

FCC Test Report

Report No.: AGC02336190401FE06

FCC ID : 2AIL4-BH345A
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : bluetooth fm transmitter
BRAND NAME : Victsing, Pinci
MODEL NAME : BH345A
CLIENT : VTIN TECHNOLOGY Co.,Limited
DATE OF ISSUE : May 23, 2019
STANDARD(S) : FCC Part 15.239
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	/	May 23, 2019	Valid	Original Report



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1. VERIFICATION OF CONFORMITY

Applicant	VTIN TECHNOLOGY Co.,Limited
Address	UNIT D 16/F ONE CAPITAL PLACE 21 LUARD ROAD WAN CHAI HK
Manufacturer	Shenzhen Spring Technologies Co.,Ltd
Address	South Bldg , 4F Plant 2, Xindi industrial park No. 18, 1st industrial Zone, Tangxia Town, DongGuan City
Factory	Shenzhen Spring Technologies Co.,Ltd
Address	South Bldg , 4F Plant 2, Xindi industrial park No. 18, 1st industrial Zone, Tangxia Town, DongGuan City
Product Designation	bluetooth fm transmitter
Brand Name	Victsing, Pinci
Test Model	BH345A
Series Model	BH345, BH345A, BH345B, BH345C, BH345D, BH345E, BH345F, FM39, FM40, FM41, FM43L, FM42, FM44, FM46, FM47, FM48, FM49, FM50
Difference description	All the same except for the model name and brand name.
Date of test	Apr. 03, 2019~May 23, 2019
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) 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



Donjon Huang(Huang
dongyang)

May 23, 2019

Reviewed By



Max Zhang(Zhang Yi)

May 23, 2019

Approved By



Forrest Lei(Lei Yonggang)
Authorized Officer

May 23, 2019



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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	88.1MHz-107.9MHz
Field Strength(3m)	46.77dBuV/m(AV)@3m
Modulation	FM
Number of channels	199(Channel spacing 100kHz)
Hardware Version	V5
Software Version	V1
Antenna Gain	0dBi
Antenna Designation	Integrated Antenna (Met 15.203 Antenna requirement)
Power Supply	DC 12V by battery.

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



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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:

- For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 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.

5. SYSTEM TEST CONFIGURATION

5.1. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	bluetooth fm transmitter	BH345A	2AIL4-BH345A	EUT

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
15.207	Line Conducted Emission	N/A

NOTE: N/A stands for not applicable. The device is only used in the car, so the conducted emission is not applicable.

5.3. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Specification	Data Cable
Battery	Sail	L2 400	DC 12V 60Ah 550A	N/A
Mobile Phone	TCL	J326T	N/A	N/A
Aux Cable	N/A	N/A	N/A	0.8m, Unshielded
Load	N/A	N/A	50W 5 Ω	N/A
USB Cable	N/A	N/A	N/A	1m, Unshielded



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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.12, 2018	Jun.11, 2019
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
Active loop antenna (9K-30MHz)	A.H.	SAS-562B	N/A	Mar.01, 2018	Feb.28, 2020
Audio analyzer	HP	8920B	US35010161	Jun.12, 2018	Jun.11, 2019
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 28, 2017	Sep. 27, 2019



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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>=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



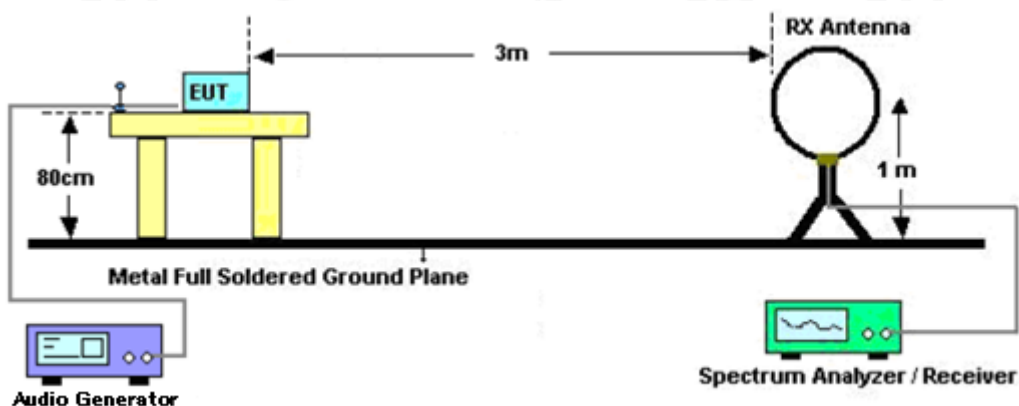
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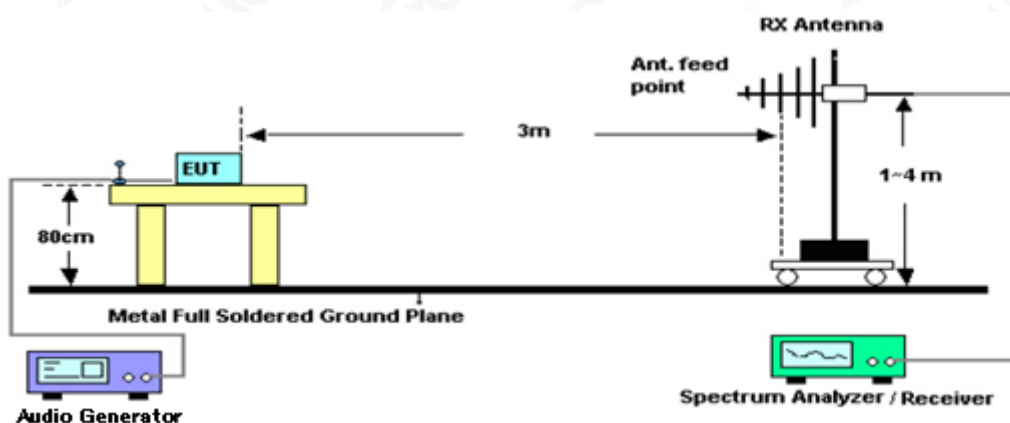
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7.2. TEST SETUP

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	40.04	67.96	27.92	Pass	PK
88.100	V	42.72	67.96	25.24	Pass	PK
98.000	H	41.68	67.96	26.28	Pass	PK
98.000	V	46.29	67.96	21.67	Pass	PK
107.900	H	42.12	67.96	25.84	Pass	PK
107.900	V	46.77	67.96	21.19	Pass	PK
Frequency MHz	Polarization	Level dB(uV/m) AV	Limit dB(uV/m) AV	Margin dB	Pass/Fail	Detector
88.100	H	38.61	47.96	9.35	Pass	AV
88.100	V	41.46	47.96	6.5	Pass	AV
98.000	H	40.49	47.96	7.47	Pass	AV
98.000	V	45.11	47.96	2.85	Pass	AV
107.900	H	40.70	47.96	7.26	Pass	AV
107.900	V	45.34	47.96	2.62	Pass	AV

