



EMC TEST REPORT For RCM

Test Report No. : KES-EM-20T0015

Date of Issue : Jan. 09, 2020

Product name : Network Camera

Model/Type No. : QNB-6002

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of 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 : Dec. 06, 2019

Test date : Jan. 01, 2020 ~ Jan. 02, 2020

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Min Seong, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 09, 2020	KES-EM-20T0015	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	QNB-6002
Video	
Imaging Device	1/2.8" 2MP CMOS
Effective Pixels	1920(H)x1080(V)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.01Lux(F1.2, 1/30sec) (TBD)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation
Lens	
Focal Length (Zoom Ratio)	None
Max. Aperture Ratio	None
Angular Field of View	None
Min. Object Distance	None
Focus Control	Manual
Lens Type	Manual/ DC-IRIS
Mount Type	C mount, CS mount
Optional Lens	SLA-M2890DN
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	None
Pan Speed	None
Tilt Range	None
Tilt Speed	None
Rotate Range	None
Sequence	None
Preset Accuracy	None
Azimuth	None
Auto Tracking	None
Operational	
IR Viewable Length	None
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SDDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR
Digital Image Stabilization	None
Defog	None
Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones
Gain Control	Low/ Middle/ High

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White Balance	ATW/ AWC/ Manual/ Indoor/ Outdoor
LDC	Support
Electronic Shutter Speed	Minimum/ Maximum/ Anti flicker (1/5~1/12,000sec)
Digital PTZ	None
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Business Intelligence	None
Serial Interface	RS-485(Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell)
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output
Audio In	Line-in Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line-out 1Vrms
IR Illuminator (Optional)	None
Wiper	None
Coaxial Protocol	None
Video Transmission Distance	None
Radiometry	
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
Smart Codec	WiseStreamII
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Quality Level control

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Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming (Up to 3 profiles)
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device Certificate(Hanwha Techwin Root CA)
Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.12, 10.13, 10.14 Recommended Browser: Google Chrome Supported Browser: MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
Memory	1024MB RAM, 256MB Flash
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C (-14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Certification	-
Electrical	
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 6.4W, Typical 4.6W 12VDC: Max 5.8W, Typical 4.1W
Mechanical	
Color / Material	Black, Ivory / Plastic
RAL Code	None
Product dimensions / weight	73.8(W)x66.6(H)x136.2(D)mm(2.9x2.6x5.4"), 320g(0.71 lb)

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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

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Network Camera	QNB-6002	-	HANWHA TECHWIN (TIANJIN) CO., LTD	EUT

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adapter	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Lens	-	-	Mega Pixel	-
Notebook	P95G001	8KM8HT2	Wistron Infocom (Chengdu) Company Limited	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZHOU)CO.,LTD.	-
Controller	SPC-1010	C50E67WG10100F	SamSung Techwin Co.,Ltd.	-
Controller Adapter	RS-AB1000	-	Dongguan JinhuaSheng Power Technology Co.,Ltd.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Button Alarm	-	-	-	-
Smart Phone	LG-SU760	108KPQJ0186212	LG Electronics	-
Micro SD Card	-	-	SanDisk	8 GB

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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 (EUT)	IRIS	Lens	IRIS	0.2	U
	NETWORK	Notebook	RJ-45	3.0	U
	RS-485	Controller	RS-485	3.0	U
	Audio Out	Speaker	3.5 mm	1.4	U
	Audio In	MIC	XLR	1.4	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	IRIS	Lens	IRIS	0.2	U
	NETWORK	PoE Adapter	RJ-45	3.0	U
	RS-485	Controller	RS-485	3.0	U
	Audio Out	Speaker	3.5 mm	1.4	U
	Audio In	MIC	XLR	1.4	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Smart Phone	3.5 mm	1.0	U
	RJ-45	PoE Adapter	RJ-45	2.0	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test mode	operating
DC 12 V, PoE	Monitoring EUT Using Web Viewer, Ping Test

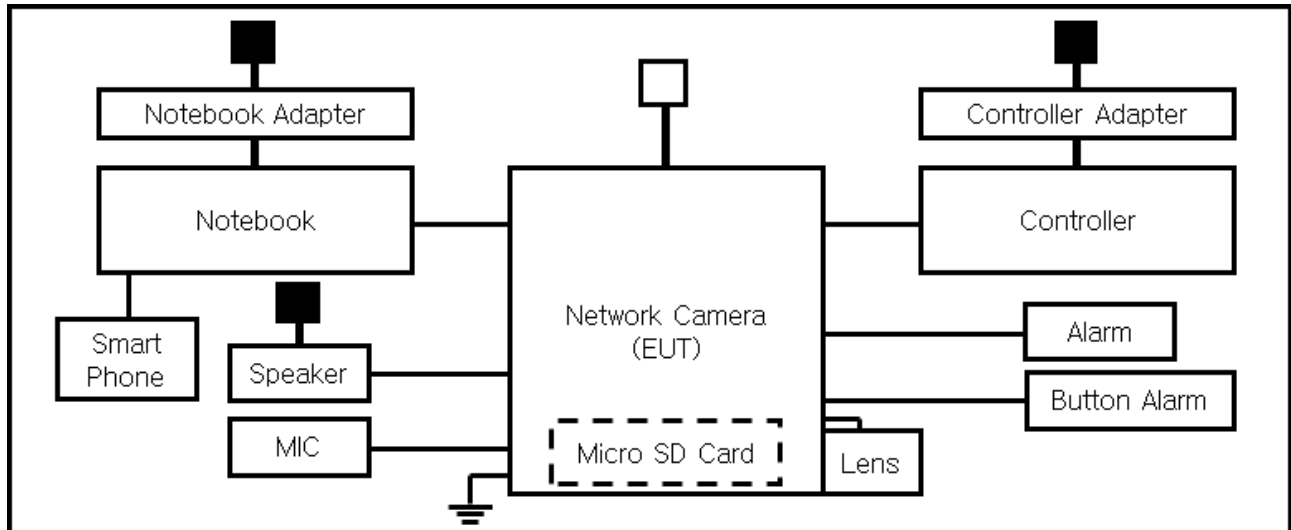
EUT Test operating S / W		
Name	Version	Manufacture Company
	-	-

