



FCC TEST REPORT

**Test report
On Behalf of
DongGuan KingSheng Electronics&Tech Co. Ltd
For
2.4Ghz wireless multi platform controller
Model No.:SL-9110,ESM-9110**

FCC ID: RP8-9110

Prepared for : DongGuan KingSheng Electronics&Tech Co. Ltd
Building 39, Arising Sun Industrial City, Lincun Village, Tangxia Town, Dongguan
City, China

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Date of Test: Aug. 01, 2019~ Aug. 13, 2019
Date of Report: Aug. 13, 2019
Report Number: HK1908131991-E



TEST RESULT CERTIFICATION

Applicant's name: DongGuan KingSheng Electronics&Tech Co. Ltd
Address: Building 39, Arising Sun Industrial City, Lincun Village, Tangxia Town, Dongguan City, China

Manufacturer's Name: DongGuan KingSheng Electronics&Tech Co. Ltd
Address: Building 39, Arising Sun Industrial City, Lincun Village, Tangxia Town, Dongguan City, China

Product description

Trade Mark: N/A
Product name: 2.4Ghz wireless multi platform controller
Model and/or type reference .. : SL-9110,ESM-9110
Standards: FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2013

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Date of Test

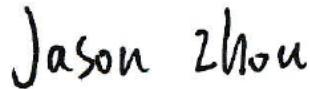
Date (s) of performance of tests: Aug. 01, 2019~ Aug. 13, 2019
Date of Issue: Aug. 13, 2019
Test Result: Pass

Testing Engineer : 

(Gary Qian)

Technical Manager : 

(Eden Hu)

Authorized Signatory : 

(Jason Zhou)



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1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
BAND EDGE	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

1.2 TEST FACILITY

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

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty	= 2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	= 3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	= 4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	= 4.06dB, k=2



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	2.4Ghz wireless multi platform controller
Model Name	SL-9110
Serial No.	ESM-9110
Trade Mark	N/A
Model Difference	The color and model names are different; everything else is the same.
Antenna Type	PCB Antenna
Antenna Gain	0dBi
Operation frequency	2402-2480MHz
Number of Channels	79CH
Modulation Type	GFSK
PowerSource	DC 5V by Adapter AC 120V/60Hz DC 3.7V Battery
Power Rating	DC 5V by Adapter AC 120V/60Hz DC 3.7V Battery

2.2 Carrier Frequency of Channels

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
...
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
...
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz	-	-

2.3 Operation of EUT during testing

Operating Mode

The mode is used: **Transmitting mode**

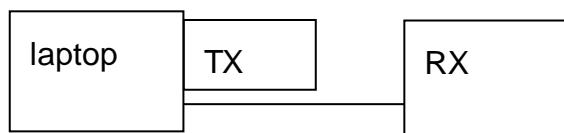
Low Channel: 2402MHz

Middle Channel: 2441MHz

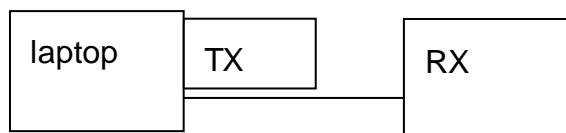
High Channel: 2480MHz

2.4 DESCRIPTION OF TEST SETUP

Operation of EUT during Conducted testing:



Operation of EUT during Radiation and Above1GHz Radiation testing:





2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Dec. 28, 2018	1 Year
2.	Receiver	R&S	ESCI 7	HKE-010	Dec. 28, 2018	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 28, 2018	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Dec. 28, 2018	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 28, 2018	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Dec. 28, 2018	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Dec. 28, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Dec. 28, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 28, 2018	1 Year
10.	Horn Antenna	Schwarzbeck	9120D	HKE-013	Dec. 28, 2018	1 Year
11.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Dec. 28, 2018	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Dec. 28, 2018	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JS1120-B Version	HKE-083	Dec. 28, 2018	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Dec. 28, 2018	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 28, 2018	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Dec. 28, 2018	1 Year
17.	Signal Generator	Agilent	83630A	HKE-028	Dec. 28, 2018	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 28, 2018	3 Year

3. CONDUCTED EMISSIONS TEST

3.1 Conducted Power Line Emission Limit

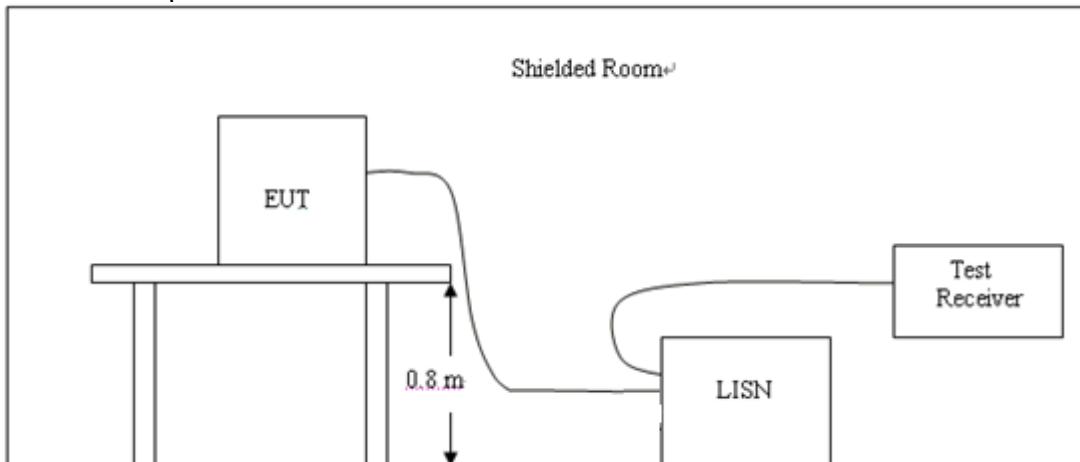
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dB μ V)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



