



TEST REPORT



Report No. : KES-EM250852

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KES Co., Ltd.

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1. Client

Applicant : Hanwha Vision Co., Ltd

Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

2. Sample Description

Product name : Decoder Monitor

Model/Type No. : SMT-2721D

Variant Model : -

Manufacturer : GTT Co., Ltd

Manufacturer Address : 502, Pyeonghwa-ro, Paju-si, Gyeonggi-do, 10847 Korea

3. Date of Receipt : Mar. 06, 2025

4. Test date : Apr. 01, 2025 ~ Apr. 02, 2025

5. Date of Issue : Apr. 11, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Se Heon, Kim
EMC Test Engineer

Seong Min, Choi
EMC Technical Manager

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



REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Apr. 11, 2025	KES-EM250852	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Division		Specificity	
Internal highest clock frequency		1 200 MHz	
		SMT-2721D(25. 3. 5) Preliminary	SMT-2721D(24. 8. 5) Preliminary
Max. Resolution		1920*1080 60Hz (FHD)	1920*1080 60Hz (FHD)
Brightness		300 cd/m ² (Typ.)	300 cd/m ²
Contrast Ratio		3000:1 (Typ.)	1000:1
Aspect Ratio		16:9	16:9
Viewing Angle (H/V)		178°/178° (Typ.)	178°/178°
Display Color		16.7M Colors	16.7M Colors
Response Time		12ms (Typ.)	14ms
Video System		None	None
Panel Life		30,000 hours	30,000 hours
Filter Type		None	None
Interface			
Video	Connectors	HDMI#1(Internal output) - Decoder main monitor HDMI#2(External output) - Decoder secondary monitor	HDMI#1(Internal) - Decoder main monitor HDMI#2(output) - Decoder secondary monitor
Composite Video	Input	None	None
VGA	Connector	None	None
	Input Signal	None	None
	Available Format	None	None
HDMI	Connector	HDMI#1(Internal), HDMI#2(output)	HDMI#1(Internal), HDMI#2(output)
	Available Format	1920 X 1080@60Hz (HDMI#1, HDMI#2) 1280 X 1024@60Hz (HDMI#1, HDMI#2) 1280 X 720@60Hz (HDMI#1, HDMI#2)	1920 X 1080@60Hz (HDMI#1, HDMI#2) 1280 X 1024@60Hz (HDMI#1, HDMI#2) 1280 X 720@60Hz (HDMI#1, HDMI#2)
DP	Connector	None	None
	Available Format	None	None
Audio	Connector	None	None
	Output Signal	Speakers : 8Ω 2Wx 2	Speakers : 8Ω 2Wx 2
Alarm	Alarm I/O	None	None
Network	Ethernet	1xRJ-45 10/100BASE-T	1 RJ-45 10/100BASE-T
USB	USB	2xUSB 2.0(Mouse,Keyboard), 1xUSB 2.0 (AD Firmware upgrade)	None
General	Edge Storage	None	None
Application Support		None	None
On Screen Display			
Functions		VESA™ DPM Compatible	VESA™ DPM Compatible
Language		English, Spanish, French, 한국어	English, Spanish, French
General			
Electrical	Input Voltage	DC24V, HPOE 802.3bt	DC24V, HPOE 802.3bt
	Power Consumption	31W	31W
Environmental	Operating Temperature	0 ~ +40°C (+32°F ~ +104°F)	0 ~ +40°C (+32°F ~ +104°F)
	Operating Humidity	10% ~ 80% (non-condensing)	10% ~ 80% (non-condensing)
Mechanical	Dimensions with Stand (WxHxD)	None	None
	Dimensions without Stand (WxHxD)	624mm(W) x 387mm(H) x 58mm(D)	619mm(W) x 405mm(H) x 58mm(D)
	Weight	6.5kg	8.5kg
	Protection Glass	None	None
	Cabinet Color	Black	Black
	Wall Mounts	None	None
	VESA Mounts Interface	VESA 100 x 100mm, 200 x 100mm, 200 x 200mm	VESA 100 x 100mm, 200 x 100mm, 200 x 200mm
Decoder			
Video	Codec	H.265 / H.264 / MJPEG	H.265 / H.264 / MJPEG
	Max. Decoding Performance	2x8M@30fps, 12x2M@30fps	2x8M@30fps, 12x2M@30fps
	Division (/Monitor)	Clone mode (HDMI#1) Max. 64 Expand mode (HDMI#1) Max. 36 (HDMI#2) Max. 25	Clone mode (HDMI#1) Max. 64 Expand mode (HDMI#1) Max. 36 (HDMI#2) Max. 25
	Layout	Up to 20, Sequence support	Up to 20, Sequence support
Audio	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC
Merge	Monitor Merge	None	None
	Tile Merge	None	None
Management		Local UI, Web-Viewer, SSM	Local UI, Web-Viewer, SSM
Time Setting		NTP/Manual	NTP/Manual
Export/Import		Configuration Export/Import	Configuration Export/Import
Log		Max. 100,000 (System log)	Max. 100,000 (System log)
Protocol		RTP, RTSP, HTTP, CGI (SUNAPI), ONVIF	RTP, RTSP, HTTP, CGI (SUNAPI), ONVIF
Security		IP address filtering, User access Log, 802.1x, Encryption, Device certificate(Hanwha Techwin Root CA), Signed firmware	IP address filtering, User access Log, 802.1x, Encryption, Device certificate(Hanwha Techwin Root CA), Signed firmware



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 120 V, 60 Hz (AC/DC Adapter Input power)

☒ AC 120 V, 60 Hz (PoE Adapter Input Power)

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
Decoder Monitor	SMT-2721D	-	GTT Co., Ltd	EUT
Remote control	-	-	-	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adapter	FSP060-DAAN3	-	Zhonghan Electronics (Shenzhen) Co., Ltd.	-
PoE Injector1	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	-
PoE Injector2	GS728TPP	-	NETGEAR	-
Monitor	DELL E2222H DVT	8221TCM10D00103 X	DELL INC.	-
Mouse	MS116c Mouse	-	DELL	-
USB Memory	-	-	SanDisk	-
Notebook	LG15N54	506NZGK000615	LG Electronics	-
Notebook AC/DC Adapter	PA-1650-43(65W)	OF58U63849302Y60 9	LG Electronics	-
IP Camera	PND-A7082RV	-	HANWHA VISION VIETNAM COMPANY LIMITED	-
Headset	K550	-	Britz®	-
Smartphone	SHW-M110S	-	Samsung Electronics	-



1.6 External I/O Cabling

mode 1

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Decoder Monitor (EUT)	DC Jack	AC/DC Adapter	DC Jack	1.5	U
	RJ-45 (LAN)	PoE Injector1	RJ-45 (LAN)	3.5	U
	HDMI	Monitor	HDMI	1.5	U
	USB	Mouse	USB	1.3	U
	USB	USB Memory	USB	-	-
PoE Injector1	RJ-45 (PoE)	PoE Injector2	RJ-45	2.0	U
PoE Injector2	RJ-45	Notebook	RJ-45	2.0	U
	RJ-45	IP Camera	RJ-45	2.0	U
Notebook	DC Jack	Notebook AC/DC Adapter	DC Jack	1.5	U
IP Camera	Audio IN	Headset	Audio OUT	1.8	U

* Unshielded=U, Shielded=S

mode 2

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Decoder Monitor (EUT)	RJ-45 (PoE)	PoE Injector1	RJ-45 (LAN)	3.5	U
	HDMI	Monitor	HDMI	1.5	U
	USB	Mouse	USB	1.3	U
	USB	USB Memory	USB	-	-
PoE Injector1	RJ-45 (LAN)	PoE Injector2	RJ-45	2.0	U
PoE Injector2	RJ-45	Notebook	RJ-45	2.0	U
	RJ-45	IP Camera	RJ-45	2.0	U
Notebook	DC Jack	Notebook AC/DC Adapter	DC Jack	1.5	U
IP Camera	Audio IN	Headset	Audio OUT	1.8	U

* Unshielded=U, Shielded=S



1.7 EUT Operating Mode(s)

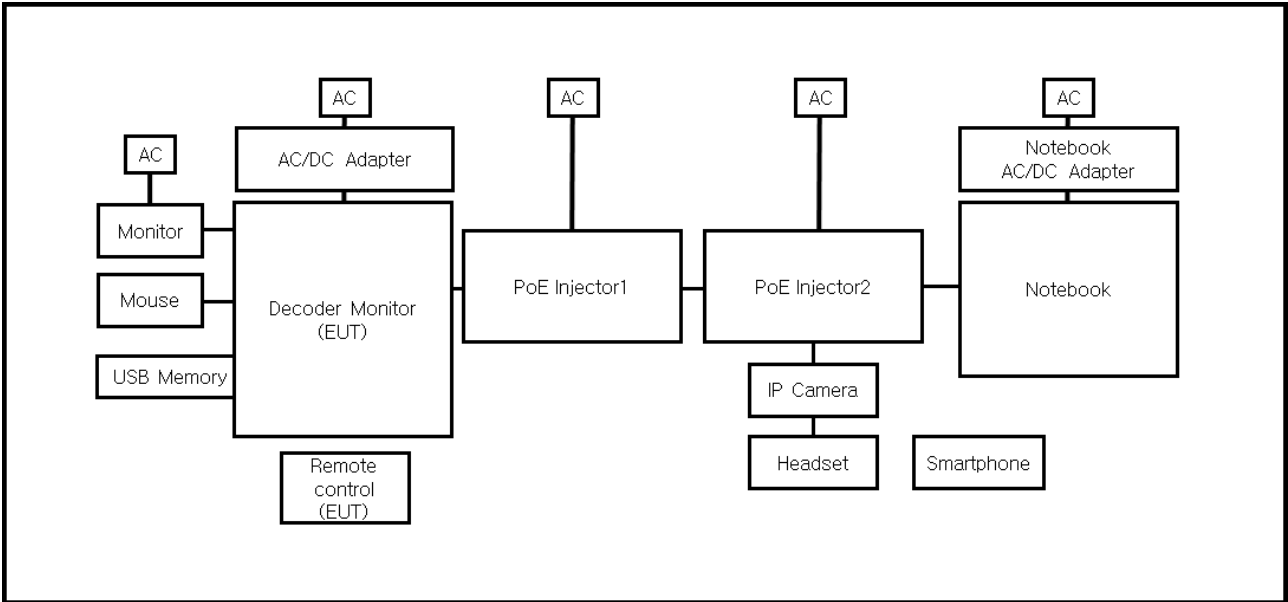
Test No.	Test mode	Operating	Test Voltages
mode 1	DC Power	- The image output of the IP camera was confirmed through the display of the EUT and monitor. - Checked the normal operation of EUT's network through Ping test on a notebook. - The smartphone outputs 1 kHz tone sound and checked whether it is normally output to the EUT speaker through the IP camera.	AC 120 V, 60 Hz
mode 2	PoE Power		

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd.

