



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0319

Date of Issue : Jul. 06, 2016

Product name : NETWORK CAMERA
7

Model/Type No. : QND-6070RN

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 1204, Changwon-daero, Seongsan-gu, Changwon-si,
Gyeongsangnam-do, Korea

Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co., Ltd.

Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA,
Tianjin, 300385, People's Republic of China

Date of Receipt : Jun. 16, 2016

Test date : Jun. 28, 2016 - Jul. 03, 2016

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Kyeng-Sun, Min
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

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KES-E1-16T0319
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REPORT REVISION HISTORY

Date	Revision	Page No
Jul. 06, 2016	KES-E1-16T0319	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QND-6070R
Video	
Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000(H) x 1,121(V)
Effective Pixels	1,984(H) x 1,105(V)
Scanning System	Progressive
Min. Illumination	Color : 0.095Lux, B/W : 0Lux
Lens	
Focal Length (Zoom Ratio)	Manual 2.8~12mm
Max. Aperture Ratio	F1.4
Angular Field of View	H 103.8~32.4° / V 53.7~18.4° / D 121.9~37.1°
Min. Object Distance	-
Lens Type	Manual
Focus control	DC auto iris
Mount Type	Board type
Pan / Tilt / Rotate	
Pan Range	0~350°
Tilt Range	0~67°
Rotate Range	0~355°
Operational	
IR Viewable Length	20m
Camera Title	Off / On (Displayed up to 20 characters per line) - 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	True Day & Night
Backlight Compensation	Off / BLC
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR(Off / On)
Motion Detection	Off / On (4ea polygon zones)
Privacy Masking	Off / On (6ea rectangler zones)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Hallway view
Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus
Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input, Defocus detection

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Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input, Defocus detection
Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail External output
Pixel Counter	Support (plug-in viewer only)
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265, H.264, MJPEG
Resolution	1920x1080/ 1280x1024/ 1280x960/ 1280x720/ 1024x768/ 800x600/ 720x576/ 720x480/ 640x480/ 320x240
Max. Framerate	H.265 : Max 30fps at 2M all resolutions H.264 : Max 30fps at 2M all resolutions MJPEG : Max 5fps
Smart codec	WiseStream
Video Quality Ajustment	H.265 : Target Bitrate Level Control H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate control method	H.265 : CBR or VBR H.264 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming(Up to 3 Profiles)
Audio I/O	Built-in MIC
Audio Compression Format	G.711 u-law /G.726 Selectable G.726(ADPCM) : 8KHz, G.711 : 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps
Audio Communication	Uni-directional
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL, 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
Streaming Method	Unicast / Multicast
Max. User Access	6 users at Unicast Mode
Edge storage	Micro SD/SDHC/SDXC Max 128G, NAS - Motion images recorded in the SD memory card can be downloaded - Manual recording at Local PC

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Application Programming Interface	ONVIF Profile S, G SUNAPI(HTTP API)
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungary, Greek
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.8. 10.9. 10.10. 10.11 Non-plugin Webviewer Supported Browser: Google Chrome 47, MS Edge 20 Support Codec : Video : H.264, MJPEG (MAX 1M 15FPS) Audio : G.711 Plug-in Webviewer Supported Browser : MS Explore 11 , Mozilla Firefox 43 , Apple Safari 9 * Mac OS X only
Central Management Software	SmartViewer
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	-
Electrical	
Input Voltage / Current	PoE(IEEE802.3af, Class3), DC 12V
Power Consumption	Max.6.7W(PoE), Max.5.5W(DC12V)
Mechanical	
Color / Material	Ivory / Plastic
Dimension (WxHxD)	φ119.8x98.8mm
Weight	325g

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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 ☐ 120 Vac ☒ PoE ☒ 12 Vdc
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	QND-6070RN	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
notebook	NT63025J	JK9091EF400142M	Samsung	-
notebook adapter	A13-040N2A	CN60BA4400313AD0 N843KO200	Chicony Power Technology (suzhou)Co., Ltd.	-
PoE adapter	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Alam	SIP-1201DD D0	C53R67JZ301878 L	SAMSUNG TECHWIN CO., LTD.	-
Micro SD Card	-	-	-	-
MIC	CMK-303	-	CAMAC	-

1.6 External I/O Cabling

- 12 V (dc) Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	Alarm JIG	Alarm	Alarm JIG	3.0	U
	LAN(RJ-45)	notebook	LAN(RJ-45)	3.0	U
	3.5 mm Line	MIC	3.5 mm Line	1.5	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-

- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	Alarm JIG	Alarm	Alarm JIG	3.0	U
	PoE(RJ-45)	PoE	PoE(RJ-45)	3.0	U
	3.5 mm Line	MIC	3.5 mm Line	1.5	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
PoE adapter	LAN(RJ-45)	notebook	LAN(RJ-45)	3.3	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

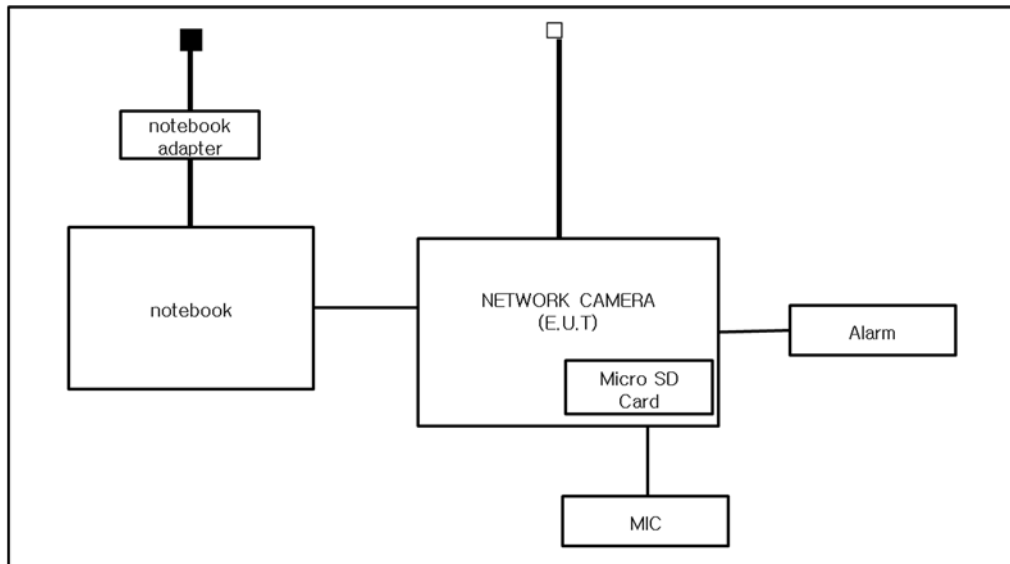
Equipment under test was operated during the measurement under the following conditions:

Test mode	Normal operating
OP	MONITORING NETWORK PING TEST

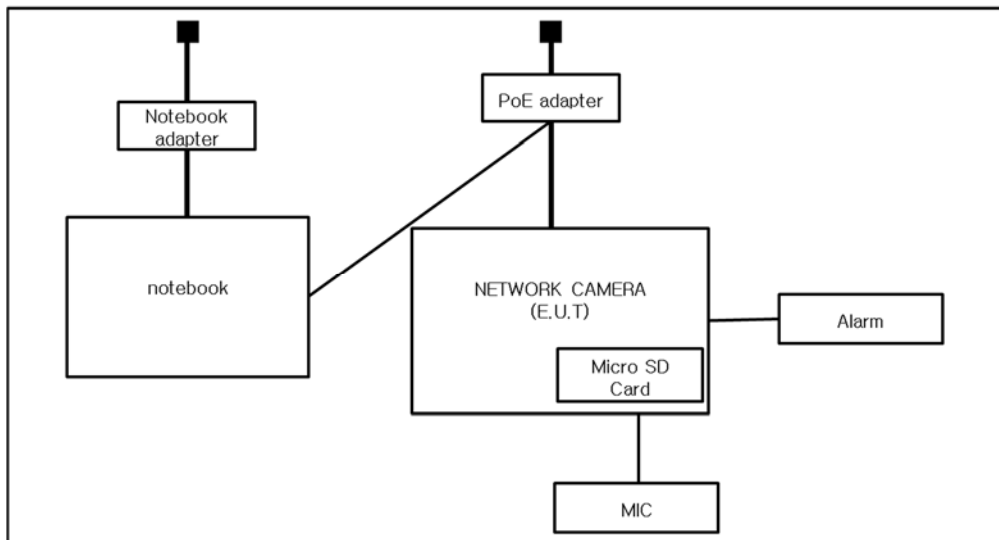
1.8 Configuration

■ AC Main
 □ DC Main

- 12 V (dc) Mode



- PoE Mode



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 473-29 Gayeo-ro, Yeosu-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)	



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

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



☒ **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**

☐ CISPR 22:2009 +A1:2010

☐ 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



2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

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	-	AONE SEMITEC	-	-

Test Conditions

Temperature: °C
Relative Humidity: %

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

Because the E.U.T power is 12 V (dc) power and PoE, limits are not specified

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jun. 28, 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
☒	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
☒	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
☒	Electro wave Shieldroom	-	AONE SHIELD	-	-

Test Conditions

Temperature: 24,5 °C

Relative Humidity: 47,7 %

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

Jun. 29, 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	ESU26	R&S	100551	04, 18, 2017
☒	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-715	04, 14, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	1070/1080	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 29,4 °C
Relative Humidity: 46,0 %

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

Jul. 03, 2016

Test Location

Semi Anchoic 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, 23, 2016
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	Semi Anchoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 21,9 °C
Relative Humidity: 50,8 %

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]

N/A

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[NEUTRAL]

N/A

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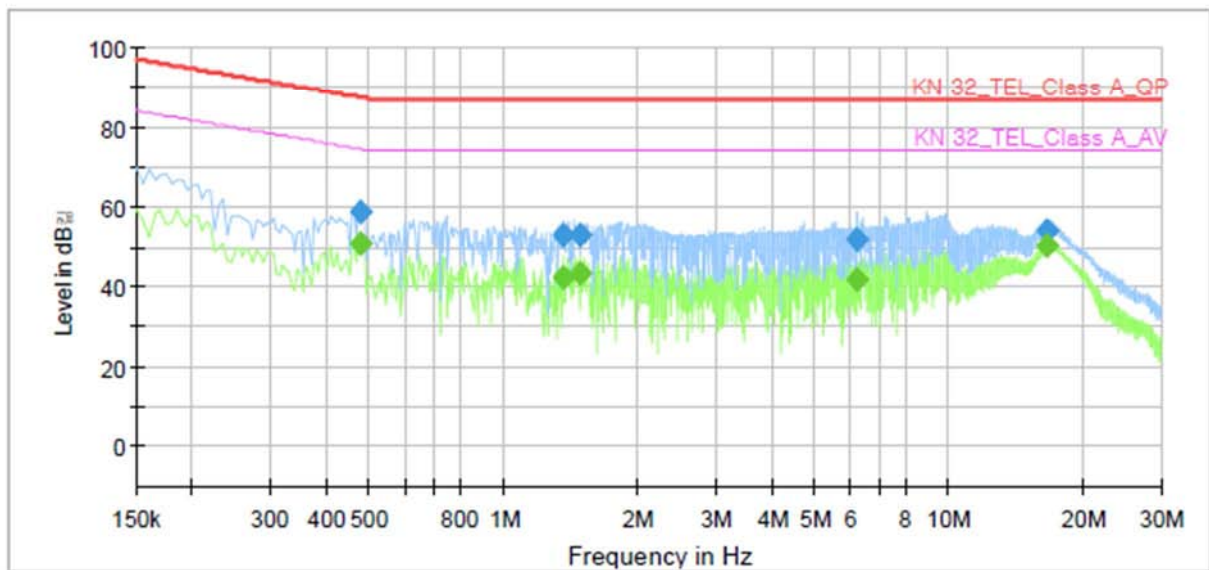
Conducted Emissions at Telecommunication Ports

- 12 V (dc) Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-6070RN
Mode	12 V (dc)_10 Mbps
Operator Name:	KES



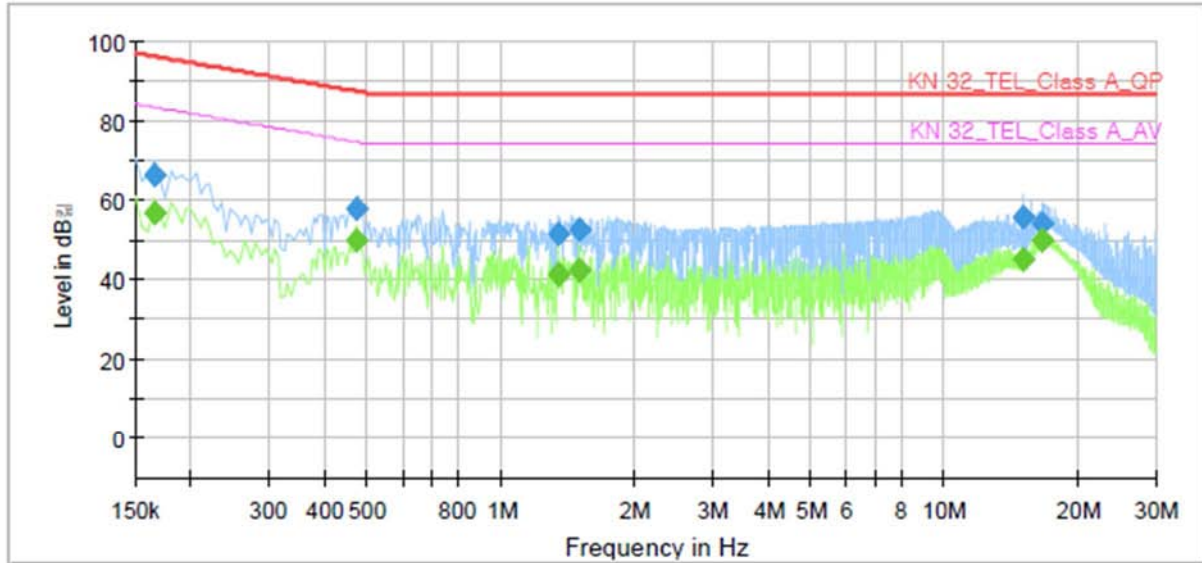
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.475000	---	51.08	74.43	23.35	1000.0	9.000	Single Line	10.0
0.475000	58.81	---	87.43	28.62	1000.0	9.000	Single Line	10.0
1.365000	---	42.60	74.00	31.40	1000.0	9.000	Single Line	9.8
1.365000	52.87	---	87.00	34.13	1000.0	9.000	Single Line	9.8
1.490000	---	43.48	74.00	30.52	1000.0	9.000	Single Line	9.8
1.490000	52.98	---	87.00	34.02	1000.0	9.000	Single Line	9.8
6.255000	---	42.05	74.00	31.95	1000.0	9.000	Single Line	9.9
6.255000	51.92	---	87.00	35.08	1000.0	9.000	Single Line	9.9
16.590000	---	50.13	74.00	23.87	1000.0	9.000	Single Line	10.1
16.590000	54.14	---	87.00	32.86	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-6070RN
Mode	100 Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	56.71	83.21	26.50	1000.0	9.000	Single Line	9.6
0.165000	65.96	---	96.21	30.25	1000.0	9.000	Single Line	9.6
0.470000	---	49.69	74.51	24.82	1000.0	9.000	Single Line	9.5
0.470000	57.58	---	87.51	29.93	1000.0	9.000	Single Line	9.5
1.345000	---	41.37	74.00	32.63	1000.0	9.000	Single Line	9.3
1.345000	51.51	---	87.00	35.49	1000.0	9.000	Single Line	9.3
1.505000	---	42.44	74.00	31.56	1000.0	9.000	Single Line	9.3
1.505000	52.30	---	87.00	34.70	1000.0	9.000	Single Line	9.3
15.025000	---	44.78	74.00	29.22	1000.0	9.000	Single Line	9.6
15.025000	55.36	---	87.00	31.64	1000.0	9.000	Single Line	9.6
16.680000	---	49.79	74.00	24.21	1000.0	9.000	Single Line	9.6
16.680000	53.80	---	87.00	33.20	1000.0	9.000	Single Line	9.6

