

3.8. Spurious Emission (Radiated)

Limit

Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

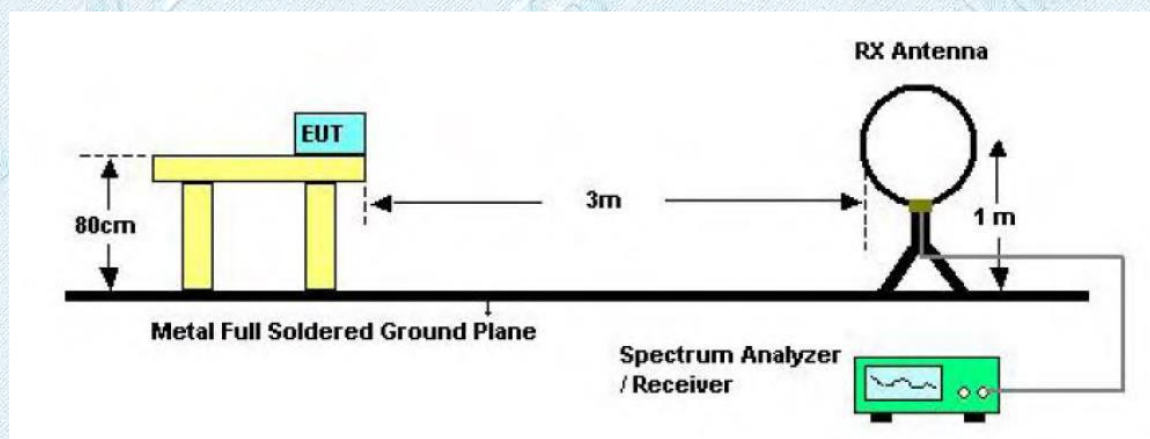
Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

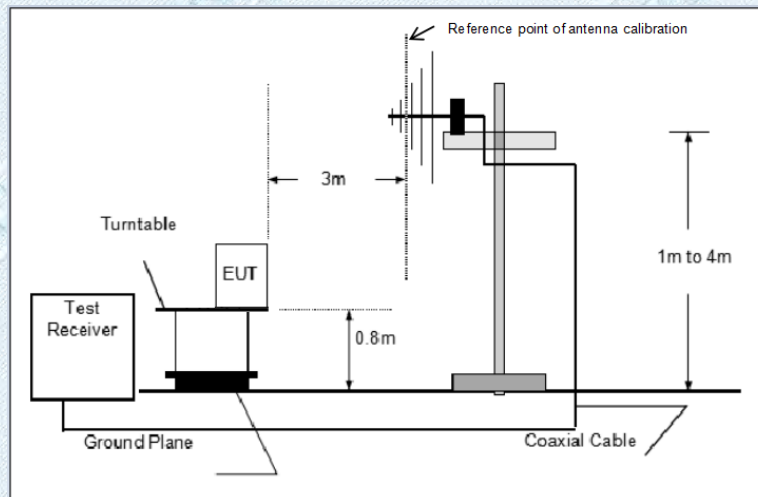
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

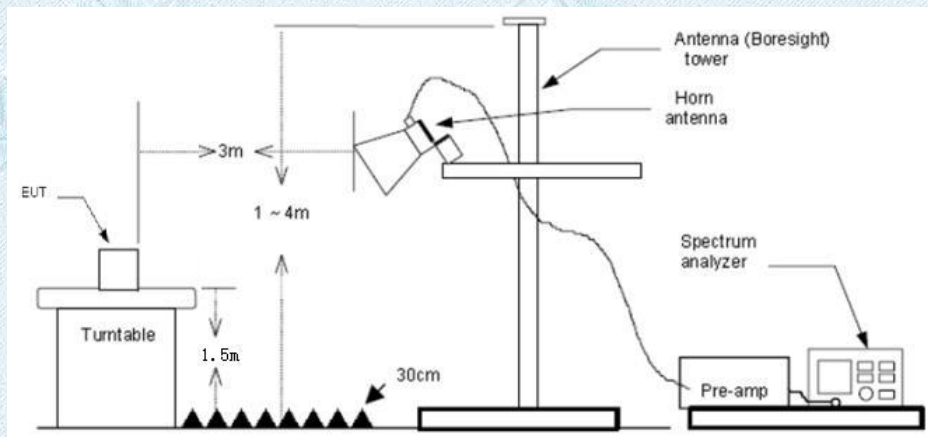
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=1MHz Peak detector for Peak value.
RBW=1MHz, VBW=10Hz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

Test Result**9 KHz~30 MHz and 18GHz~25GHz**

From 9 KHz~30 MHz and 18GHz~25GHz: Conclusion: PASS

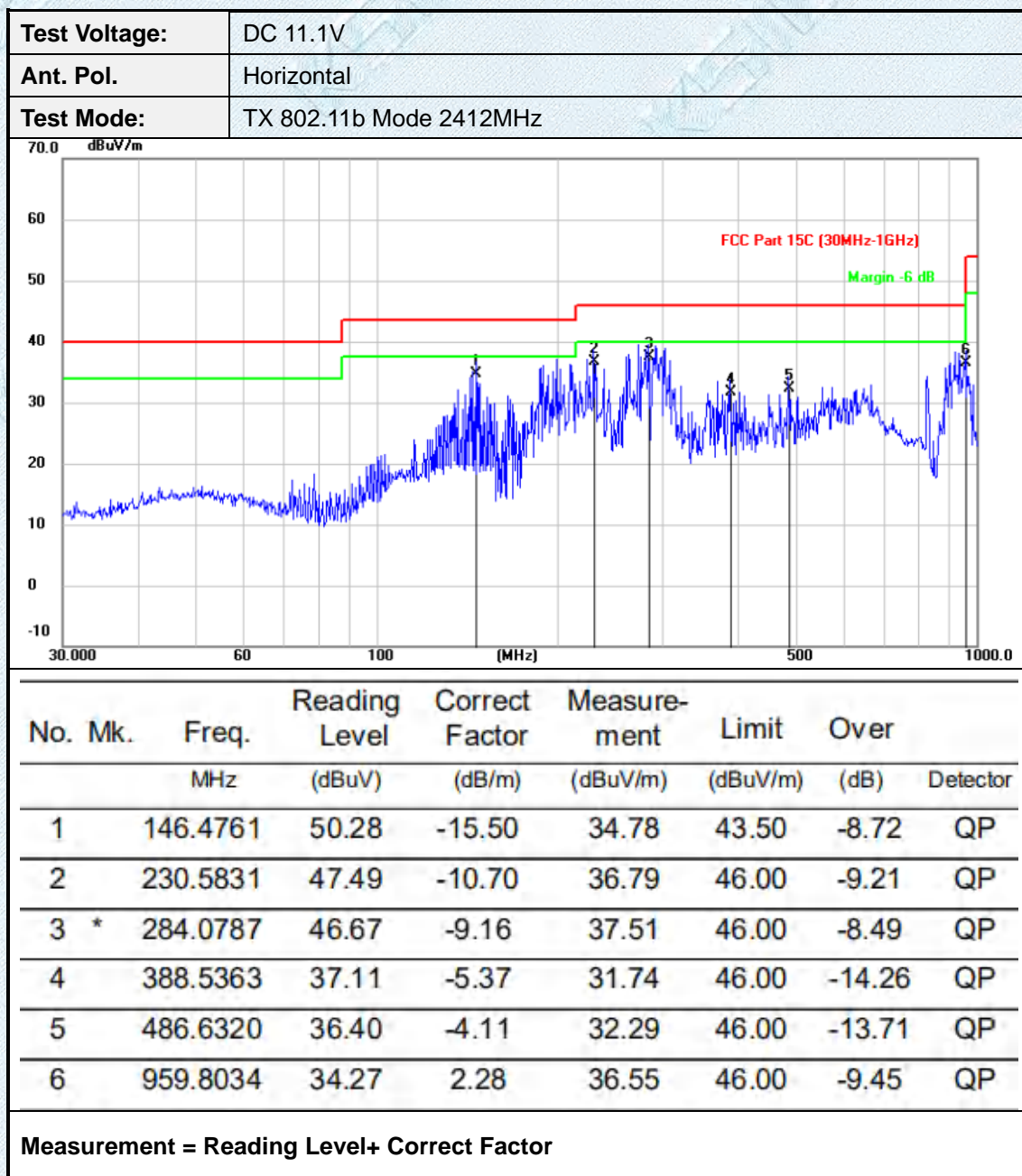
Note:

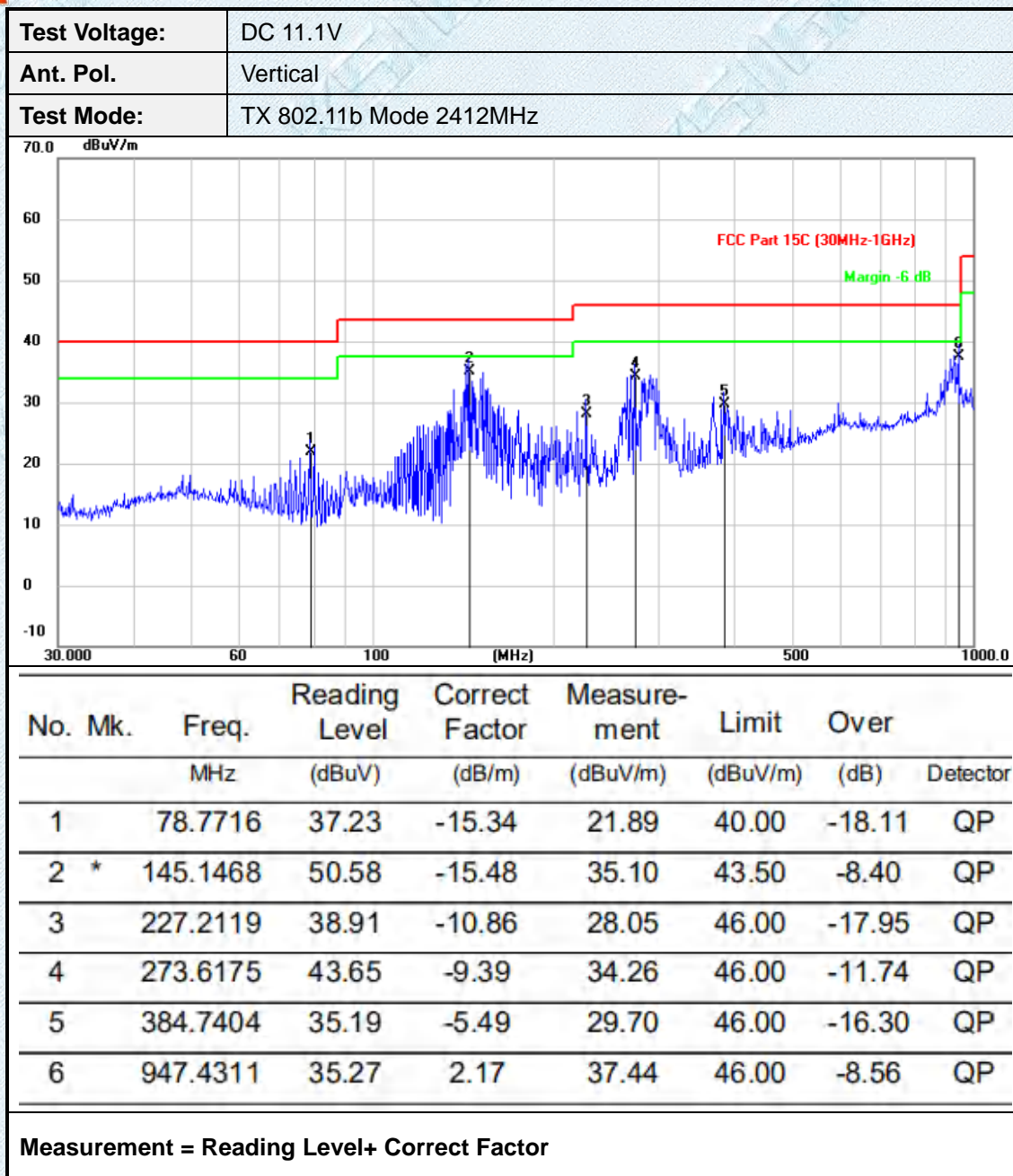
- 1) Measurement = Reading level + Correct Factor
Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor
- 2) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
- 3) The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 5) Pre-scan 802.11b/g/n(HT20/HT40) modulation, and found the 802.11b modulation 2412MHz which it is worse case for 30MHz-1GHz , so only show the test data for worse case.
- 6) Pre-scan 802.11b/g/n(HT20/HT40) modulation, and found the 802.11b modulation which it is worse case for above 1GHz, so only show the test data for worse case.

BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

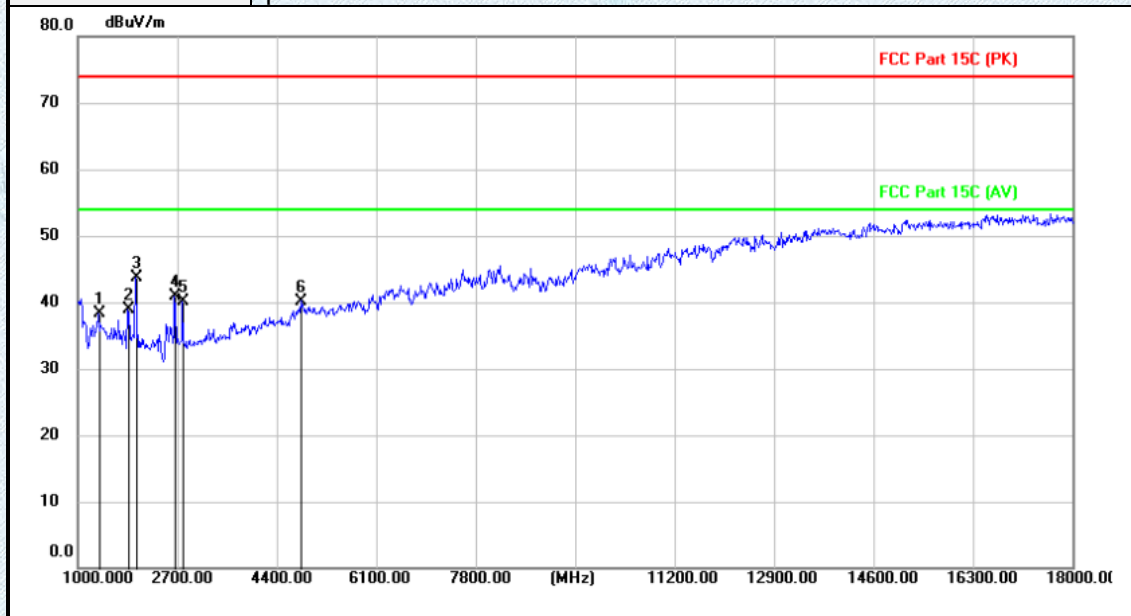
30MHz-1GHz





Adobe 1GHz

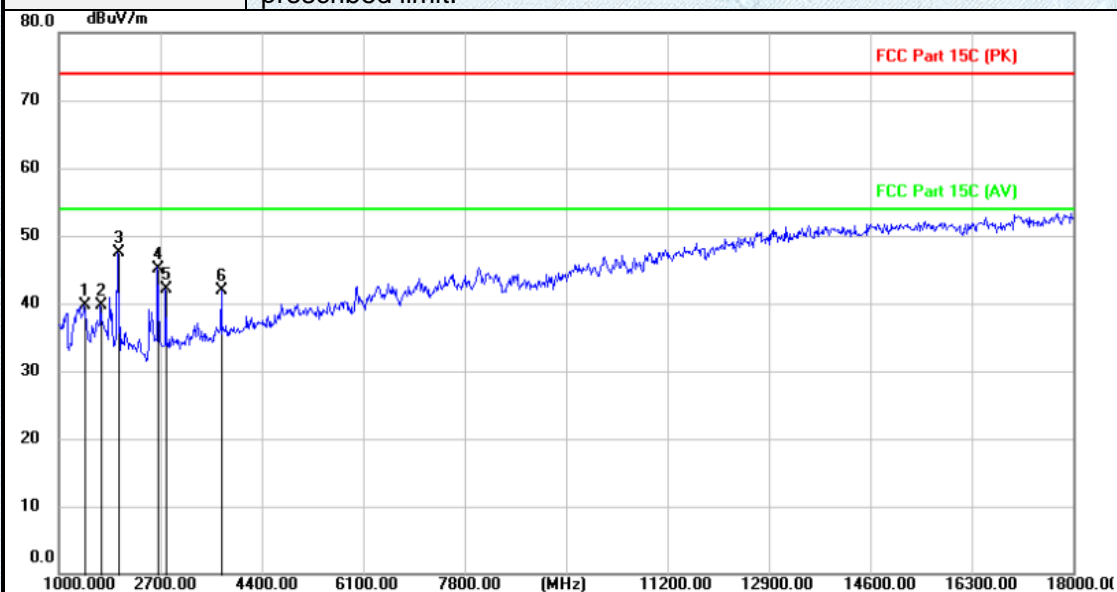
Test Voltage:	DC 11.1V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1362.100	50.22	-11.94	38.28	74.00	-35.72	peak
2		1865.300	50.00	-11.17	38.83	74.00	-35.17	peak
3	*	1996.200	54.75	-11.06	43.69	74.00	-30.31	peak
4		2662.600	51.62	-10.79	40.83	74.00	-33.17	peak
5		2795.200	50.90	-10.71	40.19	74.00	-33.81	peak
6		4823.300	46.07	-5.87	40.20	74.00	-33.80	peak

Measurement = Reading level + Correct Factor

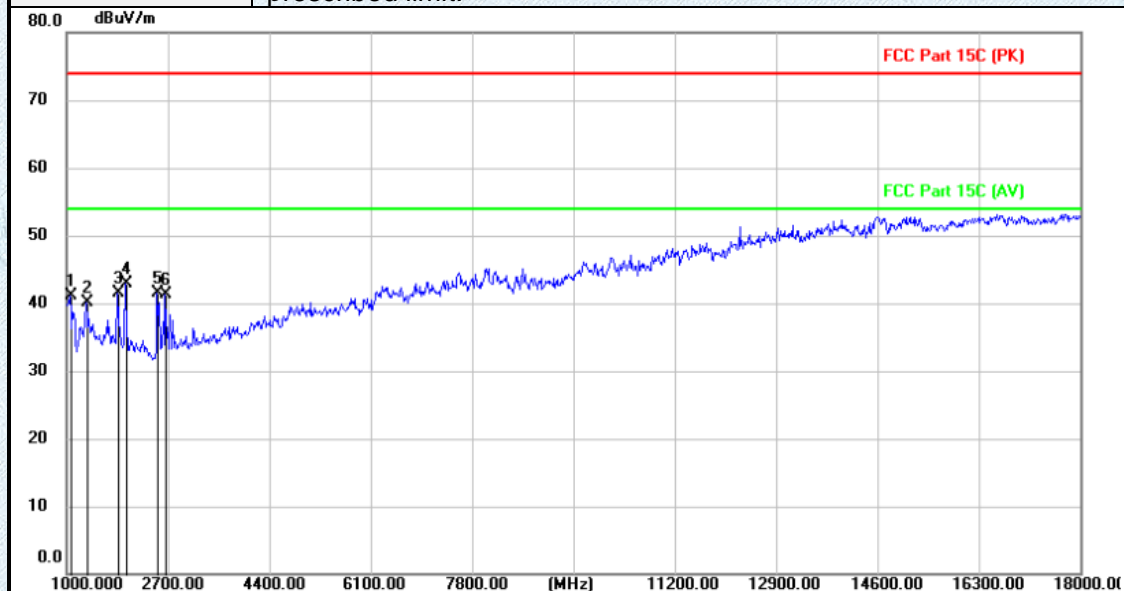
Test Voltage:	DC 11.1V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1433.500	51.52	-11.86	39.66	74.00	-34.34	peak
2		1702.100	51.21	-11.41	39.80	74.00	-34.20	peak
3	*	1999.600	58.50	-11.06	47.44	74.00	-26.56	peak
4		2660.900	55.99	-10.79	45.20	74.00	-28.80	peak
5		2798.600	52.80	-10.71	42.09	74.00	-31.91	peak
6		3728.500	50.98	-9.12	41.86	74.00	-32.14	peak

Measurement = Reading level + Correct Factor

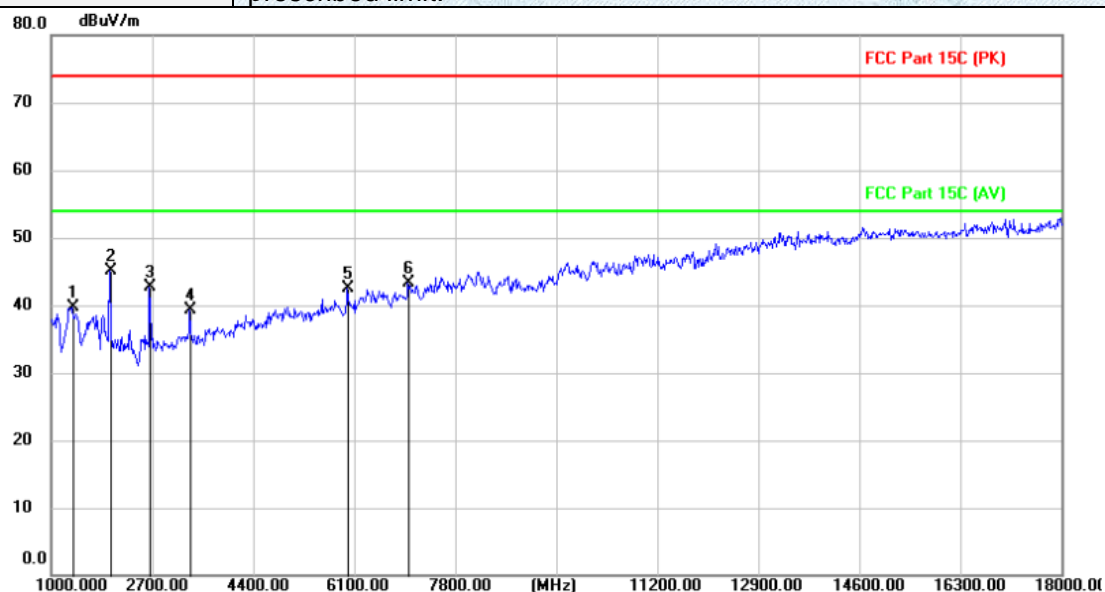
Test Voltage:	DC 11.1V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1056.100	53.35	-12.34	41.01	74.00	-32.99	peak
2		1331.500	52.02	-11.94	40.08	74.00	-33.92	peak
3		1865.300	52.64	-11.17	41.47	74.00	-32.53	peak
4	*	1996.200	53.97	-11.06	42.91	74.00	-31.09	peak
5		2526.600	52.40	-10.86	41.54	74.00	-32.46	peak
6		2664.300	52.11	-10.79	41.32	74.00	-32.68	peak

