

VERIFICATION OF FCC PART 15 COMPLIANCE

*KES hereby verify that the subject product complies with all the
electromagnetic emission specified in the FCC Rule Part 15*

Product Description:

NETWORK CAMERA

Model/Brand Name:

QND-6020RN

Variant Model:

QND-6030RN, QND-6010RN

FCC Rule Part(s):

FCC 47CFR Part 15 Subpart B Class A
Part 15.107(b) & Part 15.109(b)

FCC Procedure:

Verification

Applicant Name:

Hanwha Techwin Co., Ltd.

Applicant Address:

1204, Changwon-daero, Seongsan-gu, Chang
won-si, Gyeongsangnam-do

Manufacturer Name:

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

Test Report Reference No.:

KES-E1-16T0247

NETWORK CAMERA, Model QND-6020RN has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class A and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class A. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-16T0247

Date of Issue: 06. 09. 2016

Dong Hun, Jang

Technical Manager

Signature:



KES.Co., Ltd.

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EMC TEST REPORT For FCC

Test Report No. : KES-E1-16T0247
Date of Issue : Jun. 09, 2016
Product name : NETWORK CAMERA
Model/Type No. : QND-6020RN
Variant Model : QND-6030RN, QND-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
Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification
Date of Receipt : May. 23, 2016
Test date : Jun. 03, 2016
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Kyeng Sun, Min
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

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Test report No.:
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jun. 09, 2016	KES-E1-16T0247	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QND-6020R
Video	
Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000(H) x 1,121(V)
Effective Pixels	1,984(H) x 1,105(V)
Scanning System	Progressive
Min. Illumination	Color : 0.15Lux, B/W : 0Lux
Lens	
Focal Length (Zoom Ratio)	Fixed 3.6mm
Max. Aperture Ratio	F1.8
Angular Field of View	H 86.48° / V 46.22° / D 102.44°
Min. Object Distance	-
Lens Type	Fixed
Mount Type	Board type
Pan / Tilt / Rotate	
Pan Range	0~350°
Tilt Range	0~67°
Rotate Range	0~355°
Operational	
IR Viewable Length	20m
Camera Title	Off / On (Displayed up to 20 characters per line) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	True Day & Night
Backlight Compensation	Off / BLC
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR(Off / On)
Motion Detection	Off / On (4ea polygon zones)
Privacy Masking	Off / On (6ea rectangler zones)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Hallway view
Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus
Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input, Defocus detection
Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail External output
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265, H.264, MJPEG
Resolution	1920x1080/ 1280x1024/ 1280x960/ 1280x720/ 1024x768/ 800x600/ 720x576/ 720x480/ 640x480/ 320x240
Max. Framerate	H.265 : Max 30fps at all resolutions H.264 : Max 30fps at all resolutions MJPEG : Max 15fps @ all resolution.
Smart codec	Wise Stream

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Video Quality Ajustment	H.265 : Target Bitrate Level Control H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate control method	H.265 : CBR or VBR H.264 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming(Up to 3 Profiles)
Audio I/O	Built-in MIC
Audio Compression Format	G.711 u-law /G.726 Selectable G.726(ADPCM) : 8KHz, G.711 : 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps
Audio Communication	Uni-directional
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TSL, 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, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Denish, Portuguese, Turkish, Polish, Czech, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Finnish, Norwegian
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)
Environmental	
Operating Temperature / Humi	-10°C ~ +55°C / Less than 90% RH
Storage Temperature / Humidi	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	IK08
Electrical	
Input Voltage / Current	PoE(IEEE802.3af, Class3), DC 12V
Power Consumption	Max.6.5W(PoE), Max.5.43W(DC12V)
Mechanical	
Color / Material	Ivory / Plastic
Dimension (WxHxD)	φ110xH86mm
Weight	290g

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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

Variant Model	
QND-6030RN	Focus Length differences
QND-6010RN	

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

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

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE	PoE36U-1AT-R	-	PHIHONG	-
Notebook	NT63025	JK9091EF400142 M	SAMSUNG Electronic	-
NotebookK Adapter	A13-040N2A	CN60BA4400313 AD0N843KO200	Chicony Power Technology (suzhou)Co., Ltd.	-
Alarm	SIP-12010DD	C53R67JZ301878 L	SAMSUNG TECHWIN CO., LTD.	-

1.6 External I/O Cabling

- DC 12V 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	3.0	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	3.0	U
PoE	RJ-45	Notebook	RJ-45	3.3	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

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

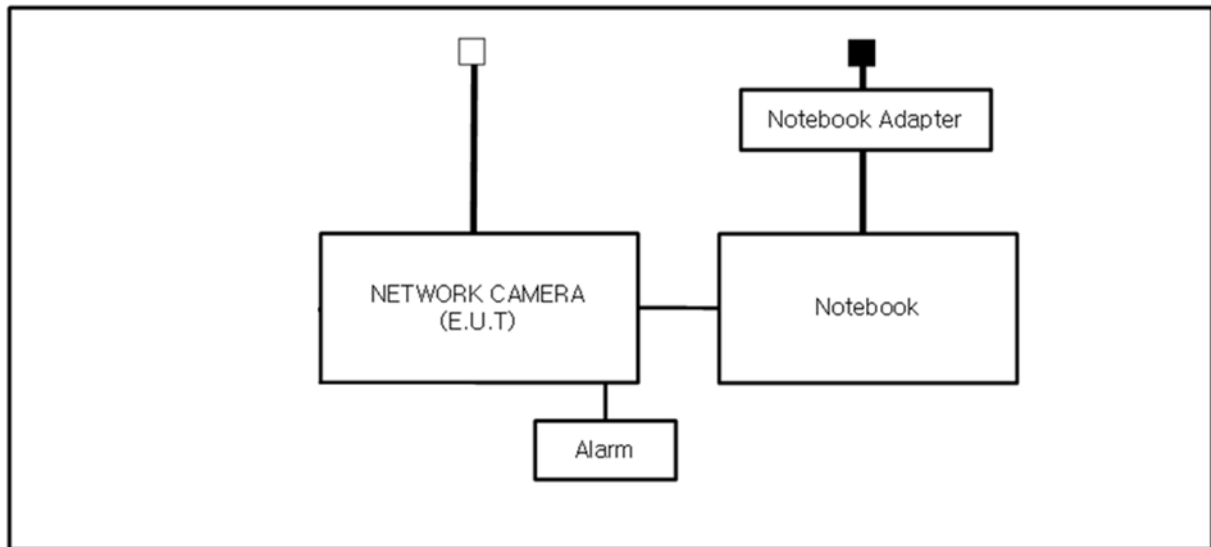
Test mode	Normal operating
OP	MONITORING Network ping test

