



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0309
Date of Issue : Jul. 06, 2016
Product name : NETWORK CAMERA
7
Model/Type No. : QNO-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. 29, 2016 - Jul. 01, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Il, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

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KES-E1-16T0309
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REPORT REVISION HISTORY

Date	Revision	Page No
Jul. 06, 2016	KES-E1-16T0309	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QNO-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
Tilt Range	0
Rotate Range	0
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
Highlight Compensation	(미지원)
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

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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 3M all resolutions H.264 : Max 20fps at 4M, Max 30fps at 3M 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 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
Pixel Counter	Support (plug-in viewer only)

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Environmental	
Operating Temperature / Hum	-30°C ~ +55°C / Less than 90% RH * Start up should be done at above -20°C
Storage Temperature / Humidi	-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.8W(PoE), Max.7W(DC12V)
Mechanical	
Color / Material	Gray / Metal
Dimension (WxHxD)	φ70.0x246mm
Weight	750g

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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	QNO-7080RN	-	Hanwha Techwin Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	NT63025J	JK9091EF400432X	SAMSUNG ELECTRONICS CO., LTD.	-
Notebook Adapter	A13-040N2A	CN60BA4400313AD0 N843KO243	Chicony Power Technology (suzhou)Co., Ltd.	-
Alarm Jig	SIE-0001 D0	-	-	-
PoE Adapter	POE36U-1AT-R	-	PHIHONG	-
MIC	CMK-303	-	CAMAC	-

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)	RJ-45	Notebook	RJ-45	3.0	U
	Audio IN	MIC	Audio IN	1.9	U
	Alarm	Alarm Jig	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)	RJ-45	PoE Adapter	RJ-45	3.0	U
	Audio IN	MIC	Audio IN	1.9	U
	Alarm	Alarm Jig	Alarm	3.0	U
PoE Adapter	RJ-45	Notebook	RJ-45	1.2	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

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

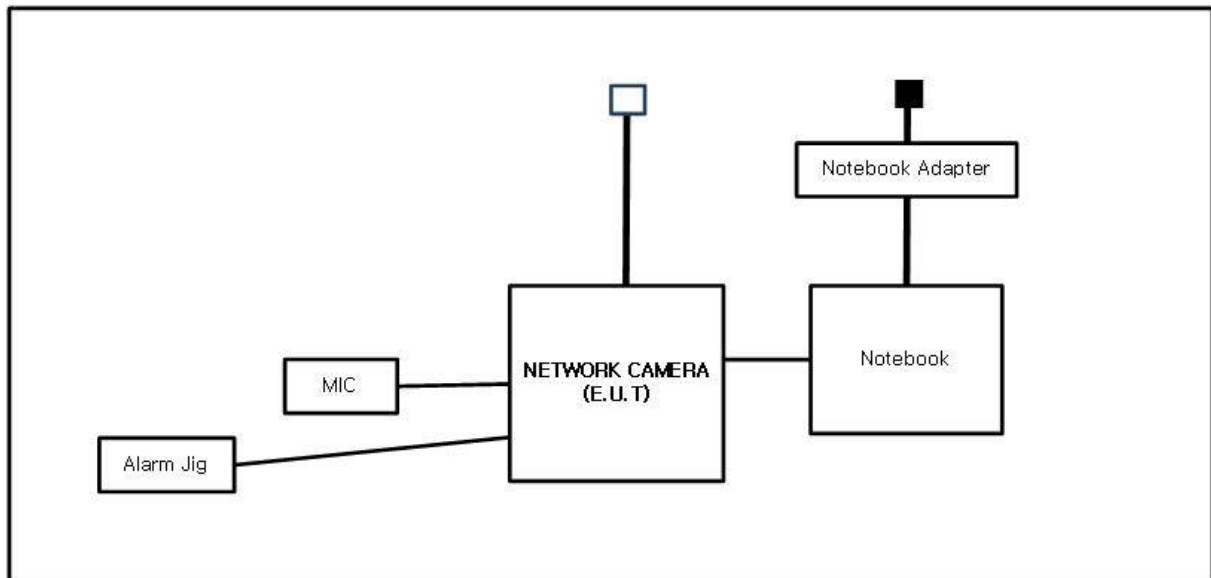
Test mode	Normal operating
OP	MONITORING PING TEST

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

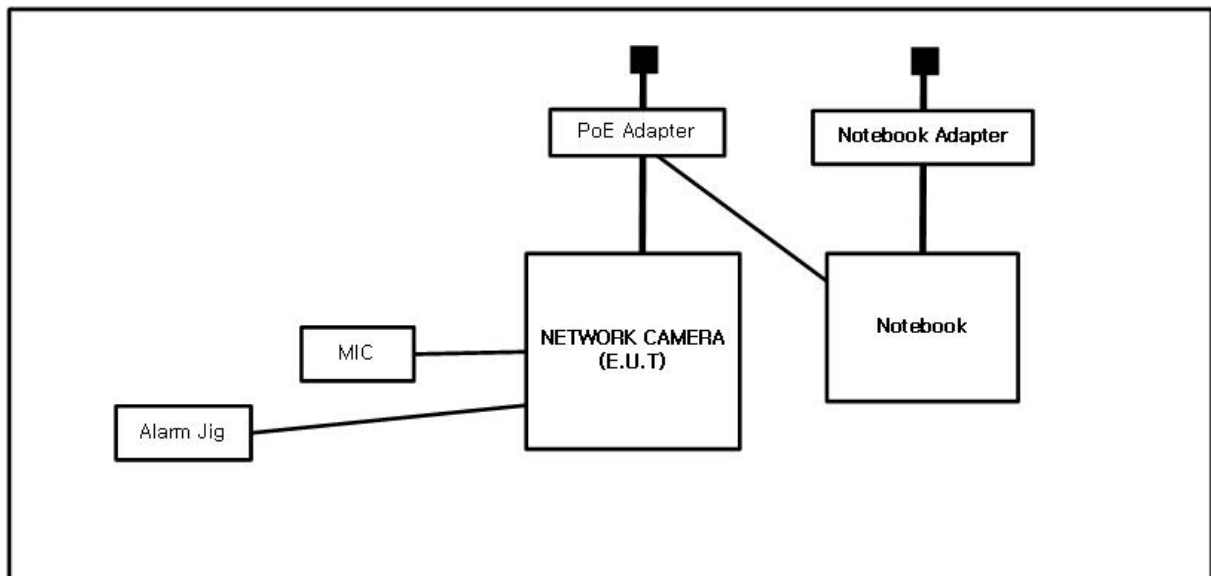
1.8 Configuration

■ 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 checked="" type="checkbox"/> VCCI V-3 / 2015.04 | <input checked="" 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 type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009 | | |
| <input type="checkbox"/> IC Regulation ICES-003 : 2016 | | |
| <input type="checkbox"/> CAN/CSA CISPR 22-10 | <input 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 at 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

Jun. 29, 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: 23,8 °C

Relative Humidity: 49,2 %

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. 01, 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	-	DAEIL EMC	-	-
<input checked="" type="checkbox"/>	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 20,4 °C

