



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-19T0085

Date of Issue : Feb. 15, 2019

Product name : Network Camera

Model/Type No. : XND-6081F

Variant Model : -

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)

Date of Receipt : Jan. 21, 2019

Test date : Feb. 12, 2019 ~ Feb. 13, 2019

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Young Ho, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 15, 2019	KES-E1-19T0085	Issued

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1.0 General Product Description

Main Specifications of EUT are:

SPECIFICATION

Items	Description		
	XNW-6081/XNV-6081R	XND-6081V/XND-6081RV	XND-6081F/XND-6081RF
Video	Imaging Device	1/2.8" 2MP CMOS	
	Effective Pixels	1945(H) x 1097(V)	
	NETD	None	
	Pixel Size	None	
	Min. Illumination	XNW-6081/XND-6081V/XND-6081F - Color : 0.015 Lux(F1.4, 1/30sec), B/W : 0.0015 Lux(F1.4, 1/30sec) XNV-6081R/XND-6081RV/XND-6081RF - Color : 0.015 Lux(F1.4, 1/30sec), B/W : 0 Lux(IR LED on)	
	Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation USB : Micro USB type B, 1280x720 for installation	
Lens	Focal Length (Zoom Ratio)	2.8~12mm(4.3x) motorized varifocal	
	Max. Aperture Ratio	F1.4(Wide) ~ F3.6(Tele)	
	Angular Field of View	H : 119.5°(Wide) ~ 27.9°(Tele)	
		V : 62.8°(Wide) ~ 15.7°(Tele)	
		D : 142.1°(Wide) ~ 32.0°(Tele)	
	Min. Object Distance	0.5m (1.64ft)	
	Focus Control	Simple focus	
	Lens Type	DC Auto Iris, P-iris	
	Mount Type	None	
	Optional Lens	None	
Pan / Tilt / Rotate	Pan / Tilt / Rotate range	0°~360° / -45°~85° / 0°~355°	
	Pan Range	Remote adjustment (Max. 200 cycles)	
	Pan Speed	None	
	Tilt Range	None	
	Tilt Speed	None	
	Rotate Range	None	
	Sequence	None	
	Preset Accuracy	None	
	Azimuth	None	
	Auto Tracking	None	

Items	Description		
	XNW-6081/XNV-6081R	XND-6081V/XND-6081RV	XND-6081F/XND-6081RF
Operational	IR Viewable Length	50m(164.04ft)	
	Camera Title	Displayed up to 85 characters	
	Day & Night	Auto (ICR)	
	Backlight Compensation	BLC, HLC, WDR, SDR	
	Wide Dynamic Range	150dB	
	Digital Noise Reduction	SSNR V	
	Digital Image Stabilization	Support (built-in Gyro Sensor)	
	Defog	Support	
	Motion Detection	8ea, 8point Polygonal zones	
	Privacy Masking	32ea, polygonal zones	
		- Color : Gray, Green, Red, Blue, Black, White - Mosaic	
	Gain Control	Low / Middle / High	
	White Balance	ATW / AWC / Manual / Indoor / Outdoor	
	LDC	Support	
	Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)	
	Video Rotation	Flip, Mirror, Halfway view(90°/270°)	
	Analytics	Defocus detection, Directional detection, Fog detection, Face detection, Motion detection, Digital auto tracking, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Sound classification, Shock detection	
	Business Intelligence	People counting, Queue management, Heatmap	
	Serial Interface	None	
	Alarm I/O	Input 1ea / Output 1ea	
	Alarm Triggers	Analytics, Network disconnect, Alarm input	



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Items	Description		
	XNV-6081/XNV-6081R	XND-6081V/XND-6081RV	XND-6081F/XND-6081RF
Operational	Alarm events	• File upload via FTP, E-Mail • Notification via E-Mail • SD/SDHC/SDXC or NAS recording at event triggers • Alarm output • Handover • Audio playback	
	Audio In	Selectable (Mic IN/Line IN) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm	Selectable (Mic IN/Line IN/Built-in mic) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
	Audio out	Line out, Max output level: 1 Vrms	
	Wiper	None	
	Coaxial Protocol	None	
	Video Transmission Distance	None	
	Temperature detect range	None	
Radiometry	Temperature accuracy	None	
	Temperature detection	None	
	Additional	None	
Network	Ethernet	RJ-45 (10/100BASE-T)	
	Video Compression	H.265/H.264: Main/Baseline/High, MJPEG	
	Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	
	Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)	

Items	Description		
	XNV-6081/XNV-6081R	XND-6081V/XND-6081RV	XND-6081F/XND-6081RF
Network	Smart Codec	Manual(Sea area), WiseStream II	
	Bitrate Control	H.264/H.265 : CBR or VBR MJPEG : VBR	
	Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles)	
	Audio Compression	G.711 μ -law / G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 16KHz	
	Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP/UDP, RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP	
	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP)	
	Edge Storage	Micro SD/SDHC/SDXC 2slot 512GB	
	Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet Open Platform	
	Web Viewer	Supported OS : Windows 7 / 8.1 / 10, MAC OS X 10.10, 10.11, 10.12 Recommended Browser : Google Chrome Supported web browsers : MS Explorer11, MS Edge, Mozilla Firefox (Window 64bit only), Apple Safari (Mac OS X only)	
	Memory	1024MB RAM, 256MB Flash	

Items		Description		
		XNV-6081/XNV-6081R	XND-6081V/XND-6081RV	XND-6081F/XND-6081RF
Environmental	Operating Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH * Start up should be done at above -35°C		
	Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH		
	Certification	IP66/IP67, IK10+, NEMA4X	IP52, IK10	IP52, Plenum rate(UL2820)
Electrical	Input Voltage	PoE(IEEE802.3af, Class3), 24VAC, 12VDC		
	Power Consumption	XNV-6081 - PoE: Max 7.0W, typical 4.90W 12VDC: Max 5.4W, typical 3.70W 24VAC: Max 7.1W, typical 4.90W XNV-6081R - PoE: Max 12.95W, typical 10.30W 12VDC: Max 10.8W, typical 8.40W 24VAC: Max 13.3W, typical 10.40W XND-6081V/XND-6081F - PoE : Max 7.0W, typical 4.20W 12VDC : Max 5.4W, typical 3.10W XND-6081RV/XND-6081RF - PoE: Max 12.95W, typical 9.4W 12VDC: Max 10.8W, typical 7.6W		
Mechanical	Color / Material	White / Aluminum		
	RAL Code	RAL9003		
	Product dimensions / weight	XNV-6081 : Ø180x125mm(7.09x4.92"), 1.45kg(3.20 lb) XNV-6081R : Ø180x125mm(7.09x4.92"), 1.75kg(3.86 lb)	Ø160x125mm (6.30x4.92"), 1.45kg(3.20 lb)	Ø205x155mm(8.07x6.10"), 1.80kg(3.97 lb)

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 230 Vac ☐ 100 Vac ☐ 24 Vac ☒ 12 Vdc ☒ PoE

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Network Camera	XND-6081F	-	Hanwha Techwin (Tianjin) Co.,Ltd.	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	ANY4805C-LT1	RD9356082016964200	Power Dsine	-
Notebook	ProBook4430s	-	HP	-
Notebook Adaptor	SeriesPPP0009H	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
MIC	CMK-303	-	CAMAC	-
Alarm 1	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Alarm 2	-	-	-	-
Cellular phone	LG-SU760	108KPQJ0186212	LG	-



