



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0339
Date of Issue : Jul. 10, 2016
Product name : NETWORK CAMERA
7
Model/Type No. : QND-7080RN
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. 27, 2016 - Jun. 28, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Jung, Choi
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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Test report No.:
KES-E1-16T0339
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REPORT REVISION HISTORY

Date	Revision	Page No
Jul. 10, 2016	KES-E1-16T0339	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QND-7080R
Video	
Imaging Device	1/3" 4M CMOS
Total Pixels	2720x1536
Effective Pixels	2688x1520
Scanning System	Progressive
Min. Illumination	Color : 0.15Lux, B/W : 0Lux
Lens	
Focal Length (Zoom Ratio)	Motorized 2.8~12mm
Max. Aperture Ratio	F1.4
Angular Field of View	H 109.7°~26.0° / V 60.8°~15.2° / D 131.3°~30.1°
Min. Object Distance	0.5m
Focus control	Simple focus(Motorized V/F) / Manual, Remote control via network
Lens Type	DC auto iris, P 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
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	2592x1520, 2560x1440(16:9) / 2304x1296 / 1920x1080 / 1280x1024 / 1280x960 / 1280x720 / 1024x768 / 800x600 / 800x450 / 720x576 / 720x480 / 640x480 / 640x360 / 320x240
Max. Framerate	H.265 : Max 20fps at 4M, Max 30fps at 2M all resolutions H.264 : Max 20fps at 4M, Max 30fps at 2M all resolutions MJPEG : Max 5fps

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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
Application Programming Inter	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 / Humi	-10°C ~ +55°C / Less than 90% RH
Storage Temperature / Humidi	-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.7.2W(PoE), Max.6.4W(DC12V)
Mechanical	
Color / Material	Ivory / Plastic
Dimension (WxHxD)	φ119.8x98.8mm
Weight	355g

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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-7080RN	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	NT63025J	JK9091EF400432X	Samsung Electronics Co., Ltd.	-
AC/DC ADAPTER	A13-040N2A	CN60BA4400313AD0 N843KO243	Chicony Power Technology (suzhou)Co., Ltd.	-
PoE	ANY4805C-LT1	-	ANY ELECTRONICS CO., LTD.	-
Alarm	-	-	-	-

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)	LAN(RJ-45)	Notebook	LAN(RJ-45)	5.0	U
	Alarm	Alarm	Alarm	3.0	U

- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	LAN(PoE)	PoE	LAN(PoE)	5.0	U
	Alarm	Alarm	Alarm	3.0	U
PoE	LAN(RJ-45)	Notebook	LAN(RJ-45)	4.0	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

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

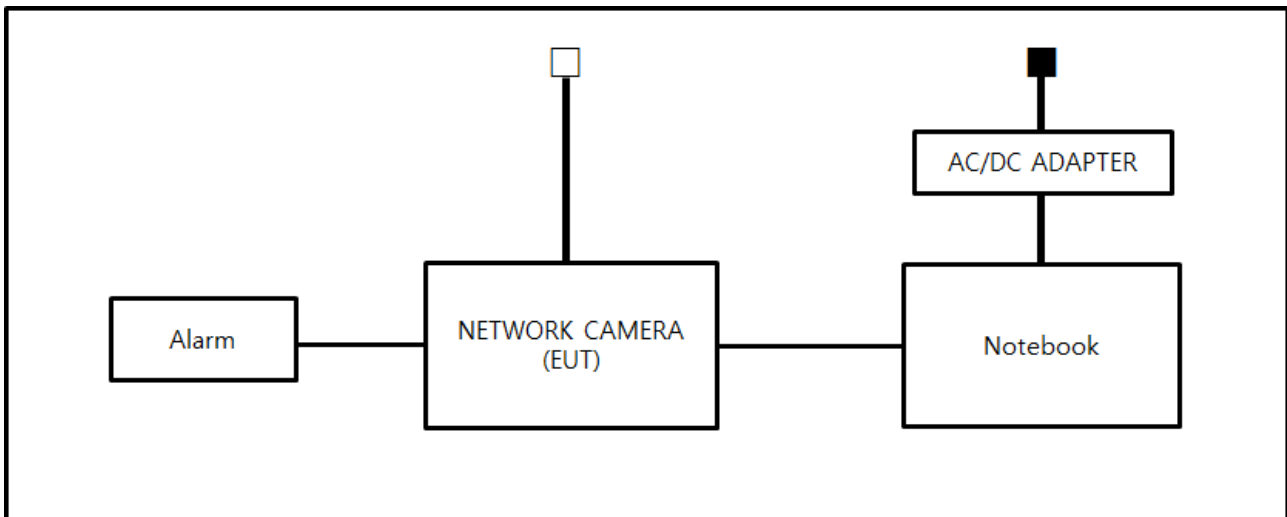
Test mode	Normal operating
OP	MONITORING Network ping test

- Input power condition during the measurements was 12 V (dc) , PoE

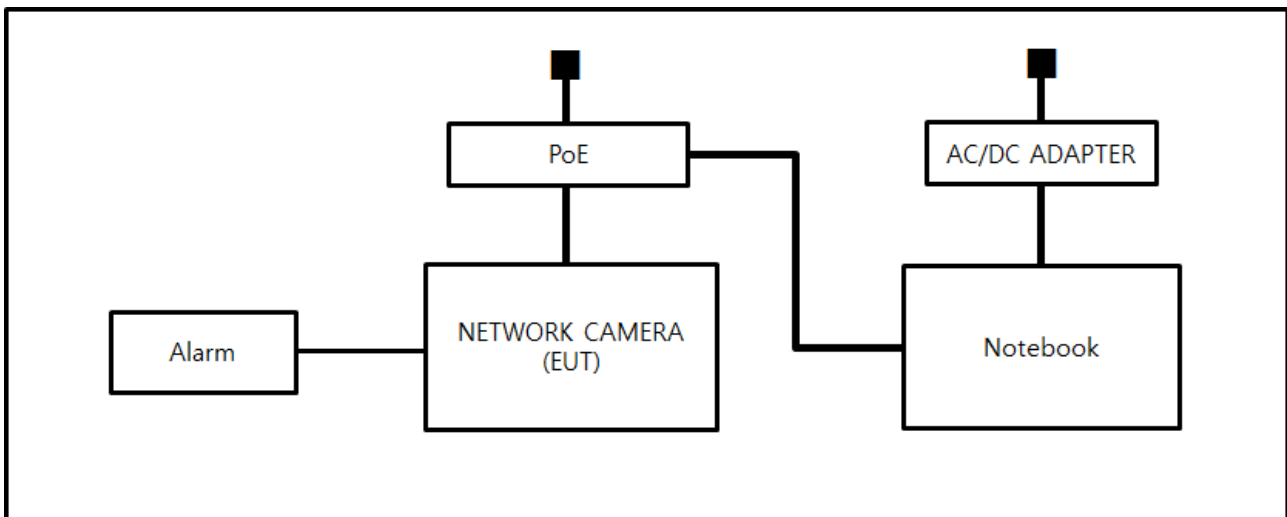
1.8 Configuration

■ 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 +A1:2015

☐ 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 | | |
| ☐ 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 | | |



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	-	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	-	SEMITEC	-	-

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. 27, 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
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	-	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 30,5 °C

Relative Humidity: 43,0 %

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

Jun. 28, 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: 24,5 °C
Relative Humidity: 47,7 %

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.



APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A



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[NEUTRAL]

N/A

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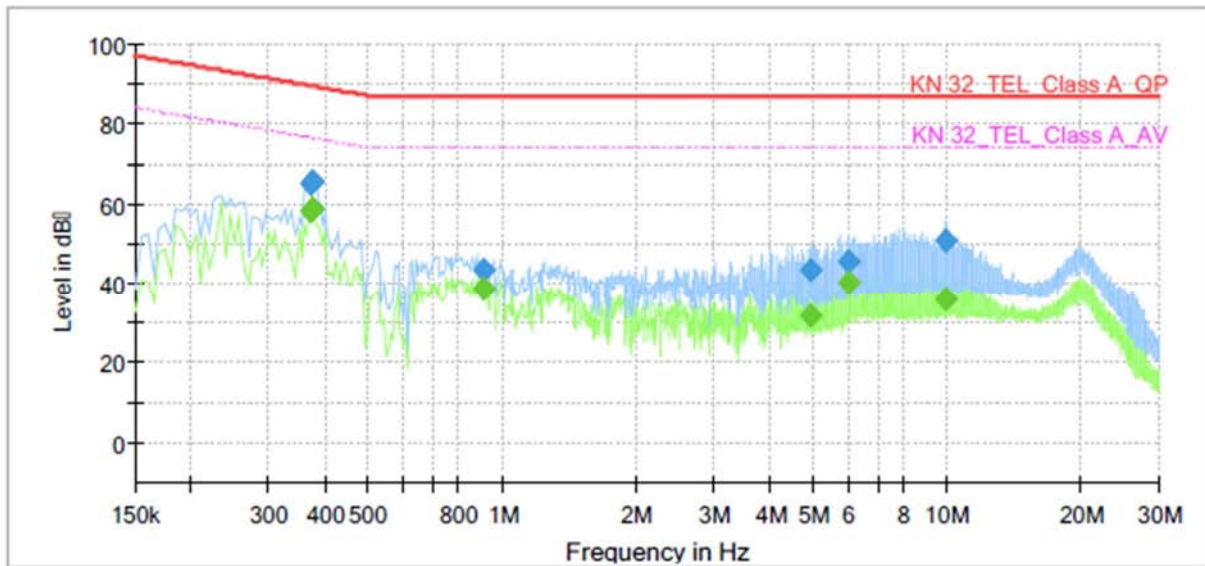
Conducted Emissions at Telecommunication Ports

- 12 V (dc) Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-7080RN
Mode	12 V (dc) , 10 Mbps
Operator Name:	KES



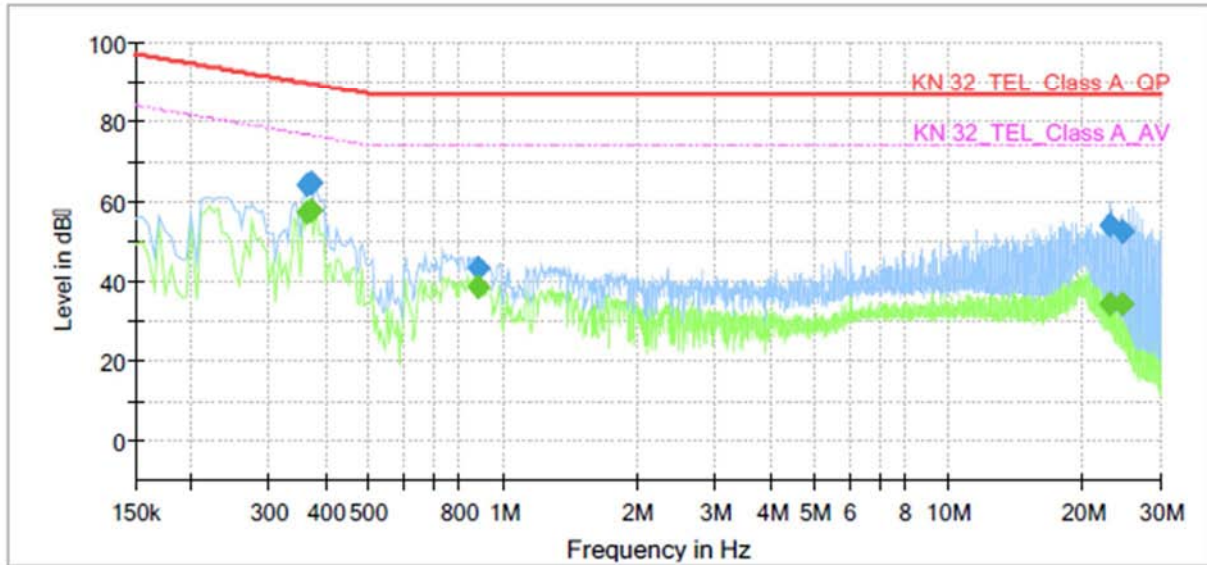
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	---	58.41	76.50	18.09	1000.0	9.000	Single Line	10.0
0.370000	65.05	---	89.50	24.45	1000.0	9.000	Single Line	10.0
0.375000	---	58.50	76.39	17.89	1000.0	9.000	Single Line	10.0
0.375000	65.51	---	89.39	23.88	1000.0	9.000	Single Line	10.0
0.905000	---	38.76	74.00	35.24	1000.0	9.000	Single Line	9.9
0.905000	43.37	---	87.00	43.63	1000.0	9.000	Single Line	9.9
4.935000	---	31.88	74.00	42.12	1000.0	9.000	Single Line	9.9
4.935000	43.39	---	87.00	43.61	1000.0	9.000	Single Line	9.9
6.050000	---	40.07	74.00	33.93	1000.0	9.000	Single Line	9.9
6.050000	45.65	---	87.00	41.35	1000.0	9.000	Single Line	9.9
10.005000	---	35.87	74.00	38.13	1000.0	9.000	Single Line	10.1
10.005000	50.91	---	87.00	36.09	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-7080RN
Mode	12 V (dc) , 100 Mbps
Operator Name:	KES



Final Result

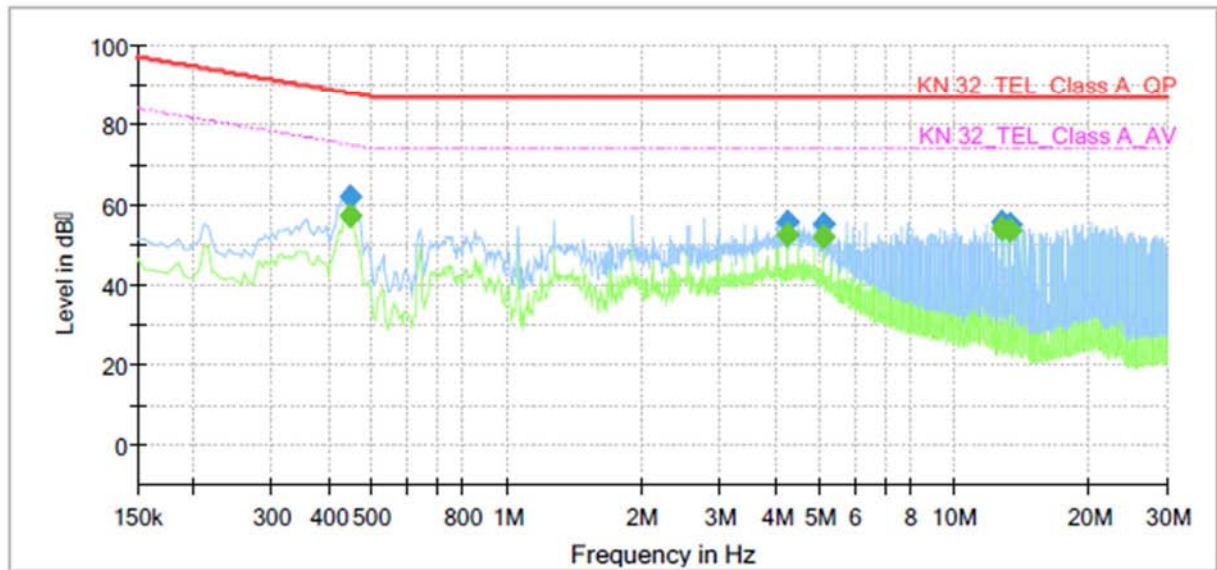
Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.365000	---	57.36	76.61	19.25	1000.0	9.000	Single Line	9.5
0.365000	63.81	---	89.61	25.80	1000.0	9.000	Single Line	9.5
0.370000	---	57.69	76.50	18.81	1000.0	9.000	Single Line	9.5
0.370000	64.36	---	89.50	25.14	1000.0	9.000	Single Line	9.5
0.885000	---	38.78	74.00	35.22	1000.0	9.000	Single Line	9.4
0.885000	43.38	---	87.00	43.62	1000.0	9.000	Single Line	9.4
23.130000	---	34.28	74.00	39.72	1000.0	9.000	Single Line	9.5
23.130000	53.90	---	87.00	33.10	1000.0	9.000	Single Line	9.5
24.550000	---	34.19	74.00	39.81	1000.0	9.000	Single Line	9.4
24.550000	52.27	---	87.00	34.73	1000.0	9.000	Single Line	9.4

- PoE Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-7080RN
Mode	PoE , 10 Mbps
Operator Name:	KES



