

FCC TEST REPORT

For

SUNVALLEYTEK INTERNATIONAL, INC.

IPC for Home Cam

Model No.: VA-HS002, VA-HSA002

Prepared For : SUNVALLEYTEK INTERNATIONAL, INC.
Address : 46724 Lakeview Blvd, Fremont, California, United States 94538-6529

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : SZAWW181008001-02
Date of Receipt : Sept. 29, 2018
Date of Test : Sept. 29~Dec. 22, 2018
Date of Report : Dec. 22, 2018

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TEST REPORT

Applicant : SUNVALLEYTEK INTERNATIONAL, INC.
Manufacturer : Shenzhen NearbyExpress Technology Development Company Limited
Product Name : IPC for Home Cam
Model No. : VA-HS002, VA-HSA002
Trade Mark : VAVA
Rating(s) : Input: DC 5V , 2A
(with DC 7.68V, 2500mAh or DC 7.4V, 2500mAh Battery inside)
Test Standard(s) : **FCC Part15 Subpart C, Paragraph 15.249**
Test Method(s) : **ANSI C63.10: 2013**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test

Sept. 29~Dec. 22, 2018

Prepared by



Oliay Yang

(Engineer / Oliay Yang)

Reviewer

Snowy Meng

(Supervisor / Snowy Meng)

Approved & Authorized Signer

Sally Zhang

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	SUNVALLEYTEK INTERNATIONAL, INC.
Address	:	46724 Lakeview Blvd, Fremont, California, United States 94538-6529
Manufacturer	:	Shenzhen NearbyExpress Technology Development Company Limited
Address	:	333 Bulong Road, Jialianda Industrial Park, Building 1, Bantian, Longgang District, Shenzhen, China
Factory	:	Shenzhen NearbyExpress Technology Development Company Limited
Address	:	333 Bulong Road, Jialianda Industrial Park, Building 1, Bantian, Longgang District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	IPC for Home Cam	
Model No.	:	VA-HS002, VA-HSA002 (Note: All samples are the same except the name, so we prepare "VA-HS002" for test only.)	
Trade Mark	:	VAVA	
Test Power Supply	:	AC 120V, 60Hz for adapter/ AC 240V, 60Hz for adapter/ DC 7.68V battery inside	
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)	
Product Description	:	Operation Frequency:	915MHz
	:	Modulation Type:	GFSK
	:	Antenna Type:	Monopole Antenna
	:	Antenna Gain(Peak):	3 dBi
<p>Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2)This report is for 915MHz module.</p>			

1.3. Auxiliary Equipment Used During Test

Adapter	:	MODEL: MCUS-050200 INPUT: AC 100-240 50/60Hz, 0.35A OUTPUT: DC 5V, 2.0A
Adapter	:	MODEL: BI12T-050180-BdUU INPUT: AC 100-240 50/60Hz, 0.5A OUTPUT: DC 5V, 1.8A

1.4. Description of Test Modes

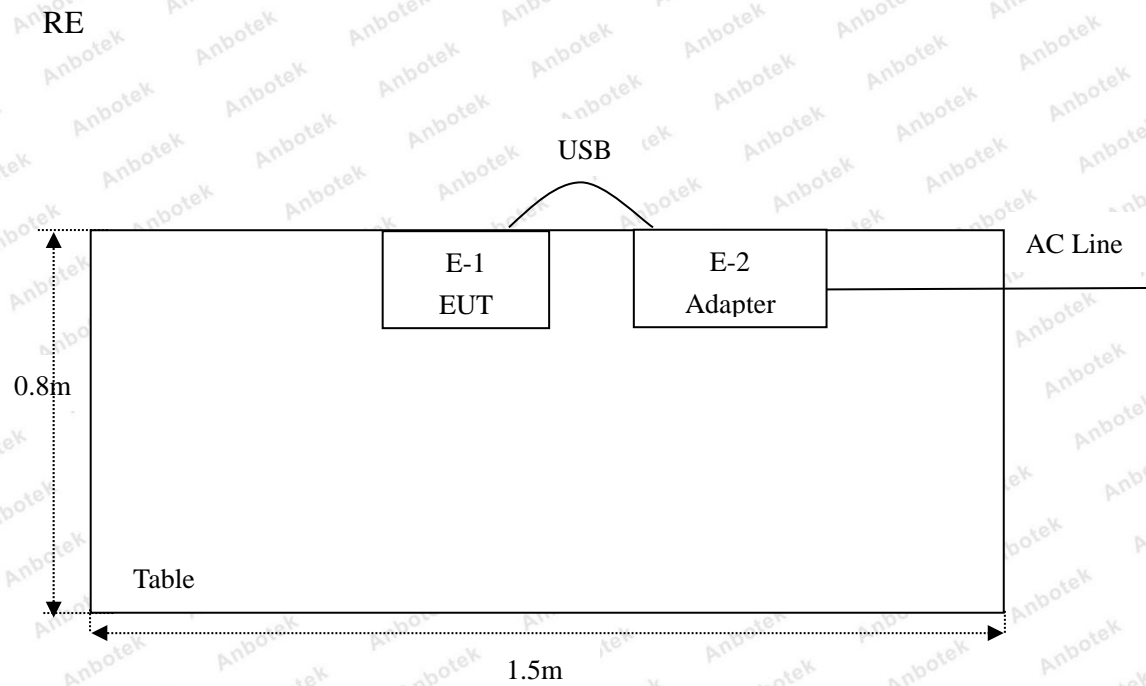
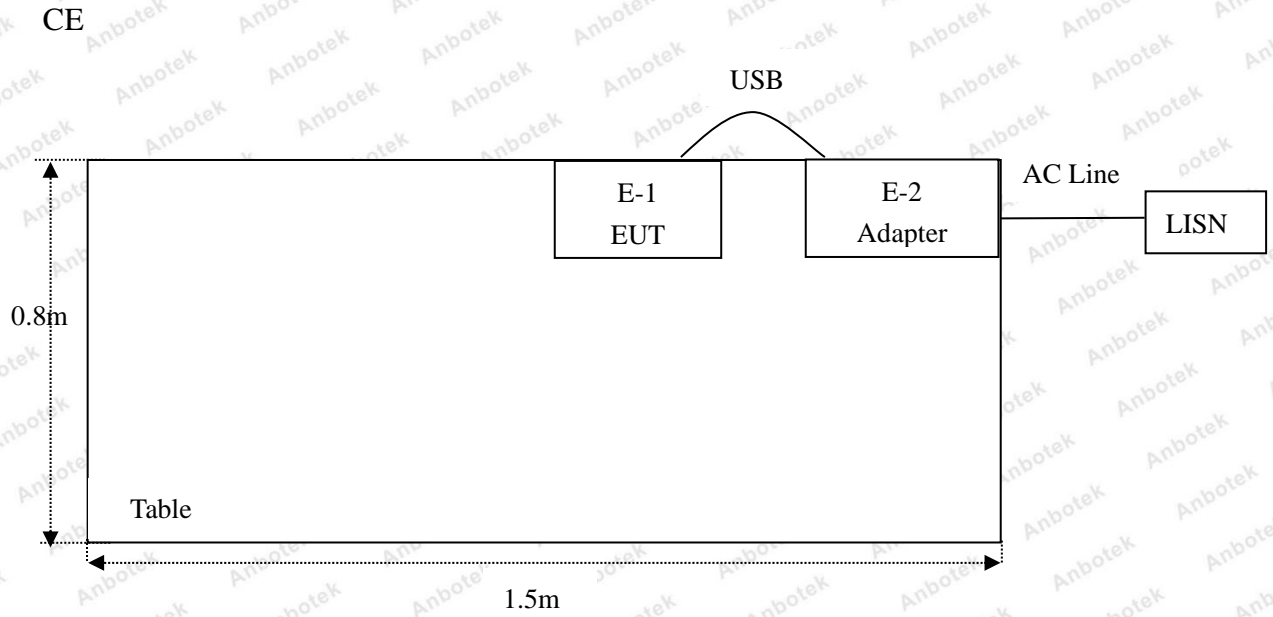
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH01

For Conducted Emission	
Final Test Mode	Description
Mode 4	CH01

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01

1.5. Description of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Nov. 05, 2018	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 20, 2018	1 Year
10.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Nov. 20, 2018	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 05, 2018	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 05, 2018	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 05, 2018	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Apr. 02, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	1 Year

1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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 No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

2. Summary of Test Results

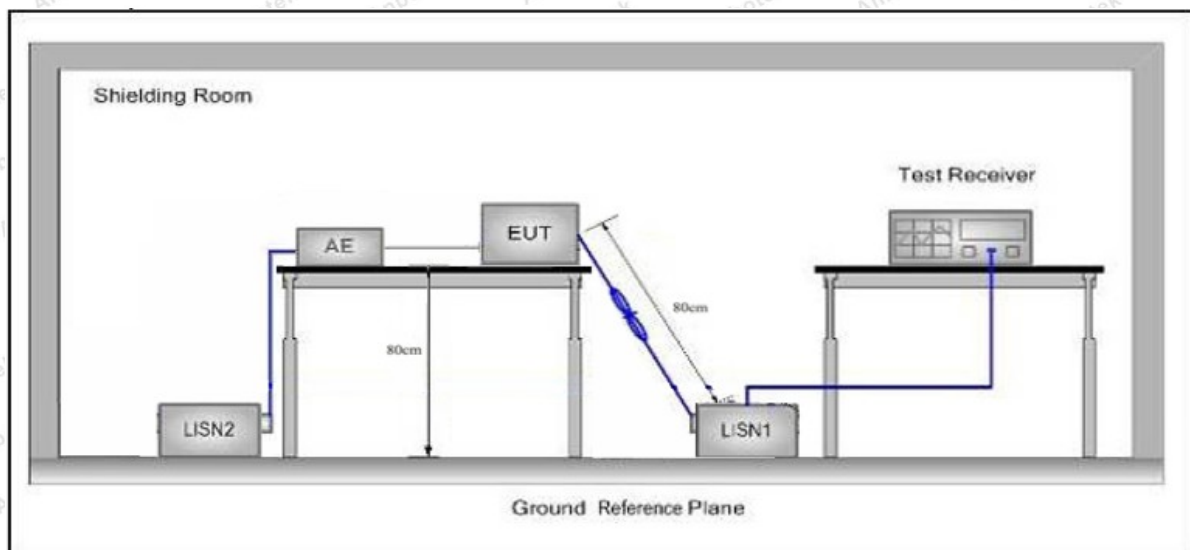
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.249	Spurious Emission	PASS
15.215(c)	20dB Bandwidth	PASS
15.249(c)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

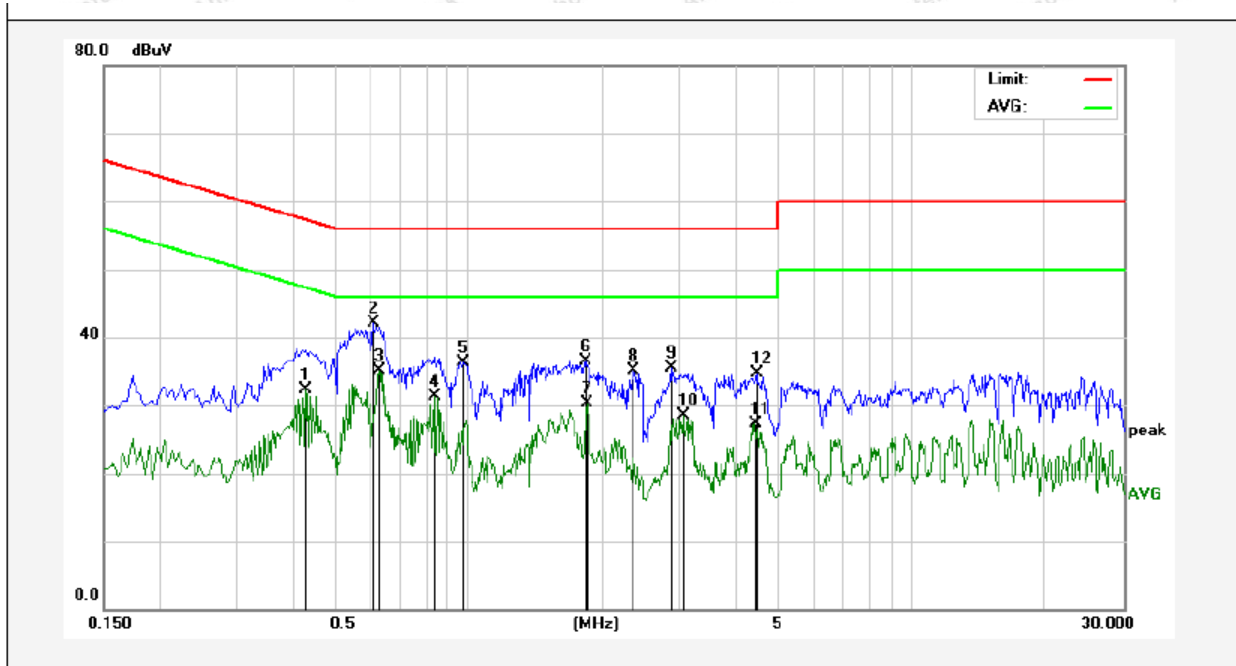
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages.

