

# TECHNICAL REPORT



Report No.: TW2104167E  
File reference No.: 2021-04-19

Applicant: LEADER PREMIUMS LTD.

Product: TWS Earbuds

Model No.: AF0063

Brand Name: N/A

Test Standards: FCC Part 15.249

Test result:

It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility



Dated: April 19, 2021

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

**Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,  
Tong Le Village, Nanshan District, Shenzhen, China**

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 744189**

The EMC Laboratory has been registered 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 No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

#### **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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## 1.0 General Details

### 1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 744189  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: LEADER PREMIUMS LTD.  
Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: TWS Earbuds  
Manufacturer: LEADER PREMIUMS LTD.  
Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China  
Brand Name: N/A  
Model Number: AF0063  
Additional Model Name: N/A  
Hardware Version: Bluetooth- AF0063 V1.0  
Software Version: leader.1910.01 V5.0  
Serial No.: AF0063  
Rating: Built-in DC3.7V, 35mAH Li-ion battery;  
Modulation Type: GFSK, Pi/4D-QPSK, 8DPSK (Bluetooth)  
Operation Frequency: 2402-2480MHz  
Channel Separate: 1MHz  
Channel Number: 79  
Antenna Designation: Chip antenna with gain 1.11dBi Max (Get from the antenna specification provided by the applicant)

### 1.4 Submitted Sample: 1 Sample

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1.5 Test Duration

2021-04-12 to 2021-04-19

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by



Print Name: Terry Tang

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100294	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100253	2020-06-23	2021-06-22
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2020-06-23	2021-06-22
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2020-06-23	2021-06-22
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2020-06-23	2021-06-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2020-06-23	2021-06-22
Power sensor	Anritsu	MA2491A	32263	2020-06-23	2021-06-22
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic	--	--	N/A	2020-07-06	2021-07-05
EMI Test Receiver	RS	ESVB	826156/011	2020-06-23	2021-06-22
EMI Test Receiver	RS	ESH3	860904/006	2020-06-23	2021-06-22
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2020-06-23	2021-06-22
Spectrum	HP/Agilent	E4407B	MY50441392	2020-06-23	2021-06-22
Spectrum	RS	FSP	1164.4391.38	2021-01-16	2022-01-15
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2020-06-23	2021-06-22
RF Cable	Zhengdi	7m	--	2020-06-23	2021-06-22
RF Switch	EM	EMSW18	060391	2020-06-23	2021-06-22
Pre-Amplifier	Schwarebeck	BBV9743	#218	2020-06-23	2021-06-22
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2020-06-23	2021-06-22
LISN	SCHAFFNER	NNB42	00012	2020-01-07	2021-01-06

## 2.2 Automation Test Software

### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	PASS	Complies

#### 3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249 , ANSI C63.4 :2014 and ANSI C63.10 :2013

#### 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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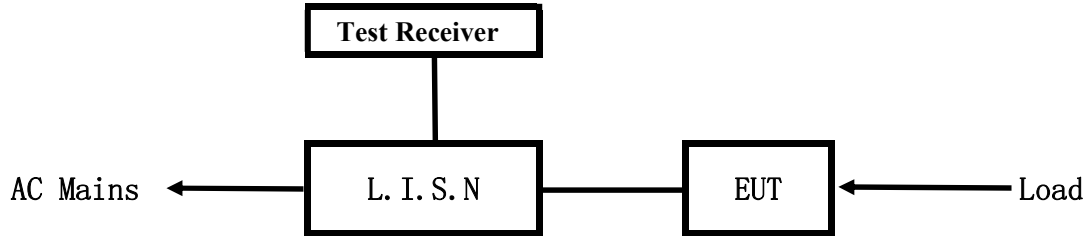
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**5. Power Line Conducted Emission Test**

5.1 Schematics of the test

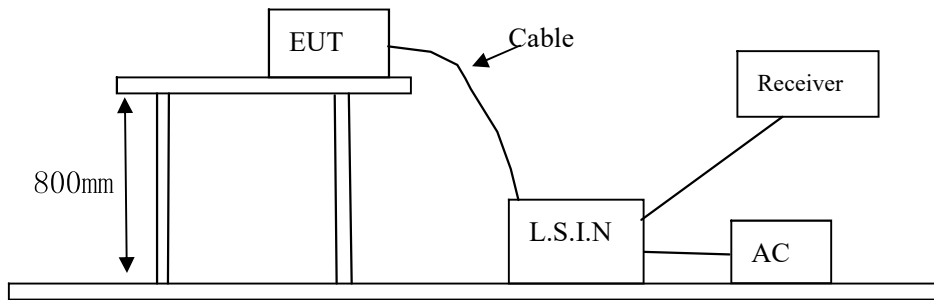


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013. AC 120V 60Hz.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
TWS Earbuds	LEADER PREMIUMS LTD.	AF0063	2APYY-AF0063

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	KEYU	KA23-0502000DEU	Input: 100-240V~, 50/60Hz, 0.35A; Output: DC5V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Lev 1
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

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

5.6 Test Results:

Pass

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**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

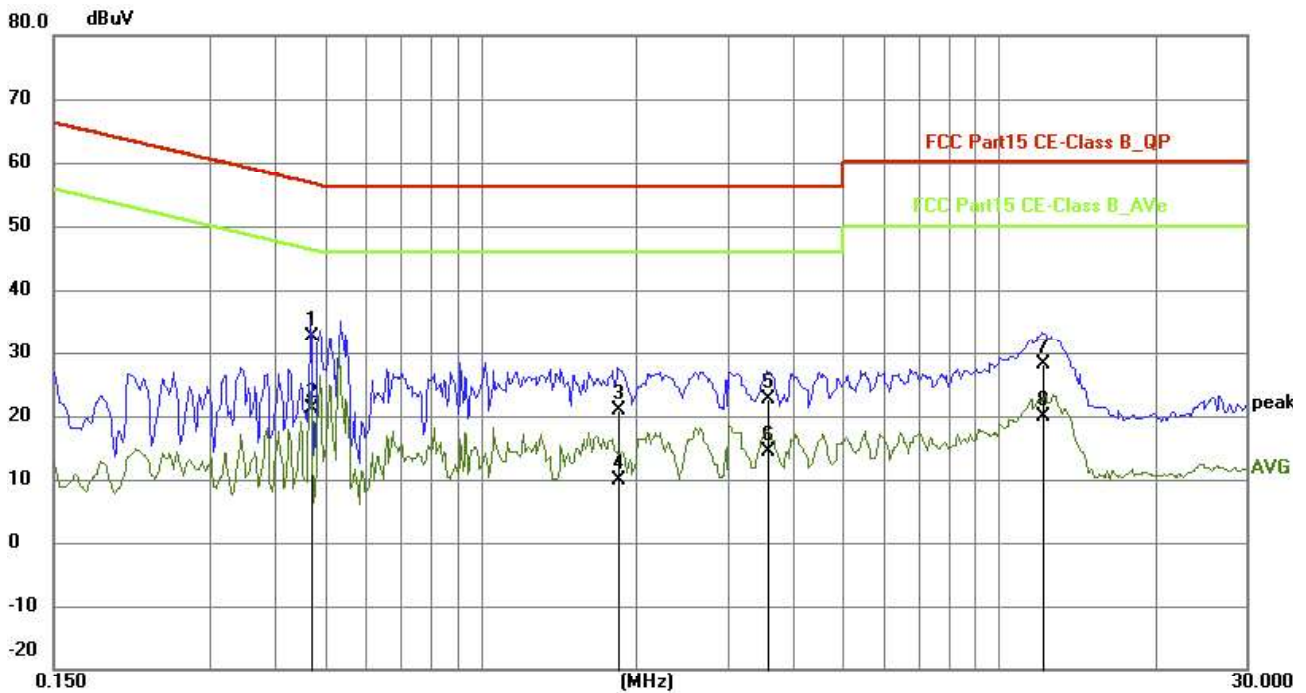
**EUT set Condition: Charing and Communication by Bluetooth**

**Model: AF0063**

**Equipment Level: Class B**

**Results: PASS**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4698	22.82	9.77	32.59	56.52	-23.93	QP	P
2	0.4698	11.48	9.77	21.25	46.52	-25.27	AVG	P
3	1.8387	10.98	9.80	20.78	56.00	-35.22	QP	P
4	1.8387	0.06	9.80	9.86	46.00	-36.14	AVG	P
5	3.5733	12.68	9.87	22.55	56.00	-33.45	QP	P
6	3.5733	4.63	9.87	14.50	46.00	-31.50	AVG	P
7	12.1611	17.76	10.26	28.02	60.00	-31.98	QP	P
8	12.1611	9.67	10.26	19.93	50.00	-30.07	AVG	P

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**B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

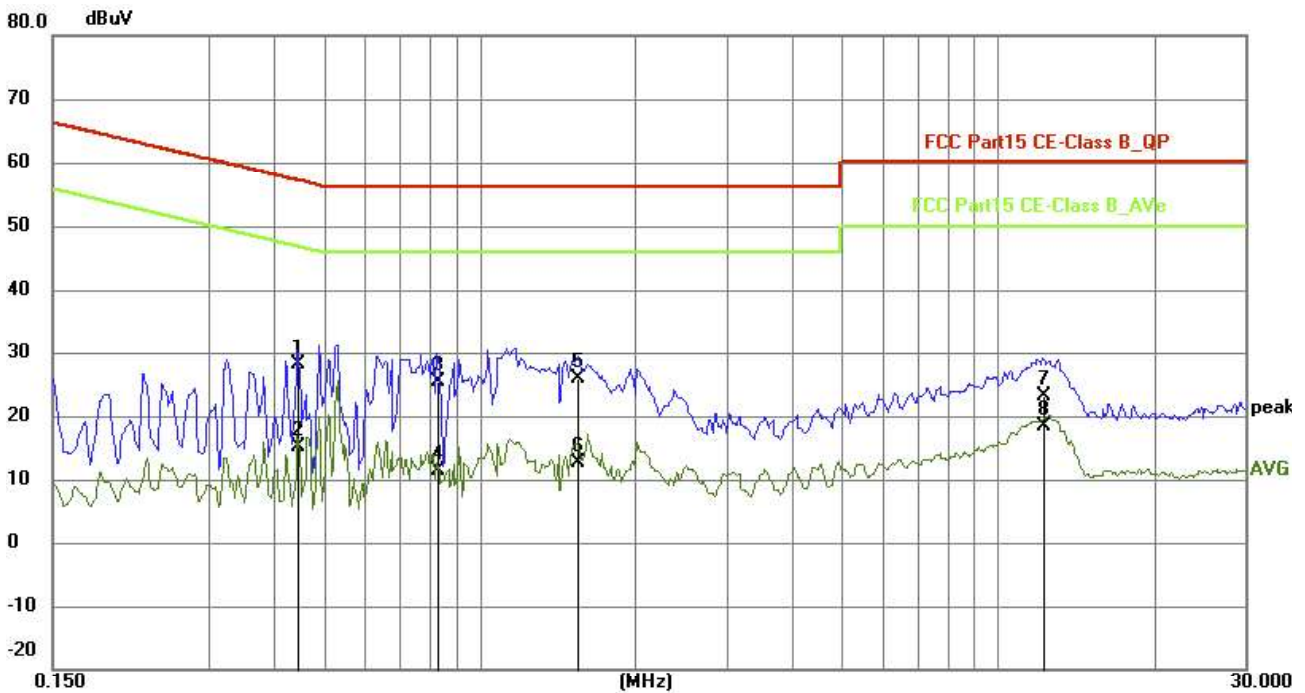
**EUT set Condition: Charing and Communication by Bluetooth**

**Model: AF0063**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4464	18.44	9.77	28.21	56.94	-28.73	QP	P
2	0.4464	5.38	9.77	15.15	46.94	-31.79	AVG	P
3	0.8286	15.56	9.78	25.34	56.00	-30.66	QP	P
4	0.8286	1.54	9.78	11.32	46.00	-34.68	AVG	P
5	1.5501	15.97	9.80	25.77	56.00	-30.23	QP	P
6	1.5501	2.88	9.80	12.68	46.00	-33.32	AVG	P
7	12.2157	12.89	10.26	23.15	60.00	-36.85	QP	P
8	12.2157	8.24	10.26	18.50	50.00	-31.50	AVG	P

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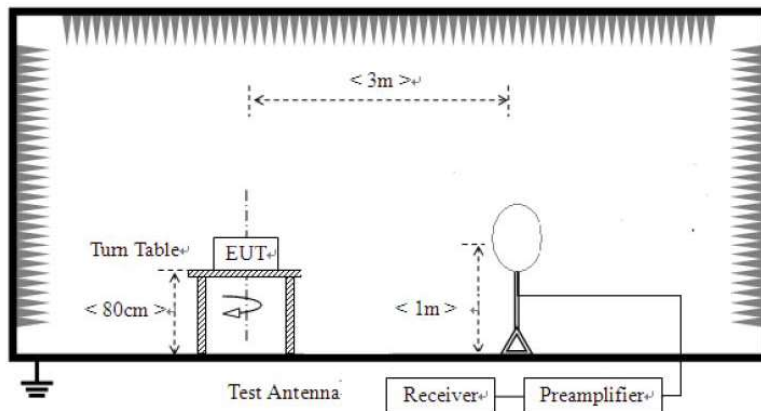
## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

#### Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



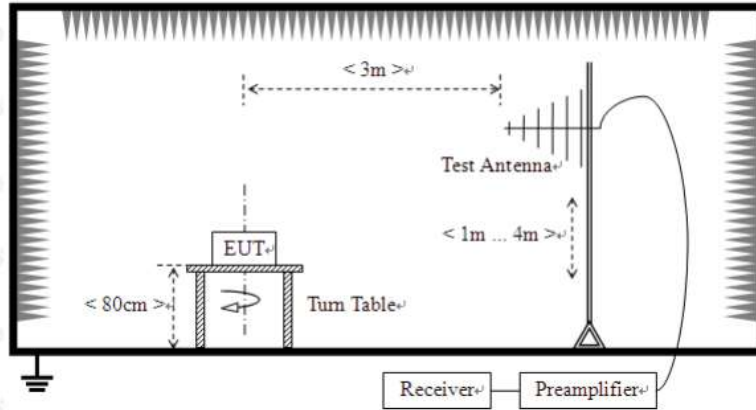
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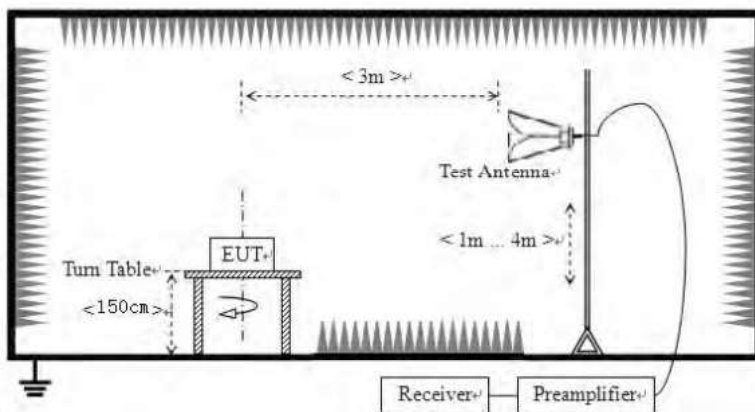
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For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



## 6.2 Configuration of The EUT

Same as section 5.3 of this report

## 6.3 EUT Operating Condition

Same as section 5.4 of this report.

