8. RADIATED SPURIOUS EMISSIONS AND BAND EDGE

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

15.209 Limit

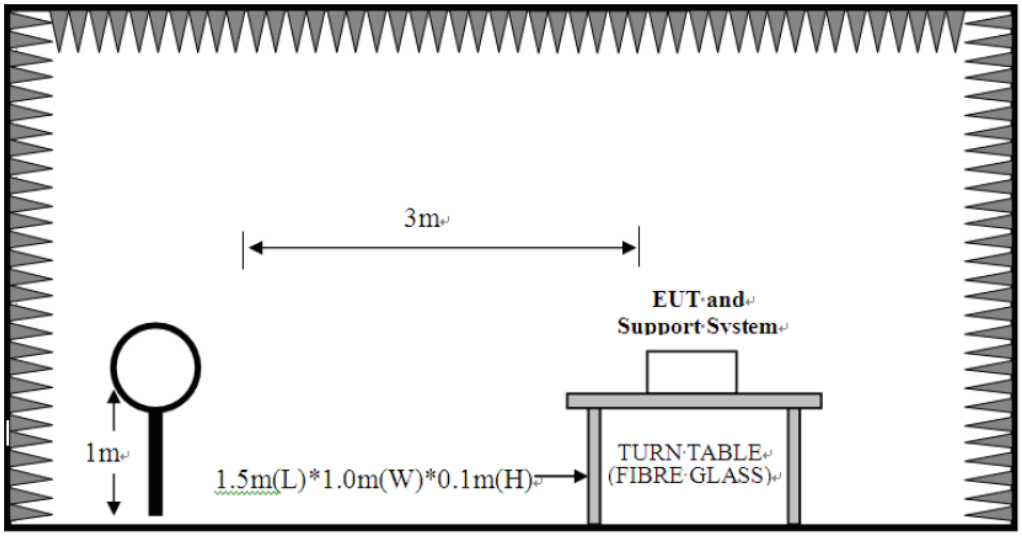
Frequency (MHz)	Field Strength(μV/m)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

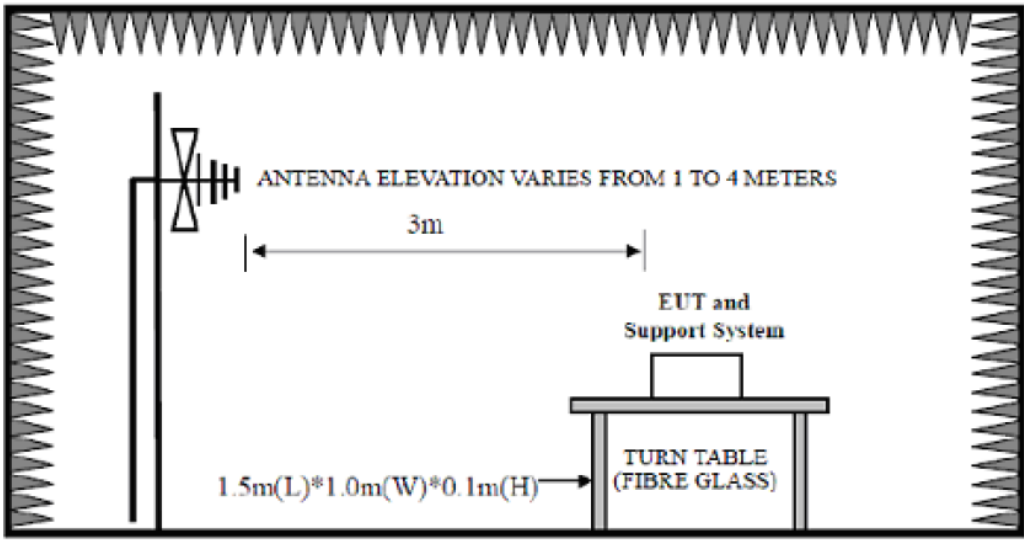
(1) Emission level dBμV = 20 log Emission level μV/m.
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument,antenna and the closest point of any part of the device or system.

8.2. Test setup

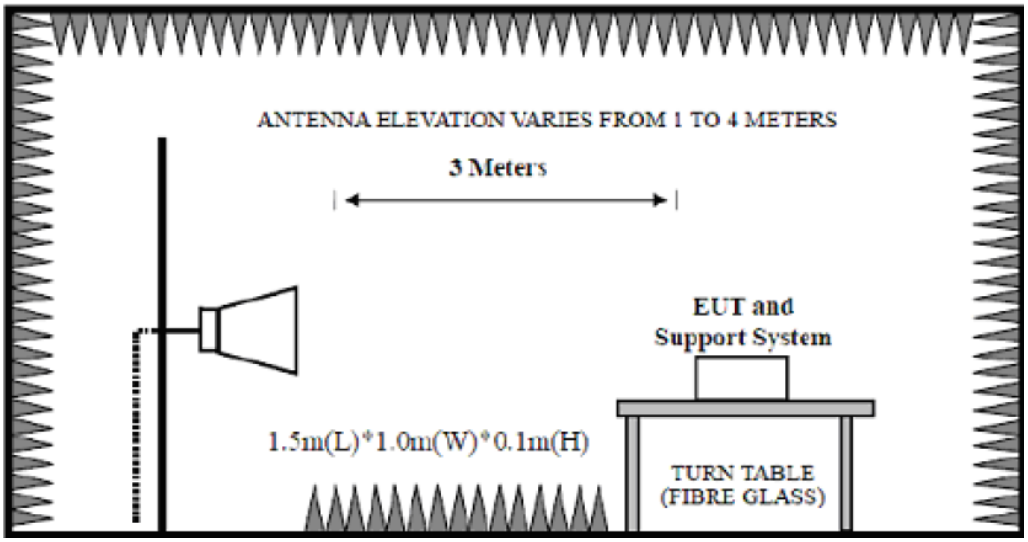
9kHz~30MHz



30~1000MHz



Above 1GHz



8.3. Spectrum Analyzer Setting

For 9KHz-150KHz

Spectrum Parameters	Setting
RBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
VBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

For 150KHz-30MHz

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For 30MHz-1GHz

Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For Above 1GHz

Spectrum Parameters	Setting	
RBW	1MHz	
VBW	PEAK Measurement	AVG Measurement
	3MHz	Duty cycle≥98%,VBW=10Hz
		Duty cycle＜98%,VBW≥1/T
Start frequency	1GHz	
Stop frequency	25GHz	
Sweep Time	Auto	
Detector	PEAK	
Trace Mode	Max Hold	

Note :

1. T is the on-time time of the duty cycle,when EUT transmit continuously with maximum output power,unit is seconds. reference section 2.8 for the on-time time.

8.4. Test Procedure

a. EUT was placed on a turn table, which is 0.1 meter high above ground for below 1GHz test, and which is 0.1 meter high above ground for above 1GHz test.
b. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
c. Set the EUT transmit continuously with maximum output power.
d. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
e. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
f. Spectrum analyzer setting parameters in accordance with section 8.3.
g. Repeat above procedures until all channels were measured.
h. Record the results in the test report.

Note:

1. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
2. The frequency 2412MHz/2422MHz/2437MHz/2452MHz/2462MHz are fundamental frequency,which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

8.5. Test Result

Radiated Emissions Below 1GHz

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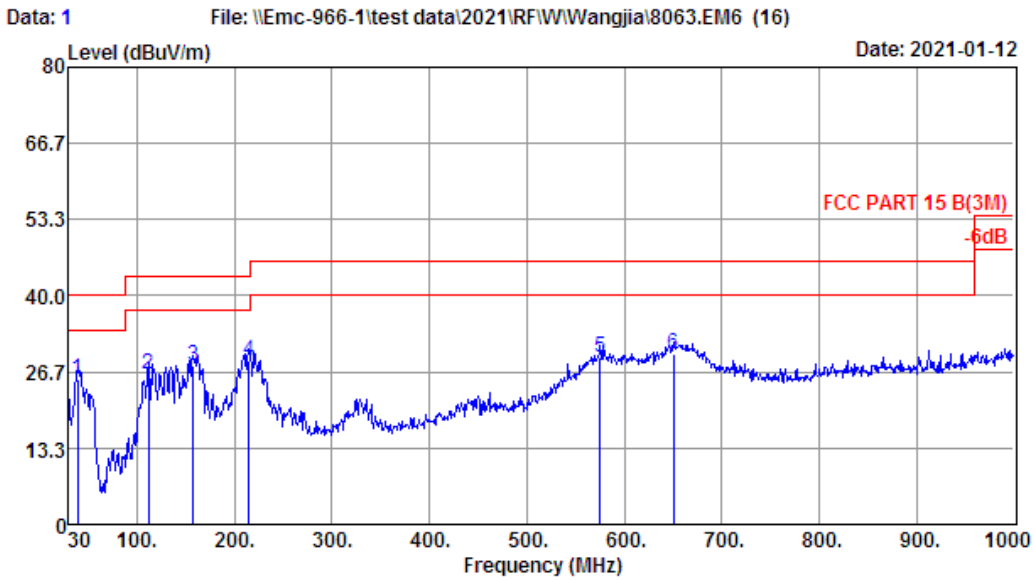

Site no. : 1# 966 Chamber Data no. : 1
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:21.8';Humi:51%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.73	12.50	0.20	12.62	25.32	40.00	14.68	QP
2	111.48	10.80	0.94	14.57	26.31	43.50	17.19	QP
3	158.04	11.30	1.13	15.20	27.63	43.50	15.87	QP
4	215.27	9.40	1.41	17.85	28.66	43.50	14.84	QP
5	575.14	19.95	2.90	6.51	29.36	46.00	16.64	QP
6	650.80	21.42	3.22	5.31	29.95	46.00	16.05	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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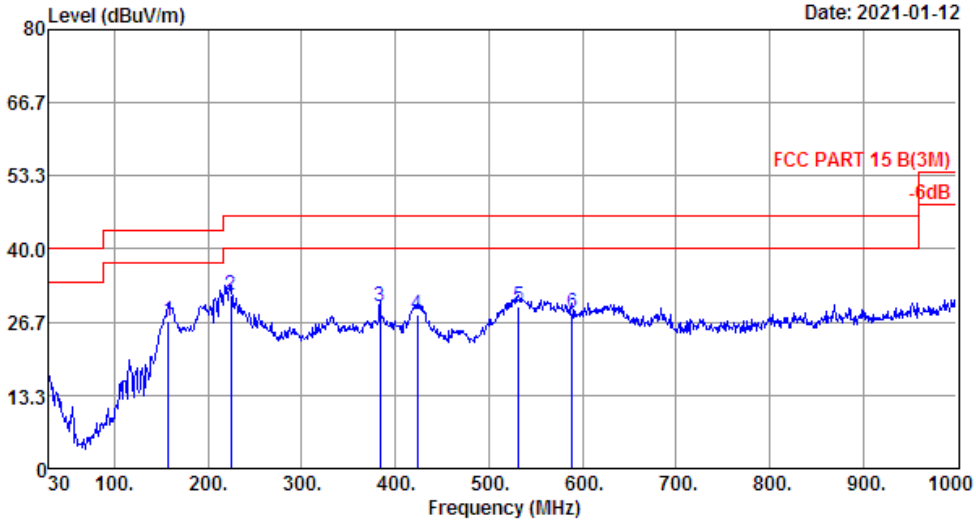
Data: 2 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)




```
Site no.       : 1# 966 Chamber              Data no.  : 2
Dis. / Ant.    : 3m   37062                  Ant. pol. : HORIZONTAL
Limit          : FCC PART 15 B(3M)
Env. / Ins.    : Temp:21.8';Humi:51%;Press:101.52kPa
Engineer       : Pablo
EUT            : ionvac UltraClean UV sanitizing robo vac
Power          : DC 19V From Adapter Input AC 120V/60Hz
M/N            : 8063
Test Mode      : TX Mode
```

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	158.04	11.30	1.13	14.37	26.80	43.50	16.70	QP
2	224.00	10.16	1.47	19.86	31.49	46.00	14.51	QP
3	384.05	15.96	2.13	11.33	29.42	46.00	16.58	QP
4	423.82	16.78	2.27	9.07	28.12	46.00	17.88	QP
5	531.49	18.85	2.79	7.97	29.61	46.00	16.39	QP
6	588.72	20.27	2.95	5.00	28.22	46.00	17.78	QP

```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official limit are not reported.
```

Note:

1. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All channels had been pre-test,only the worst case was reported.

