

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Chunghsin Technology Group CO.,LTD

8" Android Tablet

Model Number: ONA19TB002

Additional Model: ONA19TB010

FCC ID: 2AE2WT0815M

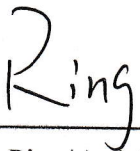
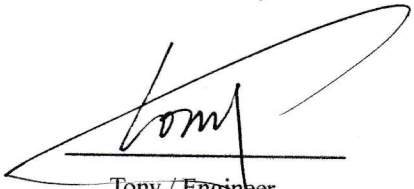

| | |
|--------------------------|---|
| Prepared for: | Chunghsin Technology Group CO.,LTD |
| | No. 618-2 GONGREN WEST ROAD, JIAOJIANG AREA, TAIZHOU CITY, |
| | ZHEJIANG, CHINA |
| | |
| Prepared By: | EST Technology Co., Ltd. |
| | Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China |
| Tel: 86-769-83081888-808 | |

| | |
|-----------------|------------------|
| Report Number: | ESTE-R1901014-1 |
| Date of Test: | Apr. 19~28, 2019 |
| Date of Report: | Apr. 29, 2019 |

TABLE OF CONTENTS

| Description | Page |
|---|------|
| TEST REPORT VERIFICATION..... | 3 |
| 1. GENERAL INFORMATION | 4 |
| 1.1. Description of Device (EUT)..... | 4 |
| 2. SUMMARY OF TEST | 5 |
| 2.1. Summary of test result | 5 |
| 2.2. Test Facilities | 6 |
| 2.3. Measurement uncertainty | 7 |
| 2.4. Assistant equipment used for test..... | 7 |
| 2.5. Block Diagram | 7 |
| 3.1. Test mode | 8 |
| 3.2. Channel List | 8 |
| 3.3. Test Equipment | 9 |
| 4 RADIATED EMISSION TEST | 11 |
| 4.1 Limit | 11 |
| 4.2. Block Diagram of Test setup..... | 12 |
| 4.3. Test Procedure..... | 13 |
| 4.4. Test Result..... | 13 |
| 4.5. Test Data | 14 |
| 5 TEST SETUP PHOTO | 17 |
| 6 PHOTOS OF EUT | 18 |

EST Technology Co., Ltd.

| | | | |
|---|--|---|------------------|
| Applicant: | Chunghsin Technology Group CO.,LTD | | |
| Address: | No. 618-2 GONGREN WEST ROAD, JIAOJIANG AREA, TAIZHOU CITY, ZHEJIANG, CHINA | | |
| Manufacturer: | Chunghsin Technology Group CO.,LTD | | |
| Address: | No. 618-2 GONGREN WEST ROAD, JIAOJIANG AREA, TAIZHOU CITY, ZHEJIANG, CHINA | | |
| E.U.T: | 8" Android Tablet | | |
| Model Number: | ONA19TB002 | | |
| Additional Model: | ONA19TB010 (They are identical except model name only) | | |
| Power Supply: | DC 5V From Adapter Input AC 100~240V, 50/60Hz, 0.3A DC 3.7V From battery | | |
| Test Voltage: | DC 5V From Adapter Input AC 120V/60Hz, 0.3A DC 5V From Adapter Input AC 240V/50Hz, 0.3A | | |
| Trade Name: | onn | Serial No.: | ----- |
| Date of Receipt: | Apr. 19, 2019 | Date of Test: | Apr. 19~28, 2019 |
| Test Specification: | FCC Rules and Regulations Part 15 Subpart C:2018 ANSI C63.10:2013 | | |
| Test Result: | <p>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.</p> <p>This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.</p> | | |
| Prepared by: | | Reviewed by: | |
|  Ring / Assistant | |  Tony / Engineer | |
| | | Date: Apr. 29, 2019 Approved by:  Iceman Hu / Manager | |
| Other Aspects: | | | |
| This report base on the previous report with report number: ESTE-R1901014, a new IC is add in this report. (IC model: SUTJ96VZZ7D6EKKFB-107FT(PA053-107BT)) | | | |
| 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 | : | 8" Android Tablet | |
| | | | |
| Model Number | : | ONA19TB002 | |
| | | | |
| FCC ID | : | 2AE2WT0815M | |
| | | | |
| Modulation | : | IEEE 802.11b mode: DSSS(CCK,QPSK, BPSK) IEEE 802.11g mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT20 mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT40 mode: OFDM (BPSK/QPSK/16QAM/64QAM) | |
| | | | |
| Operation Frequency | : | IEEE 802.11b/g: 2412 ~ 2462 MHz IEEE 802.11n HT20 : 2412 ~ 2462 MHz IEEE 802.11n HT40: 2422 ~ 2452 MHz | |
| | | | |
| Number of channel | : | IEEE 802.11b 2412 ~ 2462 MHz: 11 Channels IEEE 802.11g 2412 ~ 2462 MHz: 11 Channels IEEE 802.11n HT20 2412 ~ 2462 MHz: 11 Channels IEEE 802.11n HT40 2422 ~ 2452 MHz: 7 Channels | |
| | | | |
| Antenna | : | Internal antenna | |
| | | Frequency Range | Antenna gain |
| | | 2400~2483.5 MHz | 1.27 dBi |
| | | | |
| Sample Type | : | Prototype production | |

2. SUMMARY OF TEST

2.1. Summary of test result

| Description of Test Item | Standard | Results |
|---|---|---------|
| Power Line Conducted Emission | FCC Part 15: 15.207 ANSI C63.10:2013 | N/A |
| Radiated Emission | FCC Part 15: 15.209 ANSI C63.10:2013 KDB 558074 | PASS |
| Band Edge Compliance | FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074 | N/A |
| Conducted spurious emissions | FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074 | N/A |
| 6dB Bandwidth | FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074 | N/A |
| Peak Output Power | FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074 | N/A |
| Power Spectral Density | FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074 | N/A |
| Antenna requirement | FCC Part 15: 15.203 | N/A |
| Note: KDB 558074 D01 15.247 Meas Guidance v05 | | |

