



EMC TEST REPORT For CE

Test Report No. : KES-EM-22T0188-R1
Date of Issue : Feb. 24, 2023
Product name : LED MONITOR
Model/Type No. : SMT-4343
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 : Jan. 25, 2022
Test date : Jan. 26, 2022 ~ Jan. 28, 2022
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

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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.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 11, 2022	KES-EM-22T0188	Issued
Feb. 24, 2023	KES-EM-22T0188-R1	Change the Applicant at the request of the customer.

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1.0 General Product Description

Main Specifications of EUT are:

SMT-4343		
Display		
Screen Size		42.5"
Max. Resolution		3840*2160
Brightness		300 cd/m ²
Contrast Ratio		800:1 (Min) 1000:1 (Typ)
Aspect Ratio		16:9
Viewing Angle (H/V)		178°/178°
Display Color		1.07G (8bits + FRC)
Response Time		8ms(G to G)
Panel Life		30,000 hours
Interface		
USB	Connector	USB2.0 hub x 1 (1 PC up , 2 down)
Video	Connector	HDMI 2.0(1) DP 1.2(1)
	Connector	HDMI
HDMI	Available Format	640 x 480@60Hz/70Hz/72Hz/75Hz (VGA), 720 x 400@50Hz/60Hz/70Hz, 720 x 576@50Hz, 800 x 600@56Hz/60Hz/72Hz/75Hz (SVGA), 832 x 624@75Hz, 1,024 x 768@60Hz/70Hz/75Hz (XGA), 1,152 x 864@60Hz/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/75Hz, 1,600 x 900@60Hz, 1,680 x 1,050@60Hz, 1,920 x 1,080i@60Hz, 1,920 x 1,080p@60Hz, 1920 x 1440@60Hz, 2560 x 1440@60Hz 3840 x 2160p@30Hz/60Hz
DP	Connector	DP
	Available Format	640 x 480@60Hz/70Hz/72Hz/75Hz (VGA), 720 x 400@50Hz/60Hz/70Hz, 720 x 576@50Hz, 800 x 600@56Hz/60Hz/72Hz/75Hz (SVGA), 832 x 624@75Hz, 1,024 x 768@60Hz/70Hz/75Hz (XGA), 1,152 x 864@60Hz/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/75Hz, 1,600 x 900@60Hz, 1,680 x 1,050@60Hz, 1,920 x 1,080i@60Hz, 1,920 x 1,080p@60Hz, 1920 x 1440@60Hz, 2560 x 1440@60Hz 3840 x 2160p@30Hz/60Hz
Audio	Connector	Audio Out
	Output Signal	Loop-through line level(PC only), Speakers : 2x10W
Application Support		Remote Controller
On Screen Display (OSD)		
Functions		VESA™ DPM Compatible
Language		Korean, English, Русский, Deutsch, Français, Español, Italiano, Português, Chinese (Simplified), Chinese (Traditional), Japanese, Arabic
General		
Electrical	Input Voltage	AC 100 ~ 240V(50/60Hz)
	Power Consumption	<80W
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)
	Operating Humidity	10% ~ 80% (non-condensing)
Mechanical	Dimensions with Stand	967.0*640.5*235.0mm
	Dimensions without Stand	967.0*560*77.0mm
	Bezel Size	8.6/16.4mm(Top/Bottom/Side)
	Weight	TBD
	Cabinet Color	Black
	Rack Mount	N/A
	VESA Mounts Interface	100*100mm /400*200mm
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.

☒ 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-4343	-	Weiha Daewoo Electronics Co., Ltd.	EUT
Remote Control	-	-	-	-

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	P95G001	9JM8HT2	DELL INC.	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZHOU)CO.,LTD.	-
Headset	K550	-	Britz®	-

1.6 External I/O Cabling

■ HDMI / DP Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
LED MONITOR (EUT)	HDMI	Notebook	HDMI	1.6	S
	DP	Notebook	USB C Type	1.7	S
	3.5 mm	Headset	3.5 mm	1.8	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.5	U

* Unshielded = U, Shielded = S

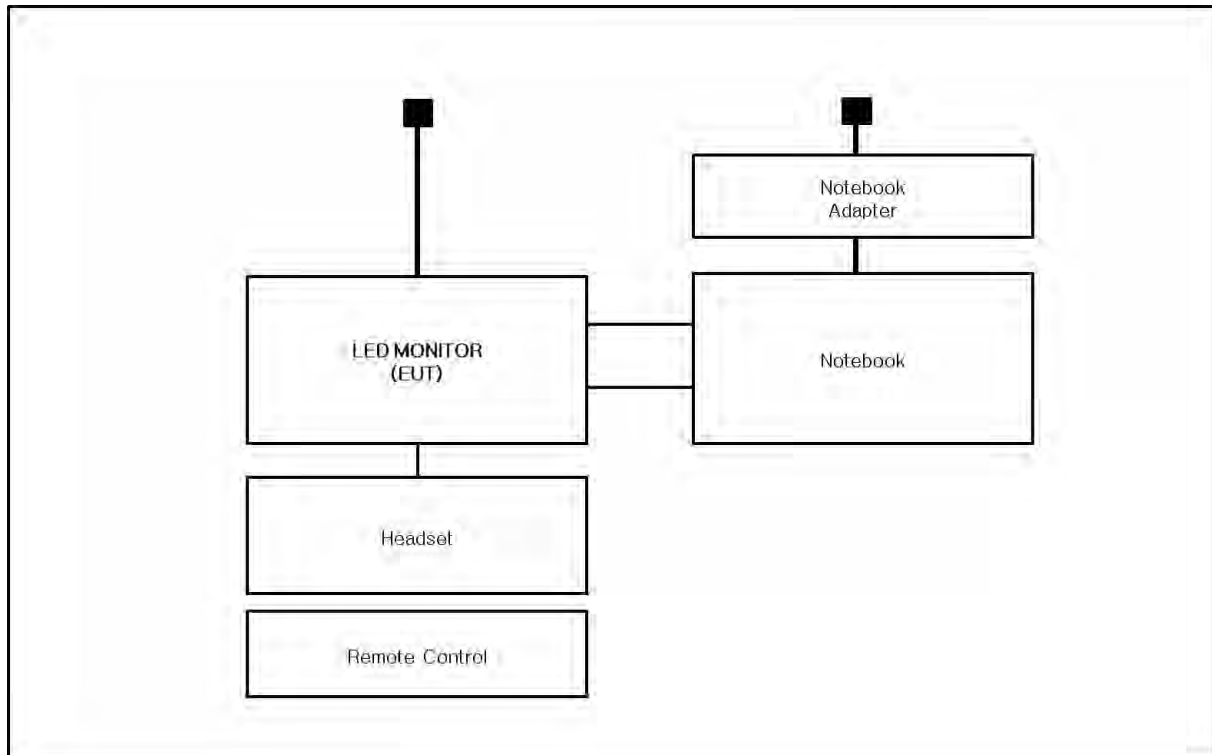
1.7 EUT Operating Mode(s)

Test mode	operating
HDMI / DP	Play the color bar video during the test.

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

1.8 Configuration

- AC Main
□ DC Main
- HDMI / DP Mode



1.9 Remarks when standards applied

N/A

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 55032:2015/A11:2020

☒ Class A

☐ Class B

☒ EN 55035:2017/A11:2020

☒ EN 61000-3-2:2014

☒ EN 61000-3-3:2013

☒ 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

2.1 Conducted Emissions at Mains Power Ports

Test Date
Jan. 26, 2022

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	12, 28, 2022
☒	LISN	ENV216	R & S	101787	12, 27, 2022
☒	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022

Test Conditions

Temperature: (23,1 ± 0,0) °C
Relative Humidity: (42,0 ± 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

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	12, 28, 2022
☐	LISN	ENV216	R & S	101787	12, 27, 2022
☐	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 28, 2022
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 28, 2022
☐	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2022
☐	CDN	CDNS502A	TESEQ	40431	12, 27, 2022

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

Jan. 26, 2022

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, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: (23,2 ± 0,1) °C

Relative Humidity: (43,1 ± 0,1) % 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. 26, 2022

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: (23,1 ± 0,2) °C
Relative Humidity: (42,9 ± 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
Jan. 26, 2022

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: (23,4 ± 0,1) °C
Relative Humidity: (42,6 ± 0,1) % 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. 26, 2022

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: (23,4 ± 0,3) °C
Relative Humidity: (42,6 ± 0,5) % 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
BS EN 61000-4-2:2009

