL. They are just different in model name.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Signature:

Printed name: Daniel Du
Title: Manager

Daniel Du
2014.07.04

***** END OF REPORT *****