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**A FCC Part 15 Subpart C Paragraph 15.249(a) Limit**

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)		Field Strength of Harmonics (3m)		
	mV/m	dBuV/m	uV/m	dBuV/m	
2400-2483.5	50	94 (Average) 114 (Peak)	500	54 (Average)	74 (Peak)

- Note:
1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
  2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
  3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

**B. Frequencies in restricted band are complied to limit on Paragraph 15.209.**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the tighter limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
  5. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
  6. Battery full charged during tests.
  7. The three modulation modes of GFSK, Pi/4D-QPSK, and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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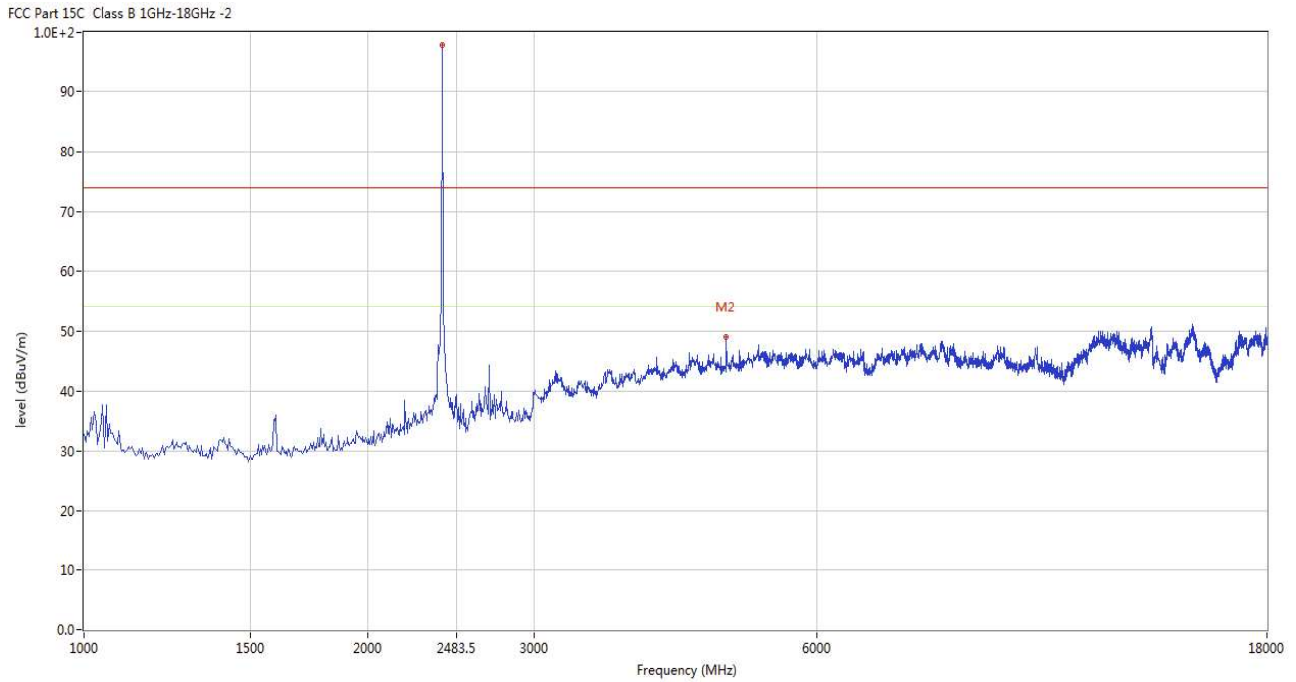


**6.5 Test result**

**A Fundamental & Harmonics Radiated Emission Data**

Please refer to the following test plots for details: Low Channel-2402MHz

**Horizontal**



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.500	97.92	-3.57	114.0	-16.08	Peak	133.00	100	Horizontal	Pass
1*	2402.500	88.19	-3.57	94.0	-5.81	AV	133.00	100	Horizontal	Pass
2	4803.750	49.92	3.13	74.0	-24.08	Peak	125.00	100	Horizontal	Pass

The report refers only to the sample tested and does not apply to the bulk.

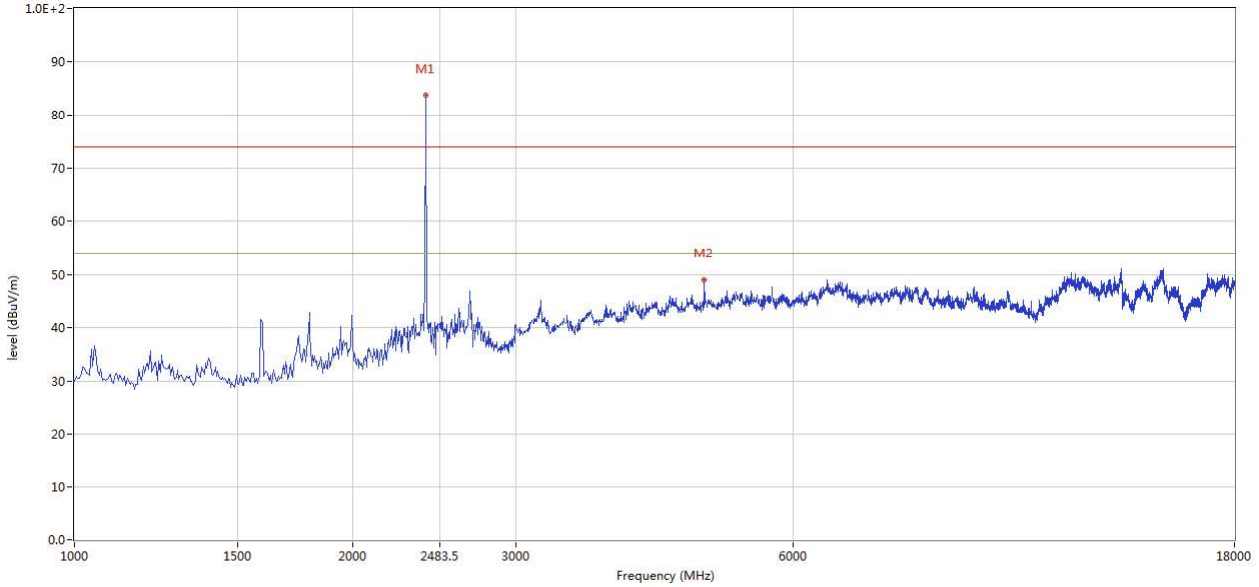
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**Vertical**

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2402.500	83.72	-3.57	114.0	-30.28	Peak	107.00	100	Vertical	Pass
2	4803.750	49.00	3.13	74.0	-25.00	Peak	59.00	100	Vertical	Pass

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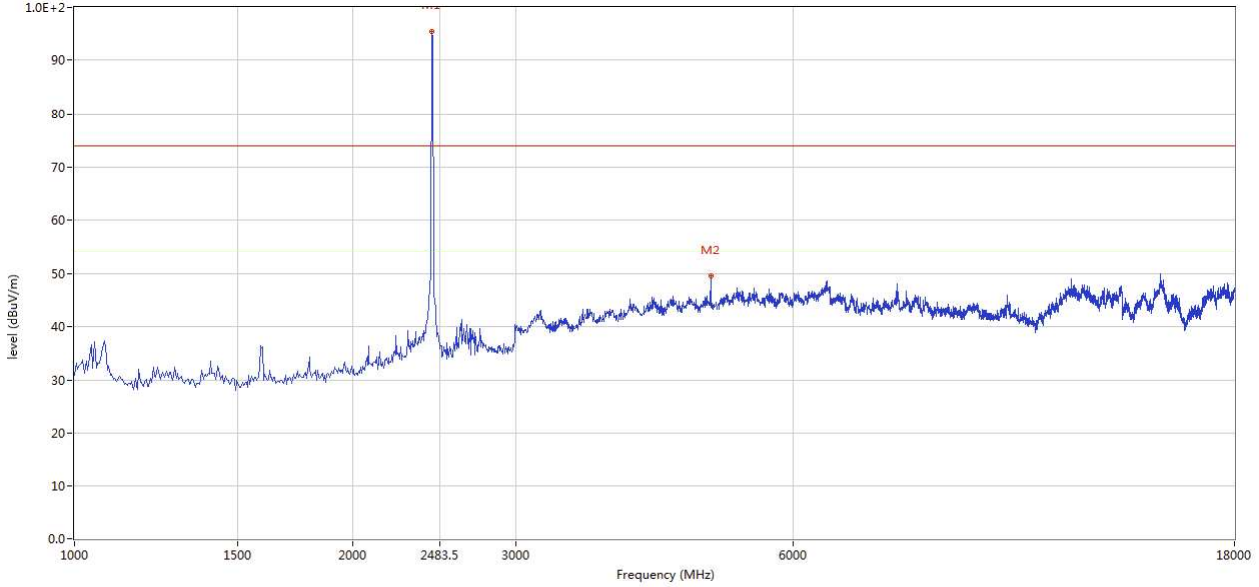




Please refer to the following test plots for details: Middle Channel-2441MHz

**Horizontal**

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2440.500	95.51	-3.57	114.0	-18.49	Peak	134.00	100	Horizontal	Pass
1*	2440.500	86.31	-3.57	94.0	-27.69	AV	134.00	100	Horizontal	Pass
2	4880.250	49.45	3.20	74.0	-24.55	Peak	142.00	100	Horizontal	Pass

The report refers only to the sample tested and does not apply to the bulk.

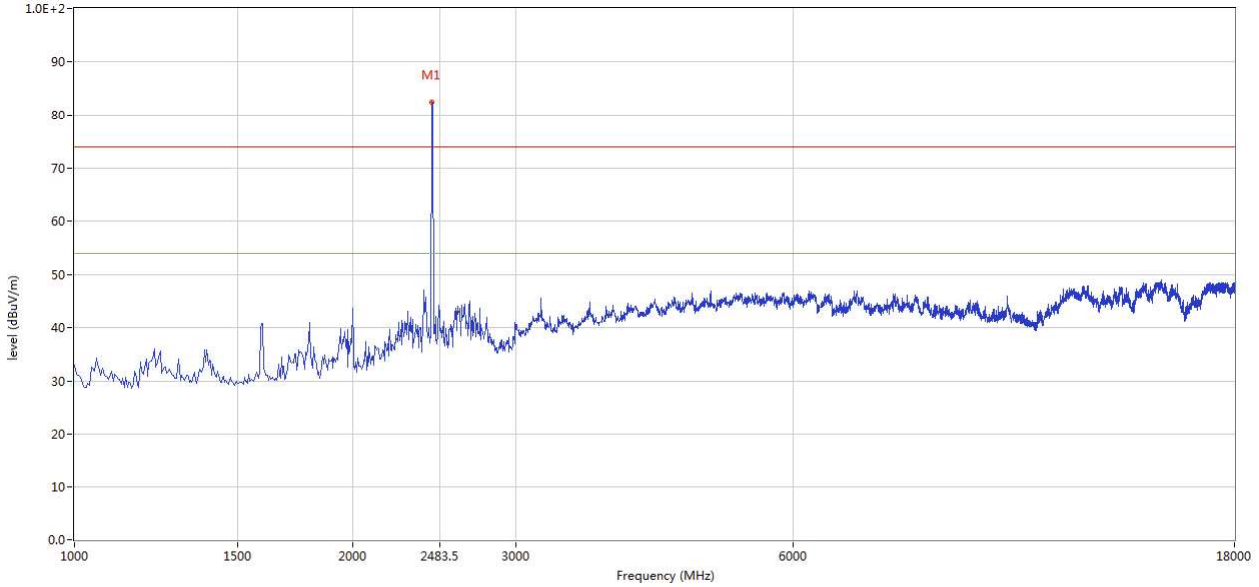
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**Vertical**

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2440.500	82.50	-3.57	114.0	-31.50	Peak	187.00	100	Vertical	Pass

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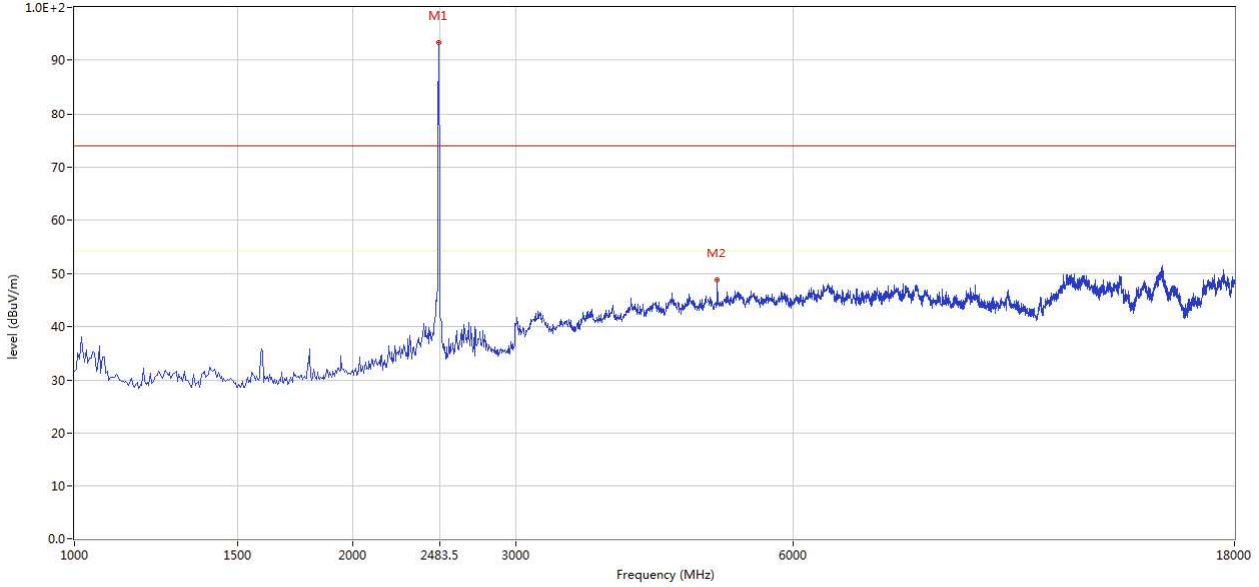
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Please refer to the following test plots for details: High Channel-2480MHz

**Horizontal**

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.800	93.43	-3.57	114.0	-20.57	Peak	119.00	100	Horizontal	Pass
1	2479.800	84.09	-3.57	94.0	-9.91	AV	119.00	100	Horizontal	Pass
2	4961.000	49.81	3.36	74.0	-24.19	Peak	1.00	100	Horizontal	Pass

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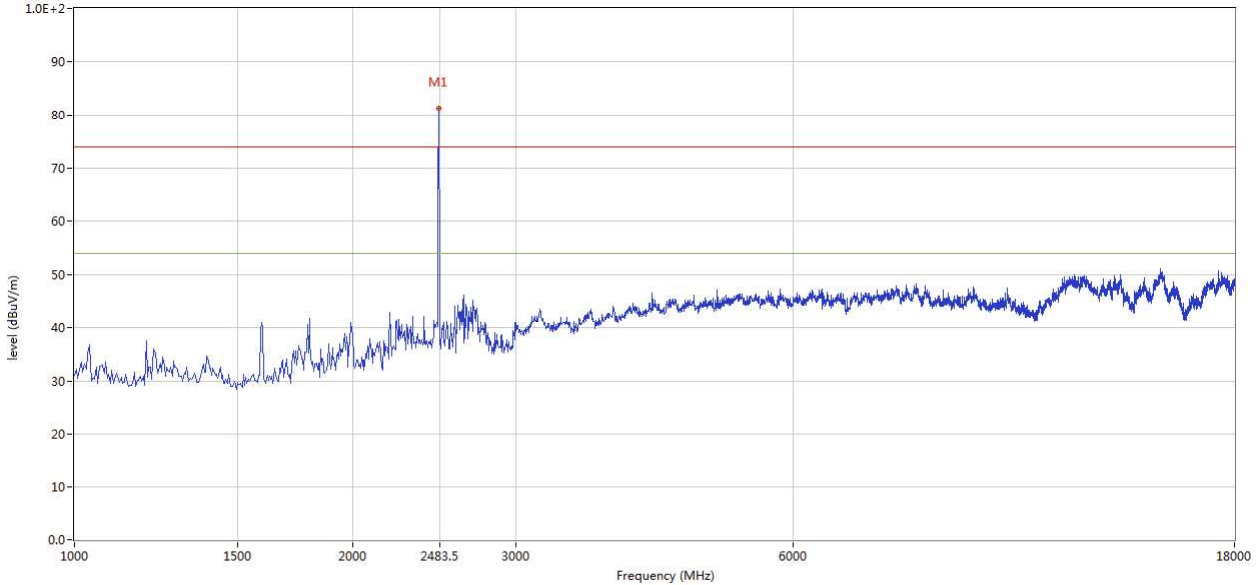
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**Vertical**

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2479.800	81.32	-3.57	114.0	-32.68	Peak	119.00	100	Vertical	Pass

- Note:
- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier
  - (3) Margin=Emission-Limits
  - (4) According to section 15.35(b), the peak limit is 20dB higher than the average limit
  - (5) For test purpose, keep EUT continuous transmitting
  - (5) For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.
  - (6) the measured PK value less than the AV limit.

