

FCC PART 15E TEST REPORT FOR CERTIFICATION  
On Behalf of

Hunan Greatwall Computer System CO., LTD

10.1" Android Tablet

Model Number: ONA19TB003

Additional Model: 100005208

FCC ID: 2APUQW1026

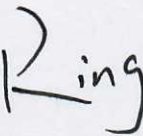
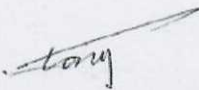
|               |                                                                      |
|---------------|----------------------------------------------------------------------|
| Prepared for: | Hunan Greatwall Computer System CO., LTD                             |
|               | Hunan GreatWall Industrial Park, Tianyi Science and Technology City, |
|               | Xiangyun Middle Road, Tianyuan District, Zhuzhou, Hunan              |
|               |                                                                      |
| Prepared By:  | EST Technology Co., Ltd.                                             |
|               | Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China  |
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|                 |                  |
|-----------------|------------------|
| Report Number:  | ESTE-R1901047-4  |
| Date of Test:   | Aug. 07~17, 2019 |
| Date of Report: | Aug. 19, 2019    |

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**EST Technology Co., Ltd.**

|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                    |                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Applicant:</b>                                                                                                                                                                                                                                               | Hunan Greatwall Computer System CO., LTD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |                  |
| <b>Address:</b>                                                                                                                                                                                                                                                 | Hunan GreatWall Industrial Park, Tianyi Science and Technology City, Xiangyun Middle Road, Tianyuan District, Zhuzhou, Hunan                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                    |                  |
| <b>Manufacturer:</b>                                                                                                                                                                                                                                            | Hunan Greatwall Computer System CO., LTD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |                  |
| <b>Address:</b>                                                                                                                                                                                                                                                 | Hunan GreatWall Industrial Park, Tianyi Science and Technology City, Xiangyun Middle Road, Tianyuan District, Zhuzhou, Hunan                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                    |                  |
| <b>E.U.T:</b>                                                                                                                                                                                                                                                   | 10.1" Android Tablet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                    |                  |
| <b>Model Number:</b>                                                                                                                                                                                                                                            | ONA19TB003                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                    |                  |
| <b>Additional Model:</b>                                                                                                                                                                                                                                        | 100005208<br>(They are identical except model name only.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                    |                  |
| <b>Power Supply:</b>                                                                                                                                                                                                                                            | DC 5V From Adapter Input AC 100~240V, 50/60Hz, 0.3A<br>DC 3.7V From battery                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                    |                  |
| <b>Test Voltage:</b>                                                                                                                                                                                                                                            | DC 5V From Adapter Input AC 120V/60Hz, 0.3A<br>DC 5V From Adapter Input AC 240V/50Hz, 0.3A                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                    |                  |
| <b>Trade Name:</b>                                                                                                                                                                                                                                              | onn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Serial No.:</b>                                                                                                 | -----            |
| <b>Date of Receipt:</b>                                                                                                                                                                                                                                         | Aug. 07~17, 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Date of Test:</b>                                                                                               | Aug. 07~17, 2019 |
| <b>Test Specification:</b>                                                                                                                                                                                                                                      | FCC Rules and Regulations Part 15 Subpart E:2018<br>ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                    |                  |
| <b>Test Result:</b>                                                                                                                                                                                                                                             | <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 E 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> |                                                                                                                    |                  |
| <b>Prepared by:</b>                                                                                                                                                                                                                                             | <b>Reviewed by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Date:</b> Jul 08, 2019<br> |                  |
|                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                    |                  |
| Ring / Assistant                                                                                                                                                                                                                                                | Tony / Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Iceman Hu / Manager                                                                                                |                  |
| <b>Other Aspects:</b>                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                    |                  |
| 1.This report base on the previous report with report number: ESTE-R1901047-2, a new screen is add in this report and change applicant.<br>2.Because only the add screen, so just re-tested Radiated Emissions (30-1000Mhz), other test item needn't re-tested. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                    |                  |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| FCC ID              | : | 2APUQW1026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Model Number        | : | ONA19TB003                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Operation frequency | : | UNII Band I:<br>IEEE 802.11a: 5180 ~ 5240MHz;<br>IEEE 802.11n HT20: 5180 ~ 5240MHz;<br>IEEE 802.11n HT40: 5190 ~ 5230MHz;<br>UNII Band II:<br>IEEE 802.11a: 5260 ~ 5320MHz;<br>IEEE 802.11n HT20: 5260 ~ 5320MHz;<br>IEEE 802.11n HT40: 5270 ~ 5310MHz;<br>UNII Band III:<br>IEEE 802.11a: 5500 ~ 5700MHz;<br>IEEE 802.11n HT20: 5500 ~ 5700MHz;<br>IEEE 802.11n HT40: 5510 ~ 5670MHz;<br>UNII Band IV:<br>IEEE 802.11a: 5745 ~ 5825MHz;<br>IEEE 802.11n HT20: 5745 ~ 5825MHz;<br>IEEE 802.11n HT40: 5755 ~ 5795MHz; |
| Number of channel   | : | UNII Band I:<br>IEEE 802.11a / n HT20<br>IEEE 802.11n HT40<br>UNII Band II:<br>IEEE 802.11a / n HT20<br>IEEE 802.11n HT40<br>UNII Band III:<br>IEEE 802.11a / n HT20<br>IEEE 802.11n HT40<br>UNII Band IV:<br>IEEE 802.11a / n HT20<br>IEEE 802.11n HT40                                                                                                                                                                                                                                                             |