Relative Humidity: 76,0 %

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. 01, 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: 23,7 °C
Relative Humidity: 53,4 %

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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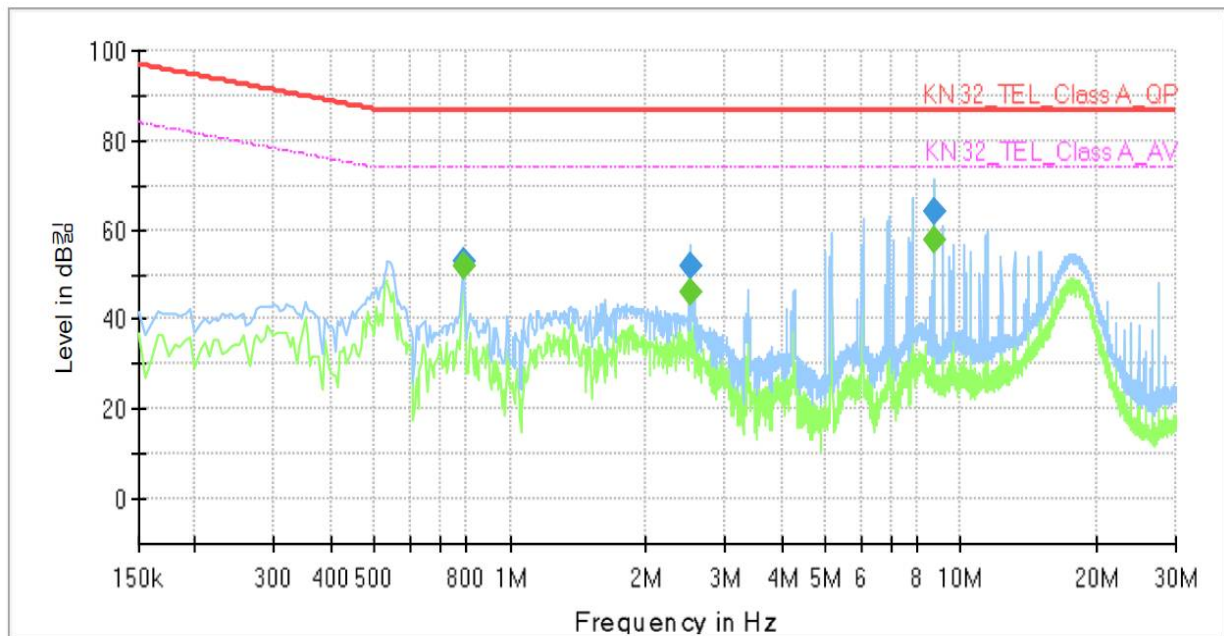
Conducted Emissions at Telecommunication Ports

- DC 12 V Mode

[10 Mbps]

Common Information

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



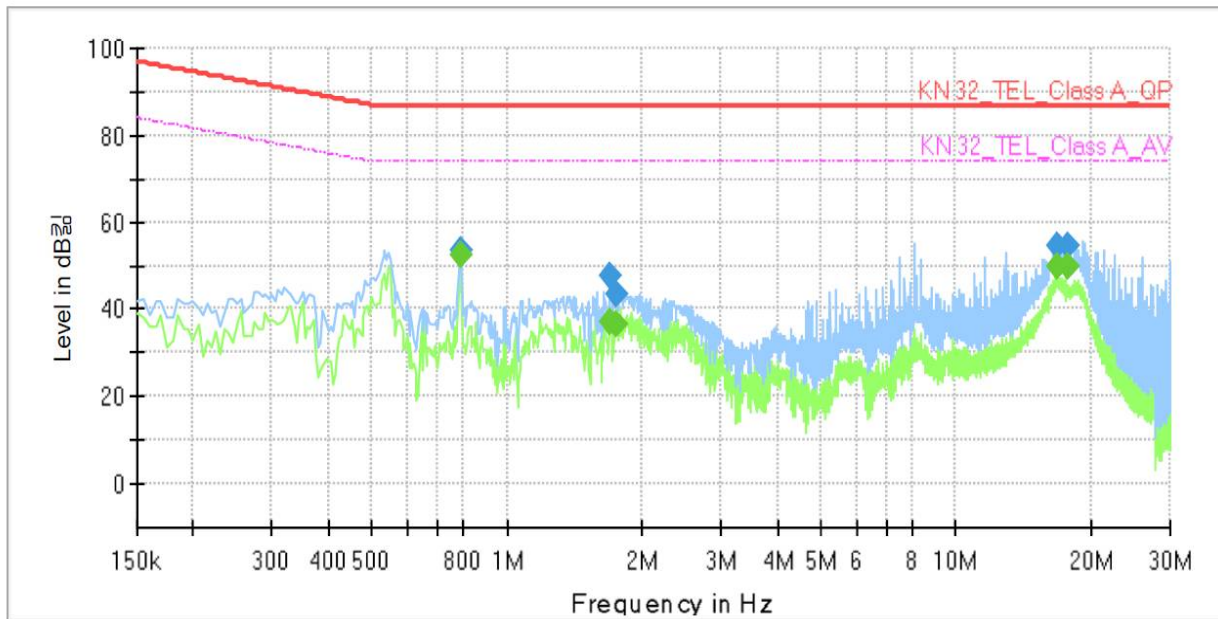
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.785000	---	52.08	74.00	21.92	1000.0	9.000	Single Line	9.9
0.785000	53.06	---	87.00	33.94	1000.0	9.000	Single Line	9.9
2.500000	---	46.03	74.00	27.97	1000.0	9.000	Single Line	9.8
2.500000	51.99	---	87.00	35.01	1000.0	9.000	Single Line	9.8
8.750000	---	57.79	74.00	16.21	1000.0	9.000	Single Line	10.0
8.750000	64.05	---	87.00	22.95	1000.0	9.000	Single Line	10.0

[100 Mbps]

