FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Hunan Greatwall Computer System Co.,Ltd

10.1" Android Tablet

Model Number: 100011886

FCC ID: 2APUQW1027

Prepared for:	Hunan Greatwall Computer System Co.,Ltd
	Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd.,
	Tianyuan Dist.,Zhuzhou, Hu'nan
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2004042-2
Date of Test:	Dec. 21~30, 2020
Date of Report:	Dec. 31, 2020

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Description Page

EST Technology Co., Ltd.

Applicant: **Address:**	Hunan Greatwall Computer System Co.,Ltd Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd., Tianyuan Dist.,Zhuzhou, Hu'nan
Manufacturer: **Address:**	Hunan Greatwall Computer System Co.,Ltd Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd., Tianyuan Dist.,Zhuzhou, Hu'nan
E.U.T:	10.1" Android Tablet
Model Number:	100011886
Power Supply:	DC 5V From Adapter Input AC 100-240V~50/60Hz DC 3.8V From Battery
Trade Name:	onn. Serial No.: ------
Date of Receipt:	Dec. 21, 2020 Date of Test: Dec. 21~30, 2020
Test Specification:	FCC Part 15 Subpart C (15.247) ANSI C63.10:2013 FCC KDB 558074 D01 15.247 Meas Guidance v05r02
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.

Date: Dec. 31, 2020

Prepared by:	Reviewed by:	Approved by:
Ring Yang	Seven Wang	
Ring Yang / Assistant	Seven Wang / Engineer	Iceman Hu / Manager

Other Aspects:

Because only add screen, so just re-tested spurious emissions(30-1000MHz) , other test item needn't re-tested, test data refer to test report " ESTE-R2004042"
(Screen No.: GW1012701027A)

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	:	10.1" Android Tablet
Model Number	:	100011886
Screen No.	:	GW1012701027
Software Version	:	F732.Q0.V2.3.1.RC-V01_100011886
Hardware Version	:	F732U2.0
Operation frequency	:	2402MHz~2480MHz
Number of channel	:	79
Max Output Power (PEAK)	:	3.58dBm
Modulation Type	:	BT BDR(1Mbps): GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK
Sample Type	:	Prototype production

Note:

For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

1.2. Difference between Model Numbers

Model Number	main board	DDR	EMMC
100011886	A	RS512M32LZ4D2ANP_75BT 2G/4die 3733Mbps 10*14.5mm FBGA200 RS	MEMA032G 32GB 1.8V/HS400/EMMC5.1 200MHz 153-FBGA ISOCOM
	2	MDXC1016G-M2 2GB(512*32) 3200Mbps 10*14.5mm FBGA200 FORESEE	LTMZ0007HF-DAB1-SM Leahkinn
	3	RS512M32LM4D2BDS-53BT 2GB(512*32) 3200Mbps 10*14.5mm FBGA200 RS	EMMC32G-TA28 32GB 1.8V 200MHz 153-FBGA Kingston

Note: Default is A mainboard, reported to the DDR,EMMC and MPU combination for 2 and 3

1.3. Antenna Information

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	2.2

2. SUMMARY OF TEST

2.1. Summary of test result

Report Section	Description of Test Item	FCC Standard Section	Results
3	Maximum Peak Output Power	15.247(a)(1)	N/A
4	20dB Bandwidth	15.247(a)(1)	N/A
5	Carrier Frequency Separation	15.247(a)(1)	N/A
6	Number Of Hopping Channel	15.247(a)(1)(iii)	N/A
7	Dwell Time	15.247(a)(1)(iii)	N/A
8	Conducted Band Edge	15.247(d)	N/A
9	Conducted Spurious Emissions	15.247(d)	N/A
10	Radiated Spurious Emissions and Band Edge	15.205 15.209 15.247(d)	PASS
11	AC Power Line Conducted Emissions	15.207	N/A
12	Antenna Requirement	15.203	N/A

Note:

(1) “N/A” denotes test is not applicable in this test report

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA
Registration No.: L5288
This Certificate is valid until: November 12, 2023

Certificated by FCC, USA
Designation Number: CN1215
This Certificate is valid until: January 31, 2022

Certificated by A2LA, USA
Registration No.: 4366.01
This Certificate is valid until: January 31, 2022

Certificated by Industry Canada
CAB identifier No.: CN0035
This Certificate is valid until: January 31, 2022

Certificated by VCCI, Japan
Registration No.:C-14103; T-20073; R-13663;
R-20103; G-20097
Date of registration: Apr. 20, 2020
This Certificate is valid until: Apr. 19, 2023

Certificated by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018

Certificated by Intertek
Registration No.: 2011-RTL-L2-64
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	±3.48dB
Uncertainty for spurious emissions test (30MHz-1GHz)	±4.60 dB(Polarize: H)
	±4.68 dB(Polarize: V)
Uncertainty for spurious emissions test (1GHz to 25GHz)	±4.96dB
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

Note：This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

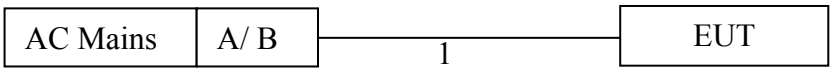
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	Adapter	onn	GDA0101H-U0500200	-	-
B	Adapter	onn	BSY01J3050200U U	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.0m	DC Cable

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground. EUT was beset into Bluetooth test mode by software before test.



AC 120V/60Hz

(EUT: 10.1"Android Tablet)

2.6. Test mode

Combining all the rates, modulations, and packet types, the Pre-scans had been carried out. The worst case test mode was selected for the final test as listed below.

Test Item	Modulation Type	Operating Mode	Packet Type	Test Channel
Radiated Spurious Emissions(Below 1GHz)	GFSK&8-DPSK	Non Hopping	DH5	Low/Middle/High

Note:

1. In radiated measurement,the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	-	-

2.8. Power Setting of Test Software

Software Name	N/A		
Frequency(MHz)	2402	2441	2480
GFSK(1Mbps) Setting	Default	Default	Default
8-DPSK(3Mbps) Setting	Default	Default	Default

2.9. Test Equipmen

For radiated emissions test (30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 13,20	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

3. RADIATED SPURIOUS EMISSIONS AND BAND EDGE

3.1. 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

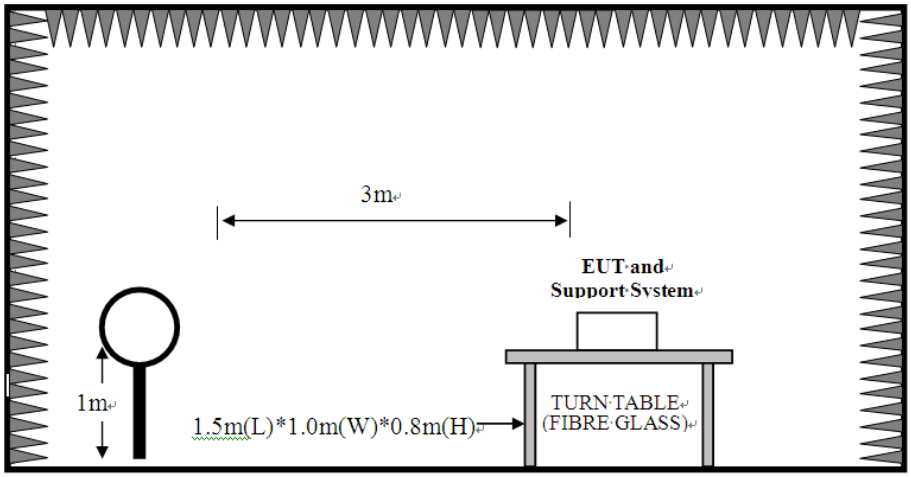
Frequency (MHz)	Field Strength(μV/m)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