1.6 External I/O Cabling

■ DC 12 V

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	RJ-45	Notebook	RJ-45	3.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	Alarm Out	Alarm 1	Alarm In	3.0	U
	Alarm In	Alarm 2	Alarm Out	3.0	U
Notebook	3.5 mm	Cellular phone	3.5 mm	1.0	U

* Unshielded=U, Shielded=S

■ PoE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	RJ-45	PoE Adaptor	RJ-45	3.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	MIC	3.5 mm	1.7	U
	Alarm Out	Alarm 1	Alarm In	3.0	U
	Alarm In	Alarm 2	Alarm Out	3.0	U
Notebook	3.5 mm	Cellular phone	3.5 mm	1.0	U
	RJ-45	PoE Adaptor	RJ-45	3.0	U

* Unshielded=U, Shielded=S

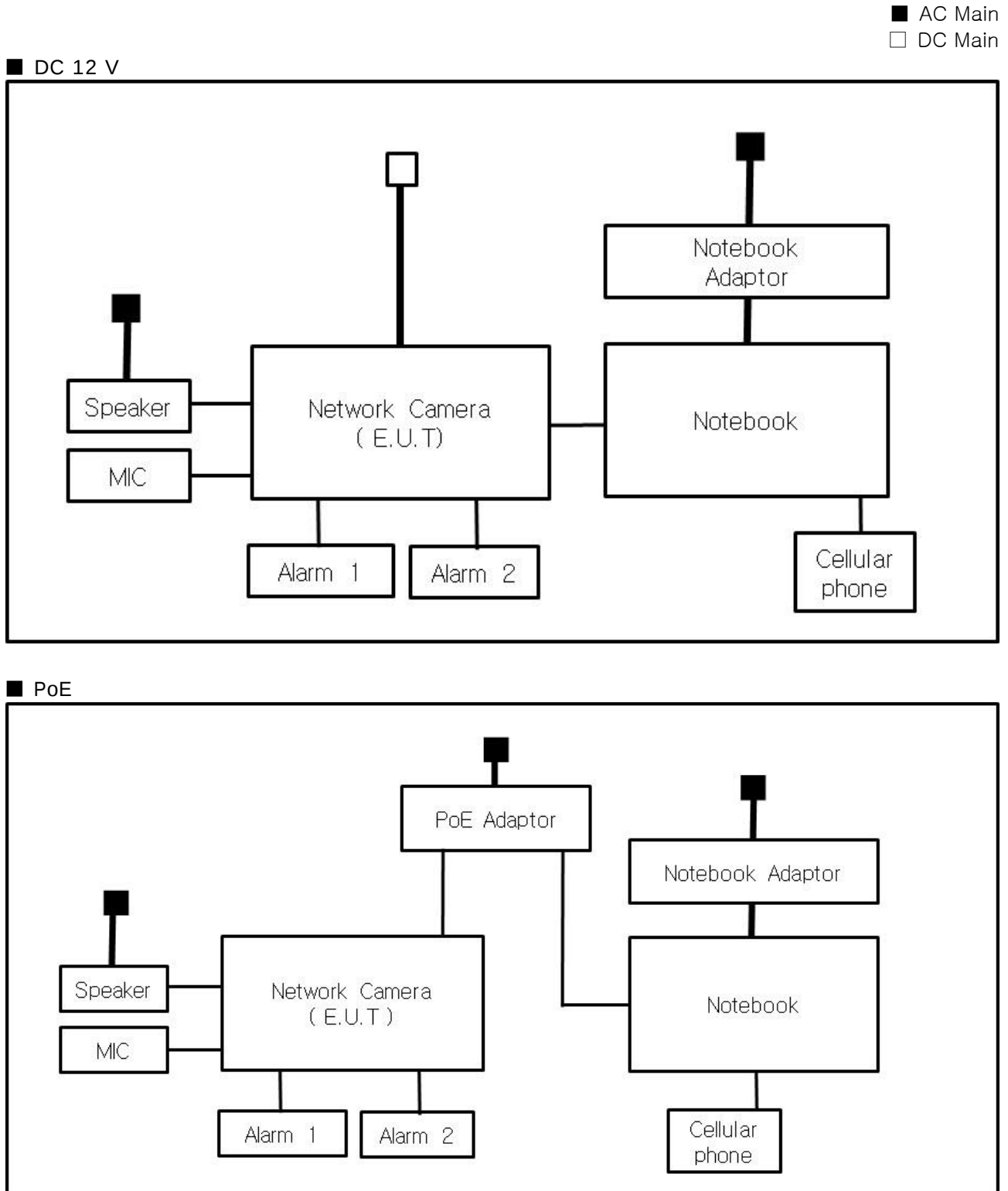


1.7 EUT Operating Mode(s)

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

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

1.8 Configuration



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-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 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 61547 :2009

☐ EN 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



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|---|---|----------------------------------|
| ☒ VCCI-CISPR 32:2016 | ☒ Class A | ☐ Class B |
| ☐ AS/NZS CISPR32:2015 | ☐ Class A | ☐ Class B |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2009 | | |
| ☐ IC Regulation ICES-003 : 2016 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
|
 | | |
| ☐ RE- Directive 2014/53/EU | | |
|
 | | |
| ☐ EN 301 489-1 V1.9.2 | | |
| ☐ Equipment for fixed use | | |
| ☐ Equipment for vehicular use | | |
| ☐ Equipment for portable use | | |
|
 | | |
| ☐ EN 301 489-3 V1.6.1 | | |
|
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| ☐ EN 301 489-17 V2.2.1 | | |
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| ☐ EN 60945:2002 | | |

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2.1 Conducted Emissions Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom #3

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	04, 25, 2019
☐	LISN	ENV216	R & S	101137	01, 31, 2019
☐	LISN	ENV216	R & S	101786	04, 25, 2019

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

It is not tested apply because it is powered by DC and PoE



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Feb. 13, 2019

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	101781	04, 25, 2019
☒	LISN	ENV216	R & S	101787	01, 04, 2020
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 26, 2019
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2020

Test Conditions

Temperature: 22,9 °C
Relative Humidity: 43,1 % 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.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Feb. 12, 2019

Test Location

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

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, 11, 2019
☒	AMPLIFIER	SCU 01	R & S	100603	11, 26, 2019
☒	ATTENUATOR	8491A	HP	32173	03, 21, 2019
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020

Test Conditions

Temperature: 21,4 °C
Relative Humidity: 42,0 % 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

Feb. 12, 2019

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, 06, 2019
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2019
☒	ATTENUATOR	8491A	HP	35496	03, 21, 2019
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM, INC	781	05, 02, 2019

Test Conditions

Temperature: 23,1 °C
Relative Humidity: 44,0 % 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.



