



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

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

Telephone: +86 (0) 755 2601 2053
Fax: +86 (0) 755 2671 0594
Email: ee.shenzhen@sgs.com

Report No.: SZEM1801000027801
Page: 1 of 21

TEST REPORT

Application No.: SZEM1801000278IT (SHEM1801000077IT)
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-HUM4231P, DH-IPC-HUM7236, IPC-HUM7236, DH-IPC-HUM4231N, IPC-HUM4231P, IPC-HUM4231N, DH-IPC-HUM4231, IPC-HUM4231; □

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

Trade mark: 

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

Date of Receipt: 2018-01-03

Date of Test: 2018-01-08

Date of Issue: 2018-01-15

Test Result:	Pass*
---------------------	--------------

* 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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.





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

Report No.: SZEM180100027801

Page: 2 of 21

Revision Record				
Version	Chapter	Date	Modifier	Remark
01	/	2018-01-15	/	Original

Authorized for issue by:				
				
		<hr/>		
		Foray Chen /Project Engineer		
				
		<hr/>		
		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	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	Pass

Internal Source	Upper Frequency
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:

There are series models mentioned in this report and they are similar in electrical and electronic characters. Only the model DH-IPC-HUM4231P was tested since their differences are pixel.



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.	5
4.2 DESCRIPTION OF SUPPORT UNITS	5
4.3 MEASUREMENT UNCERTAINTY	5
4.4 TEST LOCATION.....	6
4.5 TEST FACILITY.....	6
4.6 DEVIATION FROM STANDARDS.....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5 EQUIPMENT LIST	7
6 EMISSION TEST RESULTS	8
6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150KHZ-30MHZ)	8
6.1.1 E.U.T. Operation	8
6.1.2 Test Setup Diagram	8
6.1.3 Measurement Data	8
6.2 RADIATED EMISSIONS (30MHZ-1GHZ)	11
6.2.1 E.U.T. Operation	11
6.2.2 Test Setup Diagram	11
6.2.3 Measurement Data	11
6.3 RADIATED EMISSIONS (ABOVE 1GHZ).....	14
6.3.1 E.U.T. Operation	14
6.3.2 Test Setup Diagram	14
6.3.3 Measurement Data	14
7 PHOTOGRAPHS.....	17
7.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150KHZ-30MHZ) TEST SETUP	17
7.2 RADIATED EMISSIONS (30MHZ-1GHZ) TEST SETUP	17
7.3 RADIATED EMISSIONS (ABOVE 1GHZ) TEST SETUP	18
7.4 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS).....	19-21



4 General Information

4.1 Details of E.U.T.

Power supply: DC12V

Cable: signal cable : 0.5m

4.2 Description of Support Units

The EUT has been tested as an independent unit.

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	2017-10-09	2018-10-09
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	2017-10-09	2018-10-09
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	2017-10-17	2018-10-17
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)

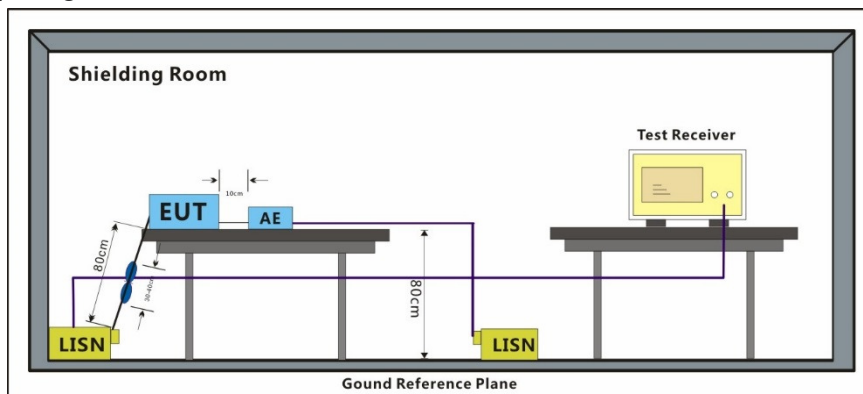
Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan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

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar
Test mode a: Normal Working_connect EUT to laptop, keep EUT monitoring continual.

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.