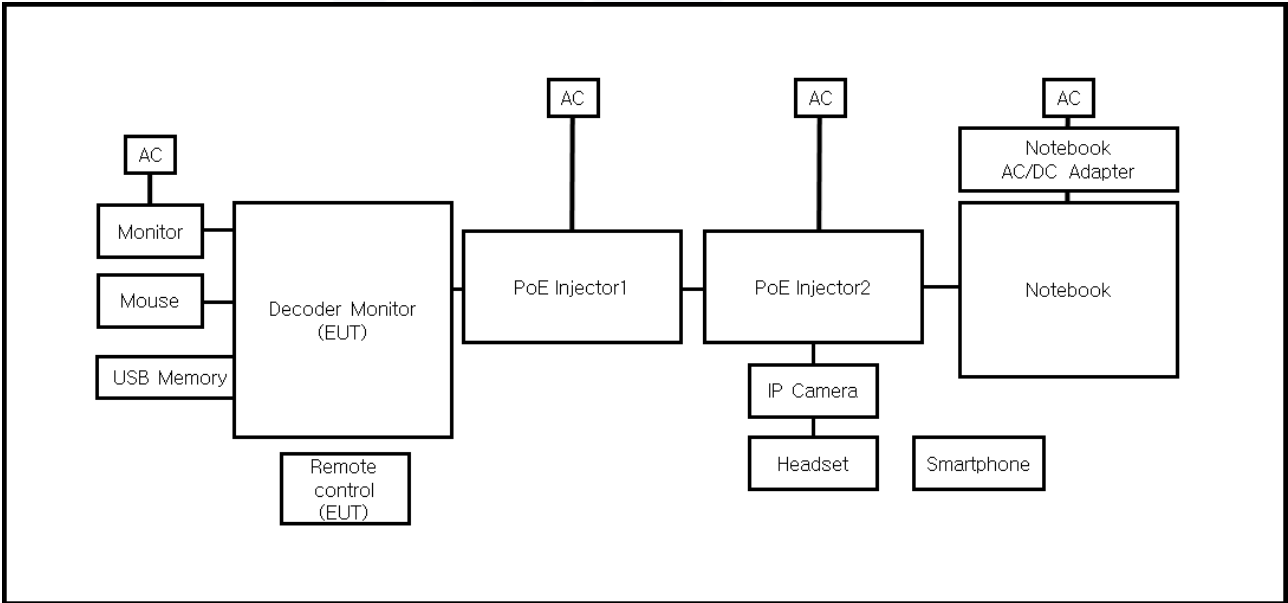


1.8 Configuration

■mode 1



■mode 2





1.9 Remarks when standards applied

- The USB[MONITOR] port was excluded from the test as a port for administrators.

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 Measurement Procedure

- Conducted Emissions

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

- Radiated Electric Field Emissions

The test was done at a SEMI ANECHOIC CHAMBER with quasi-peak detector. The final test data was measured using a Quasi-Peak detector below 1 GHz at 10 m or 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. Test was proceeded worst case test mode and cable configuration.

Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Measurement procedures was In accordance with ANSI C63.4-2014 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2



1.13 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 0008



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B





2.1 Conducted Emissions at Mains Power Ports

Test Date

Apr. 02, 2025

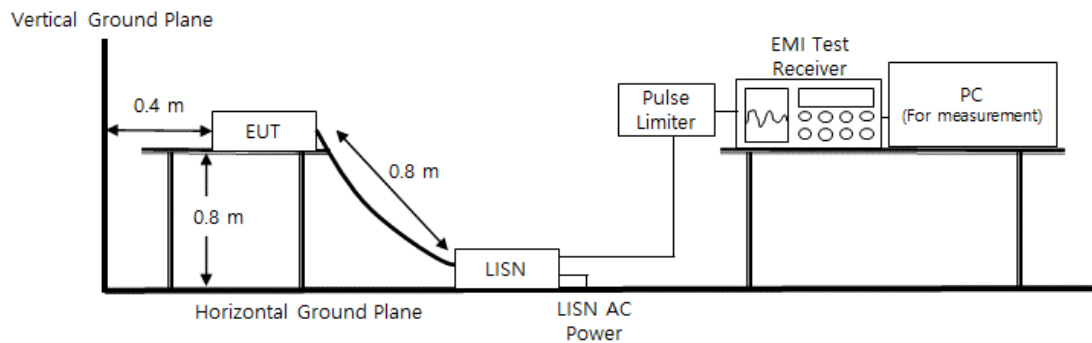
Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	EMC32	R & S	9.12.00	-	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	11, 06, 2025	1 Year
☒	LISN	ENV216	R & S	101786	01, 09, 2026	1 Year
☒	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11, 06, 2025	1 Year
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 06, 2025	1 Year

Diagram of test setup





Test Conditions

Temperature: (22,6 ± 0,1) °C
Relative Humidity: (47,5 ± 0,0) % 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 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Apr. 01, 2025

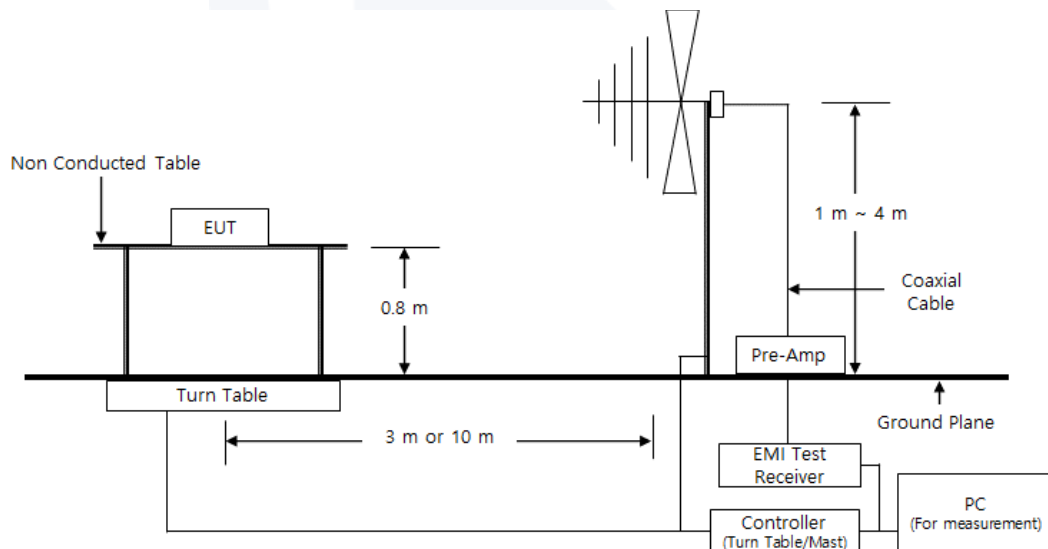
Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-	-
☒	EMI TEST RECEIVER	ESW8	R & S	101319	03, 24, 2026	1 Year
☒	AMPLIFIER	SCU 01	R & S	100603	11, 06, 2025	1 Year
☒	BILOG ANTENNA	VULB 9168	SCHWARZBECK	9168-461	05, 09, 2026	2 Year
☒	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02, 13, 2026	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,5 ± 0,1) °C
Relative Humidity: (46,3 ± 0,2) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Aar. 02, 2025

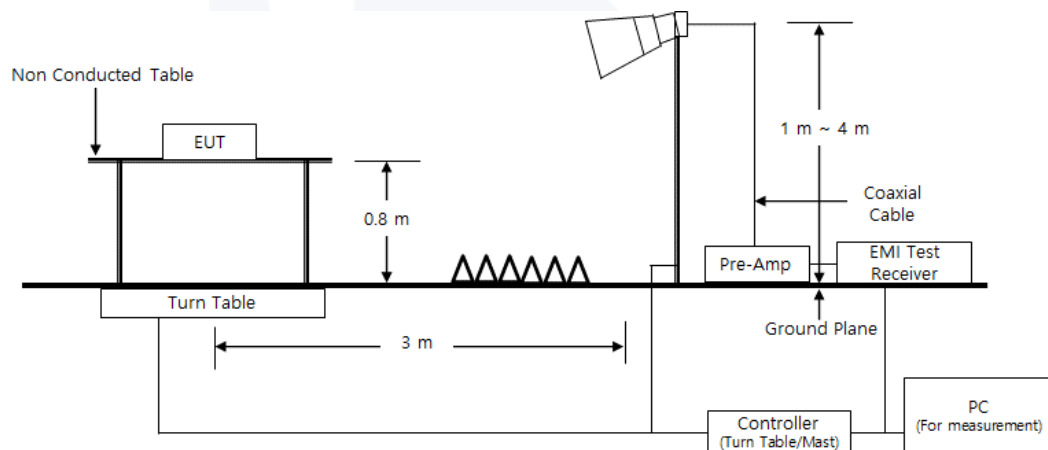
Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02, 13, 2026	1 Year
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 04, 2025	1 Year
☒	PREAMPLIFIER	8449B	HP	3008A00538	04, 30, 2025	1 Year
☒	ATTENUATOR	8491B	HP	23094	02, 13, 2026	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,1 ± 0,2)°C
Relative Humidity: (46,1 ± 0,3) % R.H.

Frequency Range of Measurement

1 GHz to 5 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.

The Average of the test data is the cispr average result.



