



Declaration of Conformity



Type of equipment: LCD MONITOR
Brand Name /Trade Mark: HANWHA
Type designation /model: SMT-3232A
Applicant: Hanwha Techwin Company Limited

In accordance with the following Directives:

2004/108/EC The Electromagnetic Compatibility Directive
Including amendments by the CE Marking Directive 93/68/EEC

2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

The following harmonized European standards or technical specifications have been applied:

EN 55022:2010	Limits and methods of measurement of radio disturbance characteristics of information technology equipment
EN 55024:2010	Limits and methods of measurement of Immunity characteristics of Information technology equipment
EN 61000-3-2:2014	Limits – Limits for harmonic current emissions (equipment input current \leq 16 A per phase)
EN 61000-3-3:2013	Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current \leq 16 A per phase and not subject to conditional connection
EN 61000-4-2:2009	Electrostatic discharge immunity test
EN 61000-4-3:2006+A2:2010	Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4:2012	Electrical fast transient/burst immunity test
EN 61000-4-5:2014	Surge immunity test
EN 61000-4-6:2009	Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-11:2004	Voltage dips, short interruptions and voltage variations immunity tests

The CE Marking on the products and/or their packaging signifies that Hanwha Techwin Company Limited holds the reference technical file available to the European Union authorities.

Place and date of issue: 1204, Changwon-daero, Seongsan-gu, Chang-won-si, Gyeongsangnam-do, Korea / Sep 16, 2015

Authorized Signatory: Name : Jei Soon, Kang
Title : Principal Research Engineer

Signatur :

CE Conformance EMC Test Report

Test Report No. : KES-E1-15T0263
Date of Issue : 09. 16. 2015
Description of Product : LCD MONITOR
Model No. : SMT-3232A
Variant Model : -
Applicant : Hanwha Techwin Company Limited
Address : 1204, Changwon-daero, Seongsan-gu, Chang-won-si, Gyeongsangnam-do, Korea
Manufacturer : Tianjin Samsung Electronics Co., Ltd.
Address : Weisi Rd., Micro-Electronic Industrial Park, Jingang Rd. Xiqing Dist, Tianjin, 300385
China
Applicable Regulation : **EMC Directive 2004/108/EC**
EN 55022:2010
EN 55024:2010
EN 61000-3-2:2014
EN 61000-3-3:2013

Date of Receipt : 08. 13. 2015
Test Date : 09. 03. 2015 ~ 09. 04. 2015

Tested by:



Kang Hyeon, Kim
Test Engineer

Reviewed by:



Dong Hun, Jang
Technical Manager



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Test report No.:
KES-E1-15T0263
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Revision history

Revision	Date of issue	Test report No.	Description
-	09. 16. 2015	KES-E1-15T0263	Initial

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

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1. General Information

1.1 Introduction

The EMC Test Report for CE Declaration of Conformity is prepared on behalf of named applicant in accordance with the EMC Directive(2004/108/EC) of the European Economic Community. The test results reported in this document relate only to the item that was tested.

All radiated emission, conducted emission measurements required by the EMC Directive were performed manually at KES Co., Ltd. (here in after called KES), 473-29, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658 KOREA.

The radiated emission measurements performed on 10 meter, Open Area Test Site, test range maintained by KES. Complete ANSI63.4;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.

All immunity measurements required by the EMC Directive were performed manually at KES Co., Ltd. (here in after called KES), 473-29, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658 KOREA.


The immunity measurements were performed in a shielded enclosure and/or anechoic chamber also located at the same facility.

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

1.2 Product Description for Equipment Under Test (E.U.T)

Hanwha Techwin Company Limited, LCD MONITOR, Model No: SMT-3232A or the "E.U.T" as referred to in this report is base model.

Main Specifications of EUT are:

Model Name		SMT-3232A
Image		
Display		
Screen Size(Diagonal)		32"(81.28cm)
Max. Resolution		1,920 x 1,080
Brightness		350cd/m ²
Contrast Ratio		5000:1
Aspect Ratio		16:9
Viewing Angle (H/V)		178°/178°
Display Color		16.7 million
Response Time		8ms(G to G)
Video System		NTSC/PAL
Panel Life		50,000 hours
Filter Type		3D combfilter
Interface		
Video		Connector VGA, DVI, HDMI, Component(CVBS Common)
RGB/DVI	Connector	Analog D-sub(15 pin), DVI-D
	Input Signal	0.7Vp-p±5%
	Available Format	640 x 480@60Hz/66Hz/72Hz/75Hz (VGA), 720 x 400@70Hz, 800 x 600@56Hz/60Hz/72Hz/75Hz (SVGA), 832 x 624@75Hz, 1,024 x 768@60Hz/70Hz/75Hz (XGA), 1,152 x 864@75Hz, 1,280 x 720@60Hz, 1,280 x 800@60Hz, 1,280 x 1,024@60Hz/75Hz (SXGA), 1,360 x 768@60Hz, 1,440 x 900@60Hz, 1,600 x 900@60Hz, 1,680 x 1,050@60Hz, 1,920 x 1,080@60Hz
HDMI	Connector	HDMI
	Available Format	640x480p@60Hz, 720x480i@60Hz, 720x480p@60Hz, 720x576i@50Hz, 720x576p@50 Hz, 1,280x720p@50Hz/60Hz, 1,920x1,080i@50Hz/60Hz, 1,920x1,080p@50Hz/60Hz
Audio	Connector	RS232C(L/R) Stereo mini jack
	Output Signal	Loop-through line level(PC only), Speakers : 10Wx1
Application Support		Remote Controller
On Screen Display (OSD)		
Functions		VESA™ DPM Compatible
Language		Chinese(Traditional, Simplified), English, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Swedish, Turkish
General		
Electrical	Input Voltage	AC 100 ~ 240V(+/- 10%), 50/60Hz
	Power Consumption	Max. 77W
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)
	Operating Humidity	10% ~ 80% (non-condensing)
Mechanical	Dimensions with Stand	736.0 x 506.0 x 311.0mm
	Dimensions without Stand	721.4 x 420.3 x 49.9mm
	Bezel Size	10.5/15.0mm(Top/Bottom)
	Weight	4.8Kg
	Cabinet Color	Black
	Rack Mount	Optional
Accessory	VESA Mounts Interface	200 x 200mm
	BNC Input Cable(Gender)	RCA to BNC Cable
	Foot Stand	SBM-320ST(Optional)

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1.3 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
LCD MONITOR	SMT-3232A	-	Tianjin Samsung Electronics Co.,Ltd.	EUT
Remote control	-	-	SAMSUNG	

1.4 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Keyboard	WPK-400	811NMMEG76923	Goldland Electronics Co., Ltd.	-
Mouse	M-U0026	1248HS021ZR8	Logitech	-
Router	A2004+	ACM01480	ipTIME	-
Adaptor	KT10W120100KOD	-	KUANTEN	-

1.5 External I/O Cabling

Description	Length (m)	Port / From	Port / To	Remarks
LCD MONITOR (E.U.T)	1.4	D-SUB / LCD MONITOR	D-SUB / PC	Shielded
	1.4	DVI / LCD MONITOR	DVI / PC	Shielded
	1.3	HDMI / LCD MONITOR	HDMI / PC	Shielded
	1.0	RS 232C IN/ LCD MONITOR	RS 232C IN / Cable Termination	Unshielded
	1.0	RS 232C OUT / LCD MONITOR	RS 232C OUT / Cable Termination	Unshielded
	1.2	Audio in / LCD MONITOR	Audio out / LCD MONITOR	Unshielded
	1.0	Audio out / LCD MONITOR	Audio out / Cable Termination	Unshielded
	1.5	AV In / LCD MONITOR	AV In / Cable Termination	Unshielded
	4.0	RJ-45 / LCD MONITOR	RJ-45 / network	Unshielded

1.6 Special Accessories

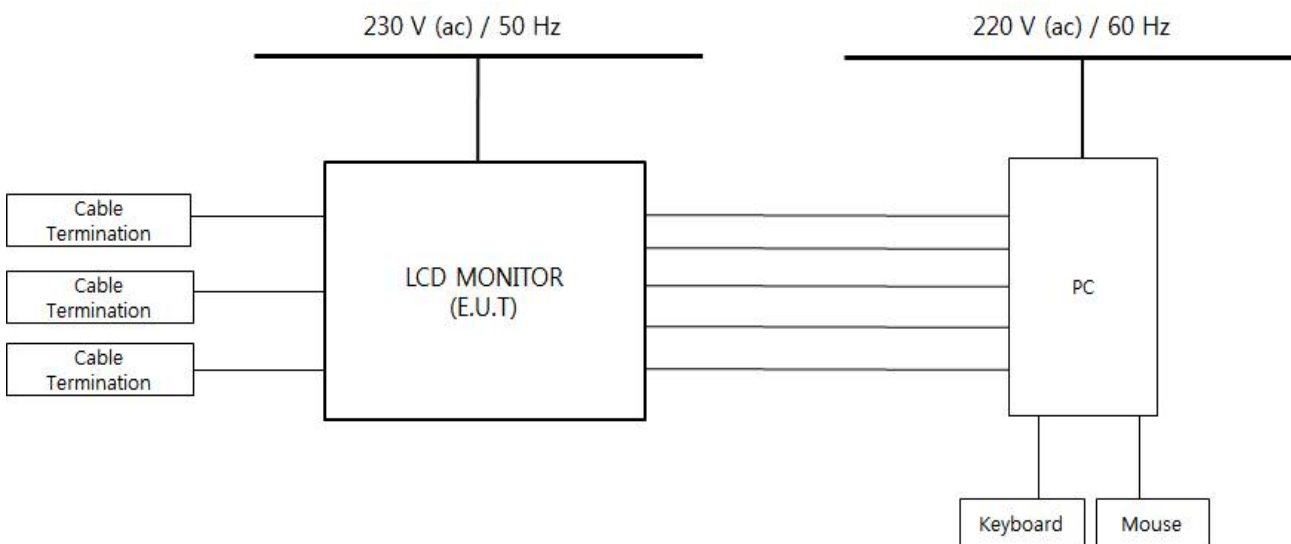
As shown in section 1.9, all interface cables used for compliance testing are shielded as normally supplied or by use respective component manufacturers.

1.7 E.U.T Modifications

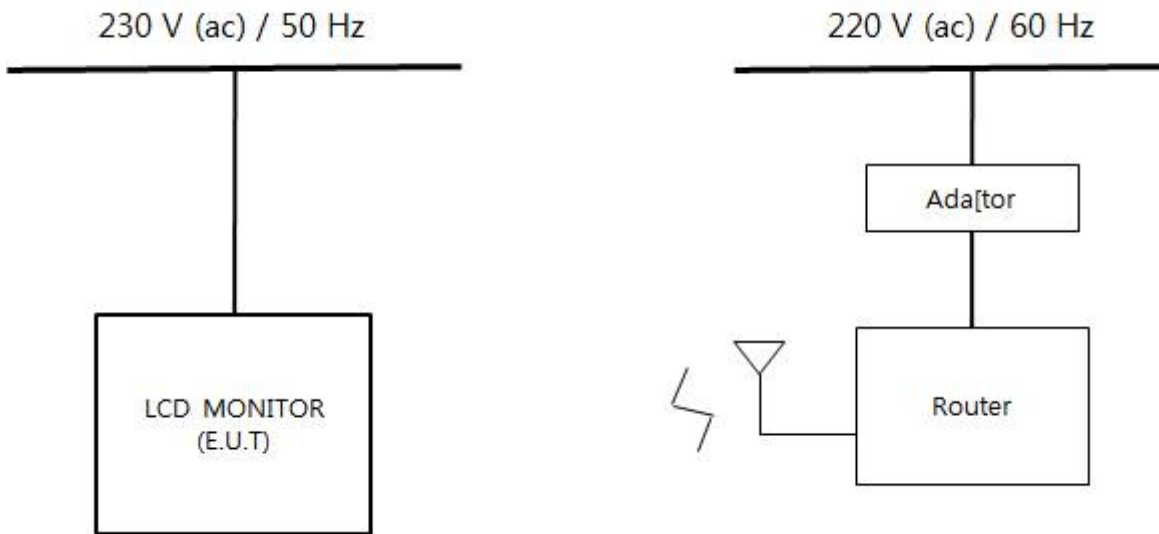
No modifications were made to the E.U.T in order to achieve and maintain compliance to the standards described in this report.

1.8 Configuration of Test System

■ D-SUB, DVI, HDMI Mode



■ WIFI 2.4 GHz, 5 GHz Mode



1.9 Operating condition

D-SUB, DVI, HDMI Mode : Normal operation

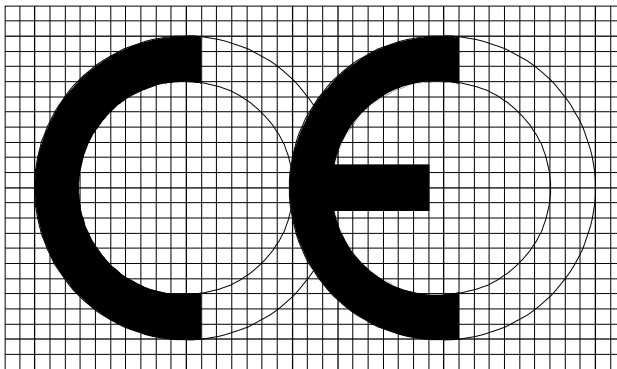
WIFI 2.4 GHz , 5 GHz : Normal operation

2. Product Labelling Requirements

2.1 CE Mark

The CE Conformity Marking must consist of the initials "CE" in the stylized font and proportional to the dimensional requirements shown in following figure. Regardless of its size, the symbol must retain the specified proportionality.

The Various components of the CE Marking must have substantially the same vertical dimensions, and shall not be less than 5mm in height.



Radius of Outer Circle 100 units
Radius of Inner Circle 70 units
Stroke Width 30 units
Length of Bar 85 units
Axis to Axis 170 units
Minimum Height 5.0 mm

2.2 Statements and User Information

Equipment classification, Class (A)

Directives in which conformance is claimed Applicable EN standards

Transitional provisions Class A equipment shall also include the following statement:

Warning:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

3. Applicable Regulations

3.1 Emission

EN 55022:2010/CISPR22 are the applicable regulations that apply to Information Technology Equipment. The intention of these standards, is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe method of measurement and to standardize operation conditions and interpretation of the results.

EN 55022:2010/CISPR22 defines Information Technology Equipment (ITE) as follows:

Any equipment which has a primary function of either (or a combination of) entry, storage, display, retrieval, transmission, processing, switching, or control, of data and of telecommunication message and which may be equipped with one or more terminal ports typically operated for information transfer.

Any equipment with a rated supply voltage not exceeding 600 V (ac)

3.2 Immunity

EN 50130-4:2011 Alarm systems-Part 4: Electromagnetic compatibility Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

The variety and the diversity of the apparatus within the scope of this document makes it difficult to define precise criteria for the evaluation of the immunity test results.

If as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance by the manufacture and noted in the test report, based on the following criteria:

Electrostatic discharge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing that is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change, and no such

Flickering of indicators occurs at a field strength of 3 V/m.

For components of CCTV systems, where the picture is allowed at 10 V/m, providing.

- (a) there is no permanent damage or change to EUT
(e.g. no corruption of memory or changes to programmable setting etc.)
- (b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and
- (c) there is no observable deterioration of the picture at 1 V/m.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change,
and no such flickering of indicators occurs at $U = 130 \text{ dB}\mu\text{V}$.

For component of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at $U = 140 \text{ dB}\mu\text{V}$, providing:

- (a) there is no permanent damage or change to the EUT
(e.g. no corruption of memory or changes to programmable settings etc.)
- (b) at $U = 130 \text{ dB}\mu\text{V}$, any deterioration of the picture is so minor that the system could still be used; and
- (c) there is no observable deterioration of the picture at $U = 120 \text{ dB}\mu\text{V}$.

Voltage dip/interruption / Voltage variation

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.

4. Test standards DLDU and results

STANDARDS		LIMIT	RESULTS
EN 55022	Conducted Emission on AC mains Port	Refer to EN 55022	PASS
	Conducted Emission on Telecommunication Port	Refer to EN 55022	PASS
	Radiated Emission	Refer to EN 55022	PASS
EN 61000-3-2	Harmonic Current Emission on AC Mains Input Port	Refer to EN 61000-3-2	PASS
EN 61000-3-3	Voltage Fluctuations and Flicker on AC Mains Input Port	Refer to EN 61000-3-3	PASS
EN 55024	Electrostatic Discharge Immunity	Refer to EN 61000-4-2	PASS
	Radio-frequency electromagnetic field Amplitude modulated Immunity	Refer to EN 61000-4-3	PASS
	Fast Transients Immunity	Refer to EN 61000-4-4	PASS
	Surges Immunity	Refer to EN 61000-4-5	PASS
	Radio-frequency common mode Immunity	Refer to EN 61000-4-6	PASS
	Power-frequency magnetic field Immunity	Refer to EN 61000-4-8	N/A
	Voltage Dips, Voltage Interruptions Immunity	Refer to EN 61000-4-11	PASS

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5. Test Performed

5.1 Conducted Emission Measurements

5.1.1 Test Description

The power line conducted emission measurements were performed in a shielded enclosure. The E.U.T was placed on a wooden table, 80 centimeters height above the floor. Power was fed to the E.U.T through a 50 ohm/ 50 micro henry Line Impedance Stabilization Network (LISN). The ground plane that was electrically bonded to the shield room ground system and all power lines entering the shield room were filtered.

5.1.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESR3	101783	05. 06. 2016
LISN	Rohde & Schwarz	ENV216	101137	02. 10. 2016
LISN	Rohde & Schwarz	ENV216	101786	05. 06. 2016
Electro wave Shieldroom	SEMITEC	-	-	-

5.1.3 Test Environments

Ambient Temperatures	Relative Humidity
see the data	see the data

5.1.4 Test Limits

- AC Main

Frequency (MHz)	EN 55022			
	Class B (dB μ V)		Class A (dB μ V)	
	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

- Telecommunication

Frequency (MHz)	EN 55022(Voltage)			
	Class B (dB μ V)		Class A (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.50	84.0 to 74.0	74.0 to 64.0	97.0 to 87.0	84.0 to 74.0
0.50 to 30.00	74.0	64.0	87.0	74.0

Frequency (MHz)	EN 55022(Current)			
	Class B (dB μ A)		Class A (dB μ A)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.50	40.0 to 30.0	30.0 to 20.0	53.0 to 43.0	40.0 to 30.0
0.50 to 30.00	30.0	20.0	43.0	30.0

5.1.5 Test Procedure

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. The initial step in collecting conducted data is a spectrum analyzer 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.

5.1.6 Test Results

According to the data in section 5.1.7, the E.U.T complied with the EN 55022/CISPR22 standards.

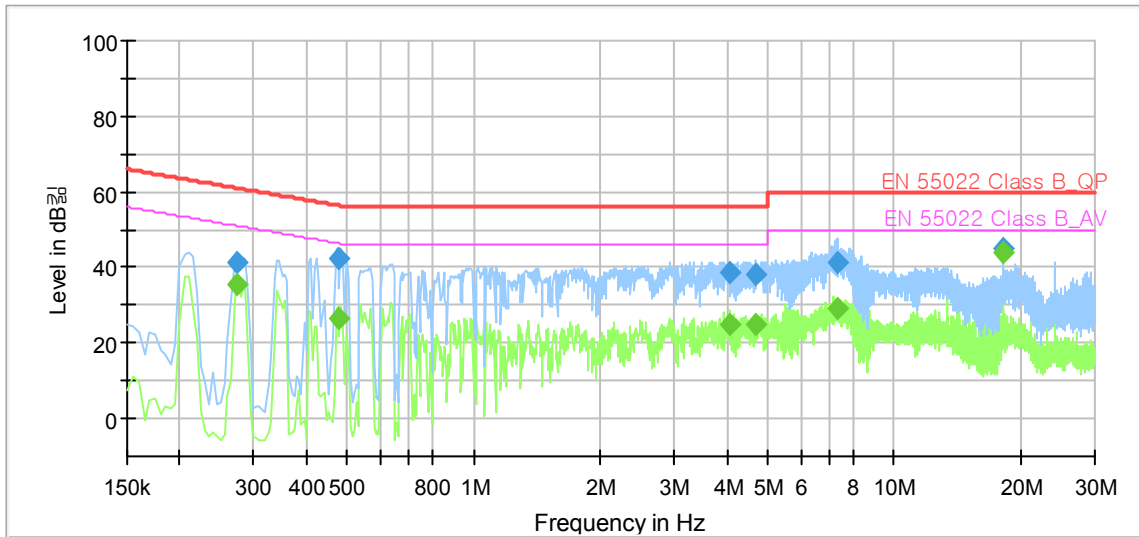
5.1.7 Test Data

Temperature: 22.3 °C Humidity: 45.9 % R.H. Test Date: 09. 03. 2015 Tested by: Kang Hyeon, Kim

■ D-SUB Mode

Polarization: HOT

Test Description: Conducted Emission
Model No.: SMT-3232A
Mode
Operator Name: KES

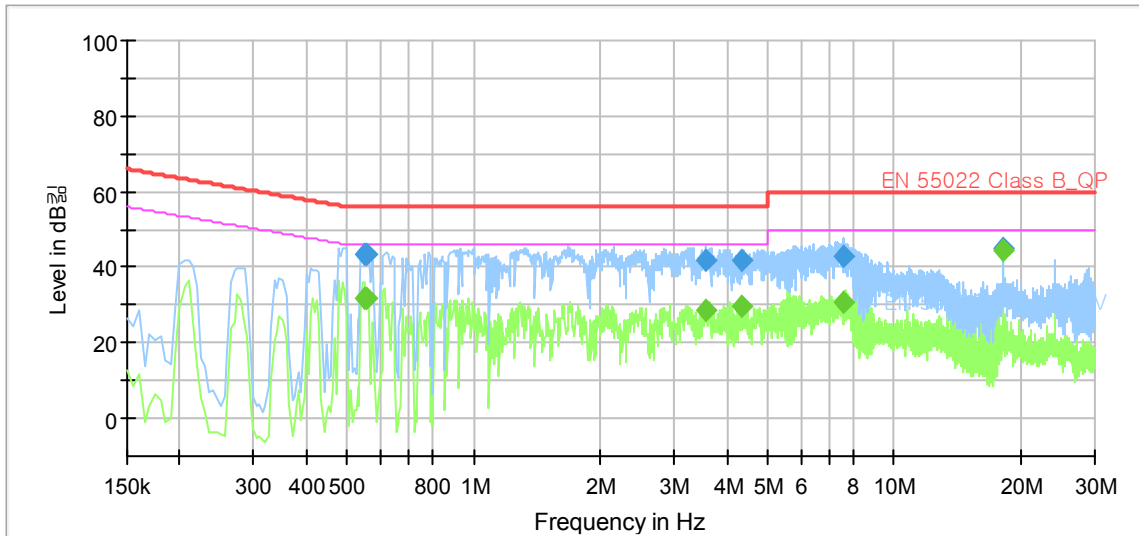


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.275000	---	35.48	50.97	15.49	1000.0	9.000	L1	9.7
0.275000	41.19	---	60.97	19.78	1000.0	9.000	L1	9.7
0.475000	---	26.44	46.43	19.99	1000.0	9.000	L1	9.7
0.475000	42.37	---	56.43	14.06	1000.0	9.000	L1	9.7
4.075000	---	25.12	46.00	20.88	1000.0	9.000	L1	9.8
4.075000	38.80	---	56.00	17.20	1000.0	9.000	L1	9.8
4.700000	---	24.73	46.00	21.27	1000.0	9.000	L1	9.8
4.700000	38.10	---	56.00	17.90	1000.0	9.000	L1	9.8
7.330000	---	28.94	50.00	21.06	1000.0	9.000	L1	9.9
7.330000	41.42	---	60.00	18.58	1000.0	9.000	L1	9.9
18.075000	---	44.19	50.00	5.81	1000.0	9.000	L1	10.2
18.075000	45.00	---	60.00	15.00	1000.0	9.000	L1	10.2