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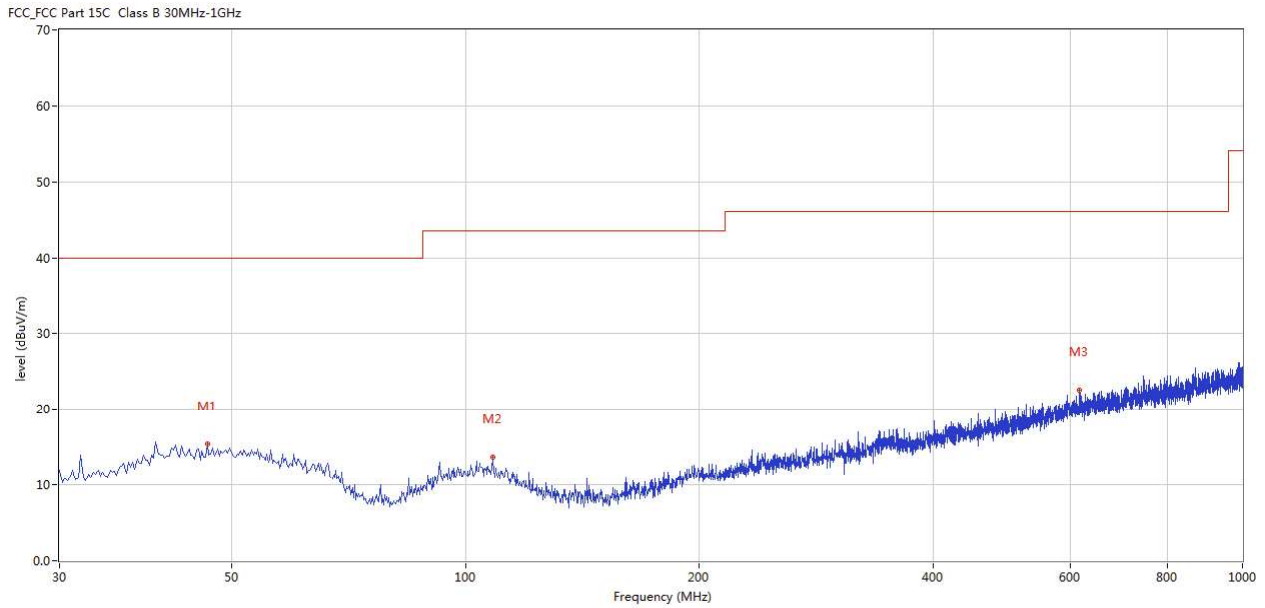


**B. General Radiated Emission Data**  
**Radiated Emission In Horizontal (30MHz----1000MHz)**

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	46.486	15.37	-11.43	40.0	-24.63	Peak	360.00	100	Horizontal	Pass
2	108.308	13.66	-13.43	43.5	-29.84	Peak	360.00	100	Horizontal	Pass
3	617.431	22.53	-5.01	46.0	-23.47	Peak	360.00	100	Horizontal	Pass

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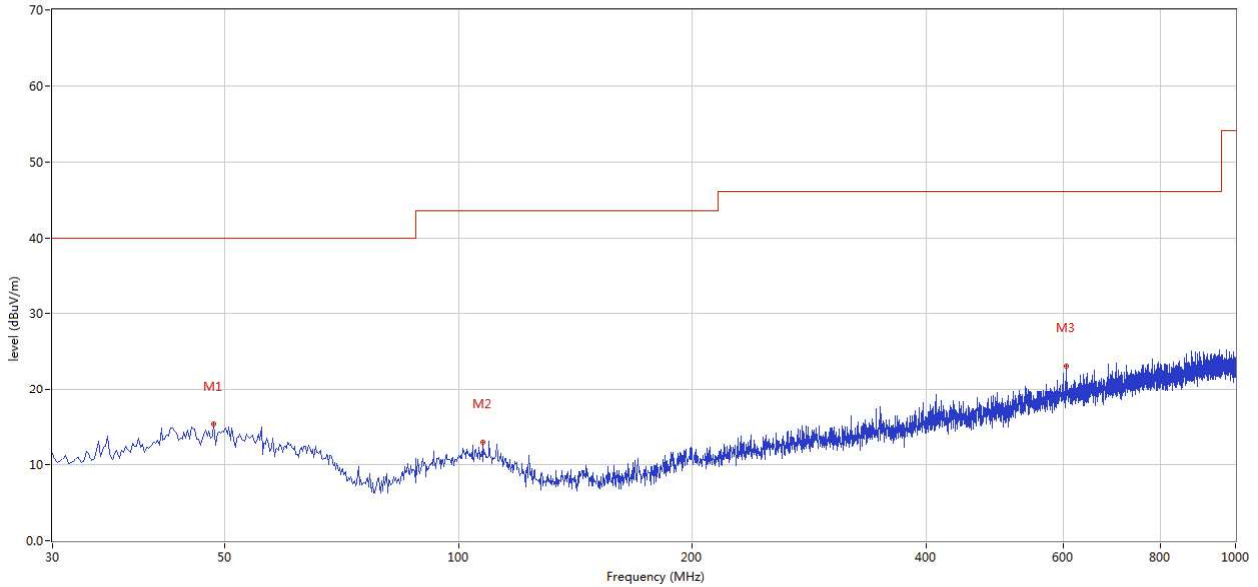
**Radiated Emission In Vertical (30MHz----1000MHz)**

EUT set Condition: Keep Tx transmitting

**Results: Pass**

Please refer to following diagram for individual

FCC\_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	48.425	15.43	-11.22	40.0	-24.57	Peak	41.00	100	Vertical	Pass
2	107.581	13.00	-13.40	43.5	-30.50	Peak	13.00	100	Vertical	Pass
3	605.794	23.09	-4.97	46.0	-22.91	Peak	13.00	100	Vertical	Pass

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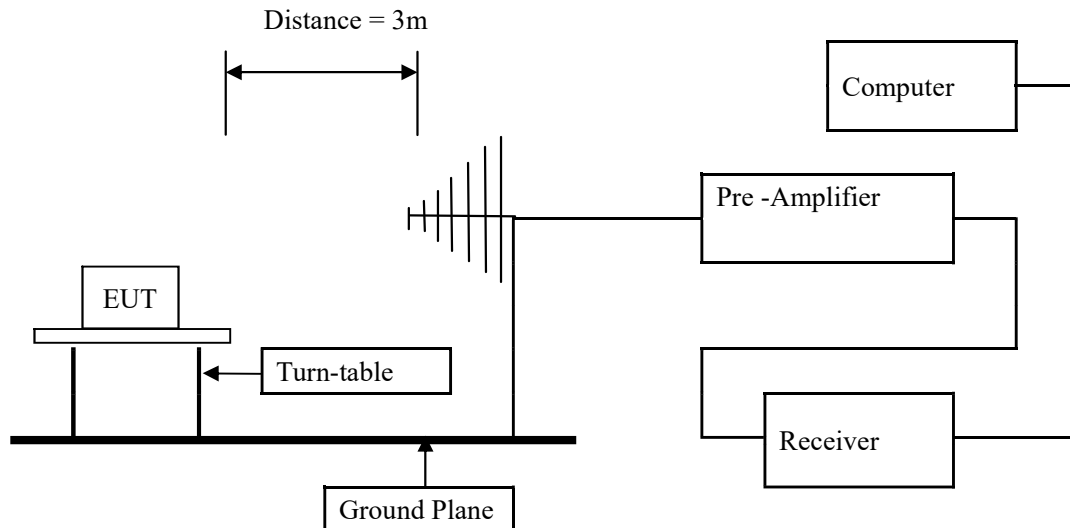


## 7. Band Edge

### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

### 7.2 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

### 7.3 Configuration of The EUT

Same as section 5.3 of this report

### 7.4 EUT Operating Condition

Same as section 5.4 of this report.

### 7.5 Band Edge Limit

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 Section 15.209, whichever is the lesser attenuation.

The report refers only to the sample tested and does not apply to the bulk.

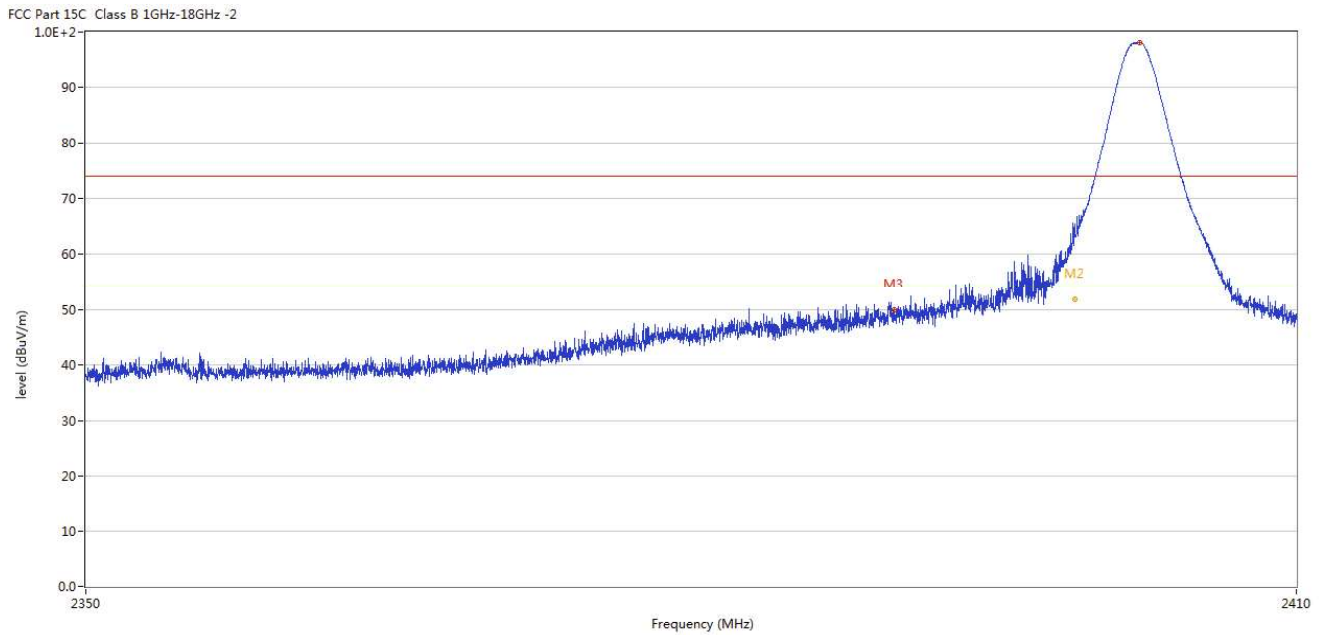
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**7.6 Test Result**

Product:	TWS Earbuds	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2399.980	62.70	-3.57	74.0	-11.30	Peak	138.00	100	Horizontal	Pass
2**	2399.980	51.79	-3.57	54.0	-2.21	AV	138.00	100	Horizontal	Pass
3	2389.915	49.95	-3.53	74.0	-24.05	Peak	126.00	100	Horizontal	Pass

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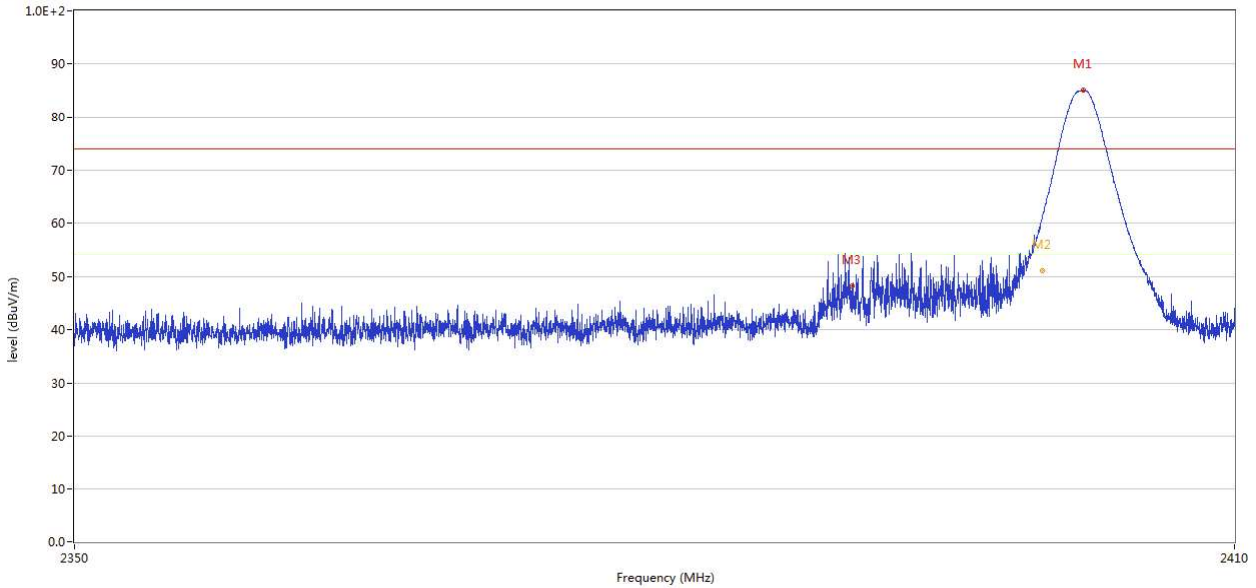
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Product:	TWS Earbuds	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2399.935	60.81	-3.57	74.0	-13.19	Peak	187.00	100	Vertical	Pass
2**	2399.935	51.09	-3.57	54.0	-2.91	AV	187.00	100	Vertical	Pass
3	2390.065	48.21	-3.53	74.0	-25.79	Peak	211.00	100	Vertical	Pass

The report refers only to the sample tested and does not apply to the bulk.