|                    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |
|--------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Modulation         | : | OFDM(QPSK, BPSK, 16-QAM, 64-QAM, 256-QAM)                                                                                                                                                                                                                                                                                                                                                                                                                            |          |
| Transmit Data Rate | : | IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6Mbps;<br>IEEE 802.11n HT20: 14.4, 28.9, 43.3, 57.8, 86.7, 115.6, 130.0, 144.4 Mbps;<br>IEEE 802.11n HT40: 30, 60, 90, 120, 180, 240, 270, 300 Mbps;                                                                                                                                                                                                                                                                        |          |
| Channels Spacing   | : | IEEE 802.11a: 20MHz;<br>IEEE 802.11n HT20: 20MHz;<br>IEEE 802.11n HT40: 40MHz;                                                                                                                                                                                                                                                                                                                                                                                       |          |
| Antenna            | : | Internal antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |
|                    |   | Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Antenna  |
|                    |   | 5150~5875 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.27 dBi |
|                    |   | Note: Bluetooth uses Antenna<br>11a,b,g,n, uses Antenna                                                                                                                                                                                                                                                                                                                                                                                                              |          |
| Transmit Power     | : | UNII Band I:<br>IEEE 802.11a: 4 Channels;<br>IEEE 802.11n HT20: 4 Channels;<br>IEEE 802.11n HT40: 2 Channels.<br>UNII Band II:<br>IEEE 802.11a: 4 Channels;<br>IEEE 802.11n HT20: 4 Channels;<br>IEEE 802.11n HT40: 2 Channels.<br>UNII Band III:<br>IEEE 802.11a: 8 Channels;<br>IEEE 802.11n HT20: 8 Channels;<br>IEEE 802.11n HT40: 3 Channels.<br>UNII Band IV:<br>IEEE 802.11a: 5 Channels;<br>IEEE 802.11n HT20: 5 Channels;<br>IEEE 802.11n HT40: 2 Channels. |          |
| Sample Type        | : | Prototype production                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |

## 2. SUMMARY OF TEST

### 2.1. Test methodology.

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10. Radiated testing was performed at an antenna to EUT distance 3 meters. The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 Part 15.207, 15.209, 15.407 and FCC 14-30. Radio testing was performed according to KDB DA 02-2138, KDB 789033 D02, KDB 905462 D06.

### 2.2. Summary of test result

| Description of Test Item       | Standard                                   | Results |
|--------------------------------|--------------------------------------------|---------|
| 99%, 6dB and 26dB Bandwidth    | FCC Part 15: 407(a)<br>FCC Part 15: 407(e) | PASS    |
| Maximum Conducted Output Power | FCC Part 15: 407(a)                        | PASS    |
| Peak Power Spectral Density    | FCC Part 15: 407(a)                        | PASS    |
| Radiated Spurious Emissions    | FCC Part 15: 407(b)                        | PASS    |
| Conducted Unwanted Emissions   | FCC Part 15: 407(b)                        | PASS    |
| Band Edge Measurement          | FCC Part 15: 407(b)                        | PASS    |
| Frequency Stability            | FCC Part 15: 407(g)                        | PASS    |
| Power Line Conducted Emissions | FCC Part 15: 207<br>FCC Part 15: 407(b)(6) | PASS    |
| Antenna requirement            | FCC Part 15: 203<br>FCC Part 15: 407(a)    | PASS    |

## 2.3. 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

## 2.4. Measurement uncertainty for EST Technology Co., Ltd.

| Test Item                                                | Uncertainty               |
|----------------------------------------------------------|---------------------------|
| Uncertainty for Conduction emission test                 | 2.54dB                    |
| Uncertainty for Radiation Emission test (30MHz-1GHz)     | 3.62                      |
| Uncertainty for Radiation Emission test (1GHz to 18GHz)  | 4.86                      |
| Uncertainty for spurious emissions test (18GHz to 40GHz) | 4.67                      |
| Uncertainty for radio frequency                          | $7 \times 10^{-8}$        |
| Uncertainty for conducted RF Power                       | 0.20dB                    |
| Uncertainty for Power density test                       | 0.26dB                    |
| Temperature                                              | $\pm 0.6^{\circ}\text{C}$ |
| Humidity                                                 | $\pm 4.0\%$               |
| Volatage DC                                              | $\pm 1.0\%$               |
| Volatage (AC, <10KHz)                                    | $\pm 1.5\%$               |

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

## 2.5. Assistant equipment used for test

### 2.5.1. Router (Master)

Manufacturer : LINKSYS  
 M/N : WRT3200ACM  
 FCC ID : Q87-WRT3200ACM  
 IC : 3839A-WRT3200ACM  
 S/N : 1981060A621419  
 MAC : 6038E0B87B20

### 2.5.2. Notebook

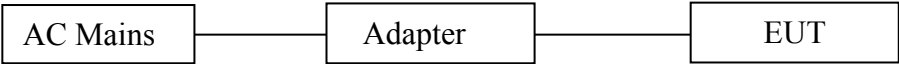
Manufacturer : DELL  
 M/N : Laititude E6420  
 Adapter : M/N: DA90PM111

### 2.5.3. Adapter

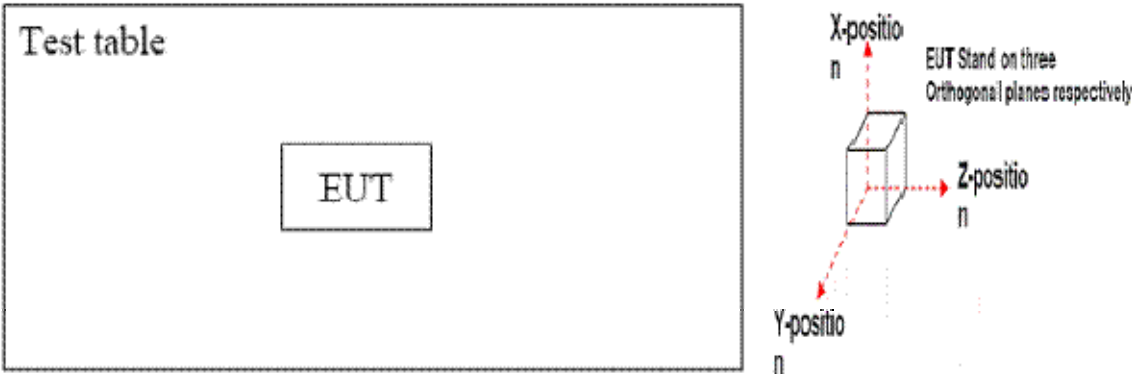
Manufacturer : onn  
 M/N : BSY01J3050200U U  
 Input : AC 100-240V, 50/60Hz, 0.3A  
 Output : DC 5.0V, 2.0A

2.6. 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.



