

## SAR EVALUATION REPORT

**Applicant Name:**

LG Electronics MobileComm USA, Inc.  
1000 Sylvan Avenue, Englewood Cliffs NJ 07632

**Date of Issue:** 08. 25, 2017

**Test Report No.:** HCT-A-1708-F004-1

**Test Site:** HCT CO., LTD.

**FCC ID:**

**ZNFM700F**

**Equipment Type:**  
**Application Type:**

GSM/WCDMA/LTE Phone with Bluetooth4.2LE, WIFI802.11 b/g/n  
Class II Permissive Change

**Model Name:**  
**Additional FCC Model(s):**

LG-M700F  
LGM700F, M700F, LG-M700AR, LGM700AR, M700AR

**ECC Rule Part:**  
**Permissive change:**

47CFR §2.1093  
Changing Some target powers

**Date of Test:**

08/10/2017

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

**Tested By**



Sung-Kun, Kwon  
Test Engineer  
SAR Team  
Certification Division

**Reviewed By**



Yun-Jeang, Heo  
Technical Manager  
SAR Team  
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## DOCUMENT HISTORY

| Version           | DATE         | DESCRIPTION           |
|-------------------|--------------|-----------------------|
| HCT-A-1708-F004   | 08. 16, 2017 | First Approval Report |
| HCT-A-1708-F004-1 | 08. 25, 2017 | Sec.1.4 was revised.  |

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# 1. Device Under Test Description

## 1.1 DUT specification

| Device Wireless specification overview |                |                       |
|----------------------------------------|----------------|-----------------------|
| Band & Mode                            | Operating Mode | Tx Frequency          |
| GSM/GPRS/EDGE 850                      | Voice / Data   | 824.2 – 848.8 MHz     |
| GSM/GPRS/EDGE 1900                     | Voice / Data   | 1 850.2 – 1 909.8 MHz |
| UMTS 850                               | Voice / Data   | 826.4 – 846.6 MHz     |
| UMTS 1700                              | Voice / Data   | 1 712.4 – 1 752.6 MHz |
| UMTS 1900                              | Voice / Data   | 1 852.4 – 1 907.6 MHz |
| LTE Band 2 (PCS)                       | Voice / Data   | 1 850.7 – 1 909.3 MHz |
| LTE Band 4 (AWS)                       | Voice / Data   | 1 710.7 – 1 754.3 MHz |
| LTE Band 5 (Cell)                      | Voice / Data   | 824.7 – 848.3 MHz     |
| LTE Band 7                             | Voice / Data   | 2 502.5 – 2 567.5 MHz |
| 2.4 GHz WLAN                           | Voice / Data   | 2 412 – 2 462 MHz     |
| Bluetooth                              | Data           | 2 402 – 2 480 MHz     |

| Device Description    |                                                                                                                          |               |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------|---------------|
| Device Dimension      | Overall (Length x Width): 69.3 mm x 142.5 mm<br>Overall diagonal dimension: 151 mm<br>Display diagonal dimension: 135 mm |               |
| Back Cover:           | Normal Battery cover                                                                                                     |               |
| Battery Options       | Standard (Li-ion Polymer Battery)                                                                                        |               |
|                       | Battery Model Name: BL-T33, Manufacturer: LishenVX                                                                       |               |
| Device Serial Numbers | Mode                                                                                                                     | Serial Number |
|                       | LTE 7/ LTE2/ LTE 4                                                                                                       | 34MEJ         |
|                       | UMTS1700/ UMTS1900                                                                                                       | 34MND         |

## 1.2 DUT Wireless mode

| Wireless Modulation | Band                       | Operating Mode                                                                                                                                       |                                                                            | Duty Cycle                                                                                           |
|---------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| GSM                 | 850<br>1900                | Voice(GMSK)<br>GPRS (GMSK)<br>EGPRS (8PSK)                                                                                                           | GPRS/ EDGE<br>Multi-Slot Class:<br>Class 33 – 4 Up, 5 Down<br>Mode class B | GSM Voice: 12.5%<br>GPRS/EDGE:<br>1 Slot: 12.5%<br>2 Slots : 25%<br>3 Slots : 37.5%<br>4 Slots : 50% |
| WCDMA (UMTS)        | Band 5<br>Band 4<br>Band 2 | UMTS Rel.99 (Voice / DATA)<br>HSDPA (Rel. 5,Cat.10)<br>HSUPA (Rel. 6 Cat.6)<br>DC-HSDPA (Rel.8, Cat.24)<br>HSPA+ (Rel. 7, Cat.14) (Uplink QPSK Only) |                                                                            | 100 %                                                                                                |
| LTE Band            | 2 (PCS)                    | Voice / Data (QPSK, 16QAM)                                                                                                                           |                                                                            | 100 % (FDD)                                                                                          |
|                     | 4 (AWS)                    | Voice / Data (QPSK, 16QAM)                                                                                                                           |                                                                            | 100 % (FDD)                                                                                          |
|                     | 5 (Cell)                   | Voice / Data (QPSK, 16QAM)                                                                                                                           |                                                                            | 100 % (FDD)                                                                                          |
|                     | 7                          | Voice / Data (QPSK, 16QAM)                                                                                                                           |                                                                            | 100 % (FDD)                                                                                          |
| 2.4 GHz WLAN        |                            | Voice / Data                                                                                                                                         | 802.11 b, 802.11 g, 802.11 n (HT20)                                        | 99.84 %                                                                                              |
| Bluetooth           |                            | Data                                                                                                                                                 |                                                                            | 76.4 % (DH5)                                                                                         |
| Bluetooth 4.2 LE    |                            | Data                                                                                                                                                 |                                                                            | N/A                                                                                                  |

