

# FCC PART 15B, CLASS B TEST REPORT


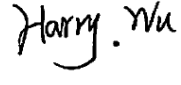
For

**Beijing Osee Digital Technology Ltd.**

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Haidian District, Beijing, China

**FCC ID: PGFLMW-200LCD**

<b>Report Type:</b> Original Report	<b>Product Type:</b> LCD Monitor
<b>Test Engineer:</b> Jone Lv 	
<b>Report Number:</b> R1BJ120808050-00	
<b>Report Date:</b> 2012-09-26	
<b>Reviewed By:</b> Harry Wu  EMC Engineer	
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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).

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Beijing Osee Digital Technology Ltd.*'s product, model number: *LMW-200 (FCC ID:PGFLMW-200LCD)* (the "EUT") LMW-200H, LMW-200S, LMW-200V, in this report is a LCD Monitor, which was measured approximately: 48.3 cm (L) x 16.0cm (W) x 33.2 cm (H), rated input voltage: DC 12V from adapter, the highest operating frequency is 108MHz.

#### Adapter Information:

MODEL: GP306A-120-500

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

OUTPUT: 12V, 5A

*Note: the series product, model LMW-200 LMW-200H, LMW-200S, LMW-200V are electrically identical, and the difference between them please refers to the attached declaration letter.*

*All measurement and test data in this report was gathered from production sample serial number: 120808050 (Assigned by BACL, Dongguan). The EUT was received on 2012-08-15.*

### 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(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 C63.4-2009.

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). To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode:
DVI :1600*900/60Hz (worse case)
DVI :1366*768/60Hz
DVI: 800*600/60Hz

### EUT Exercise Software

The software “BurnInTest V6.0” was used.

### Equipment Modifications

No modification was made to the EUT.

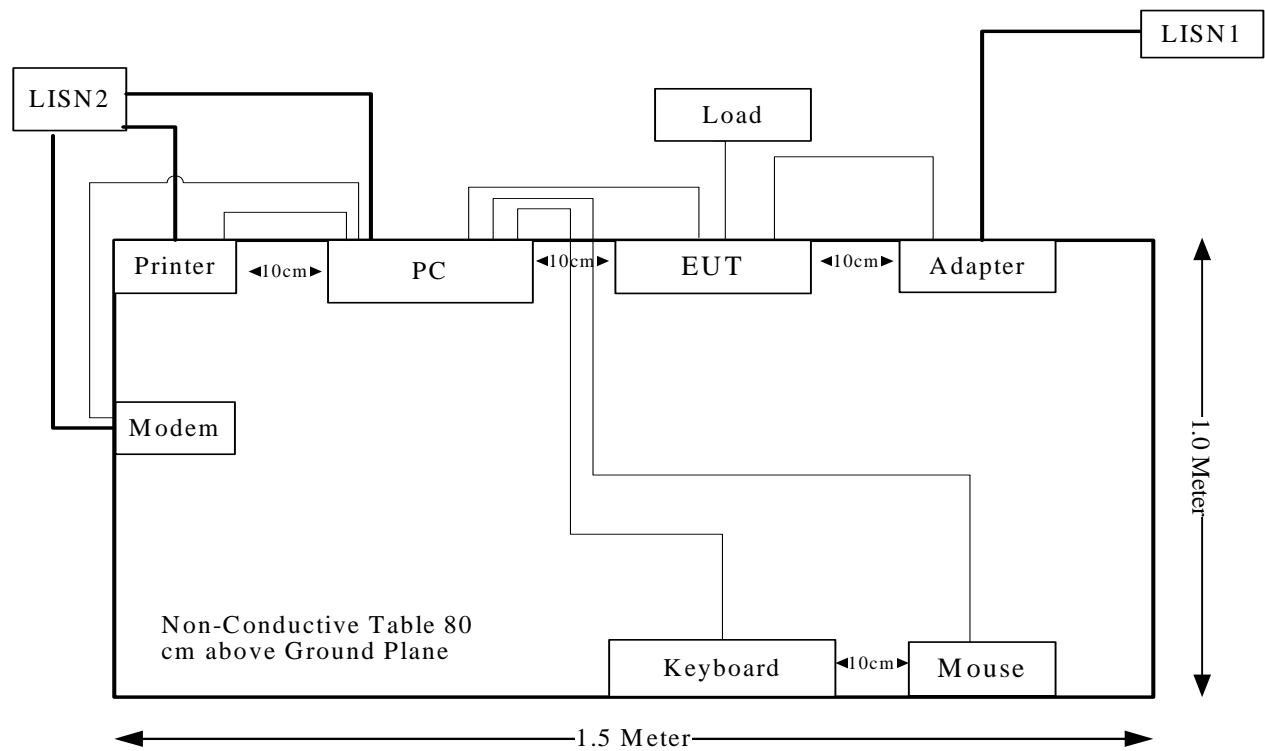
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	System PC	D07M	HNXJW2X
HP	Laser Jet5L	C3941A	JPTVOB2337
DELL	Keyboard	L100	CNORH656658907BL 05DC
SAST	Modem	AEM-2100	0293
DELL	Mouse	MO55UOA	FOY02P7Y