(EUT: 10.1" Android Tablet)



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.

## 2.7. Test mode

The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

| Band          | Mode                                         | Channel | Frequency (MHz) | Data rate (Mbps) |
|---------------|----------------------------------------------|---------|-----------------|------------------|
| UNII Band I   | IEEE 802.11a & n HT20<br>VHT20: 5180-5240MHz | Low     | 5180            | 6                |
|               |                                              | Middle  | 5200            | 6                |
|               |                                              | High    | 5240            | 6                |
|               | IEEE 802.11n HT40<br>: 5180-5240MHz          | Low     | 5190            | 13.5             |
|               |                                              | High    | 5230            | 13.5             |
|               |                                              |         |                 |                  |
| UNII Band II  | IEEE 802.11a & n HT20:<br>5260-5320MHz       | Low     | 5260            | 6                |
|               |                                              | Middle  | 5300            | 6                |
|               |                                              | High    | 5320            | 6                |
|               | IEEE 802.11n HT40:<br>5270-5310MHz           | Low     | 5270            | 13.5             |
|               |                                              | High    | 5310            | 13.5             |
|               |                                              |         |                 |                  |
| UNII Band III | IEEE 802.11a & n HT20:<br>5500-5700MHz       | Low     | 5500            | 6                |
|               |                                              | Middle  | 5580            | 6                |
|               |                                              | High    | 5700            | 6                |
|               | IEEE 802.11n HT40:<br>5510-5670              | Low     | 5510            | 13.5             |
|               |                                              | High    | 5670            | 13.5             |
|               |                                              |         |                 |                  |
| UNII Band IV  | IEEE 802.11a & n HT20:<br>5745-5825MHz       | Low     | 5745            | 6                |
|               |                                              | Middle  | 5785            | 6                |
|               |                                              | High    | 5825            | 6                |
|               | IEEE 802.11n HT40:<br>5755-5795MHz           | Low     | 5755            | 13.5             |
|               |                                              | High    | 5795            | 13.5             |

## 2.8. Channel List

| Band          | Mode                                   | Channel | Frequency (MHz) |  |
|---------------|----------------------------------------|---------|-----------------|--|
| UNII Band I   | IEEE 802.11a & n HT20:<br>5180-5240MHz | 36      | 5180            |  |
|               |                                        | 40      | 5200            |  |
|               |                                        | 44      | 5220            |  |
|               |                                        | 48      | 5240            |  |
|               | IEEE 802.11n HT40:<br>5180-5240MHz     | 38      | 5190            |  |
|               |                                        | 46      | 5230            |  |
|               |                                        |         |                 |  |
| UNII Band II  | IEEE 802.11a & n HT20:<br>5260-5320MHz | 52      | 5260            |  |
|               |                                        | 56      | 5280            |  |
|               |                                        | 60      | 5300            |  |
|               |                                        | 64      | 5320            |  |
|               | IEEE 802.11n HT40:<br>5270-5310MHz     | 54      | 5270            |  |
|               |                                        | 62      | 5310            |  |
|               |                                        |         |                 |  |
| UNII Band III | IEEE 802.11a & n HT20:<br>5500-5700MHz | 100     | 5500            |  |
|               |                                        | 104     | 5520            |  |
|               |                                        | 108     | 5540            |  |
|               |                                        | 112     | 5560            |  |
|               |                                        | 116     | 5580            |  |
|               |                                        | 132     | 5660            |  |
|               |                                        | 136     | 5680            |  |
|               |                                        | 140     | 5700            |  |
|               | IEEE 802.11n HT40:<br>5510-5670        | 102     | 5510            |  |
|               |                                        | 110     | 5550            |  |
|               |                                        | 134     | 5670            |  |
|               |                                        |         |                 |  |
| UNII Band IV  | IEEE 802.11a & n HT20:<br>5745-5825MHz | 149     | 5745            |  |
|               |                                        | 153     | 5765            |  |
|               |                                        | 157     | 5785            |  |
|               |                                        | 161     | 5805            |  |
|               |                                        | 165     | 5825            |  |
|               | IEEE 802.11n HT40:<br>5755-5795MHz     | 151     | 5755            |  |
|               |                                        | 159     | 5795            |  |

## 2.9. Test Equipment For EST Technology Co., Ltd.

### 2.9.1. 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 14,19 | 1 Year    |
| Artificial Mains Network | Rohde & Schwarz | ENV216       | 101260     | CEPREI           | June 14,19 | 1 Year    |
| Pulse Limiter            | Rohde & Schwarz | ESH3-Z2      | 101100     | CEPREI           | June 14,19 | 1 Year    |
| Test Software            | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

### 2.9.2. 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 14,19 | 1 Year    |
| Active Loop Antenna | SCHWARZB ECK    | FMZB 1519B   | 1519B-088  | N/A              | June 14,19 | 1 Year    |
| Test Software       | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

### 2.9.3. 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 14,19 | 1 Year    |
| Bilog Antenna     | Teseq           | CBL 6111D    | 27090      | CEPREI           | June 14,19 | 1 Year    |
| Test Software     | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

### 2.9.4. 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  | BBHA912 0D1002 | CEPREI           | June 14,19 | 1 Year    |
| Horn Antenna                 | SCHWARZB ECK    | BBHA9170     | BBHA917 0242   | CEPREI           | June 14,19 | 1 Year    |
| Signal Amplifier             | SCHWARZB ECK    | BBV9718      | 9718-212       | CEPREI           | June 14,19 | 1 Year    |
| Spectrum Analyzer            | Rohde & Schwarz | FSV          | 103173         | CEPREI           | June 14,19 | 1 Year    |
| PSA Series Spectrum Analyzer | Agilent         | E4447A       | MY50180 031    | CEPREI           | June 14,19 | 1 Year    |
| Test Software                | Audix           | e3-6.111221a | N/A            | N/A              | N/A        | N/A       |