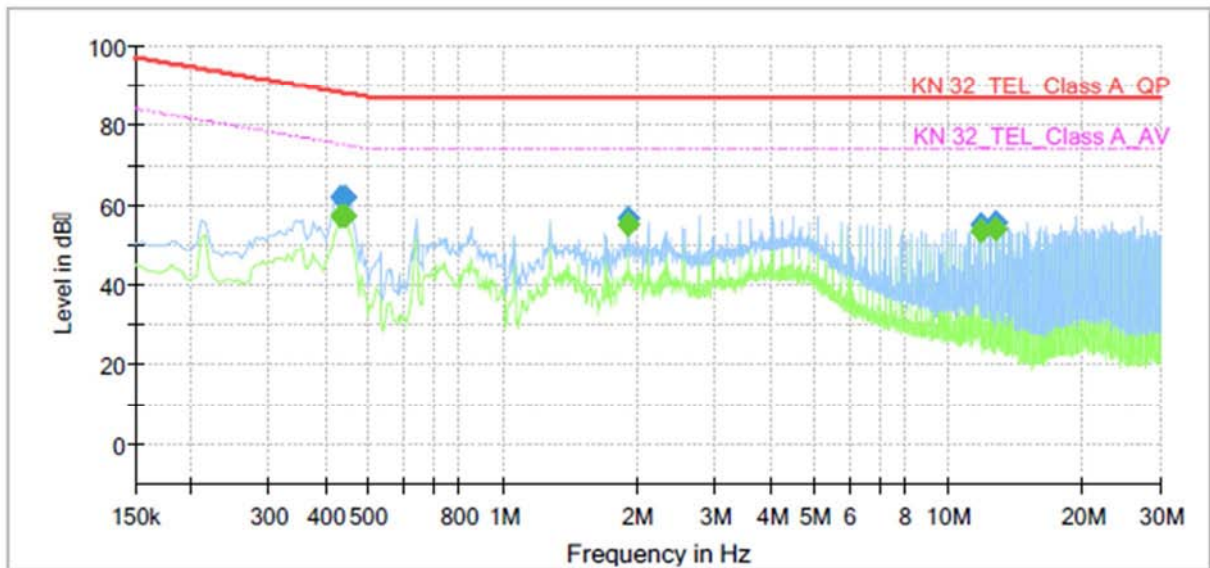
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.445000	---	57.24	74.97	17.73	1000.0	9.000	Single Line	10.0
0.445000	61.90	---	87.97	26.07	1000.0	9.000	Single Line	10.0
4.255000	---	52.34	74.00	21.66	1000.0	9.000	Single Line	9.8
4.255000	55.61	---	87.00	31.39	1000.0	9.000	Single Line	9.8
5.105000	---	52.05	74.00	21.95	1000.0	9.000	Single Line	9.9
5.105000	55.31	---	87.00	31.69	1000.0	9.000	Single Line	9.9
12.760000	---	53.95	74.00	20.05	1000.0	9.000	Single Line	10.1
12.760000	55.43	---	87.00	31.57	1000.0	9.000	Single Line	10.1
13.400000	---	53.70	74.00	20.30	1000.0	9.000	Single Line	10.1
13.400000	55.05	---	87.00	31.95	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QND-7080RN
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)
0.435000	---	57.12	75.16	18.04	1000.0	9.000	Single Line	9.5
0.435000	61.81	---	88.16	26.35	1000.0	9.000	Single Line	9.5
0.440000	---	57.34	75.06	17.72	1000.0	9.000	Single Line	9.5
0.440000	61.93	---	88.06	26.13	1000.0	9.000	Single Line	9.5
1.915000	---	54.80	74.00	19.20	1000.0	9.000	Single Line	9.3
1.915000	56.80	---	87.00	30.20	1000.0	9.000	Single Line	9.3
11.910000	---	53.26	74.00	20.74	1000.0	9.000	Single Line	9.6
11.910000	54.96	---	87.00	32.04	1000.0	9.000	Single Line	9.6
12.760000	---	53.82	74.00	20.18	1000.0	9.000	Single Line	9.6
12.760000	55.50	---	87.00	31.50	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]
148.50	13.02	V	1.00	8.17	2.46	23.65	40.00	16.35
216.00	9.13	H	4.00	11.82	3.02	23.97	40.00	16.03
375.00	14.12	H	3.92	15.03	4.06	33.21	47.00	13.79
455.98	15.37	V	1.00	16.54	4.63	36.54	47.00	10.46
456.01	8.69	H	3.95	16.54	4.63	29.86	47.00	17.14
504.00	11.38	V	1.00	17.38	4.97	33.73	47.00	13.27
504.01	8.04	H	3.53	17.38	4.97	30.39	47.00	16.61

* H : Horizontal, V : Vertical

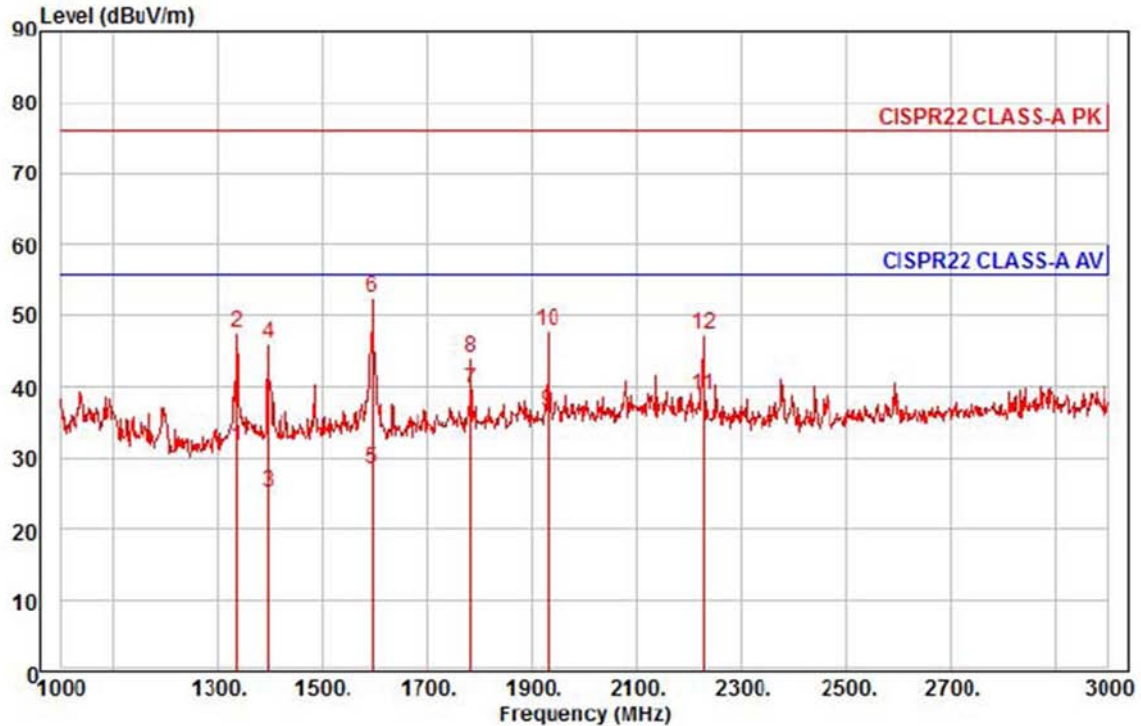
- PoE Mode

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]
49.02	11.39	V	1.10	13.76	1.32	26.47	40.00	13.53
148.50	11.47	V	1.08	8.17	2.46	22.10	40.00	17.90
216.01	8.90	H	4.00	11.82	3.02	23.74	40.00	16.26
375.00	13.71	H	3.82	15.03	4.05	32.79	47.00	14.21
456.00	8.99	H	3.81	16.54	4.63	30.16	47.00	16.84
456.01	15.22	V	1.05	16.54	4.63	36.39	47.00	10.61
503.99	9.95	V	1.00	17.38	4.97	32.30	47.00	14.70
504.01	8.46	H	3.43	17.38	4.97	30.81	47.00	16.19

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- 12 V (dc) Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QND-7080RN
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	1336.00	38.76	25.24	7.48	39.96	336	56.00	-24.48	horizontal	Average
2	1336.00	54.87	25.24	7.48	39.96	336	76.00	-28.37	horizontal	Peak
3	1396.00	31.93	25.48	7.66	39.93	111	56.00	-30.86	horizontal	Average
4	1396.00	52.92	25.48	7.66	39.93	111	76.00	-29.87	horizontal	Peak
5	1596.00	33.70	26.28	8.24	39.83	88	56.00	-27.61	horizontal	Average
6 pk	1596.00	58.14	26.28	8.24	39.83	88	76.00	-23.17	horizontal	Peak
7 pp	1782.00	43.66	27.01	8.75	39.74	33	56.00	-16.32	horizontal	Average
8	1782.00	48.07	27.01	8.75	39.74	33	76.00	-31.91	horizontal	Peak
9	1930.00	39.38	27.60	9.16	39.66	5	56.00	-19.52	horizontal	Average
10	1930.00	50.66	27.60	9.16	39.66	5	76.00	-28.24	horizontal	Peak
11	2228.00	40.46	28.44	9.70	39.76	356	56.00	-17.16	horizontal	Average
12	2228.00	48.93	28.44	9.70	39.76	356	76.00	-28.69	horizontal	Peak

