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Report No.: CQASZ160501323E-01
Report Version: V01

MEASUREMENT REPORT

FCC Report

Applicant: Guangzhou Chenle Information Technology Co., LTD

Address of Applicant: 1005A room , No. 89, Yanling Road, Tianhe District, Guangzhou, China

Manufacturer: Guangzhou Chenle Information Technology Co., LTD

Address of Manufacturer: 1005A room , No. 89, Yanling Road, Tianhe District, Guangzhou, China

Equipment Under Test (EUT):

Product: Tablet PC

Model No.: V701S, V80, V96, V80 SE, V820W DUAL OS, OBOOK10 SE, V891W CH, V80Plus, OBOOK10 DualOS, OBOOK10 Pro, OBOOK10 plus, OBOOK11 Plus, OBOOK11 Pro, OBOOK12, V801S, V820W CH DUALOS, V919AIR CH DUALOS, V975S, OBOOK11 DUALOS, OBOOK11.

Test Model No.: OBOOK10 DualOS

Brand Name: ONDA

FCC ID: 2AIXEOBOOK10

Standards: 47 CFR Part 15B

Date of Test: 2016-06-02 to 2016-06-07

Date of Issue: 2016-06-07

Test Result : **PASS***

Reviewed By:

(Aaron Ma)

Approved By:

(Owen Zhou)



* In the configuration tested, the EUT complied with the standards specified above.

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ160501323E-01	Rev.01	Initial report	2016-06-07

2 Test Summary

Test Item	Test Requirement	Test method	Result
Radiated Emission	47 CFR Part 15B	ANSI C63.4 (2014)	PASS
Conducted Emission (150KHz to 30MHz)	47 CFR Part 15B	ANSI C63.4 (2014)	PASS

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4 General Information

4.1 Client Information

Applicant:	Guangzhou Chenle Information Technology Co., LTD
Address of Applicant:	1005A room , No. 89, Yanling Road, Tianhe District, Guangzhou, China
Manufacturer:	Guangzhou Chenle Information Technology Co., LTD
Address of Manufacturer:	1005A room , No. 89, Yanling Road, Tianhe District, Guangzhou, China

4.2 General Description of EUT

Product Name:	Tablet PC	
Model No.:	V701S, V80, V96, V80 SE, V820W DUAL OS, OBOOK10 SE, V891W CH, V80Plus, OBOOK10 DualOS, OBOOK10 Pro, OBOOK10 plus, OBOOK11 Plus, OBOOK11 Pro, OBOOK12, V801S, V820W CH DUALOS, V919AIR CH DUALOS, V975S, OBOOK11 DUALOS, OBOOK11.	
Test Model No.:	OBOOK10 DualOS	
Trade Mark:	ONDA	
Hardware Version:	V02	
Software Version:	V1.0	
Highest Operating Frequency (CPU):	1.84GHz	
Sample Type:	portable production	
Power Supply:	Adapter:	Mode : TPA-915200CU Input: AC100-240V 50/60Hz 0.4A Output: DC5.0V 2.0A
	EUT Power Supply:	DC5.0V
	Rechargeable li-ion battery	DC3.8V, 6000mAh
Test Voltage:	AC120V 60Hz	

Note:

1. Model No.: V701S, V80, V96, V80 SE, V820W DUAL OS, OBOOK10 SE, V891W CH, V80Plus, OBOOK10 DualOS, OBOOK10 Pro, OBOOK10 plus, OBOOK11 Plus, OBOOK11 Pro, OBOOK12, V801S, V820W CH DUALOS, V919AIR CH DUALOS, V975S, OBOOK11 DUALOS, OBOOK11.

Only the model OBOOK10 DualOS was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance, pack and model name.

2. The fully-charged li-ion battery is used for testing.

4.3 Test Environment

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
PC	Lenovo	Lenovo ideapad 100-14IBY
Mouse	Lenovo	KM040
Adapter(PC)	Lenovo	PA-1450-55LN

4.5 Test Location

All tests were performed at:

Shenzhen CTL Testing Technology Co., Ltd., Shenzhen EMC Laboratory,
1/F.-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, Guangdong, China

4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

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

4.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10 Other Information Requested by the Customer

None.

