



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0241
Date of Issue : Jun. 07, 2016
Product name : NETWORK CAMERA
Model/Type No. : QNO-6020RN
Variant Model : QNO-6030RN, QNO-6010RN
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 : May. 23, 2016
Test date : May. 31, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Young-Suk, Song
EMC Test Engineer

Reviewed by

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EMC Technical Manager

**KES Co., Ltd.**

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Test report No.:
KES-E1-16T0241
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REPORT REVISION HISTORY

Date	Revision	Page No
Jun. 07, 2016	KES-E1-16T0241	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video		Network	
Imaging Device	1/2.9" 2.19M CMOS	Ethernet	RJ-45 (10/100BASE-T)
Total Pixels	2,000(H) x 1,121(V)	Video Compression Format	H.265, H.264, MJPEG
Effective Pixels	1,984(H) x 1,105(V)	Resolution	1920x1080/ 1280x1024/ 1280x960/ 1280x720/ 1024x768/ 800x600/ 720x576/ 720x480/ 640x480/ 320x240
Scanning System	Progressive	Max. Framerate	H.265 : Max 30fps at all resolutions H.264 : Max 30fps at all resolutions MJPEG : Max 15fps @ all resolution.
Min. Illumination	Color : 0.15Lux, B/W : 0Lux	Smart codec	Wise Stream
Lens		Video Quality Adjustment	H.265 : Target Bitrate Level Control H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Focal Length (Zoom Ratio)	Fixed 3.6mm	Bitrate control method	H.265 : CBR or VBR H.264 : CBR or VBR MJPEG : VBR
Max. Aperture Ratio	F1.8	Streaming Capability	Multiple Streaming(Up to 3 Profiles)
Angular Field of View	H 86.48° / V 46.22° / D 102.44°	Audio I/O	Line in
Min. Object Distance	-	Audio Compression Format	G.711 u-law / G.726 Selectable G.726(ADPCM) : 8KHz, G.711 : 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps
Lens Type	Fixed	Audio Communication	Uni-directional
Mount Type	Board type	IP	IPv4, IPv6
Operational		Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTSP, RTSP, NTP, HTTP, HTTPS, SSL/TSL, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
IR Viewable Length	30m	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication
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	Streaming Method	Unicast / Multicast
Day & Night	True Day & Night	Max. User Access	6 users at Unicast Mode
Backlight Compensation	Off / BLC	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
Wide Dynamic Range	120dB	Application Programming Interface	ONVIF Profile S, G SUNAPI(HTTP API)
Digital Noise Reduction	SSNR(Off / On)	Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Danish, Portuguese, Turkish, Polish, Czech, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Finnish, Norwegian
Motion Detection	Off / On (4ea polygon zones)	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
Privacy Masking	Off / On (6ea rectangler zones)	Central Management Software	SmartViewer
Gain Control	Off / Low / Middle / High	Pixel Counter	Support (plug-in viewer only)
White Balance	ATW / AWC / Manual / Indoor / Outdoor	Environmental	
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)	Operating Temperature / Humidity	-30°C ~ +55°C / Less than 90% RH * Start up should be done at above -20°C
Electronic Shutter Speed	Minimum / Maximum / Anti flicker	Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Flip / Mirror	Flip / Mirror / Hallway view	Ingress Protection	IP66
Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus	Vandal Resistance	IK10
Alarm I/O	Input 1 / Output 1	Electrical	
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input, Defocus detection	Input Voltage / Current	PoE(IEEE802.3af, Class3), DC 12V
Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail External output	Power Consumption	Max.6.6W(PoE), Max.5.5W(DC12V)
		Mechanical	
		Color / Material	Gray / Metal
		Dimension (WxHxD)	ø70.0x246mm
		Weight	730g



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

Variant Model	Differences
QNO-6030RN	Focus Length differences
QNO-6010RN	

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNO-6020RN	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE	ANY4805C-LT1	15030100002	ANY ELECTRONICS CO., LTD.	-
Notebook	ProBook4430s	-	HP	-
Notebook adapter	SeriesPPP0009H	-	Chicony Power Technology (suzhou)Co., Ltd.	-
Alarm	SIE-0001 DO	C54167JB601268 F	SAMSUNG TECHWIN CO., LTD.	-
Mike	-	-	-	-

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)	Alarm IN	Alarm	Alarm IN	3.0	U
	RJ-45	Notebook	RJ-45	4.0	U

- PoE Mode

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

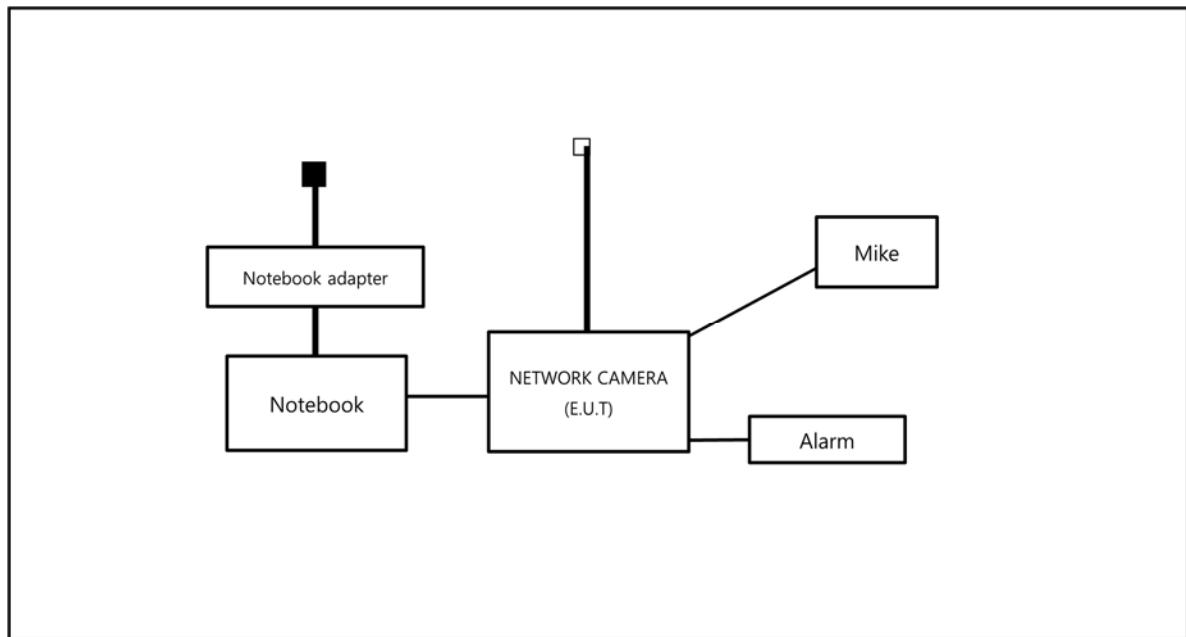
Test mode	Normal operating
OP	MONITORING Network ping test

