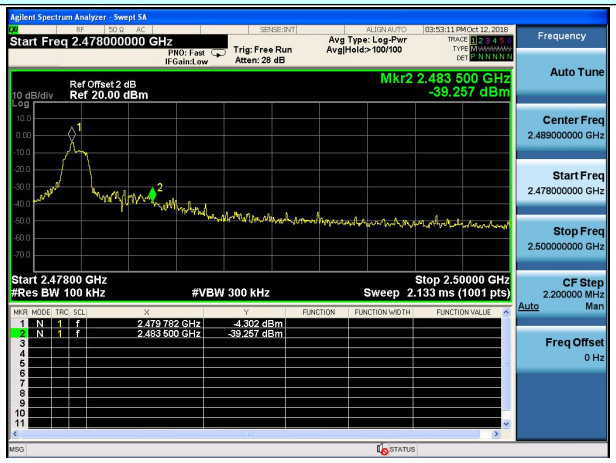
8DPSK Mode:

Test channel:	Lowest channel

No-hopping mode

Hopping mode

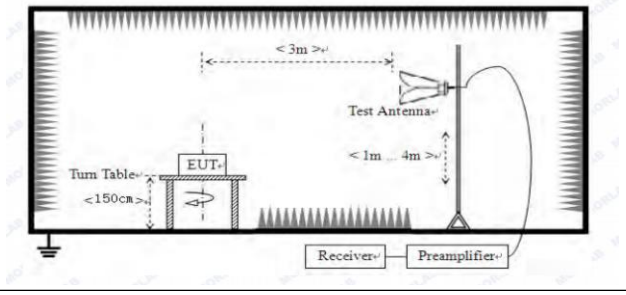
Test channel:	Highest channel



No-hopping mode

Hopping mode

Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>All restriction band have been tested, and 2.31GHz to 2.5GHz band is the worse case</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr>
<tr><td>74.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td> 
</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 1.7 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 1.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Remark: During the test, pre-scan the GFSK, Pi/4QPSK, 8DPSK modulation, and found the GFSK modulation which it is worse case.

Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	50.23	27.59	5.38	30.18	53.02	74.00	-20.98	Horizontal
2400.00	55.50	27.58	5.39	30.18	58.29	74.00	-15.71	Horizontal
2390.00	50.98	27.59	5.38	30.18	53.77	74.00	-20.23	Vertical
2400.00	56.27	27.58	5.39	30.18	59.06	74.00	-14.94	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	40.97	27.59	5.38	30.18	43.76	54.00	-10.24	Horizontal
2400.00	41.65	27.58	5.39	30.18	44.44	54.00	-9.56	Horizontal
2390.00	41.83	27.59	5.38	30.18	44.62	54.00	-9.38	Vertical
2400.00	41.31	27.58	5.39	30.18	44.10	54.00	-9.90	Vertical

Test channel:	Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	52.53	27.53	5.47	29.93	55.60	74.00	-18.40	Horizontal
2500.00	52.37	27.55	5.49	29.93	55.48	74.00	-18.52	Horizontal
2483.50	55.38	27.53	5.47	29.93	58.45	74.00	-15.55	Vertical
2500.00	52.69	27.55	5.49	29.93	55.80	74.00	-18.20	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	42.93	27.53	5.47	29.93	46.00	54.00	-8.00	Horizontal
2500.00	41.89	27.55	5.49	29.93	45.00	54.00	-9.00	Horizontal
2483.50	42.41	27.53	5.47	29.93	45.48	54.00	-8.52	Vertical
2500.00	40.99	27.55	5.49	29.93	44.10	54.00	-9.90	Vertical

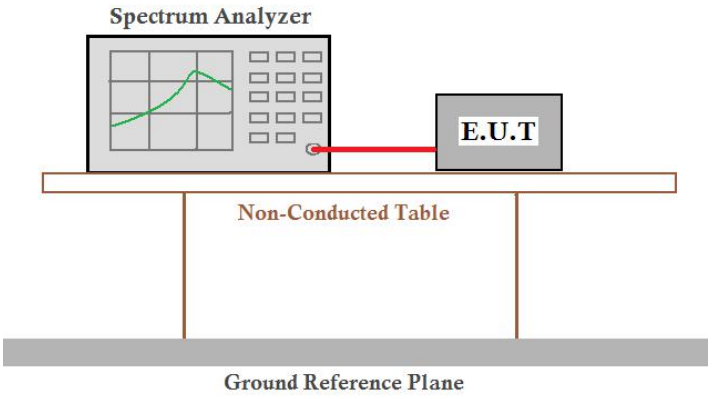
Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

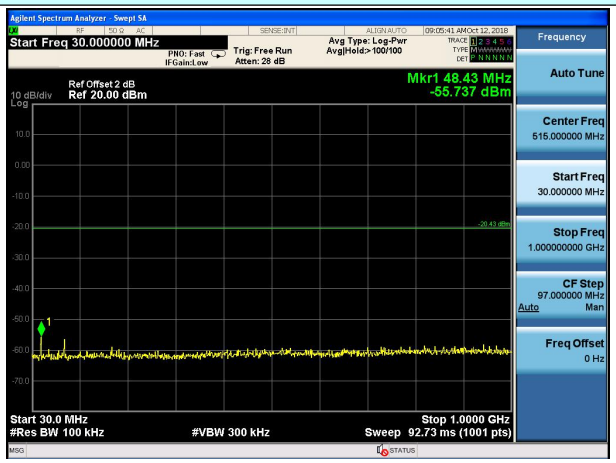
14. Spurious Emission

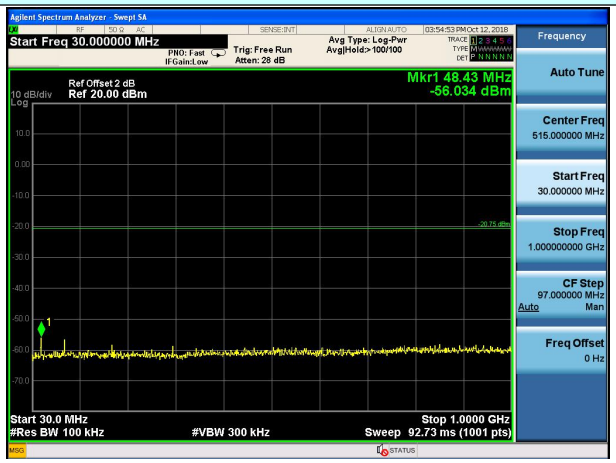
Conducted Emission Method

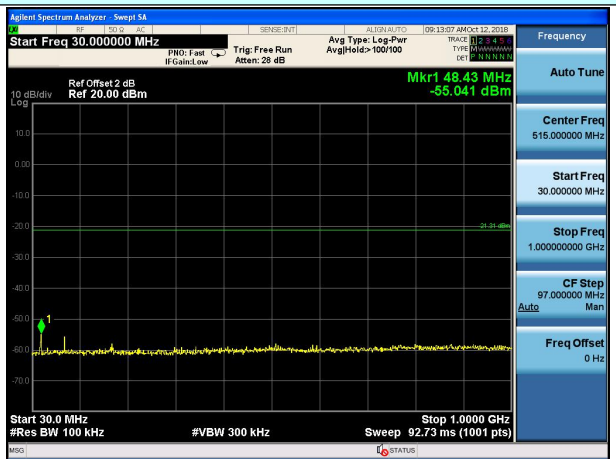
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 1.7 for details
Test mode:	Refer to section 1.2 for details
Test results:	Pass

Remark:

During the test, pre-scan the GFSK, Pi/4QPSK, 8DPSK modulation, and found the GFSK modulation which it is worse case.