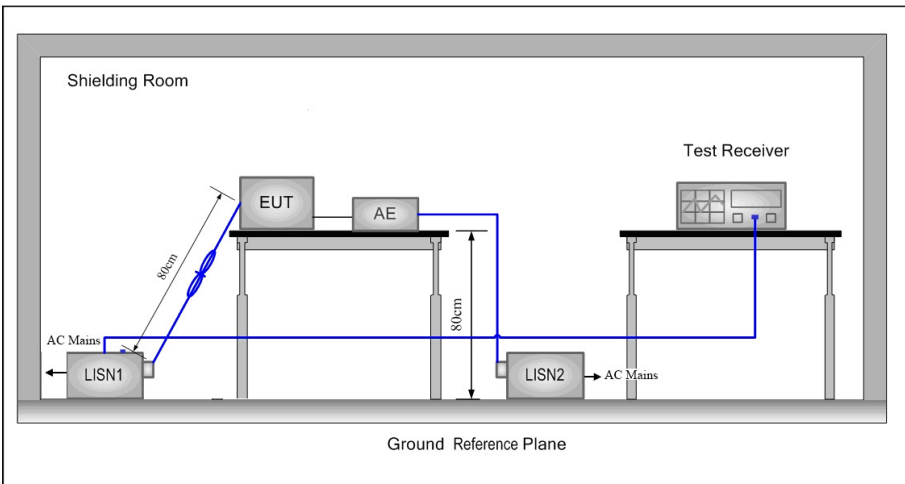
4.11 Equipment List

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
1	Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2017/06/01
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI3	103710	2017/06/01
3	Spectrum Analyzer	Agilent	E4407B	MY45108355	2017/05/20
4	Controller	EM Electronics	Controller EM 1000	N/A	2017/05/20
5	Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2017/05/18
6	Spectrum Analyzer	R&S	FSU	MY41440676	2017/05/18
7	LISN	R&S	ENV216	101316	2017/06/01
8	LISN	SCHWARZBECK	NSLK8127	8127687	2017/06/01
9	Microwave Preamplifier	HP	8349B	3155A00882	2017/05/18
10	Preamplifier	HP	8447D	3113A07663	2017/05/18
11	Transient Limiter	Com-Power	LIT-153	532226	2017/06/01
12	Temperature/Humidity Meter	Gangxing	CTH-608	02	2017/05/19
13	Climate Chamber	ESPEC	EL-10KA	A20120523	2017/05/19
14	RF Cable(0-1GHz)	HUBER+SUHNER	RG174	N/A	2017/05/19
15	RF Cable(1-25GHz)	HUBER+SUHNER	RG214	N/A	2017/05/19

5 Test results and Measurement Data

5.1 Conducted Emissions

Test Requirement:	47 CFR Part 15B		
Test Method:	ANSI C63.4: 2014		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.		

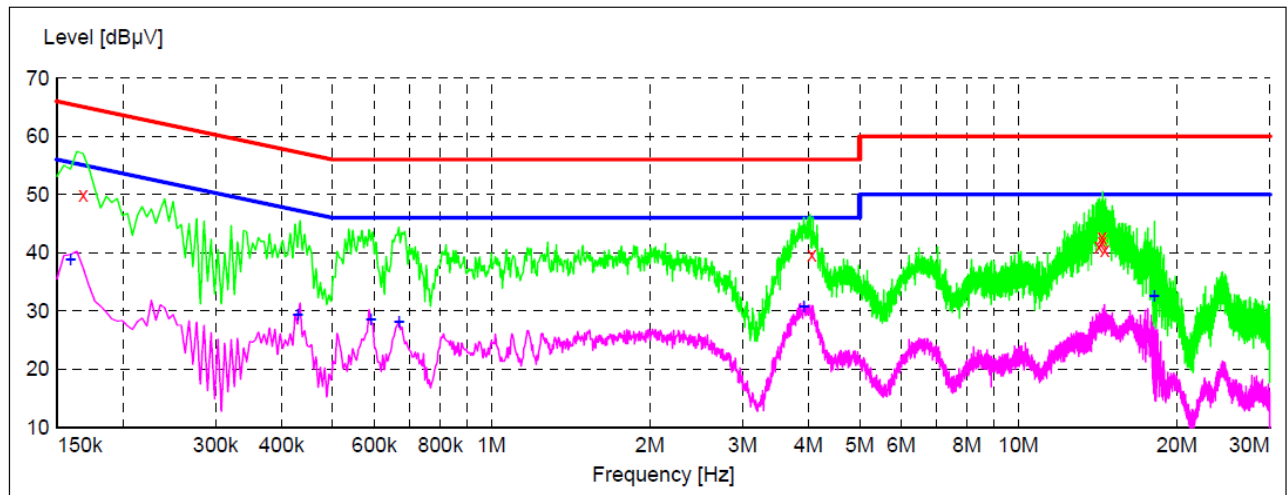
Test setup:	
Instruments Used:	Refer to section 4.10 for details
Test Mode:	Mode a: Connect EUT and PC, exchanging data with SD card. Mode b: Connect EUT and PC , keep EUT playing video with PC connected through HDMI port. Mode c: Charging by PC +Keep EUT taking video and photos. Mode d: Charging by PC +Keep EUT browsing video and photos.
Final Test Mode:	Pretest the EUT at different test mode and found the “mode a” which is worst case, the test worst case is recorded in the report.
Test Voltage	120V/60Hz
Test Results:	Pass