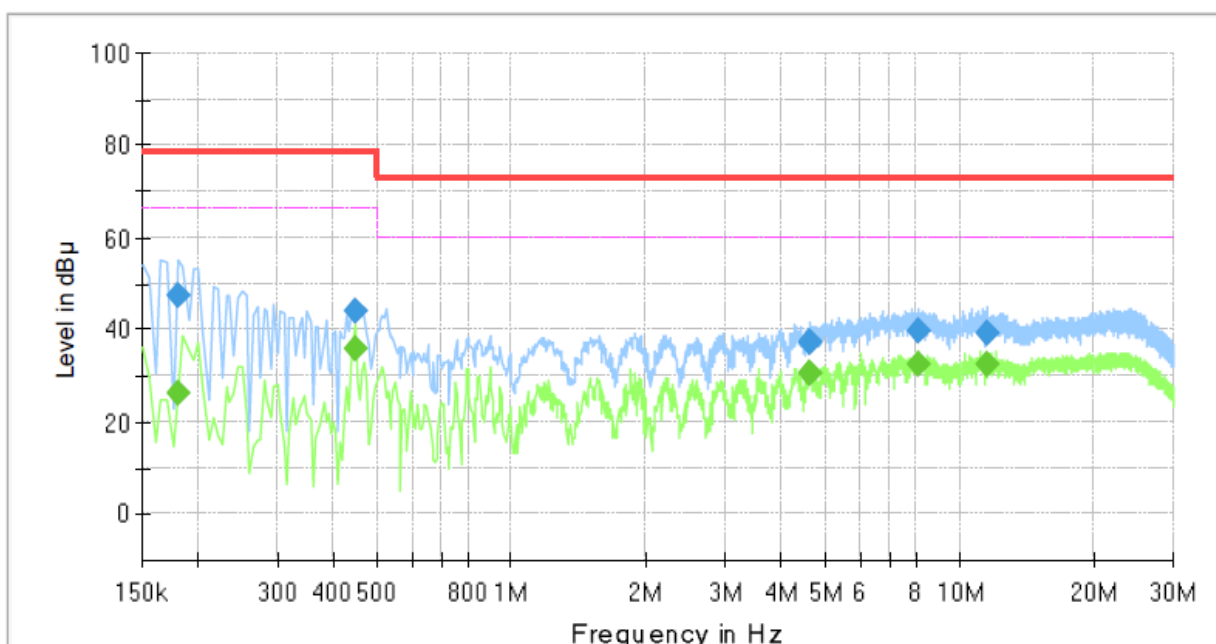
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■mode 1

HOT LINE

Test Description: Conducted Emission
Job No.: KES-EM250852
Phase: L
Mode: mode 1
Operator Name: KES



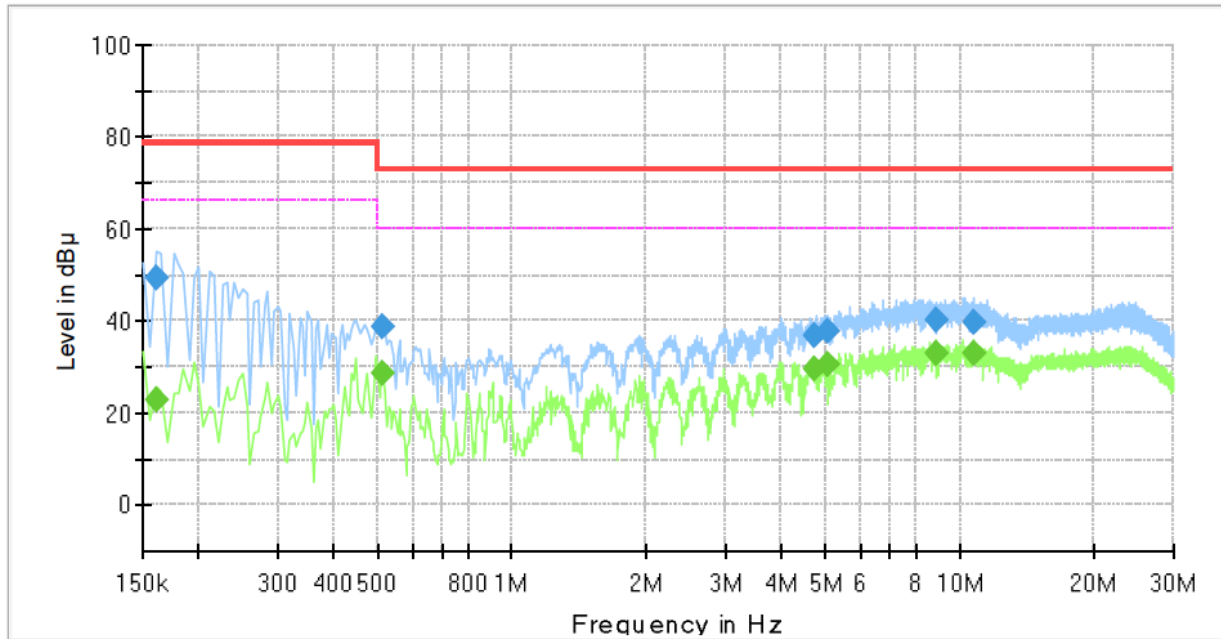
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.180000	---	26.21	66.00	39.79	1000.0	9.000	L1	19.5
0.180000	47.59	---	79.00	31.41	1000.0	9.000	L1	19.5
0.450000	---	35.69	66.00	30.31	1000.0	9.000	L1	19.6
0.450000	43.97	---	79.00	35.03	1000.0	9.000	L1	19.6
4.605000	---	30.74	60.00	29.26	1000.0	9.000	L1	19.9
4.605000	37.49	---	73.00	35.51	1000.0	9.000	L1	19.9
4.625000	---	30.58	60.00	29.42	1000.0	9.000	L1	19.9
4.625000	37.09	---	73.00	35.91	1000.0	9.000	L1	19.9
8.055000	---	32.54	60.00	27.46	1000.0	9.000	L1	20.0
8.055000	39.58	---	73.00	33.42	1000.0	9.000	L1	20.0
11.495000	---	32.52	60.00	27.48	1000.0	9.000	L1	20.1
11.495000	39.21	---	73.00	33.79	1000.0	9.000	L1	20.1



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM250852
Phase: N
Mode: mode 1
Operator Name: KES

**Final Result**

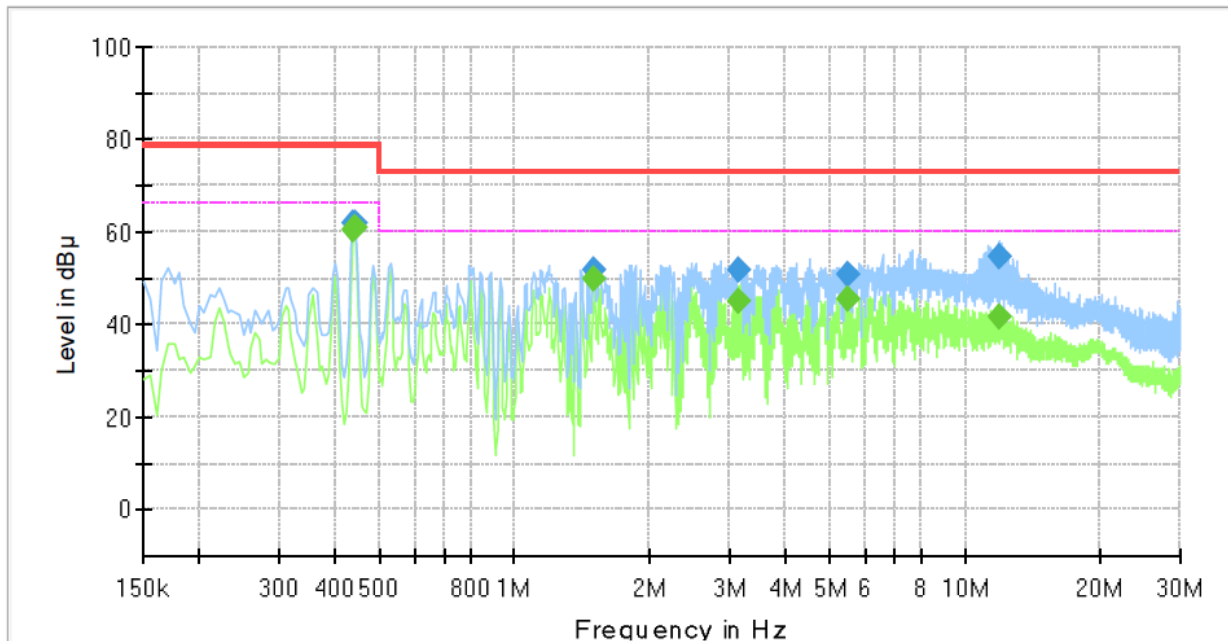
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	22.84	66.00	43.16	1000.0	9.000	N	19.5
0.160000	49.29	---	79.00	29.71	1000.0	9.000	N	19.5
0.515000	---	28.59	60.00	31.41	1000.0	9.000	N	19.5
0.515000	38.60	---	73.00	34.40	1000.0	9.000	N	19.5
4.710000	---	29.79	60.00	30.21	1000.0	9.000	N	19.8
4.710000	36.99	---	73.00	36.01	1000.0	9.000	N	19.8
5.050000	---	30.34	60.00	29.66	1000.0	9.000	N	19.9
5.050000	37.64	---	73.00	35.36	1000.0	9.000	N	19.9
8.860000	---	33.03	60.00	26.97	1000.0	9.000	N	20.0
8.860000	40.22	---	73.00	32.78	1000.0	9.000	N	20.0
10.795000	---	33.16	60.00	26.84	1000.0	9.000	N	20.0
10.795000	39.86	---	73.00	33.14	1000.0	9.000	N	20.0



■mode 2

HOT LINE

Test Description: Conducted Emission
Job No.: KES-EM250852
Phase: L
Mode: mode 2
Operator Name: KES

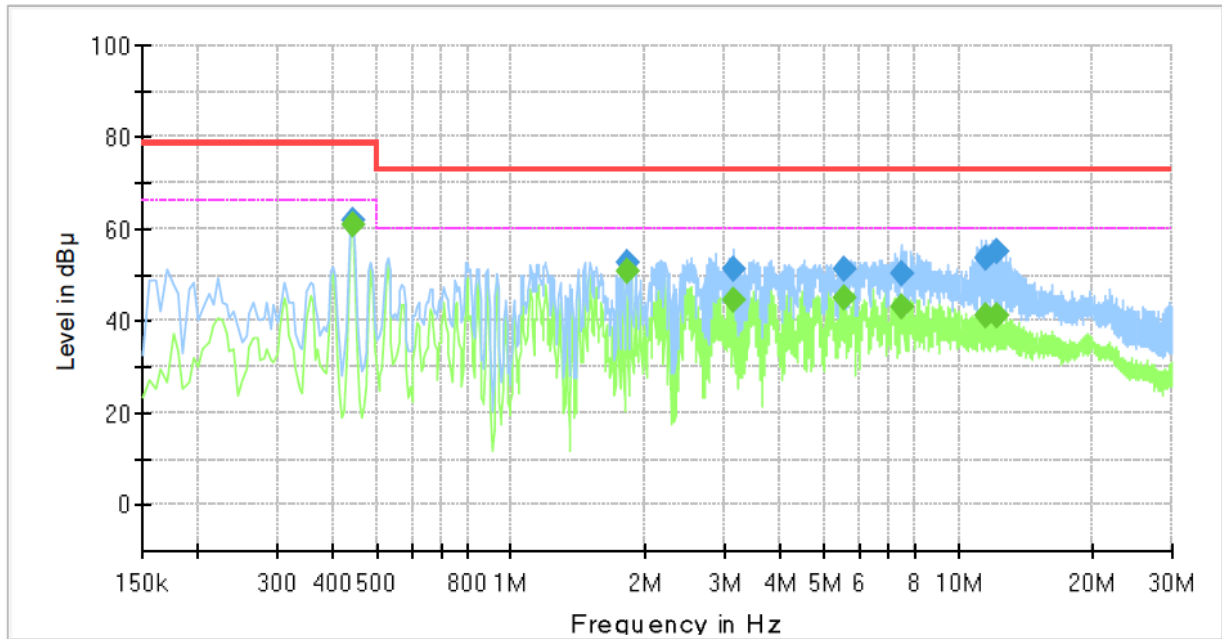
**Final_Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.440000	---	60.67	66.00	5.33	1000.0	9.000	L1	19.6
0.440000	61.85	---	79.00	17.15	1000.0	9.000	L1	19.6
0.445000	---	60.96	66.00	5.04	1000.0	9.000	L1	19.6
0.445000	61.96	---	79.00	17.04	1000.0	9.000	L1	19.6
1.500000	---	49.99	60.00	10.01	1000.0	9.000	L1	19.6
1.500000	51.54	---	73.00	21.46	1000.0	9.000	L1	19.6
3.135000	---	45.18	60.00	14.82	1000.0	9.000	L1	19.8
3.135000	51.58	---	73.00	21.42	1000.0	9.000	L1	19.8
5.480000	---	45.46	60.00	14.54	1000.0	9.000	L1	19.9
5.480000	51.00	---	73.00	22.00	1000.0	9.000	L1	19.9
11.895000	---	41.47	60.00	18.53	1000.0	9.000	L1	20.1
11.895000	54.59	---	73.00	18.41	1000.0	9.000	L1	20.1



