



EMC TEST REPORT For CE

Test Report No. : KES-EM-21T0063
Date of Issue : Jan. 28, 2021
Product name : MONITOR
Model/Type No. : SMT-3233
Variant Model : -
Applicant : Hanwha Techwin 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 : Jan. 11, 2021
Test date : Jan. 18, 2021 ~ Jan. 27, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Soo, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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

**KES Co., Ltd.**

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

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 28, 2021	KES-EM-21T0063	Issued

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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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1.0 General Product Description

Main Specifications of E.U.T are:

Screen Size		31.5"
Max. Resolution		1,920 x 1,080
Brightness		350cd/m ²
Contrast Ratio		1200:1
Aspect Ratio		16:9
Viewing Angle (H/V)		178°/178°
Display Color		16.7 million
Response Time		8ms(G to G)
Video System		NTSC/PAL
Panel Life		30,000 hours
Filter Type		3D combfilter
Interface		
Video	Connector	VGA, DVI, HDMI, BNC
	Connector	Analog D-sub(15 pin), DVI-D
RGB/DVI	Input Signal	0.7Vp-p±5%
	Available Format	640 x 480@60Hz/66Hz/72Hz/75Hz (VGA), 720 x 400@70Hz, 800 x 600@56Hz/60Hz/72Hz/75Hz (SVGA), 832 x 624@75Hz, 1,024 x 768@60Hz/70Hz/75Hz (XGA), 1,152 x 864@75Hz, 1,280 x 720@60Hz, 1,280 x 800@60Hz, 1,280 x 1,024@60Hz/75Hz (SXGA), 1,360 x 768@60Hz, 1,440 x 900@60Hz, 1,600 x 900@60Hz, 1,680 x 1,050@60Hz, 1,920 x 1,080@60Hz
	Available Format	
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
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	<50W
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)
	Operating Humidity	10% ~ 80% (non-condensing)
Mechanical	Dimensions with Stand	TBD
	Dimensions without Stand	727.7 x 433.2 x 48.8mm
	Bezel Size	14.5/25mm(Top/Bottom)
	Weight	TBD
	Cabinet Color	Black
	Rack Mount	N/A
VESA Mounts Interface		100 x 100mm
Accessory		STAND

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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.

Voltage ☒ 230 Vac ☐ 100 Vac ☐ 24 Vac ☐ 12 Vdc ☐ PoE
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
MONITOR	SMT-3233	-	Weihai Daewoo Electronics Co.,Ltd.	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
CAMERA	SCB-5000N/EX	-	SAMSUNG	-
CAMERA AC/DC ADAPTER	DAD12050DKA	-	Dream Electronics Co., Ltd.	-
PC	DM500T62	-	SMASUMG	-
MOUSE	1113	-	Microsoft	-
SPEAKER	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MONITOR	SMT-2233	ZC6U67VH500194D	Weihai Daewoo Electronics Co., Ltd.	-
USB MEMORY	-	-	Transcend	32 GB



1.6 External I/O Cabling

■ HDMI / DVI / VGA / BNC MODE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
MONITOR (EUT)	HDMI	PC	HDMI	1.5	S
	DVI		DVI	1.8	S
	VGA		VGA	1.4	S
	3.5 mm	SPEAKER	3.5 mm	1.6	U
	BNC IN	CAMERA	BNC	2.0	S
	BNC OUT	MONITOR	BNC	1.8	S
	USB	USB MEMORY	USB	-	-
PC	USB	MOUSE	USB	1.6	U

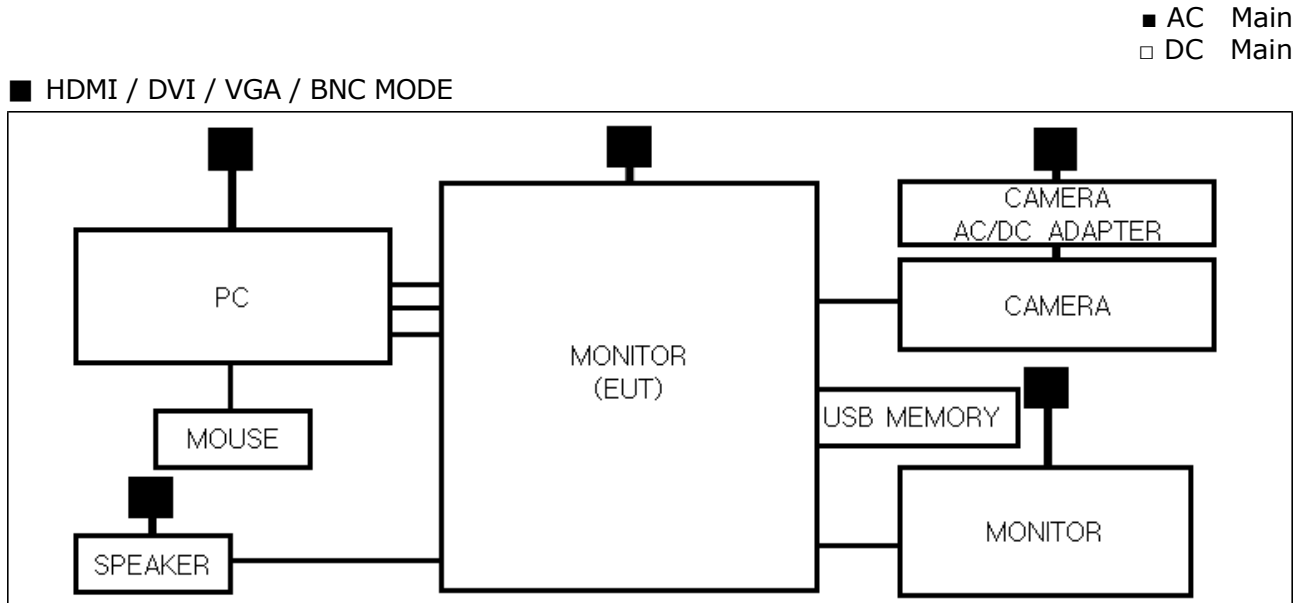
* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

Test mode	operating
Operation mode	Normal operation was confirmed by executing the color bar and 1 kHz tone.

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

1.8 Configuration



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 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4:2014 and CISPR 16-1-4:2012

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area 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, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi- Anechoic Chamber and Conducted test site	 23298-1
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-20056, C-20036 T-20040, G-20057
Europe	TÜV SÜD	EMI (3 m & 10 m Semi- Anechoic Chamber , 10 m Open Area 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
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547:2009

☒ EN 55032: 2015

☒ Class A

☐ Class B

☒ EN 55035:2017

☐ EN 50130-4:2011 +A1:2014

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☐ EN 61326-1:2013



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- | | | |
|---|----------------------------------|----------------------------------|
| ☐ VCCI V-3 / 2015.04 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2009 | | |
| ☐ IC Regulation ICES-003 : 2016 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
| ☐ RE- Directive 2014/53/EU | | |
| ☐ 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 | | |

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2.1 Conducted Emissions at Mains Power Ports

Test Date

Jan. 18, 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: 23,3 °C
Relative Humidity: 45,9 % 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

N/A



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 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, 2021
☐	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

Telecommunication Port. Test is not applicable.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 19, 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, 2021
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2021

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 46,4 % 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

Jan. 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, 05, 2021
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 20, 2021
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021

Test Conditions

Temperature: 22,7 °C
Relative Humidity: 47,1 % 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

Jan. 18, 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, 2021
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 22,2 °C
Relative Humidity: 42,6 % 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

Jan. 18, 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, 2021
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: 22,2 °C
Relative Humidity: 42,6 % 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

Jan. 27, 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	ESS05X4620	01, 28, 2021
☒	HCP	-	KES	-	-
☒	VCP	-	KES	-	-

Test Conditions

Temperature: 22,4 °C
Relative Humidity: 46,4 % R.H.
Atmospheric Pressure: 100,4 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	Air	HCP	VCP
	☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
	☒ 4 kV	☒ 4 kV	☒ 4 kV	☒ 4 kV
	☐ 6 kV	☐ 6 kV	☐ 6 kV	☐ 6 kV
	☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
	☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

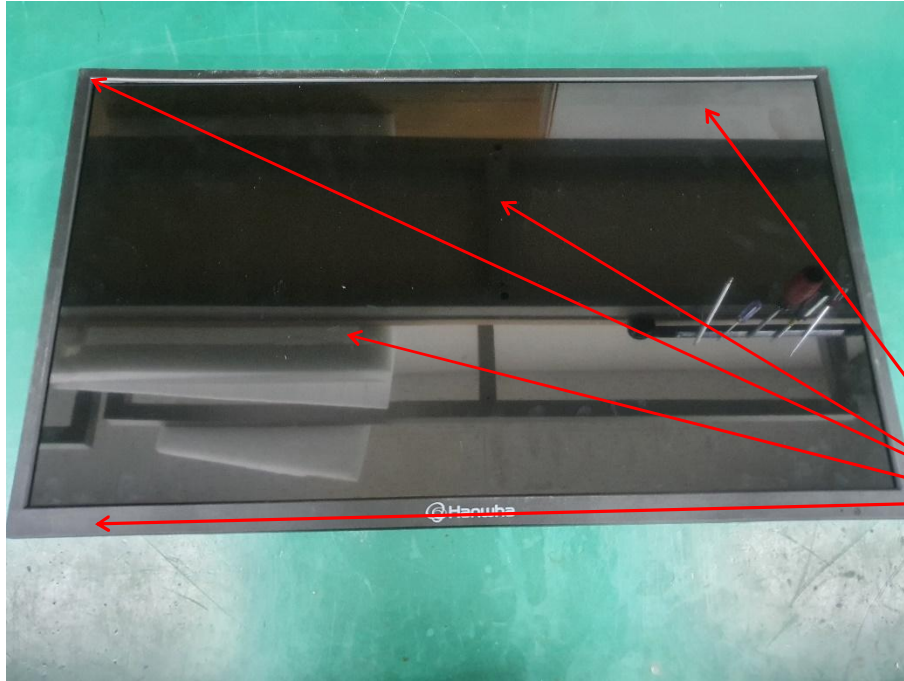
Notes: HCP: Horizontal coupling plane

VCP: Vertical coupling plane

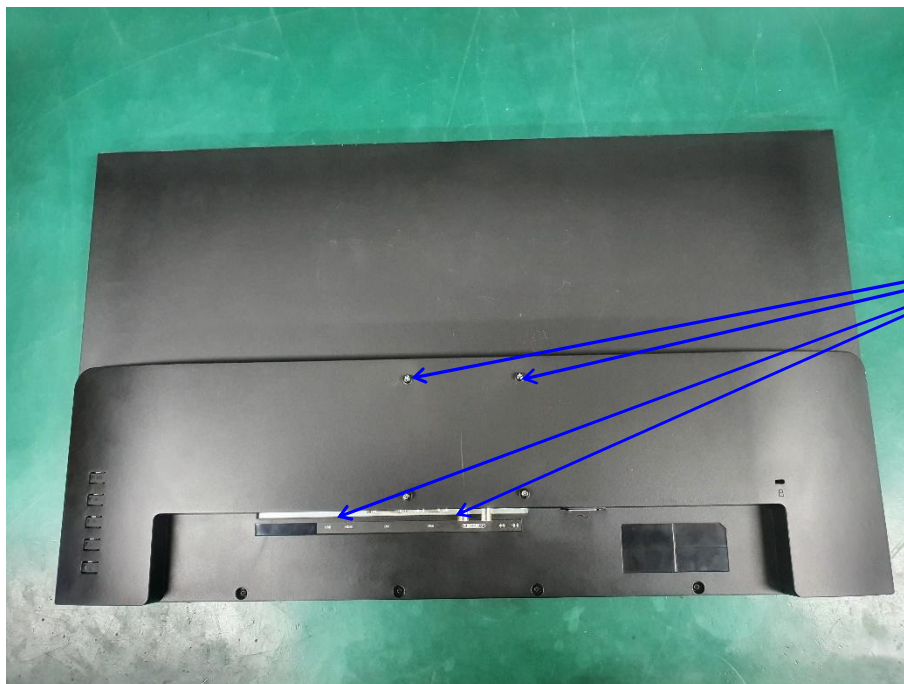
Required Performance Criteria: ☒ B

Location of Discharge:

Air
Contact



1



2

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Test Data**■ HDMI MODE****Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance		Remarks
			Criteria	Results	
1	Display, Enclosure	Air Discharge	B	A	-
2	Ports, Screw	Contact Discharge	B	A	-

■ DVI MODE**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance		Remarks
			Criteria	Results	
1	Display, Enclosure	Air Discharge	B	A	-
2	Ports, Screw	Contact Discharge	B	A	-

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■ VGA MODE**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance		Remarks
			Criteria	Results	
1	Display, Enclosure	Air Discharge	B	A	-
2	Ports, Screw	Contact Discharge	B	A	-

■ BNC MODE**Indirect Discharge**

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

Direct Discharge

No.	Test Point	Discharge Method	Performance		Remarks
			Criteria	Results	
1	Display, Enclosure	Air Discharge	B	A	-
2	Ports, Screw	Contact Discharge	B	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

Remarks

N/A

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3.2 Radiated Electric Field Immunity

Reference Standard

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

Test Date

Jan. 23, 2021 / Jan. 24, 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	9.12.00	-
☒	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	08, 06, 2021
☒	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
☒	POWER METER	E4419B	Agilent	GB40203000	04, 20, 2021
☒	CW POWER SENSOR	E4412A	Agilent	US38488240	04, 20, 2021
☒	CW POWER SENSOR	E4412A	Agilent	MY41501662	04, 20, 2021
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021
☒	SOUND ACOUSTIC TESTER	TST-1000	TESTEK	150045	11, 03, 2021
☒	MICROPHONE	MP201	BSWA	551675	11, 04, 2021

Test Conditions

Test Date:	Jan. 23, 2021	Jan. 24, 2021
Temperature:	23,4 °C	22,7 °C
Relative Humidity:	48,4 % R.H.	42,0 % R.H.
Atmospheric Pressure:	100,3 kPa	100,7 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**■ 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
Speaker	Loudspeakers	90.46	Low	A	A	A
EUT speaker	Loudspeakers	90.21	Low	A	A	A

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

■ 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

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■ 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

■ BNC MODE

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

Remarks

N/A



3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Jan. 27, 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	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021

