FCC TEST REPORT
for
Shenzhen Jietong Technology Co., Ltd.

UHF RFID Module
Model No.: JT-2850

Prepared for	:	Shenzhen Jietong Technology Co., Ltd.
Address	:	A-3F, Baiwang Building, Shahe West Rd 5288, Nanshan District, Shenzhen, China

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R011611099I
Date of Test	:	Noe. 02~Dec. 09, 2016
Date of Report	:	Dec. 10, 2016

TABLE OF CONTENTS

Description

Page

Test Report

TEST REPORT

Applicant	:	Shenzhen Jietong Technology Co., Ltd.
Manufacturer	:	Shenzhen Jietong Technology Co., Ltd.
EUT	:	UHF RFID Module
Model No.	:	JT-2850
Serial No.	:	N.A.
Trade Mark	:	N.A.
Rating	:	DC 3.6V-5.5V

Measurement Procedure Used:

FCC Part15 Subpart C 2016, Paragraph 15.207, 15.247 & 15.209

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 : Noe. 02~Dec. 09, 2016

Prepared by : Baron Wen
(Tested Engineer / Baron Wen)

Reviewer : Dolly Mo
(Project Manager / Dolly Mo)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	UHF RFID Module
Model Number	:	JT-2850
Test Power Supply	:	AC 120V, 60Hz for adapter/ AC 240V, 60Hz for adapter
Adapter	:	Model No.: GM50-120300-F Input: AC 100-240V, 50/60Hz, 1.5A Output: DC 12V, 3.0A
Frequency	:	902.5~927.0MHz
Antenna Specification	:	Plate Antenna: 3dBi
Modulation	:	ASK
Applicant	:	Shenzhen Jietong Technology Co., Ltd.
Address	:	A-3F, Baiwang Building, Shahe West Rd 5288, Nanshan District, Shenzhen, China
Manufacturer	:	Shenzhen Jietong Technology Co., Ltd.
Address	:	A-3F, Baiwang Building, Shahe West Rd 5288, Nanshan District, Shenzhen, China
Factory	:	Shenzhen Jietong Technology Co., Ltd.
Address	:	A-3F, Baiwang Building, Shahe West Rd 5288, Nanshan District, Shenzhen, China
Date of receipt	:	Noe. 02, 2016
Date of Test	:	Noe. 02~Dec. 09, 2016

1.2 Auxiliary Equipment Used during Test

N/A

1.3 Description of Test Facility

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

FCC-Registration No.: 752021
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 752021, July 06, 2016.

IC-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, Jun. 13, 2016.

Test Location
All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4 Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal) Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

2. Test Procedure

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC Part 15, Paragraph 15.207, 15.247 & 15.209.

2.1 Summary of Test Results

The EUT has been tested according to the following specifications:

Standard Section	**Test Item**	**Judgment**
15.203/15.247(c)	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.247(b)(1)	Conducted Peak Output Power	PASS
15.247(a)(1)	20dB Occupied Bandwidth	PASS
15.247(a)(1)	Carrier Frequencies Separation	PASS
15.247(a)(1)	Hopping Channel Number	PASS
15.247(a)(1)	Dwell Time	PASS
15.205/15.209	Spurious Emission	PASS
15.247(d)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

N/A means Not Applicable.

2.1 Results Description of Test Modes

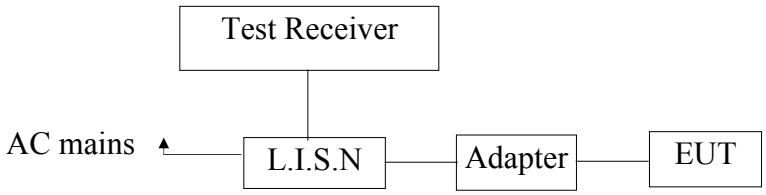
The EUT has been tested under operating condition.
Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
The test channel

Test model	Low Channel	Mid Channel	High Channel
Continuous TX	902.5MHz	914.5MHz	927.0MHz

3. Conducted Emission

3.1 Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



3.2 Power Line Conducted Emission Measurement Limits (15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.3 Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4 Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in test mode (Normal Mode) and measure it.

3.5 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.

The test results are reported on Section 3.6.

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Jul. 19, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jun. 17, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Jun. 17, 2016	1 Year

3.6 Power Line Conducted Emission Measurement Results

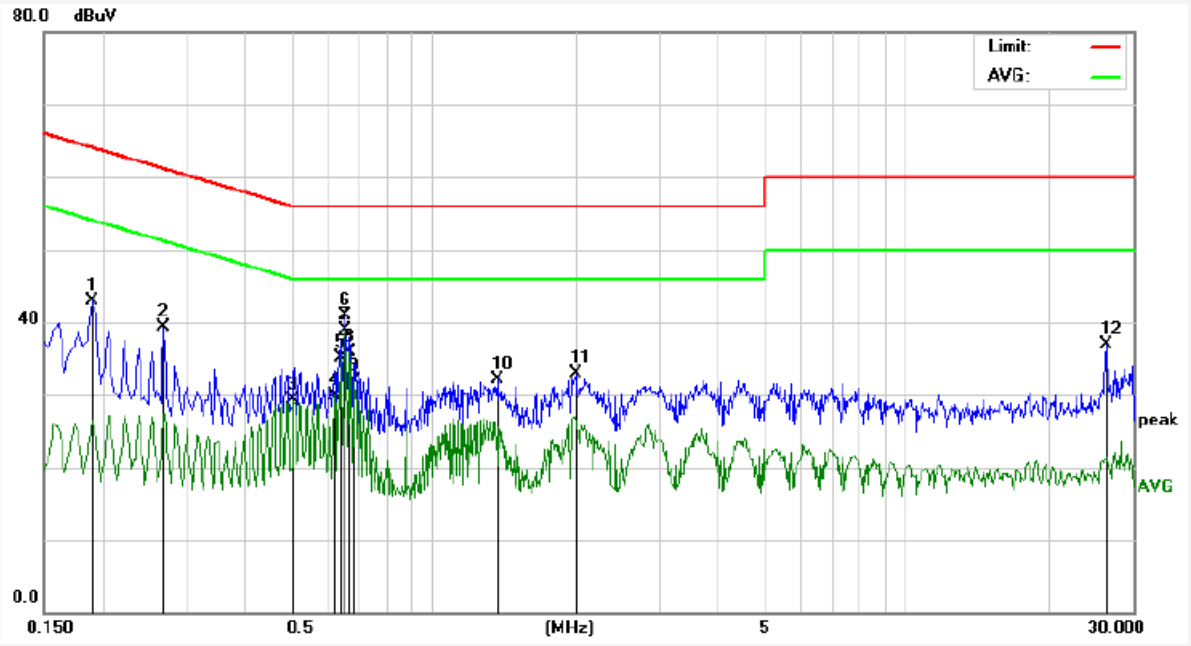
PASS.

The frequency range from 150KHz to 30 MHz is investigated.

Please refer the following pages.

CONDUCTED EMISSION TEST DATA

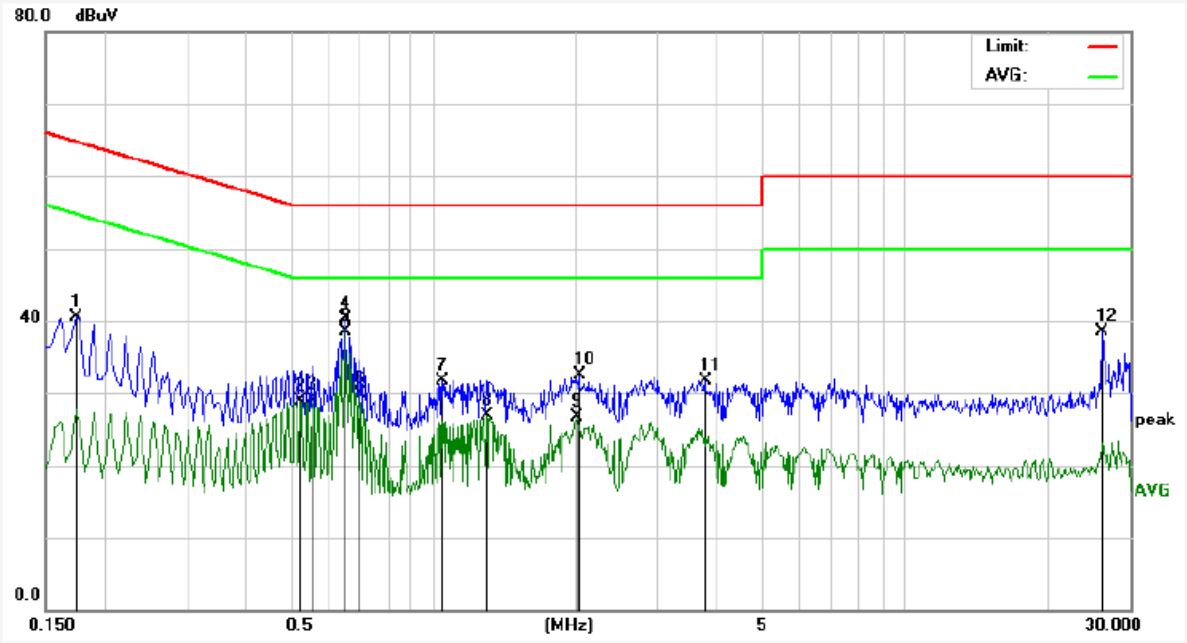
Test Site: 1# Shielded Room
Operating Condition: Normal Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1900	22.93	19.90	42.83	64.03	-21.20	QP	
2	0.2700	19.35	19.89	39.24	61.12	-21.88	QP	
3	0.5060	9.30	19.98	29.28	46.00	-16.72	AVG	
4	0.6180	9.95	20.02	29.97	46.00	-16.03	AVG	
5	0.6340	15.09	20.02	35.11	46.00	-10.89	AVG	
6	0.6500	20.87	20.02	40.89	56.00	-15.11	QP	
7	0.6500	18.95	20.02	38.97	46.00	-7.03	AVG	
8	0.6660	15.92	20.03	35.95	46.00	-10.05	AVG	
9	0.6820	11.90	20.03	31.93	46.00	-14.07	AVG	
10	1.3660	12.03	20.13	32.16	56.00	-23.84	QP	
11	1.9980	12.83	20.14	32.97	56.00	-23.03	QP	
12	26.2940	16.59	20.28	36.87	60.00	-23.13	QP	