- PoE Mode

[10 Mbps]

Common Information

Test Description:

Model No.:

Mode

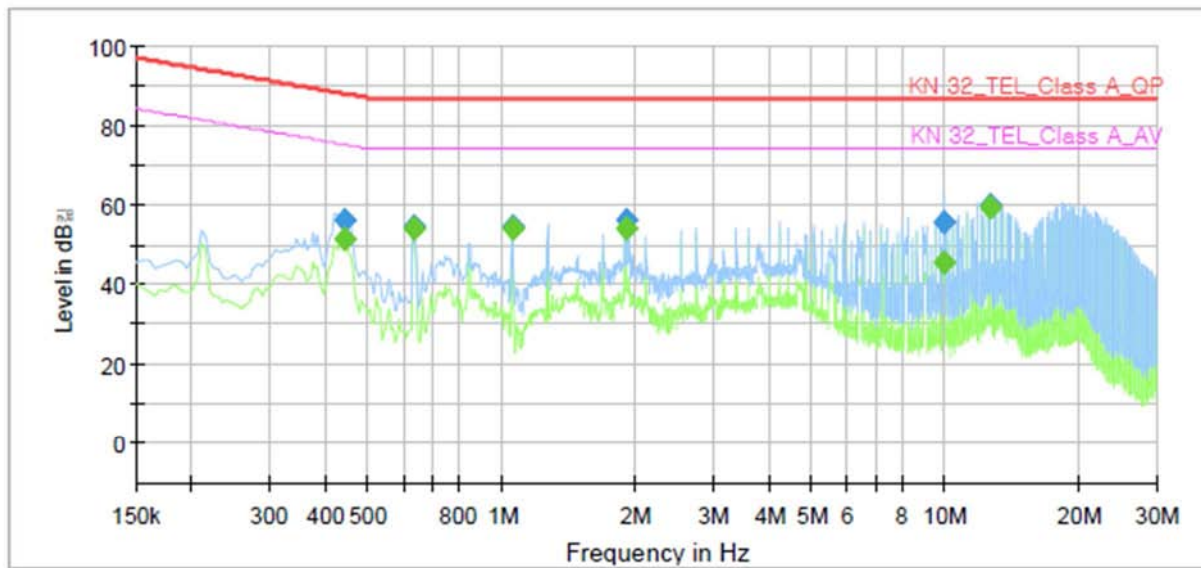
Operator Name:

Telecommunication Emission

QND-6070RN

PoE 10 Mbps

KES



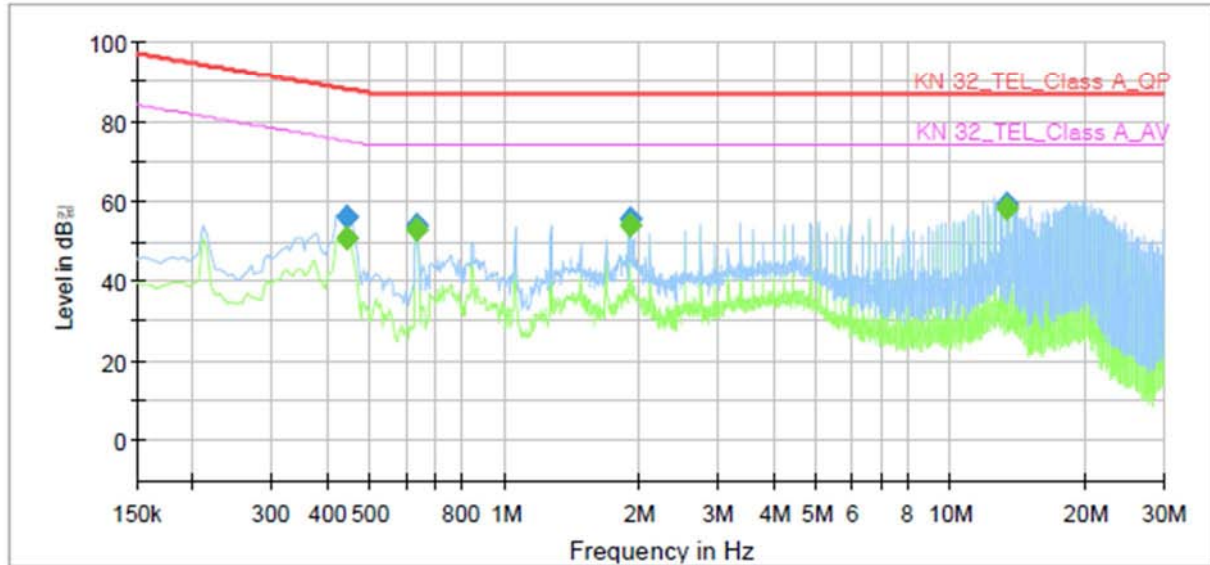
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.440000	---	51.50	75.06	23.56	1000.0	9.000	Single Line	10.0
0.440000	56.28	---	88.06	31.78	1000.0	9.000	Single Line	10.0
0.635000	---	53.75	74.00	20.25	1000.0	9.000	Single Line	9.9
0.635000	54.41	---	87.00	32.59	1000.0	9.000	Single Line	9.9
1.060000	---	53.84	74.00	20.16	1000.0	9.000	Single Line	9.9
1.060000	54.45	---	87.00	32.55	1000.0	9.000	Single Line	9.9
1.905000	---	54.23	74.00	19.77	1000.0	9.000	Single Line	9.8
1.905000	56.14	---	87.00	30.86	1000.0	9.000	Single Line	9.8
10.000000	---	45.71	74.00	28.29	1000.0	9.000	Single Line	10.1
10.000000	55.47	---	87.00	31.53	1000.0	9.000	Single Line	10.1
12.695000	---	59.12	74.00	14.88	1000.0	9.000	Single Line	10.1
12.695000	59.87	---	87.00	27.13	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-6070RN
Mode	PoE 100 Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.440000	---	51.03	75.06	24.03	1000.0	9.000	Single Line	9.5
0.440000	55.91	---	88.06	32.15	1000.0	9.000	Single Line	9.5
0.635000	---	53.04	74.00	20.96	1000.0	9.000	Single Line	9.4
0.635000	53.82	---	87.00	33.18	1000.0	9.000	Single Line	9.4
1.905000	---	53.84	74.00	20.16	1000.0	9.000	Single Line	9.3
1.905000	55.57	---	87.00	31.43	1000.0	9.000	Single Line	9.3
13.330000	---	58.37	74.00	15.63	1000.0	9.000	Single Line	9.6
13.330000	59.28	---	87.00	27.72	1000.0	9.000	Single Line	9.6