3.3 Test Procedure

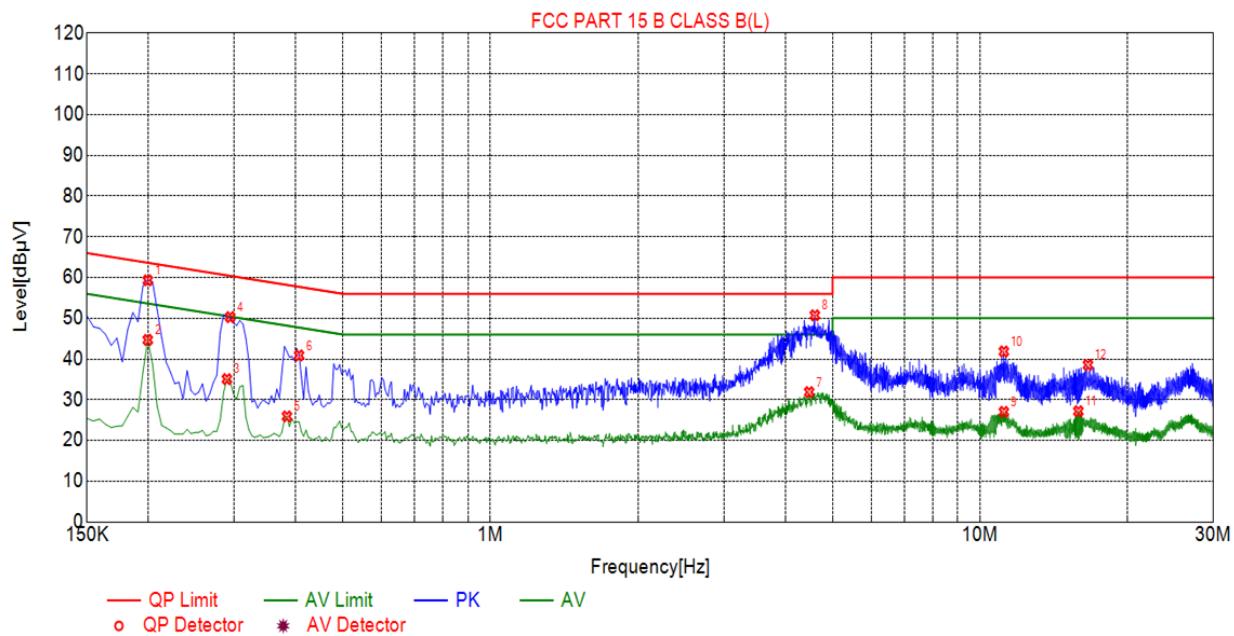
- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

3.4 Test Result

*****PASS*****



EUT :	2.4Ghz wireless multi platform controller	Model Name :	SL-9110
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-08-12
Test Mode :	TX	Polarization :	L
Test Power :	DC 5V by adapter AC 120V/60Hz		

