



FCC PART 15B

TEST REPORT

For

OSEE TECHNOLOGY CO.,LTD.

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

FCC ID: PGFXCM240LCDM

Report Type: Original Report	Product Type: LCD Monitor
Test Engineer: <u>Jone Lv</u> 	
Report Number: <u>RB140819051-00</u>	
Report Date: <u>2014-10-28</u>	
Reviewed By: Harry Wu EMC Leader	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *OSEE TECHNOLOGY CO.,LTD.* 's product, model *XCM240* (*FCC ID: PGFXCM240LCDM*) (or the "EUT") in this report is a *LCD Monitor*, which was measured approximately: 57.9cm (L) x17.2 cm (W) x 40.8cm (H), rated input voltage: DC 19.0V from adapter, the highest operating frequency is 148.5MHz.

Adapter information:

Model: FSP090-D2BA1

Input: AC 100-240V,1.5A,50-60Hz

Output: DC 19.0V, 4.74A MAX

Note: The series product, model XCM240 , XCM240-3G,XCM240-HD,XCM250,XCM250-OLED,XCM250-OLED-3G,XCM250-OLED-HD are electrically identical, the differences between them are model name and software, we selected XCM240 for fully testing, the details was explained in the attached declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 140819051 (Assigned by BACL. Dongguan). The EUT was received on 2014-08-20.*

Objective

This report is prepared on behalf of *OSEE TECHNOLOGY 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) according with ANAI C63.4y2003 clause 11.1.3

The EUT system includes a visual display unit or monitor, the following operational conditions apply:

- a) Set the contrast control to maximum.
- b) Set the brightness control to maximum or at raster extinction if raster extinction occurs at less than maximum brightness.
- c) For color monitors, use white letters on a black background to represent all colors.
- d) Select the worse case of positive or negative video if both alternatives are available.
- e) Set character size and number of characters per line so that the typical maximum number of characters per screen is displayed.
- f) For a monitor that has no graphics capabilities, regardless of the video card used, a pattern consisting of random text shall be displayed. For a monitor with graphics capability, even though another videocard may be needed to accomplish a graphic display, a screen pattern consisting of lines of scrolling H's should be displayed. For a monitor that has no text capabilities, use a typical display. That pattern should be used for the remainder of the tests.

EUT Exercise Software

Exercise software "EMC Test V1.0" was used.

Equipment Modifications

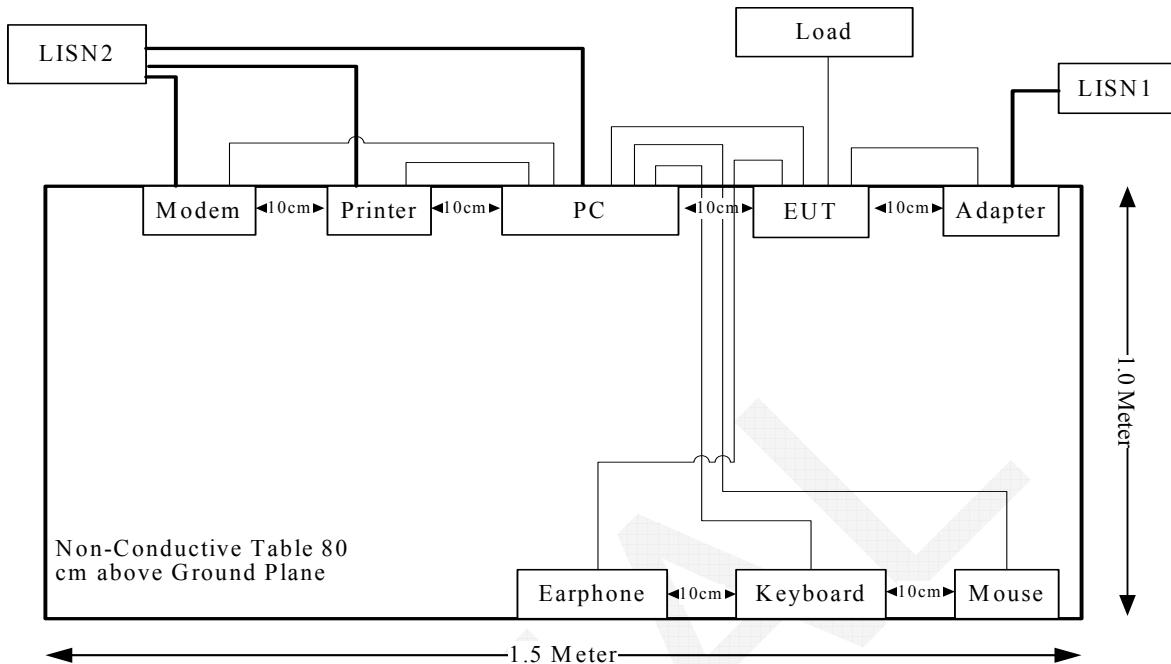
No modification was made to the EUT.