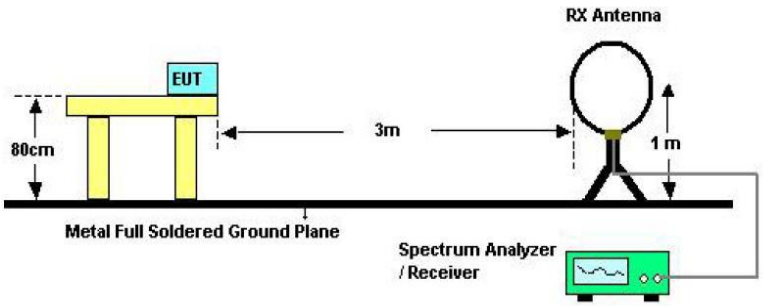
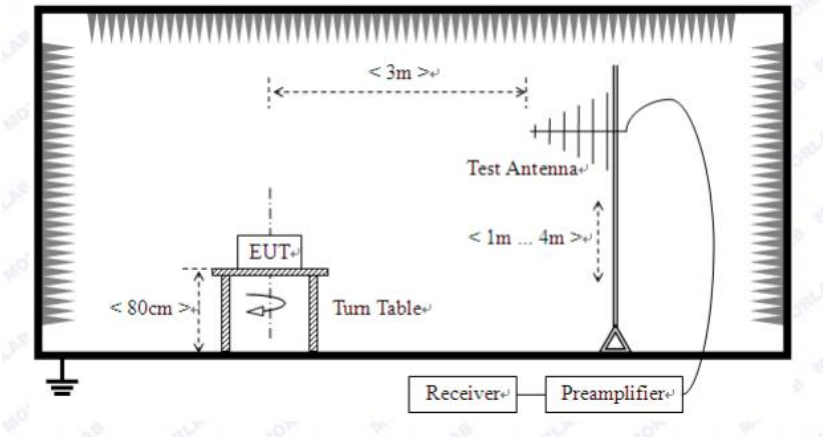
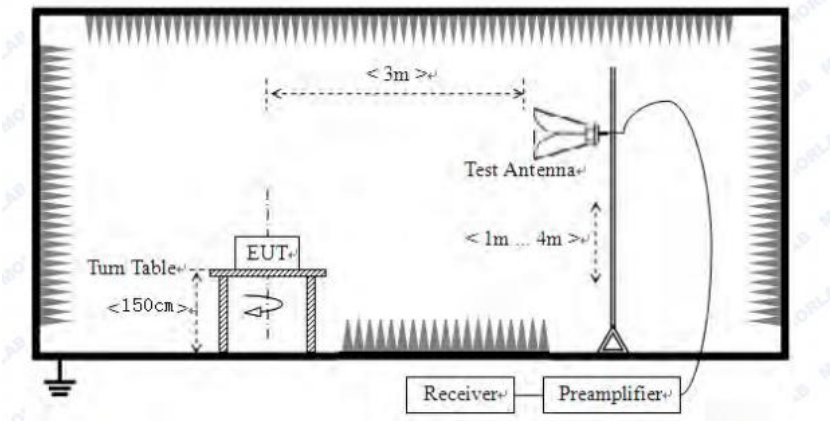
Test channel:	Lowest channel
	
30MHz~1GHz	1GHz~25GHz

Test channel:	Middle channel
	
30MHz~1GHz	1GHz~25GHz

Test channel:	Highest channel
	
30MHz~1GHz	1GHz~25GHz

Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>9kHz-150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency MHz</th><th rowspan="2">Distance (Meters)</th><th colspan="2">Field Strengths Limits</th></tr>
<tr><th>uV/m</th><th>dB uV/m</th></tr>
<tr><td>0.009 - 0.490</td><td>300</td><td>2400/F(kHz)</td><td>---</td></tr>
<tr><td>0.490 - 1.705</td><td>30</td><td>24000/F(kHz)</td><td>----</td></tr>
<tr><td>1.705 - 30</td><td>30</td><td>30</td><td>29.5</td></tr>
<tr><td>30 - 88</td><td>3</td><td>100(3nW)</td><td>40</td></tr>
<tr><td>88 - 216</td><td>3</td><td>150(6.8nW)</td><td>43.5</td></tr>
<tr><td>216 - 960</td><td>3</td><td>200(12nW)</td><td>46</td></tr>
<tr><td>Above 960</td><td>3</td><td>500(75nW)</td><td>54</td></tr>
<tr><td>Carrier frequency</td><td>3</td><td>50000(avg)</td><td>113.97(peak)
93.97(avg)</td></tr>
</table>
</td></tr>
</table>

Test setup:	9kHz-30MHz  Below 1GHz  Above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8 meters below 1G and 1.5 meters above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. 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. 4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. 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.
Test Instruments:	Refer to section 1.7 for details
Test mode:	Refer to section 1.2 for details
Test results:	Pass

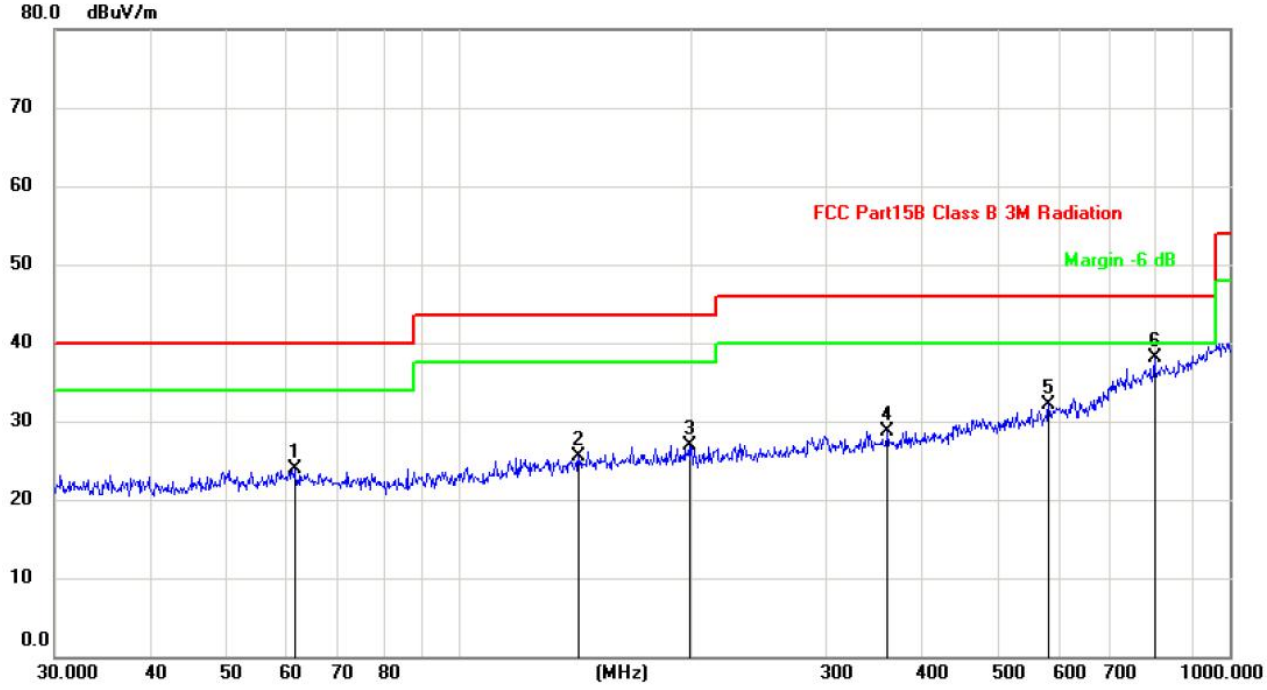
Remark:

1. *During the test, pre-scan the GFSK, Pi/4QPSK, 8DPSK modulation, and found the GFSK modulation which it is worse case.*
2. *Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

Frequency Range	:	9KHz~30MHz			
Test Mode	:	TX CH1	Temperature	:	23.9℃
Test Engineer	:	Messi wang	Humidity	:	56%
Test Results	:	PASS			
Note:	1. Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.				

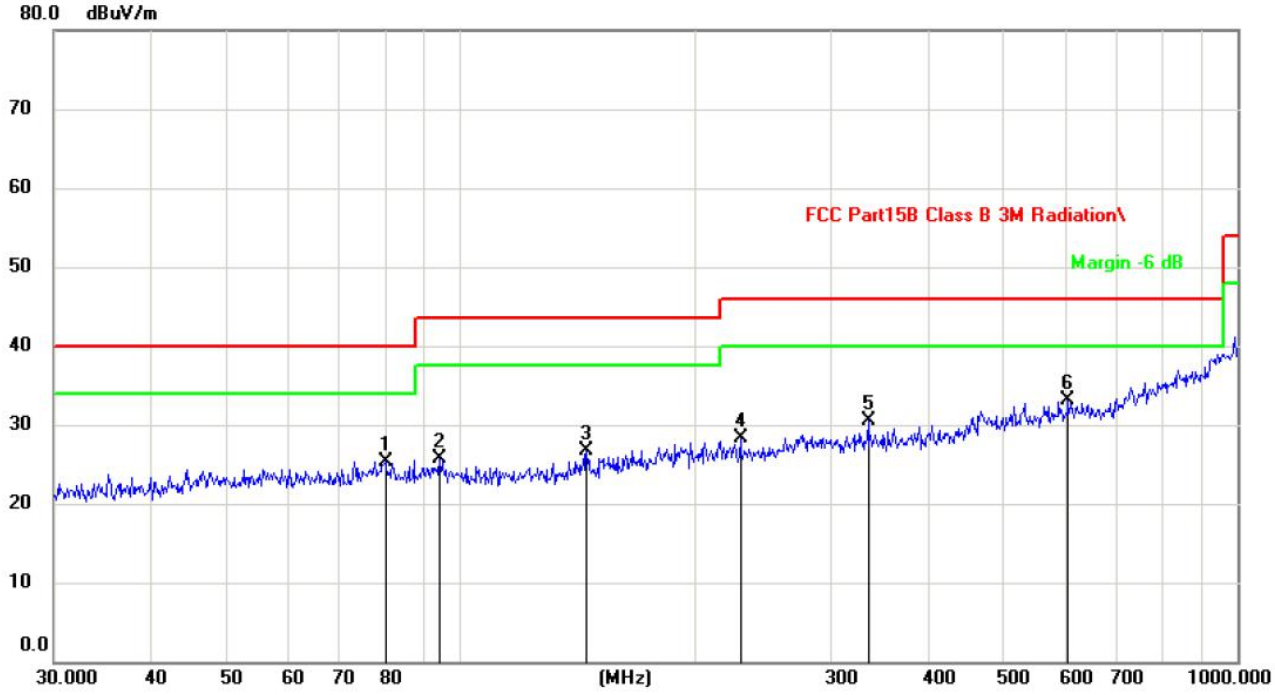
Measurement data:

Vertical:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	Detector
1		61.3462	14.20	9.75	23.95	40.00	-16.05	QP
2		143.3260	13.95	11.53	25.48	43.50	-18.02	QP
3		199.2855	14.86	12.09	26.95	43.50	-16.55	QP
4		360.4476	13.99	14.73	28.72	46.00	-17.28	QP
5		582.7424	14.81	17.39	32.20	46.00	-13.80	QP
6	*	798.9796	16.05	22.09	38.14	46.00	-7.86	QP

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	Detector
1		80.0806	13.58	11.79	25.37	40.00	-14.63	QP
2		94.0978	13.69	12.03	25.72	43.50	-17.78	QP
3		145.3505	14.77	11.96	26.73	43.50	-16.77	QP
4		229.2931	14.76	13.60	28.36	46.00	-17.64	QP
5		334.8589	14.92	15.65	30.57	46.00	-15.43	QP
6	*	605.6592	14.66	18.40	33.06	46.00	-12.94	QP

■ **Above 1GHz**

Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	38.24	31.78	8.60	32.09	46.53	74.00	-27.47	Vertical
7206.00	32.27	36.15	11.65	32.00	48.07	74.00	-25.93	Vertical
9608.00	32.58	37.95	14.14	31.62	53.05	74.00	-20.95	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4804.00	42.02	31.78	8.60	32.09	50.31	74.00	-23.69	Horizontal
7206.00	34.61	36.15	11.65	32.00	50.41	74.00	-23.59	Horizontal
9608.00	30.85	37.95	14.14	31.62	51.32	74.00	-22.68	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	27.27	31.78	8.60	32.09	35.56	54.00	-18.44	Vertical
7206.00	20.56	36.15	11.65	32.00	36.36	54.00	-17.64	Vertical
9608.00	20.45	37.95	14.14	31.62	40.92	54.00	-13.08	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4804.00	30.03	31.78	8.60	32.09	38.32	54.00	-15.68	Horizontal
7206.00	23.77	36.15	11.65	32.00	39.57	54.00	-14.43	Horizontal
9608.00	19.08	37.95	14.14	31.62	39.55	54.00	-14.45	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel:	Middle

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	37.65	31.85	8.67	32.12	46.05	74.00	-27.95	Vertical
7323.00	32.53	36.37	11.72	31.89	48.73	74.00	-25.27	Vertical
9764.00	31.71	38.35	14.25	31.62	52.69	74.00	-21.31	Vertical
12205.00	*					74.00		Vertical
14646.00	*					74.00		Vertical
4882.00	43.31	31.85	8.67	32.12	51.71	74.00	-22.29	Horizontal
7323.00	34.20	36.37	11.72	31.89	50.40	74.00	-23.60	Horizontal
9764.00	31.82	38.35	14.25	31.62	52.80	74.00	-21.20	Horizontal
12205.00	*					74.00		Horizontal
14646.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	26.03	31.85	8.67	32.12	34.43	54.00	-19.57	Vertical
7323.00	19.93	36.37	11.72	31.89	36.13	54.00	-17.87	Vertical
9764.00	19.71	38.35	14.25	31.62	40.69	54.00	-13.31	Vertical
12205.00	*					54.00		Vertical
14646.00	*					54.00		Vertical
4882.00	31.25	31.85	8.67	32.12	39.65	54.00	-14.35	Horizontal
7323.00	21.70	36.37	11.72	31.89	37.90	54.00	-16.10	Horizontal
9764.00	20.65	38.35	14.25	31.62	41.63	54.00	-12.37	Horizontal
12205.00	*					54.00		Horizontal
14646.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel:	Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	37.13	31.93	8.73	32.16	45.63	74.00	-28.37	Vertical
7440.00	31.63	36.59	11.79	31.78	48.23	74.00	-25.77	Vertical
9920.00	31.51	38.81	14.38	31.88	52.82	74.00	-21.18	Vertical
12400.00	*					74.00		Vertical
14880.00	*					74.00		Vertical
4960.00	42.22	31.93	8.73	32.16	50.72	74.00	-23.28	Horizontal
7440.00	33.54	36.59	11.79	31.78	50.14	74.00	-23.86	Horizontal
9920.00	31.30	38.81	14.38	31.88	52.61	74.00	-21.39	Horizontal
12400.00	*					74.00		Horizontal
14880.00	*					74.00		Horizontal

Average value:

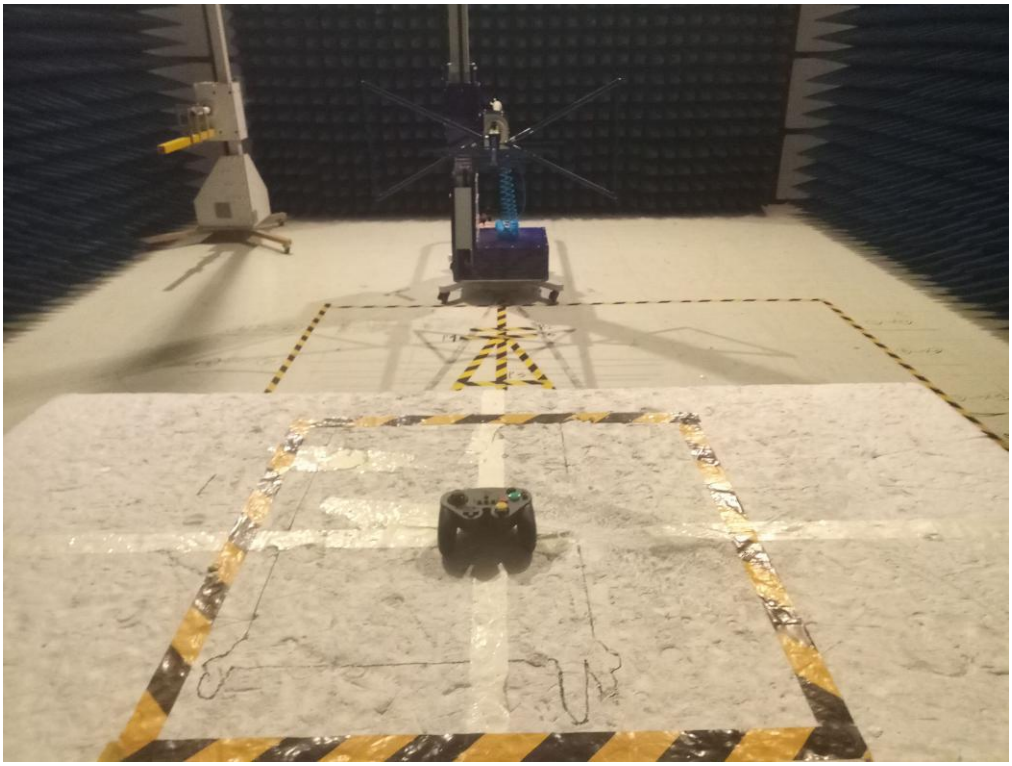
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	27.05	31.93	8.73	32.16	35.55	54.00	-18.45	Vertical
7440.00	21.47	36.59	11.79	31.78	38.07	54.00	-15.93	Vertical
9920.00	20.68	38.81	14.38	31.88	41.99	54.00	-12.01	Vertical
12400.00	*					54.00		Vertical
14880.00	*					54.00		Vertical
4960.00	30.97	31.93	8.73	32.16	39.47	54.00	-14.53	Horizontal
7440.00	23.53	36.59	11.79	31.78	40.13	54.00	-13.87	Horizontal
9920.00	19.72	38.81	14.38	31.88	41.03	54.00	-12.97	Horizontal
12400.00	*					54.00		Horizontal
14880.00	*					54.00		Horizontal

