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FCC SDoC Test Report

FCC PART 15 Subpart B

Report Reference No.: CTL1902252121-F

Compiled by

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Tracy Qi

Date of issue: Apr. 10, 2019

Representative Laboratory Name. : Shenzhen CTL Testing Technology Co., Ltd.

Address: Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road,
Nanshan District, Shenzhen, China 518055

Test Firm: Shenzhen CTL Testing Technology Co., Ltd.

Address: Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road,
Nanshan District, Shenzhen, China 518055

Applicant's name: Shenzhen eelink communication Technology Co., Ltd

Address: 3 Floor, Yuyang Mansion, Gaoxin North 4th Rd, Keji North 2th
Street, High Tech Park, Nanshan District, Shenzhen, Guangdong,
CHINA

Test specification:

Standard.....: FCC PART 15 Subpart B

TRF Originator: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF: Dated 2011-01

Shenzhen CTL Testing Technology Co., Ltd.

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Test item description: GPS TRACKER

Trade Mark: /

Test voltage.....: DC 12V

Result: Pass

FCC Test Report

Test Report No. :	CTL1902252121-F	Apr. 10, 2019
		Date of issue

Equipment under Test : GPS TRACKER

Type / Model : TK119-3G

Listed Models : /

Applicant : **Shenzhen eelink communication Technology Co., Ltd**

Address : 3 Floor, Yuyang Mansion, Gaoxin North 4th Rd, Keji North 2th Street, High Tech Park, Nanshan District, Shenzhen, Guangdong, CHINA

Manufacturer : **Shenzhen Zhenhua Communication Equipment Co.Ltd**

Address : Zhenhua Industrial Park, No.44, Tiezai Rd., Xixiang Town, BaoAn, Shenzhen, Guang Dong, China

Test Result	Pass
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

History of this test report

Report No.	Version	Description	Issued Date
CTL1902252121-F	V1.0	Initial Issued Report	Apr. 10, 2019

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1. TEST STANDARDS

The tests were performed according to following standards:

[**FCC Rules Part 15 Subpart B - Unintentional Radiators**](#)

[**ANSI C63.4-2014**](#)

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : Apr. 08, 2019

Sampling and Testing commenced on : Apr. 08, 2019

Testing concluded on : Apr. 10, 2019

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : 120V / 60 Hz 115V / 60Hz
 12 V DC 24 V DC
 Other (specified in blank below)

DC 12V

2.3. Short description of the Equipment under Test (EUT)

The EUT is a GPS TRACKER

2.4. EUT operation mode

The EUT has been tested under typical operating condition.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

2.7. Related Submittal(s) / Grant (s)

This test report is intended for GPS TRACKER filing to comply with the FCC Part 15, Subpart B Rules.

2.8. Modifications

No modifications were implemented to meet testing criteria.

2.9. Test Result Summary

Test Item	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15 Subpart B	Section 15.109	PASS

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

3.2. Test Facility

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

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 399832

Shenzhen CTL Testing Technology 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 399832, December 08, 2017.

Certified by A2LA, USA

Registration No.:4343.01

Date of registration: December 27, 2017

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	<u>15-35 ° C</u>
Humidity:	<u>30-60 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission(chamber1)	30~1000MHz	±3.20dB	(1)
Radiated Emission(chamber2)	30~1000MHz	±3.53dB	(1)
Conducted Emission	0.15~30MHz	±2.66dB	(1)
Disturbance Power	30~300MHz	±2.90dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.5. Equipments Used during the Test

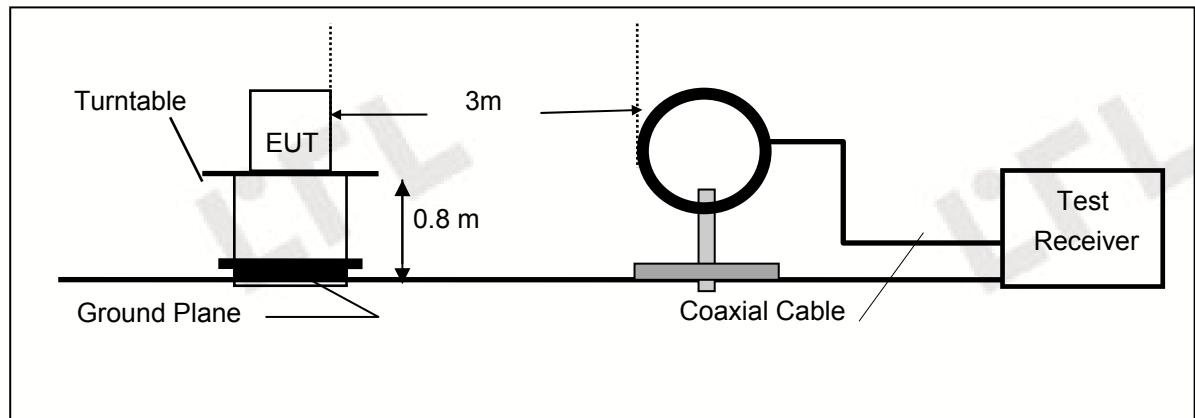
Radiated Emission(Chamber 1)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	2018/10/08	2019/10/07
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2018/05/25	2019/05/24
3	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2018/05/25	2019/05/24

