

FCC PART 15B, CLASS B

TEST REPORT

For

Xiamen Intretech Inc.

No.588.Jiahe Road, Xiamen, Fujian, China

FCC ID: S96LS0002

Report Type: Original Report	Product Type: Beehive
Test Engineer: Star Xie	<i>Star Xie</i>
Report Number: R2XM130218053-00	
Report Date: 2013-03-01	
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

TABLE OF CONTENTS

GENERAL INFORMATION.....3

 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)3

 OBJECTIVE3

 RELATED SUBMITTAL(S)/GRANT(S).....3

 TEST FACILITY3

SYSTEM TEST CONFIGURATION4

 JUSTIFICATION4

 EUT EXERCISE SOFTWARE4

 EQUIPMENT MODIFICATIONS4

 LOCAL SUPPORT EQUIPMENT LIST AND DETAILS4

 EXTERNAL I/O CABLE.....4

 BLOCK DIAGRAM OF TEST SETUP5

SUMMARY OF TEST RESULTS6

FCC §15.107 – AC LINE CONDUCTED EMISSIONS7

 MEASUREMENT UNCERTAINTY7

 EUT SETUP7

 EMI TEST RECEIVER SETUP.....8

 TEST PROCEDURE8

 CORRECTED AMPLITUDE & MARGIN CALCULATION8

 TEST EQUIPMENT LIST AND DETAILS.....8

 TEST RESULTS SUMMARY8

 TEST DATA9

FCC §15.109 - RADIATED EMISSIONS11

 MEASUREMENT UNCERTAINTY11

 EUT SETUP11

 EMI TEST RECEIVER SETUP.....12

 TEST PROCEDURE12

 CORRECTED AMPLITUDE & MARGIN CALCULATION12

 TEST EQUIPMENT LIST AND DETAILS.....12

 TEST RESULTS SUMMARY12

 TEST DATA13

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Xiamen Intretech Inc's* product, model number: *LS-0002 (FCC ID: S96LS0002)* (the "EUT") in this report is a *Beehive*, which was measured approximately: 8.8 cm (L) x 8.8 cm (W) x 2.0 cm (H), rated input voltage: DC 5V from system, the highest operating frequency is 48MHz.

All measurement and test data in this report was gathered from production sample serial number: 130218053 (Assigned by BACL, Dongguan). The EUT was received on 2013-02-18.

Objective

This report is prepared on behalf of *Xiamen Intretech Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

No Related Submittal(s)/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 Communication 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

The software “record software V3.9” was used.

Equipment Modifications

No modification was made to the EUT.

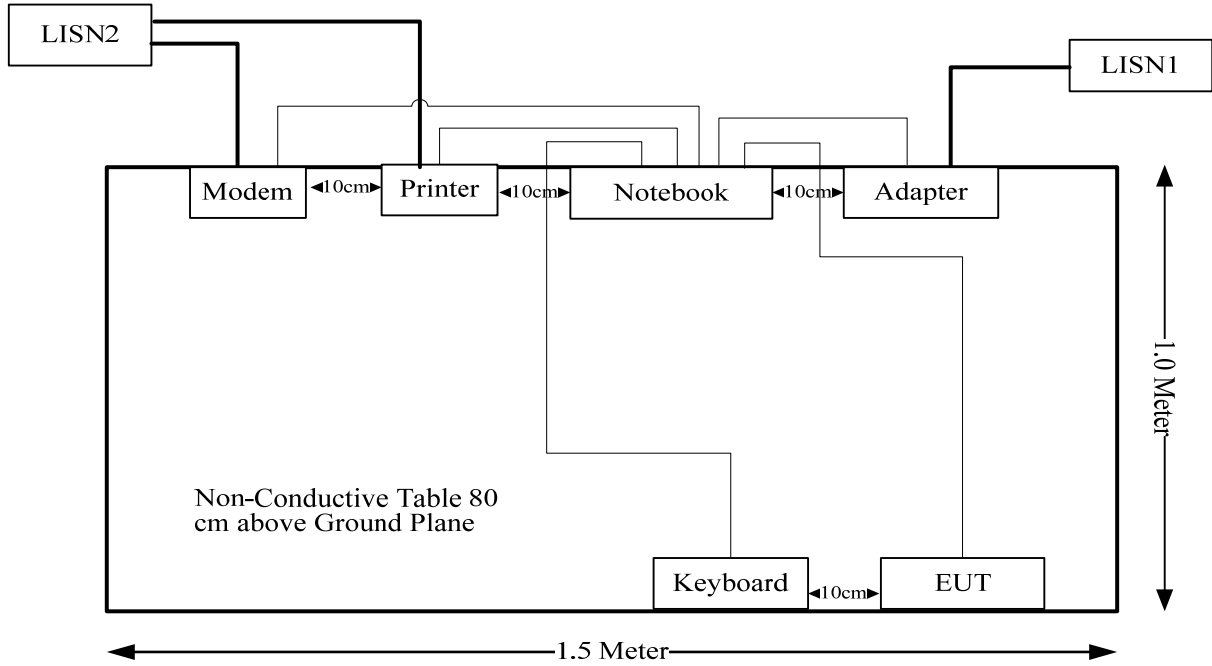
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Notebook	PP11L	QDS-BRCM1017
HP	Printer	C3941A	JPTVOB2337
DELL	Keyboard	SK-8115	CN-0DJ313-716716-05A-0DSO
SAST	Modem	AEM-2100	090200213

