Shenzhen Huatongwei International Inspection Co., Ltd.
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TEST REPORT

Report Reference No. ..... :	**TRE1705017701**	R/C…….: 65185
FCC ID ..... :	**2ABPD-CFC2810C**	
Applicant's name ..... :	**The Cable Ferret Company**	
Address.....:	18 Kawerau Ave Devonport Auckland New Zealand	
Manufacturer.....:	Shenzhen Youth Electronic Co, LTD	
Address.....:	At Room 809, Building NO. 211, in Tairan industrial Area of Chegong Temple, FuTian, Shenzhen, China	
Test item description ..... :	**wireless inspection camera**	
Trade Mark .....:	The Cable Ferret wigcam	
Model/Type reference.....:	FERRET CF2810C	
Listed Model(s) .....:	-	
Standard ..... :	**FCC CFR Title 47 Part 15 Subpart C Section 15.249**	
Date of receipt of test sample……..:	May 19, 2017	
Date of testing……:	May 19, 2017 - May 27, 2017	
Date of issue……...:	May 27, 2017	
Result……..:	**PASS**	

Compiled by (position+printedname+signature)...:	File administrators Becky Liang	Becky Liang
Supervised by (position+printedname+signature)....:	Project Engineer Jeff Sun	Jeff Sun
Approved by (position+printedname+signature)....:	RF Manager Hans Hu	Hans Hu

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Contents

1. TEST STANDARDS AND TEST DESCRIPTION

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.249:Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz.

ANSI C63.10-2013:American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Version No.	Date of issue	Description
00	May 27, 2017	Original

2. Test Description

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emissions	15.207	Pass
20dB Occpied Bandwidth	15.215/15.249	Pass
Field strength of the Fundamental signal	15.249(a)	Pass
Spurious Emissions	15.209/15.249(a)	Pass
Bandedge Emissions	15.205/15.249(d)	Pass

Remark: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	The Cable Ferret Company
Address:	18 Kawerau Ave Devonport Auckland New Zealand
Manufacturer:	Shenzhen Youth Electronic Co, LTD
Address:	At Room 809, Building NO. 211, in Tairan industrial Area of Chegong Temple, FuTian, Shenzhen, China

3.2. Product Description

Name of EUT:	wireless inspection camera
Trade Mark:	The Cable Ferret wigcam
Model No.:	FERRET CF2810C
Listed Model(s):	-
Power supply:	AC 120V/60Hz or DC 3.7V from internal battery
Adapter information:	-
Operation frequency:	2450MHz
Channel number:	1
Modulation Type:	FM
Antenna type:	Integral antenna
Antenna gain:	0 dBi

3.3. EUT operation mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with large package sizes transmission.

3.4. EUT configuration

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

● - supplied by the manufacturer

○ - supplied by the lab

		Manufacturer :	/
		Model No. :	/
		Manufacturer :	/
		Model No. :	/

3.5. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory:Shenzhen Huatongwei International Inspection Co., Ltd.
Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China
Phone: 86-755-26748019 Fax: 86-755-26748089

4.2. Test Facility

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

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories
(identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection 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.: 317478

Shenzhen Huatongwei International Inspection 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 317478.

IC-Registration No.: 5377B

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Environmental conditions

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

Temperature:	15~35°C
lative Humidity:	30~60 %
Air Pressure:	950~1050mba

4.4. 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 in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1” and TR-100028-02 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2” and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to ISO/IEC 17025. Further more, 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.

Here after the best measurement capability for Shenzhen Huatongwei is reported:

Test Items	MeasurementUncertainty	Notes
Conducted spurious emissions 9KHz-30MHz	3.39 dB	(1)
Radiated Emissions 30~1000MHz	4.24 dB	(1)
Radiated Emissions 1~18GHz	5.16 dB	(1)
Radiated Emissions 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	---------	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.5. Equipments Used during the Test

Line Conducted Emission (AC Main)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	R&S	ESCI	101247	2016/11/13
2	Artificial Mains	Shwarzbeck	NNLK 8121	573	2016/11/13
3	Pulse Limiter	R&S	ESH3-Z2	101488	2016/11/13
4	Test Software	R&S	ES-K1	N/A	N/A
5	Test cable	ENVIROFLEX	3651	1101902	2016/11/13

20dB Occpied Bandwidth					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal
1	Spectrum Analyzer	Rohde&Schwarz	FSP	1164.4391.40	2016/11/13
2	Power Meter	Anritsu	ML2480B	100798	2016/11/13
3	Power Sensor	Anritsu	MA2411B	100258	2016/11/13
4	Test cable	FARPU	MCX-J	N/A	2016/11/13
5	Temporary antenna connector	D-LENP	NJ-SMAK	N/A	2016/11/13

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

Field strength of the Fundamental signal/ Spurious Emissions/ Band edge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	Rohde&Schwarz	ESI 26	100009	2016/11/13
2	RF Test Panel	Rohde&Schwarz	TS / RSP	335015/0017	N/A
3	EMI Test Software	Rohde&Schwarz	ESK1	N/A	N/A
4	Loop Antenna	Rohde&Schwarz	HZ-9	838622\013	2016/11/13
5	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	538	2016/11/13
6	Horn Antenna	ShwarzBeck	9120D	1011	2016/11/13
7	Broadband Horn Antenna	Shwarzbeck	BBHA9170	BBHA9170472	2016/11/13
8	Preamplifier	Shwarzbeck	BBV9742	9742-196	2016/11/13
9	Broadband Preamplifer	Shwarzbeck	BBV 9721	9721-102	2016/11/13
10	Broadband Preamplifer	Shwarzbeck	BBV 9718	9718-247	2016/11/13
11	Turn Table	MATURO	TT2.0	/	N/A
12	Antenna Mast	MATURO	TAM-4.0-P	/	N/A
13	EMI Test Software	Audix	E3	N/A	N/A
14	Test Software	R&S	ES-K1	N/A	N/A
15	Test cable	Siva Cables Italy	RG 58A/U	W14.02	2016/11/13

