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Shenzhen Branch**

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Report No.: SZEM170901029801  
Page: 1 of 22

## **TEST REPORT**

**Application No.:** SZEM1709010298IT(SHEM1709006506IT)  
**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.:** Refer to page 2

□

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

**Standards:** 47 CFR Part 15,Subpart B:2016

**Date of Receipt:** 2017-06-29

**Date of Test:** 2017-06-30 to 2017-07-03

**Date of Issue:** 2017-09-28

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.



Jack Zhang  
EMC Laboratory 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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**Model No.:**

DH-IPC-HFW2531TP-ZAS;DH-IPC-HFW2531TP-VFS-27135;DH-IPC-HFW2531TN-VFS-27135;DH-IPC-HFW2531TP-ZS-27135;DH-IPC-HFW2531TN-ZS-27135;DH-IPC-HFW2531TP-VFAS-27135;DH-IPC-HFW2531TN-VFAS-27135;DH-IPC-HFW2531TP-ZAS-27135;DH-IPC-HFW2531TN-ZAS-27135;IPC-HFW2531TP-VFS-27135;IPC-HFW2531TN-VFS-27135;IPC-HFW2531TP-ZS-27135;IPC-HFW2531TN-ZS-27135;IPC-HFW2531TP-VFAS-27135;IPC-HFW2531TN-VFAS-27135;IPC-HFW2531TP-ZAS-27135;IPC-HFW2531TN-ZAS-27135;DH-IPC-HFW2531TP-VFS;DH-IPC-HFW2531TN-VFS;DH-IPC-HFW2531TP-ZS;DH-IPC-HFW2531TN-ZS;DH-IPC-HFW2531TP-VFAS;DH-IPC-HFW2531TN-VFAS;DH-IPC-HFW2531TN-ZAS;IPC-HFW2531TP-VFS;IPC-HFW2531TN-VFS;IPC-HFW2531TP-ZS;IPC-HFW2531TN-ZS;IPC-HFW2531TP-VFAS;IPC-HFW2531TN-VFAS;IPC-HFW2531TP-ZAS;IPC-HFW2531TN-ZAS;DH-IPC-HFW2431TP-VFS-27135;DH-IPC-HFW2431TN-VFS-27135;DH-IPC-HFW2431TP-ZS-27135;DH-IPC-HFW2431TN-ZS-27135;DH-IPC-HFW2431TP-VFAS-27135;DH-IPC-HFW2431TN-VFAS-27135;DH-IPC-HFW2431TP-ZAS-27135;DH-IPC-HFW2431TN-ZAS-27135;IPC-HFW2431TP-VFS-27135;IPC-HFW2431TN-VFS-27135;IPC-HFW2431TP-ZS-27135;IPC-HFW2431TN-ZS-27135;IPC-HFW2431TP-VFAS-27135;IPC-HFW2431TN-VFAS-27135;IPC-HFW2431TP-ZAS-27135;IPC-HFW2431TN-ZAS-27135;DH-IPC-HFW2431TP-VFS;DH-IPC-HFW2431TN-VFS;DH-IPC-HFW2431TP-ZS;DH-IPC-HFW2431TN-ZS;DH-IPC-HFW2431TP-VFAS;DH-IPC-HFW2431TN-VFAS;DH-IPC-HFW2431TP-ZAS;DH-IPC-HFW2431TN-ZAS;IPC-HFW2431TP-VFS;IPC-HFW2431TN-VFS;IPC-HFW2431TP-ZS;IPC-HFW2431TN-ZS;IPC-HFW2431TP-VFAS;IPC-HFW2431TN-VFAS;IPC-HFW2431TP-ZAS;IPC-HFW2431TN-ZAS;DH-IPC-HFW2231TP-VFS-27135;DH-IPC-HFW2231TN-VFS-27135;DH-IPC-HFW2231TP-ZS-27135;DH-IPC-HFW2231TN-ZS-27135;DH-IPC-HFW2231TP-VFAS-27135;DH-IPC-HFW2231TN-VFAS-27135;DH-IPC-HFW2231TP-ZAS-27135;DH-IPC-HFW2231TN-ZAS-27135;IPC-HFW2231TP-VFS-27135;IPC-HFW2231TN-VFS-27135;IPC-HFW2231TP-ZS-27135;IPC-HFW2231TN-ZS-27135;IPC-HFW2231TP-VFAS-27135;IPC-HFW2231TN-VFAS-27135;IPC-HFW2231TP-ZAS-27135;IPC-HFW2231TN-ZAS-27135;DH-IPC-HFW2231TP-VFS;DH-IPC-HFW2231TN-VFS;DH-IPC-HFW2231TP-ZS;DH-IPC-HFW2231TN-ZS;DH-IPC-HFW2231TP-VFAS;DH-IPC-HFW2231TN-VFAS;DH-IPC-HFW2231TP-ZAS;DH-IPC-HFW2231TN-ZAS;IPC-HFW2231TP-VFS;IPC-HFW2231TN-VFS;IPC-HFW2231TP-ZS;IPC-HFW2231TN-ZS;IPC-HFW2231TP-VFAS;IPC-HFW2231TN-VFAS;IPC-HFW2231TP-ZAS;IPC-HFW2231TN-ZAS;DH-IPC-HFW2230TP-VFS-27135;DH-IPC-HFW2230TN-VFS-27135;DH-IPC-HFW2230TP-ZS-27135;DH-IPC-HFW2230TN-ZS-27135;DH-IPC-HFW2230TP-VFAS-27135;DH-IPC-HFW2230TN-VFAS-27135;DH-IPC-HFW2230TP-ZAS-27135;DH-IPC-HFW2230TN-ZAS-27135;IPC-HFW2230TP-VFS-27135;IPC-HFW2230TN-VFS-27135;IPC-HFW2230TP-ZS-27135;IPC-HFW2230TN-ZS-27135;IPC-HFW2230TP-VFAS-27135;IPC-HFW2230TN-VFAS-27135;IPC-HFW2230TP-ZAS-27135;IPC-HFW2230TN-ZAS-27135;DH-IPC-HFW2230TP-VFS;DH-IPC-HFW2230TN-VFS;DH-IPC-HFW2230TP-ZS;DH-IPC-HFW2230TN-ZS;DH-IPC-HFW2230TP-VFAS;DH-IPC-HFW2230TN-VFAS;DH-IPC-HFW2230TP-ZAS;DH-IPC-HFW2230TN-ZAS;IPC-HFW2230TP-VFS;IPC-HFW2230TN-VFS;IPC-HFW2230TP-ZS;IPC-HFW2230TN-ZS;IPC-HFW2230TP-VFAS;IPC-HFW2230TN-VFAS;IPC-HFW2230TP-ZAS;IPC-HFW2230TN-ZAS;N52BF3Z