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

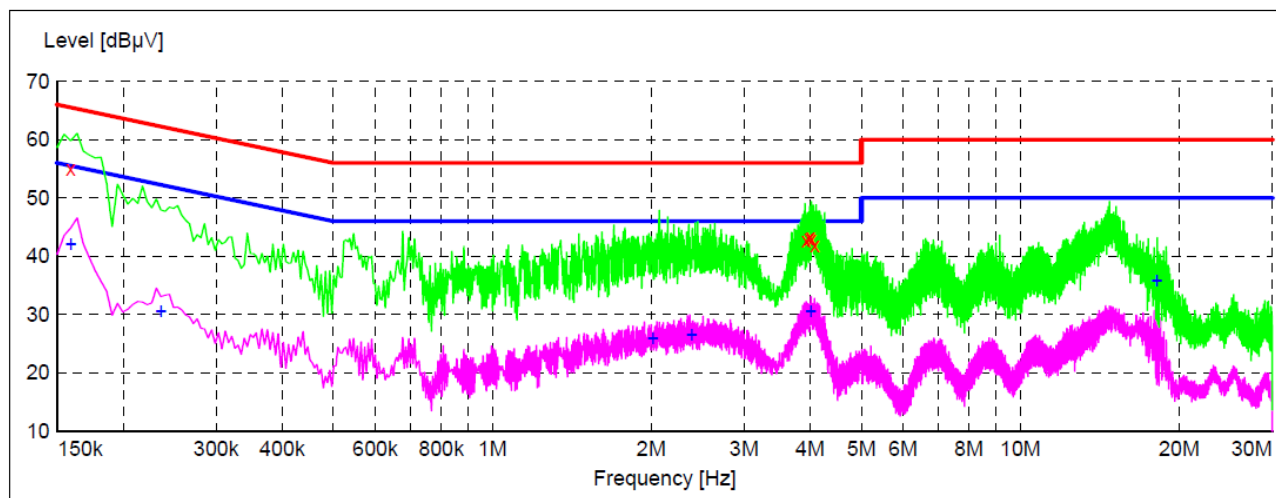
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.168001	50.00	10.2	65	15.1	QP	L1	GND
4.056001	39.60	10.4	56	16.4	QP	L1	GND
14.230501	41.10	10.6	60	18.9	QP	L1	GND
14.410501	42.60	10.7	60	17.4	QP	L1	GND
14.428501	41.80	10.7	60	18.2	QP	L1	GND
14.599501	40.50	10.7	60	19.5	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159001	38.90	10.2	56	16.6	AV	L1	GND
0.429001	29.30	10.2	47	18.0	AV	L1	GND
0.591001	28.60	10.2	46	17.4	AV	L1	GND
0.667501	28.10	10.2	46	17.9	AV	L1	GND
3.921001	30.70	10.4	46	15.3	AV	L1	GND
18.118501	32.70	10.9	50	17.3	AV	L1	GND

Neutral Line:



Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159001	55.00	10.2	66	10.5	QP	N	GND
3.930001	42.70	10.4	56	13.3	QP	N	GND
3.975001	43.10	10.4	56	12.9	QP	N	GND
4.002001	43.40	10.4	56	12.6	QP	N	GND
4.020001	42.90	10.4	56	13.1	QP	N	GND
4.078501	41.90	10.4	56	14.1	QP	N	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159001	42.00	10.2	56	13.5	AV	N	GND
0.235501	30.60	10.2	52	21.7	AV	N	GND
2.013001	26.00	10.4	46	20.0	AV	N	GND
2.382001	26.50	10.4	46	19.5	AV	N	GND
4.002001	30.60	10.4	46	15.4	AV	N	GND
18.163501	35.90	10.9	50	14.1	AV	N	GND

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT,
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

5.2 Radiated Emission

Test Requirement:	47 CFR Part 15B				
Test Method:	ANSI C63.4: 2014				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
			74.0		Peak Value
	Note:				
	Highest frequency generated or used in the device or on which the device operates or tunes (MHz)		Upper frequency of measurement Range (MHz)		
	Below 1.705		30		
	1.705 to 108		1000		
	108 to 500		2000		
	500 to 1000		5000		
	Above 1000		5th harmonic of the highest frequency or 40GHz, whichever is lower		
Test Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 2) Above 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. Note: For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The				

	measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. - 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. - 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - 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.
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Test Setup:

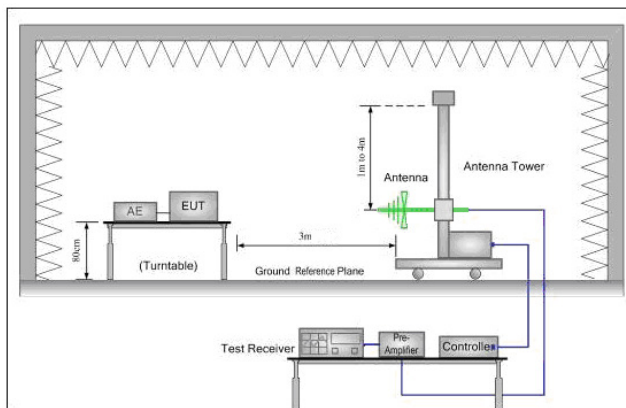


Figure 1. 30MHz to 1GHz

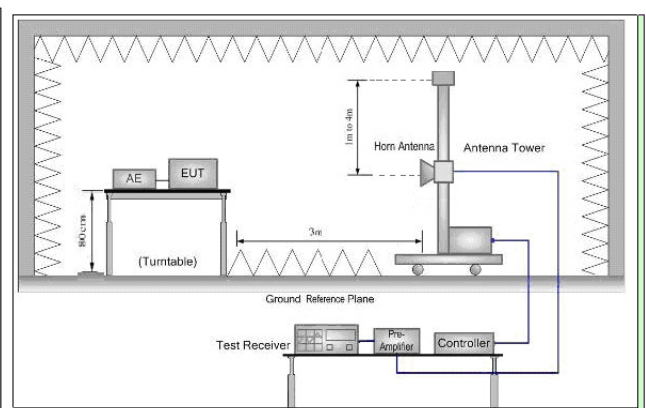
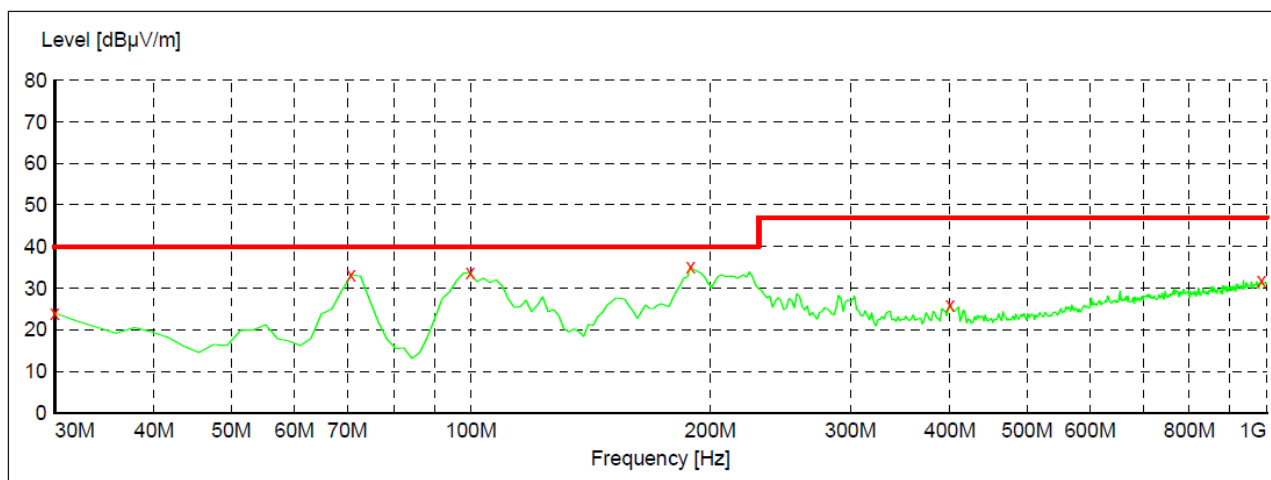


