

# FCC TEST REPORT

**Product** : wireless management system  
**Trade mark** : BLAZER international  
**Model/Type reference** : CWL 622-2  
**Serial Number** : N/A  
**Report Number** : EED32J000925  
**FCC ID** : PZTCWL622-2  
**Date of Issue** : May 24, 2017  
**Test Standards** : 47 CFR Part 15 Subpart C (2015)  
**Test result** : PASS

Prepared for:

**Tiger Accessory Group LLC**  
**6700 Wildlife Way 6700 Wildlife Way, Long Grove, IL 60047**

Prepared by:

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**Hongwei Industrial Zone, Bao'an 70 District,**  
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Date:

May 24, 2017

Check No.:2448792402



## 2 Version

Version No.	Date	Description
00	May 24, 2017	Original

### 3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	N/A
Field Strength of the Fundamental Signal	47 CFR Part 15 Subpart C Section 15.231 (b)	ANSI C63.10-2013	PASS
Spurious Emissions	47 CFR Part 15 Subpart C Section 15.231 (b)/15.209	ANSI C63.10-2013	PASS
20dB Bandwidth	47 CFR Part 15 Subpart C Section 15.231 (c)	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15 Subpart C Section 15.231 (a)	ANSI C63.10-2013	PASS

Remark:

The tested sample(s) and the sample information are provided by the client.

N/A:The device is only battery operated, the conducted emission at DC input is not applicable.

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## 5 General Information

### 5.1 Client Information

Applicant:	Tiger Accessory Group LLC
Address of Applicant:	6700 Wildlife Way 6700 Wildlife Way, Long Grove, IL 60047
Manufacturer:	ZHEJIANG LEIYA ELECTRONICS CO.,LTD.
Address of Manufacturer:	NO.519, ROAD 15, BINHAI INDUSTRIAL PARK, WENZHOU, ZHEJIANG 325025, CHINA.
Factory:	ZHEJIANG LEIYA ELECTRONICS CO.,LTD.
Address of Factory:	NO.519, ROAD 15, BINHAI INDUSTRIAL PARK, WENZHOU, ZHEJIANG 325025, CHINA.

### 5.2 General Description of EUT

Product Name:	wireless management system
Model No.(EUT):	CWL 622-2
Trade Mark:	BLAZER international
EUT Supports Radios application:	315MHz
Power Supply:	ALKALINE BATTERY: 1x12V(LR23A L1028)=12V

### 5.3 Product Specification subjective to this standard

Frequency Range:	315MHz
Product Software Version:	N/A
Modulation Type:	ASK
Number of Channels:	1 (declared by the client)
Antenna Type:	Internal antenna
Antenna Gain:	-5dBi
Test voltage:	ALKALINE BATTERY: 1x12V(LR23A L1028)=12V
Sample Received Date:	May 15, 2017
Sample tested Date:	May 15, 2017 to May 24, 2017

## 5.4 Test Environment and Mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	58 % RH
Atmospheric Pressure:	1010 mbar
<b>Test mode:</b>	
TX mode	Keep the EUT transmitting continuous modulation signal at 315MHz .
Normal	Let EUT transmitting the signal between the EUT and the Associate Equipment.

## 5.5 Description of Support Units

*The EUT has been tested with associated equipment below.*

Associated equipment name		Model	S/N serial number	Supplied by
AE1	Wireless management system	CWL 622	N/A	Client

## 5.6 Test Location

*All tests were performed at:*

*Centre Testing International Group Co., Ltd.*

*Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101*

*Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385*

*No tests were sub-contracted.*

## 5.7 Test Facility

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

### **CNAS-Lab Code: L1910**

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

### **A2LA-Lab Cert. No. 3061.01**

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

### **FCC-Registration No.: 886427**

Centre Testing International Group Co., Ltd. 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 886427.

### **IC-Registration No.: 7408A-2**

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2 .

**IC-Registration No.: 7408B-1**

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

**NEMKO-Aut. No.: ELA503**

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

**VCCI**

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

**5.8 Deviation from Standards**

None.

**5.9 Abnormalities from Standard Conditions**

None.

**5.10 Other Information Requested by the Customer**

None.

**5.11 Measurement Uncertainty (95% confidence levels, k=2)**

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9 x 10 <sup>-8</sup>
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)
4	Conduction emission	3.6dB (9kHz to 150kHz)
		3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%




## 6 Equipment List

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-05-2016	06-05-2019
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-618	07-28-2016	07-27-2017
Microwave Preamplifier	Agilent	8449B	3008A02425	02-16-2017	02-15-2018
Horn Antenna	ETS-LINDGREN	3117	00057407	07-20-2015	07-18-2018
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Spectrum Analyzer	R&S	FSP40	100416	06-16-2016	06-15-2017
Receiver	R&S	ESCI	100435	06-16-2016	06-15-2017
Multi device Controller	matur	NCD/070/10711 112	---	01-11-2017	01-10-2018
LISN	schwarzbeck	NNBM8125	81251547	06-16-2016	06-15-2017
LISN	schwarzbeck	NNBM8125	81251548	06-16-2016	06-15-2017
Signal Generator	Agilent	E4438C	MY45095744	03-14-2017	03-13-2018
Signal Generator	Keysight	E8257D	MY53401106	03-14-2017	03-13-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	05-08-2017	05-07-2018
Cable line	Fulai(7M)	SF106	5219/6A	01-11-2017	01-10-2018
Cable line	Fulai(6M)	SF106	5220/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5216/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5217/6A	01-11-2017	01-10-2018
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-11-2017	01-10-2018
High-pass filter(6-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-11-2017	01-10-2018

RF Conducted test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Spectrum Analyzer	R&S	FSP40	100416	06-16-2016	06-15-2017
Receiver	R&S	ESCI	100435	06-16-2016	06-15-2017
Signal Generator	Agilent	E4438C	MY45095744	03-14-2017	03-13-2018
Signal Generator	Keysight	E8257D	MY53401106	03-14-2017	03-13-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2017	01-11-2018
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2017	01-11-2018
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-12-2017	01-11-2018
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-12-2017	01-11-2018
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-12-2017	01-11-2018

