

FCC REPORT

Applicant: Shenzhen Kean Digital Co., Ltd.
Address of Applicant: Rujun Building, Floor 4, No.105, the Center Road, Bantian Street, Longgang Zone, Shenzhen, China

Equipment Under Test (EUT)

Product Name: Network HD camera
Model No.: I41CJ, I41CM, I41CP, I41CR, I41CS, I41CT, I41CB, I41CG, I21AE, I21AF, I21AH, I21AM, I21AR, I21JM, I21JN, I21JP, I21JQ, I21JR, I21JS, I21JT, I21JU, I21JV, I21JW, I21JX, I21JY, I21JZ, I31GR, I31GS, I31GT, I31GU, I31GV, I31GW, I31GX, I31GY, I31GZ, I41KP, I41KQ, I41KR, I41KS, I41KT, I41KU, I41KV, I41KW, I41KX, I41KY, I41KZ, I41BQ, I41BR, I41BS, I41BT, I41BU, I41BV, I41BW, I41BX, I41BY, I41BZ

FCC ID: 2AKL2K23IPC
Applicable standards: FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt: 30 Jun., 2017
Date of Test: 12 Oct., to 16 Oct., 2017
Date of report issued: 17 Oct., 2017
Test Result: Pass *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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2 Version

Version No.	Date	Description
00	17 Oct., 2017	Original

Tested by:

YT Yang

Test Engineer

Date:

17 Oct., 2017

Reviewed by:

Wimer Zhang

Project Engineer

Date:

17 Oct., 2017

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part 15.107	Pass
Radiated Emission	Part 15.109	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Shenzhen Kean Digital Co., Ltd.
Address of Applicant:	Rujun Building, Floor 4, No.105, the Center Road, Bantian Street, Longgang Zone, Shenzhen, China
Manufacturer/ Factory:	Shenzhen Kean Digital Co., Ltd.
Address of Manufacturer/ Factory:	Rujun Building, Floor 4, No.105, the Center Road, Bantian Street, Longgang Zone, Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	Network HD camera
Model No.:	I41CJ, I41CM, I41CP, I41CR, I41CS, I41CT, I41CB, I41CG, I21AE, I21AF, I21AH, I21AM, I21AR, I21JM, I21JN, I21JP, I21JQ, I21JR, I21JS, I21JT, I21JU, I21JV, I21JW, I21JX, I21JY, I21JZ, I31GR, I31GS, I31GT, I31GU, I31GV, I31GW, I31GX, I31GY, I31GZ, I41KP, I41KQ, I41KR, I41KS, I41KT, I41KU, I41KV, I41KW, I41KX, I41KY, I41KZ, I41BQ, I41BR, I41BS, I41BT, I41BU, I41BV, I41BW, I41BX, I41BY, I41BZ
Power supply:	DC 5V
AC adapter :	Model: KA25-0501200US Input: AC100-240V, 50/60Hz, 0.25A Output: DC 5.0V, 1200mAh

5.3 Test Mode

Operating mode	Detail description
Recording mode	Keep the EUT in Recording(LAN link) mode(worst case)
Playing mode	Keep the EUT in Playing(LAN link) mode

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

5.4 Measurement Uncertainty

Items	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
LENOVO	Laptop	SL510	2847A65	DoC
kingston	U Disk	DTSE9H/16GB	Data Traveler SE9	DoC

5.6 Laboratory Facility

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

- **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 817957, February 27, 2012.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China

Website: <http://www.ccis-cb.com>

Tel: +86-755-23118282

Fax: +86-755-23116366

Email: info@ccis-cb.com

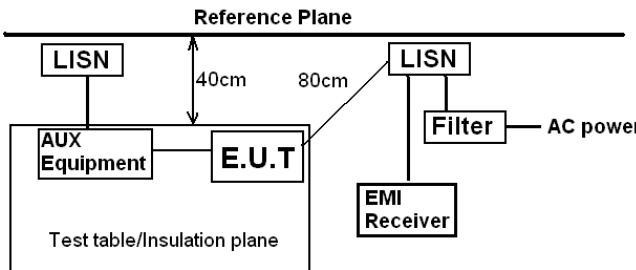
5.8 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	07-22-2017	07-21-2020
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	02-25-2017	02-24-2018
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
6	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018
7	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	N/A	N/A	CCIS0018	02-25-2017	02-24-2018
10	Coaxial Cable	N/A	N/A	CCIS0020	02-25-2017	02-24-2018

