



EMC TEST REPORT For RCM

Test Report No. : KES-E1-18T0307-R1

Date of Issue : Jun. 27, 2018

Product name : NETWORK CAMERA

Model/Type No. : QNE-7080RV

Variant Model : QNE-7080RVW

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13488, KOREA

Manufacturer : 1. Hanwha Techwin (Tianjin) Co.,Ltd.
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
3. D-TECH CO.,LTD.

Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,
300385, People's Republic of China
2. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,
Korea (Suwon Industrial Complex)

Date of Receipt : May. 04, 2018

Test date : May. 08, 2018

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

Tested by

Dong Il, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
May. 15, 2018	KES-E1-18T0307	Issued
Jun. 27, 2018	KES-E1-18T0307-R1	Reissue due to derived model

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1.0 General Product Description

Main Specifications of EUT are:

Imaging Device	1/3" 4M CMOS
Total Pixels	2,720(H) x 1,536(V)
Effective Pixels	2,688(H) x 1,520(V)
Scanning System	Progressive
Min. Illumination	Color : 0.2Lux, B/W : 0Lux(IR LED On)
S/N Ratio	50dB
Video Output	-
Focal Length (Zoom Ratio)	3.2 ~ 10mm (3.1x) motorized varifocal
Max. Aperture Ratio	F1.6
Angular Field of View	H : 100.0°(Wide) ~ 30.5°(Tele) / V : 55.7°(Wide) ~ 18.3°(Tele) / D : 119.6°(Wide) ~ 35.3°(Tele)
Focus Control	Simple focus (Motorized V/F), Manual, Remote control via network
Lens Type	DC Auto Iris
Mount Type	Board type
Pan / Tilt / Rotate Range	0° ~ 350° / 0° ~ 67° / 0° ~ 360°
IR Viewable Length	30m(TBD)
Camera Title	Off / On (Displayed up to 20 characters per line) - WW : 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 / WDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR (Off / On)
Motion Detection	Off / On (4ea polygonal zones)
Privacy Masking	Off / On (6ea rectangular zones)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC (Lens Distortion Correction)	Off / On (5 levels with min / max)

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Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Hallway view
Intelligent Video Analytics	Motion detection with metadata, Tampering, Defocus detection
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
Pixel Counter	Support (Plug-in viewer only)
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265, H.264, MJPEG
Resolution	2592 x 1520, 2560 x 1440 (16 : 9), 2304 x 1296, 1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265/H.264 : Max. 20fps at 4M, Max. 30fps at 2M all resolutions, MJPEG : Max. 15fps
Smart Codec	WiseStream
Video Quality Ajustment	H.265/H.264 : Target bitrate level control, MJPEG : Quality level control
Bitrate control method	H.265/H.264 : CBR or VBR, MJPEG : VBR
Streaming Capability	Multiple streaming (Up to 3 profiles)
Audio I/O	Line-in
Audio Compression Format	G.711 u-law / G.726 selectable G.726 (ADPCM) 8KHz, G.711 8KHz, G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps
Audio Communication	Uni-directional audio
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour

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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. 128GB), NAS - Motion images recorded in the SD memory card can be downloaded - Manual recording at local PC
Application Programming Interface	ONVIF Profile S/G, SUNAPI (HTTP API)
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungary, Greek
Web Viewer	Supported OS : Windows 7, 8.1, 10, Mac OS X 10.9, 10.10, 10.11 Plug-in free Webviewer - Supported Browser : Google Chrome 65, Firefox 59 (64bit only), MS Edge 41 Plug-in Webviewer - Supported Browser : MS Explore 11, Apple Safari 11 * Mac OS X only
Central Management Software	SmartViewer
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH * Start up should be done at above -20°C (-4°F)
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Input Voltage / Current	PoE (IEEE802.3af, Class3) / 12V DC
Power Consumption	TBD
Color / Material	White / Metal
Dimension	Ø144.9 x 135.5(H)
Weight	1.3Kg

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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 ☐ 240 Vac ☐ 100 Vac ☐ 24 Vac ☒ 12 Vdc ☒ PoE

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Basic Model	Ivory
Variant Model	White

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNE-7080RV	-	Hanwha Techwin (Tianjin) Co.,Ltd.	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	PD-3001GC/AC	RD9356082016964200	Power Dsine	-
Notebook	X56K	HN11N5151FJ0045W	Hansung Computer	-
Notebook AC/DC Adaptor	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
MIC	CMK-303	-	CAMAC	-
button alarm	-	-	-	-
alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-

1.6 External I/O Cabling

■ DC Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	Notebook	RJ-45	3.0	U
NETWORK CAMERA (EUT)	3.5 Ø	MIC	3.5 Ø	1.7	U
NETWORK CAMERA (EUT)	2 PIN	Button alarm	2 PIN	3.0	U
NETWORK CAMERA (EUT)	2 PIN	alarm	2 PIN	3.0	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	PoE Adaptor	RJ-45	3.0	U
PoE Adaptor	RJ-45	Notebook	RJ-45	3.0	U
NETWORK CAMERA (EUT)	3.5 Ø	MIC	3.5 Ø	1.7	U
NETWORK CAMERA (EUT)	2 PIN	Button alarm	2 PIN	3.0	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

