

Technical Compliance Statement



For the following information

Ref. File No.: C1M1604185

Product : LCD Monitor
Model Number : (1)EA245Wmi-BK (2)EA245Wmi (3)EA245Wmi-2
Brand : NEC
Applicant : TPV Electronics (Fujian) Co., Ltd.
Standards : FCC CFR 47 Part 15 Subpart B:2015 and
CISPR 22:1997 and ICES-003 Issue 5:2014
(Class B Limit)

We hereby certify that the above product has been tested by us and complied with the FCC and IC official limits. These products might be marketed in US in accordance with FCC Rule based on the standard CFR 47 Part 2 and Part 15 Subpart B Class B Equipment Regulations. The test was performed according to the procedures from ANSI C63.4:2009. The test data & results are issued on the test report no. **EM-F160243**.

Signature


Allen Wang/Assistant General Manager
Date: 2017. 10. 30

Test Laboratory:
AUDIX Technology Corporation, EMC Department
NVLAP Lab Code: 200077-0
FCC OET Designation: TW1004
Web Site: www.audixtech.com



NVLAP Lab Code 200077-0

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

TEST REPORT FOR FCC DoC and INDUSTRY CANADA

On Behalf of

TPV Electronics (Fujian) Co., Ltd.

LCD Monitor

Model No. : (1)EA245WMi-BK (2)EA245WMi
(3)EA245WMi-2

Brand : NEC

Prepared for : TPV Electronics (Fujian) Co., Ltd.
Rongqiao Economic and Technological
Development Zone, Fuqing City, Fujian
Province, P.R. China

Prepared By : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan

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File Number : C1M1604185
(ACS Ref. No.: ACS16Q0481)
Report Number : EM-F160243
Date of Test : 2016. 04. 15
Date of Report : 2017. 10. 30

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TEST REPORT FOR COMPLIANCE DECLARATION

Applicant : TPV Electronics (Fujian) Co., Ltd.

EUT Description : LCD Monitor

(A) Model No. : (1)EA245WMi-BK
(2)EA245WMi
(3)EA245WMi-2

(B) Serial No. : N/A

(C) Brand : NEC

(D) Power Supply : AC 100-240V, 50/60Hz

(E) Test Voltage : AC 120V, 60Hz

Rules of Compliance and Measurement Standards:

FCC CFR 47 Part 15 Subpart B:2015 and CISPR 22:1997

ANSI C63.4:2009

ICES-003 Issue 5:2014

The device described above was tested by AUDIX Technology Corporation, to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart B with the provisions of sections 15.107 and 15.109 and ICES-003 Class B limits both conducted and radiated emissions.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC and IC official limits.

This report applies to above tested sample only and which shall not be reproduced in part without written approval of AUDIX Technology Corporation.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Date of Test: 2016. 04. 15 Date of Report: 2017. 10. 30

Producer: 
(Harper Lee/Administrator)

Signatory: 
(Allen Wang/Assistant General Manager)

Name of the Representative of the Responsible Party: _____

Signature: _____

1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	2016. 04. 18	Original Report.	EM-F160243
Rev. 01	2017. 10. 30	1. To add a new model”EA245WMi-2” for sales marketing. 2. To add a new bracket for 150mm.	EM-F160243

2. SUMMARY OF STANDARDS AND RESULTS

2.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Powerline Conducted Emission Measurement	FCC CFR 47 Part 15 Subpart B: 2015 and ICES-003: 2014	Class B	PASS
		Minimum passing margin is 15.45dB at 0.576MHz	
Radiated Emission Measurement	FCC CFR 47 Part 15 Subpart B: 2015 and CISPR 22:1997 ICES-003: 2014	Class B	PASS
		Minimum passing margin is 4.77dB at 139.61MHz	

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Description	:	LCD Monitor
Model Number	:	(1)EA245WMi-BK (2)EA245WMi (3)EA245WMi-2 The difference of above models is in sale marketing. This product have two bracket specification one is 100mm another is 150mm The EA245WMi-BK was tested in this report.
Serial Number	:	N/A
Brand	:	NEC
Applicant	:	TPV Electronics (Fujian) Co., Ltd. Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China
Max. Resolution	:	1920*1080/60Hz
Max. Working Frequency	:	246MHz
LCD Panel	:	LG Display, M/N LM240WUA
D-Sub Cable	:	Shielded, Detachable, 1.5/1.8m Bonded two ferrite cores
DVI Cable	:	Shielded, Detachable, 1.5/1.8m Bonded two ferrite cores
DP Cable	:	Shielded, Detachable, 1.5/1.8m
Audio Cable	:	Shielded, Detachable, 1.5/1.8m
AC Power Cord	:	Unshielded, Detachable, 1.5/1.8m (3C)

Date of Receipt of Sample : 2016. 04. 14

Date of Test : 2016. 04. 15

Remark 1 :

The EUT is a LCD Monitor which input/output ports provided are as follows:

Back View:

- (1) One AC In Port
- (2) One DVI Port
- (3) One HDMI Port
- (4) Two DP Ports
- (5) One D-Sub Port
- (6) Two Service Ports
- (7) One Audio Port

Side View:

- (8) One USB upstream Port
- (9) Three USB downstream Ports
- (10) One Earphone Port

Remark 2 :**The EUT with following test modes were pre-scanned.**

Test Item	Input Port	Panel Angle	AC Power Cord & Data Cable	Resolution/Frequency
Powerline Conducted Emission Measurement	D-Sub	0°	1.8m	(1)640*480/60Hz (2)1280*1024/75Hz (3)1920*1080/60Hz
		90°		1080*1920/60Hz
	DVI DP HDMI	0°	1.5m	1920*1080/60Hz
			1.8m	1920*1080/60Hz
				1920*1080/60Hz
				1920*1080/60Hz
				Color Bar, 1080p
Radiated Emission Measurement	DP	0°	1.8m	(1)640*480/60Hz (2)1280*1024/75Hz (3)1920*1080/60Hz
		90°		1080*1920/60Hz
	DVI D-Sub HDMI	0°	1.5m	1920*1080/60Hz
			1.8m	1920*1080/60Hz
				1920*1080/60Hz
				1920*1080/60Hz
				Color Bar, 1080p

Finally, the under worst test mode is demonstrated compliance with the standards in the report.

Test Item	Input Port	Data Cable & Power Cord	Resolution/Frequency
Powerline Conducted Emission Measurement	D-Sub	1.8m	1920*1080/60Hz
	HDMI		Color Bar, 1080p
Radiated Emission Measurement	DP		1920*1080/60Hz
	HDMI		Color Bar, 1080p

3.2. Tested Supporting System Details

3.2.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	Approval
1	PC System	DELL	D09M	7BLJYBX	By DoC
2	Laser Printer	Samsung	ML-1630	4561B1CP600023X	A3LML1630
3	USB Keyboard	DELL	KB212-B	CN-05V23T-71581-2 8H-013N	By DoC
4	USB Mouse	DELL	MS111-T	CN-0KW2YH-71616- 28K-0PXW	By DoC
5	USB Storage Media	pqi	U172P	95110880023241	By DoC
6	USB External Hard Drive#1	SONY	HD-E1	3GDL0T155150E79	By DoC
7	USB External Hard Drive#2	SONY	HD-E1	3GDL0T155151C20	By DoC
8	USB External Hard Drive#3	SONY	HD-E1	3GDL0T155151C22	By DoC
9	DVD Player	SONY	BDP-S370	3213939	N/A
10	Earphone	Cheng Jia	CJ-323	N/A	N/A
11	Monitor	DELL	UP2414Q	CN-0RMV6X-74445- 4CI-024L	By DoC

3.2.2. Cable List

No.	Cable Description Of The Above Support Units
1	HDMI Cable: Shielded, Detachable, 1.8m USB Cable: Shielded, Detachable, 1.8m AC Power Cord: Unshielded, Detachable, 1.8m
2	USB Cable: Shielded, Detachable, 1.8m AC Power Cord: Unshielded, Detachable, 1.8m
3	USB Cable: Shielded, Undetachable, 1.8m
4	USB Cable: Shielded, Undetachable, 1.8m
5	USB Cable: Shielded, Detachable, 1.5m
6	USB Cable: Shielded, Detachable, 0.5m
7	USB Cable: Shielded, Detachable, 0.5m
8	USB Cable: Shielded, Detachable, 0.5m
9	AC Power Cord: Unshielded, Undetachable, 1.8m
10	Earphone Cable: Unshielded, Undetachable, 2.0m
11	DP Cable: Shielded, Detachable, 1.8m AC Power Cord: Unshielded, Detachable, 1.8m

3.3. Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan

Test Facility & Location : **No. 7 Shielded Room**
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan.

