EMC TEST REPORT For IC

Test Report No.	:	KES-E1-16T0677
Date of Issue	:	Dec, 23, 2016
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNV-6080RN
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	Changwon-daero, Seongsan-gu Changwon-si, Gyeongsangnam-do
Manufacturer	:	Hanwha Techwin (Tianjin) Co.,Ltd.
Manufacturer Address	:	No.11 Weiliu Rd,Micro-Electronic Industrial Park,TEDA,Tianjin,300385,People's Republic of China
Date of Receipt	:	Nov, 23, 2016
Test date	:	Dec, 16, 2016
Test Results	:	☒ In Compliance ☐ Not in Compliance

Tested by

Jin Bae, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 23, 2016	KES-E1-16T0677	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" 2M CMOS
Total Pixels	1945(H) x 1109(V) 2.16M
Effective Pixels	1945(H) x 1097(V) 2.13M
Scanning System	Progressive Scan
Min. Illumination	Color : 0.03 lux(F1.4, 1./30sec) B/W : 0 Lux (F1.4, IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation USB : Micro USB type B, 1920 x 1080, for installation
Lens	
Focal Length (Zoom Ratio	2.8~12mm(4.3x) motorized varifocal
Max. Aperture Ratio	1.4(Wide) ~ 3.6(Tele)
Angular Field of View	H: 119.5°, V: 62.8°, D: 142.1° H: 27.9°, V: 15.7°, D: 32.0°
Min. Object Distance	0.5m (1.64ft)
Focus Control	Simple focus(Motorized V/F) / Manual, Remote control via network(Manual, Simple focus)
Lens Type	DC Auto Iris, P-iris
Mount Type	Board-in type
Pan / Tilt / Rotate	
Pan / Tilt / Rotate range	0° ~ 354° / 0° ~ 85°(TBD) / 0° ~ 355°
Operational	
IR LED	4EA
Viewable Length	(TBD)50m(164.04ft)
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC(Masking/Dimming), WDR
Wide Dynamic Range	150dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Auto(input from fog detection) / Manual / Off
Motion Detection	Off/ On(8ea, 8point Polygonal zones), Hand over
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor((included Mercury & Sodium)
Contrast	level adjustment
LDC	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec →TBD)
Digital PTZ	24X, 'Digital PTZ(Preset, Group)

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Flip / Mirror	Flip : On/Off Mirror : On/Off Hallway view : 90°/270°
Video & Audio Analytics	Tampering, Loitering, Directional Detection, Defocus Detection, Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Motion Detection, Digital Auto Tracking, Sound Classification
Alarm I/O	Input 1ea / Output 1ea
Remote Control Interface	-
RS-485 Protocol	-
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 DPTZ preset
Audio In	Selectable (Mic IN/Line IN), Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out, Max output level: 1 Vrms
Fan / Heater	N/A
Pixel Counter	Support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Forma	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x450, 720x576, 640x480, 640x360, 320x240, 320x180
Max. Framerate	H.265/H.264 : Max. 60fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStream	Support
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Forma	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-dierctional (2-Way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast

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Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC 2slot (up to 512 GB) - Continuous recording(1'st slot to 2'nd slot) - Motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
Application Programming	ONVIF Profile S/G SUNAPI(HTTP API) Open Platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Denish, Portuguese, Czech, Polish, Turkish, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Norsk, Finnish
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.10. 10.11 10.12 **Non-plugin Webviewer** Supported Browser: Google Chrome 54, MS Edge 38, Mozilla Firefox 49 , Apple Safari 9 (Mac OS X only) **Plug-in Webviewer** Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only)
Central Management Soft	SmartViewer, SSM
Environmental	
Operating Temperature / Humidity	-40°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP67, IP66, NEMA 4X
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	24VAC ± 10%, 12VDC ± 10%, PoE(IEEE802.3af)
Power Consumption	TBD
Mechanical	
Color / Material	Ivory / Aluminum
Dimension (WxHxD)	기 SNV-6084R 사이즈 : (Ø 160 X H118.5)
Weight	기 SNV-6084R 중량 : 975g (2.15 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 ☐ 100 Vac ☐ 110 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	XNV-6080RN	-	Hanwha Techwin (Tianjin) Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE Adapter	PD-3001GC/AC	RD9356082016964200	Power Dsine	-
Notebook	X56K	HN11N5151FJ0045W	HANSUNG	-
Notebook Adapter	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Phone	A1530	-	APPLE	-
MIC	CMK-303	-	CAMAC	1.7 m
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	1.6 m
Alarm	-	-	-	-

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1.6 External I/O Cabling

- AC 24 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	7 Pin	MIC	3.5 ㎜	1.7	U
		Speaker	3.5 ㎜	1.6	U
		Alarm	3 pin	3.0	U
Notebook	Audio in	Phone	Audio out	1.7	U

- DC 12 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	7 Pin	MIC	3.5 ㎜	1.7	U
		Speaker	3.5 ㎜	1.6	U
		Alarm	3 pin	3.0	U
Notebook	Audio in	Phone	Audio out	1.7	U

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- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45 (POE)	POE Adapter	RJ-45 (POE)	3.0	U
	7 Pin	MIC	3.5 ㎜	1.7	U
		Speaker	3.5 ㎜	1.6	U
		Alarm	3 pin	3.0	U
Notebook	Audio in	Phone	Audio out	1.7	U
	RJ-45 (DATA)	POE Adapter	RJ-45 (DATA)	3.0	U

* Unshielded = U, Shielded = S

1.7 EUT Operating Mode(s)

operating
E.U.T Monitoring , Ping test, 1 ㎑

E.U.T Test operating S/W		
Name	Version	Manufacture Company
SmartViewer	-	Hanwha Techwin Co., Ltd.

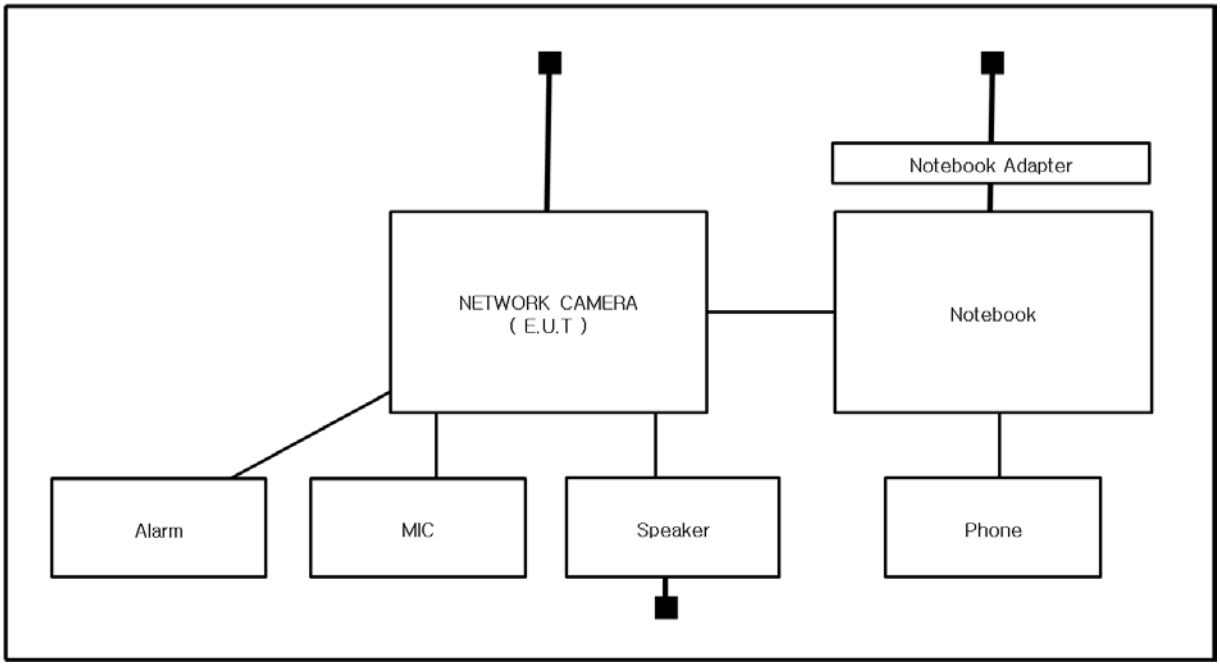
- Input power condition during the measurements was 24 v (ac) , 12 v (dc) , PoE.

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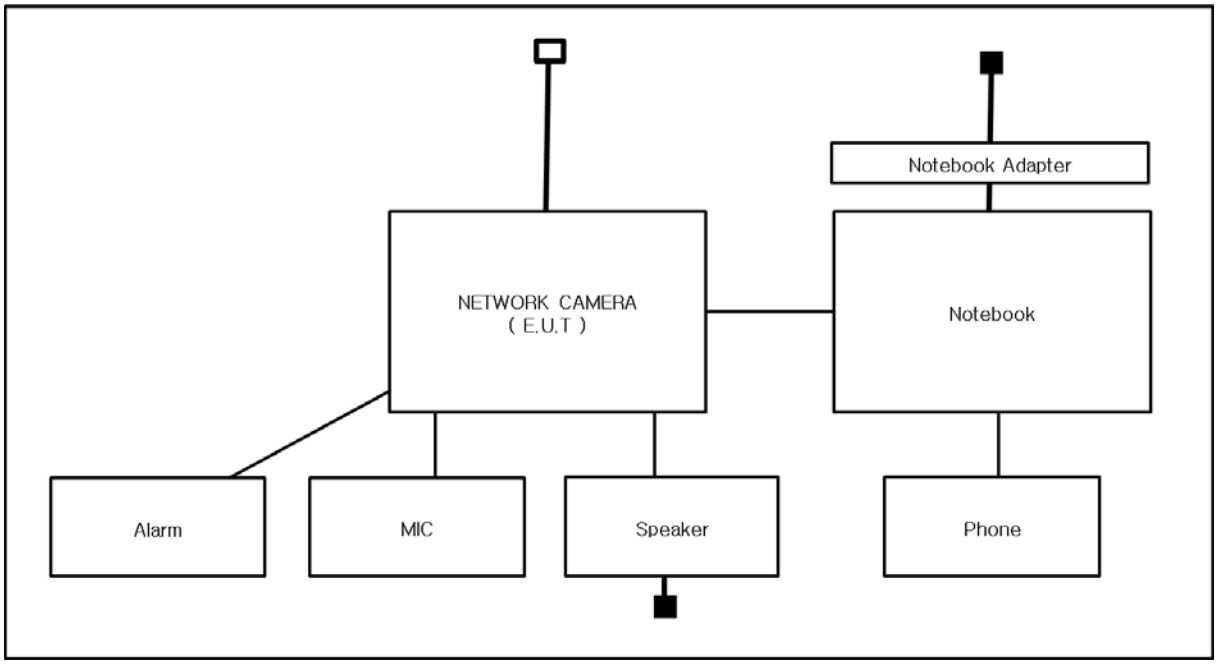
1.8 Configuration