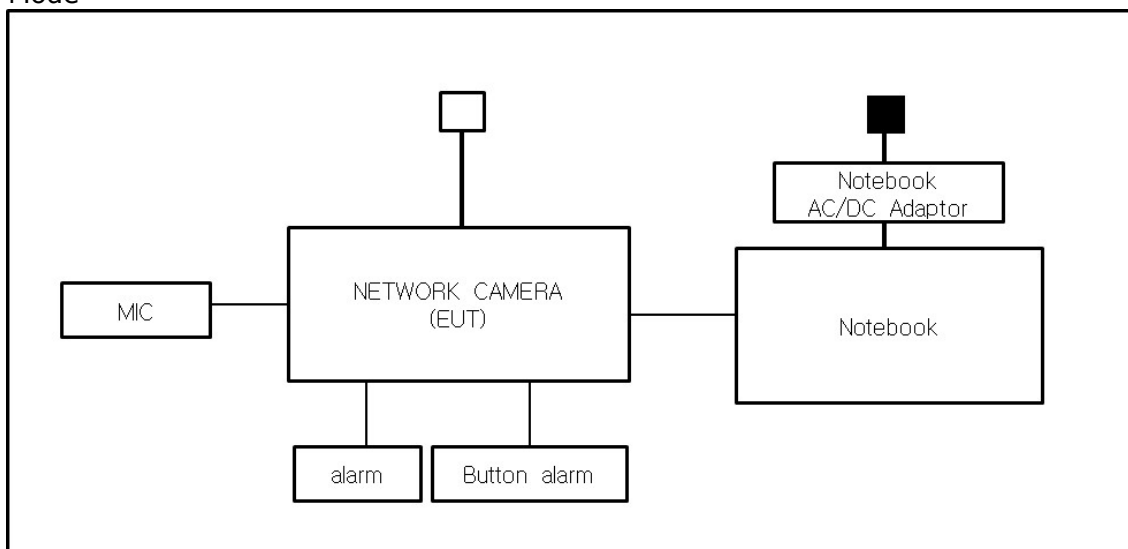
Test mode	operating
DC, PoE	E.U.T Monitoring, Ping Test

EUT Test operating S/W		
Name	Version	Manufacture Company
WebViewer	-	Hanwha Techwin Co., Ltd.

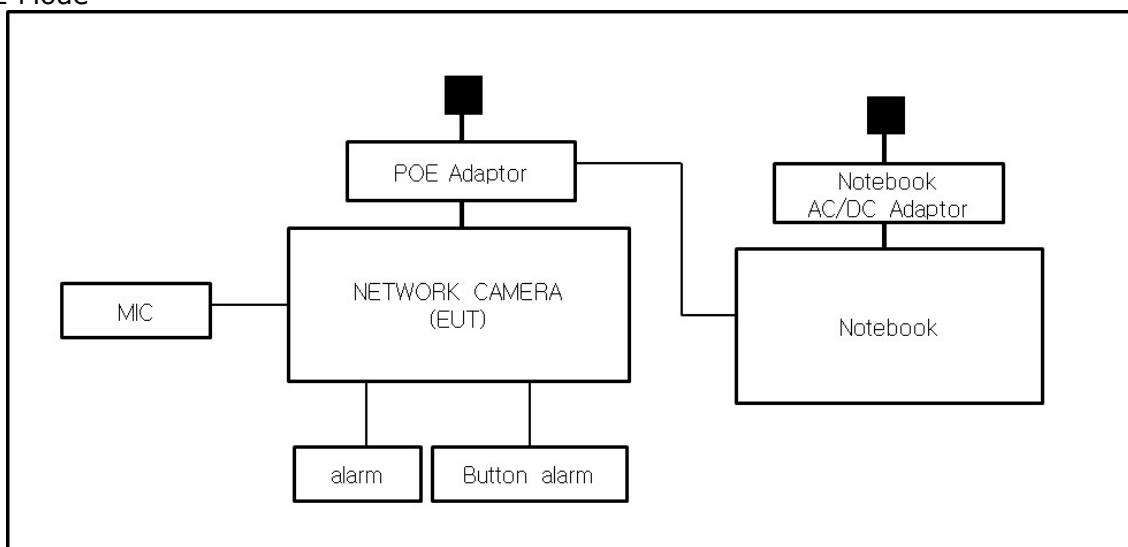
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

N/A

1.10 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.

1.11 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 32.

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 m & 10 m Semi-Aechoic Chamber, 10 m Open Area and Conducted test 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	RRA	EMI (3 m & 10 m Semi-Aechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 m & 10 m Semi-Aechoic Chamber and Conducted test site	 4769B-1
Europe	CE	EMI (3 m & 10 m Semi-Aechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (3 m & 10 m Semi-Aechoic Chamber , and conducted test 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 55032:2015

☐ 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 CISPR32:2013 | ☒ 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 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ 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 #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test S/W	EMC32	R & S	9.12.00	-
☐	EMI TEST RECEIVER	ESR3	R & S	101781	04, 25, 2019
☐	LISN	ENV216	R & S	101787	01, 05, 2019
☐	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1002	08, 07, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1003	08, 07, 2018

Test Conditions

Temperature:

°C

Relative Humidity:

% R.H.

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

N/A

2.2 Conducted Emissions at Telecommunication Ports

Test Date

May. 08, 2018

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101781	04, 25, 2019
☒	LISN	ENV216	R & S	101787	01, 05, 2019
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2019
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 07, 2019
☐	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	05, 12, 2018
☐	CDN	CDNS502A	TESEQ	40431	01, 05, 2019

Test Conditions

Temperature: 23,0 °C
Relative Humidity: 42,2 % R.H.

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. 08, 2018

Test Location☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10 m)**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 11, 2019
☒	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	714	11, 28, 2018

Test ConditionsTemperature: 22,9 °C
Relative Humidity: 43,4 % R.H.**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

RemarksSee Appendix A for test data.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

May. 08, 2018

Test Location

SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESR7	R & S	101190	08, 07, 2018
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2018
☐	ATTENUATOR	8491A	HP	35496	03, 21, 2019
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

Test Conditions

Temperature: 22,6 °C
Relative Humidity: 42,7 % R.H.

