

FCC PART 15B

TEST REPORT

For

Beijing Osee Digital Technology Ltd0

No.13 Central Building, No.68 zone, Beiqing Road, Haidian District, Beijing, China

FCC ID: PGFBCM-170LCDM

Report Type: Original Report	Product Type: LCD Monitor
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Report Number: R2BJ130528050-00	
Report Date: 2013-06-18	
Reviewed By: Harry Wu EMC Leader	<i>Harry Wu</i>
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Beijing Osee Digital Technology Ltd.*'s product, model *BCM-170-3HSV* (FCC ID: *PGFBCM-170LCDM*) or (the "EUT") in this report is a *LCD Monitor*, which was measured approximately: 51.9 cm (L) x 6.7 cm (W) x 36.5 cm (H). Rated input voltage: DC 12V from adapter. The highest operating frequency is 108MHz.

Adapter Information:

MODEL: GP306A-120-500

INPUT: AC 100-240V, 1.5A MAX, 50/60Hz

OUTPUT: DC 12V, 5A

**Note: The serial product model BCM-170-3HSV, BCM-170-HSV, BCM-170-SV, BCM-170-V are electrically identical with the same electromagnetic compatibility characteristics, and we select model BCM-170-3HSV for the testing in this report, which was explained in the attached declaration letter.*

**All measurement and test data in this report was gathered from production sample serial number: 130528050 (Assigned by BACL, Dongguan). The EUT was received on 2013-05-28.*

Objective

This report is prepared on behalf of *Beijing Osee Digital Technology 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)

No related submittal grant.

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 108MHz.

EUT Exercise Software

EMC Test V1.0 was used in the test.

Equipment Modifications

No modification was made to the EUT.

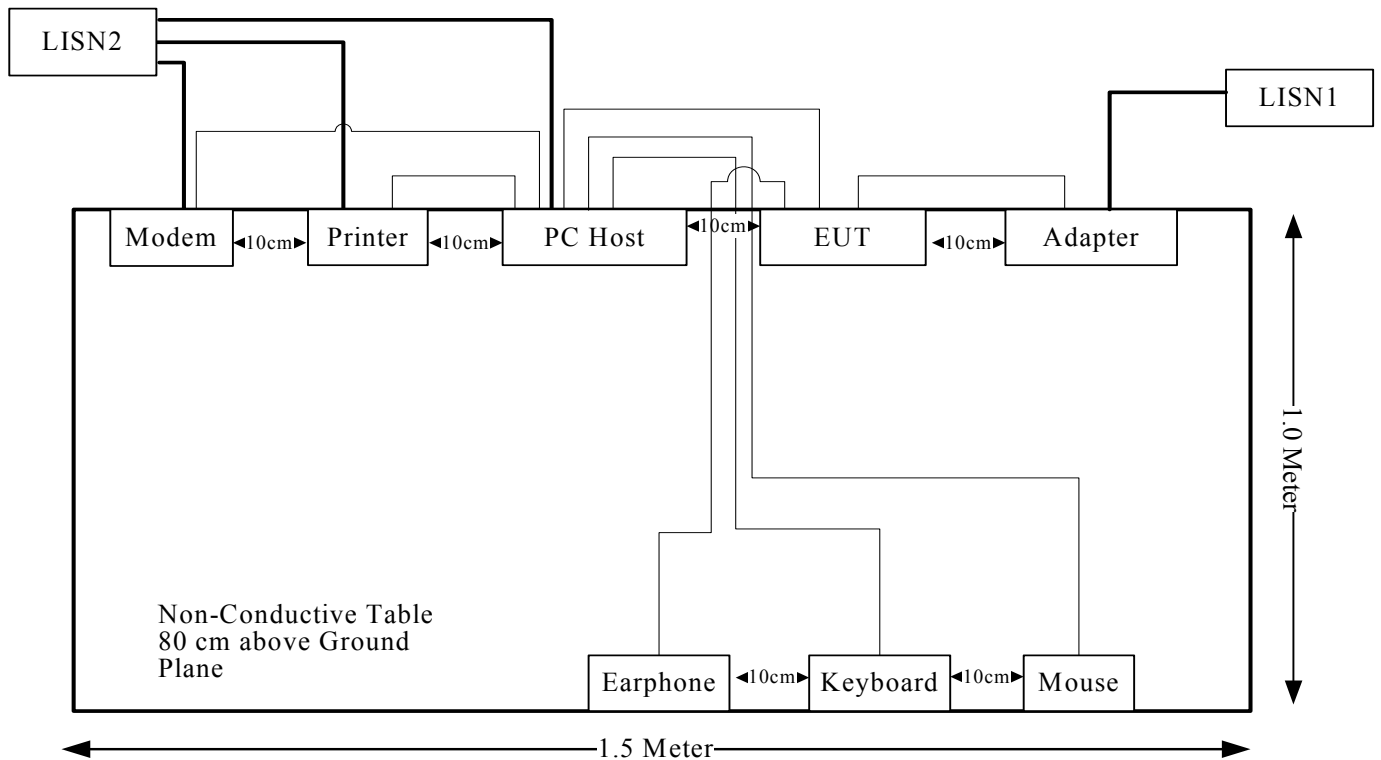
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	PC	PP11L	QDS-BRCM1017
HP	Printer	C3941A	JPTV013237
SAST	Modem	AEM-2100	090200213
DELL	Keyboard	SK-8115	CN-0DJ313-716716-05A-0DSO
DELL	Mouse	MO56UOA	F0Y02P7Y
Turtle Beach	Earphone	X12	N/A

