
FCC Test Report

Report No.: AGC07573160703FE03

FCC ID : 2AJLHPT5000
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Wireless Guide System
BRAND NAME : Plant-Tour.com
MODEL NAME : PT-5000, PT-5100
CLIENT : PlantTours Communications Co.
DATE OF ISSUE : Aug.19, 2016
STANDARD(S) : FCC Part 15.237
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug.19, 2016	Valid	Original Report

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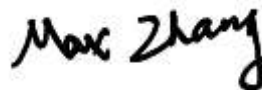
1. VERIFICATION OF CONFORMITY

Applicant	PlantTours Communications Co.
Address	810 TYVOLA RD. SUITE 132, CHARLOTTE, North Carolina,28217,United States
Manufacturer	NINGBO PROMIC TECHNOLOGY CO.,LTD
Address	NO.25-3 GangXi Avenue, Ningbo.Free Trade Zone, WestArea,Zhejiang,p.r.c 315800
Product Designation	Wireless Guide System
Brand Name	Plant-Tour.com
Test Model	PT-5000
Series Model	PT-5100
Model Difference	All the same except for the model name.
Date of test	Aug.03, 2016 to Aug.18, 2016
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF (2013-03-01)

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.237.

Tested by



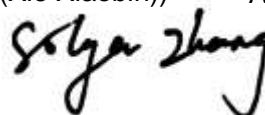
Max Zhang(Zhang Yi) Aug. 19, 2016

Reviewed by



Bart Xie(Xie Xiaobin)) Aug. 19, 2016

Approved by



Solger Zhang(Zhang Hongyi)
Authorized Officer Aug. 19, 2016

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	72.1-72.9MHz; 74.7MHz; 75.3-75.9MHz
Field Strength(3m)	61.74dBuV/m(AV)@3m
Modulation	FM
Number of channels	17
Hardware Version	REV01
Software Version	REV01
Antenna Designation	PCB antenna
Antenna Gain	0dBi
Power Supply	DC3.0V by battery

NOTE: 1. About the EUT, please refer to User's Manual.

Channel list

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	72.1	10	74.7
02	72.2	11	75.3
03	72.3	12	75.4
04	72.4	13	75.5
05	72.5	14	75.6
06	72.6	15	75.7
07	72.7	16	75.8
08	72.8	17	75.9
09	72.9		

3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB

Radiated measurement: +/- 3.91dB

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Transmitting mode
Note: 1. For Radiated Emission, 3axis were chosen for testing for each applicable mode. 2. The EUT had been tested under normal operating condition. 3. Only the result of the worst case was recorded in the report, if no other cases.	

5. SYSTEM TEST CONFIGURATION

5.1. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Wireless Guide System	PT-5000	2AJLHPT5000	EUT

5.2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.237	Field Strength of Fundamental and Spurious Emission	Compliant
15.237	Bandwidth	Compliant

6. TEST FACILITY

Site	Dongguan Precise Testing Service Co., Ltd.
Location	Building D, Baoding Technology Park, Guangming Road2, Dongcheng District, Dongguan, Guangdong, China.
FCC Registration No.	371540
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014.

ALL TEST EQUIPMENT LIST

Radiated Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 3, 2016	July 2, 2017
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 3, 2016	July 2, 2017
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 3, 2016	July 2, 2017
RF Cable	SCHWARZBECK	AK9515E	96221	July 3, 2016	July 2, 2017
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 3, 2016	June 2, 2017
MULTI-DEVICE Positioning Controller	Max-Full	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	Schwarzbeck	FMZB1519	1519-038	June 3, 2016	June 2, 2017
Spectrum analyzer	Agilent	E4407B	MY46185649	June 3, 2016	June 2, 2017

7. RADIATED EMISSION

7.1. MEASUREMENT PROCEDURE

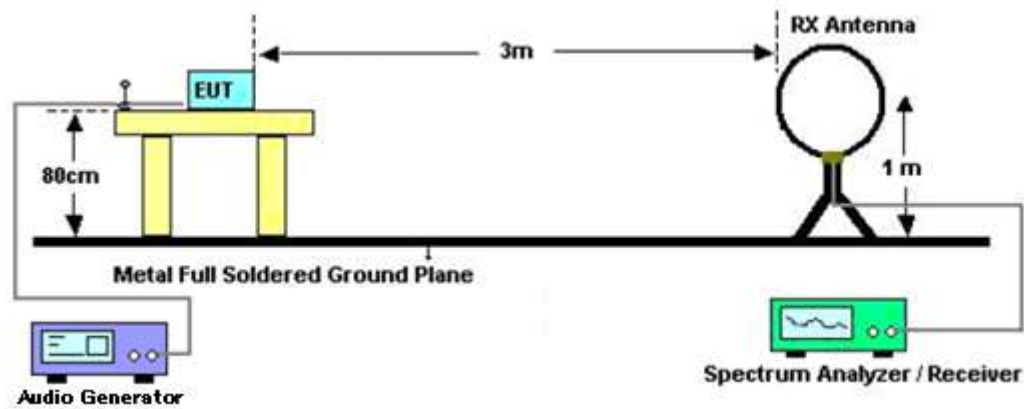
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground and opposite the horn antenna. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions below 1GHz, use 120KHz RBW and VBW \geq 3RBW for QP reading.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.
8. Only the worst case is reported.