Polarization: NEUTRAL

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode:
 Operator Name: KES



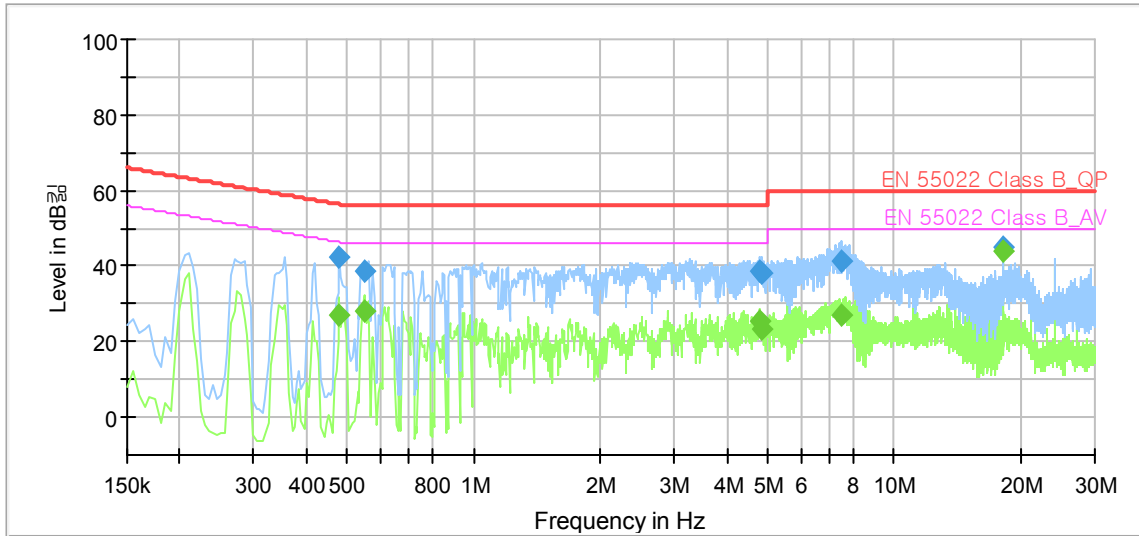
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.550000	---	31.91	46.00	14.09	1000.0	9.000	N	9.7
0.550000	43.33	---	56.00	12.67	1000.0	9.000	N	9.7
0.555000	---	31.94	46.00	14.06	1000.0	9.000	N	9.7
0.555000	43.38	---	56.00	12.62	1000.0	9.000	N	9.7
3.570000	---	28.79	46.00	17.21	1000.0	9.000	N	9.8
3.570000	41.70	---	56.00	14.30	1000.0	9.000	N	9.8
4.320000	---	29.60	46.00	16.40	1000.0	9.000	N	9.8
4.320000	41.78	---	56.00	14.22	1000.0	9.000	N	9.8
7.545000	---	30.64	50.00	19.36	1000.0	9.000	N	9.9
7.545000	42.86	---	60.00	17.14	1000.0	9.000	N	9.9
18.075000	---	44.38	50.00	5.62	1000.0	9.000	N	10.0
18.075000	44.94	---	60.00	15.06	1000.0	9.000	N	10.0

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■ DVI Mode
 Polarization: HOT

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode
 Operator Name: KES

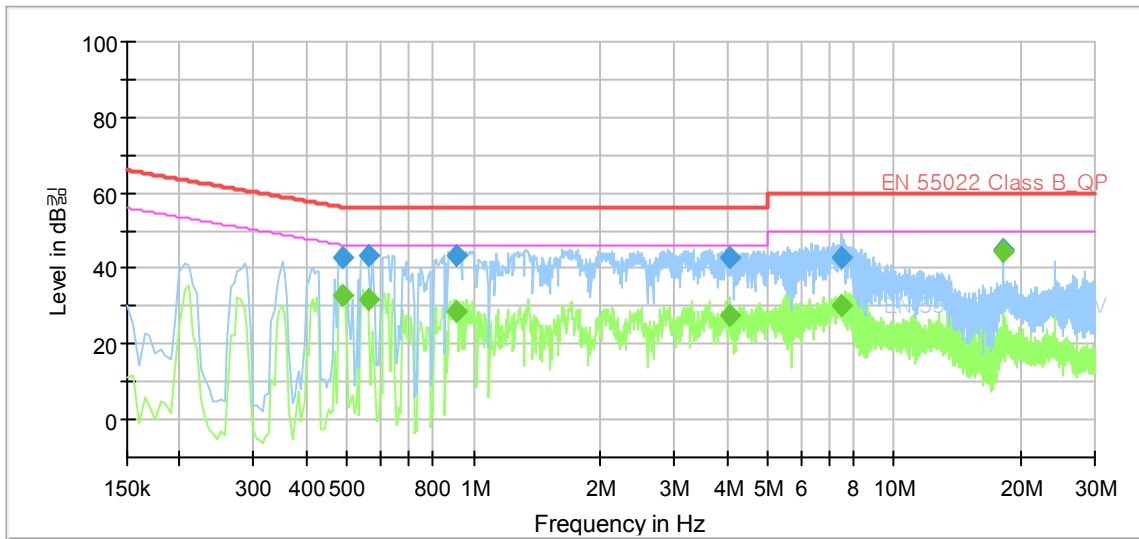


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.480000	---	26.78	46.34	19.56	1000.0	9.000	L1	9.7
0.480000	42.13	---	56.34	14.21	1000.0	9.000	L1	9.7
0.550000	---	27.84	46.00	18.16	1000.0	9.000	L1	9.7
0.550000	38.67	---	56.00	17.33	1000.0	9.000	L1	9.7
4.770000	---	25.66	46.00	20.34	1000.0	9.000	L1	9.8
4.770000	38.76	---	56.00	17.24	1000.0	9.000	L1	9.8
4.850000	---	23.48	46.00	22.52	1000.0	9.000	L1	9.8
4.850000	37.88	---	56.00	18.12	1000.0	9.000	L1	9.8
7.495000	---	26.94	50.00	23.06	1000.0	9.000	L1	9.9
7.495000	41.16	---	60.00	18.84	1000.0	9.000	L1	9.9
18.075000	---	44.17	50.00	5.83	1000.0	9.000	L1	10.2
18.075000	44.91	---	60.00	15.09	1000.0	9.000	L1	10.2

Polarization: NEUTRAL

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode
 Operator Name: KES

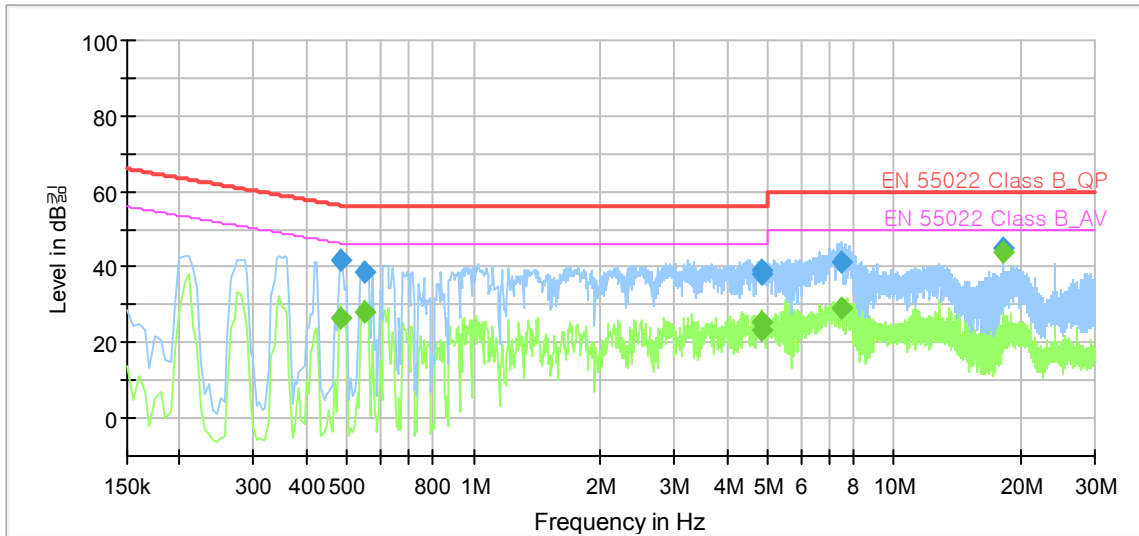


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.490000	---	32.61	46.17	13.56	1000.0	9.000	N	9.7
0.490000	42.89	---	56.17	13.28	1000.0	9.000	N	9.7
0.560000	---	31.79	46.00	14.21	1000.0	9.000	N	9.7
0.560000	43.43	---	56.00	12.57	1000.0	9.000	N	9.7
0.910000	---	28.53	46.00	17.47	1000.0	9.000	N	9.7
0.910000	43.15	---	56.00	12.85	1000.0	9.000	N	9.7
4.075000	---	27.69	46.00	18.31	1000.0	9.000	N	9.8
4.075000	42.65	---	56.00	13.35	1000.0	9.000	N	9.8
7.505000	---	29.95	50.00	20.05	1000.0	9.000	N	9.9
7.505000	43.11	---	60.00	16.89	1000.0	9.000	N	9.9
18.075000	---	44.37	50.00	5.63	1000.0	9.000	N	10.0
18.075000	44.92	---	60.00	15.08	1000.0	9.000	N	10.0

■ HDMI Mode
 Polarization: HOT

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode
 Operator Name: KES



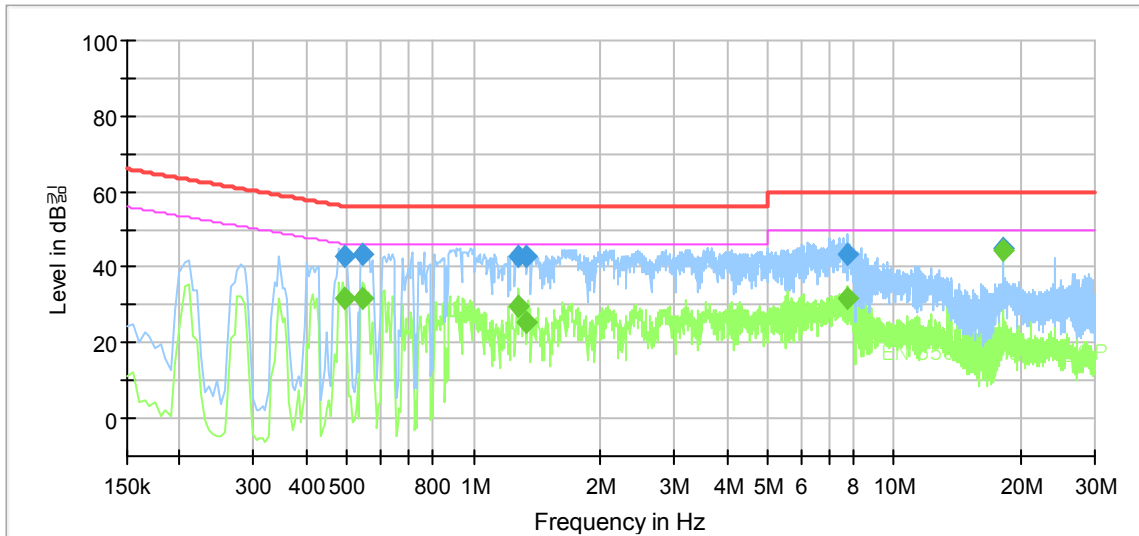
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.485000	---	26.60	46.25	19.65	1000.0	9.000	L1	9.7
0.485000	41.81	---	56.25	14.44	1000.0	9.000	L1	9.7
0.550000	---	27.85	46.00	18.15	1000.0	9.000	L1	9.7
0.550000	38.64	---	56.00	17.36	1000.0	9.000	L1	9.7
4.840000	---	25.36	46.00	20.64	1000.0	9.000	L1	9.8
4.840000	38.95	---	56.00	17.05	1000.0	9.000	L1	9.8
4.850000	---	23.56	46.00	22.44	1000.0	9.000	L1	9.8
4.850000	38.21	---	56.00	17.79	1000.0	9.000	L1	9.8
7.520000	---	29.18	50.00	20.82	1000.0	9.000	L1	9.9
7.520000	41.38	---	60.00	18.62	1000.0	9.000	L1	9.9
18.075000	---	44.17	50.00	5.83	1000.0	9.000	L1	10.2
18.075000	45.04	---	60.00	14.96	1000.0	9.000	L1	10.2

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Polarization: NEUTRAL

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode
 Operator Name: KES



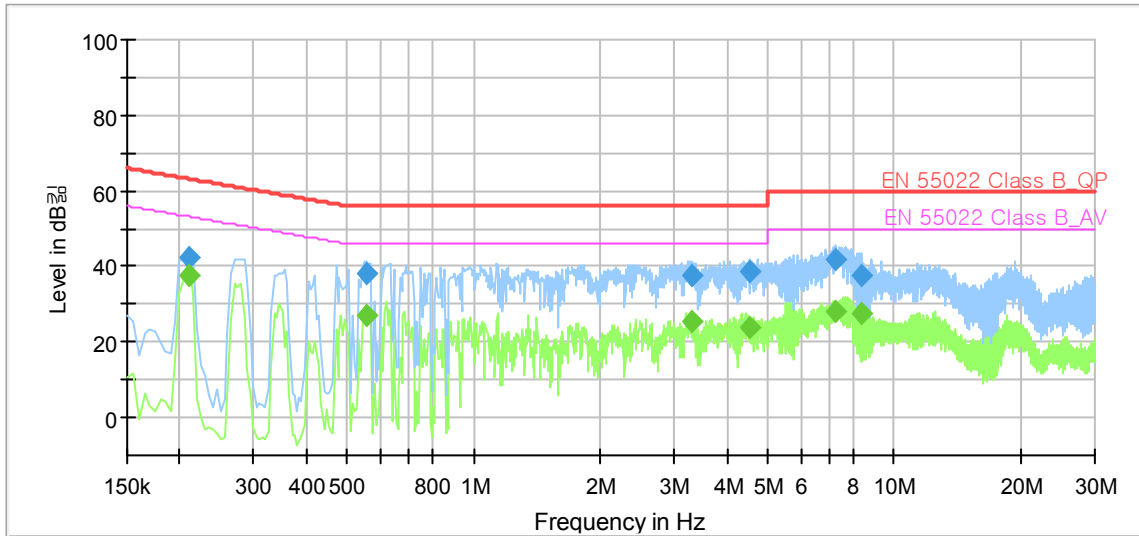
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.495000	---	31.97	46.08	14.11	1000.0	9.000	N	9.7
0.495000	42.87	---	56.08	13.21	1000.0	9.000	N	9.7
0.545000	---	31.79	46.00	14.21	1000.0	9.000	N	9.7
0.545000	43.22	---	56.00	12.78	1000.0	9.000	N	9.7
1.280000	---	29.88	46.00	16.12	1000.0	9.000	N	9.7
1.280000	42.72	---	56.00	13.28	1000.0	9.000	N	9.7
1.335000	---	25.28	46.00	20.72	1000.0	9.000	N	9.7
1.335000	43.13	---	56.00	12.87	1000.0	9.000	N	9.7
7.720000	---	31.91	50.00	18.09	1000.0	9.000	N	9.9
7.720000	43.62	---	60.00	16.38	1000.0	9.000	N	9.9
18.075000	---	44.35	50.00	5.65	1000.0	9.000	N	10.0
18.075000	44.87	---	60.00	15.13	1000.0	9.000	N	10.0

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■ WiFi2.4 GHz Mode
 Polarization: HOT

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode: 2.4
 Operator Name: KES



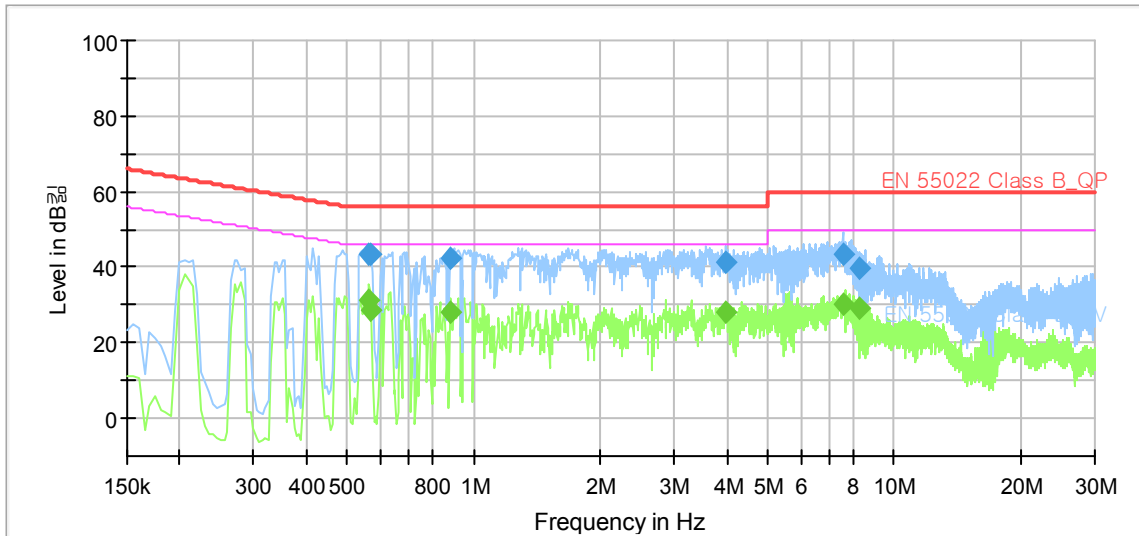
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.210000	---	37.78	53.21	15.43	1000.0	9.000	L1	9.7
0.210000	42.50	---	63.21	20.71	1000.0	9.000	L1	9.7
0.555000	---	27.15	46.00	18.85	1000.0	9.000	L1	9.7
0.555000	38.28	---	56.00	17.72	1000.0	9.000	L1	9.7
3.290000	---	25.46	46.00	20.54	1000.0	9.000	L1	9.8
3.290000	37.70	---	56.00	18.30	1000.0	9.000	L1	9.8
4.515000	---	24.07	46.00	21.93	1000.0	9.000	L1	9.8
4.515000	38.39	---	56.00	17.61	1000.0	9.000	L1	9.8
7.225000	---	28.16	50.00	21.84	1000.0	9.000	L1	9.9
7.225000	41.93	---	60.00	18.07	1000.0	9.000	L1	9.9
8.330000	---	27.48	50.00	22.52	1000.0	9.000	L1	9.9
8.330000	37.42	---	60.00	22.58	1000.0	9.000	L1	9.9

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Polarization: NEUTRAL

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode: 2.4
 Operator Name: KES



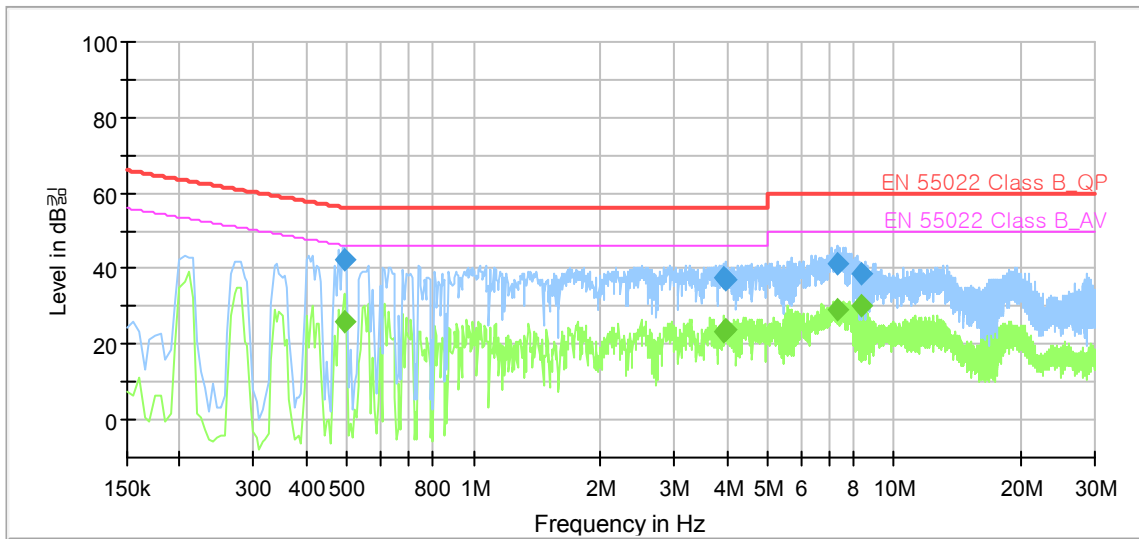
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.565000	---	30.99	46.00	15.01	1000.0	9.000	N	9.7
0.565000	43.44	---	56.00	12.56	1000.0	9.000	N	9.7
0.570000	---	28.58	46.00	17.42	1000.0	9.000	N	9.7
0.570000	43.62	---	56.00	12.38	1000.0	9.000	N	9.7
0.885000	---	28.14	46.00	17.86	1000.0	9.000	N	9.7
0.885000	42.41	---	56.00	13.59	1000.0	9.000	N	9.7
3.985000	---	27.88	46.00	18.12	1000.0	9.000	N	9.8
3.985000	41.50	---	56.00	14.50	1000.0	9.000	N	9.8
7.535000	---	30.30	50.00	19.70	1000.0	9.000	N	9.9
7.535000	43.24	---	60.00	16.76	1000.0	9.000	N	9.9
8.290000	---	28.99	50.00	21.01	1000.0	9.000	N	9.9
8.290000	39.83	---	60.00	20.17	1000.0	9.000	N	9.9

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■ WiFi5 GHz Mode
 Polarization: HOT

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode: 5
 Operator Name: KES



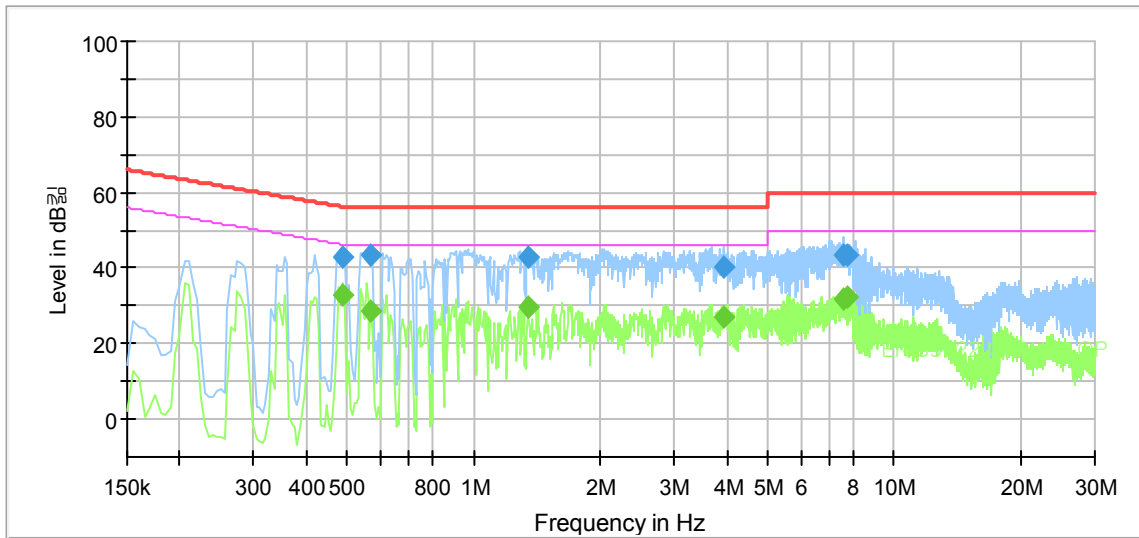
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.495000	---	26.07	46.08	20.01	1000.0	9.000	L1	9.7
0.495000	42.62	---	56.08	13.46	1000.0	9.000	L1	9.7
3.925000	---	23.31	46.00	22.69	1000.0	9.000	L1	9.8
3.925000	37.40	---	56.00	18.60	1000.0	9.000	L1	9.8
3.980000	---	23.76	46.00	22.24	1000.0	9.000	L1	9.8
3.980000	37.26	---	56.00	18.74	1000.0	9.000	L1	9.8
7.315000	---	29.14	50.00	20.86	1000.0	9.000	L1	9.9
7.315000	41.51	---	60.00	18.49	1000.0	9.000	L1	9.9
8.385000	---	30.34	50.00	19.66	1000.0	9.000	L1	9.9
8.385000	38.83	---	60.00	21.17	1000.0	9.000	L1	9.9

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Polarization: NEUTRAL

Test Description: Conducted Emission
 Model No.: SMT-3232A
 Mode: 5
 Operator Name: KES



Final Result

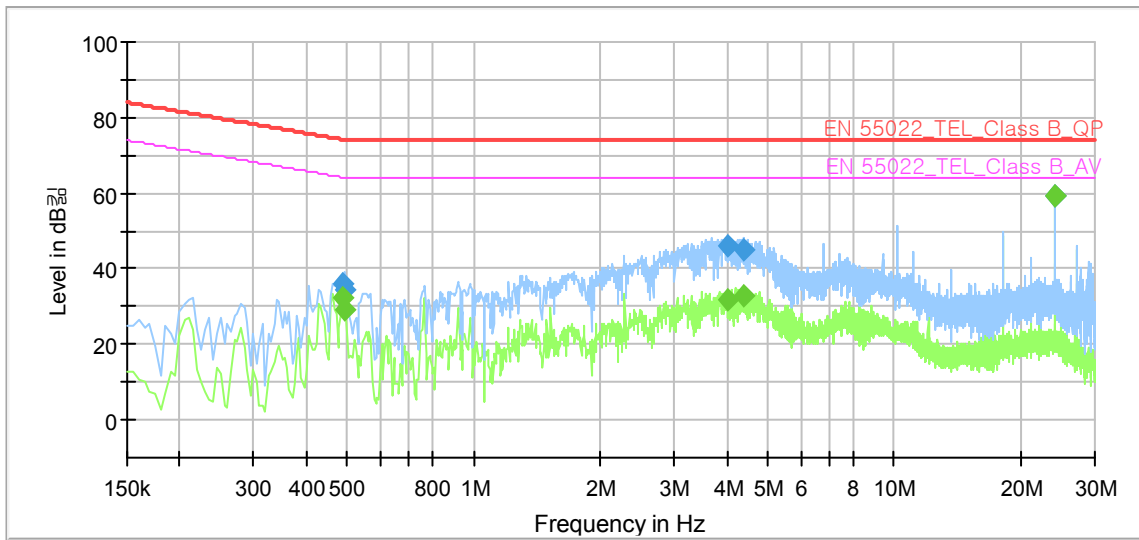
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.490000	---	32.61	46.17	13.56	1000.0	9.000	N	9.7
0.490000	42.97	---	56.17	13.20	1000.0	9.000	N	9.7
0.570000	---	28.42	46.00	17.58	1000.0	9.000	N	9.7
0.570000	43.63	---	56.00	12.37	1000.0	9.000	N	9.7
1.350000	---	29.65	46.00	16.35	1000.0	9.000	N	9.7
1.350000	43.06	---	56.00	12.94	1000.0	9.000	N	9.7
3.930000	---	26.78	46.00	19.22	1000.0	9.000	N	9.8
3.930000	40.28	---	56.00	15.72	1000.0	9.000	N	9.8
7.605000	---	31.56	50.00	18.44	1000.0	9.000	N	9.9
7.605000	43.39	---	60.00	16.61	1000.0	9.000	N	9.9
7.710000	---	32.13	50.00	17.87	1000.0	9.000	N	9.9
7.710000	43.37	---	60.00	16.63	1000.0	9.000	N	9.9