The Cal.Interval was one year

5. TEST CONDITIONS AND RESULTS

5.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

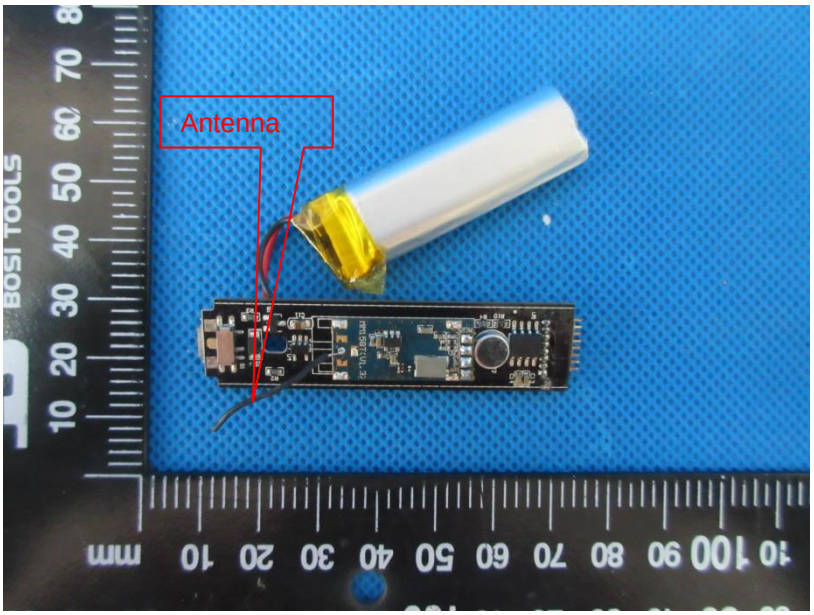
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of anantenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Test Result:

The directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



5.2. AC Power Conducted Emissions

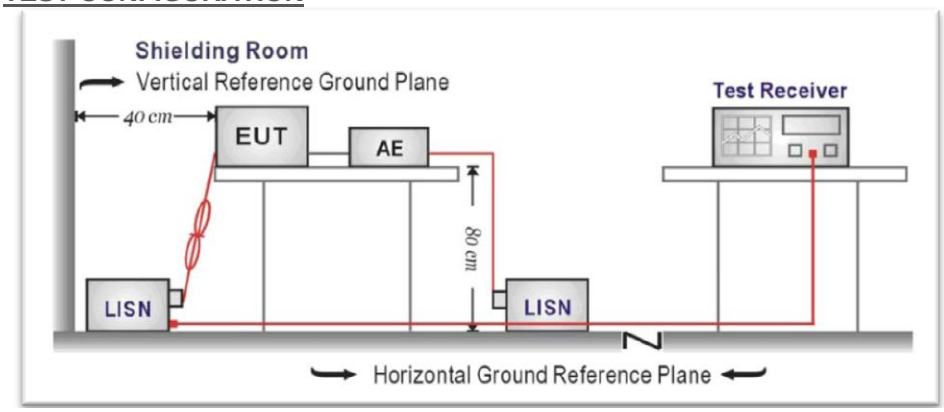
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

Frequency range (MHz)	Limit (dBuV)	
	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 of the frequency.

TEST CONFIGURATION

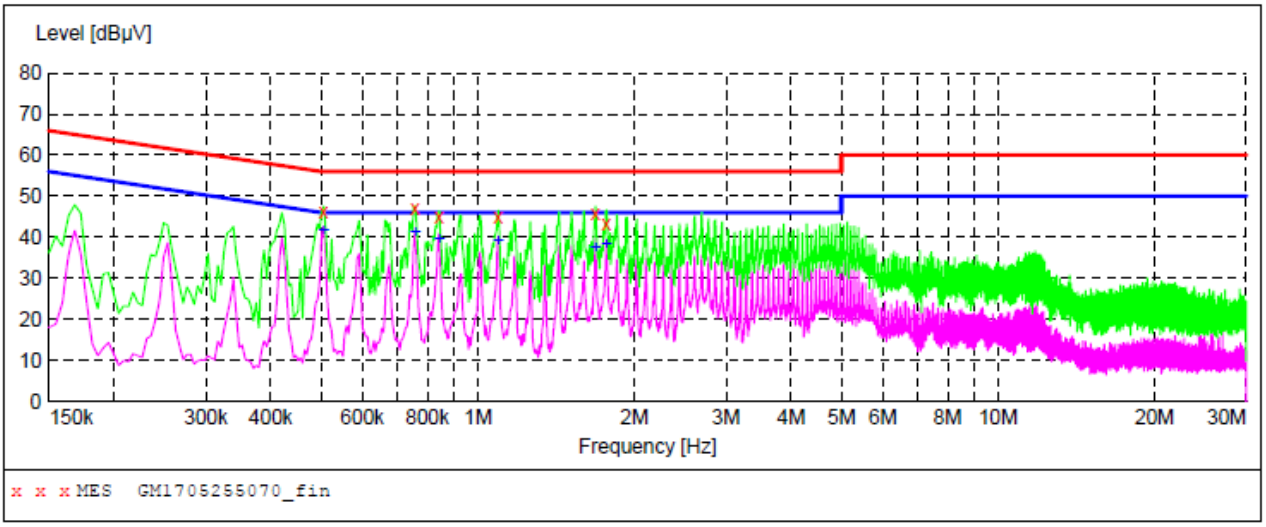


TEST PROCEDURE

1. The EUT was setup according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 10 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 10 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor,was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

