

# FCC RF Test Report

**APPLICANT** : TCT Mobile Limited  
**EQUIPMENT** : Tablet PC  
**BRAND NAME** : ALCATEL  
**MODEL NAME** : ONE TOUCH P321  
**MARKETING NAME** : ALCATEL ONE TOUCH POP8  
**FCC ID** : RAD467  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : (DTS) Digital Transmission System

The product was received on Jan. 06, 2014 and testing was completed on Apr. 23, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.



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Reviewed by: Joseph Lin / Supervisor



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Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
**No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.**



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### SUMMARY OF TEST RESULT

| Report Section | FCC Rule           | Description                               | Limit                 | Result | Remark                                   |
|----------------|--------------------|---|-----------------------|--------|--|
| 3.1            | 15.247(d)          | Radiated Band Edges and Spurious Emission | 15.209(a) & 15.247(d) | Pass   | Under limit<br>10.07 dB at<br>47.460 MHz |
| 3.2            | 15.203 & 15.247(b) | Antenna Requirement                       | N/A                   | Pass   | -  |



# 1 General Description

## 1.1 Applicant

**TCT Mobile Limited**

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

## 1.2 Manufacturer

**TCT Mobile Limited**

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

## 1.3 Feature of Equipment Under Test

| Product Feature                 |  |
|---------------------------------|--|
| Equipment                       | Tablet PC  |
| Brand Name                      | ALCATEL  |
| Model Name                      | ONE TOUCH P321   |
| Marketing Name                  | ALCATEL ONE TOUCH POP8   |
| FCC ID                          | RAD467   |
| EUT supports Radios application | WLAN 2.4GHz 802.11b/g/n HT20/HT40/<br>Bluetooth v3.0 + EDR/Bluetooth v4.0 LE |
| HW Version                      | V5.0   |
| SW Version                      | BAQ  |
| EUT Stage                       | Production Unit  |

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard |  |
|---|--|
| Tx/Rx Frequency Range                             | 2402 MHz ~ 2480 MHz                            |
| Number of Channels                                | 40   |
| Carrier Frequency of Each Channel                 | 40 Channel(37 hopping + 3 advertising channel) |
| Antenna Type                                      | Monopole Antenna with gain 2.00 dBi            |
| Type of Modulation                                | Bluetooth v4.0 LE : GFSK                       |

## 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Testing Site

|                           |  |                             |
|---------------------------|--|-----------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (KUNSHAN) INC.   |                             |
| <b>Test Site Location</b> | No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 |                             |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>  | <b>FCC Registration No.</b> |
|                           | 03CH01-KS  | 149928                      |

**Note:** The test site complies with ANSI C63.4 2003 requirement.

## 1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ♦ ANSI C63.4-2003

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

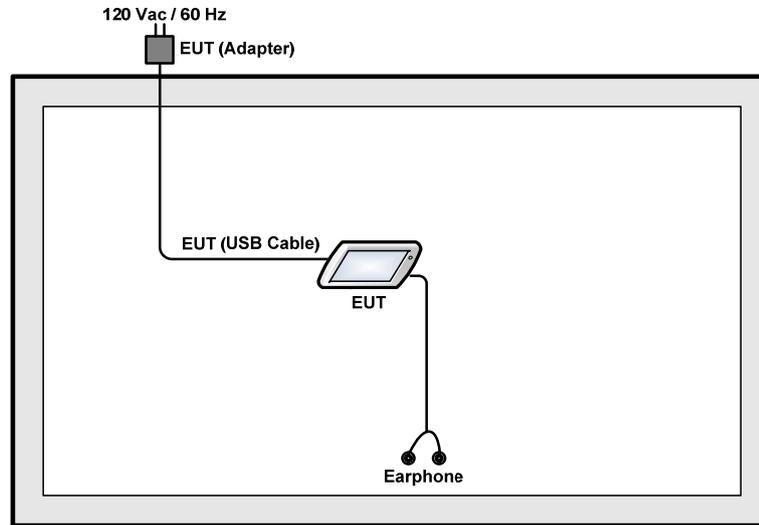
### 2.1 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

| Summary table of Test Cases  |  |
|--|--|
| Test Item  | Data Rate / Modulation                   |
|  | Bluetooth v4.0 LE / GFSK                 |
| Radiated TCs   | Mode 1: Bluetooth Tx CH39_2480 MHz_1Mbps |
| <b>Remark:</b> All the radiated test cases were performance with Adapter, Earphone, USB cable and Battery 1. |  |