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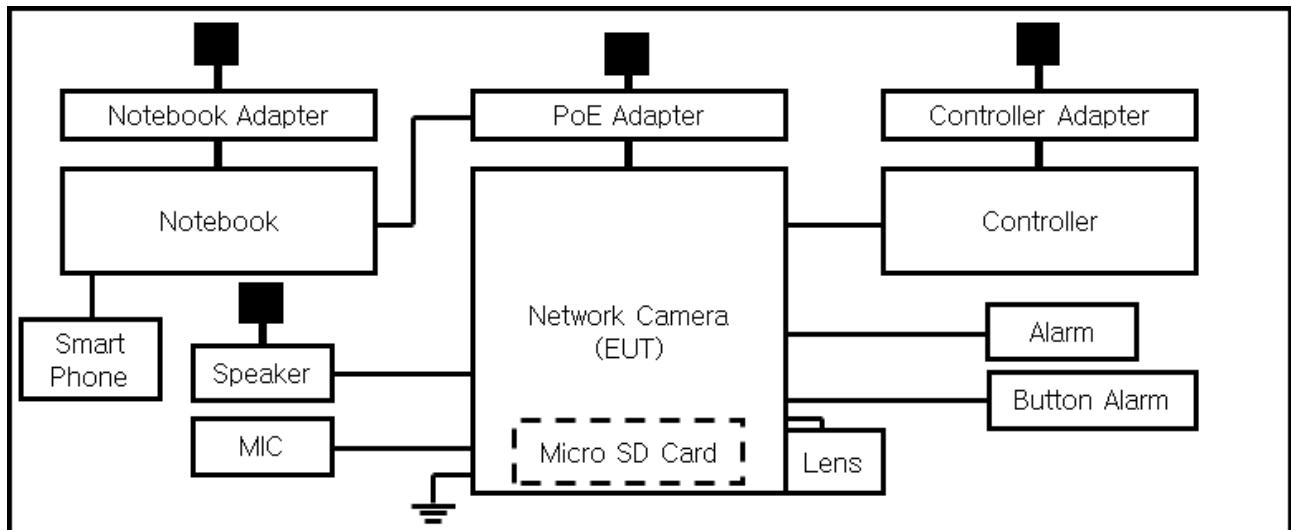
1.8 Configuration

■ AC Main
 □ DC Main

■ DC 12 V Mode



■ PoE Mode



1.9 Remarks when standards applied

The Video Port is for administrators and is excluded from the test.

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 C63.4:2014 and CISPR 16-1-4:2012

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber , and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
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-20056, C-20036, T-20040, G-20057
Europe	TÜ V SÜ D	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0003



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

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- | | | |
|---|---|----------------------------------|
| ☐ VCCI-CISPR 32:2016 | ☐ Class A | ☐ Class B |
| ☒ AS/NZS CISPR32:2015 | ☒ 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 | | |
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| ☐ EN 301 489-3 V1.6.1 | | |
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| ☐ EN 301 489-17 V2.2.1 | | |
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| ☐ EN 60945:2002 | | |

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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, 22, 2020
☐	LISN	ENV216	R & S	101787	01, 02, 2021
☐	LISN	ESH2-Z5	R & S	100450	01, 02, 2021
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	01, 02, 2021

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

It is not tested apply because it is powered by DC and PoE.

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2.2 Conducted Emissions at Telecommunication Ports

Test Date

Dec. 02, 2019

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	101783	04, 22, 2020
☒	LISN	ENV216	R & S	101786	01, 25, 2020
☒	LISN	ENV216	R & S	101137	01, 25, 2020
☐	8-WIRE ISN CAT3	CAT3 8158	SCHWARZBECK	8158-0019	03, 19, 2020
☒	8-WIRE ISN CAT5	CAT5 8158	SCHWARZBECK	8158-0030	03, 19, 2020
☐	8-WIRE ISN CAT6	NTFM 8158	SCHWARZBECK	8158-0029	08, 13, 2020

Test Conditions

Temperature: 27,7 °C

Relative Humidity: 49,7 % 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.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 01, 2020

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, 09, 2020
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2020
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020
☐	ATTENUATOR	8491A	HP	32173	03, 11, 2020

Test Conditions

Temperature: 28,2 °C

Relative Humidity: 49,4 % 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

Remarks

See Appendix A for test data.

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2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date
Jan. 02, 2020

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, 06, 2020
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 27, 2020
☐	ATTENUATOR	8491A	HP	35496	03, 11, 2020
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM, INC	781	03, 12, 2020

Test Conditions
Temperature: 27,7 °C
Relative Humidity: 50,1 % 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.



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))

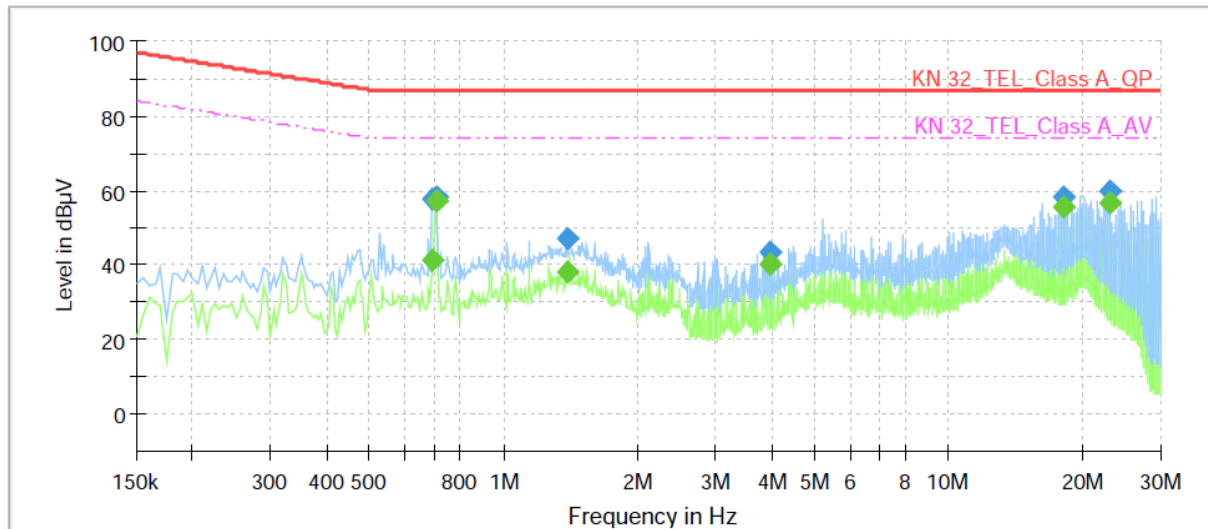
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Conducted Emissions at Telecommunication Ports