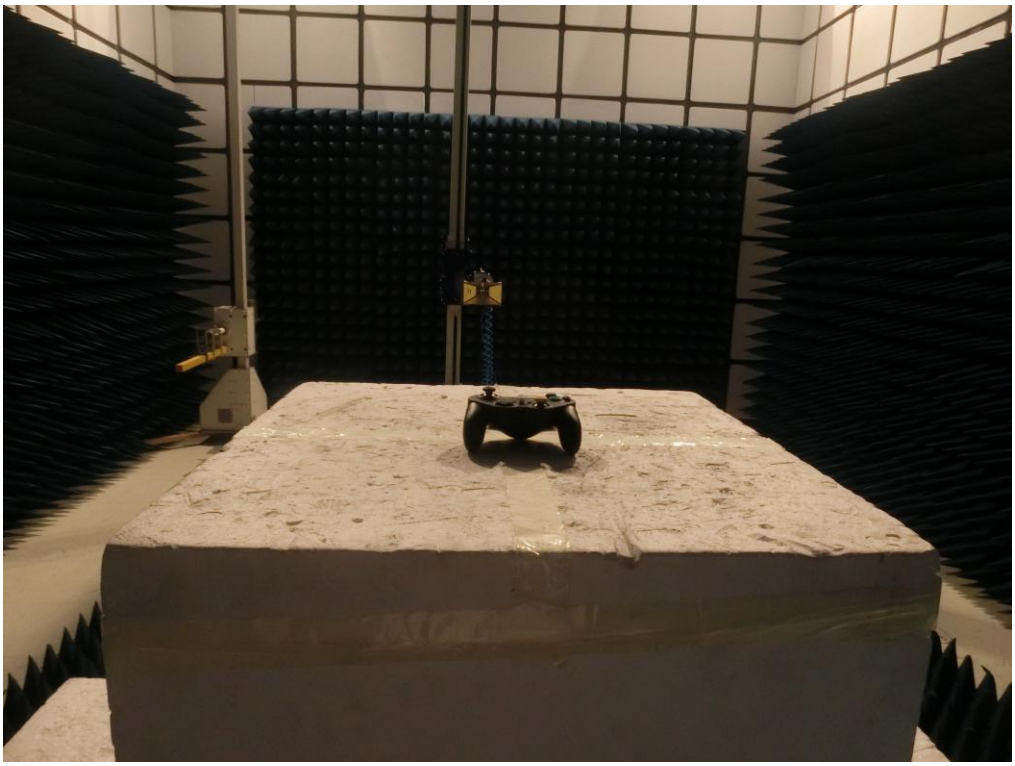
Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

