

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:	PND-9080RN
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, Changwon-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-E1-16T0183

NETWORK CAMERA, Model PND-9080RN 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-E1-16T0183

Date of Issue: 04. 28. 2016

Dong Hun, Jang
Technical Manager
Signature:



KES.Co., Ltd.

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EMC TEST REPORT For FCC

Test Report No. : KES-E1-16T0183
Date of Issue : Apr. 28, 2016
Product name : NETWORK CAMERA
Model/Type No. : PND-9080RN
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 : Apr. 14, 2016
Test date : Apr. 19, 2016 ~ Apr. 20, 2016
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Yeong Suk, Song
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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Test report No.:
KES-E1-16T0183
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Apr. 28, 2016	KES-E1-16T0183	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	PND-9080R (DVT)
Video	
Imaging Device	1/1.7" 12.4M CMOS
Total Pixels	4,168(H) x 3,062(V)
Effective Pixels	4,072(H) x 3,046(V)
Scanning System	Progressive Scan
Min. Illumination	Color : 0.3 Lux(1/30sec, F1.6, 30IRE), 0.01Lux(2sec, F1.6, 30IRE) 0 Lux (IR LED On)
G / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 704x480(N), 704x576(P), for installation - DIP Connector type
Lens	
Focal Length (Zoom Ratio)	4.3 ~ 10mm (2.2x Motorized Variable)
Max. Aperture Ratio	F1.6
Angular Field of View	[4096 x 2160] H : 100.3°(Wide) / V : 49.7°(Wide) [3840 x 2160] H : 92.9°(Wide) / V : 49.7°(Wide)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple Focus (Motorized V/F) / Manual - Remote control via network (Manual, Simple Focus)
Lens Type	P-Iris mode
Mount Type	Board-in type
LDC(Lens Distortion Correction)	OPTION
Operational	
IR LED	4 ea
Viewable Length	1.6m
Camera Title	Off / On (Displayed up to 45 characters) - W/W : English/Numeric/Special Characters - Korea : English/Numeric/Special/Korean Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 6), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Samsung Super Dynamic Range) (Off / On)
Digital Noise Reduction	SSNR (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	-
Defog	Auto/Manual/Off
Motion Detection	Off / On (Box, Polygonal)
Privacy Masking	Off / On (16ea, Polygonal with 4 Lines Only) - Color : Gray, Green, Red, Blue, Black, White
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor (Included Mercury & Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Rotate Image	Flip : On/Off Mirror : On/Off Halfway : 90° / 270°
Intelligent Video Analytics	Tampering(Scene Change), Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Defocus Detection, Digital Auto Tracking - with Metadata
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm Input, Motion Detection, Video Analytics, Audio Detection, Network Disconnect
Alarm events	- File upload via FTP, E-mail - Notification via E-Mail - Local storage (SD/SDHC/SDXC) or NAS recording at Event Triggers
Audio In	Selectable (Mic IN/Line IN/Built-in mic) Supply voltage: 2.5VDC(4mA), Input Impedance: approx. 2K Ohm
Audio out	Line out (3.5mm stereo mini jack), Max output level: 1 Vrms
Network	



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Ethernet	RJ-45 (10/100/1000BASE-T)
Video Compression Format	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High Motion JPEG
Resolution	4096x2160 / 3840x2160 / 2592x1944 / 2592x1464 / 1920x1080 / 1600x1200 / 1280x1024 / 1280x960 / 1280x720 / 1024x768 / 800x600 / 800x450 / 720x576 / 720x480 / 640x480 / 320x240
Max. Framerate	H.265/H.264 : 3840x2160 @ 30fps Max. 30fps at all resolutions (8 Mega Mode Under) Motion JPEG : 4096 X 3000 : 2 fps 4096 X 2160 : 2 fps 3840 X 2160 : 2 fps 2592 X 1944 : 2 fps 2592 X 1464 : 2 fps 1920 X 1080 : 4 fps 1600 X 1200 : 4 fps 1280 X 1024 : 5 fps 1280 X 960 : 5 fps 1280 X 720 : 5 fps 1024 X 768 : 5 fps 800 X 600 : 15 fps 800 X 450 : 15 fps 720 X 576 : 15 fps 720 X 480 : 15 fps 640 X 480 : 15 fps 320 X 240 : 15 fps
Smart Codec	Manual Mode (area-based : SEA)
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR Motion JPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Format	G.711 u-law / G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps G.711 : 64Kbps, 128Kbps
Audio Communication	Bi-directional (2-Way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP/UDP, RTP/TCP, RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SFTP, ICMP, ICMPV1/V2/V3(MIB-2), ARP, DNS, DDNS, QoS, P2P-DM, UPnP, Bonjour
Security	HTTP(S) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC (up to 128GB) - motion images recorded in the SD/SDHC/SDXC memory card can be downloaded. - camera can detect automatically when the memory is connected - memory status display (normal/error/active/formatting/lock) NAS(Network Attached Storage) Local PC for instant Recording(plug-in viewer only)
Application Programming Interface	ONVIF Profile S/G GUNAPI(HTTP API) ONVIF SAMSUNG TECHWIN Open Platform
Webpage Language	English, French, German, Spanish, Italian, Chinese, Russian, Japanese, Swedish, Danish, Portuguese, Turkish, Polish, Czech, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.9, 10.10, 10.11 Non-plugin Webviewer Supported Browser: Google Chrome 47, MS Edge 20 Support Codec : Video : H.264, MJPEG (MAX 1M 15FPS) Audio : G.711 Plug-in Webviewer Supported Browser : MS Explorer 11, Mozilla Firefox 43, Apple Safari 9, Mac OS X only
Central Management Software	SmartViewer, QDM
Pixel Counter	support (plug-in viewer only)
Environmental	
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH T80 * Start up should be done at above -10°C
Storage Temperature / Humidity	-40°C ~ +60°C (-40°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	IK08
Electrical	
Input Voltage / Current	DC12V, PoE (IEEE802.3af, Class3)
Power Consumption	DC 12V : Max 9.5W PoE : Max 10.5W
Mechanical	
Color / Material	Ivory / Polycarbonate(PC)-Aluminum
Dimension (WxHxD)	Ø141.0mm(5.55 in) x H115.0mm(4.46 in)
Weight	650g