- Telecommunication

Temperature: 22.3 °C Humidity: 45.9 % R.H. Test Date: 09. 03. 2015 Tested by: Kang Hyeon, Kim

[10 Mbps]

Test Description: Telecommunication Emission
 Model No.: SMT-3232A
 Mode: 10
 Operator Name: KES

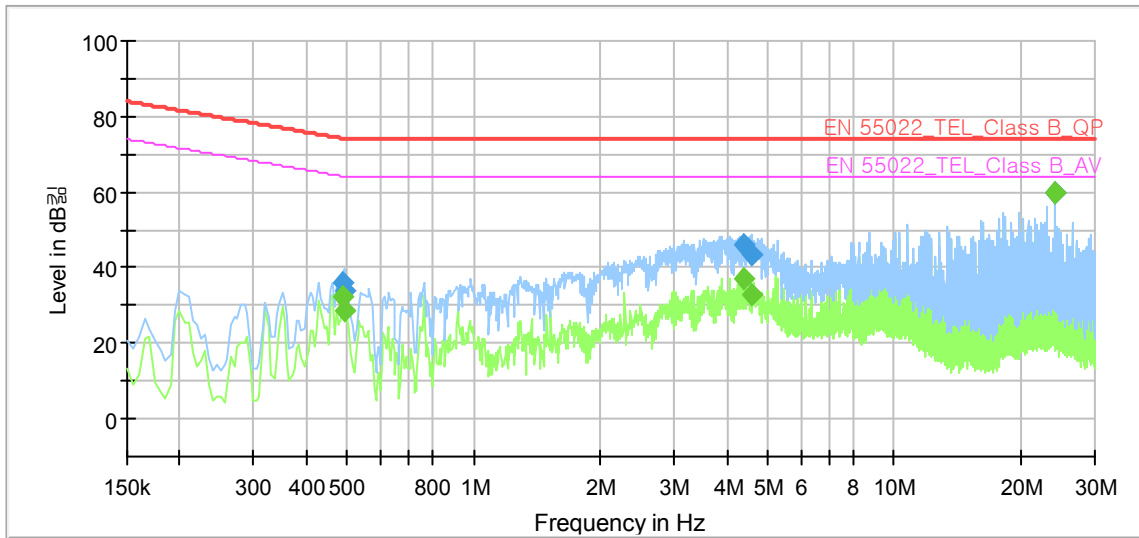


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.490000	---	32.42	64.17	31.75	1000.0	9.000	Single Line	10.1
0.490000	36.23	---	74.17	37.94	1000.0	9.000	Single Line	10.1
0.495000	---	29.10	64.08	34.98	1000.0	9.000	Single Line	10.1
0.495000	34.50	---	74.08	39.58	1000.0	9.000	Single Line	10.1
4.035000	---	31.85	64.00	32.15	1000.0	9.000	Single Line	9.9
4.035000	45.96	---	74.00	28.04	1000.0	9.000	Single Line	9.9
4.385000	---	33.01	64.00	30.99	1000.0	9.000	Single Line	10.0
4.385000	44.80	---	74.00	29.20	1000.0	9.000	Single Line	10.0
24.100000	---	59.23	64.00	4.77	1000.0	9.000	Single Line	10.1
24.100000	59.26	---	74.00	14.74	1000.0	9.000	Single Line	10.1

[100 Mbps]

Test Description: Telecommunication Emission
 Model No.: SMT-3232A
 Mode 100
 Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.490000	---	32.31	64.17	31.86	1000.0	9.000	Single Line	9.6
0.490000	36.18	---	74.17	37.99	1000.0	9.000	Single Line	9.6
0.495000	---	28.36	64.08	35.72	1000.0	9.000	Single Line	9.6
0.495000	33.92	---	74.08	40.16	1000.0	9.000	Single Line	9.6
4.410000	---	36.97	64.00	27.03	1000.0	9.000	Single Line	9.5
4.410000	46.17	---	74.00	27.83	1000.0	9.000	Single Line	9.5
4.590000	---	32.75	64.00	31.25	1000.0	9.000	Single Line	9.5
4.590000	43.30	---	74.00	30.70	1000.0	9.000	Single Line	9.5
24.100000	---	59.59	64.00	4.41	1000.0	9.000	Single Line	9.6
24.100000	59.87	---	74.00	14.13	1000.0	9.000	Single Line	9.6

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5.2 Radiated Emission Measurements

5.2.1 Test Description

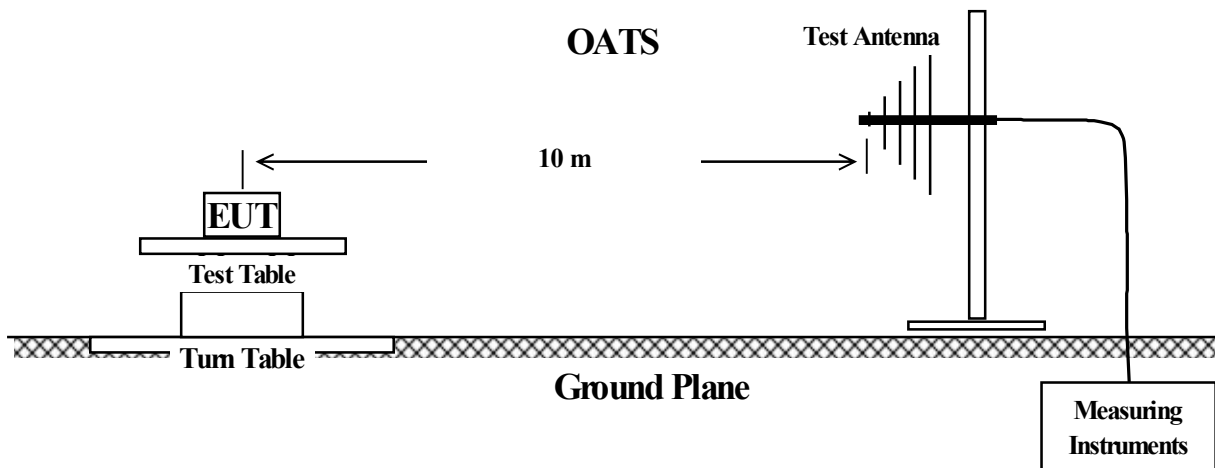
The radiated emissions measurements were performed on the ten-meter open-field test site and 3 m full chamber. The E.U.T was placed on a nonconductive turntable approximately 0.8 meters above the ground plane.

The frequency spectrum from 30 MHz to 1 000 MHz and 1 000 MHz to 6 000 MHz was scanned and maximum emission levels at each frequency recorded.

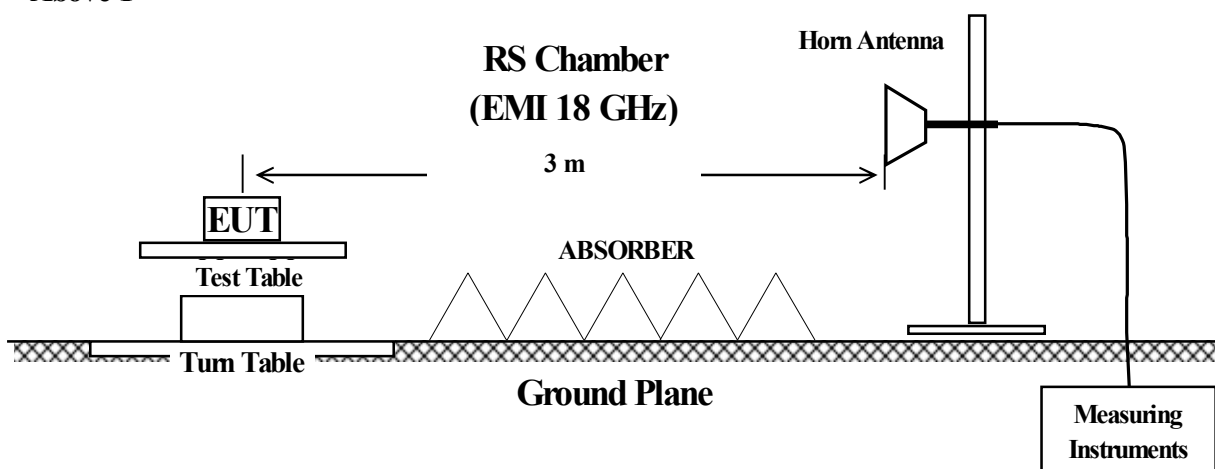
The system was rotated 360°, and the antenna was varied in the height between 1.0 and 4.0 meters in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

- above 1 GHz : Antenna height is fixed to 1.0 m

* Below 1 GHz



* Above 1 GHz



5.2.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
EMI TEST Receiver	ESR3	Rohde & Schwarz	101781	05. 06. 2016
Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9168-713	05. 15. 2017
OATS	KES	-	-	-
Antenna Mast	DAEIL EMC	-	-	-
Turn Table	DAEIL EMC	-	-	-
EMI TEST Receiver	ESU26	R & S	100552	05. 06. 2016
Broadband Coaxial Prempfier	A-H-SYSTEM,INC	SAS-571	781	05. 07. 2017
DOUBLE TIDGED HRON ANTENNA	Schwarzbeck Mess - Elektronik	BBV 9718	9718-246	10 .23. 2015
RS Chamber (EMI 18GHz)	SEMITEC		-	-

5.2.3 Test Environments

Ambient Temperatures	Relative Humidity
see the data	see the data

5.2.4 Test Limits

Frequency (MHz)	EN 55022	
	Class B @ 10 m (dB μ V/m)	Class A @ 10 m (dB μ V/m)
30 to 230	30.0	40.0
230 to 1 000	37.0	47.0

Frequency (MHz)	EN 55022			
	Class B @ 3 m (dB μ V/m)		Class A @ 3 m (dB μ V/m)	
	PK	AV	PK	AV
1 000 to 3 000	70	50	76	56
3 000 to 6 000	74	54	80	60

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

5.2.5 Test Procedure

Before final measurements of radiated emission were made on 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 on 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 MHz to 6 000 MHz using the spectrum analyzer. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz(1 MHz), and the analyzer was operated in the CISPR quasi-peak(Peak) detection mode.

Measurements were taken using both HORIZONTAL and VERTICAL antenna polarization, herein referred to as H and V, respectively.

5.2.6 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 GHz : $F.S(dB\mu V/m) = M.R(dB\mu V) + [A.F(dB/m) + C.L(dB)]$

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

* Measurement in the presence of high ambient signals

In general, the ambient signals should not exceed the limit. Radiated emanations from the EUT at the point of measurement may, however, be impossible to measure at some frequencies due to ambient noise fields generated by local broadcast services, other manmade devices, and natural sources.

a) Perform measurements at close-in distances and determine the limit L2 corresponding to the close-in distance d2 by applying the following relation:

$$L2 = L1 (d1/d2)$$

where L1 is the specified limit in microvolts per metre ($\mu V/m$) at the distance d1.
Determine the possible environmental and compliance test conditions stipulated in Clause 8 using L2 as the new limit for distance d2.

b) In the frequency bands where the ambient noise values of Clause 8 are exceeded (measured values higher than 6 dB below the limit), the disturbance values of the EUT may be interpolated from the adjacent disturbance values. The interpolated value shall lie on the curve describing a continuous function of the disturbance values adjacent to the ambient noise.

5.2.7 Test Results

According to the data in section 5.1.7, the E.U.T complied with the EN 55022/CISPR22 standards.

5.2.8 Test Data

* Below 1 GHz

Temperature: 21.8 °C Humidity: 78.0 % R.H. Test Date: 09. 03. 2015 Tested by: Kang Hyeon, Kim

■ D-SUB Mode

Frequency (MHz)	Amplitude (dB μ V/m)	Antenna		Correction Factor		Corrected Amplitude (dB μ V/m)	Applicable Limit (dB μ V/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
48.43	9.41	V	1.23	13.88	1.72	25.01	30.00	4.99
96.93	10.86	H	4.00	11.00	2.51	24.37	30.00	5.63
152.22	9.34	V	1.11	8.28	3.21	20.83	30.00	9.17
250.19	11.51	H	3.50	12.41	4.28	28.20	37.00	8.80
349.13	11.91	V	1.00	14.52	5.20	31.63	37.00	5.37
459.71	8.44	H	3.83	16.54	6.26	31.24	37.00	5.76

■ DVI Mode

Frequency (MHz)	Amplitude (dB μ V/m)	Antenna		Correction Factor		Corrected Amplitude (dB μ V/m)	Applicable Limit (dB μ V/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
49.40	9.23	V	1.11	13.92	1.74	24.89	30.00	5.11
85.29	10.29	V	1.69	8.44	2.34	21.07	30.00	8.93
265.71	15.22	H	3.60	12.71	4.48	32.41	37.00	4.59
301.60	10.44	H	4.00	13.42	4.94	28.80	37.00	8.20
594.00	6.11	H	4.00	19.17	7.34	32.62	37.00	4.38



■ HDMI Mode

Frequency (MHz)	Amplitude (dB μ V/m)	Antenna		Correction Factor		Corrected Amplitude (dB μ V/m)	Applicable Limit (dB μ V/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
49.20	9.93	V	1.80	13.91	1.74	25.58	30.00	4.42
151.66	11.61	V	1.00	8.26	3.20	23.07	30.00	6.93
239.52	12.92	V	1.69	12.18	4.20	29.30	37.00	7.70
301.60	10.74	H	3.20	13.42	4.94	29.10	37.00	7.90
521.47	6.73	H	3.71	17.57	6.75	31.05	37.00	5.95

■ WiFi2.4 GHz Mode

Frequency (MHz)	Amplitude (dB μ V/m)	Antenna		Correction Factor		Corrected Amplitude (dB μ V/m)	Applicable Limit (dB μ V/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
50.37	9.69	V	1.00	13.90	1.76	25.35	30.00	4.65
152.22	13.50	V	1.18	8.28	3.21	24.99	30.00	5.01
250.19	11.14	H	3.60	12.41	4.28	27.83	37.00	9.17
375.32	11.39	V	1.36	15.13	5.49	32.01	37.00	4.99
470.38	9.50	H	3.25	16.69	6.34	32.53	37.00	4.47
500.45	7.90	H	4.00	17.11	6.58	31.59	37.00	5.41

■ WiFi5 GHz Mode

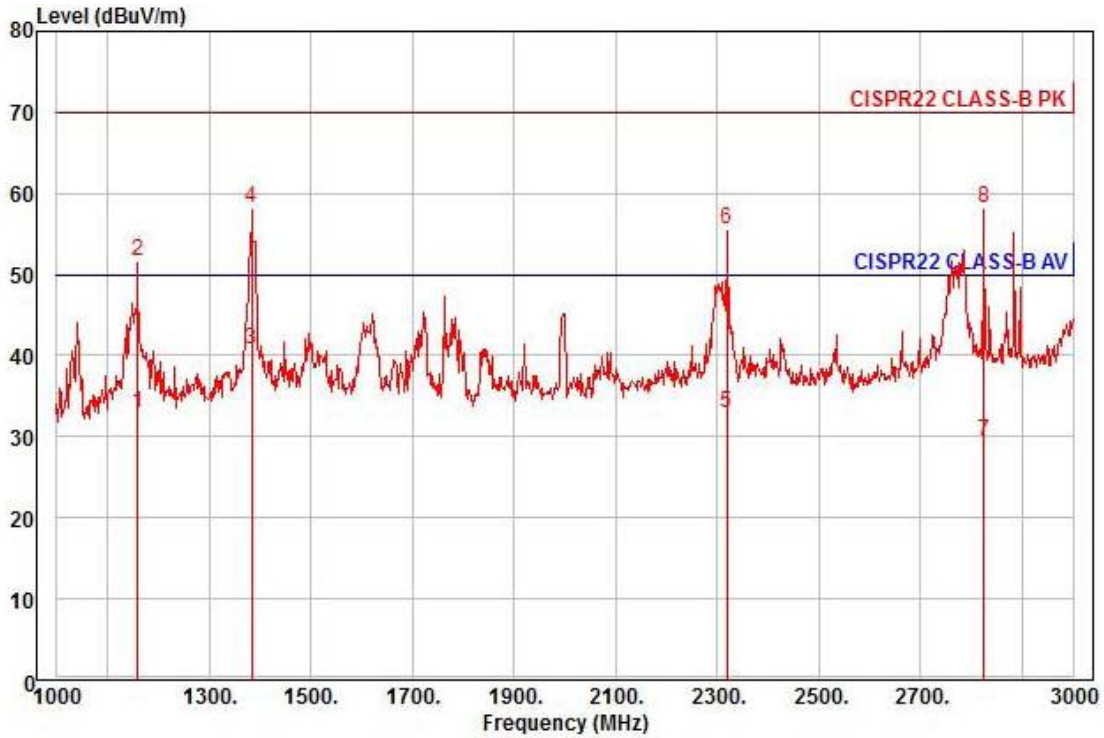
Frequency (MHz)	Amplitude (dB μ V/m)	Antenna		Correction Factor		Corrected Amplitude (dB μ V/m)	Applicable Limit (dB μ V/m)	Margin (dB)
		Polar. (H/V)	Height (m)	Ant. (dB)	Cable (dB)			
50.37	9.04	V	1.00	13.90	1.76	24.70	30.00	5.30
152.22	13.70	V	1.00	8.28	3.21	25.19	30.00	4.81
250.19	13.19	H	3.20	12.41	4.28	29.88	37.00	7.12
375.32	10.17	H	3.94	15.13	5.49	30.79	37.00	6.21
500.45	8.76	H	4.00	17.11	6.58	32.45	37.00	4.55
625.58	5.78	V	1.00	19.40	7.55	32.73	37.00	4.27

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

*** Above 1 GHz**

Temperature: 22.2 °C Humidity: 45.9 % R.H. Test Date: 09. 03. 2015 Tested by: Kang Hyeon, Kim

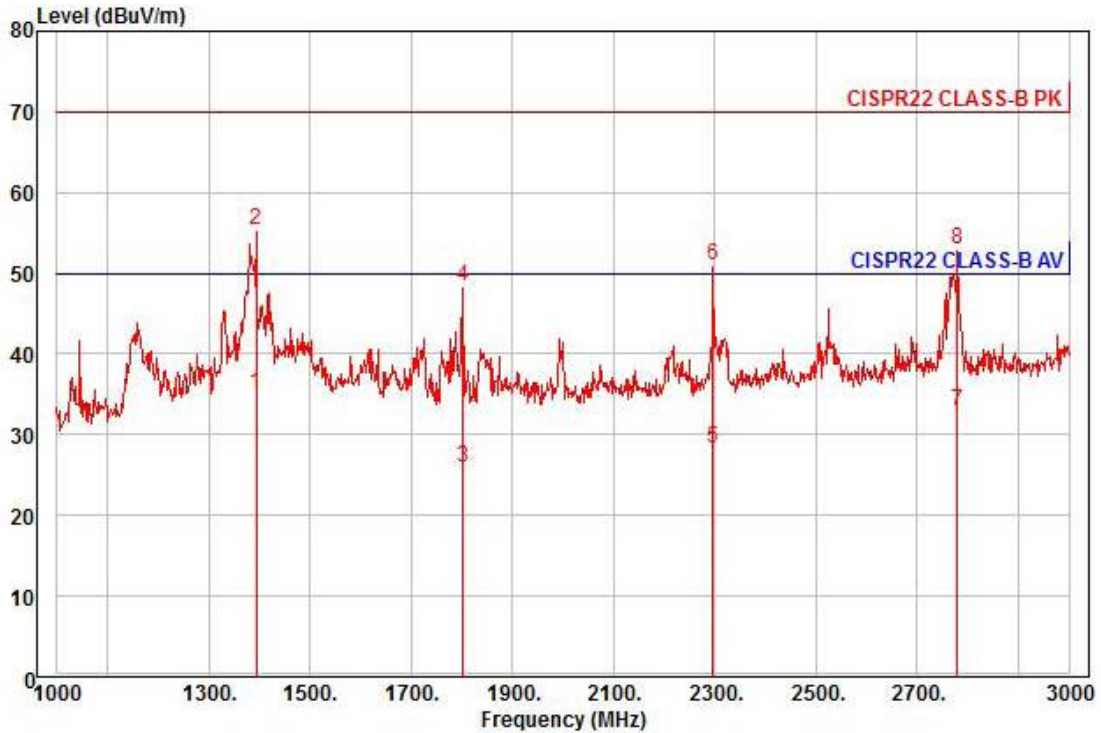
■ D-SUB Mode



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : D-SUB
 Memo : KC

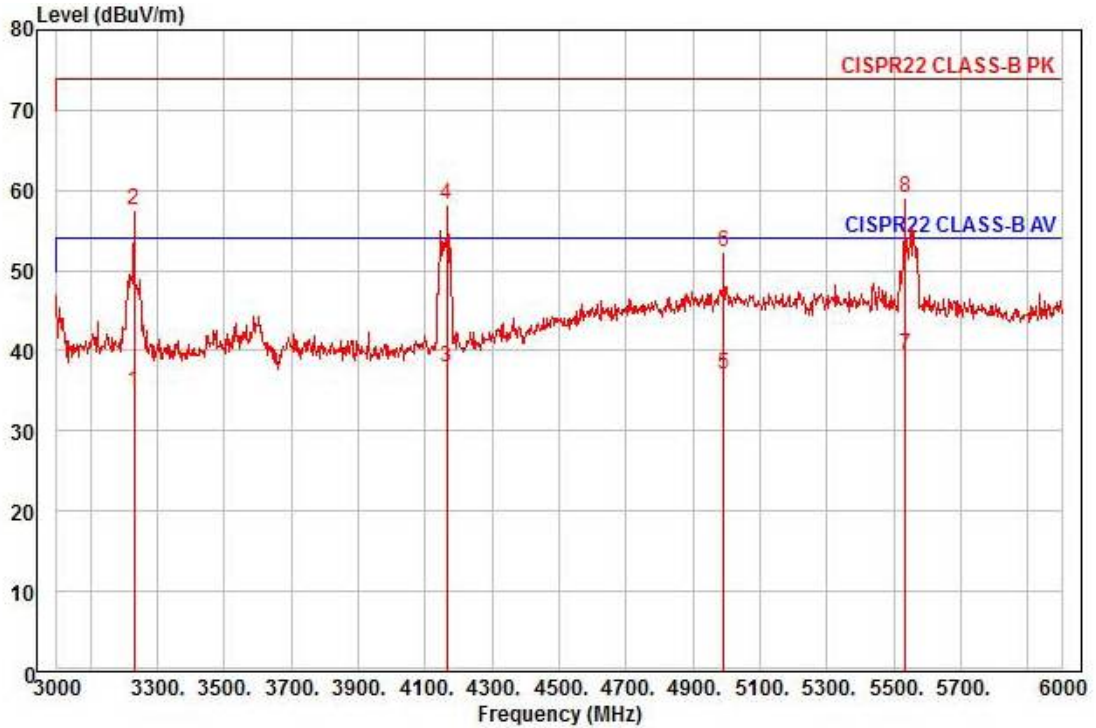
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1160.00	42.03	24.55	6.51	40.08	316	50.00	-16.99	horizontal	Average
2	1160.00	60.59	24.55	6.51	40.08	316	70.00	-18.43	horizontal	Peak
3 pp	1384.00	48.12	25.43	7.15	39.98	360	50.00	-9.28	horizontal	Average
4	1384.00	65.58	25.43	7.15	39.98	360	70.00	-11.82	horizontal	Peak
5	2320.00	34.16	28.66	9.81	39.79	356	50.00	-17.16	horizontal	Average
6	2320.00	56.96	28.66	9.81	39.79	356	70.00	-14.36	horizontal	Peak
7	2826.00	28.23	29.90	11.22	39.94	322	50.00	-20.59	horizontal	Average
8 pk	2826.00	57.02	29.90	11.22	39.94	322	70.00	-11.80	horizontal	Peak