### 1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

#### Maximum PCE Power

| Mode / Band            |         | 3GPP WCDMA | 3GPP HSDPA(dBm) |           |           |           | 3GPP HSUPA(dBm) |           |           |           |           | DC-HSDPA(dBm) |           |           |           |
|------------------------|---------|------------|-----------------|-----------|-----------|-----------|-----------------|-----------|-----------|-----------|-----------|---------------|-----------|-----------|-----------|
|                        |         |            | Sub test1       | Sub test2 | Sub test3 | Sub test4 | Sub test1       | Sub test2 | Sub test3 | Sub test4 | Sub Test5 | Sub test1     | Sub test2 | Sub test3 | Sub test4 |
| UMTS Band 4 (1700 MHz) | Maximum | 23.2       | 23.2            | 23.2      | 22.7      | 22.7      | 23.2            | 21.2      | 22.2      | 21.2      | 23.2      | 23.2          | 23.2      | 22.7      | 22.7      |
|                        | Nominal | 22.7       | 22.7            | 22.7      | 22.2      | 22.2      | 22.7            | 20.7      | 21.7      | 20.7      | 22.7      | 22.7          | 22.7      | 22.2      | 22.2      |
| UMTS Band 2 (1900 MHz) | Maximum | 23.2       | 23.2            | 23.2      | 22.7      | 22.7      | 23.2            | 21.2      | 22.2      | 21.2      | 23.2      | 23.2          | 23.2      | 22.7      | 22.7      |
|                        | Nominal | 22.7       | 22.7            | 22.7      | 22.2      | 22.2      | 22.7            | 20.7      | 21.7      | 20.7      | 22.7      | 22.7          | 22.7      | 22.2      | 22.2      |

| Mode / Band      |         | Modulated Average (dBm) |
|------------------|---------|-------------------------|
| LTE Band 2 (PCS) | Maximum | 23.2                    |
|                  | Nominal | 22.7                    |
| LTE Band 4 (AWS) | Maximum | 23.2                    |
|                  | Nominal | 22.7                    |
| LTE Band 7       | Maximum | 23.7                    |
|                  | Nominal | 23.2                    |

## 1.4 SAR Test Exclusion

The Trager power of the bands ( WCDMA2 / WCDMA4 / LTE2 / LTE4 / LTE7 )in the original model has been changed as shown in the table below

Conducted Output powers of C2PC Model were measured and verified for the WCDMA2, WCDMA4 ,LTE2 ,LTE4 and LTE7.Sec.2

Target Powers for the original model (WCDMA2 / WCDMA4 / LTE2 / LTE4 / LTE7) are higher than C2PC model. Therefore, additional SAR testing of the C2PC model are not required.

Detailed description of the change are include in LG Class II Change Description Document.  
See Original Report No.: HCT-A-1706-F005-1 for SAR compliance evaluation

| Item                  | Band     | Description    |                                   |
|-----------------------|----------|----------------|-----------------------------------|
|                       |          | Original Model | Class II Permissive Changed model |
| Main RF Tune up power | WCDMA B2 | 23.2 dBm       | 22.7 dBm                          |
|                       | WCDMA B4 | 24.2 dBm       | 22.7 dBm                          |
|                       | LTE B2   | 23.2 dBm       | 22.7 dBm                          |
|                       | LTE B4   | 24.2 dBm       | 22.7 dBm                          |
|                       | LTE B7   | 23.7 dBm       | 23.2 dBm                          |

## 1.5 Guidance Applied

- IEEE1528-2013
- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04

## 2. Conducted Output Powers

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

### 2.1 UMTS

#### WCDMA Band 4

| 3GPP Release Version | Mode     | 3GPP 34.121   | WCDMA Band 4 [dBm] |                    |                    |
|----------------------|----------|---------------|--------------------|--------------------|--------------------|
|                      |          | Subtest       | UL 1312<br>DL 1537 | UL 1412<br>DL 1637 | UL 1513<br>DL 1738 |
| 99                   | WCDMA    | 12.2 kbps RMC | 22.97              | 23.04              | 23.16              |
| 99                   | WCDMA    | 12.2 kbps AMR | 22.98              | 23.05              | 23.18              |
| 5                    | HSDPA    | Subtest 1     | 22.98              | 22.96              | 23.07              |
| 5                    |          | Subtest 2     | 22.89              | 22.93              | 23.09              |
| 5                    |          | Subtest 3     | 22.42              | 22.45              | 22.57              |
| 5                    |          | Subtest 4     | 22.43              | 22.45              | 22.56              |
| 6                    | HSUPA    | Subtest 1     | 22.79              | 22.10              | 22.78              |
| 6                    |          | Subtest 2     | 21.02              | 21.07              | 21.15              |
| 6                    |          | Subtest 3     | 21.97              | 22.03              | 21.97              |
| 6                    |          | Subtest 4     | 21.02              | 21.06              | 21.14              |
| 6                    |          | Subtest 5     | 22.80              | 22.05              | 22.77              |
| 8                    | DC-HSDPA | Subtest 1     | 22.91              | 22.89              | 22.96              |
| 8                    |          | Subtest 2     | 22.82              | 22.84              | 22.90              |
| 8                    |          | Subtest 3     | 22.46              | 22.37              | 22.54              |
| 8                    |          | Subtest 4     | 22.45              | 22.37              | 22.54              |