4 TEST CONDITIONS AND RESULTS

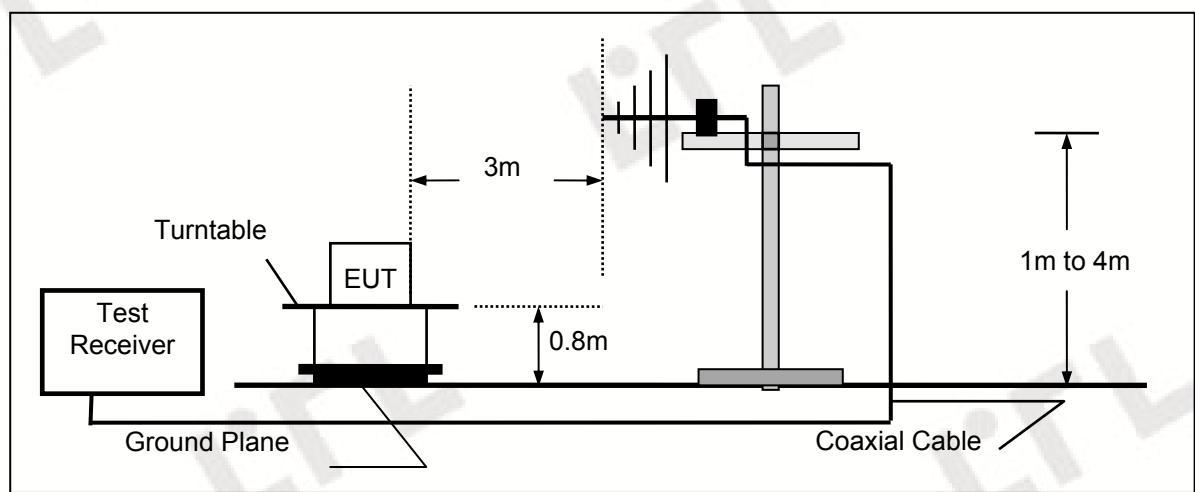
4.1. Radiated Emission Test

TEST CONFIGURATION

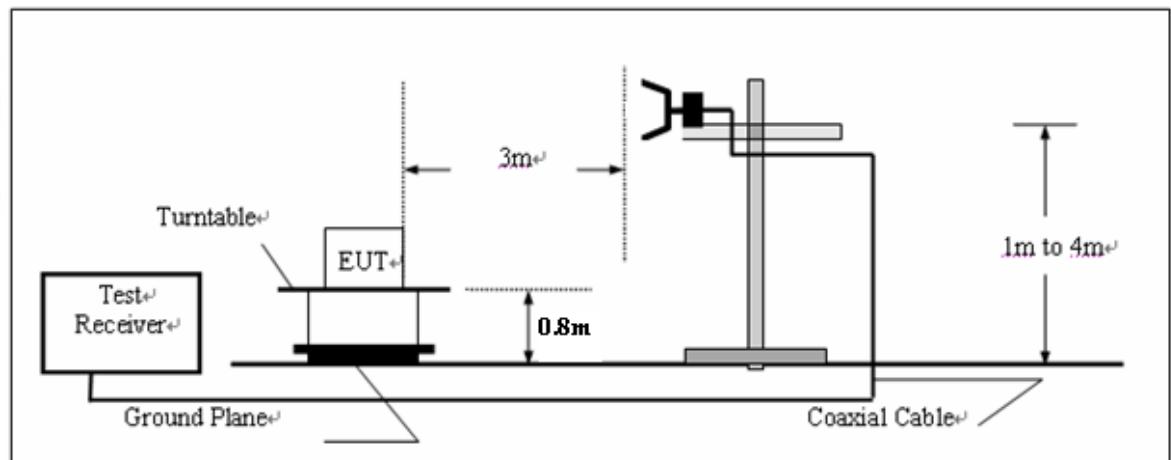
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values :

Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Radiation Test Results

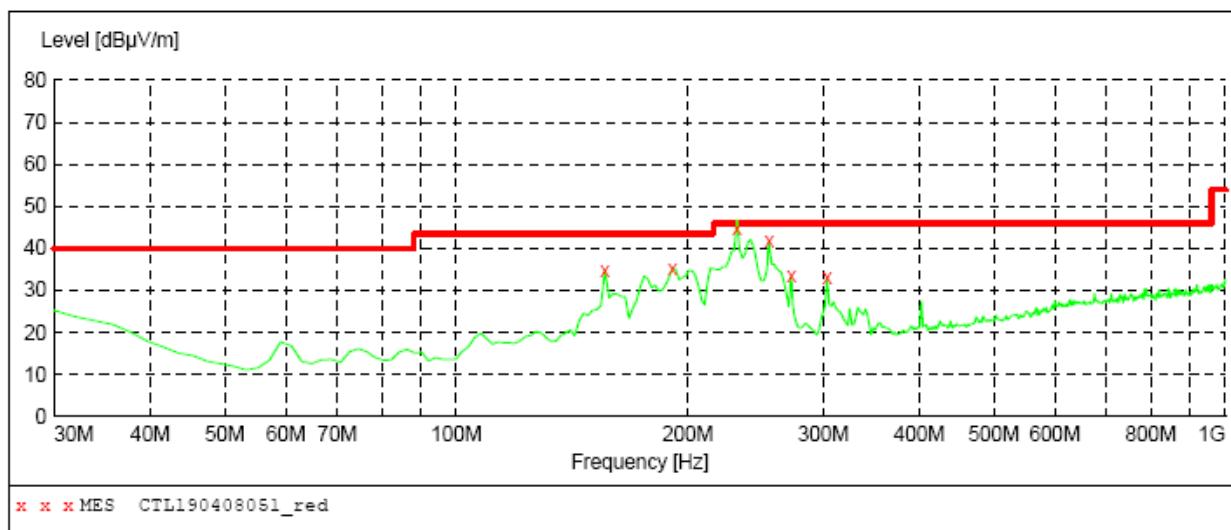
Shenzhen CTL Testing Technology Co.,Ltd

Radiation Emission Test FCC PART 15B

EUT: TK119-3G
 Manufacturer: Shenzhen Zhenhua Communication Equipment Co.Ltd
 Operating Condition: Working
 Test Site: Chamber 1
 Operator: ZSR
 Test Specification: DC 12V
 Comment: /
 Start of Test: 09/04/2019 / 09:01:23

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start Frequency	Stop Frequency	Detector	Meas.	IF	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	100 kHz	JB1



MEASUREMENT RESULT: "CTL190408051_red"

09/04/2019 09:02

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
156.100000	34.90	14.4	43.5	8.6	---	0.0	0.00	HORIZONTAL
191.020000	35.30	14.6	43.5	8.2	---	0.0	0.00	HORIZONTAL
231.760000	44.50	14.2	46.0	1.2	-QP	0.0	0.00	HORIZONTAL
255.040000	41.80	14.6	46.0	4.2	---	0.0	0.00	HORIZONTAL
272.500000	33.40	15.2	46.0	12.6	---	0.0	0.00	HORIZONTAL
303.540000	33.10	16.2	46.0	12.9	---	0.0	0.00	HORIZONTAL