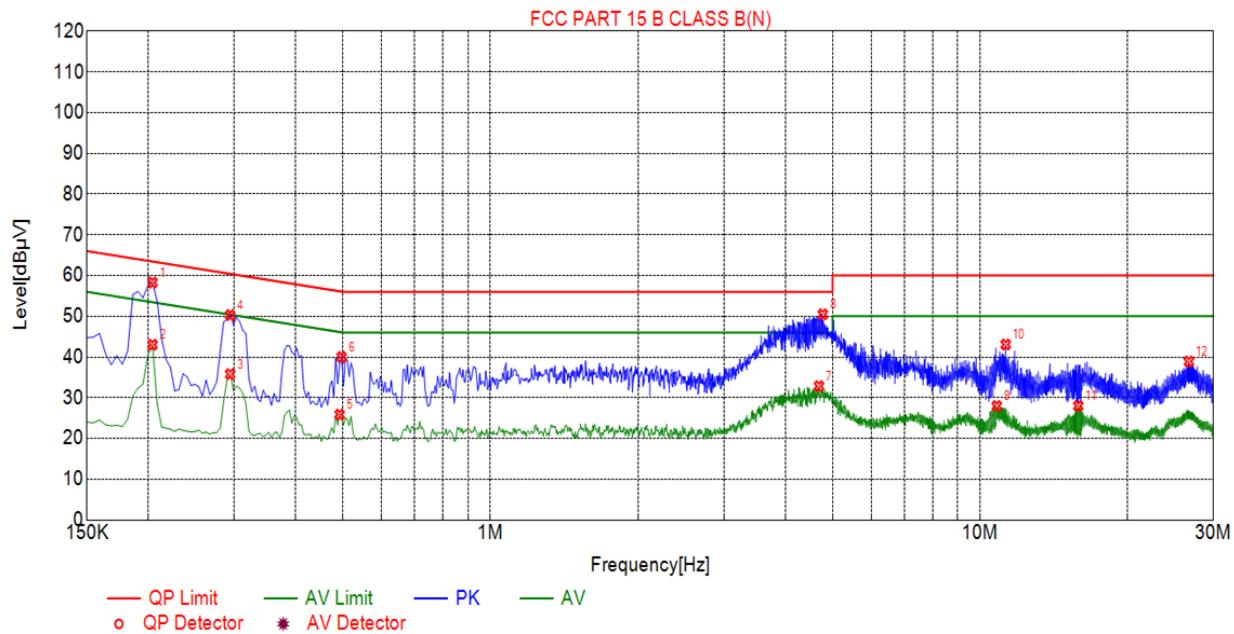


Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Detector
1	0.1995	59.31	10.03	63.63	4.32	PK
2	0.1995	44.69	10.03	53.63	8.94	AV
3	0.2895	35.07	10.03	50.54	15.47	AV
4	0.2940	50.28	10.03	60.41	10.13	PK
5	0.3840	25.91	10.04	48.19	22.28	AV
6	0.4065	40.88	10.03	57.72	16.84	PK
7	4.4790	31.87	10.25	46.00	14.13	AV
8	4.6005	50.73	10.25	56.00	5.27	PK
9	11.1930	27.02	10.01	50.00	22.98	AV
10	11.1930	41.84	10.01	60.00	18.16	PK
11	15.8910	27.18	9.98	50.00	22.82	AV
12	16.6245	38.54	9.99	60.00	21.46	PK



EUT :	2.4Ghz wireless multi platform controller	Model Name :	SL-9110
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-08-12
Test Mode :	TX	Polarization :	N
Test Power :	DC 5V by adapter AC 120V/60Hz		



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Detector
1	0.2040	58.28	10.04	63.45	5.17	PK
2	0.2040	43.02	10.04	53.45	10.43	AV
3	0.2940	35.79	10.03	50.41	14.62	AV
4	0.2940	50.30	10.03	60.41	10.11	PK
5	0.4920	25.86	10.04	46.13	20.27	AV
6	0.4965	39.99	10.04	56.06	16.07	PK
7	4.6905	32.84	10.26	46.00	13.16	AV
8	4.7760	50.48	10.26	56.00	5.52	PK
9	10.8240	27.96	10.02	50.00	22.04	AV
10	11.2920	43.06	10.00	60.00	16.94	PK
11	15.8865	27.98	9.98	50.00	22.02	AV
12	26.7225	38.90	10.26	60.00	21.10	PK

4 RADIATED EMISSION TEST

4.1 Radiation Limit

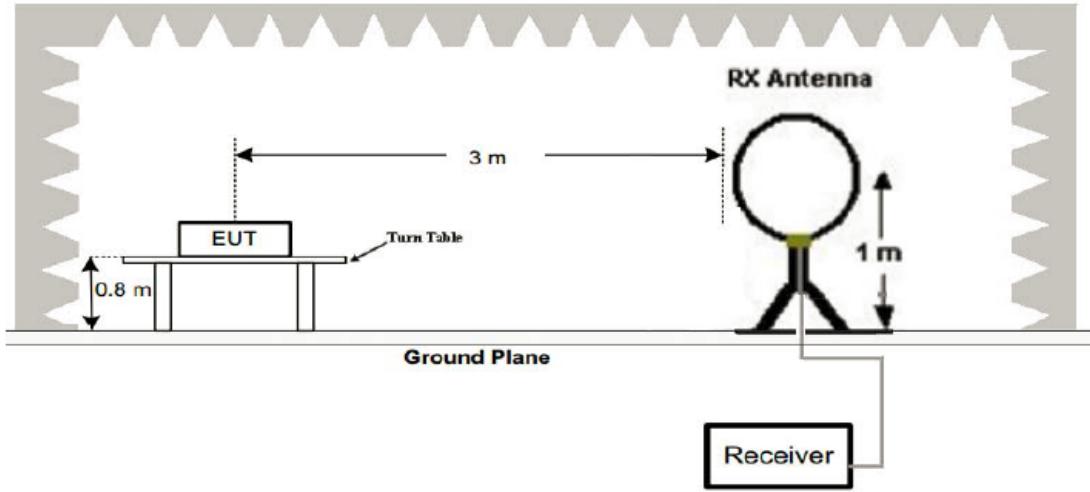
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

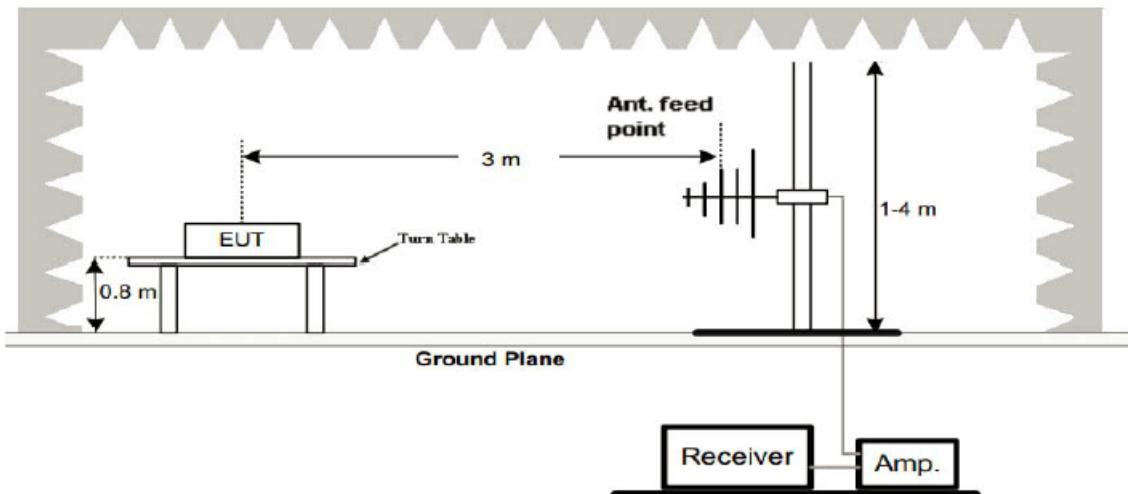
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