#### WCDMA Band 2

| 3GPP Release Version | Mode     | 3GPP 34.121   | WCDMA Band 2 [dBm] |                    |                    |
|----------------------|----------|---------------|--------------------|--------------------|--------------------|
|                      |          | Subtest       | UL 9262<br>DL 9662 | UL 9400<br>DL 9800 | UL 9538<br>DL 9938 |
| 99                   | WCDMA    | 12.2 kbps RMC | 23.18              | 23.09              | 23.16              |
| 99                   | WCDMA    | 12.2 kbps AMR | 23.15              | 23.08              | 23.16              |
| 5                    | HSDPA    | Subtest 1     | 23.09              | 23.01              | 23.14              |
| 5                    |          | Subtest 2     | 23.05              | 23.04              | 23.16              |
| 5                    |          | Subtest 3     | 22.61              | 22.51              | 22.66              |
| 5                    |          | Subtest 4     | 22.61              | 22.52              | 22.67              |
| 6                    | HSUPA    | Subtest 1     | 22.77              | 22.78              | 22.63              |
| 6                    |          | Subtest 2     | 21.12              | 21.02              | 21.18              |
| 6                    |          | Subtest 3     | 22.07              | 22.05              | 22.17              |
| 6                    |          | Subtest 4     | 21.08              | 21.08              | 21.14              |
| 6                    |          | Subtest 5     | 22.71              | 22.74              | 22.58              |
| 8                    | DC-HSDPA | Subtest 1     | 23.05              | 22.93              | 23.02              |
| 8                    |          | Subtest 2     | 23.11              | 22.98              | 23.05              |
| 8                    |          | Subtest 3     | 22.60              | 22.50              | 22.52              |
| 8                    |          | Subtest 4     | 22.65              | 22.52              | 22.45              |