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 LINE

N/A

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NEUTRAL LINE

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Conducted Emissions at Telecommunication Ports

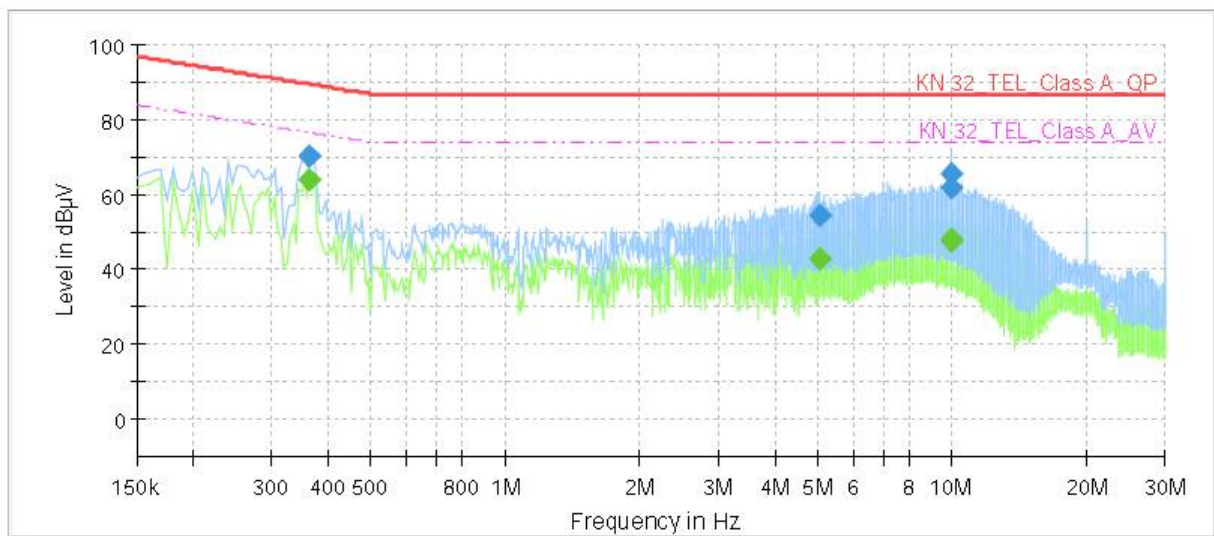
■ DC Mode

[10 Mbps]

Common Information

Test Description:
Model No.:
Mode
Operator Name:

Telecommunication Emission
QNE-7080RV
DC CAT3
KES

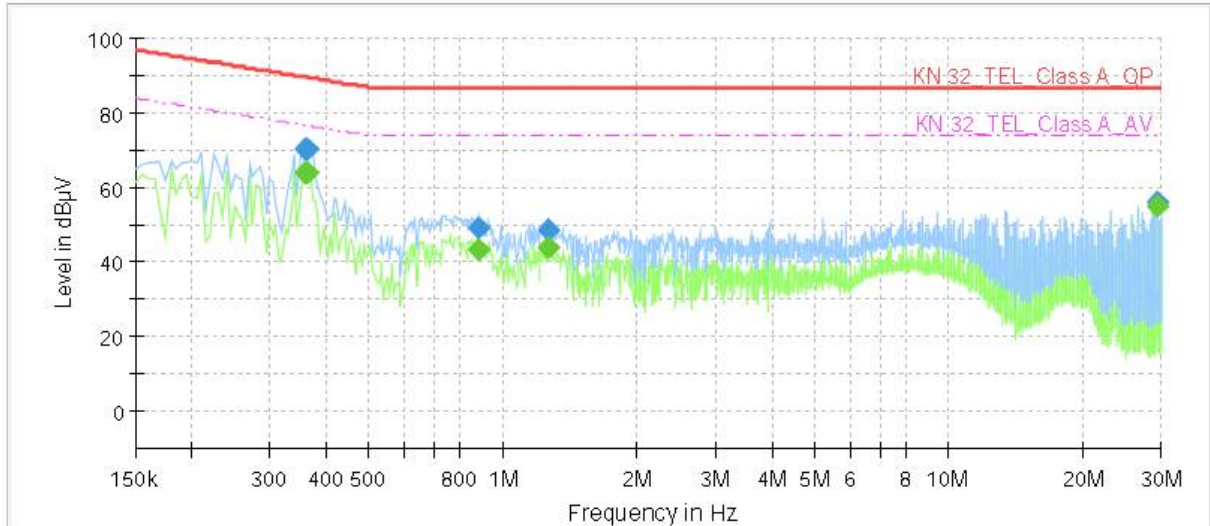


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.365000	---	64.06	76.61	12.55	1000.0	9.000	Single Line	19.4
0.365000	70.26	---	89.61	19.35	1000.0	9.000	Single Line	19.4
5.045000	---	42.81	74.00	31.19	1000.0	9.000	Single Line	19.4
5.045000	54.56	---	87.00	32.44	1000.0	9.000	Single Line	19.4
9.990000	---	47.41	74.00	26.59	1000.0	9.000	Single Line	19.6
9.990000	62.09	---	87.00	24.91	1000.0	9.000	Single Line	19.6
9.995000	---	48.34	74.00	25.66	1000.0	9.000	Single Line	19.6
9.995000	65.43	---	87.00	21.57	1000.0	9.000	Single Line	19.6