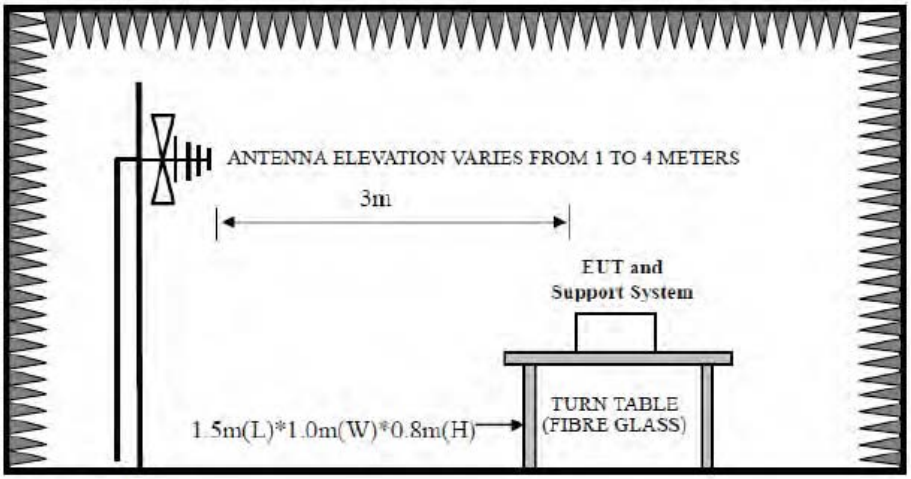
(1) Emission level dBμV = 20 log Emission level μV/m.
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument,antenna and the closest point of any part of the device or system.

3.2. Test Setup

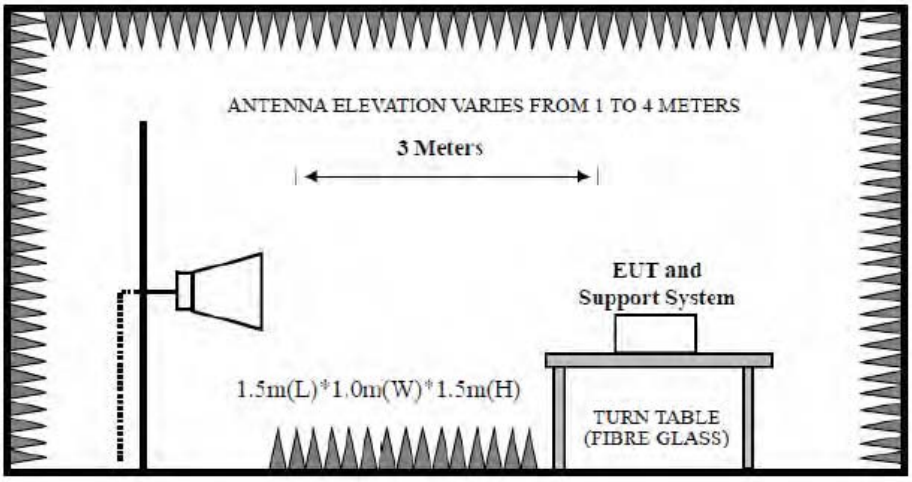
9kHz~30MHz



30~1000MHz



Above 1GHz



3.3. 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	

3.4. Test Procedure

a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 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 10.3.
g. Repeat above procedures until all channels and test modes 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 2402MHz ,2441MHz and 2480MHz is 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.

3.5. Test Result

Radiated Emissions Below 1GHz

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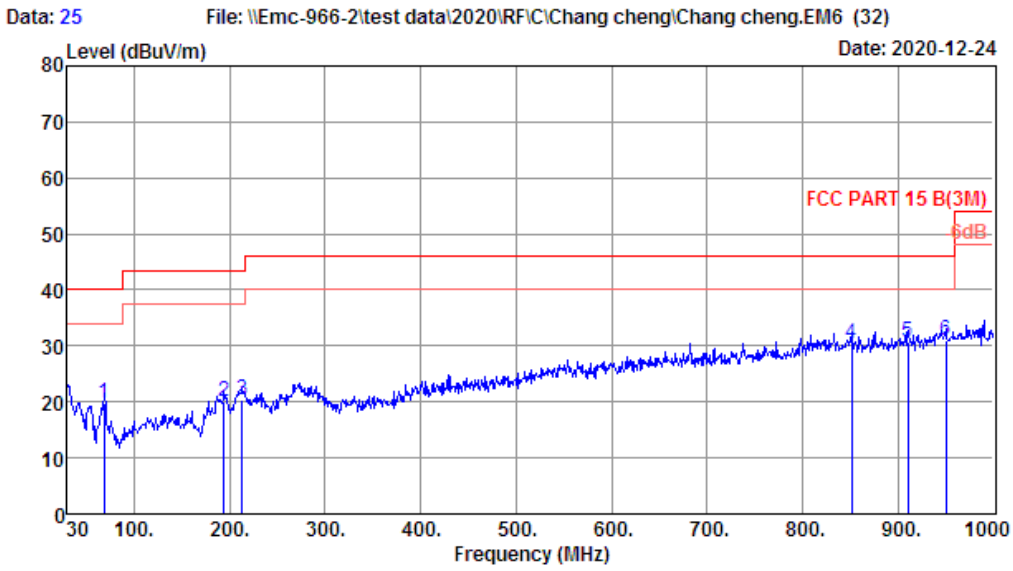

Site no. : 3# 966 Chamber Data no. : 25
Dis. / Ant. : 3m 31218 Ant. pol. : VERTICAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:24.6'C Humi:58% Press:101.50kPa
Engineer : Blank
EUT : 10.1"Android Tablet
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : 100011886
Test Mode : TX Mode
GDA0101H-U0500200

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	68.80	6.30	0.53	12.85	19.68	40.00	20.32	QP
2	193.93	8.72	1.09	10.13	19.94	43.50	23.56	QP
3	213.33	9.32	1.21	9.77	20.30	43.50	23.20	QP
4	851.59	23.89	3.16	3.38	30.43	46.00	15.57	QP
5	910.76	24.45	3.37	2.81	30.63	46.00	15.37	QP
6	950.53	24.61	3.84	2.60	31.05	46.00	14.95	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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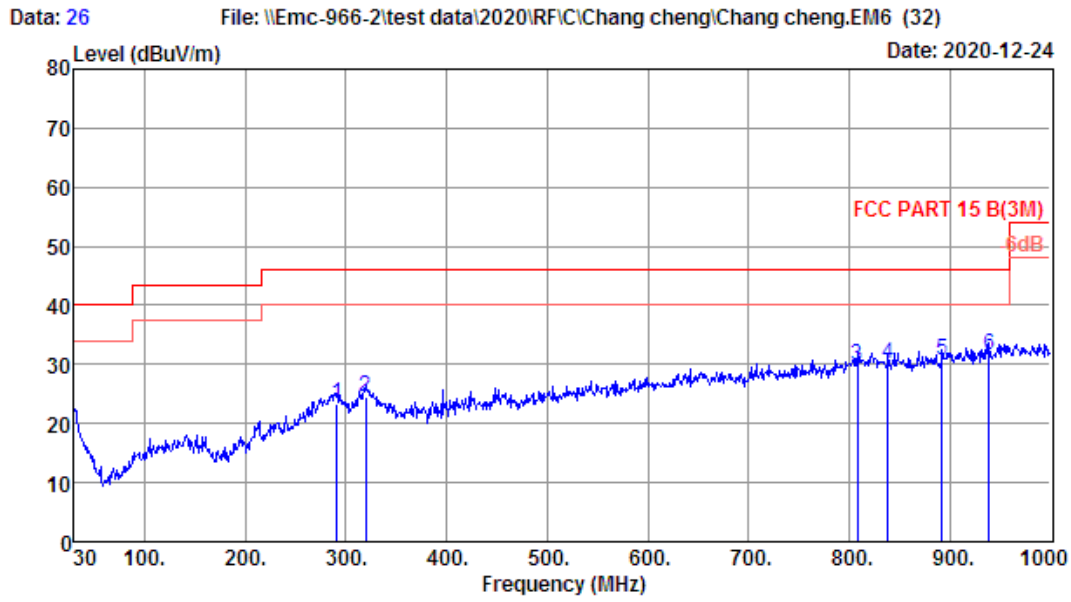