■ DC 12 V Mode
[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	QNB-6002
Mode	DC 12 V_100 Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.690000	---	41.34	74.00	32.66	1000.0	9.000	Single Line	11.1
0.690000	57.90	---	87.00	29.10	1000.0	9.000	Single Line	11.1
0.705000	---	57.25	74.00	16.75	1000.0	9.000	Single Line	11.2
0.705000	58.42	---	87.00	28.58	1000.0	9.000	Single Line	11.2
1.390000	---	38.22	74.00	35.78	1000.0	9.000	Single Line	10.2
1.390000	47.02	---	87.00	39.98	1000.0	9.000	Single Line	10.2
3.955000	---	40.19	74.00	33.81	1000.0	9.000	Single Line	9.7
3.955000	43.62	---	87.00	43.38	1000.0	9.000	Single Line	9.7
18.245000	---	55.74	74.00	18.26	1000.0	9.000	Single Line	10.2
18.245000	58.40	---	87.00	28.60	1000.0	9.000	Single Line	10.2
23.130000	---	56.50	74.00	17.50	1000.0	9.000	Single Line	10.4
23.130000	60.07	---	87.00	26.93	1000.0	9.000	Single Line	10.4



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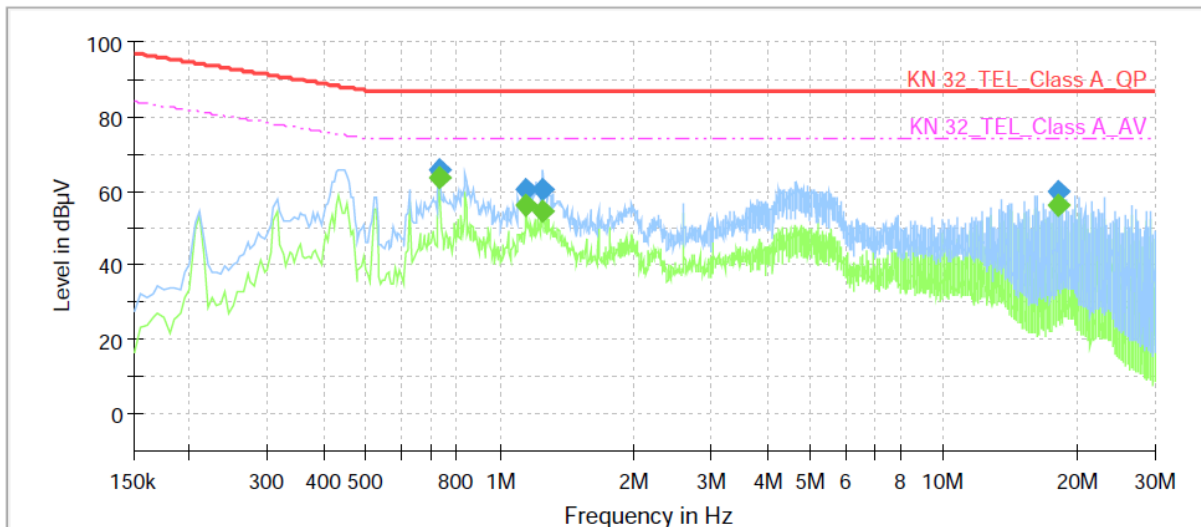
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■ PoE Mode
[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNB-6002
Mode: 100 Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.730000	---	63.76	74.00	10.24	1000.0	9.000	Single Line	11.2
0.730000	65.65	---	87.00	21.35	1000.0	9.000	Single Line	11.2
1.150000	---	56.06	74.00	17.94	1000.0	9.000	Single Line	10.7
1.150000	60.34	---	87.00	26.66	1000.0	9.000	Single Line	10.7
1.255000	---	54.68	74.00	19.32	1000.0	9.000	Single Line	10.5
1.255000	60.37	---	87.00	26.63	1000.0	9.000	Single Line	10.5
18.245000	---	56.27	74.00	17.73	1000.0	9.000	Single Line	10.2
18.245000	59.93	---	87.00	27.07	1000.0	9.000	Single Line	10.2

◆ 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))

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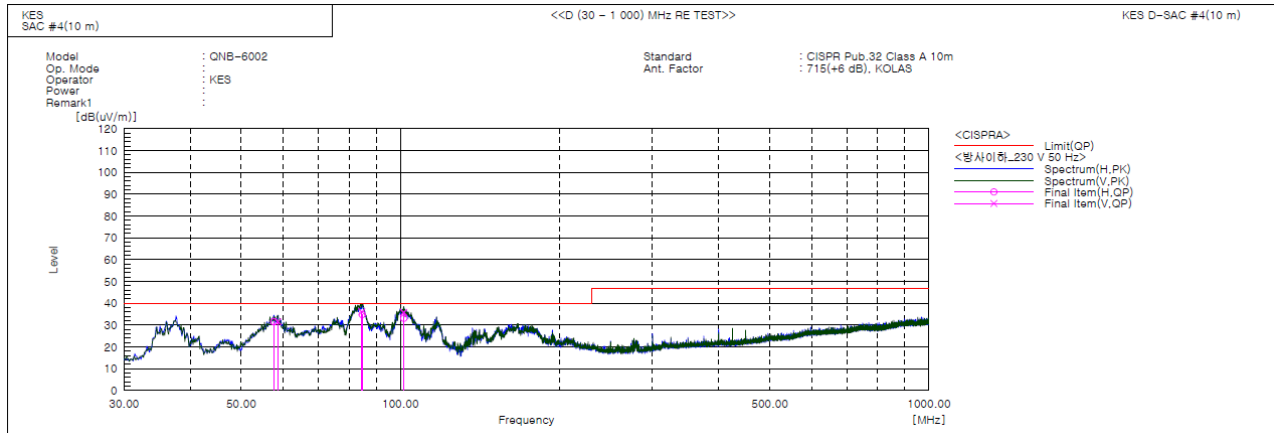
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC 12 V Mode