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	07-22-2017	07-21-2020
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018
3	LISN	CHASE	MN2050D	CCIS0074	02-25-2017	02-24-2018
4	Coaxial Cable	CCIS	N/A	CCIS0086	02-25-2017	02-24-2018
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

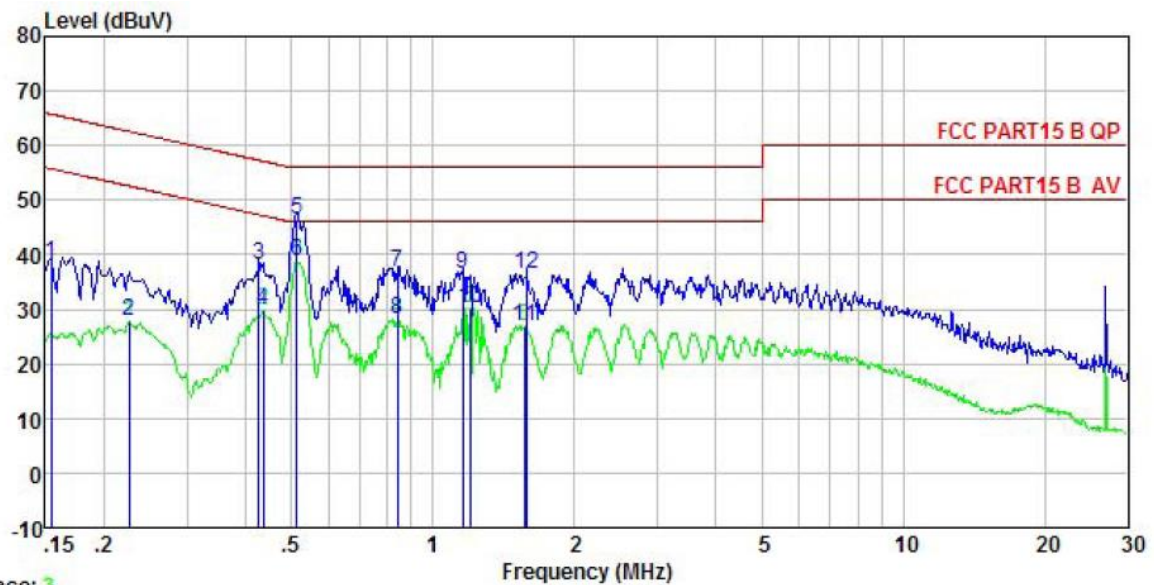
6 Test results and Measurement Data

6.1 Conducted Emission

Test Requirement:	FCC Part 15 B Section 15.107					
Test Method:	ANSI C63.4:2014					
Test Frequency Range:	150kHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz					
Limit:	Frequency range (MHz)	Limit (dBμV)				
		Quasi-peak		Average		
	0.15-0.5	66 to 56*		56 to 46*		
	0.5-5	56		46		
	0.5-30	60		50		
* Decreases with the logarithm of the frequency.						
Test setup:	Reference Plane  Test table/Insulation plane <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m					
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.					
Test environment:	Temp.:	23 °C	Humid.:	56%	Press.:	101kPa
Test Instruments:	Refer to section 5.8 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

Measurement data:

Test Polarization: Line



Trace: 3

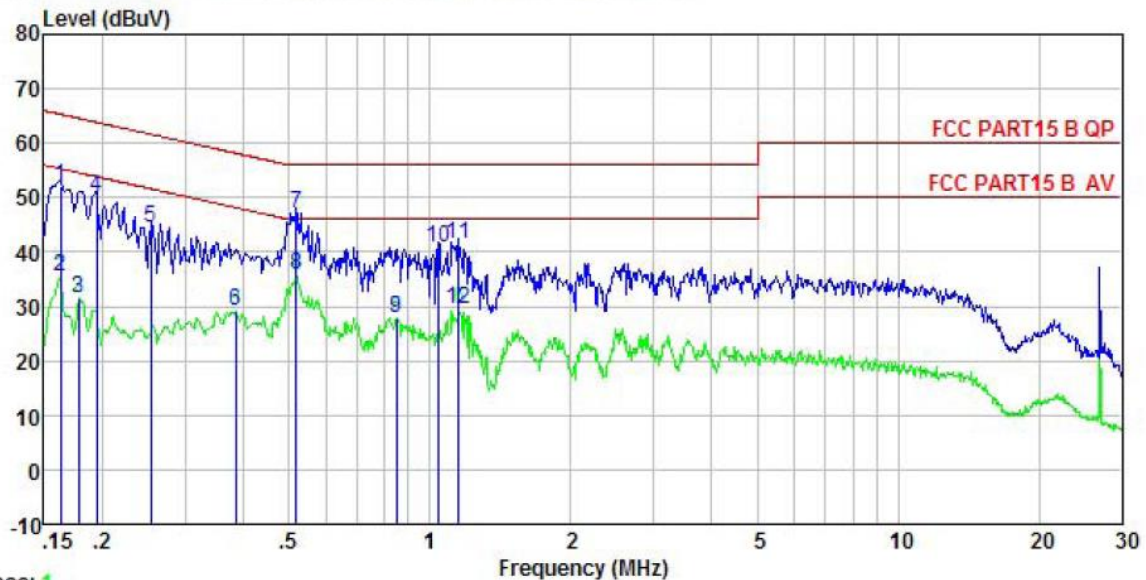
Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN LINE
 EUT : Network HD camera
 Model : I41CJ
 Test Mode : Charging&Recording Mode
 Power Rating : AC 120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: YT
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	28.41	-0.56	10.78	38.63	65.78	-27.15	QP
2	0.226	17.55	-0.52	10.75	27.78	52.61	-24.83	Average
3	0.426	27.95	-0.50	10.73	38.18	57.33	-19.15	QP
4	0.435	19.59	-0.50	10.73	29.82	47.15	-17.33	Average
5	0.513	36.14	-0.49	10.76	46.41	56.00	-9.59	QP
6	0.513	28.49	-0.49	10.76	38.76	46.00	-7.24	Average
7	0.839	26.62	-0.49	10.82	36.95	56.00	-19.05	QP
8	0.839	17.97	-0.49	10.82	28.30	46.00	-17.70	Average
9	1.160	26.08	-0.48	10.89	36.49	56.00	-19.51	QP
10	1.197	19.75	-0.47	10.89	30.17	46.00	-15.83	Average
11	1.568	16.44	-0.45	10.93	26.92	46.00	-19.08	Average
12	1.585	25.93	-0.45	10.93	36.41	56.00	-19.59	QP

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss.

