

DECLARATION OF CONFORMITY

We; Hanwha Techwin Co., Ltd.

DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCT;

Report No: KES-E1-16T0209

**Type of
equipment:** NETWORK CAMERA

Model Name: QNV-7030RP

Variant Model: QNV-7020RP, QNV-7010RP

Applicant: Hanwha Techwin Co., Ltd.

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

Manufacturer : Tianjin Samsung Techwin Opto-
Electronic Co.,Ltd.

Address: No.11 Weiliu Rd, Micro-Electronic
Industrial Park, TEDA, Tianjin, 300385,
People's Republic of China

Test standards : AS/NZS CISPR22:2009+A1:2010

Classification: C-Tick

The above equipment was tested by EMC compliance Testing Laboratory for with the requirements of C-tick Rules and Regulations. The results of testing in this report apply to the product / system which was tested only.

May. 13. 2016
(Date of issue)

(Name and signature of authorized person)



EMC TEST REPORT For C-TICK

Test Report No. : KES-E1-16T0209

Date of Issue : May. 13, 2016

Product name : NETWORK CAMERA

Model/Type No. : QNV-7030RP

Variant Model : QNV-7020RP, QNV-7010RP

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. 02, 2016

Test date : May. 09, 2016

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

Tested by

Yeong Suk, Song
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-E1-16T0209
Page (2) of (42)

REPORT REVISION HISTORY

Date	Revision	Page No
May. 13, 2016	KES-E1-16T0209	Issued

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may 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 Emissions at Mains Power Ports	11
2.2	Conducted Emissions at Telecommunication Ports	12
2.3	Radiated Electric Field Emissions(Below 1 GHz)	13
2.4	Radiated Electric Field Emissions(Above 1 GHz)	14
APPENDIX A – TEST DATA		15
Conducted Emissions at Mains Power Ports		15
Conducted Emissions at Telecommunication Ports.....		17
Radiated Electric Field Emissions(Below 1 GHz)		21
Radiated Electric Field Emissions(Above 1 GHz)		22
Test Setup Photos and Configuration.....		30
Conducted Voltage Emissions		30
Conducted Telecommunication Emissions		31
Radiated Electric Field Emissions(Below 1 GHz)		33
Radiated Electric Field Emissions(Above 1 GHz)		35
EUT External Photographs.....		37
EUT Internal Photographs		38

KES Co., Ltd.



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 ☐ 230 Vac ☒ PoE ☒ 12 Vdc
Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Variant Model	Remarks
QNV-7020RP	Focus Length differences
QNV-7010RP	

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNV-7030RP	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE	HICC-P-2100XIRV	15030100002	Honeywell	-
Notebook	NT630Z5J	JK9091EF400142M	Samsung Electronics Suzhou Computer Co., Ltd.	-
NotebookK Adapter	A13-040N2A	CN60BA4400313ADON 843K0200	Chicony Power Technology (suzhou)Co., Ltd.	-
Alarm	SIE-0001 DO	C54167JB601268 F	SAMSUNG TECHWIN CO., LTD.	-
Micro SD card	-	-	Transcend	4 GB

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
	Micro SD card SLOT	Micro SD card	Micro SD card SLOT	-	-

- 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
	Micro SD card SLOT	Micro SD card	Micro SD card SLOT	-	-
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:

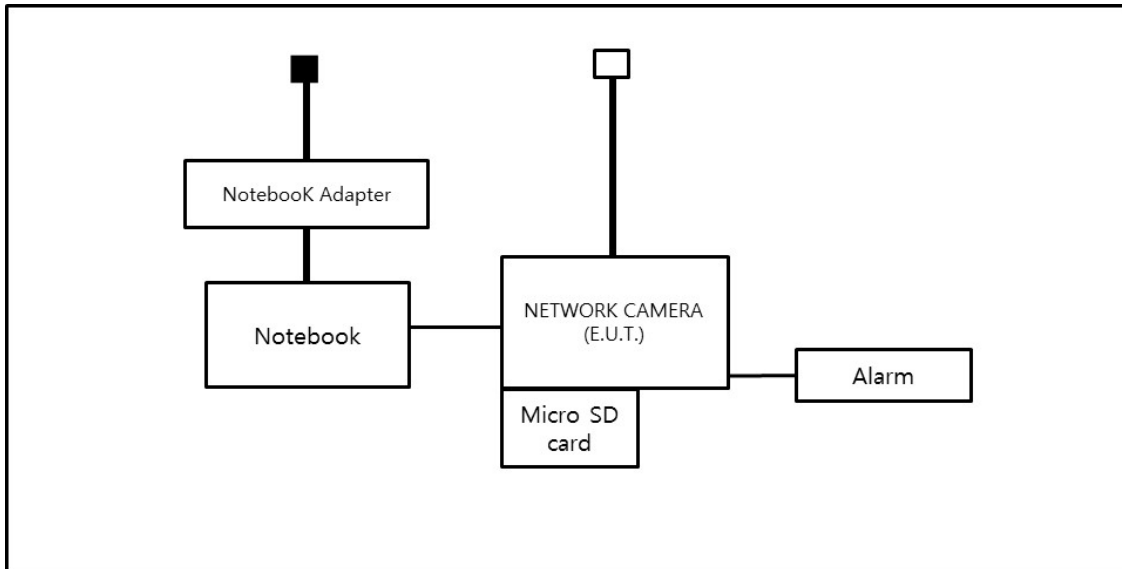
Test mode	Normal operating
OP	MONITORING Network ping test

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

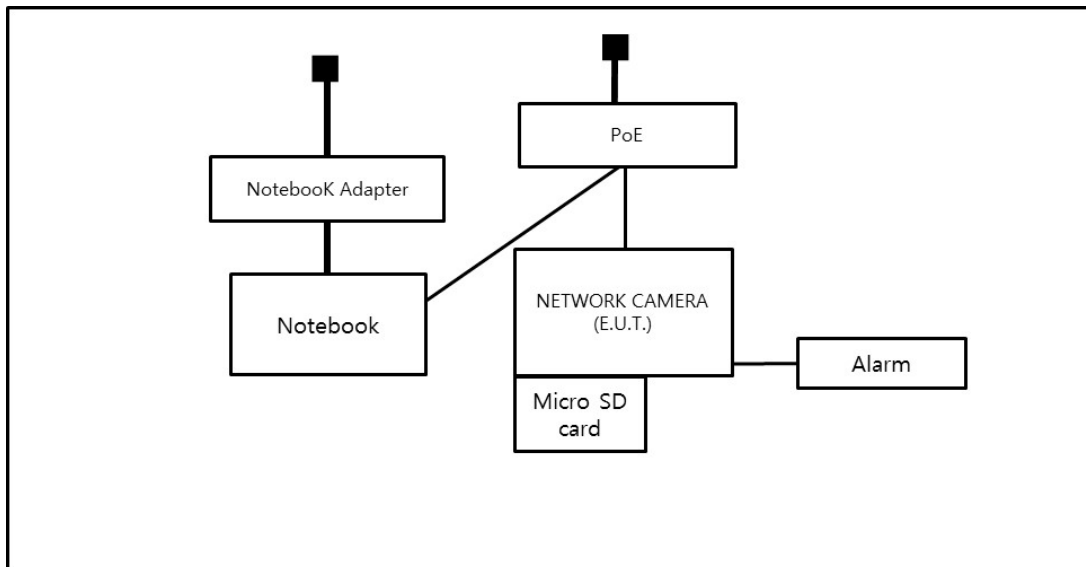
1.8 Configuration

■ AC Main
 □ DC Main

- DC 12 V Mode



- PoE Mode



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



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-E1-16T0209

Page (10) of (42)

☐ **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

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.



