



# EMF TEST REPORT

No. I14N01495-EMF

For

**ZTE CORPORATION**

**GSM Wireless Phone**

**Model Name: MF253M**

**FCC ID: SRQ-MF253M**

With

**Hardware Version: MF253M.H01**

**Software Version: EN\_VIVO\_BR\_MF253MV1.0.0B05**

**Issued Date: 2015-01-05**



**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 CTTL.

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## REPORT HISTORY

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## 1 Test Laboratory

### 1.1 Testing Location

Address: No. 12building, Shangsha Innovation and Technology Park, Futian District, Shenzhen, P. R. China  
Postal Code: 518048  
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### 1.2 Testing Environment

Temperature: 18°C~25 °C,  
Relative humidity: 30%~ 70%  
Ground system resistance: < 0.5  $\Omega$   
Ambient noise & Reflection: < 0.012 W/kg

### 1.3 Project Data

Testing Start Date: 2014-12-15  
Testing End Date: 2014-12-19

### 1.4 Signature

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## 2 Client Information

### 2.1 Applicant Information

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### 2.2 Manufacturer Information

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### 3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1 About EUT

|                                       |                                                                                                                                                                                                  |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description:                          | GSM Wireless Phone                                                                                                                                                                               |
| Model name:                           | MF253M                                                                                                                                                                                           |
| Marketing name:                       | ZTE                                                                                                                                                                                              |
| Operating mode(s):                    | GSM850/900/1800/1900, WCDMA850/1900/2100, LTE<br>Band7/28, WiFi2.4G                                                                                                                              |
| GPRS Multislot Class:                 | 10                                                                                                                                                                                               |
| GPRS capability Class:                | A                                                                                                                                                                                                |
| EGPRS Multislot Class:                | 12                                                                                                                                                                                               |
| WCDMA Category:                       | HSDPA: 8<br>HSUPA: 9<br>HSPA+: 7<br>DC-HSDPA:8                                                                                                                                                   |
| Release Version:                      | GSM: R99<br>GPRS: R99<br>UMTS: R8                                                                                                                                                                |
| Device type:                          | Portable device                                                                                                                                                                                  |
| Accessories/Body-worn configurations: | /                                                                                                                                                                                                |
| Hotspot mode:                         | Support simultaneous transmission of hotspot data<br>824.2 – 848.8 MHz (GSM 850)<br>1850.2 – 1909.8 MHz (GSM 1900)<br>826.4–846.6 MHz (WCDMA850 Band V)<br>1852.4–1907.6 MHz (WCDMA1900 Band II) |
| Tested Tx Frequency:                  | 2502.5 – 2567.5 MHz (LTE FDD Band 7)<br>2412 – 2462 MHz (Wi-Fi 2.4G)                                                                                                                             |

#### 3.2 Internal Identification of EUT

| EUT ID* | SN or IMEI | HW Version | SW Version                 |
|---------|------------|------------|----------------------------|
| EUT1    | /          | MF253M.H01 | EN_VIVO_BR_MF253MV1.0.0B05 |

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

#### 3.3 Internal Identification of AE

| AE ID* | Description | Model | SN | Manufacturer |
|--------|-------------|-------|----|--------------|
| AE1    | /           | /     | /  | /            |

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

## 4 Reference Documents

### 4.1 Applicable Limit Regulations

**ANSI C95.1–1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

### 4.2 Applicable Measurement Standards

**FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v05r01:** Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

**FCC CFR 47 part1 1.1310:** Radiofrequency radiation exposure limits.

**FCC CFR 47 part2 2.1091:** Radiofrequency radiation exposure evaluation: mobile devices.

## 5 RF Exposure Limit

### Limits for General Population/Uncontrolled Exposure in §1.1310

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | <b>(100)*</b>                           | 30                                                                |
| 1.34-30               | 824/f                             | 2.19/f                            | <b>(180/f<sup>2</sup>)*</b>             | 30                                                                |
| 30-300                | 27.5                              | 0.073                             | <b>0.2</b>                              | 30                                                                |
| 300-1500              | --                                | --                                | <b>f/1500</b>                           | 30                                                                |
| 1500-100,000          | --                                | --                                | <b>1.0</b>                              | 30                                                                |

f = frequency in MHz    \*Plane-wave equivalent power density

## 6 Friis Formula

Friis transmission formula :  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

where

**P<sub>d</sub>** = power density in **W/m<sup>2</sup>**

**P<sub>out</sub>** = output power to antenna in **W**

**G** = gain of antenna in linear scale

**π** = **3.1416**

**R** = distance between observation point and center of the radiator in **m**

**P<sub>d</sub>** is the limit of MPE. If we know the maximum Gain of the antenna and the total power input to the antenna, through the calculation, we will know the MPE value at distance 20cm.