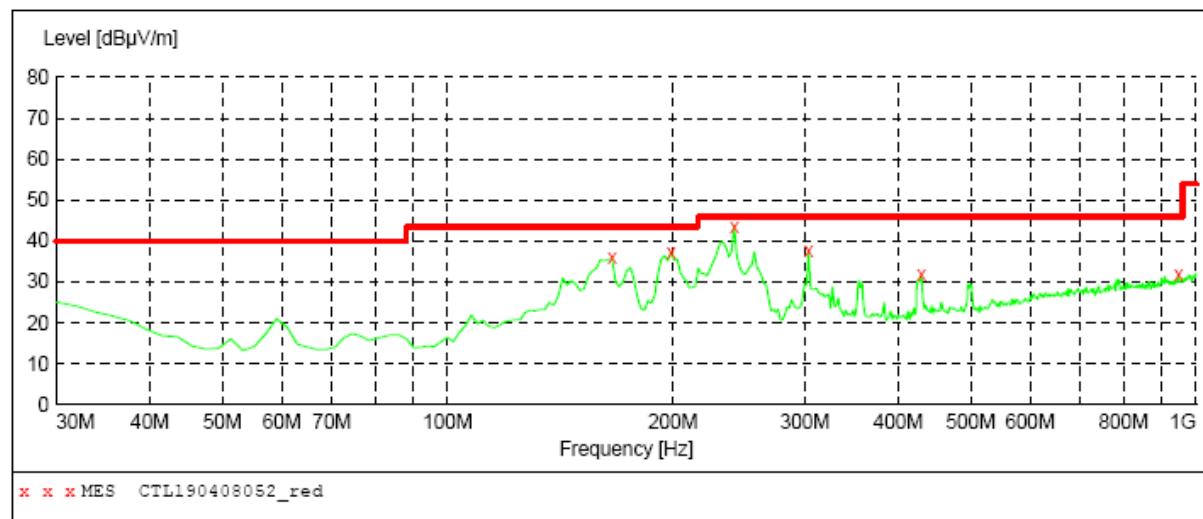
Shenzhen CTL Testing Technology Co.,Ltd

Radiation Emission Test FCC PART 15B

EUT: TK119-3G
 Manufacturer: Shenzhen Zhenhua Communication Equipment Co.Ltd
 Operating Condition: Working
 Test Site: Chamber 1
 Operator: ZSR
 Test Specification: DC 12V
 Comment: /
 Start of Test: 09/04/2019 / 09:03:06

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start Frequency	Stop Frequency	Detector	Meas.	IF	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	100 kHz	JB1



MEASUREMENT RESULT: "CTL190408052_red"

09/04/2019 09:04

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Det. ---	Height cm	Azimuth deg	Polarization
165.800000	35.80	14.5	43.5	7.7	---	0.0	0.00	VERTICAL
198.780000	37.20	14.7	43.5	6.3	---	0.0	0.00	VERTICAL
241.460000	43.00	14.1	46.0	3.0	-QP	0.0	0.00	VERTICAL
303.540000	37.50	16.2	46.0	8.5	---	0.0	0.00	VERTICAL
429.640000	31.70	19.0	46.0	14.3	---	0.0	0.00	VERTICAL
947.620000	31.70	27.2	46.0	14.3	---	0.0	0.00	VERTICAL