Measurement = Reading level + Correct Factor

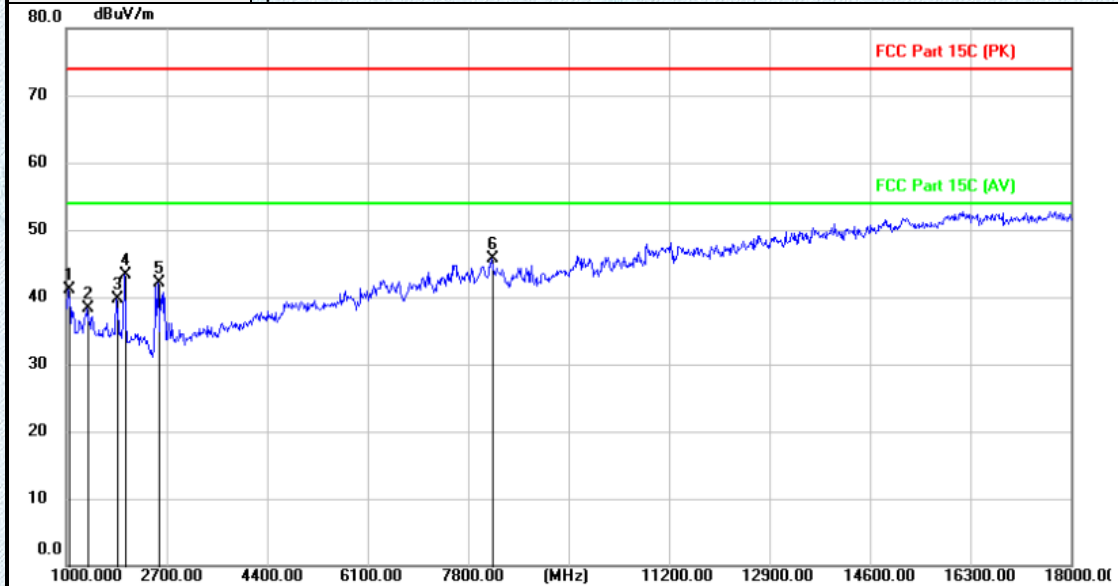
Test Voltage:	DC 11.1V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1360.400	51.61	-11.94	39.67	74.00	-34.33	peak
2	*	1999.600	56.20	-11.06	45.14	74.00	-28.86	peak
3		2657.500	53.48	-10.78	42.70	74.00	-31.30	peak
4		3330.700	49.23	-9.98	39.25	74.00	-34.75	peak
5		5987.800	46.36	-3.83	42.53	74.00	-31.47	peak
6		7016.300	44.01	-0.66	43.35	74.00	-30.65	peak

Measurement = Reading level + Correct Factor

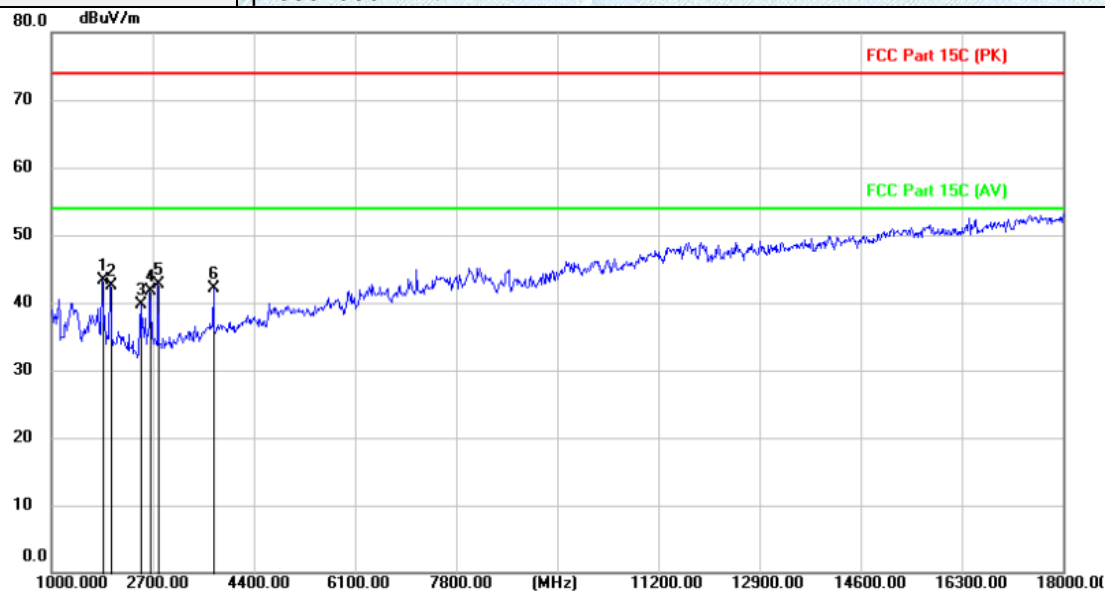
Test Voltage:	DC 11.1V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1044.200	53.55	-12.36	41.19	74.00	-32.81	peak
2		1362.100	50.25	-11.94	38.31	74.00	-35.69	peak
3		1863.600	50.80	-11.18	39.62	74.00	-34.38	peak
4		1997.900	54.38	-11.06	43.32	74.00	-30.68	peak
5		2560.600	52.99	-10.85	42.14	74.00	-31.86	peak
6	*	8204.600	43.77	2.01	45.78	74.00	-28.22	peak

Measurement = Reading level + Correct Factor

Test Voltage:	DC 11.1V
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	1860.200	54.54	-11.18	43.36	74.00	-30.64	peak
2		1994.500	53.67	-11.07	42.60	74.00	-31.40	peak
3		2506.200	50.60	-10.87	39.73	74.00	-34.27	peak
4		2660.900	52.59	-10.79	41.80	74.00	-32.20	peak
5		2790.100	53.38	-10.71	42.67	74.00	-31.33	peak
6		3726.800	51.21	-9.12	42.09	74.00	-31.91	peak

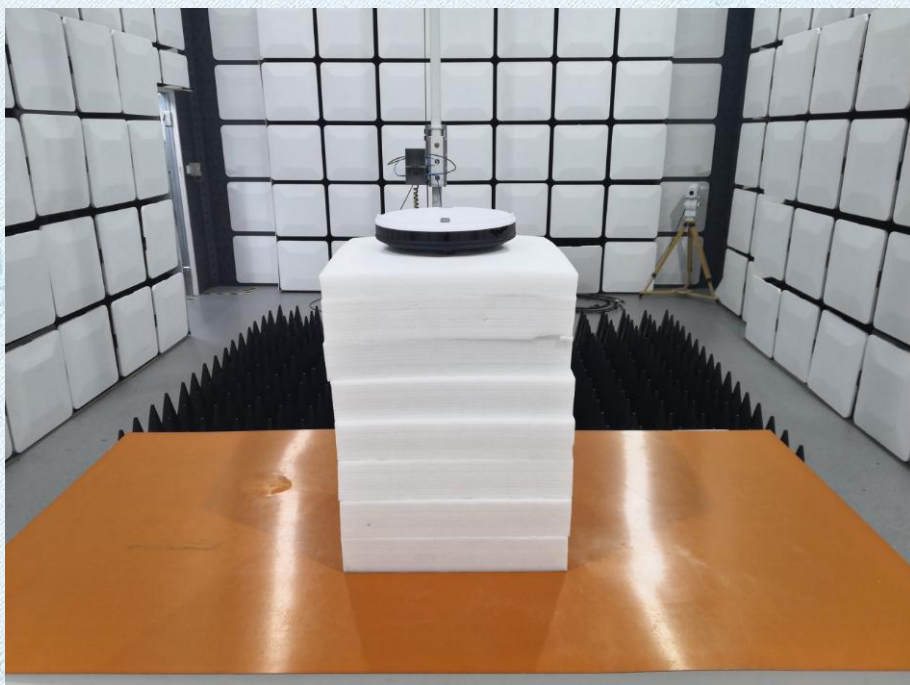
Measurement = Reading level + Correct Factor

4.EUT TEST PHOTOS

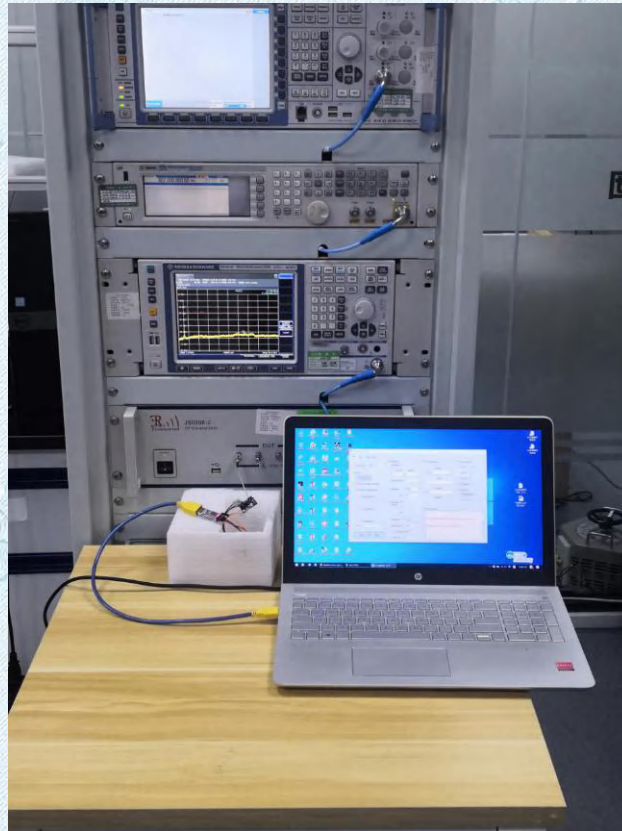
Radiated Emissions (30MHz~1000MHz)