■ AC 24 V Main
□ DC 12 V Main

- AC 24V Mode

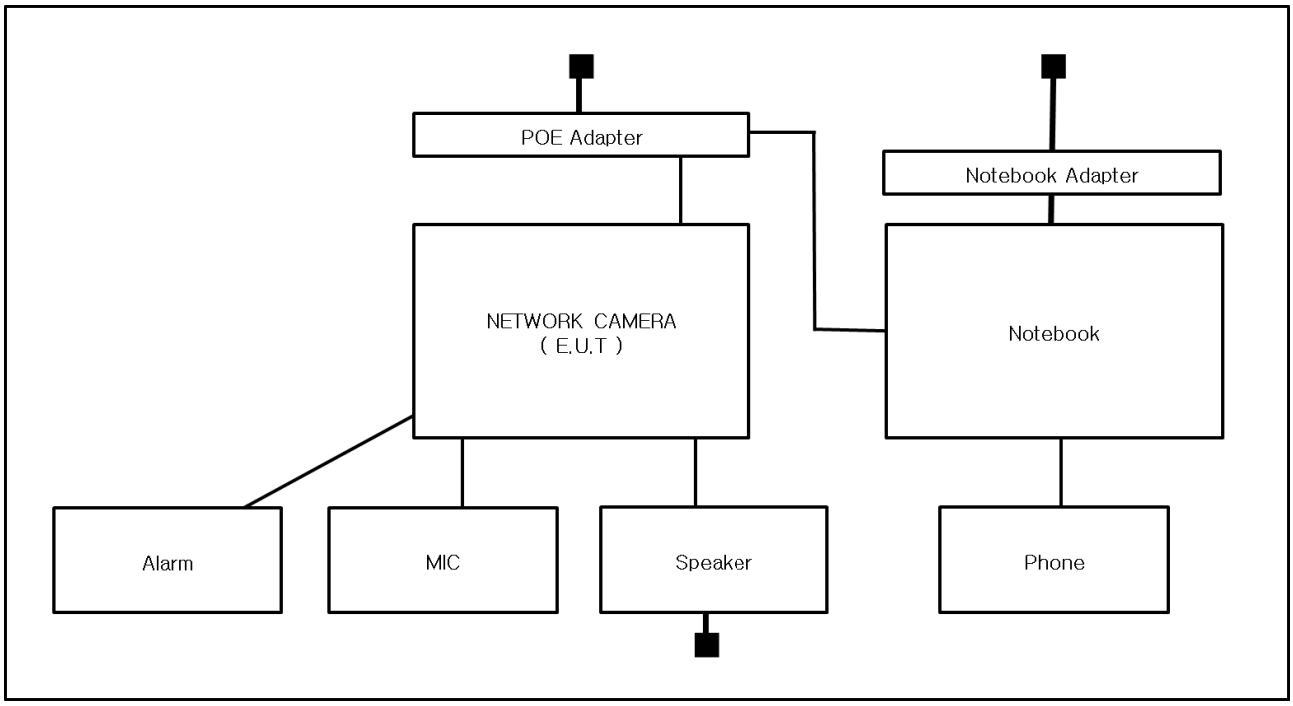


- DC 12V Mode



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- PoE Mode



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1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
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
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KOREA LABORATORY ACCREDITATION SCHEME KOLAS TESTING NO. 489

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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 55022:2010 ☐ 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 V-3 / 2015.04 ☐ Class A ☐ Class B

☐ AS/NZS CISPR22:2009 +A1:2010 ☐ Class A ☐ Class B

☐ 47 CFR Part 15, Subpart B

- ☐ CISPR 22:2009 +A1:2010 ☐ Class A ☐ Class B
- ☐ ANSI C63.4-2009

☒ IC Regulation ICES-003 : 2016

- ☒ CAN/CSA CISPR 22-10 ☒ Class A ☐ Class B
- ☐ ANSI C63.4-2014

☐ RE– Directive 2014/53/EU

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

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2.1 Conducted Emissions Mains Power Ports

Test Date
Dec, 16, 2016

Test Location
Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 04, 2017
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	Electro wave Shieldroom	-	SEMITEC	-	-
☒	EMI Test S/W	EMC32	R & S	9.12.00	-

Test Conditions
Temperature: 19,5 ℃
Relative Humidity: 36,5 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
DC 12 V , PoE Mode N/A :
E.U.T power is 12 v (dc) power and PoE, limits are not specified

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2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Dec, 16, 2016

Test Location
☐ Open Area Test Site #1 ☒ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R&S	101781	05, 03, 2017
☒	Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9168-713	05, 15, 2017
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions
Temperature: -1,0 ℃
Relative Humidity: 38,0 %

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.3 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Dec, 16, 2016

Test Location
Semi Anechoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 24, 2017
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	Semi Anechoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-
☒	EMI Test S/W	e3	AUDIX	8.083b	-

Test Conditions
Temperature: 19,5 ℃
Relative Humidity: 36,5 %

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

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

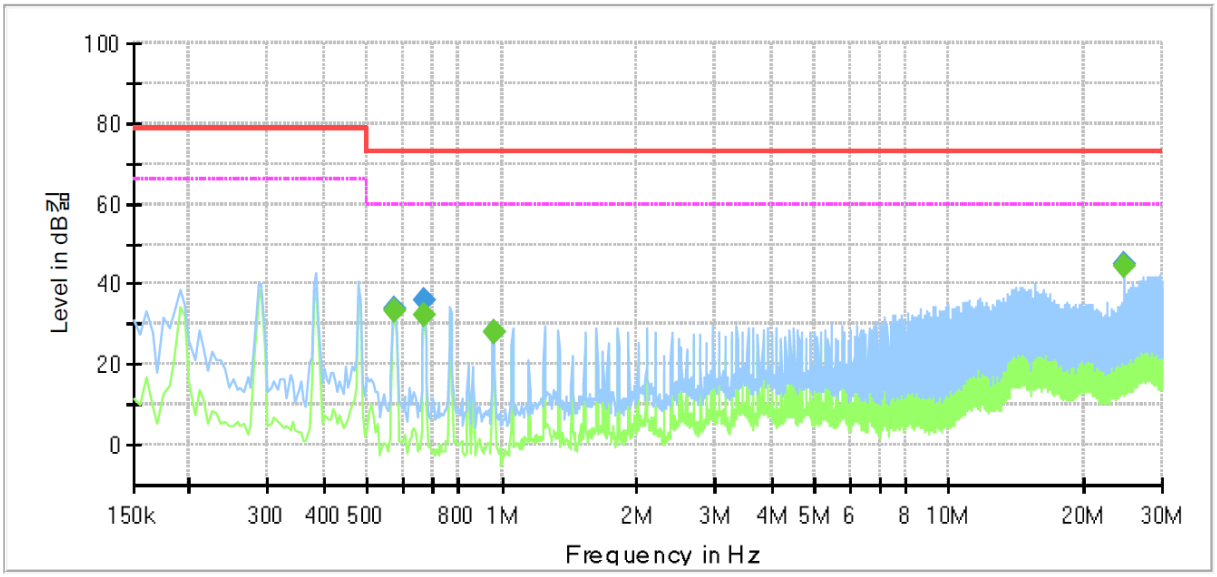
Conducted Emissions at Mains Power Ports

- AC 24V Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-6080RN
Mode	AC 24 V _ H
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.575000	---	33.51	60.00	26.49	1000.0	9.000	L1	9.9
0.575000	34.13	---	73.00	38.87	1000.0	9.000	L1	9.9
0.670000	---	32.34	60.00	27.66	1000.0	9.000	L1	9.9
0.670000	35.90	---	73.00	37.10	1000.0	9.000	L1	9.9
0.960000	---	27.85	60.00	32.15	1000.0	9.000	L1	10.0
0.960000	28.34	---	73.00	44.66	1000.0	9.000	L1	10.0
24.575000	---	44.45	60.00	15.55	1000.0	9.000	L1	10.3
24.575000	44.82	---	73.00	28.18	1000.0	9.000	L1	10.3

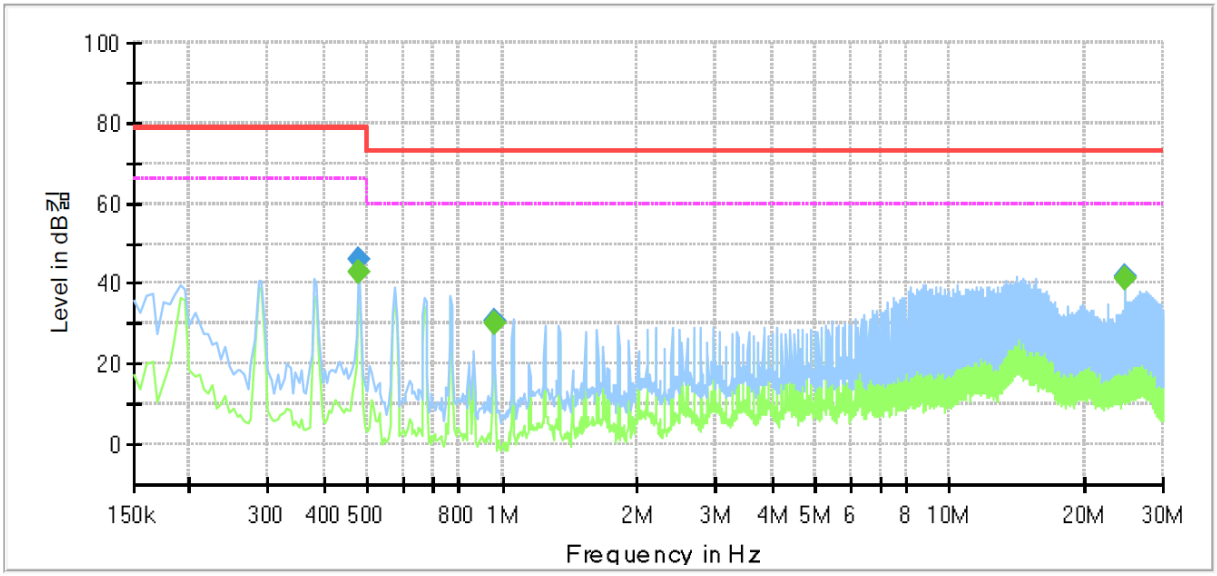
♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR+ Cable Loss)

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-6080RN
Mode	AC 24 V _ N
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.480000	---	43.01	66.00	22.99	1000.0	9.000	N	9.8
0.480000	46.23	---	79.00	32.77	1000.0	9.000	N	9.8
0.960000	---	30.34	60.00	29.66	1000.0	9.000	N	10.0
0.960000	30.79	---	73.00	42.21	1000.0	9.000	N	10.0
24.575000	---	41.53	60.00	18.47	1000.0	9.000	N	10.3
24.575000	41.89	---	73.00	31.11	1000.0	9.000	N	10.3

♦ 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)

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Radiated Electric Field Emissions(Below 1 ㎓)

- AC 24V Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dB㎶]		[m]	ANT. [dB/m]	Cable [dB]	[dB㎶/m]	[dB㎶/m]	[dB]
147.37	8.29	H	3.74	8.11	3.54	19.94	40.00	20.06
227.69	9.29	H	4.00	11.91	4.45	25.65	40.00	14.35
325.68	13.31	V	1.29	13.98	5.40	32.69	47.00	14.31
400.05	8.14	H	4.00	15.70	6.17	30.01	47.00	16.99
530.34	17.23	V	1.15	17.77	7.25	42.25	47.00	4.75
624.33	8.71	V	1.28	19.40	7.99	36.10	47.00	10.90

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [㏈uV] = Amplitude[㏈uV] + Correction Factor [㏈]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

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- DC 12V Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	
152.62	8.38	H	3.90	8.29	3.60	20.27	40.00	19.73
221.26	9.27	H	3.94	11.77	4.37	25.41	40.00	14.59
336.98	12.61	V	1.36	14.24	5.51	32.36	47.00	14.64
475.81	8.69	H	3.61	16.76	6.90	32.35	47.00	14.65
530.33	14.26	V	1.00	17.77	7.25	39.28	47.00	7.72
624.33	8.67	V	1.28	19.40	7.99	36.06	47.00	10.94

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

- PoE Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	
147.62	8.15	V	1.57	8.11	3.54	19.80	40.00	20.20
224.36	9.14	H	3.88	11.84	4.41	25.39	40.00	14.61
325.87	11.15	H	3.79	13.98	5.40	30.53	47.00	16.47
400.03	7.92	V	1.21	15.70	6.17	29.79	47.00	17.21
538.28	9.12	H	3.76	17.94	7.31	34.37	47.00	12.63
624.60	9.31	V	1.00	19.40	7.99	36.70	47.00	10.30

