

	FCC REPORT		
Applicant:	FLUENT AUDIO INC		
Address of Applicant:	8362 TAMARACK VILLAGE SUITE# 119-252 WOODBURY, MINNESOTA 55125 USA		
Manufacturer/Factory:	Shenzhen Alcors Technology Co.,Ltd		
Address of Manufacturer/Factory:	4 <sup>th</sup> Floor South, Bldg 23, LianChuang Sci& Tech Park, Bulan Road, LongGang District, Shenzhen, China		
Equipment Under Test (E	UT)		
Product Name:	Hand Held Mic Transmitter		
Model No.: Trade Mark:	FA-WT900-HH, OEM-BT900-HH, OEM-ET900-HH, OEM-FT900-HH, OEM-KT900-HH, OEM-MT900-HH, OEM-ST900-HH, OEM-TT900-HH, OEM-WT900-HH, OEM-XT900-HH		
	N/A		
FCC ID:	2APTAFA-WT900-HH		
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249		
Date of sample receipt:	May 02, 2018		
Date of Test:	May 02, 2018 - May 10, 2018		
Date of report issued:	May 10, 2018		
Test Result :	PASS *		

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



**Robinson Lo** Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



# 2 Version

Version No.	Date	Description
00	May 10, 2018	Original

Prepared By:

zen Ou

Date:

May 10, 2018

Project Engineer

Check By:

w H

Date:

May 10, 2018

Reviewer



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# 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	N/A
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Pass: The EUT complies with the essential requirements in the standard.

Remark: Test according to ANSI C63.10: 2013 and ANSI C63.4: 2014.

# 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes	
Radiated Emission	9kHz ~ 30MHz ± 4.34dB		(1)	
Radiated Emission	30MHz ~ 1000MHz ± 4.24dB		(1)	
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)	
AC Power Line Conducted 0.15MHz ~ 30MHz ± 3.45dB				
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.				



# 5 General Information

# 5.1 General Description of EUT

Product Name:	Hand Held Mic Transmitter		
Model No.:	FA-WT900-HH, OEM-BT900-HH, OEM-ET900-HH, OEM-FT900-HH, OEM-KT900-HH, OEM-MT900-HH, OEM-ST900-HH, OEM-TT900-HH, OEM-WT900-HH, OEM-XT900-HH		
Test Model No:	FA-WT900-HH		
Remark: All above models are	identical in the same PCB layout, interior structure and electrical circuits.		
The difference is model name	for commercial purpose.		
Quantity of tested samples	1		
Serial No.:	N/A		
Test sample(s) ID:	N/A		
Sample(s) Status	Engineer sample		
Hardware:	N/A		
Software:	N/A		
Operation Frequency:	903~927MHz		
Channel numbers:	25		
Channel separation:	1MHz		
Modulation type:	O-QPSK		
Antenna Type:	Spring antenna		
Antenna gain:	2 dBi(declare by Applicant)		
Power supply:	DC 1.5V*2 From Battery		



Operation Frequency ea	Operation Frequency each of channel				
Channel	Frequency	Channel	Frequency		
1	903MHz	14	916MHz		
2	904MHz	15	917MHz		
12	914 MHz	24	926MHz		
13	915 MHz	25	927MHz		

# 5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
-------------------	---

Remark: During the test, the dutycycle >98%, New battery is used during all test. So the report just shows that condition's data.

## Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	Х	Y	Z
Field Strength(dBuV/m)	107.6	95.42	95.98

# 5.3 Description of Support Units

None

# 5.4 Test Facility

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

### • FCC — Registration No.: 381383

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383, January 08, 2018.