Test Polarization: Neutral



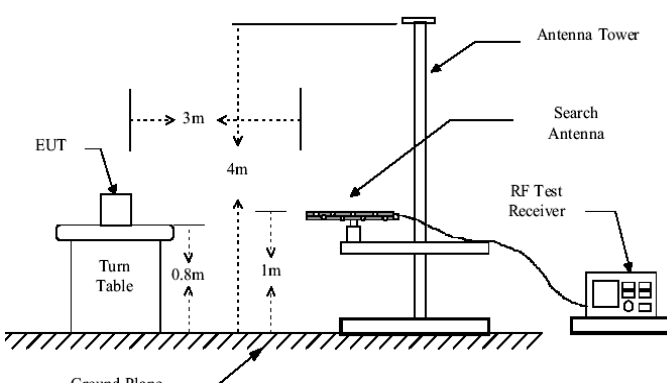
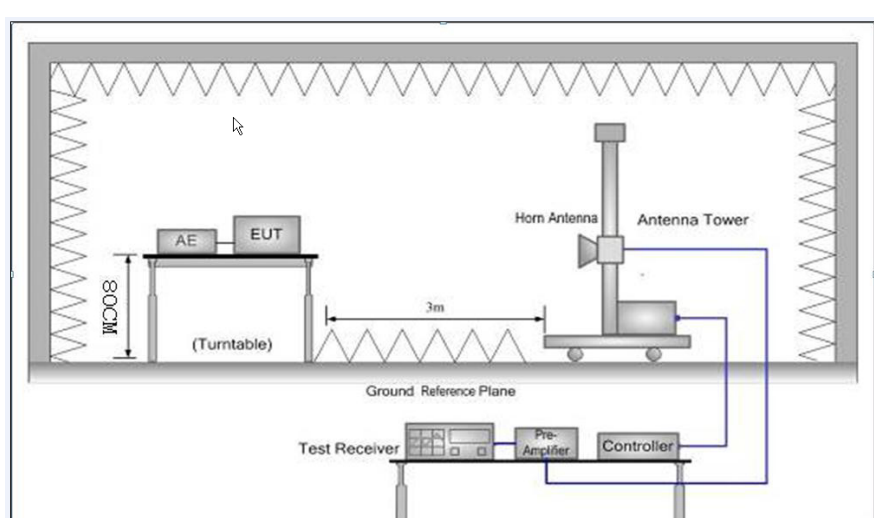
Trace: 1
 Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN NEUTRAL
 EUT : Network HD camera
 Model : I41CJ
 Test Mode : Charging&Recording Mode
 Power Rating : AC 120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: YT
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	41.85	-0.37	10.77	52.25	65.34	-13.09	QP
2	0.162	25.06	-0.37	10.77	35.46	55.34	-19.88	Average
3	0.178	20.97	-0.36	10.77	31.38	54.59	-23.21	Average
4	0.194	39.78	-0.34	10.76	50.20	63.84	-13.64	QP
5	0.253	33.98	-0.33	10.75	44.40	61.64	-17.24	QP
6	0.385	18.74	-0.32	10.72	29.14	48.17	-19.03	Average
7	0.518	36.80	-0.30	10.76	47.26	56.00	-8.74	QP
8	0.518	25.24	-0.30	10.76	35.70	46.00	-10.30	Average
9	0.848	17.29	-0.29	10.82	27.82	46.00	-18.18	Average
10	1.043	30.20	-0.29	10.88	40.79	56.00	-15.21	QP
11	1.147	30.77	-0.28	10.89	41.38	56.00	-14.62	QP
12	1.153	18.84	-0.28	10.89	29.45	46.00	-16.55	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss.

6.2 Radiated Emission

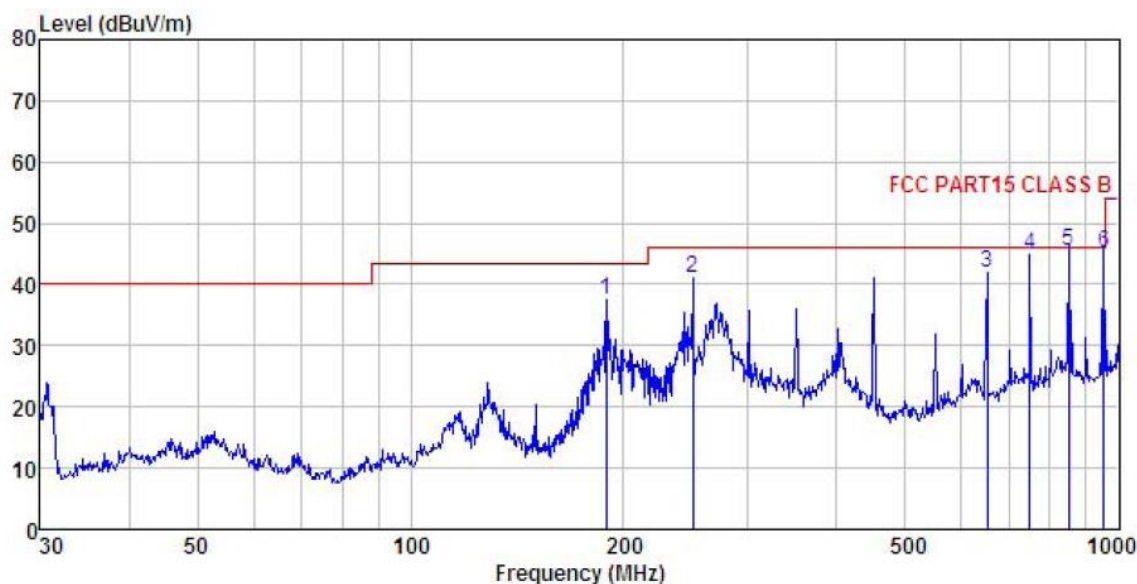
Test Requirement:	FCC Part 15 B Section 15.109				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	30MHz to 25GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit:		RMS	1MHz	3MHz	Average Value
	Frequency	Limit (dBuV/m @3m)			Remark
	30MHz-88MHz	40.0			Quasi-peak Value
	88MHz-216MHz	43.5			Quasi-peak Value
	216MHz-960MHz	46.0			Quasi-peak Value
	960MHz-1GHz	54.0			Quasi-peak Value
Test setup:	Below 1GHz				
		Above 1GHz			
					

Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.					
Test environment:	Temp.:	25 °C	Humid.:	55%	Press.:	1 01kPa
Test Instruments:	Refer to section 5.8 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					
Remark:	For above 6GHz , no emission found					

Measurement Data:

Below 1GHz

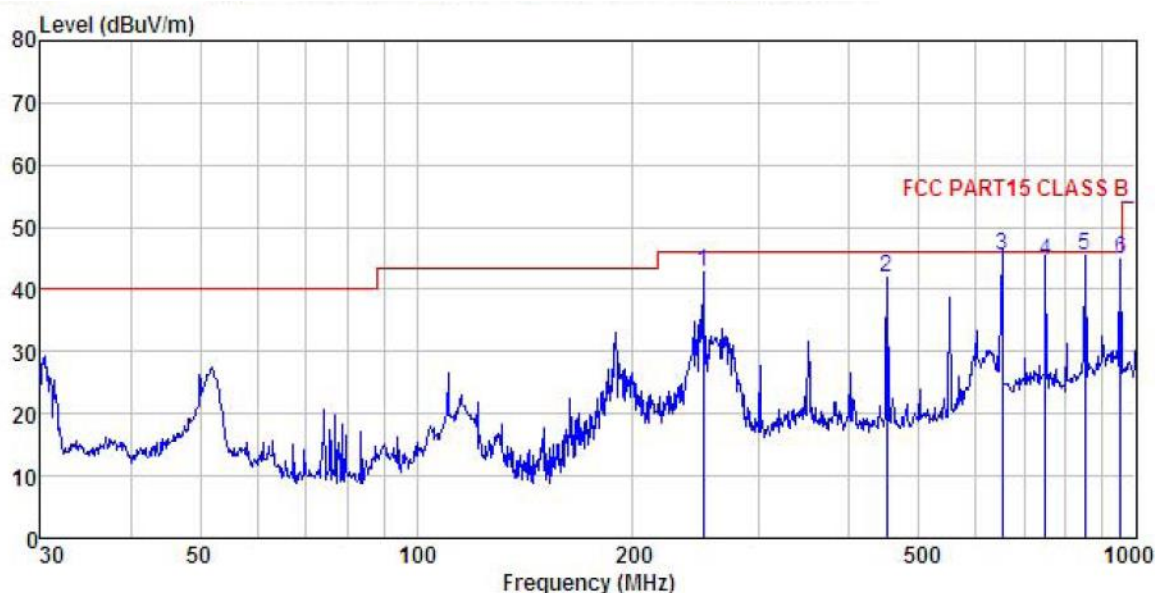
Test Polarization: Horizontal



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL
 EUT : Network HD camera
 Model : I41CJ
 Test mode : communication with PC
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: YI
 REMARK :

	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
		Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	189.074	53.12	10.40	2.79	28.91	37.40	43.50	-6.10 QP
2	250.301	54.67	12.20	2.81	28.54	41.14	46.00	-4.86 QP
3	651.942	48.30	18.50	3.87	28.77	41.90	46.00	-4.10 QP
4	750.108	49.36	19.51	4.36	28.48	44.75	46.00	-1.25 QP
5	851.035	48.58	20.60	4.18	28.00	45.36	46.00	-0.64 QP
6	952.094	47.02	21.59	4.22	27.71	45.12	46.00	-0.88 QP