Common Information

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



Final Result

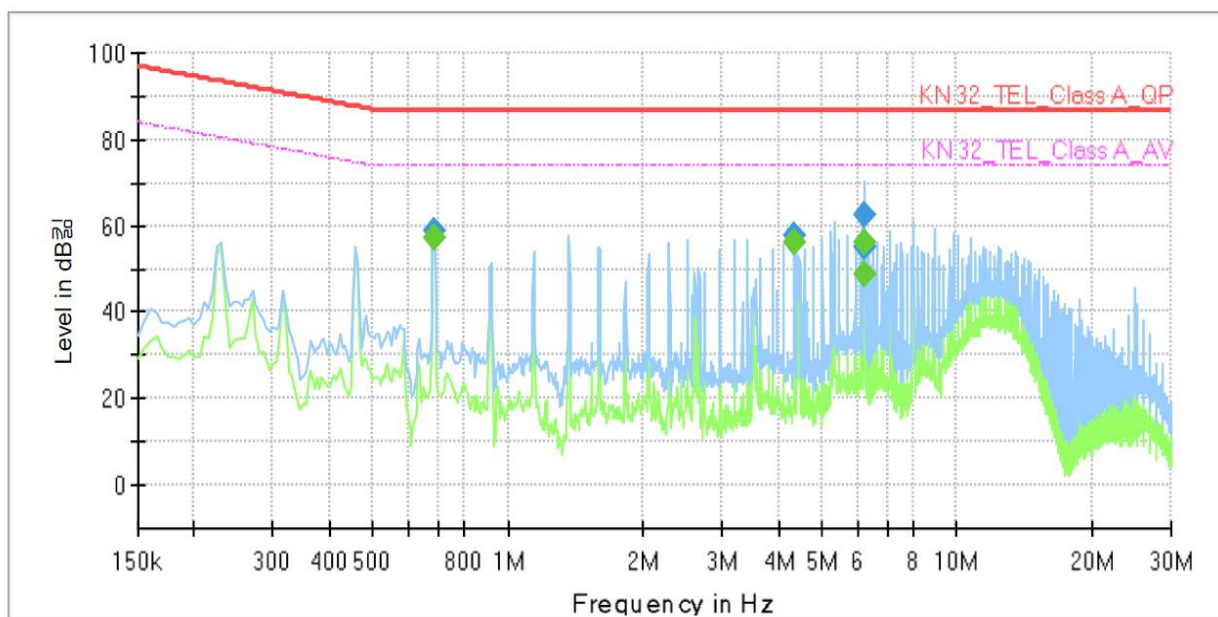
Frequency (MHz)	QuasiPeak (dBm)	CAverage (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.785000	---	52.35	74.00	21.65	1000.0	9.000	Single Line	9.4
0.785000	53.43	---	87.00	33.57	1000.0	9.000	Single Line	9.4
1.690000	---	37.18	74.00	36.82	1000.0	9.000	Single Line	9.3
1.690000	47.63	---	87.00	39.37	1000.0	9.000	Single Line	9.3
1.755000	---	36.69	74.00	37.31	1000.0	9.000	Single Line	9.3
1.755000	43.17	---	87.00	43.83	1000.0	9.000	Single Line	9.3
16.810000	---	49.69	74.00	24.31	1000.0	9.000	Single Line	9.6
16.810000	54.39	---	87.00	32.61	1000.0	9.000	Single Line	9.6
17.830000	---	49.96	74.00	24.04	1000.0	9.000	Single Line	9.5
17.830000	54.43	---	87.00	32.57	1000.0	9.000	Single Line	9.5

- PoE Mode

[10 Mbps]

Common Information

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



Final Result

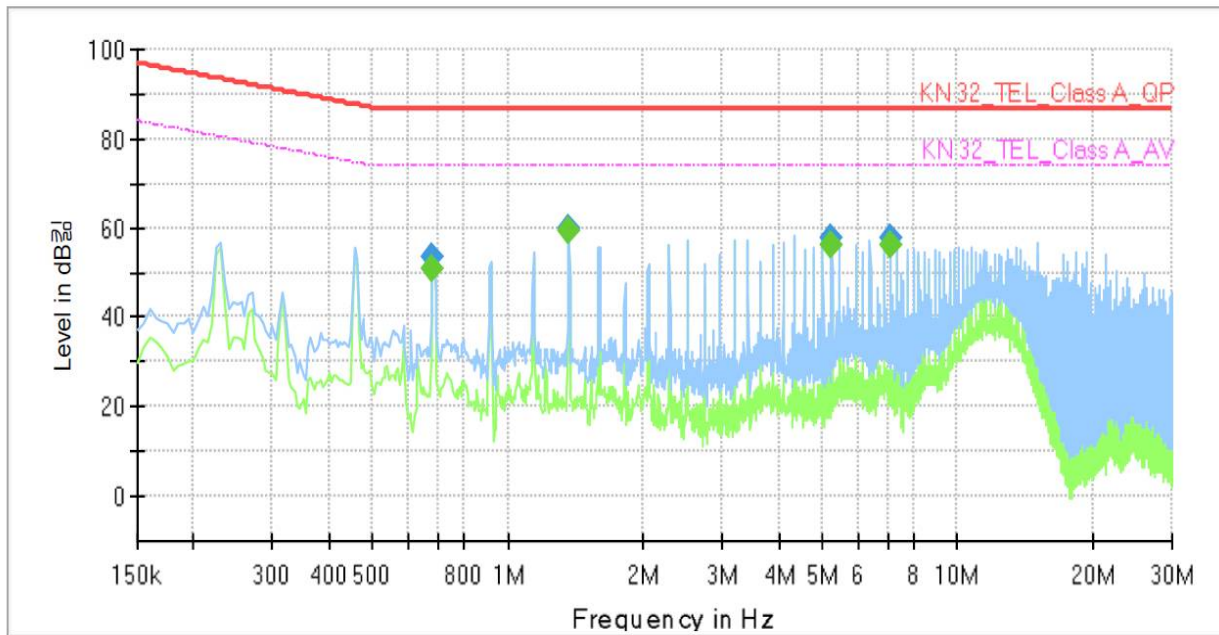
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.685000	---	57.13	74.00	16.87	1000.0	9.000	Single Line	9.9
0.685000	59.01	---	87.00	27.99	1000.0	9.000	Single Line	9.9
4.335000	---	56.06	74.00	17.94	1000.0	9.000	Single Line	9.8
4.335000	57.44	---	87.00	29.56	1000.0	9.000	Single Line	9.8
6.245000	---	48.74	74.00	25.26	1000.0	9.000	Single Line	9.9
6.245000	54.84	---	87.00	32.16	1000.0	9.000	Single Line	9.9
6.250000	---	56.14	74.00	17.86	1000.0	9.000	Single Line	9.9
6.250000	62.22	---	87.00	24.78	1000.0	9.000	Single Line	9.9

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[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNO-7080RN
Mode: PoE_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)
0.680000	---	51.04	74.00	22.96	1000.0	9.000	Single Line	9.4
0.680000	53.27	---	87.00	33.73	1000.0	9.000	Single Line	9.4
1.370000	---	59.34	74.00	14.66	1000.0	9.000	Single Line	9.3
1.370000	59.70	---	87.00	27.30	1000.0	9.000	Single Line	9.3
5.250000	---	55.99	74.00	18.01	1000.0	9.000	Single Line	9.4
5.250000	57.71	---	87.00	29.29	1000.0	9.000	Single Line	9.4
7.075000	---	56.11	74.00	17.89	1000.0	9.000	Single Line	9.5
7.075000	57.74	---	87.00	29.26	1000.0	9.000	Single Line	9.5

**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]
146.88	7.87	V	1.20	8.12	2.44	18.43	40.00	21.57
155.49	9.54	V	1.00	8.36	2.57	20.47	40.00	19.53
230.25	7.23	H	3.85	12.12	3.15	22.50	47.00	24.50
319.25	6.03	H	4.00	13.82	3.78	23.63	47.00	23.37
327.88	7.31	H	3.90	14.00	3.81	25.12	47.00	21.88
368.64	7.94	V	1.00	14.89	4.01	26.84	47.00	20.16