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 100 Vac ☐ 110 Vac ☐ 120 Vac ☒ PoE ☒ 12 Vdc

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PND-9080RN	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE	POE36U-1AT-R	-	PHIHONG	-
Monitor	SMT-2232	C95V67VF900025B	Weihai Daewoo Electronics Co., Ltd.	-
Notebook	NT630Z5J	JK9091EF400142M	Samsung Electronics Suzhou Computer Co., Ltd.	-
Notebook Adapter	A13-040N2A	CN60BA4400313ADON 843K0200	Chicony Power Technology (suzhou)Co., Ltd.	-
Mike	-	-	-	-
Alarm	SIE-0001 DO	C54167JB601268 F	SAMSUNG TECHWIN CO., LTD.	-
Micro SD card	-	-	Transcend	4 GB
Speaker	BR-1000A(CUVE)	-	BEIJING EDIFIER HI-TECH GROUP.	-

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)	BNC	Monitor	BNC	4.0	S
	Audio IN	Mike	Audio IN	2.0	U
	Audio OUT	Speaker	Audio OUT	2.0	U
	Alarm IN	Alarm	Alarm IN	3.0	U
	RJ-45	Notebook	RJ-45	4.0	U

- PoE Mode

Start		END		Cable Spec.	
Description	I / O Port	Description	I / O Port	Length	Shield
NETWORK CAMERA (E.U.T)	BNC	Monitor	BNC	4.0	S
	Audio IN	Mike	Audio IN	2.0	U
	Audio OUT	Speaker	Audio OUT	2.0	U
	Alarm IN	Alarm	Alarm IN	3.0	U
	RJ-45	PoE	RJ-45	4.0	U
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:

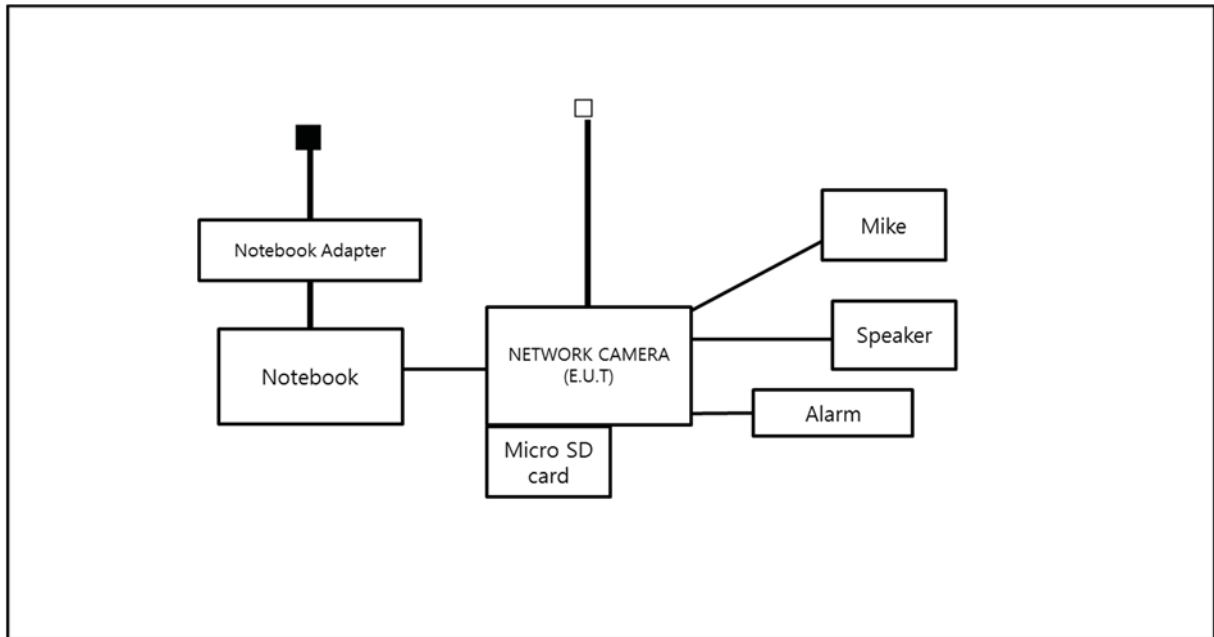
Test mode	Normal operating
OP	MONITORING Network ping test

