

FCC PART 15B

TEST REPORT

For

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China

FCC ID: XJN-PX0781

Report Type: Original Report	Product Type: Mobile Internet Devices
Test Engineer: Ares Liu <i>Ares Liu</i>	
Report Number: R2DG130528006-00C	
Report Date: 2013-06-27	
Reviewed By: EMC Manager Jerry Zhang <i>Jerry Zhang</i>	
Test Laboratory: Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn	

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. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, or any agency of the Federal Government.

* This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk "★" (Rev.2). This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST FACILITY	3
SYSTEM TEST CONFIGURATION.....	4
JUSTIFICATION	4
EUT EXERCISE SOFTWARE	4
EQUIPMENT MODIFICATIONS	4
SUPPORT EQUIPMENT LIST AND DETAILS	4
EXTERNAL CABLE.....	4
BLOCK DIAGRAM OF TEST SETUP	5
SUMMARY OF TEST RESULTS	6
FCC §15.107 – AC LINE CONDUCTED EMISSIONS.....	7
MEASUREMENT UNCERTAINTY	7
EUT SETUP	7
EMI TEST RECEIVER SETUP.....	8
TEST PROCEDURE	8
CORRECTED AMPLITUDE & MARGIN CALCULATION	8
TEST EQUIPMENT LIST AND DETAILS.....	9
TEST RESULTS SUMMARY	9
TEST DATA	9
FCC §15.109 - RADIATED EMISSIONS	14
MEASUREMENT UNCERTAINTY	14
EUT SETUP	14
EMI TEST RECEIVER SETUP.....	15
TEST PROCEDURE	15
CORRECTED AMPLITUDE & MARGIN CALCULATION	15
TEST EQUIPMENT LIST AND DETAILS.....	16
TEST RESULTS SUMMARY	16
TEST DATA	16

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *SHUOYING INDUSTRIAL(SHENZHEN)CO.,LTD.*'s product, model number: *PX0781 (FCC ID: XJN-PX0781)* (the "EUT") in this report was a *Mobile Internet Devices*, which was measured approximately: 19.0 cm (L) x 12.0 cm (W) x 0.7 cm (H), rated input voltage: DC 3.7 V from lithium battery or DC 5V from adapter.

Adapter information: TEKA
Model: TEKA012-0502000UK
Input: AC 100-240V, 50/60Hz, 0.35A max
Output: DC 5V, 2A

** All measurement and test data in this report was gathered from production sample serial number: 130528006 (Assigned by BACL.Dongguan). The EUT was received on 2013-06-07.*

Objective

This report is prepared on behalf of *SHUOYING INDUSTRIAL(SHENZHEN)CO.,LTD.* 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)

FCC Part 15C DTS submissions with FCC ID: *XJN-PX0781* for Wifi.
FCC Part 15C DSS submissions with FCC ID: *XJN-PX0781* for Bluetooth.

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.

Additionally, Bay Area Compliance Laboratories Corp. (Dongguan) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 500069-0).



The current scope of accreditations can be found at <http://ts.nist.gov/standards/scopes/5000690.htm>

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user). The highest operating frequency is 1200 MHz.

Test mode 1: USB Downloading

Test mode 2: HDMI Playing

EUT Exercise Software

No exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

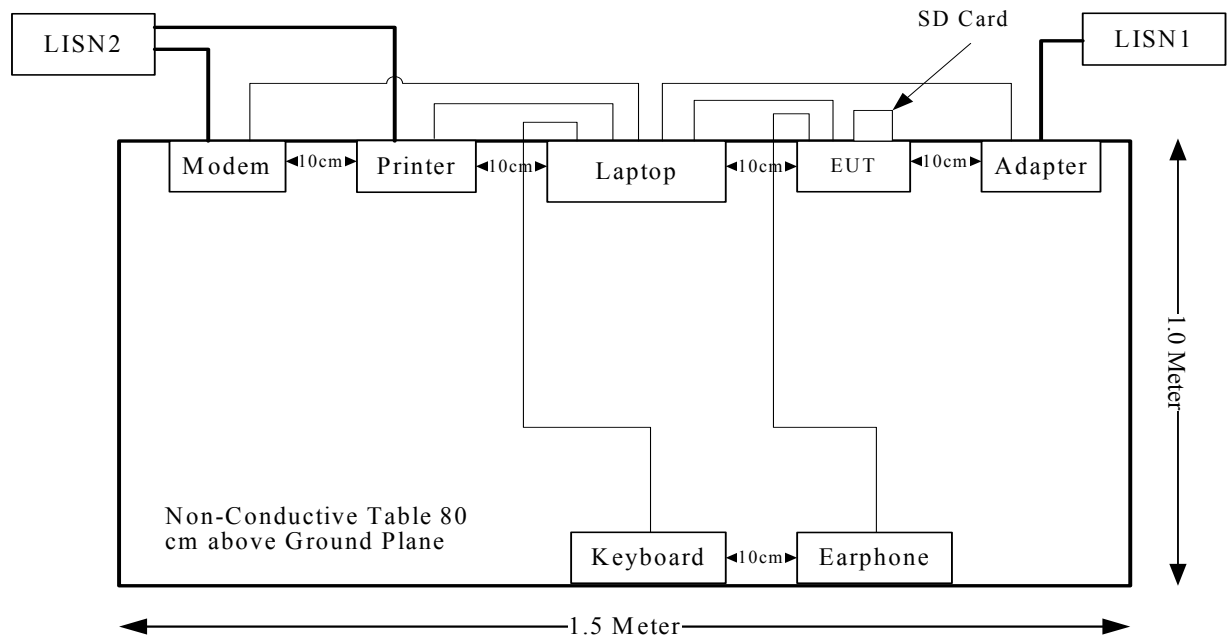
Manufacturer	Description	Model	Serial Number
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Laptop	PP11L	QDS-BRCM1017
DELL	Monitor	U3011t	CN-OPH5NY-74445-16T-290L
Kinston	Micro SD Card	4G	N/A