* H : Horizontal, V : Vertical

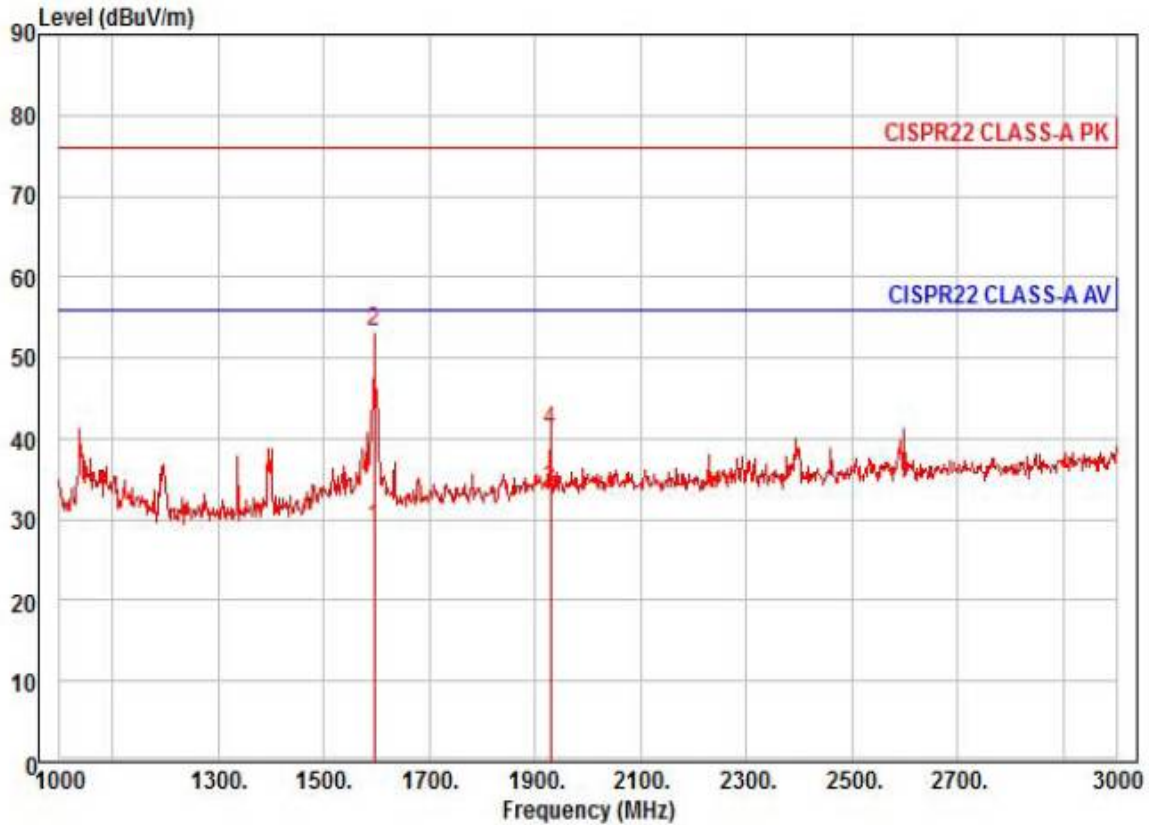
- PoE Mode

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]
123.54	10.02	H	4.00	9.35	2.17	21.54	40.00	18.46
150.47	7.64	V	1.00	8.22	2.48	18.34	40.00	21.66
231.22	7.33	H	3.85	12.14	3.16	22.63	47.00	24.37
241.55	7.34	V	1.12	12.37	3.25	22.96	47.00	24.04
312.25	6.45	V	1.00	13.67	3.75	23.87	47.00	23.13
361.29	6.01	H	4.00	14.73	3.96	24.70	47.00	22.30

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-7080RN
Mode : DC 12 V
Memo :

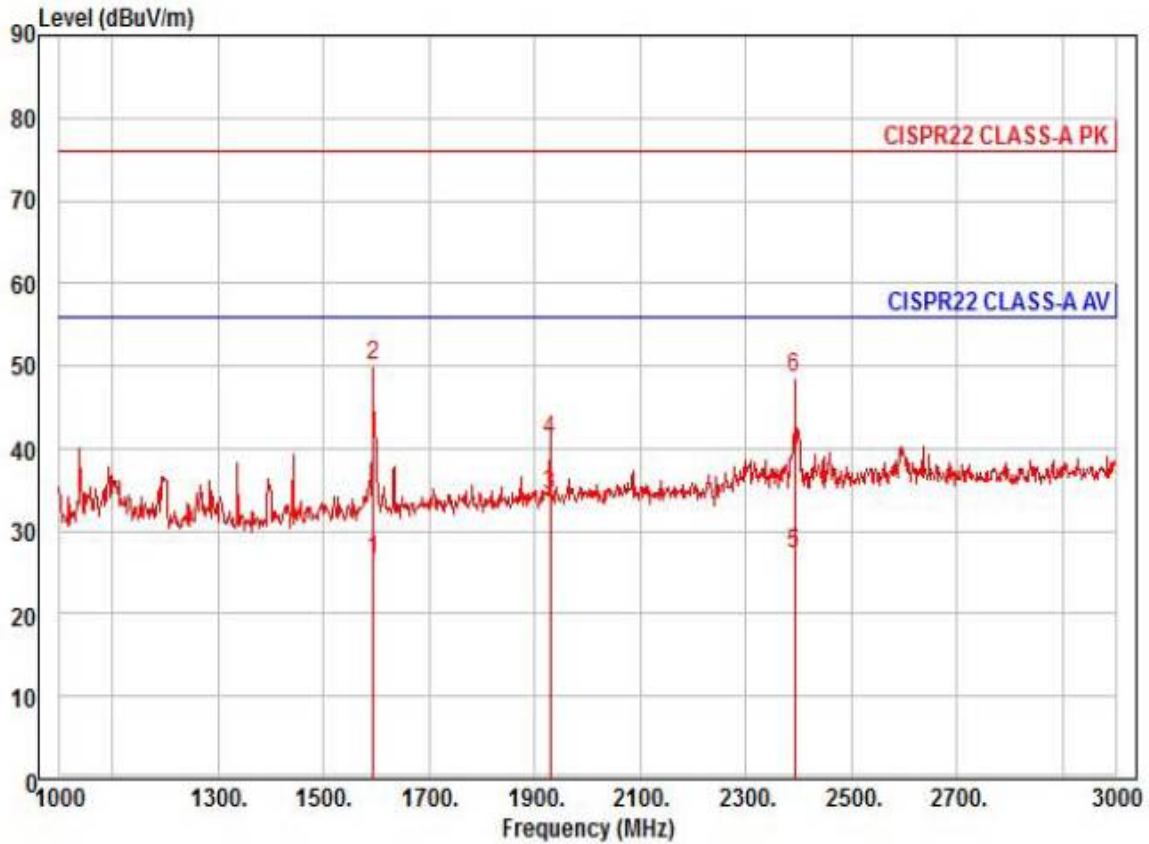
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1596.00	34.22	26.28	8.24	39.83	110	56.00	-27.09	horizontal	Average
2 pk	1596.00	58.49	26.28	8.24	39.83	110	76.00	-22.82	horizontal	Peak
3 pp	1930.00	36.55	27.60	9.16	39.66	204	56.00	-22.35	horizontal	Average
4	1930.00	43.86	27.60	9.16	39.66	204	76.00	-35.04	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 : QNO-7080RN
Mode : DC 12 V
Memo :