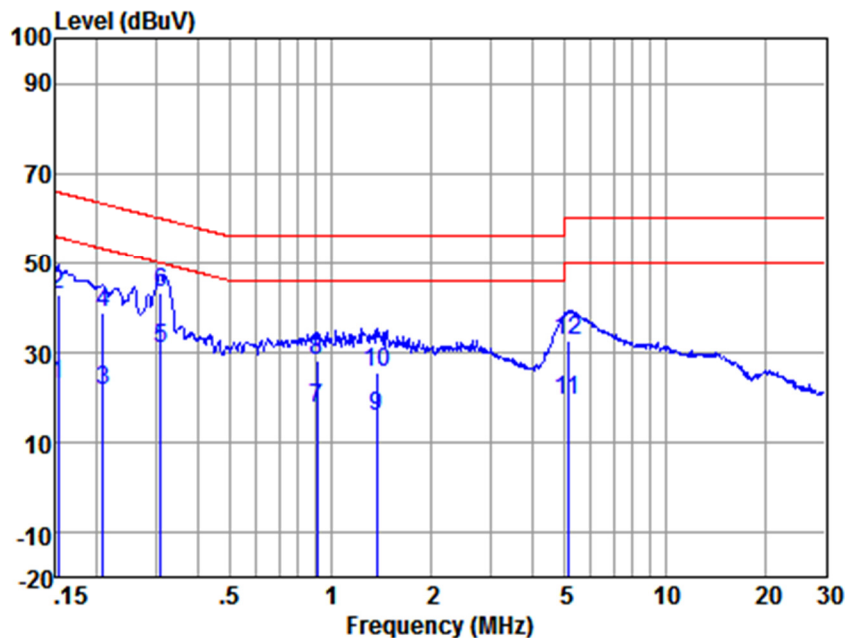
Notes: Emission Level=Read Level + LISN Factor + Cable Loss



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

Report No.: SZEM180100027801
Page: 9 of 21

Mode:a; Line:Live Line

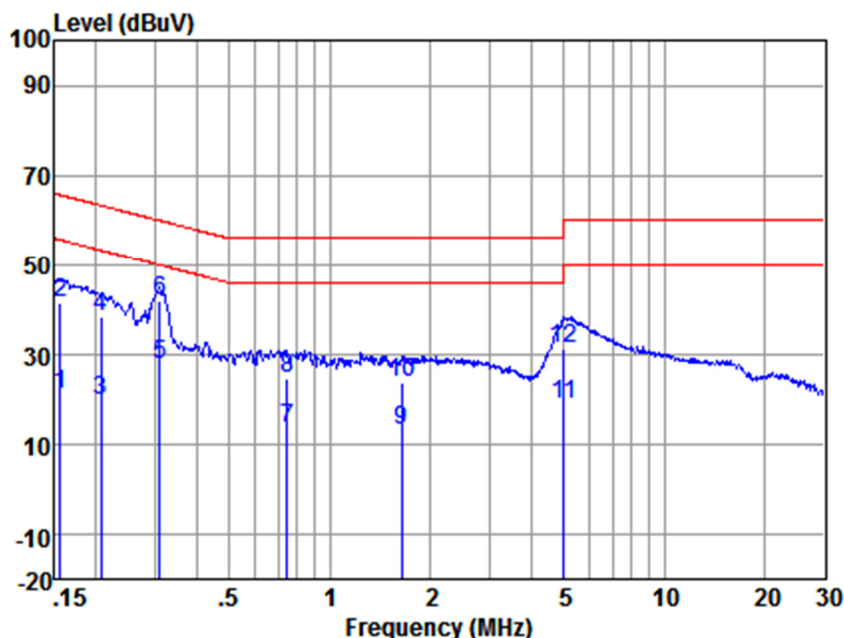


Site : chamber
Condition : LISN-L-2017
Project No: 0077IT
Test mode : a

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.152	12.96	0.11	9.81	22.88	55.87	-32.99	Average
2	0.152	33.02	0.11	9.81	42.94	65.87	-22.93	QP
3	0.208	11.80	0.11	9.81	21.72	53.27	-31.55	Average
4	0.208	28.91	0.11	9.81	38.83	63.27	-24.44	QP
5	0.310	21.18	0.11	9.81	31.10	49.97	-18.87	Average
6	0.310	33.58	0.11	9.81	43.50	59.97	-16.47	QP
7	0.909	7.50	0.11	9.83	17.44	46.00	-28.56	Average
8	0.909	18.55	0.11	9.83	28.49	56.00	-27.51	QP
9	1.374	6.05	0.11	9.84	16.00	46.00	-30.00	Average
10	1.374	15.44	0.11	9.84	25.39	56.00	-30.61	QP
11	5.112	9.60	0.11	9.86	19.57	50.00	-30.43	Average
12	5.112	22.64	0.11	9.86	32.61	60.00	-27.39	QP