CONDUCTED EMISSION TEST DATA

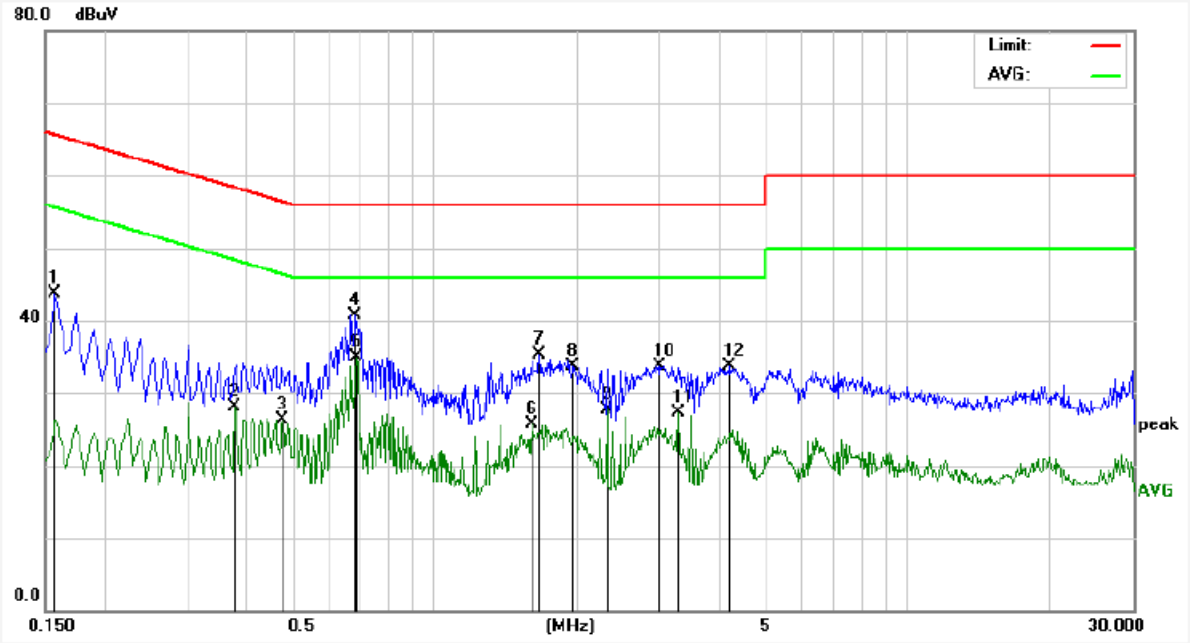
Test Site: 1# Shielded Room
Operating Condition: Normal Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	20.52	19.90	40.42	64.76	-24.34	QP	
2	0.5220	8.96	19.99	28.95	46.00	-17.05	AVG	
3	0.5540	9.01	20.00	29.01	46.00	-16.99	AVG	
4	0.6500	20.23	20.02	40.25	56.00	-15.75	QP	
5	0.6500	18.56	20.02	38.58	46.00	-7.42	AVG	
6	0.6980	9.88	20.04	29.92	46.00	-16.08	AVG	
7	1.0460	11.61	20.12	31.73	56.00	-24.27	QP	
8	1.3020	6.75	20.13	26.88	46.00	-19.12	AVG	
9	2.0140	6.52	20.14	26.66	46.00	-19.34	AVG	
10	2.0340	12.28	20.14	32.42	56.00	-23.58	QP	
11	3.7660	11.58	20.18	31.76	56.00	-24.24	QP	
12	26.2340	18.16	20.28	38.44	60.00	-21.56	QP	

CONDUCTED EMISSION TEST DATA

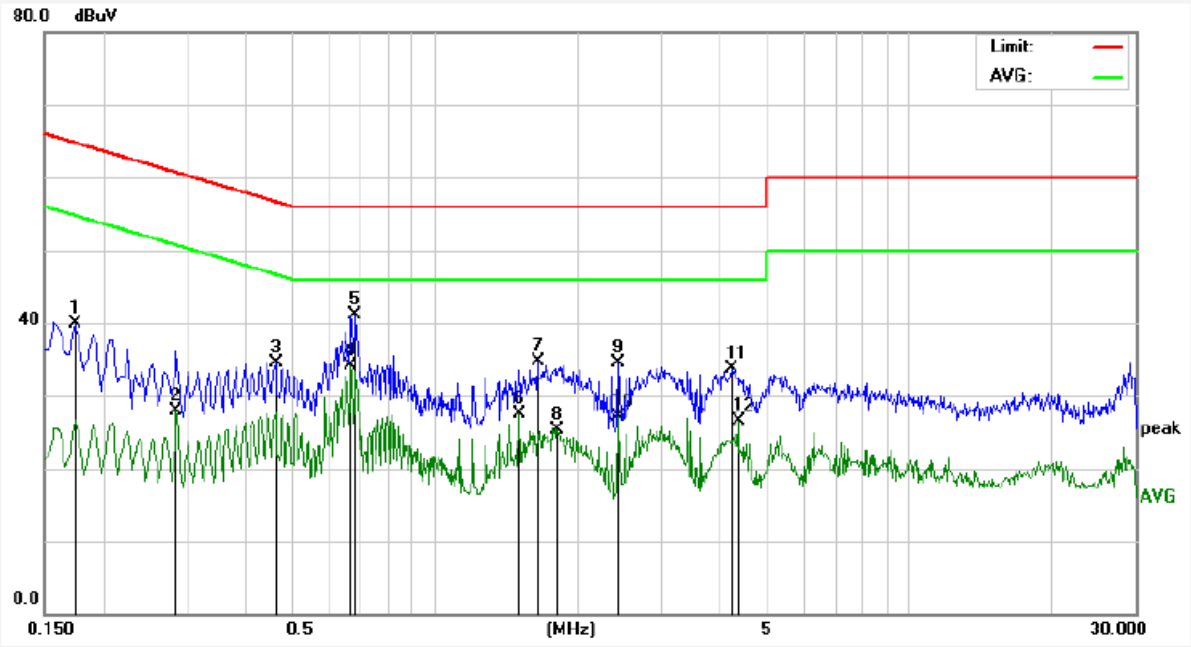
Test Site: 1# Shielded Room
Operating Condition: Normal Mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1580	23.83	19.90	43.73	65.56	-21.83	QP	
2	0.3780	8.12	19.93	28.05	48.32	-20.27	AVG	
3	0.4780	6.35	19.97	26.32	46.37	-20.05	AVG	
4	0.6820	20.77	20.03	40.80	56.00	-15.20	QP	
5	0.6860	14.83	20.04	34.87	46.00	-11.13	AVG	
6	1.6019	5.52	20.13	25.65	46.00	-20.35	AVG	
7	1.6660	15.27	20.13	35.40	56.00	-20.60	QP	
8	1.9660	13.62	20.14	33.76	56.00	-22.24	QP	
9	2.3140	7.50	20.15	27.65	46.00	-18.35	AVG	
10	2.9780	13.64	20.16	33.80	56.00	-22.20	QP	
11	3.2820	7.19	20.17	27.36	46.00	-18.64	AVG	
12	4.2060	13.53	20.19	33.72	56.00	-22.28	QP	

CONDUCTED EMISSION TEST DATA

Test Site:	1# Shielded Room
Operating Condition:	Normal Mode
Test Specification:	AC 240V, 60Hz for adapter
Comment:	Neutral Line
	Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	20.06	19.90	39.96	64.76	-24.80	QP	
2	0.2860	8.06	19.89	27.95	50.64	-22.69	AVG	
3	0.4620	14.46	19.96	34.42	56.66	-22.24	QP	
4	0.6660	13.99	20.03	34.02	46.00	-11.98	AVG	
5	0.6820	21.04	20.03	41.07	56.00	-14.93	QP	
6	1.5100	7.37	20.13	27.50	46.00	-18.50	AVG	
7	1.6460	14.51	20.13	34.64	56.00	-21.36	QP	
8	1.8100	5.18	20.14	25.32	46.00	-20.68	AVG	
9	2.4460	14.36	20.15	34.51	56.00	-21.49	QP	
10	2.4460	7.02	20.15	27.17	46.00	-18.83	AVG	
11	4.2380	13.42	20.19	33.61	56.00	-22.39	QP	
12	4.3820	6.35	20.19	26.54	46.00	-19.46	AVG	

4. Radiation Interference

4.1 Requirements (15.247, 15.209):

4.1.1. Test Limits (< 30 MHZ)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

4.1.2. Test Limits (≥ 30 MHZ)

FIELD STRENGTH of Fundamental: @3M	FIELD STRENGTH of Harmonics	S15.209 30 - 88 MHz	40 dBuV/m
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

For range 9KHz~30MHz, The measured value is really too low to be recorded.

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

4.2 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 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 =3MHz,
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.

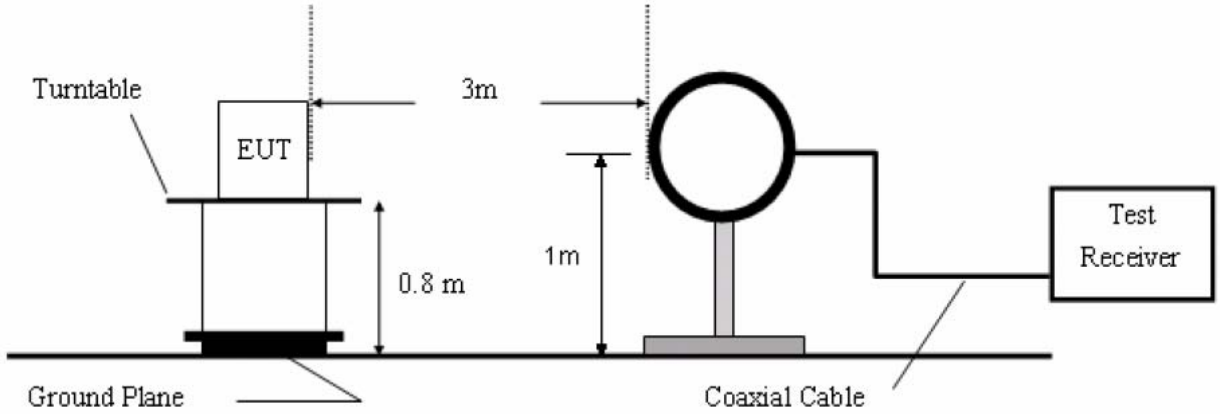
Set the spectrum analyzer as:
RBW =1MHz, VBW =10Hz
Detector= Average
Trace mode= Max hold.
Sweep- auto couple.

Test Equipment

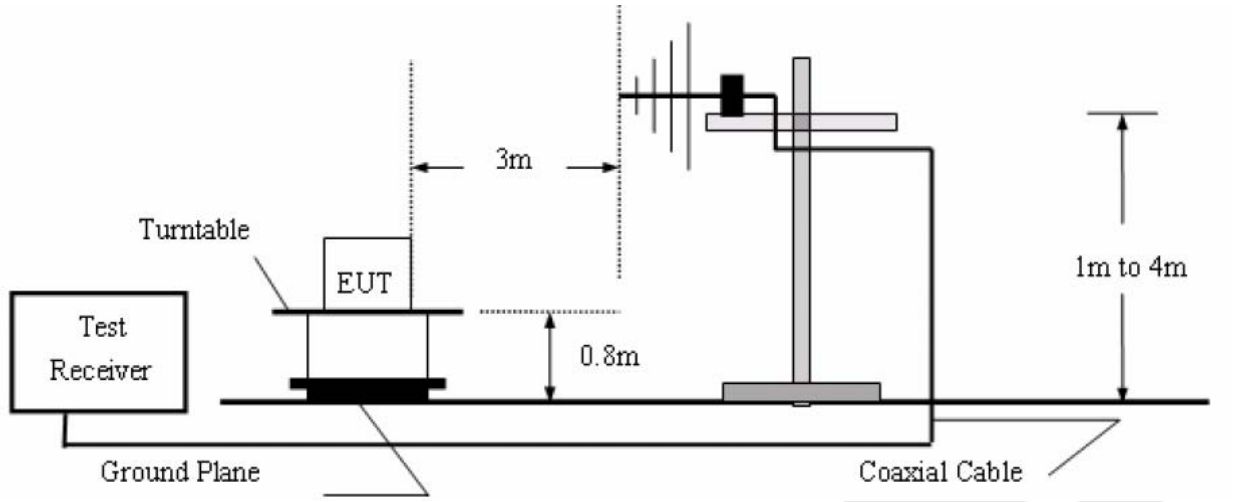
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Jul. 12, 2016	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Jun. 17, 2016	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Jun. 17, 2016	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 06, 2016	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 06, 2016	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Jun. 17, 2016	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	Agilent	KFSW150502	15I00041SN045	Jun. 17, 2016	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun. 17, 2016	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun. 17, 2016	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun. 17, 2016	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun. 17, 2016	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Jun. 17, 2016	1 Year

