



# **FCC TEST REPORT**

On Behalf of

**Shenzhen Qianhai YueDong Smart Wearable Equipment Co., Ltd.**

**YueDong Smart Wristband**

**Model No.: YD618, YD818, YD918, YD518, YD118, YD218**

Prepared for : Shenzhen Qianhai YueDong Smart Wearable Equipment Co., Ltd.  
Address : Room 201, Building A, No. 1, Qianwan 1st Road, SZ-HK  
Cooperation Area, Qianhai, Shenzhen, Guangdong, China.

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.  
Address : Building i, No.2, Lixin Road, Fuyong Street, Bao'an District,  
518103, Shenzhen, Guangdong, China

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**Revision History**

Revision	Issue Date	Revisions	Revised By
REV0	June 8, 2018	Initial released Issue	Simple Guan

## 1. General Information

### 1.1. Description of Device (EUT)

Product Name : YueDong Smart Wristband

Model Number : YD618, YD818, YD918, YD518, YD118, YD218

Diff : There is no difference except the name of the model. All tests are made with the YD618 model.

Supply Voltage : DC 3.8V by battery or DC 5V from adapter input AC 120V, 60Hz

Highest Frequency : 2480MHz

Software version : V1.1.28.0.0

Hardware version : YD618\_V1.1

Trademark : N/A

### 1.2. Accessories of Device (EUT)

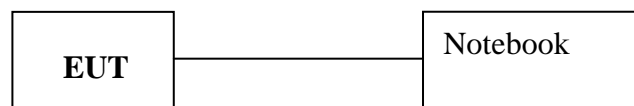
N/A

### 1.3. Tested Supporting System Details.

No.	Description	Manufacturer	Model	Serial Number	Certification or DOC
1	Notebook	Acer	ZQT	/	DOC

### 1.4. Block Diagram of connection between EUT and simulators

For test



### Signal Cable Description of the above Support Units

No.	Port Name	Cable	Length	Shielded (Yes or No)	Detachable (Yes or No)
/	/	/	/	/	/
/	/	/	/	/	/

## 2. Summary Of Standards And Results

### 2.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

EMISSION			
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15:2016 ANSI C63.4:2014	Class B	<b>P</b>
Radiated Emission Test	FCC Part 15:2016 ANSI C63.4:2014	Class B	<b>P</b>
Note: 1. P is an abbreviation for Pass. 2. F is an abbreviation for Fail. 3. N/A is an abbreviation for Not Applicable.			

## 2.2. Test Mode Description

For Power Line Conducted Emission Test		
Mode No.	Test Mode	Test Voltage
※1.	Data transmitting	DC 5V from PC input AC 120V/60Hz
Note: ※is worst case mode, and this report only reflected the worst case mode.		

For Radiated Emission Test		
Mode No.	Test Mode	Test Voltage
※1.	Data transmitting	DC 5V from PC input AC 120V/60Hz
2.	BT mode	DC 3.8V
Note: ※is worst case mode, and this report only reflected the worst case mode.		

### 2.3.Test Equipment List

For Power Line Conducted Emission Test Equipment:						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101165	2017.09.22	1 Year
2.	L.I.S.N.#1	Schwarz beck	NSLK8126	8126466	2017.09.22	1 Year
3.	L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	101043	2017.09.22	1 Year
4.	Pulse Limiter	Schwarz beck	9516F	9618	2017.09.22	1 Year

For Frequency Range 30MHz~1GHz Radiated Emission Test Equipment:						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde&Schwarz	ESR	1316.3003K03-102082-Wa	2017.09.22	1 Year
3	Bilog Antenna	Schwarz beck	VULB 9168	9168-627	2016.09.30	2 Year

For Frequency Range above 1GHz Radiated Emission Test Equipment:						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	ROHDE&SCHWARZ	FSU	1166.1660.26	2017.09.23	1 Year
2	Horn Antenna	Schwarz beck	BBHA 9120 D	BBHA 9120 D(1201)	2016.09.30	2 Year
3	Amplifier	Agilent	8449B	3008A02664	2017.09.23	1 Year

## 2.4. Test Facility

Shenzhen Alpha Product Testing Co., Ltd.

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission

Registration Number: 293961

July 25, 2017 Certificated by IC

Registration Number: 12135A

## 2.5. Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.74dB
Uncertainty for Radiation Emission test (<1G)	3.77 dB (Distance: 3m Polarize: V)
	3.80 dB (Distance: 3m Polarize: H)
Uncertainty for Radiation Emission test (>1G)	4.13 dB (Distance: 3m Polarize: V)
	4.16 dB (Distance: 3m Polarize: H)
(95% confidence levels, k=2)	

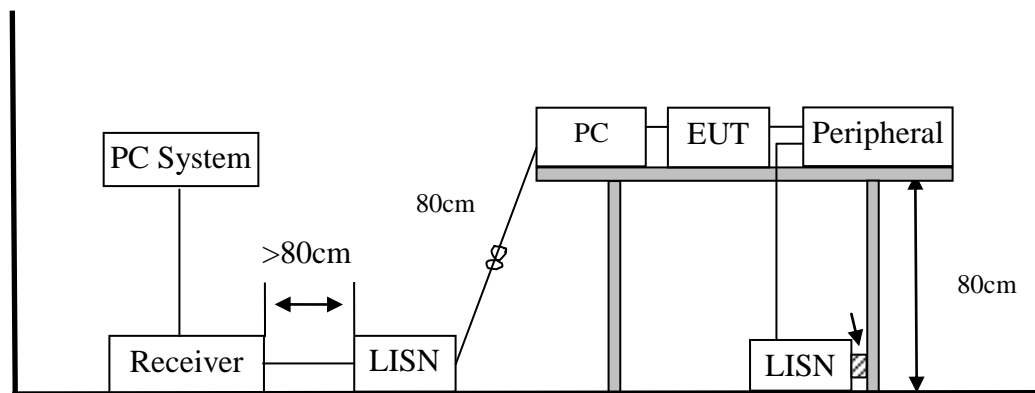
### 3. Power Line Conducted Emission Test

#### 3.1. Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB( $\mu$ V)	Average Level dB( $\mu$ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

- Notes:
1. Emission level=Read level + LISN factor-Preamp factor + Cable loss
  2. \* Decreasing linearly with logarithm of frequency.
  3. The lower limit shall apply at the transition frequencies.

#### 3.2. Block Diagram of Test Setup



### 3.3.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

### 3.4.Operating Condition of EUT

- (1) Setup the EUT as shown as Section 3.2.
- (2) Turn on the power of all equipment.
- (3) Let the EUT work in test mode and 15 minutes before taking the test.

### 3.5.Test Procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4:2014 on conducted Emission test.
- (2) The frequency range from 150kHz to 30MHz is checked, the bandwidth of test receiver (R&S TEST RECEIVER ESCI) is set at 9kHz.

