



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0344

Date of Issue : Jul. 10, 2016

Product name : NETWORK CAMERA
7

Model/Type No. : QNV-7080RN

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 1204, Changwon-daero, Seongsan-gu, Changwon-si,
Gyeongsangna-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 : Jul. 06, 2016 - Jul. 09, 2016

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

Tested by

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EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

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KES-E1-16T0344
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REPORT REVISION HISTORY

Date	Revision	Page No
Jul. 10, 2016	KES-E1-16T0344	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QNV-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	30m
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 rectangular 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

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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
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	Line in
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 Inte	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 / Hum	-30°C ~ +55°C / Less than 90% RH * Start up should be done at above -20°C
Storage Temperature / Humid	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	PoE(IEEE802.3af, Class3), DC 12V
Power Consumption	Max.7.2W(PoE), Max.6.4W(DC12V)
Mechanical	
Color / Material	Ivory / Metal
Dimension (WxHxD)	φ137x H106.1
Weight	690g

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

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
NOTEBOOK	HP ProBook 4430s	CNU2084CVW	HP	-
NOTEBOOK Adapter	Series PPP00H	F12921201063695	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
PoE Adapter	RP-PEG048I	-	REPOTEC	-
Alarm Zig	-	-	-	-

1.6 External I/O Cabling

- DC 12 V 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 Zig	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 Adapter	LAN(PoE)	5.0	U
	Alarm	Alarm Zig	Alarm	3.0	U
PoE Adapter	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:

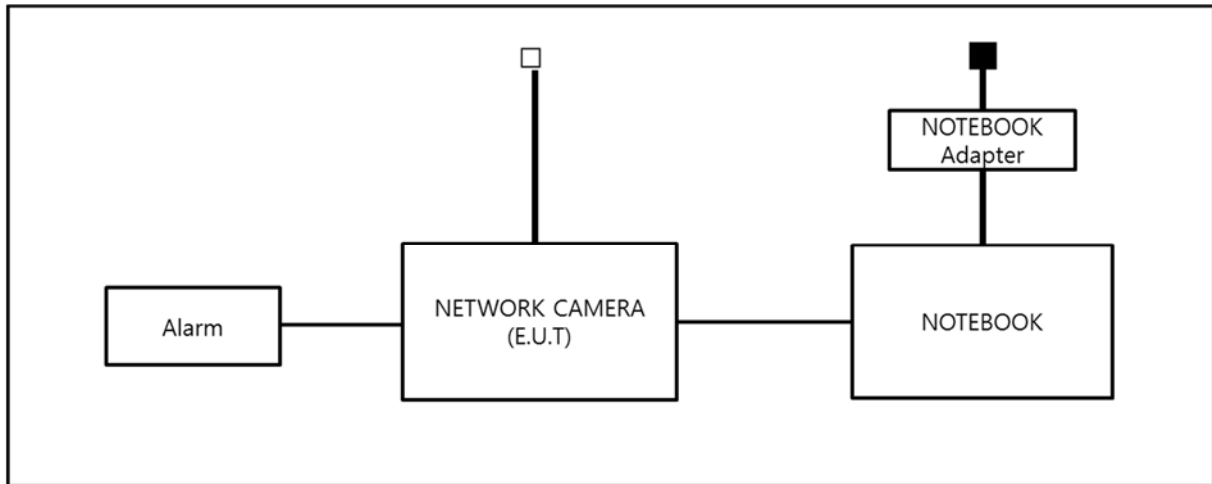
Test mode	Normal operating
DC 12 V	MONITORING, PING TEST
PoE	MONITORING, PING TEST

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

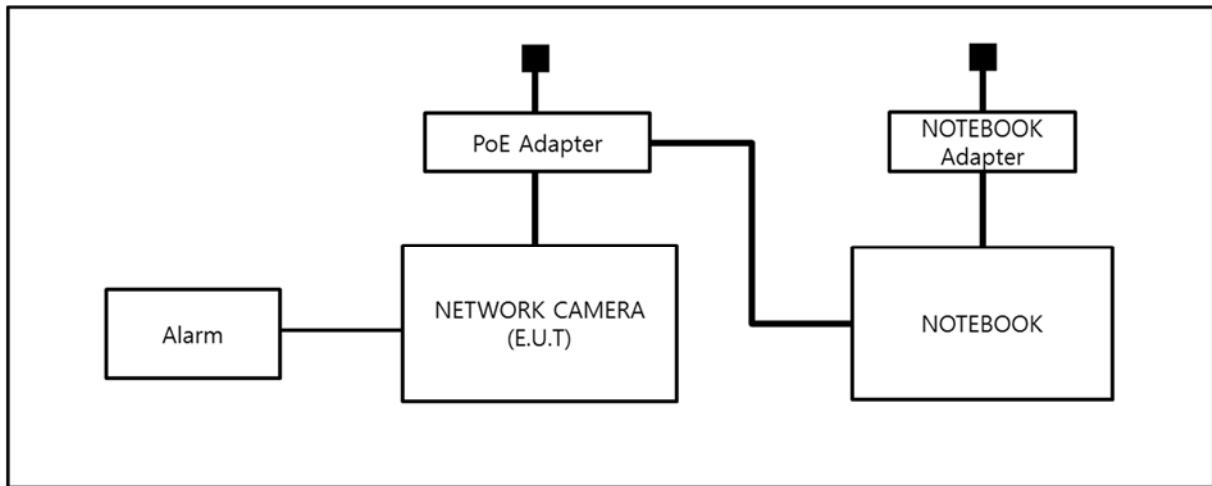
1.8 Configuration

■ AC Main
□ DC Main

- DC 12 V 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



-
- | | | |
|--|---|----------------------------------|
| <input type="checkbox"/> VCCI V-3 / 2015.04 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR22:2009 +A1:2010 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> 47 CFR Part 15, Subpart B | | |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010 | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009 | | |
| <input checked="" type="checkbox"/> IC Regulation ICES-003 : 2016 | | |
| <input checked="" type="checkbox"/> CAN/CSA CISPR 22-10 | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014 | | |
|
 | | |
| <input type="checkbox"/> RE- Directive 2014/53/EU | | |
| <input type="checkbox"/> EN 301 489-1 V1.9.2 | | |
| <input type="checkbox"/> Equipment for fixed use | | |
| <input type="checkbox"/> Equipment for vehicular use | | |
| <input type="checkbox"/> Equipment for portable use | | |
| <input type="checkbox"/> EN 301 489-3 V1.6.1 | | |
| <input type="checkbox"/> EN 301 489-17 V2.2.1 | | |
| <input type="checkbox"/> EN 60945:2002 | | |



2.1 Conducted Emissions Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
<input type="checkbox"/>	LISN	ENV216	R & S	101137	02, 04, 2017
<input type="checkbox"/>	LISN	ENV216	R & S	101786	05, 02, 2017
<input type="checkbox"/>	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

Jul. 09, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101137	02, 04, 2017
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	05, 02, 2017
<input checked="" type="checkbox"/>	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
<input checked="" type="checkbox"/>	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
<input type="checkbox"/>	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
<input checked="" type="checkbox"/>	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: 22,2 °C

Relative Humidity: 43,3 %

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

Jul. 08, 2016

Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
<input checked="" type="checkbox"/>	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-715	04, 14, 2018
<input checked="" type="checkbox"/>	Open Area Test Site	-	KES	-	-
<input checked="" type="checkbox"/>	Antenna Mast	-	EMCO	-	-
<input checked="" type="checkbox"/>	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 31,9 °C

Relative Humidity: 51,0 %

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. 06, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
<input checked="" type="checkbox"/>	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
<input checked="" type="checkbox"/>	Semi Anchoic Chamber #2	-	SEMITEC	-	-
<input checked="" type="checkbox"/>	Antenna Mast	-	AUDIX	-	-
<input checked="" type="checkbox"/>	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 23,6 °C
Relative Humidity: 50,3 %

