FCC Test Report

Report No.: AGC04844170401FE06

FCC ID	:	2AFHPBR-C12
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Wireless FM Transmitter
BRAND NAME	:	AUKEY
MODEL NAME	:	BR-C12, BR-C15, BR-C24, BR-C25, BR-C26, BR-C27, BR-C28, BR-C29, BR-C30, BR-C31
CLIENT	:	SHENZHEN AUKEY E BUSINESS CO., LTD.
DATE OF ISSUE	:	May 15, 2017
STANDARD(S)	:	FCC Part 15.239
REPORT VERSION	:	V1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

Report Revise Record

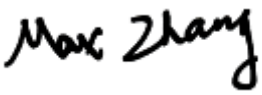
Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 15, 2017	Valid	Original Report

TABLE OF CONTENTS

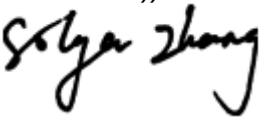
1. VERIFICATION OF CONFORMITY

Applicant	SHENZHEN AUKEY E BUSINESS CO., LTD.
Address	Room 102, Bld P09, Huanan International Zone, No.1 Huanan Rd, Pinghu Town, Longgang District, Shenzhen City, Guangdong Province 518000, China
Manufacturer	SPRING TECHNOLOGY(HK) CO., LTD.
Address	2F, Tongfuyu Industrial Park, KuKeng, Guanglan Town, Shenzhen City, China
Product Designation	Wireless FM Transmitter
Brand Name	AUKEY
Test Model	BR-C12
Series Model	BR-C15, BR-C24, BR-C25, BR-C26, BR-C27, BR-C28, BR-C29, BR-C30, BR-C31
Model Difference	All are the same except the model name.
Date of test	May 08, 2017 to May 10, 2017
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 15.239.

Tested by 
Max Zhang(Zhang Yi) May 15, 2017

Reviewed by 
Bart Xie(Xie Xiaobin)) May 15, 2017

Approved by 
Solger Zhang(Zhang Hongyi) May 15, 2017
Authorized Officer

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	88.1MHz; 98.0MHz; 107.9MHz
Field Strength(3m)	45.85dBuV/m(AV)@3m
Modulation	FM
Number of channels	199(Channel spacing 100kHz)
Hardware Version	SH26-AI-1510G-V1.0
Software Version	SH26-AI-Aukey EP-B26-201601231446
Antenna Designation	Integrated Antenna (Met 15.203 Antenna requirement)
Power Supply	DC 12V/24V

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

3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB

Radiated measurement: +/- 3.91dB

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Transmitting mode(Low channel)
2	Transmitting mode(Middle channel)
3	Transmitting mode(High channel)

Note:
1. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
2. All the requirements have been tested by modulating the transmitter with a 2.5 kHz tone at a fixed level which set to the manufacturer's maximum rated input to the modulator.
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 FM TRANSMITTER	BR-C12	2AFHPBR-C12	EUT
2	Car battery	N/A	N/A	Support

5.2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.239	Field Strength of Fundamental and Spurious Emission	Compliant
15.215	Bandwidth	Compliant
15.209	Line Conducted Emission	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
Audio analyzer	HP	8920B	US35010161	June 3, 2016	June 2, 2017

7. RADIATED EMISSION

7.1. MEASUREMENT PROCEDURE

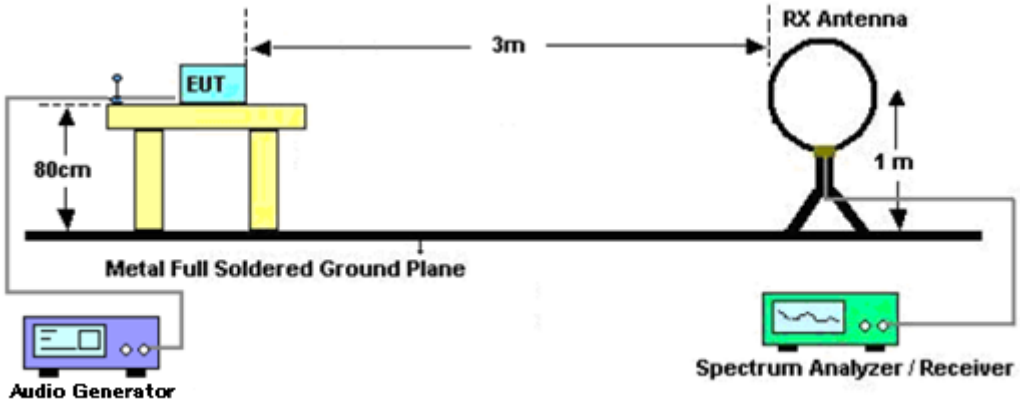
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground and opposite the horn antenna. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power 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>=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.