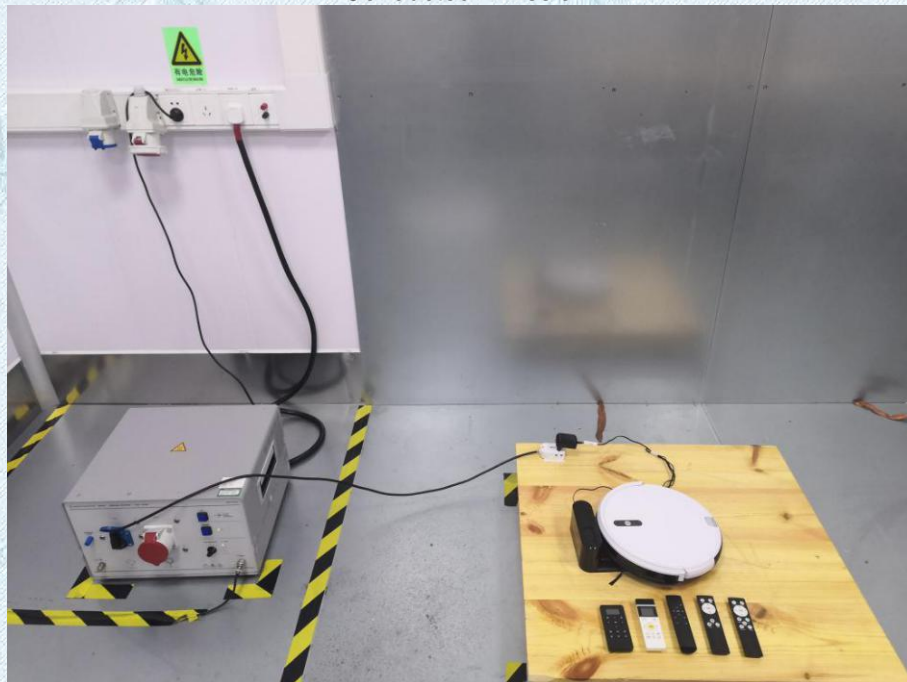
Radiated Emissions (Above 1GHz)



RF Conducted



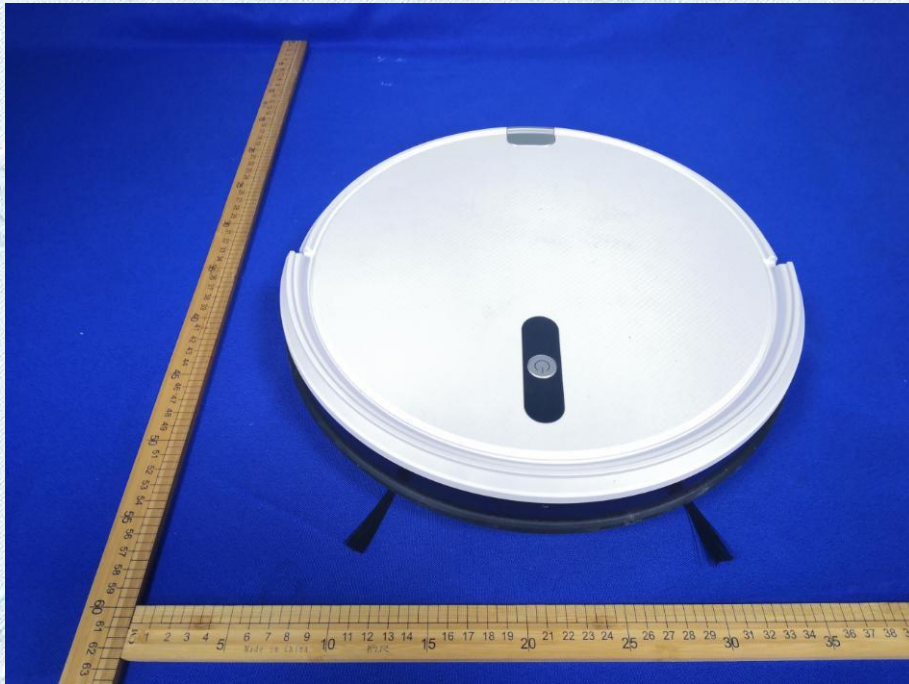
Conducted Emission

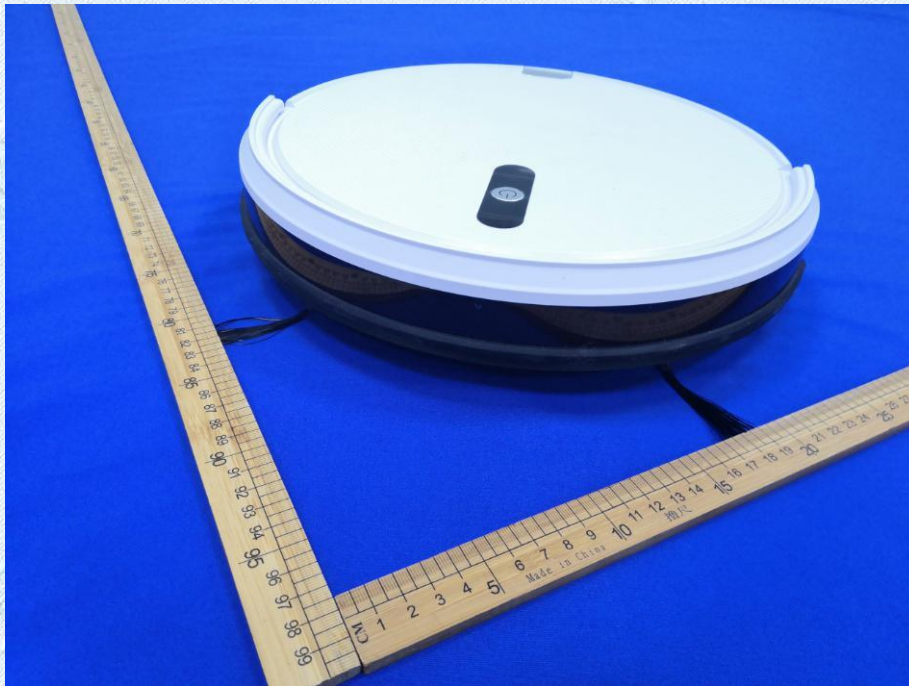


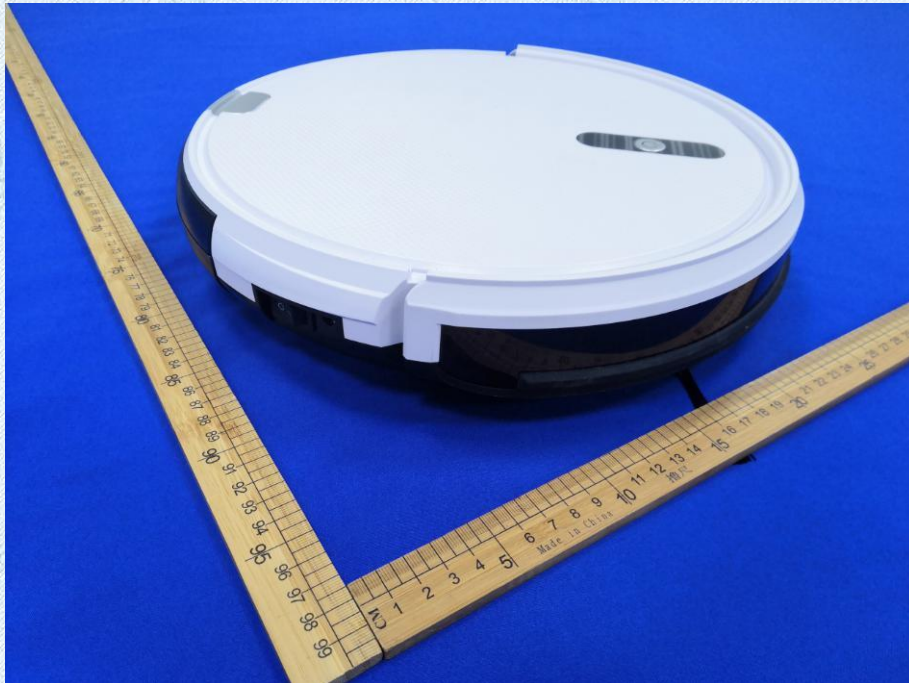
5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