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA
 Registration No.: L5288
 Date of registration: November 13, 2017

Certificated by FCC, USA
 Designation Number: CN1215
 Test Firm Registration Number: 722932
 Date of registration: November 21, 2017

Certificated by A2LA, USA
 Registration No.: 4366.01
 Date of registration: November 07, 2017

Certificated by Industry Canada
 CAB identifier No.: CN0035
 Date of registration: January 04, 2019

Certificated by VCCI, Japan
 Registration No.: R-13663; C-14103
 Date of registration: July 25, 2017
 This Certificate is valid until: July 24, 2020

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

Certificated by TUV/PS, Shenzhen
 Registration No.: SCN1017
 Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO
 Registration No.: 2011-RTL-L2-64
 Date of registration: April 28, 2011

Certificated by Nemko, Hong Kong
 Registration No.: 175193
 Date of registration: May 4, 2011

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 | $\pm 3.48\text{dB}$ |
| Uncertainty for spurious emissions test (30MHz-1GHz) | $\pm 4.60\text{ dB(Polarize: H)}$ |
| | $\pm 4.68\text{ dB(Polarize: V)}$ |
| Uncertainty for spurious emissions test (1GHz to 18GHz) | $\pm 4.96\text{dB}$ |
| 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 $k=2$.

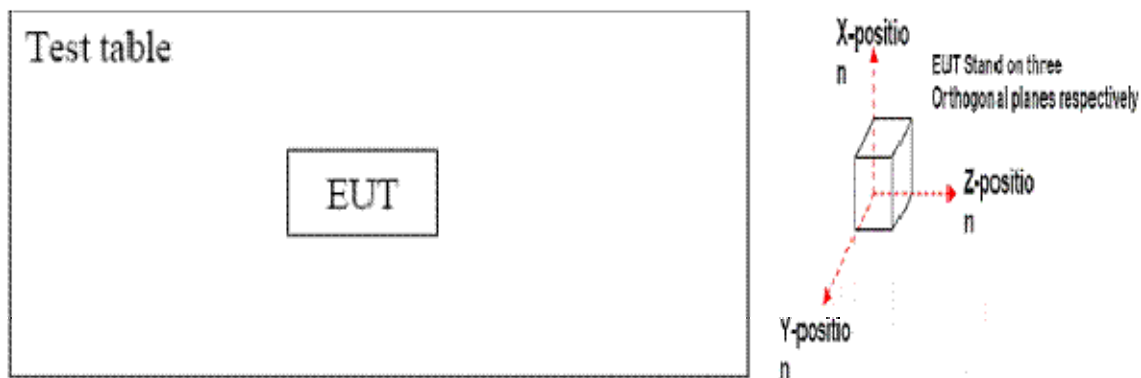
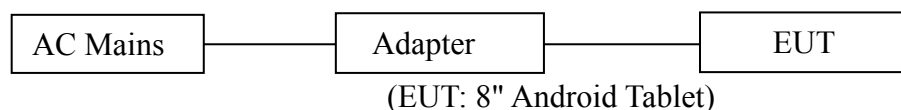
2.4. Assistant equipment used for test

2.4.1. Adapter

M / N : BSY01J3050200U U
 Manufacturer : onn
 Input : AC 100-240V, 50/60Hz, 0.3A
 Output : DC 5.0V, 2.0A

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 be set into TX test mode by software before test.



Note: We test X-axis, Y-axis, and Z-axis,. The Y-axis is the worst mode, so only the worst mode test data was included in the report.

3.1. Test mode

A special test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode and data rate.

| Test mode | Lower channel | Center channel | Upper channel |
|--|---------------|----------------|---------------|
| IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20 Transmitting | 2412MHz | 2437MHz | 2462MHz |
| IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20 Receiving | 2412MHz | 2437MHz | 2462MHz |
| IEEE 802.11n HT40 Transmitting | 2422MHz | 2437MHz | 2452MHz |
| IEEE 802.11n HT40 Receiving | 2422MHz | 2437MHz | 2452MHz |

3.2. Channel List

| IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20 | | | | | |
|---|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 1 | 2412 | 6 | 2437 | 11 | 2462 |
| 2 | 2417 | 7 | 2442 | | |
| 3 | 2422 | 8 | 2447 | | |
| 4 | 2427 | 9 | 2452 | | |
| 5 | 2432 | 10 | 2457 | | |
| IEEE 802.11n HT40 | | | | | |
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 3 | 2422 | 6 | 2437 | 9 | 2452 |
| 4 | 2427 | 7 | 2442 | | |
| 5 | 2432 | 8 | 2447 | | |

3.3. Test Equipment

3.3.1. For conducted emission test

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal. | Next Cal. |
|--------------------------|-----------------|--------------|------------|------------------|------------|-----------|
| EMI Test Receiver | Rohde & Schwarz | ESHS30 | 832354 | CEPREI | June 15,18 | 1 Year |
| Artificial Mains Network | Rohde & Schwarz | ENV216 | 101260 | CEPREI | June 15,18 | 1 Year |
| Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 101100 | CEPREI | June 15,18 | 1 Year |
| Test Software | Audix | e3-6.111221a | N/A | N/A | N/A | N/A |