Figure 2. Above 1 GHz

Instruments Used:	Refer to section 4.10 for details
Test Mode:	Mode a: Connect EUT and PC, exchanging data with SD card. Mode b: Connect EUT and PC , keep EUT playing video with PC connected through HDMI port. Mode c: Charging by PC +Keep EUT taking video and photos. Mode d: Charging by PC +Keep EUT browsing video and photos.
Final Test Mode:	Pretest the EUT at different test mode and found the “mode a” which is worst case, the test worst case is recorded in the report.
Test Results:	Pass

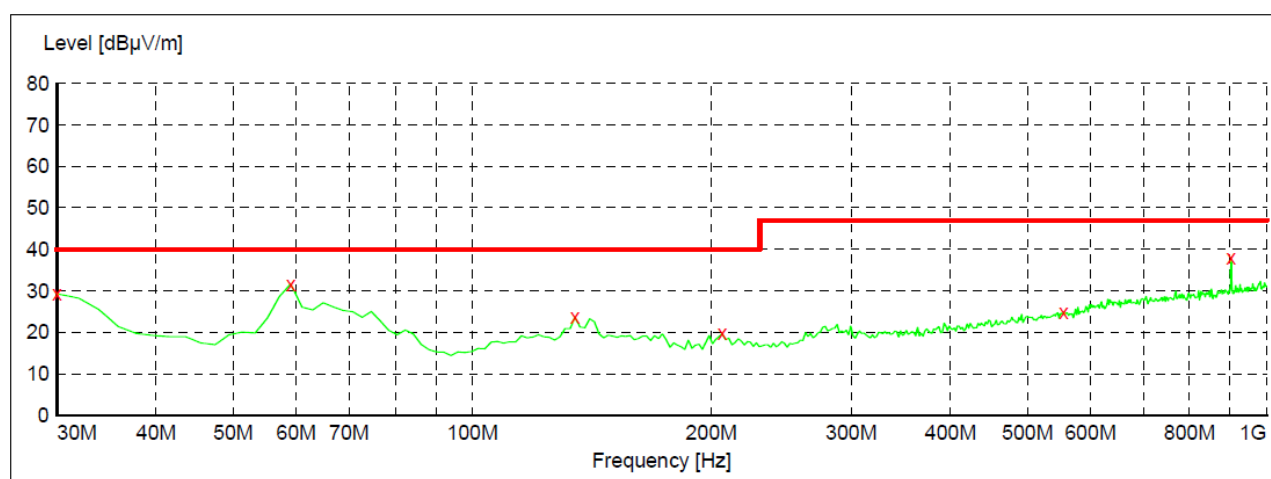
Peak value: 30MHz~1GHz

Horizontal



Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.
30.000000	24.00	21.1	40.0	16.0	-PK-
70.740000	33.20	8.4	40.0	6.8	-PK-
99.840000	33.80	11.5	40.0	6.2	-PK-
189.080000	35.10	13.4	40.0	4.9	-PK-
400.540000	25.90	18.1	47.0	21.1	-PK-
986.420000	31.90	27.1	47.0	15.1	-PK-

Vertical



Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.
30.000000	29.30	21.1	40.0	10.7	-PK-
59.100000	31.70	8.3	40.0	8.3	-PK-
134.760000	23.60	14.8	40.0	16.4	-PK-
206.540000	19.70	14.3	40.0	20.3	-PK-
555.740000	24.90	21.1	47.0	22.1	-PK-
903.000000	38.00	26.1	47.0	9.0	-PK-

Above 1G:

Horizontal

Frequency (MHz)	Level (dBμV/m)	Correct Factor (dB)	Limit ((dBμV/m)	Margin (dB)	Detector
1330.0000	13.80	-11.00	74	60.20	PK
1810.0000	24.30	-6.80	74	49.70	PK
1820.0000	25.10	-6.80	74	48.90	PK
3170.0000	29.40	2.70	74	44.60	PK
4050.0000	34.90	8.10	74	39.10	PK
5730.0000	35.70	9.50	74	38.30	PK
1310.0000	1.20	-11.00	54	52.80	AV
1810.0000	10.00	-6.80	54	44.00	AV
1820.0000	13.00	-6.80	54	41.00	AV
3130.0000	17.40	2.50	54	36.60	AV
4030.0000	22.30	8.10	54	31.70	AV
5730.0000	24.00	9.50	54	30.00	AV