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

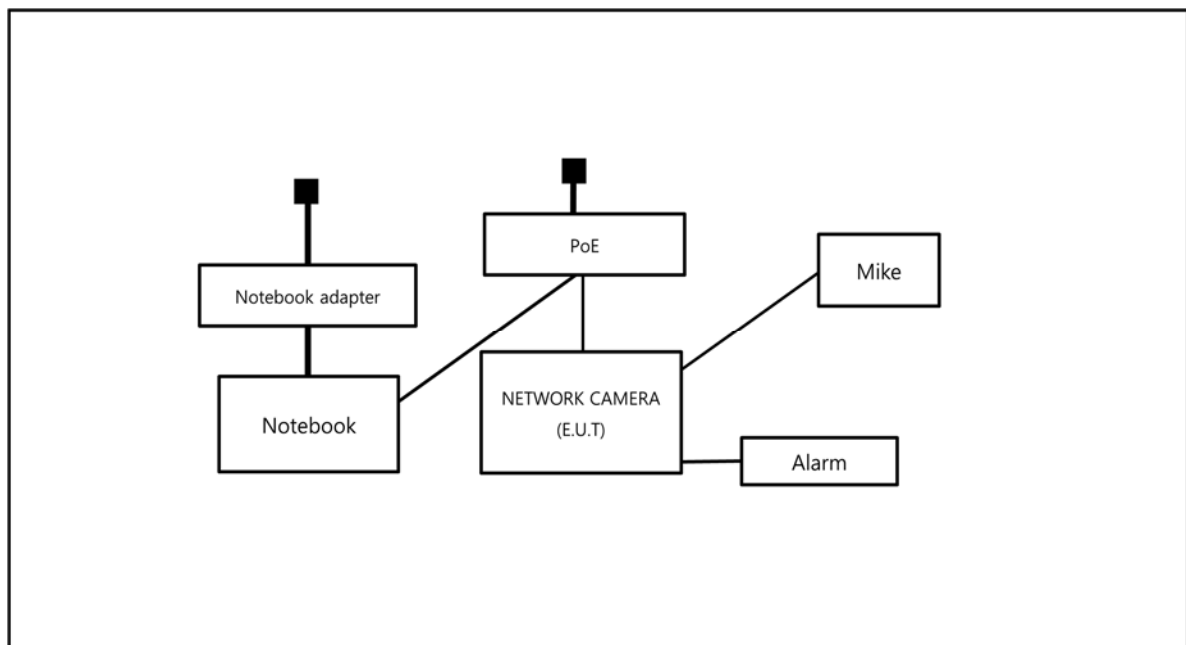
1.8 Configuration

■ AC Main
□ DC Main

- DC 12 V Mode



- PoE Mode



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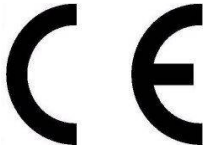
1.9 Calibration Details of Equipment Used for Measurement

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

1.10 Test Facility

The measurement facility is located at 473-29 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 55022:2010

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☒ VCCI V-3/2013.04

☒ Class A

☐ Class B

☐ AS/NZS CISPR22:2009 +A1:2010

☐ Class A

☐ Class B

☐ 47 CFR Part 15, Subpart B / ANSI C63.4-2009

☐ Class A

☐ Class B

☐ IC Regulation ICES-003 : 2012
/ ANSI C63.4-2014

☐ Class A

☐ Class B

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B



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☐ **R&TTE- Directive 1999/5/EC**

☐ EN 301 489-1 V1.9.2

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

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

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2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature: °C
Relative Humidity: %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

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

2.2 Conducted Emissions at Telecommunication Ports

Test Date

May. 31, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 04, 2017
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
☒	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
☒	Electro wave Shieldroom	-	AONE SHIELD	-	-

Test Conditions

Temperature: 26,4 °C

Relative Humidity: 48,5 %

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

May. 31, 2016

Test Location

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

Test Equipment

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

Test Conditions

Temperature: 27,0 °C

Relative Humidity: 45,0 %

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

May. 31, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100551	04, 18, 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: 26,4 °C
Relative Humidity: 48,5 %

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

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[NEUTRAL]

N/A

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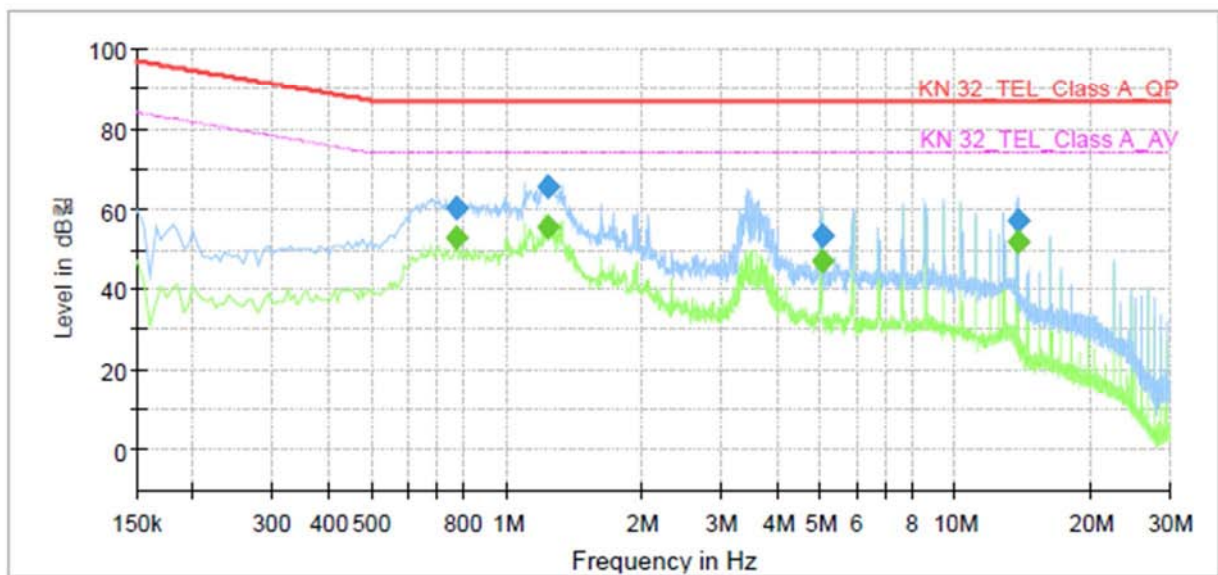
Conducted Emissions at Telecommunication Ports

- DC 12V Mode

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNO-6020RN
Mode: DC 12V_10 Mbps
Operator Name: KES



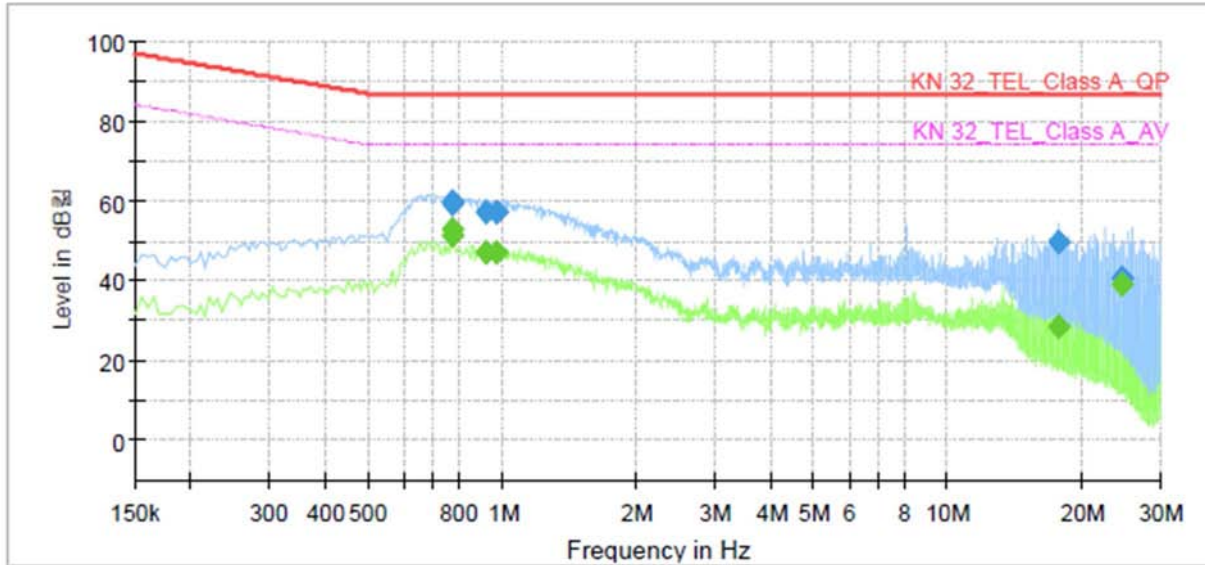
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.770000	---	53.19	74.00	20.81	1000.0	9.000	Single Line	9.9
0.770000	60.19	---	87.00	26.81	1000.0	9.000	Single Line	9.9
1.235000	---	55.55	74.00	18.45	1000.0	9.000	Single Line	9.8
1.235000	65.71	---	87.00	21.29	1000.0	9.000	Single Line	9.8
5.055000	---	46.92	74.00	27.08	1000.0	9.000	Single Line	9.9
5.055000	53.55	---	87.00	33.45	1000.0	9.000	Single Line	9.9
13.750000	---	51.91	74.00	22.09	1000.0	9.000	Single Line	10.1
13.750000	57.36	---	87.00	29.64	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNO-6020RN
Mode	DC 12V_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)
0.770000	---	52.76	74.00	21.24	1000.0	9.000	Single Line	9.4
0.770000	59.68	---	87.00	27.32	1000.0	9.000	Single Line	9.4
0.775000	---	51.45	74.00	22.55	1000.0	9.000	Single Line	9.4
0.775000	59.06	---	87.00	27.94	1000.0	9.000	Single Line	9.4
0.915000	---	47.03	74.00	26.97	1000.0	9.000	Single Line	9.4
0.915000	57.34	---	87.00	29.66	1000.0	9.000	Single Line	9.4
0.975000	---	47.21	74.00	26.79	1000.0	9.000	Single Line	9.4
0.975000	57.31	---	87.00	29.69	1000.0	9.000	Single Line	9.4
17.830000	---	28.39	74.00	45.61	1000.0	9.000	Single Line	9.5
17.830000	49.90	---	87.00	37.10	1000.0	9.000	Single Line	9.5
24.575000	---	39.41	74.00	34.59	1000.0	9.000	Single Line	9.4
24.575000	40.53	---	87.00	46.47	1000.0	9.000	Single Line	9.4

