



## SAR EVALUATION REPORT

**Applicant Name:**

Samsung Electronics Co., Ltd.  
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Yeongtong-gu, Suwon-si  
Gyeonggi-do, 16677, Korea

**Date of Testing:**

05/23/21 - 01/03/22

**Test Site/Location:**

PCTEST Lab, Columbia, MD, USA

**Document Serial No.:**

1M2112280170-01.A3L

**FCC ID:**

**A3LSMF926U**

**APPLICANT:**

**SAMSUNG ELECTRONICS CO., LTD.**

**DUT Type:**

Portable Handset

**Application Type:**

Class II Permissive Change

**FCC Rule Part(s):**

CFR §2.1093

**Model:**

SM-F926U

**Additional Models:**

SM-F926U1

**Permissive Change(s):**

See FCC Change Document

**Date of Original Certification:**

06/23/21

| Equipment Class | Band & Mode | Tx Frequency       | SAR            |                     |                   |                     |                           |
|-----------------|-------------|--------------------|----------------|---------------------|-------------------|---------------------|---------------------------|
|                 |             |                    | 1g Head (W/kg) | 1g Body-Worn (W/kg) | 1g Hotspot (W/kg) | 1g UMPC Body (W/kg) | 10g UMPC Extremity (W/kg) |
| CBE             | NR Band n48 | 3555 - 3694.98 MHz | 0.27           | 0.22                | 0.27              | 0.39                | 2.59                      |

Only operations relevant to this permissive change were evaluated for compliance. Please see the original compliance evaluation in RF Exposure Technical Report S/N 1M2104020031-01.A3L (Rev 1) for complete evaluation of all other operating modes. The operational description includes a description of all changed items.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.9 of this report; for North American frequency bands only.

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. Test results reported herein relate only to the item(s) tested.

  
Randy Ortanez  
President



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|                                      |                                                                                     |                               |                                                                                       |                                        |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 1 of 34                           |

# TABLE OF CONTENTS

|                                                              |                                                  |    |
|--------------------------------------------------------------|--------------------------------------------------|----|
| 1                                                            | DEVICE UNDER TEST .....                          | 3  |
| 2                                                            | LTE AND NR INFORMATION .....                     | 10 |
| 3                                                            | INTRODUCTION .....                               | 12 |
| 4                                                            | DOSIMETRIC ASSESSMENT .....                      | 13 |
| 5                                                            | DEFINITION OF REFERENCE POINTS .....             | 14 |
| 6                                                            | TEST CONFIGURATION POSITIONS .....               | 15 |
| 7                                                            | RF EXPOSURE LIMITS .....                         | 19 |
| 8                                                            | FCC MEASUREMENT PROCEDURES.....                  | 20 |
| 9                                                            | RF CONDUCTED POWERS.....                         | 21 |
| 10                                                           | SYSTEM VERIFICATION.....                         | 23 |
| 11                                                           | SAR DATA SUMMARY .....                           | 25 |
| 12                                                           | FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS..... | 28 |
| 13                                                           | SAR MEASUREMENT VARIABILITY .....                | 29 |
| 14                                                           | EQUIPMENT LIST.....                              | 30 |
| 15                                                           | MEASUREMENT UNCERTAINTIES.....                   | 31 |
| 16                                                           | CONCLUSION.....                                  | 32 |
| 17                                                           | REFERENCES .....                                 | 33 |
| APPENDIX A: SAR TEST PLOTS                                   |                                                  |    |
| APPENDIX B: SAR DIPOLE VERIFICATION PLOTS                    |                                                  |    |
| APPENDIX C: SAR TISSUE SPECIFICATIONS                        |                                                  |    |
| APPENDIX D: SAR SYSTEM VALIDATION                            |                                                  |    |
| APPENDIX E: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS |                                                  |    |
| APPENDIX F: NR LOWER BANDWIDTH RF CONDUCTED POWERS           |                                                  |    |
| APPENDIX G: POWER REDUCTION VERIFICATION                     |                                                  |    |
| APPENDIX H: PROBE AND DIPOLE CALIBRATION CERTIFICATES        |                                                  |    |

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|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------|
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# 1 DEVICE UNDER TEST