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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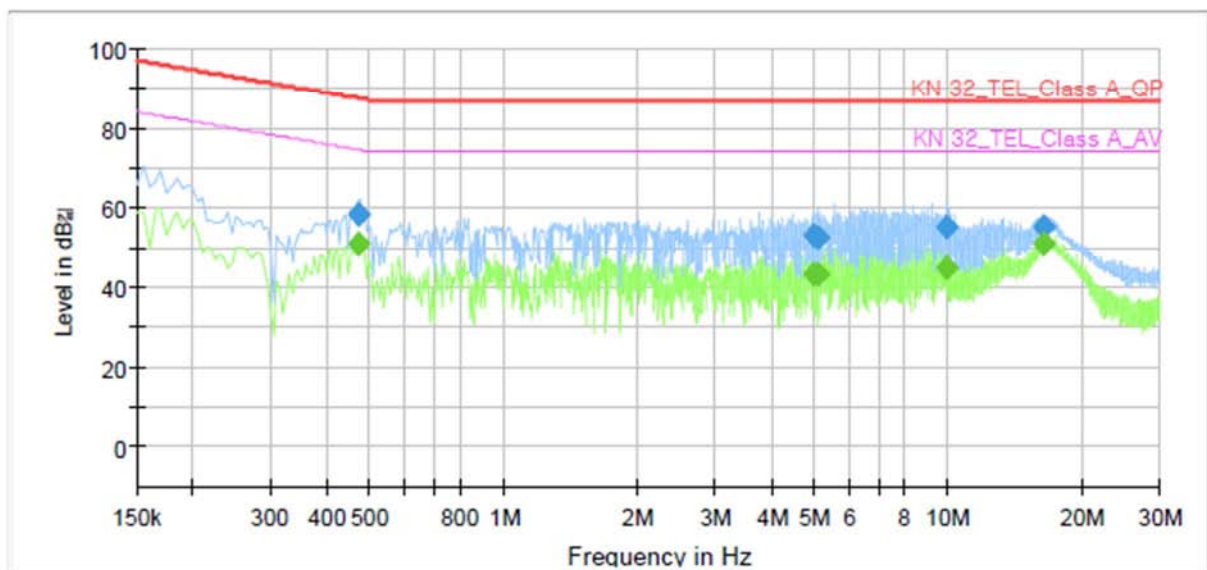
Conducted Emissions at Telecommunication Ports

- DC 12 V Mode

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNV-7080RN
Mode: DC 12 V_10 Mbps
Operator Name: KES



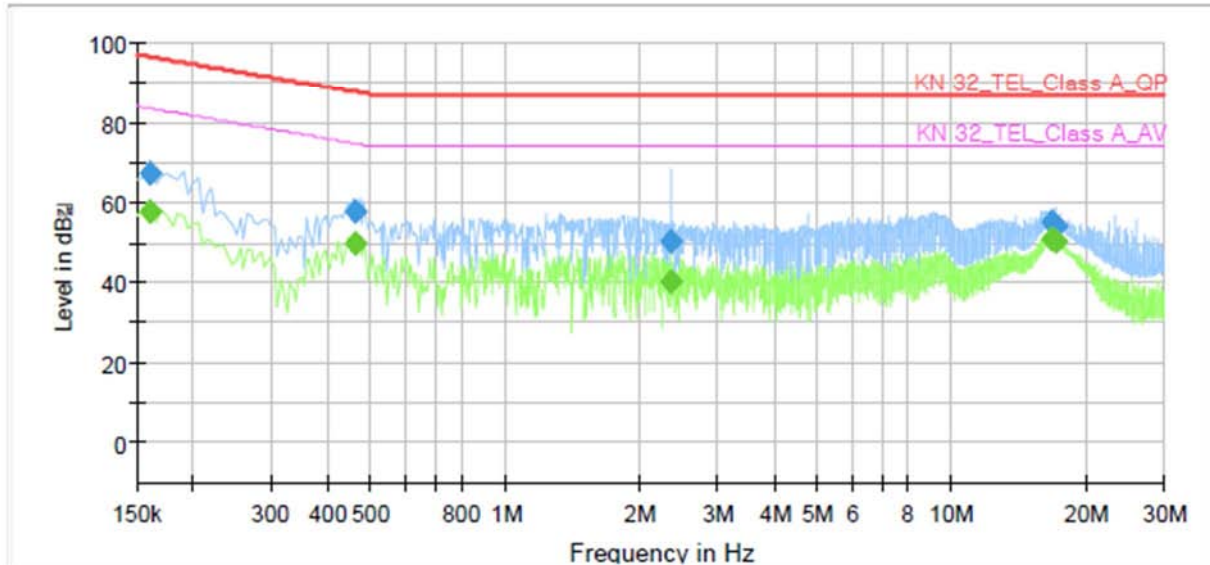
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.470000	---	50.57	74.51	23.94	1000.0	9.000	Single Line	10.0
0.470000	58.20	---	87.51	29.31	1000.0	9.000	Single Line	10.0
4.975000	---	43.60	74.00	30.40	1000.0	9.000	Single Line	9.9
4.975000	52.93	---	87.00	34.07	1000.0	9.000	Single Line	9.9
5.100000	---	43.21	74.00	30.79	1000.0	9.000	Single Line	9.9
5.100000	52.64	---	87.00	34.36	1000.0	9.000	Single Line	9.9
9.990000	---	45.15	74.00	28.85	1000.0	9.000	Single Line	10.1
9.990000	54.85	---	87.00	32.15	1000.0	9.000	Single Line	10.1
16.490000	---	50.83	74.00	23.17	1000.0	9.000	Single Line	10.1
16.490000	55.18	---	87.00	31.82	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNV-7080RN
Mode	DC 12 V_100 Mbps
Operator Name:	KES



Final Result

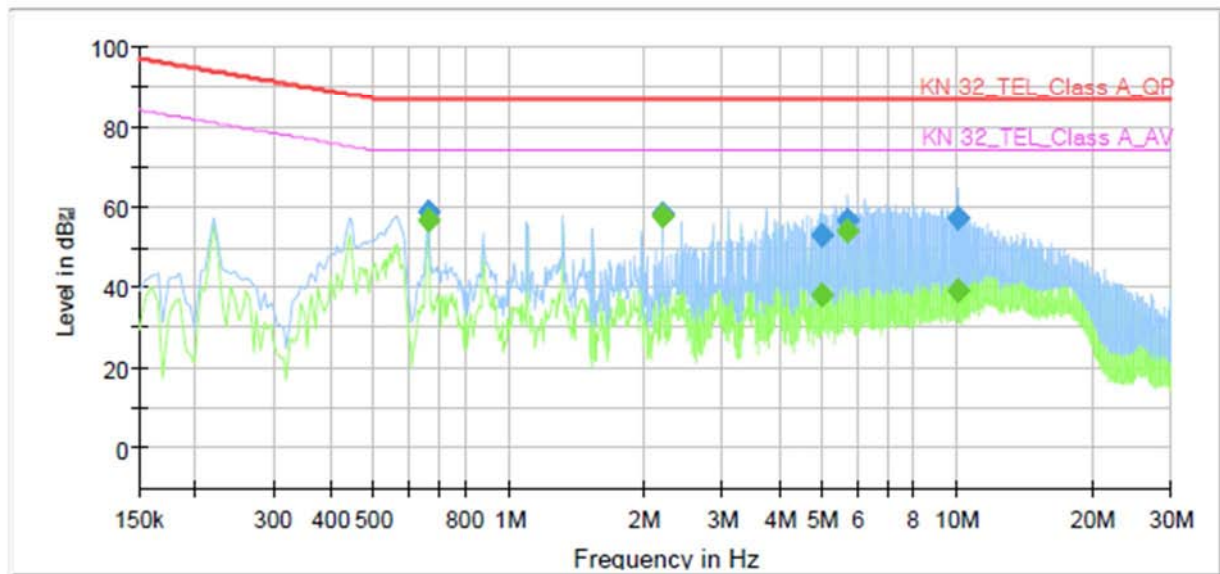
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	57.68	83.46	25.78	1000.0	9.000	Single Line	9.6
0.160000	67.22	---	96.46	29.24	1000.0	9.000	Single Line	9.6
0.460000	---	49.83	74.69	24.86	1000.0	9.000	Single Line	9.5
0.460000	57.58	---	87.69	30.11	1000.0	9.000	Single Line	9.5
2.360000	---	40.37	74.00	33.63	1000.0	9.000	Single Line	9.3
2.360000	50.12	---	87.00	36.88	1000.0	9.000	Single Line	9.3
16.745000	---	50.66	74.00	23.34	1000.0	9.000	Single Line	9.6
16.745000	54.84	---	87.00	32.16	1000.0	9.000	Single Line	9.6
17.160000	---	50.38	74.00	23.62	1000.0	9.000	Single Line	9.5
17.160000	54.23	---	87.00	32.77	1000.0	9.000	Single Line	9.5