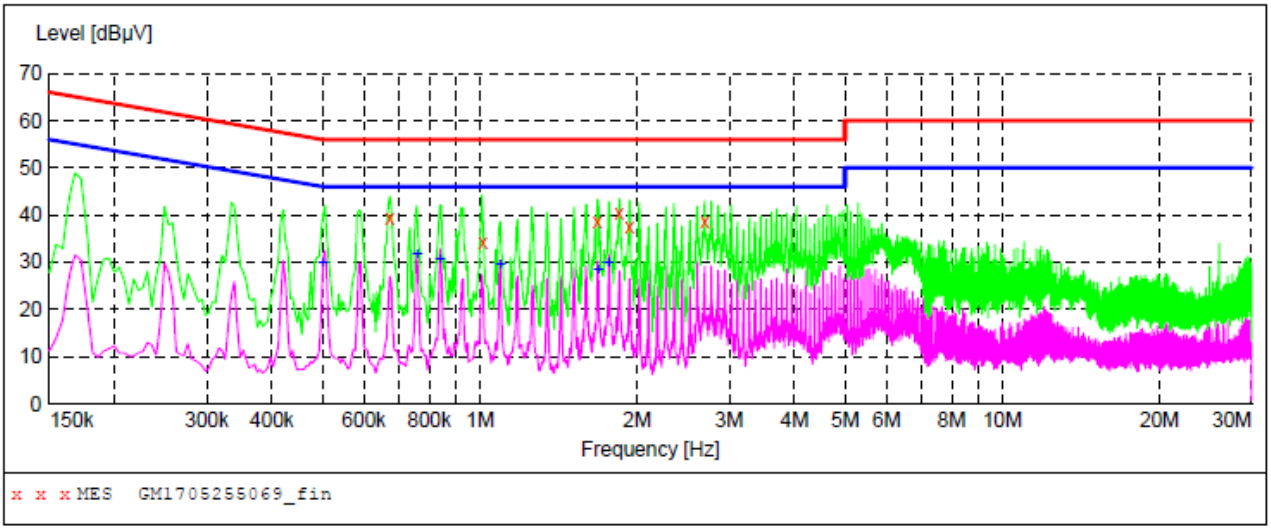
Test Line:	L



Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.505500	46.30	10.2	56	9.7	QP	L1	GND
0.757500	46.90	10.2	56	9.1	QP	L1	GND
0.843000	44.80	10.1	56	11.2	QP	L1	GND
1.095000	44.80	10.2	56	11.2	QP	L1	GND
1.684500	45.80	10.2	56	10.2	QP	L1	GND
1.765500	43.30	10.2	56	12.7	QP	L1	GND

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.505500	41.60	10.2	46	4.4	AV	L1	GND
0.757500	41.30	10.2	46	4.7	AV	L1	GND
0.843000	39.70	10.1	46	6.3	AV	L1	GND
1.095000	39.10	10.2	46	6.9	AV	L1	GND
1.684500	37.40	10.2	46	8.6	AV	L1	GND
1.770000	38.40	10.2	46	7.6	AV	L1	GND

Test Line:	N



Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.672000	39.30	10.2	56	16.7	QP	N	GND
1.014000	34.30	10.2	56	21.7	QP	N	GND
1.680000	38.70	10.2	56	17.3	QP	N	GND
1.851000	40.40	10.2	56	15.6	QP	N	GND
1.936500	37.40	10.2	56	18.6	QP	N	GND
2.697000	38.60	10.2	56	17.4	QP	N	GND

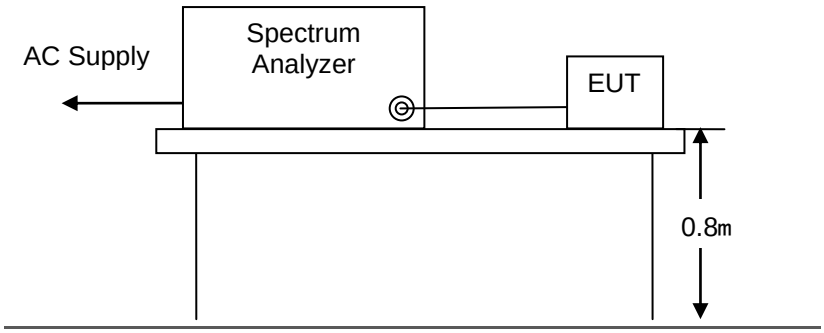
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.501000	29.80	10.2	46	16.2	AV	N	GND
0.757500	31.50	10.2	46	14.5	AV	N	GND
0.838500	30.50	10.1	46	15.5	AV	N	GND
1.095000	29.30	10.2	46	16.7	AV	N	GND
1.684500	28.30	10.2	46	17.7	AV	N	GND
1.765500	29.70	10.2	46	16.3	AV	N	GND

5.3. 20 dB Occpied Bandwidth

Limit

Operation frequency range 902MHz~928MHz.

TEST CONFIGURATION

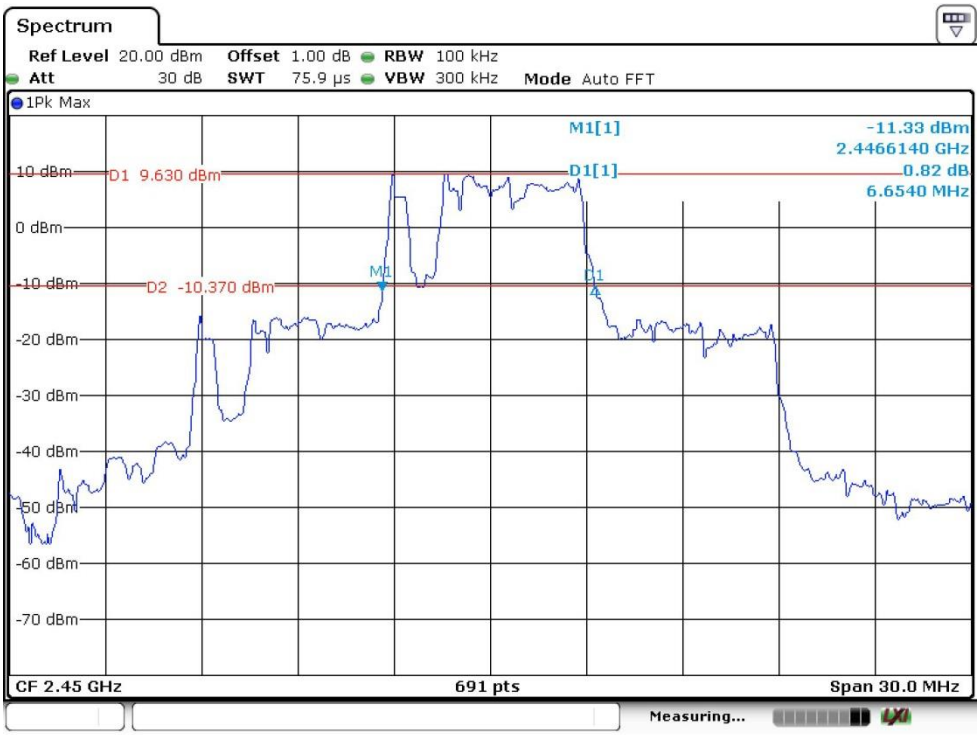


TEST PROCEDURE

1.As required by 47 CFR 15.215 and 47 CFR 15.249
2. The EUT connected to the spectrum analyzer was operated in linear scale and 2.0MHz span mode after tuning to the transmitter frequency.