No. 1 10m Semi-Anechoic Chamber
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan
 Federal Communication Commission
 Registration Number: 705125
 Renewal on June 25, 2015

NVLAP Lab Code : 200077-0

TAF Accreditation No : 1724

3.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±3.5dB
Radiation Test	30MHz~1000MHz	±4.3dB
	1GHz~6GHz	±4.8dB
	6GHz~18GHz	±4.8dB

Remark : Uncertainty = $ku_c(y)$

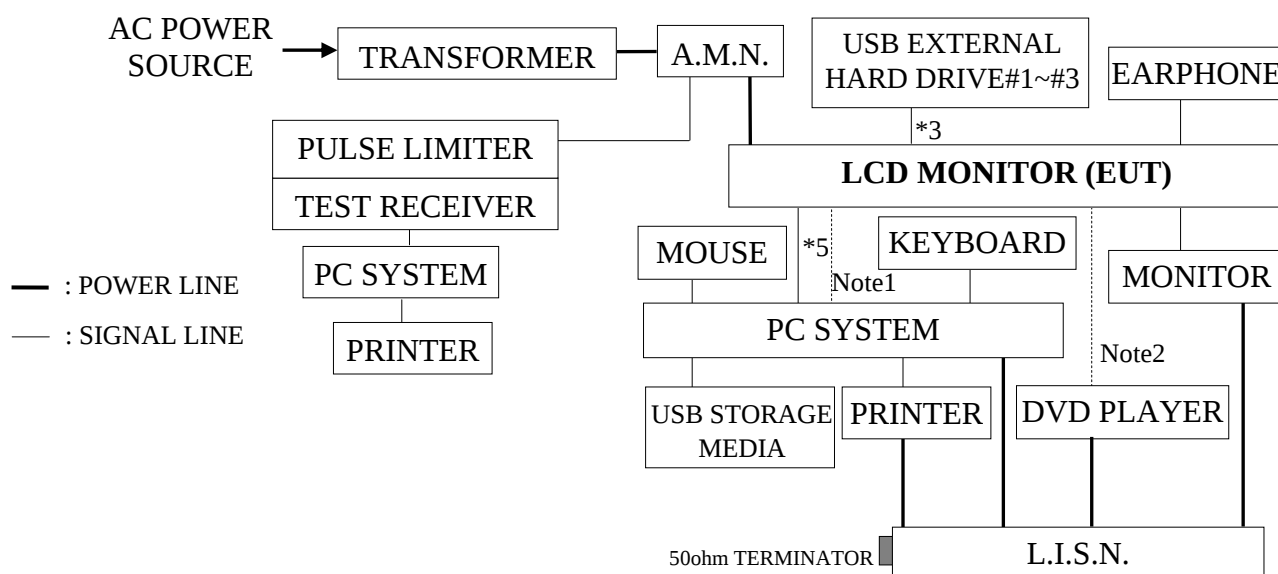
4. POWERLINE CONDUCTED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the powerline conducted emission measurement: (No. 7 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	101276	2016. 03. 31	1 Year
2.	A.M.N.	R&S	ESH2-Z5	100366	2016. 03. 15	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1539-3	2016. 01. 21	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	101495	2016. 01. 17	1 Year

4.2. Block Diagram of Test Setup



Note 1: HDMI cable to PC system for “H” Pattern, 1920*1080/60Hz Mode Used

Note 2: HDMI cable to DVD player for HDMI “Color Bar” Image, 1080p Mode Used

Remark: Connect the HDMI Cable Separately.

4.3. Powerline Conducted Emission Limit

(FCC§15.107/ICES-003, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

4.4. Operating Condition of EUT

- 4.4.1. Set up the EUT and simulator as shown on 4.2.
- 4.4.2. The PC system was running the test program “EMC TEST” by Windows 7 and the screen of LCD Monitor (EUT) displaying pattern “H” (Arial, 10) by EUT’s resolution via D-Sub or DP input.
- 4.4.3. The PC system was running the program “Windows Media Player” and sending sounds to earphone.
- 4.4.4. The DVD player was playing DVD disk and sending “Color Bar” Image to LCD Monitor through EUT’s resolution via HDMI input.
- 4.4.5. The PC system was reading & wrote data from External Hard Drive via USB ports of EUT during all testing.
- 4.4.6. The other peripheral devices were driven and operated in turn during all testing.

4.5. Test Procedure

The EUT was placed on the table which was above the ground by 80cm and power cord was connected to the AC main through an Artificial Mains Network (A.M.N.). The peripheral devices power cord connected to the power mains through another line impedance stabilization network (L.I.S.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.4:2009 during conducted measurement.

The bandwidth of the R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150kHz to 30MHz was pre-scanned with a peak detector.

All the readings of measurements were with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

4.6. Powerline Conducted Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

The EUT with following worst test mode was performed during this section testing and to read Q.P and AV. Value, and the test data are listed in next pages.

EUT : LCD Monitor M/N : EA245Wmi-BK

Test Date : 2016. 04. 15 Temperature : 25°C Humidity : 63%

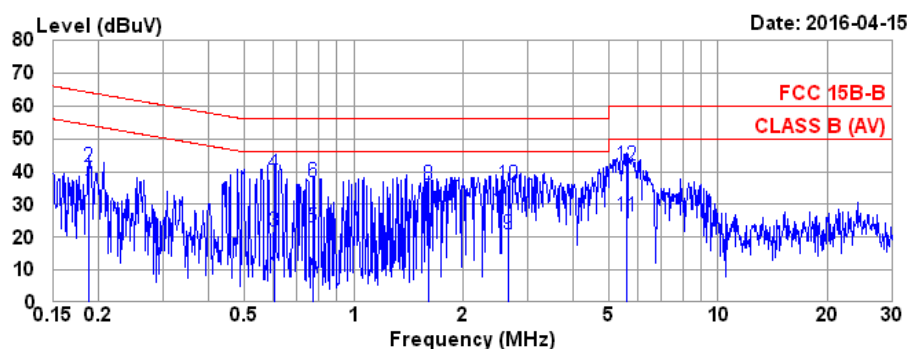
The detail of test mode is as follows:

Mode	Input Port	Data Cable & Power Cord	Resolution/ Frequency	Reference Test Data No.	
				Neutral	Line
1.	D-Sub	1.8m	1920*1080/60Hz	# 2	# 1
2.	HDMI	1.8m	Color Bar, 1080p	# 4	# 3



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Email: emc@audixtech.com

Data: 2 File: D:\test data\REPORT\2016\1C1M1604XXX\1C1M1604185-C-D.EM6 (4)



Site no. : No.7 Shielded Room Data no. : 2
Condition : ESH2-Z5 366 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25°C / 63% ESCI (1276) Engineer : Ken Yang
EUT : EA245WMI-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz D-SUB
Line: 1.8m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.188	0.12	0.03	9.85	23.98	33.98	54.11	20.13	Average
2	0.188	0.12	0.03	9.85	31.61	41.61	64.11	22.50	QP
3	0.608	0.14	0.04	9.85	11.86	21.89	46.00	24.11	Average
4	0.608	0.14	0.04	9.85	29.36	39.39	56.00	16.61	QP
5	0.775	0.15	0.04	9.86	12.85	22.90	46.00	23.10	Average
6	0.775	0.15	0.04	9.86	26.99	37.04	56.00	18.96	QP
7	1.610	0.18	0.06	9.86	11.07	21.17	46.00	24.83	Average
8	1.610	0.18	0.06	9.86	25.92	36.02	56.00	19.98	QP
9	2.664	0.22	0.07	9.86	10.94	21.09	46.00	24.91	Average
10	2.664	0.22	0.07	9.86	25.90	36.05	56.00	19.95	QP
11	5.623	0.32	0.11	9.87	16.10	26.40	50.00	23.60	Average
12	5.623	0.32	0.11	9.87	31.53	41.83	60.00	18.17	QP

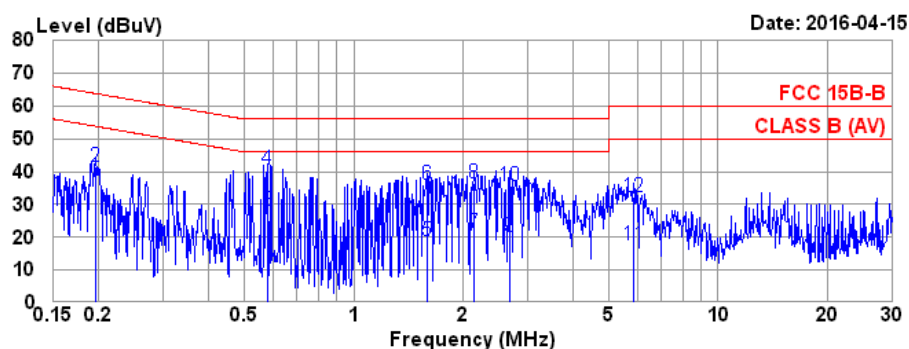
Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