4.3 Test Configuration

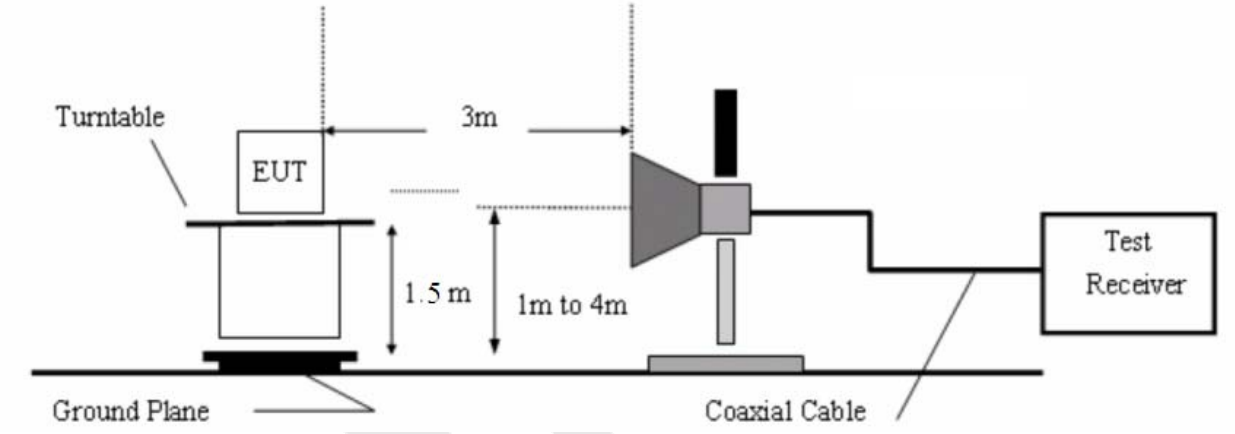
4.3.1. 9k to 30MHz emissions:



4.3.2. 30M to 1G emissions:



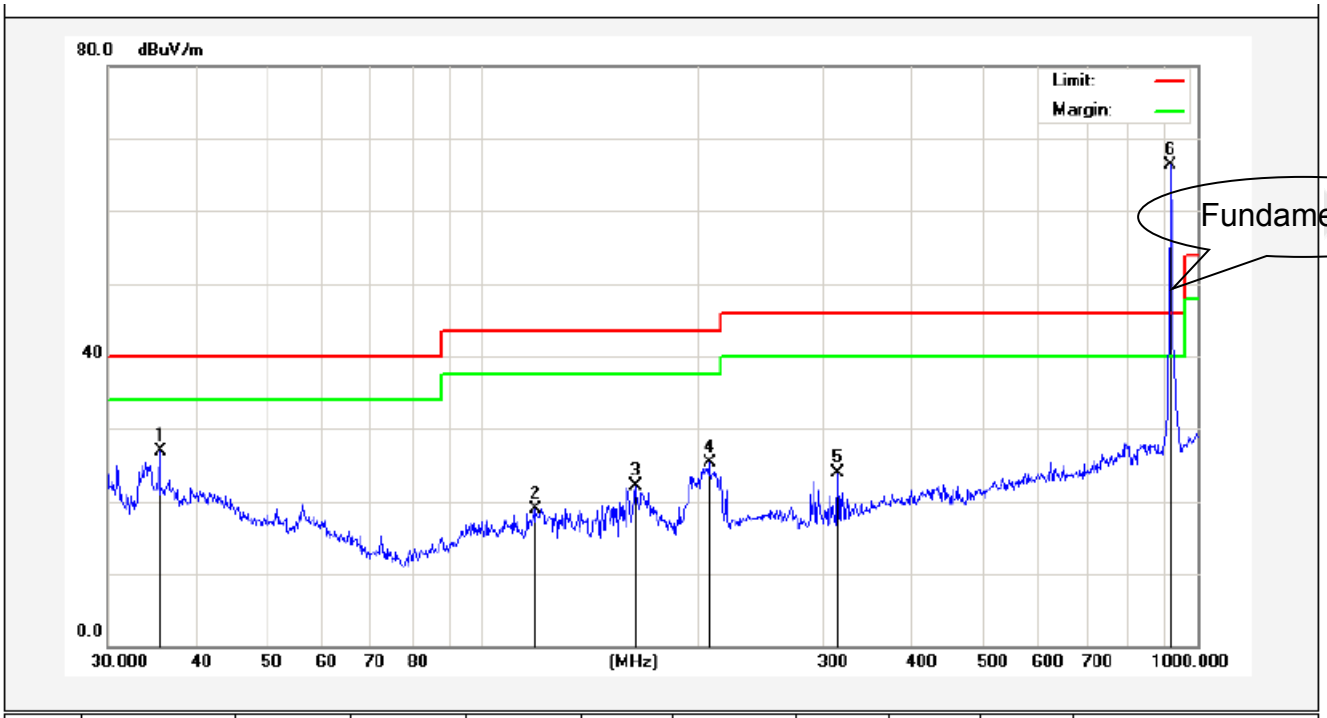
4.3.3. 1G to 40G emissions:



4.4 Test Results

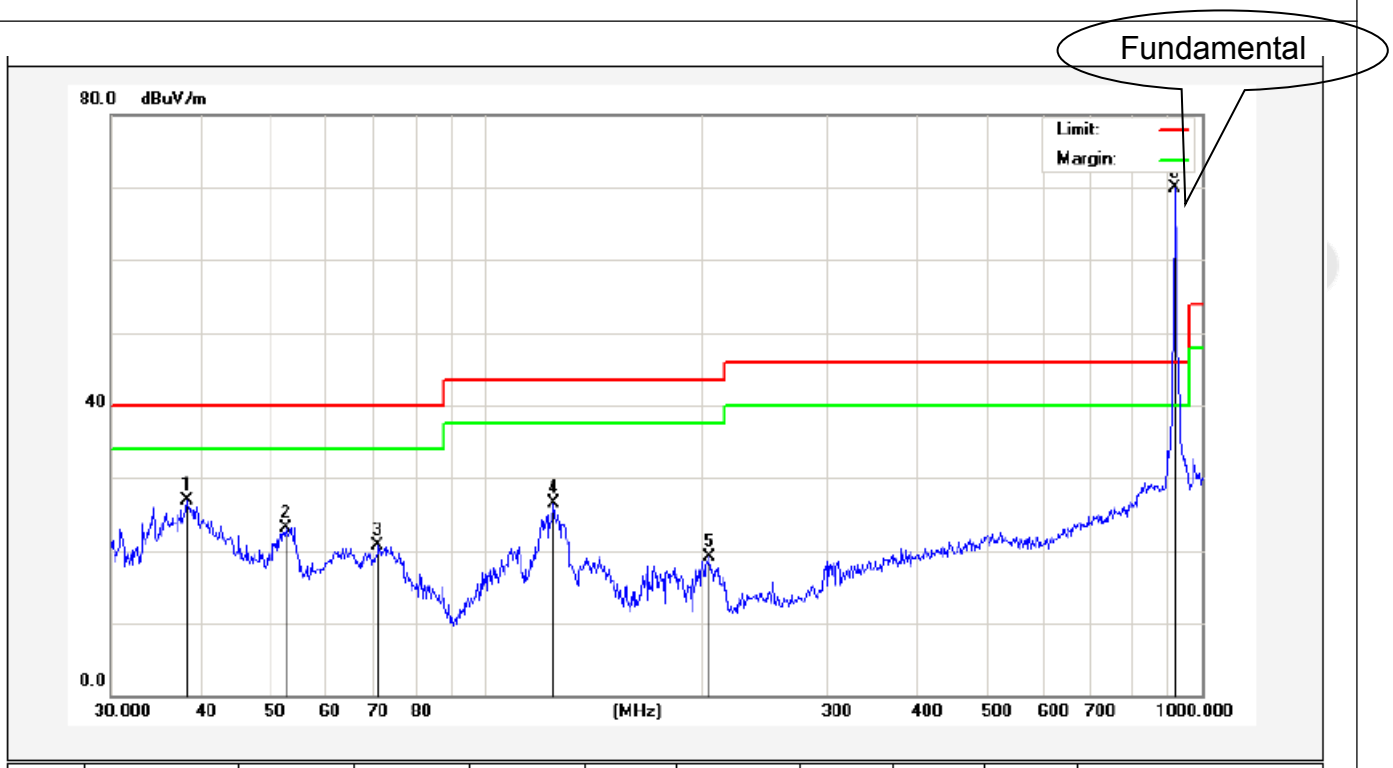
PASS.

Job No.:	**011611099I**	**Plarization:**	**Horizontal**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(℃)/55%RH**
Test Mode:	**Normal Mode**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	35.4993	40.85	-13.90	26.95	40.00	-13.05	peak			
2	119.0180	40.25	-21.27	18.98	43.50	-24.52	peak			
3	163.7550	44.90	-22.75	22.15	43.50	-21.35	peak			
4	207.8501	45.78	-20.57	25.21	43.50	-18.29	peak			
5	314.3765	39.88	-15.94	23.94	46.00	-22.06	peak			
6	916.0687	70.84	-4.52	66.32	46.00	20.32	peak			

Job No.:	**011611099I**	**Plarization:**	**Vertical**
Standard:	**(RE)FCC PART 15C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test (30~1000MHz)**	**Temp.(C)/Hum.(%RH):**	**24.3(℃)/55%RH**
Test Mode:	**Normal Mode**	**Distance:**	**3m**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	38.3462	38.63	-11.66	26.97	40.00	-13.03	peak			
2	52.5753	37.91	-14.75	23.16	40.00	-16.84	peak			
3	70.8315	40.53	-19.78	20.75	40.00	-19.25	peak			
4	124.5690	43.49	-17.01	26.48	43.50	-17.02	peak			
5	205.6751	34.75	-15.65	19.10	43.50	-24.40	peak			
6	916.0687	73.43	-3.52	69.91	46.00	23.91	peak			

Data: (Frequency=902.5MHz)

Horizontal

Frequency	Cable Loss	Ant Factor	Pream pFactor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1805.00	1.82	28.02	39.21	76.13	66.76	74.00	-7.24	Peak
1805.00	1.82	28.02	39.21	61.25	51.88	54.00	-2.12	AV
2707.50	2.28	33.16	35.16	57.27	57.55	74.00	-16.45	Peak
2707.50	2.28	33.16	35.16	49.48	49.76	54.00	-4.24	AV
3610.00	2.50	33.31	35.02	57.62	58.41	74.00	-15.59	Peak
3610.00	2.50	33.31	35.02	48.04	48.83	54.00	-5.17	AV
4512.50	---	---	---	---	---	---	---	---
4512.50	---	---	---	---	---	---	---	---
5415.00	---	---	---	---	---	---	---	---
5415.00	---	---	---	---	---	---	---	---

Vertical

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1805.00	1.82	28.02	39.21	67.46	69.28	74.00	-4.72	Peak
1805.00	1.82	28.02	39.21	50.97	52.79	54.00	-1.21	AV
2707.50	2.28	33.16	35.16	62.15	62.43	74.00	-11.57	Peak
2707.50	2.28	33.16	35.16	51.19	51.47	54.00	-2.53	AV
3610.00	2.50	33.31	35.02	63.13	63.92	74.00	-10.08	Peak
3610.00	2.50	33.31	35.02	48.64	49.43	54.00	-4.57	AV
4512.50	---	---	---	---	---	---	---	---
4512.50	---	---	---	---	---	---	---	---
5415.00	---	---	---	---	---	---	---	---
5415.00	---	---	---	---	---	---	---	---

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Data: (Frequency=914.5MHz)