Conducted Emission Test Data

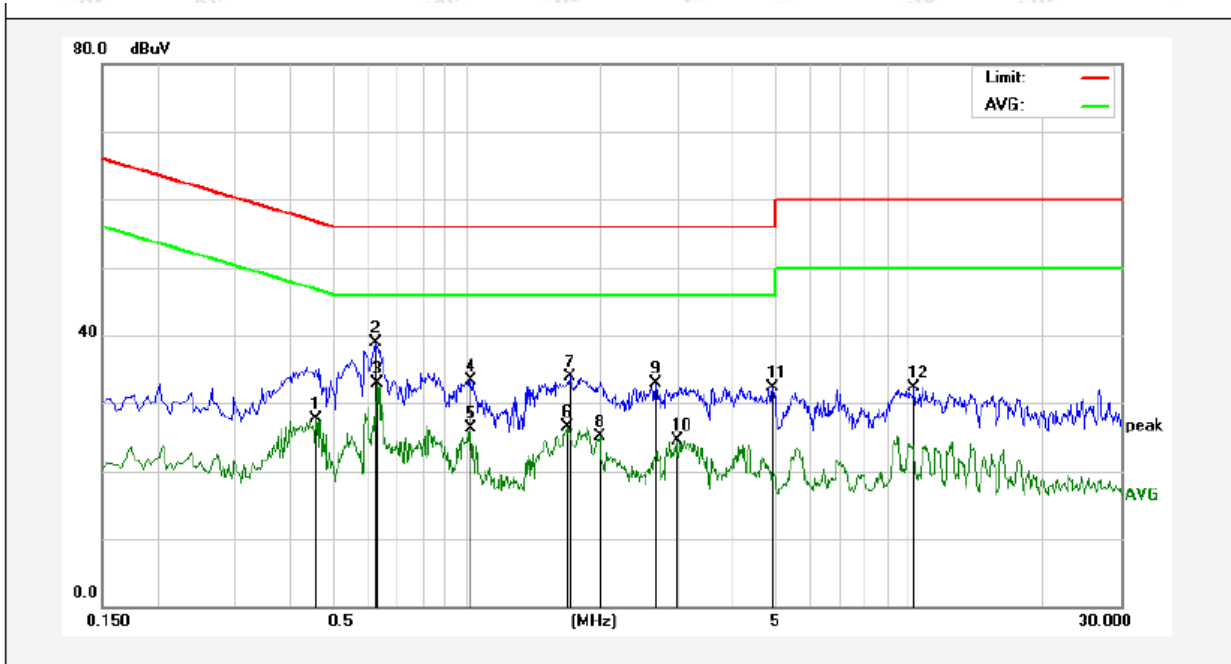
Test Site: 1# Shielded Room
 Adapter: MODEL: MCUS-050200
 Operating Condition: CH01
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4300	12.43	19.95	32.38	47.25	-14.87	AVG	
2	0.6100	22.07	20.01	42.08	56.00	-13.92	QP	
3	0.6300	15.18	20.02	35.20	46.00	-10.80	AVG	
4	0.8420	11.13	20.08	31.21	46.00	-14.79	AVG	
5	0.9780	16.19	20.11	36.30	56.00	-19.70	QP	
6	1.8380	16.40	20.14	36.54	56.00	-19.46	QP	
7	1.8540	10.11	20.14	30.25	46.00	-15.75	AVG	
8	2.3540	14.86	20.15	35.01	56.00	-20.99	QP	
9	2.8620	15.25	20.16	35.41	56.00	-20.59	QP	
10	3.0540	8.27	20.16	28.43	46.00	-17.57	AVG	
11	4.4300	7.12	20.19	27.31	46.00	-18.69	AVG	
12	4.4740	14.56	20.19	34.75	56.00	-21.25	QP	

Conducted Emission Test Data

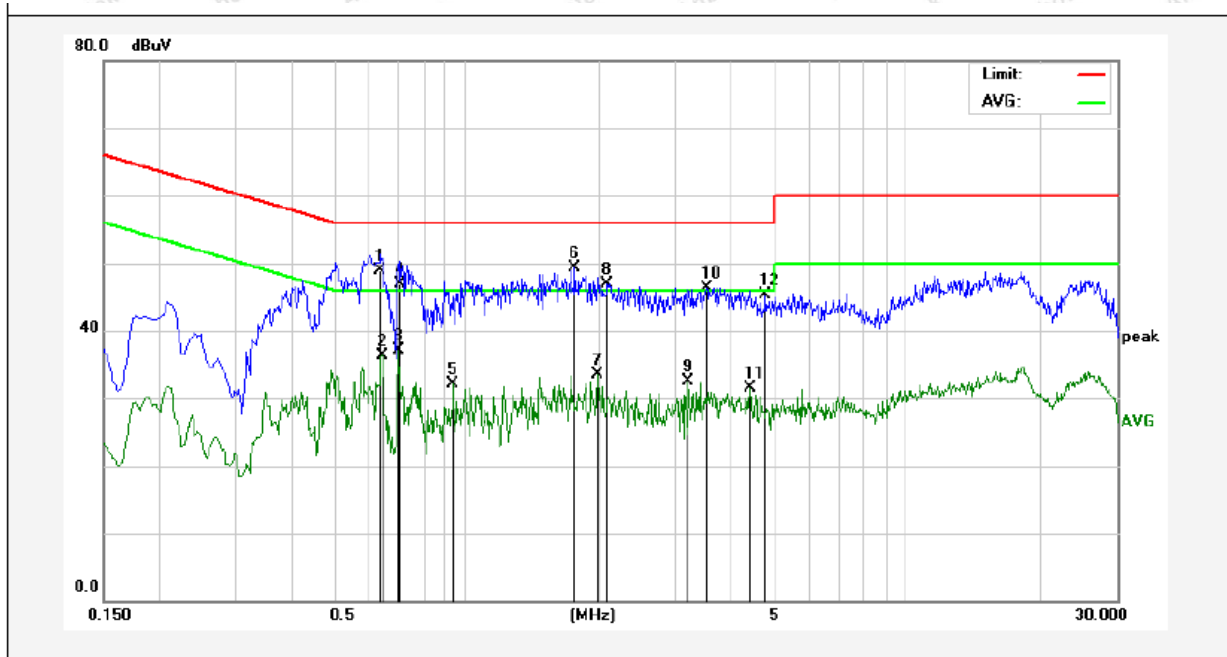
Test Site: 1# Shielded Room
 Adapter: MODEL: MCUS-050200
 Operating Condition: CH01
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit dBUV	Over Limit (dB)	Detector	Remark
1	0.4580	7.74	19.96	27.70	46.73	-19.03	AVG	
2	0.6220	18.97	20.02	38.99	56.00	-17.01	QP	
3	0.6300	12.81	20.02	32.83	46.00	-13.17	AVG	
4	1.0260	13.15	20.12	33.27	56.00	-22.73	QP	
5	1.0260	6.13	20.12	26.25	46.00	-19.75	AVG	
6	1.6860	6.46	20.13	26.59	46.00	-19.41	AVG	
7	1.7140	13.73	20.13	33.86	56.00	-22.14	QP	
8	1.9980	4.88	20.14	25.02	46.00	-20.98	AVG	
9	2.6740	12.66	20.15	32.81	56.00	-23.19	QP	
10	2.9820	4.38	20.16	24.54	46.00	-21.46	AVG	
11	4.9140	12.12	20.20	32.32	56.00	-23.68	QP	
12	10.2340	11.95	20.34	32.29	60.00	-27.71	QP	

Conducted Emission Test Data

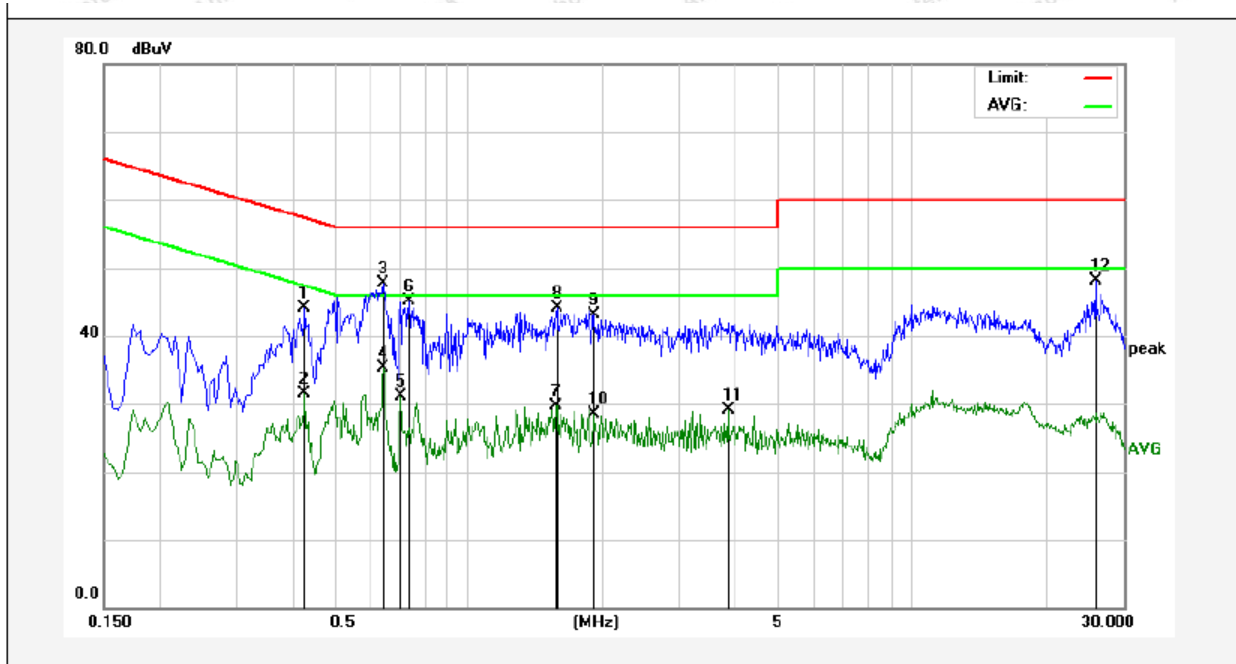
Test Site: 1# Shielded Room
 Adapter: MODEL: MCUS-050200
 Operating Condition: CH01
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.6380	28.95	20.02	48.97	56.00	-7.03	QP	
2	0.6460	16.38	20.02	36.40	46.00	-9.60	AVG	
3	0.7019	17.03	20.04	37.07	46.00	-8.93	AVG	
4	0.7060	26.81	20.04	46.85	56.00	-9.15	QP	
5	0.9340	12.06	20.10	32.16	46.00	-13.84	AVG	
6	1.7660	29.18	20.14	49.32	56.00	-6.68	QP	
7	1.9860	13.37	20.14	33.51	46.00	-12.49	AVG	
8	2.0900	26.81	20.14	46.95	56.00	-9.05	QP	
9	3.2060	12.30	20.16	32.46	46.00	-13.54	AVG	
10	3.5100	26.18	20.17	46.35	56.00	-9.65	QP	
11	4.4260	11.27	20.19	31.46	46.00	-14.54	AVG	
12	4.7940	25.03	20.20	45.23	56.00	-10.77	QP	