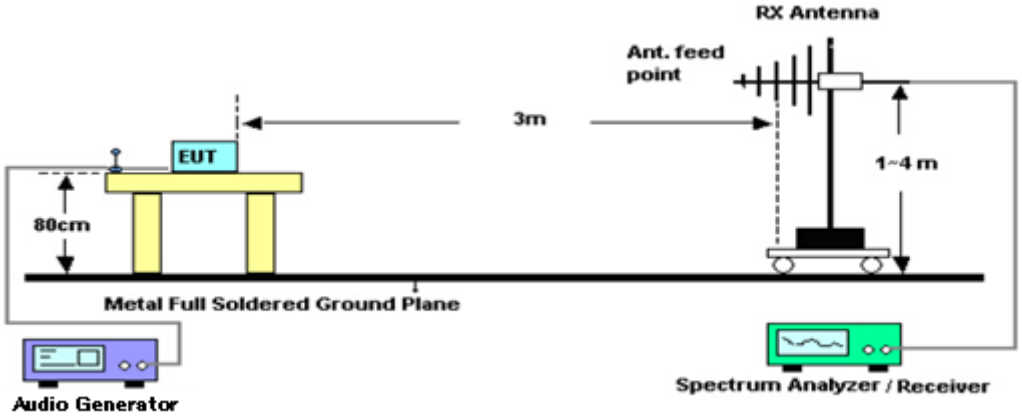
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RBW 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RBW 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RBW 120KHz for QP

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

Frequency MHz	Polarization	Level dB(uV/m) PK	Limit dB(uV/m) PK	Margin dB	Pass/Fail	Detector
88.100	H	47.15	67.96	20.81	Pass	PK
88.100	V	45.85	67.96	22.11	Pass	PK
98.000	H	46.53	67.96	21.43	Pass	PK
98.000	V	45.15	67.96	22.81	Pass	PK
107.900	H	46.04	67.96	21.92	Pass	PK
107.900	V	44.78	67.96	23.18	Pass	PK
Frequency MHz	Polarization	Level dB(uV/m) AV	Limit dB(uV/m) AV	Margin dB	Pass/Fail	Detector
88.100	H	45.27	47.96	2.69	Pass	AV
88.100	V	43.69	47.96	4.27	Pass	AV
88.300	H	44.85	47.96	3.11	Pass	AV
88.300	V	43.07	47.96	4.89	Pass	AV
88.700	H	44.24	47.96	3.72	Pass	AV
88.700	V	42.86	47.96	5.10	Pass	AV

8.4. TEST RESULT FOR FIELD STRENGTH OF BAND EDGE EMISSION

Frequency MHz	Polarization	Level dB(uV/m) QP	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Detector
88.000	H	36.24	40.00	3.76	Pass	QP
88.000	V	35.16	40.00	4.84	Pass	QP
108.000	H	33.58	43.50	9.92	Pass	QP
108.000	V	32.21	43.50	11.29	Pass	QP

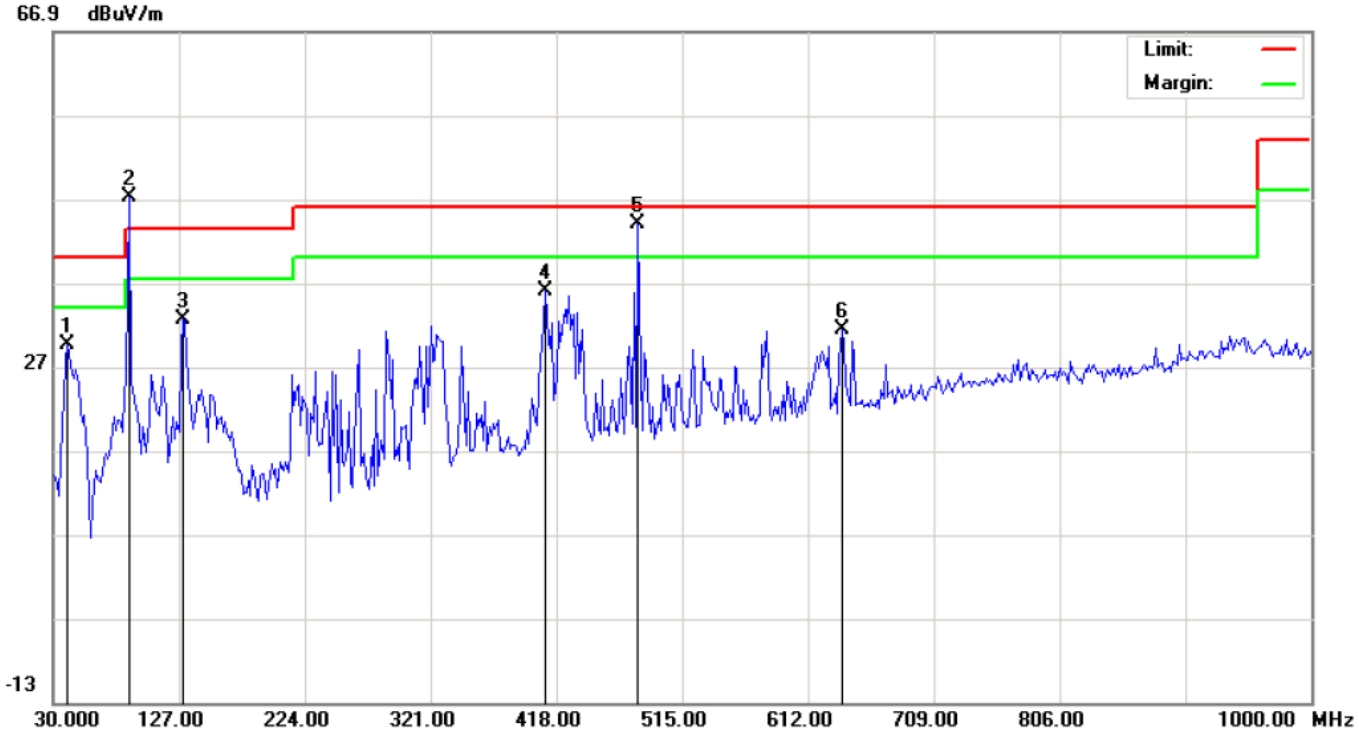
Note: The above two frequencies are the worst case for the band edge emission test.

