

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:	QNO-6070RN
Variant Model:	-
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-E1-16T0323

NETWORK CAMERA, Model QNO-6070RN 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-E1-16T0323

Date of Issue: 07. 06. 2016

Dong Hun, Jang
Technical Manager
Signature:



KES.Co., Ltd.

C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 431-716, Korea
Tel: +82-31-425-6200 // Fax: +82-31-424-0450



EMC TEST REPORT For FCC

Test Report No. : KES-E1-16T0323
Date of Issue : Jul. 06, 2016
Product name : NETWORK CONTROLLER
7
Model/Type No. : QNO-6070RN
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
Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification
Date of Receipt : Jun. 16, 2016
Test date : Jun. 30, 2016 ~ Jul. 01, 2016
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Dea Jung, choi
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0323
Page (2) of (37)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jul. 06, 2016	KES-E1-16T0323	Issued

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document Jun be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	5
1.2	Variant Model Differences.....	5
1.3	Device Modifications	5
1.4	Equipment Under Test.....	5
1.5	Support Equipments	5
1.6	External I/O Cabling	6
1.7	EUT Operating Mode(s)	6
1.8	Configuration.....	7
1.9	Calibration Details of Equipment Used for Measurement	8
1.10	Test Facility	8
1.11	Laboratory Accreditations and Listings	8
2.0	Test Regulations.....	9
2.1	Conducted Emissionsat Mains Power Ports.....	11
2.2	Radiated Electric Field Emissions(Below 1 GHz)	12
2.3	Radiated Electric Field Emissions(Above 1 GHz)	13
APPENDIX A – TEST DATA.....		14
Conducted Emissions at Mains Power Ports.....		14
Radiated Electric Field Emissions(Below 1 GHz)		16
Radiated Electric Field Emissions(Above 1 GHz)		17
Test Setup Photos and Configuration		25
Conducted Voltage Emissions		25
Radiated Electric Field Emissions(Below 1 GHz)		26
Radiated Electric Field Emissions(Above 1 GHz)		28
EUT External Photographs		30
EUT Internal Photographs		31



1.0 General Product Description

Main Specifications of EUT are:

Video		Video	
Imaging Device	1/2.9" 2.19M CMOS	Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000(H) x 1,121(V)	Total Pixels	2,000(H) x 1,121(V)
Effective Pixels	1,984(H) x 1,105(V)	Effective Pixels	1,984(H) x 1,105(V)
Scanning System	Progressive	Scanning System	Progressive
Min. Illumination	Color : 0.095Lux B/W : 0Lux	Min. Illumination	Color : 0.095Lux B/W : 0Lux
Lens		Lens	
Focal Length (Zoom Ratio)	Manual 2.8~12mm	Focal Length (Zoom Ratio)	Manual 2.8~12mm
Max. Aperture Ratio	F1.4	Max. Aperture Ratio	F1.4
Angular Field of View	H 103.8~32.4° / V 53.7~18.4°/D 121.9~37.1°	Angular Field of View	H 103.8~32.4° / V 53.7~18.4°/D 121.9~37.1°
Min. Object Distance	-	Min. Object Distance	-
Lens Type	Manual	Lens Type	Manual
Focus control	DC auto iris	Focus control	DC auto iris
Mount Type	Board type	Mount Type	Board type
Pan / Tilt / Rotate		Pan / Tilt / Rotate	
Pan Range	0	Pan Range	0
Tilt Range	0	Tilt Range	0
Rotate Range	0	Rotate Range	0
Operational		Operational	
IR Viewable Length	30m	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	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	Day & Night	True Day & Night
Backlight Compensation	Off / BLC	Backlight Compensation	Off / BLC
Wide Dynamic Range	120dB	Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR(Off / On)	Digital Noise Reduction	SSNR(Off / On)
Motion Detection	Off / On (4ea polygon zones)	Motion Detection	Off / On (4ea polygon zones)
Privacy Masking	Off / On (6ea rectangular zones)	Privacy Masking	Off / On (6ea rectangular zones)
Gain Control	Off / Low / Middle / High	Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor	White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)	LDC(Lens distortion control)	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker	Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Halfway view	Flip / Mirror	Flip / Mirror / Halfway view
Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus	Intelligent Video Analytics	Motion Detection with metadata, Tampering, Defocus
Alarm I/O	Input 1 / Output 1	Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error, Alarm input, Defocus detection	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	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)	Pixel Counter	Support (plug-in viewer only)

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



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-6070RN	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	RT3290LE	5CD242B043	HP	-
Notebook Adapter	Series PPP009L-E	WCNWVOA3U3G31S	LITE-ON TECHNOLOGY (CHANGZHOU) Co., Ltd.	-
Alarm Jig	-	-	-	-
PoE Adapter	PD3001GC/AC	RD9356082016964200	Power Dsine	-
MIC	CMK-303	-	CAMAC	-
Micro SD Card	-	-	SanDisk	-

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	1.7	S
	Alarm	Alarm Jig	Alarm	3.0	U
	Micro SD Card slot	Micro SD Card	-	-	-

- 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 Out	1.7	U
	Alarm	Alarm Jig	-	3.0	U
	Micro SD Card slot	Micro SD Card	-	-	-
PoE Adapter	RJ-45	Notebook	RJ45	3.0	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

