

## APPENDIX G POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the triggering distances for proximity-based sensors.

### G.1 Power Verification Procedure

The power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
3. Steps 1 and 2 were repeated for all individual power reduction mechanisms and combinations thereof. For the combination cases, one mechanism was switched to a 'triggered' state at a time; powers were confirmed to be within tolerances after each additional mechanism was activated.

### G.2 Distance Verification Procedure

The distance verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.
2. The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced, per KDB Publication 616217 D04v01r02 and FCC Guidance. Each applicable test position was evaluated. The distances were confirmed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.
3. Steps 1 and 2 were repeated for low, mid, and high bands, as appropriate (see note below Table G-2 for more details).
4. Steps 1 through 3 were repeated for all distance-based power reduction mechanisms.

|                                        |                                                                                                                                   |                       |                                                                                       |                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Dates:<br>04/29/2019 – 06/17/2019 | DUT Type:<br>Portable Handset                                                                                                     |                       |                                                                                       | APPENDIX G:<br>Page 1 of 3      |

### G.3 Main Antenna Verification Summary

**Table G-1**  
**Power Measurement Verification for Main Antenna**

| Mechanism(s) |            | Mode/Band             | Conducted Power (dBm) |                        |                        |
|--------------|------------|-----------------------|-----------------------|------------------------|------------------------|
| 1st          | 2nd        |                       | Un-triggered (Max)    | Mechanism #1 (Reduced) | Mechanism #2 (Reduced) |
| Hotspot On   |            | GPRS 1900             | 25.6                  | 22.59                  |                        |
| Grip         |            | GPRS 1900             | 25.59                 | 22.58                  |                        |
| Hotspot On   | Grip       | GPRS 1900             | 25.6                  | 22.6                   | 22.61                  |
| Grip         | Hotspot On | GPRS 1900             | 25.61                 | 22.6                   | 22.59                  |
| Hotspot On   |            | UMTS 1750             | 24.35                 | 21.37                  |                        |
| Grip         |            | UMTS 1750             | 24.32                 | 21.31                  |                        |
| Hotspot On   | Grip       | UMTS 1750             | 24.3                  | 21.38                  | 21.4                   |
| Grip         | Hotspot On | UMTS 1750             | 24.28                 | 21.32                  | 21.33                  |
| Hotspot On   |            | UMTS 1900             | 24.62                 | 21.66                  |                        |
| Grip         |            | UMTS 1900             | 24.6                  | 21.64                  |                        |
| Hotspot On   | Grip       | UMTS 1900             | 24.62                 | 21.65                  | 21.66                  |
| Grip         | Hotspot On | UMTS 1900             | 24.6                  | 21.65                  | 21.67                  |
| Hotspot On   |            | PCS EVDO              | 24.13                 | 21.02                  |                        |
| Grip         |            | PCS EVDO              | 24.1                  | 21                     |                        |
| Hotspot On   | Grip       | PCS EVDO              | 24.09                 | 21.03                  | 20.96                  |
| Grip         | Hotspot On | PCS EVDO              | 24.07                 | 20.99                  | 21.01                  |
| Hotspot On   |            | LTE FDD Band 66       | 24.45                 | 21.26                  |                        |
| Grip         |            | LTE FDD Band 66       | 24.48                 | 21.27                  |                        |
| Hotspot On   | Grip       | LTE FDD Band 66       | 24.43                 | 21.23                  | 21.3                   |
| Grip         | Hotspot On | LTE FDD Band 66       | 24.42                 | 21.22                  | 21.2                   |
| Hotspot On   |            | LTE FDD Band 4        | 24.69                 | 21.48                  |                        |
| Grip         |            | LTE FDD Band 4        | 24.66                 | 21.45                  |                        |
| Hotspot On   | Grip       | LTE FDD Band 4        | 24.62                 | 21.49                  | 21.5                   |
| Grip         | Hotspot On | LTE FDD Band 4        | 24.63                 | 21.55                  | 21.47                  |
| Hotspot On   |            | LTE FDD Band 25       | 24.59                 | 21.52                  |                        |
| Grip         |            | LTE FDD Band 25       | 24.6                  | 21.53                  |                        |
| Hotspot On   | Grip       | LTE FDD Band 25       | 24.56                 | 21.54                  | 21.56                  |
| Grip         | Hotspot On | LTE FDD Band 25       | 24.59                 | 21.53                  | 21.52                  |
| Hotspot On   |            | LTE FDD Band 2        | 24.53                 | 21.5                   |                        |
| Grip         |            | LTE FDD Band 2        | 24.54                 | 21.51                  |                        |
| Hotspot On   | Grip       | LTE FDD Band 2        | 24.57                 | 21.5                   | 21.52                  |
| Grip         | Hotspot On | LTE FDD Band 2        | 24.55                 | 21.52                  | 21.44                  |
| Hotspot On   |            | LTE FDD Band 7        | 22.32                 | 20.1                   |                        |
| Hotspot On   |            | LTE TDD Band 41 (PC2) | 27.31                 | 24.16                  |                        |

