

Verification On Behalf of

For

Guangzhou Winson Information Technology Co.,Ltd.

barcode Scanner

Model No.: T60, T10, T20, T50, T80, T10WL, T60BS, T20WL, T50WL,
T60WL, T80WL, T80BS

Prepared For : Guangzhou Winson Information Technology Co.,Ltd.

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Report Number : SZAWW180404003-01

Date of Test : Apr. 04~May. 03, 2018

Date of Report : May. 03, 2018

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TEST REPORT

Applicant : Guangzhou Winson Information Technology Co.,Ltd.
Manufacturer : Guangzhou Winson Information Technology Co.,Ltd.
Product Name : barcode Scanner
Model No. : T60, T10, T20, T50, T80, T10WL, T60BS, T20WL, T50WL, T60WL, T80WL, T80BS
Trade Mark : N/A
Rating(s) : Input DC 5V 260mA

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 and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Apr. 04~May. 03, 2018

Prepared by :



Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer :

Tangcy. T.

(Project Manager / Tangcy. T)

Approved & Authorized Signer :

Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Guangzhou Winson Information Technology Co.,Ltd.
Address	:	1st Floor, Block C, Yuean Industrial Park, No.59 Huangcun Road, Dongpu Town, Tianhe District, Guangzhou, Guangdong China 510660
Manufacturer	:	Guangzhou Winson Information Technology Co.,Ltd.
Address	:	1st Floor, Block C, Yuean Industrial Park, No.59 Huangcun Road, Dongpu Town, Tianhe District, Guangzhou, Guangdong China 510660

1.2. Description of Device (EUT)

Product Name	:	barcode Scanner
Model No.	:	T60, T10, T20, T50, T80, T10WL, T60BS, T20WL, T50WL, T60WL, T80WL, T80BS (Note: The Samples are the same except the color and size and appearance, So we prepare "T60" for test only.)
Trade Mark	:	N/A
Test Power Supply	:	DC 5V
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

PC	:	Manufacturer: DELL M/N: Optiplex 3020 MT S/N: CN-079V51-70163-4AD-089K-A00 Input Rating: AC 100-240V, 50-60Hz 5.4A CE , FCC DOC, CCC
MONITOR	:	Manufacturer: DELL M/N: UZ2215Hf S/N: CN-035VN6-72872-45A-A3AB Input Rating: AC 100-240V, 50-60Hz, 1.5A Output Rating: DC 19.5V, 4.62A TUV-GS FCC CE KCC VCCI
KEYBOARD	:	Manufacturer: DELL M/N: SK-8120 S/N: CN-0DJ365-71616-49J-0MVR-A00 Input Rating: DC 5V,0.05A CE FCC VCCI KCC TUV-GS

		Cable: 1.8m, unshielded
MOUSE	:	Manufacturer: DELL
		M/N: MS111-T S/N: CN-0KW2YH-71616-488-1CBJ Input Rating: DC 5V,0.1A Cable: 1.8m, unshielded CE FCC VCCI KCC TUV-GS

1.4. Description of Test Modes

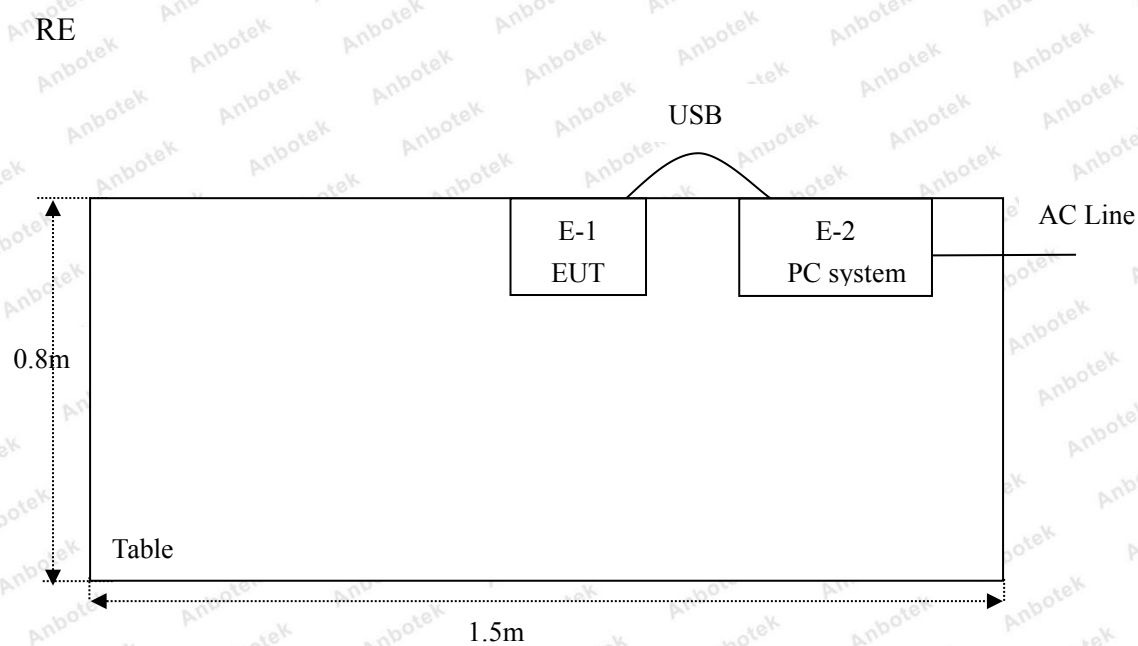
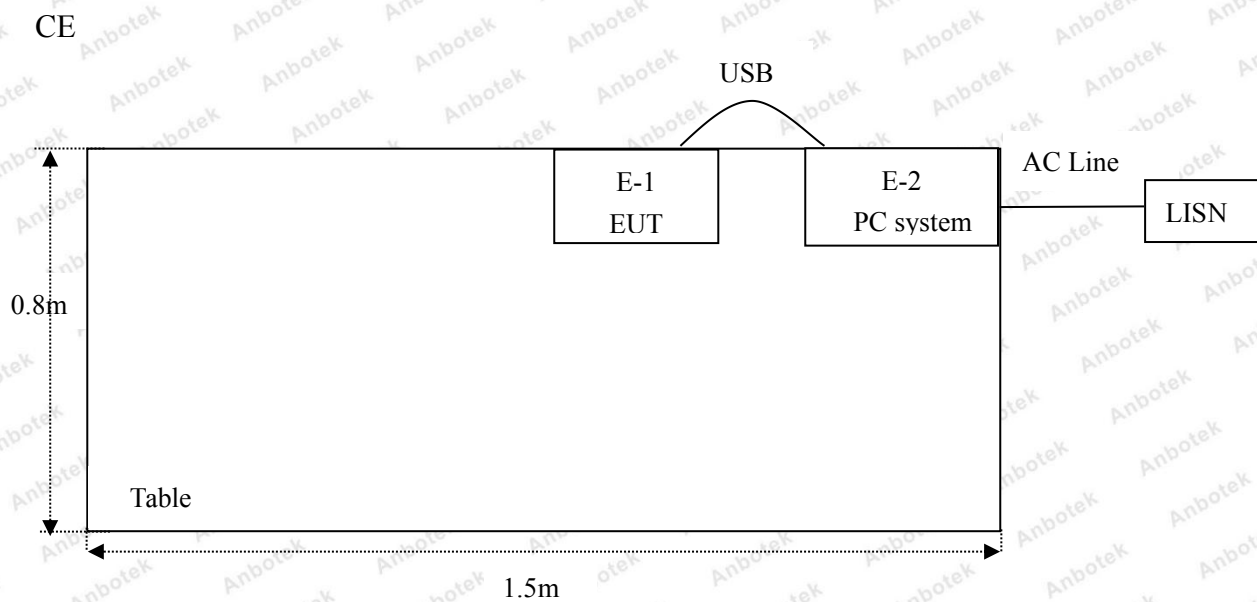
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