3.3.2. For radiated emission test(9 kHz-30MHz)

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal. | Next Cal. |
|---------------------|-----------------|--------------|------------|------------------|------------|-----------|
| EMI Test Receiver | Rohde & Schwarz | ESR7 | 101780 | CEPREI | June 15,18 | 1 Year |
| Active Loop Antenna | SCHWARZB ECK | FMZB 1519B | 1519B-088 | N/A | Aug. 01,18 | 1 Year |
| Test Software | Audix | e3-6.111221a | N/A | N/A | N/A | N/A |

3.3.3. For radiated emissions test (30-1000MHz)

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal. | Next Cal. |
|-------------------|-----------------|--------------|------------|------------------|------------|-----------|
| EMI Test Receiver | Rohde & Schwarz | ESR7 | 101780 | CEPREI | June 15,18 | 1 Year |
| Bilog Antenna | Teseq | CBL 6111D | 27090 | CEPREI | June 15,18 | 1 Year |
| Test Software | Audix | e3-6.111221a | N/A | N/A | N/A | N/A |

3.3.4. For radiated emission test(above 1GHz)

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal. | Next Cal. |
|-----------------------------|----------------|--------------|---------------|------------------|------------|-----------|
| Horn Antenna | SCHWARZB ECK | BBHA 9120 D | BBHA9120D1002 | CEPREI | June 18,18 | 1 Year |
| Horn Antenna | SCHWARZB ECK | BBHA9170 | BBHA9170242 | CEPREI | June 18,18 | 1Year |
| Signal Amplifier | SCHWARZB ECK | BBV9718 | 9718-212 | CEPREI | June 15,18 | 1 Year |
| Spectrum Analyzer | Rohde &Schwarz | FSV | 103173 | CEPREI | June 15,18 | 1 Year |
| PSA Series Spertum Analyzer | Agilent | E4447A | MY50180031 | CEPREI | June 15,18 | 1Year |
| Test Software | Audix | e3-6.111221a | N/A | N/A | N/A | N/A |

3.3.5. For connect EUT antenna terminal test

| Equipment | Manufacturer | Model No. | Serial No. | Calibration Body | Last Cal. | Next Cal. |
|-------------------|-----------------|-----------|----------------|------------------|------------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSV | 103173 | CEPREI | June 15,18 | 1 Year |
| Spectrum Analyzer | Agilent | E4408B | MY44211 139 | CEPREI | June 15,18 | 1 Year |

4 RADIATED EMISSION TEST

4.1 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

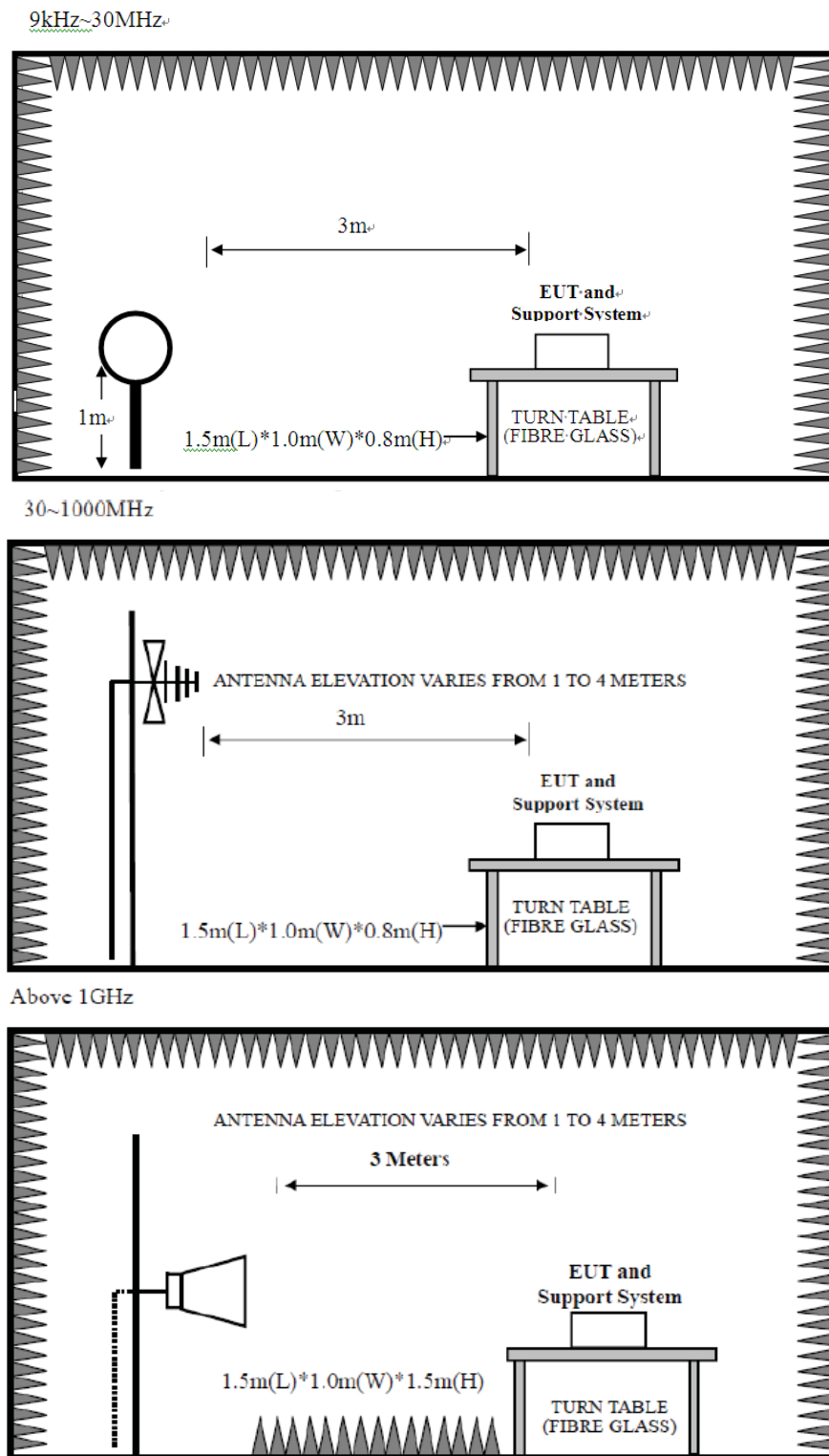
| Frequency (MHz) | Field Strength(μ V/m) | Distance(m) |
|-----------------|----------------------------|-------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3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

Remark : (1) Emission level $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$

(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.

