

EU Declaration of Conformity

SAMSUNG



We hereby declare that the product

Type of equipment : LED MONITOR
Brand Name / Trade Mark : SAMSUNG
Model number : SMT-1935
Variant Model : -

satisfies all the technical regulations applicable to the product within the scope of Council Directives 2014/30/EU

EN 55022:2010 : Limits and methods of measurement of radio disturbance characteristics of information technology equipment
EN 55024:2015 Information technology equipment – immunity characteristics – Limits and methods of measurement
EN 61000-3-2:2014 Limits – Limits for harmonic current emissions (equipment input current ≤ 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 ≤ 16 A per phase and not subject to conditional connection

All essential testing suites have been carried out.

Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co., Ltd.
Manufacturer address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China
Telephone / Fax : 82-02-729-2900 / 82-02-729-2904 (www.hanwhatechwin.com)
Applicant : Hanwha Techwin Co., Ltd.
Applicant address : 1204, Changwon-daero, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea

This declaration is issued under the sole responsibility of the manufacturer and his authorised representative.

Authorized signatory

Name / Title : Jei Soon, Kang / Principal Research Engineer
Date of issue : Jul. 29, 2016



EMC TEST REPORT For CE

Test Report No. : KES-E1-16T0387
Date of Issue : Jul. 29, 2016
Product name : LED MONITOR
Model/Type No. : SMT-1935
Variant Model : -
Applicant : Hanwha Techwin Co., Ltd.
Applicant Address : 1204, Changwon-daero, Seongsan-gu Changwon-si,
Gyeongsangnam-do
Manufacturer : Weihai Daewoo Electronics Co.,Ltd. (Tianjin Communication &
Broad casting Group Electronics Science)
Manufacturer Address : No.26, Hongkong Road, Econmic & Technical Development
Zone, 264205 Weihai City, Shandong Province, China
Date of Receipt : Jul. 12, 2016
Test date : Jul. 21, 2016 – Jul. 27, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Hyun, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (2) of (105)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jul. 29, 2016	KES-E1-16T0387	Issued

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



TABLE OF CONTENTS

1.0	General Product Description	4
1.1	Test Voltage & Frequency	5
1.2	Variant Model Differences.....	5
1.3	Device Modifications	5
1.4	Equipment Under Test.....	5
1.5	Support Equipments	5
1.6	External I/O Cabling	6
1.7	E.U.T Operating Mode(s).....	6
1.8	Configuration.....	7
1.9	Calibration Details of Equipment Used for Measurement.....	9
1.10	Test Facility	9
1.11	Laboratory Accreditations and Listings	9
2.0	Test Regulations.....	10
2.1	Conducted Emissions at Mains Power Ports.....	12
2.2	Conducted Emissions at Telecommunication Ports	13
2.3	Radiated Electric Field Emissions(Below 1 GHz)	14
2.4	Radiated Electric Field Emissions(Above 1 GHz).....	15
2.5	Harmonic Current Emissions.....	16
2.6	Voltage Fluctuations and Flicker	17
3.0	Criteria for compliance.....	18
3.1	Electrostatic Discharge.....	19
3.2	Radiated Electric Field Immunity	28
3.3	Electrical Fast Transients/Bursts	31
3.4	Surge Transients	34
3.5	Conducted Disturbance	39
3.6	Voltage Dips and Short Interruptions	42
APPENDIX A	– TEST DATA.....	45
	Conducted Emissions at Mains Power Ports.....	45
	Conducted Emissions at Telecommunication Ports	51
	Radiated Electric Field Emissions(Below 1 GHz)	53
	Radiated Electric Field Emissions(Above 1 GHz).....	55
	Harmonic Current Emissions and Voltage Fluctuations and Flicker	67
	Test Setup Photos and Configuration	74
	Conducted Voltage Emissions	74
	Conducted Telecommunication Emissions	77
	Radiated Electric Field Emissions(Below 1 GHz)	78
	Radiated Electric Field Emissions(Above 1 GHz).....	81
	Harmonic Current Emissions and Voltage Fluctuations and Flicker	84
	Electrostatic Discharge	86
	Radiated Electric Field Immunity	88
	Electrical Fast Transients/Bursts	90
	Surge Transients.....	92
	Conducted Disturbance.....	94
	Voltage Dips and Short Interruptions.....	96
	EUT External Photographs	98
	EUT Internal Photographs	99



1.0 General Product Description

Main Specifications of E.U.T are:

Model Name		SMT-1935	Remark
Display		LED	
Screen Size		19"	
Max. Resolution		1280 x 1024	
Brightness		250cd/m2	
Contrast Ratio		1,000 : 1	
Aspect Ratio		4:3	
Display		LED	
Screen size		19	
Viewing Angle (H/V)		170°/160°	
Display Color		16.7Million	
Response Time		5ms	
Video System		NTSC / PAL	
Panel Life		30,000 hours	
Filter Type		3D Combfilter	
Interface			
Video	Connector	BNC types: (2 in/2 out)	
RGB	Connector	One(1) Analog RGB 15-pin D-sub	
	Input signal	0.7 Vp-p ±5 %	
HDMI	Connector	One(1) HDMI input (type A connector)	
Audio	Connector	Two(2) RCA type (2 stereo inputs)	
	Output signal	Speakers: two(2) x 1 W	
Application Support		Remote Controller	
On Screen Display		Samsung UI	
Functions		VESA™ DPM Compatible	
Language		English, Spanish, French, German, Italian, Portuguese, Russian Swedish, Turkish, Thai,Dutch,Danish,Arabic,Chinese, Japanese, Korea	
General			
Electrical	Input Voltage	AC100 ~ 240V (50/60Hz)	
	Power consumption	22w	
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)	
	Humidity	20% – 90% (non-condensing)	
Mechanical	Dimensions with Stand (WxHxD)	412mm x 406.5mm x 217.4mm	
	Dimensions without Stand (WxHxD)	412mm x 347mm x 59.4mm	
	Weight	4.8kg	
	LCD Protection Glass	Yes	
	Cabinet Color	Black	
	VESA Mounts Interface	100mm x 100mm	



1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 220 Vac ☒ 230 Vac ☐ 240 Vac ☐ PoE ☐ 12 Vdc
Frequency ☒ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
LED MONITOR	SMT-1935	-	Weihai Daewoo Electronics Co.,Ltd. (Tianjin Communication & Broad cation Group Electronics Science)	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Monitor	SMT-2232	C95V67VF900015Y	Weihai Daewoo Electronics Co., Ltd.	-
Notebook	ProBook4430s	-	HP	-
Notebook Adapter	SeriesPPP0009H	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
BNC Camera	-	-	SAM YOUNG	-
Adapter	ANY1250C-1	14D301023	MH	-
Mobile Phone	A1688	-	APPLE	-

1.6 External I/O Cabling

- BNC Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LED MONITOR (E.U.T)	BNC IN	BNC Camera	BNC OUT	4.0	S
	BNC OUT	Monitor	BNC IN	3.5	S
	Audio Out	Mobile Phone	Audio In	1.0	U

- VGA Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LED MONITOR (E.U.T)	D-SUB	Notebook	D-SUB	1.4	S
	Audio Out	Mobile Phone	Audio In	1.0	U

- HDMI Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LED MONITOR (E.U.T)	HDMI	Mobile Phone	HDMI	1.5	S

* Unshielded=U, Shielded=S

1.7 E.U.T Operating Mode(s)

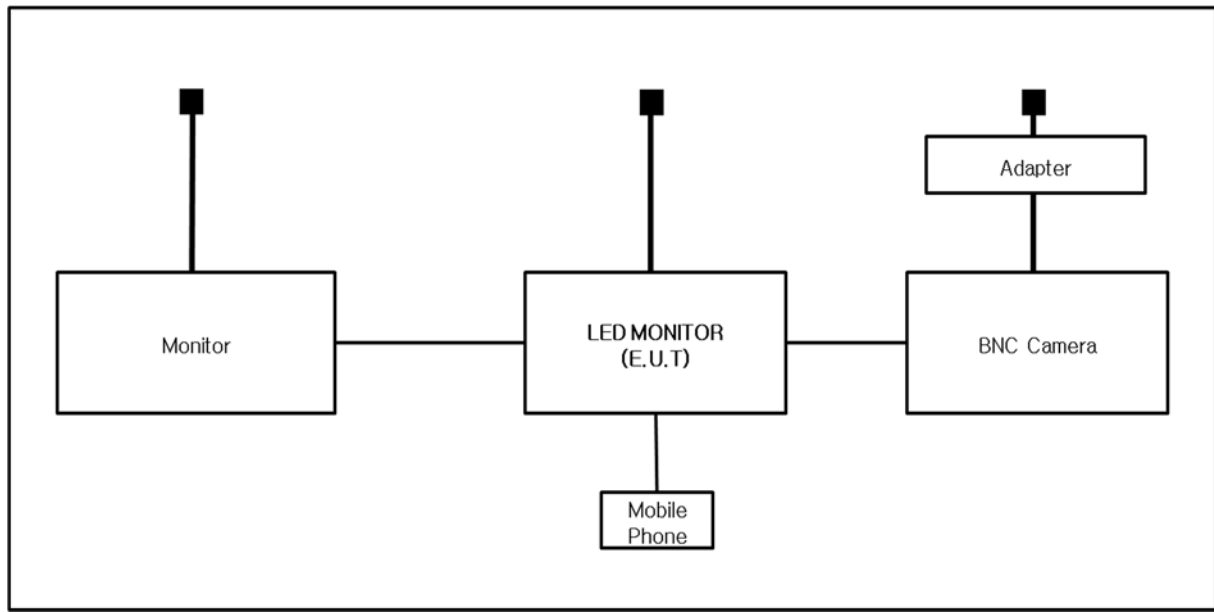
Equipment under test was operated during the measurement under the following conditions:

Test mode	Normal operating
BNC	E.U.T Monitoring
VGA	E.U.T Monitoring
HDMI	E.U.T Monitoring

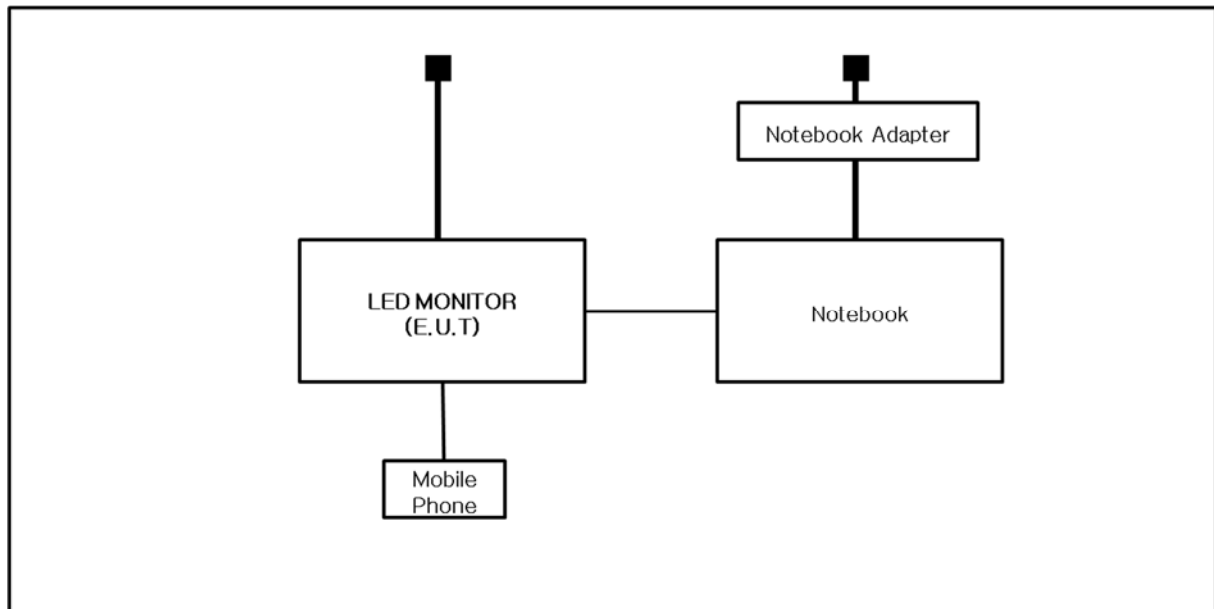
1.8 Configuration

■ AC Main
 □ DC Main

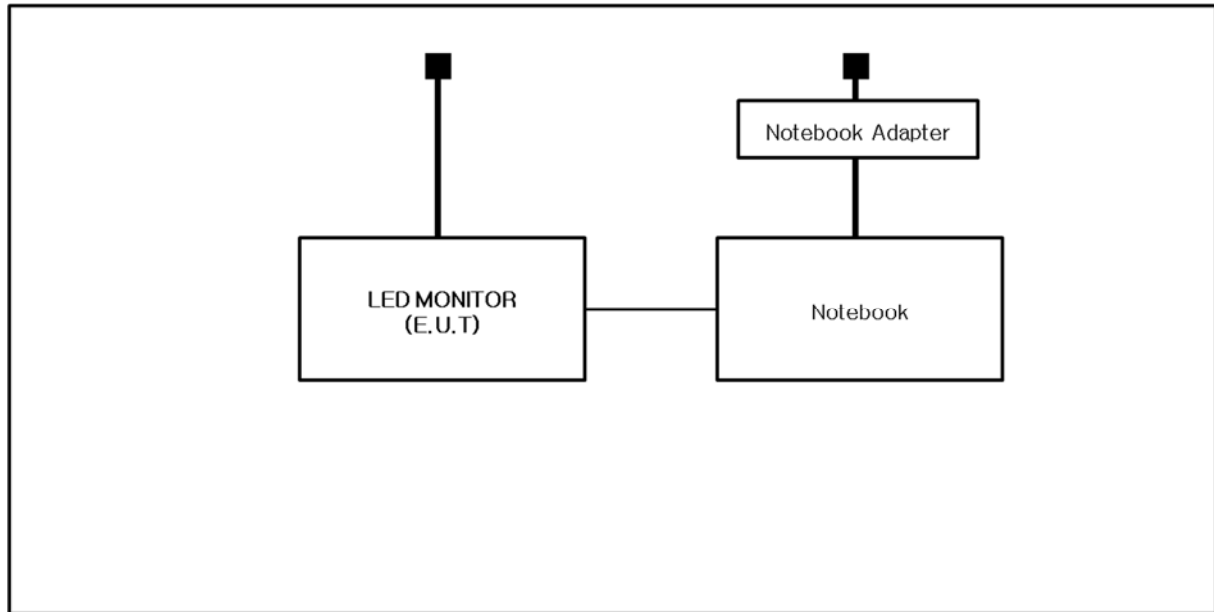
- BNC Mode



- VGA Mode



- HDMI Mode



1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-29 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☒ EN 55022:2010

☒ Class A

☐ Class B

☒ EN 55024:2015

☐ EN 50130-4:2011 +A1:2014

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☐ EN 61326-1:2013

☐ VCCI V-3 / 2013.04

☐ Class A

☐ Class B

☐ AS / NZS CISPR22:2009 +A1:2010

☐ Class A

☐ Class B

☐ 47 CFR Part 15, Subpart B / ANSI C63.4-2009

☐ Class A

☐ Class B

☐ IC Regulation ICES-003 : 2012
/ ANSI C63.4-2014

☐ Class A

☐ Class B

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B



☐ **R&TTE – Directive 1999/5/EC**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

2.1 Conducted Emissions at Mains Power Ports

Test Date

Jul. 27, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R&S	101783	05, 03, 2017
☒	LISN	ENV216	R&S	101137	02, 04, 2017
☒	LISN	ENV216	R&S	101786	05, 02, 2017
☒	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: 22,0 °C

Relative Humidity: 53,3 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test Receiver	ESR3	R&S	101783	05, 03, 2017
☐	LISN	ENV216	R&S	101137	02, 04, 2017
☐	LISN	ENV216	R&S	101786	05, 02, 2017
☐	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
☐	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
☐	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: °C

Relative Humidity: %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

None, Telecommunication Port. Test is not applicable.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jul. 26, 2016

Test Location

☒ Open Area Test Site #1 ☐ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9163-715	04, 14, 2018
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	1070/1080	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 28,1 °C

Relative Humidity: 74,0 %

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jul. 25, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
☒	Semi Anchoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test ConditionsTemperature: 21,7 °C
Relative Humidity: 48,3 %**Frequency Range of Measurement**

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.

2.5 Harmonic Current Emissions

Test Date

Jul. 23, 2016

Test Location

Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature: 23,0 °C

Relative Humidity: 56,0 %

Classification of Equipment for Harmonic Current Emissions

- ☒ Class A
☐ Class B
☐ Class C(Below 25 W)
☐ Class C(Above 25 W)
☐ Class D

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.



2.6 Voltage Fluctuations and Flicker

Test Date

Jul. 23, 2016

Test Location

Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature: 23,0 °C
Relative Humidity: 56,0 %

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

3.0 Criteria for compliance.

Performance criterion A

During testing failures which do not influence the specified operation within the product specification, and which do not prevent automatic recovery are permissible.

Performance criterion B

During testing failures which are recovered automatically but cause temporary delay in processing are permissible.

Performance criterion C

Failures during testing that result in a delay in processing after the external disturbance is removed, but which can be recovered after testing to normal operation by a reset or reboot are permissible. Failures during testing that result in a system abort, which can be recovered to normal operation after testing by reset or reboot, are permissible. Failures during testing that are followed by alarms and can be recovered to normal operation by the operator's intervention after testing are permissible.