		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	1594.00	31.71	26.27	8.23	39.83	235	56.00	-29.62	vertical	Average
2 pk	1594.00	55.28	26.27	8.23	39.83	235	76.00	-26.05	vertical	Peak
3 pp	1930.00	37.24	27.60	9.16	39.66	196	56.00	-21.66	vertical	Average
4	1930.00	43.95	27.60	9.16	39.66	196	76.00	-34.95	vertical	Peak
5	2392.00	28.27	28.84	9.95	39.86	213	56.00	-28.80	vertical	Average
6	2392.00	49.58	28.84	9.95	39.86	213	76.00	-27.49	vertical	Peak

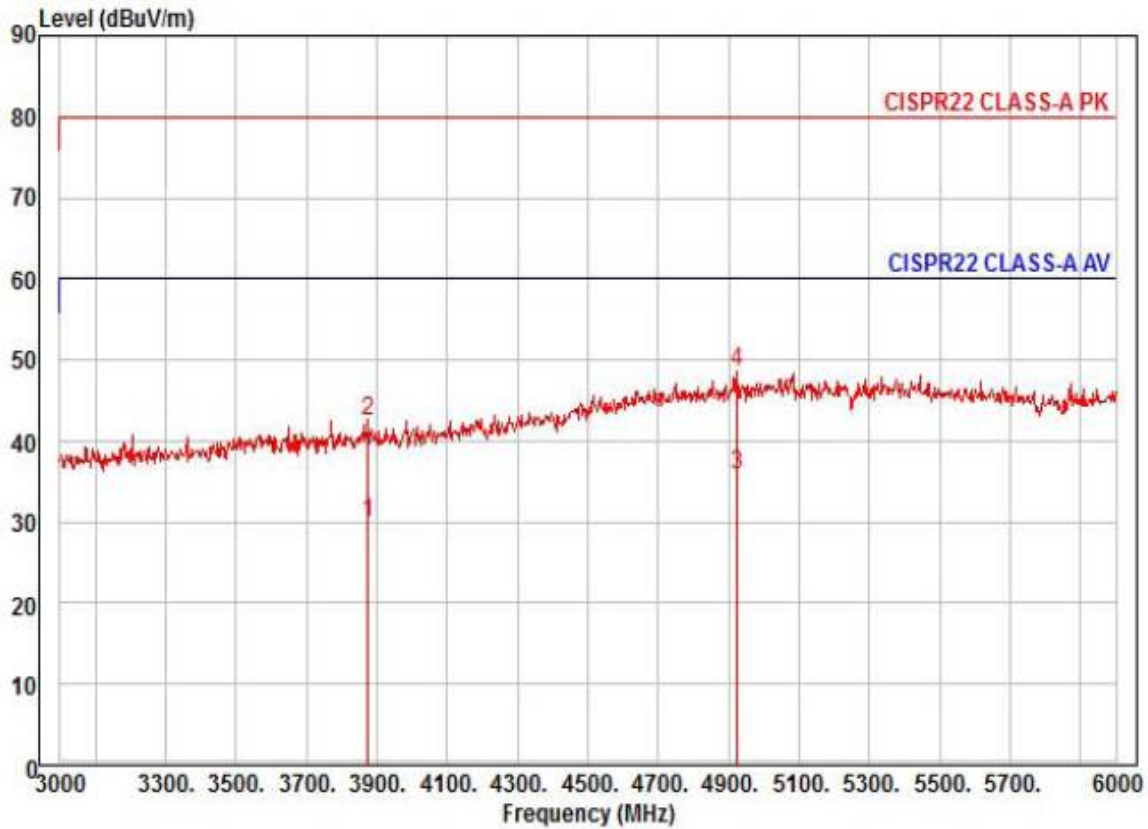
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Test report No.:
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-7080RN
Mode : DC 12 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3876.00	25.35	31.80	13.26	40.39	122	60.00	-29.98	horizontal	Average
2	3876.00	37.84	31.80	13.26	40.39	122	80.00	-37.49	horizontal	Peak
3 pp	4923.00	23.82	37.28	15.19	40.41	247	60.00	-24.12	horizontal	Average
4 pk	4923.00	36.56	37.28	15.19	40.41	247	80.00	-31.38	horizontal	Peak