External I/O Cable

Manufacturer	Length(m)	Form/Port	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
Shielded Detachable Mouse Cable	1.8	USB Port of PC	Mouse
Shielded Detachable HDMI Cable	2.0	HDMI port of PC	EUT
Unshielded Detachable Earphone Cable	1.5	Earphone Port of EUT	Earphone

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_{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:

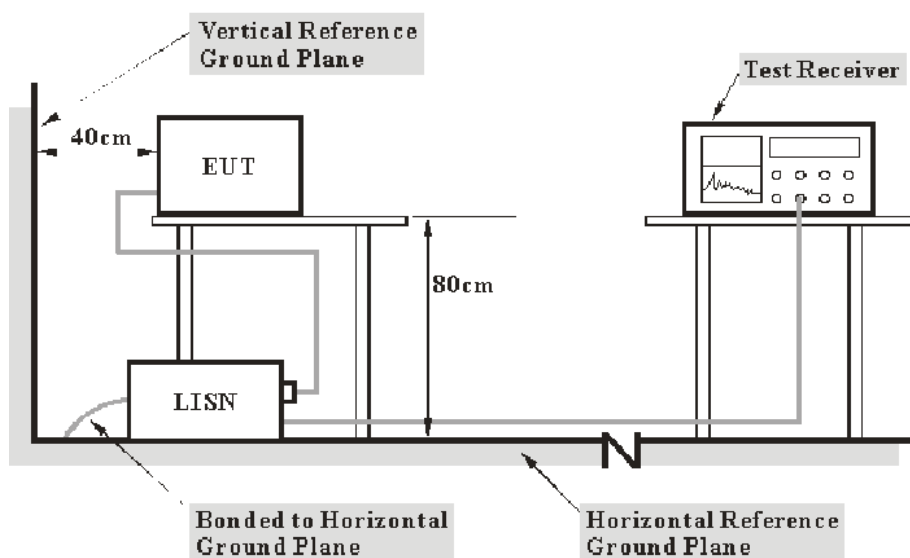
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

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 CLASS B, with the worst margin reading of:

8.76 dB at 0.495MHz in the **Neutral** conducted mode.