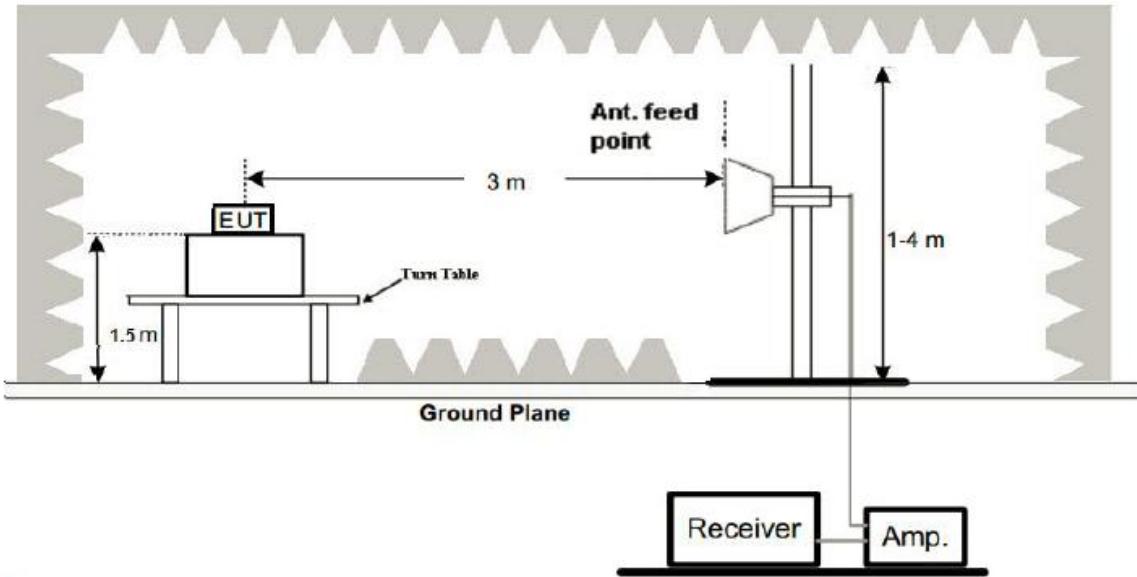
(1) Radiated Emission Test-Up Frequency Below 30MHz



(2) Radiated Emission Test-Up Frequency 30MHz~1GHz



(3) Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m 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.
7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:

For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

PASS

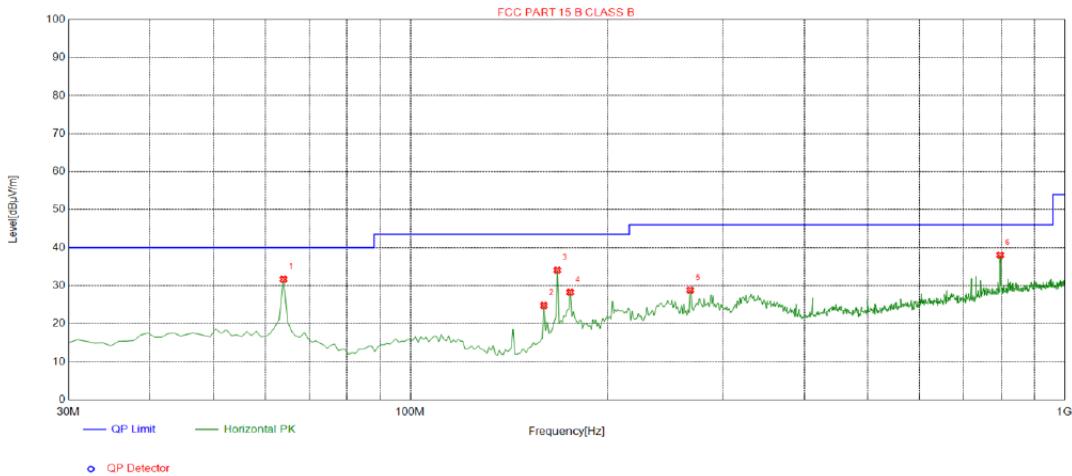
All the test modes completed for test. The worst case of Radiated Emission is CH 2402; the test data of this mode was reported.



Below 1GHz Test Results:

EUT :	2.4Ghz wireless multi platform controller	Model Name :	SL-9110
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-08-12
Test Mode :	TX	Polarization :	Horizontal
Test Power :	DC 5V by adapter AC 120V/60Hz		

Test Graph



Suspected List

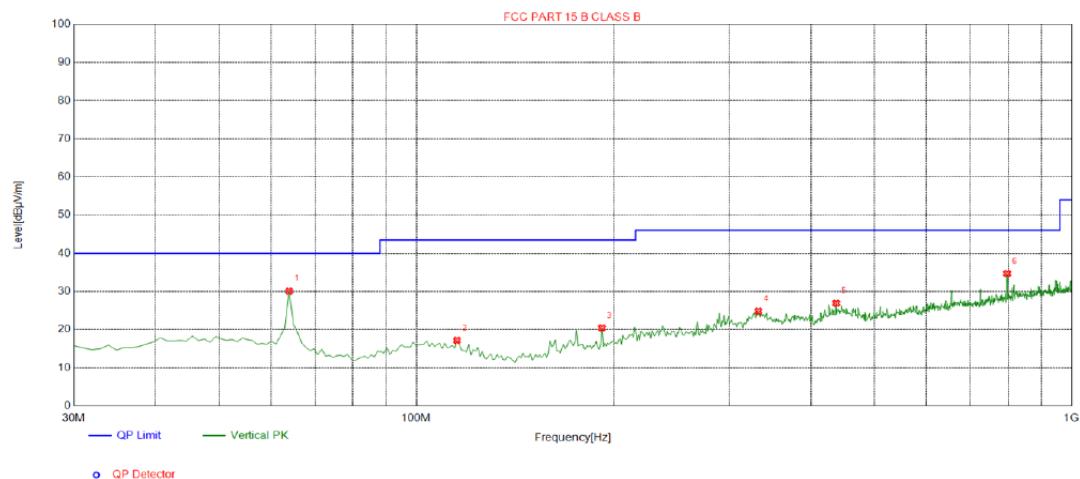
Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.9500	31.68	-16.15	40.00	8.32	100	308	Horizontal
2	159.980	24.79	-18.22	43.50	18.71	100	354	Horizontal
3	167.740	34.07	-17.51	43.50	9.43	100	20	Horizontal
4	175.500	28.27	-17.06	43.50	15.23	100	358	Horizontal
5	267.650	28.85	-13.63	46.00	17.15	100	300	Horizontal
6	797.270	38.07	-3.16	46.00	7.93	100	359	Horizontal