Test Conditions

Temperature: 22,4 °C
Relative Humidity: 46,4 % R.H.
Atmospheric Pressure: 100,4 kPa

Test Specifications

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

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

Burst Period: ☒ 300 ms ☐ 2 s

Repetition Rate: ☒ 5 klz ☐ 100 klz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ B

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Test Data**■ 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)
L1	B	-	-
L2	B	-	-
L1 – L2	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

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■ 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)
L1	B	-	-
L2	B	-	-
L1 – L2	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

■ 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)
L1	B	-	-
L2	B	-	-
L1 – L2	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

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■ BNC 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)
L1	B	-	-
L2	B	-	-
L1 – L2	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

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

Test Date

Jan. 25, 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	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021

Test Conditions

Temperature: 22,6 °C
Relative Humidity: 41,6 % R.H.
Atmospheric Pressure: 101,0 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:

☒ 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: ☒ A

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

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Test Data**■ HDMI MODE**☒ Line to Line – Differential Mode

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

☒ Line to Earth – Common Mode

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

Signal Lines☐ Line to Earth – Common Mode

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

■ DVI MODE☒ Line to Line – Differential Mode

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

☒ Line to Earth – Common Mode

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

Signal Lines☐ Line to Earth – Common Mode

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

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■ VGA MODE☒ Line to Line – Differential Mode

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

☒ Line to Earth – Common Mode

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

Signal Lines☐ Line to Earth – Common Mode

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

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■ BNC MODE☒ Line to Line – Differential Mode

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

☒ Line to Earth – Common Mode

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

Signal Lines☐ Line to Earth – Common Mode

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

Remarks

N/A

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3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Jan. 26, 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	5.3.11	-
☒	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 T800	TESEQ	42800	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: 22,4 °C
Relative Humidity: 47,2 % R.H.
Atmospheric Pressure: 100,3 kPa



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Test Specifications

Frequency range: ☐ 150 kHz to 100 MHz ☒ 150 kHz to 80 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

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Test Data

■ 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
L1 - L2	CDN	A	-

☐ Signal ports and telecommunication ports

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

[Audio output function]

☐ Electrical Measurements / ☒ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
Speaker	Loudspeakers	91.71	Low	A	A	A
EUT Speaker	Loudspeakers	91.42	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
L1 - L2	CDN	A	-

☐ Signal ports and telecommunication ports

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

■ 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
L1 – L2	CDN	A	-

☐ Signal ports and telecommunication ports

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

■ BNC 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
L1 – L2	CDN	A	-

☐ Signal ports and telecommunication ports

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

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

Jan. 27, 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	5.4.7	-
☒	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	11, 27, 2021

Test Conditions

Temperature: 22,4 °C
Relative Humidity: 46,4 % R.H.
Atmospheric Pressure: 100,4 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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Test Data**■ HDMI MODE**☒ Immersion method

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

■ DVI MODE☒ Immersion method

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

■ VGA MODE☒ Immersion method

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

■ BNC 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

Test Date

Jan. 27, 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	5.4.7	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11, 26, 2021
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11, 26, 2021

Test Conditions

Temperature: 22,4 °C
Relative Humidity: 46,4 % R.H.
Atmospheric Pressure: 100,4 kPa

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Test Data**■ HDMI MODE****Voltage Dips**

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

■ DVI MODE**Voltage Dips**

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

■ VGA MODE**Voltage Dips**

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

■ BNC MODE**Voltage Dips**

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

Results:

- 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

During the interruption test, EUT was turned off but after the test, it was recovered by operator's intervention.

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APPENDIX A – TEST DATA

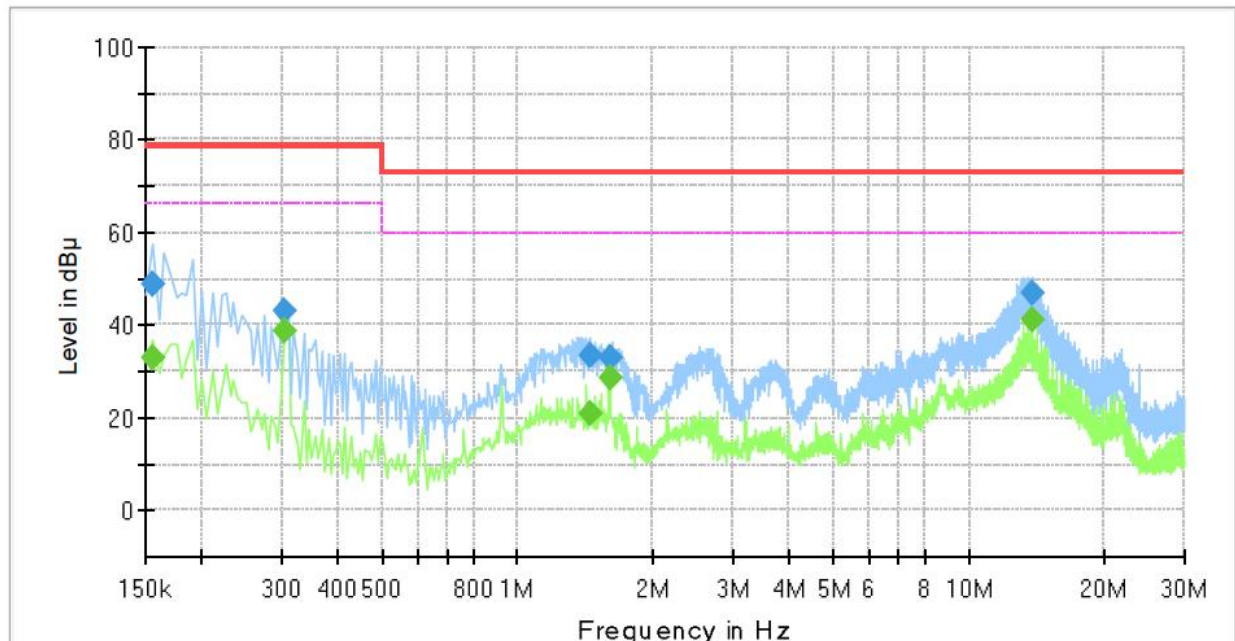
Conducted Emissions at Mains Power Ports

■ HDMI MODE

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3233
Phase:	H
Mode:	230 V 50 Hz_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	---	32.88	66.00	33.12	1000.0	9.000	L1	19.4
0.155000	49.06	---	79.00	29.94	1000.0	9.000	L1	19.4
0.305000	---	38.61	66.00	27.39	1000.0	9.000	L1	19.5
0.305000	43.00	---	79.00	36.00	1000.0	9.000	L1	19.5
1.440000	---	20.91	60.00	39.09	1000.0	9.000	L1	20.1
1.440000	33.43	---	73.00	39.57	1000.0	9.000	L1	20.1
1.600000	---	28.72	60.00	31.28	1000.0	9.000	L1	20.1
1.600000	33.02	---	73.00	39.98	1000.0	9.000	L1	20.1
13.800000	---	40.92	60.00	19.08	1000.0	9.000	L1	19.9
13.800000	46.77	---	73.00	26.23	1000.0	9.000	L1	19.9



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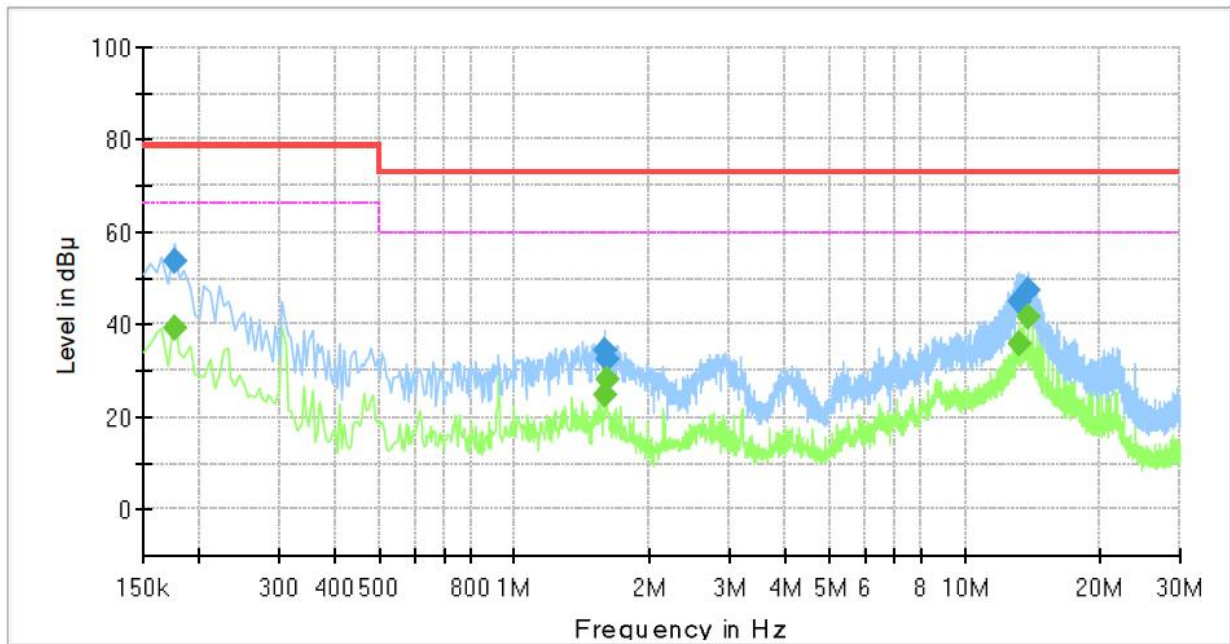
3701, 40, Simin-daero 365beon-gil,
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3233
Phase:	N
Mode:	230 V 50 Hz_HDMI
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.175000	---	39.29	66.00	26.71	1000.0	9.000	N	19.4
0.175000	53.58	---	79.00	25.42	1000.0	9.000	N	19.4
1.585000	---	24.54	60.00	35.46	1000.0	9.000	N	20.1
1.585000	34.27	---	73.00	38.73	1000.0	9.000	N	20.1
1.600000	---	28.15	60.00	31.85	1000.0	9.000	N	20.1
1.600000	32.69	---	73.00	40.31	1000.0	9.000	N	20.1
13.255000	---	35.67	60.00	24.33	1000.0	9.000	N	19.9
13.255000	45.13	---	73.00	27.87	1000.0	9.000	N	19.9
13.800000	---	41.82	60.00	18.18	1000.0	9.000	N	19.9
13.800000	47.37	---	73.00	25.63	1000.0	9.000	N	19.9

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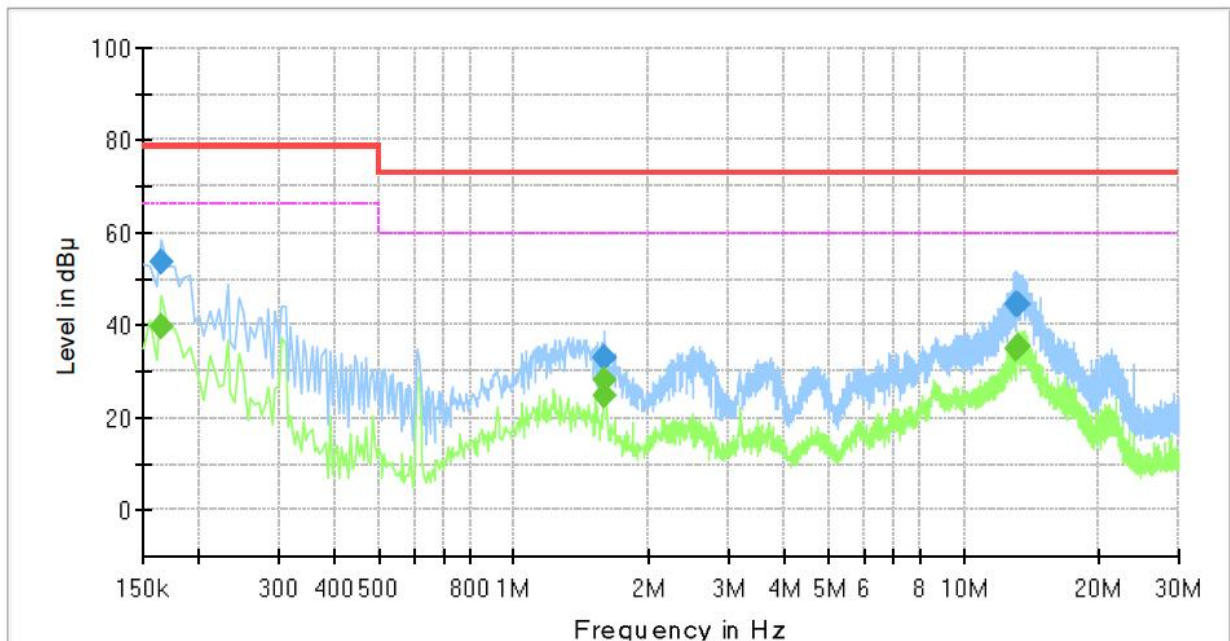
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■ DVI MODE

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: SMT-3233
Phase: H
Mode: 230 V 50 Hz_DVI
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	39.91	66.00	26.09	1000.0	9.000	L1	19.4
0.165000	53.92	---	79.00	25.08	1000.0	9.000	L1	19.4
1.590000	---	24.85	60.00	35.15	1000.0	9.000	L1	20.1
1.590000	33.17	---	73.00	39.83	1000.0	9.000	L1	20.1
1.595000	---	28.28	60.00	31.72	1000.0	9.000	L1	20.1
1.595000	32.73	---	73.00	40.27	1000.0	9.000	L1	20.1
13.130000	---	34.71	60.00	25.29	1000.0	9.000	L1	19.9
13.130000	44.63	---	73.00	28.37	1000.0	9.000	L1	19.9
13.200000	---	35.32	60.00	24.68	1000.0	9.000	L1	19.9
13.200000	44.63	---	73.00	28.37	1000.0	9.000	L1	19.9