WCDMA Average Conducted output powers

## 2.2 LTE

### LTE Band 2 Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|------------|----------------------|------|
|           |            |         |           | 18607                    | 18900    | 19193      |                      |      |
|           |            |         |           | 1850.7 MHz               | 1880 MHz | 1909.3 MHz | [dB]                 | [dB] |
| 1.4 MHz   | QPSK       | 1       | 0         | 22.97                    | 22.82    | 23.14      | 0                    | 0    |
|           |            | 1       | 3         | 23.00                    | 22.88    | 23.17      | 0                    | 0    |
|           |            | 1       | 5         | 23.00                    | 22.84    | 23.16      | 0                    | 0    |
|           |            | 3       | 0         | 22.97                    | 22.89    | 23.06      | 0                    | 0    |
|           |            | 3       | 1         | 22.99                    | 23.09    | 23.02      | 0                    | 0    |
|           |            | 3       | 3         | 23.04                    | 22.87    | 23.03      | 0                    | 0    |
|           |            | 6       | 0         | 21.95                    | 21.76    | 22.04      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.81                    | 21.60    | 22.14      | 0-1                  | 1    |
|           |            | 1       | 3         | 22.05                    | 21.80    | 22.05      | 0-1                  | 1    |
|           |            | 1       | 5         | 21.78                    | 21.67    | 21.92      | 0-1                  | 1    |
|           |            | 3       | 0         | 21.85                    | 21.60    | 21.92      | 0-1                  | 1    |
|           |            | 3       | 1         | 21.79                    | 21.64    | 22.07      | 0-1                  | 1    |
|           |            | 3       | 3         | 21.90                    | 21.57    | 22.07      | 0-1                  | 1    |
|           |            | 6       | 0         | 21.06                    | 20.56    | 21.01      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|------------|----------------------|------|
|           |            |         |           | 18615                    | 18900    | 19185      |                      |      |
|           |            |         |           | 1851.5 MHz               | 1880 MHz | 1908.5 MHz | [dB]                 | [dB] |
| 3 MHz     | QPSK       | 1       | 0         | 23.09                    | 22.91    | 23.12      | 0                    | 0    |
|           |            | 1       | 7         | 23.14                    | 23.14    | 22.82      | 0                    | 0    |
|           |            | 1       | 14        | 23.18                    | 22.88    | 22.68      | 0                    | 0    |
|           |            | 8       | 0         | 22.05                    | 21.93    | 22.14      | 0-1                  | 1    |
|           |            | 8       | 3         | 22.12                    | 21.89    | 22.15      | 0-1                  | 1    |
|           |            | 8       | 7         | 22.03                    | 21.90    | 22.10      | 0-1                  | 1    |
|           |            | 15      | 0         | 22.03                    | 21.82    | 22.16      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 22.12                    | 21.71    | 21.93      | 0-1                  | 1    |
|           |            | 1       | 7         | 22.04                    | 21.63    | 21.88      | 0-1                  | 1    |
|           |            | 1       | 14        | 21.88                    | 21.66    | 21.94      | 0-1                  | 1    |
|           |            | 8       | 0         | 20.94                    | 20.59    | 21.18      | 0-2                  | 2    |
|           |            | 8       | 3         | 20.95                    | 20.63    | 21.09      | 0-2                  | 2    |
|           |            | 8       | 7         | 21.10                    | 20.66    | 21.19      | 0-2                  | 2    |
|           |            | 15      | 0         | 21.03                    | 20.60    | 21.18      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|------------|----------------------|------|
|           |            |         |           | 18625                    | 18900    | 19175      |                      |      |
|           |            |         |           | 1852.5 MHz               | 1880 MHz | 1907.5 MHz | [dB]                 | [dB] |
| 5 MHz     | QPSK       | 1       | 0         | 22.86                    | 22.80    | 22.98      | 0                    | 0    |
|           |            | 1       | 12        | 23.11                    | 23.00    | 23.17      | 0                    | 0    |
|           |            | 1       | 24        | 22.96                    | 22.86    | 23.04      | 0                    | 0    |
|           |            | 12      | 0         | 21.95                    | 21.70    | 21.98      | 0-1                  | 1    |
|           |            | 12      | 6         | 21.99                    | 21.73    | 21.92      | 0-1                  | 1    |
|           |            | 12      | 11        | 22.03                    | 21.74    | 22.02      | 0-1                  | 1    |
|           |            | 25      | 0         | 22.00                    | 21.78    | 21.99      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.72                    | 21.50    | 21.78      | 0-1                  | 1    |
|           |            | 1       | 12        | 21.68                    | 21.50    | 21.63      | 0-1                  | 1    |
|           |            | 1       | 24        | 21.14                    | 21.52    | 21.66      | 0-1                  | 1    |
|           |            | 12      | 0         | 20.84                    | 20.72    | 20.83      | 0-2                  | 2    |
|           |            | 12      | 6         | 20.84                    | 20.92    | 21.03      | 0-2                  | 2    |
|           |            | 12      | 11        | 20.91                    | 20.93    | 20.94      | 0-2                  | 2    |