2. If the average limit is met when using a quasi-peak detector,
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



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Email: emc@audixtech.com

Data: 1 File: D:\test data\REPORT\2016\1C1M1604XXX\1C1M1604185-C-D.EM6 (4)



Site no. : No.7 Shielded Room Data no. : 1
Condition : ESH2-Z5 366 Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : 25°C / 63% ESCI (1276) Engineer : Ken Yang
EUT : EA245WMI-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz D-SUB
Line: 1.8m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.197	0.11	0.03	9.85	23.28	33.27	53.76	20.49	Average
2	0.197	0.11	0.03	9.85	31.57	41.56	63.76	22.20	QP
3	0.579	0.13	0.04	9.85	18.20	28.22	46.00	17.78	Average
4	0.579	0.13	0.04	9.85	30.46	40.48	56.00	15.52	QP
5	1.585	0.17	0.06	9.86	8.82	18.91	46.00	27.09	Average
6	1.585	0.17	0.06	9.86	26.15	36.24	56.00	19.76	QP
7	2.144	0.19	0.06	9.86	11.39	21.50	46.00	24.50	Average
8	2.144	0.19	0.06	9.86	26.36	36.47	56.00	19.53	QP
9	2.678	0.21	0.07	9.86	10.15	20.29	46.00	25.71	Average
10	2.678	0.21	0.07	9.86	25.65	35.79	56.00	20.21	QP
11	5.867	0.29	0.11	9.87	7.19	17.46	50.00	32.54	Average
12	5.867	0.29	0.11	9.87	22.16	32.43	60.00	27.57	QP

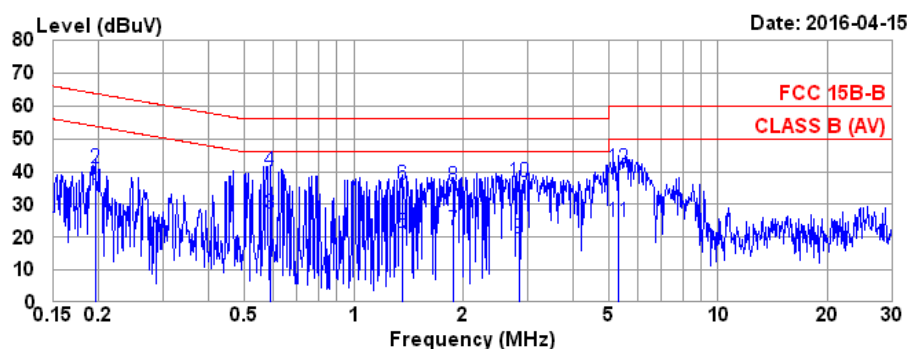
Remarks: 1. Emission Level = AMN Factor + Cable Loss + Pulse Att. + Reading.

2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Data: 4 File: D:\test data\REPORT\2016\1C1M1604XXX\1C1M1604185-C-D.EM6 (4)



Site no. : No.7 Shielded Room Data no. : 4
Condition : ESH2-Z5 366 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25°C / 63% ESCI (1276) Engineer : Ken Yang
EUT : EA245WMI-BK
Power Rating : 120Vac/60Hz
Test Mode : HDMI 1080P
Line: 1.8m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.195	0.12	0.03	9.85	22.11	32.11	53.80	21.69	Average
2	0.195	0.12	0.03	9.85	31.20	41.20	63.80	22.60	QP
3	0.592	0.14	0.04	9.85	17.26	27.29	46.00	18.71	Average
4	0.592	0.14	0.04	9.85	30.26	40.29	56.00	15.71	QP
5	1.367	0.17	0.06	9.85	11.31	21.39	46.00	24.61	Average
6	1.367	0.17	0.06	9.85	25.99	36.07	56.00	19.93	QP
7	1.878	0.19	0.06	9.86	12.30	22.41	46.00	23.59	Average
8	1.878	0.19	0.06	9.86	25.62	35.73	56.00	20.27	QP
9	2.839	0.22	0.07	9.86	9.45	19.60	46.00	26.40	Average
10	2.839	0.22	0.07	9.86	26.54	36.69	56.00	19.31	QP
11	5.305	0.31	0.10	9.86	14.64	24.91	50.00	25.09	Average
12	5.305	0.31	0.10	9.86	30.64	40.91	60.00	19.09	QP

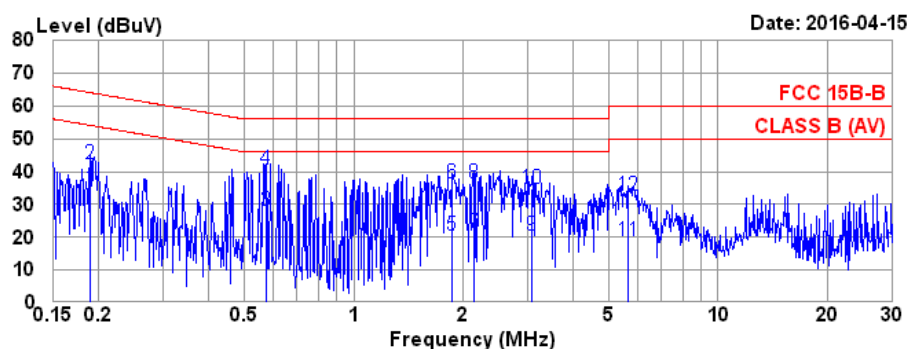
Remarks: 1. Emission Level = AMN Factor + Cable Loss + Pulse Att. + Reading.

2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Data: 3 File: D:\test data\REPORT\2016\1C1M1604XXX\1C1M1604185-C-D.EM6 (4)



Site no. : No.7 Shielded Room Data no. : 3
Condition : ESH2-Z5 366 Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : 25°C / 63% ESCI (1276) Engineer : Ken Yang
EUT : EA245WMI-BK
Power Rating : 120Vac/60Hz
Test Mode : HDMI 1080P
Line: 1.8m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.189	0.11	0.03	9.85	24.66	34.65	54.06	19.41	Average
2	0.189	0.11	0.03	9.85	32.29	42.28	64.06	21.78	QP
3	0.576	0.13	0.04	9.85	17.96	27.98	46.00	18.02	Average
4	0.576	0.13	0.04	9.85	30.53	40.55	56.00	15.45	QP
5	1.858	0.18	0.06	9.86	10.48	20.58	46.00	25.42	Average
6	1.858	0.18	0.06	9.86	26.29	36.39	56.00	19.61	QP
7	2.133	0.19	0.06	9.86	11.06	21.17	46.00	24.83	Average
8	2.133	0.19	0.06	9.86	26.40	36.51	56.00	19.49	QP
9	3.090	0.22	0.08	9.86	10.44	20.60	46.00	25.40	Average
10	3.090	0.22	0.08	9.86	24.59	34.75	56.00	21.25	QP
11	5.653	0.28	0.11	9.87	8.55	18.81	50.00	31.19	Average
12	5.653	0.28	0.11	9.87	22.62	32.88	60.00	27.12	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