The following table is the setting of spectrum analyzer and receiver.

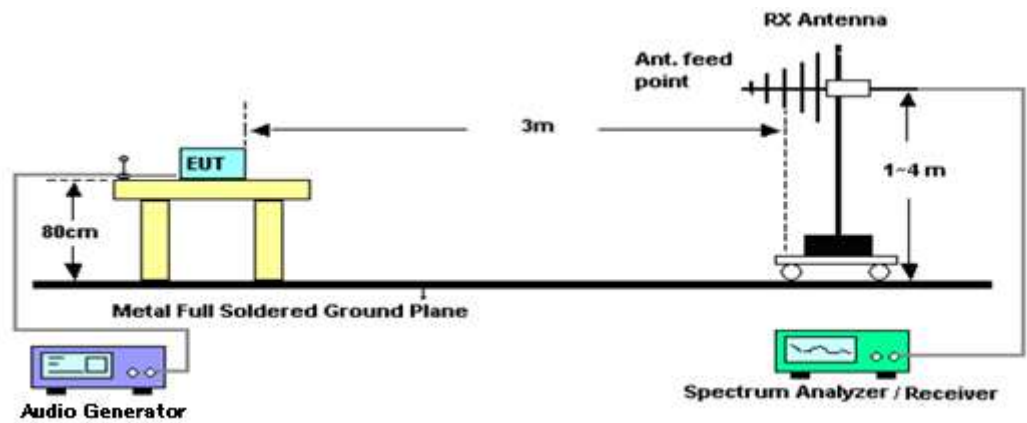
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RBW 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RBW 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RBW 120KHz for QP

7.2. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



7.3. TEST RESULT

For field strength of fundamental and band edge emission

Transmitting at 72.1MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.100	H	61.28	118.06	56.78	Pass	PK
72.100	H	60.45	98.06	37.61	Pass	AV
72.100	V	52.14	118.06	65.92	Pass	PK
72.100	V	51.67	98.06	46.39	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.000	H	36.11	40.00	3.89	Pass	QP
72.000	V	30.10	40.00	9.90	Pass	QP
72.200	H	36.24	40.00	3.76	Pass	QP
72.200	V	31.03	40.00	8.97	Pass	QP

Transmitting at 72.5MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.500	H	62.07	118.06	55.99	Pass	PK
72.500	H	60.64	98.06	37.42	Pass	AV
72.500	V	52.33	118.06	65.73	Pass	PK
72.500	V	51.71	98.06	46.35	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.400	H	36.42	40.00	3.58	Pass	QP
72.400	V	29.87	40.00	10.13	Pass	QP
72.600	H	36.74	40.00	3.26	Pass	QP
72.600	V	30.55	40.00	9.45	Pass	QP

Transmitting at 72.9MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.900	H	62.44	118.06	55.62	Pass	PK
72.900	H	61.25	98.06	36.81	Pass	AV
72.900	V	51.74	118.06	66.32	Pass	PK
72.900	V	51.02	98.06	47.04	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
72.800	H	36.44	40.00	3.56	Pass	QP
72.800	V	29.68	40.00	10.32	Pass	QP
73.000	H	36.47	40.00	3.53	Pass	QP
73.000	V	30.42	40.00	9.58	Pass	QP

Transmitting at 74.7MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
74.700	H	60.71	118.06	57.35	Pass	PK
74.700	H	59.98	98.06	38.08	Pass	AV
74.700	V	50.74	118.06	67.32	Pass	PK
74.700	V	50.02	98.06	48.04	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
74.800	H	35.44	40.00	4.56	Pass	QP
74.800	V	29.14	40.00	10.86	Pass	QP
74.800	H	36.37	40.00	3.63	Pass	QP
74.800	V	29.85	40.00	10.15	Pass	QP

Transmitting at 75.3MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.300	H	62.75	118.06	55.31	Pass	PK
75.300	H	61.74	98.06	36.32	Pass	AV
75.300	V	52.31	118.06	65.75	Pass	PK
75.300	V	51.66	98.06	46.40	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.200	H	36.24	40.00	3.76	Pass	QP
75.200	V	30.71	40.00	9.29	Pass	QP
75.400	H	36.71	40.00	3.29	Pass	QP
75.400	V	31.25	40.00	8.75	Pass	QP

Transmitting at 75.6MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.600	H	62.44	118.06	55.62	Pass	PK
75.600	H	61.53	98.06	36.53	Pass	AV
75.600	V	51.38	118.06	66.68	Pass	PK
75.600	V	50.61	98.06	47.45	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.500	H	36.87	40.00	3.13	Pass	QP
75.500	V	30.46	40.00	9.54	Pass	QP
75.700	H	35.44	40.00	4.56	Pass	QP
75.700	V	29.61	40.00	10.39	Pass	QP