External Cable

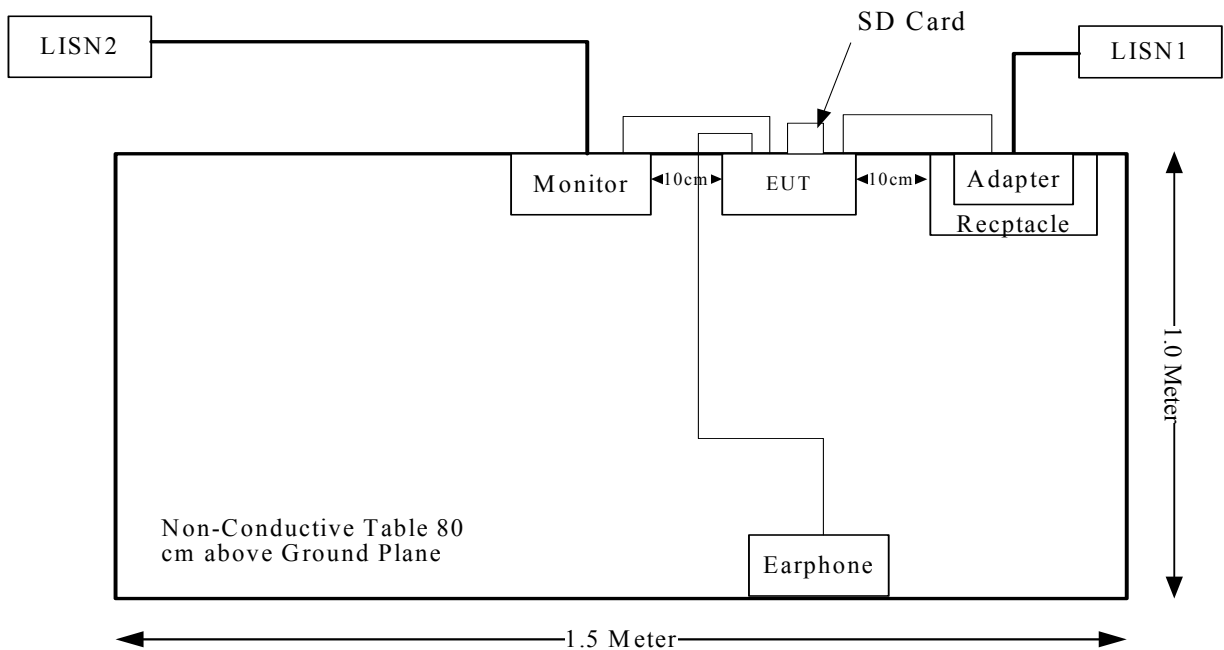
Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Laptop	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Laptop	Modem
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Laptop	Keyboard
Shielded Detachable USB Cable	0.72	Laptop	EUT
Shielded Detachable HDMI Cable	1.5	LCD Monitor	EUT

Block Diagram of Test Setup

USB Downloading:



HDMI Playing:



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_{cisp} 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_{cisp} of Table 1, then:

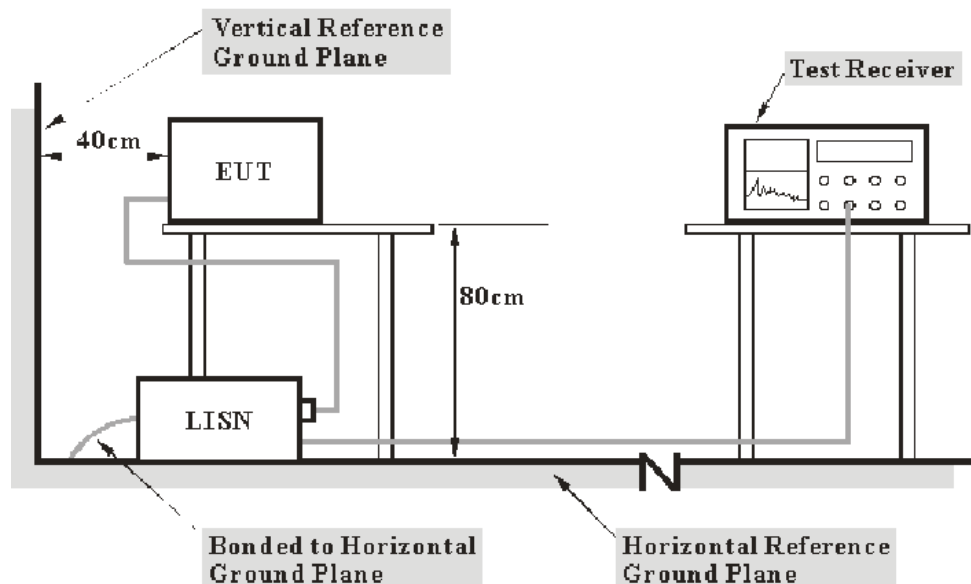
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of 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_{cisp}

Measurement	U_{cisp}
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:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

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	2013-1-10	2014-1-9
R&S	L.I.S.N	ESH3-Z5	843331/015	2012-9-17	2013-9-16
R&S	L.I.S.N	ESH3-Z5	100113	2012-11-29	2013-11-28
BACL	Test Software	BACL-EMC	V1.0-2010	N/A	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, 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:

3.84 dB at 3.000 MHz in the **Neutral** conducted mode of HDMI Playing mode.

Test Data**Environmental Conditions**

Temperature:	27.4 °C
Relative Humidity:	62 %
ATM Pressure:	99.6 kPa

The testing was performed by Ares Liu on 2013-06-19.