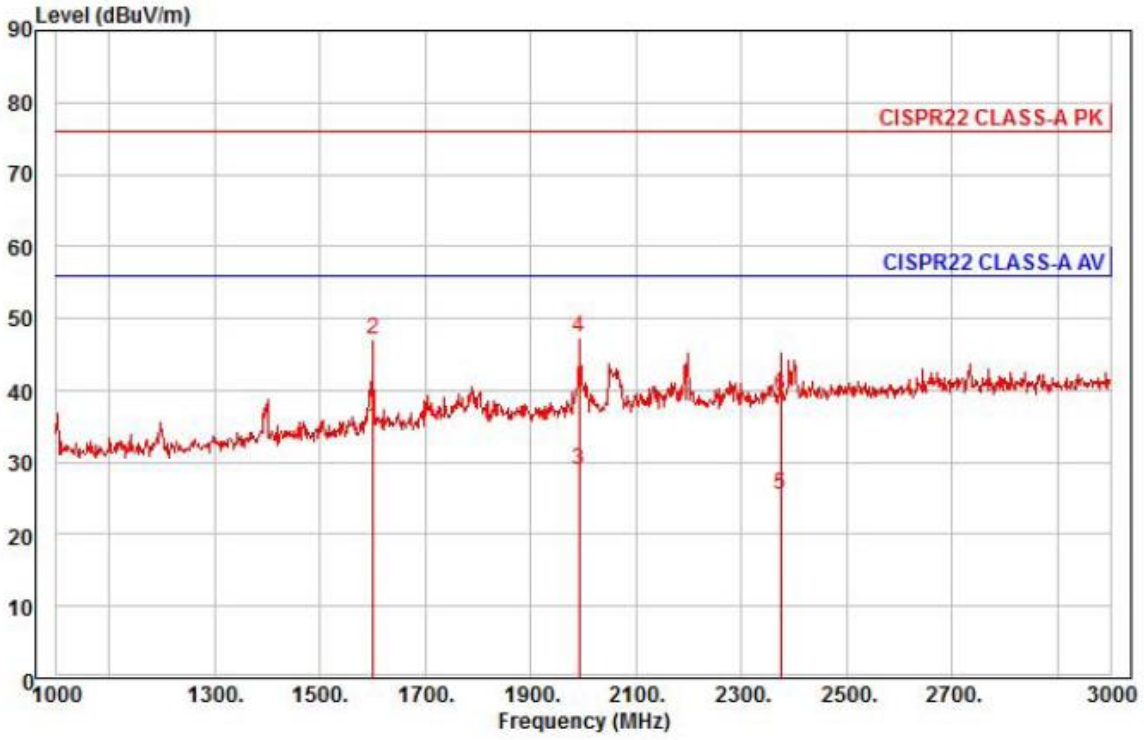
* H : Horizontal, V : Vertical

♦ 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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Radiated Electric Field Emissions(Above 1 ㎓)

- AC 24V Mode




```
Site      : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
         : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project   :
Model     : XNV-6080RN
Mode      : AC 24 V
Memo      :
```

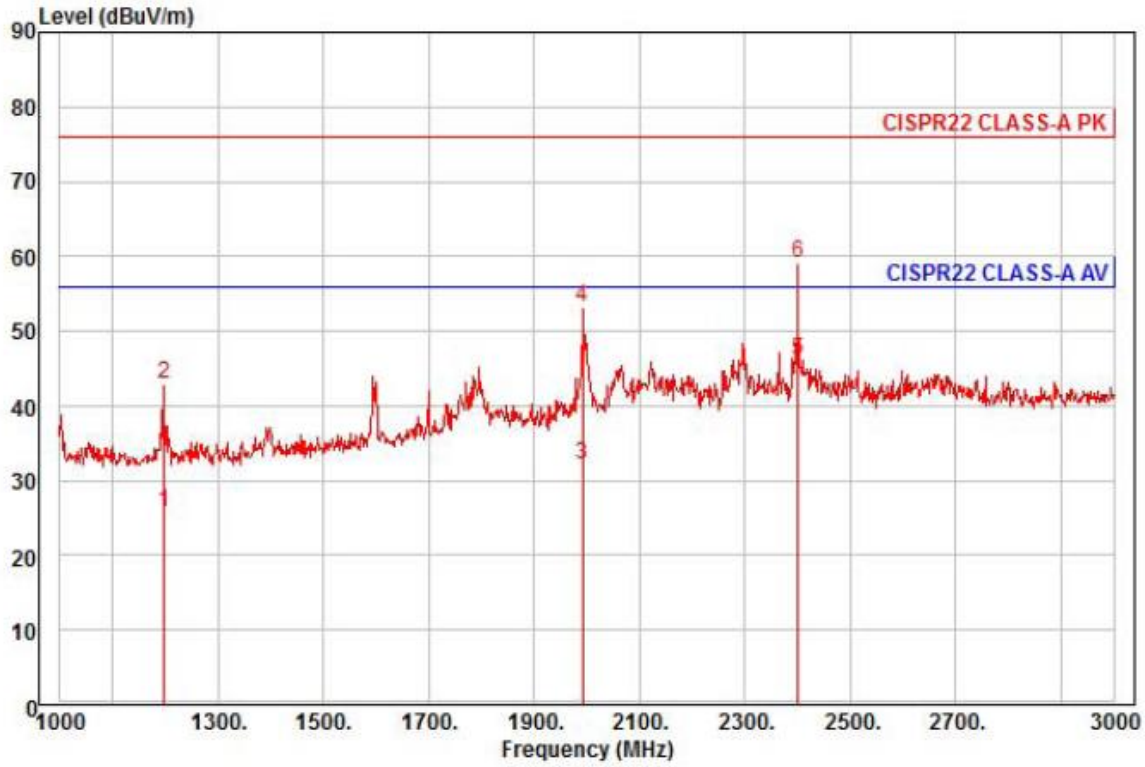
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1600.00	39.54	26.29	8.31	39.22	24	56.00	-21.08	horizontal	Average
2	1600.00	51.78	26.29	8.31	39.22	24	76.00	-28.84	horizontal	Peak
3	1992.00	31.07	27.85	9.32	39.41	79	56.00	-27.17	horizontal	Average
4 pk	1992.00	49.58	27.85	9.32	39.41	79	76.00	-28.66	horizontal	Peak
5	2374.00	25.92	28.80	10.26	39.42	146	56.00	-30.44	horizontal	Average
6	2374.00	39.48	28.80	10.26	39.42	146	76.00	-36.88	horizontal	Peak

♦ Calculation

Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] − Preamp Factor [㏈]) − Limit Line[㏈uV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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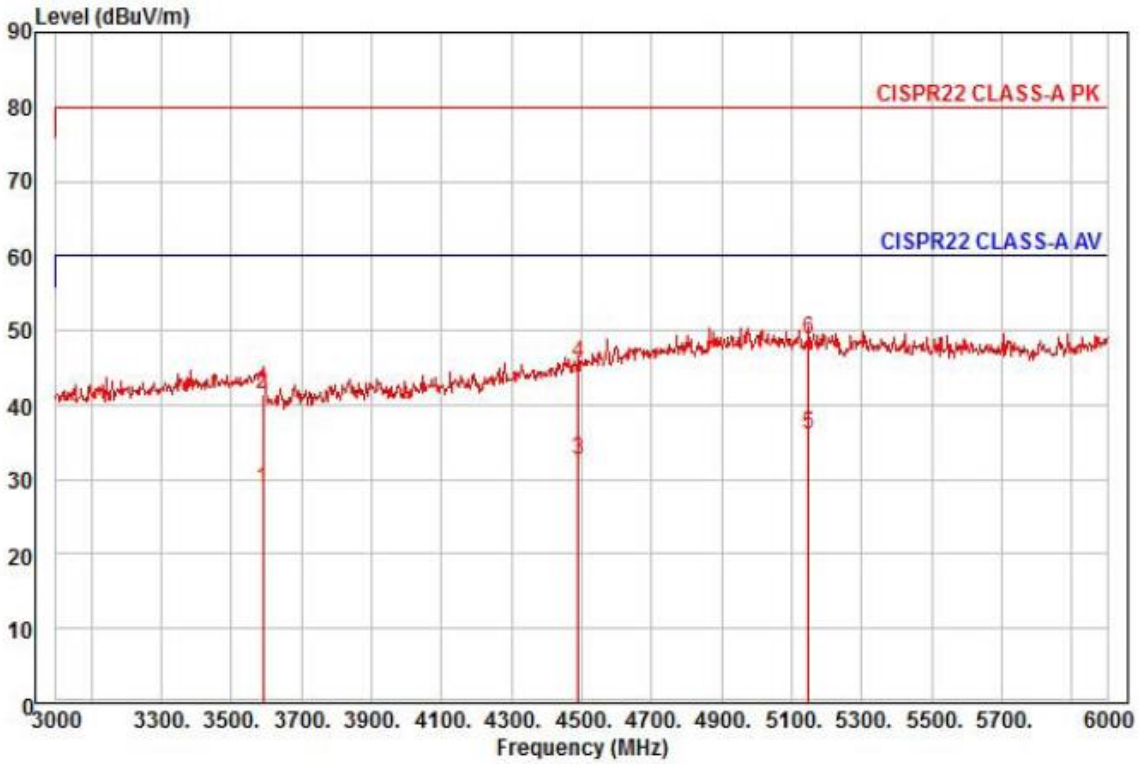


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : AC 24 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1198.00	33.63	24.70	7.13	39.61	80	56.00	-30.15	vertical	Average
2	1198.00	50.62	24.70	7.13	39.61	80	76.00	-33.16	vertical	Peak
3	1992.00	34.34	27.85	9.32	39.41	10	56.00	-23.90	vertical	Average
4	1992.00	55.57	27.85	9.32	39.41	10	76.00	-22.67	vertical	Peak
5 pp	2400.00	46.23	28.86	10.32	39.42	13	56.00	-10.01	vertical	Average
6 pk	2400.00	59.45	28.86	10.32	39.42	13	76.00	-16.79	vertical	Peak

♦ Calculation
Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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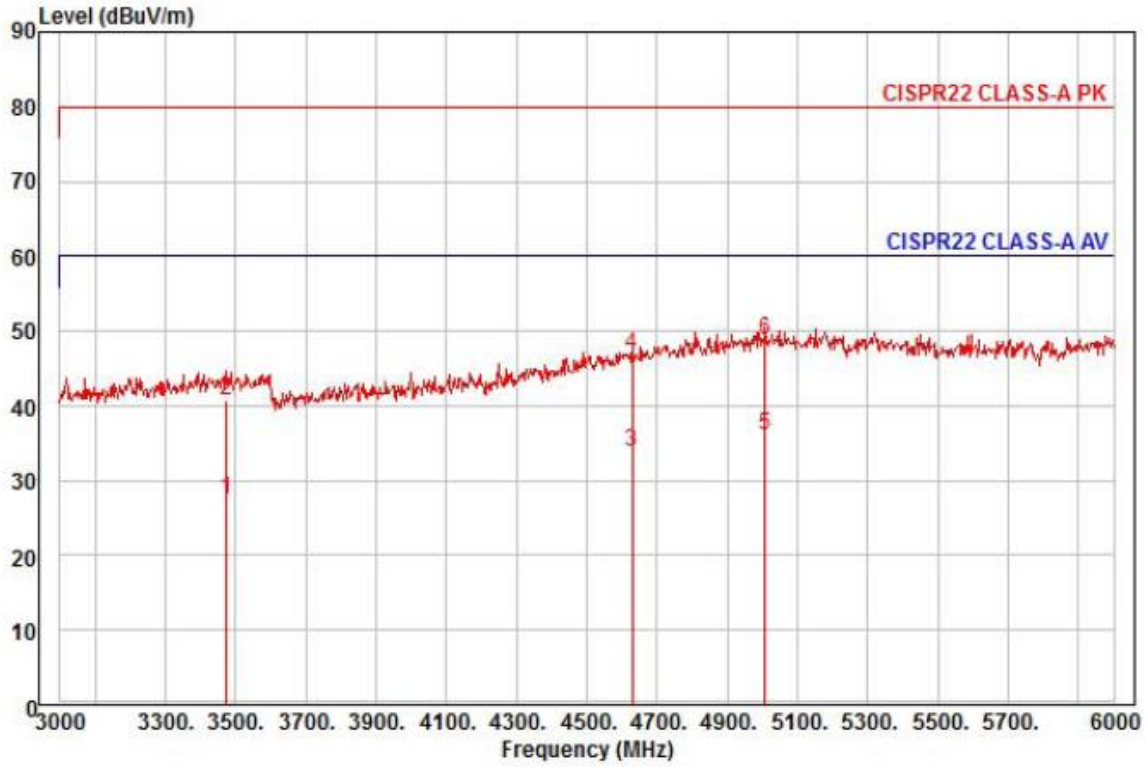


