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Report No.: SHEM180500343201

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TEST REPORT

Application No.: SHEM1805003432CR
Applicant: Zhejiang Dahua Vision Technology Co., Ltd.
Address of Applicant: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Manufacturer: Zhejiang Dahua Vision Technology Co., Ltd.
Address of Manufacturer: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Factory: 1, ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
2, ZHEJIANG DAHUA ZHILIAN CO.,LTD.
Address of Factory: 1, No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
2, No.28, Dongqiao Road, Dongzhou Street, Fuyang District, Hangzhou, P.R.China.

Equipment Under Test (EUT):

EUT Name: IP CAMERA

Model No.: DH-IPC-HDBW1430EP-AW, DH-IPC-HDBW1430EN-AW, IPC-HDBW1430EP-AW, IPC-HDBW1430EN-AW, IPC-HDBW1230EP-AW, IPC-HDBW1230EN-AW, DH-IPC-HDBW1230EP-AW, DH-IPC-HDBW1230EN-AW, IPC-HDBW1435EP-W,IPC-HDBW1435EN-W,DH-IPC-HDBW1435EP-W, DH-IPC-HDBW1435EN-W, IPC-HDBW1235EP-W, IPC-HDBW1235EN-W, DH-IPC-HDBW1235EP-W, DH-IPC-HDBW1235EN-W, N41BL12-W, N41BL13-W □

□ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : 47 CFR Part 15, Subpart B

Date of Receipt: 2017-03-03

Date of Test: 2017-03-31 to 2017-04-18

Date of Issue: 2018-05-11

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Parlam Zhan
E&E Section Manager



The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record			
Version	Description	Date	Remark
00	Add models	2018-05-11	Base on VFHKEM17040044501 (SHEM170300102201)

Authorized for issue by:				
		Vincent Zhu		
		Vincent Zhu /Project Engineer		
		Parlam zhan		
		Parlam Zhan /Reviewer		

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4	Class B	N/A

N/A: Please refer to section 6.3 of this report for explanation

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Note1: Declaration of EUT Family Grouping:

Only the model DH-IPC-HDBW1430EP-AW was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above models and the differences are the way of power supply, sales area and pixel.

Note2: We add models N41BL12-W, N41BL13-W in this report. The new models mentioned in this report are the same as the original models, in Electronic or Electrical characters. Which were already EMC tested in the report VFHKEM17040044501 (SHEM170300102201). So the new models in this report are deemed to fulfil the EMC requirements without testing.



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4 General Information

4.1 Details of E.U.T.

Power Supply: DC 12V 1A

Brand Name:



EUT Description: Fixed product with Ethernet port and WiFi function

Test Voltage: AC 120V 60Hz for adapter

Power Cord: --

Operating frequency: 32 MHz (the highest working frequency)

Adapter:	Manufacturer:	SHENZHEN HONOR ELECTRONIC CO.,LTD.	
	Model No.:	ADS-12AM-12 12012EPCU	
	Rated Input:	AC 100~240V, 50/60Hz	
	Rated Output:	DC 12V 1.0A	
	Cable length:	AC port:	2 wires
		DC port:	290 cm

4.2 Description of Support Units

Description	Manufacturer	Model No.	Supplied by
Laptop	Lenovo	ThinkPad X100e	SGS
Router	CISCO	RV110W	SGS
Note: For the cable detail please refer to below table.			

Cables:

#	Type	Length, m	Shield	Metallic hood	Ferrite
1	VGA	1.8	Yes	No	Yes
2	LPT	1.8	Yes	No	No
3	COM	1.5	Yes	No	No
4	USB ¹⁾	1.5	Yes	No	No
5	USB ²⁾	1.8	Yes	No	No
6	USB ³⁾	1.8	Yes	No	No

Software:

Description	Manufacturer	Software name	Version no.
IE	Microsoft	V11	SGS



4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radiated disturbance 30MHz – 1GHz	5.5
2	Conducted Emissions	3.1

4.4 Test Location

All tests were performed at: -

SGS IECC Limited (Member of the SGS Group (SGS SA))

Units 303-305, 3/F., 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong

Tel: +852 2305 2570 Fax: +852 2756 4480.

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC – CAB Registration No.: 446297**

Measurement facility located at Fanling (Hong Kong), accredited as a Conformity Assessment Body (CAB) and was designated by FCC to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Part 15 and 18 of the Commission's Rules.