Test mode: USB Downloading

120 V, 60 Hz, Line:



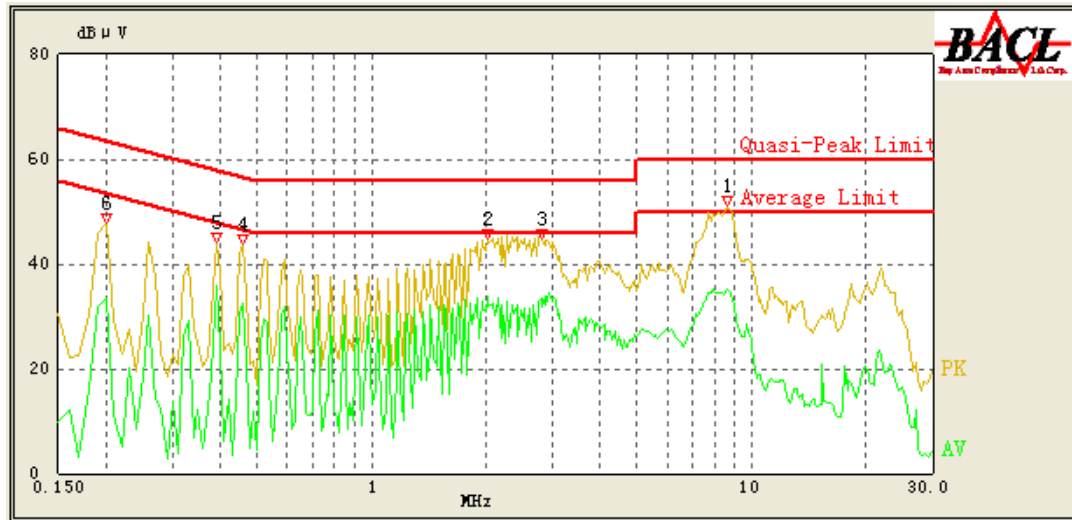
Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.160	50.87	1.04	65.71	14.84	QP
0.160	35.46	1.04	55.71	20.25	AV
0.440	35.39	0.61	57.71	22.32	QP
0.440	23.75	0.61	47.71	23.96	AV
0.660	34.29	0.46	56.00	21.71	QP
0.660	27.39	0.46	46.00	18.61	AV
0.870	30.14	0.37	56.00	25.86	QP
0.870	23.70	0.37	46.00	22.30	AV
1.450	31.66	0.34	56.00	24.34	QP
1.450	24.64	0.34	46.00	21.36	AV
1.840	36.51	0.35	56.00	19.49	QP
1.840	29.28	0.35	46.00	16.72	AV

120 V, 60 Hz, Neutral:

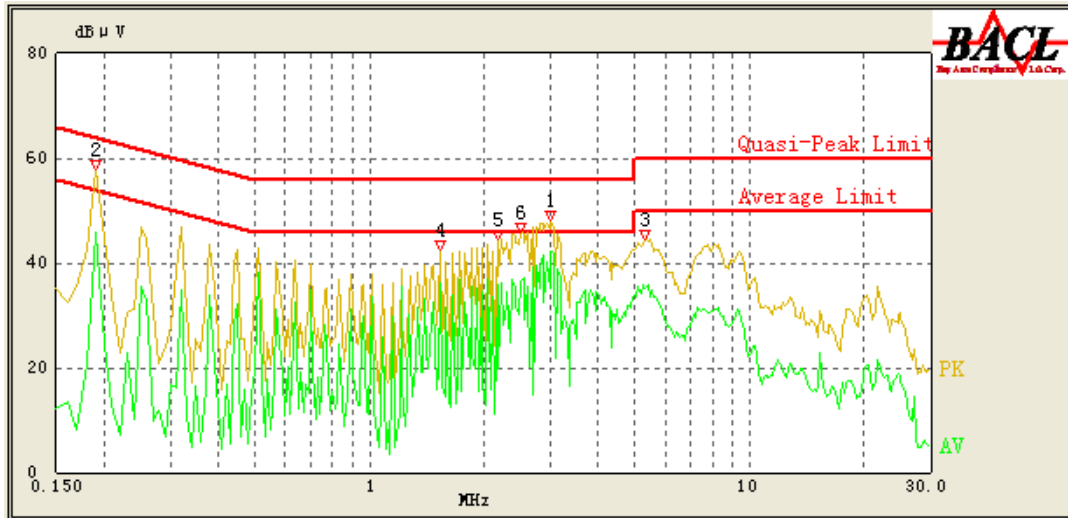
Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.170	44.60	1.74	65.43	20.83	QP
0.170	38.56	1.74	55.43	16.87	AV
0.220	45.06	1.48	64.00	18.94	QP
0.220	35.12	1.48	54.00	18.88	AV
0.460	34.38	0.65	57.14	22.76	QP
0.460	21.76	0.65	47.14	25.38	AV
0.660	34.00	0.45	56.00	22.00	QP
0.660	26.66	0.45	46.00	19.34	AV
0.890	31.41	0.30	56.00	24.59	QP
0.890	21.13	0.30	46.00	24.87	AV
1.850	33.69	0.26	56.00	22.31	QP
1.840	30.11	0.26	46.00	15.89	AV

Test mode: HDMI Playing

120 V, 60 Hz, Line:



Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.200	44.65	1.58	64.57	19.92	QP
0.200	33.35	1.58	54.57	21.22	AV
0.390	39.64	0.84	59.14	19.50	QP
0.390	35.67	0.84	49.14	13.47	AV
0.460	38.65	0.65	57.14	18.49	QP
0.460	32.63	0.65	47.14	14.51	AV
2.020	40.00	0.27	56.00	16.00	QP
2.020	33.89	0.27	46.00	12.11	AV
2.810	40.10	0.30	56.00	15.90	QP
2.810	31.67	0.30	46.00	14.33	AV
8.610	44.42	0.68	60.00	15.58	QP
8.610	35.33	0.68	50.00	14.67	AV

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.190	46.11	1.63	64.86	18.75	QP
0.190	45.72	1.63	54.86	9.14	AV
1.530	40.41	0.25	56.00	15.59	QP
1.530	36.12	0.25	46.00	9.88	AV
2.170	37.44	0.28	56.00	18.56	QP
2.170	35.97	0.28	46.00	10.03	AV
2.490	42.75	0.29	56.00	13.25	QP
2.490	36.44	0.29	46.00	9.56	AV
3.000	43.31	0.31	56.00	12.69	QP
3.000	42.16	0.31	46.00	3.84	AV
5.300	36.28	0.41	60.00	23.72	QP
5.300	35.14	0.41	50.00	14.86	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_{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