Mode:a; Line:Neutral Line



Site : chamber
Condition : LISN-N-2017
Project No: 0077IT
Test mode : a

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.156	11.23	0.12	9.81	21.16	55.65	-34.49	Average
2	0.156	31.83	0.12	9.81	41.76	65.65	-23.89	QP
3	0.206	10.07	0.12	9.81	20.00	53.36	-33.36	Average
4	0.206	28.57	0.12	9.81	38.50	63.36	-24.86	QP
5	0.310	17.91	0.11	9.81	27.83	49.97	-22.14	Average
6	0.310	32.21	0.11	9.81	42.13	59.97	-17.84	QP
7	0.743	3.81	0.11	9.83	13.75	46.00	-32.25	Average
8	0.743	14.66	0.11	9.83	24.60	56.00	-31.40	QP
9	1.636	3.34	0.12	9.84	13.30	46.00	-32.70	Average
10	1.636	13.66	0.12	9.84	23.62	56.00	-32.38	QP
11	5.031	8.82	0.13	9.86	18.81	50.00	-31.19	Average
12	5.031	21.48	0.13	9.86	31.47	60.00	-28.53	QP

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 to 1000MHz

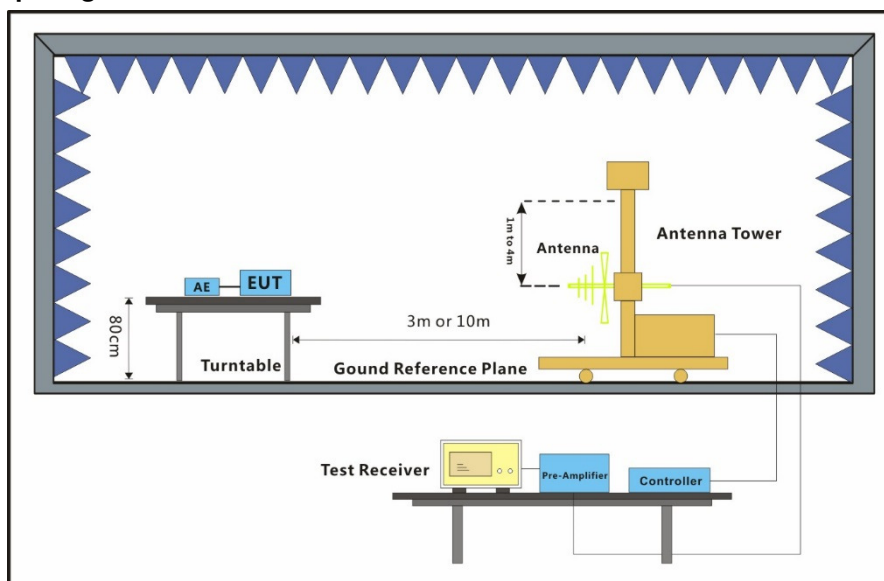
6.2.1 E.U.T. Operation

Operating Environment:

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

Test mode a: Normal Working_connect EUT to laptop, keep EUT monitoring continual.

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.