TEST RESULTS

Channel Frequency(MHz)	20dB Bandwidth(MHz)	Result
2450	6.6540	PASS



5.4. Radiated Emissions

LIMIT

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

Frequency (MHz)	Distance(Meters)	Radiated(dBμV/m)	Radiated(μV/m)
0.009 - 0.490	300	20*log(2400/F(kHz))	2400/F(kHz)
0.490 - 1.705	30	20*log(24000/F(kHz))	24000/F(kHz)
1.705 - 30.0	30	29.54	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

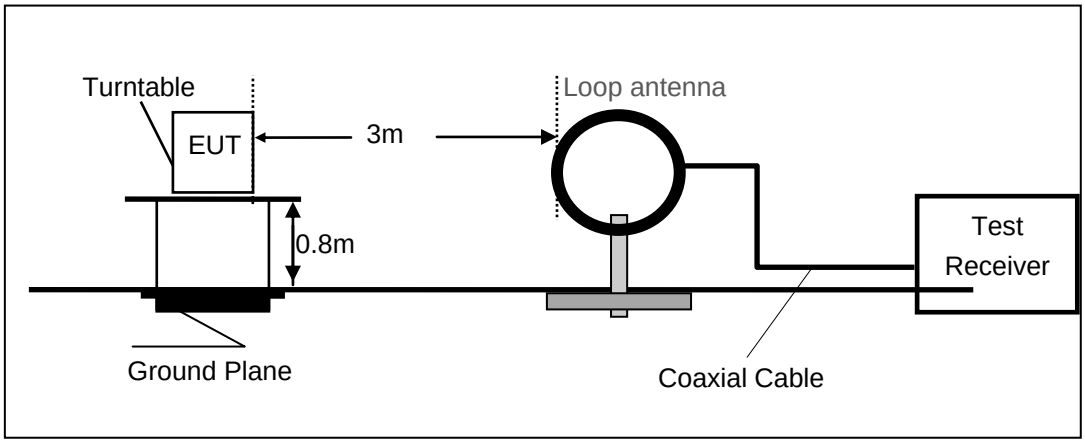
Remark:At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+20log(xm/3m);
At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+40log(xm/3m),x replace the number 10.30.300.

In addition to the provisions of §15.249, the field strength of emissions from intentional radiators operated under this section shall not exceed thefollowing:

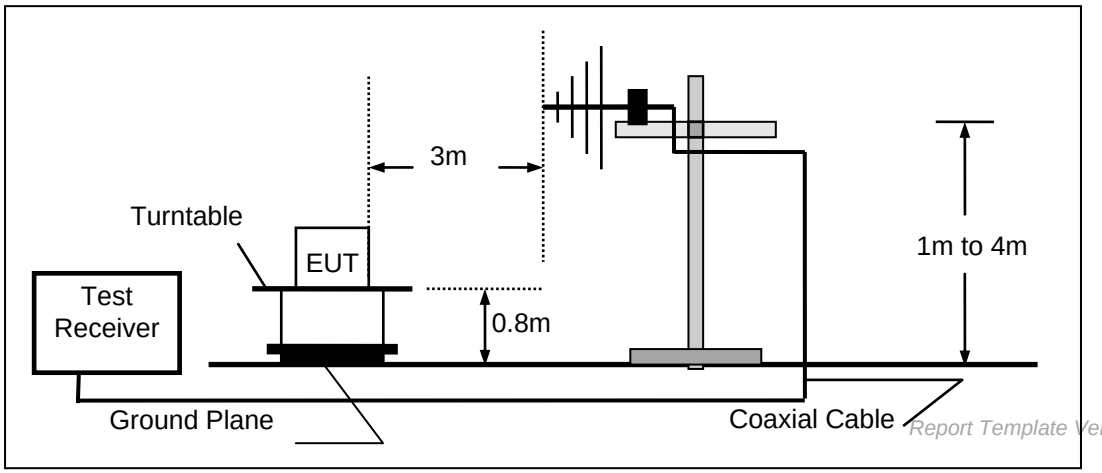
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

TEST CONFIGURATION

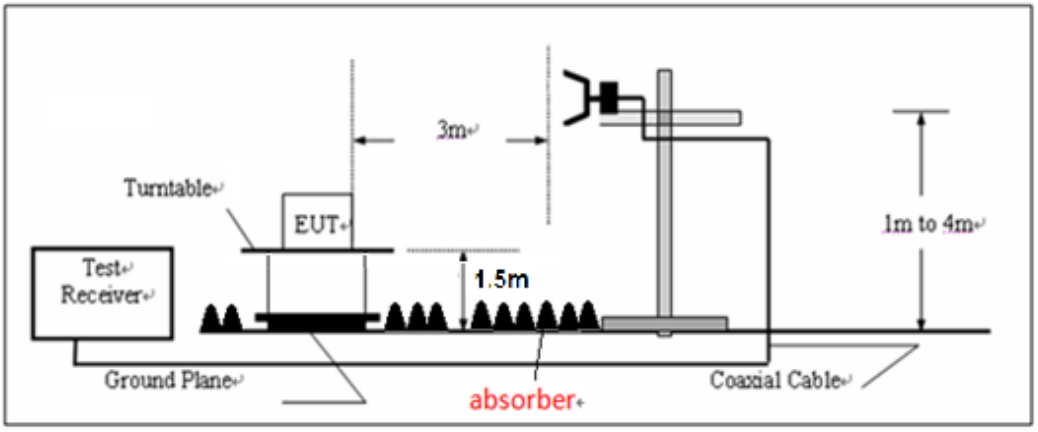
Radiated Emission Test Set-Up
Frequency range 9KHz–30MHz



Frequency range30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
2. The EUT is placed on a turn table which is 0.8/1.5 meter above ground plane. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold; *If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, theemission measurement will be repeated using the quasi-peak detector and reported.*
   (3) Above 1GHz, RBW=1MHz, VBW=3MHz Peak detetor for Peak value
   RBW=1MHz, VBW=3MHz RMS detetor for Average value.