|           |            | 25      | 0         | 20.94                    | 20.86    | 21.06      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |          | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|----------|----------------------|------|
|           |            |         |           | 18650                    | 18900    | 19150    |                      |      |
|           |            |         |           | 1855 MHz                 | 1880 MHz | 1905 MHz | [dB]                 | [dB] |
| 10 MHz    | QPSK       | 1       | 0         | 23.15                    | 22.92    | 23.12    | 0                    | 0    |
|           |            | 1       | 24        | 23.17                    | 23.17    | 23.18    | 0                    | 0    |
|           |            | 1       | 49        | 22.94                    | 22.91    | 23.16    | 0                    | 0    |
|           |            | 25      | 0         | 22.01                    | 21.72    | 21.97    | 0-1                  | 1    |
|           |            | 25      | 12        | 22.04                    | 21.82    | 21.99    | 0-1                  | 1    |
|           |            | 25      | 24        | 21.88                    | 21.78    | 21.98    | 0-1                  | 1    |
|           |            | 50      | 0         | 21.94                    | 21.78    | 21.94    | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.37                    | 21.51    | 21.89    | 0-1                  | 1    |
|           |            | 1       | 24        | 21.75                    | 21.65    | 22.18    | 0-1                  | 1    |
|           |            | 1       | 49        | 21.66                    | 21.51    | 21.90    | 0-1                  | 1    |
|           |            | 25      | 0         | 21.08                    | 20.80    | 21.05    | 0-2                  | 2    |
|           |            | 25      | 12        | 21.05                    | 20.90    | 21.17    | 0-2                  | 2    |
|           |            | 25      | 24        | 21.08                    | 20.93    | 20.97    | 0-2                  | 2    |
|           |            | 50      | 0         | 21.07                    | 20.96    | 21.04    | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|------------|----------------------|------|
|           |            |         |           | 18675                    | 18900    | 19125      |                      |      |
|           |            |         |           | 1857.5 MHz               | 1880 MHz | 1902.5 MHz | [dB]                 | [dB] |
| 15 MHz    | QPSK       | 1       | 0         | 23.07                    | 22.96    | 23.13      | 0                    | 0    |
|           |            | 1       | 36        | 23.19                    | 23.17    | 23.15      | 0                    | 0    |
|           |            | 1       | 74        | 23.08                    | 22.96    | 23.08      | 0                    | 0    |
|           |            | 36      | 0         | 22.02                    | 21.80    | 21.89      | 0-1                  | 1    |
|           |            | 36      | 18        | 21.91                    | 21.81    | 21.95      | 0-1                  | 1    |
|           |            | 36      | 38        | 21.84                    | 21.79    | 21.87      | 0-1                  | 1    |
|           |            | 75      | 0         | 21.89                    | 21.76    | 21.88      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.31                    | 21.76    | 21.93      | 0-1                  | 1    |
|           |            | 1       | 36        | 21.63                    | 21.85    | 21.91      | 0-1                  | 1    |
|           |            | 1       | 74        | 21.62                    | 21.50    | 21.87      | 0-1                  | 1    |
|           |            | 36      | 0         | 20.99                    | 20.79    | 20.93      | 0-2                  | 2    |
|           |            | 36      | 18        | 20.90                    | 20.76    | 20.93      | 0-2                  | 2    |
|           |            | 36      | 38        | 20.98                    | 20.75    | 20.99      | 0-2                  | 2    |
|           |            | 75      | 0         | 20.96                    | 20.84    | 21.08      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |          |          | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------|----------|----------------------|------|
|           |            |         |           | 18700                    | 18900    | 19100    |                      |      |
|           |            |         |           | 1860 MHz                 | 1880 MHz | 1900 MHz | [dB]                 | [dB] |
| 20 MHz    | QPSK       | 1       | 0         | 23.00                    | 23.07    | 23.05    | 0                    | 0    |
|           |            | 1       | 49        | 23.17                    | 23.15    | 23.11    | 0                    | 0    |
|           |            | 1       | 99        | 22.82                    | 22.83    | 23.01    | 0                    | 0    |
|           |            | 50      | 0         | 21.94                    | 21.84    | 22.01    | 0-1                  | 1    |
|           |            | 50      | 25        | 21.84                    | 21.78    | 21.88    | 0-1                  | 1    |
|           |            | 50      | 49        | 21.75                    | 21.83    | 21.91    | 0-1                  | 1    |
|           |            | 100     | 0         | 21.84                    | 21.77    | 21.86    | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.90                    | 21.76    | 21.79    | 0-1                  | 1    |
|           |            | 1       | 49        | 21.66                    | 21.67    | 21.80    | 0-1                  | 1    |
|           |            | 1       | 99        | 21.57                    | 21.61    | 21.80    | 0-1                  | 1    |
|           |            | 50      | 0         | 21.07                    | 20.84    | 21.09    | 0-2                  | 2    |
|           |            | 50      | 25        | 20.91                    | 20.87    | 20.97    | 0-2                  | 2    |
|           |            | 50      | 49        | 20.73                    | 20.90    | 20.81    | 0-2                  | 2    |
|           |            | 100     | 0         | 20.86                    | 20.83    | 20.85    | 0-2                  | 2    |