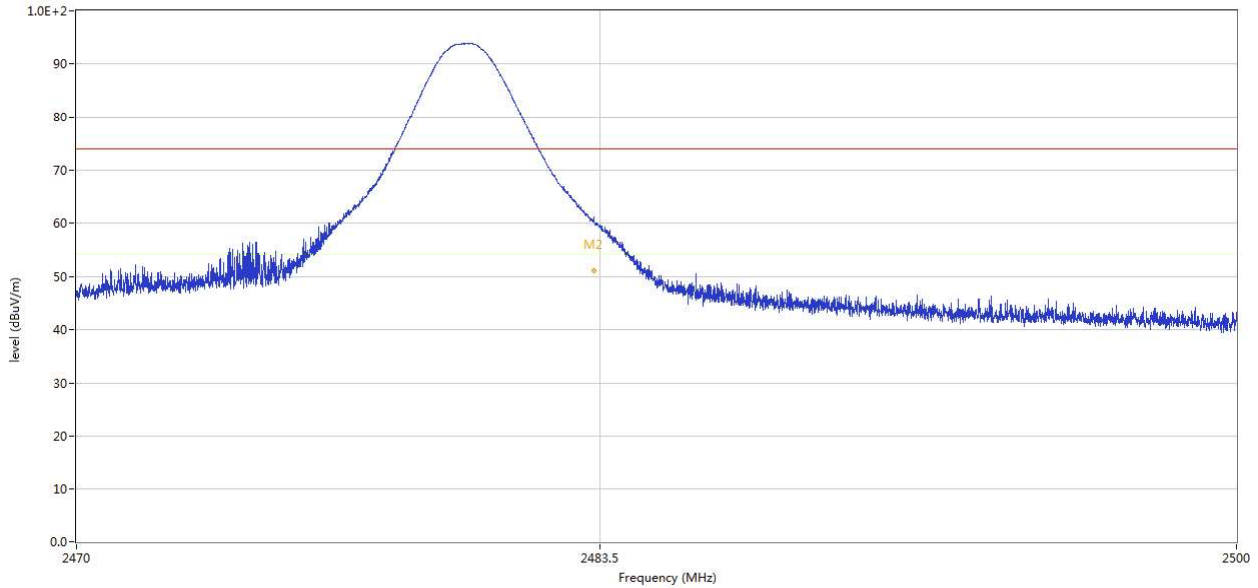
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Product:	TWS Earbuds	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--

FCC Part 15C Class B 1GHz-18GHz -2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2483.327	61.29	-3.57	74.0	-12.71	Peak	118.00	100	Horizontal	Pass
2**	2483.327	51.11	-3.57	54.0	-2.89	AV	118.00	100	Horizontal	Pass

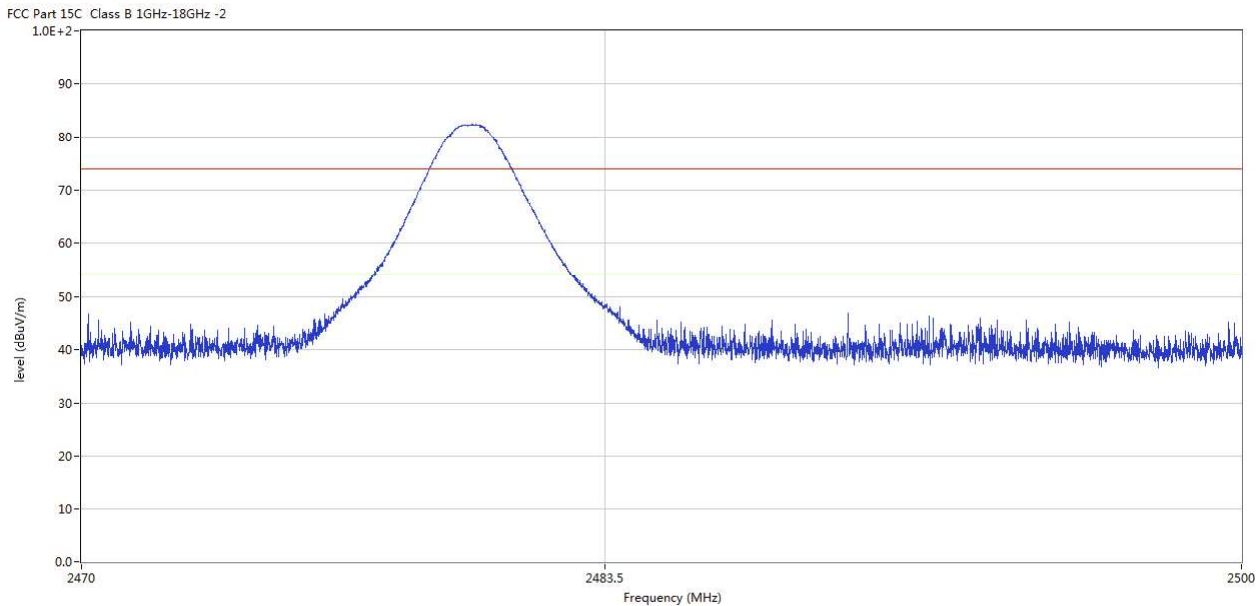
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Product:	TWS Earbuds	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	--	--



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2483.238	49.60	-3.57	74.0	-24.40	Peak	123.00	100	Vertical	Pass

- Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.  
 2. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.  
 3. The three modulation modes of GFSK, Pi/4D-QPSK, and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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## 8.0 Antenna Requirement

### Applicable Standard

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 shall be considered sufficient to comply with the provisions of this section.

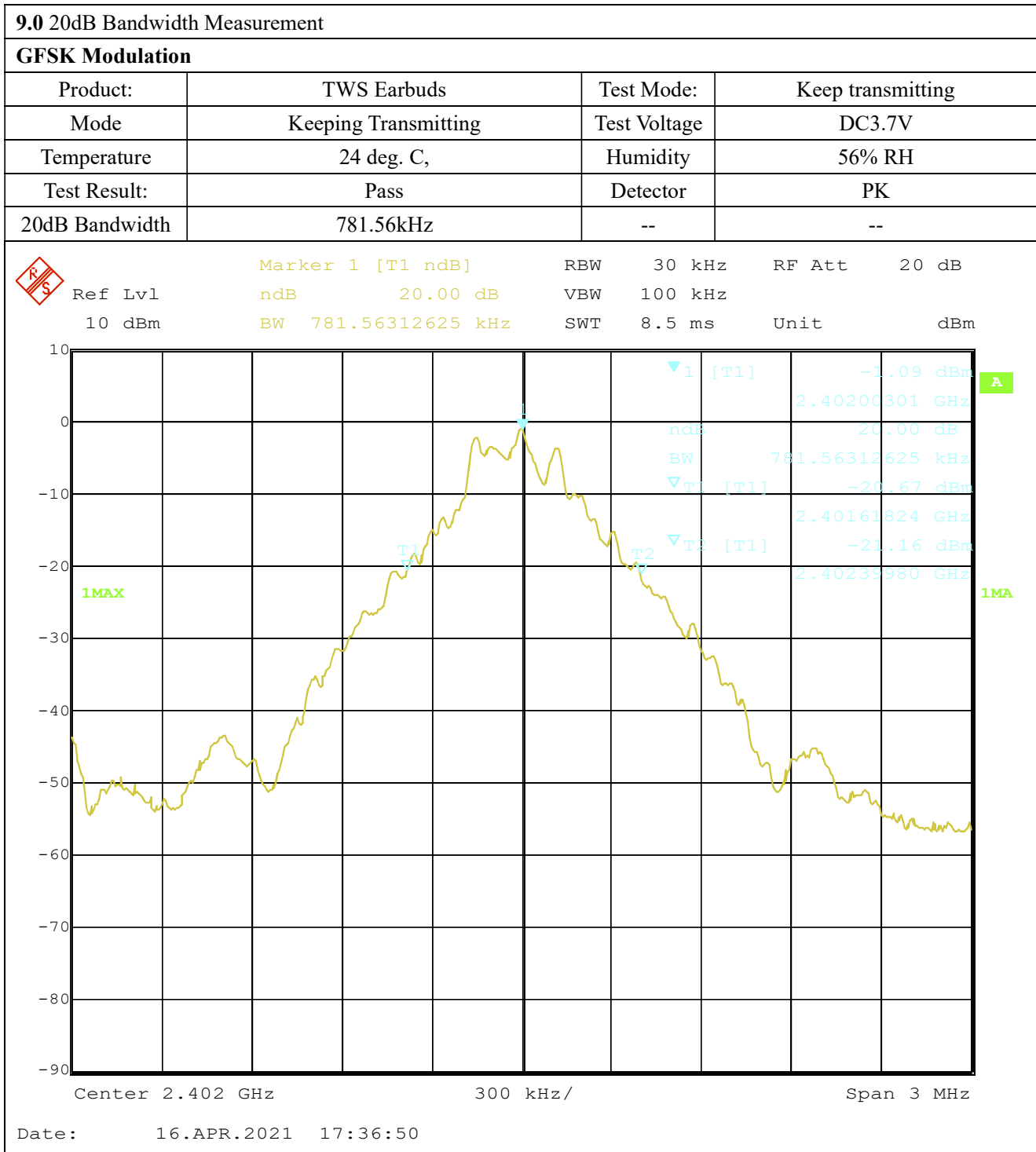
This product has a Chip antenna. The antenna gain is 1.11dBi Max. It fulfills the requirement of this section.

Test Result: Pass

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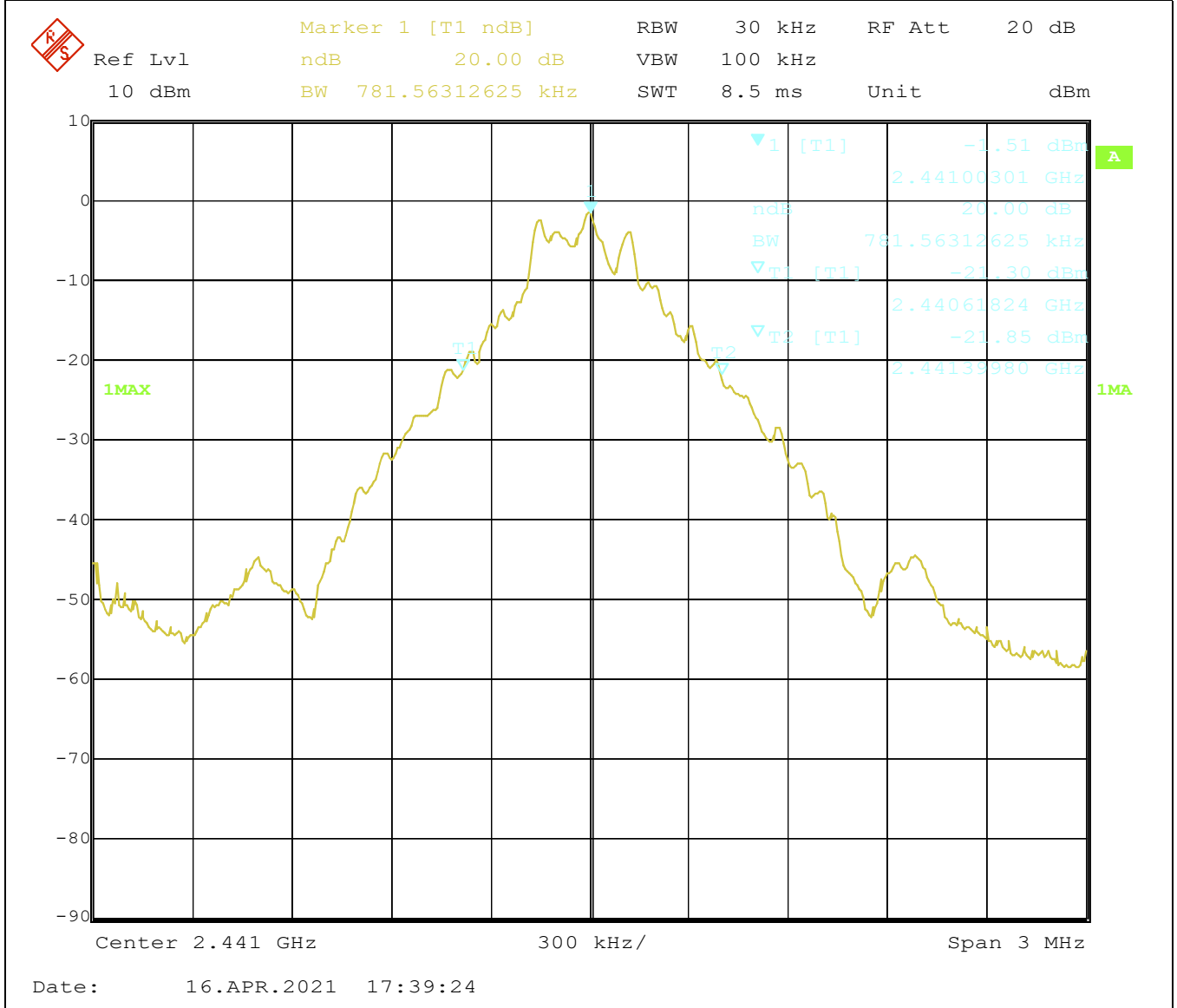
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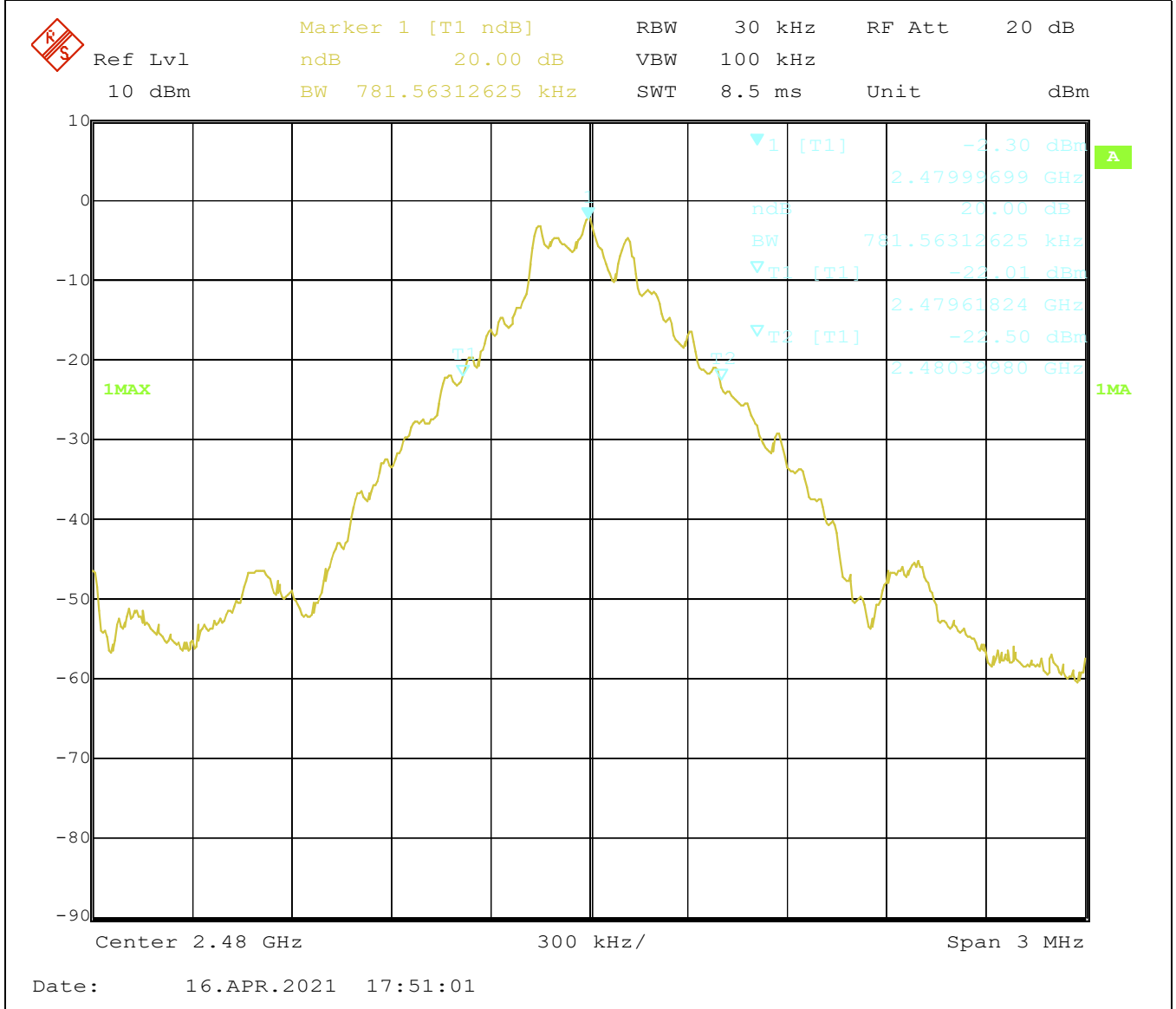
GFSK Modulation			
Product:	TWS Earbuds	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	781.56kHz	--	--