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 Cable

Cable Description	Length (m)	From / 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
AV Cable	1.5	EUT	Load

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

FINAL

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 $U_{\text{cisp}}_{\text{pr}}$ 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 $U_{\text{cisp}}_{\text{pr}}$ of Table 1, then:

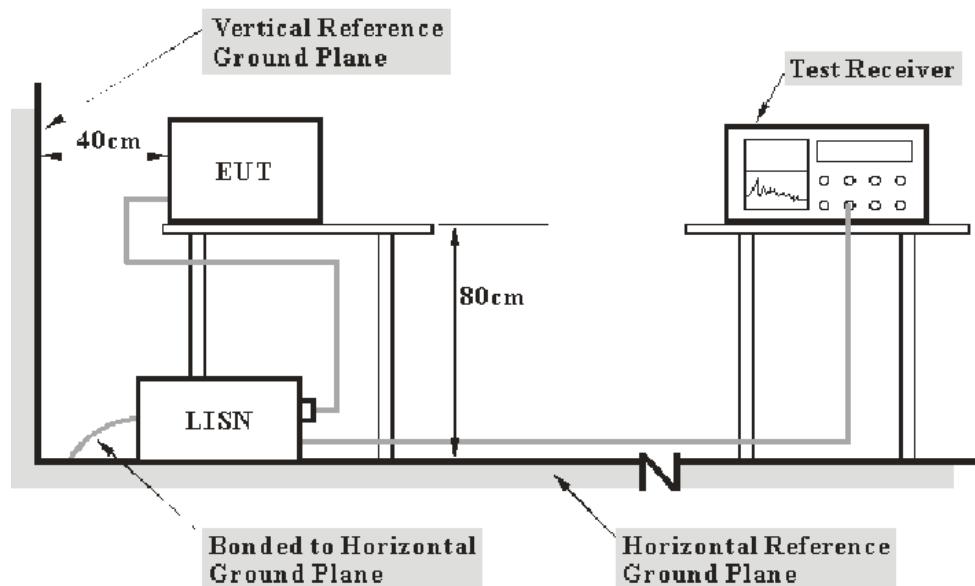
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cisp}}_{\text{pr}})$, exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cisp}}_{\text{pr}})$, exceeds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

Measurement	$U_{\text{cisp}}_{\text{pr}}$
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	N/A	N/A
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:

11.0 dB at 0.443327MHz in the Line conducted mode

Test Data

Environmental Conditions

Temperature:	26.7°C
Relative Humidity:	46%
ATM Pressure:	101.2 kPa

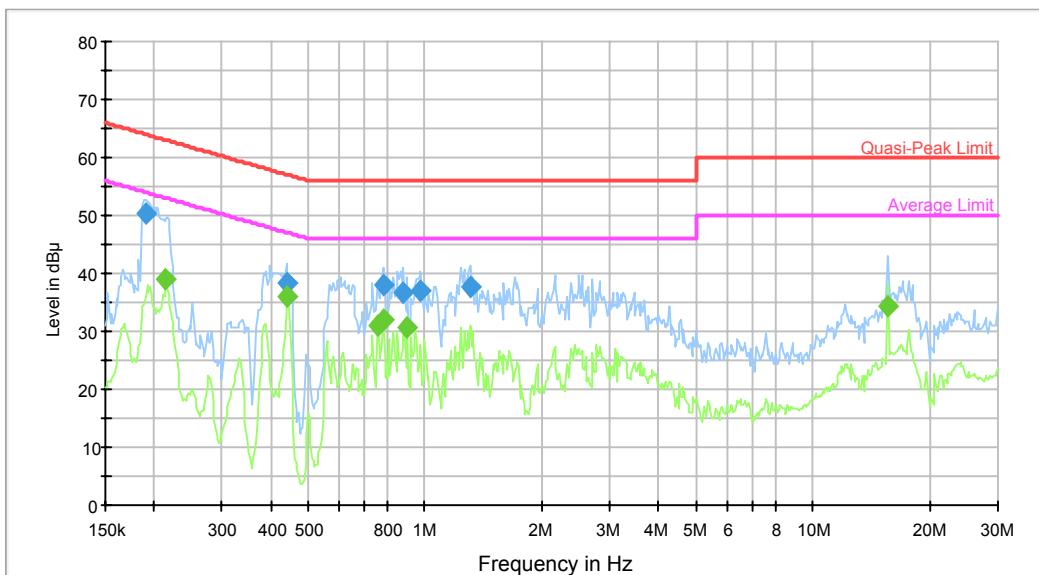
The testing was performed by Jone Lv on 2014-10-23

Test Mode:
HDMI :1080P (worse case)
HDMI :720P
HDMI :480P
HDMI :1080i
HDMI :576P
HDMI :480i
HDMI :576i

Note: The pretest mode please refer above, and the worst case record in the report.

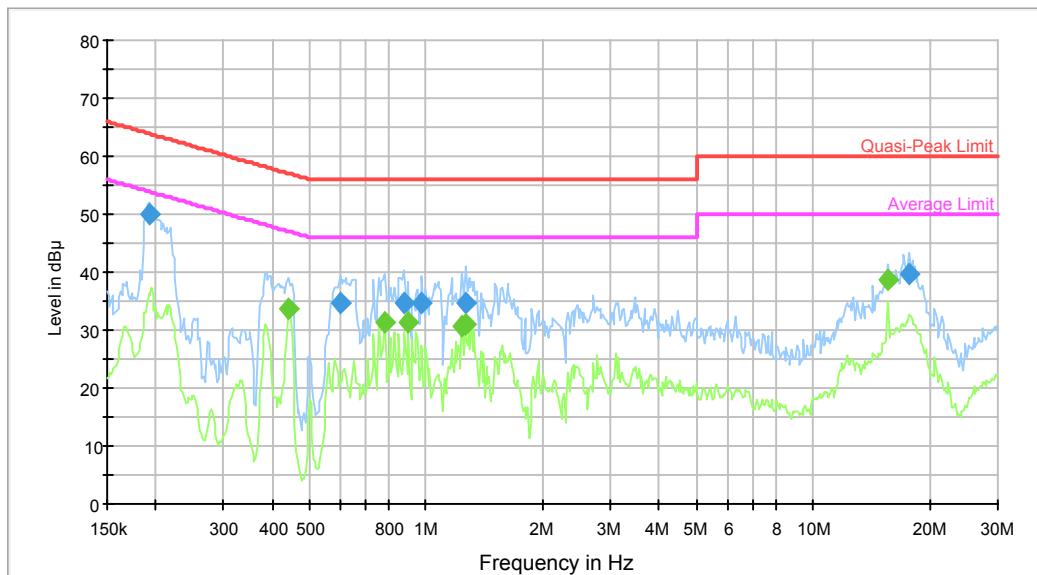
Test mode: HDMI : 1080P (Worse Case)

