FCC Test Report

For

Shenzhen SQT Electronics Co., Ltd.

2.4GHz Wireless receiver

Model No.: SMK-626382AG

Prepared For	:	Shenzhen SQT Electronics Co., Ltd.
Address	:	ZhengChengFeng TechnologyZone Xinsha Road, ShaYi Village,Sha jing Town, Baoan Area, Shenzhen, China 518104
Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
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Report Number	:	SZAWW180911004-01
Date of Receipt	:	Sept. 11, 2018
Date of Test	:	Sept. 11~25, 2018
Date of Report	:	Sept. 25, 2018

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TEST REPORT

Applicant	:	Shenzhen SQT Electronics Co., Ltd.
Manufacturer	:	Shenzhen SQT Electronics Co., Ltd.
Product Name	:	2.4GHz Wireless receiver
Model No.	:	SMK-626382AG
Trade Mark	:	N.A.
Rating(s)	:	Input: DC 5V, 25mA
Test Standard(s)	**:**	**FCC Rules and Regulations Part 15 Subpart B: 2017**
Test Method(s)	**:**	**ANSI C63.4-2014**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

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

Date of Test Sept. 11~25, 2018

Prepared By

(Engineer / Oliay Yang)

Reviewer

(Supervisor / Snowy Meng)

Approved & Authorized Signer

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	Shenzhen SQT Electronics Co., Ltd.
Address	:	ZhengChengFeng TechnologyZone Xinsha Road, ShaYi Village,Sha jing Town, Baoan Area, Shenzhen, China 518104
Manufacturer	:	Shenzhen SQT Electronics Co., Ltd.
Address	:	ZhengChengFeng TechnologyZone Xinsha Road, ShaYi Village,Sha jing Town, Baoan Area, Shenzhen, China 518104
Factory	:	Shenzhen SQT Electronics Co., Ltd.
Address	:	ZhengChengFeng TechnologyZone Xinsha Road, ShaYi Village,Sha jing Town, Baoan Area, Shenzhen, China 518104

1.2. Description of Device (EUT)

Product Name	:	2.4GHz Wireless receiver	
Model No.	:	SMK-626382AG	
Trade Mark	:	N.A.	
Test Power Supply	:	DC 5V by USB Port	
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)	
Product Description	:	Adapter:	N/A
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

1.3. Auxiliary Equipment Used During Test

Notebook	:	Manufacturer: FUJITSU LIMITED
		M/N: LH531 S/N: 518127-01R2300775 DC Rating: DC 19V, 4.22A CE , FCC DOC, CCC
		Adapter:
		M/N: ADP-602HA Input: 100V-240V~ 50/60Hz, 1.5A Output: DC 19V, 3.16A

1.4. Description of Test Mode

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	On Mode

For Conducted Emission	
Final Test Mode	Description
Mode 1	On Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	On Mode

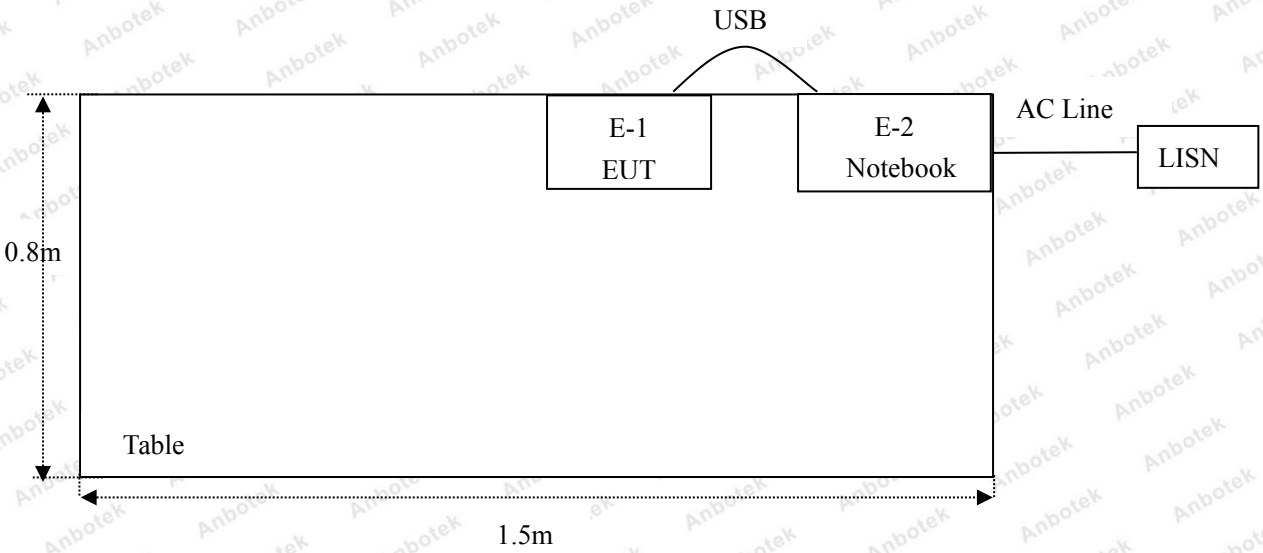
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