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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

N/A

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NEUTRAL LINE

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 (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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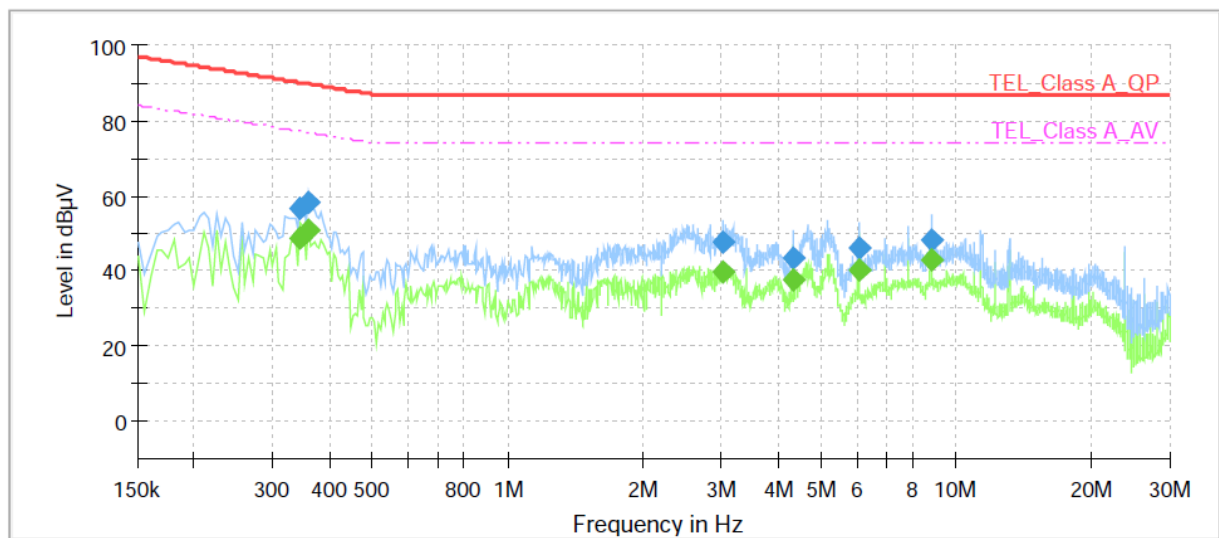
Conducted Emissions at Telecommunication Ports

■ DC 12 V

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: XND-6081F
Mode: DC12V 10Mbps
Operator Name: KES



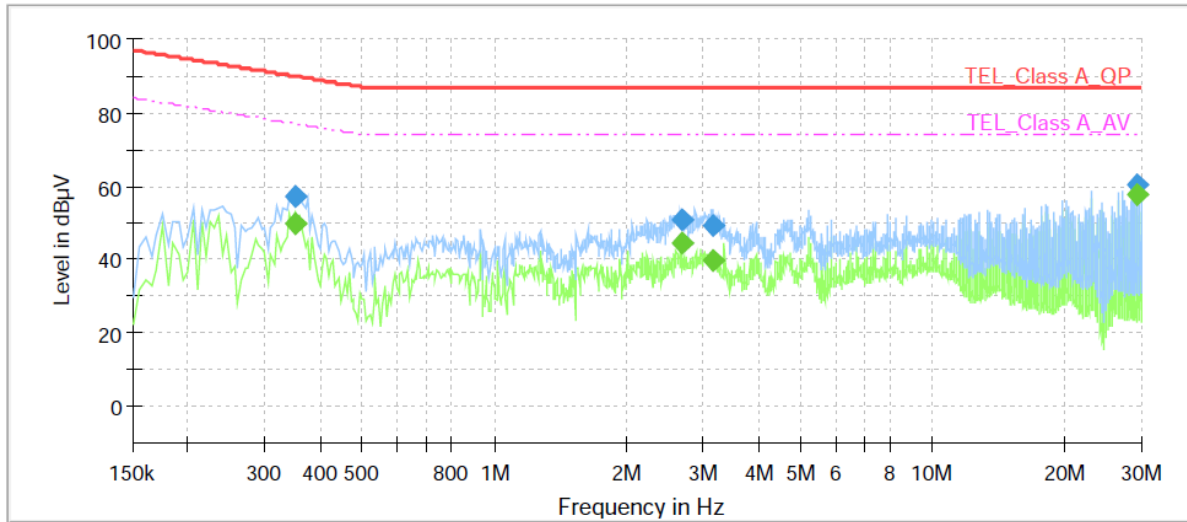
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.345000	---	48.63	77.08	28.45	1000.0	9.000	Single Line	19.9
0.345000	56.76	---	90.08	33.32	1000.0	9.000	Single Line	19.9
0.360000	---	51.07	76.73	25.66	1000.0	9.000	Single Line	19.9
0.360000	58.44	---	89.73	31.29	1000.0	9.000	Single Line	19.9
3.025000	---	39.67	74.00	34.33	1000.0	9.000	Single Line	19.7
3.025000	47.82	---	87.00	39.18	1000.0	9.000	Single Line	19.7
4.350000	---	37.79	74.00	36.21	1000.0	9.000	Single Line	19.7
4.350000	43.53	---	87.00	43.47	1000.0	9.000	Single Line	19.7
6.085000	---	40.36	74.00	33.64	1000.0	9.000	Single Line	19.8
6.085000	46.02	---	87.00	40.98	1000.0	9.000	Single Line	19.8
8.805000	---	42.87	74.00	31.13	1000.0	9.000	Single Line	19.8
8.805000	48.34	---	87.00	38.66	1000.0	9.000	Single Line	19.8

[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: XND-6081F
Mode: DC12V 100Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.350000	---	50.00	76.96	26.96	1000.0	9.000	Single Line	19.7
0.350000	57.15	---	89.96	32.81	1000.0	9.000	Single Line	19.7
2.680000	---	44.61	74.00	29.39	1000.0	9.000	Single Line	19.6
2.680000	50.80	---	87.00	36.20	1000.0	9.000	Single Line	19.6
3.145000	---	39.63	74.00	34.37	1000.0	9.000	Single Line	19.6
3.145000	49.12	---	87.00	37.88	1000.0	9.000	Single Line	19.6
29.235000	---	57.94	74.00	16.06	1000.0	9.000	Single Line	20.5
29.235000	60.42	---	87.00	26.58	1000.0	9.000	Single Line	20.5



