

**KES Co., Ltd.**

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Report No.:

KES-EM-21T0752-R1

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EMC TEST REPORT

Test Report No. : KES-EM-21T0752-R1
Date of Issue : Feb. 24, 2023
Product name : LED MONITOR
Model/Type No. : SMT-3234
Variant Model : -
Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : Weihai Daewoo Electronics Co., Ltd.
Manufacturer Address : No.26, Hongkong Road, Economic & Technical Development
Zone, 264205 Weihai City, Shandong Province, China
Date of Receipt : Aug. 10, 2021
Test date : Aug. 20, 2021 ~ Aug. 24, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Min Seong, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

Tested by In Han, Kang
(Retired person)
Proxy signature : Min Seong, Kim

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Aug. 30, 2021	KES-EM-21T0752	Issued
Feb. 24, 2023	KES-EM-21T0752-R1	Change the Applicant at the request of the customer

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General Product Description

Main Specifications of EUT are:

Display		
Screen Size		31.5"
Max. Resolution		1,920 x 1,080
Brightness		300cd/m ²
Contrast Ratio		2250 :1 (Typ) , 2000:1 (Min)
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		30,000 hours
Filter Type		3D combfilter
Interface		
Video	Connector	VGA, DVI, HDMI, BNC , USB
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), 800 x 600@56Hz/60Hz/72Hz/75Hz (SVGA), 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	640 x 480p@60Hz, 720 x 480p@60Hz, 720 x 576p@50Hz, 1,280 x 720p@50Hz/60Hz, 1,920 x 1,080i@60Hz, 1,920 x 1,080p@60Hz
Audio	Connector	3.5mm Mini Phone Jack
	Output Signal	Loop-through line level(PC only), Speakers : 2x2W
Application Support		Remote Controller

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On Screen Display (OSD)		
Functions		VESA™ DPM Compatible
Language		Chinese(Simplified), English, French, German, Spanish,Dutch,Russian,Arabic
General		
Electrical	Input Voltage	AC 100 ~ 240V(50/60Hz)
	Power Consumption	<60W
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)
	Operating Humidity	10% ~ 80% (non-condensing)
Mechanical	Dimensions without Stand	727.7 x 433.2 x 48.8mm
	Bezel Size	14.5/25mm(Top/Bottom)
	Weight	6.2kg
	Cabinet Color	Black
	VESA Mounts Interface	100 x 100mm

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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.

☒ AC 230 V, 50 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-3234	-	Weihai Daewoo Electronics Co., Ltd.	EUT
Remote control	-	-	-	-

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	HSN-Q07C	5CD8367KND	HP	-
Notebook Adapter	HSTNN-CA40	WFTKU0ERLB4QCH	HP	-
Camera	SCB-5000N	-	SAMSUNG TECHWIN CO.,LTD.	-
Camera Adapter	SAWA-07-41612	-	-	-
Mouse	B138	-	ARESON TECHNOLOGY CPRO.	-
Keyboard	K100	820-004258	Logitech Inc.	-
Headset	-	-	-	-
MONITOR	SMT-2232	C95V67VF900025B	Weihai Daewoo Electronics Co., Ltd.	-
Desktop	-	-	-	-

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1.6 External I/O Cabling

■ HDMI, VGA, AV, DVI Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LED MONITOR (EUT)	Wireless	Remote control (EUT)	Wireless	-	-
	HDMI	Notebook	HDMI	1.4	S
	CAM OUT	MONITOR	BNC	3.0	S
	CAM IN	Camera	BNC	3.0	S
	3.5 mm	Headset	Line	1.5	U
	3.5 mm				U
	DVI	Desktop	DVI	1.9	S
	VGA		VGA	1.5	S
Keyboard	PS/2		Line	1.2	U
Mouse	USB		Line	1.3	U
Notebook Adapter	DC JACK	Notebook	DC JACK	1.2	U
Camera Adapter	DC JACK	Camera	DC JACK	1.0	U

* Unshielded = U, Shielded = S

1.7 EUT Operating Mode(s)

Test mode	operating
Operating (HDMI, VGA, AV, DVI Mode)	EUT Monitoring

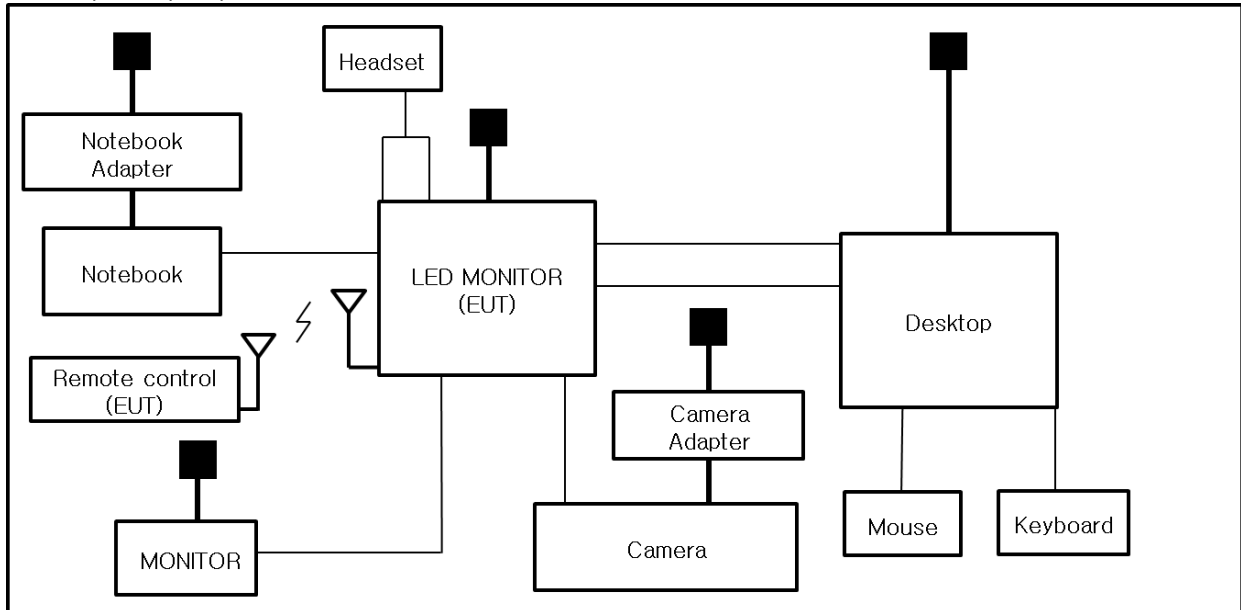
EUT Test operating S/W		
Name	Version	Manufacture Company
-	-	-

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1.8 Configuration

■ AC Main
 □ DC Main

■ HDMI, VGA, AV, DVI Mode



1.9 Remarks when standards applied

Since the USB port is for administrators, it was excluded from the test

1.10 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.

1.11 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



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

☐ Group 2

☐ Class A

☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547:2009

☒ EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 55035:2017/A11:2020

☐ EN 50130-4:2011 +A1:2014

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☐ EN 61326-1:2013

☒ **EMC – Regulations 2016/1091**

☒ BS EN 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ BS EN 55035:2017/A11:2020

☒ BS EN 61000-3-2:2014

☒ BS EN 61000-3-3:2013

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- | | | |
|--|----------------------------------|----------------------------------|
| ☐ VCCI-CISPR 32:2016 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR32:2015 | ☐ Class A | ☐ Class B |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2017 | ☐ Class A | ☐ Class B |
| ☐ IC Regulation ICES-003 Issue 7 | | |
| ☐ CAN/CSA CISPR 32:17 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2017 | ☐ Class A | ☐ Class B |
|
 | | |
| ☐ RE- Directive 2014/53/EU | | |
|
 | | |
| ☐ EN 301 489-1 V2.2.3 | | |
| ☐ 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 | | |
|
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| ☐ EN 60945:2002 | | |

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2.1 Conducted Emissions at Mains Power Ports

Test Date

Aug. 20, 2021

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	01, 15, 2022
☒	LISN	ENV216	R & S	101787	12, 29, 2021
☒	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions

Temperature: (24,3 ± 0,1) °C

Relative Humidity: (48,6 ± 0,2) % R.H.

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 #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test S/W	EMC32	R & S	9.12.00	-
☐	EMI TEST RECEIVER	ESR3	R & S	101783	01, 15, 2022
☐	LISN	ENV216	R & S	101787	12, 29, 2021
☐	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 30, 2021
☐	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2022
☐	CDN	CDNS502A	TESEQ	40431	12, 29, 2021

Test Conditions

Temperature: °C
Relative Humidity: % R.H.

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

Does not apply because there is no signal line ports.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Aug. 20, 2021

Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2022
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: (24,3 ± 0,1) °C

Relative Humidity: (48,3 ± 0,2) % R.H.

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

Aug. 20, 2021

Test Location

SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESR7	R & S	101190	08, 03, 2022
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 07, 2022
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022

Test Conditions

Temperature: (24,1 ± 0,1) °C

Relative Humidity: (48,6 ± 0,2) % R.H.

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

Remarks

See Appendix A for test data.



2.5 Harmonic Current Emissions

Test Date

Aug. 20, 2021

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	04, 06, 2022
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (23,8 ± 0,1) °C
Relative Humidity: (48,5 ± 0,3) % R.H.

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

Remarks

See Appendix A for test data.



2.6 Voltage Fluctuations and Flicker

Test Date

Aug. 20, 2021

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	04, 06, 2022
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (23,8 ± 0,1) °C
Relative Humidity: (48,5 ± 0,3) % R.H.

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

3.0 Criteria for compliance

General performance criteria

General performance criteria are defined in 8.2, 8.3 and 8.4. These criteria shall be used during the testing of primary functions where no relevant annex is applicable.

When assessing the impact of a disturbance on a function, the assessment should take into consideration the function's performance prior to the application of the disturbance and only identify as failures those changes in performance that are a result of the disturbance.

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Aug. 21, 2021

Test Location

EMS-ESD: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS01Z0454	02, 01, 2022
☒	HCP	-	KES	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: (24,6 ± 0,1) °C
Relative Humidity: (49,2 ± 0,3) % R.H.
Atmospheric Pressure: (99,2 ± 0,1) 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
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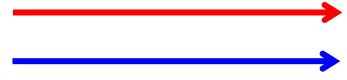
Notes: HCP: Horizontal coupling plane

VCP: Vertical coupling plane

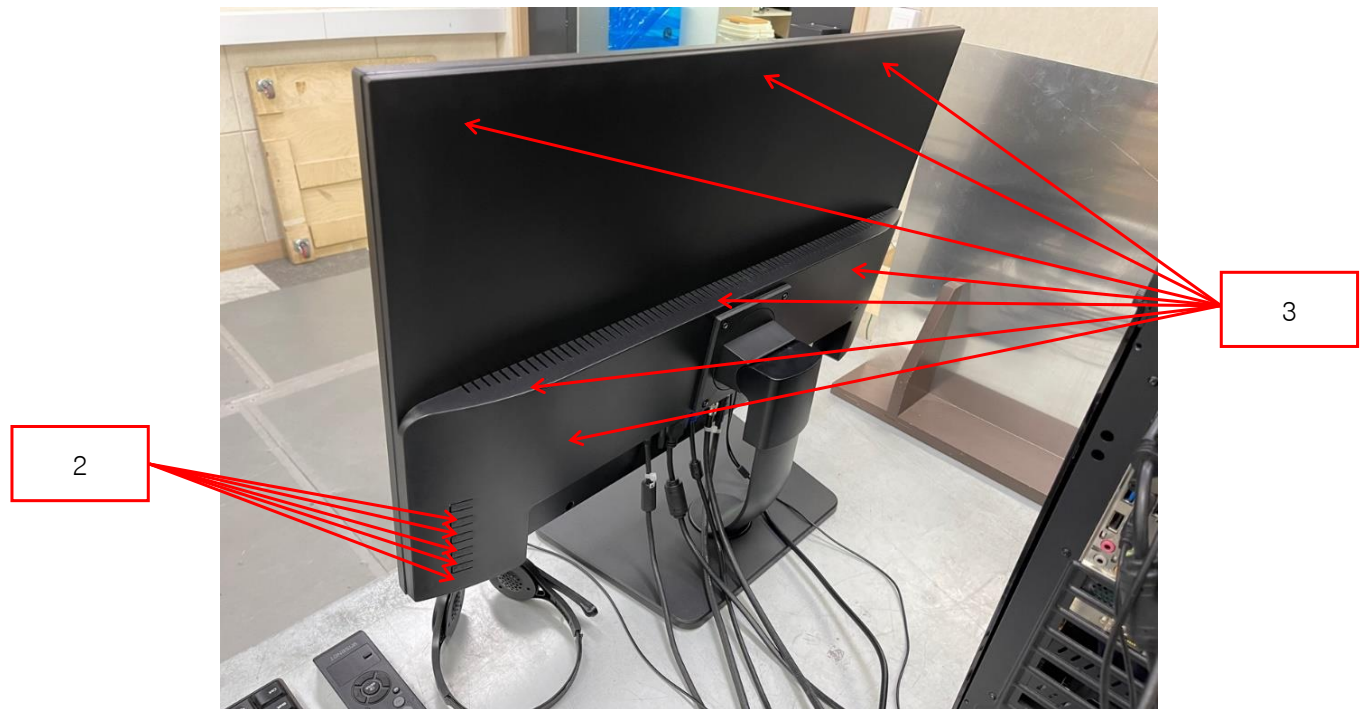
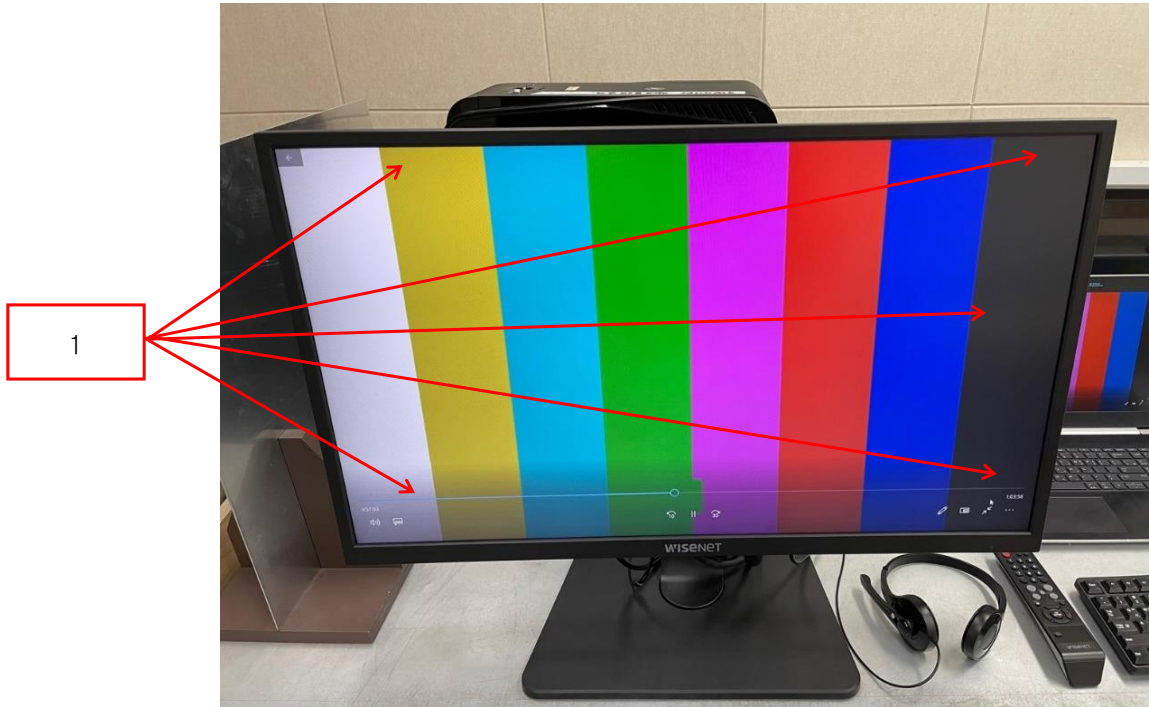
Required Performance Criteria: ☒ B

Location of Discharge:

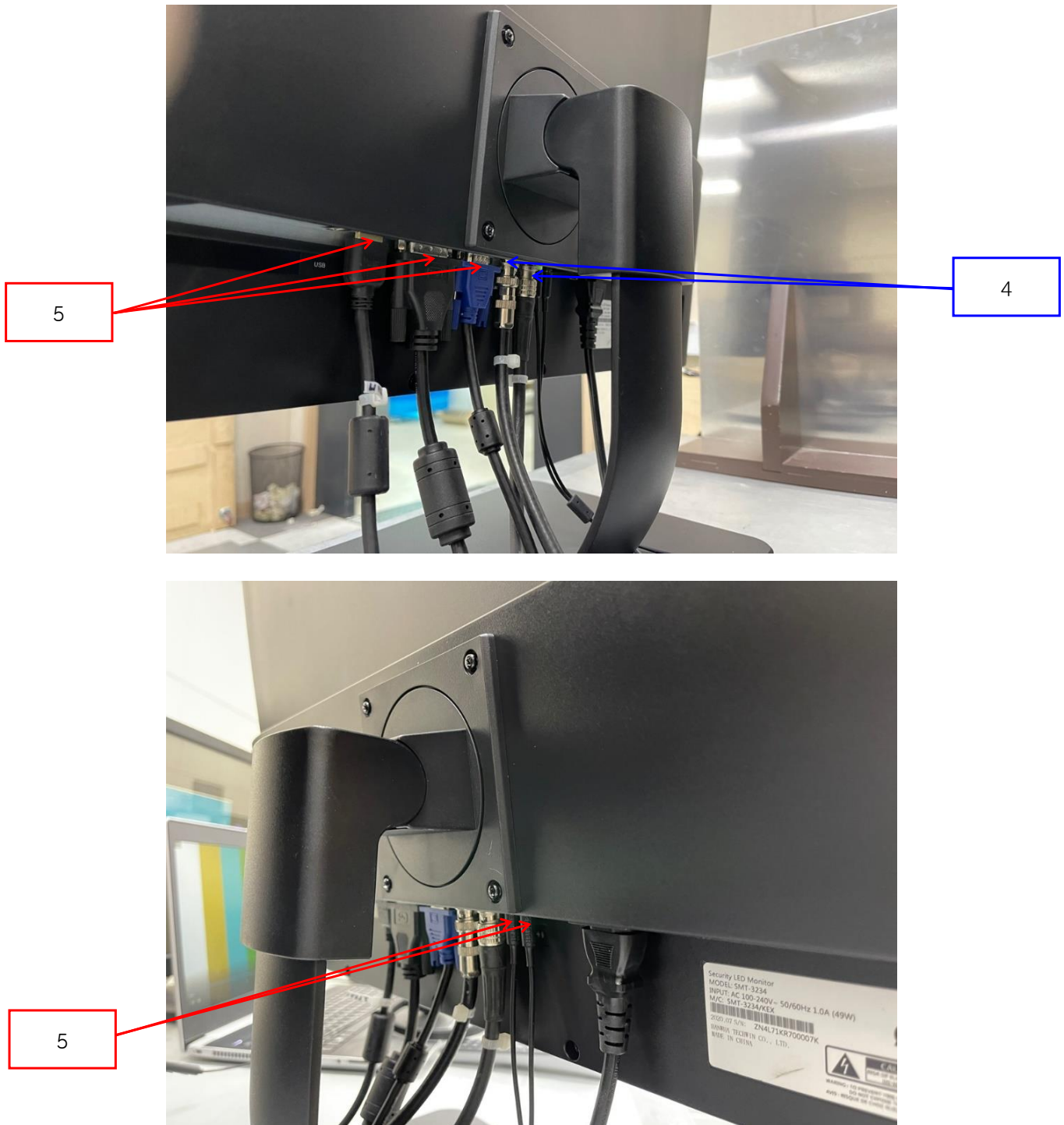
Air
Contact



■ AV HDMI DVI VGA Mode



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Test Data

■ AV Mode

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	LCD	Air Discharge	Complied	-
2	Button	Air Discharge	Complied	-
3	Enclosure	Air Discharge	Complied	-
4	BNC Port	Contact Discharge	Complied	-
5	Around the port	Air Discharge	Complied	-

■ HDMI Mode

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	LCD	Air Discharge	Complied	-
2	Button	Air Discharge	Complied	-
3	Enclosure	Air Discharge	Complied	-
4	BNC Port	Contact Discharge	Complied	-
5	Around the port	Air Discharge	Complied	-

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■ DVI Mode

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	LCD	Air Discharge	Complied	-
2	Button	Air Discharge	Complied	-
3	Enclosure	Air Discharge	Complied	-
4	BNC Port	Contact Discharge	Complied	-
5	Around the port	Air Discharge	Complied	-

■ VGA Mode

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	Complied	-
2	VCP Contact	Contact Discharge	Complied	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	LCD	Air Discharge	Complied	-
2	Button	Air Discharge	Complied	-
3	Enclosure	Air Discharge	Complied	-
4	BNC Port	Contact Discharge	Complied	-
5	Around the port	Air Discharge	Complied	-

Note: "Blank" = Not performed

Results:

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

N/A

3.2 Radiated Electric Field Immunity

Reference Standard

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

Test Date

Aug. 22, 2021 / Aug. 23, 2021

Test Location

EMS-RS: ☐ SEMI ANECHOIC CHAMBER #2 ☒ SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	EMC32	R & S	10.10.02	-
☒	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 03, 2022
☒	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
☒	POWER METER	E4419B	Agilent	GB40203000	04, 01, 2022
☒	CW POWER SENSOR	E4412A	Agilent	US38488240	04, 01, 2022
☒	CW POWER SENSOR	E4412A	Agilent	MY41501662	04, 01, 2022
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022
☒	SOUND ACOUSTIC TESTER	TST-1000	TESTEK	150045	11, 03, 2021
☒	MICROPHONE	MP201	BSWA	551675	11, 04, 2021

Test Conditions

	Aug. 22, 2021	Aug. 23, 2021
Temperature:	(24,2 ± 0,1) °C	(24,4 ± 0,1) °C
Relative Humidity:	(48,9 ± 0,2) % R.H.	(49,1 ± 0,3) % R.H.
Atmospheric Pressure:	(99,5 ± 0,1) kPa	(99,7 ± 0,1) kPa

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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 (swept test) ☐ 1,4 GHz to 2,7 GHz
☒ 1.8 GHz , 2.6 GHz , 3.5 GHz , 5 GHz ($\pm 1\%$) (spot test)

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

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Test Data

- Aug. 22, 2021

■ AV Mode

Side Exposed	Performance Criteria	Results	
		Horizontal	Vertical
Front	A	A	A
Right	A	A	A
Back	A	A	A
Left	A	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	-	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

■ HDMI Mode

Side Exposed	Performance Criteria	Results	
		Horizontal	Vertical
Front	A	A	A
Right	A	A	A
Back	A	A	A
Left	A	A	A

[Audio output function]

☐ Electrical Measurements / ☒ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
3.5 mm	on-ear	75.14	Low	A	A	A
Speaker	loudspeakers	87.88	Low	A	A	A

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

- Aug. 23, 2021

■ DVI Mode

Side Exposed	Performance Criteria	Results	
		Horizontal	Vertical
Front	A	A	A
Right	A	A	A
Back	A	A	A
Left	A	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	-	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

■ VGA Mode

Side Exposed	Performance Criteria	Results	
		Horizontal	Vertical
Front	A	A	A
Right	A	A	A
Back	A	A	A
Left	A	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	-	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

Note: "Blank" = Not performed

Results:

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

N/A



3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Aug. 21, 2021

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11, 26, 2021

Test Conditions

Temperature: (24,6 ± 0,1) °C
Relative Humidity: (49,2 ± 0,3) % R.H.
Atmospheric Pressure: (99,2 ± 0,1) kPa

Test Specifications

Pulse Amplitude & Polarity: ☒ ± 1.0 kV ☐ ± 2.0 kV
(Power Lines) ☐ ± 4.0 kV

Pulse Amplitude & Polarity: ☒ ± 0.5 kV ☐ ± 1.0 kV
(Signal Lines) ☐ ± 2.0 kV

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☒ 5 kHz ☐ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ B

Test Data
■ AV Mode
☒ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
L	B	A	A
N	B	A	A
PE	B	A	A
L – N	B	A	A
L – PE	B	A	A
N – PE	B	A	A
L – N – PE	B	A	A

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
-	B	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
BNC (CAM OUT)	B	A	A
BNC (CAM IN)	B	A	A

■ HDMI Mode

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
L	B	A	A
N	B	A	A
PE	B	A	A
L – N	B	A	A
L – PE	B	A	A
N – PE	B	A	A
L – N – PE	B	A	A

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
-	B	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
BNC (CAM OUT)	B	A	A
BNC (CAM IN)	B	A	A

■ DVI Mode

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
L	B	A	A
N	B	A	A
PE	B	A	A
L – N	B	A	A
L – PE	B	A	A
N – PE	B	A	A
L – N – PE	B	A	A

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
-	B	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
BNC (CAM OUT)	B	A	A
BNC (CAM IN)	B	A	A

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
L	B	A	A
N	B	A	A
PE	B	A	A
L – N	B	A	A
L – PE	B	A	A
N – PE	B	A	A
L – N – PE	B	A	A

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

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
-	B	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Performance Criteria	Results	
		(+) Burst (kV)	(-) Burst (kV)
BNC (CAM OUT)	B	A	A
BNC (CAM IN)	B	A	A

Results:

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

N/A

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3.4 Surge

Reference Standard

EN 61000-4-5:2014+A1:2017

Test Date

Aug. 21, 2021

Test Location

EMS-Surge: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021

Test Conditions

Temperature: (24,6 ± 0,1) °C
Relative Humidity: (49,2 ± 0,3) % R.H.
Atmospheric Pressure: (99,2 ± 0,1) kPa

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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:

☒ 90°, 270° (input a.c. power port)

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: ☐ B

Test Data

■ AV Mode

☒ Line to Line – Differential Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – N	B	A	A

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – PE	B	A	A
N – PE	B	A	A

Signal Lines
☐ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
-	B	-	-

■ HDMI Mode

☒ Line to Line – Differential Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – N	B	A	A

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – PE	B	A	A
N – PE	B	A	A

Signal Lines
☐ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
-	B	-	-

■ DVI Mode
☒ Line to Line – Differential Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – N	B	A	A

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – PE	B	A	A
N – PE	B	A	A

Signal Lines
☐ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
-	B	-	-

■ VGA Mode
☒ Line to Line – Differential Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – N	B	A	A

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
L – PE	B	A	A
N – PE	B	A	A

Signal Lines
☐ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Results	
		(+) Surge (kV)	(-) Surge (kV)
-	B	-	-



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Note: "Blank" = Not performed

Results:

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

N/A

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3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Aug. 24, 2021

Test Location

EMS-CS: Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	icd.control	EM TEST	5.3.12	-
☒	CONTINUOUS WAVE SIMULATOR	CWS 500N1.4	EM TEST	P1602169880	11, 25, 2021
☒	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 25, 2021
☒	CDN	CDN M016	TESEQ	43694	11, 25, 2021
☒	CDN	CDN M016	TESEQ	43697	11, 25, 2021
☒	CDN	CDN S751A	TESEQ	43954	11, 25, 2021
☐	EM CLAMP	KEMZ 801A	TESEQ	44099	11, 26, 2021
☒	SOUND ACOUSTIC TESTER	TST-1000	TESTEK	150045	11, 03, 2021
☒	MICROPHONE	MP201	BSWA	551675	11, 04, 2021

Test Conditions

Temperature: (24,3 ± 0,1) °C

Relative Humidity: (49,3 ± 0,2) % R.H.

Atmospheric Pressure: (99,5 ± 0,1) kPa

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Test Specifications

Frequency range:

☐ 150 kHz to 100 MHz

☒ 150 kHz to 80 MHz

Voltage Level:

☒ 3 Vrms (150 kHz to 10 MHz)

☒ 3 Vrms to 1Vrms (10 MHz to 30 MHz)

☒ 1 Vrms (30 MHz to 80 MHz)

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

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Test Data
☒ AV Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
L – N – PE	CDN	A	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
-	-	A	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
BNC (CAM OUT)	CDN	A	A
BNC (CAM IN)	CDN	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	A	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

■ HDMI Mode
☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
L – N – PE	CDN	A	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
-	-	A	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
BNC (CAM OUT)	CDN	A	A
BNC (CAM IN)	CDN	A	A

[Audio output function]

☐ Electrical Measurements / ☒ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
3.5 mm	on-ear	76.01	Low	A	A	A
Speaker	loudspeakers	87.58	Low	A	A	A

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

■ DVI Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
L - N - PE	CDN	A	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
-	-	A	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
BNC (CAM OUT)	CDN	A	A
BNC (CAM IN)	CDN	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	A	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

■ VGA Mode
☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
L – N – PE	CDN	A	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
-	-	A	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
BNC (CAM OUT)	CDN	A	A
BNC (CAM IN)	CDN	A	A

[Audio output function]

☐ Electrical Measurements / ☐ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
-	-	-	-	A	-	-

* The SOUND ACOUSTIC TESTER mark characteristics indicate low if less than 50 dB.

Notes: CDN = Coupling Decoupling Network
"blank" = Not performed

Results:

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

N/A

3.6 Power Frequency Magnetic Field Immunity

Reference Standard

EN 61000-4-8:2010

Test Date

Aug. 21, 2021

Test Location

EMS-Magnetic: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021
☒	MAGNETIC FIELD COIL	MS 100N	EM TEST	P1536163691	11, 26, 2021
☒	CURRENT TRANSFORMER	MC 2630	EM TEST	P1629182219	01, 04, 2022

Test Conditions

Temperature: (24,6 ± 0,1) °C
Relative Humidity: (49,2 ± 0,3) % R.H.
Atmospheric Pressure: (99,2 ± 0,1) kPa

Test Specifications

Field Strength: ☐ 1 A/m ☒ 3 A/m
☐ 30 A/m

Frequency: ☒ 50 Hz ☐ 60 Hz

Required Performance Criteria: ☒ A

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Report No.:

KES-EM-21T0752-R1

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Test Data☒ HDMI Mode☒ Immersion method

Coil orientation	Performance Criteria	Results
X - axis	A	A
Y - axis	A	A
Z - axis	A	A

Note: "blank" = Not performed

Results:

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☐ NOT APPLICABLE**Remarks**N/A

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3.7 Voltage Dips and Short Interruptions

Reference Standard

EN 61000-4-11:2004+A1:2017

Test Date

Aug. 21, 2021

Test Location

EMS-Voltage dip: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021

Test Conditions

Temperature: (24,6 ± 0,1) °C
Relative Humidity: (49,2 ± 0,3) % R.H.
Atmospheric Pressure: (99,2 ± 0,1) kPa

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Test Data

■ AV Mode

NO	Depth	Duration	Performance		Remarks
			Criteria	Results	
1	95 %	0.5	B	A	-
2	30 %	25	C	A	-
3	95 %	250	C	B	-

■ HDMI Mode

NO	Depth	Duration	Performance		Remarks
			Criteria	Results	
1	95 %	0.5	B	A	-
2	30 %	25	C	A	-
3	95 %	250	C	B	-

■ DVI Mode

NO	Depth	Duration	Performance		Remarks
			Criteria	Results	
1	95 %	0.5	B	A	-
2	30 %	25	C	A	-
3	95 %	250	C	B	-

■ VGA Mode

NO	Depth	Duration	Performance		Remarks
			Criteria	Results	
1	95 %	0.5	B	A	-
2	30 %	25	C	A	-
3	95 %	250	C	B	-

Results:

- A - No response observed from EUT
- 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

EUT was turned off but after the test, it was recovered without operator's intervention.

APPENDIX A – TEST DATA

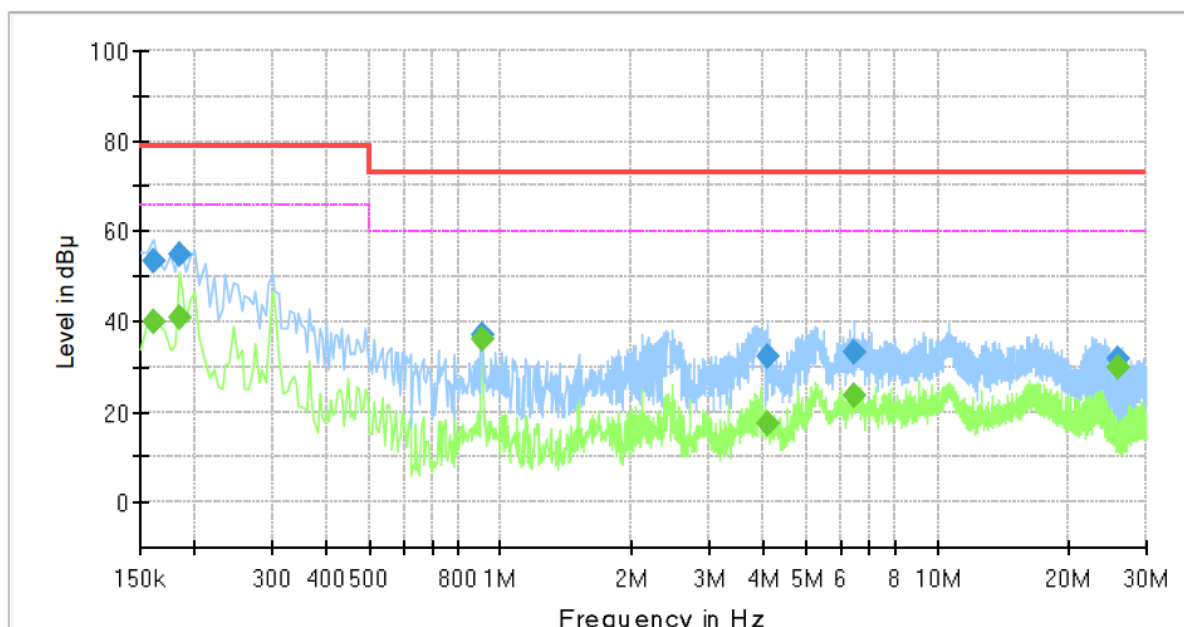
Conducted Emissions at Mains Power Ports

■ AV Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3234
Phase:	L1
Mode:	AV
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	40.04	66.00	25.96	1000.0	9.000	L1	19.5
0.160000	53.27	---	79.00	25.73	1000.0	9.000	L1	19.5
0.185000	---	40.82	66.00	25.18	1000.0	9.000	L1	19.5
0.185000	54.76	---	79.00	24.24	1000.0	9.000	L1	19.5
0.905000	---	35.95	60.00	24.05	1000.0	9.000	L1	20.1
0.905000	36.87	---	73.00	36.13	1000.0	9.000	L1	20.1
4.070000	---	17.44	60.00	42.56	1000.0	9.000	L1	19.9
4.070000	32.28	---	73.00	40.72	1000.0	9.000	L1	19.9
6.465000	---	23.76	60.00	36.24	1000.0	9.000	L1	19.6
6.465000	33.19	---	73.00	39.81	1000.0	9.000	L1	19.6
25.970000	---	29.88	60.00	30.12	1000.0	9.000	L1	20.2
25.970000	32.00	---	73.00	41.00	1000.0	9.000	L1	20.2

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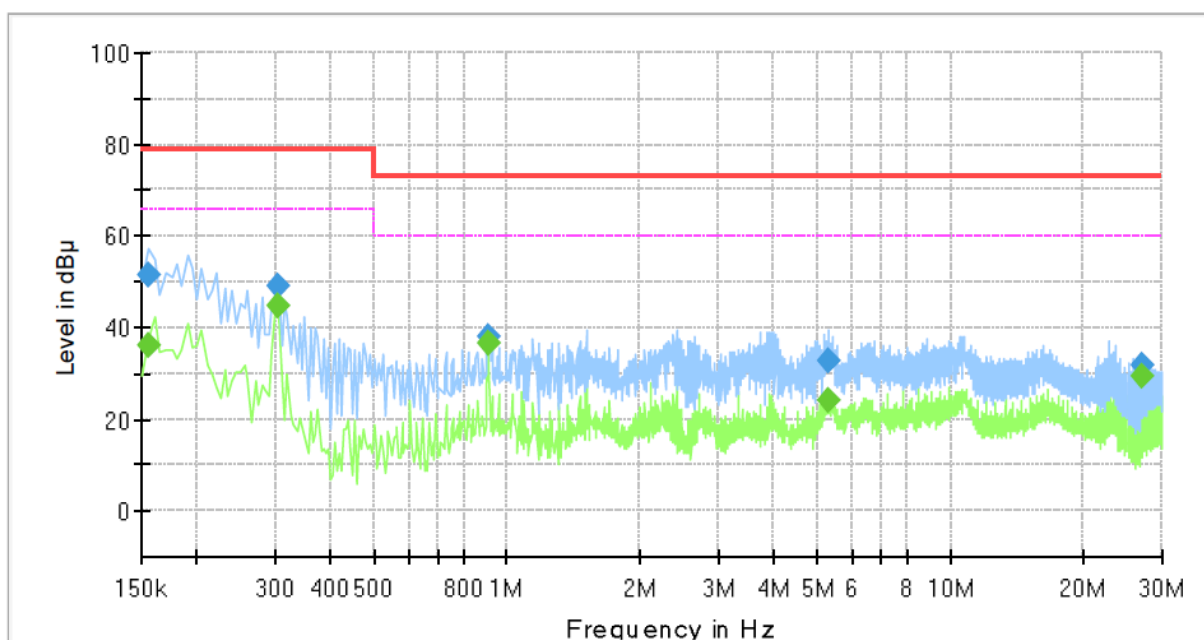
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3234
Phase:	N
Mode:	AV
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	36.13	66.00	29.87	1000.0	9.000	N	19.4
0.155000	51.42	---	79.00	27.58	1000.0	9.000	N	19.4
0.305000	---	44.66	66.00	21.34	1000.0	9.000	N	19.5
0.305000	48.90	---	79.00	30.10	1000.0	9.000	N	19.5
0.905000	---	36.38	60.00	23.62	1000.0	9.000	N	20.1
0.905000	38.07	---	73.00	34.93	1000.0	9.000	N	20.1
5.320000	---	24.17	60.00	35.83	1000.0	9.000	N	19.6
5.320000	32.81	---	73.00	40.19	1000.0	9.000	N	19.6
27.175000	---	29.55	60.00	30.45	1000.0	9.000	N	20.3
27.175000	31.62	---	73.00	41.38	1000.0	9.000	N	20.3

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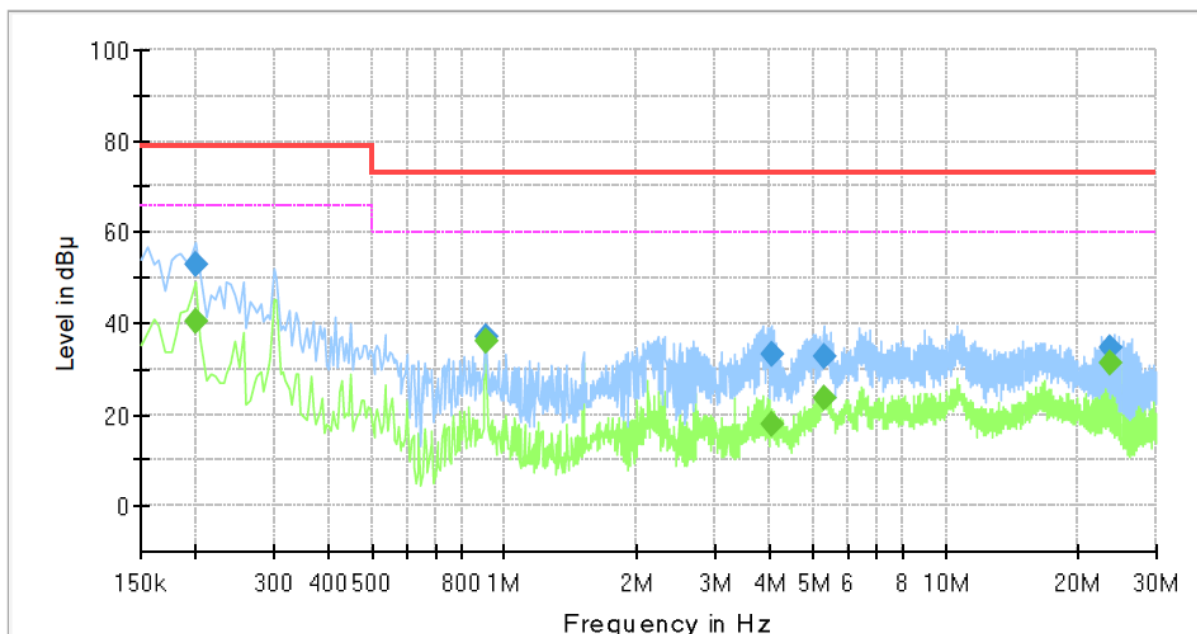
The authenticity of the test report, contact kes@kes.co.kr

■ HDMI Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3234
Phase:	L1
Mode:	HDMI
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	40.42	66.00	25.58	1000.0	9.000	L1	19.5
0.200000	52.70	---	79.00	26.30	1000.0	9.000	L1	19.5
0.905000	---	35.96	60.00	24.04	1000.0	9.000	L1	20.1
0.905000	36.85	---	73.00	36.15	1000.0	9.000	L1	20.1
4.025000	---	17.71	60.00	42.29	1000.0	9.000	L1	19.9
4.025000	33.26	---	73.00	39.74	1000.0	9.000	L1	19.9
5.280000	---	23.68	60.00	36.32	1000.0	9.000	L1	19.6
5.280000	32.60	---	73.00	40.40	1000.0	9.000	L1	19.6
23.555000	---	31.17	60.00	28.83	1000.0	9.000	L1	20.2
23.555000	34.87	---	73.00	38.13	1000.0	9.000	L1	20.2

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Report No.:

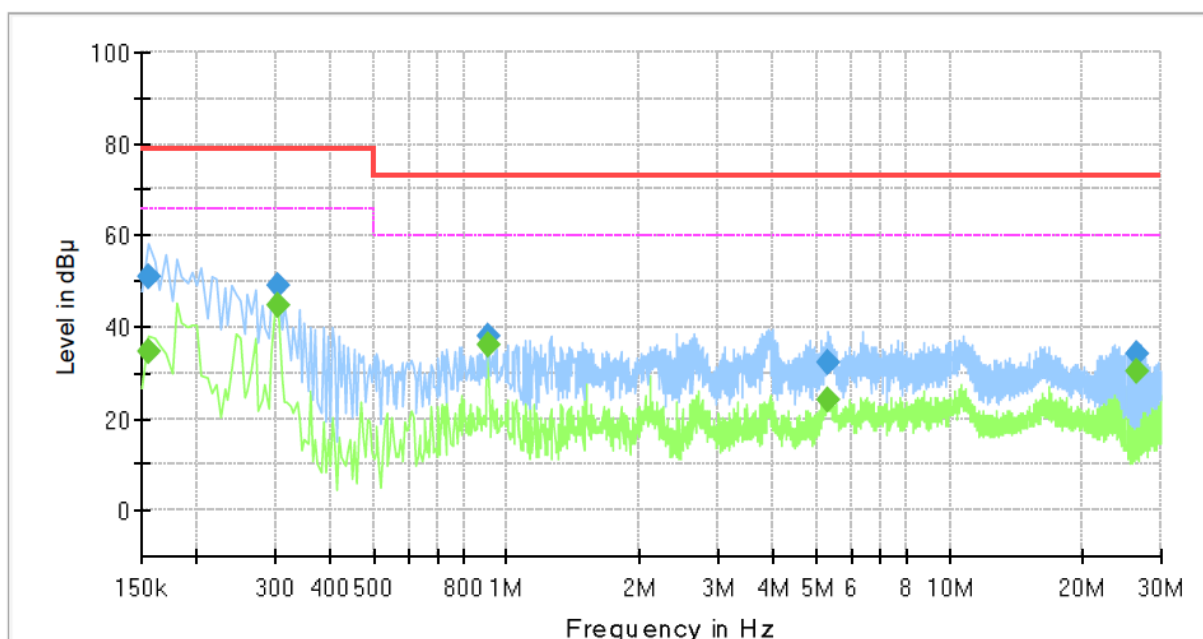
KES-EM-21T0752-R1

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[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SMT-3234
Phase: N
Mode: HDMI
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	34.52	66.00	31.48	1000.0	9.000	N	19.4
0.155000	51.20	---	79.00	27.80	1000.0	9.000	N	19.4
0.305000	---	44.75	66.00	21.25	1000.0	9.000	N	19.5
0.305000	48.97	---	79.00	30.03	1000.0	9.000	N	19.5
0.905000	---	36.28	60.00	23.72	1000.0	9.000	N	20.1
0.905000	37.84	---	73.00	35.16	1000.0	9.000	N	20.1
5.320000	---	24.01	60.00	35.99	1000.0	9.000	N	19.6
5.320000	32.28	---	73.00	40.72	1000.0	9.000	N	19.6
26.575000	---	30.24	60.00	29.76	1000.0	9.000	N	20.3
26.575000	34.04	---	73.00	38.96	1000.0	9.000	N	20.3

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■ DVI Mode

[HOT]

Common Information

Test Description:

Conducted Emission

Model No.:

SMT-3234

Phase:

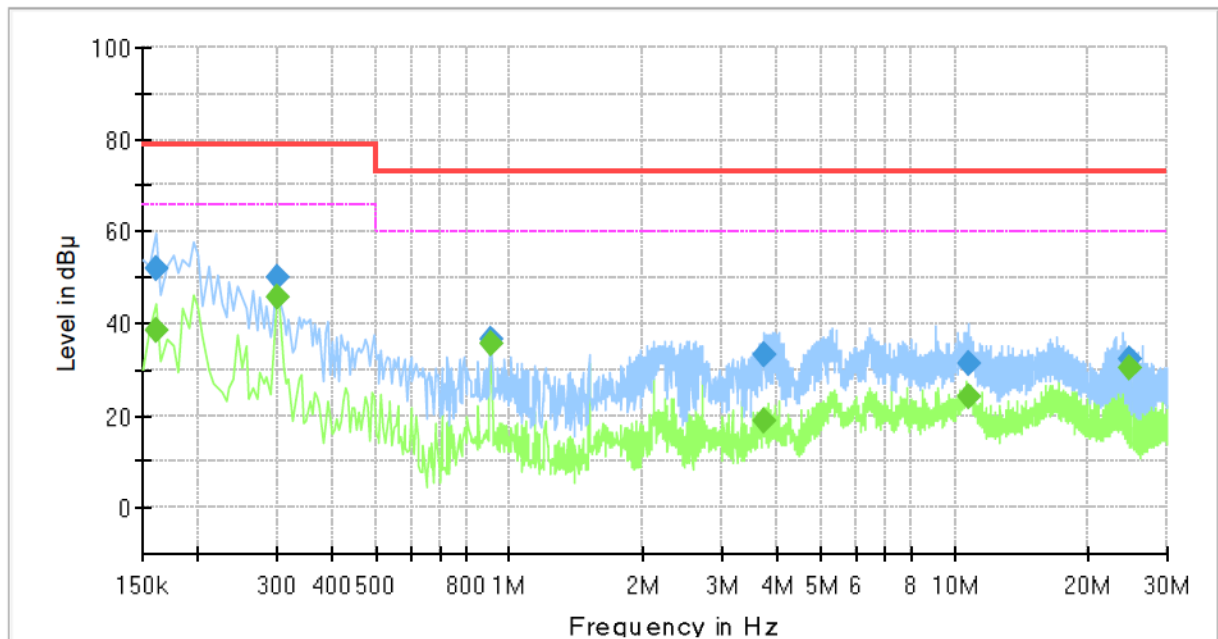
L1

Mode:

DVI

Operator Name:

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	38.36	66.00	27.64	1000.0	9.000	L1	19.5
0.160000	51.98	---	79.00	27.02	1000.0	9.000	L1	19.5
0.300000	---	45.93	66.00	20.07	1000.0	9.000	L1	19.6
0.300000	50.23	---	79.00	28.77	1000.0	9.000	L1	19.6
0.905000	---	35.86	60.00	24.14	1000.0	9.000	L1	20.1
0.905000	36.66	---	73.00	36.34	1000.0	9.000	L1	20.1
3.735000	---	18.60	60.00	41.40	1000.0	9.000	L1	20.0
3.735000	33.16	---	73.00	39.84	1000.0	9.000	L1	20.0
10.740000	---	24.34	60.00	35.66	1000.0	9.000	L1	20.0
10.740000	31.29	---	73.00	41.71	1000.0	9.000	L1	20.0
24.770000	---	30.52	60.00	29.48	1000.0	9.000	L1	20.2
24.770000	32.22	---	73.00	40.78	1000.0	9.000	L1	20.2

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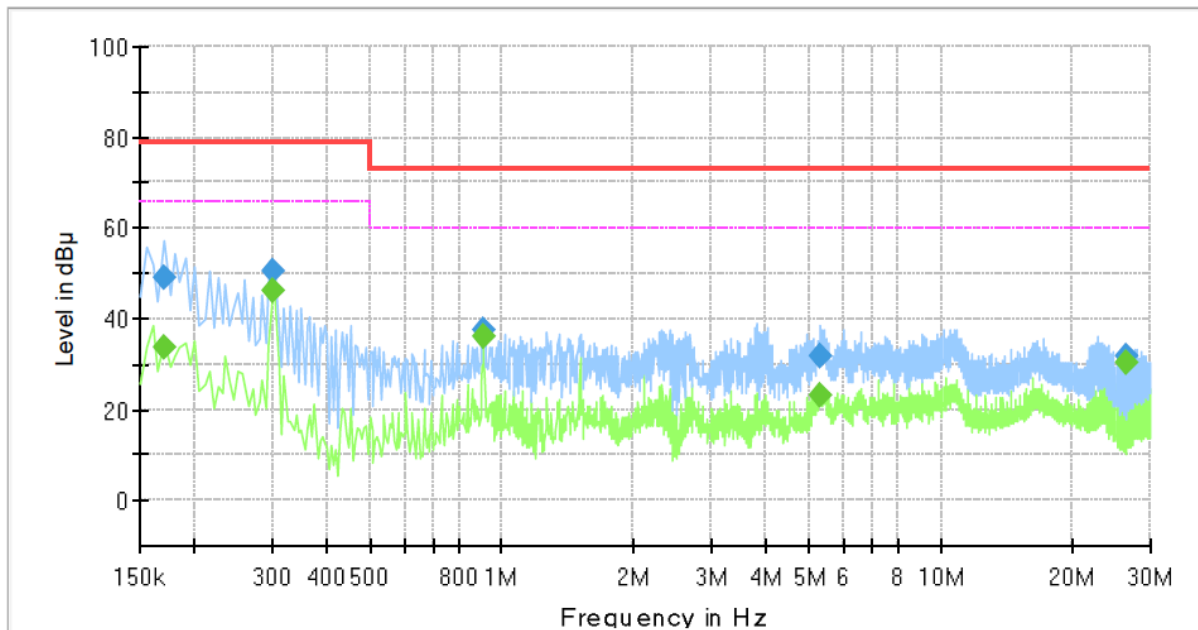
KES-EM-21T0752-R1

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3234
Phase:	N
Mode:	DVI
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	33.51	66.00	32.49	1000.0	9.000	N	19.4
0.170000	49.19	---	79.00	29.81	1000.0	9.000	N	19.4
0.300000	---	46.09	66.00	19.91	1000.0	9.000	N	19.5
0.300000	50.31	---	79.00	28.69	1000.0	9.000	N	19.5
0.905000	---	36.11	60.00	23.89	1000.0	9.000	N	20.1
0.905000	37.63	---	73.00	35.37	1000.0	9.000	N	20.1
5.305000	---	23.07	60.00	36.93	1000.0	9.000	N	19.6
5.305000	31.67	---	73.00	41.33	1000.0	9.000	N	19.6
26.585000	---	30.51	60.00	29.49	1000.0	9.000	N	20.3
26.585000	32.00	---	73.00	41.00	1000.0	9.000	N	20.3

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■ VGA Mode

[HOT]

Common Information

Test Description:

Conducted Emission

Model No.:

SMT-3234

Phase:

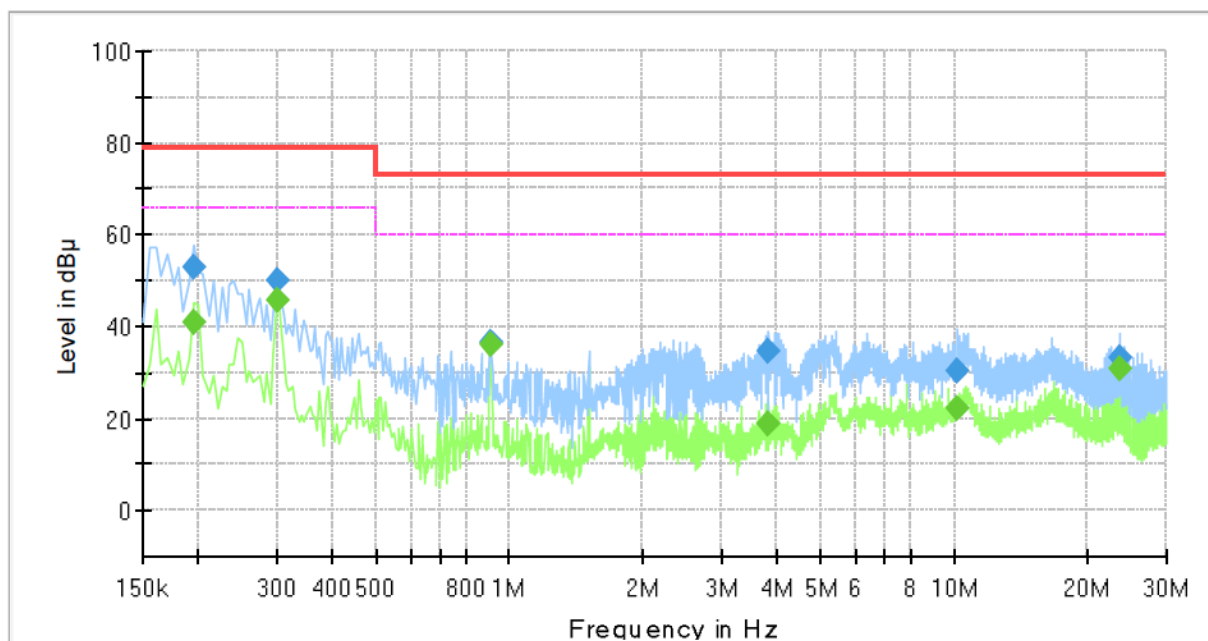
L1

Mode:

VGA

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	---	41.11	66.00	24.89	1000.0	9.000	L1	19.5
0.195000	52.78	---	79.00	26.22	1000.0	9.000	L1	19.5
0.300000	---	45.90	66.00	20.10	1000.0	9.000	L1	19.6
0.300000	50.21	---	79.00	28.79	1000.0	9.000	L1	19.6
0.905000	---	35.93	60.00	24.07	1000.0	9.000	L1	20.1
0.905000	36.80	---	73.00	36.20	1000.0	9.000	L1	20.1
3.835000	---	18.90	60.00	41.10	1000.0	9.000	L1	20.0
3.835000	34.45	---	73.00	38.55	1000.0	9.000	L1	20.0
10.170000	---	22.38	60.00	37.62	1000.0	9.000	L1	19.9
10.170000	30.19	---	73.00	42.81	1000.0	9.000	L1	19.9
23.560000	---	30.84	60.00	29.16	1000.0	9.000	L1	20.2
23.560000	33.35	---	73.00	39.65	1000.0	9.000	L1	20.2

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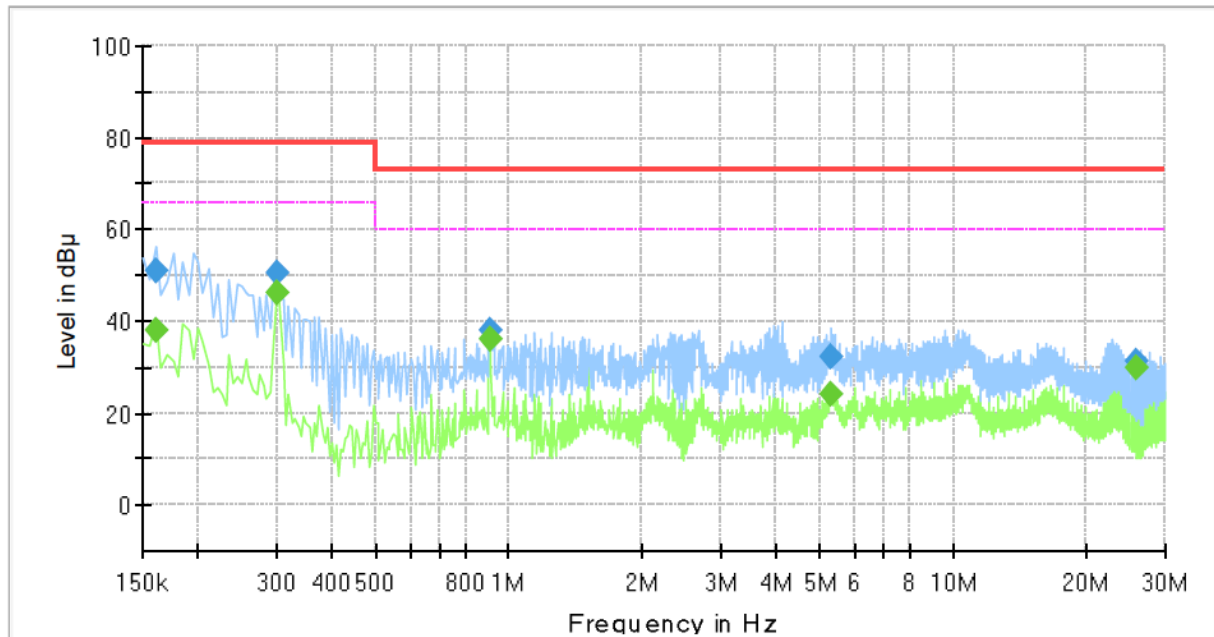
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3234
Phase:	N
Mode:	VGA
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	37.84	66.00	28.16	1000.0	9.000	N	19.4
0.160000	51.23	---	79.00	27.77	1000.0	9.000	N	19.4
0.300000	---	46.14	66.00	19.86	1000.0	9.000	N	19.5
0.300000	50.39	---	79.00	28.61	1000.0	9.000	N	19.5
0.905000	---	36.22	60.00	23.78	1000.0	9.000	N	20.1
0.905000	37.93	---	73.00	35.07	1000.0	9.000	N	20.1
5.285000	---	23.87	60.00	36.13	1000.0	9.000	N	19.6
5.285000	32.32	---	73.00	40.68	1000.0	9.000	N	19.6
25.975000	---	29.97	60.00	30.03	1000.0	9.000	N	20.2
25.975000	31.33	---	73.00	41.67	1000.0	9.000	N	20.2

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Report No.:

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Conducted Emissions at Telecommunication Ports

[100 Mbps]

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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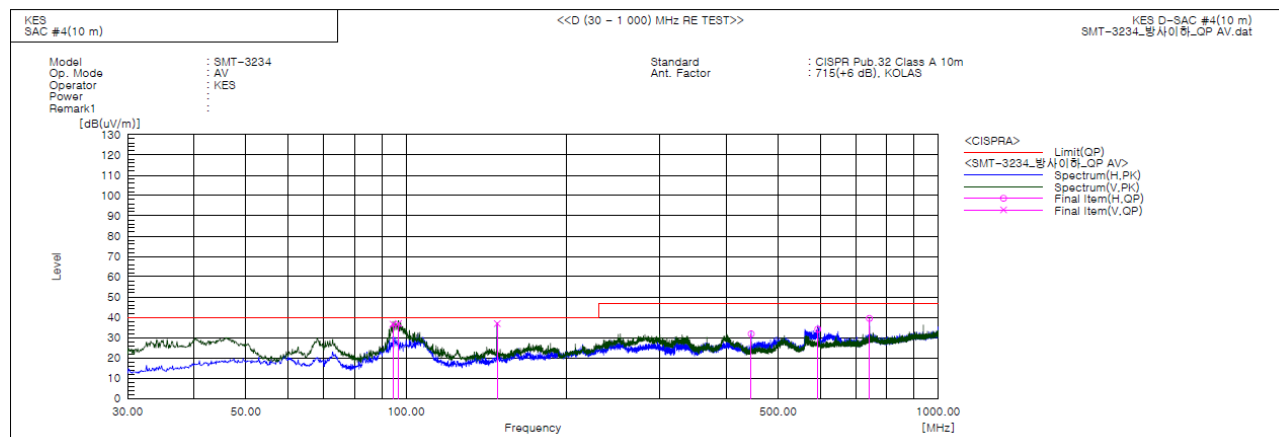
Report No.:

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Radiated Electric Field Emissions(Below 1 GHz)

■ AV Mode



Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP		QP	QP	QP			
			[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]	
1	94.505	V	60.3	-23.6	36.7	40.0	3.3	102.0	217.0	
2	96.809	V	60.1	-23.1	37.0	40.0	3.0	107.0	175.0	
3	148.340	V	62.0	-25.1	36.9	40.0	3.1	106.0	344.0	
4	445.039	H	45.0	-13.2	31.8	47.0	15.2	179.0	355.0	
5	593.449	H	42.6	-8.5	34.1	47.0	12.9	204.0	302.0	
6	741.859	H	45.3	-5.9	39.4	47.0	7.6	190.0	207.0	

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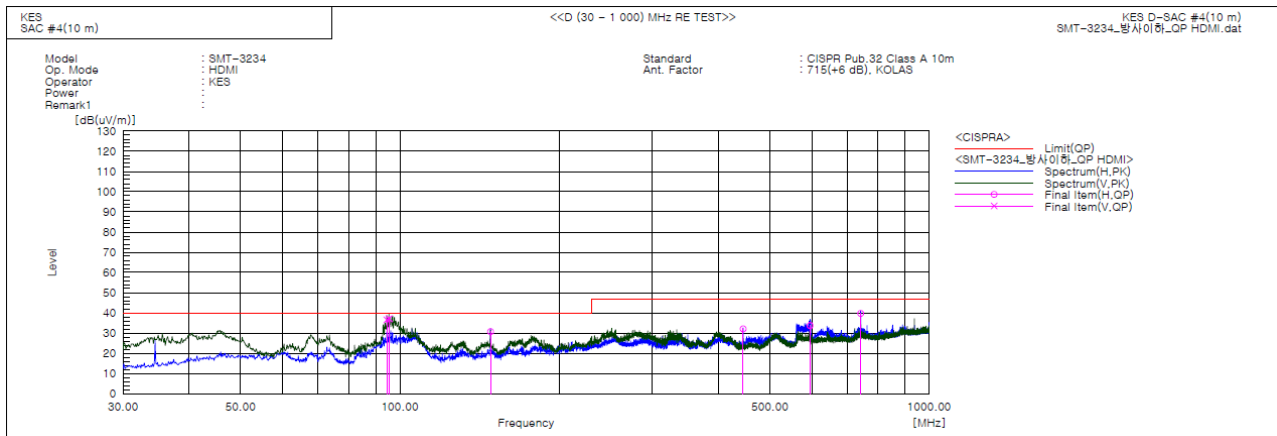
3701, 40, Simin-daero 365beon-gil,
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HDMI Mode



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	94.505	V	60.2	-23.6	36.6	40.0	3.4	169.0	208.0	
2	95.354	V	60.6	-23.5	37.1	40.0	2.9	158.0	201.0	
3	148.340	H	55.8	-25.1	30.7	40.0	9.3	397.0	198.0	
4	445.039	H	45.3	-13.2	32.1	47.0	14.9	177.0	301.0	
5	595.510	H	42.2	-8.5	33.7	47.0	13.3	209.0	325.0	
6	741.859	H	45.6	-5.9	39.7	47.0	7.3	191.0	317.0	

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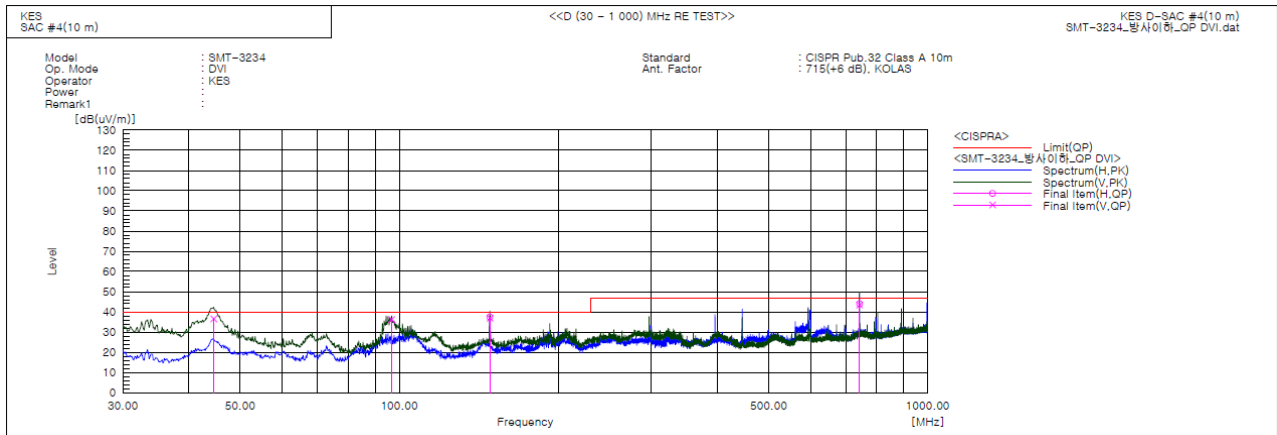
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DVI Mode



Final Result

No.	Frequency (P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]	QP		QP	QP	QP			
		[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]	
1	44.550	V	58.2	-21.6	36.6	40.0	3.4	105.0	109.0
2	96.809	V	59.3	-23.1	36.2	40.0	3.8	106.0	172.0
3	148.340	H	62.6	-25.1	37.5	40.0	2.5	378.0	328.0
4	148.461	V	62.0	-25.1	36.9	40.0	3.1	110.0	27.0
5	742.586	V	49.2	-5.8	43.4	47.0	3.6	108.0	352.0
6	742.586	H	49.8	-5.8	44.0	47.0	3.0	394.0	202.0

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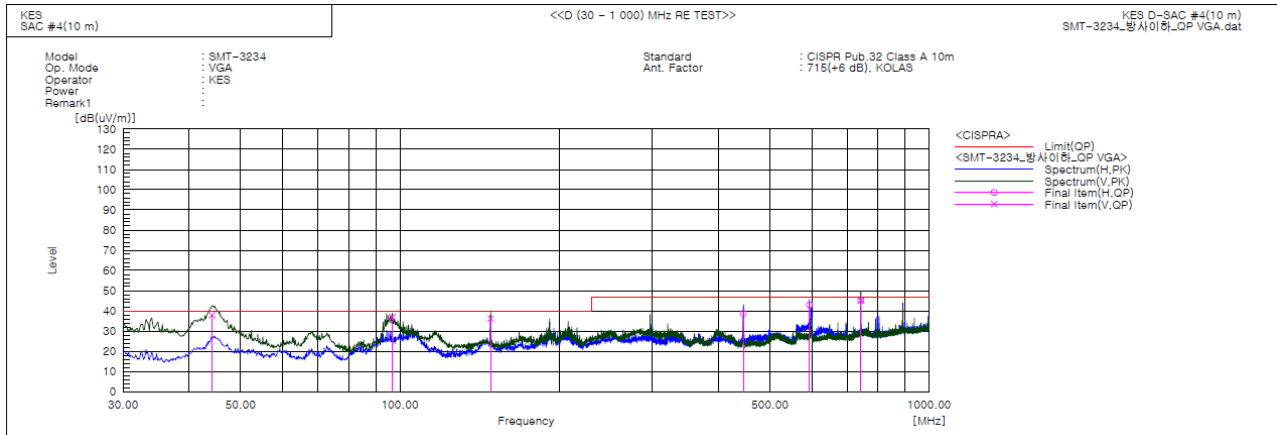
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VGA Mode



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	44.186	V	59.6	-21.6	38.0	40.0	2.0	104.0	148.0	
2	96.809	V	60.1	-23.1	37.0	40.0	3.0	105.0	189.0	
3	148.461	V	61.3	-25.1	36.2	40.0	3.8	109.0	14.0	
4	445.524	H	52.0	-13.2	38.8	47.0	8.2	236.0	332.0	
5	594.055	H	51.5	-8.5	43.0	47.0	4.0	215.0	126.0	
6	742.586	V	51.0	-5.8	45.2	47.0	1.8	110.0	11.0	
7	742.586	H	51.1	-5.8	45.3	47.0	1.7	392.0	35.0	

◆ Calculation - SAC #4(10 m)

Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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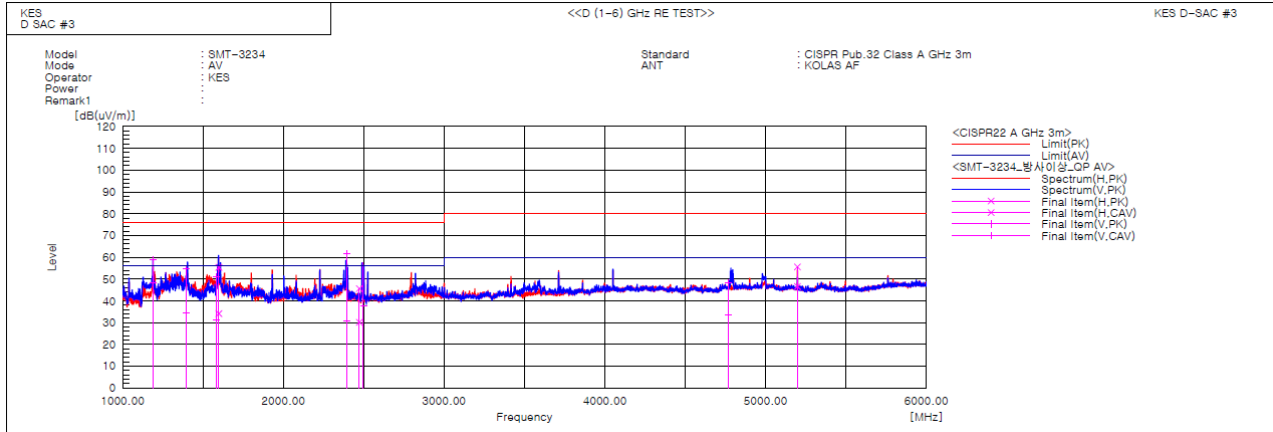
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Radiated Electric Field Emissions(Above 1 GHz)

■ AV Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1188.020	V	67.3	56.6	-8.6	58.7	48.0	76.0	56.0	17.3	8.0	100.0	350.2	
2	1394.222	V	61.3	41.3	-6.7	54.6	34.6	76.0	56.0	21.4	21.4	100.0	129.2	
3	1584.322	V	56.3	36.5	-5.5	50.8	31.0	76.0	56.0	25.2	25.0	100.0	68.2	
4	1597.250	H	60.7	39.5	-5.4	55.3	34.1	76.0	56.0	20.7	21.9	100.0	135.5	
5	2394.719	V	61.6	30.5	0.2	61.8	30.7	76.0	56.0	14.2	25.3	100.0	198.7	
6	2472.154	H	45.4	29.9	0.2	45.6	30.1	76.0	56.0	30.4	25.9	100.0	88.7	
7	2497.848	V	56.1	37.7	0.1	56.2	37.8	76.0	56.0	19.8	18.2	100.0	135.4	
8	4770.573	V	40.4	25.8	7.8	48.2	33.6	80.0	60.0	31.8	26.4	100.0	170.3	
9	5197.600	H	47.4	38.4	8.2	55.6	46.6	80.0	60.0	24.4	13.4	100.0	345.5	

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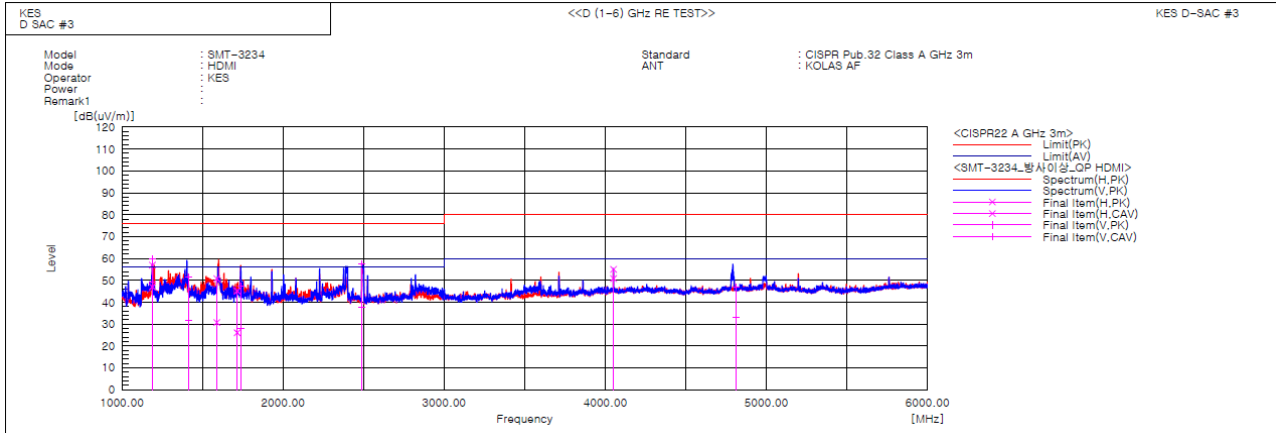
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HDMI Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1188.010	V	68.5	58.0	-8.6	59.9	49.4	76.0	56.0	16.1	6.6	100.0	357.3	
2	1188.100	H	65.6	55.6	-8.6	57.0	47.0	76.0	56.0	19.0	9.0	100.0	34.2	
3	1413.018	V	58.0	38.1	-6.6	51.4	31.5	76.0	56.0	24.6	24.5	100.0	135.4	
4	1588.152	H	56.1	36.1	-5.4	50.7	30.7	76.0	56.0	25.3	25.3	100.0	133.4	
5	1715.074	H	49.3	30.1	-4.1	45.2	26.0	76.0	56.0	30.8	30.0	100.0	18.4	
6	1737.000	V	51.0	31.6	-3.8	47.2	27.8	76.0	56.0	28.8	28.2	100.0	54.0	
7	2488.720	V	57.4	37.3	0.2	57.6	37.5	76.0	56.0	18.4	18.5	100.0	141.6	
8	4050.090	H	48.8	44.6	6.2	55.0	50.8	80.0	60.0	25.0	9.2	100.0	149.2	
9	4814.196	V	38.7	25.2	8.0	46.7	33.2	80.0	60.0	33.3	26.8	100.0	29.5	

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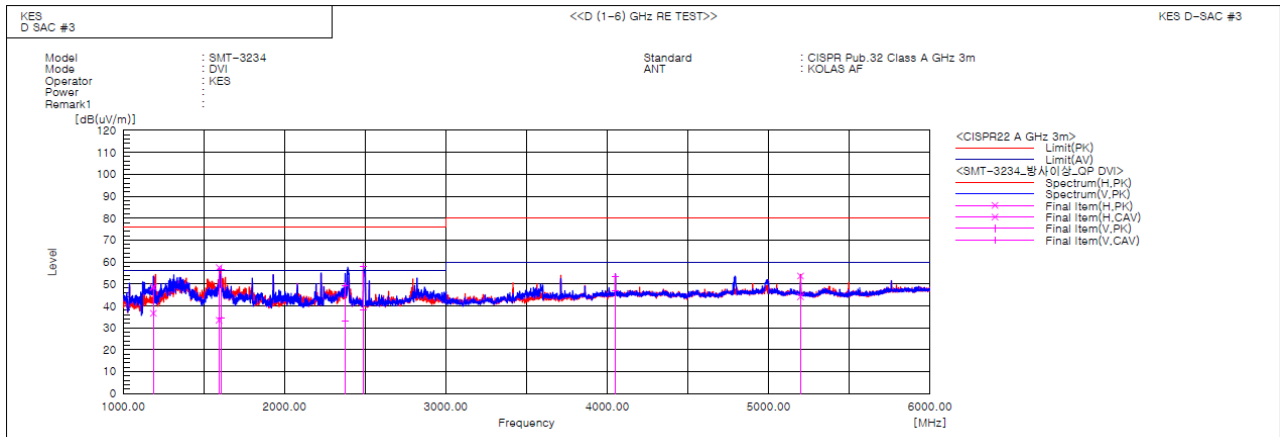
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DVI Mode



No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1187.762	H	57.2	45.2	-8.6	48.6	36.6	76.0	56.0	27.4	19.4	100.0	108.0	
2	1594.611	H	62.8	38.8	-5.4	57.4	33.4	76.0	56.0	18.6	22.6	100.0	85.9	
3	1607.888	V	62.1	39.6	-5.3	56.8	34.3	76.0	56.0	19.2	21.7	100.0	45.8	
4	2376.163	V	49.2	33.0	0.2	49.4	33.2	76.0	56.0	26.6	22.8	100.0	223.9	
5	2489.010	V	57.6	38.0	0.2	57.8	38.2	76.0	56.0	18.2	17.8	100.0	136.8	
6	4050.600	V	47.3	40.5	6.2	53.5	46.7	80.0	60.0	26.5	13.3	100.0	131.8	
7	5197.900	H	45.5	35.9	8.2	53.7	44.1	80.0	60.0	26.3	15.9	100.0	346.2	

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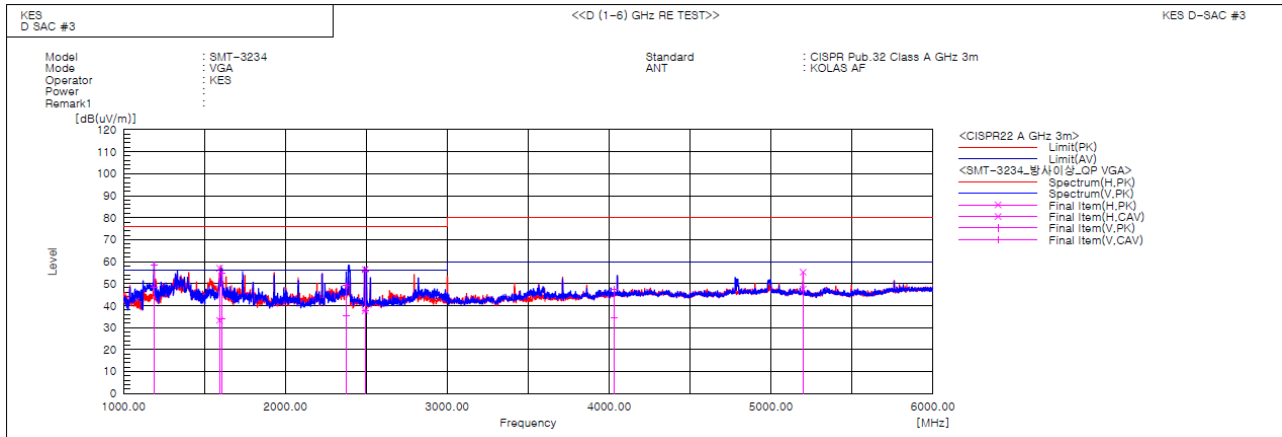
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VGA Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1188.200	V	67.0	56.7	-8.6	58.4	48.1	76.0	56.0	17.6	7.9	100.0	351.7	
2	1593.551	H	62.4	38.7	-5.4	57.0	33.3	76.0	56.0	19.0	22.7	100.0	117.8	
3	1607.398	V	60.1	39.2	-5.3	54.8	33.9	76.0	56.0	21.2	22.1	100.0	139.5	
4	2376.273	V	48.7	35.1	0.2	48.9	35.3	76.0	56.0	27.1	20.7	100.0	145.7	
5	2491.669	H	56.3	37.6	0.1	56.4	37.7	76.0	56.0	19.6	18.3	100.0	88.9	
6	2494.659	V	55.7	37.5	0.1	55.8	37.6	76.0	56.0	20.2	18.4	100.0	141.7	
7	4030.714	V	41.4	28.1	6.1	47.5	34.2	80.0	60.0	32.5	25.8	100.0	131.2	
8	5197.550	H	47.0	39.3	8.2	55.2	47.5	80.0	60.0	24.8	12.5	100.0	335.5	

◆ Calculation

Result(PK/CAV) [dB(μ V/m)] = (Reading(PK/CAV)[dB(μ V)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μ V/m)] - Result(PK/CAV) [dB(μ V/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ AV Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.010	0.951	1.080	PASS
3	0.141	6.123	2.300	PASS
4	0.013	2.998	0.430	PASS
5	0.137	12.025	1.140	PASS
6	0.014	4.523	0.300	PASS
7	0.130	16.841	0.770	PASS
8	0.014	6.180	0.230	PASS
9	0.119	29.719	0.400	PASS
10	0.015	7.944	0.184	PASS
11	0.108	32.636	0.330	PASS
12	0.015	9.609	0.153	PASS
13	0.095	45.416	0.210	PASS
14	0.014	11.009	0.131	PASS
15	0.082	54.812	0.150	PASS
16	0.014	12.006	0.115	PASS
17	0.069	52.351	0.132	PASS
18	0.013	12.569	0.102	PASS
19	0.057	47.840	0.118	PASS
20	0.012	12.575	0.092	PASS
21	0.045	27.933	0.161	PASS
22	0.010	12.120	0.084	PASS
23	0.034	23.200	0.147	PASS
24	0.009	11.251	0.077	PASS
25	0.025	18.647	0.135	PASS
26	0.007	10.220	0.071	PASS
27	0.018	14.746	0.125	PASS
28	0.006	9.301	0.066	PASS
29	0.014	11.846	0.116	PASS
30	0.005	8.750	0.061	PASS
31	0.012	10.907	0.109	PASS
32	0.005	8.751	0.058	PASS
33	0.011	11.062	0.102	PASS
34	0.005	9.084	0.054	n/a
35	0.012	12.074	0.096	PASS
36	0.005	9.521	0.051	n/a
37	0.011	12.127	0.091	PASS
38	0.005	9.662	0.048	n/a
39	0.010	11.987	0.087	PASS
40	0.004	9.487	0.046	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.011	0.657	1.620	PASS
3	0.142	4.112	3.450	PASS
4	0.013	2.036	0.645	PASS
5	0.137	8.038	1.710	PASS
6	0.014	3.057	0.450	PASS
7	0.130	11.254	1.155	PASS
8	0.014	4.179	0.345	PASS
9	0.119	19.888	0.600	PASS
10	0.015	5.378	0.276	PASS
11	0.108	21.821	0.495	PASS
12	0.015	6.480	0.230	PASS
13	0.096	30.347	0.315	PASS
14	0.015	7.435	0.197	PASS
15	0.082	36.635	0.225	PASS
16	0.014	8.093	0.173	PASS
17	0.070	35.027	0.199	PASS
18	0.013	8.492	0.153	PASS
19	0.057	31.991	0.178	PASS
20	0.012	8.554	0.138	PASS
21	0.045	28.058	0.161	PASS
22	0.010	8.273	0.125	PASS
23	0.034	23.336	0.147	PASS
24	0.009	7.696	0.115	PASS
25	0.025	18.784	0.135	PASS
26	0.007	7.051	0.106	PASS
27	0.019	14.846	0.125	PASS
28	0.006	6.472	0.099	PASS
29	0.014	11.938	0.116	PASS
30	0.006	6.081	0.092	PASS
31	0.012	11.036	0.109	PASS
32	0.005	6.088	0.086	PASS
33	0.012	11.247	0.102	PASS
34	0.005	6.299	0.081	PASS
35	0.012	12.218	0.096	PASS
36	0.005	6.490	0.077	n/a
37	0.011	12.254	0.091	PASS
38	0.005	6.593	0.073	n/a
39	0.010	12.133	0.087	PASS
40	0.004	6.496	0.069	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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■ HDMI Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.010	0.949	1.080	PASS
3	0.141	6.133	2.300	PASS
4	0.013	2.996	0.430	PASS
5	0.137	12.043	1.140	PASS
6	0.014	4.523	0.300	PASS
7	0.130	16.865	0.770	PASS
8	0.014	6.175	0.230	PASS
9	0.119	29.758	0.400	PASS
10	0.015	7.939	0.184	PASS
11	0.108	32.677	0.330	PASS
12	0.015	9.608	0.153	PASS
13	0.095	45.463	0.210	PASS
14	0.014	11.008	0.131	PASS
15	0.082	54.867	0.150	PASS
16	0.014	11.995	0.115	PASS
17	0.069	52.382	0.132	PASS
18	0.013	12.560	0.102	PASS
19	0.057	47.848	0.118	PASS
20	0.012	12.576	0.092	PASS
21	0.045	27.933	0.161	PASS
22	0.010	12.111	0.084	PASS
23	0.034	23.184	0.147	PASS
24	0.009	11.248	0.077	PASS
25	0.025	18.635	0.135	PASS
26	0.007	10.197	0.071	PASS
27	0.018	14.722	0.125	PASS
28	0.006	9.299	0.066	PASS
29	0.014	11.855	0.116	PASS
30	0.005	8.756	0.061	PASS
31	0.012	10.934	0.109	PASS
32	0.005	8.751	0.058	PASS
33	0.011	11.110	0.102	PASS
34	0.005	9.083	0.054	n/a
35	0.012	12.102	0.096	PASS
36	0.005	9.526	0.051	n/a
37	0.011	12.144	0.091	PASS
38	0.005	9.677	0.048	n/a
39	0.010	12.029	0.087	PASS
40	0.004	9.496	0.046	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.011	0.651	1.620	PASS
3	0.142	4.115	3.450	PASS
4	0.013	2.044	0.645	PASS
5	0.138	8.048	1.710	PASS
6	0.014	3.062	0.450	PASS
7	0.130	11.274	1.155	PASS
8	0.014	4.177	0.345	PASS
9	0.120	19.924	0.600	PASS
10	0.015	5.389	0.276	PASS
11	0.108	21.836	0.495	PASS
12	0.015	6.480	0.230	PASS
13	0.096	30.383	0.315	PASS
14	0.015	7.425	0.197	PASS
15	0.082	36.660	0.225	PASS
16	0.014	8.108	0.173	PASS
17	0.070	35.030	0.199	PASS
18	0.013	8.488	0.153	PASS
19	0.057	32.027	0.178	PASS
20	0.012	8.535	0.138	PASS
21	0.045	28.063	0.161	PASS
22	0.010	8.260	0.125	PASS
23	0.034	23.351	0.147	PASS
24	0.009	7.706	0.115	PASS
25	0.025	18.769	0.135	PASS
26	0.007	7.030	0.106	PASS
27	0.019	14.852	0.125	PASS
28	0.006	6.447	0.099	PASS
29	0.014	11.952	0.116	PASS
30	0.006	6.100	0.092	PASS
31	0.012	11.036	0.109	PASS
32	0.005	6.061	0.086	PASS
33	0.012	11.306	0.102	PASS
34	0.005	6.266	0.081	PASS
35	0.012	12.231	0.096	PASS
36	0.005	6.498	0.077	n/a
37	0.011	12.282	0.091	PASS
38	0.005	6.632	0.073	n/a
39	0.011	12.197	0.087	PASS
40	0.004	6.506	0.069	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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■ DVI Mode

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.010	0.950	1.080	PASS
3	0.141	6.146	2.300	PASS
4	0.013	2.988	0.430	PASS
5	0.137	11.997	1.140	PASS
6	0.014	4.513	0.300	PASS
7	0.129	16.785	0.770	PASS
8	0.014	6.167	0.230	PASS
9	0.119	29.744	0.400	PASS
10	0.015	7.935	0.184	PASS
11	0.108	32.642	0.330	PASS
12	0.015	9.594	0.153	PASS
13	0.095	45.369	0.210	PASS
14	0.014	10.984	0.131	PASS
15	0.082	54.753	0.150	PASS
16	0.014	11.981	0.115	PASS
17	0.069	52.209	0.132	PASS
18	0.013	12.498	0.102	PASS
19	0.056	47.605	0.118	PASS
20	0.011	12.490	0.092	PASS
21	0.045	27.714	0.161	PASS
22	0.010	12.000	0.084	PASS
23	0.034	22.998	0.147	PASS
24	0.009	11.141	0.077	PASS
25	0.025	18.424	0.135	PASS
26	0.007	10.113	0.071	PASS
27	0.018	14.530	0.125	PASS
28	0.006	9.236	0.066	PASS
29	0.014	11.752	0.116	PASS
30	0.005	8.737	0.061	PASS
31	0.012	10.904	0.109	PASS
32	0.005	8.749	0.058	PASS
33	0.011	11.133	0.102	PASS
34	0.005	9.075	0.054	n/a
35	0.012	12.040	0.096	PASS
36	0.005	9.470	0.051	n/a
37	0.011	12.122	0.091	PASS
38	0.005	9.595	0.048	n/a
39	0.010	11.923	0.087	PASS
40	0.004	9.412	0.046	n/a

Note: 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.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.011	0.657	1.620	PASS
3	0.143	4.143	3.450	PASS
4	0.013	2.034	0.645	PASS
5	0.137	8.039	1.710	PASS
6	0.014	3.068	0.450	PASS
7	0.130	11.257	1.155	PASS
8	0.014	4.177	0.345	PASS
9	0.120	19.918	0.600	PASS
10	0.015	5.350	0.276	PASS
11	0.108	21.888	0.495	PASS
12	0.015	6.471	0.230	PASS
13	0.096	30.453	0.315	PASS
14	0.015	7.408	0.197	PASS
15	0.083	36.692	0.225	PASS
16	0.014	8.090	0.173	PASS
17	0.069	34.941	0.199	PASS
18	0.013	8.503	0.153	PASS
19	0.057	31.922	0.178	PASS
20	0.012	8.490	0.138	PASS
21	0.045	27.933	0.161	PASS
22	0.010	8.204	0.125	PASS
23	0.034	23.212	0.147	PASS
24	0.009	7.636	0.115	PASS
25	0.025	18.671	0.135	PASS
26	0.007	6.977	0.106	PASS
27	0.018	14.743	0.125	PASS
28	0.006	6.378	0.099	PASS
29	0.014	11.907	0.116	PASS
30	0.006	6.053	0.092	PASS
31	0.012	11.026	0.109	PASS
32	0.005	6.042	0.086	PASS
33	0.012	11.347	0.102	PASS
34	0.005	6.220	0.081	PASS
35	0.012	12.286	0.096	PASS
36	0.005	6.506	0.077	n/a
37	0.011	12.265	0.091	PASS
38	0.005	6.568	0.073	n/a
39	0.011	12.166	0.087	PASS
40	0.004	6.435	0.069	n/a

Note: 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.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.

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■ VGA Mode

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.010	0.949	1.080	PASS
3	0.141	6.136	2.300	PASS
4	0.013	2.995	0.430	PASS
5	0.137	12.048	1.140	PASS
6	0.014	4.517	0.300	PASS
7	0.130	16.871	0.770	PASS
8	0.014	6.174	0.230	PASS
9	0.119	29.764	0.400	PASS
10	0.015	7.936	0.184	PASS
11	0.108	32.678	0.330	PASS
12	0.015	9.591	0.153	PASS
13	0.095	45.462	0.210	PASS
14	0.014	10.986	0.131	PASS
15	0.082	54.853	0.150	PASS
16	0.014	11.992	0.115	PASS
17	0.069	52.360	0.132	PASS
18	0.013	12.540	0.102	PASS
19	0.057	47.820	0.118	PASS
20	0.012	12.537	0.092	PASS
21	0.045	27.902	0.161	PASS
22	0.010	12.075	0.084	PASS
23	0.034	23.162	0.147	PASS
24	0.009	11.206	0.077	PASS
25	0.025	18.606	0.135	PASS
26	0.007	10.182	0.071	PASS
27	0.018	14.698	0.125	PASS
28	0.006	9.262	0.066	PASS
29	0.014	11.842	0.116	PASS
30	0.005	8.713	0.061	PASS
31	0.012	10.929	0.109	PASS
32	0.005	8.750	0.058	PASS
33	0.011	11.124	0.102	PASS
34	0.005	9.064	0.054	n/a
35	0.012	12.114	0.096	PASS
36	0.005	9.527	0.051	n/a
37	0.011	12.152	0.091	PASS
38	0.005	9.662	0.048	n/a
39	0.010	12.036	0.087	PASS
40	0.004	9.481	0.046	n/a

Note: 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.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.011	0.657	1.620	PASS
3	0.142	4.112	3.450	PASS
4	0.013	2.046	0.645	PASS
5	0.138	8.058	1.710	PASS
6	0.014	3.061	0.450	PASS
7	0.130	11.284	1.155	PASS
8	0.014	4.190	0.345	PASS
9	0.119	19.897	0.600	PASS
10	0.015	5.373	0.276	PASS
11	0.108	21.841	0.495	PASS
12	0.015	6.484	0.230	PASS
13	0.096	30.394	0.315	PASS
14	0.015	7.447	0.197	PASS
15	0.083	36.695	0.225	PASS
16	0.014	8.130	0.173	PASS
17	0.070	35.027	0.199	PASS
18	0.013	8.486	0.153	PASS
19	0.057	32.009	0.178	PASS
20	0.012	8.504	0.138	PASS
21	0.045	28.048	0.161	PASS
22	0.010	8.256	0.125	PASS
23	0.034	23.296	0.147	PASS
24	0.009	7.665	0.115	PASS
25	0.025	18.757	0.135	PASS
26	0.007	7.033	0.106	PASS
27	0.019	14.808	0.125	PASS
28	0.006	6.421	0.099	PASS
29	0.014	11.969	0.116	PASS
30	0.006	6.063	0.092	PASS
31	0.012	11.052	0.109	PASS
32	0.005	6.103	0.086	PASS
33	0.012	11.276	0.102	PASS
34	0.005	6.274	0.081	PASS
35	0.012	12.285	0.096	PASS
36	0.005	6.544	0.077	PASS
37	0.011	12.292	0.091	PASS
38	0.005	6.591	0.073	n/a
39	0.011	12.212	0.087	PASS
40	0.004	6.463	0.069	n/a

Note: 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.

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Test Data - Voltage Fluctuations

■ AV Mode

Flicker Measurements					
	P_{It}	Max P_{st}	Max D_c	Max D_{max}	Max T_{max}
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

■ HDMI Mode

Flicker Measurements					
	P_{It}	Max P_{st}	Max D_c	Max D_{max}	Max T_{max}
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

■ DVI Mode

Flicker Measurements					
	P_{It}	Max P_{st}	Max D_c	Max D_{max}	Max T_{max}
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

■ VGA Mode

Flicker Measurements					
	P_{It}	Max P_{st}	Max D_c	Max D_{max}	Max T_{max}
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

APPENDIX B – Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports



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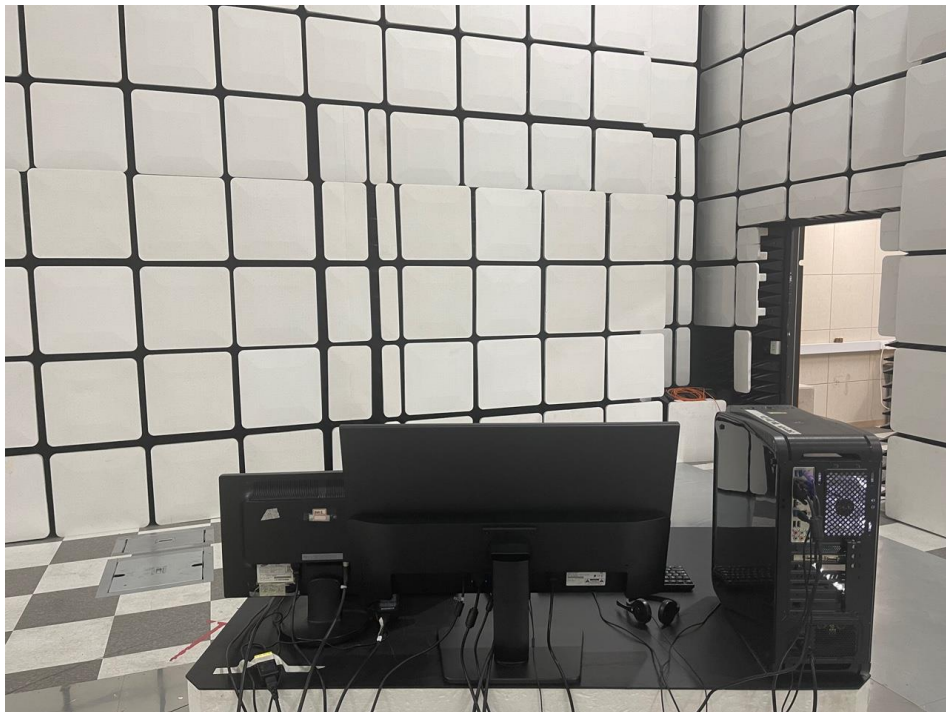
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Conducted Telecommunication Emissions

N/A

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Radiated Electric Field Emissions(Below 1 GHz)



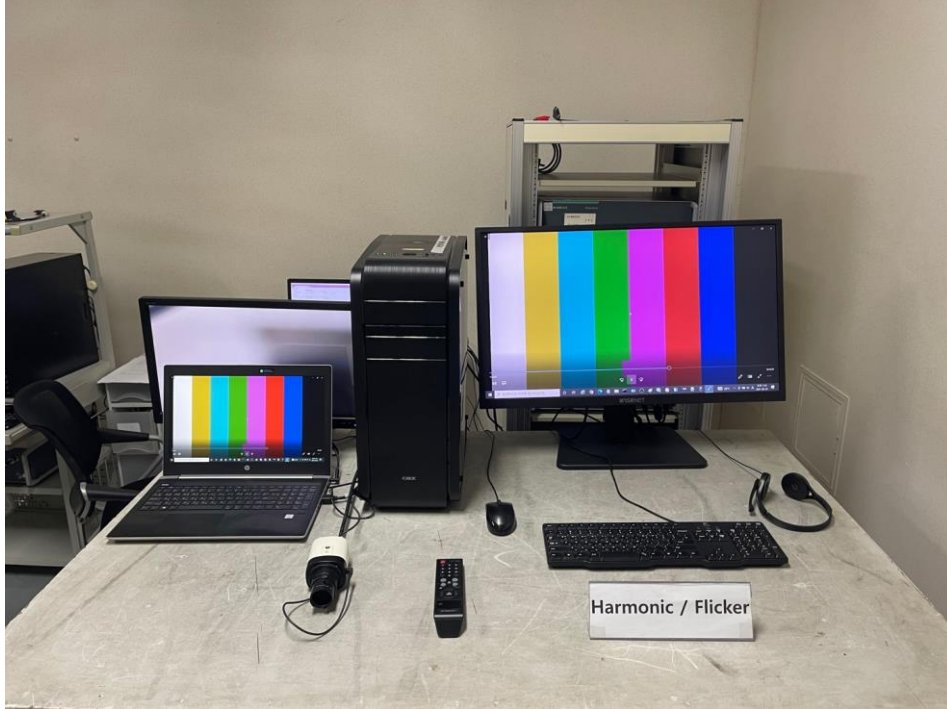
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Radiated Electric Field Emissions(Above 1 GHz)

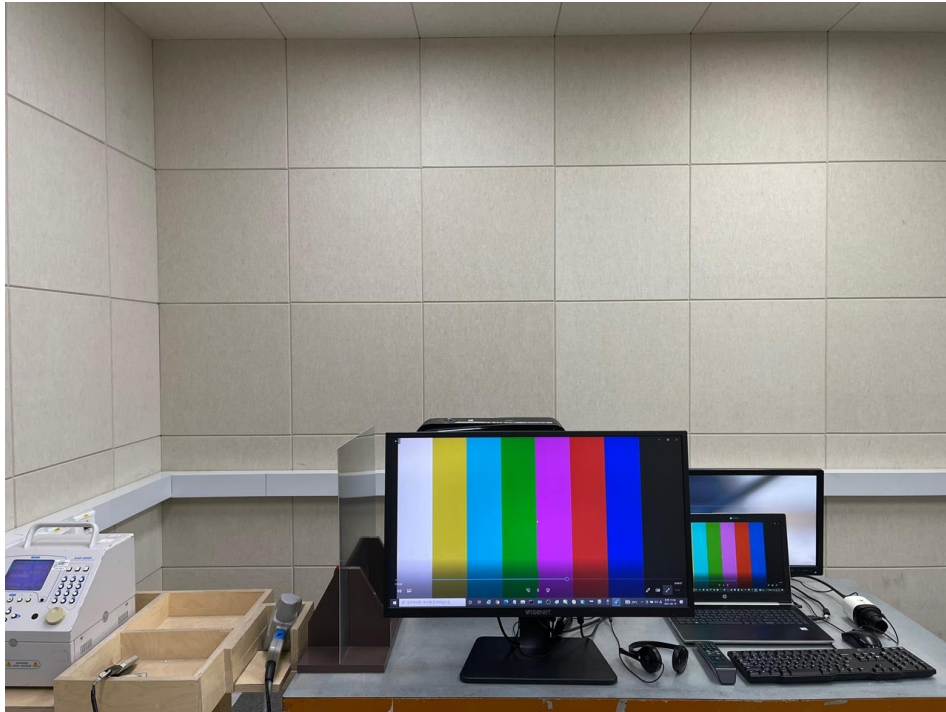


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Harmonic Current Emissions and Voltage Fluctuations and Flicker



Electrostatic Discharge



Radiated Electric Field Immunity

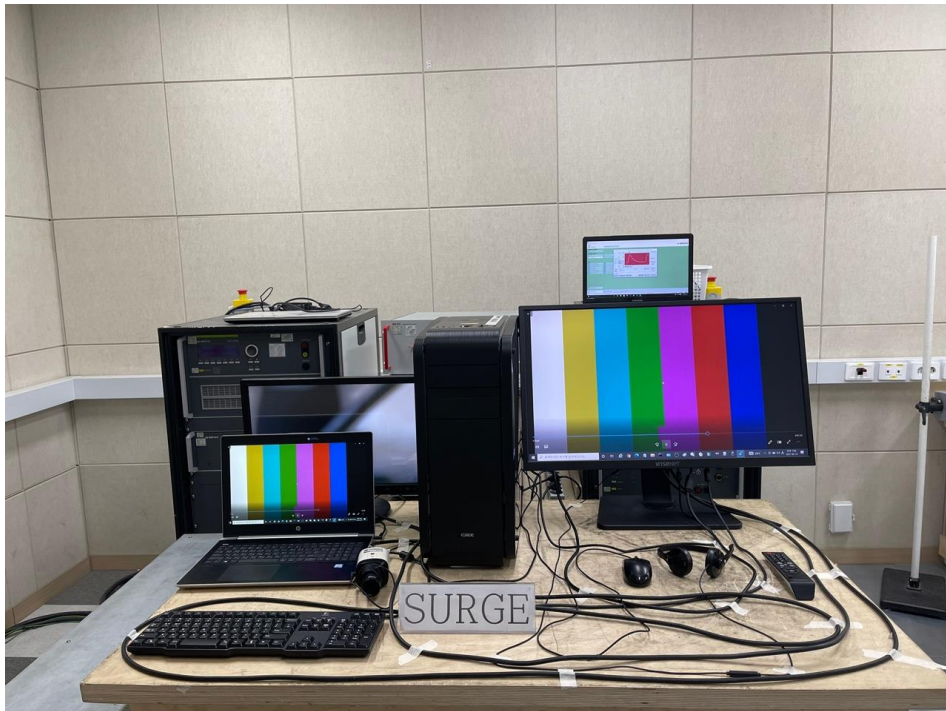


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Electrical Fast Transients/Bursts



Surge Transients

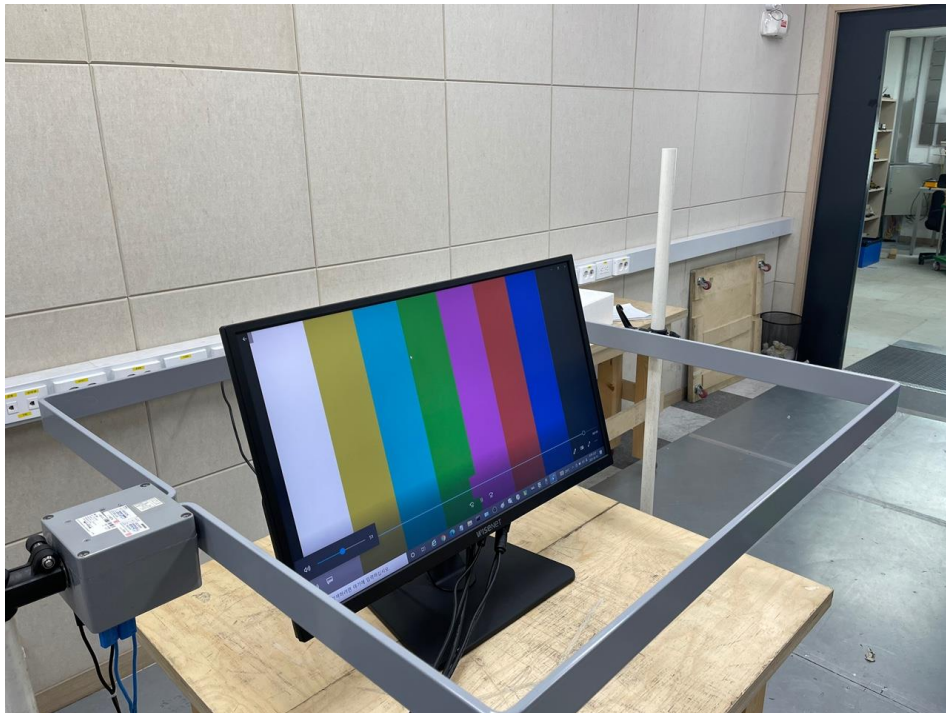


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Conducted Disturbance

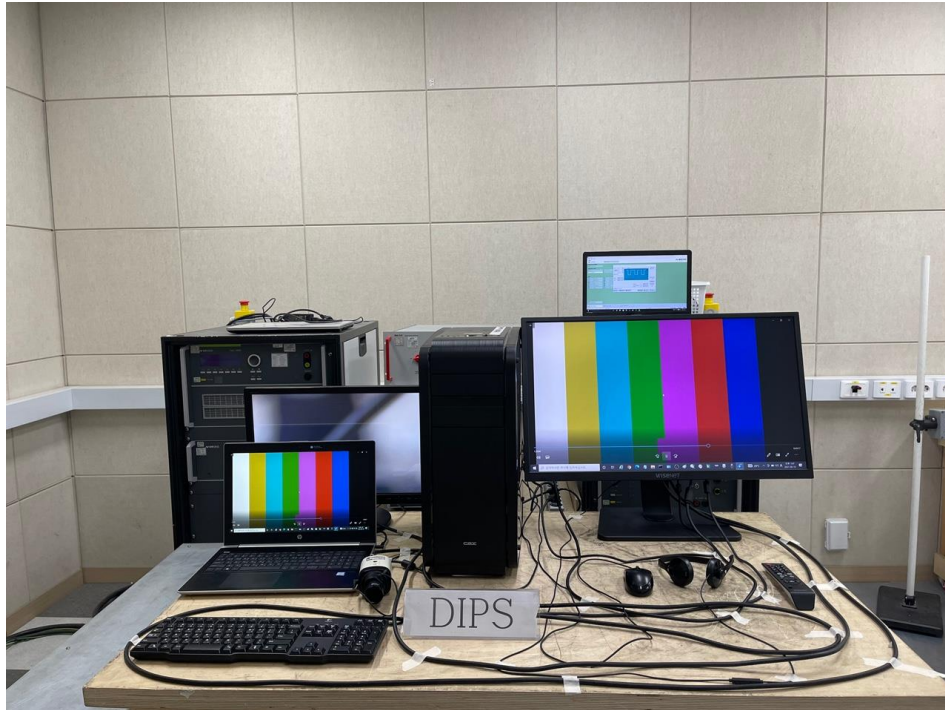


Power Frequency Magnetic Field Immunity



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Voltage Dips and Short Interruptions



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APPENDIX C – EUT Photographs

EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

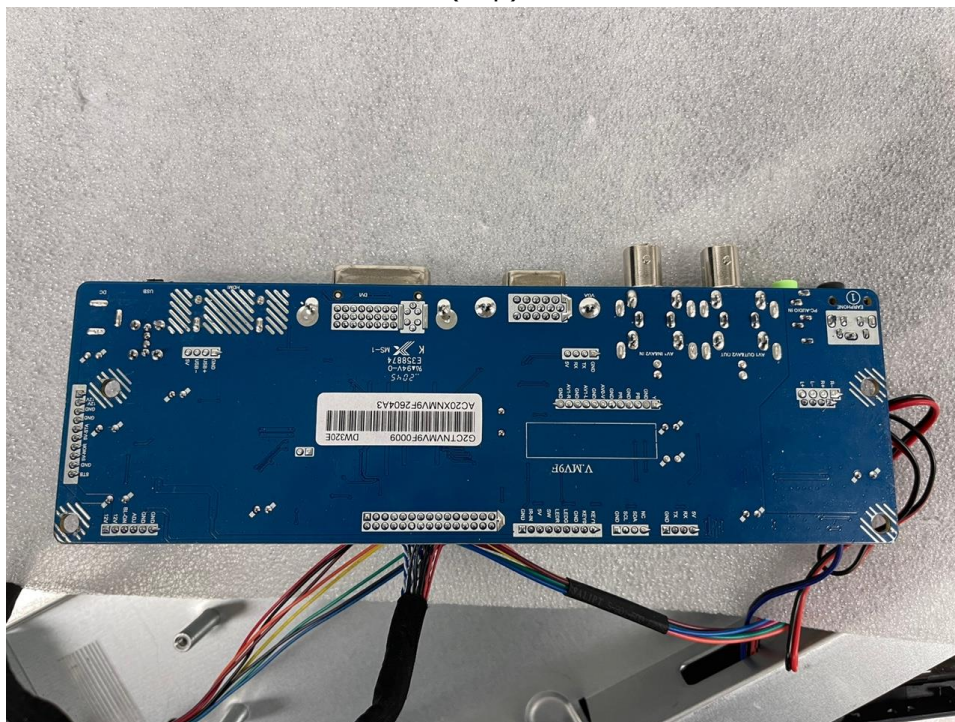
(Internal View)



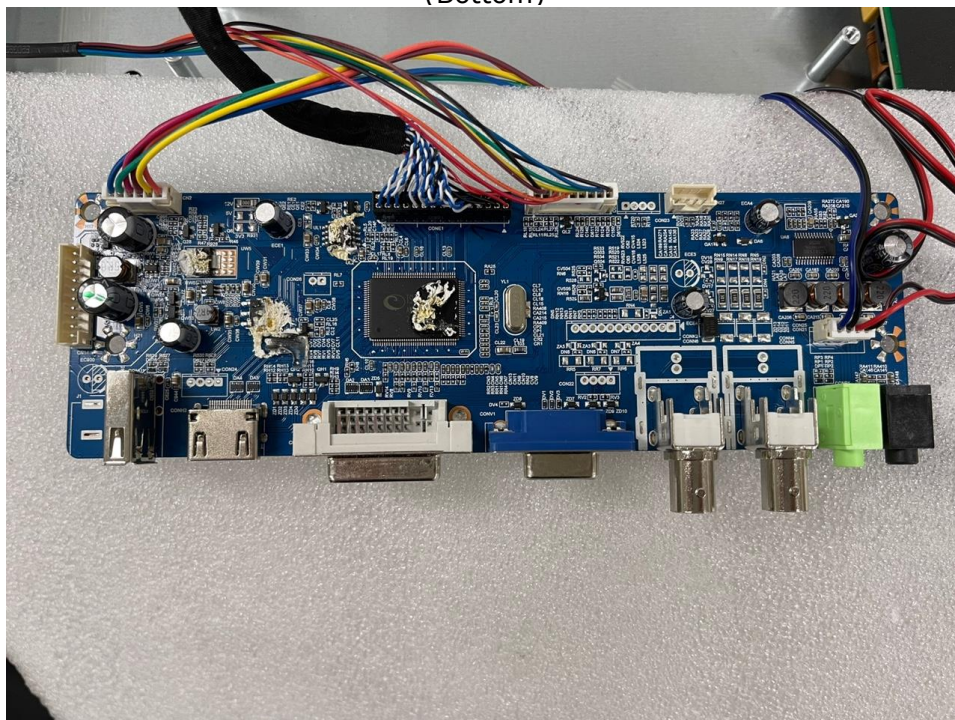
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EUT Internal View – Main Board

(Top)



(Bottom)



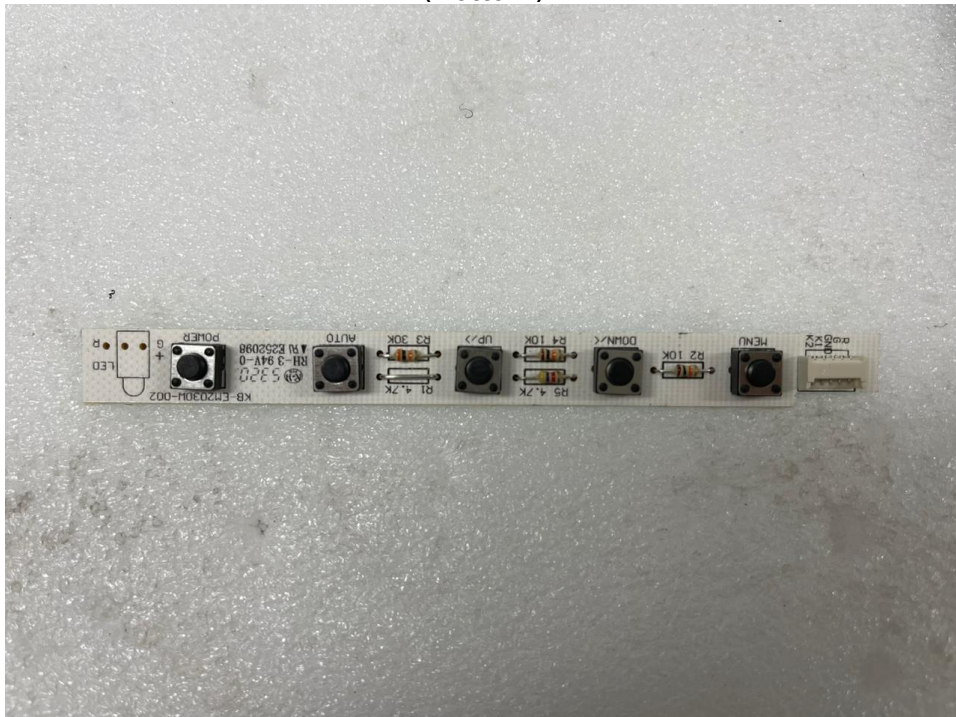
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EUT Internal View – Sub Board 1

(Top)



(Bottom)



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EUT Internal View – Sub Board 2

(Top)



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EUT Internal View – Sub Board 3

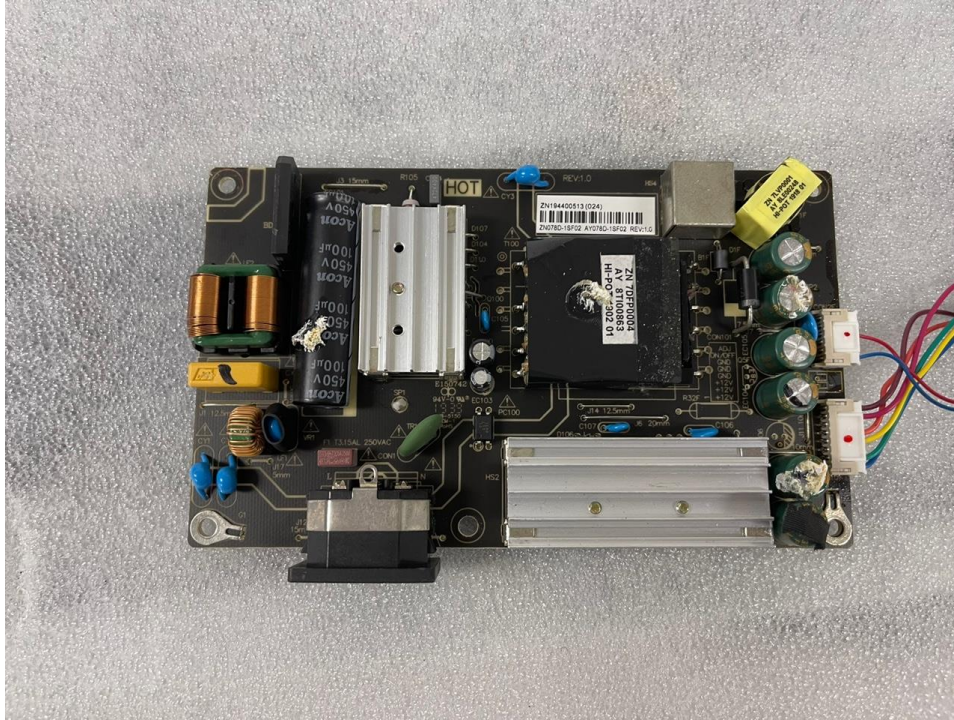
(Top)



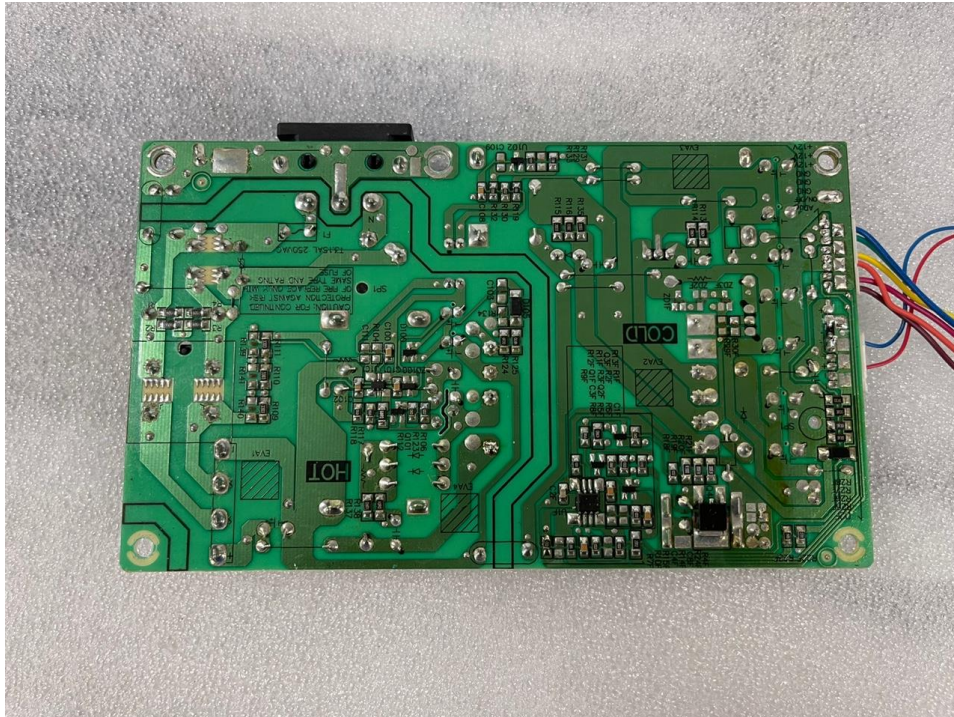
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EUT Internal View – Power Board

(Top)



(Bottom)



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Label and Location



LED MONITOR

Model No : SMT-3234

Manufacturer : Weihai Daewoo Electronics Co., Ltd.

Made in China