## 1.1 Device Overview

| Band & Mode            | Operating Modes | Tx Frequency          |
|------------------------|-----------------|-----------------------|
| CDMA/EVDO BC10 (\$90S) | Voice/Data      | 817.90 - 823.10 MHz   |
| CDMA/EVDO BC0 (\$22H)  | Voice/Data      | 824.70 - 848.31 MHz   |
| PCS CDMA/EVDO          | Voice/Data      | 1851.25 - 1908.75 MHz |
| GSM/GPRS/EDGE 850      | Voice/Data      | 824.20 - 848.80 MHz   |
| GSM/GPRS/EDGE 1900     | Voice/Data      | 1850.20 - 1909.80 MHz |
| UMTS 850               | Voice/Data      | 826.40 - 846.60 MHz   |
| UMTS 1750              | Voice/Data      | 1712.4 - 1752.6 MHz   |
| UMTS 1900              | Voice/Data      | 1852.4 - 1907.6 MHz   |
| LTE Band 71            | Voice/Data      | 665.5 - 695.5 MHz     |
| LTE Band 12            | Voice/Data      | 699.7 - 715.3 MHz     |
| LTE Band 13            | Voice/Data      | 779.5 - 784.5 MHz     |
| LTE Band 14            | Voice/Data      | 790.5 - 795.5 MHz     |
| LTE Band 26 (Cell)     | Voice/Data      | 814.7 - 848.3 MHz     |
| LTE Band 5 (Cell)      | Voice/Data      | 824.7 - 848.3 MHz     |
| LTE Band 66 (AWS)      | Voice/Data      | 1710.7 - 1779.3 MHz   |
| LTE Band 4 (AWS)       | Voice/Data      | 1710.7 - 1754.3 MHz   |
| LTE Band 25 (PCS)      | Voice/Data      | 1850.7 - 1914.3 MHz   |
| LTE Band 2 (PCS)       | Voice/Data      | 1850.7 - 1909.3 MHz   |
| LTE Band 30            | Voice/Data      | 2307.5 - 2312.5 MHz   |
| LTE Band 7             | Voice/Data      | 2502.5 - 2567.5 MHz   |
| LTE Band 48            | Voice/Data      | 3552.5 - 3697.5 MHz   |
| LTE Band 41            | Voice/Data      | 2498.5 - 2687.5 MHz   |
| LTE Band 38            | Voice/Data      | 2572.5 - 2617.5 MHz   |
| NR Band n71            | Data            | 665.5 - 695.5 MHz     |
| NR Band n12            | Data            | 701.5 - 713.5 MHz     |
| NR Band n5 (Cell)      | Data            | 826.5 - 846.5 MHz     |
| NR Band n66 (AWS)      | Data            | 1712.5 - 1777.5 MHz   |
| NR Band n25 (PCS)      | Data            | 1852.5 - 1912.5 MHz   |
| NR Band n2 (PCS)       | Data            | 1852.5 - 1907.5 MHz   |
| NR Band n30            | Data            | 2307.5 - 2312.5 MHz   |
| NR Band n41            | Data            | 2506.02 - 2679.99 MHz |
| NR Band n48            | Data            | 3555 - 3694.98 MHz    |
| NR Band n77 DoD        | Data            | 3460.02 - 3540 MHz    |
| NR Band n77            | Data            | 3710.01 - 3969.99 MHz |
| 2.4 GHz WLAN           | Voice/Data      | 2412 - 2472 MHz       |
| U-NII-1                | Voice/Data      | 5180 - 5240 MHz       |
| U-NII-2A               | Voice/Data      | 5260 - 5320 MHz       |
| U-NII-2C               | Voice/Data      | 5500 - 5720 MHz       |
| U-NII-3                | Voice/Data      | 5745 - 5825 MHz       |
| U-NII-5                | Voice/Data      | 5935 - 6415 MHz       |
| U-NII-6                | Voice/Data      | 6435 - 6525 MHz       |
| U-NII-7                | Voice/Data      | 6535 - 6875 MHz       |
| U-NII-8                | Voice/Data      | 6895 - 7115 MHz       |
| Bluetooth              | Data            | 2402 - 2480 MHz       |
| NFC                    | Data            | 13.56 MHz             |
| NR Band n260           | Data            | 37000 - 40000 MHz     |
| NR Band n261           | Data            | 27500 - 28350 MHz     |
| UWB                    | Data            | 6489.6 - 7987.2 MHz   |

|                                      |                                                                                                                                                                                                              |                               |                                                                                                                              |
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## 1.2 Time-Averaging Algorithm for RF Exposure Compliance

This device is enabled with the Qualcomm® Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit feature (report SN can be found in Section 1.11 – Bibliography).

Note that WLAN operations are not enabled with Smart Transmit.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR\_design\_target* or *PD\_design\_target*, below the predefined time-averaged power limit (i.e.,  $P_{limit}$  for sub-6 radio, and *input.power.limit* for 5G mmW NR), for each characterized technology and band (see RF Exposure Part 0 Test Report, report SN can be found in Section 1.11 - Bibliography).

