



TEST REPORT

No. I14Z47557-EMC01

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dual band / GSM quad band mobile phone

Model Name: 3075M

FCC ID: RAD418

with

Hardware Version: 04

Software Version: A6E

Issued Date: Aug. 29th, 2014

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

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CONTENTS

| | |
|------------------------------------------------------------------------|-----------|
| 1. TEST LABORATORY..... | 3 |
| 1.1. TESTING LOCATION..... | 3 |
| 1.2. TESTING ENVIRONMENT..... | 3 |
| 1.3. PROJECT DATA..... | 3 |
| 1.4. SIGNATURE..... | 3 |
| 2. CLIENT INFORMATION..... | 4 |
| 2.1. APPLICANT INFORMATION..... | 4 |
| 2.2. MANUFACTURER INFORMATION..... | 4 |
| 3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)..... | 5 |
| 3.1. ABOUT EUT..... | 5 |
| 3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST..... | 5 |
| 3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST..... | 5 |
| 3.4. EUT SET-UPS..... | 5 |
| 4. REFERENCE DOCUMENTS..... | 6 |
| 4.1. REFERENCE DOCUMENTS FOR TESTING..... | 6 |
| 5. LABORATORY ENVIRONMENT..... | 7 |
| 6. SUMMARY OF TEST RESULTS..... | 8 |
| 7. TEST EQUIPMENTS UTILIZED..... | 9 |
| ANNEX A: MEASUREMENT RESULTS..... | 10 |

1. Test Laboratory

1.1. Testing Location

Location A

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan Bei Road, Haidian District, Beijing, P.R. China
Postal Code: 100191

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 20-75%


1.3. Project data

Testing Start Date: Aug. 21st, 2014
Testing End Date: Aug. 22nd, 2014


1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: TCT Mobile Limited
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
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2.2. Manufacturer Information

Company Name: TCT Mobile Limited
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Pudong Area Shanghai, P.R. China. 201203
City: Shanghai
Postal Code: 201203
Country: China
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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

| | |
|---------------------|---------------------------------------------------------|
| Description | HSUPA/HSDPA/UMTS dual band / GSM quad band mobile phone |
| Model Name | 3075M |
| FCC ID | RAD418 |
| Extreme vol. Limits | 3.5VDC to 4.35VDC (nominal: 3.8VDC) |

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version |
|---------|-----------------|------------|------------|
| EUT4 | 013829005117871 | 04 | A6E |

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

| AE ID* | Description | SN | Remarks |
|-----------------|-------------|--------------|--------------|
| AE1 | Battery | / | 1447557BA004 |
| AE2 | Battery | / | 1447557BA006 |
| AE3 | Battery | / | 1447557BA014 |
| AE4 | Charger | / | 1447557CH005 |
| AE5 | Charger | / | 1447557CH006 |
| AE1,AE2,AE3 | | | |
| Model | | CAB3120003C1 | |
| Manufacturer | | BYD | |
| Capacitance | | 850 mAh | |
| Nominal voltage | | 3.7V | |
| AE4,AE5 | | | |
| Model | | CAB3002AA0C1 | |
| Manufacturer | | BYD | |
| Length | | 121.5cm | |

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

| EUT set-up No. | Combination of EUT and AE | Remarks |
|----------------|---------------------------|---------|
| Set.3 | EUT4+ AE1+ AE4 | Charger |

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| FCC Part 15, Subpart B | Radio frequency devices - Unintentional Radiators | 10-1-13 Edition |
| ANSI C63.4 | Methods of Measurement of Radio-Noise Emissions from Low - Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2009 |

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

| | |
|-------------------------------------------------|-------------------------------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 15 %, Max. = 75 % |
| Shielding effectiveness | 0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4 Ω |
| Normalised site attenuation (NSA) | < ±4 dB, 10 m distance |
| Site voltage standing-wave ratio (S_{VSWR}) | Between 0 and 6 dB, from 1GHz to 6GHz |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 3000 MHz |

Shielded room did not exceed following limits along the EMC testing:

| | |
|--------------------------|-----------------------------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 20 %, Max. = 75 % |
| Shielding effectiveness | 0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4 Ω |