## 7 Test results and Measurement Data

### 7.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203
<p>15.203 requirement: 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.</p>	
<b>EUT Antenna:</b>	
<p>The antenna is Internal antenna on the main PCB and no consideration of replacement. The best case gain of the antenna is -5dBi</p> 	

## 7.2 Spurious Emissions

### 7.2.1 Spurious Emissions

**Test Requirement:** 47 CFR Part 15C Section 15.231(b) and 15.209

**Test Method:** ANSI C63.10

**Test Site:** Measurement Distance: 3m (Semi-Anechoic Chamber)

**Receiver Setup:**

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

**Test Setup:**

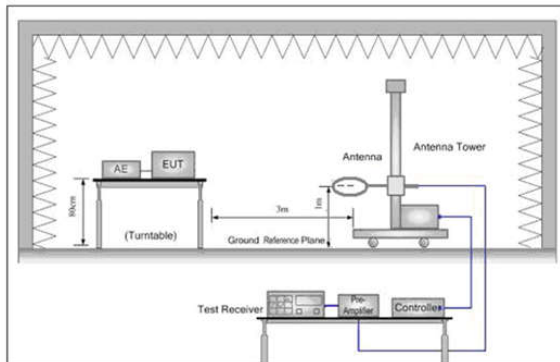


Figure 1. Below 30MHz

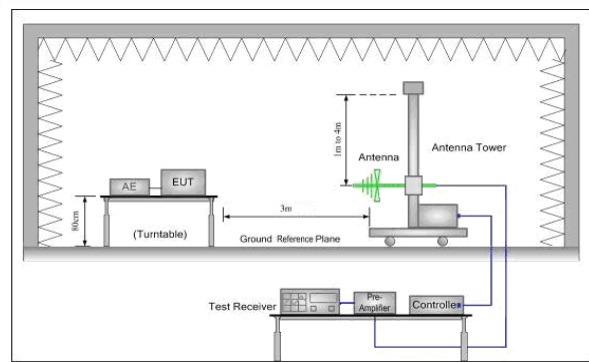


Figure 2. 30MHz to 1GHz

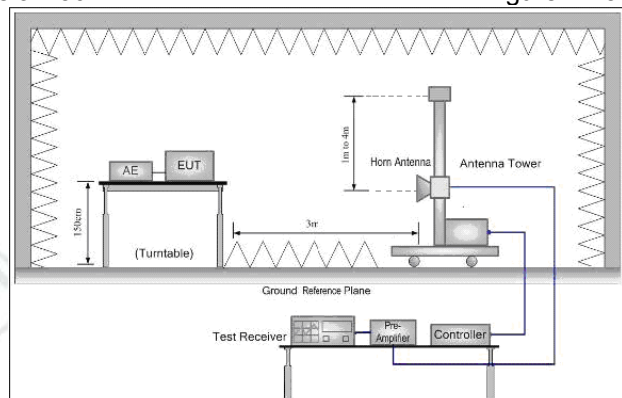


Figure 3. Above 1GHz

**Test Procedure:**

**Below 1GHz test procedure as below:**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.

**Above 1GHz test procedure as below:**

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre( Above 18GHz the distance is 1 meter and table is 1.5 metre).
- h. Test the EUT in the lowest channel ,middle channel, the Highest channel
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
- j. Repeat above procedures until all frequencies measured was complete.

Frequency	Field strength (microvolt/meter)	Limit (dB $\mu$ V/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

**Limit:**  
**(Spurious Emissions)**

**Note:** 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

**Limit:**  
**(Field strength of the fundamental signal)**

Frequency	Limit (dB $\mu$ V/m @3m)	Detector
315MHz	75.62	Average
	95.62	Peak

**Test Mode:**

TX mode

**Instruments Used:**

Refer to section 6 for details

**Test Results:**

Pass

**Test data**

**Field Strength of the Fundamental Signal**

Peak value:								
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Read Level (dB $\mu$ V)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over Limit (dB)	Result	Antenna Polaxis
315.000	13.91	1.15	56.99	72.05	75.62	-3.57	Pass	H
315.000	13.91	1.15	51.00	66.06	75.62	-9.56	Pass	V