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

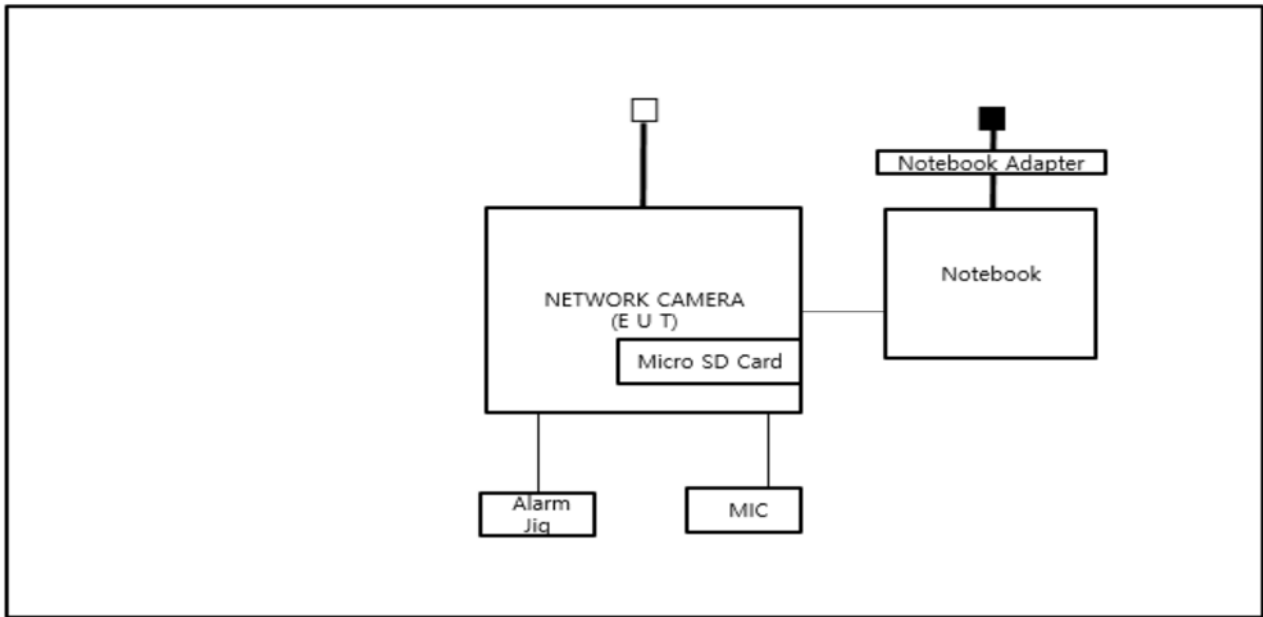
Test mode	Normal operating
OP	MONITORING Network ping test

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

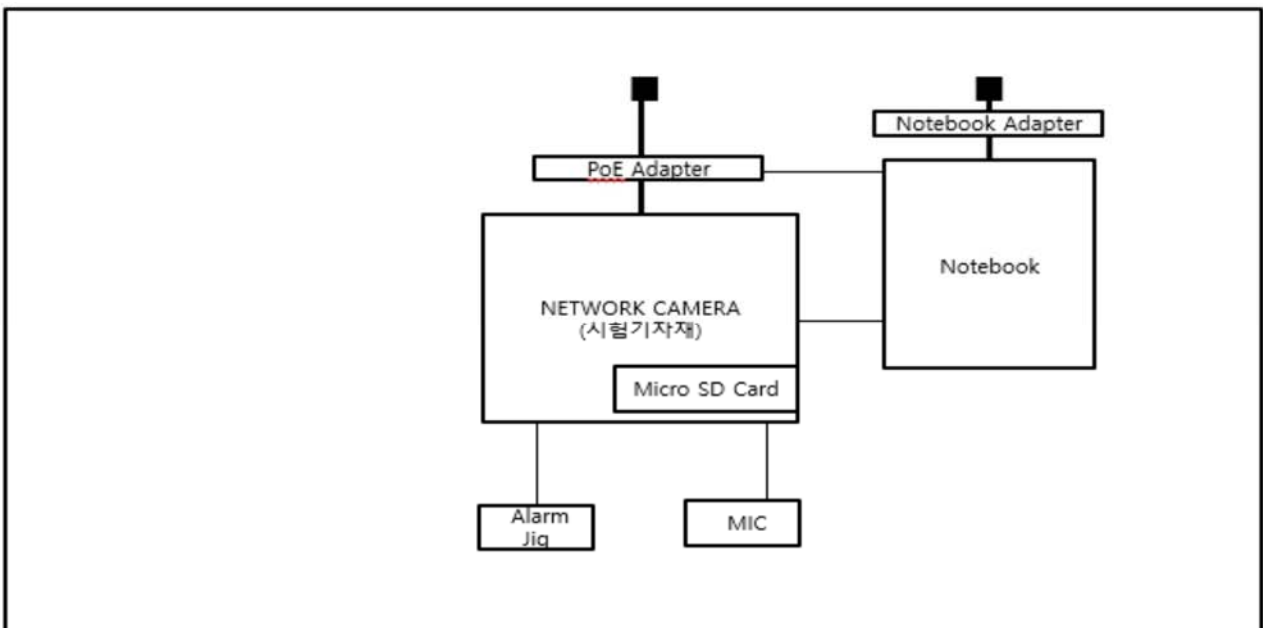
1.8 Configuration

■ AC Main
 □ DC Main

- DC 12 V Mode



- PoE Mode



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 / 2015.04**

☐ Class A

☐ Class B

☐ **AS/NZS CISPR22:2009 +A1:2010**

☐ Class A

☐ Class B

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☒ Class A

☐ Class B

☒ ANSI C63.4-2009

☐ **IC Regulation ICES-003 : 2016**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☐ ANSI C63.4-2014

☐ **RE- Directive 2014/53/EU**

☐ EN 301 489-1 V1.9.2

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

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002



2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature: °C
Relative Humidity: %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

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



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jun. 30, 2016

Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-715	04, 14, 2018
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	1070/1080	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 21,3 °C

Relative Humidity: 67,0 %

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

Jul. 01, 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: 21,3 °C
Relative Humidity: 54,8 %

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



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0323
Page (15) of (37)

[NEUTRAL]

N/A

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

**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]
222.74	20.65	V	1.00	11.96	3.08	35.69	46.40	10.71
297.03	20.46	H	3.96	13.35	3.69	37.50	46.40	8.90
371.25	19.96	V	1.12	14.95	4.03	38.94	46.40	7.46
408.34	11.67	H	3.19	15.71	4.28	31.66	46.40	14.74
445.51	10.83	H	2.44	16.36	4.55	31.74	46.40	14.66
482.63	15.82	V	1.00	17.00	4.82	37.64	46.40	8.76