Remark: “floor-standing equipment” Where possible, the antenna(s) of the EUT shall be located at a height of 1.5 m above the floor, and the intentional radiator circuitry shall be located within the system at a height of at least 0.8 m above the floor.

TEST RESULTS

■ **9kHz ~ 30MHz**
The EUT was pre-scanned the frequency band (9KHz~30MHz), found the radiated level lower than the limit, so don’t show on the report.

Radiated emission of fundamental emissions									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBμV/m) @3m	Margin (dB)	Detector	Polarization
2450.00	64.95	27.41	6.80	0.00	99.16	114	-14.84	Peak	Horizontal
2450.00	54.33	27.41	6.80	0.00	88.54	94	-5.46	Average	
2450.00	66.10	27.41	6.80	0.00	100.31	114	-13.69	Peak	Vertical
2450.00	55.50	27.41	6.80	0.00	89.71	94	-4.29	Average	

Note:
Field strength of fundamental for test,RBW=VBW=10MHz was used.

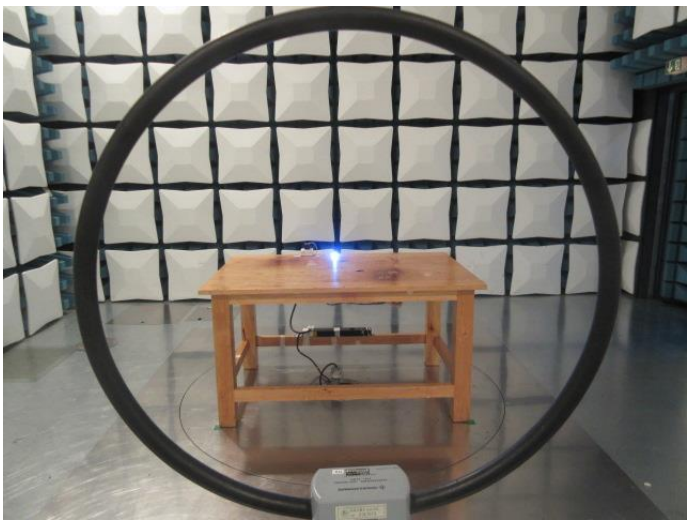
Spurious radiated emissions									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBμV/m) @3m	Margin (dB)	Detector	Polarization
3662.775	36.21	28.97	8.34	38.26	35.26	74	-38.74	Peak	Horizontal
4895.965	56.03	31.14	9.60	36.69	60.08	74	-13.92	Peak	
4895.966	39.77	31.14	9.60	36.69	43.82	54	-10.18	Average	
7357.326	58.57	36.08	12.03	34.88	71.80	74	-2.20	Peak	
7357.327	38.48	36.08	12.03	34.88	51.71	54	-2.29	Average	
9809.403	20.95	38.28	13.64	35.57	37.30	54	-16.70	Average	
9809.404	44.55	38.28	13.64	35.57	60.90	74	-13.10	Peak	
3057.166	37.84	28.53	7.55	38.22	35.70	74	-38.30	Peak	Vertical
4895.965	55.95	31.14	9.60	36.69	60.00	74	-14.00	Peak	
4895.966	39.47	31.14	9.60	36.69	43.52	54	-10.48	Average	
7357.326	57.55	36.08	12.03	34.88	70.78	74	-3.22	Peak	
7357.327	39.27	36.08	12.03	34.88	52.50	54	-1.50	Average	
9809.403	25.00	38.28	13.64	35.57	41.35	54	-12.65	Average	
9809.404	41.32	38.28	13.64	35.57	57.67	74	-16.33	Peak	

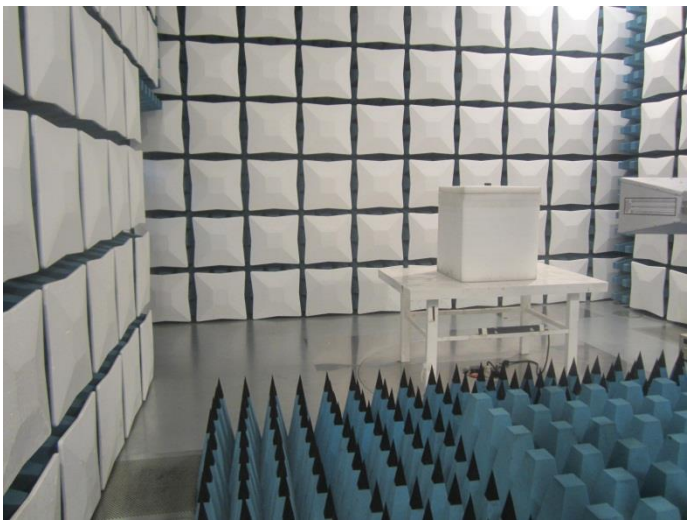
Bandedge emissions									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin Limit (dB)	Detector	Polarization
2310.00	14.38	27.27	6.62	0.00	48.27	74	-25.73	Peak	Horizontal
2390.052	13.17	27.53	6.75	0.00	47.45	74	-26.55	Peak	
2400.000	14.47	27.57	6.77	0.00	48.81	74	-25.19	Peak	
2483.456	14.51	27.85	6.83	0.00	49.19	74	-24.81	Peak	
2500.000	16.10	27.9	6.84	0.00	50.84	74	-23.16	Peak	
2310.000	11.10	27.27	6.62	0.00	44.99	54	-9.01	Average	
2390.052	10.83	27.53	6.75	0.00	45.11	54	-8.89	Average	
2400.000	11.48	27.57	6.77	0.00	45.82	54	-8.18	Average	
2483.456	10.96	27.85	6.83	0.00	45.64	54	-8.36	Average	
2500.000	10.97	27.9	6.84	0.00	45.71	54	-8.29	Average	
2310.000	13.73	27.27	6.62	0.00	47.62	74	-26.38	Peak	Vertical
2390.052	13.00	27.53	6.75	0.00	47.28	74	-26.72	Peak	
2400.000	13.29	27.57	6.77	0.00	47.63	74	-26.37	Peak	
2483.456	13.18	27.85	6.83	0.00	47.86	74	-26.14	Peak	
2500.000	15.51	27.9	6.84	0.00	50.25	74	-23.75	Peak	
2310.000	11.09	27.27	6.62	0.00	44.98	54	-9.02	Average	
2390.052	10.68	27.53	6.75	0.00	44.96	54	-9.04	Average	
2400.000	10.73	27.57	6.77	0.00	45.07	54	-8.93	Average	
2483.456	10.96	27.85	6.83	0.00	45.64	54	-8.36	Average	
2500.000	10.97	27.9	6.84	0.00	45.71	54	-8.29	Average	