4.2. Block Diagram of Test setup



4.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground for 9kHz~1000MHz test, and which is 1.5 meter high above ground for above 1GHz test. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. 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.

The test frequency analyzer system was set to Peak Detect (300Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

PEAK detector, 1MHz/1MHz for PAEK measurement,

PEAK detector, 1MHz/10Hz for Average measurement

The frequency range from 30MHz to 10th harmonic (25GHz) are checked.

4.4. Test Result

PASS.

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、 2437 MHz、 2452MHz and 2462 MHz 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.

4.5. Test Data

9 kHz – 30 MHz

Pass

Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

30-1000 MHz

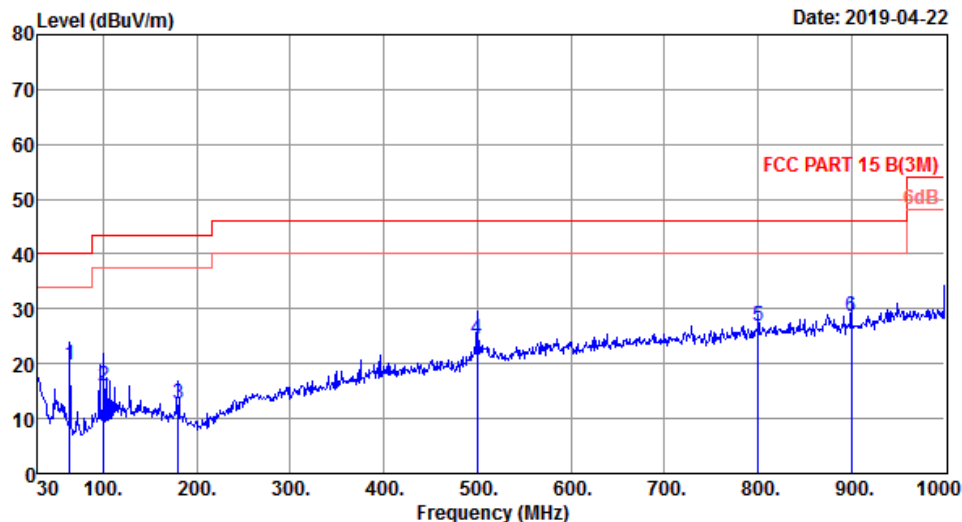
EST Technology

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Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 3

File: \\EMC-966-1\\test data\\2019\\RFIC\\Chunghsin\\ONA 19TB002.EM6 (8)

Date: 2019-04-22



Site no. : 1# 966 Chamber Data no. : 3
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:25.4';Humi:74%;Press:101.52kPa
Engineer : Tea
EUT : 8" Android Tablet
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : ONA19TB002
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 | 63.95 | 5.14 | 0.47 | 14.28 | 19.89 | 40.00 | 20.11 | QP |
| 2 | 100.81 | 9.80 | 0.86 | 5.29 | 15.95 | 43.50 | 27.55 | QP |
| 3 | 180.35 | 9.40 | 1.23 | 2.19 | 12.82 | 43.50 | 30.68 | QP |
| 4 | 499.48 | 18.17 | 2.66 | 3.56 | 24.39 | 46.00 | 21.61 | QP |
| 5 | 800.18 | 22.80 | 3.58 | 0.54 | 26.92 | 46.00 | 19.08 | QP |
| 6 | 900.09 | 23.70 | 3.89 | 1.18 | 28.77 | 46.00 | 17.23 | 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.

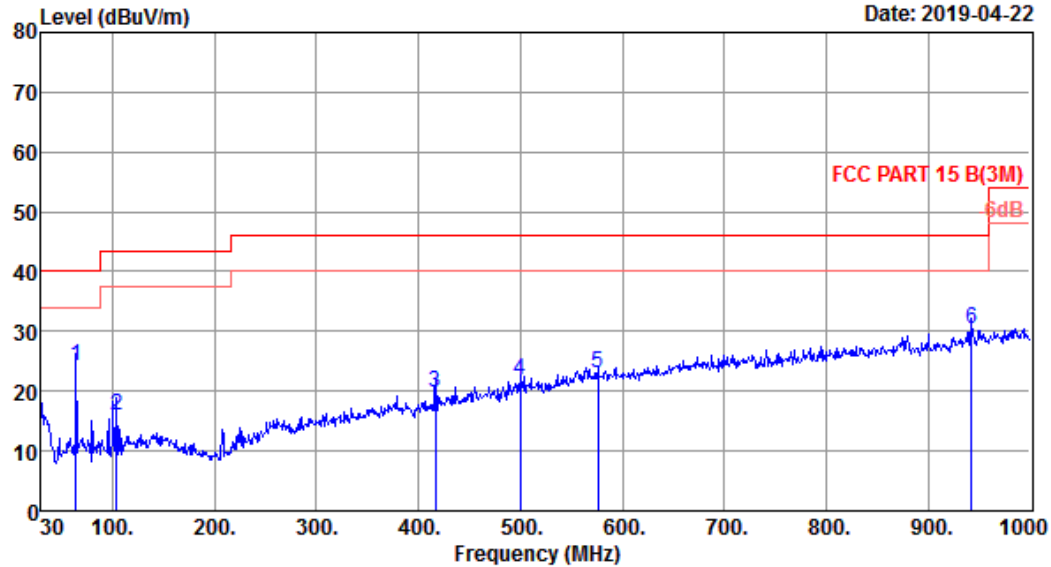
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Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 4