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM250852
Phase: N
Mode: mode 2
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.445000	---	61.13	66.00	4.87	1000.0	9.000	N	19.5
0.445000	61.92	---	79.00	17.08	1000.0	9.000	N	19.5
1.815000	---	51.00	60.00	9.00	1000.0	9.000	N	19.6
1.815000	52.51	---	73.00	20.49	1000.0	9.000	N	19.6
3.135000	---	44.39	60.00	15.61	1000.0	9.000	N	19.7
3.135000	51.48	---	73.00	21.52	1000.0	9.000	N	19.7
5.535000	---	44.94	60.00	15.06	1000.0	9.000	N	19.9
5.535000	51.17	---	73.00	21.83	1000.0	9.000	N	19.9
7.430000	---	43.00	60.00	17.00	1000.0	9.000	N	20.0
7.430000	50.53	---	73.00	22.47	1000.0	9.000	N	20.0
11.510000	---	41.37	60.00	18.63	1000.0	9.000	N	20.1
11.510000	53.82	---	73.00	19.18	1000.0	9.000	N	20.1
12.170000	---	41.36	60.00	18.64	1000.0	9.000	N	20.1
12.170000	54.97	---	73.00	18.03	1000.0	9.000	N	20.1

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

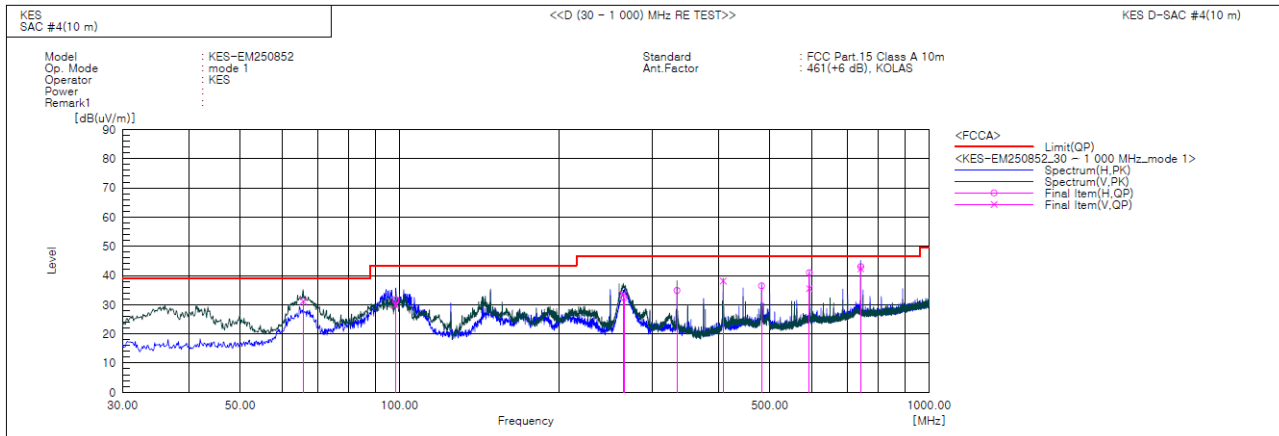
Reading Value : Not shown in the table.

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

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

■ mode 1

- 47 CFR Part 15, Subpart B

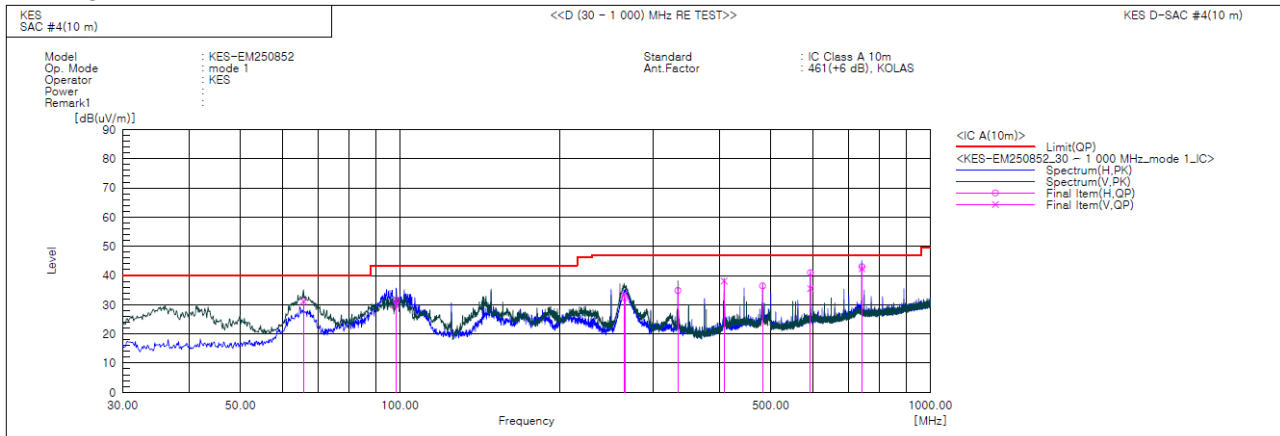
**Final Result**

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	65.769	V	53.1	-21.9	31.2	39.0	7.8	113.0	120.0	
2	98.385	H	56.8	-25.1	31.7	43.5	11.8	350.0	138.0	
3	98.385	V	55.0	-25.1	29.9	43.5	13.6	105.0	263.0	
4	264.498	V	52.0	-18.6	33.4	46.5	13.1	157.0	7.0	
5	265.710	H	50.9	-18.5	32.4	46.5	14.1	360.0	138.0	
6	334.095	H	50.8	-15.9	34.9	46.5	11.6	384.0	57.0	
7	408.421	V	51.4	-13.3	38.1	46.5	8.4	143.0	183.0	
8	482.626	H	47.0	-10.5	36.5	46.5	10.0	317.0	245.0	
9	594.055	H	48.2	-7.2	41.0	46.5	5.5	398.0	359.0	
10	594.055	V	42.7	-7.2	35.5	46.5	11.0	109.0	303.0	
11	742.586	H	46.9	-3.9	43.0	46.5	3.5	355.0	308.0	
12	742.586	V	46.2	-3.9	42.3	46.5	4.2	166.0	173.0	



Report No. : KES-EM250852

- IC Regulation ICES-003 Issue 7



Final Result

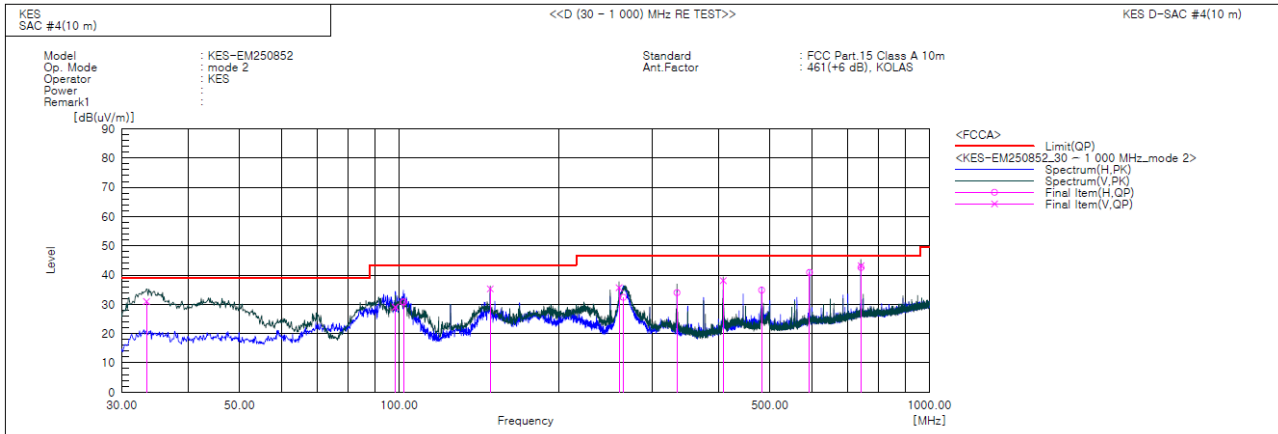
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	65.769	V	53.1	-21.9	31.2	40.0	8.8	113.0	120.0	
2	98.385	H	56.8	-25.1	31.7	43.5	11.8	350.0	138.0	
3	98.385	V	55.0	-25.1	29.9	43.5	13.6	105.0	263.0	
4	264.498	V	52.0	-18.6	33.4	47.0	13.6	157.0	7.0	
5	265.710	H	50.9	-18.5	32.4	47.0	14.6	360.0	138.0	
6	334.095	H	50.8	-15.9	34.9	47.0	12.1	384.0	57.0	
7	408.421	V	51.4	-13.3	38.1	47.0	8.9	143.0	183.0	
8	482.626	H	47.0	-10.5	36.5	47.0	10.5	317.0	245.0	
9	594.055	H	48.2	-7.2	41.0	47.0	6.0	398.0	359.0	
10	594.055	V	42.7	-7.2	35.5	47.0	11.5	109.0	303.0	
11	742.586	H	46.9	-3.9	43.0	47.0	4.0	355.0	308.0	
12	742.586	V	46.2	-3.9	42.3	47.0	4.7	166.0	173.0	



