LABCODE: 500069-0

FCC PART 15B

TEST REPORT

For

Galaxy Microsystems Ltd.

Room 1101-1103, 11/F, Enterprise Square Two, 3 Sheung Yuet Road, Kowloon Bay, Kowloon, Hong Kong

FCC ID: Y3GGALAPAD7G2

Report Type:	Product Type:
Original Report	Galapad 7

Test Engineer:	Leon Chen
Report Number:	R2DG130508007-00C
Report Date:	2013-07-31
Reviewed By:	Ivan Cao RF Leader
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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Galaxy Microsystems Ltd.*'s product, model number: *Galapad7(G2) (FCC ID: Y3GGALAPAD7G2)* (the "EUT") in this report was a *Galapad 7,* which was measured approximately: 19.5 cm (L) x 12.5 cm (W) x 1.0 cm (H), rated input voltage: DC 3.8 V from lithium battery or DC 5V from adapter.

Adapter information: GALAPAD
Model: LFS0502000D-A8S
Input: AC 100-240V, 50/60Hz, 500mA max
Output: DC 5V, 2.0A

** All measurement and test data in this report was gathered from production sample serial number: 130508007 (Assigned by BACL.Dongguan). The EUT was received on 2013-05-09.*

Objective

This report is prepared on behalf of *Galaxy Microsystems 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: *Y3GGALAPAD7G2* for Wifi.
FCC Part 15C DSS submissions with FCC ID: *Y3GGALAPAD7G2* 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

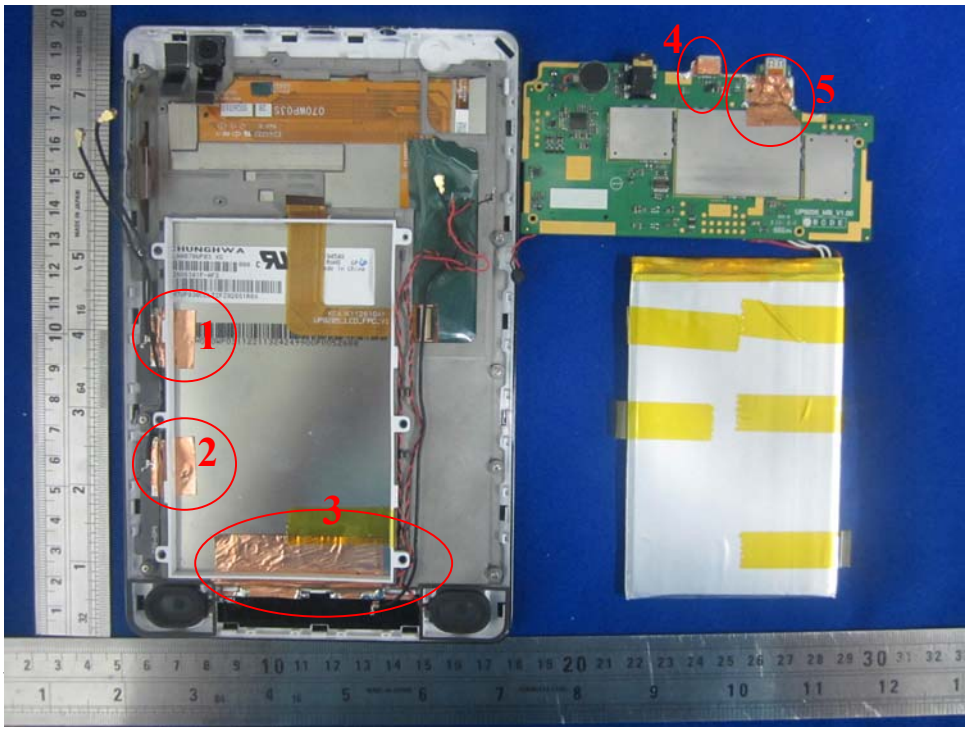
The system was configured for testing in a typical fashion (as normally used by a typical user). The highest operating frequency is 1200 MHz.
Test mode 1: USB Downloading
Test mode 2: HDMI Playing

EUT Exercise Software

No exercise software was used.

Equipment Modifications

1. As shown on below, paste the copper on the position of the point 1, 2, 3, 4, 5.



2. Add an cord on the USB cable.

Support Equipment List and Details

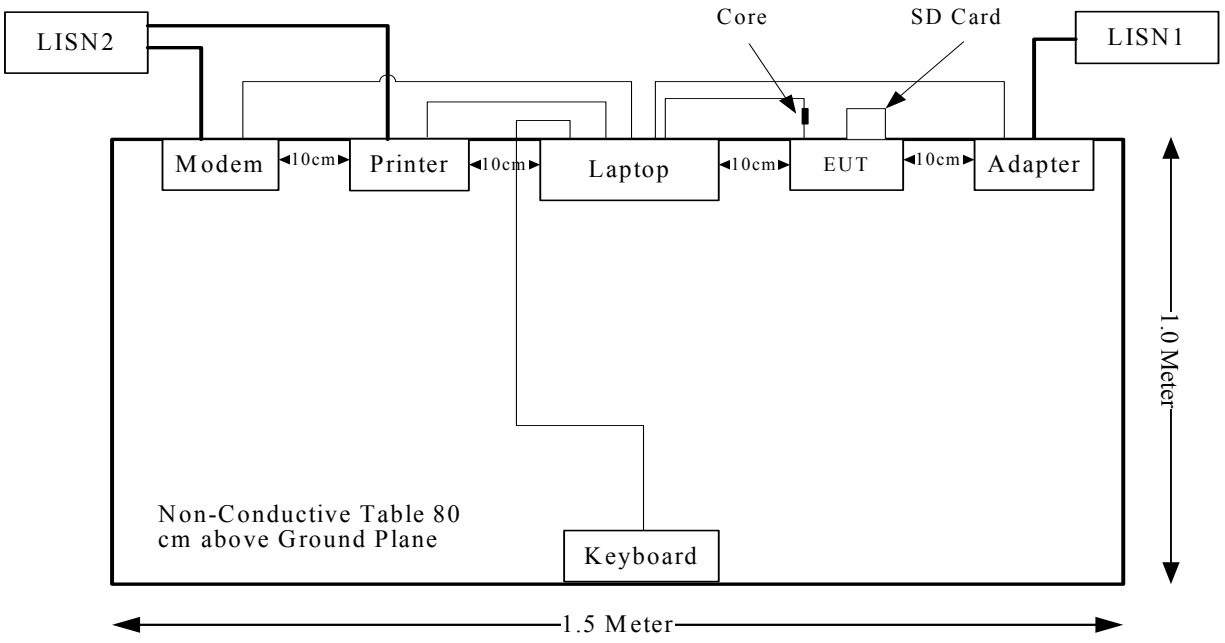
Manufacturer	Description	Model	Serial Number
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Laptop	PP11L	QDS-BRCM1017
DELL	Monitor	U3011t	CN-OPH5NY-74445-16T-290L
Kinston	Micro SD Card	4G	N/A