Vertical

Frequency (MHz)	Level (dBμV/m)	Correct Factor (dB)	Limit ((dBμV/m)	Margin (dB)	Detector
1830.0000	25.50	-6.60	74	48.50	PK
2020.0000	27.00	-5.40	74	47.00	PK
2410.0000	28.30	-2.50	74	45.70	PK
3250.0000	30.20	3.00	74	43.80	PK
3990.0000	34.90	8.00	74	39.10	PK
5620.0000	36.50	9.60	74	37.50	PK
1320.0000	1.30	-11.00	54	52.70	AV
1810.0000	9.90	-6.80	54	44.10	AV
2410.0000	17.10	-6.80	54	36.90	AV
3280.0000	17.40	-2.50	54	36.60	AV
4010.0000	22.50	8.10	54	31.50	AV
5730.0000	24.10	9.50	54	29.90	AV

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

The test range is from 1 GHz to 10 GHz, only the worst six points were recorded in the report.

6 Photographs - EUT Test Setup

6.1 Conducted Emission



6.2 Radiatd Emission

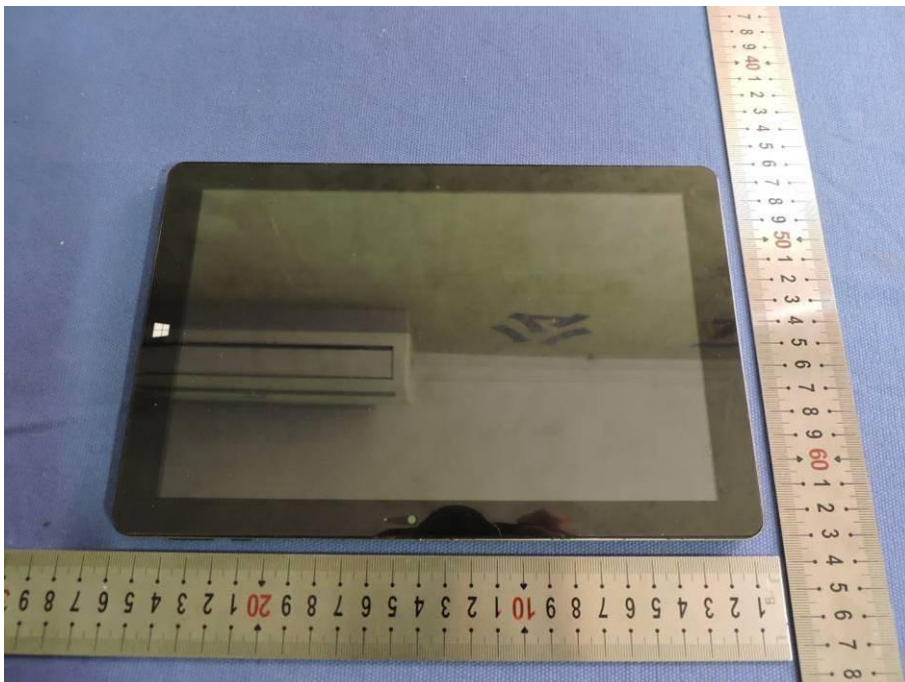
30MHz~1GHz:



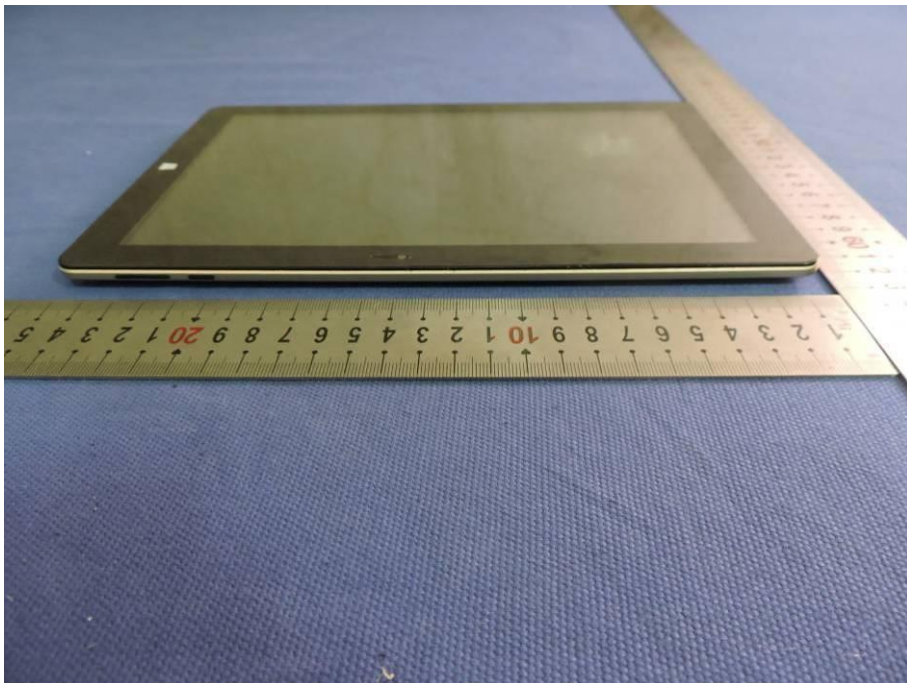
1GHz~10GHz:

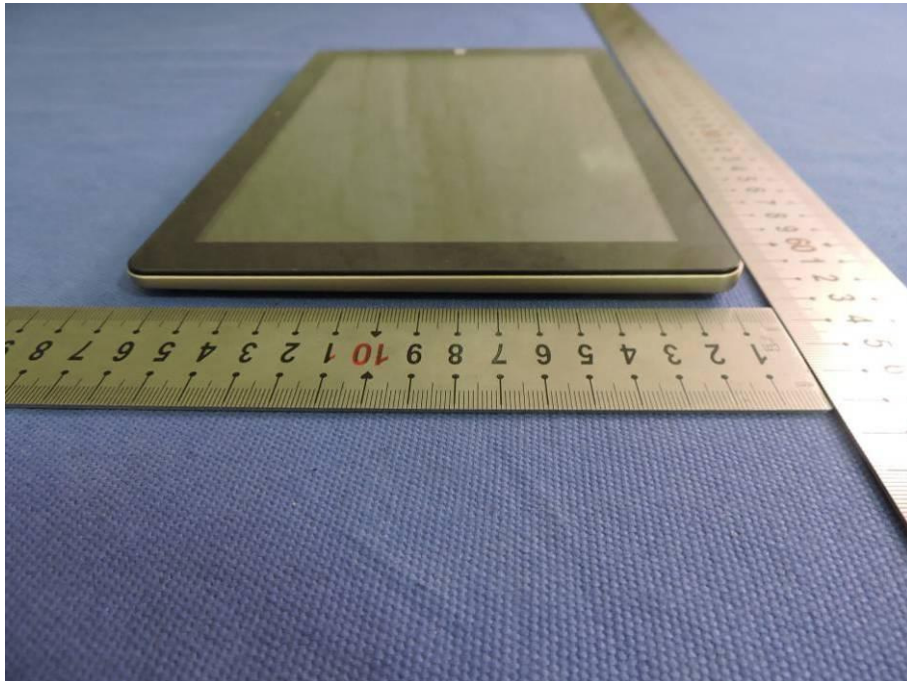


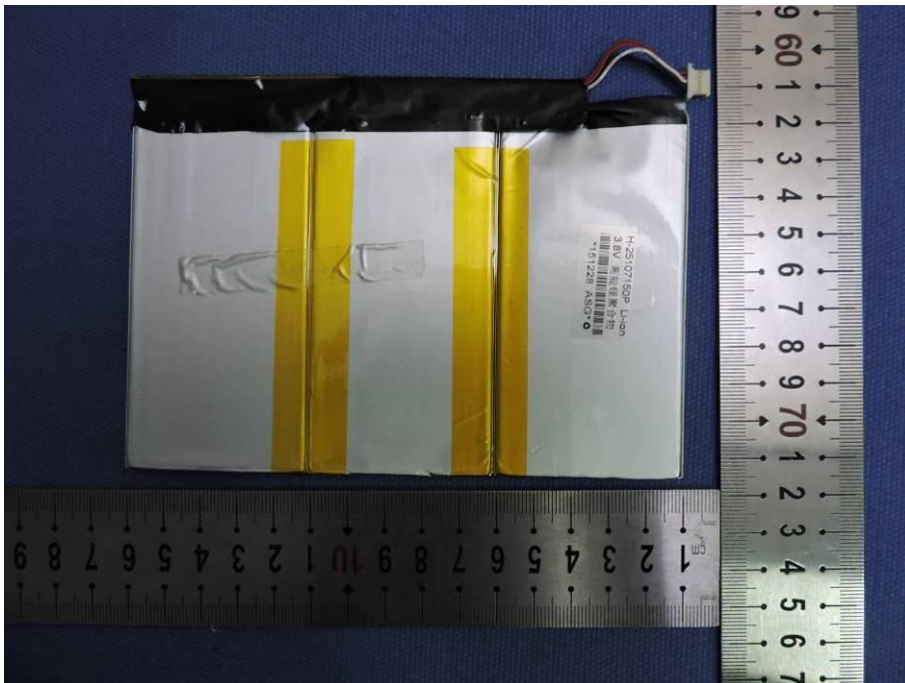
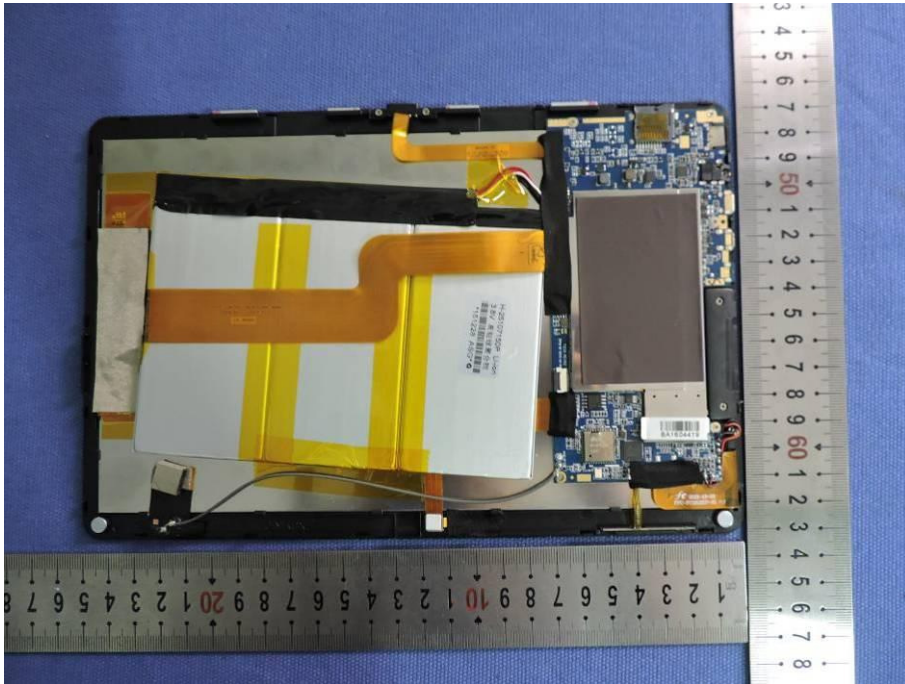
7 Photographs of EUT Constructional Details