Site no. : 3# 966 Chamber Data no. : 26
Dis. / Ant. : 3m 31218 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:24.6'C Humi:58% Press:101.50kPa
Engineer : Blank
EUT : 10.1"Android Tablet
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : 100011886
Test Mode : TX Mode
GDA0101H-U0500200

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	290.93	13.76	1.58	7.88	23.22	46.00	22.78	QP
2	320.03	14.30	1.67	8.60	24.57	46.00	21.43	QP
3	807.94	23.34	3.11	3.41	29.86	46.00	16.14	QP
4	838.98	23.15	3.14	3.73	30.02	46.00	15.98	QP
5	892.33	23.58	3.32	3.71	30.61	46.00	15.39	QP
6	938.89	24.37	3.63	3.63	31.63	46.00	14.37	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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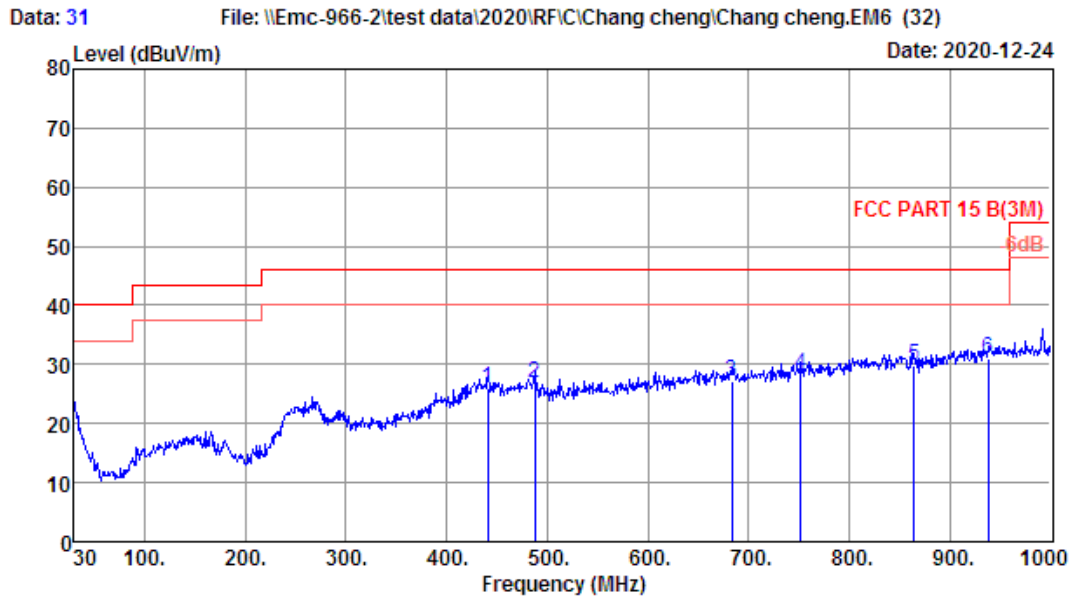

Site no. : 3# 966 Chamber Data no. : 31
Dis. / Ant. : 3m 31218 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:24.6'C Humi:58% Press:101.50kPa
Engineer : Blank
EUT : 10.1"Android Tablet
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : 100011886
Test Mode : TX Mode
BSY01J3050200U U

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	441.28	17.63	2.14	6.33	26.10	46.00	19.90	QP
2	487.84	18.26	2.26	6.46	26.98	46.00	19.02	QP
3	683.78	21.46	2.75	2.95	27.16	46.00	18.84	QP
4	751.68	21.99	3.08	3.40	28.47	46.00	17.53	QP
5	864.20	23.40	3.18	3.33	29.91	46.00	16.09	QP
6	937.92	24.34	3.61	3.06	31.01	46.00	14.99	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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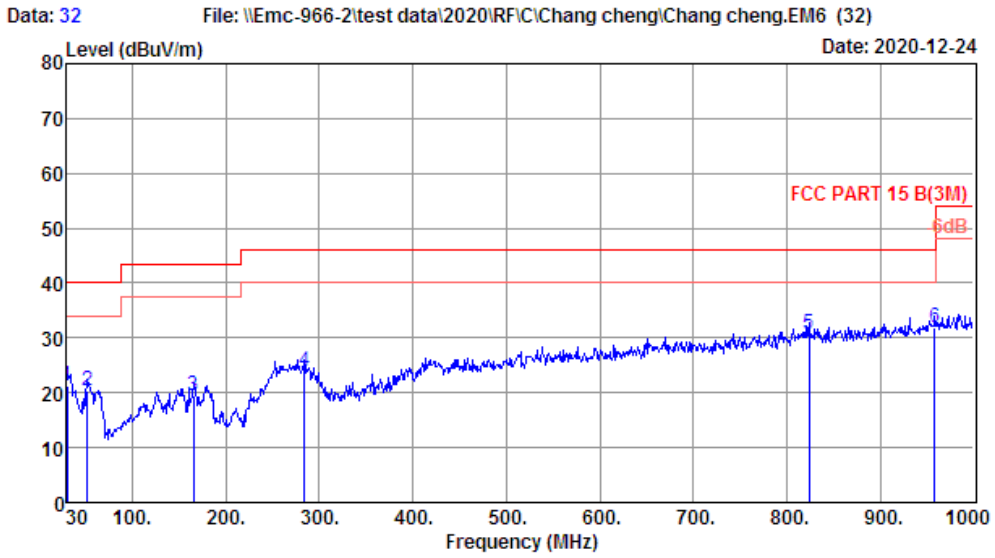