External Cable

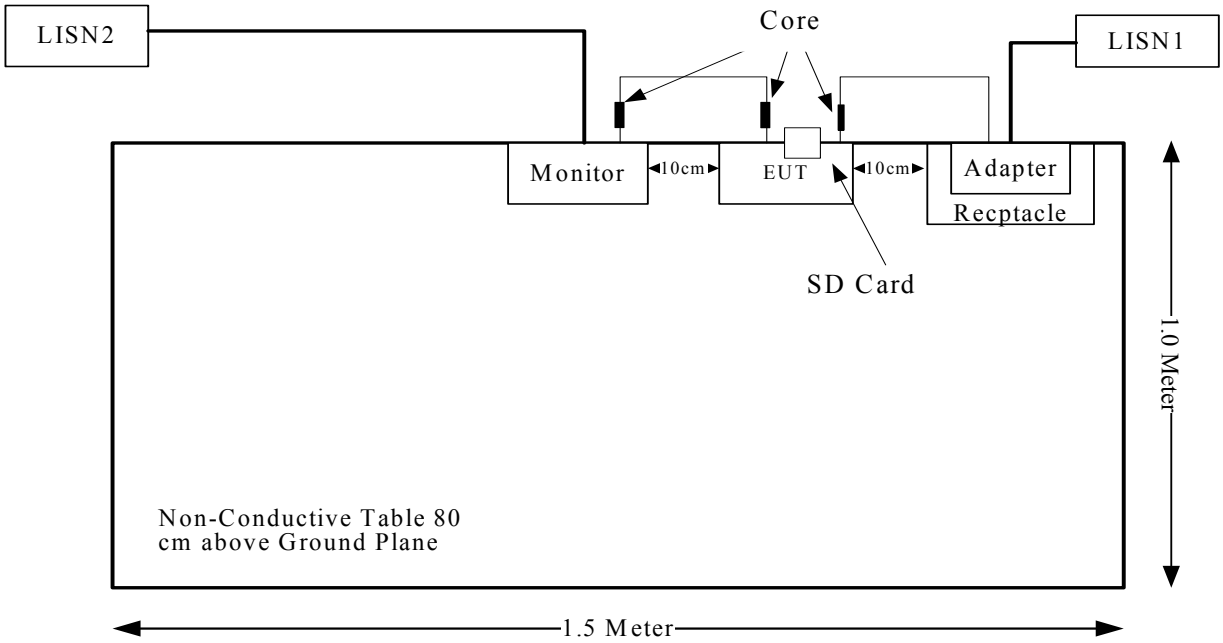
Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Laptop	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Laptop	Modem
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Laptop	Keyboard
Shielded Detachable USB Cable	1.0	Laptop	EUT
Shielded 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_{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.

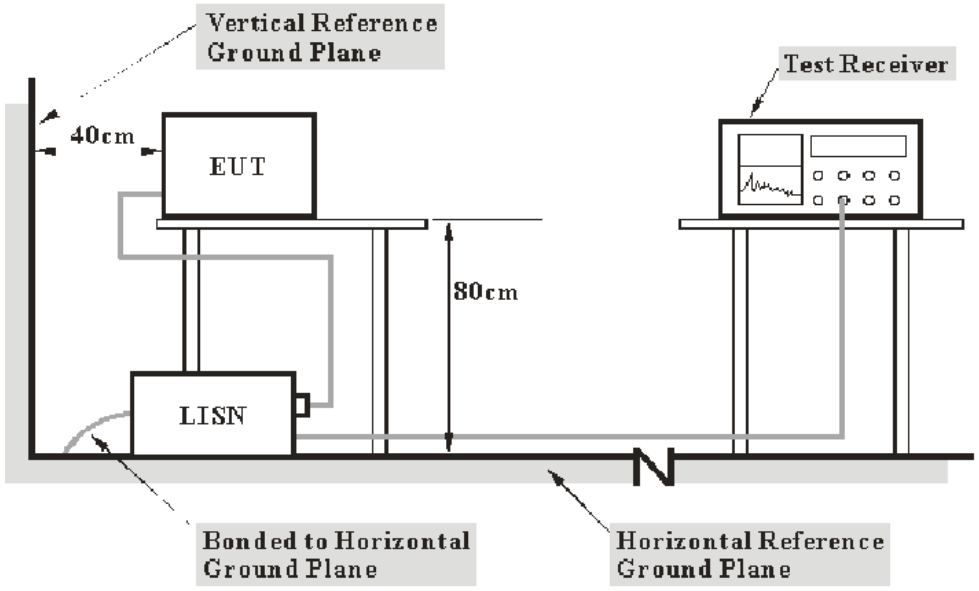
If U_{lab} is greater than U_{cispr} of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), 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:

Margin = Limit – 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:

1.75 dB at **0.530 MHz** in the **Line** conducted mode of HDMI Playing mode.