Revision Record				
Version	Chapter	Date	Modifier	Remark
00	Add Models	2017-09-28	/	Copy Based on HKEM170700090401

Authorized for issue by:				
				
		Foray Chen /Project Engineer		
				
		Eric Fu /Reviewer		



## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15,Subpart B:2016	ANSI C63.4	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15,Subpart B:2016	ANSI C63.4	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15,Subpart B:2016	ANSI C63.4	Class B	Pass

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

### Declaration of EUT Family Grouping:

Note1: There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model DH-IPC-HFW2531TP-ZAS was tested since their differences are pixels and sales area.

Note2: The report is copied from HKEM170700090401 to add models N52BF3Z which are the same as the original tested model DH-IPC-HFW2531TP-ZAS in electrical and electronic characters. So the new models in this report are deemed to fulfill the EMC requirements without testing.



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## 4 General Information

### 4.1 Details of E.U.T.

Power Supply:	DC12V or PoE
Power Cord:	--
Operating frequency:	720MHz(the highest working frequency )

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.	Data Cable	Power Cable
Personal Computer	DELL	OPTIPLEX 755	E191 (reference no.)	N/A	1.5m
Monitor	DELL	SP2208WFPt	DT09068168FB	VGA	1.5m
Printer	Hewett Packard	C3990A	JPZT098822	LPT	1.5m
Universal Programmer	Qian LongSheng	QL-2006	201105116086	COM/USB <sup>1)</sup>	1.5m (DC)
Keyboard	Lenovo	KB1021	0000319	USB <sup>2)</sup>	N/A
Mouse	Lenovo	MO28UOL	4401282 081	USB <sup>3)</sup>	N/A
Ethernet router	Net Screen	NS-5GT-103	006402200400 2202	LAN	1.8m (DC)