7.5. TEST RESULT FOR SPURIOUS EMISSION

RADIATED EMISSION BELOW 30MHz

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

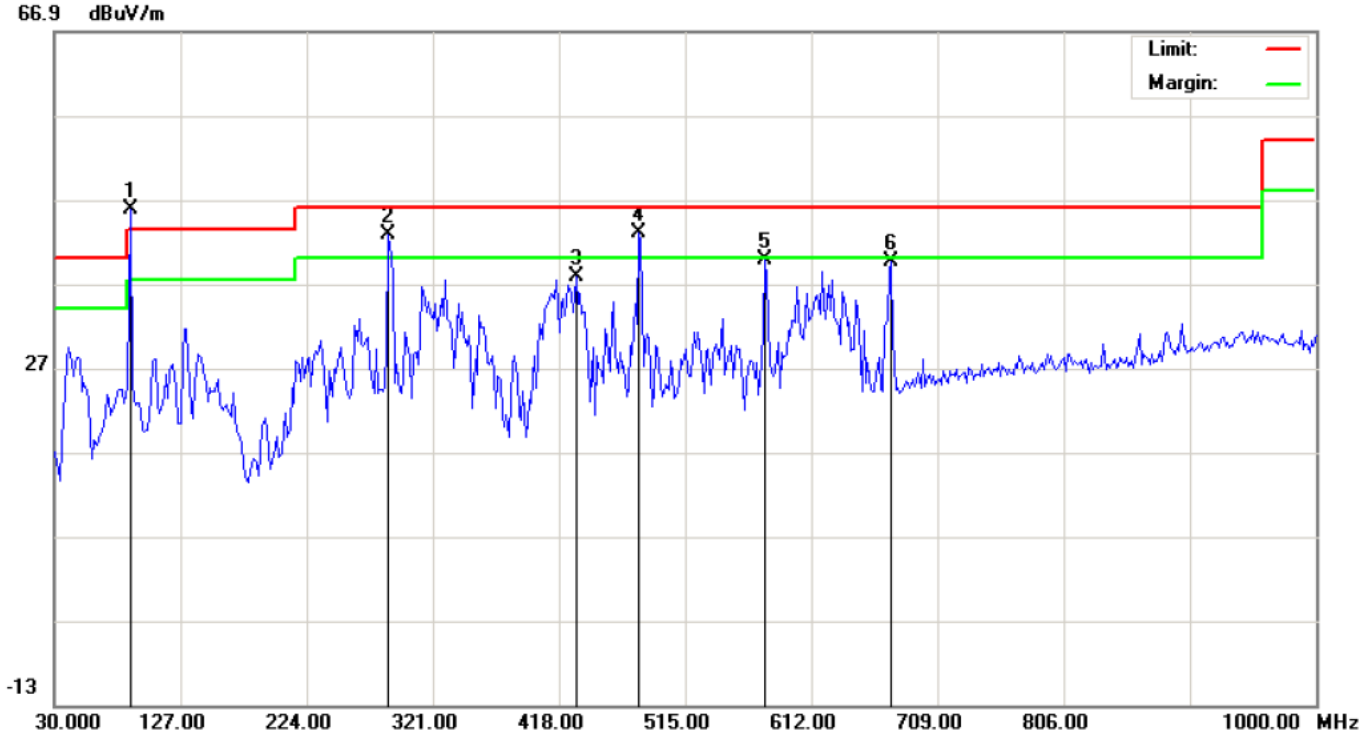
RADIATED EMISSION BELOW 1GHZ-Horizontal



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		41.3167	20.75	8.81	29.56	40.00	-10.44	peak			
2	*	88.1000	42.41	4.74	47.15						
3		130.2332	21.57	11.13	32.70	43.50	-10.80	peak			
4		409.9166	16.63	19.37	36.00	46.00	-10.00	peak			
5	!	481.0500	22.99	20.93	43.92	46.00	-2.08	peak			
6		637.8667	7.83	23.58	31.41	46.00	-14.59	peak			

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	*	88.1000	41.11	4.74	45.85						
2	!	287.0500	27.74	15.02	42.76	46.00	-3.24	peak			
3		430.9333	17.88	20.01	37.89	46.00	-8.11	peak			
4	!	479.4333	22.00	20.91	42.91	46.00	-3.09	peak			
5		576.4333	17.16	22.61	39.77	46.00	-6.23	peak			
6		673.4333	15.03	24.48	39.51	46.00	-6.49	peak			

RESULT: PASS

Note:

1. Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

1. The “Factor” value can be calculated automatically by software of measurement system.

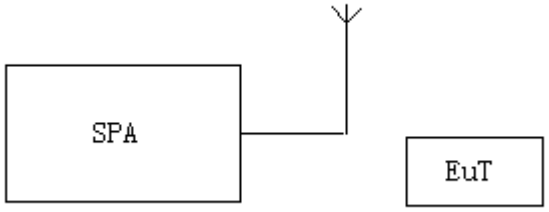
2. All test modes had been tested. The Low channel is the worst case and recorded in the report.