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

- 12 V (dc) Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
334.24	21.89	H	3.30	14.14	3.83	39.86	47.00	7.14
350.65	18.74	H	3.40	14.50	3.89	37.13	47.00	9.87
409.06	17.36	H	3.10	15.73	4.29	37.38	47.00	9.62
483.00	18.68	V	1.40	17.01	4.83	40.52	47.00	6.48
593.99	16.58	V	2.10	19.15	5.53	41.26	47.00	5.74
631.37	15.35	V	1.70	19.40	5.70	40.45	47.00	6.55

* H : Horizontal, V : Vertical

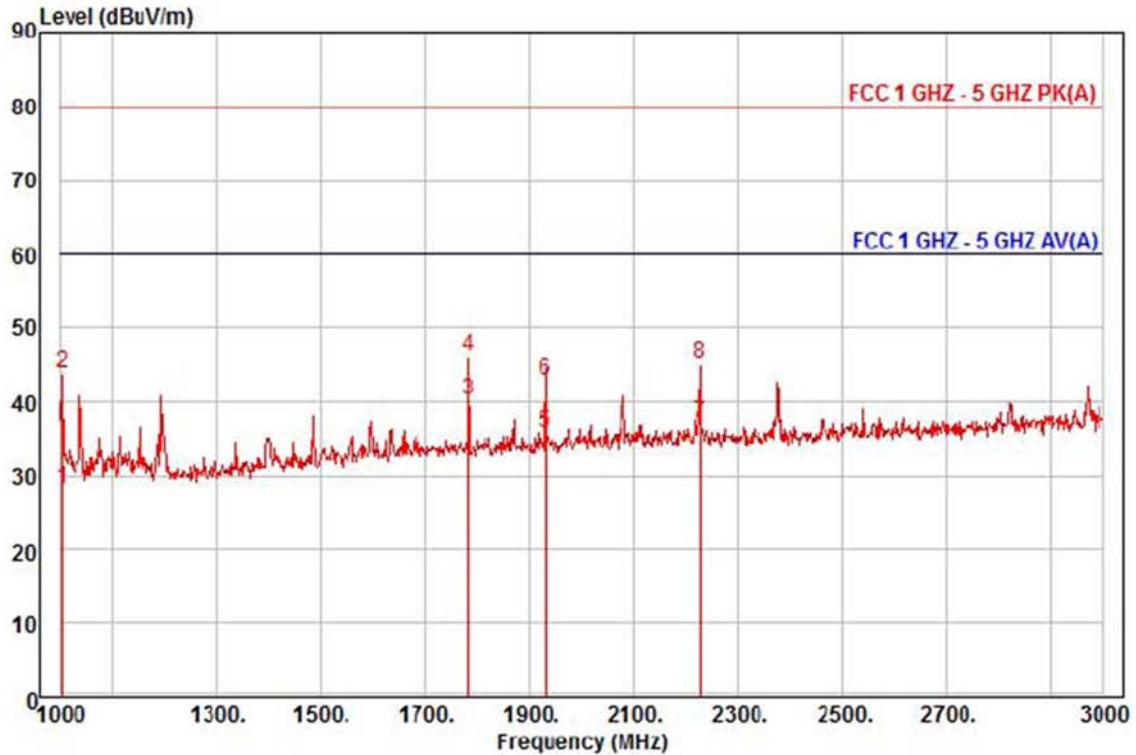
- PoE Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
334.39	22.65	H	2.70	14.15	3.83	40.63	47.00	6.37
349.99	22.78	H	2.80	14.48	3.89	41.15	47.00	5.85
445.94	19.16	H	3.90	16.36	4.56	40.08	47.00	6.92
519.41	18.73	V	1.70	17.68	5.07	41.48	47.00	5.52
594.66	17.32	V	1.10	19.16	5.54	42.02	47.00	4.98
631.73	15.14	V	1.40	19.41	5.70	40.25	47.00	6.75

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- 12 V (dc) Mode



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6070RN
Mode : 12 V (dc)
Memo : (1 ~ 3) GHz

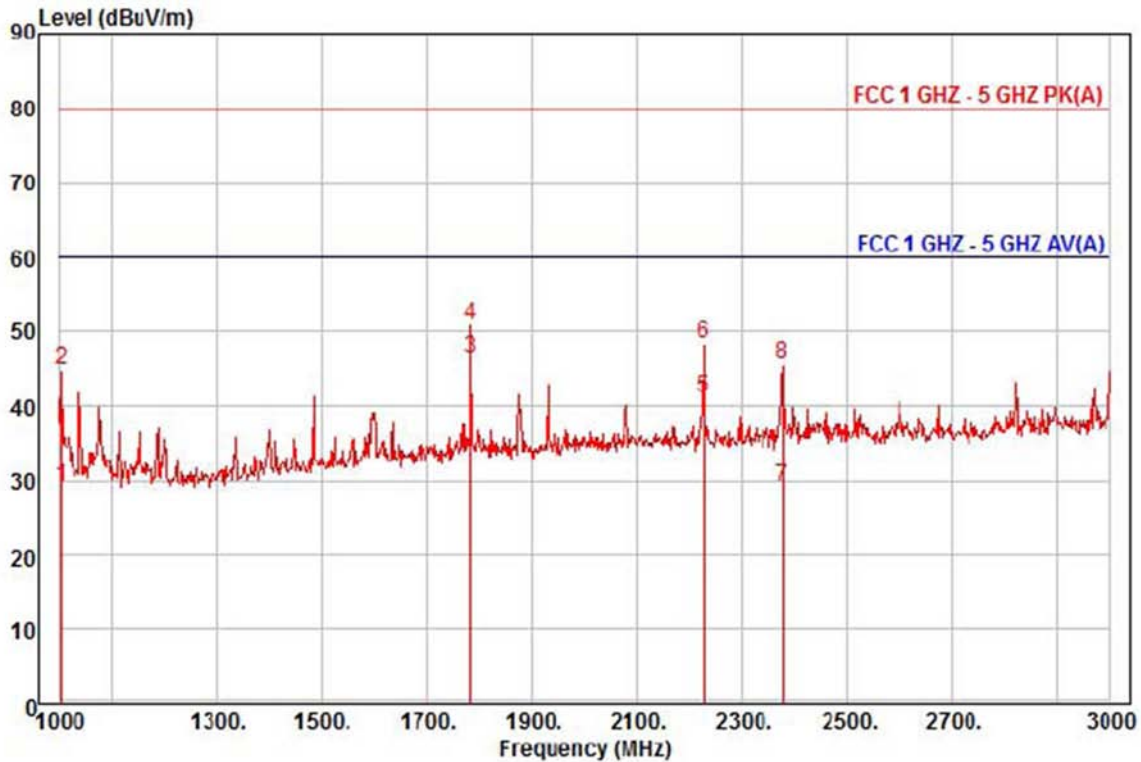
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1002.00	37.86	23.92	6.52	40.12	199	60.00	-31.82	horizontal	Average
2	1002.00	53.50	23.92	6.52	40.12	199	80.00	-36.18	horizontal	Peak
3 pp	1782.00	44.25	27.01	8.75	39.74	7	60.00	-19.73	horizontal	Average
4 pk	1782.00	50.00	27.01	8.75	39.74	7	80.00	-33.98	horizontal	Peak
5	1930.00	38.72	27.60	9.16	39.66	167	60.00	-24.18	horizontal	Average
6	1930.00	45.80	27.60	9.16	39.66	167	80.00	-37.10	horizontal	Peak
7	2228.00	38.56	28.44	9.70	39.76	4	60.00	-23.06	horizontal	Average
8	2228.00	46.86	28.44	9.70	39.76	4	80.00	-34.76	horizontal	Peak