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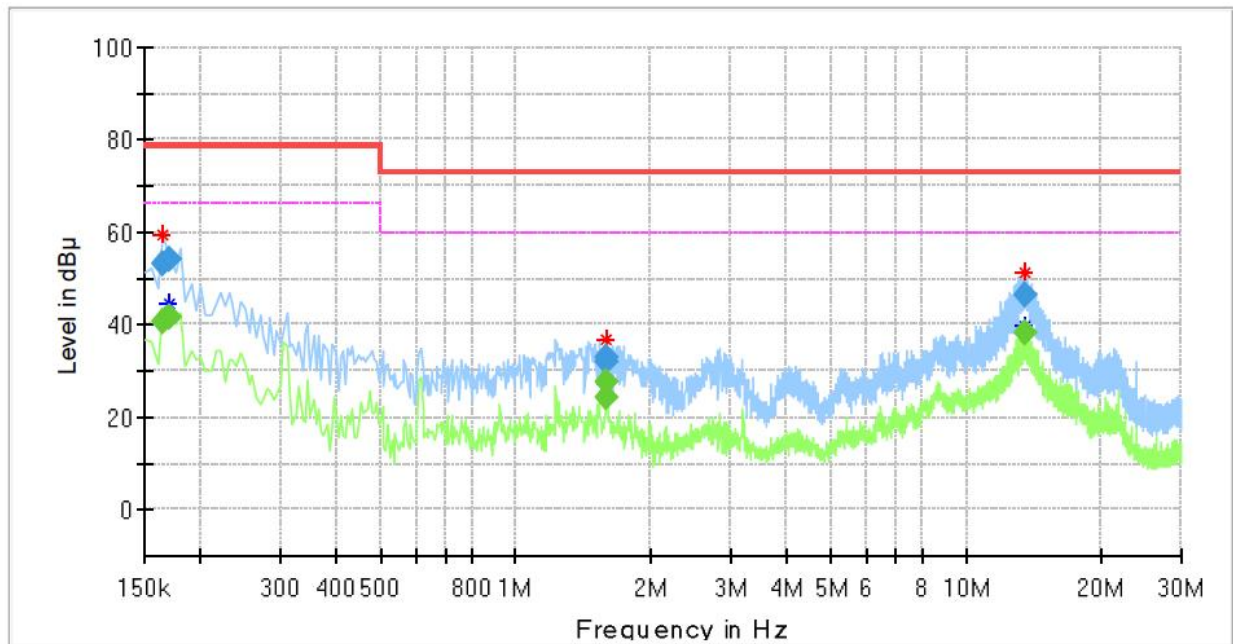
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3233
Phase:	N
Mode:	230 V 50 Hz_DVI
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	40.44	66.00	25.56	1000.0	9.000	N	19.4
0.165000	53.44	---	79.00	25.56	1000.0	9.000	N	19.4
0.170000	---	41.57	66.00	24.43	1000.0	9.000	N	19.4
0.170000	54.00	---	79.00	25.00	1000.0	9.000	N	19.4
1.590000	---	24.38	60.00	35.62	1000.0	9.000	N	20.1
1.590000	32.92	---	73.00	40.08	1000.0	9.000	N	20.1
1.595000	---	27.58	60.00	32.42	1000.0	9.000	N	20.1
1.595000	32.15	---	73.00	40.85	1000.0	9.000	N	20.1
13.465000	---	38.33	60.00	21.67	1000.0	9.000	N	19.9
13.465000	46.50	---	73.00	26.50	1000.0	9.000	N	19.9

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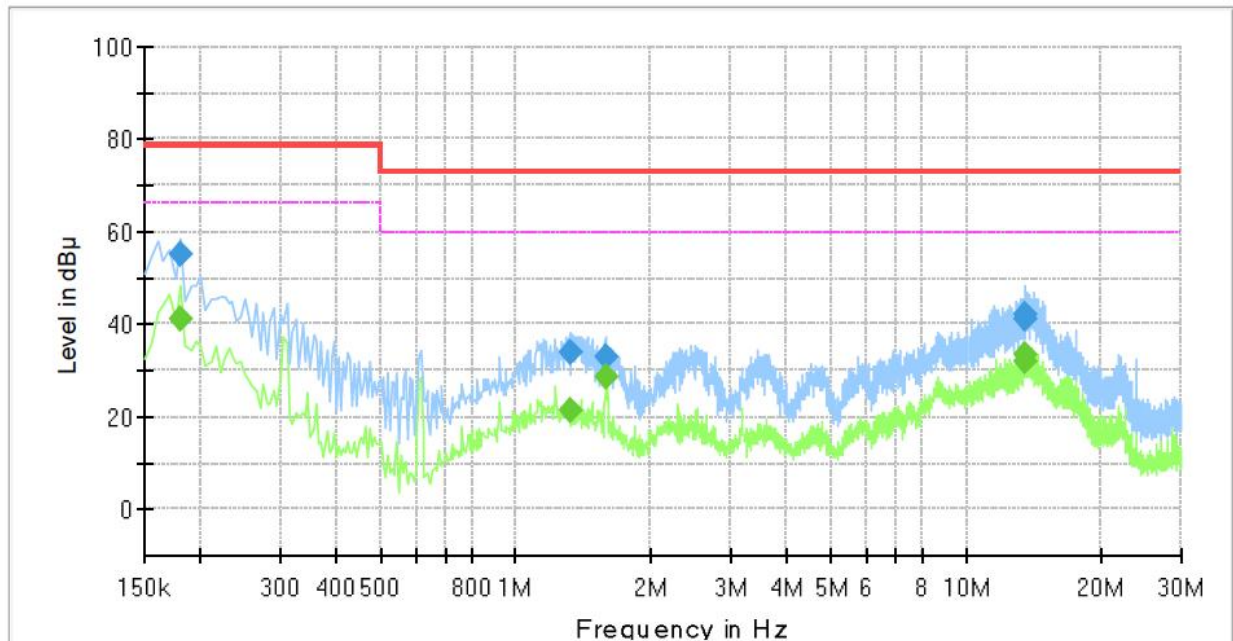
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■ VGA MODE

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: SMT-3233
Phase: H
Mode: 230 V 50 Hz_VGA
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.180000	---	41.00	66.00	25.00	1000.0	9.000	L1	19.4
0.180000	54.96	---	79.00	24.04	1000.0	9.000	L1	19.4
1.315000	---	21.18	60.00	38.82	1000.0	9.000	L1	20.1
1.315000	34.12	---	73.00	38.88	1000.0	9.000	L1	20.1
1.595000	---	28.67	60.00	31.33	1000.0	9.000	L1	20.1
1.595000	33.05	---	73.00	39.95	1000.0	9.000	L1	20.1
13.455000	---	33.54	60.00	26.46	1000.0	9.000	L1	19.9
13.455000	42.14	---	73.00	30.86	1000.0	9.000	L1	19.9
13.515000	---	32.06	60.00	27.94	1000.0	9.000	L1	19.9
13.515000	40.97	---	73.00	32.03	1000.0	9.000	L1	19.9

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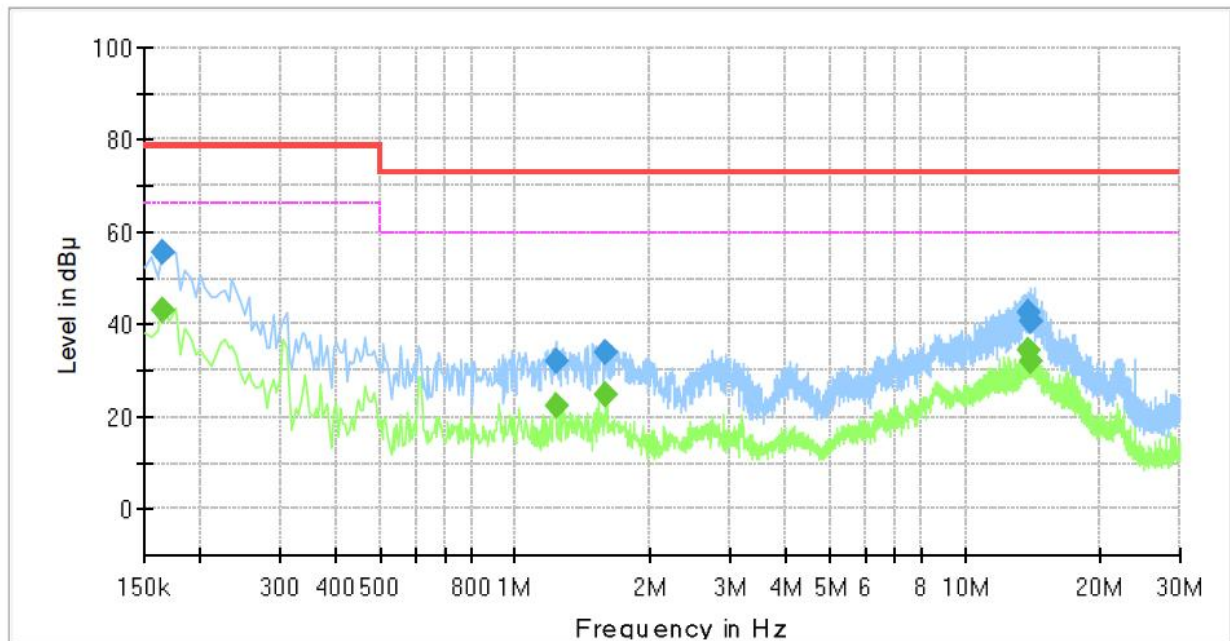
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3233
Phase:	N
Mode:	230 V 50 Hz_VGA
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	43.26	66.00	22.74	1000.0	9.000	N	19.4
0.165000	55.63	---	79.00	23.37	1000.0	9.000	N	19.4
1.230000	---	22.42	60.00	37.58	1000.0	9.000	N	20.0
1.230000	32.08	---	73.00	40.92	1000.0	9.000	N	20.0
1.585000	---	24.71	60.00	35.29	1000.0	9.000	N	20.1
1.585000	33.86	---	73.00	39.14	1000.0	9.000	N	20.1
13.790000	---	34.43	60.00	25.57	1000.0	9.000	N	19.9
13.790000	42.42	---	73.00	30.58	1000.0	9.000	N	19.9
13.980000	---	32.18	60.00	27.82	1000.0	9.000	N	19.9
13.980000	40.85	---	73.00	32.15	1000.0	9.000	N	19.9

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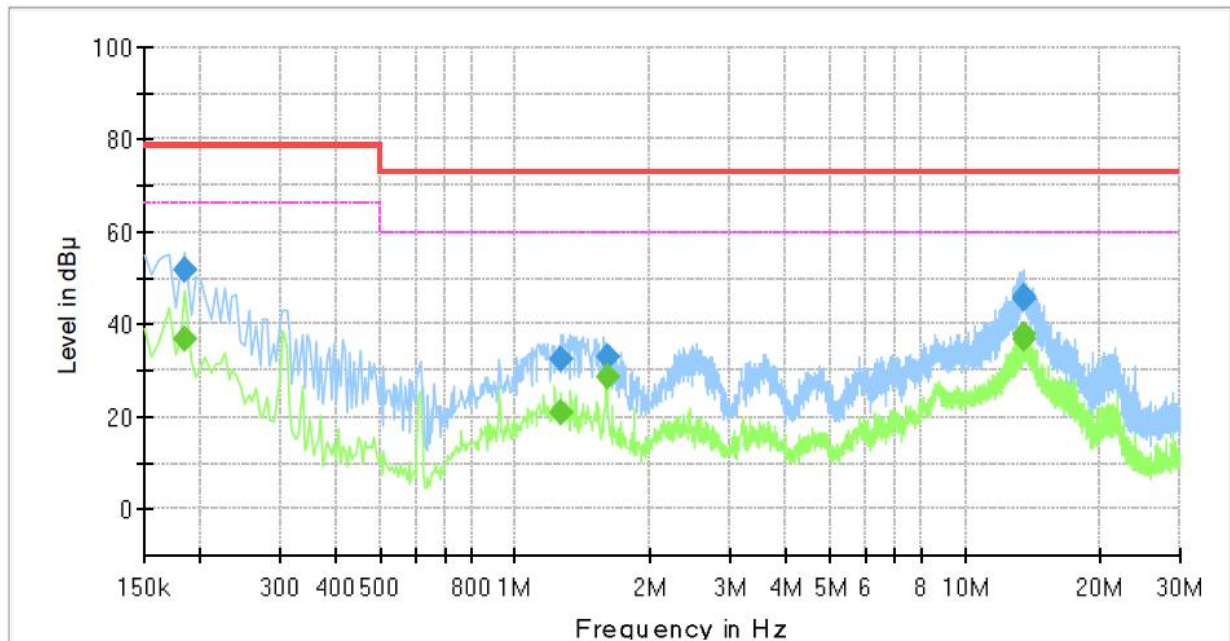
Report No.:
KES-EM-21T0063
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■ BNC MODE

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: SMT-3233
Phase: H
Mode: 230 V 50 Hz_BNC
Operator Name: KES



Final_Result

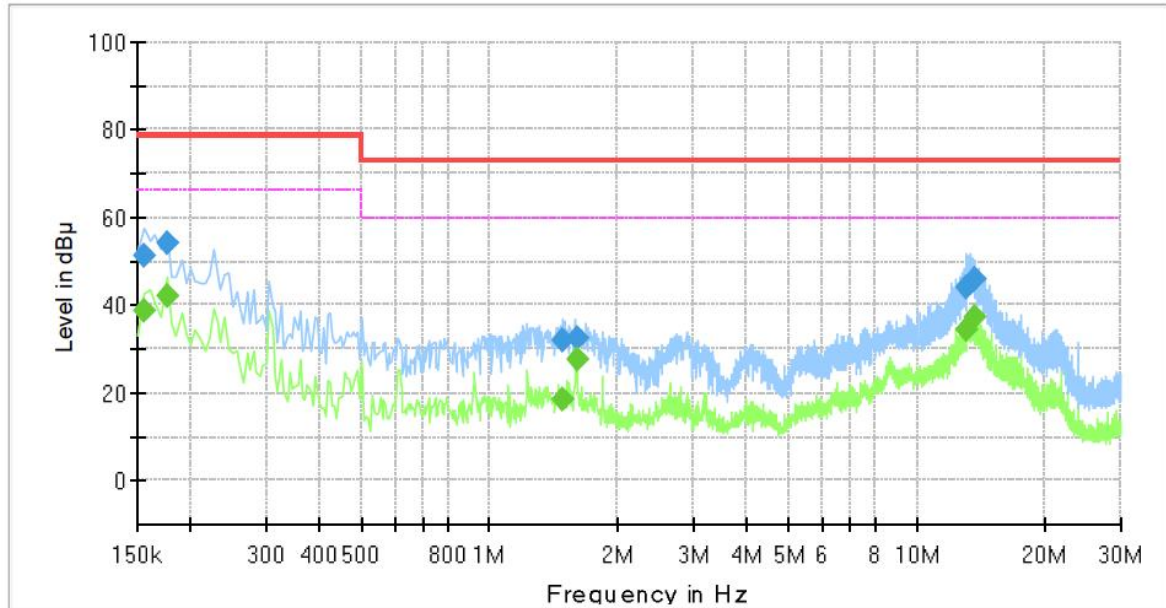
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.185000	---	36.91	66.00	29.09	1000.0	9.000	L1	19.4
0.185000	51.93	---	79.00	27.07	1000.0	9.000	L1	19.4
1.265000	---	20.96	60.00	39.04	1000.0	9.000	L1	20.0
1.265000	32.47	---	73.00	40.53	1000.0	9.000	L1	20.0
1.600000	---	28.43	60.00	31.57	1000.0	9.000	L1	20.1
1.600000	32.98	---	73.00	40.02	1000.0	9.000	L1	20.1
13.475000	---	37.97	60.00	22.03	1000.0	9.000	L1	19.9
13.475000	45.67	---	73.00	27.33	1000.0	9.000	L1	19.9
13.530000	---	36.93	60.00	23.07	1000.0	9.000	L1	19.9
13.530000	46.02	---	73.00	26.98	1000.0	9.000	L1	19.9