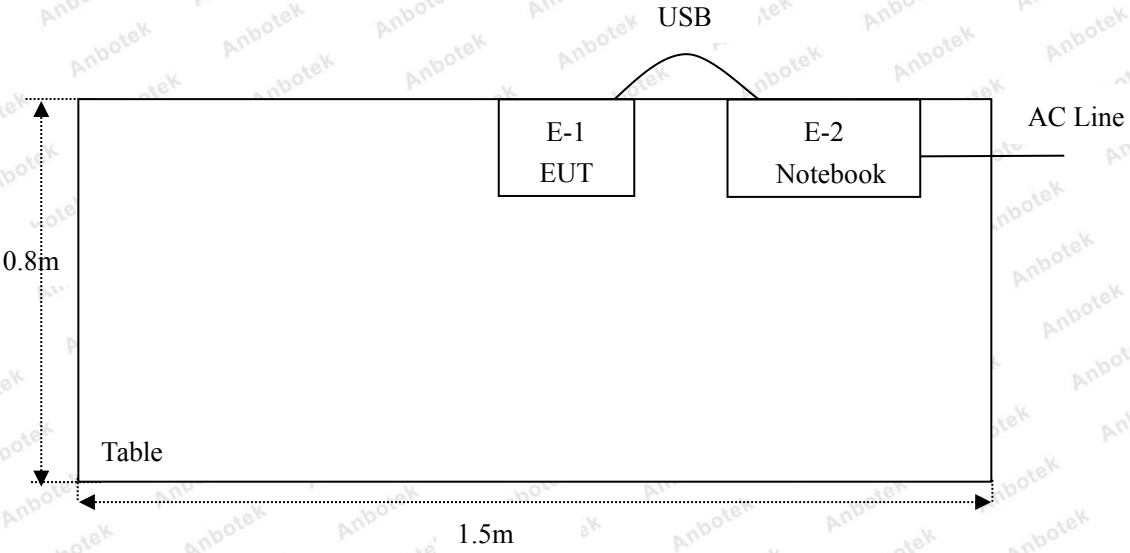
(2)The data rate was set in 1Mbps for radiated emission due to the highest RF output power.

1.5. Description Of Test Setup

CE



RE



1.5. Test Equipment List

Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Nov. 17, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 17, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 17, 2017	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 17, 2017	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 20, 2017	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Nov. 17, 2017	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

1.6. 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 Registed 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

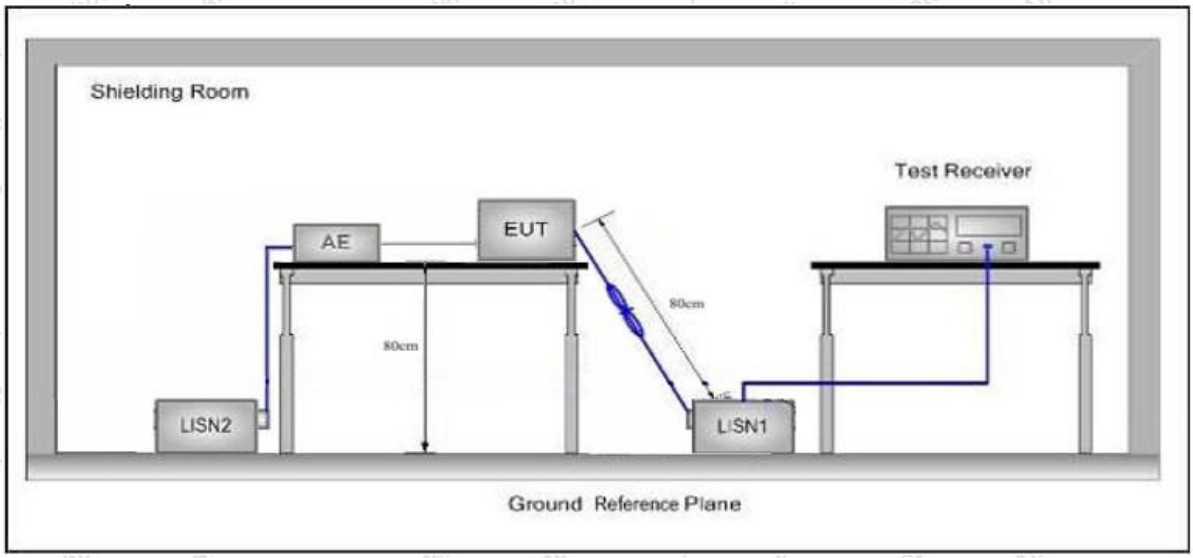
Test Items	Test Mode	Status
Power Line Conducted Emission Test (150KHz To 30MHz)	Mode 1	P
Radiated Emission Test (30MHz To 1000MHz)	Mode 1	P
P) Indicates that the through the test. N) Don't test.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B		
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 C63.4-2014 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.