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Date: 2019-04-22



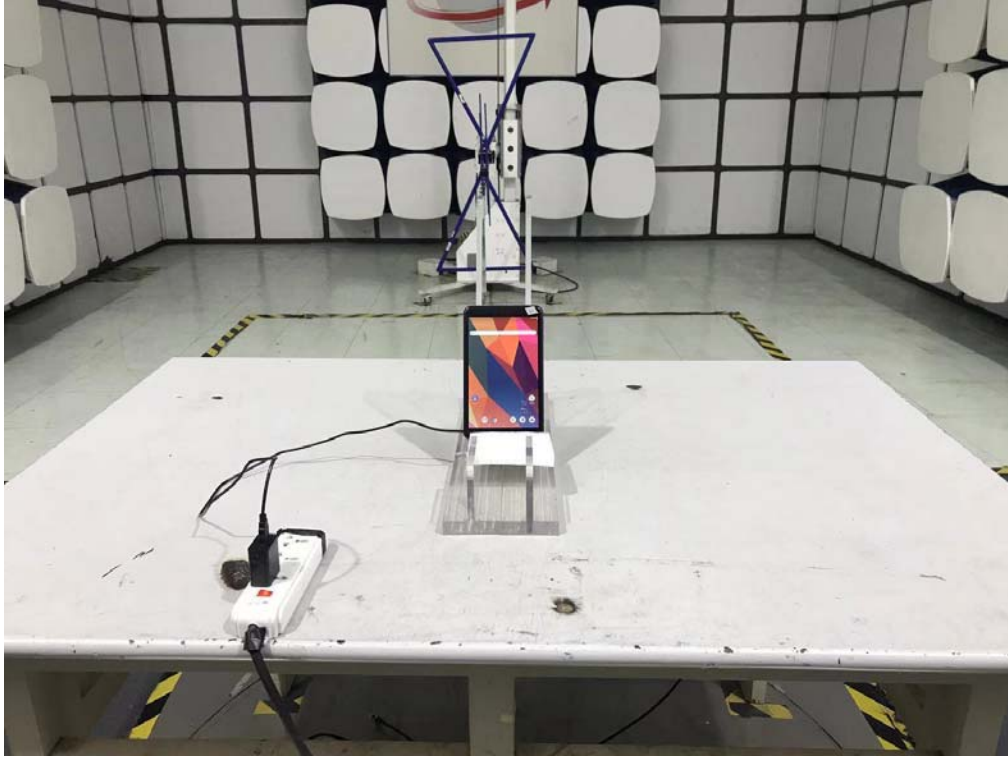
Site no. : 1# 966 Chamber Data no. : 4
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:25.4';Humi:74%;Press:101.52kPa
 Engineer : Tea
 EUT : 8" Android Tablet
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : ONA19TB002
 Test Mode : TX Mode

| | Freq. (MHz) | ANT Factor (dB/m) | Cable Loss (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 63.95 | 5.14 | 0.47 | 18.58 | 24.19 | 40.00 | 15.81 | QP |
| 2 | 103.72 | 10.10 | 0.89 | 4.98 | 15.97 | 43.50 | 27.53 | QP |
| 3 | 417.03 | 16.51 | 2.19 | 1.02 | 19.72 | 46.00 | 26.28 | QP |
| 4 | 499.48 | 18.17 | 2.66 | 1.00 | 21.83 | 46.00 | 24.17 | QP |
| 5 | 576.11 | 19.76 | 2.91 | 0.37 | 23.04 | 46.00 | 22.96 | QP |
| 6 | 942.77 | 24.53 | 4.42 | 1.35 | 30.30 | 46.00 | 15.70 | 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.

5 TEST SETUP PHOTO

Radiated Test (30-1000 MHz)