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-3233
Phase:	N
Mode:	230 V 50 Hz_BNC
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	---	38.80	66.00	27.20	1000.0	9.000	N	19.4
0.155000	51.14	---	79.00	27.86	1000.0	9.000	N	19.4
0.175000	---	42.00	66.00	24.00	1000.0	9.000	N	19.4
0.175000	54.17	---	79.00	24.83	1000.0	9.000	N	19.4
1.480000	---	18.54	60.00	41.46	1000.0	9.000	N	20.1
1.480000	31.94	---	73.00	41.06	1000.0	9.000	N	20.1
1.600000	---	27.70	60.00	32.30	1000.0	9.000	N	20.1
1.600000	32.36	---	73.00	40.64	1000.0	9.000	N	20.1
13.055000	---	34.62	60.00	25.38	1000.0	9.000	N	19.9
13.055000	44.18	---	73.00	28.82	1000.0	9.000	N	19.9
13.660000	---	37.30	60.00	22.70	1000.0	9.000	N	19.9
13.660000	45.87	---	73.00	27.13	1000.0	9.000	N	19.9

◆ 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))



Conducted Emissions at Telecommunication Ports

[10 Mbps]

N/A



KES Co., Ltd.

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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
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[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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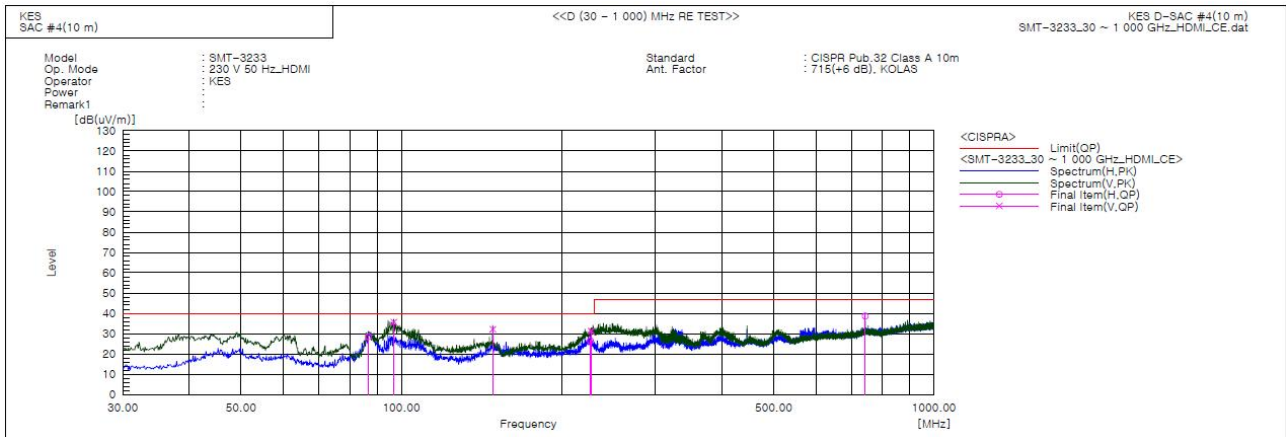
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Radiated Electric Field Emissions(Below 1 GHz)

■ HDMI 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	86.745	H	53.9	-25.4	28.5	40.0	11.5	400.0	104.0	
2	96.809	V	58.8	-23.1	35.7	40.0	4.3	100.0	70.0	
3	148.461	V	57.3	-25.1	32.2	40.0	7.8	198.0	326.0	
4	226.304	H	46.5	-19.9	26.6	40.0	13.4	304.0	325.0	
5	227.153	V	51.2	-19.9	31.3	40.0	8.7	106.0	187.0	
6	742.465	H	44.5	-5.9	38.6	47.0	8.4	391.0	123.0	

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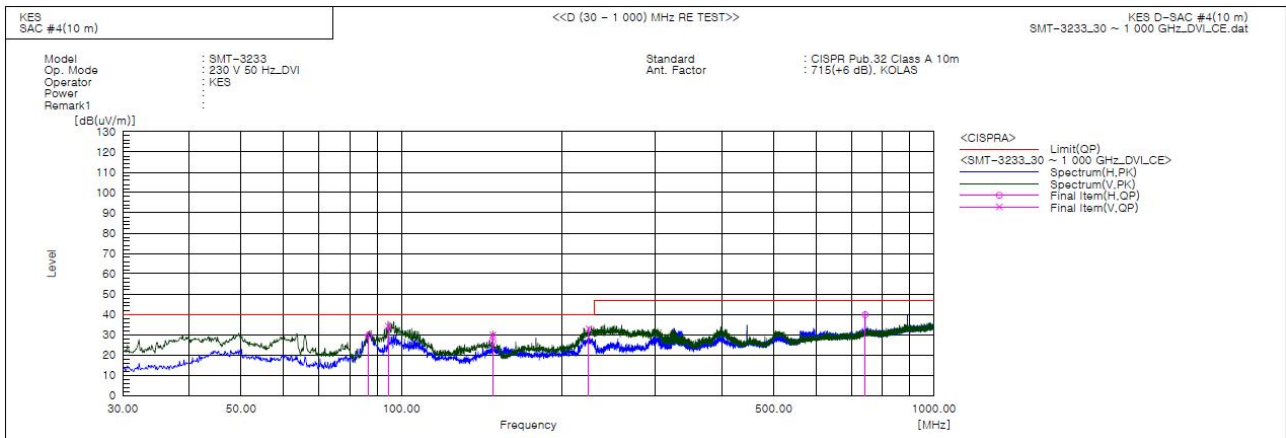


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■ DVI MODE



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	86.866	H	54.9	-25.3	29.6	40.0	10.4	400.0	108.0	
2	94.505	V	57.8	-23.6	34.2	40.0	5.8	100.0	76.0	
3	148.461	V	54.9	-25.1	29.8	40.0	10.2	103.0	191.0	
4	148.461	H	51.7	-25.1	26.6	40.0	13.4	388.0	119.0	
5	224.728	V	52.9	-20.0	32.9	40.0	7.1	108.0	134.0	
6	742.465	H	45.7	-5.9	39.8	47.0	7.2	307.0	24.0	

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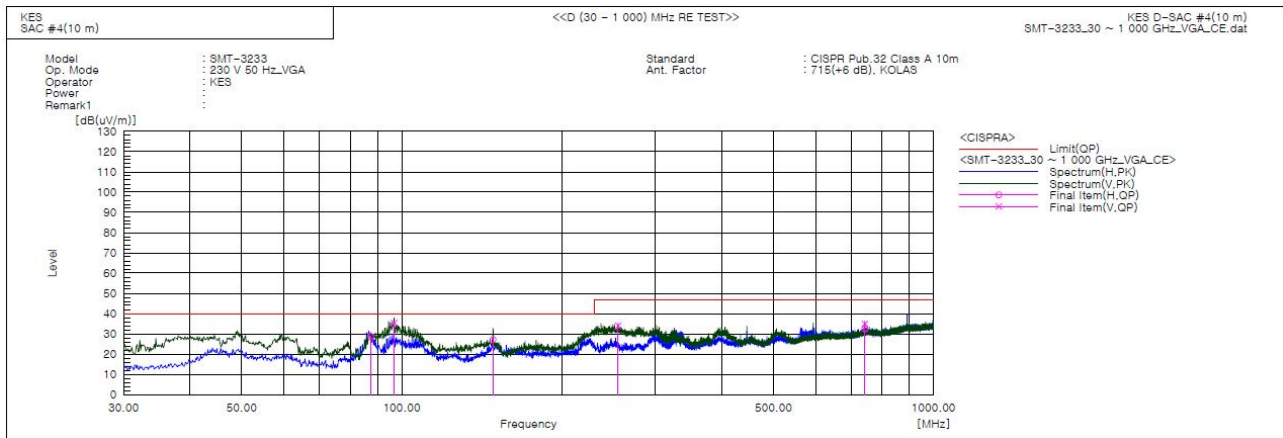


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VGA MODE



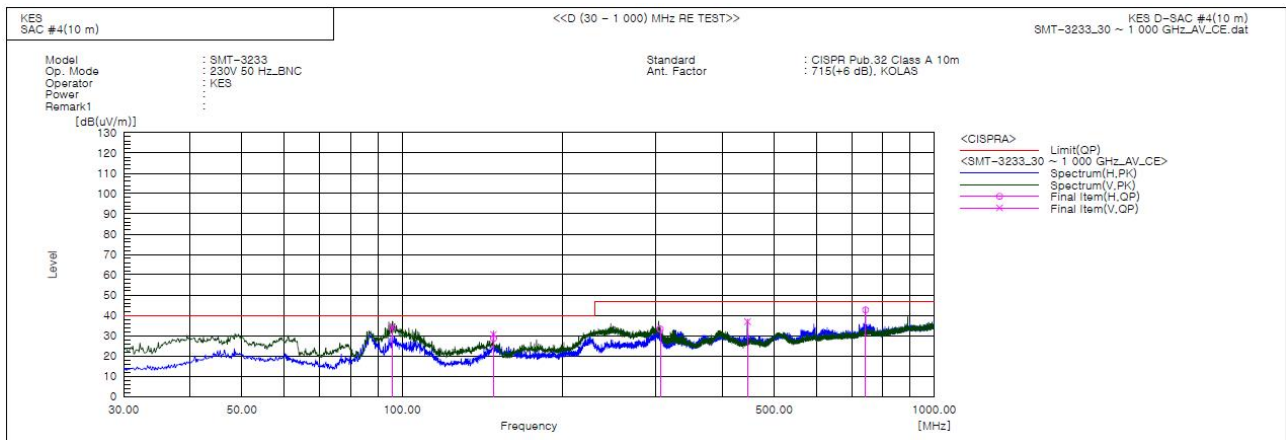
Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP [dB(uV)]	[dB(1/m)]	QP [dB(uV/m)]	QP [dB(uV/m)]	QP [dB]	[cm]	[deg]	
1	87.473	H	53.8	-25.1	28.7	40.0	11.3	400.0	106.0	
2	96.809	V	58.5	-23.1	35.4	40.0	4.6	103.0	53.0	
3	148.461	H	52.3	-25.1	27.2	40.0	12.8	379.0	160.0	
4	255.283	V	53.0	-18.9	34.1	47.0	12.9	100.0	185.0	
5	742.465	V	40.8	-5.9	34.9	47.0	12.1	198.0	332.0	
6	742.586	H	38.4	-5.9	32.5	47.0	14.5	305.0	193.0	

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■ BNC 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	95.960	V	57.6	-23.3	34.3	40.0	5.7	179.0	86.0	
2	148.461	V	55.7	-25.1	30.6	40.0	9.4	103.0	342.0	
3	148.587	H	53.7	-25.1	28.6	40.0	11.4	389.0	174.0	
4	305.480	H	50.9	-17.6	33.3	47.0	13.7	304.0	337.0	
5	445.524	V	50.2	-13.3	36.9	47.0	10.1	100.0	33.0	
6	742.586	H	48.6	-5.9	42.7	47.0	4.3	400.0	357.0	

◆ Calculation – SAC #4(10 m)

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

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



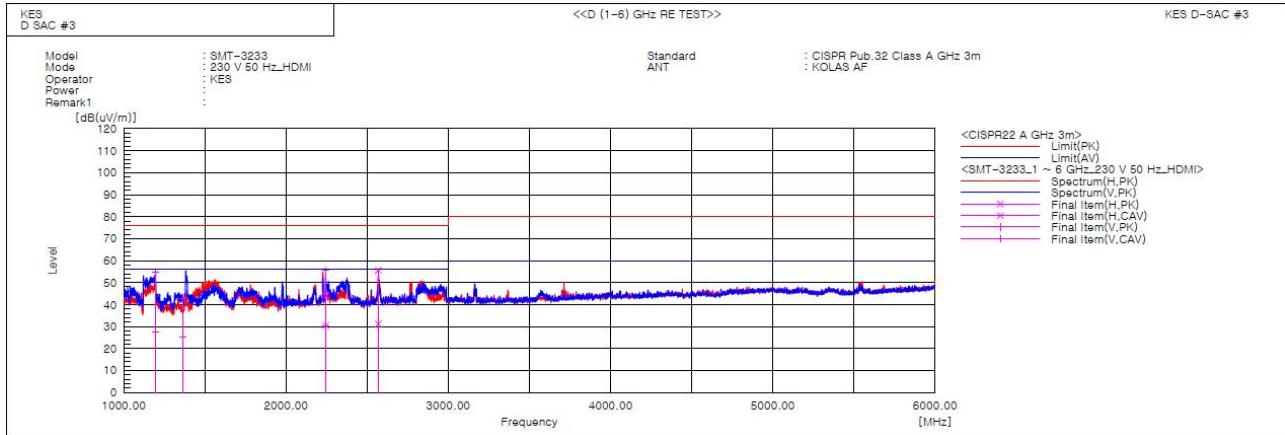
KES Co., Ltd.