Notes: Emission Level=Read Level + Antenna Factor + Cable Loss – Preamp Factor

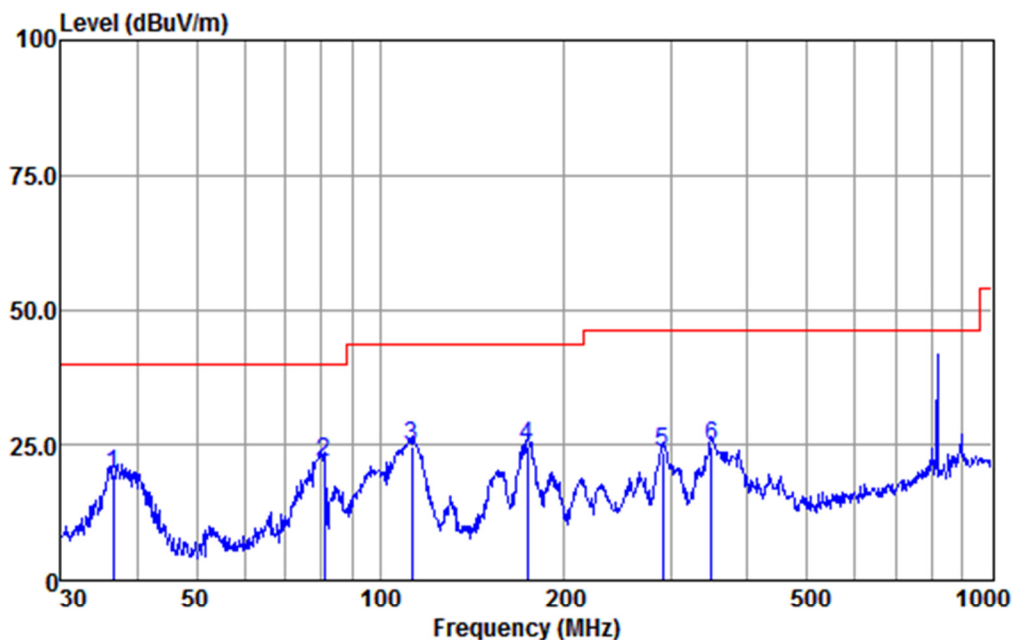


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

Report No.: SZEM180100027801

Page: 12 of 21

Mode:a; Polarization:Horizontal



Condition : HORIZONTAL

EUT/Project: 0077IT

Test Mode : a

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	36.51	45.97	15.98	0.21	42.62	19.54	40.00	-20.46	QP
2 q	80.93	55.99	8.01	0.38	42.68	21.70	40.00	-18.30	QP
3	112.52	57.21	9.70	0.51	42.70	24.72	43.50	-18.78	QP
4	174.42	54.95	11.73	0.65	42.57	24.76	43.50	-18.74	QP
5	290.02	52.17	12.87	0.83	42.41	23.46	46.00	-22.54	QP
6	349.25	51.80	14.20	0.92	42.24	24.68	46.00	-21.32	QP

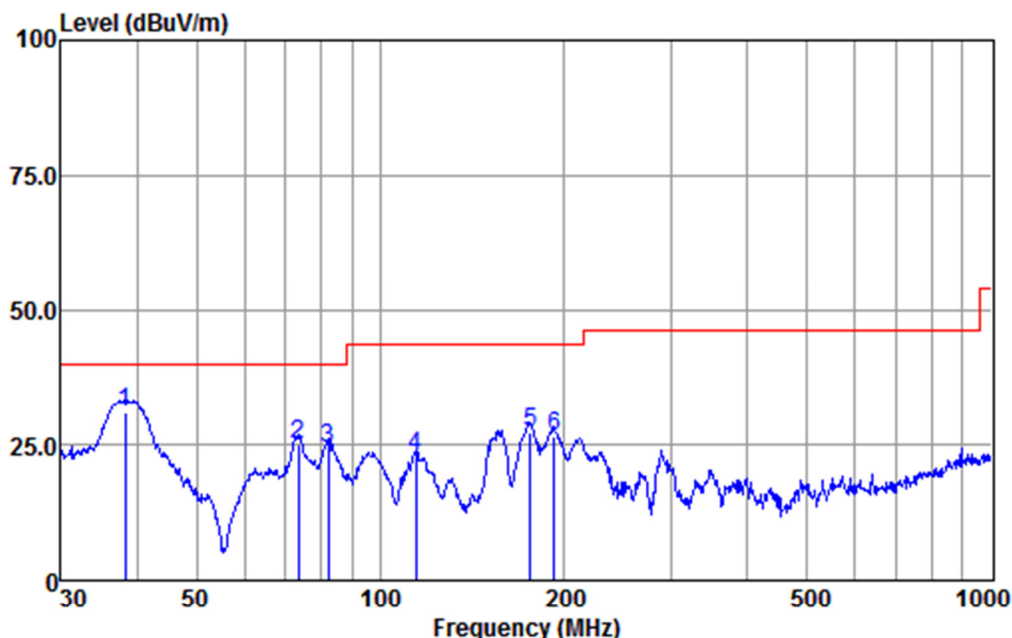


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

Report No.: SZEM180100027801

Page: 13 of 21

Mode:a; Polarization:Vertical



Condition : VERTICAL

EUT/Project: 0077IT

Test Mode : a

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 q	38.21	57.38	16.14	0.22	42.62	31.12	40.00	-8.88 QP
2	73.36	57.19	10.24	0.35	42.67	25.11	40.00	-14.89 QP
3	82.07	58.57	8.02	0.38	42.68	24.29	40.00	-15.71 QP
4	114.51	55.44	9.78	0.51	42.69	23.04	43.50	-20.46 QP
5	176.27	57.35	11.79	0.66	42.56	27.24	43.50	-16.26 QP
6	192.42	58.26	10.06	0.68	42.54	26.46	43.50	-17.04 QP