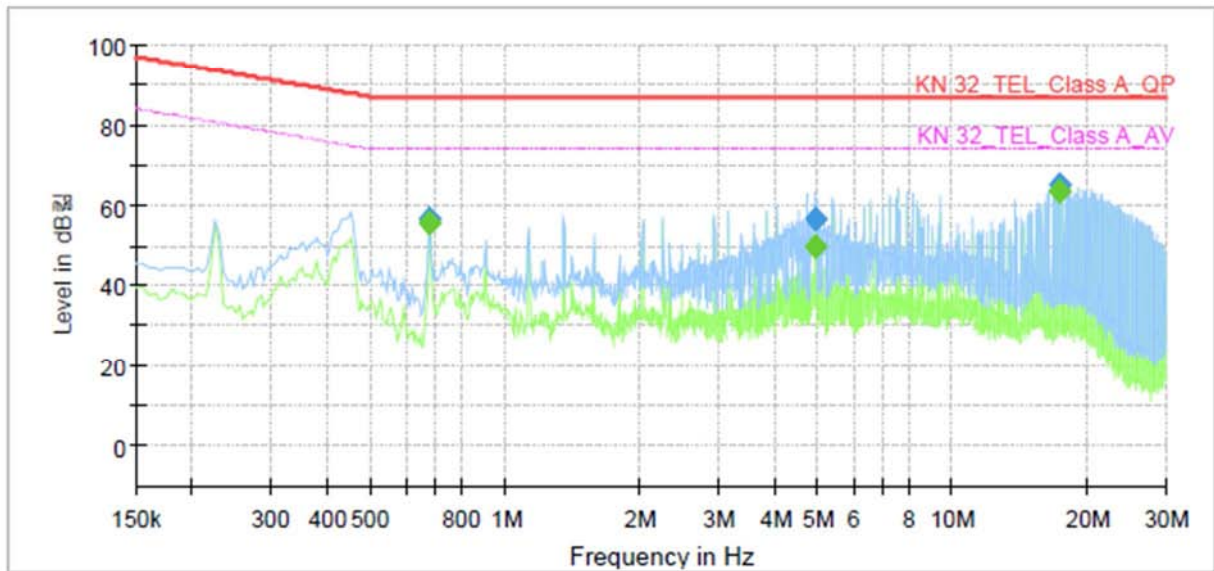
- PoE Mode

[10 Mbps]

Common Information

Test Description:
Model No.:
Mode
Operator Name:

Telecommunication Emission
QNO-6020RN
PoE_10 Mbps
KES



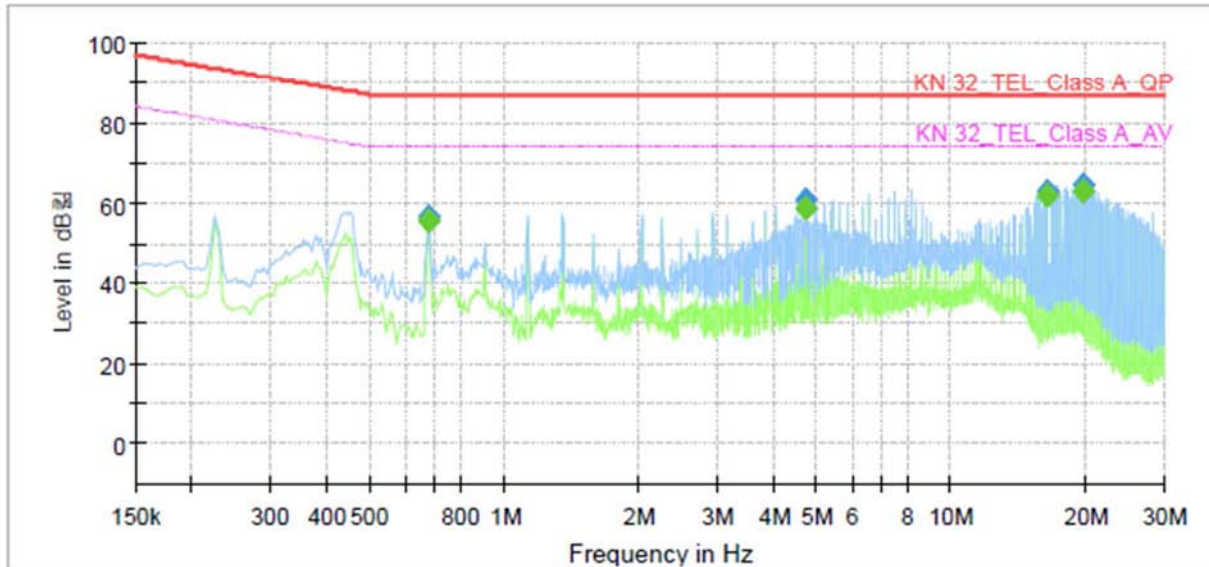
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.680000	---	55.59	74.00	18.41	1000.0	9.000	Single Line	9.9
0.680000	56.62	---	87.00	30.38	1000.0	9.000	Single Line	9.9
4.945000	---	49.82	74.00	24.18	1000.0	9.000	Single Line	9.9
4.945000	56.79	---	87.00	30.21	1000.0	9.000	Single Line	9.9
17.410000	---	63.63	74.00	10.37	1000.0	9.000	Single Line	10.1
17.410000	64.96	---	87.00	22.04	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNO-6020RN
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)
0.680000	---	55.40	74.00	18.60	1000.0	9.000	Single Line	9.4
0.680000	56.56	---	87.00	30.44	1000.0	9.000	Single Line	9.4
4.750000	---	58.96	74.00	15.04	1000.0	9.000	Single Line	9.4
4.750000	60.81	---	87.00	26.19	1000.0	9.000	Single Line	9.4
16.510000	---	62.01	74.00	11.99	1000.0	9.000	Single Line	9.6
16.510000	63.20	---	87.00	23.80	1000.0	9.000	Single Line	9.6
19.900000	---	63.23	74.00	10.77	1000.0	9.000	Single Line	9.5
19.900000	64.36	---	87.00	22.64	1000.0	9.000	Single Line	9.5

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

- DC 12V 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]
149.81	15.90	V	1.00	8.19	2.77	26.86	40.00	13.14
222.56	20.98	H	4.00	11.80	3.51	36.29	40.00	3.71
223.40	15.92	V	1.00	11.82	3.52	31.26	40.00	8.74
259.09	16.03	H	4.00	12.59	3.87	32.49	47.00	14.51
297.55	10.60	V	1.00	13.33	4.19	28.12	47.00	18.88
519.41	11.64	H	4.00	17.53	5.86	35.03	47.00	11.97