8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

1. Set the parameters of SPA as below:
   Centre frequency = Operation Frequency
   RBW=1KHz
   VBW=3KHz
   Span: 300kHz
   Sweep time: Auto
2. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the “N dB down” function of SPA to define the bandwidth.
3. Record the plots and Reported.

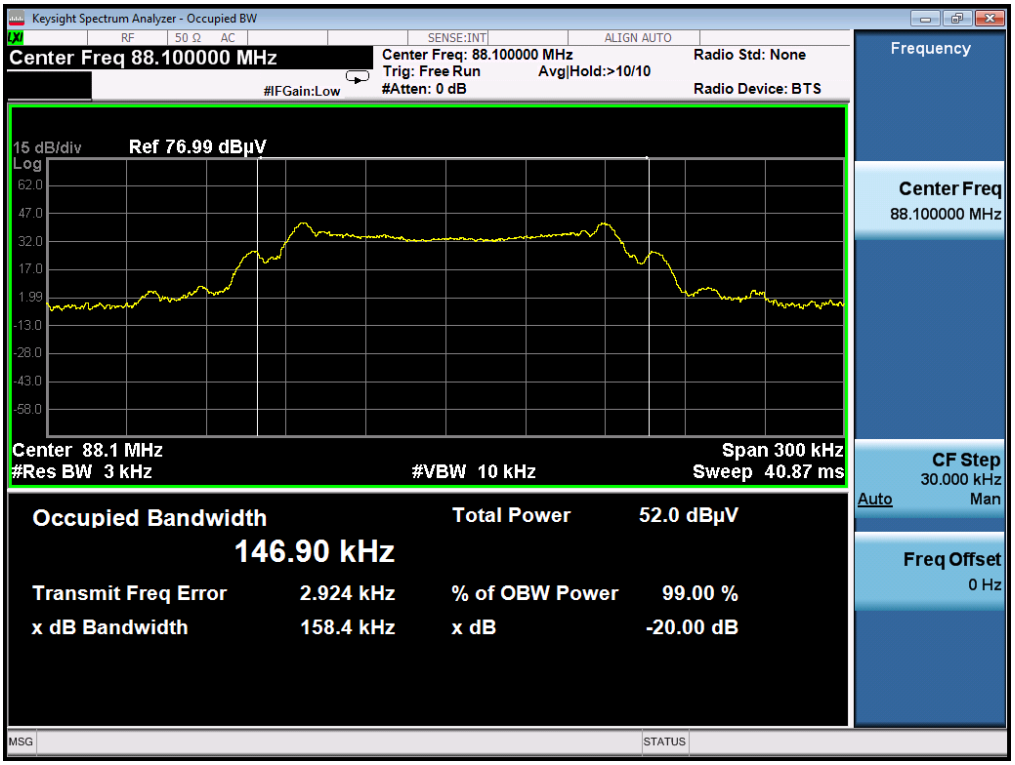
8.2. TEST SETUP



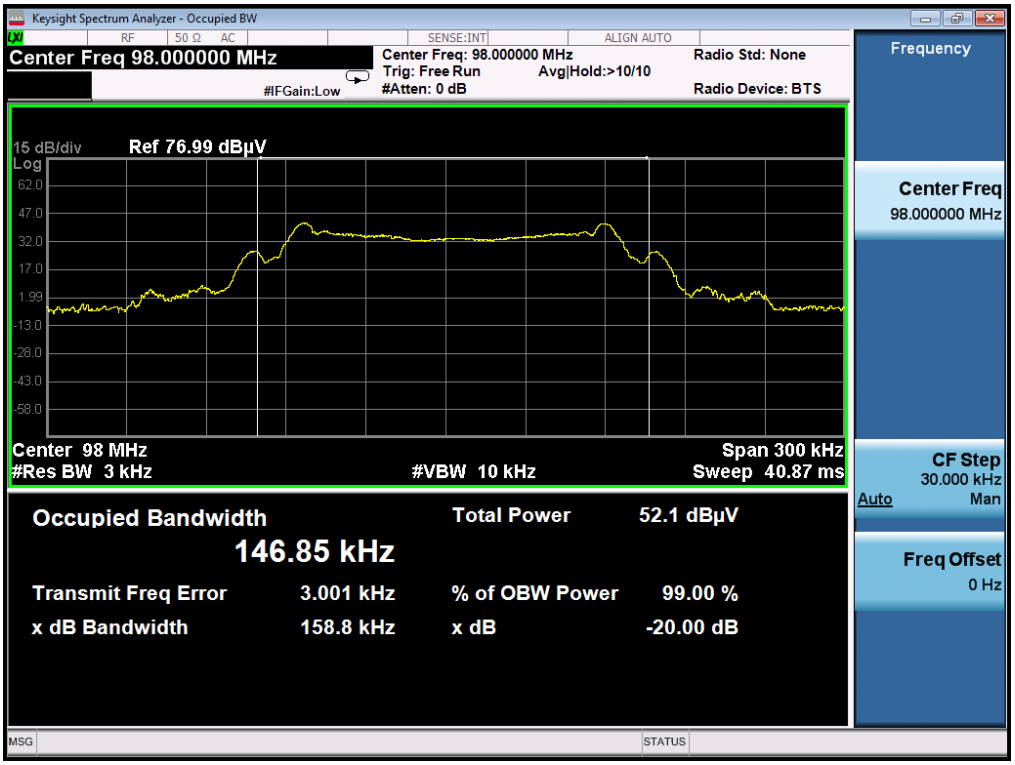
8.3. TEST RESULT

Channel	Channel Frequency(MHz)	-20dB bandwidth (kHz)	Limit(kHz)
Low	88.1	158.4	200
Middle	98.0	158.8	200
High	107.9	158.6	200