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

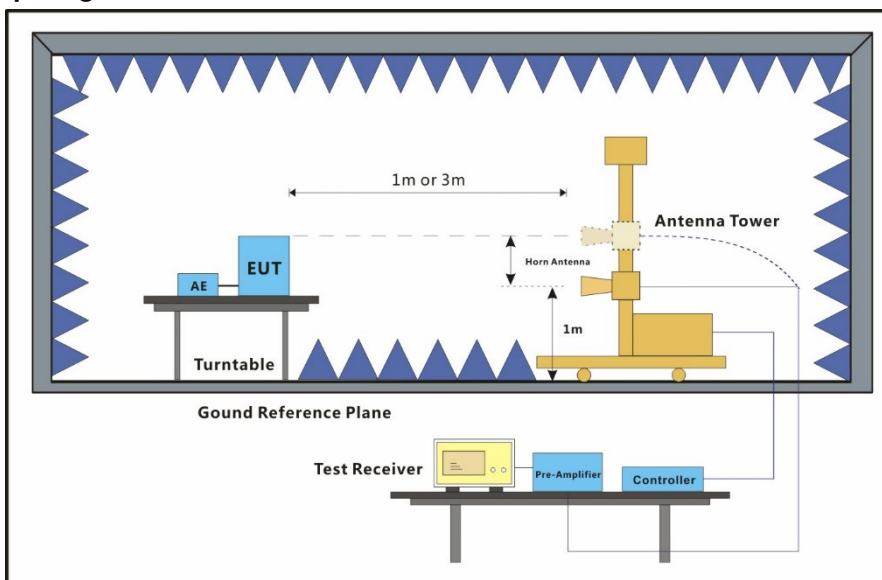
6.3.1 E.U.T. Operation

Operating Environment:

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

Test mode a: Normal Working_connect EUT to laptop, keep EUT monitoring continual.

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.

Notes: Emission Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor

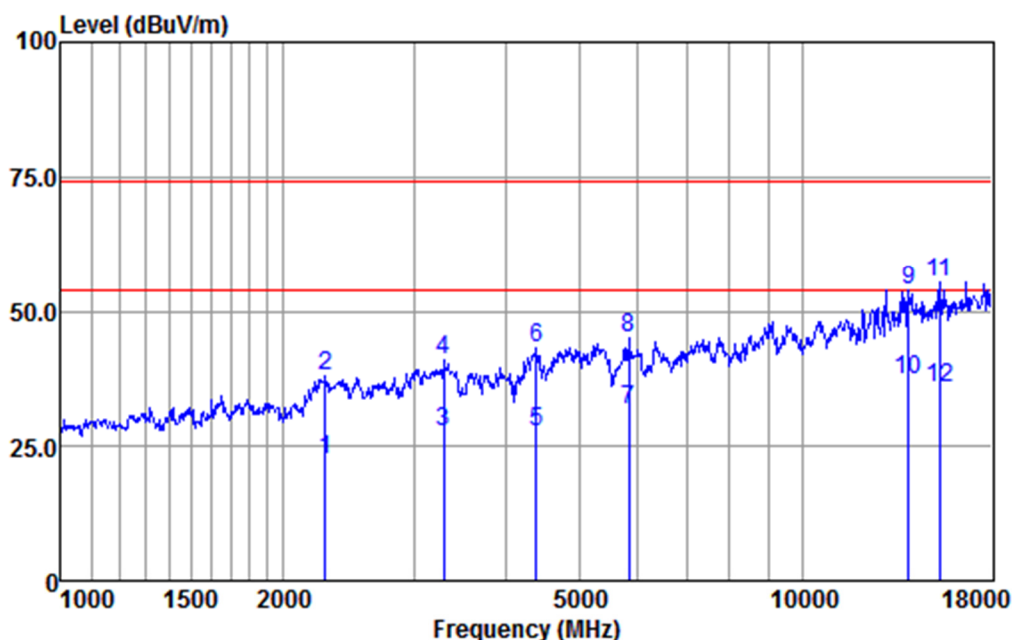


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

Report No.: SZEM180100027801

Page: 15 of 21

Mode:a; Polarization:Horizontal



Condition : HORIZONTAL

EUT/Project: 0077IT

Test mode : a

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2272.47	33.08	26.80	4.99	42.19	22.68	54.00	-31.32
2	2272.47	48.23	26.80	4.99	42.19	37.83	74.00	-36.17
3	3289.82	34.74	28.68	6.06	41.80	27.68	54.00	-26.32
4	3289.82	47.85	28.68	6.06	41.80	40.79	74.00	-33.21
5	4379.70	31.27	30.40	7.64	41.73	27.58	54.00	-26.42
6	4379.70	46.73	30.40	7.64	41.73	43.04	74.00	-30.96
7	5847.52	32.87	32.39	8.40	41.88	31.78	54.00	-22.22
8	5847.52	46.11	32.39	8.40	41.88	45.02	74.00	-28.98
9	13957.53	44.14	41.02	10.32	41.73	53.75	74.00	-20.25
10	13957.53	27.59	41.02	10.32	41.73	37.20	54.00	-16.80
11 p	15354.39	46.73	39.77	10.31	41.58	55.23	74.00	-18.77
12	15354.39	27.44	39.77	10.31	41.58	35.94	54.00	-18.06