* H : Horizontal, V : Vertical

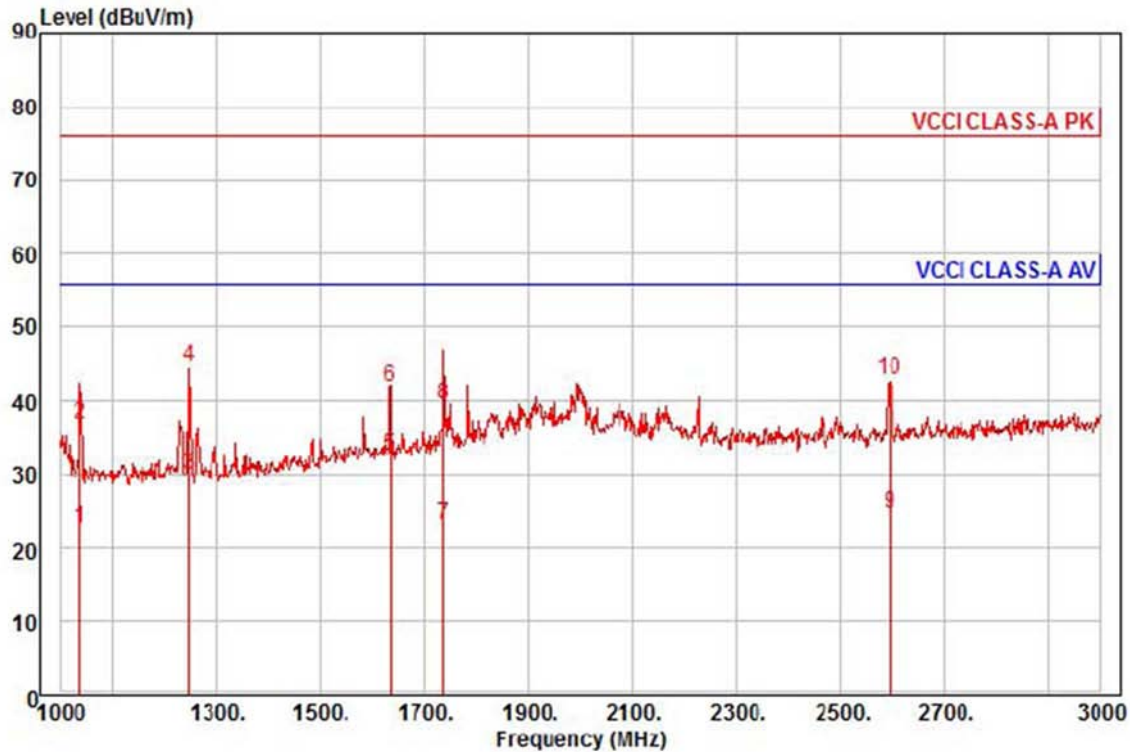
- PoE Mode

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]
48.69	16.65	V	1.00	13.89	1.43	31.97	40.00	8.03
222.66	21.17	H	4.00	11.80	3.51	36.48	40.00	3.52
223.13	20.18	V	1.00	11.81	3.52	35.51	40.00	4.49
297.70	14.32	H	4.00	13.34	4.19	31.85	47.00	15.15
520.01	14.12	V	1.00	17.54	5.86	37.52	47.00	9.48
631.35	8.88	H	4.00	19.43	6.61	34.92	47.00	12.08

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : DC 12V
Memo :

	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	1038.00	32.29	24.06	6.62	40.10	273	56.00	-33.13	horizontal	Average
2	1038.00	46.12	24.06	6.62	40.10	273	76.00	-39.30	horizontal	Peak
3	1246.00	37.85	24.89	7.22	40.00	136	56.00	-26.04	horizontal	Average
4 pk	1246.00	52.48	24.89	7.22	40.00	136	76.00	-31.41	horizontal	Peak
5 pp	1634.00	37.69	26.43	8.34	39.81	345	56.00	-23.35	horizontal	Average
6	1634.00	46.97	26.43	8.34	39.81	345	76.00	-34.07	horizontal	Peak
7	1736.00	27.56	26.83	8.62	39.76	267	56.00	-32.75	horizontal	Average
8	1736.00	43.70	26.83	8.62	39.76	267	76.00	-36.61	horizontal	Peak
9	2596.00	25.08	29.34	10.26	39.98	225	56.00	-31.30	horizontal	Average
10	2596.00	43.21	29.34	10.26	39.98	225	76.00	-33.17	horizontal	Peak

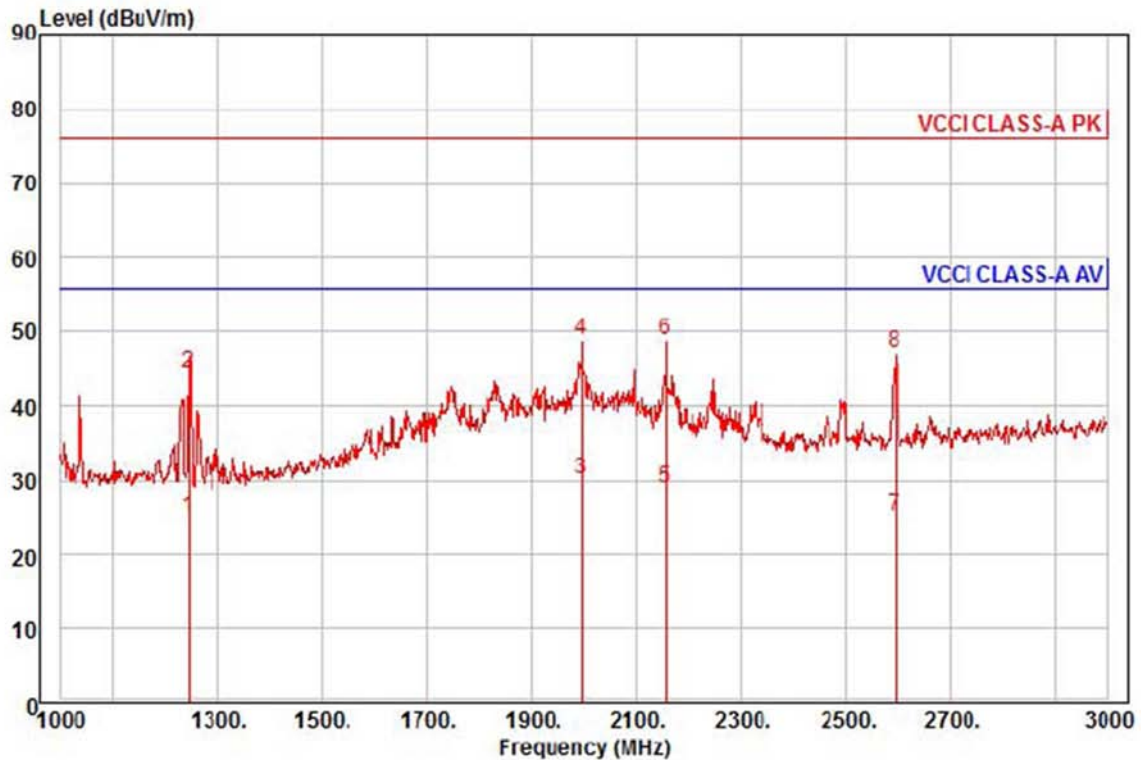
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Test report No.:
KES-E1-16T0241
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : DC 12V
Memo :

	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	1244.00	32.98	24.88	7.22	40.00	183	56.00	-30.92	vertical	Average
2	1244.00	52.18	24.88	7.22	40.00	183	76.00	-31.72	vertical	Peak
3 pp	1996.00	32.49	27.86	9.34	39.63	194	56.00	-25.94	vertical	Average
4	1996.00	51.15	27.86	9.34	39.63	194	76.00	-27.28	vertical	Peak
5	2156.00	30.79	28.26	9.59	39.72	73	56.00	-27.08	vertical	Average
6 pk	2156.00	50.71	28.26	9.59	39.72	73	76.00	-27.16	vertical	Peak
7	2594.00	25.73	29.34	10.26	39.97	166	56.00	-30.64	vertical	Average
8	2594.00	47.43	29.34	10.26	39.97	166	76.00	-28.94	vertical	Peak