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

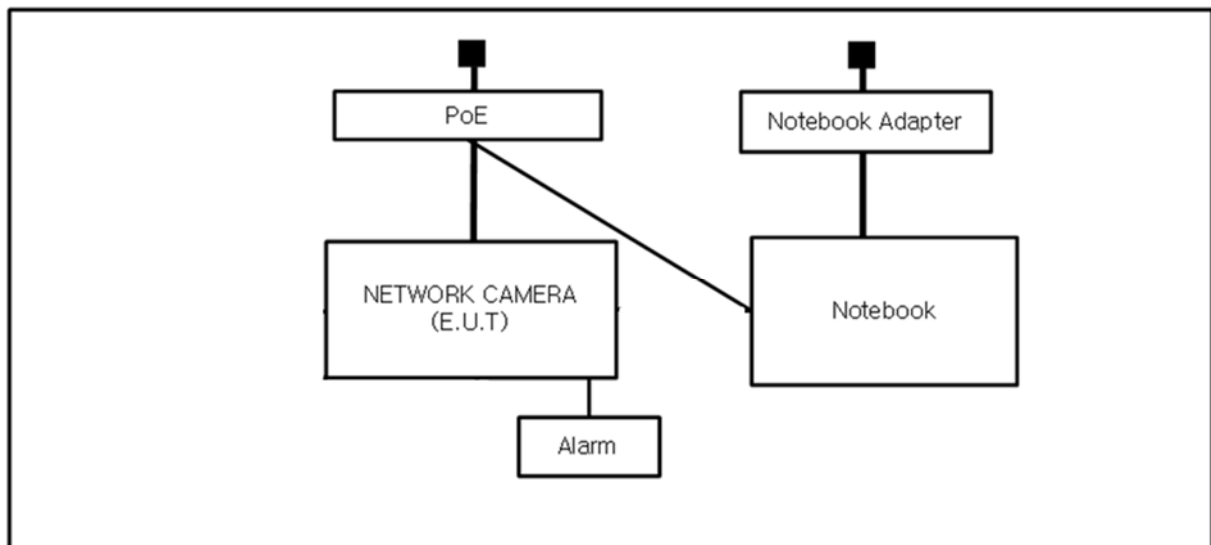
1.8 Configuration

■ AC Main
□ DC Main

- DC 12V Mode



- PoE Mode



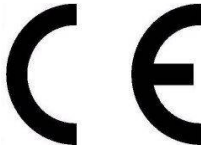
1.9 Calibration Details of Equipment Used for Measurement

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 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	-	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

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



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jun. 03, 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	9163-713	05, 15, 2017
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 28,2 °C

Relative Humidity: 36,0 %

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.



2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jun. 03, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

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

Test Conditions

Temperature: 27,4 °C
Relative Humidity: 44,3 %

Frequency Range of Measurement

1 GHz to 5 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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**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]
149.16	13.25	V	1.00	8.17	3.16	24.58	43.50	18.92
186.11	12.84	H	4.00	9.99	3.69	26.52	43.50	16.98
186.23	11.68	V	1.20	10.00	3.69	25.37	43.50	18.13
350.00	13.37	H	3.30	14.54	5.20	33.11	46.40	13.29
445.47	12.74	V	3.60	16.34	6.14	35.22	46.40	11.18
445.93	11.13	H	2.80	16.34	6.15	33.62	46.40	12.78

* H : Horizontal, V : Vertical

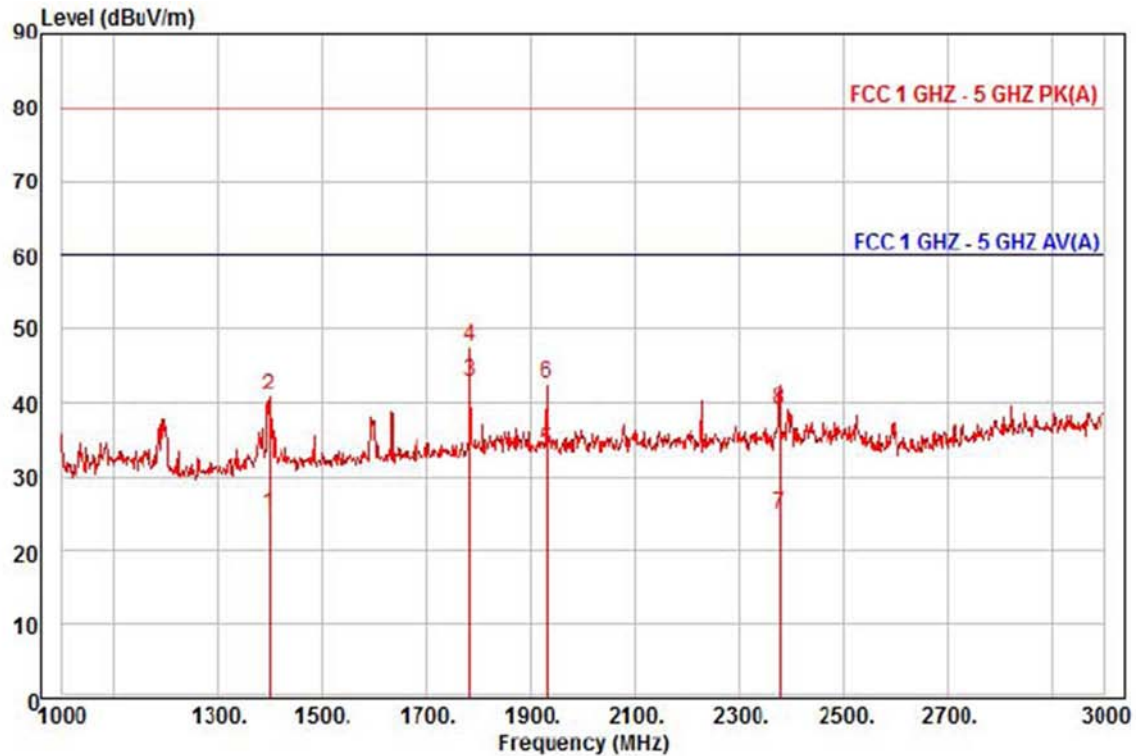
- PoE Mode

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]
47.31	10.50	V	1.00	13.83	1.70	26.03	39.00	12.97
148.74	13.67	V	1.40	8.15	3.16	24.98	43.50	18.52
350.10	13.96	H	3.10	14.54	5.20	33.70	46.40	12.70
400.85	13.44	H	3.00	15.71	5.79	34.94	46.40	11.46
445.49	14.23	V	3.10	16.34	6.14	36.71	46.40	9.69
445.83	12.62	H	2.90	16.34	6.15	35.11	46.40	11.29