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Site no.      : 3# 966 Chamber              Data no.  : 32
Dis. / Ant.   : 3m   31218                  Ant. pol. : VERTICAL
Limit         : FCC PART 15 B(3M)
Env. / Ins.   : Temp:24.6'C Humi:58% Press:101.50kPa
Engineer      : Blank
EUT           : 10.1"Android Tablet
Power         : DC 5V From Adapter Input AC 120V/60Hz
M/N           : 100011886
Test Mode     : TX Mode
                BSY01J3050200U U
```

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.60	0.19	2.55	21.34	40.00	18.66	QP
2	52.31	7.60	0.31	12.52	20.43	40.00	19.57	QP
3	165.80	10.24	1.04	8.16	19.44	43.50	24.06	QP
4	284.14	13.34	1.57	8.98	23.89	46.00	22.11	QP
5	823.46	23.54	3.17	4.12	30.83	46.00	15.17	QP
6	958.29	24.68	4.00	3.15	31.83	46.00	14.17	QP

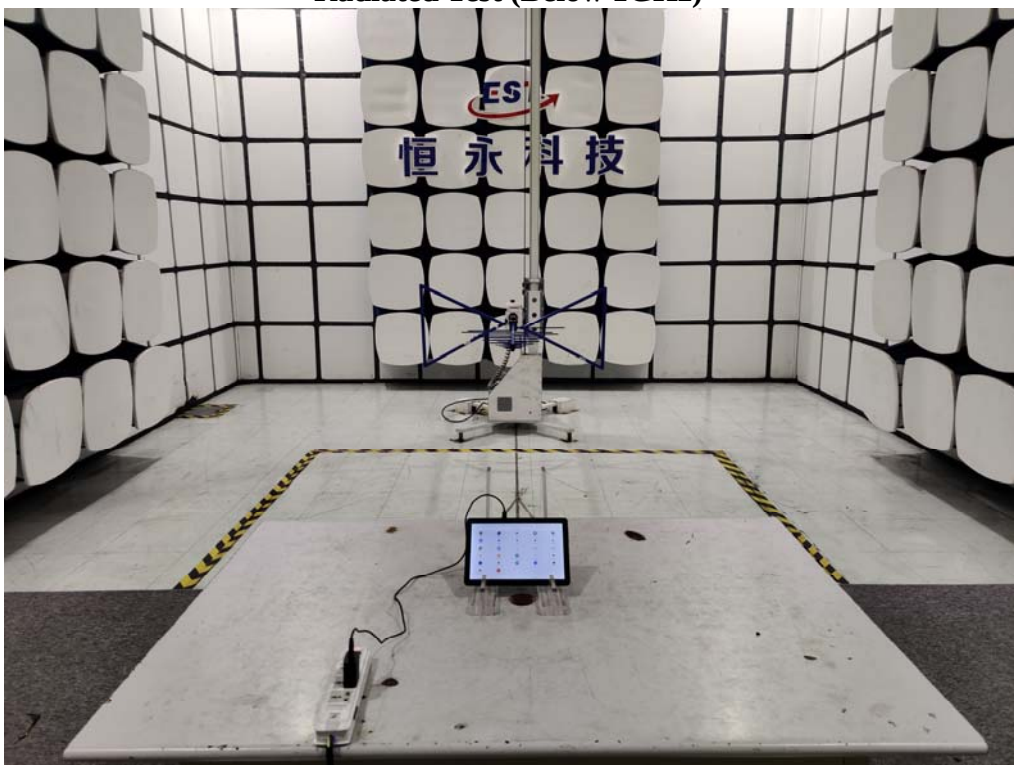
```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official limit are not reported.