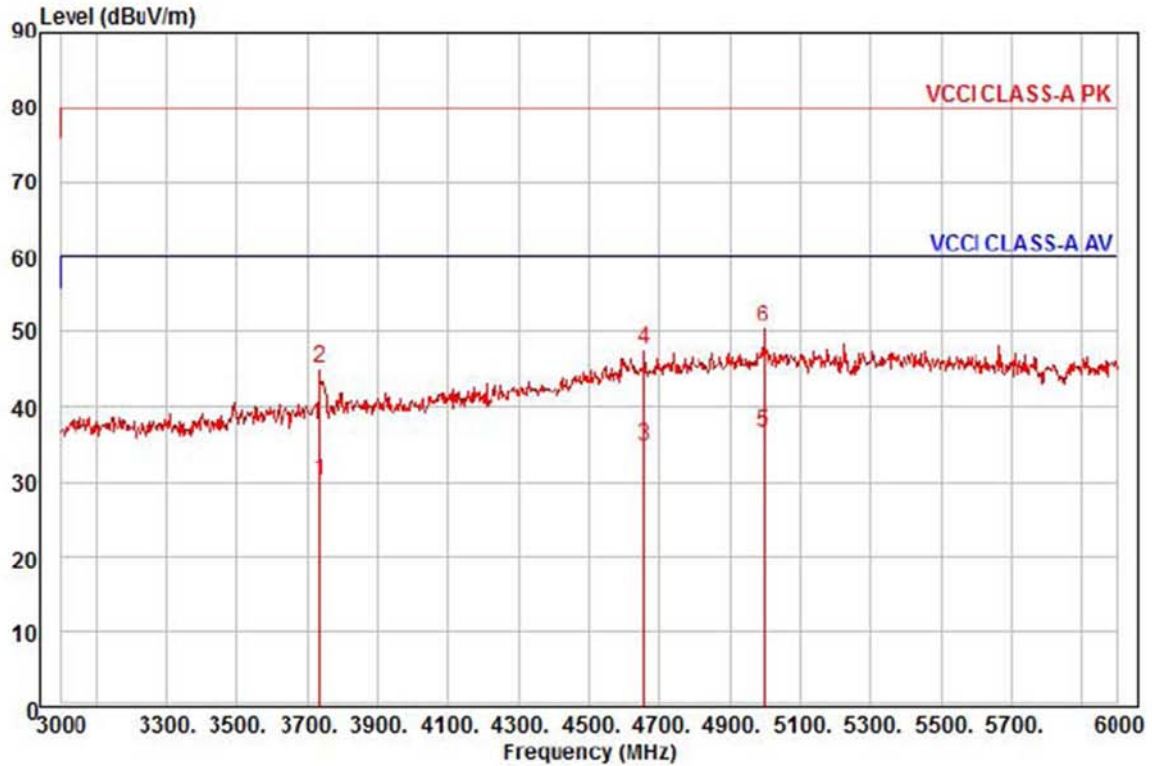
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Test report No.:
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : DC 12V
Memo :

	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	3735.00	25.88	31.56	12.98	40.36	98	60.00	-29.94	horizontal	Average
2	3735.00	40.92	31.56	12.98	40.36	98	80.00	-34.90	horizontal	Peak
3	4659.00	24.65	35.77	14.72	40.41	53	60.00	-25.27	horizontal	Average
4	4659.00	37.54	35.77	14.72	40.41	53	80.00	-32.38	horizontal	Peak
5 pp	4995.00	23.95	37.69	15.32	40.41	190	60.00	-23.45	horizontal	Average
6 pk	4995.00	37.87	37.69	15.32	40.41	190	80.00	-29.53	horizontal	Peak

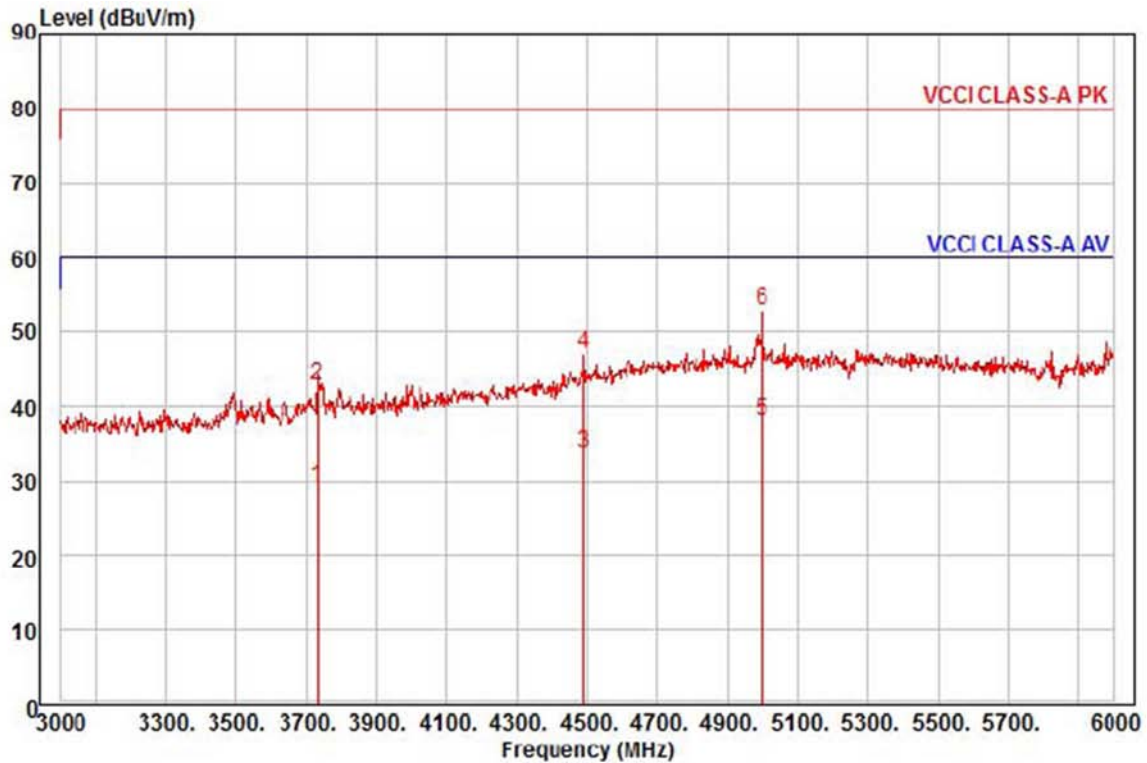
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Test report No.:
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : DC 12V
Memo :

	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	3732.00	25.10	31.56	12.97	40.36	144	60.00	-30.73	vertical	Average
2	3732.00	38.63	31.56	12.97	40.36	144	80.00	-37.20	vertical	Peak
3	4491.00	25.10	34.81	14.41	40.41	262	60.00	-26.09	vertical	Average
4	4491.00	38.28	34.81	14.41	40.41	262	80.00	-32.91	vertical	Peak
5 pp	4998.00	25.33	37.71	15.33	40.41	68	60.00	-22.04	vertical	Average
6 pk	4998.00	40.44	37.71	15.33	40.41	68	80.00	-26.93	vertical	Peak

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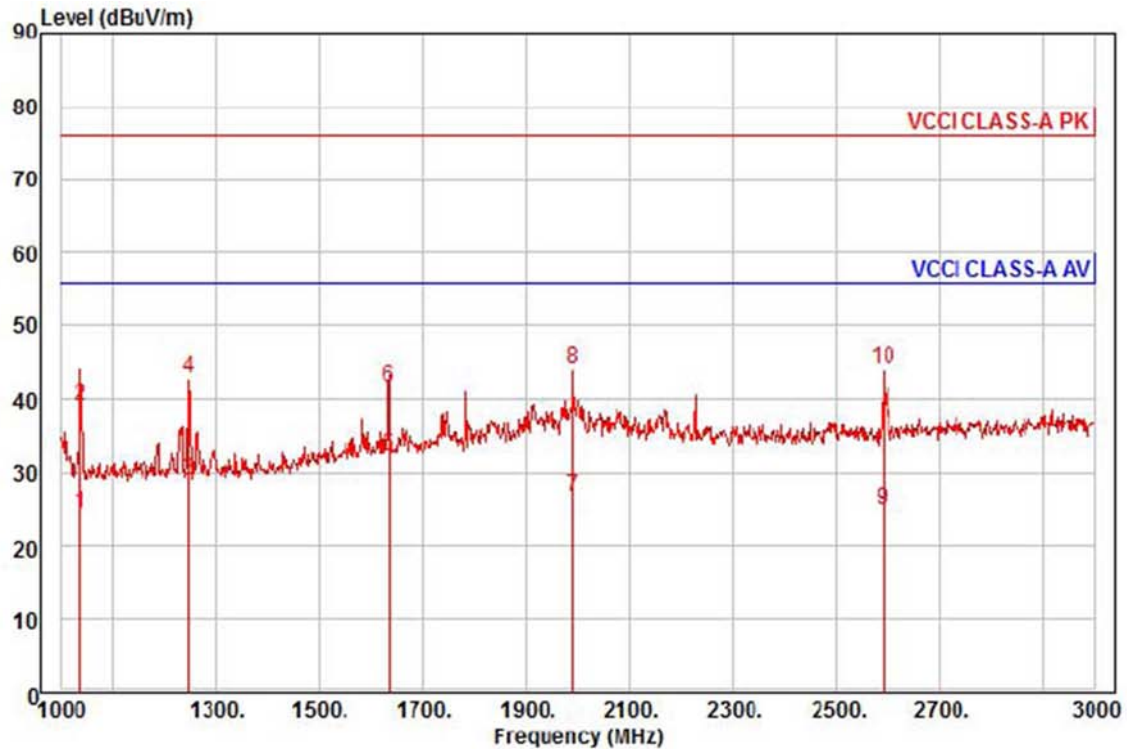