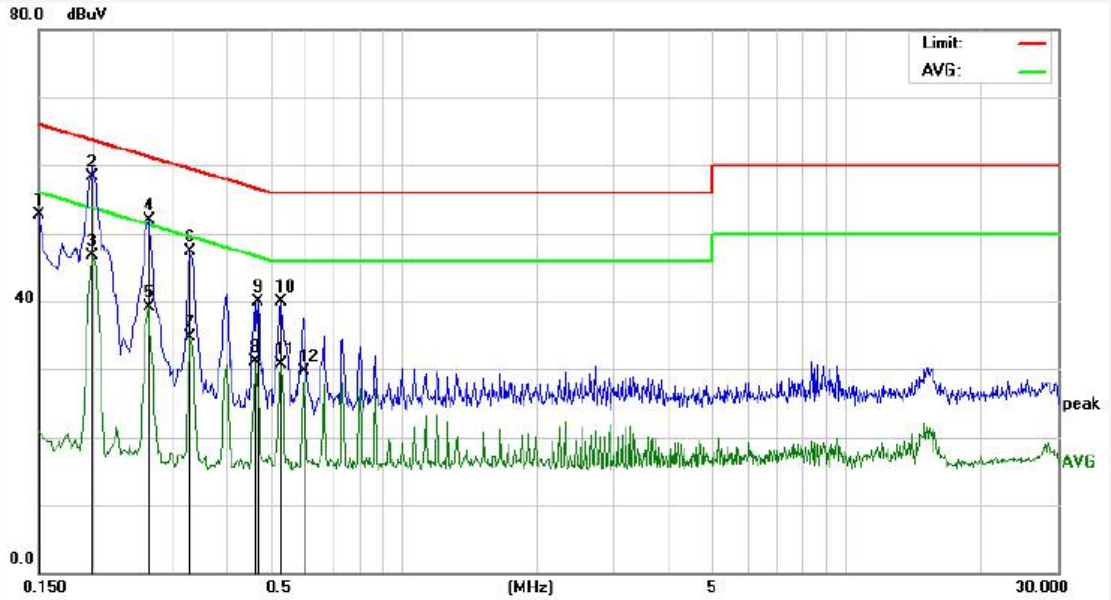
Conducted Emission Test Data

Test Site: 1# Shielded Room

Test Specification: DC 5V by USB Port

Comment: Live Line

Tem.: 24.3℃ Hum.: 47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	32.86	19.90	52.76	65.99	-13.23	QP	
2	0.1980	38.33	19.90	58.23	63.69	-5.46	QP	
3	0.1980	26.74	19.90	46.64	53.69	-7.05	AVG	
4	0.2660	31.95	19.89	51.84	61.24	-9.40	QP	
5	0.2660	19.31	19.89	39.20	51.24	-12.04	AVG	
6	0.3300	27.35	19.90	47.25	59.45	-12.20	QP	
7	0.3300	14.75	19.90	34.65	49.45	-14.80	AVG	
8	0.4620	11.06	19.96	31.02	46.66	-15.64	AVG	
9	0.4700	19.95	19.97	39.92	56.51	-16.59	QP	
10	0.5299	19.88	19.99	39.87	56.00	-16.13	QP	
11	0.5299	10.72	19.99	30.71	46.00	-15.29	AVG	
12	0.5980	9.77	20.01	29.78	46.00	-16.22	AVG	