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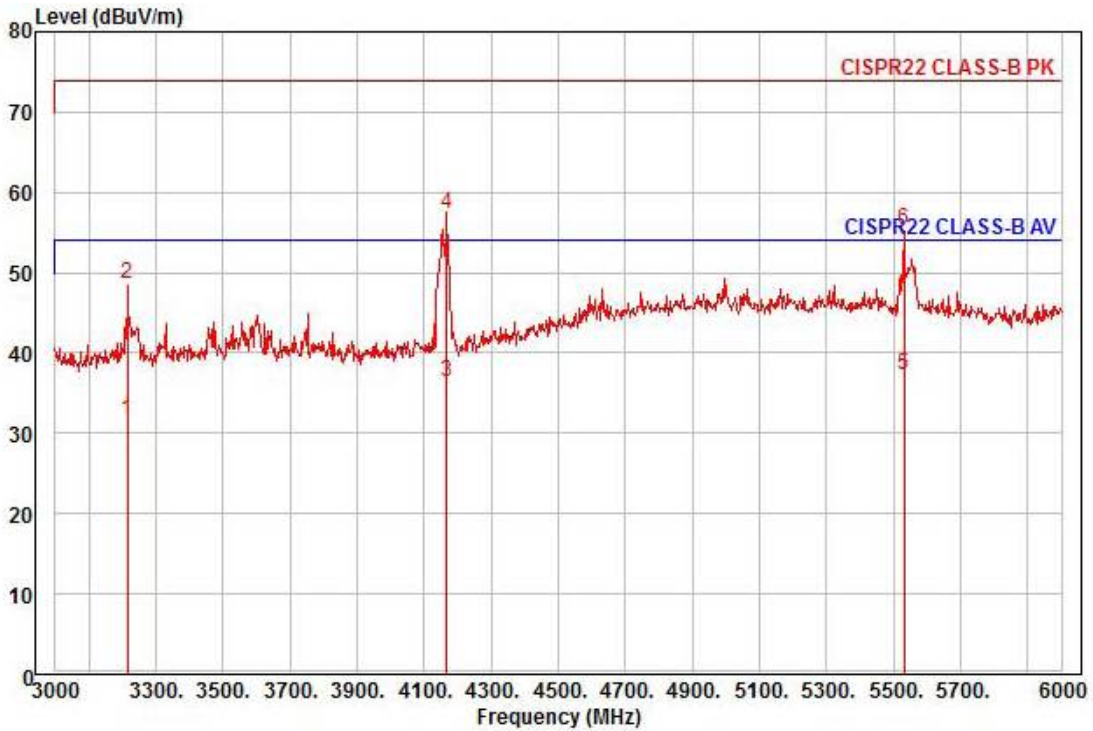
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : D-SUB
 Memo : CE

	Read	Ant	Cable	Preamp	TPos	Limit	Over			
Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB			
1 av	1394.00	42.49	25.47	7.18	39.97	356	50.00	-14.83	vertical	Average
2 pp	1394.00	62.68	25.47	7.18	39.97	356	70.00	-14.64	vertical	Peak
3	1802.00	30.29	27.09	8.35	39.79	330	50.00	-24.06	vertical	Average
4	1802.00	52.69	27.09	8.35	39.79	330	70.00	-21.66	vertical	Peak
5	2296.00	29.75	28.61	9.74	39.79	336	50.00	-21.69	vertical	Average
6	2296.00	52.49	28.61	9.74	39.79	336	70.00	-18.95	vertical	Peak
7	2780.00	32.07	29.79	11.09	39.93	356	50.00	-16.98	vertical	Average
8	2780.00	52.08	29.79	11.09	39.93	356	70.00	-16.97	vertical	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : D-SUB
 Memo : CE

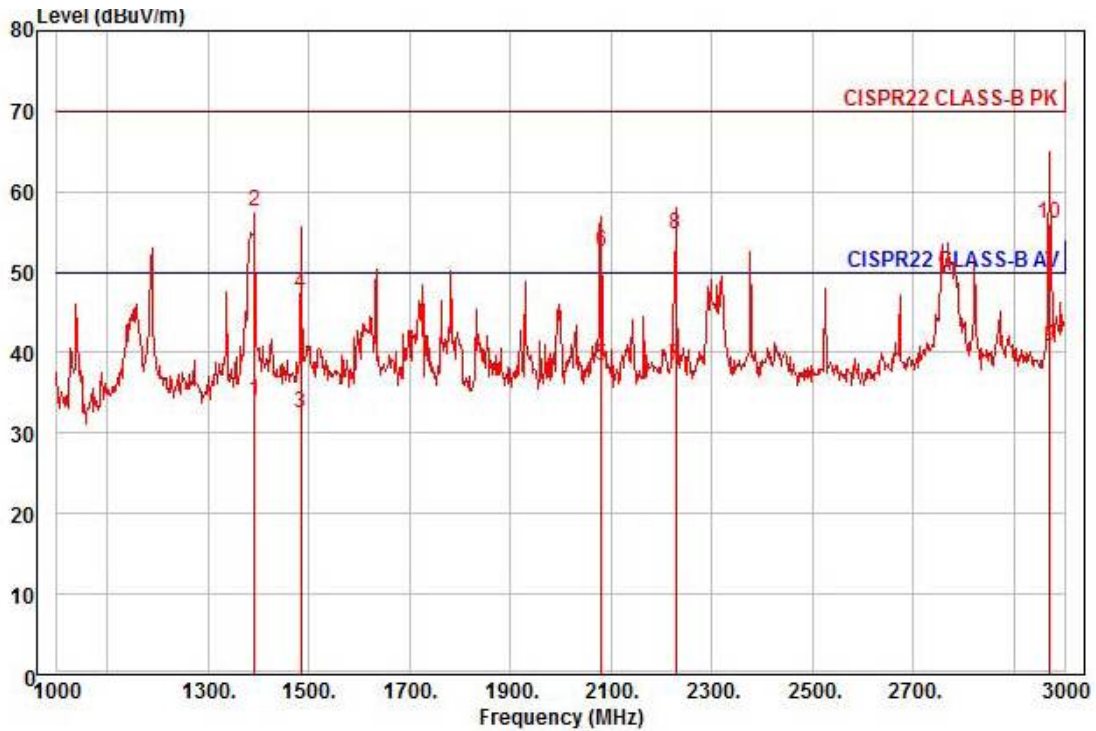
	Read	Ant	Cable	Preamp	TPos	Limit	Over		
Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3231.00	32.39	30.72	12.01	40.13	310	54.00	-19.01	horizontal Average
2	3231.00	54.92	30.72	12.01	40.13	310	74.00	-16.48	horizontal Peak
3	4164.00	32.14	32.95	13.33	40.52	305	54.00	-16.10	horizontal Average
4	4164.00	52.41	32.95	13.33	40.52	305	74.00	-15.83	horizontal Peak
5	4992.00	24.58	37.67	14.86	40.12	174	54.00	-17.01	horizontal Average
6	4992.00	40.01	37.67	14.86	40.12	174	74.00	-21.58	horizontal Peak
7 pp	5535.00	27.19	36.64	15.84	40.25	337	54.00	-14.58	horizontal Average
8 pk	5535.00	46.85	36.64	15.84	40.25	337	74.00	-14.92	horizontal Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : D-SUB
 Memo : CE

	Read Freq	Ant 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	3216.00	28.99	30.69	11.99	40.12	7	54.00	-22.45	vertical	Average
2	3216.00	46.13	30.69	11.99	40.12	7	74.00	-25.31	vertical	Peak
3	4167.00	30.73	32.96	13.34	40.52	351	54.00	-17.49	vertical	Average
4 pp	4167.00	51.57	32.96	13.34	40.52	351	74.00	-16.65	vertical	Peak
5 av	5532.00	24.97	36.65	15.84	40.25	307	54.00	-16.79	vertical	Average
6	5532.00	43.03	36.65	15.84	40.25	307	74.00	-18.73	vertical	Peak

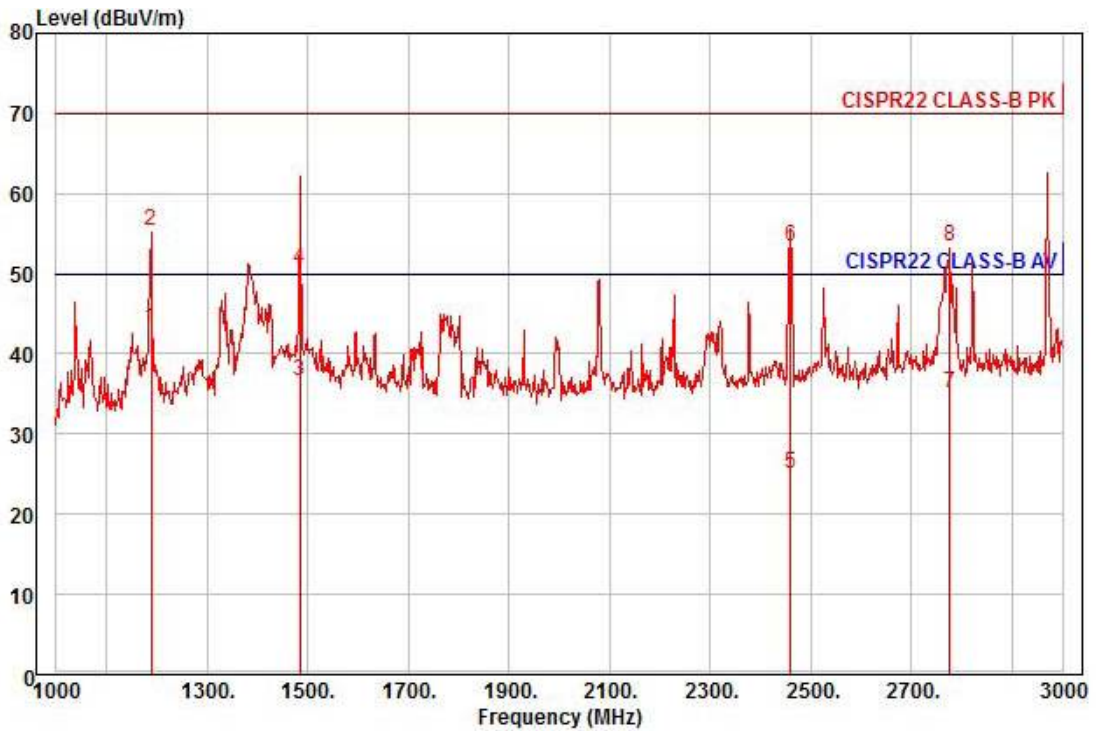
■ DVI Mode



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : DVI
 Memo : CE

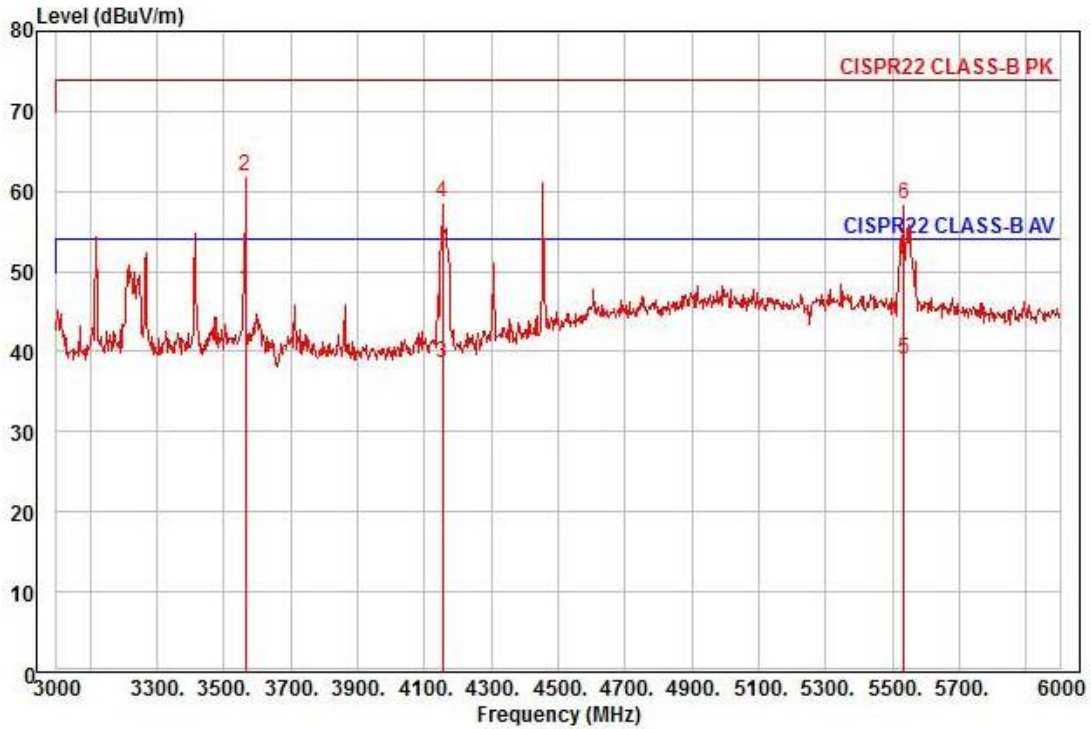
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1392.00	41.36	25.47	7.18	39.97	355	50.00	-15.96	horizontal	Average
2 pk	1392.00	64.89	25.47	7.18	39.97	355	70.00	-12.43	horizontal	Peak
3	1484.00	39.24	25.83	7.44	39.93	299	50.00	-17.42	horizontal	Average
4	1484.00	53.97	25.83	7.44	39.93	299	70.00	-22.69	horizontal	Peak
5	2080.00	40.84	28.08	9.14	39.72	343	50.00	-11.66	horizontal	Average
6	2080.00	55.13	28.08	9.14	39.72	343	70.00	-17.37	horizontal	Peak
7	2228.00	40.08	28.44	9.55	39.77	305	50.00	-11.70	horizontal	Average
8	2228.00	56.52	28.44	9.55	39.77	305	70.00	-15.26	horizontal	Peak
9 pp	2972.00	38.80	30.26	11.62	39.98	351	50.00	-9.30	horizontal	Average
10	2972.00	54.03	30.26	11.62	39.98	351	70.00	-14.07	horizontal	Peak

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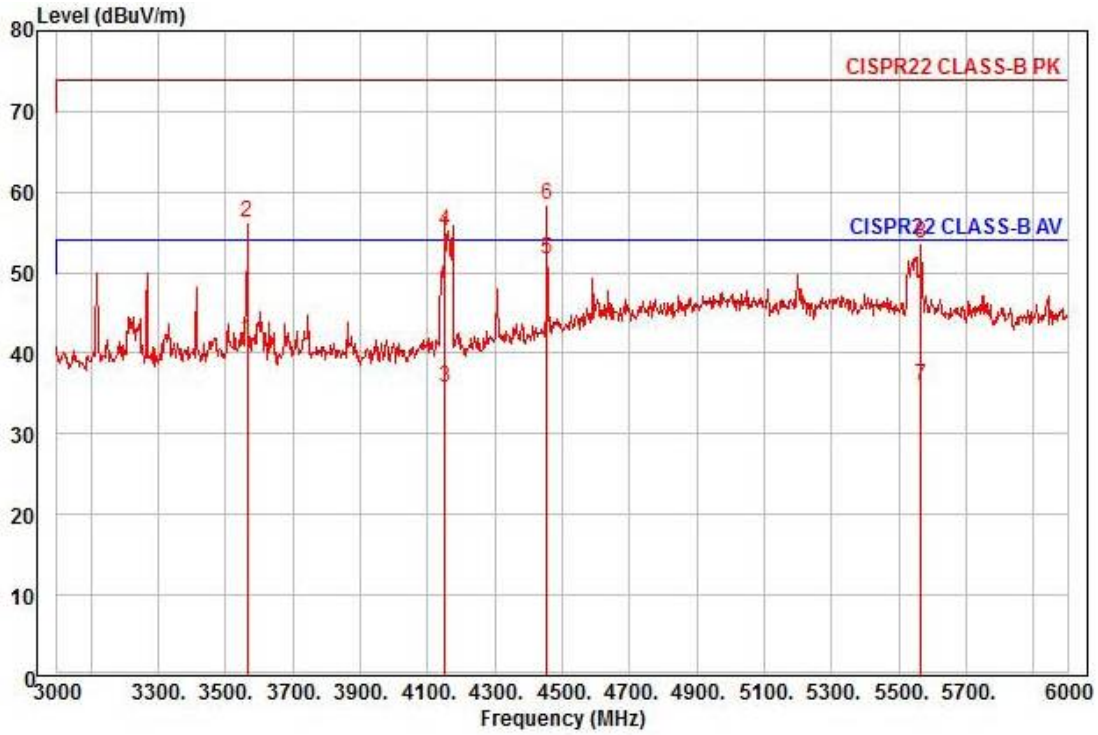
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : DVI
 Memo : CE

	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	1188.00	51.93	24.66	6.59	40.07	350	50.00	-6.89	vertical	Average
2 pk	1188.00	64.17	24.66	6.59	40.07	350	70.00	-14.65	vertical	Peak
3	1484.00	43.25	25.83	7.44	39.93	347	50.00	-13.41	vertical	Average
4	1484.00	57.27	25.83	7.44	39.93	347	70.00	-19.39	vertical	Peak
5	2460.00	25.67	29.01	10.20	39.83	102	50.00	-24.95	vertical	Average
6	2460.00	54.11	29.01	10.20	39.83	102	70.00	-16.51	vertical	Peak
7	2776.00	34.15	29.78	11.08	39.93	356	50.00	-14.92	vertical	Average
8	2776.00	52.39	29.78	11.08	39.93	356	70.00	-16.68	vertical	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : DVI
 Memo : CE

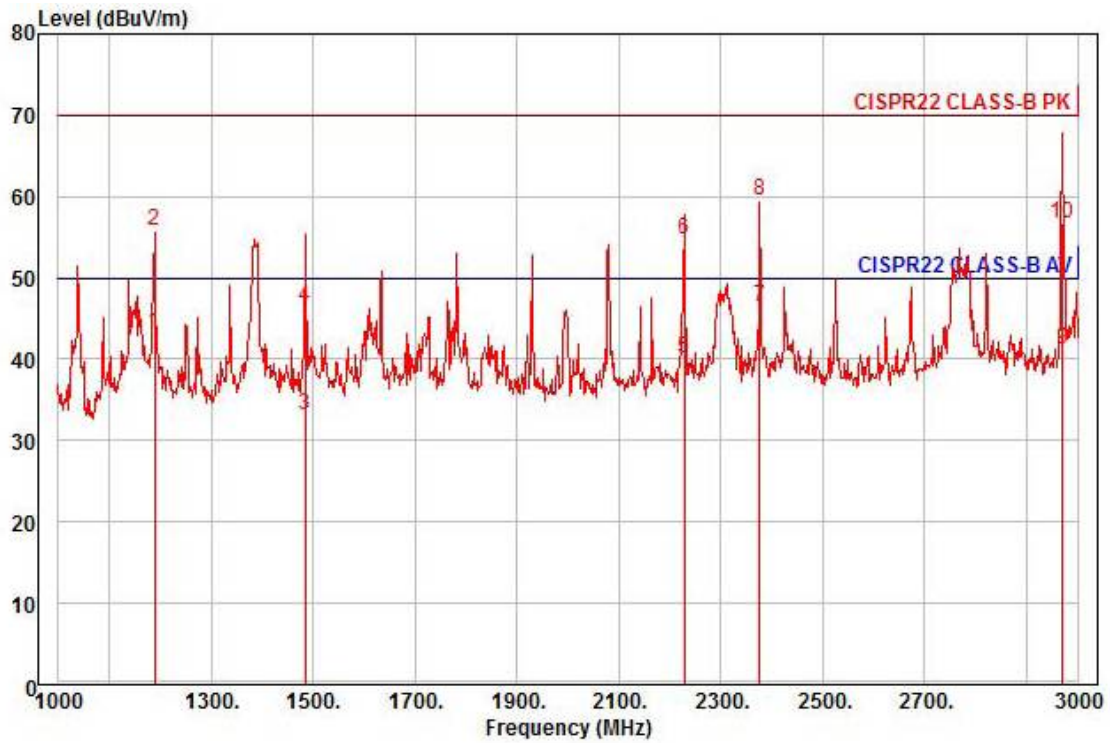
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	pp	3564.00	44.34	31.28	12.45	40.33	327	54.00	-6.26	horizontal Average
2	pk	3564.00	58.48	31.28	12.45	40.33	327	74.00	-12.12	horizontal Peak
3		4155.00	32.80	32.90	13.32	40.53	304	54.00	-15.51	horizontal Average
4		4155.00	52.92	32.90	13.32	40.53	304	74.00	-15.39	horizontal Peak
5		5535.00	26.79	36.64	15.84	40.25	336	54.00	-14.98	horizontal Average
6		5535.00	46.09	36.64	15.84	40.25	336	74.00	-15.68	horizontal Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : DVI
 Memo : CE

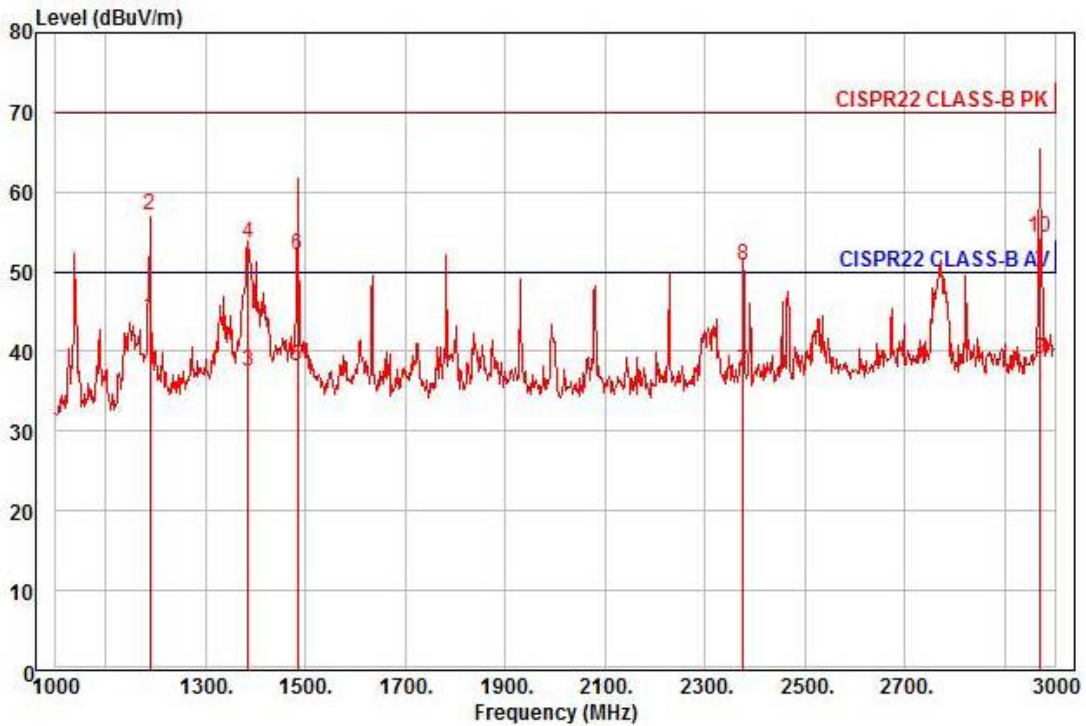
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3564.00	38.27	31.28	12.45	40.33	22	54.00	-12.33	vertical	Average
2	3564.00	52.78	31.28	12.45	40.33	22	74.00	-17.82	vertical	Peak
3	4152.00	30.18	32.88	13.31	40.53	352	54.00	-18.16	vertical	Average
4	4152.00	49.47	32.88	13.31	40.53	352	74.00	-18.87	vertical	Peak
5 pp	4455.00	43.66	34.61	13.87	40.38	319	54.00	-2.24	vertical	Average
6 pk	4455.00	50.34	34.61	13.87	40.38	319	74.00	-15.56	vertical	Peak
7	5565.00	23.72	36.58	15.90	40.26	305	54.00	-18.06	vertical	Average
8	5565.00	41.37	36.58	15.90	40.26	305	74.00	-20.41	vertical	Peak

■ HDMI Mode



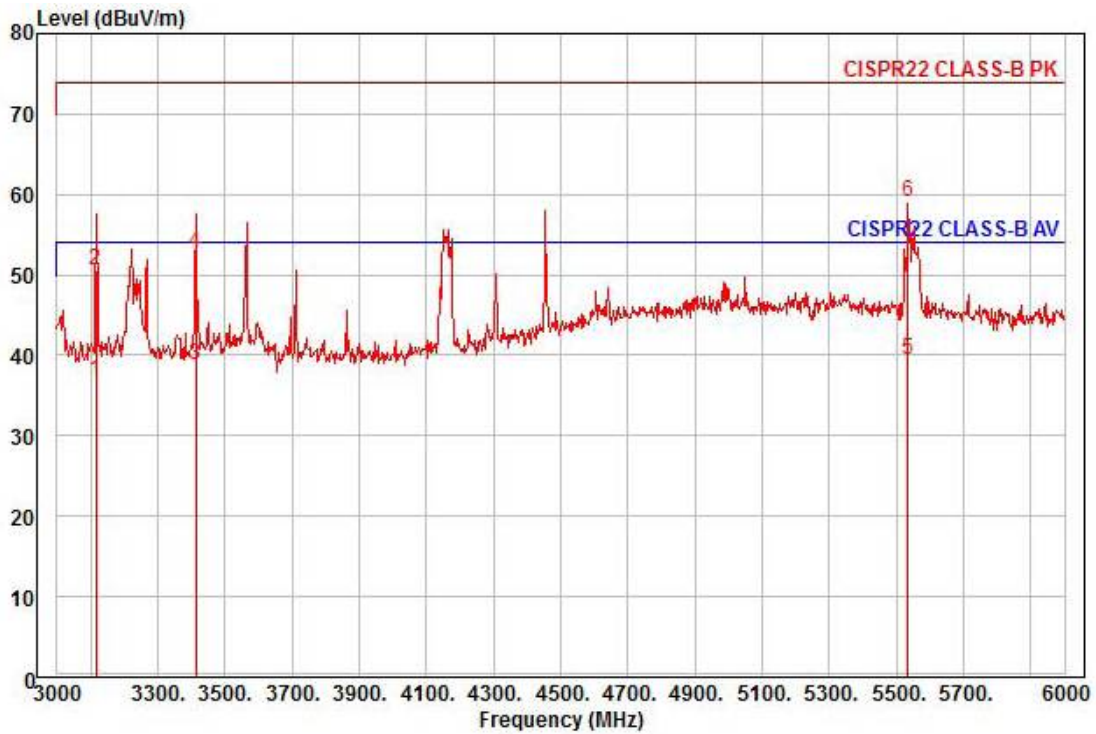
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : HDMI
 Memo : CE