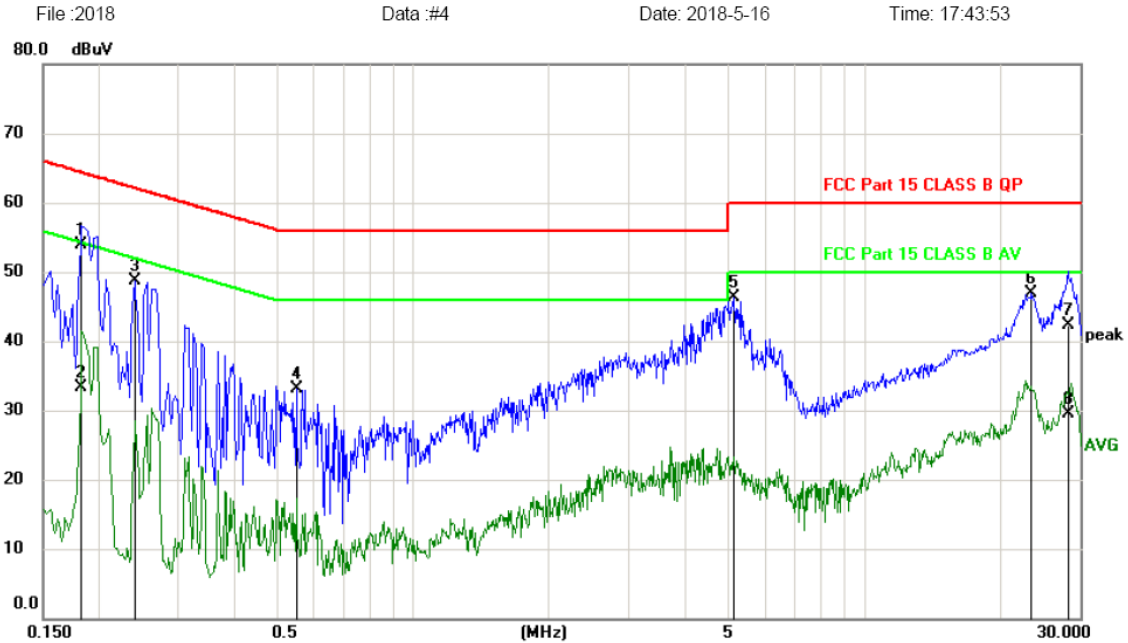
### 3.6.Test Results

Site LAB  
 Limit: FCC Part 15 CLASS B QP  
 EUT: YUEDong Smart Wristband  
 M/N: YD618  
 Mode: Charging and Data Transmitting  
 Note:  
 Engineer Signature:

Phase: **L1**  
 Power: AC 120V/60Hz

Temperature: 24.9  
 Humidity: 47 %

#### Conducted Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1830	44.20	9.74	53.94	64.35	-10.41	QP	
2		0.1830	23.62	9.74	33.36	54.35	-20.99	AVG	
3		0.2400	38.86	9.75	48.61	62.10	-13.49	peak	
4		0.5490	23.28	9.79	33.07	56.00	-22.93	peak	
5		5.1270	36.10	10.19	46.29	60.00	-13.71	peak	
6		23.5049	36.26	10.70	46.96	60.00	-13.04	peak	
7		28.2750	31.24	11.01	42.25	60.00	-17.75	QP	
8		28.2750	18.48	11.01	29.49	50.00	-20.51	AVG	

\*:Maximum data x:Over limit !:over margin

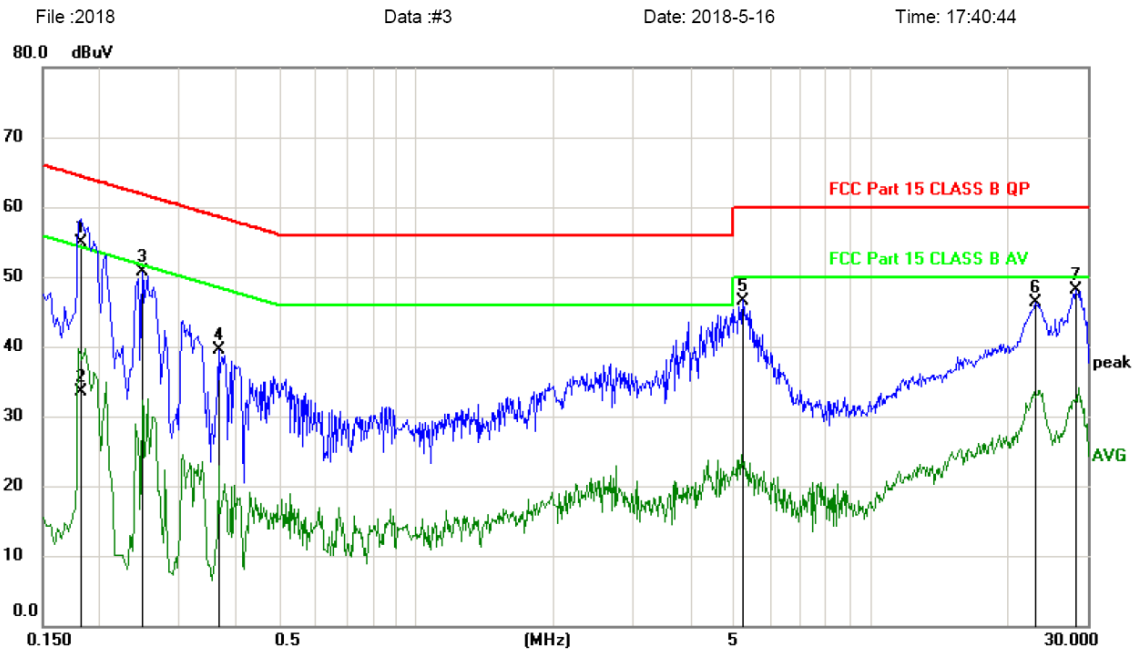
Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Site LAB  
 Limit: FCC Part 15 CLASS B QP  
 EUT: YUEDong Smart Wristband  
 M/N: YD618  
 Mode: Charging and Data Transmitting  
 Note:  
 Engineer Signature:

Phase: **N**  
 Power: AC 120V/60Hz

Temperature: 24.9  
 Humidity: 47 %

### Conducted Emission Measurement



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1830	45.07	9.74	54.81	64.35	-9.54	QP	
2		0.1830	23.84	9.74	33.58	54.35	-20.77	AVG	
3		0.2490	40.94	9.76	50.70	61.79	-11.09	peak	
4		0.3660	29.73	9.77	39.50	58.59	-19.09	peak	
5		5.2290	36.40	10.20	46.60	60.00	-13.40	peak	
6		23.0520	35.64	10.66	46.30	60.00	-13.70	peak	
7		28.2630	37.06	11.01	48.07	60.00	-11.93	peak	

\*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

## 4. RADIATED EMISSION TEST

### 4.1. Test Limit

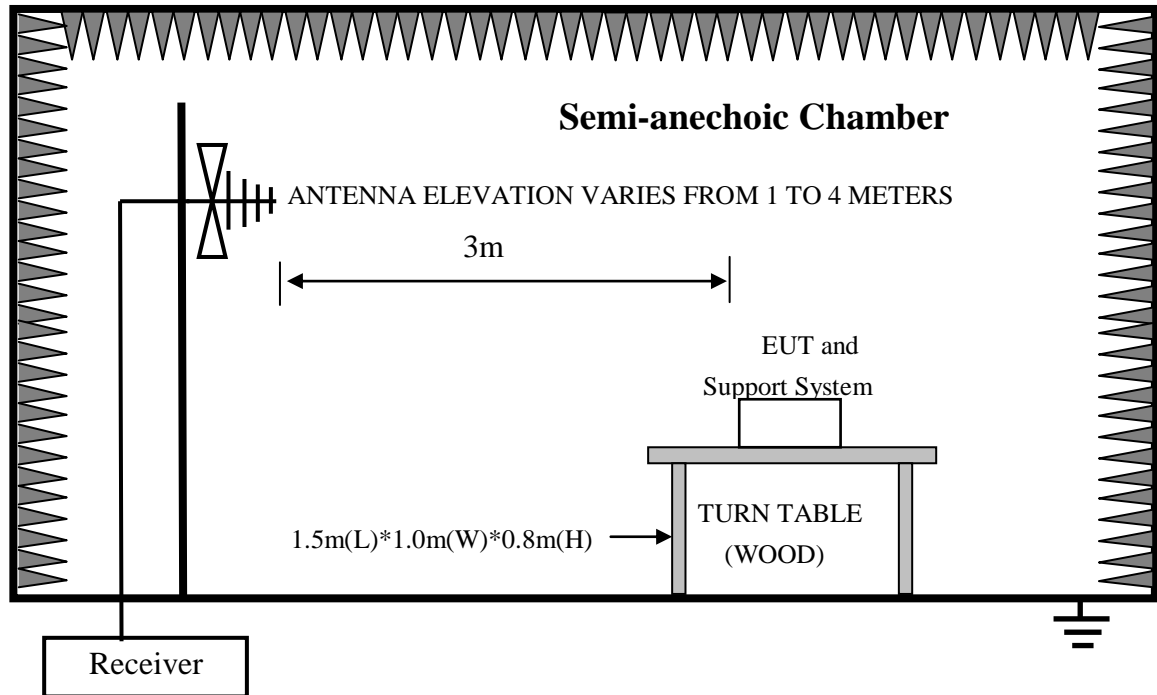
Frequency MHz			Distance (Meters)	Distance (Meters)
30	~	88	3	40.0
88	~	216	3	43.5
216	~	960	3	46.0
960	~	1000	3	54.0
Above 1GHz			3	74(Peak) 54(Average)