Conducted Emission Test Data

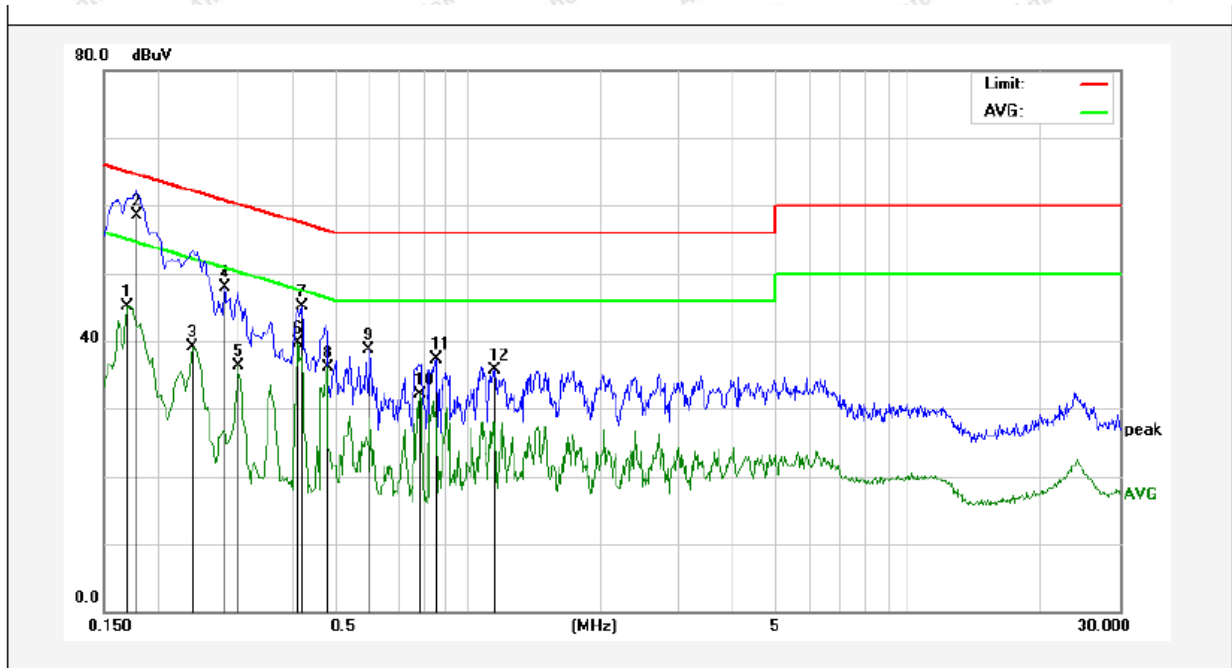
Test Site: 1# Shielded Room
 Adapter: MODEL: MCUS-050200
 Operating Condition: CH01
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4260	24.14	19.95	44.09	57.33	-13.24	QP	
2	0.4260	11.59	19.95	31.54	47.33	-15.79	AVG	
3	0.6419	27.74	20.02	47.76	56.00	-8.24	QP	
4	0.6419	15.19	20.02	35.21	46.00	-10.79	AVG	
5	0.7019	11.16	20.04	31.20	46.00	-14.80	AVG	
6	0.7340	25.04	20.05	45.09	56.00	-10.91	QP	
7	1.5740	9.67	20.13	29.80	46.00	-16.20	AVG	
8	1.5820	23.88	20.13	44.01	56.00	-11.99	QP	
9	1.9140	22.93	20.14	43.07	56.00	-12.93	QP	
10	1.9220	8.41	20.14	28.55	46.00	-17.45	AVG	
11	3.8500	8.85	20.18	29.03	46.00	-16.97	AVG	
12	25.8700	27.77	20.28	48.05	60.00	-11.95	QP	

Conducted Emission Test Data

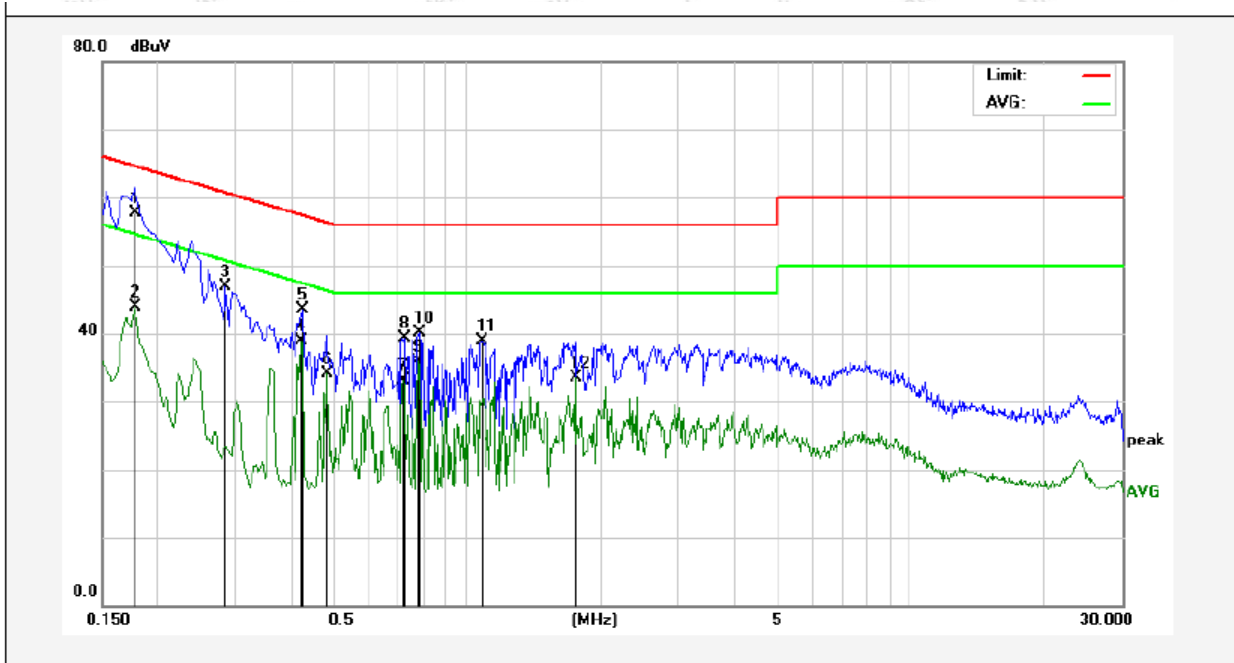
Test Site: 1# Shielded Room
 Adapter: MODEL: BI12T-050180-BdUU
 Operating Condition: CH01
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1700	25.13	19.90	45.03	54.96	-9.93	AVG	
2	0.1780	38.57	19.90	58.47	64.57	-6.10	QP	
3	0.2380	19.12	19.89	39.01	52.16	-13.15	AVG	
4	0.2819	27.92	19.89	47.81	60.76	-12.95	QP	
5	0.3020	16.41	19.89	36.30	50.19	-13.89	AVG	
6	0.4140	19.70	19.94	39.64	47.57	-7.93	AVG	
7	0.4220	25.11	19.94	45.05	57.41	-12.36	QP	
8	0.4820	16.07	19.97	36.04	46.30	-10.26	AVG	
9	0.5980	18.65	20.01	38.66	56.00	-17.34	QP	
10	0.7820	12.10	20.06	32.16	46.00	-13.84	AVG	
11	0.8500	17.30	20.08	37.38	56.00	-18.62	QP	
12	1.1539	15.54	20.12	35.66	56.00	-20.34	QP	

Conducted Emission Test Data

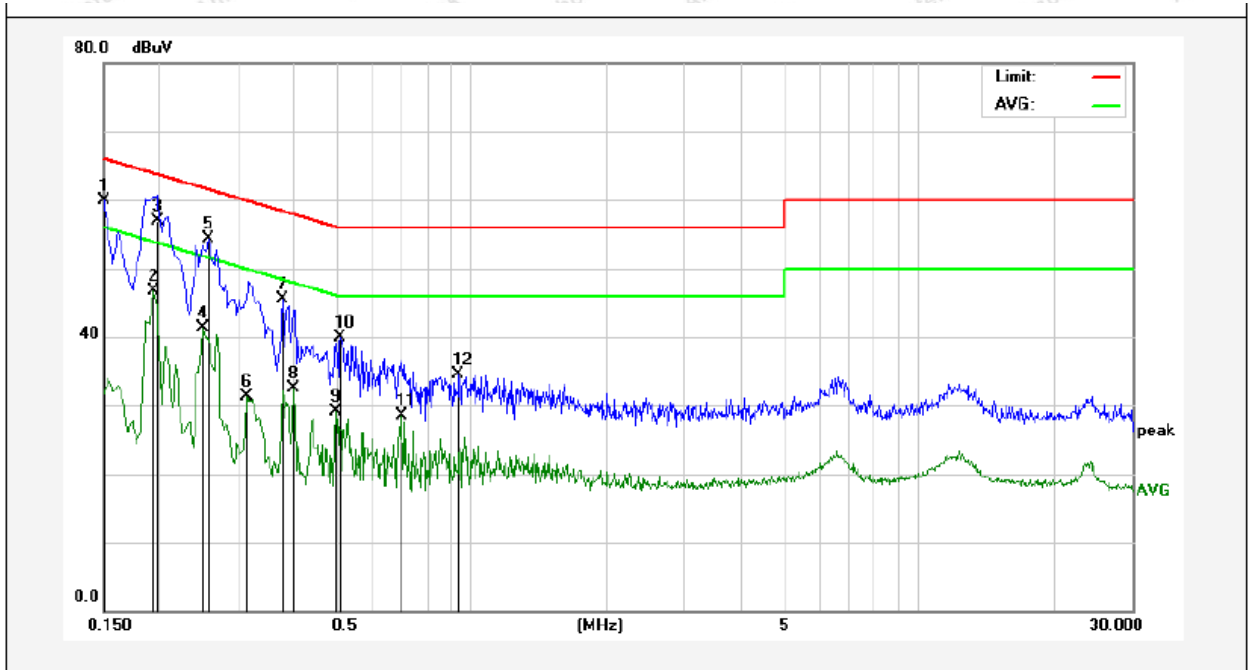
Test Site: 1# Shielded Room
 Adapter: MODEL: BI12T-050180-BdUU
 Operating Condition: CH01
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit dBUV	Over Limit (dB)	Detector	Remark
1	0.1780	37.77	19.90	57.67	64.57	-6.90	QP	
2	0.1780	24.06	19.90	43.96	54.57	-10.61	AVG	
3	0.2860	27.08	19.89	46.97	60.64	-13.67	QP	
4	0.4220	18.95	19.94	38.89	47.41	-8.52	AVG	
5	0.4260	23.62	19.95	43.57	57.33	-13.76	QP	
6	0.4820	14.12	19.97	34.09	46.30	-12.21	AVG	
7	0.7180	12.97	20.04	33.01	46.00	-12.99	AVG	
8	0.7220	19.32	20.05	39.37	56.00	-16.63	QP	
9	0.7780	15.75	20.06	35.81	46.00	-10.19	AVG	
10	0.7820	20.02	20.06	40.08	56.00	-15.92	QP	
11	1.0859	18.87	20.12	38.99	56.00	-17.01	QP	
12	1.7540	13.39	20.14	33.53	46.00	-12.47	AVG	