Smart Transmit allows the device to transmit at higher power instantaneously, as high as  $P_{max}$ , when needed, but enforces power limiting to maintain time-averaged transmit power to  $P_{limit}$ . Below table shows  $P_{limit}$  EFS settings and maximum tune up output power  $P_{max}$  configured for this EUT for various transmit conditions (Device State Index DSI). Note that the device uncertainty for sub-6GHz WWAN is 1.0dB for this EUT.

| Exposure Scenario: | Body-Worn     | Phablet   | Body          | Extremity    | Grip Sensor Active |             | Head          |             | Hotspot       |             | Earjack       |             | Maximum Tune up Output Power* |
|--------------------|---------------|-----------|---------------|--------------|--------------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|-------------------------------|
| Averaging Volume:  | 1g            | 10g       | 1g            | 10g          | 10g                | 1g, 10g     | 1g            | 1g          | 1g            | 1g          | 10g           | 10g         |                               |
| Spacing:           | 15 mm         | 12, 10 mm | 12, 10, 16 mm | 12, 9, 16 mm | 0 mm               | 10, 0 mm    | 0 mm          | 0 mm        | 10 mm         | 10 mm       | 0 mm          | 0 mm        |                               |
| DSI:               | 11            | 11        | 0             | 0            | 2                  | 1           | 4             | 3           | 6             | 5           | 8             | 7           |                               |
| Configuration      | Folder Closed |           | Folder Open   |              | Folder Closed      | Folder Open | Folder Closed | Folder Open | Folder Closed | Folder Open | Folder Closed | Folder Open | $P_{max}$                     |
| Technology/Band    | Antenna       |           |               |              |                    |             |               |             |               |             |               |             |                               |
| NR TDD n48         | E             | 19.0      | 19.0          | 19.0         | 19.0               | 18.0        | 18.0          | 19.0        | 19.0          | 19.0        | 19.0          | 19.0        | 24.0                          |

\*Note all  $P_{limit}$  EFS and maximum tune up output power  $P_{max}$  levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM & LTE TDD).

\*Maximum tune up output power  $P_{max}$  is used to configure EUT during RF tune up procedure. The maximum allowed output power is equal to maximum Tune up output power + 1dB device design uncertainty.

The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G Sub6 WWAN technology, band, and DSI = minimum of " $P_{limit}$  EFS" and "Maximum tune up output power  $P_{max}$ " + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

**Measurement Condition: All conducted power and SAR measurements in this report (Part 1 test) were performed by setting *Reserve\_power\_margin* (Smart Transmit EFS entry) to 0dB.**

## 1.3 Power Reduction for SAR

This device uses an independent fixed level power reduction mechanism for WLAN/BT operations during voice or VoIP held to ear scenarios, and WLAN operations when 5G NR is active. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.

|                                             |                                                                                                                                                                                                              |                                      |                                                                                       |                                        |
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## 1.4 Nominal and Maximum Output Power Specifications

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

### 1.4.1 5G Output Power

Only operations relevant to this permissive change were evaluated for compliance. No other target changes have been made. Targets for all other bands/exposure conditions can be found in the original filing.

| Mode / Band    |             | Modulated Average Output Power (in dBm) |                             |                                |                                            |                                              |                              |                                |                                 |                                   |                                 |                                   |
|----------------|-------------|-----------------------------------------|-----------------------------|--------------------------------|--------------------------------------------|----------------------------------------------|------------------------------|--------------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|
|                |             | Pmax                                    | DSI = 0 (Folder Open - Max) | DSI = 11 (Folder Closed - Max) | DSI = 1 (Folder Open - Grip Sensor Active) | DSI = 2 (Folder Closed - Grip Sensor Active) | DSI = 3 (Folder Open - Head) | DSI = 4 (Folder Closed - Head) | DSI = 5 (Folder Open - Hotspot) | DSI = 6 (Folder Closed - Hotspot) | DSI = 7 (Folder Open - Earjack) | DSI = 8 (Folder Closed - Earjack) |
| NR TDD Band 48 | Max allowed | 25.0                                    | 20.0                        | 20.0                           | 20.0                                       | 20.0                                         | 19.0                         | 19.0                           | 20.0                            | 20.0                              | 20.0                            | 20.0                              |
|                | Nominal     | 24.0                                    | 19.0                        | 19.0                           | 19.0                                       | 19.0                                         | 18.0                         | 18.0                           | 19.0                            | 19.0                              | 19.0                            | 19.0                              |

For NR TDD, the above powers listed are TDD burst average values.