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

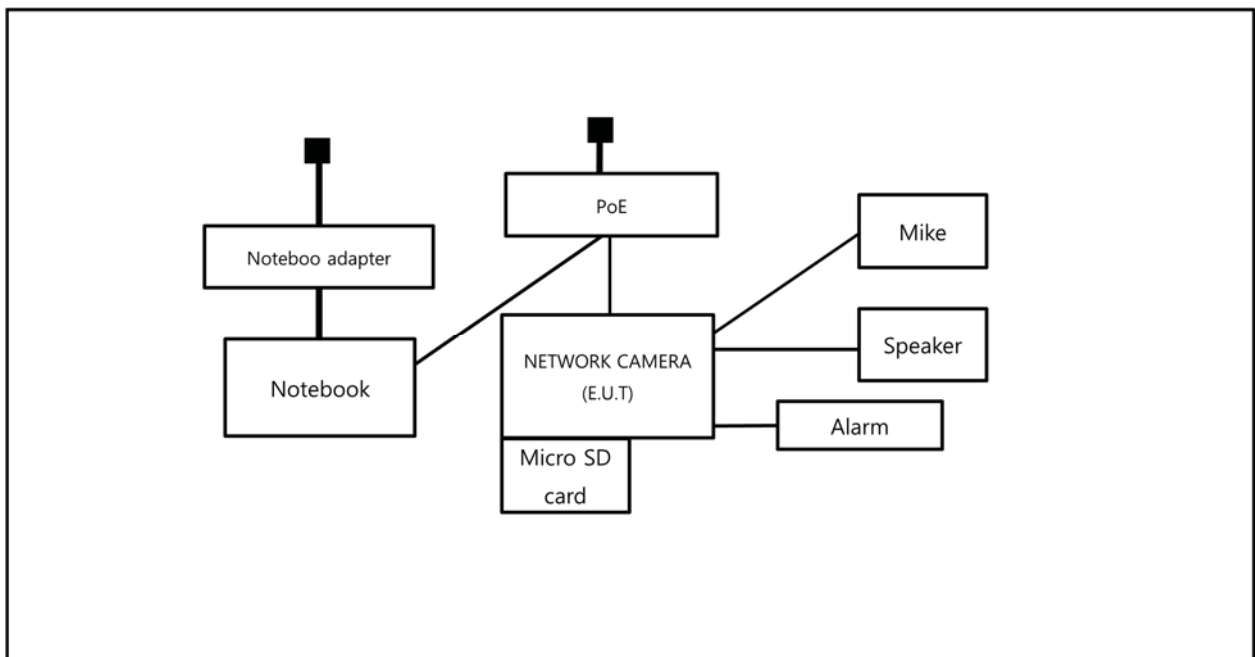
1.8 Configuration

■ AC Main
 □ DC Main

- DC 12 V Mode



- PoE Mode



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1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-29 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55022:2010

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☐ VCCI V-3 / 2013.04

☐ Class A

☐ Class B

☐ AS/NZS CISPR22:2009 +A1:2010

☐ Class A

☐ Class B

☒ 47 CFR Part 15, Subpart B / ANSI C63.4-2009

☒ Class A

☐ Class B

☐ IC Regulation ICES-003 : 2012
/ ANSI C63.4-2014

☐ Class A

☐ Class B

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B



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☐ **R&TTE- Directive 1999/5/EC**

☐ EN 301 489-1 V1.9.2

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

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

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2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test Receiver	ESR3	R&S	101783	05, 06, 2016
☐	LISN	ENV216	R&S	101137	02, 04, 2017
☐	LISN	ENV216	R&S	101786	05, 06, 2016
☐	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

See Appendix A for test data.



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Apr. 19, 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: 23.5 °C

Relative Humidity: 29.0 %

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

Apr. 20, 2016

Test Location

Semi Anechoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100551	04, 18, 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 Anechoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 22.8 °C
Relative Humidity: 37.3 %

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A



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[NEUTRAL]

N/A

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**Radiated Electric Field Emissions(Below 1 GHz)**

- DC 12V Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
50.18	12.66	H	4.00	13.93	1.46	28.05	39.00	10.95
148.51	24.82	V	1.53	8.15	2.76	35.73	43.50	7.77
149.07	23.53	H	3.70	8.17	2.77	34.47	43.50	9.03
248.85	15.52	V	1.00	12.38	3.79	31.69	46.40	14.71
500.94	16.72	H	4.00	17.12	5.76	39.60	46.40	6.80
644.20	14.19	V	1.00	19.48	6.73	40.40	46.40	6.00