## 2.9.5. For DFS and connect EUT antenna terminal test

| Equipment                    | Manufacturer    | Model No.  | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
|------------------------------|-----------------|------------|------------|------------------|------------|-----------|
| TS 8997                      | Rohde & Schwarz | /          | /          | /                | /          | /         |
| Open Switch and Control Unit | Rohde & Schwarz | OSP-B157WB | 101309     | CEPREI           | June 14,19 | 1 Year    |
| Signal and Spectrum Analyzer | Rohde & Schwarz | FSV        | 103173     | CEPREI           | June 14,19 | 1 Year    |
| Signal Generator             | Rohde & Schwarz | SMB100A    | 108752     | CEPREI           | June 14,19 | 1 Year    |
| Vector Signal Generator      | Rohde & Schwarz | SMBV100A   | 260753     | CEPREI           | June 14,19 | 1 Year    |
| Test Software                | Rohde & Schwarz | WMS32      | V10.40.00  | N/A              | N/A        | N/A       |
| Spectrum Analyzer            | Agilent         | E4408B     | MY44211139 | CEPREI           | June 14,19 | 1 Year    |
| Temperature controller       | DK              | DK70A      | 006562     | Tiansu           | June 14,19 | 1 Year    |
| AC Source                    | CHANGJIAN       | 3KV        | EST215-007 | N/A              | N/A        | N/A       |

### 3. RADIATED SPURIOUS EMISSIONS

#### 3.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209&15.407(b), all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 &15.407(b)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       |
| <sup>1</sup> 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     | ( <sup>2</sup> ) |

#### 15.209 &15.407(b) Limit

| Frequency (MHz) | Field Strength( $\mu$ 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.

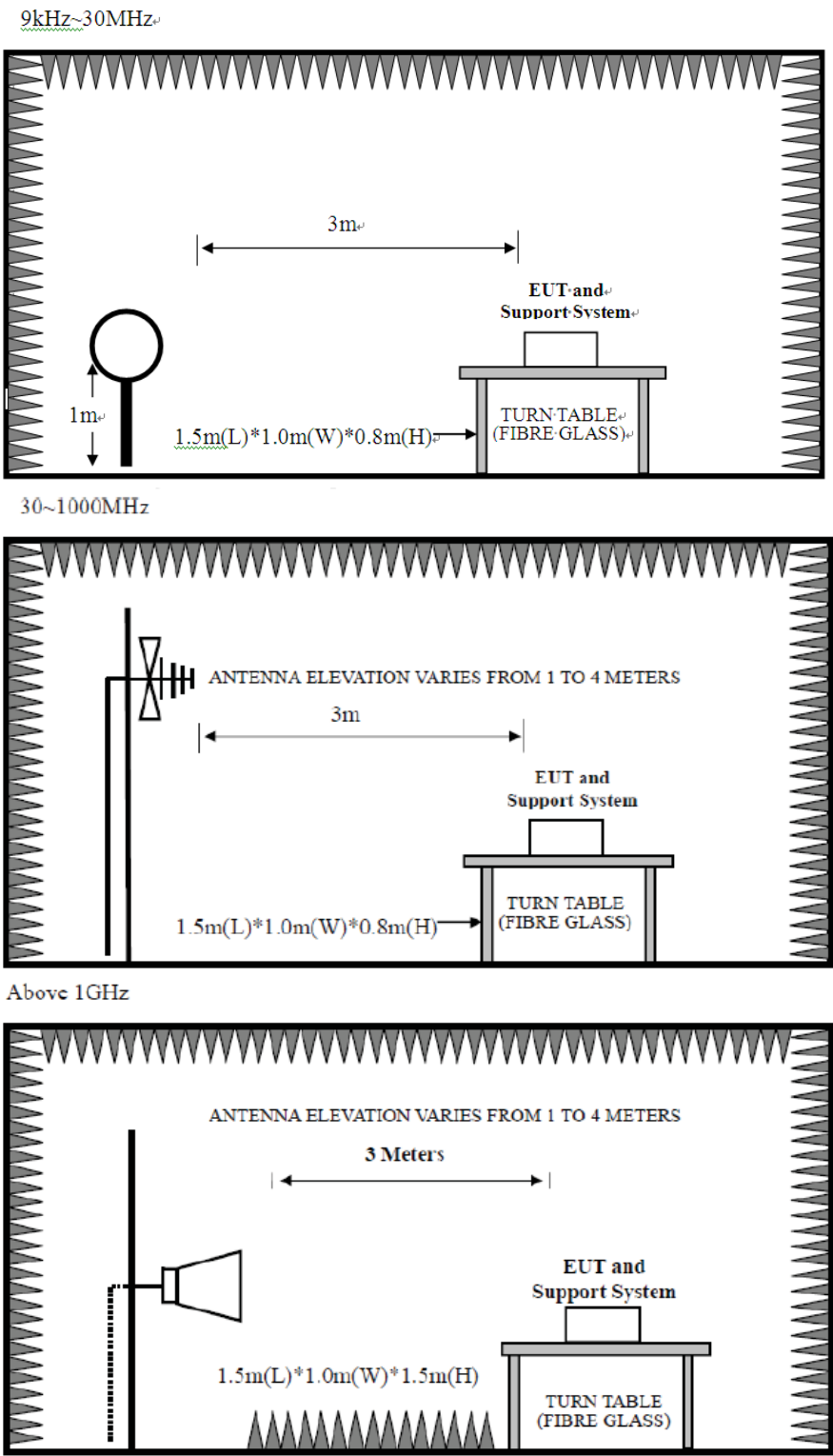
5150 MHz - 5250 MHz : e.i.r.p -27 dBm (68.2dBuV/m@3m)

5250 MHz - 5350 MHz : e.i.r.p -27 dBm (68.2dBuV/m@3m)

5470 MHz - 5725 MHz : e.i.r.p -27 dBm (68.2dBuV/m@3m)

5725 MHz - 5850 MHz : all emissions shall be limited to a level of -27 dBm/Mhz at 75Mhz or more above or below the band edge increasing linearly to 10dBm/Mhz at 25 Mhz above or below the band edge ,and from 25Mhz above or below the band edge increasing linearly to to a level of 15.6 dBm/Mhz at 5MHz above or below the band edge ,and from 5Mhz above or below the band edge increasing linearly to a level of 27 dBm/Mhz at the band edge.