External Photographs















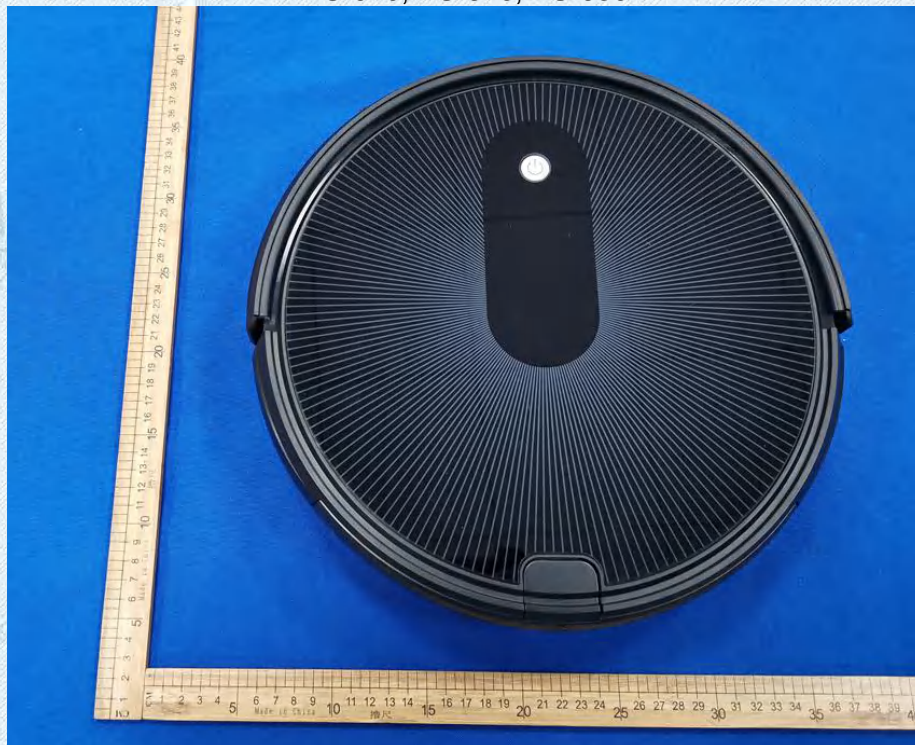




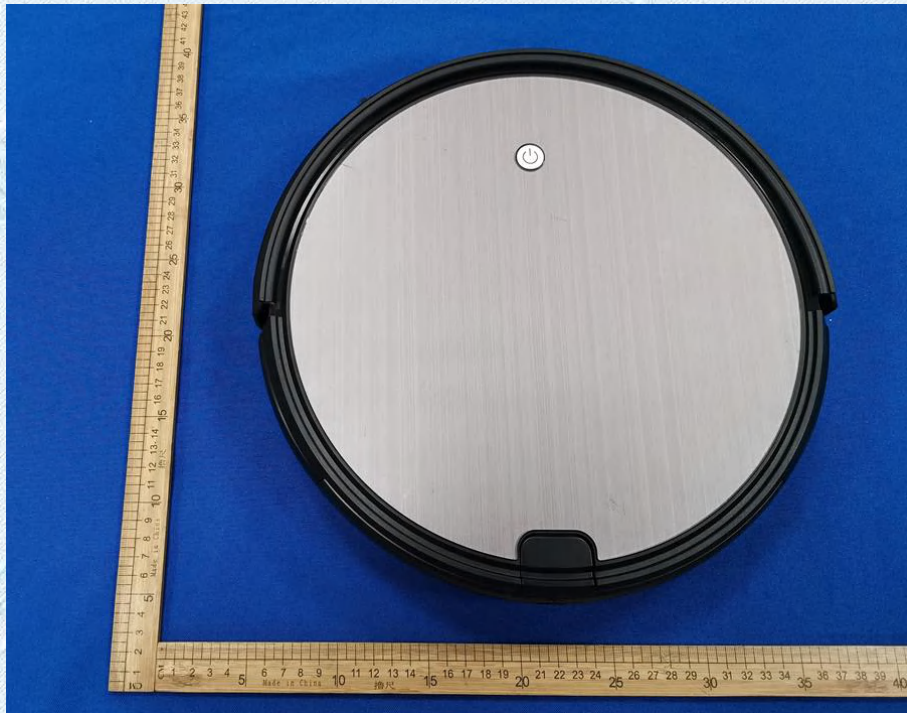




YS-610, YS-620, YS-630



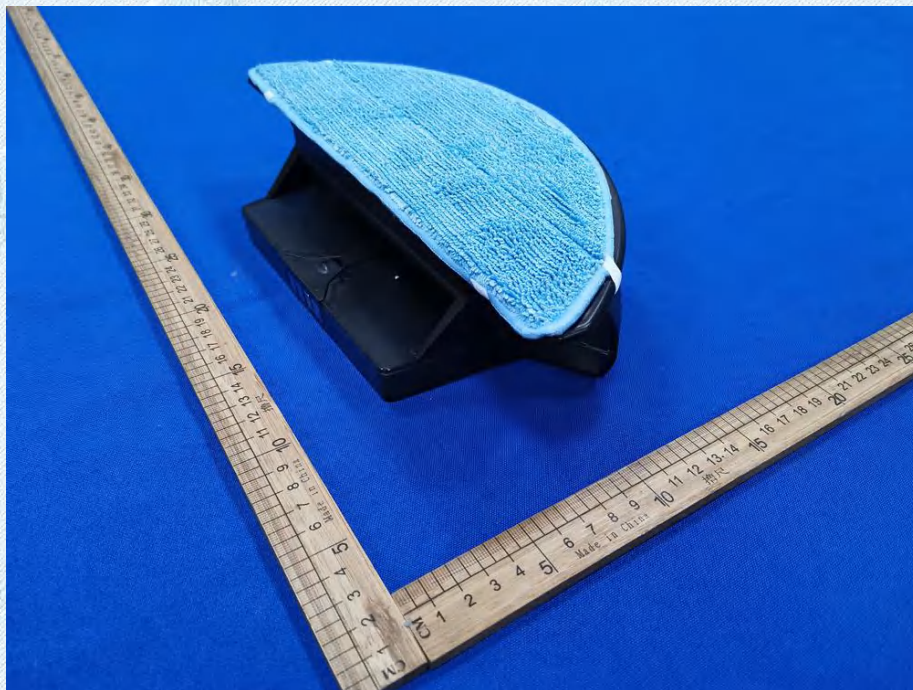
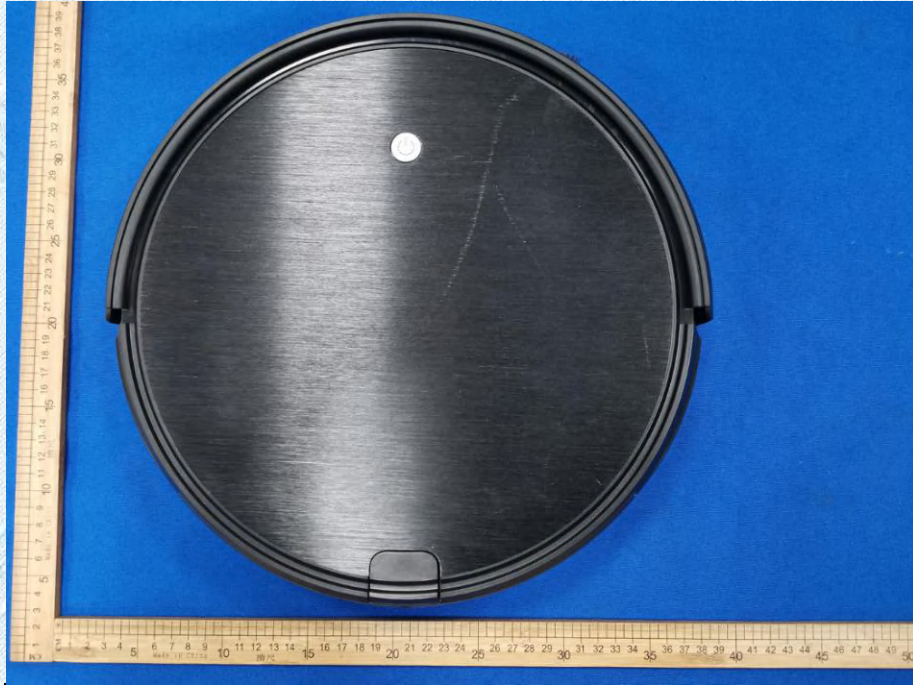
YS-640, YS-650



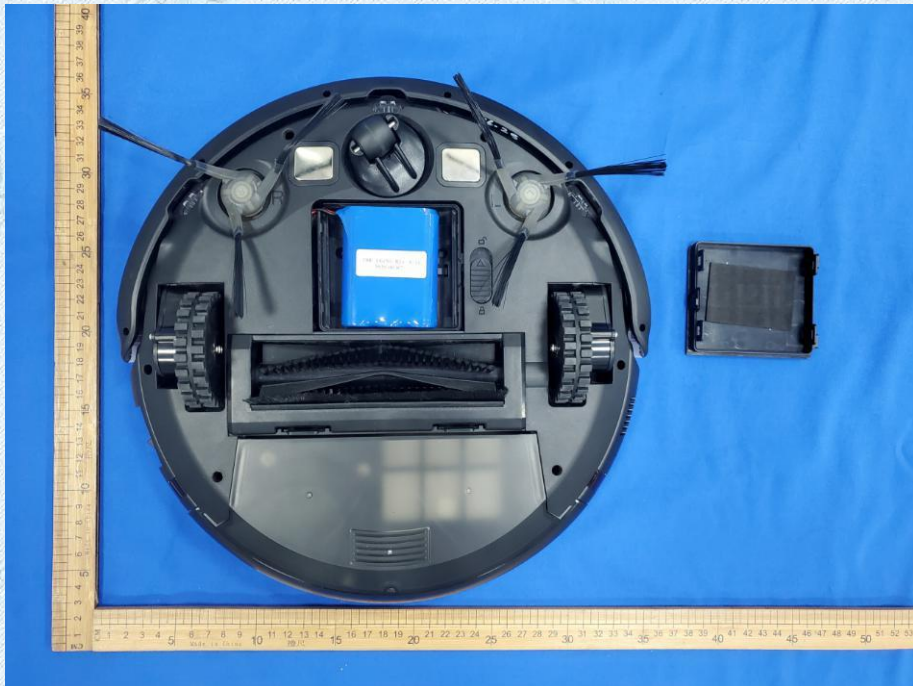
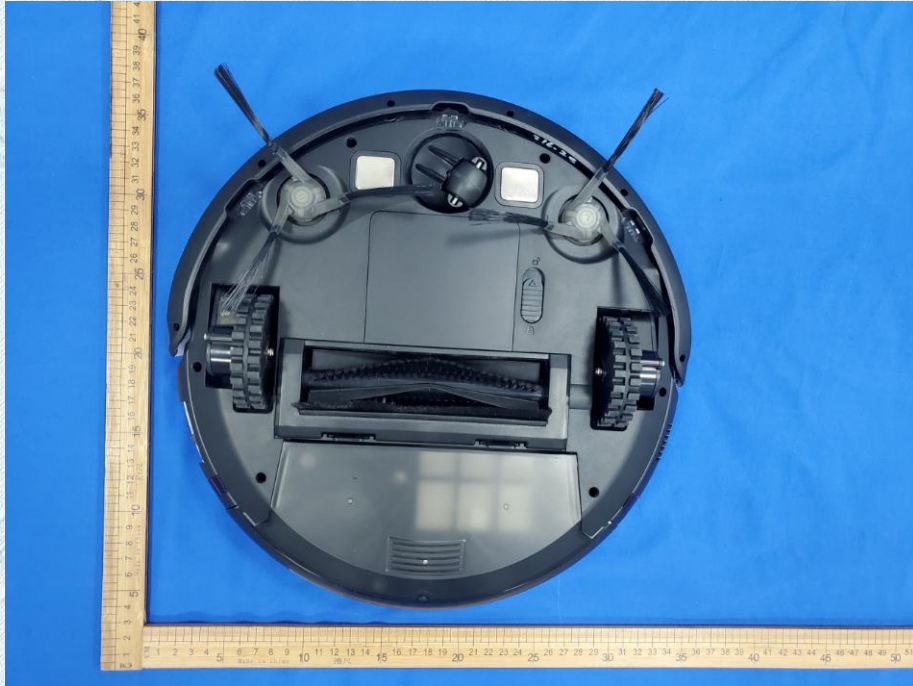
YS-660, YS-670