	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	1188.00	51.89	24.66	6.59	40.07	304	50.00	-6.93	horizontal	Average
2	1188.00	64.65	24.66	6.59	40.07	304	70.00	-14.17	horizontal	Peak
3	1484.00	39.79	25.83	7.44	39.93	33	50.00	-16.87	horizontal	Average
4	1484.00	53.03	25.83	7.44	39.93	33	70.00	-23.63	horizontal	Peak
5	2228.00	41.93	28.44	9.55	39.77	301	50.00	-9.85	horizontal	Average
6	2228.00	56.60	28.44	9.55	39.77	301	70.00	-15.18	horizontal	Peak
7 pp	2376.00	47.58	28.80	9.97	39.81	298	50.00	-3.46	horizontal	Average
8 pk	2376.00	60.45	28.80	9.97	39.81	298	70.00	-10.59	horizontal	Peak
9	2972.00	39.38	30.26	11.62	39.98	354	50.00	-8.72	horizontal	Average
10	2972.00	54.80	30.26	11.62	39.98	354	70.00	-13.30	horizontal	Peak



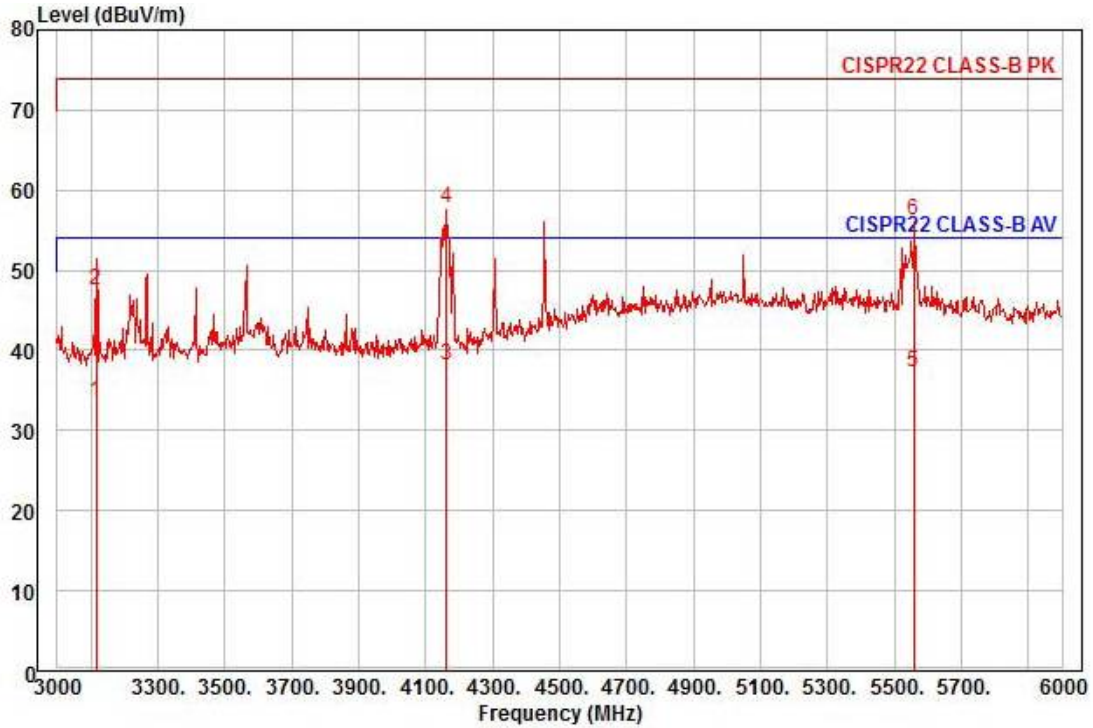
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : HDMI
 Memo : CE

	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	1188.00	53.17	24.66	6.59	40.07	359	50.00	-5.65	vertical	Average
2	pk	1188.00	66.04	24.66	6.59	40.07	359	70.00	-12.78	vertical	Peak
3		1386.00	44.88	25.44	7.16	39.98	165	50.00	-12.50	vertical	Average
4		1386.00	60.94	25.44	7.16	39.98	165	70.00	-16.44	vertical	Peak
5		1484.00	44.87	25.83	7.44	39.93	359	50.00	-11.79	vertical	Average
6		1484.00	58.71	25.83	7.44	39.93	359	70.00	-17.95	vertical	Peak
7		2376.00	38.55	28.80	9.97	39.81	312	50.00	-12.49	vertical	Average
8		2376.00	51.88	28.80	9.97	39.81	312	70.00	-19.16	vertical	Peak
9		2972.00	37.02	30.26	11.62	39.98	338	50.00	-11.08	vertical	Average
10		2972.00	52.33	30.26	11.62	39.98	338	70.00	-15.77	vertical	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : HDMI
 Memo : CE

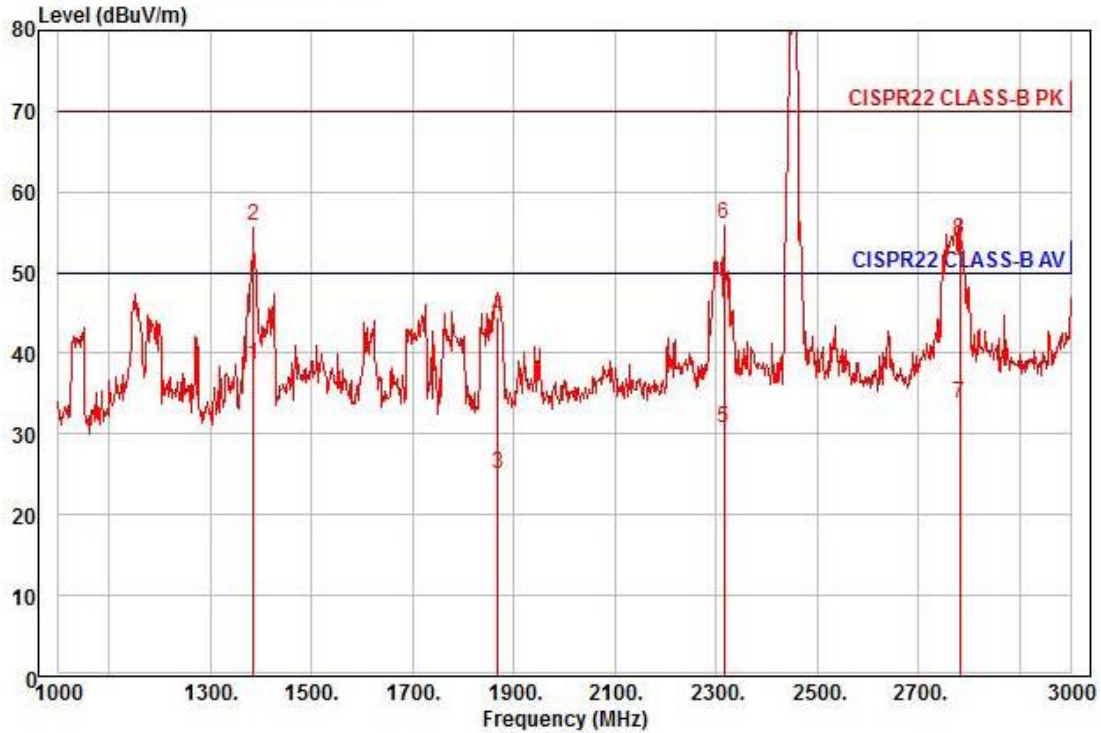
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3117.00	34.53	30.53	11.86	40.06	330	54.00	-17.14	horizontal	Average
2	3117.00	48.21	30.53	11.86	40.06	330	74.00	-23.46	horizontal	Peak
3	3414.00	35.87	31.03	12.25	40.24	11	54.00	-15.09	horizontal	Average
4	3414.00	49.69	31.03	12.25	40.24	11	74.00	-21.27	horizontal	Peak
5 pp	5535.00	27.24	36.64	15.84	40.25	336	54.00	-14.53	horizontal	Average
6 pk	5535.00	46.93	36.64	15.84	40.25	336	74.00	-14.84	horizontal	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : HDMI
 Memo : CE

	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	3117.00	31.21	30.53	11.86	40.06	336	54.00	-20.46	vertical	Average
2	3117.00	45.14	30.53	11.86	40.06	336	74.00	-26.53	vertical	Peak
3 pp	4161.00	32.42	32.93	13.33	40.52	350	54.00	-15.84	vertical	Average
4 pk	4161.00	52.02	32.93	13.33	40.52	350	74.00	-16.24	vertical	Peak
5	5559.00	25.03	36.59	15.89	40.26	309	54.00	-16.75	vertical	Average
6	5559.00	43.91	36.59	15.89	40.26	309	74.00	-17.87	vertical	Peak

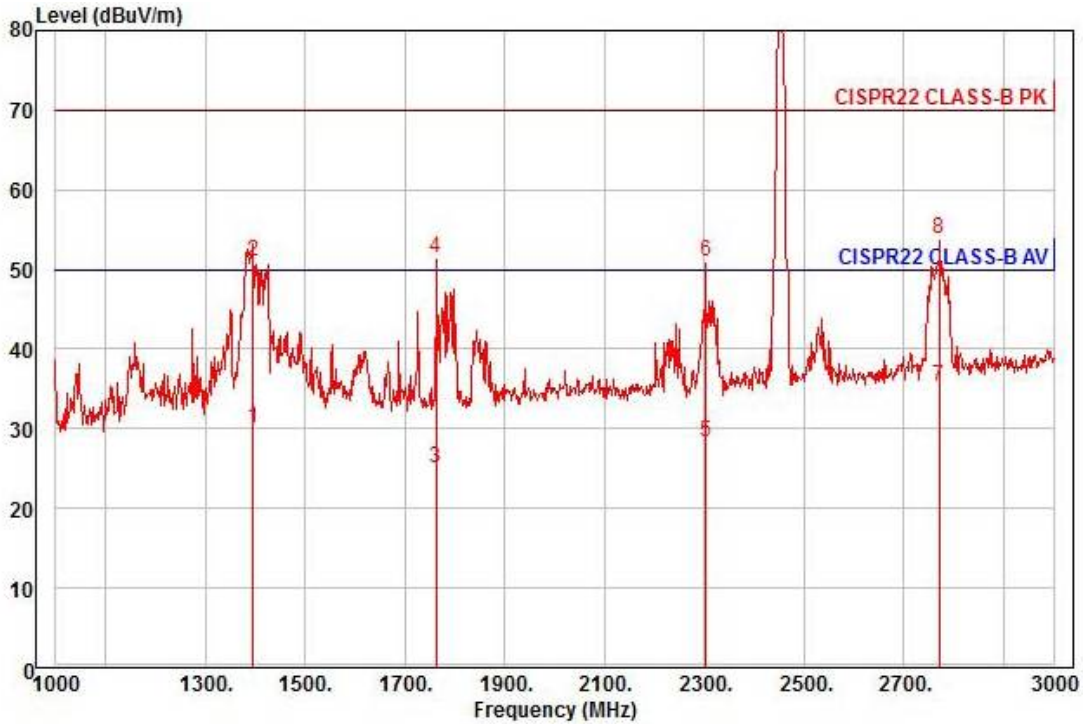
■ WiFi2.4 GHz Mode



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo : 2.4

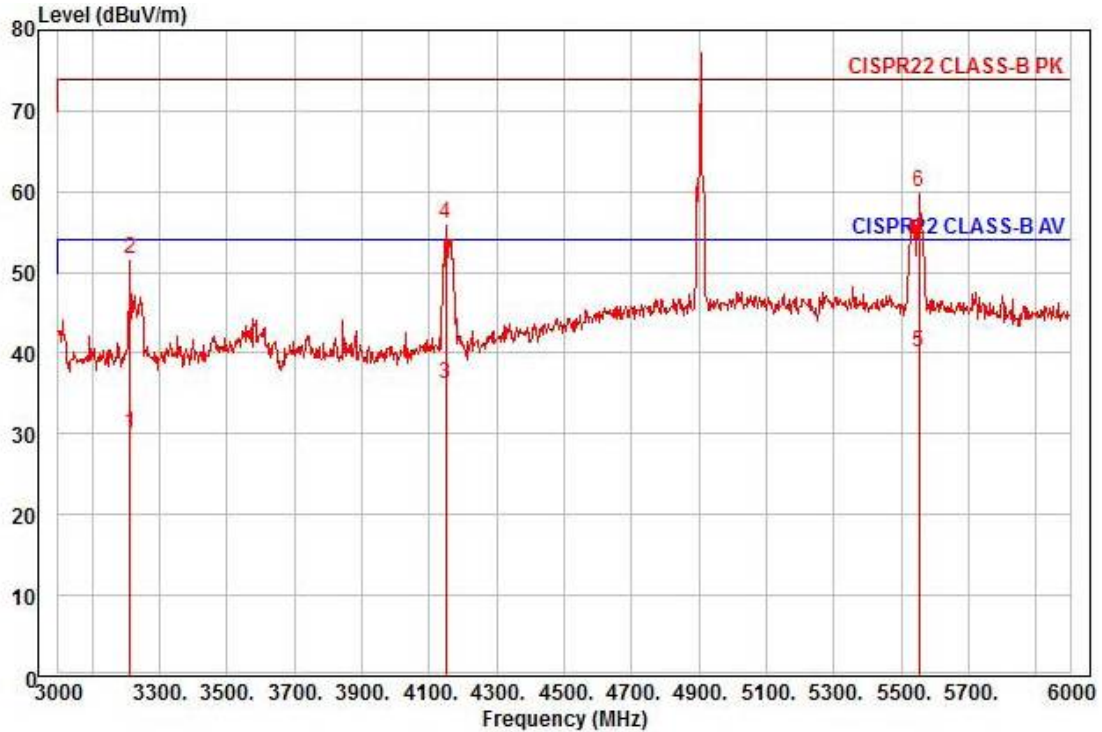
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1386.00	45.93	25.44	7.16	39.98	7	50.00	-11.45	horizontal	Average
2	1386.00	63.26	25.44	7.16	39.98	7	70.00	-14.12	horizontal	Peak
3	1868.00	28.96	27.36	8.54	39.76	30	50.00	-24.90	horizontal	Average
4	1868.00	48.40	27.36	8.54	39.76	30	70.00	-25.46	horizontal	Peak
5	2316.00	32.01	28.65	9.80	39.79	336	50.00	-19.33	horizontal	Average
6 pk	2316.00	57.35	28.65	9.80	39.79	336	70.00	-13.99	horizontal	Peak
7	2782.00	32.75	29.80	11.09	39.93	348	50.00	-16.29	horizontal	Average
8	2782.00	53.18	29.80	11.09	39.93	348	70.00	-15.86	horizontal	Peak

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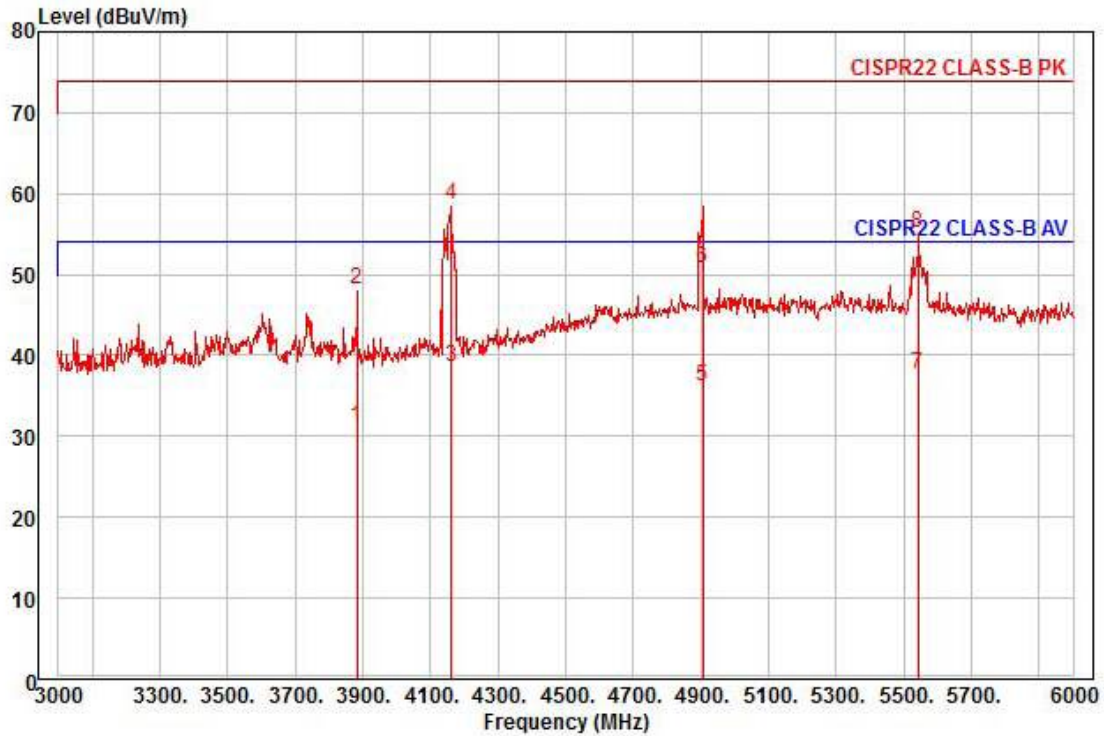
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo : 2.4

	Read Freq	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	1396.00	37.27	25.48	7.19	39.97	353	50.00	-20.03	vertical	Average
2	1396.00	58.42	25.48	7.19	39.97	353	70.00	-18.88	vertical	Peak
3	1762.00	29.65	26.94	8.24	39.81	19	50.00	-24.98	vertical	Average
4	1762.00	56.05	26.94	8.24	39.81	19	70.00	-18.58	vertical	Peak
5	2304.00	29.84	28.62	9.77	39.79	359	50.00	-21.56	vertical	Average
6	2304.00	52.48	28.62	9.77	39.79	359	70.00	-18.92	vertical	Peak
7 pp	2772.00	34.36	29.77	11.07	39.92	2	50.00	-14.72	vertical	Average
8 pk	2772.00	52.83	29.77	11.07	39.92	2	70.00	-16.25	vertical	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo : 2.4

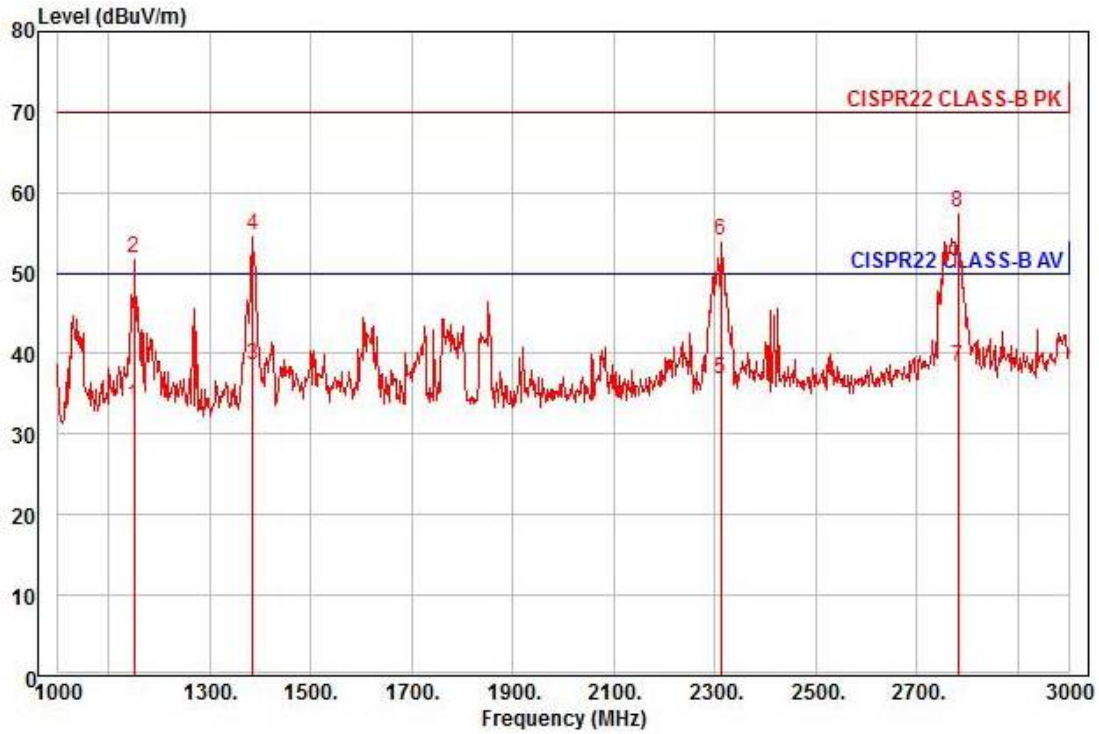
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3213.00	27.44	30.69	11.98	40.12	326	54.00	-24.01	horizontal	Average
2	3213.00	49.14	30.69	11.98	40.12	326	74.00	-22.31	horizontal	Peak
3	4149.00	30.49	32.86	13.30	40.53	315	54.00	-17.88	horizontal	Average
4	4149.00	50.46	32.86	13.30	40.53	315	74.00	-17.91	horizontal	Peak
5 pp	5553.00	27.84	36.60	15.88	40.26	341	54.00	-13.94	horizontal	Average
6 pk	5553.00	47.80	36.60	15.88	40.26	341	74.00	-13.98	horizontal	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo : 2.4

	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	3882.00	26.99	31.81	12.87	40.53	14	54.00	-22.86	vertical	Average
2	3882.00	44.04	31.81	12.87	40.53	14	74.00	-25.81	vertical	Peak
3 pp	4161.00	32.94	32.93	13.33	40.52	353	54.00	-15.32	vertical	Average
4 pk	4161.00	52.81	32.93	13.33	40.52	353	74.00	-15.45	vertical	Peak
5	4905.00	24.38	37.18	14.70	40.17	243	54.00	-17.91	vertical	Average
6	4905.00	39.05	37.18	14.70	40.17	243	74.00	-23.24	vertical	Peak
7	5541.00	25.50	36.63	15.85	40.26	26	54.00	-16.28	vertical	Average
8	5541.00	43.01	36.63	15.85	40.26	26	74.00	-18.77	vertical	Peak

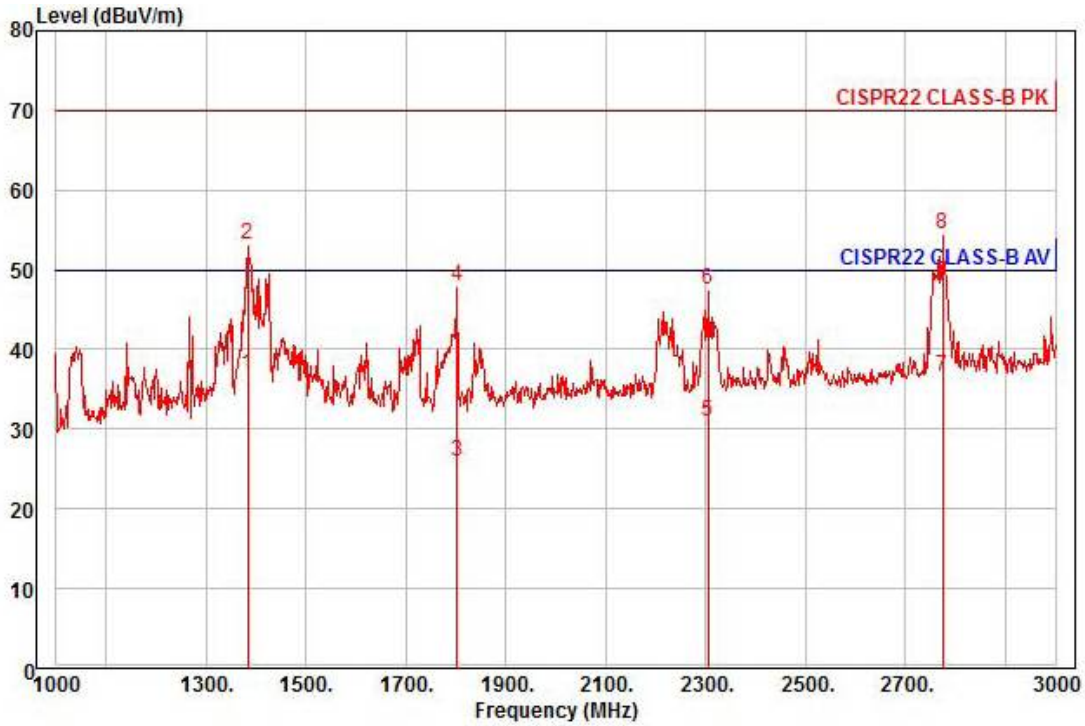
■ WiFi5 GHz Mode



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo :

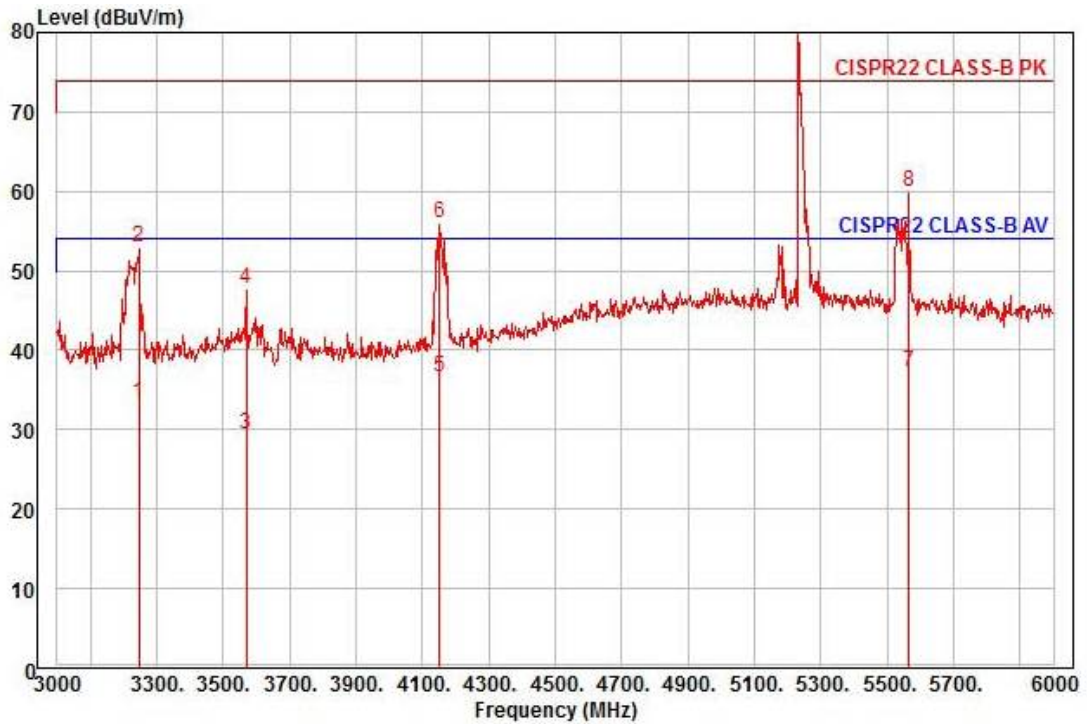
	Read Freq	Ant Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1150.00	42.74	24.51	6.48	40.08	310	50.00	-16.35	horizontal	Average
2	1150.00	60.89	24.51	6.48	40.08	310	70.00	-18.20	horizontal	Peak
3 pp	1386.00	46.04	25.44	7.16	39.98	360	50.00	-11.34	horizontal	Average
4	1386.00	62.14	25.44	7.16	39.98	360	70.00	-15.24	horizontal	Peak
5	2312.00	38.29	28.64	9.79	39.79	335	50.00	-13.07	horizontal	Average
6	2312.00	55.38	28.64	9.79	39.79	335	70.00	-15.98	horizontal	Peak
7	2782.00	37.35	29.80	11.09	39.93	329	50.00	-11.69	horizontal	Average
8 pk	2782.00	56.56	29.80	11.09	39.93	329	70.00	-12.48	horizontal	Peak

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



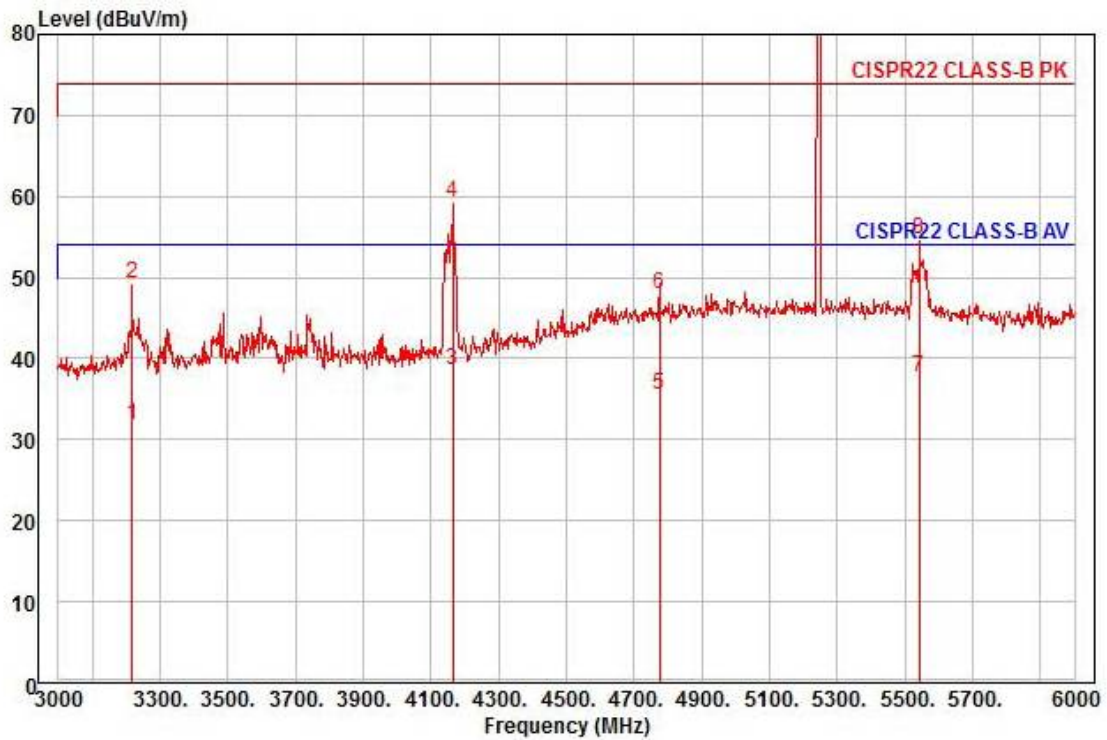
Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo :

	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	1384.00	44.16	25.43	7.15	39.98	169	50.00	-13.24	vertical	Average
2	1384.00	60.63	25.43	7.15	39.98	169	70.00	-16.77	vertical	Peak
3	1802.00	30.35	27.09	8.35	39.79	11	50.00	-24.00	vertical	Average
4	1802.00	52.21	27.09	8.35	39.79	11	70.00	-22.14	vertical	Peak
5	2306.00	32.45	28.63	9.77	39.79	2	50.00	-18.94	vertical	Average
6	2306.00	48.95	28.63	9.77	39.79	2	70.00	-22.44	vertical	Peak
7	2774.00	35.69	29.78	11.07	39.92	347	50.00	-13.38	vertical	Average
8 pk	2774.00	53.56	29.78	11.07	39.92	347	70.00	-15.51	vertical	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) horizontal
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo :

	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	3246.00	30.75	30.74	12.03	40.14	36	54.00	-20.62	horizontal	Average
2	3246.00	50.39	30.74	12.03	40.14	36	74.00	-20.98	horizontal	Peak
3	3570.00	25.93	31.29	12.46	40.34	360	54.00	-24.66	horizontal	Average
4	3570.00	44.37	31.29	12.46	40.34	360	74.00	-26.22	horizontal	Peak
5	4152.00	31.04	32.88	13.31	40.53	313	54.00	-17.30	horizontal	Average
6	4152.00	50.38	32.88	13.31	40.53	313	74.00	-17.96	horizontal	Peak
7 av	5565.00	25.00	36.58	15.90	40.26	339	54.00	-16.78	horizontal	Average
8 pp	5565.00	47.82	36.58	15.90	40.26	339	74.00	-13.96	horizontal	Peak



Site : chamber
 Condition: CISPR22 CLASS-B PK 3m HORN781(2015.05.07) vertical
 : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
 Project : LCD MONITOR
 Model : SMT-3232A
 Mode : CE
 Memo :

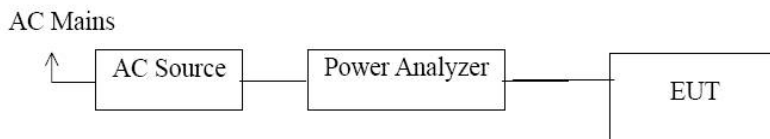
	Read	Ant	Cable	Preamp	TPos	Limit	Over			
Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB			
1	3219.00	29.35	30.70	11.99	40.12	16	54.00	-22.08	vertical	Average
2	3219.00	46.72	30.70	11.99	40.12	16	74.00	-24.71	vertical	Peak
3 av	4164.00	32.75	32.95	13.33	40.52	351	54.00	-15.49	vertical	Average
4 pp	4164.00	53.54	32.95	13.33	40.52	351	74.00	-14.70	vertical	Peak
5	4776.00	24.85	36.44	14.46	40.23	1	54.00	-18.48	vertical	Average
6	4776.00	37.26	36.44	14.46	40.23	1	74.00	-26.07	vertical	Peak
7	5541.00	25.49	36.63	15.85	40.26	23	54.00	-16.29	vertical	Average
8	5541.00	42.47	36.63	15.85	40.26	23	74.00	-19.31	vertical	Peak

5.3 Harmonics / Voltage Fluctuations Measurements

5.3.1 Test Description

Harmonics of the fundamental current were measured up to 2 kHz using a universal power analyzer. The measurements were carried out under steady conditions and using averaging.

Before making measurements the class of the E.U.T has been evaluated, it is necessary for the E.U.T to decide which class the E.U.T fulfills into; A, B, C or D



5.3.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
AC Source	EM test	ACS 500 N	V1024106760	08. 13. 2016
Digital Power Analyzer	EM test	DPA 500 N	V1024106759	08. 13. 2016

5.3.3 Test Environments

Ambient Temperatures : 21.0 °C
 Relative Humidity : 46.7 % R.H.

5.3.4 Test Procedures

The E.U.T was installed and placed on a non-conductive table and was connected to the AC power source, 230 V (ac), 50 Hz via the measuring equipment with its attached AC power cord. All other equipment or peripherals included in the test, and having a separate power supply, are connected to the outlet, supplying 230 V (ac), 50 Hz. A typical configuration is defined in the specification ANSI 63.4 or CISPR22. This ensures the repeatability of the test.

The E.U.T is set in operation and was monitored for measurements with the software, supplied by test equipment manufacturer. An EMC test program provided by client was used to exercise the E.U.T.



5.3.5 Test Results

Harmonic test is not applicable.

According to the data in section 5.6.6 and 5.3.7, the EUT complied with the EN61000-3-2:2006 and EN61000-3-3:2008 standards, and detailed test results are found in the following test data.

5.3.6 Test Data - Homonic

Test Date: 09. 04. 2015

Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	235.806E-3			
2	4.093E-3			PASS
3	218.907E-3	4.138	5.29	PASS
4	5.477E-3	0.554	989.00E-3	PASS
5	204.656E-3	7.805	2.62	PASS
6	5.160E-3	0.748	690.00E-3	PASS
7	184.704E-3	10.429	1.77	PASS
8	4.785E-3			PASS
9	160.334E-3	17.428	920.00E-3	PASS
10	4.284E-3			PASS
11	133.442E-3	17.581	759.00E-3	PASS
12	3.818E-3			PASS
13	105.191E-3	21.779	483.00E-3	PASS
14	3.134E-3			PASS
15	77.774E-3	22.543	345.00E-3	PASS
16	2.461E-3			PASS
17	53.288E-3	17.506	304.40E-3	PASS
18	1.966E-3			PASS
19	32.220E-3	11.830	272.37E-3	PASS
20	1.769E-3			PASS
21	17.653E-3	4.776	369.63E-3	PASS
22	1.639E-3			PASS
23	12.776E-3	3.785	337.51E-3	PASS
24	1.536E-3			PASS
25	15.981E-3	5.147	310.50E-3	PASS
26	1.624E-3			PASS
27	18.492E-3	6.432	287.49E-3	PASS
28	1.498E-3			PASS
29	18.677E-3	6.977	267.69E-3	PASS
30	1.450E-3			PASS
31	16.400E-3	6.550	250.40E-3	PASS
32	1.208E-3			PASS
33	12.330E-3	5.242	235.22E-3	PASS
34	1.077E-3			PASS
35	8.372E-3	3.775	221.80E-3	PASS
36	942.733E-6			PASS
37	4.109E-3			PASS
38	881.013E-6			PASS
39	3.673E-3			PASS
40	895.410E-6			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded



Test Data - Harmonics (continued)

<i>Maximum harmonic voltage results</i>				
Hn	I _{eff} [A]	U _{eff} [%]	Limit [%]	Result
1	239.178E-3			
2	5.678E-3	0.152	3.73	PASS
3	222.145E-3	2.800	7.93	PASS
4	7.578E-3	0.511	1.48	PASS
5	207.312E-3	5.271	3.93	PASS
6	6.727E-3	0.650	1.04	PASS
7	186.858E-3	7.034	2.66	PASS
8	6.293E-3	0.793	793.50E-3	PASS
9	161.716E-3	11.719	1.38	PASS
10	5.915E-3	0.932	634.80E-3	PASS
11	135.116E-3	11.868	1.14	PASS
12	5.958E-3	1.126	528.99E-3	PASS
13	107.834E-3	14.884	724.50E-3	PASS
14	5.236E-3	1.155	453.43E-3	PASS
15	80.334E-3	15.524	517.50E-3	PASS
16	4.059E-3			PASS
17	55.987E-3	12.262	456.61E-3	PASS
18	3.423E-3			PASS
19	34.830E-3	8.525	408.55E-3	PASS
20	2.880E-3			PASS
21	19.546E-3	5.288	369.63E-3	PASS
22	2.157E-3			PASS
23	13.615E-3	4.034	337.51E-3	PASS
24	2.131E-3			PASS
25	17.530E-3	5.646	310.50E-3	PASS
26	2.023E-3			PASS
27	19.713E-3	6.857	287.49E-3	PASS
28	1.882E-3			PASS
29	19.188E-3	7.168	267.69E-3	PASS
30	1.908E-3			PASS
31	17.028E-3	6.800	250.40E-3	PASS
32	1.643E-3			PASS
33	13.414E-3	5.703	235.22E-3	PASS
34	1.408E-3			PASS
35	9.512E-3	4.288	221.80E-3	PASS
36	1.234E-3			PASS
37	5.024E-3	2.395	209.79E-3	PASS
38	1.107E-3			PASS
39	4.758E-3			PASS
40	1.112E-3			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded



WiFi Mode

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	236.560E-3			
2	3.747E-3			PASS
3	219.755E-3	4.154	5.29	PASS
4	5.163E-3	0.522	989.00E-3	PASS
5	205.168E-3	7.825	2.62	PASS
6	4.819E-3			PASS
7	185.244E-3	10.460	1.77	PASS
8	4.554E-3			PASS
9	160.392E-3	17.434	920.00E-3	PASS
10	4.114E-3			PASS
11	133.361E-3	17.571	759.00E-3	PASS
12	3.720E-3			PASS
13	105.211E-3	21.783	483.00E-3	PASS
14	3.132E-3			PASS
15	77.214E-3	22.381	345.00E-3	PASS
16	2.449E-3			PASS
17	52.331E-3	17.191	304.40E-3	PASS
18	1.961E-3			PASS
19	31.690E-3	11.635	272.37E-3	PASS
20	1.725E-3			PASS
21	17.306E-3	4.682	369.63E-3	PASS
22	1.536E-3			PASS
23	12.857E-3	3.809	337.51E-3	PASS
24	1.485E-3			PASS
25	16.341E-3	5.263	310.50E-3	PASS
26	1.578E-3			PASS
27	18.814E-3	6.544	287.49E-3	PASS
28	1.500E-3			PASS
29	18.849E-3	7.041	267.69E-3	PASS
30	1.443E-3			PASS
31	16.335E-3	6.523	250.40E-3	PASS
32	1.174E-3			PASS
33	12.112E-3	5.149	235.22E-3	PASS
34	1.014E-3			PASS
35	8.030E-3	3.620	221.80E-3	PASS
36	859.044E-6			PASS
37	3.956E-3			PASS
38	794.323E-6			PASS
39	3.706E-3			PASS
40	847.565E-6			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded



Test Data - Harmonics (continued)

<i>Maximum harmonic voltage results</i>				
Hn	I _{eff} [A]	U _{eff} [%]	Limit [%]	Result
1	237.304E-3			
2	5.154E-3	0.138	3.73	PASS
3	220.269E-3	2.776	7.93	PASS
4	7.011E-3	0.473	1.48	PASS
5	205.712E-3	5.230	3.93	PASS
6	6.086E-3	0.588	1.04	PASS
7	185.704E-3	6.991	2.66	PASS
8	5.632E-3	0.710	793.50E-3	PASS
9	161.039E-3	11.670	1.38	PASS
10	5.155E-3	0.812	634.80E-3	PASS
11	133.985E-3	11.769	1.14	PASS
12	5.155E-3	0.974	528.99E-3	PASS
13	106.580E-3	14.711	724.50E-3	PASS
14	4.553E-3			PASS
15	78.042E-3	15.081	517.50E-3	PASS
16	3.608E-3			PASS
17	53.594E-3	11.737	456.61E-3	PASS
18	2.887E-3			PASS
19	32.817E-3	8.033	408.55E-3	PASS
20	2.446E-3			PASS
21	18.290E-3	4.948	369.63E-3	PASS
22	1.902E-3			PASS
23	13.394E-3	3.969	337.51E-3	PASS
24	1.871E-3			PASS
25	17.003E-3	5.476	310.50E-3	PASS
26	1.909E-3			PASS
27	19.351E-3	6.731	287.49E-3	PASS
28	1.808E-3			PASS
29	19.232E-3	7.184	267.69E-3	PASS
30	1.766E-3			PASS
31	16.622E-3	6.638	250.40E-3	PASS
32	1.504E-3			PASS
33	12.506E-3	5.317	235.22E-3	PASS
34	1.283E-3			PASS
35	8.322E-3	3.752	221.80E-3	PASS
36	1.035E-3			PASS
37	4.347E-3			PASS
38	1.001E-3			PASS
39	4.044E-3			PASS
40	996.361E-6			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded

5.3.7 Test Data - Voltage Fluctuations

■ Vedio display unit Mode

Maximum Flicker results

	E.U.T values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.019	3.30	PASS
dmax [%]	0.062	4.00	PASS
dt [s]	0.000	0.50	PASS

■ WiFi Mode

Maximum Flicker results

	E.U.T values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.021	3.30	PASS
dmax [%]	0.062	4.00	PASS
dt [s]	0.000	0.50	PASS

5.4 Electrostatic Discharge Immunity

5.4.1 Test Description

The E.U.T and all local support equipment were placed on non-metallic support 0.8 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode.

5.4.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
ESD SIMULATOR	Noise Ken	ESS-2000	ESS05X4620	06. 30. 2016

5.4.3 Test Environment

Ambient Temperatures :	15 °C ~ 35 °C
Relative Humidity :	25 % R.H. ~ 75 % R.H.
Atmospheric Pressure :	86.0 kPa ~ 106.0 kPa

5.4.4 Test Levels

Discharge Impedance :	330 Ω ± 10 % / 150 pF ± 10 %
Type of Discharge :	Direct - Air Discharge (± 2 kV & ± 4 kV & ± 8 kV), Contact Discharge (± 6 kV) Indirect - HCP Discharge (± 2 kV & ± 4 kV & ± 6 kV) VCP Discharge (± 2 kV & ± 4 kV & ± 6 kV)
Polarity of Output Voltage :	Positive and Negative
Discharge Repetition Rate :	1/sec
Number of Discharges :	more than 10 times
Performance Criteria :	B

5.4.5 Test Procedure

Test programs and software were chosen so as to exercise all normal modes of operation of the E.U.T. The use of special exercising software is encouraged, but permitted only where it can be shown that the E.U.T is being comprehensively exercised.

The test was conducted in the following order: Air Discharge, Direct Contact Discharge, Indirect Contact Horizontal Coupling Plane (HCP) Discharge, and Indirect Contact Vertical Coupling Plane (VCP) Discharge. The electrostatic discharge test levels were set and discharges for the different test modes were set appropriately. The electrostatic discharge is applied to the conductive surface of the E.U.T, and along all seams and control surfaces on the E.U.T. When a discharge occurs and an error is caused, the type of error, discharge level and location is recorded.

5.4.6 Test Results

According to the data in section 5.4.7, the E.U.T complied with the EN61000-4-2 standards, and detailed test results are found in the following test data.

5.4.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ WiFi Mode

Indirect Discharge

No.	Test Point	Discharge Method	Performance Results	Remarks
1	HCP Contact	Contact Discharge	A	-
2	VCP Contact	Contact Discharge	A	-

Direct Discharge

No.	Test Point	Discharge Method	Performance Results	Remarks
1	LCD	Air Discharge	A	-

■ Vedio display unit Mode

Indirect Discharge

No.	Test Point	Discharge Method	Performance Results	Remarks
1	HCP Contact	Contact Discharge	A	-
2	VCP Contact	Contact Discharge	A	-

Direct Discharge

No.	Test Point	Discharge Method	Performance Results	Remarks
1	LCD	Air Discharge	A	-
2	Screw	Contact Discharge	A	-
3	Port	Air Discharge	A	-

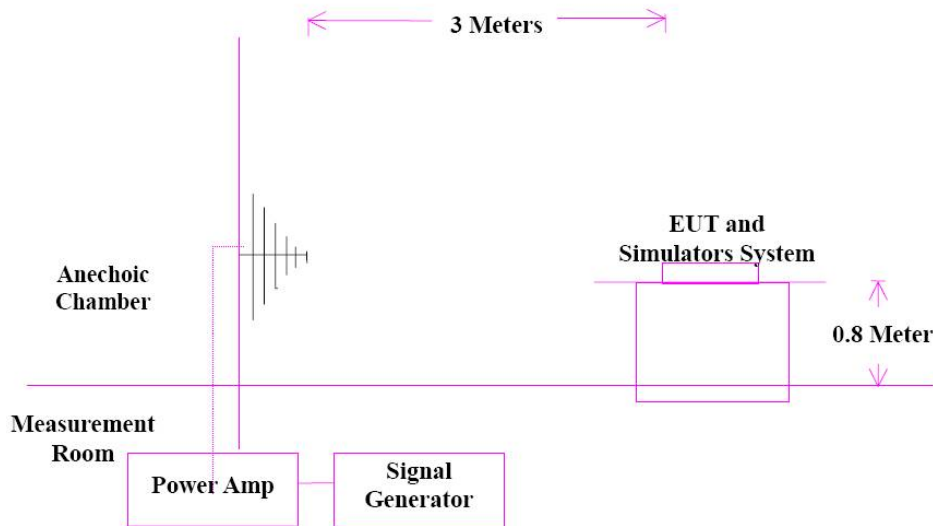
Performance Results

- A: Normal performance within the specification limits.
- B: Temporary degradation or loss of function or performance which is self-recoverable.
- C: Temporary degradation or loss of function or performance which requires operator intervention or system reset.

5.5 Radio-frequency electromagnetic field Amplitude modulated Immunity

5.5.1 Test Description

The E.U.T and all local support equipment were placed on a non-metallic support 0.8 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode.



5.5.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
SIGNAL GENERATOR	Rohde & Schwarz	SMB 100A	108252	08. 13. 2016
BROADBAND AMPLIFIER	Rohde & Schwarz	BBA100	101239	08. 13. 2016
BROADBAND AMPLIFIER	AR	100S1G6M1	579931	08. 13. 2016
POWER METER	Rohde & Schwarz	NRP2	103475	08. 13. 2016
AVG POWER SENSOR	Rohde & Schwarz	NRP-Z91	102526	08. 13. 2016
AVG POWER SENSOR	Rohde & Schwarz	NRP-Z91	102527	08. 13. 2016
Stacked Log.-Per.Antenna	Schwarzbeck	STLP 9128 D	9128D038	-
RS CHAMBER (EMI 18 GHz)	SEMITEC	-	-	-

5.5.3 Test Environments

Ambient Temperatures :	15 °C ~ 35 °C
Relative Humidity :	30 % R.H. ~ 75 % R.H.
Atmospheric Pressure :	86.0 kPa ~ 106.0 kPa

5.5.4 Test Levels

Frequency Range :	80 MHz to 2 700 MHz
Field Strength :	10 V/m(3 V/m, 1 V/m)
Modulation :	80 % Amplitude Modulation (1 kHz) Pulse Modulation (1 Hz (0.5 s ON: 0.5 s OFF))
Distance of ANT-E.U.T :	3 meters
Antenna Polarity :	Horizontal and Vertical
Frequency Step :	1 %
Performance Criteria :	A

5.5.5 Test Procedures

The E.U.T is set into operation and was monitored for variations in performance. The test signal start frequency (80 MHz) and stop frequency (2 700 MHz) were set, including the field strength at 10 V/m(3 V/m, 1 V/m), 80 % modulated through immunity test software. The software maintains the necessary field strength through the frequency range, with the transmitting antenna horizontally polarized. If an error is detected, the field is reduced until the error is not repeatable, the field is then manually increased until the error begins to occur. This threshold level, the frequency and the error created are noted before continuing. The test is then repeated with vertical polarization, using the same test configuration for all four sides.

5.5.6 Test Results

According to the data in section 5.5.7, the E.U.T complied with the EN 61000-4-3 standards, and detailed test results are found in the following test data.