### LTE Band 4 Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |            |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|------------|------------|----------------------|------|
|           |            |         |           | 19957                    | 20175      | 20393      |                      |      |
|           |            |         |           | 1710.7 MHz               | 1732.5 MHz | 1754.3 MHz | [dB]                 | [dB] |
| 1.4 MHz   | QPSK       | 1       | 0         | 23.13                    | 22.90      | 22.91      | 0                    | 0    |
|           |            | 1       | 3         | 23.17                    | 22.98      | 23.13      | 0                    | 0    |
|           |            | 1       | 5         | 23.13                    | 22.92      | 23.00      | 0                    | 0    |
|           |            | 3       | 0         | 23.05                    | 22.98      | 22.97      | 0                    | 0    |
|           |            | 3       | 1         | 23.02                    | 23.12      | 23.00      | 0                    | 0    |
|           |            | 3       | 3         | 23.10                    | 22.82      | 22.91      | 0                    | 0    |
|           |            | 6       | 0         | 21.99                    | 21.84      | 21.86      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.72                    | 21.70      | 21.95      | 0-1                  | 1    |
|           |            | 1       | 3         | 21.92                    | 21.66      | 22.01      | 0-1                  | 1    |
|           |            | 1       | 5         | 21.72                    | 21.53      | 21.92      | 0-1                  | 1    |
|           |            | 3       | 0         | 21.97                    | 21.97      | 22.02      | 0-1                  | 1    |
|           |            | 3       | 1         | 22.08                    | 21.89      | 22.07      | 0-1                  | 1    |
|           |            | 3       | 3         | 22.04                    | 21.89      | 22.13      | 0-1                  | 1    |
|           |            | 6       | 0         | 20.89                    | 20.72      | 20.90      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |            |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|------------|------------|----------------------|------|
|           |            |         |           | 19965                    | 20175      | 20385      |                      |      |
|           |            |         |           | 1711.5 MHz               | 1732.5 MHz | 1753.5 MHz | [dB]                 | [dB] |
| 3 MHz     | QPSK       | 1       | 0         | 22.98                    | 22.91      | 22.87      | 0                    | 0    |
|           |            | 1       | 7         | 23.05                    | 22.94      | 22.81      | 0                    | 0    |
|           |            | 1       | 14        | 22.90                    | 23.04      | 23.05      | 0                    | 0    |
|           |            | 8       | 0         | 22.08                    | 22.00      | 21.83      | 0-1                  | 1    |
|           |            | 8       | 3         | 22.12                    | 21.95      | 21.97      | 0-1                  | 1    |
|           |            | 8       | 7         | 21.89                    | 21.85      | 21.94      | 0-1                  | 1    |
|           |            | 15      | 0         | 21.89                    | 21.78      | 21.87      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.80                    | 21.70      | 21.45      | 0-1                  | 1    |
|           |            | 1       | 7         | 21.55                    | 21.23      | 21.57      | 0-1                  | 1    |
|           |            | 1       | 14        | 21.43                    | 21.58      | 21.61      | 0-1                  | 1    |
|           |            | 8       | 0         | 21.02                    | 20.94      | 20.75      | 0-2                  | 2    |
|           |            | 8       | 3         | 21.04                    | 20.96      | 20.83      | 0-2                  | 2    |
|           |            | 8       | 7         | 20.71                    | 20.96      | 20.81      | 0-2                  | 2    |
|           |            | 15      | 0         | 20.81                    | 20.87      | 20.78      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |            |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|------------|------------|----------------------|------|
|           |            |         |           | 19975                    | 20175      | 20375      |                      |      |
|           |            |         |           | 1712.5 MHz               | 1732.5 MHz | 1752.5 MHz | [dB]                 | [dB] |
| 5 MHz     | QPSK       | 1       | 0         | 22.98                    | 22.85      | 22.97      | 0                    | 0    |
|           |            | 1       | 12        | 23.17                    | 22.96      | 22.90      | 0                    | 0    |
|           |            | 1       | 24        | 22.73                    | 22.95      | 23.02      | 0                    | 0    |
|           |            | 12      | 0         | 22.00                    | 21.94      | 21.86      | 0-1                  | 1    |
|           |            | 12      | 6         | 21.88                    | 21.92      | 21.89      | 0-1                  | 1    |
|           |            | 12      | 11        | 21.89                    | 21.88      | 21.95      | 0-1                  | 1    |
|           |            | 25      | 0         | 21.99                    | 21.90      | 21.90      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.72                    | 21.60      | 21.58      | 0-1                  | 1    |
|           |            | 1       | 12        | 21.56                    | 21.48      | 21.55      | 0-1                  | 1    |
|           |            | 1       | 24        | 21.03                    | 21.39      | 21.58      | 0-1                  | 1    |
|           |            | 12      | 0         | 20.77                    | 20.76      | 20.93      | 0-2                  | 2    |
|           |            | 12      | 6         | 20.94                    | 20.87      | 20.96      | 0-2                  | 2    |
|           |            | 12      | 11        | 20.99                    | 20.87      | 20.91      | 0-2                  | 2    |
|           |            | 25      | 0         | 20.86                    | 20.79      | 20.99      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |            |          | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|------------|----------|----------------------|------|
|           |            |         |           | 20000                    | 20175      | 20350    |                      |      |
|           |            |         |           | 1715 MHz                 | 1732.5 MHz | 1750 MHz | [dB]                 | [dB] |
| 10 MHz    | QPSK       | 1       | 0         | 23.10                    | 22.94      | 22.97    | 0                    | 0    |
|           |            | 1       | 24        | 22.84                    | 22.99      | 23.04    | 0                    | 0    |
|           |            | 1       | 49        | 22.89                    | 22.95      | 23.11    | 0                    | 0    |
|           |            | 25      | 0         | 21.97                    | 21.81      | 21.76    | 0-1                  | 1    |
|           |            | 25      | 12        | 21.86                    | 21.82      | 21.91    | 0-1                  | 1    |
|           |            | 25      | 24        | 21.81                    | 21.81      | 21.85    | 0-1                  | 1    |
|           |            | 50      | 0         | 21.85                    | 21.91      | 21.93    | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.75                    | 21.45      | 21.48    | 0-1                  | 1    |
|           |            | 1       | 24        | 21.57                    | 21.57      | 21.52    | 0-1                  | 1    |
|           |            | 1       | 49        | 21.46                    | 21.49      | 21.67    | 0-1                  | 1    |
|           |            | 25      | 0         | 20.93                    | 20.86      | 20.81    | 0-2                  | 2    |
|           |            | 25      | 12        | 20.92                    | 20.88      | 20.96    | 0-2                  | 2    |
|           |            | 25      | 24        | 20.86                    | 20.85      | 20.92    | 0-2                  | 2    |
|           |            | 50      | 0         | 20.92                    | 20.86      | 21.01    | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |            |            | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|------------|------------|----------------------|------|
|           |            |         |           | 20025                    | 20175      | 20325      |                      |      |
|           |            |         |           | 1717.5 MHz               | 1732.5 MHz | 1747.5 MHz | [dB]                 | [dB] |
| 15 MHz    | QPSK       | 1       | 0         | 23.17                    | 22.97      | 23.02      | 0                    | 0    |
|           |            | 1       | 36        | 22.79                    | 23.04      | 22.84      | 0                    | 0    |
|           |            | 1       | 74        | 22.91                    | 22.82      | 23.00      | 0                    | 0    |
|           |            | 36      | 0         | 22.04                    | 21.92      | 21.78      | 0-1                  | 1    |
|           |            | 36      | 18        | 21.81                    | 21.81      | 21.70      | 0-1                  | 1    |
|           |            | 36      | 38        | 21.86                    | 21.88      | 21.92      | 0-1                  | 1    |
|           |            | 75      | 0         | 21.83                    | 21.87      | 21.72      | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.83                    | 21.55      | 21.65      | 0-1                  | 1    |
|           |            | 1       | 36        | 21.44                    | 21.57      | 21.52      | 0-1                  | 1    |
|           |            | 1       | 74        | 21.55                    | 21.36      | 21.68      | 0-1                  | 1    |
|           |            | 36      | 0         | 20.93                    | 20.89      | 20.83      | 0-2                  | 2    |
|           |            | 36      | 18        | 20.87                    | 20.86      | 20.80      | 0-2                  | 2    |
|           |            | 36      | 38        | 20.81                    | 20.82      | 20.78      | 0-2                  | 2    |
|           |            | 75      | 0         | 20.89                    | 20.83      | 20.89      | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|----------------------|------|
|           |            |         |           | 20175                    | [dB]                 | [dB] |
|           |            |         |           | 1732.5 MHz               |                      |      |
| 20 MHz    | QPSK       | 1       | 0         | 23.15                    | 0                    | 0    |
|           |            | 1       | 49        | 22.97                    | 0                    | 0    |
|           |            | 1       | 99        | 22.77                    | 0                    | 0    |
|           |            | 50      | 0         | 21.93                    | 0-1                  | 1    |
|           |            | 50      | 25        | 21.92                    | 0-1                  | 1    |
|           |            | 50      | 49        | 21.83                    | 0-1                  | 1    |
|           |            | 100     | 0         | 21.87                    | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 21.59                    | 0-1                  | 1    |
|           |            | 1       | 49        | 21.65                    | 0-1                  | 1    |
|           |            | 1       | 99        | 21.37                    | 0-1                  | 1    |
|           |            | 50      | 0         | 20.86                    | 0-2                  | 2    |
|           |            | 50      | 25        | 20.86                    | 0-2                  | 2    |
|           |            | 50      | 49        | 20.90                    | 0-2                  | 2    |
|           |            | 100     | 0         | 20.84                    | 0-2                  | 2    |