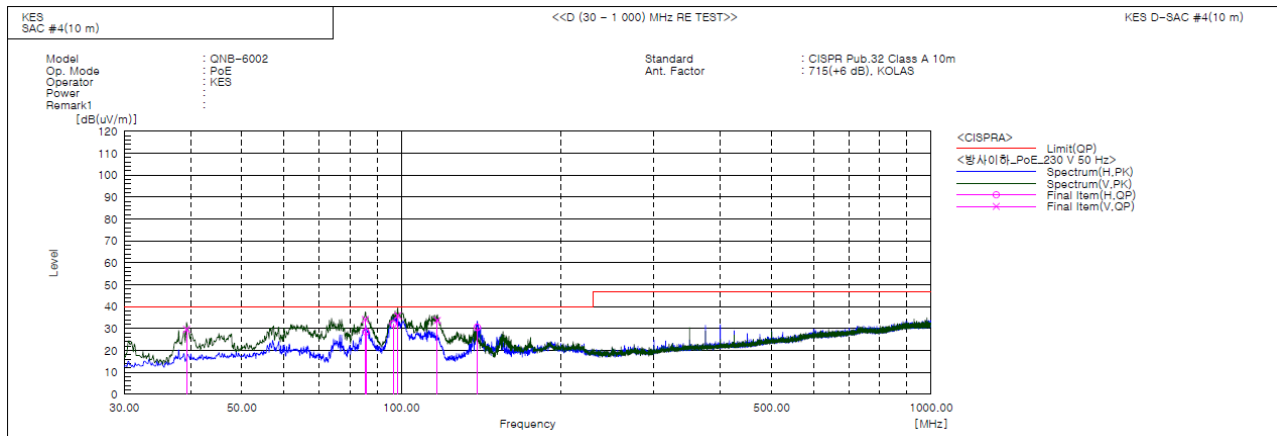
Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	57.645	H	53.6	-22.0	31.6	40.0	8.4	150.0	312.0	
2	58.615	V	53.8	-22.2	31.6	40.0	8.4	190.0	289.0	
3	84.563	V	62.5	-26.4	36.1	40.0	3.9	150.0	265.0	
4	84.684	H	61.1	-26.3	34.8	40.0	5.2	400.0	218.0	
5	101.416	V	58.2	-22.4	35.8	40.0	4.2	100.0	293.0	
6	101.538	H	55.5	-22.4	33.1	40.0	6.9	54.0	236.0	

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PoE 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	39.336	V 52.9	-23.2	29.7	40.0	10.3	135.0	274.0	
2	85.533	V 60.2	-26.0	34.2	40.0	5.8	141.0	191.0	
3	85.775	H 54.4	-25.9	28.5	40.0	11.5	400.0	140.0	
4	96.566	H 55.1	-22.9	32.2	40.0	7.8	350.0	128.0	
5	98.506	V 58.4	-22.5	35.9	40.0	4.1	150.0	306.0	
6	116.936	V 57.1	-23.4	33.7	40.0	6.3	100.0	161.0	
7	139.125	H 56.7	-26.1	30.6	40.0	9.4	357.0	60.0	

◆ 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



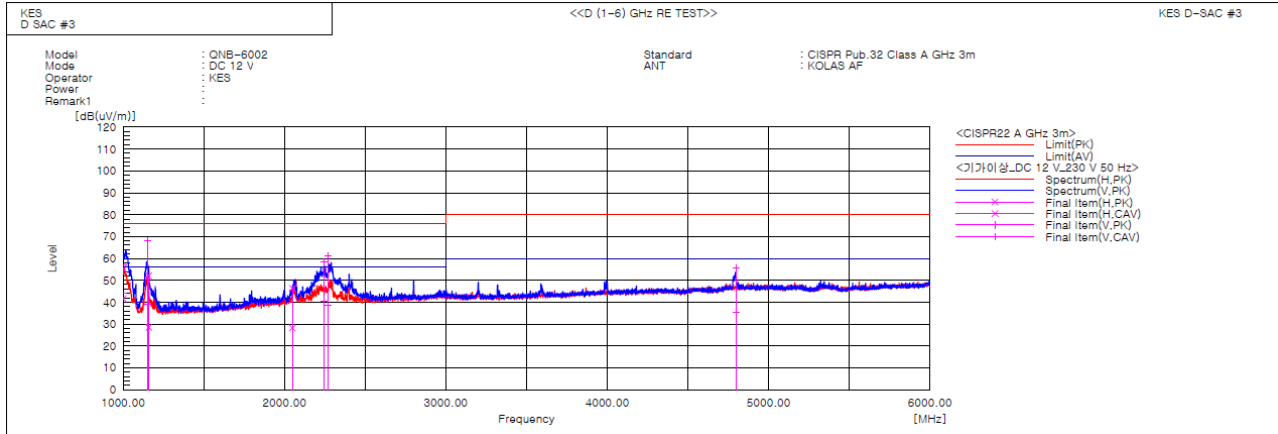
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC 12 V 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	1000.371	V	66.5	53.4	-9.4	57.1	44.0	76.0	56.0	18.9	12.0	100.0	185.6	
2	1000.571	H	64.8	51.1	-9.4	55.4	41.7	76.0	56.0	20.6	14.3	100.0	348.7	
3	1150.031	V	76.7	47.8	-8.8	67.9	39.0	76.0	56.0	8.1	17.0	100.0	26.3	
4	1158.489	H	60.9	37.3	-8.8	52.1	28.5	76.0	56.0	23.9	27.5	100.0	148.0	
5	2048.295	H	48.0	29.9	-1.7	46.3	28.2	76.0	56.0	29.7	27.8	100.0	355.2	
6	2243.542	V	59.5	41.8	-1.2	58.3	40.6	76.0	56.0	17.7	15.4	100.0	3.1	
7	2271.244	V	62.4	39.9	-1.1	61.3	38.8	76.0	56.0	14.7	17.2	100.0	6.8	
8	4798.779	V	48.1	27.8	7.5	55.6	35.3	80.0	60.0	24.4	24.7	100.0	155.5	