* H : Horizontal, V : Vertical

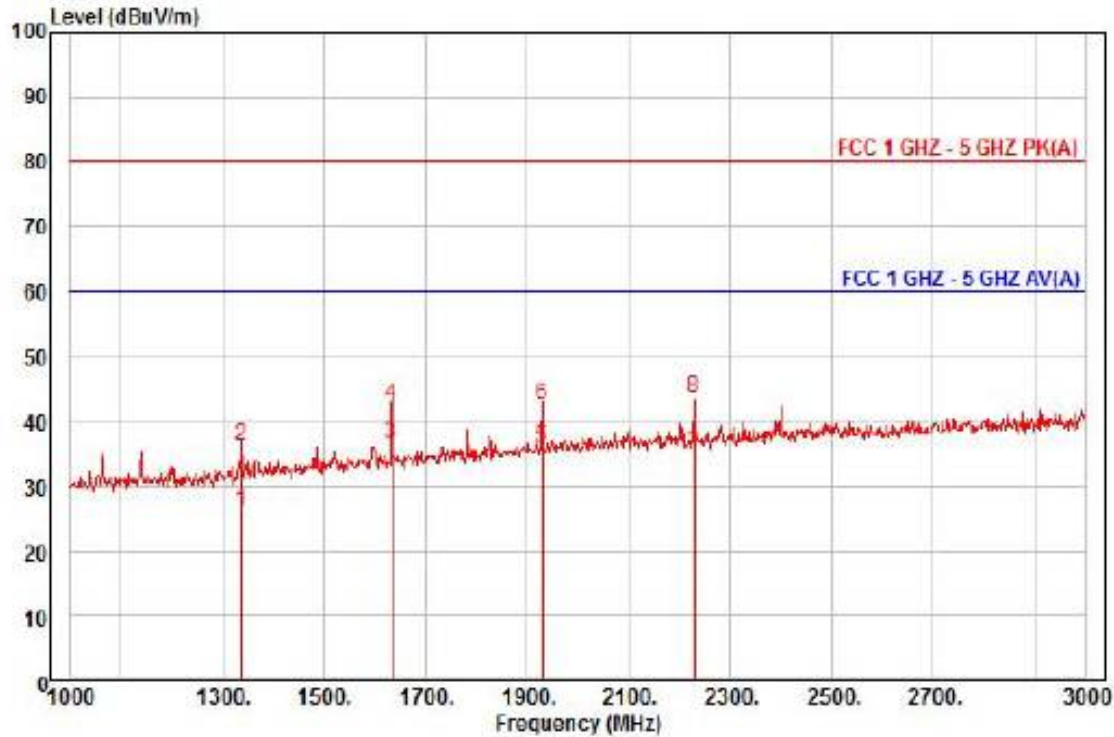
- PoE Mode

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]
222.73	21.78	V	1.06	11.96	3.08	36.82	46.40	9.58
296.99	16.22	H	4.00	13.35	3.69	33.26	46.40	13.14
371.25	19.66	H	3.29	14.95	4.03	38.64	46.40	7.76
445.74	17.56	H	3.52	16.36	4.55	38.47	46.40	7.93
446.32	17.53	V	1.00	16.37	4.56	38.46	46.40	7.94
482.81	17.90	V	1.17	17.00	4.82	39.72	46.40	6.68

* H : Horizontal, V : Vertical

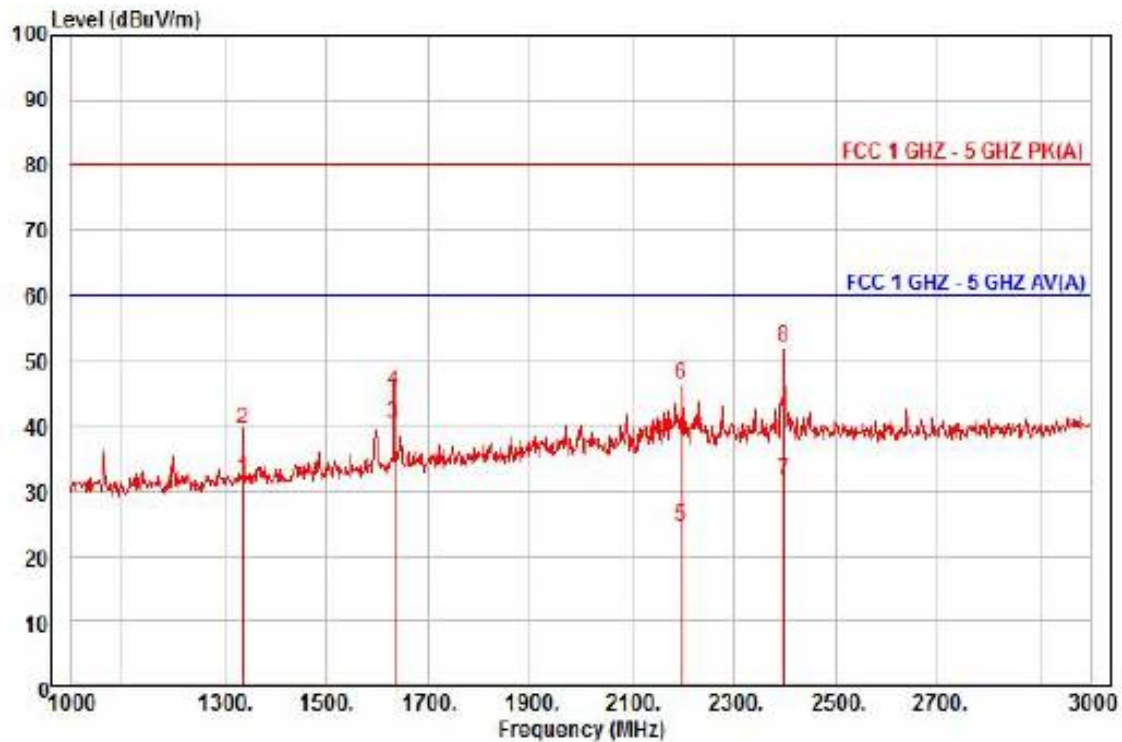
Radiated Electric Field Emissions(Above 1 GHz)

- 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 : QNO-6070RN
Mode : DC12V
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	33.46	25.24	7.48	39.96	204	60.00	-33.78	horizontal	Average
2	1336.00	43.45	25.24	7.48	39.96	204	80.00	-43.79	horizontal	Peak
3 pp	1634.00	41.62	26.43	8.34	39.81	286	60.00	-23.42	horizontal	Average
4	1634.00	47.43	26.43	8.34	39.81	286	80.00	-37.61	horizontal	Peak
5	1930.00	38.78	27.60	9.16	39.66	124	60.00	-24.12	horizontal	Average
6	1930.00	45.47	27.60	9.16	39.66	124	80.00	-37.43	horizontal	Peak
7	2228.00	36.38	28.44	9.70	39.76	135	60.00	-25.24	horizontal	Average
8 pk	2228.00	45.29	28.44	9.70	39.76	135	80.00	-36.33	horizontal	Peak



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 : QNO-6070RN
Mode : DC12V
Memo : 1 ~ 3 GHz