Final Data List

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level



EUT :	2.4Ghz wireless multi platform controller	Model Name :	SL-9110
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-08-12
Test Mode :	TX	Polarization :	Vertical
Test Power :	DC 5V by adapter AC 120V/60Hz		

Test Graph**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.9500	30.09	-16.15	40.00	9.91	100	44	Vertical
2	115.360	17.19	-16.33	43.50	26.31	100	36	Vertical
3	191.990	20.45	-15.82	43.50	23.05	100	325	Vertical
4	332.640	24.84	-11.60	46.00	21.16	100	18	Vertical
5	437.400	26.92	-9.53	46.00	19.08	100	349	Vertical
6	797.270	34.72	-3.16	46.00	11.28	100	28	Vertical

Final Data List

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.



Above 1 GHz Test Results:

CH Low (2402MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2402	106.23	-5.84	100.39	114	-13.61	peak
2402	83.41	-5.84	77.57	94	-16.43	AVG
4804	58.72	-3.64	55.08	74	-18.92	peak
4804	43.57	-3.64	39.93	54	-14.07	AVG
7206	58.26	-0.95	57.31	74	-16.69	peak
7206	40.56	-0.95	39.61	54	-14.39	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2402	107.41	-5.84	101.57	114	-12.43	peak
2402	82.54	-5.84	76.7	94	-17.3	AVG
4804	56.32	-3.64	52.68	74	-21.32	peak
4804	43.68	-3.64	40.04	54	-13.96	AVG
7206	55.79	-0.95	54.84	74	-19.16	peak
7206	39.84	-0.95	38.89	54	-15.11	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



CH Middle (2441MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2441	106.28	-5.71	100.57	114	-13.43	peak
2441	82.73	-5.71	77.02	94	-16.98	AVG
4882	56.92	-3.51	53.41	74	-20.59	peak
4882	41.08	-3.51	37.57	54	-16.43	AVG
7323	57.36	-0.82	56.54	74	-17.46	peak
7323	39.45	-0.82	38.63	54	-15.37	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2441	105.64	-5.71	99.93	114	-14.07	peak
2441	81.79	-5.71	76.08	94	-17.92	AVG
4882	55.36	-3.51	51.85	74	-22.15	peak
4882	45.92	-3.51	42.41	54	-11.59	AVG
7323	56.28	-0.82	55.46	74	-18.54	peak
7323	40.09	-0.82	39.27	54	-14.73	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2480	105.32	-5.65	99.67	114	-14.33	peak
2480	81.48	-5.65	75.83	94	-18.17	AVG
4960	56.27	-3.43	52.84	74	-21.16	peak
4960	45.67	-3.43	42.24	54	-11.76	AVG
7440	55.34	-0.75	54.59	74	-19.41	peak
7440	39.76	-0.75	39.01	54	-14.99	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2480	104.35	-5.65	98.7	114	-15.3	peak
2480	79.84	-5.65	74.19	94	-19.81	AVG
4960	56.86	-3.43	53.43	74	-20.57	peak
4960	42.79	-3.43	39.36	54	-14.64	AVG
7440	56.32	-0.75	55.57	74	-18.43	peak
7440	39.16	-0.75	38.41	54	-15.59	AVG
-	-	-	-	74	-	peak
-	-	-	-	54	-	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark :

- (1) Measuring frequencies from 1 GHz to the 25 GHz .
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.
- (7) All modes of operation were investigated and the worst-case emissions are reported.



5 BAND EDGE

5.1 Limits

FCC PART 15.249(d) 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 §15.209, whichever is the lesser attenuation.

5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSIC63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 100KHz and VBM to 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBW to 300 KHz, to measure the conducted peak band edge.

5.3 Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case)

Frequency (MHz)	Reading Result (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
2310	51.36	-5.81	45.55	74	-28.45	Peak
2310	38.72	-5.81	32.91	54	-21.09	AVG
2390	50.43	-5.84	44.59	74	-29.41	Peak
2390	38.26	-5.84	32.42	54	-21.58	AVG
2400	50.94	-5.95	44.99	74	-29.01	Peak
2400	40.06	-5.95	34.11	54	-19.89	AVG

Remark: Factor=Antenna Factor+Cable Loss-Pre-amplifier

Vertical:

Frequency (MHz)	Reading Result (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
2310	51.37	-5.81	45.56	74	-28.44	Peak
2310	38.45	-5.81	32.64	54	-21.36	AVG
2390	50.62	-5.84	44.78	74	-29.22	Peak
2390	39.16	-5.84	33.32	54	-20.68	AVG
2400	51.04	-5.95	45.09	74	-28.91	Peak
2400	39.71	-5.95	33.76	54	-20.24	AVG