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6020RN
Mode : 12 V (dc)
Memo : (1 ~ 3) GHz

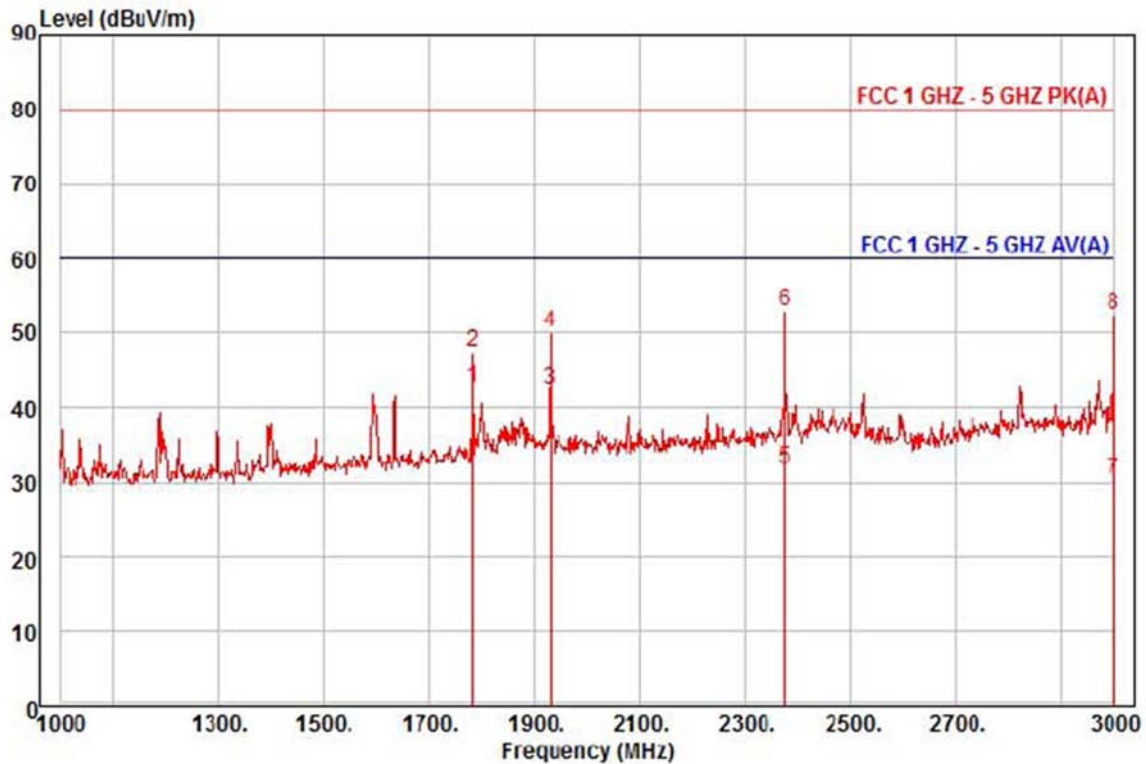
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1398.00	31.70	25.49	7.66	39.92	274	60.00	-35.07	horizontal	Average
2	1398.00	47.84	25.49	7.66	39.92	274	80.00	-38.93	horizontal	Peak
3 pp	1782.00	46.94	27.01	8.75	39.74	10	60.00	-17.04	horizontal	Average
4 pk	1782.00	51.58	27.01	8.75	39.74	10	80.00	-32.40	horizontal	Peak
5	1930.00	36.38	27.60	9.16	39.66	326	60.00	-26.52	horizontal	Average
6	1930.00	45.61	27.60	9.16	39.66	326	80.00	-37.29	horizontal	Peak
7	2378.00	26.11	28.81	9.93	39.85	132	60.00	-35.00	horizontal	Average
8	2378.00	40.16	28.81	9.93	39.85	132	80.00	-40.95	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 :
Model : QND-6020RN
Mode : 12 V (dc)
Memo : (1 ~ 3) GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1782.00	46.64	27.01	8.75	39.74	89	60.00	-17.34	vertical	Average
2	1782.00	51.37	27.01	8.75	39.74	89	80.00	-32.61	vertical	Peak
3	1930.00	45.36	27.60	9.16	39.66	326	60.00	-17.54	vertical	Average
4	1930.00	52.81	27.60	9.16	39.66	326	80.00	-30.09	vertical	Peak
5	2376.00	33.06	28.80	9.93	39.85	110	60.00	-28.06	vertical	Average
6 pk	2376.00	54.06	28.80	9.93	39.85	110	80.00	-27.06	vertical	Peak
7	3000.00	29.00	30.33	11.22	40.21	28	60.00	-29.66	vertical	Average
8	3000.00	51.08	30.33	11.22	40.21	28	80.00	-27.58	vertical	Peak