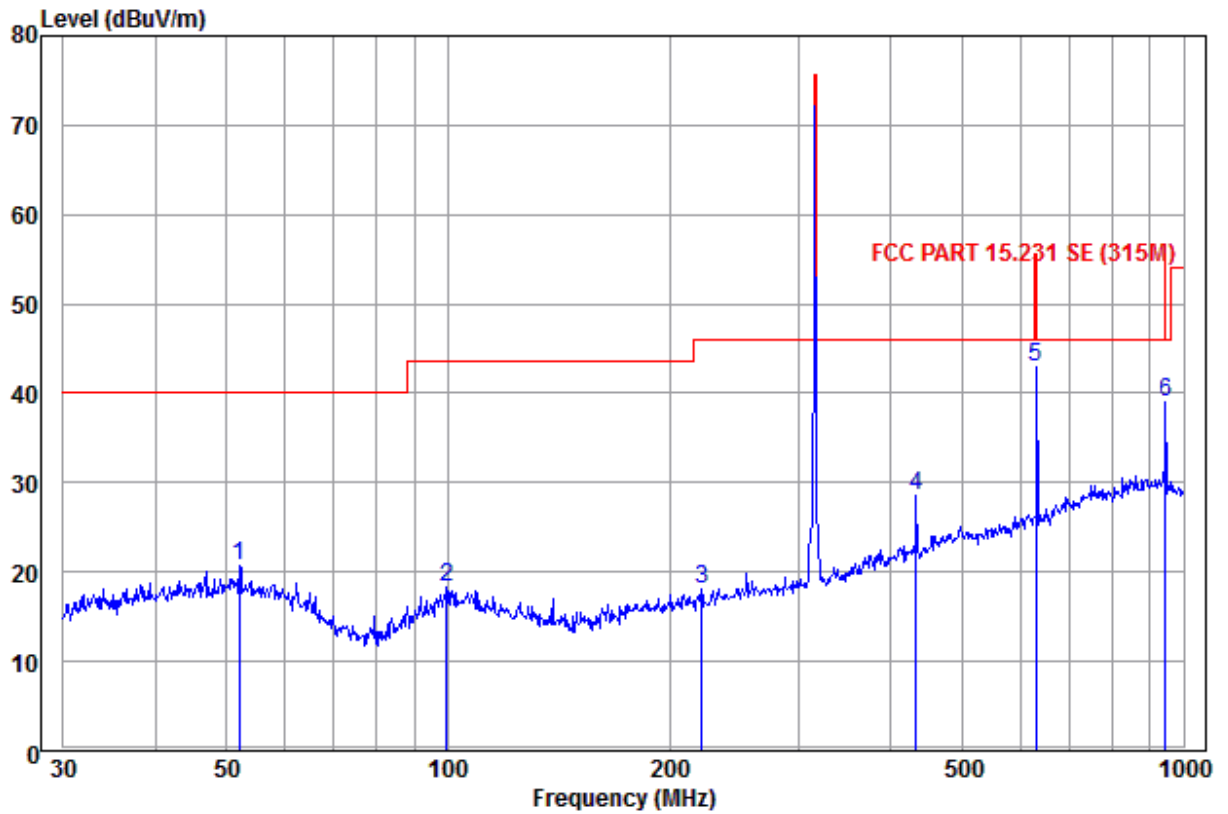
**Remark:** As shown in this section, for field strength of the fundamental signal measurements, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above. So, only the peak value is measured.

**Spurious Emissions**

<b>30MHz-1GHz</b>	
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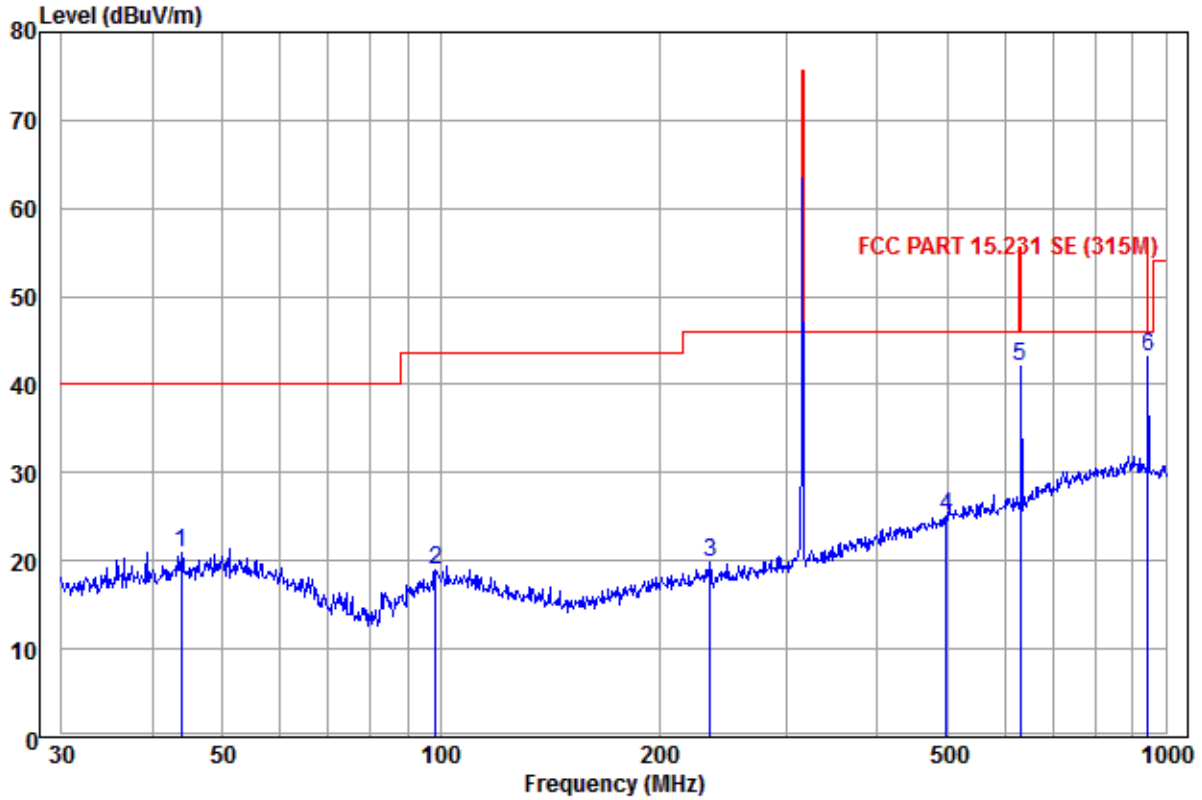
QP value:

**Horizontal**



	Ant Freq	Ant Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	52.025	14.82	0.13	5.69	20.64	40.00	-19.36	Horizontal	
2	99.528	13.11	0.58	4.62	18.31	43.50	-25.19	Horizontal	
3	221.392	11.96	1.21	4.89	18.06	46.00	-27.94	Horizontal	
4	432.546	16.83	1.42	10.22	28.47	46.00	-17.53	Horizontal	
5 pp	630.000	19.29	1.83	21.93	43.05	55.62	-12.57	Horizontal	
6	945.000	22.40	2.36	14.35	39.11	55.62	-16.51	Horizontal	