Radiated Emissions Above 1G

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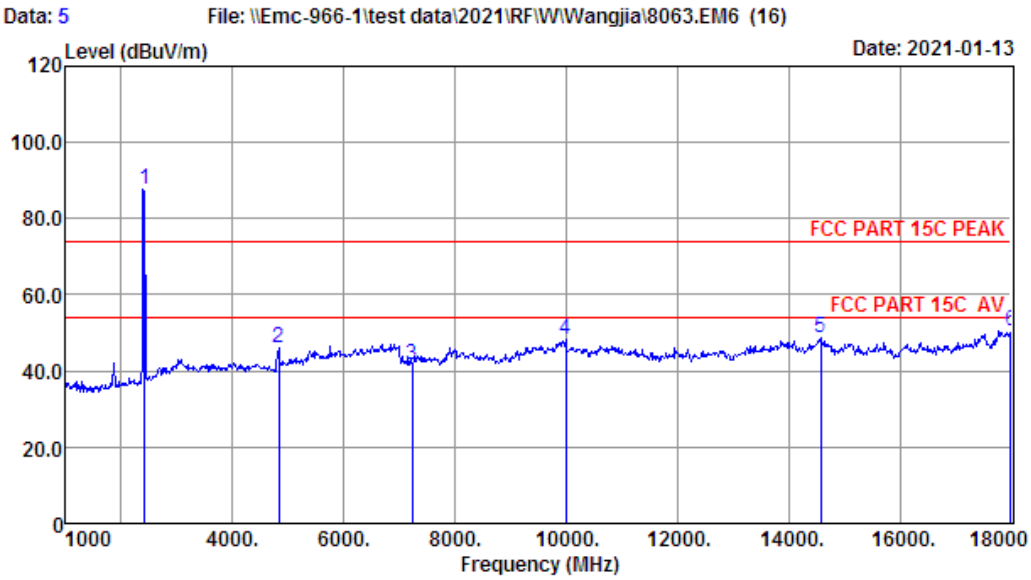

Site no. : 1# 966 Chamber Data no. : 5
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.28	1.46	34.64	93.44	87.54	74.00	-13.54	Peak
2	4824.00	31.18	3.26	34.67	46.31	46.08	74.00	27.92	Peak
3	7236.00	36.28	5.20	34.82	34.92	41.58	74.00	32.42	Peak
4	9993.00	38.90	5.89	34.20	37.87	48.46	74.00	25.54	Peak
5	14583.00	40.98	6.89	34.47	35.42	48.82	74.00	25.18	Peak
6	18000.00	48.90	8.24	34.30	27.57	50.41	74.00	23.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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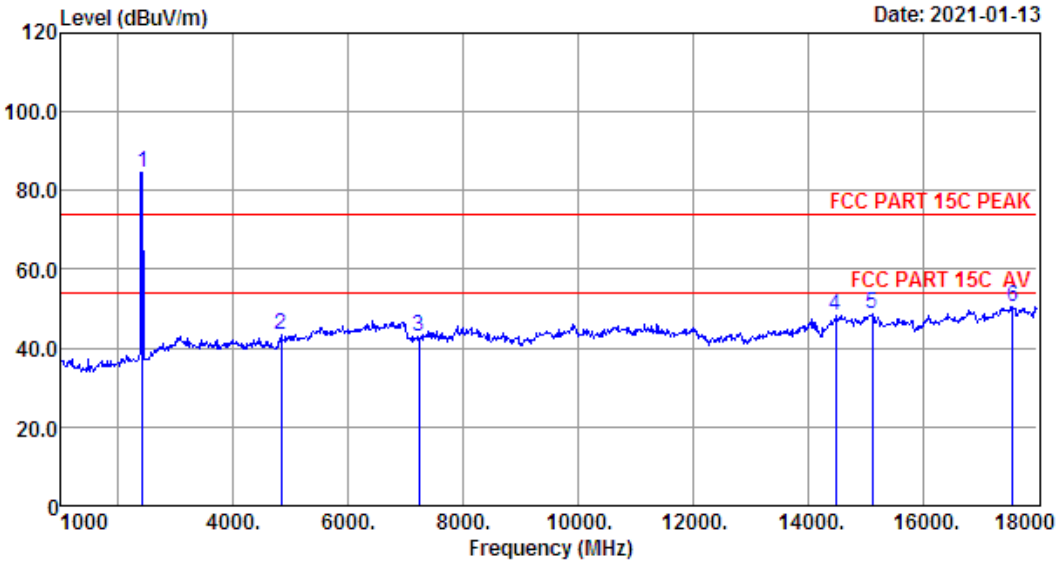
Data: 6 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)



Site no. : 1# 966 Chamber Data no. : 6
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.28	1.46	34.64	90.69	84.79	74.00	-10.79	Peak
2	4824.00	31.18	3.26	34.67	43.79	43.56	74.00	30.44	Peak
3	7236.00	36.28	5.20	34.82	36.41	43.07	74.00	30.93	Peak
4	14481.00	41.01	6.89	34.44	34.83	48.29	74.00	25.71	Peak
5	15127.00	40.77	6.72	34.55	35.59	48.53	74.00	25.47	Peak
6	17575.00	45.51	7.96	34.34	31.54	50.67	74.00	23.33	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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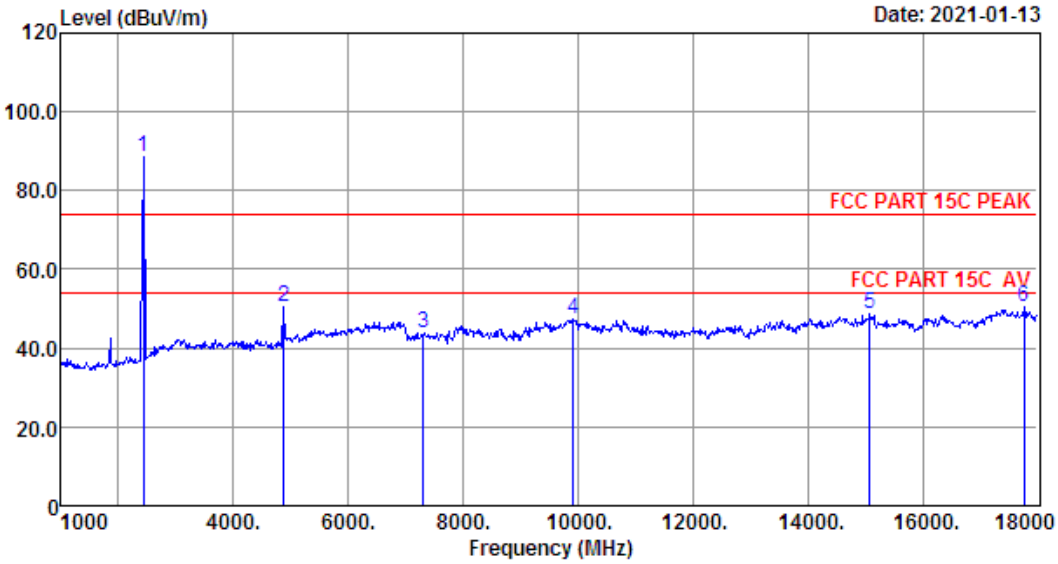
Data: 7 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)



Site no. : 1# 966 Chamber Data no. : 7
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2437MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.33	1.47	34.62	94.32	88.50	74.00	-14.50	Peak
2	4874.00	31.37	3.31	34.68	50.28	50.28	74.00	23.72	Peak
3	7311.00	36.42	5.22	34.83	37.01	43.82	74.00	30.18	Peak
4	9925.00	38.76	5.84	34.21	36.92	47.31	74.00	26.69	Peak
5	15076.00	40.82	6.76	34.57	35.53	48.54	74.00	25.46	Peak
6	17762.00	47.00	8.09	34.32	29.51	50.28	74.00	23.72	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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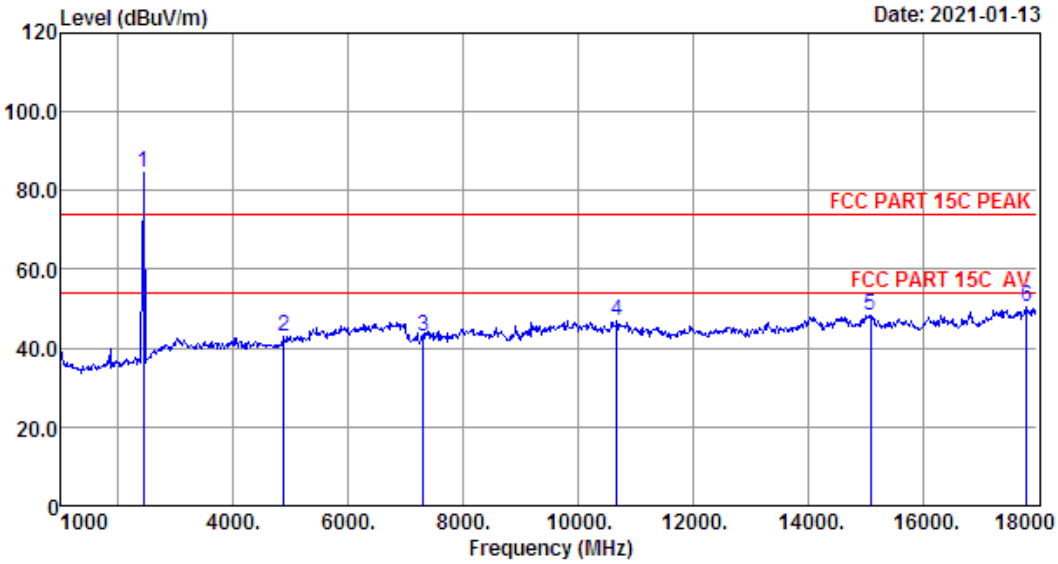
Data: 8 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)



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Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2437MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.33	1.47	34.62	90.55	84.73	74.00	-10.73	Peak
2	4874.00	31.37	3.31	34.68	42.85	42.85	74.00	31.15	Peak
3	7311.00	36.42	5.22	34.83	36.23	43.04	74.00	30.96	Peak
4	10673.00	39.58	6.05	34.40	35.64	46.87	74.00	27.13	Peak
5	15093.00	40.81	6.74	34.57	35.44	48.42	74.00	25.58	Peak
6	17813.00	47.41	8.12	34.32	29.16	50.37	74.00	23.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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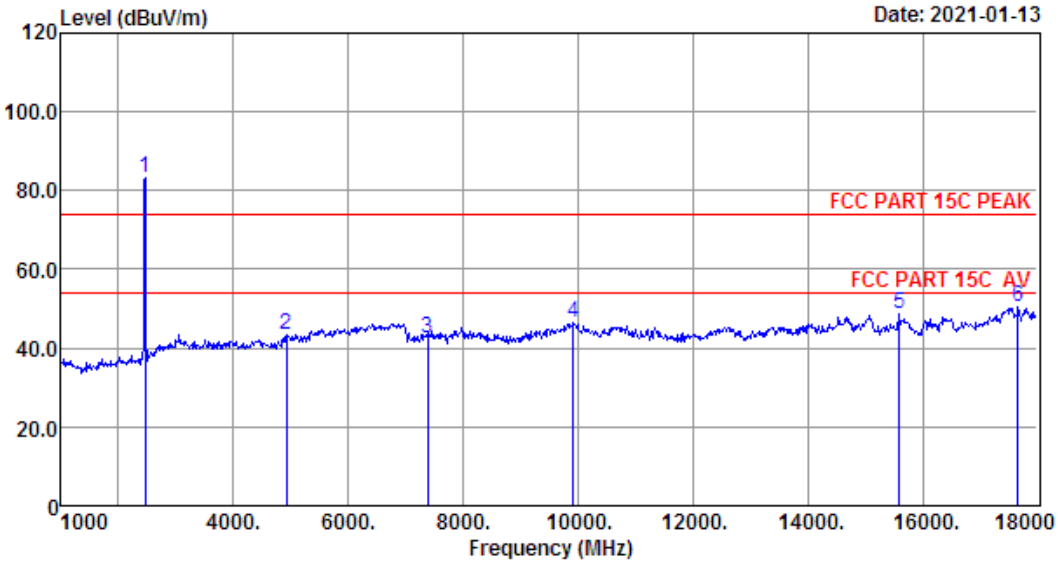
Data: 9 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)



Site no. : 1# 966 Chamber Data no. : 9
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.35	1.48	34.62	88.87	83.08	74.00	-9.08	Peak
2	4924.00	31.55	3.35	34.69	43.13	43.34	74.00	30.66	Peak
3	7386.00	36.59	5.24	34.84	35.51	42.50	74.00	31.50	Peak
4	9925.00	38.76	5.84	34.21	35.90	46.29	74.00	27.71	Peak
5	15603.00	40.24	6.53	34.36	36.18	48.59	74.00	25.41	Peak
6	17660.00	46.19	8.02	34.33	30.56	50.44	74.00	23.56	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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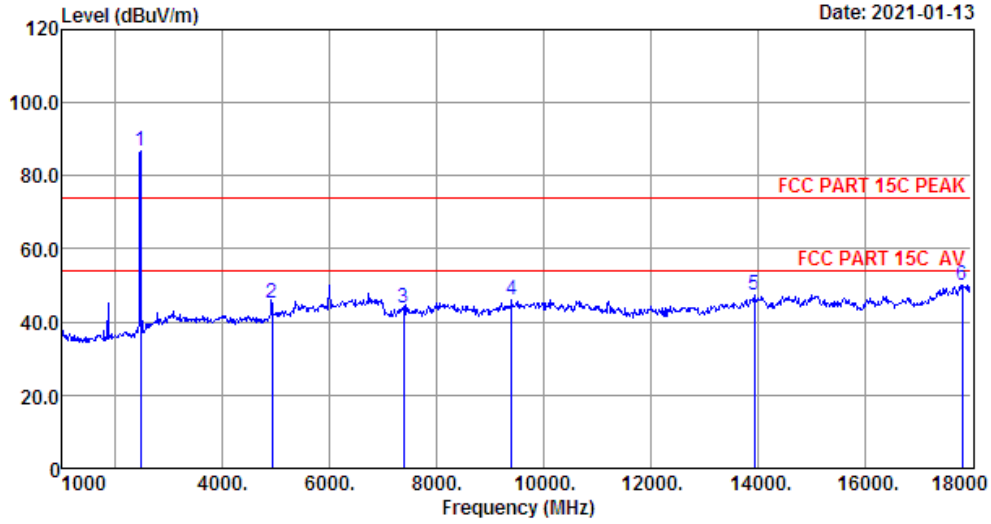


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Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : VERTICAL
Limit         : FCC PART 15C PEAK
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : ionvac UltraClean UV sanitizing robo vac
Power         : DC 19V From Adapter Input AC 120V/60Hz
M/N           : 8063
Test Mode     : IEEE 802.11N20 TX 2462MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.35	1.48	34.62	92.79	87.00	74.00	-13.00	Peak
2	4924.00	31.55	3.35	34.69	45.12	45.33	74.00	28.67	Peak
3	7386.00	36.59	5.24	34.84	36.67	43.66	74.00	30.34	Peak
4	9398.00	37.69	5.46	34.32	37.26	46.09	74.00	27.91	Peak
5	13937.00	40.98	6.50	34.31	34.16	47.33	74.00	26.67	Peak
6	17830.00	47.54	8.13	34.32	28.90	50.25	74.00	23.75	Peak

```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official
            limit are not reported.
```

Note:

1. The amplitude of 18GHz to 25GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test,only Low/Middle/High Channel of the worst case modulation mode was reported.