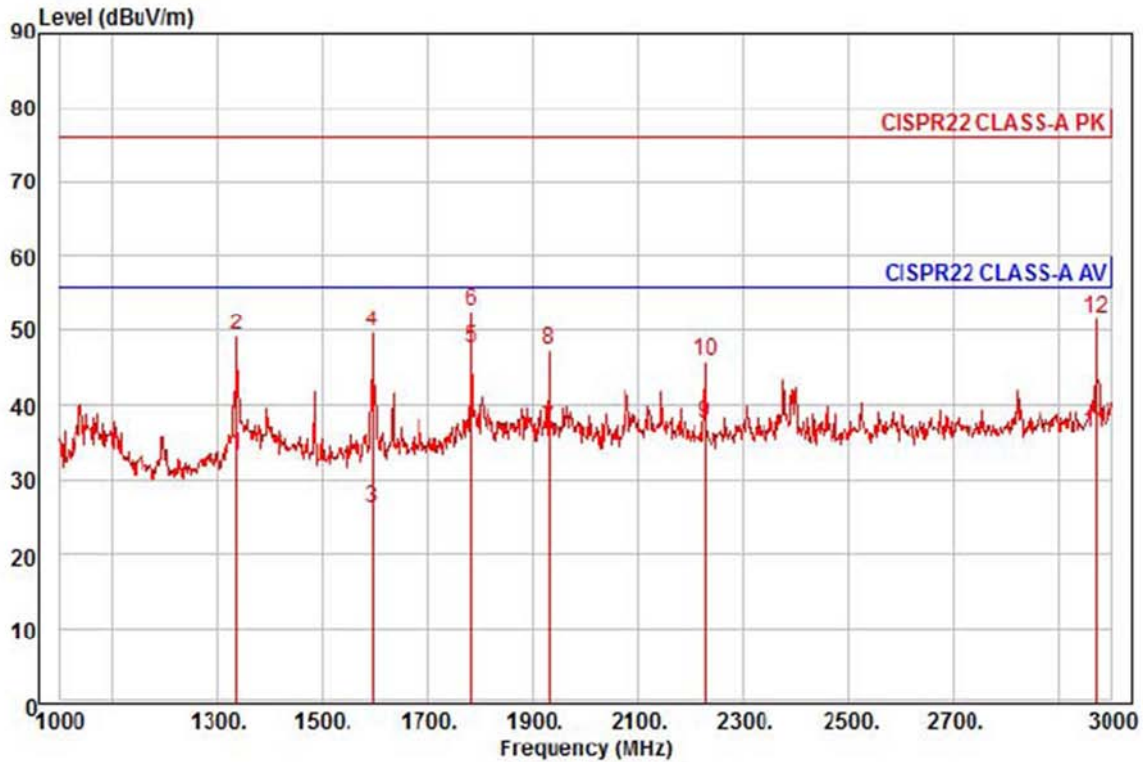
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBN:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QND-7080RN
Mode : 12 V (dc)
Memo : (1 - 3) GHz

	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	1336.00	40.62	25.24	7.48	39.96	263	56.00	-22.62	vertical	Average
2	1336.00	56.64	25.24	7.48	39.96	263	76.00	-26.60	vertical	Peak
3	1596.00	31.62	26.28	8.24	39.83	41	56.00	-29.69	vertical	Average
4	1596.00	55.17	26.28	8.24	39.83	41	76.00	-26.14	vertical	Peak
5 pp	1782.00	51.54	27.01	8.75	39.74	283	56.00	-8.44	vertical	Average
6 pk	1782.00	56.71	27.01	8.75	39.74	283	76.00	-23.27	vertical	Peak
7	1930.00	39.66	27.60	9.16	39.66	110	56.00	-19.24	vertical	Average
8	1930.00	50.28	27.60	9.16	39.66	110	76.00	-28.62	vertical	Peak
9	2228.00	39.19	28.44	9.70	39.76	86	56.00	-18.43	vertical	Average
10	2228.00	47.49	28.44	9.70	39.76	86	76.00	-30.13	vertical	Peak
11	2970.00	35.19	30.26	11.15	40.19	154	56.00	-19.59	vertical	Average
12	2970.00	50.61	30.26	11.15	40.19	154	76.00	-24.17	vertical	Peak

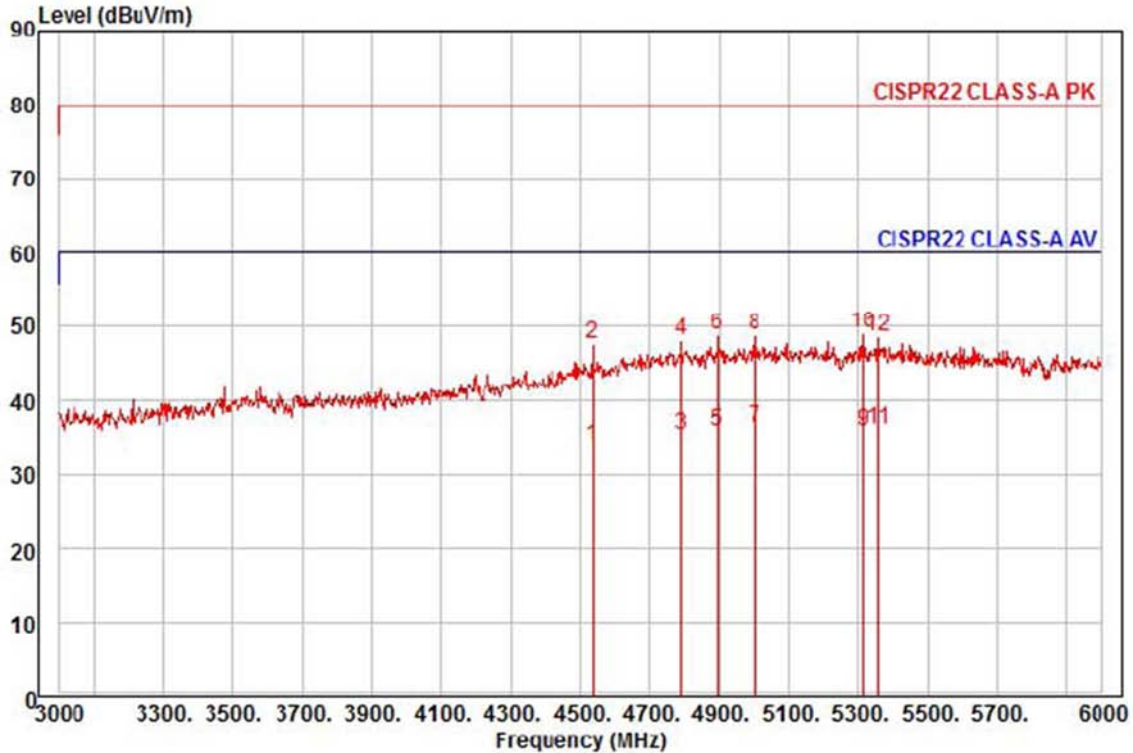
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Test report No.:
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QND-7080RN
Mode : 12 V (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	4536.00	24.71	35.07	14.49	40.41	33	60.00	-26.14	horizontal	Average
2	4536.00	38.32	35.07	14.49	40.41	33	80.00	-32.53	horizontal	Peak
3	4788.00	24.26	36.51	14.95	40.41	128	60.00	-24.69	horizontal	Average
4	4788.00	37.11	36.51	14.95	40.41	128	80.00	-31.84	horizontal	Peak
5	4896.00	24.01	37.13	15.14	40.41	157	60.00	-24.13	horizontal	Average
6	4896.00	36.87	37.13	15.14	40.41	157	80.00	-31.27	horizontal	Peak
7 pp	5001.00	23.54	37.72	15.33	40.41	45	60.00	-23.82	horizontal	Average
8	5001.00	36.20	37.72	15.33	40.41	45	80.00	-31.16	horizontal	Peak
9	5316.00	23.49	37.08	15.70	40.37	33	60.00	-24.10	horizontal	Average
10 pk	5316.00	36.65	37.08	15.70	40.37	33	80.00	-30.94	horizontal	Peak
11	5358.00	23.55	37.00	15.75	40.36	56	60.00	-24.06	horizontal	Average
12	5358.00	36.19	37.00	15.75	40.36	56	80.00	-31.42	horizontal	Peak