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : AC 24 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3591.00	25.32	31.32	12.79	40.85	66	60.00	-31.42	horizontal	Average
2	3591.00	38.09	31.32	12.79	40.85	66	80.00	-38.65	horizontal	Peak
3	4491.00	24.22	34.81	14.45	40.77	9	60.00	-27.29	horizontal	Average
4	4491.00	37.15	34.81	14.45	40.77	9	80.00	-34.36	horizontal	Peak
5 pp	5148.00	23.47	37.42	15.61	40.52	219	60.00	-24.02	horizontal	Average
6 pk	5148.00	36.17	37.42	15.61	40.52	219	80.00	-31.32	horizontal	Peak

♦ Calculation
Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : AC 24 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3474.00	24.66	31.13	12.58	40.84	339	60.00	-32.47	vertical	Average
2	3474.00	37.95	31.13	12.58	40.84	339	80.00	-39.18	vertical	Peak
3	4629.00	24.17	35.60	14.72	40.64	61	60.00	-26.15	vertical	Average
4	4629.00	37.16	35.60	14.72	40.64	61	80.00	-33.16	vertical	Peak
5 pp	5007.00	23.34	37.71	15.33	40.28	152	60.00	-23.90	vertical	Average
6 pk	5007.00	35.95	37.71	15.33	40.28	152	80.00	-31.29	vertical	Peak

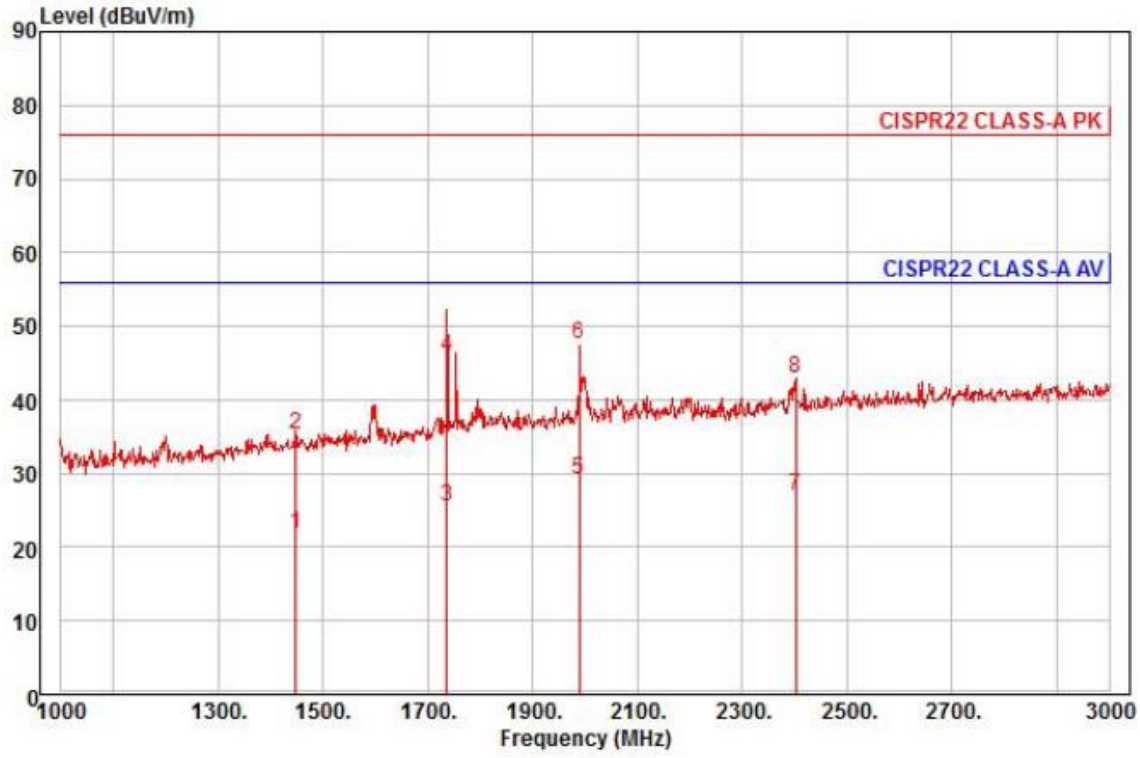
♦ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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- DC 12V Mode




```
Site      : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
         : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project   :
Model     : XNV-6080RN
Mode      : DC 12 V
Memo      :
```

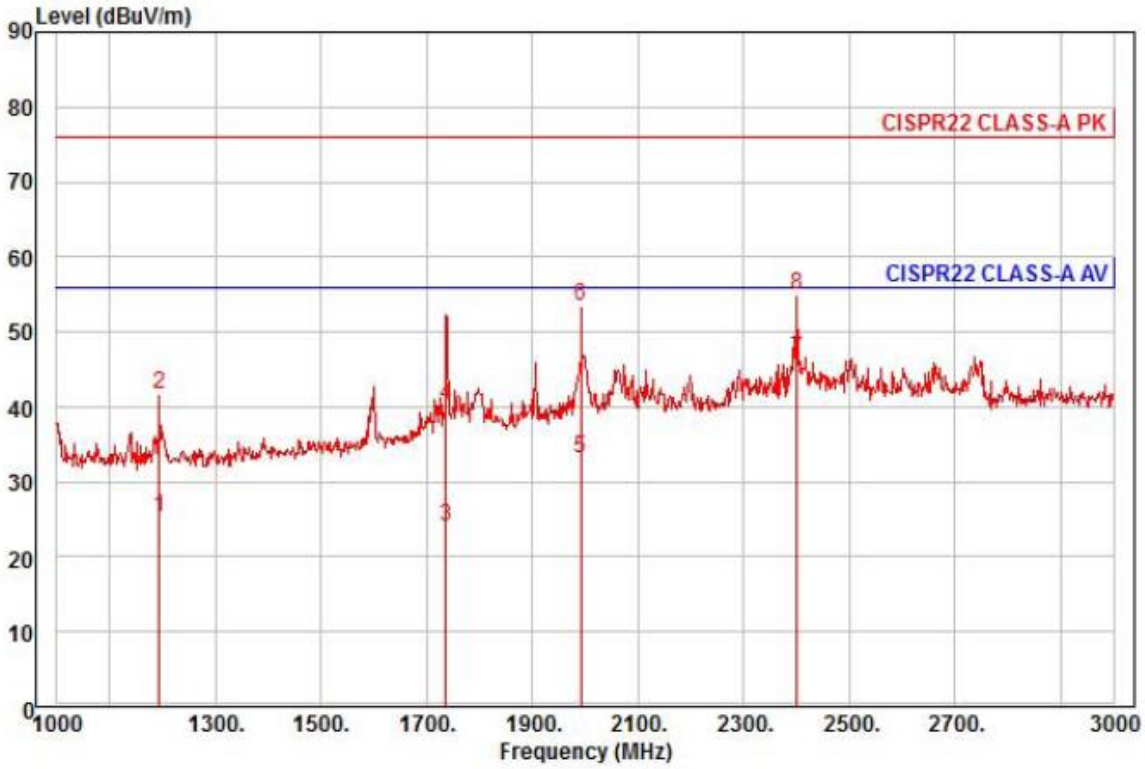
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1448.00	27.43	25.69	7.86	39.15	283	56.00	-34.17	horizontal	Average
2	1448.00	41.01	25.69	7.86	39.15	283	76.00	-40.59	horizontal	Peak
3	1736.00	29.27	26.83	8.66	39.29	297	56.00	-30.53	horizontal	Average
4	1736.00	49.61	26.83	8.66	39.29	297	76.00	-30.19	horizontal	Peak
5 pp	1988.00	31.41	27.83	9.31	39.40	160	56.00	-26.85	horizontal	Average
6 pk	1988.00	49.84	27.83	9.31	39.40	160	76.00	-28.42	horizontal	Peak
7	2402.00	27.14	28.86	10.33	39.42	49	56.00	-29.09	horizontal	Average
8	2402.00	43.18	28.86	10.33	39.42	49	76.00	-33.05	horizontal	Peak

♦ Calculation

Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] − Preamp Factor [㏈]) − Limit Line[㏈uV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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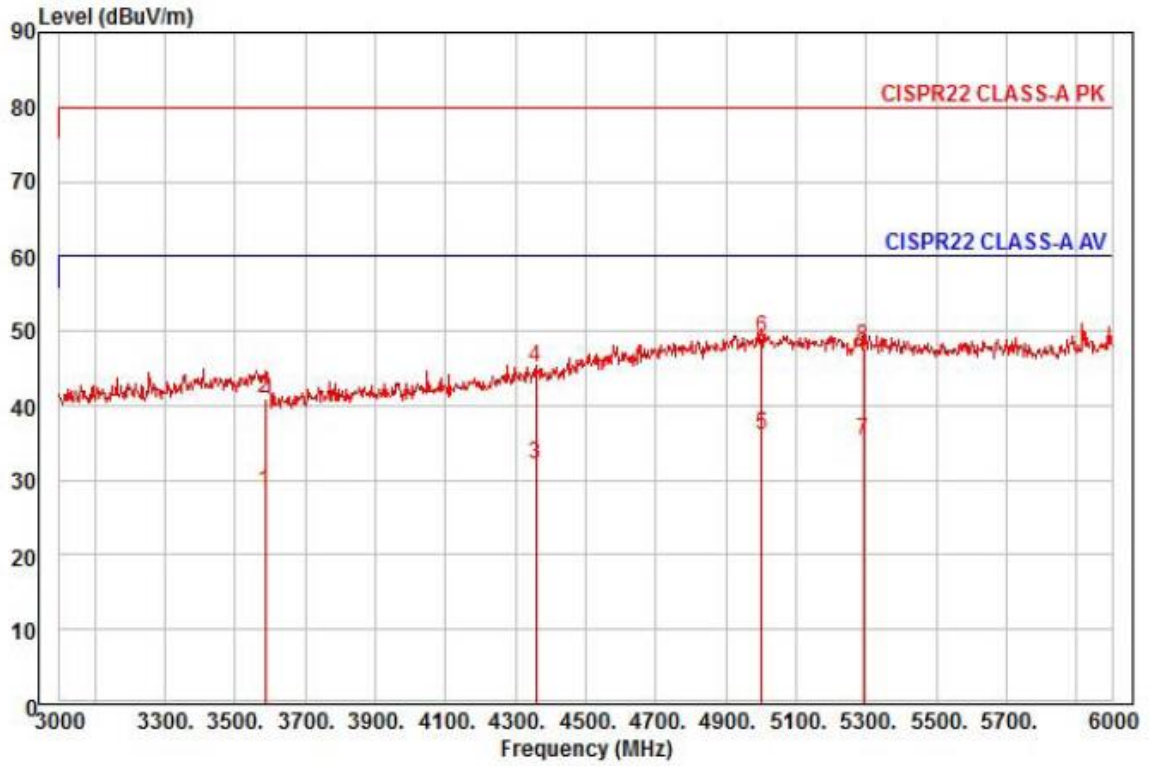


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : DC 12 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1194.00	33.02	24.68	7.12	39.62	75	56.00	-30.80	vertical	Average
2	1194.00	49.54	24.68	7.12	39.62	75	76.00	-34.28	vertical	Peak
3	1736.00	27.90	26.83	8.66	39.29	37	56.00	-31.90	vertical	Average
4	1736.00	44.03	26.83	8.66	39.29	37	76.00	-35.77	vertical	Peak
5	1992.00	35.46	27.85	9.32	39.41	15	56.00	-22.78	vertical	Average
6	1992.00	55.65	27.85	9.32	39.41	15	76.00	-22.59	vertical	Peak
7 pp	2400.00	46.51	28.86	10.32	39.42	349	56.00	-9.73	vertical	Average
8 pk	2400.00	55.29	28.86	10.32	39.42	349	76.00	-20.95	vertical	Peak

♦ Calculation
Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] − Preamp Factor [㏈]) − Limit Line[㏈uV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : DC 12 V
Memo :