AC 120V/60Hz, Line:



Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.190505	50.4	9.000	L1	10.6	13.6	64.0	Passed
0.439808	38.3	9.000	L1	10.5	18.8	57.1	Passed
0.780588	37.8	9.000	L1	10.5	18.2	56.0	Passed
0.879690	36.7	9.000	L1	10.5	19.3	56.0	Passed
0.975701	37.0	9.000	L1	10.4	19.0	56.0	Passed
1.310256	37.5	9.000	L1	10.4	18.5	56.0	Passed

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.214692	39.0	9.000	L1	10.7	14.0	53.0	Passed
0.443327	36.0	9.000	L1	10.5	11.0	47.0	Passed
0.756101	30.9	9.000	L1	10.5	15.1	46.0	Passed
0.780588	32.0	9.000	L1	10.5	14.0	46.0	Passed
0.900972	30.8	9.000	L1	10.5	15.2	46.0	Passed
15.616430	34.5	9.000	L1	10.6	15.5	50.0	Passed

AC 120V/60Hz, Neutral:

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.214692	31.9	9.000	N	11.3	31.2	63.0	Passed
0.399703	25.5	9.000	N	10.8	32.3	57.9	Passed
0.426011	32.7	9.000	N	10.7	24.6	57.3	Passed
0.439808	33.2	9.000	N	10.6	23.8	57.1	Passed
0.468757	28.1	9.000	N	10.5	28.4	56.5	Passed
0.660314	25.7	9.000	N	10.6	30.3	56.0	Passed

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.221645	26.2	9.000	N	11.3	26.6	52.8	Passed
0.429420	20.3	9.000	N	10.7	27.0	47.3	Passed
0.436318	32.1	9.000	N	10.7	15.1	47.1	Passed
0.915445	23.0	9.000	N	10.6	23.0	46.0	Passed
0.945093	17.5	9.000	N	10.5	28.5	46.0	Passed
1.331304	20.6	9.000	N	10.5	25.4	46.0	Passed

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 $(U_{\text{lab}} - U_{\text{cispr}})$, exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cispr}})$, 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