**Table G-2**  
**Distance Measurement Verification for Main Antenna**

| Mechanism(s) | Test Condition        | Band | Distance Measurements (mm) |             | Minimum Distance per Manufacturer (mm) |
|--------------|-----------------------|------|----------------------------|-------------|----------------------------------------|
|              |                       |      | Moving Toward              | Moving Away |                                        |
| Grip         | Phablet - Back Side   | Mid  | 16                         | 18          | 10                                     |
| Grip         | Phablet - Bottom Edge | Mid  | 7                          | 9           | 3                                      |

\*Note: Mid band refers to: CDMA BC1, GSM1900, UMTS B2/4, LTE B2/4/25/66

|                                               |                                                                                                                                                                                                        |                                        |
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| <b>Test Dates:</b><br>04/29/2019 – 06/17/2019 | <b>DUT Type:</b><br>Portable Handset                                                                                                                                                                   | <b>APPENDIX G:</b><br>Page 2 of 3      |

## G.4 WIFI Verification Summary

**Table G-3**  
**Power Measurement Verification WIFI**

| Mechanism(s) | Mode/Band                | Conducted Power (dBm) |                        |
|--------------|--------------------------|-----------------------|------------------------|
| 1st          |                          | Un-triggered (Max)    | Mechanism #1 (Reduced) |
| Held-to-Ear  | 802.11b                  | 20.99                 | 11.92                  |
| Held-to-Ear  | 802.11g                  | 18.98                 | 11.93                  |
| Held-to-Ear  | 802.11n (2.4GHz)         | 18.85                 | 11.77                  |
| Held-to-Ear  | 802.11a                  | 17.76                 | 10.97                  |
| Held-to-Ear  | 802.11n (5GHz, 20MHz BW) | 17.00                 | 11.15                  |
| Held-to-Ear  | 802.11ac (20MHz BW)      | 17.06                 | 11.15                  |
| Held-to-Ear  | 802.11n (5GHz, 40MHz BW) | 15.05                 | 11.03                  |
| Held-to-Ear  | 802.11ac (40MHz BW)      | 15.13                 | 11.15                  |
| Held-to-Ear  | 802.11ac (80MHz BW)      | 13.70                 | 10.29                  |

|                                               |                                                                                                                                                                                                        |                                        |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSMA205U                     |  <b>SAR EVALUATION REPORT</b>  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>04/29/2019 – 06/17/2019 | <b>DUT Type:</b><br>Portable Handset                                                                                                                                                                   | <b>APPENDIX G:</b><br>Page 3 of 3      |

## APPENDIX H: DOWNLINK LTE CA RF CONDUCTED POWERS

## 1.1 LTE Downlink Only Carrier Aggregation Test Reduction Methodology

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. Per April 2018 TCBC Workshop Notes, the following test reduction methodology was applied to determine the combinations required for conducted power measurements.