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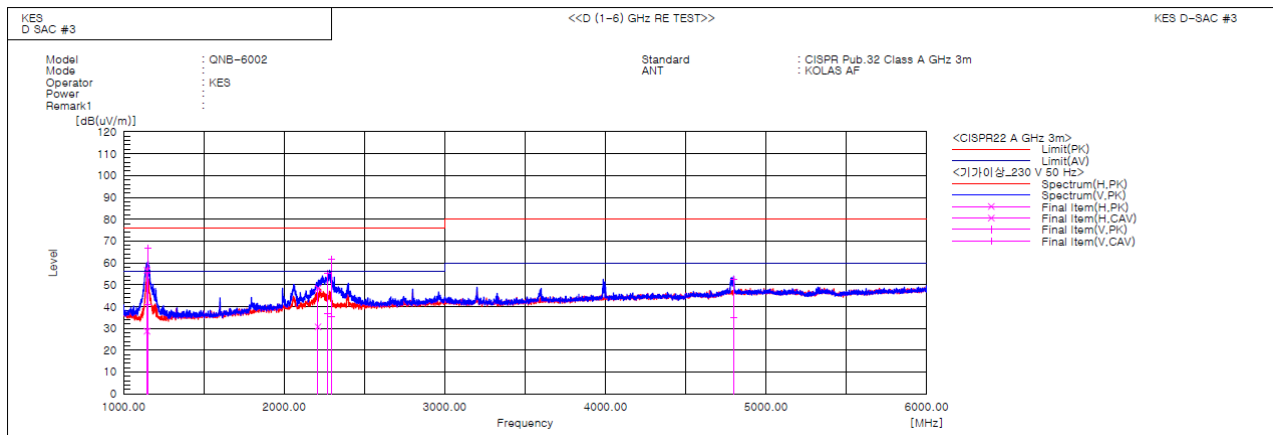
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■ PoE Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1145.579	H	65.4	37.5	-8.8	56.6	28.7	76.0	56.0	19.4	27.3	100.0	224.4	
2	1152.030	V	75.4	49.9	-8.8	66.6	41.1	76.0	56.0	9.4	14.9	100.0	2.4	
3	2209.772	H	49.6	32.1	-1.3	48.3	30.8	76.0	56.0	27.7	25.2	100.0	61.5	
4	2266.755	V	56.4	37.9	-1.1	55.3	36.8	76.0	56.0	20.7	19.2	100.0	352.1	
5	2295.797	V	62.5	36.1	-1.0	61.5	35.1	76.0	56.0	14.5	20.9	100.0	357.2	
6	4799.380	V	45.1	27.5	7.5	52.6	35.0	80.0	60.0	27.4	25.0	100.0	139.5	

◆ Calculation

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

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/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 Emissions at Mains Power Ports

N/A

N/A

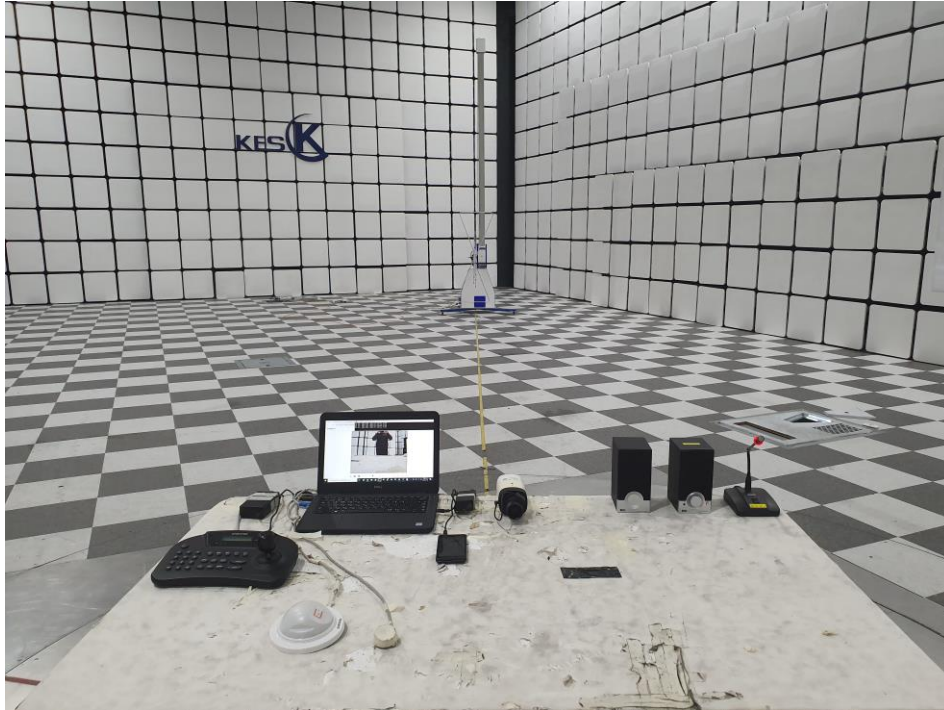
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Conducted Emissions at Telecommunication Ports