2. If the average limit is met when using a quasi-peak detector,
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

5. RADIATED EMISSION MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

5.1.1. For 30MHz-1000MHz Frequency (At No. 1 10m Semi-Anechoic Chamber)

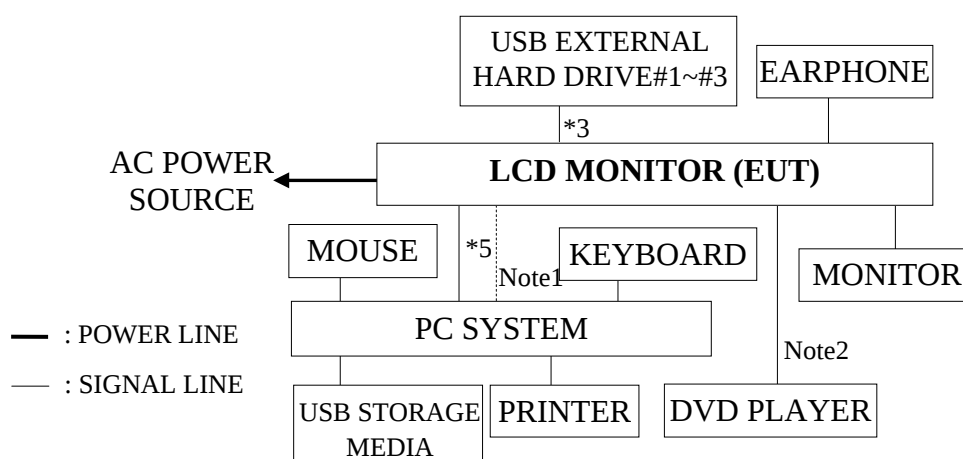
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-503	MY52220119	2015. 12. 24	1 Year
2.	Spectrum Analyzer	Agilent	N9000A-503	MY51250850	2016. 03. 05	1 Year
3.	Test Receiver	R&S	ESR3	101774	2016. 02. 04	1 Year
4.	Amplifier	Sonoma	310N	187158	2016. 03. 07	1 Year
5.	Amplifier	Sonoma	310N	187159	2016. 03. 14	1 Year
6.	Bilog Antenna	TESEQ	CBL6112D	33819	2016. 01. 30	1 Year
7.	Bilog Antenna	TESEQ	CBL6112D	33820	2016. 01. 30	1 Year

5.1.2. For above 1GHz Frequency (At 10m Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY51250943	2016. 02. 24	1 Year
2.	Amplifier	Agilent	8449B	3008A02681	2016. 03. 24	1 Year
3.	Horn Antenna	ETS-Lindgren	3117	00114403	2016. 03. 31	1 Year

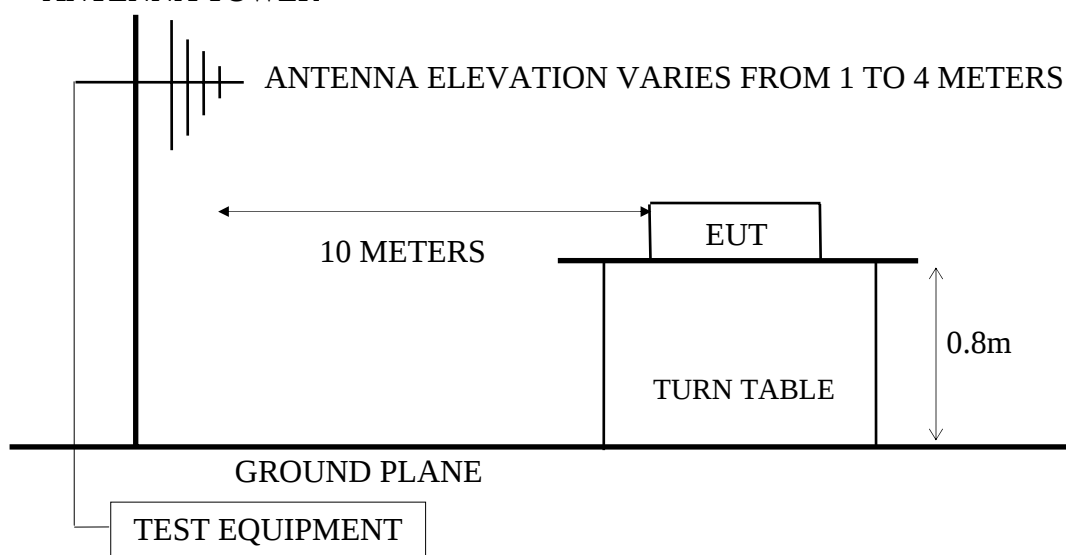
5.2. Block Diagram of Test Setup

5.2.1. Block Diagram of connection between EUT and simulators



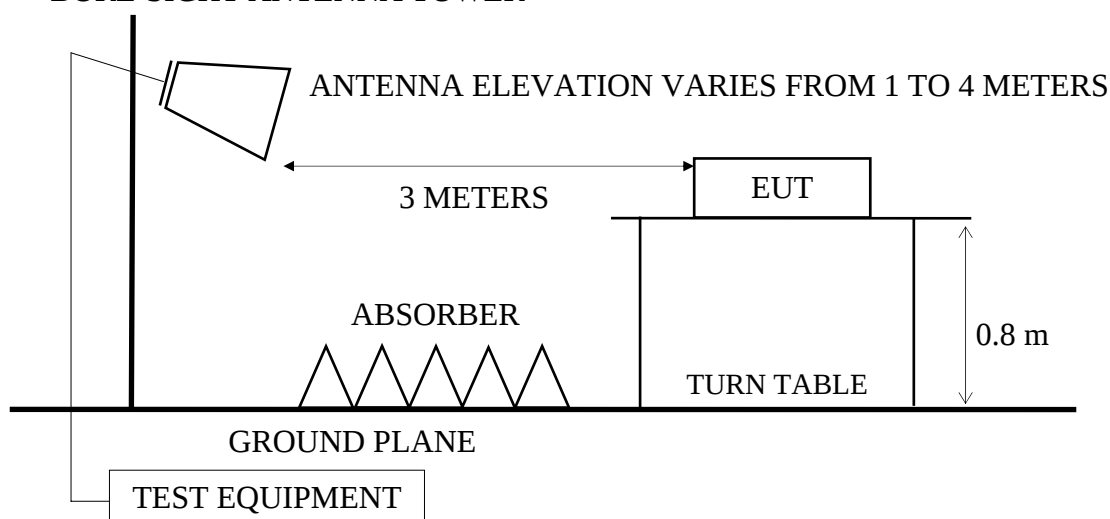
5.2.2. Semi-Anechoic Chamber (10m) Setup Diagram for 30-1000MHz

ANTENNA TOWER



5.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz

BORE-SIGHT ANTENNA TOWER



5.3. Radiation Emission Limit

(FCC§15.109/CISPR 22/ICES-003, Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37
Above 1000	3	73.98 (Peak)
Above 1000	3	53.98 (Average)

- Notes :
- (1) The tighter limit applies at the edge between two frequency bands.
 - (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.
 - (3) The limits applied for radiated emission measurement were used against the requirement of FCC Part 15.109 (a)/(g).

5.4. Operating Condition of EUT

Same as powerline conducted emission measurement which is listed in 4.4 except the test set up replaced by section 5.2.

5.5. Test Procedure

5.5.1. For Frequency Range 30MHz-1000MHz, which measurement was at Semi-Anechoic Chamber:

The EUT and its simulator were placed on a turn table which was 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 10 meters away from the receiving antenna which were mounted on an antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antennas were used as a receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The bandwidth of the R&S Test Receiver ESR3 was set at 120 kHz.

The frequency range from 30MHz to 1000MHz was checked with Peak detector and all final readings of measurement were with Quasi-Peak detector.

5.5.2. For Frequency Range above 1GHz, which measurement was at Semi-Anechoic Chamber:

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The portion of the test volume that was obstructed by absorber placed on the floor (30cm maximum). The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement, and both average and peak emission level were recorded from spectrum analyzer. In order to find the maximum emission level, all the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The resolution bandwidth of Agilent Spectrum Analyzer N9010A-526 was set at 1MHz.

The frequency range above 1GHz was checked and all final readings of measurement were with Peak and Average values.

5.6. Radiated Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

For 30MHz-1000MHz frequency range :

The EUT with following worst test mode was performed during this section testing and all the test data are listed in section 5.6.1.

EUT : LCD Monitor M/N : EA245Wmi-BK

Test Date : 2016. 04. 15 Temperature : 26°C Humidity : 60%

The detail of test mode is as follows:

Mode	Input Port	Data Cable & Power Cord	Resolution/ Frequency	Reference Test Data No.	
				Horizontal	Vertical
1.	DP	1.8m	1920*1080/60Hz	# 2	# 1
2.	HDMI	1.8m	Color Bar, 1080p	# 4	# 3

(mode for maximum detected emission)

For above 1GHz frequency range :

The EUT with following worst test mode was performed during this section testing and all the test data are listed in section 5.6.2.