Test Date
Jan. 27, 2022

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: (23,3 ± 0,0) °C
Relative Humidity: (43,3 ± 0,0) % R.H.
Atmospheric Pressure: (100,9 ± 0,0) 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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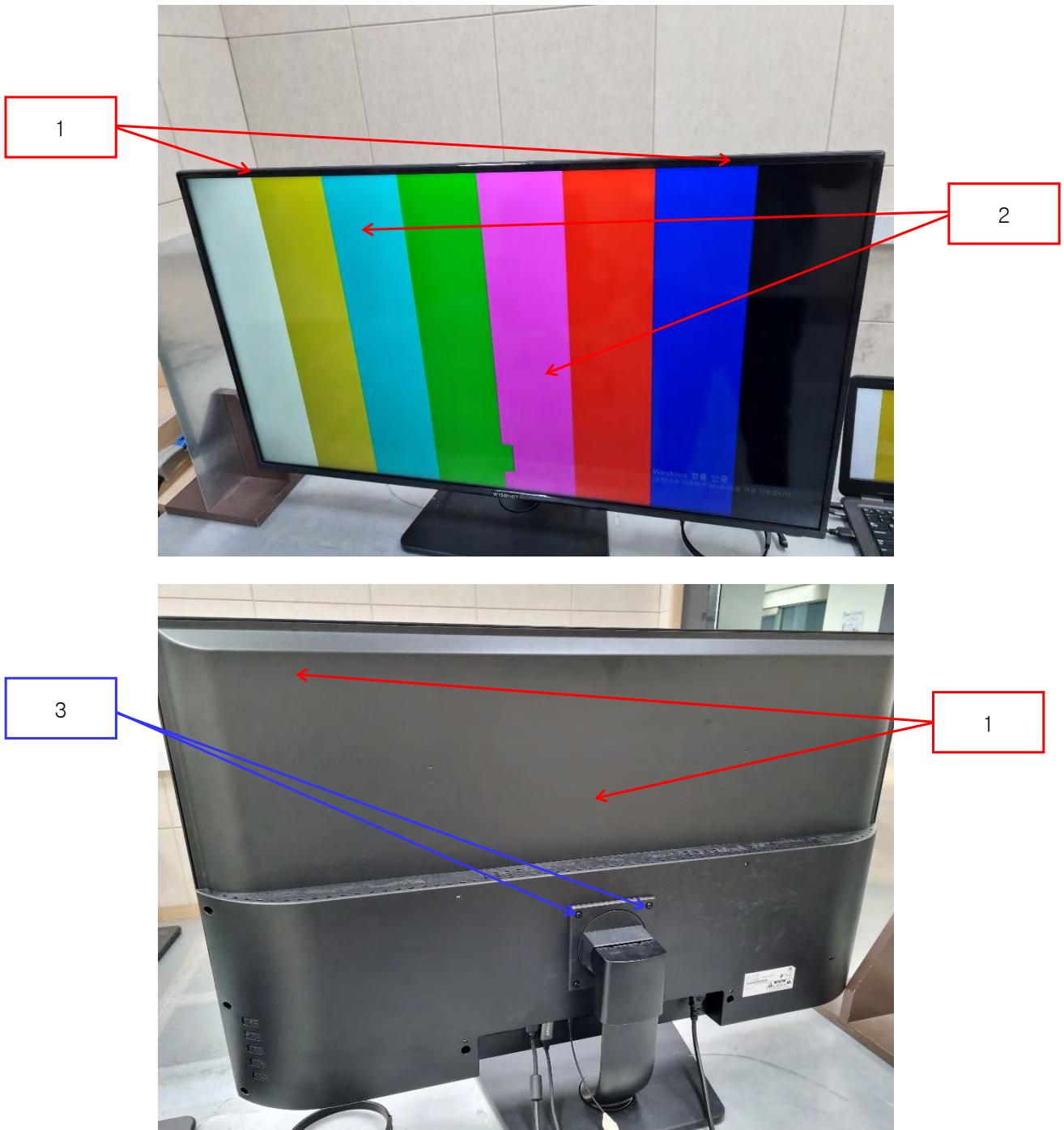
Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

Required Performance Criteria: ☒ B

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Location of Discharge:

Air
Contact



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5



Test Data

■ HDMI Mode

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	Enclosure	Air Discharge	B	A	-
2	Display	Air Discharge	B	A	-
3	Screw	Contact Discharge	B	A	-
4	Around Port	Contact Discharge	B	B	-
5	Remote Control	Air Discharge	B	A	-

■ DP Mode

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	Enclosure	Air Discharge	B	A	-
2	Display	Air Discharge	B	A	-
3	Screw	Contact Discharge	B	A	-
4	Around Port	Contact Discharge	B	B	-
5	Remote Control	Air 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

The display turns off during the test and operates without tester intervention after the test.

3.2 Radiated Electric Field Immunity

Reference Standard

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

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

Test Date

Jan. 28, 2022

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, 02, 2022
☒	MICROPHONE	MP201	BSWA	551675	11, 04, 2022

Test Conditions

Temperature: (23,1 ± 0,1) °C

Relative Humidity: (43,0 ± 0,4) % R.H.

Atmospheric Pressure: (100,9 ± 0,0) 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
Headset	On-ear	75.19	Low	A	A	A
Speaker	Off-ear	85.23	Low	A	A	A

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

■ DP 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

Any degradations of performance was not observed during in the test.

3.3 Electrical Fast Transients / Bursts

Reference Standard
EN 61000-4-4:2012
BS EN 61000-4-4:2012

Test Date
Jan. 27, 2022

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	12, 03, 2022
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	04, 01, 2022
☐	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	12, 03, 2022

Test Conditions

Temperature: (23,3 ± 0,1) °C
Relative Humidity: (43,3 ± 0,2) % R.H.
Atmospheric Pressure: (100,9 ± 0,0) kPa

Test Specifications

Pulse Amplitude & Polarity:
(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 kHz ☐ 100 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ B

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)
-	B	-	-
-	B	-	-
-	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

■ DP 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	-	-
-	B	-	-
-	B	-	-

☐ Signal ports and telecommunication ports – Coupling Clamp used

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

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

Any degradations of performance was not observed during in the test.

3.4 Surge

Reference Standard

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

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

Test Date

Jan. 27, 2022

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	12, 03, 2022
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	04, 01, 2022

Test Conditions

Temperature: (23,3 ± 0,1) °C

Relative Humidity: (43,3 ± 0,3) % R.H.

Atmospheric Pressure: (100,9 ± 0,0) kPa

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Report No.:

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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) kVDifferential 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

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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	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	-	-

■ DP 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	-	-

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

Any degradations of performance was not observed during in the test.

3.5 Conducted Disturbance

Reference Standard
EN 61000-4-6:2014
BS EN 61000-4-6:2014

Test Date
Jan. 26, 2022

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, 24, 2022
☒	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11, 24, 2022
☒	CDN	CDN M016	TESEQ	43694	11, 24, 2022
☒	CDN	CDN M016	TESEQ	43697	11, 24, 2022
☐	CDN	CDN T800	TESEQ	42800	11, 24, 2022
☐	EM CLAMP	KEMZ 801A	TESEQ	44099	11, 25, 2022

Test Conditions

Temperature: (23,1 ± 0,1) °C
Relative Humidity: (42,0 ± 0,4) % R.H.
Atmospheric Pressure: (100,8 ± 0,0) 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

☒ 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
-	CDN	A	-

☐ Signal ports and telecommunication ports

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

[Audio output function]

☐ Electrical Measurements / ☒ Acoustic Measurements

Measured parts	Test method	Level (dB)		Performance criteria	Observations	
		Criteria	Measured		Horizontal	Vertical
Headset	On-ear	75.17	Low	A	A	A
Speaker	Off-ear	85.43	Low	A	A	A

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

☒ DP 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
-	CDN	A	-

☐ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Performance Criteria	Results
-	CDN	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.

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

Any degradations of performance was not observed during the test.

3.6 Power Frequency Magnetic Field Immunity

Reference Standard
EN 61000-4-8:2010
BS EN 61000-4-8:2010

Test Date
Jan. 27, 2022

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	12, 03, 2022
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	04, 01, 2022
☒	MAGNETIC FIELD COIL	MS 100N	EM TEST	P1536163691	12, 07, 2022
☒	CURRENT TRANSFORMER	MC 2630	EM TEST	P1629182219	12, 07, 2022

Test Conditions

Temperature: (23,3 ± 0,0) °C
Relative Humidity: (43,3 ± 0,0) % R.H.
Atmospheric Pressure: (100,9 ± 0,0) kPa

Test Specifications

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

Frequency: ☒ 50 Hz ☐ 60 Hz

Required Performance Criteria: ☒ A

Test Data☒ HDMI Mode☒ Immersion method

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

☒ DP 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**Remarks**Any degradations of performance was not observed during in the test.

3.7 Voltage Dips and Short Interruptions

Reference Standard

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

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

Test Date

Jan. 27, 2022

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	04, 01, 2022
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	04, 01, 2022

Test Conditions

Temperature: (23,3 ± 0,0) °C

Relative Humidity: (43,3 ± 0,0) % R.H.

Atmospheric Pressure: (100,9 ± 0,0) kPa

Test Data**■ 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	-

■ DP 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

The EUT is turned off during the test and operates without tester intervention after the test.