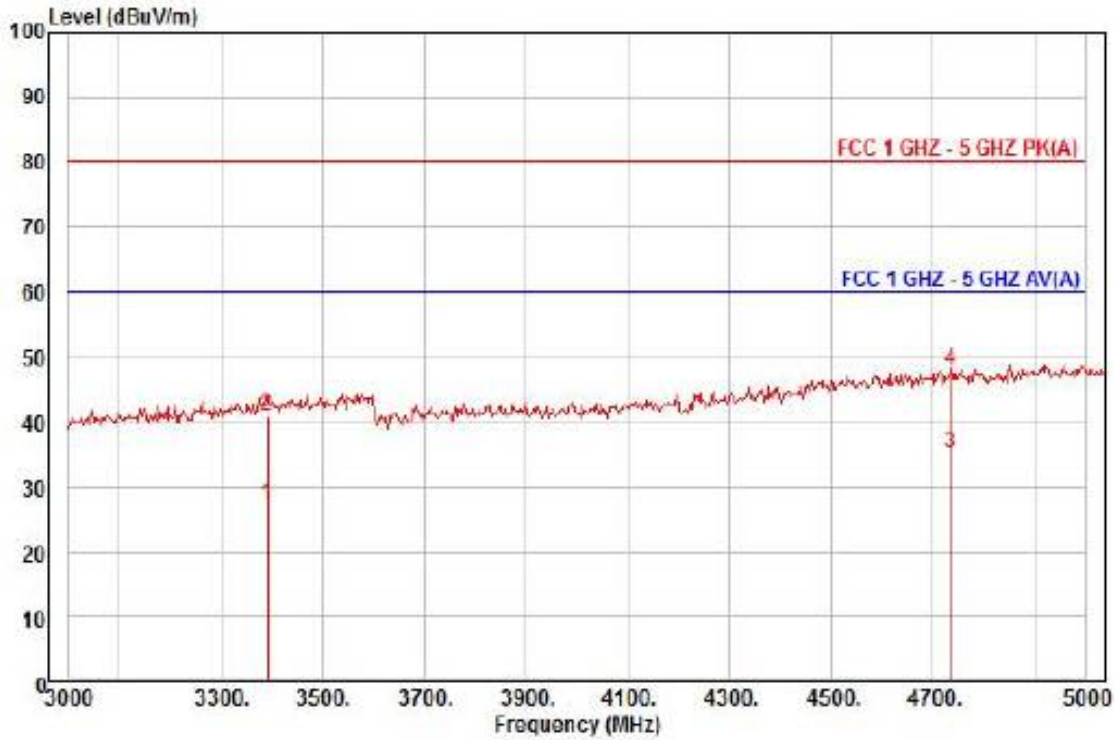
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	39.06	25.24	7.48	39.96	197	60.00	-28.18	vertical	Average
2	1336.00	46.68	25.24	7.48	39.96	197	80.00	-40.56	vertical	Peak
3 pp	1634.00	45.44	26.43	8.34	39.81	125	60.00	-19.60	vertical	Average
4	1634.00	50.20	26.43	8.34	39.81	125	80.00	-34.84	vertical	Peak
5	2198.00	26.28	28.37	9.65	39.74	156	60.00	-35.44	vertical	Average
6	2198.00	48.05	28.37	9.65	39.74	156	80.00	-33.67	vertical	Peak
7	2398.00	32.76	28.86	9.96	39.86	168	60.00	-28.28	vertical	Average
8 pk	2398.00	53.19	28.86	9.96	39.86	168	80.00	-27.85	vertical	Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

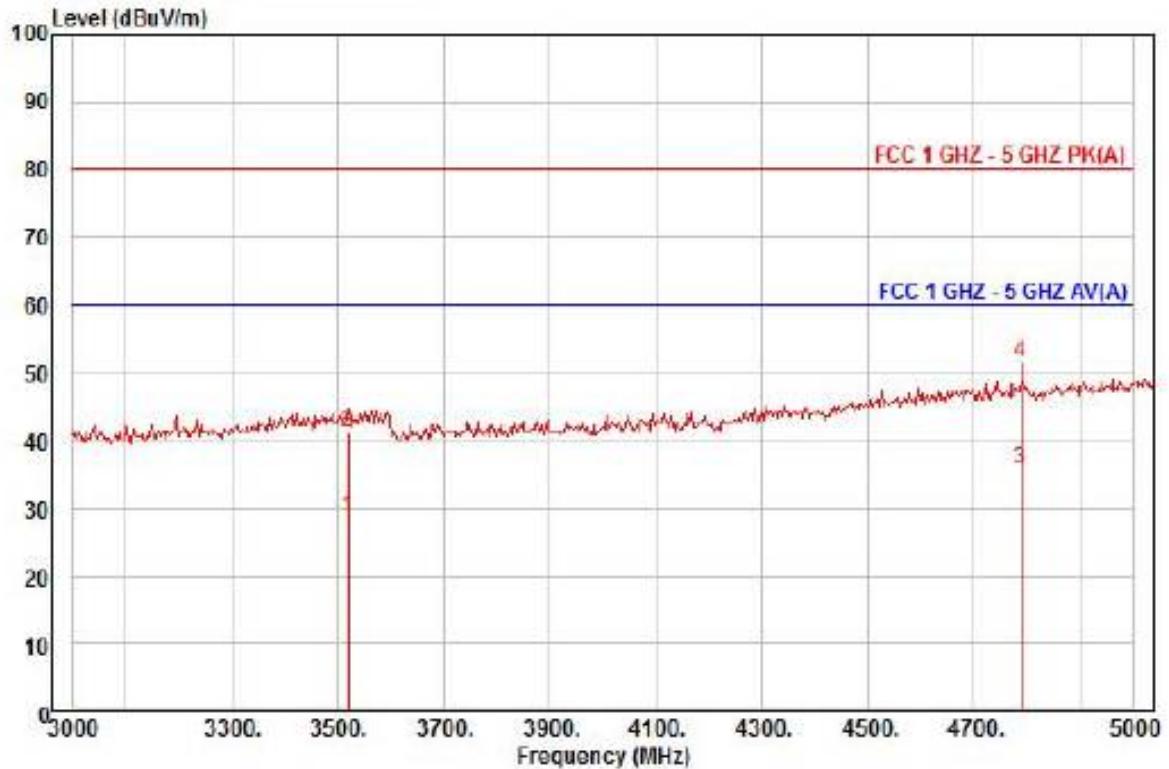
Test report No.:
KES-EI-16T0323
Page (19) of (37)