Radiated Band Edge

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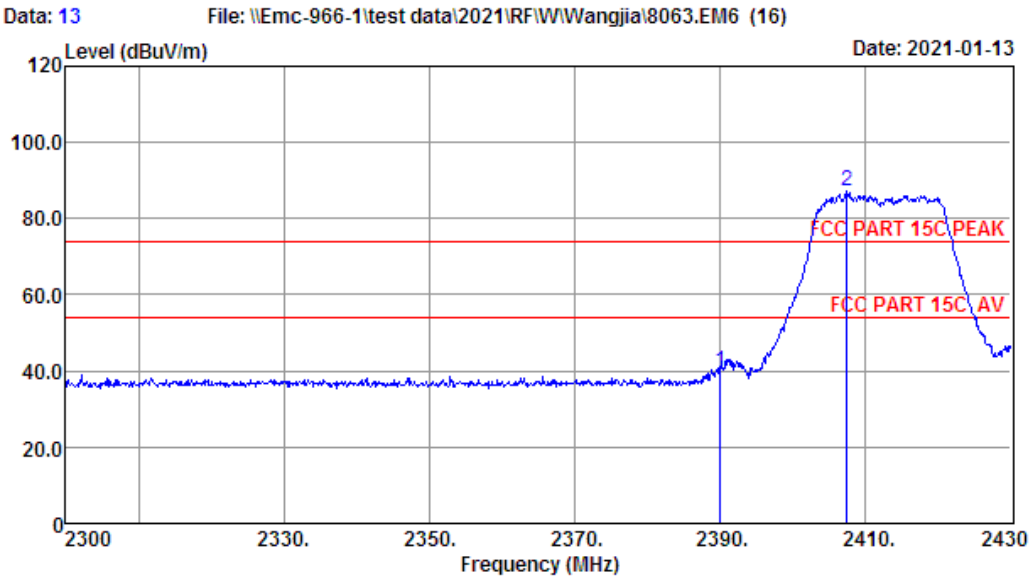

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Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.26	1.45	34.64	45.95	40.02	74.00	33.98	Peak
2	2407.38	27.28	1.46	34.64	93.02	87.12	74.00	-13.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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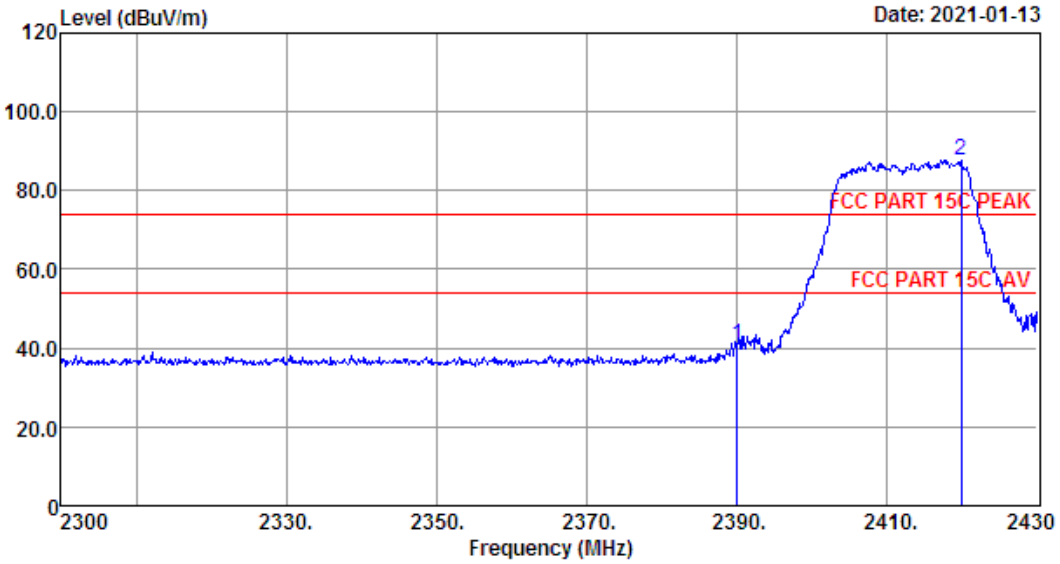
Data: 14 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)




```
Site no.      : 1# 966 Chamber              Data no.  : 14
Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : VERTICAL
Limit         : FCC PART 15C PEAK
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : ionvac UltraClean UV sanitizing robo vac
Power         : DC 19V From Adapter Input AC 120V/60Hz
M/N           : 8063
Test Mode     : IEEE 802.11N20 TX 2412MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.26	1.45	34.64	46.65	40.72	74.00	33.28	Peak
2	2419.86	27.30	1.46	34.63	93.73	87.86	74.00	-13.86	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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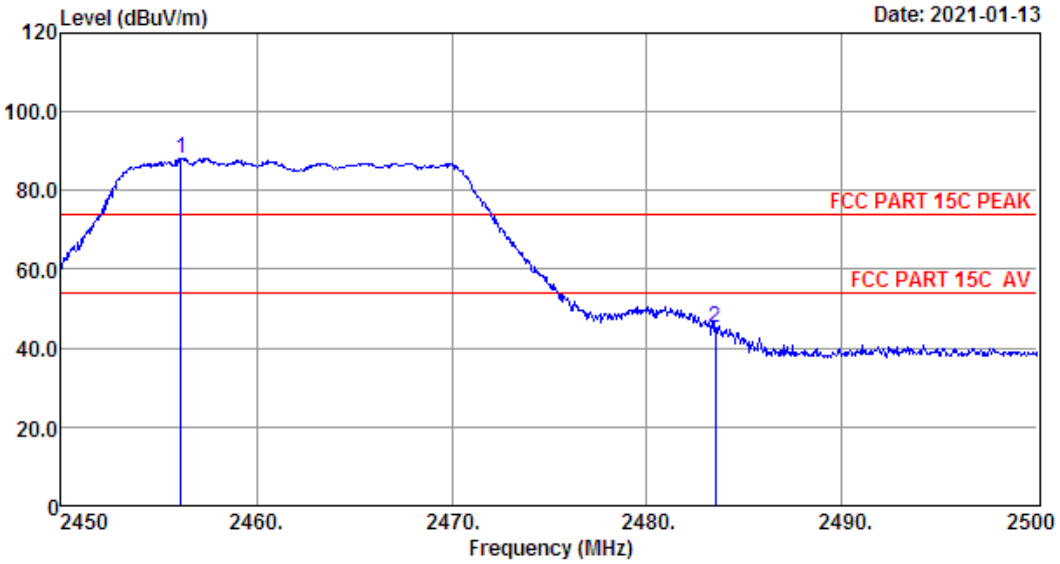
Data: 15 File: \\Emc-966-1\test data\2021\RF\W\Wangjia\8063.EM6 (16)




```
Site no.      : 1# 966 Chamber              Data no.  : 15
Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : VERTICAL
Limit         : FCC PART 15C PEAK
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : ionvac UltraClean UV sanitizing robo vac
Power         : DC 19V From Adapter Input AC 120V/60Hz
M/N           : 8063
Test Mode     : IEEE 802.11N20 TX 2462MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2456.15	27.35	1.48	34.62	94.08	88.29	74.00	-14.29	Peak
2	2483.50	27.38	1.48	34.61	51.07	45.32	74.00	28.68	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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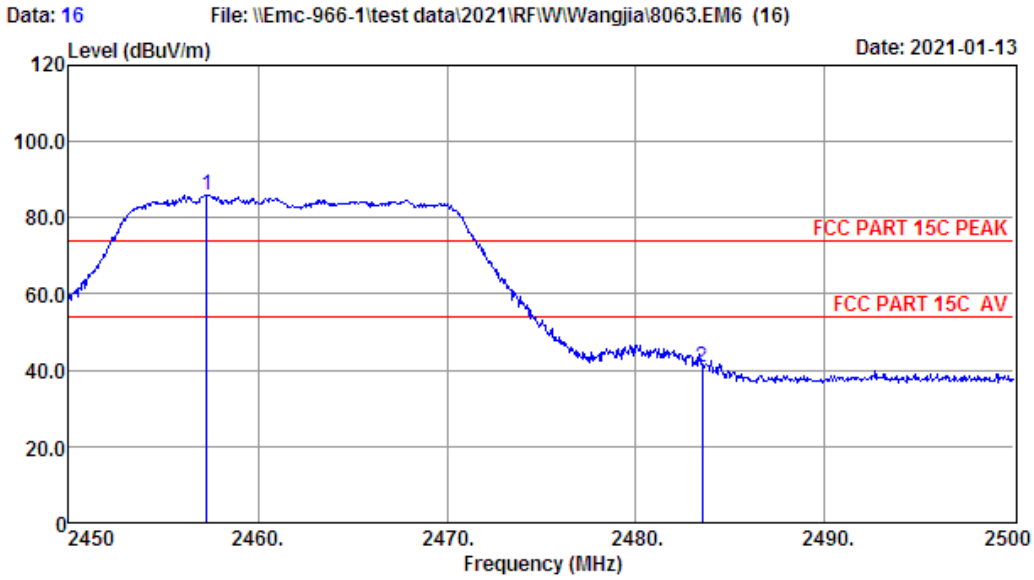


Site no. : 1# 966 Chamber Data no. : 16
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : IEEE 802.11N20 TX 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.30	27.35	1.48	34.62	91.75	85.96	74.00	-11.96	Peak
2	2483.50	27.38	1.48	34.61	46.70	40.95	74.00	33.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Note:

1. All channels had been pre-test,only of the worst case channels were reported.

9. AC POWER LINE CONDUCTED EMISSIONS

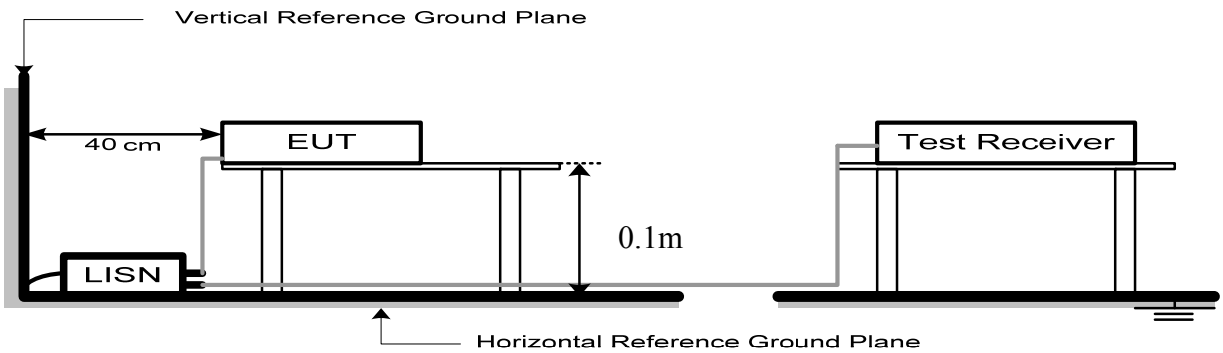
9.1. Limit

Frequency			Maximum RF Line Voltage	
			Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz	~	500kHz	66 ~ 56*	56 ~ 46*
500kHz	~	5MHz	56	46
5MHz	~	30MHz	60	50

Note:

1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

9.2. Test Setup



9.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

9.4. Test Procedure

a. The EUT was placed on a non-metallic table, 0.1m above the ground plane.
b. The EUT Power connected to the power mains through a line impedance stabilization network.
c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
d. Set the EUT transmit continuously with maximum output power.
e. Spectrum analyzer setting parameters in accordance with section 9.3.
f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
g. Record the results in the test report.

9.5. Test Result

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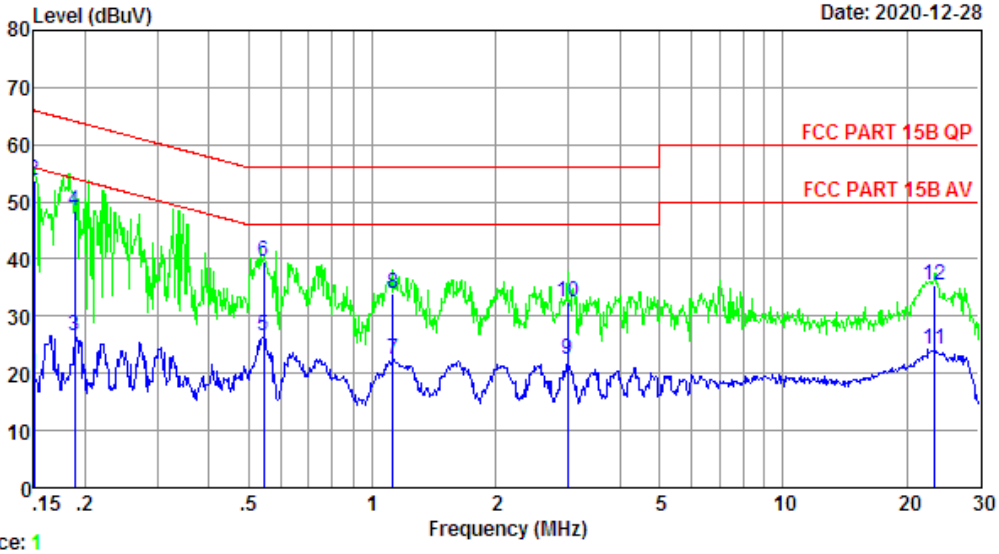
Data: 2 File: \\Emc-ce-1\Test data\2020\RF\W\WangJia\Wang jia.EM6 (8)