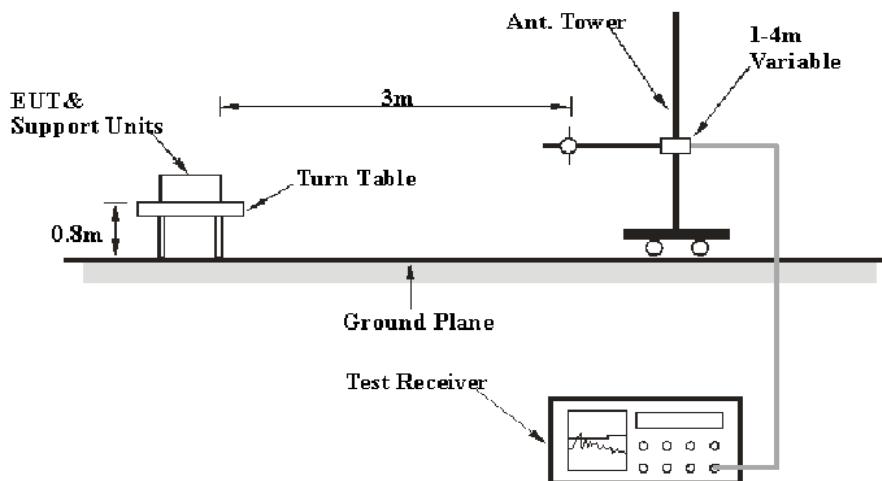
6G~18GHz: 5.23 dB

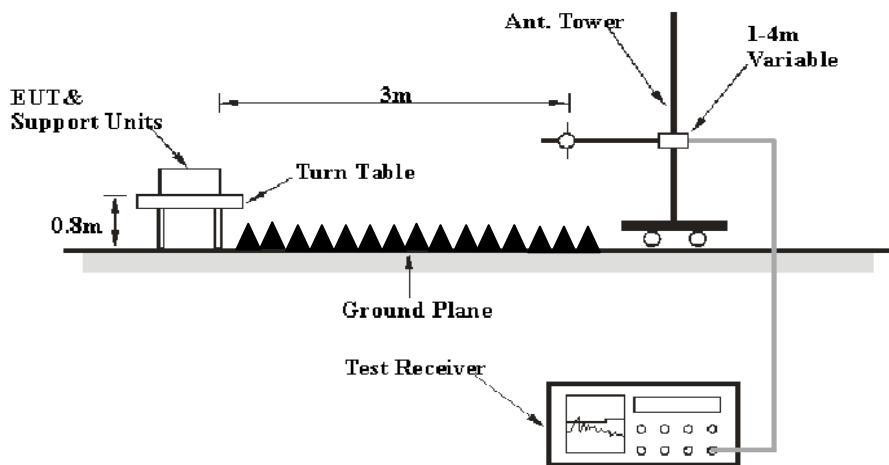
Table 2 – Values of U_{cispr}

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 was 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 2GHz.

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 the Quasi-peak detection mode for below 1 GHz, peak and Average detection modes for frequencies 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	A060611-3	2014-07-28	2017-07-27
HP	Amplifier	8447E	2434A02181	2014-09-01	2015-09-01
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:

4.7 dB at 839.9500 MHz in the Vertical polarization

Test Data**Environmental Conditions**

Temperature:	26.3 °C
Relative Humidity:	55 %
ATM Pressure:	101 kPa

The testing was performed by Jone Lv on 2014-10-24

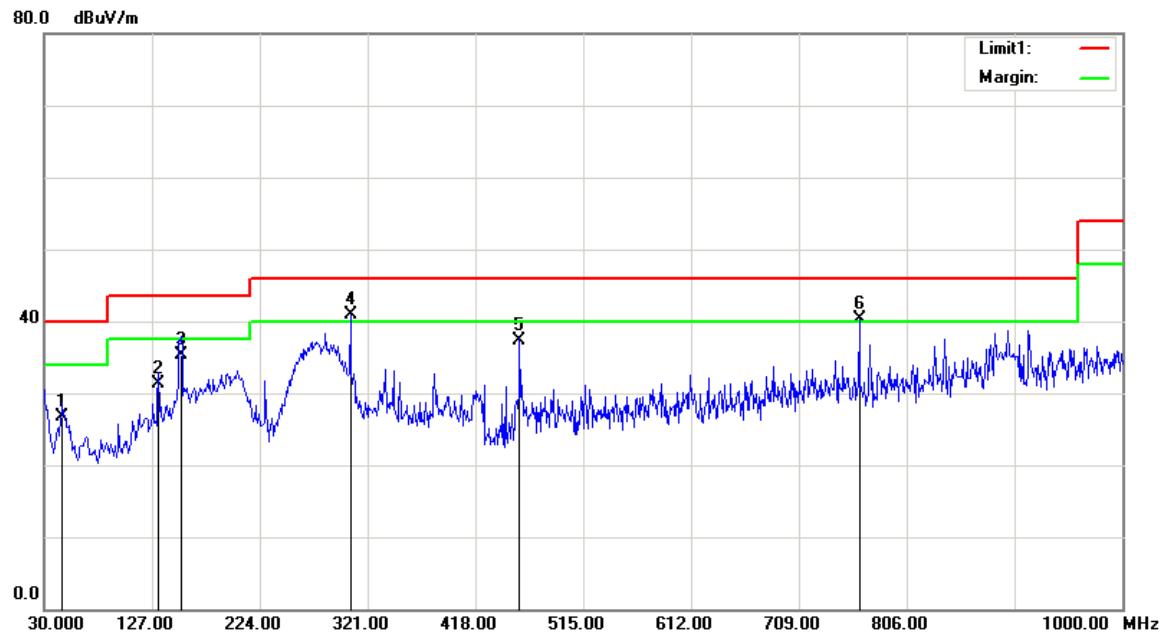
Test Mode:		
HDMI :1080P (worse case)		HDMI :1080i
HDMI :720P	HDMI :576P	HDMI :576i
HDMI :480P		HDMI :480i

Note: The pretest mode please refer above, and the worst case record in the report.