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 : QNO-6070RN
Mode : DC12V
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	3390.00	24.25	30.99	12.23	40.29	165	60.00	-32.82	horizontal	Average
2	3390.00	37.82	30.99	12.23	40.29	165	80.00	-39.25	horizontal	Peak
3	4737.00	24.40	36.22	14.86	40.41	334	60.00	-24.93	horizontal	Average
4	4737.00	37.36	36.22	14.86	40.41	334	80.00	-31.97	horizontal	Peak
5 pp	5046.00	23.46	37.63	15.38	40.40	152	60.00	-23.93	horizontal	Average
6	5046.00	36.02	37.63	15.38	40.40	152	80.00	-31.37	horizontal	Peak
7	5463.00	23.31	36.78	15.88	40.35	291	60.00	-24.38	horizontal	Average
8 pk	5463.00	36.72	36.78	15.88	40.35	291	80.00	-30.97	horizontal	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

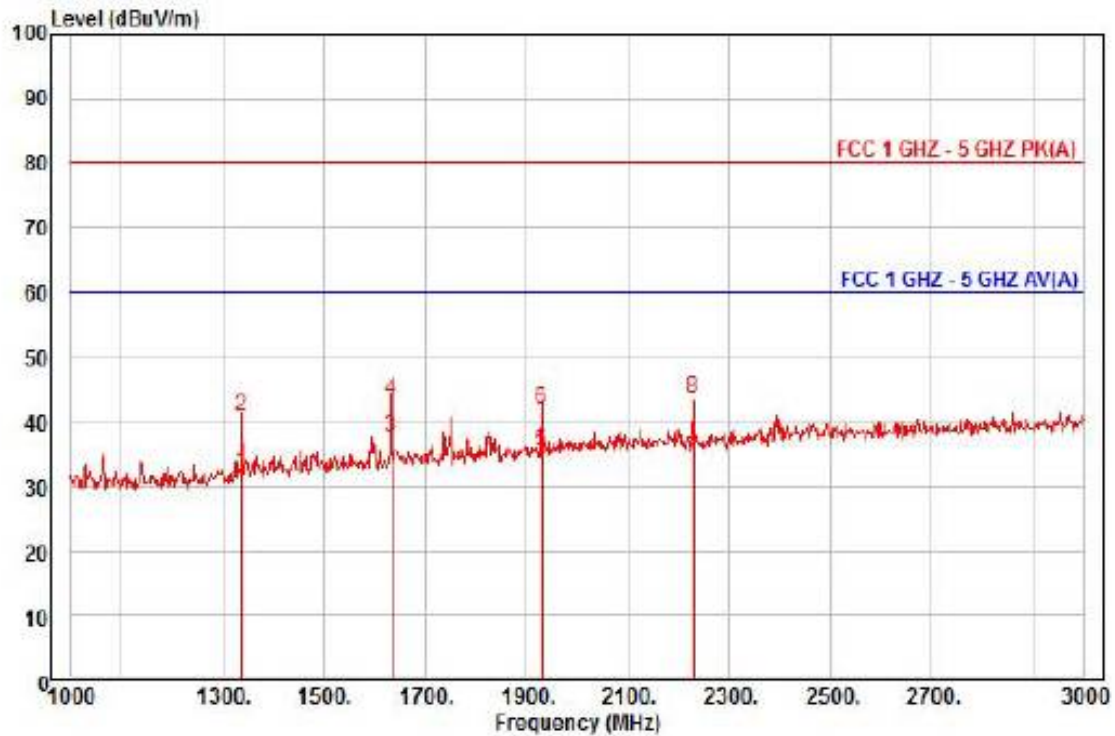


Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : QNO-6070RN
Mode : DC12V
Memo : 3 ~ 5 GHz

	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	3519.00	25.04	31.20	12.55	40.31	281	60.00	-31.52	vertical	Average
2	3519.00	37.84	31.20	12.55	40.31	281	80.00	-38.72	vertical	Peak
3	4788.00	24.58	36.51	14.95	40.41	184	60.00	-24.37	vertical	Average
4 pk	4788.00	40.40	36.51	14.95	40.41	184	80.00	-28.55	vertical	Peak
5 pp	5301.00	23.35	37.11	15.69	40.37	252	60.00	-24.22	vertical	Average
6	5301.00	36.14	37.11	15.69	40.37	252	80.00	-31.43	vertical	Peak



- 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 : QNO-6070RN
Mode : PoE
Memo : 1 ~ 3 GHz