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 SHIELD	-	-

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

Beacause 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. 09, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Tesr 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	-	SEMITEC	-	-

Test Conditions

Temperature: 25,7 °C

Relative Humidity: 39,7 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

TestResults

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. 09, 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, 06, 2016
☒	Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9168-713	05, 15, 2017
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 27,4 °C
Relative Humidity: 28,0 %

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. 09, 2016

Test Location

Semi Anechoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	EMI Test Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
☒	Semi Anechoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 25,7 °C
Relative Humidity: 39,7 %

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.



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-E1-16T0209
Page (15) of (42)

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

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.



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-E1-16T0209
Page (16) of (42)

[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.



Conducted Emissions at Telecommunication Ports

- DC 12V Mode

[10 Mbps]

Common Information

Test Description:

Telecommunication Emission

Model No.:

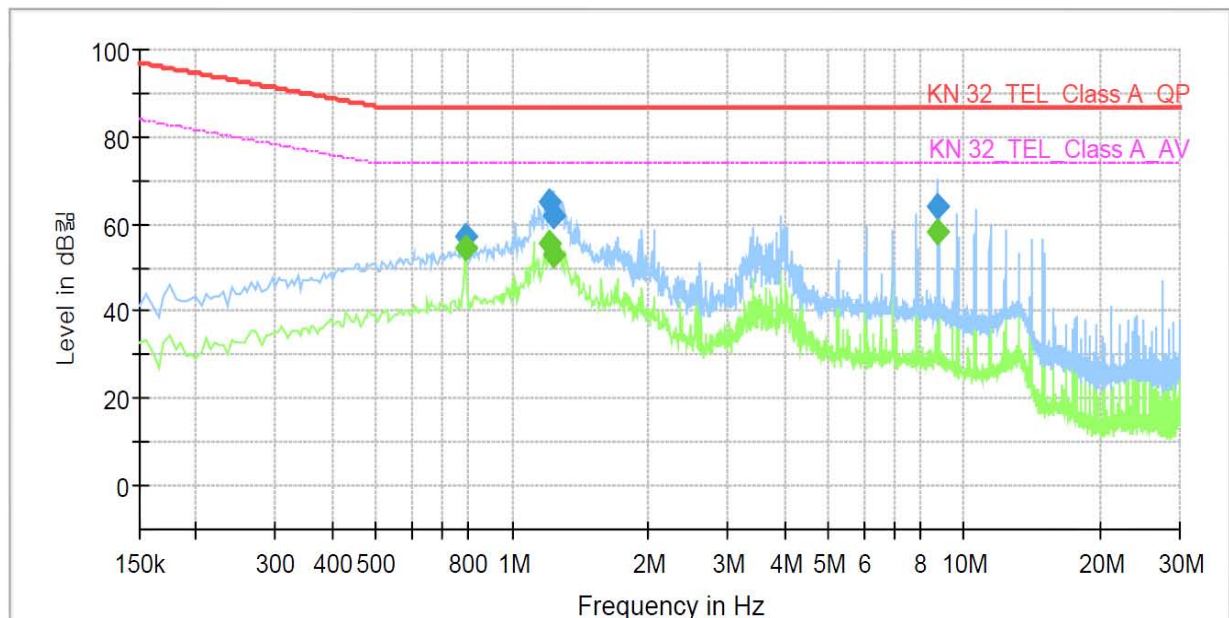
QNV-7030RP

Mode

10 Mbps

Operator Name:

KES



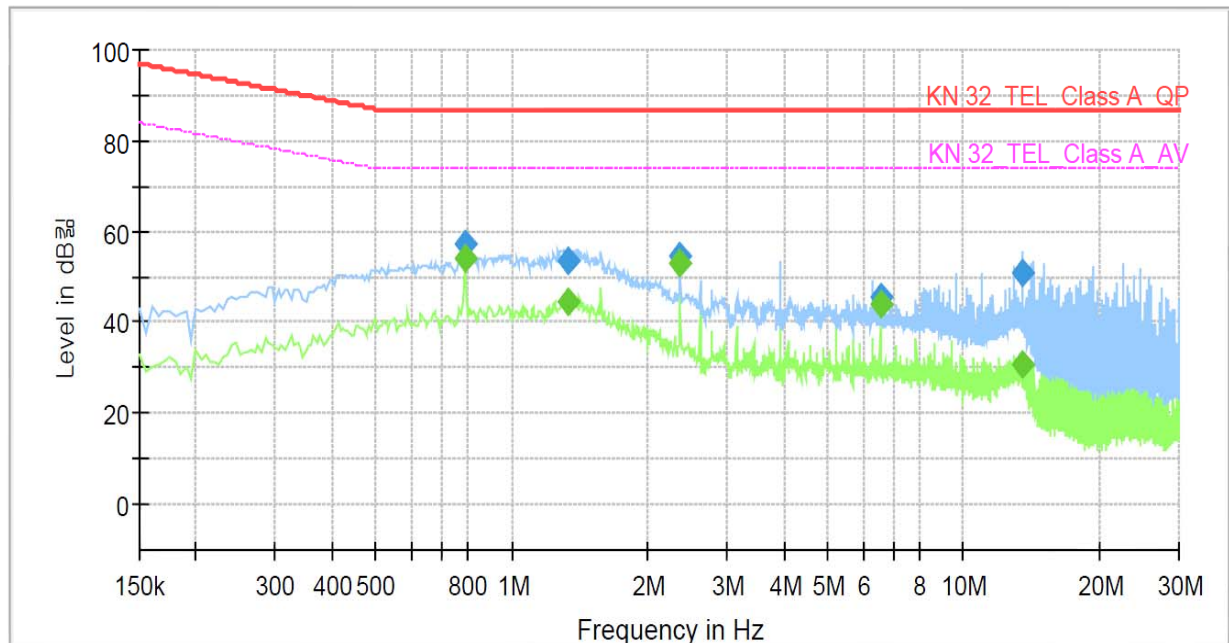
Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.785000	---	54.69	74.00	19.31	1000.0	9.000	Single Line	9.9
0.785000	57.37	---	87.00	29.63	1000.0	9.000	Single Line	9.9
1.215000	---	55.47	74.00	18.53	1000.0	9.000	Single Line	9.8
1.215000	65.17	---	87.00	21.83	1000.0	9.000	Single Line	9.8
1.230000	---	52.68	74.00	21.32	1000.0	9.000	Single Line	9.8
1.230000	61.71	---	87.00	25.29	1000.0	9.000	Single Line	9.8
8.750000	---	58.02	74.00	15.98	1000.0	9.000	Single Line	10.0
8.750000	64.18	---	87.00	22.82	1000.0	9.000	Single Line	10.0

[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNV-7030RP
Mode: 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	---	54.18	74.00	19.82	1000.0	9.000	Single Line	9.4
0.785000	57.12	---	87.00	29.88	1000.0	9.000	Single Line	9.4
1.330000	---	44.29	74.00	29.71	1000.0	9.000	Single Line	9.3
1.330000	53.61	---	87.00	33.39	1000.0	9.000	Single Line	9.3
2.360000	---	53.16	74.00	20.84	1000.0	9.000	Single Line	9.3
2.360000	54.36	---	87.00	32.64	1000.0	9.000	Single Line	9.3
6.545000	---	43.80	74.00	30.20	1000.0	9.000	Single Line	9.5
6.545000	45.73	---	87.00	41.27	1000.0	9.000	Single Line	9.5
13.555000	---	30.56	74.00	43.44	1000.0	9.000	Single Line	9.6
13.555000	50.80	---	87.00	36.20	1000.0	9.000	Single Line	9.6