APPENDIX A – TEST DATA

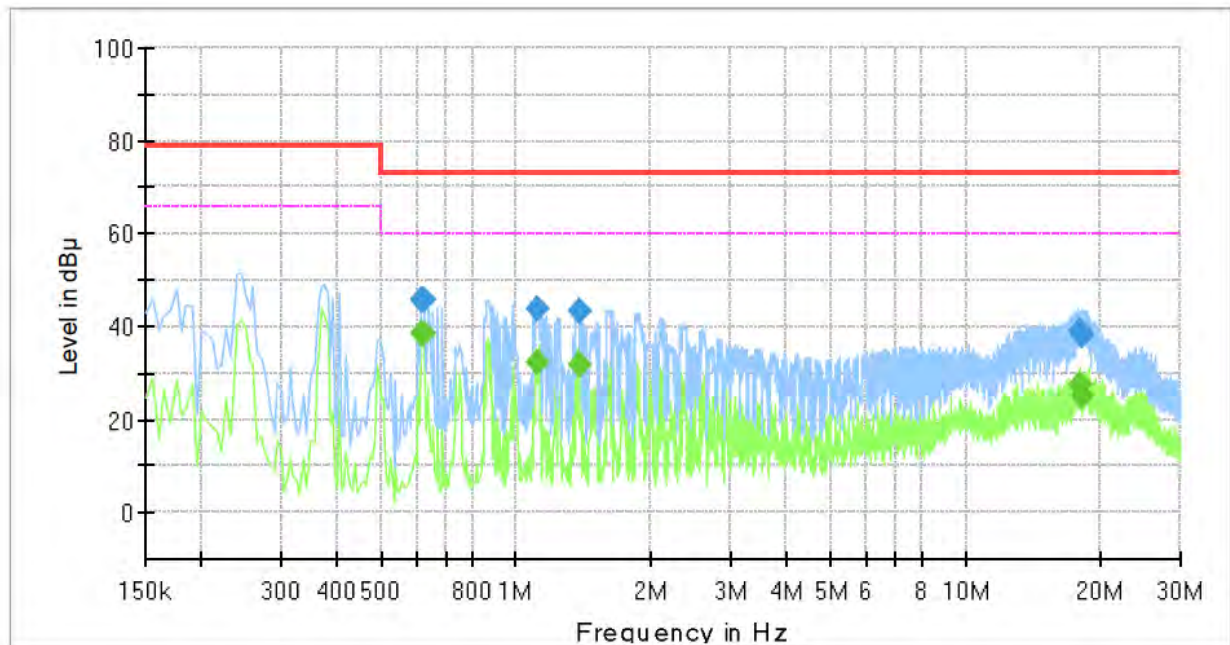
Conducted Emissions at Mains Power Ports

■ HDMI Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-4343
Phase:	HDMI
Mode:	H
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.615000	---	38.60	60.00	21.40	1000.0	9.000	L1	19.9
0.615000	45.54	---	73.00	27.46	1000.0	9.000	L1	19.9
0.620000	---	38.61	60.00	21.39	1000.0	9.000	L1	19.9
0.620000	45.61	---	73.00	27.39	1000.0	9.000	L1	19.9
1.115000	---	32.38	60.00	27.62	1000.0	9.000	L1	20.1
1.115000	43.86	---	73.00	29.14	1000.0	9.000	L1	20.1
1.380000	---	31.67	60.00	28.33	1000.0	9.000	L1	20.2
1.380000	43.42	---	73.00	29.58	1000.0	9.000	L1	20.2
18.065000	---	27.27	60.00	32.73	1000.0	9.000	L1	20.0
18.065000	38.95	---	73.00	34.05	1000.0	9.000	L1	20.0
18.200000	---	25.24	60.00	34.76	1000.0	9.000	L1	20.1
18.200000	38.00	---	73.00	35.00	1000.0	9.000	L1	20.1

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[NEUTRAL]

Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

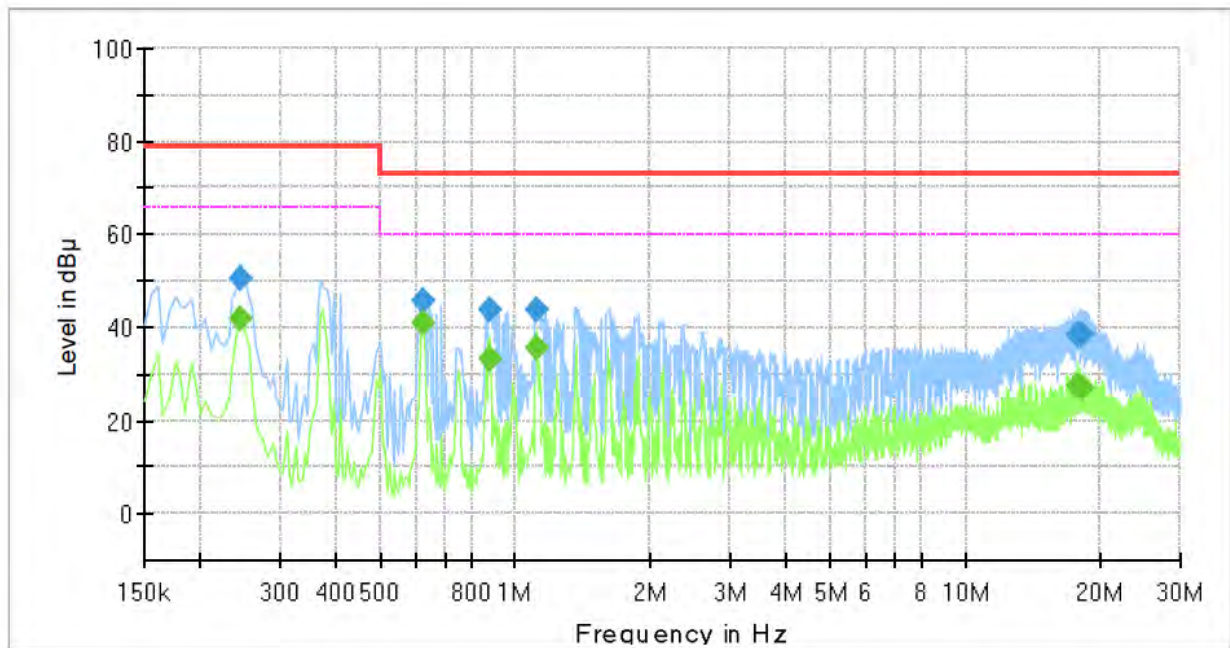
Conducted Emission

SMT-4343

N

HDMI

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.245000	---	41.78	66.00	24.22	1000.0	9.000	N	19.5
0.245000	50.70	---	79.00	28.30	1000.0	9.000	N	19.5
0.625000	---	40.77	60.00	19.23	1000.0	9.000	N	19.9
0.625000	45.86	---	73.00	27.14	1000.0	9.000	N	19.9
0.880000	---	33.47	60.00	26.53	1000.0	9.000	N	20.1
0.880000	43.62	---	73.00	29.38	1000.0	9.000	N	20.1
1.110000	---	35.59	60.00	24.41	1000.0	9.000	N	20.1
1.110000	43.98	---	73.00	29.02	1000.0	9.000	N	20.1
17.735000	---	27.46	60.00	32.54	1000.0	9.000	N	20.0
17.735000	38.38	---	73.00	34.62	1000.0	9.000	N	20.0
18.190000	---	27.03	60.00	32.97	1000.0	9.000	N	20.1
18.190000	38.58	---	73.00	34.42	1000.0	9.000	N	20.1

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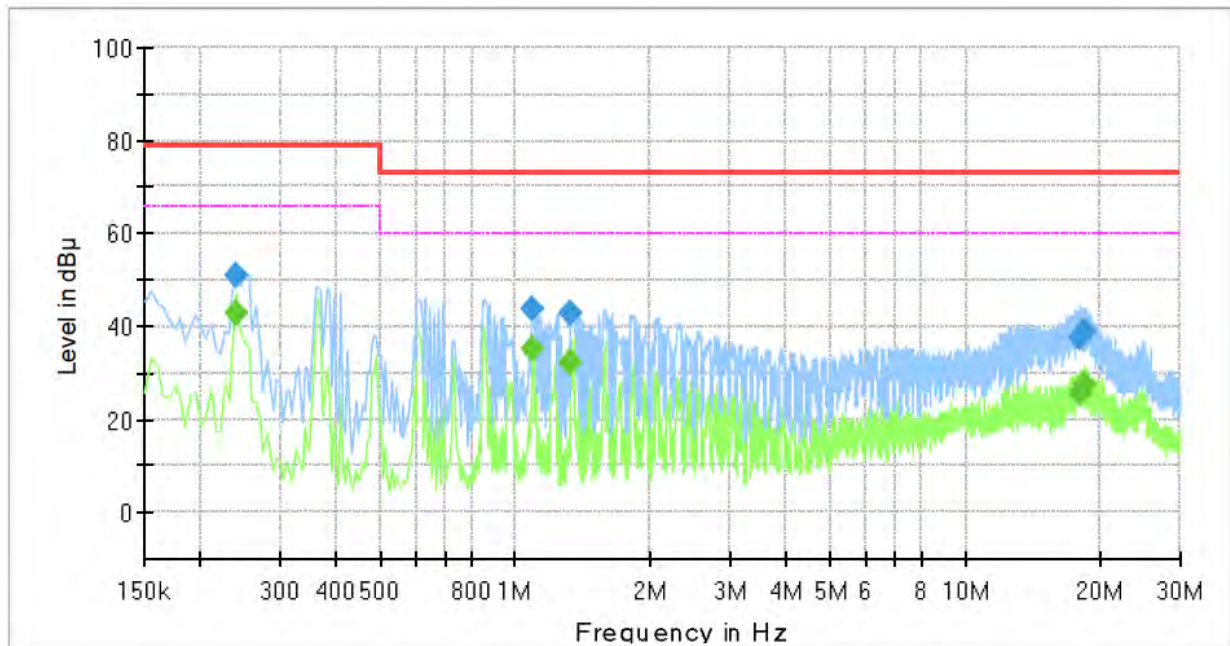
The authenticity of the test report, contact kes@kes.co.kr

