



## EMC TEST REPORT

Test Report No. : KES-E1-18T0635

Date of Issue : Nov. 16, 2018

Product name : Thermal Camera

Model/Type No. : TNO-4040TR

Variant Mode : TNO-4030TR

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, 13488, KOREA

Manufacturer : 1. Hanwha Techwin (Tianjin) Co.,Ltd.  
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.  
3. D-TECH CO.,LTD.

Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,  
300385, People's Republic of China  
2. Lot O-2, Que Vo Industrial Zone extended area,  
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam  
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,  
Korea (Suwon Industrial Complex)

Equipment authorization : Supply's Declaration of Conformity

Date of Receipt : Nov. 06, 2018

Test date : Nov. 08, 2018

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Kang Hyeon, Kim  
EMC Test Engineer

Reviewed by

Dong-Hun, Jang  
EMC Technical Manager

This test report is not related to KOLAS.

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Test report No.:  
KES-E1-18T0635  
Page (2) of (33)

## REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Nov. 16, 2018	KES-E1-18T0635	Issued

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## TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency .....	5
1.2	Variant Model Differences .....	5
1.3	Device Modifications .....	5
1.4	Equipment Under Test.....	5
1.5	Support Equipments .....	5
1.6	External I/O Cabling .....	6
1.7	EUT Operating Mode(s) .....	7
1.8	Configuration.....	7
1.9	Remarks when standards applied .....	9
1.10	Calibration Details of Equipment Used for Measurement .....	9
1.11	Test Facility .....	9
1.12	Laboratory Accreditations and Listings .....	9
2.0	Test Regulations.....	10
2.1	Conducted Emissions at Mains Power Ports .....	12
2.2	Radiated Electric Field Emissions(Below 1 GHz) .....	13
2.3	Radiated Electric Field Emissions(Above 1 GHz) .....	14
APPENDIX A – TEST DATA.....		15
Conducted Emissions at Mains Power Ports.....		15
Radiated Electric Field Emissions(Below 1 GHz) .....		17
Radiated Electric Field Emissions(Above 1 GHz) .....		19
Test Setup Photos and Configuration .....		21
Conducted Voltage Emissions .....		21
Radiated Electric Field Emissions(Below 1 GHz) .....		22
Radiated Electric Field Emissions(Above 1 GHz) .....		23
EUT External Photographs.....		24
EUT Internal Photographs .....		25



## 1.0 General Product Description

Main Specifications of EUT are:

<b>VIDEO</b>	
Imaging Device	Uncooled microbolometer, Pixel size : 17 $\mu$ m
Effective Pixels	640(H) x 480(V)
NETD	<50mK
Video Out	CVBS : 1.0Vpp / 75 $\Omega$ composite, 720 x 480(N), 720 x 576(P), for installation USB : Micro USB type B, 1280 x 720, for installation
<b>LENS</b>	
Focal Length (Zoom Ratio)	19mm fixed
Max. Aperture Ratio	F1.0
Angular Field of View	H : 32° / V : 24.3° / D : 39.2°
Min. Object Distance	11m (36.09ft)
Focus Control	Fixed
Lens / Mount Type	Board-in type
<b>OPERATIONAL</b>	
Camera Title	Off / On - W/W : English / Numeric / Special characters - China : English / Numeric / Special / Chinese characters - Common : Multi-line (Max. 5), Color (Gray / Green / Red / Blue / Black / White), Transparency, Auto scale by resolution
Motion Detection	Off / On (8ea, 8point polygonal zones), Handover
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Gray / Green / Red / Blue / Black / White - Mosaic
Flip / Mirror	Off / On, Hallway : 90° / 270°
Video & Audio Analytics	Tampering, Loitering, Directional detection, Virtual line, Enter/Exit, (Dis) Appear, Audio detection, Motion detection, Sound classification, Shock detection, Temperature change detection
Alarm I/O	Input 1ea / Output 2ea
Digital Image Stabilization	Off / On (Built-in Gyro sensor)
Alarm Triggers	Alarm input, Motion detection, Video & Audio analytics, Network disconnect
Alarm Events	File upload Via FTP, E-mail, Notification Via E-mail, Local storage (SD/SDHC/ SDXC) or NAS recording at event triggers, External output
Pixel count	Support
<b>NETWORK</b>	
Ethernet	RJ-45 (10/100 BASE-T)
Video Compression Format	H.265 / H.264 (MPEG-4 part 10/AVC) : Main / Baseline / High, MJPEG
Resolution	640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265 / H.264 : Max. 30fps at all resolutions, MJPEG : Max. 30fps
WiseStreamII	Support
Video Quality Adjustment	H.265 / H.264 / MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, MJPEG : VBR
Streaming Capability	Multiple streaming (Up to 10 profiles)
Audio In	Selectable (Mic in / Line in), Supply voltage : 2.5V DC (4mA), Input impedance : approx. 2K Ohm
Audio Out	Line out, Max output level : 1 Vrms
Audio Compression Format	G.711 u-law / G.726 selectable, G.726 (ADPCM) 8KHz, G.711 8KHz, G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps, AAC-LC : 48Kbps at 8 / 16 / 32 / 48KHz
Audio Communication	Bi-directional (2-Way)
IP	IPv4, IPv6

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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 ☐ 120 Vac ☒ 24 Vac ☒ 12 Vdc ☒ PoE

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

## 1.2 Variant Model Differences

A derivative model to the classification of customers simple.

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Thermal Camera	TNO-4040TR	-	Hanwha Techwin (Tianjin) Co.,Ltd.	EUT

## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	PD-9601GR	-	Microsemi	-
Notebook	ProBook4430s	-	HP	-
Notebook Adaptor	SeriesPPP0009H	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
Speaker	BR1000A	-	DONGGUAN 1 TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-
iPod	A1367	C3TDG2JGDCP9	APPLE .Inc	-
Micro SD Card	-	-	SanDisk	8 GB

## 1.6 External I/O Cabling

### ■ AC 24 V, DC 12 V MODE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Thermal Camera (EUT)	RJ-45	Notebook	RJ-45	3.0	U
	Thermal 2Pin	Speaker	3.5 mm	1.4	U
	Thermal 2Pin	MIC	3.5 mm	1.4	U
	Thermal 2Pin	Alarm	Thermal 2Pin	3.0	U
	Thermal 2Pin	Button Alarm	Thermal 2Pin	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Phone	3.5 mm	0.8	U

### ■ PoE MODE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Thermal Camera (EUT)	RJ-45 (PoE)	PoE Adaptor	RJ-45 (PoE)	3.0	U
	Thermal 2Pin	Speaker	3.5 mm	1.4	U
	Thermal 2Pin	MIC	3.5 mm	1.4	U
	Thermal 2Pin	Alarm	Thermal 2Pin	3.0	U
	Thermal 2Pin	Button Alarm	Thermal 2Pin	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	RJ-45 (DATA)	PoE Adaptor	RJ-45 (DATA)	1.5	U
	3.5 mm	Phone	3.5 mm	0.8	U

\* Unshielded=U, Shielded=S

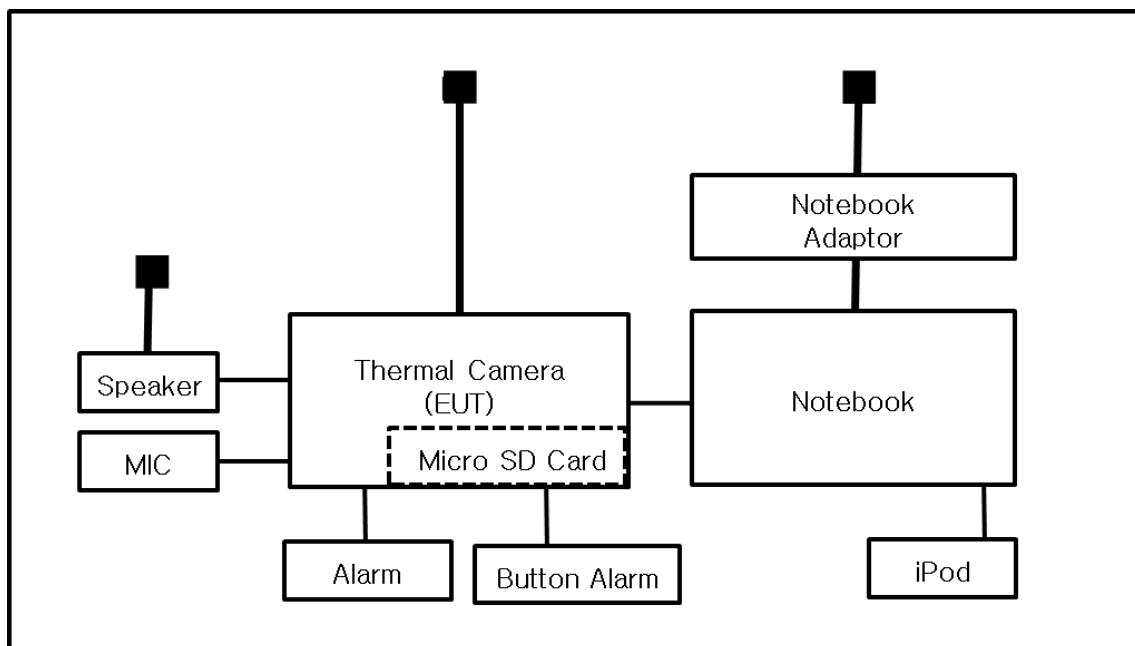
## 1.7 EUT Operating Mode(s)