Trace: 1

Site no : 844 Shield Room Data no. : 2
Env. / Ins. : Temp:23.0'C Humi:49% Press:101.50kPa LINE Phase : LINE
Limit : FCC PART 15B QP
Engineer : MRS
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 240V/60Hz
M/N : 8063
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.15	9.73	9.69	0.28	19.70	56.00	36.30	Average
2	0.15	9.73	9.69	34.35	53.77	66.00	12.23	QP
3	0.19	9.73	9.77	7.09	26.59	54.11	27.52	Average
4	0.19	9.73	9.77	29.01	48.51	64.11	15.60	QP
5	0.54	9.72	9.92	7.00	26.64	46.00	19.36	Average
6	0.54	9.72	9.92	20.03	39.67	56.00	16.33	QP
7	1.12	9.73	9.94	2.86	22.53	46.00	23.47	Average
8	1.12	9.73	9.94	14.28	33.95	56.00	22.05	QP
9	2.99	9.75	9.97	2.67	22.39	46.00	23.61	Average
10	2.99	9.75	9.97	12.80	32.52	56.00	23.48	QP
11	23.39	10.05	10.17	4.10	24.32	50.00	25.68	Average
12	23.39	10.05	10.17	15.12	35.34	60.00	24.66	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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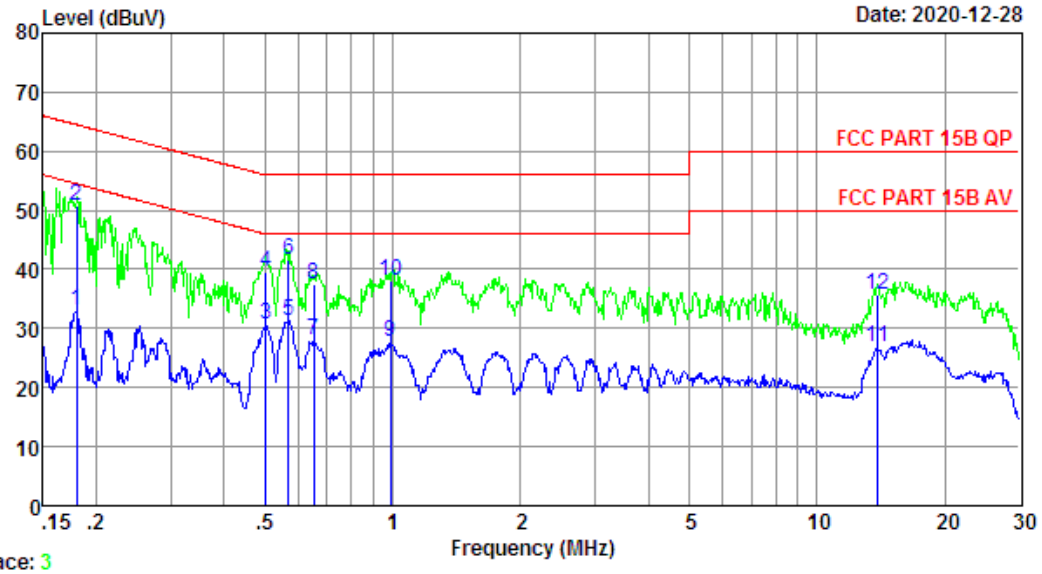
Data: 4 File: \\Emc-ce-1\Test data\2020\RF\W\WangJia\Wang jia.EM6 (8)



Trace: 3

Site no : 844 Shield Room Data no. : 4
Env. / Ins. : Temp:23.0'C Humi:49% Press:101.50kPa LINE Phase : NEUTRAL
Limit : FCC PART 15B QP
Engineer : MRS
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 240V/60Hz
M/N : 8063
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.18	9.61	9.77	13.57	32.95	54.50	21.55	Average
2	0.18	9.61	9.77	31.34	50.72	64.50	13.78	QP
3	0.50	9.65	9.92	11.26	30.83	46.00	15.17	Average
4	0.50	9.65	9.92	20.07	39.64	56.00	16.36	QP
5	0.57	9.66	9.92	11.62	31.20	46.00	14.80	Average
6	0.57	9.66	9.92	22.05	41.63	56.00	14.37	QP
7	0.65	9.68	9.92	8.36	27.96	46.00	18.04	Average
8	0.65	9.68	9.92	17.83	37.43	56.00	18.57	QP
9	0.99	9.73	9.94	7.95	27.62	46.00	18.38	Average
10	0.99	9.73	9.94	18.53	38.20	56.00	17.80	QP
11	13.84	10.08	10.11	6.60	26.79	50.00	23.21	Average
12	13.84	10.08	10.11	15.42	35.61	60.00	24.39	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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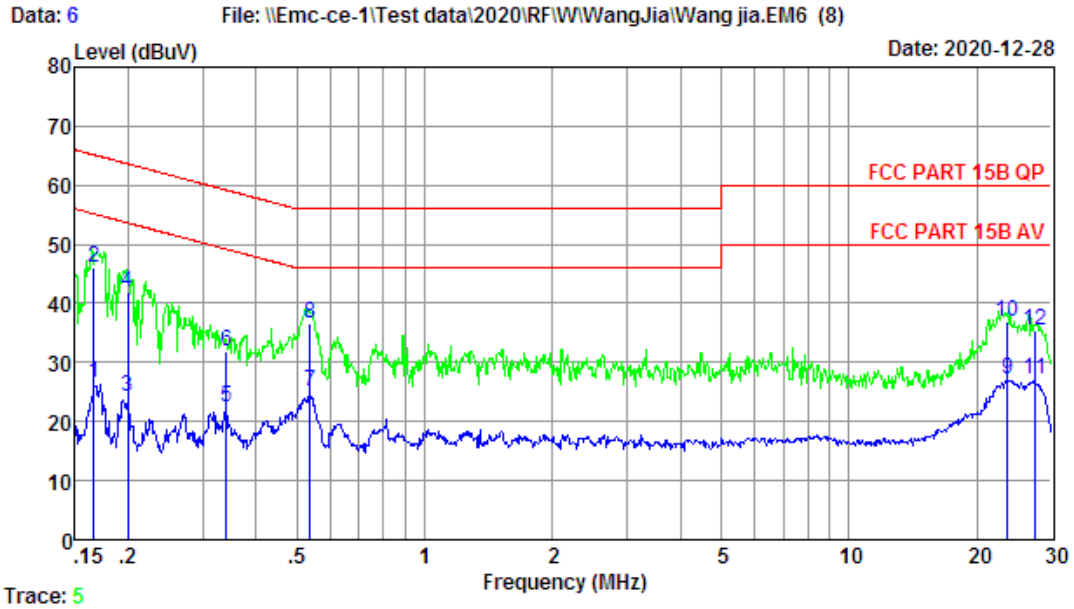

Site no : 844 Shield Room Data no. : 6
Env. / Ins. : Temp:23.0'C Humi:49% Press:101.50kPa LINE Phase : LINE
Limit : FCC PART 15B QP
Engineer : MRS
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.17	9.73	9.69	7.07	26.49	55.16	28.67	Average
2	0.17	9.73	9.69	26.70	46.12	65.16	19.04	QP
3	0.20	9.73	9.77	4.68	24.18	53.62	29.44	Average
4	0.20	9.73	9.77	22.43	41.93	63.62	21.69	QP
5	0.34	9.72	9.92	2.65	22.29	49.18	26.89	Average
6	0.34	9.72	9.92	12.20	31.84	59.18	27.34	QP
7	0.54	9.72	9.92	5.37	25.01	46.00	20.99	Average
8	0.54	9.72	9.92	17.00	36.64	56.00	19.36	QP
9	23.64	10.04	10.16	7.04	27.24	50.00	22.76	Average
10	23.64	10.04	10.16	16.64	36.84	60.00	23.16	QP
11	27.42	10.01	10.16	7.03	27.20	50.00	22.80	Average
12	27.42	10.01	10.16	15.17	35.34	60.00	24.66	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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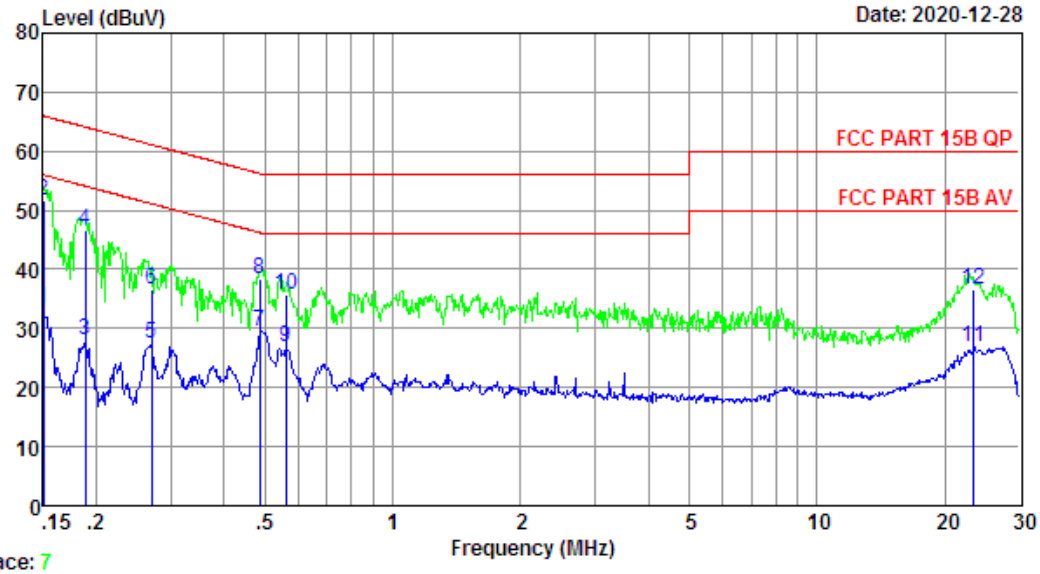
Data: 8 File: \\Emc-ce-1\Test data\2020\RF\W\WangJia\Wang jia.EM6 (8)



Trace: 7

Site no : 844 Shield Room Data no. : 8
Env. / Ins. : Temp:23.0'C Humi:49% Press:101.50kPa LINE Phase : NEUTRAL
Limit : FCC PART 15B QP
Engineer : MRS
EUT : ionvac UltraClean UV sanitizing robo vac
Power : DC 19V From Adapter Input AC 120V/60Hz
M/N : 8063
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.15	9.61	9.69	13.93	33.23	56.00	22.77	Average
2	0.15	9.61	9.69	32.32	51.62	66.00	14.38	QP
3	0.19	9.62	9.77	8.60	27.99	54.11	26.12	Average
4	0.19	9.62	9.77	27.33	46.72	64.11	17.39	QP
5	0.27	9.62	9.92	7.95	27.49	51.12	23.63	Average
6	0.27	9.62	9.92	17.09	36.63	61.12	24.49	QP
7	0.49	9.65	9.92	9.92	29.49	46.23	16.74	Average
8	0.49	9.65	9.92	18.67	38.24	56.23	17.99	QP
9	0.56	9.66	9.92	7.31	26.89	46.00	19.11	Average
10	0.56	9.66	9.92	16.02	35.60	56.00	20.40	QP
11	23.39	10.20	10.17	6.60	26.97	50.00	23.03	Average
12	23.39	10.20	10.17	16.32	36.69	60.00	23.31	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

10. ANTENNA REQUIREMENTS

10.1. Limit

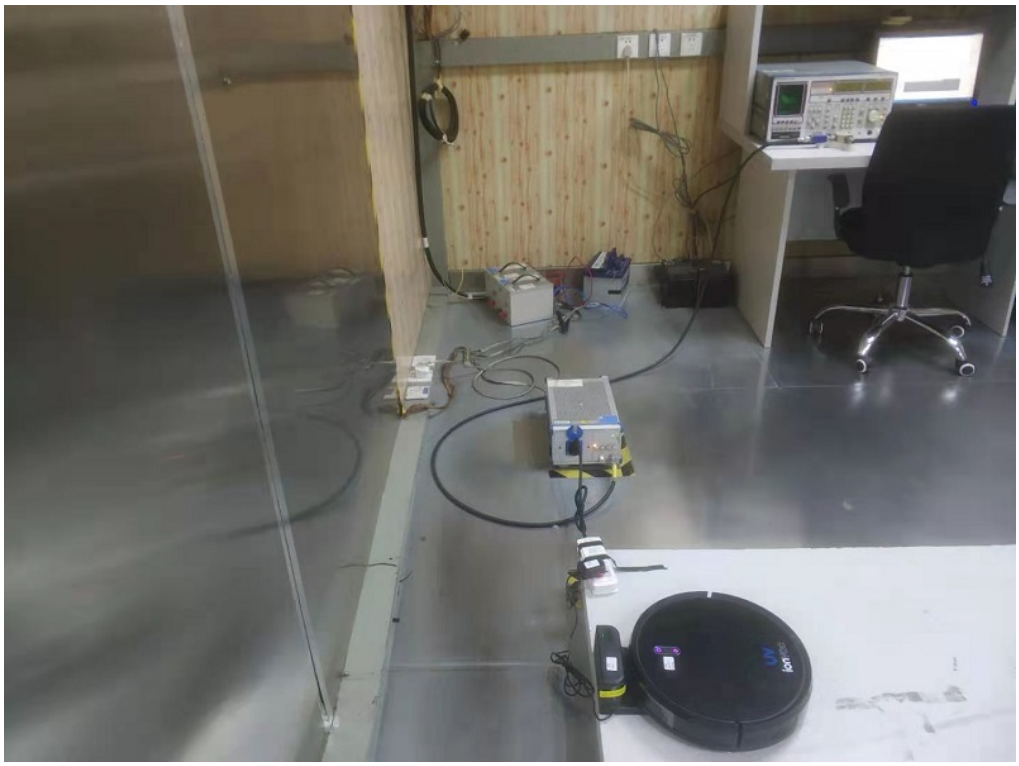
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