Report No. : KES-EM250852

■ mode 2

- 47 CFR Part 15, Subpart B



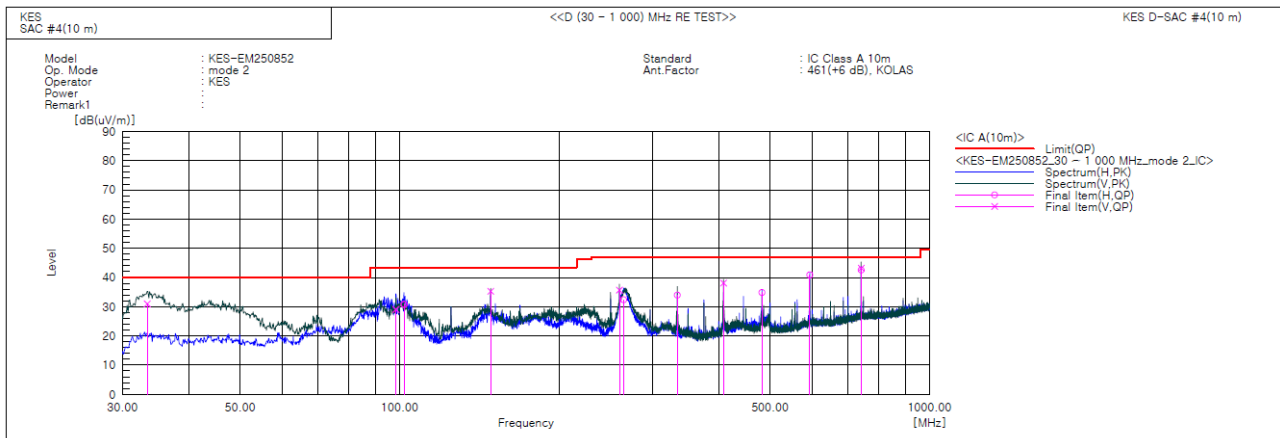
Final Result

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	33.395	V	53.4	-22.4	31.0	39.0	8.0	116.0	94.0	
2	98.385	V	54.2	-25.1	29.1	43.5	14.4	107.0	287.0	
3	101.901	H	55.3	-24.5	30.8	43.5	12.7	376.0	86.0	
4	148.461	V	54.6	-19.3	35.3	43.5	8.2	139.0	251.0	
5	259.890	V	54.6	-18.9	35.7	46.5	10.8	128.0	71.0	
6	264.619	H	51.0	-18.6	32.4	46.5	14.1	346.0	134.0	
7	334.095	H	49.9	-15.9	34.0	46.5	12.5	390.0	99.0	
8	408.421	V	51.4	-13.3	38.1	46.5	8.4	160.0	177.0	
9	482.626	H	45.4	-10.5	34.9	46.5	11.6	354.0	115.0	
10	594.055	H	48.1	-7.2	40.9	46.5	5.6	312.0	157.0	
11	742.586	H	46.5	-3.9	42.6	46.5	3.9	388.0	24.0	
12	742.586	V	47.1	-3.9	43.2	46.5	3.3	150.0	182.0	



Report No. : KES-EM250852

- IC Regulation ICES-003 Issue 7



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	33.395	V	53.4	-22.4	31.0	40.0	9.0	116.0	94.0	
2	98.385	V	54.2	-25.1	29.1	43.5	14.4	107.0	287.0	
3	101.901	H	55.3	-24.5	30.8	43.5	12.7	376.0	86.0	
4	148.461	V	54.6	-19.3	35.3	43.5	8.2	139.0	251.0	
5	259.890	V	54.6	-18.9	35.7	47.0	11.3	128.0	71.0	
6	264.619	H	51.0	-18.6	32.4	47.0	14.6	346.0	134.0	
7	334.095	H	49.9	-15.9	34.0	47.0	13.0	390.0	99.0	
8	408.421	V	51.4	-13.3	38.1	47.0	8.9	160.0	177.0	
9	482.626	H	45.4	-10.5	34.9	47.0	12.1	354.0	115.0	
10	594.055	H	48.1	-7.2	40.9	47.0	6.1	312.0	157.0	
11	742.586	H	46.5	-3.9	42.6	47.0	4.4	388.0	24.0	
12	742.586	V	47.1	-3.9	43.2	47.0	3.8	150.0	182.0	

◆ Calculation

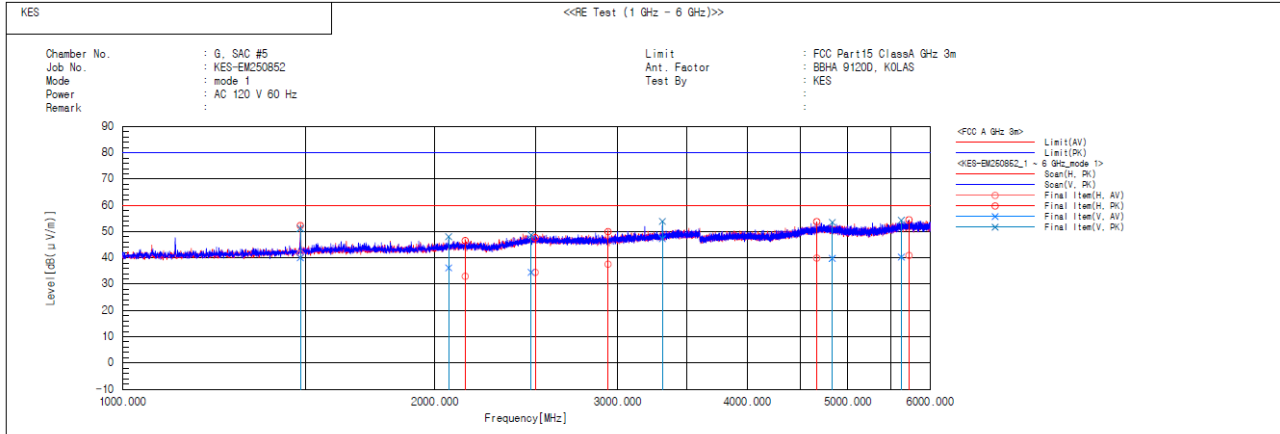
$$\text{Result(QP)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)} [\text{dB}(\mu\text{V})] + \text{c.f} [\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)} [\text{dB}] = \text{Limit} [\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

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

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

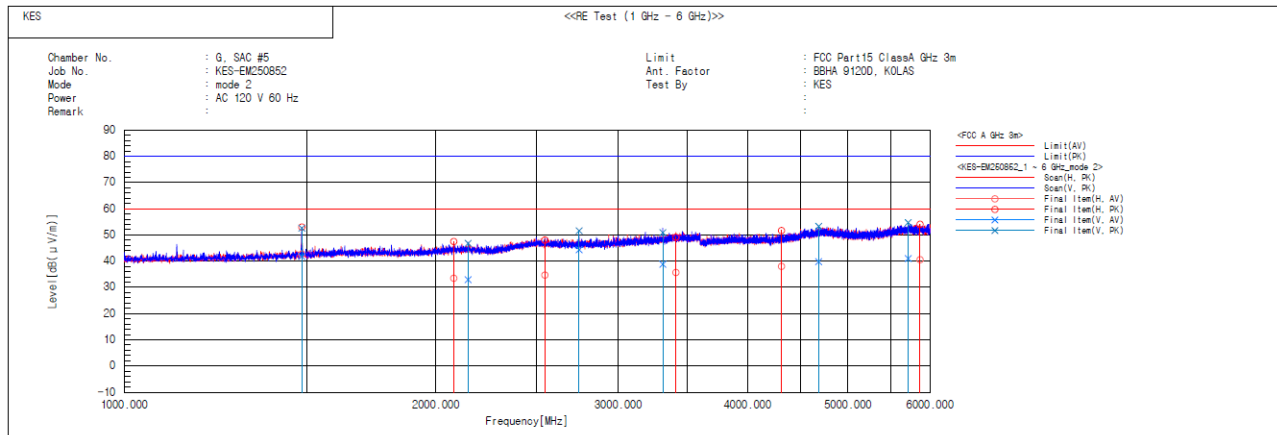
■ mode 1

**Final Result**

No.	Frequency	Pol	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		AV	PK		AV	PK	AV	PK	AV	PK	[cm]	[deg]	
			[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]			
1	1484.308	V	39.0	50.1	1.1	40.1	51.2	60.0	80.0	19.9	28.8	131.7	170.1	
2	1484.308	H	40.5	51.2	1.1	41.6	52.3	60.0	80.0	18.4	27.7	318.8	359.7	
3	2062.382	V	32.9	44.8	3.3	36.2	48.1	60.0	80.0	23.8	31.9	138.1	142.0	
4	2139.921	H	29.4	43.0	3.6	33.0	46.6	60.0	80.0	27.0	33.4	368.5	82.2	
5	2476.805	V	29.5	43.7	5.0	34.5	48.7	60.0	80.0	25.5	31.3	114.9	306.1	
6	2498.558	H	29.5	42.7	5.0	34.5	47.7	60.0	80.0	25.5	32.3	333.8	124.9	
7	2937.350	H	31.4	43.8	6.2	37.6	50.0	60.0	80.0	22.4	30.0	330.5	156.4	
8	3312.939	V	40.4	47.0	6.9	47.3	53.9	60.0	80.0	12.7	26.1	115.2	173.2	
9	4666.036	H	28.5	42.4	11.4	39.9	53.8	60.0	80.0	20.1	26.2	279.8	359.7	
10	4830.423	V	27.9	41.6	11.9	39.8	53.5	60.0	80.0	20.2	26.5	162.7	138.6	
11	5630.739	V	26.6	40.6	13.7	40.3	54.3	60.0	80.0	19.7	25.7	105.0	316.2	
12	5726.494	H	26.9	40.5	14.0	40.9	54.5	60.0	80.0	19.1	25.5	331.2	358.6	



■ mode 2



Final Result

No.	Frequency	Pol	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		AV	PK		AV	PK	AV	PK	AV	PK			
			[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1484.794	V	40.7	51.5	1.1	41.8	52.6	60.0	80.0	18.2	27.4	132.2	165.1	
2	1484.986	H	41.6	51.9	1.1	42.7	53.0	60.0	80.0	17.3	27.0	364.8	359.6	
3	2080.934	H	30.1	44.1	3.4	33.5	47.5	60.0	80.0	26.5	32.5	312.1	135.0	
4	2148.777	V	29.2	43.1	3.7	32.9	46.8	60.0	80.0	27.1	33.2	107.9	117.5	
5	2548.562	H	29.5	42.9	5.2	34.7	48.1	60.0	80.0	25.3	31.9	281.2	20.2	
6	2750.295	V	38.6	45.9	5.7	44.3	51.6	60.0	80.0	15.7	28.4	124.9	162.1	
7	3312.952	V	31.9	44.0	6.9	38.8	50.9	60.0	80.0	21.2	29.1	148.7	185.5	
8	3410.013	H	28.6	42.0	7.1	35.7	49.1	60.0	80.0	24.3	30.9	227.1	0.8	
9	4312.890	H	28.0	41.7	10.0	38.0	51.7	60.0	80.0	22.0	28.3	309.6	133.0	
10	4684.860	V	28.4	41.9	11.4	39.8	53.3	60.0	80.0	20.2	26.7	136.1	185.5	
11	5717.543	V	27.0	40.7	14.0	41.0	54.7	60.0	80.0	19.0	25.3	108.6	1.7	
12	5868.122	H	26.3	39.8	14.3	40.6	54.1	60.0	80.0	19.4	25.9	332.8	140.4	