### 1.4.1 WLAN and Bluetooth Maximum and Reduced Output Powers

Only operations relevant to this permissive change were evaluated for compliance. No other target changes have been made. Targets for all other bands/exposure conditions can be found in the original filing.

## 1.5 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix E. This device is considered a "phablet" when it is in closed configuration and a "UMPC mini-tablet" when it is in open configuration. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing

**Table 1-1**  
**Device Edges/Sides for Closed Configuration SAR Testing**

| Device Sides/Edges for SAR Testing |      |       |     |        |       |      |
|------------------------------------|------|-------|-----|--------|-------|------|
| Mode                               | Back | Front | Top | Bottom | Right | Left |
| NR Band n48                        | Yes  | Yes   | Yes | No     | No    | Yes  |

**Table 1-2**  
**Device Edges/Sides for Open Configuration SAR Testing**

| Device Sides/Edges for SAR Testing |      |       |     |        |       |      |
|------------------------------------|------|-------|-----|--------|-------|------|
| Mode                               | Back | Front | Top | Bottom | Right | Left |
| NR Band n48                        | Yes  | Yes   | Yes | No     | No    | No   |

Note: Particular DUT edges were not required to be evaluated for wireless router SAR, phablet SAR or UMPC mini-tablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III, FCC KDB Publication 941225 D07v01r02 and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C operations are disabled.

## 1.6 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in Appendix E.

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                 |
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## 1.7 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

**Table 1-3**  
**Simultaneous Transmission Scenarios**

| No. | Capable Transmit Configuration                                                 | Head             | Body-Worn Accessory | Wireless Router  | Phablet | UMPC Body | UMPC Extremity | Notes                                          |
|-----|--------------------------------------------------------------------------------|------------------|---------------------|------------------|---------|-----------|----------------|------------------------------------------------|
| 1   | 1x CDMA voice + 2.4 GHz WLAN MIMO                                              | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 2   | 1x CDMA voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                            | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 3   | 1x CDMA voice + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                            | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 4   | 1x CDMA voice + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                   | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 5   | 1x CDMA voice + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1 | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 6   | 1x CDMA voice + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1 | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 7   | 1x CDMA voice + 5 GHz WLAN Ant 1                                               | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 8   | 1x CDMA voice + 5 GHz WLAN MIMO                                                | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 9   | 1x CDMA voice + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                      | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 10  | 1x CDMA voice + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                      | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 11  | 1x CDMA voice + 6 GHz WLAN MIMO                                                | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 12  | 1x CDMA voice + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                      | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 13  | 1x CDMA voice + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                      | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 14  | 1x CDMA voice + 2.4 GHz Bluetooth Ant 1                                        | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 15  | 1x CDMA voice + 2.4 GHz Bluetooth Ant 2                                        | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 16  | GSM voice + 2.4 GHz WLAN MIMO                                                  | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 17  | GSM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 18  | GSM voice + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 19  | GSM voice + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                       | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 20  | GSM voice + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1     | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 21  | GSM voice + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1     | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 22  | GSM voice + 5 GHz WLAN Ant 1                                                   | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 23  | GSM voice + 5 GHz WLAN MIMO                                                    | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 24  | GSM voice + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                          | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 25  | GSM voice + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                          | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 26  | GSM voice + 6 GHz WLAN MIMO                                                    | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 27  | GSM voice + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                          | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 28  | GSM voice + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                          | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 29  | GSM voice + 2.4 GHz Bluetooth Ant 1                                            | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 30  | GSM voice + 2.4 GHz Bluetooth Ant 2                                            | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 31  | UMTS + 2.4 GHz WLAN MIMO                                                       | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 32  | UMTS + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                     | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 33  | UMTS + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                     | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 34  | UMTS + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                            | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 35  | UMTS + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1          | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 36  | UMTS + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1          | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 37  | UMTS + 5 GHz WLAN Ant 1                                                        | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 38  | UMTS + 5 GHz WLAN MIMO                                                         | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 39  | UMTS + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                               | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 40  | UMTS + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                               | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 41  | UMTS + 6 GHz WLAN MIMO                                                         | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 42  | UMTS + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                               | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 43  | UMTS + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                               | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 44  | UMTS + 2.4 GHz Bluetooth Ant 1                                                 | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 45  | UMTS + 2.4 GHz Bluetooth Ant 2                                                 | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 46  | LTE + 2.4 GHz WLAN MIMO                                                        | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 47  | LTE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                      | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 48  | LTE + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                      | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 49  | LTE + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                             | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 50  | LTE + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1           | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 51  | LTE + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1           | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 52  | LTE + 5 GHz WLAN Ant 1                                                         | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 53  | LTE + 5 GHz WLAN MIMO                                                          | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 54  | LTE + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                                | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 55  | LTE + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                                | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 56  | LTE + 6 GHz WLAN MIMO                                                          | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 57  | LTE + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                                | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 58  | LTE + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                                | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 59  | LTE + 2.4 GHz Bluetooth Ant 1                                                  | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 60  | LTE + 2.4 GHz Bluetooth Ant 2                                                  | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 61  | LTE + NR                                                                       | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 62  | LTE + NR + 2.4 GHz WLAN MIMO                                                   | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 63  | LTE + NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                 | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 64  | LTE + NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                 | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 65  | LTE + NR + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                        | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 66  | LTE + NR + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1      | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 67  | LTE + NR + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1      | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 68  | LTE + NR + 5 GHz WLAN Ant 1                                                    | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 69  | LTE + NR + 5 GHz WLAN MIMO                                                     | Yes              | Yes                 | Yes              | Yes     | Yes       | Yes            |                                                |
| 70  | LTE + NR + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                           | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 71  | LTE + NR + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                           | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 72  | LTE + NR + 6 GHz WLAN MIMO                                                     | Yes              | Yes                 | N/A              | Yes     | Yes       | Yes            |                                                |
| 73  | LTE + NR + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                           | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 74  | LTE + NR + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                           | Yes <sup>a</sup> | Yes                 | N/A              | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 75  | LTE + NR + 2.4 GHz Bluetooth Ant 1                                             | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |
| 76  | LTE + NR + 2.4 GHz Bluetooth Ant 2                                             | Yes <sup>a</sup> | Yes                 | Yes <sup>a</sup> | Yes     | Yes       | Yes            | <sup>a</sup> Bluetooth Tethering is considered |