Test mode: HDMI: 1080P(Worse case)

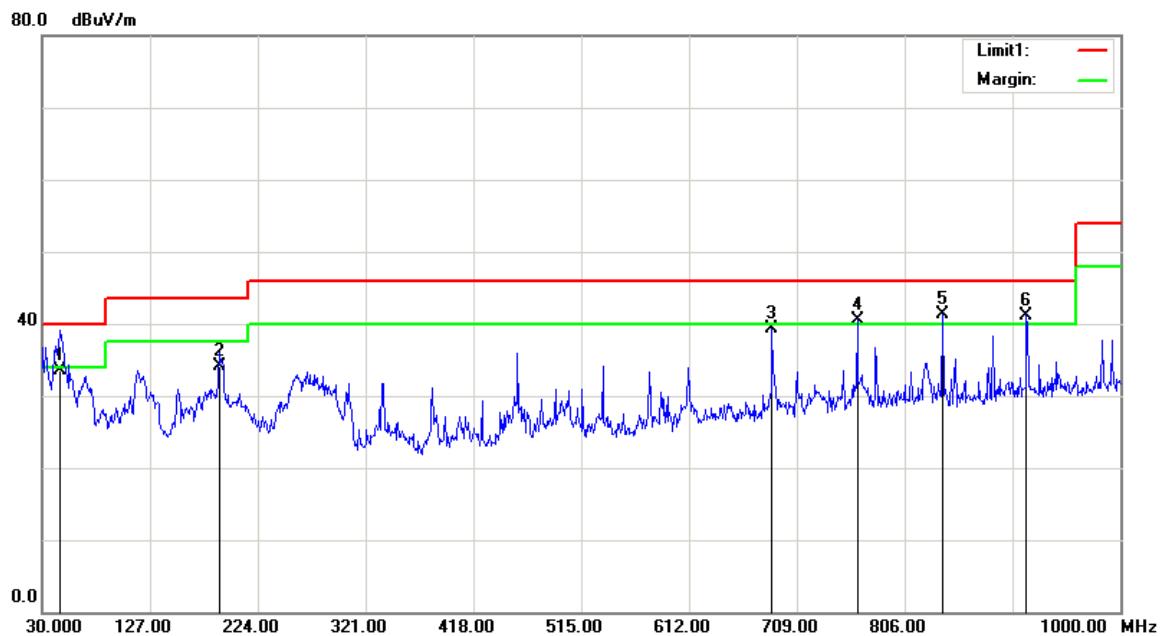
1) Below 1GHz:

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
46.4900	37.06	QP	-10.26	26.80	40.00	13.20
132.8200	37.29	QP	-5.89	31.40	43.50	12.10
153.1900	42.20	QP	-6.90	35.30	43.50	8.20
305.4800	46.07	QP	-5.17	40.90	46.00	5.10*
457.7700	39.20	QP	-1.80	37.40	46.00	8.60
763.3200	38.14	QP	2.16	40.30	46.00	5.70*

*Within measurement uncertainty!