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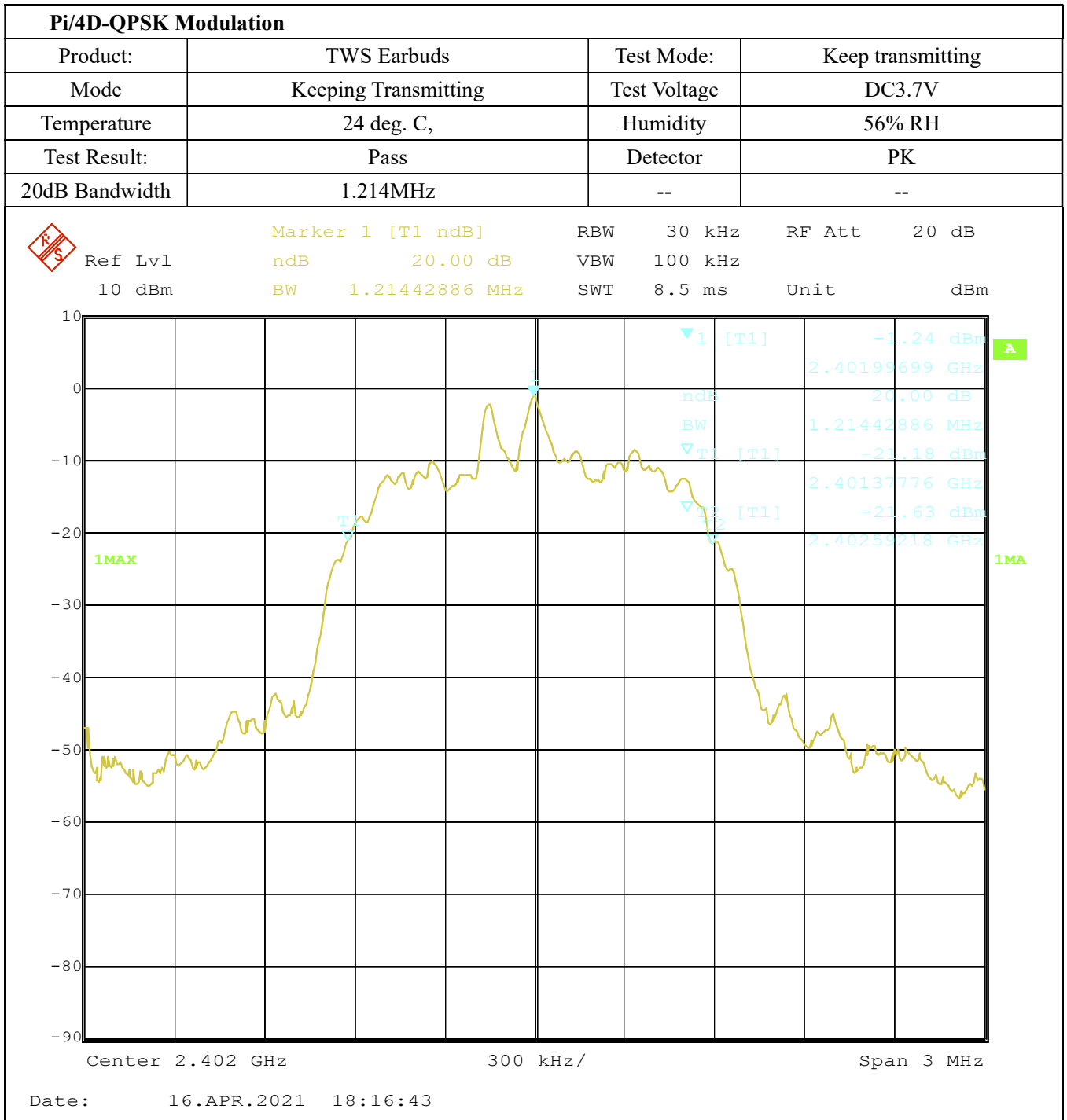
GFSK Modulation			
Product:	TWS Earbuds	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	781.56kHz	--	--



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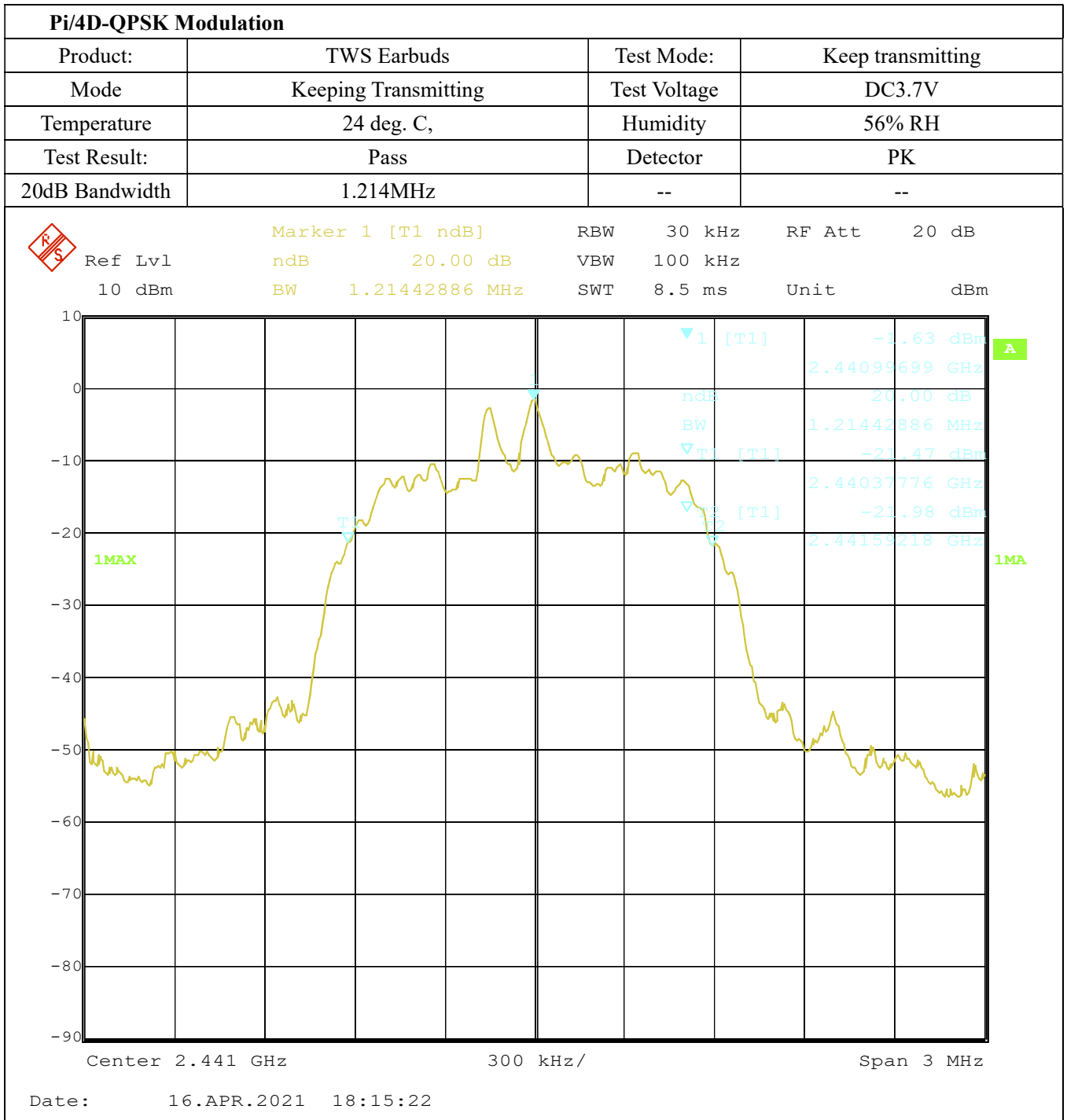
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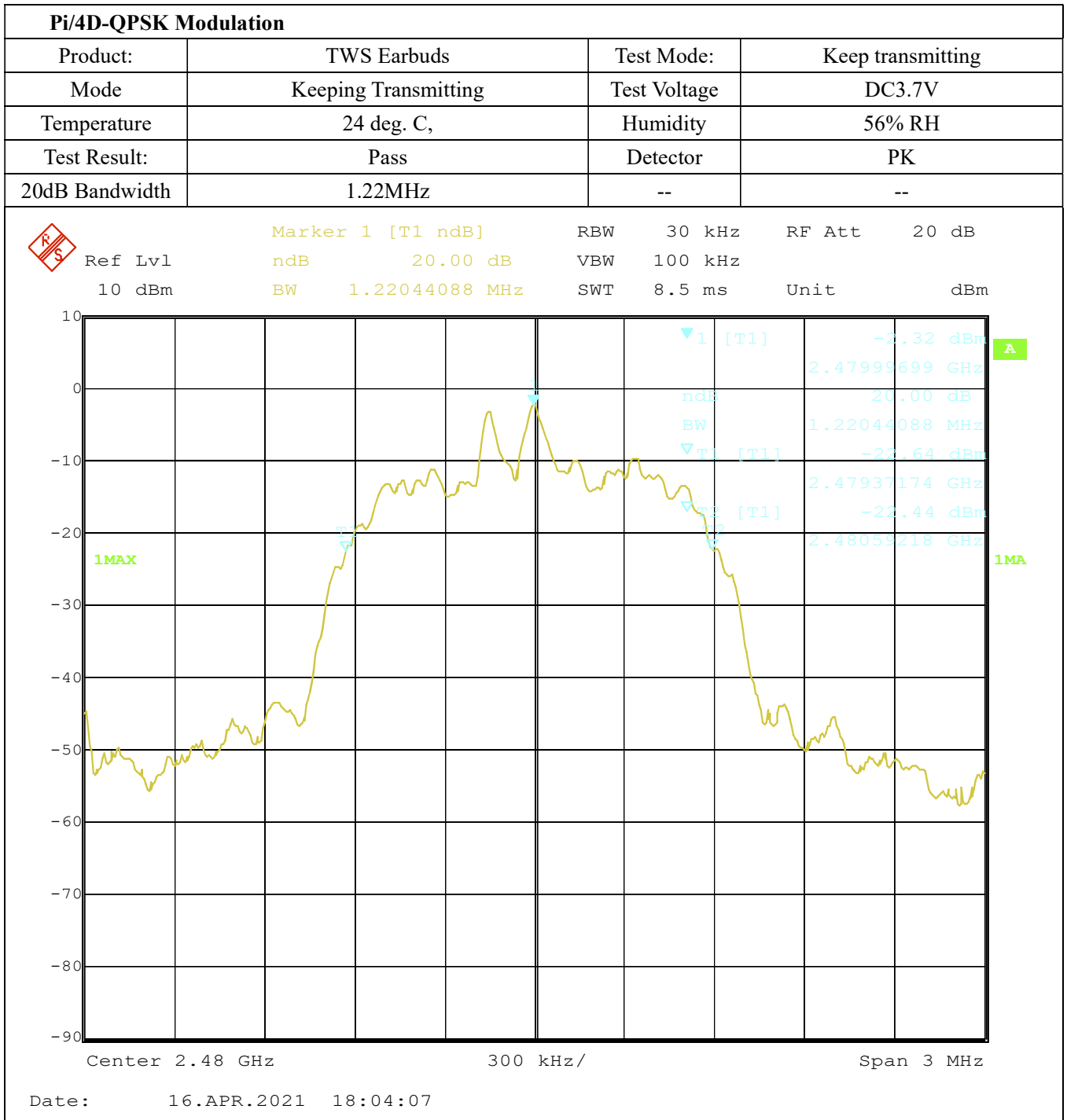


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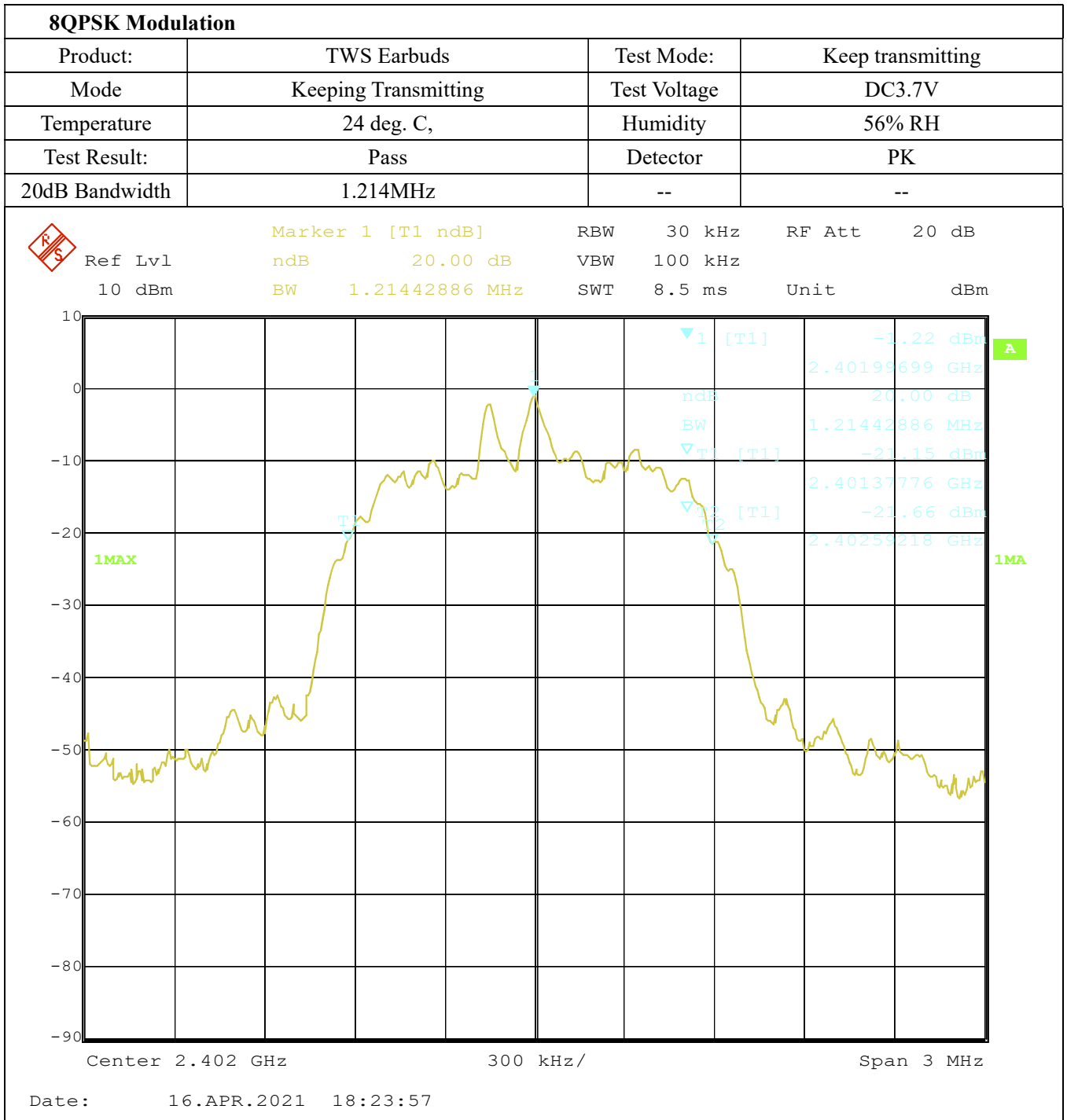