- Notes:
1. The smaller limit shall apply at the cross point between two frequency bands.
  2. Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
  3. Frequency range of radiated measurements:

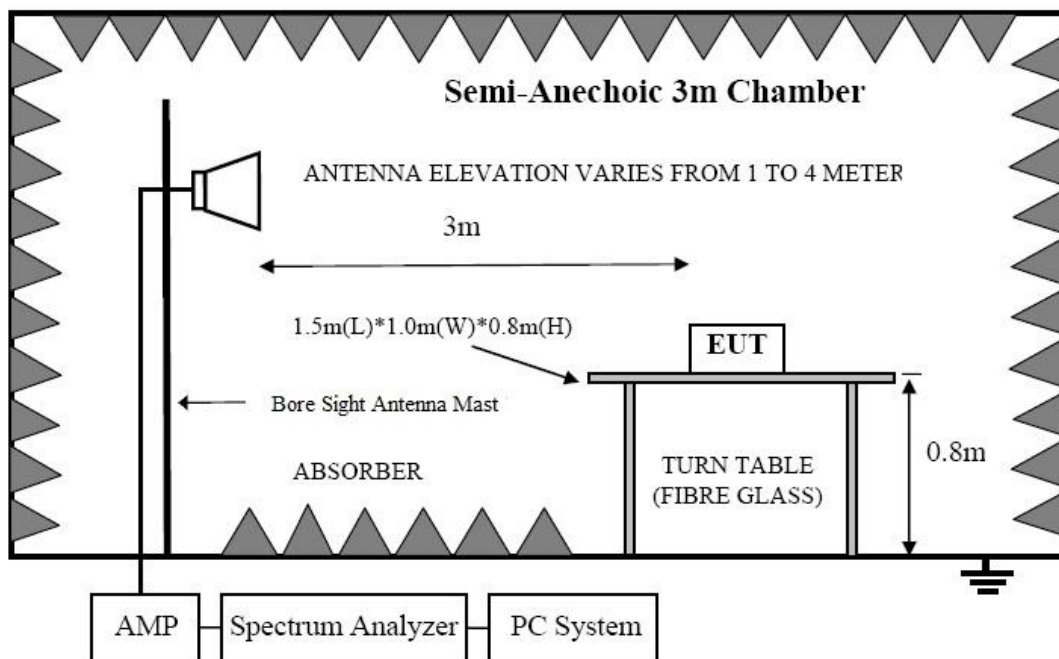
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

## 4.2. Block Diagram of Test Setup

In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



In Semi Anechoic Chamber (3m) Test Setup Diagram for Above 1GHz



### 4.3. Configuration of EUT on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner that tends to maximize its emission characteristics in normal application.

### 4.4. Operating Condition of EUT

- (1) Setup the EUT as shown as Section 4.2.
- (2) Turn on the power of all equipment.
- (3) Let the EUT work in test mode and 15 minutes before taking the test.

### 4.5. Test Procedure

- (1) The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4:2014 on Radiated Emission test.
- (2) For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- (3) The frequency range from 30MHz to 1000MHz is checked, the bandwidth of test receiver (R&S TEST RECEIVER ESR) is set at 120kHz.
- (4) The frequency range from above 1GHz is checked, the bandwidth of spectrum analyzer (Spectrum Analyzer FSU) is set at 1MHz.
- (5) The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values, the frequency range from 1GHz to 6GHz was pre-scanned with a peak detector and all final readings of measurement from Spectrum Analyzer are peak and average values checked, all measurement distance is 3m in 3m semi anechoic chamber.
- (6) The test results are reported on Section 4.7.

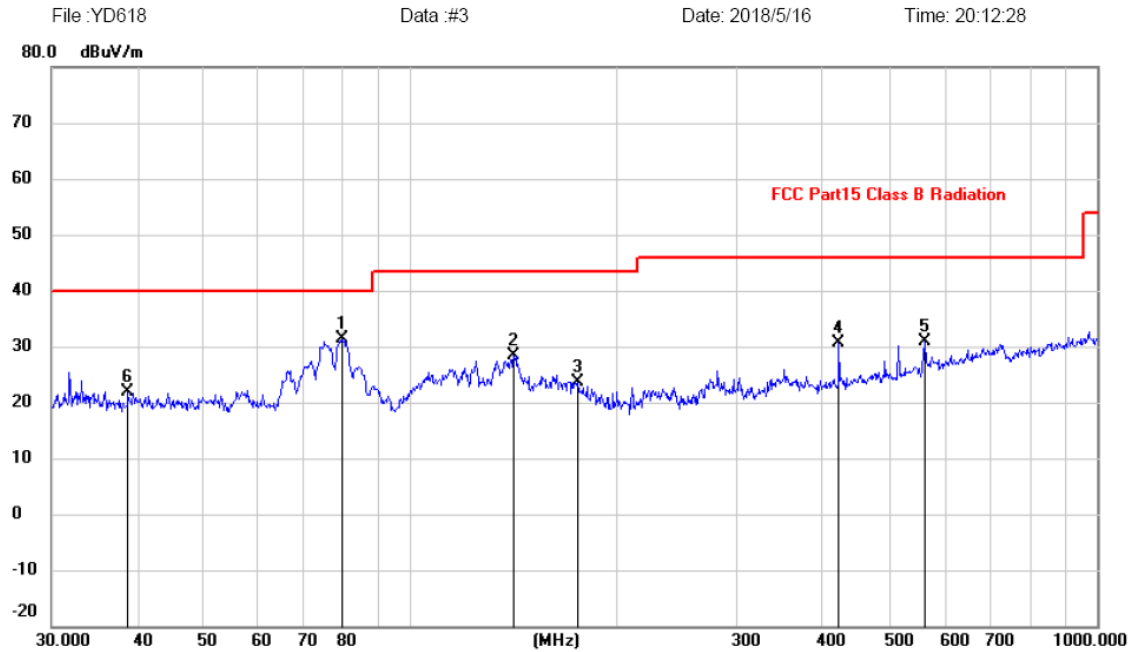
## 4.6.Test Results

Site LAB  
 Limit: FCC Part15 Class B Radiation  
 EUT: YueDong Smart Wristband  
 M/N: YD618  
 Mode:Charging and Data Transmitting  
 Note:  
 Engineer Signature:

Polarization: **Vertical**  
 Power: AC 120V/60Hz  
 Distance: 3m

Temperature: 23.9  
 Humidity: 46 %

### Radiated Emission Measurement



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	79.5209	21.79	9.47	31.26	40.00	-8.74	peak		
2		141.3298	14.36	13.93	28.29	43.50	-15.21	peak		
3		175.0368	10.72	12.95	23.67	43.50	-19.83	peak		
4		420.5803	14.60	16.05	30.65	46.00	-15.35	peak		
5		560.6928	12.21	18.62	30.83	46.00	-15.17	peak		
6		38.8878	7.83	14.15	21.98	40.00	-18.02	peak		