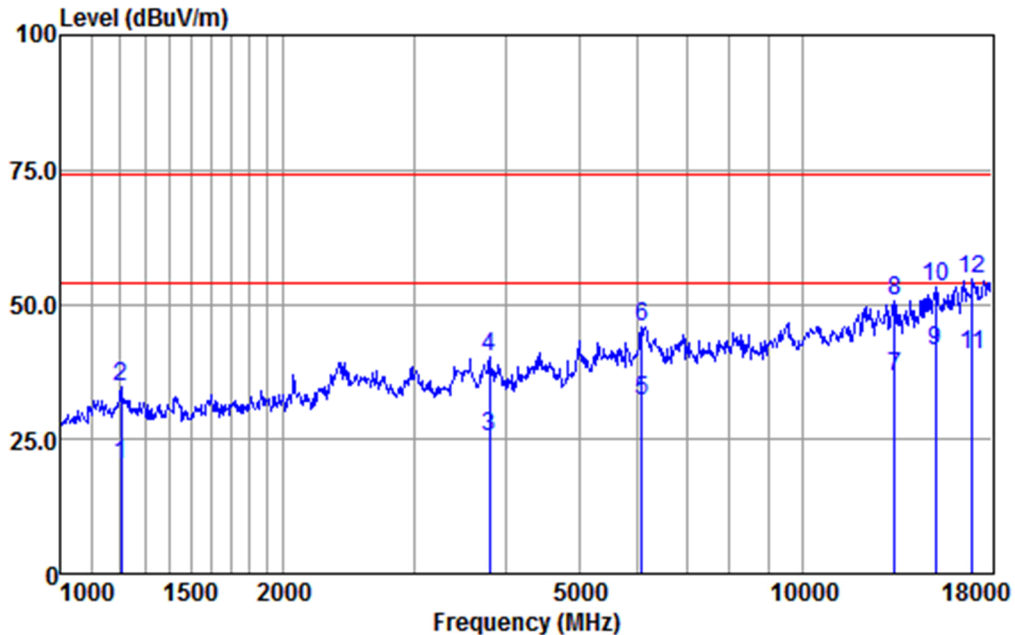


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

Report No.: SZEM180100027801

Page: 16 of 21

Mode:a; Polarization:Vertical



Condition : VERTICAL

EUT/Project: 0077IT

Test mode : a

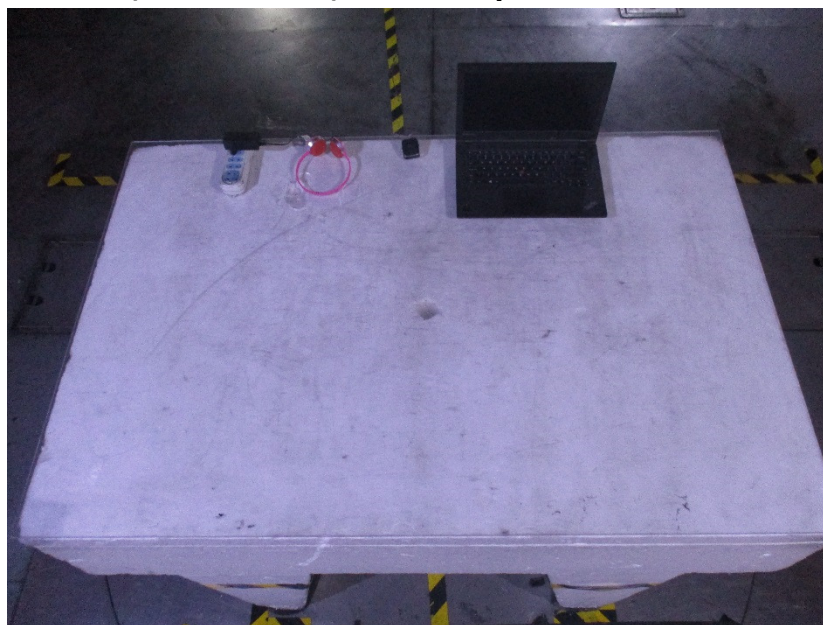
	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1206.68	34.16	24.61	3.40	41.83	20.34	54.00	-33.66
2	1206.68	48.37	24.61	3.40	41.83	34.55	74.00	-39.45
3	3790.36	31.28	29.34	6.70	41.92	25.40	54.00	-28.60
4	3790.36	46.01	29.34	6.70	41.92	40.13	74.00	-33.87
5	6088.99	32.55	32.85	8.44	41.83	32.01	54.00	-21.99
6	6088.99	46.36	32.85	8.44	41.83	45.82	74.00	-28.18
7	13365.32	28.53	39.92	10.18	42.01	36.62	54.00	-17.38
8	13365.32	42.64	39.92	10.18	42.01	50.73	74.00	-23.27
9	15134.08	31.69	40.73	10.18	41.44	41.16	54.00	-12.84
10	15134.08	43.71	40.73	10.18	41.44	53.18	74.00	-20.82
11	16988.97	29.75	40.60	11.55	41.31	40.59	54.00	-13.41
12 p	16988.97	43.64	40.60	11.55	41.31	54.48	74.00	-19.52