### • Industry Canada (IC) — Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016

# 5.5 Test Location

## All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960



# 5.6 Additional instructions

Software (Used for test) from client

1 /	
Mode	

Channel	Power level
Lowest	Default
Middle	Default
Highest	Default



# 6 Test Instruments list

Radiated Emission:						
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 03 2015	July 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June 28 2017	June 27 2018
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 28 2017	June 27 2018
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 28 2017	June 27 2018
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2017	June 27 2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 28 2017	June 27 2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	June 28 2017	June 27 2018
10	Coaxial Cable	GTS	N/A	GTS211	June 28 2017	June 27 2018
11	Coaxial cable	GTS	N/A	GTS210	June 28 2017	June 27 2018
12	Coaxial Cable	GTS	N/A	GTS212	June 28 2017	June 27 2018
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 28 2017	June 27 2018
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 28 2017	June 27 2018
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2017	June 27 2018
16	Band filter	Amindeon	82346	GTS219	June 28 2017	June 27 2018
17	Power Meter	Anritsu	ML2495A	GTS540	June 28 2017	June 27 2018
18	Power Sensor	Anritsu	MA2411B	GTS541	June 28 2017	June 27 2018

Conduc	Conducted Emission:											
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)						
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019						
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June 28 2017	June 27 2018						
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 28 2017	June 27 2018						
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June 28 2017	June 27 2018						
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A						
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A						
7	Thermo meter	KTJ	TA328	GTS233	June 28 2017	June 27 2018						

Gene	General used equipment:										
ltem	Test Equipment	Manufacturer	Model No.	Model No. Inventory No. (mm-dd-yy)		Cal.Due date (mm-dd-yy)					
1	Barometer	ChangChun	DYM3	GTS257	June 28 2017	June 27 2018					



# 7 Test results and Measurement Data

# 7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203									
15.203 requirement:										
An intentional radiator shall be party shall be used with the dev unique coupling to the intention	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.									
EUT Antenna:	EUT Antenna:									
The antenna is Spring antenna	a, the best case gain of the antenna is 2dBi									
40       50       60       70       80       90       30       40       50       60       70       80       90       200       1         10       20       30       50       60       70       80       90       200       1										



# 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207							
Test Method:	ANSI C63.10:2013							
Test Frequency Range:	150KHz to 30MHz							
Class / Severity:	Class B							
Receiver setup:	RBW=9KHz, VBW=30KHz, S	weep time=auto						
Limit:		Limit (dBuV)						
	Frequency range (MHz)	Quasi-peak	Average					
	0.15-0.5	66 to 56*	56 to 46*					
	0.5-5	56	46					
	5-30	60	50					
	* Decreases with the logarithm	n of the frequency.						
Test setup:	Reference Plane							
	Filter AC pow	er						
Test procedure:	<ol> <li>Test table height=0.8m</li> <li>The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>							
Test Instruments:	Refer to section 6.0 for details	3						
Test mode:	Refer to section 5.2 for details							
Test results:	N/A(The EUT is supplied by b	attery)						

Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

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# 7.3 Radiated Emission Method

Test Deminent of		De etter 45 00				
Test Requirement:	FCC Part15 C S		19			
 Test Method:	ANSI C63.10:20					
Test Frequency Range:	30MHz to 18GH					
Test site:	Measurement D	istance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark	
	30MHz- Quasi-peal 1GHz		k 120KHz	300KHz	Quasi-peak Value	
		Peak		3MHz	Peak Value	
	Above 1GHz	Peak	1MHz	10Hz	Average Value	
Limit:	Freque	ency	Limit (dBuV	/m @3m)	Remark	
(Field strength of the fundamental signal)	Carrier frequency 94.00 Average Valu				Average Value	
 Limit:	Frequency Limit (dBuV/m @3m) Remark					
(Spurious Emissions)	30MHz-8		40.0		Quasi-peak Value	
	88MHz-2		43.5		Quasi-peak Value	
	216MHz-960MHz		46.0		Quasi-peak Value	
	960MHz-	1GHz	<u>54.00</u> 54.00		Quasi-peak Value Average Value	
	Above 1	GHz	74.0		Peak Value	
Limit: (band edge) Test setup:	harmonics, sha	II be attenuat to the genera	ed by at least al radiated em	50 dB belo	v bands, except for w the level of the s in Section 15.209,	
	< 80cm >			$a \dots 4m > \psi$	fier	



	Report No.: GTS201805000085F01
	<pre>&lt; 3m &gt;+ </pre> <pre></pre>
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
	2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
	3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
	5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