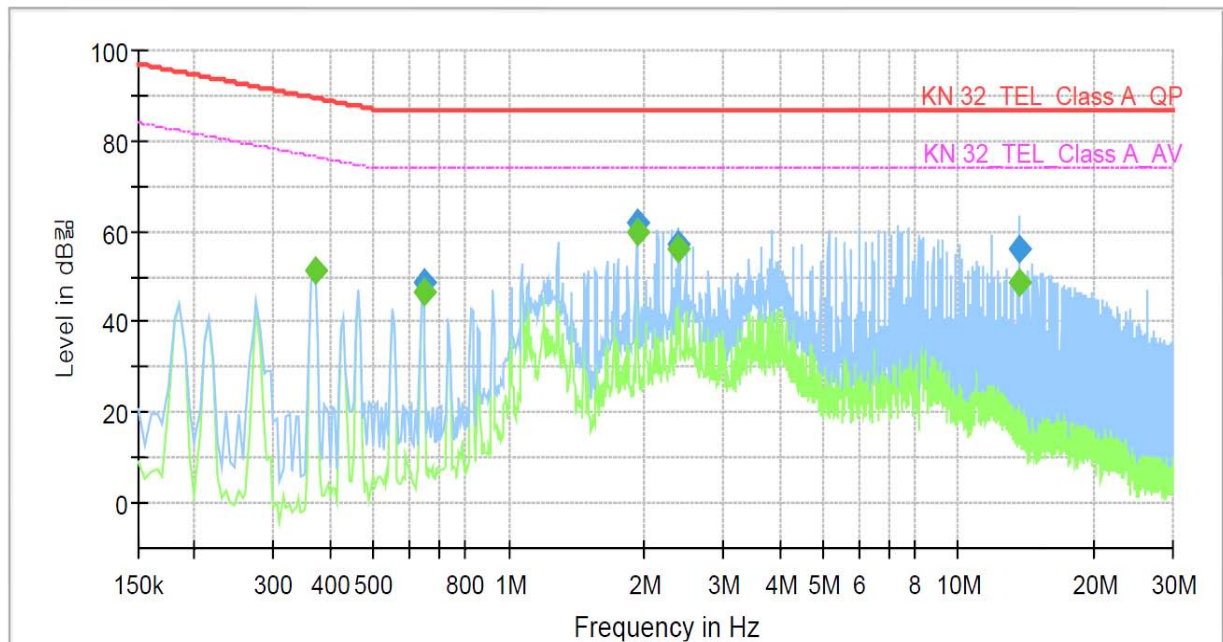


- PoE Mode

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNV-7030RP
Mode: 10 Mbps
Operator Name: KES



Final Result

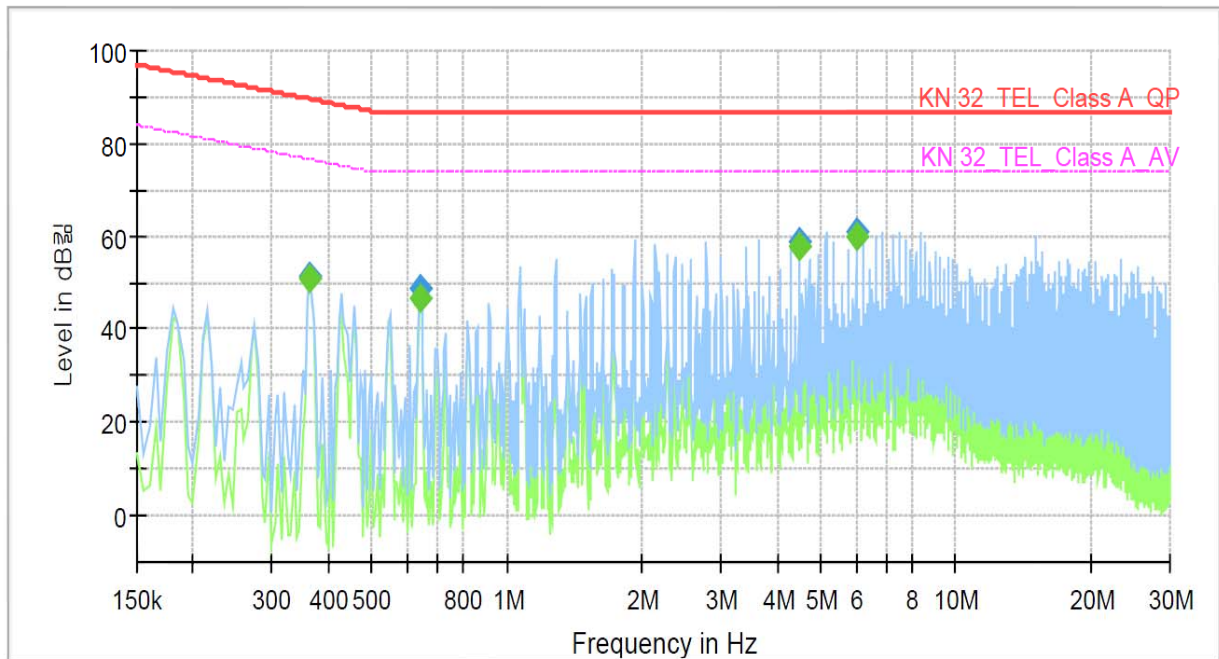
Frequency (MHz)	QuasiPeak (dBm)	CAverage (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	---	51.15	76.50	25.35	1000.0	9.000	Single Line	10.0
0.370000	51.19	---	89.50	38.31	1000.0	9.000	Single Line	10.0
0.645000	---	46.39	74.00	27.61	1000.0	9.000	Single Line	9.9
0.645000	48.47	---	87.00	38.53	1000.0	9.000	Single Line	9.9
1.930000	---	60.07	74.00	13.93	1000.0	9.000	Single Line	9.8
1.930000	61.73	---	87.00	25.27	1000.0	9.000	Single Line	9.8
2.390000	---	56.13	74.00	17.87	1000.0	9.000	Single Line	9.8
2.390000	57.21	---	87.00	29.79	1000.0	9.000	Single Line	9.8
13.695000	---	48.86	74.00	25.14	1000.0	9.000	Single Line	10.1
13.695000	56.08	---	87.00	30.92	1000.0	9.000	Single Line	10.1

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.

[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNV-7030RP
Mode: 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)
0.365000	---	51.03	76.61	25.58	1000.0	9.000	Single Line	9.5
0.365000	51.15	---	89.61	38.46	1000.0	9.000	Single Line	9.5
0.640000	---	46.68	74.00	27.32	1000.0	9.000	Single Line	9.4
0.640000	48.89	---	87.00	38.11	1000.0	9.000	Single Line	9.4
4.495000	---	57.75	74.00	16.25	1000.0	9.000	Single Line	9.3
4.495000	58.64	---	87.00	28.36	1000.0	9.000	Single Line	9.3
5.995000	---	60.00	74.00	14.00	1000.0	9.000	Single Line	9.4
5.995000	60.76	---	87.00	26.24	1000.0	9.000	Single Line	9.4

**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]
68.24	7.13	V	1.00	10.21	1.73	19.07	40.00	20.93
168.33	7.86	H	4.00	8.91	2.93	19.70	40.00	20.30
264.19	12.47	V	1.00	12.69	3.92	29.08	47.00	17.92
311.99	14.57	H	3.50	13.66	4.32	32.55	47.00	14.45
408.75	11.04	V	1.00	15.82	5.10	31.96	47.00	15.04
455.99	15.74	H	3.25	16.48	5.44	37.66	47.00	9.34