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

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Radiated Electric Field Emissions(Above 1 GHz)

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	1195.460	V	63.1	35.9	-8.5	54.6	27.4	76.0	56.0	21.4	28.6	100.0	335.2	
2	1365.433	V	50.2	32.6	-7.5	42.7	25.1	76.0	56.0	33.3	30.9	100.0	5.6	
3	2245.347	H	45.3	31.8	-1.2	44.1	30.6	76.0	56.0	31.9	25.4	100.0	43.6	
4	2242.780	V	56.6	31.5	-1.2	55.4	30.3	76.0	56.0	20.6	25.7	100.0	321.7	
5	2567.670	H	55.6	31.2	0.0	55.6	31.2	76.0	56.0	20.4	24.8	100.0	352.0	

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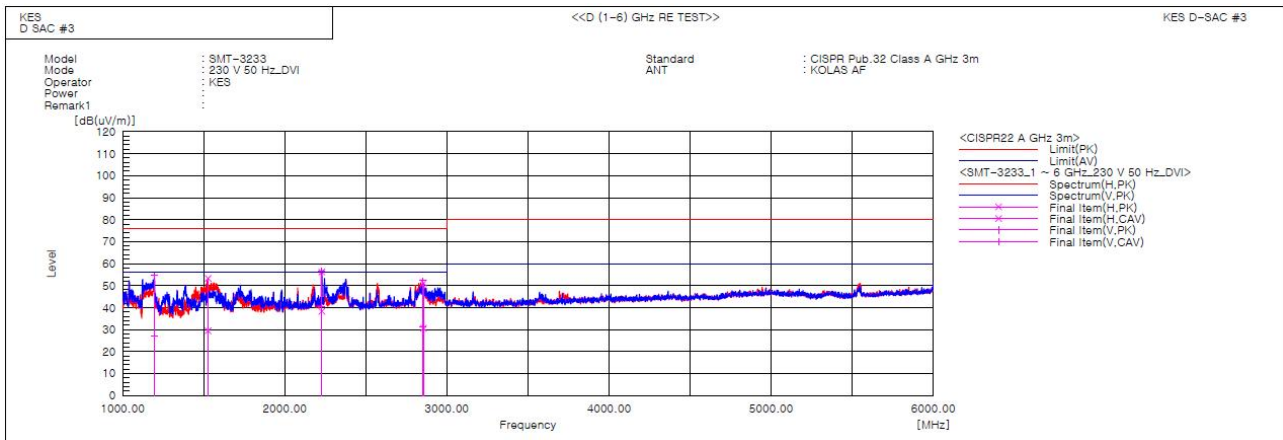


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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

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DVI 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	1195.350	V	63.1	35.7	-8.5	54.6	27.2	76.0	56.0	21.4	28.8	100.0	332.3	
2	1525.969	H	59.7	35.8	-6.4	53.3	29.4	76.0	56.0	22.7	26.6	100.0	300.6	
3	2227.280	H	57.4	39.5	-1.2	56.2	38.3	76.0	56.0	19.8	17.7	100.0	319.5	
4	2227.810	V	57.8	41.7	-1.2	56.6	40.5	76.0	56.0	19.4	15.5	100.0	329.6	
5	2847.902	V	51.2	30.3	1.0	52.2	31.3	76.0	56.0	23.8	24.7	100.0	308.8	
6	2855.517	H	50.0	29.5	1.1	51.1	30.6	76.0	56.0	24.9	25.4	100.0	307.3	

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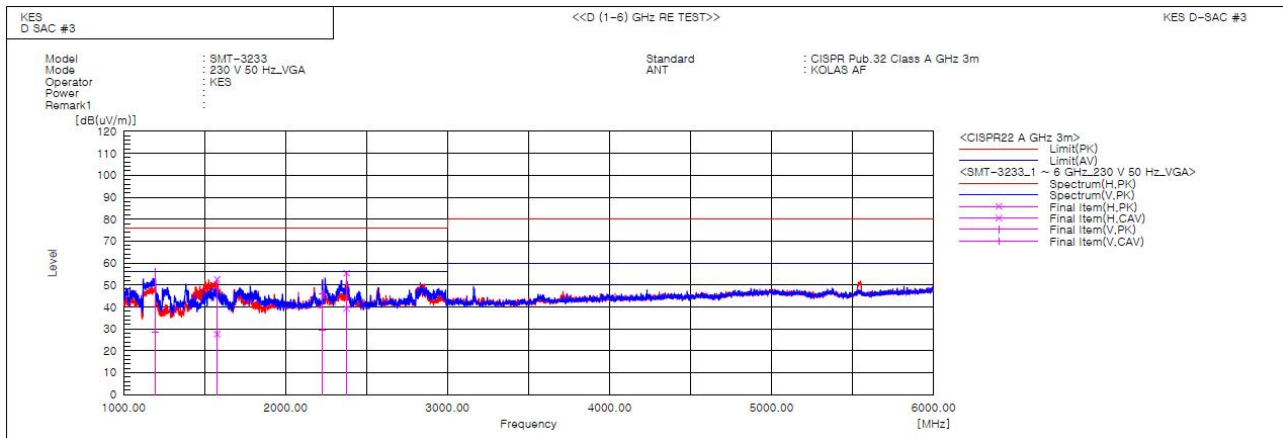


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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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VGA MODE



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	1194.577	V	64.4	37.1	-8.5	55.9	28.6	76.0	56.0	20.1	27.4	100.0	334.8	
2	1577.560	H	58.5	33.6	-6.0	52.5	27.6	76.0	56.0	23.5	28.4	100.0	302.3	
3	2227.023	V	47.4	30.8	-1.2	46.2	29.6	76.0	56.0	29.8	26.4	100.0	317.2	
4	2375.950	H	56.1	40.0	-0.7	55.4	39.3	76.0	56.0	20.6	16.7	100.0	51.8	

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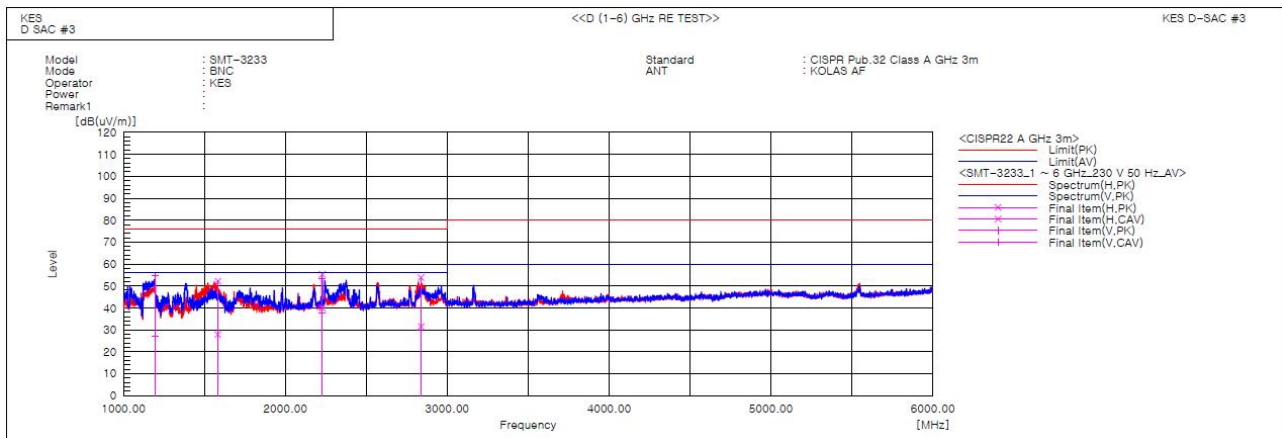


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3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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BNC MODE



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	1195.579	V	63.0	35.5	-8.5	54.5	27.0	76.0	56.0	21.5	29.0	100.0	332.5	
2	1582.786	H	58.1	33.8	-5.9	52.2	27.9	76.0	56.0	23.8	28.1	100.0	297.9	
3	2227.360	H	56.5	41.1	-1.2	55.3	39.9	76.0	56.0	20.7	16.1	100.0	40.0	
4	2227.550	V	54.7	38.9	-1.2	53.5	37.7	76.0	56.0	22.5	18.3	100.0	327.3	
5	2837.627	H	52.9	30.5	1.0	53.9	31.5	76.0	56.0	22.1	24.5	100.0	309.6	

◆ 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

■ HDMI MODE

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.009			
3	0.140	6.099	2.300	PASS
4	0.011			
5	0.136	11.946	1.140	PASS
6	0.012			
7	0.129	16.773	0.770	PASS
8	0.012			
9	0.119	29.643	0.400	PASS
10	0.013			
11	0.107	32.492	0.330	PASS
12	0.013			
13	0.095	45.161	0.210	PASS
14	0.013			
15	0.082	54.524	0.150	PASS
16	0.012			
17	0.069	52.171	0.132	PASS
18	0.011			
19	0.056	47.610	0.118	PASS
20	0.010			
21	0.044	27.653	0.161	PASS
22	0.009			
23	0.034	22.801	0.147	PASS
24	0.007			
25	0.025	18.205	0.135	PASS
26	0.006			
27	0.018	14.293	0.125	PASS
28	0.005			
29	0.013	11.338	0.117	PASS
30	0.005			
31	0.012	10.548	0.110	PASS
32	0.004			
33	0.011	10.966	0.102	PASS
34	0.004			
35	0.012	12.087	0.096	PASS
36	0.004			
37	0.011	12.193	0.092	PASS
38	0.004			
39	0.010	12.057	0.087	PASS
40	0.004			

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.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.009			
3	0.141	4.089	3.450	PASS
4	0.012			
5	0.136	7.980	1.710	PASS
6	0.012			
7	0.130	11.219	1.155	PASS
8	0.013			
9	0.119	19.807	0.600	PASS
10	0.013			
11	0.108	21.729	0.495	PASS
12	0.013			
13	0.095	30.174	0.315	PASS
14	0.013			
15	0.082	36.452	0.225	PASS
16	0.012			
17	0.069	34.897	0.198	PASS
18	0.011			
19	0.056	31.881	0.177	PASS
20	0.010			
21	0.045	27.805	0.161	PASS
22	0.009			
23	0.034	22.965	0.147	PASS
24	0.008			
25	0.025	18.375	0.135	PASS
26	0.006			
27	0.018	14.441	0.125	PASS
28	0.005			
29	0.013	11.469	0.117	PASS
30	0.005			
31	0.012	10.689	0.110	PASS
32	0.005			
33	0.011	11.114	0.102	PASS
34	0.004			
35	0.012	12.218	0.096	PASS
36	0.004			
37	0.011	12.319	0.092	PASS
38	0.004			
39	0.011	12.209	0.087	PASS
40	0.004			

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.



■ DVI MODE

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.147			
2	0.009			
3	0.140	6.078	2.300	PASS
4	0.011			
5	0.135	11.874	1.140	PASS
6	0.012			
7	0.128	16.615	0.770	PASS
8	0.012			
9	0.117	29.203	0.400	PASS
10	0.012			
11	0.105	31.800	0.330	PASS
12	0.012			
13	0.092	43.827	0.210	PASS
14	0.012			
15	0.079	52.334	0.150	PASS
16	0.011			
17	0.065	49.385	0.132	PASS
18	0.010			
19	0.052	44.291	0.118	PASS
20	0.009			
21	0.040	25.145	0.161	PASS
22	0.008			
23	0.030	20.148	0.147	PASS
24	0.007			
25	0.021	15.625	0.135	PASS
26	0.005			
27	0.015	12.131	0.125	PASS
28	0.005			
29	0.012	10.170	0.117	PASS
30	0.004			
31	0.011	10.361	0.110	PASS
32	0.004			
33	0.012	11.328	0.102	PASS
34	0.004			
35	0.012	12.445	0.096	PASS
36	0.004			
37	0.011	12.255	0.092	PASS
38	0.004			
39	0.010	11.707	0.087	PASS
40	0.004			

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.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.148			
2	0.009			
3	0.141	4.073	3.450	PASS
4	0.012			
5	0.136	7.933	1.710	PASS
6	0.012			
7	0.128	11.111	1.155	PASS
8	0.012			
9	0.117	19.503	0.600	PASS
10	0.013			
11	0.105	21.256	0.495	PASS
12	0.013			
13	0.092	29.308	0.315	PASS
14	0.012			
15	0.079	35.028	0.225	PASS
16	0.011			
17	0.066	33.098	0.198	PASS
18	0.011			
19	0.053	29.734	0.177	PASS
20	0.009			
21	0.041	25.415	0.161	PASS
22	0.008			
23	0.030	20.399	0.147	PASS
24	0.007			
25	0.021	15.846	0.135	PASS
26	0.006			
27	0.015	12.282	0.125	PASS
28	0.005			
29	0.012	10.321	0.117	PASS
30	0.004			
31	0.012	10.508	0.110	PASS
32	0.004			
33	0.012	11.467	0.102	PASS
34	0.004			
35	0.012	12.585	0.096	PASS
36	0.004			
37	0.011	12.433	0.092	PASS
38	0.004			
39	0.010	11.865	0.087	PASS
40	0.004			

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.