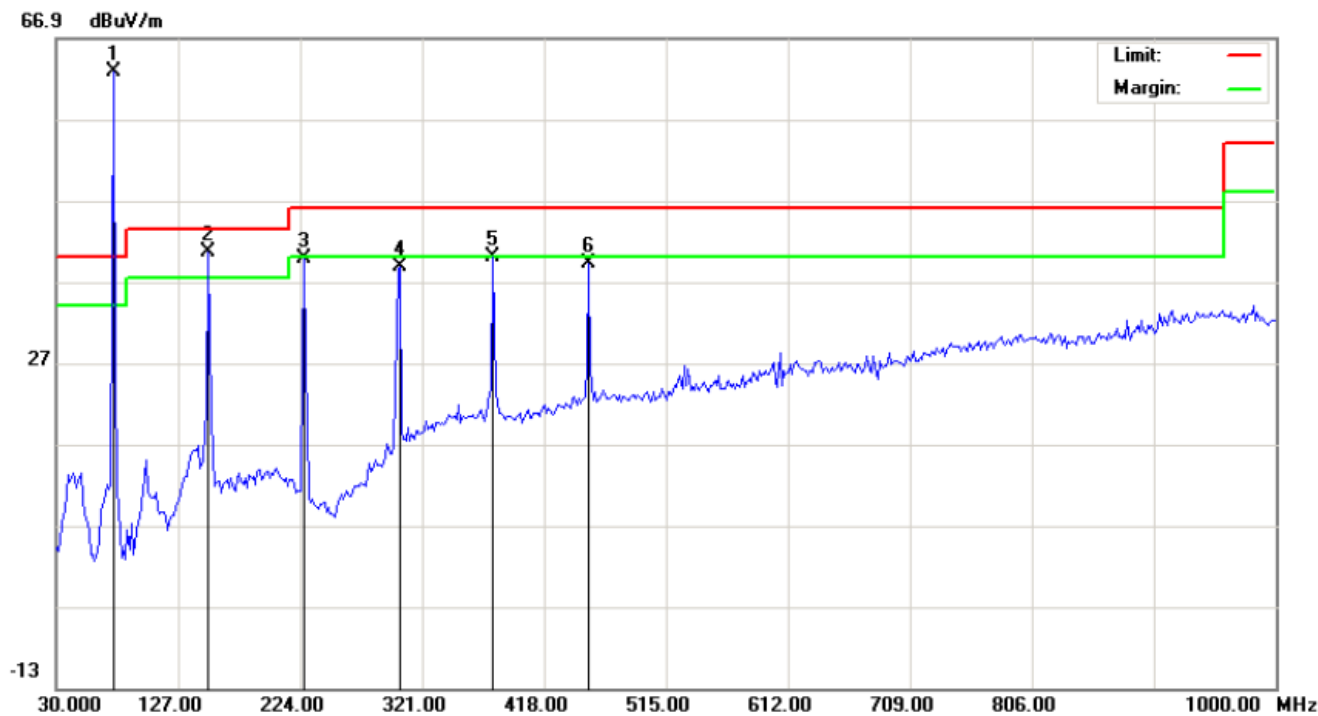
Transmitting at 75.9MHz

Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.900	H	62.07	118.06	55.99	Pass	PK
75.900	H	61.28	98.06	36.78	Pass	AV
75.900	V	50.89	118.06	67.17	Pass	PK
75.900	V	50.08	98.06	47.98	Pass	AV
Frequency MHz	Polarization	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Pass/Fail	Detector
75.800	H	36.44	40.00	3.56	Pass	QP
75.800	V	30.16	40.00	9.84	Pass	QP
76.000	H	36.27	40.00	3.73	Pass	QP
76.000	V	29.94	40.00	10.06	Pass	QP

RADIATED EMISSION BELOW 30MHz

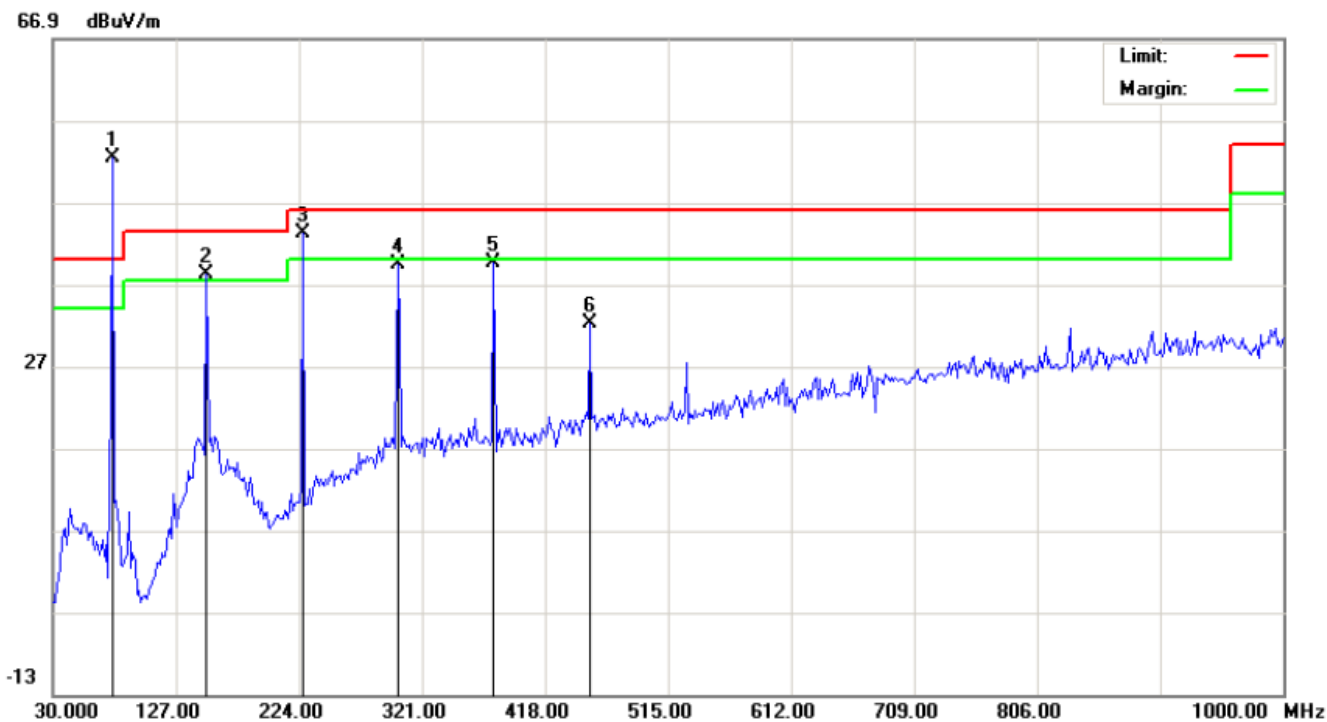
No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ-Horizontal