◆ Calculation

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

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

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

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



Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ mode 1





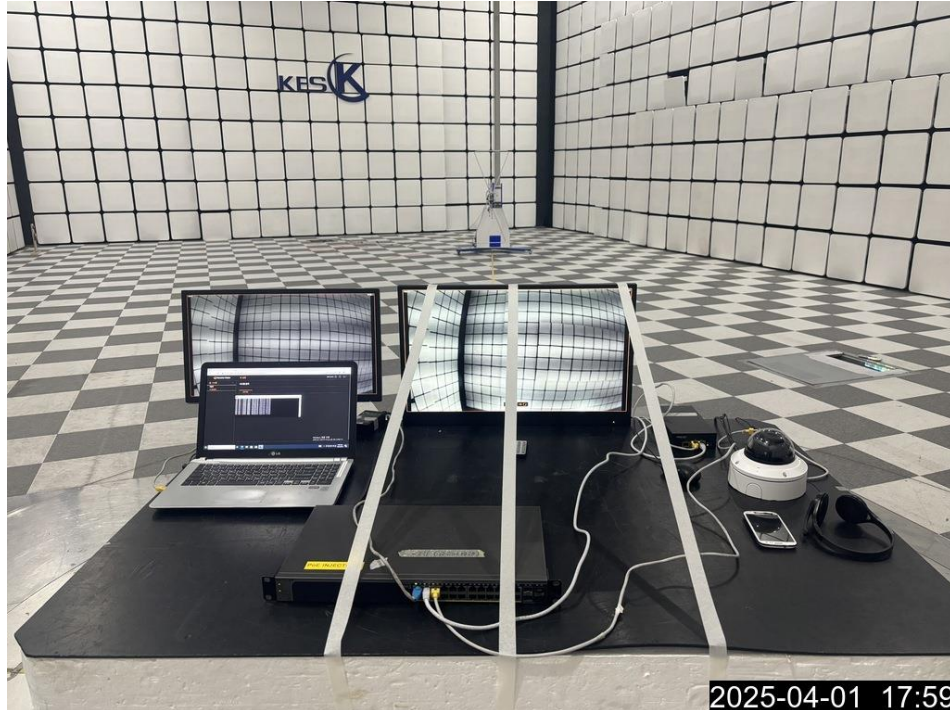
■ mode 2





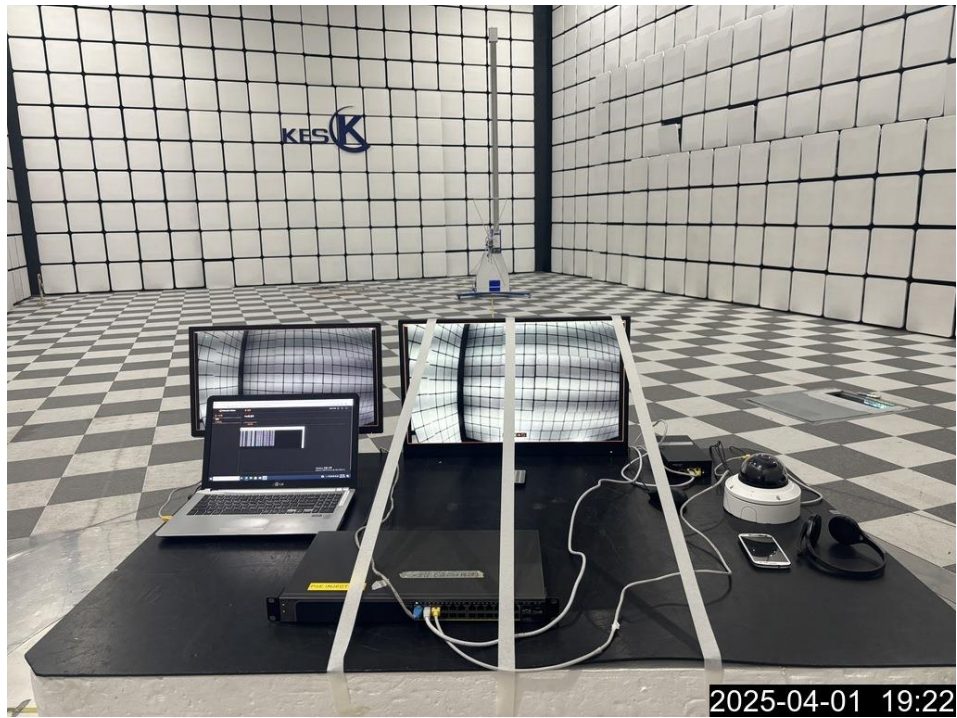
Radiated Electric Field Emissions(Below 1 GHz)

■ mode 1





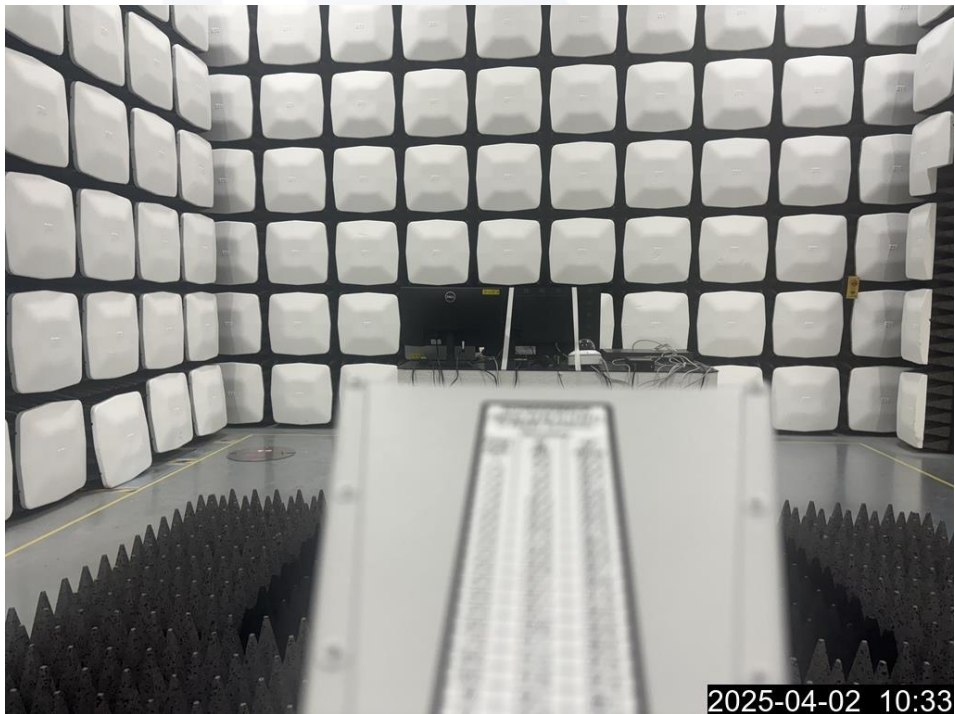
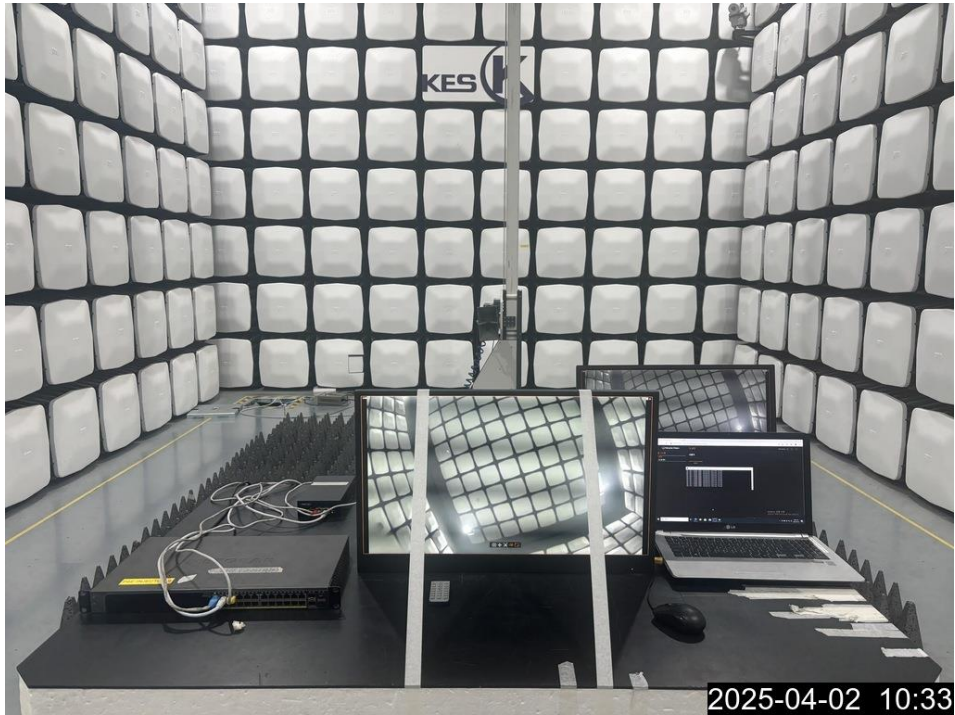
■ mode 2