* H : Horizontal, V : Vertical

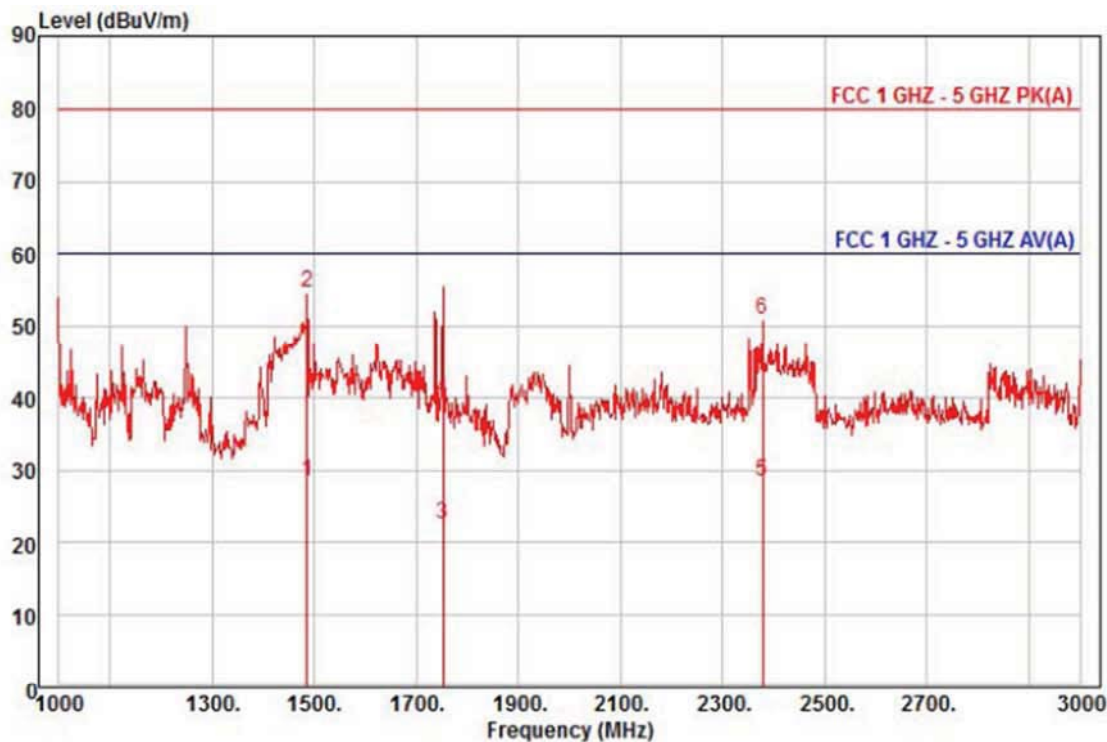
- PoE Mode

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]
46.25	12.28	V	1.00	13.78	1.39	27.45	39.00	11.55
216.76	14.13	H	4.00	11.67	3.45	29.25	43.50	14.25
360.49	11.01	V	1.00	14.78	4.74	30.53	46.40	15.87
500.12	13.54	H	3.86	17.10	5.75	36.39	46.40	10.01
647.99	13.41	V	1.00	19.49	6.77	39.67	46.40	6.73
648.26	12.69	H	4.00	19.49	6.77	38.95	46.40	7.45

* H : Horizontal, V : Vertical

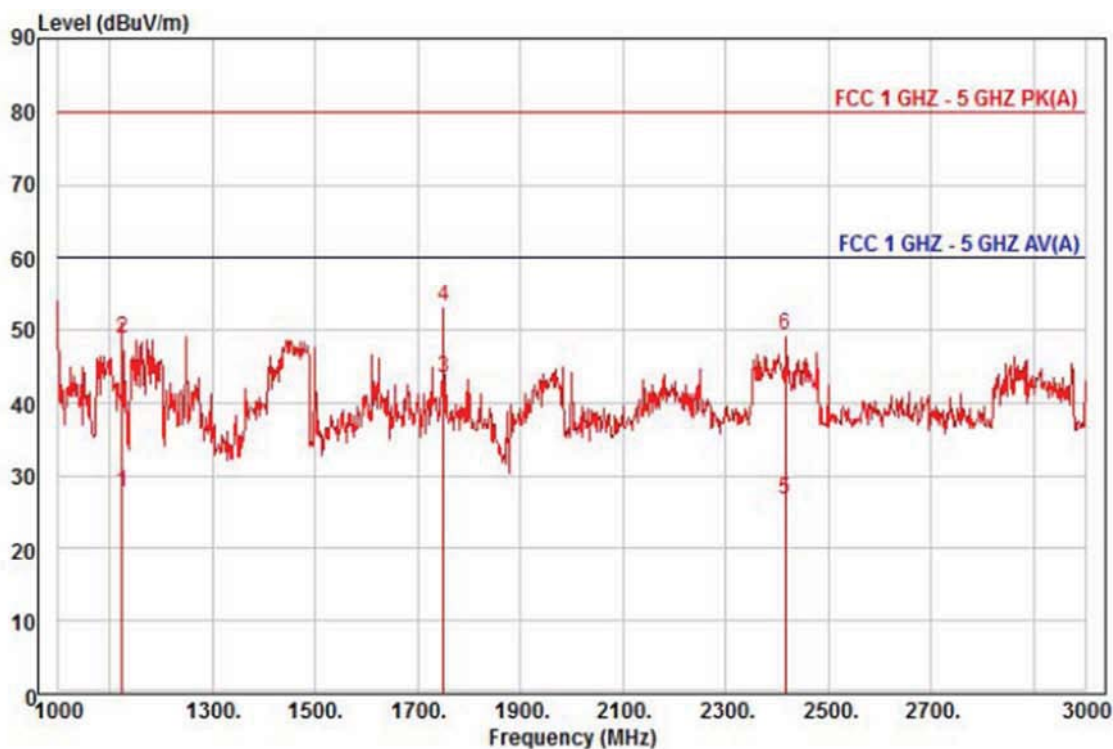
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



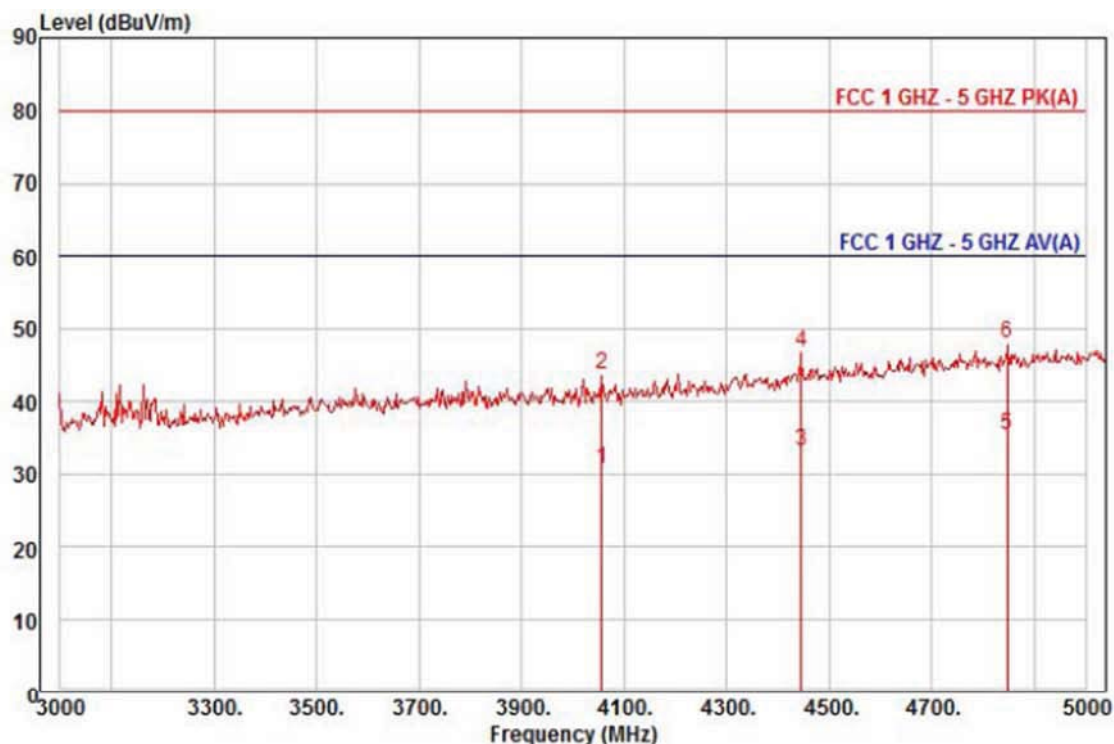
Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
Mode : DC 12V
Memo :