■ DP Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-4343
Phase:	H
Mode:	DP
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.240000	---	42.94	66.00	23.06	1000.0	9.000	L1	19.5
0.240000	51.18	---	79.00	27.82	1000.0	9.000	L1	19.5
1.085000	---	35.26	60.00	24.74	1000.0	9.000	L1	20.1
1.085000	43.89	---	73.00	29.11	1000.0	9.000	L1	20.1
1.325000	---	32.44	60.00	27.56	1000.0	9.000	L1	20.2
1.325000	42.87	---	73.00	30.13	1000.0	9.000	L1	20.2
17.960000	---	25.77	60.00	34.23	1000.0	9.000	L1	20.0
17.960000	37.67	---	73.00	35.33	1000.0	9.000	L1	20.0
18.390000	---	27.42	60.00	32.58	1000.0	9.000	L1	20.1
18.390000	38.82	---	73.00	34.18	1000.0	9.000	L1	20.1

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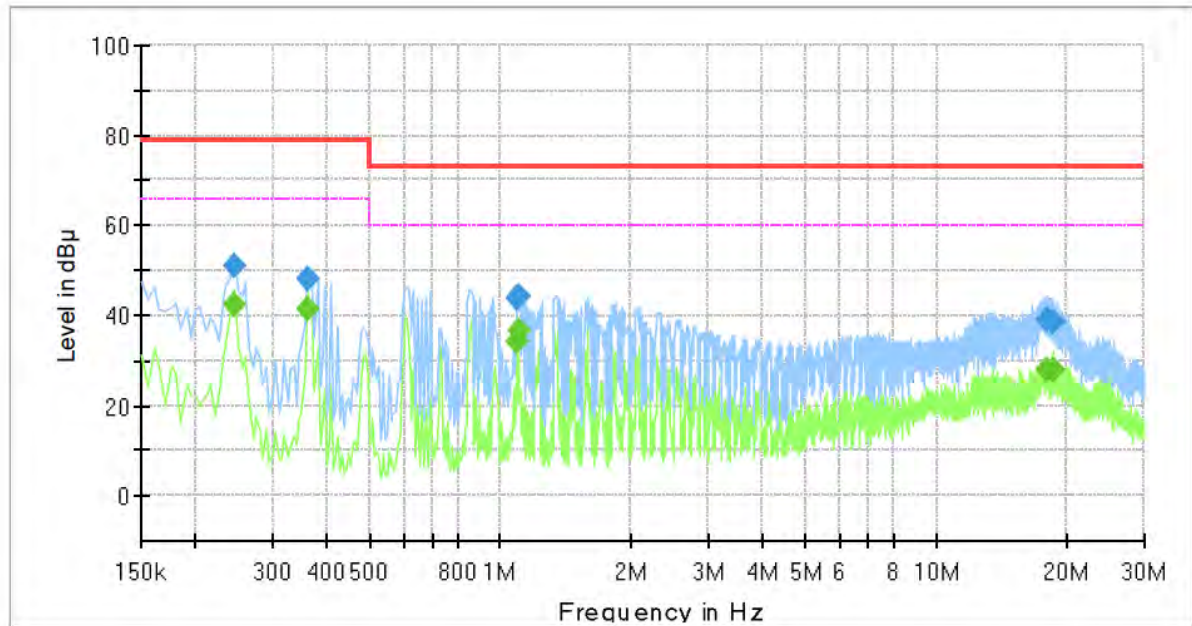
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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SMT-4343
Phase:	N
Mode:	DP
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.245000	---	42.51	66.00	23.49	1000.0	9.000	N	19.5
0.245000	51.05	---	79.00	27.95	1000.0	9.000	N	19.5
0.360000	---	41.56	66.00	24.44	1000.0	9.000	N	19.6
0.360000	48.23	---	79.00	30.77	1000.0	9.000	N	19.6
1.090000	---	34.26	60.00	25.74	1000.0	9.000	N	20.1
1.090000	43.81	---	73.00	29.19	1000.0	9.000	N	20.1
1.100000	---	36.37	60.00	23.63	1000.0	9.000	N	20.1
1.100000	44.05	---	73.00	28.95	1000.0	9.000	N	20.1
18.060000	---	28.00	60.00	32.00	1000.0	9.000	N	20.1
18.060000	38.86	---	73.00	34.14	1000.0	9.000	N	20.1
18.595000	---	28.00	60.00	32.00	1000.0	9.000	N	20.1
18.595000	38.34	---	73.00	34.66	1000.0	9.000	N	20.1

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

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.:

KES-EM-22T0188-R1

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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

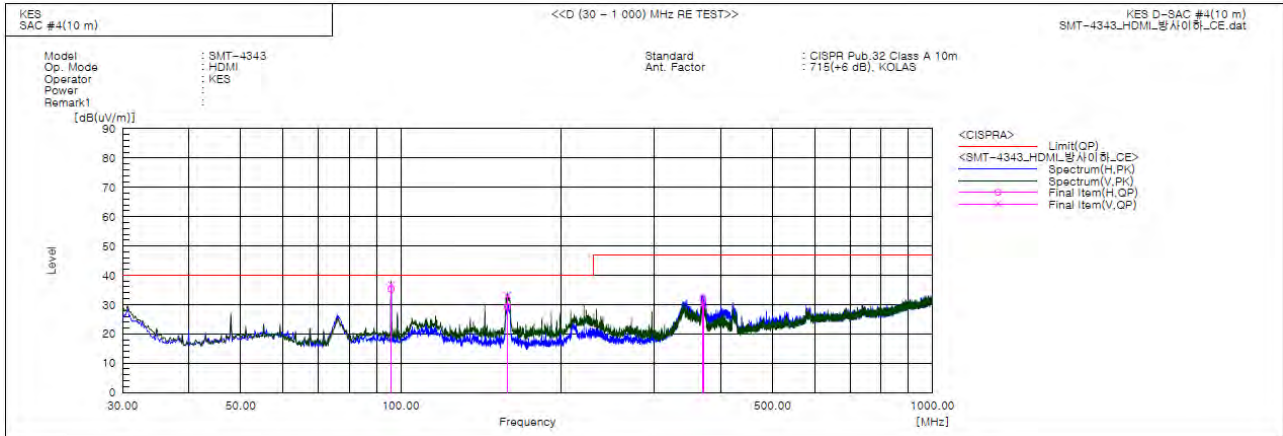
Reading Value : Not shown in the table.

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

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Radiated Electric Field Emissions(Below 1 GHz)

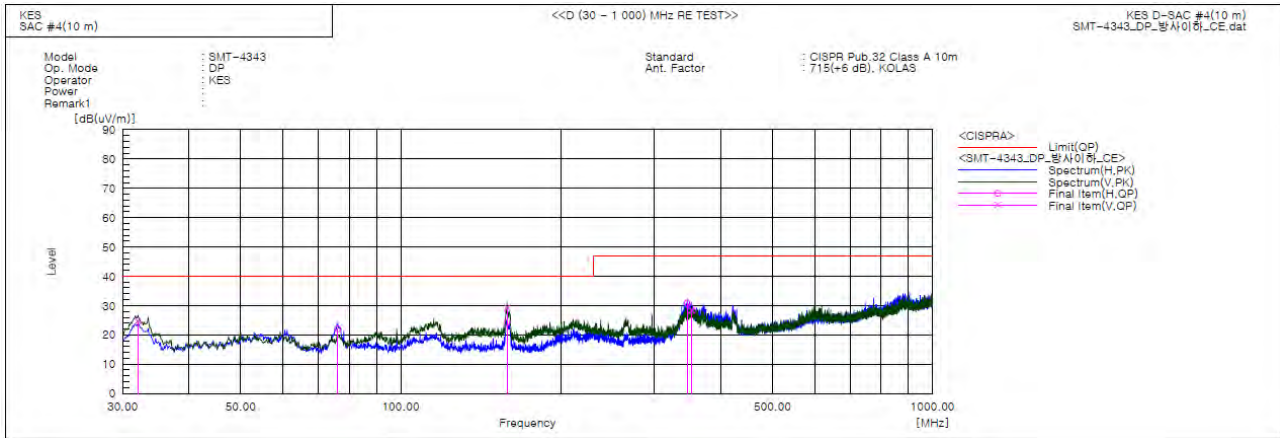
■ HDMI Mode



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	95.715	V	60.0	-23.2	36.8	40.0	3.2	153.0	233.0	
2	95.960	H	58.4	-23.2	35.2	40.0	4.8	309.0	234.0	
3	158.646	H	54.0	-24.7	29.3	40.0	10.7	351.0	302.0	
4	158.768	V	57.8	-24.7	33.1	40.0	6.9	111.0	230.0	
5	369.985	H	46.6	-14.7	31.9	47.0	15.1	359.0	325.0	
6	370.470	V	44.9	-14.7	30.2	47.0	16.8	100.0	33.0	