## 2.2 Connection Diagram of Test System

<Bluetooth v4.0 LE Tx Mode>



## 2.3 Support Unit used in test configuration and system

| Item | Equipment | Trade Name | Model Name | FCC ID  | Data Cable        | Power Cord |
|------|-----------|------------|------------|---------|-------------------|------------|
| 1.   | Earphone  | Lenovo     | SH100      | FCC DoC | Unshielded, 1.2 m | N/A        |

## 2.4 EUT Operation Test Setup

For Bluetooth v4.0 LE function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

### 3 Test Result

#### 3.1 Radiated Band Edges and Spurious Emission Measurement

##### 3.1.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 0.009 – 0.490      | 2400/F(kHz)                          | 300                              |
| 0.490 – 1.705      | 24000/F(kHz)                         | 30                               |
| 1.705 – 30.0       | 30                                   | 30                               |
| 30 – 88            | 100                                  | 3                                |
| 88 – 216           | 150                                  | 3                                |
| 216 - 960          | 200                                  | 3                                |
| Above 960          | 500                                  | 3                                |

##### 3.1.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

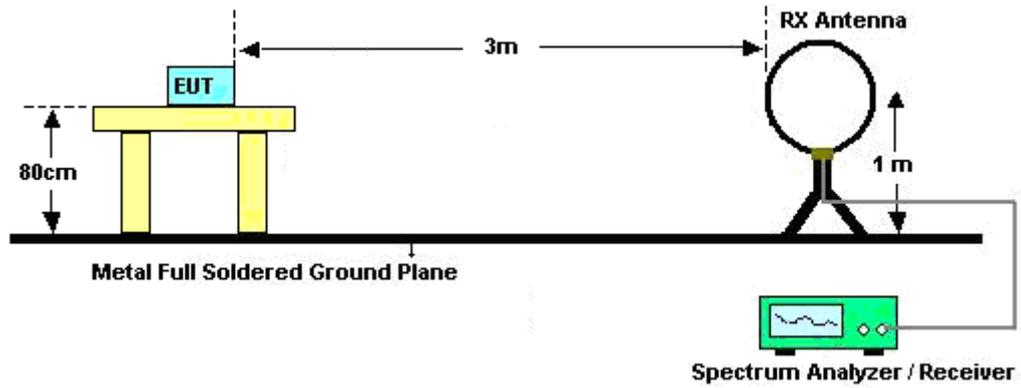
**3.1.3 Test Procedures**

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.  
 For average measurement:
    - $VBW = 10$  Hz, when duty cycle is no less than 98 percent.
    - $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

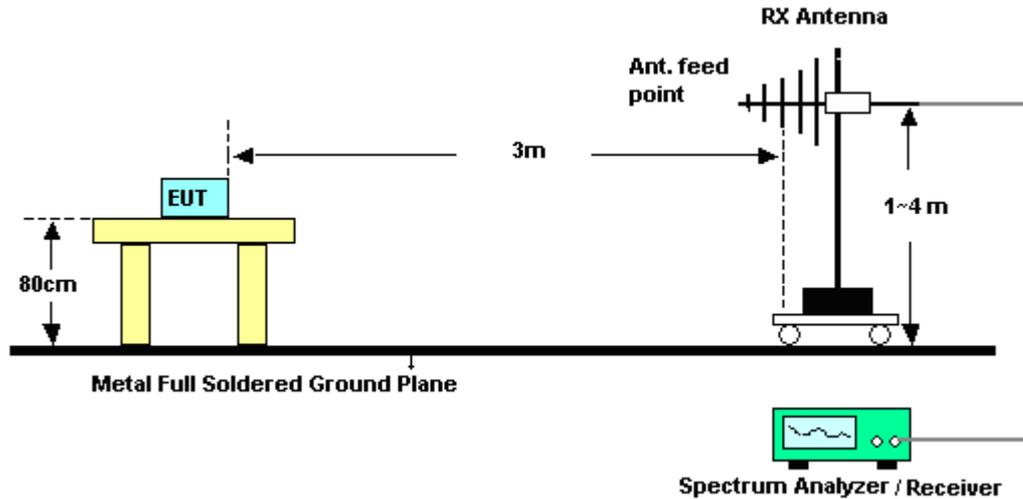
| Band              | Duty Cycle(%) | T(ms) | 1/T(kHz) | VBW Setting |
|-------------------|---------------|-------|----------|-------------|
| Bluetooth v4.0 LE | 60.13         | 0.380 | 2.632    | 3kHz        |