	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	1486.00	34.49	25.84	7.92	39.88	357	60.00	-31.63	horizontal Average
2 pp	1486.00	60.90	25.84	7.92	39.88	357	80.00	-25.22	horizontal Peak
3	1752.00	26.71	26.90	8.67	39.75	177	60.00	-37.47	horizontal Average
4	1752.00	43.93	26.90	8.67	39.75	177	80.00	-40.25	horizontal Peak
5 av	2378.00	29.66	28.81	9.93	39.85	38	60.00	-31.45	horizontal Average
6	2378.00	52.07	28.81	9.93	39.85	38	80.00	-29.04	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 :
Model : PND-9080RN
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	1124.00	36.58	24.40	6.87	40.06	226	60.00	-32.21	vertical	Average
2	1124.00	57.66	24.40	6.87	40.06	226	80.00	-31.13	vertical	Peak
3 pp	1750.00	47.57	26.89	8.66	39.75	339	60.00	-16.63	vertical	Average
4 pk	1750.00	57.38	26.89	8.66	39.75	339	80.00	-26.82	vertical	Peak
5	2416.00	27.61	28.90	9.99	39.87	6	60.00	-33.37	vertical	Average
6	2416.00	50.32	28.90	9.99	39.87	6	80.00	-30.66	vertical	Peak



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
Mode : DC 12V
Memo :

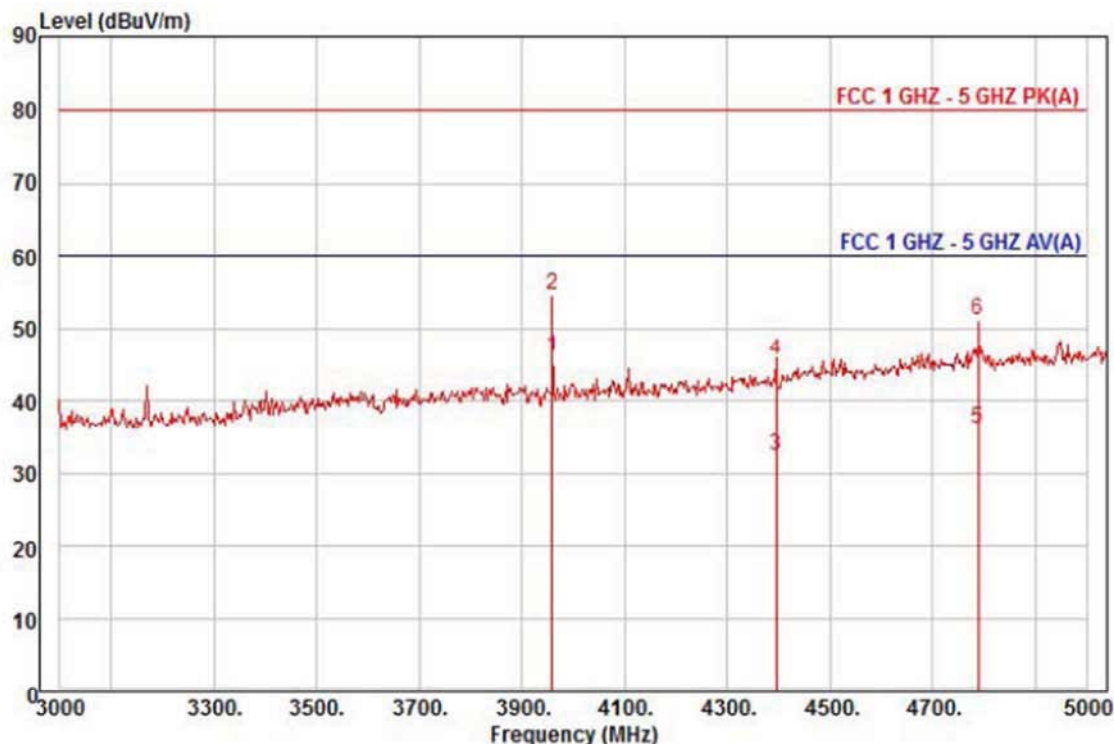
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	4056.00	25.17	32.33	13.61	40.41	267	60.00	-29.30	horizontal	Average
2	4056.00	38.20	32.33	13.61	40.41	267	80.00	-36.27	horizontal	Peak
3	4446.00	24.65	34.56	14.33	40.41	131	60.00	-26.87	horizontal	Average
4	4446.00	38.31	34.56	14.33	40.41	131	80.00	-33.21	horizontal	Peak
5 pp	4848.00	23.81	36.85	15.06	40.41	357	60.00	-24.69	horizontal	Average
6 pk	4848.00	36.52	36.85	15.06	40.41	357	80.00	-31.98	horizontal	Peak