Test mode	operating
AC 24 V DC 12 V PoE	EUT Monitoring, Ping Test

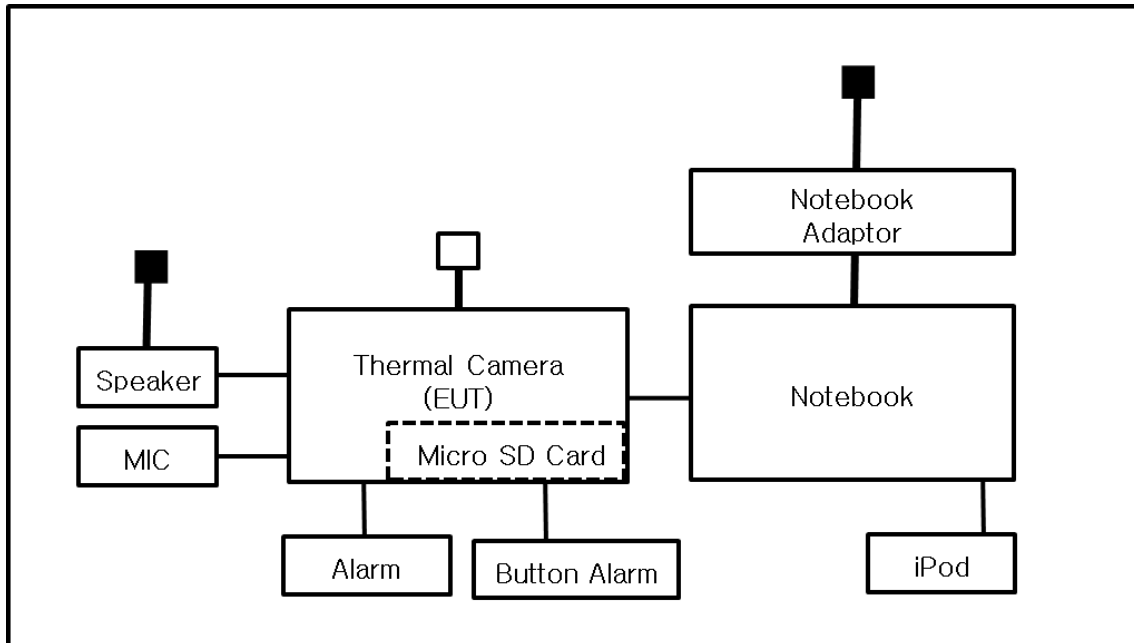
EUT Test operating S/W		
Name	Version	Manufacture Company
WebView	-	Hanwha Techwin Co., Ltd.

## 1.8 Configuration

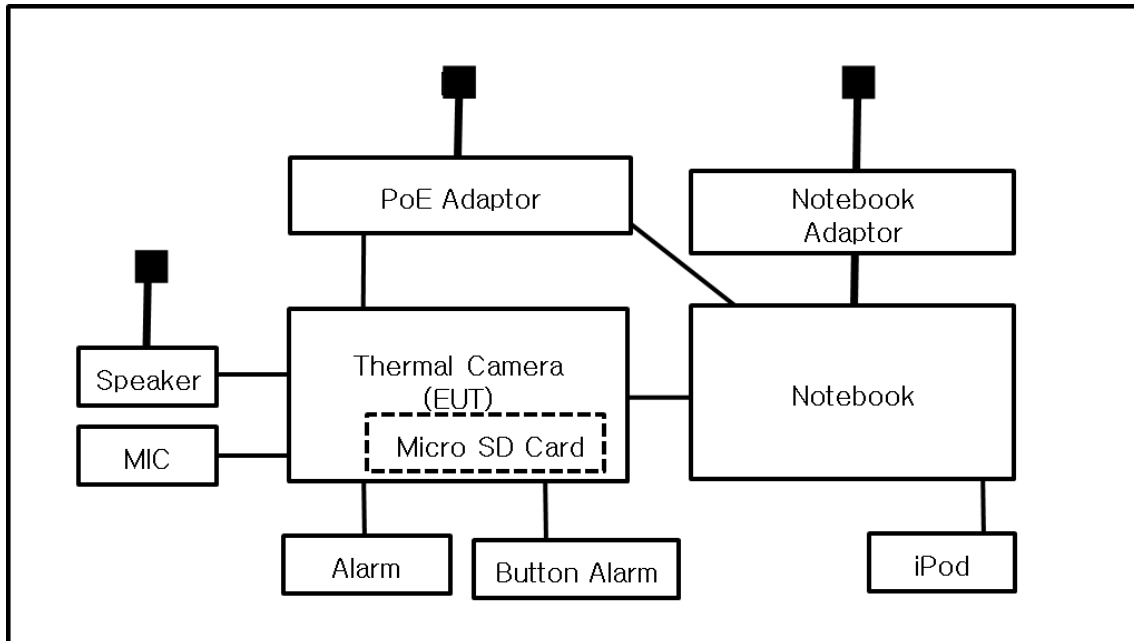
■ AC Main  
 □ DC Main  
 ■ AC 24 V MODE



■ DC 12 V MODE



■ PoE 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. The sites are constructed in conformance with the requirements of ANSI C63.4: 2014 and CISPR 16-1-4: 2012

## 1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Aechoic 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-Aechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Aechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Aechoic 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-4308, C-4798, T-2311, G-914
Europe	TÜ V SÜ D	EMI (3 m & 10 m Semi-Aechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 17 07 01633 001

## 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 55032: 2015

☐ Class A

☐ Class B

☐ EN 55024: 2010

☐ EN 50130-4: 2011 +A1: 2014

☐ EN 61000-3-2: 2014

☐ EN 61000-3-3: 2013

☐ EN 61326-1: 2013



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Test report No.:  
KES-E1-18T0635  
Page (11) of (33)

- |   |   |                                  |
|---|---|----------------------------------|
| <input type="checkbox"/> VCCI V-3 / 2015.04                       | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS:2013                              | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> 47 CFR Part 15, Subpart B     |   |                                  |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010                   | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> ANSI C63.4-2014               | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> IC Regulation ICES-003 : 2016 |   |                                  |
| <input type="checkbox"/> CAN/CSA CISPR 22-10                      | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> ANSI C63.4-2014               | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> RE- Directive 2014/53/EU                 |   |                                  |
| <input type="checkbox"/> EN 301 489-1 V1.9.2                      |   |                                  |
| <input type="checkbox"/> Equipment for fixed use                  |   |                                  |
| <input type="checkbox"/> Equipment for vehicular use              |   |                                  |
| <input type="checkbox"/> Equipment for portable use               |   |                                  |
| <input type="checkbox"/> EN 301 489-3 V1.6.1                      |   |                                  |
| <input type="checkbox"/> EN 301 489-17 V2.2.1                     |   |                                  |
| <input type="checkbox"/> EN 60945: 2002                           |   |                                  |

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## 2.1 Conducted Emissions at Mains Power Ports

Test Date  
Nov. 08, 2018

Test Location  
Electro wave Shieldroom #3

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	04, 25, 2019
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101137	01, 31, 2019
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	04, 25, 2019

Test Conditions  
Temperature: 22,4 °C  
Relative Humidity: 54,1 % 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  
Nov. 08, 2018

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	714	11, 28, 2018

Test Conditions  
Temperature: 21,4 °C  
Relative Humidity: 54,7 % 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  
Nov. 08, 2018

Test Location  
SEMI ANECHOIC CHAMBER #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01742	01, 11, 2019
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 21, 2019
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	09, 04, 2019

Test Conditions  
Temperature: 21,4 °C  
Relative Humidity: 54,7 % 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.