#### Measurement data:



# 7.3.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	polarization
903.00	96.95	22.37	4.93	37.58	86.67	94.00	Vertical
903.00	95.62	22.37	4.93	37.58	85.34	94.00	Horizontal
915.00	98.30	22.39	4.93	37.58	88.04	94.00	Vertical
915.00	98.26	22.39	4.93	37.58	88.00	94.00	Horizontal
927.00	98.61	22.41	4.95	37.58	88.39	94.00	Vertical
927.00	97.10	22.41	4.95	37.58	86.88	94.00	Horizontal

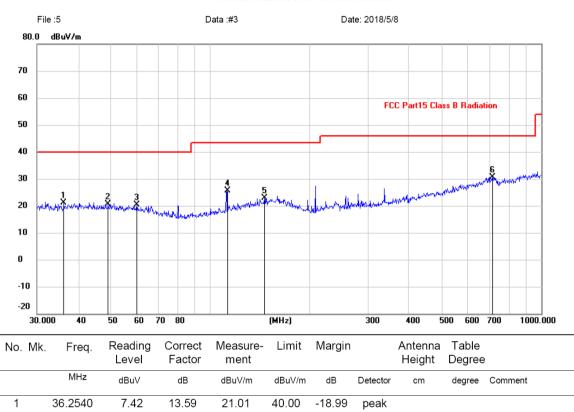
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss-Preamp Factor



# 7.3.2 Spurious emissions

Below 1GHz

### Horizontal:



40.00

40.00

43.50

43.50

46.00

-19.32

-19.67

-17.91

-20.67

-15.41

peak

peak

peak

peak

peak

#### Radiated Emission Measurement

Note:1. \*:Maximum data; x:Over limit; !:over margin.

7.03

7.37

13.81

8.58

9.87

13.65

12.96

11.78

14.25

20.72

49.1865

60.0691

112.5243

145.8611

711.6734

2

3

4

5

6 \*

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

20.68

20.33

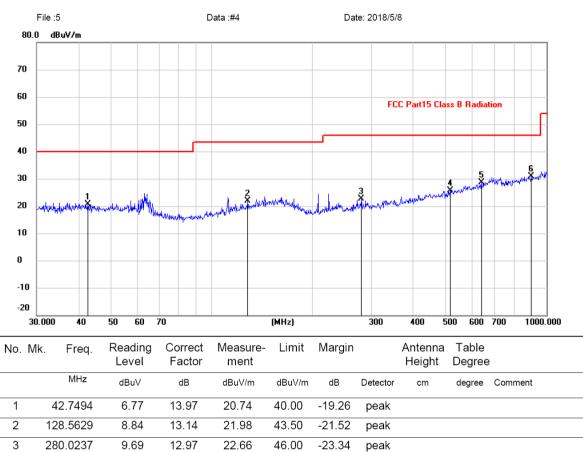
25.59

22.83

30.59

Vertical:

# Report No.: GTS201805000085F01



46.00

46.00

46.00

-20.30

-17.34

-15.14

peak

peak peak

#### **Radiated Emission Measurement**

Note:1. \*:Maximum data; x:Over limit; !:over margin.

7.96

8.65

7.91

17.74

20.01

22.95

25.70

28.66

30.86

517.2478

638.3686

900.1473

4

5

6 \*

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.



#### Above 1GHz

Test channel	:			Low	est channel			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1288.00	37.00	25.61	4.54	35.99	31.16	74.00	-42.84	Vertical
2503.00	33.67	27.55	5.49	36.94	29.77	74.00	-44.23	Vertical
3709.00	30.56	29.25	7.34	37.37	29.78	74.00	-44.22	Vertical
5500.00	28.38	31.98	9.51	37.07	32.80	74.00	-41.20	Vertical
7561.00	26.22	36.75	11.86	35.52	39.31	74.00	-34.69	Vertical
8704.00	27.00	36.87	13.23	34.74	42.36	74.00	-31.64	Horizontal
1369.00	36.13	25.66	4.59	36.06	30.32	74.00	-43.68	Horizontal
2440.00	33.93	27.48	5.43	36.89	29.95	74.00	-44.05	Horizontal
3736.00	30.77	29.29	7.4	37.38	30.08	74.00	-43.92	Horizontal
5428.00	28.44	31.86	9.4	37.18	32.52	74.00	-41.48	Horizontal