External I/O Cable

Cable Description	Length (m)	From	To
Shielded Detachable Printer Cable	1.2	Parallel Port of PC	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of PC	Modem
Shielded Detachable Keyboard Cable	2.0	Usb Port of PC	Keyboard
Unshielded Detachable Usb Cable	4.0	Usb Port of PC	EUT

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:

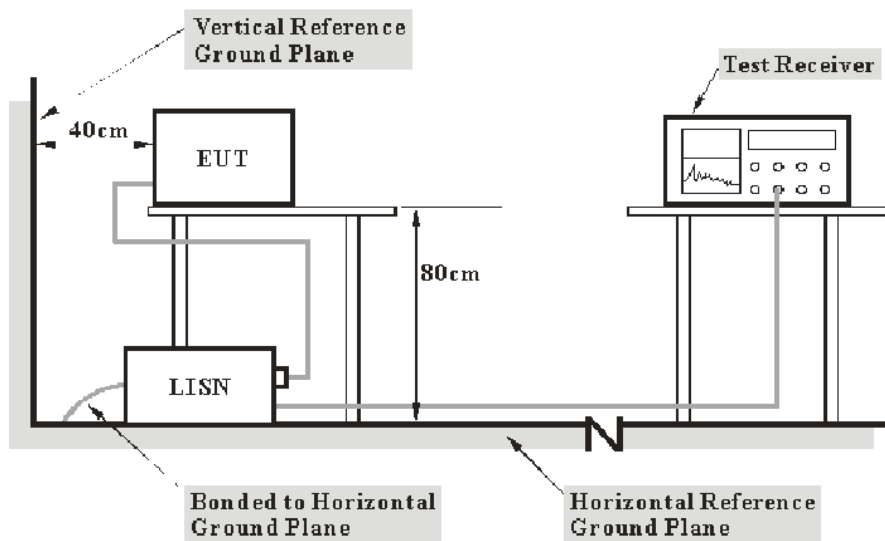
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

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:

<u>Frequency Range</u>	<u>IF B/W</u>
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:

$$V_C = V_R + A_C + VDF$$

Herein,

V_C : corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF : voltage division factor of AMN or ISN

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	2012-11-29	2013-11-28
R&S	LISN1	ESH3-Z5	843331/015	2012-09-17	2013-09-16
R&S	LISN2	ESH3-Z5	100113	2012-11-29	2013-11-28

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:

6.71 dB at 0.310MHz in the **Neutral** conducted mode

Test Data

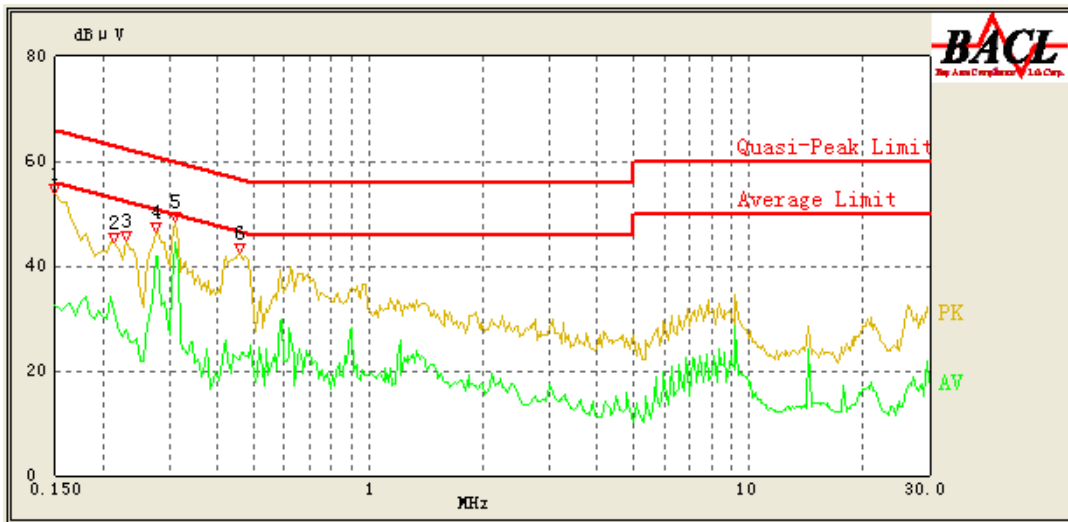
Environmental Conditions

Temperature:	23.3 °C
Relative Humidity:	64 %
ATM Pressure:	100.9 kPa

The testing was performed by Star Xie on 2013-02-19.

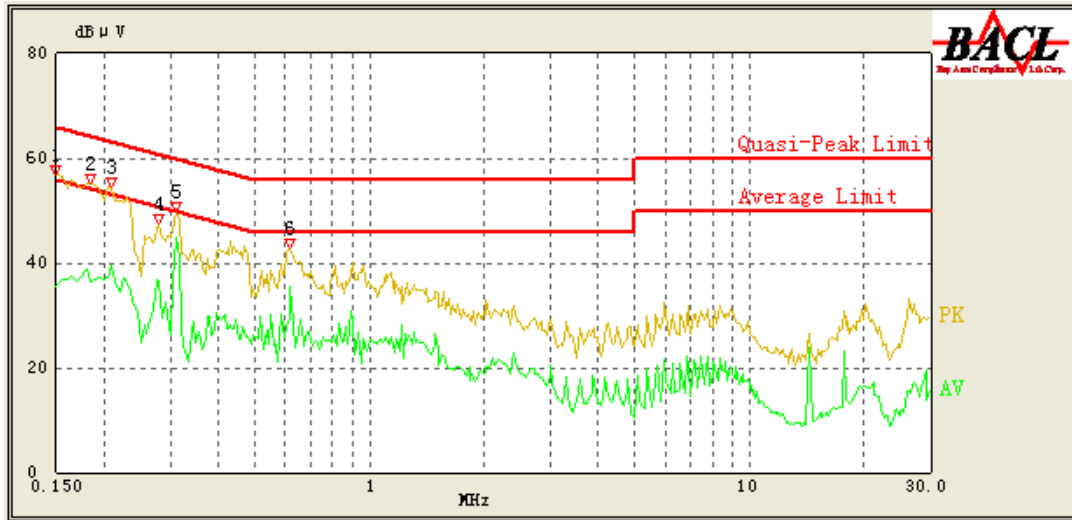
Test mode: Running

120 V, 60 Hz, Line:



No.	Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
1	0.150	50.26	1.06	66.00	15.74	QP
2	0.150	32.50	1.06	56.00	23.50	AV
3	0.215	39.10	0.95	64.14	25.04	QP
4	0.215	31.54	0.95	54.14	22.60	AV
5	0.230	38.72	0.93	63.71	24.99	QP
6	0.230	27.90	0.93	53.71	25.81	AV
7	0.275	44.24	0.85	62.43	18.19	QP
8	0.275	41.87	0.85	52.43	10.56	AV
9	0.310	45.35	0.80	61.43	16.08	QP
10	0.310	44.60	0.80	51.43	6.83	AV
11	0.460	36.24	0.59	57.14	20.90	QP
12	0.460	22.12	0.59	47.14	25.02	AV

120 V, 60 Hz, Neutral:



No.	Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
1	0.150	52.98	1.06	66.00	13.02	QP
2	0.150	35.54	1.06	56.00	20.46	AV
3	0.185	49.72	1.00	65.00	15.28	QP
4	0.185	36.40	1.00	55.00	18.60	AV
5	0.210	49.05	0.96	64.29	15.24	QP
6	0.210	39.36	0.96	54.29	14.93	AV
7	0.280	40.93	0.84	62.29	21.36	QP
8	0.280	36.56	0.84	52.29	15.73	AV
9	0.310	45.55	0.80	61.43	15.88	QP
10	0.310	44.72	0.80	51.43	6.71	AV
11	0.615	37.03	0.48	56.00	18.97	QP
12	0.615	29.25	0.48	46.00	16.75	AV

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_{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.