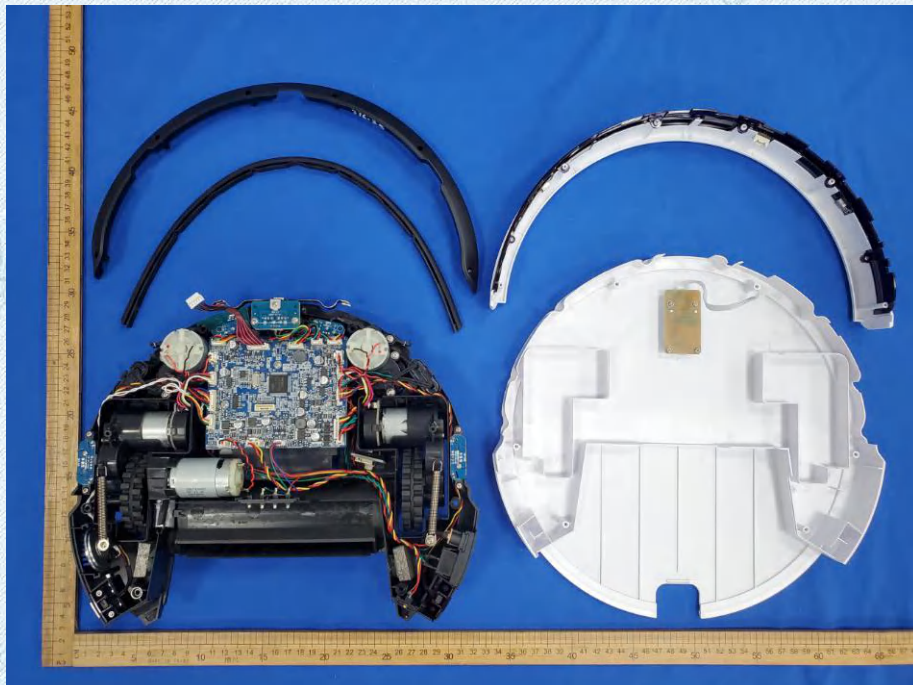
YS-680, YS-690

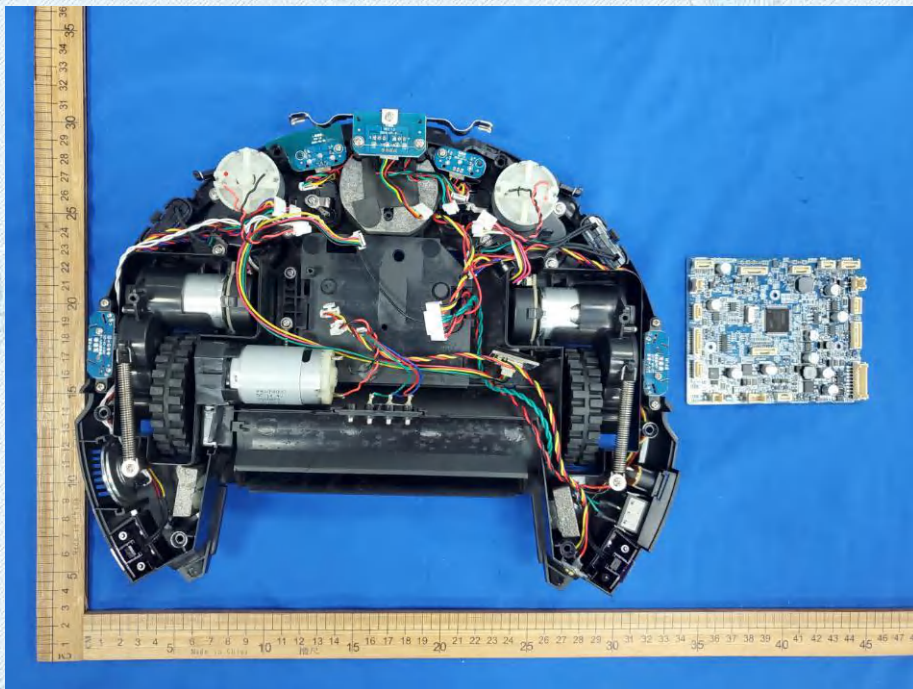
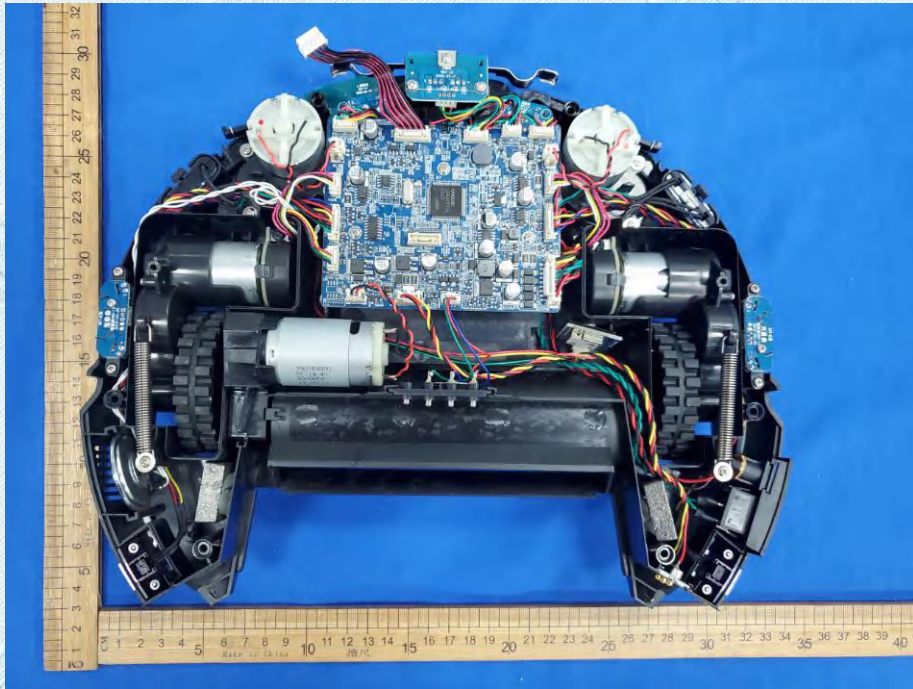


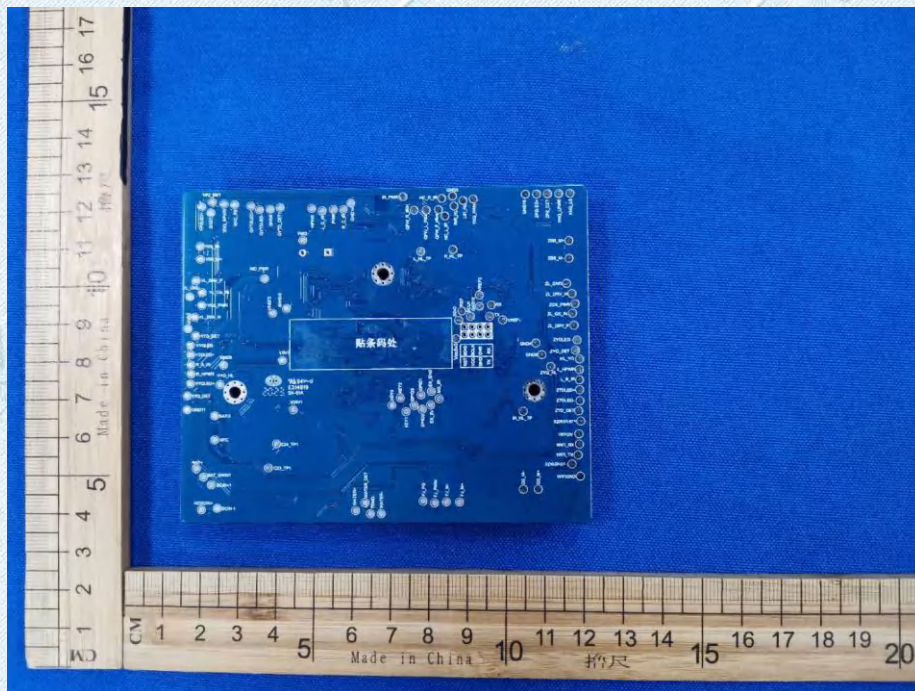
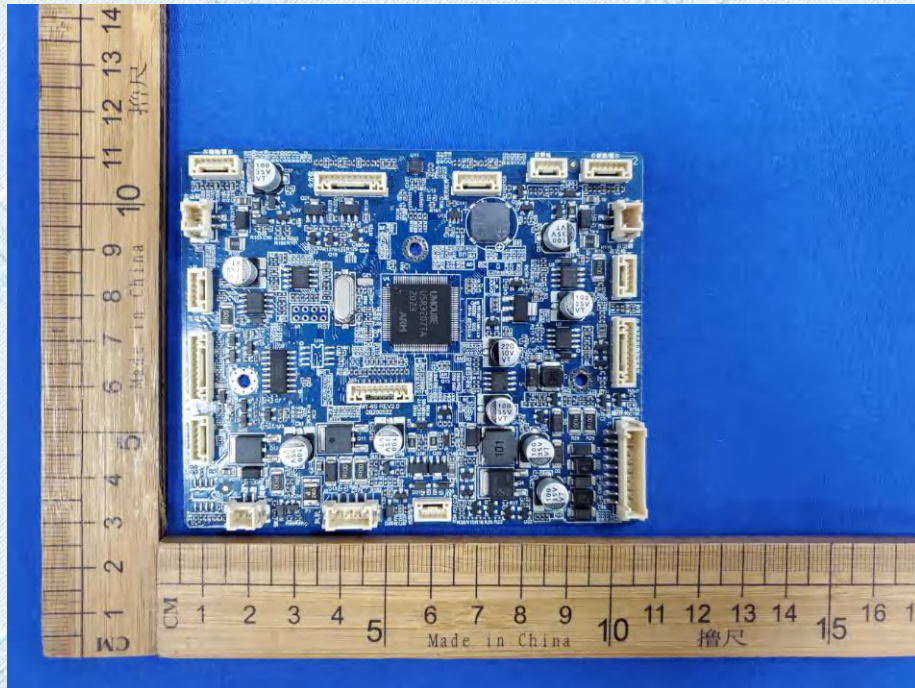
Internal Photographs