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.

1.6. Description Of Test Setup



1.7. 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 Tcchnology	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	ESPI	101604	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 Tcchnology	ANB-03A	N/A	N/A	N/A

1.8. Measurement Uncertainty

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

1.9. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotech 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 Anbotech 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

All Emissions tests were performed

Shenzhen Anbotech Compliance Laboratory Limited. at 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.		

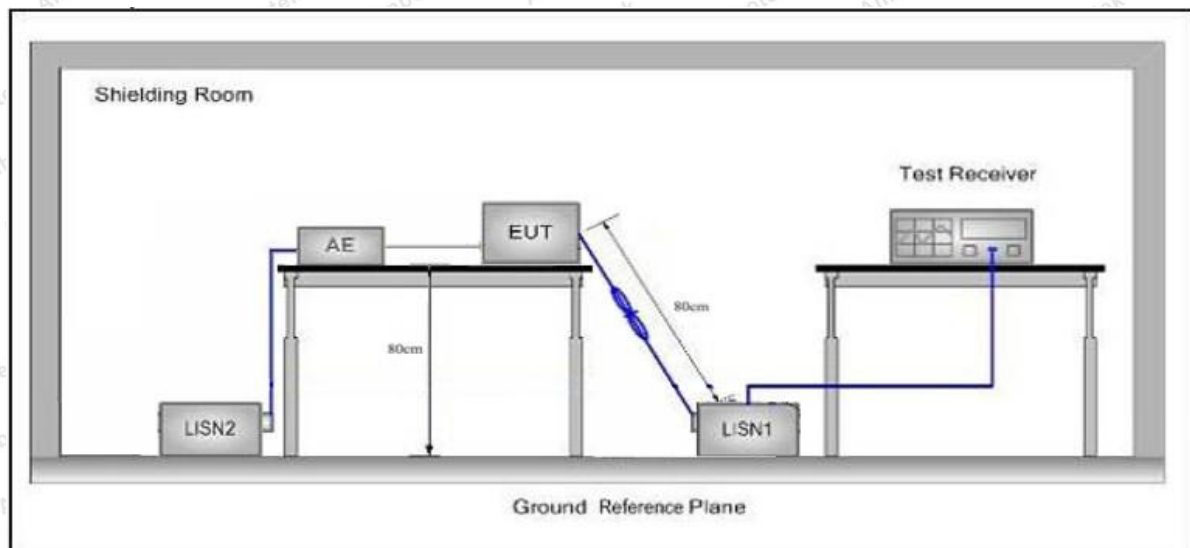
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC 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.