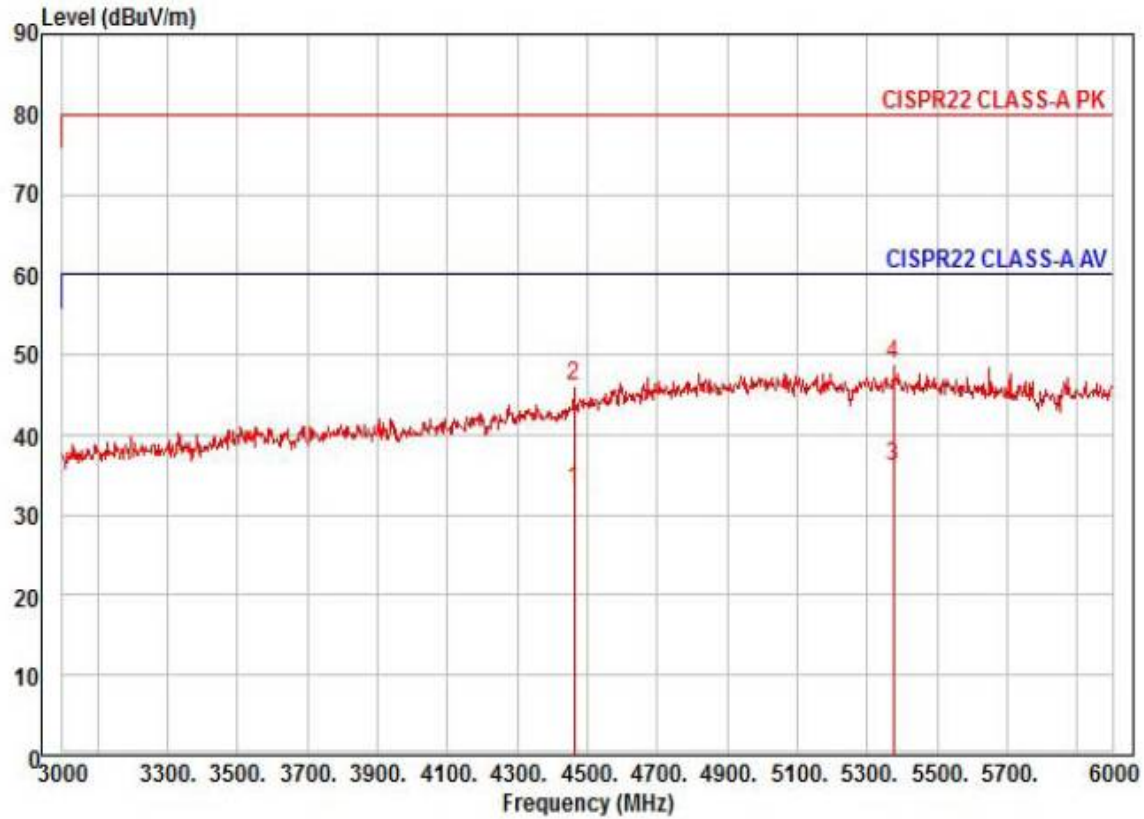
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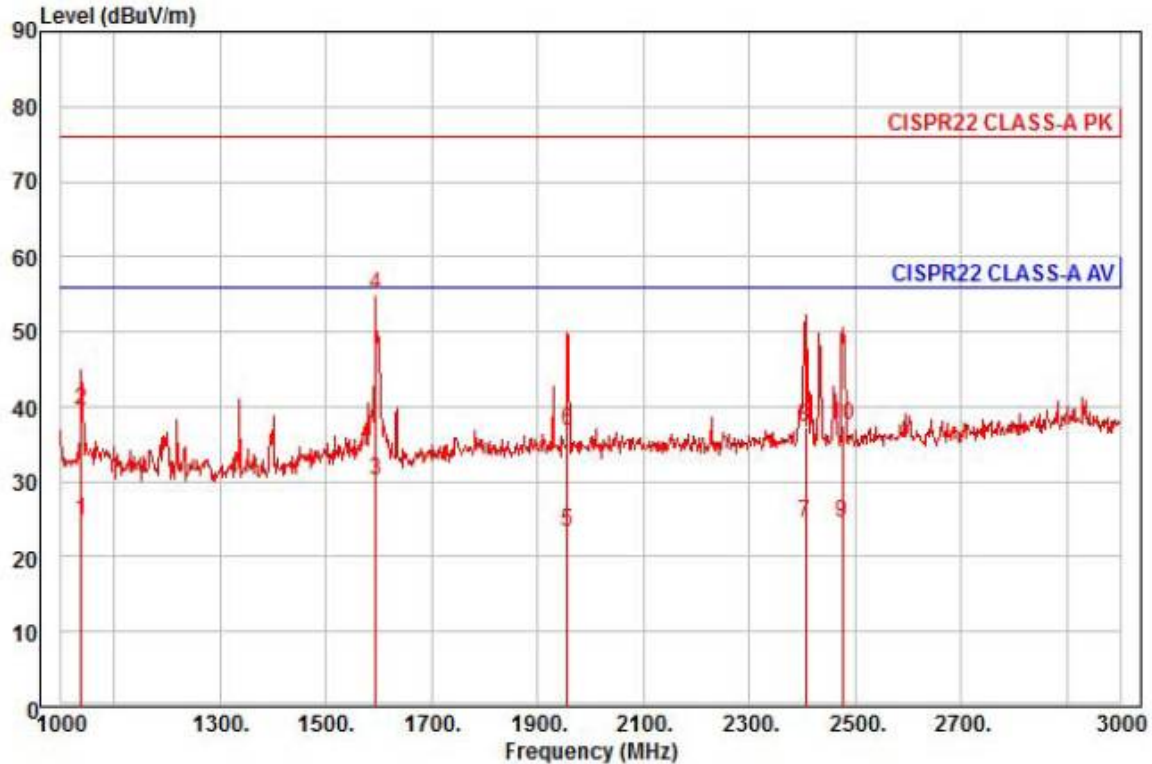


Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-7080RN
Mode : DC 12 V
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	4461.00	24.55	34.64	14.36	40.41	270	60.00	-26.86	vertical	Average
2	4461.00	37.60	34.64	14.36	40.41	270	80.00	-33.81	vertical	Peak
3 pp	5376.00	23.60	36.96	15.77	40.36	322	60.00	-24.03	vertical	Average
4 pk	5376.00	36.33	36.96	15.77	40.36	322	80.00	-31.30	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 : QNO-7080RN
Mode : PoE
Memo :

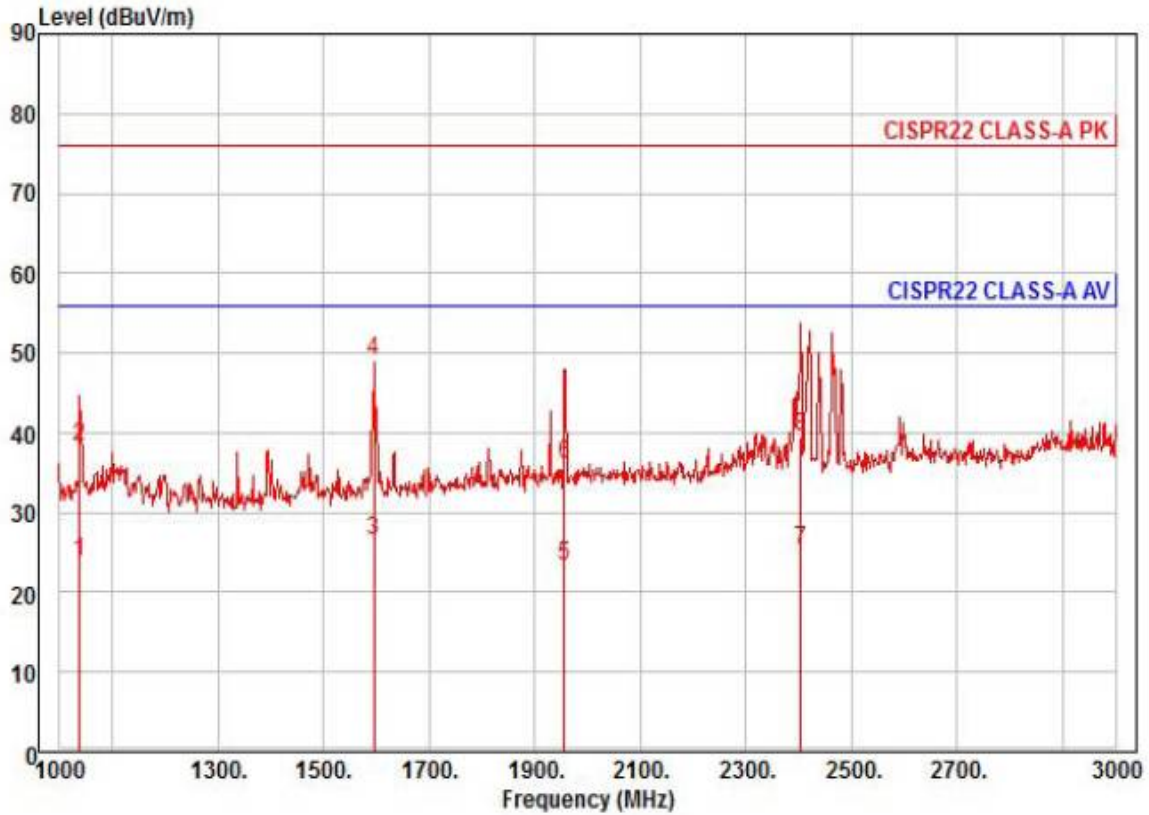
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1038.00	34.15	24.06	6.62	40.10	60	56.00	-31.27	horizontal	Average
2	1038.00	48.81	24.06	6.62	40.10	60	76.00	-36.61	horizontal	Peak
3 av	1594.00	35.41	26.27	8.23	39.83	275	56.00	-25.92	horizontal	Average
4 pp	1594.00	60.32	26.27	8.23	39.83	275	76.00	-21.01	horizontal	Peak
5	1956.00	26.10	27.71	9.23	39.65	247	56.00	-32.61	horizontal	Average
6	1956.00	39.60	27.71	9.23	39.65	247	76.00	-39.11	horizontal	Peak
7	2406.00	25.56	28.87	9.97	39.87	345	56.00	-31.47	horizontal	Average
8	2406.00	38.34	28.87	9.97	39.87	345	76.00	-38.69	horizontal	Peak
9	2476.00	25.38	29.05	10.08	39.91	282	56.00	-31.40	horizontal	Average
10	2476.00	38.20	29.05	10.08	39.91	282	76.00	-38.58	horizontal	Peak