[100 Mbps] Common Information

Test Description:	Telecommunication Emission
Model No.:	QNE-7080RV
Mode	DC CAT5
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.360000	---	64.23	76.73	12.50	1000.0	9.000	Single Line	19.3
0.360000	70.45	---	89.73	19.28	1000.0	9.000	Single Line	19.3
0.365000	---	63.84	76.61	12.77	1000.0	9.000	Single Line	19.3
0.365000	70.15	---	89.61	19.46	1000.0	9.000	Single Line	19.3
0.880000	---	43.51	74.00	30.49	1000.0	9.000	Single Line	19.6
0.880000	49.07	---	87.00	37.93	1000.0	9.000	Single Line	19.6
1.265000	---	43.85	74.00	30.15	1000.0	9.000	Single Line	19.7
1.265000	48.74	---	87.00	38.26	1000.0	9.000	Single Line	19.7
29.235000	---	54.89	74.00	19.11	1000.0	9.000	Single Line	20.4
29.235000	56.10	---	87.00	30.90	1000.0	9.000	Single Line	20.4

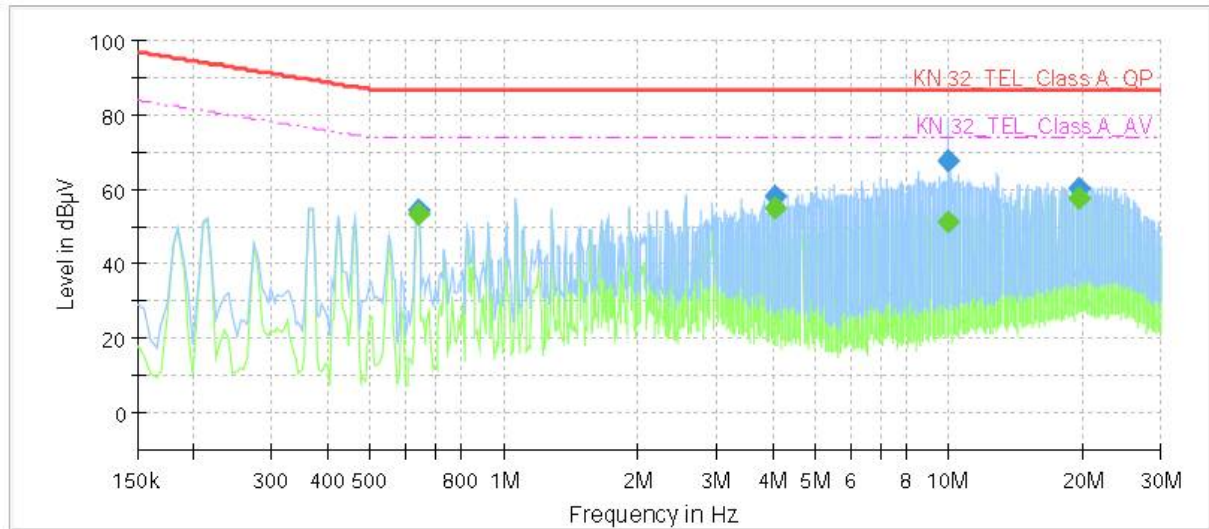


■ PoE Mode

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNE-7080RV
Mode: POE CAT3
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.640000	---	53.55	74.00	20.45	1000.0	9.000	Single Line	19.5
0.640000	54.56	---	87.00	32.44	1000.0	9.000	Single Line	19.5
4.045000	---	55.31	74.00	18.69	1000.0	9.000	Single Line	19.5
4.045000	58.24	---	87.00	28.76	1000.0	9.000	Single Line	19.5
10.000000	---	51.26	74.00	22.74	1000.0	9.000	Single Line	19.6
10.000000	67.83	---	87.00	19.17	1000.0	9.000	Single Line	19.6
19.585000	---	57.95	74.00	16.05	1000.0	9.000	Single Line	20.1
19.585000	60.26	---	87.00	26.74	1000.0	9.000	Single Line	20.1

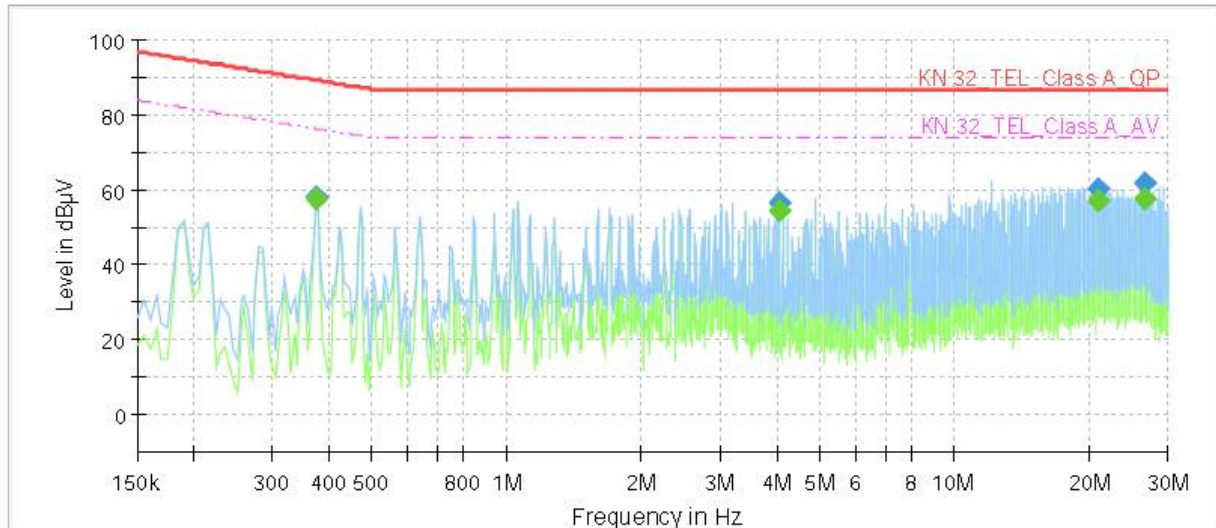


[100 Mbps]