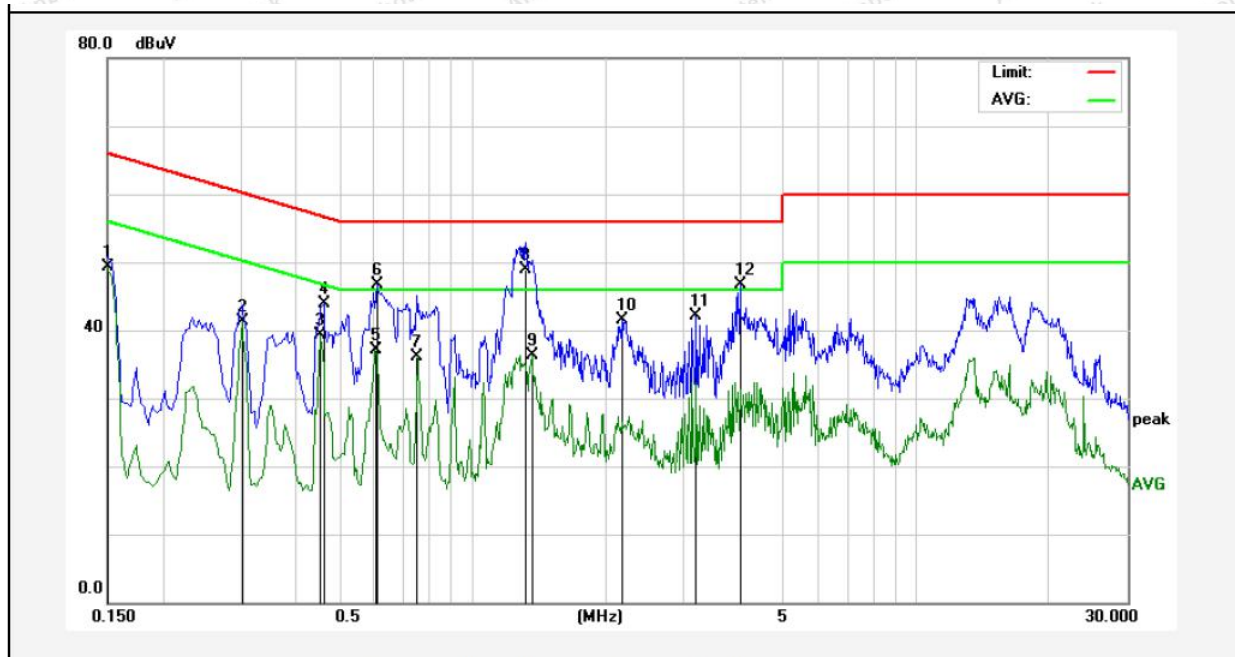
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

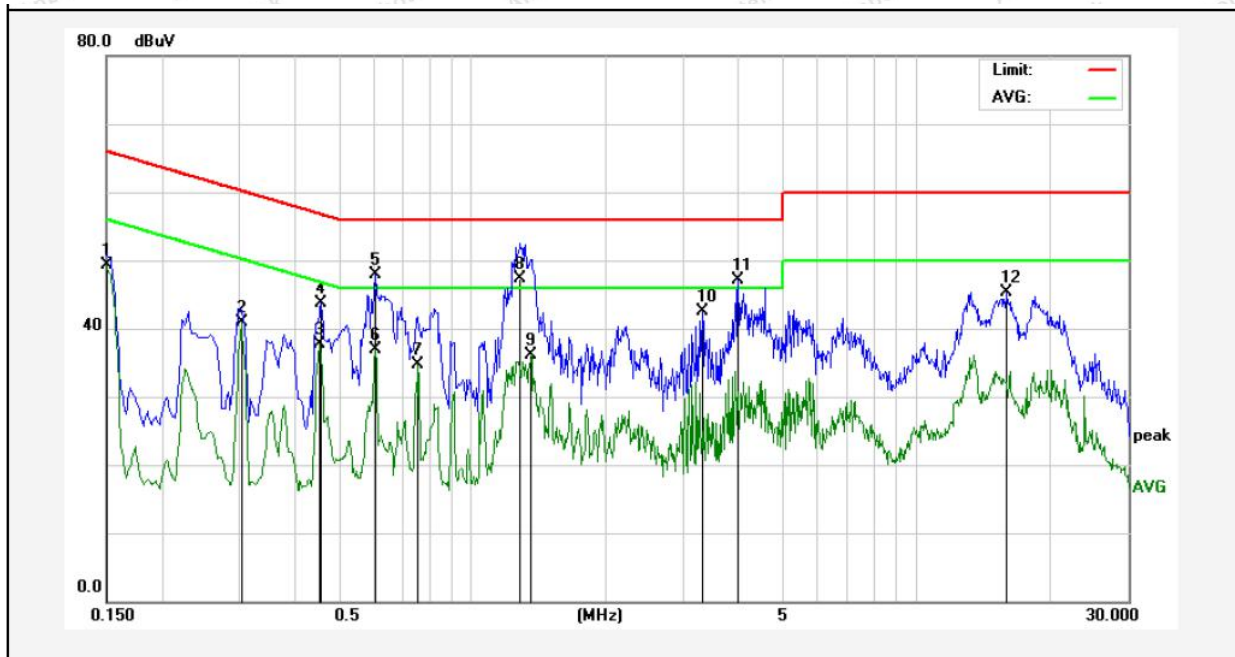
Test Site: 1# Shielded Room
Operating Condition: Keeping TX Mode
Test Specification: DC 5V
Comment: Live Line
Tem.:22.5℃ Hum.:57%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	29.36	19.90	49.26	55.99	-6.73	AVG	
2	0.3020	21.39	19.89	41.28	50.19	-8.91	AVG	
3	0.4540	19.39	19.96	39.35	46.80	-7.45	AVG	
4	0.4620	23.89	19.96	43.85	56.66	-12.81	QP	
5	0.6020	17.08	20.01	37.09	46.00	-8.91	AVG	
6	0.6100	26.63	20.01	46.64	56.00	-9.36	QP	
7	0.7539	16.01	20.05	36.06	46.00	-9.94	AVG	
8	1.3180	28.76	20.13	48.89	56.00	-7.11	QP	
9	1.3660	16.25	20.13	36.38	46.00	-9.62	AVG	
10	2.1740	21.44	20.14	41.58	56.00	-14.42	QP	
11	3.1980	22.02	20.16	42.18	56.00	-13.82	QP	
12	4.0220	26.54	20.18	46.72	56.00	-9.28	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Keeping TX Mode
Test Specification: DC 5V
Comment: Neutral Line
Tem.:22.5℃ Hum.:57%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	29.46	19.90	49.36	55.99	-6.63	AVG	
2	0.3020	21.09	19.89	40.98	50.19	-9.21	AVG	
3	0.4540	17.81	19.96	37.77	46.80	-9.03	AVG	
4	0.4580	23.70	19.96	43.66	56.73	-13.07	QP	
5	0.6060	27.98	20.01	47.99	56.00	-8.01	QP	
6	0.6060	16.90	20.01	36.91	46.00	-9.09	AVG	
7	0.7580	14.58	20.06	34.64	46.00	-11.36	AVG	
8	1.2860	27.11	20.13	47.24	56.00	-8.76	QP	
9	1.3619	15.92	20.13	36.05	46.00	-9.95	AVG	
10	3.3100	22.39	20.17	42.56	56.00	-13.44	QP	
11	3.9700	26.85	20.18	47.03	56.00	-8.97	QP	
12	15.9820	25.09	20.28	45.37	60.00	-14.63	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
	Above 1000MHz	500	54.0	Average	3
		-	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.