**Vertical**



	Ant Freq	Ant Factor	Cable Loss	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	43.812	14.57	0.07	6.32	20.96	40.00	-19.04	Vertical
2	98.487	12.91	0.56	5.49	18.96	43.50	-24.54	Vertical
3	234.991	12.18	1.27	6.48	19.93	46.00	-26.07	Vertical
4	497.677	18.34	1.52	5.12	24.98	46.00	-21.02	Vertical
5	630.000	19.29	1.83	20.92	42.04	55.62	-13.58	Vertical
6 pp	945.000	22.40	2.36	18.35	43.11	55.62	-12.51	Vertical



**Above 1GHz**

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dB $\mu$ V)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over Limit (dB)	Polarization
1260.000	30.37	2.58	34.90	37.72	35.77	75.62	-39.85	Horizontal
1575.000	31.01	2.90	34.61	49.20	48.50	74.00	-25.50	Horizontal
1890.000	31.54	3.15	34.37	42.56	42.88	75.62	-32.74	Horizontal
2519.418	32.78	4.59	34.41	38.15	41.11	75.62	-34.51	Horizontal
3463.291	33.20	5.53	34.55	43.75	47.93	75.62	-27.69	Horizontal
5865.832	35.80	7.13	34.30	35.59	44.22	75.62	-31.40	Horizontal
1260.000	30.37	2.58	34.90	38.79	36.84	75.62	-38.78	Vertical
1575.000	31.01	2.90	34.61	41.45	40.75	74.00	-33.25	Vertical
1890.000	31.54	3.15	34.37	39.09	39.41	75.62	-36.21	Vertical
2519.418	32.78	4.59	34.41	39.21	42.17	75.62	-33.45	Vertical
3543.550	33.14	5.52	34.56	36.54	40.64	75.62	-34.98	Vertical
5895.771	35.82	7.20	34.30	36.85	45.57	75.62	-30.05	Vertical

## Remark:

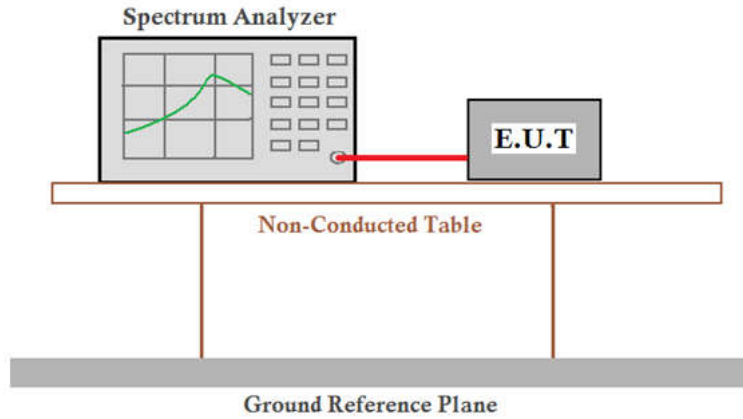
- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamp. The basic equation with a sample calculation is as follows:  
 Final Test Level = Receiver Reading - Correct Factor  
 Correct Factor = Preamp Factor - Antenna Factor - Cable Factor
- 2) Scan from 9kHz to 6GHz, the disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

**7.3 20dB Bandwidth**

**Test Requirement:** 47 CFR Part 15C Section 15.231 (c)

**Test Method:** ANSI C63.10

**Test Setup:**



**Limit:**

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

**Test Mode:** TX mode

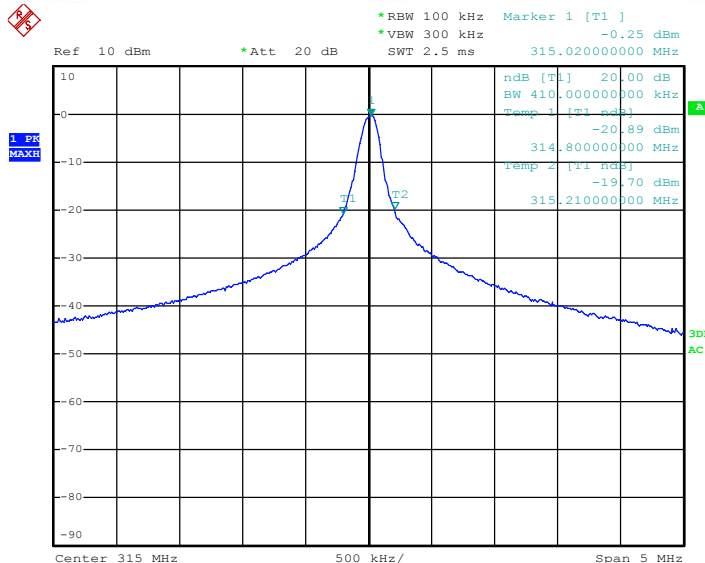
**Instruments Used:** Refer to section 6 for details