Common Information

Test Description:
Model No.:
Mode
Operator Name:

Telecommunication Emission
QNE-7080RV
POE CAT5
KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.375000	---	57.75	76.39	18.64	1000.0	9.000	Single Line	19.3
0.375000	57.96	---	89.39	31.43	1000.0	9.000	Single Line	19.3
4.045000	---	54.45	74.00	19.55	1000.0	9.000	Single Line	19.4
4.045000	56.39	---	87.00	30.61	1000.0	9.000	Single Line	19.4
20.865000	---	57.38	74.00	16.62	1000.0	9.000	Single Line	20.1
20.865000	60.25	---	87.00	26.75	1000.0	9.000	Single Line	20.1
26.610000	---	57.71	74.00	16.29	1000.0	9.000	Single Line	20.2
26.610000	62.11	---	87.00	24.89	1000.0	9.000	Single Line	20.2

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))



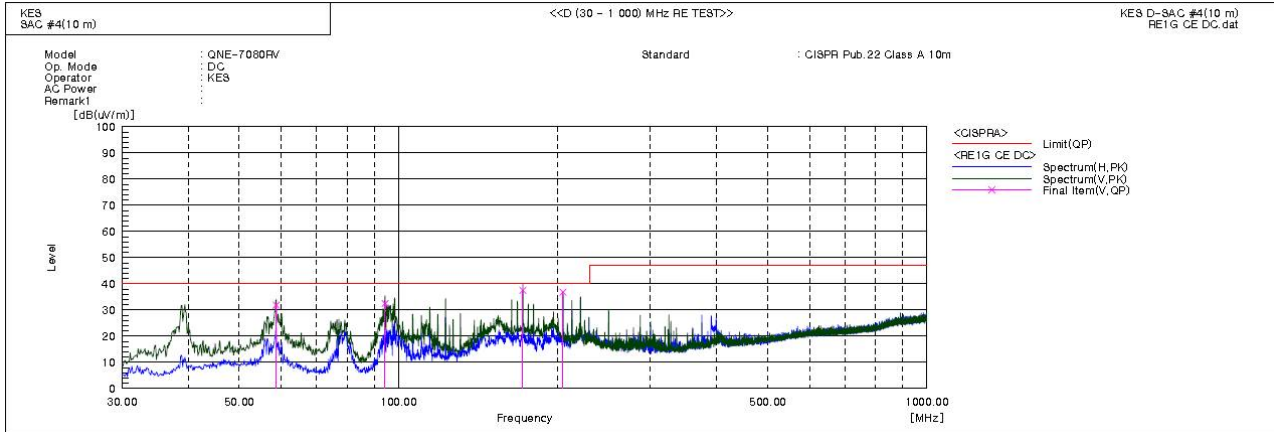
KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
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Test report No.:
KES-E1-18T0307-R1
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



Final Result

No.	Frequency (P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]	QP [dB(uV)]	[dB(1/m)]	QP [dB(uV/m)]	QP [dB(uV/m)]	QP [dB]	[cm]	[deg]	
1	58.712	V 61.2	-29.3	31.9	40.0	8.1	163.0	259.0	
2	94.356	V 62.2	-29.7	32.5	40.0	7.5	176.0	89.0	
3	172.021	V 68.6	-31.1	37.5	40.0	2.5	118.0	151.0	
4	204.796	V 64.3	-27.5	36.8	40.0	3.2	102.0	2.0	

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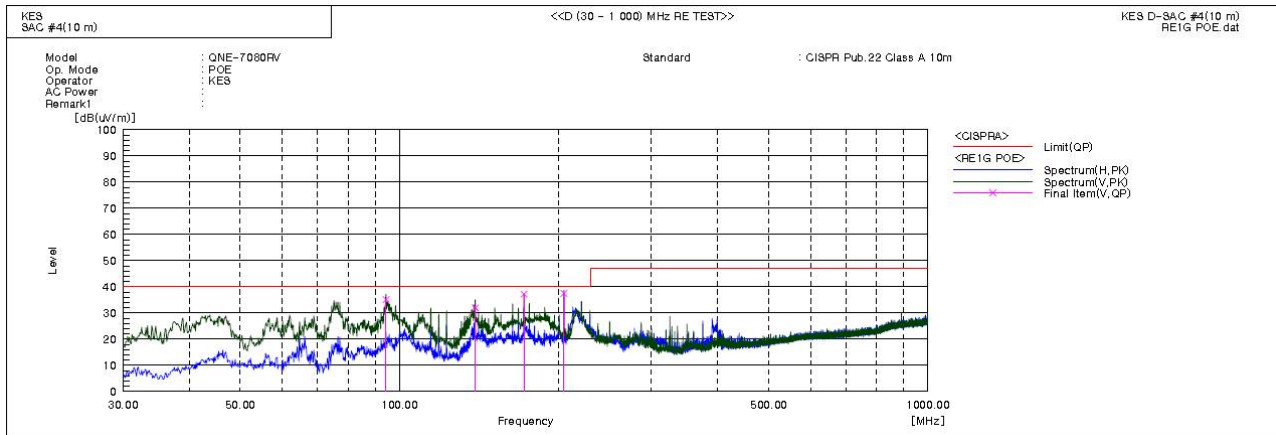


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Test report No.:
KES-E1-18T0307-R1
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■ PoE Mode



Final Result

No.	Frequency [MHz]	(P) [V]	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	94.365	V	64.8	-29.7	35.1	40.0	4.9	121.0	280.0	
2	139.227	V	64.5	-32.5	32.0	40.0	8.0	126.0	220.0	
3	172.025	V	68.3	-31.1	37.2	40.0	2.8	176.0	92.0	
4	204.793	V	65.0	-27.5	37.5	40.0	2.5	142.0	149.0	