Conducted Emission Test Data

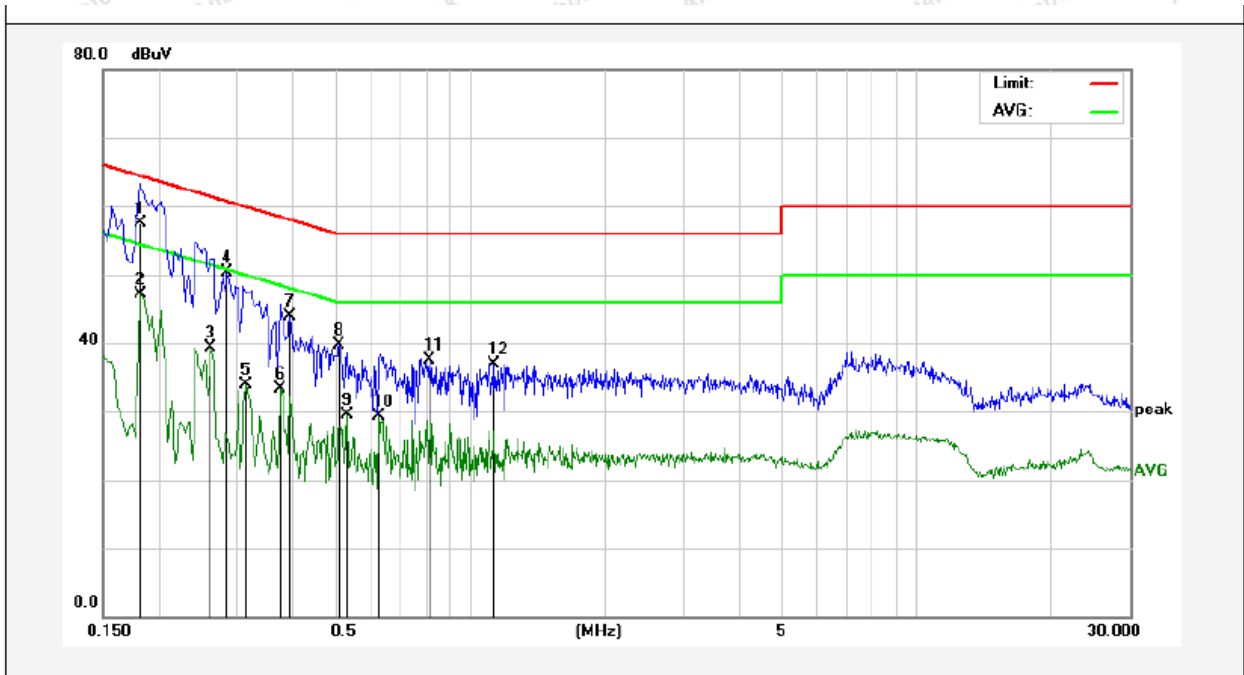
Test Site: 1# Shielded Room
 Adapter: MODEL: BI12T-050180-BdUU
 Operating Condition: CH01
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	40.00	19.90	59.90	65.99	-6.09	QP	
2	0.1940	26.87	19.90	46.77	53.86	-7.09	AVG	
3	0.1980	36.94	19.90	56.84	63.69	-6.85	QP	
4	0.2500	21.42	19.89	41.31	51.75	-10.44	AVG	
5	0.2580	34.35	19.89	54.24	61.49	-7.25	QP	
6	0.3140	11.33	19.90	31.23	49.86	-18.63	AVG	
7	0.3780	25.48	19.93	45.41	58.32	-12.91	QP	
8	0.3980	12.55	19.93	32.48	47.89	-15.41	AVG	
9	0.4980	9.15	19.98	29.13	46.03	-16.90	AVG	
10	0.5100	19.89	19.98	39.87	56.00	-16.13	QP	
11	0.6980	8.52	20.04	28.56	46.00	-17.44	AVG	
12	0.9380	14.31	20.10	34.41	56.00	-21.59	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
 Adapter: MODEL: BI12T-050180-BdUU
 Operating Condition: CH01
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 23.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1819	37.62	19.90	57.52	64.39	-6.87	QP	
2	0.1819	27.27	19.90	47.17	54.39	-7.22	AVG	
3	0.2620	19.47	19.89	39.36	51.36	-12.00	AVG	
4	0.2860	30.42	19.89	50.31	60.64	-10.33	QP	
5	0.3140	13.97	19.90	33.87	49.86	-15.99	AVG	
6	0.3740	13.38	19.92	33.30	48.41	-15.11	AVG	
7	0.3940	24.03	19.93	43.96	57.98	-14.02	QP	
8	0.5100	19.69	19.98	39.67	56.00	-16.33	QP	
9	0.5299	9.53	19.99	29.52	46.00	-16.48	AVG	
10	0.6220	9.28	20.02	29.30	46.00	-16.70	AVG	
11	0.8100	17.40	20.07	37.47	56.00	-18.53	QP	
12	1.1340	16.83	20.12	36.95	56.00	-19.05	QP	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard		FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)	
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300	
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30	
	1.705MHz-30MHz	30	-	-	30	
	30MHz~88MHz	100	40.0	Quasi-peak	3	
	88MHz~216MHz	150	43.5	Quasi-peak	3	
	216MHz~960MHz	200	46.0	Quasi-peak	3	
	960MHz~1000MHz	500	54.0	Quasi-peak	3	
			54.0	Average	3	
	Above 1000MHz	-	74.0	Peak	3	

Remark:
 (1)The lower limit shall apply at the transition frequency.
 (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Standard		FCC Part15 C Section 15.249				
Test Limit	Fundamental frequency (MHz)	Field Strength	Limit (microvolts/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	902~928	Fundamental	50	94.0	Quasi-peak	3
			500	74.0	Average	3
		Harmonics	-	94.0	Peak	3

Remark:
 (1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

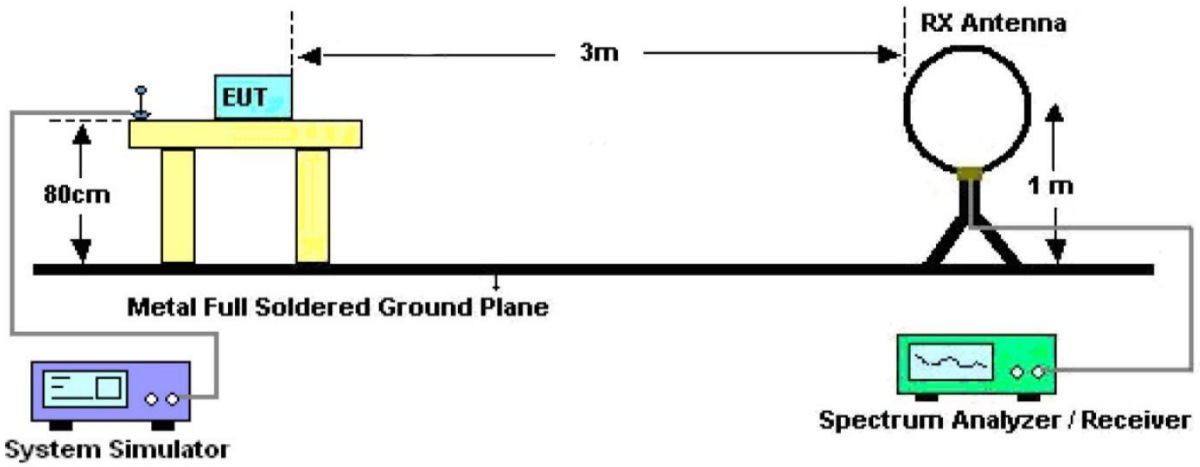


Figure 1. Below 30MHz

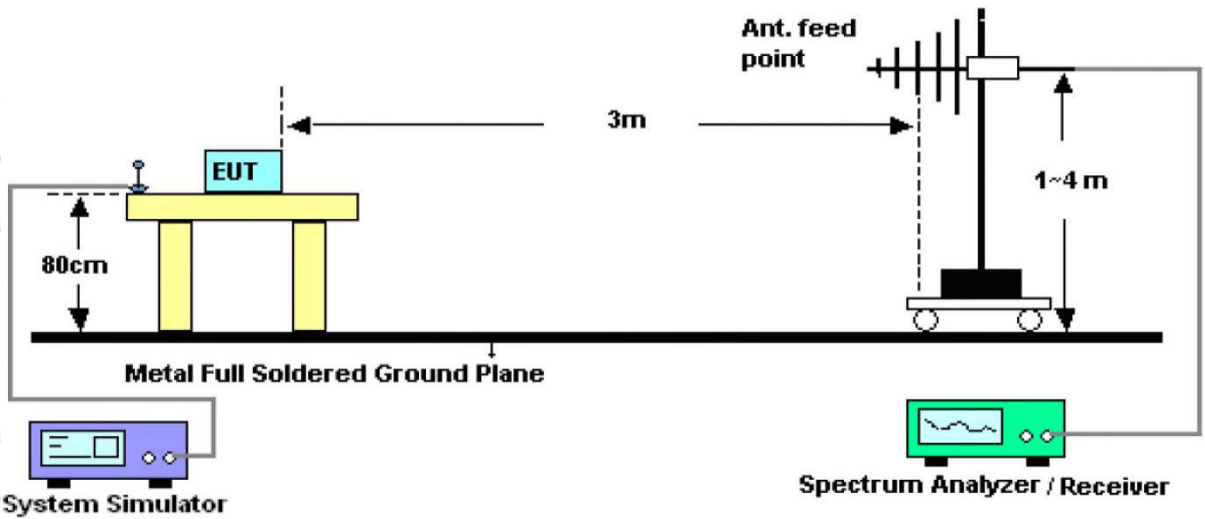


Figure 2. 30MHz to 1GHz

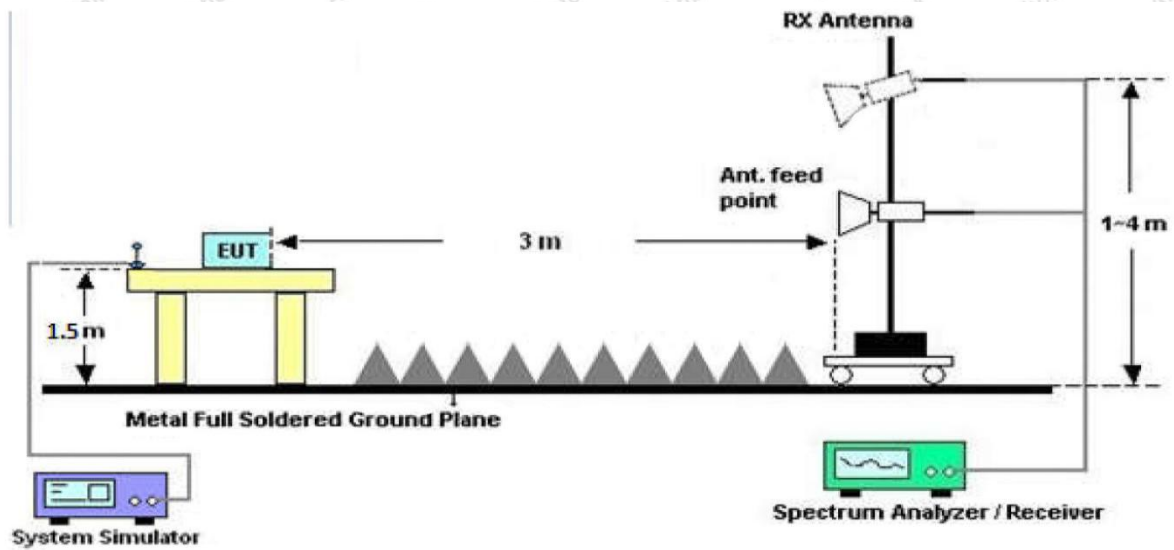


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 120KHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:

RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

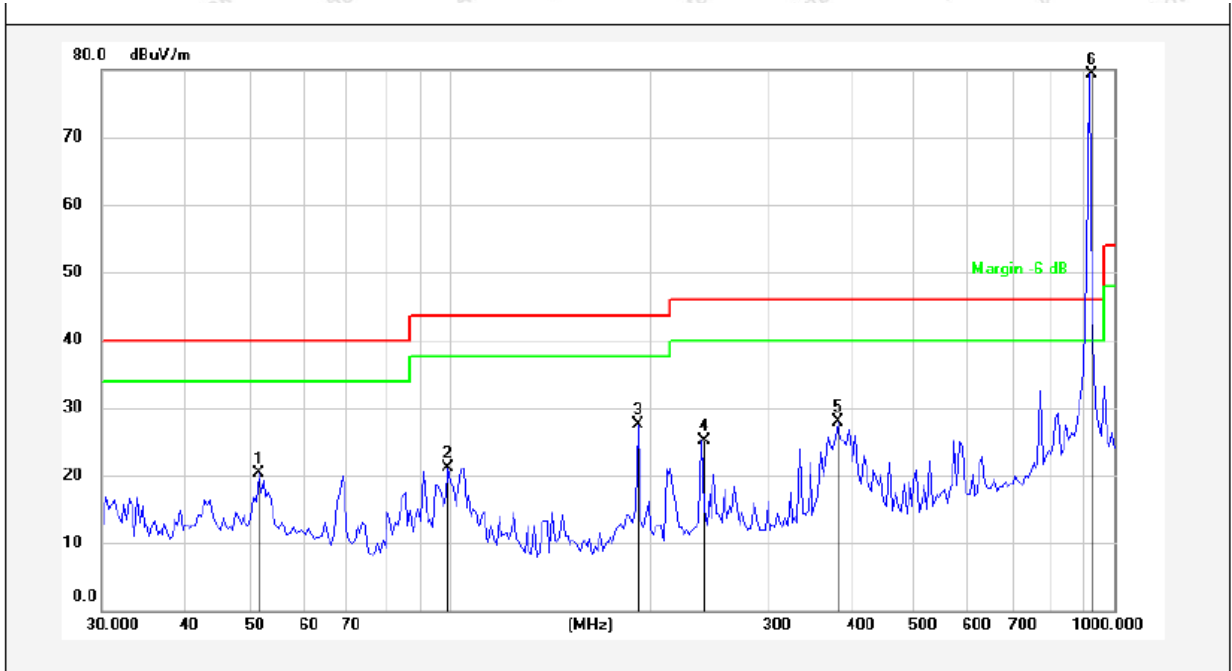
PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (30~1000MHz)

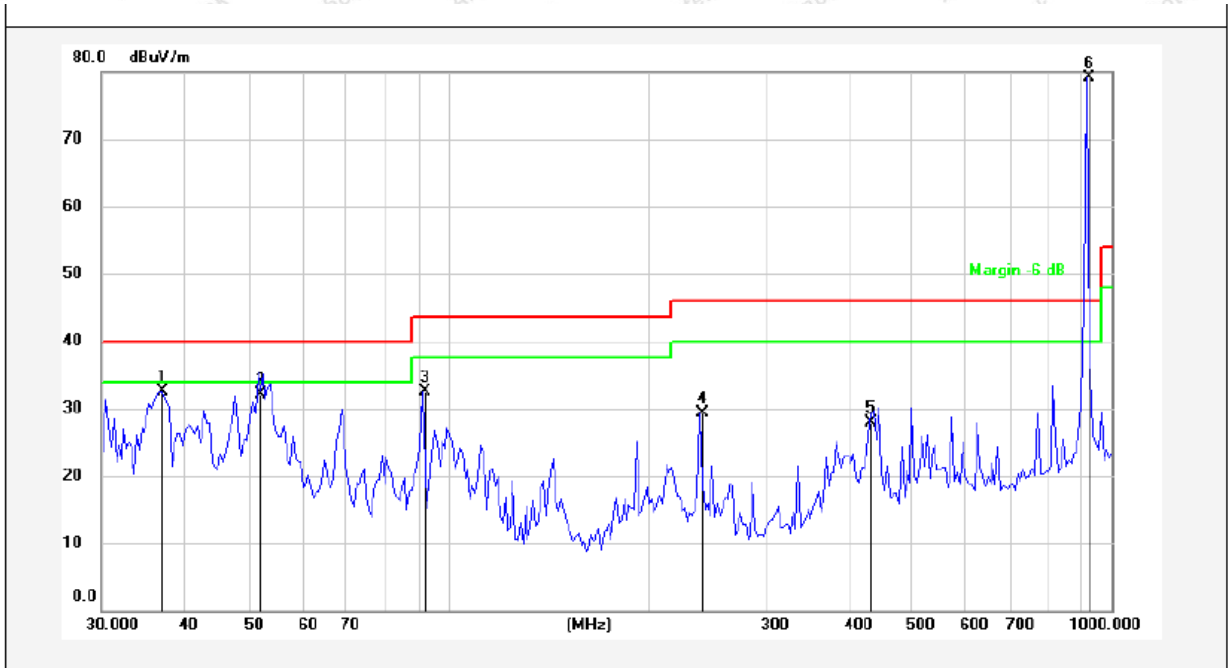
Job No.: SZAWW181008001-02 Temp.(°C)/Hum.(%RH): 17.7°C/51%RH
 Standard: FCC PART 15C Power Source: DC 7.68V battery inside
 Test Mode: CH01 Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	51.6615	36.25	-15.90	20.35	40.00	-19.65	QP	300	0	
2	99.7027	41.69	-20.53	21.16	43.50	-22.34	QP	300	74	
3	192.4185	48.71	-21.29	27.42	43.50	-16.08	QP	300	154	
4	239.5670	43.87	-18.81	25.06	46.00	-20.94	QP	300	235	
5	384.6055	42.74	-14.90	27.84	46.00	-18.16	QP	300	281	
6	916.0687	86.59	-7.21	79.38	46.00	33.38	QP	300	360	

Test Results (30~1000MHz)

Job No.: SZAWW181008001-02 Temp.(°C)/Hum.(%RH): 17.7°C/51%RH
 Standard: FCC PART 15C Power Source: DC 7.68V battery inside
 Test Mode: CH01 Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.7018	48.01	-15.46	32.55	40.00	-7.45	QP	300	0	
2	51.6616	47.06	-14.90	32.16	40.00	-7.84	QP	300	78	
3	91.3346	48.68	-16.25	32.43	43.50	-11.07	QP	300	162	
4	239.5670	44.02	-14.79	29.23	46.00	-16.77	QP	300	214	
5	431.0316	41.09	-13.21	27.88	46.00	-18.12	QP	300	295	
6	916.0687	85.30	-6.21	79.09	46.00	33.09	QP	300	360	

Radiated Suprious Emission

Frequency	Antenna	Reading	Cable Loss	Ant Factor	Amplifier	Level	Limits	Margin	Det.
(MHz)	Pol.	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode
1830.0000	H	45.08	7.39	28.73	26.31	54.89	74	-19.11	PK
1830.0000	H	35.41	7.39	28.73	26.31	45.22	54	-8.78	AV
2745.0000	H	44.18	8.10	29.71	27.01	54.98	74	-19.02	PK
2745.0000	H	33.98	8.10	29.71	27.01	44.78	54	-9.22	AV
3660.0000	H	--	--	--	--	--	--	--	PK
3660.0000	H	--	--	--	--	--	--	--	AV
1830.0000	V	46.16	7.39	28.73	26.31	55.97	74	-18.03	PK
1830.0000	V	36.07	7.39	28.73	26.31	45.88	54	-8.12	AV
2745.0000	V	44.41	8.10	29.71	27.01	55.21	74	-18.79	PK
2745.0000	V	33.98	8.10	29.71	27.01	44.78	54	-9.22	AV
3660.0000	V	--	--	--	--	--	--	--	PK
3660.0000	V	--	--	--	--	--	--	--	AV

Remark:

1. Level = Reading + Cable Loss+Ant Factor-Amplifier
2. "--" Mark indicated Background Noise Level

Radiated Band Edge:

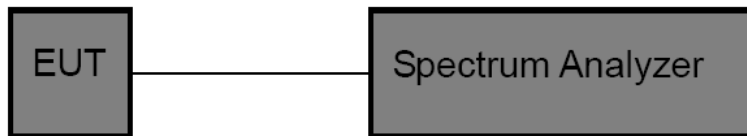
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Det.
902.0000	44.61	22.45	4.48	31.33	40.21	46.00	-5.79	H	QP
928.0000	40.72	22.59	4.54	31.35	36.50	46.00	-9.50	H	QP
902.0000	43.94	22.45	4.48	31.33	39.54	46.00	-6.46	V	QP
928.0000	38.79	22.59	4.54	31.35	34.57	46.00	-11.43	V	QP

5. 20dB Bandwidth Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.249
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5.2. Test Setup



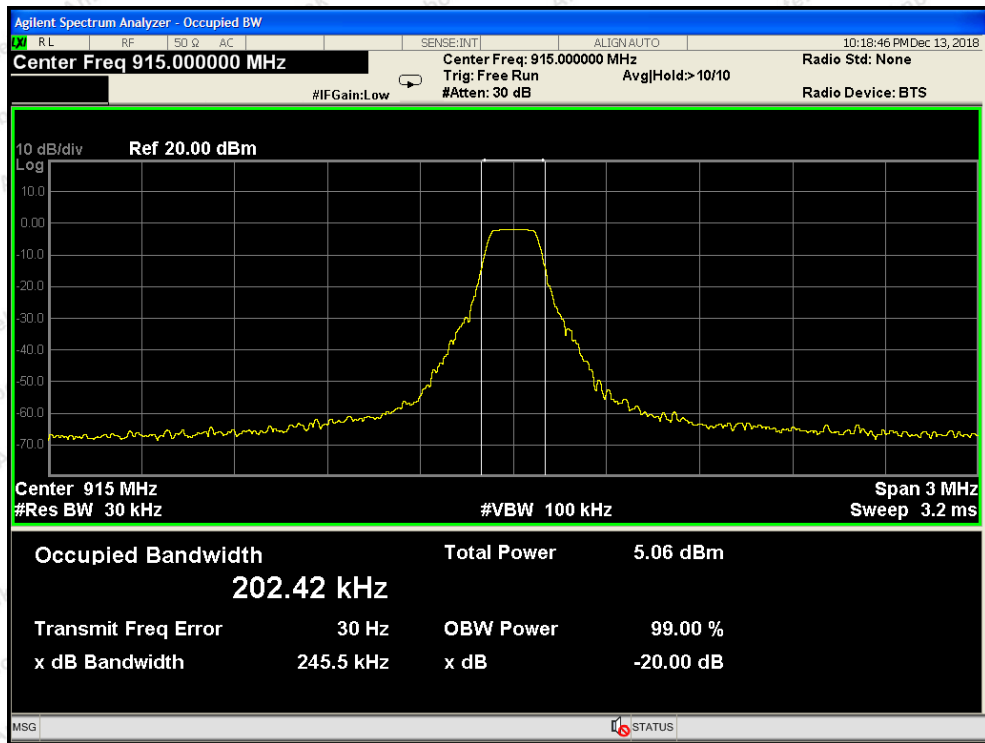
5.3. Test Procedure

- Place the EUT on the table and set it in the transmitting mode.
- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- Set the spectrum analyzer as:
 - RBW = 100kHz, VBW ≥ 3*RBW = 300kHz,
 - Detector= peak
 - Trace mode= Max hold.
 - Sweep- auto couple.
- Mark the peak frequency and -20dB (upper and lower) frequency.
- Repeat until all the rest channels are investigated.

5.4. Test Data

Test Item	: 20dB Bandwidth	Test Mode	: TX Mode
Test Voltage	: DC 7.68V battery inside	Temperature	: 24°C
Test Result	: PASS	Humidity	: 55%RH

Frequency (MHz)	Bandwidth (kHz)	Result
915	245.5	PASS



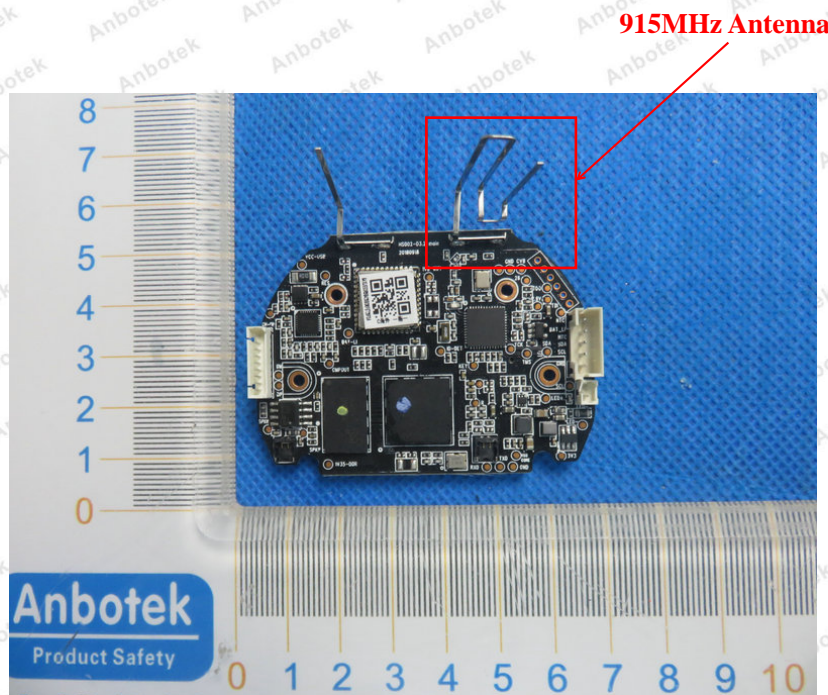
6. Antenna Requirement

6.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	<p>1) 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>

6.2. Antenna Connected Construction

The antenna is a Monopole Antenna which permanently attached, and the best case gain of the antenna is 3 dBi. It complies with the standard requirement.