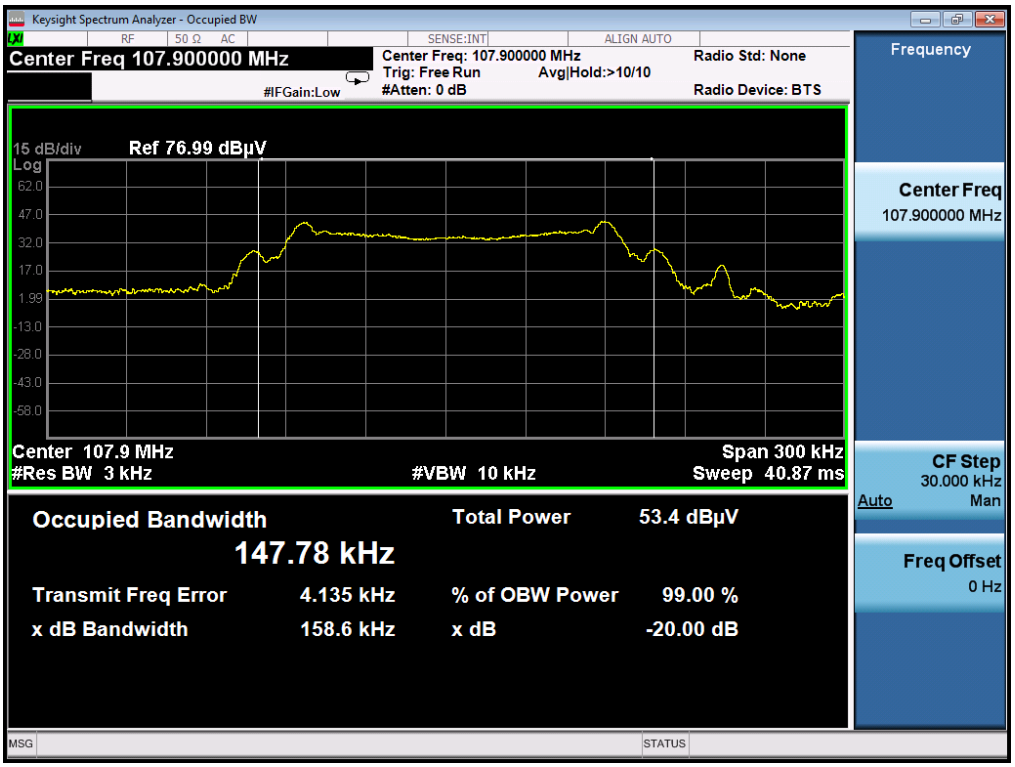
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