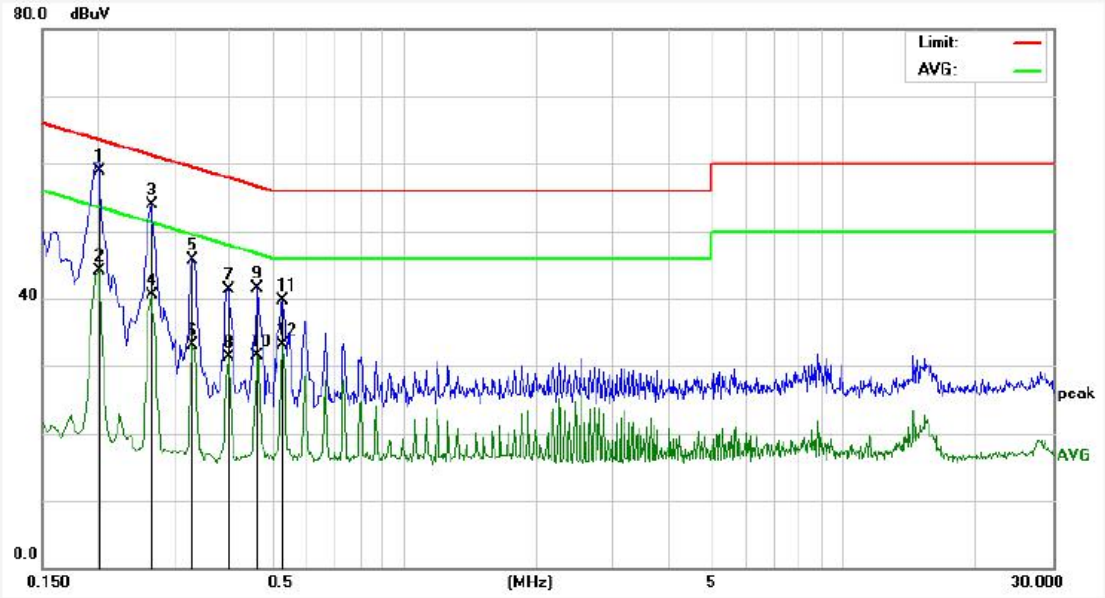
Conducted Emission Test Data

Test Site: 1# Shielded Room

Test Specification: DC 5V by USB Port

Comment: Neutral Line

Tem.: 24.3℃ Hum.: 47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2020	39.03	19.90	58.93	63.52	-4.59	QP	
2	0.2020	24.30	19.90	44.20	53.52	-9.32	AVG	
3	0.2660	33.96	19.89	53.85	61.24	-7.39	QP	
4	0.2660	20.68	19.89	40.57	51.24	-10.67	AVG	
5	0.3300	25.81	19.90	45.71	59.45	-13.74	QP	
6	0.3300	13.21	19.90	33.11	49.45	-16.34	AVG	
7	0.3980	21.32	19.93	41.25	57.89	-16.64	QP	
8	0.3980	11.40	19.93	31.33	47.89	-16.56	AVG	
9	0.4660	21.64	19.96	41.60	56.58	-14.98	QP	
10	0.4660	11.57	19.96	31.53	46.58	-15.05	AVG	
11	0.5299	19.76	19.99	39.75	56.00	-16.25	QP	
12	0.5299	13.10	19.99	33.09	46.00	-12.91	AVG	

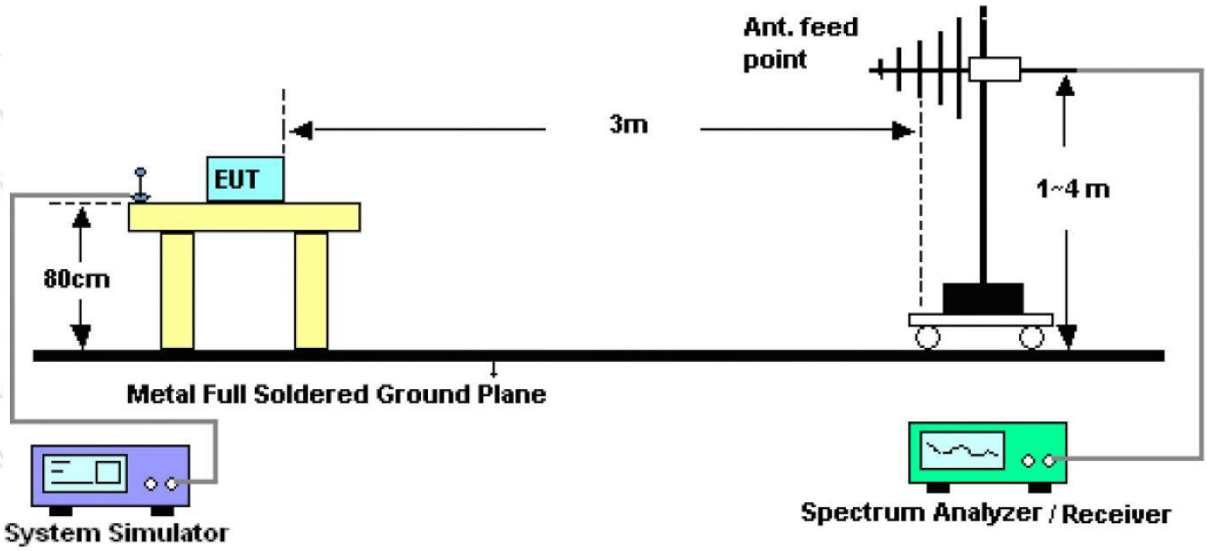
4. Radiated Emission Test

4.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	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

Remark:
(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.2. Test Setup



4.3. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.
The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.
The frequency range from 30MHz to 1000MHz is checked.