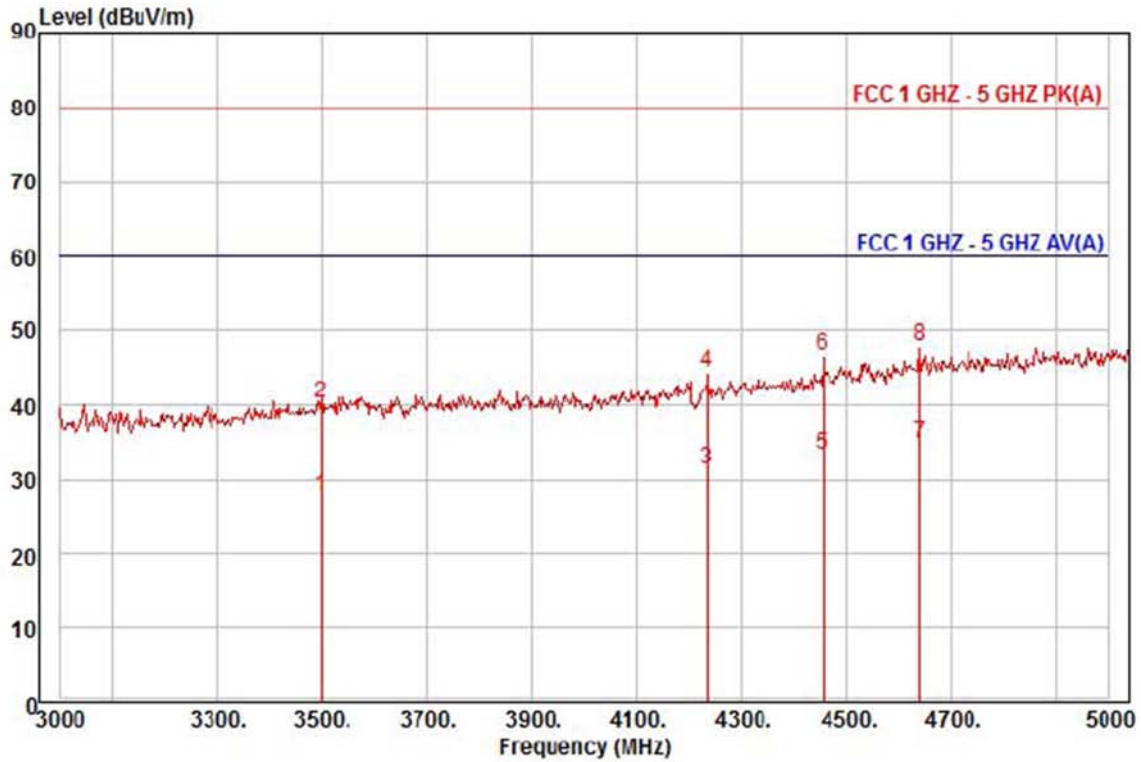
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Test report No.:
KES-E1-16T0247
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6020RN
Mode : 12 V (dc)
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	3498.00	24.41	31.17	12.50	40.31	248	60.00	-32.23	horizontal	Average
2	3498.00	36.95	31.17	12.50	40.31	248	80.00	-39.69	horizontal	Peak
3	4236.00	24.59	33.36	13.94	40.41	287	60.00	-28.52	horizontal	Average
4	4236.00	37.40	33.36	13.94	40.41	287	80.00	-35.71	horizontal	Peak
5	4455.00	24.79	34.61	14.35	40.41	22	60.00	-26.66	horizontal	Average
6	4455.00	38.09	34.61	14.35	40.41	22	80.00	-33.36	horizontal	Peak
7 pp	4641.00	25.00	35.67	14.68	40.41	110	60.00	-25.06	horizontal	Average
8 pk	4641.00	37.94	35.67	14.68	40.41	110	80.00	-32.12	horizontal	Peak

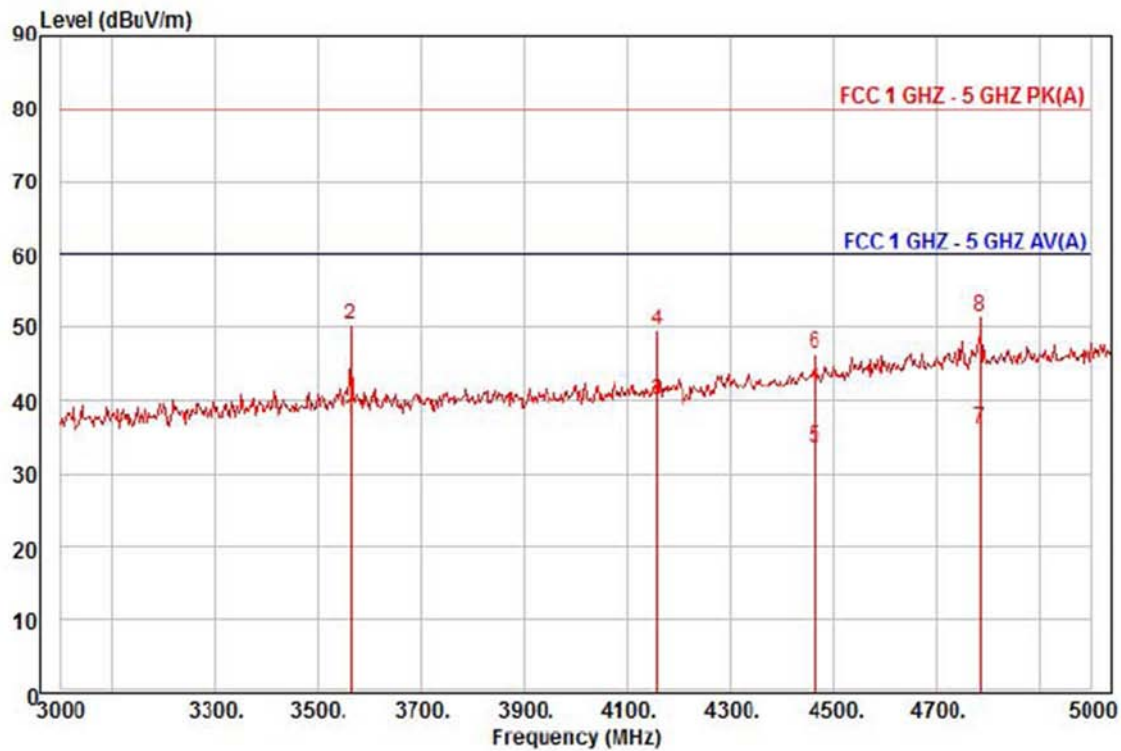
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Test report No.:
KES-E1-16T0247
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6020RN
Mode : 12 V (dc)
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	3564.00	33.64	31.28	12.64	40.32	266	60.00	-22.76	vertical	Average
2	3564.00	46.79	31.28	12.64	40.32	266	80.00	-29.61	vertical	Peak
3 pp	4158.00	33.79	32.91	13.80	40.41	220	60.00	-19.91	vertical	Average
4	4158.00	43.20	32.91	13.80	40.41	220	80.00	-30.50	vertical	Peak
5	4464.00	24.91	34.66	14.36	40.41	136	60.00	-26.48	vertical	Average
6	4464.00	37.84	34.66	14.36	40.41	136	80.00	-33.55	vertical	Peak
7	4785.00	25.00	36.49	14.94	40.41	353	60.00	-23.98	vertical	Average
8 pk	4785.00	40.48	36.49	14.94	40.41	353	80.00	-28.50	vertical	Peak