Test Data

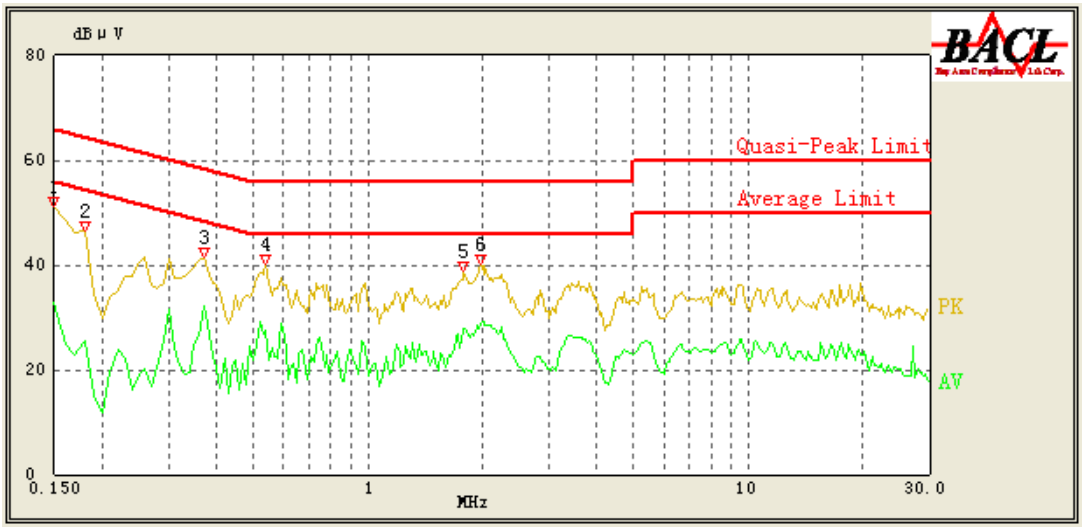
Environmental Conditions

Temperature:	27.3 °C
Relative Humidity:	66 %
ATM Pressure:	100.2 kPa

The testing was performed by Leon Chen on 2013-07-16.

Test mode: USB Downloading

120 V, 60 Hz, Line:



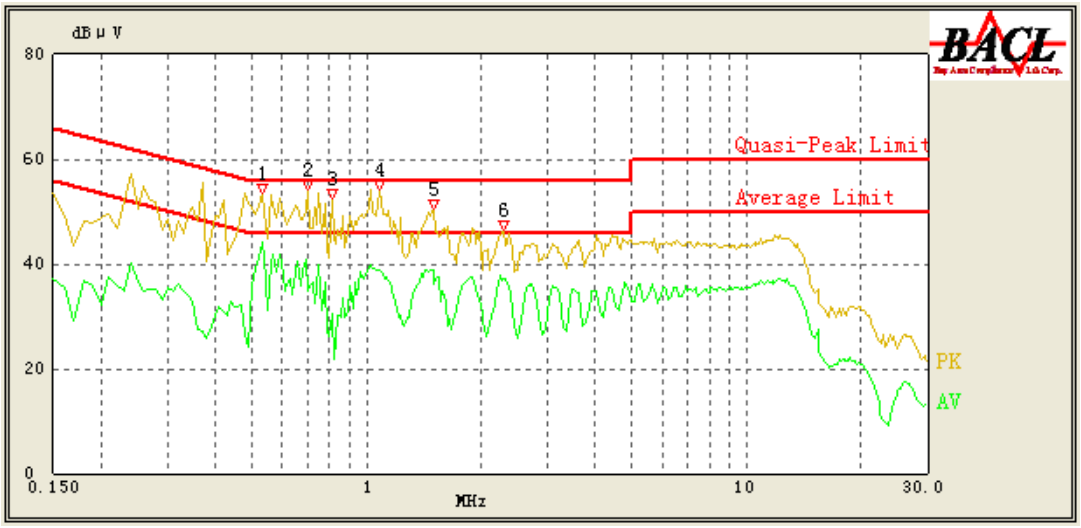
Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
0.150	48.11	1.06	66.00	17.89	QP
0.150	32.74	1.06	56.00	23.26	AV
0.180	45.71	1.01	65.14	19.43	QP
0.180	25.62	1.01	55.14	29.52	AV
0.370	34.31	0.71	59.71	25.40	QP
0.370	32.32	0.71	49.71	17.39	AV
0.540	35.66	0.51	56.00	20.34	QP
0.540	27.37	0.51	46.00	18.63	AV
1.790	30.84	0.35	56.00	25.16	QP
1.790	27.87	0.35	46.00	18.13	AV
1.970	33.99	0.36	56.00	22.01	QP
1.960	27.88	0.36	46.00	18.12	AV

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
0.150	48.79	1.84	66.00	17.21	QP
0.150	35.22	1.84	56.00	20.78	AV
0.190	44.46	1.63	64.86	20.40	QP
0.190	29.34	1.63	54.86	25.52	AV
0.260	40.94	1.28	62.86	21.92	QP
0.260	34.11	1.28	52.86	18.75	AV
0.440	42.66	0.71	57.71	15.05	QP
0.440	41.85	0.71	47.71	5.86	AV
0.210	43.57	1.53	64.29	20.72	QP
0.210	32.07	1.53	54.29	22.22	AV
1.950	34.55	0.27	56.00	21.45	QP
1.950	28.50	0.27	46.00	17.50	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)
0.530	50.08	0.21	56.00	5.92	QP
0.530	44.25	0.21	46.00	1.75*	AV
0.700	45.27	0.22	56.00	10.73	QP
0.700	34.75	0.22	46.00	11.25	AV
0.810	40.62	0.22	56.00	15.38	QP
0.810	30.42	0.22	46.00	15.58	AV
1.080	45.35	0.23	56.00	10.65	QP
1.080	38.74	0.23	46.00	7.26	AV
1.500	43.26	0.25	56.00	12.74	QP
1.500	38.68	0.25	46.00	7.32	AV
2.290	41.28	0.28	56.00	14.72	QP
2.280	36.96	0.28	46.00	9.04	AV

**Within measurement uncertainty!*

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
0.570	50.42	0.21	56.00	5.58	QP
0.570	42.54	0.21	46.00	3.46	AV
0.590	50.09	0.21	56.00	5.91	QP
0.590	39.59	0.21	46.00	6.41	AV
0.970	49.73	0.23	56.00	6.27	QP
0.960	39.39	0.23	46.00	6.61	AV
4.410	49.77	0.37	56.00	6.23	QP
4.440	36.07	0.37	46.00	9.93	AV
0.690	49.09	0.22	56.00	6.91	QP
0.690	38.98	0.22	46.00	7.02	AV
1.410	46.93	0.25	56.00	9.07	QP
1.410	38.03	0.25	46.00	7.97	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 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_{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.