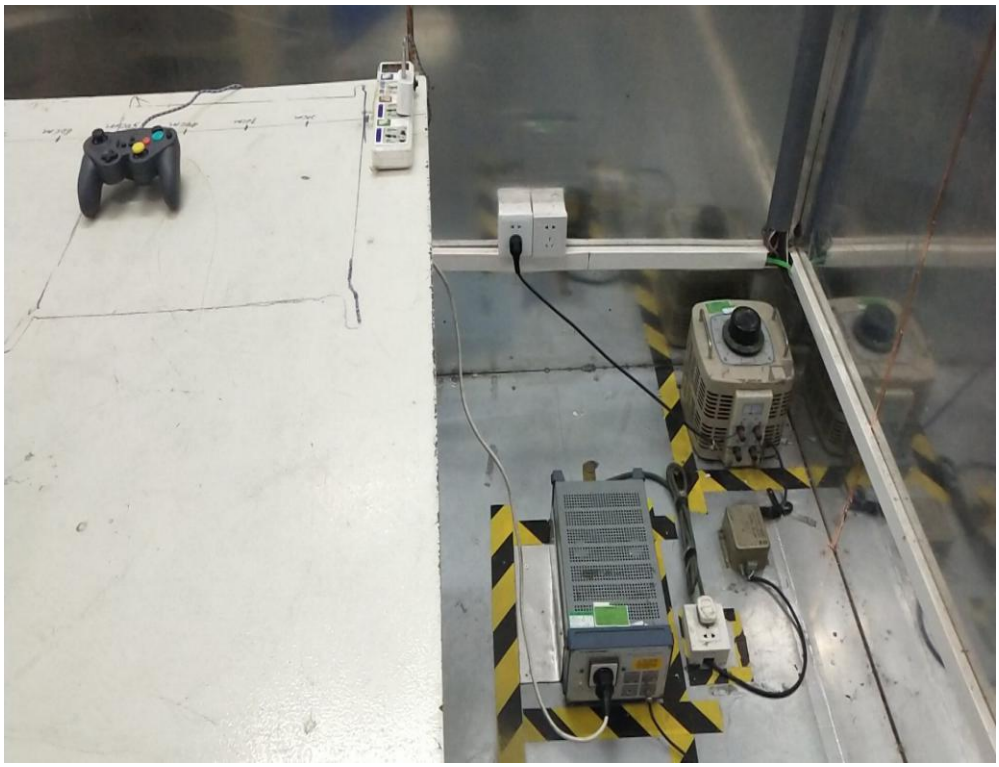
15. Test Setup Photo

Radiated Emission





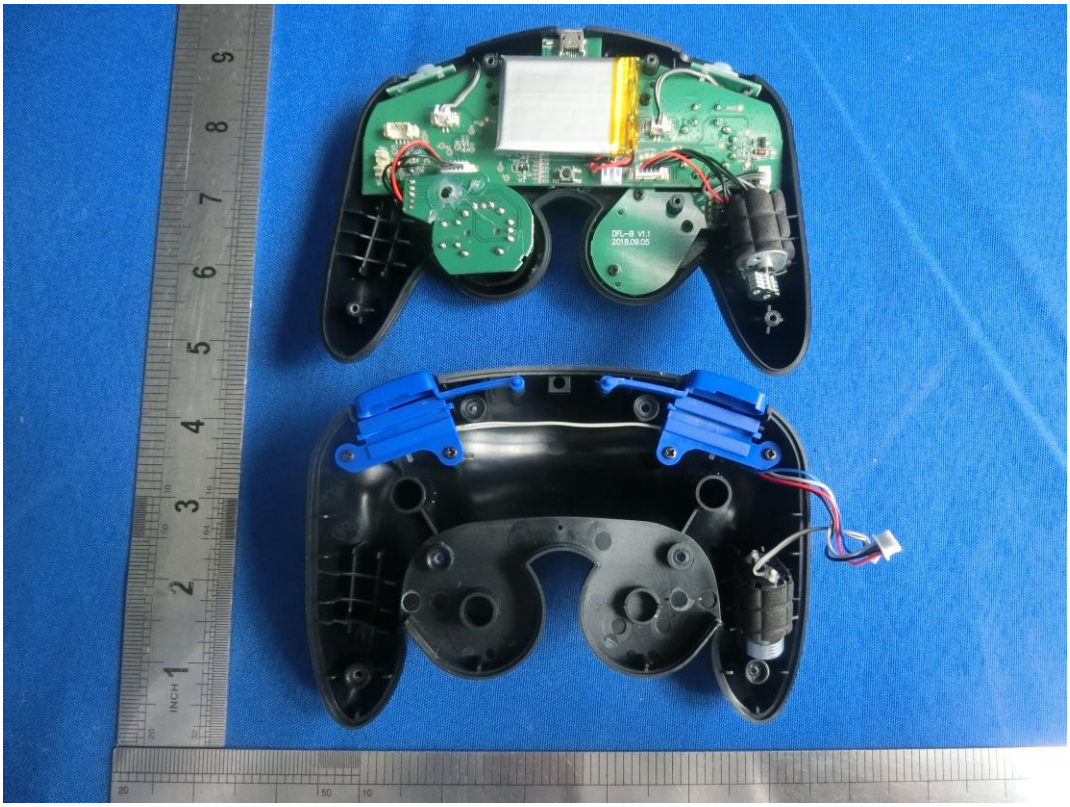
Conducted Emission

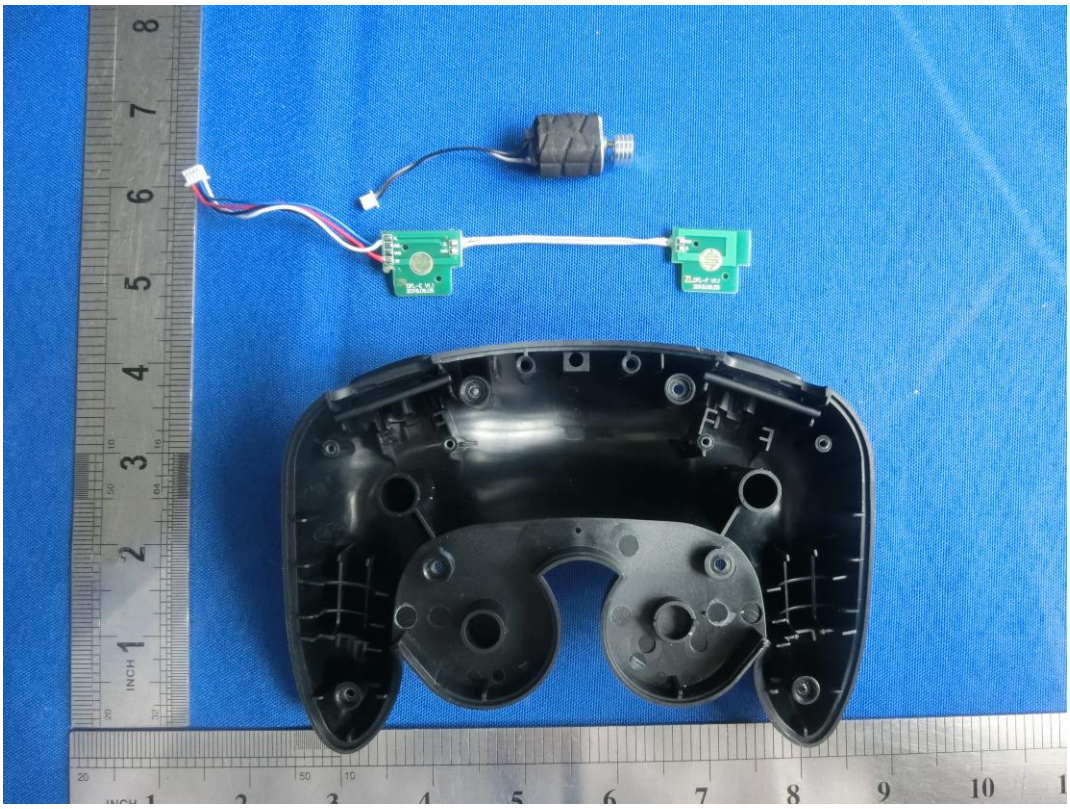


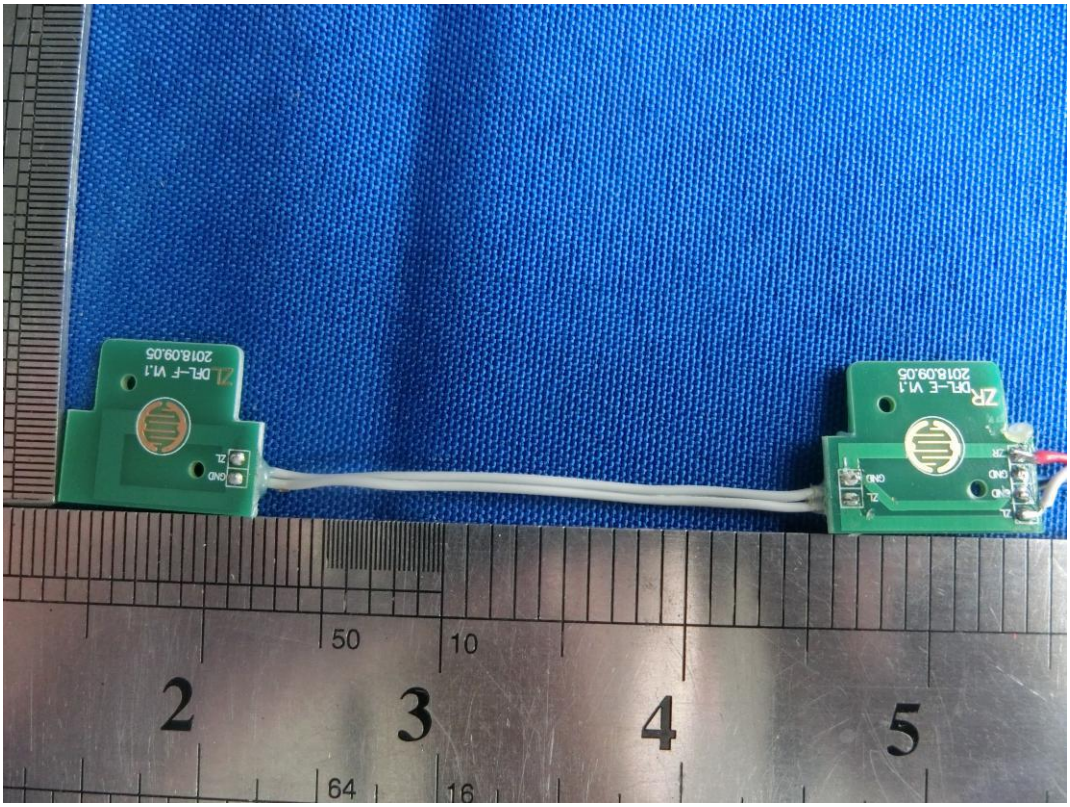
16. EUT Constructional Details

External Photographs:

Internal Photographs



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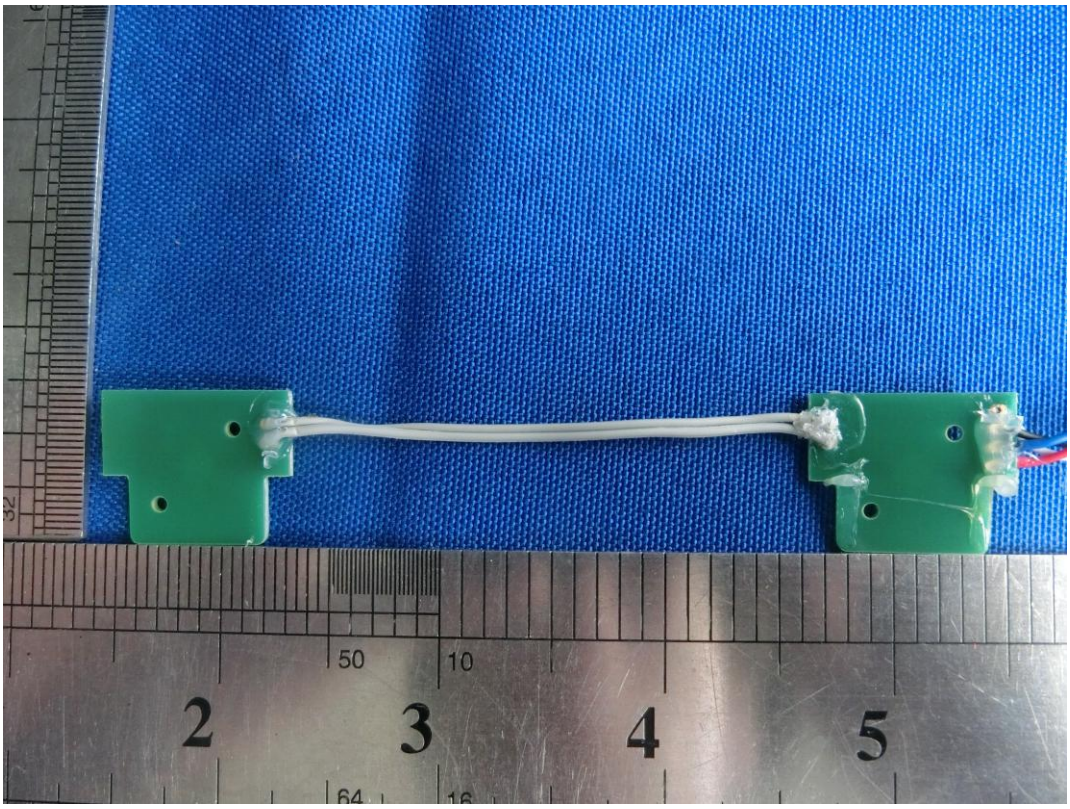
2018.09.05
ZR DRL-E V1.1
2018.09.05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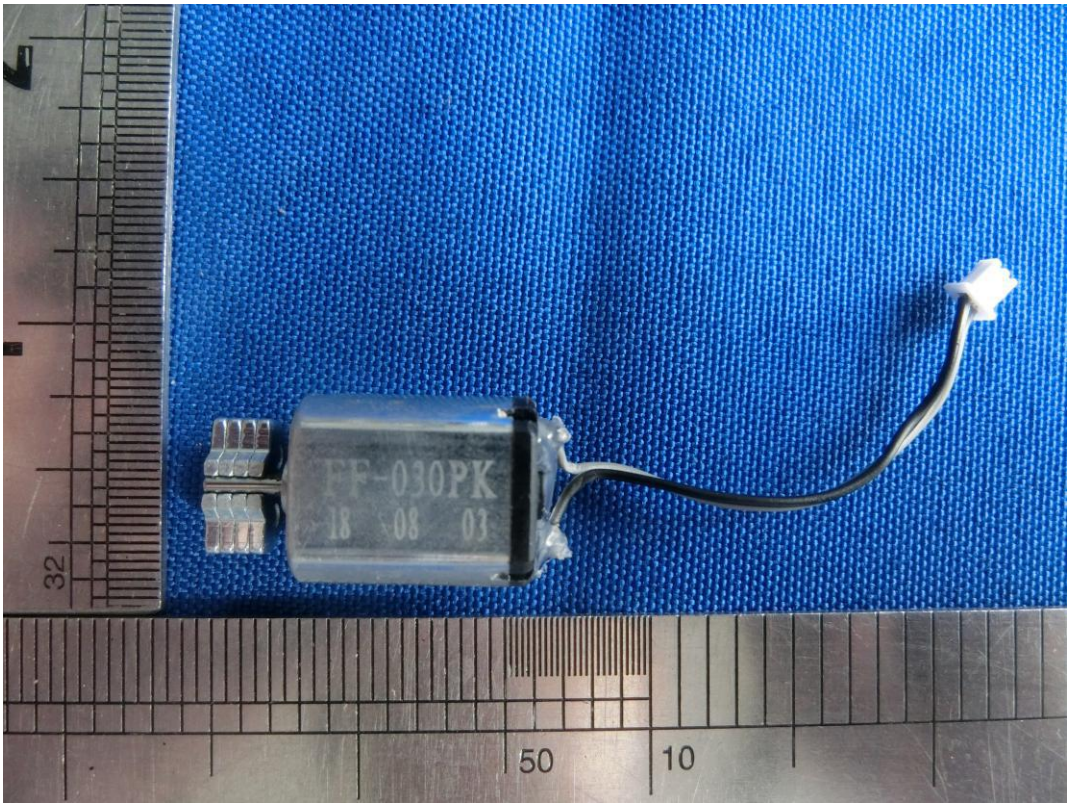
64
16