### 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	1.5	Keyboard Port of PC	Keyboard
Shielded Detachable Mouse Cable	1.5	Mouse Port of PC	Mouse
Shielded Detachable DVI Cable	1.8	DVI Port of PC	EUT

# Block Diagram of Test Setup



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**SUMMARY OF TEST RESULTS**

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FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

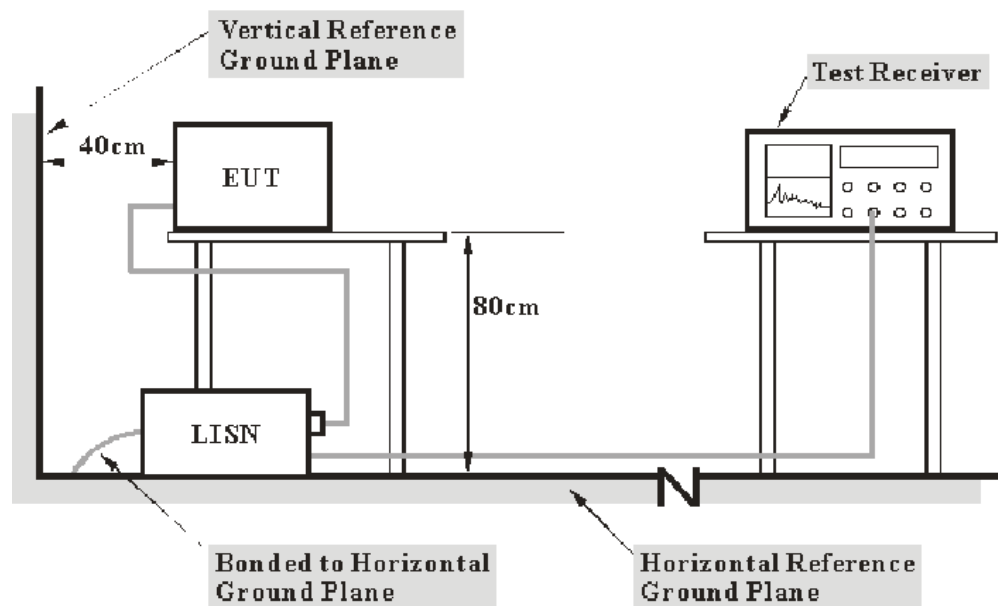
## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is 1.5 dB, and the uncertainty will not be taken into consideration for all the test data recorded in the report.

### 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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The EUT 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 EUT 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.