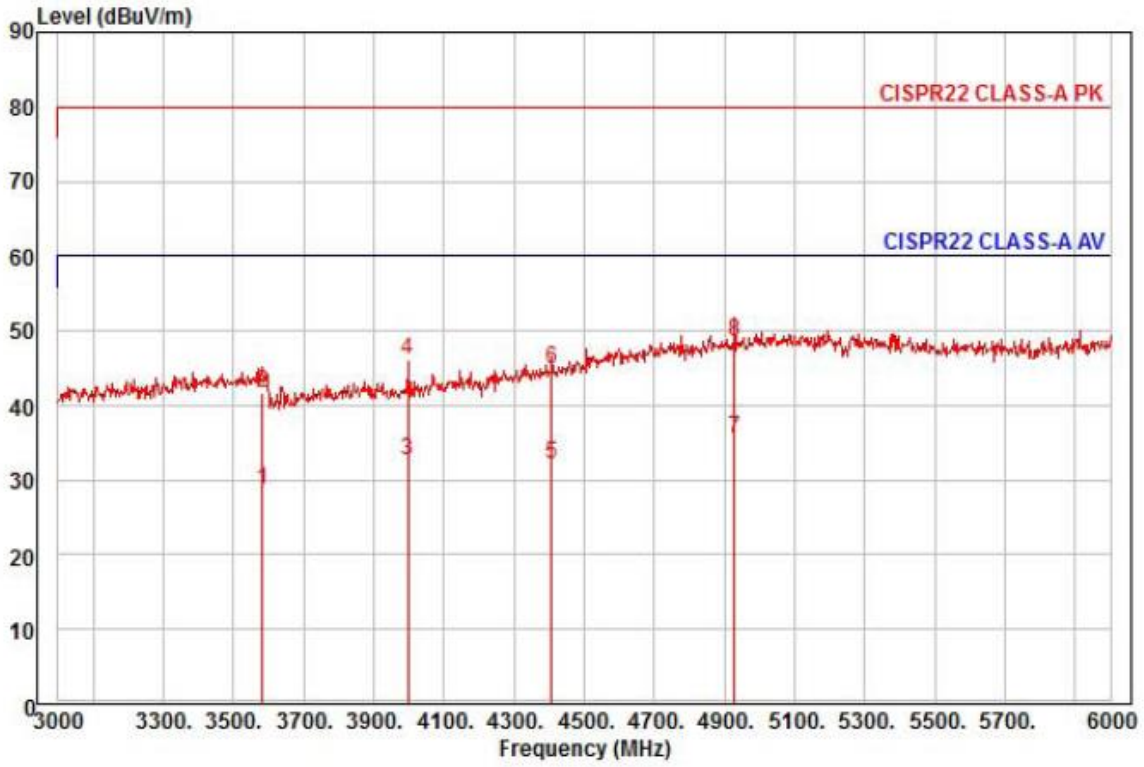
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3585.00	25.24	31.31	12.78	40.85	314	60.00	-31.52	horizontal	Average
2	3585.00	37.59	31.31	12.78	40.85	314	80.00	-39.17	horizontal	Peak
3	4359.00	24.51	34.06	14.20	40.75	263	60.00	-27.98	horizontal	Average
4	4359.00	37.67	34.06	14.20	40.75	263	80.00	-34.82	horizontal	Peak
5 pp	5001.00	23.39	37.72	15.32	40.27	180	60.00	-23.84	horizontal	Average
6 pk	5001.00	36.30	37.72	15.32	40.27	180	80.00	-30.93	horizontal	Peak
7	5292.00	23.09	37.13	15.86	40.75	283	60.00	-24.67	horizontal	Average
8	5292.00	35.63	37.13	15.86	40.75	283	80.00	-32.13	horizontal	Peak

♦ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : DC 12 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3582.00	25.46	31.31	12.77	40.85	297	60.00	-31.31	vertical	Average
2	3582.00	38.39	31.31	12.77	40.85	297	80.00	-38.38	vertical	Peak
3	3999.00	27.77	32.01	13.56	40.70	354	60.00	-27.36	vertical	Average
4	3999.00	41.19	32.01	13.56	40.70	354	80.00	-33.94	vertical	Peak
5	4407.00	24.38	34.33	14.28	40.76	157	60.00	-27.77	vertical	Average
6	4407.00	36.92	34.33	14.28	40.76	157	80.00	-35.23	vertical	Peak
7 pp	4929.00	23.41	37.31	15.24	40.34	121	60.00	-24.38	vertical	Average
8 pk	4929.00	36.44	37.31	15.24	40.34	121	80.00	-31.35	vertical	Peak

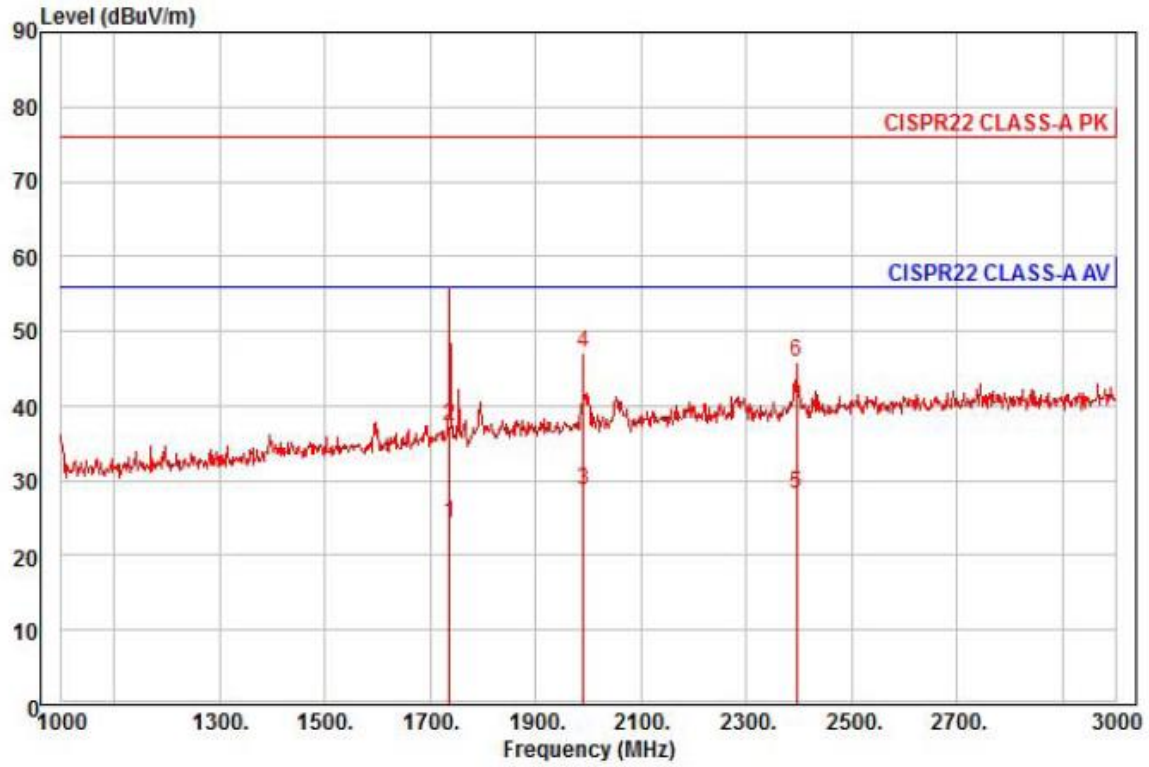
♦ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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- PoE Mode

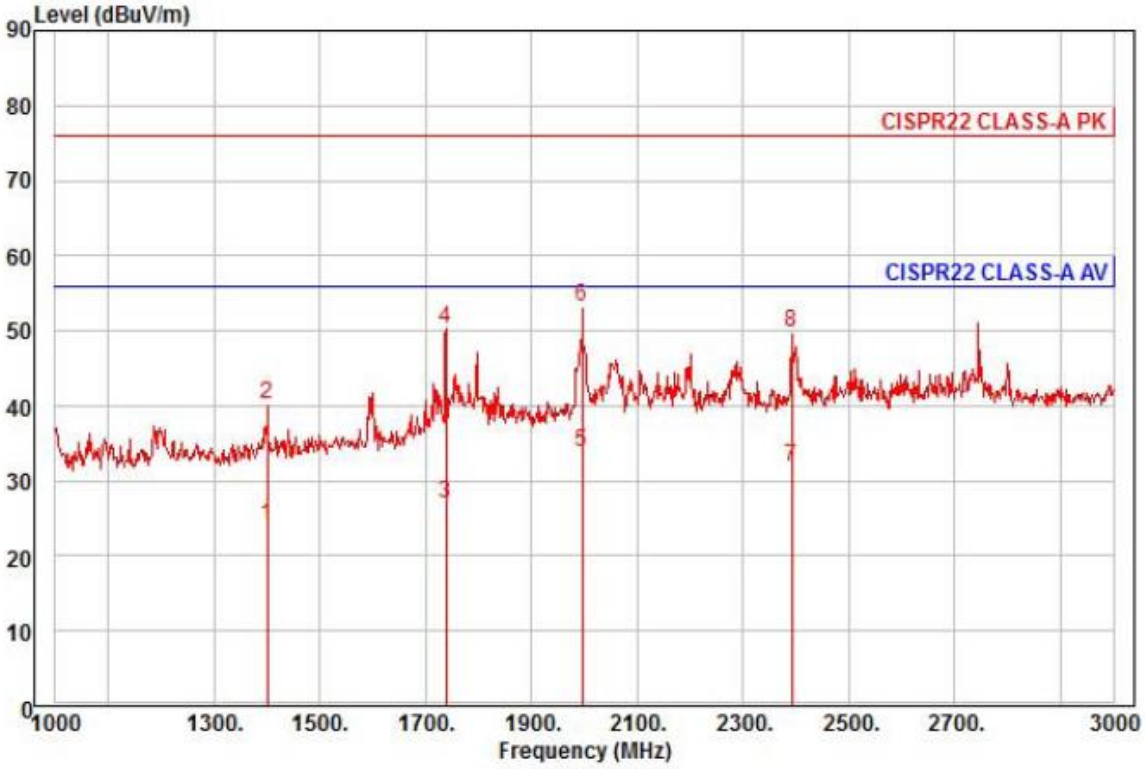


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : POE
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1736.00	28.03	26.83	8.66	39.29	352	56.00	-31.77	horizontal	Average
2	1736.00	41.00	26.83	8.66	39.29	352	76.00	-38.80	horizontal	Peak
3 pp	1990.00	30.88	27.84	9.31	39.41	84	56.00	-27.38	horizontal	Average
4 pk	1990.00	49.27	27.84	9.31	39.41	84	76.00	-28.99	horizontal	Peak
5	2396.00	28.58	28.85	10.31	39.42	55	56.00	-27.68	horizontal	Average
6	2396.00	46.08	28.85	10.31	39.42	55	76.00	-30.18	horizontal	Peak

♦ Calculation
Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : POE
Memo :

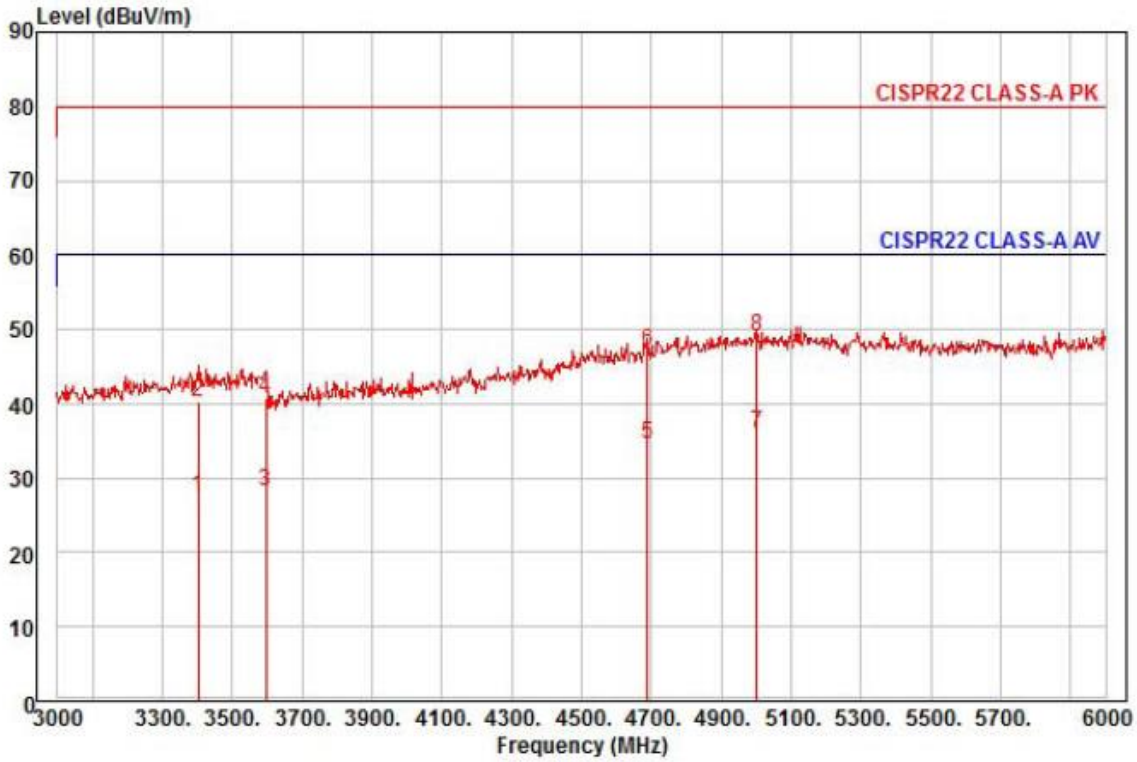
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1400.00	29.84	25.50	7.72	39.13	260	56.00	-32.07	vertical	Average
2	1400.00	46.10	25.50	7.72	39.13	260	76.00	-35.81	vertical	Peak
3	1738.00	30.64	26.84	8.67	39.29	163	56.00	-29.14	vertical	Average
4	1738.00	54.05	26.84	8.67	39.29	163	76.00	-25.73	vertical	Peak
5 pp	1996.00	35.99	27.86	9.33	39.41	351	56.00	-22.23	vertical	Average
6 pk	1996.00	55.54	27.86	9.33	39.41	351	76.00	-22.68	vertical	Peak
7	2392.00	32.17	28.84	10.30	39.42	48	56.00	-24.11	vertical	Average
8	2392.00	50.12	28.84	10.30	39.42	48	76.00	-26.16	vertical	Peak