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

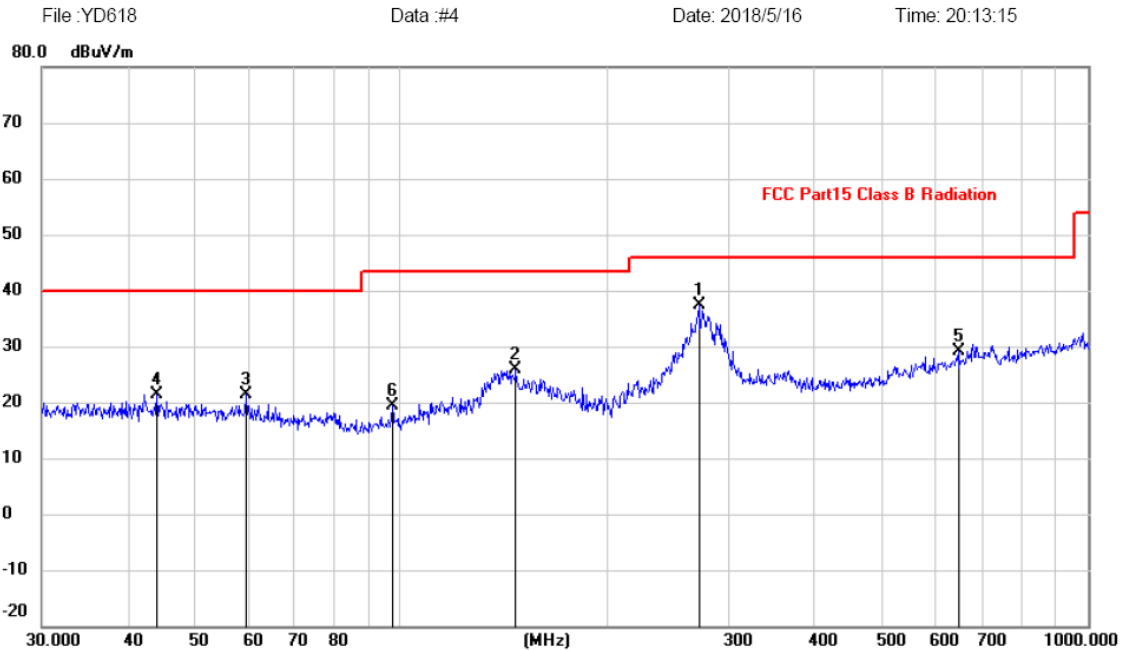
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Site LAB  
 Limit: FCC Part15 Class B Radiation  
 EUT: YueDong Smart Wristband  
 M/N: YD618  
 Mode:Charging and Data Transmitting  
 Note:  
 Engineer Signature:

Polarization: **Horizontal**  
 Power: AC 120V/60Hz  
 Distance: 3m

Temperature: 23.9  
 Humidity: 46 %

### Radiated Emission Measurement

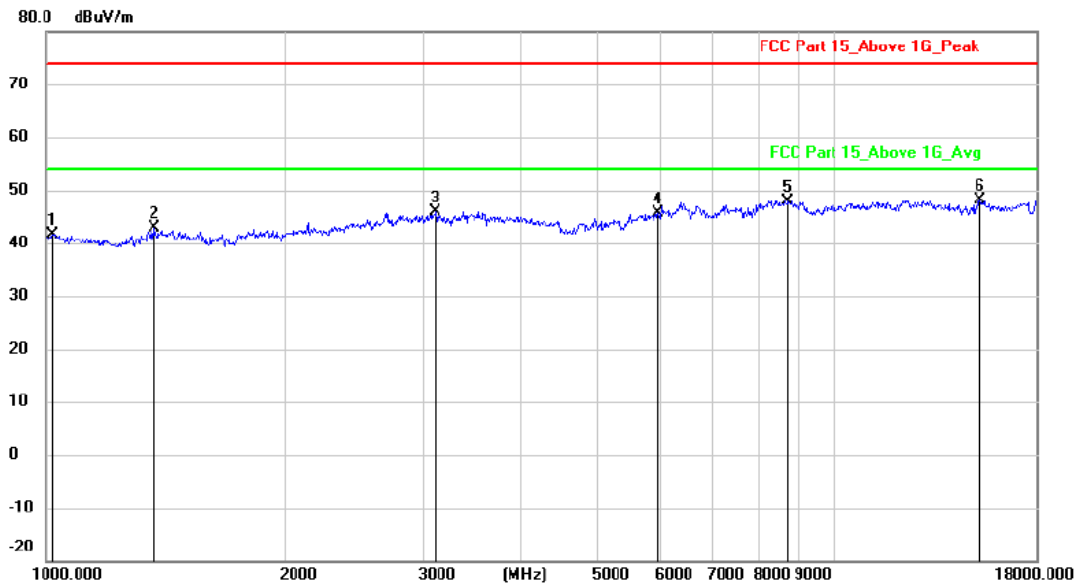


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	271.3246	24.65	12.81	37.46	46.00	-8.54	peak		
2		146.8877	11.66	14.33	25.99	43.50	-17.51	peak		
3		59.4405	8.33	13.03	21.36	40.00	-18.64	peak		
4		44.1202	7.59	13.85	21.44	40.00	-18.56	peak		
5		647.3856	8.80	20.27	29.07	46.00	-16.93	peak		
6		97.1148	9.04	10.35	19.39	43.50	-24.11	peak		

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

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

## Vertical

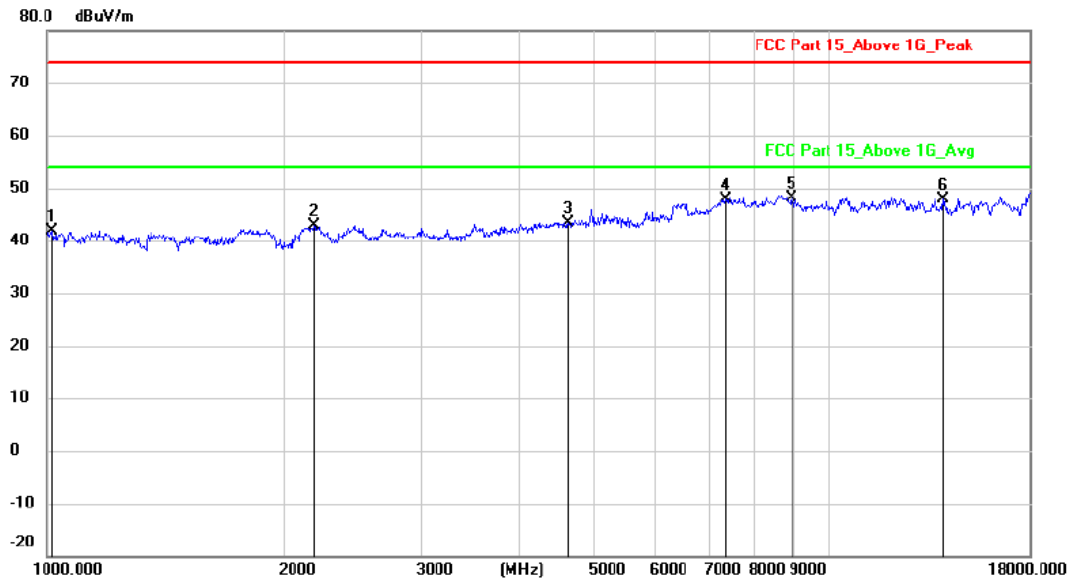


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1017.494	50.35	-8.64	41.71	74.00	-32.29	peak		
2		1366.373	50.10	-7.12	42.98	74.00	-31.02	peak		
3		3114.025	47.98	-2.07	45.91	74.00	-28.09	peak		
4		5967.033	46.65	-0.98	45.67	74.00	-28.33	peak		
5		8713.630	44.04	3.89	47.93	74.00	-26.07	peak		
6	*	15265.88	41.43	6.63	48.06	74.00	-25.94	peak		