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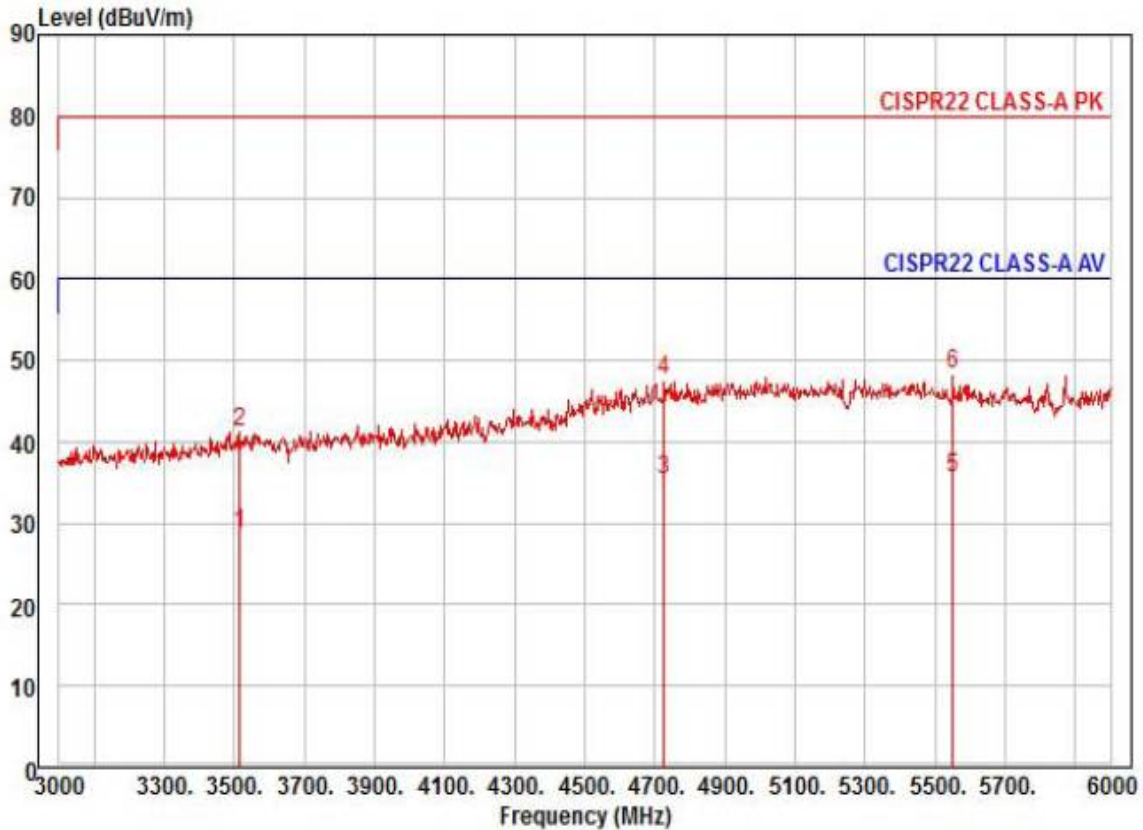
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-7080RN
Mode : PoE
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1038.00	33.15	24.06	6.62	40.10	336	56.00	-32.27	vertical	Average
2	1038.00	47.69	24.06	6.62	40.10	336	76.00	-37.73	vertical	Peak
3 av	1596.00	31.84	26.28	8.24	39.83	289	56.00	-29.47	vertical	Average
4 pp	1596.00	54.24	26.28	8.24	39.83	289	76.00	-27.07	vertical	Peak
5	1956.00	26.11	27.71	9.23	39.65	98	56.00	-32.60	vertical	Average
6	1956.00	38.88	27.71	9.23	39.65	98	76.00	-39.83	vertical	Peak
7	2404.00	26.40	28.87	9.97	39.86	162	56.00	-30.62	vertical	Average
8	2404.00	40.55	28.87	9.97	39.86	162	76.00	-36.47	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 :
Model : QNO-7080RN
Mode : PoE
Memo :

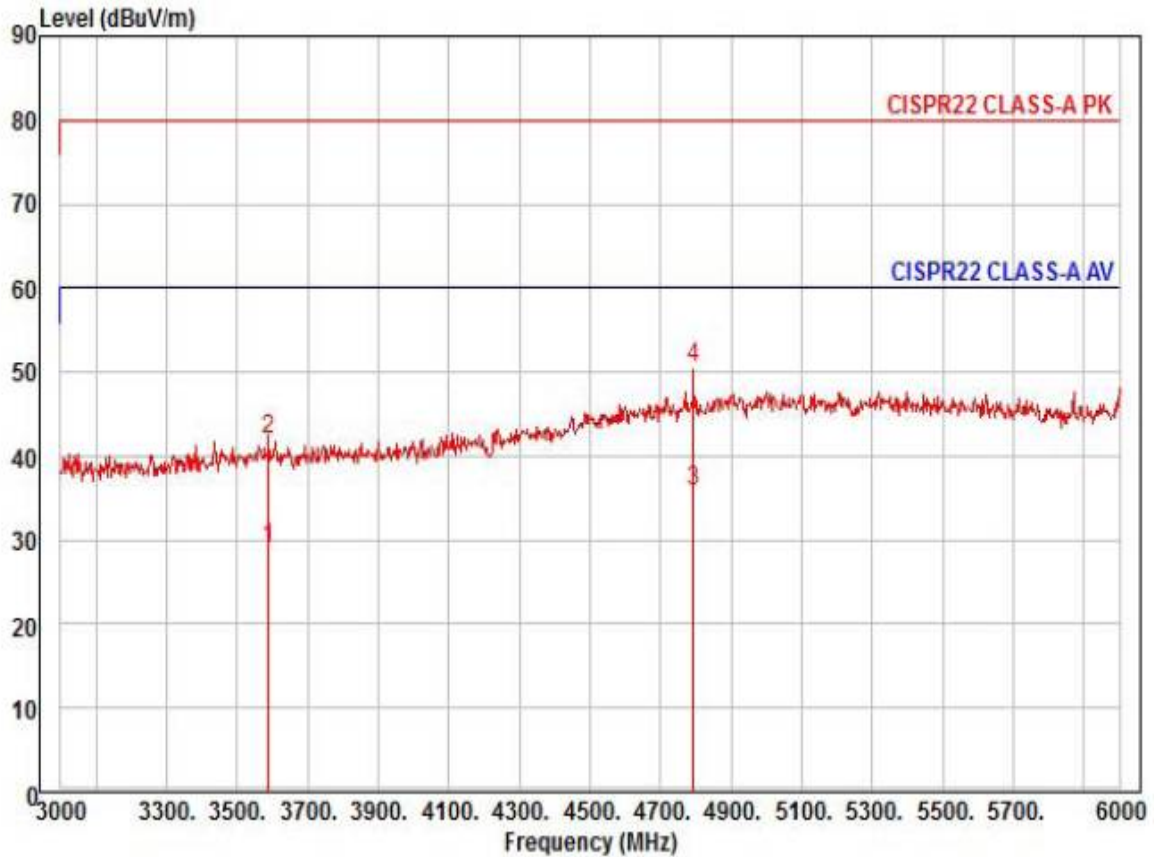
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3516.00	25.22	31.20	12.54	40.31	262	60.00	-31.35	horizontal	Average
2	3516.00	37.76	31.20	12.54	40.31	262	80.00	-38.81	horizontal	Peak
3	4725.00	24.68	36.15	14.84	40.41	225	60.00	-24.74	horizontal	Average
4	4725.00	36.93	36.15	14.84	40.41	225	80.00	-32.49	horizontal	Peak
5 pp	5550.00	23.33	36.61	16.01	40.33	89	60.00	-24.38	horizontal	Average
6 pk	5550.00	35.93	36.61	16.01	40.33	89	80.00	-31.78	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 : QNO-7080RN
Mode : PoE
Memo :