♦ Calculation

Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] − Preamp Factor [㏈]) − Limit Line[㏈uV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : POE
Memo :

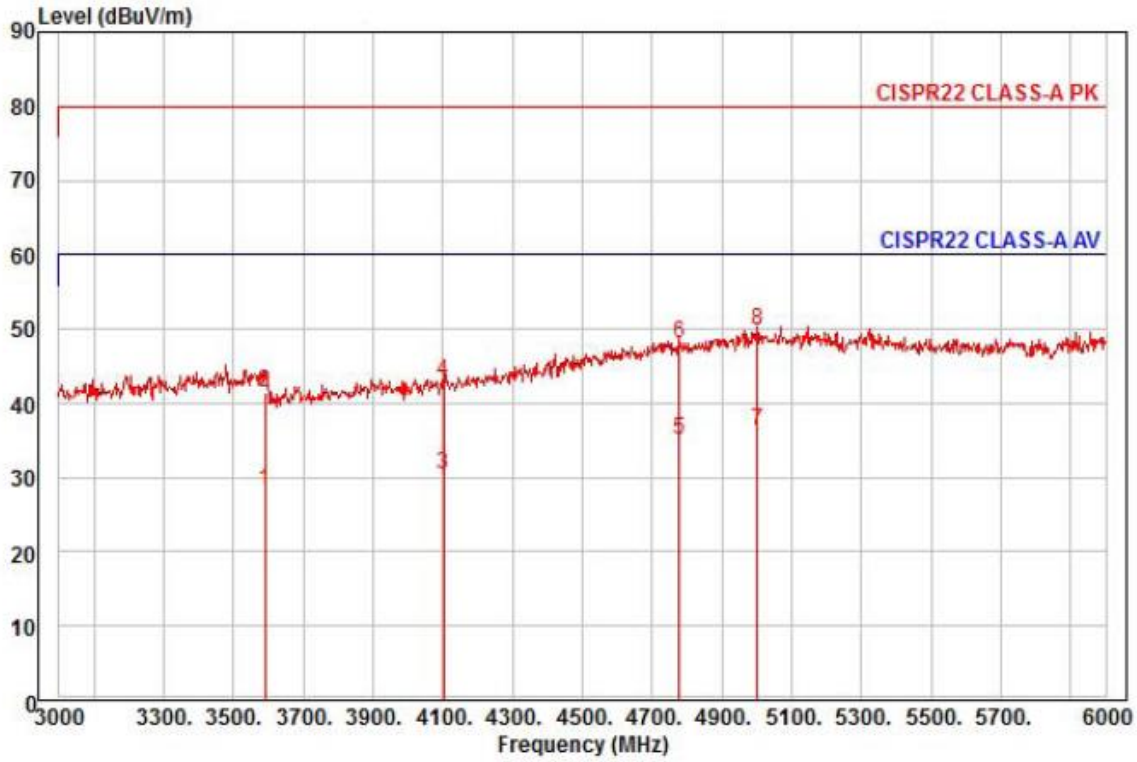
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3402.00	24.74	31.01	12.45	40.73	101	60.00	-32.53	horizontal	Average
2	3402.00	37.40	31.01	12.45	40.73	101	80.00	-39.87	horizontal	Peak
3	3597.00	24.87	31.33	12.80	40.85	13	60.00	-31.85	horizontal	Average
4	3597.00	37.55	31.33	12.80	40.85	13	80.00	-39.17	horizontal	Peak
5	4689.00	24.34	35.94	14.85	40.58	266	60.00	-25.45	horizontal	Average
6	4689.00	36.97	35.94	14.85	40.58	266	80.00	-32.82	horizontal	Peak
7 pp	5001.00	23.38	37.72	15.32	40.27	30	60.00	-23.85	horizontal	Average
8 pk	5001.00	36.17	37.72	15.32	40.27	30	80.00	-31.06	horizontal	Peak

♦ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : XNV-6080RN
Mode : POE
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3591.00	24.98	31.32	12.79	40.85	277	60.00	-31.76	vertical	Average
2	3591.00	38.29	31.32	12.79	40.85	277	80.00	-38.45	vertical	Peak
3	4101.00	24.72	32.59	13.75	40.71	114	60.00	-29.65	vertical	Average
4	4101.00	37.37	32.59	13.75	40.71	114	80.00	-37.00	vertical	Peak
5	4779.00	24.12	36.46	15.05	40.49	9	60.00	-24.86	vertical	Average
6	4779.00	37.08	36.46	15.05	40.49	9	80.00	-31.90	vertical	Peak
7 pp	5001.00	23.40	37.72	15.32	40.27	134	60.00	-23.83	vertical	Average
8 pk	5001.00	36.89	37.72	15.32	40.27	134	80.00	-30.34	vertical	Peak

♦ Calculation

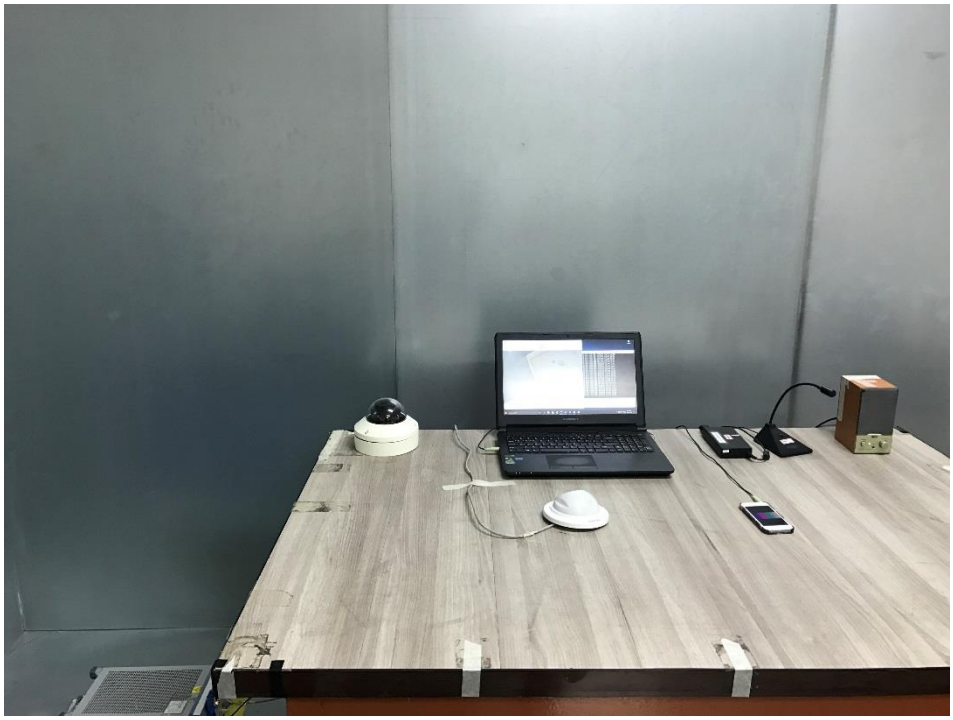
Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] − Preamp Factor [dB]) − Limit Line[dBuV]

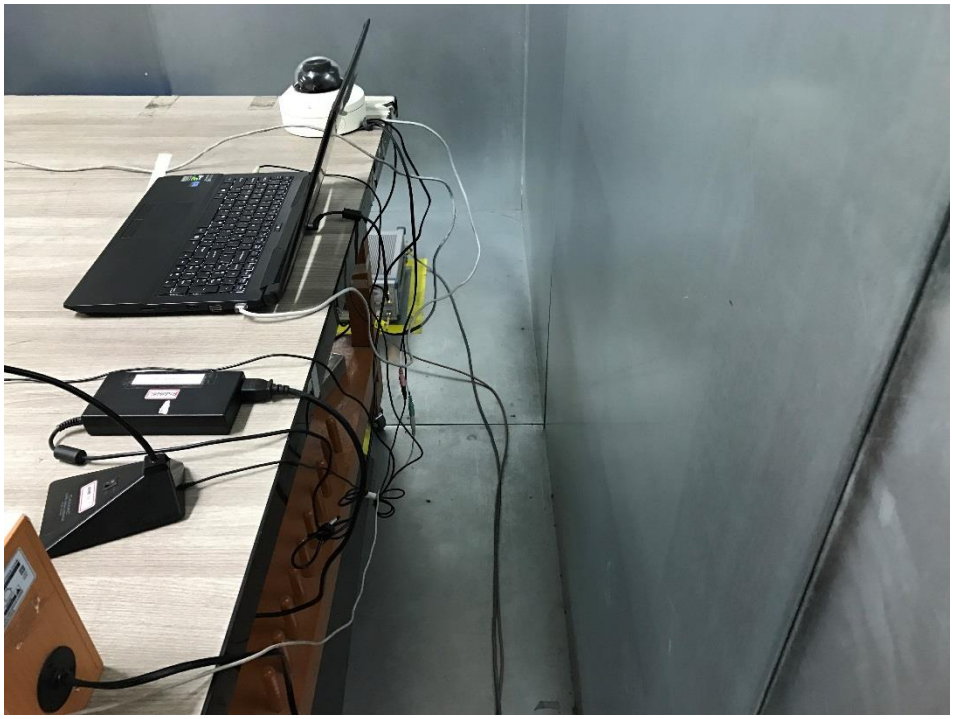
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Test Setup Photos and Configuration
Conducted Voltage Emissions