### 3.1.4 Test Setup

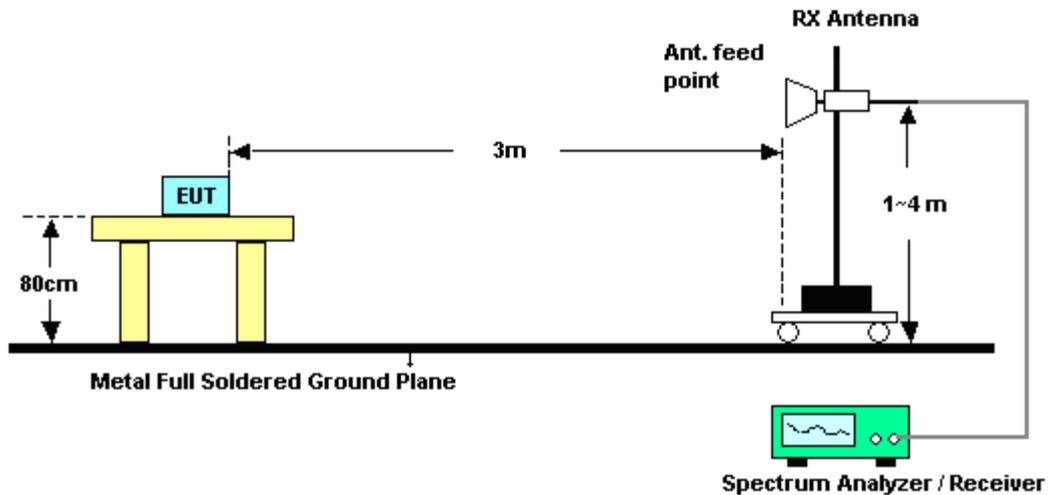
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.1.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.1.6 Test Result of Radiated Spurious at Band Edges

|                |        |                     |          |
|----------------|--------|---------------------|----------|
| Test Mode :    | Mode 1 | Temperature :       | 23~24°C  |
| Test Channel : | 39     | Relative Humidity : | 43~44%   |
|                |        | Test Engineer :     | Stone Gu |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                         |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>(dBμV /m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>(dBμV /m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2483.5                        | 58.32               | -15.68                  | 74                          | 54.95                   | 33.01                       | 3.65                    | 33.29                      | 114                  | 9                       | Peak    |
| 2483.5                        | 39.53               | -14.47                  | 54                          | 36.16                   | 33.01                       | 3.65                    | 33.29                      | 114                  | 9                       | Average |

| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                         |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>(dBμV /m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>(dBμV /m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2483.5                      | 56.22               | -17.78                  | 74                          | 52.85                   | 33.01                       | 3.65                    | 33.29                      | 175                  | 82                      | Peak    |
| 2483.5                      | 37.38               | -16.62                  | 54                          | 34.01                   | 33.01                       | 3.65                    | 33.29                      | 175                  | 82                      | Average |

Note: In order to reduce the noise floor, 6dB EMI filter is used for the radiated band edge measurement.