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Test report No.:  
KES-E1-18T0635  
Page (15) of (33)

## APPENDIX A – TEST DATA

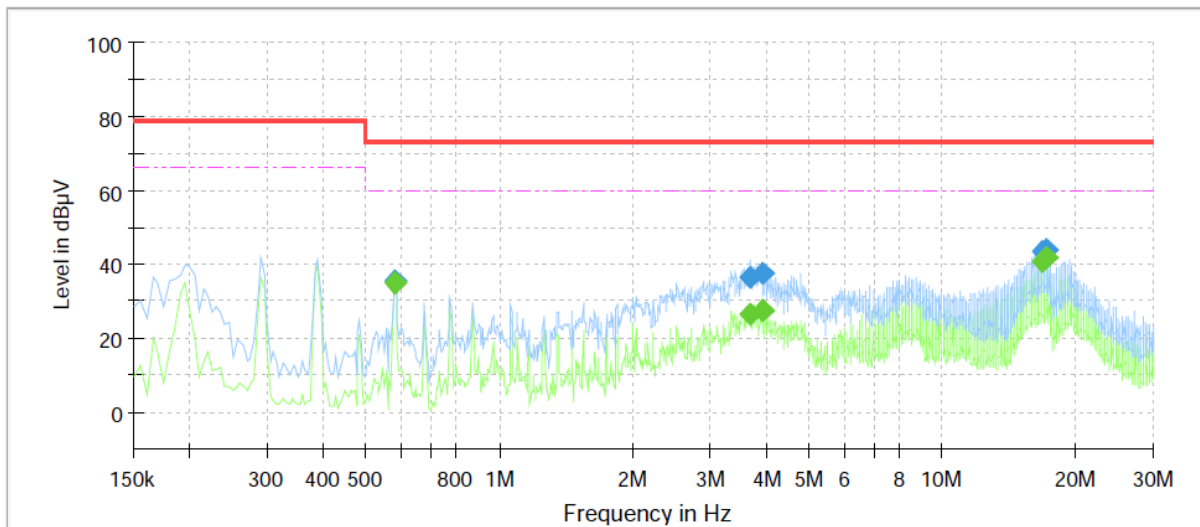
### Conducted Emissions at Mains Power Ports

#### ■ AC 24 V MODE

HOT LINE

### Common Information

Test Description: Conducted Emission  
Model No.: TNO-4040TR  
Mode: AC  
Operator Name: KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.580000	---	35.08	60.00	24.92	1000.0	9.000	L1	9.8
0.580000	35.25	---	73.00	37.75	1000.0	9.000	L1	9.8
3.680000	---	26.72	60.00	33.28	1000.0	9.000	L1	10.1
3.680000	36.71	---	73.00	36.29	1000.0	9.000	L1	10.1
3.925000	---	27.53	60.00	32.47	1000.0	9.000	L1	10.1
3.925000	37.50	---	73.00	35.50	1000.0	9.000	L1	10.1
16.875000	---	40.87	60.00	19.13	1000.0	9.000	L1	10.3
16.875000	43.20	---	73.00	29.80	1000.0	9.000	L1	10.3
17.265000	---	41.74	60.00	18.26	1000.0	9.000	L1	10.3
17.265000	43.97	---	73.00	29.03	1000.0	9.000	L1	10.3

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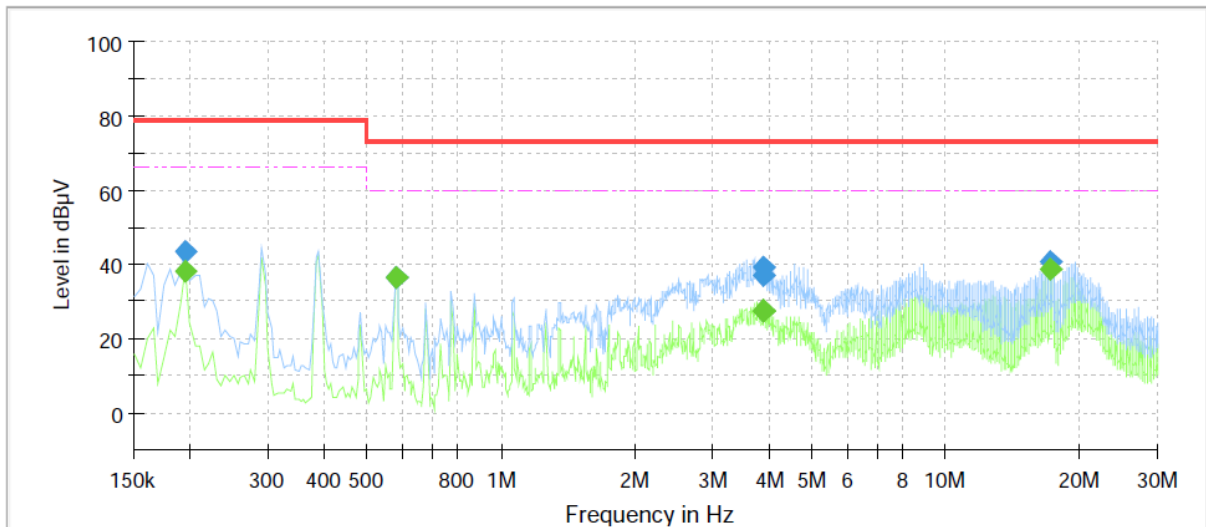
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Test report No.:  
KES-E1-18T0635  
Page (16) of (33)

### NEUTRAL LINE

## Common Information

Test Description: Conducted Emission  
Model No.: TNO-4040TR  
Mode: AC  
Operator Name: KES



## Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	38.06	66.00	27.94	1000.0	9.000	N	9.7
0.195000	43.60	---	79.00	35.40	1000.0	9.000	N	9.7
0.580000	---	36.30	60.00	23.70	1000.0	9.000	N	9.8
0.580000	36.44	---	73.00	36.56	1000.0	9.000	N	9.8
3.875000	---	27.77	60.00	32.23	1000.0	9.000	N	10.1
3.875000	37.31	---	73.00	35.69	1000.0	9.000	N	10.1
3.910000	---	27.65	60.00	32.35	1000.0	9.000	N	10.1
3.910000	39.09	---	73.00	33.91	1000.0	9.000	N	10.1
17.165000	---	38.44	60.00	21.56	1000.0	9.000	N	10.2
17.165000	40.52	---	73.00	32.48	1000.0	9.000	N	10.2

### ◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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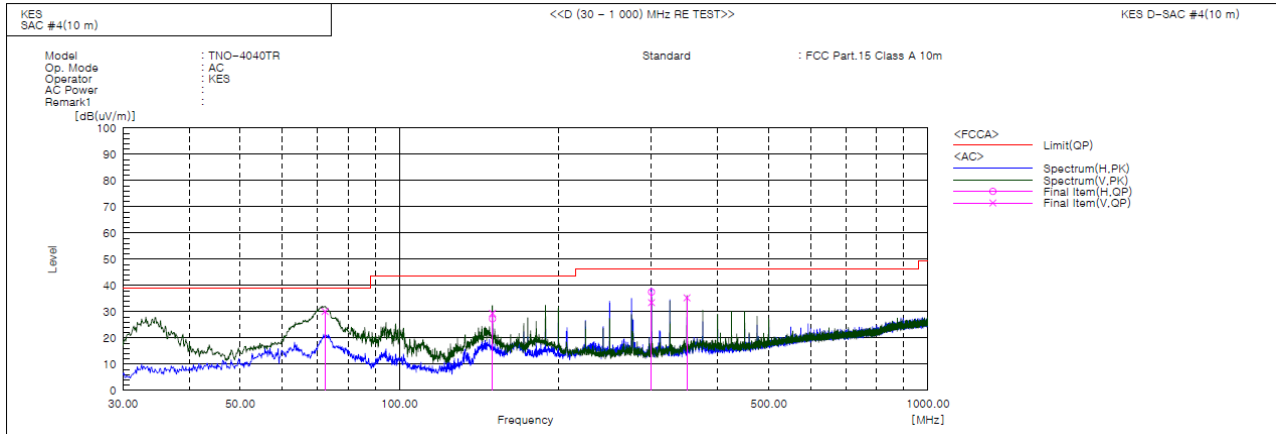
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Test report No.:  
KES-E1-18T0635  
Page (17) of (33)