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Test report No.:
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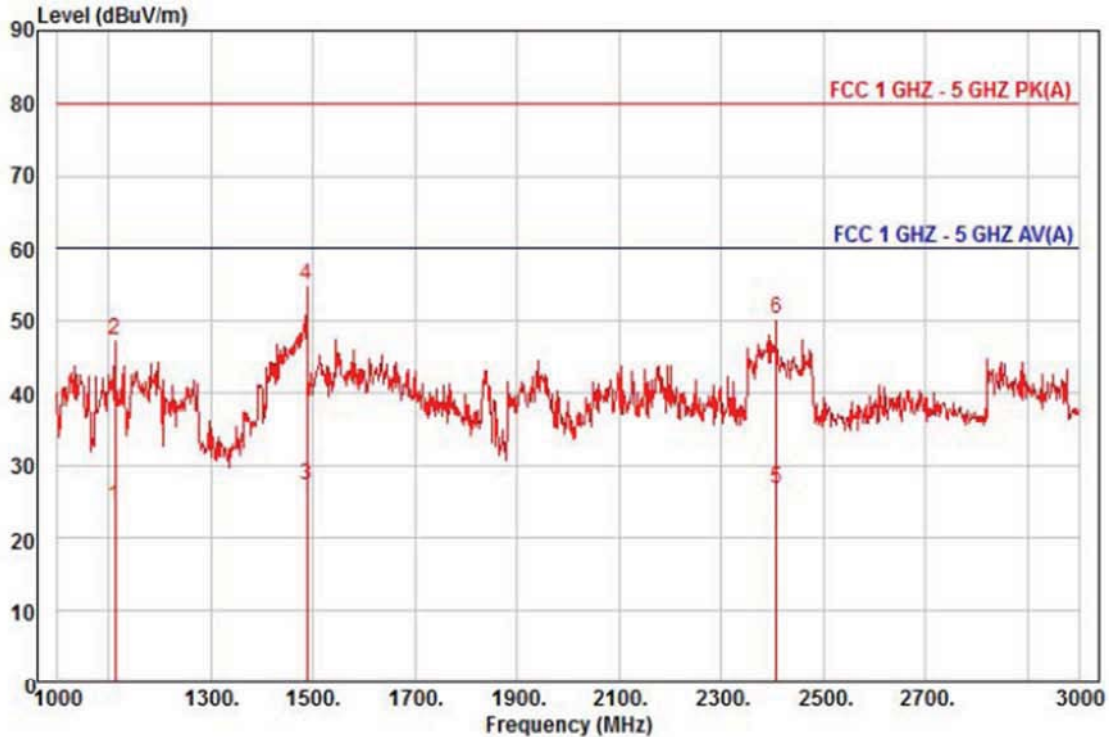


Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
Mode : DC 12V
Memo :

		Read Freq	Ant Level Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB	
1	pp	3960.00	41.18	31.94	13.43	40.40	260	60.00	-13.85	vertical
2	pk	3960.00	49.70	31.94	13.43	40.40	260	80.00	-25.33	vertical
3		4395.00	24.23	34.27	14.24	40.41	120	60.00	-27.67	vertical
4		4395.00	37.40	34.27	14.24	40.41	120	80.00	-34.50	vertical
5		4788.00	24.95	36.51	14.95	40.41	190	60.00	-24.00	vertical
6		4788.00	40.21	36.51	14.95	40.41	190	80.00	-28.74	vertical

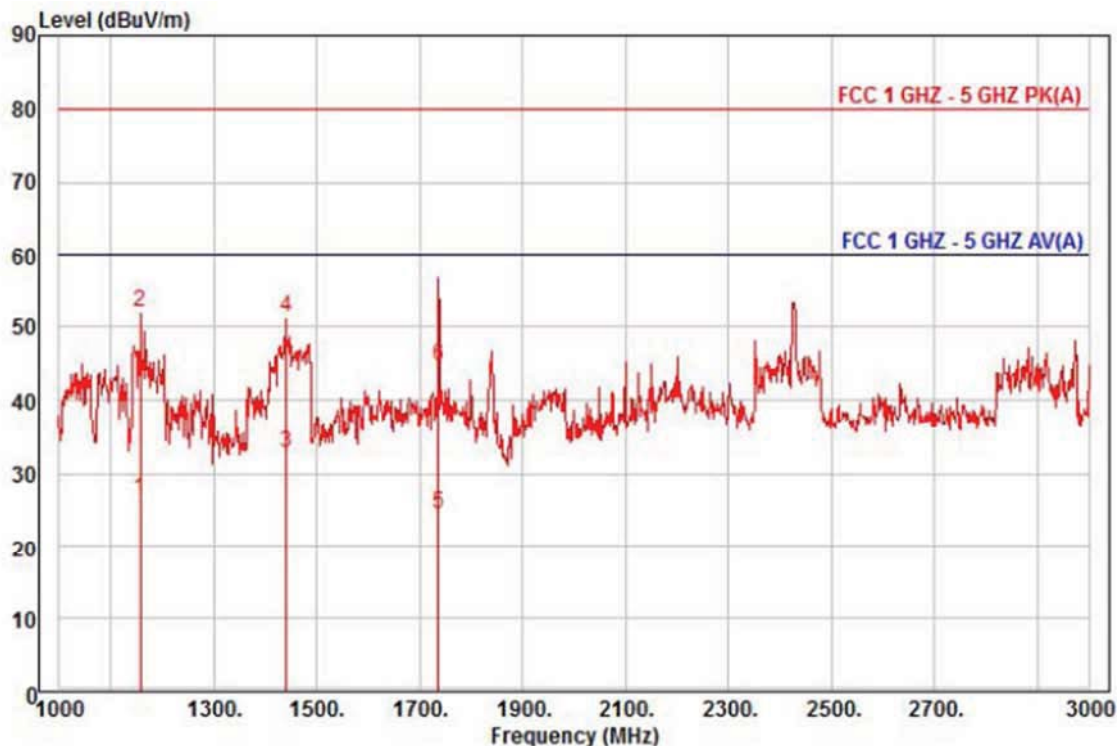
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- PoE Mode