EUT : LCD Monitor M/N : EA245Wmi-BK

Test Date : 2016. 04. 15 Temperature : 26°C Humidity : 60%

The detail of test mode is as follows:

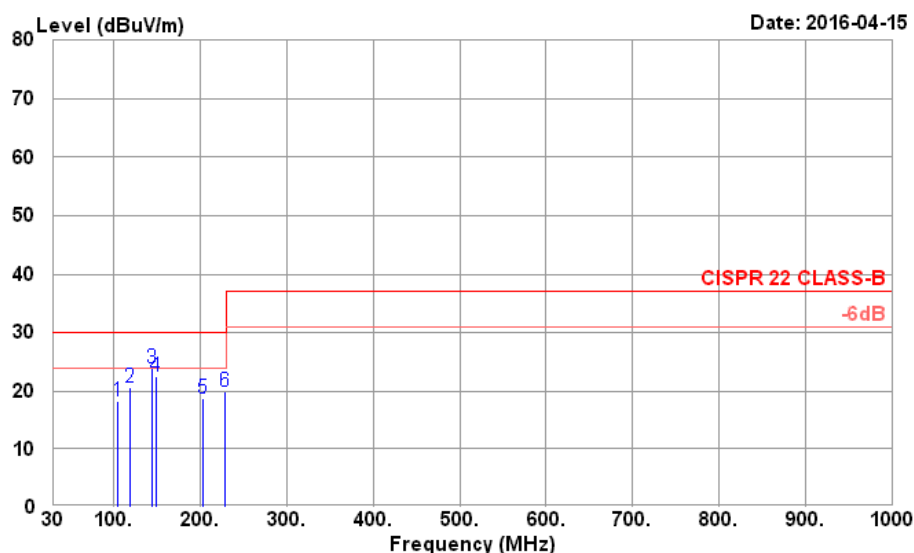
Mode	Input Port	Data Cable & Power Cord	Resolution/ Frequency	Reference Test Data No.	
				Horizontal	Vertical
1.	DP	1.8m	1920*1080/60Hz	# 6	# 5
2.	HDMI	1.8m	Color Bar, 1080p	# 8	# 7

5.6.1. Radiated Emission Measurement Results at Semi-Anechoic Chamber (30 - 1000MHz)



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Data: 2 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber
Dis. / Ant. : 10m 6112D 33820
Limit : CISPR 22 CLASS-B
Env. / Ins. : 26°C / 60% ESR(1774)
EUT : EA245Wmi-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz DP
Line:1.8m

Data no. : 2
Ant. pol. : HORIZONTAL
Engineer : TIM

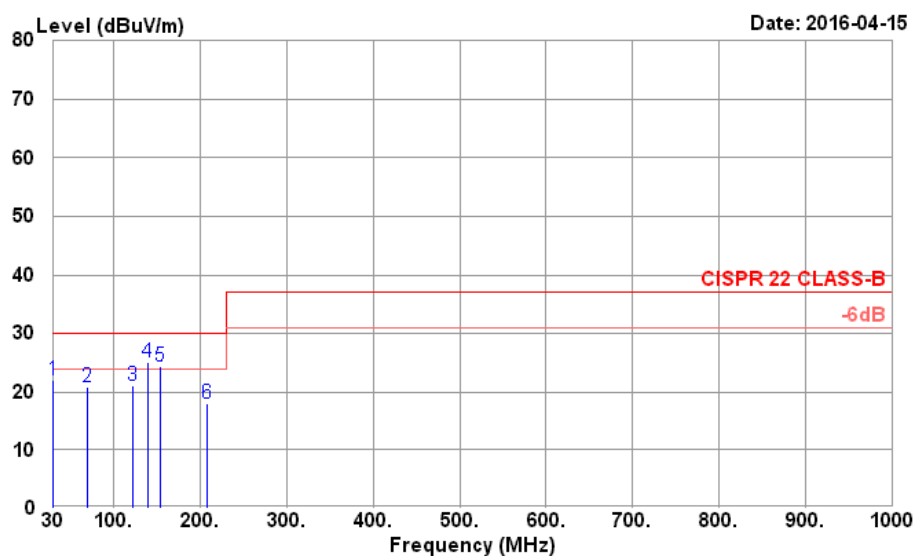
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	104.69	11.32	1.79	5.22	18.33	30.00	11.67	QP
2	119.24	12.51	1.93	6.28	20.72	30.00	9.28	QP
3	144.46	11.31	2.14	10.59	24.04	30.00	5.96	QP*
4	149.31	10.94	2.17	9.32	22.43	30.00	7.57	QP
5	202.66	9.42	2.57	6.89	18.88	30.00	11.12	QP
6	227.88	11.09	2.73	6.16	19.98	30.00	10.02	QP

Remarks: 1.Emission Level= Antenna Factor + Cable Loss + Reading.
2.The emission levels that are 20dB below the official limit are not reported
3.The worst emission is detected at 144.46MHz with corrected signal level of 24.04dBμV/m (limit is 30.00dBμV/m) when the antenna is at horizontal polarization and is at 4m high and the turn table is at 49°.
4.0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.



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Data: 1 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 1
Dis. / Ant. : 10m 6112D 33819 Ant. pol. : VERTICAL
Limit : CISPR 22 CLASS-B
Env. / Ins. : 26°C / 60% ESR(1774) Engineer : TIM
EUT : EA245MMi-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz DP
Line: 1.8m

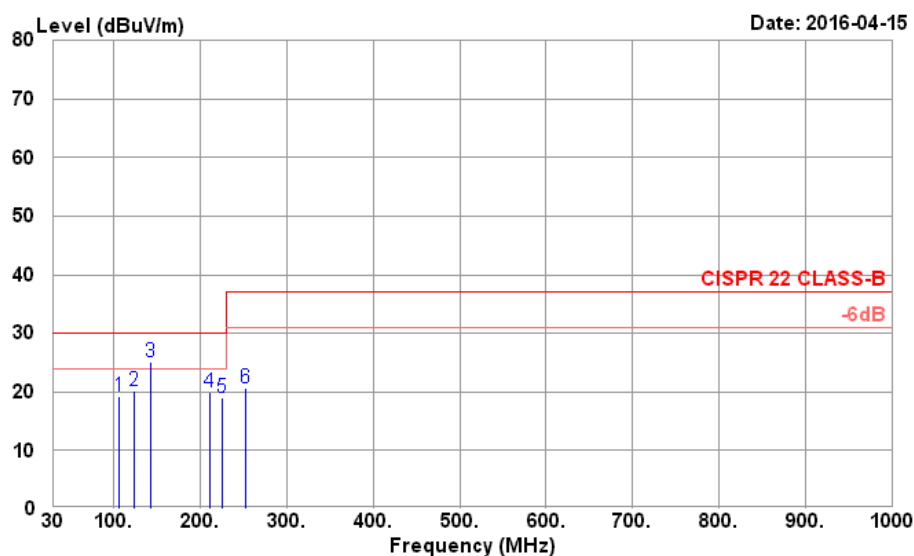
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	30.00	18.71	0.64	2.61	21.96	30.00	8.04	QP
2	68.80	6.60	0.96	13.25	20.81	30.00	9.19	QP
3	121.18	12.23	1.37	7.52	21.12	30.00	8.88	QP
4	139.61	11.47	1.48	12.28	25.23	30.00	4.77	QP*
5	154.16	10.48	1.56	12.41	24.45	30.00	5.55	QP
6	207.51	10.05	1.85	6.23	18.13	30.00	11.87	QP

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported
3. The worst emission is detected at 139.61MHz with corrected signal level of 25.23dB μ V/m (limit is 30.0dB μ V/m) when the antenna is at vertical polarization and is at 1m high and the turn table is at 51°.
4. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.



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Data: 4 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber
 Dis. / Ant. : 10m 6112D 33820
 Limit : CISPR 22 CLASS-B
 Env. / Ins. : 26°C / 60% ESR(1774)
 EUT : EA245MMi-BK
 Power Rating : 120Vac/60Hz
 Test Mode : HDMI 1080P
 Line: 1.8m

Data no. : 4
 Ant. pol. : HORIZONTAL
 Engineer : TIM

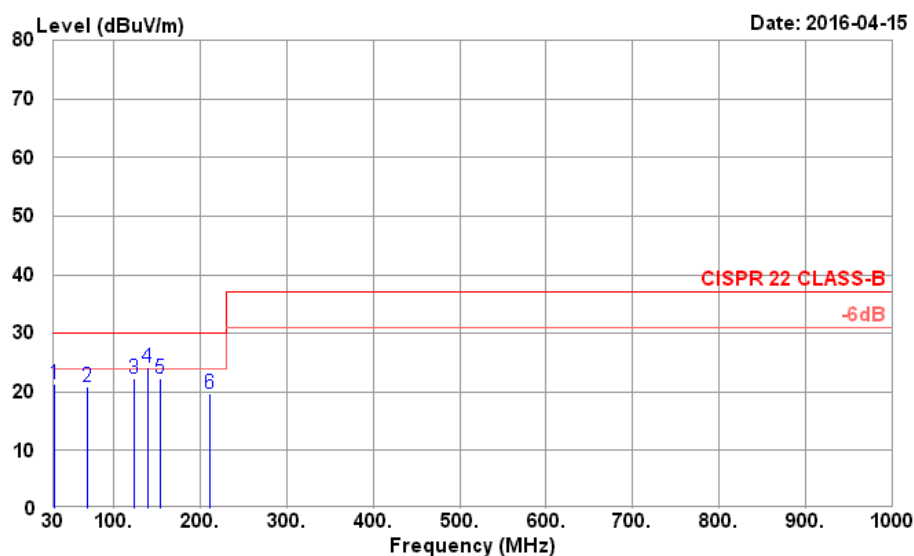
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	106.63	11.51	1.82	5.84	19.17	30.00	10.83	QP
2	123.12	12.38	1.96	5.92	20.26	30.00	9.74	QP
3	142.52	11.46	2.12	11.62	25.20	30.00	4.80	QP
4	210.42	9.98	2.62	7.38	19.98	30.00	10.02	QP
5	225.94	10.99	2.72	5.25	18.96	30.00	11.04	QP
6	253.10	12.49	2.89	5.35	20.73	37.00	16.27	QP