5.5.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

No.	Test Point	Performance Results		Remarks
		Horizontal	Vertical	
1	Front	Complied	Complied	-
2	Rear	Complied	Complied	-
3	Right Side	Complied	Complied	-
4	Left Side	Complied	Complied	-

■ WIFI Mode

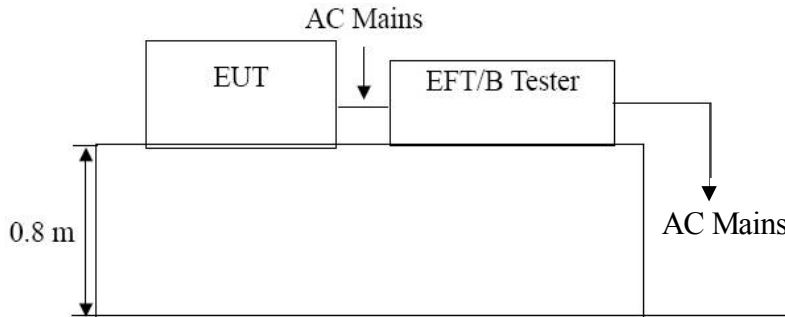
No.	Test Point	Performance Results		Remarks
		Horizontal	Vertical	
1	Front	Complied	Complied	-
2	Rear	Complied	Complied	-
3	Right Side	Complied	Complied	-
4	Left Side	Complied	Complied	-

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5.6 Fast Transient Immunity

5.6.1 Test Description

The E.U.T and all local support equipment were placed a non-metallic support 0.8 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode. If the E.U.T has a non-detachable supply cable more than 1 m long, the excess length of this cable was gathered into a flat coil with a 0.4 m diameter and situated at a distance of 0.1 m above the RGP.



5.6.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
Ultra Compact Simulator	EMC TEST	UCS 500 N5	V0936105120	07. 14. 2016
Motorized Variac	EMC TEST	MV2616	V0936105123	07. 14. 2016
Capacitive Coupling Clamp	EMC TEST	HFK	070925	07. 14. 2016

5.6.3 Test Environments

Ambient Temperatures : 15 °C ~ 35 °C
 Relative Humidity : 25 % R.H. ~ 75 % R.H.
 Atmospheric Pressure : 86.0 kPa ~ 106.0 kPa

5.6.4 Test Levels

Open Circuit Output Test Voltage :	<input checked="" type="checkbox"/> Power Supply AC; ± 2 kV <input type="checkbox"/> Power Supply DC; ± 1 kV <input checked="" type="checkbox"/> I/O Signal, Data and Control ports; ± 1 kV
Repetition Frequency of the Impulses :	100 kHz
Polarity :	Positive and Negative
Rise Time of One Pulse :	5 ns ± 30 %
Impulse Duration :	50 ns ± 30 %
Burst Duration :	15 ms ± 20 %
Burst Period :	300 ms ± 20 %
Performance Criteria :	B

5.6.5 Test Procedure

The E.U.T was connected to the test equipment, and monitored for performance. The test level was set and the test signal was applied for 200 seconds. A test signal of ± 1 kV, and ± 2 kV was Coupled to Line and Ground, Neutral and Ground, Line plus Neutral and Ground, and Protective Earth and Ground. When an error occurs, the test level is reduced until the error recovers and then increased until the threshold level is reached. This threshold and the error conditions were noted. This procedure was then repeated for the other coupling modes.

5.6.6 Test Results

According to the data in section 5.6.7, the E.U.T complied with the EN61000-4-4 standards, and detailed test results are found in the following test data.

5.6.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ WiFi Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	L1	± 2 kV	A	A	-
2	L2	± 2 kV	A	A	-
3	PE	± 2 kV	A	A	-
4	L1-L2	± 2 kV	A	A	-
5	L1-PE	± 2 kV	A	A	-
6	L2-PE	± 2 kV	A	A	-
7	L1-L2-PE	± 2 kV	A	A	-

On DC Power Supply

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	-	± 1 kV	-	-	-
2	-	± 1 kV	-	-	-
3	-	± 1 kV	-	-	-

On I/O Signal, Data and Control ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	-	± 1 kV	-	-	-

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	L1	± 2 kV	A	A	-
2	L2	± 2 kV	A	A	-
3	PE	± 2 kV	A	A	-
4	L1-L2	± 2 kV	A	A	-
5	L1-PE	± 2 kV	A	A	-
6	L2-PE	± 2 kV	A	A	-
7	L1-L2-PE	± 2 kV	A	A	-

On DC Power Supply

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	-	± 1 kV	-	-	-
2	-	± 1 kV	-	-	-
3	-	± 1 kV	-	-	-

On I/O Signal, Data and Control ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Burst	-Burst	
1	RJ-45	± 1 kV	A	A	-

5.7 Surge Immunity

5.7.1 Test Description

The E.U.T and all local support equipment was placed on a non-metallic support 0.8 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode.

5.7.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
Ultra Compact Simulator	EM TEST	UCS 500 N5	V0936105120	07. 14. 2016
MotorVariac	EM TEST	MV2616	V0936105123	07. 14. 2016

5.7.3 Test Environments

Ambient Temperatures :	15 °C ~ 35 °C
Relative Humidity :	25 % R.H. ~ 75 % R.H.
Atmospheric Pressure :	86.0 kPa ~ 106.0 kPa

5.7.4 Test Levels

Open Circuit Test Voltage :	<input checked="" type="checkbox"/> AC Power; ± 0,5 kV & ± 1 kV line-to-line, <input checked="" type="checkbox"/> AC Power; ± 0,5 kV & ± 1 kV & ± 2 kV line-to-ground <input type="checkbox"/> DC Power; ± 0,5 kV & ± 1 kV line-to-ground <input checked="" type="checkbox"/> Data and Control Line; ± 0,5 kV & ± 1 kV line-to-ground
Open Circuit Voltage Waveform :	1.2/50 microsecond
Short Circuit Current Waveform :	8/20 microsecond
Number of Tests :	5 positive and 5 negative
Repetition Rate :	1/min
Performance Criteria :	B

5.7.5 Test Procedure

The surges have to be applied line to line and line(s) and ground. In case of testing line to ground the test voltage has to be applied successively between each of the lines and ground, if there is no other specification. All lower levels including the selected test level must be satisfied. For testing the secondary protection the output voltage of the generator must be increased up to the worst case voltage break down level of the primary protection.

5.7.6 Test Results

According to the data in section 5.7.7, the E.U.T complied with the EN61000-4-5 standards, and detailed test results are found in the following test data.

5.7.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Surge	-Surge	
1	L1-L2	± 2 kV	A	A	-
2	L1-PE	± 2 kV	A	A	-
3	L2-PE	± 2 kV	A	A	-

On I/O Signal, Data and Control ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Surge	-Surge	
-	-	-	-	-	-

■ WIFI Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Surge	-Surge	
1	L1-L2	± 2 kV	A	A	-
2	L1-PE	± 2 kV	A	A	-
3	L2-PE	± 2 kV	A	A	-

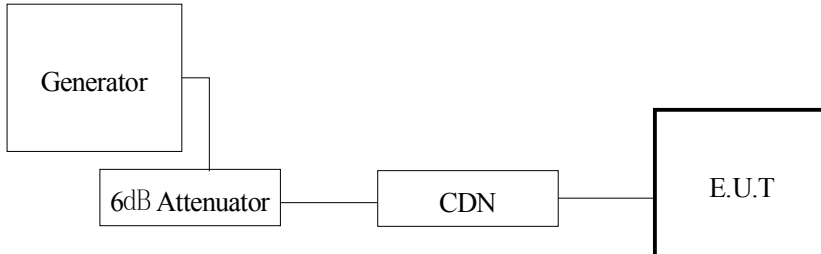
On I/O Signal, Data and Control ports

No.	Test Point	Test Level	Performance Results		Remarks
			+Surge	-Surge	
-	-	-	-	-	-

5.8 Radio-frequency continuous conducted Immunity

5.8.1 Test Descriptions

The E.U.T and all local support equipment were placed on a non-metallic support 0.1 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode.



5.8.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
Continuous Wave Simulator	EM TEST	CWS 500N1	P1251106910	04. 01. 2016
6dB Attenuator	EM TEST	ATT6	1208-34	08. 13. 2016
CDN	EM TEST	CDN-M2/M3N	0909-06	08. 13. 2016
EM Injection Clamp	EM TEST	EM 101	35943	02. 11. 2016

5.8.3 Test Environments

Ambient Temperatures :	15 °C ~ 35 °C
Relative Humidity :	25 % R.H. ~ 75 % R.H.
Atmospheric Pressure :	86.0 kPa ~ 106.0 kPa

5.8.4 Test Levels

Frequency Range :	150 kHz to 100 MHz
Voltage Level :	10 V(3 V, 1 V)
Modulation :	80 % Amplitude Modulation (1 kHz) Pulse Modulation (1 Hz (0.5 s ON: 0.5 s OFF))
Frequency Step :	1 %
Performance Criteria :	A

5.8.5 Test Procedure

The test was performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF-input ports of the coupling devices are terminated by a 50 Ω load resistor. The frequency range is swept from 150 kHz to 100 MHz, using the signal levels established during the setting process, and with the disturbance signal 80 % amplitude modulated with a 1kHz sine wave, pausing to adjust the RF-signal level or to switch coupling device as necessary.

5.8.6 Test Results

According to the data in section 5.8.7, the E.U.T complied with the EN61000-4-6 standards, and detailed test results are found in the following test data.

5.8.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ WiFi Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Performance Results	Remarks
1	CDN-M2/M3N	A	M3N

On DC Power Supply

No.	Test Point	Performance Results	Remarks
1	-	-	-

On I/O Signal, Data and Control ports

No.	Test Point	Performance Results	Remarks
1	-	-	-

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

On AC Power Supply, Protective Earth(PE) ports

No.	Test Point	Performance Results	Remarks
1	CDN-M2/M3N	A	M3N

On DC Power Supply

No.	Test Point	Performance Results	Remarks
1	-	-	-

On I/O Signal, Data and Control ports

No.	Test Point	Performance Results	Remarks
1	RJ-45	A	-

5.9 Voltage Dips and Voltage Interruptions Immunity Measurements

5.9.1 Test Descriptions

The E.U.T and all local support equipment was placed on a non-metallic support 0.8 m above a reference ground plane (RGP) and was put into operation according to the specified operating mode.

5.9.2 Test Equipments

Description	Manufacturer	Model Number	Serial Number	Cal. Due
Ultra Compact Simulator	EM TEST	UCS 500 N5	V0936105120	07. 14. 2016
MotorVariac	EM TEST	MV2616	V0936105123	07. 14. 2016

5.9.3 Test Environments

Ambient Temperatures :	15 °C ~ 35 °C
Relative Humidity :	25 % R.H. ~ 75 % R.H.
Atmospheric Pressure :	86.0 kPa ~ 106.0 kPa

5.9.4 Test Levels

Overshoot/Undershoot of Actual Voltage :	Less than ± 5 % of the change in voltage
Voltage Rise and Fall Time :	Between 1 and 5 microseconds
Test Voltage / Test Frequency :	230 V (ac) / 50 Hz
Frequency Deviation of Test Voltage :	Less than ± 2 % of rated frequency
Number of Tests :	3 times
Test Intervals :	10 sec
Performance Criteria :	B for Voltage Dips C for Voltage Short Interruptions A for Voltage Variation

5.9.5 Test Procedure

For each test any degradation of performance were recorded. The monitoring equipment should be capable of displaying the status of the operational mode of the E.U.T during and after the tests. After each group of tests a full functional check were performed.

5.9.6 Test Results

According to data in section 5.10.7, The E.U.T complied with the EN61000-4-11 Standards, and detailed test results are found in following test data.

5.9.7 Test Data

Temperature: 21.0 °C Humidity: 46.7 % R.H. Test Date: 09. 04. 2015 Tested by: Kang Hyeon, Kim

■ Vedio display unit Mode

Voltage Dips

No.	Depth	Duration	Performance Results	Remarks
1	30 %	25 T	A	-
2	60 %	10 T	A	-
3	100 %	250 T	A	-
4	20 %	250 T	C	-

Voltage variations

No.	Depth	Duration	Performance Results	Remarks
1	Unom + 10 %	253 V (ac)	A	-
2	Unom - 10 %	195.5 V (ac)	A	-

■ WIFI Mode

Voltage Dips

No.	Depth	Duration	Performance Results	Remarks
1	30 %	25 T	A	-
2	60 %	10 T	A	-
3	100 %	250 T	A	-
4	20 %	250 T	C	-

Voltage variations

No.	Depth	Duration	Performance Results	Remarks
1	Unom + 10 %	253 V (ac)	A	-
2	Unom - 10 %	195.5 V (ac)	A	-

Performance Results

- A: Normal performance within the specification limits.
- B: Temporary degradation or loss of function or performance which is self-recoverable.
- C: Temporary degradation or loss of function or performance which requires operator intervention or system reset.

6. Test Setup Photographs

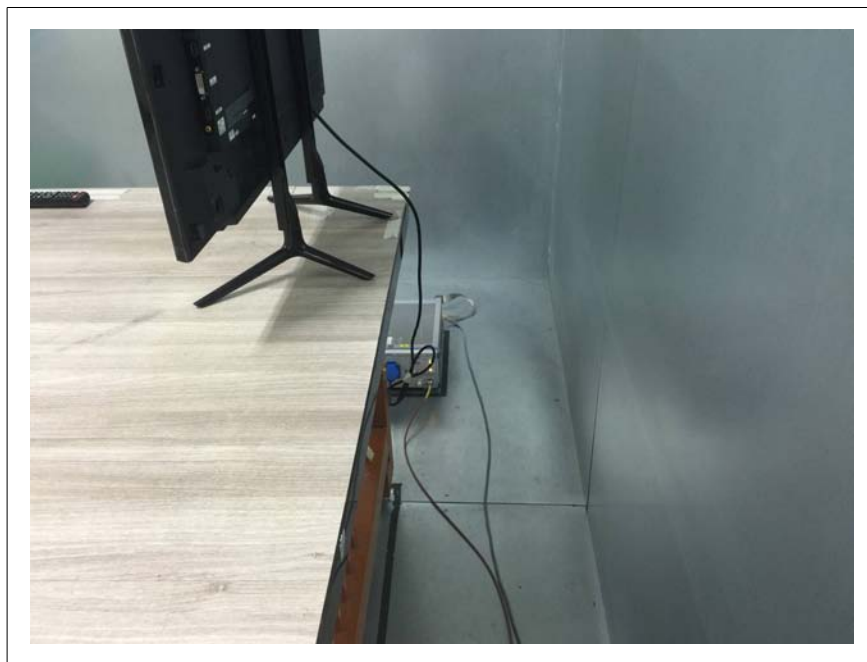
6.1 Conducted Emission

■ D-SUB, DVI, HDMI Mode



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■ WIFI Mode



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- **Telecommunication Emission**



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6.2 Radiated Emission

* Below 1 GHz

■ D-SUB, DVI, HDMI Mode



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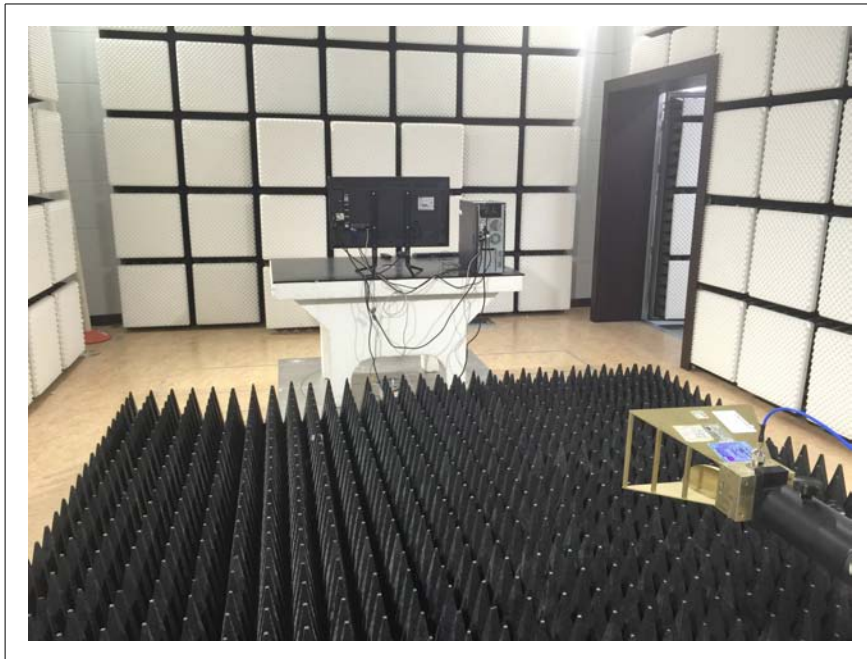
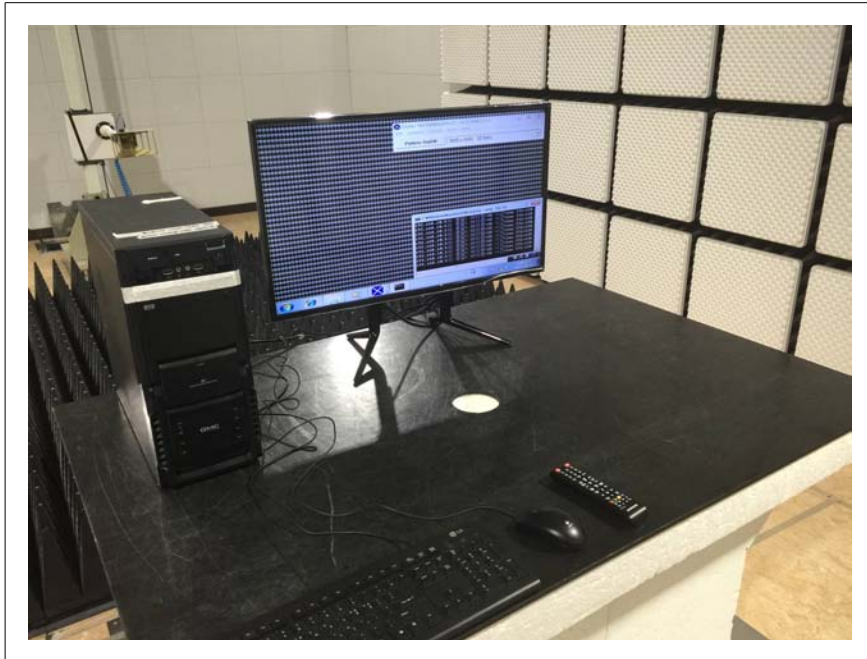
■ WIFI Mode



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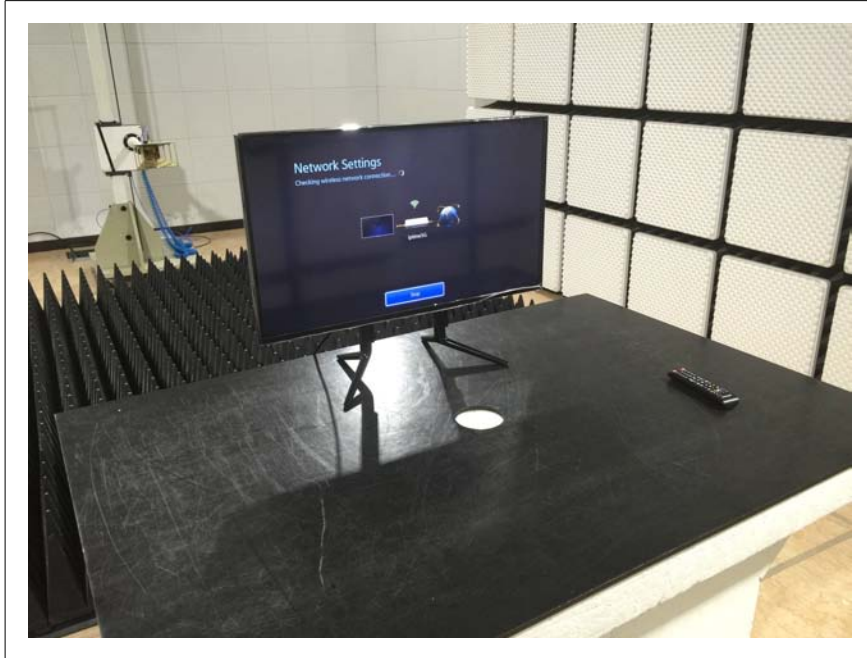
* Above 1 GHz

■ D-SUB, DVI, HDMI Mode



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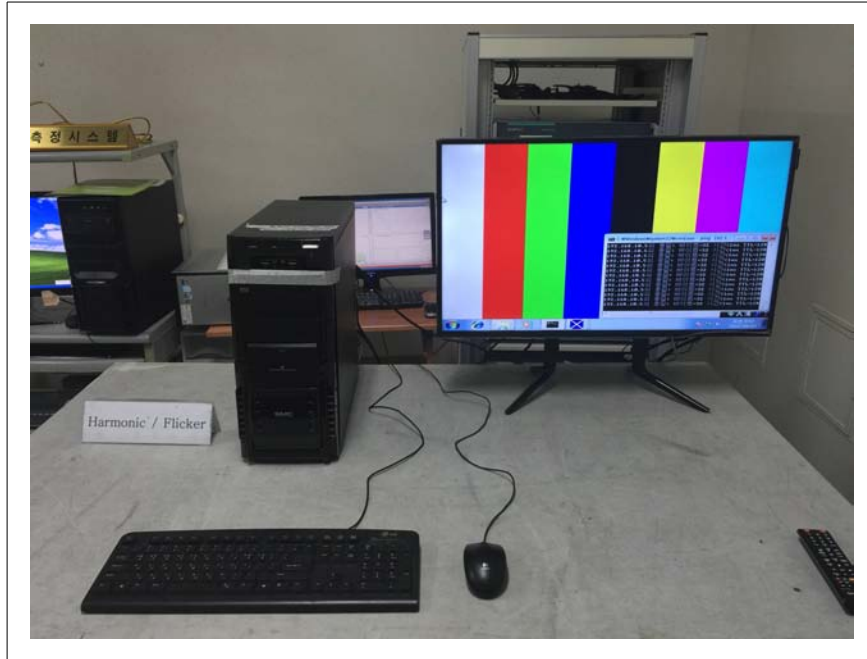
■ WIFI Mode



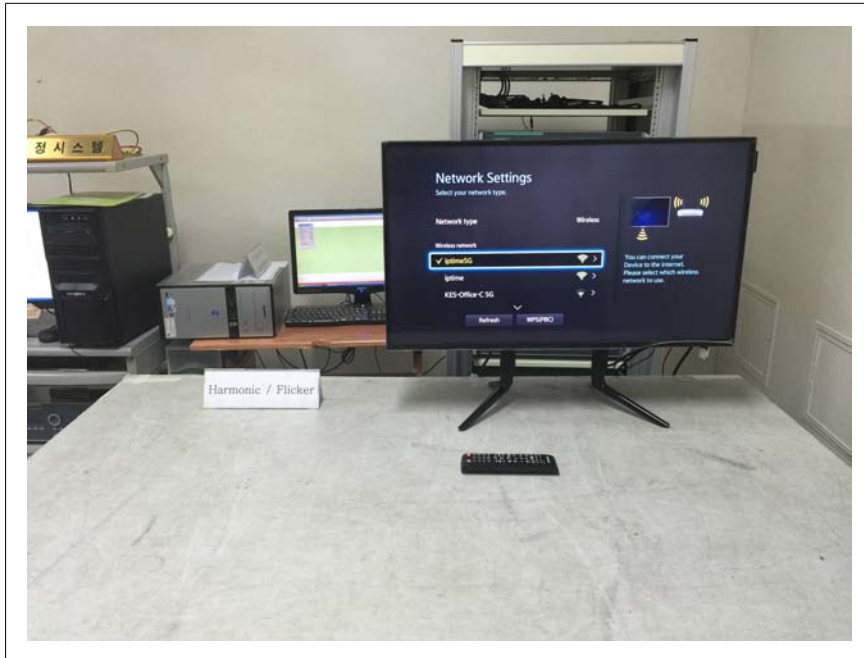
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6.3 Harmonics / Voltage Fluctuations

■ D-SUB, DVI, HDMI Mode



■ WIFI Mode



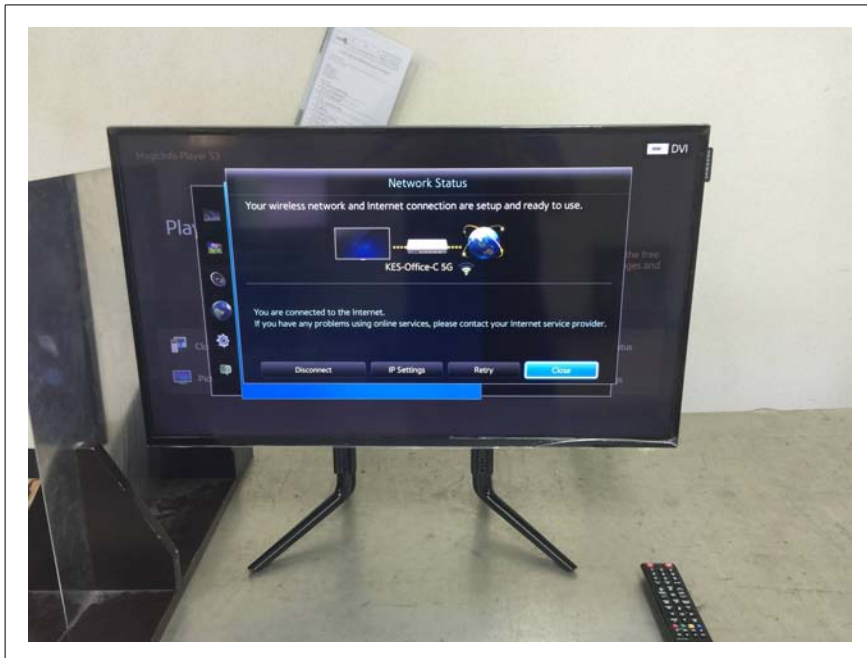
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6.4 Electrostatic Discharge Immunity