5 Equipment List

Conducted Emission				
Equipment	Manufacturer	Model / Serial No.	Cal. Date	Cal. Due Date
Test Receiver	Rohde & Schwarz	ESCS 30 /100388	2016/09/28	2017/09/27
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2 / 375881052	2017/01/23	2018/01/22
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127 / 8127312	2016/04/20	2017/04/19

Radiated Emission				
Equipment	Manufacturer	Model / Serial No.	Cal. Date	Cal. Due Date
3m Semi-Anechoic Chamber (pre-test)	--	--	--	--
3m / 10m Open Area Test Site	--	--	2015/03/11	2018/03/10
Test Receiver 9KHz-2750MHz	Rohde & Schwarz	ESCS 30 /100388	2016/09/28	2017/09/27
Spectrum Analyzer 9kHz - 30GHz	Rohde & Schwarz	FSP30/101474	2016/05/31	2017/05/30
Loop Antenna 9KHz-30MHz	Rohde & Schwarz	HFH2-Z2	2016/01/23	2019/01/22
Antenna (30-300 MHz)	Schwarzbeck	BBA9106, VHA9103	2014/11/15	2017/11/14
Log-periodic Antennas 300MHz-1000MHz	Schwarzbeck	UHALP9107	2014/11/15	2017/11/14
Antenna, 30MHz – 1000MHz	Schaffner	CBL6111C / 2791	2016/10/19	2018/10/18
Horn Antenna 1 - 18GHz	Schwarzbeck	BBHA9120D/9120D-1070	2016/01/23	2018/01/22
Preamplifier 1 - 18GHz	Schwarzbeck	BBV9718/9718-223	2017/01/23	2018/01/22
Coaxial Cable	--	E167	2016/11/17	2017/11/16
Antenna Mast System	Schwarzbeck	AM9104 / -	--	--
Turntable with Controller	Drehtisch	DT312 / -	--	--

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

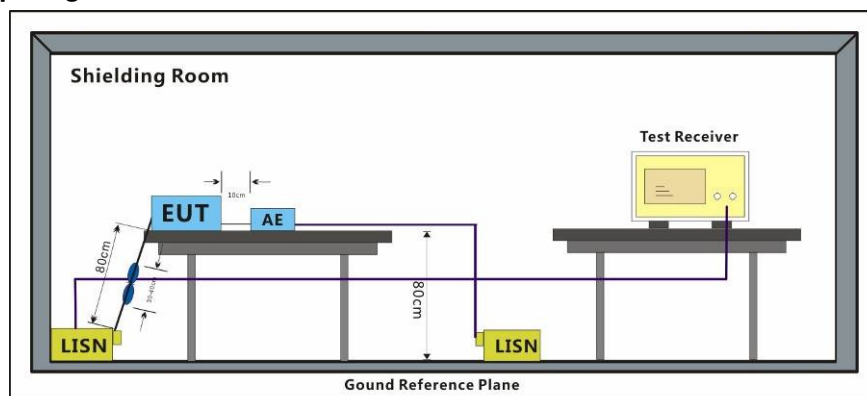
Operating Environment:

Temperature: 25 °C Humidity: 47 % RH Atmospheric Pressure: 1020 mbar

Test mode: 1: Ethernet Monitoring mode: Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

2: POE mode: Power by POE, and establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.1.2 Test Setup Diagram



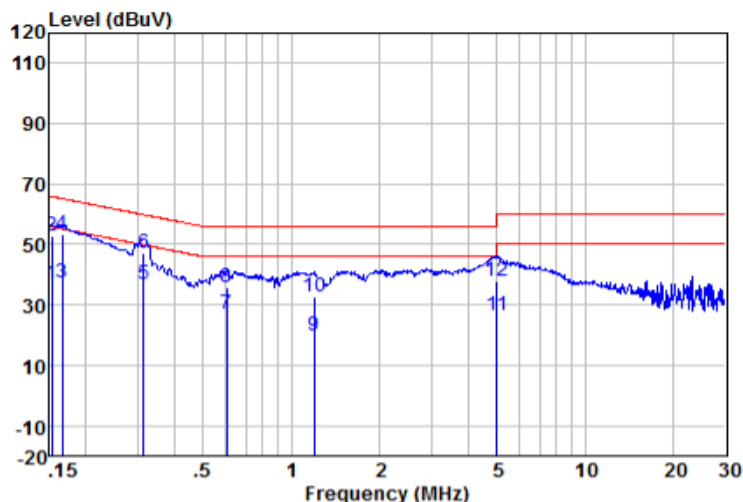
6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Ethernet Monitoring Mode:

Live line:

Peak Scan:



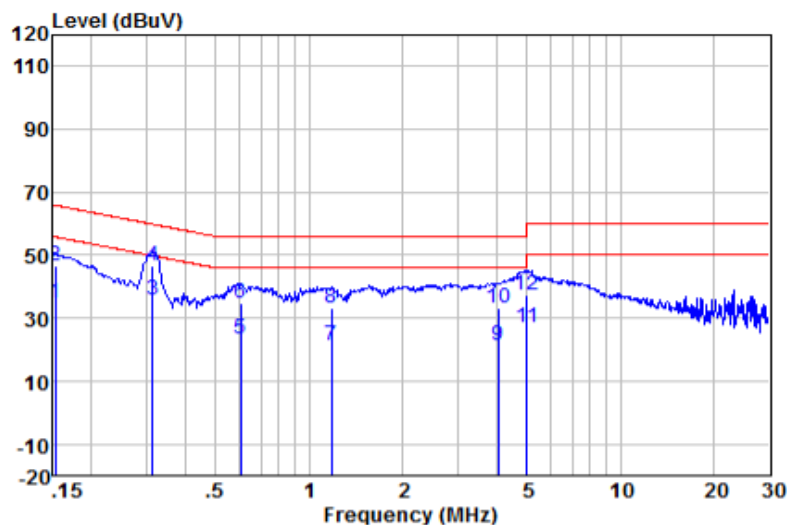
Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.152	36.76	0.14	0.10	37.00	55.87	-18.87	Average
2	0.152	52.69	0.14	0.10	52.93	65.87	-12.94	QP
3	0.166	36.90	0.12	0.10	37.12	55.16	-18.04	Average
4	0.166	53.34	0.12	0.10	53.56	65.16	-11.60	QP
5	0.315	36.82	0.02	0.10	36.94	49.84	-12.90	Average
6	0.315	46.96	0.02	0.10	47.08	59.84	-12.76	QP
7	0.604	26.61	0.13	0.10	26.84	46.00	-19.16	Average
8	0.604	35.60	0.13	0.10	35.83	56.00	-20.17	QP
9	1.197	19.67	0.16	0.10	19.93	46.00	-26.07	Average
10	1.197	32.31	0.16	0.10	32.57	56.00	-23.43	QP
11	5.031	26.24	0.29	0.10	26.63	50.00	-23.37	Average
12	5.031	37.41	0.29	0.10	37.80	60.00	-22.20	QP

Level = Read Level + LISN Factor + Cable Loss.

Neutral line:

Peak Scan:



Quasi-peak and Average measurement:

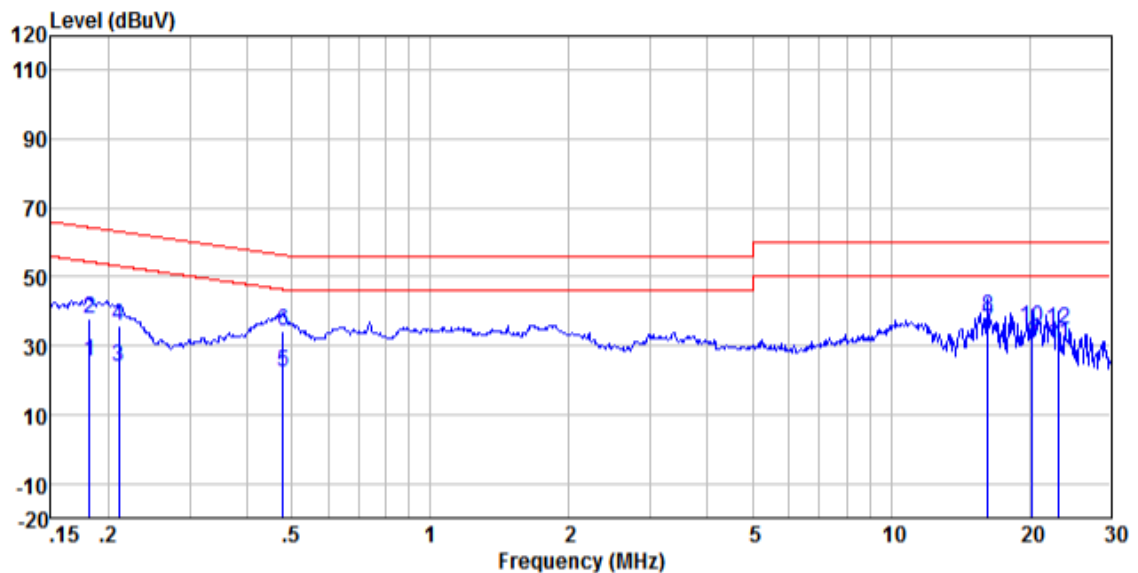
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.152	34.71	0.14	0.10	34.95	55.87	-20.92	Average
2	0.152	46.17	0.14	0.10	46.41	65.87	-19.46	QP
3	0.315	35.81	0.02	0.10	35.93	49.84	-13.91	Average
4	0.315	46.48	0.02	0.10	46.60	59.84	-13.24	QP
5	0.604	23.33	0.06	0.10	23.49	46.00	-22.51	Average
6	0.604	34.85	0.06	0.10	35.01	56.00	-20.99	QP
7	1.178	20.84	0.16	0.10	21.10	46.00	-24.90	Average
8	1.178	32.94	0.16	0.10	33.20	56.00	-22.80	QP
9	4.049	21.16	0.20	0.10	21.46	46.00	-24.54	Average
10	4.049	32.74	0.20	0.10	33.04	56.00	-22.96	QP
11	5.005	26.59	0.29	0.10	26.98	50.00	-23.02	Average
12	5.005	36.85	0.29	0.10	37.24	60.00	-22.76	QP

Level = Read Level + LISN Factor + Cable Loss.

PoE mode:

Live line:

Peak Scan:



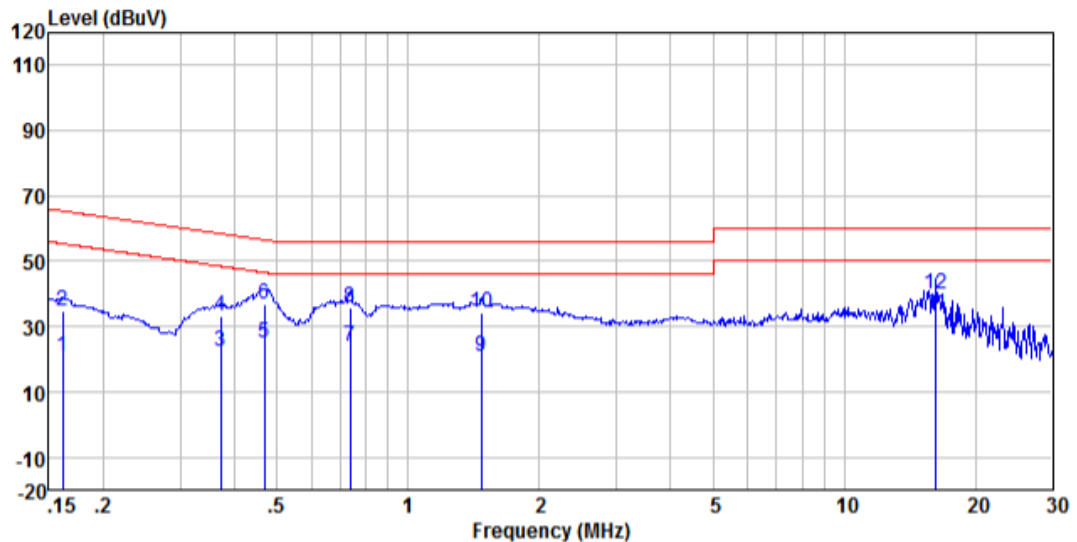
Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.182	25.50	0.11	0.10	25.71	54.42	-28.71	Average
2	0.182	37.50	0.11	0.10	37.71	64.42	-26.71	QP
3	0.211	23.86	0.08	0.10	24.04	53.18	-29.14	Average
4	0.211	35.78	0.08	0.10	35.96	63.18	-27.22	QP
5	0.479	22.06	0.08	0.10	22.24	46.36	-24.12	Average
6	0.479	34.06	0.08	0.10	34.24	56.36	-22.12	QP
7	16.226	33.74	0.37	0.20	34.31	50.00	-15.69	Average
8	16.226	37.74	0.37	0.20	38.31	60.00	-21.69	QP
9	20.270	29.82	0.46	0.20	30.48	50.00	-19.52	Average
10	20.270	34.82	0.46	0.20	35.48	60.00	-24.52	QP
11	23.140	29.90	0.66	0.20	30.76	50.00	-19.24	Average
12	23.140	33.90	0.66	0.20	34.76	60.00	-25.24	QP