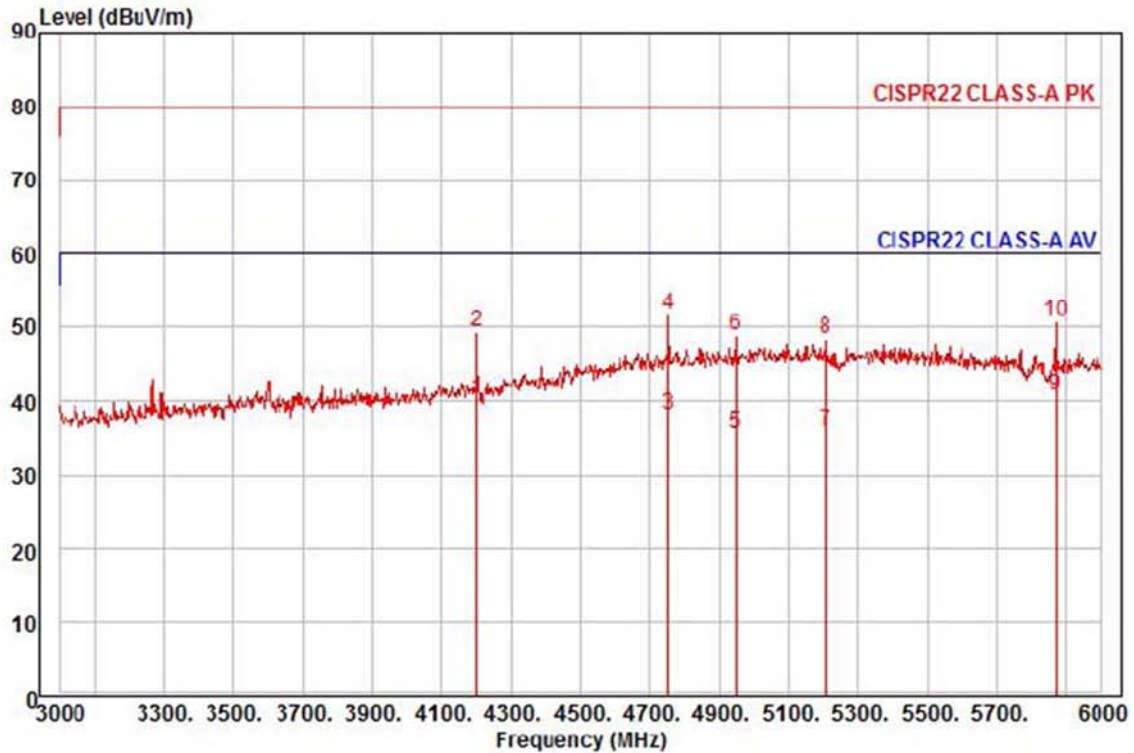
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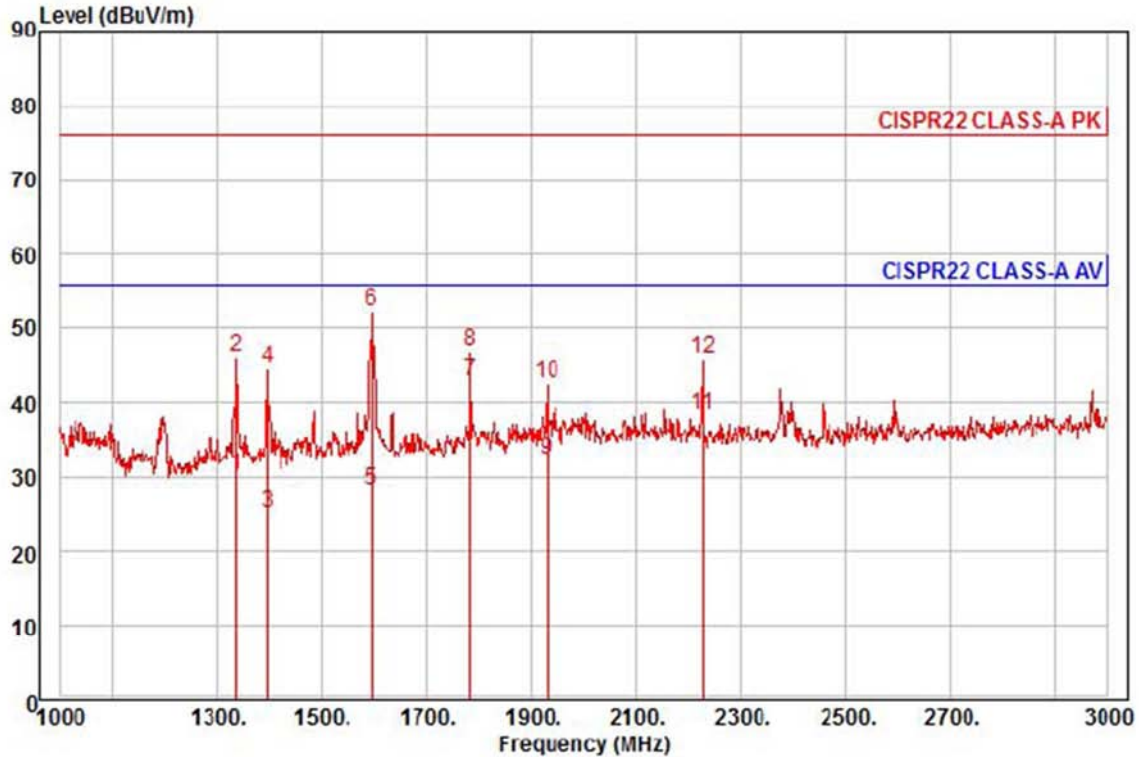


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QND-7080RN
Mode : 12 V (dc)
Memo : (3 - 6) GHz

	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	4200.00	33.55	33.15	13.88	40.41	223	60.00	-19.83	vertical	Average
2	4200.00	42.76	33.15	13.88	40.41	223	80.00	-30.62	vertical	Peak
3	4752.00	27.30	36.30	14.88	40.41	205	60.00	-21.93	vertical	Average
4 pk	4752.00	41.06	36.30	14.88	40.41	205	80.00	-28.17	vertical	Peak
5	4947.00	23.44	37.42	15.23	40.41	1	60.00	-24.32	vertical	Average
6	4947.00	36.47	37.42	15.23	40.41	1	80.00	-31.29	vertical	Peak
7	5208.00	23.36	37.30	15.58	40.38	122	60.00	-24.14	vertical	Average
8	5208.00	35.87	37.30	15.58	40.38	122	80.00	-31.63	vertical	Peak
9 pp	5871.00	28.53	35.96	16.62	40.29	65	60.00	-19.18	vertical	Average
10	5871.00	38.37	35.96	16.62	40.29	65	80.00	-29.34	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 : NETWORK CAMERA
Model : QND-7080RN
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	1336.00	37.49	25.24	7.48	39.96	274	56.00	-25.75	horizontal Average
2	1336.00	53.26	25.24	7.48	39.96	274	76.00	-29.98	horizontal Peak
3	1396.00	31.93	25.48	7.66	39.93	118	56.00	-30.86	horizontal Average
4	1396.00	51.40	25.48	7.66	39.93	118	76.00	-31.39	horizontal Peak
5	1596.00	33.61	26.28	8.24	39.83	271	56.00	-27.70	horizontal Average
6 pk	1596.00	57.86	26.28	8.24	39.83	271	76.00	-23.45	horizontal Peak
7 pp	1782.00	46.83	27.01	8.75	39.74	199	56.00	-13.15	horizontal Average
8	1782.00	50.82	27.01	8.75	39.74	199	76.00	-29.16	horizontal Peak
9	1930.00	35.23	27.60	9.16	39.66	210	56.00	-23.67	horizontal Average
10	1930.00	45.51	27.60	9.16	39.66	210	76.00	-33.39	horizontal Peak
11	2228.00	39.77	28.44	9.70	39.76	342	56.00	-17.85	horizontal Average
12	2228.00	47.39	28.44	9.70	39.76	342	76.00	-30.23	horizontal Peak