7.4. 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	35.36	40.00	-4.64	Pass	QP
88.000	V	37.88	40.00	-2.12	Pass	QP
108.000	H	38.15	43.50	-5.35	Pass	QP
108.000	V	39.89	43.50	-3.61	Pass	QP

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



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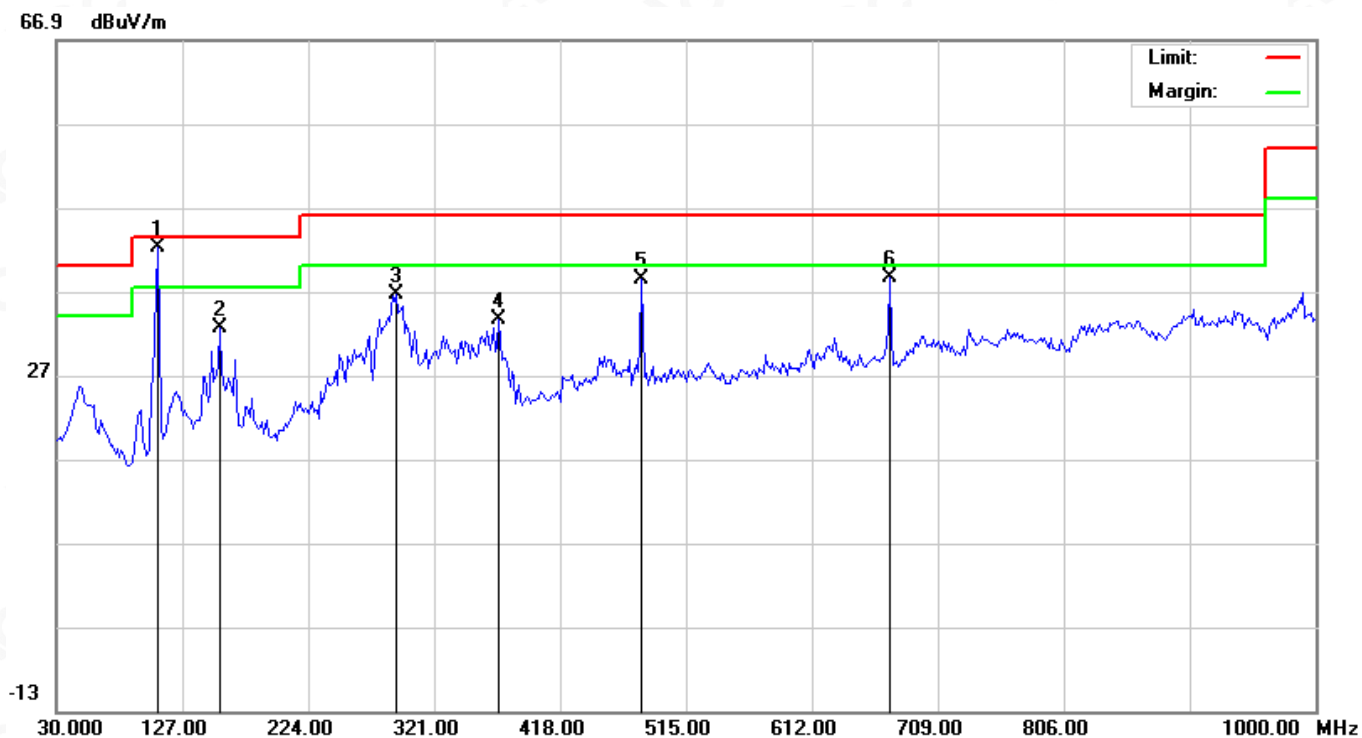
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7.5. TEST RESULT FOR SPURIOUS EMISSION

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	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	107.9000	25.51	16.75	42.26						
2		156.1000	13.45	19.20	32.65	43.50	-10.85	peak			
3		291.9000	16.98	19.66	36.64	46.00	-9.36	peak			
4		371.1167	11.57	21.97	33.54	46.00	-12.46	peak			
5		481.0500	13.86	24.61	38.47	46.00	-7.53	peak			
6		671.8167	10.77	27.81	38.58	46.00	-7.42	peak			

RESULT: PASS



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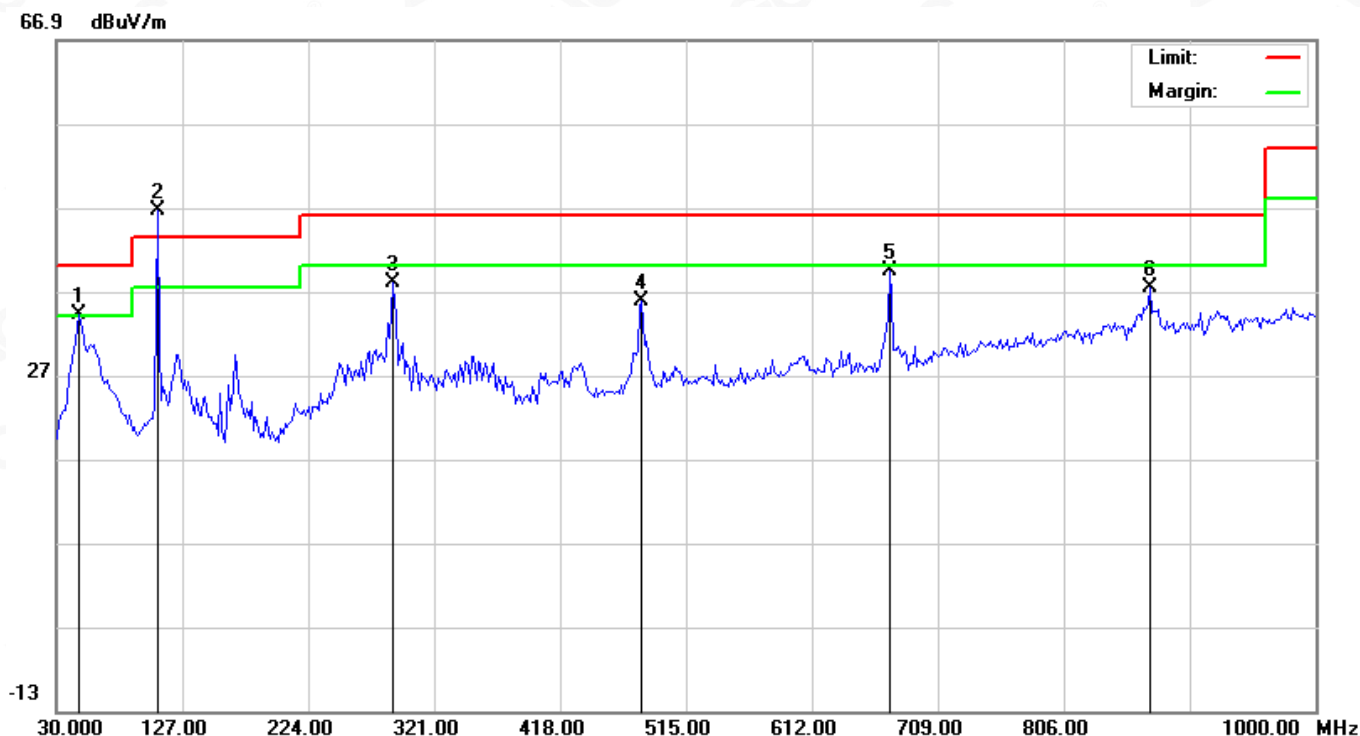
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RADIATED EMISSION BELOW 1GHZ-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	47.7832	14.49	19.81	34.30	40.00	-5.70	peak			
2	*	107.9000	29.78	16.75	46.53						
3		288.6666	18.29	19.74	38.03	46.00	-7.97	peak			
4		481.0500	11.22	24.61	35.83	46.00	-10.17	peak			
5		671.8167	11.60	27.81	39.41	46.00	-6.59	peak			
6		872.2833	6.07	31.34	37.41	46.00	-8.59	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 Low channel is the worst case and recorded in the report.