**3.1.7 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)**

**Note:** Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

|                        |  |                            |            |
|------------------------|--|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 1   | <b>Temperature :</b>       | 23~24°C    |
| <b>Test Channel :</b>  | 39   | <b>Relative Humidity :</b> | 43~44%     |
| <b>Test Engineer :</b> | Stone Gu   | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | 1. 2480 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. |                            |            |

| Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>(dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
|----------------------|---------------------|-------------------------|----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| 30                   | 21.67               | -18.33                  | 40                         | 36.76                   | 18                          | 0.48                    | 33.57                      | 100                  | 84                      | Peak    |
| 128.94               | 22.5                | -21                     | 43.5                       | 43.34                   | 11.71                       | 1.04                    | 33.59                      | -                    | -                       | Peak    |
| 160.95               | 22.35               | -21.15                  | 43.5                       | 45.21                   | 9.56                        | 1.16                    | 33.58                      | -                    | -                       | Peak    |
| 226.91               | 24.76               | -21.24                  | 46                         | 46.19                   | 10.67                       | 1.39                    | 33.49                      | -                    | -                       | Peak    |
| 243.4                | 23.61               | -22.39                  | 46                         | 43.92                   | 11.7                        | 1.44                    | 33.45                      | -                    | -                       | Peak    |
| 954.41               | 24.85               | -21.15                  | 46                         | 33.71                   | 20.76                       | 2.82                    | 32.44                      | -                    | -                       | Peak    |
| 2480                 | 96.25               | -                       | -                          | 92.88                   | 33.01                       | 3.65                    | 33.29                      | 114                  | 9                       | Peak    |
| 2480                 | 95.56               | -                       | -                          | 92.19                   | 33.01                       | 3.65                    | 33.29                      | 114                  | 9                       | Average |
| 4960                 | 47.55               | -26.45                  | 74                         | 40.82                   | 35.2                        | 5.33                    | 33.8                       | 100                  | 61                      | Peak    |
| 7440                 | 49.29               | -24.71                  | 74                         | 40.45                   | 36.27                       | 6.75                    | 34.18                      | 100                  | 102                     | Peak    |

**Note:** Other harmonics are lower than background noise.



|                        |  |                            |          |
|------------------------|--|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 1   | <b>Temperature :</b>       | 23~24°C  |
| <b>Test Channel :</b>  | 39   | <b>Relative Humidity :</b> | 43~44%   |
| <b>Test Engineer :</b> | Stone Gu   | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | 1. 2480 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. |                            |          |

| Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>(dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
|----------------------|---------------------|-------------------------|----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| 47.46                | 29.93               | -10.07                  | 40                         | 54.39                   | 8.5                         | 0.64                    | 33.6                       | 100                  | 118                     | Peak    |
| 169.68               | 27.68               | -15.82                  | 43.5                       | 50.85                   | 9.2                         | 1.2                     | 33.57                      | -                    | -                       | Peak    |
| 222.06               | 27.15               | -18.85                  | 46                         | 49.04                   | 10.25                       | 1.37                    | 33.51                      | -                    | -                       | Peak    |
| 366.59               | 19.65               | -26.35                  | 46                         | 36.35                   | 14.92                       | 1.73                    | 33.35                      | -                    | -                       | Peak    |
| 504.33               | 20.5                | -25.5                   | 46                         | 34.33                   | 17.27                       | 2.02                    | 33.12                      | -                    | -                       | Peak    |
| 951.5                | 25.47               | -20.53                  | 46                         | 34.36                   | 20.74                       | 2.81                    | 32.44                      | -                    | -                       | Peak    |
| 2480                 | 93.68               | -                       | -                          | 90.31                   | 33.01                       | 3.65                    | 33.29                      | 175                  | 82                      | Peak    |
| 2480                 | 92.62               | -                       | -                          | 89.25                   | 33.01                       | 3.65                    | 33.29                      | 175                  | 82                      | Average |
| 4960                 | 47.03               | -26.97                  | 74                         | 40.3                    | 35.2                        | 5.33                    | 33.8                       | 100                  | 52                      | Peak    |
| 7440                 | 48.3                | -25.7                   | 74                         | 39.46                   | 36.27                       | 6.75                    | 34.18                      | 100                  | 195                     | Peak    |

**Note:** Other harmonics are lower than background noise.



## **3.2 Antenna Requirements**

### **3.2.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### **3.2.2 Antenna Connected Construction**

Non-standard connector used.