3.2. Block Diagram of Test setup



### 3.3. 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 9 kHz to 10th harmonic are checked.

### 3.4. 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 5180MHz 、 5190MHz、 5200MHz、 5230 MHz、 5240 MHz、 5260 MHz、 5270 MHz、 5300 MHz、 5310 MHz、 5320 MHz、 5500 MHz、 5510 MHz、 5580 MHz、 5670 MHz、 5700 MHz、 5745 MHz、 5755 MHz、 5785 MHz、 5795 MHz、 5825MHz 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 Data

9 kHz – 30 MHz

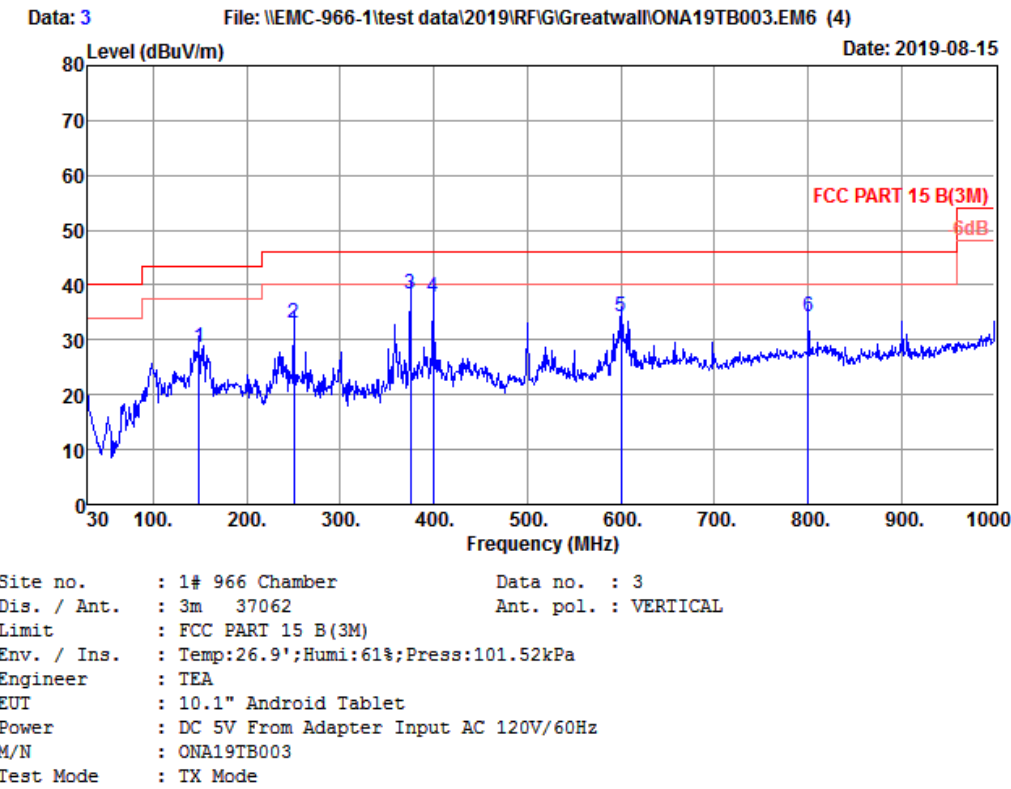
Pass

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

30 MHz – 1000 MHz

EST Technology

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|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 149.31         | 11.62                   | 1.09                  | 15.88             | 28.59                         | 43.50             | 14.91          | QP     |
| 2 | 250.19         | 12.40                   | 1.62                  | 19.12             | 33.14                         | 46.00             | 12.86          | QP     |
| 3 | 375.32         | 15.60                   | 2.19                  | 20.59             | 38.38                         | 46.00             | 7.62           | QP     |
| 4 | 399.57         | 16.20                   | 2.14                  | 19.53             | 37.87                         | 46.00             | 8.13           | QP     |
| 5 | 600.36         | 20.40                   | 2.97                  | 10.75             | 34.12                         | 46.00             | 11.88          | QP     |
| 6 | 800.18         | 22.90                   | 3.58                  | 7.80              | 34.28                         | 46.00             | 11.72          | 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.

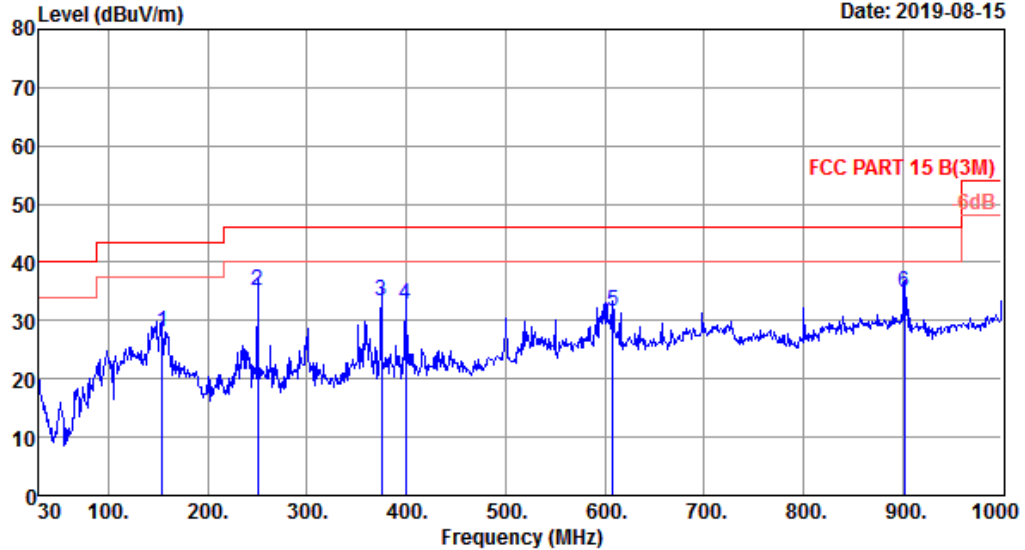
## EST Technology

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Data: 4

File: \\EMC-966-1\\test data\\2019\\RF\\G\\Greatwall\\ONA19TB003.EM6 (4)