FCC ID: A3LSMF926U



SAR EVALUATION REPORT



Approved by:  
Quality Manager

Document S/N:

Test Dates:

DUT Type:

Page 6 of 34

1M2112280170-01.A3L

05/23/21 - 01/03/22

Portable Handset

**Table 1-4**  
**Simultaneous Transmission Scenarios Continued**

| No. | Capable Transmit Configuration                                                  | Head  | Body-Worn Accessory | Wireless Router | Phablet | UMPC Body | UMPC Extremity | Notes                                                                                    |
|-----|---------------------------------------------------------------------------------|-------|---------------------|-----------------|---------|-----------|----------------|------------------------------------------------------------------------------------------|
| 77  | NR + 2.4 GHz WLAN MIMO                                                          | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 78  | NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                        | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 79  | NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                        | Yes*  | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 80  | NR + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                               | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 81  | NR + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1             | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 82  | NR + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1             | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 83  | NR + 5 GHz WLAN Ant 1                                                           | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 84  | NR + 5 GHz WLAN MIMO                                                            | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 85  | NR + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                                  | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 86  | NR + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                                  | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 87  | NR + 6 GHz WLAN MIMO                                                            | Yes*  | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 88  | NR + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                                  | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 89  | NR + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                                  | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 90  | NR + 2.4 GHz Bluetooth Ant 1                                                    | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 91  | NR + 2.4 GHz Bluetooth Ant 2                                                    | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 92  | CDMA/EVDO data + 2.4 GHz WLAN MIMO                                              | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 93  | CDMA/EVDO data + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                            | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 94  | CDMA/EVDO data + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                            | Yes*  | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 95  | CDMA/EVDO data + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                   | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 96  | CDMA/EVDO data + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1 | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 97  | CDMA/EVDO data + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1 | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 98  | CDMA/EVDO data + 5 GHz WLAN Ant 1                                               | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 99  | CDMA/EVDO data + 5 GHz WLAN MIMO                                                | Yes*  | Yes*                | Yes             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 100 | CDMA/EVDO data + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                      | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 101 | CDMA/EVDO data + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                      | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 102 | CDMA/EVDO data + 6 GHz WLAN MIMO                                                | Yes*  | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.                                        |
| 103 | CDMA/EVDO data + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                      | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 104 | CDMA/EVDO data + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                      | Yes^A | Yes*                | N/A             | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 105 | CDMA/EVDO data + 2.4 GHz Bluetooth Ant 1                                        | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 106 | CDMA/EVDO data + 2.4 GHz Bluetooth Ant 2                                        | Yes^A | Yes*                | Yes^A           | Yes     | Yes       | Yes            | * Pre-installed VOIP applications are considered.<br>^ Bluetooth Tethering is considered |
| 107 | GPRS/EDGE + 2.4 GHz WLAN MIMO                                                   | N/A   | N/A                 | Yes             | Yes     | Yes       | Yes            |                                                                                          |
| 108 | GPRS/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO                                 | N/A   | N/A                 | Yes             | Yes     | Yes       | Yes            |                                                                                          |
| 109 | GPRS/EDGE + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO                                 | N/A   | N/A                 | N/A             | Yes     | Yes       | Yes            |                                                                                          |
| 110 | GPRS/EDGE + 2.4 GHz WLAN Ant 2 + 2.4 GHz Bluetooth Ant 1                        | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 111 | GPRS/EDGE + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1      | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 112 | GPRS/EDGE + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1      | N/A   | N/A                 | N/A             | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 113 | GPRS/EDGE + 5 GHz WLAN Ant 1                                                    | N/A   | N/A                 | Yes             | Yes     | Yes       | Yes            |                                                                                          |
| 114 | GPRS/EDGE + 5 GHz WLAN MIMO                                                     | N/A   | N/A                 | Yes             | Yes     | Yes       | Yes            |                                                                                          |
| 115 | GPRS/EDGE + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                           | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 116 | GPRS/EDGE + 5 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                           | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 117 | GPRS/EDGE + 6 GHz WLAN MIMO                                                     | N/A   | N/A                 | N/A             | Yes     | Yes       | Yes            |                                                                                          |
| 118 | GPRS/EDGE + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 1                           | N/A   | N/A                 | N/A             | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 119 | GPRS/EDGE + 6 GHz WLAN MIMO + 2.4 GHz Bluetooth Ant 2                           | N/A   | N/A                 | N/A             | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 120 | GPRS/EDGE + 2.4 GHz Bluetooth Ant 1                                             | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |
| 121 | GPRS/EDGE + 2.4 GHz Bluetooth Ant 2                                             | N/A   | N/A                 | Yes^A           | Yes     | Yes       | Yes            | ^ Bluetooth Tethering is considered                                                      |