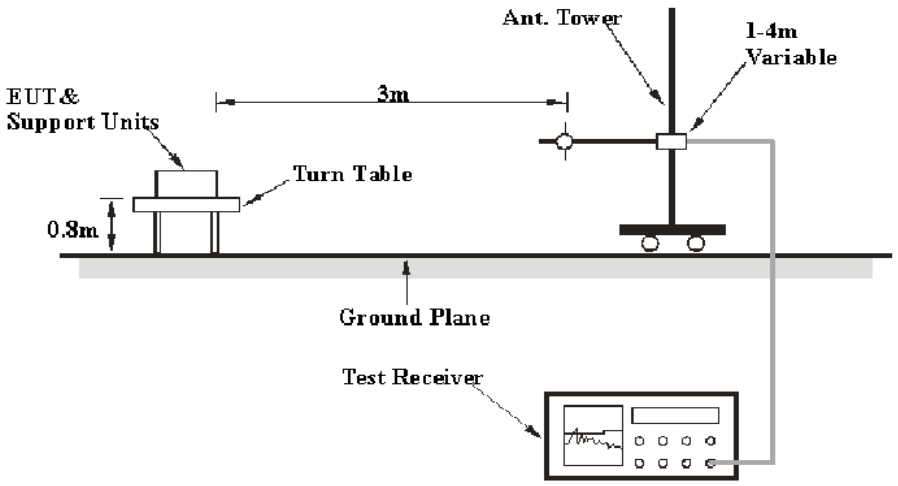
Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

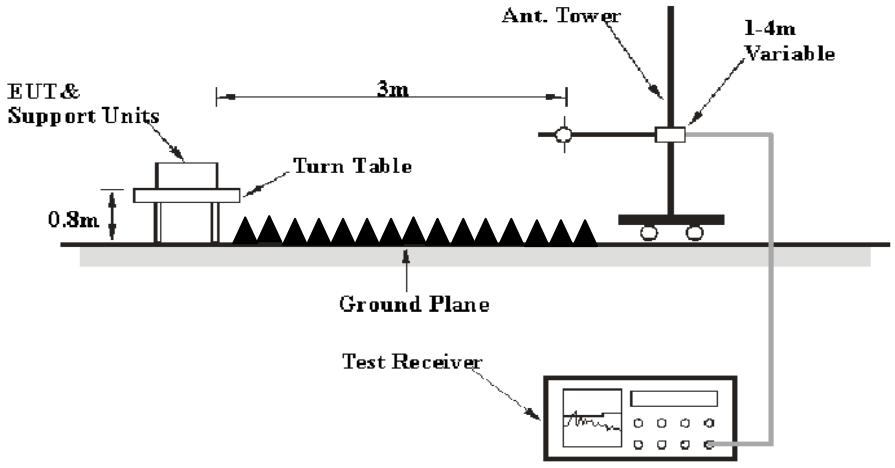
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

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:

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:

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - 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:

Margin = Limit – 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:

5.0 dB at **46.4900 MHz** in the **Vertical** polarization of mode USB Downloading

Test Data

Environmental Conditions

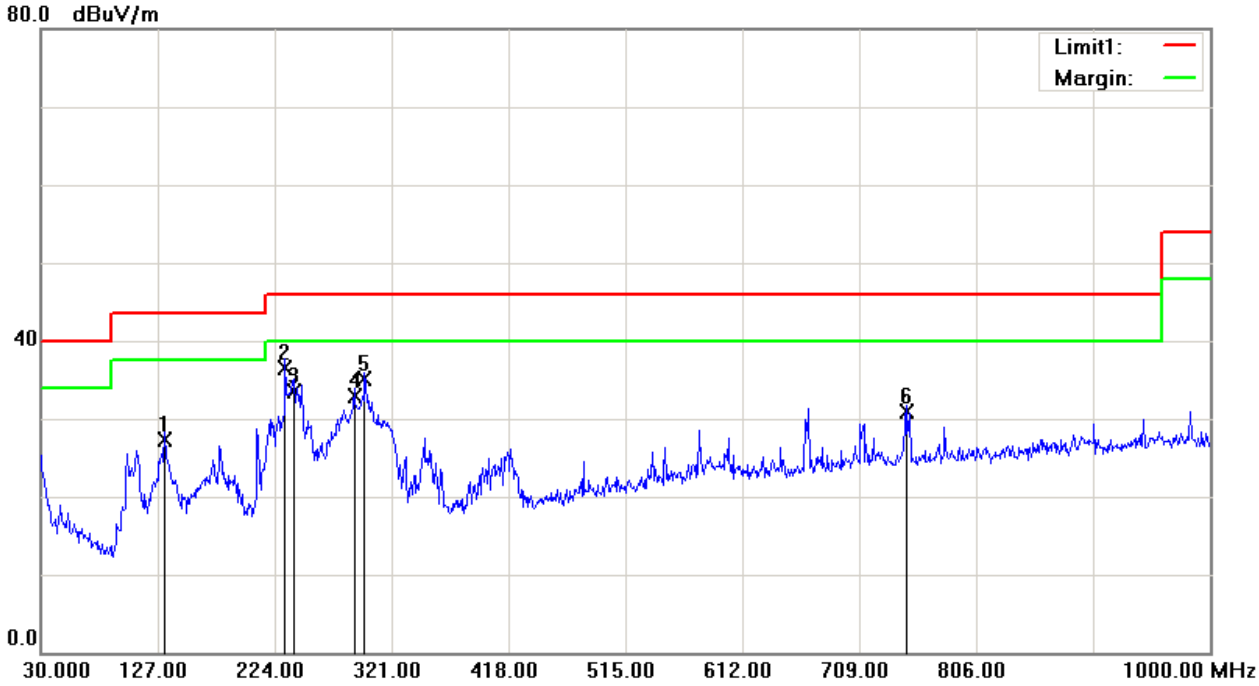
Temperature:	25.8 °C
Relative Humidity:	61 %
ATM Pressure:	100.3 kPa

The testing was performed by Leon Chen on 2013-07-29.