### **3.2.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

| Instrument                | Manufacturer | Model No. | Serial No.     | Characteristics | Calibration Date | Test Date     | Due Date      | Remark                |
|---------------------------|--------------|-----------|----------------|-----------------|------------------|---------------|---------------|-----------------------|
| EMI Test Receiver         | R&S          | ESCI      | 100534         | 9kHz~3GHz       | Nov. 05, 2013    | Apr. 23, 2014 | Nov. 04, 2014 | Radiation (03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP30     | 101399         | 9kHz~30GHz      | May 23, 2013     | Apr. 23, 2014 | May 22, 2014  | Radiation (03CH01-KS) |
| Loop Antenna              | R&S          | HFH2-Z2   | 100321         | 9kHz~30MHz      | Oct. 09, 2013    | Apr. 23, 2014 | Oct. 08, 2014 | Radiation (03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182          | 25MHz~2GHz      | Jan. 08, 2014    | Apr. 23, 2014 | Jan. 07, 2015 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117      | 75959          | 1GHz~18GHz      | Jan. 08, 2014    | Apr. 23, 2014 | Jan. 07, 2015 | Radiation (03CH01-KS) |
| Active Horn Antenna       | com-power    | AHA-118   | 701030         | 1GHz~18GHz      | Nov. 18, 2013    | Apr. 23, 2014 | Nov. 17, 2014 | Radiation (03CH01-KS) |
| SHF-EHF Horn              | Schwarzbeck  | BBHA 9170 | BBHA1702<br>49 | 15GHz~40GHz     | Mar. 10, 2014    | Apr. 23, 2014 | Mar. 09, 2015 | Radiation (03CH01-KS) |
| Amplifier                 | com-power    | PA-103A   | 161073         | 1MHz~1GHz       | May 04, 2014     | Apr. 23, 2014 | May 03, 2015  | Radiation (03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A023<br>71 | 1GHz~26.5GHz    | Dec. 10, 2013    | Apr. 23, 2014 | Dec. 09, 2014 | Radiation (03CH01-KS) |
| AC Power Source           | Chroma       | 61601     | F1040900<br>04 | N/A             | NCR              | Apr. 23, 2014 | NCR           | Radiation (03CH01-KS) |
| Turn Table                | MF           | MF7802    | N/A            | 0~360 degree    | NCR              | Apr. 23, 2014 | NCR           | Radiation (03CH01-KS) |
| Antenna Mast              | MF           | MF7802    | N/A            | 1 m~4 m         | NCR              | Apr. 23, 2014 | NCR           | Radiation (03CH01-KS) |



## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|   |      |
|---|------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.54 |
|---|------|



## **Appendix B. Product Equality Declaration**

# TCT Mobile Limited

Date: May 7, 2014

## Product Equality Declaration

We, TCT Mobile Limited, declare on our sole responsibility for the product of ONE TOUCH P321 as below:

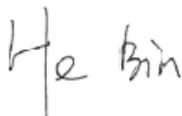
The differences between ONE TOUCH P321 and previous model, ONE TOUCH P320A are as below:

1. ONE TOUCH P320A has 2G/3G module on board, but ONE TOUCH P321 doesn't. All 2G/3G related components have removed from ONE TOUCH P321;
2. The CPU model number of ONE TOUCH P320A is MT8382V/W, and The CPU model number of ONE TOUCH P321 is MT8121V/B. The difference between these two CPUs is only that MT8382V/W has the modem, but MT8121V/B doesn't.
3. MCP has changed from KMK7X000VM-B314 to MT29PZZZ8D4WKFEW-18 W.  
The only difference between these 2 MCPs : The eMMC flash in KMK7X000VM-B314 is 8GB and the other is 4GB.

Except listings above, the others are all the same as previous version.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,



---

Contact Person: He Bin

Company: TCT Mobile Limited

Tel: 0755-36635791

E-Mail: [bin.he@tcl.com](mailto:bin.he@tcl.com)