### LTE DLCA Test Reduction Methodology:

- The supported combinations were arranged by the number of component carriers in columns.
- Any limitations on the PCC or SCC for each combination were identified alongside the combination (e.g. CA\_2A-2A-4A-12A, but B12 can only be configured as a SCC).
- Power measurements were performed for "supersets" (LTE CA combinations with multiple components carriers) and any "subsets" (LTE CA combinations with fewer component carriers) that were not completely covered by the supersets.
- Only subsets that have the exact same components as a superset were excluded for measurement.
- When there were certain restrictions on component carriers that existed in the superset that were not applied for the subset, the subset configuration was additionally evaluated.
- Both inter-band and intra-band downlink carrier aggregation scenarios were considered.
- Downlink CA combinations for SISO and 4x4 Downlink MIMO operations were measured independently, per May 2017 TCBC Workshop notes.

Table 1 – Example of Exclusion Table for SISO Configurations

[illegible]

Table 2 – Example of Exclusion Table for 4x4 Downlink MIMO Configurations

| Table 2: Example 1 - 4A-6A, 13A-15A, 17A-29A, 30A-66A Configurations |                   |                                   |               |             |                                            | Table 3: Example 2 - 4A-6A, 13A-15A, 17A-29A, 30A-66A Configurations |                |                                   |               |               |             |                                            |                |                |                                   |               |               |     |             |                                            |
|----------------------------------------------------------------------|-------------------|-----------------------------------|---------------|-------------|--------------------------------------------|----------------------------------------------------------------------|----------------|-----------------------------------|---------------|---------------|-------------|--------------------------------------------|----------------|----------------|-----------------------------------|---------------|---------------|-----|-------------|--------------------------------------------|
| Index                                                                | ACC               | Supported Channel Bandwidth (MHz) |               | Restriction | Completely Covered by Measurement Superset | Index                                                                | ACC            | Supported Channel Bandwidth (MHz) |               |               | Restriction | Completely Covered by Measurement Superset | Index          | ACC            | Supported Channel Bandwidth (MHz) |               |               |     | Restriction | Completely Covered by Measurement Superset |
|                                                                      |                   | CC1                               | CC2           |             |                                            |                                                                      |                | CC1                               | CC2           | CC3           |             |                                            |                |                | CC1                               | CC2           | CC3           | CC4 |             |                                            |
| ACC #M1                                                              | CA [2C]           | 5, 10, 15, 20                     |               |             | ACC #M6                                    | ACC #M1                                                              | CA [2A] 2A-4A  | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M1                                    | CA [2A] 5B-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10         | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M2                                                              | CA [2A] 2A        | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M1                                    | ACC #M2                                                              | CA [2A] 2A-5A  | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10         | No          | ACC #M2                                    | CA 2A-5B [6A]  | 5, 10, 15, 20  | 5, 10                             | 5, 10         | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M3                                                              | CA [2A] 2A        | 5, 10, 15, 20                     | 5, 10, 15, 20 | No          |                                            | ACC #M3                                                              | CA [2A] 2A-12A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10         | No          | ACC #M3                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15     | 5, 10, 15     |     | No          |                                            |
| ACC #M4                                                              | CA [2A] 4A (2)    | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M1                                    | ACC #M4                                                              | CA [2A] 2A-15A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10         | No          | ACC #M4                                    | CA 2A-5B [6A]  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15     | 5, 10, 15     |     | No          |                                            |
| ACC #M5                                                              | CA [2A] 4A (2)    | 5, 10, 15, 20                     | 5, 10, 15, 20 | No          |                                            | ACC #M5                                                              | CA [2A] 2A-30A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10         | No          | ACC #M5                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M6                                                              | CA [2A] 5A        | 5, 10, 15, 20                     | 5, 10         |             | ACC #M3                                    | ACC #M6                                                              | CA [2C] 6A     | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M6                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M7                                                              | CA [2A] 2A (1)    | 5, 10, 15, 20                     | 5, 10         |             |                                            | ACC #M7                                                              | CA 2C-6A       | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M7                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M8                                                              | CA [2A] 13A       | 5, 10, 15, 20                     | 5, 10         |             | ACC #M4                                    | ACC #M8                                                              | CA [2C] 16A    | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M8                