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

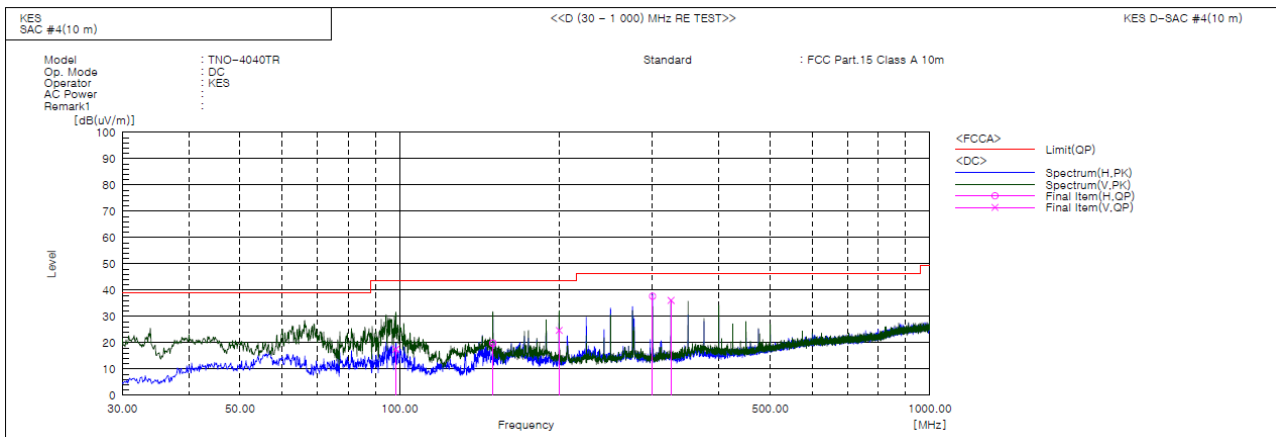
#### ■ AC 24 V MODE



#### 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	72.316	V	63.2	-33.1	30.1	39.0	8.9	100.0	214.0	
2	150.038	H	59.4	-32.1	27.3	43.5	16.2	400.0	124.0	
3	150.038	V	61.5	-32.1	29.4	43.5	14.1	100.0	111.0	
4	300.024	H	62.3	-24.8	37.5	46.5	9.0	400.0	139.0	
5	300.024	V	58.3	-24.8	33.5	46.5	13.0	100.0	91.0	
6	349.979	V	58.5	-23.2	35.3	46.5	11.2	100.0	87.0	

#### ■ DC 12 V 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	98.385	V	46.6	-29.1	17.5	43.5	26.0	100.0	273.0	
2	149.916	H	51.9	-32.1	19.8	43.5	23.7	400.0	119.0	
3	199.993	V	52.2	-27.5	24.7	43.5	18.8	100.0	36.0	
4	300.024	H	62.5	-24.8	37.7	46.5	8.8	400.0	131.0	
5	325.001	V	60.2	-24.1	36.1	46.5	10.4	100.0	147.0	

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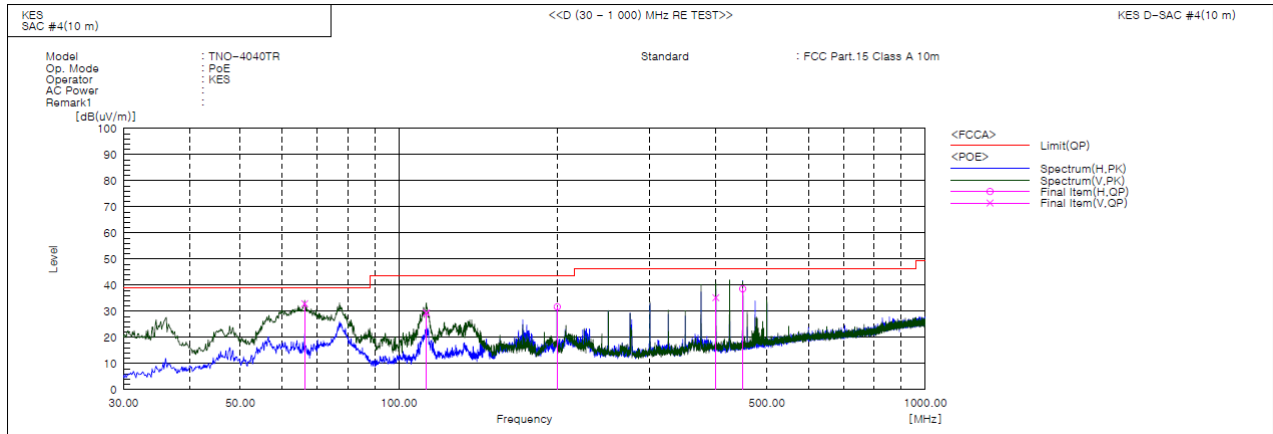


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Test report No.:  
KES-E1-18T0635  
Page (18) of (33)

### ■ PoE 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	66.254	V	64.2	-31.3	32.9	39.0	6.1	100.0	244.0	
2	112.814	V	59.7	-30.3	29.4	43.5	14.1	100.0	113.0	
3	199.993	H	59.2	-27.5	31.7	43.5	11.8	400.0	267.0	
4	400.055	V	56.6	-21.4	35.2	46.5	11.3	100.0	26.0	
5	450.010	H	58.8	-20.2	38.6	46.5	7.9	400.0	282.0	

### ◆ Calculation – SAC #4(10 m)

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

Margin(QP)[dB] = Limit[dB( $\mu$ V/m)] - Result(QP) [dB( $\mu$ V/m)]

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

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



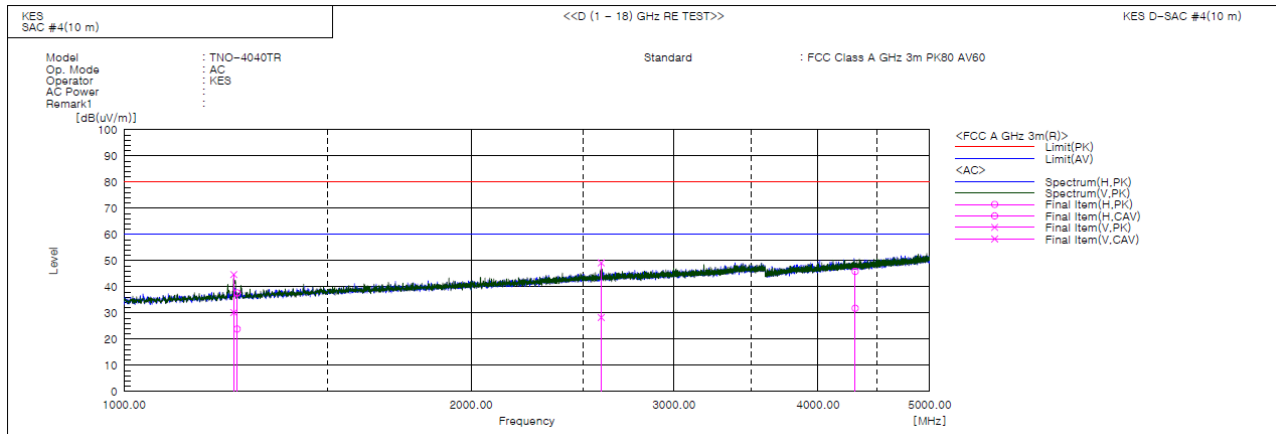
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Page (19) of (33)

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

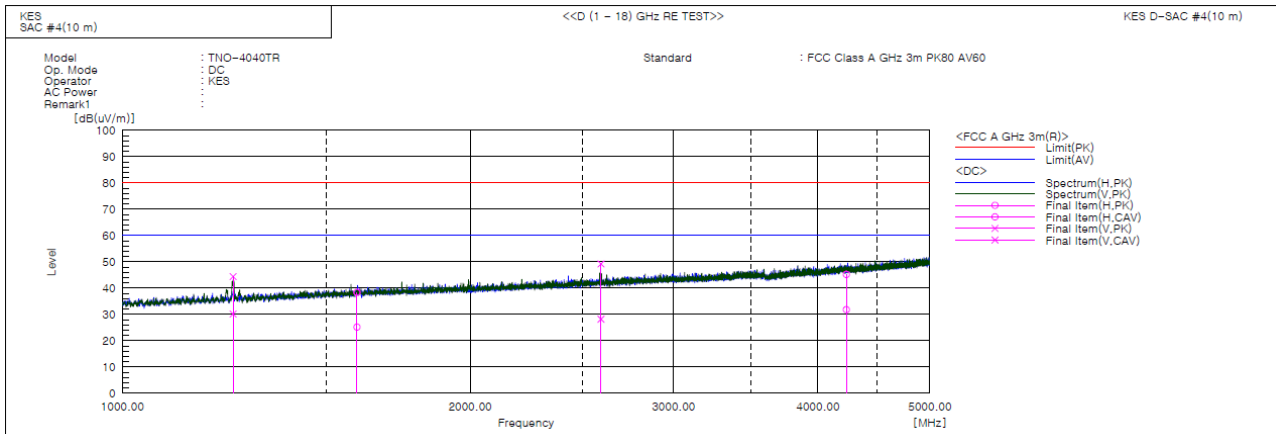
#### ■ AC 24 V MODE



#### 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	1245.155	V	50.2	35.7	-5.5	44.7	30.2	80.0	60.0	35.3	29.8	163.0	308.0	
2	1253.490	H	43.2	29.4	-5.5	37.7	23.9	80.0	60.0	42.3	36.1	342.0	122.0	
3	2593.945	V	47.1	26.2	2.1	49.2	28.3	80.0	60.0	30.8	31.7	127.0	17.0	
4	4308.925	H	37.6	23.5	8.3	45.9	31.8	80.0	60.0	34.1	28.2	400.0	231.0	