**Test Results:** Pass

**Test data**

20dB bandwidth (kHz)	Limit (kHz)	Results
410	787.5	Pass

**Test plot as follows:**

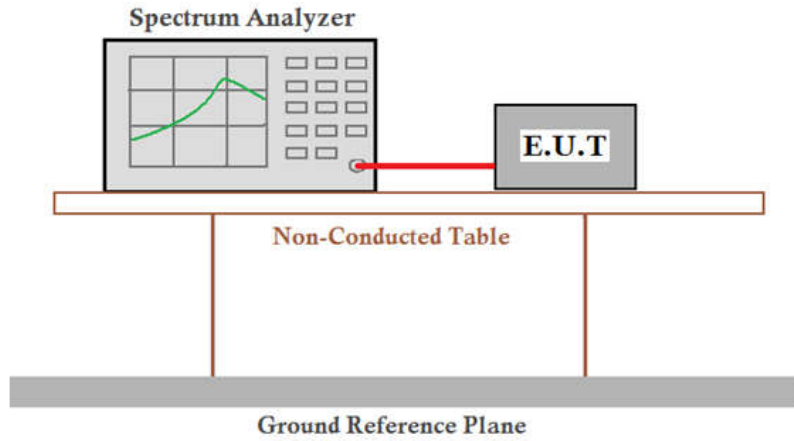


Date: 23.MAY.2017 12:05:24

**7.4 Dwell Time**

**Test Requirement:** 47 CFR Part 15C Section 15.231 (a) (1)  
**Test Method:** ANSI C63.10

**Test Setup:**

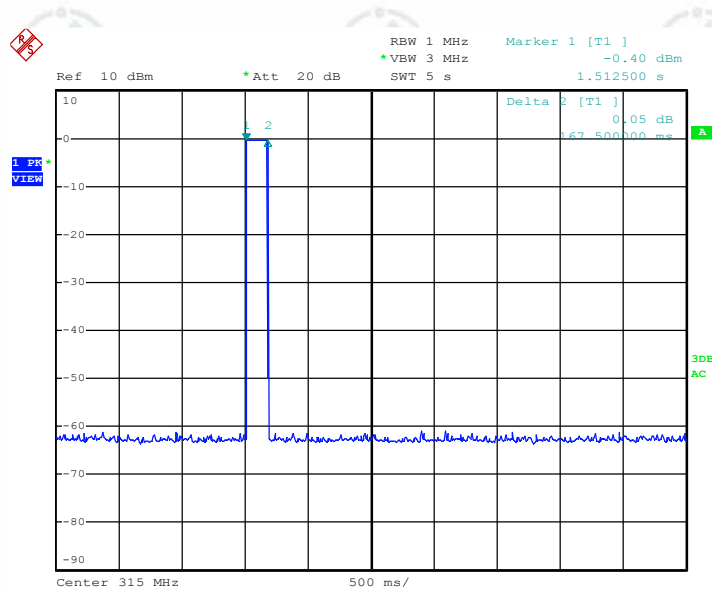


**Limit:** Not more than 5 seconds  
**Test Mode:** Normal mode  
**Instruments Used:** Refer to section 6 for details  
**Test Results:** Pass