Horizontal

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1829.00	1.82	28.02	39.21	74.32	64.95	74.00	-9.05	Peak
1829.00	1.82	28.02	39.21	58.67	49.30	54.00	-4.70	AV
2743.50	2.28	33.16	35.16	66.89	67.17	74.00	-6.83	Peak
2743.50	2.28	33.16	35.16	48.24	48.52	54.00	-5.48	AV
3658.00	2.50	33.31	35.02	69.13	69.92	74.00	-4.08	Peak
3658.00	2.50	33.31	35.02	47.18	47.97	54.00	-6.03	AV
4572.50	---	---	---	---	---	---	---	---
4572.50	---	---	---	---	---	---	---	---
5487.00	---	---	---	---	---	---	---	---
5487.00	---	---	---	---	---	---	---	---

Vertical

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1829.00	1.82	28.02	39.21	68.06	69.88	74.00	-4.12	Peak
1829.00	1.82	28.02	39.21	49.99	51.81	54.00	-2.19	AV
2743.50	2.28	33.16	35.16	62.21	62.49	74.00	-11.51	Peak
2743.50	2.28	33.16	35.16	52.38	52.66	54.00	-1.34	AV
3658.00	2.50	33.31	35.02	63.12	63.91	74.00	-10.09	Peak
3658.00	2.50	33.31	35.02	49.07	49.86	54.00	-4.14	AV
4572.50	---	---	---	---	---	---	---	---
4572.50	---	---	---	---	---	---	---	---
5487.00	---	---	---	---	---	---	---	---
5487.00	---	---	---	---	---	---	---	---

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Data: (Frequency=927MHz)

Horizontal

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1854.00	1.82	28.02	39.21	73.29	63.92	74.00	-10.08	Peak
1854.00	1.82	28.02	39.21	68.38	59.01	54.00	5.01	AV
2781.00	2.28	33.16	35.16	64.84	65.12	74.00	-8.88	Peak
2781.00	2.28	33.16	35.16	46.13	46.41	54.00	-7.59	AV
3708.00	2.50	33.31	35.02	53.96	54.75	74.00	-19.25	Peak
3708.00	2.50	33.31	35.02	40.27	41.06	54.00	-12.94	AV
4635.00	---	---	---	---	---	---	---	---
4635.00	---	---	---	---	---	---	---	---
5562.00	---	---	---	---	---	---	---	---
5562.00	---	---	---	---	---	---	---	---

Vertical

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	dBμV	dBμV/m	dBμV/m	dB	
1854.00	1.82	28.02	39.21	67.69	69.51	74.00	-4.49	Peak
1854.00	1.82	28.02	39.21	49.65	51.47	54.00	-2.53	AV
2781.00	2.28	33.16	35.16	58.44	58.72	74.00	-15.28	Peak
2781.00	2.28	33.16	35.16	43.13	43.41	54.00	-10.59	AV
3708.00	2.50	33.31	35.02	54.26	55.05	74.00	-18.95	Peak
3708.00	2.50	33.31	35.02	39.87	40.66	54.00	-13.34	AV
4635.00	---	---	---	---	---	---	---	---
4635.00	---	---	---	---	---	---	---	---
5562.00	---	---	---	---	---	---	---	---
5562.00	---	---	---	---	---	---	---	---

NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

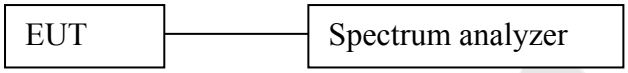
5. CHANNEL SEPARATION TEST

5.1 Measurement Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer settings:

1. Span= Wide enough to capture the peaks of two adjacent channels
2. Set the RBW = 30kHz.
3. Set the VBW = 100kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

5.2 Test SET-UP



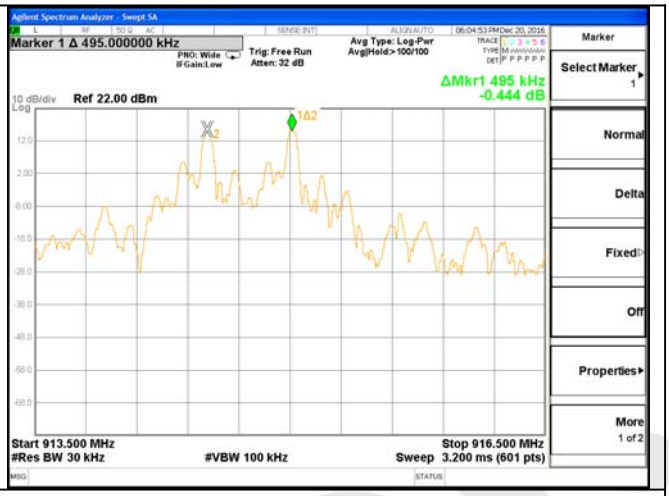
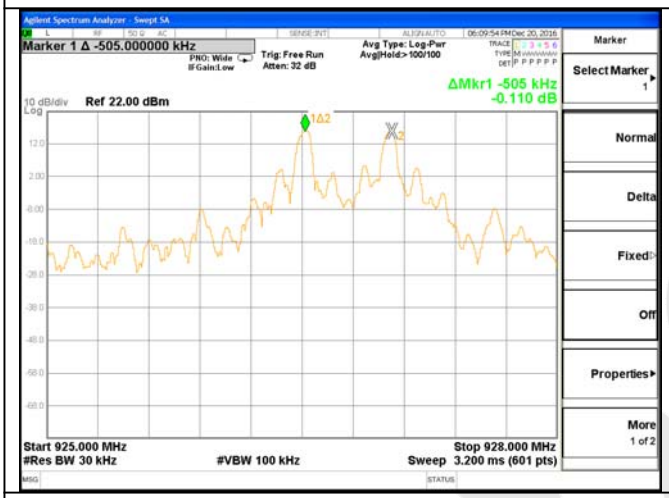
5.3 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun. 17, 2016	1 Year
2	DC Power supply	IV	IV-8080	YQSB0096	Jun. 17, 2016	1 Year

5.4 Test Results

Test Item	:	Frequency Separation	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel	Frequency (MHz)	Separation Read Value (kHz)	Limit (kHz)
Low	902.5	505	>396.2
Mid	914.5	495	>485.0
High	927.0	505	>422.1

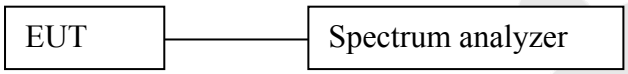
	
Test Mode:Low	Test Mode:Mid
	/
Test Mode: High	/

6. 20DB BANDWIDTH TEST

6.1 Measurement Procedure

Using the following spectrum analyzer settings:
1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW = 10 kHz.
3. Set the VBW = 30 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

6.2 Test SET-UP



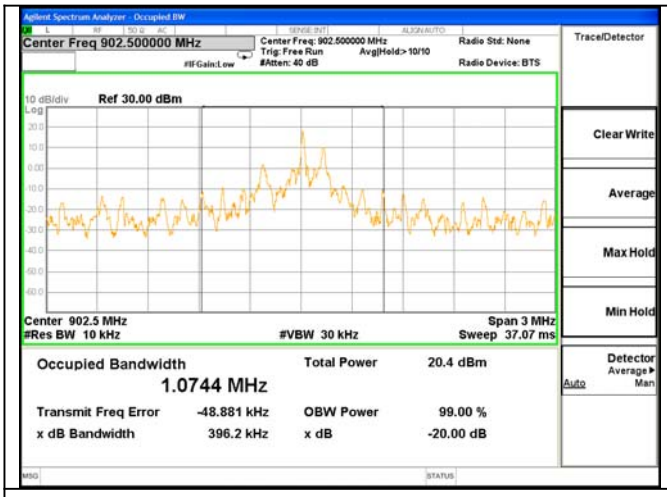
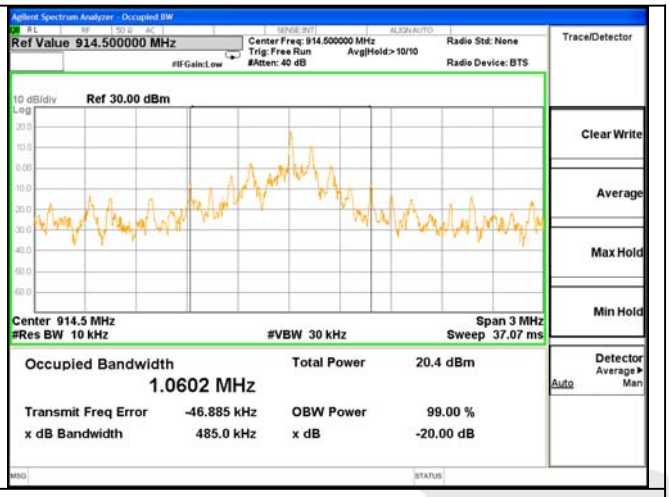
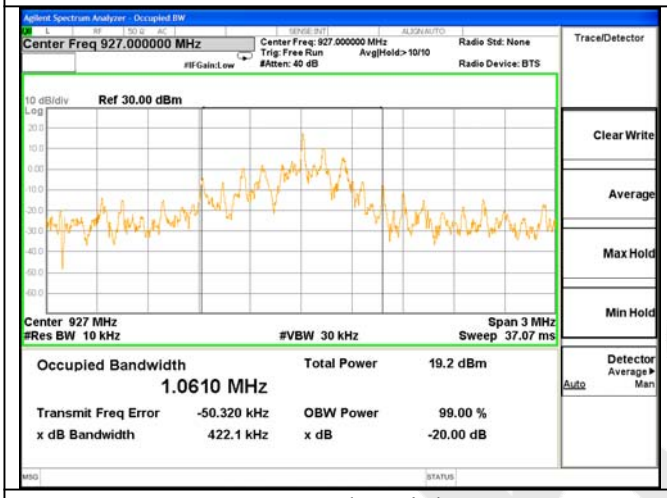
6.3 Test Equipment

Same as the equipment listed in 5.3.

6.4 Test Results

Test Item	:	20dB BW	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Channel	Frequency (MHz)	20dB Down BW(kHz)	Test Result
Low	902.5	396.2	PASS
Mid	914.5	485.0	PASS
High	927.0	422.1	PASS

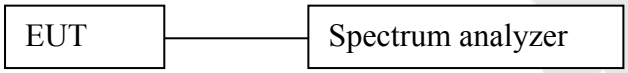
	
Test Mode:Low	Test Mode:Mid
	/
Test Mode: High	/

7. QUANTITY OF HOPPING CHANNEL TEST

7.1 Measurement Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer setting:
1. Span= the frequency band of operation
2. Set the RBW = 100 kHz.
3. Set the VBW ≥1* RBW.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

7.2 Test SET-UP



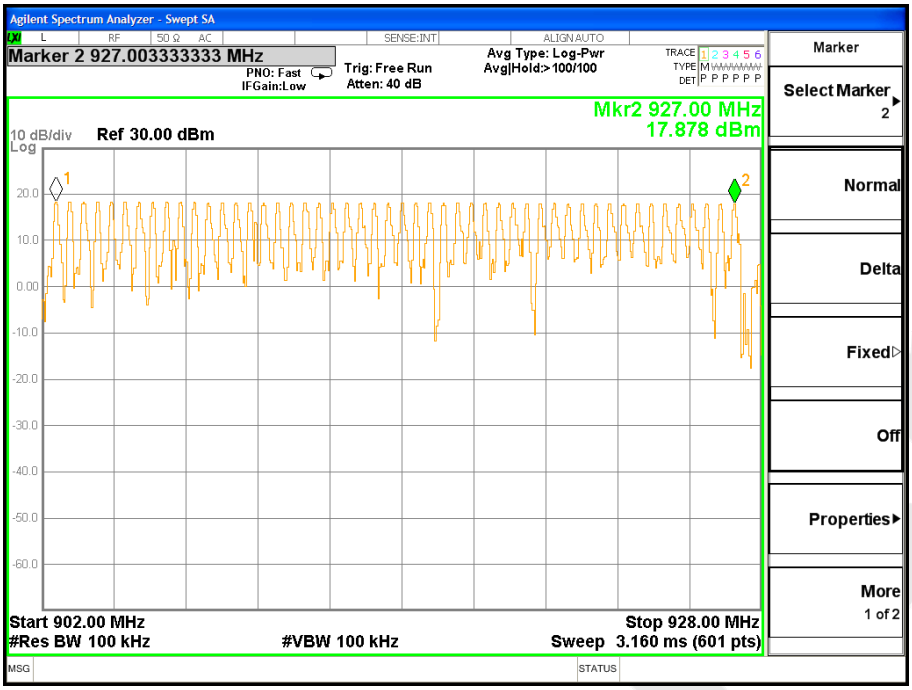
7.3 Test Equipment

Same as the equipment listed in 5.3.