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Test report No.:
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6070RN
Mode : 12 V (dc)
Memo : (1 ~ 3) GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1002.00	38.82	23.92	6.52	40.12	246	60.00	-30.86	vertical	Average
2	1002.00	54.60	23.92	6.52	40.12	246	80.00	-35.08	vertical	Peak
3 pp	1782.00	50.28	27.01	8.75	39.74	359	60.00	-13.70	vertical	Average
4 pk	1782.00	55.02	27.01	8.75	39.74	359	80.00	-28.96	vertical	Peak
5	2228.00	42.82	28.44	9.70	39.76	93	60.00	-18.80	vertical	Average
6	2228.00	49.92	28.44	9.70	39.76	93	80.00	-31.70	vertical	Peak
7	2378.00	30.40	28.81	9.93	39.85	122	60.00	-30.71	vertical	Average
8	2378.00	46.78	28.81	9.93	39.85	122	80.00	-34.33	vertical	Peak

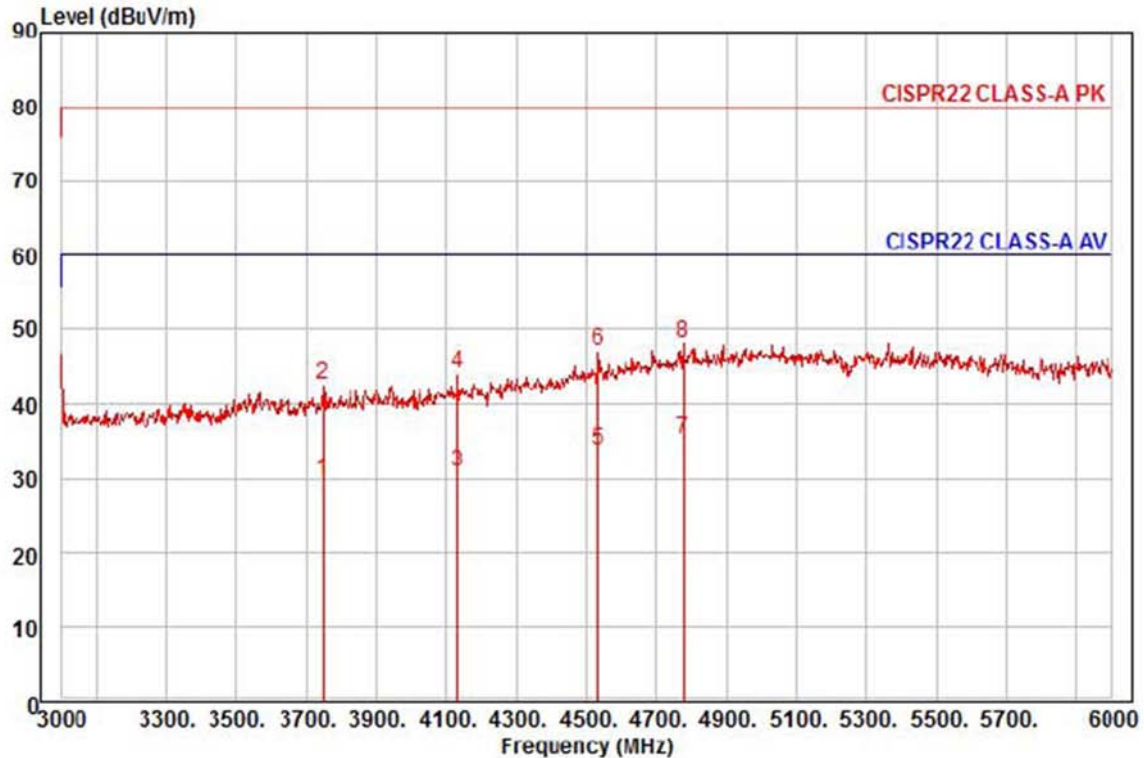
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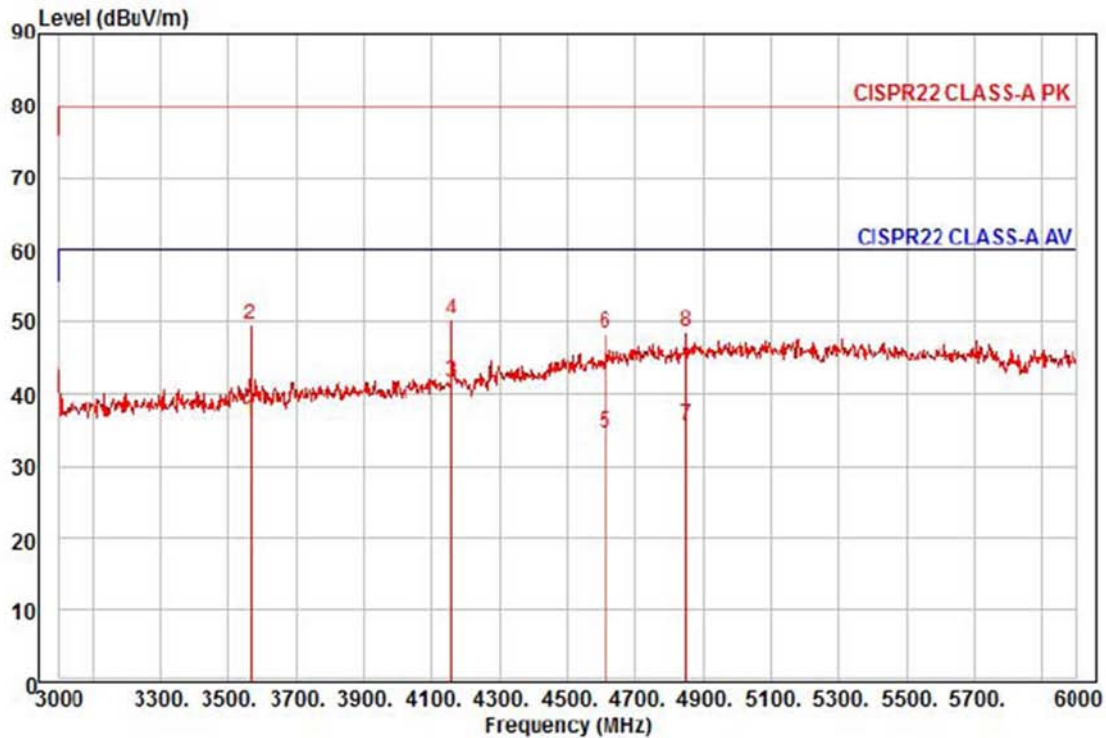
Test report No.:
KES-E1-16T0319
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6070RN
Mode : 12 V (dc)
Memo : (3 ~ 6) GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3747.00	25.51	31.58	13.00	40.36	117	60.00	-30.27	horizontal	Average
2	3747.00	38.46	31.58	13.00	40.36	117	80.00	-37.32	horizontal	Peak
3	4131.00	24.88	32.76	13.75	40.41	143	60.00	-29.02	horizontal	Average
4	4131.00	38.01	32.76	13.75	40.41	143	80.00	-35.89	horizontal	Peak
5	4533.00	24.76	35.05	14.49	40.41	56	60.00	-26.11	horizontal	Average
6	4533.00	37.89	35.05	14.49	40.41	56	80.00	-32.98	horizontal	Peak
7 pp	4776.00	24.44	36.44	14.93	40.41	349	60.00	-24.60	horizontal	Average
8 pk	4776.00	36.99	36.44	14.93	40.41	349	80.00	-32.05	horizontal	Peak