7 Photographs

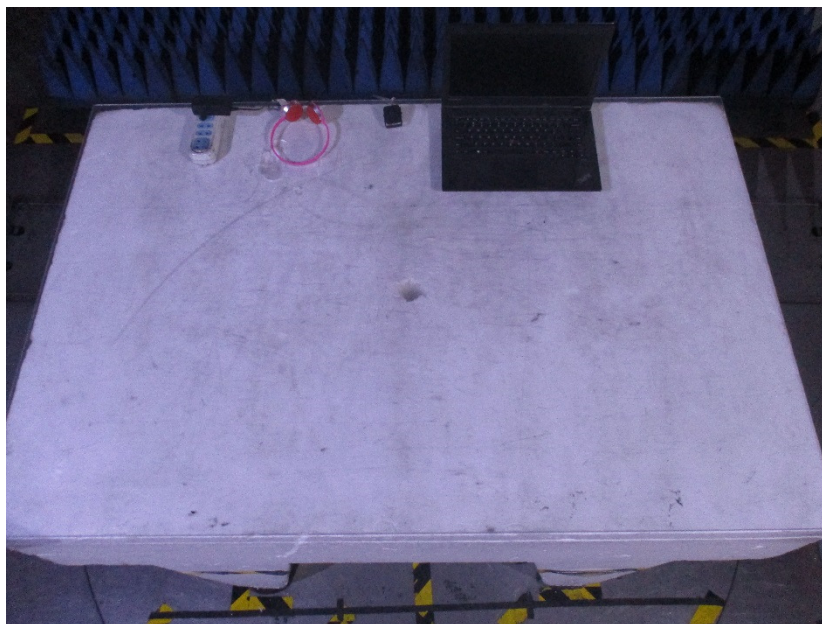
7.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup



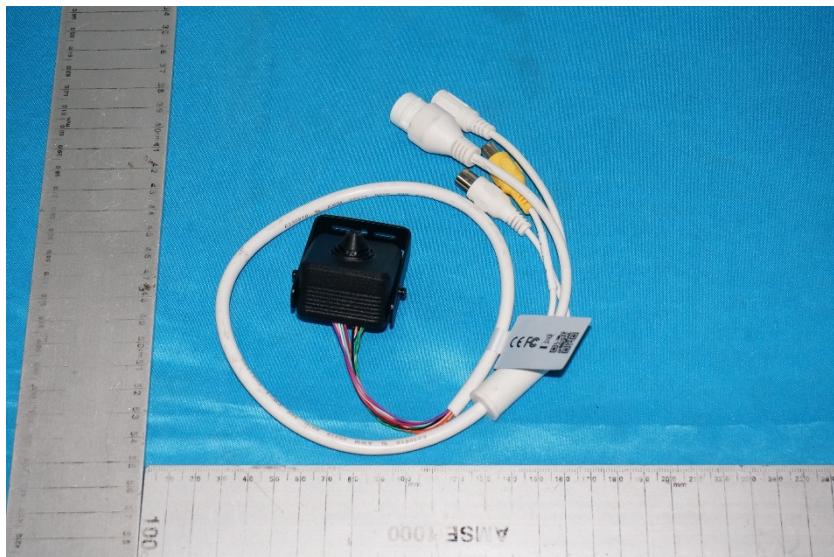
7.2 Radiated Emissions (30MHz-1GHz) Test Setup