#### 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 <sup>1)</sup>	1.5	Yes	No	No
5	USB <sup>2)</sup>	1.8	Yes	No	No
6	USB <sup>3)</sup>	1.8	Yes	No	No

#### Software:

Description	Manufacturer	Software name	Version no.
EMC test software	Microsoft	Internet Explorer	11.0.9600.18204



### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction emission	3.0dB (150kHz to 30MHz)
2	Radiated emission	4.5dB (30MHz-1GHz )
3	Temperature test	1 °C
4	Humidity test	3%



#### **4.4 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### **4.5 Test Facility**

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

#### **4.6 Deviation from Standards**

None

#### **4.7 Abnormalities from Standard Conditions**

None





## 5 Equipment List

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2017-05-10	2018-05-10
2	LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
3	EMI Test Receiver(9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-02	2017-04-14	2018-04-13
4	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10
5	MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
6	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2017-03-05	2020-03-05
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-13
8	Spectrum Analyzer (20Hz-43GHz)	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
9	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-13
10	Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
11	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-10	2016-10-17	2017-10-17
12	Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
13	Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A

## 6 Emission Test Results

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

Test Requirement:	47 CFR Part 15, Subpart B:2016
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

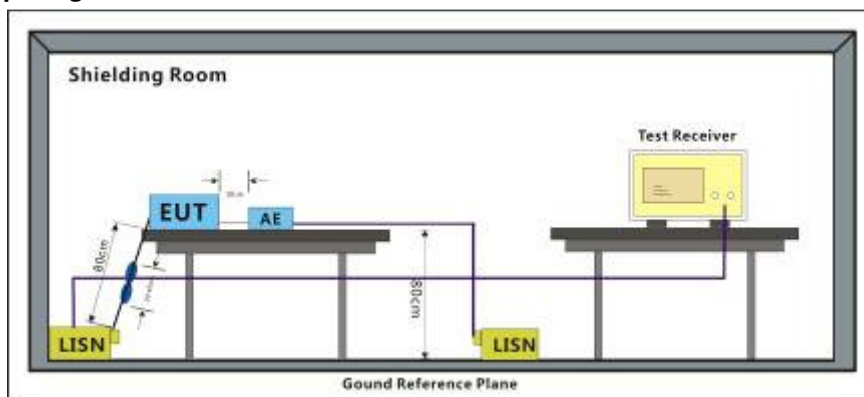
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1005 mbar

Test mode: a: DC12V Monitoring mode: To establish contact between EUT and laptop, keep EUT monitoring image by DC12V supply.

b: PoE Monitoring mode: To establish contact between EUT and laptop, keep EUT monitoring image by PoE supply.

#### 6.1.2 Test Setup Diagram

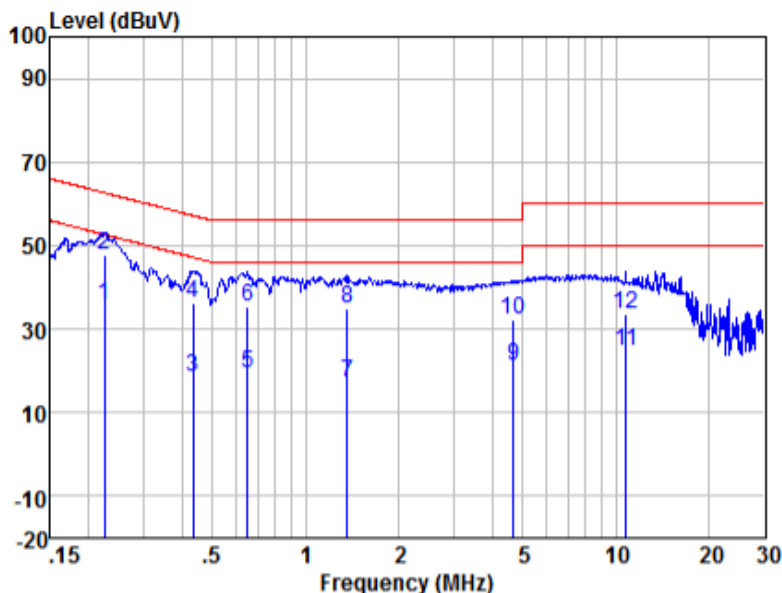


#### 6.1.3 Measurement Data

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.