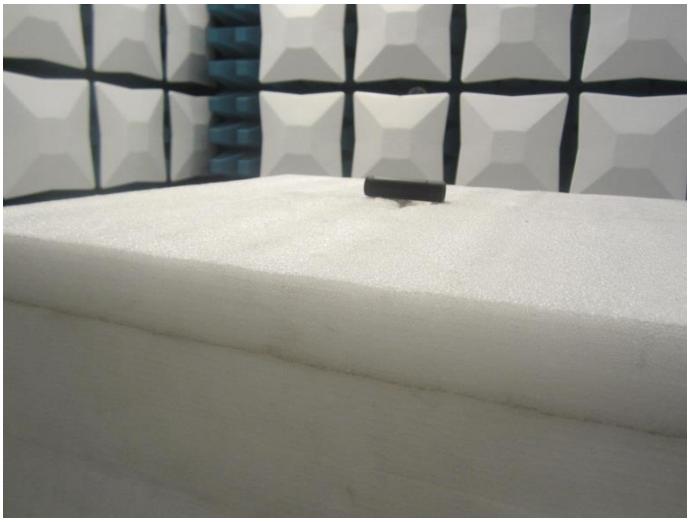
6. Test Setup Photos of the EUT

Conducted Emissions (AC Mains)

Radiated Emissions

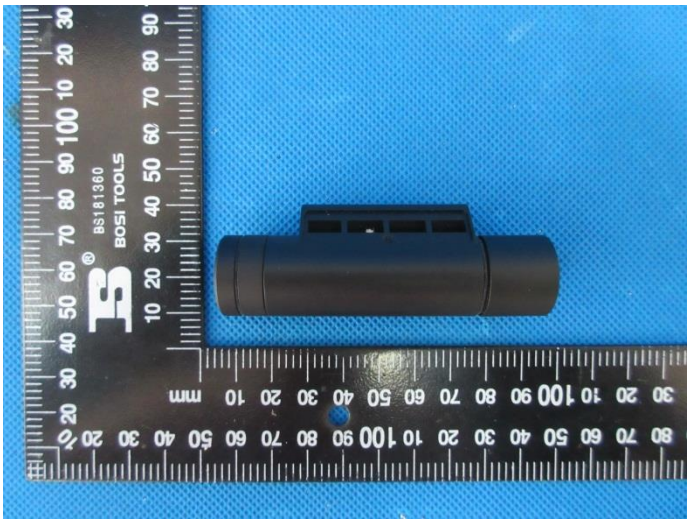


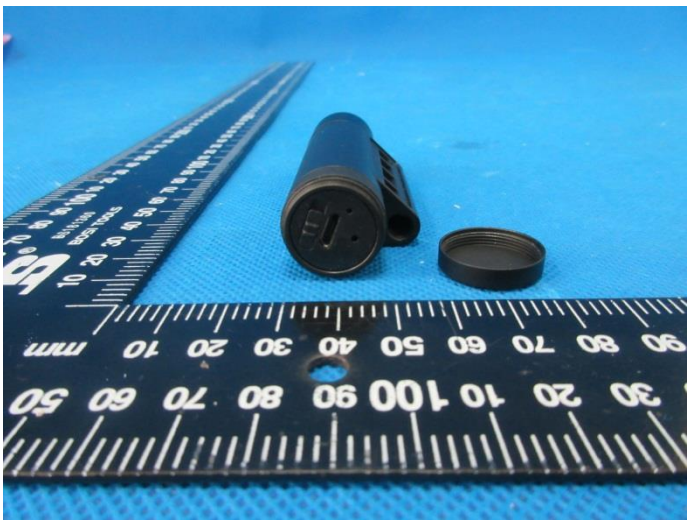


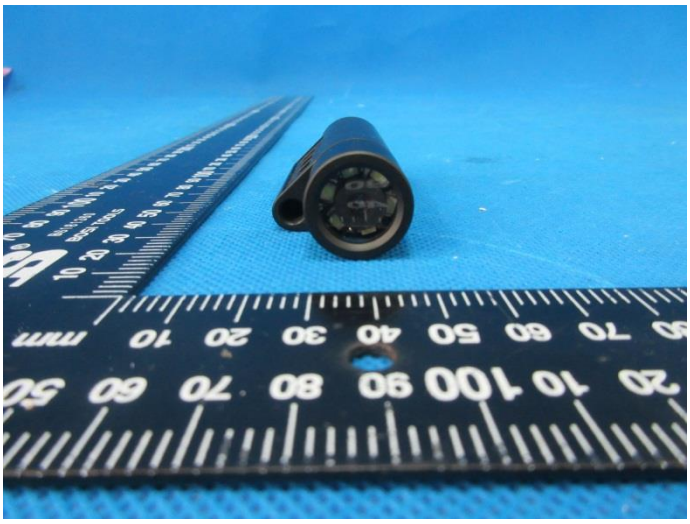


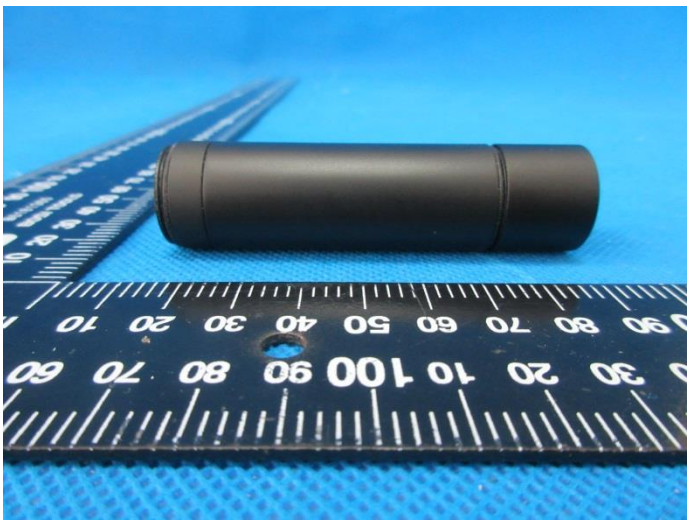
7. External and Internal Photos of the EUT