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3588.00	25.33	31.32	12.69	40.33	192	60.00	-30.99	vertical	Average
2	3588.00	38.29	31.32	12.69	40.33	192	80.00	-38.03	vertical	Peak
3 pp	4794.00	24.68	36.54	14.96	40.41	190	60.00	-24.23	vertical	Average
4 pk	4794.00	39.32	36.54	14.96	40.41	190	80.00	-29.59	vertical	Peak

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Test report No.:
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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

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Conducted Telecommunication Emissions

- DC 12 V Mode



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- PoE Mode



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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)



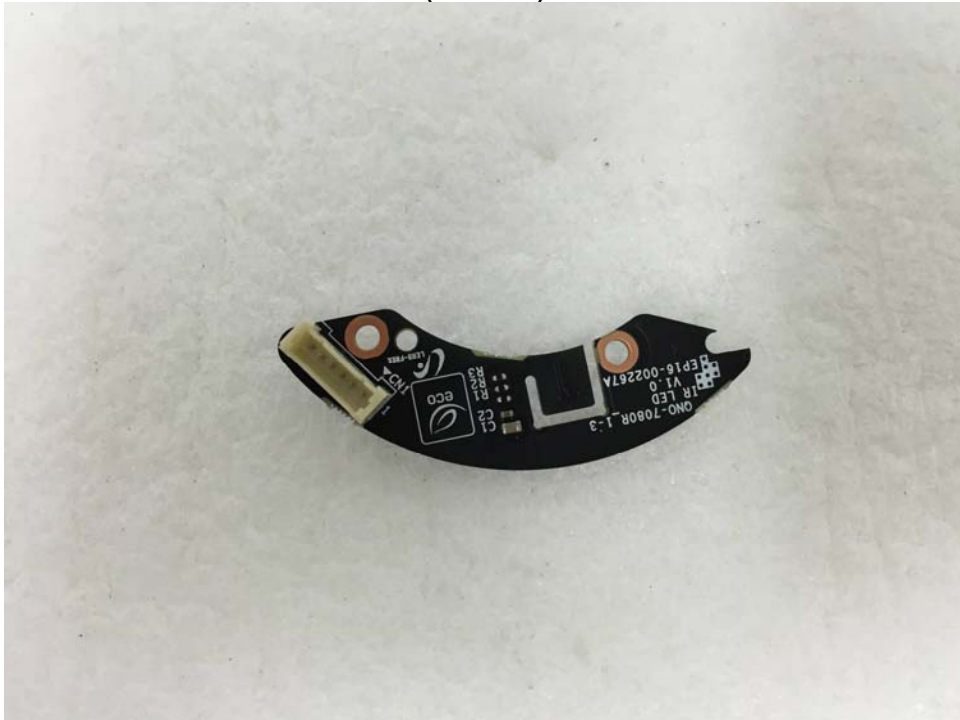
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EUT Internal View – SUB BOARD1

(Top)



(Bottom)



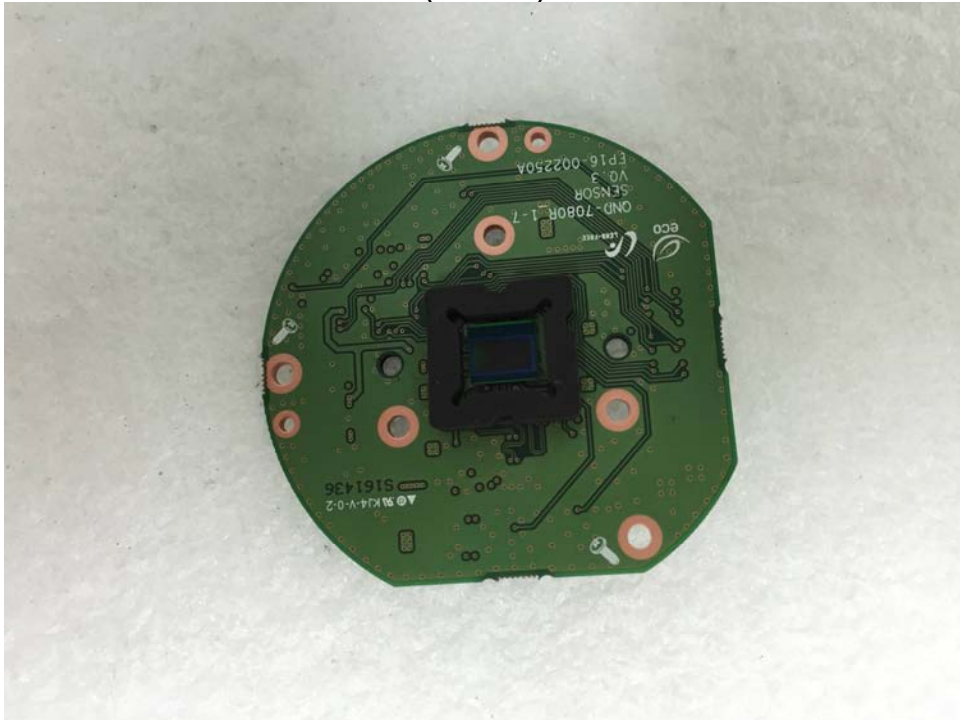
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EUT Internal View – SUB BOARD2

(Top)



(Bottom)



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EUT Internal View – SUB BOARD3

(Top)



(Bottom)



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