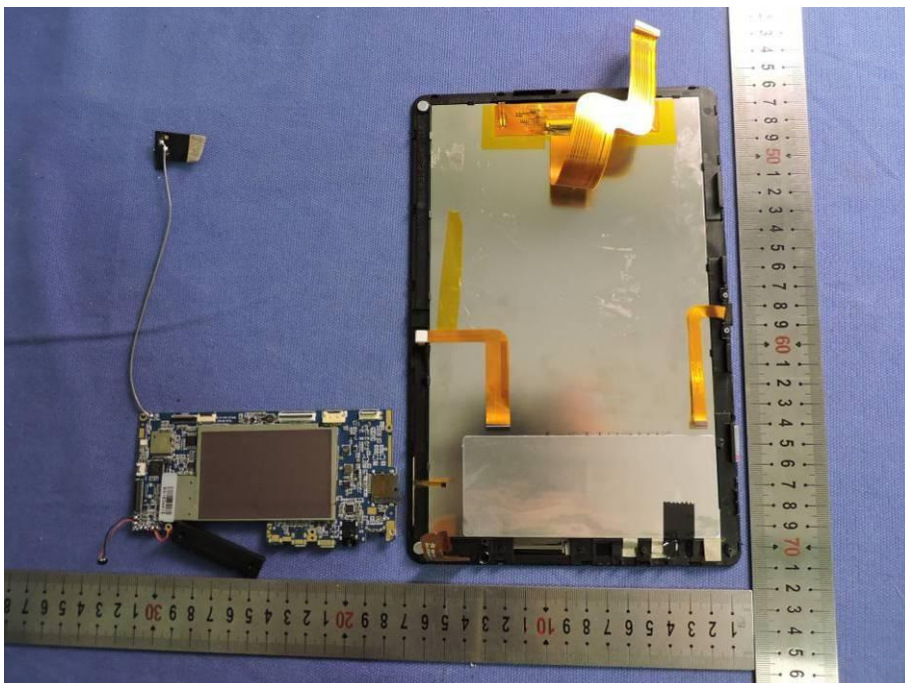
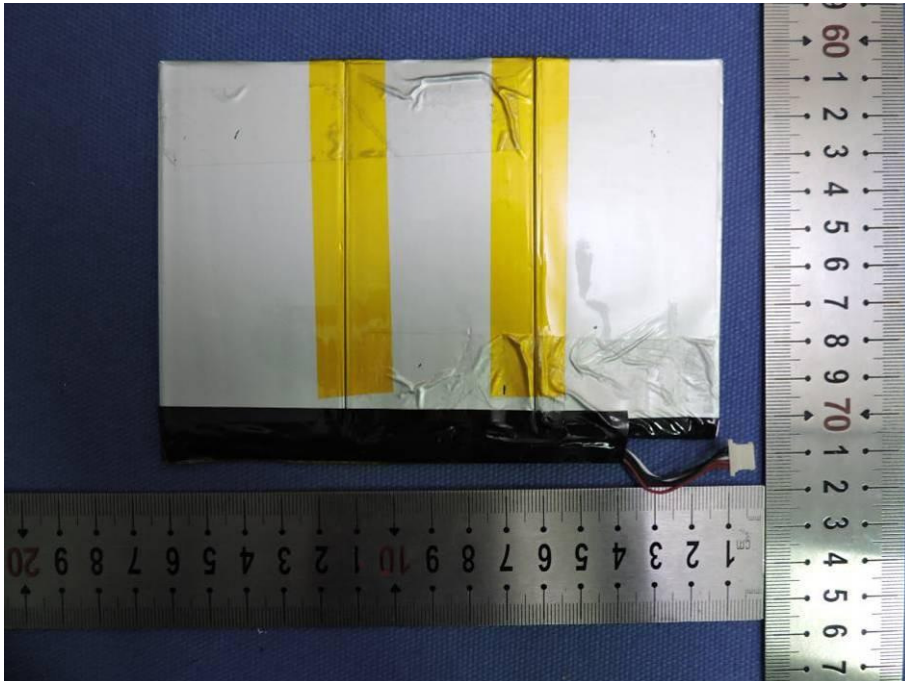