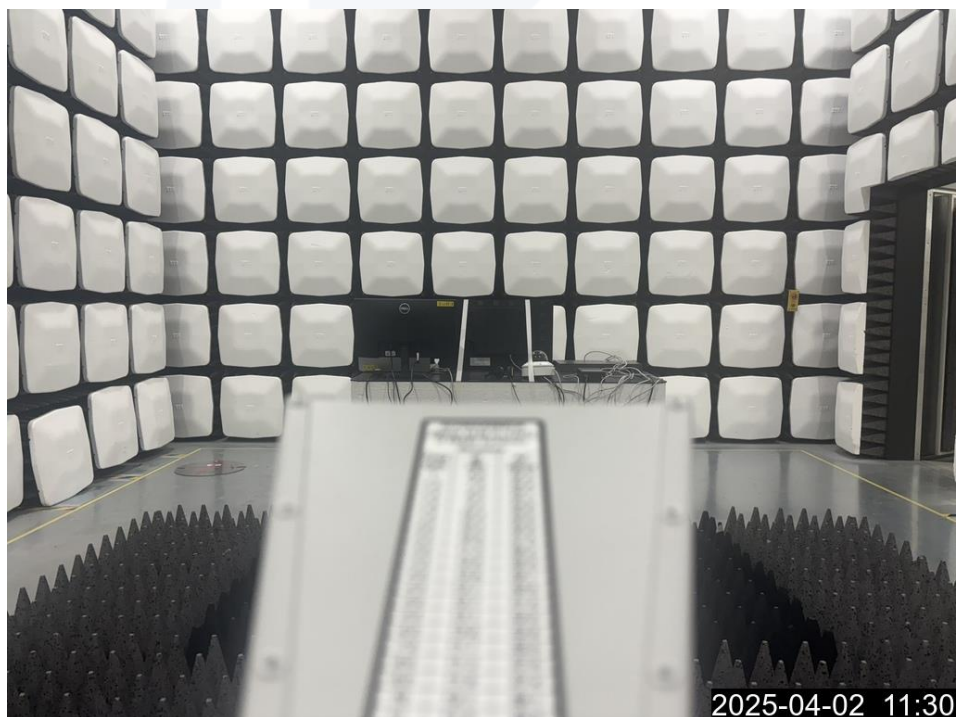
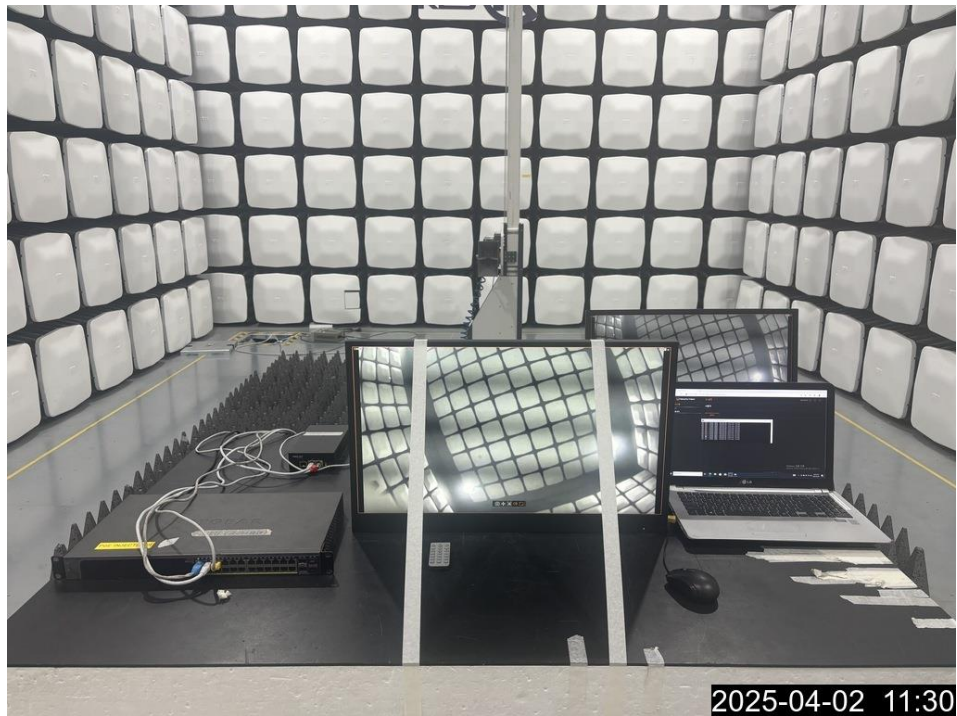
Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1





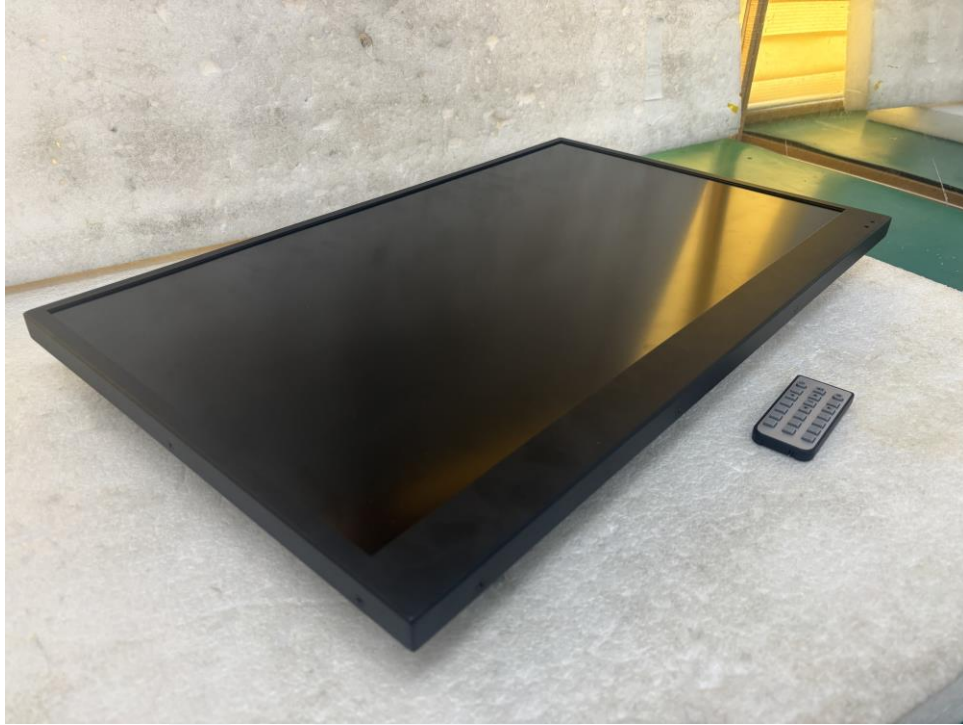
■ mode 2





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

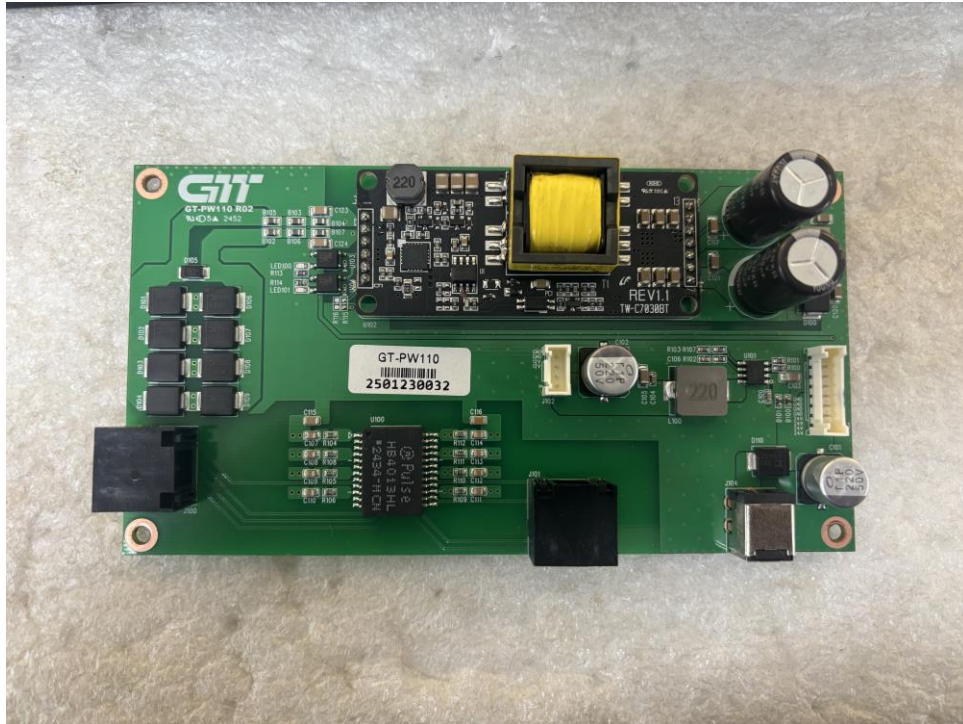
(Internal View)



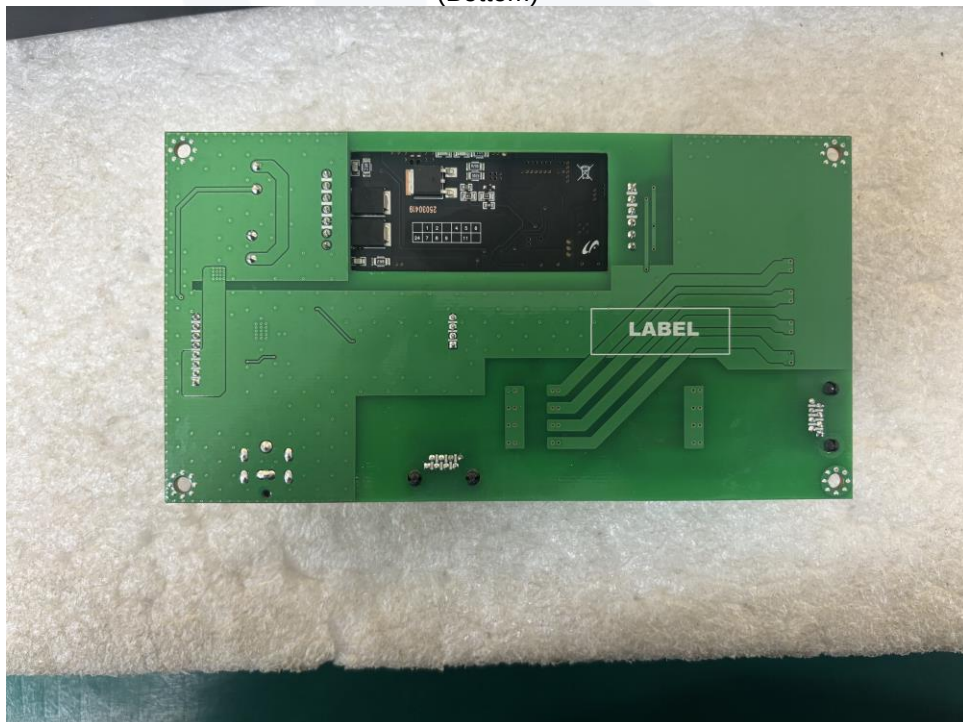


EUT Internal View – Board 1

(Top)