#### Test channel:

### Middle channel

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1342.00	36.63	25.7	4.57	36.04	30.86	74.00	-43.14	Vertical
2467.00	34.17	27.49	5.45	36.91	30.20	74.00	-43.80	Vertical
3772.00	31.72	29.33	7.46	37.38	31.13	74.00	-42.87	Vertical
5473.00	28.57	31.95	9.47	37.11	32.88	74.00	-41.12	Vertical
7534.00	27.77	36.72	11.85	35.53	40.81	74.00	-33.19	Vertical
8677.00	26.53	36.84	13.19	34.76	41.80	74.00	-32.20	Horizontal
1324.00	36.73	25.67	4.56	36.02	30.94	74.00	-43.06	Horizontal
2530.00	35.64	27.58	5.52	36.96	31.78	74.00	-42.22	Horizontal
3754.00	32.98	29.3	7.44	37.38	32.34	74.00	-41.66	Horizontal
5455.00	28.36	31.89	9.45	37.13	32.57	74.00	-41.43	Horizontal



Test channel	:			Hig	ghest channel				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	PK Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
1216.00	37.85	25.42	4.48	35.93	31.82	74.00	-42.18	Vertical	
2566.00	34.35	27.68	5.55	36.99	30.59	74.00	-43.41	Vertical	
3655.00	30.21	29.19	7.25	37.37	29.28	74.00	-44.72	Vertical	
5617.00	29.32	32.27	9.67	36.91	34.35	74.00	-39.65	Vertical	
7318.00	28.20	36.37	11.72	35.6	40.69	74.00	-33.31	Vertical	
8551.00	26.80	36.63	12.97	34.9	41.50	74.00	-32.50	Horizontal	
1234.00	36.10	25.48	4.49	35.94	30.13	74.00	-43.87	Horizontal	
2620.00	35.34	27.86	5.6	37.03	31.77	74.00	-42.23	Horizontal	
3907.00	29.87	29.52	7.69	37.39	29.69	74.00	-44.31	Horizontal	
5563.00	28.58	32.13	9.61	36.98	33.34	74.00	-40.66	Horizontal	

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

3. "\*", means this data is the too weak instrument of signal is unable to test.



# 7.3.3 Bandedge emissions

Test channe	el:			L	Lowest channel					
Peak value:										
Frequency (MHz)Read LevelAntenna FactorCable LossPrean Factor(dBuV)(dB/m)(dB)(dB)					Level (dBuV/m)	Limit Line (dBuV/m)		Polarization		
902.00	35.30	22.3	4.87	37.6	24.87	46		Horizontal		
902.00	39.51	22.3	4.87	37.6	29.08	46		Vertical		
928.00	40.95	22.3	4.87	37.6	30.52	46		Horizontal		
928.00	35.88	22.3	4.87	37.6	25.45	46		Vertical		

Test channe	el:			Н	Highest channel				
Peak value:									
Frequency (MHz)Read Level (dBuV)Antenna FactorCable Loss Loss (dB)Prean Factor					Level (dBuV/m)	Limit Line (dBuV/m)		Polarization	
902.00	34.65	22.3	4.87	37.6	24.22	46		Horizontal	
902.00	38.63	22.3	4.87	37.6	28.20	46		Vertical	
928.00	25.02	22.3	4.87	37.6	14.59	46		Horizontal	
928.00	26.38	22.3	4.87	37.6	15.95	46		Vertical	

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamp Factor



# 7.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215	
Test Method:	ANSI C63.10:2013	
Limit:	Operation Frequency range 902MHz~928MHz	
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane	
Test Instruments:	Refer to section 6.0 for details	
Test mode:	Refer to section 5.2 for details	
Test results:	Pass	

#### **Measurement Data**

Test channel	20dB bandwidth(MHz)	Result
903MHz	1.379	Pass
915MHz	1.352	Pass
927MHz	1.319	Pass