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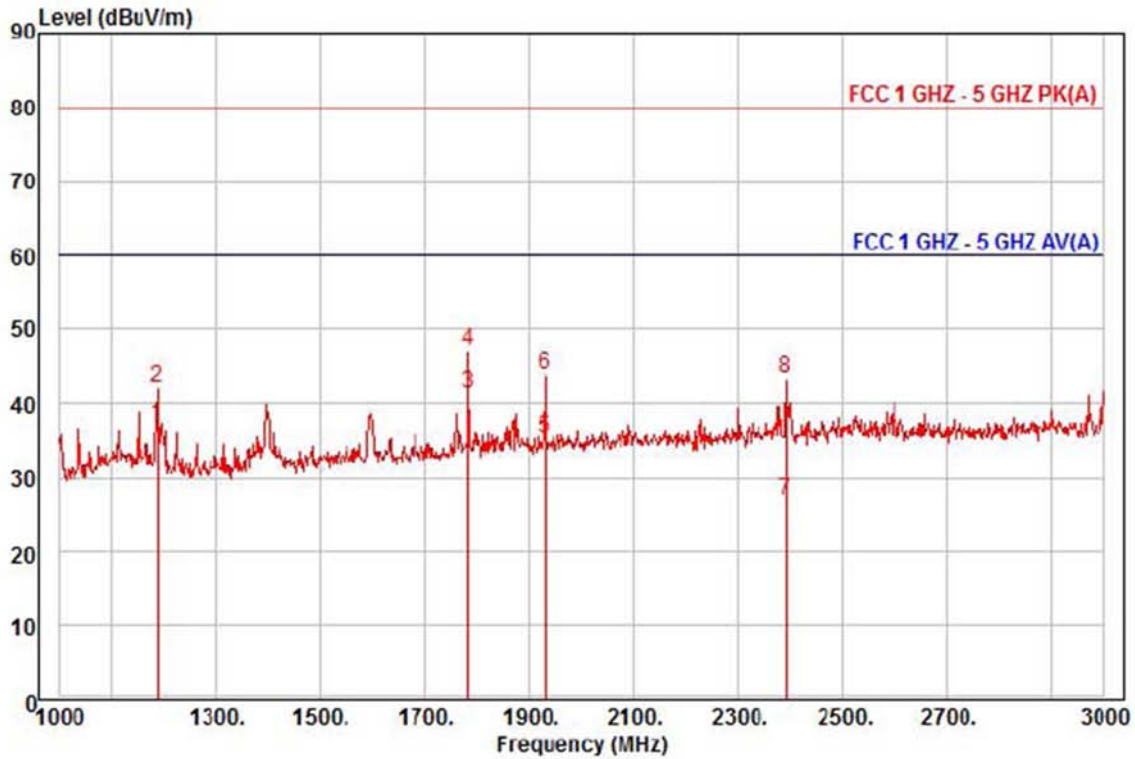


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Test report No.:
KES-E1-16T0247
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- PoE Mode



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 :
Model : QND-6020RN
Mode : POE
Memo : (1 ~ 3) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1188.00	45.44	24.66	7.06	40.03	223	60.00	-22.87	horizontal	Average
2	1188.00	50.50	24.66	7.06	40.03	223	80.00	-37.81	horizontal	Peak
3 pp	1782.00	45.44	27.01	8.75	39.74	322	60.00	-18.54	horizontal	Average
4 pk	1782.00	51.17	27.01	8.75	39.74	322	80.00	-32.81	horizontal	Peak
5	1930.00	38.18	27.60	9.16	39.66	316	60.00	-24.72	horizontal	Average
6	1930.00	46.91	27.60	9.16	39.66	316	80.00	-35.99	horizontal	Peak
7	2392.00	28.02	28.84	9.95	39.86	89	60.00	-33.05	horizontal	Average
8	2392.00	44.41	28.84	9.95	39.86	89	80.00	-36.66	horizontal	Peak

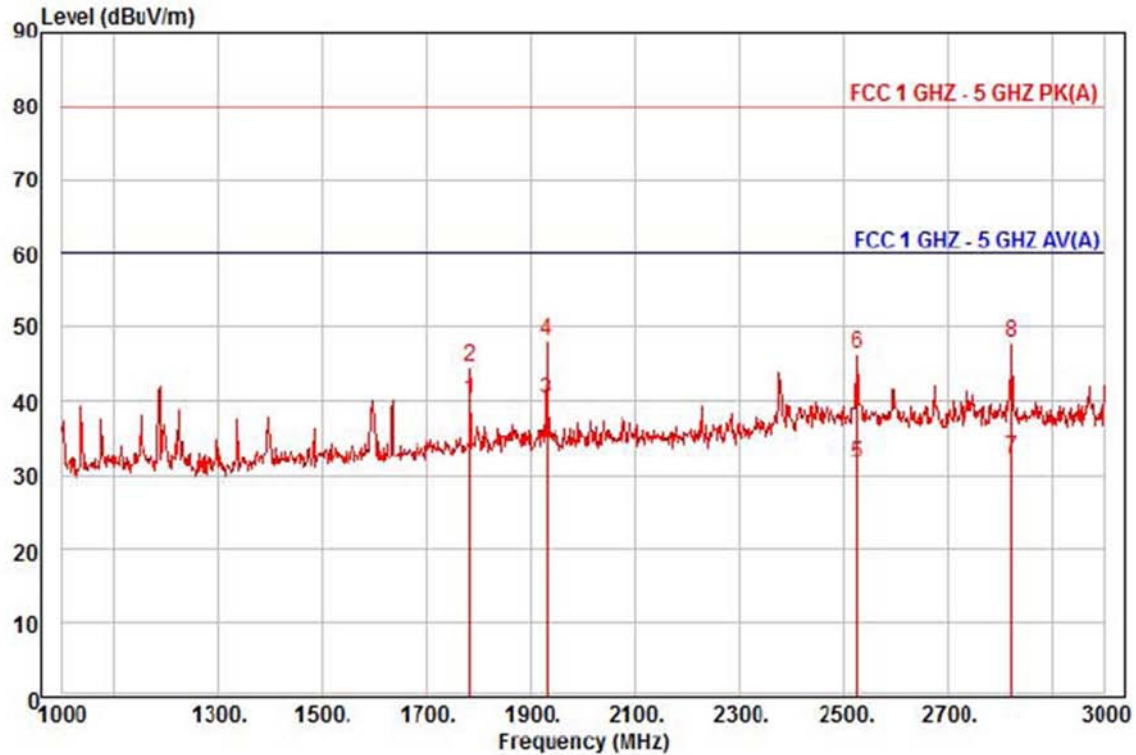
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Test report No.:
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6020RN
Mode : POE
Memo : (1 ~ 3) GHz

		Read	Ant	Cable	Preamp	TPos	Limit	Over		
	Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1782.00	44.27	27.01	8.75	39.74	311	60.00	-19.71	vertical	Average
2	1782.00	48.65	27.01	8.75	39.74	311	80.00	-35.33	vertical	Peak
3	1930.00	43.16	27.60	9.16	39.66	334	60.00	-19.74	vertical	Average
4 pk	1930.00	50.97	27.60	9.16	39.66	334	80.00	-31.93	vertical	Peak
5	2526.00	32.35	29.17	10.16	39.94	265	60.00	-28.26	vertical	Average
6	2526.00	47.01	29.17	10.16	39.94	265	80.00	-33.60	vertical	Peak
7	2822.00	31.76	29.89	10.80	40.11	277	60.00	-27.66	vertical	Average
8	2822.00	47.16	29.89	10.80	40.11	277	80.00	-32.26	vertical	Peak