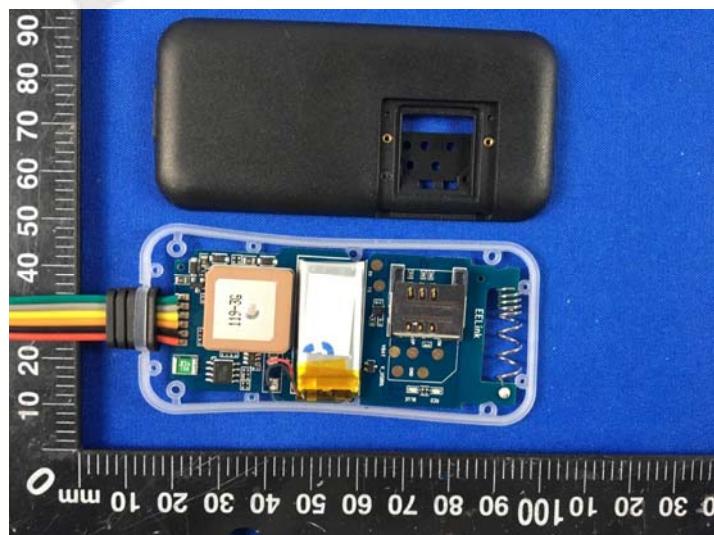
5. Test Setup Photos of the EUT

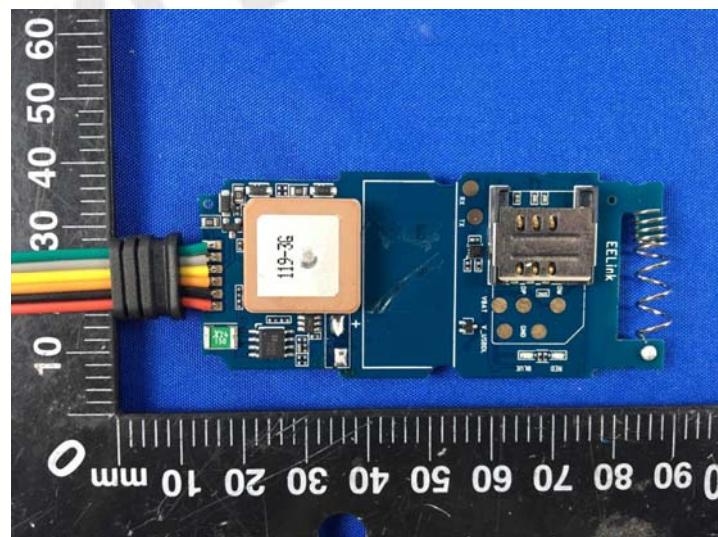
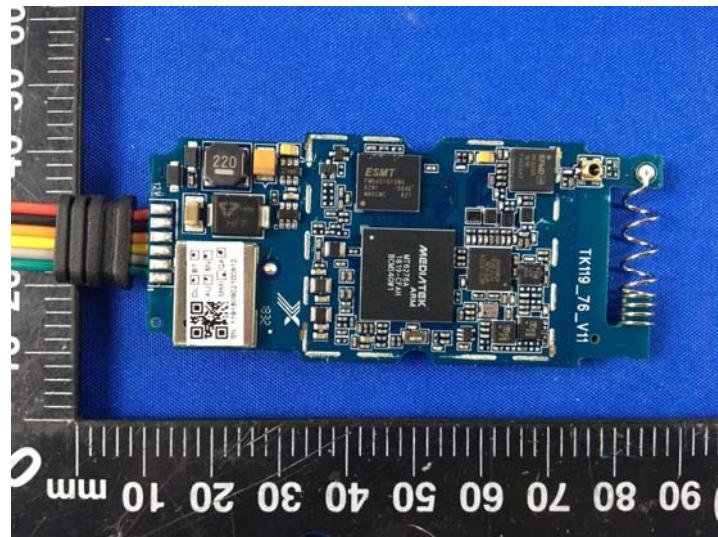
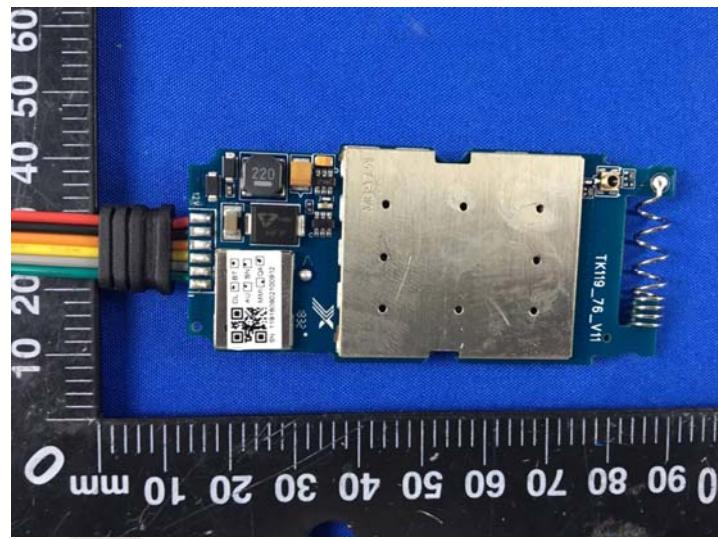


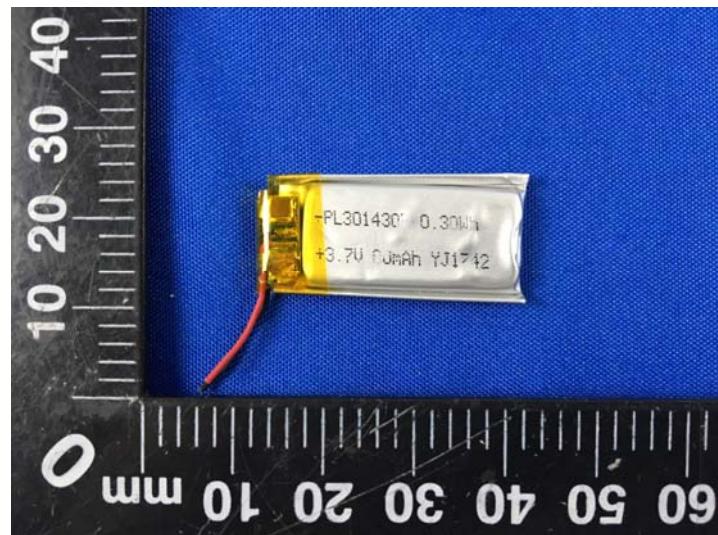
6. Photos of the EUT











.....End of Report.....