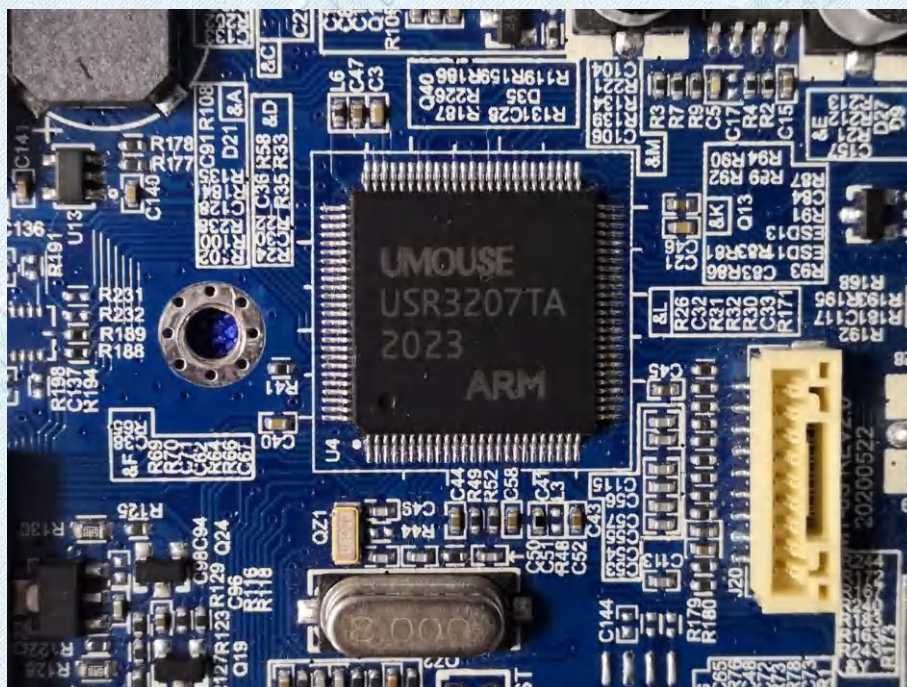




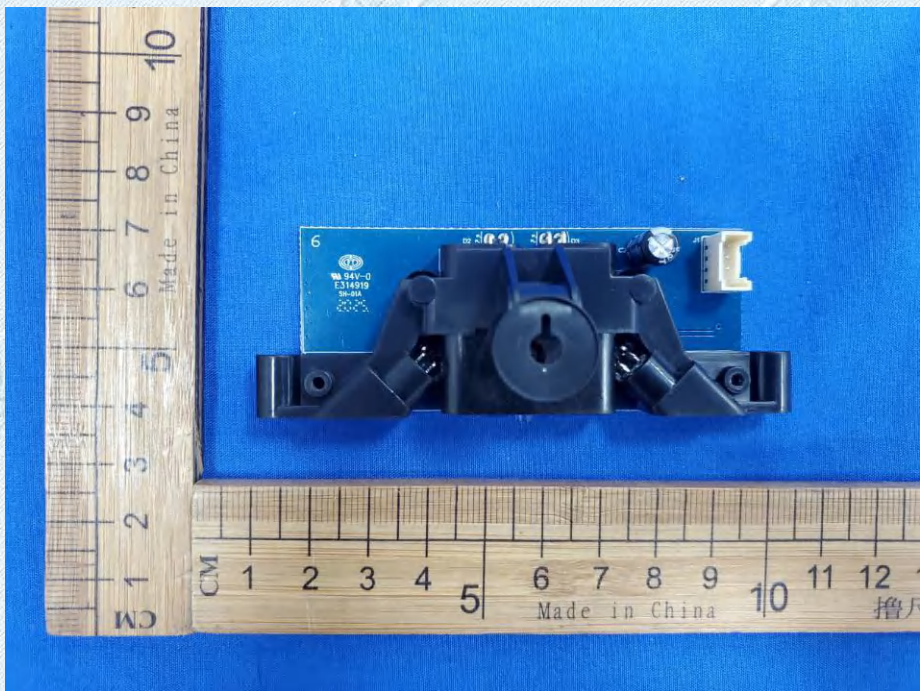
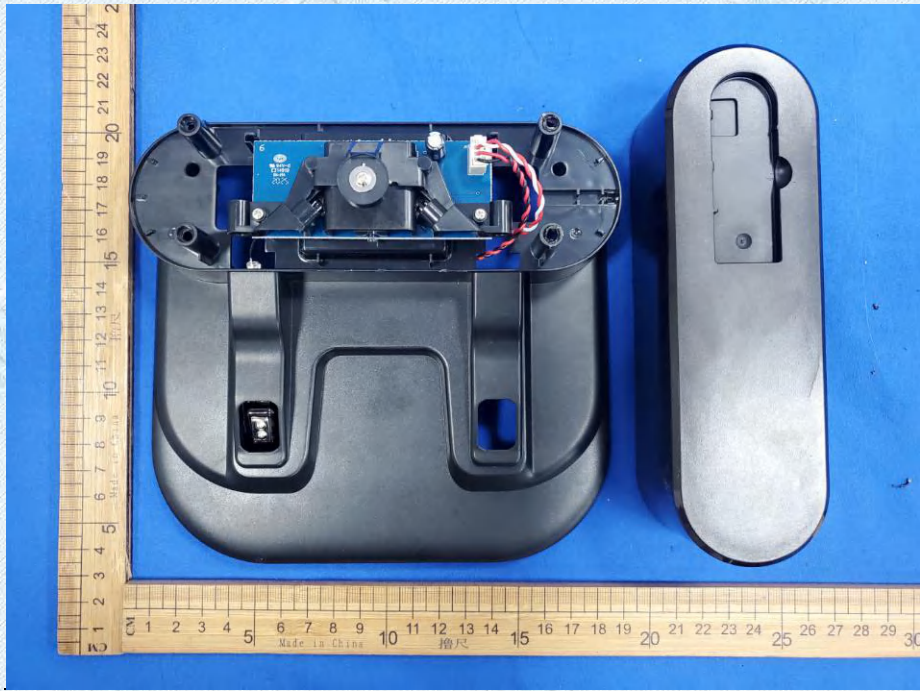


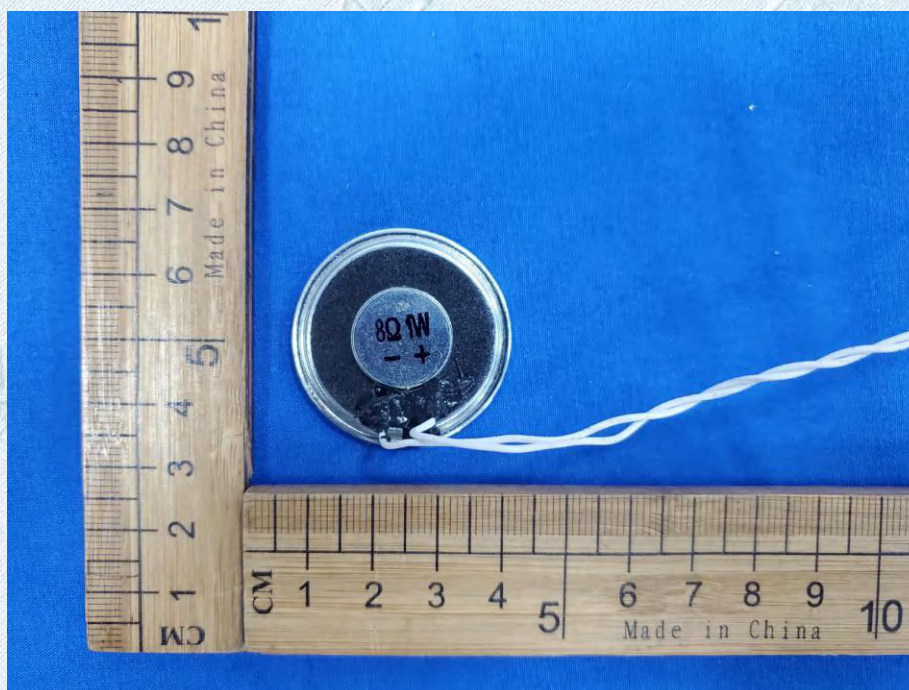
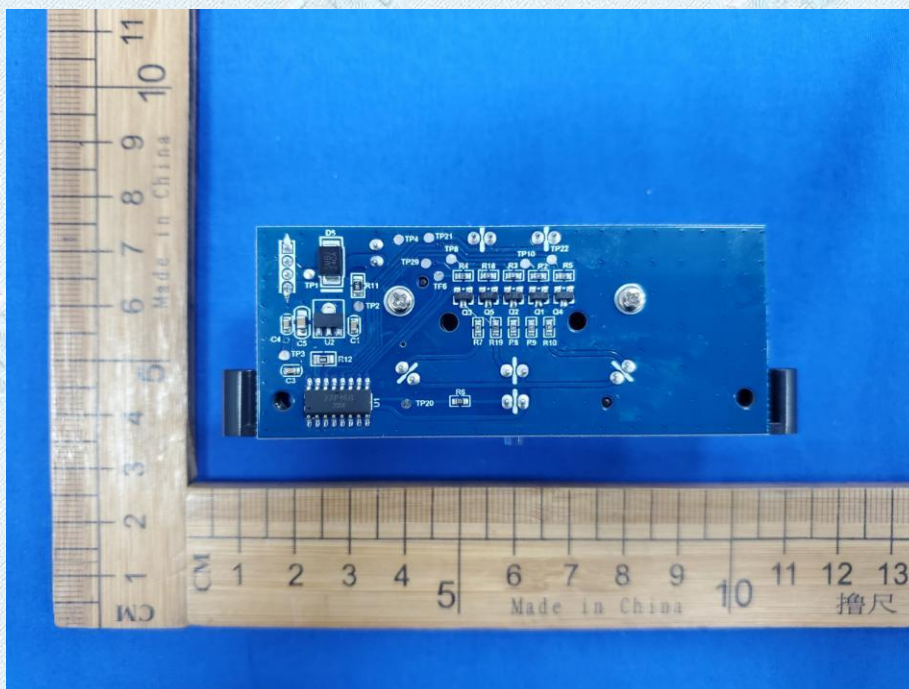


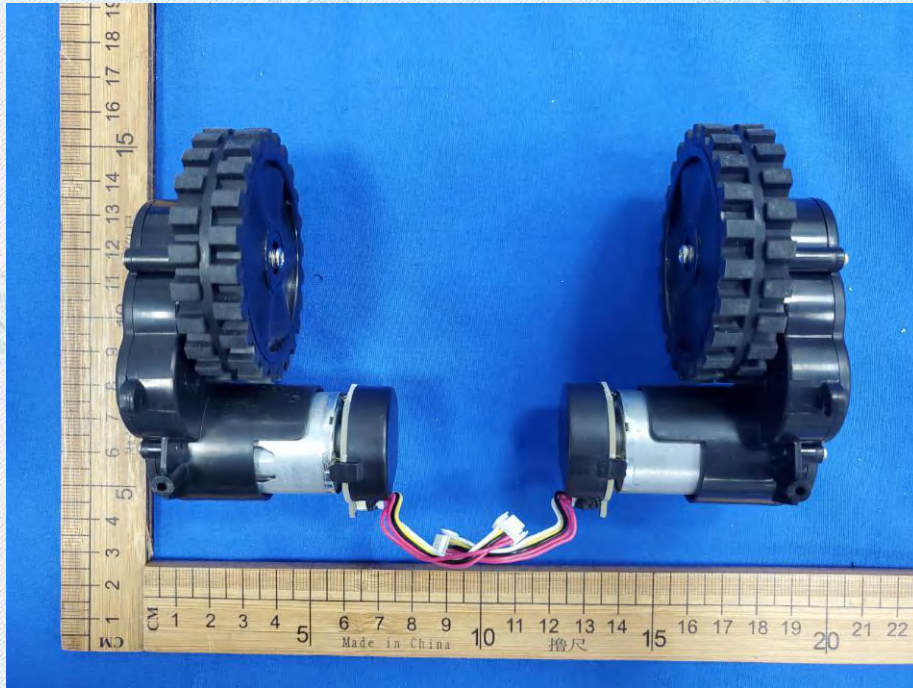


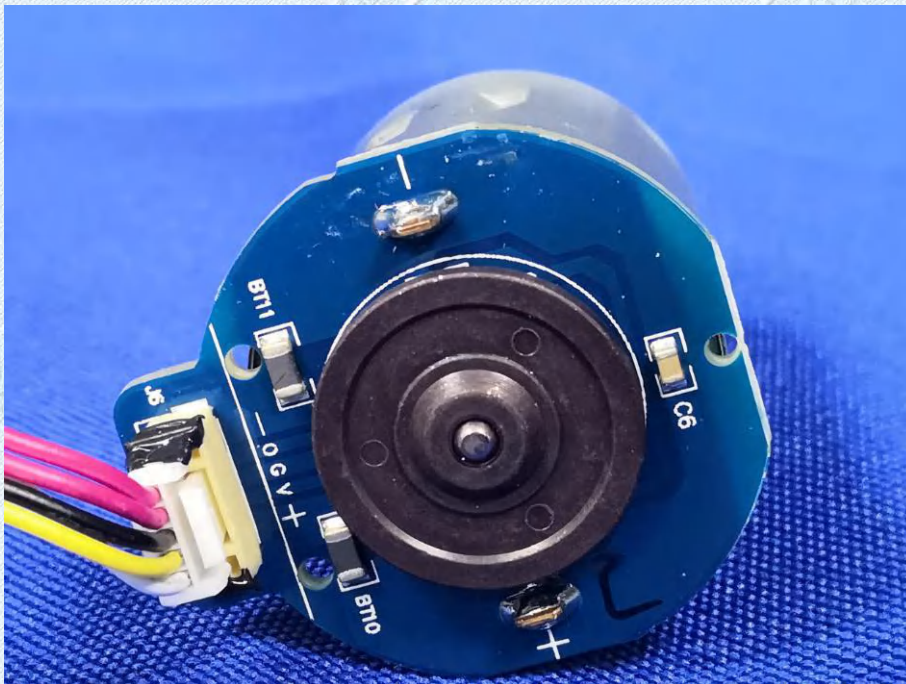
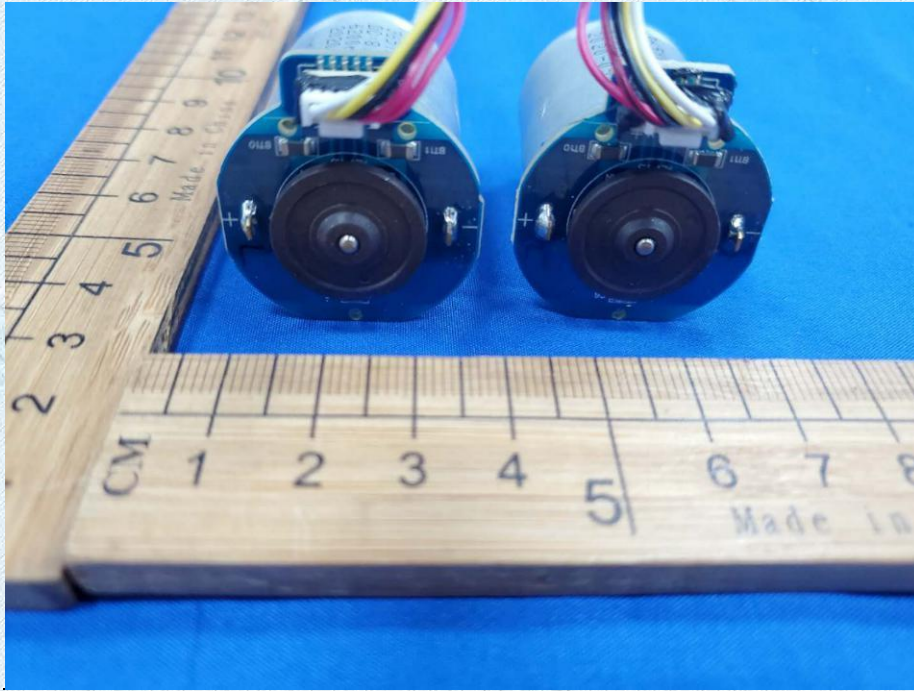