■ VGA MODE

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.146			
2	0.009			
3	0.138	6.017	2.300	PASS
4	0.012			
5	0.134	11.793	1.140	PASS
6	0.012			
7	0.128	16.576	0.770	PASS
8	0.013			
9	0.117	29.320	0.400	PASS
10	0.013			
11	0.106	32.187	0.330	PASS
12	0.013			
13	0.094	44.825	0.210	PASS
14	0.013			
15	0.081	54.239	0.150	PASS
16	0.012			
17	0.069	52.039	0.132	PASS
18	0.011			
19	0.056	47.661	0.118	PASS
20	0.010			
21	0.045	27.787	0.161	PASS
22	0.009			
23	0.034	23.021	0.147	PASS
24	0.007			
25	0.025	18.444	0.135	PASS
26	0.006			
27	0.018	14.475	0.125	PASS
28	0.005			
29	0.013	11.341	0.117	PASS
30	0.005			
31	0.011	10.348	0.110	PASS
32	0.004			
33	0.011	10.652	0.102	PASS
34	0.004			
35	0.011	11.769	0.096	PASS
36	0.004			
37	0.011	11.946	0.092	PASS
38	0.004			
39	0.010	11.912	0.087	PASS
40	0.004			

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.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.146			
2	0.009			
3	0.139	4.034	3.450	PASS
4	0.012			
5	0.135	7.877	1.710	PASS
6	0.012			
7	0.128	11.080	1.155	PASS
8	0.013			
9	0.118	19.589	0.600	PASS
10	0.013			
11	0.106	21.508	0.495	PASS
12	0.013			
13	0.094	29.964	0.315	PASS
14	0.013			
15	0.082	36.257	0.225	PASS
16	0.012			
17	0.069	34.791	0.198	PASS
18	0.011			
19	0.056	31.910	0.177	PASS
20	0.010			
21	0.045	27.913	0.161	PASS
22	0.009			
23	0.034	23.182	0.147	PASS
24	0.008			
25	0.025	18.587	0.135	PASS
26	0.006			
27	0.018	14.577	0.125	PASS
28	0.005			
29	0.013	11.480	0.117	PASS
30	0.005			
31	0.011	10.500	0.110	PASS
32	0.005			
33	0.011	10.826	0.102	PASS
34	0.004			
35	0.011	11.888	0.096	PASS
36	0.004			
37	0.011	12.055	0.092	PASS
38	0.004			
39	0.011	12.091	0.087	PASS
40	0.004			

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.



■ BNC MODE

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.145			
2	0.009			
3	0.137	5.965	2.300	PASS
4	0.012			
5	0.133	11.694	1.140	PASS
6	0.012			
7	0.127	16.441	0.770	PASS
8	0.013			
9	0.116	29.090	0.400	PASS
10	0.013			
11	0.105	31.945	0.330	PASS
12	0.013			
13	0.093	44.512	0.210	PASS
14	0.013			
15	0.081	53.903	0.150	PASS
16	0.012			
17	0.068	51.752	0.132	PASS
18	0.011			
19	0.056	47.448	0.118	PASS
20	0.010			
21	0.044	27.695	0.161	PASS
22	0.009			
23	0.034	22.978	0.147	PASS
24	0.008			
25	0.025	18.425	0.135	PASS
26	0.006			
27	0.018	14.457	0.125	PASS
28	0.005			
29	0.013	11.262	0.117	PASS
30	0.005			
31	0.011	10.215	0.110	PASS
32	0.004			
33	0.011	10.475	0.102	PASS
34	0.004			
35	0.011	11.593	0.096	PASS
36	0.004			
37	0.011	11.806	0.092	PASS
38	0.004			
39	0.010	11.812	0.087	PASS
40	0.004			

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.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	0.145			
2	0.009			
3	0.138	3.995	3.450	PASS
4	0.012			
5	0.134	7.811	1.710	PASS
6	0.012			
7	0.127	11.004	1.155	PASS
8	0.013			
9	0.117	19.434	0.600	PASS
10	0.013			
11	0.106	21.347	0.495	PASS
12	0.013			
13	0.094	29.750	0.315	PASS
14	0.013			
15	0.081	36.022	0.225	PASS
16	0.012			
17	0.068	34.596	0.198	PASS
18	0.011			
19	0.056	31.735	0.177	PASS
20	0.010			
21	0.045	27.817	0.161	PASS
22	0.009			
23	0.034	23.096	0.147	PASS
24	0.008			
25	0.025	18.547	0.135	PASS
26	0.007			
27	0.018	14.586	0.125	PASS
28	0.005			
29	0.013	11.370	0.117	PASS
30	0.005			
31	0.011	10.310	0.110	PASS
32	0.005			
33	0.011	10.625	0.102	PASS
34	0.004			
35	0.011	11.745	0.096	PASS
36	0.004			
37	0.011	11.951	0.092	PASS
38	0.004			
39	0.010	12.012	0.087	PASS
40	0.004			

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.



Test Data - Voltage Fluctuations

■ 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

■ BNC 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 Voltage Emissions



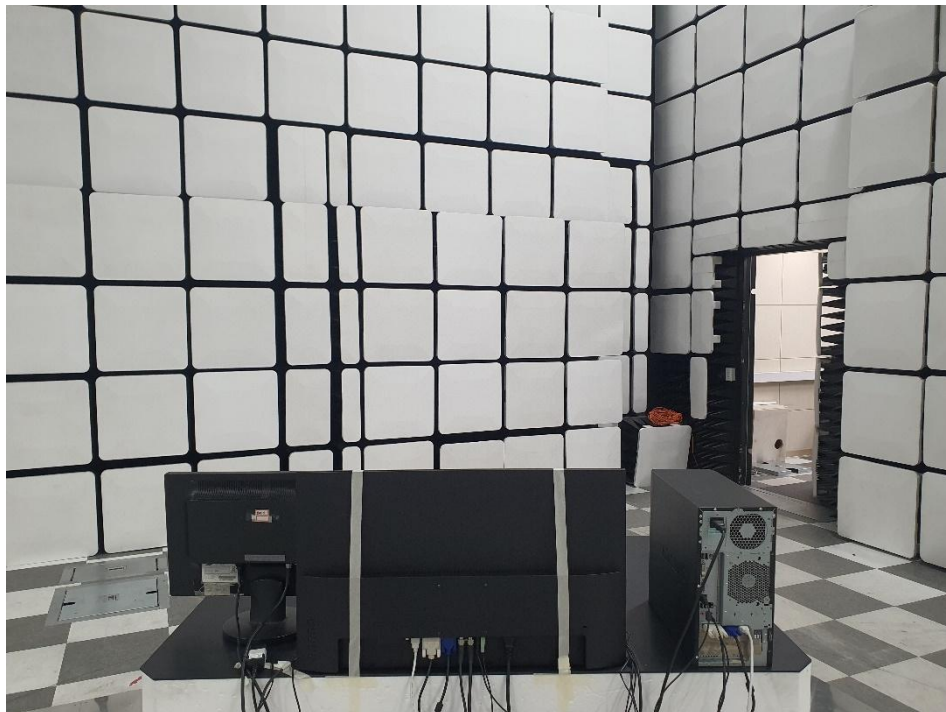
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Conducted Telecommunication Emissions

N/A

Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)

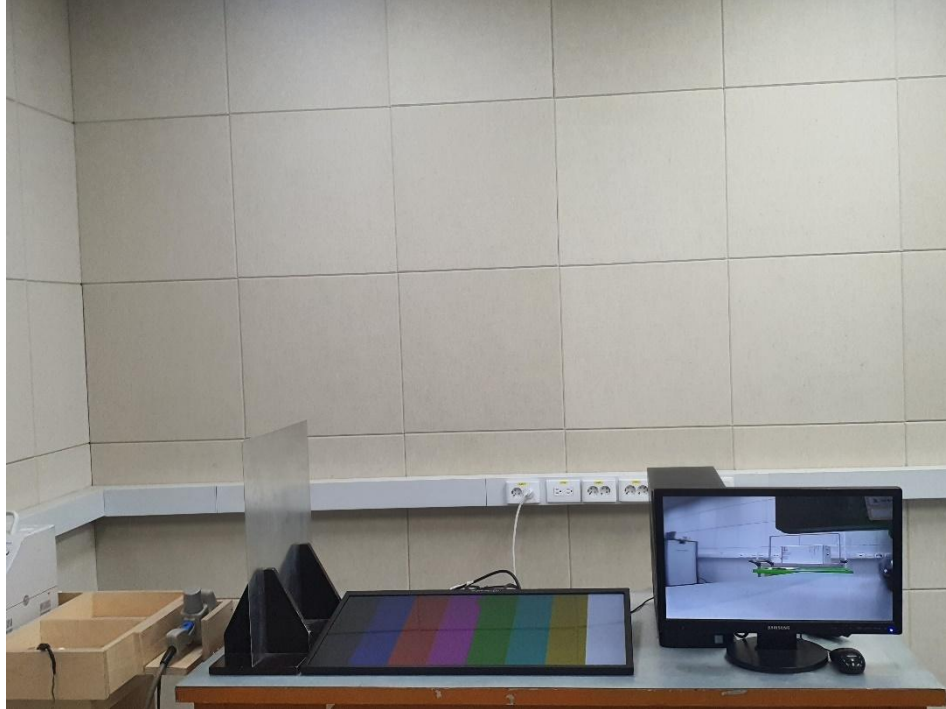


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Harmonic Current Emissions and Voltage Fluctuations and Flicker



Electrostatic Discharge

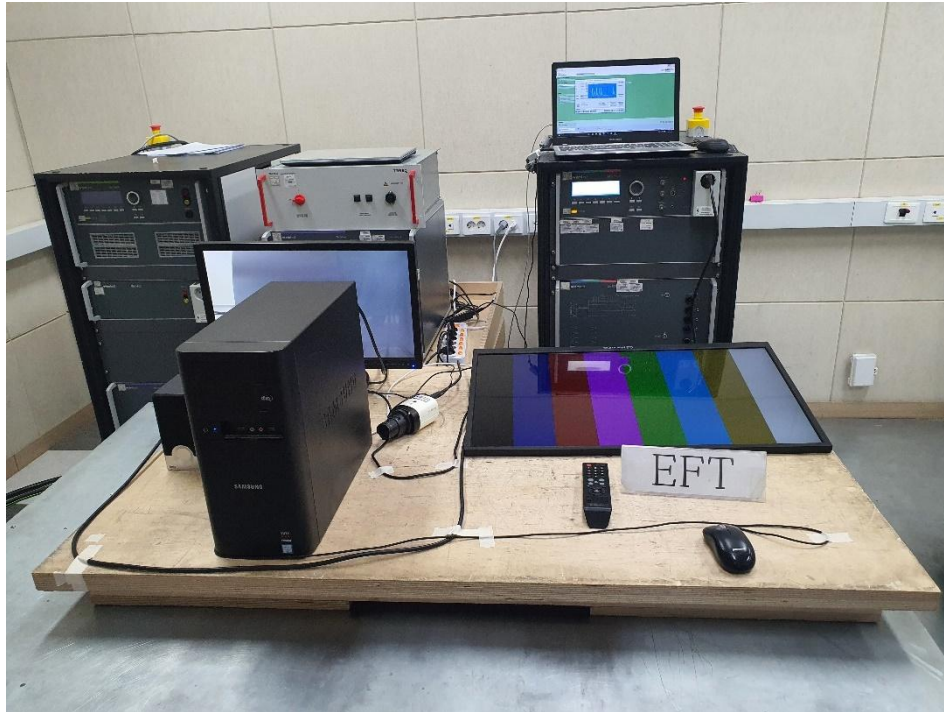


Radiated Electric Field Immunity

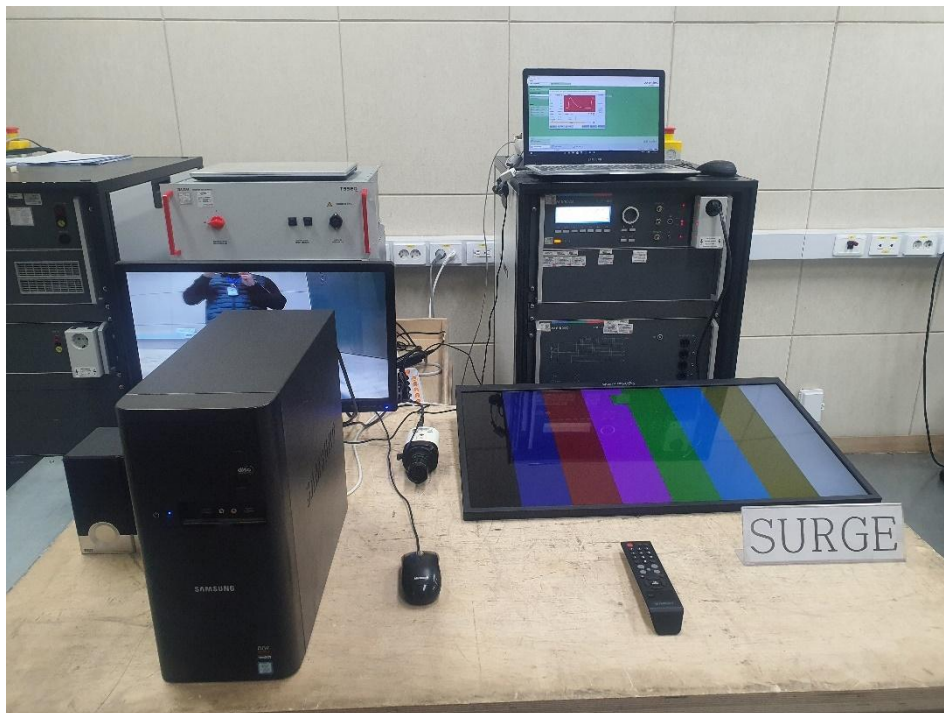


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Electrical Fast Transients/Bursts