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8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

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.

1. Set the parameters of SPA as below:

Centre frequency = Operation Frequency

RBW=10KHz

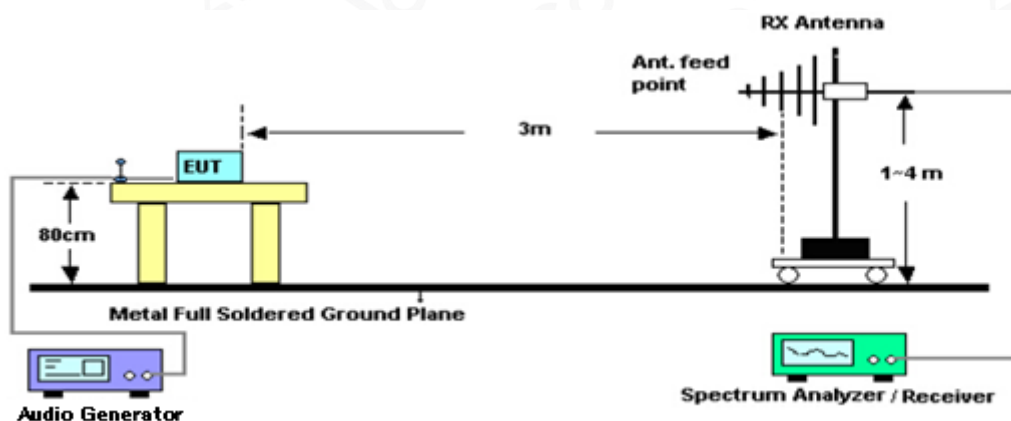
VBW=30KHz

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.