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2011-10-08	2012-10-07
R&S	LISN1	ESH3-Z5	843331/015	2011-10-08	2012-10-07
R&S	LISN2	ESH3-Z5	100113	2011-10-08	2012-10-07

## 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:

**6.61 dB at 10.940MHz** in the **Line** conducted

## Test Data

### Environmental Conditions

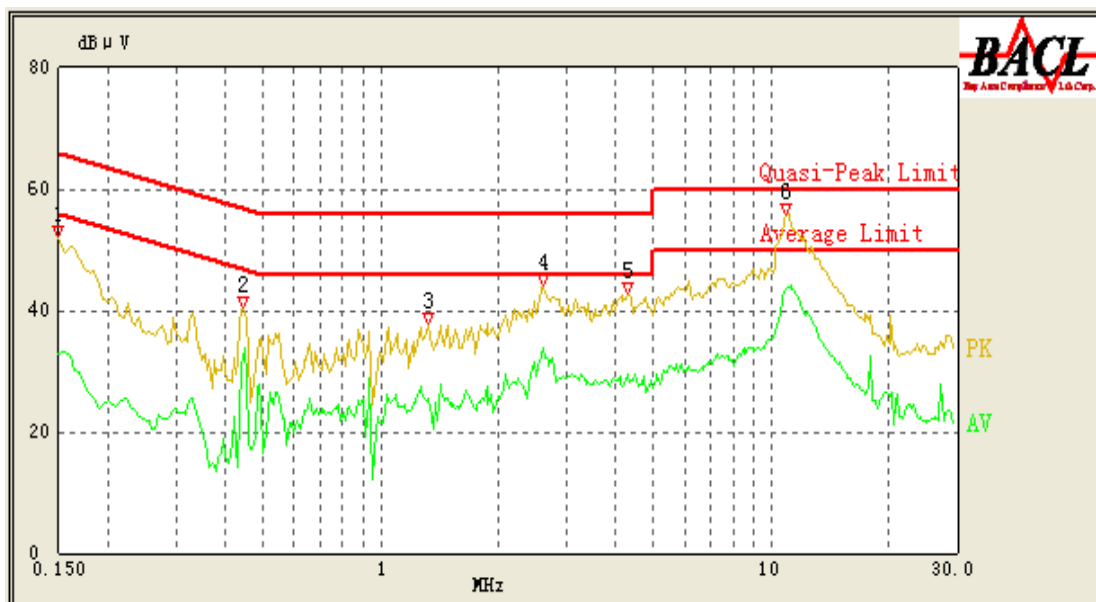
Temperature:	23 °C
Relative Humidity:	45 %
ATM Pressure:	102.3 kPa

*The testing was performed by Jone Lv on 2012-09-18.*

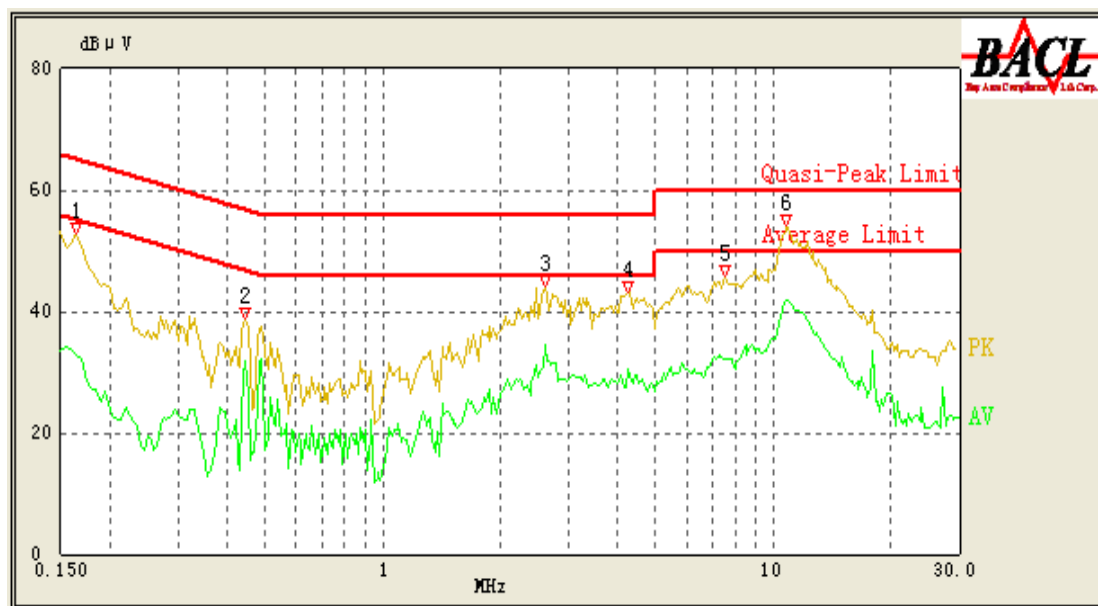
## Conducted Emissions Test Plots and Data