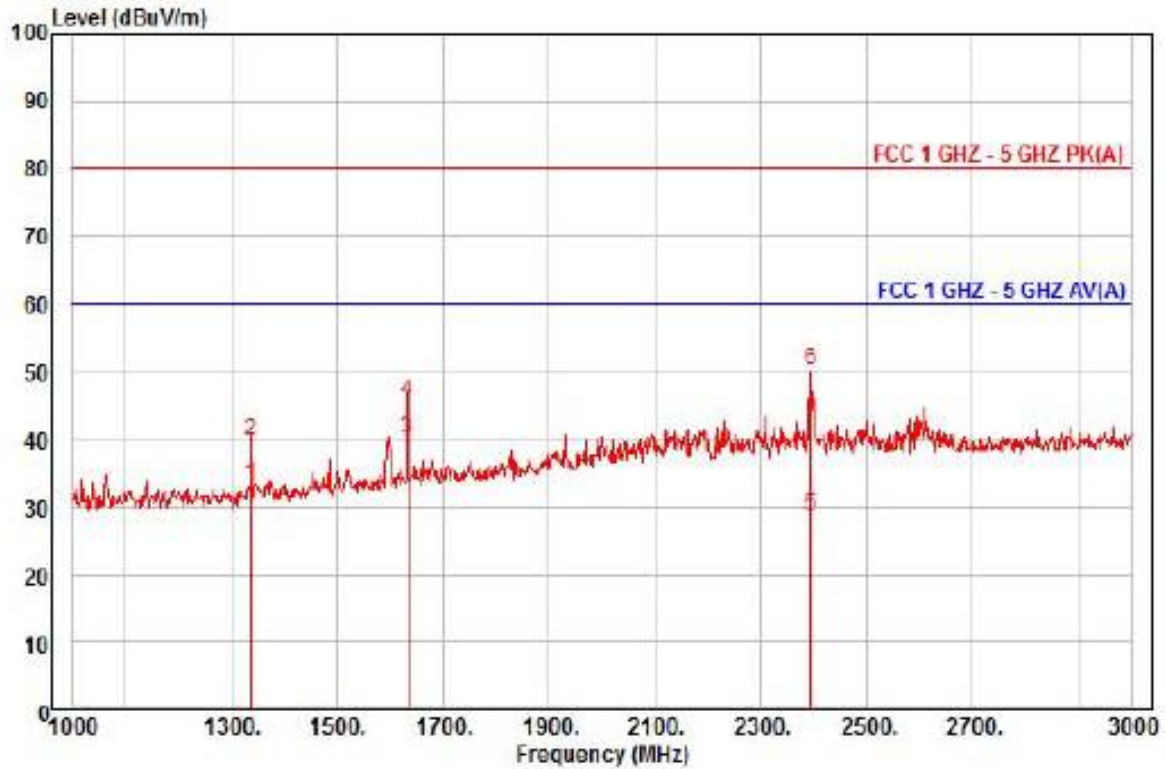
	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1336.00	39.35	25.24	7.48	39.96	129	60.00	-27.89	horizontal	Average
2	1336.00	48.15	25.24	7.48	39.96	129	80.00	-39.09	horizontal	Peak
3 pp	1634.00	42.56	26.43	8.34	39.81	155	60.00	-22.48	horizontal	Average
4	1634.00	48.42	26.43	8.34	39.81	155	80.00	-36.62	horizontal	Peak
5	1930.00	38.25	27.60	9.16	39.66	203	60.00	-24.65	horizontal	Average
6	1930.00	44.89	27.60	9.16	39.66	203	80.00	-38.01	horizontal	Peak
7	2228.00	35.86	28.44	9.70	39.76	129	60.00	-25.76	horizontal	Average
8 pk	2228.00	45.16	28.44	9.70	39.76	129	80.00	-36.46	horizontal	Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

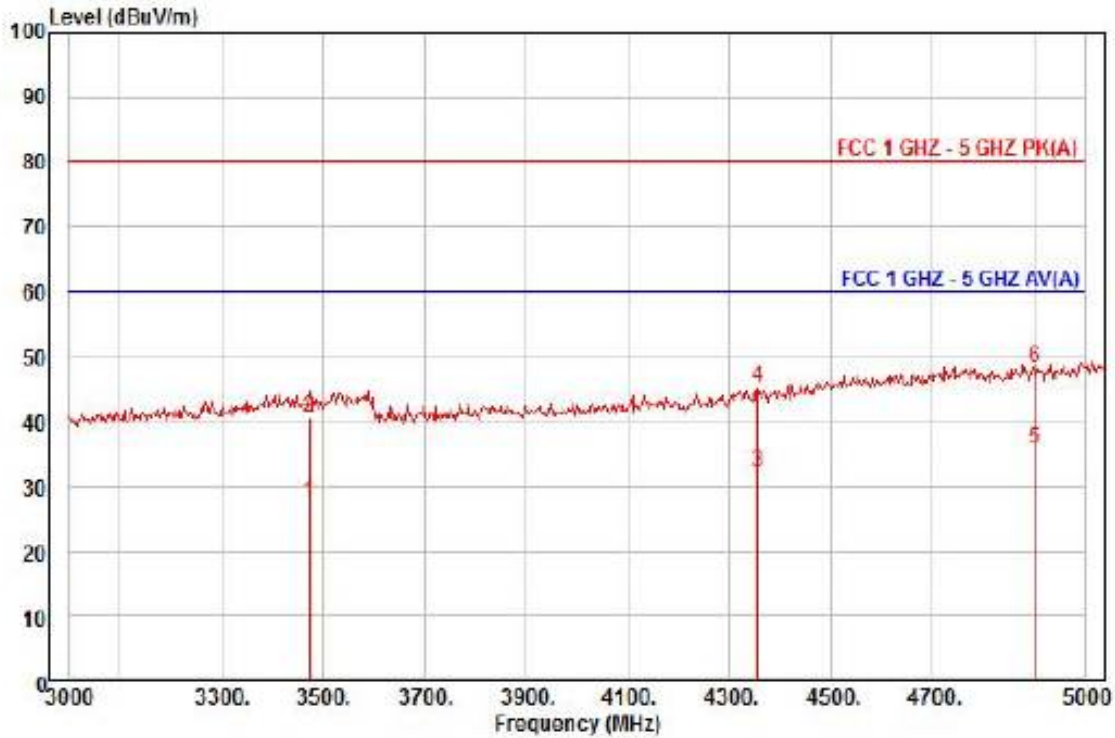
Test report No.:
KES-E1-16T0323
Page (22) of (37)



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 : QNO-6070RN
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	1336.00	40.61	25.24	7.48	39.96	339	60.00	-26.63	vertical	Average
2	1336.00	46.90	25.24	7.48	39.96	339	80.00	-40.34	vertical	Peak
3 pp	1634.00	45.22	26.43	8.34	39.81	122	60.00	-19.82	vertical	Average
4	1634.00	50.52	26.43	8.34	39.81	122	80.00	-34.52	vertical	Peak
5	2394.00	29.72	28.85	9.95	39.86	183	60.00	-31.34	vertical	Average
6 pk	2394.00	51.22	28.85	9.95	39.86	183	80.00	-29.84	vertical	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Site : chamber

Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal

: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto

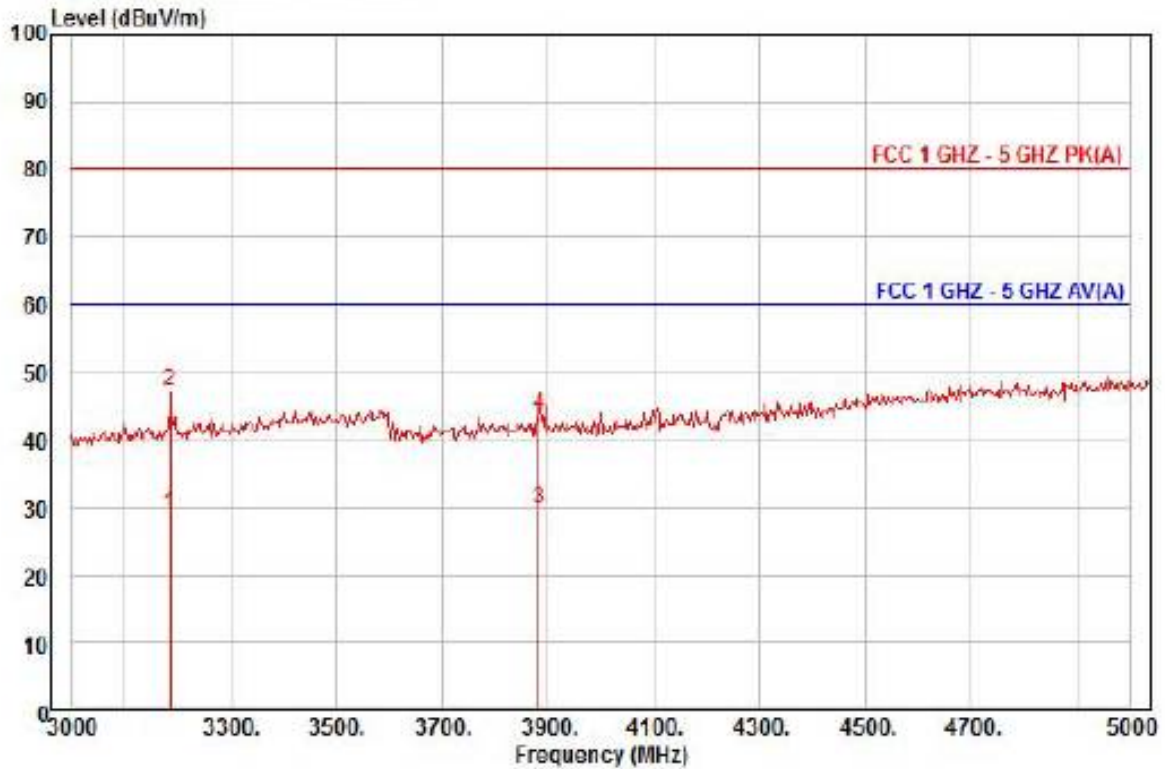
Project : NETWORK CAMERA

Model : QNO-6070RN

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	3474.00	24.32	31.13	12.44	40.30	223	60.00	-32.41	horizontal	Average
2	3474.00	37.24	31.13	12.44	40.30	223	80.00	-39.49	horizontal	Peak
3	4356.00	24.47	34.04	14.17	40.41	278	60.00	-27.73	horizontal	Average
4	4356.00	37.47	34.04	14.17	40.41	278	80.00	-34.73	horizontal	Peak
5 pp	4902.00	23.92	37.16	15.15	40.41	243	60.00	-24.18	horizontal	Average
6	4902.00	36.46	37.16	15.15	40.41	243	80.00	-31.64	horizontal	Peak
7	5499.00	23.04	36.71	15.92	40.34	58	60.00	-24.67	horizontal	Average
8 pk	5499.00	36.26	36.71	15.92	40.34	58	80.00	-31.45	horizontal	Peak



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 : QNO-6070RN
Mode : PoE
Memo : 3 ~ 5 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	3186.00	26.67	30.64	11.70	40.25	158	60.00	-31.24	vertical	Average
2	3186.00	44.99	30.64	11.70	40.25	158	80.00	-32.92	vertical	Peak
3	3882.00	25.08	31.81	13.27	40.39	62	60.00	-30.23	vertical	Average
4	3882.00	39.03	31.81	13.27	40.39	62	80.00	-36.28	vertical	Peak
5 pp	5118.00	23.24	37.48	15.47	40.39	190	60.00	-24.20	vertical	Average
6 pk	5118.00	36.07	37.48	15.47	40.39	190	80.00	-31.37	vertical	Peak



Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- PoE Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

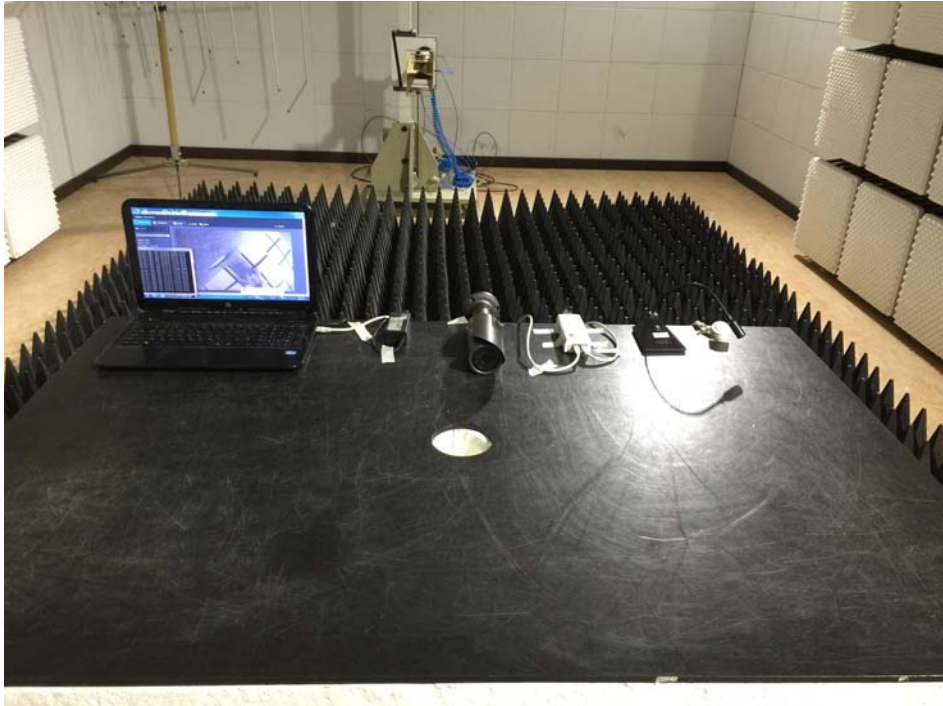
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- PoE Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT External Photographs