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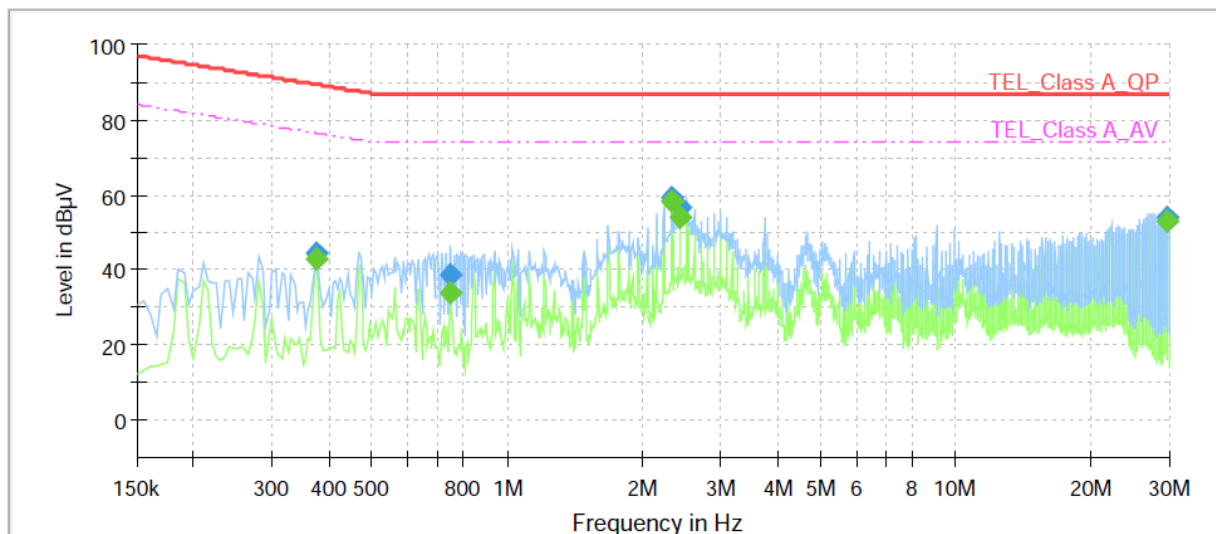
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■ PoE
[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: XND-6081F
Mode: PoE 10Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.375000	---	42.82	76.39	33.57	1000.0	9.000	Single Line	19.9
0.375000	44.21	---	89.39	45.18	1000.0	9.000	Single Line	19.9
0.750000	---	33.92	74.00	40.08	1000.0	9.000	Single Line	19.8
0.750000	38.57	---	87.00	48.43	1000.0	9.000	Single Line	19.8
2.340000	---	58.15	74.00	15.85	1000.0	9.000	Single Line	19.7
2.340000	59.46	---	87.00	27.54	1000.0	9.000	Single Line	19.7
2.430000	---	54.13	74.00	19.87	1000.0	9.000	Single Line	19.7
2.430000	56.62	---	87.00	30.38	1000.0	9.000	Single Line	19.7
29.625000	---	53.06	74.00	20.94	1000.0	9.000	Single Line	20.8
29.625000	54.25	---	87.00	32.75	1000.0	9.000	Single Line	20.8

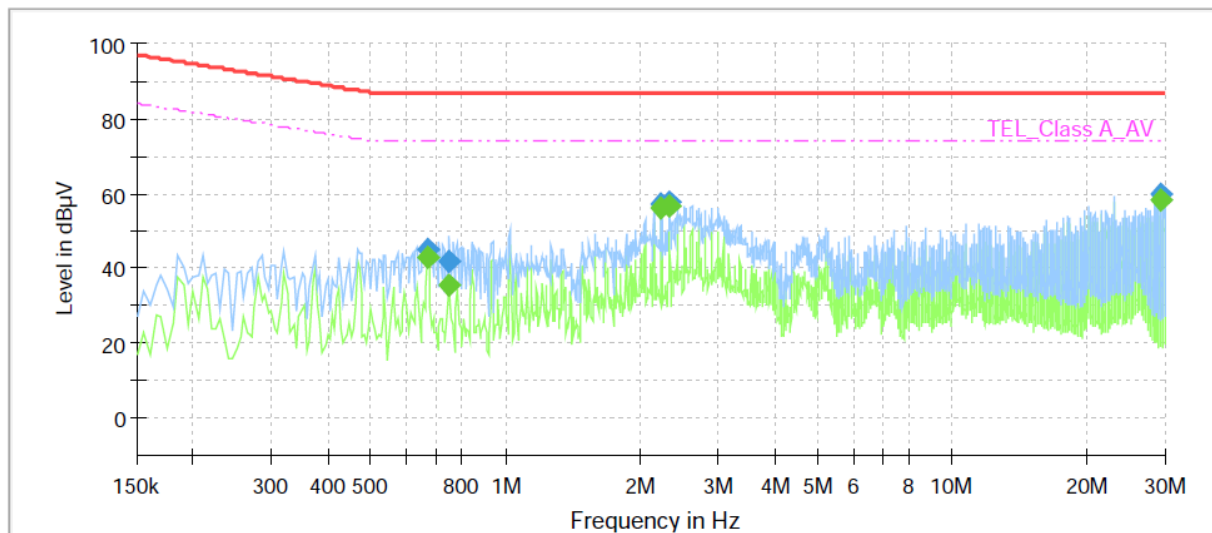
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[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: XND-6081F
Mode: PoE 100Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.670000	---	42.86	74.00	31.14	1000.0	9.000	Single Line	19.7
0.670000	44.92	---	87.00	42.08	1000.0	9.000	Single Line	19.7
0.750000	---	35.47	74.00	38.53	1000.0	9.000	Single Line	19.6
0.750000	41.75	---	87.00	45.25	1000.0	9.000	Single Line	19.6
2.240000	---	56.32	74.00	17.68	1000.0	9.000	Single Line	19.6
2.240000	57.38	---	87.00	29.62	1000.0	9.000	Single Line	19.6
2.335000	---	56.65	74.00	17.35	1000.0	9.000	Single Line	19.6
2.335000	57.86	---	87.00	29.14	1000.0	9.000	Single Line	19.6
29.235000	---	57.99	74.00	16.01	1000.0	9.000	Single Line	20.5
29.235000	60.05	---	87.00	26.95	1000.0	9.000	Single Line	20.5

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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



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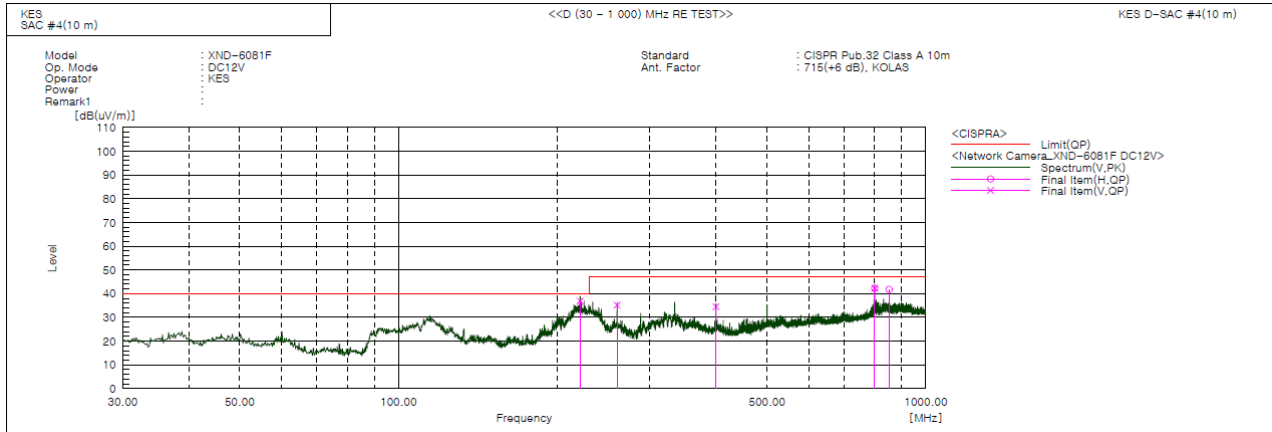
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC 12 V