Test mode: DVI: 1600\*900/60Hz (worse case)

120 V, 60 Hz, Line:



Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
10.940	43.39	0.78	50.00	6.61	Ave.
10.940	49.38	0.78	60.00	10.62	QP
2.605	33.98	0.49	46.00	12.02	Ave.
0.450	33.78	0.42	47.43	13.65	Ave.
2.605	39.50	0.49	56.00	16.50	QP
4.295	29.46	0.50	46.00	16.54	Ave.
4.305	38.07	0.50	56.00	17.93	QP
0.150	46.12	0.40	66.00	19.88	QP
0.445	37.55	0.42	57.57	20.02	QP
1.325	25.60	0.46	46.00	20.40	Ave.
1.325	33.25	0.46	56.00	22.75	QP
0.150	32.73	0.40	56.00	23.27	Ave.

**120 V, 60 Hz, Neutral:**

Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
10.875	41.98	0.77	50.00	8.02	Ave.
2.610	34.58	0.49	46.00	11.42	Ave.
10.840	47.20	0.77	60.00	12.80	QP
4.245	30.34	0.50	46.00	15.66	Ave.
0.445	31.84	0.42	47.57	15.73	Ave.
2.610	39.74	0.49	56.00	16.26	QP
4.245	38.71	0.50	56.00	17.29	QP
0.165	47.81	0.41	65.57	17.76	QP
7.520	32.19	0.56	50.00	17.81	Ave.
7.520	41.35	0.56	60.00	18.65	QP
0.445	35.72	0.42	57.57	21.85	QP
0.165	33.00	0.41	55.57	22.57	Ave.

## FCC §15.109 - RADIATED EMISSIONS

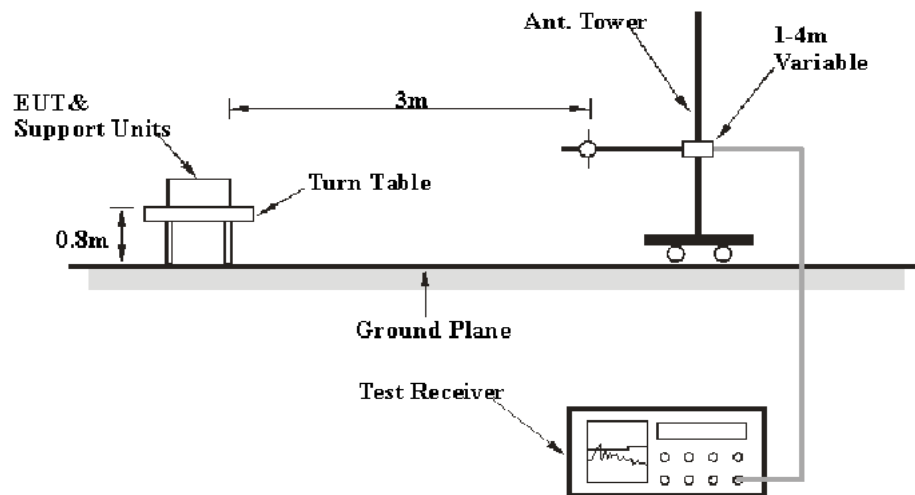
### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