- PoE Mode

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNV-7080RN
Mode	PoE_10 Mbps
Operator Name:	KES



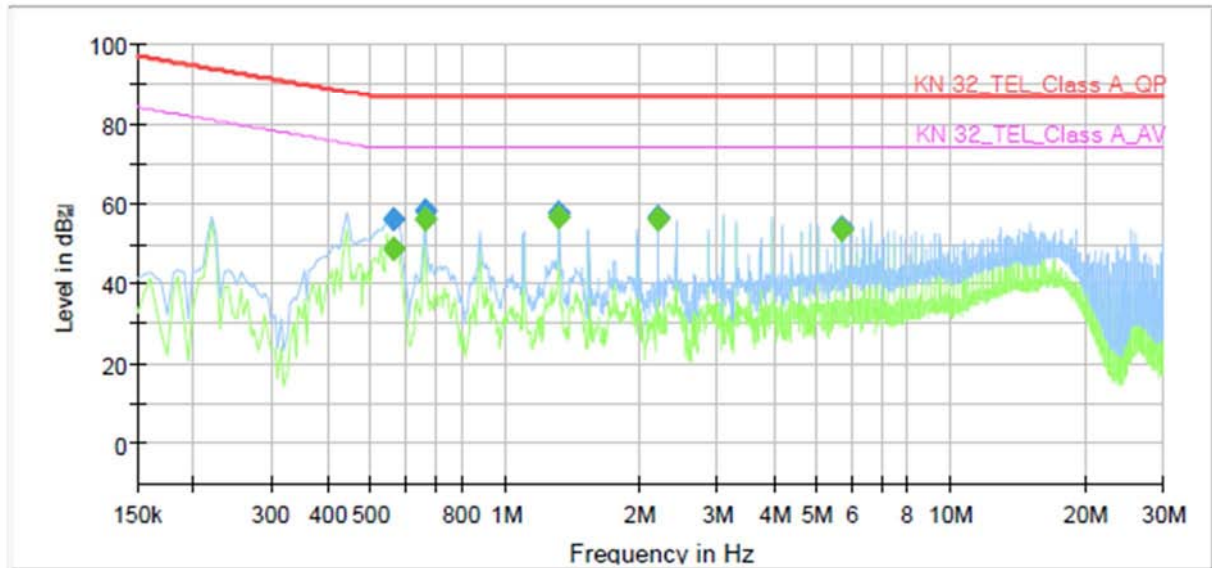
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.660000	---	56.74	74.00	17.26	1000.0	9.000	Single Line	9.9
0.660000	58.58	---	87.00	28.42	1000.0	9.000	Single Line	9.9
2.205000	---	57.75	74.00	16.25	1000.0	9.000	Single Line	9.8
2.205000	58.15	---	87.00	28.85	1000.0	9.000	Single Line	9.8
4.995000	---	37.98	74.00	36.02	1000.0	9.000	Single Line	9.9
4.995000	53.19	---	87.00	33.81	1000.0	9.000	Single Line	9.9
5.730000	---	54.05	74.00	19.95	1000.0	9.000	Single Line	9.9
5.730000	56.44	---	87.00	30.56	1000.0	9.000	Single Line	9.9
10.010000	---	39.31	74.00	34.69	1000.0	9.000	Single Line	10.1
10.010000	56.94	---	87.00	30.06	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNV-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)
0.565000	---	48.94	74.00	25.06	1000.0	9.000	Single Line	9.5
0.565000	56.20	---	87.00	30.80	1000.0	9.000	Single Line	9.5
0.660000	---	56.25	74.00	17.75	1000.0	9.000	Single Line	9.4
0.660000	58.13	---	87.00	28.87	1000.0	9.000	Single Line	9.4
1.320000	---	56.81	74.00	17.19	1000.0	9.000	Single Line	9.3
1.320000	57.49	---	87.00	29.51	1000.0	9.000	Single Line	9.3
2.205000	---	56.14	74.00	17.86	1000.0	9.000	Single Line	9.3
2.205000	56.50	---	87.00	30.50	1000.0	9.000	Single Line	9.3
5.730000	---	53.39	74.00	20.61	1000.0	9.000	Single Line	9.4
5.730000	54.13	---	87.00	32.87	1000.0	9.000	Single Line	9.4

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

- DC 12 V 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]
50.11	11.16	V	1.00	13.89	1.34	26.39	40.00	13.61
148.32	18.20	V	1.00	8.16	2.45	28.81	40.00	11.19
264.37	13.72	V	1.00	12.79	3.44	29.95	47.00	17.05
312.18	13.95	H	4.00	13.66	3.75	31.36	47.00	15.64
360.33	14.06	H	4.00	14.71	3.96	32.73	47.00	14.27
465.59	10.27	H	3.90	16.70	4.70	31.67	47.00	15.33

* H : Horizontal, V : Vertical

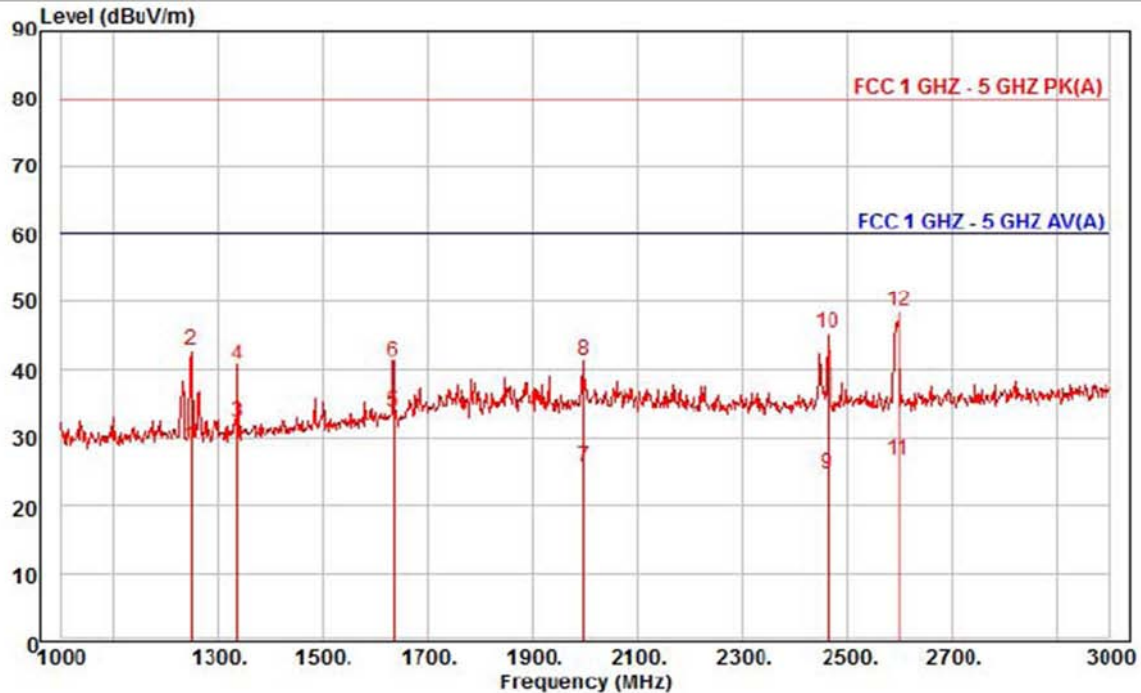
- PoE Mode

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]
49.72	15.11	V	1.00	13.86	1.33	30.30	40.00	9.70
125.93	15.70	H	4.00	9.15	2.19	27.04	40.00	12.96
149.15	17.59	V	1.00	8.19	2.46	28.24	40.00	11.76
230.59	14.17	V	1.10	12.13	3.15	29.45	47.00	17.55
312.10	13.92	H	4.00	13.66	3.75	31.33	47.00	15.67
456.56	12.16	H	3.50	16.55	4.63	33.34	47.00	13.66