6 PHOTOS OF EUT

External Photos
M/N: ONA19TB002



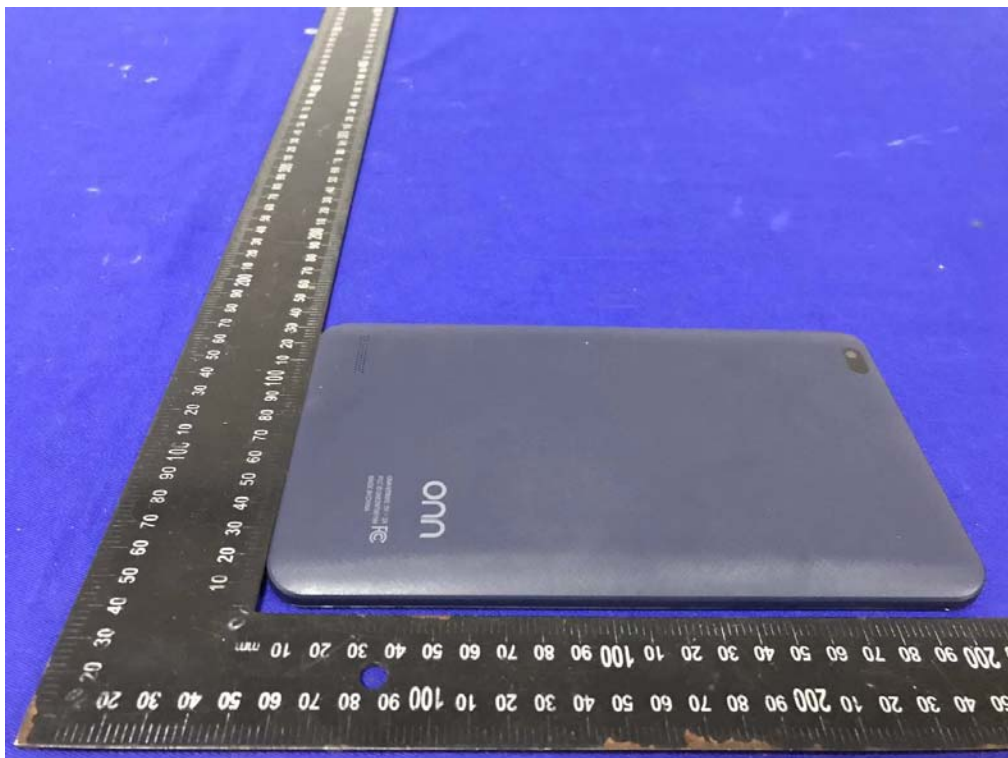
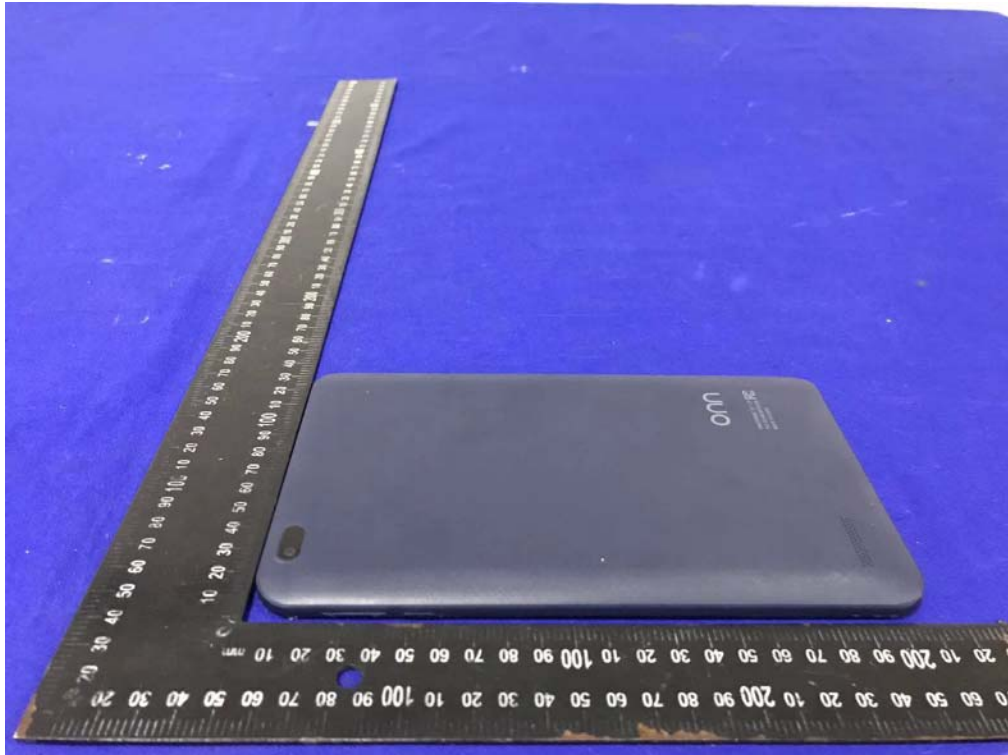
External Photos
M/N: ONA19TB002