Mode:a; Line:Live Line



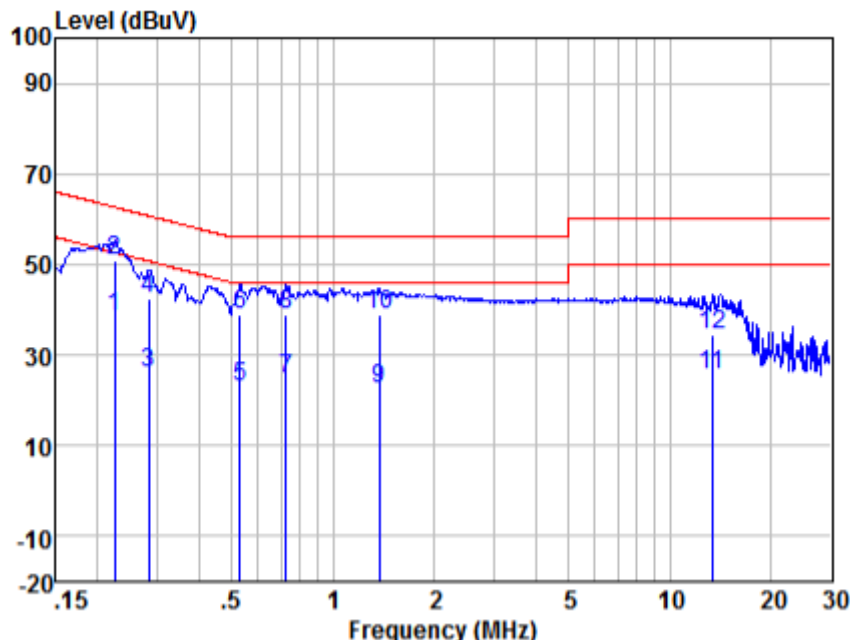
Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.224	35.76	0.07	0.10	35.93	52.66	-16.73	Average
2	0.224	47.46	0.07	0.10	47.63	62.66	-15.03	QP
3	0.433	18.45	0.05	0.10	18.60	47.20	-28.60	Average
4	0.433	36.07	0.05	0.10	36.22	57.20	-20.98	QP
5	0.651	19.14	0.15	0.10	19.39	46.00	-26.61	Average
6	0.651	35.25	0.15	0.10	35.50	56.00	-20.50	QP
7	1.367	16.77	0.17	0.10	17.04	46.00	-28.96	Average
8	1.367	34.60	0.17	0.10	34.87	56.00	-21.13	QP
9	4.696	20.58	0.29	0.10	20.97	46.00	-25.03	Average
10	4.696	31.76	0.29	0.10	32.15	56.00	-23.85	QP
11	10.790	24.48	0.32	0.12	24.92	50.00	-25.08	Average
12	10.790	33.18	0.32	0.12	33.62	60.00	-26.38	QP

Level = Read Level + LISN Factor + Cable Loss.