4.2. Test Setup

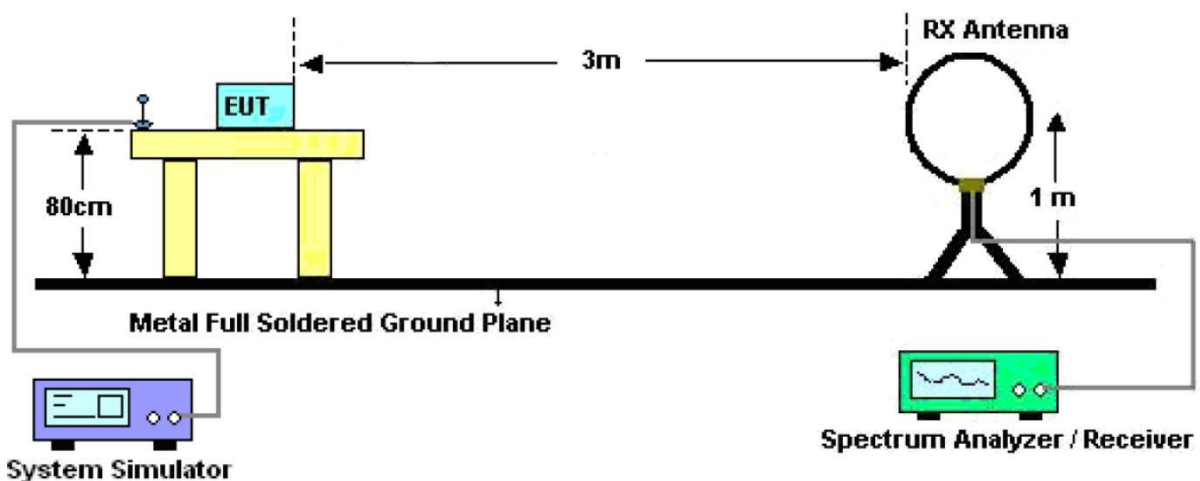


Figure 1. Below 30MHz

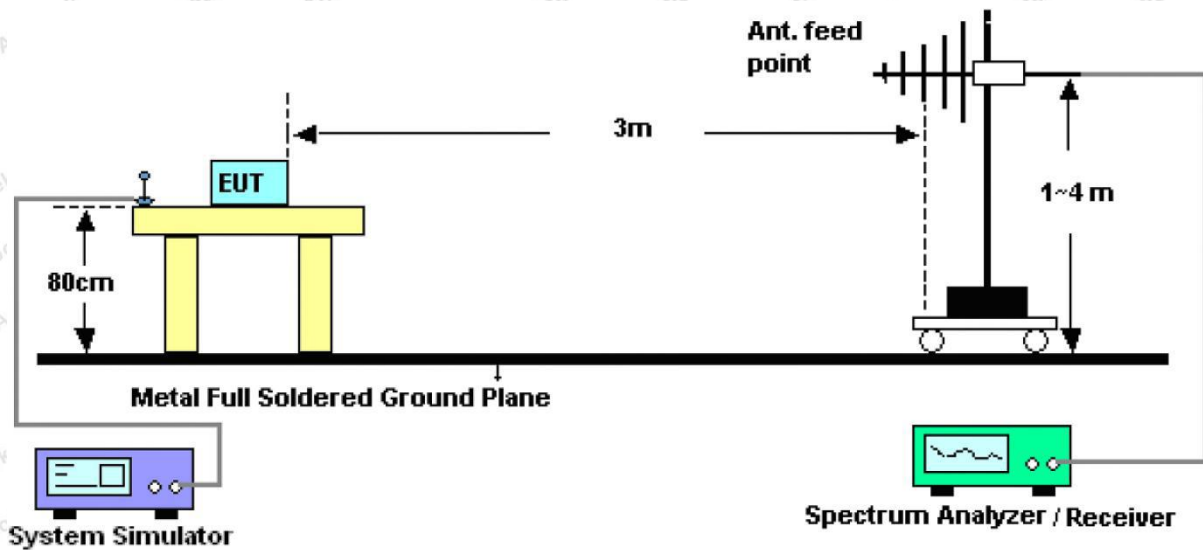


Figure 2. 30MHz to 1GHz

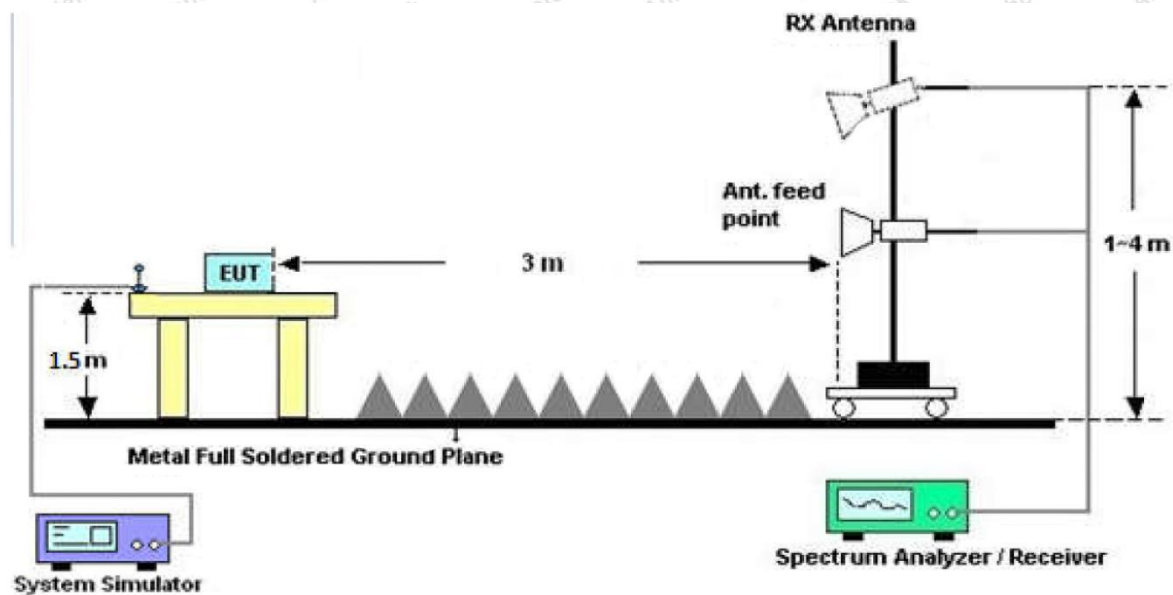


Figure 3. Above 1 GHz

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 = 100kHz, VBW = 300kHz, Detector = Quasi-Peak, Trace mode = Max hold, Sweep = auto couple.

For above 1GHz, Set the spectrum analyzer as:

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

4.4. Test Data

PASS

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

This EUT has a working frequency of 72MHz(<108MHz), so above 1G doesn't need to be tested.