**Test data:**

Transmitting time	Limit	Results
167.5ms	≤5S	Pass

**Test plot as follows:**



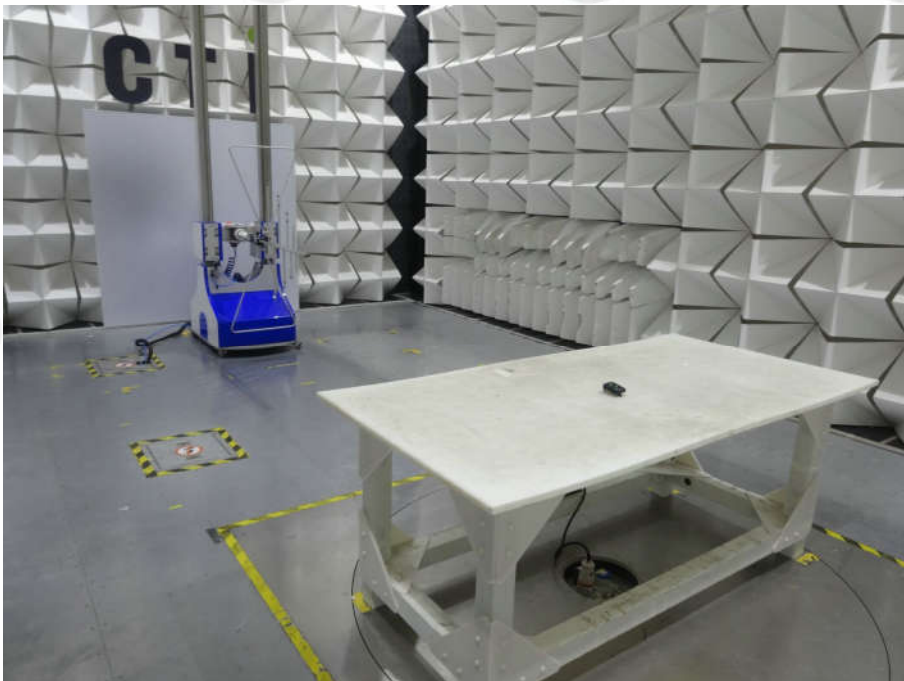
Date: 22.MAY.2017 10:11:49

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

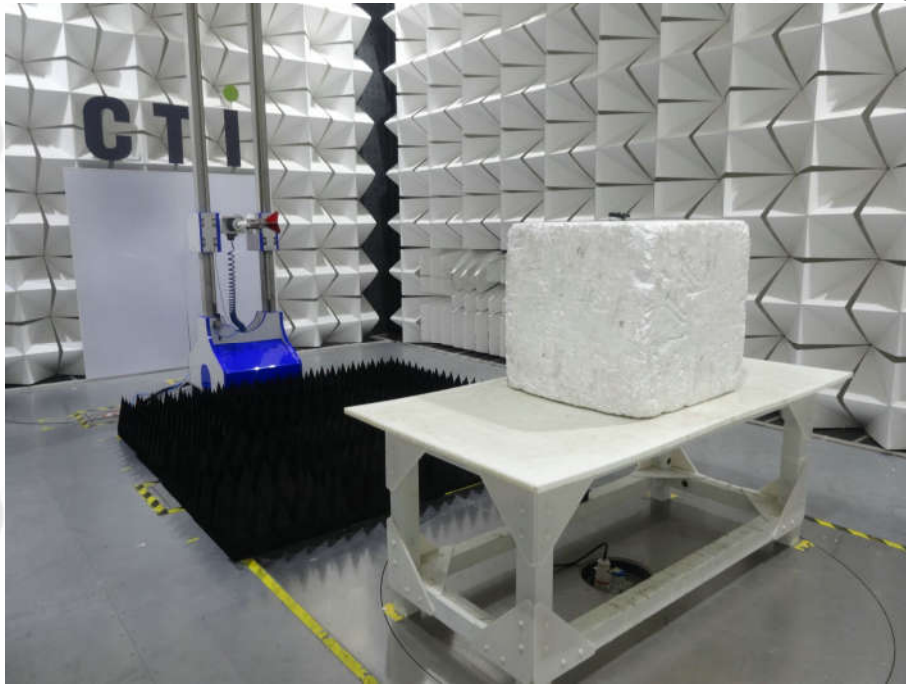
Test Model No.:CWL 622-2



**Radiated emission Test Setup-1(9kHz~30MHz)**



**Radiated emission Test Setup-2 (30MHz~1GHz)**



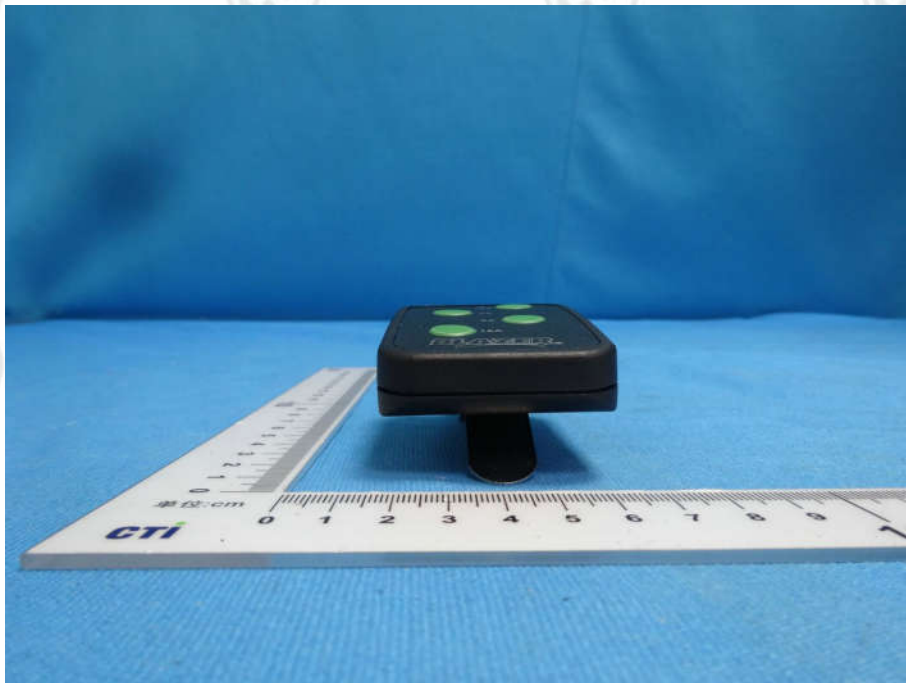
**Radiated spurious emission Test Setup-3(Above 1GHz)**