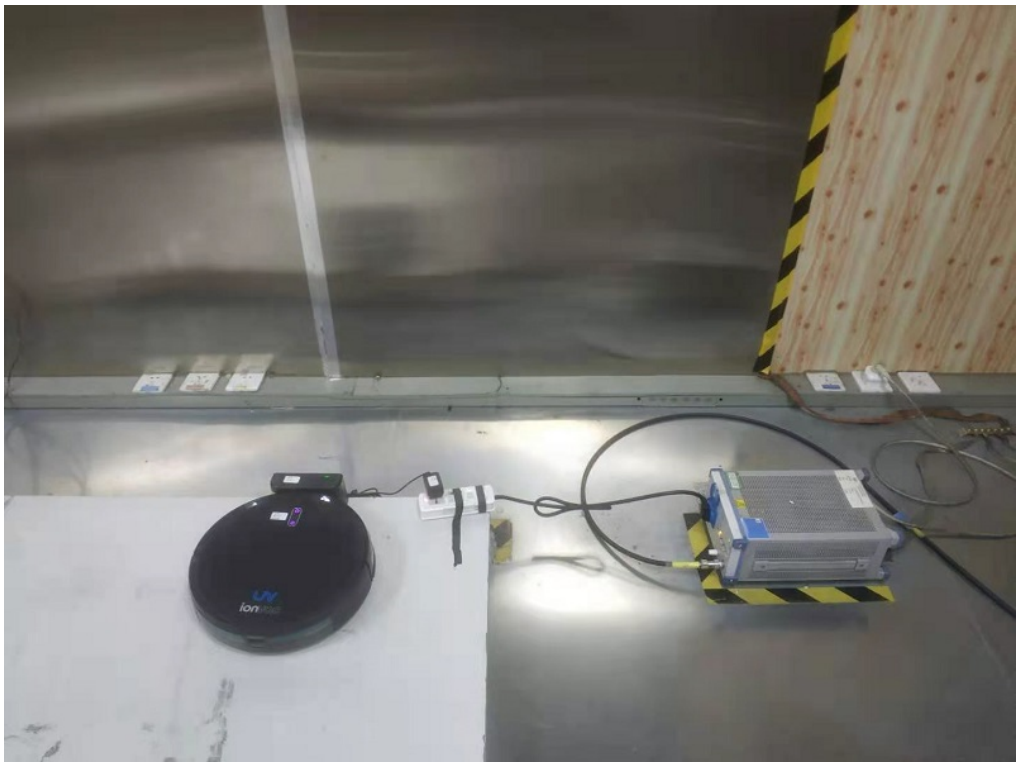
10.2. Test Result

The antennas used for this product is PCB antenna ,so compliance with antenna requirements.
(Please refer to the EUT photo for details)

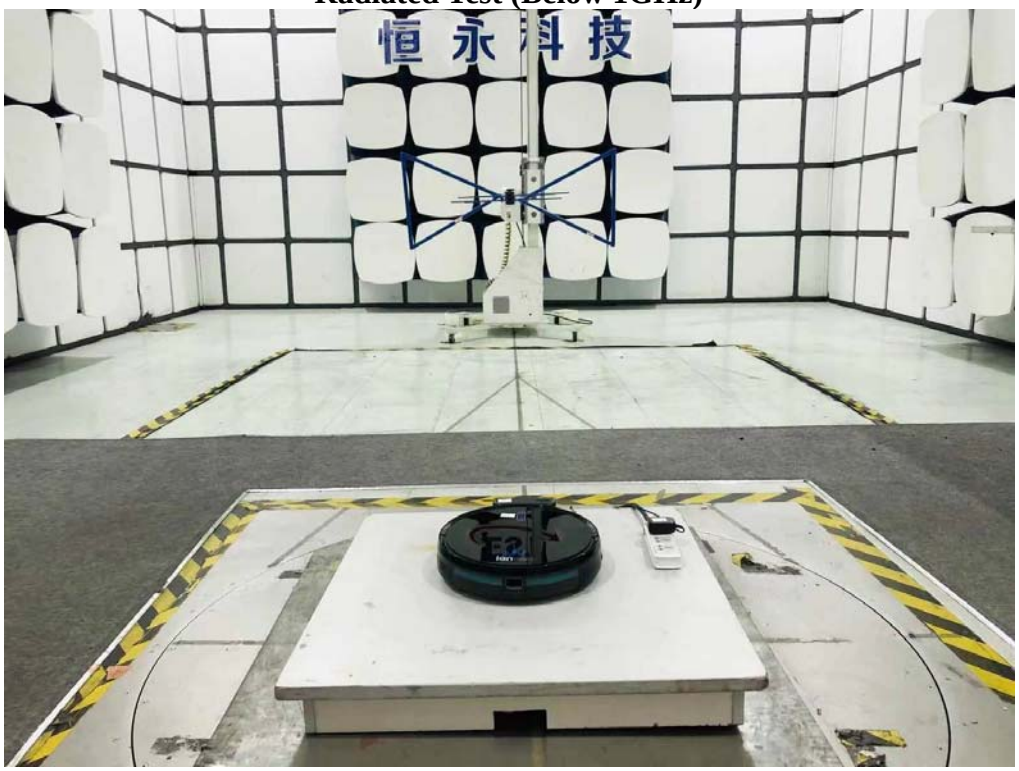
11. TEST SETUP PHOTO

Conducted Test





Radiated Test (Below 1GHz)



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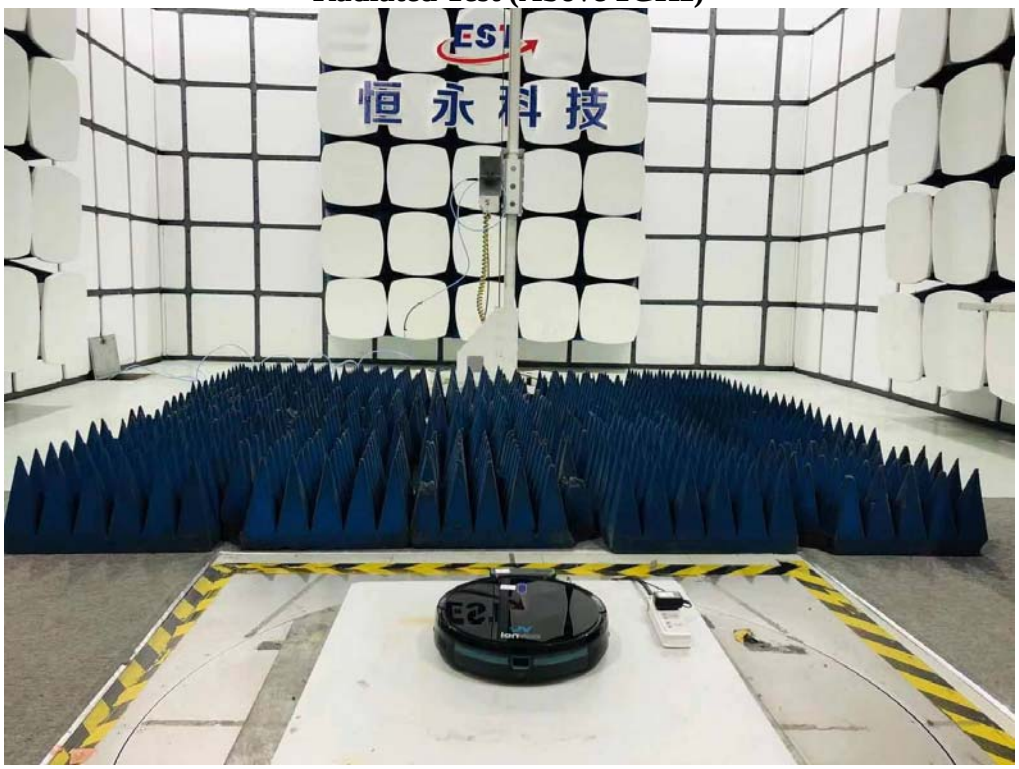