Test Results (30~1000MHz)

Job No.: SZAWW180404003-01

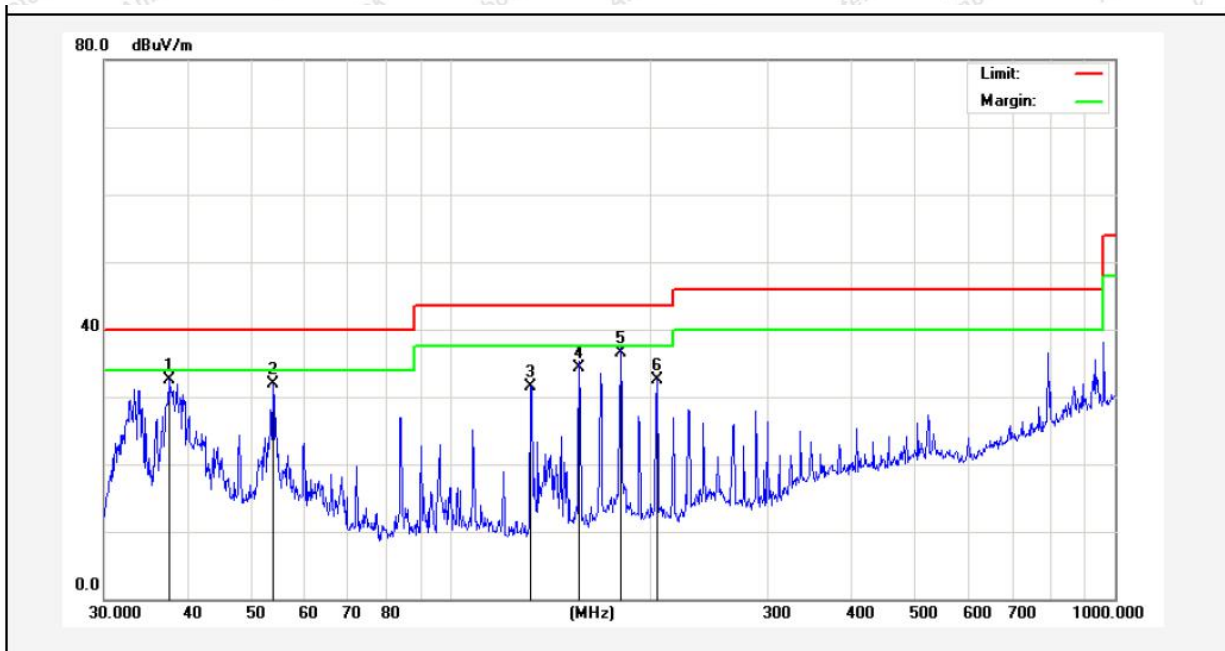
Temp.(°C)/Hum.(%RH): 23.3°C/54%RH

Standard: FCC PART 15B

Power Source: DC 5V

Test Mode: Mode 1

Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.5479	48.29	-15.71	32.58	40.00	-7.42	QP	300	12	
2	53.8818	48.54	-16.70	31.84	40.00	-8.16	QP	300	124	
3	131.7577	53.15	-21.67	31.48	43.50	-12.02	QP	300	156	
4	155.9101	55.40	-21.06	34.34	43.50	-9.16	QP	300	215	
5	180.0065	56.38	-19.85	36.53	43.50	-6.97	QP	300	265	
6	204.2377	51.39	-18.97	32.42	43.50	-11.08	QP	300	360	

Test Results (30~1000MHz)