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal Photographs

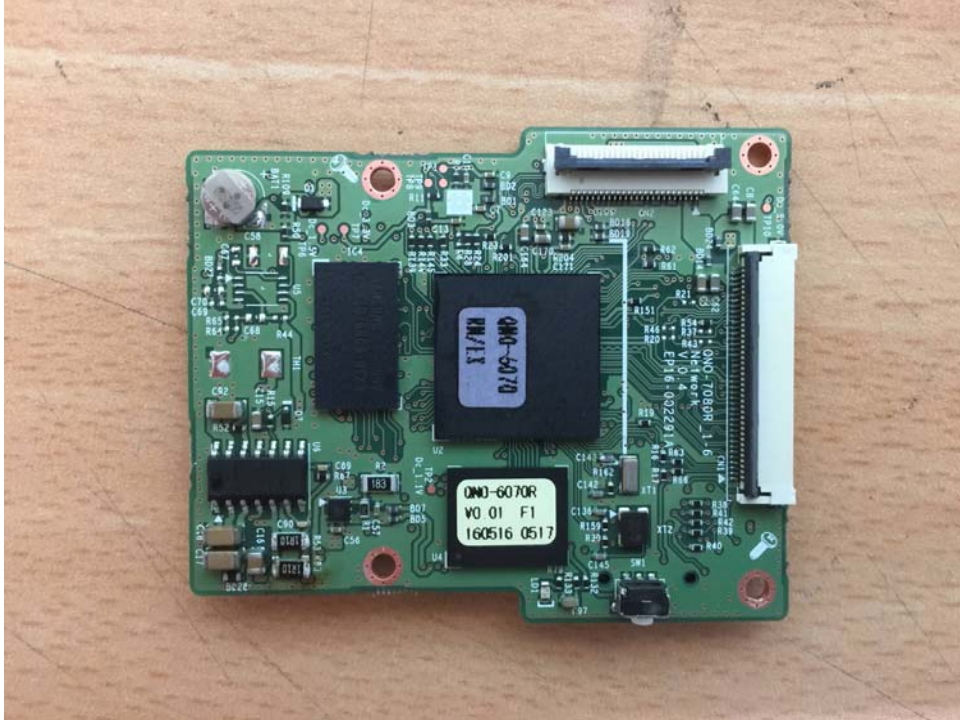
(Internal View)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – Main Board

(Top)



(Bottom)



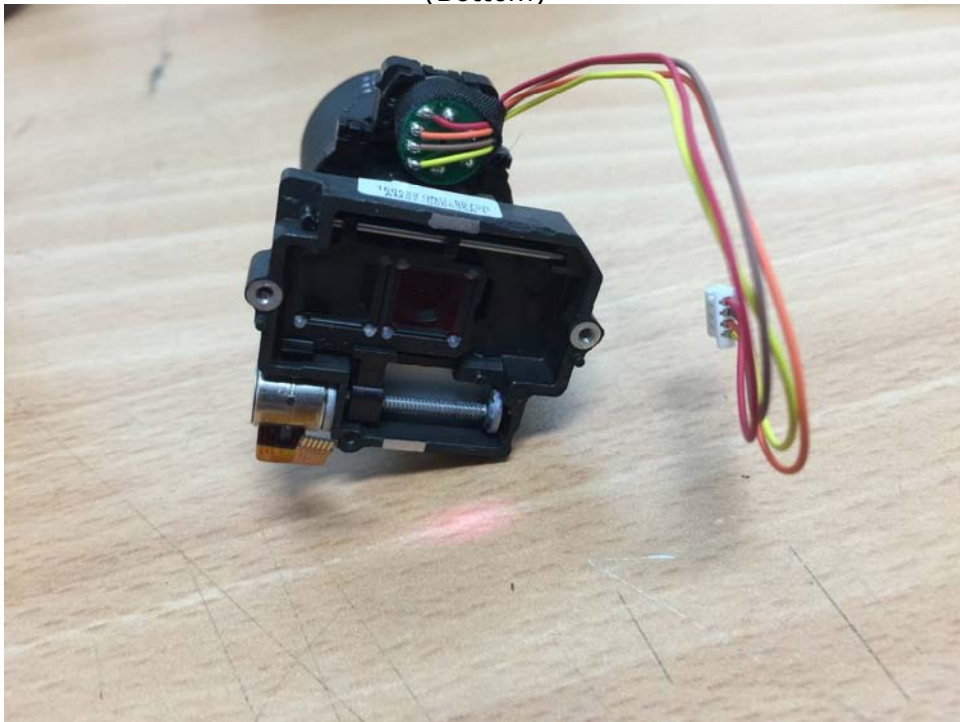
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – lens

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – LED Board

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – Power Board

(Top)



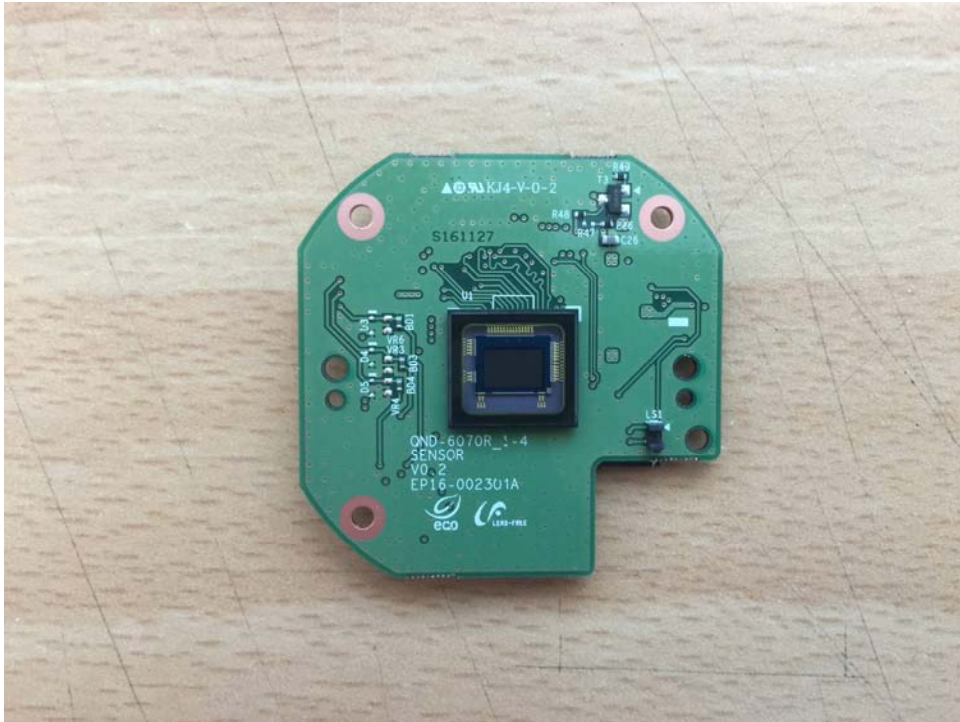
(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT Internal View – Sensor Board

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

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.