Mode:a; Line:Neutral Line



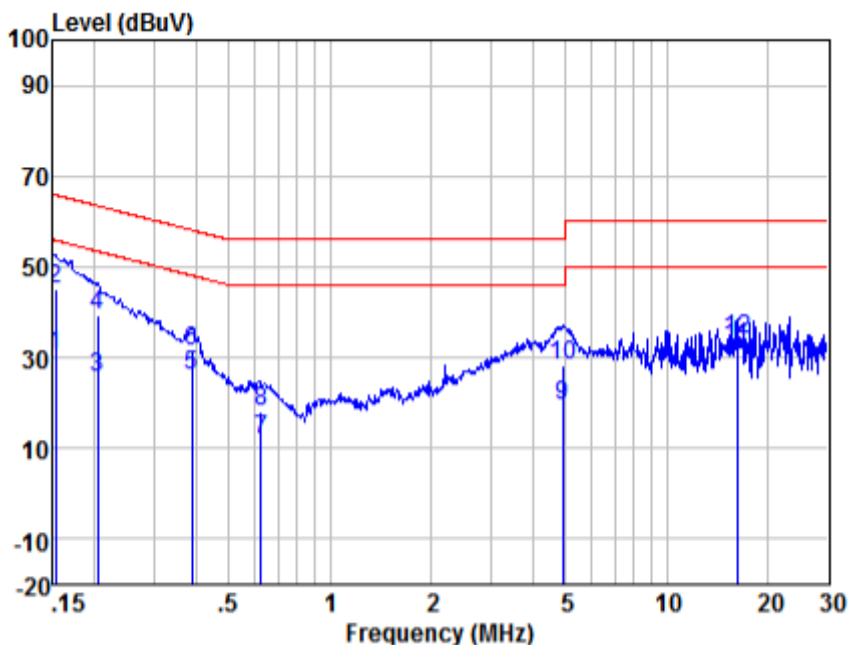
Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.224	38.18	0.07	0.10	38.35	52.66	-14.31	Average
2	0.224	50.50	0.07	0.10	50.67	62.66	-11.99	QP
3	0.283	26.03	0.03	0.10	26.16	50.72	-24.56	Average
4	0.283	42.34	0.03	0.10	42.47	60.72	-18.25	QP
5	0.529	22.70	0.04	0.10	22.84	46.00	-23.16	Average
6	0.529	38.68	0.04	0.10	38.82	56.00	-17.18	QP
7	0.724	24.48	0.08	0.10	24.66	46.00	-21.34	Average
8	0.724	38.58	0.08	0.10	38.76	56.00	-17.24	QP
9	1.374	22.39	0.17	0.10	22.66	46.00	-23.34	Average
10	1.374	38.46	0.17	0.10	38.73	56.00	-17.27	QP
11	13.337	25.00	0.26	0.17	25.43	50.00	-24.57	Average
12	13.337	33.97	0.26	0.17	34.40	60.00	-25.60	QP

**Level = Read Level + LISN Factor + Cable Loss.**



Mode:b; Line:Live Line



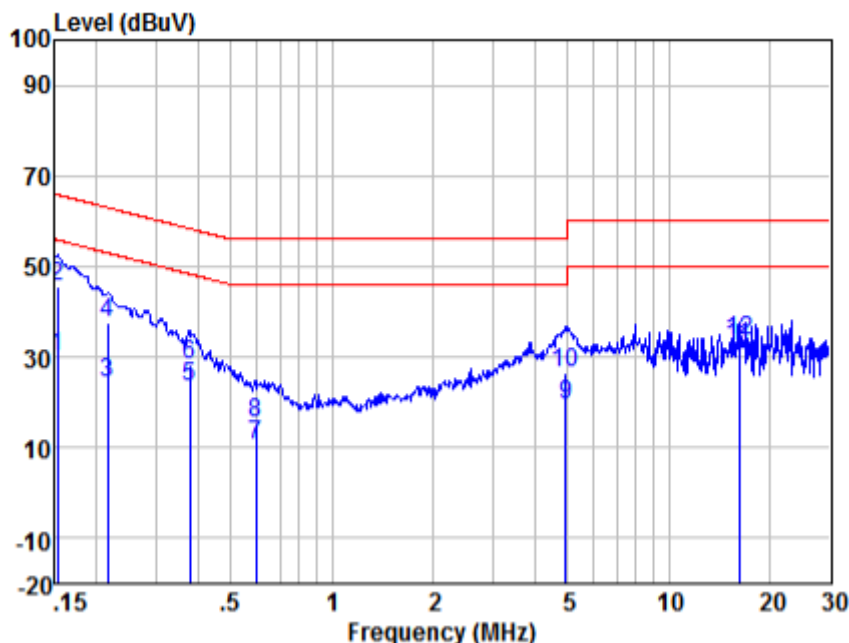
Quasi-peak and Average measurement:

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.152	30.15	0.14	0.10	30.39	55.87	-25.48	Average
2	0.152	45.00	0.14	0.10	45.24	65.87	-20.63	QP
3	0.204	25.40	0.09	0.10	25.59	53.45	-27.86	Average
4	0.204	38.98	0.09	0.10	39.17	63.45	-24.28	QP
5	0.389	26.03	0.03	0.10	26.16	48.08	-21.92	Average
6	0.389	31.35	0.03	0.10	31.48	58.08	-26.60	QP
7	0.624	11.61	0.14	0.10	11.85	46.00	-34.15	Average
8	0.624	18.02	0.14	0.10	18.26	56.00	-37.74	QP
9	4.926	19.07	0.29	0.10	19.46	46.00	-26.54	Average
10	4.926	28.08	0.29	0.10	28.47	56.00	-27.53	QP
11	16.226	31.68	0.37	0.20	32.25	50.00	-17.75	Average
12	16.226	33.48	0.37	0.20	34.05	60.00	-25.95	QP