◆ Calculation

Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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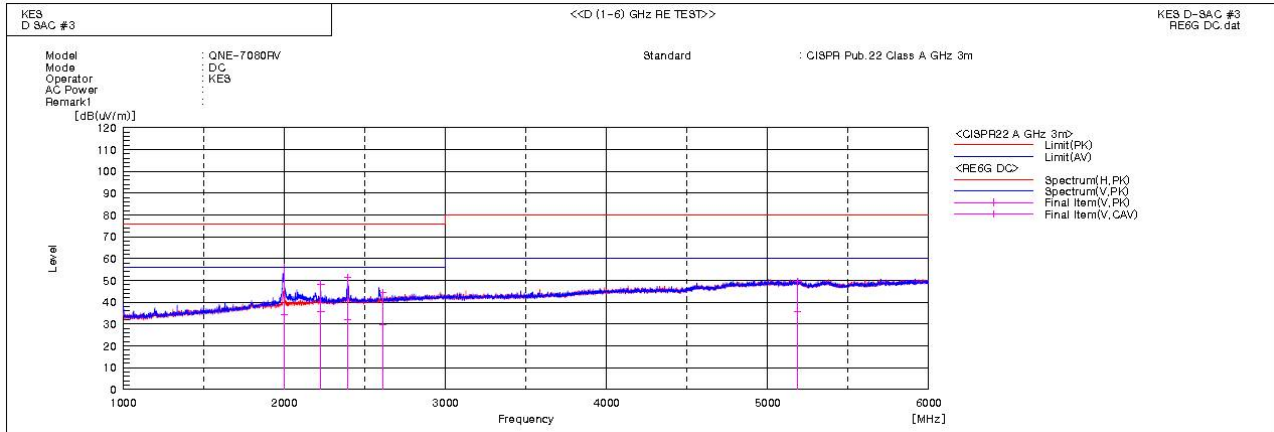
Test report No.:

KES-E1-18T0307-R1

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Radiated Electric Field Emissions(Above 1 GHz)

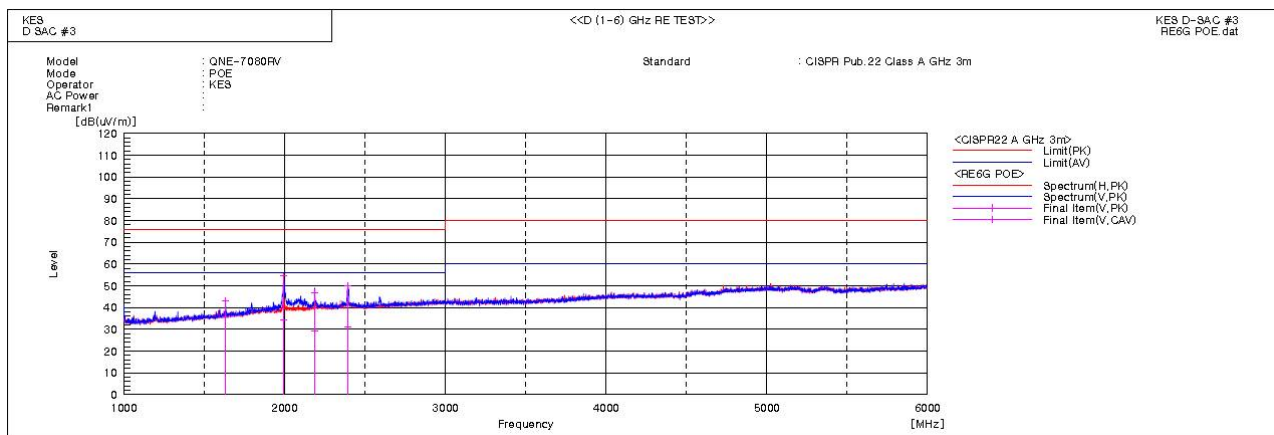
■ DC Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1999.709	V	57.4	35.5	-1.4	56.0	34.1	76.0	56.0	20.0	21.9	100.0	357.3	
2	2227.340	V	48.7	36.0	-0.3	48.4	35.7	76.0	56.0	27.6	20.3	100.0	204.7	
3	2392.170	V	50.8	31.5	0.5	51.3	32.0	76.0	56.0	24.7	24.0	100.0	35.5	
4	2612.155	V	43.2	28.6	1.2	44.4	29.8	76.0	56.0	31.6	26.2	100.0	8.2	
5	5183.981	V	38.4	24.9	11.0	49.4	35.9	80.0	60.0	30.6	24.1	100.0	96.2	

■ PoE Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1633.500	V	47.6	40.3	-4.7	42.9	35.6	76.0	56.0	33.1	20.4	100.0	359.5	
2	1992.182	V	56.1	35.7	-1.5	54.6	34.2	76.0	56.0	21.4	21.8	100.0	355.2	
3	2187.970	V	47.3	29.8	-0.5	46.8	29.3	76.0	56.0	29.2	26.7	100.0	245.9	
4	2392.810	V	49.3	30.8	0.5	49.8	31.3	76.0	56.0	26.2	24.7	100.0	31.3	

◆ Calculation

Result(PK/CAV) [dB(uV/m)] = (Reading(PK/CAV)[dB(uV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(uV/m)] - Result(PK/CAV) [dB(uV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