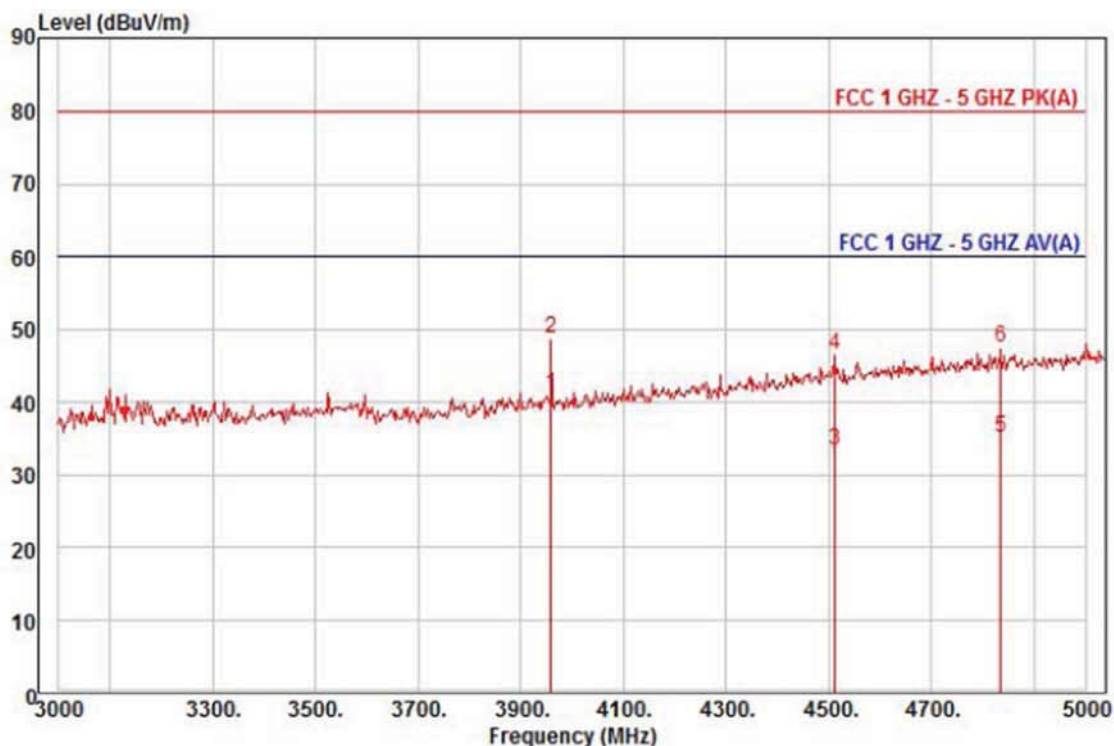
Site : chamber
Condition: FCC 1 GHz - 5 GHz PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
Mode : PoE
Memo :

	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	1112.00	33.07	24.35	6.83	40.07	30	60.00	-35.82	horizontal	Average
2	1112.00	56.26	24.35	6.83	40.07	30	80.00	-32.63	horizontal	Peak
3 av	1488.00	33.28	25.85	7.93	39.88	352	60.00	-32.82	horizontal	Average
4 pp	1488.00	61.04	25.85	7.93	39.88	352	80.00	-25.06	horizontal	Peak
5	2408.00	27.77	28.88	9.98	39.87	33	60.00	-33.24	horizontal	Average
6	2408.00	51.28	28.88	9.98	39.87	33	80.00	-29.73	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 :
Model : PND-9080RN
Mode : PoE
Memo :

	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	1158.00	35.10	24.54	6.97	40.04	10	60.00	-33.43	vertical	Average
2 pk	1158.00	60.53	24.54	6.97	40.04	10	80.00	-28.00	vertical	Peak
3 pp	1440.00	39.22	25.66	7.79	39.90	1	60.00	-27.23	vertical	Average
4	1440.00	57.78	25.66	7.79	39.90	1	80.00	-28.67	vertical	Peak
5	1736.00	28.83	26.83	8.62	39.76	28	60.00	-35.48	vertical	Average
6	1736.00	48.85	26.83	8.62	39.76	28	80.00	-35.46	vertical	Peak



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
Mode : PoE
Memo :