1) Below 1G:

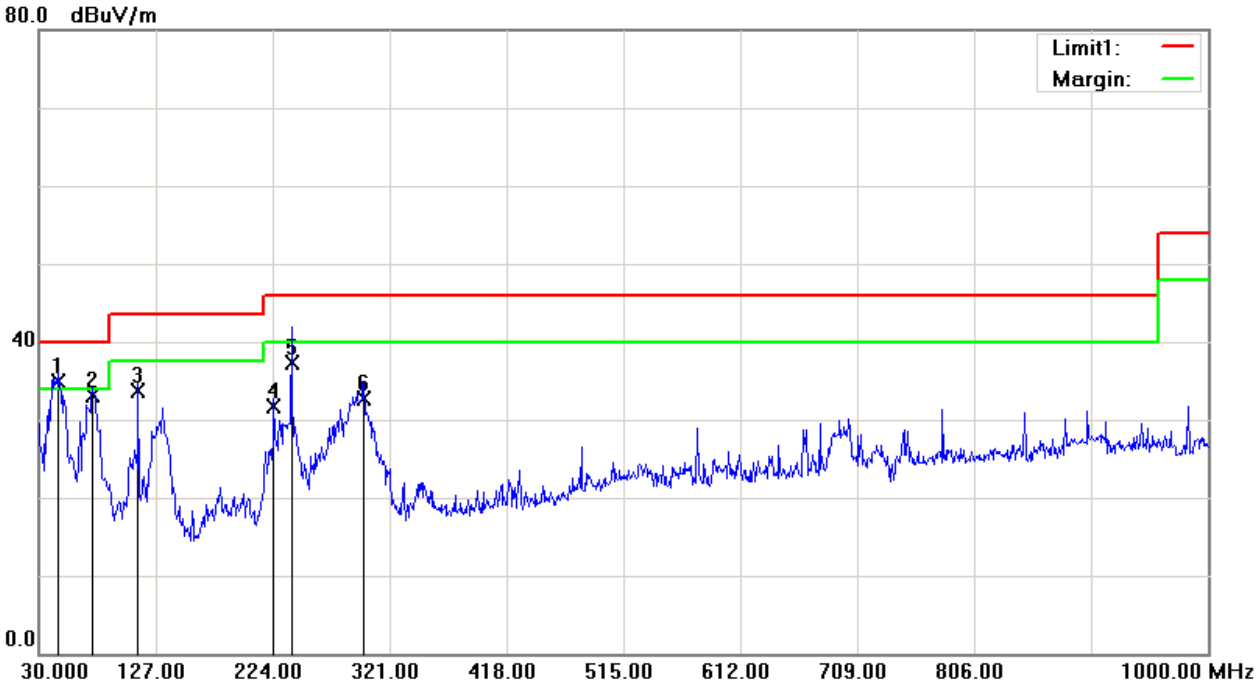
Test mode: USB Downloading

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
132.8200	33.91	QP	-6.61	27.30	43.50	16.20
232.7300	44.83	QP	-8.33	36.50	46.00	9.50
239.5200	41.61	QP	-8.11	33.50	46.00	12.50
289.9600	39.16	QP	-6.26	32.90	46.00	13.10
298.6900	41.31	QP	-6.21	35.10	46.00	10.90
747.8000	29.75	QP	1.15	30.90	46.00	15.10

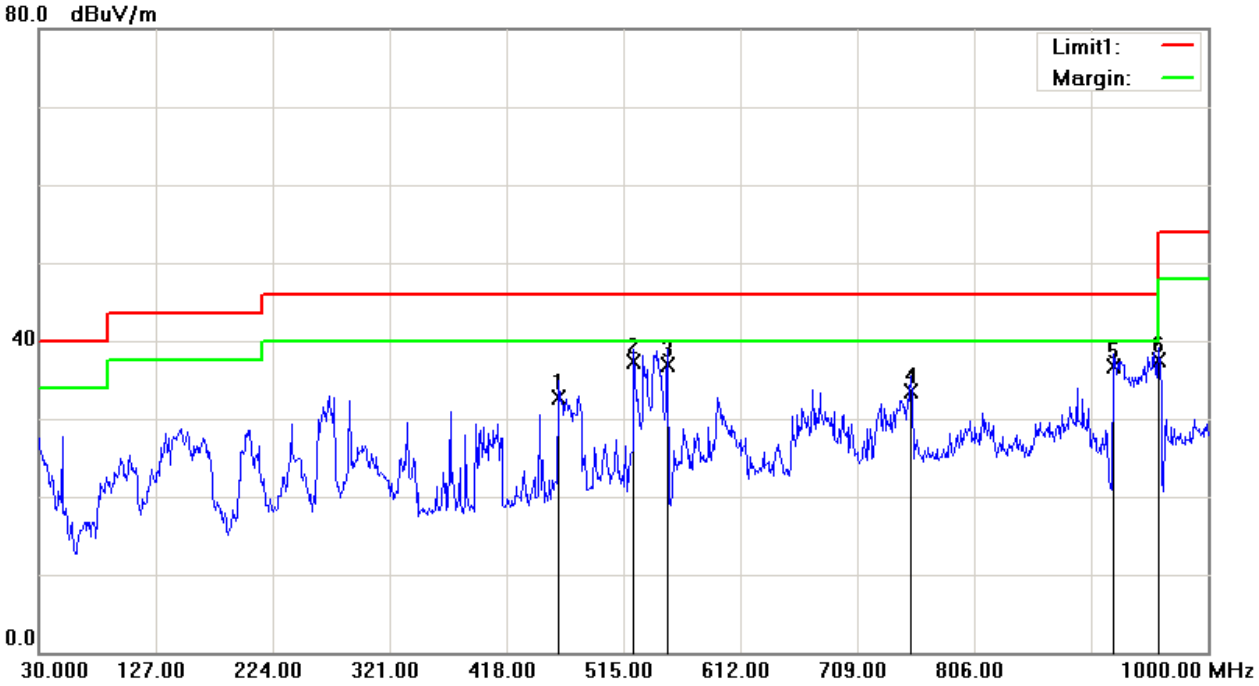
Vertical:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
46.4900	45.64	QP	-10.64	35.00	40.00	5.00
74.6200	45.32	QP	-12.22	33.10	40.00	6.90
112.4500	41.03	QP	-7.33	33.70	43.50	9.80
224.9700	40.40	QP	-8.67	31.73	46.00	14.27
239.5200	45.41	QP	-8.11	37.30	46.00	8.70
299.6600	38.90	QP	-6.20	32.70	46.00	13.30