6. SUMMARY OF TEST RESULTS

| Abbreviations used in this clause: | | |
|------------------------------------|---------|-------------------------------------------------------------------------------------------------------|
| Verdict Column | P | Pass |
| | NA | Not applicable |
| | F | Fail |
| Location Column | A/B/C/D | The test is performed in test location A, B, C or D which are described in section 1.1 of this report |

| Items | Test Name | Clause in FCC rules | Clause in IC rules | Section in this report | Verdict | Test Location |
|-------|--------------------|---------------------|--------------------|------------------------|---------|---------------|
| 1 | Radiated Emission | 15.109(a) | Section 5 | B.1 | P | A |
| 2 | Conducted Emission | 15.107(a) | Section 5 | B.2 | P | A |

7. Test Equipments Utilized

| NO. | Description | TYPE | SERIES NUMBER | MANUFACTURE | CAL DUE DATE | CALIBRATION INTERVAL |
|-----|--------------------------------------|-----------|---------------|--------------|--------------|----------------------|
| 1 | Test Receiver | ESCI | 100344 | R&S | 2015-03-03 | 1 year |
| 2 | Test Receiver | ESCI 7 | 100948 | R&S | 2015-07-16 | 1 year |
| 3 | Universal Radio Communication Tester | CMU200 | 109914 | R&S | 2015-04-13 | 1 year |
| 4 | Test Receiver | FSV* | 101047 | R&S | 2015-07-03 | 1 year |
| 5 | LISN | ENV216 | 101200 | R&S | 2015-07-07 | 1 year |
| 6 | EMI Antenna | VULB 9163 | 9163-234 | Schwarzbeck | 2016-09-15 | 3 years |
| 7 | EMI Antenna | 3115 | 6914 | ETS-Lindgren | 2014-12-15 | 3 years |

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at distances of 10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 - 2009, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3/10 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

A.1.3 Measurement Limit

| Frequency range (MHz) | Field strength limit ($\mu\text{V}/\text{m}$) | | |
|-----------------------|-------------------------------------------------|---------|------|
| | Quasi-peak | Average | Peak |
| 30-88 | 100 | | |
| 88-216 | 150 | | |
| 216-960 | 200 | | |
| 960-1000 | 500 | | |
| >1000 | | 500 | 5000 |

Note: the above limit is for 3 meters test distance. 10 meters' limit is got by converting.

A.1.4 Test Condition

| Frequency range (MHz) | RBW/VBW | Sweep Time (s) | Detector |
|-----------------------|-----------------------|----------------|-----------------|
| 30-1000 | 120kHz (IF Bandwidth) | 5 | Peak/Quasi-peak |
| Above 1000 | 1MHz/1MHz | 15 | Peak, Average |

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.3 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Average detector

| Frequency(MHz) | Result(dB μ V/m) | G_{PL} (dB) | G_A (dB/m) | P_{Mea} (dB μ V) | Polarity |
|----------------|----------------------|----------------------|--------------|-------------------------------|------------|
| 17870.375 | 49.6 | -18.5 | 45.6 | 22.500 | VERTICAL |
| 17872.500 | 49.5 | -18.5 | 45.6 | 22.400 | HORIZONTAL |
| 17902.250 | 49.4 | -18.5 | 45.6 | 22.300 | VERTICAL |
| 17904.375 | 49.4 | -18.5 | 45.6 | 22.300 | VERTICAL |
| 17889.500 | 49.4 | -18.5 | 45.6 | 22.300 | HORIZONTAL |
| 17855.500 | 49.4 | -18.5 | 45.6 | 22.300 | VERTICAL |

Charging Mode/Peak detector

| Frequency(MHz) | Result(dB μ V/m) | G_{PL} (dB) | G_A (dB/m) | P_{Mea} (dB μ V) | Polarity |
|----------------|----------------------|----------------------|--------------|-------------------------------|------------|
| 17953.250 | 61.4 | -17.7 | 45.6 | 33.500 | HORIZONTAL |
| 17866.125 | 61.3 | -18.5 | 45.6 | 34.200 | VERTICAL |
| 17976.625 | 60.9 | -17.7 | 45.6 | 33.000 | VERTICAL |
| 17861.875 | 60.9 | -18.5 | 45.6 | 33.800 | VERTICAL |
| 17876.750 | 60.8 | -18.5 | 45.6 | 33.700 | VERTICAL |
| 17891.625 | 60.8 | -18.5 | 45.6 | 33.700 | VERTICAL |

Note: The measurement results of Set.1 showed here are worst cases of the combinations of different batteries.