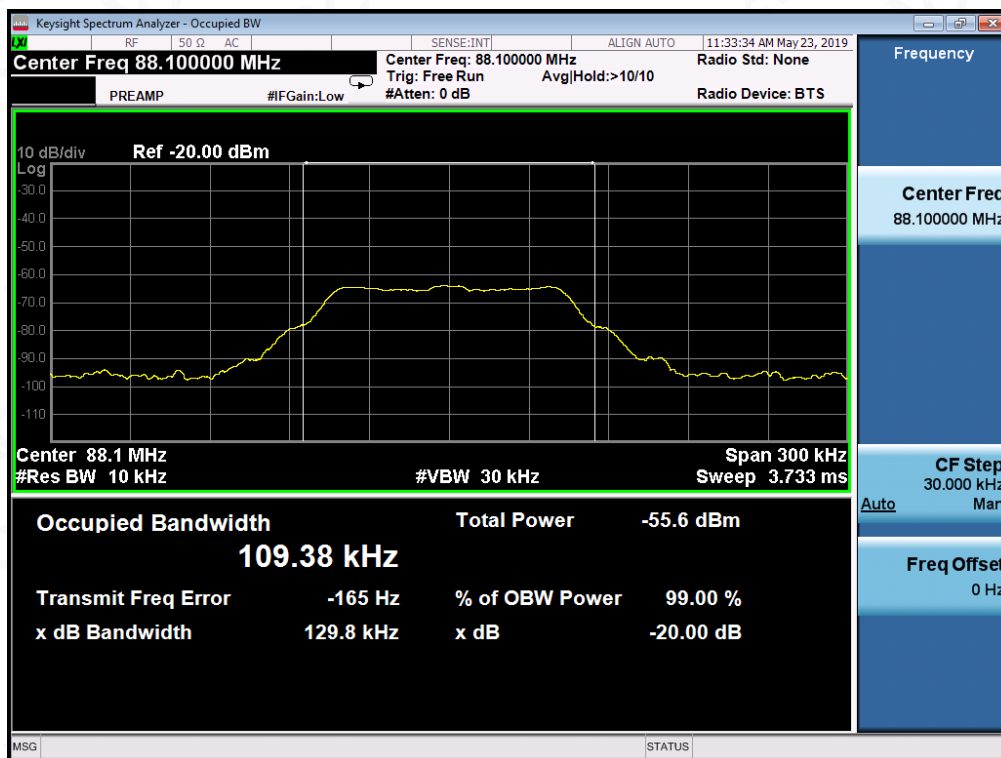
8.2. TEST SETUP



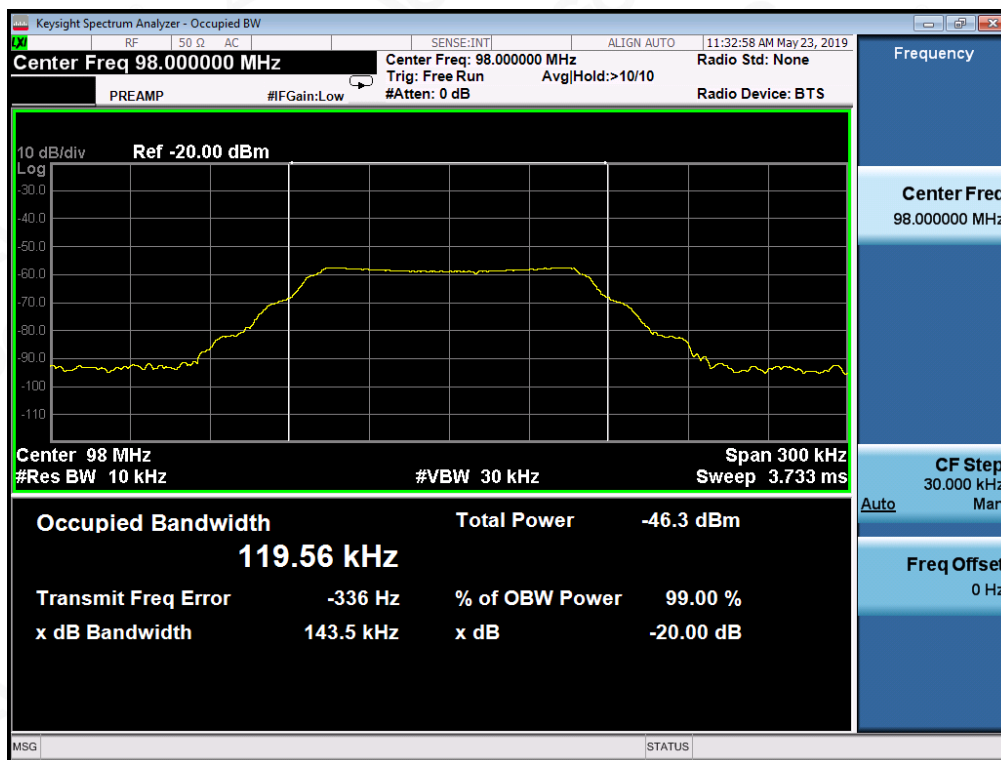
8.3. TEST RESULT

Channel	Channel Frequency(MHz)	-20dB bandwidth (kHz)	Limit(kHz)
Low	88.1	129.8	200
Middle	98.0	143.5	200
High	107.9	143.6	200

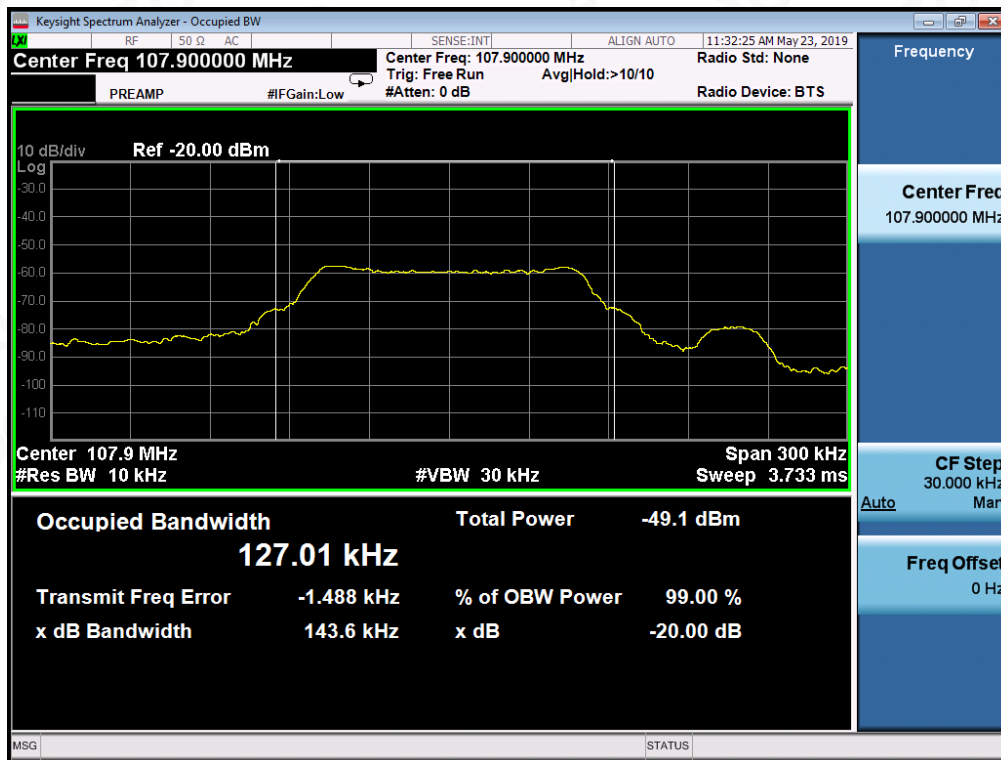
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