FF-030PK
18 08 03
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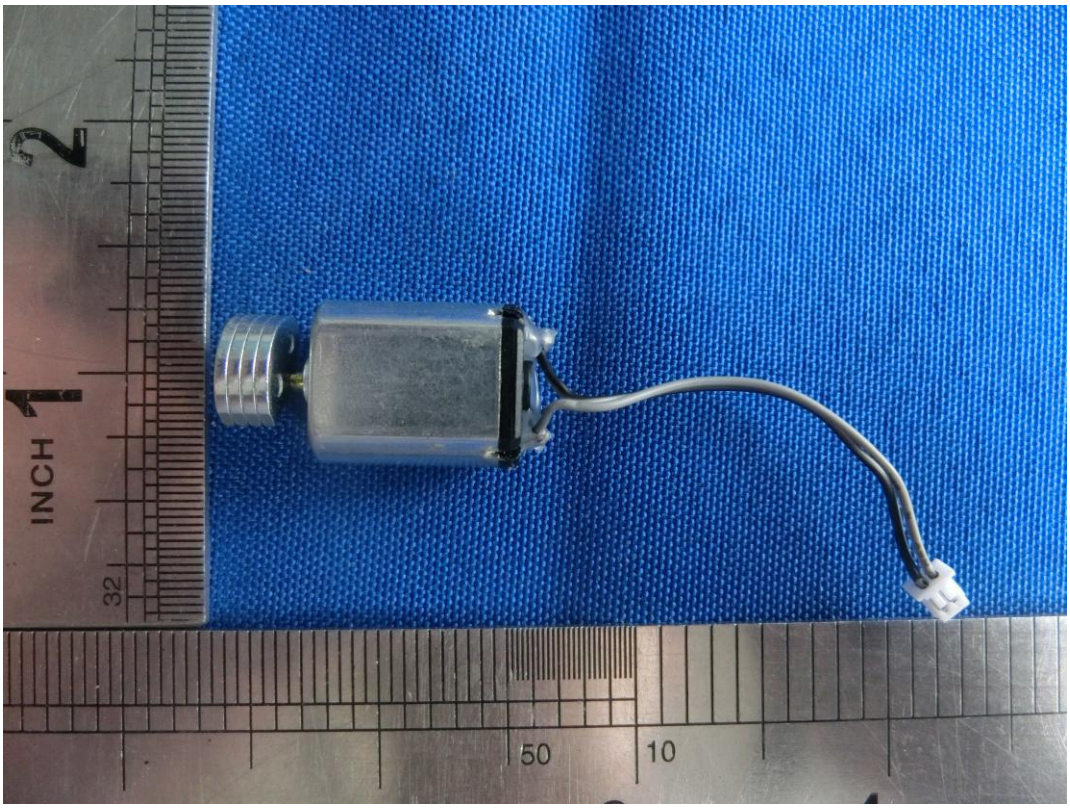
INCH
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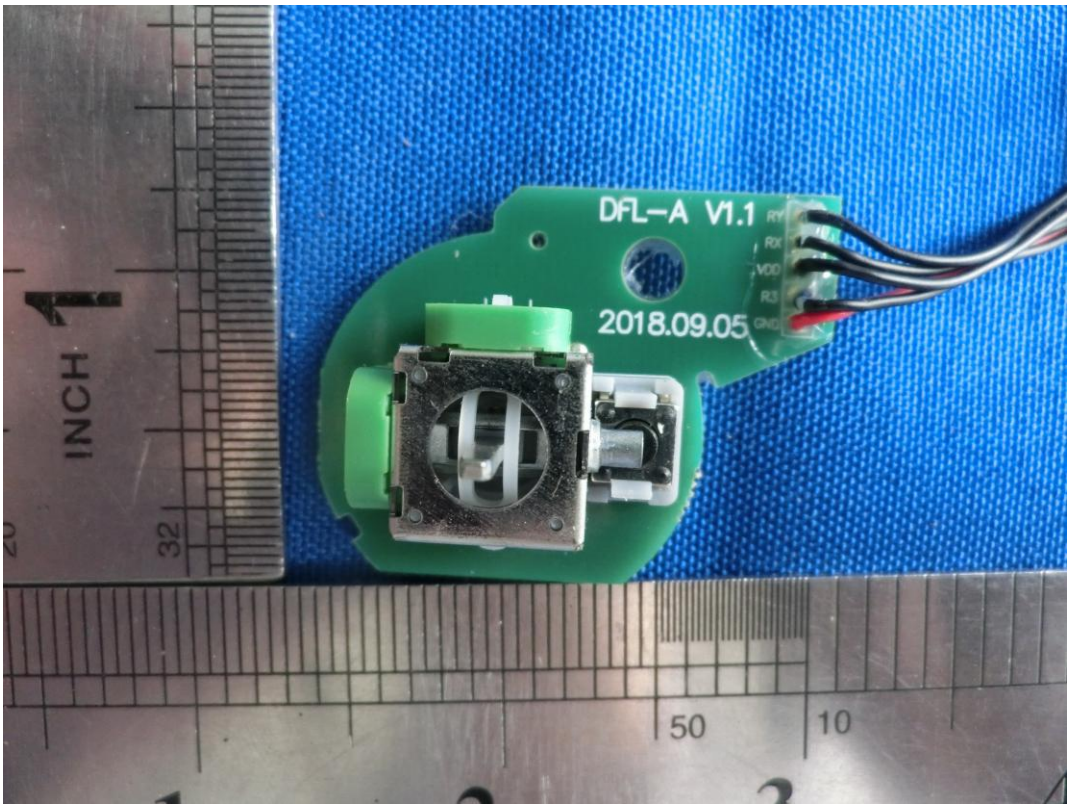
10