* H : Horizontal, V : Vertical

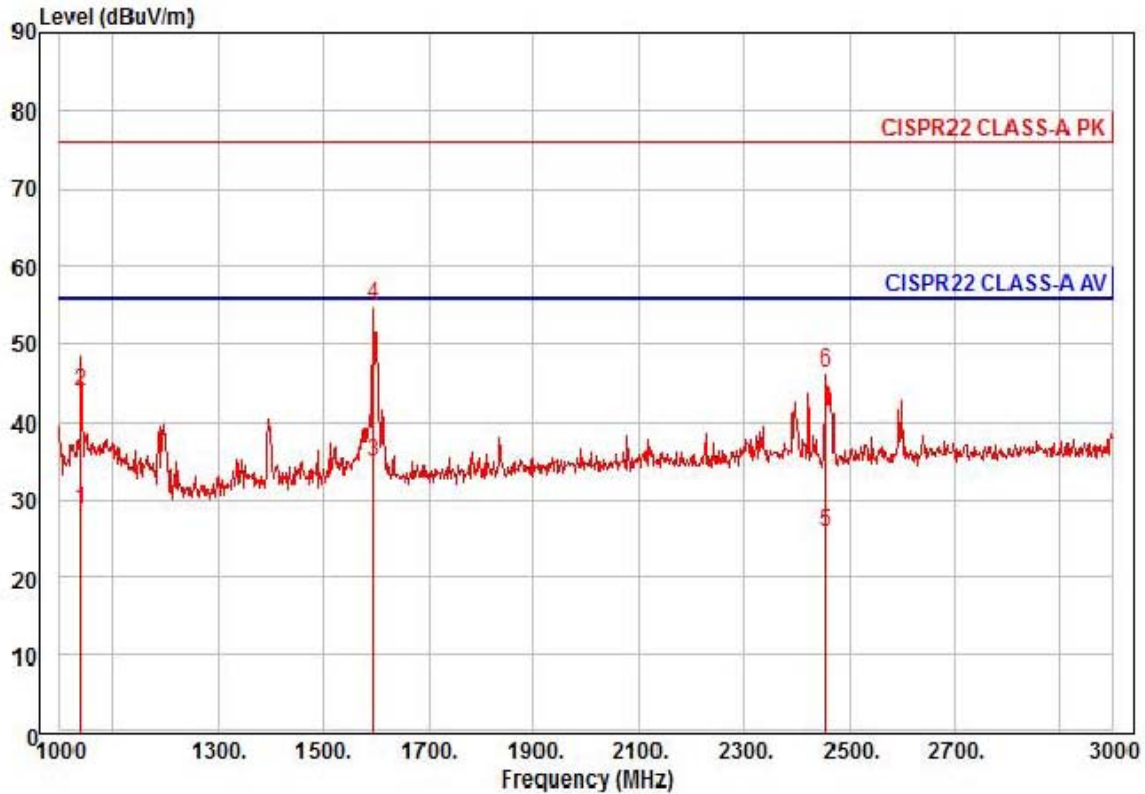
- PoE Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
49.71	9.67	V	1.00	13.94	1.45	25.06	40.00	14.94
360.18	10.30	H	4.00	14.78	4.74	29.82	47.00	17.18
408.22	7.14	V	1.00	15.82	5.10	28.06	47.00	18.94
455.96	12.77	H	3.40	16.48	5.44	34.69	47.00	12.31
480.85	6.56	V	1.00	16.83	5.61	29.00	47.00	18.00
594.74	7.05	H	4.00	19.18	6.29	32.52	47.00	14.48

* H : Horizontal, V : Vertical

Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
Mode : DC 12V
Memo :

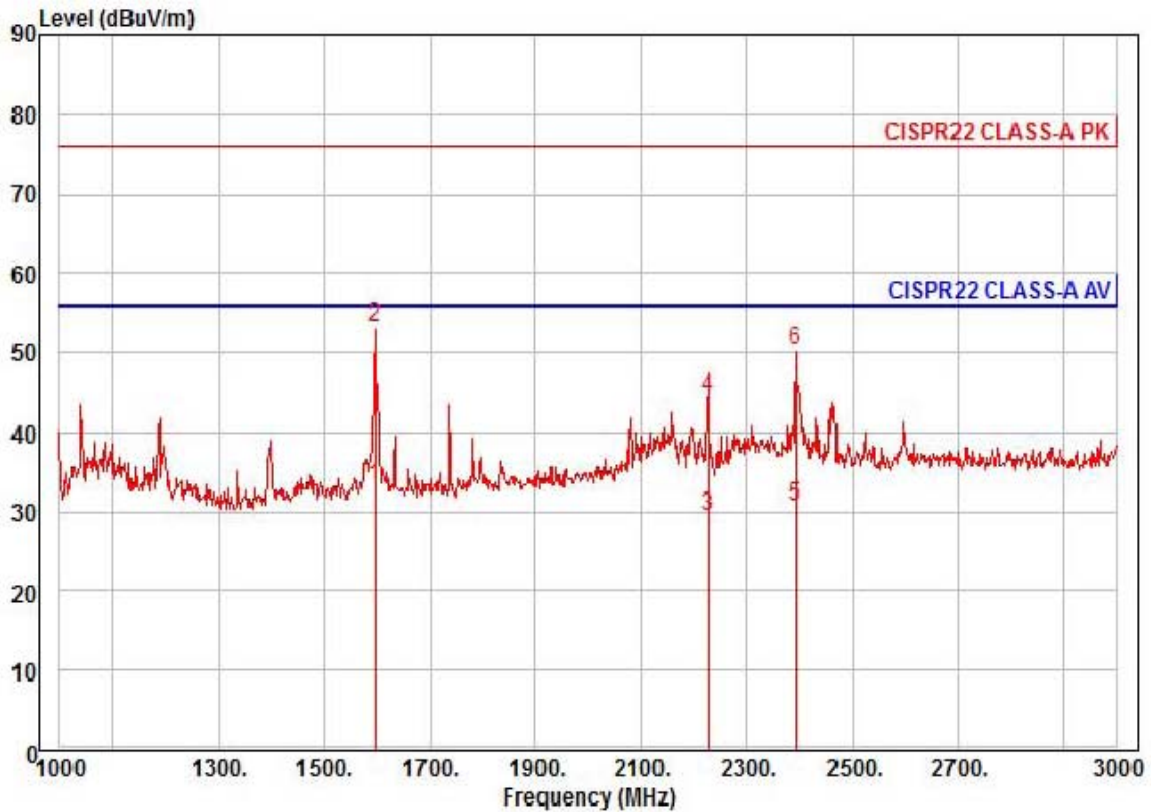
	Freq	Read Level	Ant Factor	Cable Loss	Preampl Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1038.00	38.01	24.06	6.62	40.10	216	56.00	-27.41	horizontal	Average
2	1038.00	53.31	24.06	6.62	40.10	216	76.00	-32.11	horizontal	Peak
3 av	1594.00	40.07	26.27	8.23	39.83	88	56.00	-21.26	horizontal	Average
4 pp	1594.00	60.15	26.27	8.23	39.83	88	76.00	-21.18	horizontal	Peak
5	2456.00	26.58	29.00	10.05	39.89	88	56.00	-30.26	horizontal	Average
6	2456.00	47.20	29.00	10.05	39.89	88	76.00	-29.64	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-E1-16T0209
Page (23) of (42)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
Mode : DC 12V
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	av	1596.00	38.51	26.28	8.24	39.83	41	56.00	-22.80	vertical	Average
2	pp	1596.00	58.52	26.28	8.24	39.83	41	76.00	-22.79	vertical	Peak
3		2228.00	31.16	28.44	9.70	39.76	238	56.00	-26.46	vertical	Average
4		2228.00	45.99	28.44	9.70	39.76	238	76.00	-31.63	vertical	Peak
5		2392.00	31.71	28.84	9.95	39.86	215	56.00	-25.36	vertical	Average
6		2392.00	51.35	28.84	9.95	39.86	215	76.00	-25.72	vertical	Peak