DP 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	32.061	V	49.4	-24.7	24.7	40.0	15.3	103.0	249.0	
2	76.196	H	49.2	-27.1	22.1	40.0	17.9	400.0	88.0	
3	158.404	H	49.0	-24.7	24.3	40.0	15.7	302.0	2.0	
4	158.558	V	53.9	-24.7	29.2	40.0	10.8	109.0	155.0	
5	345.493	H	46.2	-15.3	30.9	47.0	16.1	357.0	2.0	
6	352.404	V	43.5	-15.1	28.4	47.0	18.6	100.0	20.0	

◆ 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)]

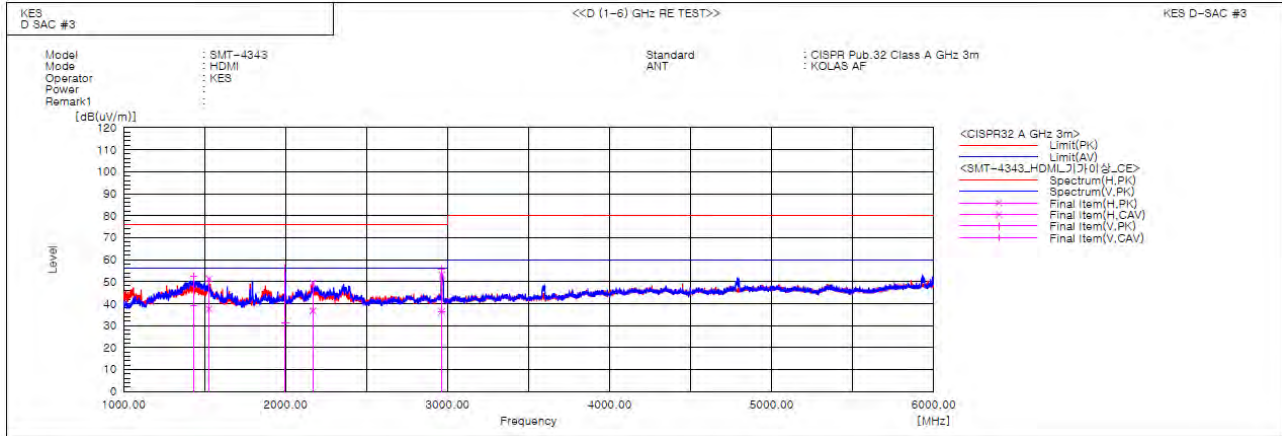
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



Radiated Electric Field Emissions(Above 1 GHz)

■ HDMI Mode

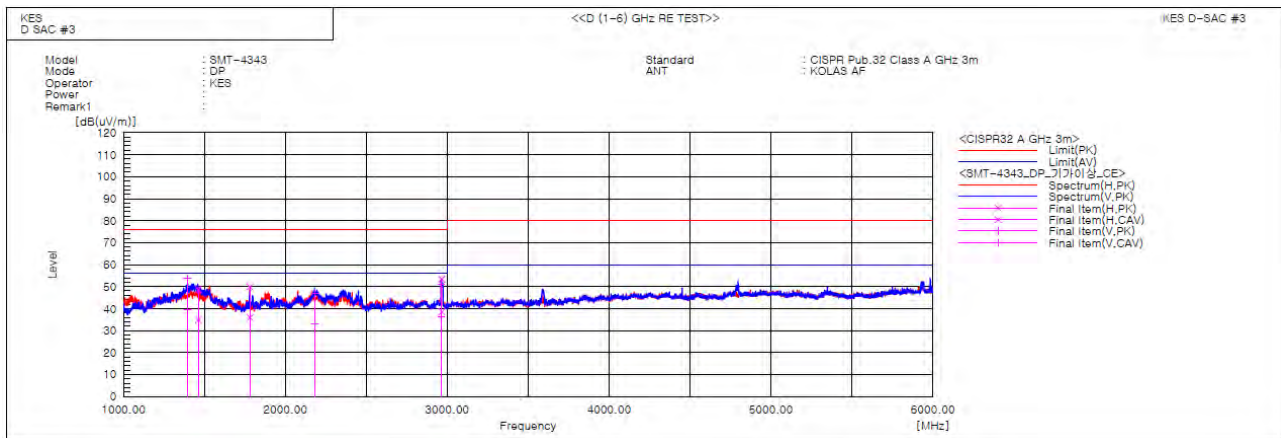


Final Result

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	1432.640	V	59.0	45.4	-6.5	52.5	38.9	76.0	56.0	23.5	17.1	100.0	47.9	
2	1526.115	H	57.2	43.5	-5.9	51.3	37.6	76.0	56.0	24.7	18.4	100.0	68.4	
3	1997.385	V	57.3	32.0	-1.0	56.3	31.0	76.0	56.0	19.7	25.0	100.0	120.5	
4	2167.512	H	49.9	37.2	-0.5	49.4	36.7	76.0	56.0	26.6	19.3	100.0	66.2	
5	2963.564	H	51.5	34.8	1.6	53.1	36.4	76.0	56.0	22.9	19.6	100.0	86.5	
6	2963.720	V	54.1	34.6	1.6	55.7	36.2	76.0	56.0	20.3	19.8	100.0	1.3	

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DP 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	1395.109	V	60.3	46.4	-6.7	53.6	39.7	76.0	56.0	22.4	16.3	100.0	50.8	
2	1461.981	H	55.0	41.2	-6.3	48.7	34.9	76.0	56.0	27.3	21.1	100.0	344.6	
3	1780.354	H	53.1	39.2	-3.3	49.8	35.9	76.0	56.0	26.2	20.1	100.0	73.8	
4	2180.025	V	47.4	33.5	-0.5	46.9	33.0	76.0	56.0	29.1	23.0	100.0	45.7	
5	2962.350	V	49.2	34.7	1.6	50.8	36.3	76.0	56.0	25.2	19.7	100.0	1.9	
6	2965.550	H	51.8	36.9	1.6	53.4	38.5	76.0	56.0	22.6	17.5	100.0	303.3	

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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Report No.:

KES-EM-22T0188-R1

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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	0.122			
2	0.005			
3	0.117	5.098	2.300	PASS
4	0.005			
5	0.115	10.095	1.140	PASS
6	0.005			
7	0.109	14.128	0.770	PASS
8	0.005			
9	0.101	25.308	0.400	PASS
10	0.006			
11	0.094	28.382	0.330	PASS
12	0.006			
13	0.085	40.502	0.210	PASS
14	0.006			
15	0.076	50.821	0.150	PASS
16	0.006			
17	0.068	51.186	0.132	PASS
18	0.006			
19	0.059	50.079	0.118	PASS
20	0.007			
21	0.052	32.217	0.161	PASS
22	0.007			
23	0.045	30.358	0.147	PASS
24	0.007			
25	0.039	28.879	0.135	PASS
26	0.007			
27	0.034	27.496	0.125	PASS
28	0.006			
29	0.030	26.052	0.117	PASS
30	0.006			
31	0.027	24.880	0.110	PASS
32	0.006			
33	0.024	23.880	0.102	PASS
34	0.005			
35	0.022	22.965	0.096	PASS
36	0.005			
37	0.019	20.987	0.092	PASS
38	0.004			
39	0.017	19.315	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.

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.129			
2	0.006			
3	0.124	3.581	3.450	PASS
4	0.006			
5	0.121	7.052	1.710	PASS
6	0.006			
7	0.114	9.853	1.155	PASS
8	0.006			
9	0.106	17.618	0.600	PASS
10	0.007			
11	0.097	19.634	0.495	PASS
12	0.007			
13	0.088	27.858	0.315	PASS
14	0.007			
15	0.078	34.746	0.225	PASS
16	0.007			
17	0.069	34.818	0.198	PASS
18	0.008			
19	0.060	33.864	0.177	PASS
20	0.008			
21	0.052	32.639	0.161	PASS
22	0.008			
23	0.045	30.797	0.147	PASS
24	0.008			
25	0.040	29.458	0.135	PASS
26	0.008			
27	0.035	28.268	0.125	PASS
28	0.007			
29	0.032	27.199	0.117	PASS
30	0.007			
31	0.029	26.163	0.110	PASS
32	0.007			
33	0.026	25.326	0.102	PASS
34	0.006			
35	0.023	24.291	0.096	PASS
36	0.005			
37	0.020	22.134	0.092	PASS
38	0.005			
39	0.018	20.225	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.