Test Data

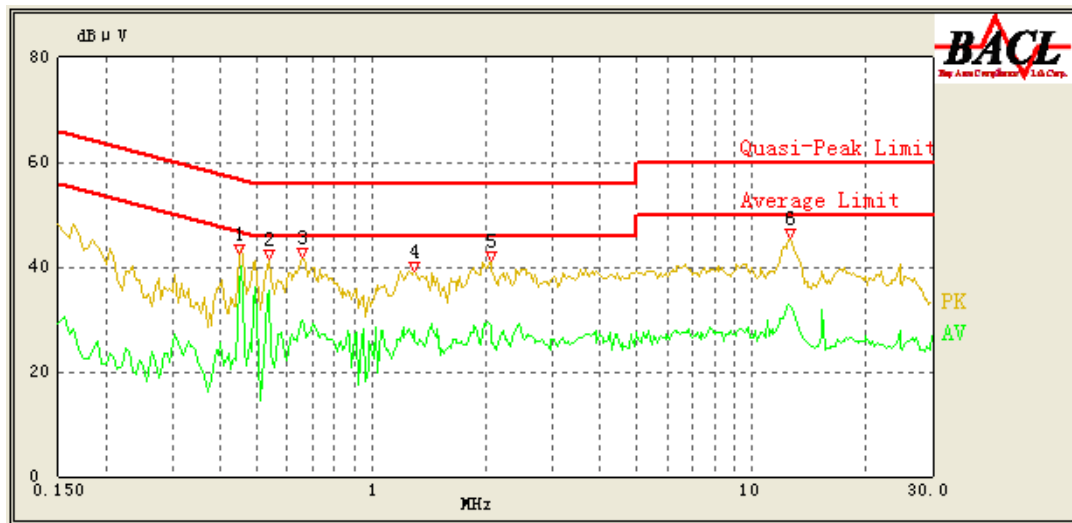
Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	61 %
ATM Pressure:	99.8 kPa

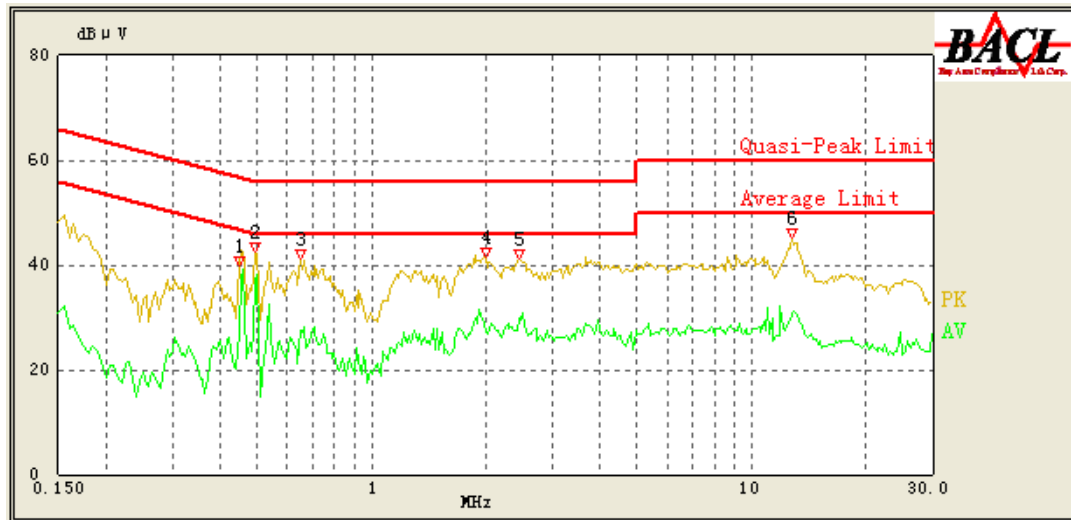
The testing was performed by Jack Wang on 2013-06-12.

Test Mode:
HDMI (1080P) worse case
HDMI (1080I)
HDMI (720P)
HDMI (480I)
HDMI(480P)

120 V, 60 Hz, Line:



Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.450	40.70	0.60	56.88	16.18	QP
0.450	36.51	0.60	46.88	10.37	AV
0.535	39.13	0.52	56.00	16.87	QP
0.535	35.52	0.52	46.00	10.48	AV
0.660	37.30	0.46	56.00	18.70	QP
0.660	29.83	0.46	46.00	16.17	AV
1.295	35.81	0.33	56.00	20.19	QP
1.295	27.93	0.33	46.00	18.07	AV
2.055	34.94	0.36	56.00	21.06	QP
2.055	28.69	0.36	46.00	17.31	AV
12.695	40.29	1.31	60.00	19.71	QP
12.730	32.07	1.32	50.00	17.93	AV