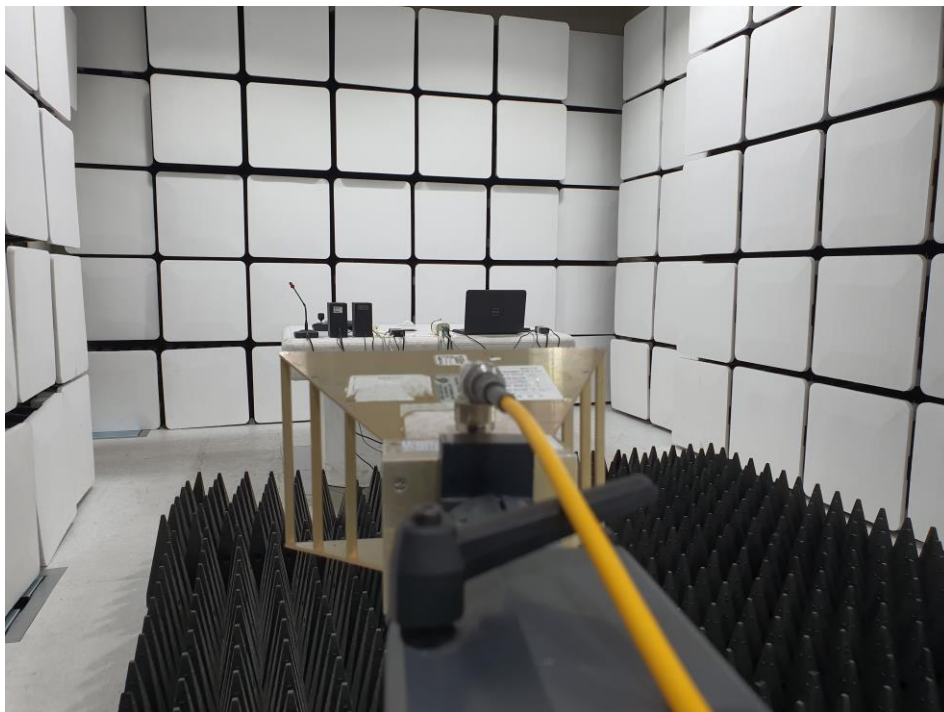
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



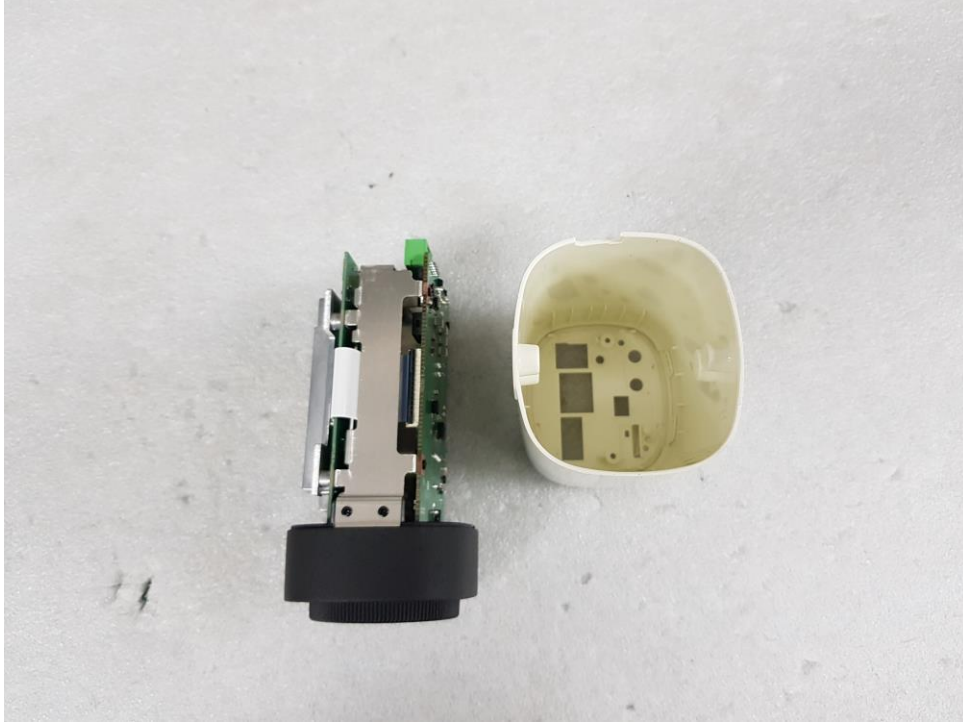
(Bottom)



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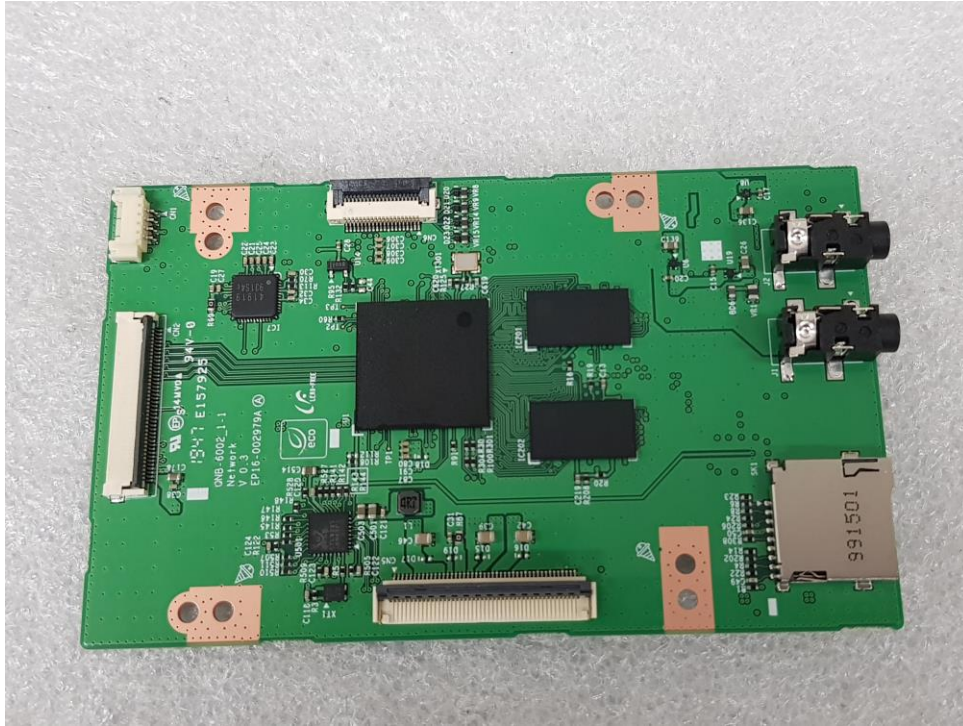
EUT Internal Photographs