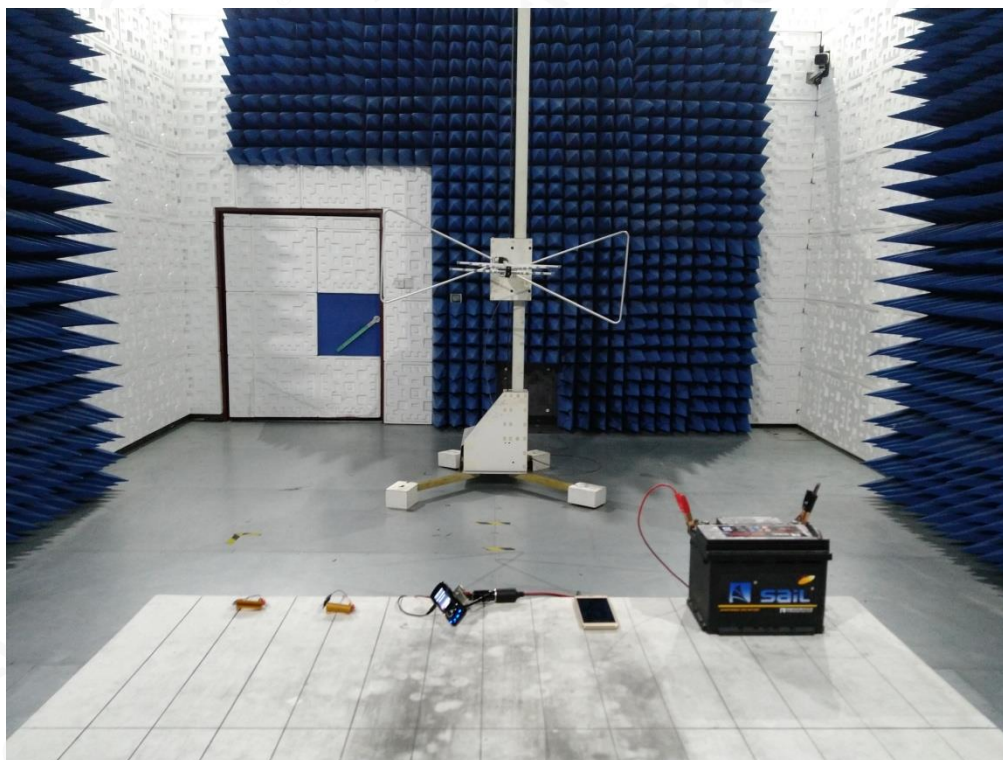


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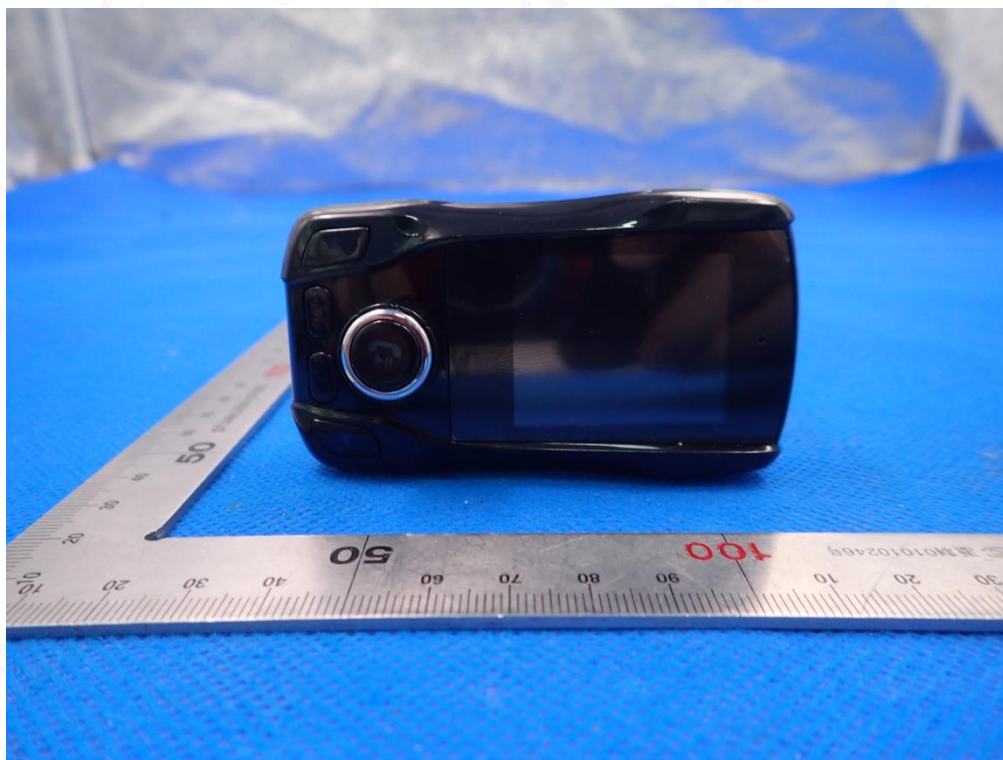
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