12. EUT PHOTO

External Photos

M/N: 8063

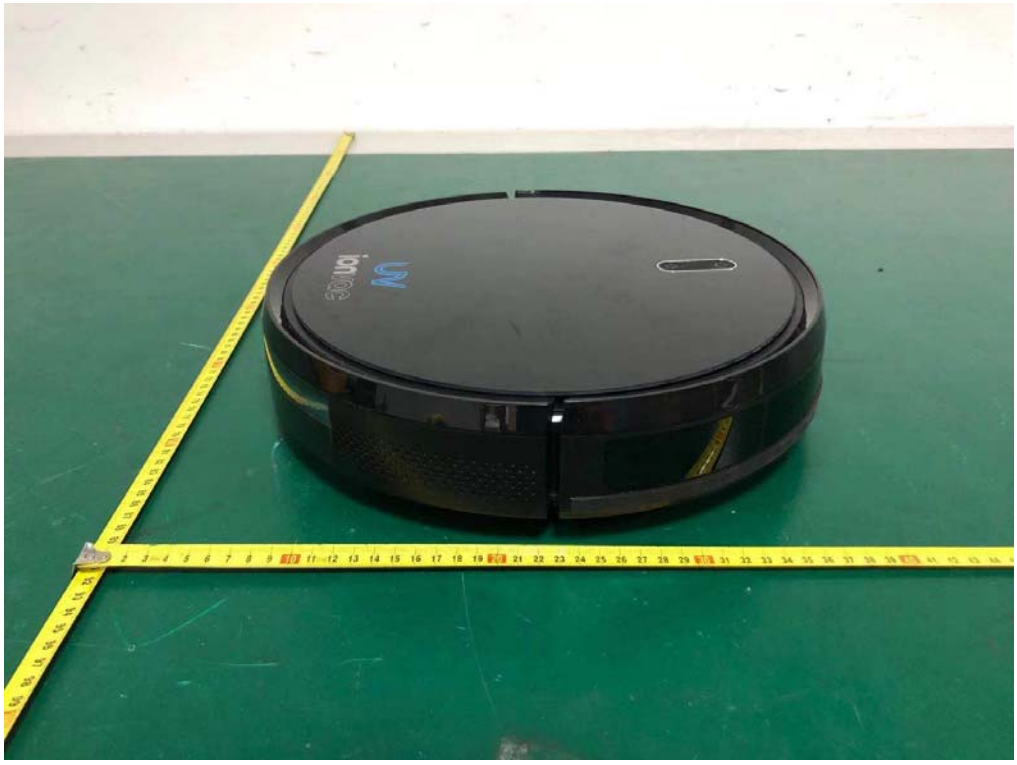
External Photos

M/N: 8063

External Photos
M/N: 8063

External Photos

M/N: 8063



External Photos

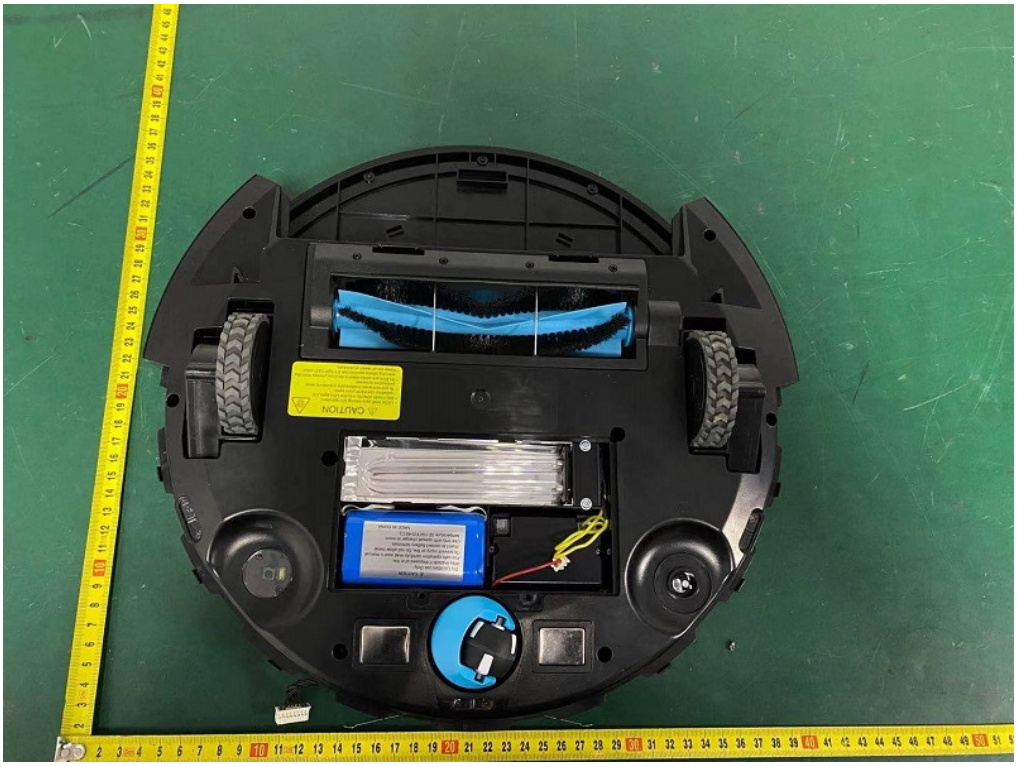
M/N: 8063

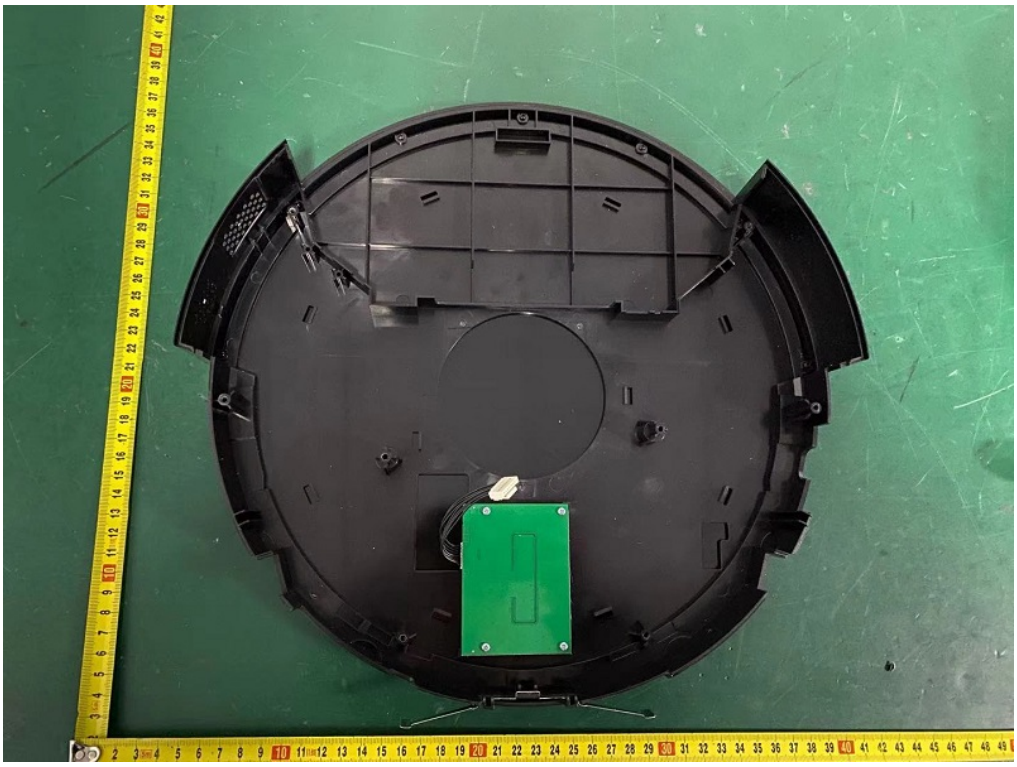
Power Supply

Power Supply

Internal Photos

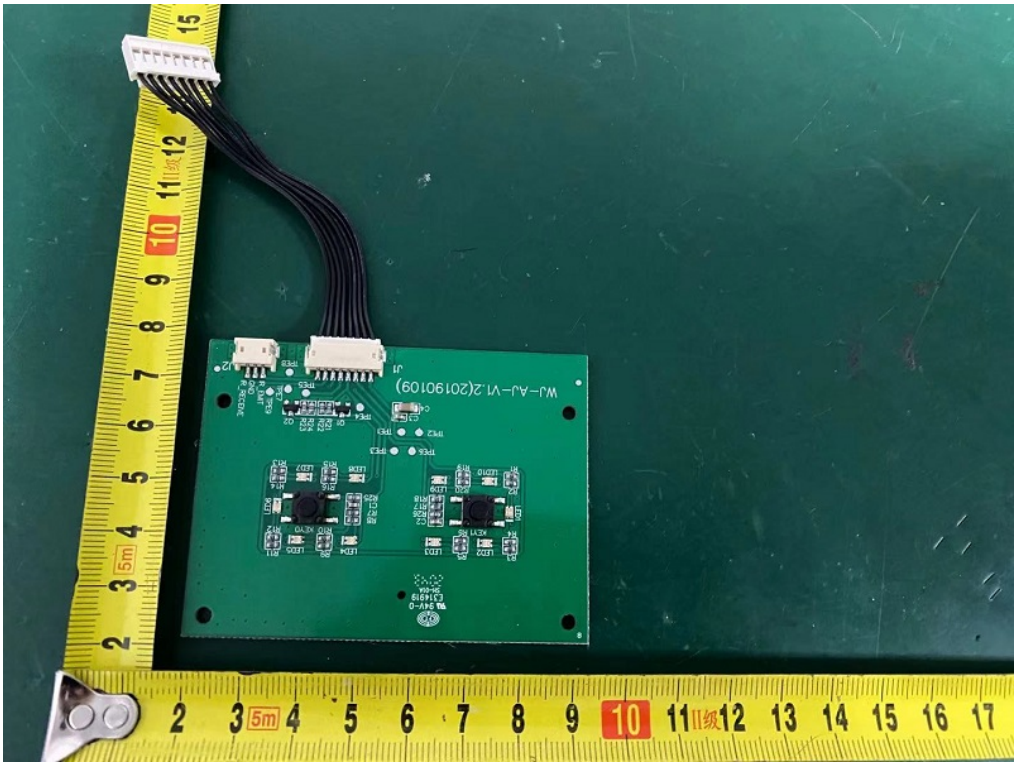
M/N: 8063

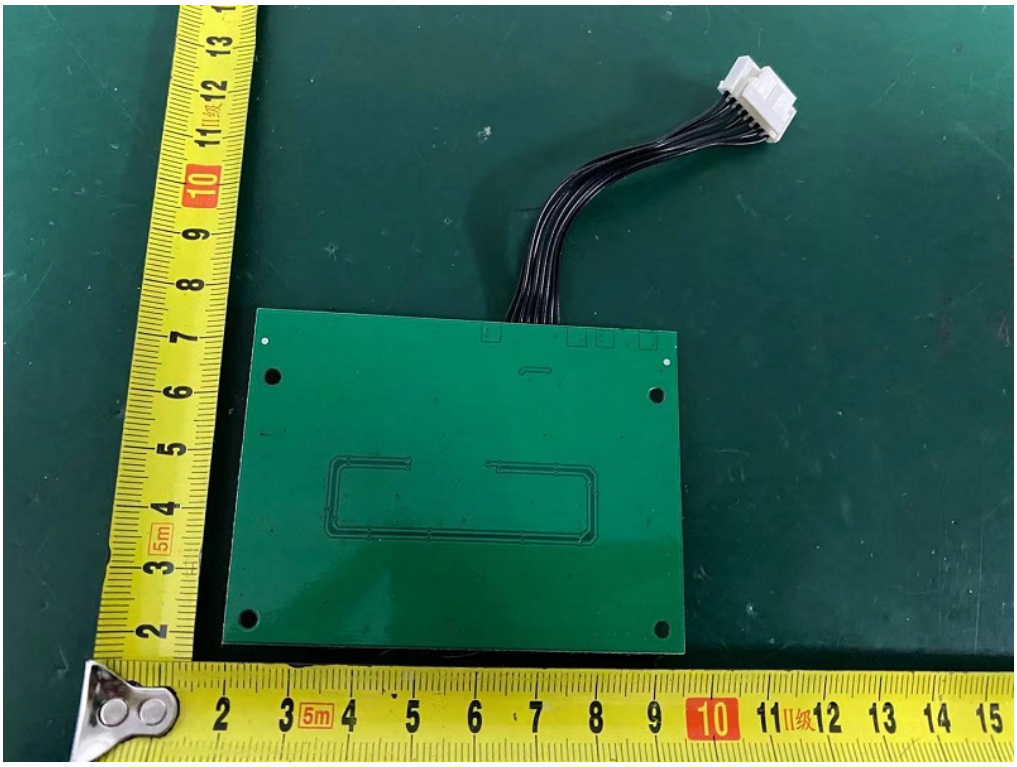




Internal Photos

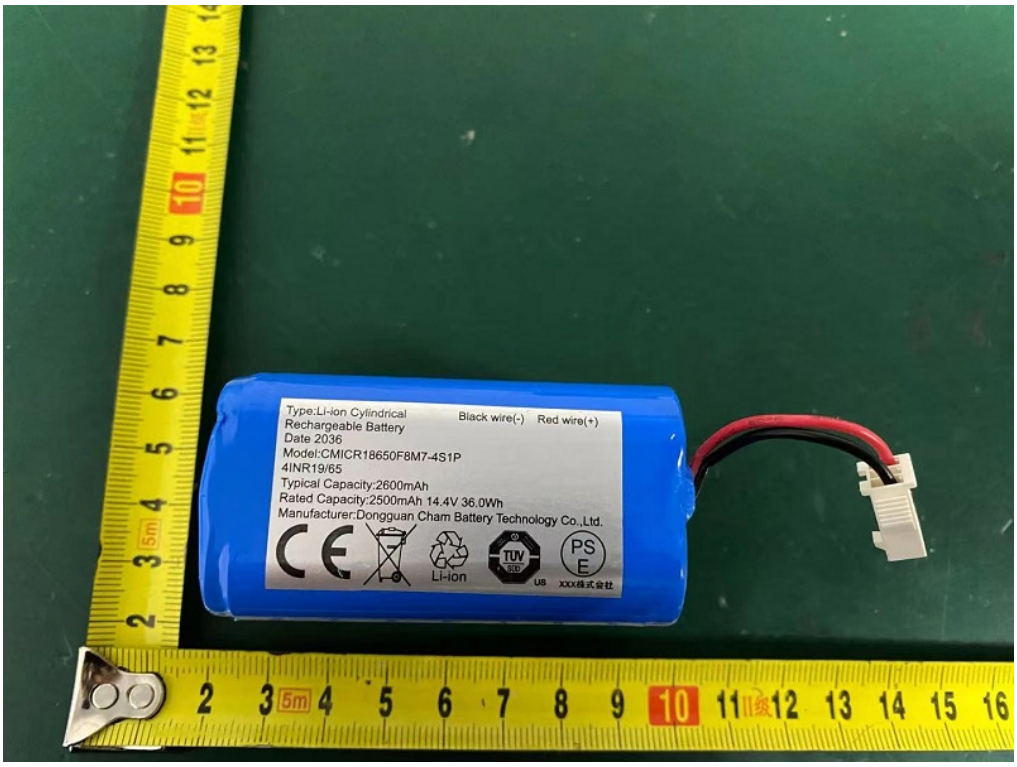
M/N: 8063





Internal Photos

M/N: 8063



Internal Photos

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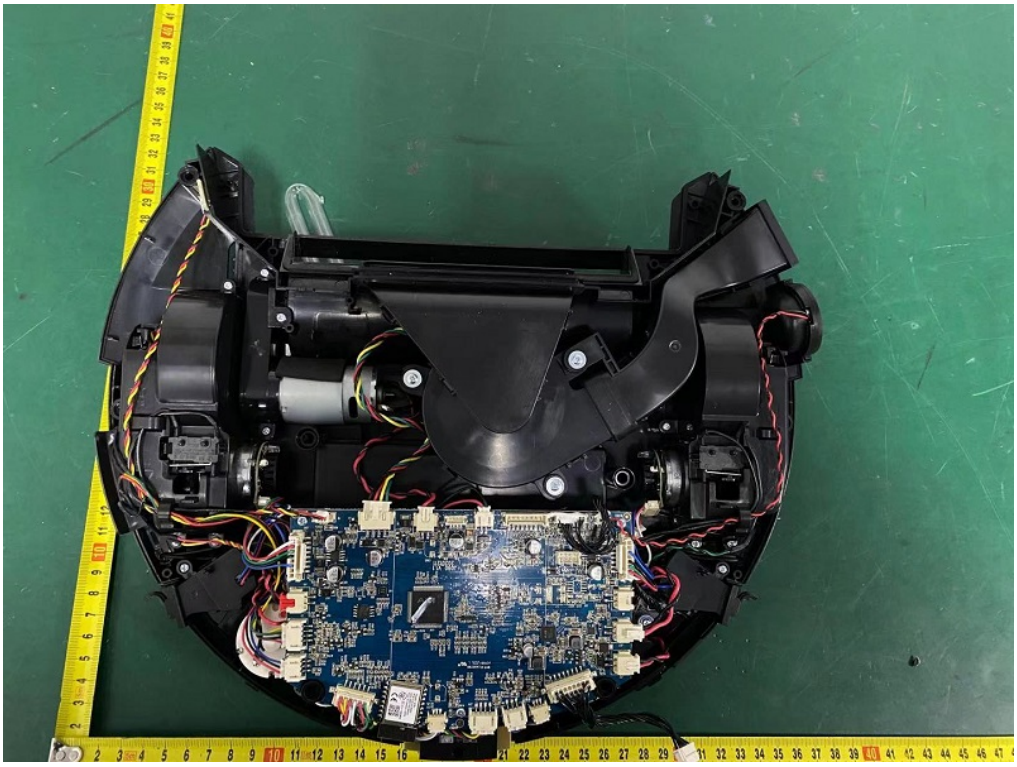