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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 : QND-6070RN
Mode : 12 V (dc)
Memo : (3 ~ 6) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3564.00	32.71	31.28	12.64	40.32	304	60.00	-23.69	vertical	Average
2	3564.00	45.96	31.28	12.64	40.32	304	80.00	-30.44	vertical	Peak
3 pp	4158.00	35.31	32.91	13.80	40.41	246	60.00	-18.39	vertical	Average
4 pk	4158.00	43.93	32.91	13.80	40.41	246	80.00	-29.77	vertical	Peak
5	4614.00	24.74	35.52	14.64	40.41	338	60.00	-25.51	vertical	Average
6	4614.00	38.54	35.52	14.64	40.41	338	80.00	-31.71	vertical	Peak
7	4851.00	24.09	36.87	15.06	40.41	196	60.00	-24.39	vertical	Average
8	4851.00	37.00	36.87	15.06	40.41	196	80.00	-31.48	vertical	Peak

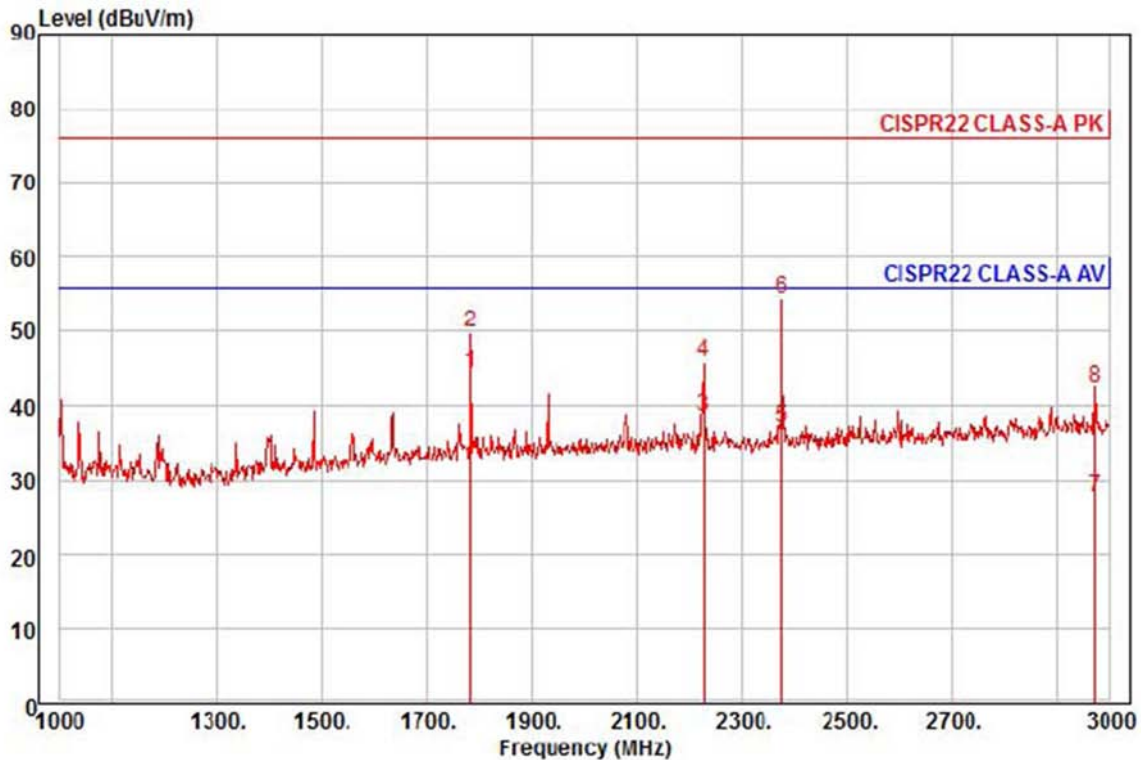


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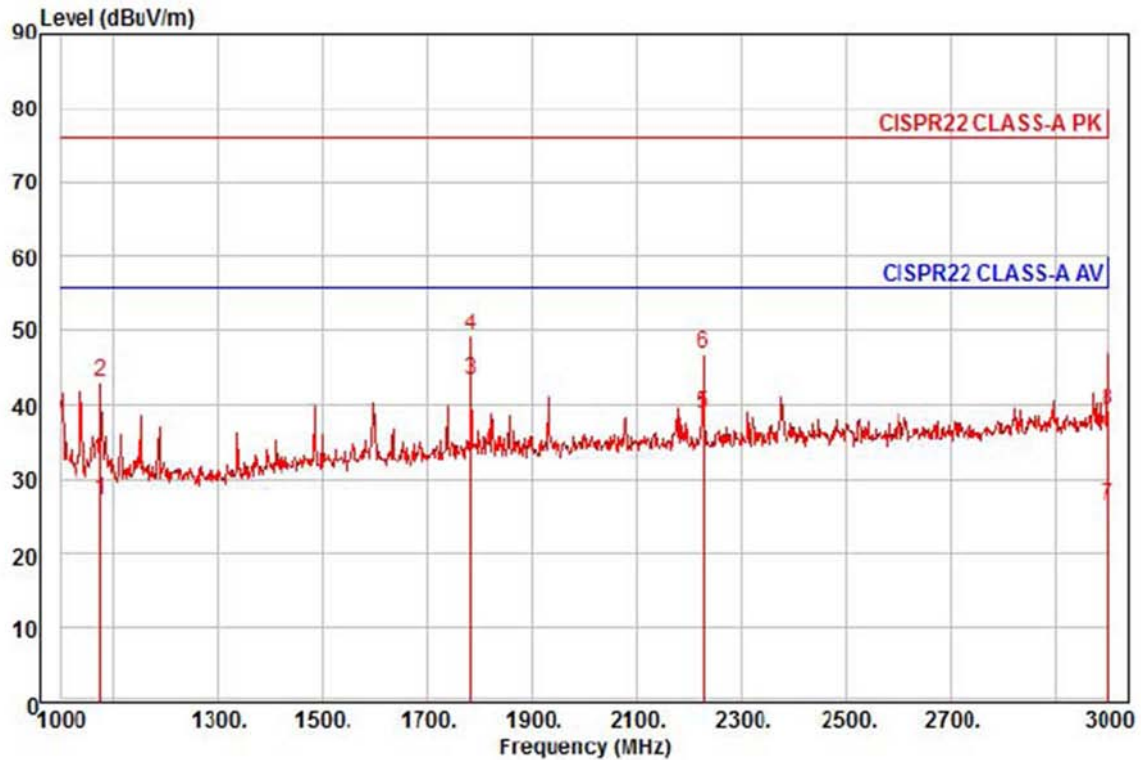
- PoE Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6070RN
Mode : PoE
Memo : (1 ~ 3) GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1782.00	48.41	27.01	8.75	39.74	36	56.00	-11.57	horizontal	Average
2	1782.00	53.77	27.01	8.75	39.74	36	76.00	-26.21	horizontal	Peak
3	2228.00	40.10	28.44	9.70	39.76	30	56.00	-17.52	horizontal	Average
4	2228.00	47.53	28.44	9.70	39.76	30	76.00	-30.09	horizontal	Peak
5	2376.00	38.18	28.80	9.93	39.85	134	56.00	-18.94	horizontal	Average
6 pk	2376.00	55.54	28.80	9.93	39.85	134	76.00	-21.58	horizontal	Peak
7	2972.00	26.59	30.26	11.15	40.19	131	56.00	-28.19	horizontal	Average
8	2972.00	41.12	30.26	11.15	40.19	131	76.00	-33.66	horizontal	Peak

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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 : QND-6070RN
Mode : PoE
Memo : (1 ~ 3) GHz