Remark: Factor=Antenna Factor+Cable Loss-Pre-amplifier



Operation Mode: TX CH High (2480MHz)

Horizontal (Worst case)

Frequency (MHz)	Reading Result (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
2483.5	50.49	-5.81	44.68	74	-29.32	Peak
2483.5	38.76	-5.81	32.95	54	-21.05	AVG
2500	51.37	-6.06	45.31	74	-28.69	Peak
2500	39.08	-6.06	33.02	54	-20.98	AVG

Remark: Factor=Antenna Factor+Cable Loss-Pre-amplifier

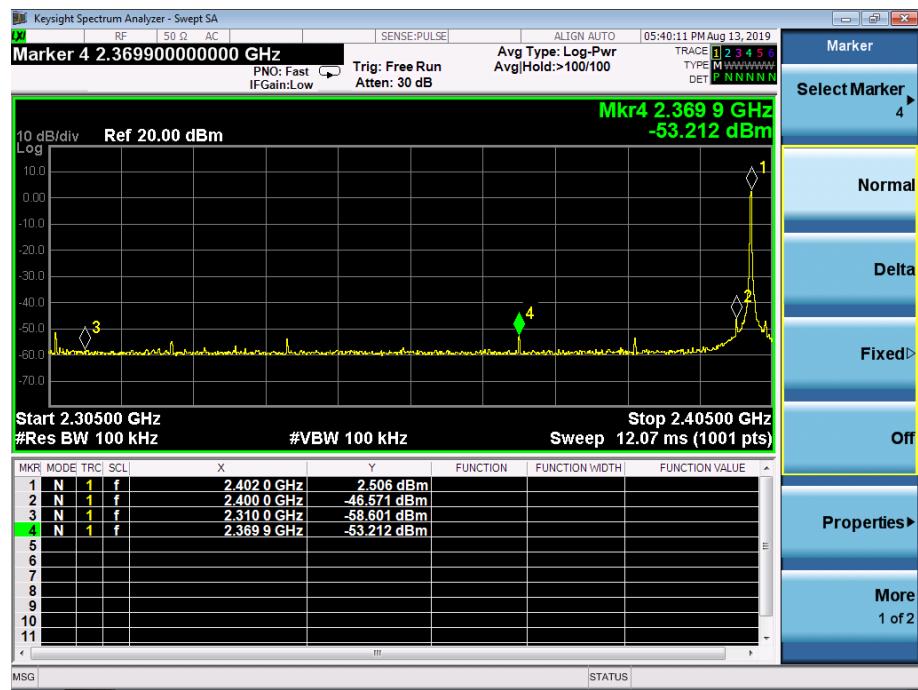
Vertical:

Frequency (MHz)	Reading Result (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
2483.5	51.42	-5.81	45.61	74	-28.39	Peak
2483.5	39.87	-5.81	34.06	54	-19.94	AVG
2500	51.09	-6.06	45.03	74	-28.97	Peak
2500	38.14	-6.06	32.08	54	-21.92	AVG

Remark: Factor=Antenna Factor+Cable Loss-Pre-amplifier

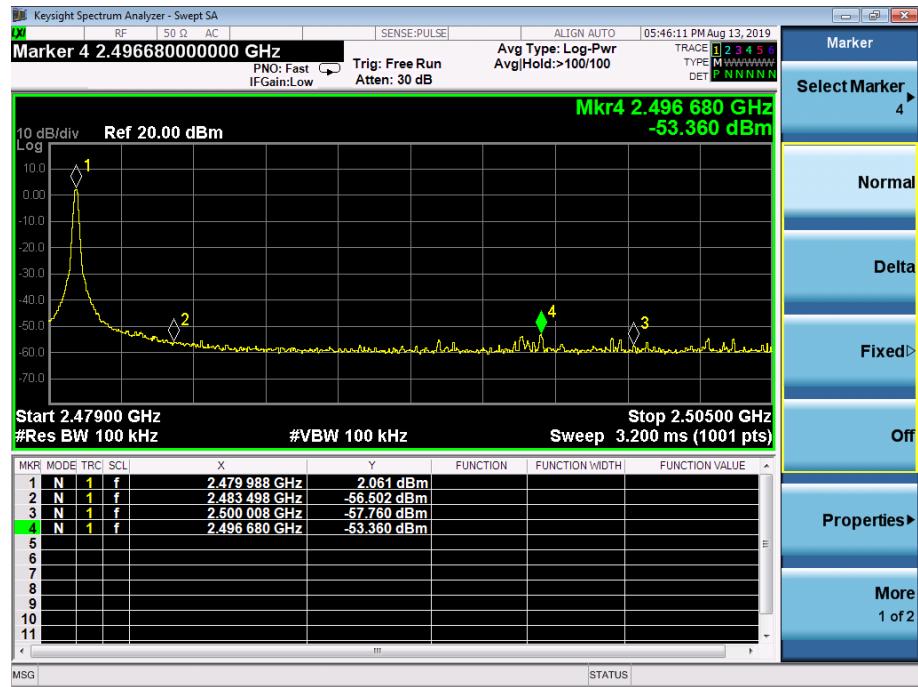


Radiated Band Edge Test:





Operation Mode: TX CH High (2480MHz)
Horizontal (Worst case)





6 OCCUPIED BANDWIDTH MEASUREMENT

6.1 Test Setup

Same as Radiated Emission Measurement

6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on ANSI C63.10 section 6.9.2: RBW= 30KHz. VBW= 100 KHz, Span=4MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