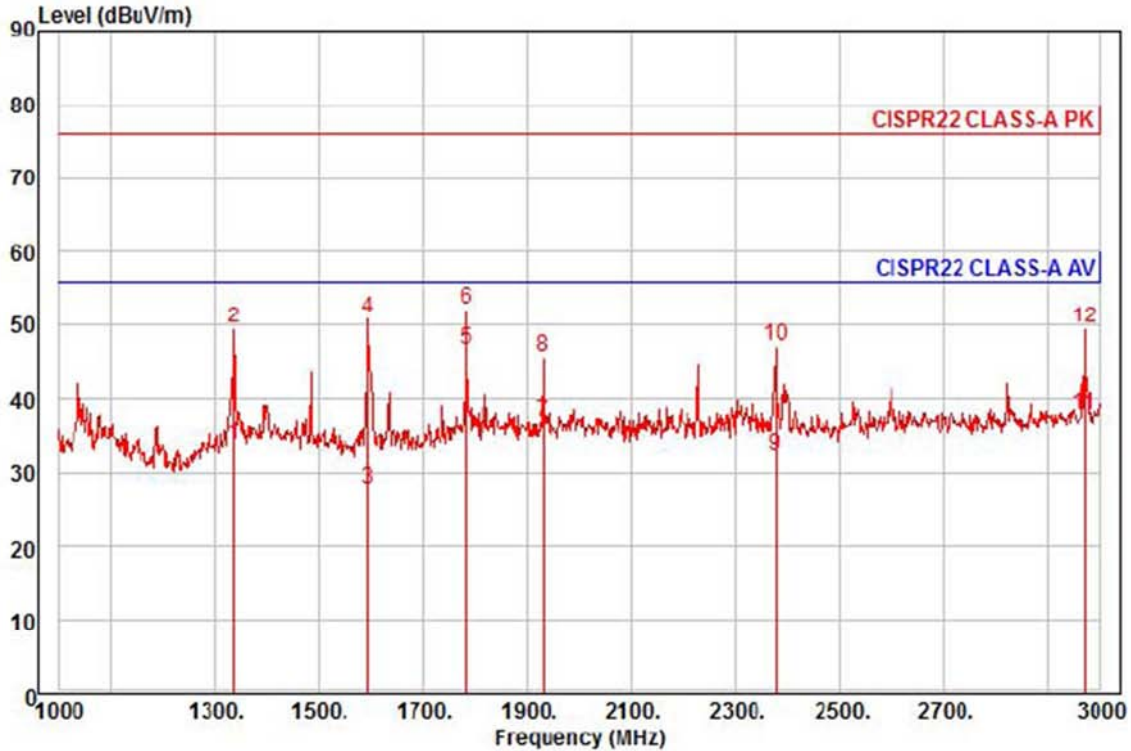
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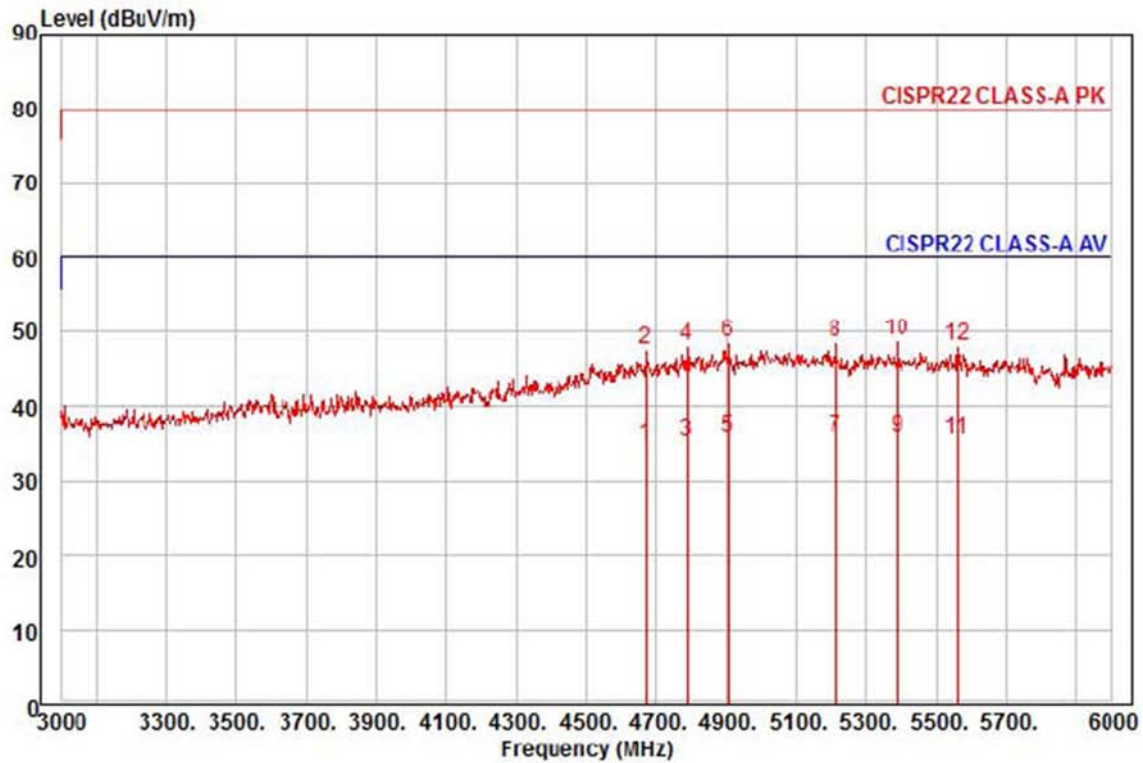
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QND-7080RN
Mode : PoE
Memo : (1 - 3) GHz

	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	1336.00	41.10	25.24	7.48	39.96	189	56.00	-22.14	vertical	Average
2	1336.00	56.83	25.24	7.48	39.96	189	76.00	-26.41	vertical	Peak
3	1594.00	33.08	26.27	8.23	39.83	14	56.00	-28.25	vertical	Average
4	1594.00	56.22	26.27	8.23	39.83	14	76.00	-25.11	vertical	Peak
5 pp	1782.00	50.50	27.01	8.75	39.74	270	56.00	-9.48	vertical	Average
6 pk	1782.00	56.17	27.01	8.75	39.74	270	76.00	-23.81	vertical	Peak
7	1930.00	39.56	27.60	9.16	39.66	25	56.00	-19.34	vertical	Average
8	1930.00	48.47	27.60	9.16	39.66	25	76.00	-30.43	vertical	Peak
9	2378.00	33.53	28.81	9.93	39.85	276	56.00	-23.58	vertical	Average
10	2378.00	48.16	28.81	9.93	39.85	276	76.00	-28.95	vertical	Peak
11	2970.00	36.43	30.26	11.15	40.19	201	56.00	-18.35	vertical	Average
12	2970.00	48.40	30.26	11.15	40.19	201	76.00	-26.38	vertical	Peak

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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 : NETWORK CAMERA

Model : QND-7080RN

Mode : PoE

Memo : (3 - 6) GHz

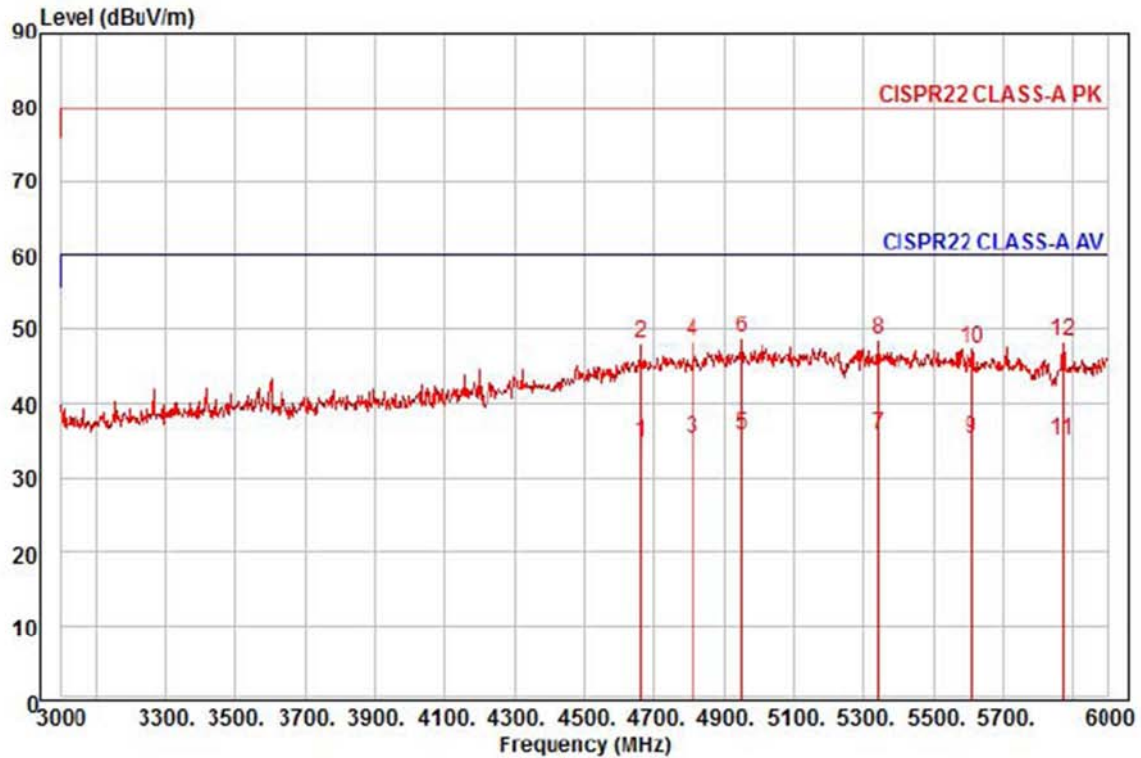
	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	4671.00	24.68	35.84	14.74	40.41	213	60.00	-25.15	horizontal	Average
2	4671.00	37.47	35.84	14.74	40.41	213	80.00	-32.36	horizontal	Peak
3	4785.00	24.20	36.49	14.94	40.41	141	60.00	-24.78	horizontal	Average
4	4785.00	37.00	36.49	14.94	40.41	141	80.00	-31.98	horizontal	Peak
5	4905.00	23.77	37.18	15.16	40.41	46	60.00	-24.30	horizontal	Average
6	4905.00	36.73	37.18	15.16	40.41	46	80.00	-31.34	horizontal	Peak
7 pp	5214.00	23.37	37.29	15.58	40.38	279	60.00	-24.14	horizontal	Average
8	5214.00	36.14	37.29	15.58	40.38	279	80.00	-31.37	horizontal	Peak
9	5388.00	23.47	36.94	15.79	40.36	152	60.00	-24.16	horizontal	Average
10 pk	5388.00	36.35	36.94	15.79	40.36	152	80.00	-31.28	horizontal	Peak
11	5559.00	23.23	36.59	16.03	40.33	342	60.00	-24.48	horizontal	Average
12	5559.00	35.83	36.59	16.03	40.33	342	80.00	-31.88	horizontal	Peak