```

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 test mode had been pre-test,only the worst case was reported.

4. TEST SETUP PHOTO

Radiated Test (Below 1GHz)

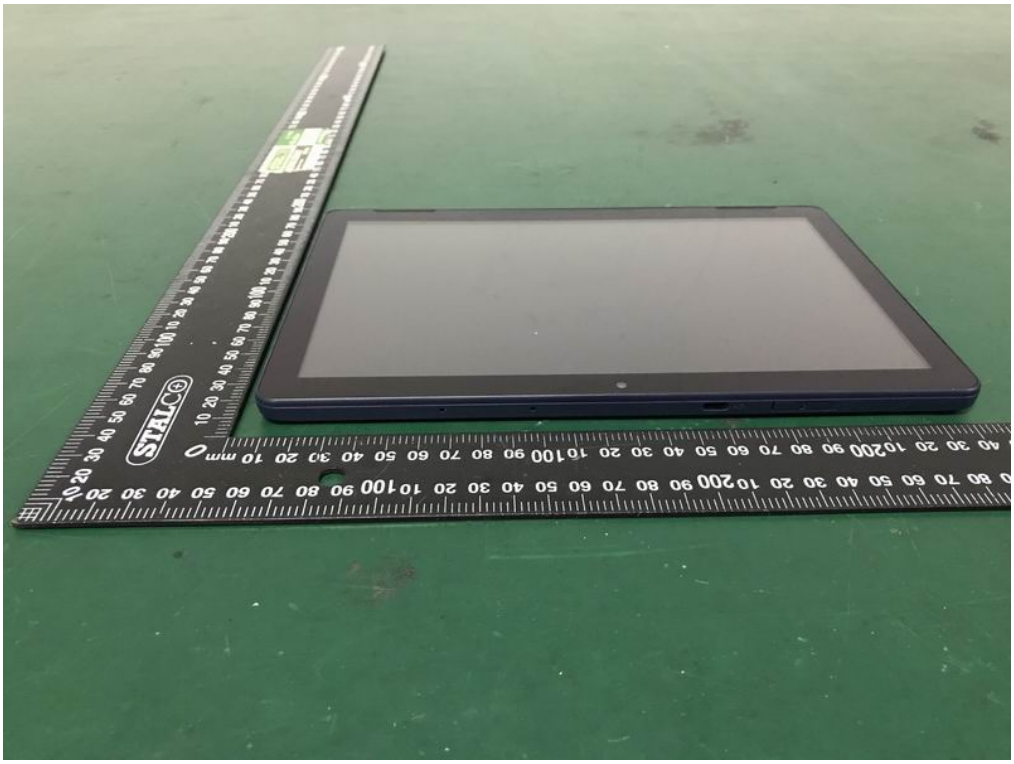


5. EUT PHOTO

External Photos
M/N: 100011886

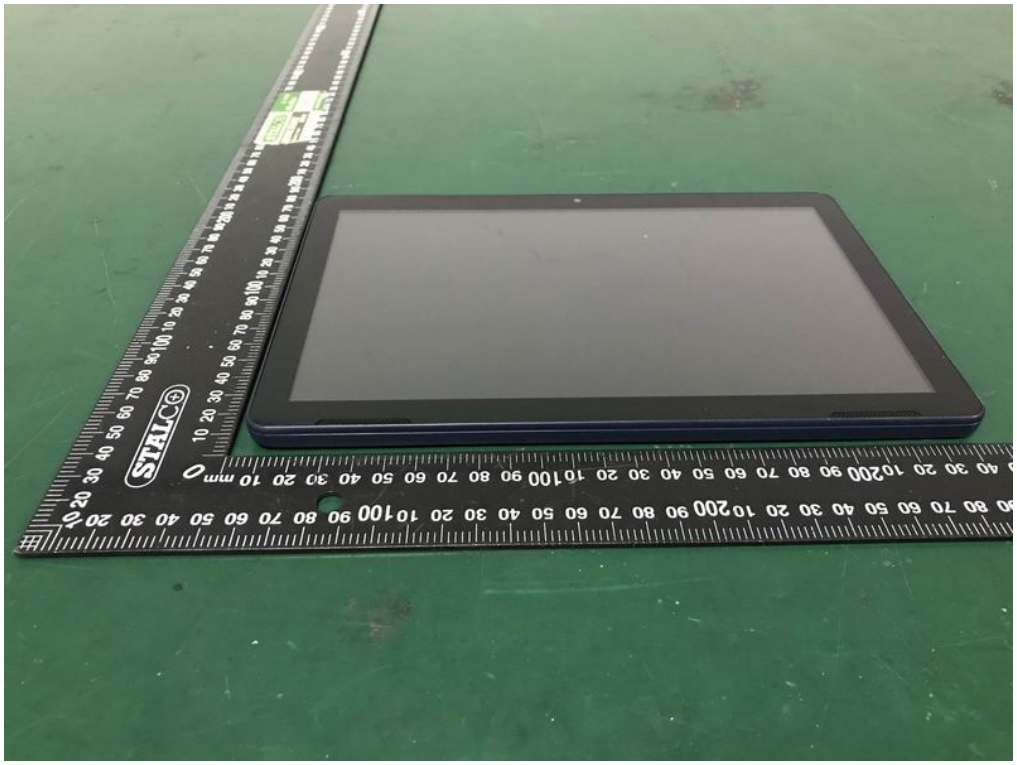
External Photos

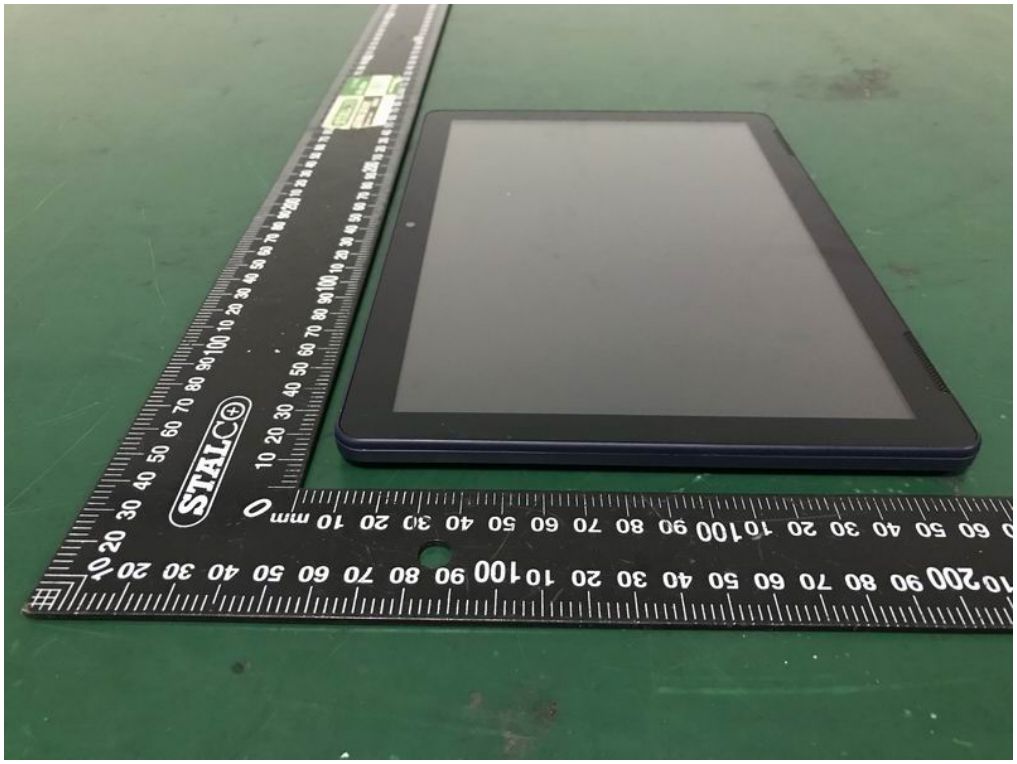
M/N: 100011886



External Photos

M/N: 100011886





External Photos