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M9                                                              | CA [2A] 17A       | 5, 10                             | 5, 10         | No          |                                            | ACC #M9                                                              | CA [2A] 2A-6A  | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M9                                    | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M10                                                             | CA [2A] 29A (2)   | 5, 10, 15, 20                     | 5, 10         |             | B29 SCC Only                               | ACC #M10                                                             | CA 2A-2A [6A]  | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M10                                   | CA [2A] 2A-15A | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M11                                                             | CA [2A] 29A (2)   | 5, 10, 15, 20                     | 5, 10         |             |                                            | ACC #M11                                                             | CA [2A] 2A-30A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | ACC #M11                                   | CA [2A] 2A-15A | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M12                                                             | CA [2A] 6A (2)    | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M1                                    | ACC #M12                                                             | CA [2A] 4A-29A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          | B29 SCC Only                               | ACC #M12       | CA [2A] 4A-29A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M13                                                             | CA 2A-6A (2)      | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M2                                    | ACC #M13                                                             | CA [2A] 4A-71A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 | No          |                                            | ACC #M13       | CA [2A] 4A-71A | 5, 10, 15, 20                     | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M14                                                             | CA [2A] 6A (2)    | 5, 10, 15, 20                     | 5, 10, 15, 20 |             |                                            | ACC #M14                                                             | CA [2A] 5B     | 5, 10, 15, 20                     | 5, 10         | 5, 10         |             | ACC #M1                                    | ACC #M14       | CA [2A] 5B     | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M15                                                             | CA [2A] 71A       | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M11                                   | ACC #M15                                                             | CA [2A] 5A-6A  | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M15                                   | CA [2A] 5A-6A  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M16                                                             | CA 5A-6A [6A]     | 5, 10                             | 5, 10, 15, 20 |             | ACC #M16                                   | ACC #M16                                                             | CA 2A-5A [6A]  | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M16                                   | CA 2A-5A [6A]  | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M17                                                             | CA 12A-66A [4]    | 5, 10                             | 5, 10, 15, 20 |             | ACC #M17                                   | ACC #M17                                                             | CA 2A-12A [6A] | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M17                                   | CA 2A-12A [6A] | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M18                                                             | CA 13A-66A [4]    | 5, 10                             | 5, 10, 15, 20 |             | ACC #M18                                   | ACC #M18                                                             | CA [2A] 13A-6A | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M18                                   | CA [2A] 13A-6A | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M19                                                             | CA 30A-66A [4]    | 5, 10                             | 5, 10, 15, 20 |             | ACC #M20                                   | ACC #M19                                                             | CA 2A-13A [6A] | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M19                                   | CA 2A-13A [6A] | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M20                                                             | CA [66B]          | 5, 10, 15                         | 5, 10, 15     |             | ACC #M4                                    | ACC #M20                                                             | CA 2A-30A [6A] | 5, 10, 15, 20                     | 5, 10         | 5, 10, 15, 20 | No          | ACC #M20                                   | CA 2A-30A [6A] | 5, 10, 15, 20  | 5, 10                             | 5, 10, 15, 20 | 5, 10, 15, 20 |     | No          |                                            |
| ACC #M21                                                             | CA [66C]          | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M6                                    | ACC #M21                                                             | CA [2A] 66B    | 5, 10, 15, 20                     | 5, 10, 15     | 5, 10, 15     |             | ACC #M6                                    | ACC #M21       | CA [2A] 66B    | 5, 10, 15, 20                     | 5, 10, 15     | 5, 10, 15     |     | No          |                                            |
| ACC #M22                                                             | CA [66A] 66A [6A] | 5, 10, 15, 20                     | 5, 10, 15, 20 |             | ACC #M28                                   | ACC #M22                                                             | CA 2A-66B      | 5, 10, 15, 20                     | 5, 10, 15     | 5, 10, 15     |             | ACC #M22                                   | CA 2A-66B      | 5, 10, 15, 20  | 5, 10, 15                         | 5, 10, 15     |               | No  |             |                                            |
| ACC #M23                                                             | CA [66B] 66B [6A] | 5, 10, 15, 20                     | 5, 10, 15, 20 |             |                                            | ACC #M23                                                             | CA [2A] 66B    | 5, 10, 15, 20                     | 5, 10, 15     | 5, 10, 15     |             | ACC #M23                                   | CA [2A] 66B    | 5, 10, 15, 20  | 5, 10, 15                         | 5, 10, 15     |               | No  |             |                                            |