RADIATED EMISSION TEST SETUP BELOW 1G

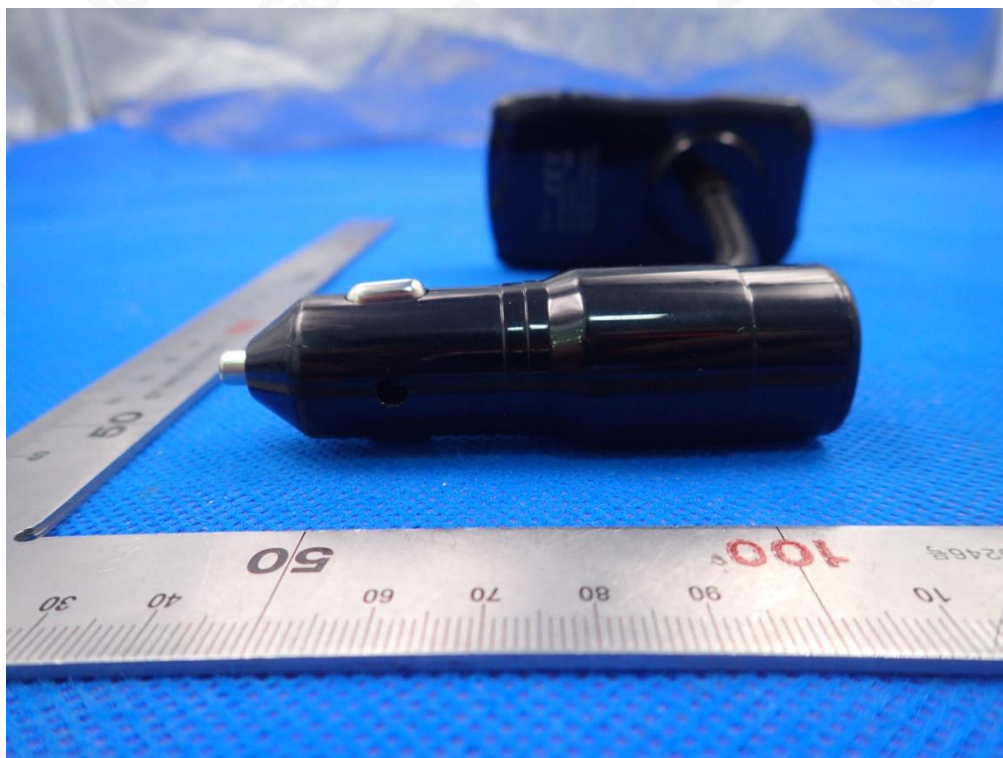


APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT



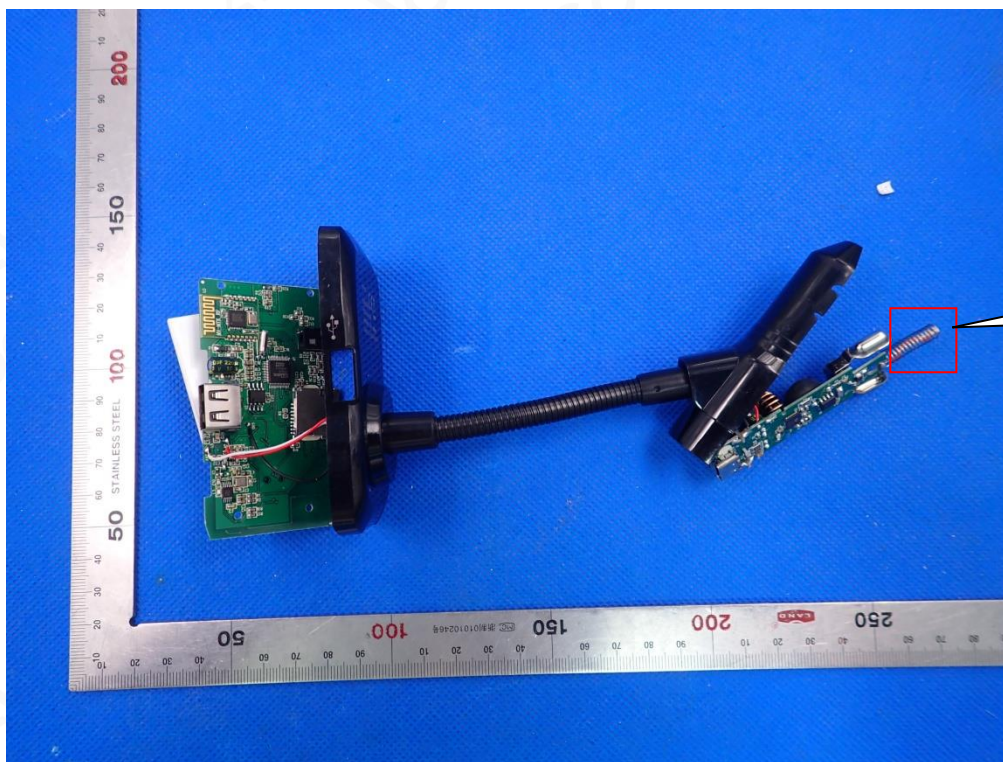
LEFT VIEW OF EUT



RIGHT VIEW OF EUT

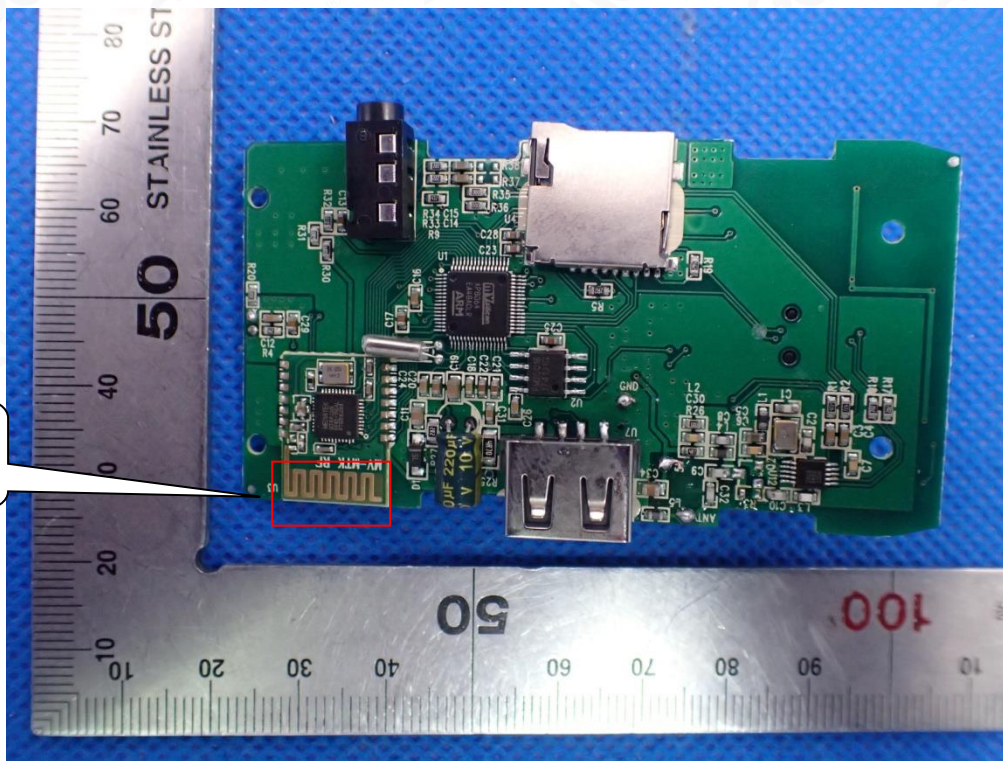


OPEN VIEW OF EUT