INCH
DRL-B V1.1
2018.09.05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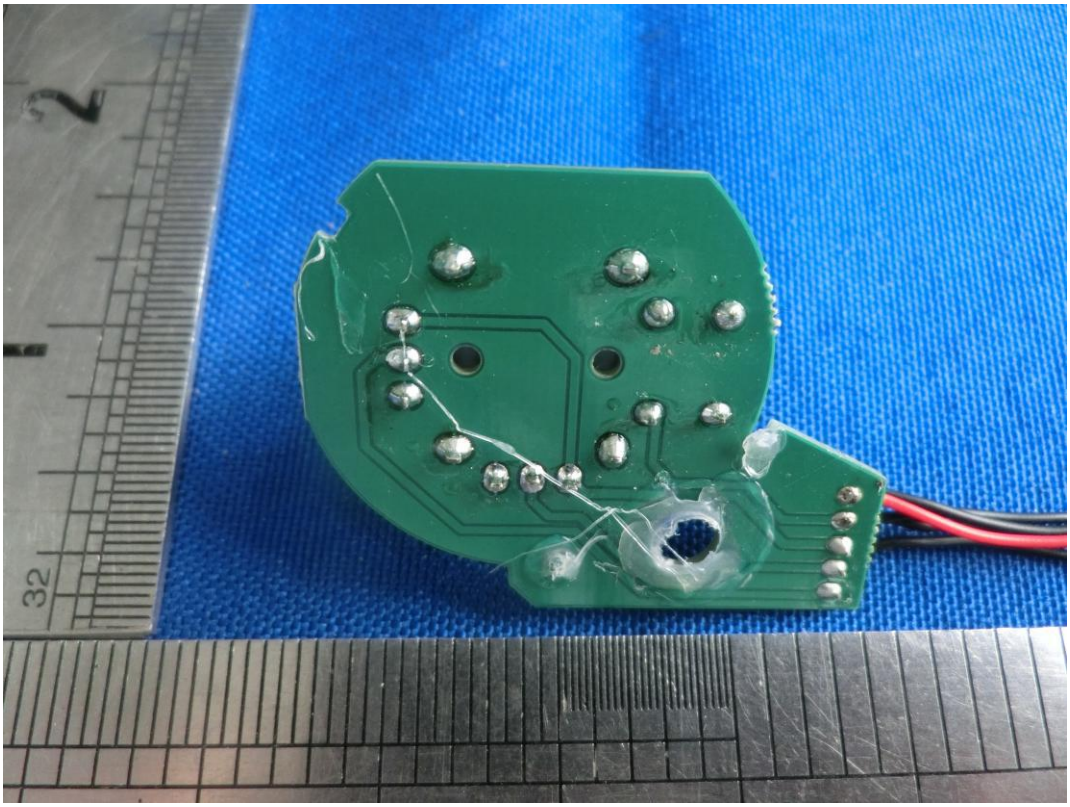
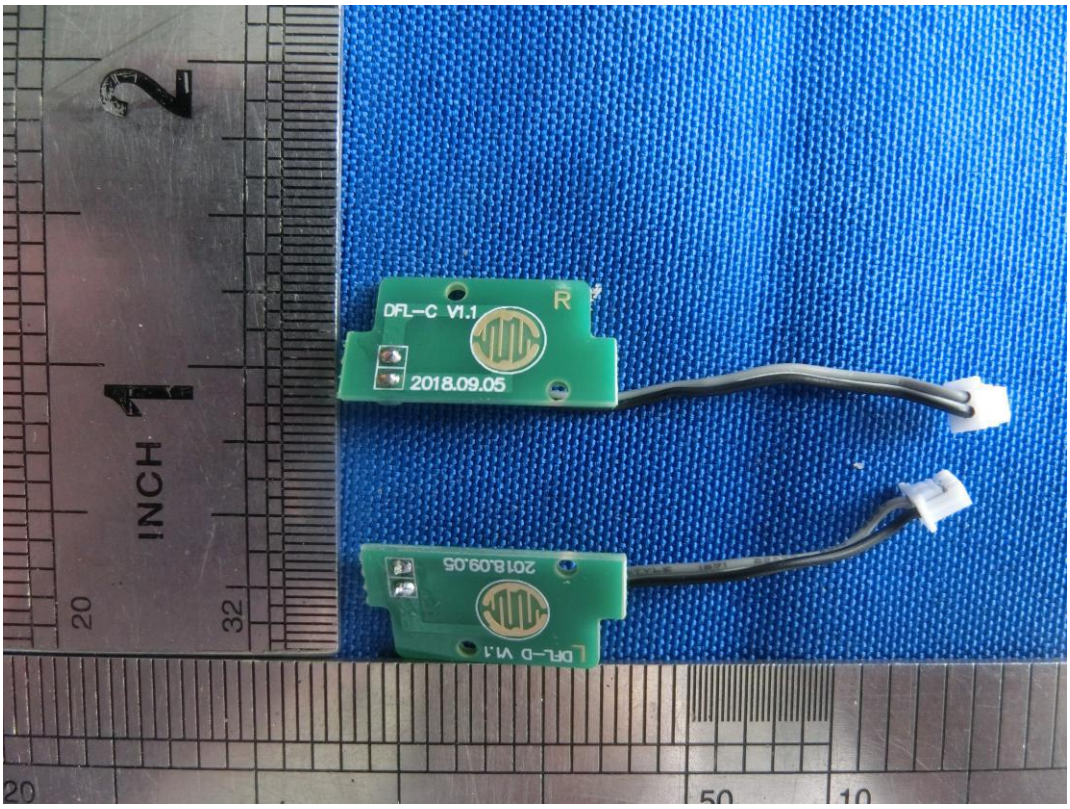
2018.09.05
INCH

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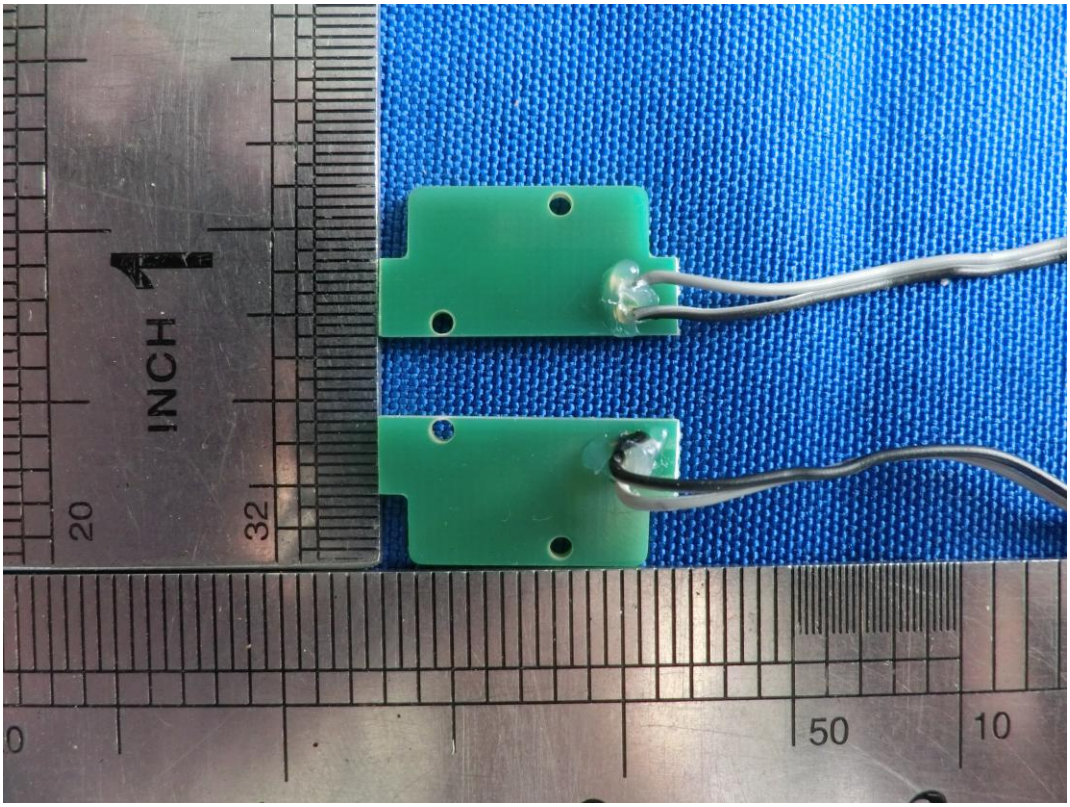
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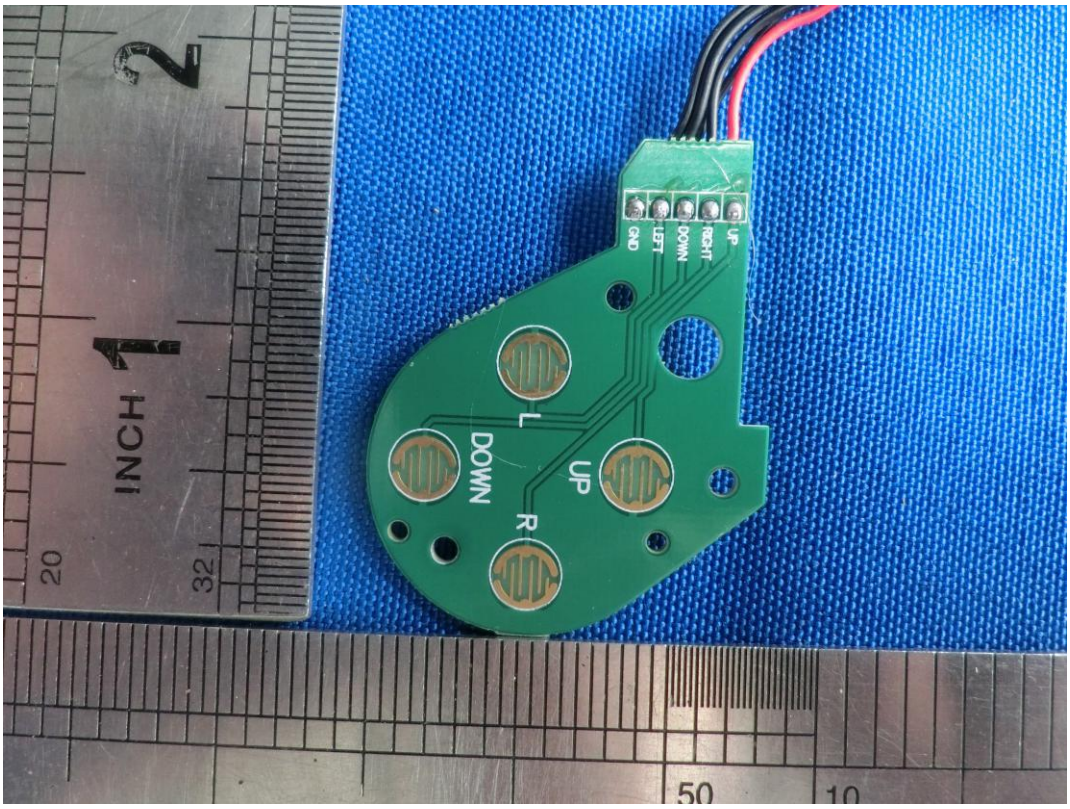
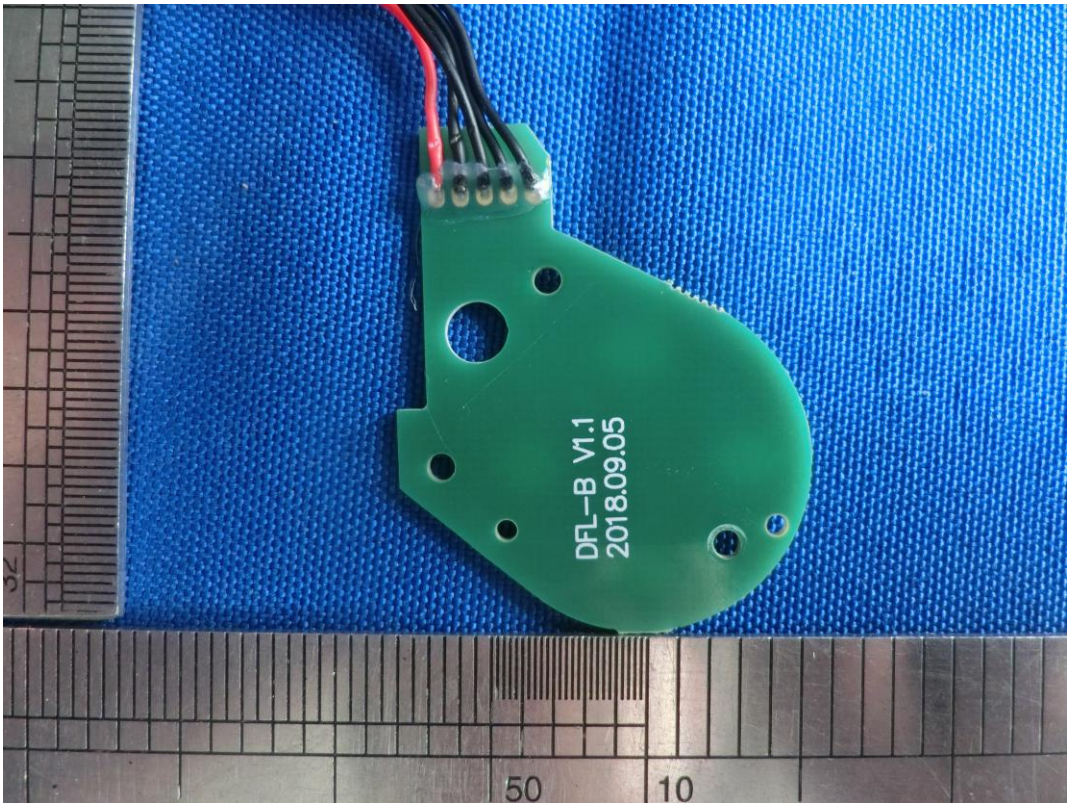