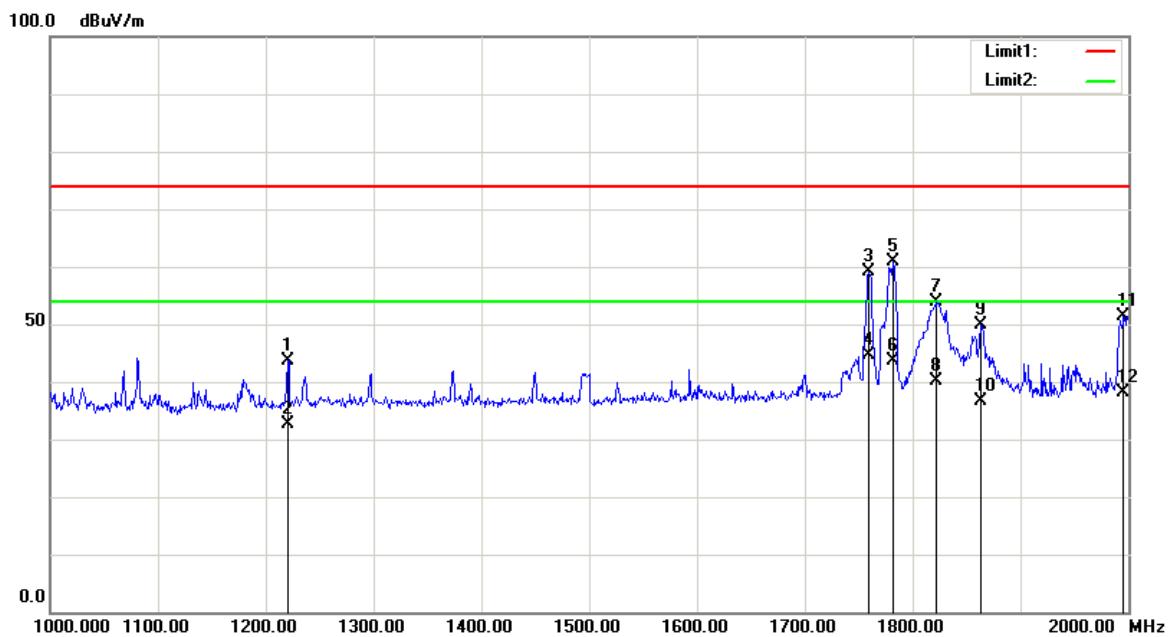
Vertical:

Frequency (MHz)	Receiver Reading (dBuV)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
46.4900	43.76	QP	-10.26	33.50	40.00	6.50
189.0800	42.34	QP	-8.14	34.20	43.50	9.30
686.6900	38.09	QP	1.21	39.30	46.00	6.70
763.3200	38.44	QP	2.16	40.60	46.00	5.40*
839.9500	37.74	QP	3.56	41.30	46.00	4.70*
915.6100	36.74	QP	4.46	41.20	46.00	4.80*

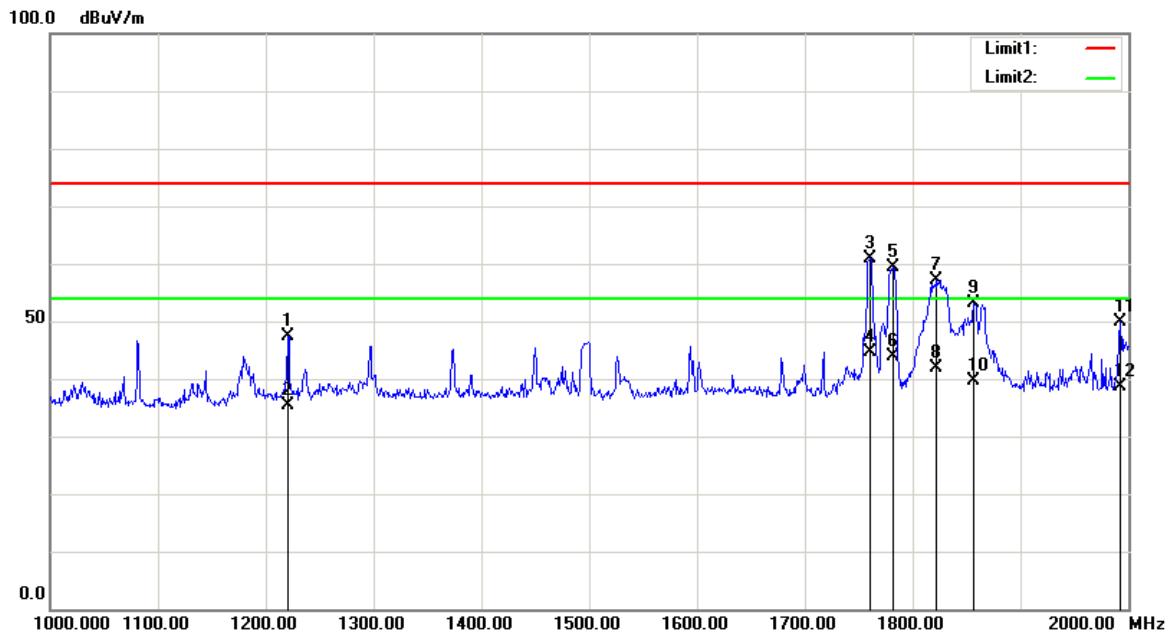
*Within measurement uncertainty!