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

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

## Horizontal



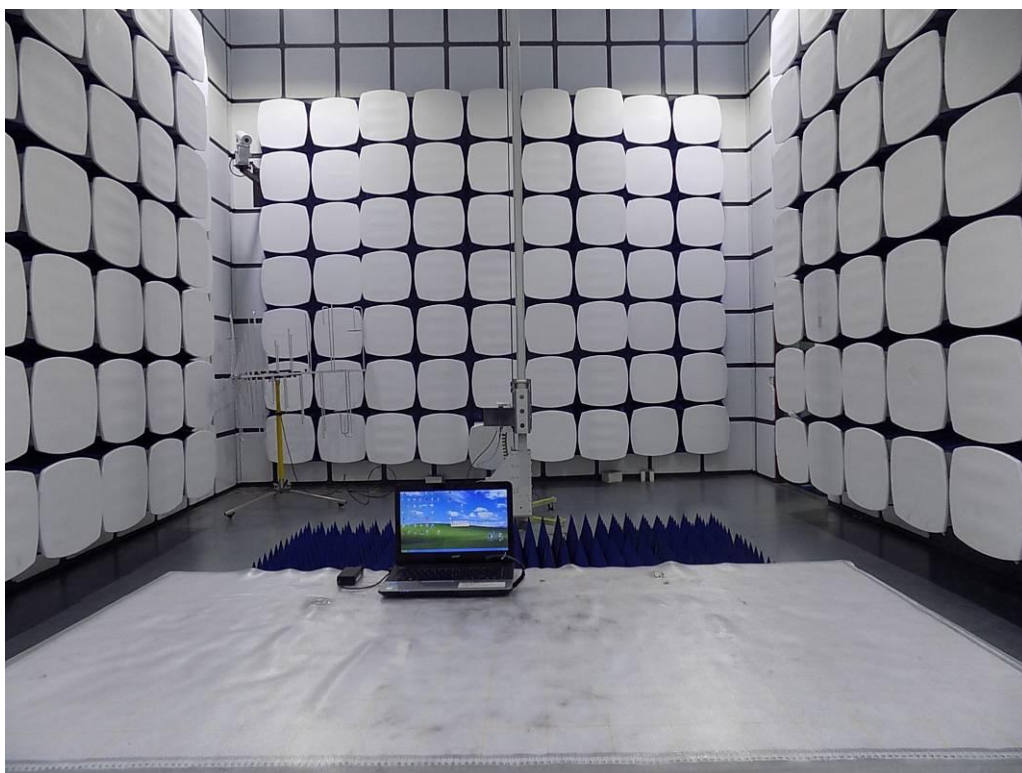
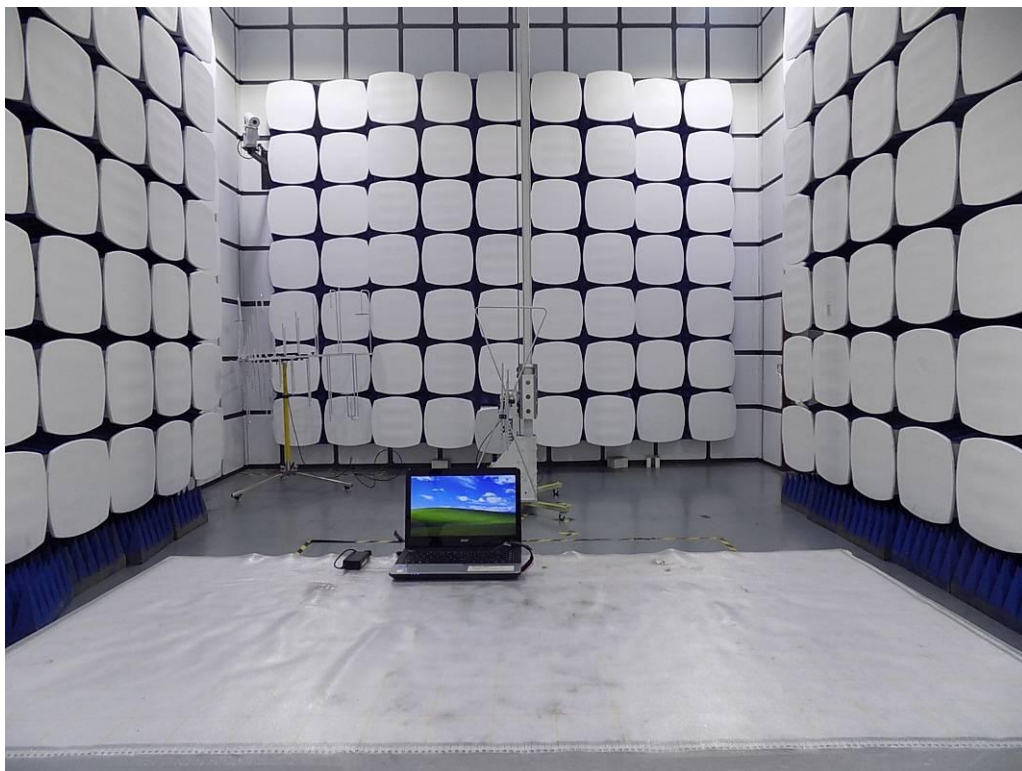
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1014.557	50.51	-8.63	41.88	74.00	-32.12			peak
2		2188.663	46.42	-3.43	42.99	74.00	-31.01			peak
3		4626.946	46.97	-3.48	43.49	74.00	-30.51			peak
4		7368.741	44.52	3.44	47.96	74.00	-26.04			peak
5	*	8943.274	44.64	3.52	48.16	74.00	-25.84			peak
6		13957.52	40.88	6.93	47.81	74.00	-26.19			peak

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

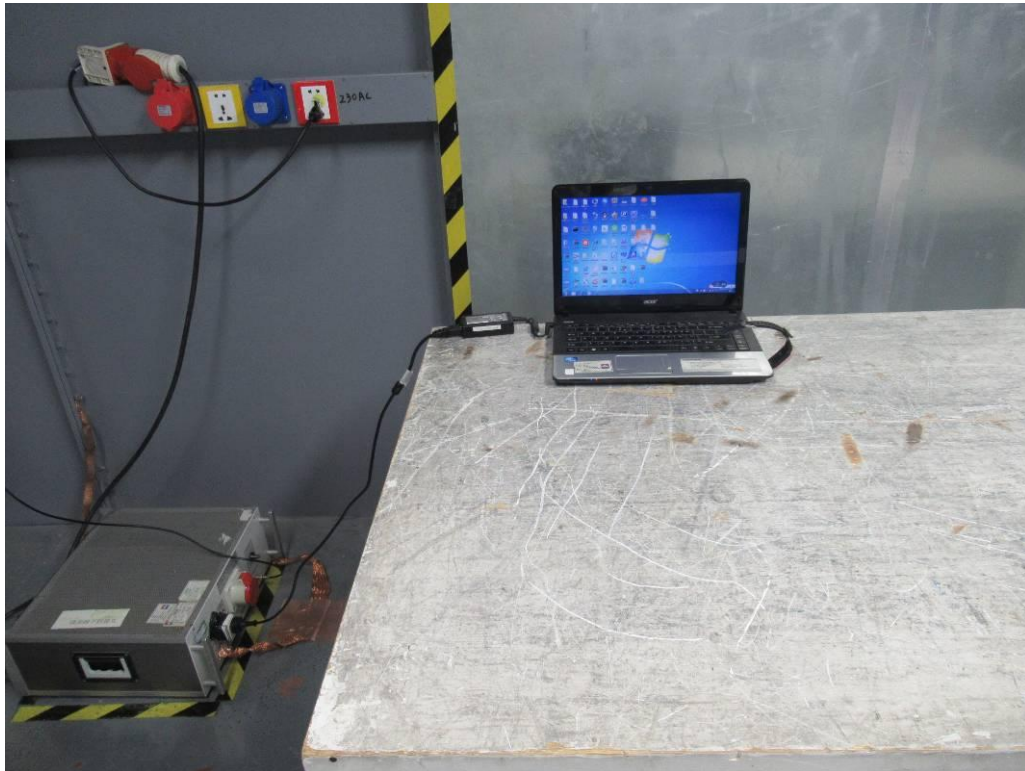
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