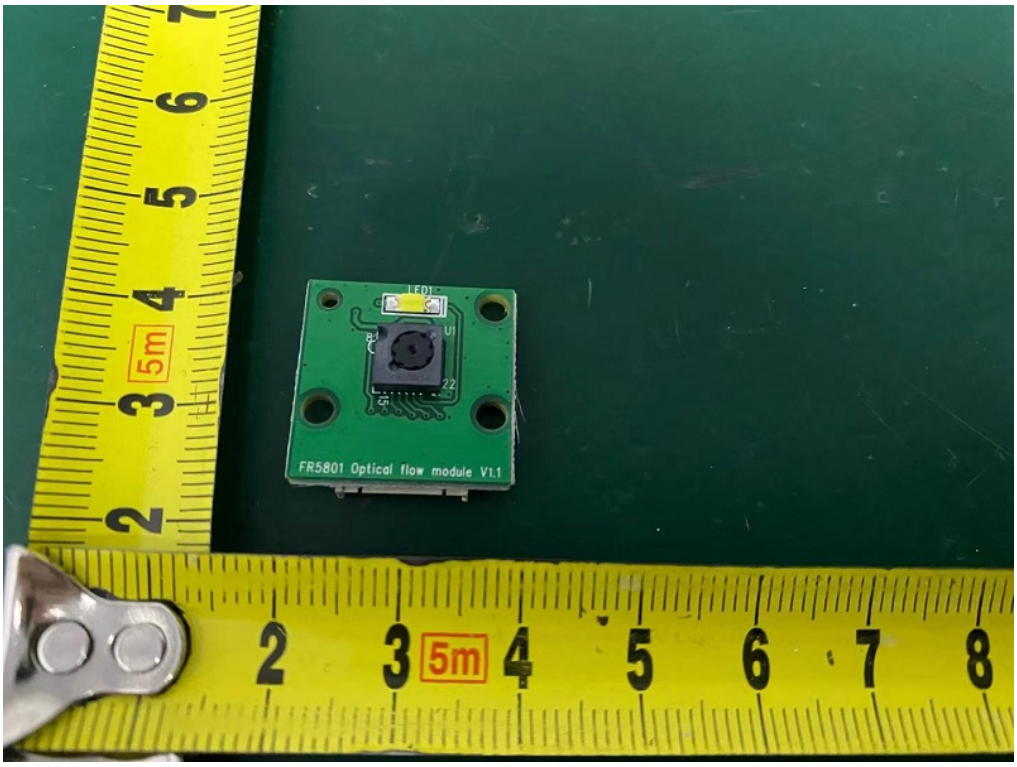

Internal Photos

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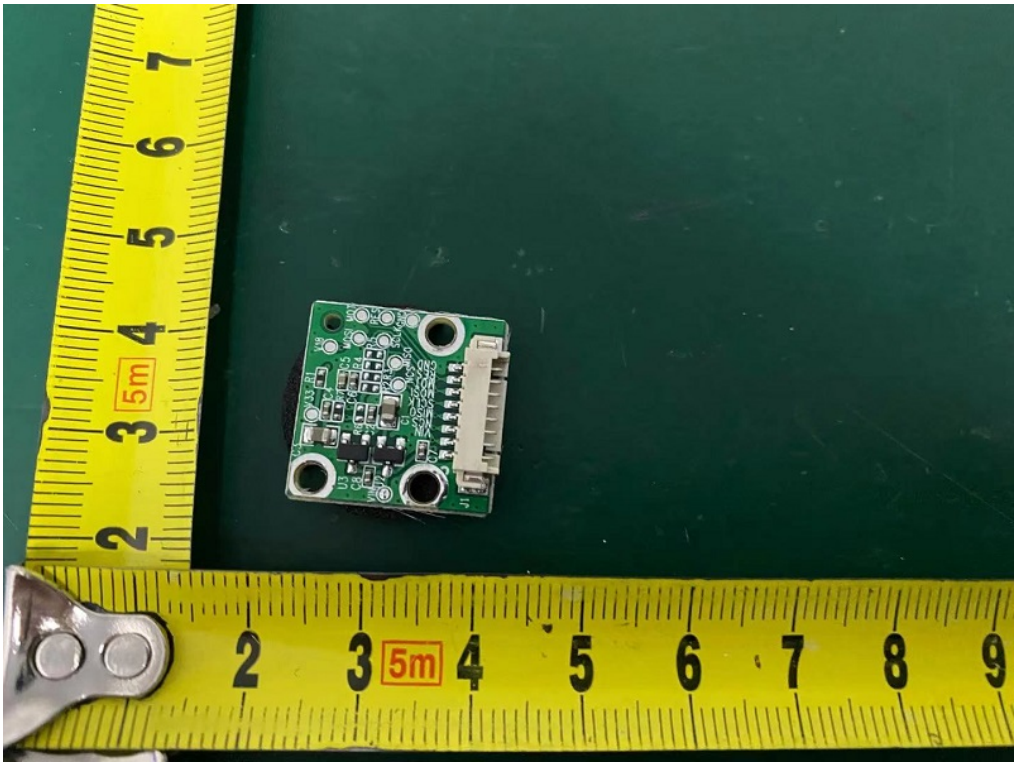

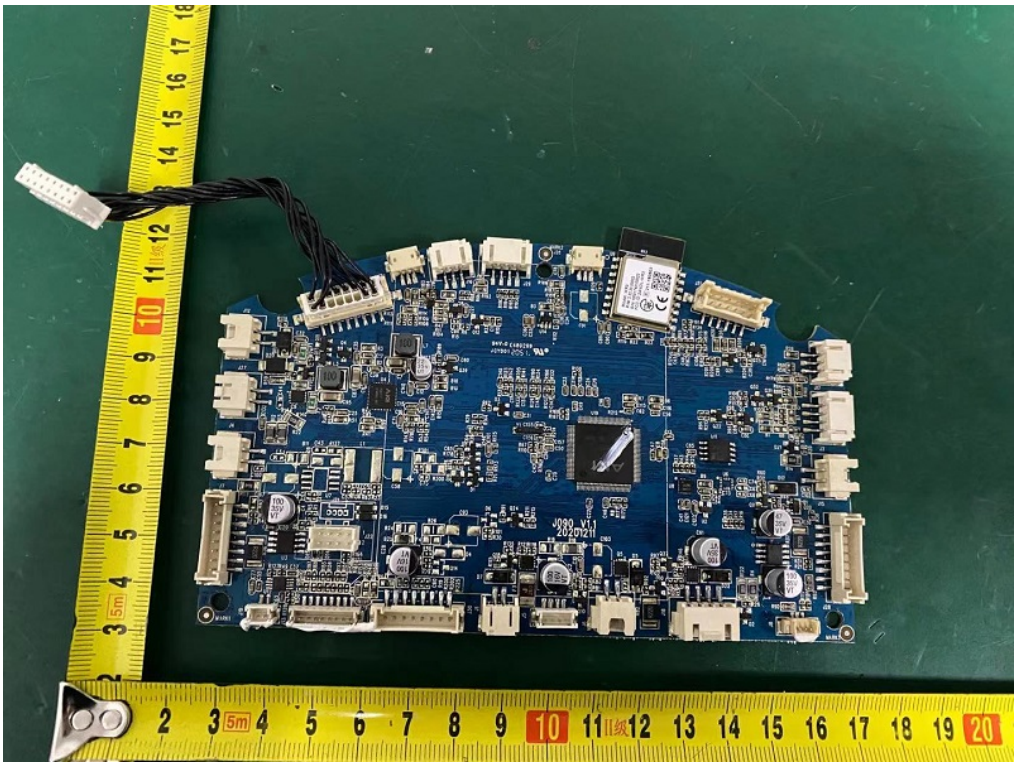

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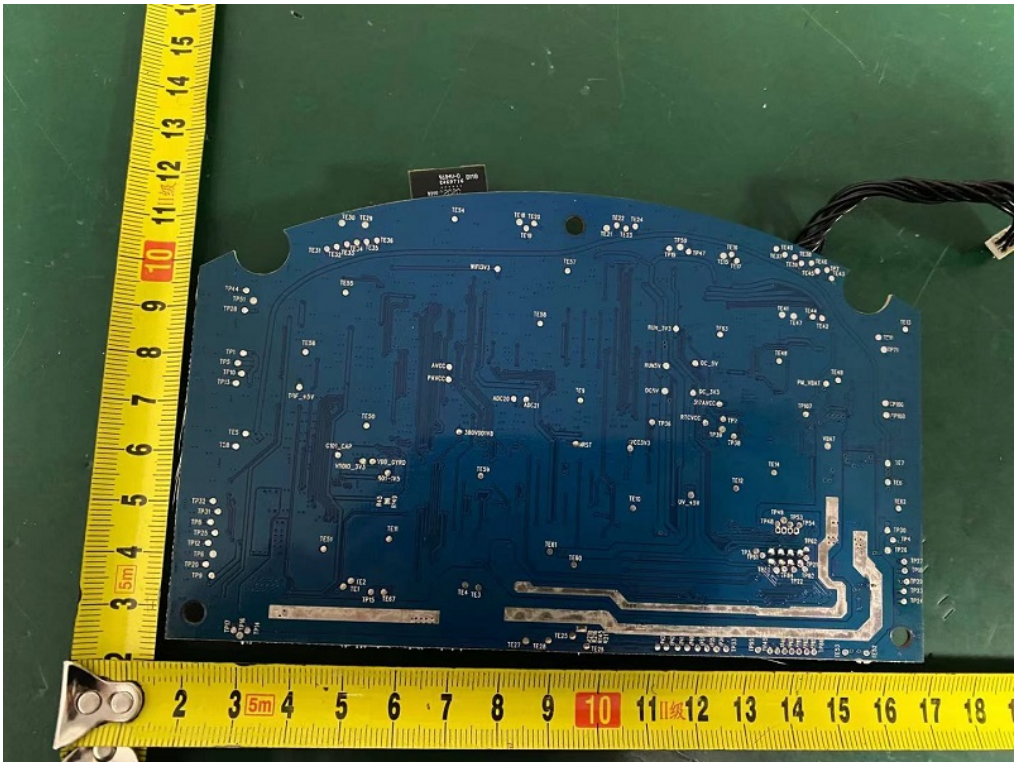

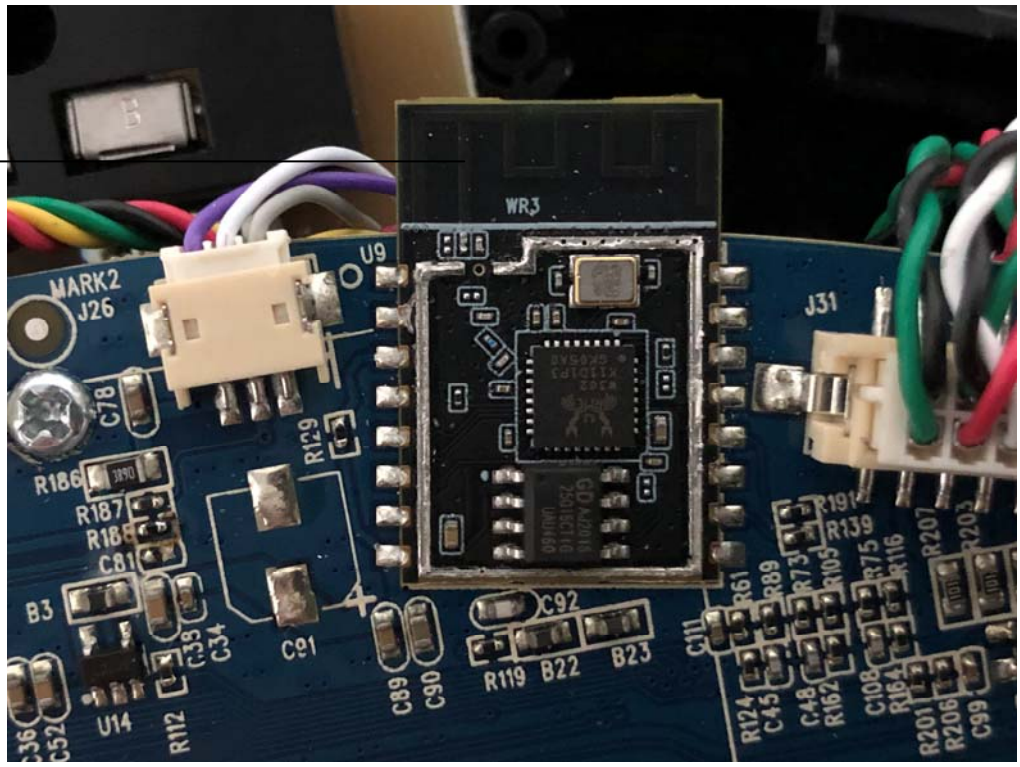

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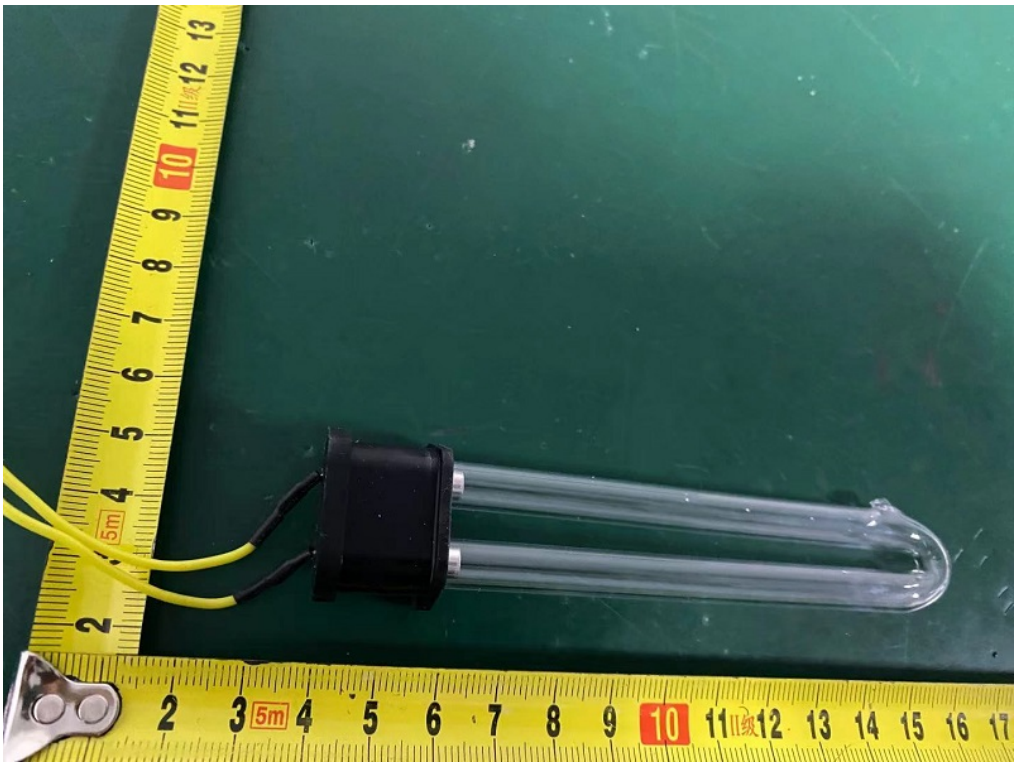

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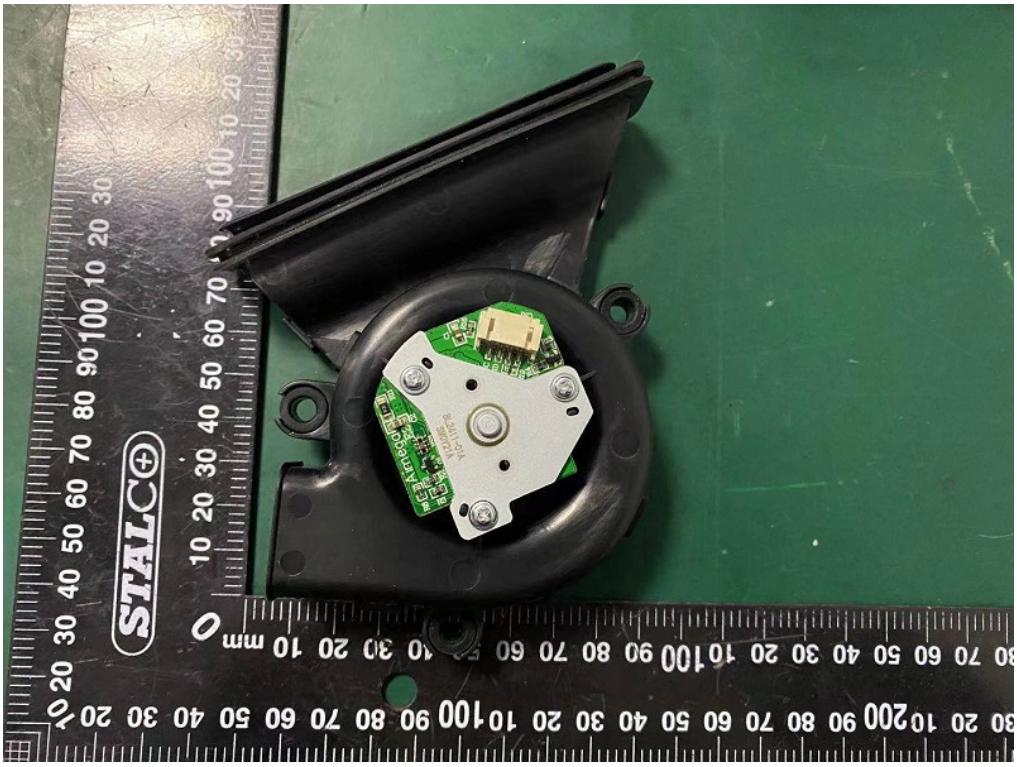