(Internal View)

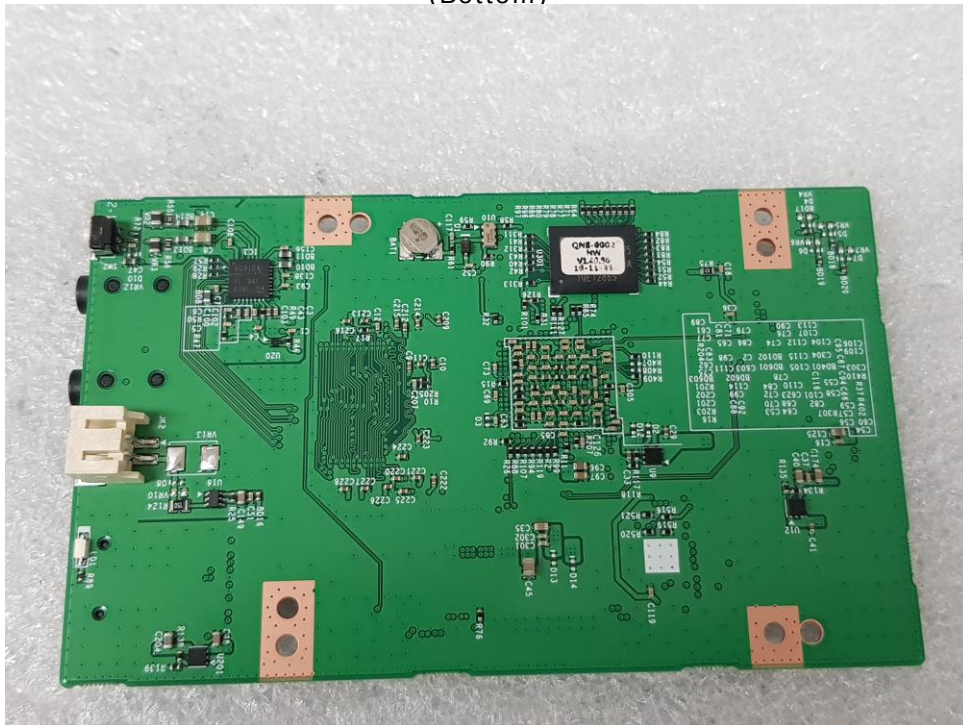


EUT Internal View – Network Board

(Top)



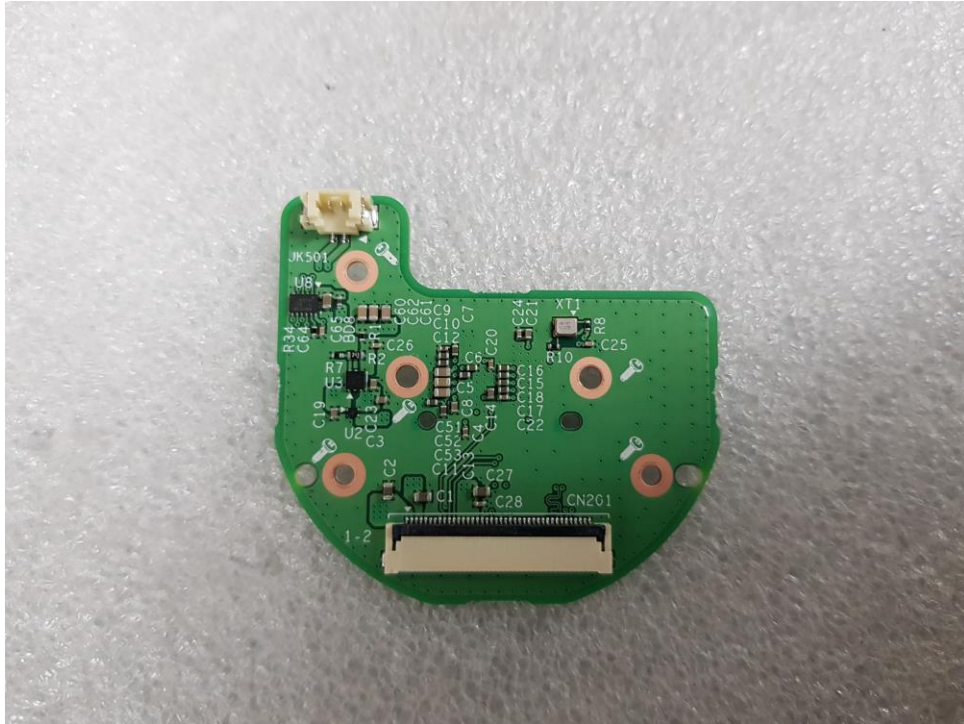
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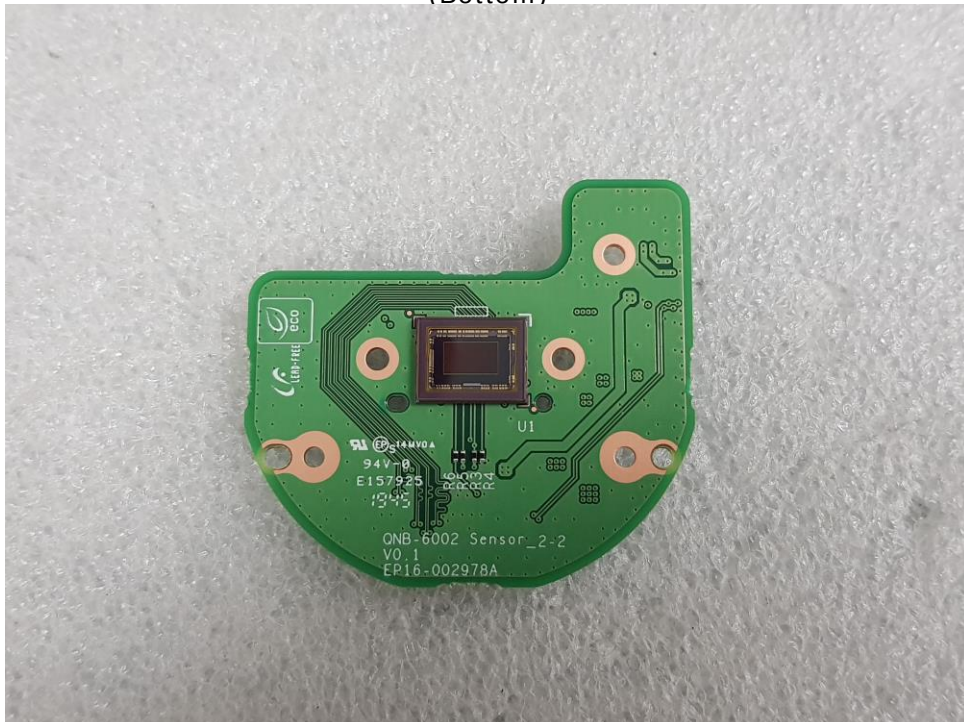
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EUT Internal View – SENSOR Board