## 5. PHOTOGRAPH

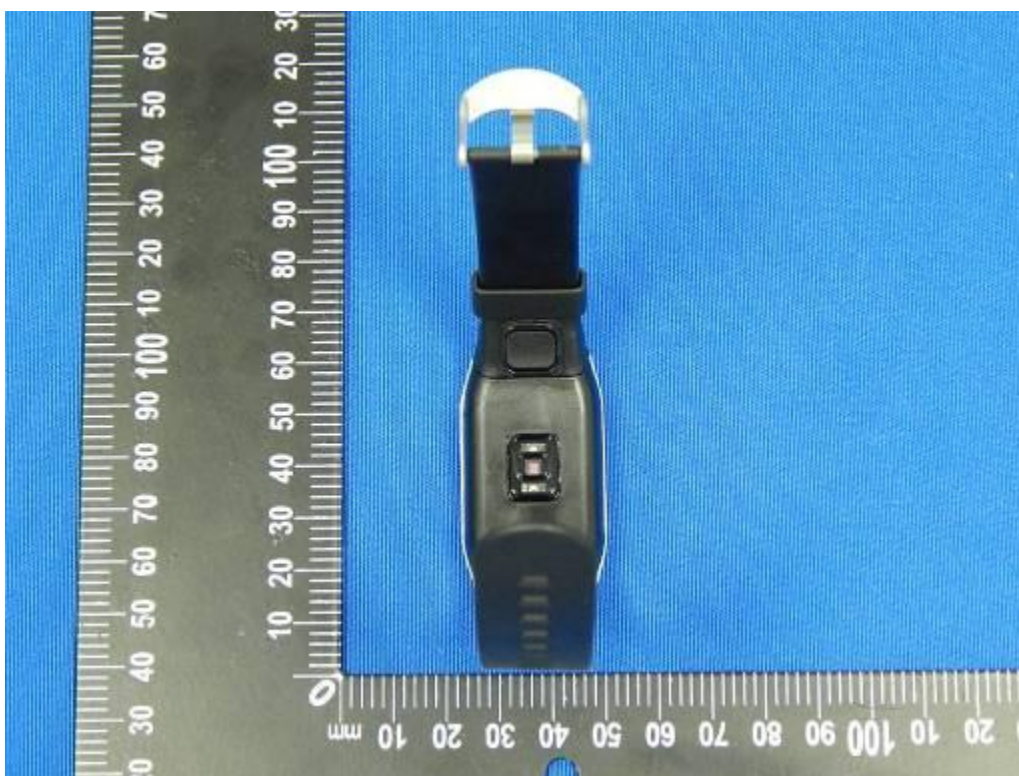
### 5.1.Photo of Radiated Emission Test (In Semi Anechoic Chamber)



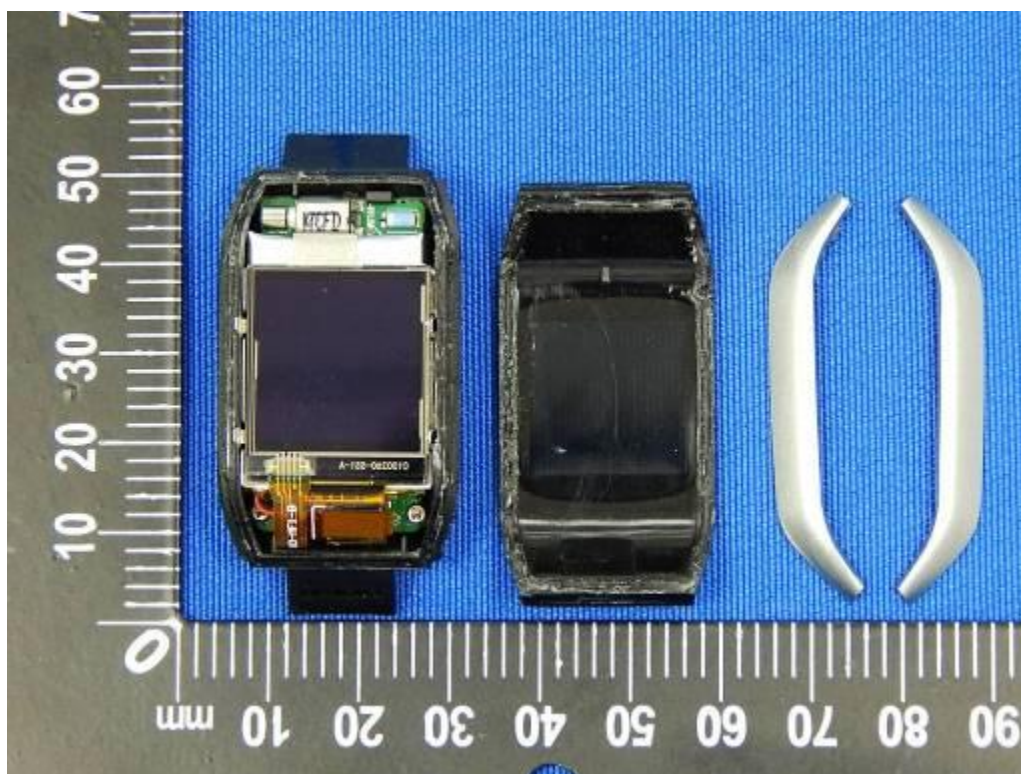
## 5.2.Photo of Power Line Conducted Emission Test