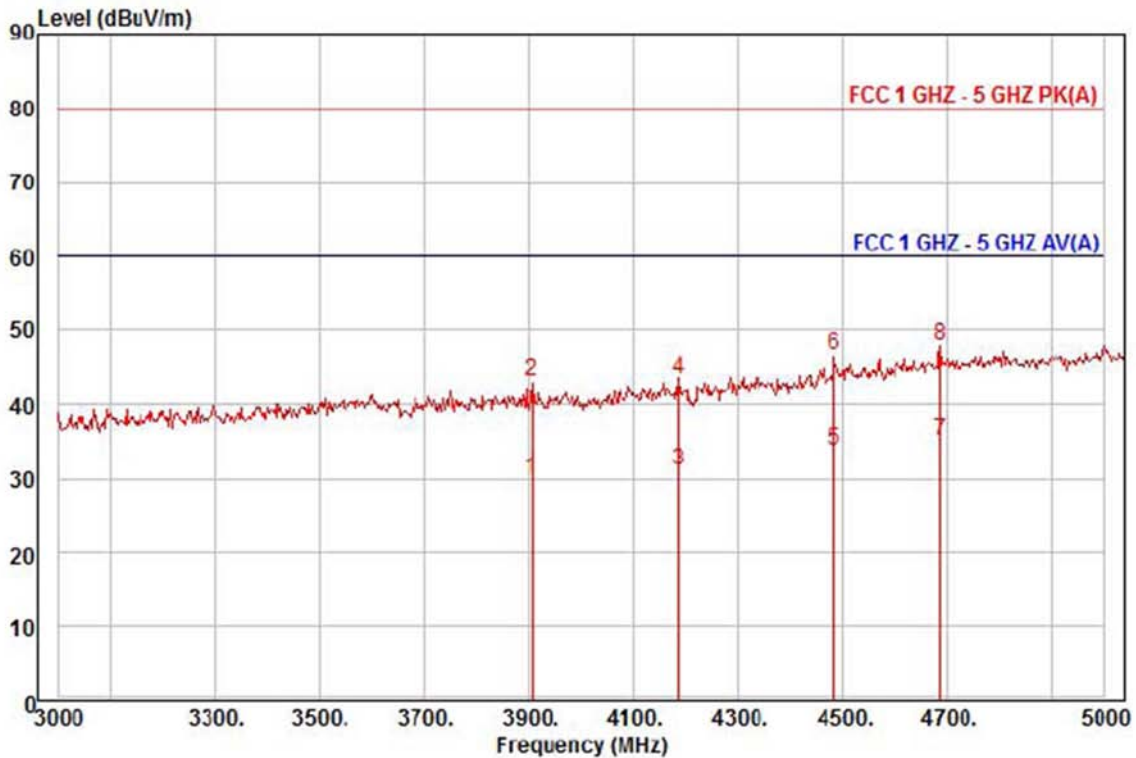
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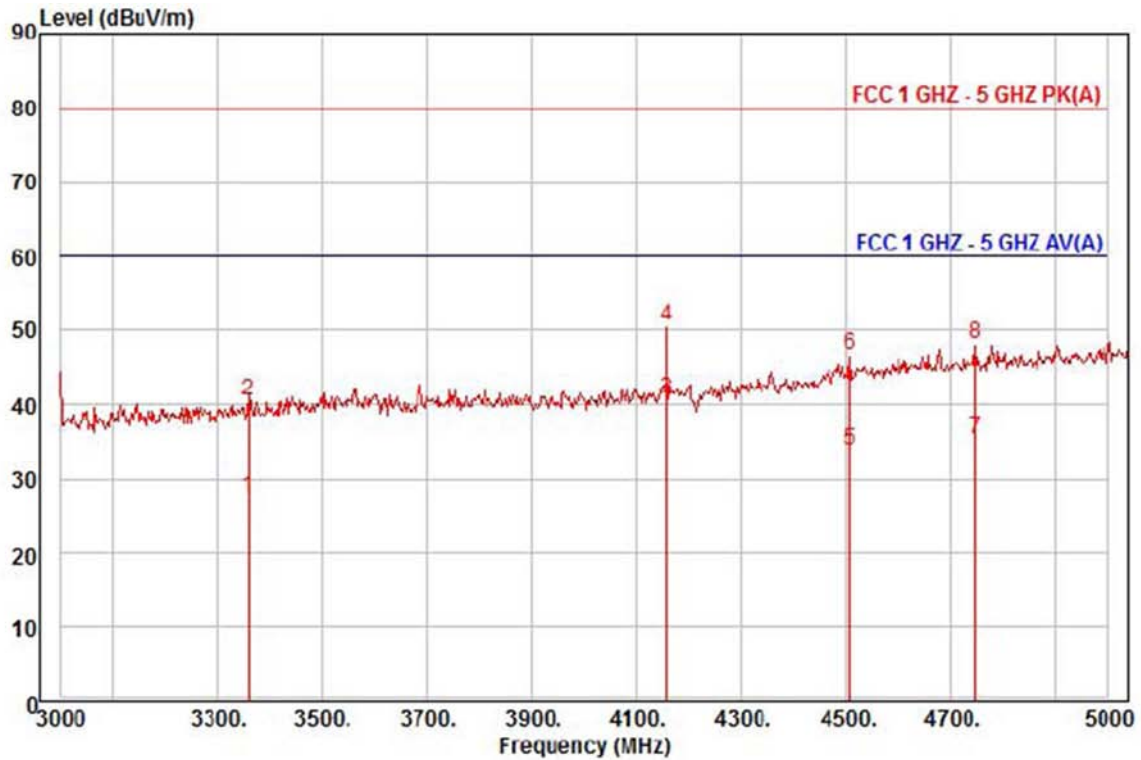
Test report No.:
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QND-6020RN
Mode : POE
Memo : (3 ~ 5) GHz