#### ■ DC 12 V 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	1247.000	V	49.9	35.7	-5.5	44.4	30.2	80.0	60.0	35.6	29.8	113.0	155.0	
2	1596.310	H	41.1	27.9	-2.7	38.4	25.2	80.0	60.0	41.6	34.8	362.0	19.0	
3	2595.715	V	47.1	26.1	2.1	49.2	28.2	80.0	60.0	30.8	31.8	100.0	19.0	
4	4233.675	H	37.0	23.6	8.2	45.2	31.8	80.0	60.0	34.8	28.2	345.0	55.0	

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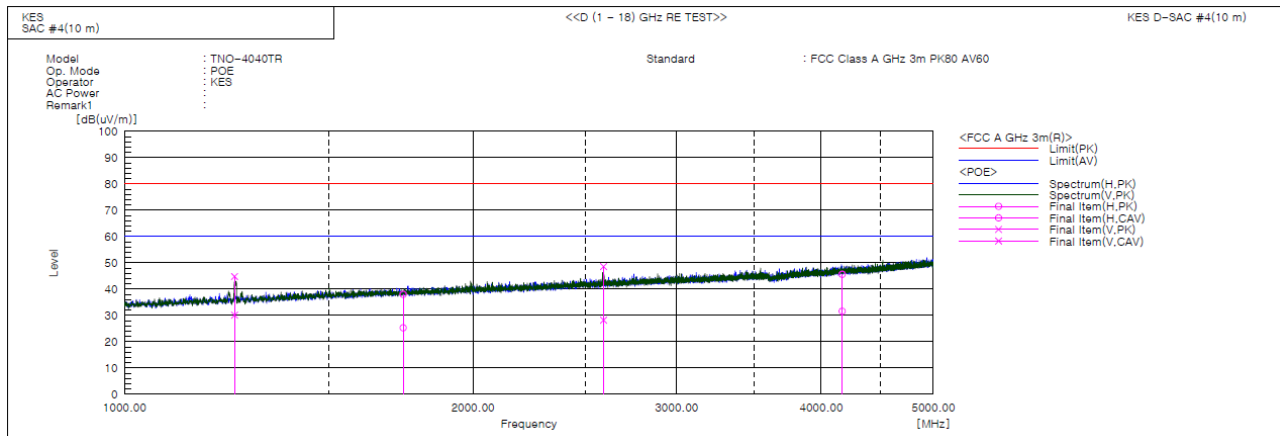


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KES-E1-18T0635  
Page (20) of (33)

### ■ PoE MODE



No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1244.765	V	50.3	35.6	-5.5	44.8	30.1	80.0	60.0	35.2	29.9	149.0	307.0	
2	1741.055	H	39.9	27.2	-1.9	38.0	25.3	80.0	60.0	42.0	34.7	319.0	87.0	
3	2594.045	V	46.5	26.1	2.1	48.6	28.2	80.0	60.0	31.4	31.8	171.0	233.0	
4	4170.685	H	37.6	23.6	8.0	45.6	31.6	80.0	60.0	34.4	28.4	360.0	148.0	

### ◆ Calculation

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

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/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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## Test Setup Photos and Configuration

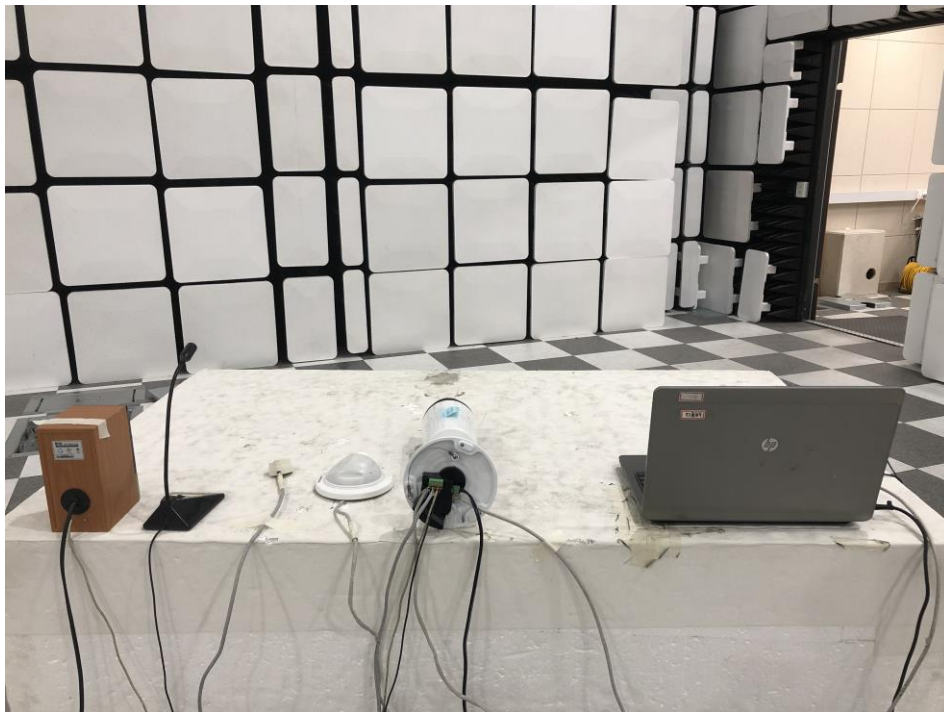
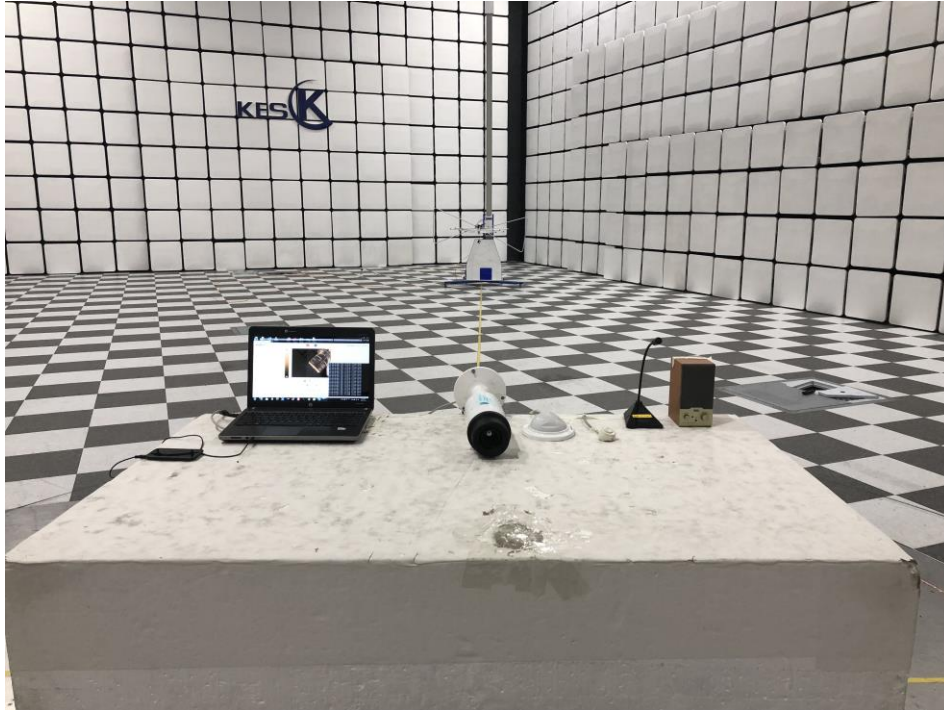
### Conducted Voltage Emissions