Test Polarization: Vertical

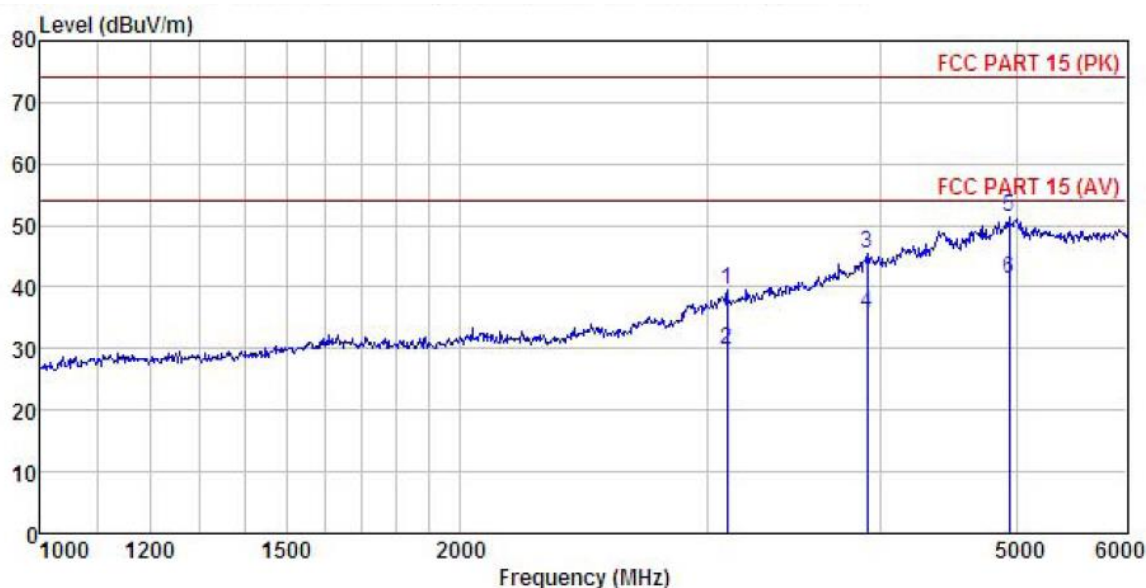


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL
 EUT : Network HD camera
 Model : I41CJ
 Test mode : communication with PC
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: YT
 REMARK :

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	250.301	56.43	12.20	2.81	28.54	42.90	46.00	-3.10 QP
2	451.135	51.99	15.59	3.21	28.87	41.92	46.00	-4.08 QP
3	651.942	51.78	18.50	3.87	28.77	45.38	46.00	-0.62 QP
4	750.108	49.21	19.51	4.36	28.48	44.60	46.00	-1.40 QP
5	851.035	48.72	20.60	4.18	28.00	45.50	46.00	-0.50 QP
6	952.094	46.71	21.59	4.22	27.71	44.81	46.00	-1.19 QP

Above 1GHz

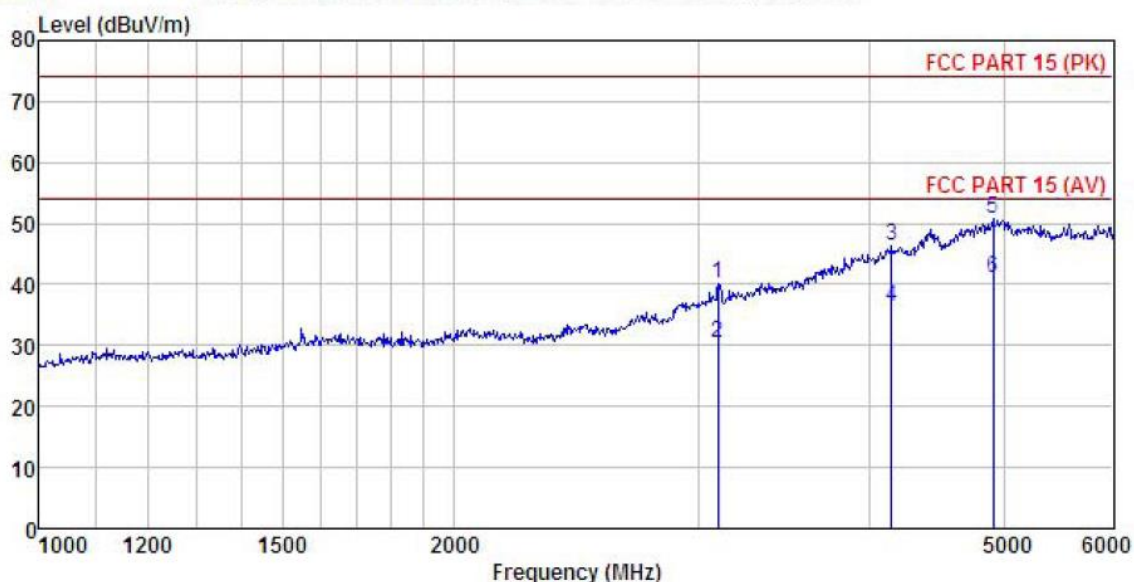
Test Polarization: Horizontal



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
 EUT : Network HD camera
 Model : I41CJ
 Test mode : communication with PC
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: YT
 REMARK :