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V 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 : NETWORK CAMERA
Model : QNV-7080RN
Mode : DC 12 V
Memo : 1 ~ 3 GHz

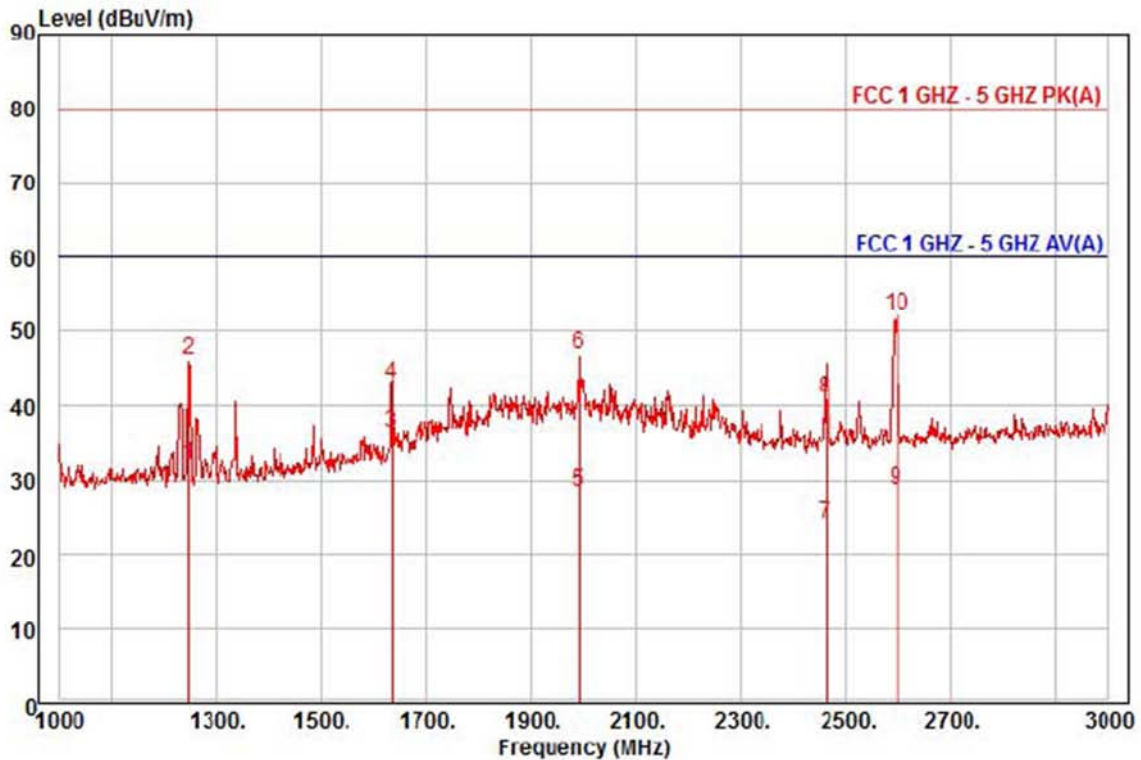
	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1248.00	36.55	24.89	7.23	40.00	300	60.00	-31.33	horizontal	Average
2	1248.00	50.83	24.89	7.23	40.00	300	80.00	-37.05	horizontal	Peak
3	1336.00	39.53	25.24	7.48	39.96	34	60.00	-27.71	horizontal	Average
4	1336.00	47.84	25.24	7.48	39.96	34	80.00	-39.40	horizontal	Peak
5 pp	1634.00	38.82	26.43	8.34	39.81	179	60.00	-26.22	horizontal	Average
6	1634.00	46.25	26.43	8.34	39.81	179	80.00	-38.79	horizontal	Peak
7	1998.00	28.05	27.87	9.34	39.63	210	60.00	-34.37	horizontal	Average
8	1998.00	43.84	27.87	9.34	39.63	210	80.00	-38.58	horizontal	Peak
9	2462.00	25.57	29.01	10.06	39.90	306	60.00	-35.26	horizontal	Average
10	2462.00	46.31	29.01	10.06	39.90	306	80.00	-34.52	horizontal	Peak
11	2598.00	27.03	29.35	10.27	39.98	228	60.00	-33.33	horizontal	Average
12 pk	2598.00	49.04	29.35	10.27	39.98	228	80.00	-31.32	horizontal	Peak



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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 : NETWORK CAMERA
Model : QNV-7080RN
Mode : DC 12 V
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	1246.00	40.11	24.89	7.22	40.00	198	60.00	-27.78	vertical	Average
2	1246.00	54.09	24.89	7.22	40.00	198	80.00	-33.80	vertical	Peak
3 pp	1634.00	41.31	26.43	8.34	39.81	198	60.00	-23.73	vertical	Average
4	1634.00	47.88	26.43	8.34	39.81	198	80.00	-37.16	vertical	Peak
5	1992.00	30.78	27.85	9.33	39.63	331	60.00	-31.67	vertical	Average
6	1992.00	49.23	27.85	9.33	39.63	331	80.00	-33.22	vertical	Peak
7	2462.00	25.17	29.01	10.06	39.90	22	60.00	-35.66	vertical	Average
8	2462.00	41.66	29.01	10.06	39.90	22	80.00	-39.17	vertical	Peak
9	2598.00	29.17	29.35	10.27	39.98	242	60.00	-31.19	vertical	Average
10 pk	2598.00	52.52	29.35	10.27	39.98	242	80.00	-27.84	vertical	Peak

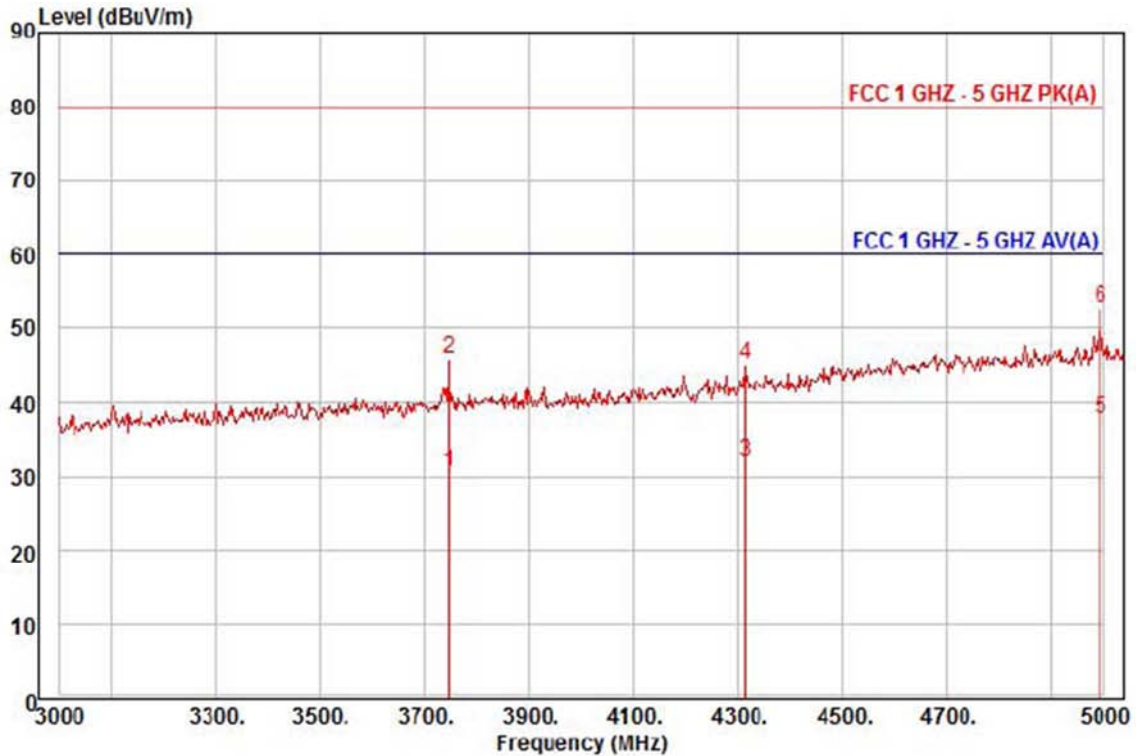
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNV-7080RN
Mode : DC 12 V
Memo : 3 ~ 5 GHz