RESULT: PASS

RADIATED EMISSION BELOW 1GHZ-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	75.2963	49.74	2.57	52.31						
2	!	151.2500	22.88	15.27	38.15	43.50	-5.35	peak			
3	!	227.2333	31.52	11.67	43.19	46.00	-2.81	peak			
4		301.6000	23.80	15.52	39.32	46.00	-6.68	peak			
5		377.5833	20.76	18.92	39.68	46.00	-6.32	peak			
6		453.5667	11.53	20.63	32.16	46.00	-13.84	peak			

RESULT: PASS

Note:

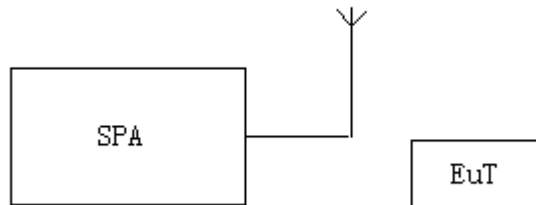
- Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
- The “Factor” value can be calculated automatically by software of measurement system.
- All test modes had been tested. The transmitting at 75.3MHz is the worst case and recorded in the report.

8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
2. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
3. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level.
4. Steps 1 through 3 might require iteration to adjust within the specified tolerances.

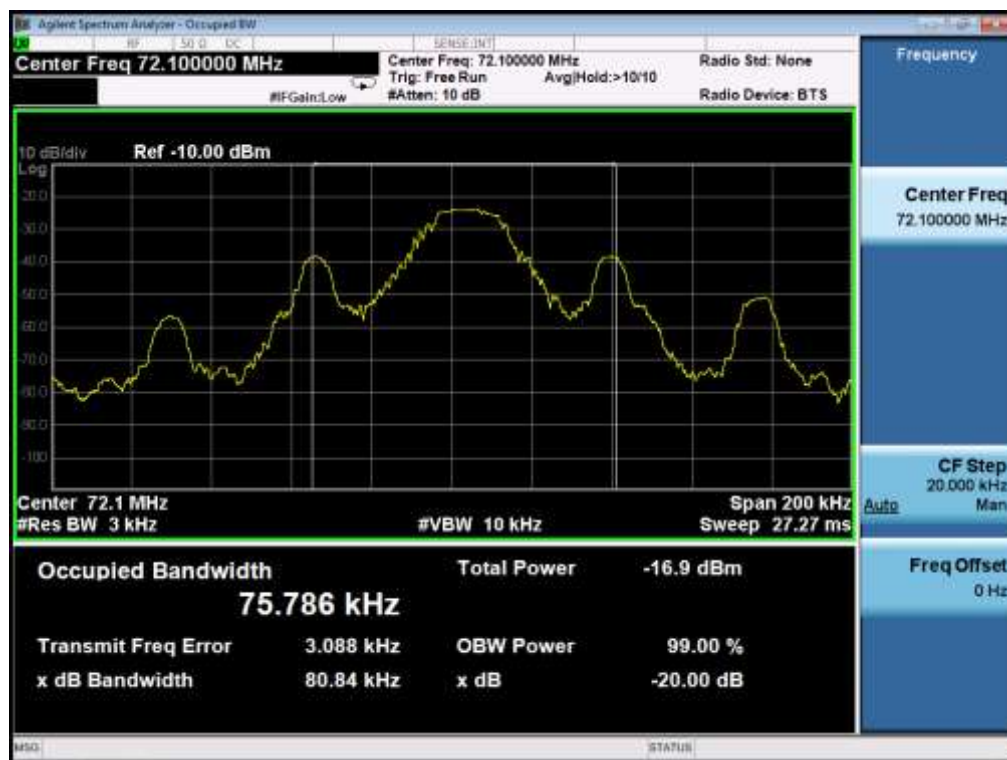
8.2. TEST SETUP



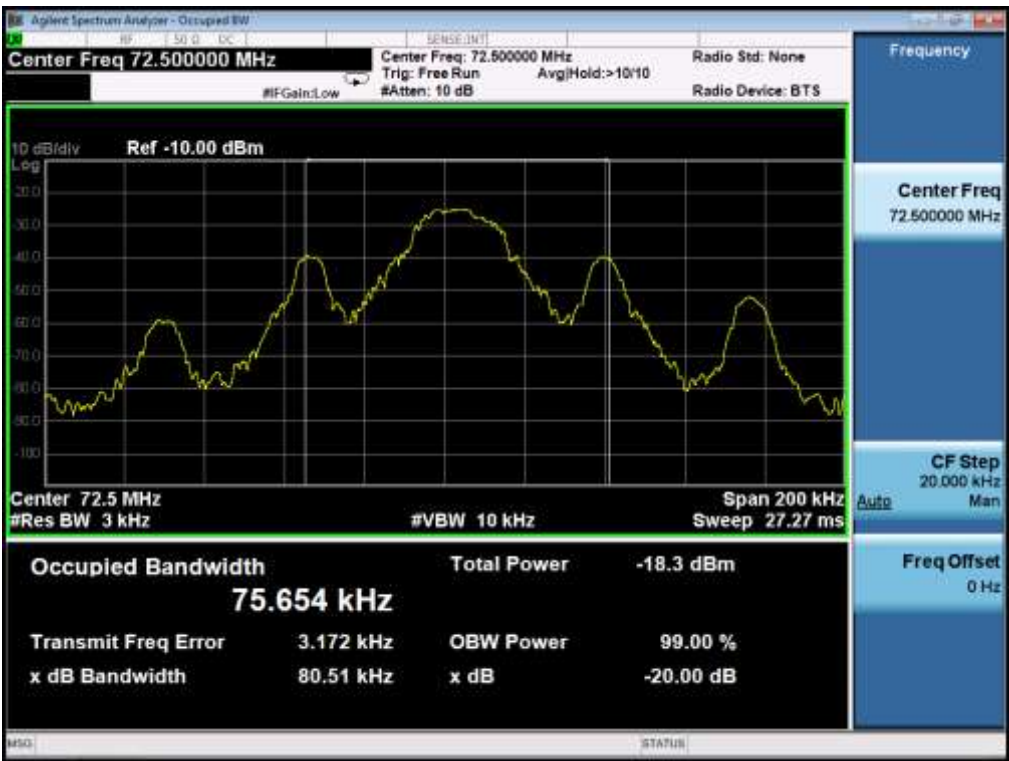
8.3. TEST RESULT

Channel Frequency(MHz)	-20dB bandwidth (kHz)	Limit(kHz)
72.1	80.84	200
72.5	80.51	200
72.9	81.62	200
74.7	83.08	200
75.3	86.50	200
75.6	86.85	200
75.9	96.05	200

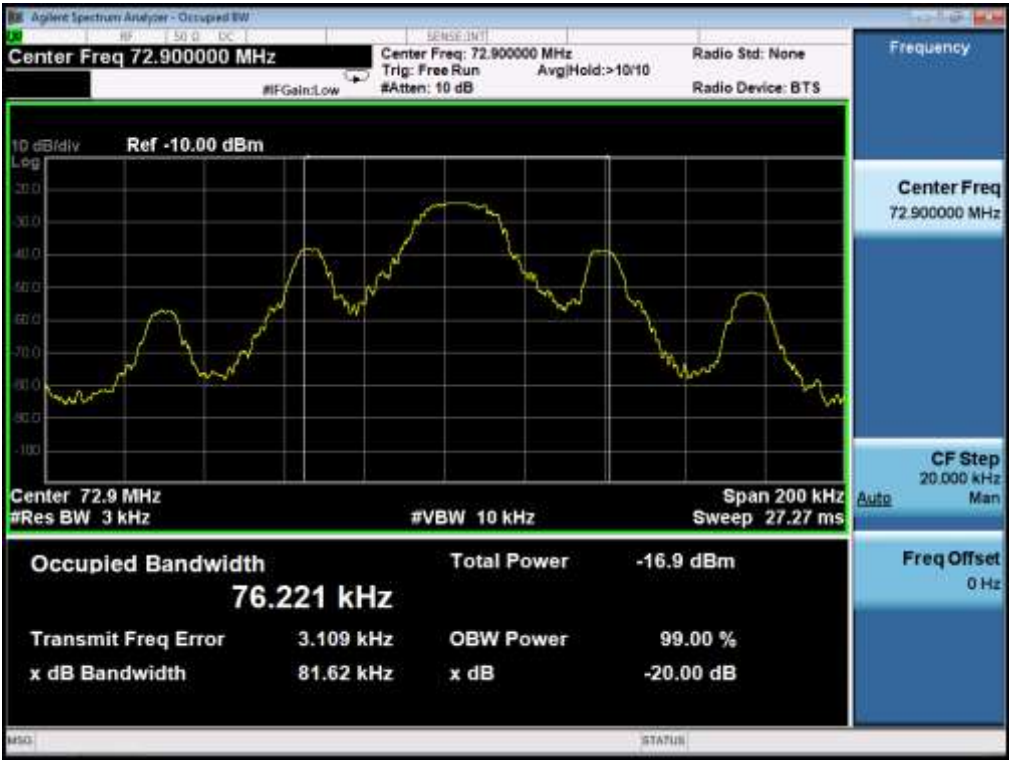
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.1MHz



TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.5MHz



TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.9MHz



TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 74.7MHz



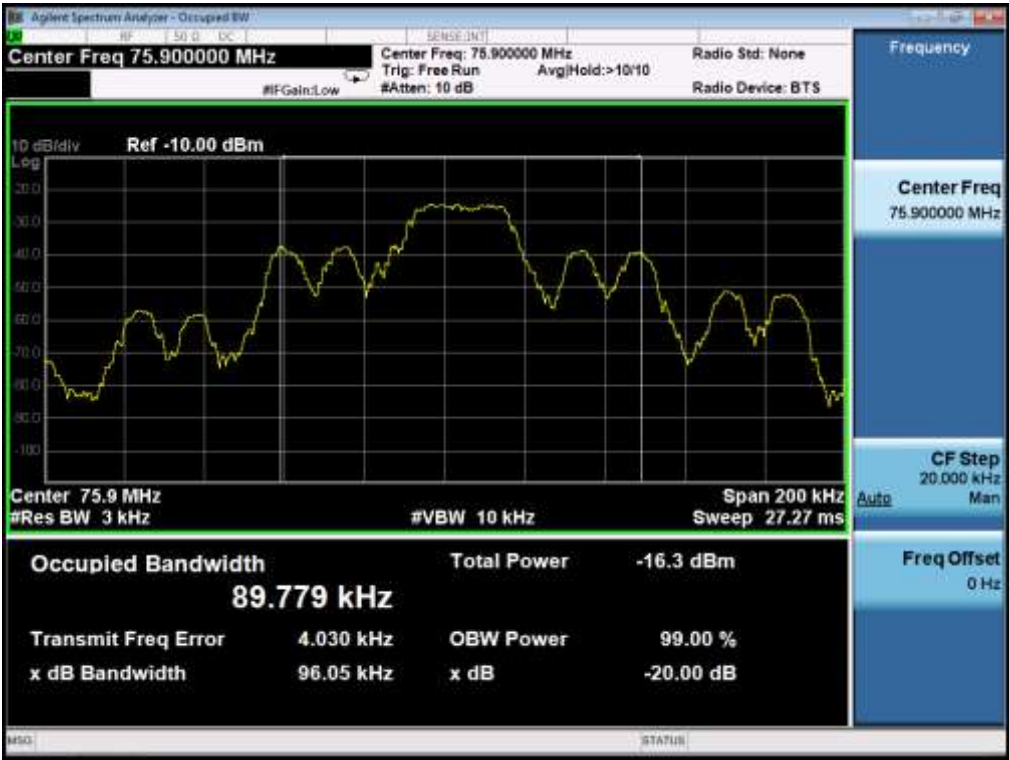
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.3MHz



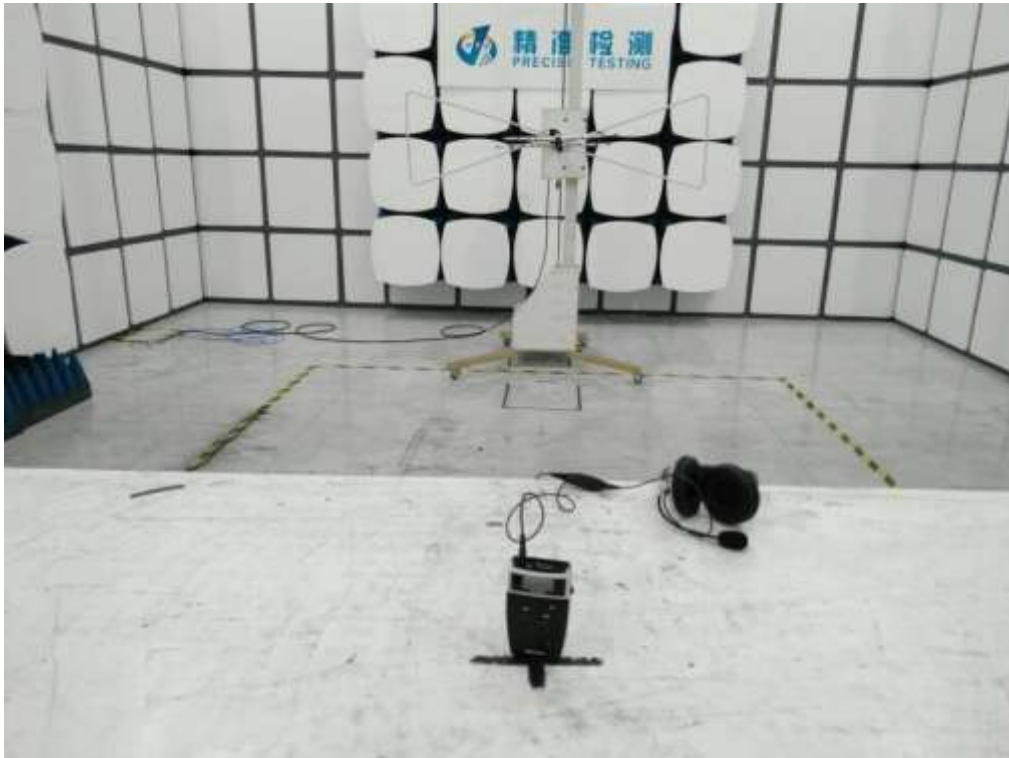
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.6MHz



TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.9MHz



APPENDIX A: PHOTOGRAPHS OF TEST SETUP
RADIATED EMISSION TEST SETUP BELOW 1G



APPENDIX B: PHOTOGRAPHS OF EUT

ALL VIEW OF EUT



TOP VIEW OF EUT



BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



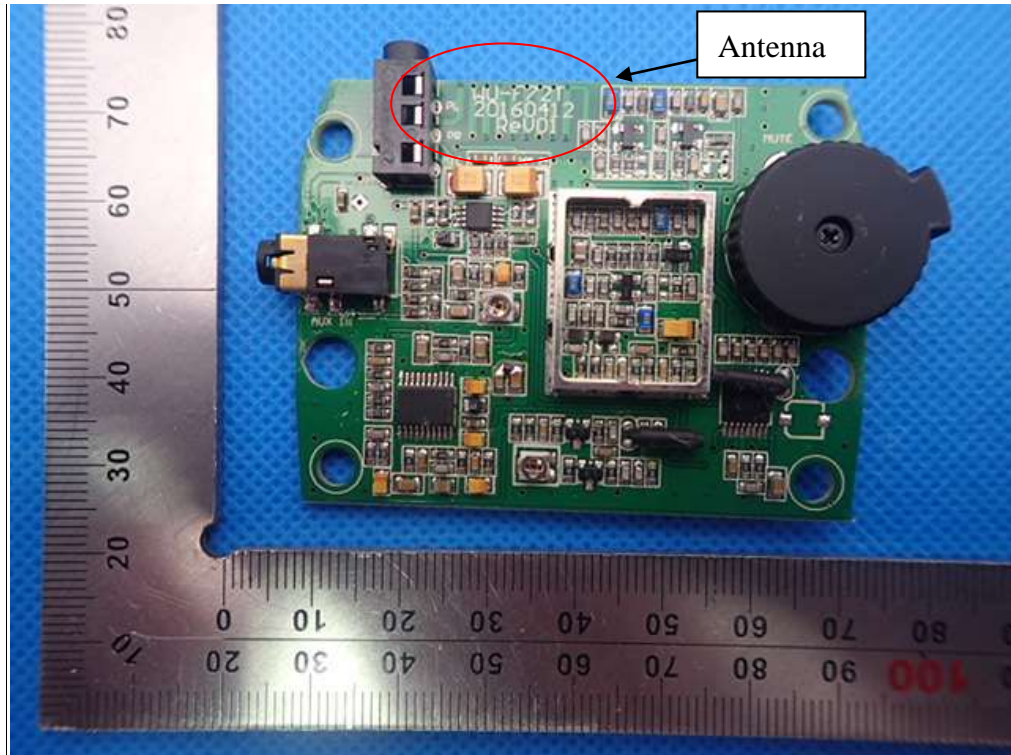