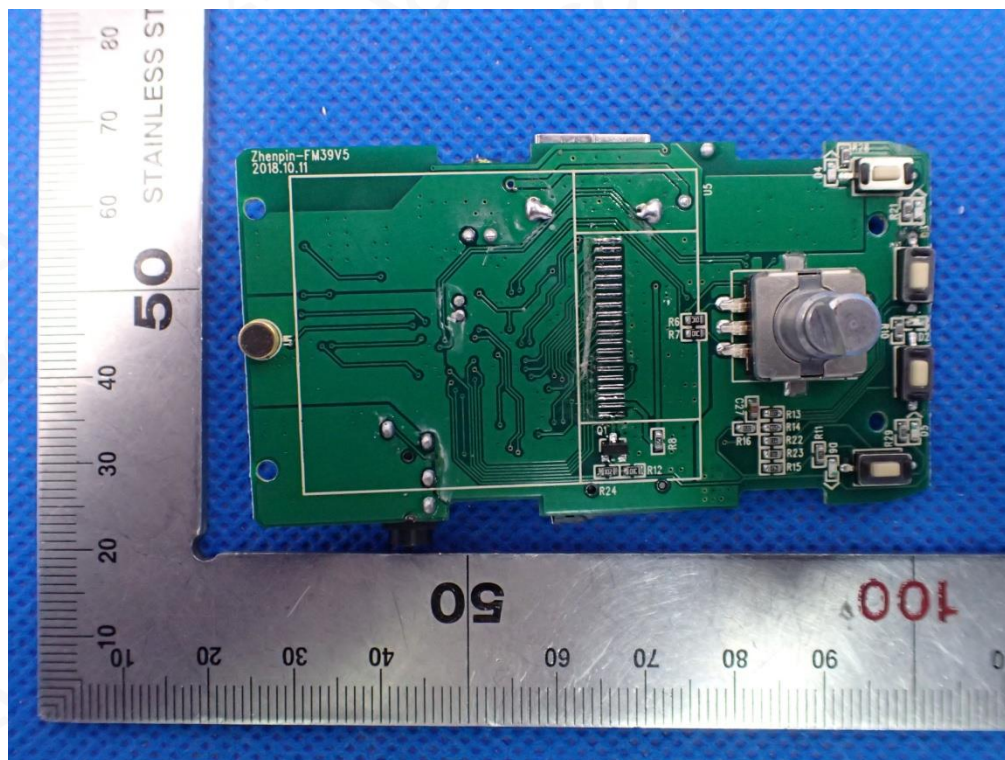
FM
Antenna

INTERNAL VIEW OF EUT-1

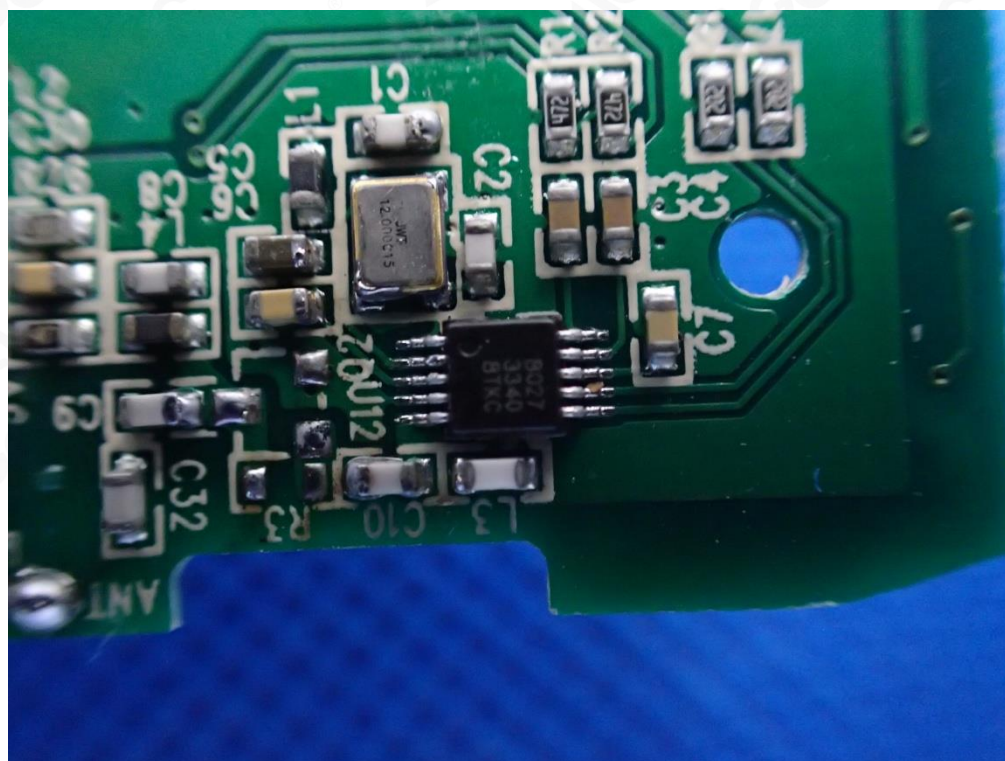


BT
Antenna

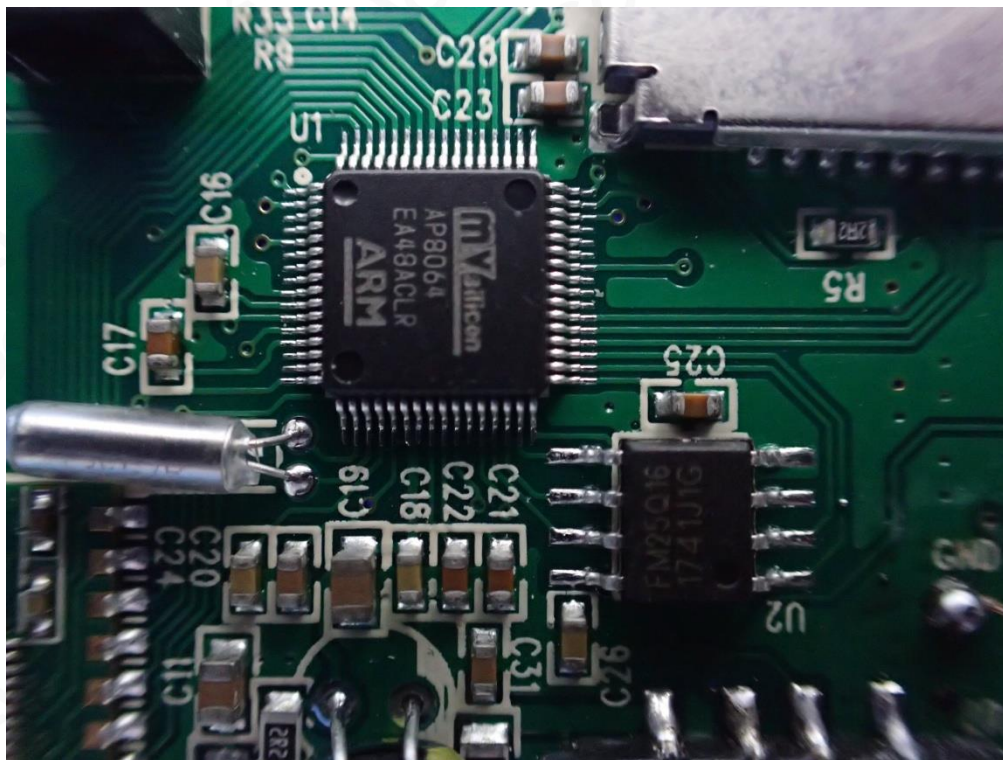
INTERNAL VIEW OF EUT-2



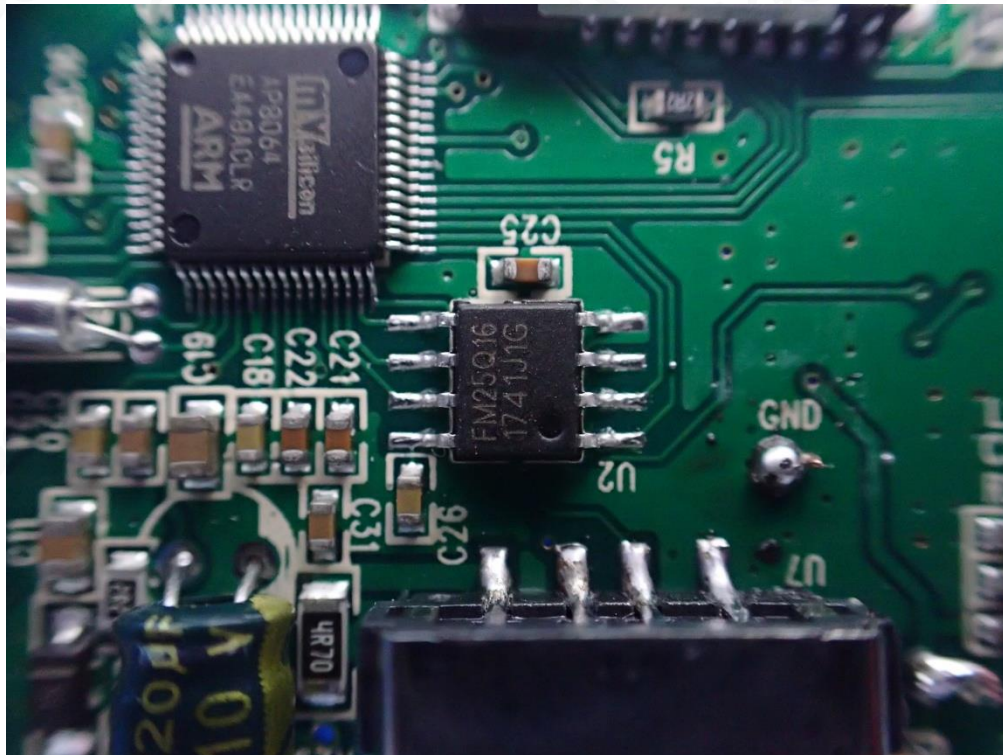
INTERNAL VIEW OF EUT-3