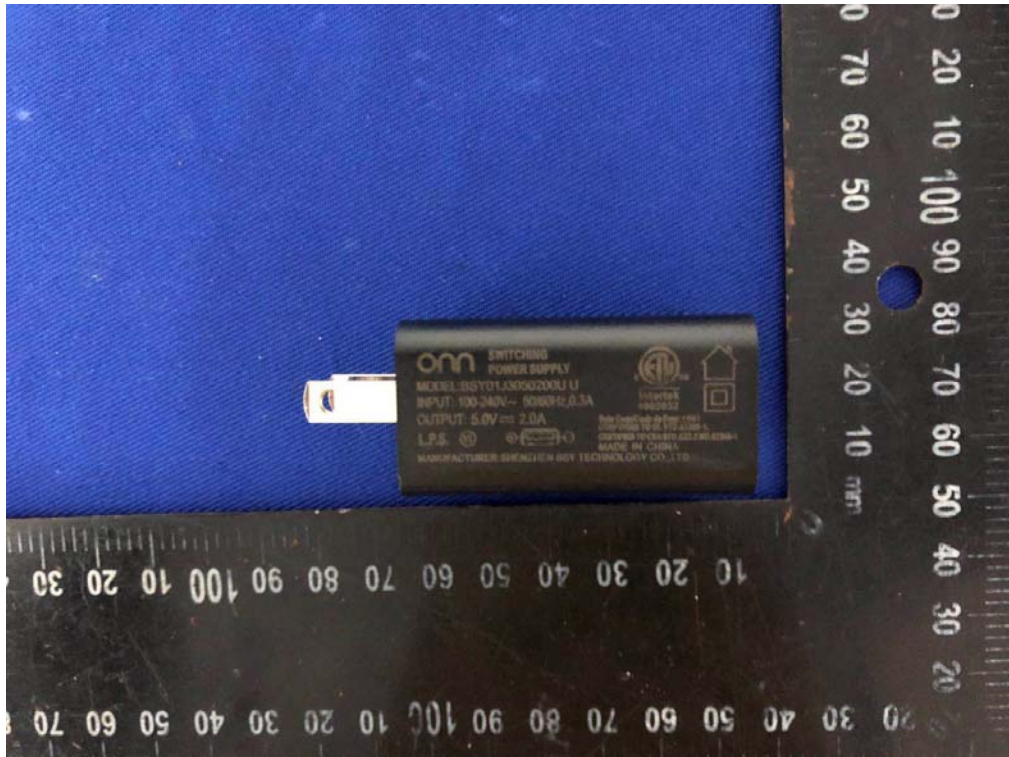
External Photos
M/N: ONA19TB002



External Photos
M/N: ONA19TB002



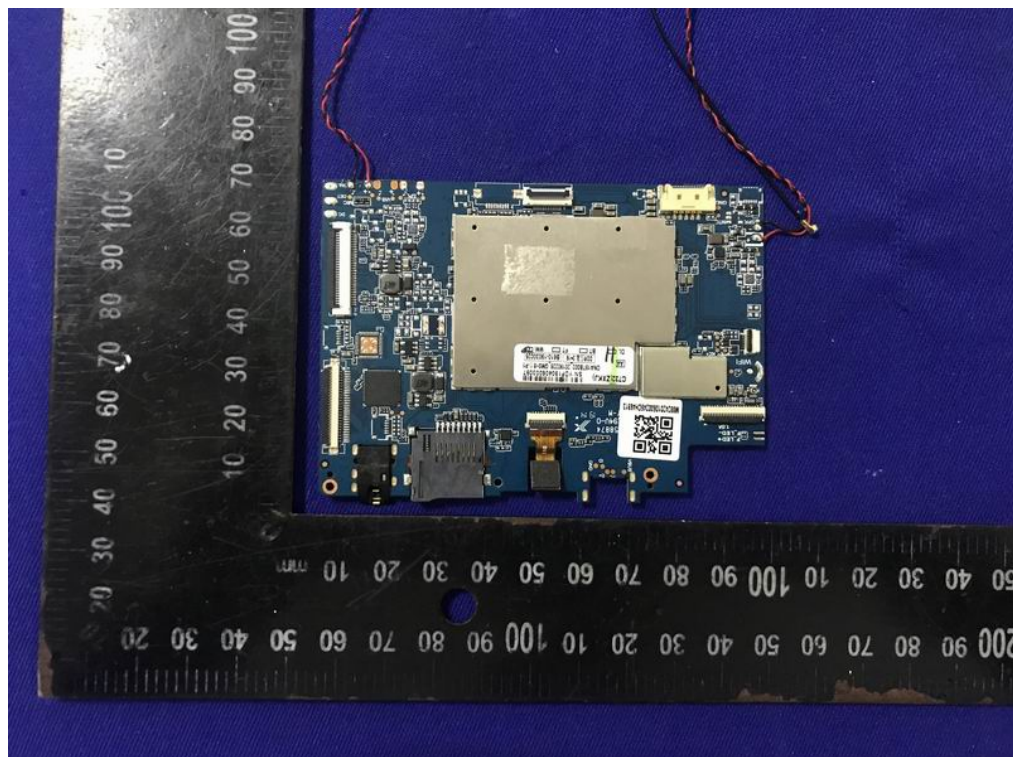
External Photos
M/N: ONA19TB002



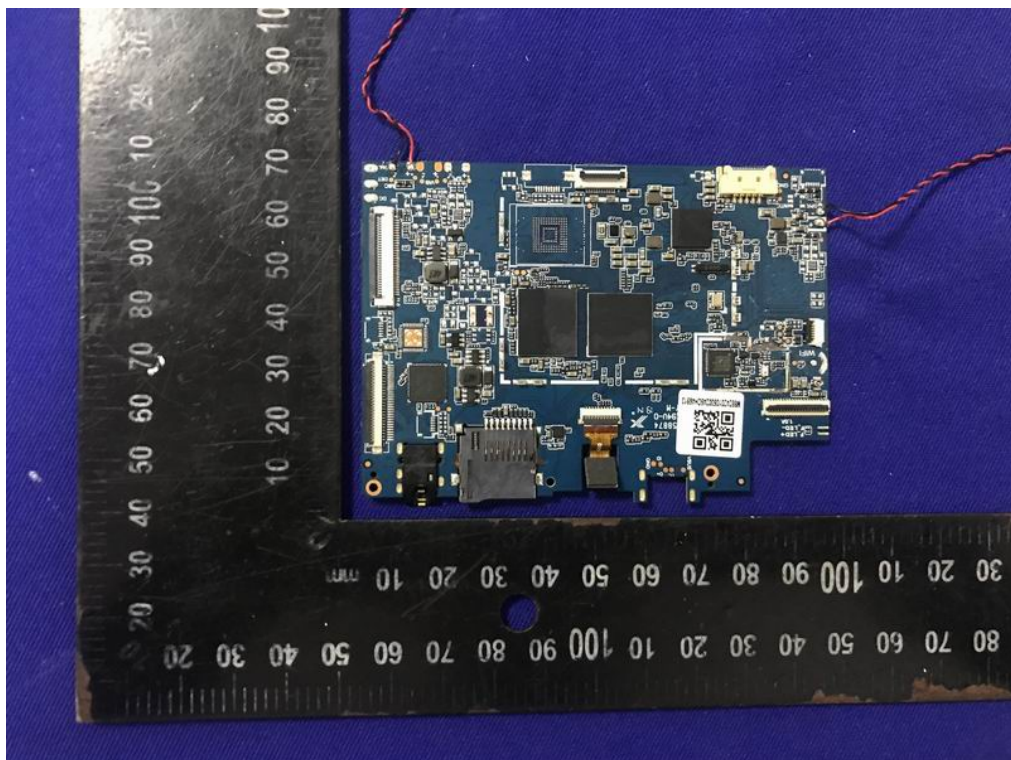