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.450	35.77	0.68	56.88	21.11	QP
0.450	27.04	0.68	46.88	19.84	AV
0.495	39.49	0.56	56.08	16.59	QP
0.495	37.32	0.56	46.08	8.76	AV
0.650	35.51	0.45	56.00	20.49	QP
0.650	27.53	0.45	46.00	18.47	AV
1.995	34.69	0.27	56.00	21.31	QP
1.995	27.37	0.27	46.00	18.63	AV
2.450	35.89	0.29	56.00	20.11	QP
2.445	29.73	0.29	46.00	16.27	AV
12.730	39.39	0.95	60.00	20.61	QP
12.735	30.62	0.95	50.00	19.38	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

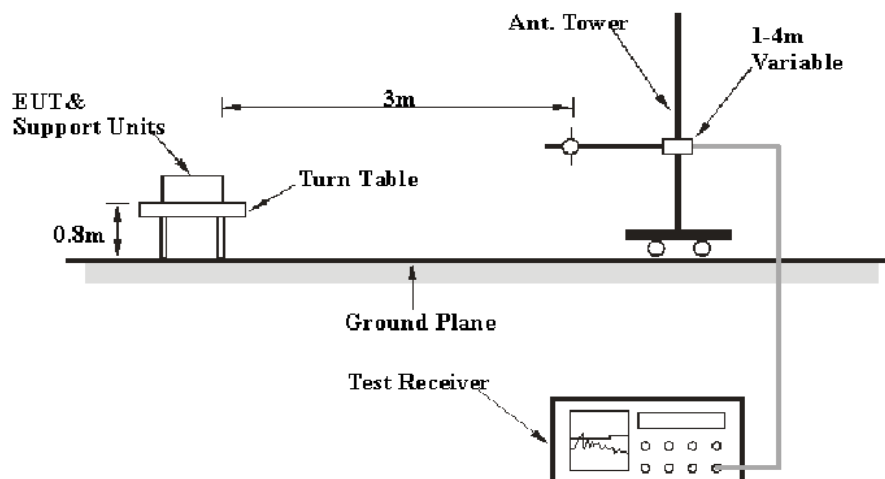
6G~18GHz: 5.23 dB

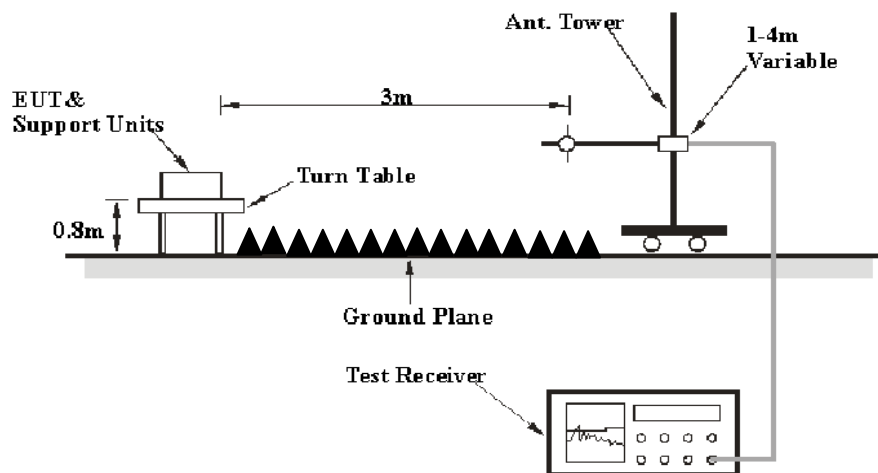
Table 2 – Values of U_{cisp}

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 1 G:

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 2 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:

3.33 dB at 736.1600 MHz in the Horizontal polarization for below 1GHz
13.59 dB at 1833.667 MHz in the Vertical polarization for above 1GHz

Test Data

Environmental Conditions

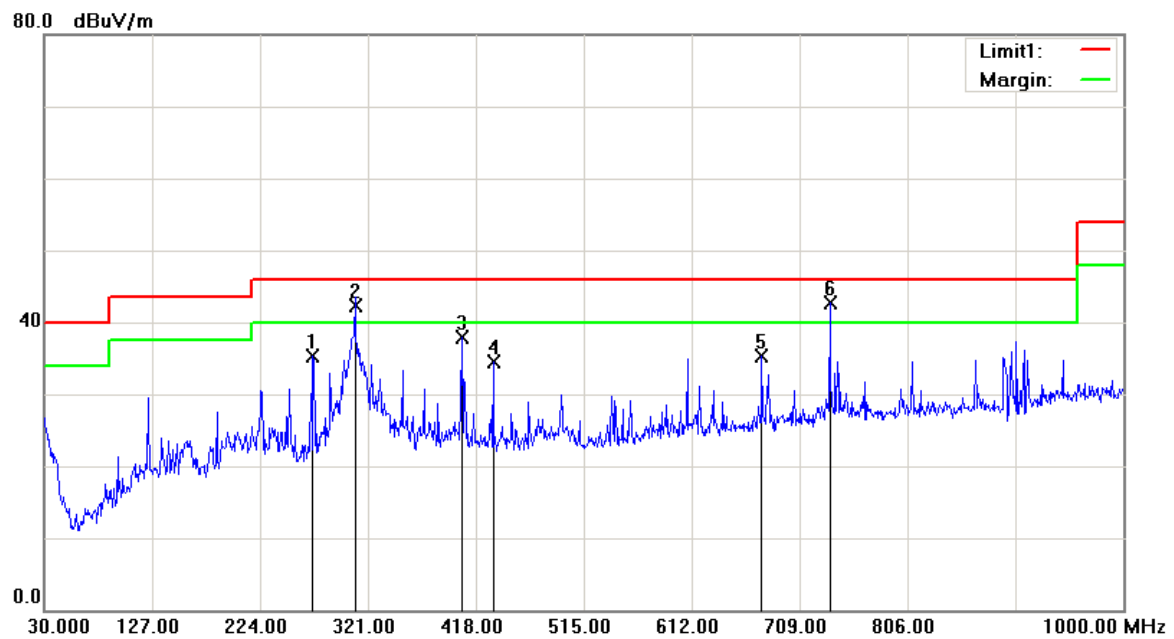
Temperature:	23.6°C
Relative Humidity:	57 %
ATM Pressure:	99.6 kPa

The testing was performed by Jack Wang on 2013-06-10.

Test Mode:
HDMI (1080P) worse case
HDMI (1080I)
HDMI (720P)
HDMI (480I)
HDMI(480P)

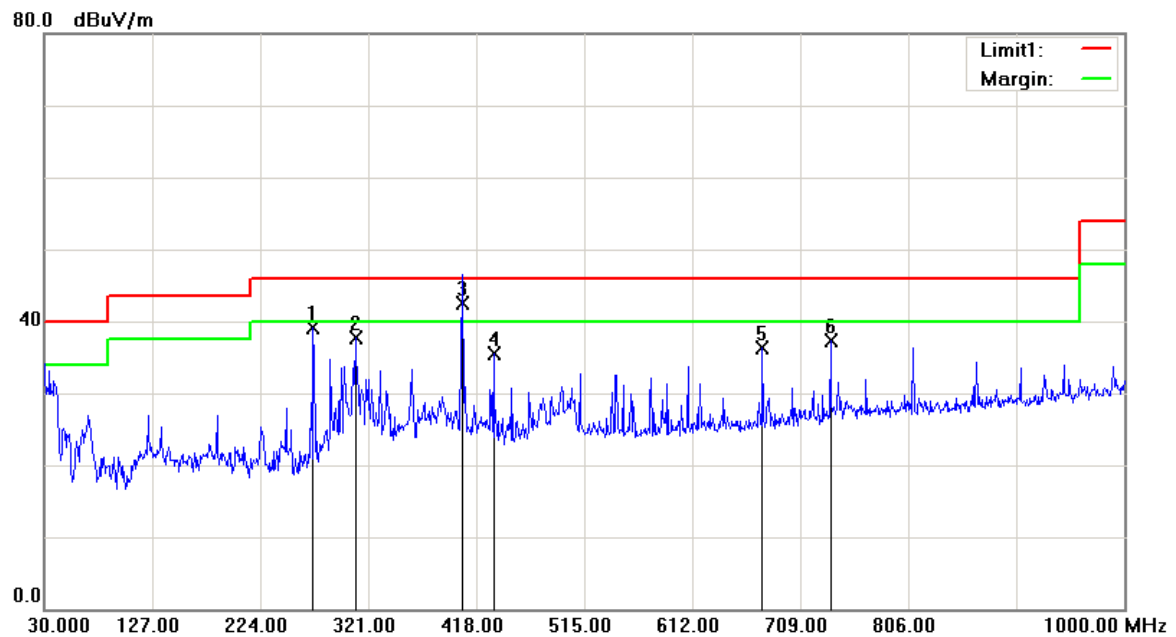
1) Below 1G: HDMI:1080P

Horizontal:



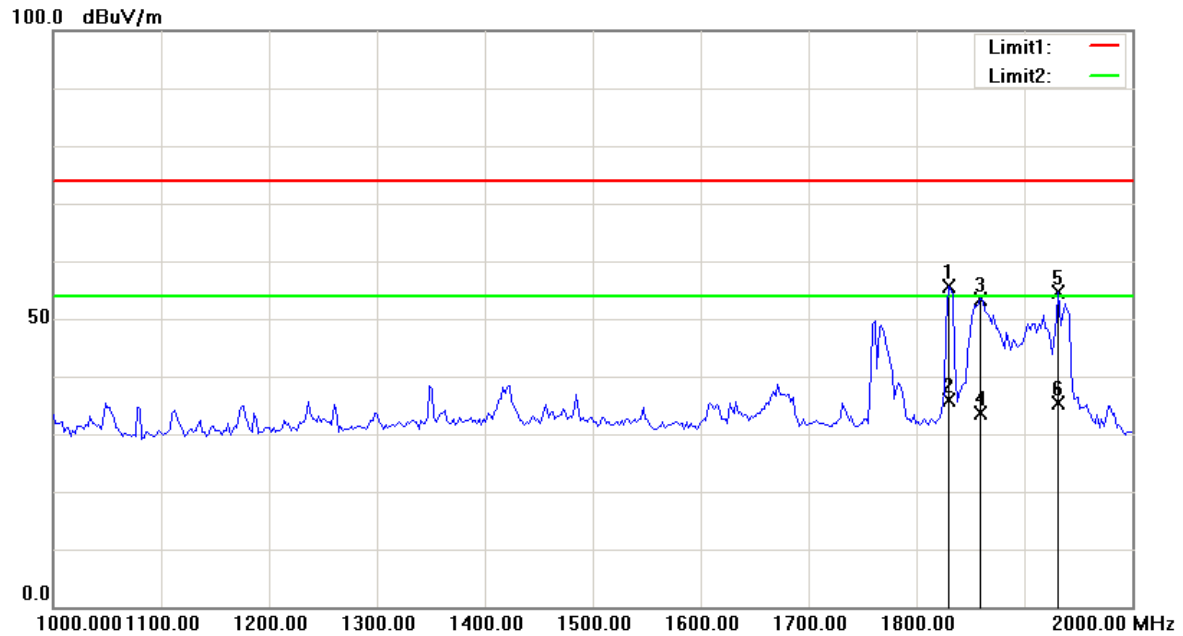
Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
271.5300	41.92	QP	-6.56	35.36	46.00	10.64
309.3600	48.24	QP	-5.93	42.31	46.00	3.69 *
405.3900	41.74	QP	-3.91	37.83	46.00	8.17
433.5200	38.03	QP	-3.45	34.58	46.00	11.42
675.0500	35.48	QP	-0.14	35.34	46.00	10.66
736.1600	41.66	QP	1.01	42.67	46.00	3.33 *

*Within measurement uncertainty!