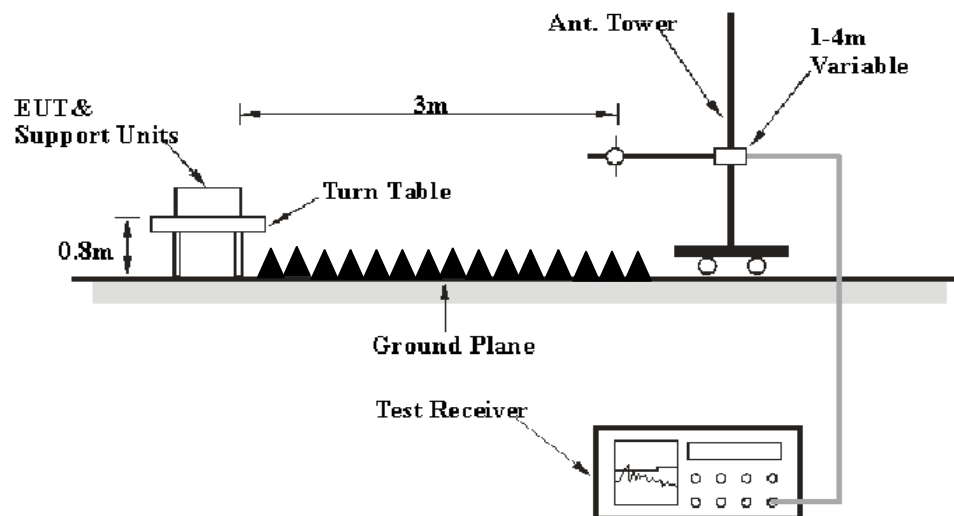
Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement from 30 MHz to 1 GHz at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.9 dB., and the uncertainty will not be taken into consideration for all the test data recorded in the report.

### EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. 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 EUT 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><b>Frequency Range</b></i>	<i><b>RBW</b></i>	<i><b>Video B/W</b></i>	<i><b>Detector</b></i>
30MHz – 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 EUT 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	2011-11-11	2012-11-10
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2012-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R & S	Spectrum Analyzer	FSEM	1079 8500	2012-10-09	2013-10-08
Beijingdayang	Horn Antenna	OMCDH10180	10279001B	2010-07-30	2015-07-29
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A

### 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:

**3.00 dB** at **482.9900 MHz** in the **Horizonzta**l polarization for below 1G.

**6.65 dB** at **1779.559 MHz** in the **Vertical** polarization for above 1G.

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	23°C
<b>Relative Humidity:</b>	45 %
<b>ATM Pressure:</b>	101.3 kPa