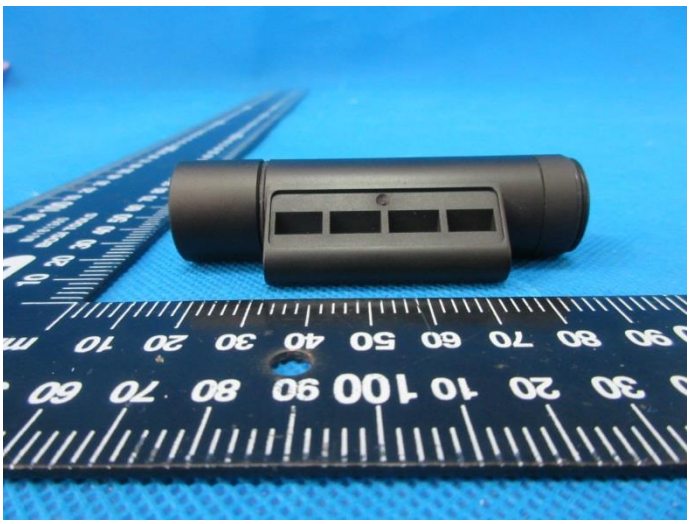
External Photos of the EUT



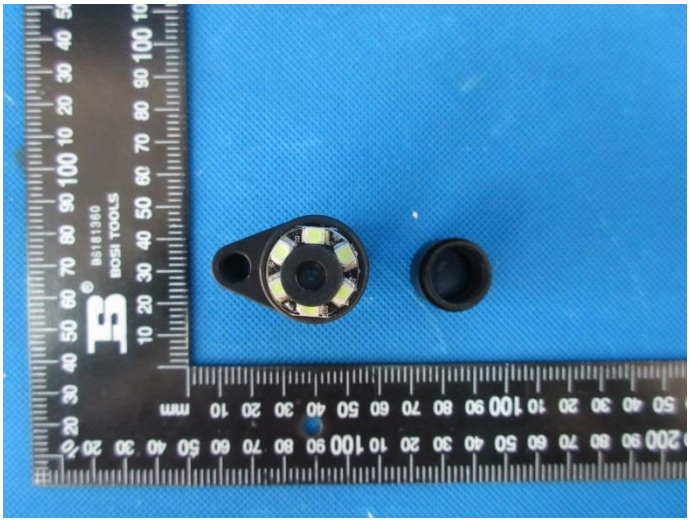


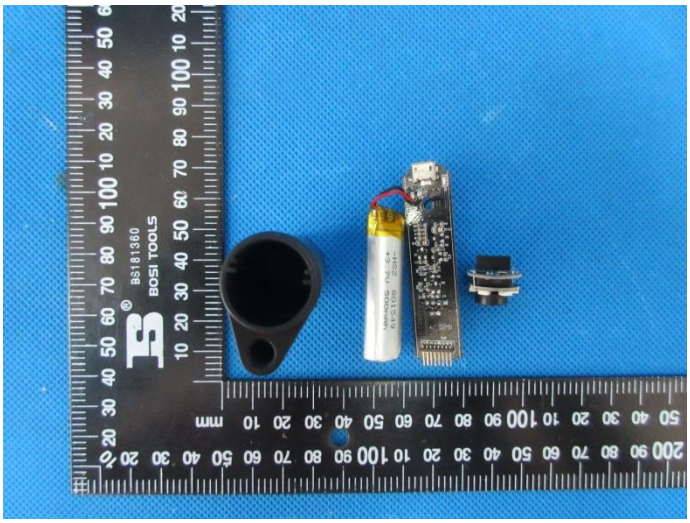


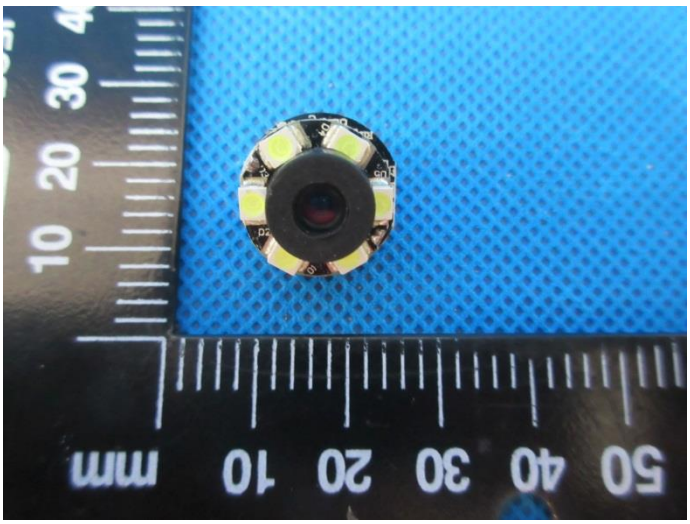


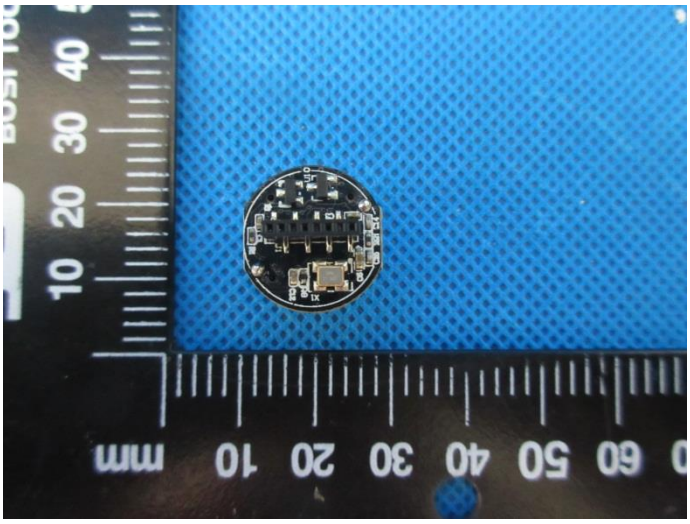


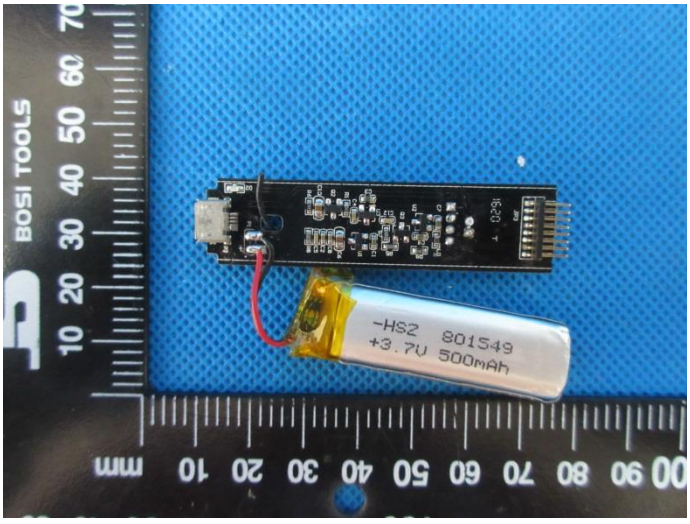
Internal Photos of the EUT