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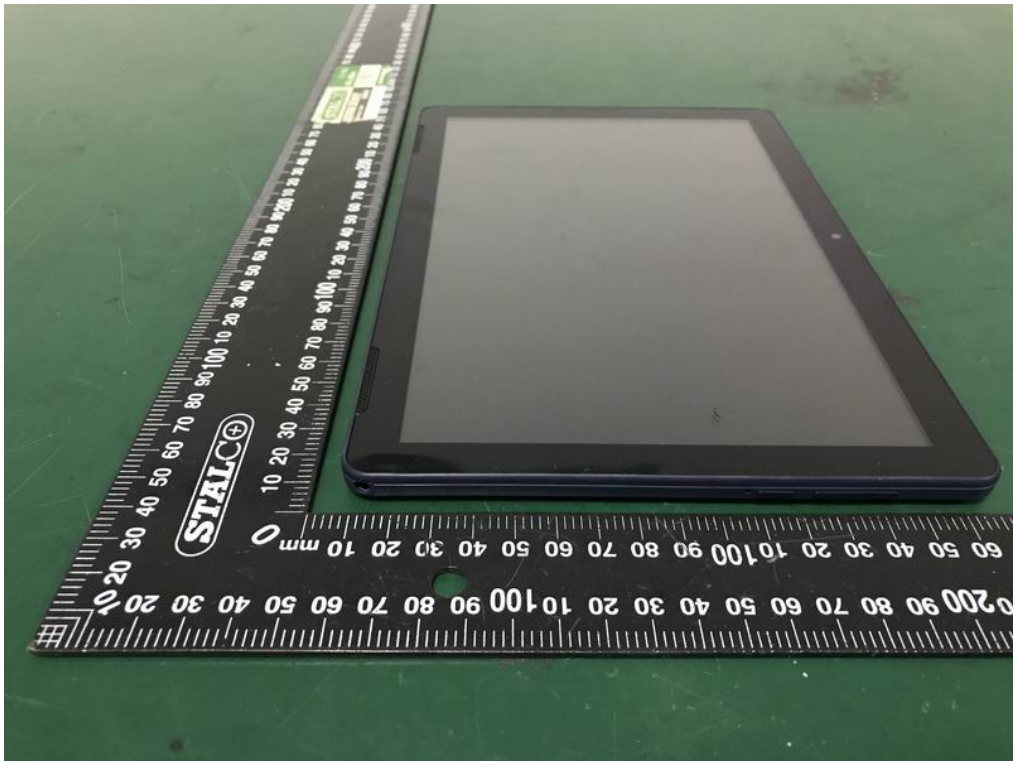
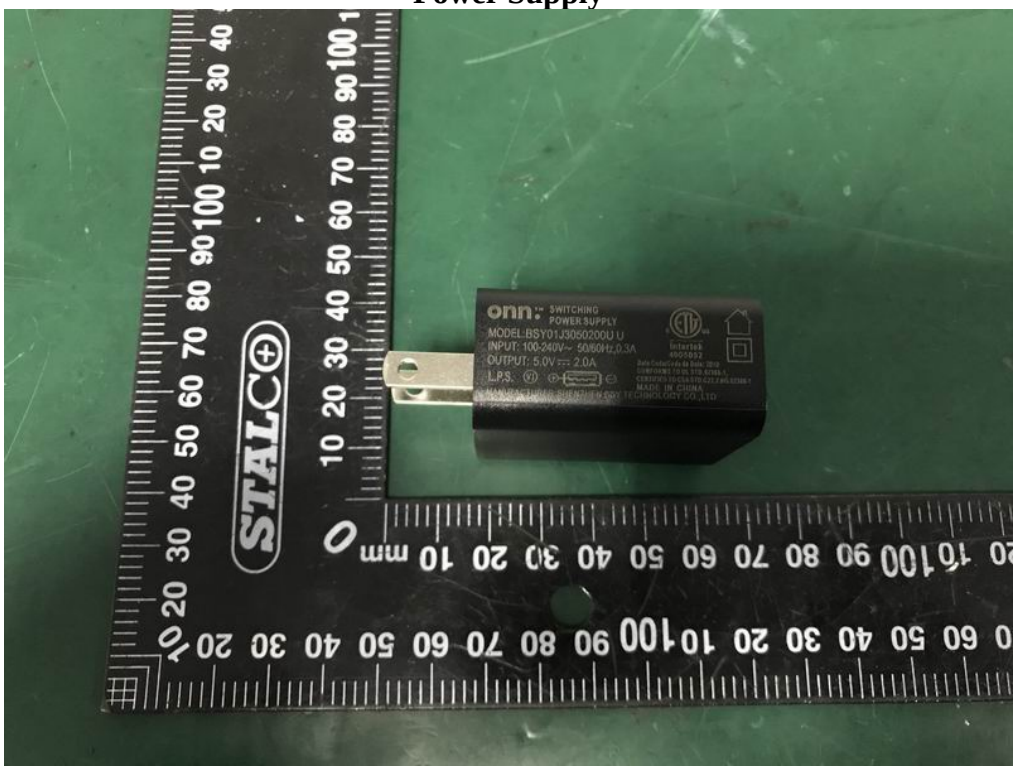
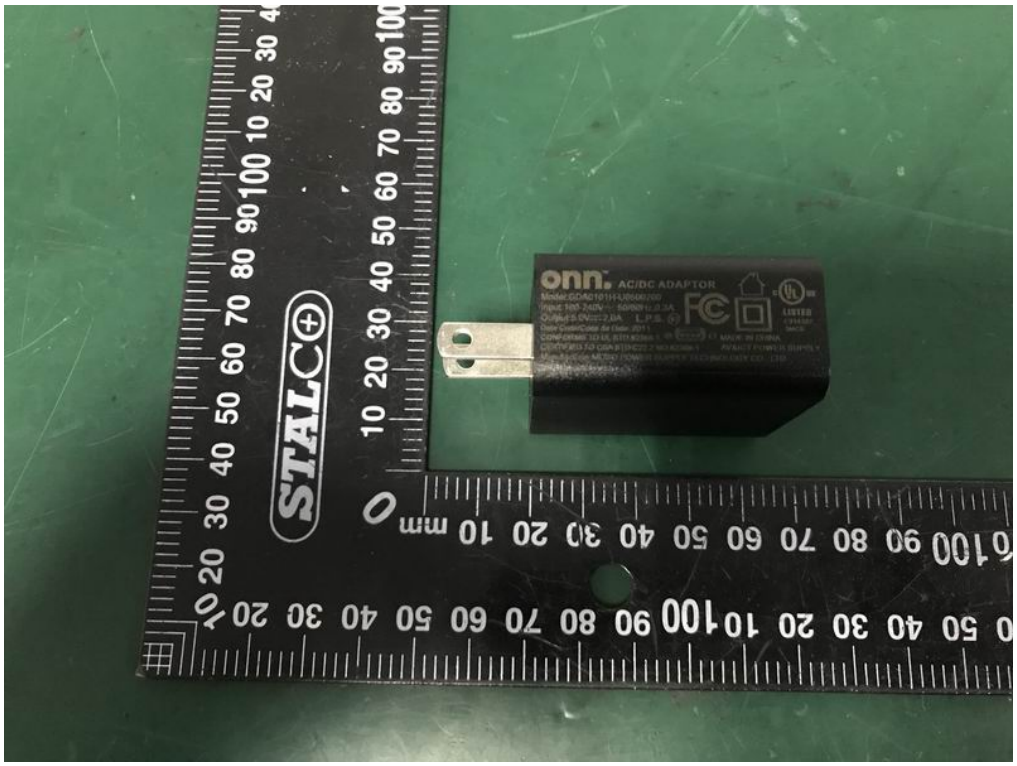


Power Supply





Internal Photos

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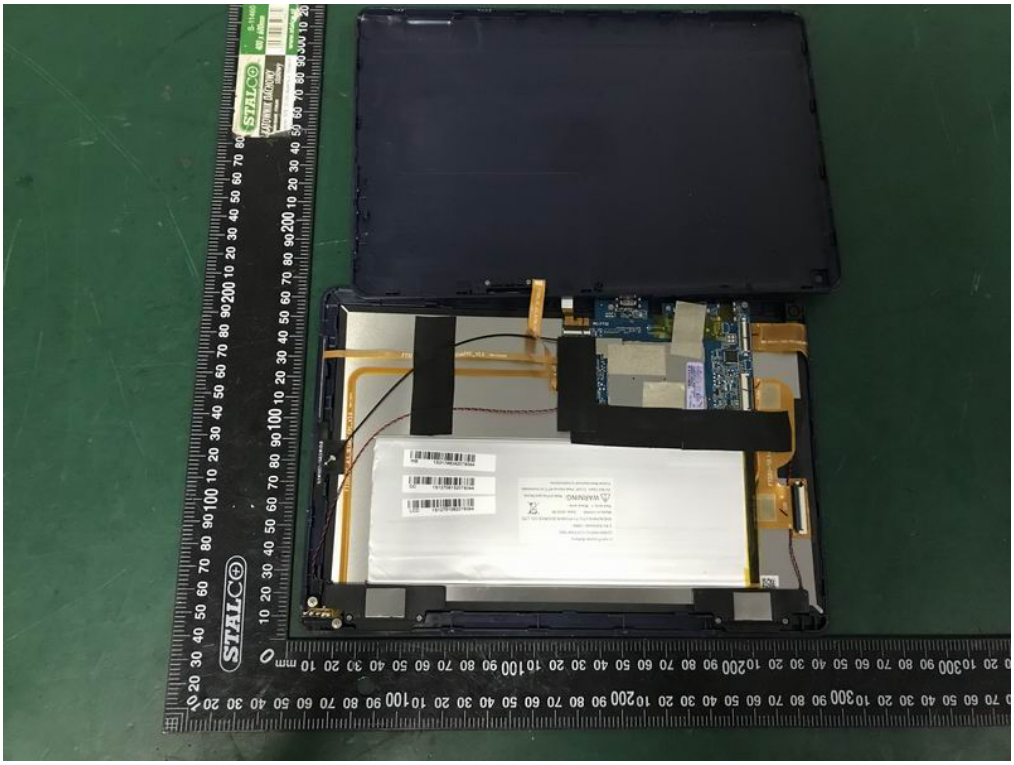

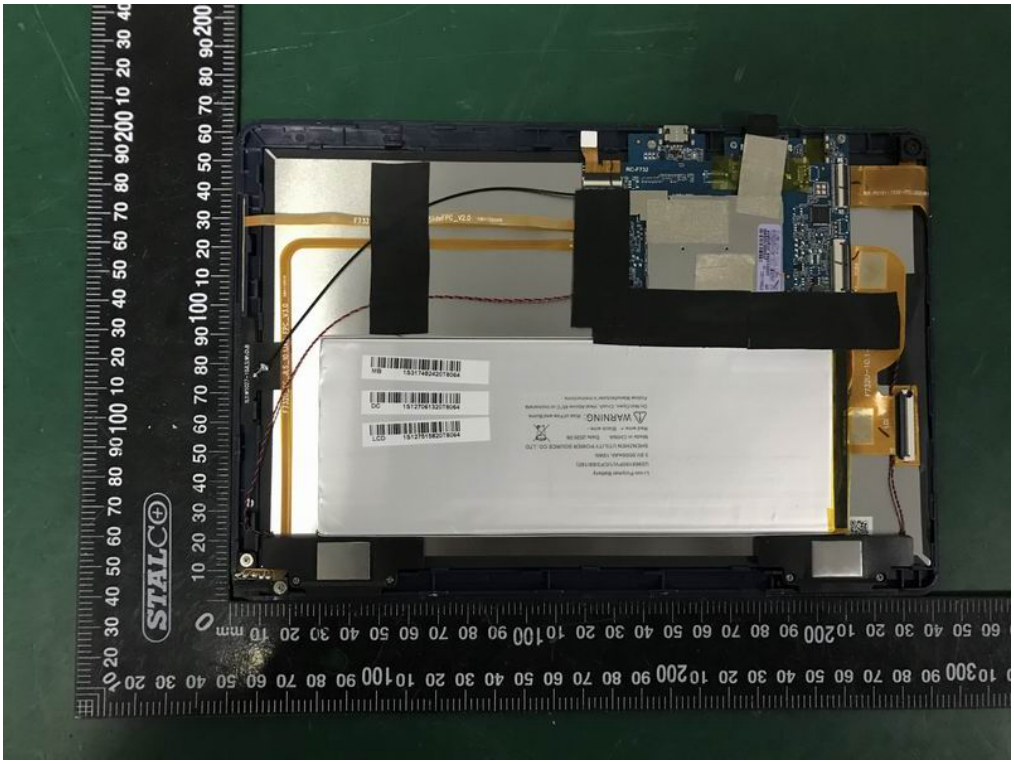

Internal Photos

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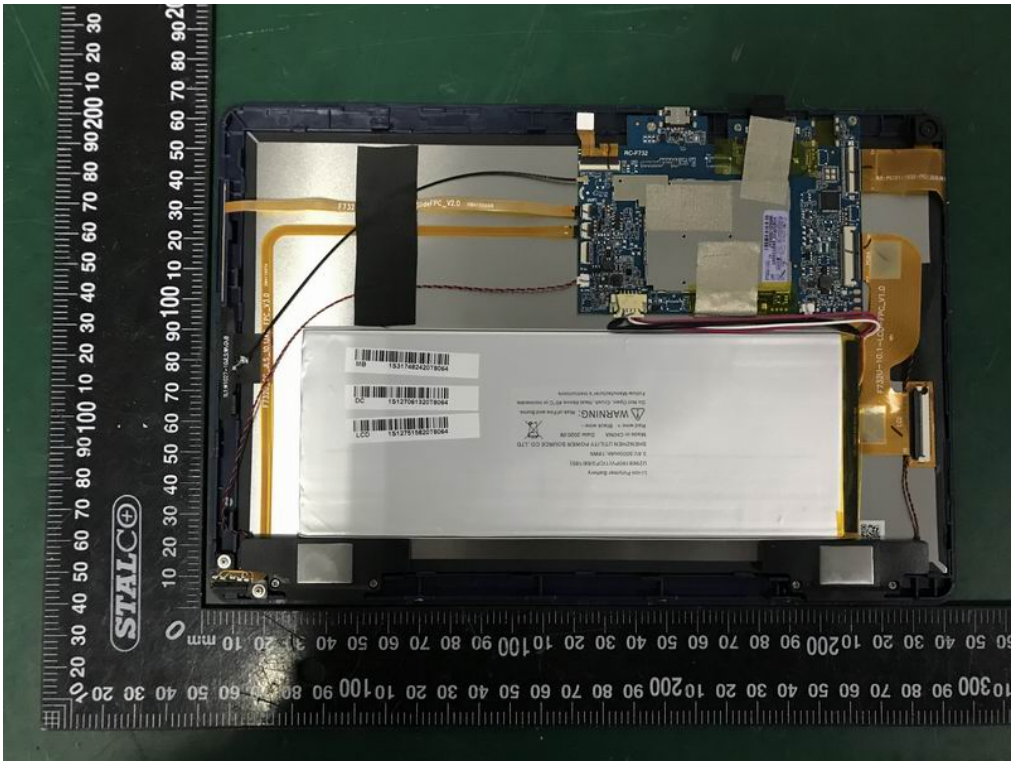