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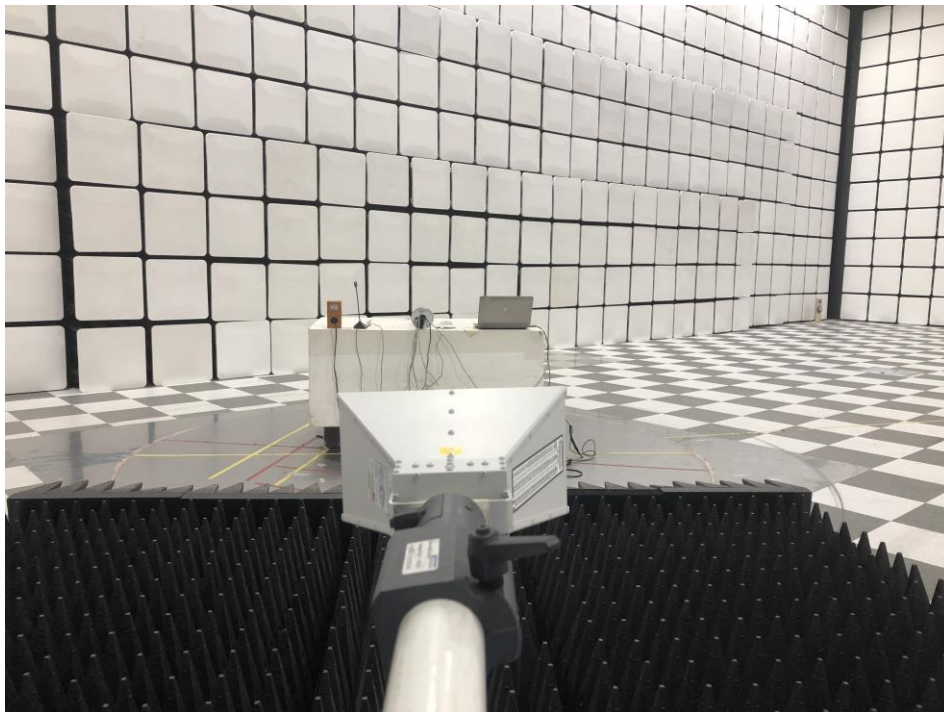
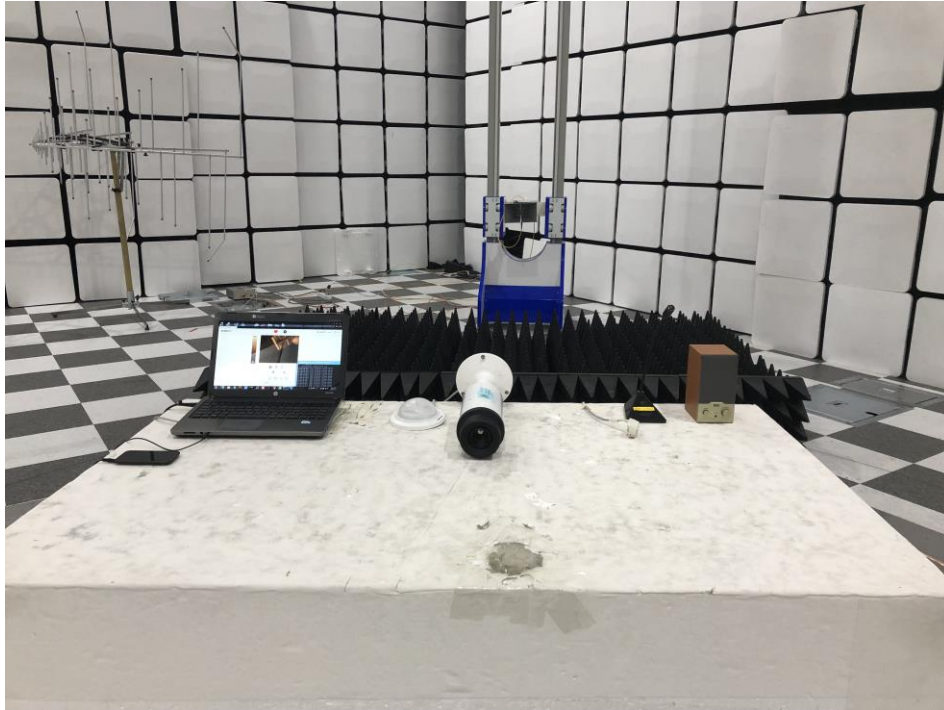


## Radiated Electric Field Emissions(Below 1 GHz)



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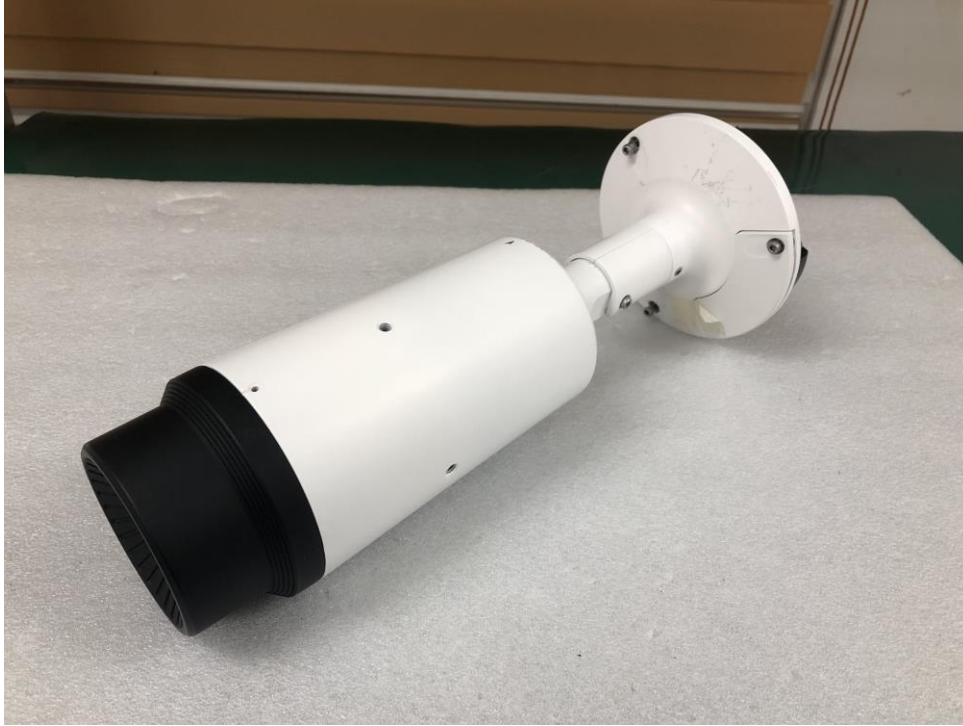
## Radiated Electric Field Emissions(Above 1 GHz)



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## EUT External Photographs

(Top)



(Bottom)

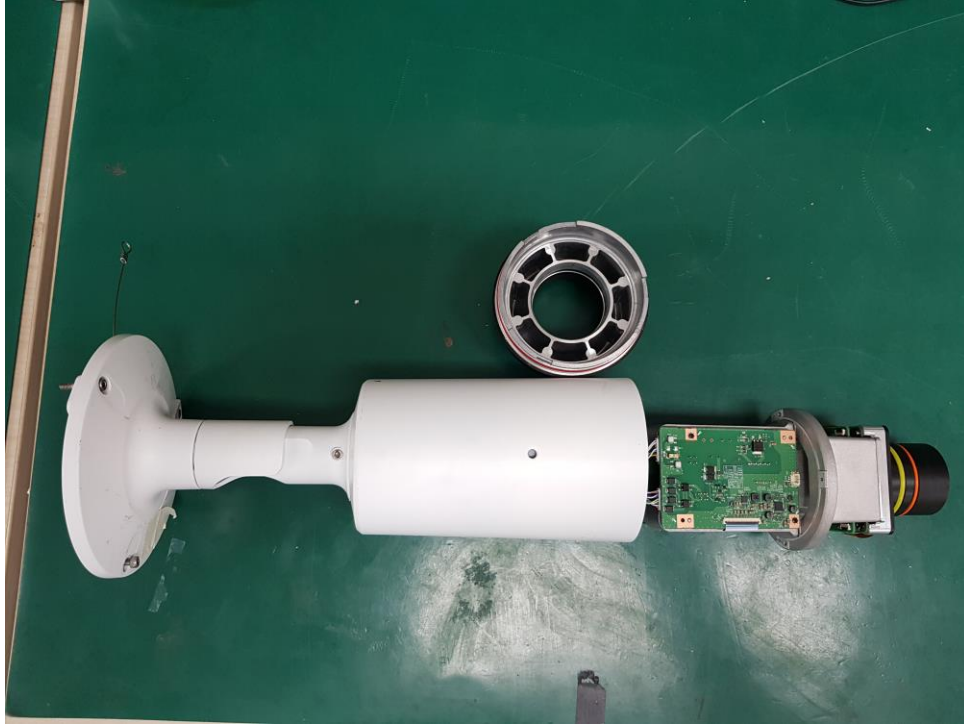


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## EUT Internal Photographs

(Internal View)



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## EUT Internal View – Interface Board

(Top)



(Bottom)