UP
RIGHT
DOWN
LEFT
GND
L
DOWN
UP
R
INCH
50
10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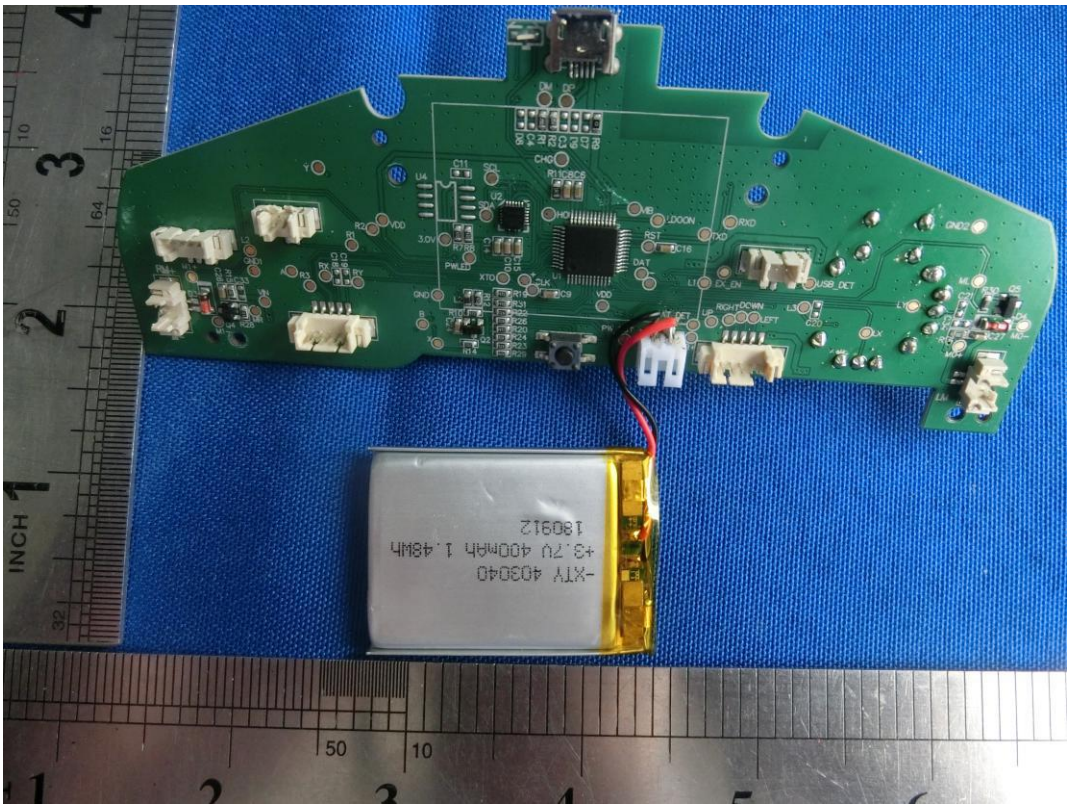

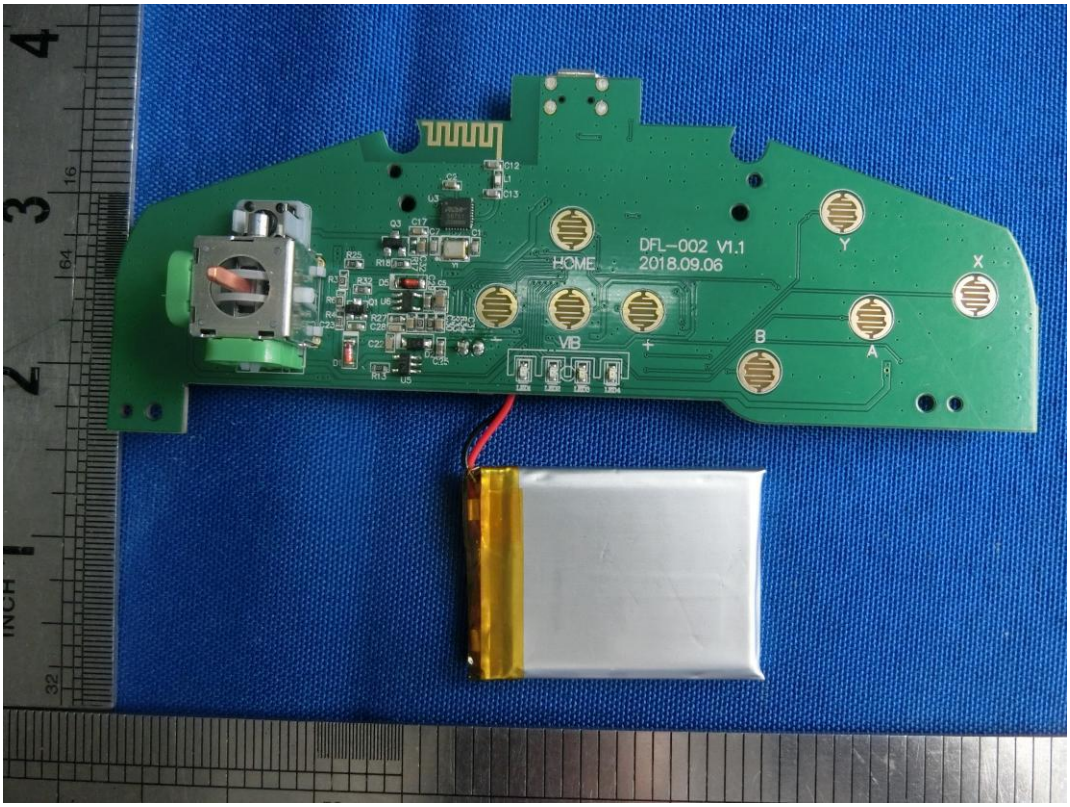

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