		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	3906.00	25.14	31.85	13.32	40.39	95	60.00	-30.08	horizontal	Average
2	3906.00	38.48	31.85	13.32	40.39	95	80.00	-36.74	horizontal	Peak
3	4185.00	24.70	33.07	13.85	40.41	173	60.00	-28.79	horizontal	Average
4	4185.00	36.93	33.07	13.85	40.41	173	80.00	-36.56	horizontal	Peak
5	4485.00	25.08	34.78	14.40	40.41	341	60.00	-26.15	horizontal	Average
6	4485.00	37.87	34.78	14.40	40.41	341	80.00	-33.36	horizontal	Peak
7 pp	4686.00	24.71	35.93	14.76	40.41	341	60.00	-25.01	horizontal	Average
8 pk	4686.00	37.52	35.93	14.76	40.41	341	80.00	-32.20	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 :
Model : QND-6020RN
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	3360.00	24.61	30.93	12.15	40.28	84	60.00	-32.59	vertical	Average
2	3360.00	37.66	30.93	12.15	40.28	84	80.00	-39.54	vertical	Peak
3 pp	4158.00	34.47	32.91	13.80	40.41	220	60.00	-19.23	vertical	Average
4 pk	4158.00	44.31	32.91	13.80	40.41	220	80.00	-29.39	vertical	Peak
5	4509.00	24.95	34.92	14.45	40.41	60	60.00	-26.09	vertical	Average
6	4509.00	37.63	34.92	14.45	40.41	60	80.00	-33.41	vertical	Peak
7	4749.00	24.61	36.29	14.88	40.41	84	60.00	-24.63	vertical	Average
8	4749.00	37.41	36.29	14.88	40.41	84	80.00	-31.83	vertical	Peak



Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

Radiated Electric Field Emissions(Below 1 GHz)

- DC 12V Mode



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- PoE Mode



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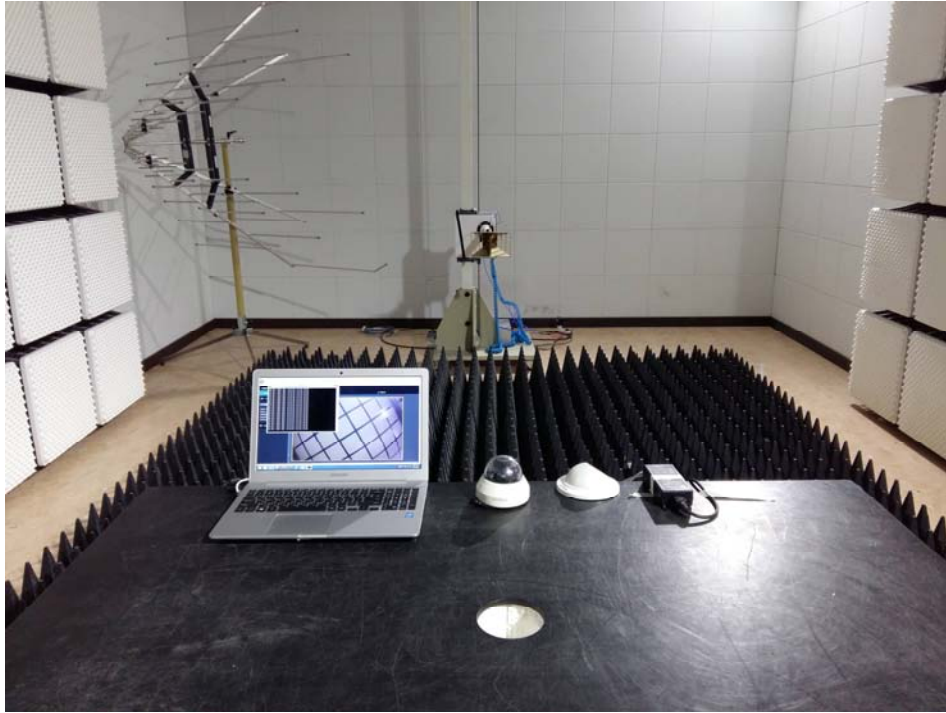
Radiated Electric Field Emissions(Above 1 GHz)

- 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)

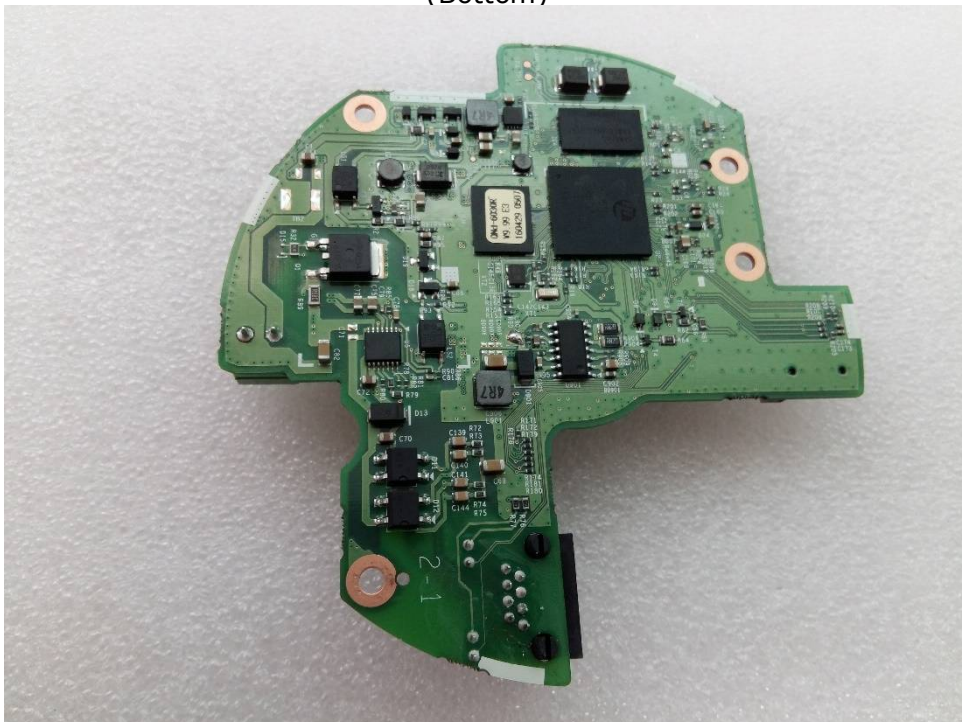


Main Board EUT Internal View – Main Board

(Top)