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported



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Data: 3 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 3
 Dis. / Ant. : 10m 6112D 33819 Ant. pol. : VERTICAL
 Limit : CISPR 22 CLASS-B
 Env. / Ins. : 26°C / 60% ESR(1774) Engineer : TIM
 EUT : EA245MMi-BK
 Power Rating : 120Vac/60Hz
 Test Mode : HDMI 1080P
 Line: 1.8m

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	31.94	17.55	0.66	3.16	21.37	30.00	8.63	QP
2	68.80	6.60	0.96	13.25	20.81	30.00	9.19	QP
3	123.12	12.14	1.38	8.81	22.33	30.00	7.67	QP
4	139.61	11.47	1.48	11.28	24.23	30.00	5.77	QP
5	153.19	10.55	1.56	10.22	22.33	30.00	7.67	QP
6	211.39	10.27	1.87	7.49	19.63	30.00	10.37	QP

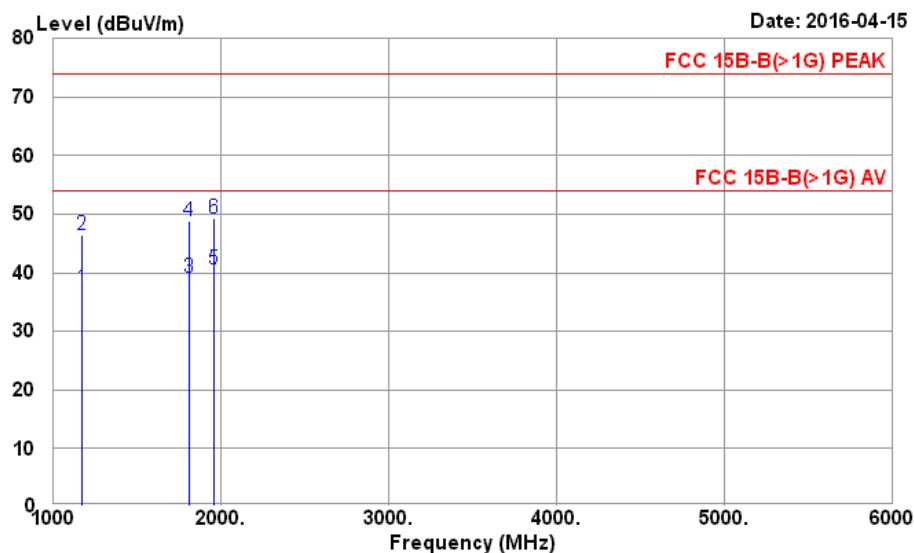
Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported

5.6.2. Radiated Emission Measurement Results at Semi-Anechoic Chamber (Above 1GHz)



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Data: 6 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 6
Dis. / Ant. : 3m 3117 14403 Ant. pol. : HORIZONTAL
Limit : FCC 15B-B(>1G) PEAK
Env. / Ins. : 26°C / 60% N9010A(0943) Engineer : TIM
EUT : EA245Wmi-BK
Power Rating : 120Vac/60Hz
Test Mode : 1920*1080/60Hz DP
Line: 1.8m

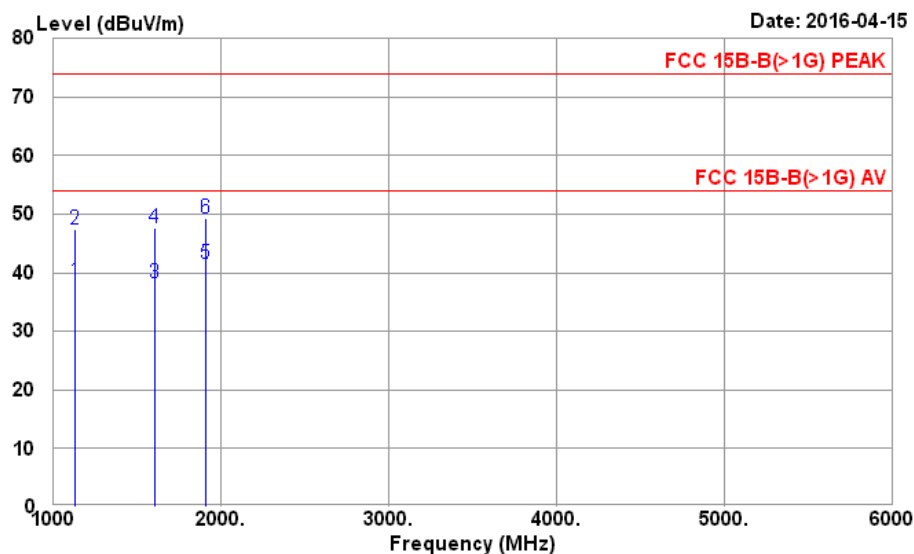
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1170.05	27.96	1.95	35.68	43.19	37.42	53.98	16.56	Average
2	1170.05	27.95	2.02	35.49	51.94	46.42	73.98	27.56	Peak
3	1810.25	30.24	2.33	35.17	41.75	39.15	53.98	14.83	Average
4	1810.25	30.28	2.33	35.18	51.32	48.75	73.98	25.23	Peak
5	1955.84	31.21	2.41	35.37	42.24	40.49	53.98	13.49	Average
6	1955.84	31.72	2.55	35.47	50.45	49.25	73.98	24.73	Peak

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading - Preamp.
2. The emission levels that are 20dB below the official limit are not reported



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Data: 5 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 5
 Dis. / Ant. : 3m 3117 14403 Ant. pol. : VERTICAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 26°C / 60% N9010A(0943) Engineer : TIM
 EUT : EA245WMI-BK
 Power Rating : 120Vac/60Hz
 Test Mode : 1920*1080/60Hz DP
 Line: 1.8m

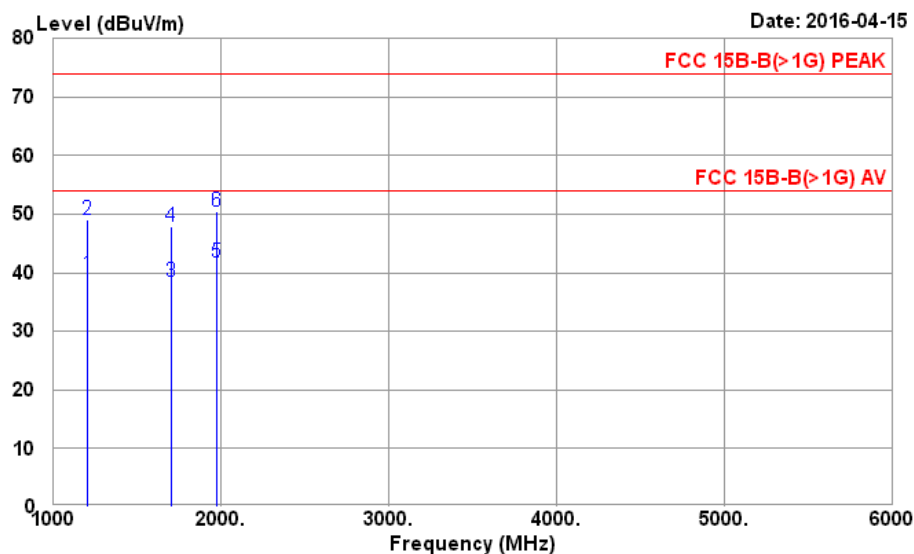
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1130.45	27.97	1.90	35.82	44.49	38.54	53.98	15.44	Average
2	1130.45	27.92	2.12	35.09	52.45	47.40	73.98	26.58	Peak
3	1805.15	28.76	2.22	34.86	42.20	38.32	53.98	15.66	Average
4	1805.15	28.91	2.23	34.89	51.35	47.60	73.98	26.38	Peak
5	1910.05	30.92	2.39	35.30	43.47	41.48	53.98	12.50	Average
6	1910.05	31.52	2.45	35.44	50.86	49.39	73.98	24.59	Peak