Level = Read Level + LISN Factor + Cable Loss.

Neutral line:

Peak Scan:



Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	20.64	0.13	0.10	20.87	55.38	-34.51	Average
2	0.162	34.64	0.13	0.10	34.87	65.38	-30.51	QP
3	0.371	22.05	0.01	0.10	22.16	48.47	-26.31	Average
4	0.371	33.05	0.01	0.10	33.16	58.47	-25.31	QP
5	0.469	24.60	0.03	0.10	24.73	46.54	-21.81	Average
6	0.469	36.60	0.03	0.10	36.73	56.54	-19.81	QP
7	0.735	23.83	0.08	0.10	24.01	46.00	-21.99	Average
8	0.735	35.83	0.08	0.10	36.01	56.00	-19.99	QP
9	1.472	20.75	0.18	0.10	21.03	46.00	-24.97	Average
10	1.472	33.75	0.18	0.10	34.03	56.00	-21.97	QP
11	16.226	33.36	0.27	0.20	33.83	50.00	-16.17	Average
12	16.226	39.36	0.27	0.20	39.83	60.00	-20.17	QP

Level = Read Level + LISN Factor + Cable Loss.

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

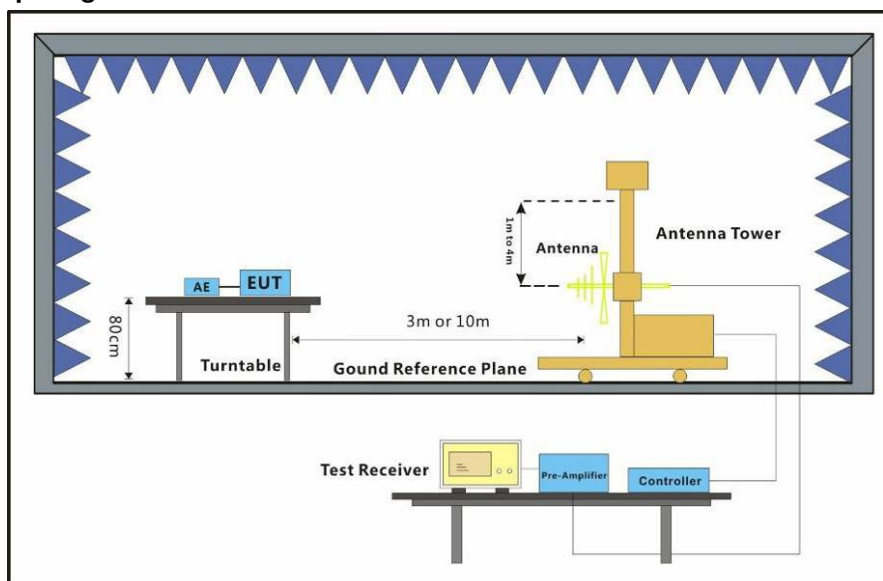
Operating Environment:

Temperature: 25 °C Humidity: 47 % RH Atmospheric Pressure: 1020 mbar

Test mode: 1: Ethernet Monitoring mode: Establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

2: POE mode: Power by POE, and establish communication between EUT and router via LAN port, and then connect PC to Router. Using PC monitoring images.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Ethernet Monitoring Mode:

Frequency (MHz)	Antenna Polarization	Trans. (dB/m)	Receiver QP Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)
32.52	V	12.59	18.43	31.02	40.00	-8.98
60.07	V	12.10	20.14	32.24	40.00	-7.76
68.87	V	11.85	21.91	33.76	40.00	-6.24
69.60	H	11.70	7.32	19.02	40.00	-20.98
110.57	V	10.94	20.71	31.65	43.50	-11.85
110.57	H	10.94	8.56	19.50	43.50	-24.00
141.33	H	12.38	9.73	22.11	43.50	-21.39
163.76	H	12.14	12.35	24.49	43.50	-19.01
250.30	V	12.10	20.38	32.48	46.00	-13.52
250.30	H	12.10	25.92	38.02	46.00	-7.98
510.04	V	17.40	23.16	40.56	46.00	-5.44
661.15	H	20.13	17.73	37.86	46.00	-8.14
Note: 1) All readings are Quasi-Peak values. 2) Transducer = Antenna Factor + Cable Loss.						

POE Mode:

Frequency (MHz)	Antenna Polarization	Trans. (dB/m)	Receiver QP Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)
30.53	V	15.36	14.16	29.52	40.00	-10.48
60.07	V	12.60	16.64	29.24	40.00	-10.76
69.60	H	11.45	8.57	20.02	40.00	-19.98
71.33	V	10.95	17.64	28.59	40.00	-11.41
110.57	V	9.62	20.03	29.65	43.50	-13.85
250.30	H	11.50	20.52	32.02	46.00	-13.98
263.82	H	11.99	18.28	30.27	46.00	-15.73
308.91	H	13.39	2.19	15.58	46.00	-30.42
449.56	V	16.20	19.46	35.66	46.00	-10.34
510.04	V	17.45	22.11	39.56	46.00	-6.44
714.17	H	20.47	12.56	33.03	46.00	-12.97
815.97	H	22.04	11.43	33.47	46.00	-12.53
Note: 3) All readings are Quasi-Peak values. 4) Transducer = Antenna Factor + Cable Loss.						

6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4

Frequency Range: Above 1GHz

Measurement Distance: 3m

Limit:

Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 18000MHz

Remark:

There is no need for Radiated Emissions (above 1G) test to be performed on this product in accordance with FCC Part 15 because the highest internal source is less than 108 MHz.

For further details, please refer to Subject B section 15.33 (b) (1) of FCC Part 15 which states:

The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

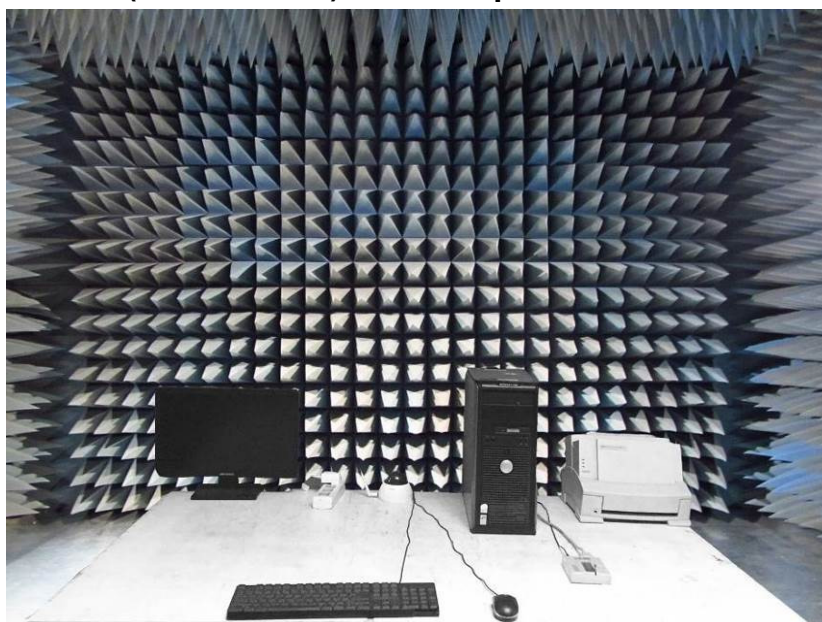
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement Range (MHz)
Below 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