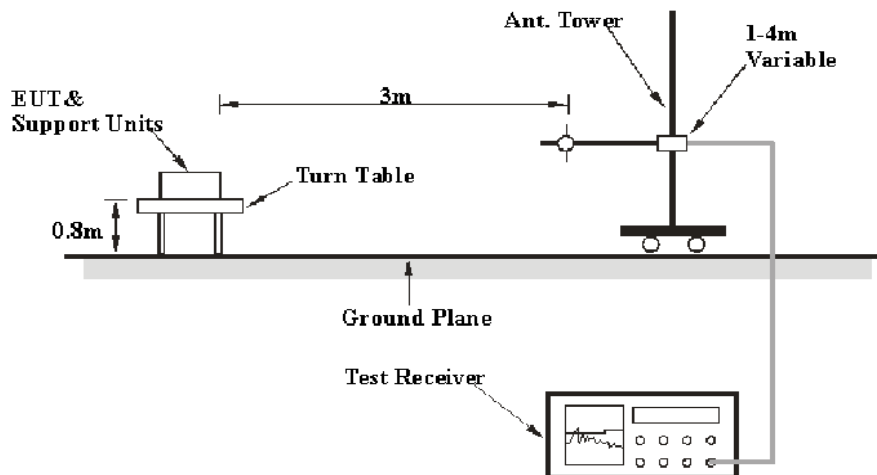
Based on CISPR 16-4-2:2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:

30M~200MHz: 5.0 dB
 200M~1GHz: 6.2 dB
 1G~6GHz: 4.45 dB
 6G~18GHz: 5.23 dB

Table 1 – Values of U_{cispr}

Measurement	U_{cispr}
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



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 1 GHz.

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

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>Detector</i>
30MHz – 1000 MHz	120 kHz	300 kHz	QP

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.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-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
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R&S	Spectrum Analyzer	FSEM 30	DE31388	2012-03-15	2013-03-14
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2014-09-05
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2013-01-30	2014-01-29
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13

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:

9.40 dB at 74.6200 MHz in the Horizontal polarization of mode

Test Data

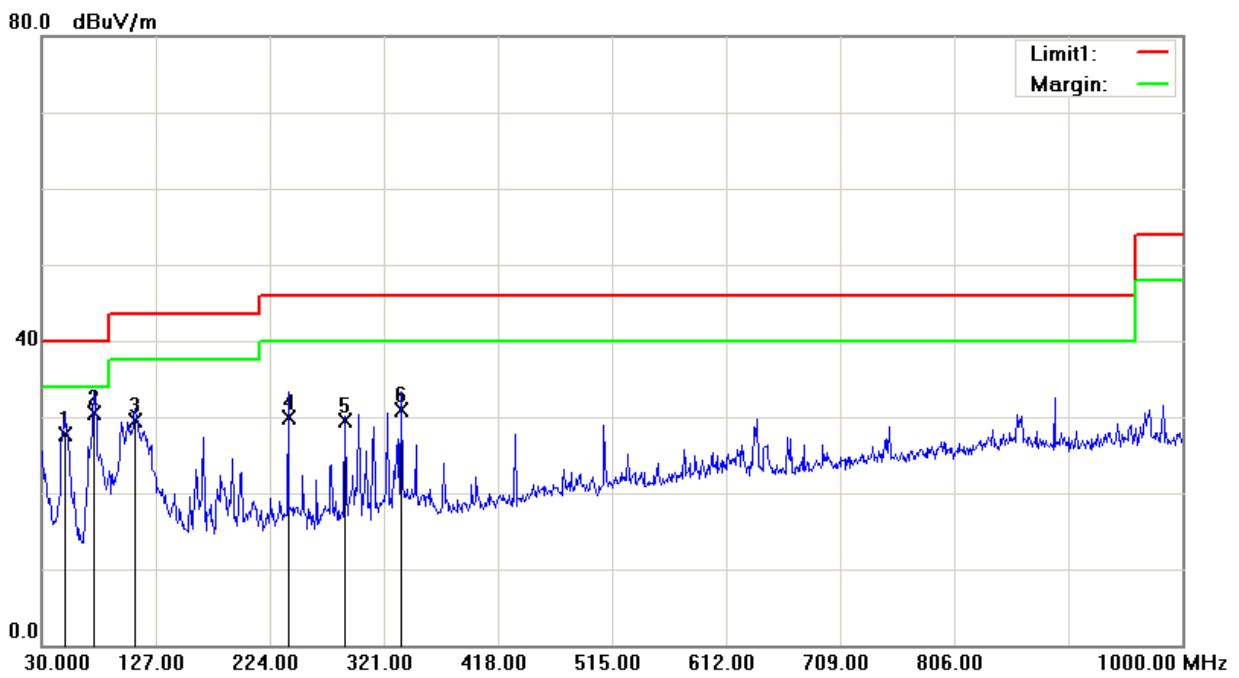
Environmental Conditions

Temperature:	23.1 °C
Relative Humidity:	62 %
ATM Pressure:	100.8 kPa

The testing was performed by Star Xie on 2013-03-01.

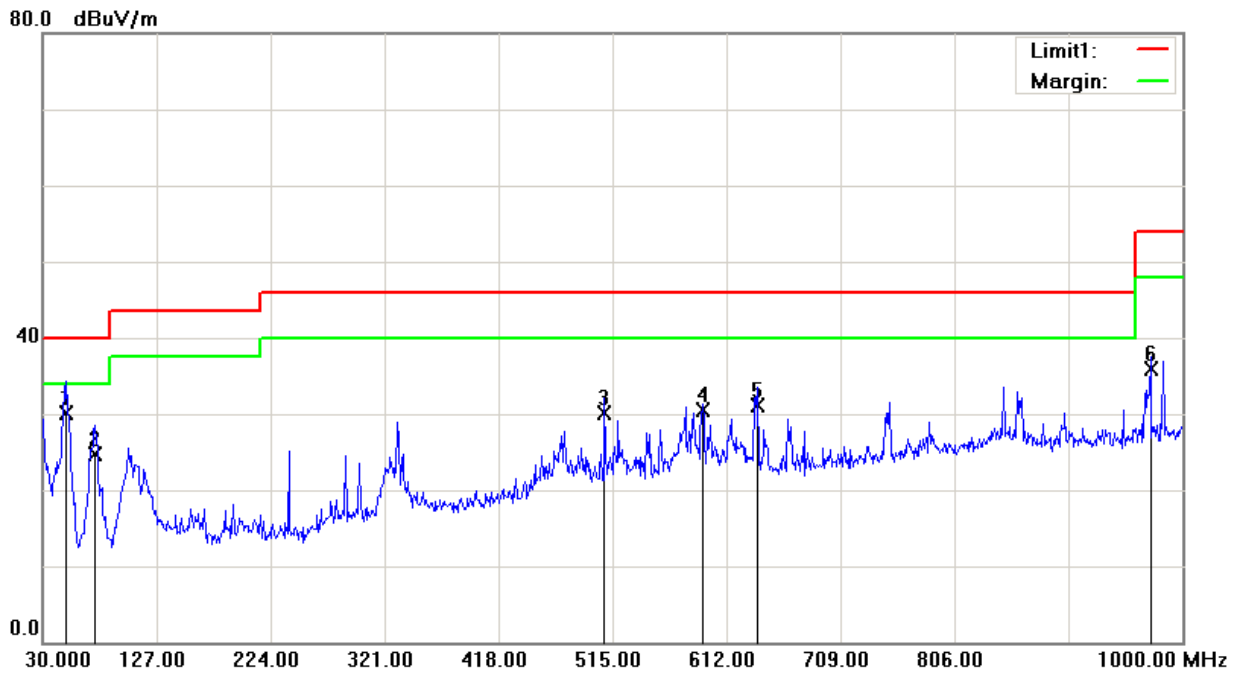
Test mode: Running

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50.3700	40.01	QP	-12.21	27.80	40.00	12.20
74.6200	42.82	QP	-12.22	30.60	40.00	9.40
109.5400	37.29	QP	-7.79	29.50	43.50	14.00
239.5200	38.11	QP	-8.11	30.00	46.00	16.00
288.0200	35.83	QP	-6.33	29.50	46.00	16.50
335.5500	36.44	QP	-5.54	30.90	46.00	15.10

Vertical:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50.3700	42.41	QP	-12.21	30.20	40.00	9.80
74.6200	37.02	QP	-12.22	24.80	40.00	15.20
508.2100	32.36	QP	-2.26	30.10	46.00	15.90
591.6300	31.59	QP	-1.09	30.50	46.00	15.50
638.1900	31.41	QP	-0.21	31.20	46.00	14.80
972.8400	31.81	QP	4.09	35.90	54.00	18.10

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