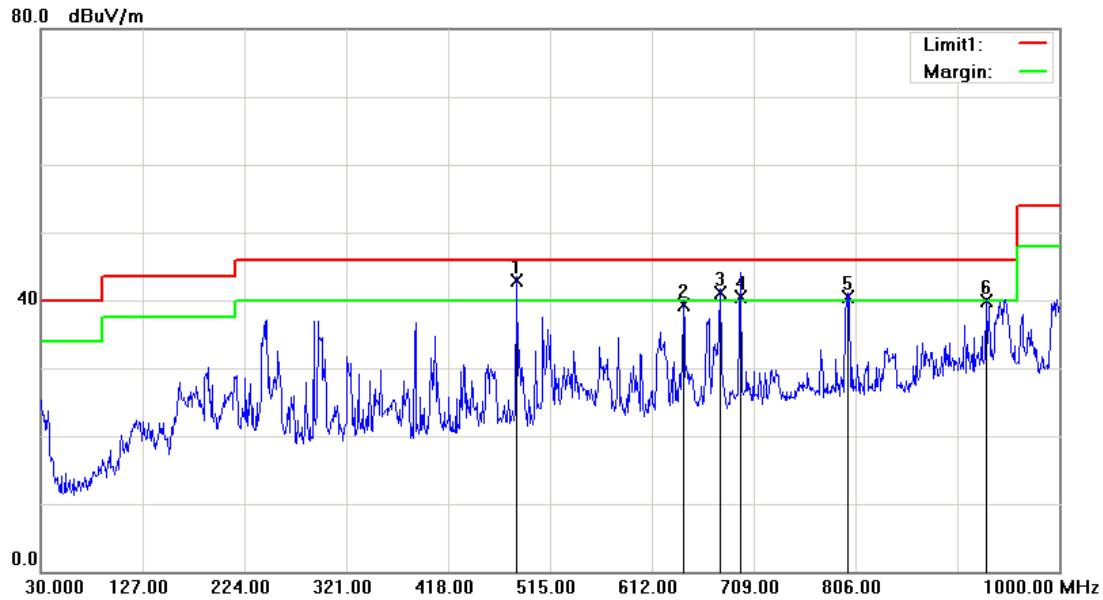
*The testing was performed by Jone Lv on 2012-08-31.*

## Radiated Emissions Test Plots and Data

Test mode: DVI: 1600\*900/60Hz (worse case)

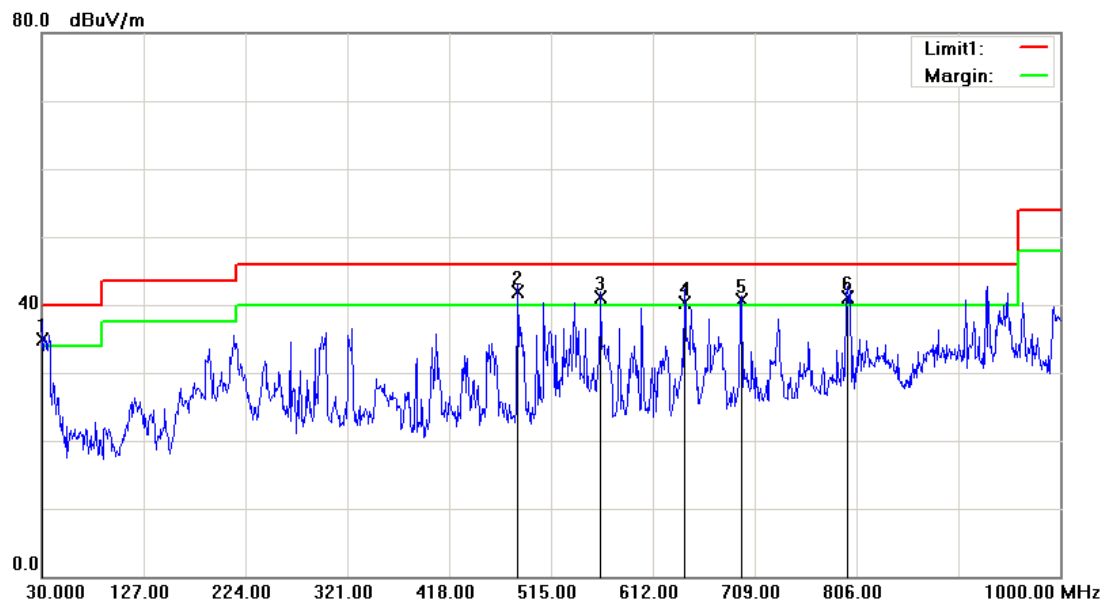
### 1) Below 1 GHz:

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
482.9900	44.25	QP	-1.25	43.00	46.00	3.00*
676.9900	40.09	QP	1.11	41.20	46.00	4.80
696.3900	39.09	QP	1.51	40.60	46.00	5.40
799.2100	37.48	QP	3.02	40.50	46.00	5.50
931.1300	35.25	QP	4.65	39.90	46.00	6.10
642.0700	38.44	QP	0.96	39.40	46.00	6.60

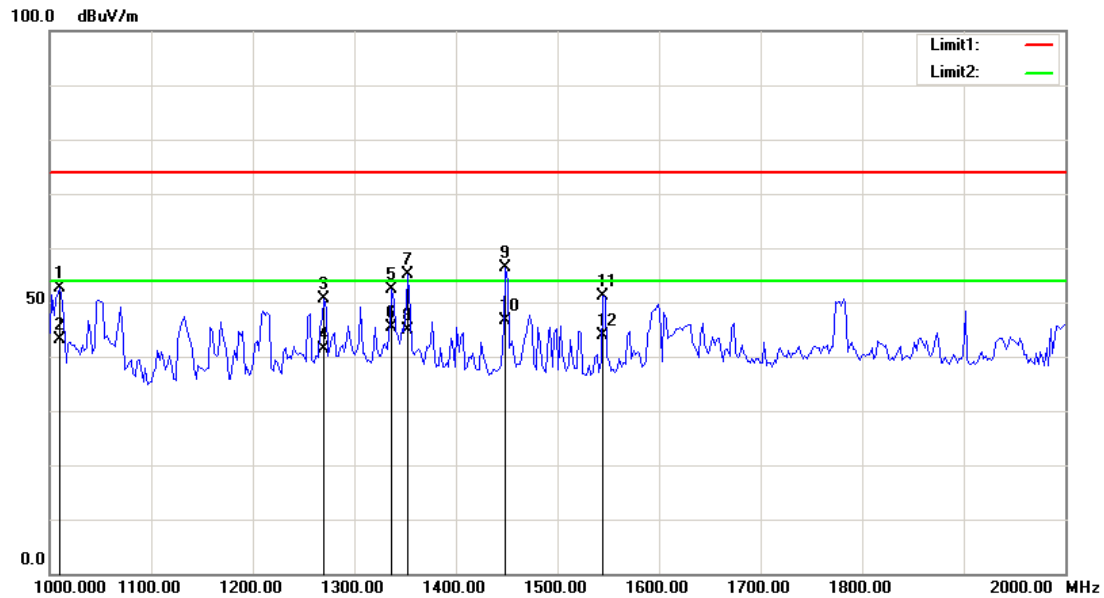
\*Within measurement uncertainty!