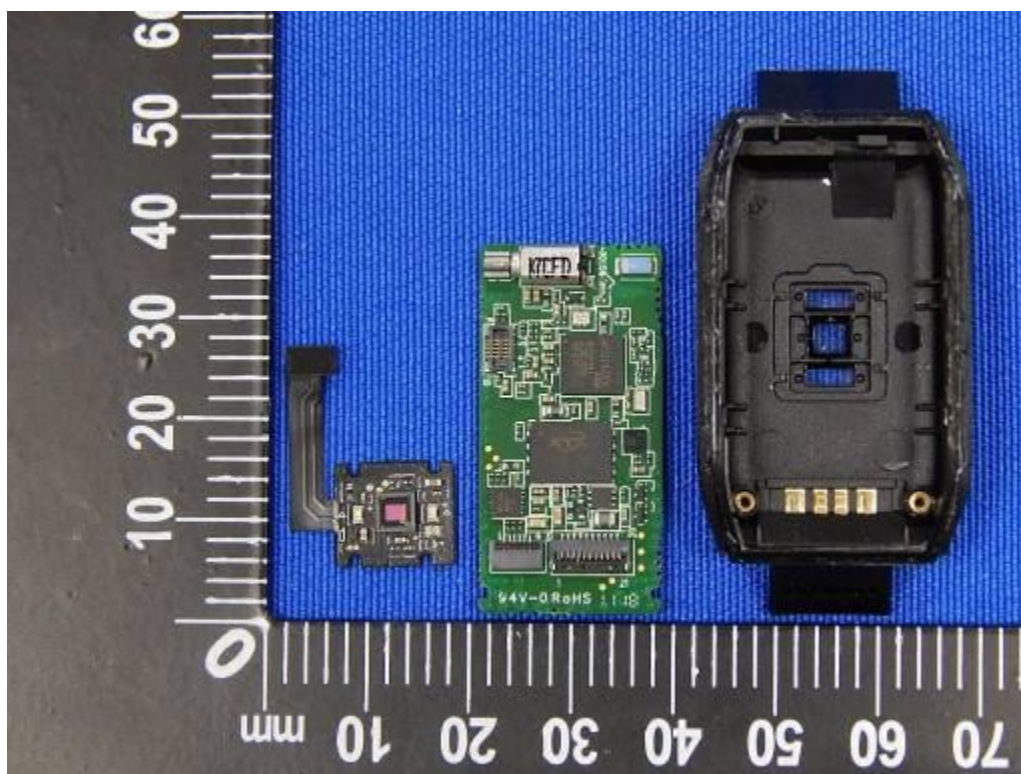
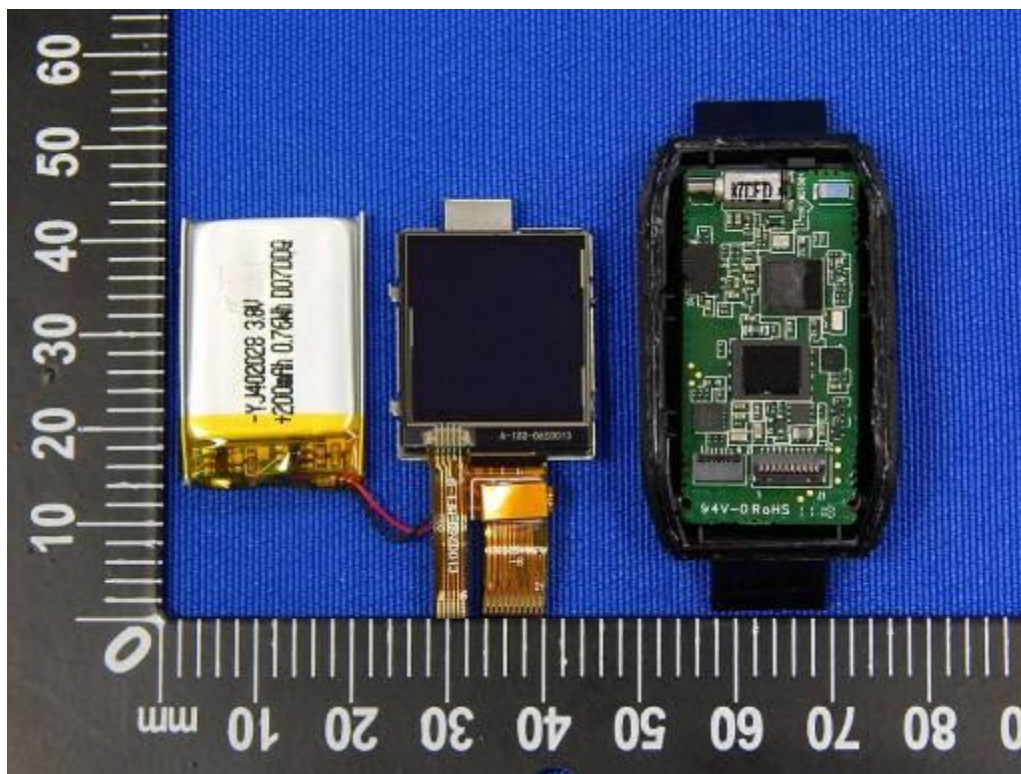


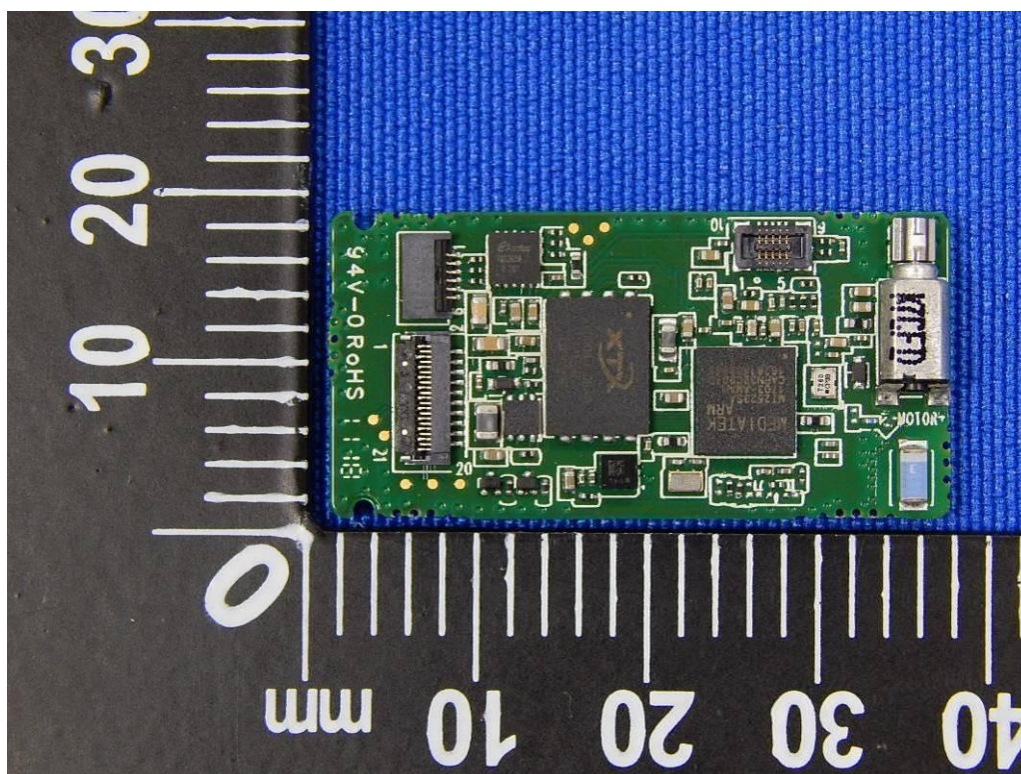
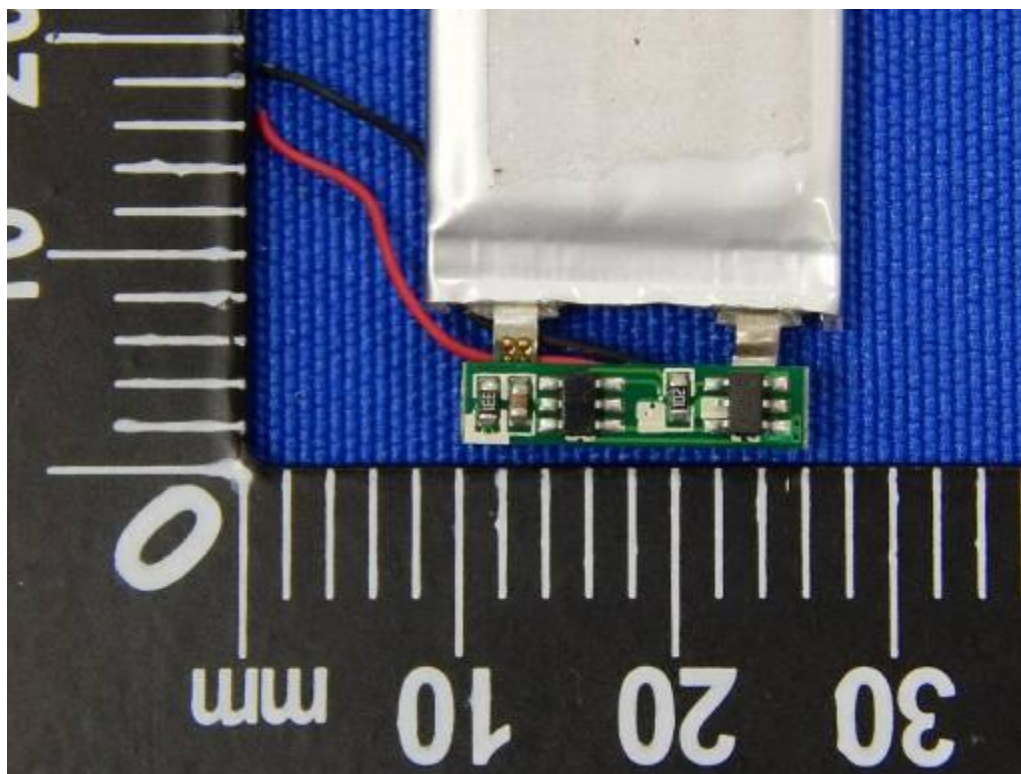
## 6. PHOTOS OF THE EUT