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■ DP Mode

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.113			
2	0.005			
3	0.109	4.739	2.300	PASS
4	0.006			
5	0.107	9.419	1.140	PASS
6	0.006			
7	0.102	13.237	0.770	PASS
8	0.006			
9	0.095	23.836	0.400	PASS
10	0.006			
11	0.089	26.927	0.330	PASS
12	0.006			
13	0.081	38.733	0.210	PASS
14	0.006			
15	0.073	48.986	0.150	PASS
16	0.006			
17	0.066	49.801	0.132	PASS
18	0.007			
19	0.058	49.104	0.118	PASS
20	0.007			
21	0.051	31.749	0.161	PASS
22	0.007			
23	0.044	29.957	0.147	PASS
24	0.007			
25	0.038	28.377	0.135	PASS
26	0.007			
27	0.033	26.780	0.125	PASS
28	0.006			
29	0.029	24.886	0.117	PASS
30	0.006			
31	0.026	23.505	0.110	PASS
32	0.006			
33	0.023	22.213	0.102	PASS
34	0.005			
35	0.020	21.239	0.096	PASS
36	0.005			
37	0.018	19.389	0.092	PASS
38	0.004			
39	0.016	17.965	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)

<i>Maximum harmonic current results</i>				
Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.121			
2	0.006			
3	0.116	3.361	3.450	PASS
4	0.007			
5	0.113	6.616	1.710	PASS
6	0.007			
7	0.108	9.316	1.155	PASS
8	0.007			
9	0.100	16.706	0.600	PASS
10	0.007			
11	0.093	18.737	0.495	PASS
12	0.007			
13	0.084	26.807	0.315	PASS
14	0.008			
15	0.076	33.700	0.225	PASS
16	0.008			
17	0.067	33.982	0.198	PASS
18	0.008			
19	0.059	33.321	0.177	PASS
20	0.008			
21	0.052	32.119	0.161	PASS
22	0.009			
23	0.045	30.402	0.147	PASS
24	0.009			
25	0.039	28.917	0.135	PASS
26	0.008			
27	0.034	27.487	0.125	PASS
28	0.008			
29	0.030	26.036	0.117	PASS
30	0.008			
31	0.027	24.783	0.110	PASS
32	0.007			
33	0.024	23.824	0.102	PASS
34	0.007			
35	0.022	22.735	0.096	PASS
36	0.006			
37	0.019	20.887	0.092	PASS
38	0.005			
39	0.017	19.088	0.087	PASS
40	0.005			

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

■ DP 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

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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



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Radiated Electric Field Immunity



Electrical Fast Transients/Bursts



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Surge Transients



Conducted Disturbance



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Power Frequency Magnetic Field Immunity



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)



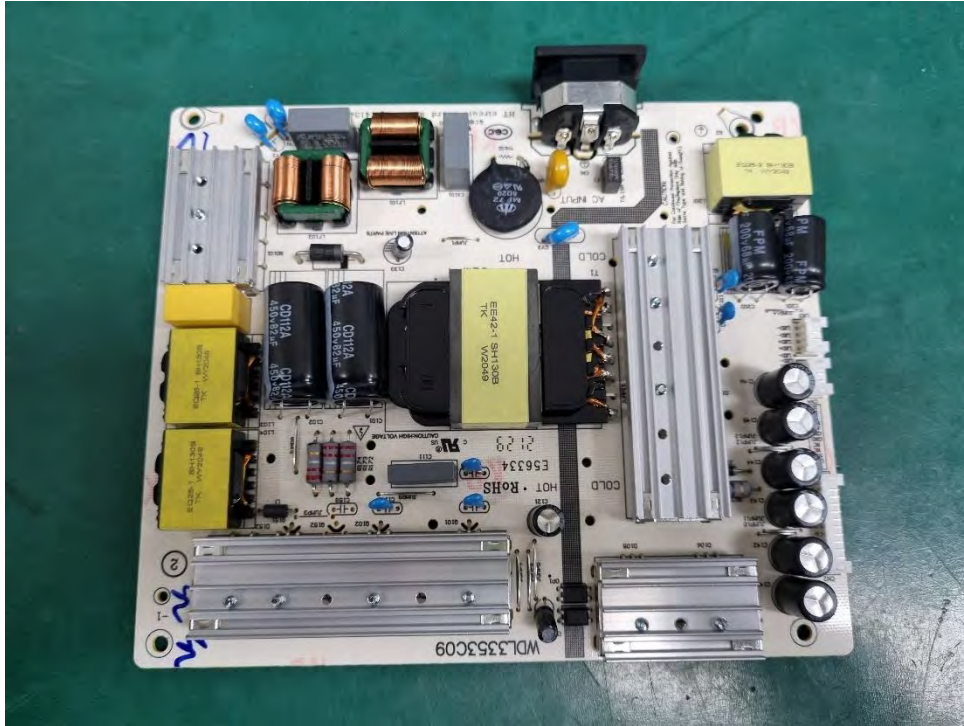
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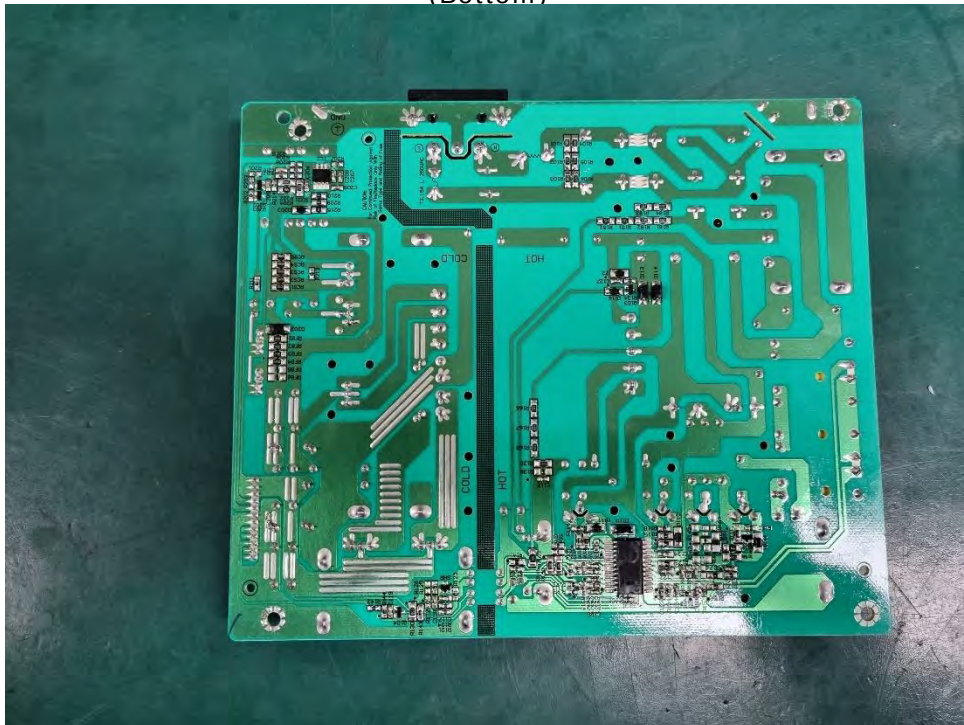
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EUT Internal View – Board 2

(Top)



(Bottom)



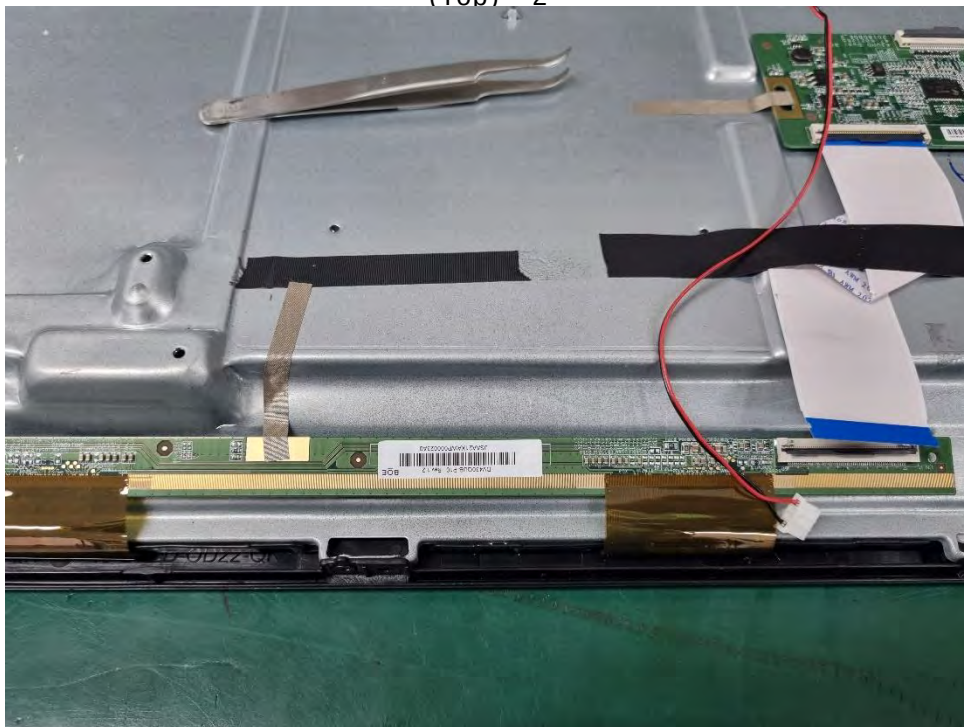
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EUT Internal View – Board 3