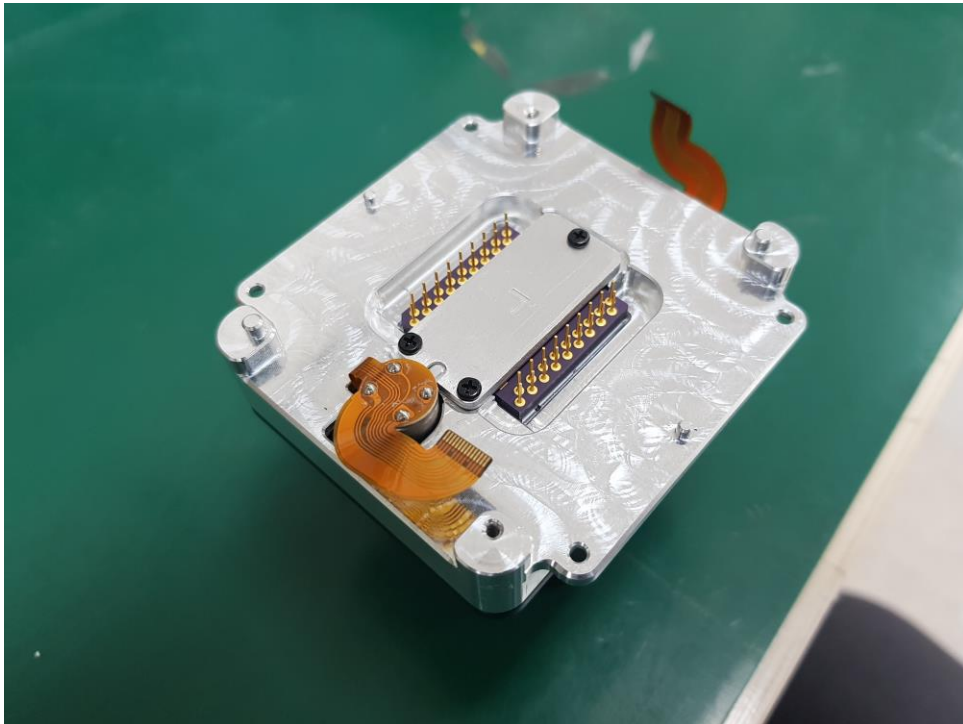
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## EUT Internal View – Lens

(Top)



(Bottom)

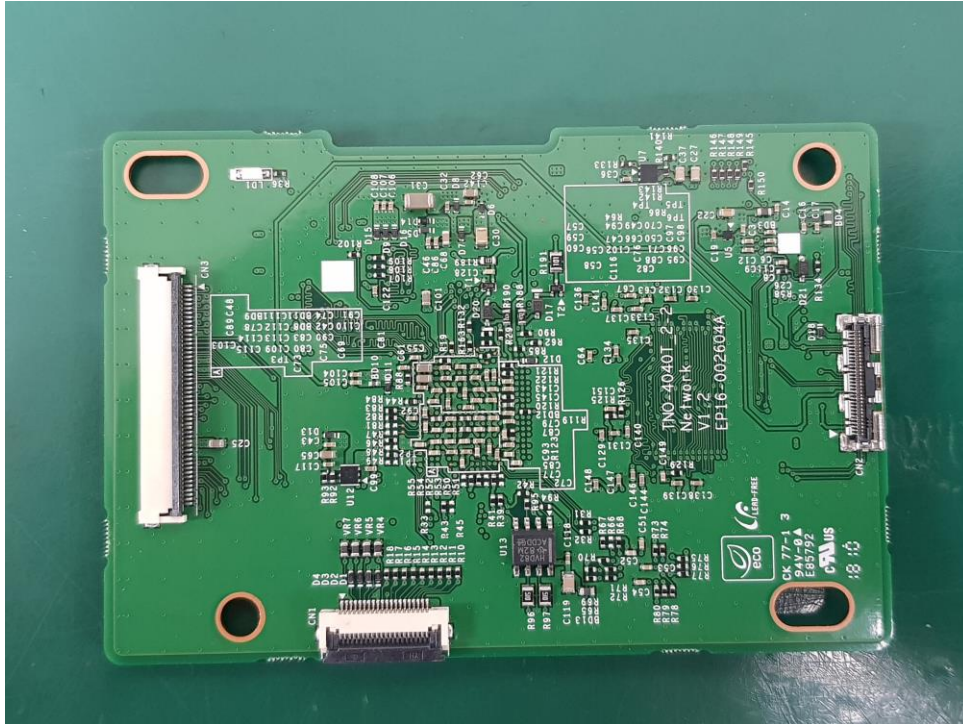


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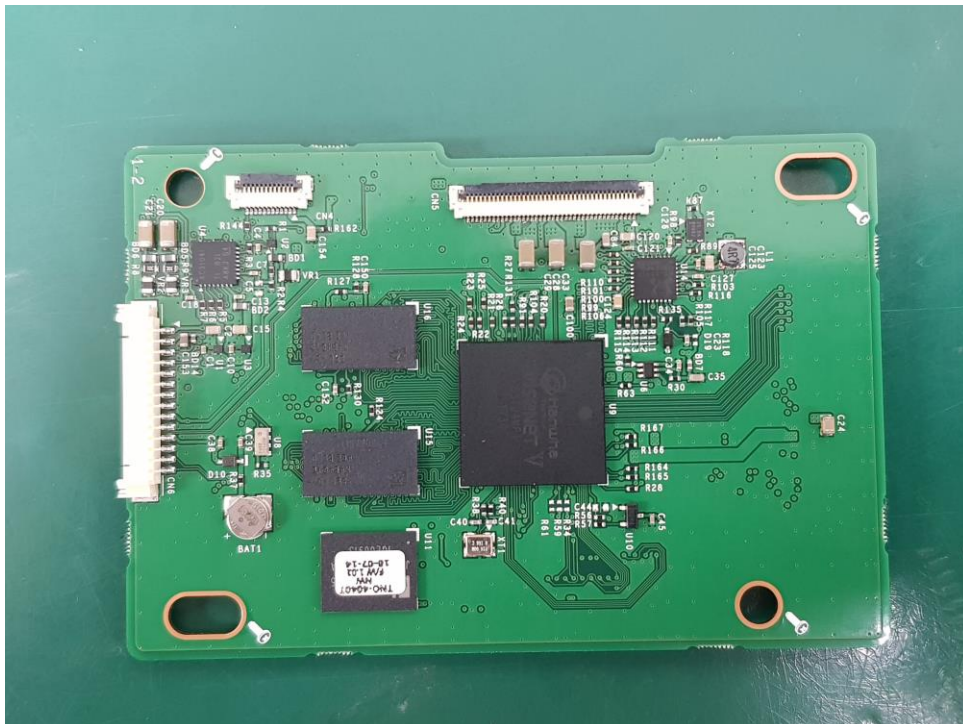


## EUT Internal View – Network Board

(Top)



(Bottom)



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## EUT Internal View – NUC Board

(Top)



(Bottom)



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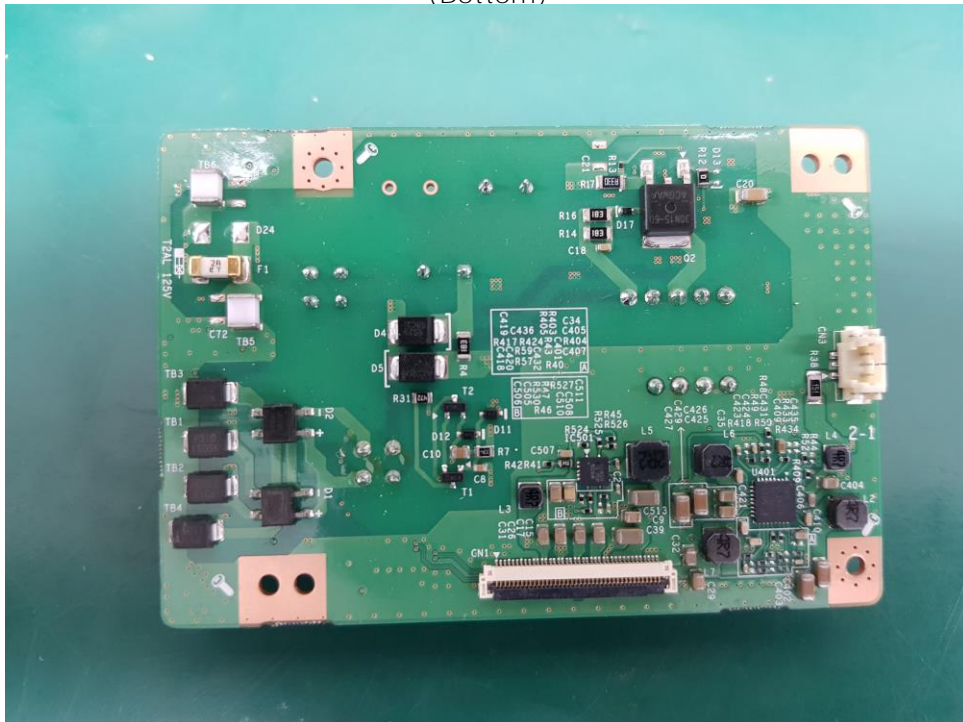


## EUT Internal View – Power Board

(Top)