	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	3747.00	26.37	31.58	13.00	40.36	124	60.00	-29.41	horizontal	Average
2	3747.00	41.58	31.58	13.00	40.36	124	80.00	-34.20	horizontal	Peak
3	4314.00	24.63	33.80	14.09	40.41	196	60.00	-27.89	horizontal	Average
4	4314.00	37.58	33.80	14.09	40.41	196	80.00	-34.94	horizontal	Peak
5 pp	4995.00	25.17	37.69	15.32	40.41	116	60.00	-22.23	horizontal	Average
6 pk	4995.00	40.11	37.69	15.32	40.41	116	80.00	-27.29	horizontal	Peak

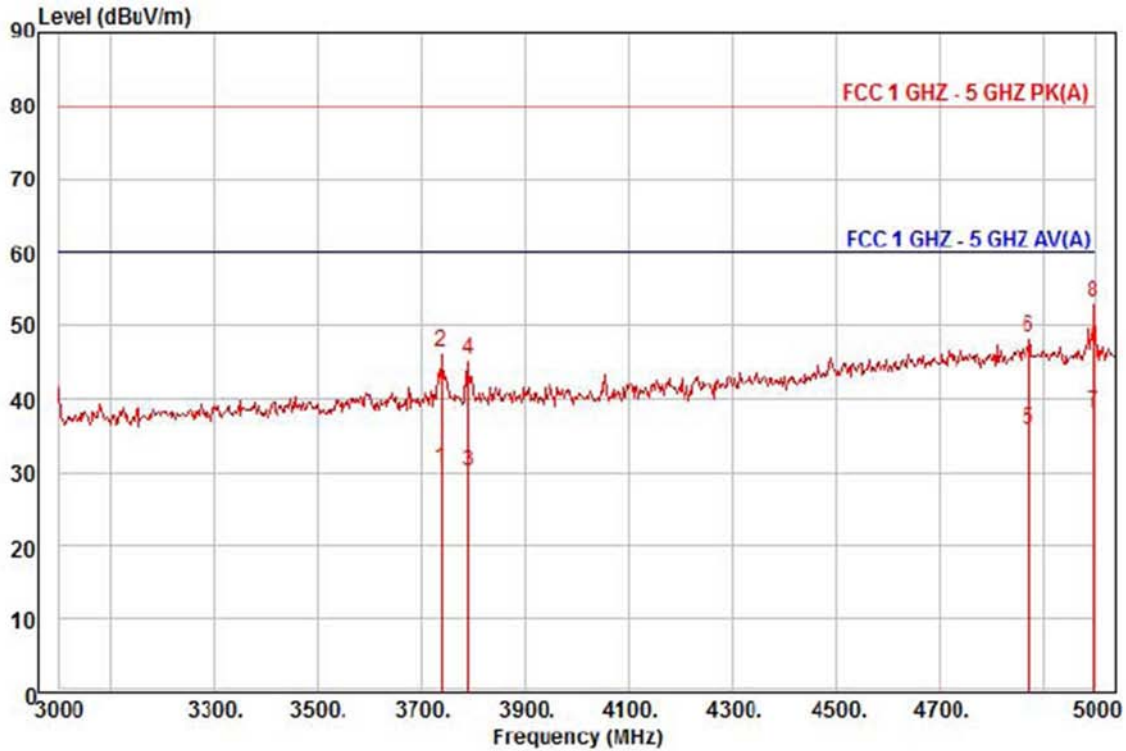
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNV-7080RN
Mode : DC 12 V
Memo : 3 ~ 5 GHz

	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	3738.00	26.47	31.57	12.99	40.36	88	60.00	-29.33	vertical	Average
2	3738.00	42.18	31.57	12.99	40.36	88	80.00	-33.62	vertical	Peak
3	3789.00	25.69	31.66	13.09	40.37	97	60.00	-29.93	vertical	Average
4	3789.00	41.08	31.66	13.09	40.37	97	80.00	-34.54	vertical	Peak
5	4872.00	24.18	36.99	15.10	40.41	279	60.00	-24.14	vertical	Average
6	4872.00	36.58	36.99	15.10	40.41	279	80.00	-31.74	vertical	Peak
7 pp	4998.00	25.34	37.71	15.33	40.41	268	60.00	-22.03	vertical	Average
8 pk	4998.00	40.53	37.71	15.33	40.41	268	80.00	-26.84	vertical	Peak

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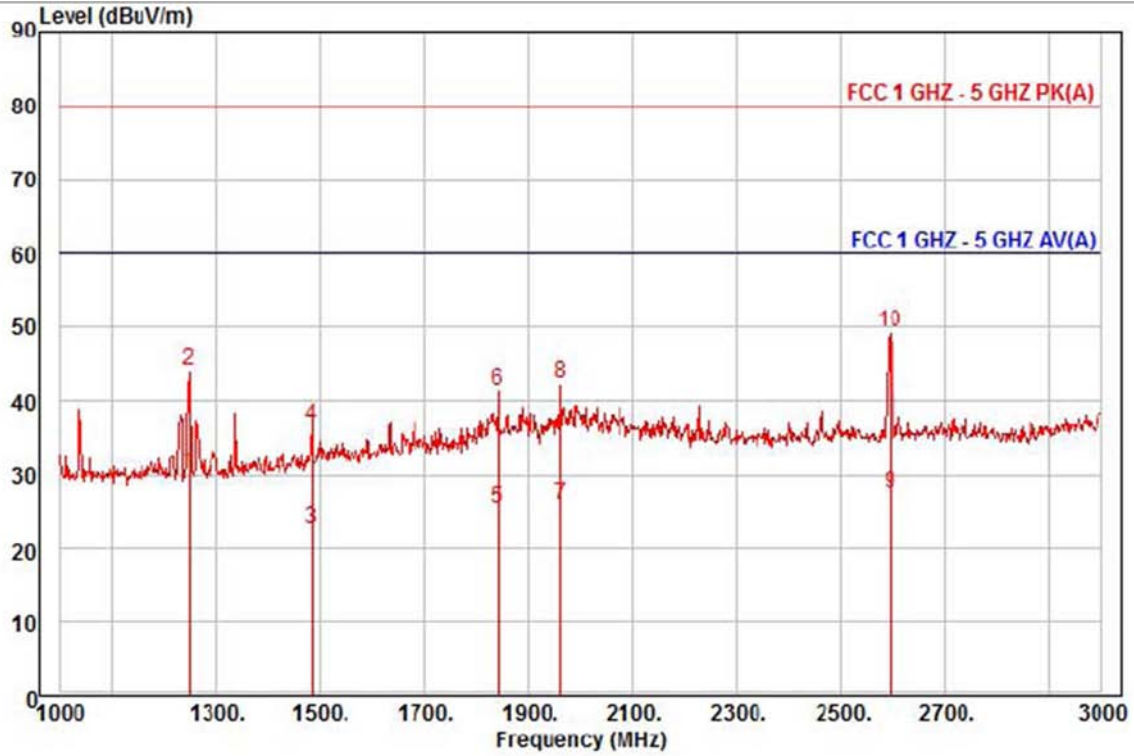


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- PoE Mode



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 : NETWORK CAMERA
Model : QNV-7080RN
Mode : PoE
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 pp	1248.00	38.04	24.89	7.23	40.00	298	60.00	-29.84	horizontal	Average
2	1248.00	52.14	24.89	7.23	40.00	298	80.00	-35.74	horizontal	Peak
3	1484.00	28.95	25.83	7.91	39.88	171	60.00	-37.19	horizontal	Average
4	1484.00	42.65	25.83	7.91	39.88	171	80.00	-43.49	horizontal	Peak
5	1842.00	29.05	27.25	8.92	39.71	235	60.00	-34.49	horizontal	Average
6	1842.00	45.06	27.25	8.92	39.71	235	80.00	-38.48	horizontal	Peak
7	1962.00	28.59	27.73	9.25	39.65	237	60.00	-34.08	horizontal	Average
8	1962.00	45.01	27.73	9.25	39.65	237	80.00	-37.66	horizontal	Peak
9	2596.00	27.78	29.34	10.26	39.98	229	60.00	-32.60	horizontal	Average
10 pk	2596.00	49.55	29.34	10.26	39.98	229	80.00	-30.83	horizontal	Peak