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	221.012	V	57.5	-20.6	36.9	40.0	3.1	153.5	185.0	
2	259.792	V	55.1	-19.9	35.2	47.0	11.8	100.0	334.0	
3	400.005	V	49.8	-15.3	34.5	47.0	12.5	135.0	296.0	
4	800.108	H	50.1	-7.7	42.4	47.0	4.6	215.0	345.0	
5	800.103	V	49.9	-7.7	42.2	47.0	4.8	100.0	24.0	
6	852.008	H	48.3	-6.5	41.8	47.0	5.2	231.0	345.0	

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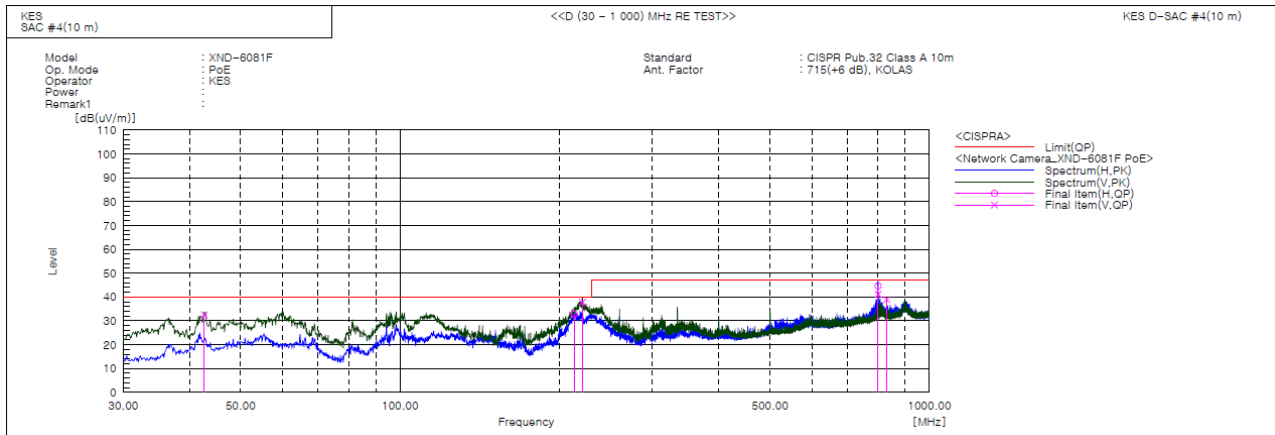
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PoE



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	42.712	V	54.8	-22.3	32.5	40.0	7.5	100.0	100.0	
2	213.415	H	53.9	-21.0	32.9	40.0	7.1	360.0	212.0	
3	221.186	V	58.5	-20.6	37.9	40.0	2.1	100.0	7.0	
4	800.006	H	52.4	-7.7	44.7	47.0	2.3	357.0	34.0	
5	800.028	V	48.8	-7.7	41.1	47.0	5.9	100.0	119.0	
6	830.593	V	46.0	-7.1	38.9	47.0	8.1	162.0	161.0	

◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

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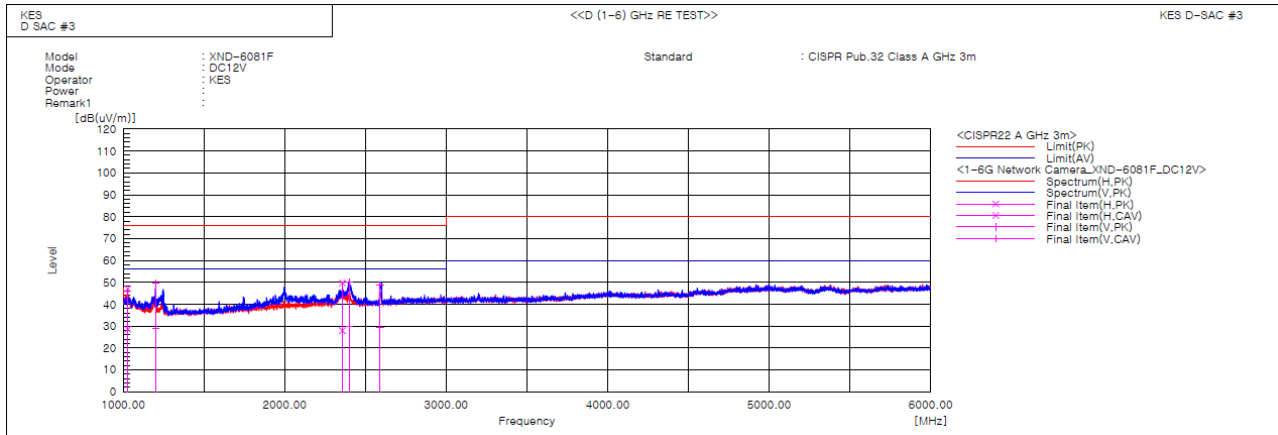
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC 12 V



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	1028.130	H	55.0	36.4	-7.9	47.1	28.5	76.0	56.0	28.9	27.5	100.0	160.2	
2	1199.263	V	56.8	36.2	-7.2	49.6	29.0	76.0	56.0	26.4	27.0	100.0	24.5	
3	2356.864	H	50.2	28.4	-0.5	49.7	27.9	76.0	56.0	26.3	28.1	100.0	150.1	
4	2400.003	V	50.4	29.9	-0.3	50.1	29.6	76.0	56.0	25.9	26.4	100.0	354.1	
5	2591.311	V	48.8	29.1	0.1	48.9	29.2	76.0	56.0	27.1	26.8	100.0	22.3	

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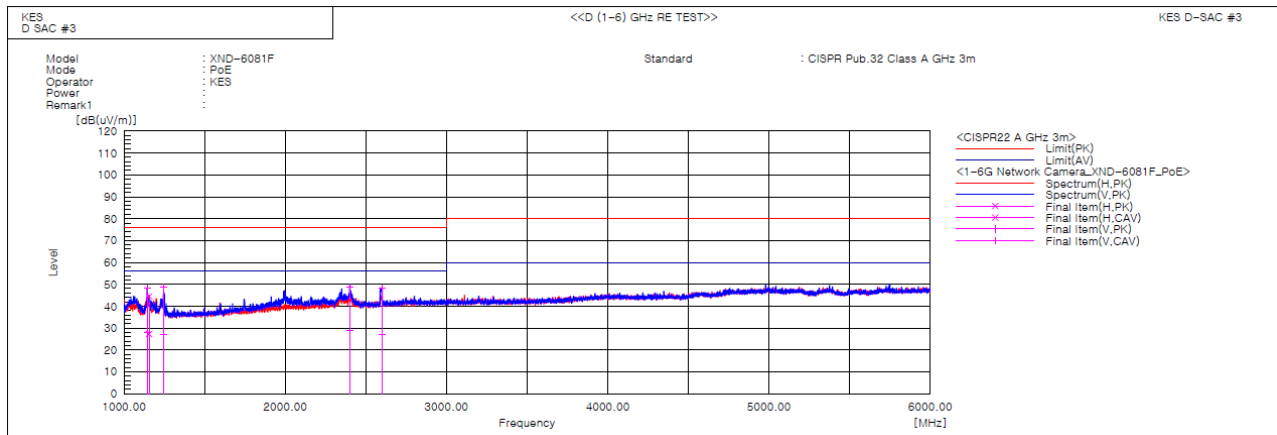
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PoE