**Level = Read Level + LISN Factor + Cable Loss.**



Mode:b; Line:Neutral Line



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	29.90	0.14	0.10	30.14	55.87	-25.73	Average
2	0.152	45.33	0.14	0.10	45.57	65.87	-20.30	QP
3	0.215	23.89	0.08	0.10	24.07	53.01	-28.94	Average
4	0.215	37.41	0.08	0.10	37.59	63.01	-25.42	QP
5	0.377	23.16	0.01	0.10	23.27	48.34	-25.07	Average
6	0.377	28.17	0.01	0.10	28.28	58.34	-30.06	QP
7	0.595	10.60	0.05	0.10	10.75	46.00	-35.25	Average
8	0.595	15.15	0.05	0.10	15.30	56.00	-40.70	QP
9	4.952	18.84	0.29	0.10	19.23	46.00	-26.77	Average
10	4.952	26.22	0.29	0.10	26.61	56.00	-29.39	QP
11	16.226	31.63	0.27	0.20	32.10	50.00	-17.90	Average
12	16.226	33.16	0.27	0.20	33.63	60.00	-26.37	QP

Level = Read Level + LISN Factor + Cable Loss.



## 6.2 Radiated Emissions (30MHz-1GHz)

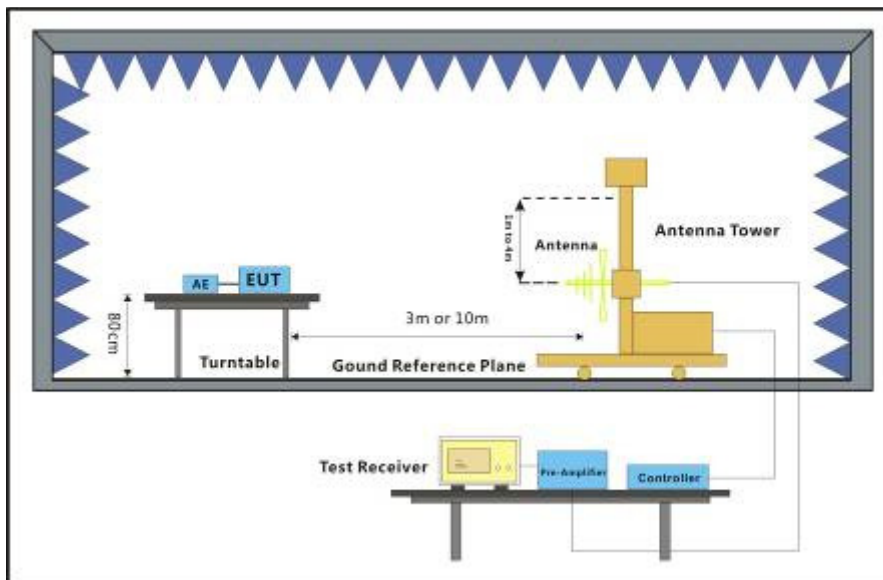
Test Requirement:	47 CFR Part 15, Subpart B:2016
Test Method:	ANSI C63.4
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature:	22 °C	Humidity:	48 % RH	Atmospheric Pressure:	1010 mbar
Test mode:	a: DC12V Monitoring mode: To establish contact between EUT and laptop , keep EUT monitoring image by DC12V supply.				
	b: PoE Monitoring mode: To establish contact between EUT and laptop , keep EUT monitoring image by PoE supply.				