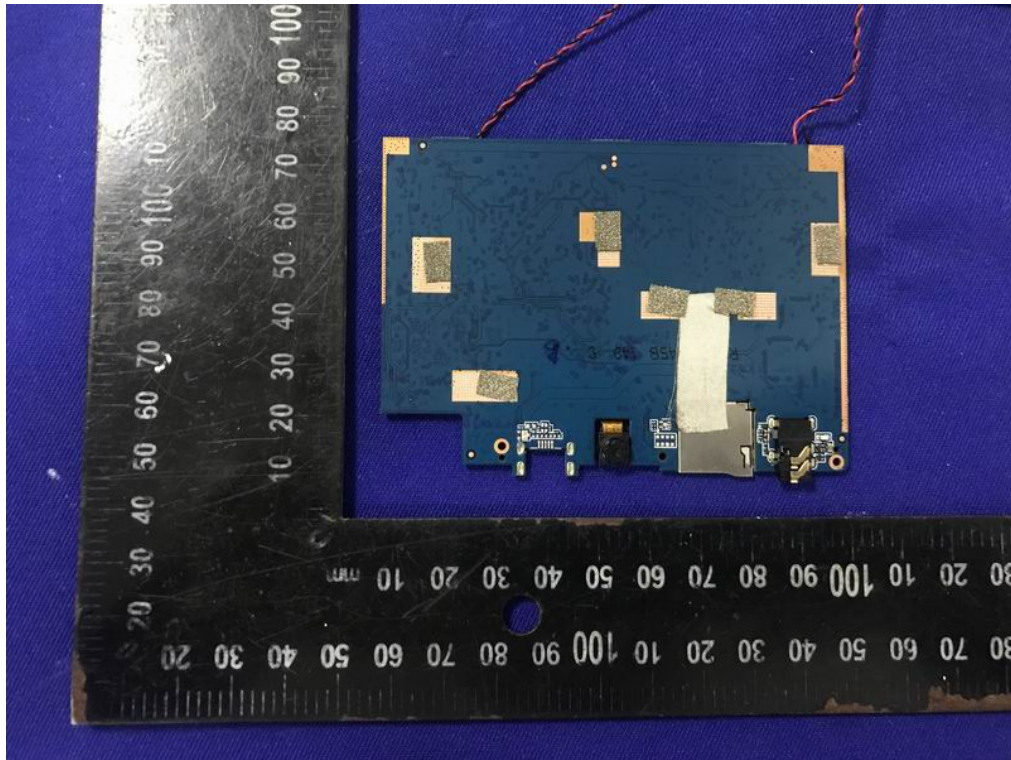
Internal Photos
M/N: ONA19TB002



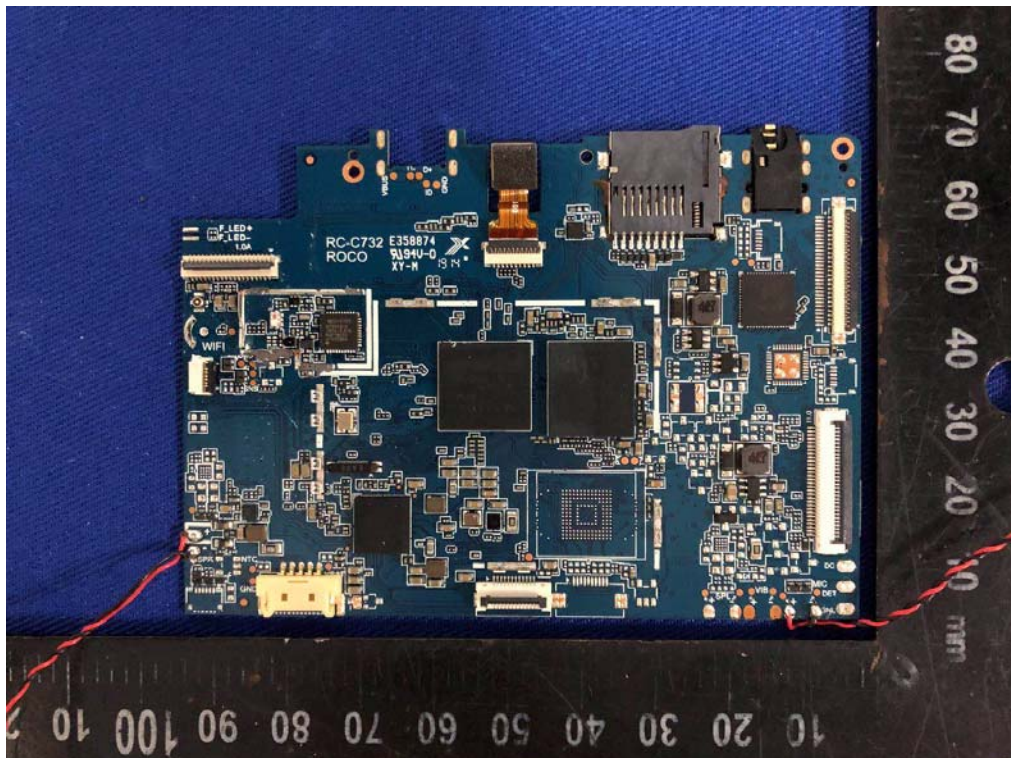
RF
Antenna



Internal Photos
M/N: ONA19TB002



Internal Photos
M/N: ONA19TB002



Internal Photos
M/N: ONA19TB002