#### Test plot as follows:

# Report No.: GTS201805000085F01





Lowest : 903MHz

Middle: 915MHz

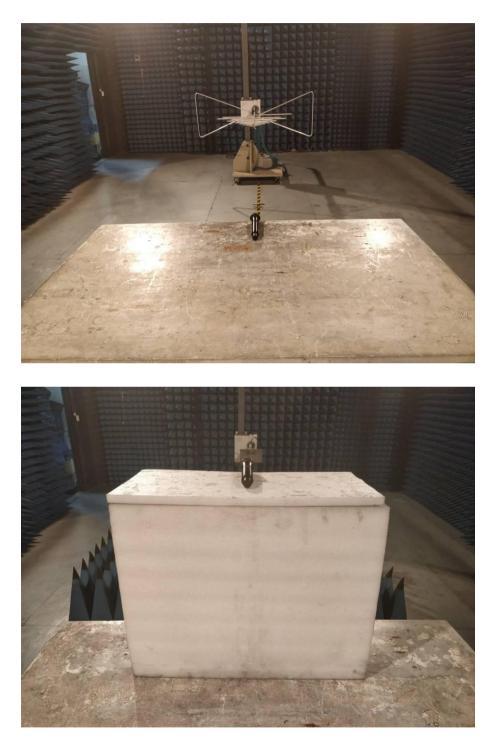


Highest: 927MHz



# 8 Test Setup Photo

Radiated Emission





# 9 EUT Constructional Details









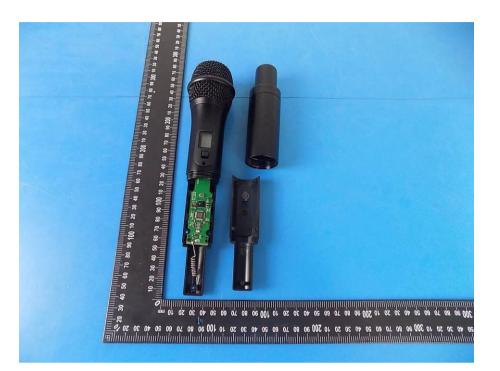


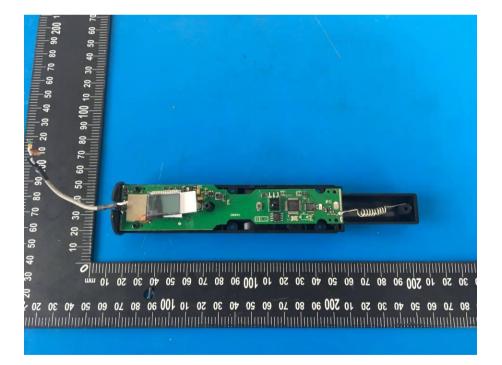


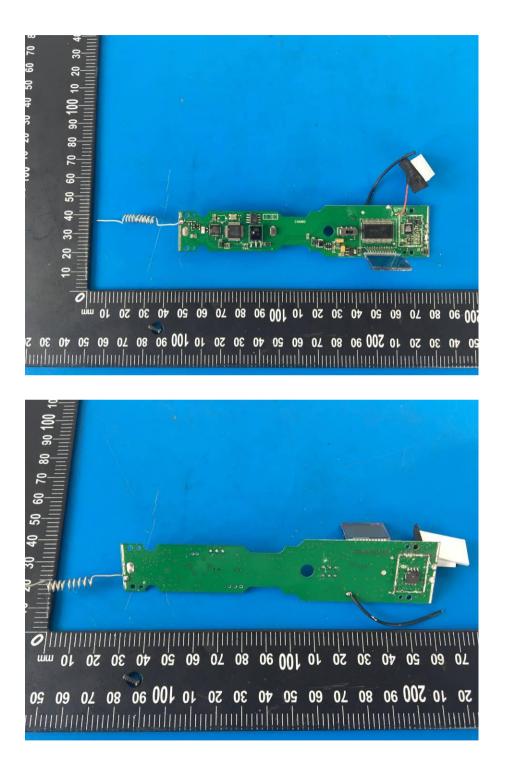












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GTS