4.4. Test Data

Please to see the following pages.

Test Results (30~1000MHz)

Test item:	**Radiation Test**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC Part 15 Subpart B**	**Power Source:**	**DC 5V by USB Port**
Distance:	**3m**	**Temp.(℃)/Hum.(%RH):**	**23.4(℃)/49%RH**

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	42.6000	33.89	-14.87	19.02	40.00	-20.98	peak			
2	60.4919	33.81	-17.18	16.63	40.00	-23.37	peak			
3	111.7380	38.85	-20.74	18.11	43.50	-25.39	peak			
4	241.6763	37.03	-17.58	19.45	46.00	-26.55	peak			
5	489.0269	33.56	-11.27	22.29	46.00	-23.71	peak			
6	972.3374	34.49	-3.60	30.89	54.00	-23.11	peak			

Test item:	**Radiation Test**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC Part 15 Subpart B**	**Power Source:**	**DC 5V by USB Port**
Distance:	**3m**	**Temp.(℃)/Hum.(%RH):**	**23.4(℃)/49%RH**

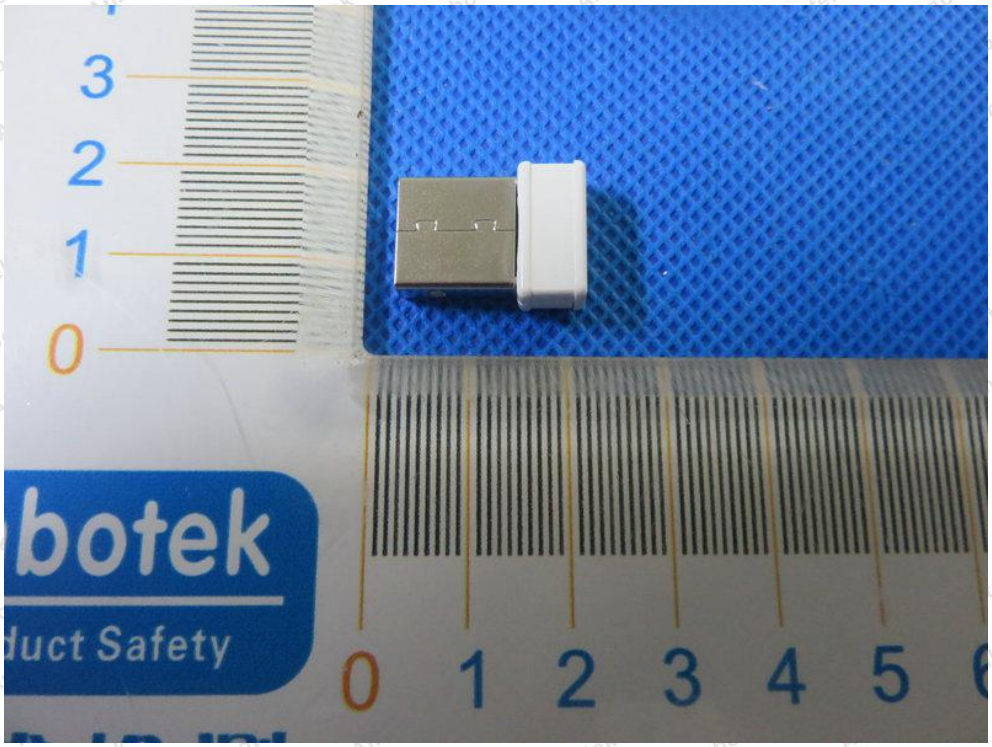
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.2111	36.52	-16.61	19.91	40.00	-20.09	peak			
2	38.0782	39.13	-14.42	24.71	40.00	-15.29	peak			
3	60.2800	31.55	-16.10	15.45	40.00	-24.55	peak			
4	112.1304	26.34	-14.77	11.57	43.50	-31.93	peak			
5	274.1938	29.39	-14.61	14.78	46.00	-31.22	peak			
6	419.1080	32.09	-11.30	20.79	46.00	-25.21	peak			

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Power Line Conducted Emission Test