- 2.4 GHz WLAN ant 1, and 2.4 GHz Bluetooth 1 share the same antenna path and cannot transmit simultaneously.
- 5 GHz WLAN and 6 GHz WLAN share the same antenna path and cannot transmit simultaneously.
- All licensed modes share the same antenna path and cannot transmit simultaneously.
- When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
- Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
- 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII-2A, and U-NII-2C were not evaluated for wireless router conditions.
- 6 GHz Wireless Router is not supported, therefore it was not evaluated for wireless router conditions.

|                                             |                                                                                                                                                                                                |                                      |                                                                                       |                                        |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          | <br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                      | <b>DUT Type:</b><br>Portable Handset | Page 7 of 34                                                                          |                                        |

8. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.
9. This device supports VOLTE.
10. This device supports VOWIFI.
11. This device supports Bluetooth Tethering.
12. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
13. 5G NR FR2 n260 and n261 cannot transmit simultaneously.
14. LTE + 5G NR FR2 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR

## 1.8 Miscellaneous SAR Test Considerations

### (A) WIFI/BT

There were no changes made to the WIFI and BT operations within this device. Please see original filing for complete evaluation of these operating modes.

### (B) Licensed Transmitter(s)

Only operations relevant to this permissive change were evaluated for compliance. Please see original filing for complete evaluation of all other operating modes. The operational description includes a description of all changed items.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is closed configuration since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.

This device supports NR FR1 capabilities with overlapping transmission frequency ranges. When the supported frequency range of an NR Band falls completely within an NR band with a larger transmission frequency range, both NR bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both NR bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.

## 1.9 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Tablet, Proximity Sensor)
- FCC KDB Publication 941225 D07v01r02 (UMPC Mini-Tablet Devices)

|                                      |                                                                                                                                                                                                              |                               |                                                                                                                              |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  <b>Approved by:</b><br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset | Page 8 of 34                                                                                                                 |

## 1.10 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 11.

## 1.11 Bibliography

| Report Type                             | Report Serial Number |
|-----------------------------------------|----------------------|
| RF Exposure Part 0 Test Report          | 1M2112280170-02.A3L  |
| Original RF Exposure Part 1 Test Report | 1M2104020031-01.A3L  |

|                                             |                                                                                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br><small>Proud to be part of the Element</small> | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 9 of 34                           |