7 Photographs

7.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup

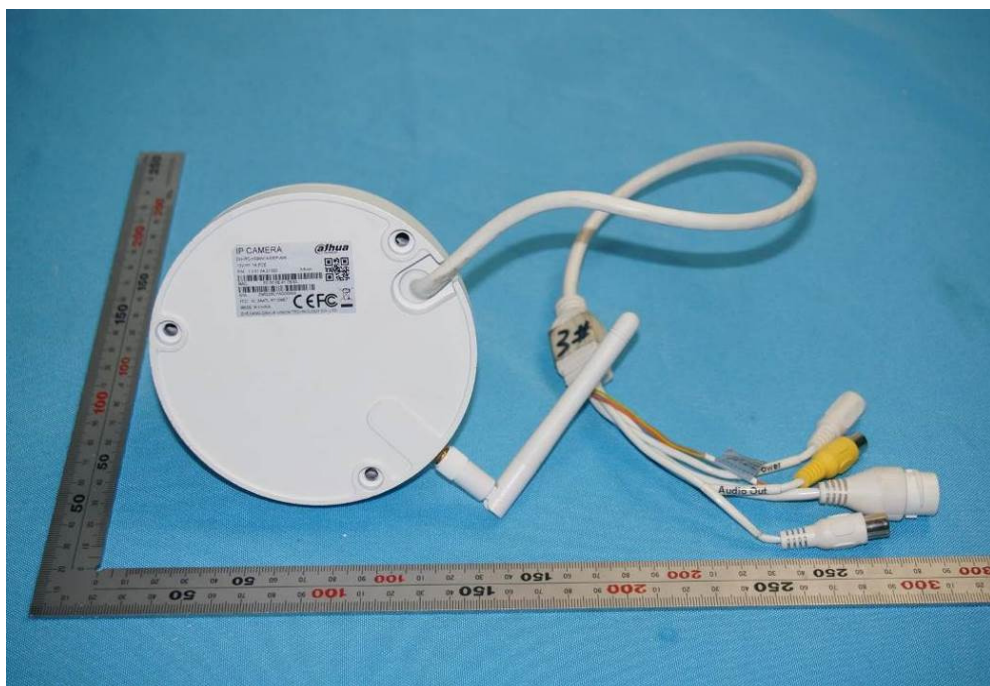


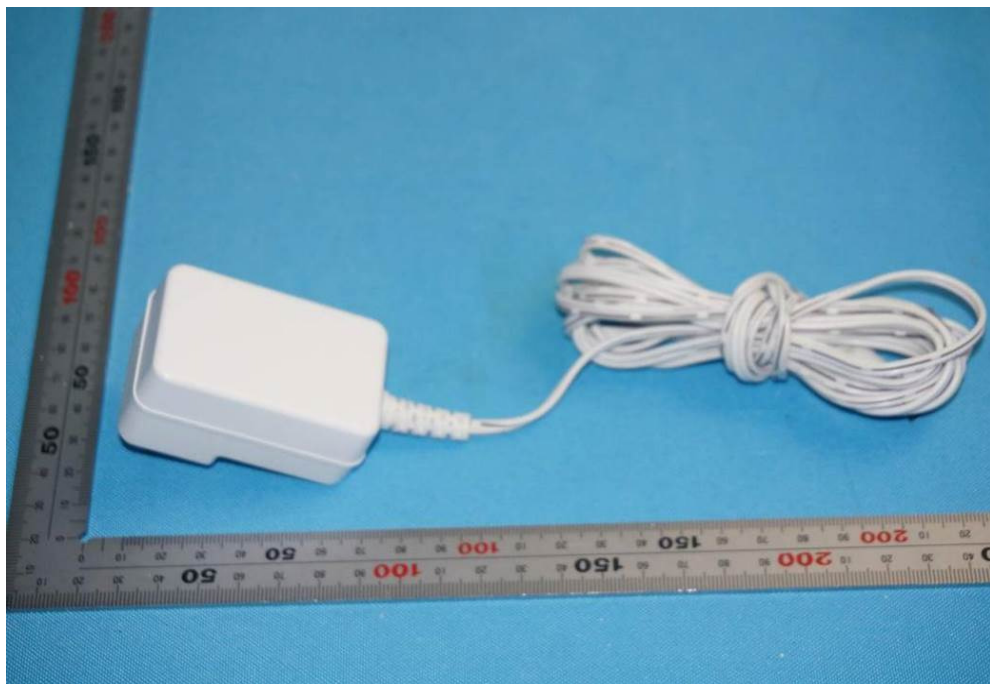
7.2 Radiated Emissions (30MHz-1GHz) Test Setup



7.3 EUT Constructional Details (EUT Photos)







- End of the Report -