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Test report No.:
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- PoE Mode



Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
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	33.98	24.06	6.62	40.10	154	56.00	-31.44	horizontal	Average
2	1038.00	48.39	24.06	6.62	40.10	154	76.00	-37.03	horizontal	Peak
3	1246.00	36.75	24.89	7.22	40.00	247	56.00	-27.14	horizontal	Average
4	1246.00	50.89	24.89	7.22	40.00	247	76.00	-33.00	horizontal	Peak
5 pp	1634.00	37.29	26.43	8.34	39.81	331	56.00	-23.75	horizontal	Average
6	1634.00	46.67	26.43	8.34	39.81	331	76.00	-34.37	horizontal	Peak
7	1990.00	29.17	27.84	9.32	39.63	261	56.00	-29.30	horizontal	Average
8 pk	1990.00	46.72	27.84	9.32	39.63	261	76.00	-31.75	horizontal	Peak
9	2590.00	25.42	29.33	10.25	39.97	223	56.00	-30.97	horizontal	Average
10	2590.00	44.50	29.33	10.25	39.97	223	76.00	-31.89	horizontal	Peak

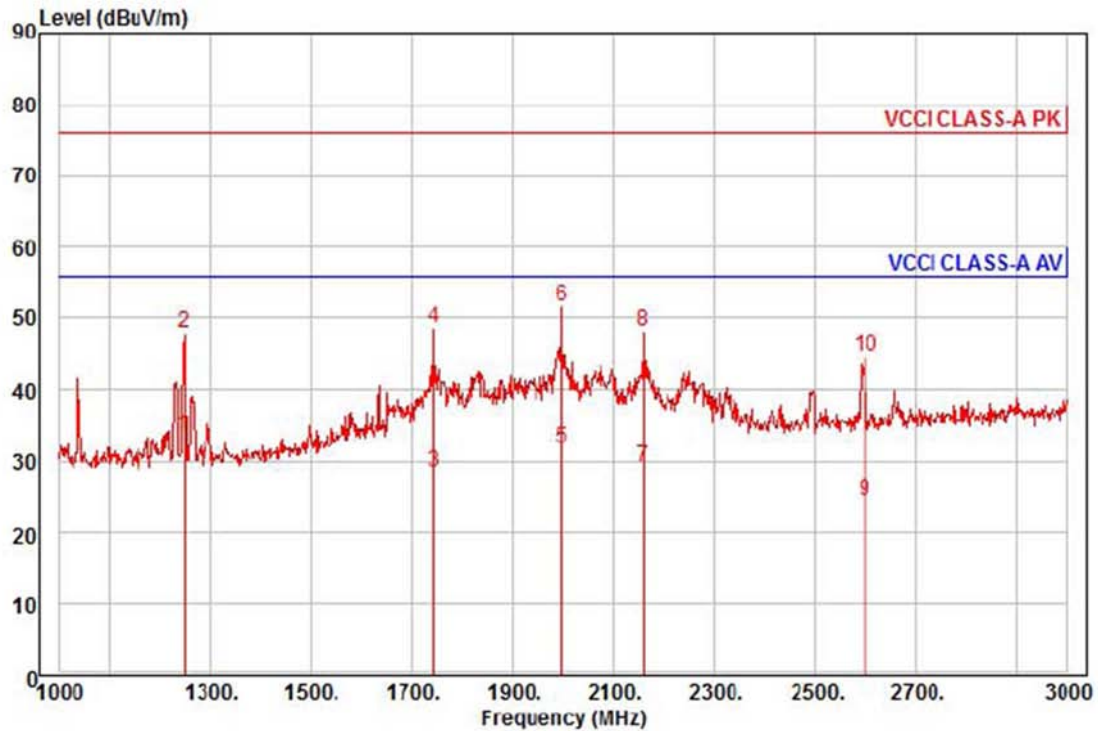
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Test report No.:
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : PoE
Memo :

	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/n	dB		
1 pp	1248.00	41.41	24.89	7.23	40.00	181	56.00	-22.47	vertical	Average
2	1248.00	55.69	24.89	7.23	40.00	181	76.00	-28.19	vertical	Peak
3	1744.00	32.81	26.86	8.65	39.76	80	56.00	-27.44	vertical	Average
4	1744.00	52.89	26.86	8.65	39.76	80	76.00	-27.36	vertical	Peak
5	1998.00	34.35	27.87	9.34	39.63	353	56.00	-24.07	vertical	Average
6 pk	1998.00	54.11	27.87	9.34	39.63	353	76.00	-24.31	vertical	Peak
7	2160.00	31.14	28.27	9.60	39.72	74	56.00	-26.71	vertical	Average
8	2160.00	49.83	28.27	9.60	39.72	74	76.00	-28.02	vertical	Peak
9	2600.00	24.97	29.35	10.27	39.98	234	56.00	-31.39	vertical	Average
10	2600.00	44.91	29.35	10.27	39.98	234	76.00	-31.45	vertical	Peak

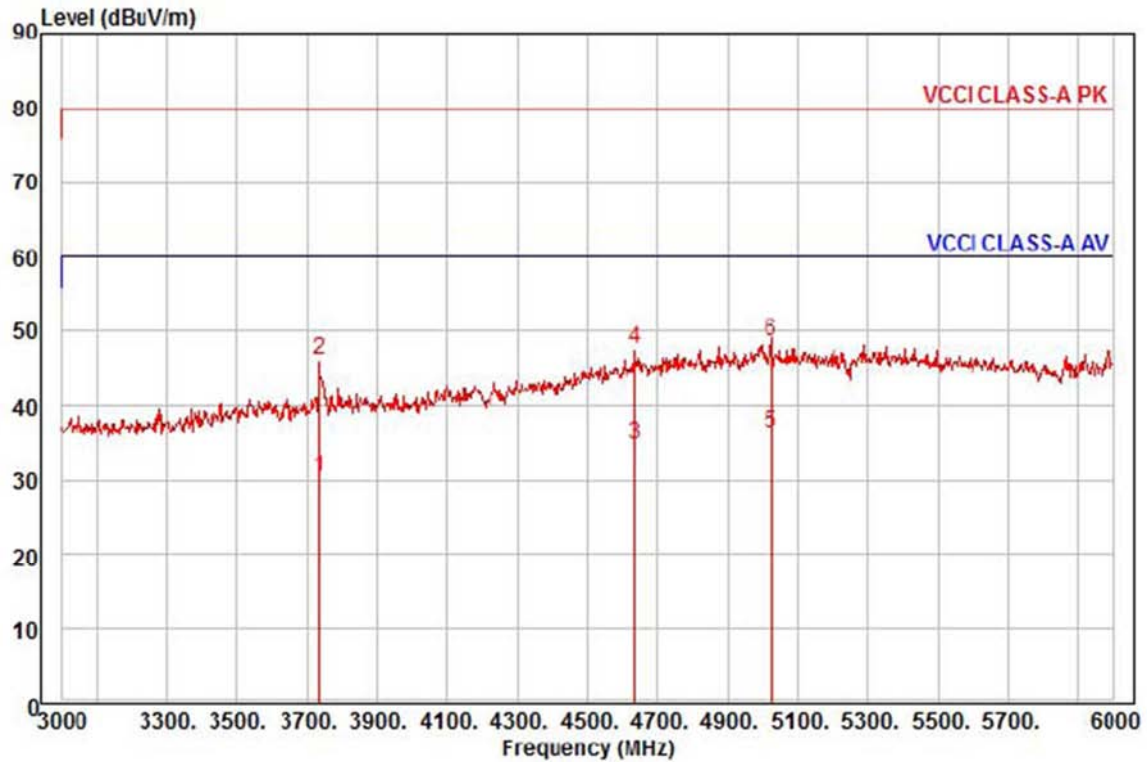
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Test report No.:
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : PoE
Memo :