(Top)



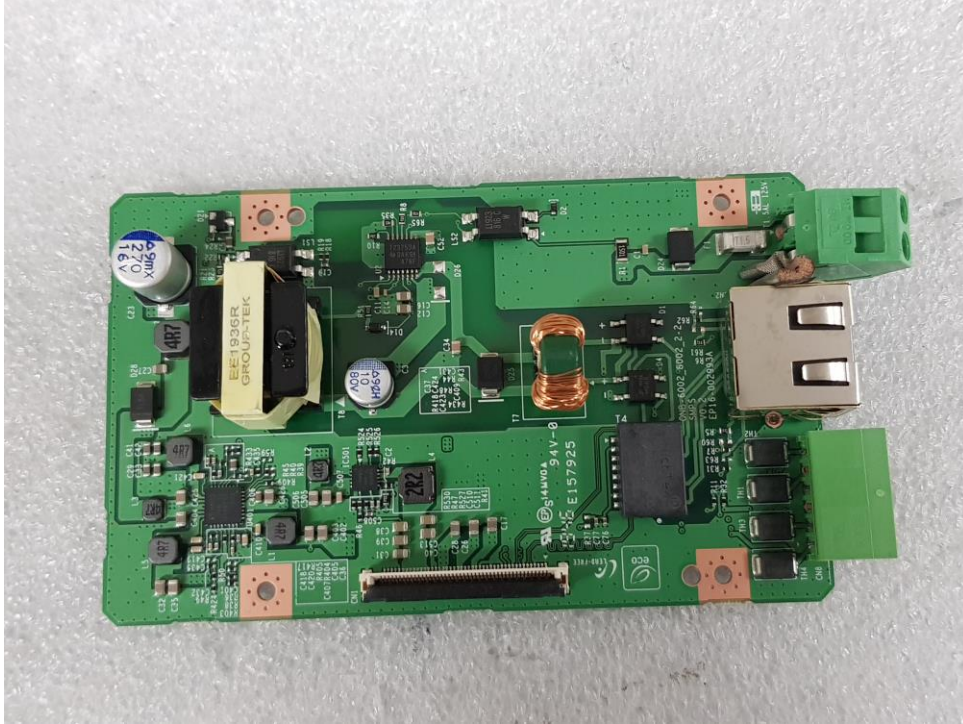
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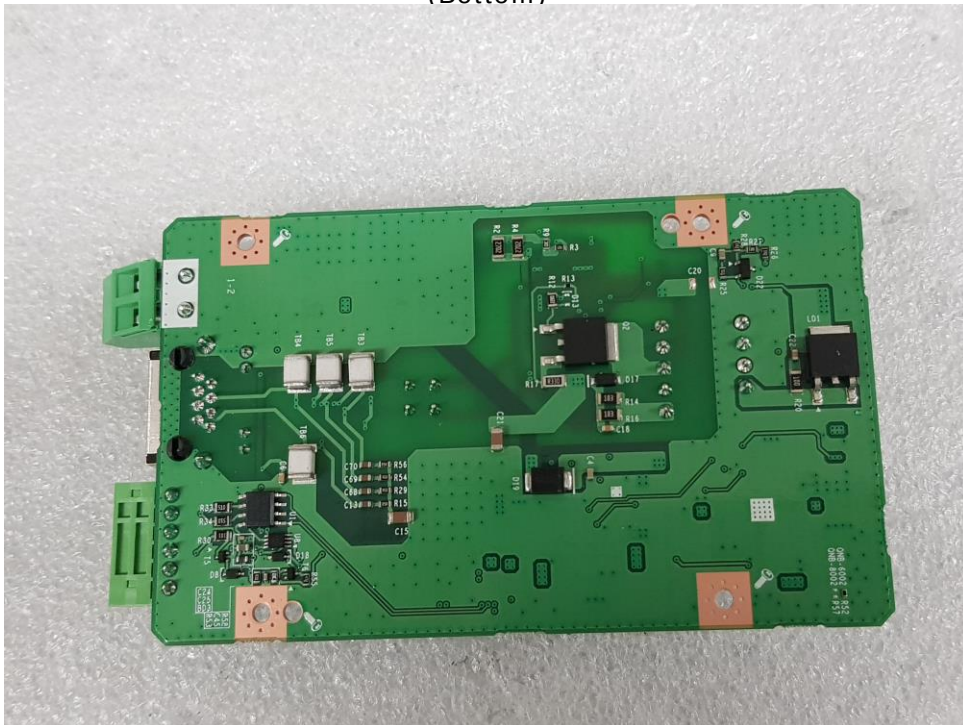
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EUT Internal View – SMPS Board

(Top)



(Bottom)



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