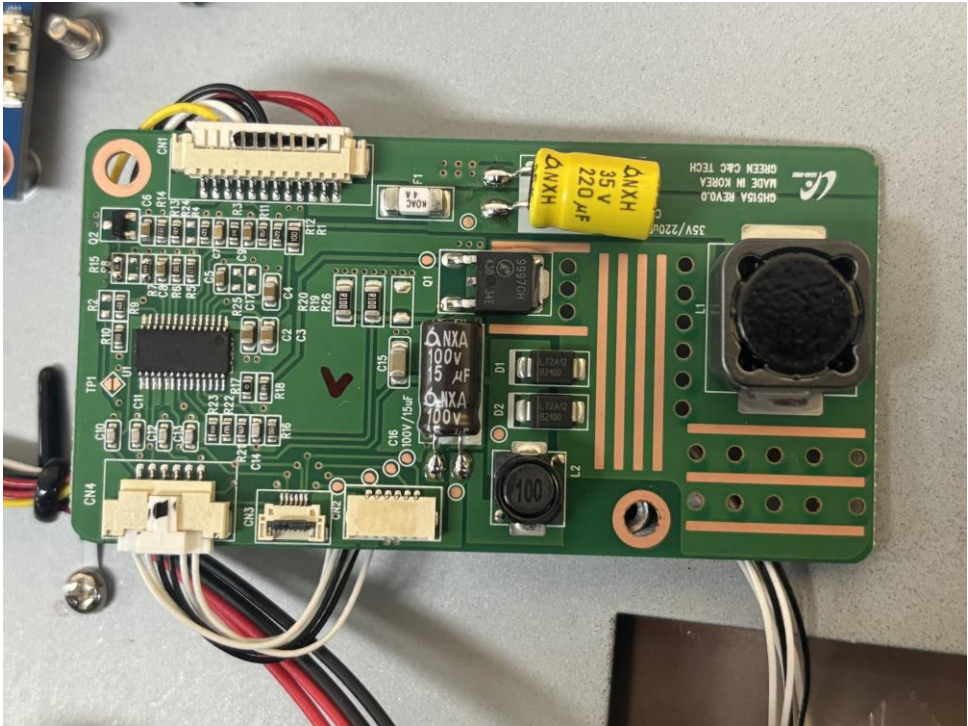
(Bottom)



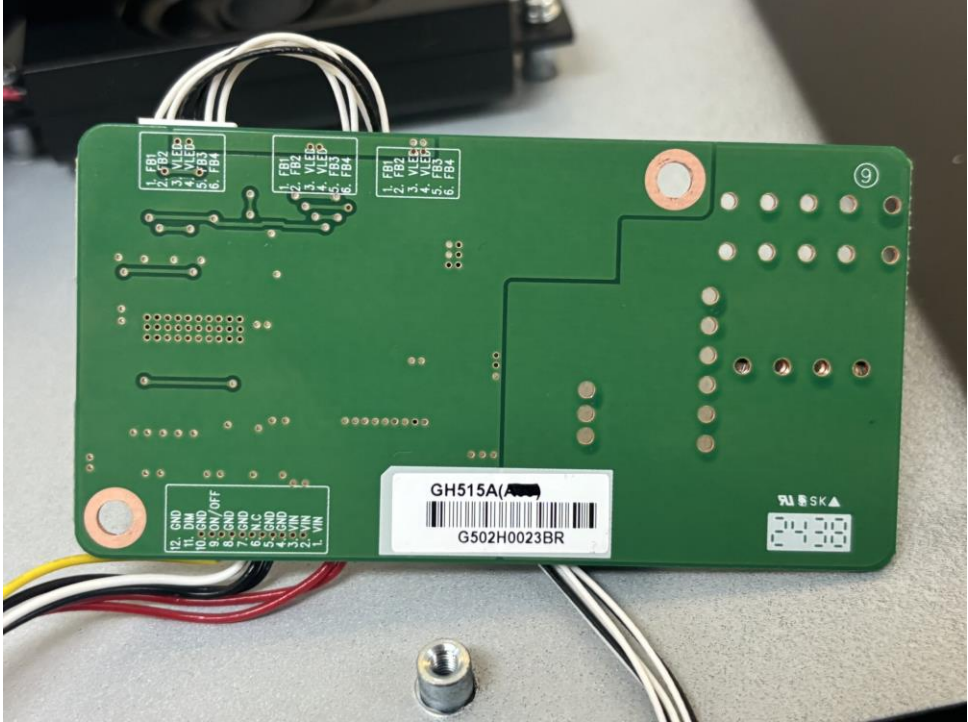


EUT Internal View – Board 2

(Top)



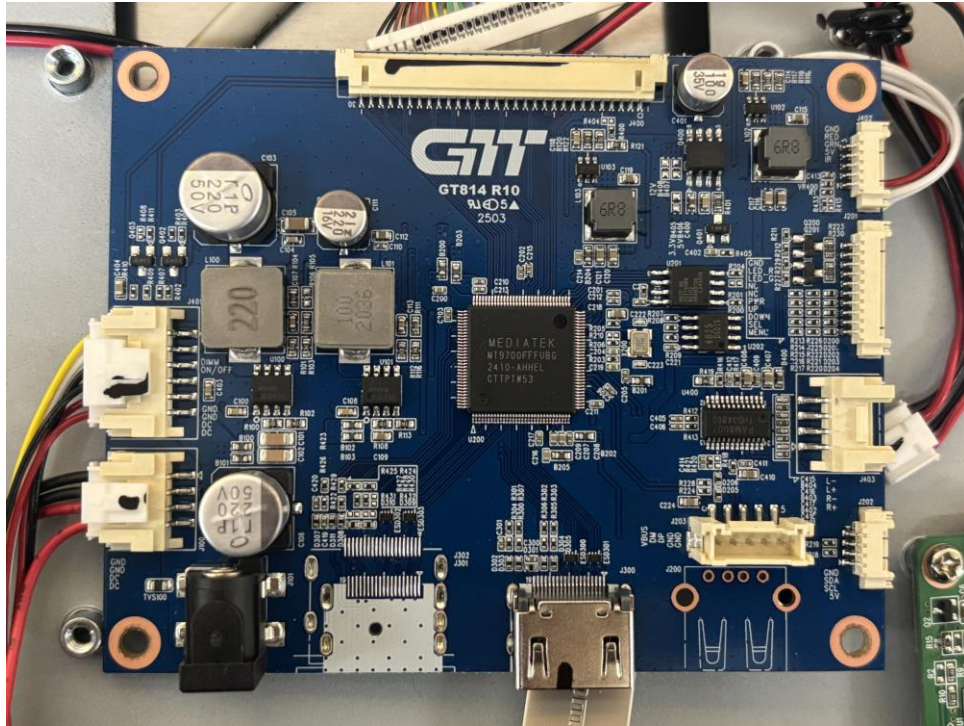
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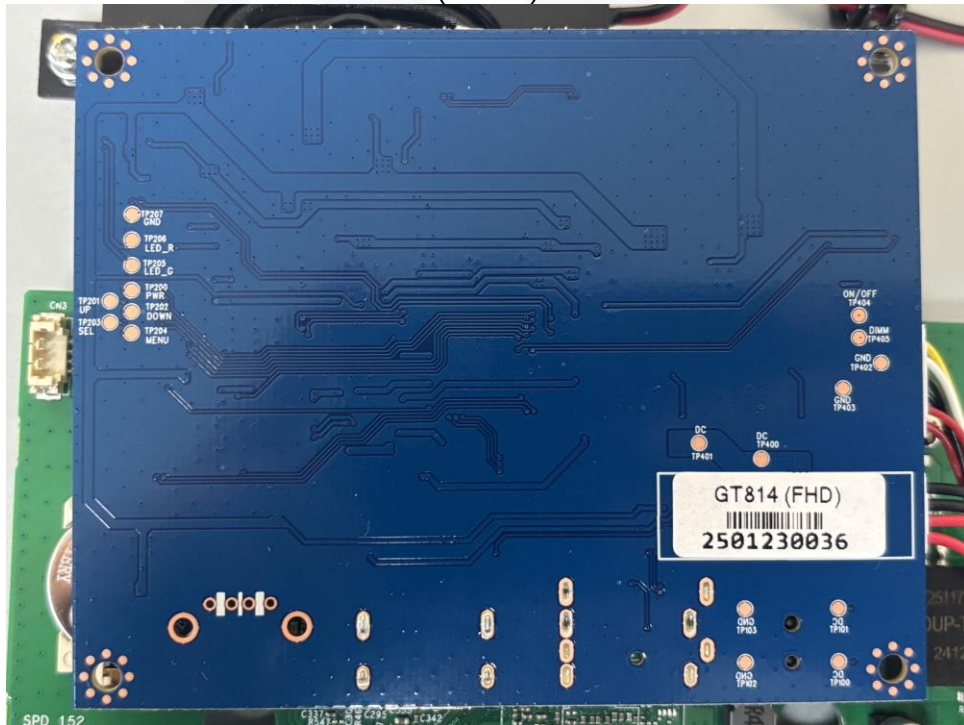


EUT Internal View – Board 3

(Top)



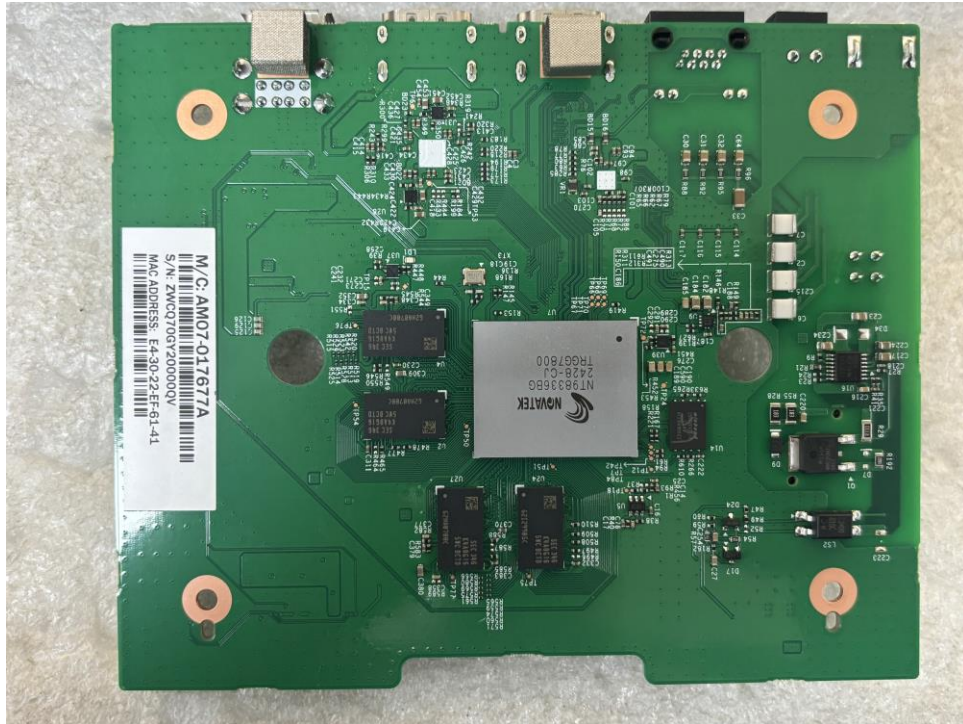
(Bottom)





EUT Internal View – Board 4

(Top)



(Bottom)





EUT Internal View – Board 5

(Top)



(Bottom)





EUT Internal View – Board 6

(Top)



(Bottom)





Label Photographs

FCC Label



Decoder Monitor

SMT-2721D

IC Label

CAN ICES-003(A) / NMB-003(A)

This device complies with ICES-003 Canada Rules Operation is subject to the following two conditions:
(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

The End.