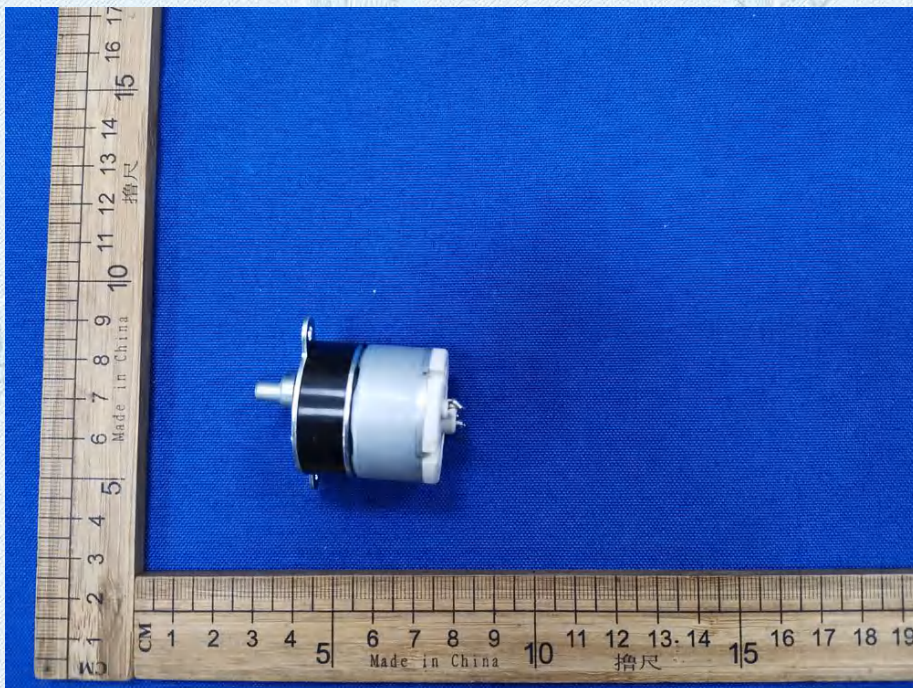
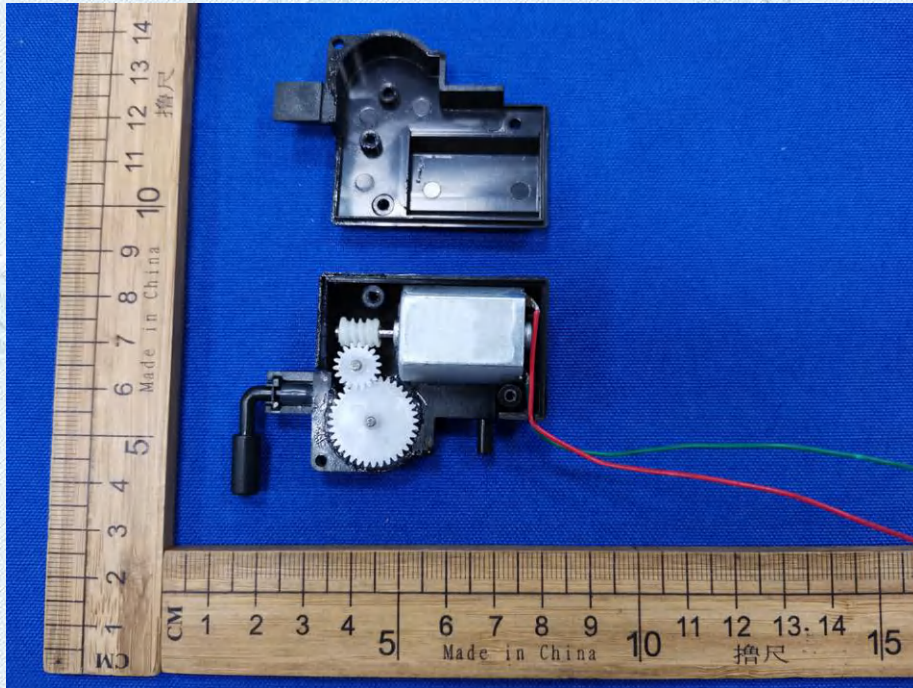


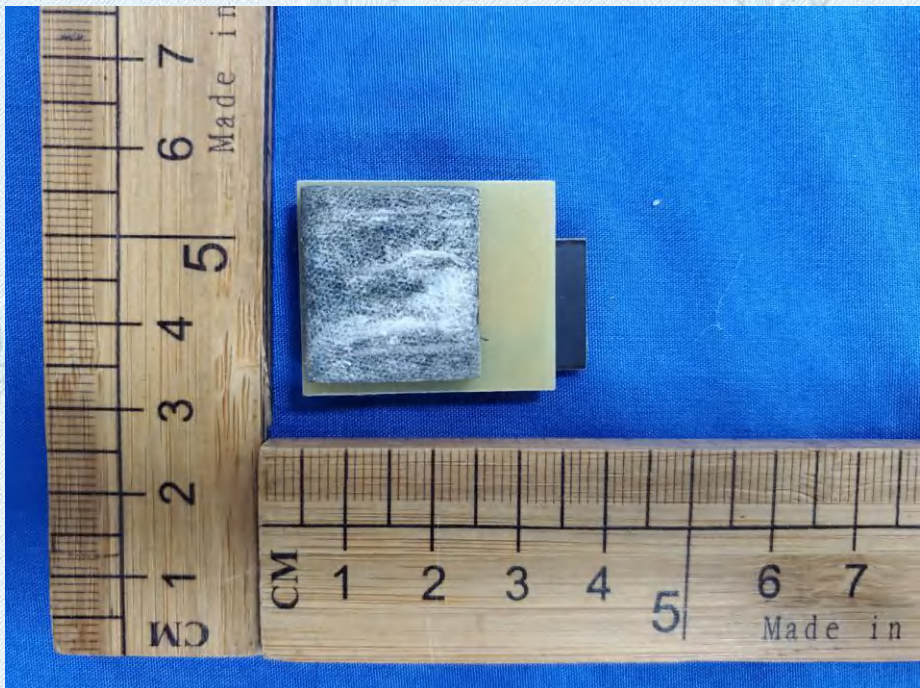
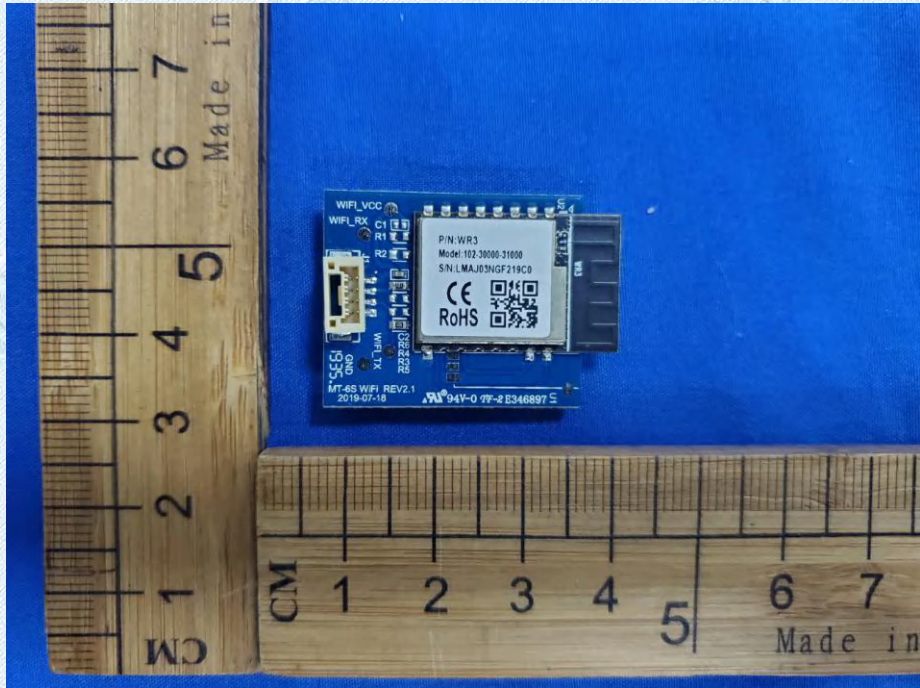


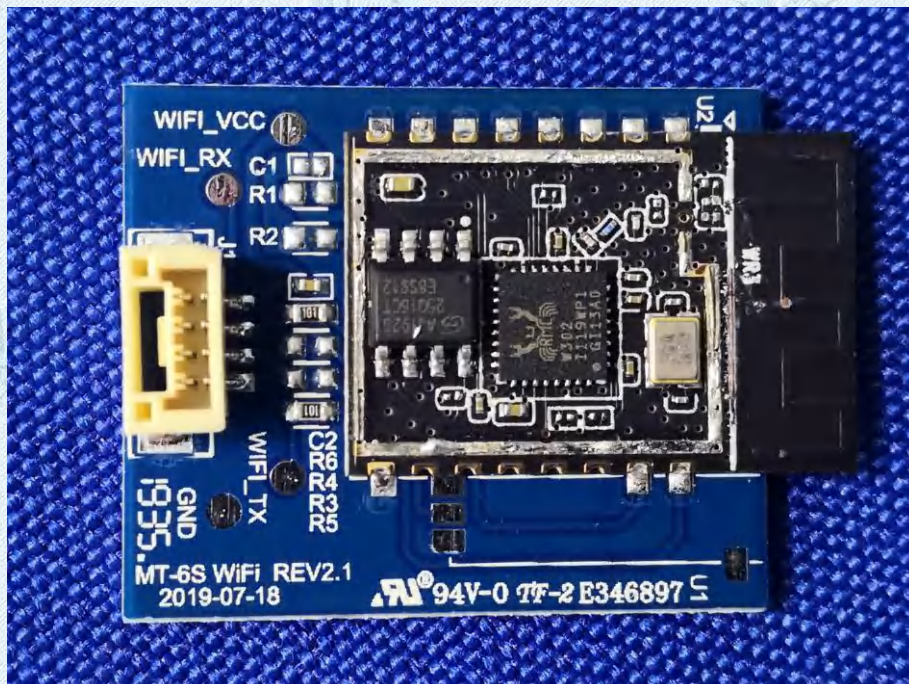














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