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading - Preamp.
 2. The emission levels that are 20dB below the official limit are not reported



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Data: 8 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 8
 Dis. / Ant. : 3m 3117 14403 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 26°C / 60% N9010A(0943) Engineer : TIM
 EUT : EA245WMI-BK
 Power Rating : 120Vac/60Hz
 Test Mode : HDMI 1080P
 Line: 1.8m

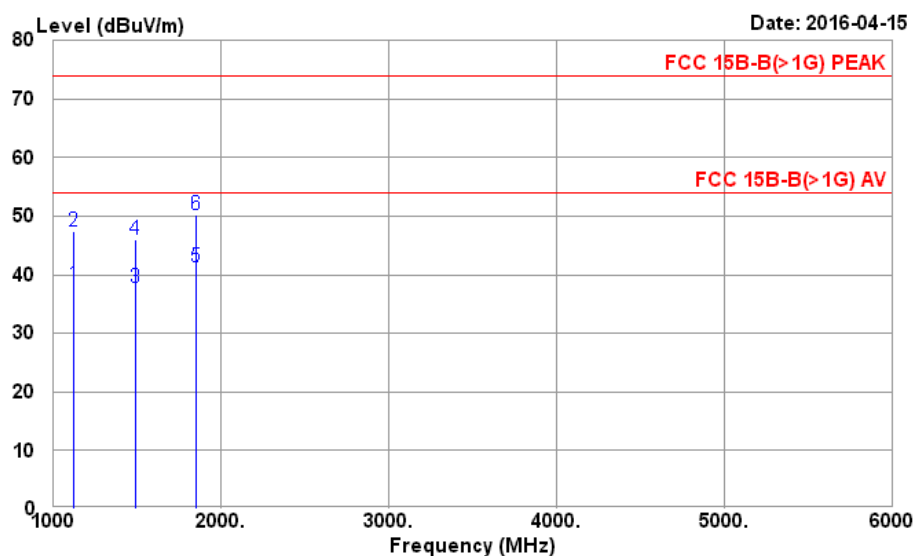
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1205.12	27.95	2.01	35.56	45.19	39.59	53.98	14.39	Average
2	1205.12	27.95	2.02	35.49	54.45	48.93	73.98	25.05	Peak
3	1705.85	29.52	2.28	35.02	41.75	38.53	53.98	15.45	Average
4	1705.85	30.28	2.33	35.18	50.50	47.93	73.98	26.05	Peak
5	1970.35	31.32	2.41	35.39	43.35	41.69	53.98	12.29	Average
6	1970.35	31.72	2.55	35.47	51.75	50.55	73.98	23.43	Peak

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading - Preamp.
 2. The emission levels that are 20dB below the official limit are not reported



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Data: 7 File: D:\TEST DATA\REPORT\2016\IC1M1604XXX\IC1M1604185\IC1M1604185-10M.EM6 (8



Site no. : NO.1 10M Chamber Data no. : 7
 Dis. / Ant. : 3m 3117 14403 Ant. pol. : VERTICAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 26°C / 60% N9010A(0943) Engineer : TIM
 EUT : EA245WMI-BK
 Power Rating : 120Vac/60Hz
 Test Mode : HDMI 1080P
 Line: 1.8m

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	1125.15	27.97	1.87	35.83	44.14	38.15	53.98	15.83	Average
2	1125.15	27.92	2.12	35.09	52.45	47.40	73.98	26.58	Peak
3	1490.71	27.90	2.15	34.72	42.49	37.82	53.98	16.16	Average
4	1490.71	28.91	2.23	34.89	49.85	46.10	73.98	27.88	Peak
5	1850.25	30.53	2.35	35.23	43.65	41.30	53.98	12.68	Average
6	1850.25	31.52	2.45	35.44	51.76	50.29	73.98	23.69	Peak

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading - Preamp.
 2. The emission levels that are 20dB below the official limit are not reported

6. DEVIATION TO TEST SPECIFICATIONS

【NONE】

7. PHOTOGRAPHS

7.1. Photos of Powerline Conducted Emission Measurement PC Mode: H pattern



FRONT VIEW OF CONDUCTED MEASUREMENT



BACK VIEW OF CONDUCTED MEASUREMENT

DVD Mode: Color Bar Image



FRONT VIEW OF CONDUCTED MEASUREMENT



BACK VIEW OF CONDUCTED MEASUREMENT

7.1.Photos of Radiated Emission Measurement at Semi-Anechoic
Chamber (30-1000MHz)
PC Mode: H pattern