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Test report No.:
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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 : NETWORK CAMERA
Model : QND-7080RN
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	4662.00	24.69	35.79	14.72	40.41	309	60.00	-25.21	vertical	Average
2	4662.00	37.93	35.79	14.72	40.41	309	80.00	-31.97	vertical	Peak
3	4812.00	24.02	36.65	14.99	40.41	209	60.00	-24.75	vertical	Average
4	4812.00	37.04	36.65	14.99	40.41	209	80.00	-31.73	vertical	Peak
5	4950.00	23.44	37.43	15.24	40.41	75	60.00	-24.30	vertical	Average
6 pk	4950.00	36.44	37.43	15.24	40.41	75	80.00	-31.30	vertical	Peak
7 pp	5340.00	23.52	37.03	15.73	40.36	212	60.00	-24.08	vertical	Average
8	5340.00	36.27	37.03	15.73	40.36	212	80.00	-31.33	vertical	Peak
9	5610.00	22.97	36.49	16.13	40.32	130	60.00	-24.73	vertical	Average
10	5610.00	35.05	36.49	16.13	40.32	130	80.00	-32.65	vertical	Peak
11	5871.00	22.90	35.96	16.62	40.29	87	60.00	-24.81	vertical	Average
12	5871.00	36.07	35.96	16.62	40.29	87	80.00	-31.64	vertical	Peak

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

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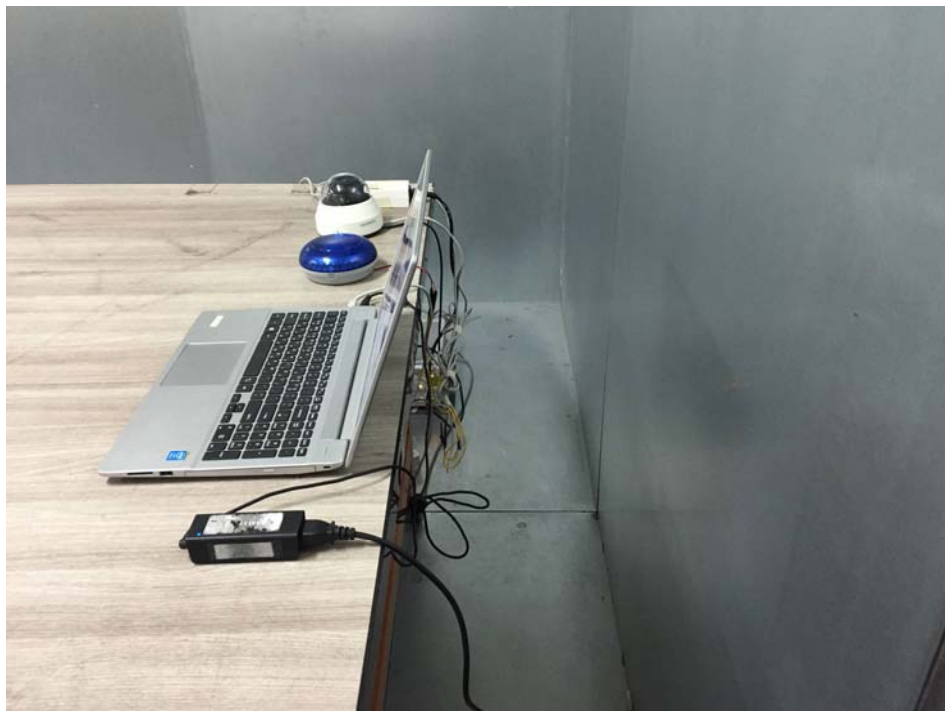
Conducted Telecommunication Emissions

- 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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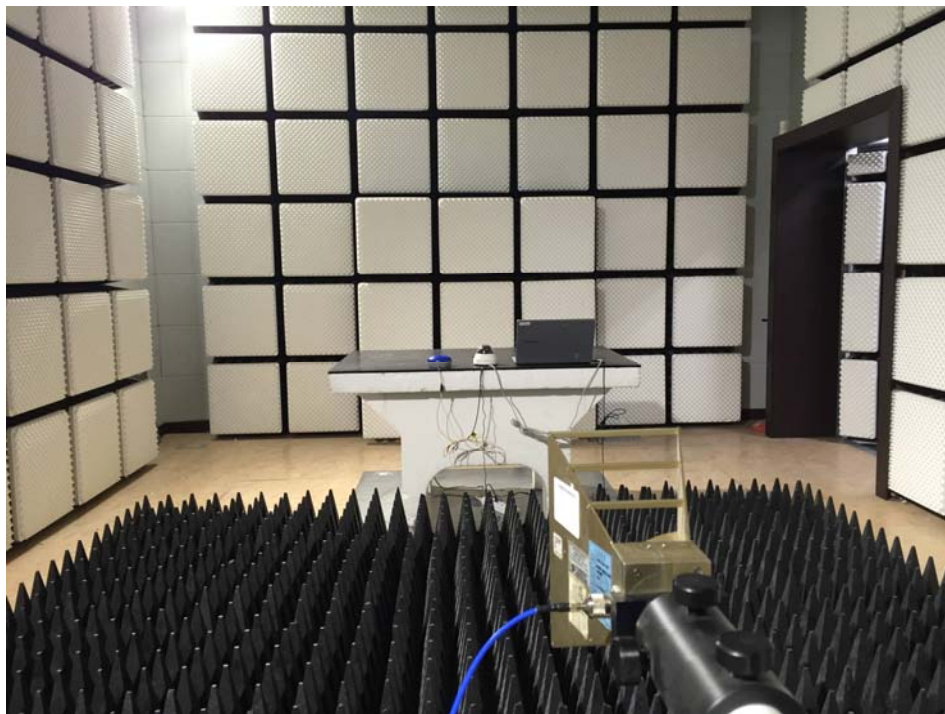
- PoE Mode