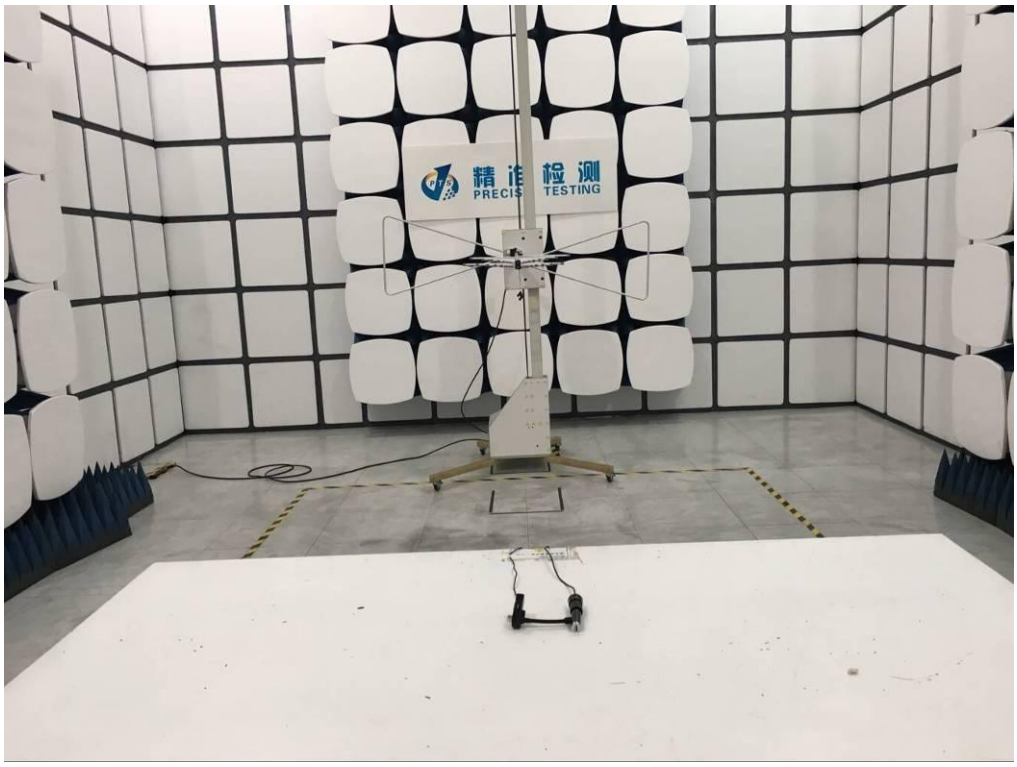


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



APPENDIX A: PHOTOGRAPHS OF TEST SETUP

RADIATED EMISSION TEST SETUP BELOW 1G



APPENDIX B: PHOTOGRAPHS OF EUT

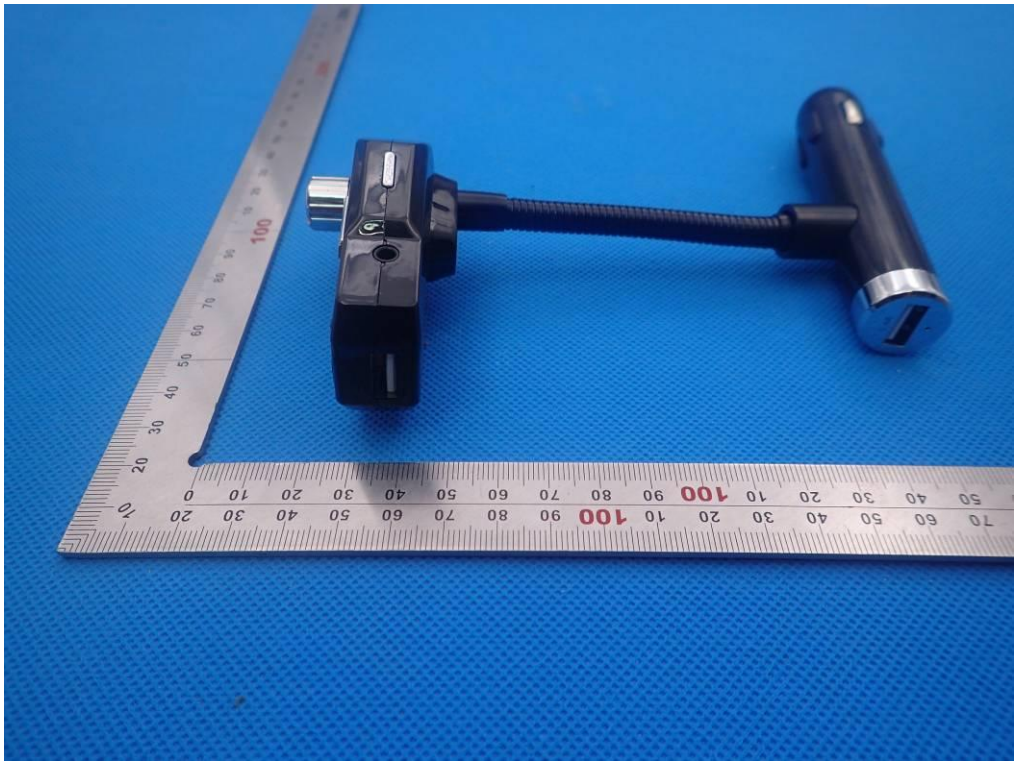
ALL VIEW OF EUT