Surge Transients

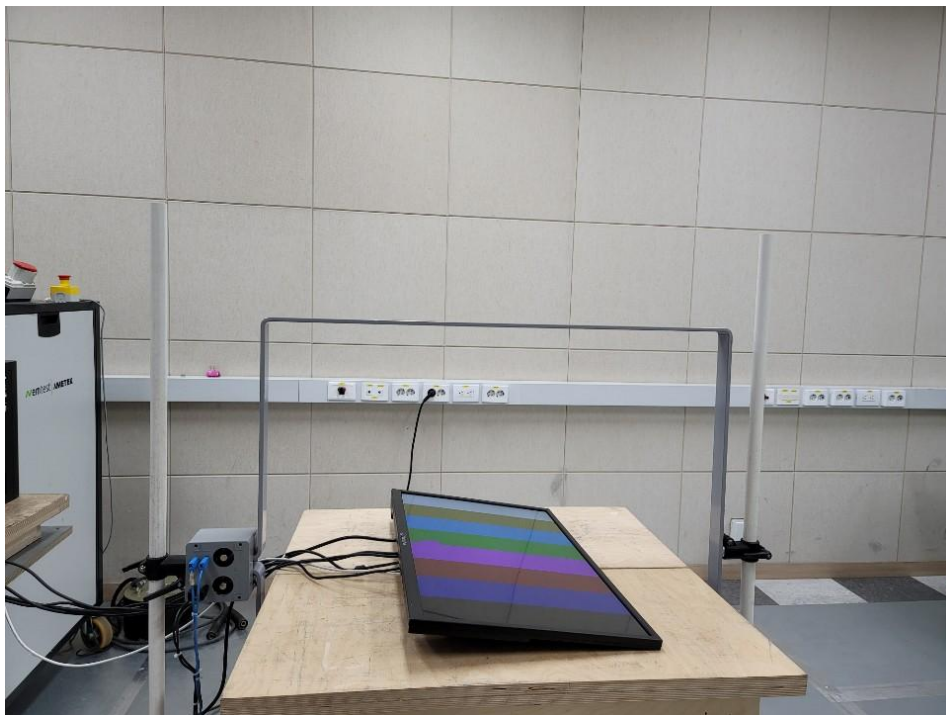


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Conducted Disturbance

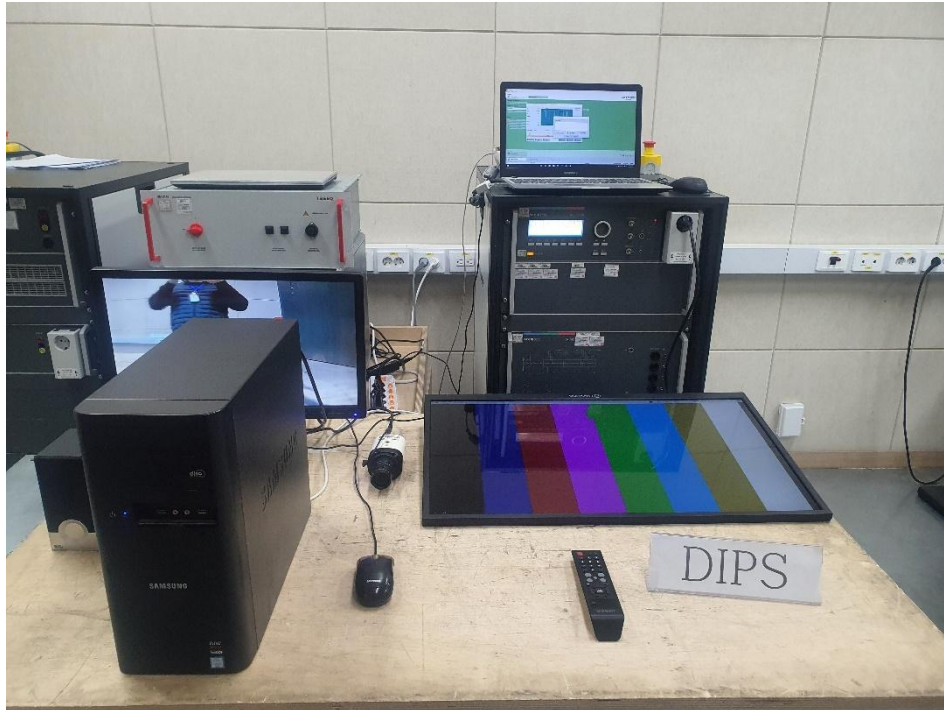


Power Frequency Magnetic Field Immunity



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Voltage Dips and Short Interruptions



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APPENDIX C – EUT Photographs

EUT External Photographs

(Top)



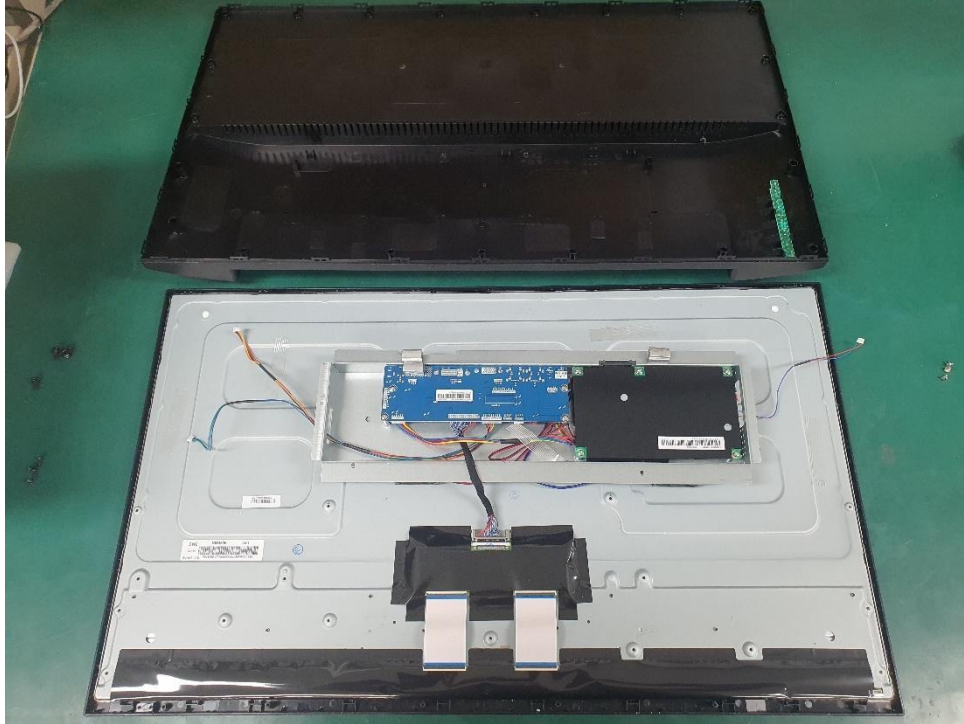
(Bottom)



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EUT Internal Photographs

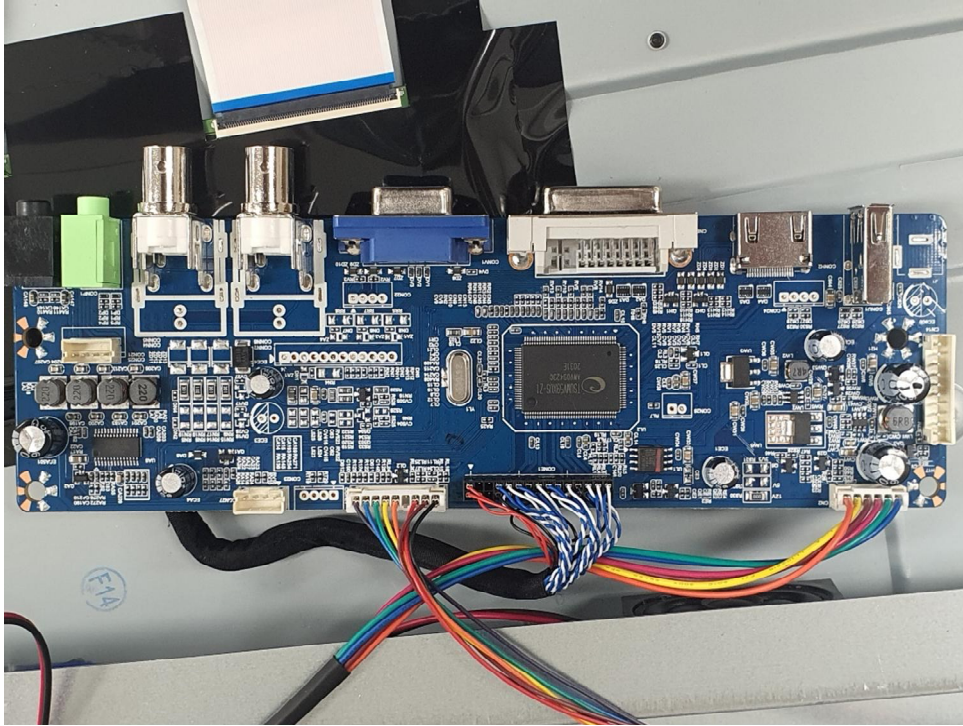
(Internal View)



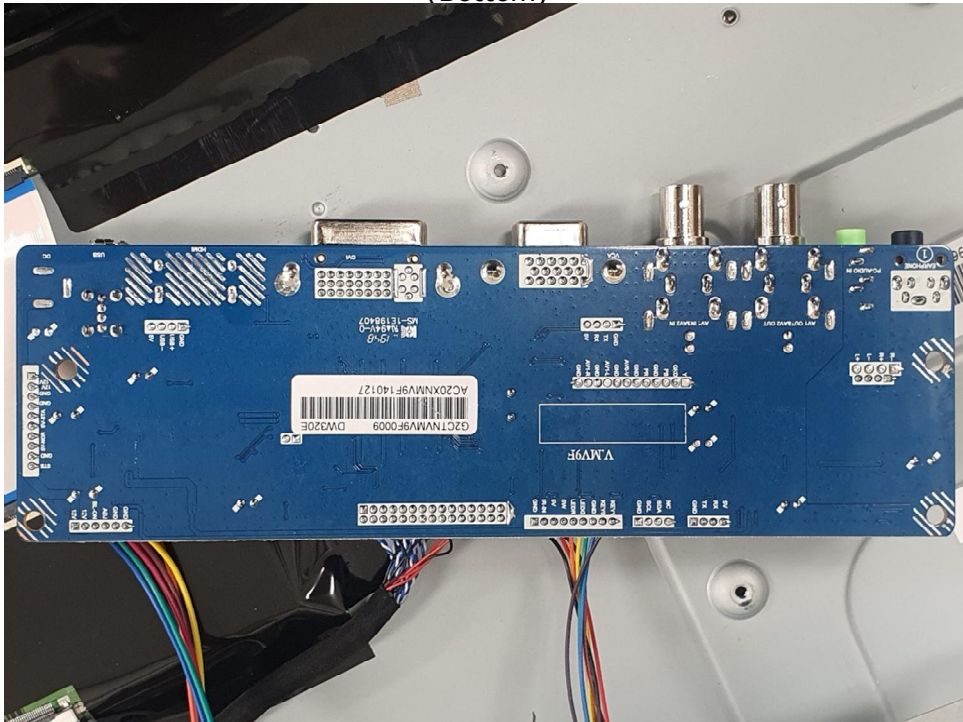
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EUT Internal View – Board 1

(Top)



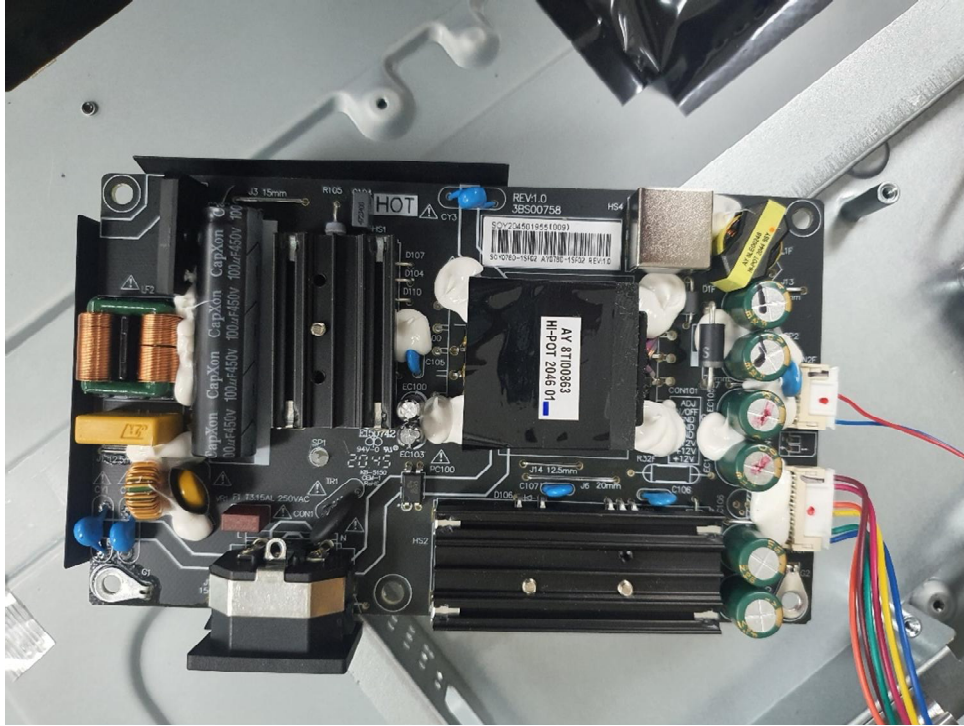
(Bottom)



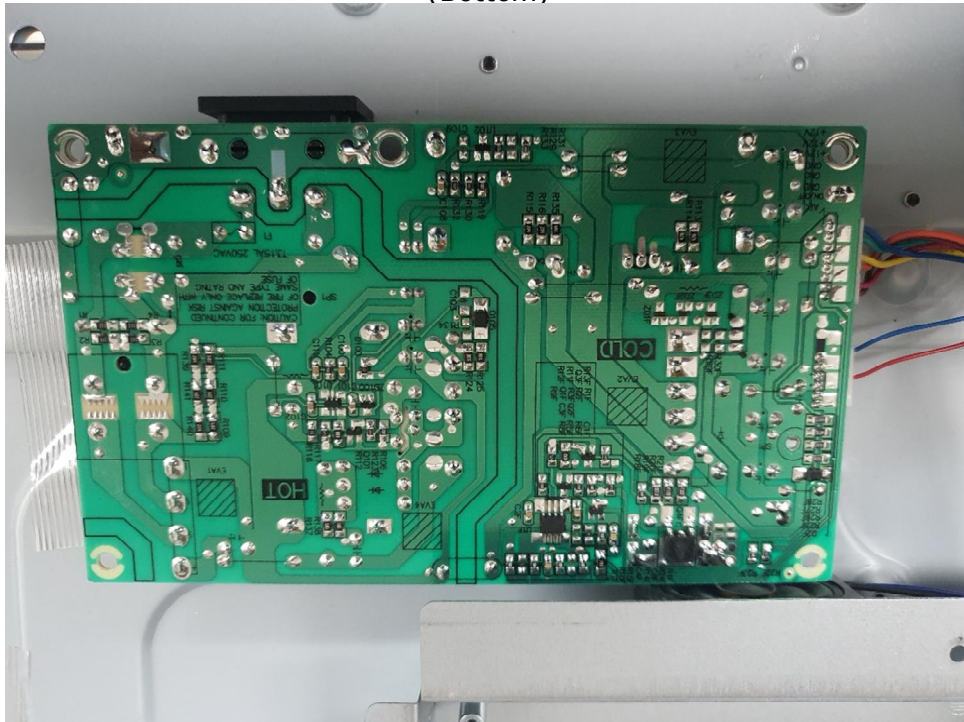
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EUT Internal View – Board 2