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	1143.093	V	55.8	35.4	-7.4	48.4	28.0	76.0	56.0	27.6	28.0	100.0	214.5	
2	1155.006	H	51.8	34.6	-7.3	44.5	27.3	76.0	56.0	31.5	28.7	100.0	359.0	
3	1247.099	V	55.6	33.9	-7.0	48.6	26.9	76.0	56.0	27.4	29.1	100.0	232.7	
4	2400.508	V	49.0	29.3	-0.3	48.7	29.0	76.0	56.0	27.3	27.0	100.0	7.7	
5	2600.007	V	48.4	27.0	0.1	48.5	27.1	76.0	56.0	27.5	28.9	100.0	65.5	

◆ Calculation

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

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

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

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



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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

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Conducted Telecommunication Emissions



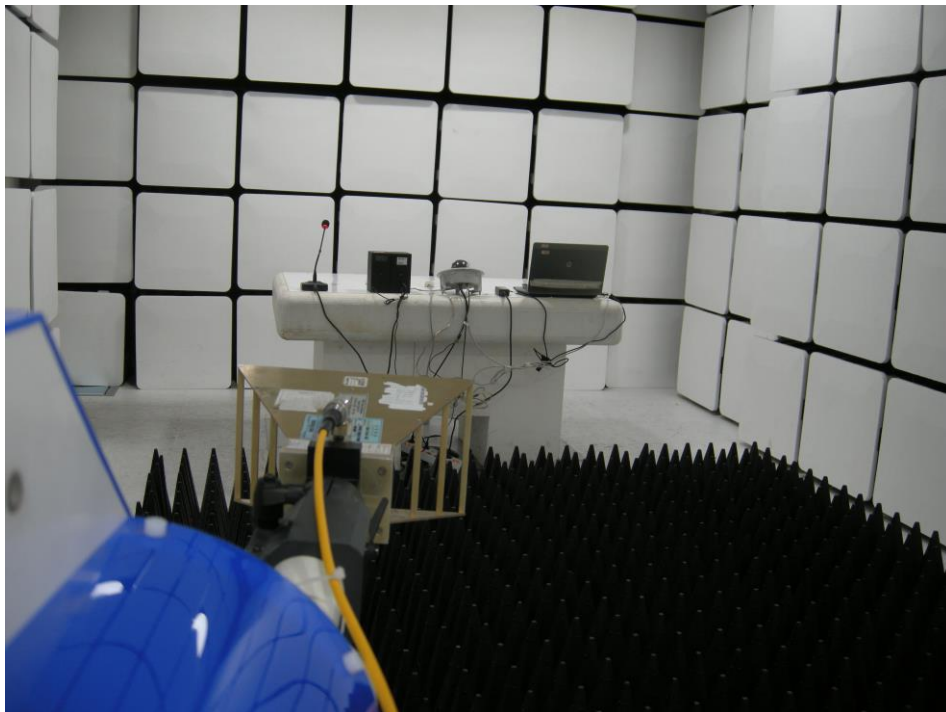
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



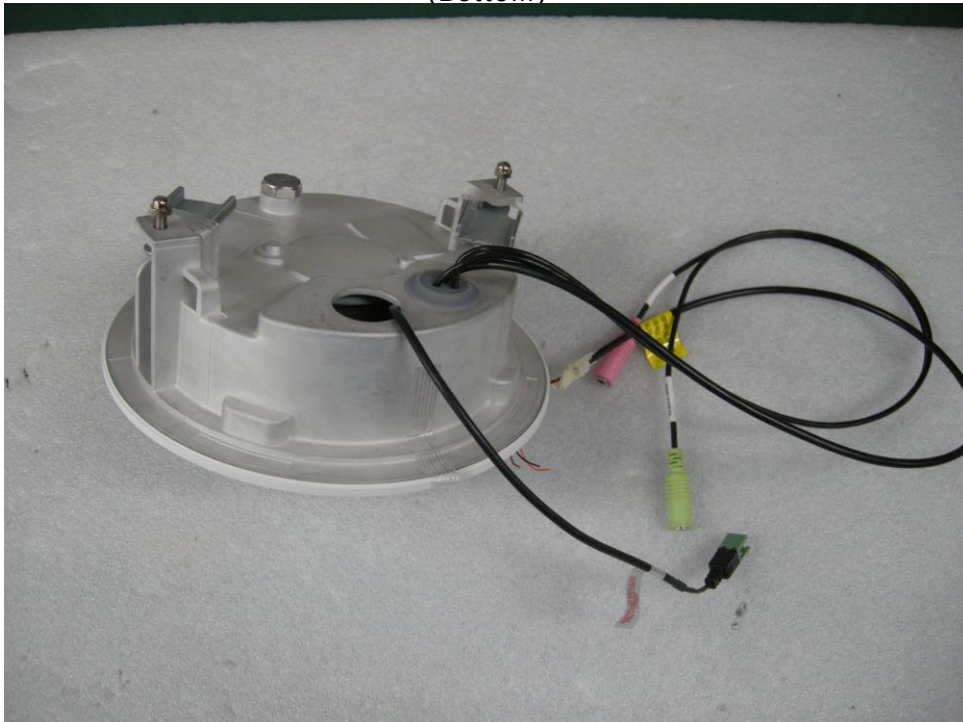
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EUT External Photographs

(Top)