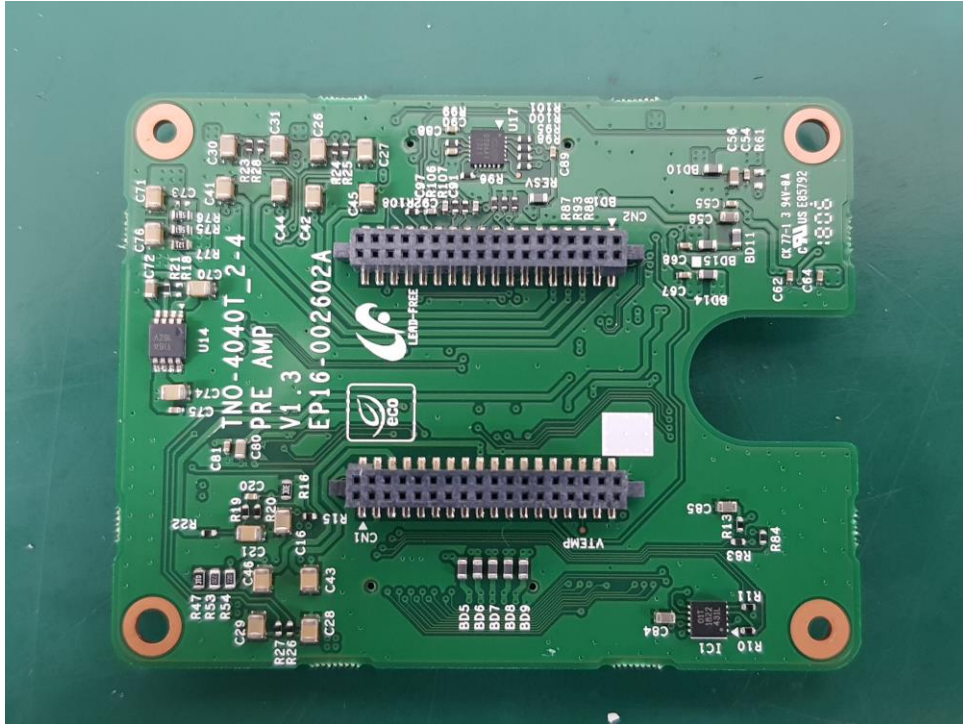
(Bottom)



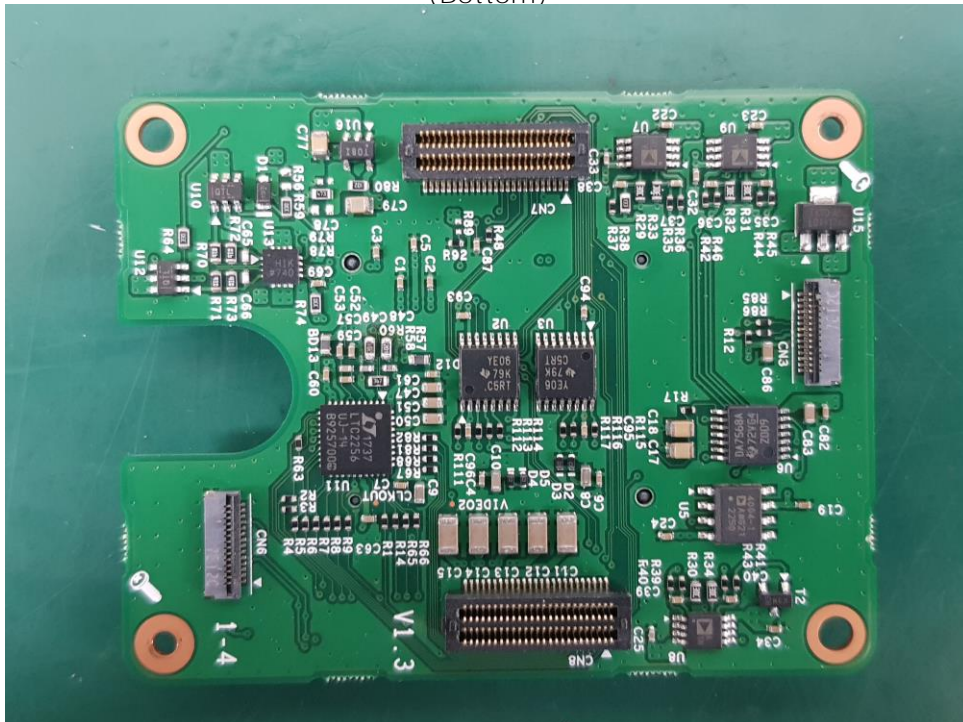
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## EUT Internal View – PRE AMP Board

(Top)



(Bottom)



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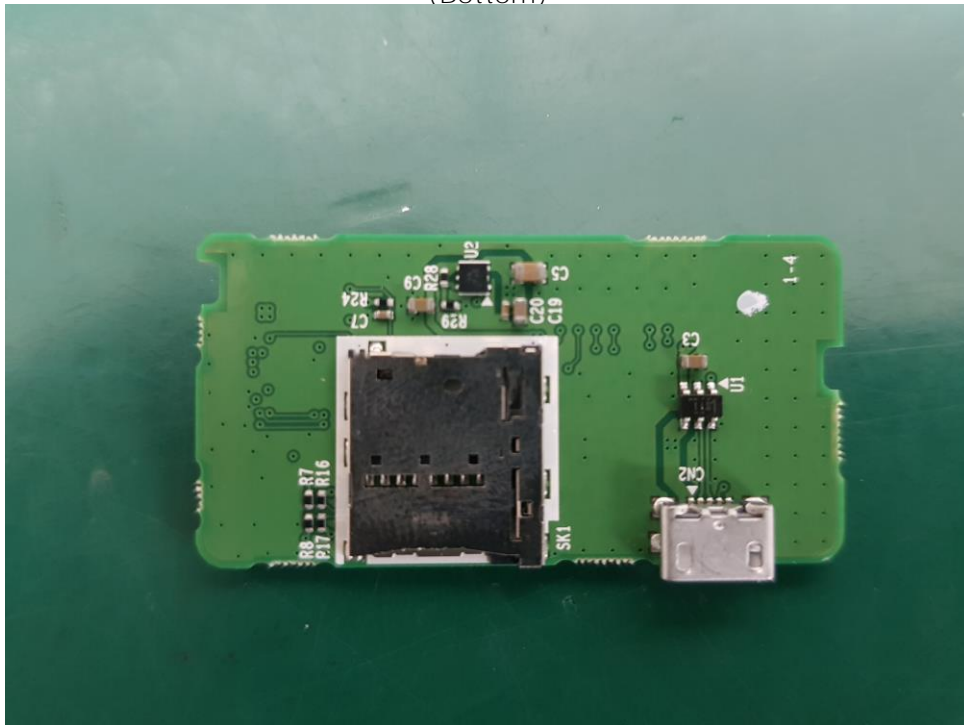


## EUT Internal View – SD Card Board

(Top)



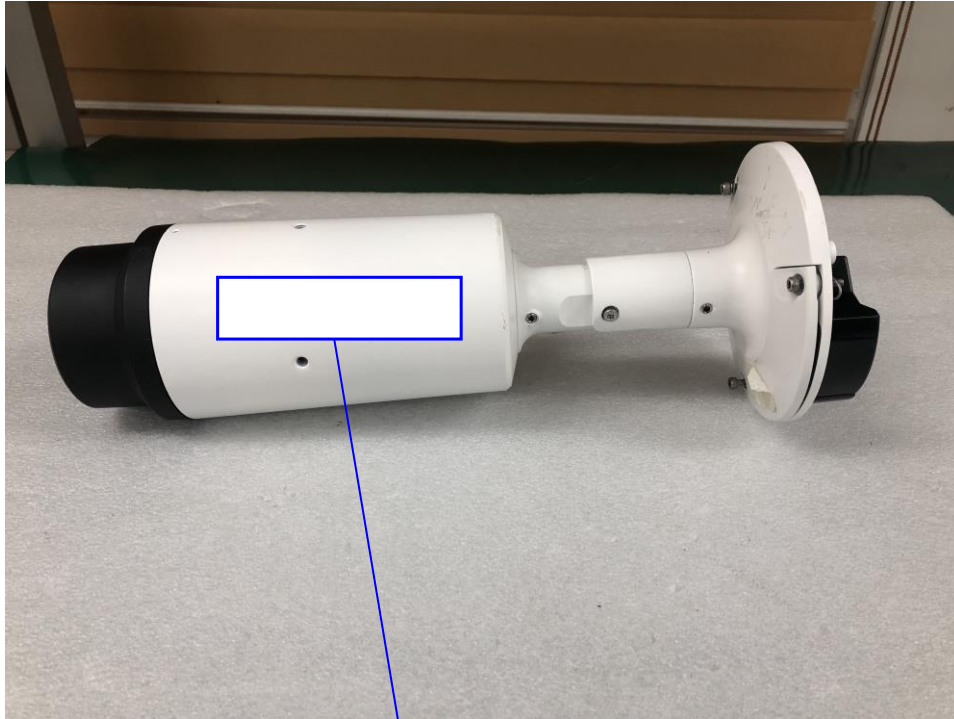
(Bottom)



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## Label Photographs



CAN ICES-3(A) / NMB-3(A)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

This device complies with Industry Canada license-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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