Charging Mode, Set.1

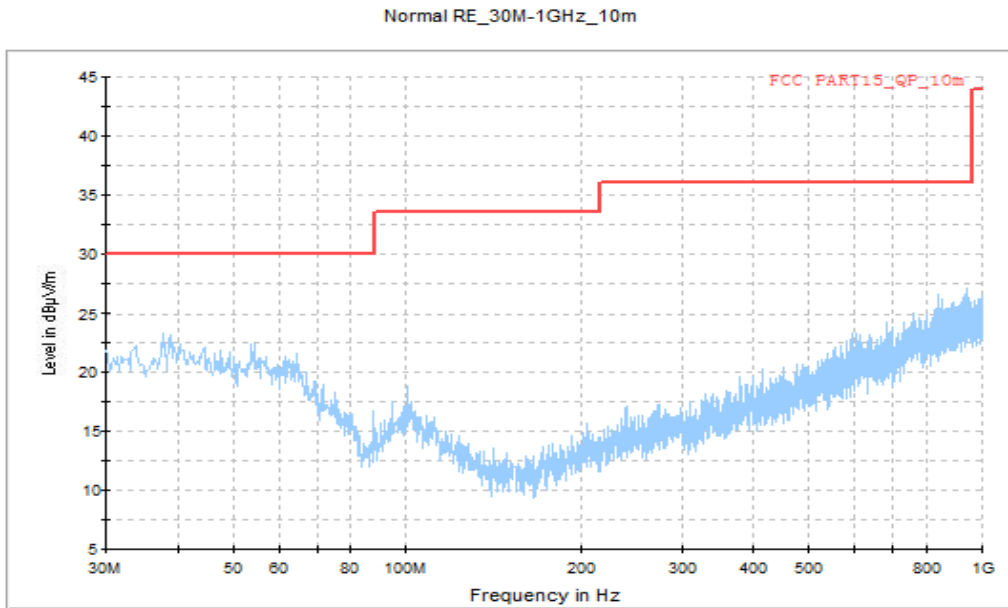


Figure A.1 Radiated Emission from 30MHz to 1GHz

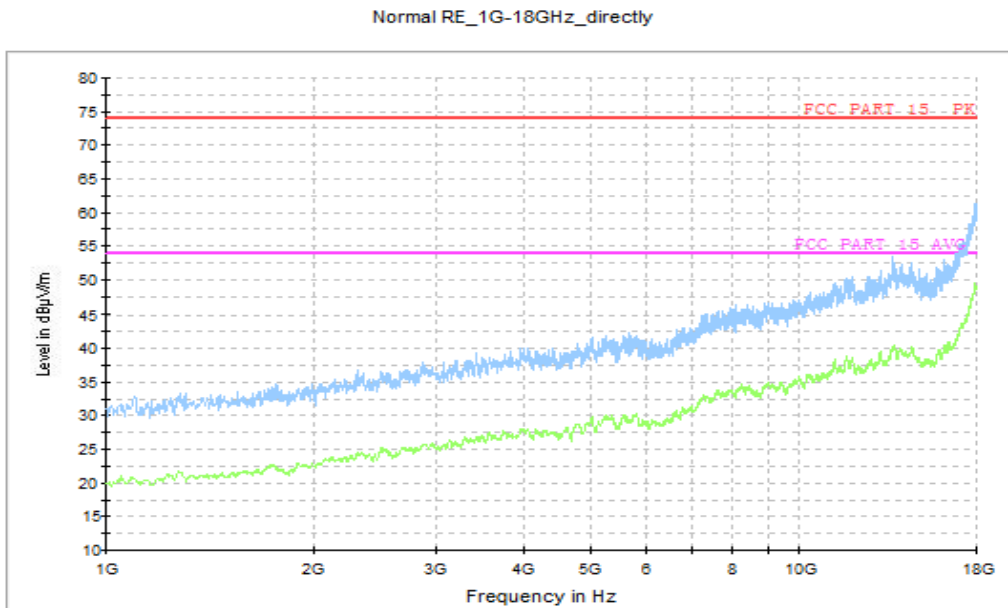


Figure A.2 Radiated Emission from 1GHz to 18GHz

A.2 Conducted Emission

Reference

FCC: CFR Part 15.107(a).