## 7 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

## 8 Test Results

### 8.1 The maximum antenna gain

The maximum antenna gain for external antenna is

GSM850/900, WCDMA850, LTE B28: 1.5dBi

GSM1800/1900, WCDMA1900/2100, Wi-Fi 2.4G: 2.5dBi

LTE B7: 2.9dBi

### 8.2 Output Power Into Antenna & RF Exposure value at distance 20cm

The conducted power calculation results for GSM

| Mode       | Timeslot | Peak Output Power (dBm) |
|------------|----------|-------------------------|
| GPRS 850   | 1 slot   | 32.44                   |
| GPRS 850   | 2 slots  | 31.17                   |
| GPRS 850   | 3 slots  | 29.36                   |
| GPRS 850   | 4 slots  | 28.36                   |
| EGPRS 850  | 1 slot   | 32.43                   |
| EGPRS 850  | 2 slots  | 31.15                   |
| EGPRS 850  | 3 slots  | 29.34                   |
| EGPRS 850  | 4 slots  | 28.35                   |
| GPRS 1900  | 1 slot   | 29.65                   |
| GPRS 1900  | 2 slots  | 28.49                   |
| GPRS 1900  | 3 slots  | 26.36                   |
| GPRS 1900  | 4 slots  | 25.35                   |
| EGPRS 1900 | 1 slot   | 29.65                   |
| EGPRS 1900 | 2 slots  | 28.48                   |
| EGPRS 1900 | 3 slots  | 26.35                   |
| EGPRS 1900 | 4 slots  | 25.36                   |

The conducted power measurement results for WCDMA

| Mode        | Average Output Power(dBm) |       |       |
|-------------|---------------------------|-------|-------|
|             | RMC                       | HSDPA | HSUPA |
| UMTS Band 5 | 23.55                     | 24.01 | 23.23 |
| UMTS Band 2 | 23.19                     | 23.54 | 23.19 |

The conducted power measurement results for LTE

| Mode       | Band-width (MHz) | Average Output Power(dBm) |       |
|------------|------------------|---------------------------|-------|
|            |                  | QPSK                      | 16QAM |
| LTE Band 7 | 5                | 22.64                     | 21.44 |
|            | 10               | 22.53                     | 22.12 |
|            | 15               | 22.84                     | 22.12 |
|            | 20               | 23.36                     | 22.33 |



The average conducted power for Wi-Fi is as following:

802.11b (dBm)

| Channel\data rate | 1Mbps | 2Mbps | 5.5Mbps | 11Mbps |
|-------------------|-------|-------|---------|--------|
| 1(2412MHz)        | 16.06 | 15.78 | 14.68   | 13.52  |
| 6(2437MHz)        | 15.96 | /     | /       | /      |
| 11(2462MHz)       | 15.82 | /     | /       | /      |

802.11g (dBm)

| Channel\data rate | 6Mbps | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps |
|-------------------|-------|-------|--------|--------|--------|--------|--------|--------|
| 1(2412MHz)        | 11.03 | /     | /      | /      | /      | /      | /      | /      |
| 6(2437MHz)        | 11.14 | /     | /      | /      | /      | /      | /      | /      |
| 11(2462MHz)       | 11.86 | 10.44 | 9.84   | 8.86   | 7.98   | 6.67   | 5.78   | 5.34   |

802.11n- HT20 (2.4G) MIMO off (dBm)

| Channel\data rate | MCS0  | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
|-------------------|-------|------|------|------|------|------|------|------|
| 1(2412MHz)        | 10.82 | /    | /    | /    | /    | /    | /    | /    |
| 6(2437MHz)        | 10.99 | 9.61 | 8.70 | 7.90 | 6.61 | 5.79 | 5.57 | 5.28 |
| 11(2462MHz)       | 10.88 | /    | /    | /    | /    | /    | /    | /    |