Note: [CC] indicates component carrier with 4x4 DL MIMO antenna configuration

|                                           |                                                                                                                  |                                 |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMA205U                        |  <b>SAR EVALUATION REPORT</b> | Reviewed by:<br>Quality Manager |
| <b>Test Dates:</b><br>04/29/19 - 06/17/19 | <b>DUT Type:</b><br>Portable Handset                                                                             | APPENDIX H:<br>Page 1 of 5      |

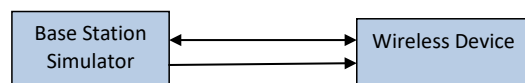
## 1.2 LTE Downlink Only Carrier Aggregation Test Selection and Setup

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers (CCs) supported by the product implementation. For those configurations required by April 2018 TCBC Workshop Notes, conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the maximum average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive. All bands required for SAR testing per FCC KDB procedures were considered. Based on the measured maximum powers below, no additional SAR tests were required for DLCA SAR configurations.

General PCC and SCC configuration selection procedure

- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C)3)b)ii) of KDB 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
- All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.



**Figure 1**  
**DL CA Power Measurement Setup**

|                                           |                                                                                                                  |                                        |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMA205U                        |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>04/29/19 - 06/17/19 | <b>DUT Type:</b><br>Portable Handset                                                                             | <b>APPENDIX H:</b><br>Page 2 of 5      |

## 1.3 Downlink Carrier Aggregation RF Conducted Powers

### 1.3.1 LTE Band 71 as PCC

Table 1  
Maximum Output Powers

| Combination | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|-------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|             | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 2A-71A   | LTE B71  | 15           | 133297       | 680.5                | QPSK | 1          | 0                | 68761            | 634.5                | LTE B2   | 20           | 900              | 1960                 | 25.12                                 | 25.14                             |
| CA 4A-71A   | LTE B71  | 15           | 133297       | 680.5                | QPSK | 1          | 0                | 68761            | 634.5                | LTE B4   | 20           | 2175             | 2132.5               | 25.12                                 | 25.14                             |
| CA 66A-71A  | LTE B71  | 15           | 133297       | 680.5                | QPSK | 1          | 0                | 68761            | 634.5                | LTE B66  | 20           | 66786            | 2145                 | 25.15                                 | 25.14                             |

### 1.3.2 LTE Band 12 as PCC

Table 2  
Maximum Output Powers

| Combination    | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|----------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|                | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 2A-12A (1)  | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B2   | 20           | 900              | 1960                 | 24.78                                 | 24.84                             |
| CA 4A-12A (1)  | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B4   | 20           | 2175             | 2132.5               | 24.67                                 | 24.84                             |
| CA 4A-12A (2)  | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B4   | 20           | 2175             | 2132.5               | 24.67                                 | 24.84                             |
| CA 12A-66A (1) | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B66  | 20           | 66786            | 2145                 | 24.68                                 | 24.84                             |
| CA 12A-66A (2) | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B66  | 20           | 66786            | 2145                 | 24.68                                 | 24.84                             |
| CA 7A-12A      | LTE B12  | 5            | 23095        | 707.5                | QPSK | 1          | 12               | 5095             | 737.5                | LTE B7   | 20           | 3100             | 2655                 | 24.67                                 | 24.84                             |