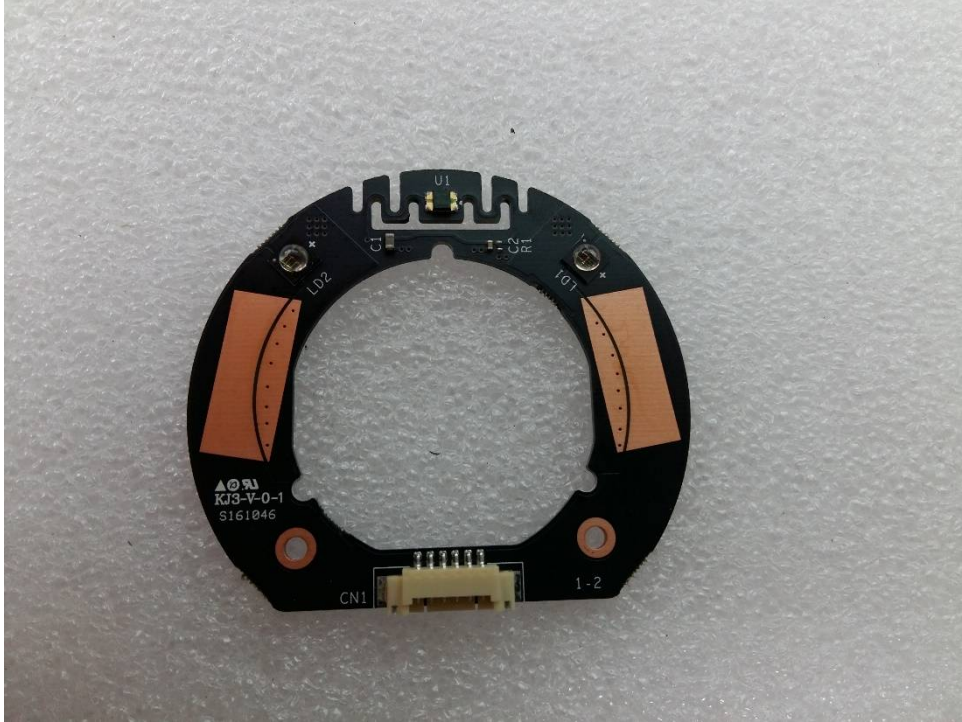
(Bottom)



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Main Board EUT Internal View – Sub Board

(Top)



(Bottom)



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Main Board EUT Internal View – Camera Board

(Top)



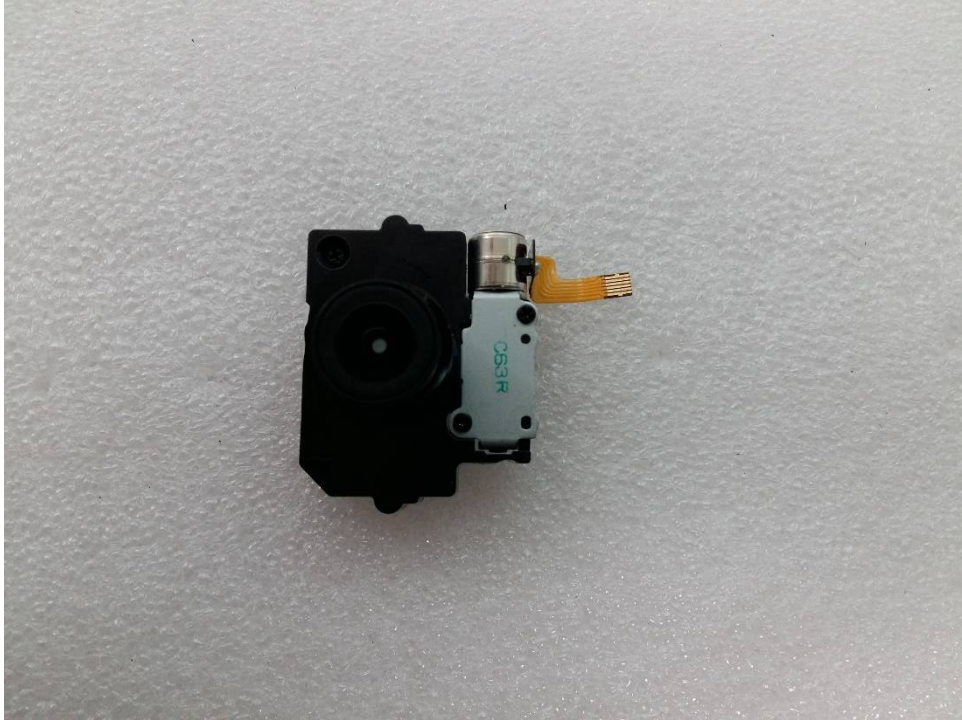
(Bottom)



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Main Board EUT Internal View – Camera Lens

(Top)

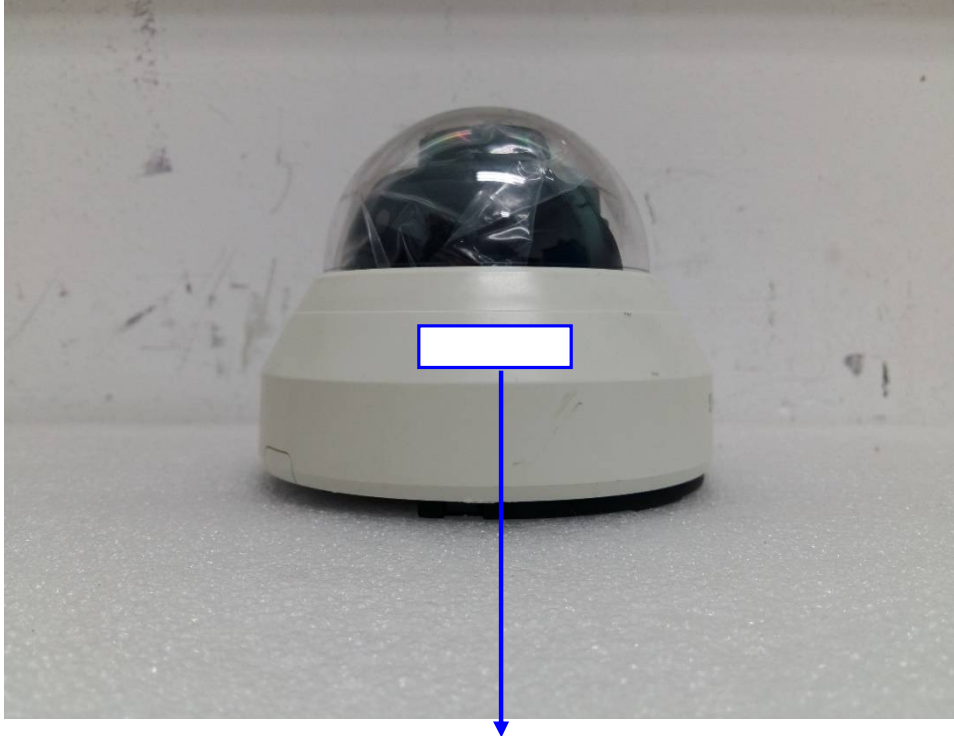


(Bottom)



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Label Photographs



This device complies with part 15 of the FCC Rules. Operation in subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.