- AC 24V Mode



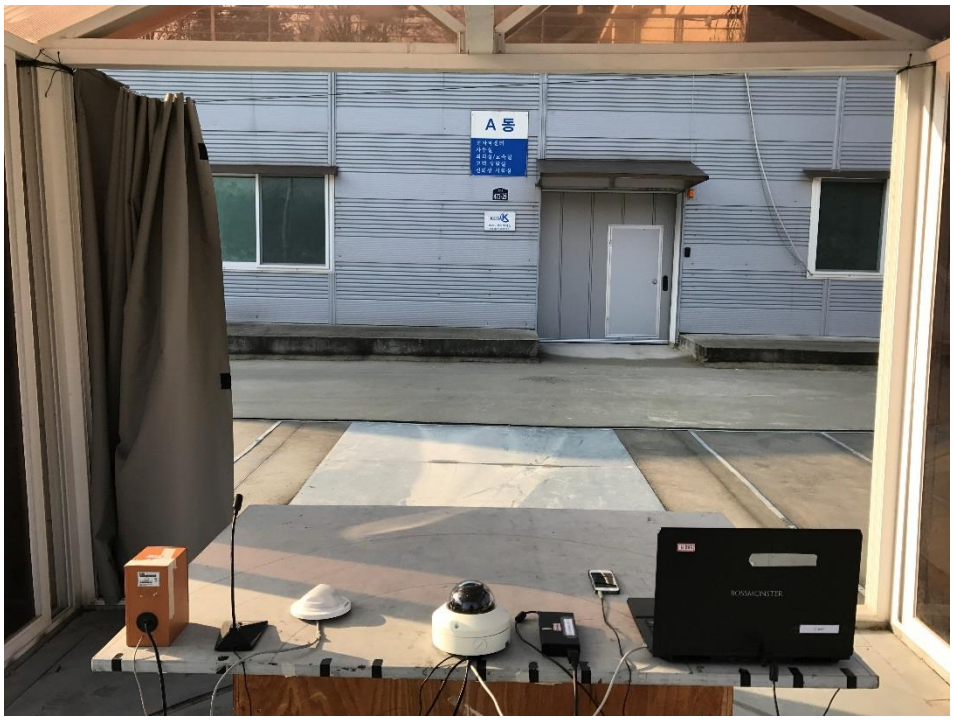


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Radiated Electric Field Emissions(Below 1 ㎓)

- AC 24V Mode





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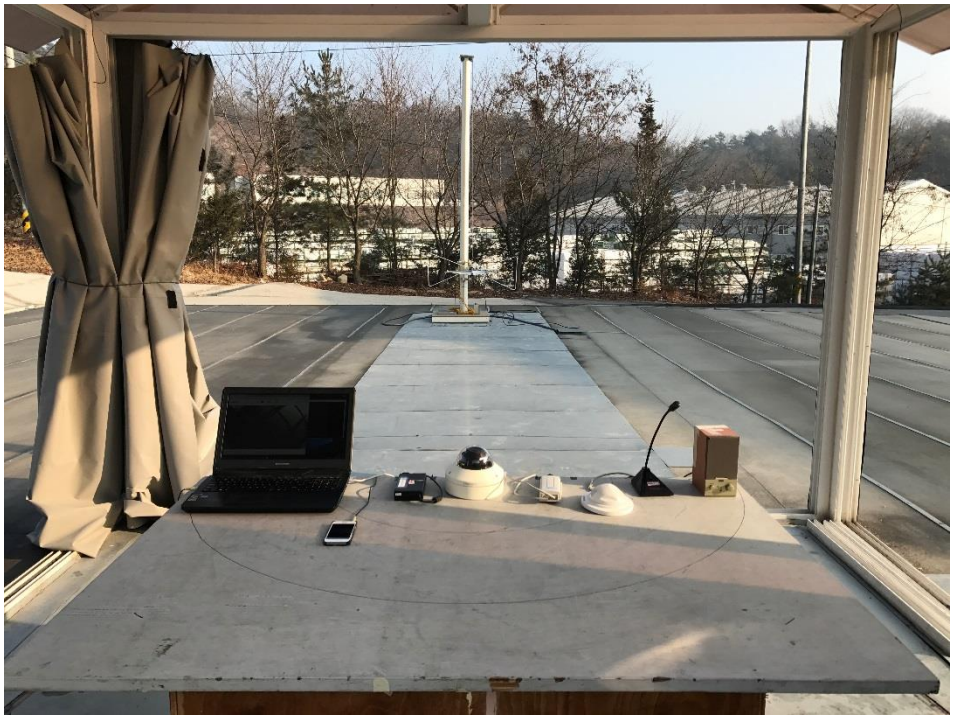
- DC 12V Mode





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- PoE Mode

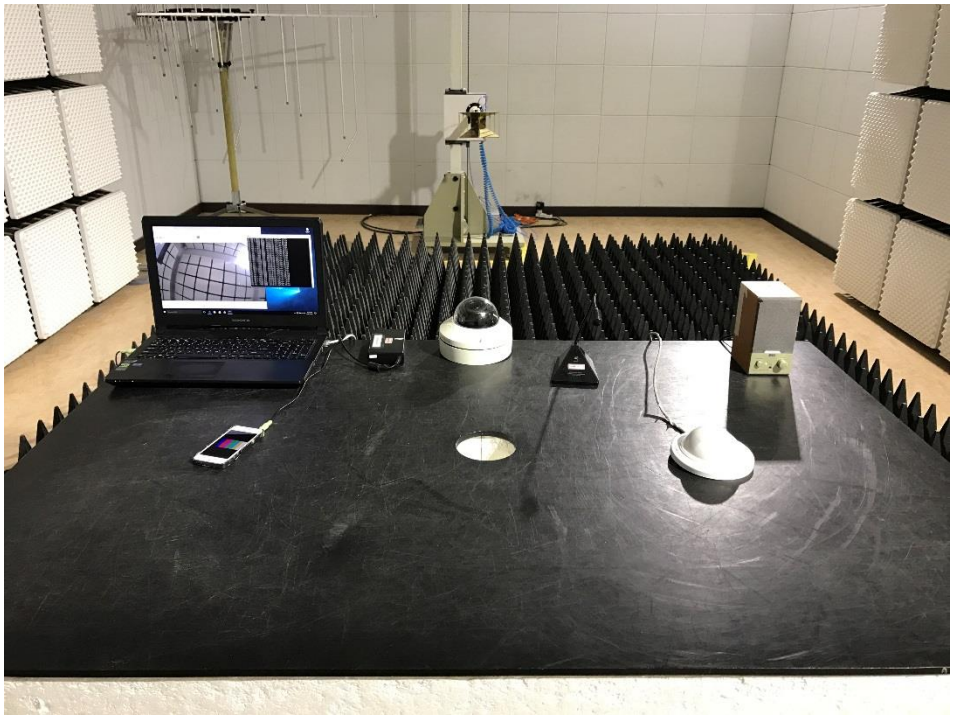


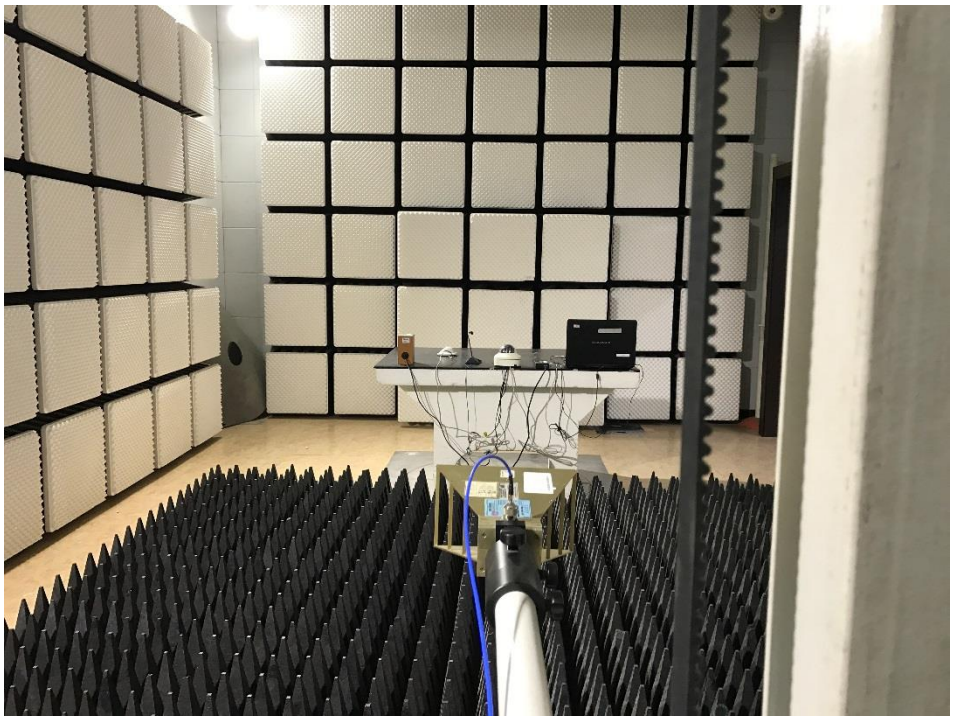


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Radiated Electric Field Emissions(Above 1 ㎓)

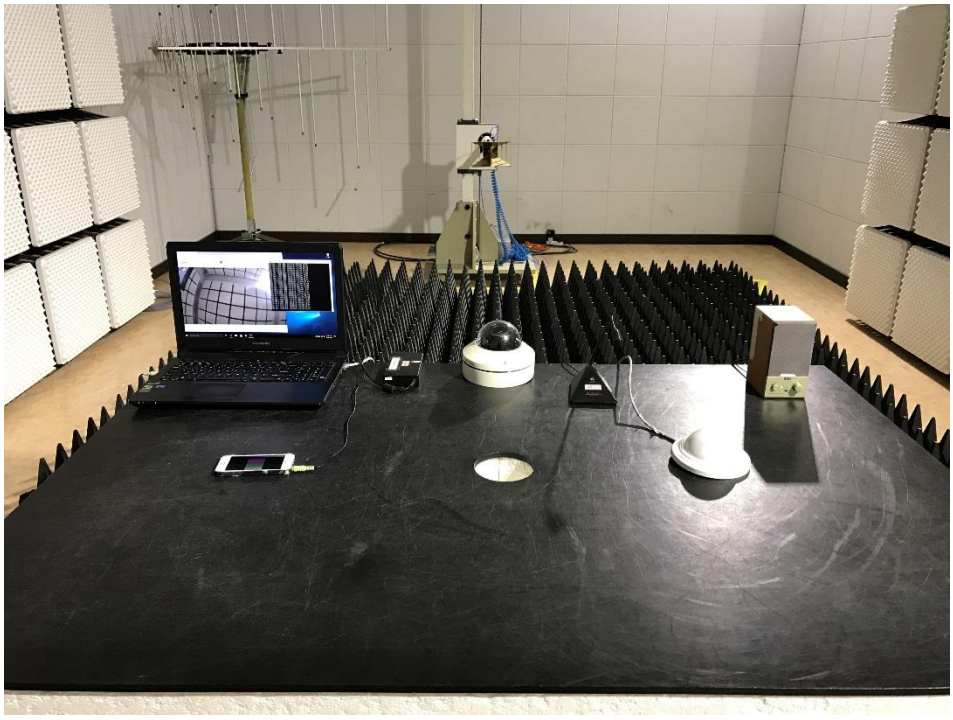
- AC 24V Mode





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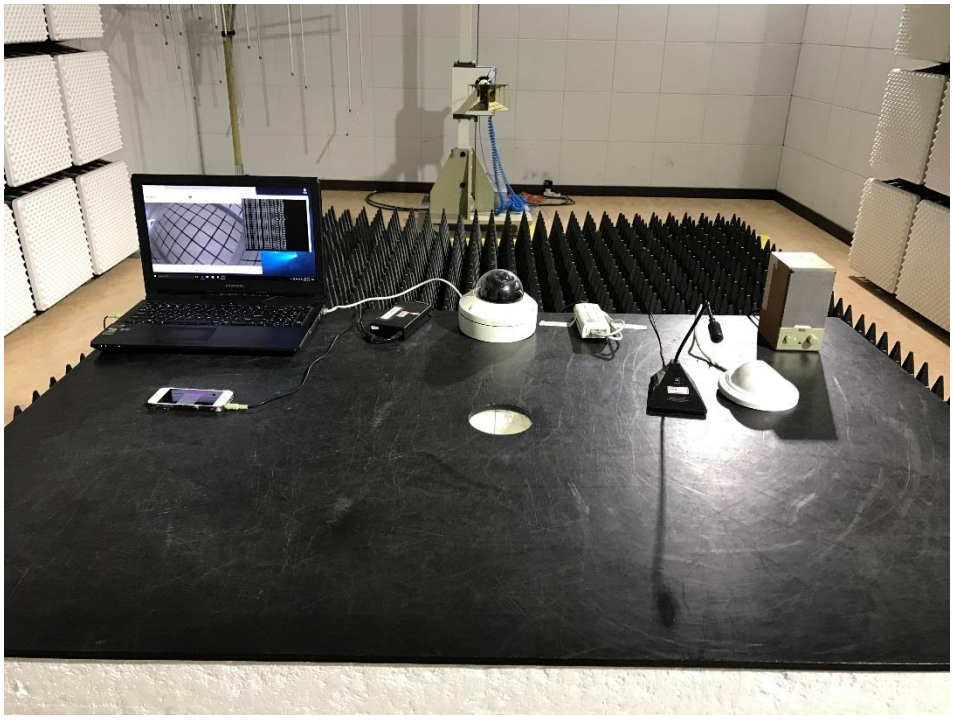
- DC 12V Mode