## 2

## LTE AND NR INFORMATION

| LTE Information                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------|----------------|-----------------|--|
| Form Factor                                                                                                       | Portable Handset                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                           |                |                |                 |  |
| Frequency Range of each LTE transmission band                                                                     | LTE Band 71 (665.5 - 695.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 12 (699.7 - 715.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 13 (779.5 - 784.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 14 (790.5 - 795.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 26 (Cell) (814.7 - 848.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                    |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 5 (Cell) (824.7 - 848.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                   |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                    |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                   |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)                                                                                                                                                                                                                                                                                                                                                                                                    |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 30 (2307.5 - 2312.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 7 (2502.5 - 2567.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                          |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 48 (2552.5 - 2597.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 41 (2498.5 - 2687.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |                |                |                 |  |
|                                                                                                                   | LTE Band 38 (2572.5 - 2617.5 MHz)                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |                |                |                 |  |
|                                                                                                                   | Channel Bandwidths                                                                                                                                                                                                                                                                                                                                                                                                                        | LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz                |                |                |                 |  |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           | LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz                |                |                |                 |  |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           | LTE Band 13: 5 MHz, 10 MHz                                |                |                |                 |  |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           | LTE Band 14: 5 MHz, 10 MHz                                |                |                |                 |  |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           | LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz |                |                |                 |  |
| LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 30: 5 MHz, 10 MHz                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 38: 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| Channel Numbers and Frequencies (MHz)                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           |                |                |                 |  |
| LTE Band 71: 5 MHz                                                                                                | Low                                                                                                                                                                                                                                                                                                                                                                                                                                       | Low-Mid                                                   | Mid            | Mid-High       | High            |  |
| LTE Band 71: 10 MHz                                                                                               | 665.5 (133147)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 680.5 (133297) |                | 695.5 (133447)  |  |
| LTE Band 71: 15 MHz                                                                                               | 668 (133172)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 680.5 (133297) |                | 693 (133422)    |  |
| LTE Band 71: 20 MHz                                                                                               | 670.5 (133197)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 680.5 (133297) |                | 690.5 (133397)  |  |
| LTE Band 12: 1.4 MHz                                                                                              | 673 (133222)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 680.5 (133297) |                | 688 (133372)    |  |
| LTE Band 12: 1.4 MHz                                                                                              | 699.1 (23017)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 707.5 (23095)  |                | 715.3 (23173)   |  |
| LTE Band 12: 3 MHz                                                                                                | 700.5 (23025)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 707.5 (23095)  |                | 714.5 (23165)   |  |
| LTE Band 12: 5 MHz                                                                                                | 701.5 (23035)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 707.5 (23095)  |                | 713.5 (23155)   |  |
| LTE Band 12: 10 MHz                                                                                               | 704 (23060)                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                           | 707.5 (23095)  |                | 711 (23130)     |  |
| LTE Band 13: 5 MHz                                                                                                | 779.5 (23205)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 782 (23230)    |                | 784.5 (23255)   |  |
| LTE Band 13: 10 MHz                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 782 (23230)    |                | N/A             |  |
| LTE Band 14: 5 MHz                                                                                                | 790.5 (23305)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 793 (23330)    |                | 795.5 (23355)   |  |
| LTE Band 14: 10 MHz                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 793 (23330)    |                | N/A             |  |
| LTE Band 26 (Cell): 1.4 MHz                                                                                       | 814.7 (26697)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 831.5 (26865)  |                | 848.3 (27033)   |  |
| LTE Band 26 (Cell): 3 MHz                                                                                         | 815.5 (26705)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 831.5 (26865)  |                | 847.5 (27025)   |  |
| LTE Band 26 (Cell): 5 MHz                                                                                         | 816.5 (26715)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 831.5 (26865)  |                | 846.5 (27015)   |  |
| LTE Band 26 (Cell): 10 MHz                                                                                        | 819 (26740)                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                           | 831.5 (26865)  |                | 844 (26990)     |  |
| LTE Band 26 (Cell): 15 MHz                                                                                        | 821.5 (26765)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 831.5 (26865)  |                | 841.5 (26965)   |  |