Job No.: SZAWW180404003-01

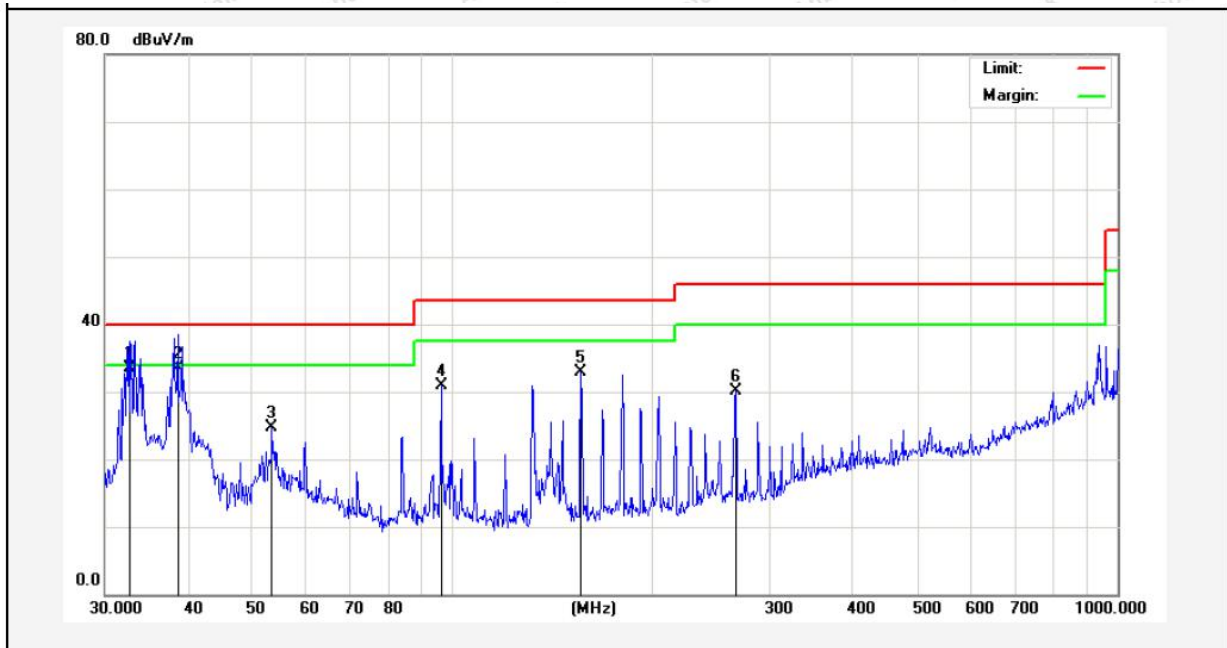
Temp.(°C)/Hum.(%RH): 23.3°C/54%RH

Standard: FCC PART 15B

Power Source: DC 5V

Test Mode: Mode 1

Polarization: Vertical



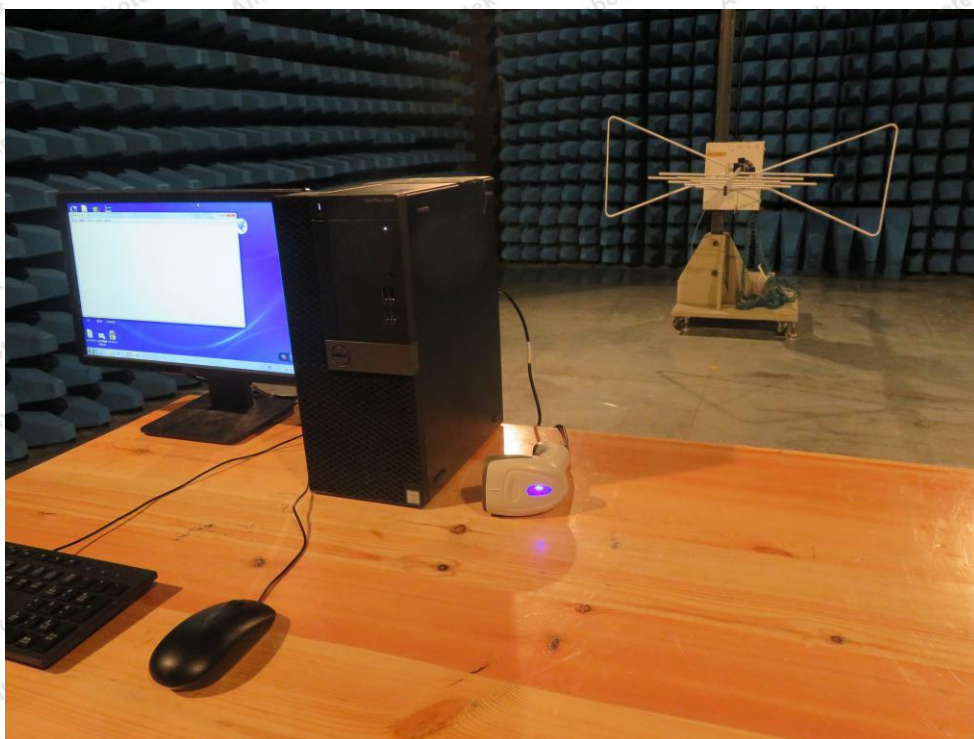
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.7486	50.20	-16.75	33.45	40.00	-6.55	QP	300	12	
2	38.6160	47.54	-14.12	33.42	40.00	-6.58	QP	300	124	
3	53.5052	40.36	-15.68	24.68	40.00	-15.32	QP	300	156	
4	96.0986	46.11	-15.12	30.99	43.50	-12.51	QP	300	215	
5	155.9097	49.93	-17.06	32.87	43.50	-10.63	QP	300	301	
6	266.6089	44.10	-14.07	30.03	46.00	-15.97	QP	300	360	