802.11n- HT20 (2.4G) MIMO on (dBm)

| Channel\data rate | MCS8 | MCS9 | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 |
|-------------------|------|------|-------|-------|-------|-------|-------|-------|
| 1(2412MHz) Ant 1  | 5.69 | 3.94 | 2.91  | 2.17  | 1.28  | 0.71  | 0.56  | 0.39  |
| 1(2412MHz) Ant 2  | 5.86 | 3.96 | 3     | 2.48  | 1.35  | 0.77  | 0.76  | 0.35  |
| 6(2437MHz) Ant 1  | 5.58 | 3.91 | 2.87  | 2.25  | 1.2   | 0.82  | 0.46  | 0.25  |
| 6(2437MHz) Ant 2  | 5.18 | 3.67 | 2.72  | 2.08  | 1.07  | 1.03  | 0.28  | 0.09  |
| 11(2462MHz) Ant 1 | 5.14 | 3.52 | 2.47  | 1.71  | 1.06  | 0.55  | 0.18  | 0.01  |
| 11(2462MHz) Ant 2 | 4.44 | 3.13 | 2.04  | 1.42  | 0.43  | -0.13 | -0.32 | -0.49 |

802.11n- HT40 (2.4G) MIMO off (dBm)

| Channel\data rate | MCS0  | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
|-------------------|-------|------|------|------|------|------|------|------|
| 3(2422MHz)        | 10.78 | 9.52 | 8.72 | 7.28 | 6.31 | 5.71 | 5.64 | 3.81 |
| 6(2437MHz)        | 10.04 | /    | /    | /    | /    | /    | /    | /    |
| 9(2452MHz)        | 9.57  | /    | /    | /    | /    | /    | /    | /    |

802.11n- HT40 (2.4G) MIMO on (dBm)

| Channel\data rate | MCS8 | MCS9 | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 |
|-------------------|------|------|-------|-------|-------|-------|-------|-------|
| 3(2422MHz) Ant 1  | 4.33 | 2.59 | 1.77  | 1.12  | 0.51  | 0.19  | -0.04 | -0.09 |
| 3(2422MHz) Ant 2  | 4.07 | 2.4  | 1.64  | 1.02  | 0.35  | -0.09 | -0.22 | -0.34 |
| 6(2437MHz) Ant 1  | 4.06 | 2.43 | 1.65  | 1     | 0.34  | -0.08 | -0.13 | -0.18 |
| 6(2437MHz) Ant 2  | 4.12 | 2.37 | 1.49  | 0.91  | 0.31  | -0.16 | -0.26 | -0.39 |
| 9(2452MHz) Ant 1  | 4.05 | 1.91 | 1.58  | 0.99  | 0.48  | 0.17  | -0.09 | -0.22 |
| 9(2452MHz) Ant 2  | 3.6  | 2.36 | 1.04  | 0.48  | -0.08 | -0.55 | -0.62 | -0.7  |

### 8.3 Tune Up Procedure

#### Measurement Procedure for GSM:

- 1.Connect EUT with CMU200(E5515C) through RF cable. Make a call from CMU200
- 2.After setup a call,Set Power Level to 5 for GSM850 and 0 for PCS1900
3. Measure the Output Power AV value

Remarks: All Output Power are tested in Average Value specification .

**Table 1: GPRS&EDGE (GMSK Modulation)**

| GSM 850 GPRS  |                      |     |     |     |
|---------------|----------------------|-----|-----|-----|
| Channel       |                      | 251 | 190 | 128 |
| 1 Txslot      | Target (dBm)         | 31  | 31  | 31  |
|               | Tolerance $\pm$ (dB) | 1.5 | 1.5 | 1.5 |
| 2 Txslots     | Target (dBm)         | 30  | 30  | 30  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 3 Txslots     | Target (dBm)         | 29  | 29  | 29  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 4 Txslots     | Target (dBm)         | 28  | 28  | 28  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| GSM850 EGPRS  |                      |     |     |     |
| 1 Txslot      | Target (dBm)         | 32  | 32  | 32  |
|               | Tolerance $\pm$ (dB) | 1.5 | 1.5 | 1.5 |
| 2 Txslots     | Target (dBm)         | 31  | 31  | 31  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 3Txslots      | Target (dBm)         | 29  | 29  | 29  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 4 Txslots     | Target (dBm)         | 28  | 28  | 28  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| PCS 1900 GPRS |                      |     |     |     |
| Channel       |                      | 810 | 661 | 512 |
| 1 Txslot      | Target (dBm)         | 29  | 29  | 29  |
|               | Tolerance $\pm$ (dB) | 1.5 | 1.5 | 1.5 |
| 2 Txslots     | Target (dBm)         | 28  | 28  | 28  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 3 Txslots     | Target (dBm)         | 26  | 26  | 26  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 4 Txslots     | Target (dBm)         | 25  | 25  | 25  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| PCS1900 EGPRS |                      |     |     |     |
| 1 Txslot      | Target (dBm)         | 29  | 29  | 29  |
|               | Tolerance $\pm$ (dB) | 1.5 | 1.5 | 1.5 |
| 2 Txslots     | Target (dBm)         | 28  | 28  | 28  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |
| 3Txslots      | Target (dBm)         | 26  | 26  | 26  |
|               | Tolerance $\pm$ (dB) | 1   | 1   | 1   |

|           |                      |    |    |    |
|-----------|----------------------|----|----|----|
| 4 Txslots | Target (dBm)         | 25 | 25 | 25 |
|           | Tolerance $\pm$ (dB) | 1  | 1  | 1  |