7.4 Test Results

Test Item	:	Number of Hopping Frequency	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Hopping Channel Frequency Range	Quantity of Hopping Channel	Quantity of Hopping Channel
902.5MHz-927MHz	50	≥50


Agilent Spectrum Analyzer - Swept SA
Marker 2 927.003333333 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr2 927.00 MHz
17.878 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Start 902.00 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 928.00 MHz
Sweep 3.160 ms (601 pts)
Marker
Select Marker
2
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

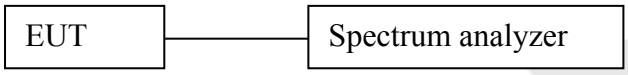
8. DWELL TIME TEST

8.1 Measurement Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span= zero span, centered on a hopping channel
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Sweep time = as necessary to capture the entire dwell time per hopping channel.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

8.2 Test SET-UP



8.3 Test Equipment

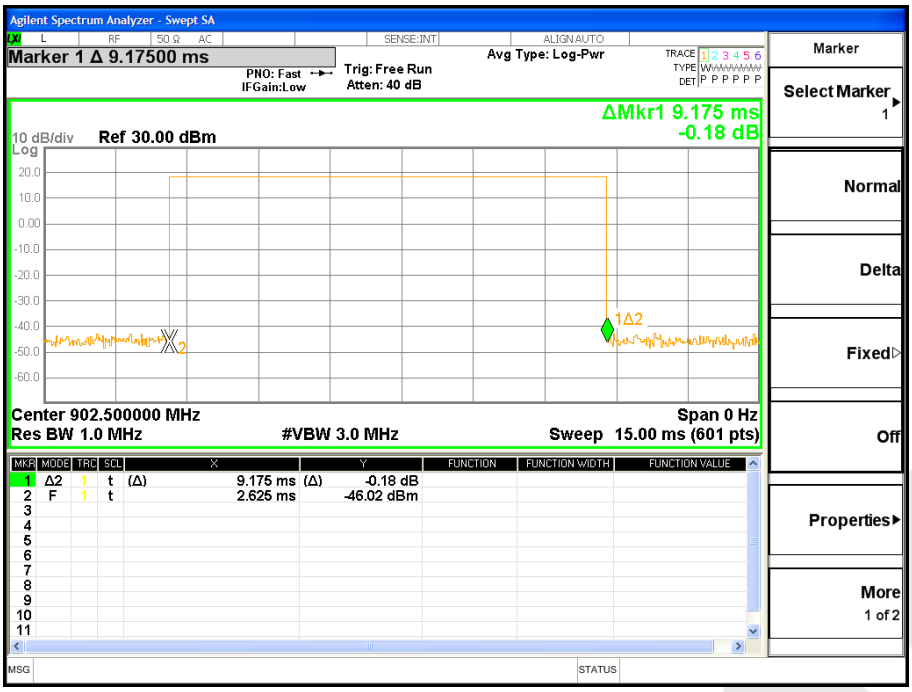
Same as the equipment listed in 5.3.

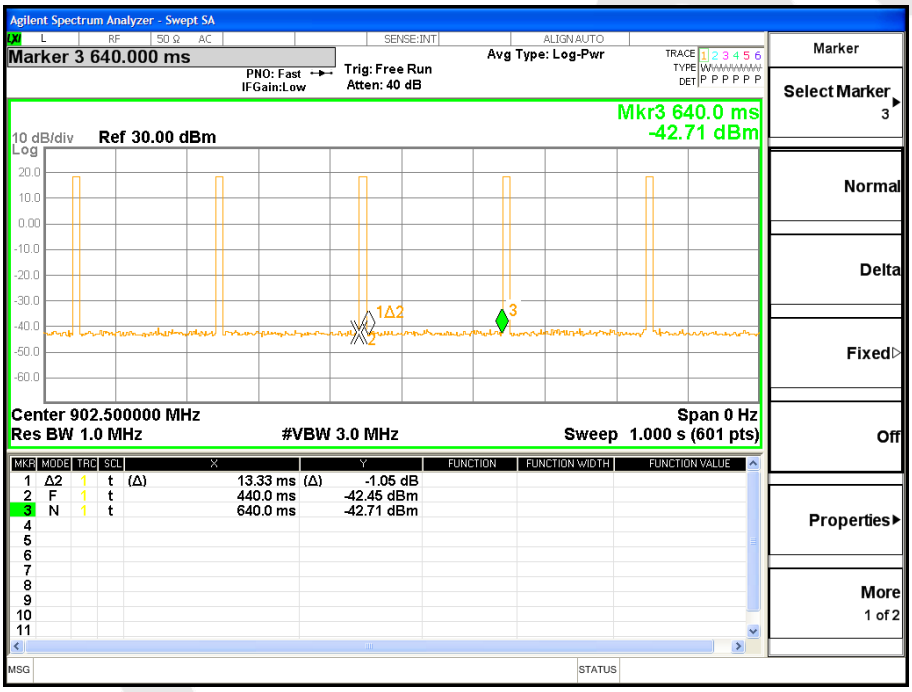
8.4 Test Results

Test Item	:	Time of Occupancy	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Frequency (MHz)	***Pulse width (ms)***	**Time slot length(ms)**	**Dwell time (ms)**	**Limit (ms)**
902.5	11.8	Pulse width*5	59	400

Five Ton at one second. Each on time is 11.8ms


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 9.17500 ms
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 40 dB
Avg Type: Log-Pwr
ΔMkr1 9.175 ms
-0.18 dB
10 dB/div
Log
Ref 30.00 dBm
Center 902.500000 MHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 15.00 ms (601 pts)
1 Δ2 1 t (Δ) 9.175 ms (Δ) -0.18 dB
2 F 1 t 2.625 ms -46.02 dBm
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 3 640.000 ms
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 40 dB
Avg Type: Log-Pwr
Mkr3 640.0 ms
-42.71 dBm
10 dB/div
Log
Ref 30.00 dBm
Center 902.500000 MHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 1.000 s (601 pts)
1 Δ2 1 t (Δ) 13.33 ms (Δ) -1.05 dB
2 F 1 t 440.0 ms -42.45 dBm
3 N 1 t 640.0 ms -42.71 dBm
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

9. MAX IMUM PEAK OUTPUT POWER TEST

9.1 Measurement Procedure

a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
d. Measure the captured power within the band and recording the plot.
e. Repeat above procedures until all frequencies required were complete.
Using the following spectrum analyzer settings:
1. Span= approximately 5 times the 20dB bandwidth, centered on a hopping channel
2. Set the RBW = 510kHz.
3. Set the VBW = 1.5MHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

9.2 Test SET-UP

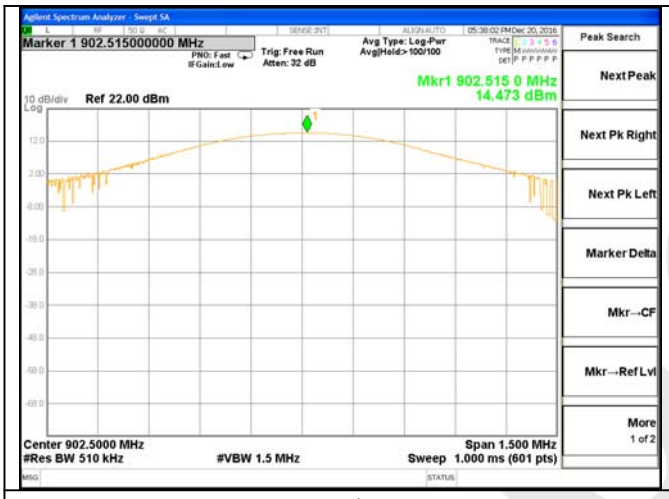
9.3 Test Equipment

Same as the equipment listed in 5.3.

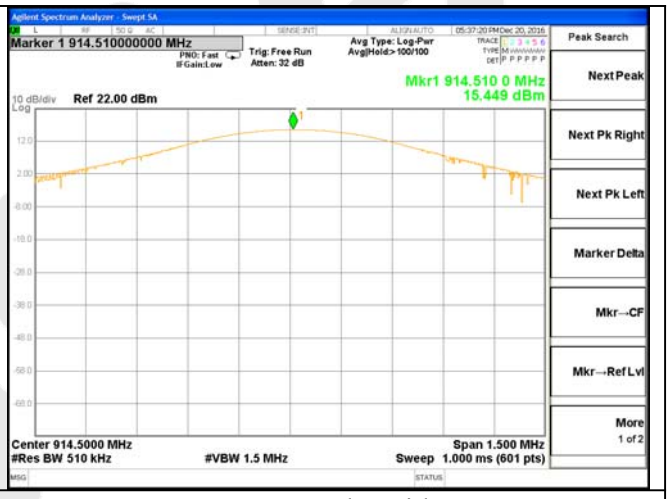
9.4 Test Results

Test Item	:	Max. peak output power	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

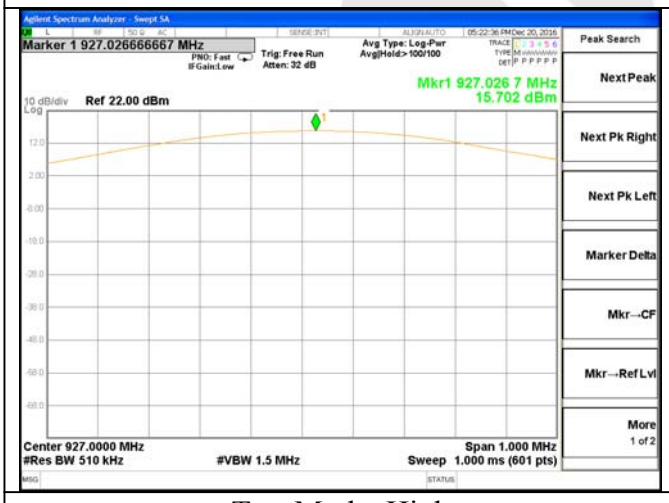
Channel Frequency (MHz)	Peak Power output(dBm)	Peak Power Limit(mW)	Results
902.5	14.473	30	PASS
914.5	15.449	30	PASS
927.0	15.702	30	PASS