(Top)



(Bottom)



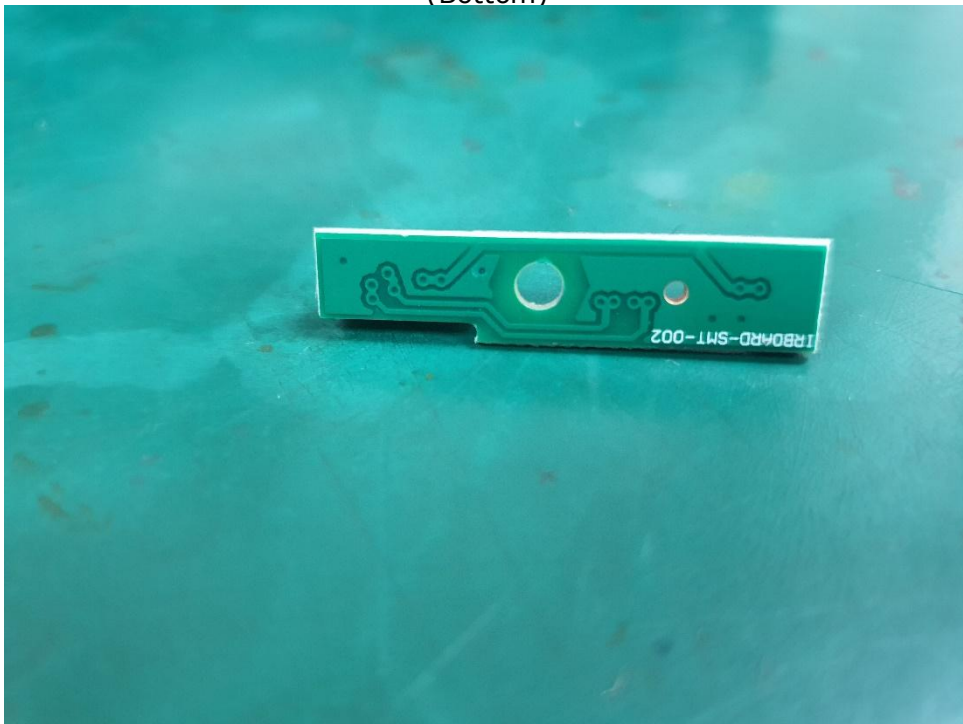
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EUT Internal View – Board 3

(Top)



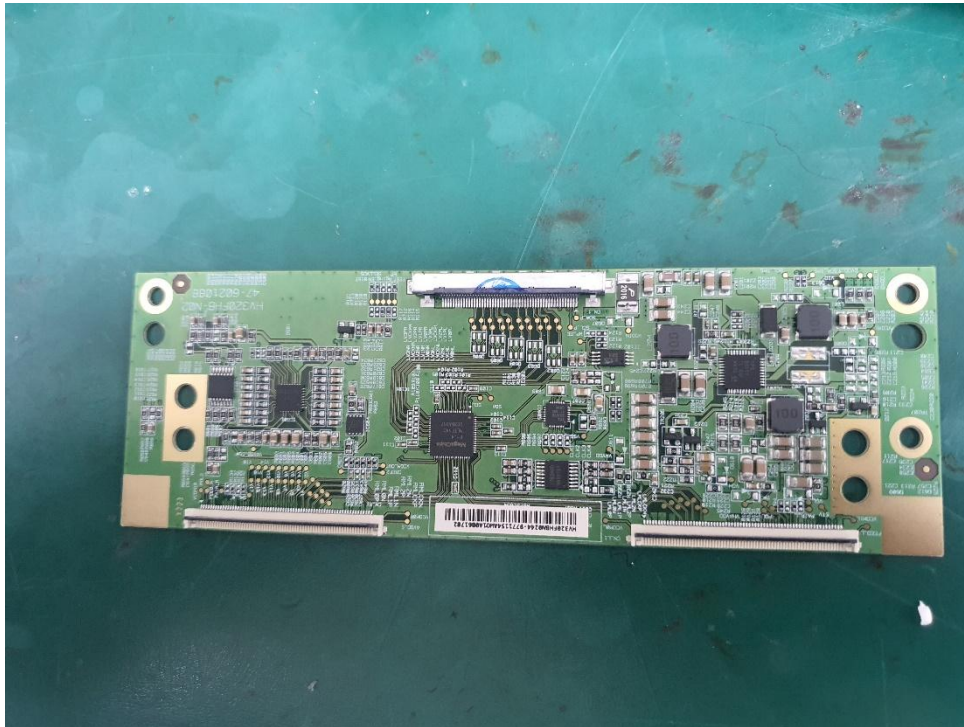
(Bottom)



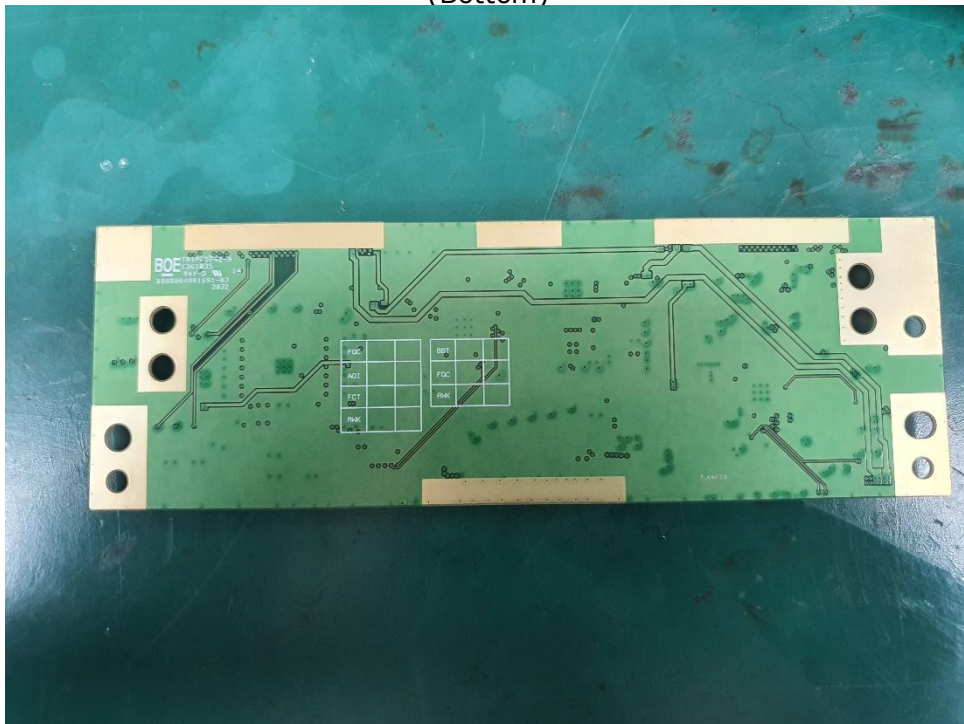
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EUT Internal View – Board 4

(Top)



(Bottom)



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EUT Internal View – Board 5

(Top) - 1



(Top) - 2



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EUT Internal View – Board 5

(Bottom) - 1



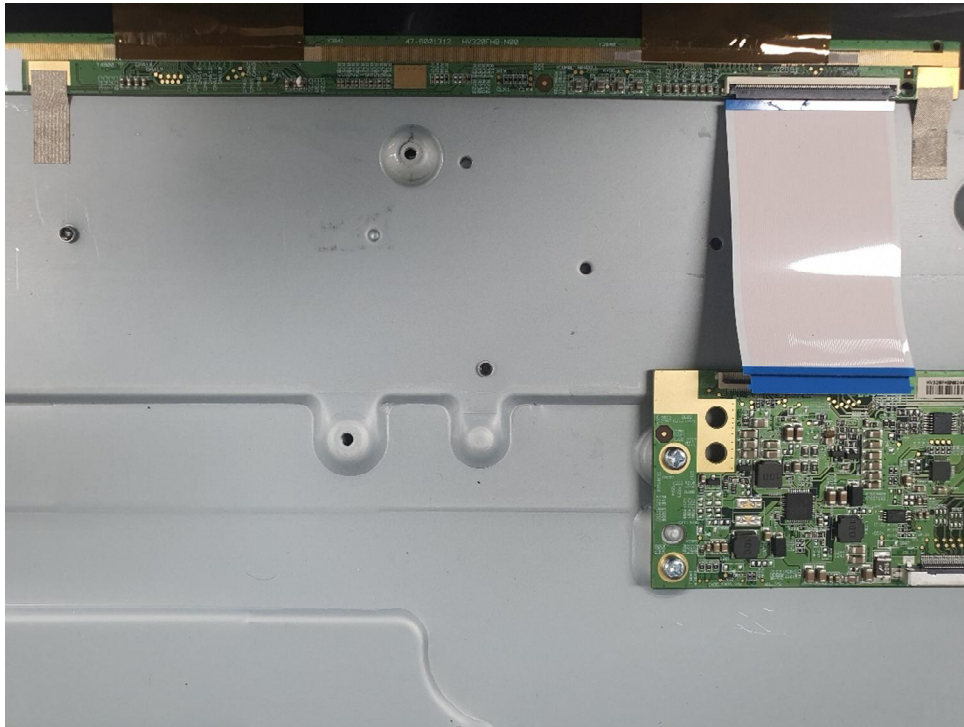
(Bottom) - 2



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EUT Internal View – Board 6

(Top) - 1



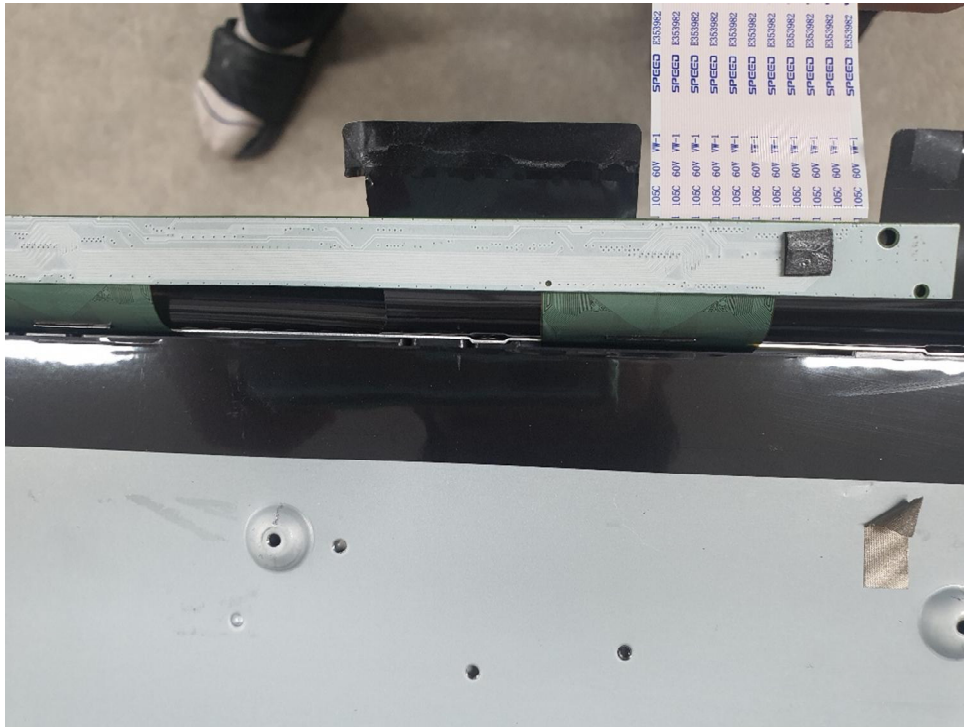
(Top) - 2



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EUT Internal View – Board 6

(Bottom) - 1



(Bottom) - 2



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EUT Internal View – Board 7

(Top)



(Bottom)



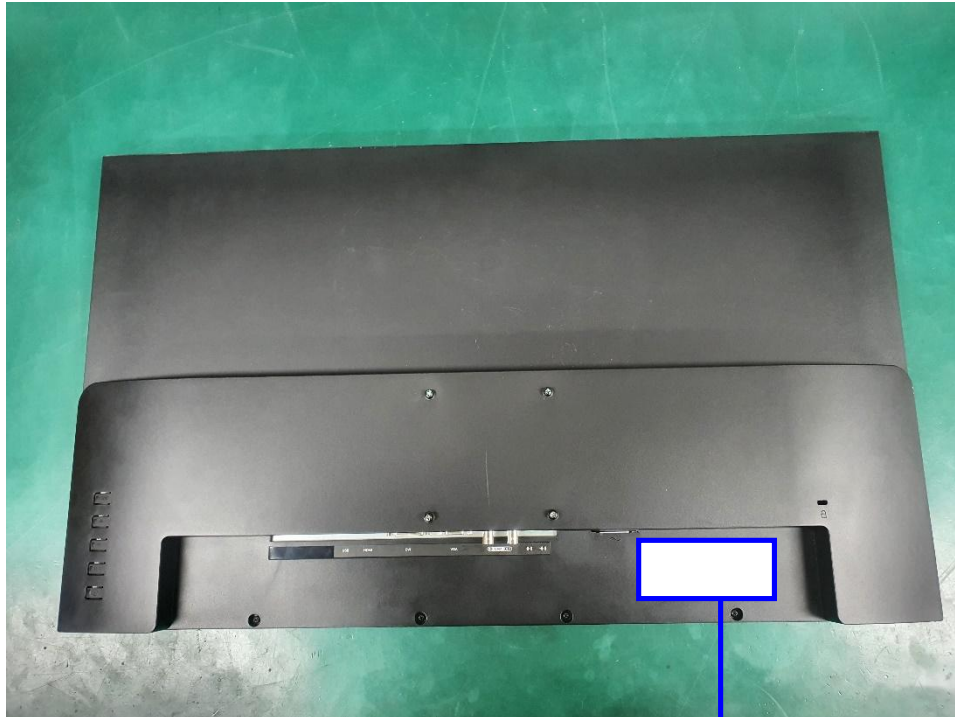
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EUT Internal View – DISPLAY



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Label and Location



MONITOR

Model No : SMT-3233

Manufacturer : Weihai Daewoo Electronics Co.,Ltd.

Made in China