**Table 2: WCDMA**

| WCDMA Band 5    |              |              |              |
|-----------------|--------------|--------------|--------------|
| Channel         | Channel 4132 | Channel 4183 | Channel 4233 |
| Target (dBm)    | 23.5         | 23.5         | 23.5         |
| Tolerance ±(dB) | 1            | 1            | 1            |
| HSDPA           |              |              |              |
| Channel         | Channel 4132 | Channel 4183 | Channel 4233 |
| Target (dBm)    | 23.5         | 23.5         | 23.5         |
| Tolerance ±(dB) | 1            | 1            | 1            |
| HSUPA           |              |              |              |
| Channel         | Channel 4132 | Channel 4183 | Channel 4233 |
| Target (dBm)    | 22           | 22           | 22           |
| Tolerance ±(dB) | 2            | 2            | 2            |
| WCDMA Band 2    |              |              |              |
| Channel         | Channel 9262 | Channel 9400 | Channel 9538 |
| Target (dBm)    | 23           | 23           | 23           |
| Tolerance ±(dB) | 1            | 1            | 1            |
| HSDPA           |              |              |              |
| Channel         | Channel 9262 | Channel 9400 | Channel 9538 |
| Target (dBm)    | 23           | 23           | 23           |
| Tolerance ±(dB) | 1            | 1            | 1            |
| HSUPA           |              |              |              |
| Channel         | Channel 9262 | Channel 9400 | Channel 9538 |
| Target (dBm)    | 22           | 22           | 22           |
| Tolerance ±(dB) | 2            | 2            | 2            |

**Table 3: LTE**

| LTE Band 7      |              |              |              |
|-----------------|--------------|--------------|--------------|
| Channel         | Channel 2800 | Channel 3100 | Channel 3400 |
| Target (dBm)    | 22           | 22           | 22           |
| Tolerance ±(dB) | 1.5          | 1.5          | 1.5          |
| LTE Band 28     |              |              |              |
| Channel         | Channel 9260 | Channel 9435 | Channel 9610 |
| Target (dBm)    | 22           | 22           | 22           |
| Tolerance ±(dB) | 1.5          | 1.5          | 1.5          |

**Table 4: WiFi**

| WiFi 802.11b |              |           |           |            |
|--------------|--------------|-----------|-----------|------------|
| Data rate    | Channel      | Channel 1 | Channel 6 | Channel 11 |
| 1            | Target (dBm) | 16        | 16        | 16         |

|              |                      |           |           |            |
|--------------|----------------------|-----------|-----------|------------|
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 2            | Target (dBm)         | 15.5      | 15.5      | 15.5       |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 5.5          | Target (dBm)         | 14.5      | 14.5      | 14.5       |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 11           | Target (dBm)         | 14        | 14        | 14         |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| WiFi 802.11g |                      |           |           |            |
| Data rate    | Channel              | Channel 1 | Channel 6 | Channel 11 |
| 6            | Target (dBm)         | 11        | 11        | 11         |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 9            | Target (dBm)         | 10        | 10        | 10         |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 12           | Target (dBm)         | 9         | 9         | 9          |
|              | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| 18           | Target (dBm)         | 8         | 8         | 8          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| 24           | Target (dBm)         | 7         | 7         | 7          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| 36           | Target (dBm)         | 6         | 6         | 6          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| 48           | Target (dBm)         | 5         | 5         | 5          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| 54           | Target (dBm)         | 5         | 5         | 5          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| WiFi 802.11n |                      |           |           |            |
|              | Channel              | Channel 1 | Channel 6 | Channel 11 |
| MCS0         | Target (dBm)         | 10        | 10        | 10         |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS1         | Target (dBm)         | 9         | 9         | 9          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS2         | Target (dBm)         | 8         | 8         | 8          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS3         | Target (dBm)         | 7         | 7         | 7          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS4         | Target (dBm)         | 6         | 6         | 6          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS5         | Target (dBm)         | 5         | 5         | 5          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS6         | Target (dBm)         | 5         | 5         | 5          |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |
| MCS7         | Target (dBm)         | 4.5       | 4.5       | 4.5        |
|              | Tolerance $\pm$ (dB) | 1.5       | 1.5       | 1.5        |