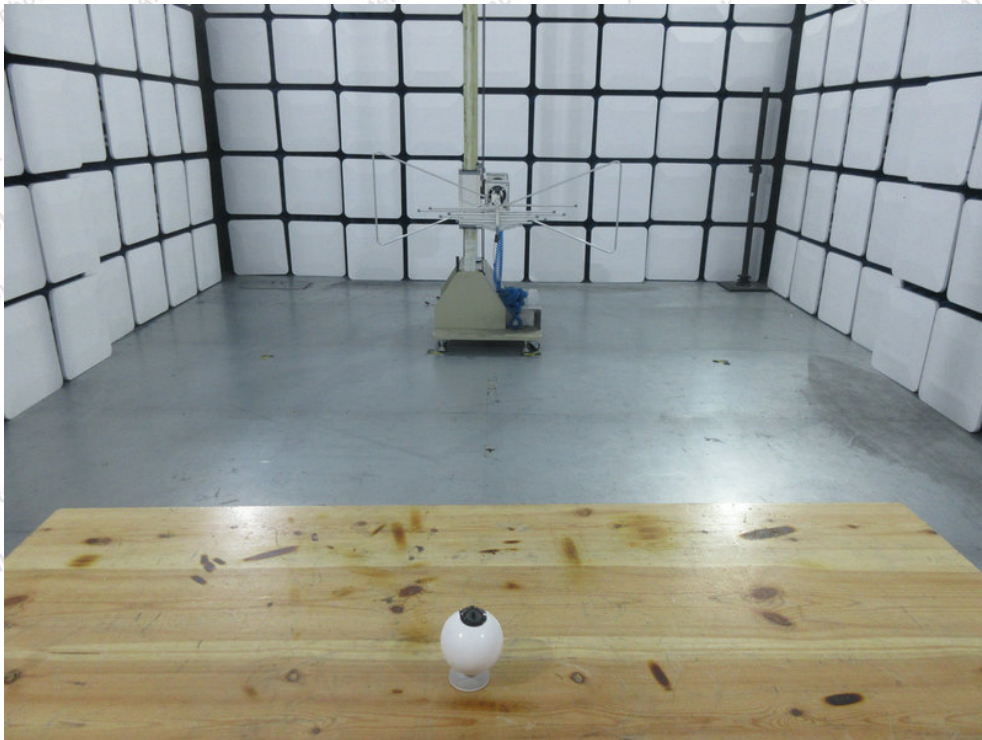


APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Power Line Conducted Emission Test



Photo of Radiation Emission Test

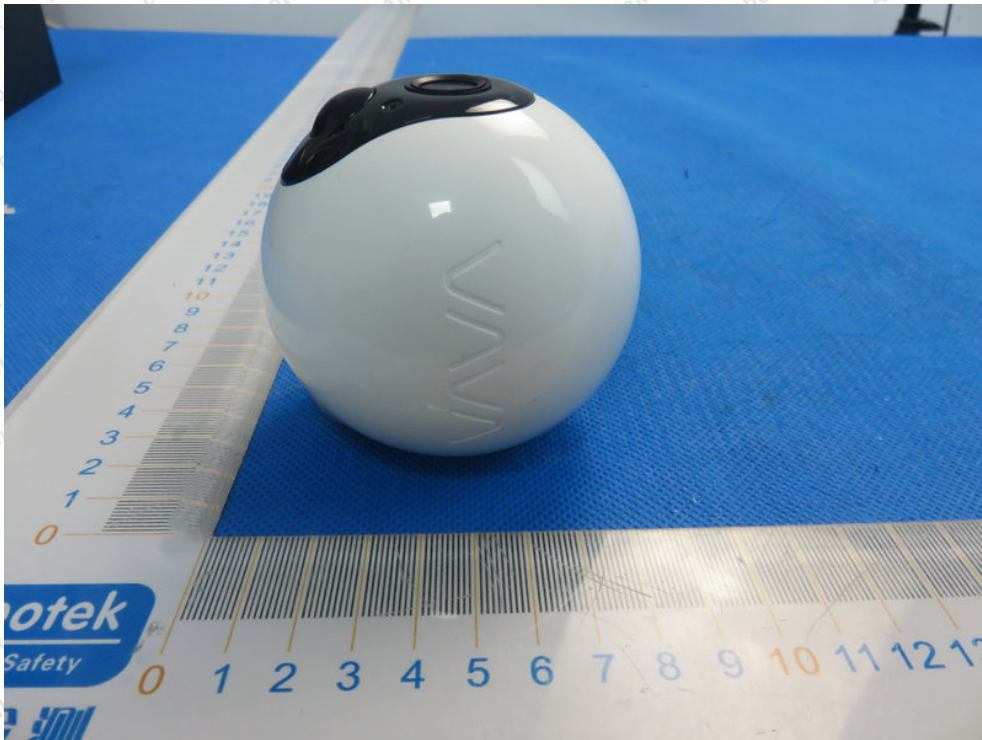
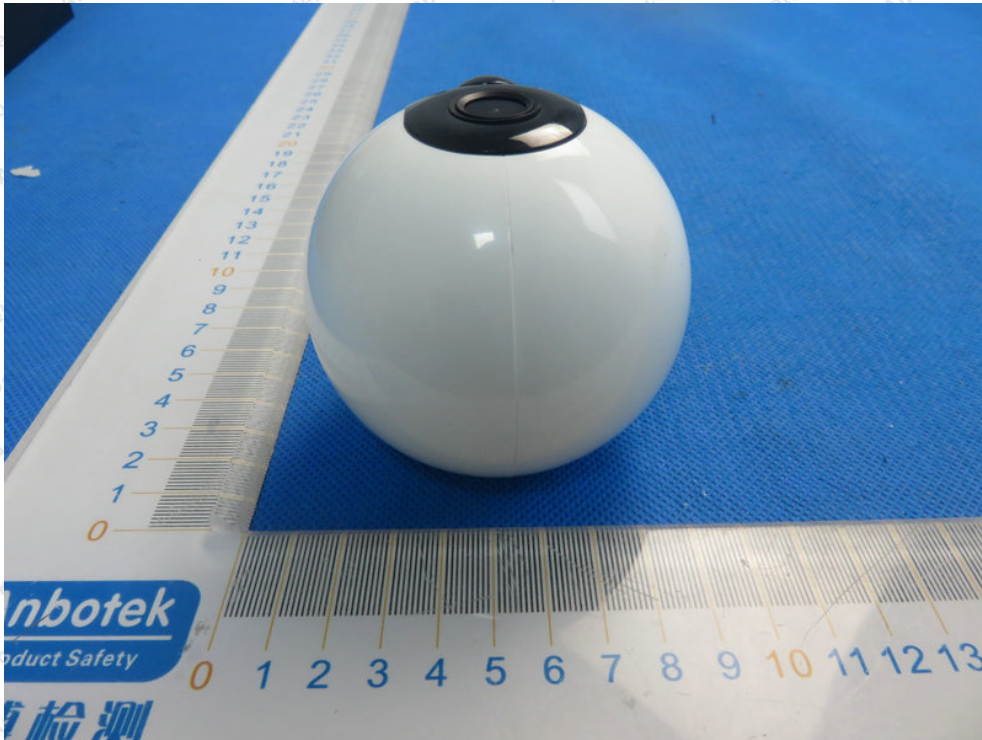