6.3 Measurement Equipment Used

Same as Radiated Emission Measurement

6.4 Test Result

PASS

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	0.829	PASS
2440 MHz	0.830	PASS
2480 MHz	0.829	PASS

CH: 2402MHz





CH: 2441MHz



CH: 2480MHz





7 ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

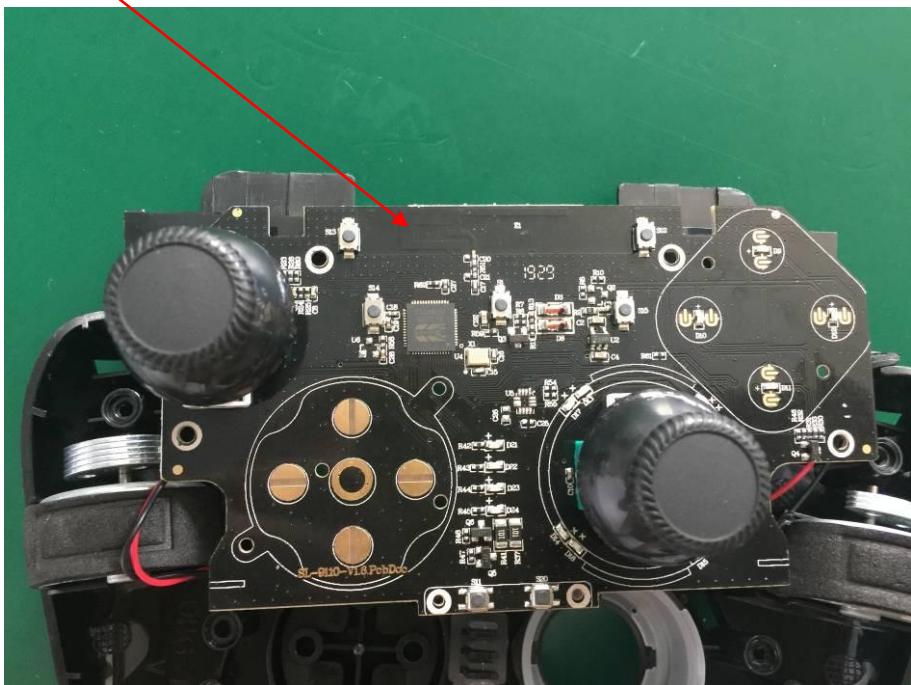
Refer to statement below for compliance.

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.

Antenna Connected Construction

The antenna used in this product is a PCB Antenna, The directional gains of antenna used for transmitting is 0dBi.