Date: 2019-08-15



Site no. : 1# 966 Chamber Data no. : 4  
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 B(3M)  
 Env. / Ins. : Temp:26.9';Humi:61%;Press:101.52kPa  
 Engineer : TEA  
 EUT : 10.1" Android Tablet  
 Power : DC 5V From Adapter Input AC 120V/60Hz  
 M/N : ONA19TB003  
 Test Mode : TX Mode

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 154.16         | 11.36                   | 1.11                  | 15.49             | 27.96                         | 43.50             | 15.54          | QP     |
| 2 | 250.19         | 12.40                   | 1.62                  | 21.12             | 35.14                         | 46.00             | 10.86          | QP     |
| 3 | 375.32         | 15.60                   | 2.19                  | 15.59             | 33.38                         | 46.00             | 12.62          | QP     |
| 4 | 399.57         | 16.20                   | 2.14                  | 14.53             | 32.87                         | 46.00             | 13.13          | QP     |
| 5 | 608.12         | 20.56                   | 3.02                  | 7.88              | 31.46                         | 46.00             | 14.54          | QP     |
| 6 | 902.03         | 23.92                   | 3.89                  | 6.95              | 34.76                         | 46.00             | 11.24          | 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.

## **4. ANTENNA REQUIREMENTS**

### **4.1. Limit**

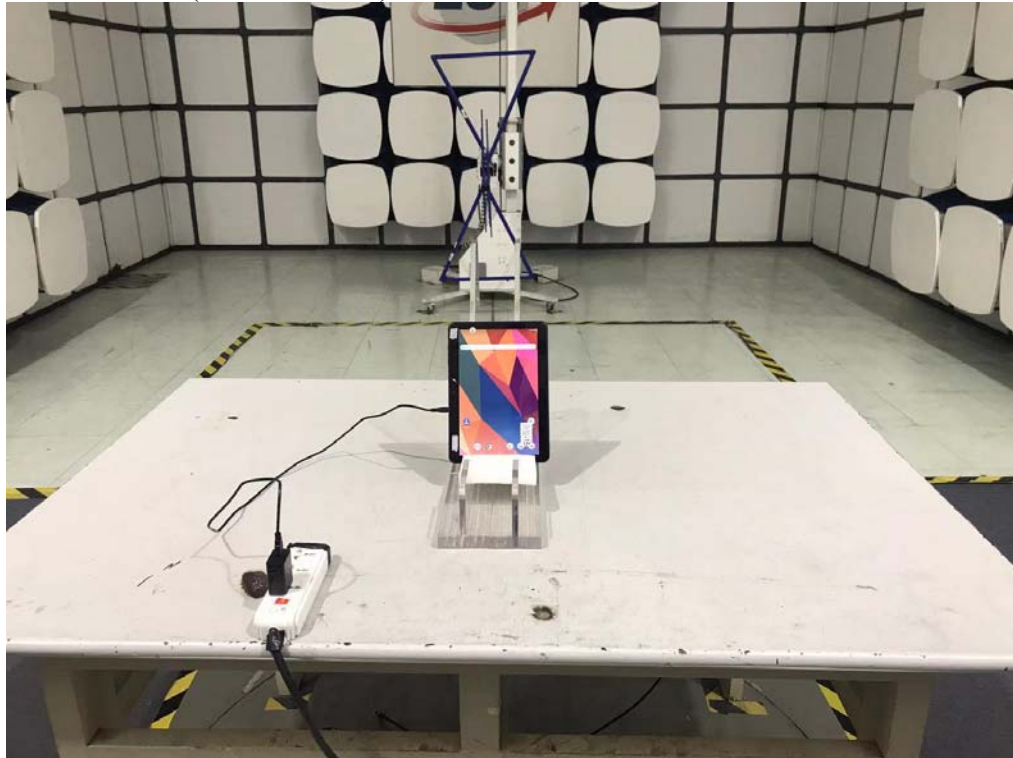
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **4.2. Result**

The antennas used for this product are External antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.27 dBi.