OPEN VIEW OF EUT-1



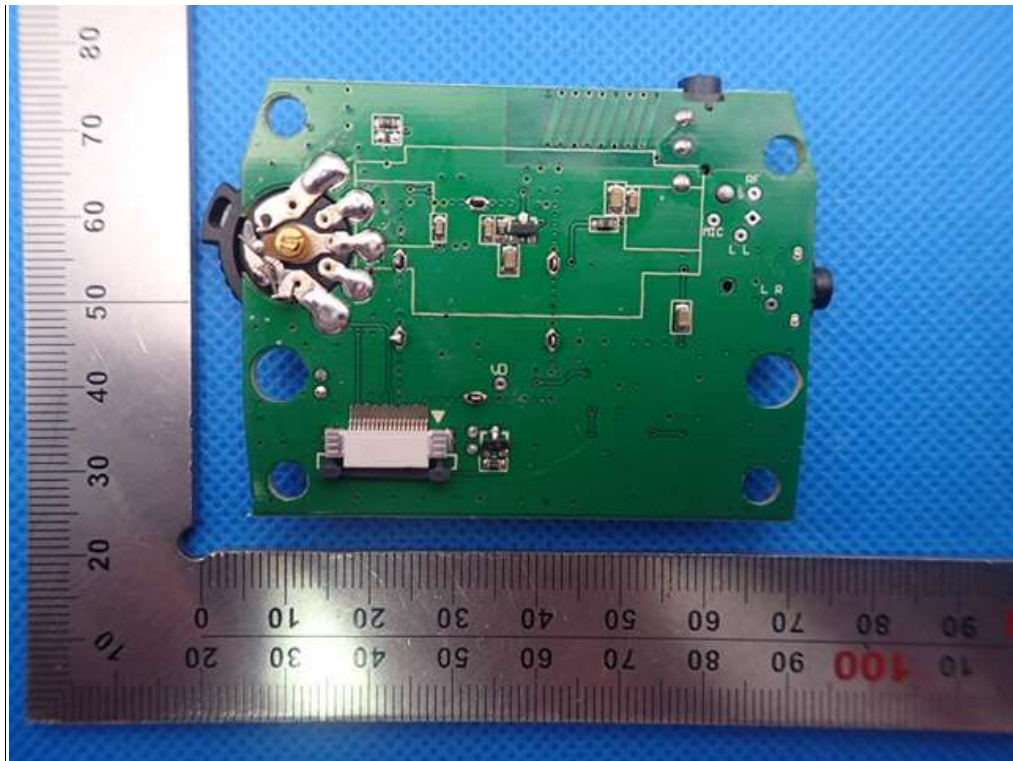
OPEN VIEW OF EUT-2



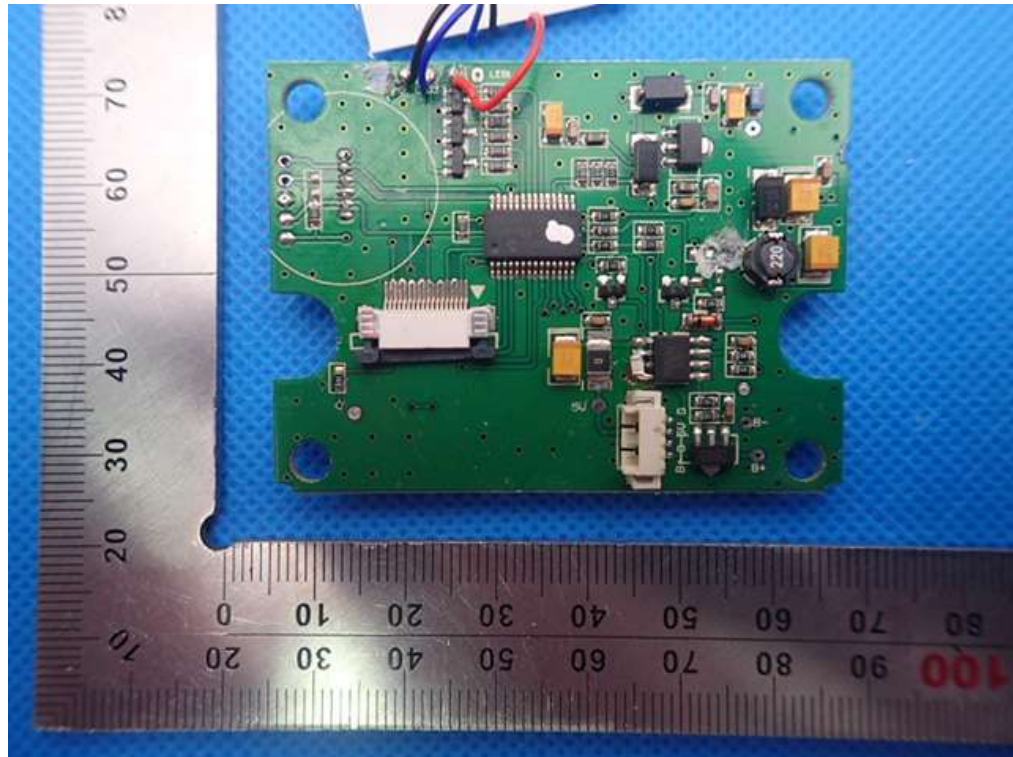
INTERNAL VIEW OF EUT-1



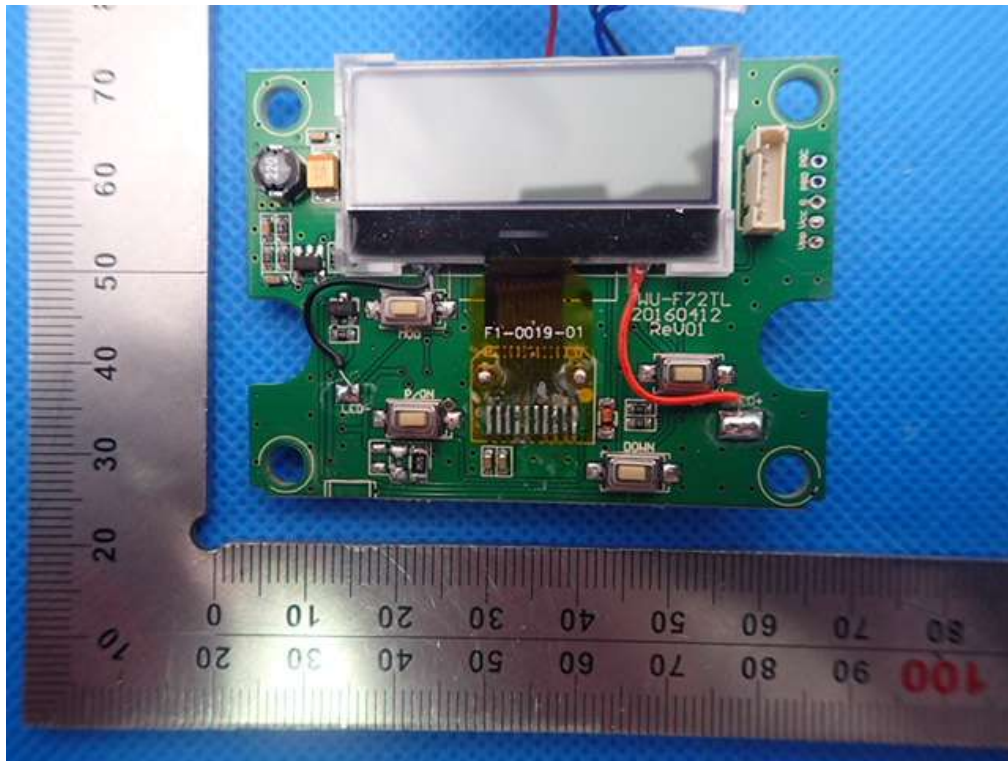
INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



-----END OF REPORT-----