Conducted Telecommunication Emissions



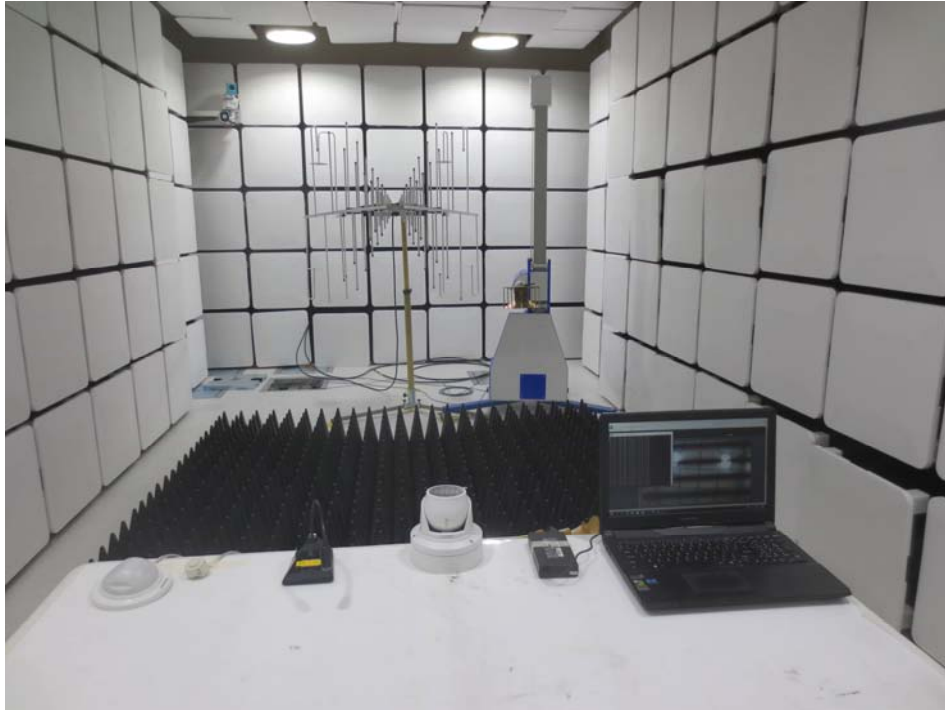
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



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EUT Internal View – Main Board

(Top)



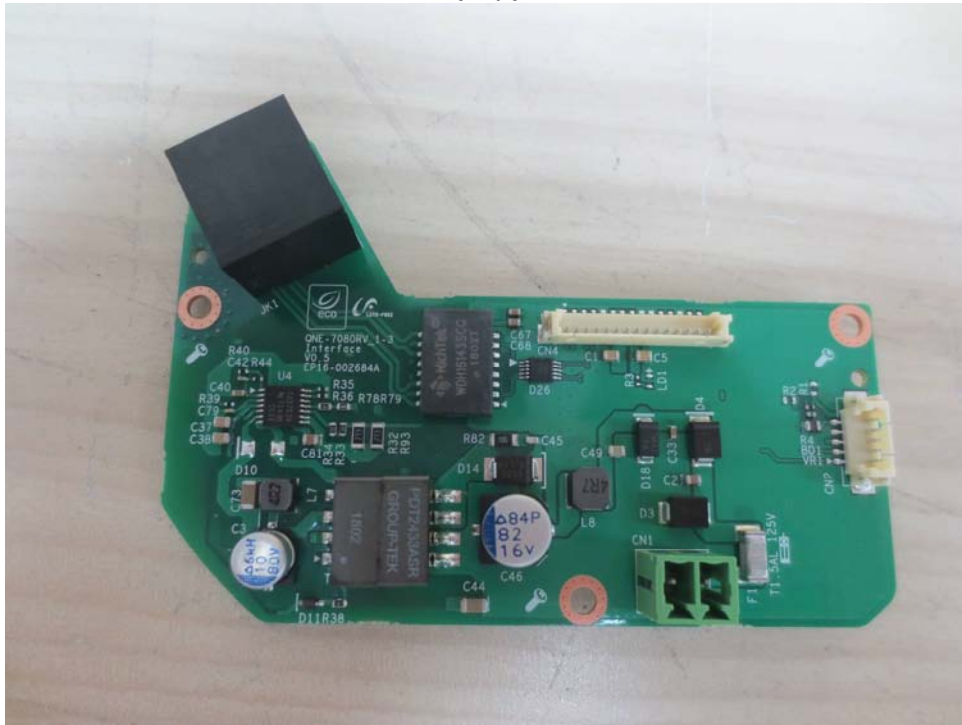
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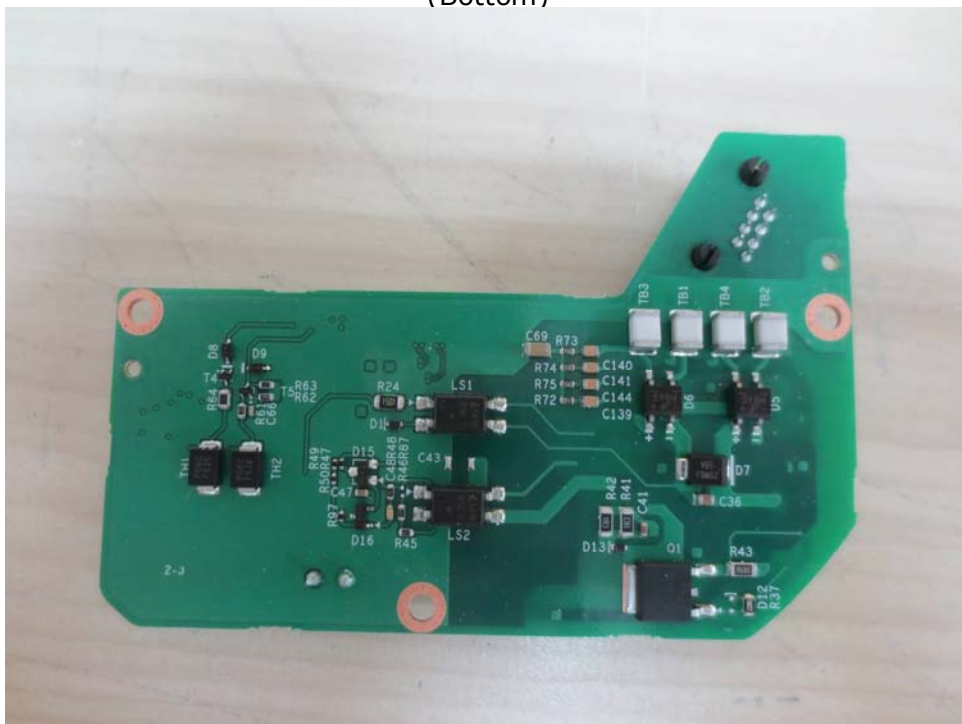
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EUT Internal View – Serve Board 1