## APPENDIX 2 PHOTOGRAPHS OF EUT

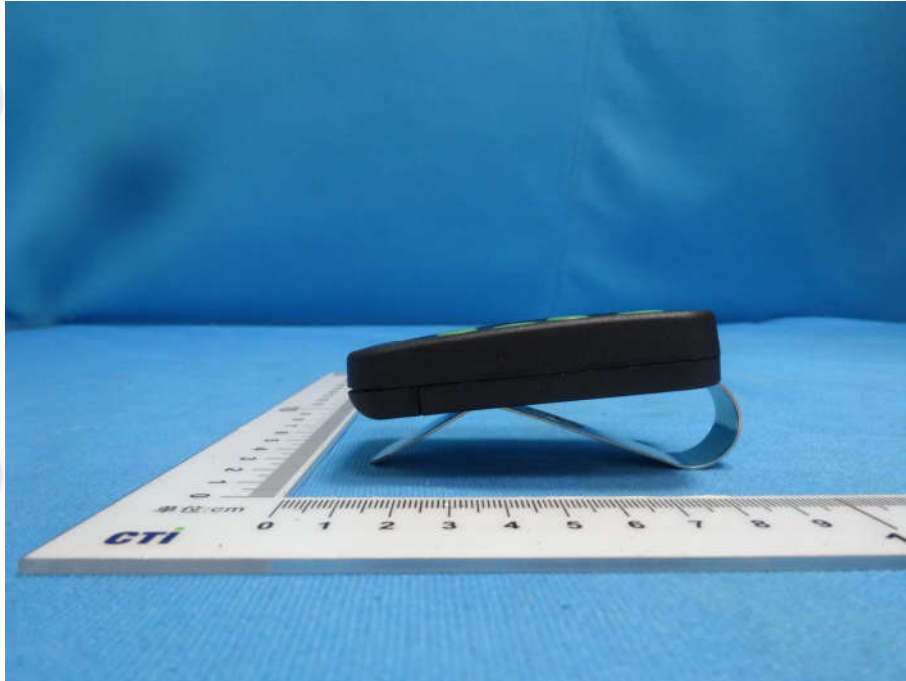
Test model No.:CWL 622-2



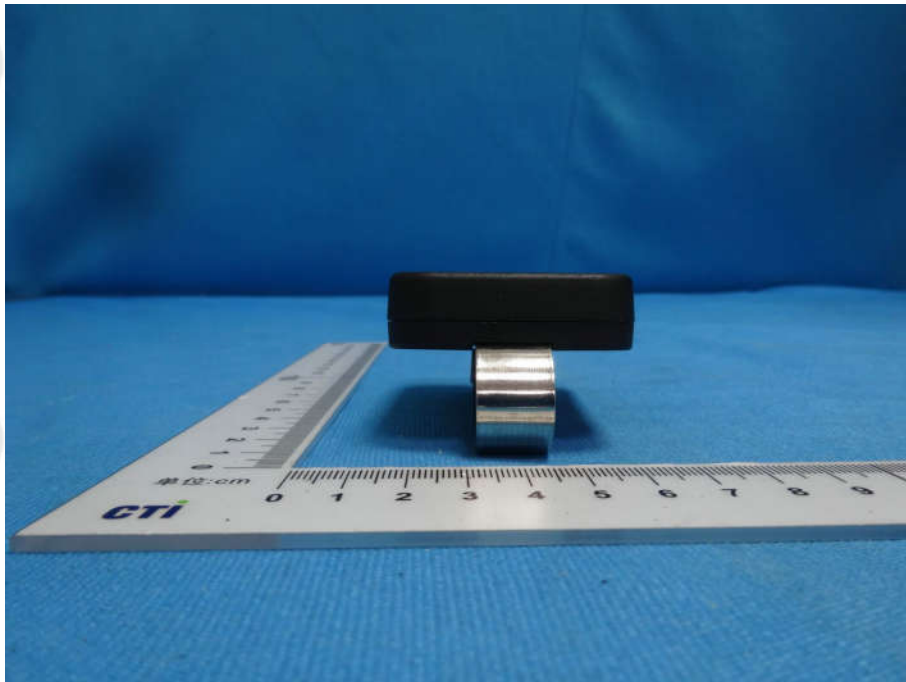
View of Product-1



View of Product-2



View of Product-3



View of Product-4



View of Product-5



View of Product-6

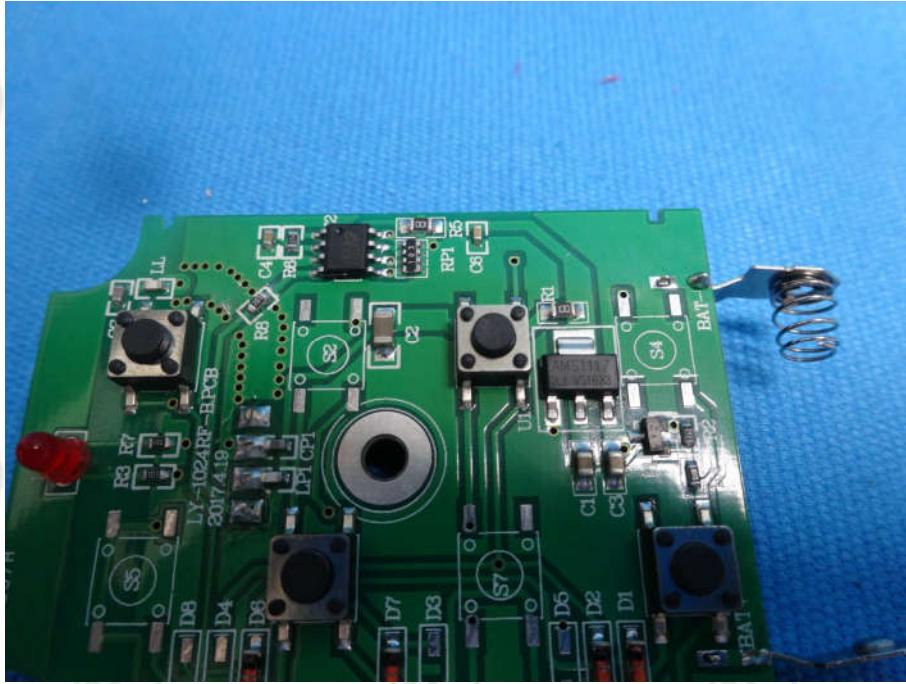




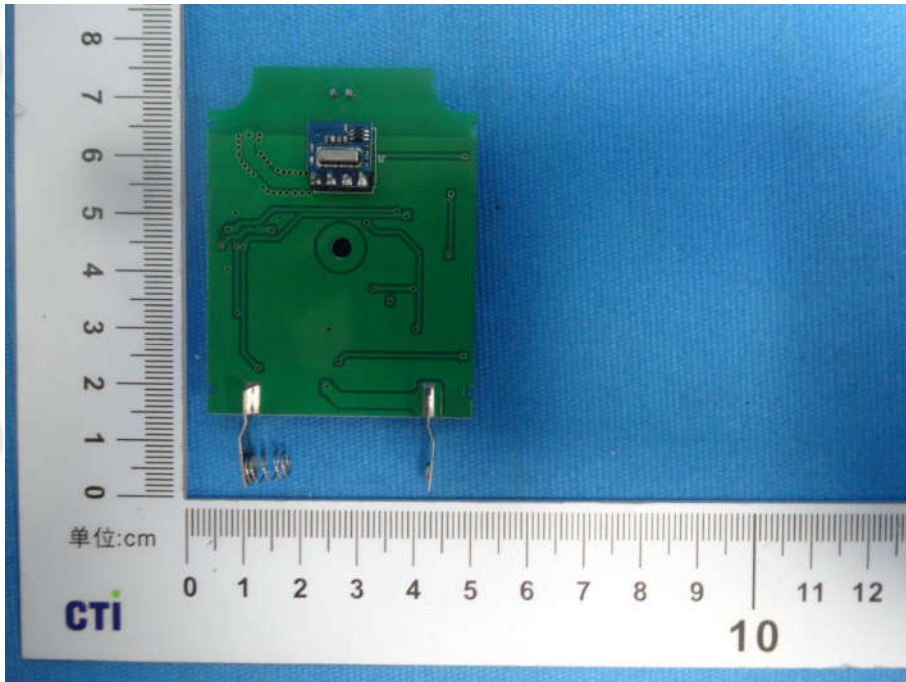