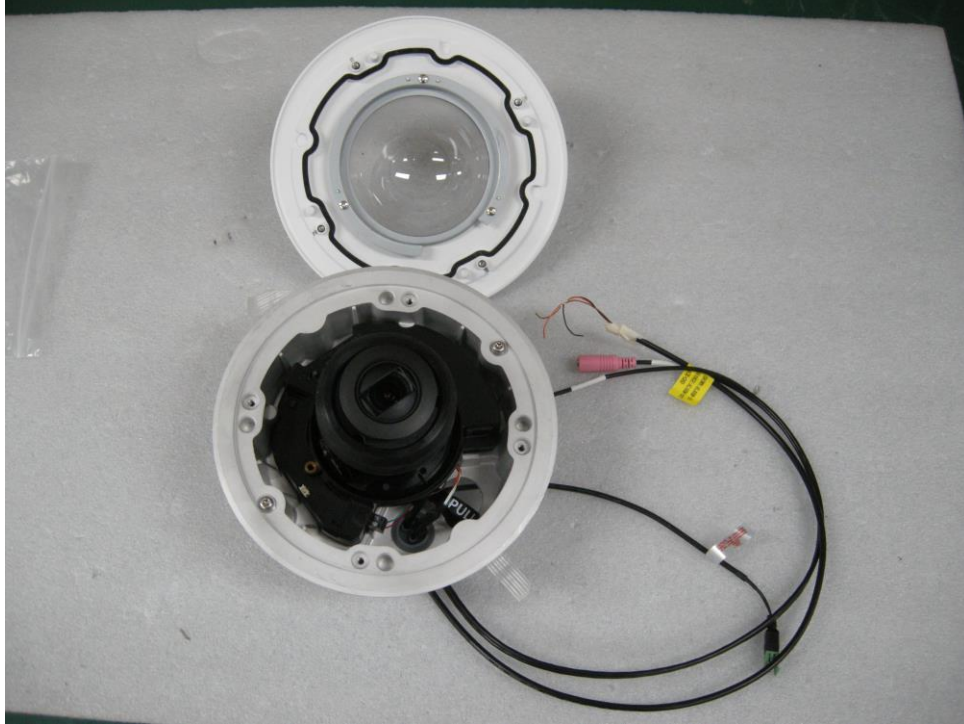
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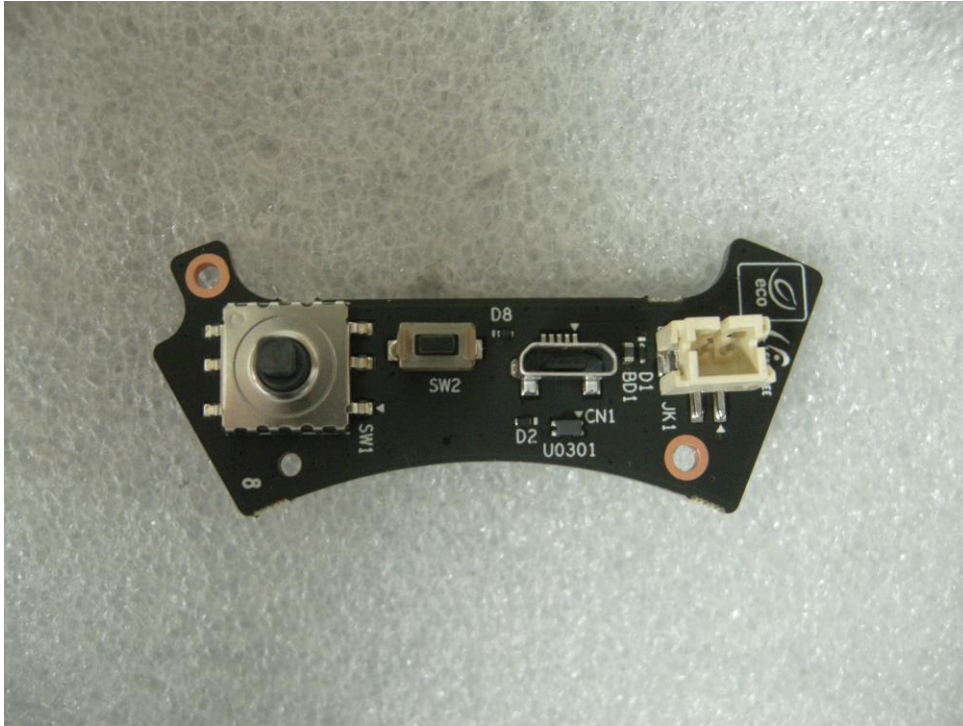
EUT Internal Photographs

(Internal View)

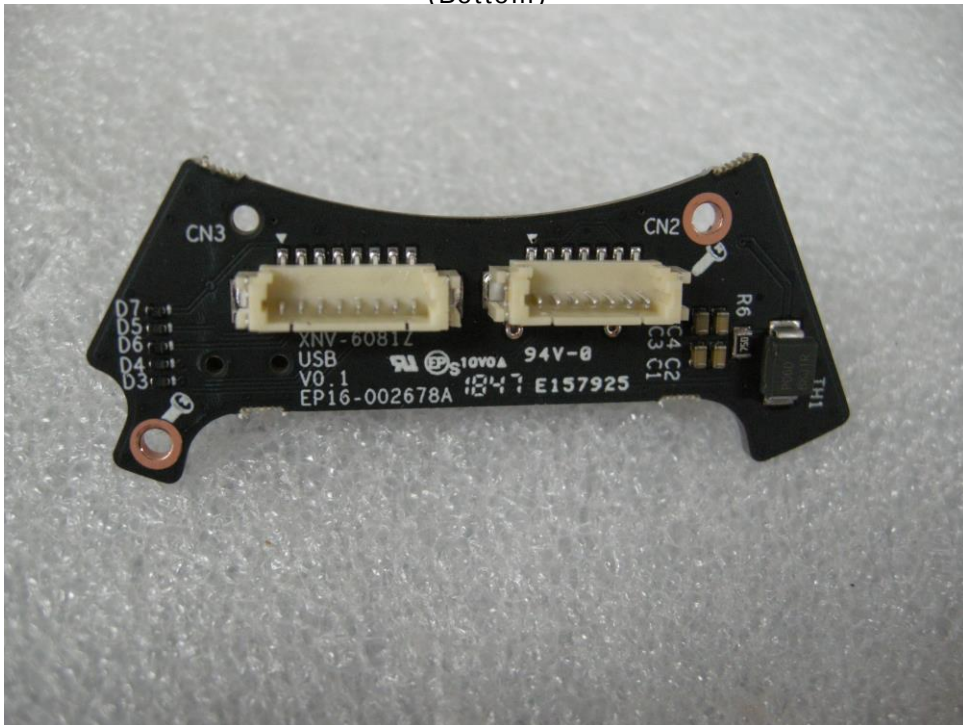


EUT Internal View – Connector Board

(Top)



(Bottom)



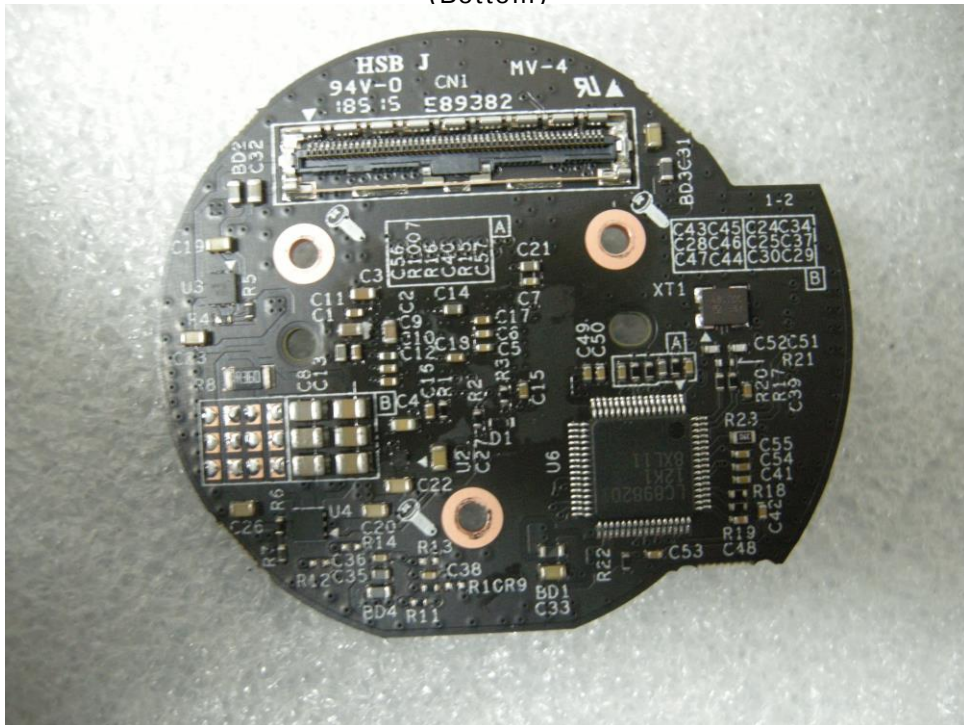
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EUT Internal View – Lens Board