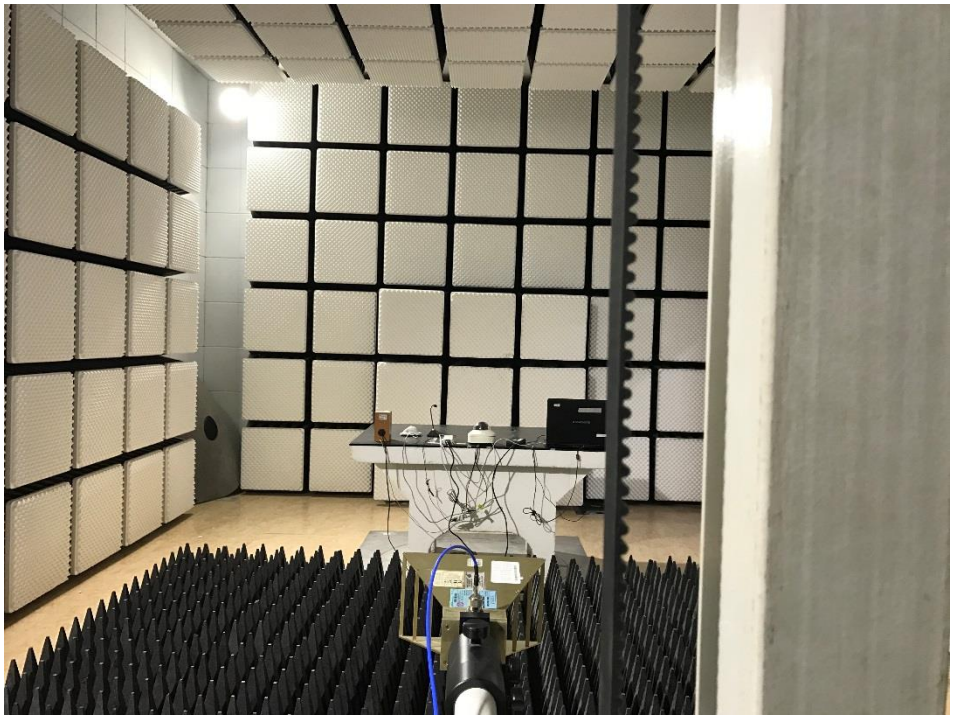




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- PoE Mode





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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

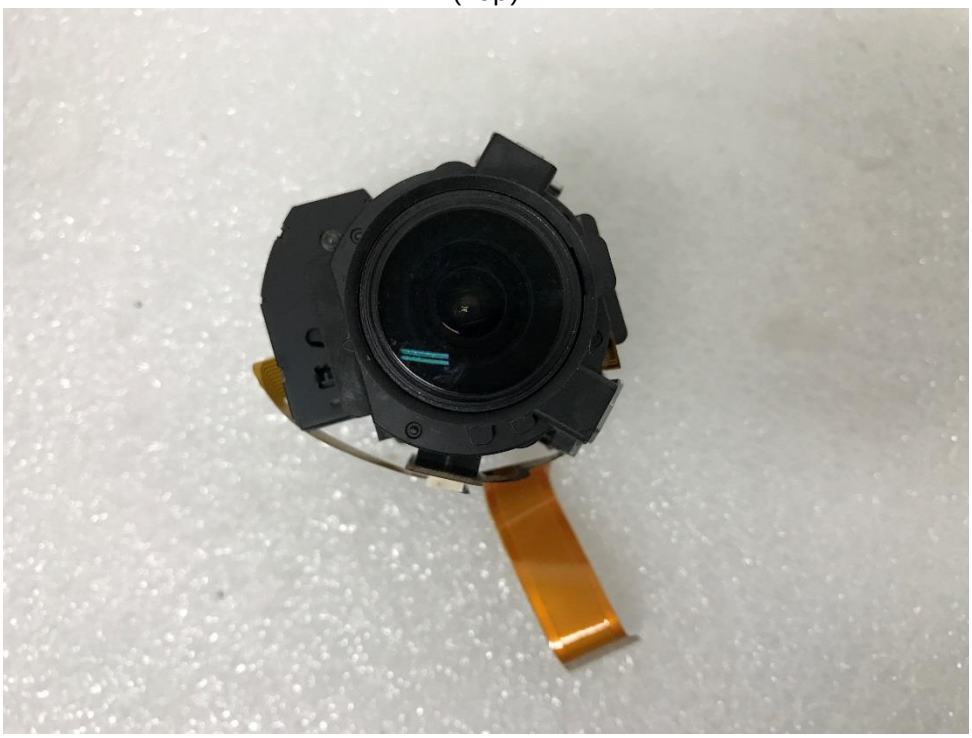
(Internal View)



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EUT Internal View – Lens

(Top)



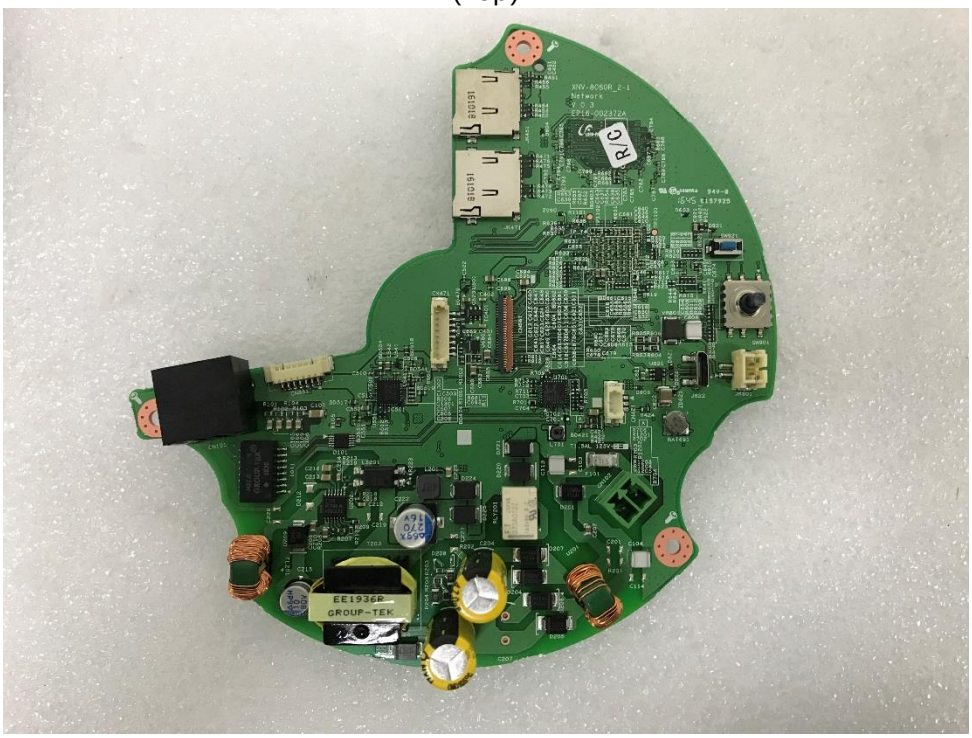
(Bottom)



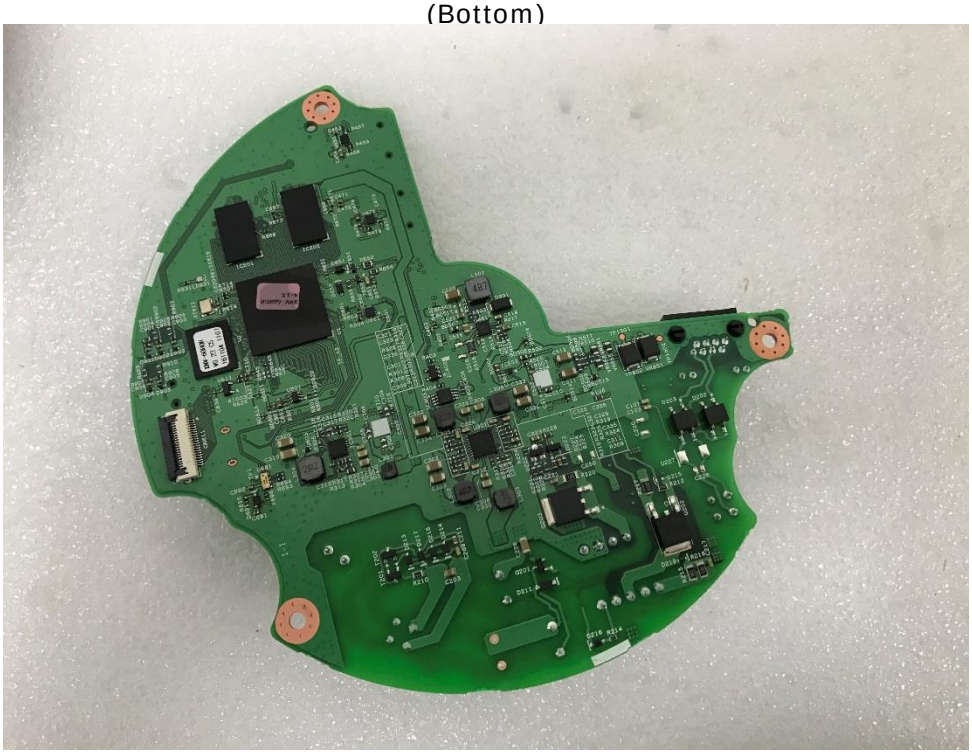
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EUT Internal View – Board 1

(Top)



(Bottom)



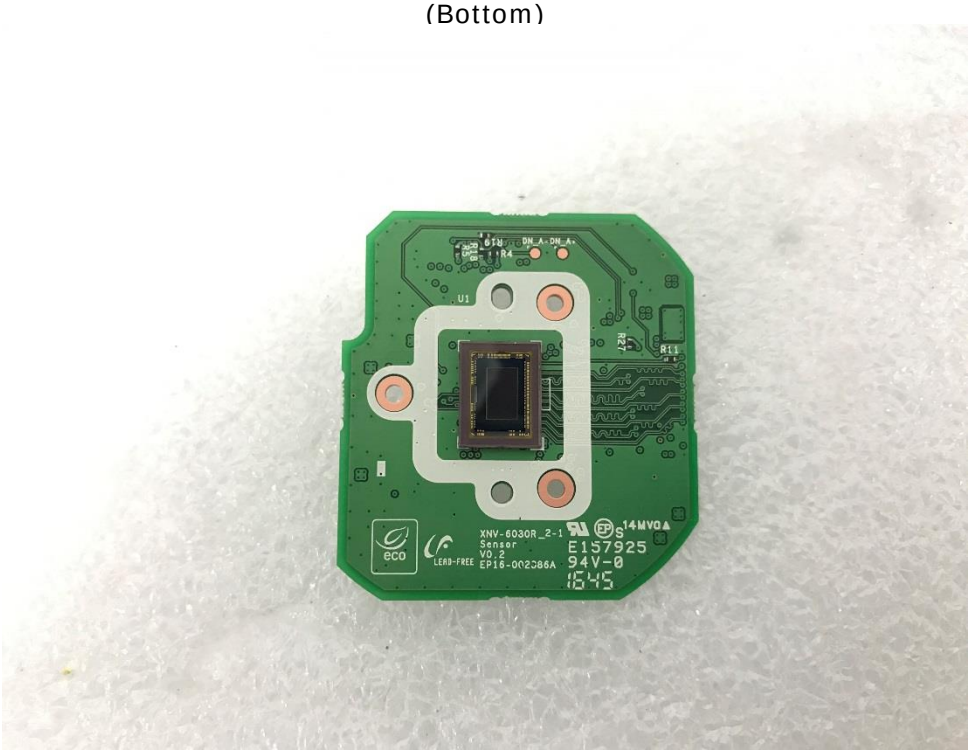
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EUT Internal View – Board 2

(Top)



(Bottom)



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EUT Internal View – Board 3

(Top)



(Bottom)



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Label Photographs



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

[LABEL VIEW]

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