### 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.



Mode: a

Frequency (MHz)	Antenna Polarization	Trans. (dB/m)	Receiver QP Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)
30.32	V	19.27	7.45	26.72	40.00	-13.28
83.52	V	9.21	9.96	19.17	40.00	-20.83
159.78	V	10.91	11.09	22.00	43.50	-21.50
208.58	H	9.76	15.05	24.81	43.50	-18.69
233.35	H	11.03	15.41	26.44	46.00	-19.56
282.99	V	13.76	8.98	22.74	46.00	-23.26
282.99	H	13.76	10.41	24.17	46.00	-21.83
400.43	V	16.81	21.41	38.22	46.00	-7.78
400.43	H	16.81	7.48	24.29	46.00	-21.71
528.25	H	18.82	1.71	20.53	46.00	-25.47
651.94	V	20.23	11.62	31.85	46.00	-14.15
750.11	H	21.10	4.83	25.93	46.00	-20.07
<b>Note:</b> 1) Transducer = Antenna Factor + Cable Loss. 2) Final Test Level = Receiver Reading + Transducer.						





Mode:b

Frequency (MHz)	Antenna Polarization	Trans. (dB/m)	Receiver QP Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over Limit (dB)
43.05	H	14.36	12.50	26.86	40.00	-13.14
43.51	V	14.21	17.50	31.71	40.00	-8.29
76.78	V	9.10	26.54	35.64	40.00	-4.36
77.05	H	9.09	22.39	31.48	40.00	-8.52
125.01	H	11.55	14.50	26.05	43.50	-17.45
125.89	V	11.56	17.75	29.31	43.50	-14.19
209.31	V	9.78	21.17	30.95	43.50	-12.55
217.54	H	10.03	22.33	32.36	46.00	-13.64
270.38	H	13.27	14.53	27.80	46.00	-18.20
282.99	V	13.76	21.61	35.37	46.00	-10.63
375.94	V	15.56	21.87	37.43	46.00	-8.57
375.94	H	15.56	15.64	31.20	46.00	-14.80
<b>Note:</b> 1) Transducer = Antenna Factor + Cable Loss. 2) Final Test Level = Receiver Reading + Transducer.						

### 6.3 Radiated Emissions (above 1GHz)

Test Requirement:	47 CFR Part 15, Subpart B:2016
Test Method:	ANSI C63.4
Frequency Range:	Above 1GHz
Measurement Distance:	3m
Limit:	
Above 1GHz	74(dB $\mu$ V/m) peak, 54(dB $\mu$ V/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 18000MHz

#### 6.3.1 E.U.T. Operation

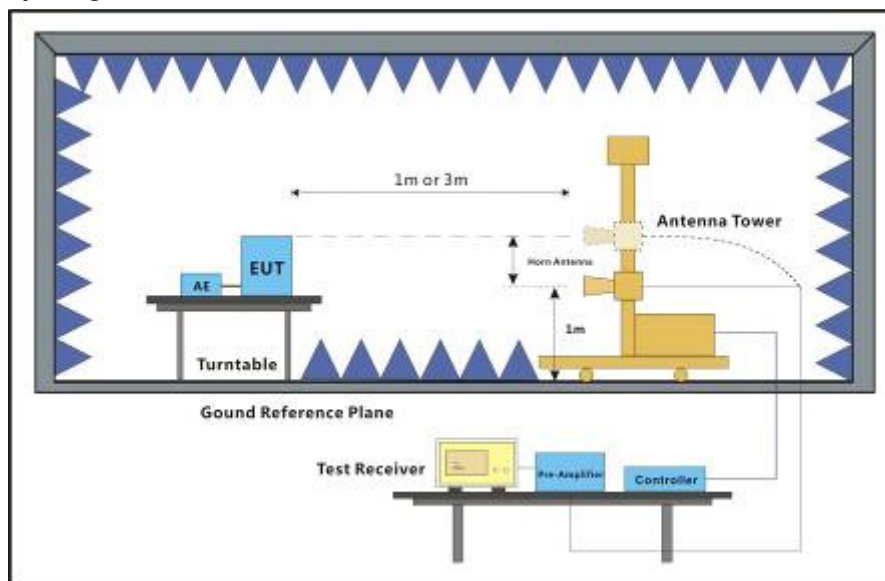
Operating Environment:

Temperature: 22 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode:

- a: DC12V Monitoring mode: To establish contact between EUT and laptop, keep EUT monitoring image by DC12V supply.
- b: PoE Monitoring mode: To establish contact between EUT and laptop, keep EUT monitoring image by PoE supply.