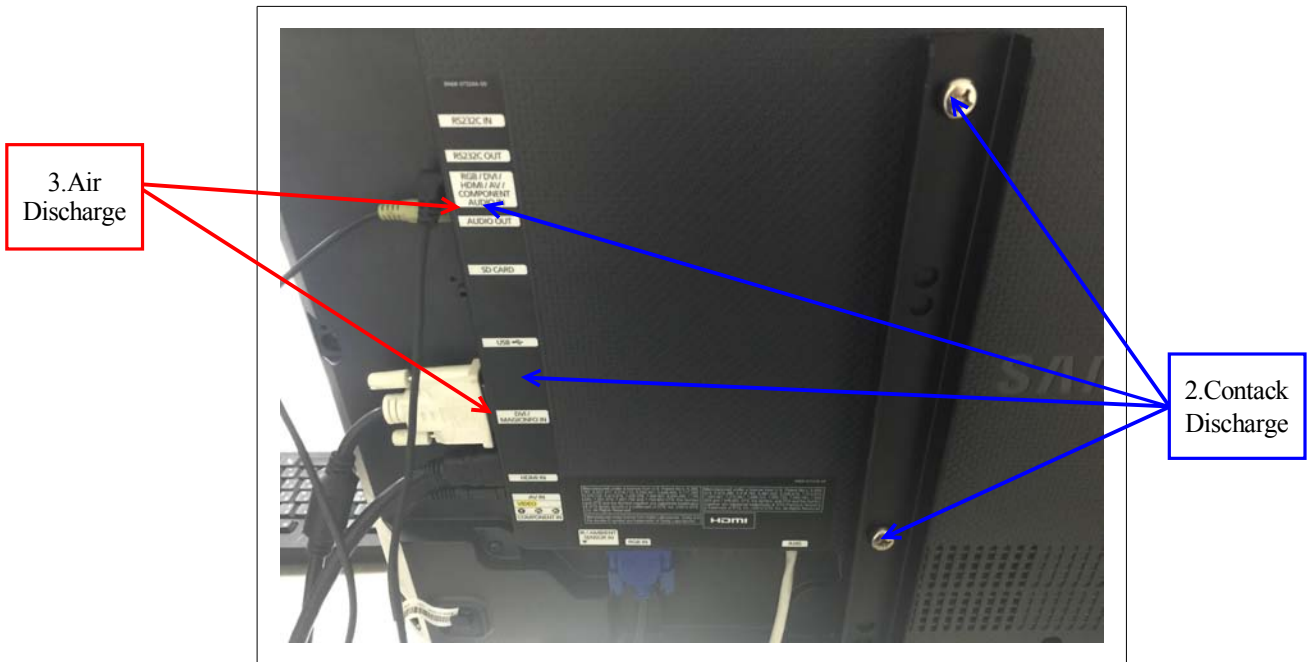
■ D-SUB, DVI, HDMI Mode



■ WIFI Mode

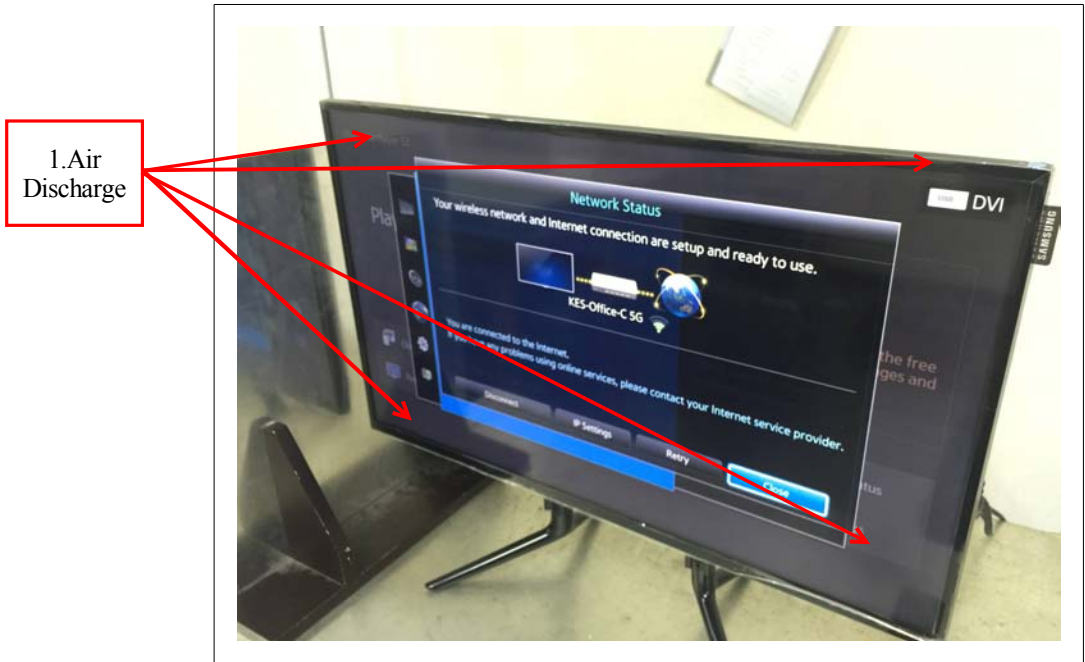


■ D-SUB, DVI, HDMI Mode



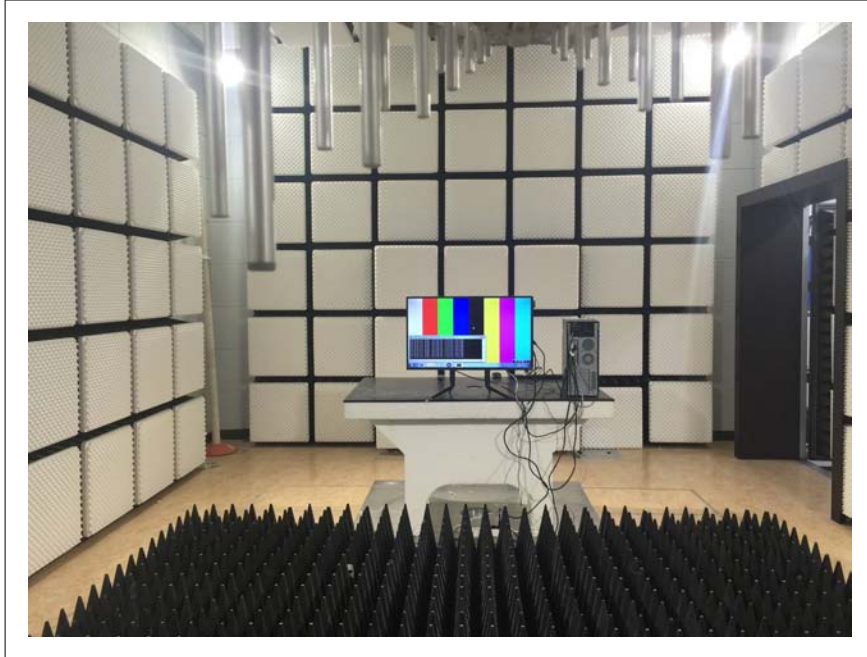
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■ WIFI Mode

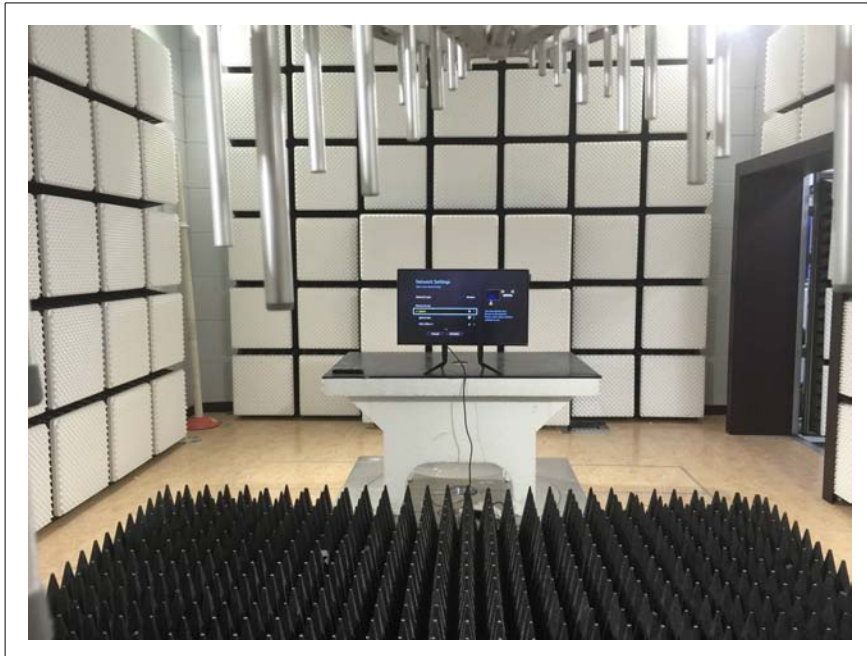


6.5 Radio frequency electromagnetic field immunity

■ D-SUB, DVI, HDMI Mode



■ WIFI Mode



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6.6 Fast Transient Immunity

■ D-SUB, DVI, HDMI Mode



■ WIFI Mode



6.7 Surge Immunity

■ D-SUB, DVI, HDMI Mode



■ WIFI Mode

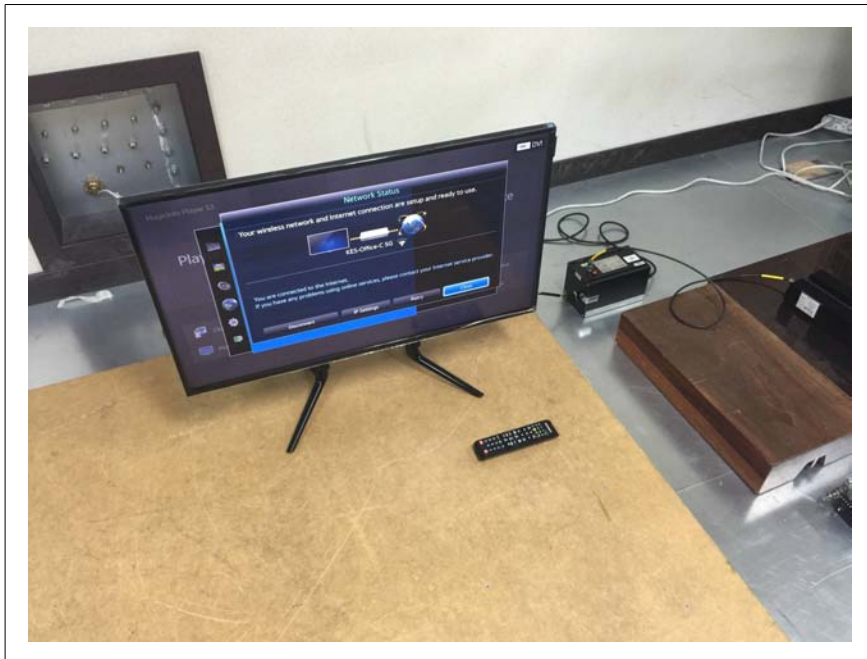


6.8 Radio-frequency continuous conducted Immunity

■ D-SUB, DVI, HDMI Mode



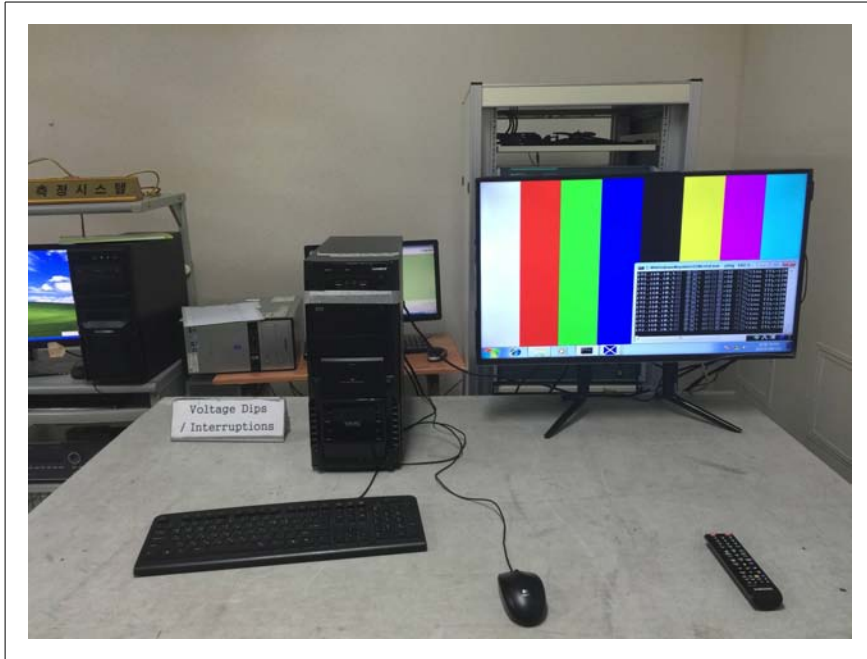
■ WIFI Mode



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6.9 Voltage Dips and Voltage Interruptions Immunity

■ D-SUB, DVI, HDMI Mode



■ WIFI Mode



7. External Photographs



[FRONT VIEW]



[REAR VIEW]

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LCD MONITOR

Model No : SMT-3232A

Manufacturer : Tianjin Samsung Electronics Co.,Ltd.

Made in of Chnia



[LABEL VIEW]

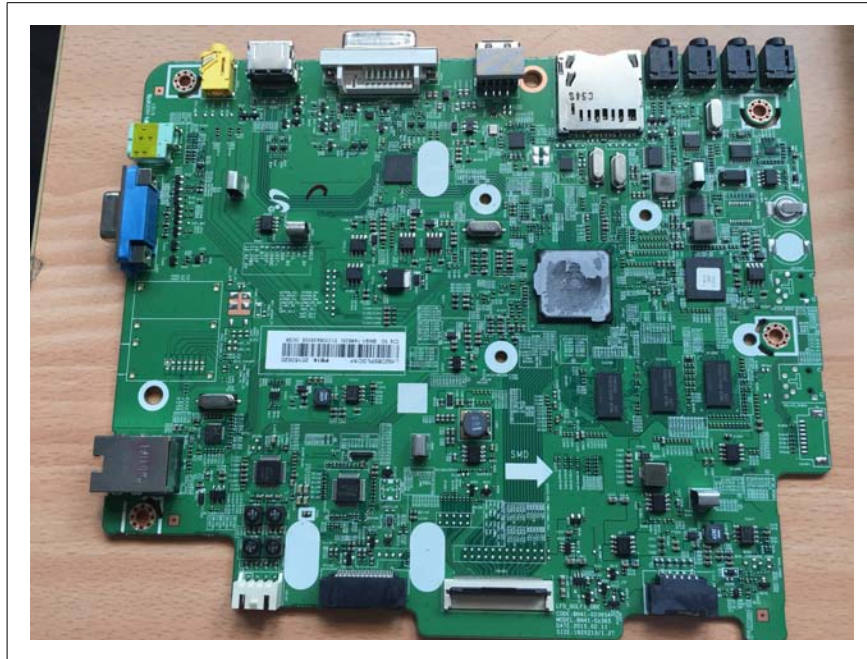
8. Internal Photographs



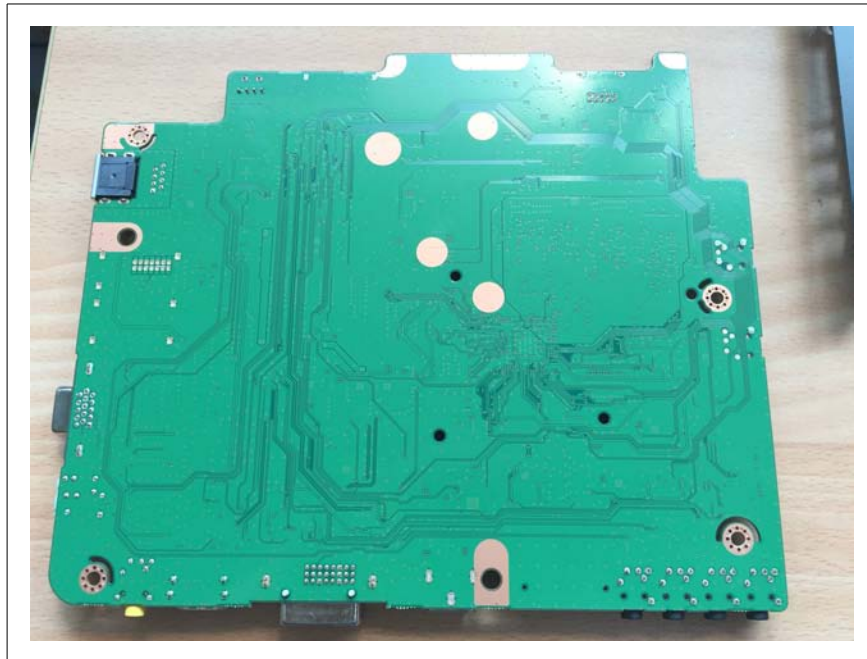
[INTERNAL VIEW]

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○ Main Board



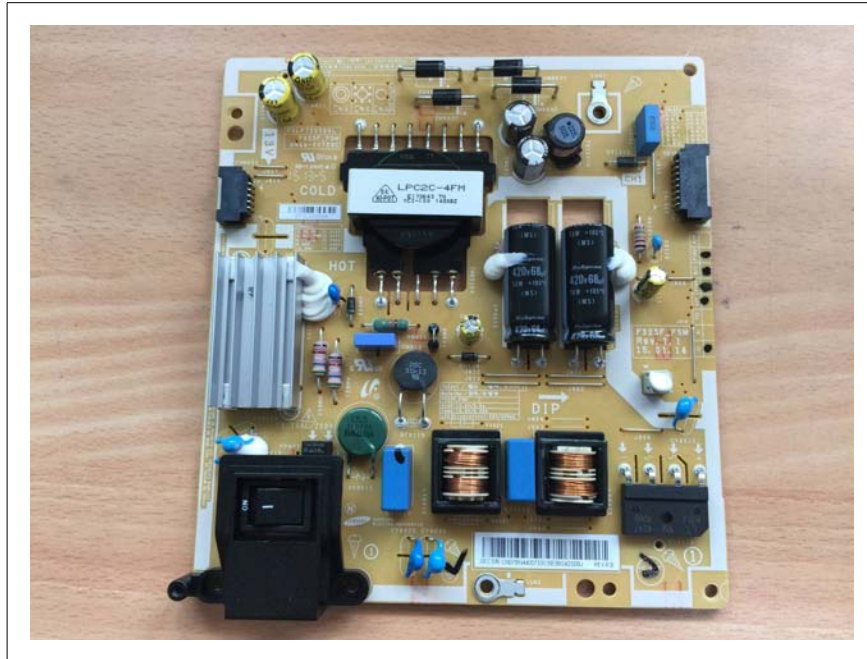
[TOP VIEW]



[BOTTOM VIEW]

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○ Power Board



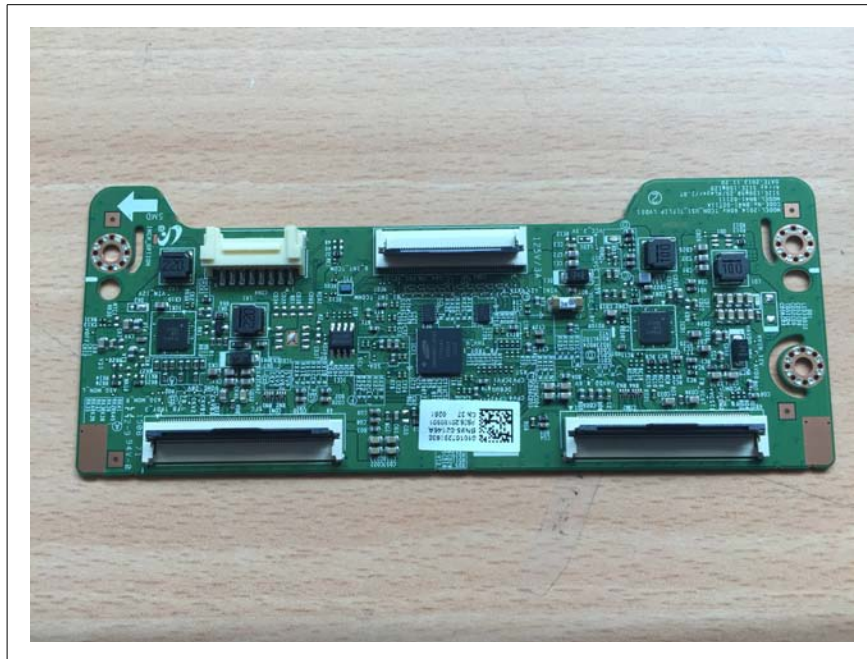
[TOP VIEW]



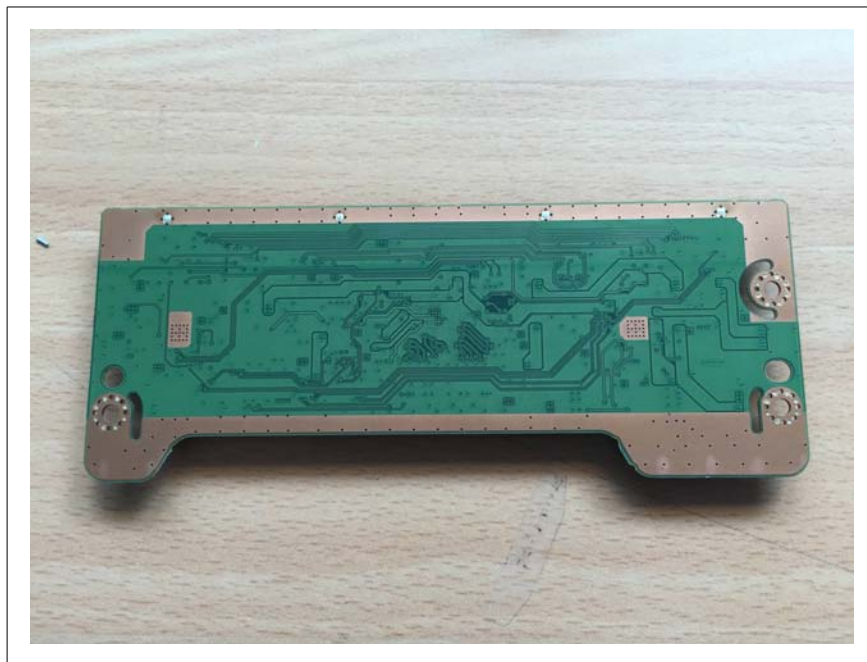
[BOTTOM VIEW]

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○ Board 1



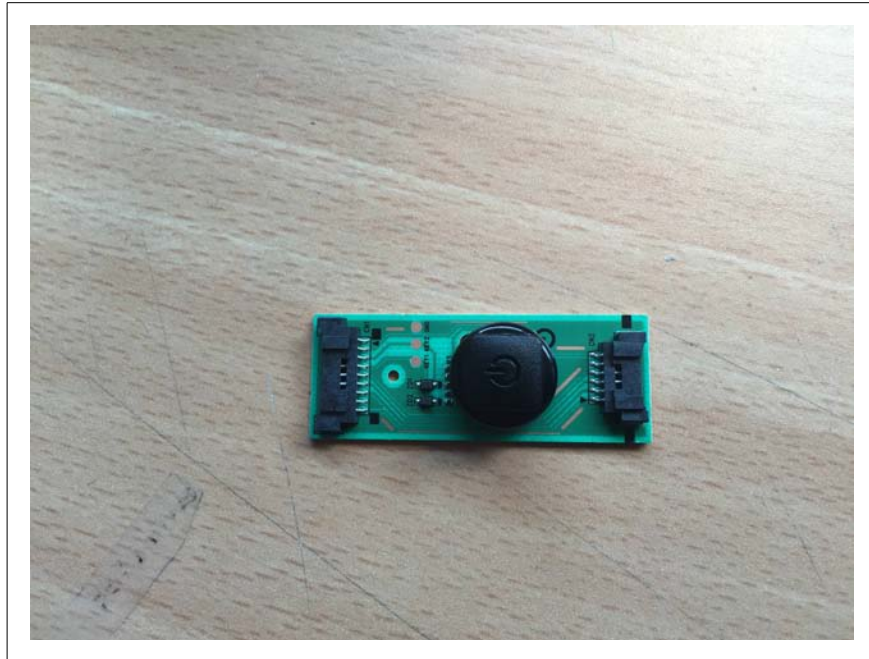
[TOP VIEW]



[BOTTOM VIEW]

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○ Butten Board



[TOP VIEW]



[BOTTOM VIEW]

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○ LCD



[TOP VIEW]



[BOTTOM VIEW]

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○ Module



[TOP VIEW]



[BOTTOM VIEW]

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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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