(Top) - 1



(Top) - 2



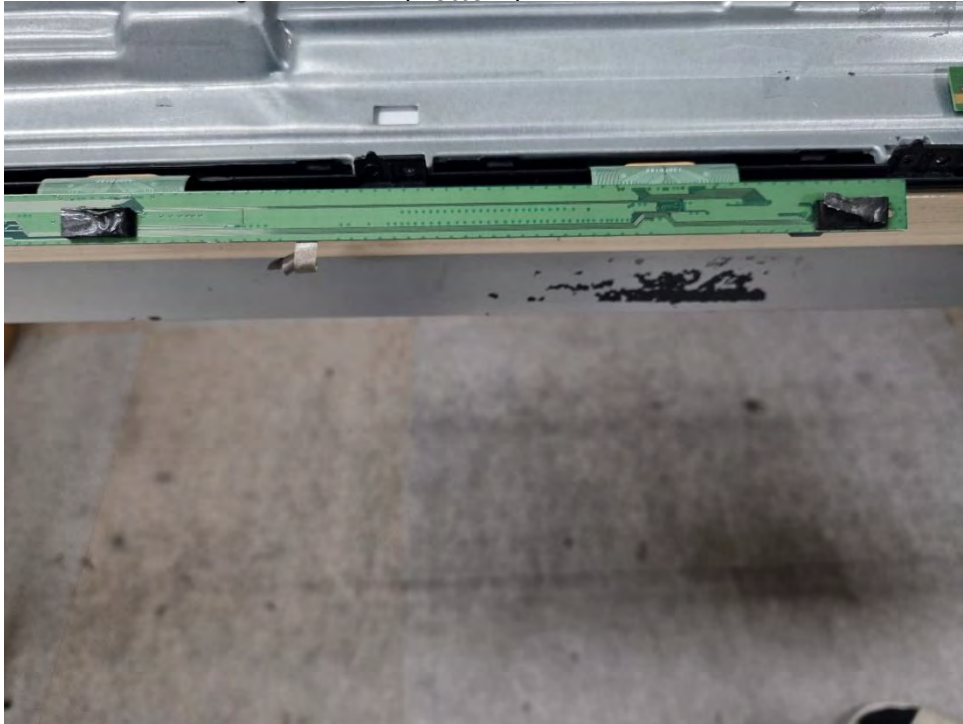
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EUT Internal View – Board 3

(Bottom) - 1



(Bottom) - 2



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EUT Internal View – Board 4

(Top) - 1



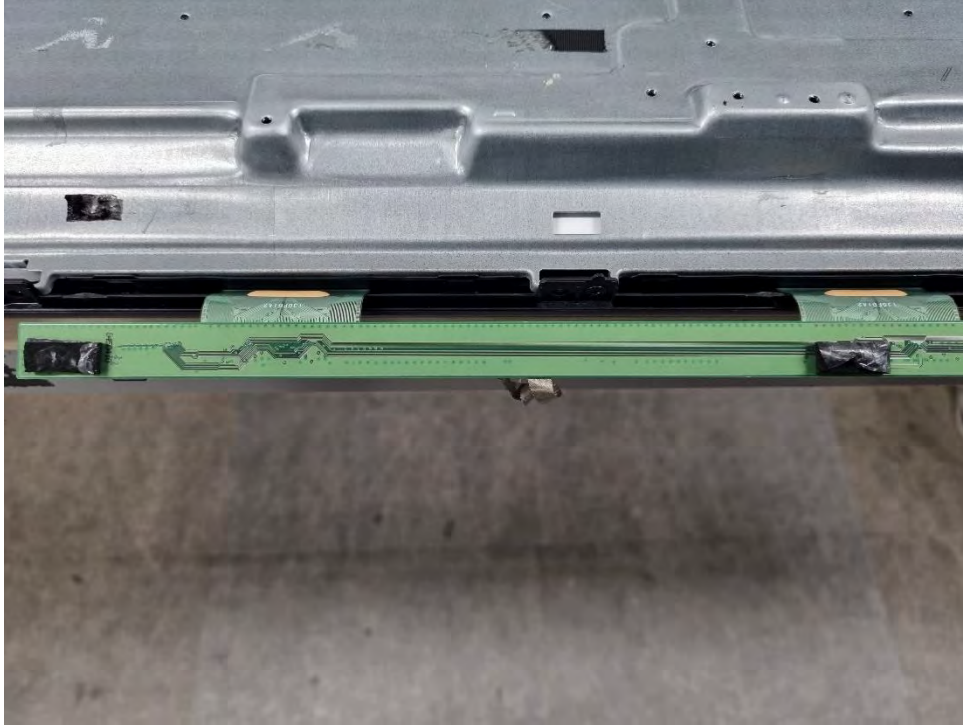
(Top) - 2



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EUT Internal View – Board 4

(Bottom) - 1



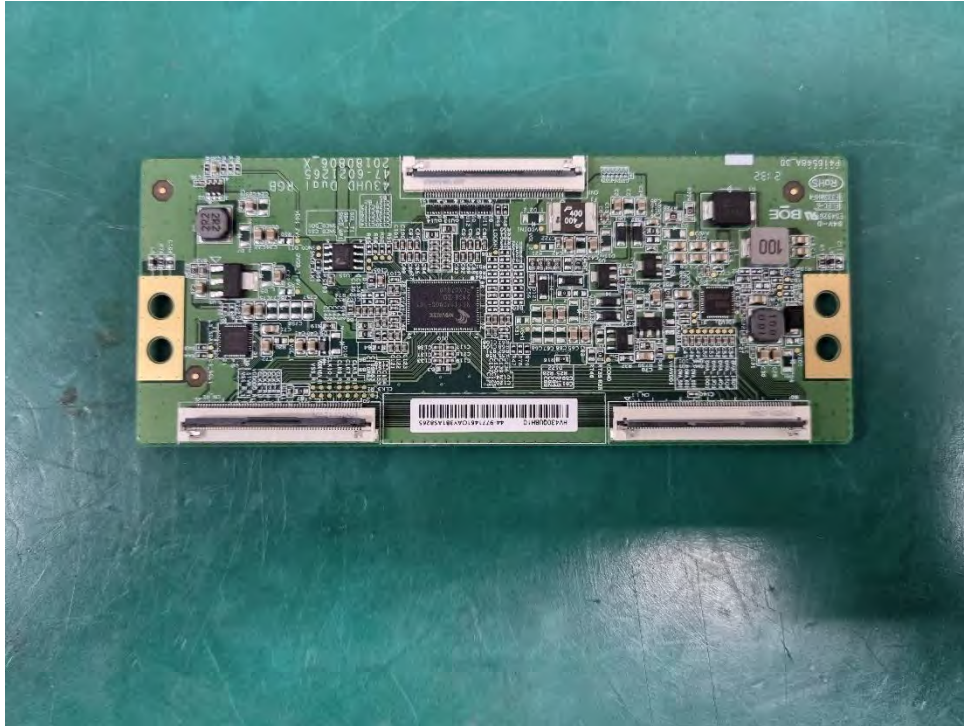
(Bottom) - 2



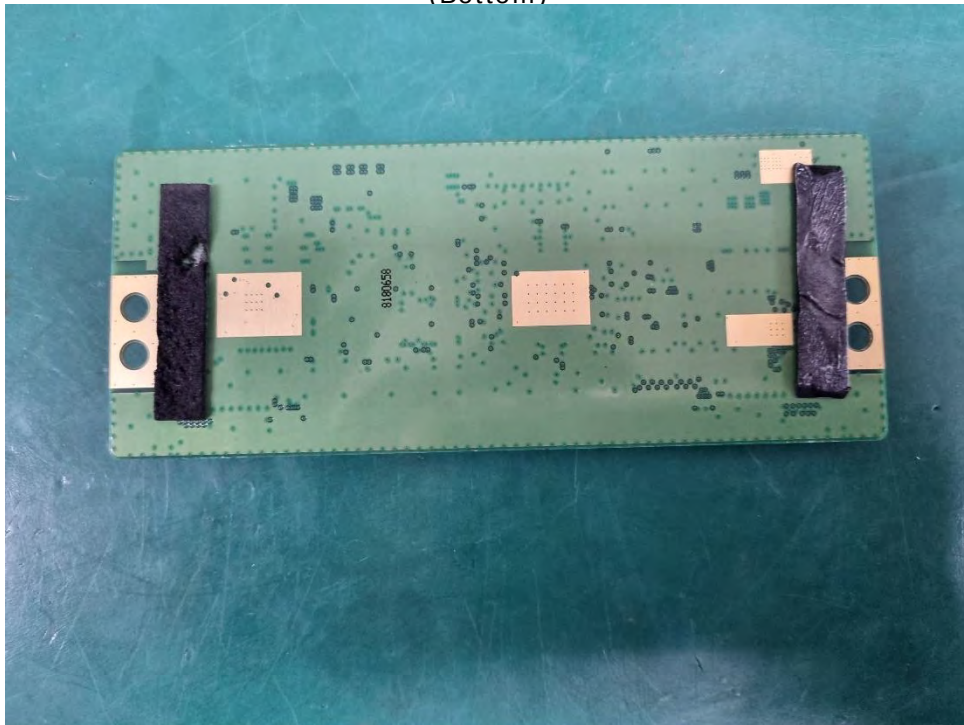
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EUT Internal View – Board 5

(Top)