**Table 5: WiFi MIMO**

|           | WiFi 802.11n 20      |           |           |            |
|-----------|----------------------|-----------|-----------|------------|
| Data rate | Channel              | Channel 1 | Channel 6 | Channel 11 |
| MCS8      | Target (dBm)         | 5         | 5         | 5          |
|           | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| MCS9      | Target (dBm)         | 3         | 3         | 3          |
|           | Tolerance $\pm$ (dB) | 1         | 1         | 1          |
| MCS10     | Target (dBm)         | 2.6       | 2.6       | 2.6        |
|           | Tolerance $\pm$ (dB) | 0.6       | 0.6       | 0.6        |
| MCS11     | Target (dBm)         | 1.7       | 1.7       | 1.7        |
|           | Tolerance $\pm$ (dB) | 0.8       | 0.8       | 0.8        |
| MCS12     | Target (dBm)         | 0.8       | 0.8       | 0.8        |
|           | Tolerance $\pm$ (dB) | 0.6       | 0.6       | 0.6        |
| MCS13     | Target (dBm)         | 0.65      | 0.65      | 0.65       |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS14     | Target (dBm)         | 0.2       | 0.2       | 0.2        |
|           | Tolerance $\pm$ (dB) | 0.6       | 0.6       | 0.6        |
| MCS15     | Target (dBm)         | -0.05     | -0.05     | -0.05      |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |

**Table 6: WiFi MIMO**

|           | WiFi 802.11n 40      |           |           |            |
|-----------|----------------------|-----------|-----------|------------|
| Data rate | Channel              | Channel 1 | Channel 6 | Channel 11 |
| MCS8      | Target (dBm)         | 4         | 4         | 4          |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS9      | Target (dBm)         | 2.3       | 2.3       | 2.3        |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS10     | Target (dBm)         | 1.4       | 1.4       | 1.4        |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS11     | Target (dBm)         | 0.8       | 0.8       | 0.8        |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS12     | Target (dBm)         | 0.3       | 0.3       | 0.3        |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS13     | Target (dBm)         | -0.2      | -0.2      | -0.2       |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS14     | Target (dBm)         | -0.4      | -0.4      | -0.4       |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |
| MCS15     | Target (dBm)         | -0.4      | -0.4      | -0.4       |
|           | Tolerance $\pm$ (dB) | 0.5       | 0.5       | 0.5        |

### 8.3 Evaluation of Simultaneous Transmission

#### The worst cases for each frequency band

| Frequency band       | Average Output Power (dBm) | Average Output Power (mW) | Antenna gain (dBi) | Antenna gain (numeric) | Power Density (mW/cm <sup>2</sup> ) | Limit of Power Density (mW/cm <sup>2</sup> ) | PASS /FAIL |
|----------------------|----------------------------|---------------------------|--------------------|------------------------|-------------------------------------|----------------------------------------------|------------|
| GPRS 850             | 32.5                       | 1778.28                   | 1.5                | 1.41                   | 0.50                                | 0.57                                         | PASS       |
| GPRS 1900            | 30.5                       | 1122.02                   | 2.5                | 1.78                   | 0.40                                | 1                                            | PASS       |
| WCDMA 850            | 24.5                       | 281.84                    | 1.5                | 1.41                   | 0.08                                | 0.57                                         | PASS       |
| WCDMA 1900           | 24                         | 251.19                    | 2.5                | 1.78                   | 0.09                                | 1                                            | PASS       |
| LTE Band 7           | 23.5                       | 223.87                    | 2.9                | 1.95                   | 0.09                                | 1                                            | PASS       |
| Wi-Fi 2.4G           | 17                         | 50.12                     | 2.5                | 1.78                   | 0.02                                | 0.47                                         | PASS       |
| 802.11n HT20 MIMO on | 6                          | 3.98                      | 2.5                | 1.95                   | 0.0014                              | 0.47                                         | PASS       |
| 802.11n HT40 MIMO on | 4.5                        | 2.82                      | 2.5                | 1.78                   | 0.0010                              | 0.47                                         | PASS       |

Note: GPRS and Wi-Fi 2.4G are chosen for summation due to their higher power densities among all wireless modes.

The Sum of Power Density for main antenna and Wifi:

$$\begin{aligned}
 \text{MPE1/MPE1limit} + \text{MPE2/MPE2 limit} &= (0.50/0.57) + (0.02/1) \\
 &= 0.88 + 0.02 \\
 &= 0.90 < 1
 \end{aligned}$$

According to 47 CFR § 2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

**\*\*\*END OF REPORT\*\*\***