### 1.3.3 LTE Band 13 as PCC

Table 3  
Maximum Output Powers

| Combination | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|-------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|             | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 2A-13A   | LTE B13  | 10           | 23230        | 782                  | QPSK | 1          | 25               | 5230             | 751                  | LTE B2   | 20           | 900              | 1960                 | 24.51                                 | 24.57                             |
| CA 4A-13A   | LTE B13  | 10           | 23230        | 782                  | QPSK | 1          | 25               | 5230             | 751                  | LTE B4   | 20           | 2175             | 2132.5               | 24.53                                 | 24.57                             |
| CA 13A-66A  | LTE B13  | 5            | 23230        | 782                  | QPSK | 1          | 24               | 5230             | 751                  | LTE B66  | 20           | 66786            | 2145                 | 24.61                                 | 24.71                             |

### 1.3.4 LTE Band 26 as PCC

Table 4  
Maximum Output Powers

| Combination | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|-------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|             | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 25A-26A  | LTE B26  | 10           | 26740        | 819                  | QPSK | 1          | 25               | 8740             | 864                  | LTE B25  | 20           | 8365             | 1962.5               | 24.82                                 | 24.99                             |
| CA 26A-41A  | LTE B26  | 10           | 26740        | 819                  | QPSK | 1          | 25               | 8740             | 864                  | LTE B41  | 20           | 40620            | 2593                 | 24.93                                 | 24.99                             |

|                                    |                                                                                                           |                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMA205U                 |  SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>04/29/19 - 06/17/19 | DUT Type:<br>Portable Handset                                                                             | APPENDIX H:<br>Page 3 of 5      |

### 1.3.5 LTE Band 66 as PCC

**Table 5**  
**Maximum Output Powers**

| Combination    | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|----------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|                | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx.Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 66A-66A     | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B66  | 20           | 67236            | 2190                 | 24.57                                 | 24.74                             |
| CA 66B         | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B66  | 10           | 66687            | 2135.1               | 24.62                                 | 24.74                             |
| CA 66C         | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B66  | 20           | 66642            | 2130.6               | 24.64                                 | 24.74                             |
| CA 2A-66A      | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B2   | 20           | 900              | 1960                 | 24.65                                 | 24.74                             |
| CA 5A-66A      | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B5   | 10           | 2525             | 881.5                | 24.63                                 | 24.74                             |
| CA 12A-66A (1) | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B12  | 10           | 5095             | 737.5                | 24.69                                 | 24.74                             |
| CA 12A-66A (2) | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B12  | 10           | 5095             | 737.5                | 24.64                                 | 24.74                             |
| CA 13A-66A     | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B13  | 10           | 5230             | 751                  | 24.62                                 | 24.74                             |
| CA 66A-71A     | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B71  | 20           | 68761            | 634.5                | 24.65                                 | 24.74                             |
| CA 7A-66A      | LTE B66  | 10           | 132322       | 1745                 | QPSK | 1          | 0                | 66786            | 2145                 | LTE B7   | 20           | 3100             | 2655                 | 24.76                                 | 24.74                             |

### 1.3.6 LTE Band 25 as PCC

**Table 6**  
**Maximum Output Powers**

| Combination    | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|----------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|                | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx.Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 25A-25A (1) | LTE B25  | 15           | 26115        | 1857.5               | QPSK | 1          | 36               | 8115             | 1937.5               | LTE B25  | 20           | 8590             | 1985                 | 24.64                                 | 24.65                             |
| CA 25A-26A     | LTE B25  | 15           | 26115        | 1857.5               | QPSK | 1          | 36               | 8115             | 1937.5               | LTE B26  | 15           | 8865             | 876.5                | 24.64                                 | 24.65                             |
| CA 25A-41A     | LTE B25  | 15           | 26115        | 1857.5               | QPSK | 1          | 36               | 8115             | 1937.5               | LTE B41  | 20           | 40620            | 2593                 | 24.69                                 | 24.65                             |