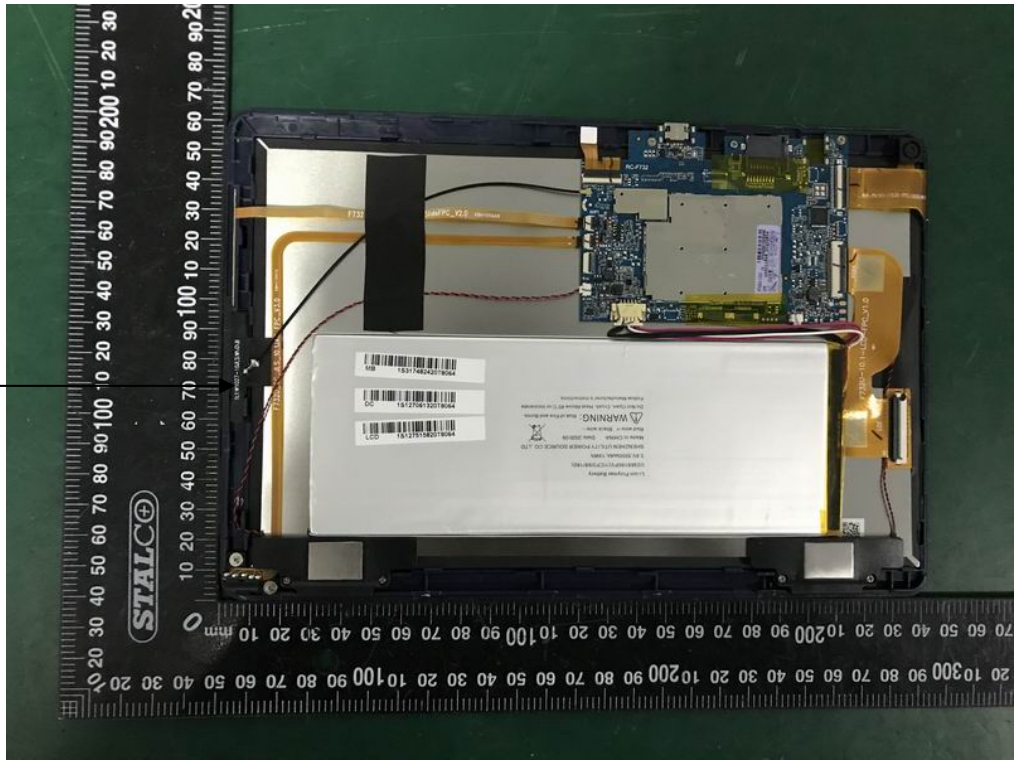

Internal Photos

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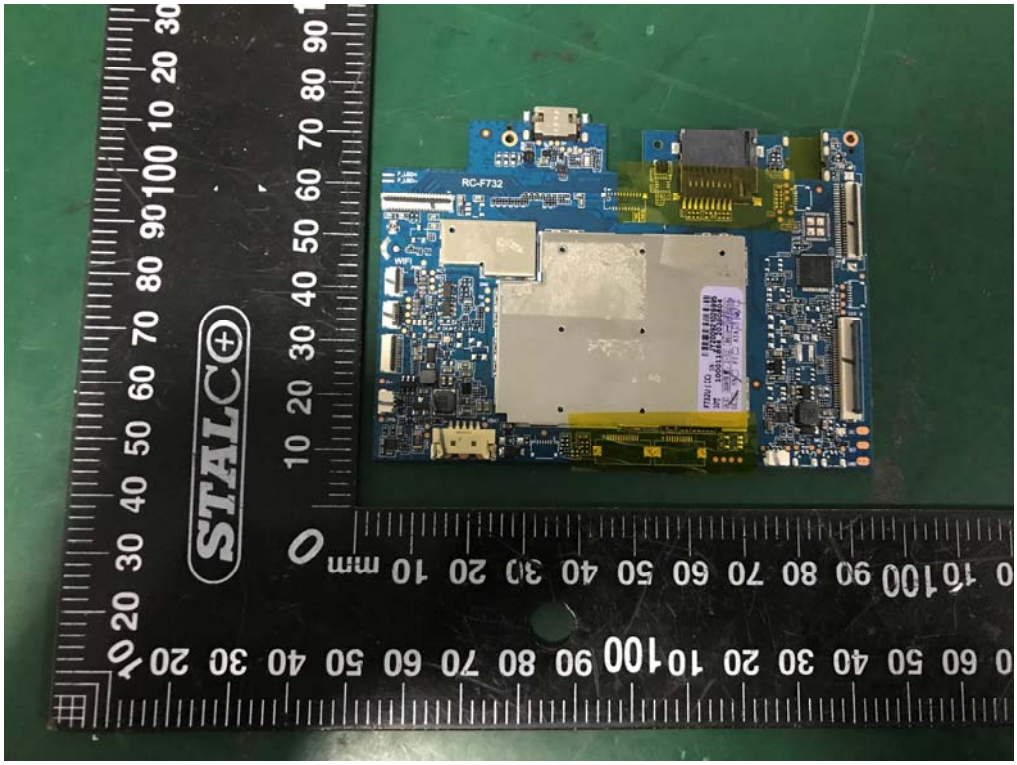

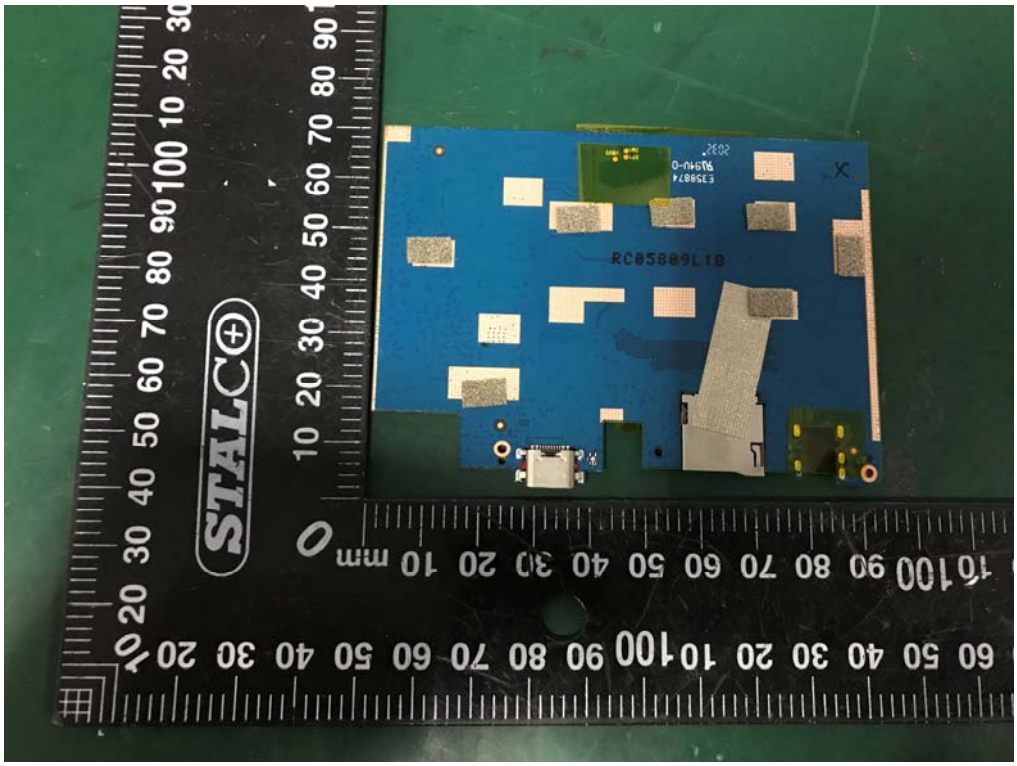

Internal Photos

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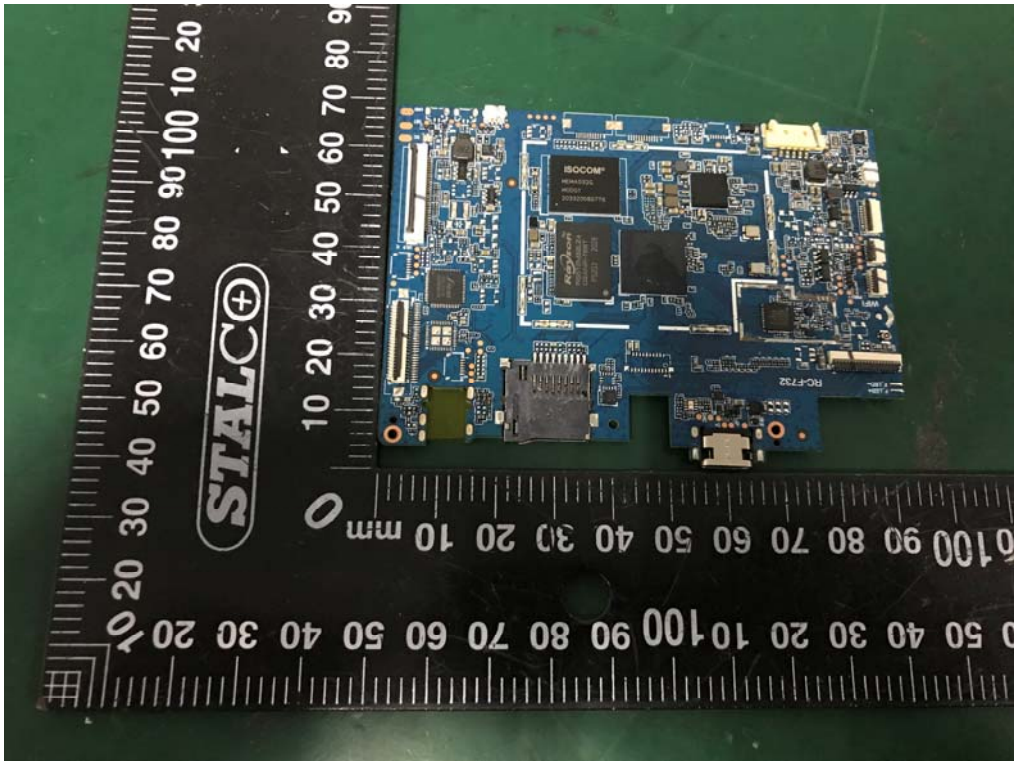

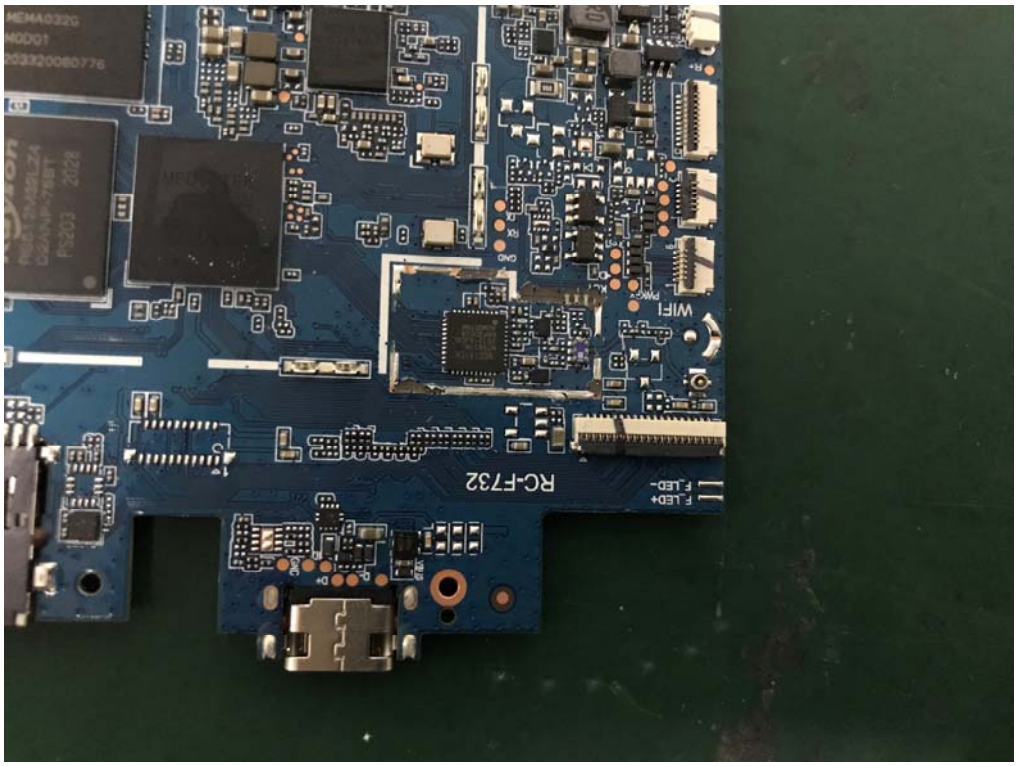

Internal Photos

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End of Test Report