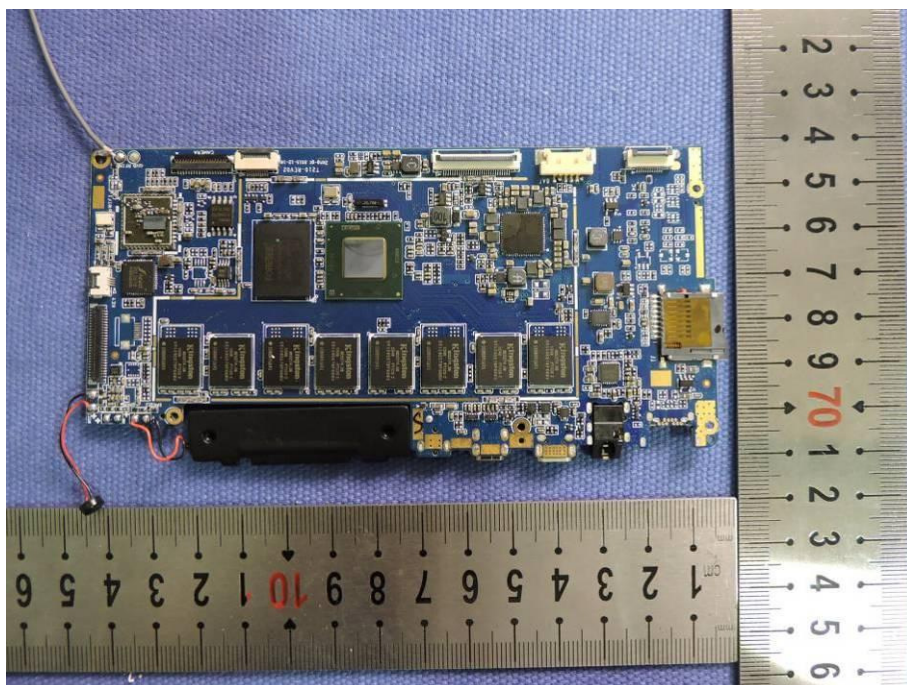
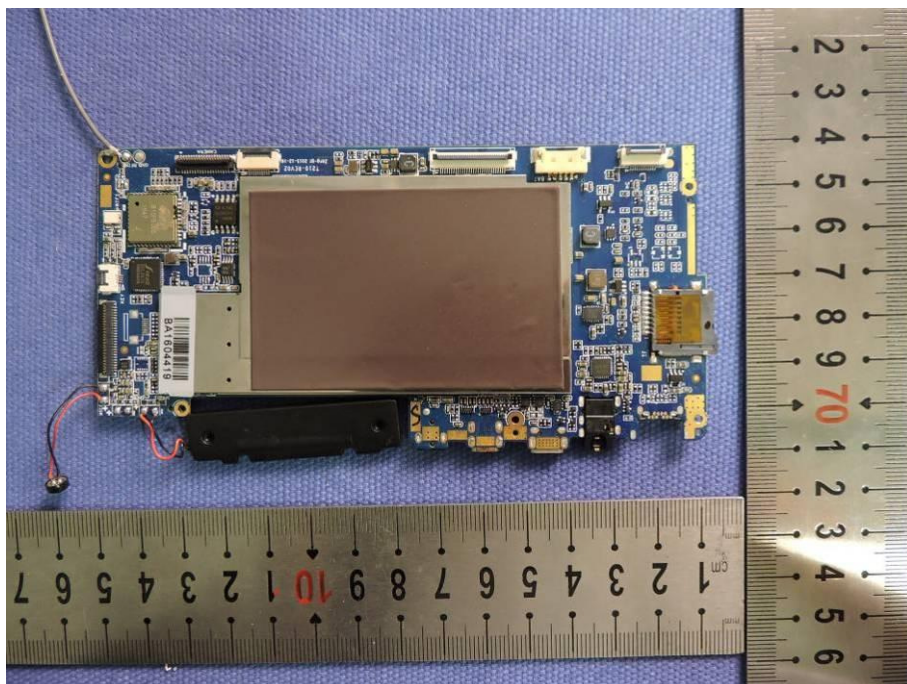


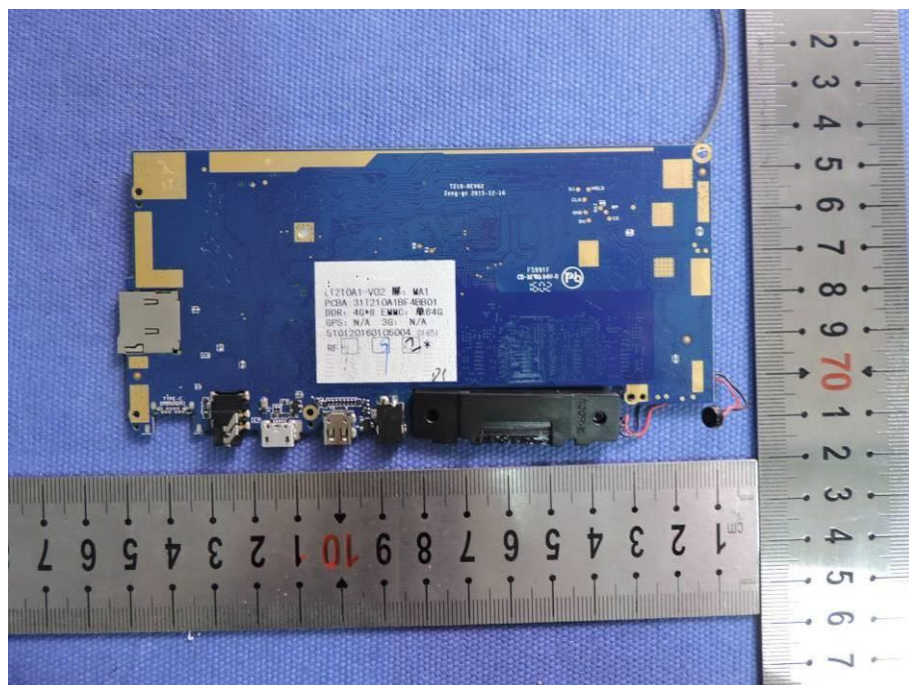












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