View of Product-7



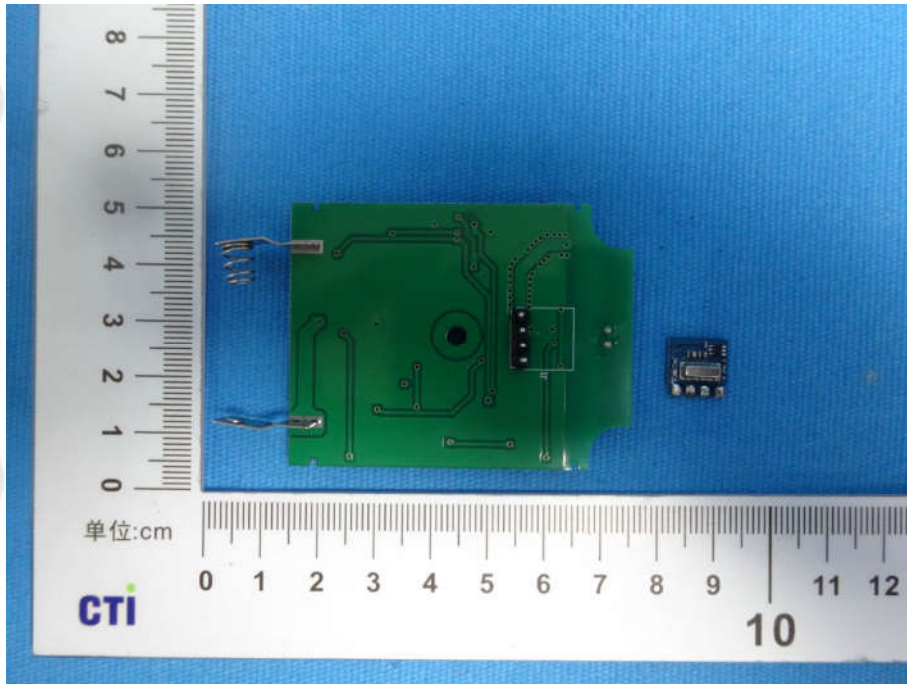
View of Product-8



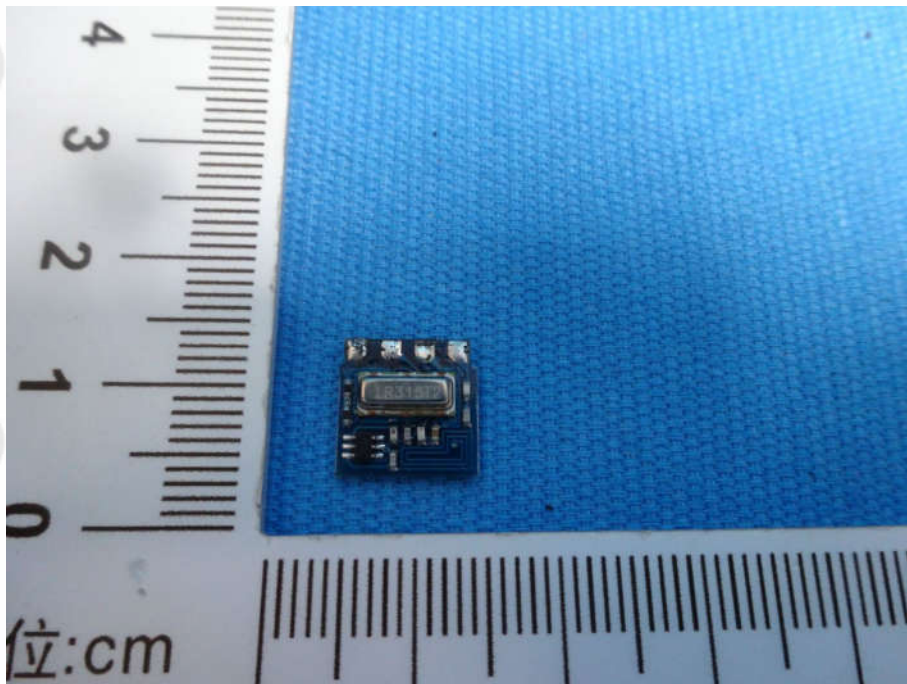
View of Product-9



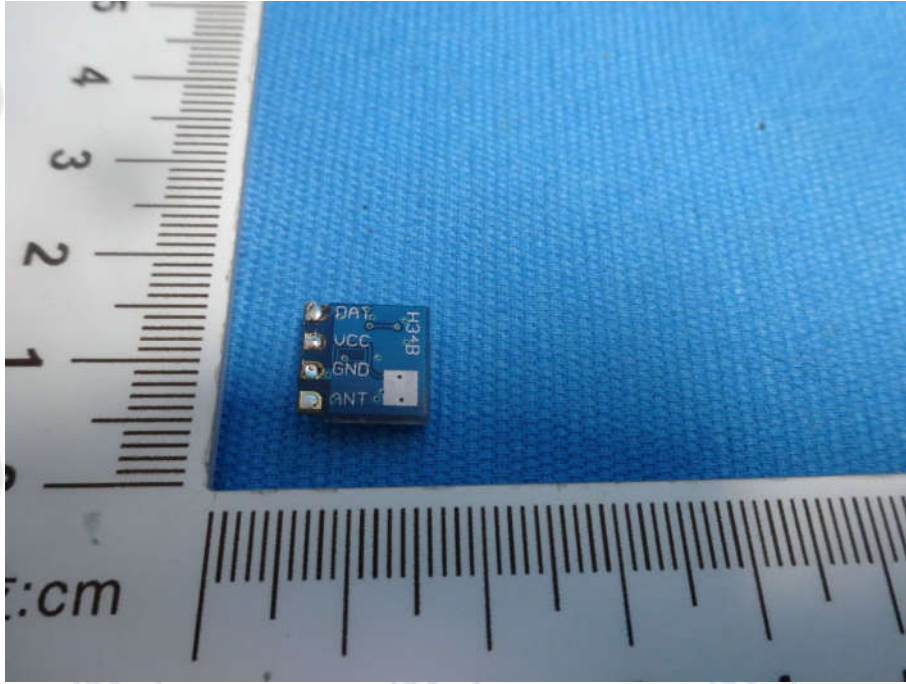
View of Product-10



View of Product-11



View of Product-12



View of Product-13

\*\*\* End of Report \*\*\*

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