(Top)



(Bottom)



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EUT Internal View – Serve Board 2

(Top)



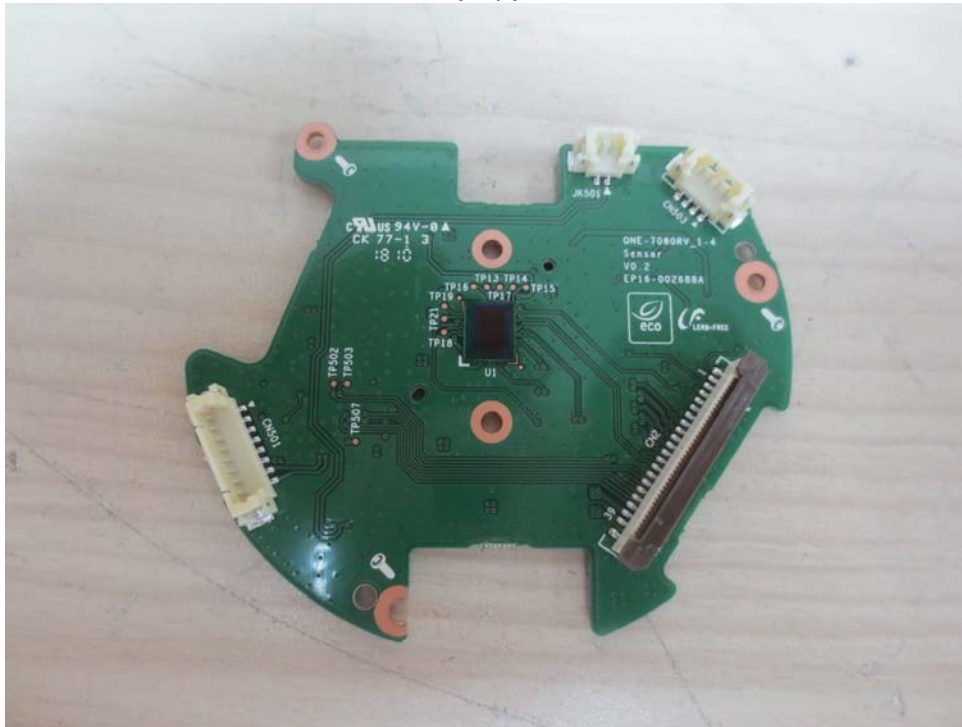
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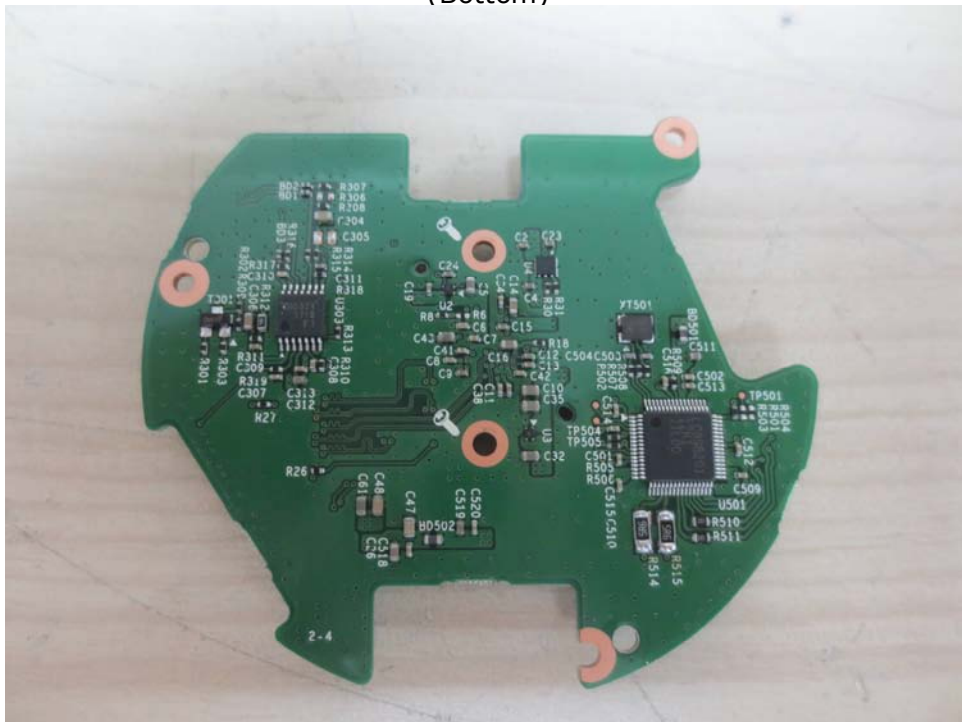
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EUT Internal View – Serve Board 3

(Top)



(Bottom)



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EUT Internal View – Lens

(Top)



(Bottom)



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