(Top)



(Bottom)



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EUT Internal View – Lens Module

(Top)



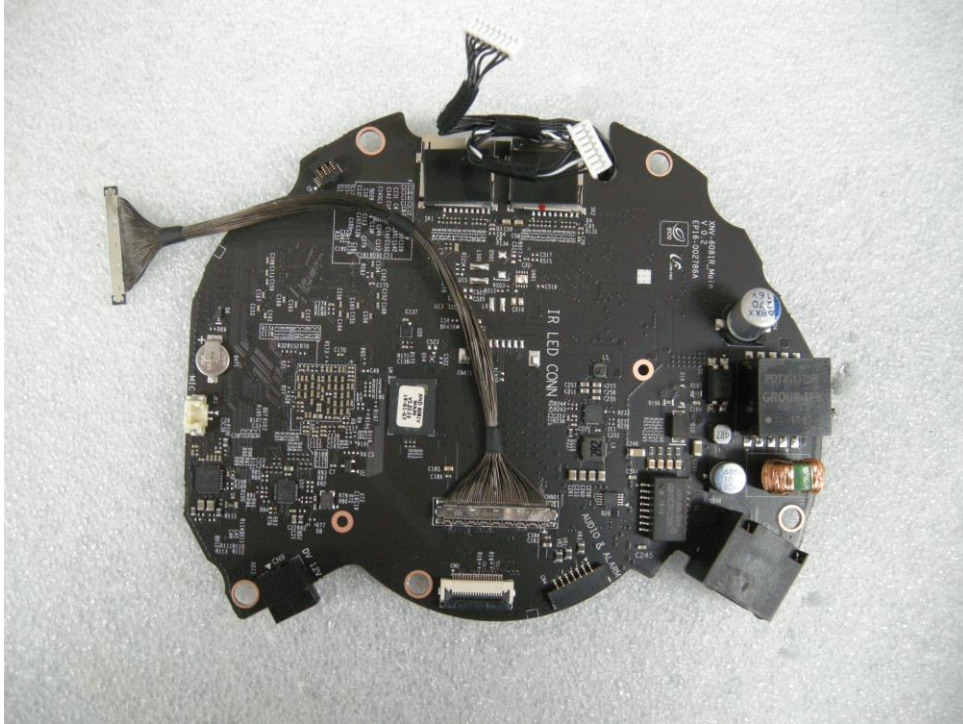
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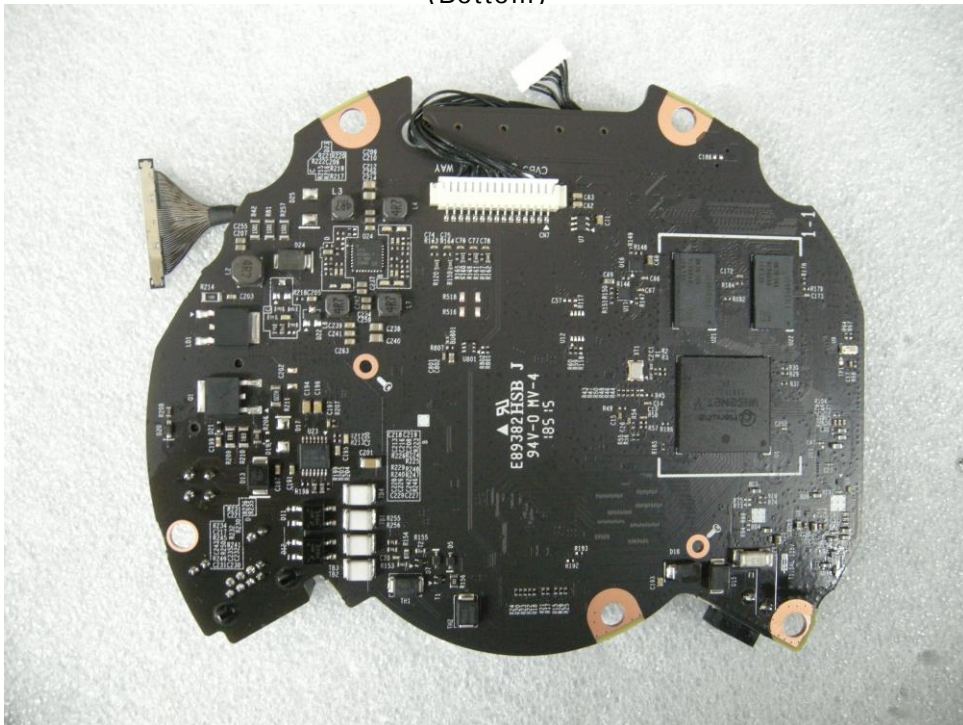
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EUT Internal View – Main Board

(Top)

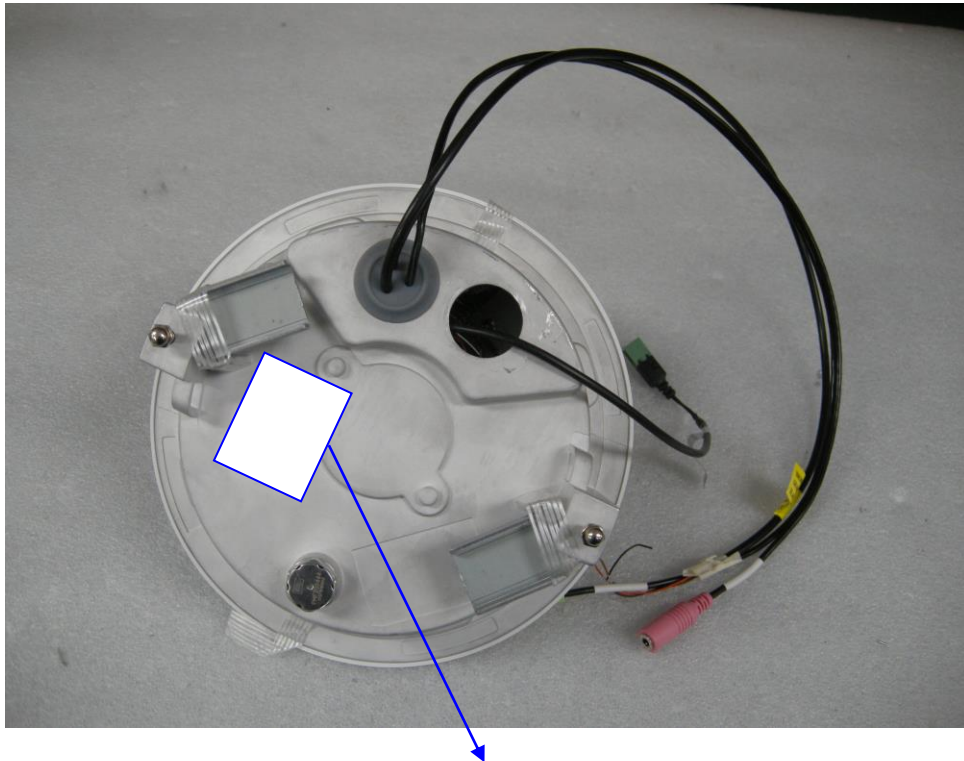


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