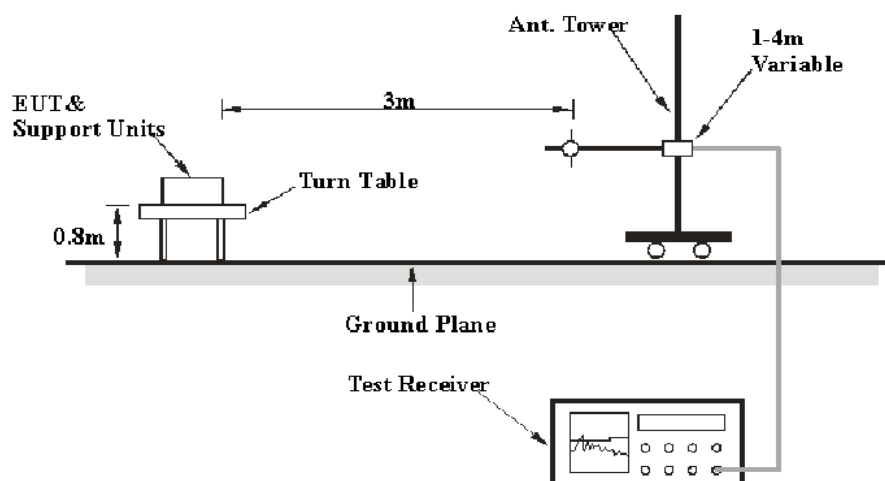
6G~18GHz: 5.23 dB

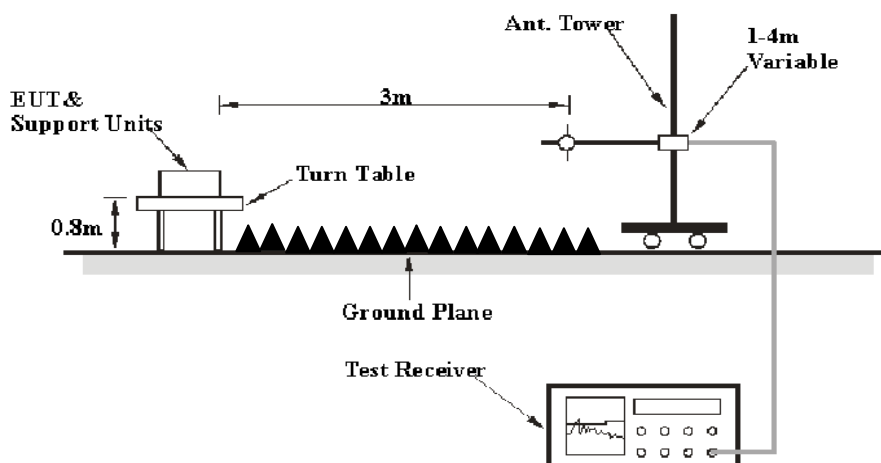
Table 2 – Values of U_{cisp}

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 6 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>
30 MHz – 1000 MHz	120 kHz	300 kHz	QP
Above 1 GHz	1MHz	3 MHz	Peak
Above 1 GHz	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	2013-5-6	2014-5-5
Sunol Sciences	Antenna	JB3	A060611-1	2012-9-6	2015-9-5
HP	HP AMPLIFIER	8447E	2434A02181	N/A	N/A
R&S	Spectrum analyzer	FSEM 30	849016/001	2012-9-4	2013-9-3
ETS LINDGREN	horn antenna	3115	000 527 35	2012-9-6	2015-9-5
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	N/A	N/A
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 in accordance to NVLAP requirements, 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:

2.50 dB at 504.3300 MHz in the Vertical polarization of mode USB Downloading

Test Data

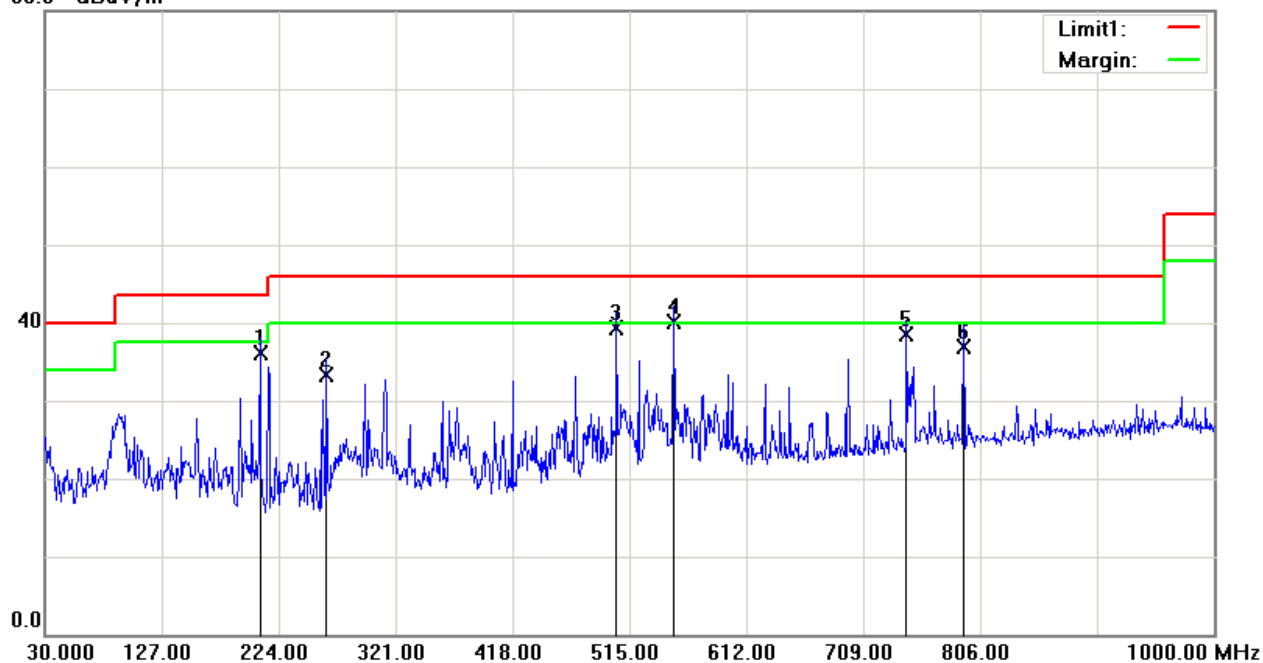
Environmental Conditions

Temperature:	26.1 °C
Relative Humidity:	59 %
ATM Pressure:	99.7 kPa

The testing was performed by Ares Liu on 2013-06-18.