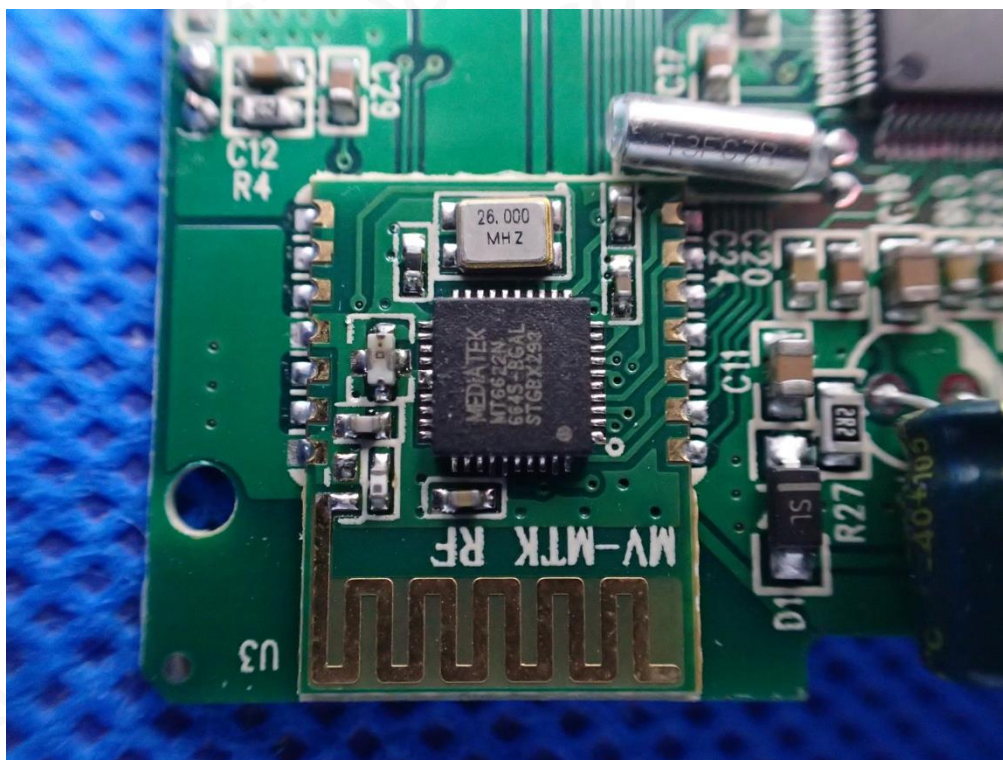
INTERNAL VIEW OF EUT-4



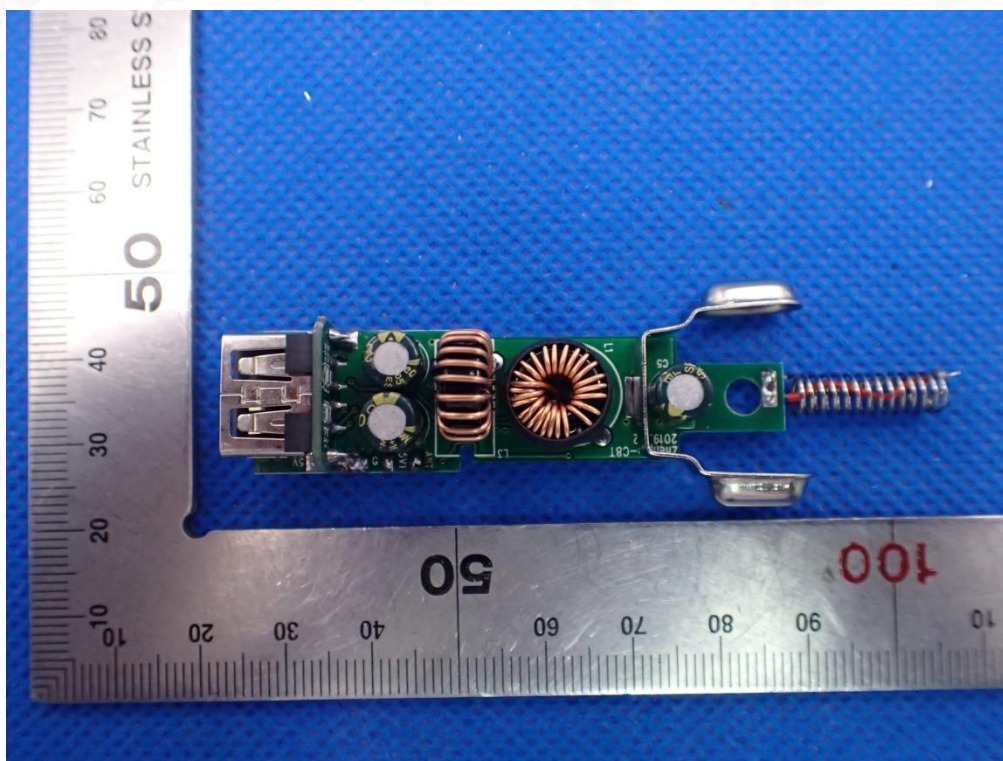
INTERNAL VIEW OF EUT-5



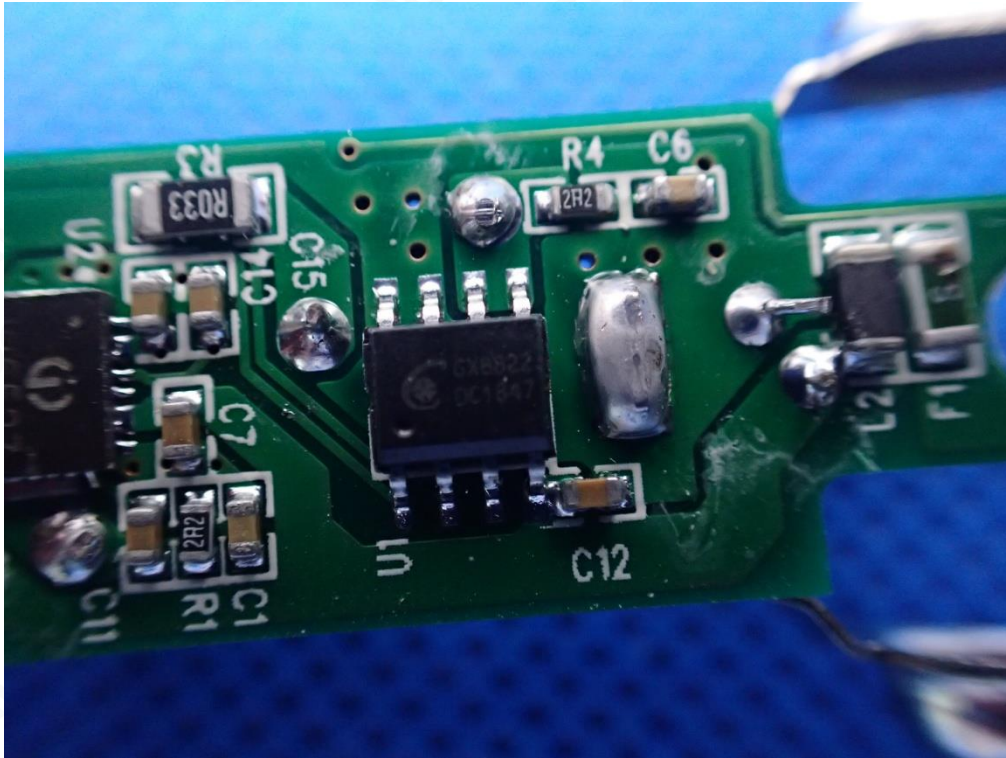
INTERNAL VIEW OF EUT-6



INTERNAL VIEW OF EUT-7



INTERNAL VIEW OF EUT-10



----END OF REPORT----