**Note:** LTE Band 4 (AWS) at 20 MHz Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

## LTE Band 7 Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |         |           | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|---------|-----------|----------------------|------|
|           |            |         |           | 20775                    | 21100   | 21425     |                      |      |
|           |            |         |           | 2502.5MHz                | 2535MHz | 2567.5MHz | [dB]                 | [dB] |
| 5 MHz     | QPSK       | 1       | 0         | 23.40                    | 23.55   | 23.32     | 0                    | 0    |
|           |            | 1       | 12        | 23.48                    | 23.55   | 23.57     | 0                    | 0    |
|           |            | 1       | 24        | 23.53                    | 23.29   | 23.44     | 0                    | 0    |
|           |            | 12      | 0         | 22.41                    | 22.36   | 22.31     | 0-1                  | 1    |
|           |            | 12      | 6         | 22.48                    | 22.45   | 22.31     | 0-1                  | 1    |
|           |            | 12      | 11        | 22.48                    | 22.33   | 22.36     | 0-1                  | 1    |
|           |            | 25      | 0         | 22.38                    | 22.35   | 22.35     | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 22.15                    | 22.36   | 22.05     | 0-1                  | 1    |
|           |            | 1       | 12        | 22.41                    | 22.13   | 22.56     | 0-1                  | 1    |
|           |            | 1       | 24        | 22.23                    | 22.11   | 21.91     | 0-1                  | 1    |
|           |            | 12      | 0         | 21.50                    | 21.31   | 21.34     | 0-2                  | 2    |
|           |            | 12      | 6         | 21.51                    | 21.40   | 21.11     | 0-2                  | 2    |
|           |            | 12      | 11        | 21.44                    | 21.25   | 21.14     | 0-2                  | 2    |
|           |            | 25      | 0         | 21.41                    | 21.30   | 21.24     | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |         |         | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|---------|---------|----------------------|------|
|           |            |         |           | 20800                    | 21100   | 21400   |                      |      |
|           |            |         |           | 2505MHz                  | 2535MHz | 2565MHz | [dB]                 | [dB] |
| 10 MHz    | QPSK       | 1       | 0         | 23.54                    | 23.54   | 23.50   | 0                    | 0    |
|           |            | 1       | 24        | 23.49                    | 23.51   | 23.54   | 0                    | 0    |
|           |            | 1       | 49        | 23.27                    | 23.45   | 23.46   | 0                    | 0    |
|           |            | 25      | 0         | 22.31                    | 22.44   | 22.26   | 0-1                  | 1    |
|           |            | 25      | 12        | 22.50                    | 22.44   | 22.40   | 0-1                  | 1    |
|           |            | 25      | 24        | 22.19                    | 22.40   | 22.41   | 0-1                  | 1    |
|           |            | 50      | 0         | 22.36                    | 22.41   | 22.42   | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 22.15                    | 22.22   | 22.24   | 0-1                  | 1    |
|           |            | 1       | 24        | 22.32                    | 22.27   | 22.32   | 0-1                  | 1    |
|           |            | 1       | 49        | 22.11                    | 22.18   | 22.02   | 0-1                  | 1    |
|           |            | 25      | 0         | 21.34                    | 21.57   | 21.47   | 0-2                  | 2    |
|           |            | 25      | 12        | 21.48                    | 21.57   | 21.36   | 0-2                  | 2    |
|           |            | 25      | 24        | 21.21                    | 21.33   | 21.38   | 0-2                  | 2    |
|           |            | 50      | 0         | 21.27                    | 21.45   | 21.21   | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |         |           | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|---------|-----------|----------------------|------|
|           |            |         |           | 20825                    | 21100   | 21375     |                      |      |
|           |            |         |           | 2507.5MHz                | 2535MHz | 2562.5MHz | [dB]                 | [dB] |
| 15 MHz    | QPSK       | 1       | 0         | 23.44                    | 23.33   | 23.48     | 0                    | 0    |
|           |            | 1       | 36        | 23.47                    | 23.51   | 23.49     | 0                    | 0    |
|           |            | 1       | 74        | 23.50                    | 23.50   | 23.37     | 0                    | 0    |
|           |            | 36      | 0         | 22.35                    | 22.43   | 22.28     | 0-1                  | 1    |
|           |            | 36      | 18        | 22.32                    | 22.46   | 22.44     | 0-1                  | 1    |
|           |            | 36      | 38        | 22.22                    | 22.47   | 22.42     | 0-1                  | 1    |
|           |            | 75      | 0         | 22.33                    | 22.38   | 22.40     | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 22.21                    | 22.20   | 22.10     | 0-1                  | 1    |
|           |            | 1       | 36        | 22.51                    | 22.32   | 22.30     | 0-1                  | 1    |
|           |            | 1       | 74        | 22.28                    | 22.35   | 22.22     | 0-1                  | 1    |
|           |            | 36      | 0         | 21.33                    | 21.38   | 21.35     | 0-2                  | 2    |
|           |            | 36      | 18        | 21.34                    | 21.41   | 21.36     | 0-2                  | 2    |
|           |            | 36      | 38        | 21.23                    | 21.41   | 21.28     | 0-2                  | 2    |
|           |            | 75      | 0         | 21.44                    | 21.41   | 21.43     | 0-2                  | 2    |