APPENDIX I-- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Test



Photo of Radiation Emission Test



APPENDIX II -- EXTERNAL PHOTOGRAPH

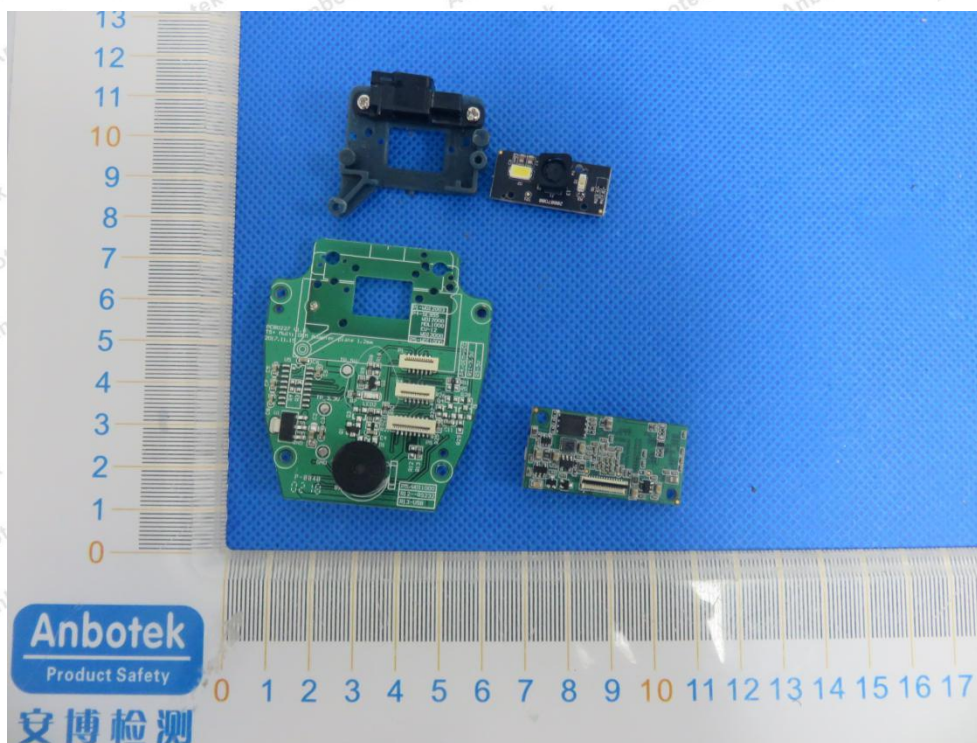
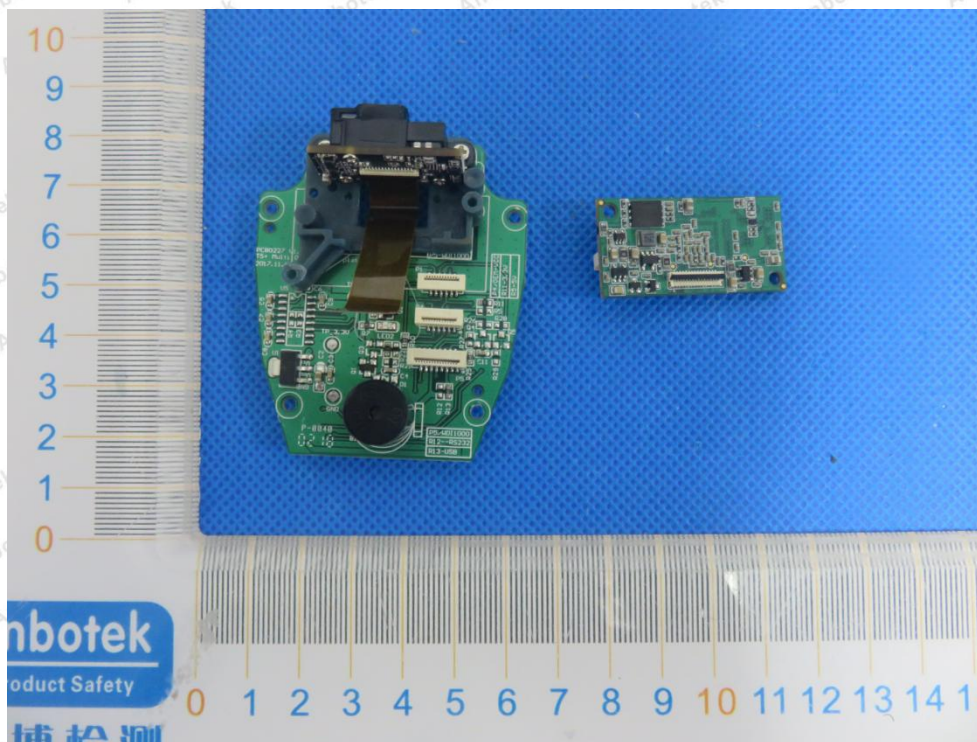