### 1.3.7 LTE Band 7 as PCC

**Table 7**  
**Maximum Output Powers**

| Combination  | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|--------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|              | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx.Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 2A-7A     | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B2   | 20           | 900              | 1960                 | 22.36                                 | 22.43                             |
| CA 4A-7A (1) | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B4   | 20           | 2175             | 2132.5               | 22.39                                 | 22.43                             |
| CA 5A-7A     | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B5   | 10           | 2525             | 881.5                | 22.37                                 | 22.43                             |
| CA 7A-7A (1) | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B7   | 20           | 2850             | 2630                 | 22.51                                 | 22.43                             |
| CA 7A-12A    | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B12  | 10           | 5095             | 737.5                | 22.48                                 | 22.43                             |
| CA 7A-66A    | LTE B7   | 20           | 21100        | 2535                 | QPSK | 1          | 0                | 3100             | 2655                 | LTE B66  | 20           | 66786            | 2145                 | 22.51                                 | 22.43                             |

### 1.3.8 LTE Band 41 as PCC

**Table 8**  
**Maximum Output Powers**

| Combination | PCC      |              |              |                      |      |            |                  |                  |                      | SCC 1    |              |                  |                      | Power                                 |                                   |
|-------------|----------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|             | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx.Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA 41C (1)  | LTE B41  | 20           | 40185        | 2549.5               | QPSK | 1          | 0                | 40185            | 2549.5               | LTE B41  | 20           | 40383            | 2569.3               | 24.53                                 | 24.50                             |
| CA 41A-41A  | LTE B41  | 20           | 40185        | 2549.5               | QPSK | 1          | 0                | 40185            | 2549.5               | LTE B41  | 20           | 41490            | 2680                 | 24.49                                 | 24.50                             |

|                                           |                                                                                                                                   |                              |                                        |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: A3LSMA205U                        |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>04/29/19 - 06/17/19 | <b>DUT Type:</b><br>Portable Handset                                                                                              |                              | <b>APPENDIX H:</b><br>Page 4 of 5      |

### 1.3.9 LTE Band 41 PC2 as PCC

**Table 9**  
**Maximum Output Powers**

| Combination | PCC         |              |              |                      |      |            |                  |                  |                      | SCC 1       |              |                  |                      | Power                                 |                                   |
|-------------|-------------|--------------|--------------|----------------------|------|------------|------------------|------------------|----------------------|-------------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|
|             | PCC Band    | PCC BW [MHz] | PCC (UL) Ch. | PCC (UL) Freq. [MHz] | Mod. | PCC UL# RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band    | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx.Power with DL CA Enabled (dbm) | LTE Single Carrier Tx Power (dbm) |
| CA 41C (1)  | LTE B41 PC2 | 20           | 40185        | 2549.5               | QPSK | 1          | 0                | 40185            | 2549.5               | LTE B41 PC2 | 20           | 40383            | 2569.3               | 27.73                                 | 27.66                             |
| CA 41A-41A  | LTE B41 PC2 | 20           | 40185        | 2549.5               | QPSK | 1          | 0                | 40185            | 2549.5               | LTE B41 PC2 | 20           | 41540            | 2680                 | 27.61                                 | 27.66                             |

|                                           |                                                                                                                                   |                              |                                        |
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| <b>Test Dates:</b><br>04/29/19 - 06/17/19 | <b>DUT Type:</b><br>Portable Handset                                                                                              |                              | <b>APPENDIX H:</b><br>Page 5 of 5      |