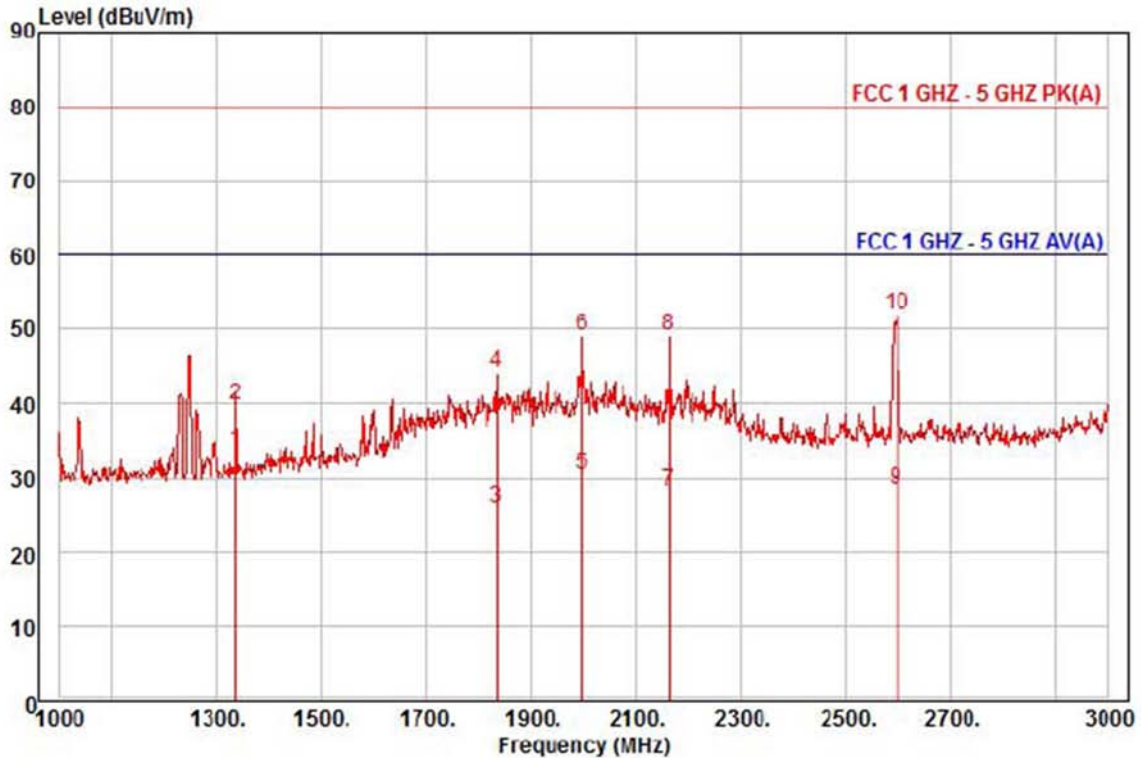
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNV-7080RN
Mode : PoE
Memo : 1 ~ 3 GHz

		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 pp	1336.00	40.92	25.24	7.48	39.96	351	60.00	-26.32	vertical	Average
2	1336.00	46.87	25.24	7.48	39.96	351	80.00	-40.37	vertical	Peak
3	1836.00	29.68	27.23	8.90	39.71	131	60.00	-33.90	vertical	Average
4	1836.00	47.61	27.23	8.90	39.71	131	80.00	-35.97	vertical	Peak
5	1998.00	32.80	27.87	9.34	39.63	32	60.00	-29.62	vertical	Average
6	1998.00	51.52	27.87	9.34	39.63	32	80.00	-30.90	vertical	Peak
7	2162.00	30.00	28.28	9.60	39.72	24	60.00	-31.84	vertical	Average
8	2162.00	50.91	28.28	9.60	39.72	24	80.00	-30.93	vertical	Peak
9	2598.00	28.89	29.35	10.27	39.98	241	60.00	-31.47	vertical	Average
10 pk	2598.00	52.31	29.35	10.27	39.98	241	80.00	-28.05	vertical	Peak

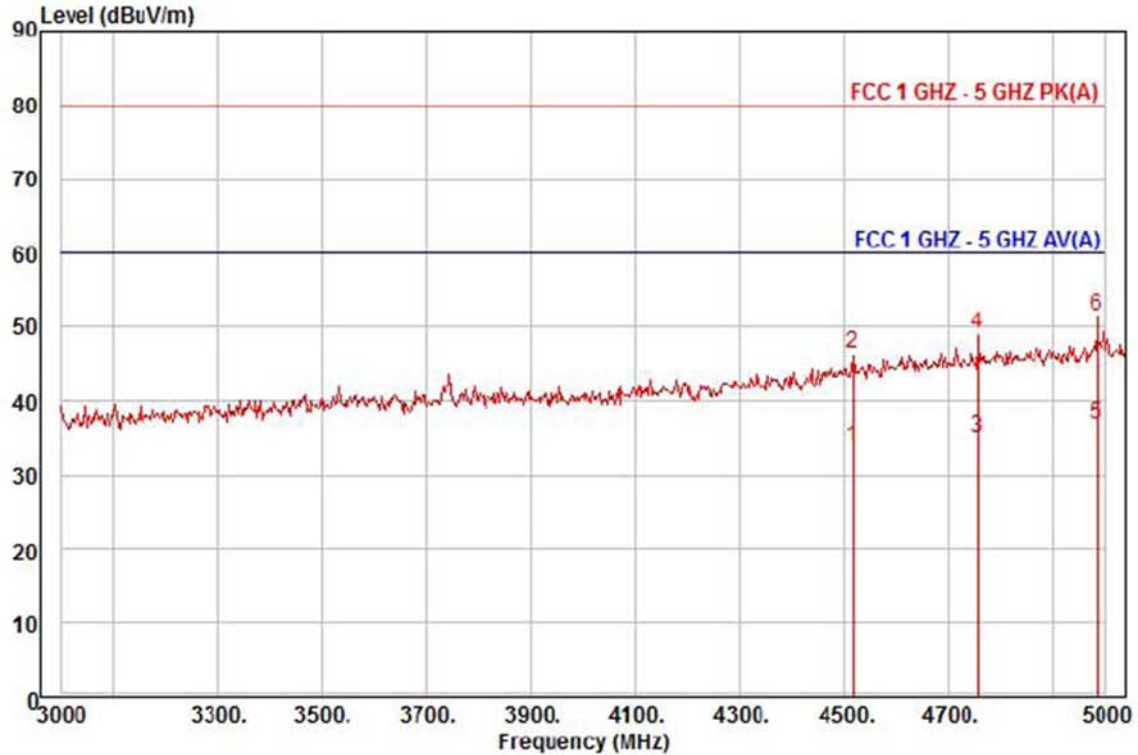
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNV-7080RN
Mode : PoE
Memo : 3 ~ 5 GHz

	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	4518.00	24.71	34.97	14.46	40.41	292	60.00	-26.27	horizontal	Average
2	4518.00	37.28	34.97	14.46	40.41	292	80.00	-33.70	horizontal	Peak
3	4758.00	24.33	36.34	14.89	40.41	181	60.00	-24.85	horizontal	Average
4	4758.00	38.18	36.34	14.89	40.41	181	80.00	-31.00	horizontal	Peak
5 pp	4983.00	24.37	37.62	15.30	40.41	118	60.00	-23.12	horizontal	Average
6 pk	4983.00	38.91	37.62	15.30	40.41	118	80.00	-28.58	horizontal	Peak