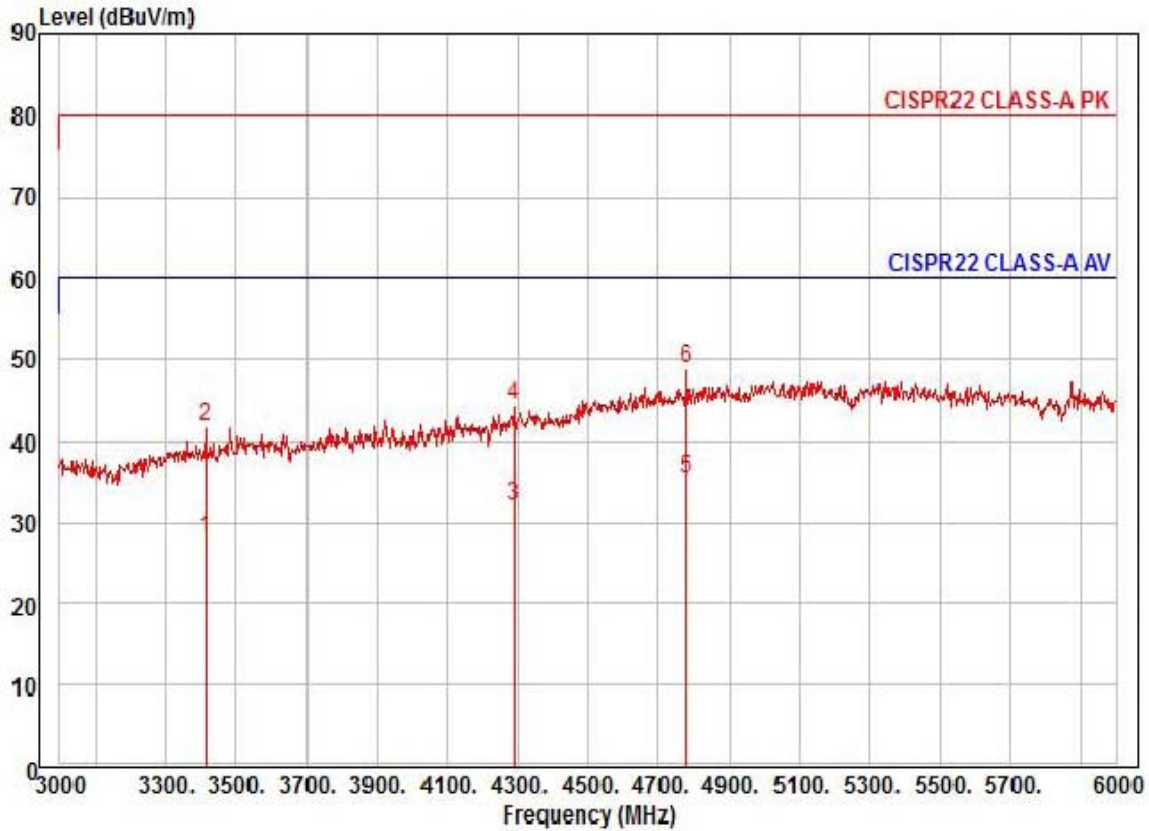
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



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-E1-16T0209
Page (24) of (42)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
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	3414.00	24.94	31.03	12.29	40.29	194	60.00	-32.03	horizontal	Average
2	3414.00	38.57	31.03	12.29	40.29	194	80.00	-38.40	horizontal	Peak
3	4290.00	24.47	33.67	14.04	40.41	78	60.00	-28.23	horizontal	Average
4	4290.00	37.12	33.67	14.04	40.41	78	80.00	-35.58	horizontal	Peak
5 pp	4779.00	24.29	36.46	14.93	40.41	191	60.00	-24.73	horizontal	Average
6 pk	4779.00	37.77	36.46	14.93	40.41	191	80.00	-31.25	horizontal	Peak

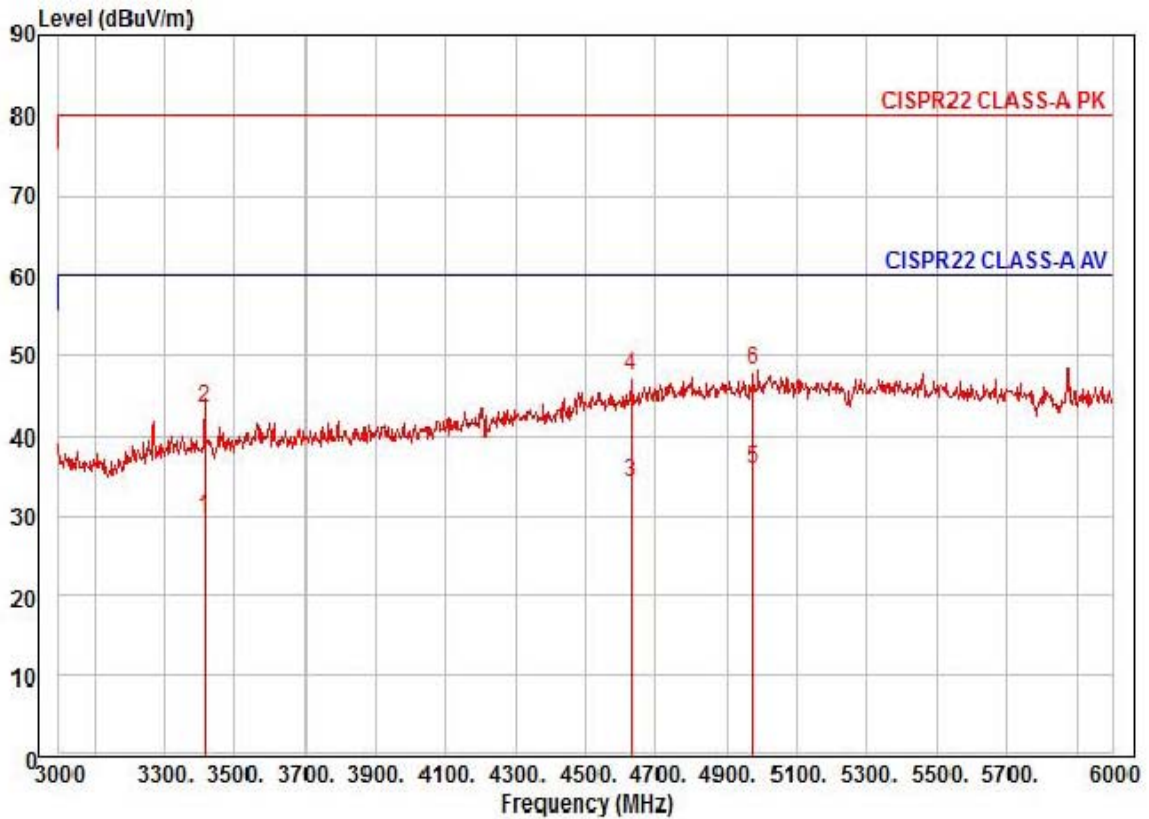
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



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-E1-16T0209
Page (25) of (42)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
Mode : DC 12V
Memo :

	Read Freq	Ant 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	3414.00	26.71	31.03	12.29	40.29	328	60.00	-30.26	vertical	Average
2	3414.00	40.42	31.03	12.29	40.29	328	80.00	-36.55	vertical	Peak
3	4629.00	24.28	35.60	14.66	40.41	14	60.00	-25.87	vertical	Average
4	4629.00	37.41	35.60	14.66	40.41	14	80.00	-32.74	vertical	Peak
5 pp	4977.00	23.35	37.59	15.29	40.41	325	60.00	-24.18	vertical	Average
6 pk	4977.00	35.64	37.59	15.29	40.41	325	80.00	-31.89	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.