Photo of Radiated Emission Test

APPENDIX II -- EXTERNAL PHOTOGRAPH



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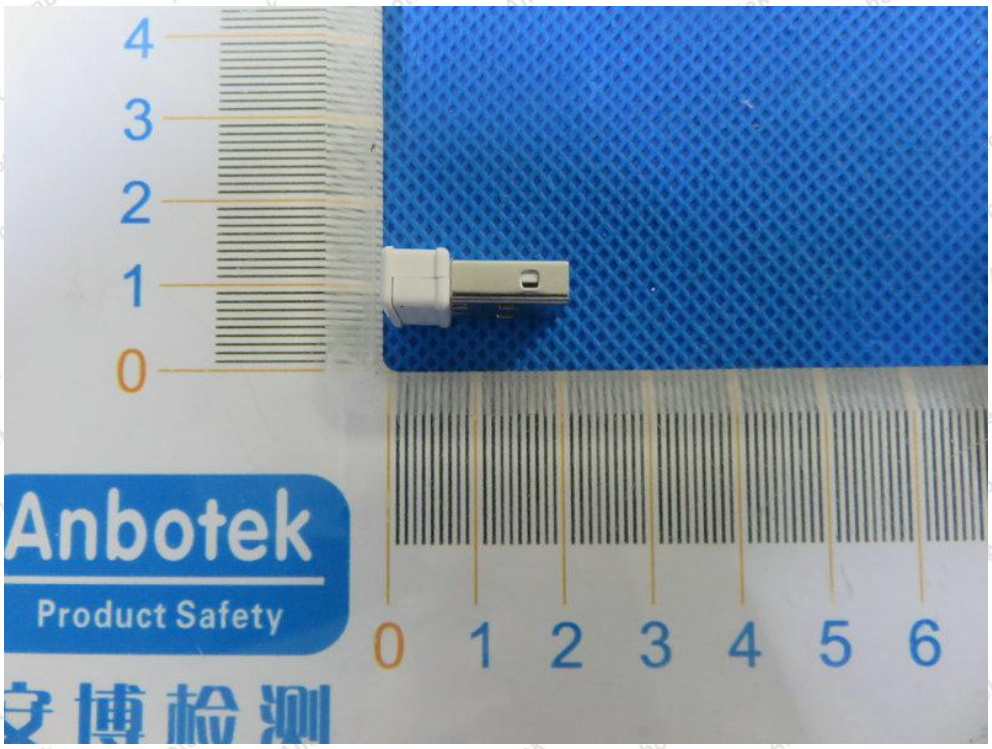
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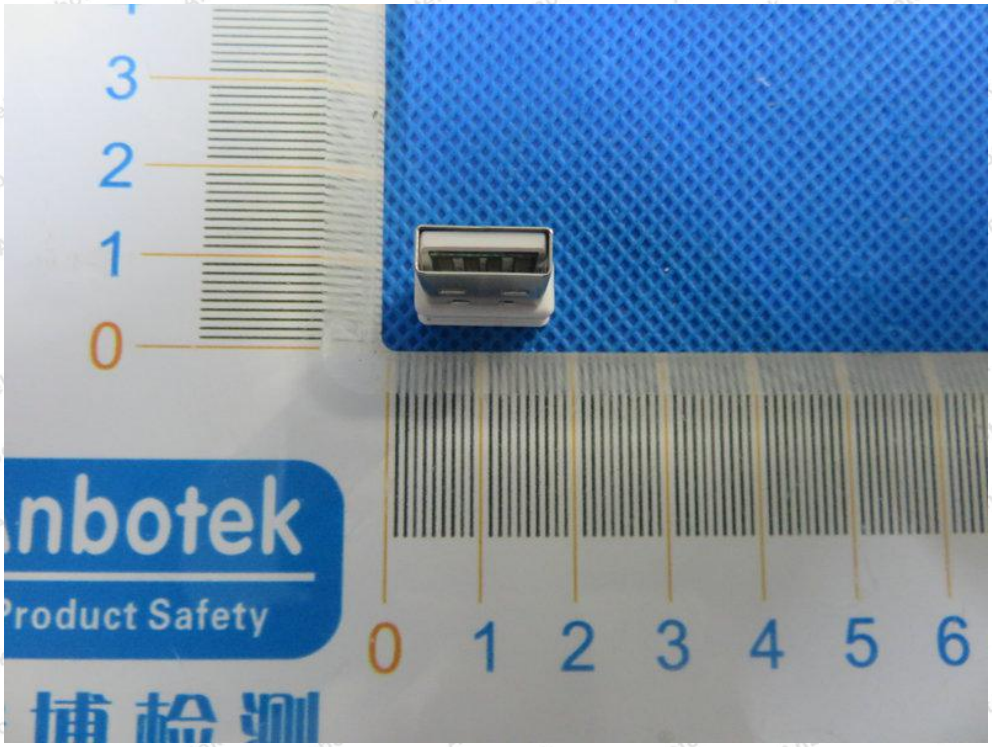
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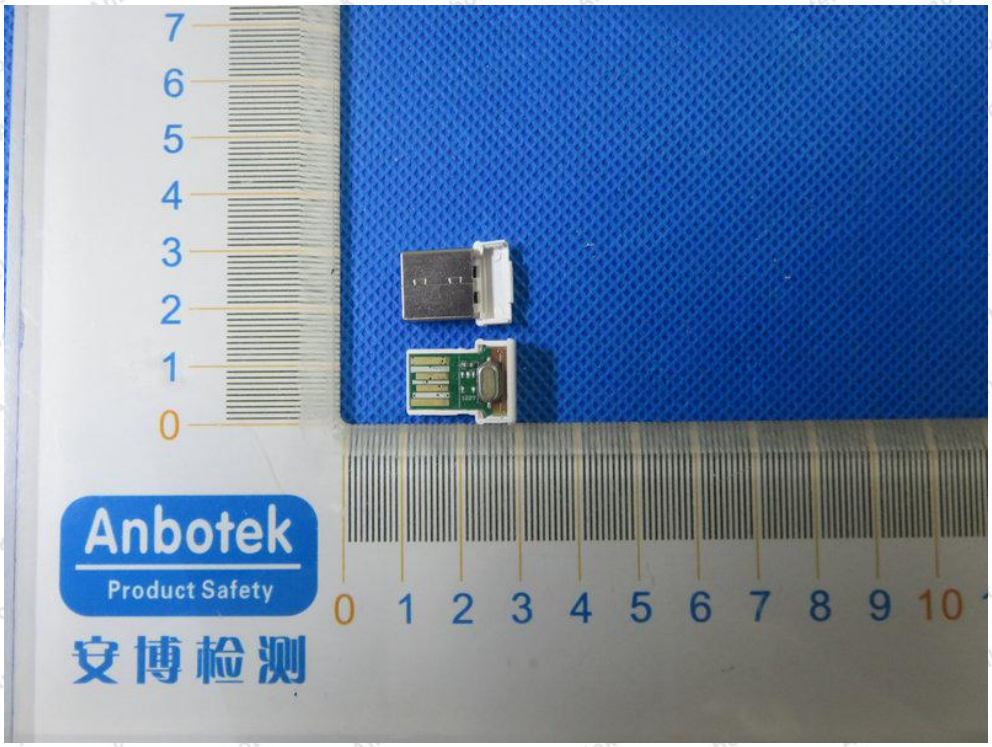
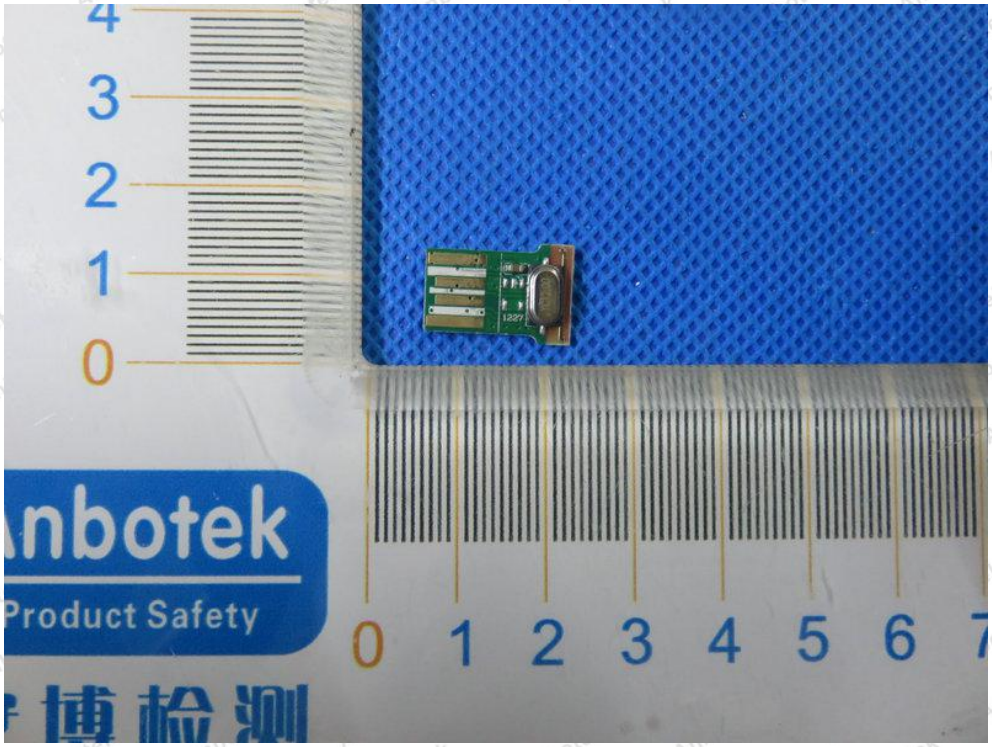
APPENDIX III -- INTERNAL PHOTOGRAPH