Test Mode:Low



Test Mode:Mid



Test Mode: High

/

/

10. BAND EDGE TEST

10.1 Measurement Procedure

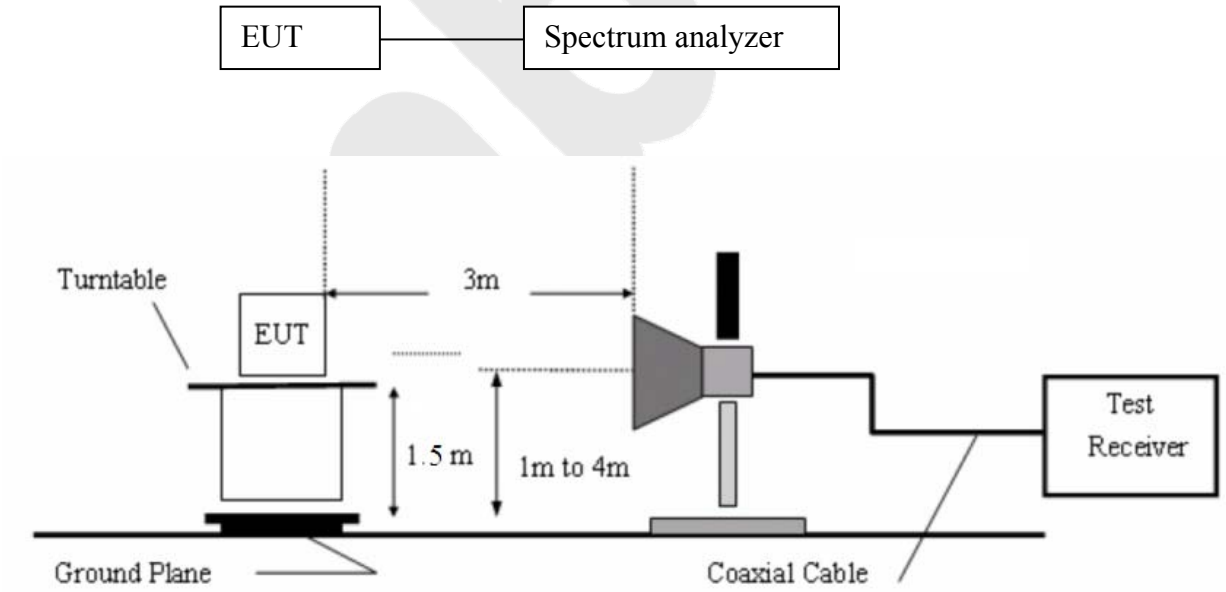
A) Conducted Emission method:

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100kHz with a convenient frequency span including 100kHz bandwidth from band edge,
4. Measurement the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Report above procedures until all measured frequencies were complete.

B) Radiated Emission method:

The EUT is placed on a turn table which is 1.5 meter high above the ground. 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.
for Radiated emissions restricted band RBW= 1 MHz, VBW= 3 MHz.

10.2 Test SET-UP



10.3 Test Equipment

Same as the equipment listed in 5.3.

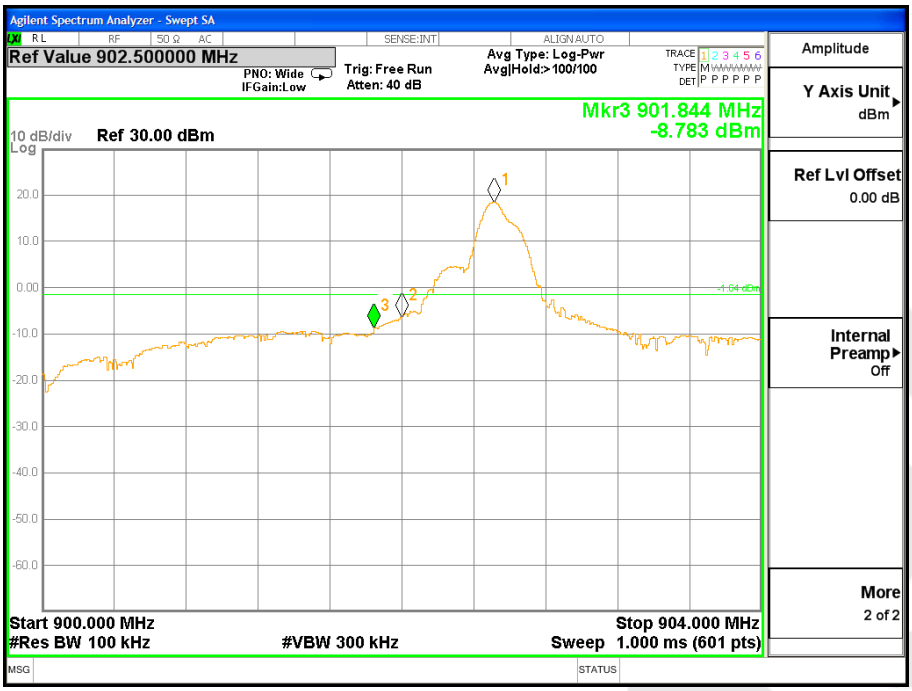
10.4 Test Results

Pass.

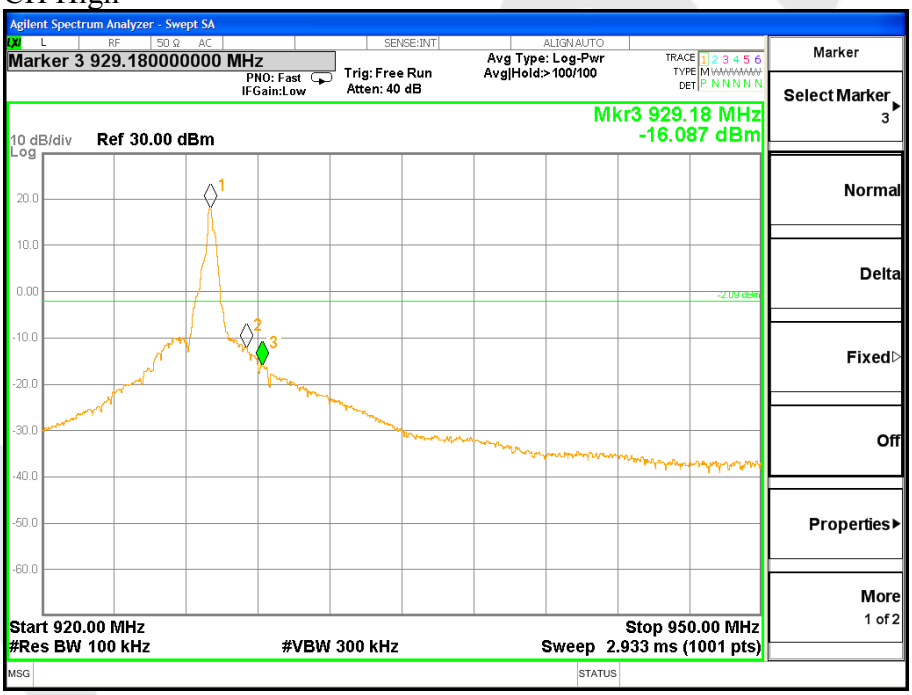
Please refer the following data.

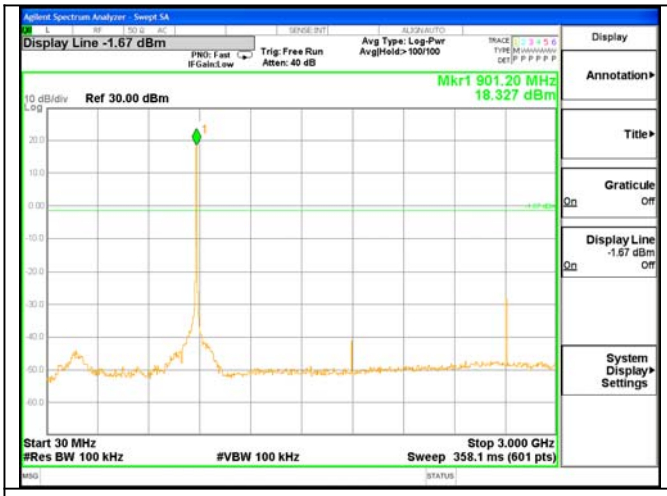
Test Item	:	Band eadge	Test Mode	:	CH Low ~ CH High
Test Voltage	:	AC 120V, 60Hz for adapter	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