**Vertical:**

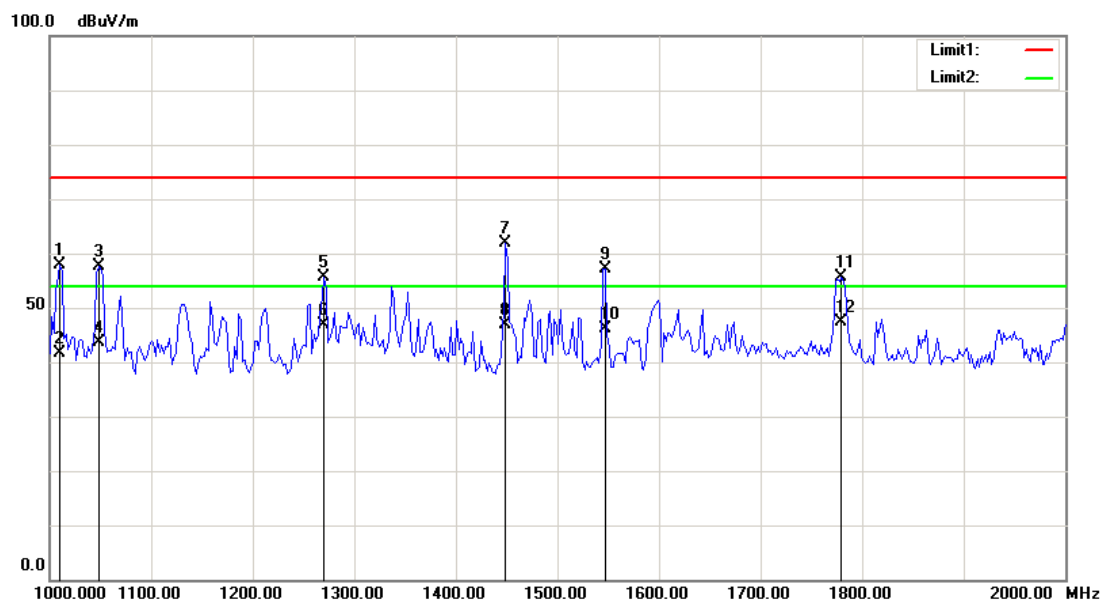
Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
482.9900	43.15	QP	-1.25	41.90	46.00	4.10
562.5300	41.62	QP	-0.42	41.20	46.00	4.80
797.2700	38.23	QP	2.97	41.20	46.00	4.80
30.0000	33.20	QP	1.70	34.90	40.00	5.10
696.3900	39.19	QP	1.51	40.70	46.00	5.30
642.0700	39.34	QP	0.96	40.30	46.00	5.70

**2) Above 1 GHz:**

Test mode: DVI: 1600\*900/60Hz (worse case)

**Horizontal:**

Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1448.898	45.52	Ave	1.07	46.59	54.00	7.41
1336.673	44.51	Ave	0.81	45.32	54.00	8.68
1352.705	43.93	Ave	0.88	44.81	54.00	9.19
1545.090	42.53	Ave	1.33	43.86	54.00	10.14
1010.020	43.19	Ave	0.01	43.20	54.00	10.80
1270.541	40.75	Ave	0.73	41.48	54.00	12.52
1448.898	55.28	Peak	1.07	56.35	74.00	17.65
1352.705	54.19	Peak	0.88	55.07	74.00	18.93
1010.020	52.60	Peak	0.01	52.61	74.00	21.39
1336.673	51.64	Peak	0.81	52.45	74.00	21.55
1545.090	49.84	Peak	1.33	51.17	74.00	22.83
1270.541	49.91	Peak	0.73	50.64	74.00	23.36

**Vertical:**

Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1779.559	44.07	Ave	3.28	47.35	54.00	6.65
1448.898	45.83	Ave	1.07	46.90	54.00	7.10
1270.541	46.09	Ave	0.73	46.82	54.00	7.18
1547.094	44.81	Ave	1.34	46.15	54.00	7.85
1048.096	43.17	Ave	0.48	43.65	54.00	10.35
1448.898	60.72	Peak	1.07	61.79	74.00	12.21
1010.020	41.51	Ave	0.01	41.52	54.00	12.48
1010.020	57.76	Peak	0.01	57.77	74.00	16.23
1048.096	57.15	Peak	0.48	57.63	74.00	16.37
1547.094	55.88	Peak	1.34	57.22	74.00	16.78
1270.541	54.97	Peak	0.73	55.70	74.00	18.30
1779.559	52.34	Peak	3.28	55.62	74.00	18.38

## PRODUCT SIMILARITY DECLARATION LETTER

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Beijing Osee Digital Technology Ltd.

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Tel: 8610-6296 8823 Fax: 8610-6297 7165

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### Product Similarity Declaration

To whom it may concern

We, Beijing Osee Digital Technology Ltd., hereby declare that the  
LCD monitor, model number:

LMW-200, LMW-200H, LMW-200S, LMW-200V,

Have the same circuit diagram, PCB layout in side, they just have  
different model number . And the model LMW-200 is tested by  
BACL.

Please contact me if you have any questions.

Date:2012-8-13

Sincerely

Iris shao

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