1) Below 1G:*Test mode: USB Downloading***Horizontal:**

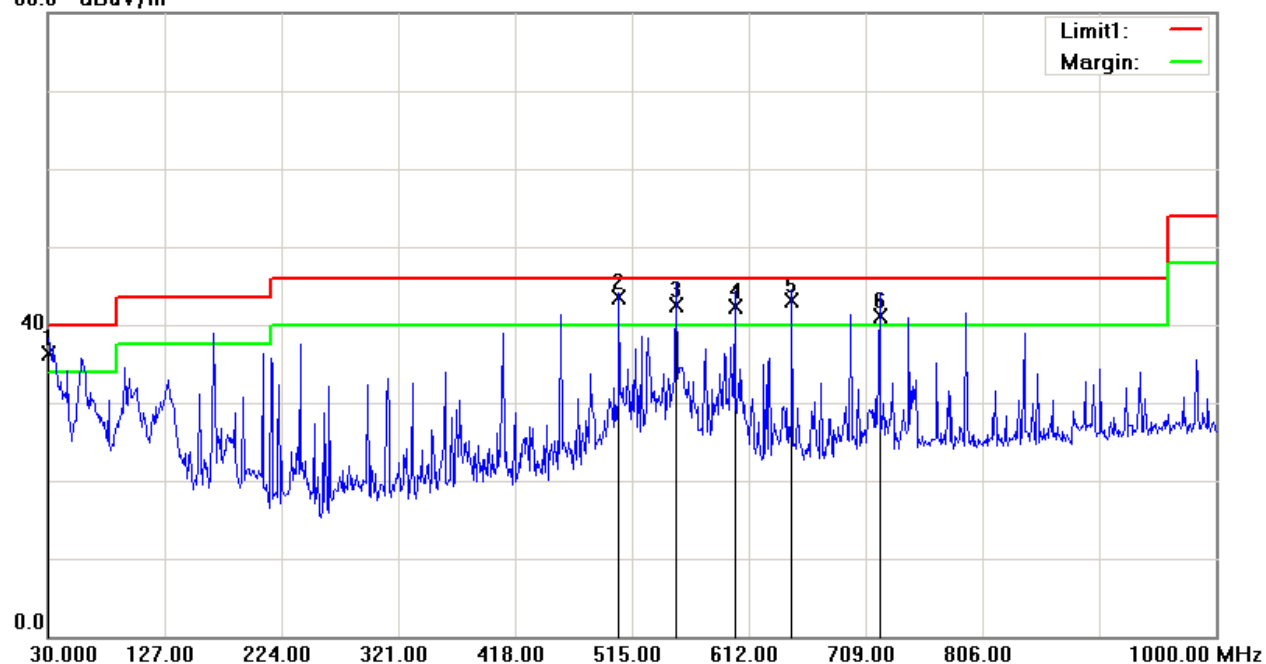
80.0 dBuV/m



*Within measurement uncertainty!

Vertical:

80.0 dBuV/m



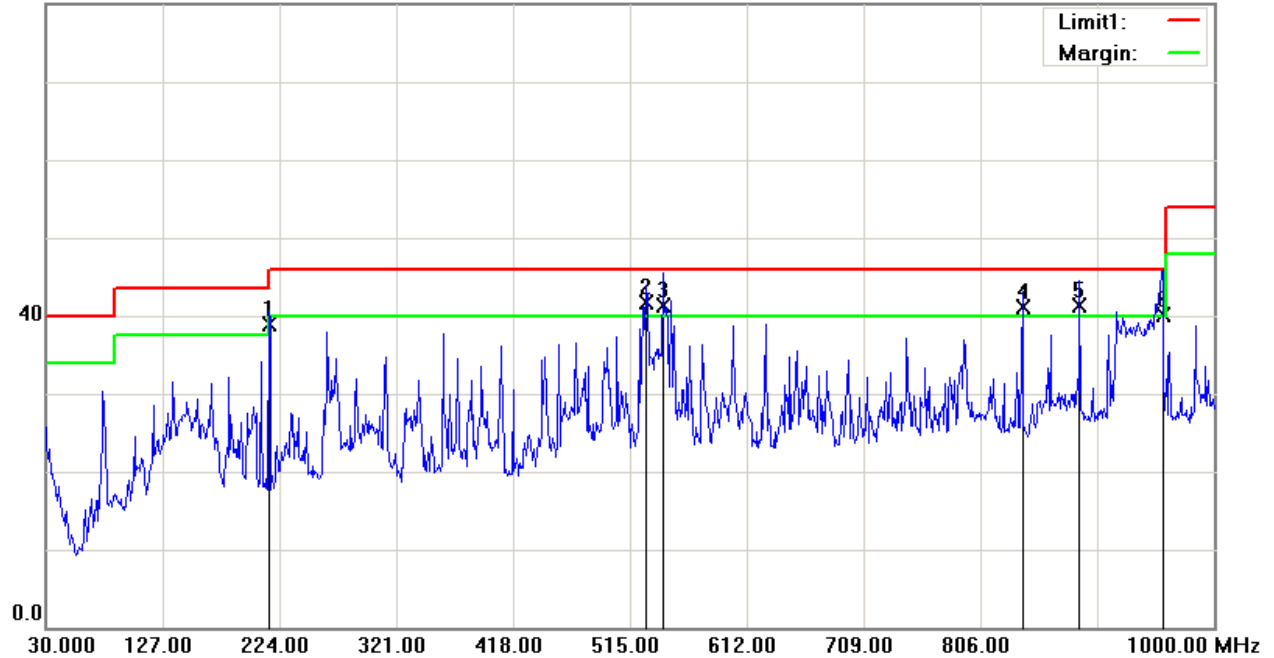
Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.9700	35.66	QP	0.64	36.30	40.00	3.70*
504.3300	45.73	QP	-2.23	43.50	46.00	2.50*
551.8600	44.24	QP	-1.74	42.50	46.00	3.50*
600.3600	43.37	QP	-1.07	42.30	46.00	3.70*
647.8900	43.26	QP	-0.16	43.10	46.00	2.90*
720.6400	40.59	QP	0.61	41.20	46.00	4.80*