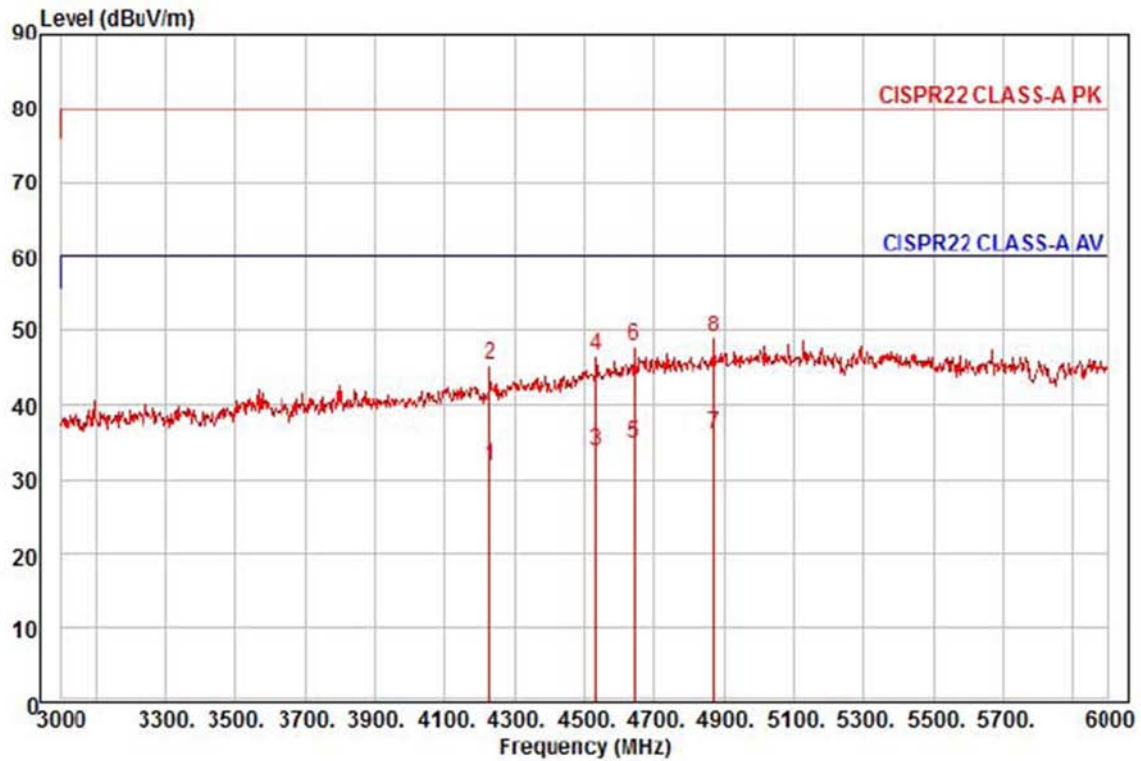
		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1076.00	36.38	24.21	6.73	40.08	175	56.00	-28.76	vertical	Average
2	1076.00	52.19	24.21	6.73	40.08	175	76.00	-32.95	vertical	Peak
3 pp	1782.00	47.49	27.01	8.75	39.74	33	56.00	-12.49	vertical	Average
4 pk	1782.00	53.20	27.01	8.75	39.74	33	76.00	-26.78	vertical	Peak
5	2228.00	40.43	28.44	9.70	39.76	35	56.00	-17.19	vertical	Average
6	2228.00	48.55	28.44	9.70	39.76	35	76.00	-29.07	vertical	Peak
7	3000.00	25.12	30.33	11.22	40.21	44	56.00	-29.54	vertical	Average
8	3000.00	37.82	30.33	11.22	40.21	44	76.00	-36.84	vertical	Peak



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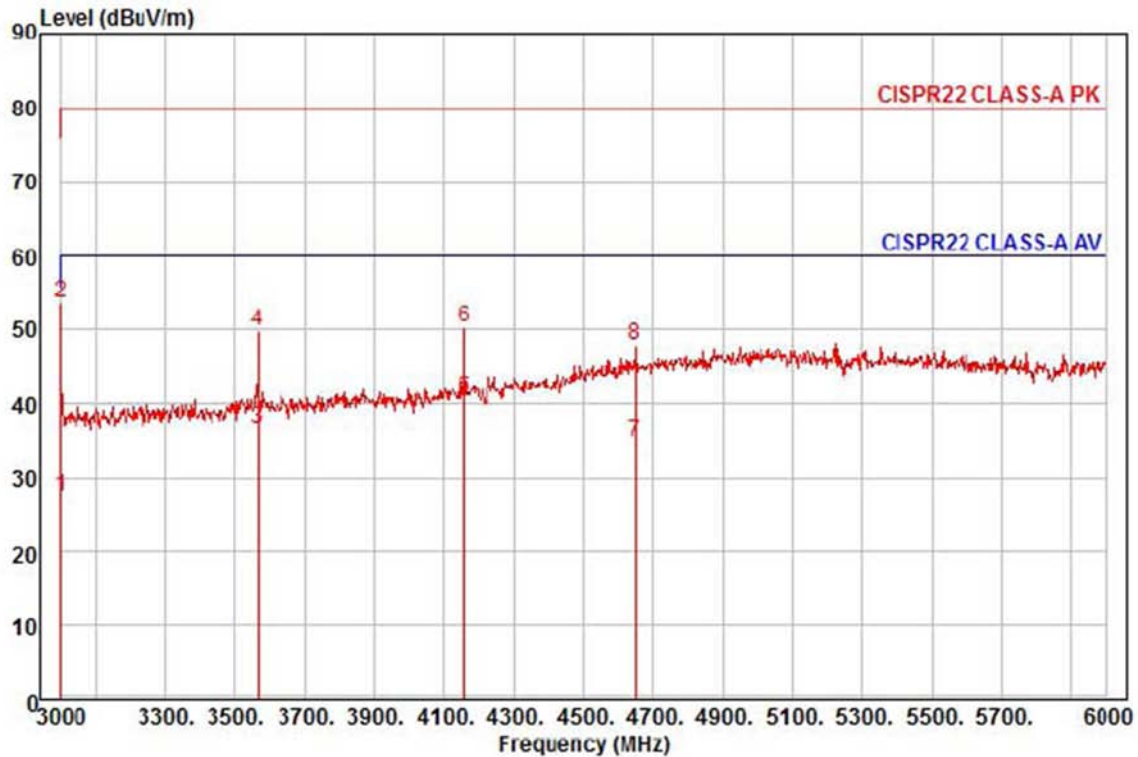
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6070RN
Mode : PoE
Memo : (3 ~ 6) GHz

	Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB	
1	4230.00	25.05	33.32	13.93	40.41	30	60.00	-28.11	horizontal Average
2	4230.00	38.51	33.32	13.93	40.41	30	80.00	-34.65	horizontal Peak
3	4533.00	24.76	35.05	14.49	40.41	172	60.00	-26.11	horizontal Average
4	4533.00	37.47	35.05	14.49	40.41	172	80.00	-33.40	horizontal Peak
5	4644.00	24.85	35.69	14.69	40.41	115	60.00	-25.18	horizontal Average
6	4644.00	37.76	35.69	14.69	40.41	115	80.00	-32.27	horizontal Peak
7 pp	4872.00	24.28	36.99	15.10	40.41	170	60.00	-24.04	horizontal Average
8 pk	4872.00	37.36	36.99	15.10	40.41	170	80.00	-30.96	horizontal Peak