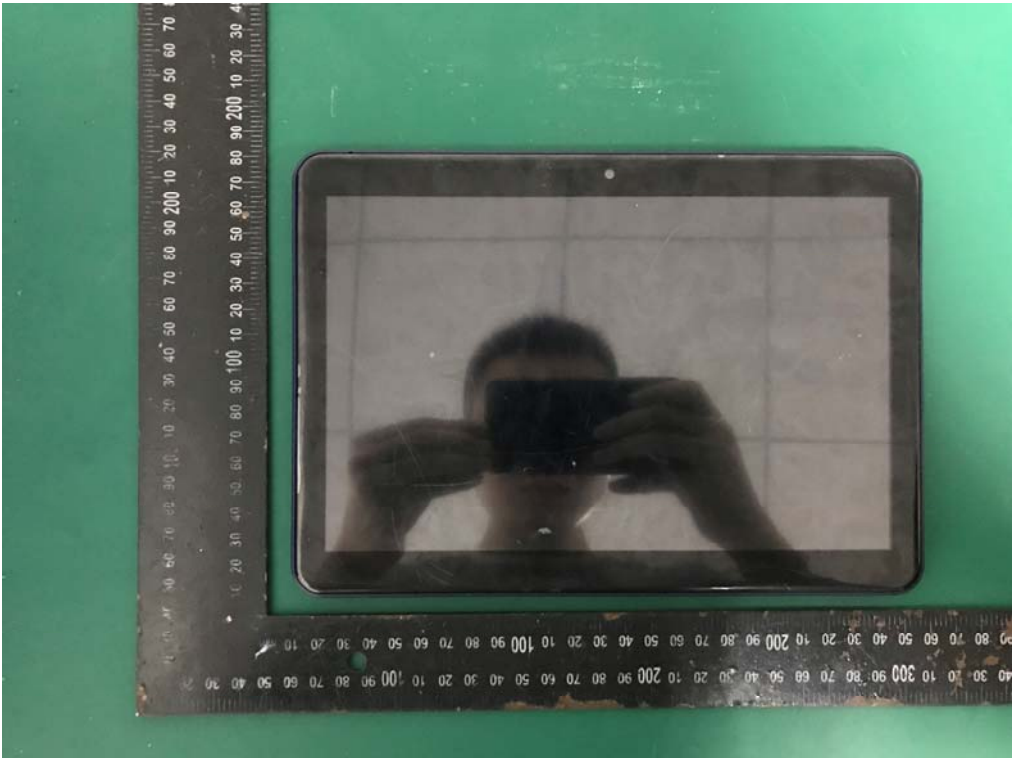
## 5. TEST SETUP PHOTO

Radiated Test (30-1000 MHz)