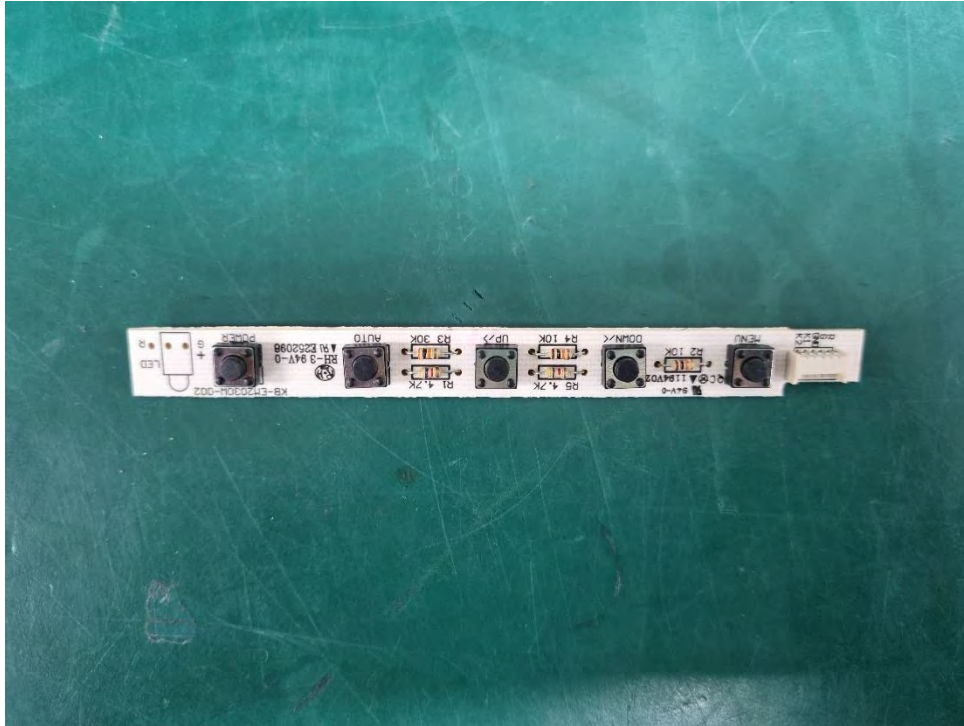
(Bottom)



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EUT Internal View – Board 6

(Top)



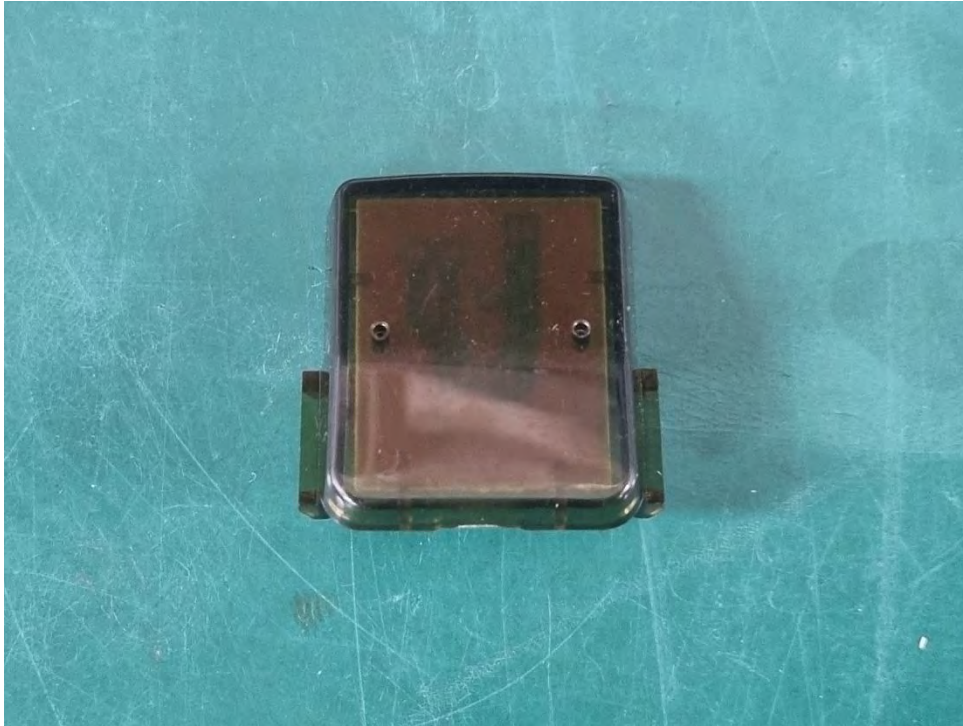
(Bottom)



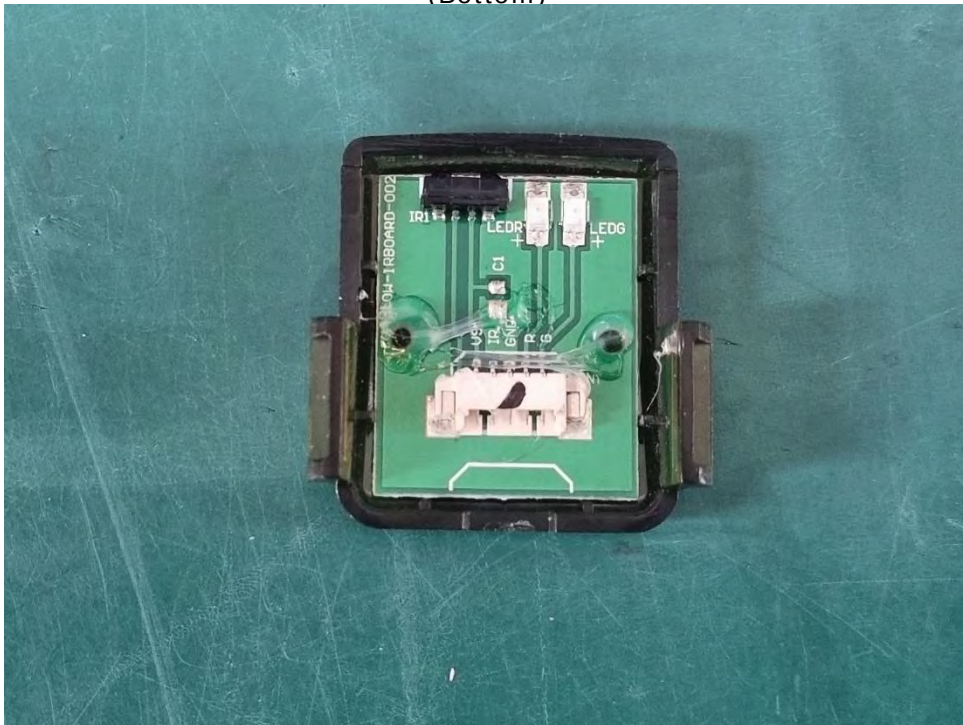
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EUT Internal View – Board 7

(Top)

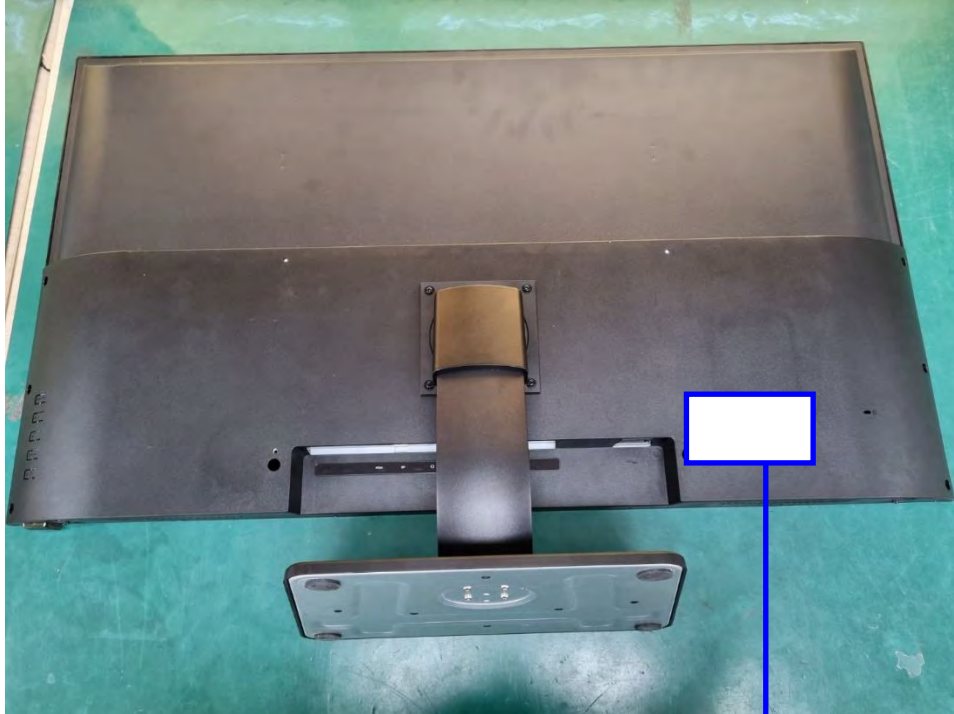


(Bottom)



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Label and Location



LED MONITOR

Model No : SMT-4343

Manufacturer : Weihai Daewoo Electronics Co., Ltd.

Made in China