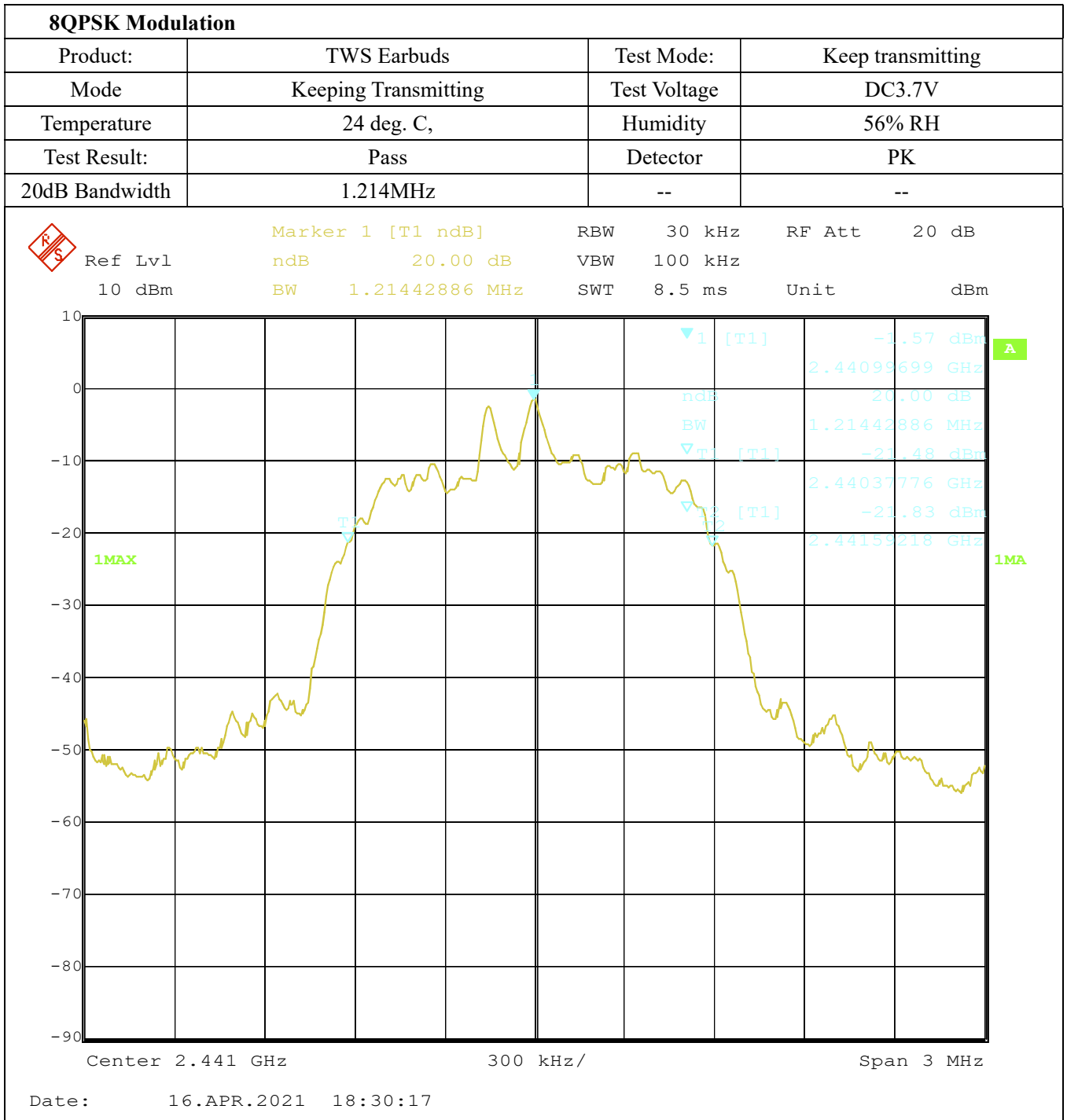
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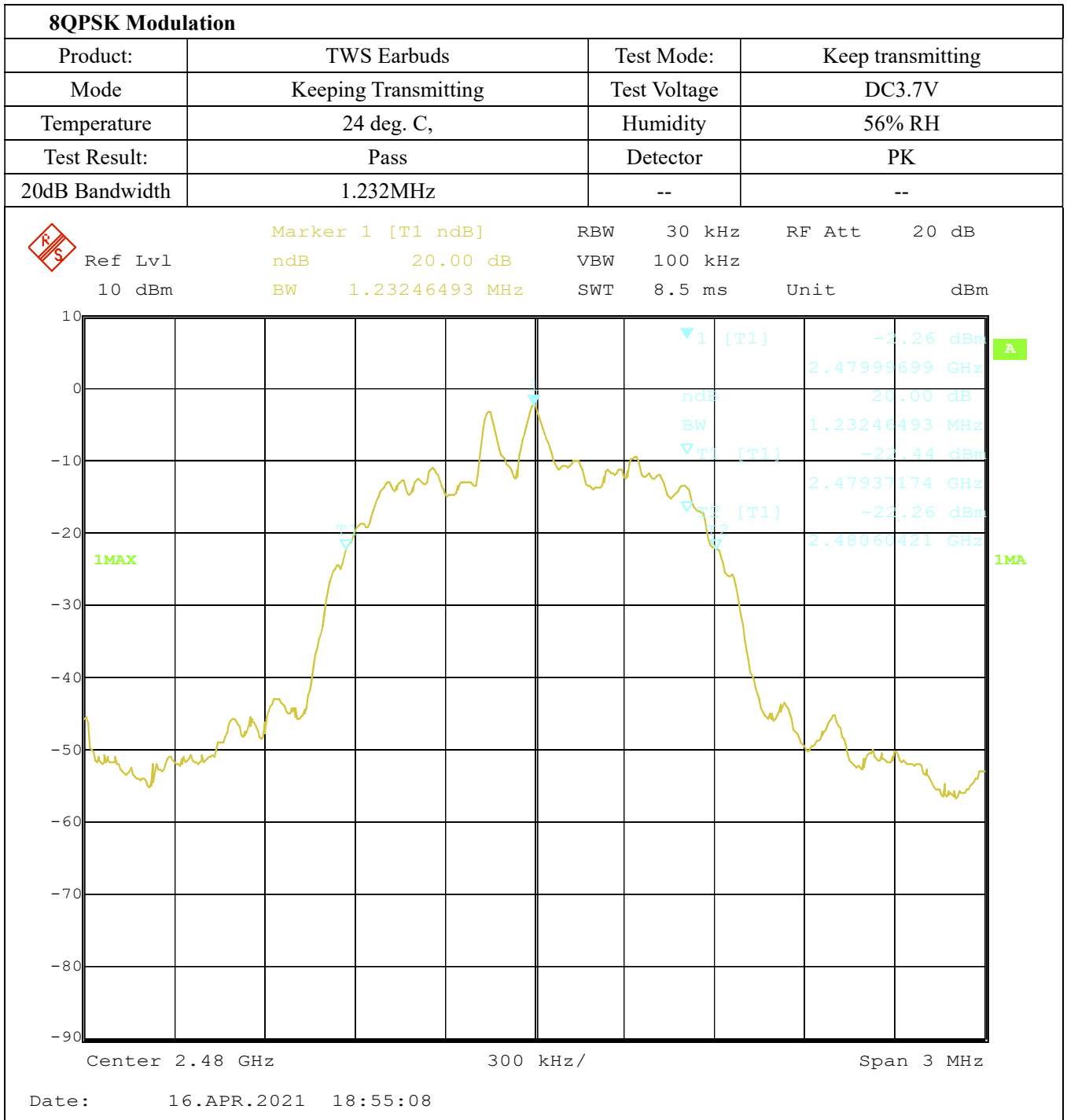
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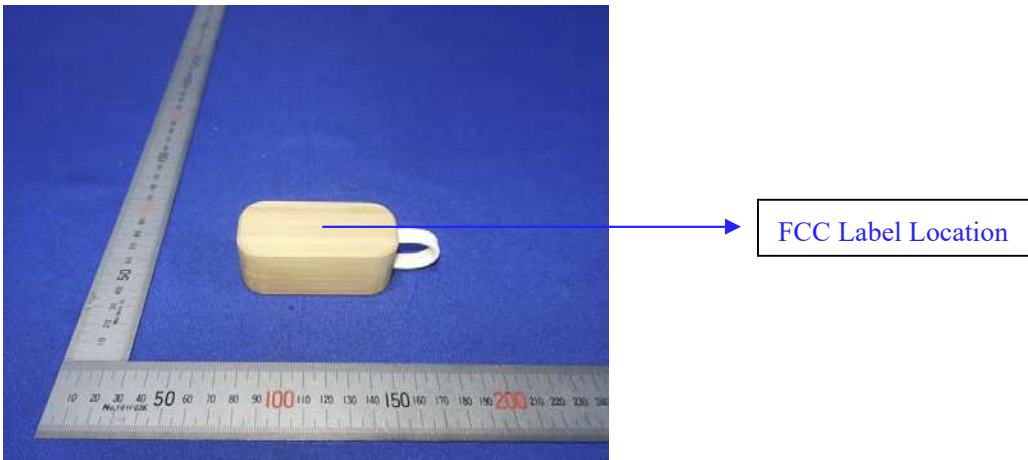


## 10.0 FCC ID Label

**FCC ID: 2APYY-AF0063**

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

### Mark Location:



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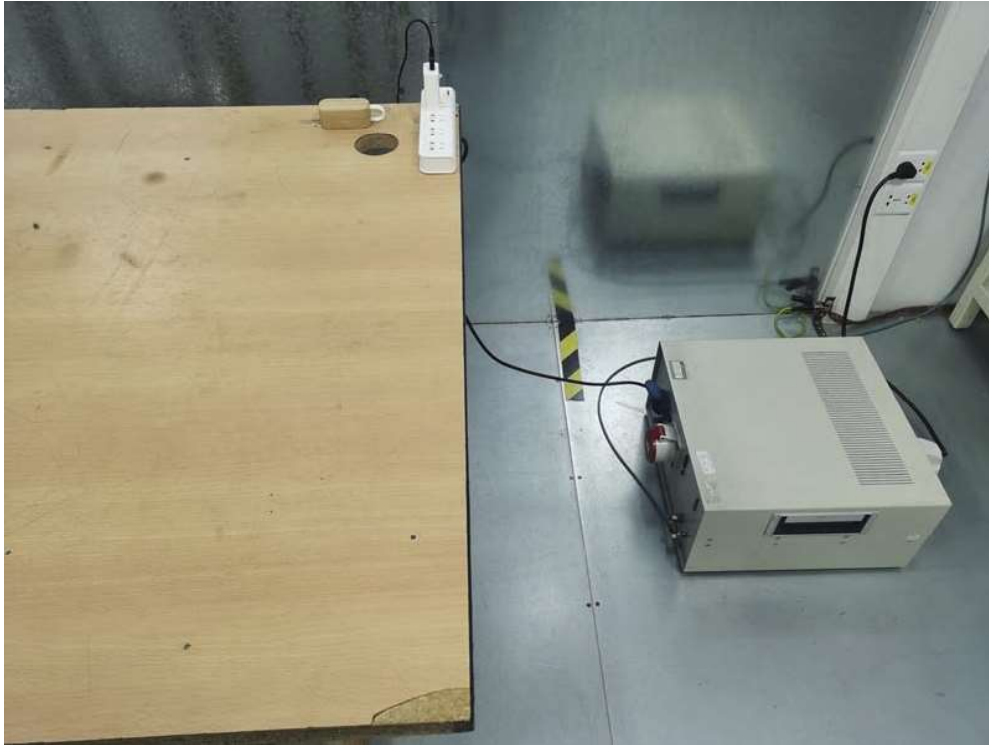
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**11.0** Photo of testing

**11.1** Conducted test View--



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Radiated emission test view



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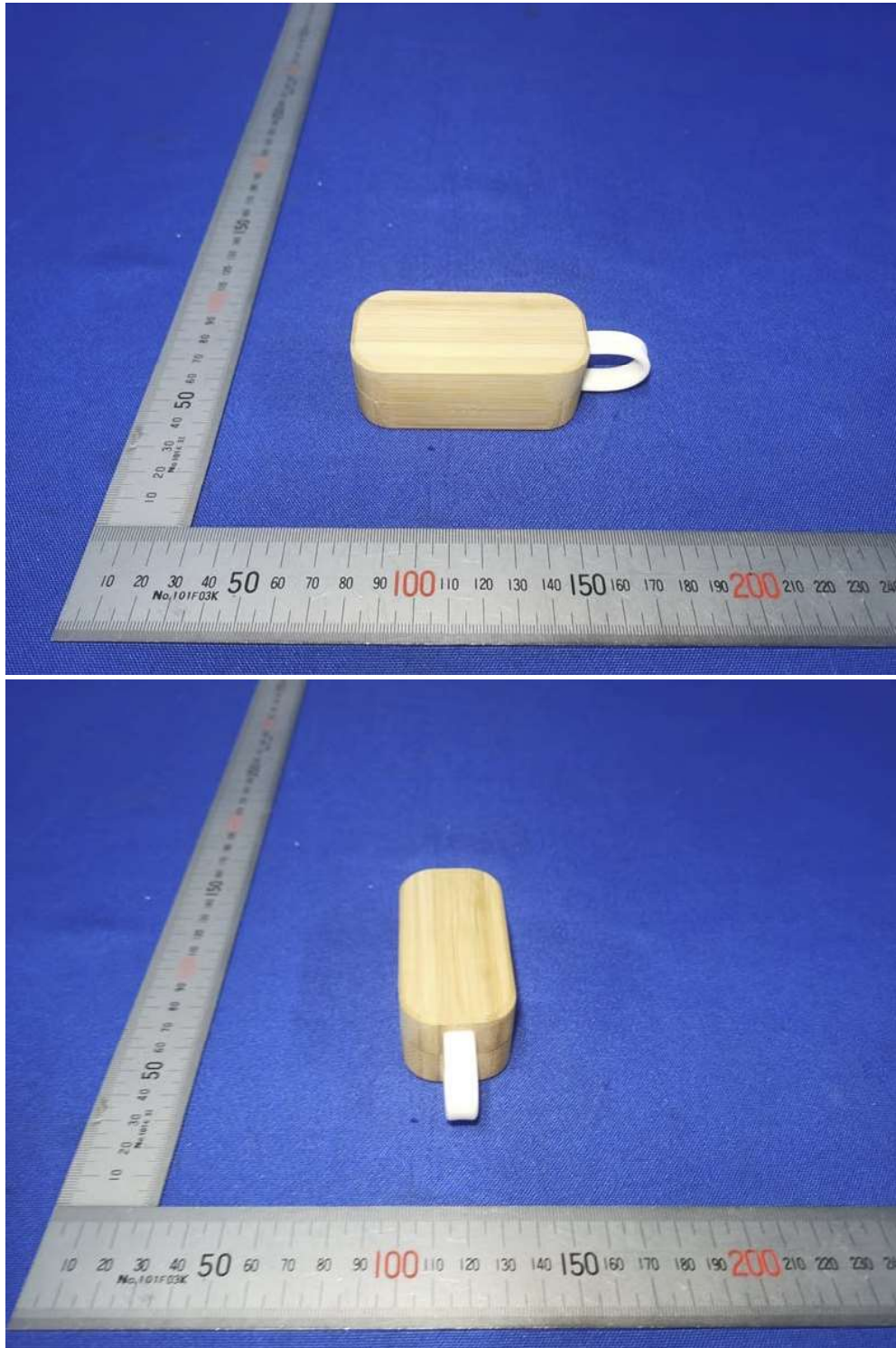
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11.2 Photographs – EUT