#### 6.3.2 Test Setup Diagram



#### 6.3.3 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.



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Mode:a

Frequency (GHz)	Antenna Polarization	Trans. (dB/m)	Receiver Reading (dBμV)	Emission Level (dBμV/m)	Detector	Limit (dBμV/m)	Over Limit (dB)
8688.48	H	37	0.21	37.21	Peak	54	-16.79
8688.48	H	37	11.74	48.74	Average	74	-25.26
9502.93	V	38.5	-0.78	37.72	Peak	54	-16.28
9502.93	V	38.5	9	47.5	Average	74	-26.5
10453.97	H	39.63	-0.34	39.29	Peak	54	-14.71
10453.97	H	39.63	8.58	48.21	Average	74	-25.79
11044.13	V	40.48	7.86	48.34	Peak	74	-25.66
11044.13	V	40.48	-3.85	36.63	Average	54	-17.37
12114.35	V	38.97	-0.84	38.13	Peak	54	-15.87
12114.35	V	38.97	10.61	49.58	Average	74	-24.42
12114.35	H	38.97	2.25	41.22	Peak	54	-12.78
12114.35	H	38.97	12.97	51.94	Average	74	-22.06
13211.69	H	39.67	11.54	51.21	Peak	74	-22.79
13211.69	H	39.67	2.99	42.66	Average	54	-11.34
14119.83	V	41.3	0.17	41.47	Peak	54	-12.53
14119.83	V	41.3	10.65	51.95	Average	74	-22.05
15046.85	V	41.11	1.48	42.59	Peak	54	-11.41
15046.85	V	41.11	12.39	53.5	Average	74	-20.5
15090.4	H	40.92	3.74	44.66	Peak	54	-9.34
15090.4	H	40.92	15.21	56.13	Average	74	-17.87
17793.09	V	47.74	-5.34	42.4	Peak	54	-11.6
17793.09	V	47.74	6.68	54.42	Average	74	-19.58
17793.09	H	47.74	-3.78	43.96	Peak	54	-10.04
17793.09	H	47.74	8.12	55.86	Average	74	-18.14

**Note:**

- 1) Transducer = Antenna Factor + Cable Loss - Pre-amp.
- 2) Final Test Level = Receiver Reading + Transducer .



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Mode:b

Frequency (GHz)	Antenna Polarization	Trans. (dB/m)	Receiver Reading (dBμV)	Emission Level (dBμV/m)	Detector	Limit (dBμV/m)	Over Limit (dB)
7097	V	35.67	0.27	35.94	Peak	54	-18.06
7097	V	35.67	10.59	46.26	Average	74	-27.74
9448.15	V	38.37	-3.53	34.84	Peak	54	-19.16
9448.15	V	38.37	8.05	46.42	Average	74	-27.58
9558.02	H	38.54	-2.03	36.51	Peak	54	-17.49
9558.02	H	38.54	9.26	47.8	Average	74	-26.2
10453.97	H	39.63	1.66	41.29	Peak	54	-12.71
10453.97	H	39.63	11.58	51.21	Average	74	-22.79
11044.13	V	40.48	7.86	48.34	Peak	74	-25.66
11044.13	V	40.48	-4.59	35.89	Average	54	-18.11
12114.35	H	38.97	3.25	42.22	Peak	54	-11.78
12114.35	H	38.97	13.97	52.94	Average	74	-21.06
13677.97	V	40.48	10.09	50.57	Peak	74	-23.43
13677.97	V	40.48	-0.4	40.08	Average	54	-13.92
14618.17	H	41.75	11.48	53.23	Peak	74	-20.77
14618.17	H	41.75	1.29	43.04	Average	54	-10.96
15532.94	V	39.07	14.18	53.25	Peak	74	-20.75
15532.94	V	39.07	3.84	42.91	Average	54	-11.09
16793.68	H	39.76	2.7	42.46	Peak	54	-11.54
16793.68	H	39.76	13.81	53.57	Average	74	-20.43
17793.09	H	47.74	-3.82	43.92	Peak	54	-10.08
17793.09	H	47.74	7.12	54.86	Average	74	-19.14
17896.25	V	49.32	5.66	54.98	Peak	74	-19.02
17896.25	V	49.32	-4.13	45.19	Average	54	-8.81
<b>Note:</b> 1) Transducer = Antenna Factor + Cable Loss - Pre-amp. 2) Final Test Level = Receiver Reading + Transducer .							

## 7 Photographs

### 7.1 EUT Constructional Details





**--End of the Report--**