APPENDIX II -- EXTERNAL PHOTOGRAPH

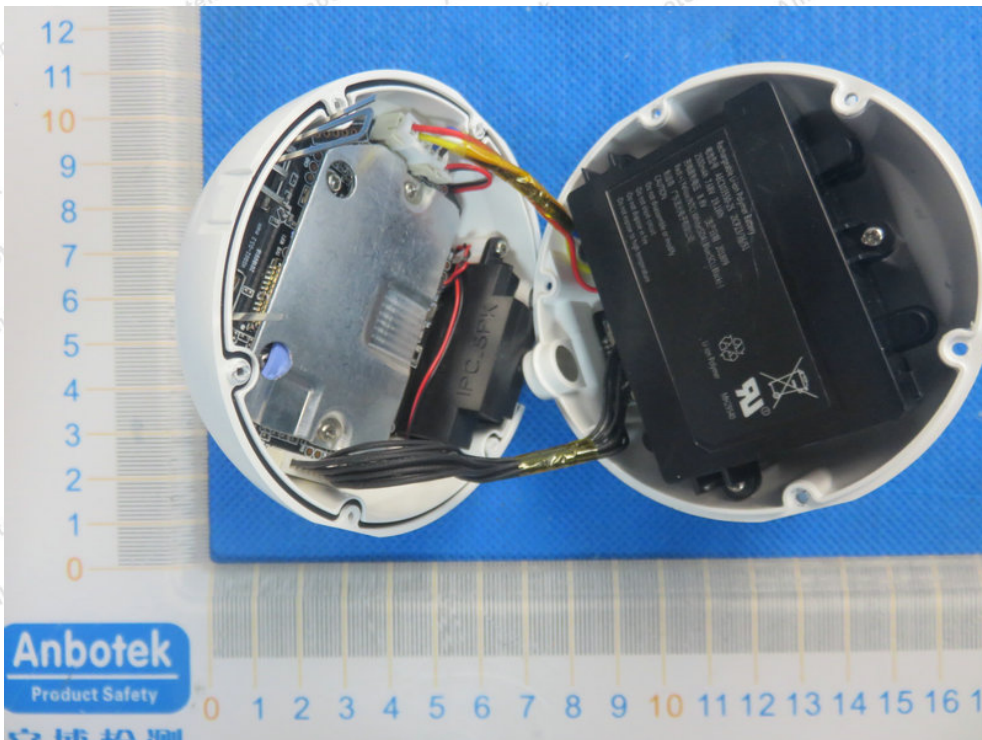


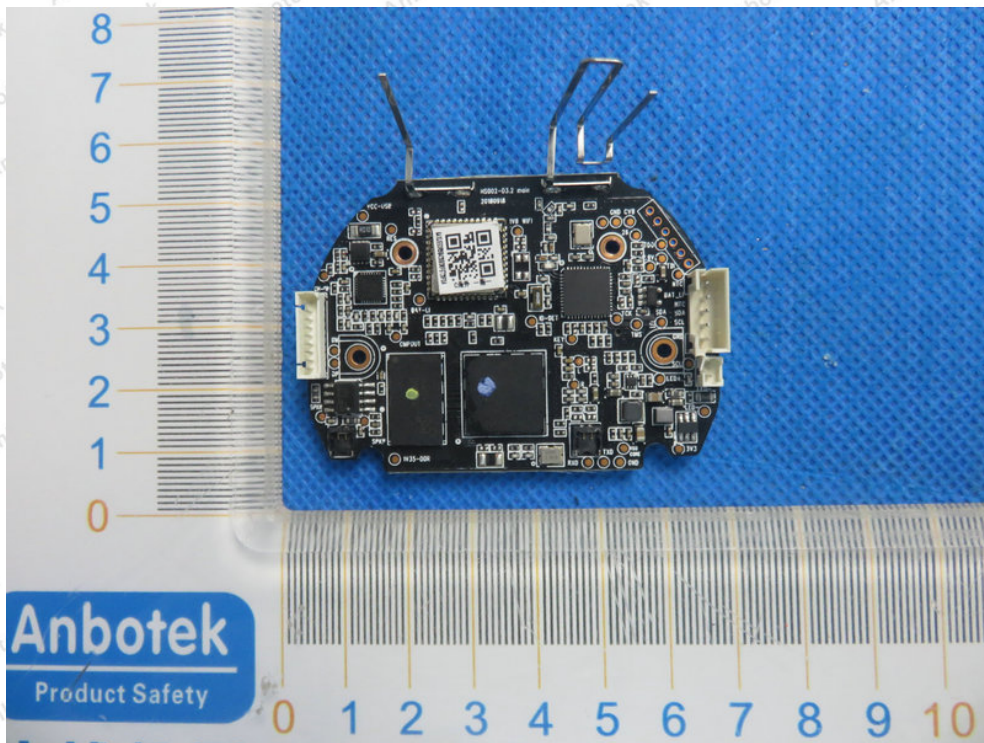
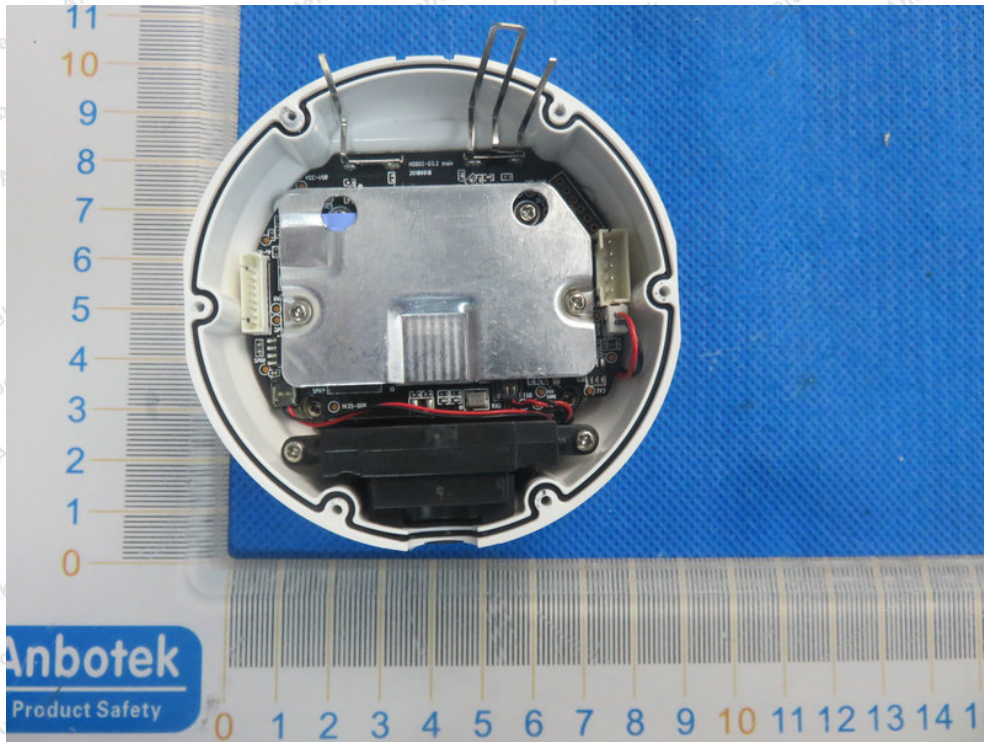


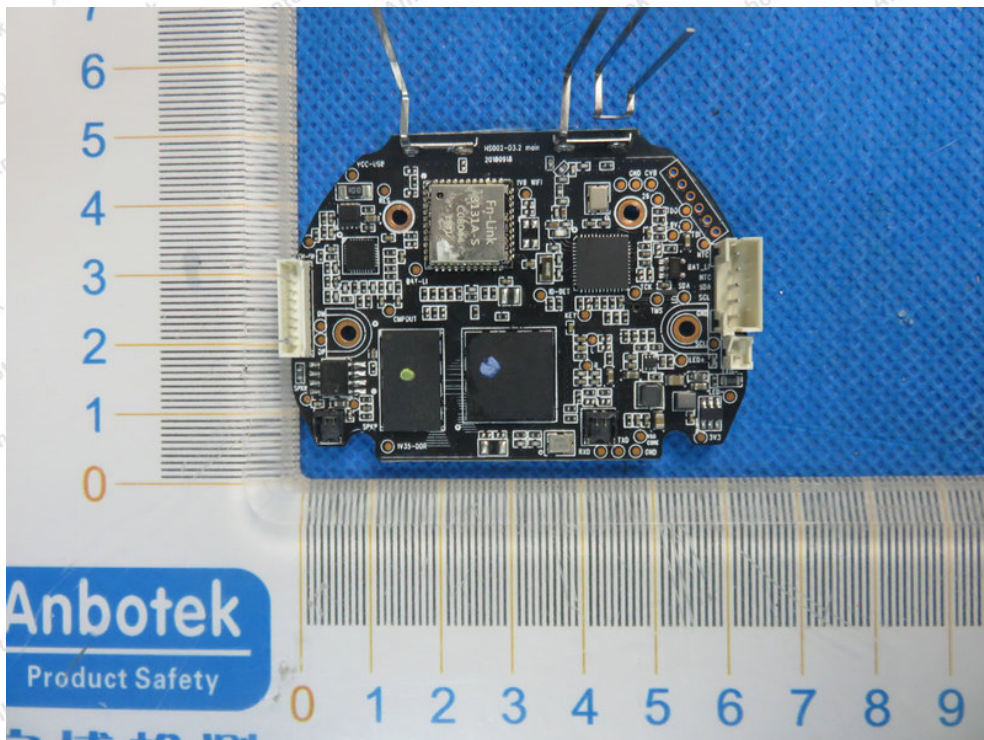
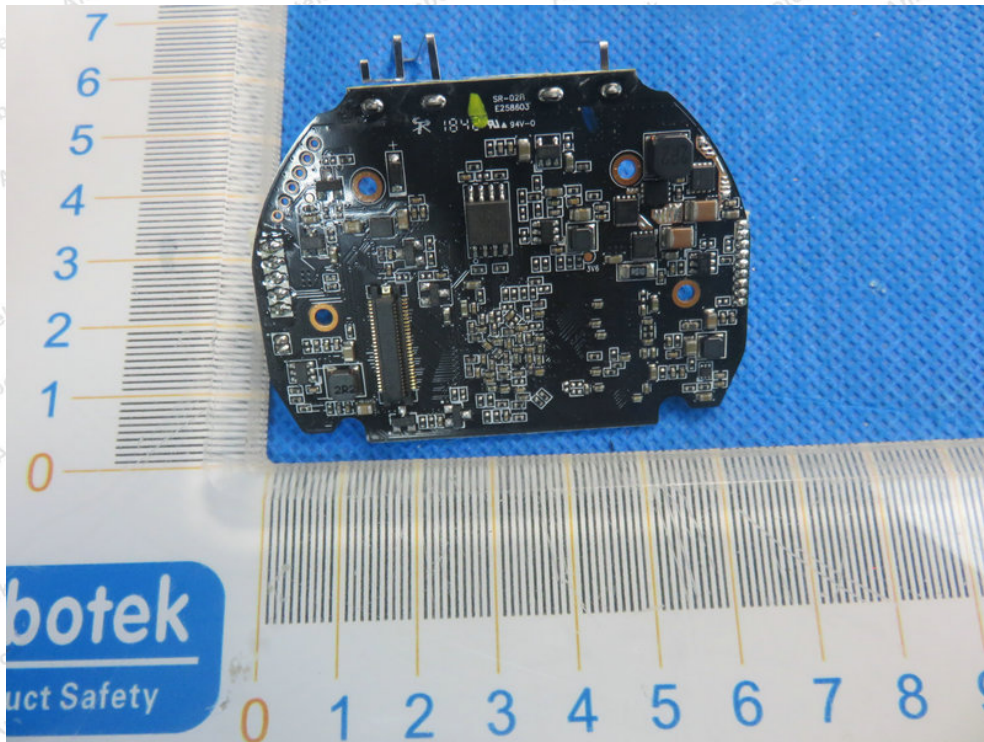


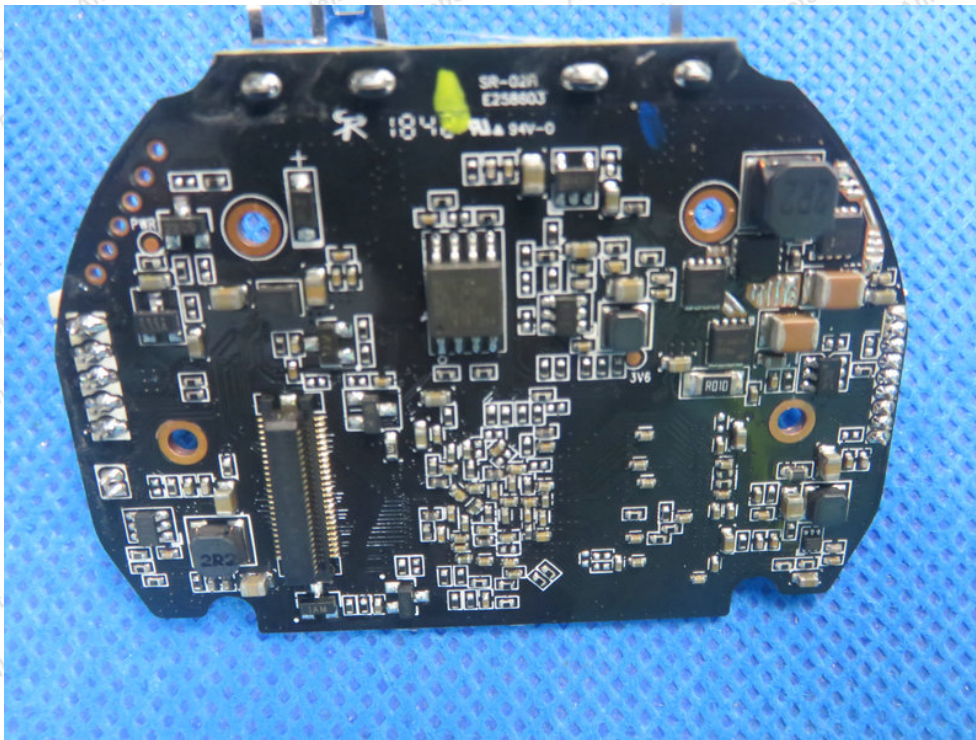
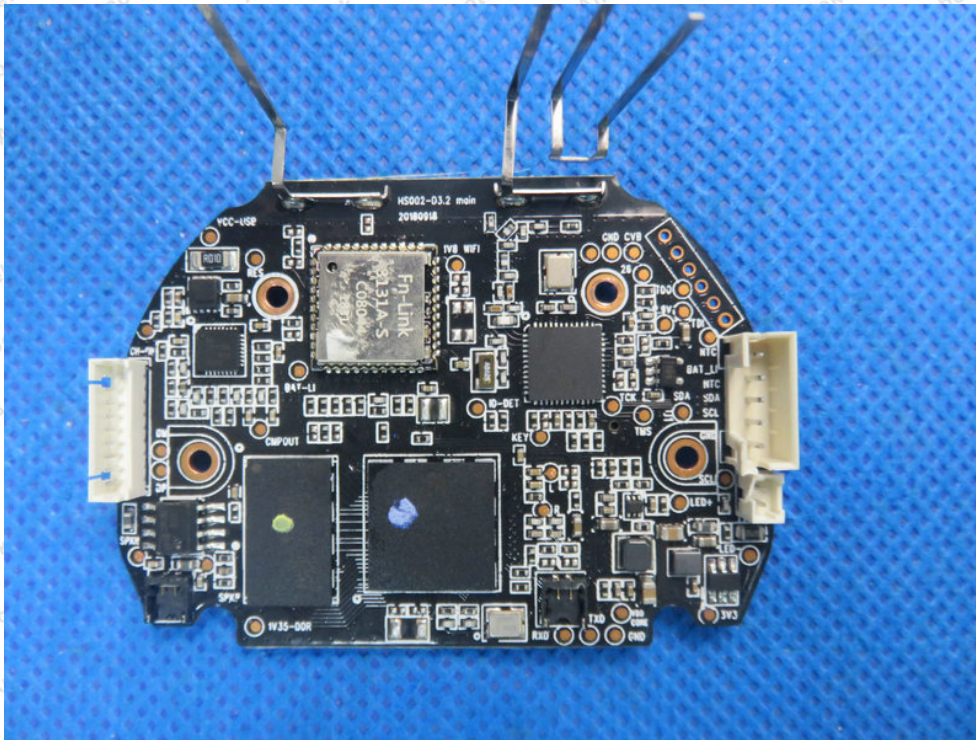