TOP VIEW OF EUT

BOTTOM VIEW OF EUT

FRONT VIEW OF EUT

BACK VIEW OF EUT

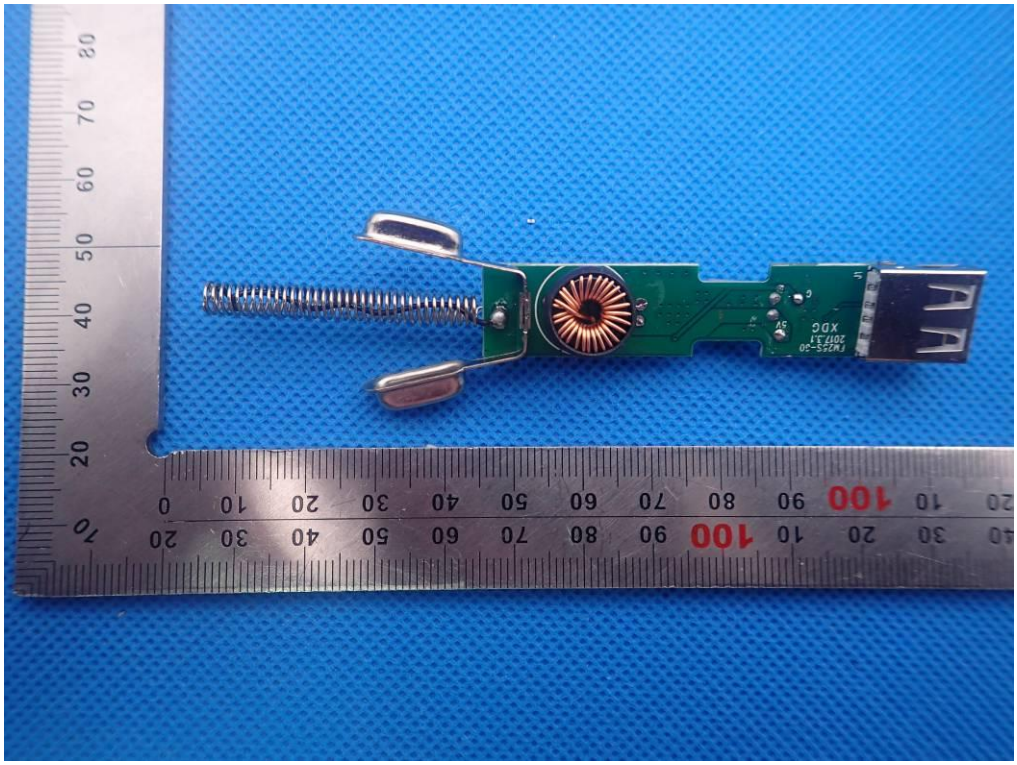


LEFT VIEW OF EUT

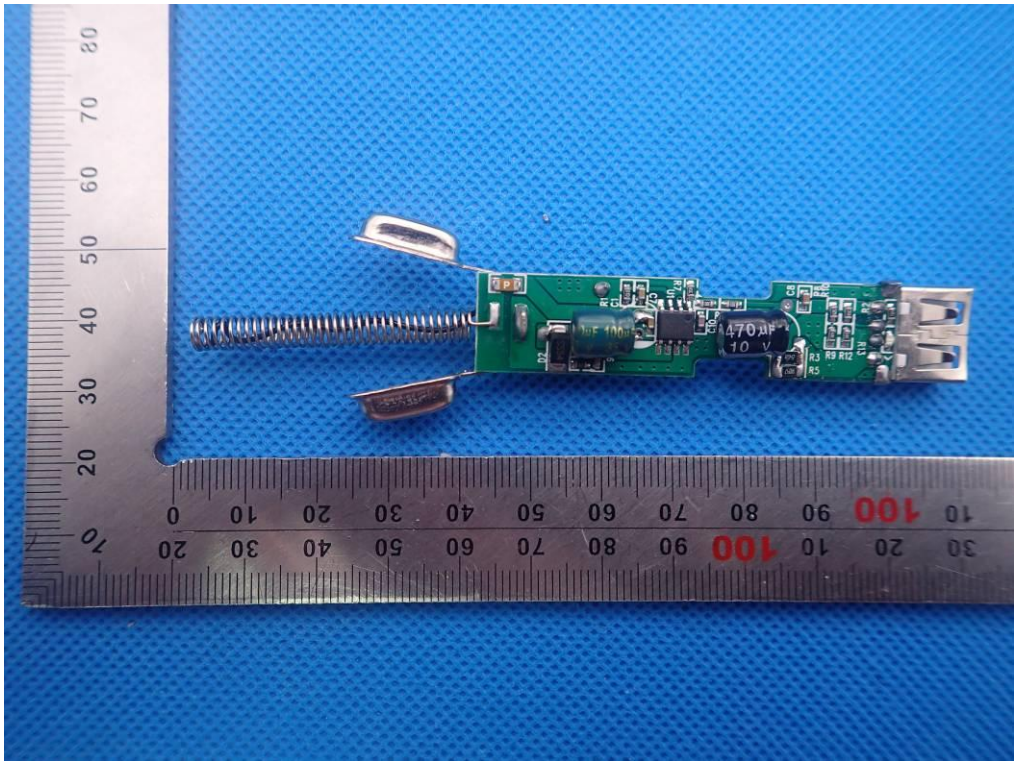
RIGHT VIEW OF EUT

OPEN VIEW OF EUT

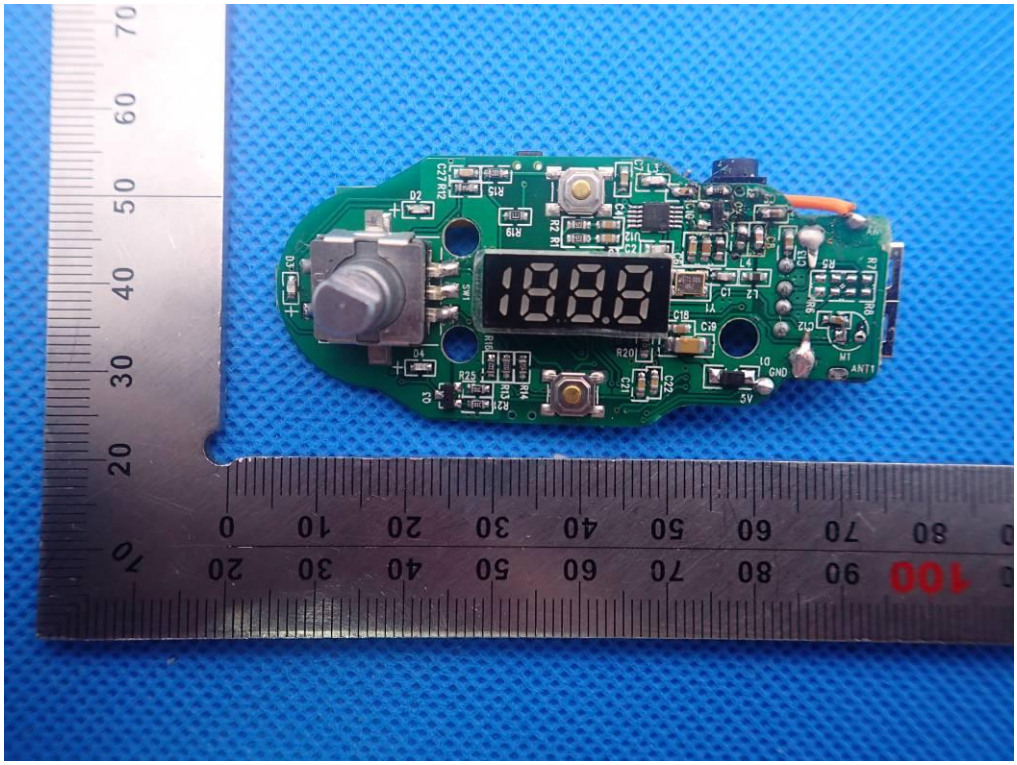