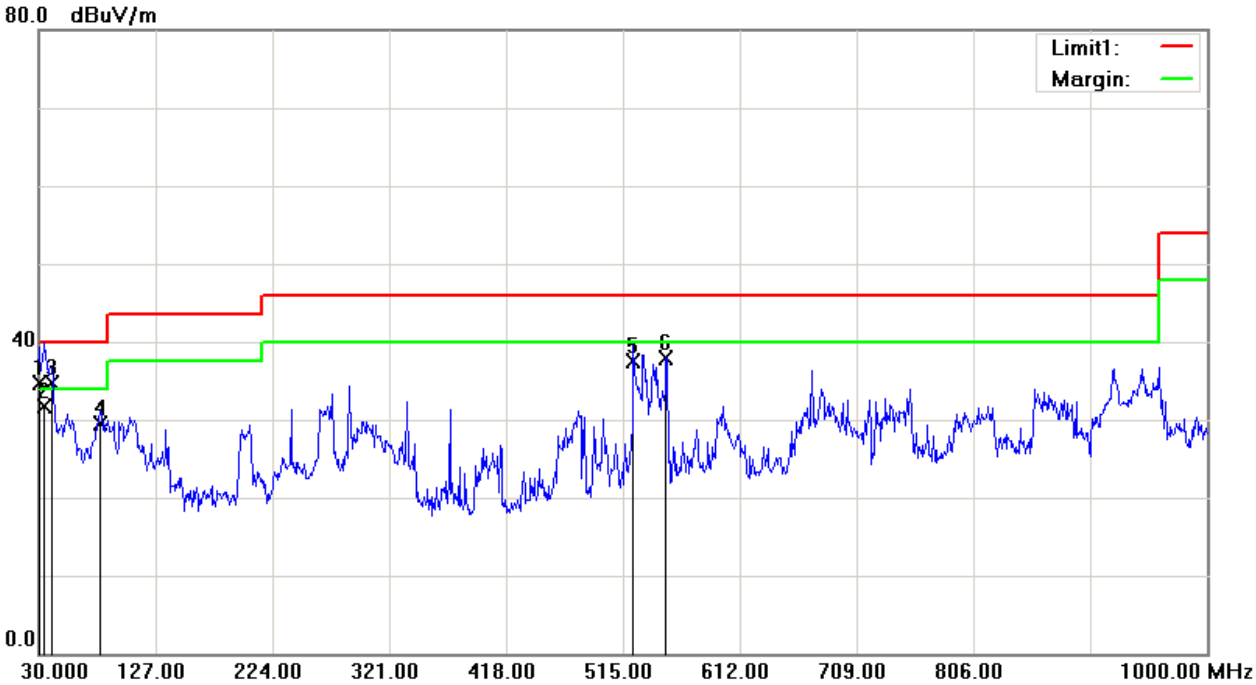
Test mode: HDMI Playing

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
461.6500	35.54	QP	-2.74	32.80	46.00	13.20
523.7300	39.52	QP	-2.12	37.40	46.00	8.60
551.8600	38.64	QP	-1.74	36.90	46.00	9.10
753.6200	32.36	QP	1.24	33.60	46.00	12.40
921.4300	33.62	QP	3.08	36.70	46.00	9.30
959.2600	33.66	QP	3.84	37.50	46.00	8.50

Vertical:

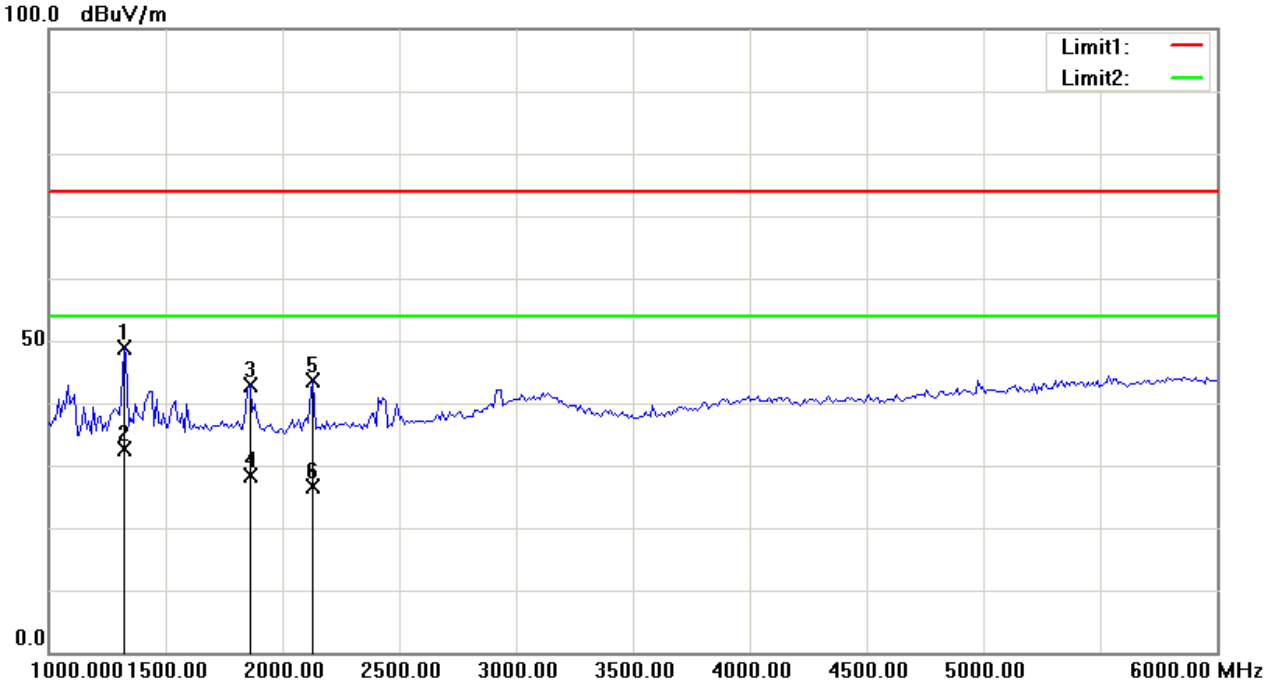


Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.5700	33.84	QP	0.96	34.80	40.00	5.20
34.8500	34.27	QP	-2.47	31.80	40.00	8.20
40.6700	41.63	QP	-6.93	34.70	40.00	5.30
81.4100	42.25	QP	-12.75	29.50	40.00	10.50
523.7300	39.62	QP	-2.12	37.50	46.00	8.50
550.8900	39.64	QP	-1.74	37.90	46.00	8.10

2) Above 1G:

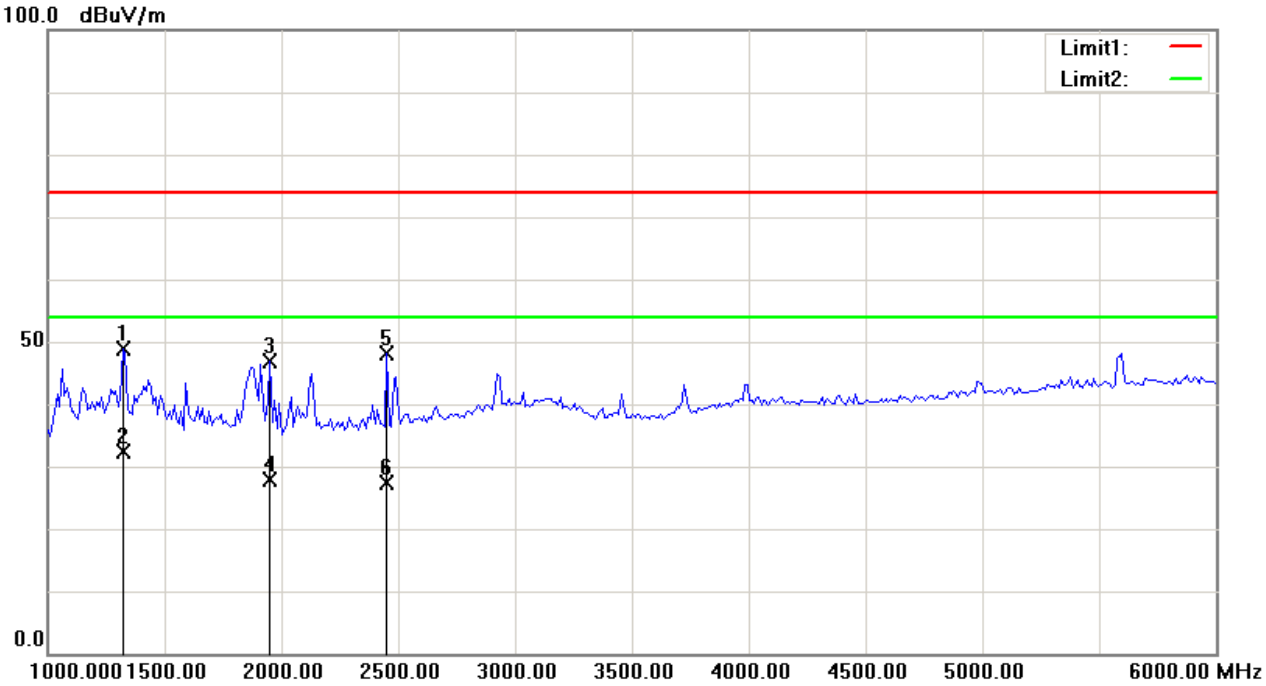
Test mode: USB Downloading

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1320.641	49.98	peak	-1.10	48.88	74.00	25.12
1320.641	33.82	AVG	-1.10	32.72	54.00	21.28
1861.723	41.86	peak	1.00	42.86	74.00	31.14
1861.723	27.39	AVG	1.00	28.39	54.00	25.61
2132.265	41.85	peak	1.78	43.63	74.00	30.37
2132.265	24.76	AVG	1.78	26.54	54.00	27.46