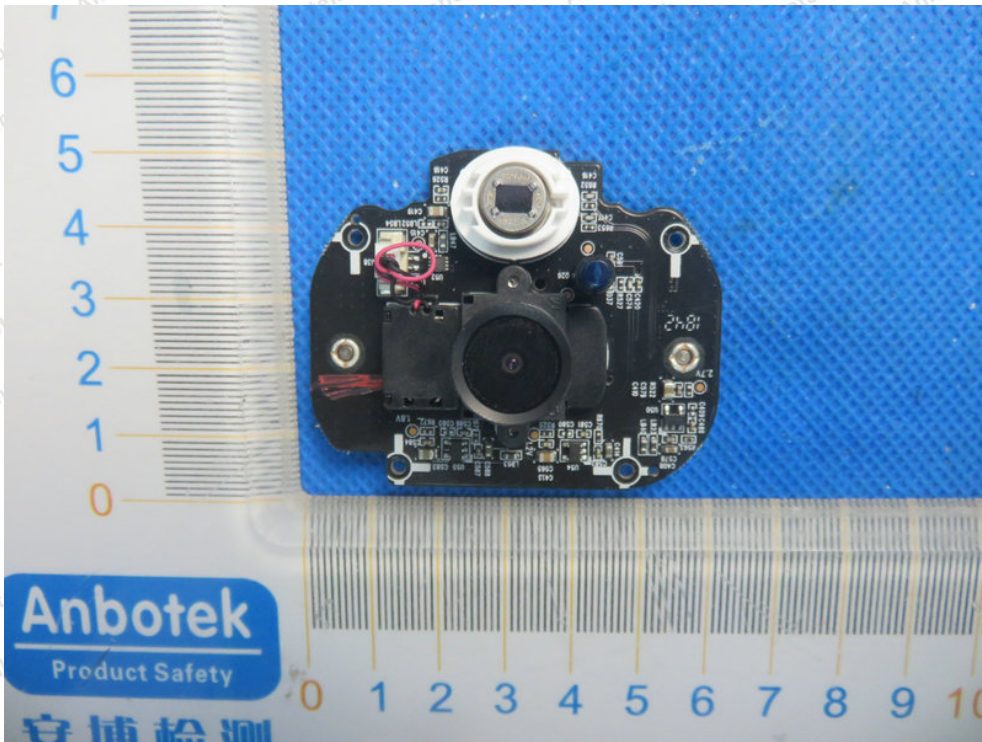
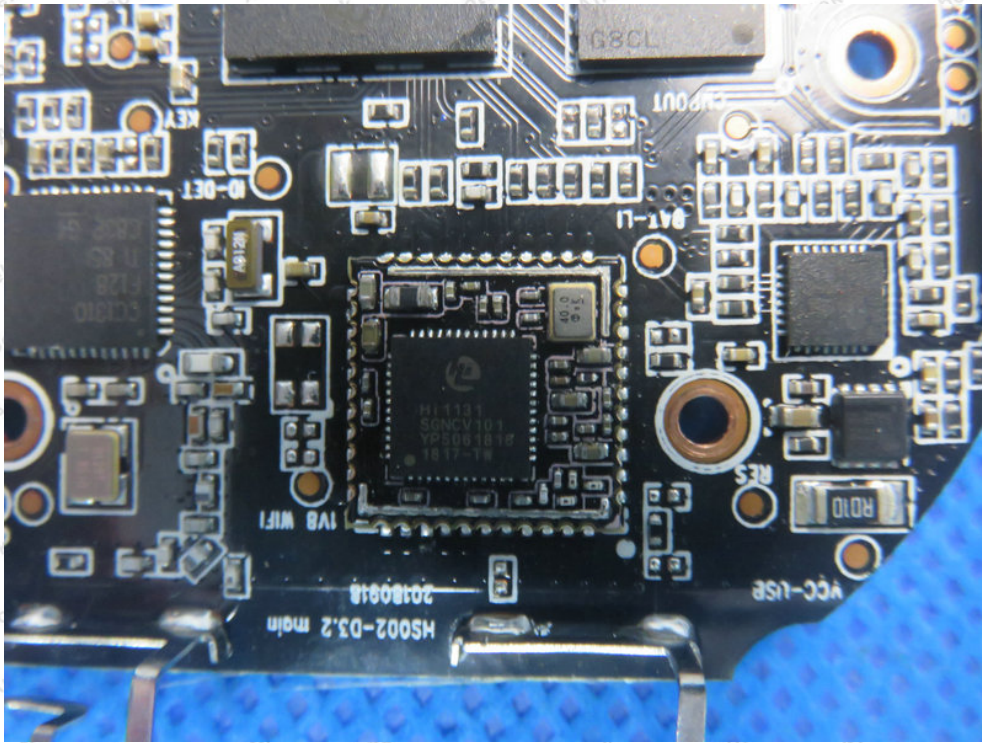
APPENDIX III -- INTERNAL PHOTOGRAPH

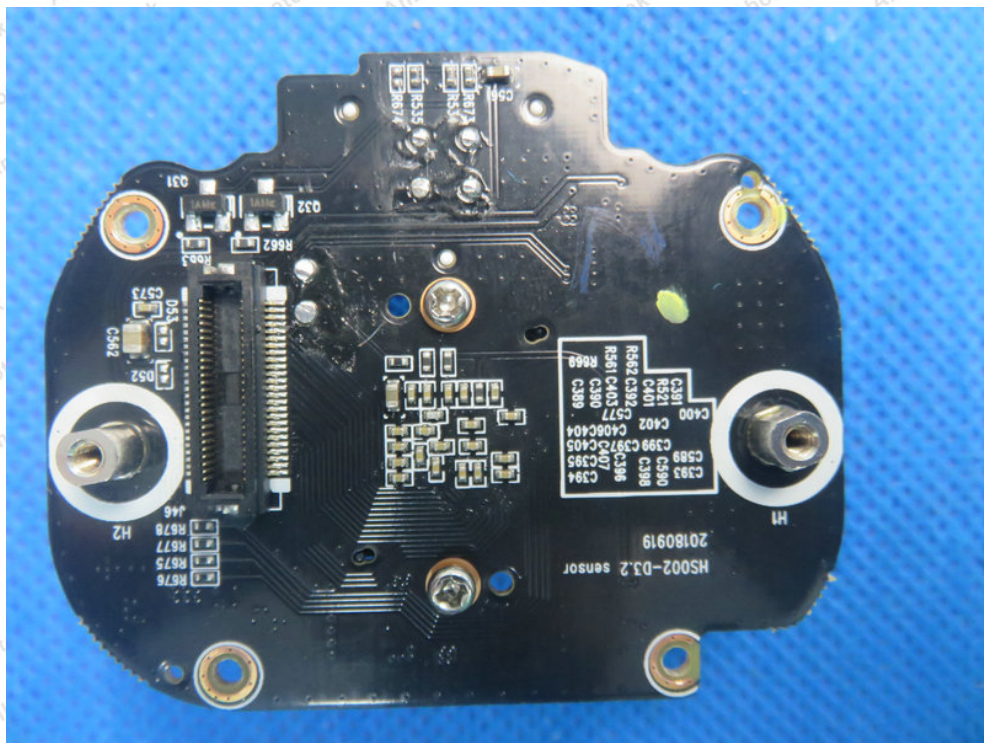
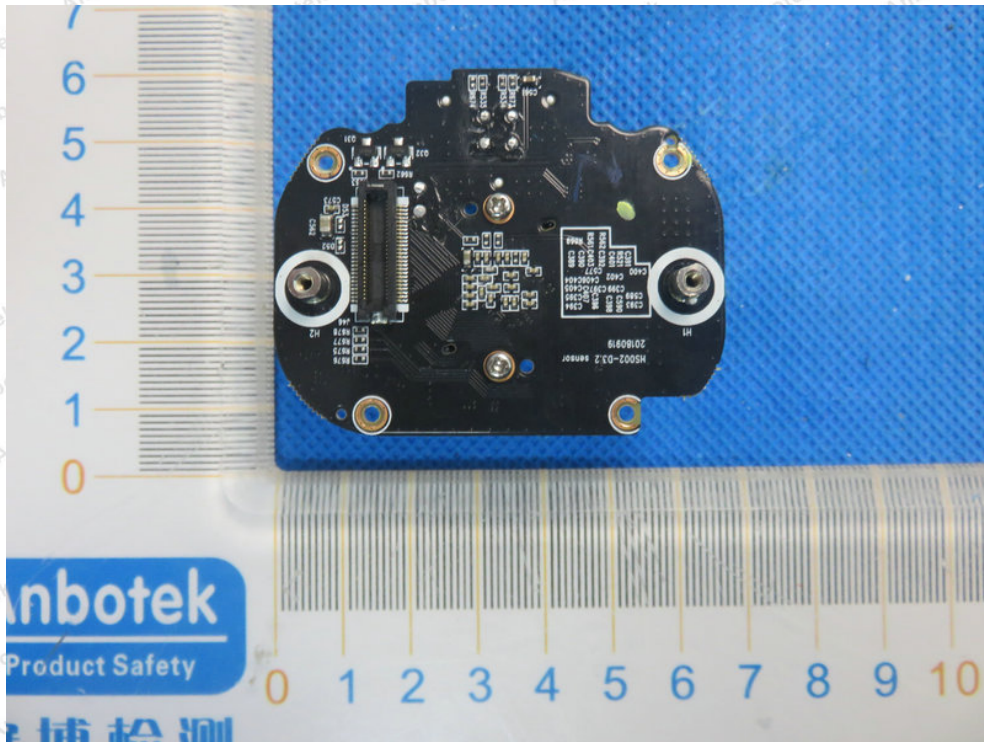


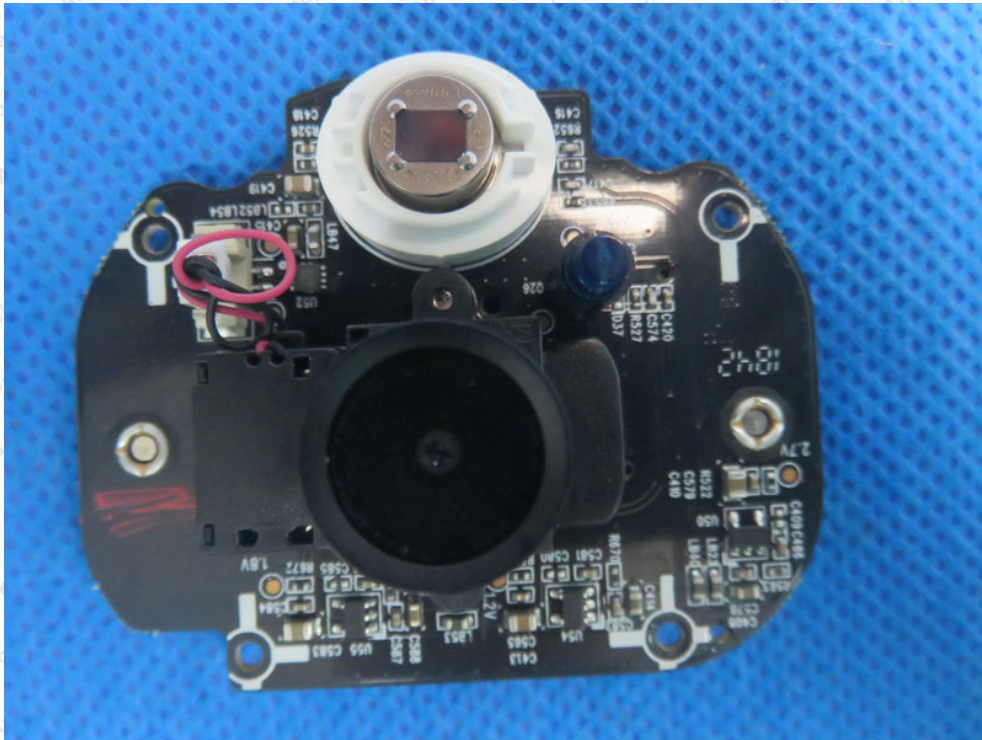














----- End of Report -----