*Within measurement uncertainty!

Test mode: HDMI Playing

Horizontal:

80.0 dBuV/m

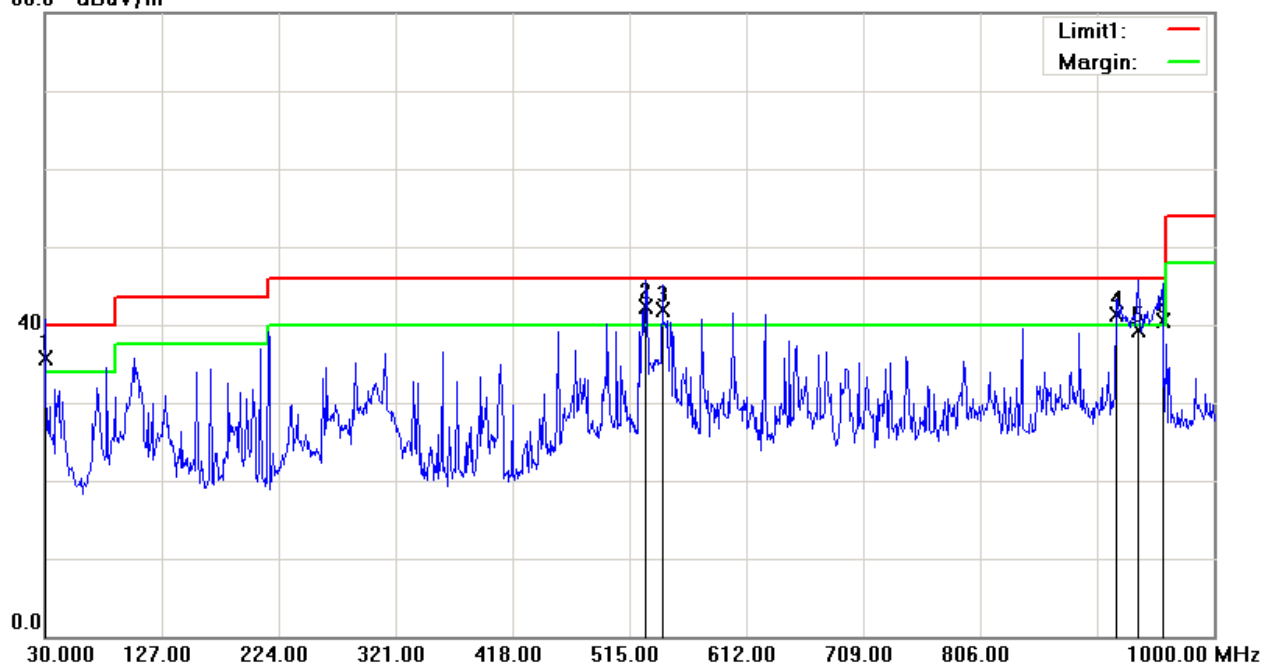


Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
215.2700	47.88	QP	-8.98	38.90	43.50	4.60*
528.5800	43.81	QP	-2.01	41.80	46.00	4.20*
542.1600	43.11	QP	-1.81	41.30	46.00	4.70*
840.9200	39.09	QP	2.11	41.20	46.00	4.80*
888.4500	38.63	QP	2.77	41.40	46.00	4.60*
957.3200	36.36	QP	3.74	40.10	46.00	5.90*

*Within measurement uncertainty!

Vertical:

80.0 dBuV/m

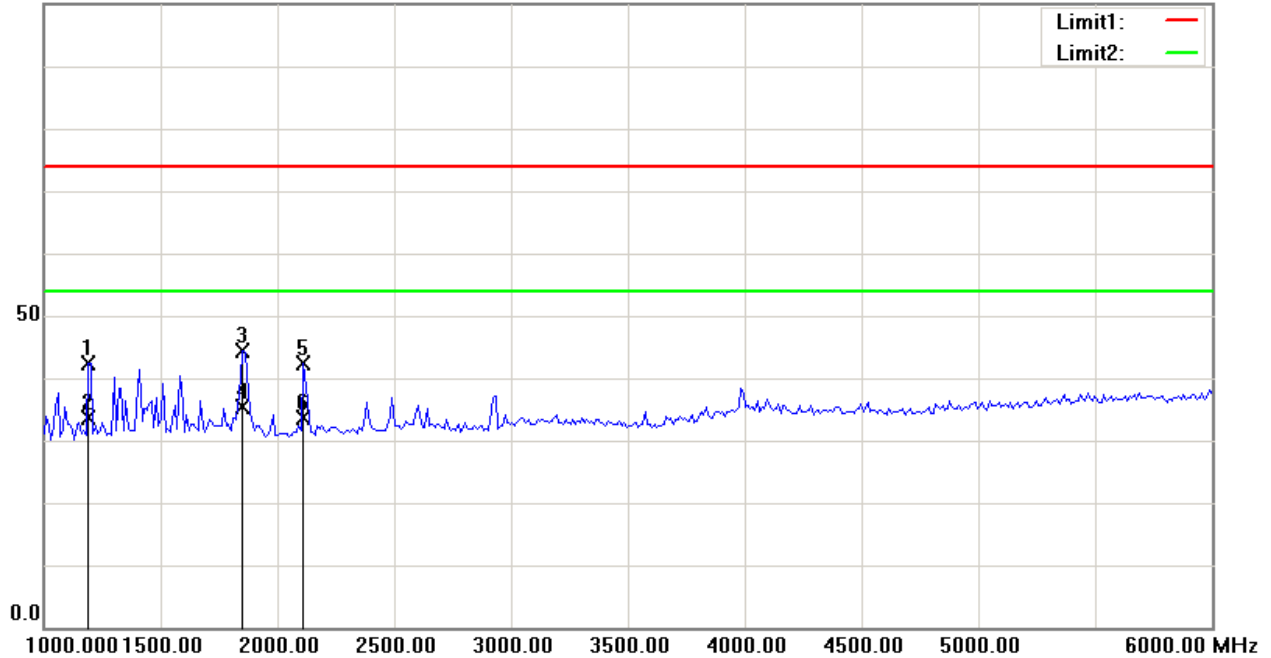


Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	34.29	QP	1.41	35.70	40.00	4.30*
528.5800	44.41	QP	-2.01	42.40	46.00	3.60*
542.1600	43.81	QP	-1.81	42.00	46.00	4.00*
919.4900	38.33	QP	3.07	41.40	46.00	4.60*
936.9500	35.87	QP	3.43	39.30	46.00	6.70
957.3200	36.76	QP	3.74	40.50	46.00	5.50*

*Within measurement uncertainty!

2) Above 1G:*Test mode: USB Downloading***Horizontal:**

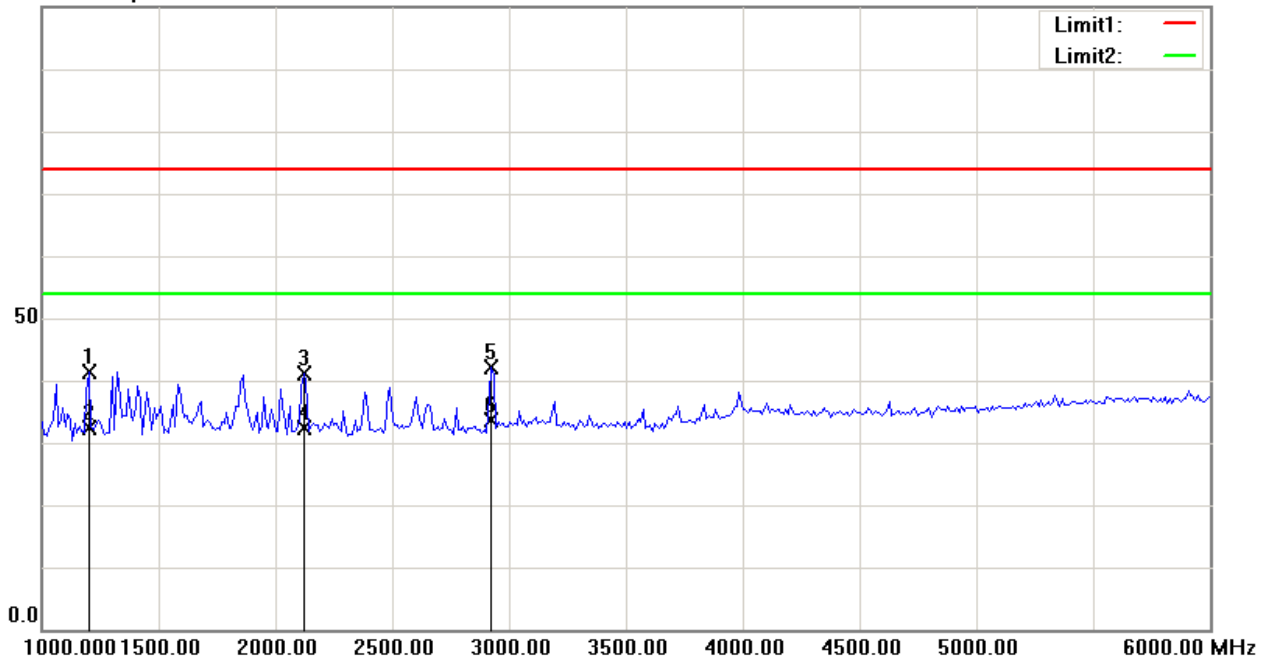
100.0 dBuV/m



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1190.381	46.87	peak	-4.46	42.41	74.00	31.59
1190.381	37.98	AVG	-4.46	33.52	54.00	20.48
1851.703	47.05	peak	-2.75	44.30	74.00	29.70
1851.703	38.21	AVG	-2.75	35.46	54.00	18.54
2112.224	44.71	peak	-2.31	42.40	74.00	31.60
2112.224	35.98	AVG	-2.31	33.67	54.00	20.33

Vertical:

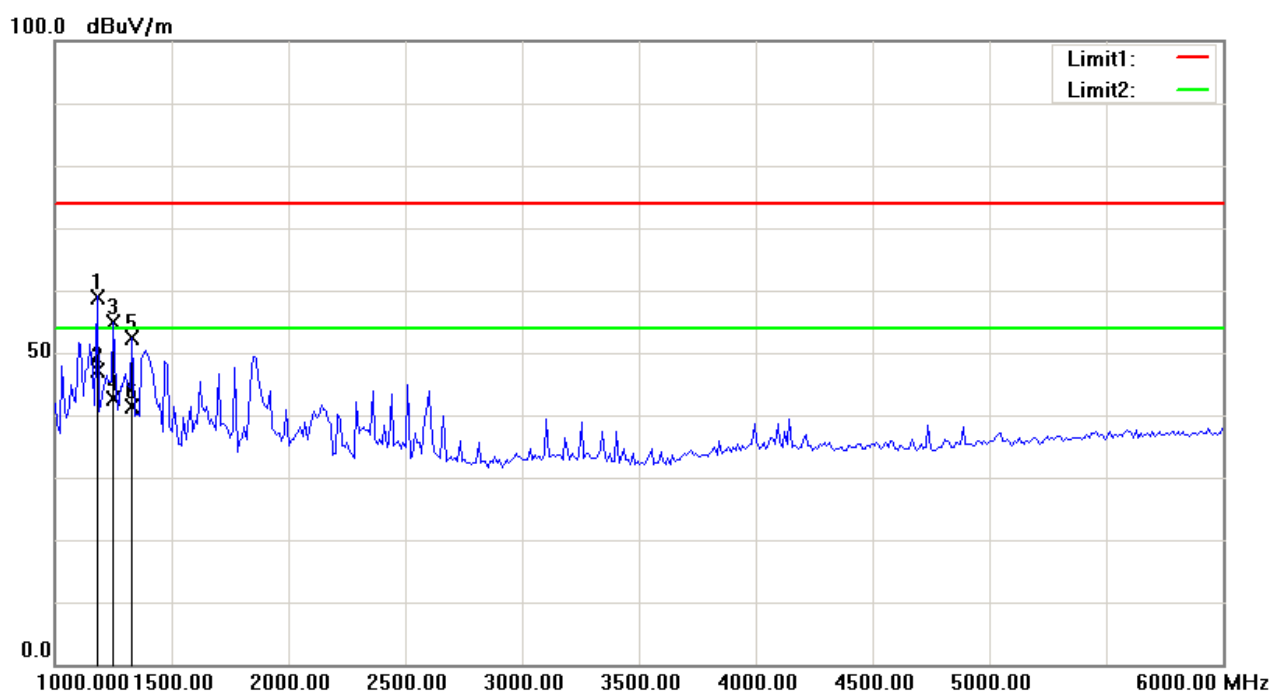
100.0 dBuV/m



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1200.401	45.86	peak	-4.44	41.42	74.00	32.58
1200.401	36.73	AVG	-4.44	32.29	54.00	21.71
2122.244	43.51	peak	-2.29	41.22	74.00	32.78
2122.244	34.76	AVG	-2.29	32.47	54.00	21.53
2923.848	42.46	peak	-0.43	42.03	74.00	31.97
2923.848	34.10	AVG	-0.43	33.67	54.00	20.33

Test mode: HDMI Playing

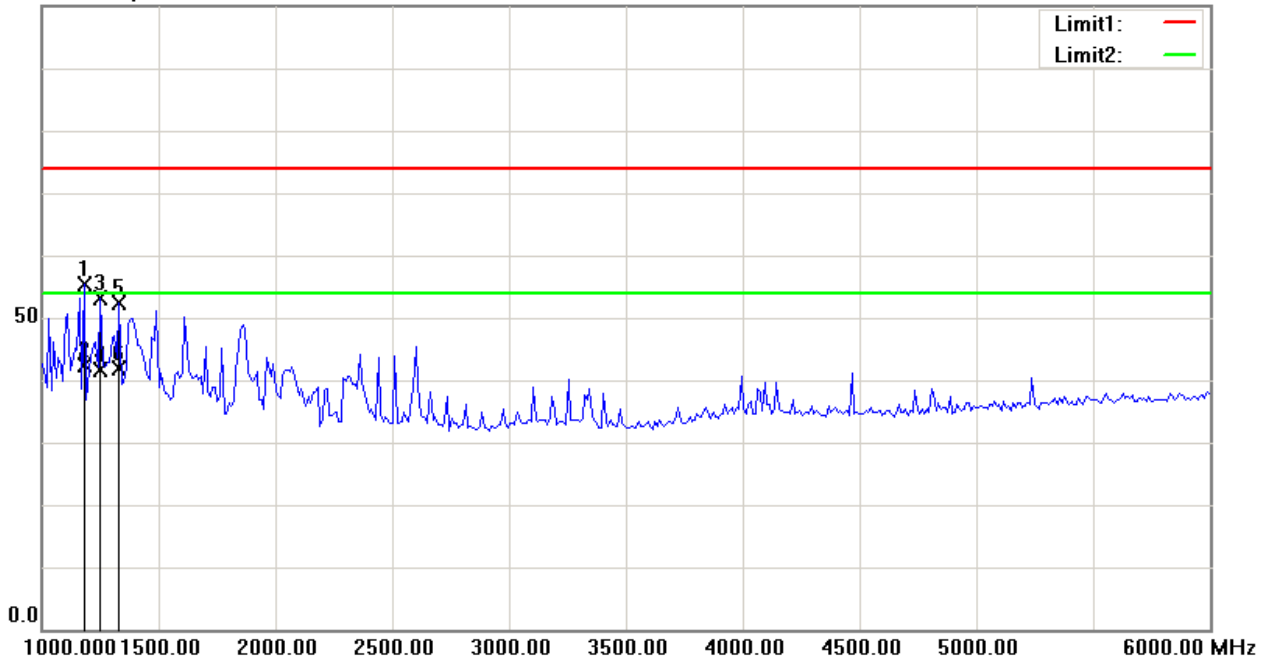
Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1180.361	63.48	peak	-4.48	59.00	74.00	15.00
1180.361	51.72	AVG	-4.48	47.24	54.00	6.76
1250.501	59.14	peak	-4.28	54.86	74.00	19.14
1250.501	46.95	AVG	-4.28	42.67	54.00	11.33
1330.661	56.39	peak	-4.02	52.37	74.00	21.63
1330.661	45.44	AVG	-4.02	41.42	54.00	12.58

Vertical:

100.0 dBuV/m



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1180.361	59.83	peak	-4.48	55.35	74.00	18.65
1180.361	46.91	AVG	-4.48	42.43	54.00	11.57
1250.501	57.30	peak	-4.28	53.02	74.00	20.98
1250.501	45.94	AVG	-4.28	41.66	54.00	12.34
1330.661	56.44	peak	-4.02	52.42	74.00	21.58
1330.661	45.96	AVG	-4.02	41.94	54.00	12.06

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