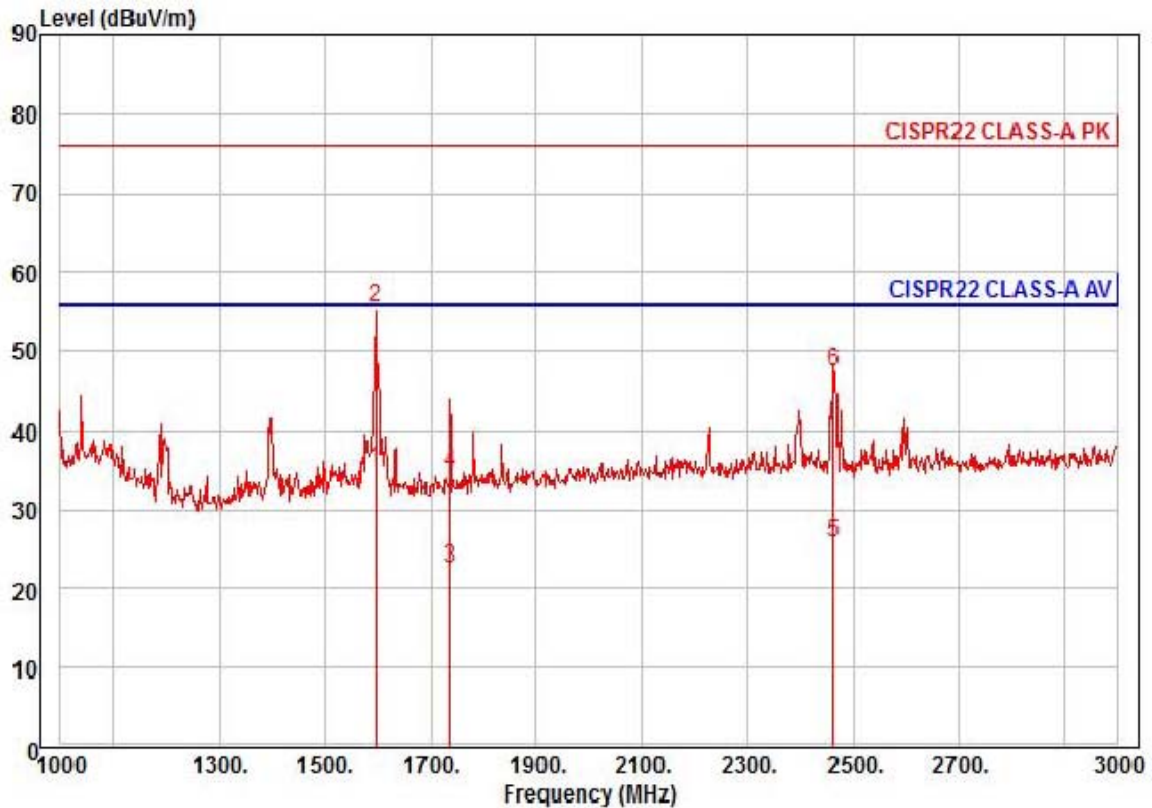


KES Co., Ltd.

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-E1-16T0209
Page (26) of (42)

- 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 : QNV-7030RP
Mode : PoE
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	av	1596.00	40.44	26.28	8.24	39.83	93	56.00	-20.87	horizontal Average
2	pp	1596.00	60.65	26.28	8.24	39.83	93	76.00	-20.66	horizontal Peak
3		1736.00	26.82	26.83	8.62	39.76	325	56.00	-33.49	horizontal Average
4		1736.00	38.91	26.83	8.62	39.76	325	76.00	-41.40	horizontal Peak
5		2464.00	26.52	29.02	10.06	39.90	192	56.00	-30.30	horizontal Average
6		2464.00	48.27	29.02	10.06	39.90	192	76.00	-28.55	horizontal Peak

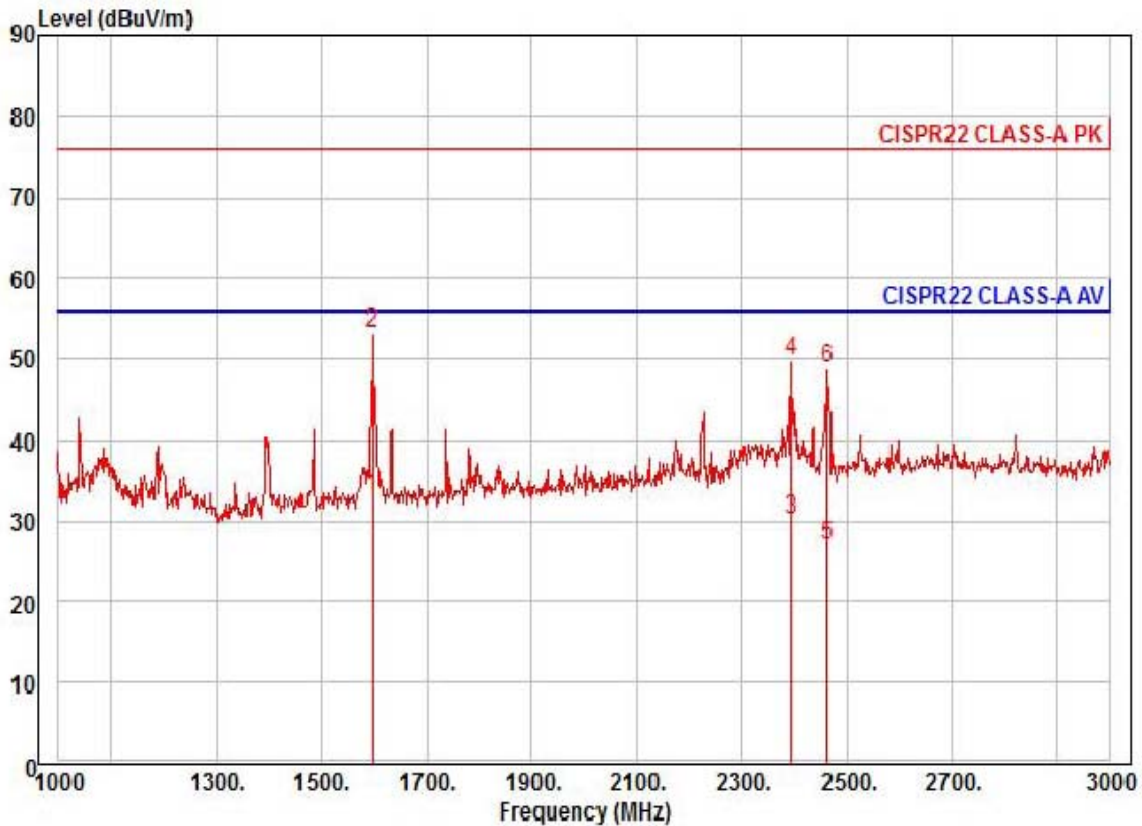
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



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-E1-16T0209
Page (27) of (42)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
Mode : PoE
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	av	1596.00	38.11	26.28	8.24	39.83	50	56.00	-23.20	vertical
2	pp	1596.00	58.43	26.28	8.24	39.83	50	76.00	-22.88	vertical
3		2394.00	31.16	28.85	9.95	39.86	229	56.00	-25.90	vertical
4		2394.00	50.75	28.85	9.95	39.86	229	76.00	-26.31	vertical
5		2464.00	27.73	29.02	10.06	39.90	200	56.00	-29.09	vertical
6		2464.00	49.56	29.02	10.06	39.90	200	76.00	-27.26	vertical