CH Low

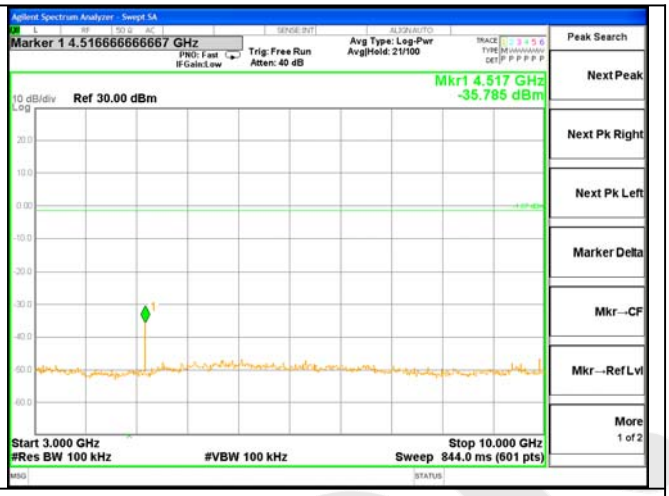


CH High

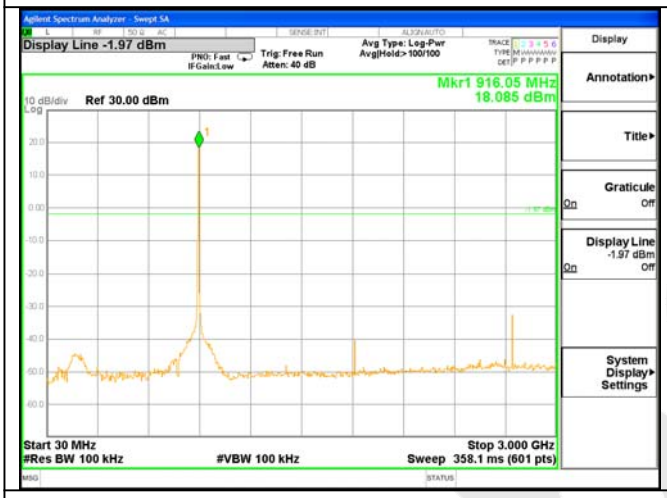




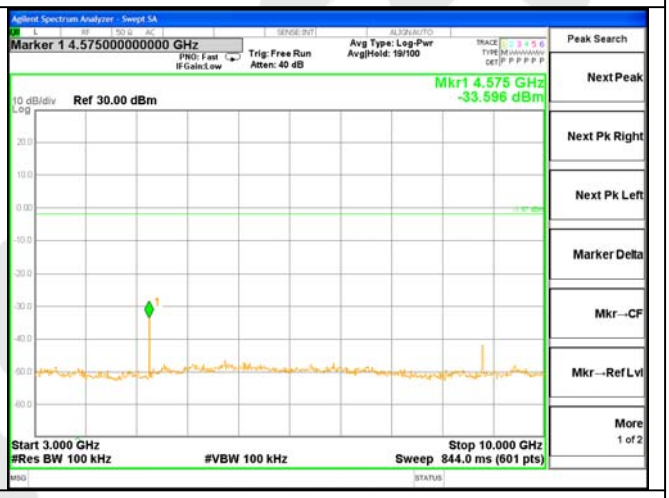
Test Mode: 902.5MHz---Low



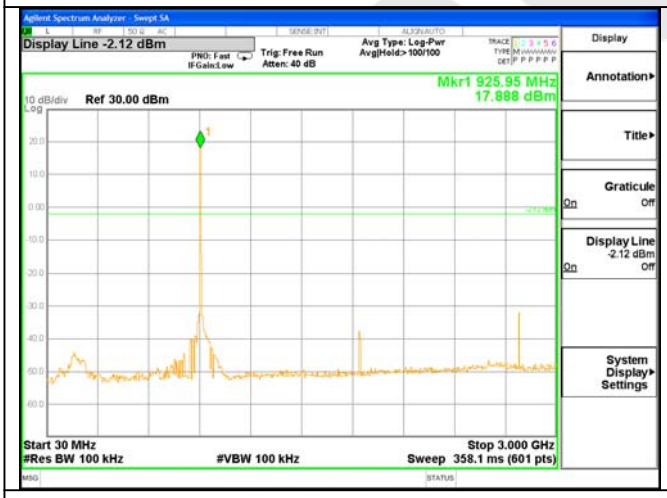
Test Mode: 902.5MHz---Low



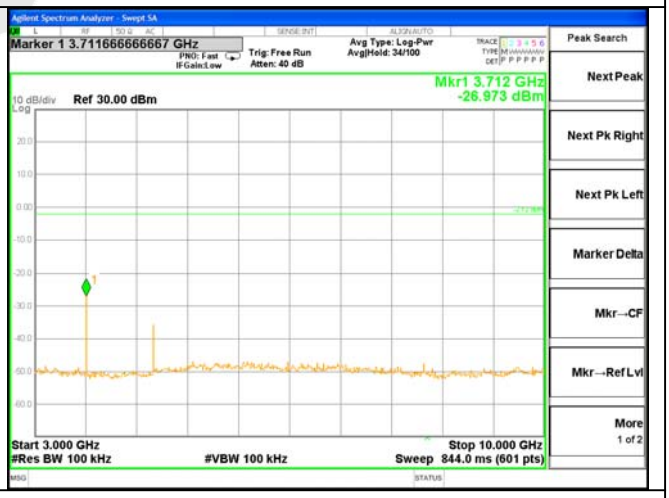
Test Mode: 914.5MHz---Mid



Test Mode: 914.5MHz---Mid



Test Mode: 927MHz---High



Test Mode: 927MHz---High

11. ANTENNA APPLICATION

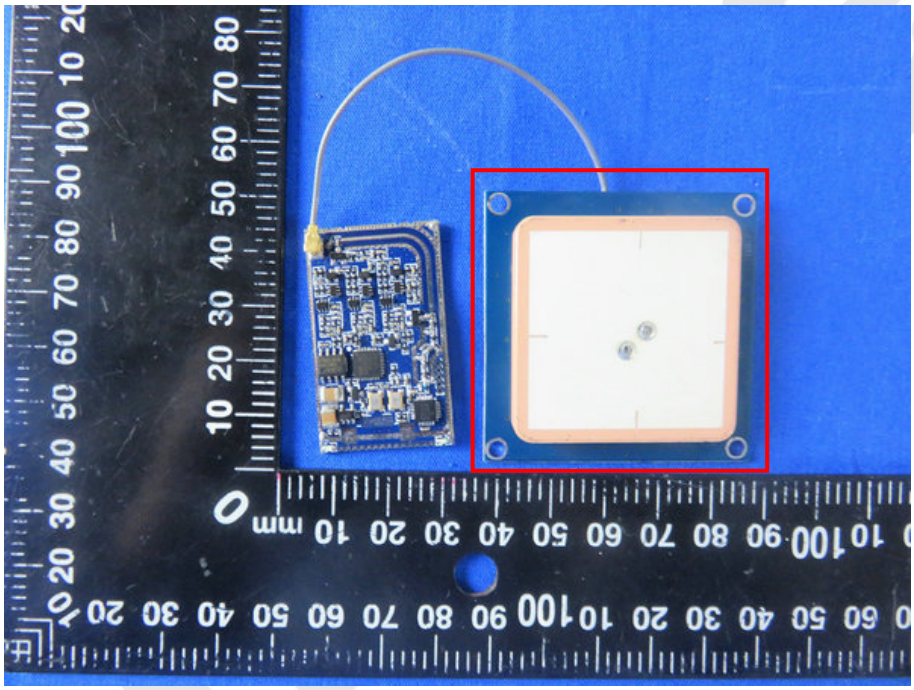
11.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

FCC part 15C section 15.247 requirements:
Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dBi that the directional gain of the antenna exceeds 6dBi.

11.2 Result

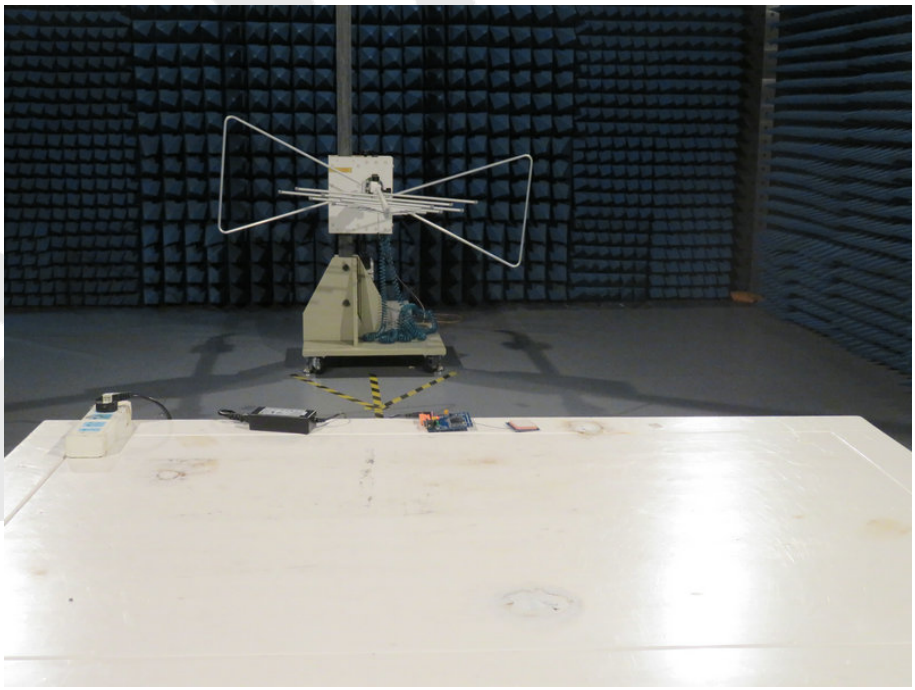
The EUT's antenna used a Plate Antenna, The antenna's gain is 3dBi and meets the requirement.

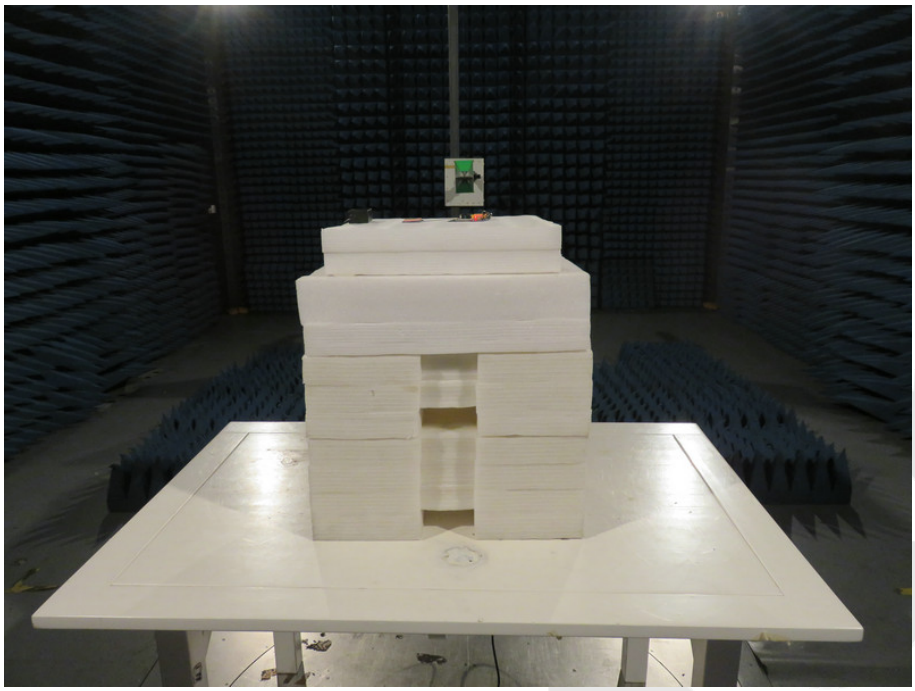


12. PHOTOGRAPH

12.1 Photo of Power Line Conducted Emission Measurement

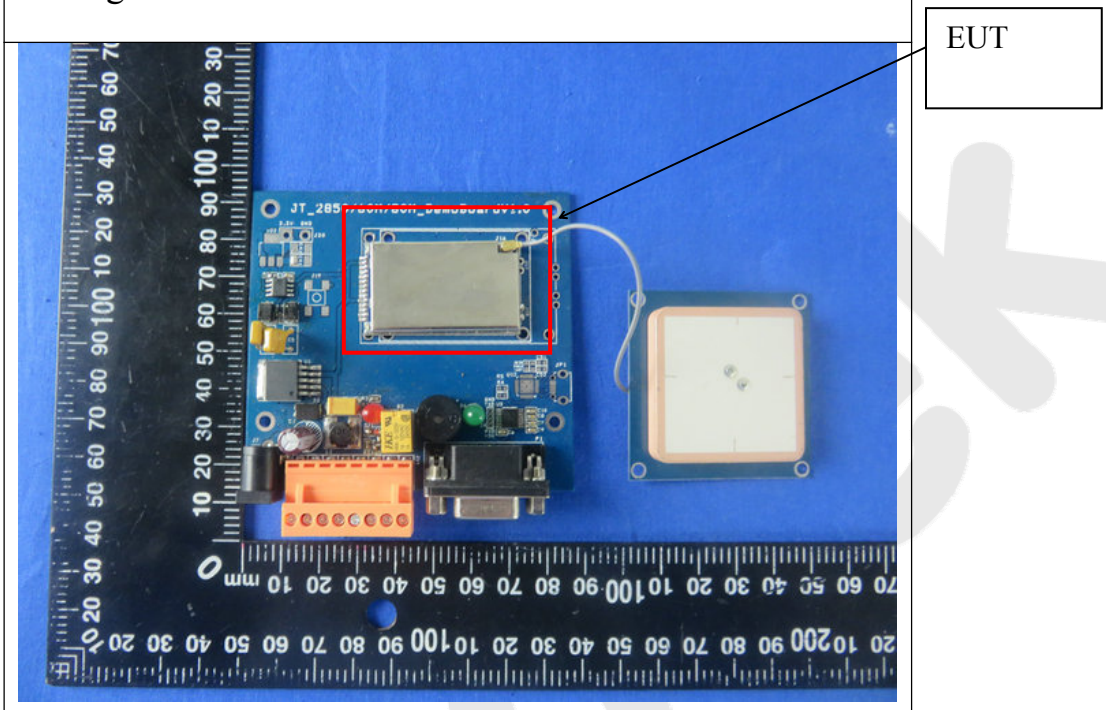
12.2 Photo of Radiation Emission Test



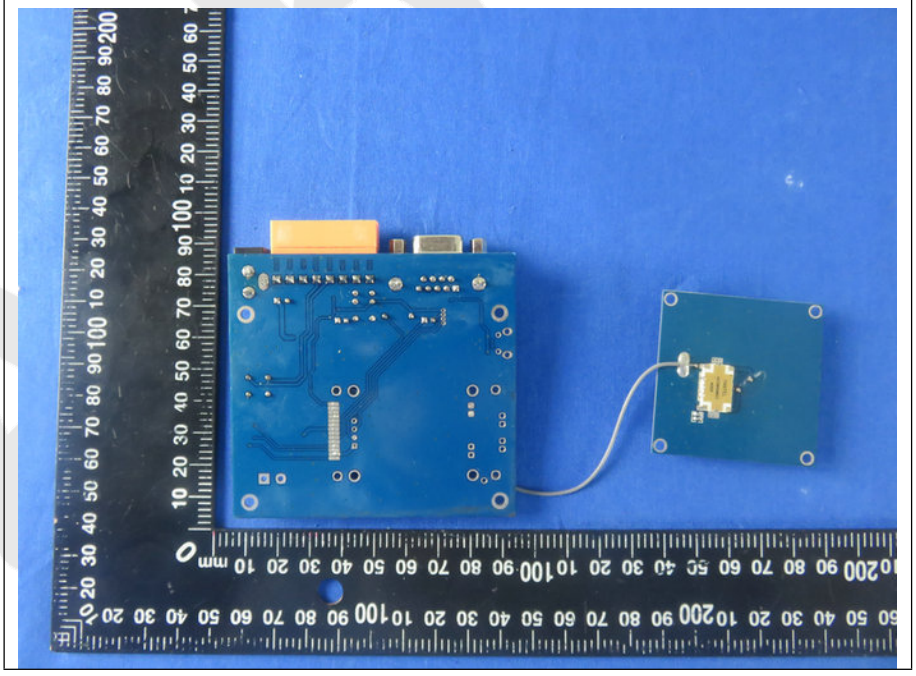


APPENDIX I (EXTERNAL PHOTOS)