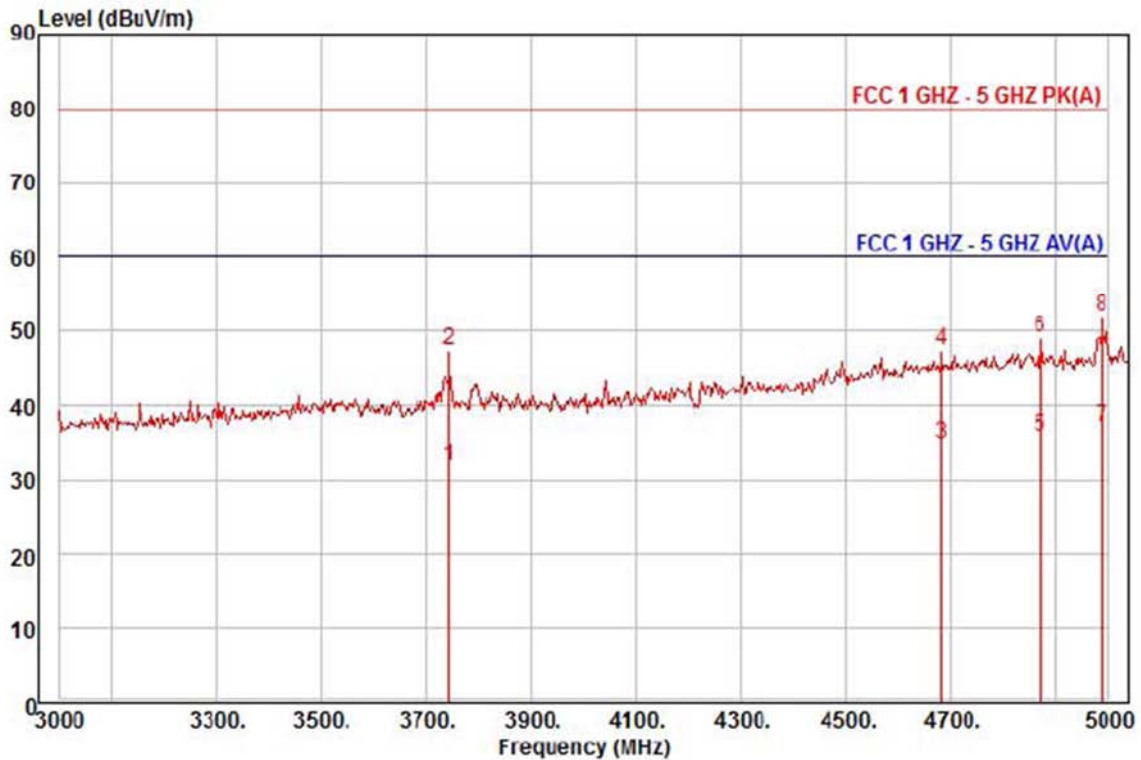
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNV-7080RN
Mode : PoE
Memo : 3 ~ 5 GHz

		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	3744.00	27.69	31.58	13.00	40.36	86	60.00	-28.09	vertical	Average
2	3744.00	43.00	31.58	13.00	40.36	86	80.00	-32.78	vertical	Peak
3	4683.00	24.53	35.91	14.76	40.41	198	60.00	-25.21	vertical	Average
4	4683.00	37.02	35.91	14.76	40.41	198	80.00	-32.72	vertical	Peak
5	4872.00	24.17	36.99	15.10	40.41	109	60.00	-24.15	vertical	Average
6	4872.00	37.27	36.99	15.10	40.41	109	80.00	-31.05	vertical	Peak
7 pp	4989.00	24.54	37.66	15.31	40.41	95	60.00	-22.90	vertical	Average
8 pk	4989.00	39.36	37.66	15.31	40.41	95	80.00	-28.08	vertical	Peak

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Test Setup Photos and Configuration

Conducted Voltage Emissions

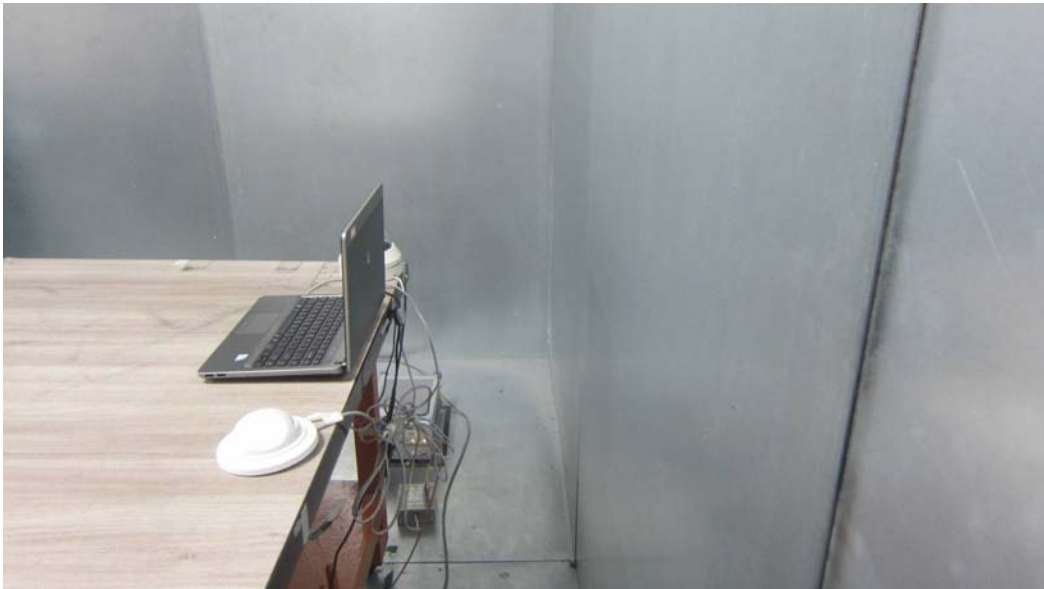
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Conducted Telecommunication Emissions

- DC 12 V Mode



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- PoE Mode



Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode



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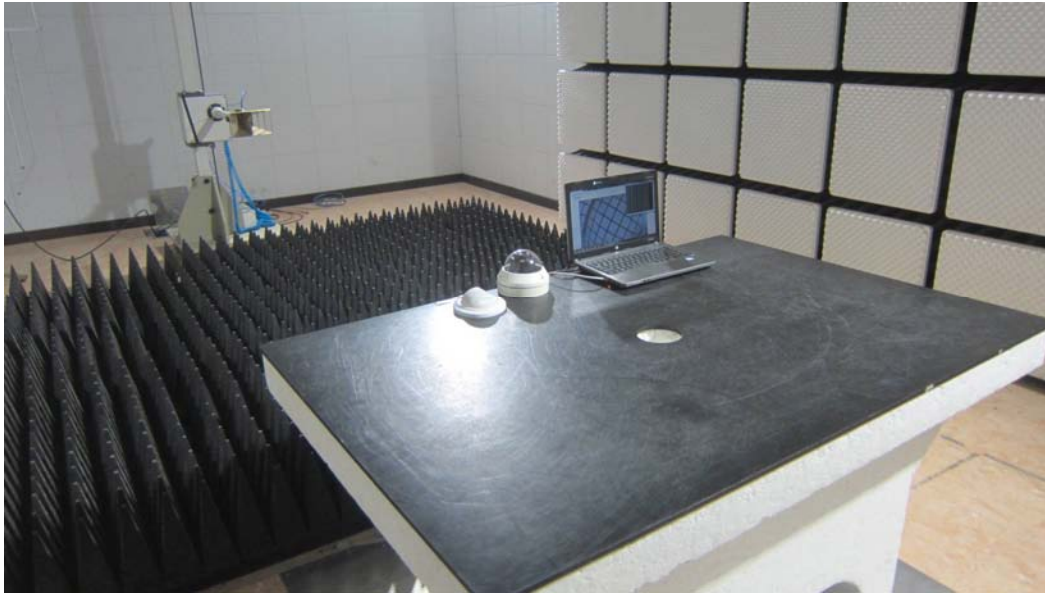
- PoE Mode



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Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V 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)