	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	3735.00	26.27	31.56	12.98	40.36	119	60.00	-29.55	horizontal	Average
2	3735.00	41.91	31.56	12.98	40.36	119	80.00	-33.91	horizontal	Peak
3	4638.00	24.82	35.65	14.68	40.41	206	60.00	-25.26	horizontal	Average
4	4638.00	37.59	35.65	14.68	40.41	206	80.00	-32.49	horizontal	Peak
5 pp	5025.00	23.61	37.67	15.36	40.41	193	60.00	-23.77	horizontal	Average
6 pk	5025.00	35.97	37.67	15.36	40.41	193	80.00	-31.41	horizontal	Peak

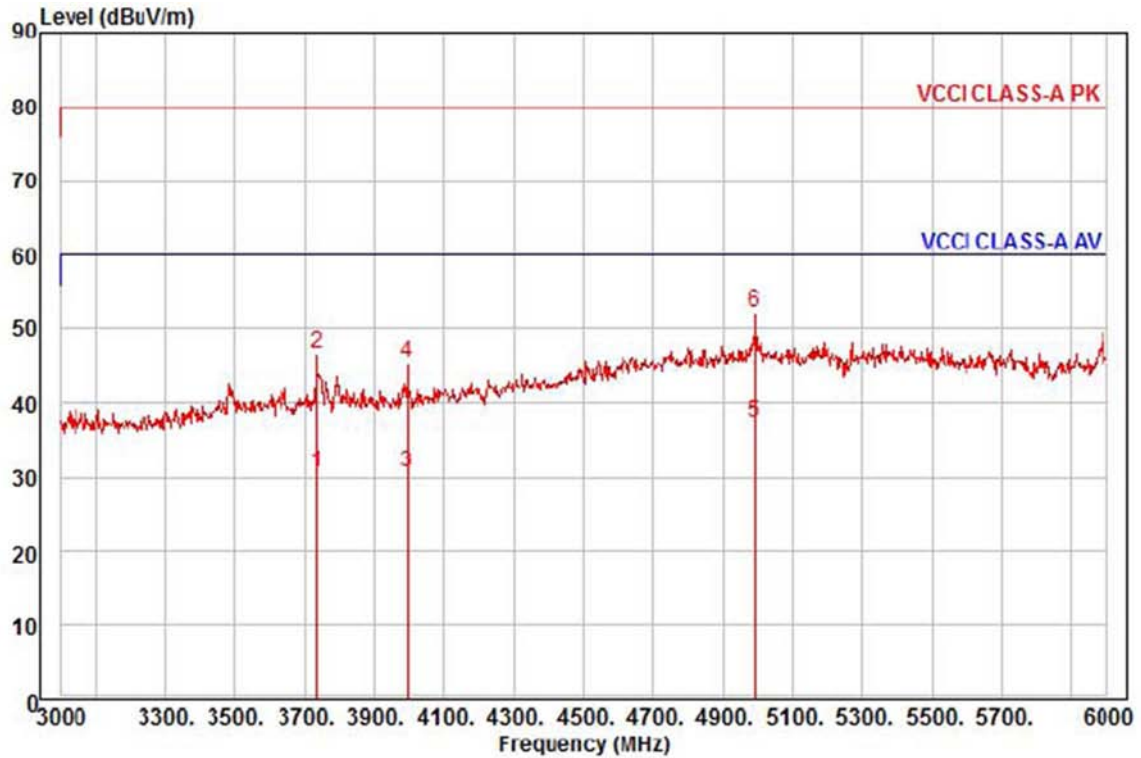
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Test report No.:
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Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNO-6020RN
Mode : PoE
Memo :

	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	3735.00	26.46	31.56	12.98	40.36	36	60.00	-29.36	vertical	Average
2	3735.00	42.37	31.56	12.98	40.36	36	80.00	-33.45	vertical	Peak
3	3993.00	25.58	32.00	13.50	40.41	42	60.00	-29.33	vertical	Average
4	3993.00	40.16	32.00	13.50	40.41	42	80.00	-34.75	vertical	Peak
5 pp	4989.00	24.77	37.66	15.31	40.41	70	60.00	-22.67	vertical	Average
6 pk	4989.00	39.79	37.66	15.31	40.41	70	80.00	-27.65	vertical	Peak

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

Conducted Telecommunication Emissions

- DC 12V Mode



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- PoE Mode



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Radiated Electric Field Emissions(Below 1 GHz)

- DC 12V Mode



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- PoE Mode



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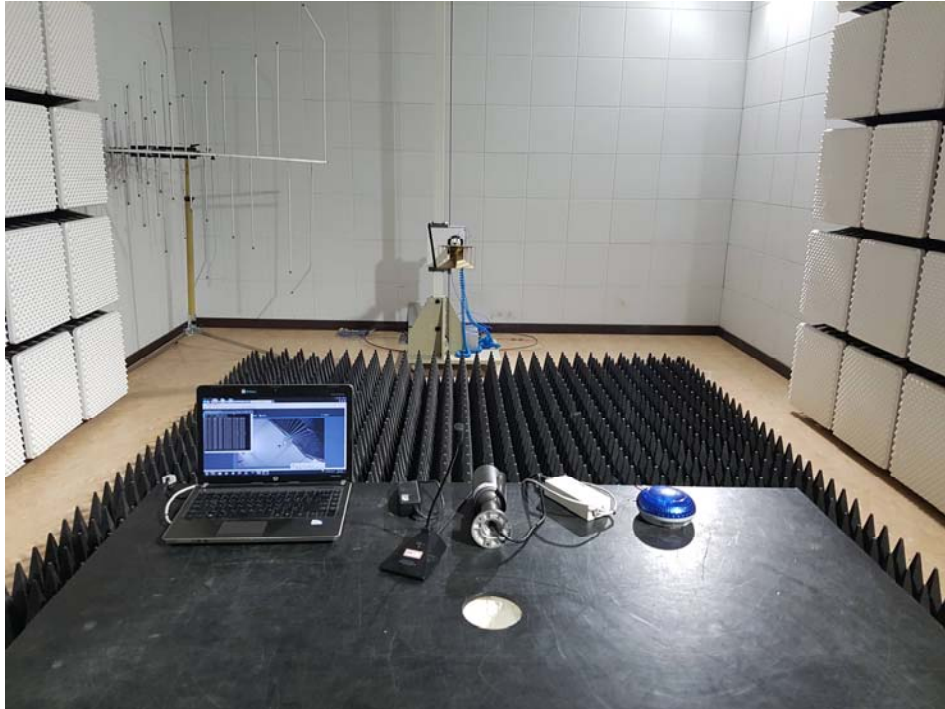
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



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- PoE Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



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Main Board EUT Internal View – Main Board

(Top)



(Bottom)



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Main Board EUT Internal View – Board 1

(Top)



(Bottom)