INTERNAL VIEW OF EUT-1



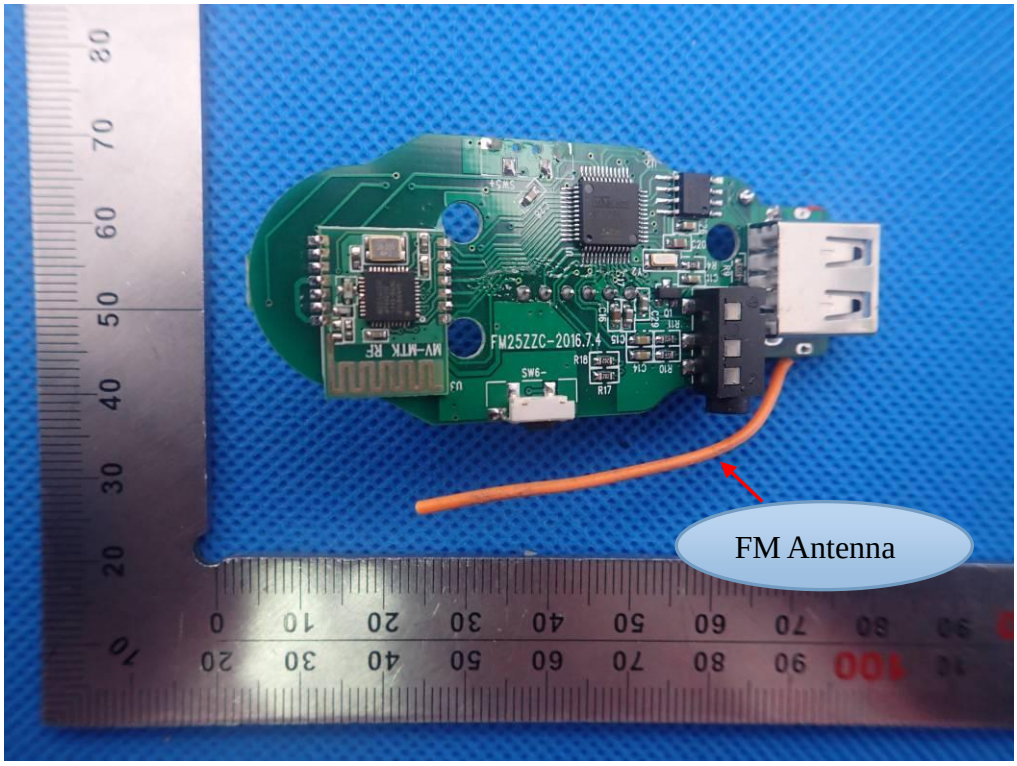
INTERNAL VIEW OF EUT-2



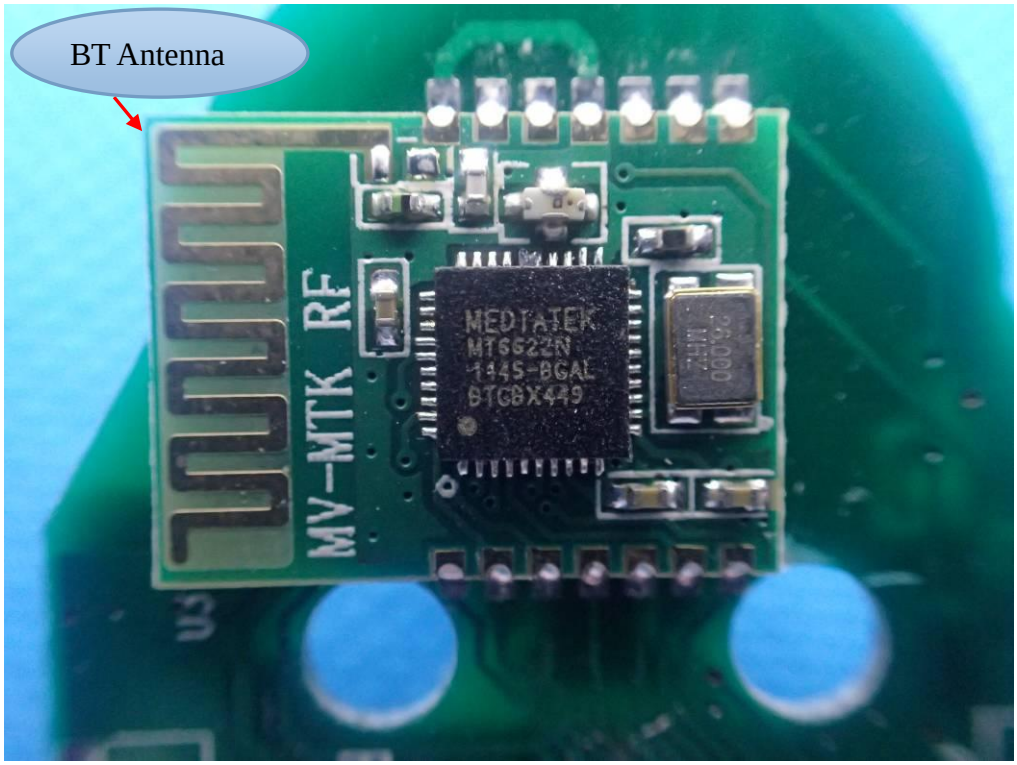
INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



INTERNAL VIEW OF EUT-5



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