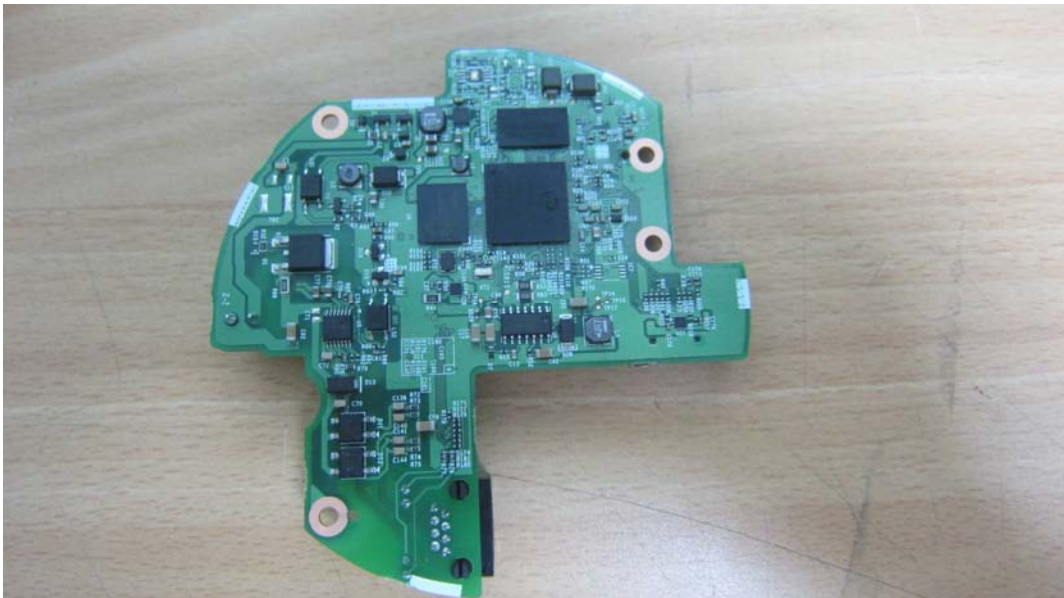
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EUT Internal View – MAIN BOARD

(Top)



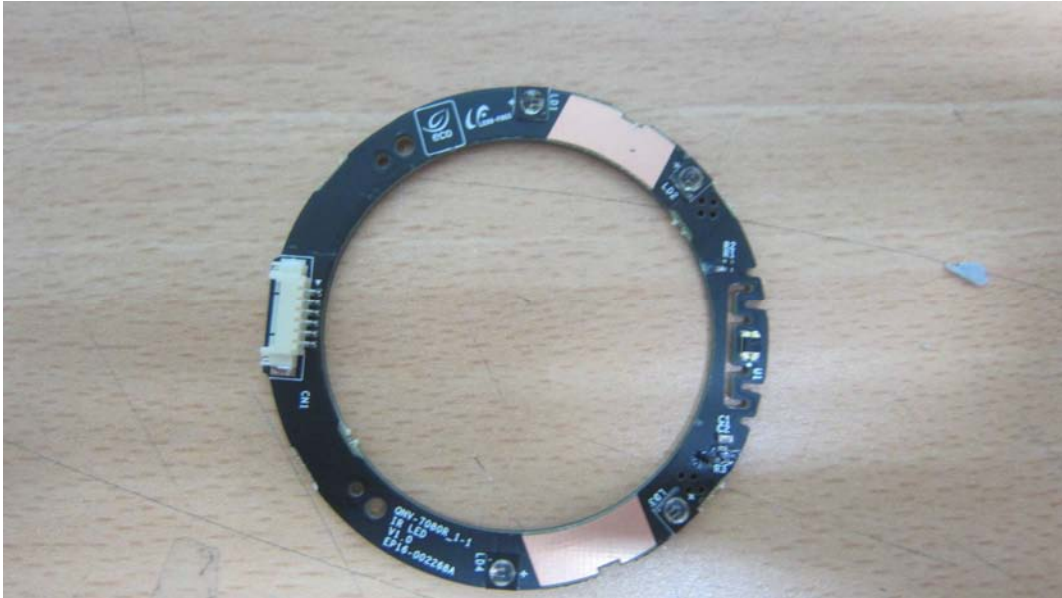
(Bottom)



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EUT Internal View – IR BOARD

(Top)



(Bottom)

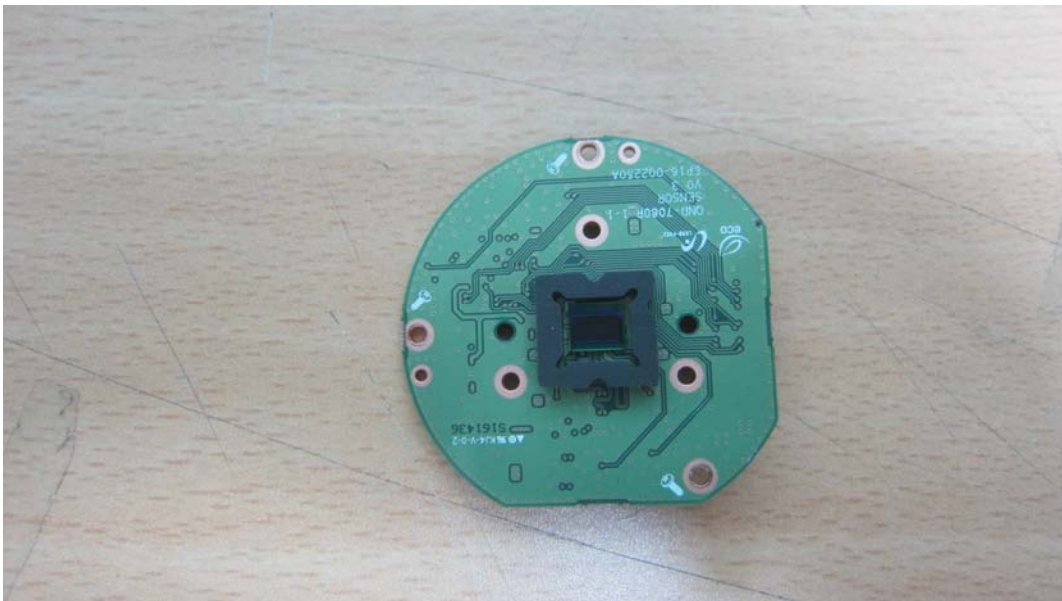


EUT Internal View – SUB BOARD

(Top)



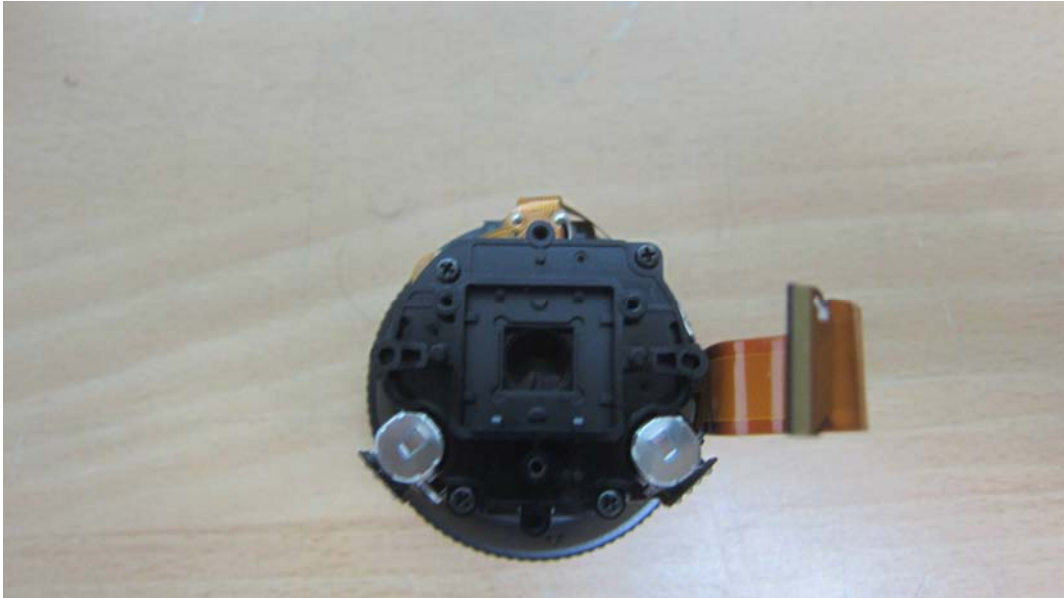
(Bottom)



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EUT Internal View – Lens

(Top)



(Bottom)



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