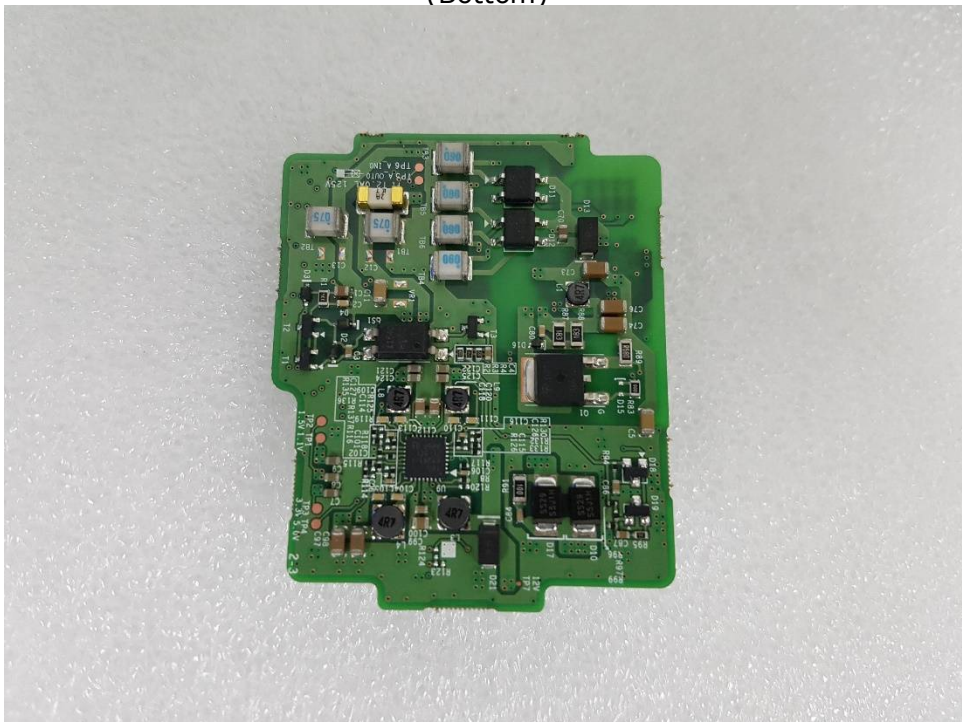
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Main Board EUT Internal View – Board 2

(Top)



(Bottom)



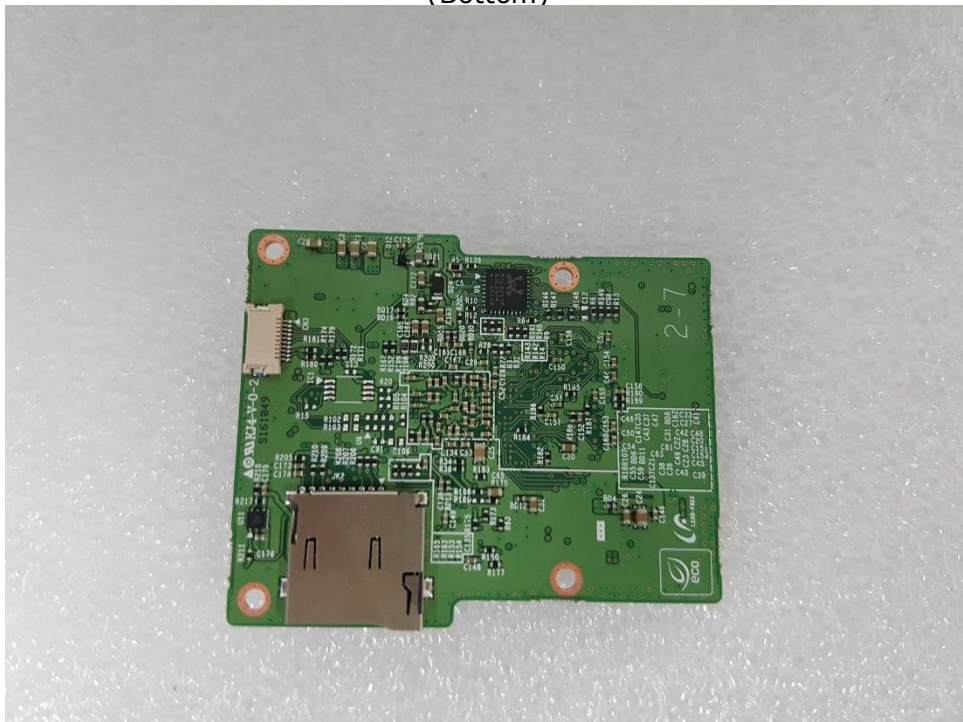
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Main Board EUT Internal View – Board 3

(Top)



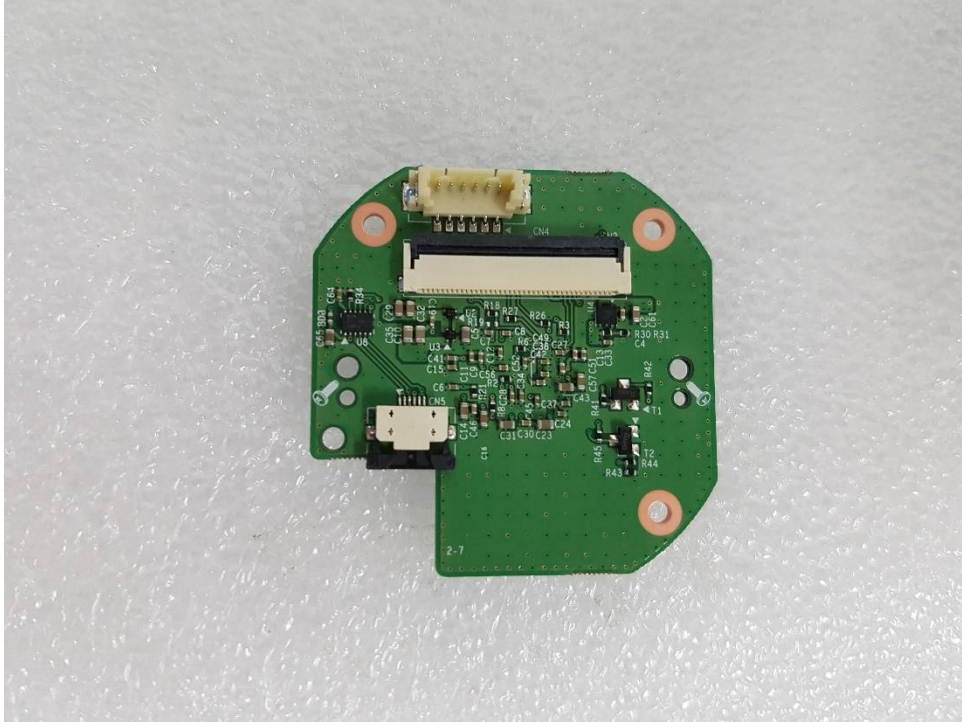
(Bottom)



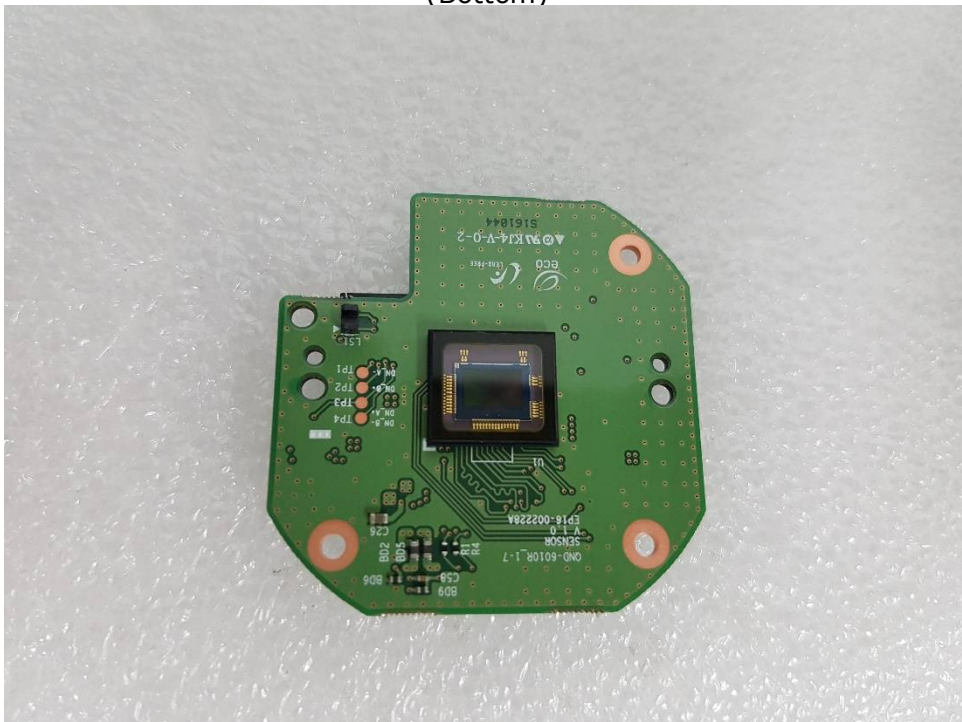
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Main Board EUT Internal View – Board 4

(Top)



(Bottom)



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Main Board EUT Internal View – Camera

(Top)



(Bottom)



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