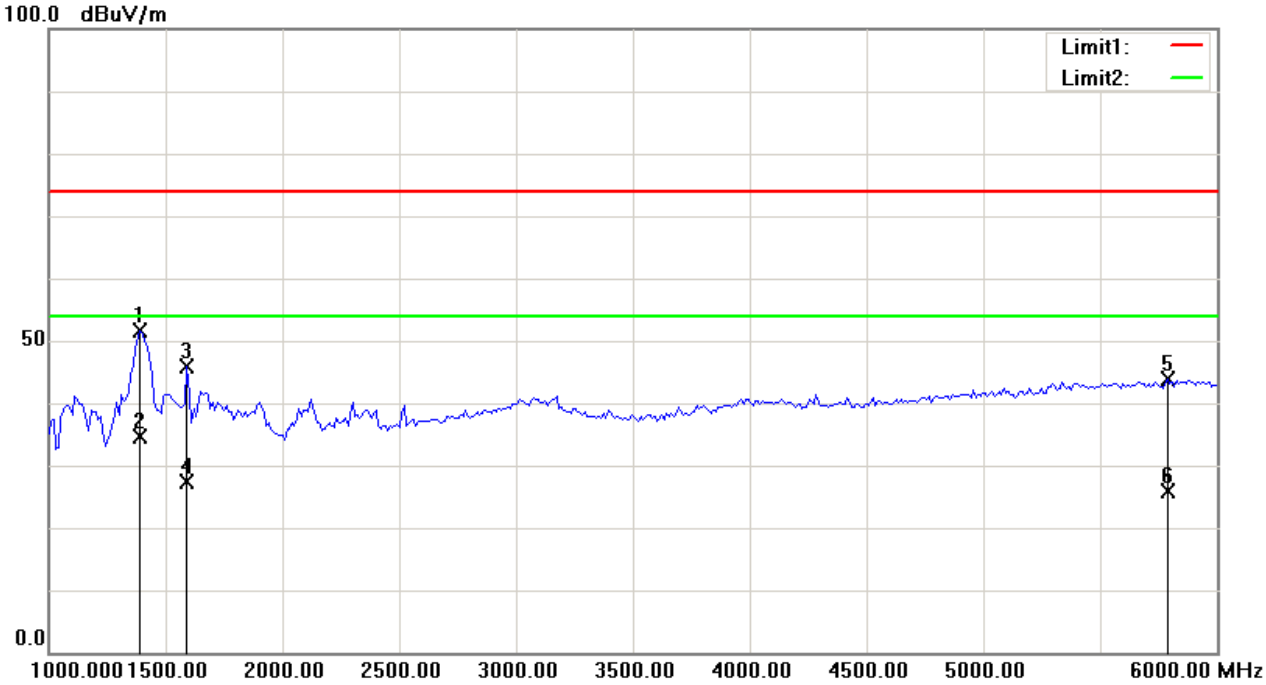
Vertical:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1320.641	49.98	peak	-1.10	48.88	74.00	25.12
1320.641	33.41	AVG	-1.10	32.31	54.00	21.69
1951.904	45.61	peak	1.19	46.80	74.00	27.20
1951.904	26.76	AVG	1.19	27.95	54.00	26.05
2452.906	45.13	peak	3.00	48.13	74.00	25.87
2452.906	24.41	AVG	3.00	27.41	54.00	26.59

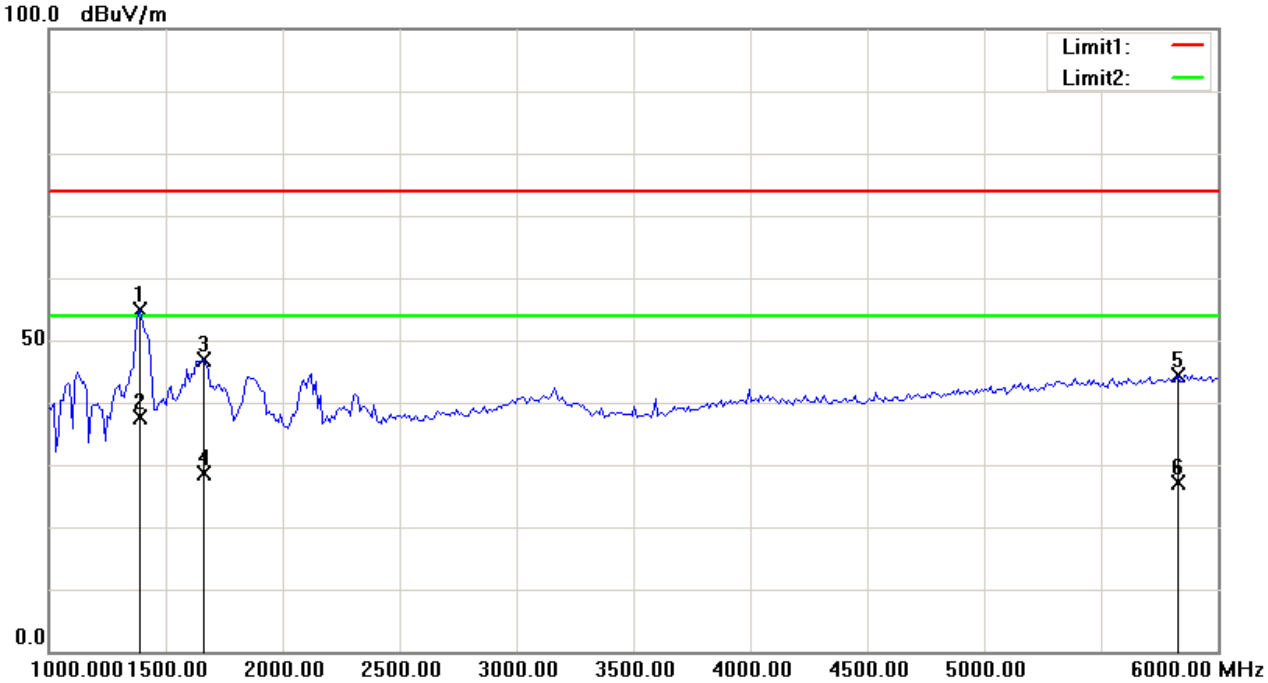
Test mode: HDMI Playing

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1390.782	52.28	peak	-0.75	51.53	74.00	22.47
1390.782	35.27	AVG	-0.75	34.52	54.00	19.48
1591.182	45.87	peak	0.10	45.97	74.00	28.03
1591.182	27.38	AVG	0.10	27.48	54.00	26.52
5789.579	32.22	peak	11.60	43.82	74.00	30.18
5789.579	14.21	AVG	11.60	25.81	54.00	28.19

Vertical:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1390.782	55.56	peak	-0.75	54.81	74.00	19.19
1390.782	38.44	AVG	-0.75	37.69	54.00	16.31
1661.322	46.56	peak	0.39	46.95	74.00	27.05
1661.322	28.14	AVG	0.39	28.53	54.00	25.47
5829.659	32.64	peak	11.74	44.38	74.00	29.62
5829.659	15.45	AVG	11.74	27.19	54.00	26.81

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