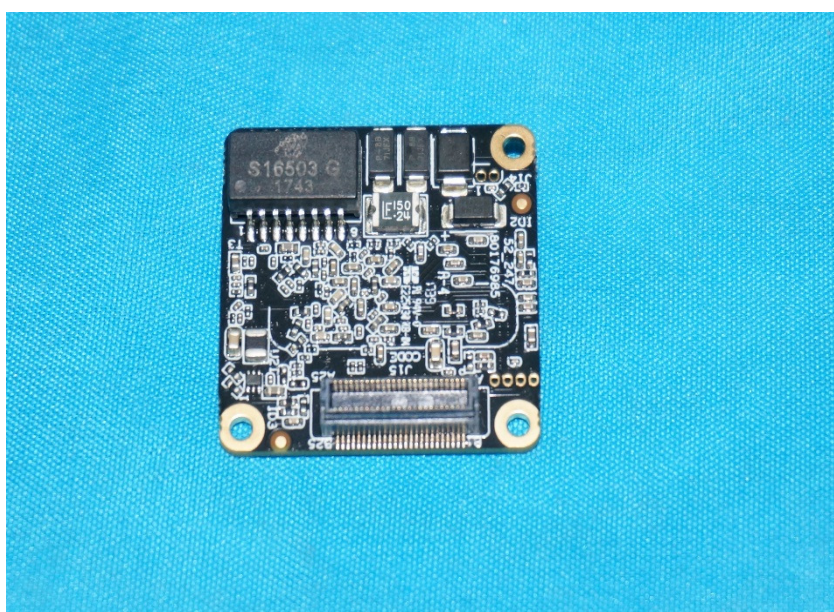
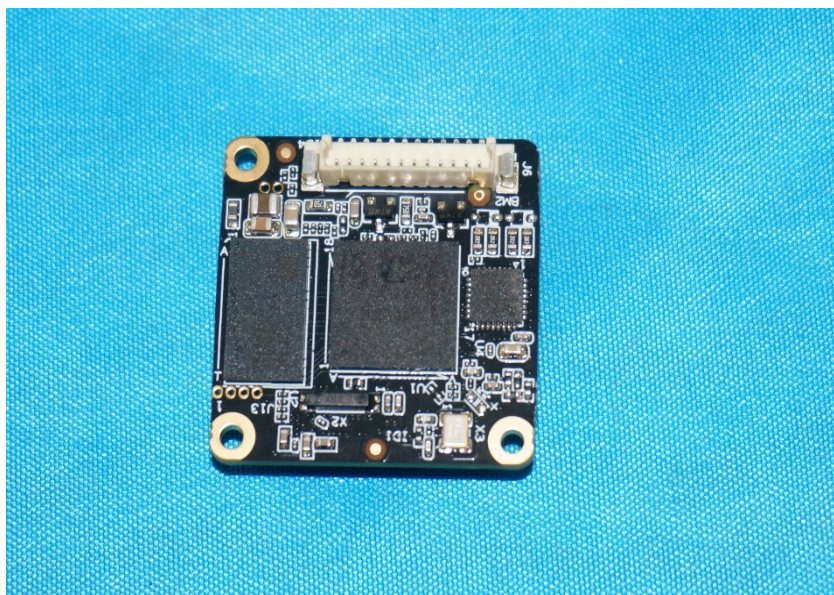


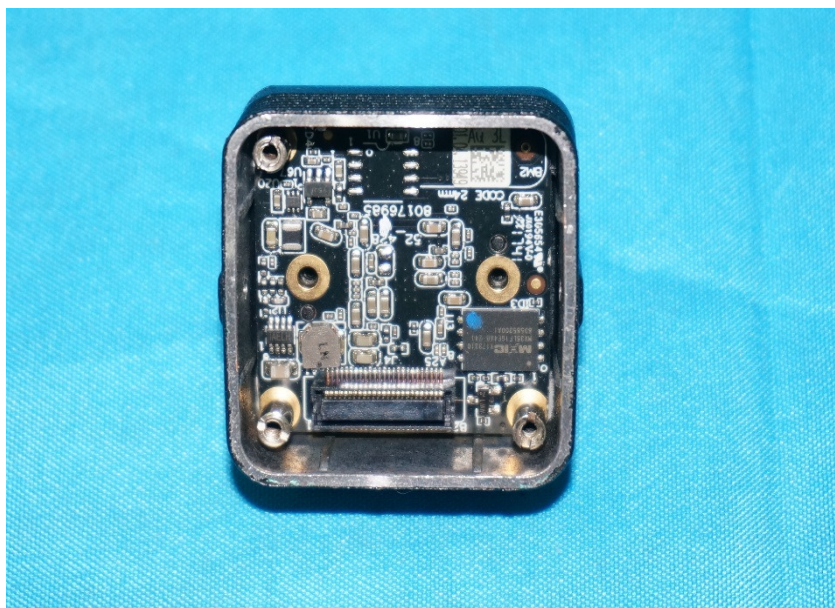
7.3 Radiated Emissions (above 1GHz) Test Setup



7.4 EUT Constructional Details (EUT Photos)







- End of the Report -