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 - 2009, section 7.3.

A.2.2 EUT Operating Mode

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

A.2.3 Measurement Limit

| Frequency of emission (MHz) | Conducted limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency

A.2.4 Test Condition in charging mode

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 120 | 60 |

| RBW/IF bandwidth | Sweep Time(s) |
|------------------|---------------|
| 9kHz | 1 |

A.2.5 Measurement Results

Measurement uncertainty: $U= 2.9$ dB, $k=2$.

Charging Mode, Set.1

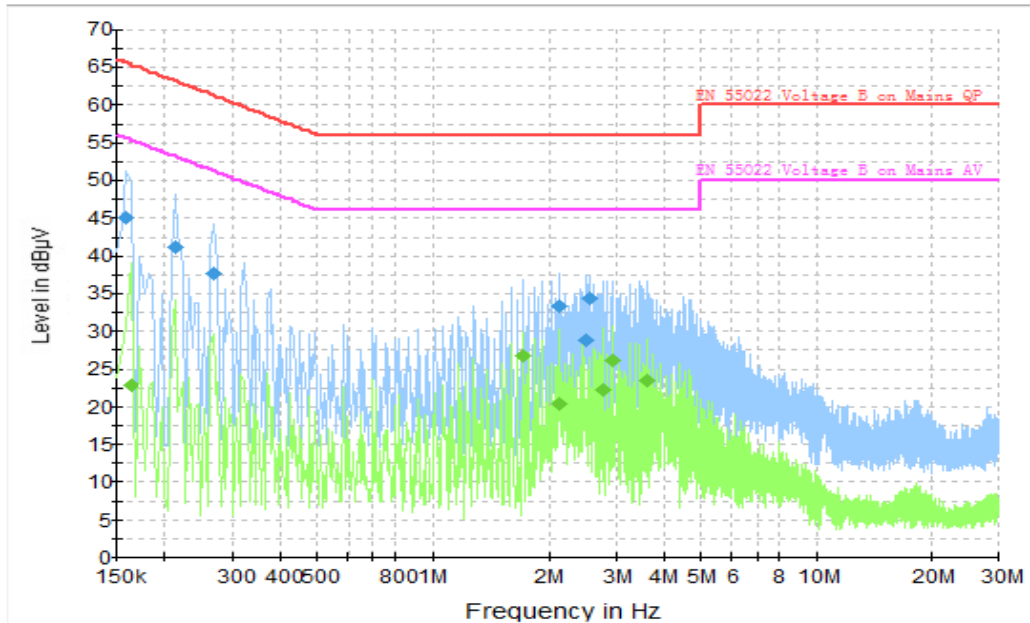


Figure A.3 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.159000 | 45.1 | 2000.0 | 9.000 | On | L1 | 10.2 | 20.5 | 65.5 |
| 0.213000 | 41.1 | 2000.0 | 9.000 | On | L1 | 10.0 | 22.0 | 63.1 |
| 0.267000 | 37.7 | 2000.0 | 9.000 | On | L1 | 10.0 | 23.5 | 61.2 |
| 2.148000 | 33.4 | 2000.0 | 9.000 | On | N | 9.8 | 22.6 | 56.0 |
| 2.512500 | 28.7 | 2000.0 | 9.000 | On | L1 | 9.8 | 27.3 | 56.0 |
| 2.571000 | 34.4 | 2000.0 | 9.000 | On | N | 9.8 | 21.6 | 56.0 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.163500 | 22.8 | 2000.0 | 9.000 | On | L1 | 10.2 | 32.5 | 55.3 |
| 1.720500 | 26.7 | 2000.0 | 9.000 | On | L1 | 9.9 | 19.3 | 46.0 |
| 2.148000 | 20.3 | 2000.0 | 9.000 | On | N | 9.8 | 25.7 | 46.0 |
| 2.787000 | 22.2 | 2000.0 | 9.000 | On | N | 9.8 | 23.8 | 46.0 |
| 2.949000 | 26.1 | 2000.0 | 9.000 | On | N | 9.8 | 19.9 | 46.0 |
| 3.601500 | 23.4 | 2000.0 | 9.000 | On | N | 9.8 | 22.6 | 46.0 |

Note: The measurement results showed here are worst cases of the combinations of different batteries.

END OF REPORT