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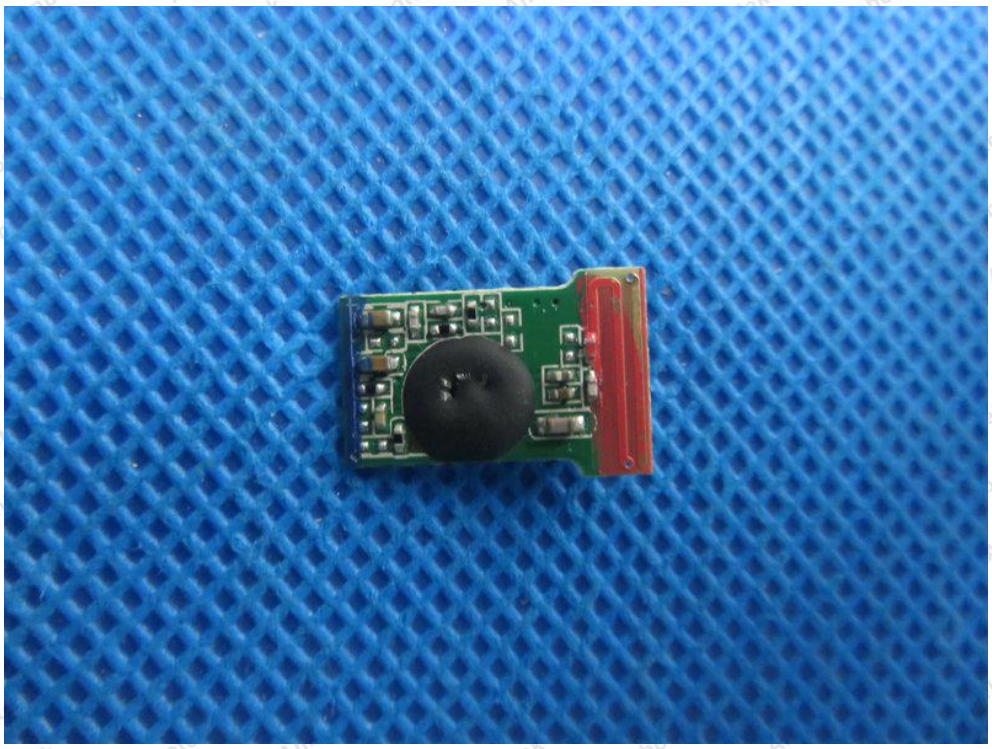