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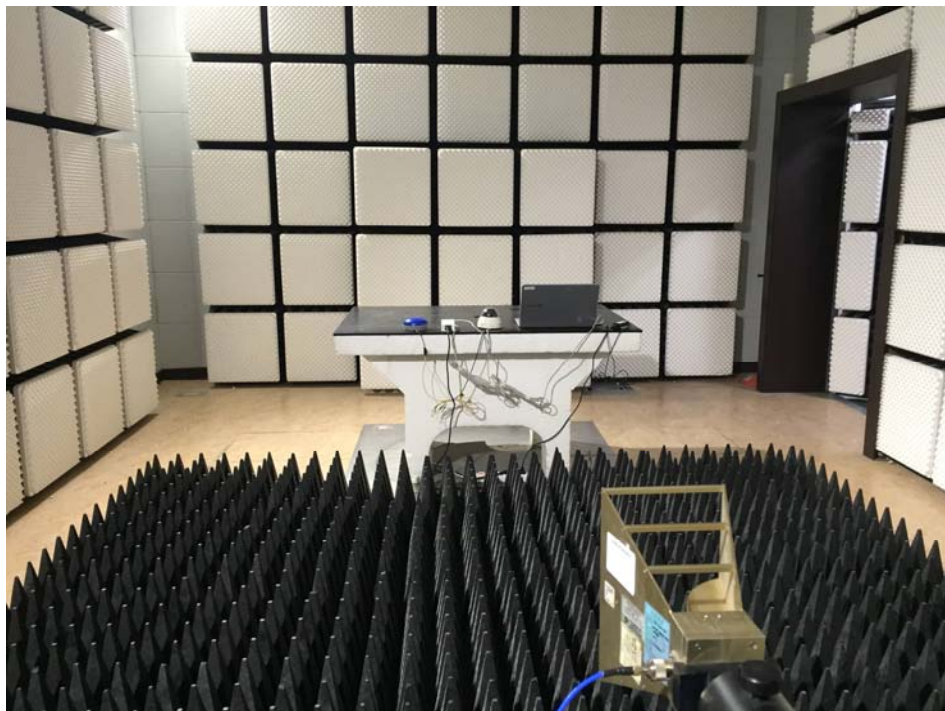
Radiated Electric Field Emissions(Above 1 GHz)

- 12 V (dc) Mode



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- PoE Mode



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

EUT External Photographs

(Top)



(Bottom)



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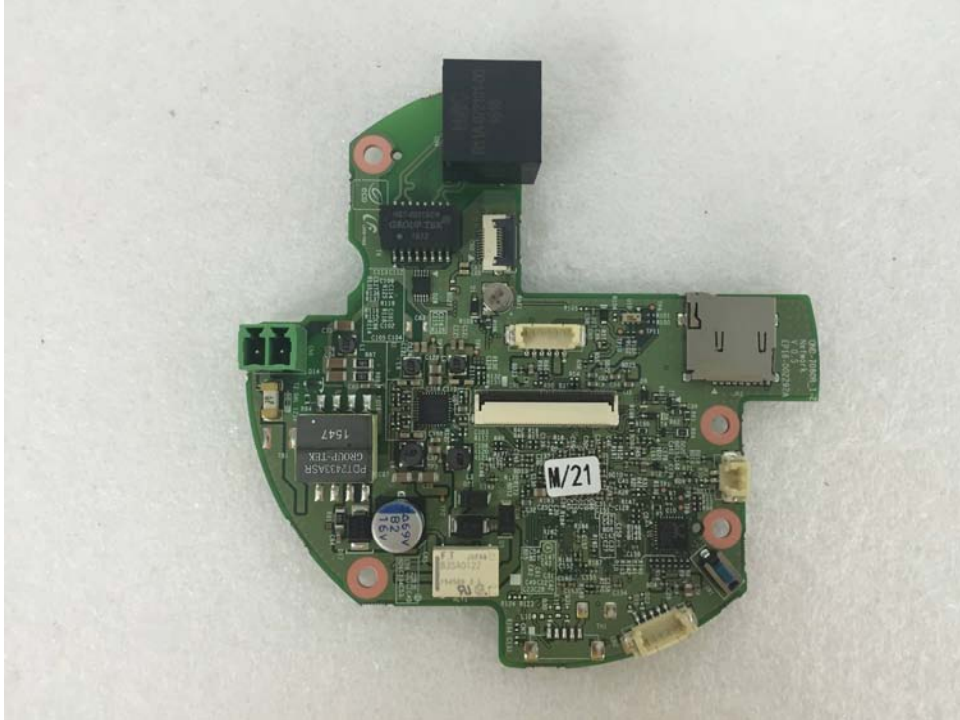
EUT Internal Photographs

(Internal View)



EUT Internal View – MAIN BOARD

(Top)



(Bottom)



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EUT Internal View – IR LED BOARD

(Top)



(Bottom)



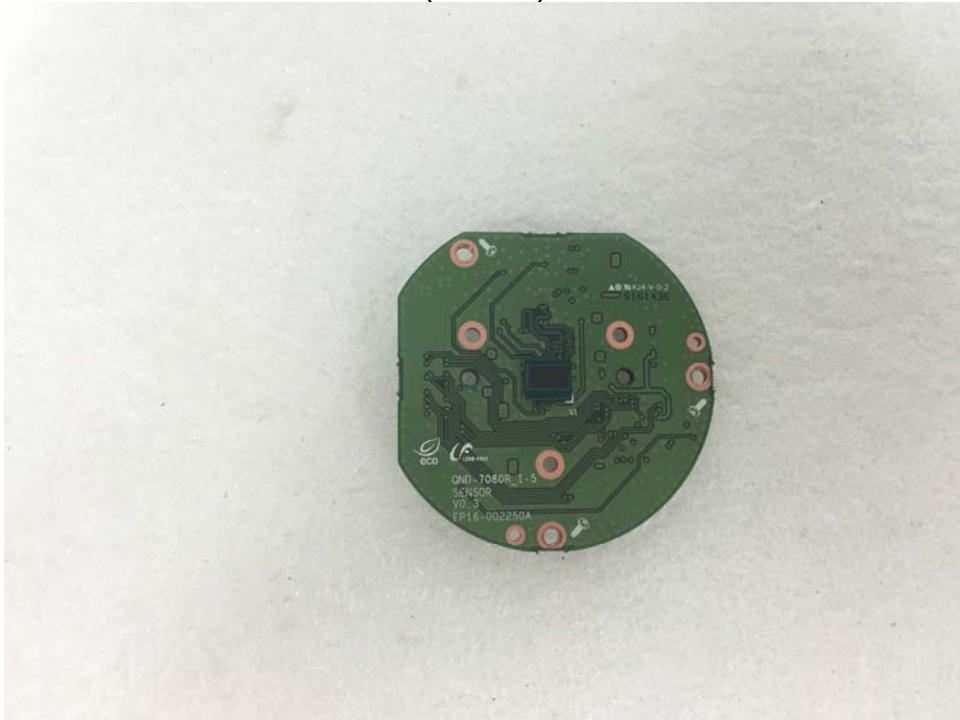
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EUT Internal View – SENSOR BOARD

(Top)



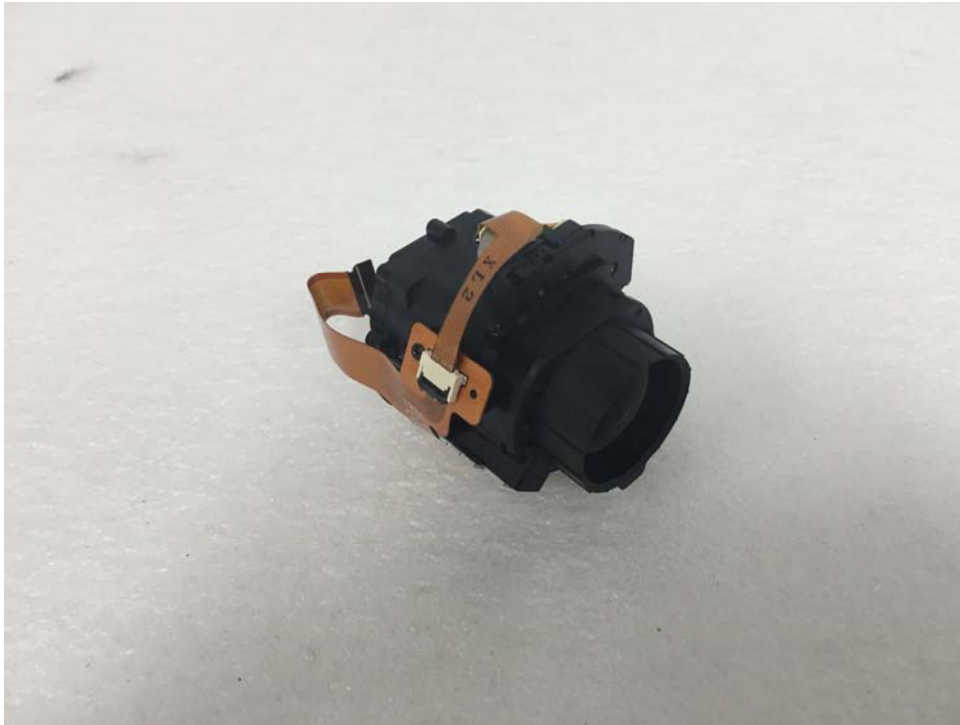
(Bottom)



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EUT Internal View – Lens

(Top)



(Bottom)



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