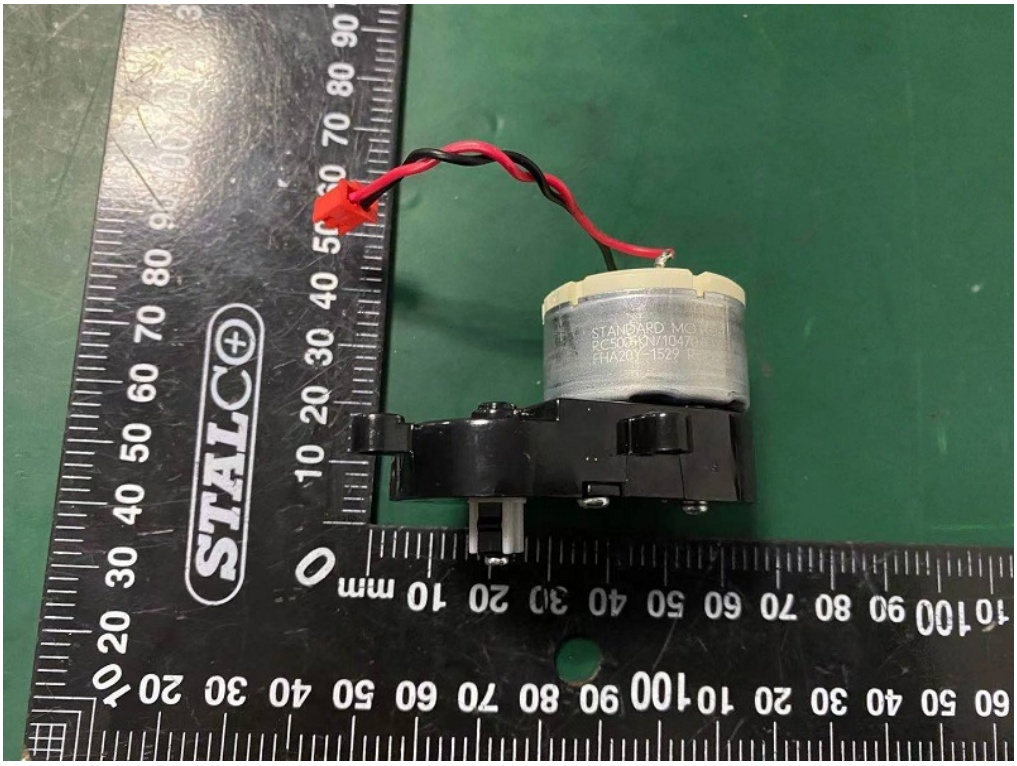

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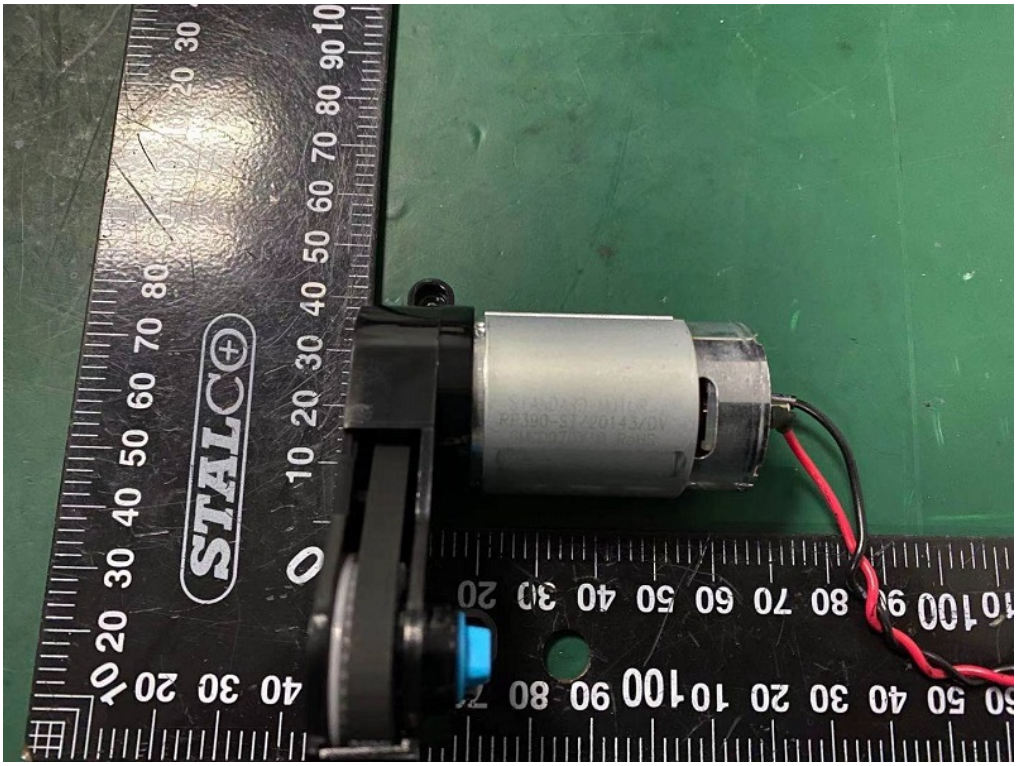

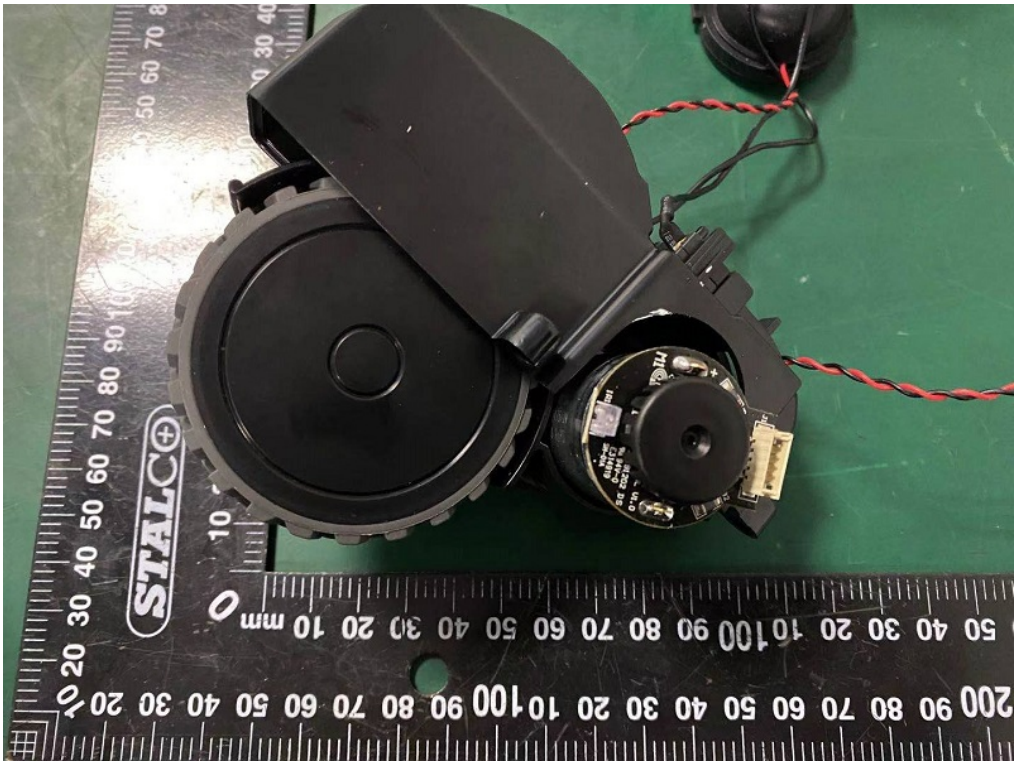

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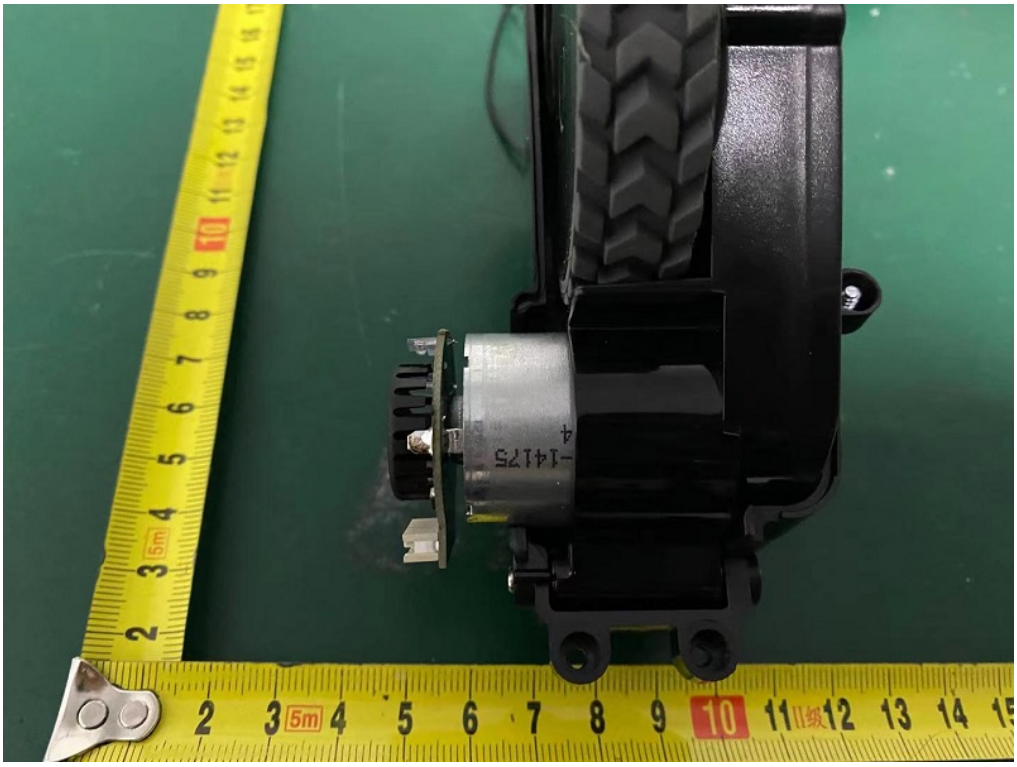

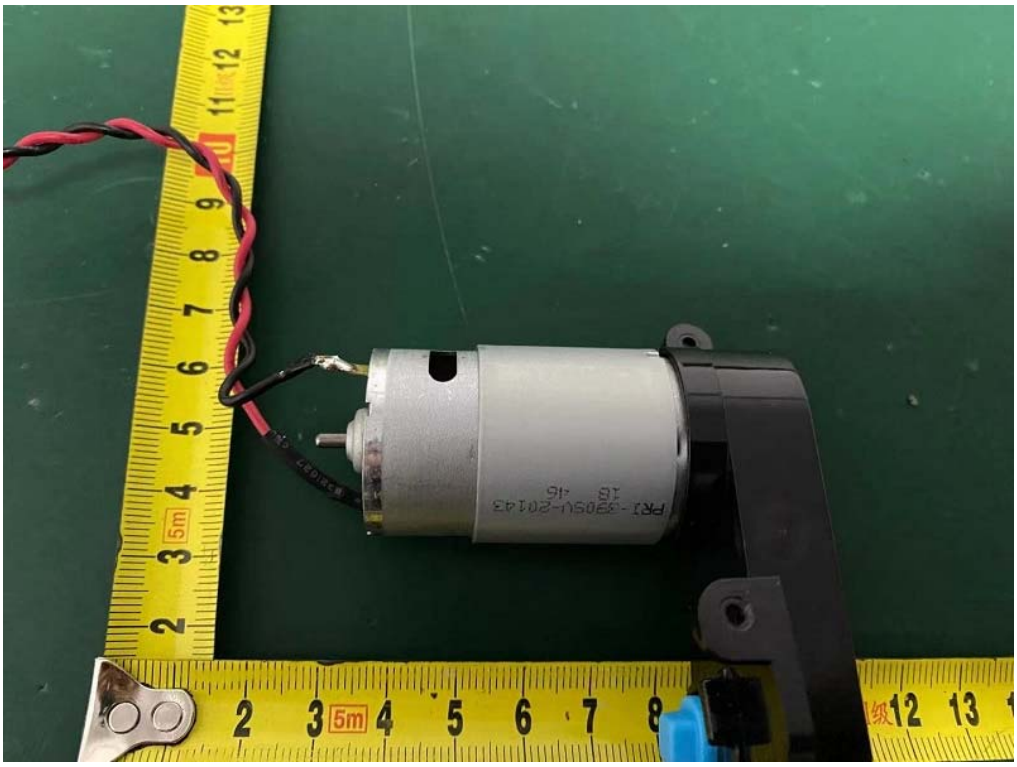

End of Test Report