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

DVD Mode: Color Bar Image



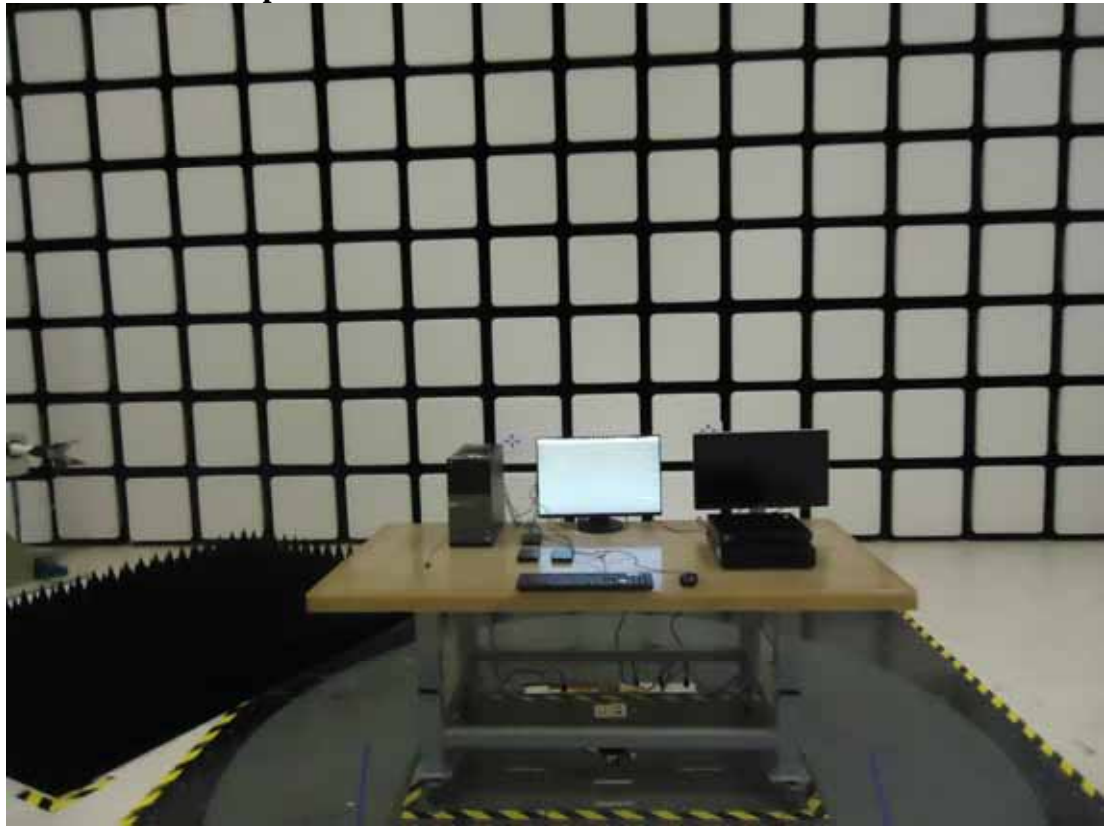
FRONT VIEW OF RADIATED MEASUREMENT



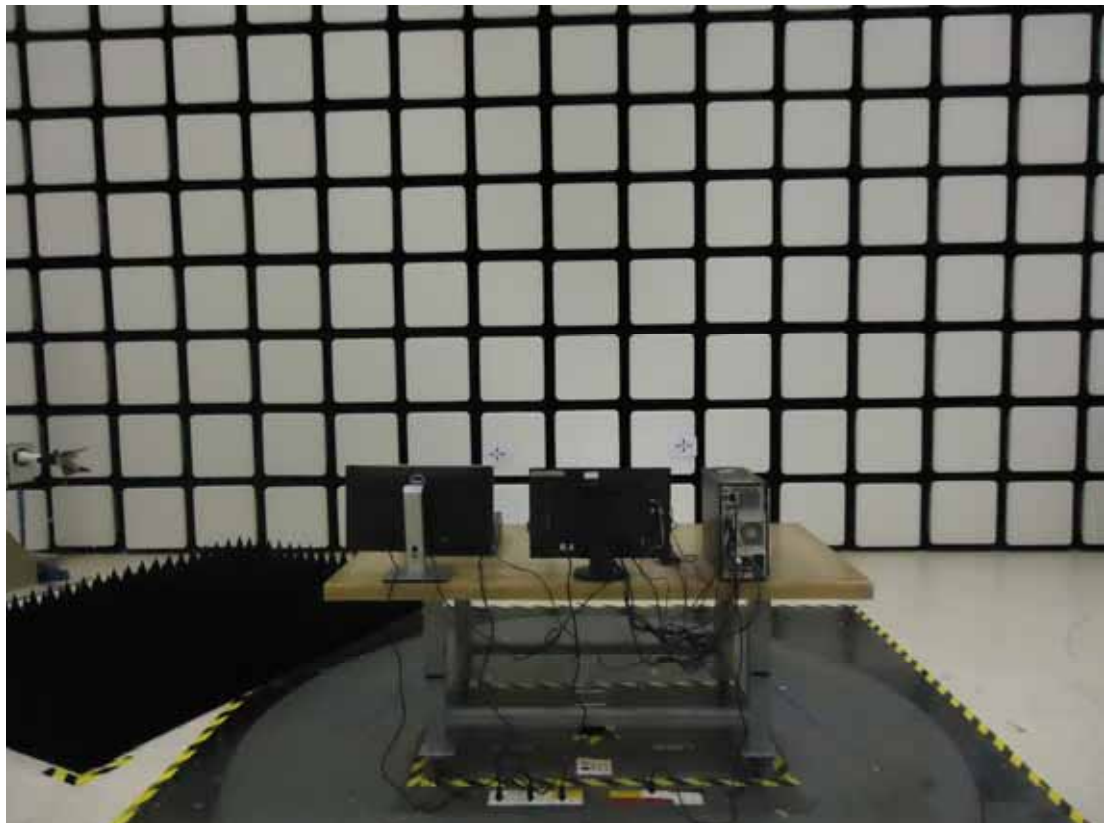
BACK VIEW OF RADIATED MEASUREMENT

7.2. Photos of Radiated Emission Measurement at Semi-Anechoic Chamber
(Above 1GHz)

PC Mode: H pattern

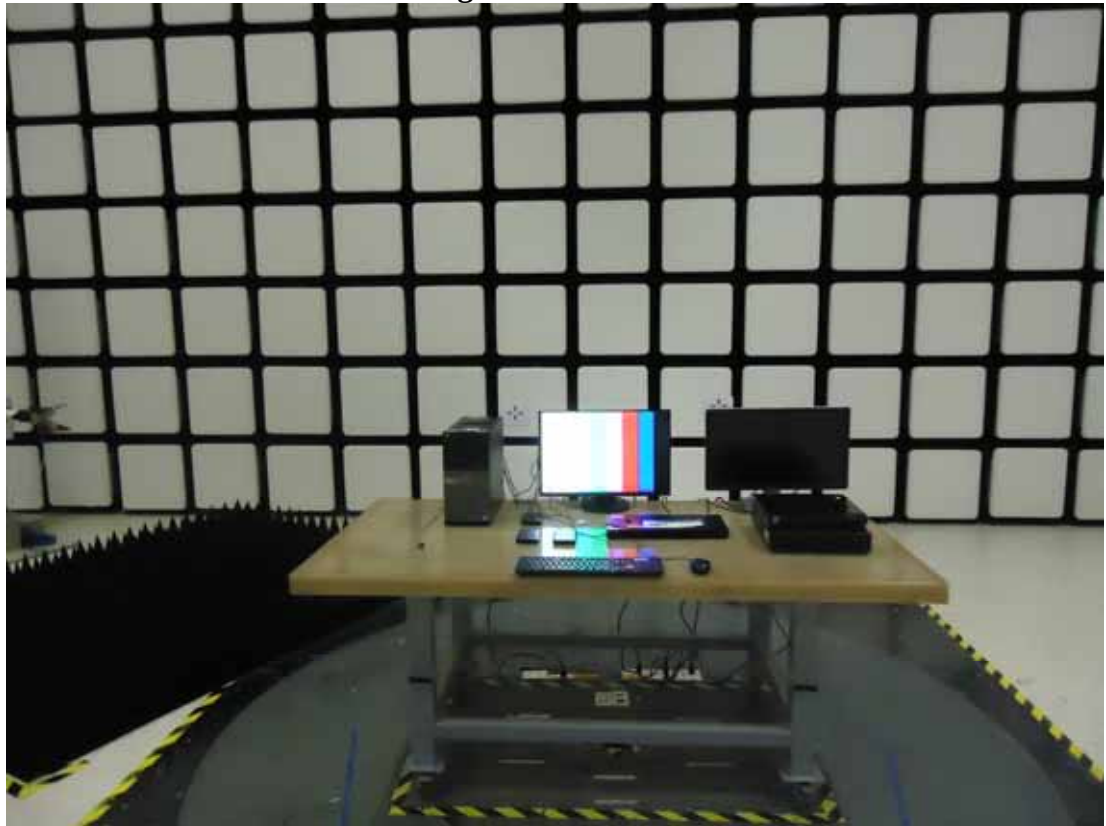


FRONT VIEW OF RADIATED MEASUREMENT

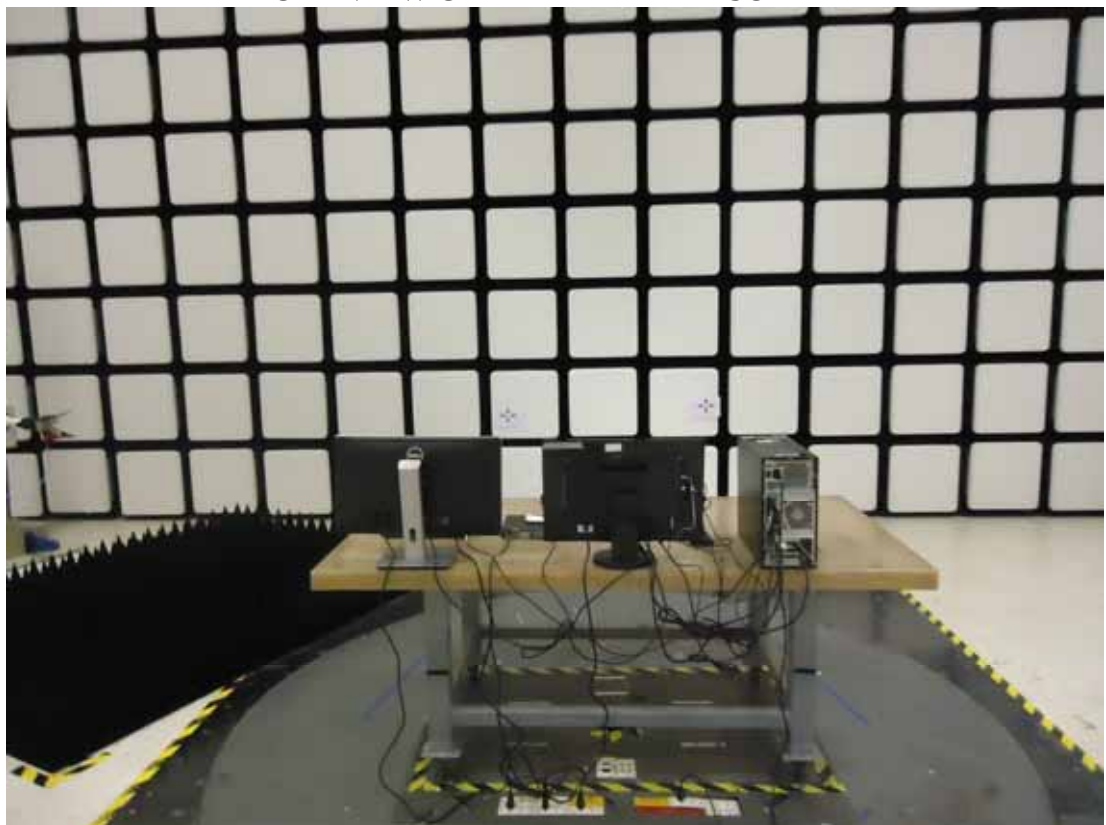


BACK VIEW OF RADIATED MEASUREMENT

DVD Mode: Color Bar Image



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT