VERIFICATION OF FCC PART 15 COMPLIANCE

KES hereby verify *that the subject product complies with all the electromagnetic emission specified in the FCC Rule Part 15*

Product Description:	LCD MONITOR
Model/Brand Name:	SMT-2233
Variant Model:	-
FCC Rule Part(s):	FCC 47CFR Part 15 Subpart B Class B Part 15.107(a) & Part 15.109(a)
FCC Procedure:	Verification
Applicant Name:	Hanwha Techwin Company Limited.
Applicant Address:	1204, Changwo-daero, Seongsan-gu, Changwon-si, Gyeongsangnam-do
Manufacturer Name:	Weihai Daewoo Electronics Co.,Ltd.
Manufacturer Address:	No.26, Hongkong Road, Economic & Technical Development Zone, 264205 Weihai City, Shandong Province, China
Test Report Reference No.:	KES-E1-15T0273

LCD MONITOR, Model SMT-2233 has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class B and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class B. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-15T0273

Date of Issue: 10. 07. 2015

Dong Hun, Jang
Technical Manager
Signature:

KES.Co., Ltd.
C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do,431-716, Korea
Tel: +82-31-425-6200 //Fax: +82-31-424-0450

EMI Test Report for FCC

DoC / Verification

Test Report No.	: KES-E1-15T273
Date of Issue	: 10. 07. 2015
Description of Product	: LCD MONITOR
Model No.	: SMT-2233
Variant Model	: -
Applicant	: Hanwha Techwin Company Limited
Applicant's Address	: 1204, Changwo-daero, Seongsan-gu, Chang-won-si, Gyeongsangnam-do
Manufacturer	: Weihai Daewoo Electronics Co.,Ltd.
Manufacturer's Address	: No.26, Hongkong Road, Economic & Technical Development Zone, 264205 Weihai City, Shandong Province, China
Standards	: FCC Part 15 Subpart B - Part 15.107(a) : Conducted Emission - Part 15.109(a) : Radiated Emission
Date of Receipt	: 09. 14. 2015
Test Date	: 10. 02. 2015
Test Results	: ■ Pass ☐ Fail

The test results relate only to the items tested.

Tested by: Kang Hyeon, Kim
Test Engineer

Reviewed by: Dong Hun, Jang
Technical Manager

Testing Laboratories for Safety and RF Compliance
C-3701 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450

Testing Laboratories for EMC Compliance
473-29, Gayeoro, Yeoju-si, Gyeonggi-do,12658, Korea
Tel : +82-31-883-5092 / Fax: +82-31-883-5169

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The test results in the report in only apply to the tested sample.

TABLE OF CONTENTS

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1. General Information

1.1 Introduction

The EMI Test Report of Information Technology Equipment is prepared on behalf of named applicant in accordance with the ANSI C63.4-2009. The test results reported in this document relate only to the item that was tested.

The detailed description of the measurement facility was found to be in compliance with the requirement of Section 2.948 of the FCC Rules. The Federal Communications Commission has the reports on file and is listed under Registration Number. The scope of the accreditation covers the FCC Method - 47 CFR Part 15 or 18 of the Commission's Rules.

All measurements contained in this report were conducted in accordance with ANSI C63.4-2009. The instrumentation utilized for the measurements conforms with CISPR16 Specification for Radio Disturbance and Immunity Measuring Apparatus and Methods. Some accessories are used to increase sensitivity and prevent overloading of the measuring instrument. Calibration checks are performed yearly on the instruments by a local calibration laboratories.

All radiated and conducted emission measurements are performed manually at KES Co., Ltd. (hereinafter referred to as "KES"), 473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658 Korea

The radiated emission measurements required by the FCC Rules were performed on 3 meter or 10 meter, Open Area Test Site, test range maintained by KES. Complete ANSI 63.4-2009 description and site attenuation measurement data records are maintained at the test facility and have been placed on file with the Federal Communications Commission. The power line conducted emission measurements were performed in a shielded enclosure also located at the same facility.

The KES EMC test facilities in Yeoju-si are designated testing laboratory according to ISO/IEC 17025 by Radio Research Agency(RRA), Korea Communications Commission.

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1.2 Geographic location

KES Office Latitude : 37°23'54.59"N, Longitude : 126°58'14.66"E

KES OATS Latitude : 37°13'58.03"N, Longitude : 127°37'21.95"E

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1.3 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	**FCC**	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
KOREA	**KCC**	EMC (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site)	KR0100
Canada	**IC**	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1
Europe	**TUV_SUD**	EMC EN 55011, EN 55022, EN 61000-3-2,EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 55014-1, EN 61326 EN 50130-4, EN 55024, EN 55014-2 EN 61204-3, EN 60601-1-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11	

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1.4 Product Description

Hanwha Techwin Company Limited, LCD MONITOR, Model No:SMT-2233 or the "E.U.T"as referred to in this report is base model.

Main Specifications of EUT are :

Model Name		SMT-2233	Remark
Display		LED	
Screen Size		22"	
Max. Resolution		1920 x 1080	
Brightness		250cd/m2	
Contrast Ratio		1,000 : 1	
Aspect Ratio		16:9	
Display		LED	
Screen size		22	
Viewing Angle (H/V)		170°/160°	
Display Color		16.7Million	
Response Time		5ms	
Video System		NTSC / PAL	
Panel Life		30,000 hours	
Filter Type		3D Combfilter	
Interface			
Video	Connector	BNC types: (2 in/2 out)	
RGB	Connector	One(1) Analog RGB 15-pin D-sub	
	Input signal	0.7 Vp-p ±5 %	
HDMI	Connector	One(1) HDMI input (type A connector)	
Audio	Connector	Two(2) RCA type (2 stereo inputs)	
	Output signal	Speakers: two(2) x 1 W	
Application Support		Remote Controller	
On Screen Display		Samsung UI	
Functions		VESA™ DPM Compatible	
Language		English, Spanish, French, German, Italian, Portuguese, Russian Swedish, Turkish, Thai,Dutch,Danish,Arabic,Chinese, Japanese, Korea	
General			
Electrical	Input Voltage	AC100 ~ 240V (50/60Hz)	
	Power consumption	24w	
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)	
	Humidity	20% – 90% (non-condensing)	
Mechanical	Dimensions with Stand (WxHxD)	515mm x 391.8mm x 217.4mm	
	Dimensions without Stand (WxHxD)	515mm x 316mm x 59.9mm	
	Weight	5.2kg	
	LCD Protection Glass	Yes	
	Cabinet Color	Black	
	VESA Mounts Interface	100mm x 100mm	

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1.5 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
LCD MONITOR	SMT-2233	-	Weihai Daewoo Electronics Co.,Ltd.	EUT
Remote control	-	-	SAMSUNG	

1.6 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	NT63025J	JK9091EF400432X	SAMSUNG	-
Switching Adapter	A13-040N2A	CN60BA4400313AD0N843KO243	Chicony Power Techology (suzhou) Co., Ltd.	-
Camera	-	-	-	-
Adapter	JPW115KA1200M03	-	MANUFACT URED BY Bridge power Corp.	-
Monitor	SMT-1935	-	Weihai Daewoo Electronics Co.,Ltd.	-

1.7 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LCD MONITOR (E.U.T)	D-SUB	Notebook	D-SUB	1.4	Shielded
	HDMI	Notebook	HDMI	1.2	Shielded
	BNC	Camera	BNC	1.0	Shielded
	BNC	Monitor	BNC	4.0	Shielded
	Audio	Cable Termination	Audio	1.0	Unshielded

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1.8 Special Accessories

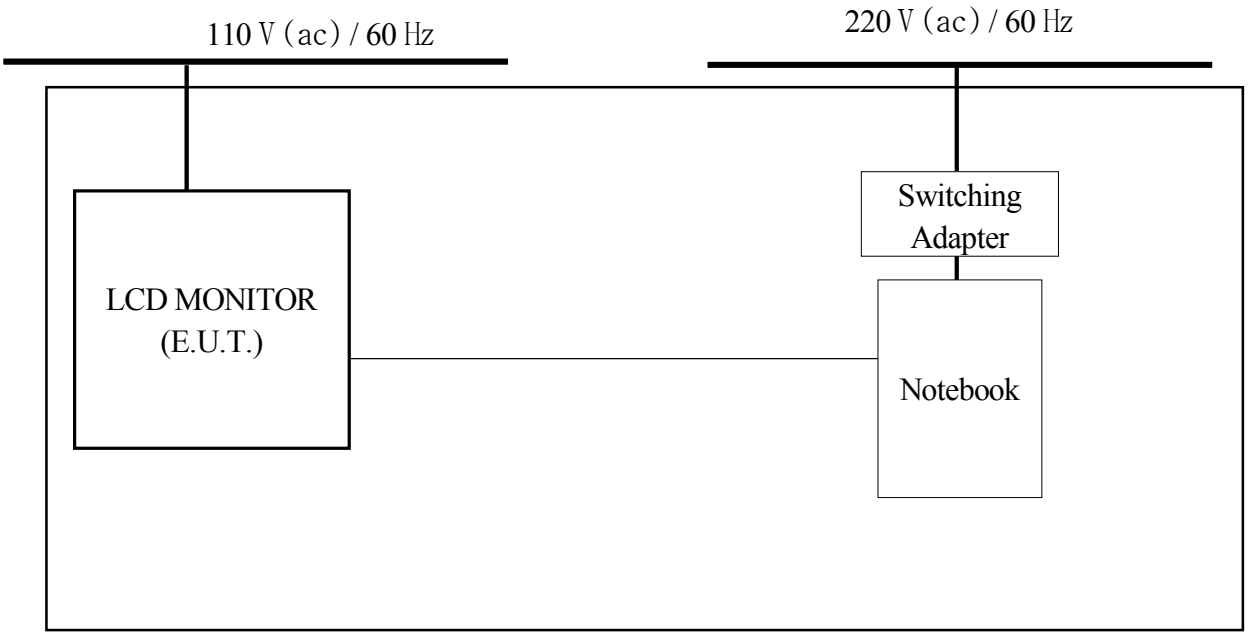
As shown in section 1.10, all interface cables used for compliance testing are shielded as normally supplied or by use respective component manufacturers.

1.9 E.U.T Modifications

No modifications were made to the E.U.T in order to achieve and maintain compliance to the standards described in this report.

1.10 Configuration of Test System

■ D-SUB, HDMI Mode



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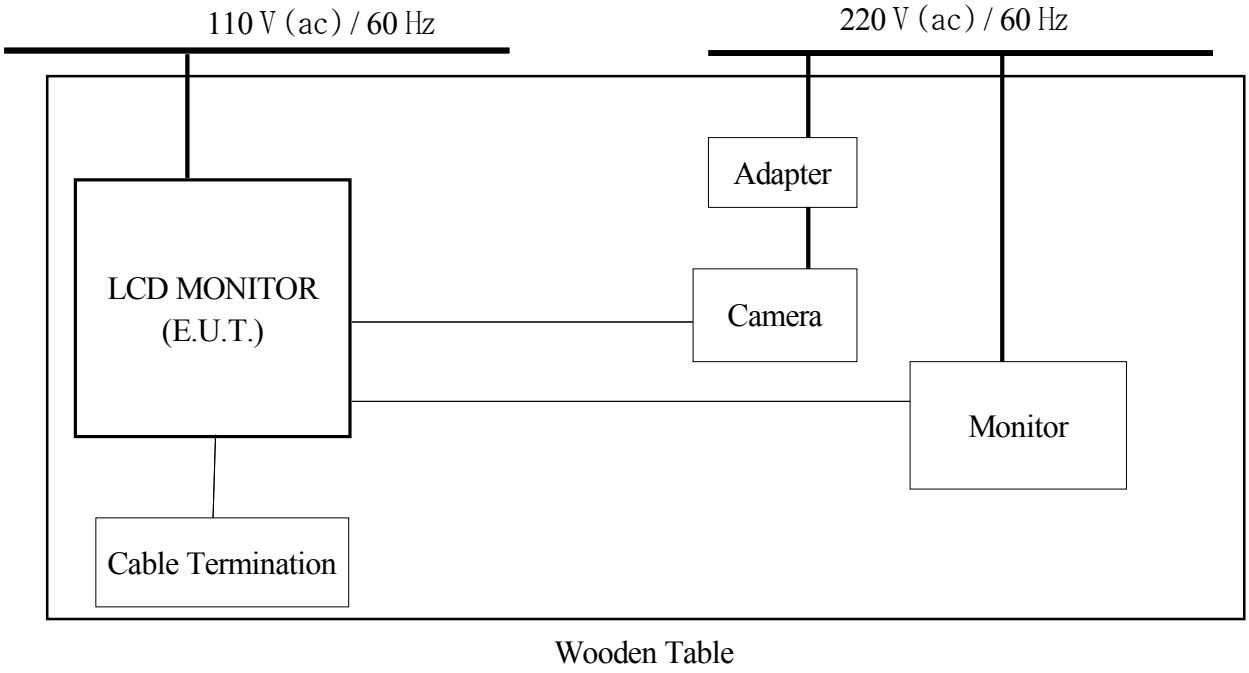
■ **Video Mode**



1.11 Operating condition

- D-SUB, HDMI Mode

Normal operation

- Video Mode

Normal operation

1.12 Statements and User Information

☐ **Class A** / ■ **Class B**

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2. Summary of Tests

FCC Part Section(s)	Parameter	Test Condition	Status (note 1)
15.109(a)	Emission limits	Radiated	C
15.107(a)	Conducted limits	Conducted	C

Note 1 : C=Complies N/C=Not Complies N/T=Not Tested N/A=Not Applicable

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2.1 Conducted Emission Measurements

2.1.1 Test Methods

The power line conducted emission measurements were performed in a shielded enclosure, using the setup in accordance with ANSI C63.4-2009 conducted emission measurement procedure.

2.1.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
EMI Test Receiver	R&S	ESR	101783	05. 06. 2016
LISN	R&S	ENV216	101137	02. 10. 2016
LISN	R&S	ENV216	101786	05. 06. 2016
Electro wave Shieldroom	SEMITEC	-	-	-

2.1.3 Test Environments

Ambient Temperatures	Relative Humidity
see the data	see the data

2.1.4 Test Limits

Frequency (㎒)	15.107 Conducted limits			
	Class B (dB㎶)		Class A (dB㎶)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.50	66.0 to 56.0	56.0 to 46.0	79.0	66.0
0.50 to 5.00	56.0	46.0	73.0	60.0
5.00 to 30.00	60.0	50.0	73.0	60.0

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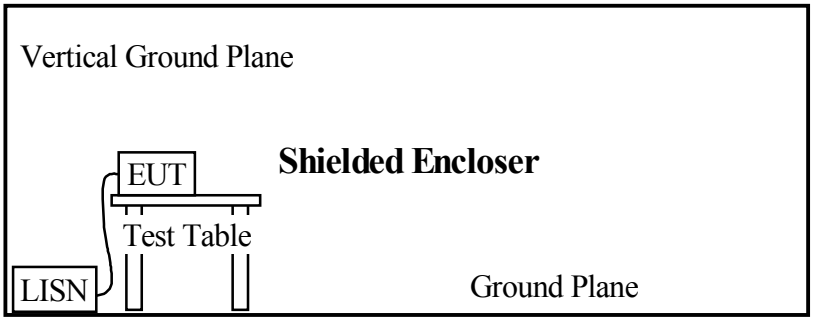
2.1.5 Test Procedure

Conducted emission levels were measured on each current-carrying line with the EMI TEST Receiver operating in the CISPR quasi-peak mode (or peak mode if applicable). The Receiver's 6 dB bandwidth was set to 9 kHz. The initial step in collecting conducted data is a EMI TEST Receiver peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

The conducted emission test was performed with the E.U.T exercise program loaded, and the emissions were scanned between 150 kHz to 30 MHz on the HOT side and NEUTRAL side, herein referred to as H and N, respectively.

2.1.6 Test Configuration



2.1.7 Test Results

According to the data in section 2.1.7, the E.U.T complied with the FCC Part 15.107

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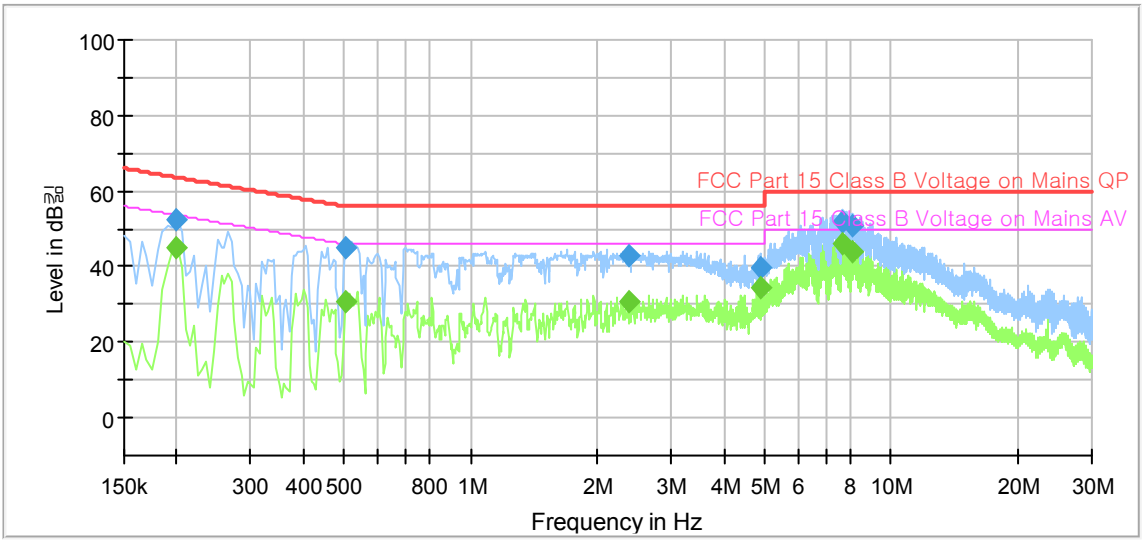
2.1.8 Test Data

Temperature: 22.8 ℃ Humidity: 38.5 % R.H. Test Date: 10. 02. 2015 Tested by: Kang Hyeon, Kim

■ **D-SUB Mode**

Polarization: HOT

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, D-SUB
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	45.16	53.61	8.45	1000.0	9.000	L1	9.7
0.200000	52.37	---	63.61	11.24	1000.0	9.000	L1	9.7
0.505000	---	30.60	46.00	15.40	1000.0	9.000	L1	9.7
0.505000	45.20	---	56.00	10.80	1000.0	9.000	L1	9.7
2.375000	---	30.80	46.00	15.20	1000.0	9.000	L1	9.7
2.375000	43.04	---	56.00	12.96	1000.0	9.000	L1	9.7
4.880000	---	34.37	46.00	11.63	1000.0	9.000	L1	9.8
4.880000	39.85	---	56.00	16.15	1000.0	9.000	L1	9.8
7.665000	---	46.10	50.00	3.90	1000.0	9.000	L1	9.9
7.665000	51.82	---	60.00	8.18	1000.0	9.000	L1	9.9
8.125000	---	43.99	50.00	6.01	1000.0	9.000	L1	9.9
8.125000	50.64	---	60.00	9.36	1000.0	9.000	L1	9.9

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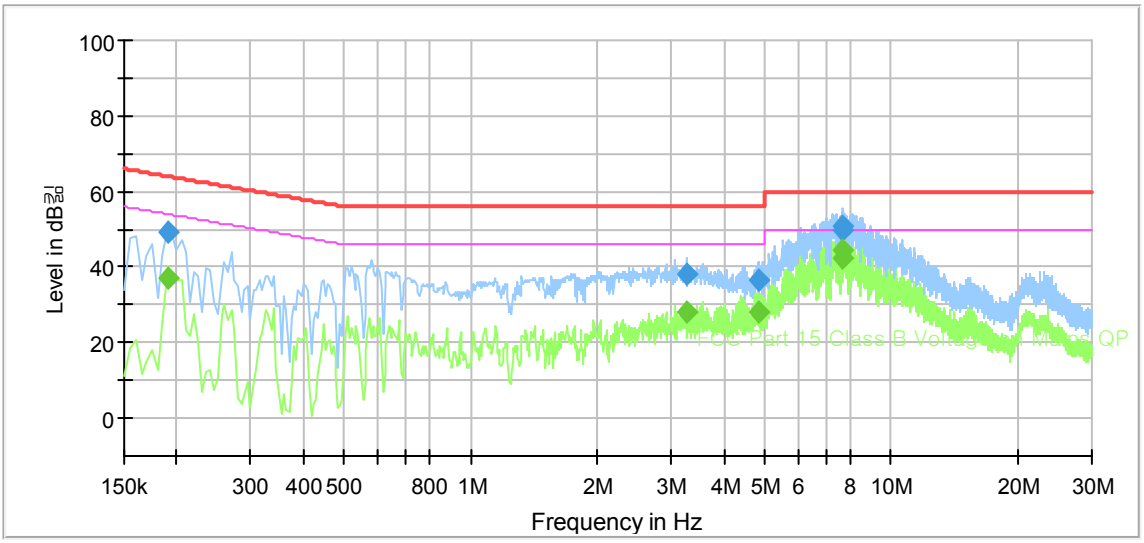
Polarization: NEUTRAL

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, D-SUB
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190000	---	36.98	54.04	17.06	1000.0	9.000	N	9.7
0.190000	49.25	---	64.04	14.79	1000.0	9.000	N	9.7
3.255000	---	27.97	46.00	18.03	1000.0	9.000	N	9.8
3.255000	38.11	---	56.00	17.89	1000.0	9.000	N	9.8
4.815000	---	27.89	46.00	18.11	1000.0	9.000	N	9.8
4.815000	36.57	---	56.00	19.43	1000.0	9.000	N	9.8
7.630000	---	44.54	50.00	5.46	1000.0	9.000	N	9.9
7.630000	50.99	---	60.00	9.01	1000.0	9.000	N	9.9
7.695000	---	42.32	50.00	7.68	1000.0	9.000	N	9.9
7.695000	49.71	---	60.00	10.29	1000.0	9.000	N	9.9

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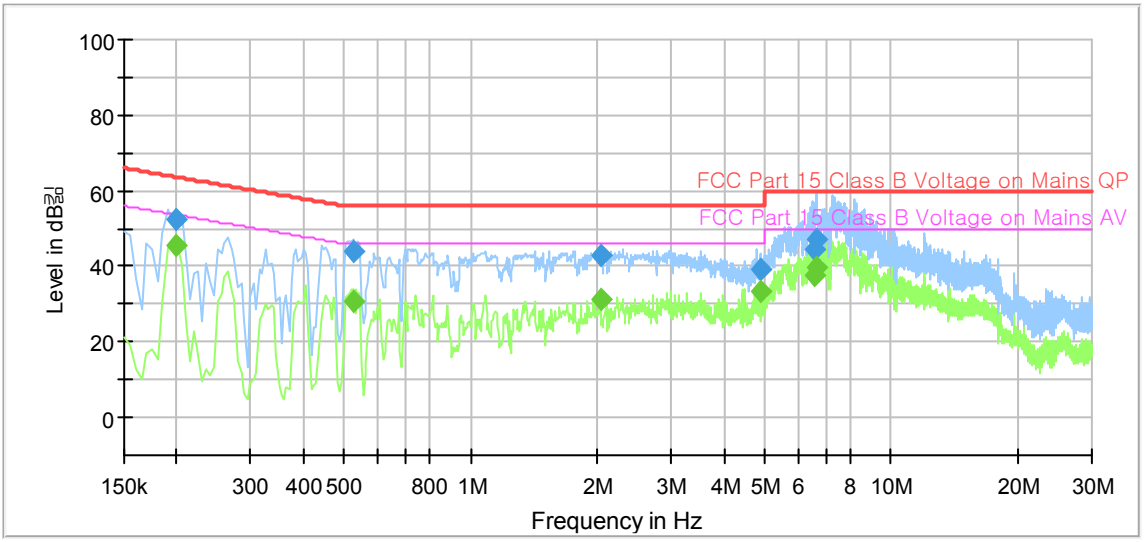
■ HDMI Mode

Polarization: HOT

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, HDMI
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	45.52	53.61	8.09	1000.0	9.000	L1	9.7
0.200000	52.46	---	63.61	11.15	1000.0	9.000	L1	9.7
0.525000	---	30.95	46.00	15.05	1000.0	9.000	L1	9.7
0.525000	43.76	---	56.00	12.24	1000.0	9.000	L1	9.7
2.035000	---	31.31	46.00	14.69	1000.0	9.000	L1	9.7
2.035000	43.11	---	56.00	12.89	1000.0	9.000	L1	9.7
4.875000	---	33.43	46.00	12.57	1000.0	9.000	L1	9.8
4.875000	39.21	---	56.00	16.79	1000.0	9.000	L1	9.8
6.565000	---	37.39	50.00	12.61	1000.0	9.000	L1	9.9
6.565000	44.26	---	60.00	15.74	1000.0	9.000	L1	9.9
6.640000	---	39.72	50.00	10.28	1000.0	9.000	L1	9.9
6.640000	46.98	---	60.00	13.02	1000.0	9.000	L1	9.9

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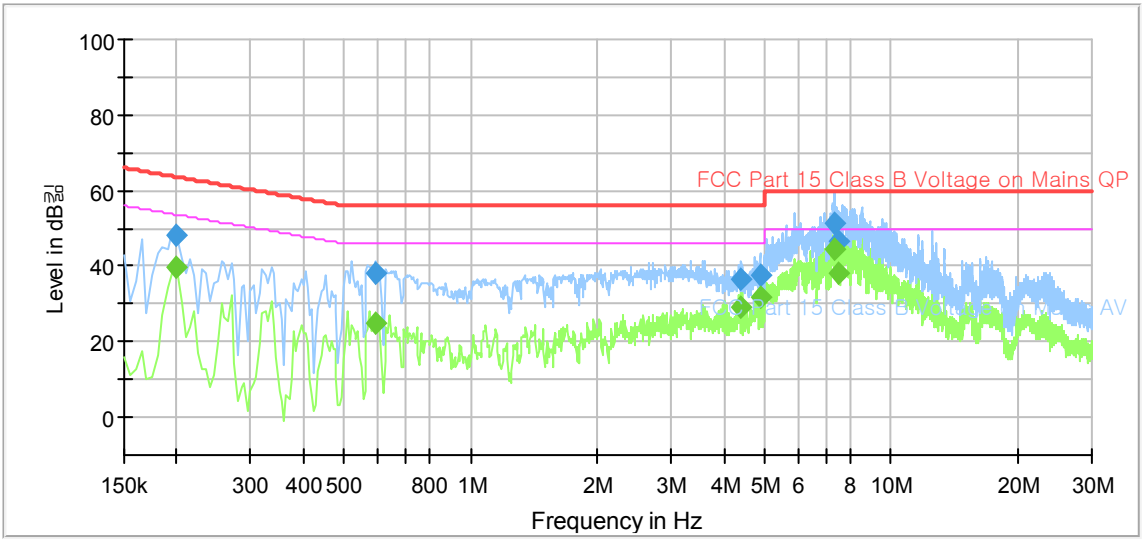
Polarization: NEUTRAL

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, HDMI
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	39.45	53.61	14.16	1000.0	9.000	N	9.7
0.200000	48.18	---	63.61	15.43	1000.0	9.000	N	9.7
0.595000	---	24.73	46.00	21.27	1000.0	9.000	N	9.7
0.595000	38.29	---	56.00	17.71	1000.0	9.000	N	9.7
4.410000	---	29.15	46.00	16.85	1000.0	9.000	N	9.8
4.410000	36.61	---	56.00	19.39	1000.0	9.000	N	9.8
4.870000	---	31.66	46.00	14.34	1000.0	9.000	N	9.8
4.870000	37.37	---	56.00	18.63	1000.0	9.000	N	9.8
7.305000	---	44.48	50.00	5.52	1000.0	9.000	N	9.9
7.305000	51.11	---	60.00	8.89	1000.0	9.000	N	9.9
7.500000	---	38.10	50.00	11.90	1000.0	9.000	N	9.9
7.500000	46.64	---	60.00	13.36	1000.0	9.000	N	9.9

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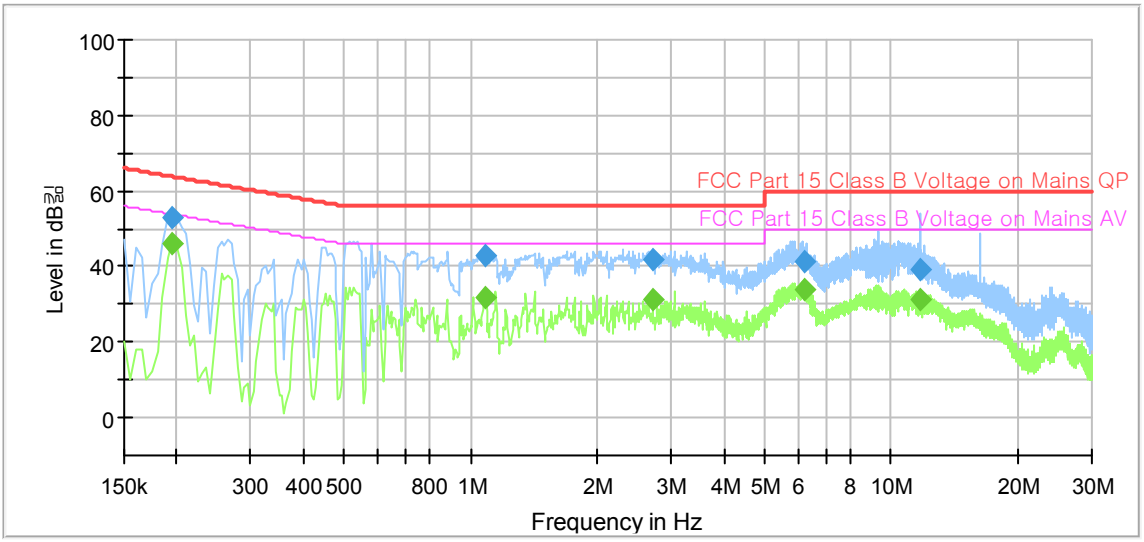
■ Video Mode

Polarization: HOT

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, VIDEO
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	45.83	53.82	7.99	1000.0	9.000	L1	9.7
0.195000	53.01	---	63.82	10.81	1000.0	9.000	L1	9.7
1.085000	---	31.90	46.00	14.10	1000.0	9.000	L1	9.7
1.085000	42.66	---	56.00	13.34	1000.0	9.000	L1	9.7
2.710000	---	31.13	46.00	14.87	1000.0	9.000	L1	9.7
2.710000	41.65	---	56.00	14.35	1000.0	9.000	L1	9.7
6.235000	---	33.95	50.00	16.05	1000.0	9.000	L1	9.9
6.235000	41.09	---	60.00	18.91	1000.0	9.000	L1	9.9
11.680000	---	31.13	50.00	18.87	1000.0	9.000	L1	10.0
11.680000	39.40	---	60.00	20.60	1000.0	9.000	L1	10.0

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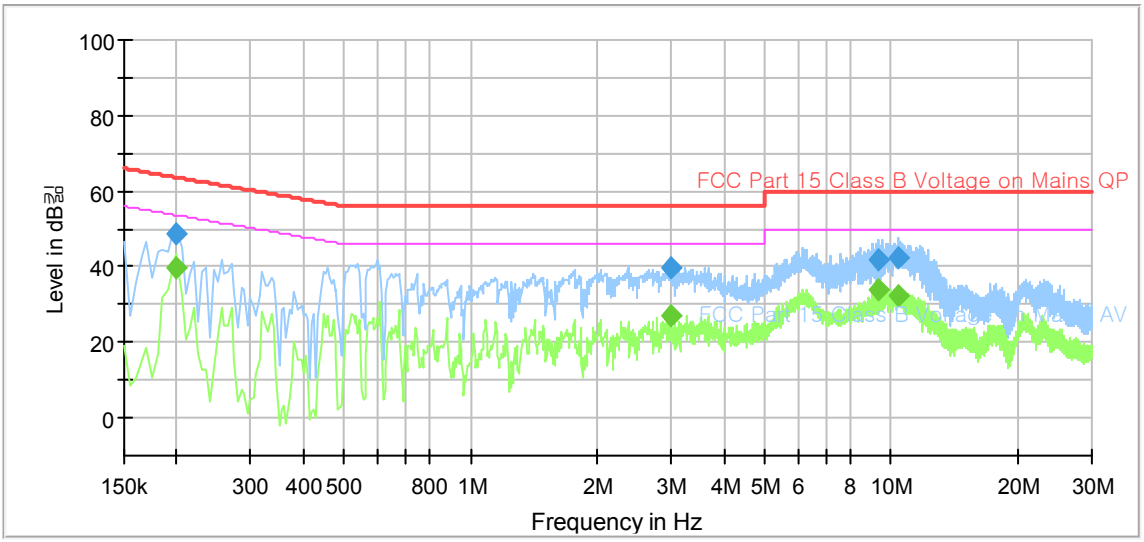
Polarization: NEUTRAL

Test Description: Conducted Emission
Model No.: SMT-2233
Mode FCC, VIDEO
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	39.85	53.61	13.76	1000.0	9.000	N	9.7
0.200000	48.54	---	63.61	15.07	1000.0	9.000	N	9.7
2.985000	---	27.25	46.00	18.75	1000.0	9.000	N	9.8
2.985000	39.57	---	56.00	16.43	1000.0	9.000	N	9.8
9.325000	---	33.89	50.00	16.11	1000.0	9.000	N	10.0
9.325000	41.96	---	60.00	18.04	1000.0	9.000	N	10.0
10.380000	---	32.16	50.00	17.84	1000.0	9.000	N	10.0
10.380000	42.14	---	60.00	17.86	1000.0	9.000	N	10.0

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2.2 Radiated Emission Measurements

2.2.1 Test Methods

The radiated emission measurements were performed in a Open Area Test Site (OATS) and 3 m full chamber, using the setup in accordance with ANSI C63.4-2009 radiated emission measurement procedure.

2.2.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
EMI TEST Receiver	R & S	ESR3	101781	05. 06. 2016
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9163	9163-713	05. 15. 2017
EMI TEST Receiver	R & S	ESU26	100552	05. 06. 2016
BroadbandCoaxial Preamplifier	A-H-SYSTEM,INC	SAS-571	871	05. 07. 2017
Double Ridged Horn Antenna	Schwarzbeck Mess - Elektronik	BBV 9718	9718-246	08. 14. 2016
RS Chamber (EMI 18GHz)	SEMITEC	-	-	-

2.2.3 Test Environments

Ambient Temperatures	Relative Humidity
see the data	see the data

2.2.4 Test Limits

Frequency (㎒)	15.109 Radiated emission limits			
	Class B @ 3 m		Class A @ 10 m	
	(dB㎶/m)	(㎶/m)	(dB㎶/m)	(㎶/m)
30 to 88	40.0	100	39.0	90
88 to 216	43.5	150	43.5	150
216 to 960	46.0	200	46.4	210
above 960	54.0	500	49.5	300

Frequency (㎒)	15.109 Radiated emission limits			
	Class B @ 3 m (dB㎶/m)		Class A @ 3 m (dB㎶/m)	
	PK	AV	PK	AV
above 1 000	74	54	80	60

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2.2.5 Test Procedure

Before final measurements of radiated emission were made at the OATS, the E.U.T was scanned in semi-anechoic chamber in order to determine its emission spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the E.U.T's emission in amplitude, direction and frequency. This process was repeated during final radiated emission measurements at the OATS range, at each frequency, in order to ensure that maximum emissions amplitudes were attained.

The radiated emission test was performed with E.U.T exercise program loaded, and the emissions were scanned between 30 ㎒ to 1 000 ㎒ using a R&S ESVS10 EMI TEST Receiver and 1 000 ㎒ to 5 000 ㎒ using a spectrum analyzer. The EMI TEST Receiver's 6 ㏈ bandwidth was set to 120 ㎑ and 1 ㎒, and EMI TEST Receiver was operated in the CISPR quasi-peak detection mode.

At each frequency, the E.U.T was rotated 360 degrees, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum emission levels. Measurements were taken using both HORIZONTAL and VERTICAL antenna polarization, herein referred to as H and V, respectively.

- above 1 GHz : Antenna height is fixed to 1.00 m

2.2.6 Field Strength Calculation

F.S = Field Strength

M.R = Meter Reading

A.F = Antenna Factor

C.L = Cable Loss

A.G= Amplifier Gain

* Below 1 ㎓ : F.S(㏈㎶/m) = M.R(㏈㎶) + [A.F(㏈/m) + C.L(㏈)]

* Above 1 ㎓ : F.S(㏈㎶/m) = M.R(㏈㎶) + [A.F(㏈/m) + C.L(㏈)] - A.G(㏈)

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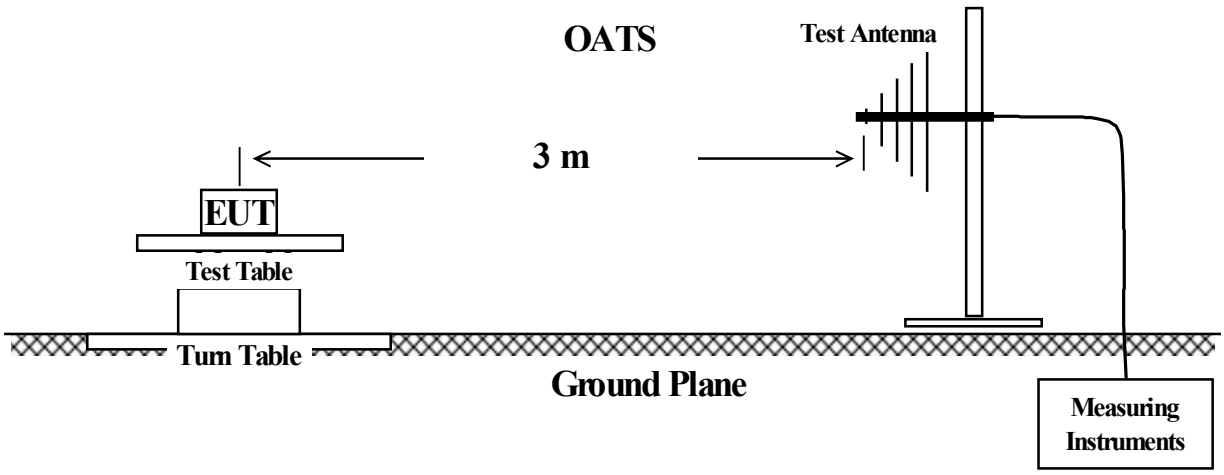
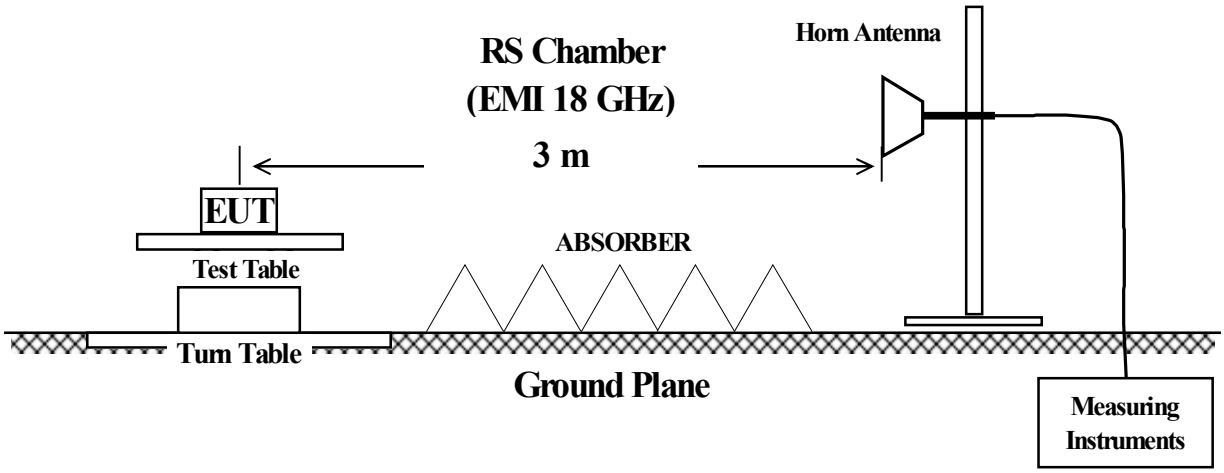
2.2.7 Test Configuration

*** Below 1 GHz**



*** Above 1 GHz**



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2.2.8 Test Results

Below 1 ㎓ : According to the data in section 2.2.9, the E.U.T complied with the FCC 15.109 limits.

Above 1 ㎓ :According to the data in section 2.2.9, the E.U.T complied with the FCC 15.109 limits.

2.2.9 Test Data

*** Below 1 ㎓**

Temperature: 20.0 ℃ Humidity: 54.0 % R.H. Test Date: 10. 02. 2015 Tested by: Kang Hyeon, Kim

■ D-SUB Mode

Frequency (㎒)	Amplitude (dB㎶/m)	Antenna		Correction Factor		Corrected Amplitude (dB㎶/m)	Applicable Limit (dB㎶/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
51.34	13.01	V	4.00	13.78	1.77	28.56	39.00	10.44
152.22	14.76	V	3.25	8.28	3.21	26.25	43.50	17.25
243.40	12.89	H	1.63	12.26	4.23	29.38	46.40	17.02
264.74	16.18	H	1.33	12.70	4.47	33.35	46.40	13.05
431.58	17.78	H	4.00	16.14	6.03	39.95	46.40	6.45
498.51	14.90	V	1.00	17.08	6.57	38.55	46.40	7.85

■ HDMI Mode

Frequency (㎒)	Amplitude (dB㎶/m)	Antenna		Correction Factor		Corrected Amplitude (dB㎶/m)	Applicable Limit (dB㎶/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
148.34	17.41	V	1.25	8.14	3.15	28.70	43.50	14.80
191.02	19.79	H	4.00	10.45	3.77	34.01	43.50	9.49
242.43	12.19	H	3.52	12.24	4.22	28.65	46.40	17.75
262.80	20.11	H	3.70	12.66	4.45	37.22	46.40	9.18
422.85	11.33	V	1.83	16.02	5.96	33.31	46.40	13.09

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■ Video Mode

Frequency (㎒)	Amplitude (dB㎶/m)	Antenna		Correction Factor		Corrected Amplitude (dB㎶/m)	Applicable Limit (dB㎶/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
49.40	11.83	V	1.23	13.92	1.74	27.49	39.00	11.51
94.99	12.13	V	1.00	10.63	2.48	25.24	43.50	18.26
154.16	18.48	H	3.28	8.35	3.24	30.07	43.50	13.43
243.40	16.85	H	4.00	12.26	4.23	33.34	46.40	13.06
262.80	16.23	H	3.90	12.66	4.45	33.34	46.40	13.06
432.55	11.44	V	1.92	16.16	6.04	33.64	46.40	12.76

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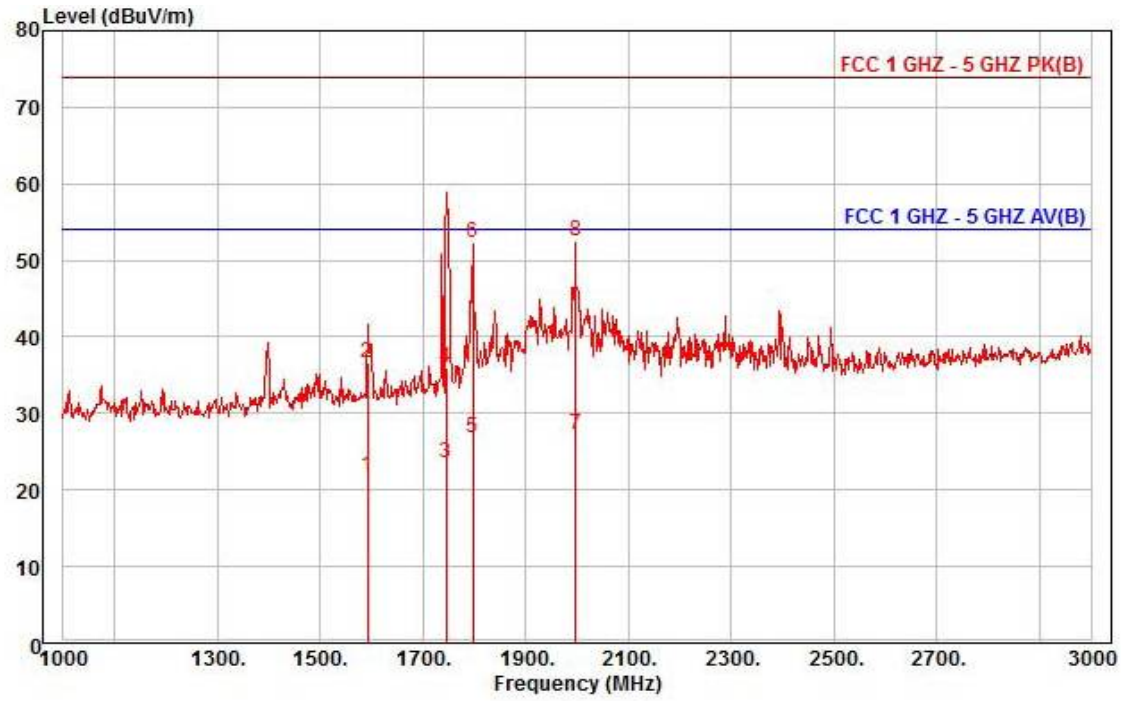
The test results in the report in only apply to the tested sample.

* Above 1 GHz

Temperature: 20.0 ℃ Humidity: 54.0 % R.H. Test Date: 10. 02. 2015 Tested by: Kang Hyeon, Kim

■ D-SUB Mode



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : D-SUB
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1592.00	27.61	26.26	7.75	39.88	180	54.00	-32.26	horizontal	Average
2	1592.00	42.56	26.26	7.75	39.88	180	74.00	-37.31	horizontal	Peak
3	1746.00	28.18	26.87	8.19	39.81	41	54.00	-30.57	horizontal	Average
4	1746.00	40.74	26.87	8.19	39.81	41	74.00	-38.01	horizontal	Peak
5	1798.00	31.17	27.08	8.34	39.79	114	54.00	-27.20	horizontal	Average
6	1798.00	56.58	27.08	8.34	39.79	114	74.00	-21.79	horizontal	Peak
7 av	1998.00	30.26	27.87	8.91	39.70	131	54.00	-26.66	horizontal	Average
8 pp	1998.00	55.45	27.87	8.91	39.70	131	74.00	-21.47	horizontal	Peak

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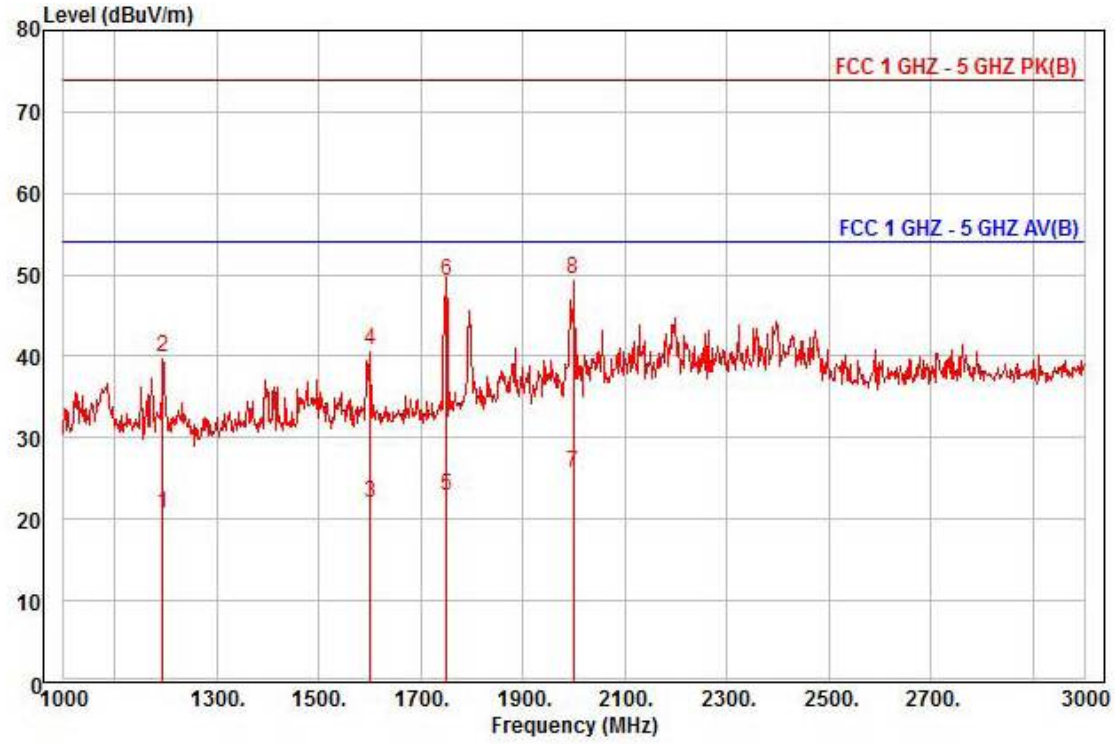

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : D-SUB
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1194.00	29.44	24.68	6.61	40.06	184	54.00	-33.33	vertical	Average
2	1194.00	48.72	24.68	6.61	40.06	184	74.00	-34.05	vertical	Peak
3	1600.00	27.83	26.29	7.77	39.88	178	54.00	-31.99	vertical	Average
4	1600.00	46.63	26.29	7.77	39.88	178	74.00	-33.19	vertical	Peak
5	1750.00	27.63	26.89	8.20	39.81	163	54.00	-31.09	vertical	Average
6	1750.00	53.97	26.89	8.20	39.81	163	74.00	-24.75	vertical	Peak
7 av	2000.00	28.60	27.88	8.92	39.70	39	54.00	-28.30	vertical	Average

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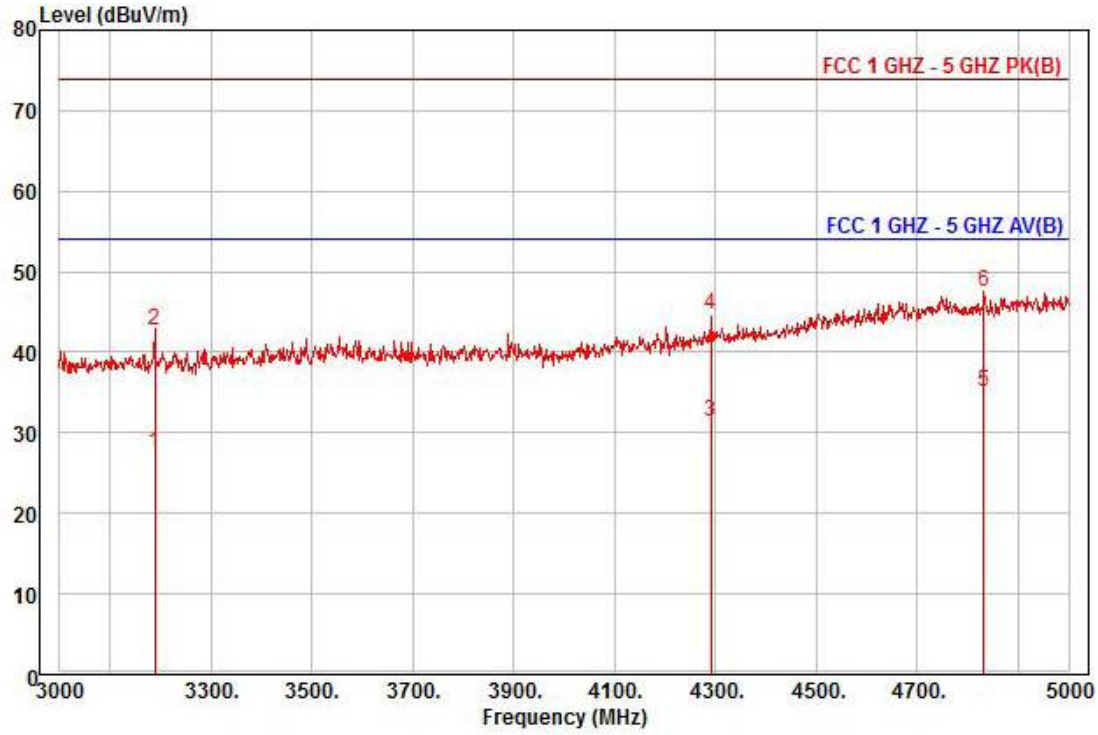
The test results in the report in only apply to the tested sample.



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : D-SUB
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3188.00	24.89	30.65	11.95	40.10	165	54.00	-26.61	horizontal	Average
2	3188.00	40.33	30.65	11.95	40.10	165	74.00	-31.17	horizontal	Peak
3	4292.00	24.58	33.68	13.57	40.46	62	54.00	-22.63	horizontal	Average
4	4292.00	37.97	33.68	13.57	40.46	62	74.00	-29.24	horizontal	Peak
5 pp	4832.00	23.98	36.76	14.56	40.20	357	54.00	-18.90	horizontal	Average
6 pk	4832.00	36.40	36.76	14.56	40.20	357	74.00	-26.48	horizontal	Peak

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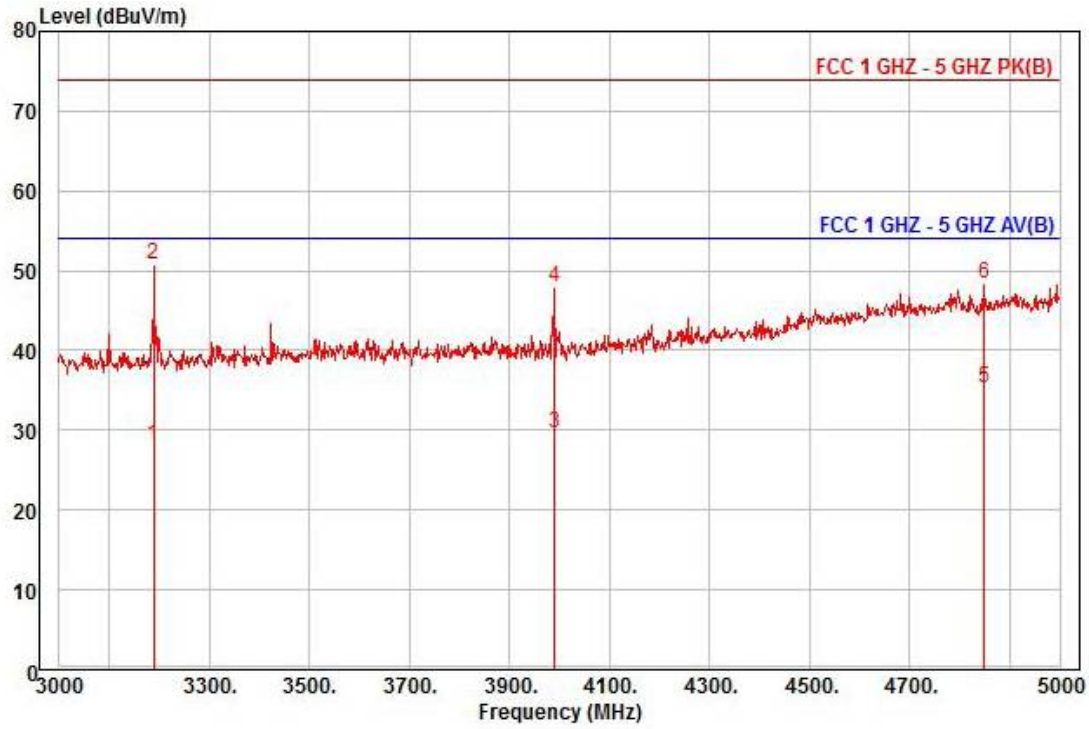

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : D-SUB
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3188.00	25.60	30.65	11.95	40.10	202	54.00	-25.90	vertical	Average
2 pk	3188.00	48.20	30.65	11.95	40.10	202	74.00	-23.30	vertical	Peak
3	3990.00	25.20	31.99	13.02	40.59	159	54.00	-24.38	vertical	Average
4	3990.00	43.64	31.99	13.02	40.59	159	74.00	-25.94	vertical	Peak
5 pp	4850.00	24.07	36.86	14.59	40.19	75	54.00	-18.67	vertical	Average
6	4850.00	37.12	36.86	14.59	40.19	75	74.00	-25.62	vertical	Peak

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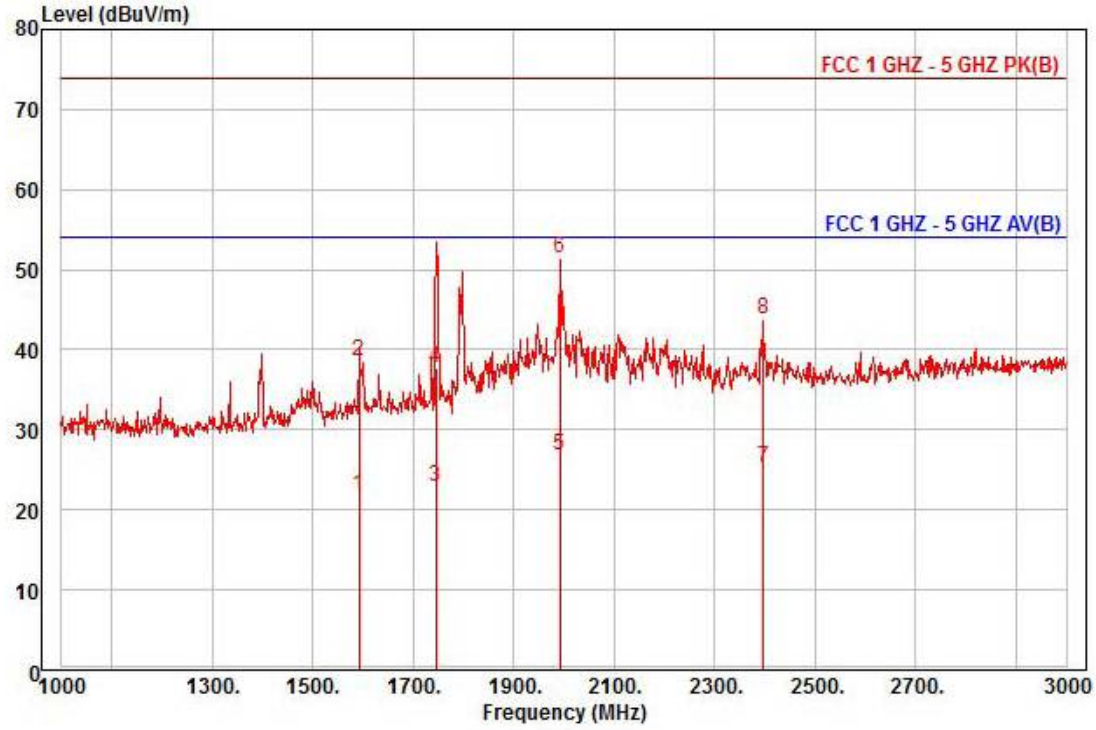
■ HDMI Mode



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : HDMI
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1592.00	27.72	26.26	7.75	39.88	122	54.00	-32.15	horizontal	Average
2	1592.00	44.42	26.26	7.75	39.88	122	74.00	-35.45	horizontal	Peak
3	1746.00	27.59	26.87	8.19	39.81	53	54.00	-31.16	horizontal	Average
4	1746.00	42.49	26.87	8.19	39.81	53	74.00	-36.26	horizontal	Peak
5 av	1992.00	29.70	27.85	8.90	39.70	88	54.00	-27.25	horizontal	Average
6 pp	1992.00	54.49	27.85	8.90	39.70	88	74.00	-22.46	horizontal	Peak
7	2398.00	26.20	28.86	10.03	39.82	134	54.00	-28.73	horizontal	Average
8	2398.00	44.68	28.86	10.03	39.82	134	74.00	-30.25	horizontal	Peak

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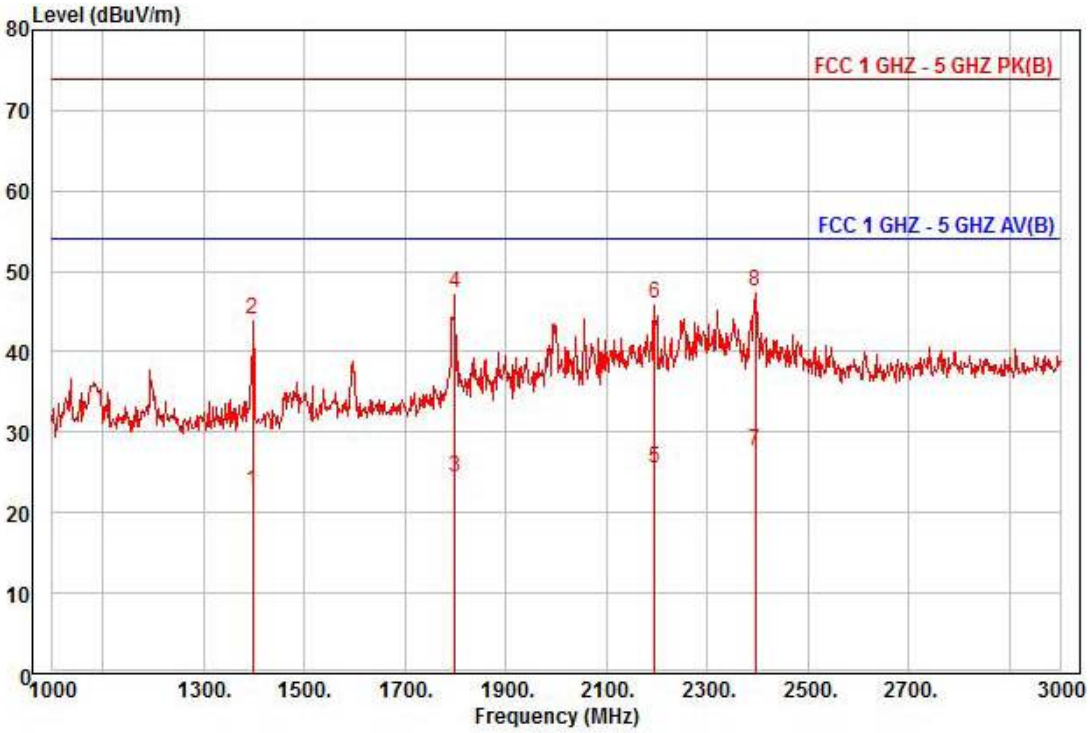

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : HDMI
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1398.00	29.85	25.49	7.19	39.97	47	54.00	-31.44	vertical	Average
2	1398.00	51.42	25.49	7.19	39.97	47	74.00	-29.87	vertical	Peak
3	1800.00	28.71	27.09	8.35	39.79	195	54.00	-29.64	vertical	Average
4	1800.00	51.76	27.09	8.35	39.79	195	74.00	-26.59	vertical	Peak
5	2196.00	27.38	28.36	9.46	39.76	333	54.00	-28.56	vertical	Average
6	2196.00	47.91	28.36	9.46	39.76	333	74.00	-28.03	vertical	Peak
7 pp	2396.00	28.58	28.85	10.02	39.81	84	54.00	-26.36	vertical	Average
8 pk	2396.00	48.48	28.85	10.02	39.81	84	74.00	-26.46	vertical	Peak

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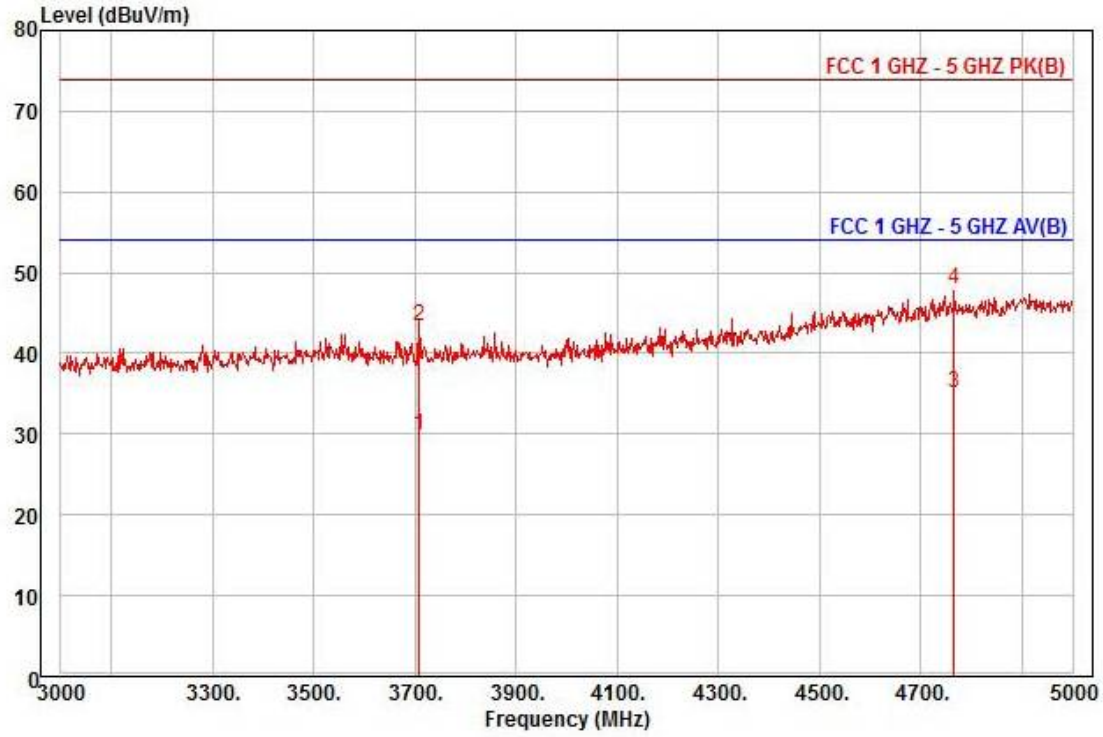

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : HDMI
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3708.00	26.08	31.52	12.64	40.42	190	54.00	-24.18	horizontal	Average
2	3708.00	39.56	31.52	12.64	40.42	190	74.00	-30.70	horizontal	Peak
3 pp	4766.00	24.53	36.38	14.44	40.23	155	54.00	-18.88	horizontal	Average
4 pk	4766.00	37.40	36.38	14.44	40.23	155	74.00	-26.01	horizontal	Peak

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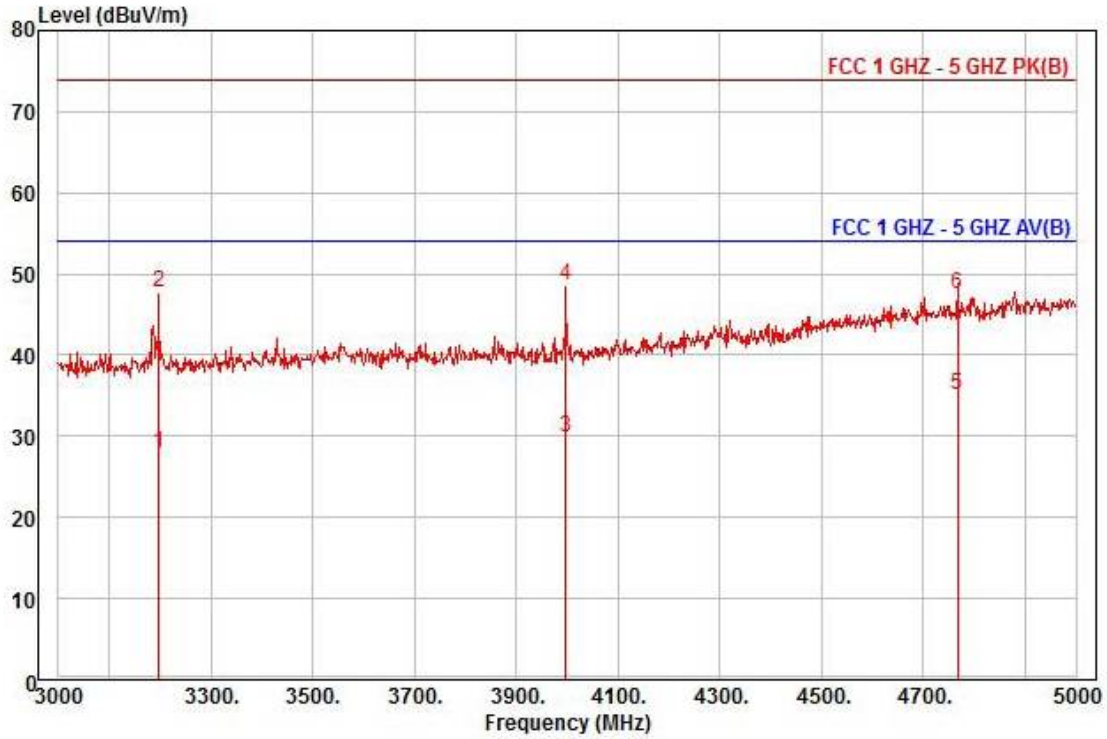

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : HDMI
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3198.00	25.47	30.66	11.96	40.11	232	54.00	-26.02	vertical	Average
2	3198.00	45.30	30.66	11.96	40.11	232	74.00	-26.19	vertical	Peak
3	3998.00	25.47	32.01	13.03	40.60	165	54.00	-24.09	vertical	Average
4 pk	3998.00	44.21	32.01	13.03	40.60	165	74.00	-25.35	vertical	Peak
5 pp	4768.00	24.58	36.40	14.44	40.23	203	54.00	-18.81	vertical	Average
6	4768.00	36.99	36.40	14.44	40.23	203	74.00	-26.40	vertical	Peak

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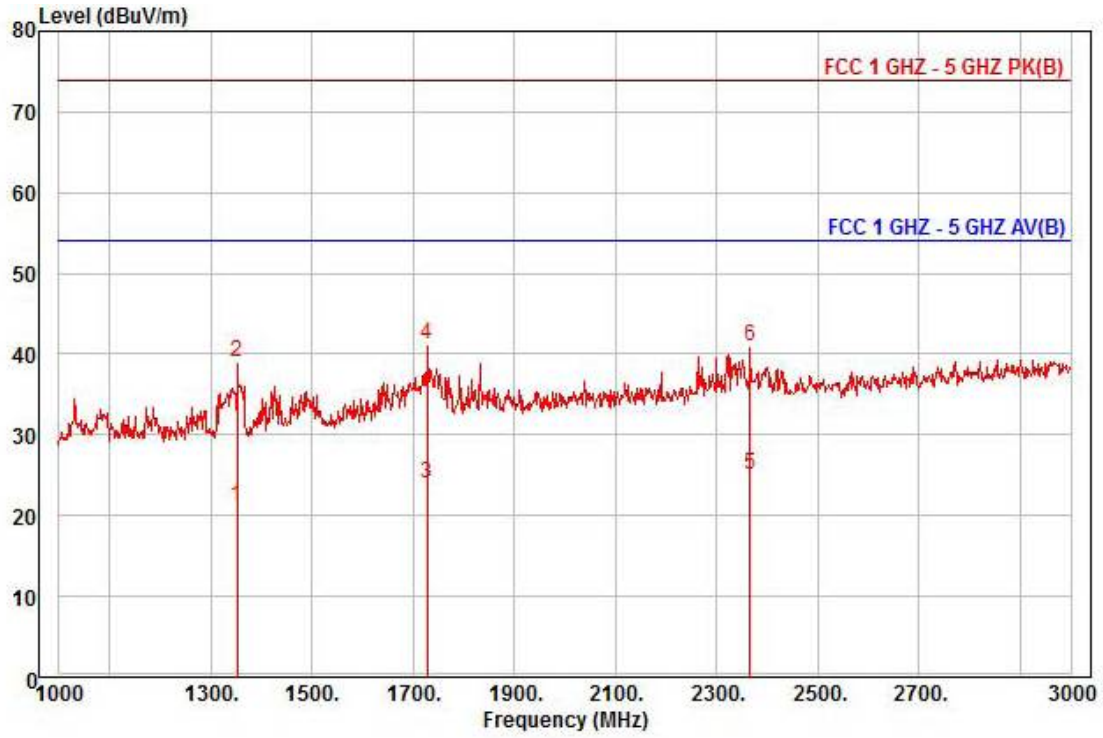
The test results in the report in only apply to the tested sample.

■ Video Mode




```
Site      : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
         : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project   : LCD MONITOR
Model     : SMT-2233
Mode      : VIDEO
Memo      : FCC
```

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1352.00	28.71	25.31	7.06	39.99	50	54.00	-32.91	horizontal	Average
2	1352.00	46.56	25.31	7.06	39.99	50	74.00	-35.06	horizontal	Peak
3	1728.00	28.96	26.80	8.14	39.82	13	54.00	-29.92	horizontal	Average
4 pk	1728.00	46.11	26.80	8.14	39.82	13	74.00	-32.77	horizontal	Peak
5 pp	2366.00	26.05	28.78	9.94	39.81	10	54.00	-29.04	horizontal	Average
6	2366.00	42.05	28.78	9.94	39.81	10	74.00	-33.04	horizontal	Peak

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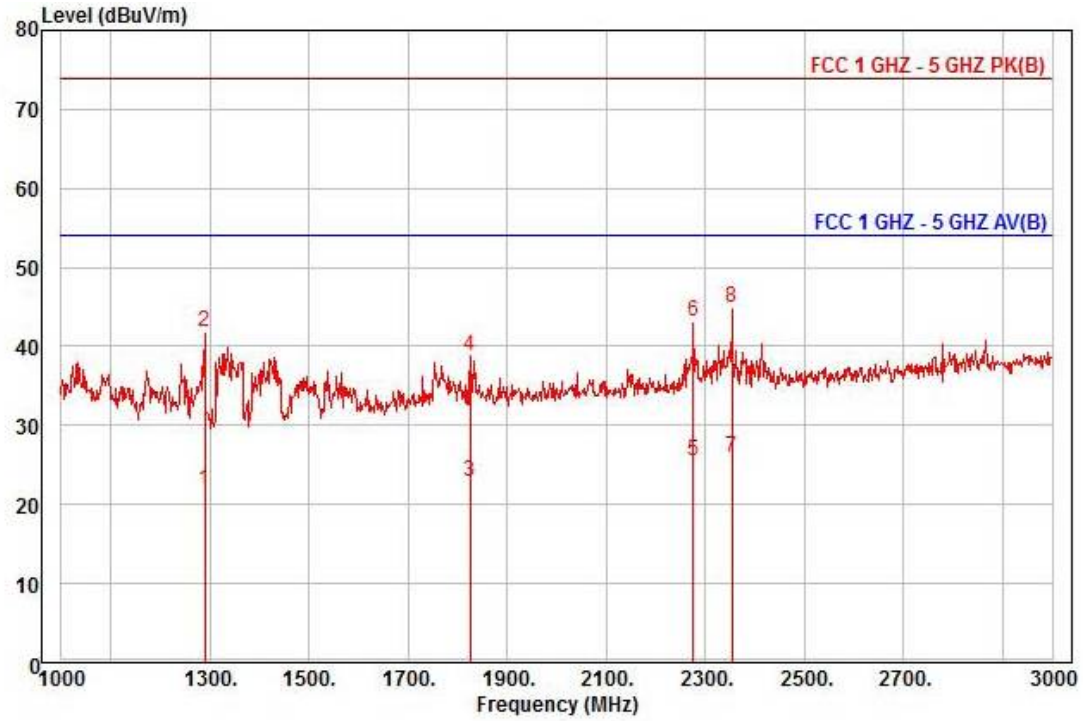
The test results in the report in only apply to the tested sample.



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : VIDEO
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1290.00	29.78	25.06	6.88	40.02	324	54.00	-32.30	vertical	Average
2	1290.00	49.93	25.06	6.88	40.02	324	74.00	-32.15	vertical	Peak
3	1826.00	27.07	27.19	8.42	39.78	305	54.00	-31.10	vertical	Average
4	1826.00	43.02	27.19	8.42	39.78	305	74.00	-35.15	vertical	Peak
5	2276.00	27.10	28.56	9.69	39.78	353	54.00	-28.43	vertical	Average
6	2276.00	44.79	28.56	9.69	39.78	353	74.00	-30.74	vertical	Peak
7 pp	2354.00	26.99	28.75	9.90	39.80	310	54.00	-28.16	vertical	Average
8 pk	2354.00	46.05	28.75	9.90	39.80	310	74.00	-29.10	vertical	Peak

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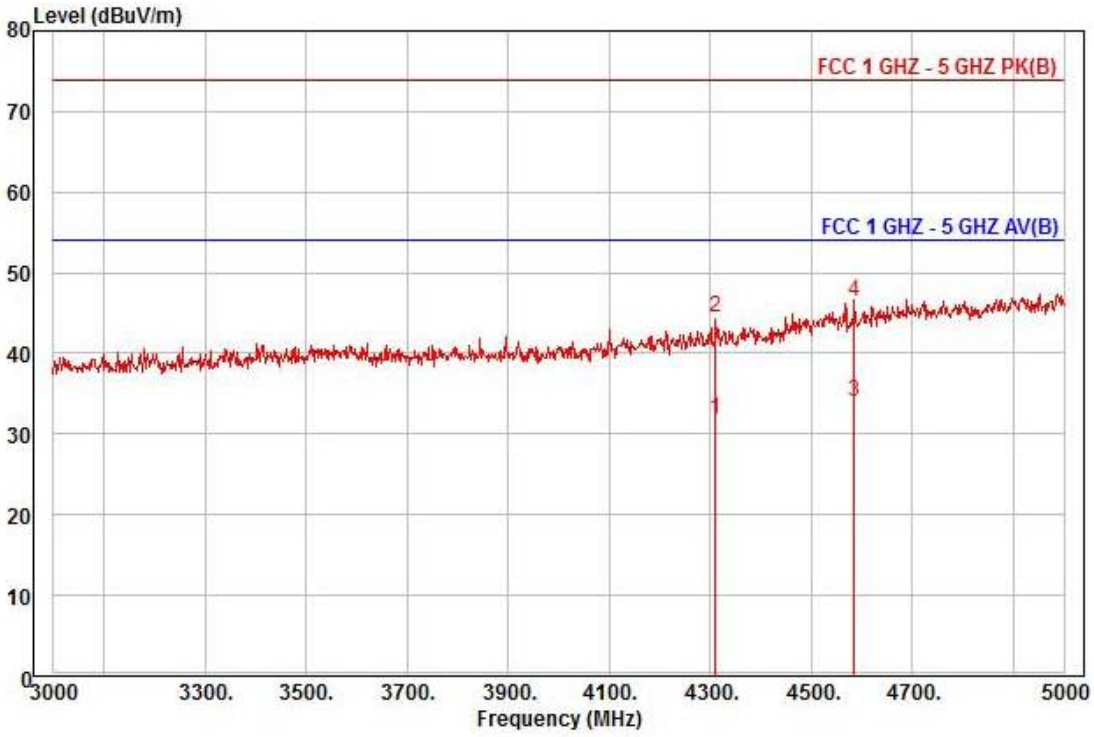

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : VIDEO
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	4310.00	24.81	33.78	13.60	40.45	267	54.00	-22.26	horizontal	Average
2	4310.00	37.50	33.78	13.60	40.45	267	74.00	-29.57	horizontal	Peak
3 pp	4586.00	24.91	35.36	14.11	40.32	22	54.00	-19.94	horizontal	Average
4 pk	4586.00	37.30	35.36	14.11	40.32	22	74.00	-27.55	horizontal	Peak

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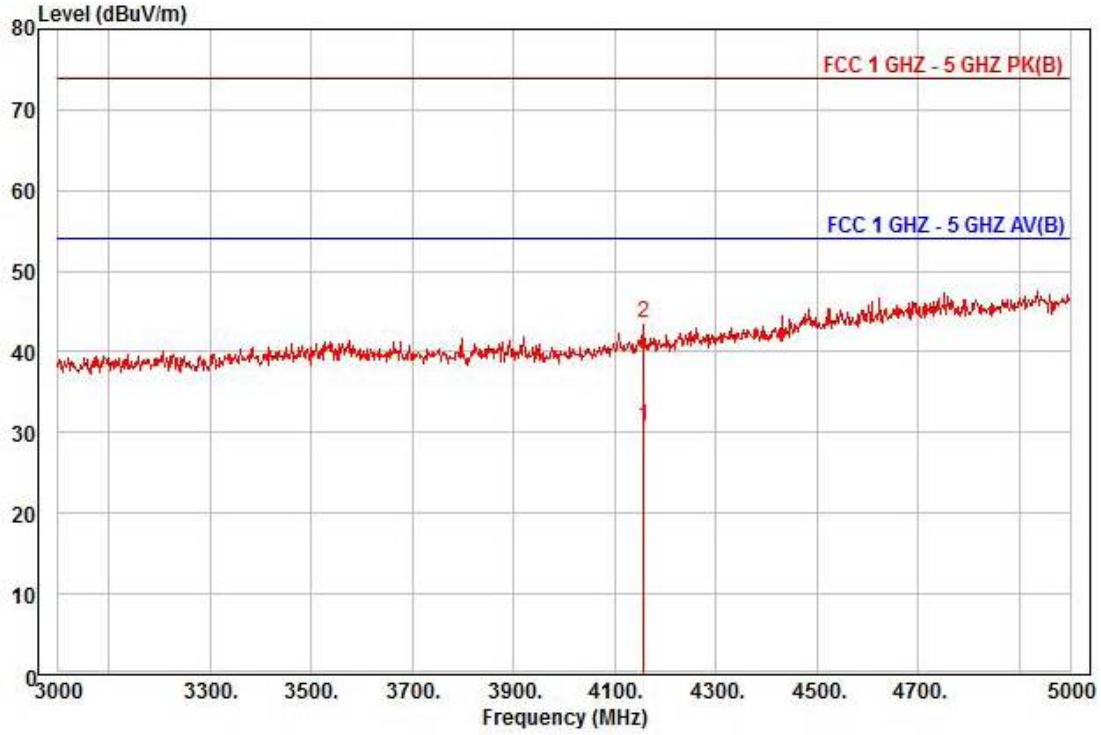

Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(B) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LCD MONITOR
Model : SMT-2233
Mode : VIDEO
Memo : FCC

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	4158.00	24.96	32.91	13.32	40.52	171	54.00	-23.33	vertical	Average
2 pk	4158.00	37.88	32.91	13.32	40.52	171	74.00	-30.41	vertical	Peak

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3. Product Labelling Requirements

3.1 FCC Statement

Product shall be labelled the following statement on the user's manual:

> This device complies with part 15 of the FCC Rules. Operation in subject to the fol-lowing two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference re-ceived, including interference that may cause undesired operation.

Note : When the device is so small or for such use that it is not practicable to place the statement on it, the information shall be placed in prominent location in the instruction manual or pamphlet supplied to the user. However, the FCC identifier or unique identifier, as appropriate, must be displayed on the device.

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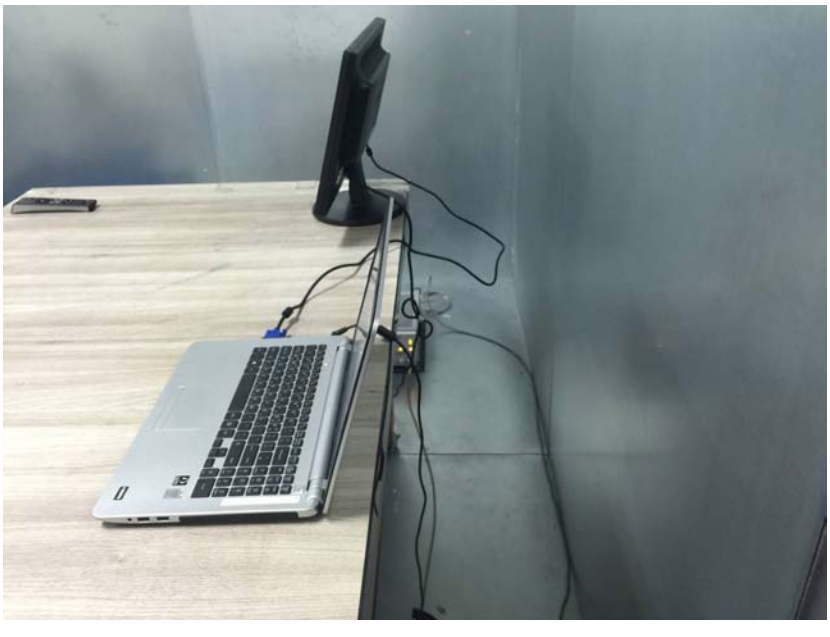
4. Test Setup Photographs

4.1 Conducted Emission

■ D-SUB Mode



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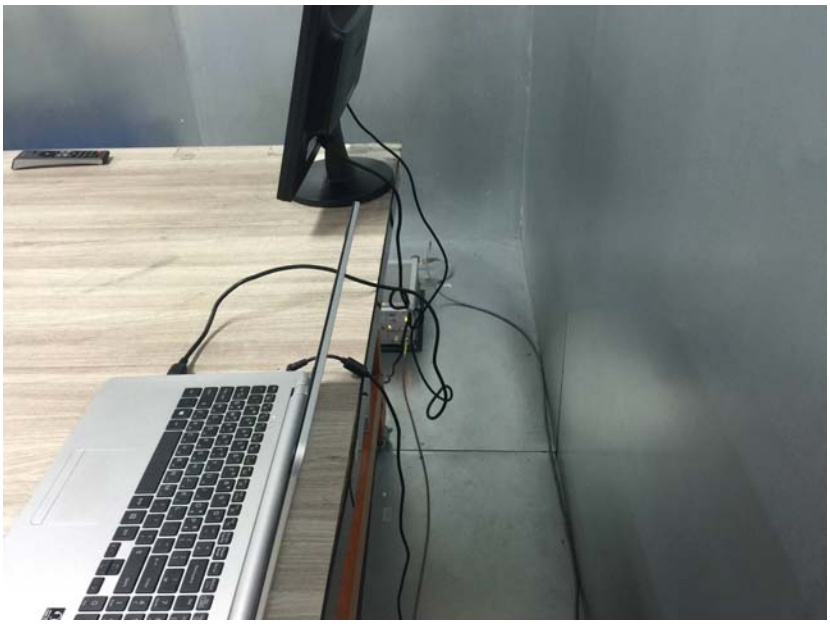
■ HDMI Mode



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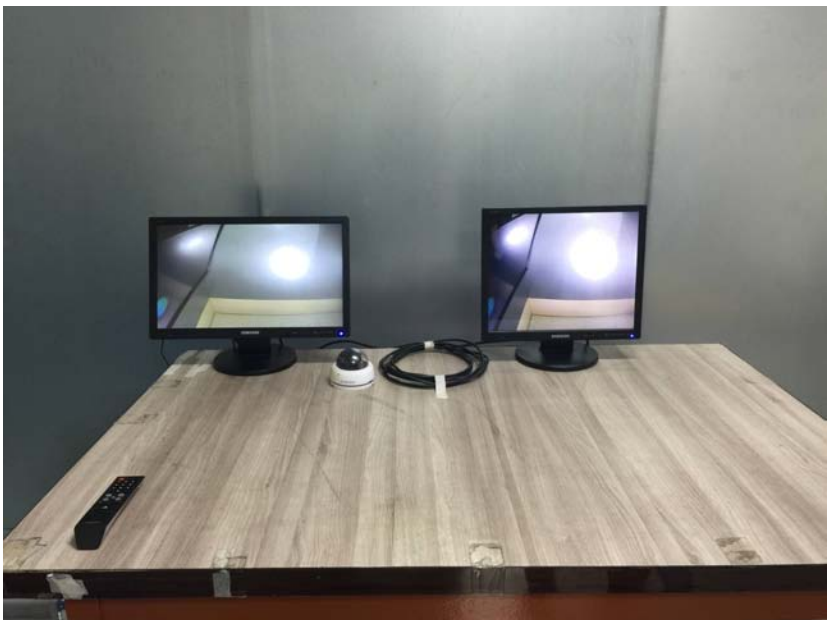
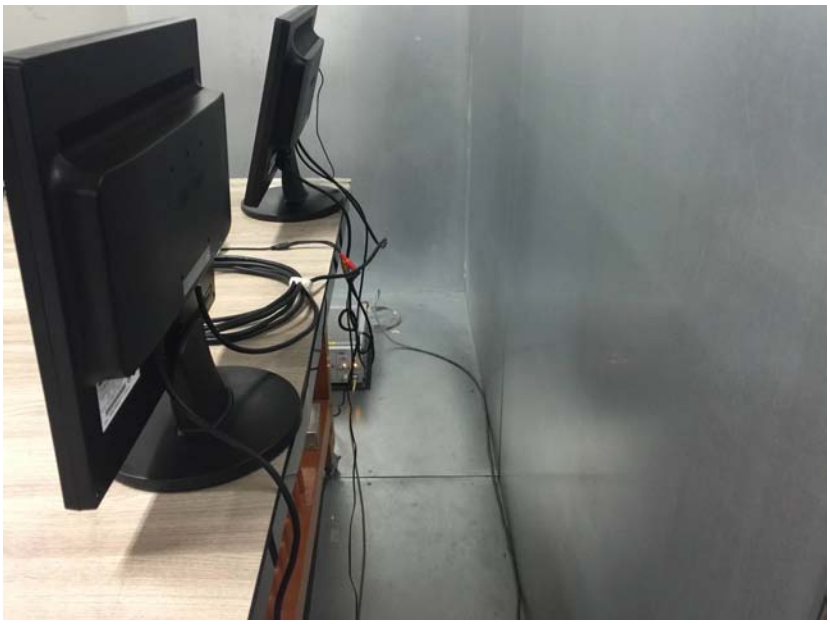
■ Video Mode





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4.2 Radiated Emission
- Below 1 ㎓

■ D-SUB Mode

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■ HDMI Mode

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■ Video Mode

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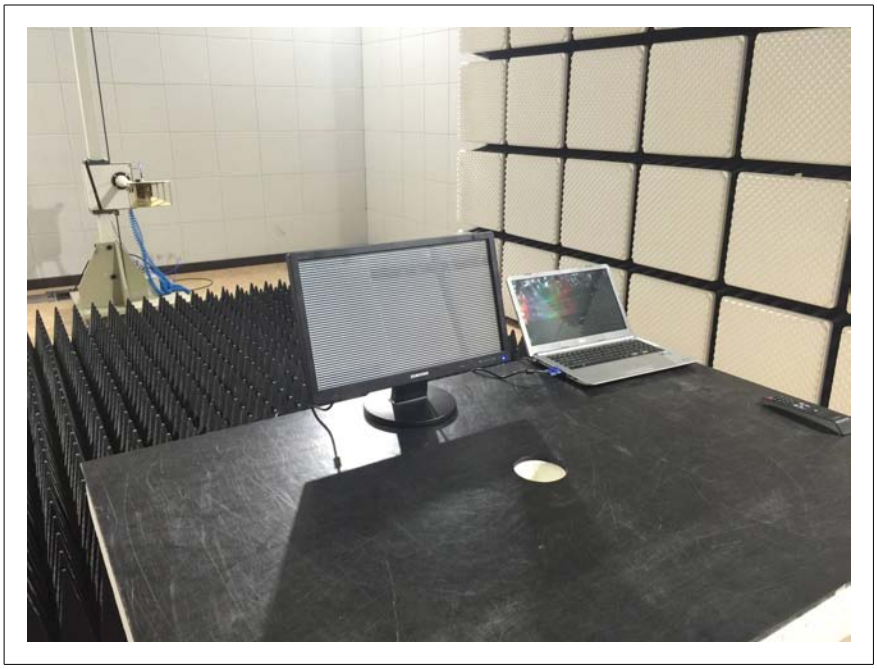
- Above 1 GHz

■ D-SUB Mode



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■ HDMI Mode

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■ Video Mode

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5. External Photographs

5.1 E.U.T: Front View

5.2 E.U.T: Rear View

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5.3 E.U.T: Label View (Location)

This device complies with part 15 of the FCC Rules. Operation in subject to the fol-lowing two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference re-ceived, including interference that may cause undesired operation.

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6. Internal Photographs

6.1 E.U.T: Internal View

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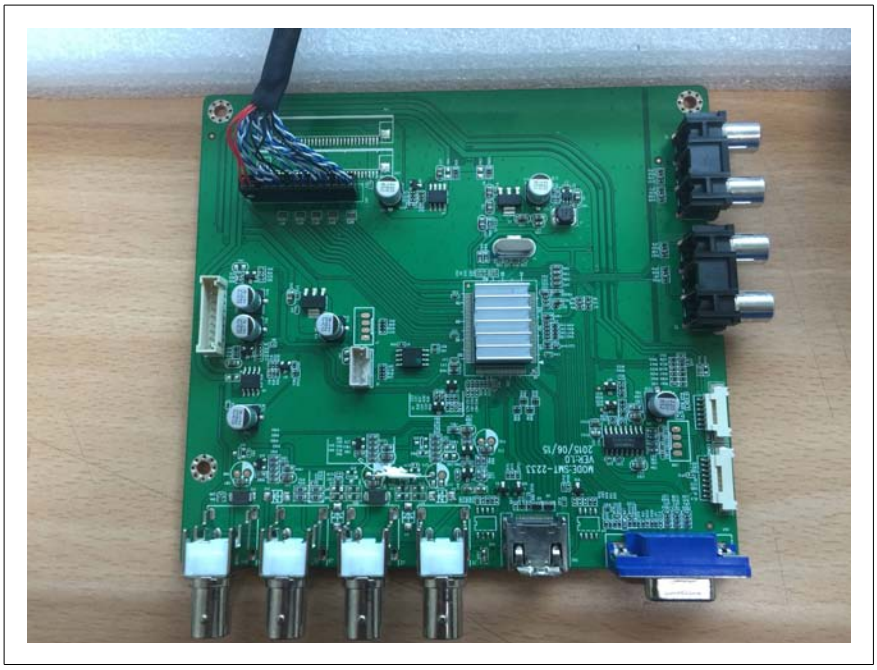
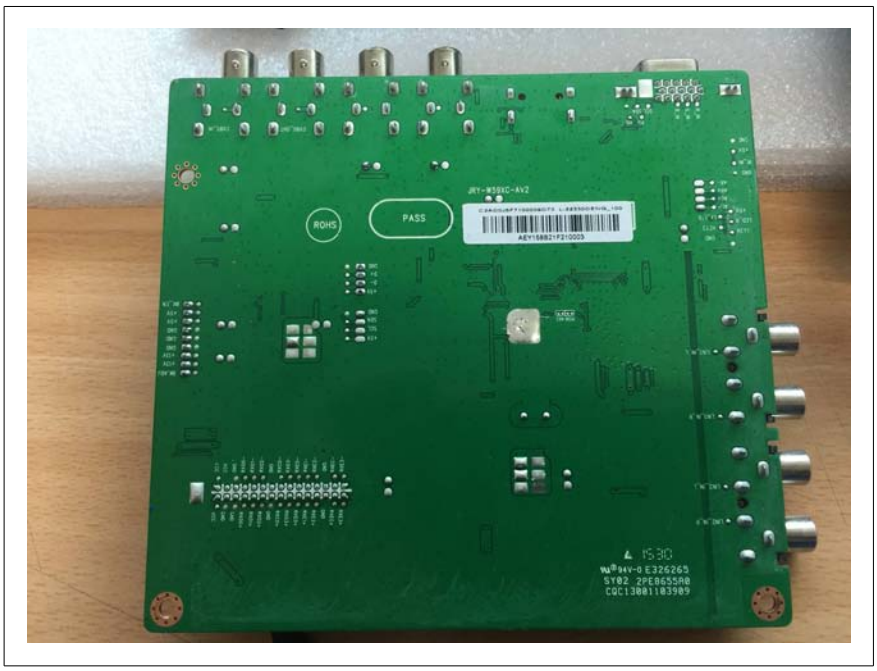
6.2 E.U.T: Internal View(Top) - Main Board



E.U.T: Internal View(Bottom) - Main Board



E.U.T: Internal View(Top) - LED Board

E.U.T: Internal View(Bottom) - LED Board

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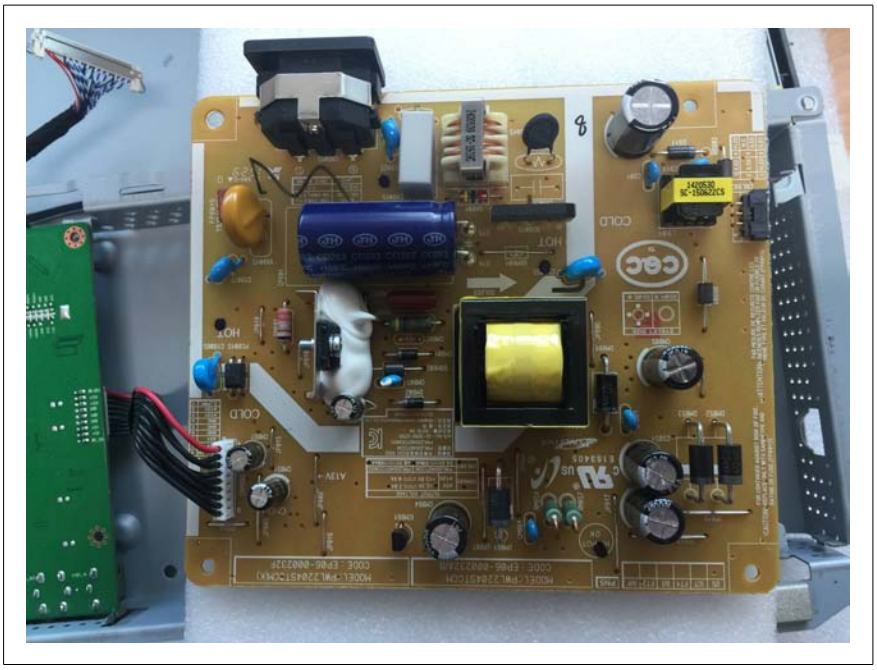
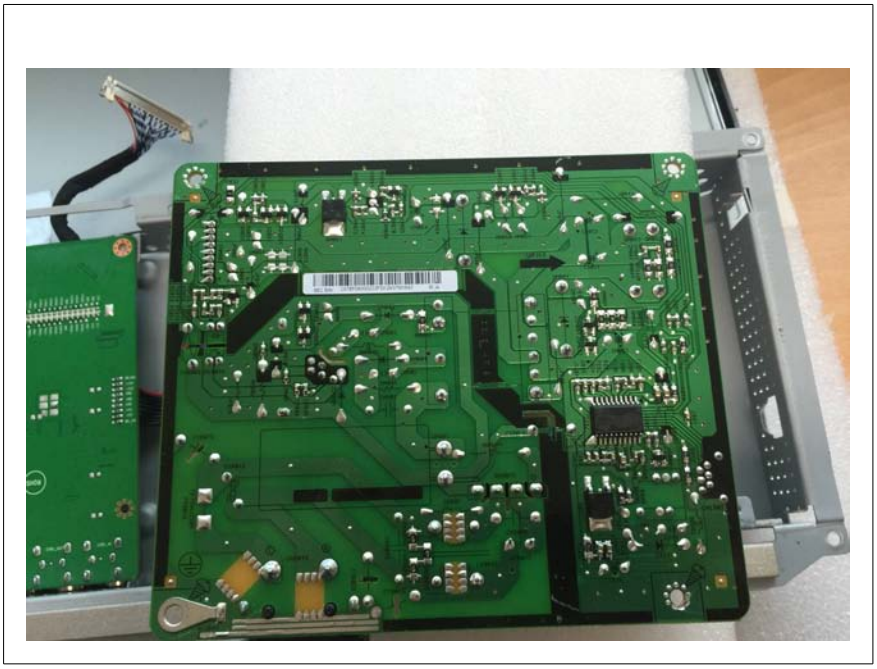
E.U.T: Internal View(Top) - Power Board



E.U.T: Internal View(Bottom) - Power Board



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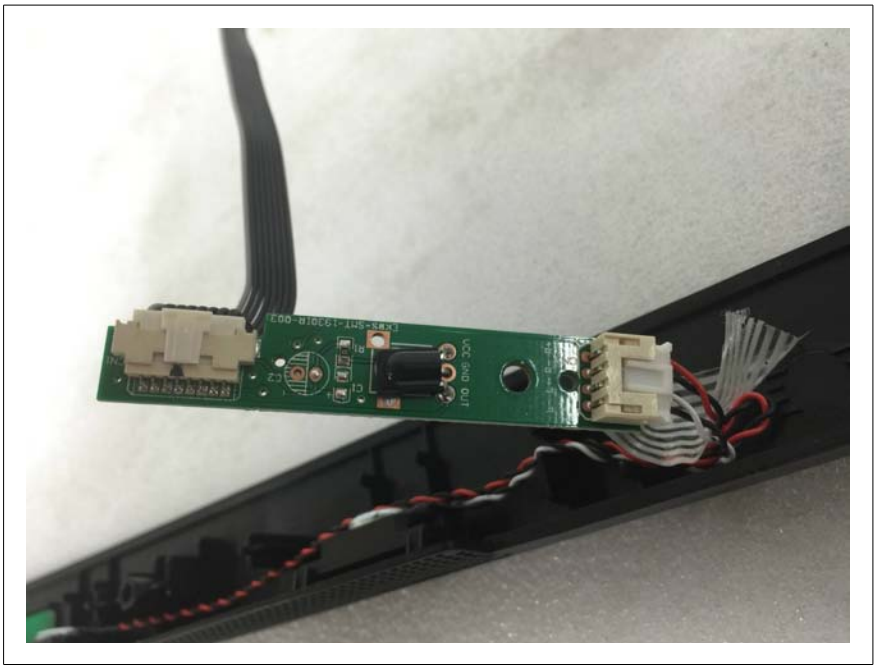
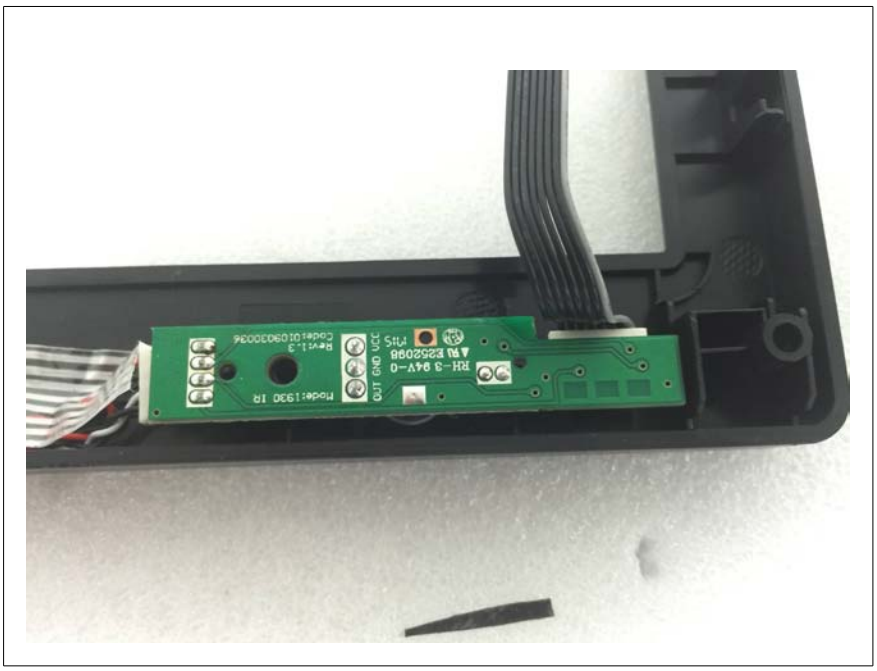
E.U.T: Internal View(Top) - Infrared receiver



E.U.T: Internal View(Bottom) - Infrared receiver



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E.U.T: Internal View(Top) - LCD

E.U.T: Internal View(Bottom) - LCD

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Appendix A - Schematics/Block Diagram

Please see attached document(s).

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Appendix B - User's Manual

Please see attached document(s).

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