1. Figure

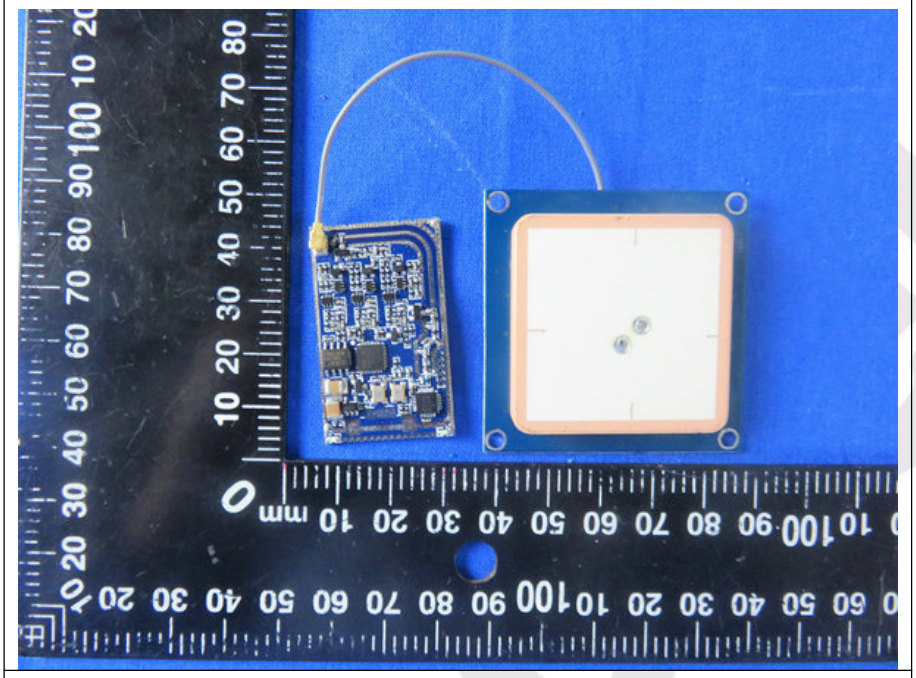


2. Figure

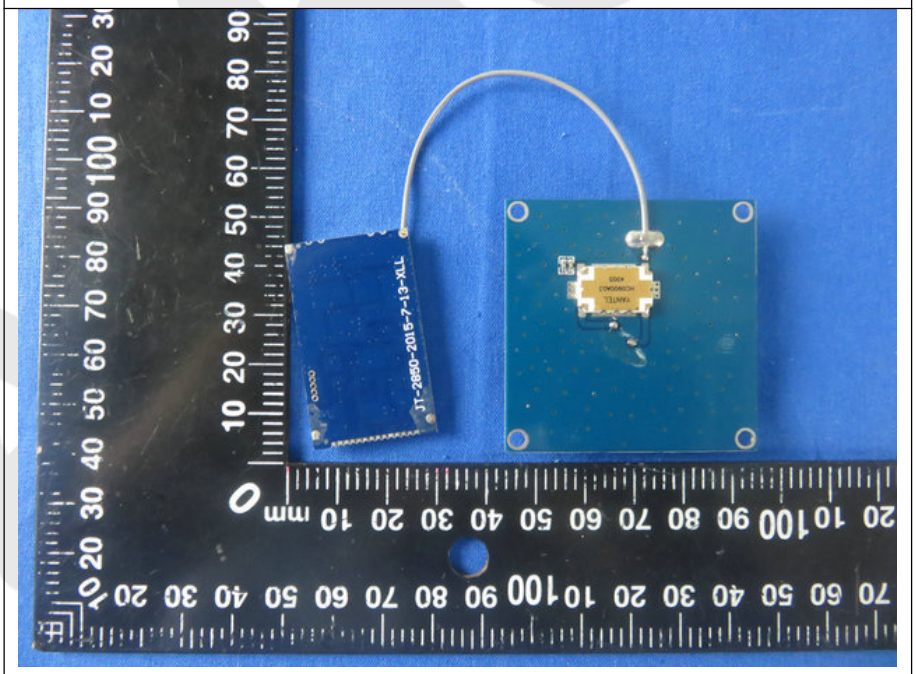


APPENDIX Ⅱ(INTERNAL PHOTOS)

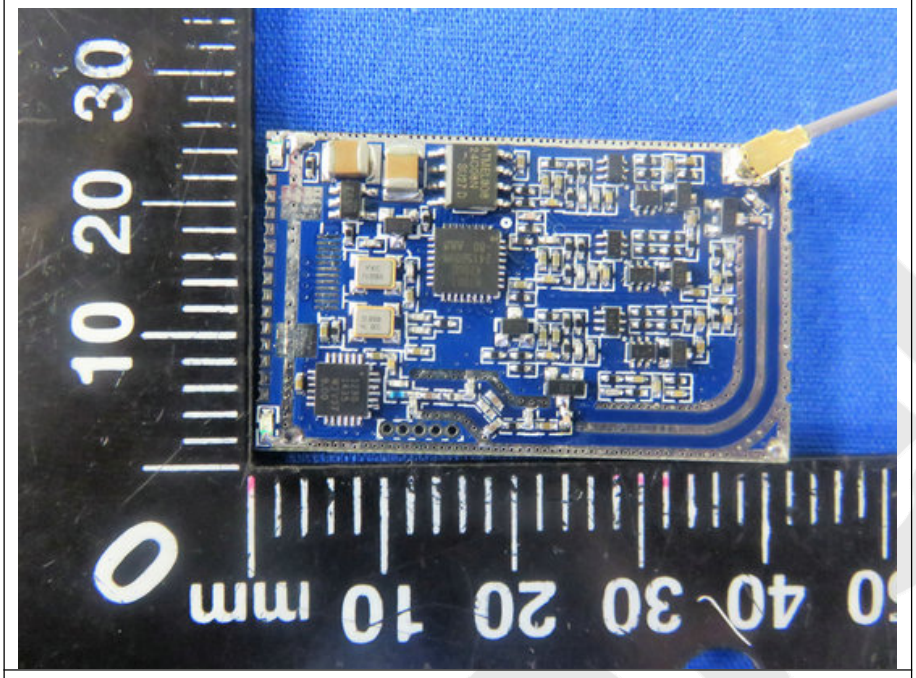
1. Figure



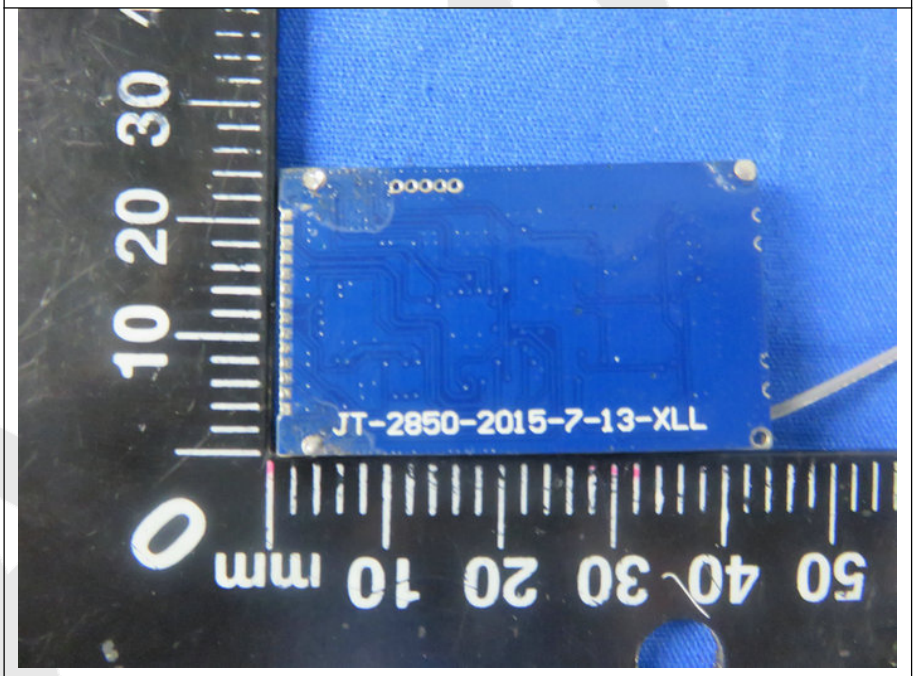
2. Figure



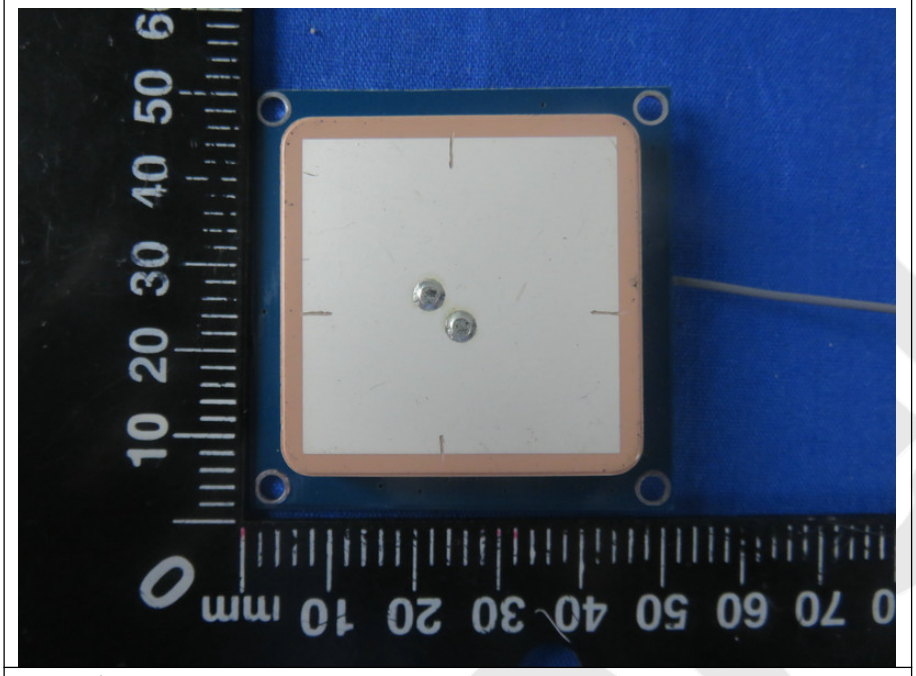
3. Figure



4. Figure



5. Figure



6. Figure