	Freq	Read	Antenna	Cable	Preamp	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	3103.467	48.33	27.26	5.39	41.46	39.52	74.00	-34.48 Peak
2	3103.467	38.62	27.26	5.39	41.46	29.81	54.00	-24.19 Average
3	3912.134	52.90	28.24	6.10	41.80	45.44	74.00	-28.56 Peak
4	3912.134	43.17	28.24	6.10	41.80	35.71	54.00	-18.29 Average
5	4941.121	54.83	31.54	6.90	41.86	51.41	74.00	-22.59 Peak
6	4941.121	44.73	31.54	6.90	41.86	41.31	54.00	-12.69 Average

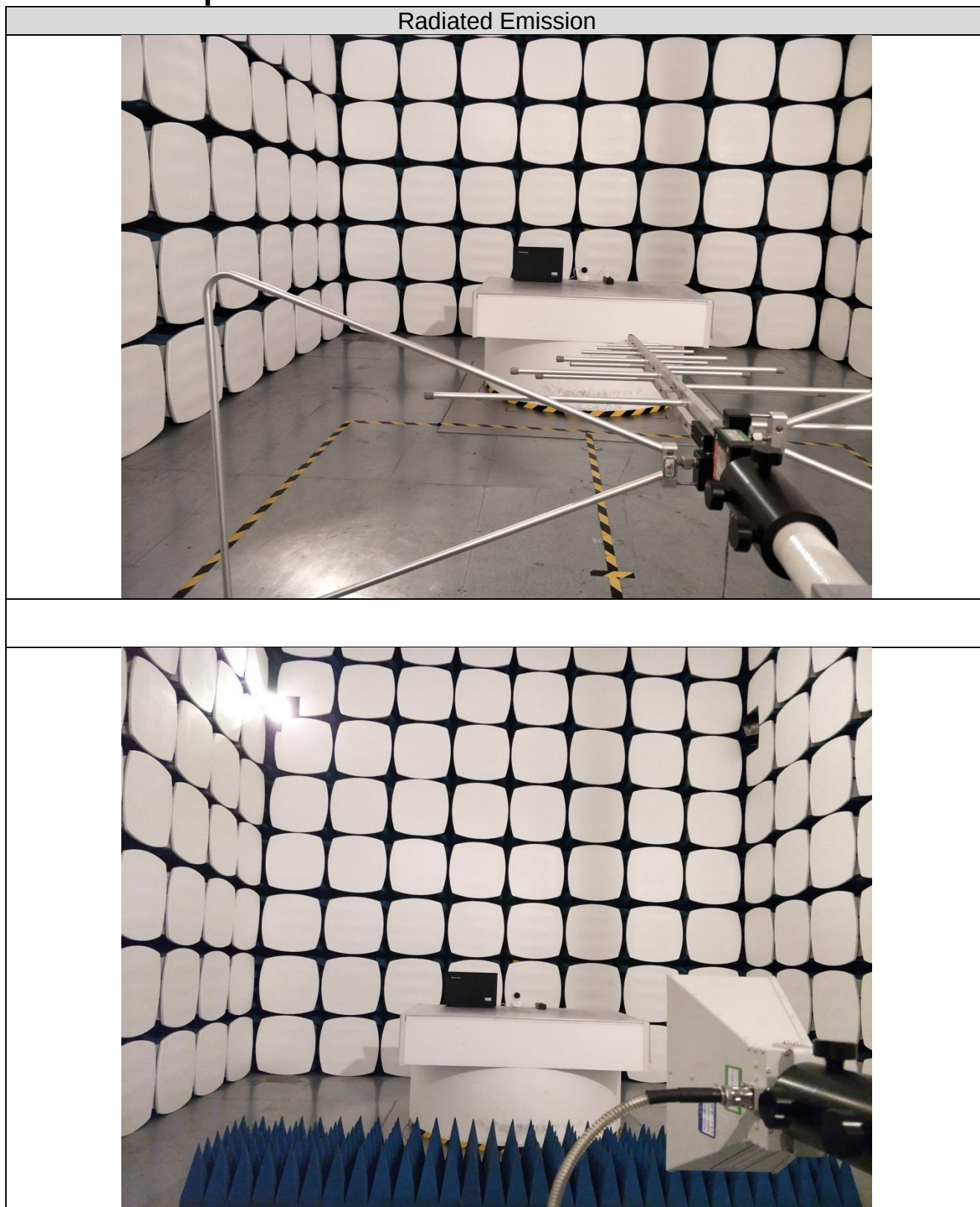
Test Polarization: Vertical



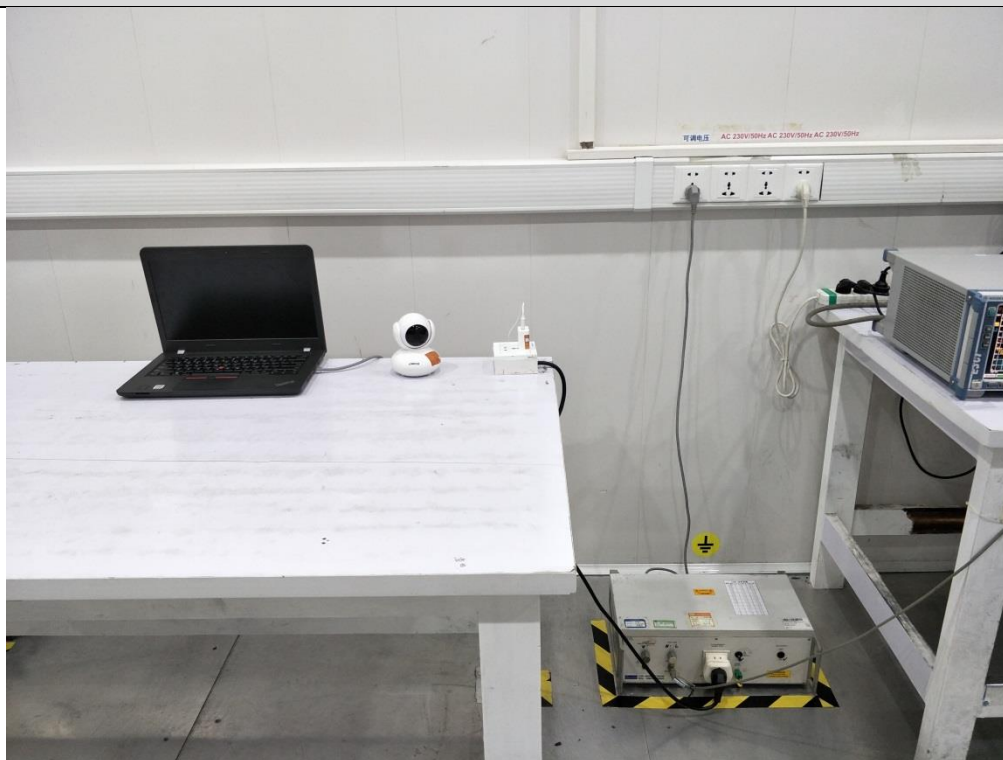
Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
 EUT : Network HD camera
 Model : I41CJ
 Test mode : communication with PC
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: YT
 REMARK :

	Freq	ReadAntenna	Cable Preamp	Limit	Over			
	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	3103.467	49.04	27.26	5.39	41.46	40.23	74.00	-33.77 Peak
2	3103.467	39.11	27.26	5.39	41.46	30.30	54.00	-23.70 Average
3	4147.312	53.18	28.67	6.32	41.81	46.36	74.00	-27.64 Peak
4	4147.312	43.04	28.67	6.32	41.81	36.22	54.00	-17.78 Average
5	4912.360	54.37	31.37	6.88	41.85	50.77	74.00	-23.23 Peak
6	4912.360	44.52	31.37	6.88	41.85	40.92	54.00	-13.08 Average

7 Test Setup Photo



Conducted Emission



8 EUT Constructional Details

Reference to the test report No. CCISE170808701

-----End of report-----