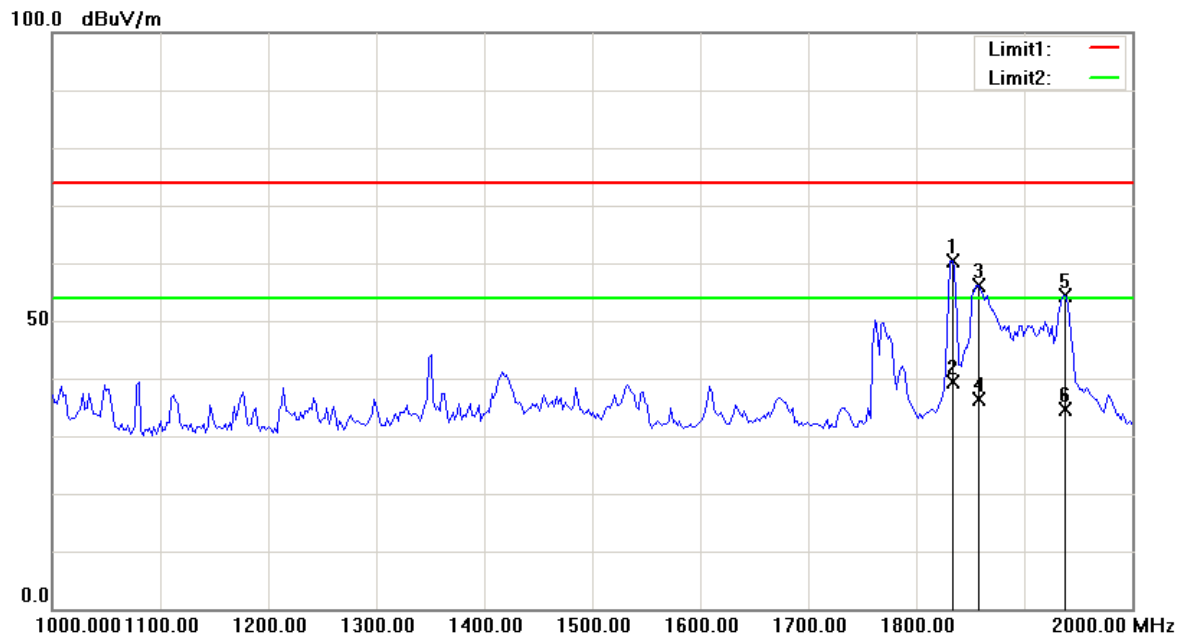
Vertical:

Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
271.5300	45.69	QP	-6.56	39.13	46.00	6.87
309.3600	43.62	QP	-5.93	37.69	46.00	8.31
405.3900	46.51	QP	-3.91	42.60	46.00	3.40 *
433.5200	38.91	QP	-3.45	35.46	46.00	10.54
675.0500	36.38	QP	-0.14	36.24	46.00	9.76
736.1600	36.27	QP	1.01	37.28	46.00	8.72

*Within measurement uncertainty!

2) Above 1G:HDMI:1080P**Horizontal:**

Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1829.659	58.37	peak	-2.78	55.59	74.00	18.41
1829.659	38.59	AVG	-2.78	35.81	54.00	18.19
1859.719	56.23	peak	-2.73	53.50	74.00	20.50
1859.719	36.40	AVG	-2.73	33.67	54.00	20.33
1931.864	57.34	peak	-2.63	54.71	74.00	19.29
1931.864	37.92	AVG	-2.63	35.29	54.00	18.71

Vertical:

Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1833.667	63.18	peak	-2.77	60.41	74.00	13.59
1833.667	42.18	AVG	-2.77	39.41	54.00	14.59
1857.715	58.94	peak	-2.73	56.21	74.00	17.79
1857.715	39.12	AVG	-2.73	36.39	54.00	17.61
1937.876	56.99	peak	-2.62	54.37	74.00	19.63
1937.876	37.30	AVG	-2.62	34.68	54.00	19.32

EXHIBIT - DECLARATION OF SIMILARITY



Beijing Osee Digital Technology Ltd.

Add: No.13 Central Building, No.68 zone, Beiqing Road, Haidian District, Beijing, China

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DECLARATION OF SIMILARITY

Apr 1, 2013

To:

Bay Area Compliance Laboratories Corp. (Dongguan)

No.69 Pulong Village, Puxinhu Industry Zone, Tangxia, Dongguan, China

Tel: +86 769 86858888 Fax: +86 769 86858892

<http://www.baclcorp.com>

Dear Sir or Madam:

We, Beijing Osee Digital Technology Ltd. hereby declare that product: LCD Monitor, model(s): BCM-170-3HSV, BCM-170-HSV, BCM-170-SV, BCM-170-V are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics. And BCM-170-3HSV is tested by BACL, the results of which are featured in BACL project: R2BJ130528050

A description of the differences between the tested model and those that are declared similar areas follows:

Models: BCM-170-3HSV, BCM-170-HSV, BCM-170-SV, BCM-170-V just have different model name.

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

Best Regards,

Iris Shao
Manager

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