Outside View



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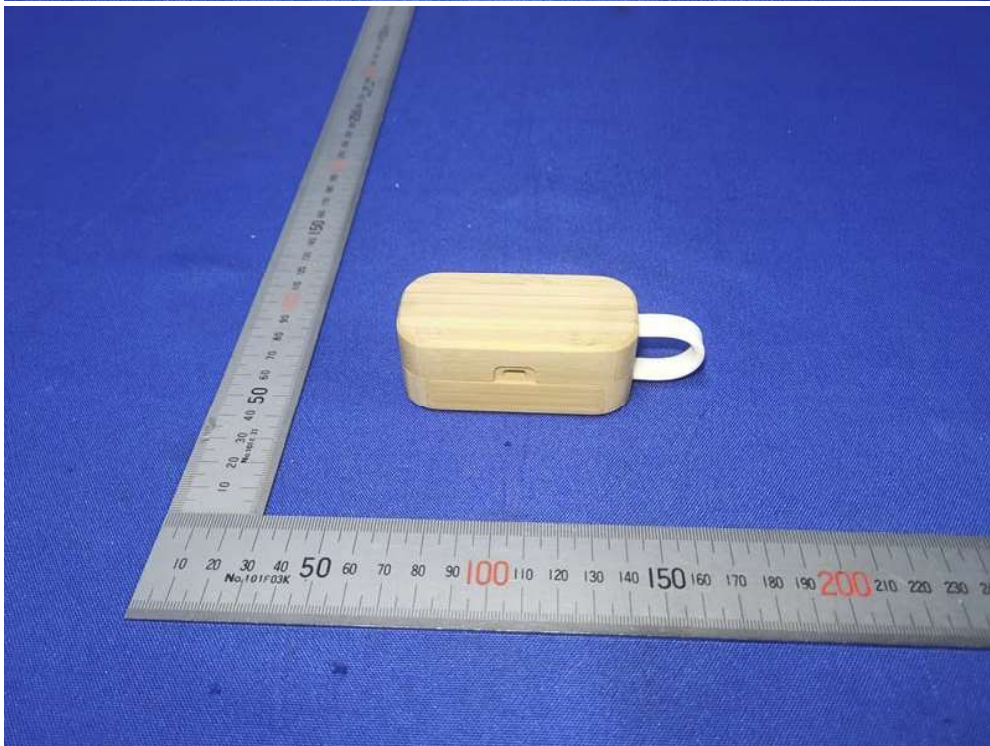
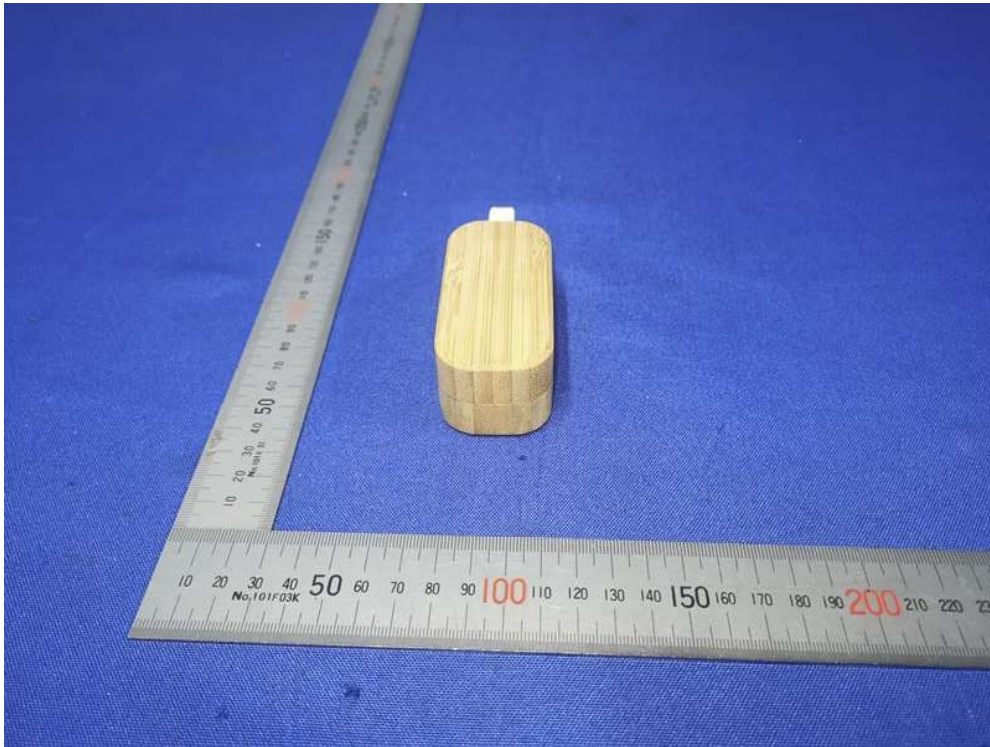
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Photographs – EUT

Outside View



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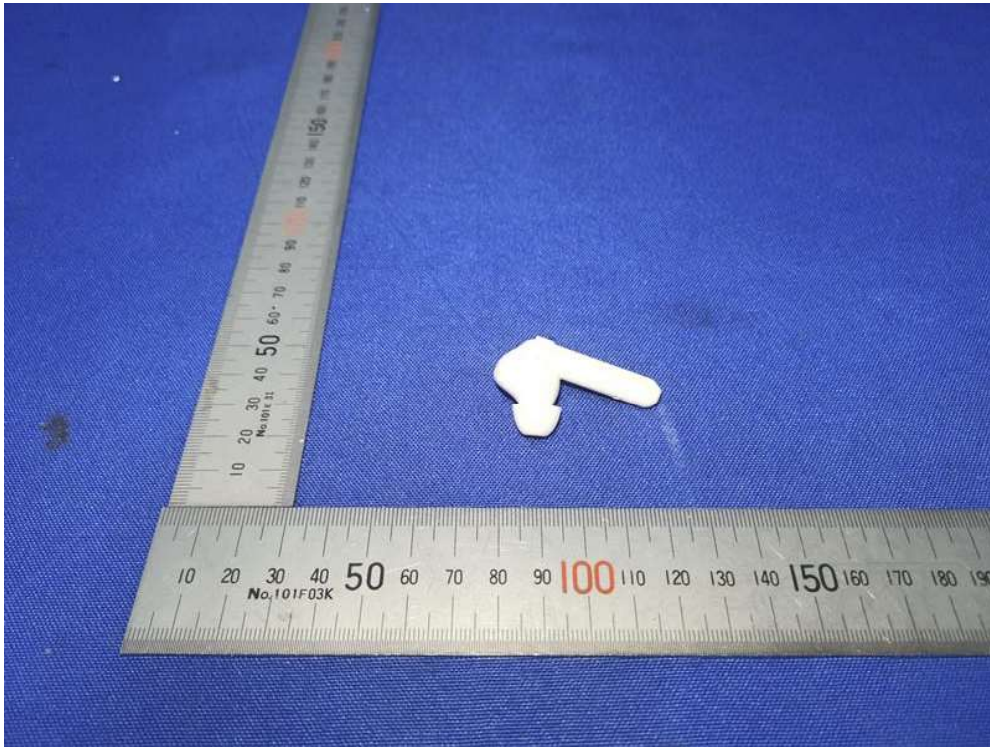
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Photographs – EUT

Left - Outside View



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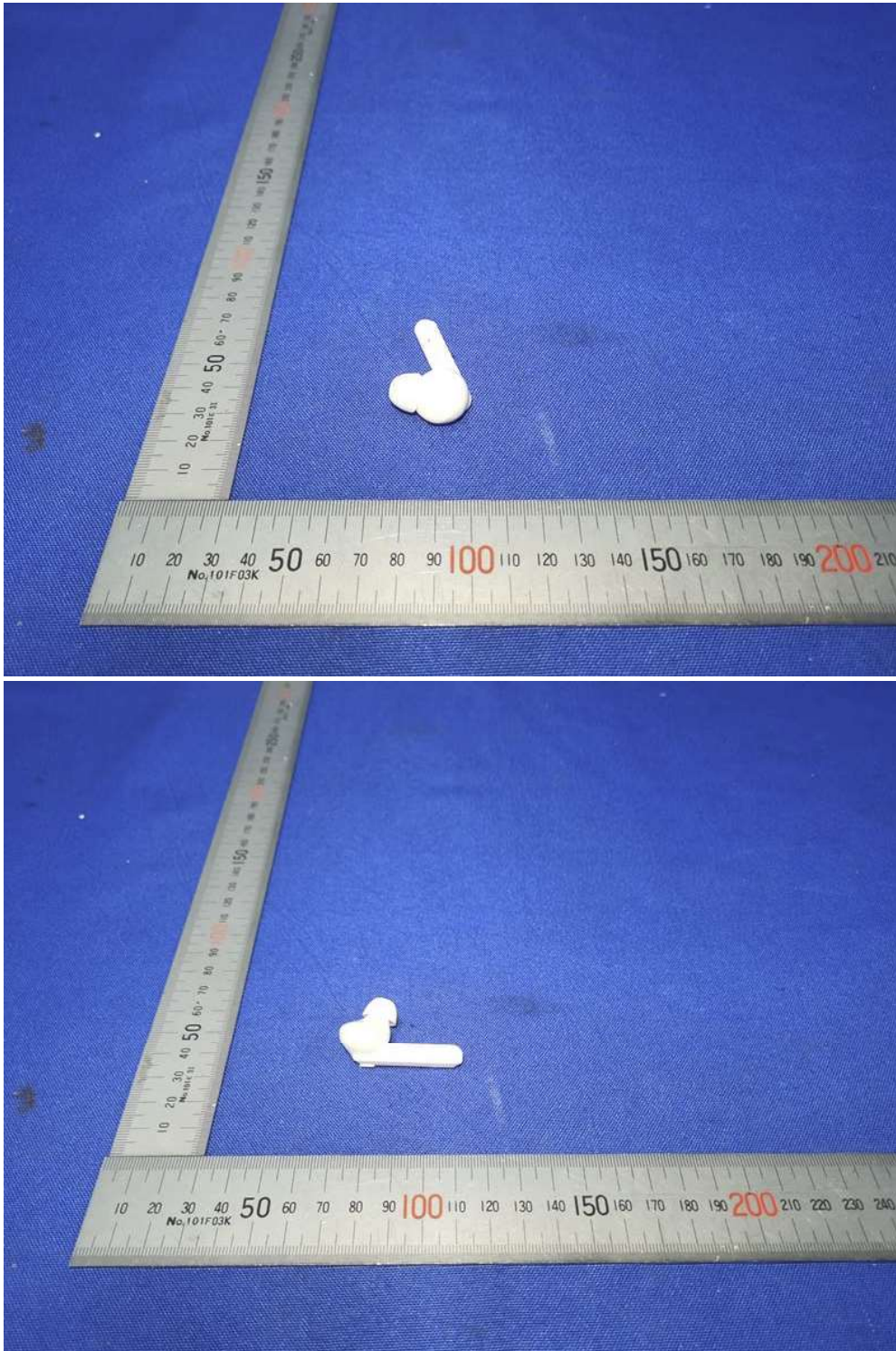
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Photographs – EUT

Left - Outside View



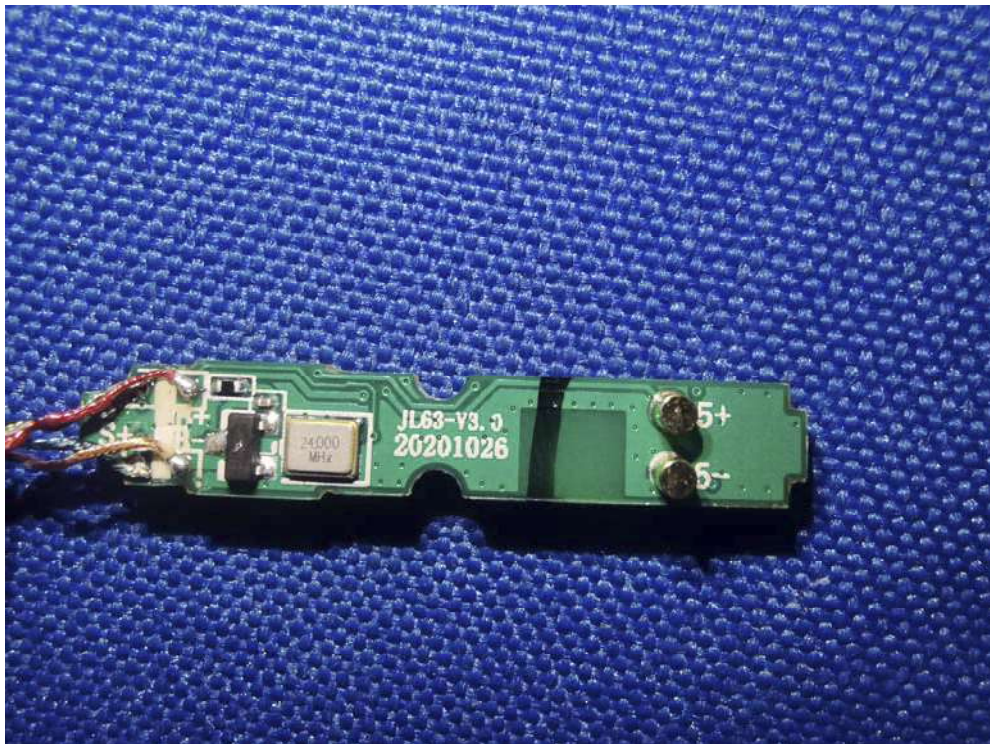
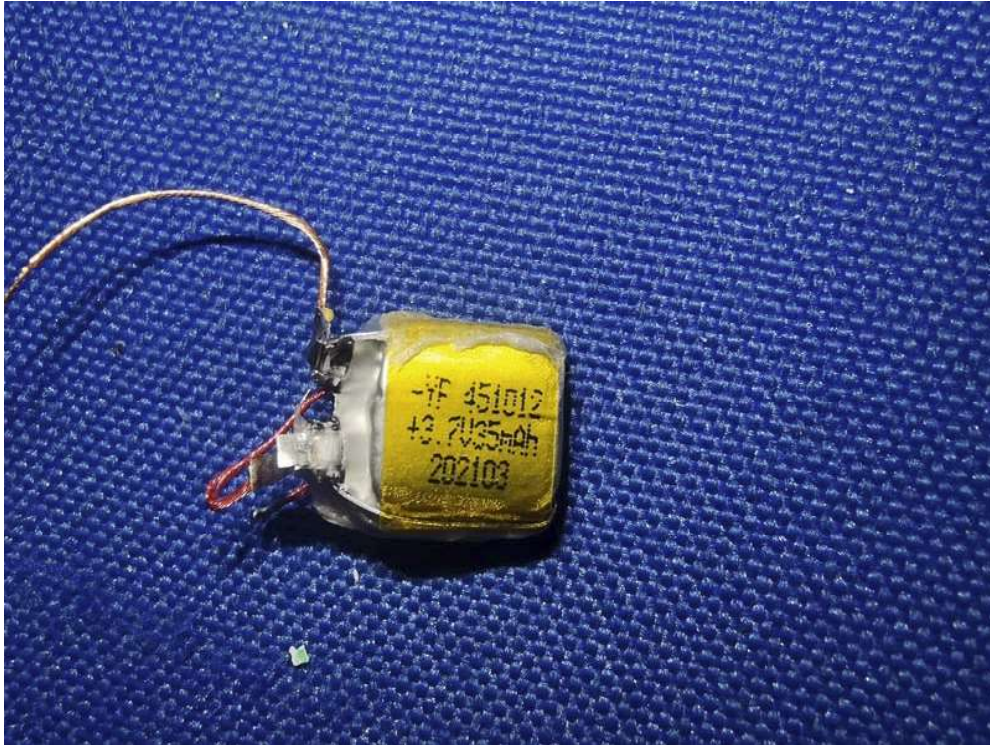
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Photographs – EUT