ANTENNA



8 PHOTOGRAPH OF TEST

Radiated Emission



Conducted Emission





EUT

Photo 1



Photo 2





Photo 3



Photo 4





Photo 5



Photo 6





Photo 7



Photo 8





Photo 9



Photo 10

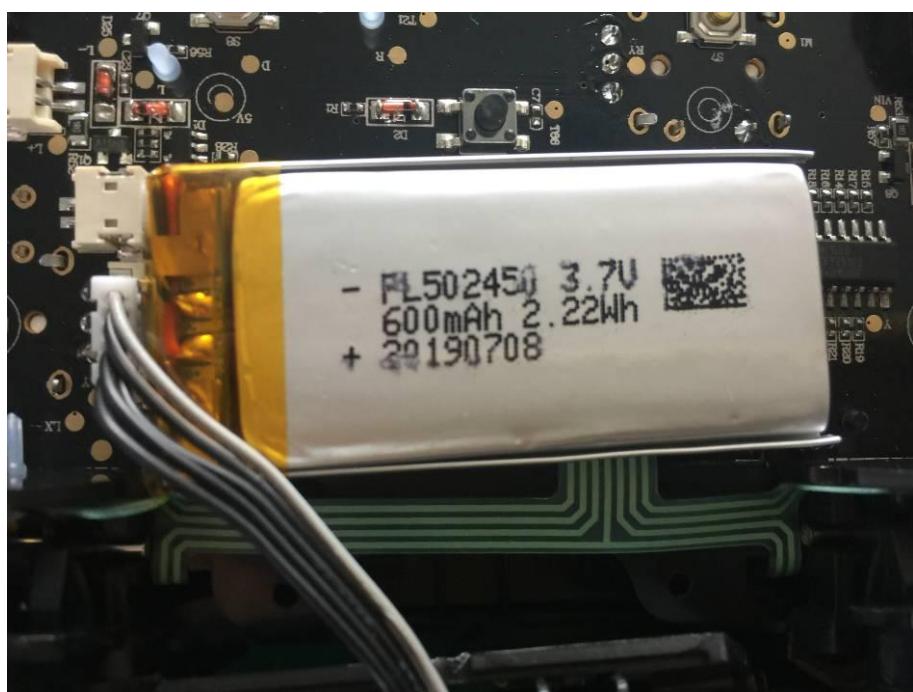




Photo 11



Photo 12

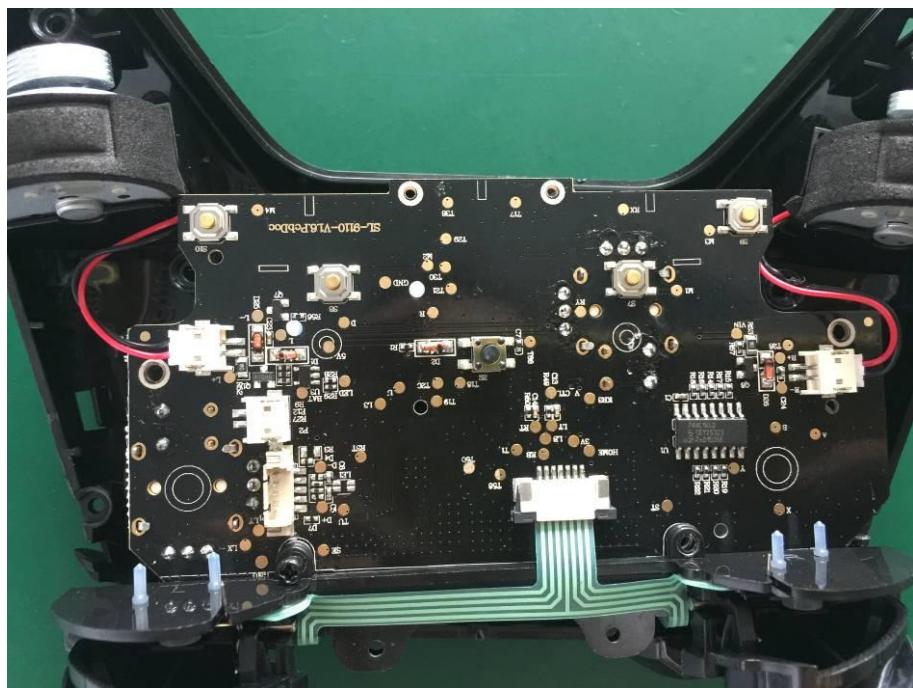




Photo 13

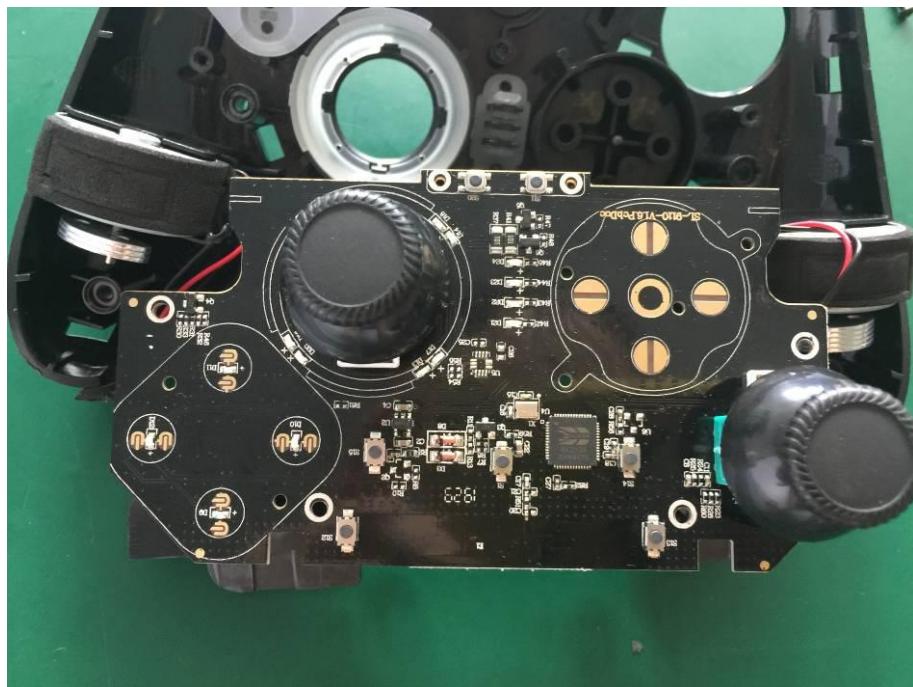
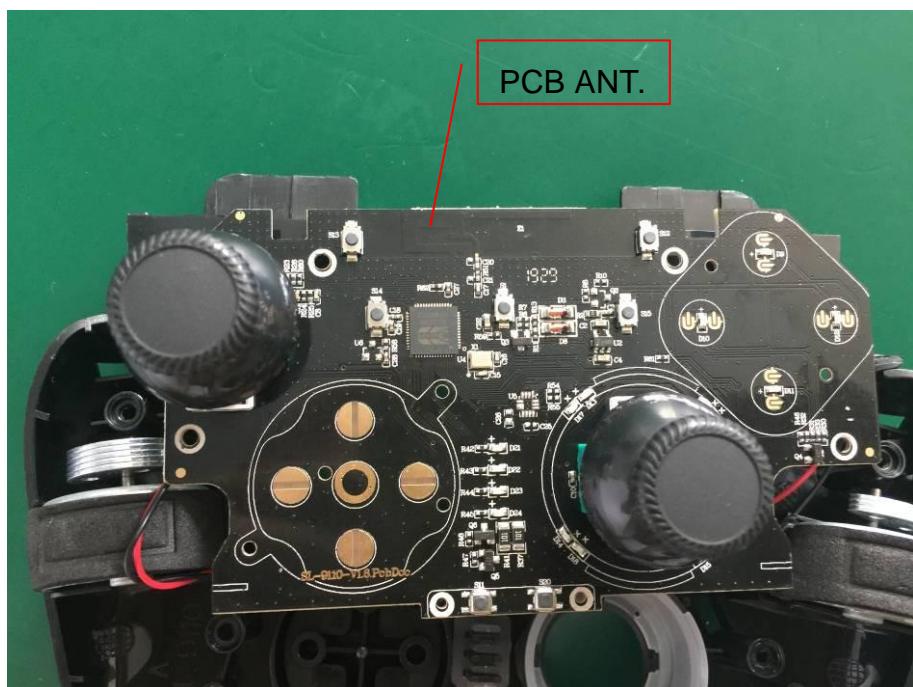


Photo 14



--The end of report--