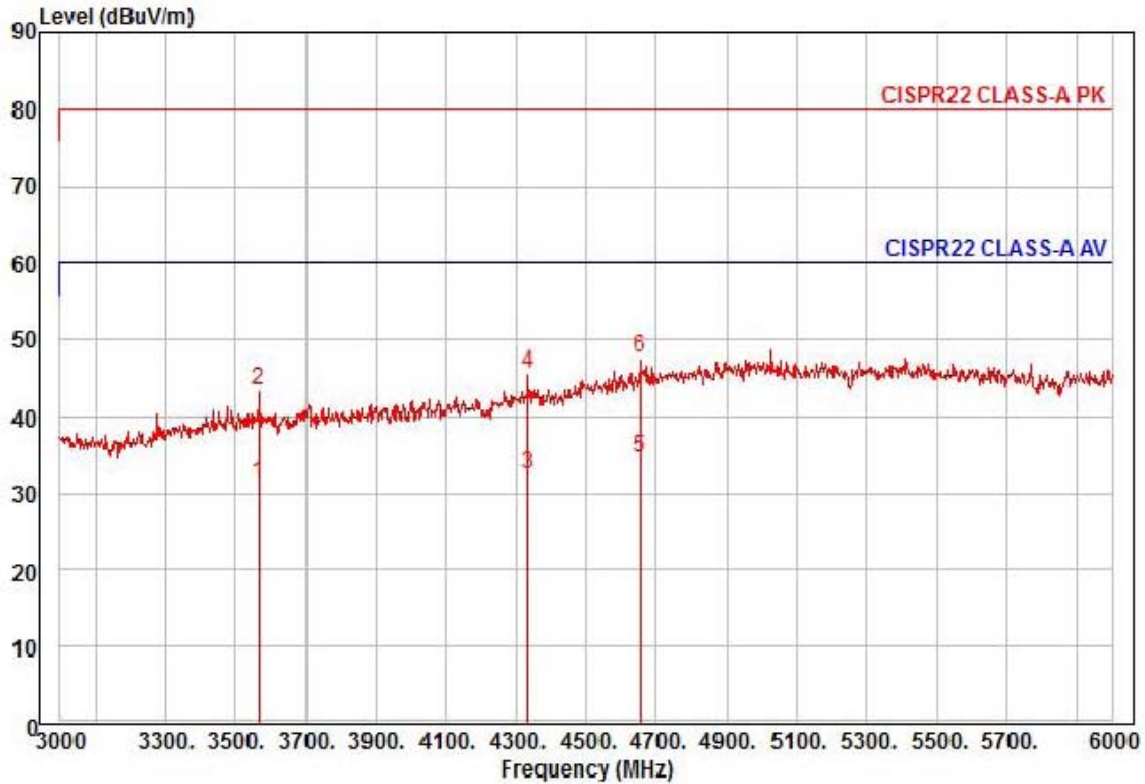
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



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

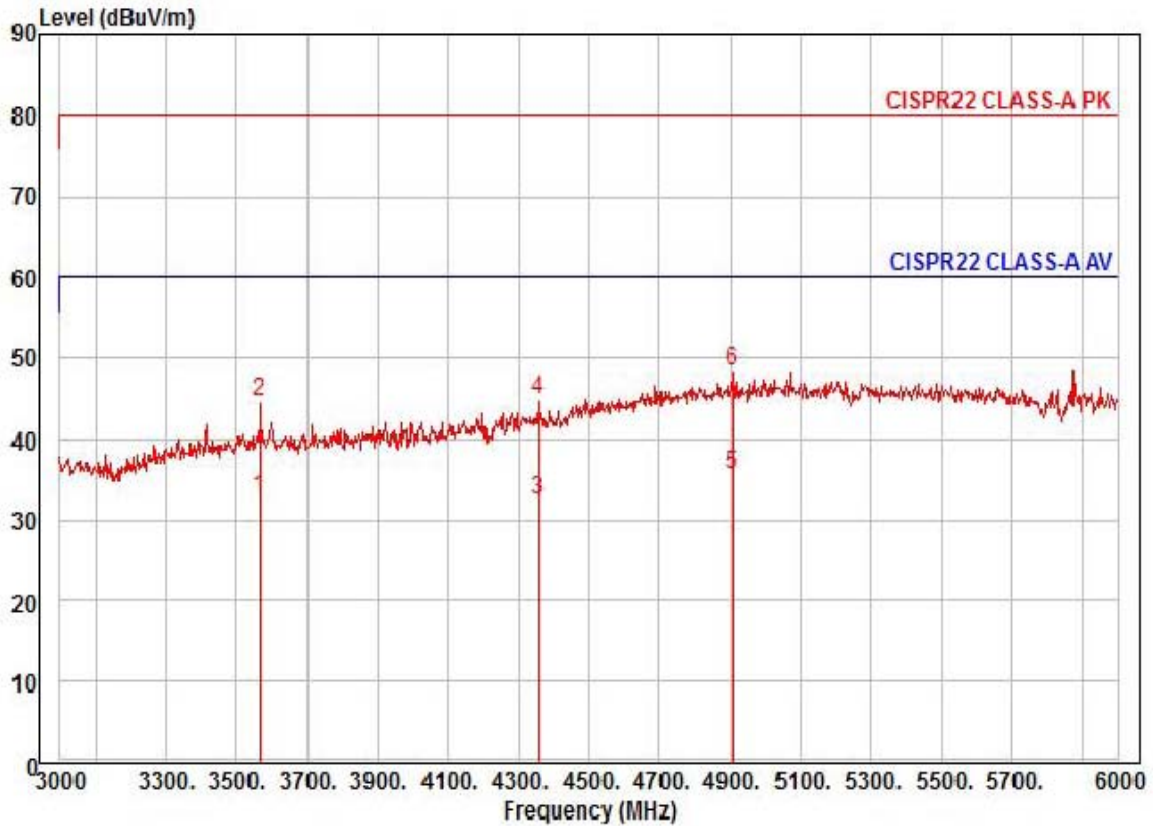
Test report No.:
KES-E1-16T0209
Page (28) of (42)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
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	3564.00	27.61	31.28	12.64	40.32	36	60.00	-28.79	horizontal	Average
2	3564.00	39.87	31.28	12.64	40.32	36	80.00	-36.53	horizontal	Peak
3	4335.00	24.73	33.92	14.13	40.41	316	60.00	-27.63	horizontal	Average
4	4335.00	37.91	33.92	14.13	40.41	316	80.00	-34.45	horizontal	Peak
5 pp	4656.00	24.44	35.76	14.71	40.41	354	60.00	-25.50	horizontal	Average
6 pk	4656.00	37.59	35.76	14.71	40.41	354	80.00	-32.35	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: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : QNV-7030RP
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	3564.00	28.96	31.28	12.64	40.32	201	60.00	-27.44	vertical	Average
2	3564.00	40.93	31.28	12.64	40.32	201	80.00	-35.47	vertical	Peak
3	4359.00	24.56	34.06	14.17	40.41	184	60.00	-27.62	vertical	Average
4	4359.00	37.16	34.06	14.17	40.41	184	80.00	-35.02	vertical	Peak
5 pp	4905.00	23.74	37.18	15.16	40.41	251	60.00	-24.33	vertical	Average
6 pk	4905.00	36.32	37.18	15.16	40.41	251	80.00	-31.75	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-E1-16T0209
Page (30) of (42)

Test Setup Photos and Configuration

Conducted Voltage Emissions

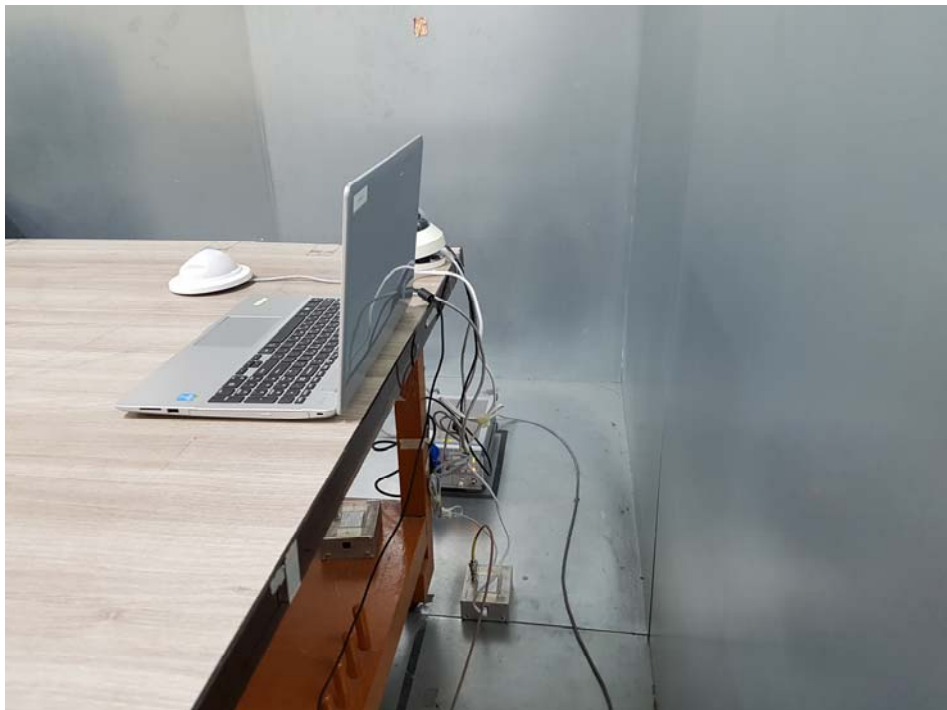
N/A

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.