Left - Inside View



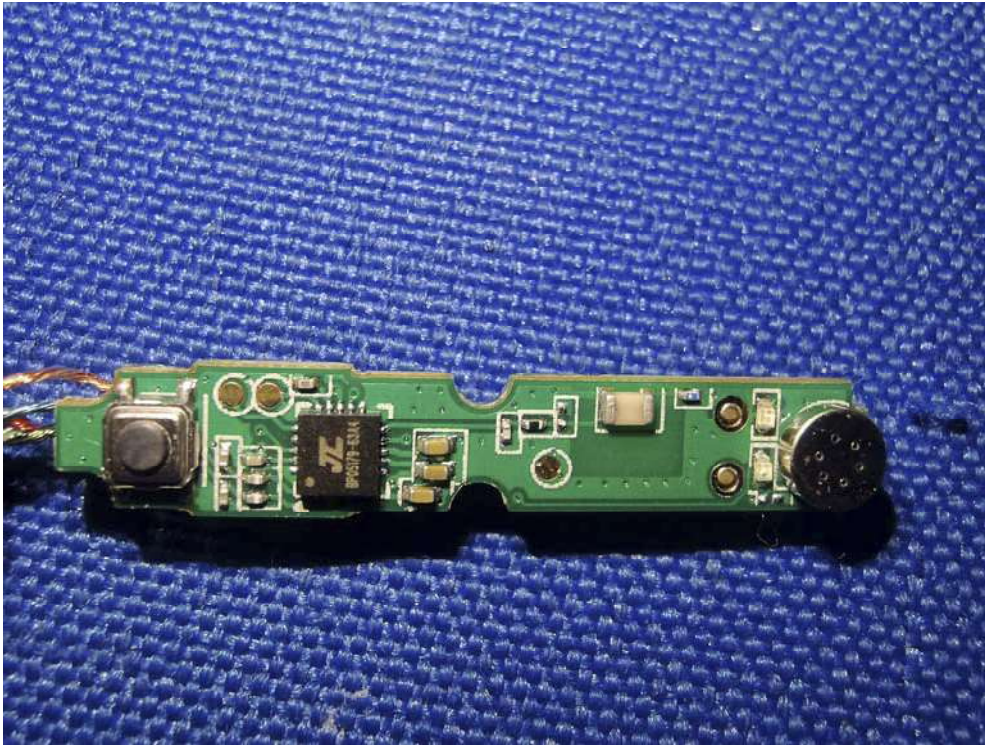
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Left - Inside View



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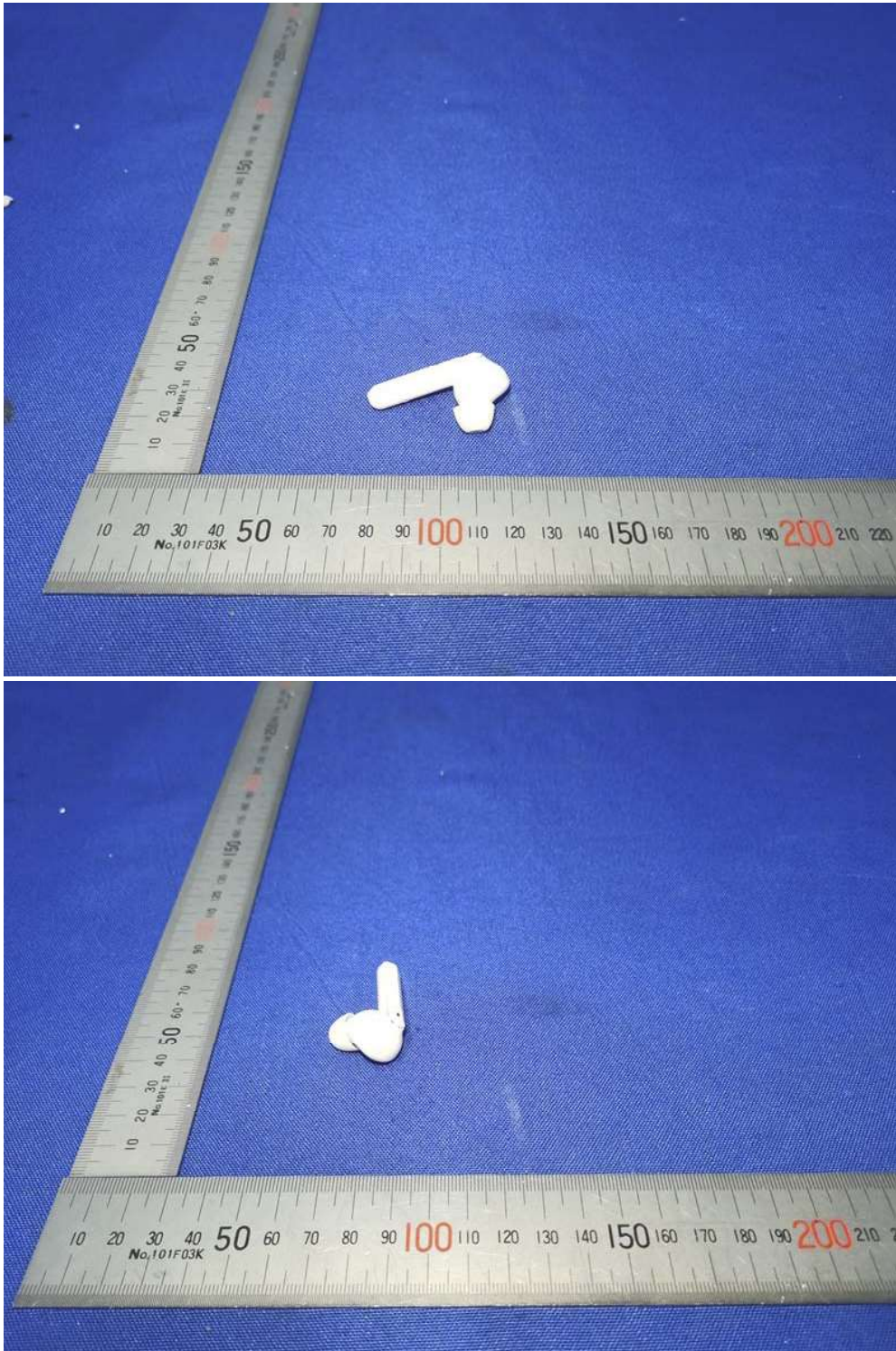
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Right - Outside View



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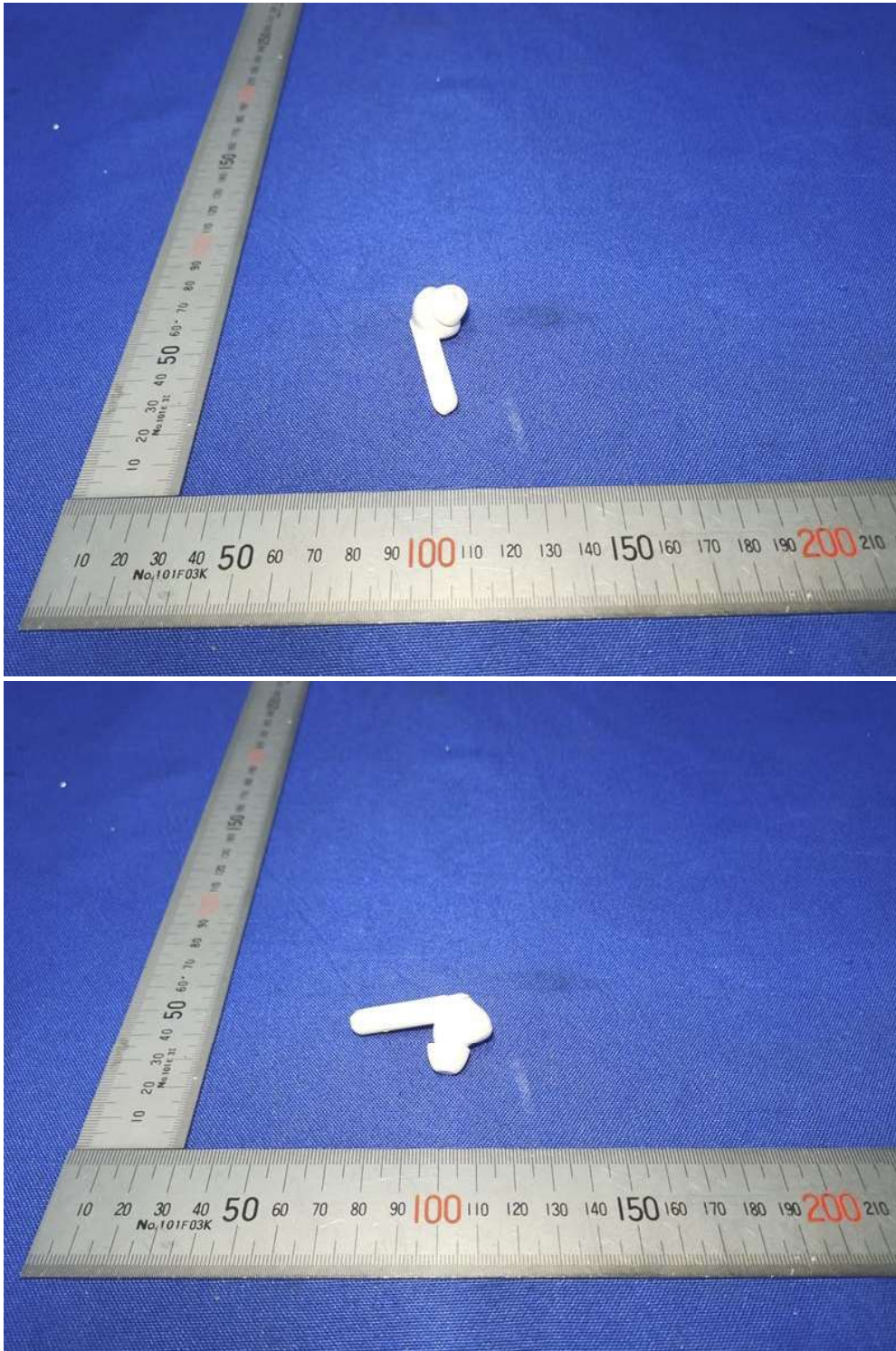
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Photographs – EUT

Right - Outside View



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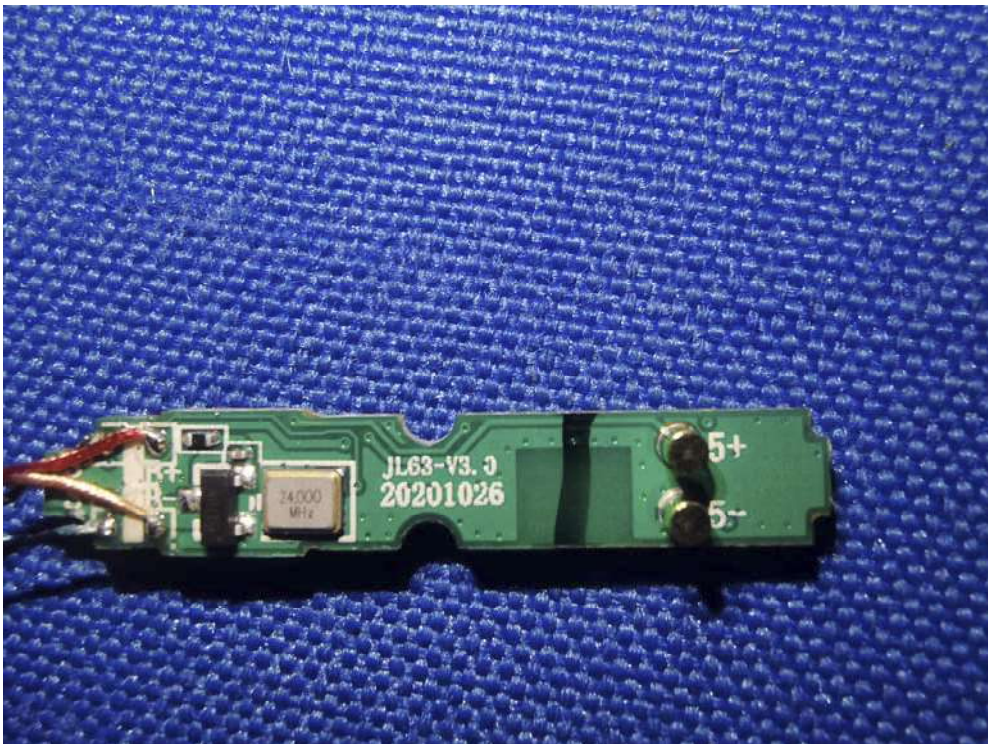
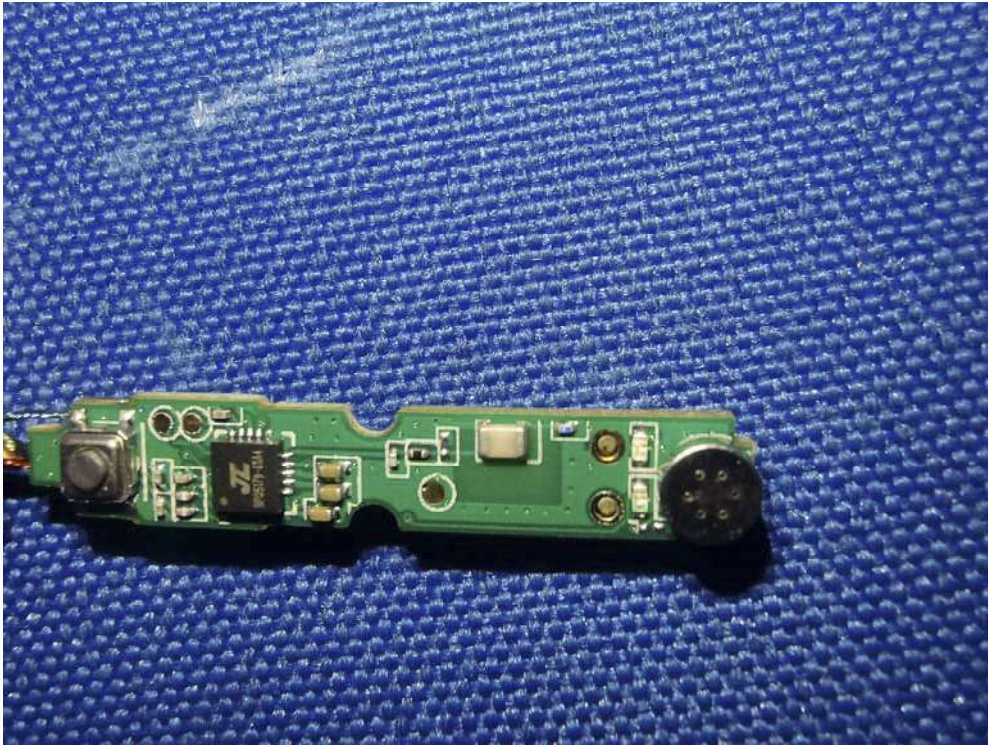
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Photographs – EUT

Right - Inside View



--End of the report--

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