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Jul. 21, 2016

Test Location

EMS-ESD: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 24, 2017
☒	HCP	-	Noise Ken	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 21,4 °C
Relative Humidity: 55,3 %
Atmospheric Pressure: 99,3 kPa

Test Specifications

Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

Kind of Discharge: Air, Contact (direct and indirect)

Polarity: Positive and Negative

Number of Discharge: 10 at all locations for Air discharge
10 at all locations for Contact discharge

Discharge Voltage:	Contact ☒ 2 kV ☒ 4 kV ☐ 6 kV ☐ 8 kV ☐ 15 kV	Air ☒ 2 kV ☒ 4 kV ☐ 6 kV ☒ 8 kV ☐ 15 kV	HCP ☒ 2 kV ☒ 4 kV ☐ 6 kV ☐ 8 kV ☐ 15 kV	VCP ☒ 2 kV ☒ 4 kV ☐ 6 kV ☐ 8 kV ☐ 15 kV
--------------------	--	---	--	--

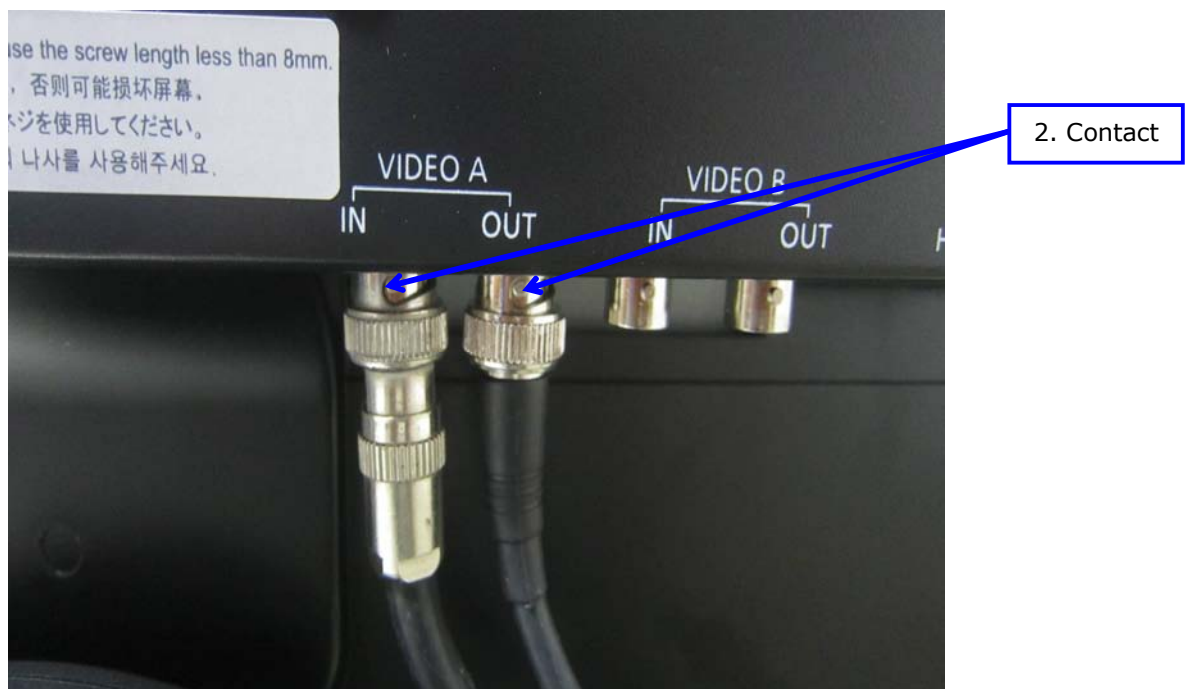
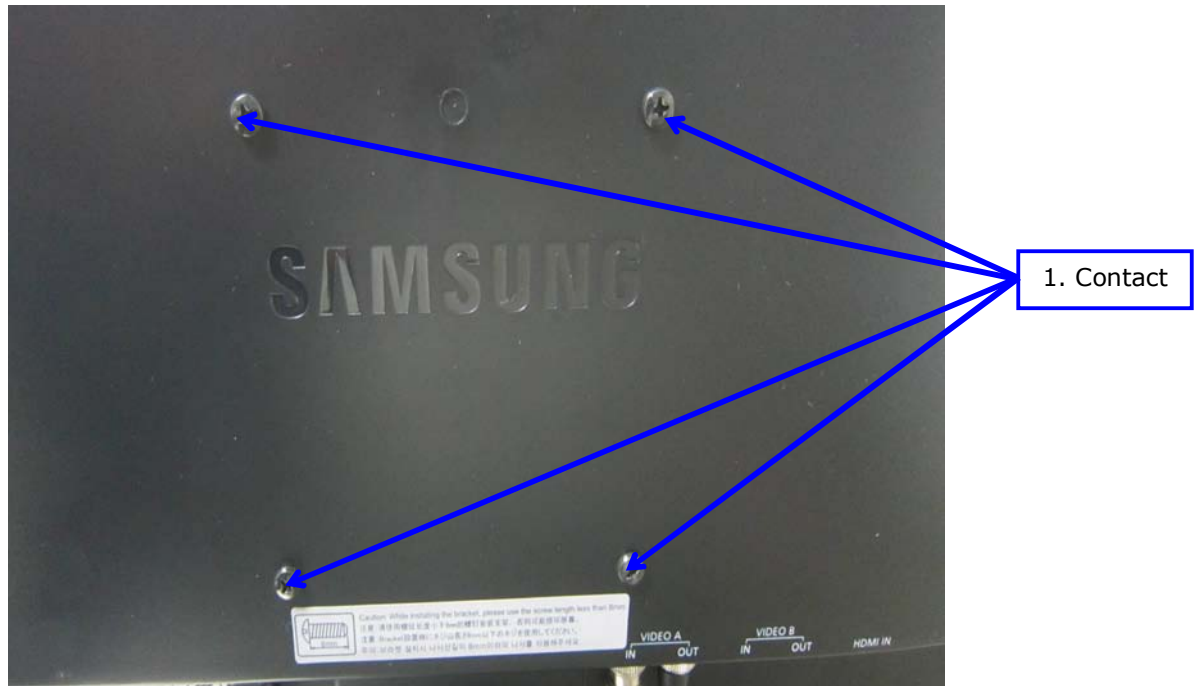
Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

Required Performance Criteria: ☒ B

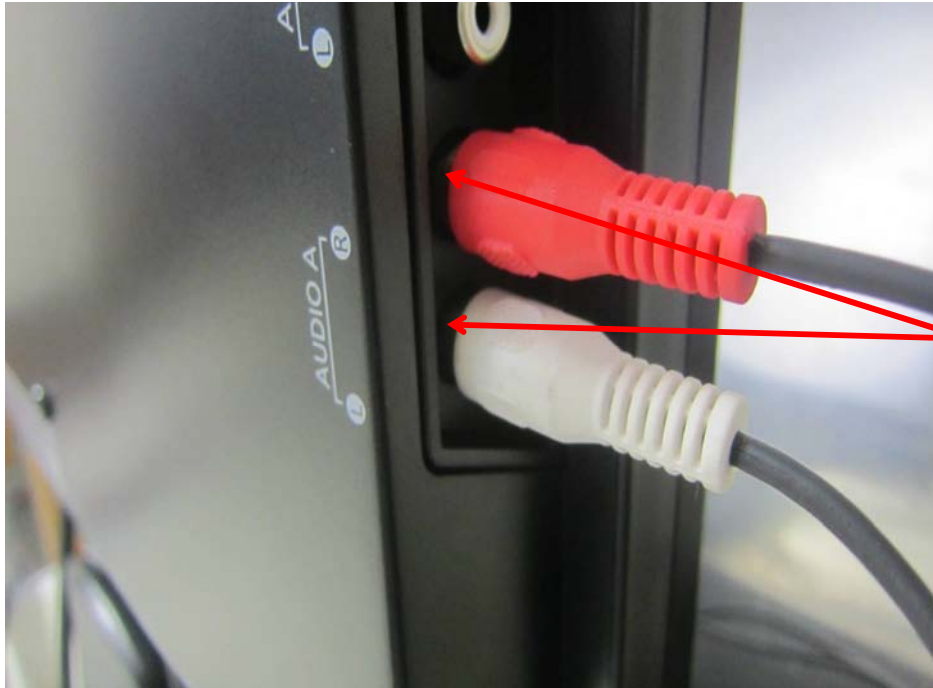
Location of Discharge:

- BNC Mode

Air	
Contact	



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

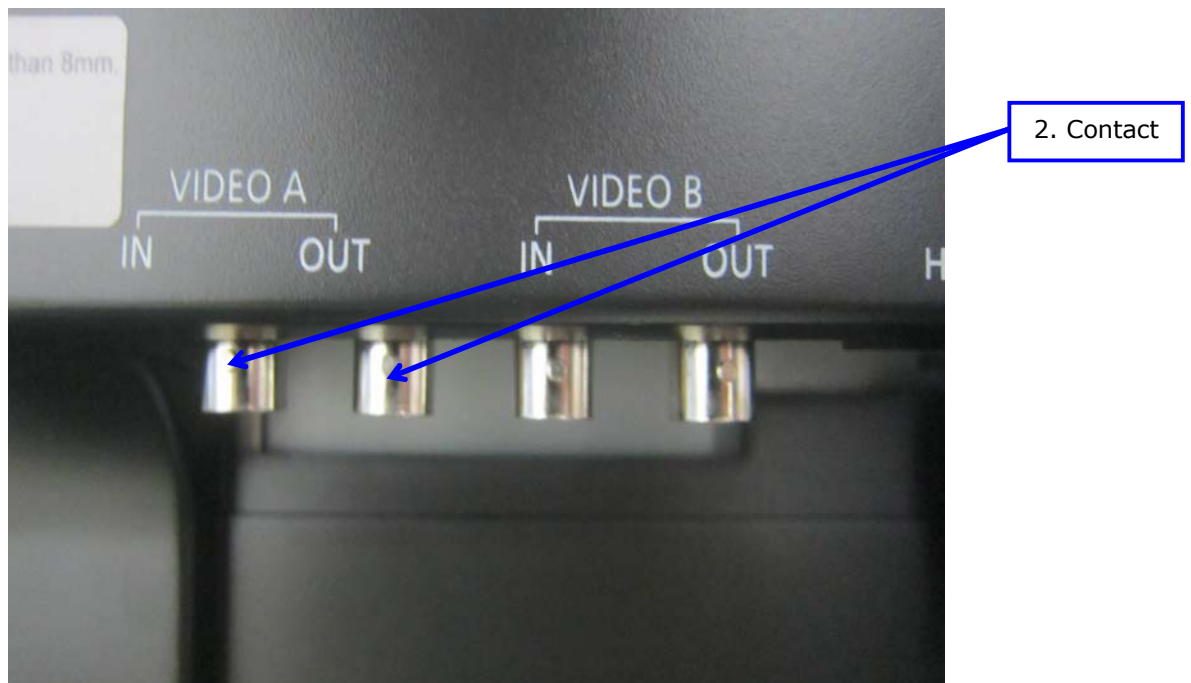
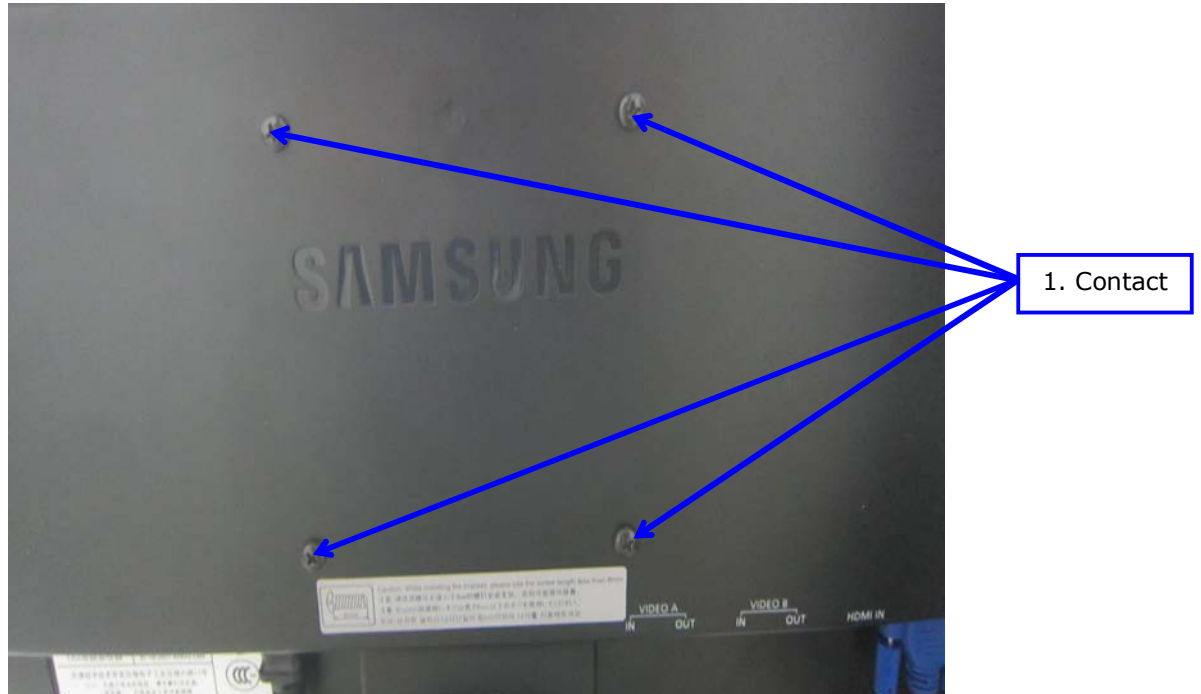


3. Air

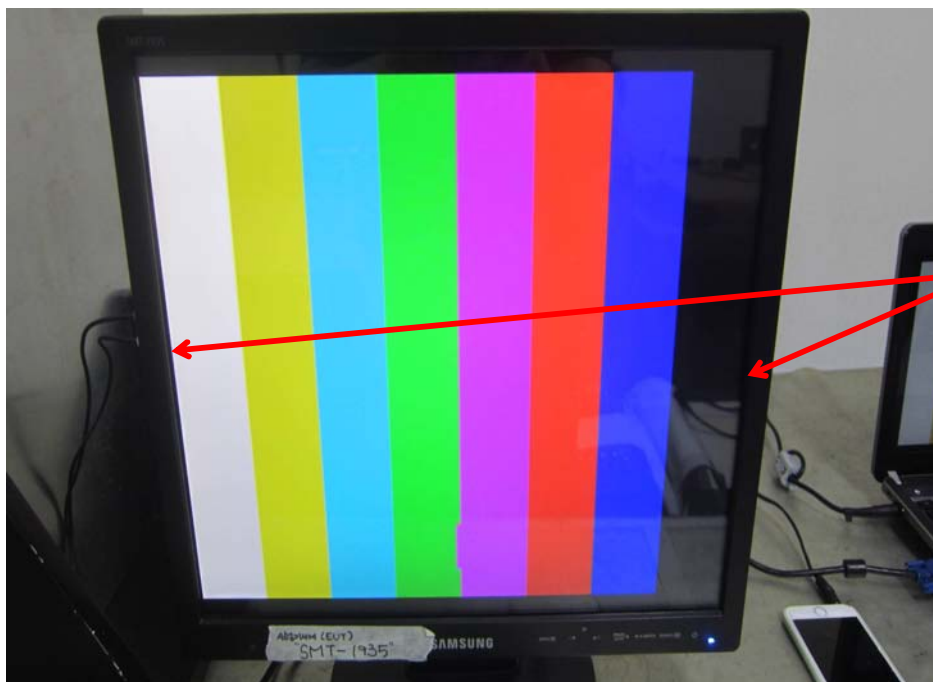


4. Air

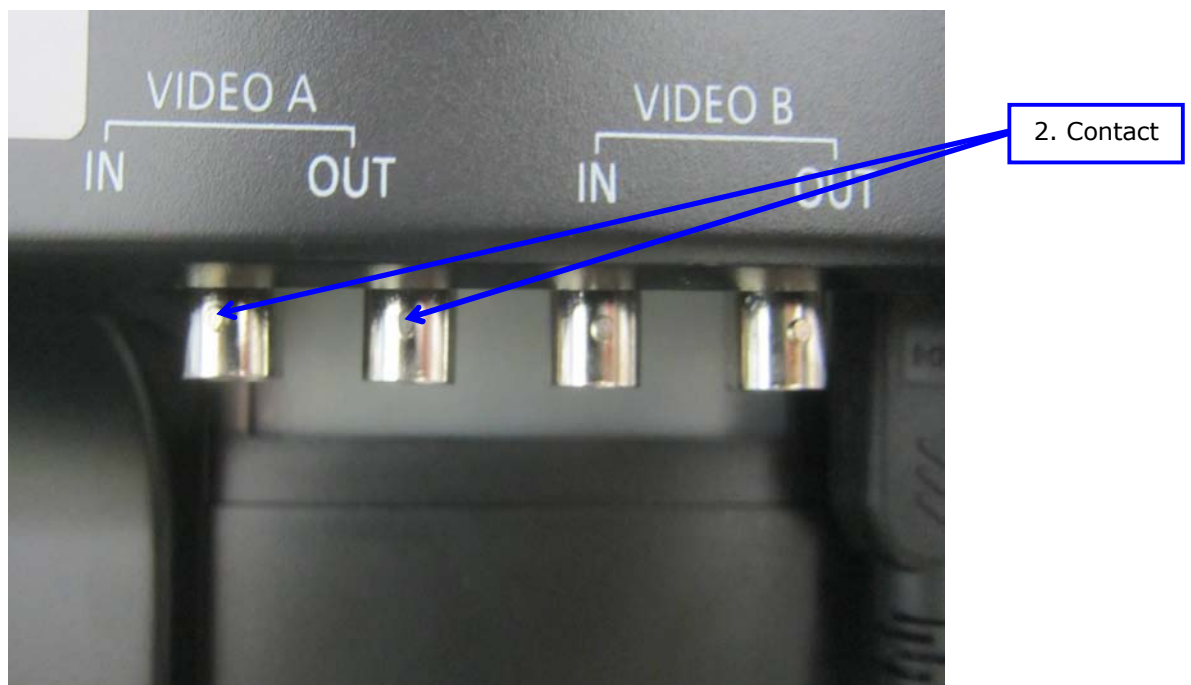
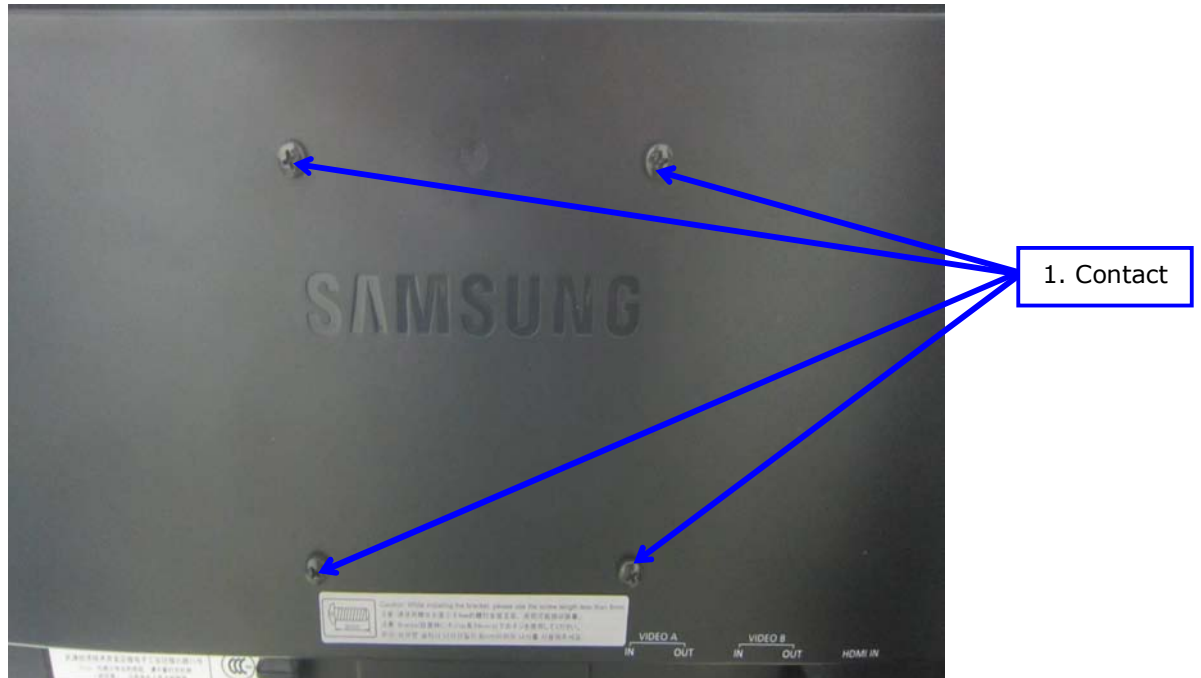
- VGA Mode



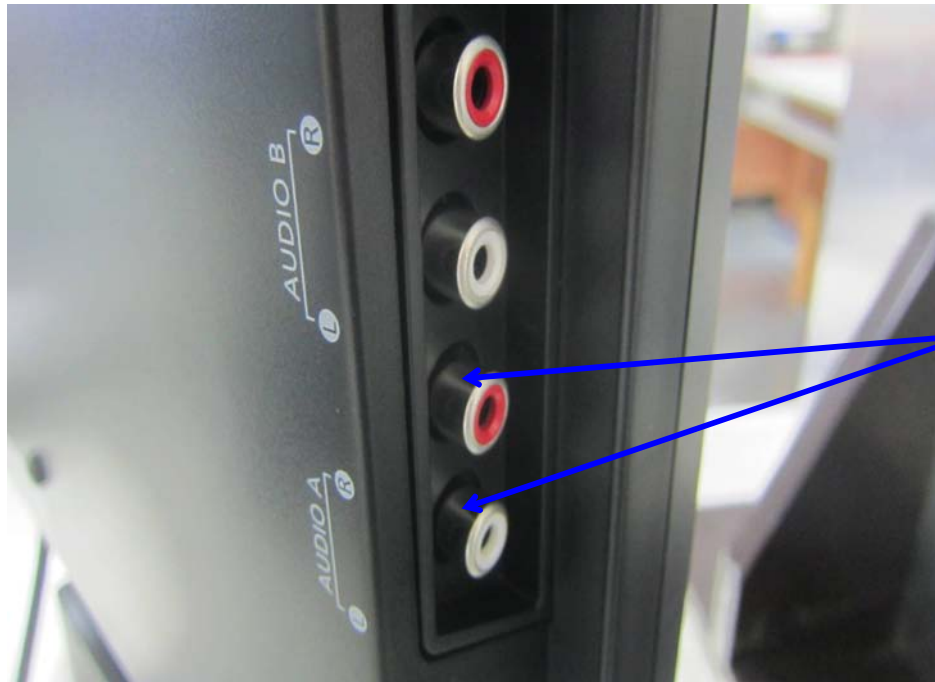
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



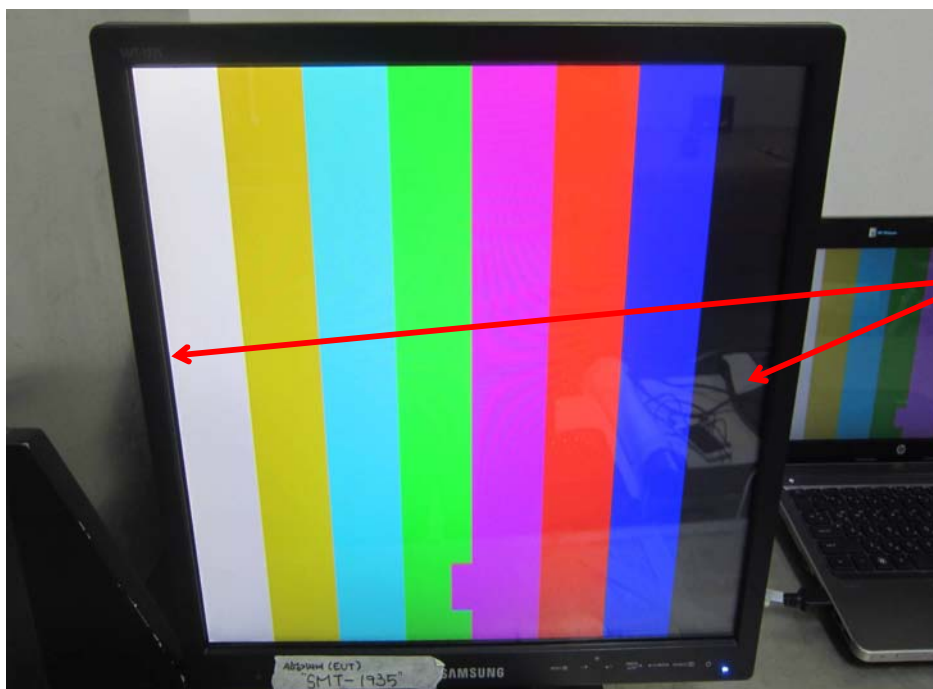
- HDMI Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



3. Contact



4. Air

**Test Data****- BNC Mode****Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	E.U.T Screw	Contact Discharge	A	-
2	BNC Ports	Contact Discharge	A	-
3	Audio Ports	Air Discharge	A	-
4	Panel	Air Discharge	A	-

- VGA Mode**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	E.U.T Screw	Contact Discharge	A	-
2	BNC Ports	Contact Discharge	A	-
3	Audio Ports	Air Discharge	A	-
4	Panel	Air Discharge	A	-

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:

KES-E1-16T0387

Page (27) of (105)

- HDMI Mode**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Observation	Remarks
1	E.U.T Screw	Contact Discharge	A	-
2	BNC Ports	Contact Discharge	A	-
3	Audio Ports	Contact Discharge	A	-
4	Panel	Air Discharge	A	

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.2 Radiated Electric Field Immunity

Reference Standard

EN 61000-4-3:2006 +A2:2010

Test Date

Jul. 24, 2016

Test Location

EMS-RS: ☐ Semi Anechoic Chamber #1 ☒ Semi Anechoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	SIGNAL GENERATOR	SMB 100A	R&S	108252	08, 13, 2016
☒	BROADBAND AMPLIFIER	BBA100	R&S	101239	08, 13, 2016
☒	BROADBAND AMPLIFIER	100S1G6M1	AR	579931	08, 13, 2016
☒	POWER METER	NRP2	R&S	103475	08, 13, 2016
☒	AVG POWER SENSOR	NRP-Z91	R&S	102526	08, 13, 2016
☒	AVG POWER SENSOR	NRP-Z91	R&S	102527	08, 13, 2016
☒	Stacked Log.-Per.Antenna	STLP 9128 D	Schwarzbeck	9128D038	-
☒	DIRECTIONAL COUPLER	KYDC-D1070-DX40	Kytelecom Co., Ltd.	KY150001	09.25,2016
☒	Semi Anechoic Chamber #2	-	SEMITEC	-	-



Test Conditions

Temperature: 24,0 °C
Relative Humidity: 47,1 %
Atmospheric Pressure: 99,3 kPa

Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

Field Strength: ☐ 1 V/m ☒ 3 V/m
☐ 10 V/m

Frequency Range: ☒ 80 MHz to 1 GHz ☐ 1,4 GHz to 2,7 GHz
☐ 80 MHz to 2,7 GHz

Modulation: ☒ AM, 80 %, 1 kHz sine wave
☐ PM, 1 Hz (0,5 s ON : 0,5 s OFF)

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ A

Test Data

- BNC Mode

Side Exposed	Observation	
	Horizontal	Vertical
Front	A	A
Right	A	A
Back	A	A
Left	A	A

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:

KES-E1-16T0387

Page (30) of (105)

- VGA Mode

Side Exposed	Observation	
	Horizontal	Vertical
Front	A	A
Right	A	A
Back	A	A
Left	A	A

- HDMI Mode

Side Exposed	Observation	
	Horizontal	Vertical
Front	A	A
Right	A	A
Back	A	A
Left	A	A

Note: "Blank" = Not performed

Observations:

Complied – No degradation of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Jul. 22, 2016

Test Location

EMS-EFT: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
☒	Capacitive Coupling Clamp	HFK	EM TEST	070925	06, 27, 2017
☒	MotorVariac	MV2616	EM TEST	V0936105123	06, 27, 2017

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 53,8 %
Atmospheric Pressure: 99,1 kPa

Test Specifications

Pulse Amplitude & Polarity: (AC Power Lines)	☒ ± 1.0 kV ☐ ± 4.0 kV	☐ ± 2.0 kV
Pulse Amplitude & Polarity: (DC Power Lines)	☐ ± 0.5 kV ☐ ± 2.0 kV	☐ ± 1.0 kV
Pulse Amplitude & Polarity: (Other supply / Signal Lines)	☒ ± 0.5 kV ☐ ± 2.0 kV	☐ ± 1.0 kV
Burst Period:	☒ 300 ms	☐ 2 s
Repetition Rate:	☒ 5 klz	☐ 100 klz
Duration of Test Voltage:	☒ ≥ 1 min	
Required Performance Criteria:	☒ B	

Test Data

- BNC Mode

☒ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
L – N – PE	A	A

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
VIDEO IN	A	A
VIDEO OUT	A	A

- VGA Mode

☒ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
L – N – PE	A	A

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (33) of (105)

- HDMI Mode

☒ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
L – N – PE	A	A

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

Note: “Blank” = Not performed

Observations:

A – No degradation of function
B – Distortion/Error of function (self-recoverable)
C – Loss of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014

Test Date

Jul. 22, 2016

Test Location

EMS-Surge: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
☒	MotorVariac	MV2616	EM TEST	V0936105123	06, 27, 2017
☒	CDN	CNV 508T5	EM TEST	P1549168422	04, 27, 2017

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 53,8 %
Atmospheric Pressure: 99,1 kPa

Test Specifications

AC Power Lines

Source Impedance: 12 ohm for common mode and 2 ohm for differential mode

Surge Amplitude :
Common Mode
☒ (0,5 / 1,0 / 2,0) kV
Differential Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 surges per angle

Angle: ☒ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity: ☒ Positive & Negative

Repetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ B

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:

KES-E1-16T0387

Page (35) of (105)

DC Power Lines

Source Impedance: 12 ohm for common mode and 2 ohm for differential mode

Surge Amplitude: Common Mode
☐ (0,5) kV

Number of Surges: ☐ 5 Surges

Polarity: ☐ Positive & Negative

Repetition Rate: ☐ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☐ B

Signal Lines

Source Impedance: 42 ohm for common mode

Surge Amplitude: Common Mode
☒ (1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

Repetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.

Required Performance Criteria: ☒ C

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Test Data

- BNC Mode

☒ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – N	A	A

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – PE	A	A
N – PE	A	A

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
VIDOE IN	C	C
CIDOE OUT	C	C

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:

KES-E1-16T0387

Page (37) of (105)

- VGA Mode☒ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – N	A	A

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – PE	A	A
N – PE	A	A

Signal Lines☐ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- HDMI Mode

☒ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – N	A	A

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – PE	A	A
N – PE	A	A

Signal Lines

☐ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Note: "Blank" = Not performed

Observations:

A – No degradation of function

B – Distortion/Error of function (self-recoverable)

C – Loss of function

Test Results

☒ PASS Required Performance Criteria

☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Jul. 21, 2016

Test Location

EMS-CS: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Continuous Wave Generator	CWS 500N1	EM TEST	V0936105119	09, 25, 2016
☒	6dB Attenuator	ATT6	EM TEST	1208-34	08, 13, 2016
☒	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 13, 2016
☐	CDN	CDN-T2-RJ11	EM TEST	0909-07	08, 13, 2016
☐	CDN	CDN-T4	EM TEST	0909-08	08, 13, 2016
☐	CDN	CDN-T8RJ45	EM TEST	0909-09	08, 13, 2016
☐	CDN	CDN-AF2	EM TEST	0909-10	08, 13, 2016
☐	CDN	CDN-AF4	EM TEST	0909-11	08, 13, 2016
☒	EM Injection Clamp	EM 101	Liithi	35943	02, 04, 2017

Test Conditions

Temperature: 21,4 °C
Relative Humidity: 55,3 %
Atmospheric Pressure: 99,3 kPa



Test Specifications

Frequency range: ☒ 150 kHz to 80 MHz ☐ 10 kHz to 30 MHz
☐ 150 kHz to 230 MHz ☐ 10 kHz to 100 MHz

Voltage Level: ☐ 1 Vrms ☒ 3 Vrms
☐ 10 Vrms

Modulation: ☒ AM, 80 %, 1 kHz sine wave
☐ PM, 1 Hz (0,5 s ON : 0,5 s OFF)

Frequency step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

Required Performance Criteria: ☒ A

Test Data

- BNC Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
L - N - PE	CDN (☐ M2, ☒ M3)	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☒ Signal ports and telecommunication ports

Mode of Application	Coupling Method	Observation
VIDEO IN	EM Injection Clamp	A
VIDEO OUT	EM Injection Clamp	A

- VGA Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
L – N – PE	CDN (☐ M2, ☒ M3)	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☐ Signal ports and telecommunication ports

Mode of Application	Coupling Method	Observation
-	EM Injection Clamp	-

- HDMI Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
L – N – PE	CDN (☐ M2, ☒ M3)	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐ M2, ☐ M3)	-

☐ Signal ports and telecommunication ports

Mode of Application	Coupling Method	Observation
-	EM Injection Clamp	-

Notes: CDN = Coupling Decoupling Network
EMC = Electro Magnetic Clamp
"blank" = Not performed

Observations:

A – No degradation of function
B – Distortion/Error of function (self-recoverable)
C – Loss of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.6 Voltage Dips and Short Interruptions

Reference Standard

EN 61000-4-11:2004

Test Date

Jul. 22, 2016

Test Location

EMS-Voltage dip: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	06, 27, 2017
☒	MotorVariac	MV2616	EM TEST	V0936105123	06, 27, 2017

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 53,8 %
Atmospheric Pressure: 99,1 kPa



Test Specifications & Observations/Remarks

- BNC Mode

Test Level	Duration [in period/ms (50 Hz)]	Criteria	Results
☒ 0 %Ut (>95 % dip)	☒ 0.5 / 10	<u>B</u>	<u>A</u>
☒ 30 %Ut (70 % dip)	☒ 25 / 500	<u>C</u>	<u>A</u>
☒ 0 %Ut (>95 % Interruptions)	☒ 250 / 5 000	<u>C</u>	<u>B</u>

- VGA Mode

Test Level	Duration [in period/ms (50 Hz)]	Criteria	Results
☒ 0 %Ut (>95 % dip)	☒ 0.5 / 10	<u>B</u>	<u>A</u>
☒ 30 %Ut (70 % dip)	☒ 25 / 500	<u>C</u>	<u>A</u>
☒ 0 %Ut (>95 % Interruptions)	☒ 250 / 5 000	<u>C</u>	<u>B</u>

- HDMI Mode

Test Level	Duration [in period/ms (50 Hz)]	Criteria	Results
☒ 0 %Ut (>95 % dip)	☒ 0.5 / 10	<u>B</u>	<u>A</u>
☒ 30 %Ut (70 % dip)	☒ 25 / 500	<u>C</u>	<u>A</u>
☒ 0 %Ut (>95 % Interruptions)	☒ 250 / 5 000	<u>C</u>	<u>B</u>



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:

KES-E1-16T0387

Page (44) of (105)

Observations:

- A – No response observed from E.U.T
- B – Unit shuts down then automatically restarts when full voltage is restored.
- C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

- ☒ PASS Required Performance Criteria
- ☐ NOT PASS Required Performance Criteria

Remarks

Refer to the results

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

APPENDIX A – TEST DATA

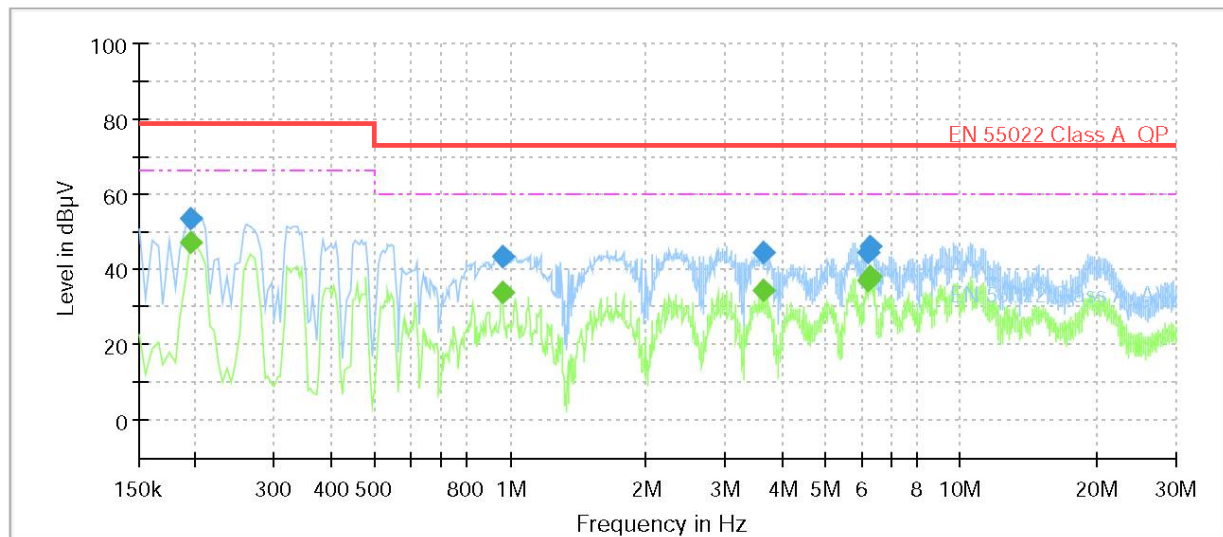
Conducted Emissions at Mains Power Ports

- BNC Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-1935
Mode	BNC / 230 v , 50 Hz
Operator Name:	KES



Final Result

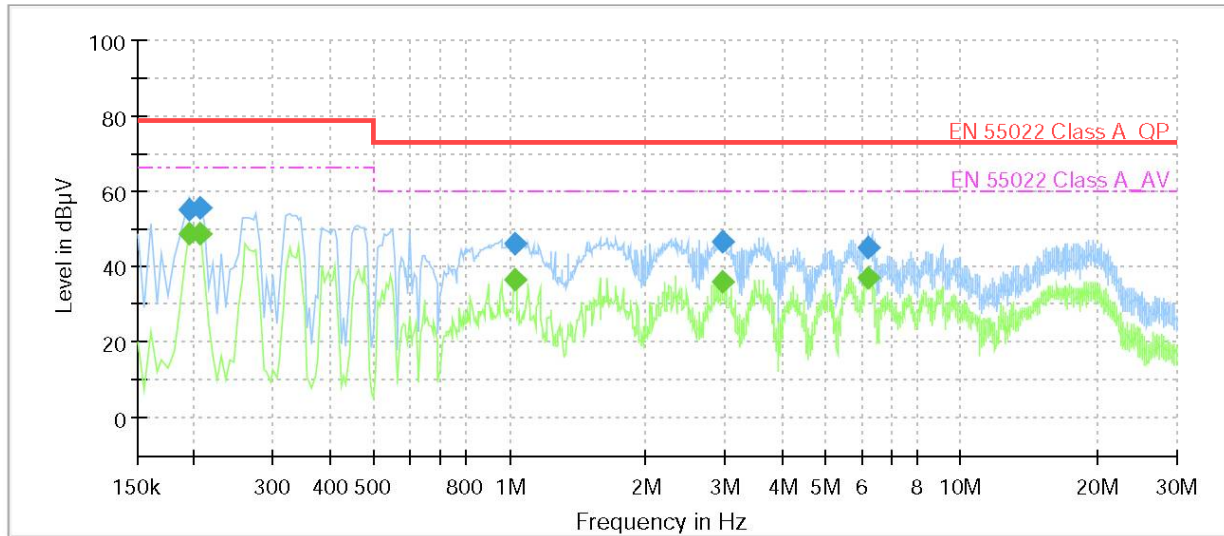
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	46.91	66.00	19.09	1000.0	9.000	L1	9.7
0.195000	53.46	---	79.00	25.54	1000.0	9.000	L1	9.7
0.960000	---	33.79	60.00	26.21	1000.0	9.000	L1	9.7
0.960000	43.42	---	73.00	29.58	1000.0	9.000	L1	9.7
3.640000	---	34.34	60.00	25.66	1000.0	9.000	L1	9.8
3.640000	44.44	---	73.00	28.56	1000.0	9.000	L1	9.8
6.245000	---	37.27	60.00	22.73	1000.0	9.000	L1	9.9
6.245000	44.65	---	73.00	28.35	1000.0	9.000	L1	9.9
6.315000	---	38.10	60.00	21.90	1000.0	9.000	L1	9.9
6.315000	46.27	---	73.00	26.73	1000.0	9.000	L1	9.9



[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SMT-1935
Mode: BNC / 230 v , 50 Hz
Operator Name: KES



Final Result

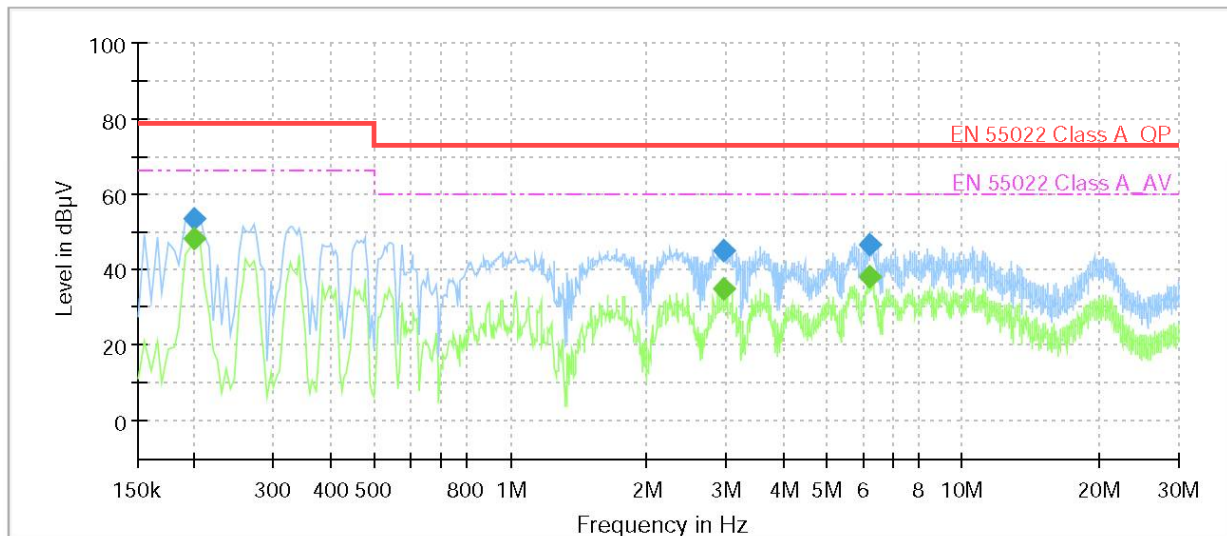
Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	48.73	66.00	17.27	1000.0	9.000	N	9.6
0.195000	55.30	---	79.00	23.70	1000.0	9.000	N	9.6
0.205000	---	48.55	66.00	17.45	1000.0	9.000	N	9.6
0.205000	55.51	---	79.00	23.49	1000.0	9.000	N	9.6
1.030000	---	36.38	60.00	23.62	1000.0	9.000	N	9.7
1.030000	46.19	---	73.00	26.81	1000.0	9.000	N	9.7
2.955000	---	36.23	60.00	23.77	1000.0	9.000	N	9.7
2.955000	46.61	---	73.00	26.39	1000.0	9.000	N	9.7
6.255000	---	37.24	60.00	22.76	1000.0	9.000	N	9.8
6.255000	44.89	---	73.00	28.11	1000.0	9.000	N	9.8

- VGA Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-1935
Mode	VGA / 230 v , 50 Hz
Operator Name:	KES



Final Result

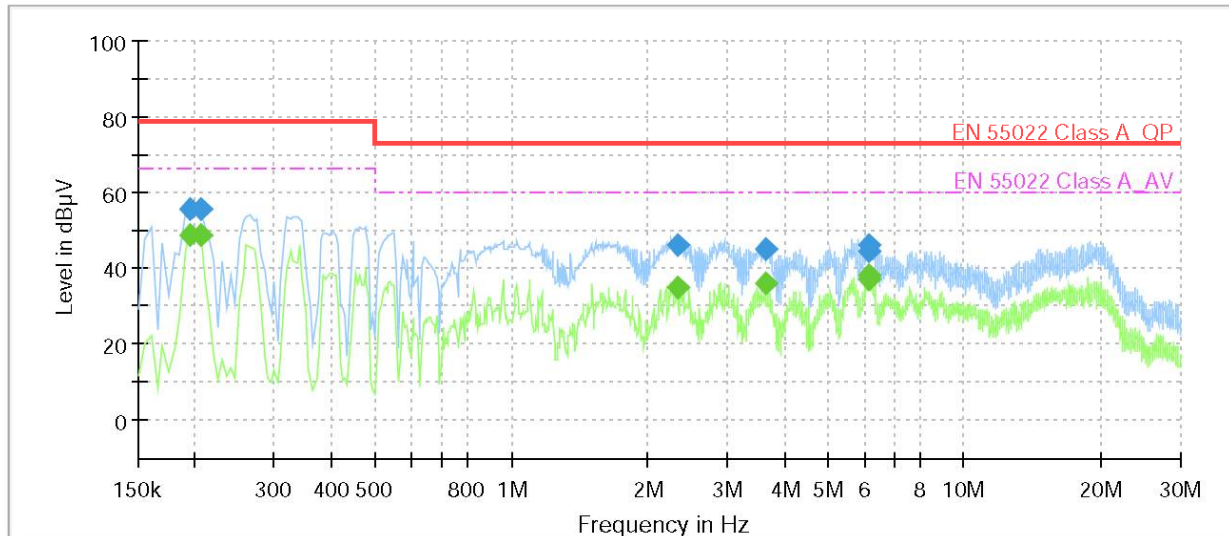
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	48.09	66.00	17.91	1000.0	9.000	L1	9.7
0.200000	53.57	---	79.00	25.43	1000.0	9.000	L1	9.7
2.950000	---	34.92	60.00	25.08	1000.0	9.000	L1	9.7
2.950000	45.19	---	73.00	27.81	1000.0	9.000	L1	9.7
6.245000	---	38.04	60.00	21.96	1000.0	9.000	L1	9.9
6.245000	46.56	---	73.00	26.44	1000.0	9.000	L1	9.9



[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SMT-1935
Mode: VGA / 230 v , 50 Hz
Operator Name: KES



Final Result

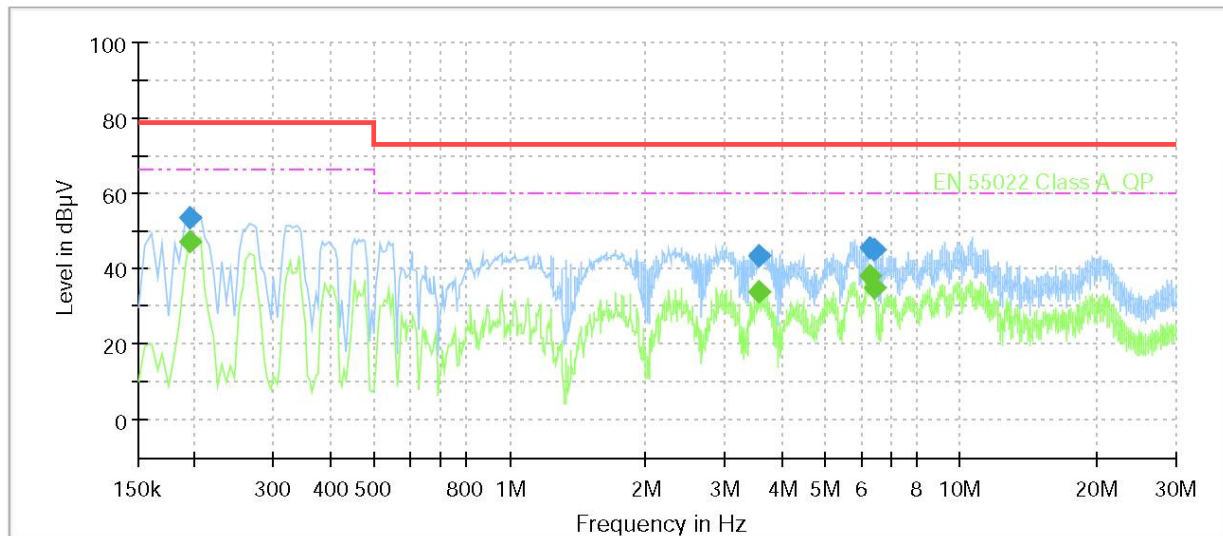
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	48.91	66.00	17.09	1000.0	9.000	N	9.6
0.195000	55.37	---	79.00	23.63	1000.0	9.000	N	9.6
0.205000	---	48.47	66.00	17.53	1000.0	9.000	N	9.6
0.205000	55.64	---	79.00	23.36	1000.0	9.000	N	9.6
2.335000	---	34.98	60.00	25.02	1000.0	9.000	N	9.7
2.335000	46.18	---	73.00	26.82	1000.0	9.000	N	9.7
3.635000	---	36.16	60.00	23.84	1000.0	9.000	N	9.8
3.635000	45.24	---	73.00	27.76	1000.0	9.000	N	9.8
6.175000	---	37.93	60.00	22.07	1000.0	9.000	N	9.8
6.175000	46.16	---	73.00	26.84	1000.0	9.000	N	9.8
6.180000	---	37.22	60.00	22.78	1000.0	9.000	N	9.8
6.180000	44.55	---	73.00	28.45	1000.0	9.000	N	9.8

- HDMI Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-1935
Mode	HDMI / 230 v , 50 Hz
Operator Name:	KES



Final Result

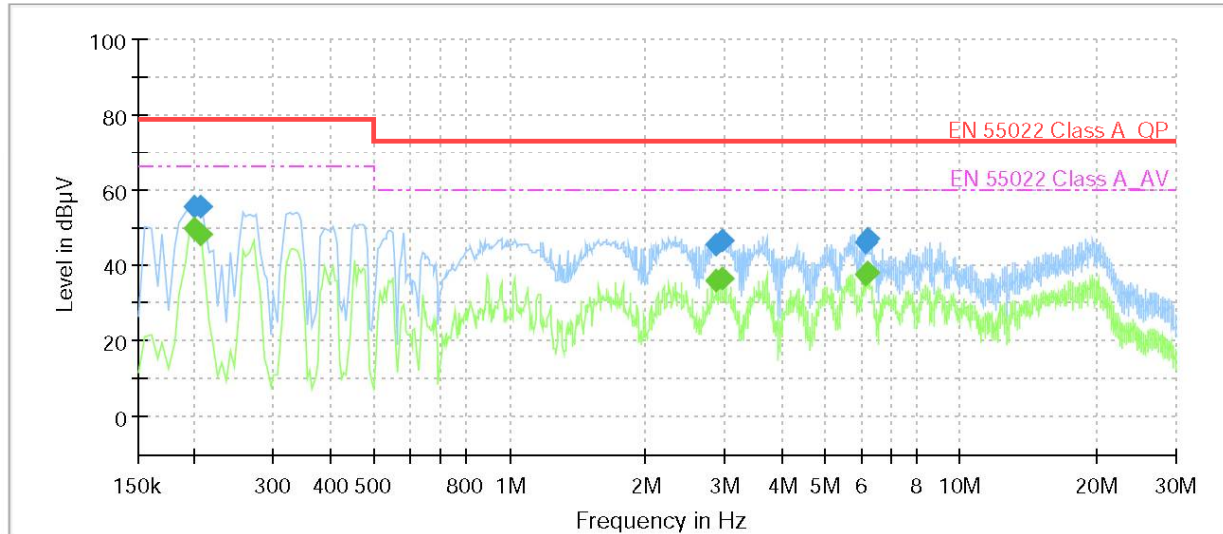
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	47.01	66.00	18.99	1000.0	9.000	L1	9.7
0.195000	53.48	---	79.00	25.52	1000.0	9.000	L1	9.7
3.570000	---	33.75	60.00	26.25	1000.0	9.000	L1	9.8
3.570000	43.22	---	73.00	29.78	1000.0	9.000	L1	9.8
6.310000	---	38.02	60.00	21.98	1000.0	9.000	L1	9.9
6.310000	45.33	---	73.00	27.67	1000.0	9.000	L1	9.9
6.450000	---	35.06	60.00	24.94	1000.0	9.000	L1	9.9
6.450000	45.17	---	73.00	27.83	1000.0	9.000	L1	9.9



[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SMT-1935
Mode: HDMI / 230 v , 50 Hz
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	49.88	66.00	16.12	1000.0	9.000	N	9.6
0.200000	55.33	---	79.00	23.67	1000.0	9.000	N	9.6
0.205000	---	48.38	66.00	17.62	1000.0	9.000	N	9.6
0.205000	55.57	---	79.00	23.43	1000.0	9.000	N	9.6
2.880000	---	36.22	60.00	23.78	1000.0	9.000	N	9.7
2.880000	45.42	---	73.00	27.58	1000.0	9.000	N	9.7
2.950000	---	36.65	60.00	23.35	1000.0	9.000	N	9.7
2.950000	46.82	---	73.00	26.18	1000.0	9.000	N	9.7
6.175000	---	37.45	60.00	22.55	1000.0	9.000	N	9.8
6.175000	46.08	---	73.00	26.92	1000.0	9.000	N	9.8
6.245000	---	38.06	60.00	21.94	1000.0	9.000	N	9.8
6.245000	46.90	---	73.00	26.10	1000.0	9.000	N	9.8



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (51) of (105)

Conducted Emissions at Telecommunication Ports

[10 Mbps]

N/A

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (52) of (105)

[100 Mbps]

N/A

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

**Radiated Electric Field Emissions(Below 1 GHz)**

- BNC Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
50.29	8.58	V	1.00	13.86	1.34	23.78	40.00	16.22
227.76	9.16	H	4.00	12.07	3.13	24.36	40.00	15.64
241.35	13.84	H	3.90	12.36	3.25	29.45	47.00	17.55
518.76	9.46	V	1.60	17.67	5.07	32.20	47.00	14.80
542.00	10.22	V	1.50	18.13	5.21	33.56	47.00	13.44
556.69	7.60	V	1.80	18.42	5.30	31.32	47.00	15.68

* H : Horizontal, V : Vertical

- VGA Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
49.36	7.66	V	1.00	13.81	1.33	22.80	40.00	17.20
153.02	12.42	V	1.00	8.29	2.52	23.23	40.00	16.77
227.79	7.72	H	4.00	12.07	3.13	22.92	40.00	17.08
243.38	14.70	H	3.90	12.41	3.27	30.38	47.00	16.62
530.50	8.86	V	1.20	17.90	5.14	31.90	47.00	15.10
541.11	9.82	V	1.50	18.11	5.20	33.13	47.00	13.87
547.83	10.26	V	1.40	18.24	5.25	33.75	47.00	13.25

* H : Horizontal, V : Vertical

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (54) of (105)

- HDMI Mode

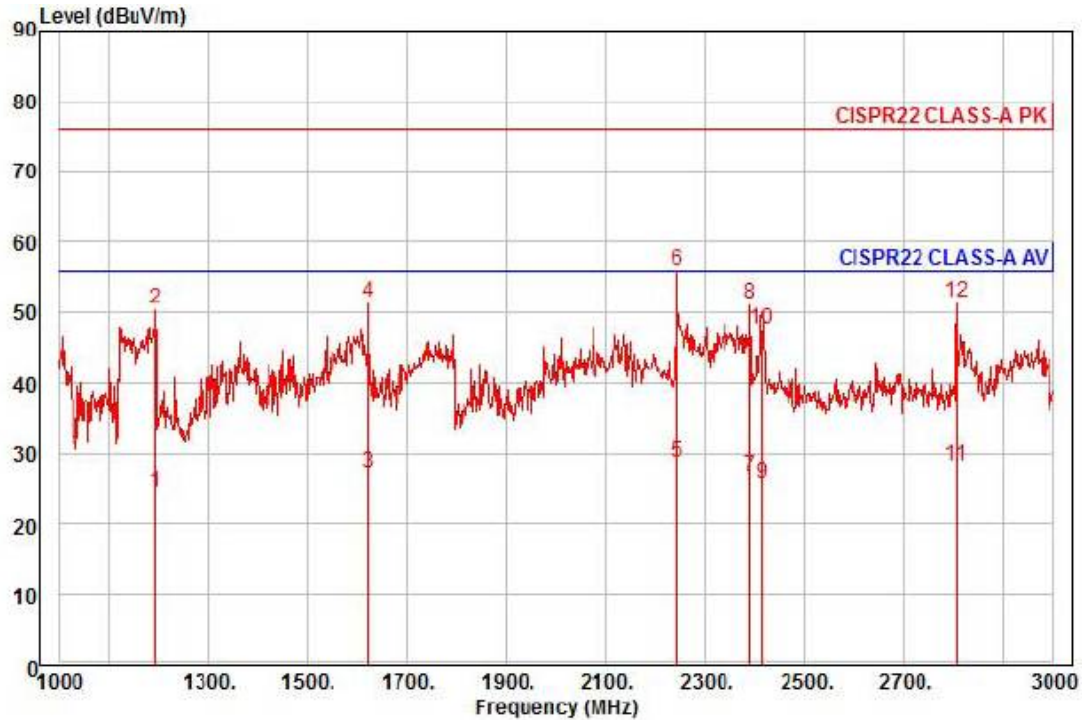
Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
49.62	8.14	V	1.00	13.85	1.33	23.32	40.00	16.68
149.22	11.86	V	1.10	8.19	2.46	22.51	40.00	17.49
226.83	8.63	H	4.00	12.05	3.12	23.80	40.00	16.20
504.30	7.92	V	2.00	17.38	4.98	30.28	47.00	16.72
534.42	9.25	V	1.60	17.98	5.16	32.39	47.00	14.61
547.83	9.50	V	1.50	18.24	5.25	32.99	47.00	14.01

* H : Horizontal, V : Vertical

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Radiated Electric Field Emissions(Above 1 GHz)

- BNC Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : BNC / 230 v , 50 Hz
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preampl Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1194.00	32.73	24.68	7.07	40.02	357	56.00	-31.54	horizontal	Average
2	1194.00	58.85	24.68	7.07	40.02	357	76.00	-25.42	horizontal	Peak
3	1622.00	32.39	26.38	8.31	39.82	64	56.00	-28.74	horizontal	Average
4	1622.00	56.72	26.38	8.31	39.82	64	76.00	-24.41	horizontal	Peak
5 av	2244.00	30.15	28.48	9.72	39.77	57	56.00	-27.42	horizontal	Average
6 pp	2244.00	57.39	28.48	9.72	39.77	57	76.00	-20.18	horizontal	Peak
7	2390.00	27.76	28.84	9.95	39.86	9	56.00	-29.31	horizontal	Average
8	2390.00	52.43	28.84	9.95	39.86	9	76.00	-24.64	horizontal	Peak
9	2414.00	26.82	28.89	9.98	39.87	210	56.00	-30.18	horizontal	Average
10	2414.00	48.55	28.89	9.98	39.87	210	76.00	-28.45	horizontal	Peak
11	2806.00	27.68	29.85	10.76	40.10	66	56.00	-27.81	horizontal	Average
12	2806.00	50.90	29.85	10.76	40.10	66	76.00	-24.59	horizontal	Peak

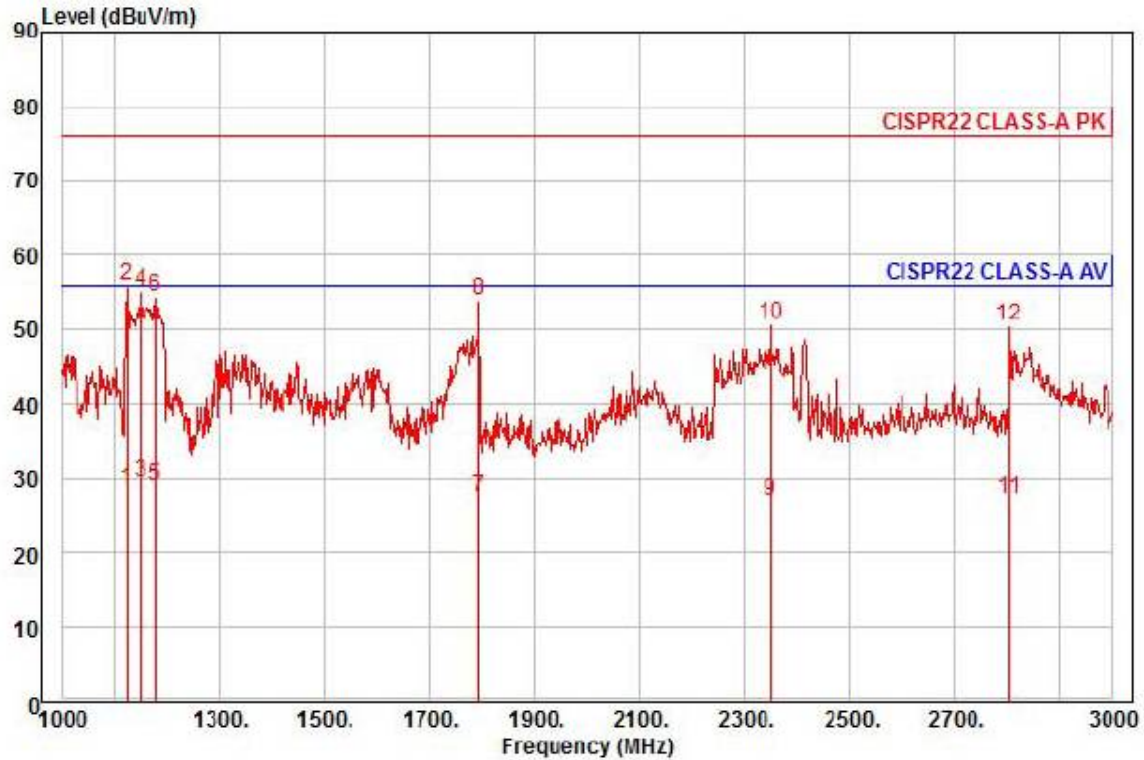
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (56) of (105)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : BNC / 230 v , 50 Hz
Memo : 1 ~ 3 GHz

		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	1122.00	37.16	24.39	6.86	40.06	21	56.00	-27.65	vertical	Average
2	pp 1122.00	64.68	24.39	6.86	40.06	21	76.00	-20.13	vertical	Peak
3	av 1148.00	38.11	24.50	6.94	40.05	38	56.00	-26.50	vertical	Average
4	1148.00	63.76	24.50	6.94	40.05	38	76.00	-20.85	vertical	Peak
5	1178.00	37.32	24.62	7.03	40.03	358	56.00	-27.06	vertical	Average
6	1178.00	62.91	24.62	7.03	40.03	358	76.00	-21.47	vertical	Peak
7	1792.00	31.44	27.05	8.78	39.73	52	56.00	-28.46	vertical	Average
8	1792.00	57.79	27.05	8.78	39.73	52	76.00	-22.11	vertical	Peak
9	2350.00	28.28	28.74	9.89	39.83	13	56.00	-28.92	vertical	Average
10	2350.00	51.99	28.74	9.89	39.83	13	76.00	-25.21	vertical	Peak
11	2804.00	26.69	29.85	10.75	40.10	352	56.00	-28.81	vertical	Average
12	2804.00	49.91	29.85	10.75	40.10	352	76.00	-25.59	vertical	Peak

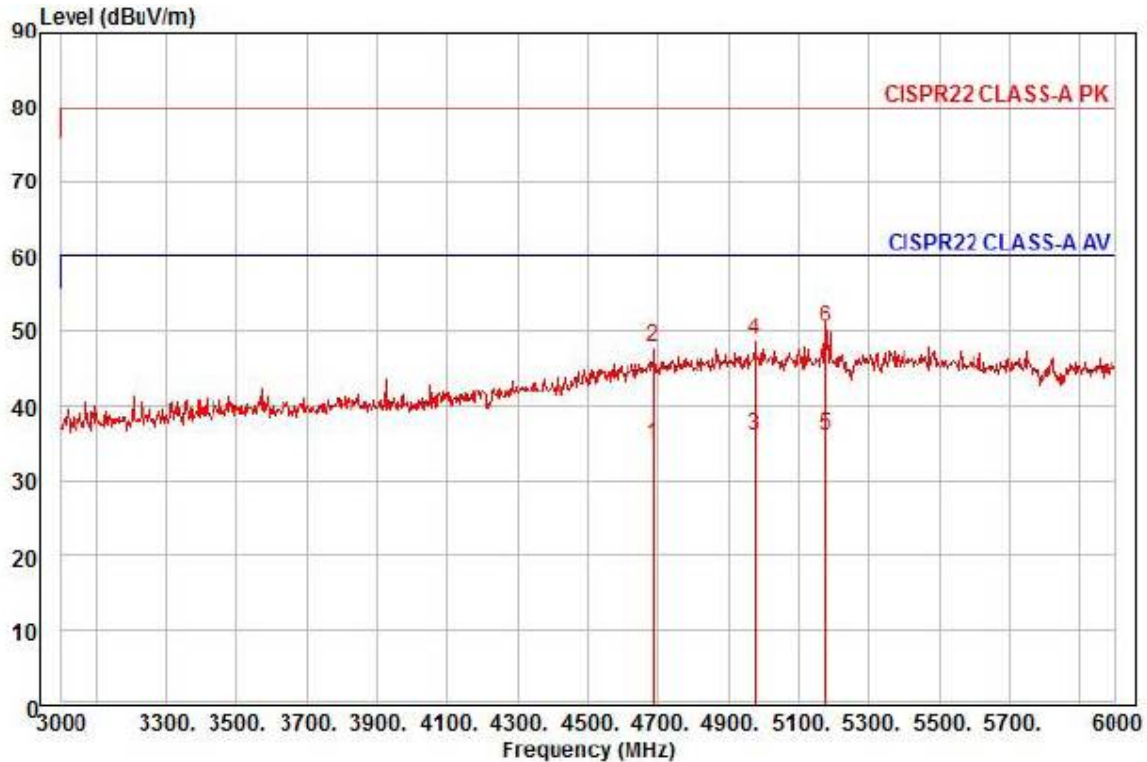
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (57) of (105)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : BNC / 230 v , 50 Hz
Memo : 3 ~ 6 GHz

		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	4686.00	24.55	35.93	14.76	40.41	6	60.00	-25.17	horizontal	Average
2	4686.00	37.47	35.93	14.76	40.41	6	80.00	-32.25	horizontal	Peak
3	4974.00	23.52	37.57	15.28	40.41	29	60.00	-24.04	horizontal	Average
4	4974.00	36.36	37.57	15.28	40.41	29	80.00	-31.20	horizontal	Peak
5 pp	5175.00	23.50	37.37	15.54	40.39	154	60.00	-23.98	horizontal	Average
6 pk	5175.00	38.09	37.37	15.54	40.39	154	80.00	-29.39	horizontal	Peak

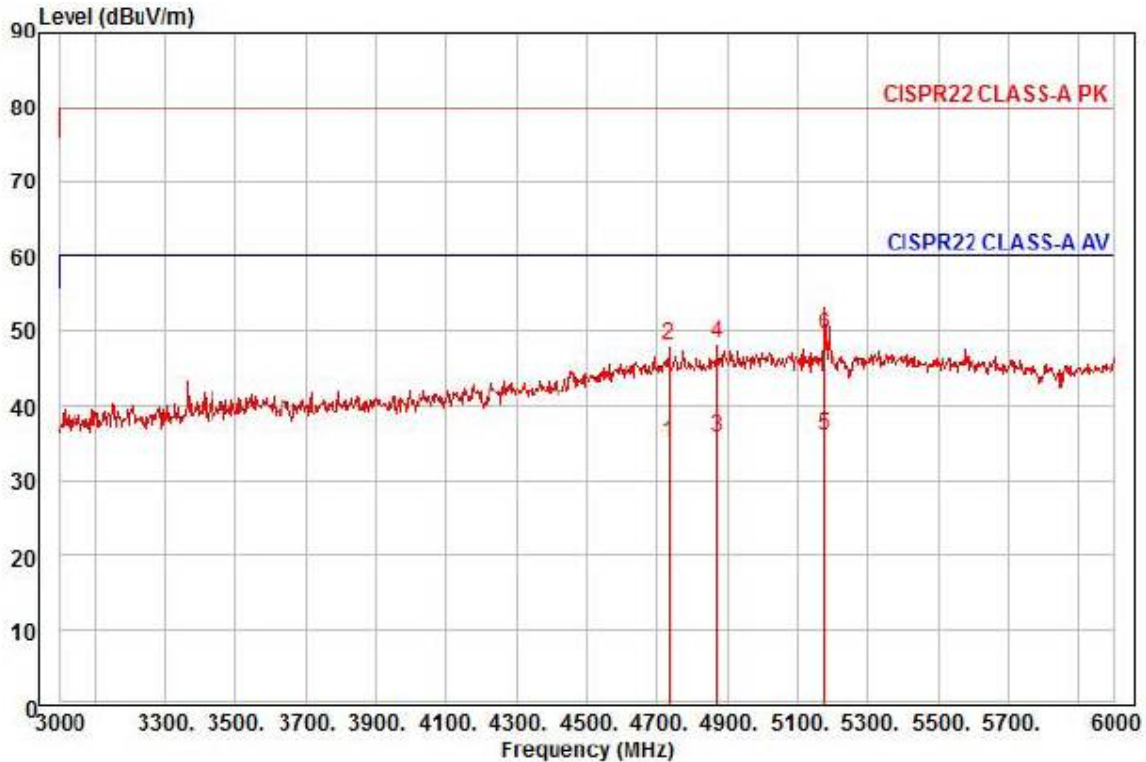
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (58) of (105)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : BNC / 230 v , 50 Hz
Memo : 3 ~ 6 GHz

		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	4734.00	24.51	36.20	14.85	40.41	61	60.00	-24.85	vertical	Average
2	4734.00	37.51	36.20	14.85	40.41	61	80.00	-31.85	vertical	Peak
3	4872.00	24.24	36.99	15.10	40.41	13	60.00	-24.08	vertical	Average
4	4872.00	36.69	36.99	15.10	40.41	13	80.00	-31.63	vertical	Peak
5 pp	5175.00	23.53	37.37	15.54	40.39	303	60.00	-23.95	vertical	Average
6 pk	5175.00	37.13	37.37	15.54	40.39	303	80.00	-30.35	vertical	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

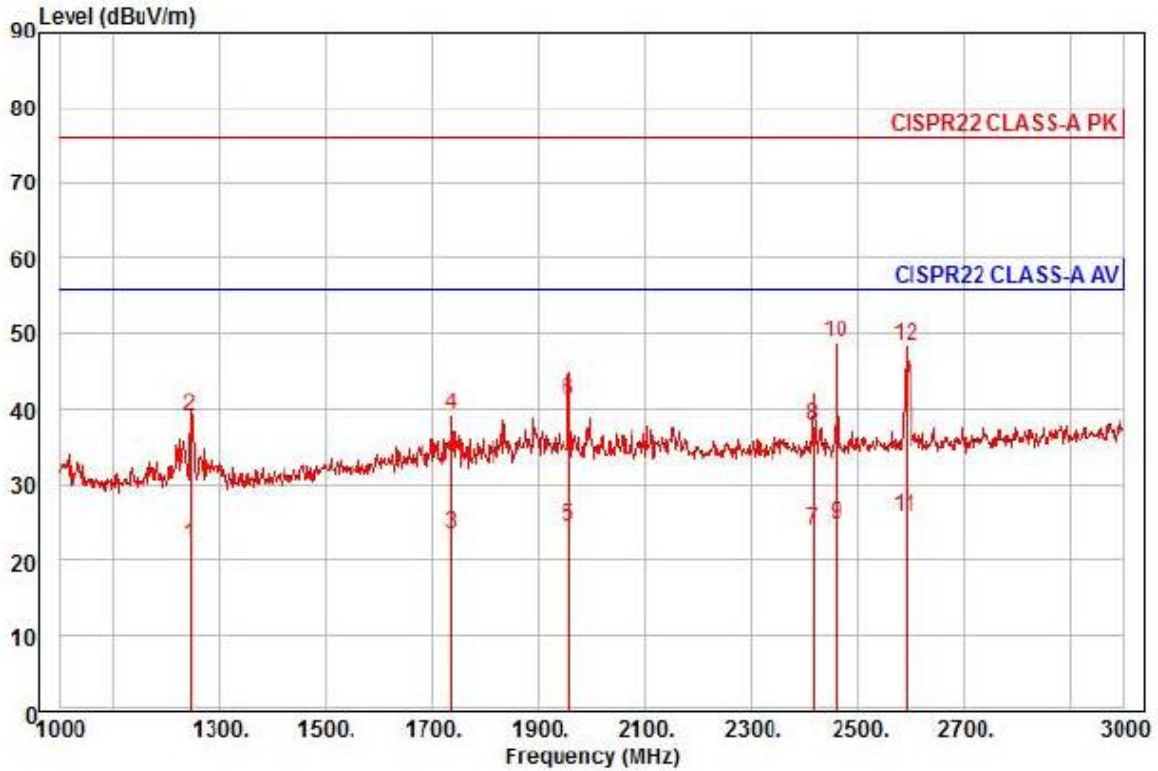


KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (59) of (105)

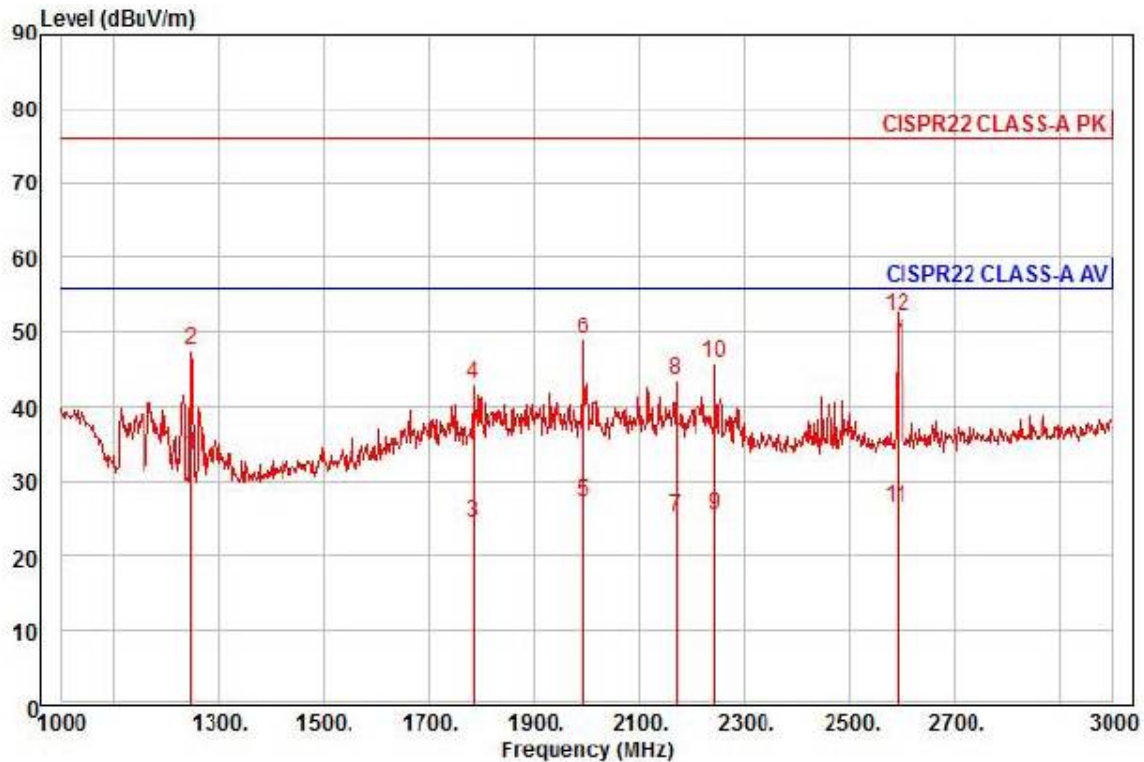
- VGA Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : VGA / 230 v , 50 Hz
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1244.00	29.86	24.88	7.22	40.00	142	56.00	-34.04	horizontal	Average
2	1244.00	46.84	24.88	7.22	40.00	142	76.00	-37.06	horizontal	Peak
3	1736.00	27.77	26.83	8.62	39.76	236	56.00	-32.54	horizontal	Average
4	1736.00	43.51	26.83	8.62	39.76	236	76.00	-36.80	horizontal	Peak
5	1958.00	27.17	27.71	9.23	39.65	259	56.00	-31.54	horizontal	Average
6	1958.00	43.94	27.71	9.23	39.65	259	76.00	-34.77	horizontal	Peak
7	2416.00	24.93	28.90	9.99	39.87	47	56.00	-32.05	horizontal	Average
8	2416.00	38.82	28.90	9.99	39.87	47	76.00	-38.16	horizontal	Peak
9	2460.00	25.60	29.01	10.06	39.90	230	56.00	-31.23	horizontal	Average
10 pp	2460.00	49.63	29.01	10.06	39.90	230	76.00	-27.20	horizontal	Peak
11 av	2590.00	26.02	29.33	10.25	39.97	225	56.00	-30.37	horizontal	Average
12	2590.00	48.81	29.33	10.25	39.97	225	76.00	-27.58	horizontal	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Site : chamber

Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical

: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto

Project : LED MONITOR

Model : SMT-1935

Mode : VGA / 230 v , 50 Hz

Memo : 1 ~ 3 GHz

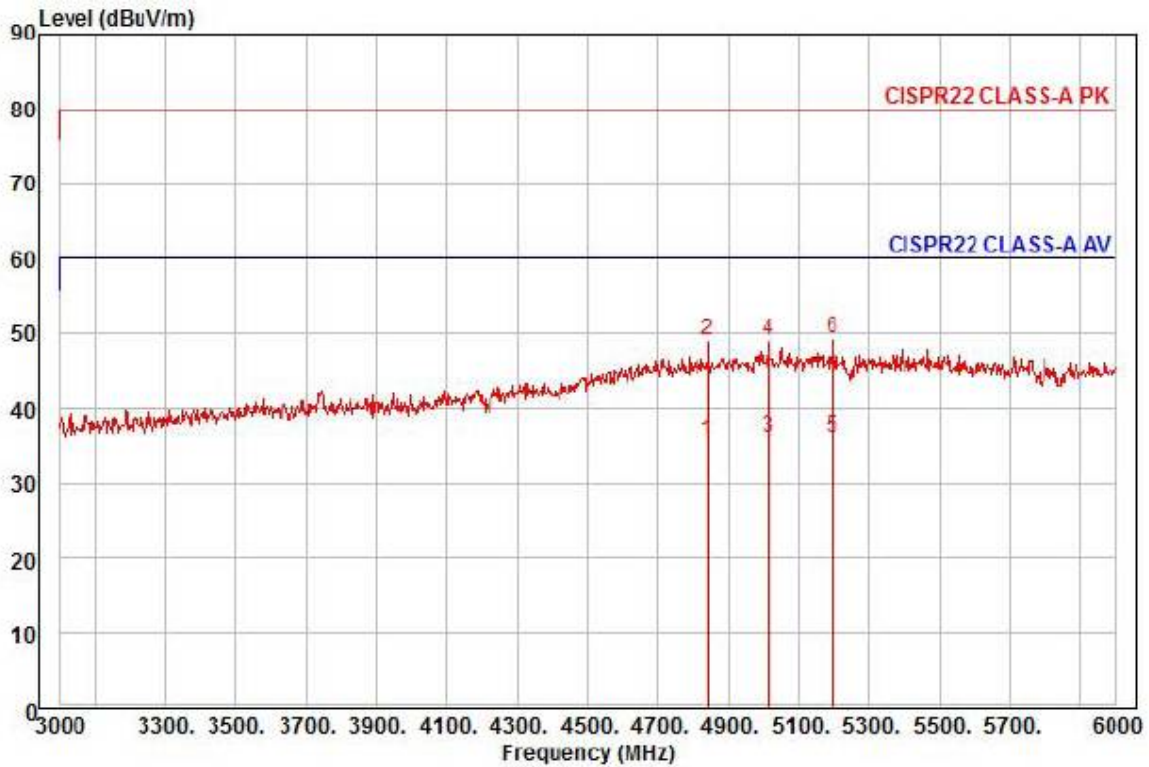
		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1246.00	41.47	24.89	7.22	40.00	186	56.00	-22.42	vertical	Average
2	1246.00	55.51	24.89	7.22	40.00	186	76.00	-28.38	vertical	Peak
3	1784.00	28.47	27.02	8.76	39.74	78	56.00	-31.49	vertical	Average
4	1784.00	47.02	27.02	8.76	39.74	78	76.00	-32.94	vertical	Peak
5	1994.00	29.72	27.86	9.33	39.63	26	56.00	-28.72	vertical	Average
6	1994.00	51.37	27.86	9.33	39.63	26	76.00	-27.07	vertical	Peak
7	2170.00	27.06	28.30	9.61	39.73	28	56.00	-30.76	vertical	Average
8	2170.00	45.35	28.30	9.61	39.73	28	76.00	-32.47	vertical	Peak
9	2244.00	26.97	28.48	9.72	39.77	169	56.00	-30.60	vertical	Average
10	2244.00	47.48	28.48	9.72	39.77	169	76.00	-30.09	vertical	Peak
11	2590.00	26.94	29.33	10.25	39.97	238	56.00	-29.45	vertical	Average
12 pk	2590.00	52.53	29.33	10.25	39.97	238	76.00	-23.86	vertical	Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (61) of (105)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : VGA / 230 v , 50 Hz
Memo : 3 ~ 6 GHz

		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	4842.00	24.00	36.82	15.05	40.41	6	60.00	-24.54	horizontal	Average
2	4842.00	37.55	36.82	15.05	40.41	6	80.00	-30.99	horizontal	Peak
3 pp	5016.00	23.50	37.69	15.35	40.41	319	60.00	-23.87	horizontal	Average
4	5016.00	36.47	37.69	15.35	40.41	319	80.00	-30.90	horizontal	Peak
5	5196.00	23.45	37.32	15.56	40.38	287	60.00	-24.05	horizontal	Average
6 pk	5196.00	36.69	37.32	15.56	40.38	287	80.00	-30.81	horizontal	Peak

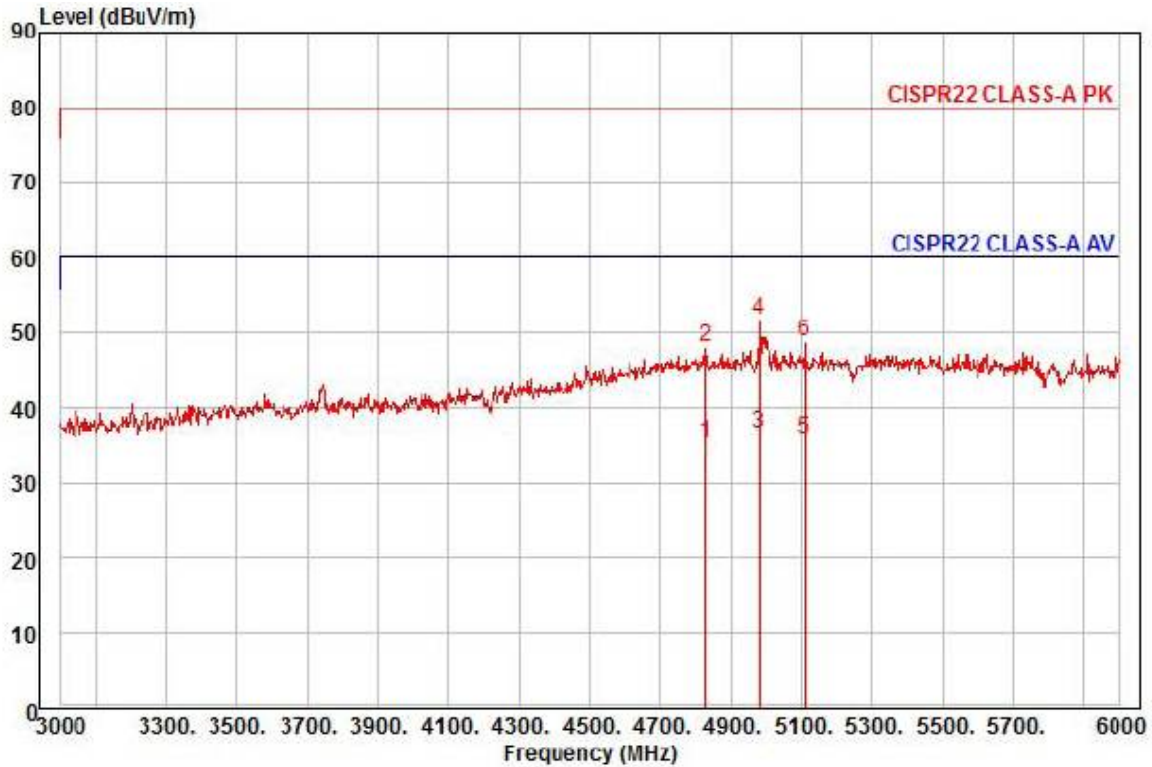
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (62) of (105)

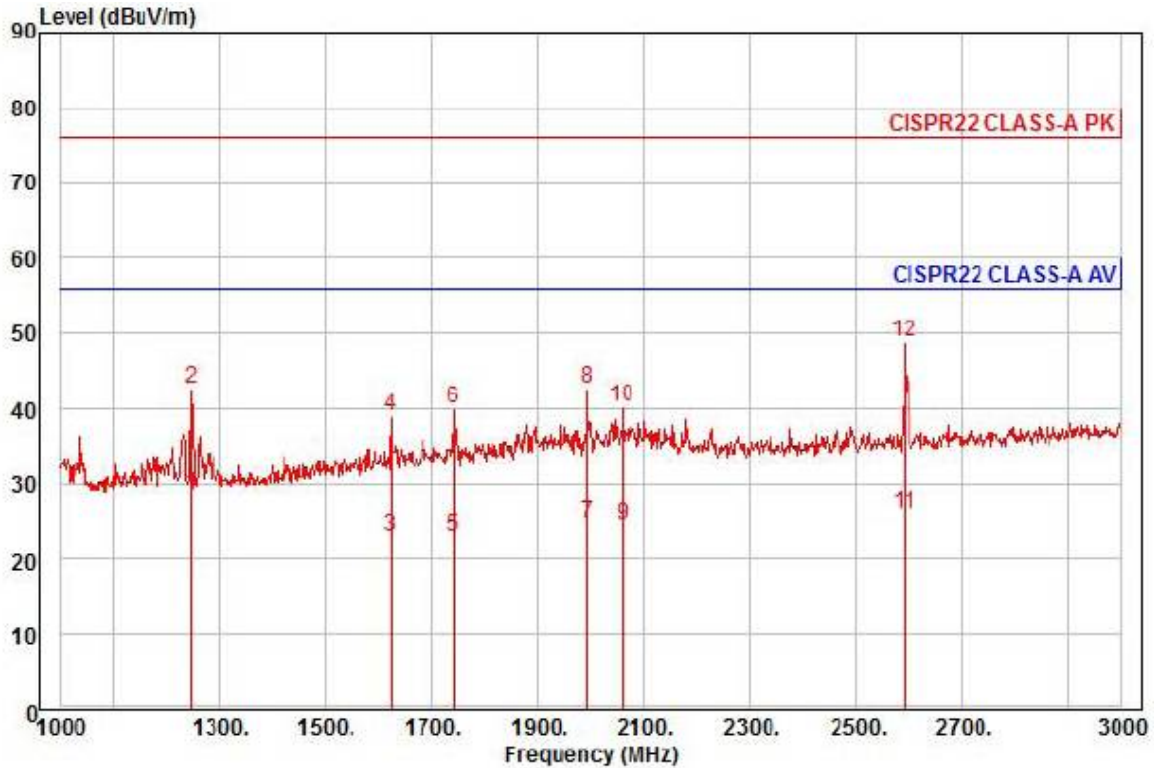


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : VGA / 230 v , 50 Hz
Memo : 3 ~ 6 GHz

		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	4830.00	23.89	36.75	15.02	40.41	160	60.00	-24.75	vertical	Average
2	4830.00	36.74	36.75	15.02	40.41	160	80.00	-31.90	vertical	Peak
3 pp	4980.00	24.13	37.61	15.29	40.41	73	60.00	-23.38	vertical	Average
4 pk	4980.00	39.28	37.61	15.29	40.41	73	80.00	-28.23	vertical	Peak
5	5109.00	23.27	37.50	15.46	40.39	50	60.00	-24.16	vertical	Average
6	5109.00	36.16	37.50	15.46	40.39	50	80.00	-31.27	vertical	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

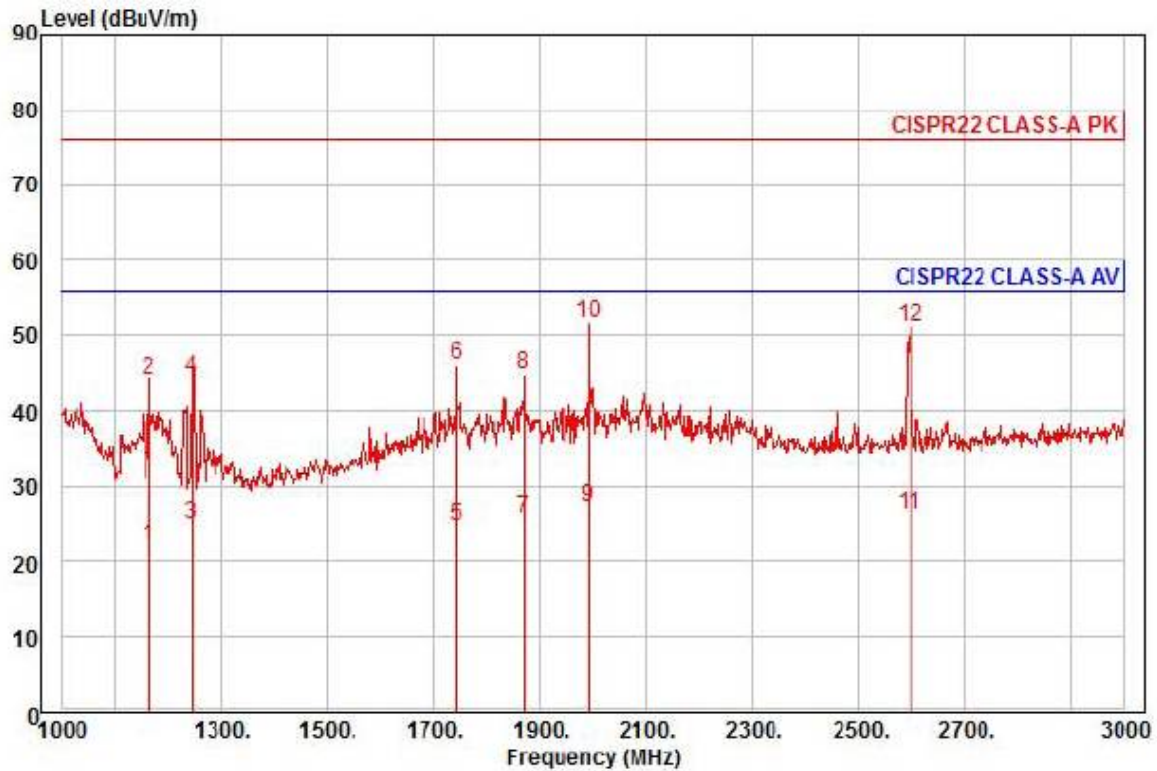
- HDMI Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SNT-1935
Mode : HDMI / 230 v , 50 Hz
Memo : 1 ~ 3 GHz

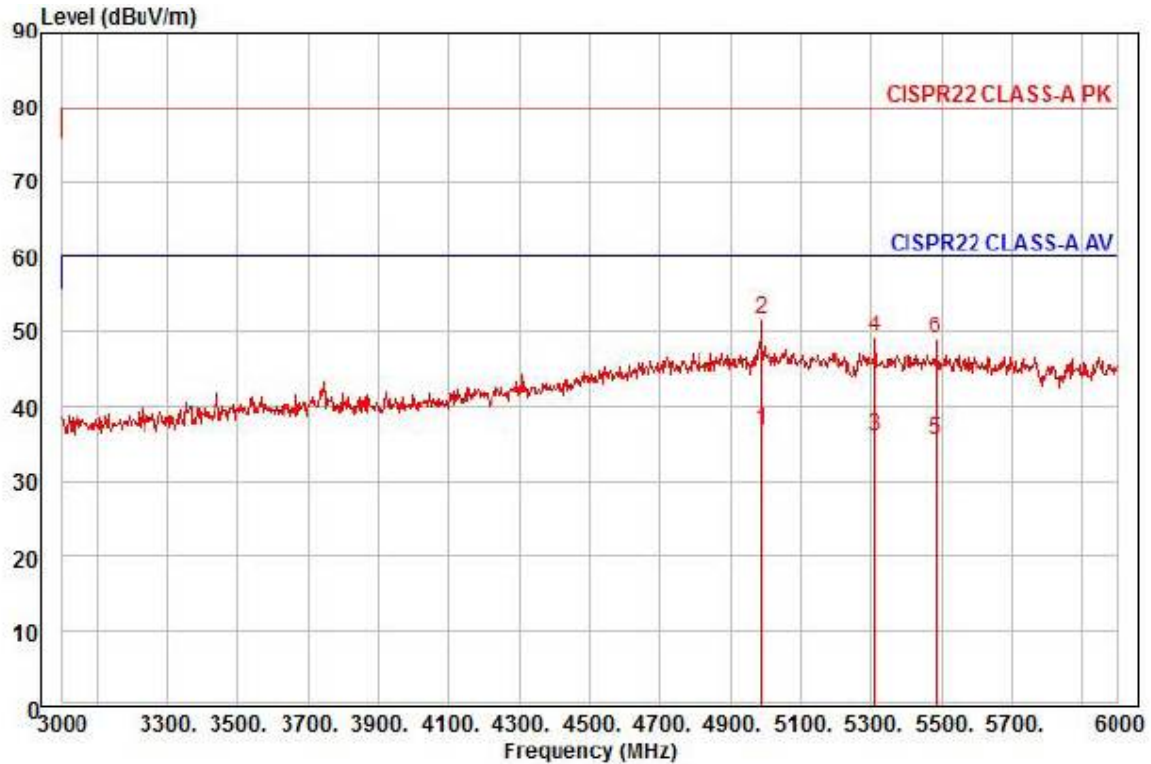
		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 av	1246.00	36.46	24.89	7.22	40.00	232	56.00	-27.43	horizontal	Average
2	1246.00	50.47	24.89	7.22	40.00	232	76.00	-33.42	horizontal	Peak
3	1624.00	28.07	26.39	8.32	39.81	238	56.00	-33.03	horizontal	Average
4	1624.00	44.13	26.39	8.32	39.81	238	76.00	-36.97	horizontal	Peak
5	1742.00	27.36	26.86	8.64	39.76	152	56.00	-32.90	horizontal	Average
6	1742.00	44.16	26.86	8.64	39.76	152	76.00	-36.10	horizontal	Peak
7	1994.00	27.25	27.86	9.33	39.63	343	56.00	-31.19	horizontal	Average
8	1994.00	45.10	27.86	9.33	39.63	343	76.00	-33.34	horizontal	Peak
9	2060.00	26.68	28.03	9.44	39.66	250	56.00	-31.51	horizontal	Average
10	2060.00	42.53	28.03	9.44	39.66	250	76.00	-35.66	horizontal	Peak
11	2592.00	26.36	29.33	10.26	39.97	45	56.00	-30.02	horizontal	Average
12 pp	2592.00	49.08	29.33	10.26	39.97	45	76.00	-27.30	horizontal	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : HDMI / 230 v , 50 Hz
Memo : 1 ~ 3 GHz

	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	1164.00	30.67	24.56	6.99	40.04	4	56.00	-33.82	vertical	Average
2	1164.00	52.69	24.56	6.99	40.04	4	76.00	-31.80	vertical	Peak
3	1244.00	32.87	24.88	7.22	40.00	189	56.00	-31.03	vertical	Average
4	1244.00	52.25	24.88	7.22	40.00	189	76.00	-31.65	vertical	Peak
5	1744.00	29.03	26.86	8.65	39.76	76	56.00	-31.22	vertical	Average
6	1744.00	50.27	26.86	8.65	39.76	76	76.00	-29.98	vertical	Peak
7	1870.00	29.19	27.36	8.99	39.69	357	56.00	-30.15	vertical	Average
8	1870.00	48.19	27.36	8.99	39.69	357	76.00	-31.15	vertical	Peak
9 av	1992.00	29.61	27.85	9.33	39.63	348	56.00	-28.84	vertical	Average
10 pp	1992.00	54.14	27.85	9.33	39.63	348	76.00	-24.31	vertical	Peak
11	2598.00	26.48	29.35	10.27	39.98	67	56.00	-29.88	vertical	Average
12	2598.00	51.68	29.35	10.27	39.98	67	76.00	-24.68	vertical	Peak



Site : chamber

Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal

: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto

Project : LED MONITOR

Model : SMT-1935

Mode : HDMI / 230 v , 50 Hz

Memo : 3 ~ 6 GHz

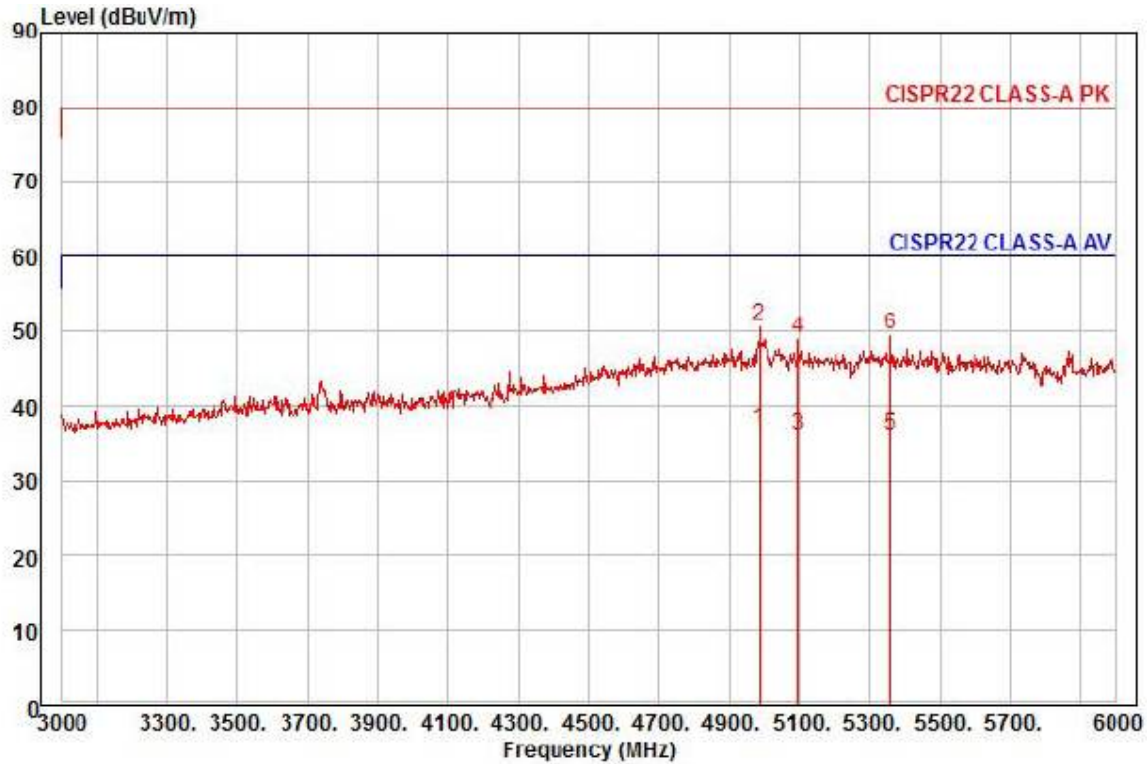
		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	pp	4986.00	24.23	37.64	15.30	40.41	121	60.00	-23.24	horizontal Average
2	pk	4986.00	39.14	37.64	15.30	40.41	121	80.00	-28.33	horizontal Peak
3		5310.00	23.54	37.09	15.70	40.37	20	60.00	-24.04	horizontal Average
4		5310.00	36.82	37.09	15.70	40.37	20	80.00	-30.76	horizontal Peak
5		5484.00	23.35	36.74	15.90	40.34	316	60.00	-24.35	horizontal Average
6		5484.00	36.79	36.74	15.90	40.34	316	80.00	-30.91	horizontal Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (66) of (105)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : LED MONITOR
Model : SMT-1935
Mode : HDMI / 230 v , 50 Hz
Memo : 3 ~ 6 GHz

		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	pp	4983.00	24.16	37.62	15.30	40.41	71	60.00	-23.33	vertical
2	pk	4983.00	38.37	37.62	15.30	40.41	71	80.00	-29.12	vertical
3		5097.00	23.53	37.52	15.44	40.40	326	60.00	-23.91	vertical
4		5097.00	36.52	37.52	15.44	40.40	326	80.00	-30.92	vertical
5		5358.00	23.63	37.00	15.75	40.36	315	60.00	-23.98	vertical
6		5358.00	37.12	37.00	15.75	40.36	315	80.00	-30.49	vertical

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

**Harmonic Current Emissions and Voltage Fluctuations and Flicker**

- BNC Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	78.884E-3			
2	1.634E-3			PASS
3	72.440E-3	3.150	2.30	PASS
4	1.365E-3			PASS
5	68.868E-3	6.041	1.14	PASS
6	1.739E-3			PASS
7	64.599E-3	8.389	770.00E-3	PASS
8	1.293E-3			PASS
9	59.943E-3	14.986	400.00E-3	PASS
10	1.159E-3			PASS
11	53.656E-3	16.259	330.00E-3	PASS
12	1.094E-3			PASS
13	46.484E-3	22.135	210.00E-3	PASS
14	951.260E-6			PASS
15	38.948E-3	25.965	150.00E-3	PASS
16	726.892E-6			PASS
17	31.687E-3	23.942	132.35E-3	PASS
18	634.956E-6			PASS
19	24.759E-3	20.908	118.42E-3	PASS
20	502.926E-6			PASS
21	18.079E-3	11.250	160.71E-3	PASS
22	482.470E-6			PASS
23	12.349E-3	8.415	146.74E-3	PASS
24	424.305E-6			PASS
25	7.457E-3	5.523	135.00E-3	PASS
26	460.331E-6			PASS
27	4.237E-3			PASS
28	428.247E-6			PASS
29	3.445E-3			PASS
30	453.301E-6			PASS
31	4.676E-3			PASS
32	471.364E-6			PASS
33	5.650E-3	5.525	102.27E-3	PASS
34	396.767E-6			PASS
35	5.998E-3	6.220	96.44E-3	PASS
36	421.534E-6			PASS
37	5.887E-3	6.454	91.21E-3	PASS
38	339.817E-6			PASS
39	5.077E-3	5.867	86.53E-3	PASS
40	339.594E-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)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	79.209E-3			
2	1.983E-3			PASS
3	72.541E-3	2.103	3.45	PASS
4	1.650E-3			PASS
5	69.236E-3	4.049	1.71	PASS
6	2.303E-3			PASS
7	64.859E-3	5.615	1.15	PASS
8	1.490E-3			PASS
9	60.031E-3	10.005	600.00E-3	PASS
10	1.357E-3			PASS
11	53.816E-3	10.872	495.00E-3	PASS
12	1.303E-3			PASS
13	46.607E-3	14.796	315.00E-3	PASS
14	1.157E-3			PASS
15	39.060E-3	17.360	225.00E-3	PASS
16	893.402E-6			PASS
17	31.784E-3	16.010	198.52E-3	PASS
18	811.204E-6			PASS
19	24.917E-3	14.027	177.63E-3	PASS
20	622.295E-6			PASS
21	18.288E-3	11.379	160.71E-3	PASS
22	642.492E-6			PASS
23	12.620E-3	8.600	146.74E-3	PASS
24	611.799E-6			PASS
25	7.721E-3	5.719	135.00E-3	PASS
26	613.396E-6			PASS
27	4.461E-3			PASS
28	568.992E-6			PASS
29	3.668E-3			PASS
30	620.054E-6			PASS
31	4.810E-3			PASS
32	617.152E-6			PASS
33	5.762E-3	5.635	102.27E-3	PASS
34	553.253E-6			PASS
35	6.108E-3	6.334	96.44E-3	PASS
36	551.475E-6			PASS
37	5.996E-3	6.574	91.21E-3	PASS
38	444.897E-6			PASS
39	5.197E-3	6.006	86.53E-3	PASS
40	481.326E-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.



- VGA Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	77.934E-3			
2	1.824E-3			PASS
3	71.511E-3	3.109	2.30	PASS
4	1.478E-3			PASS
5	68.124E-3	5.976	1.14	PASS
6	1.884E-3			PASS
7	64.013E-3	8.313	770.00E-3	PASS
8	1.358E-3			PASS
9	59.600E-3	14.900	400.00E-3	PASS
10	1.194E-3			PASS
11	53.562E-3	16.231	330.00E-3	PASS
12	1.109E-3			PASS
13	46.664E-3	22.221	210.00E-3	PASS
14	962.221E-6			PASS
15	39.388E-3	26.259	150.00E-3	PASS
16	703.140E-6			PASS
17	32.369E-3	24.457	132.35E-3	PASS
18	612.776E-6			PASS
19	25.623E-3	21.637	118.42E-3	PASS
20	484.409E-6			PASS
21	19.052E-3	11.855	160.71E-3	PASS
22	480.496E-6			PASS
23	13.385E-3	9.121	146.74E-3	PASS
24	455.513E-6			PASS
25	8.440E-3	6.252	135.00E-3	PASS
26	526.770E-6			PASS
27	4.900E-3			PASS
28	504.204E-6			PASS
29	3.340E-3			PASS
30	538.427E-6			PASS
31	4.237E-3			PASS
32	529.191E-6			PASS
33	5.301E-3	5.184	102.27E-3	PASS
34	435.442E-6			PASS
35	5.822E-3	6.038	96.44E-3	PASS
36	453.288E-6			PASS
37	5.939E-3	6.511	91.21E-3	PASS
38	354.192E-6			PASS
39	5.302E-3	6.127	86.53E-3	PASS
40	348.295E-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)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	78.218E-3			
2	2.109E-3			PASS
3	71.737E-3	2.079	3.45	PASS
4	1.670E-3			PASS
5	68.432E-3	4.002	1.71	PASS
6	2.309E-3			PASS
7	64.191E-3	5.558	1.15	PASS
8	1.563E-3			PASS
9	59.811E-3	9.969	600.00E-3	PASS
10	1.421E-3			PASS
11	53.699E-3	10.848	495.00E-3	PASS
12	1.353E-3			PASS
13	46.783E-3	14.852	315.00E-3	PASS
14	1.174E-3			PASS
15	39.515E-3	17.562	225.00E-3	PASS
16	929.263E-6			PASS
17	32.483E-3	16.362	198.52E-3	PASS
18	828.324E-6			PASS
19	25.730E-3	14.485	177.63E-3	PASS
20	642.645E-6			PASS
21	19.141E-3	11.910	160.71E-3	PASS
22	628.694E-6			PASS
23	13.526E-3	9.218	146.74E-3	PASS
24	545.249E-6			PASS
25	8.526E-3	6.316	135.00E-3	PASS
26	680.332E-6			PASS
27	5.050E-3	4.040	124.99E-3	PASS
28	600.773E-6			PASS
29	3.500E-3			PASS
30	677.837E-6			PASS
31	4.350E-3			PASS
32	616.180E-6			PASS
33	5.406E-3	5.286	102.27E-3	PASS
34	586.219E-6			PASS
35	5.916E-3	6.135	96.44E-3	PASS
36	596.346E-6			PASS
37	6.024E-3	6.604	91.21E-3	PASS
38	483.011E-6			PASS
39	5.382E-3	6.219	86.53E-3	PASS
40	449.890E-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.



- HDMI Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	79.016E-3			
2	1.841E-3			PASS
3	72.586E-3	3.507	2.07	PASS
4	1.475E-3			PASS
5	69.122E-3	6.737	1.03	PASS
6	1.896E-3			PASS
7	64.948E-3	9.372	693.00E-3	PASS
8	1.386E-3			PASS
9	60.412E-3	16.781	360.00E-3	PASS
10	1.226E-3			PASS
11	54.280E-3	18.276	297.00E-3	PASS
12	1.145E-3			PASS
13	47.250E-3	25.000	189.00E-3	PASS
14	984.986E-6			PASS
15	39.855E-3	29.522	135.00E-3	PASS
16	740.820E-6			PASS
17	32.718E-3	27.468	119.11E-3	PASS
18	658.763E-6			PASS
19	25.869E-3	24.273	106.58E-3	PASS
20	515.303E-6			PASS
21	19.238E-3	19.951	96.43E-3	PASS
22	512.512E-6			PASS
23	13.510E-3	15.344	88.05E-3	PASS
24	466.478E-6			PASS
25	8.528E-3	10.529	81.00E-3	PASS
26	517.113E-6			PASS
27	4.993E-3			PASS
28	489.923E-6			PASS
29	3.513E-3			PASS
30	527.102E-6			PASS
31	4.391E-3			PASS
32	519.039E-6			PASS
33	5.427E-3	8.844	61.36E-3	PASS
34	427.790E-6			PASS
35	5.912E-3	10.217	57.86E-3	PASS
36	458.335E-6			PASS
37	5.984E-3	10.933	54.73E-3	PASS
38	361.640E-6			PASS
39	5.319E-3	10.245	51.92E-3	PASS
40	364.224E-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)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	79.303E-3			
2	2.115E-3			PASS
3	72.854E-3	1.584	4.60	PASS
4	1.728E-3			PASS
5	69.406E-3	3.044	2.28	PASS
6	2.208E-3			PASS
7	65.141E-3	4.230	1.54	PASS
8	1.550E-3			PASS
9	60.562E-3	7.570	800.00E-3	PASS
10	1.432E-3			PASS
11	54.429E-3	8.247	660.00E-3	PASS
12	1.396E-3			PASS
13	47.398E-3	11.285	420.00E-3	PASS
14	1.189E-3			PASS
15	40.034E-3	13.345	300.00E-3	PASS
16	942.605E-6			PASS
17	32.869E-3	12.417	264.70E-3	PASS
18	812.681E-6			PASS
19	26.013E-3	10.983	236.84E-3	PASS
20	680.692E-6			PASS
21	19.376E-3	9.042	214.28E-3	PASS
22	656.289E-6			PASS
23	13.630E-3	6.966	195.66E-3	PASS
24	574.084E-6			PASS
25	8.668E-3	4.816	180.00E-3	PASS
26	630.531E-6			PASS
27	5.114E-3	3.068	166.66E-3	PASS
28	607.563E-6			PASS
29	3.670E-3			PASS
30	675.463E-6			PASS
31	4.508E-3			PASS
32	611.864E-6			PASS
33	5.615E-3	4.118	136.36E-3	PASS
34	513.809E-6			PASS
35	6.083E-3	4.731	128.58E-3	PASS
36	573.475E-6			PASS
37	6.142E-3	5.050	121.62E-3	PASS
38	466.861E-6			PASS
39	5.449E-3	4.723	115.38E-3	PASS
40	484.792E-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 - Voltage Fluctuations

Maximum Flicker results

- BNC Mode

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.046	4.00	PASS
Tmax [s]	0.000	0.50	PASS

- VGA Mode

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.046	4.00	PASS
Tmax [s]	0.000	0.50	PASS

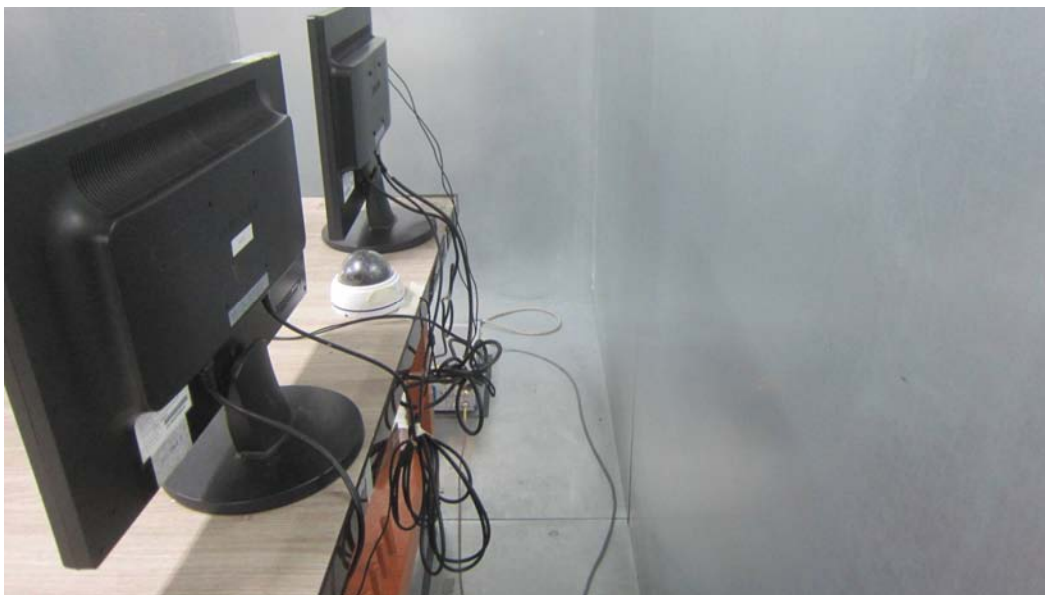
- HDMI Mode

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.046	4.00	PASS
Tmax [s]	0.000	0.50	PASS

Test Setup Photos and Configuration

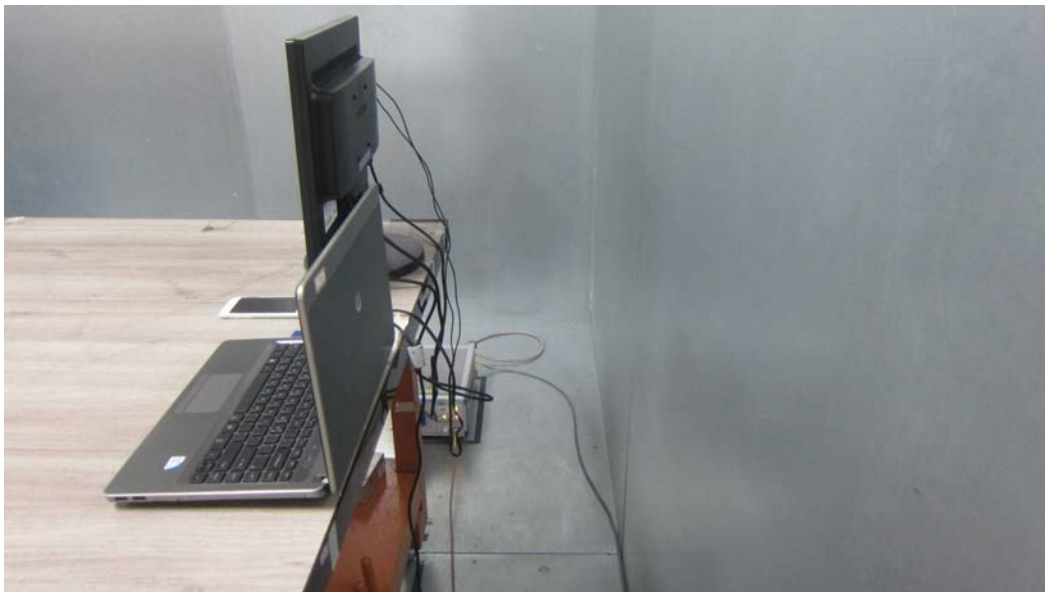
Conducted Voltage Emissions

- BNC Mode

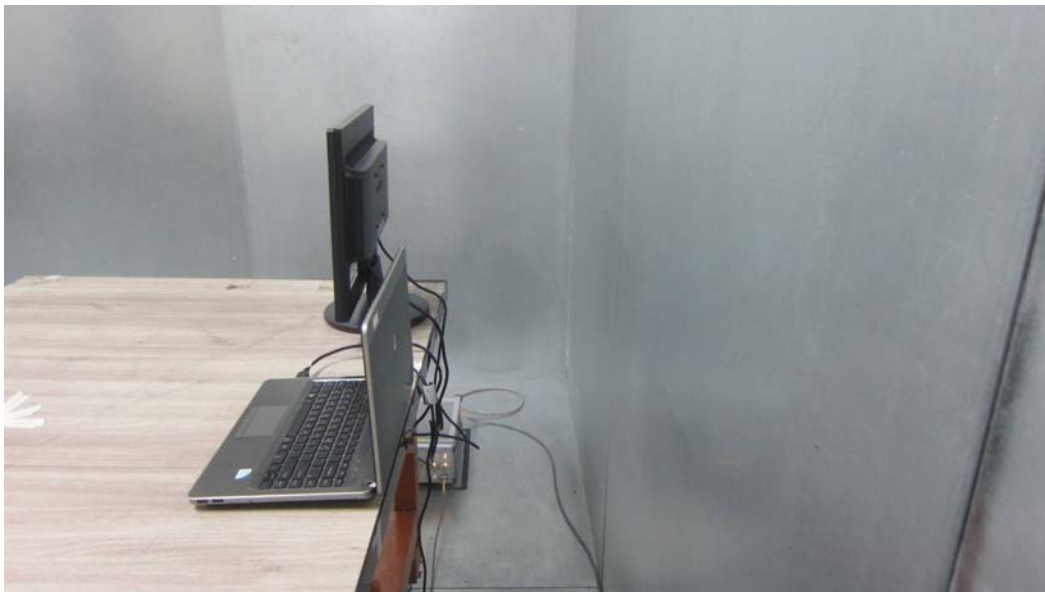


This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



- HDMI Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0387
Page (77) of (105)

Conducted Telecommunication Emissions

N/A

N/A

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Radiated Electric Field Emissions(Below 1 GHz)

- BNC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

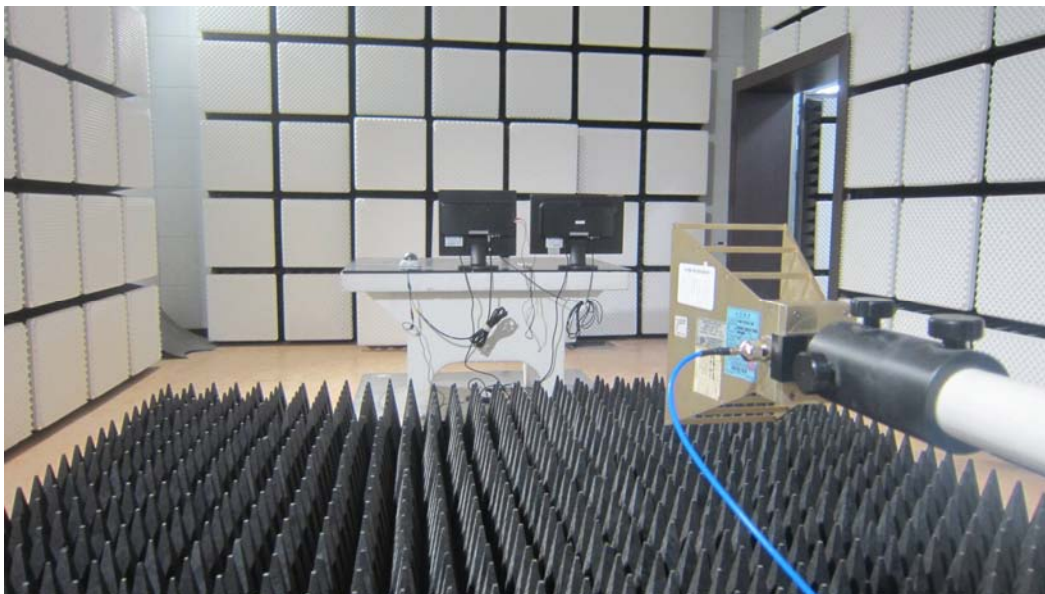
- HDMO Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Radiated Electric Field Emissions(Above 1 GHz)

- BNC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- HDMI Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Harmonic Current Emissions and Voltage Fluctuations and Flicker

- BNC Mode



- VGA Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- HDMI Mode



Electrostatic Discharge

- BNC Mode



- VGA Mode



- HDMI Mode



Radiated Electric Field Immunity

- BNC Mode



- VGA Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- HDMI Mode



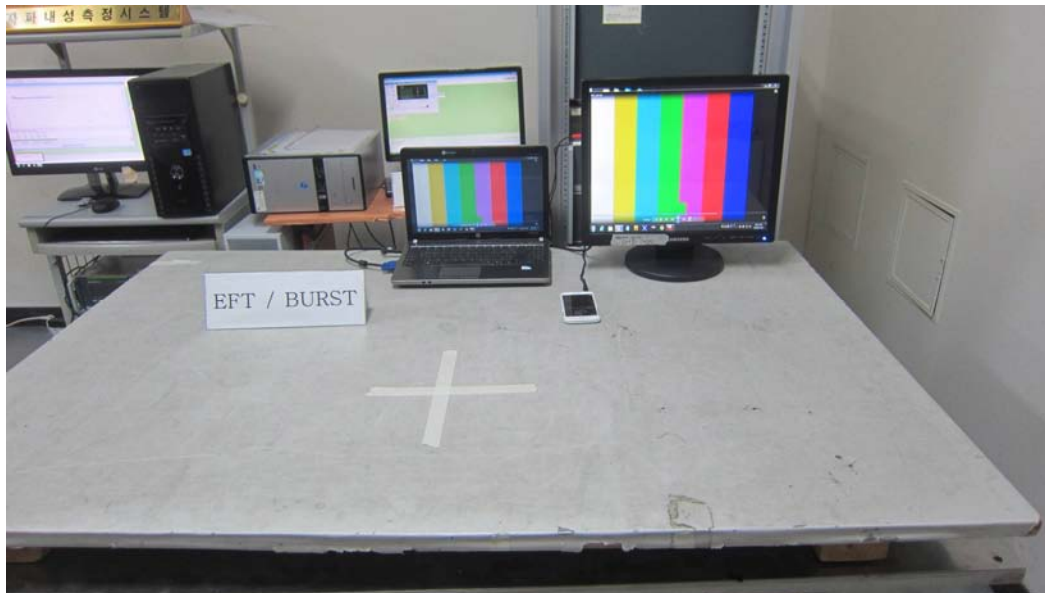
Electrical Fast Transients/Bursts

- BNC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



- HDMI Mode



Surge Transients

- BNC Mode

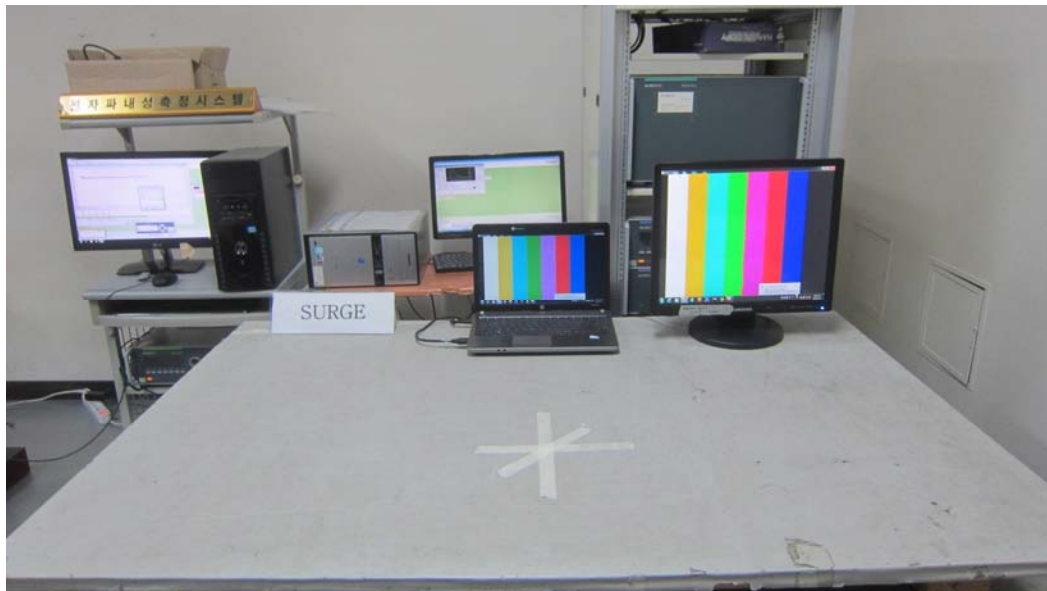


This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



- HDMI Mode



Conducted Disturbance

- BNC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- VGA Mode



- HDMI Mode

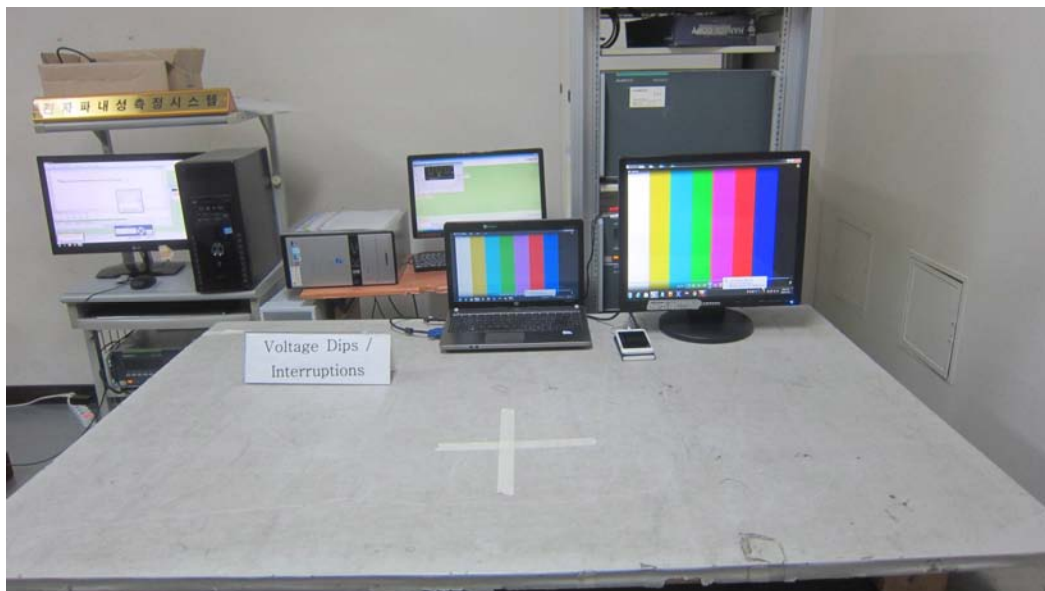


Voltage Dips and Short Interruptions

- BNC Mode



- VGA Mode



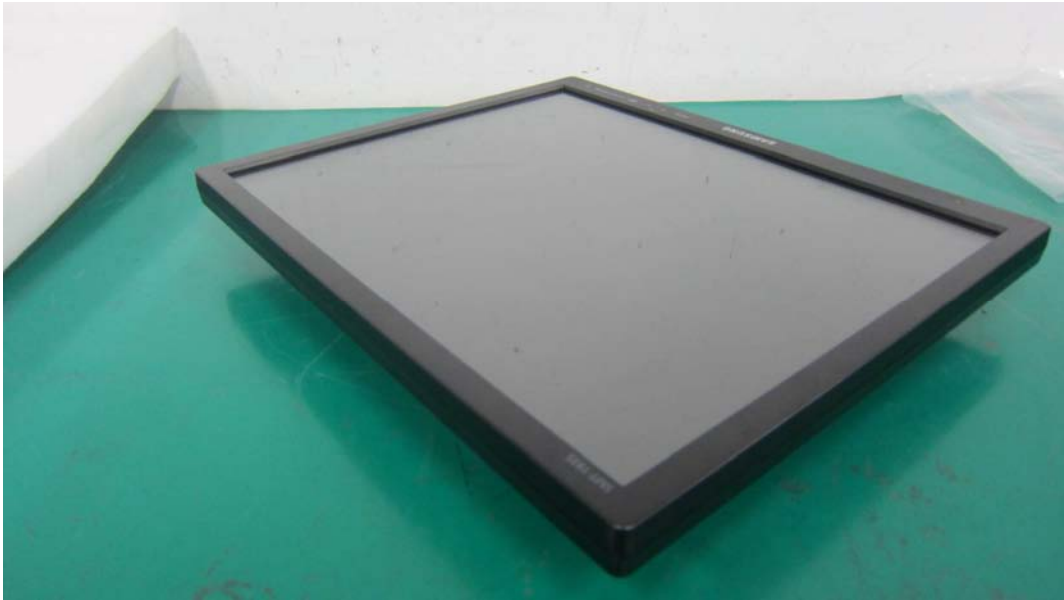
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- HDMI Mode



EUT External Photographs

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal Photographs

(Internal View)



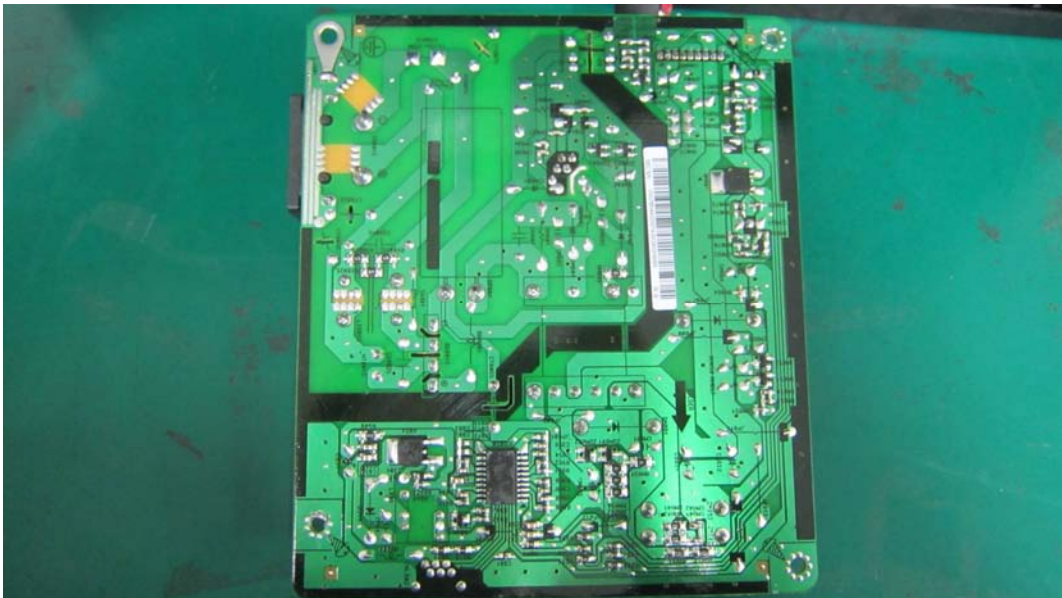
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – Power Board

(Top)

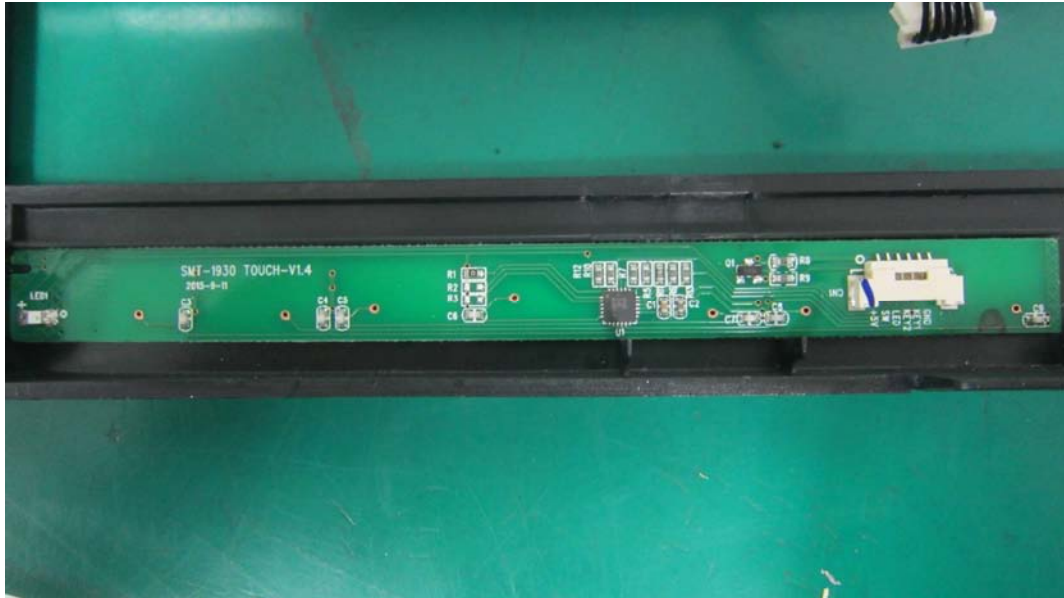


(Bottom)



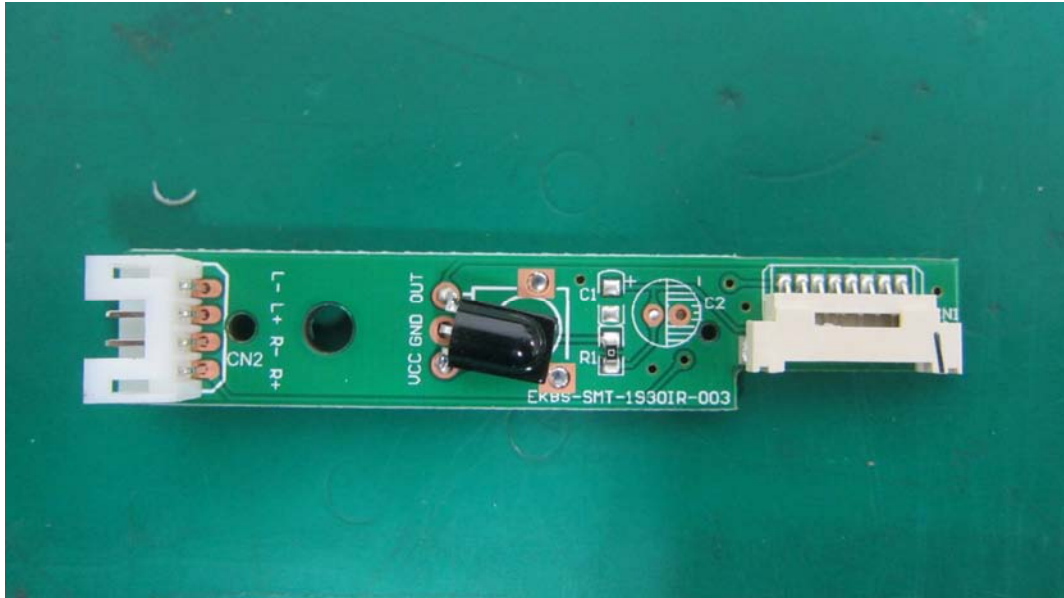
EUT Internal View – Sub Board 1

(Top)

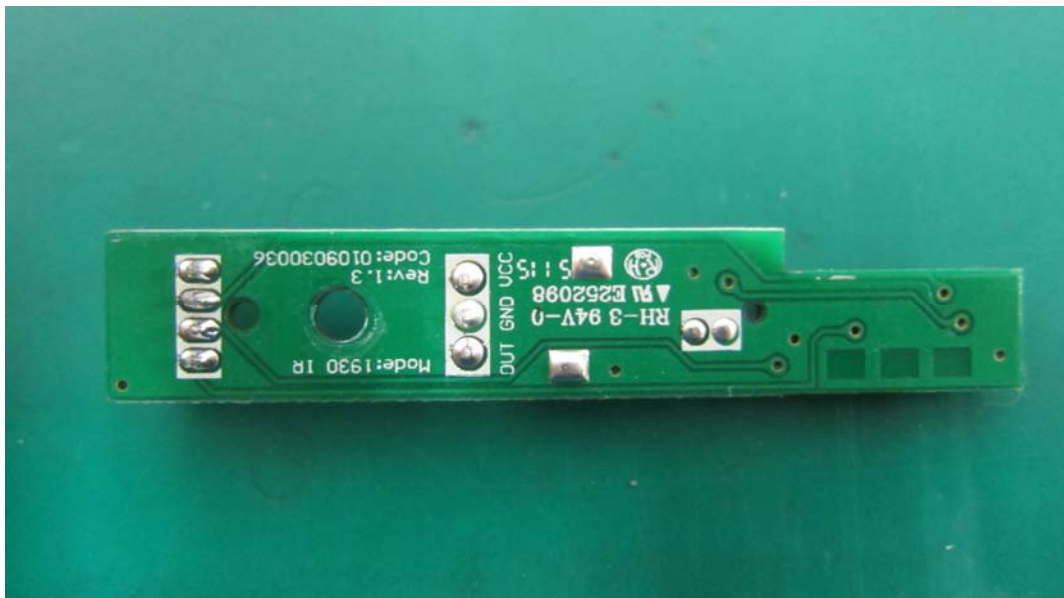


EUT Internal View – Sub Board 2

(Top)



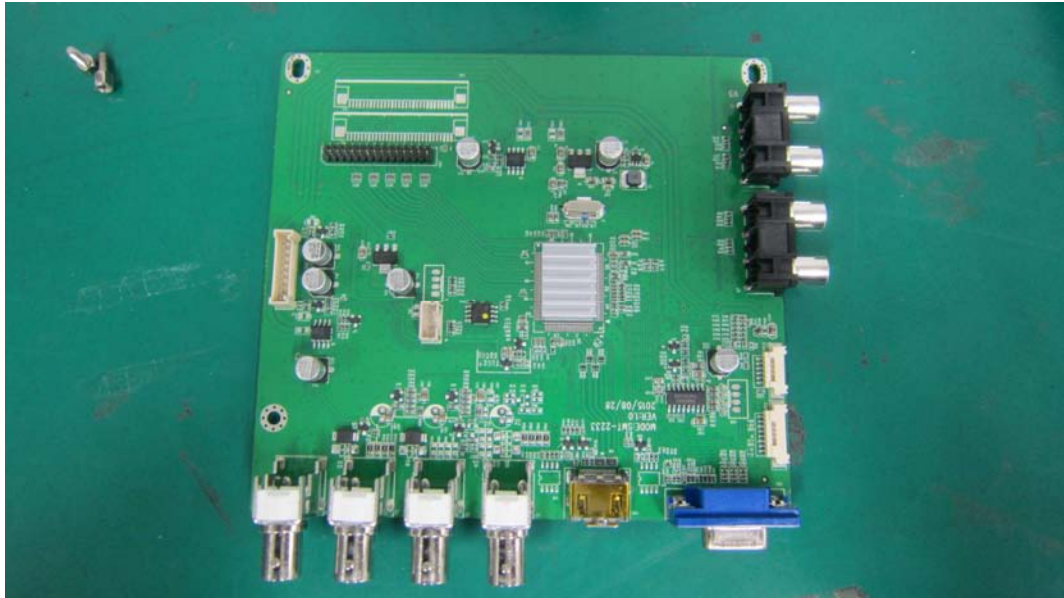
(Bottom)



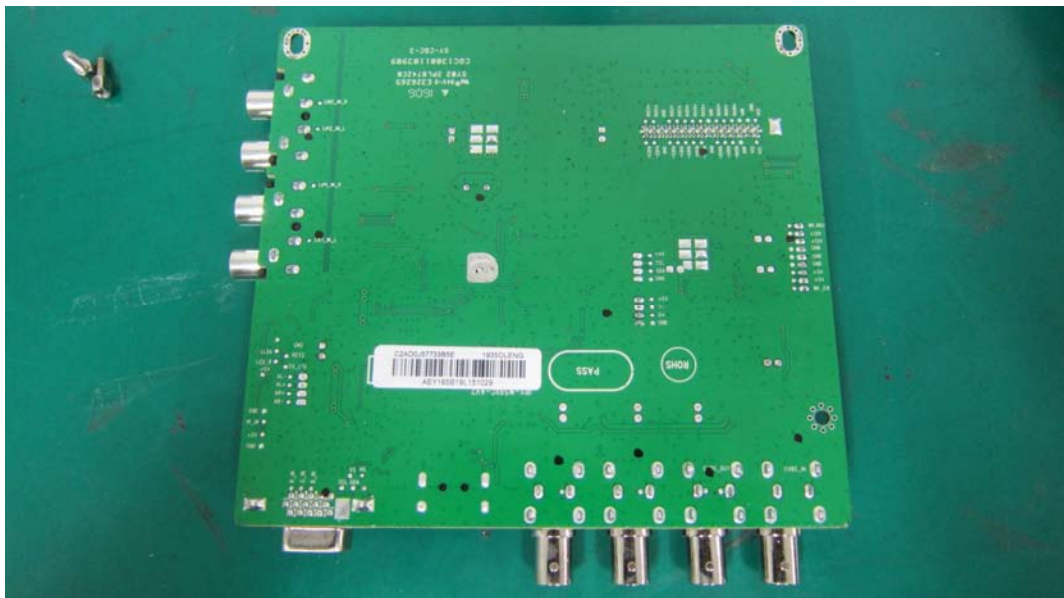
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – video Outpt Board

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – Panel

(Top)



(Bottom)



Label and Location



NETWORK CAMERA

Model No : SMT-1935

Manufacturer : Weihai Daewoo Electronics Co.,Ltd.

(Tianjin Communication & Broad cation Group Electronics Science)

Made in of China