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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 : QND-6070RN
Mode : PoE
Memo : (3 ~ 6) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3000.00	26.25	30.33	11.22	40.21	1	56.00	-28.41	vertical	Average
2 pk	3000.00	52.24	30.33	11.22	40.21	1	76.00	-22.42	vertical	Peak
3	3564.00	32.90	31.28	12.64	40.32	272	60.00	-23.50	vertical	Average
4	3564.00	46.11	31.28	12.64	40.32	272	80.00	-30.29	vertical	Peak
5 pp	4158.00	34.32	32.91	13.80	40.41	199	60.00	-19.38	vertical	Average
6	4158.00	43.86	32.91	13.80	40.41	199	80.00	-29.84	vertical	Peak
7	4650.00	24.85	35.72	14.70	40.41	64	60.00	-25.14	vertical	Average
8	4650.00	37.69	35.72	14.70	40.41	64	80.00	-32.30	vertical	Peak



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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

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Conducted Telecommunication Emissions

- 12 V (dc) Mode



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- PoE Mode



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Radiated Electric Field Emissions(Below 1 GHz)

- 12 V (dc) Mode



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- PoE Mode



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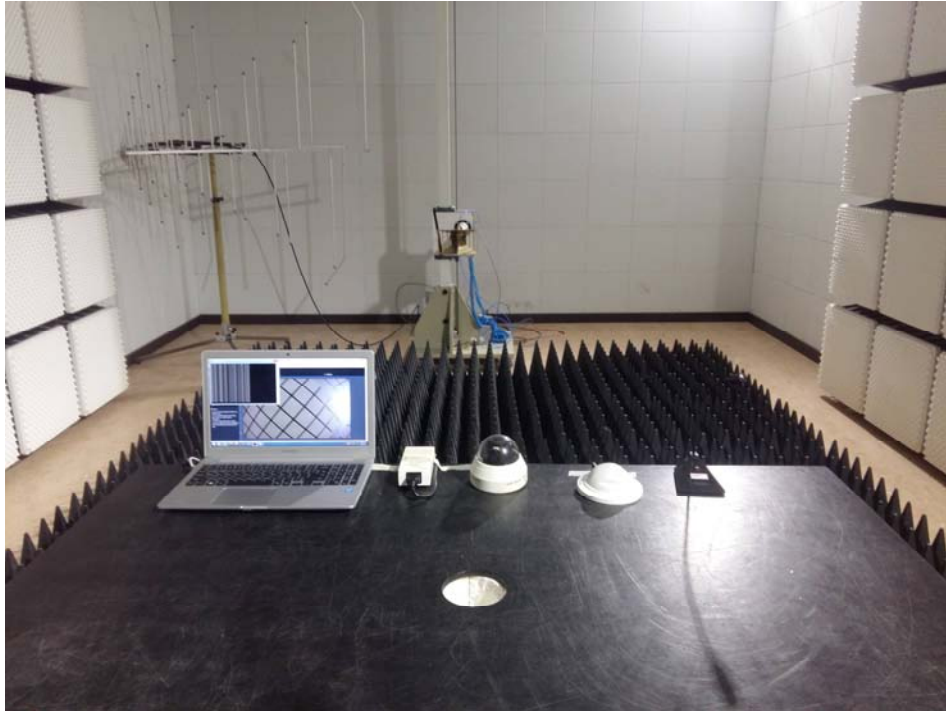
Radiated Electric Field Emissions(Above 1 GHz)

- 12 V (dc) 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)



EUT Internal View – Main Board

(Top)



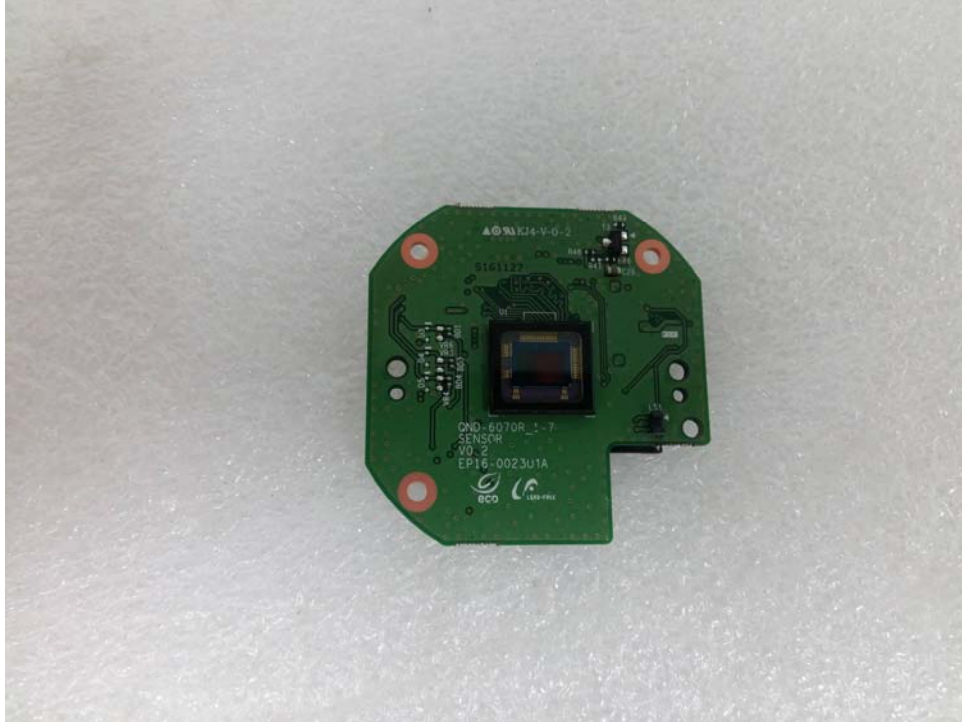
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EUT Internal View – Lens Board

(Top)



(Bottom)



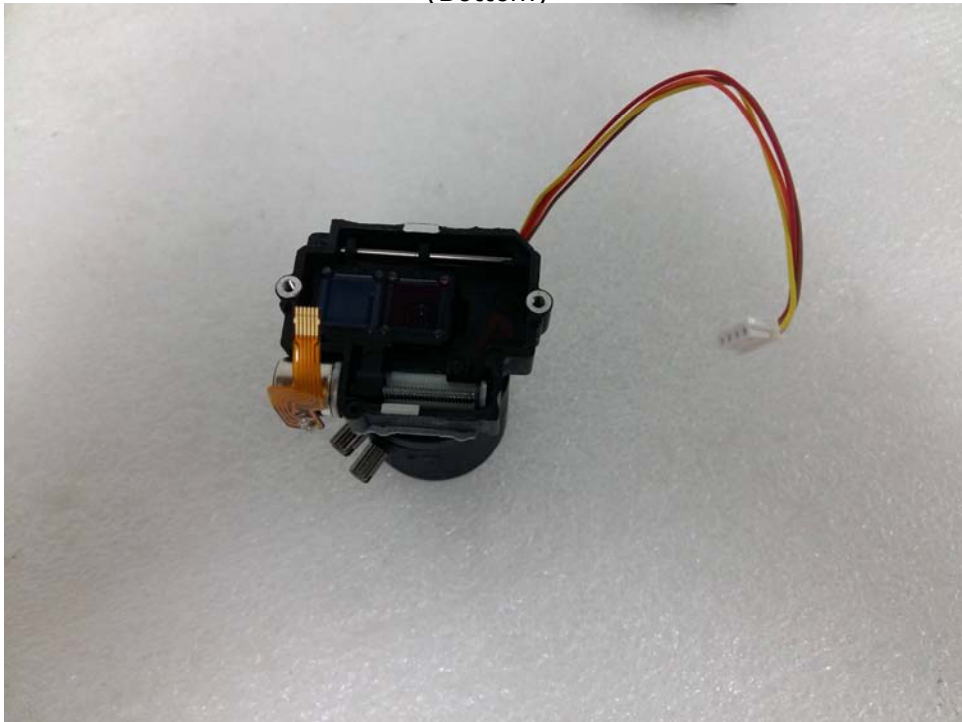
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EUT Internal View – Lens

(Top)



(Bottom)



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