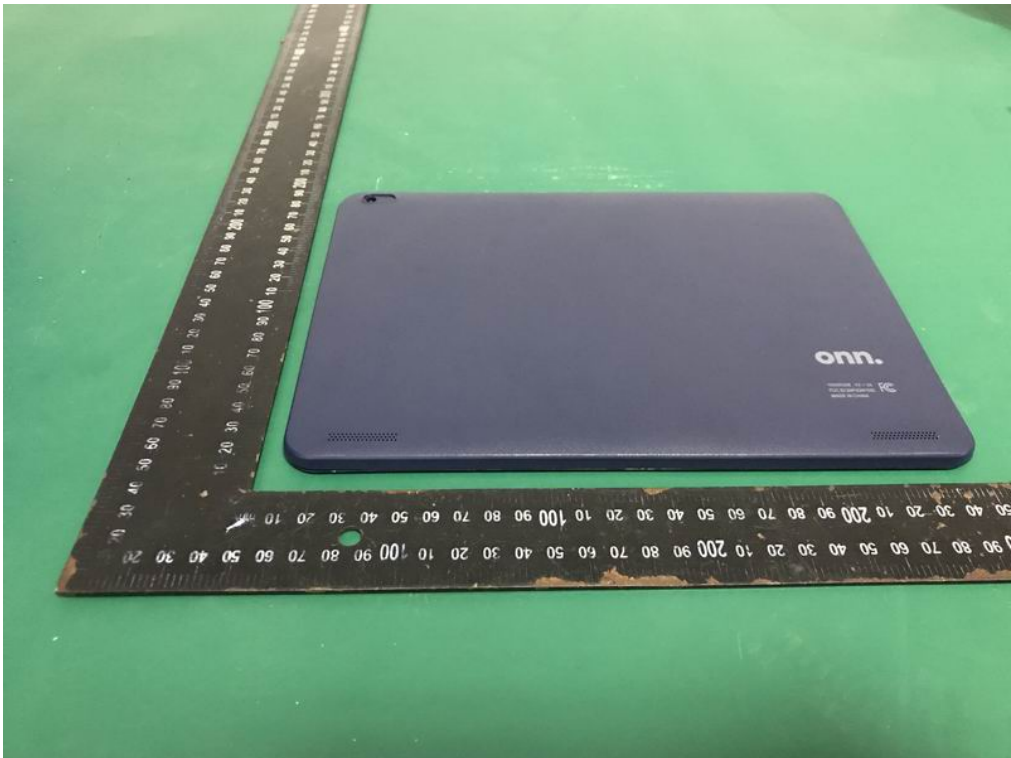


6. PHOTO OF EUT

External Photos  
M/N: ONA19TB003



External Photos  
M/N: ONA19TB003



External Photos  
M/N: ONA19TB003



**External Photos**  
M/N: ONA19TB003

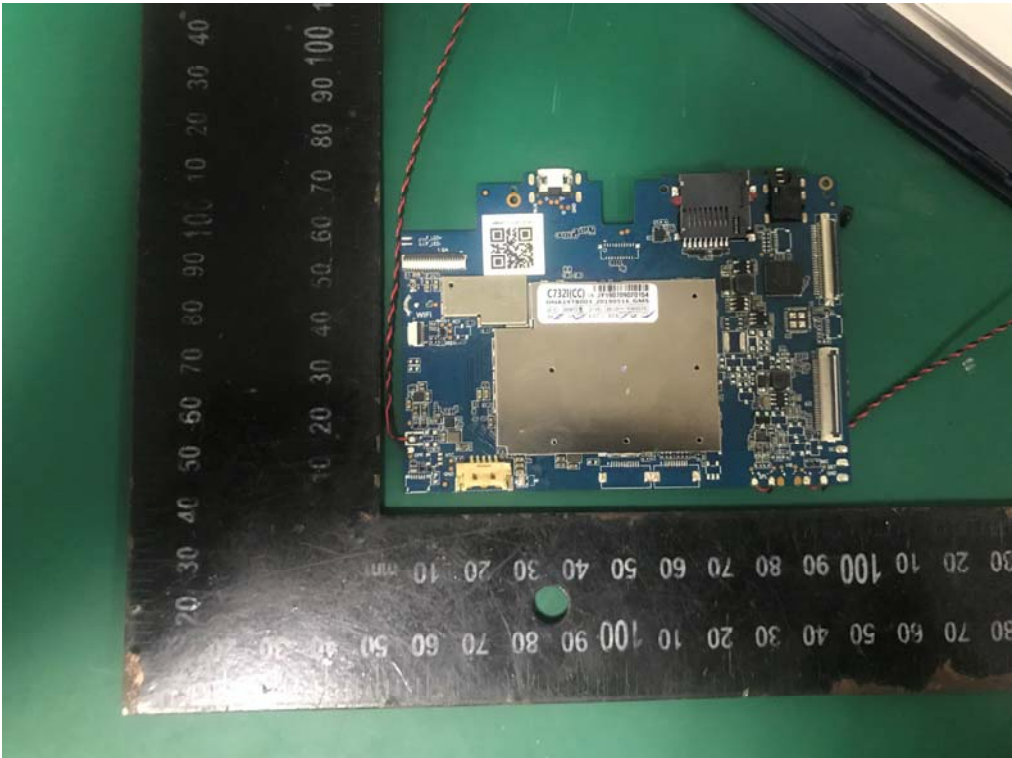


Internal Photos  
M/N: ONA19TB003

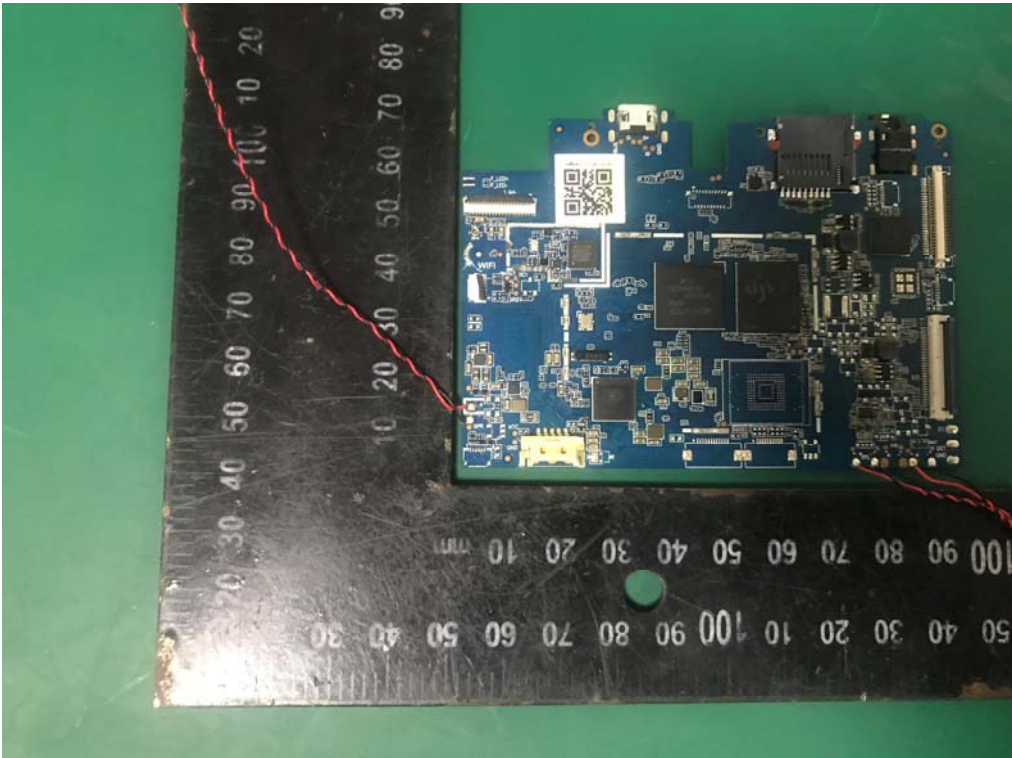
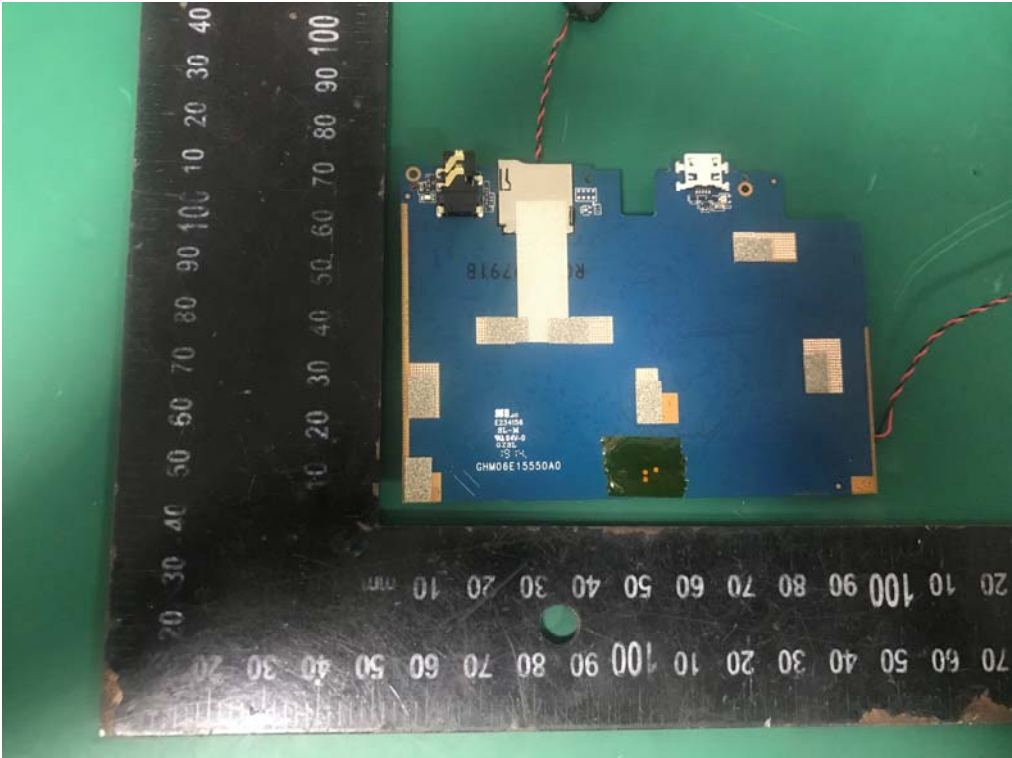
RF  
Antenna



Internal Photos  
M/N: ONA19TB003



Internal Photos  
M/N: ONA19TB003



Internal Photos  
M/N: ONA19TB003

RF  
Antenna Port