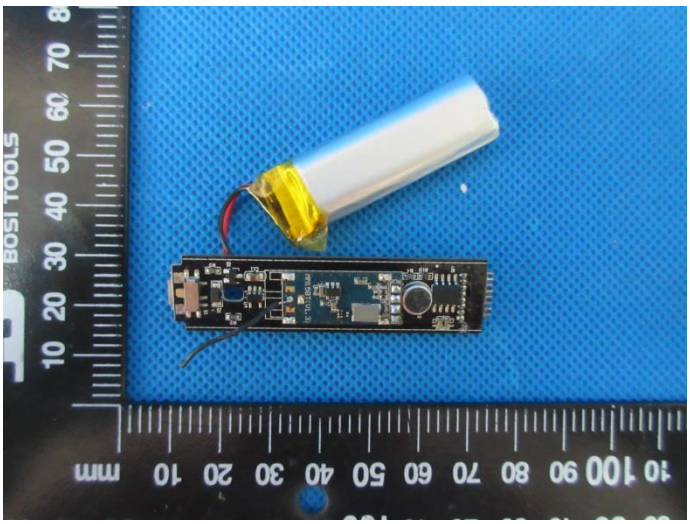


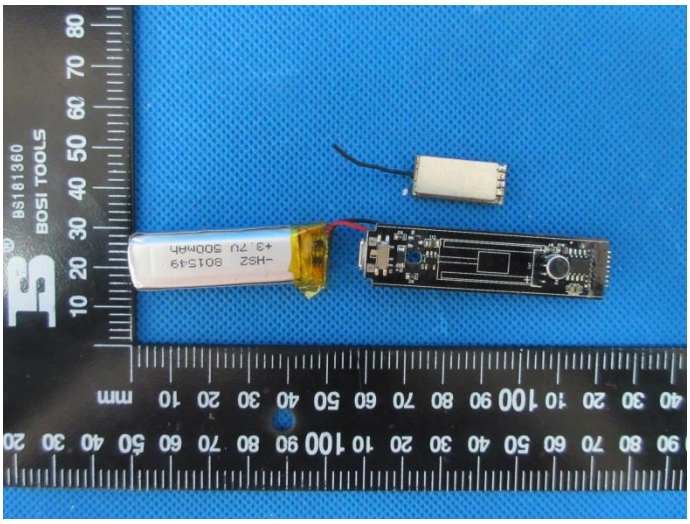


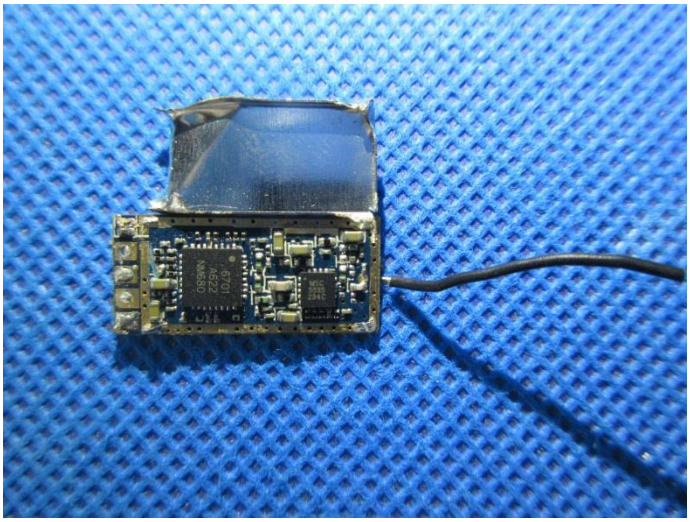


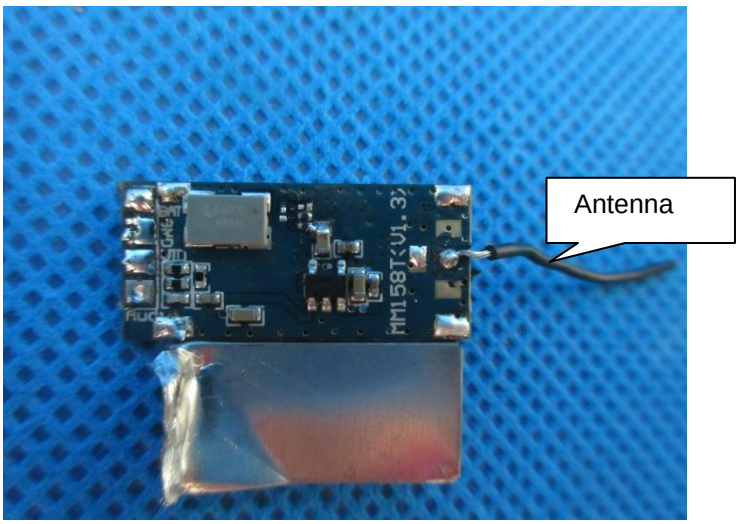



BOSI TOOLS
-HSZ 801549
+3.7V 500mAh


BOSI TOOLS


BS181360
BOSI TOOLS





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