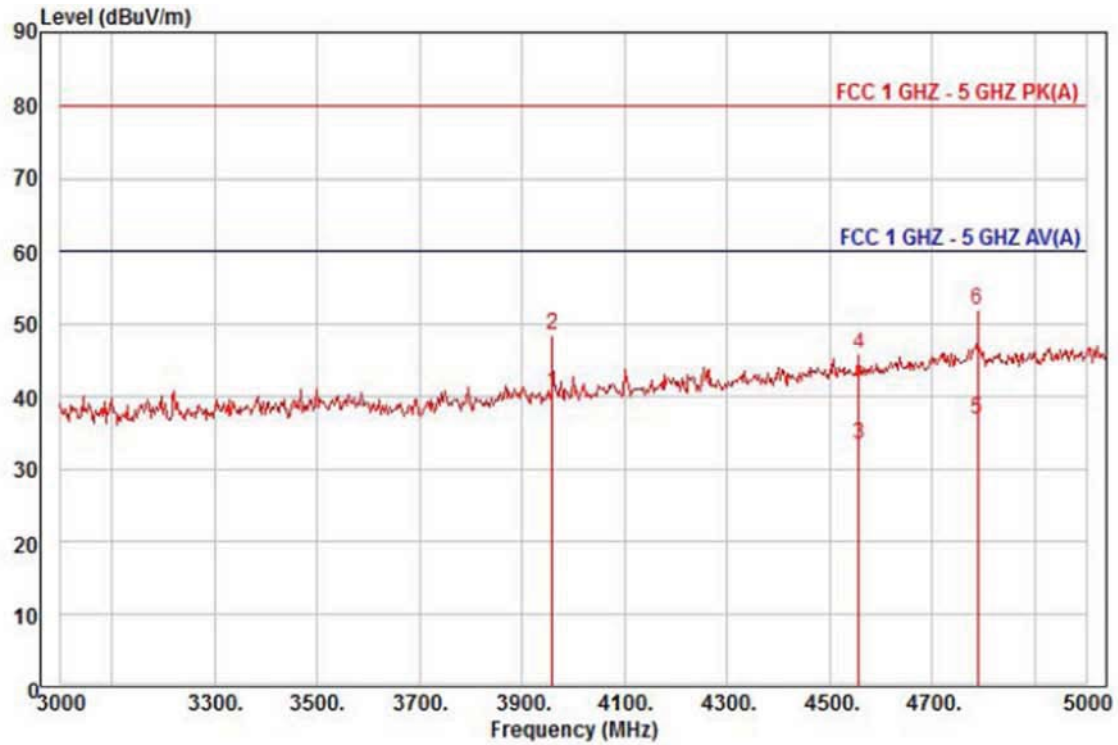
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	3960.00	36.01	31.94	13.43	40.40	347	60.00	-19.02	horizontal	Average
2 pk	3960.00	43.74	31.94	13.43	40.40	347	80.00	-31.29	horizontal	Peak
3	4512.00	24.37	34.93	14.45	40.41	18	60.00	-26.66	horizontal	Average
4	4512.00	37.52	34.93	14.45	40.41	18	80.00	-33.51	horizontal	Peak
5	4836.00	23.61	36.78	15.03	40.41	295	60.00	-24.99	horizontal	Average
6	4836.00	36.12	36.78	15.03	40.41	295	80.00	-32.48	horizontal	Peak



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Test report No.:
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : PND-9080RN
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 pp	3960.00	35.60	31.94	13.43	40.40	202	60.00	-19.43	vertical	Average
2	3960.00	43.70	31.94	13.43	40.40	202	80.00	-31.33	vertical	Peak
3	4557.00	24.15	35.19	14.53	40.41	353	60.00	-26.54	vertical	Average
4	4557.00	36.65	35.19	14.53	40.41	353	80.00	-34.04	vertical	Peak
5	4788.00	25.72	36.51	14.95	40.41	336	60.00	-23.23	vertical	Average
6 pk	4788.00	41.05	36.51	14.95	40.41	336	80.00	-27.90	vertical	Peak

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

Radiated Electric Field Emissions(Below 1 GHz)

- DC 12V Mode



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- PoE Mode



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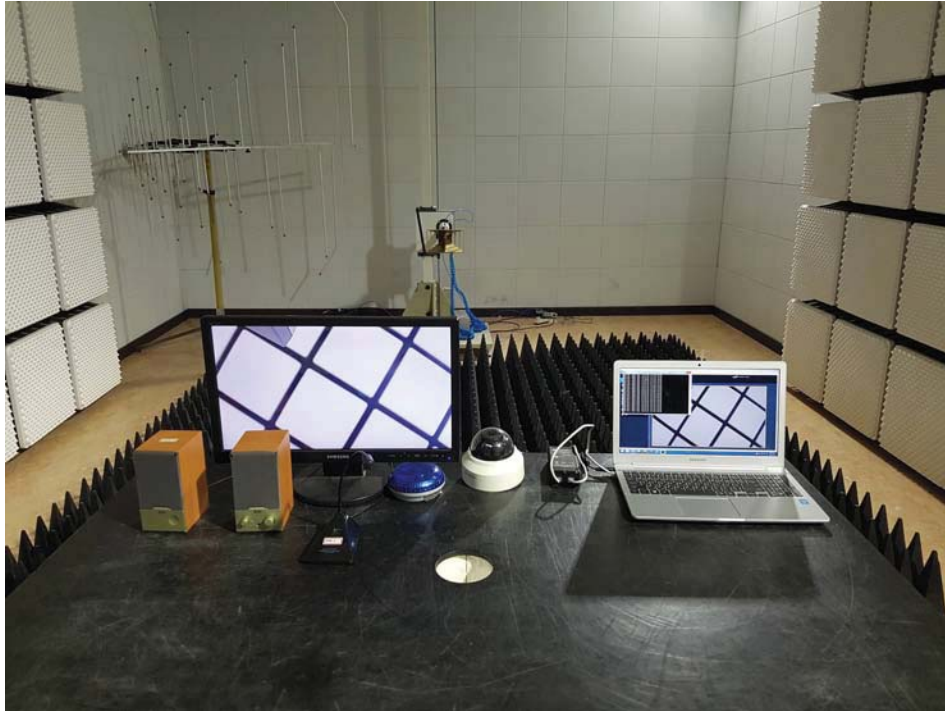
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12V Mode



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- PoE Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



Main Board EUT Internal View – Board 1

(Top)



(Bottom)



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Main Board EUT Internal View – Board 2

(Top)



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Main Board EUT Internal View – Board 3

(Top)



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Main Board EUT Internal View – Board 4

(Top)



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Main Board EUT Internal View – Board 5

(Top)



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Label Photographs



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