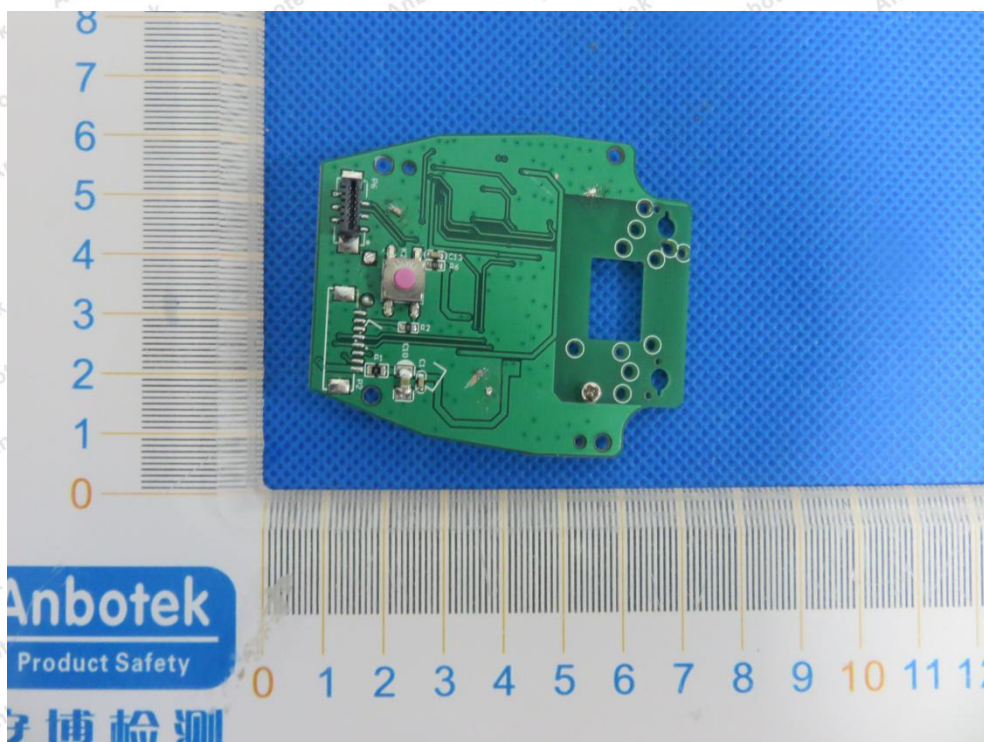


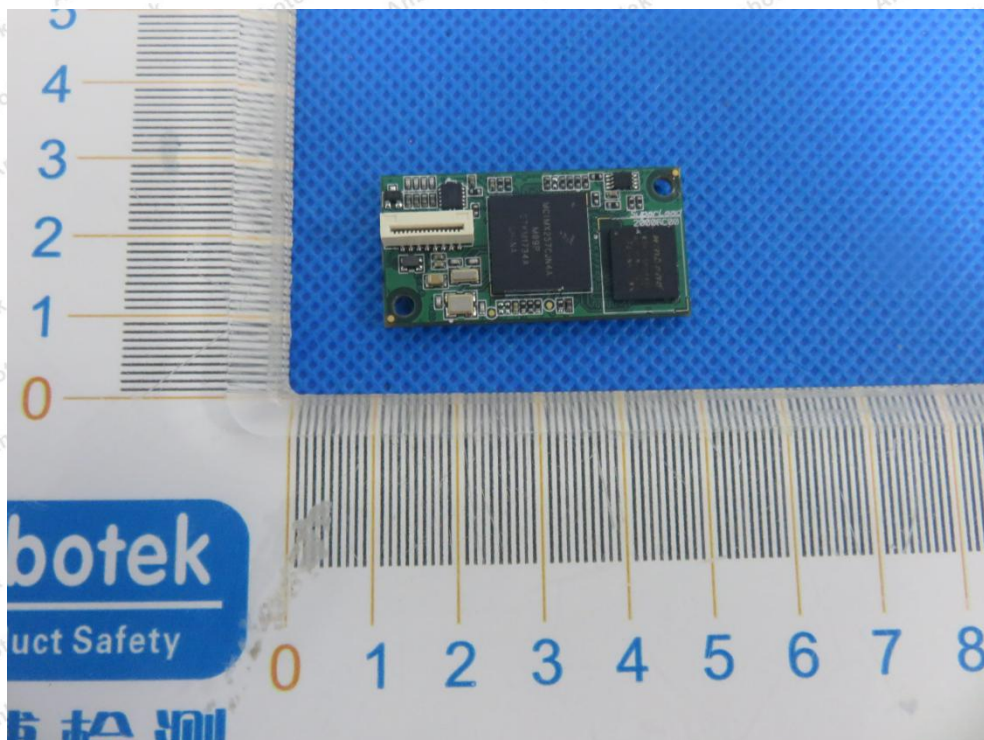
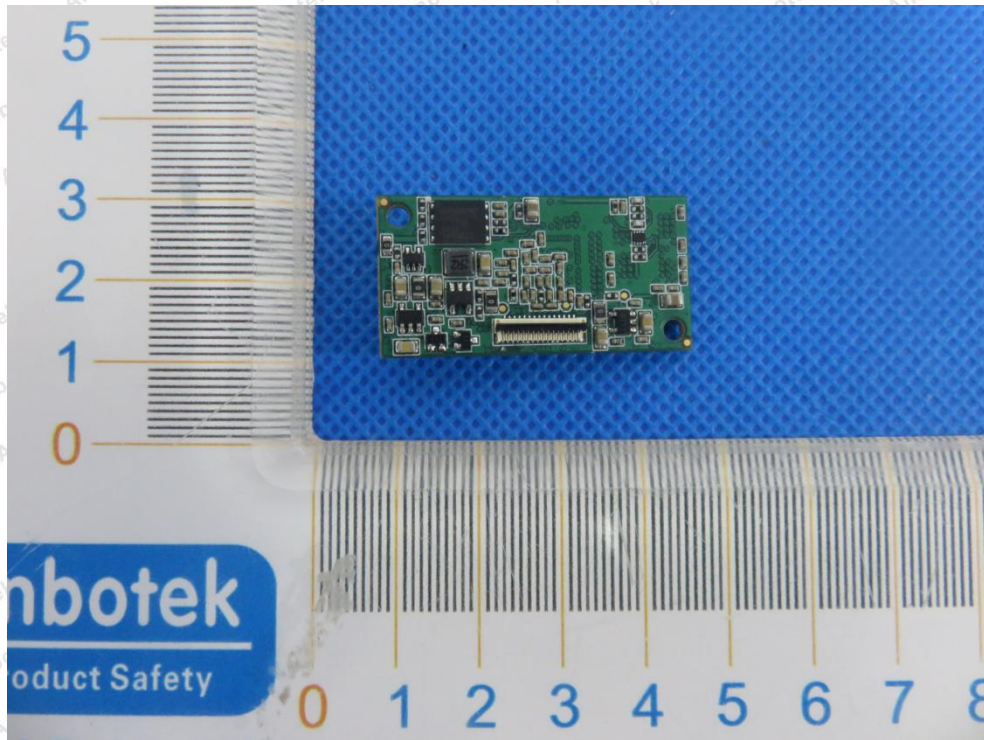




APPENDIX III -- INTERNAL PHOTOGRAPH













End of Report