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)
1220.441	45.22	peak	-1.57	43.65	74.00	30.35
1220.441	34.19	AVG	-1.57	32.62	54.00	21.38
1759.519	58.31	peak	0.77	59.08	74.00	14.92
1759.519	43.94	AVG	0.77	44.71	54.00	9.29
1782.565	60.04	peak	0.72	60.76	74.00	13.24
1782.565	42.93	AVG	0.72	43.65	54.00	10.35
1821.643	52.98	peak	0.82	53.80	74.00	20.20
1821.643	39.32	AVG	0.82	40.14	54.00	13.86
1863.727	48.77	peak	0.99	49.76	74.00	24.24
1863.727	35.60	AVG	0.99	36.59	54.00	17.41
1995.992	50.05	peak	1.28	51.33	74.00	22.67
1995.992	36.86	AVG	1.28	38.14	54.00	15.86

Vertical:

Frequency (MHz)	Receiver Reading (dB _{uV})	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dB _{uV/m})	Limit (dB _{uV/m})	Margin (dB)
1220.441	48.97	peak	-1.57	47.40	74.00	26.60
1220.441	36.86	AVG	-1.57	35.29	54.00	18.71
1760.521	60.14	peak	0.77	60.91	74.00	13.09
1760.521	43.74	AVG	0.77	44.51	54.00	9.49
1781.563	58.56	peak	0.71	59.27	74.00	14.73
1781.563	43.14	AVG	0.71	43.85	54.00	10.15
1822.645	56.27	peak	0.84	57.11	74.00	16.89
1822.645	40.98	AVG	0.84	41.82	54.00	12.18
1856.713	52.21	peak	1.01	53.22	74.00	20.78
1856.713	38.67	AVG	1.01	39.68	54.00	14.32
1992.986	48.48	peak	1.28	49.76	74.00	24.24
1992.986	37.40	AVG	1.28	38.68	54.00	15.32

DECLARATION OF SIMILARITY

北京时代奥视科技股份有限公司
OSEE TECHNOLOGY CO., LTD.

OSEE TECHNOLOGY CO.,LTD.

Add: No.13 Central Building Building, No.68 Zone, Beijing Road, Haidian

District, Beijing, China Post code: 100094

Tel: 8610-6243 4168 Fax: 8610-6243 4169

DECLARATION OF SIMILARITY

2014-8-14

To:

Bay Area Compliance Laboratories Corp. (Dongguan)

69# Pulongcun, Puxinhu Industrial Zone Tangxia Town,

Dongguan, Guangdong, China

Tel: +86 769 86858888

Website: <http://www.baclcorp.com.cn>

Dear Sir or Madam:

We OSEE TECHNOLOGY CO.,LTD. , Hereby declare that product: LCD Monitor, model(s): XCM240、XCM240-3G、XCM240-HD、XCM250、XCM250-OLED、XCM250-OLED-3G、XCM250-OLED-HD are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics, with the model XCM240, that were tested by BACL, the results of which are featured in BACL project:

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

Their different are just model name and soft ware

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

Best Regards,

Iris Shao

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