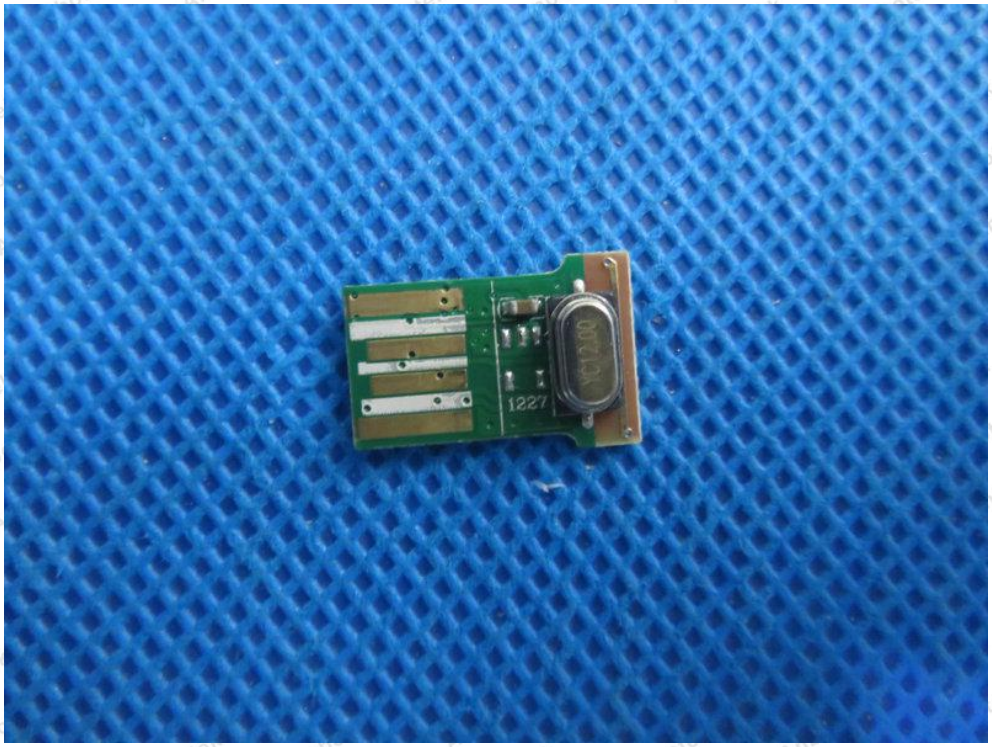

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