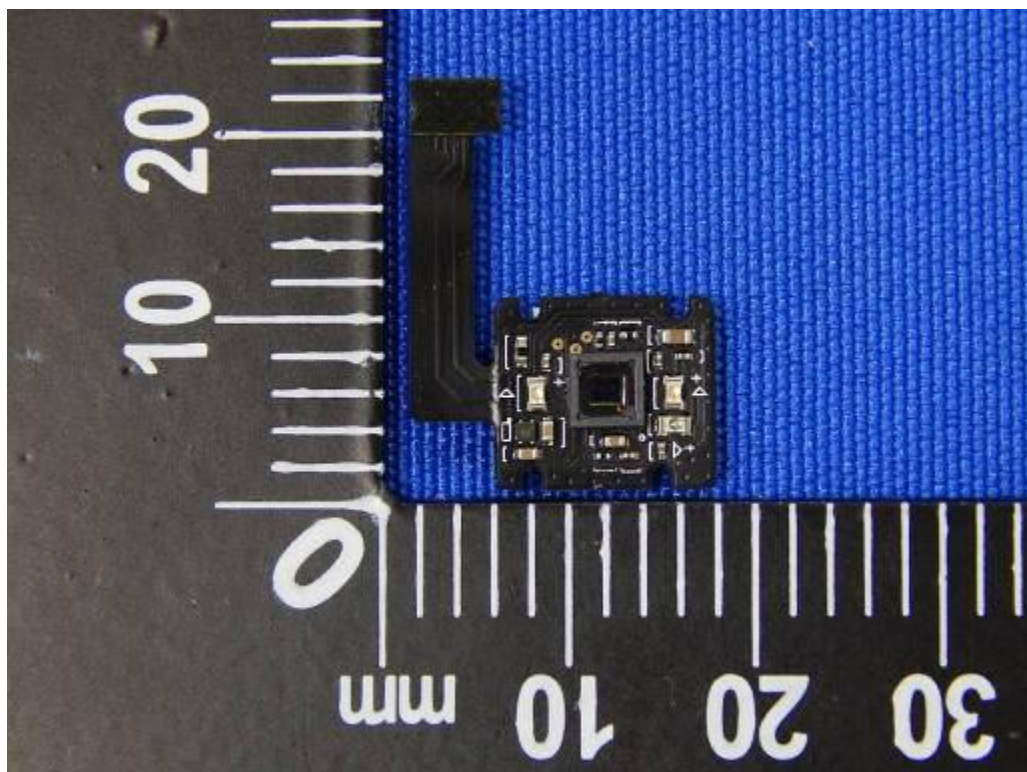
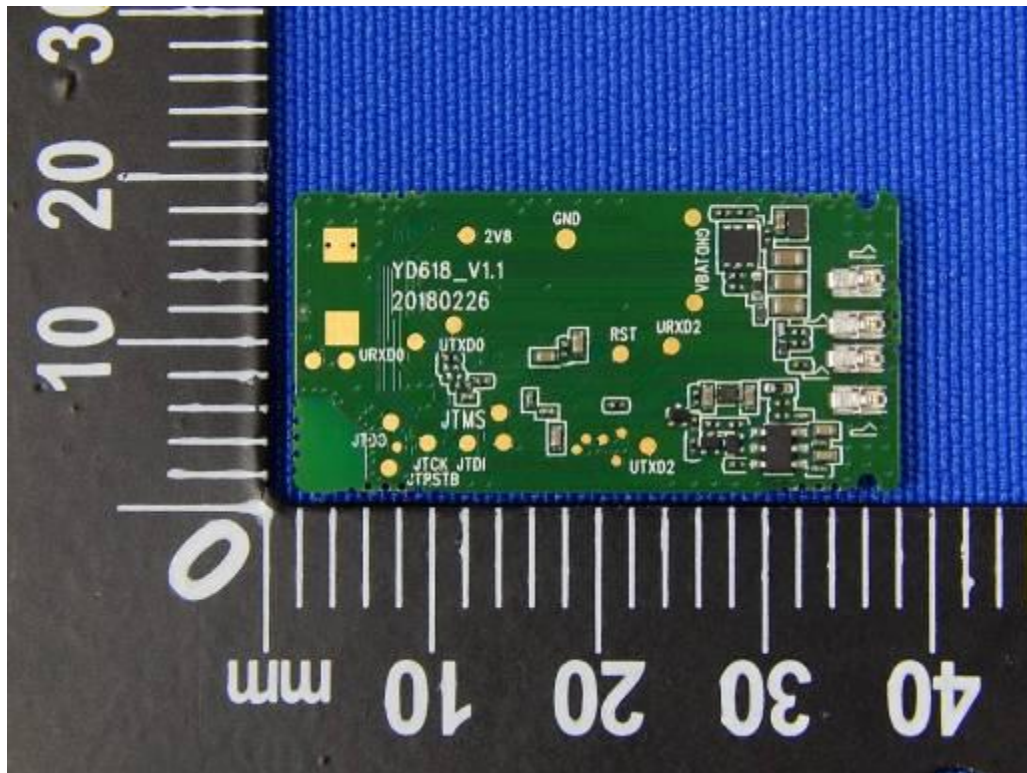


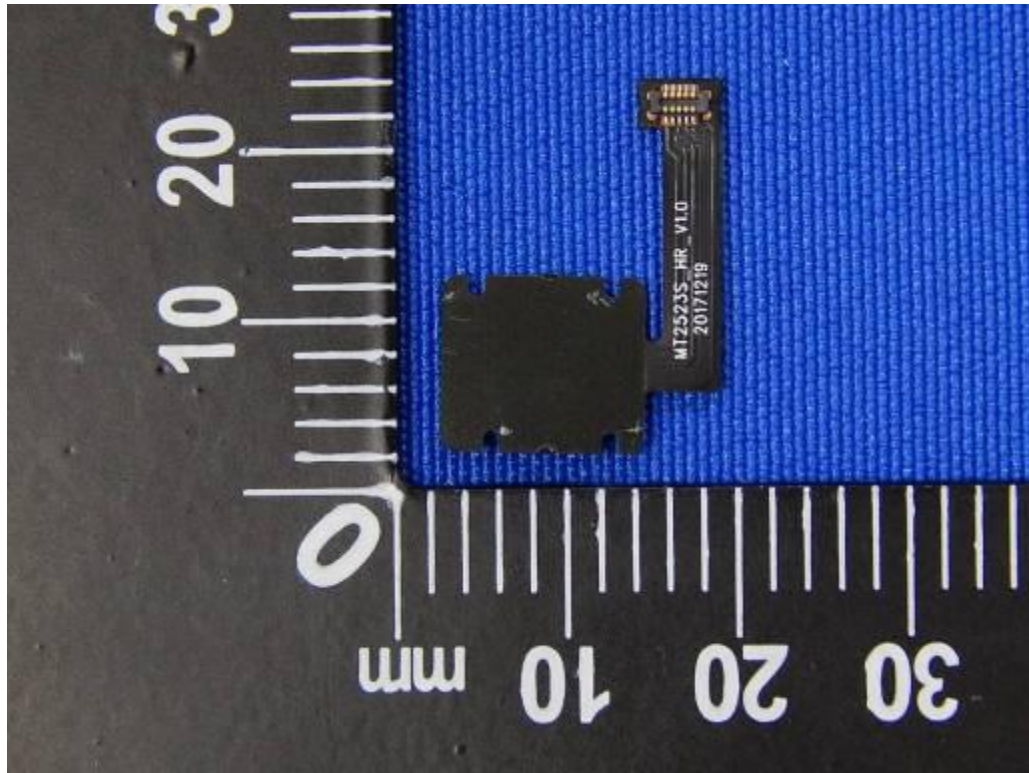












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