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |         |         | MPR Allowed Per 3GPP | MPR  |
|-----------|------------|---------|-----------|--------------------------|---------|---------|----------------------|------|
|           |            |         |           | 20850                    | 21100   | 21350   |                      |      |
|           |            |         |           | 2510MHz                  | 2535MHz | 2560MHz | [dB]                 | [dB] |
| 20 MHz    | QPSK       | 1       | 0         | 23.59                    | 23.12   | 23.38   | 0                    | 0    |
|           |            | 1       | 49        | 23.41                    | 23.52   | 23.64   | 0                    | 0    |
|           |            | 1       | 99        | 23.17                    | 23.27   | 23.54   | 0                    | 0    |
|           |            | 50      | 0         | 22.35                    | 22.25   | 22.32   | 0-1                  | 1    |
|           |            | 50      | 25        | 22.28                    | 22.45   | 22.47   | 0-1                  | 1    |
|           |            | 50      | 49        | 22.22                    | 22.45   | 22.47   | 0-1                  | 1    |
|           |            | 100     | 0         | 22.19                    | 22.45   | 22.35   | 0-1                  | 1    |
|           | 16QAM      | 1       | 0         | 22.13                    | 22.03   | 22.14   | 0-1                  | 1    |
|           |            | 1       | 49        | 22.14                    | 22.24   | 22.23   | 0-1                  | 1    |
|           |            | 1       | 99        | 21.80                    | 22.19   | 21.99   | 0-1                  | 1    |
|           |            | 50      | 0         | 21.33                    | 21.47   | 21.35   | 0-2                  | 2    |
|           |            | 50      | 25        | 21.17                    | 21.38   | 21.38   | 0-2                  | 2    |
|           |            | 50      | 49        | 21.25                    | 21.37   | 21.40   | 0-2                  | 2    |
|           |            | 100     | 0         | 21.20                    | 21.39   | 21.39   | 0-2                  | 2    |

### 3. TEST EQUIPMENT

| Manufacturer | Type / Model                               | S/N        | Calib. Date | Calib.Interval | Calib.Due  |
|--------------|--------------------------------------------|------------|-------------|----------------|------------|
| Agilent      | Base Station E5515C                        | GB44400269 | 02/02/2017  | Annual         | 02/08/2018 |
| R&S          | Wideband Radio Communication Tester CMW500 | 101519     | 04/27/2017  | Annual         | 04/27/2018 |
| Anritsu      | Radio Communication Analyzer/ MT8820C      | 6200628628 | 07/04/2017  | Annual         | 07/04/2018 |
| Anritsu      | Radio Communication Analyzer/ MT8820C      | 6200576565 | 07/04/2017  | Annual         | 07/04/2018 |

## 4. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/IEEE C95.1 1992.

These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests.

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

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