Conducted Telecommunication Emissions

- DC 12V 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(Below 1 GHz)

- DC 12V 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.

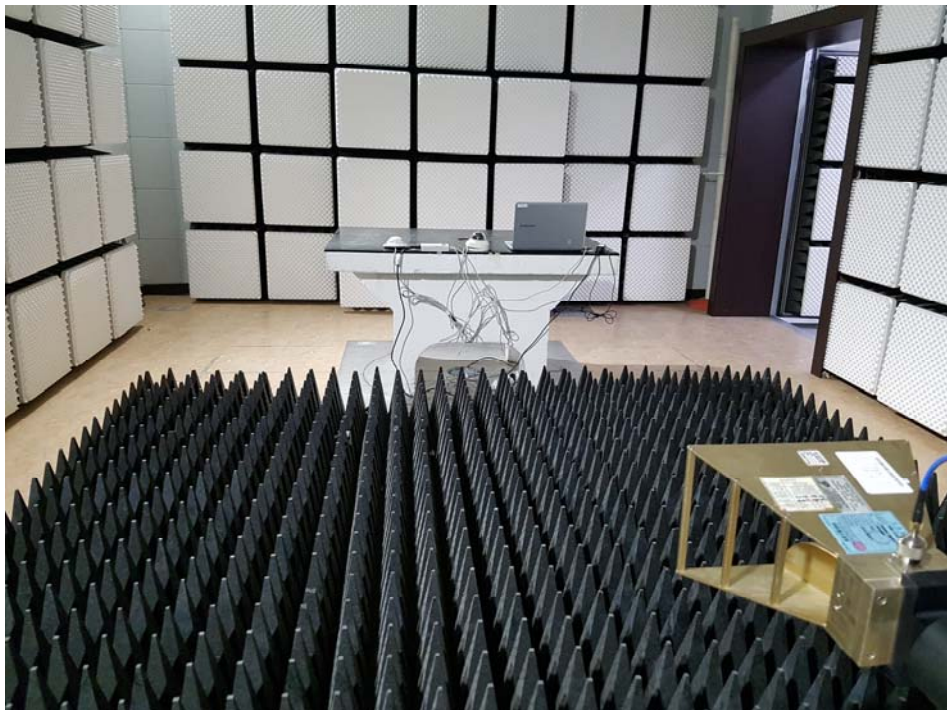
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V 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)



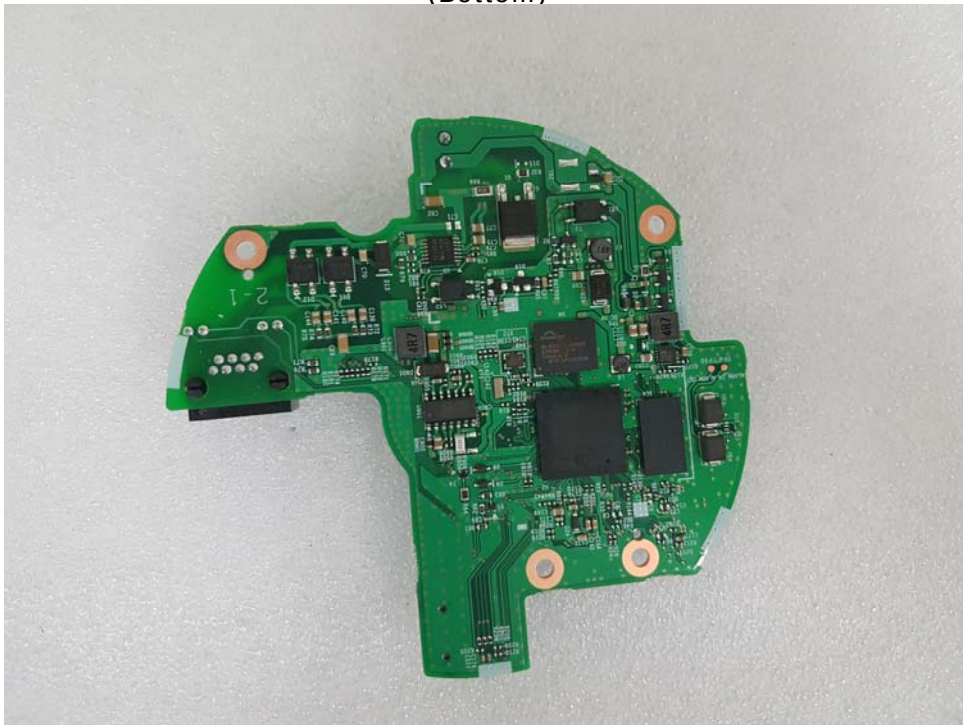
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Main Board EUT Internal View – Board1

(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.

Main Board EUT Internal View – Board2

(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.

Main Board EUT Internal View – Board3

(Top)



(Bottom)



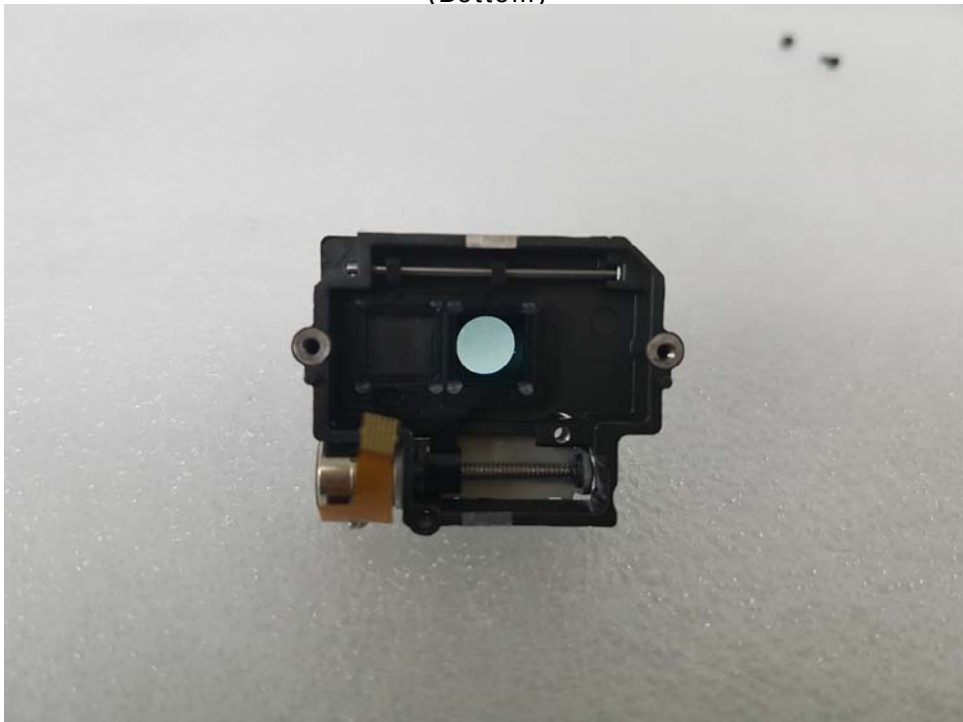
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Main Board EUT Internal View – Camera

(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.