| LTE Band 5 (Cell): 1.4 MHz                                                                                        | 824.7 (20407)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 836.5 (20525)  |                | 848.3 (20643)   |  |
| LTE Band 5 (Cell): 3 MHz                                                                                          | 825.5 (20415)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 836.5 (20525)  |                | 847.5 (20635)   |  |
| LTE Band 5 (Cell): 5 MHz                                                                                          | 826.5 (20425)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 836.5 (20525)  |                | 846.5 (20625)   |  |
| LTE Band 5 (Cell): 10 MHz                                                                                         | 829 (20450)                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                           | 836.5 (20525)  |                | 844 (20600)     |  |
| LTE Band 66 (AWS): 1.4 MHz                                                                                        | 1710.7 (131979)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 1745 (132322)  |                | 1779.3 (132665) |  |
| LTE Band 66 (AWS): 3 MHz                                                                                          | 1711.5 (131987)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 1745 (132322)  |                | 1778.5 (132657) |  |
| LTE Band 66 (AWS): 5 MHz                                                                                          | 1712.5 (131997)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 1745 (132322)  |                | 1777.5 (132647) |  |
| LTE Band 66 (AWS): 10 MHz                                                                                         | 1715 (132022)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 1745 (132322)  |                | 1775 (132622)   |  |
| LTE Band 66 (AWS): 15 MHz                                                                                         | 1717.5 (132047)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                           | 1745 (132322)  |                | 1772.5 (132597) |  |
| LTE Band 66 (AWS): 20 MHz                                                                                         | 1720 (132072)                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           | 1745 (132322)  |                | 1770 (132572)   |  |
| LTE Band 4 (AWS): 1.4 MHz                                                                                         | 1710.7 (19957)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1732.5 (20175) |                | 1754.3 (20393)  |  |
| LTE Band 4 (AWS): 3 MHz                                                                                           | 1711.5 (19965)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1732.5 (20175) |                | 1753.5 (20385)  |  |
| LTE Band 4 (AWS): 5 MHz                                                                                           | 1712.5 (19975)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1732.5 (20175) |                | 1752.5 (20375)  |  |
| LTE Band 4 (AWS): 10 MHz                                                                                          | 1715 (20000)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1732.5 (20175) |                | 1750 (20350)    |  |
| LTE Band 4 (AWS): 15 MHz                                                                                          | 1717.5 (20025)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1732.5 (20175) |                | 1747.5 (20325)  |  |
| LTE Band 4 (AWS): 20 MHz                                                                                          | 1720 (20050)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1732.5 (20175) |                | 1745 (20300)    |  |
| LTE Band 25 (PCS): 1.4 MHz                                                                                        | 1850.7 (26047)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1882.5 (26365) |                | 1914.3 (26683)  |  |
| LTE Band 25 (PCS): 3 MHz                                                                                          | 1851.5 (26055)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1882.5 (26365) |                | 1913.5 (26675)  |  |
| LTE Band 25 (PCS): 5 MHz                                                                                          | 1852.5 (26065)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1882.5 (26365) |                | 1912.5 (26665)  |  |
| LTE Band 25 (PCS): 10 MHz                                                                                         | 1855 (26090)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1882.5 (26365) |                | 1910 (26640)    |  |
| LTE Band 25 (PCS): 15 MHz                                                                                         | 1857.5 (26115)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1882.5 (26365) |                | 1907.5 (26615)  |  |
| LTE Band 25 (PCS): 20 MHz                                                                                         | 1860 (26140)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1882.5 (26365) |                | 1905 (26590)    |  |
| LTE Band 2 (PCS): 1.4 MHz                                                                                         | 1850.7 (18607)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1880 (18900)   |                | 1909.3 (19193)  |  |
| LTE Band 2 (PCS): 3 MHz                                                                                           | 1851.5 (18615)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1880 (18900)   |                | 1908.5 (19185)  |  |
| LTE Band 2 (PCS): 5 MHz                                                                                           | 1852.5 (18625)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1880 (18900)   |                | 1907.5 (19175)  |  |
| LTE Band 2 (PCS): 10 MHz                                                                                          | 1855 (18650)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1880 (18900)   |                | 1905 (19150)    |  |
| LTE Band 2 (PCS): 15 MHz                                                                                          | 1857.5 (18675)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 1880 (18900)   |                | 1902.5 (19125)  |  |
| LTE Band 2 (PCS): 20 MHz                                                                                          | 1860 (18700)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 1880 (18900)   |                | 1900 (19100)    |  |
| LTE Band 30: 5 MHz                                                                                                | 2307.5 (27685)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 2310 (27710)   |                | 2312.5 (27735)  |  |
| LTE Band 30: 10 MHz                                                                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                           | 2310 (27710)   |                | N/A             |  |
| LTE Band 7: 5 MHz                                                                                                 | 2502.5 (20775)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 2535 (21100)   |                | 2567.5 (21425)  |  |
| LTE Band 7: 10 MHz                                                                                                | 2505 (20800)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 2535 (21100)   |                | 2565 (21400)    |  |
| LTE Band 7: 15 MHz                                                                                                | 2507.5 (20825)                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                           | 2535 (21100)   |                | 2562.5 (21375)  |  |
| LTE Band 7: 20 MHz                                                                                                | 2510 (20850)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           | 2535 (21100)   |                | 2560 (21350)    |  |
| LTE Band 48: 5 MHz                                                                                                | 3552.5 (55265)                                                                                                                                                                                                                                                                                                                                                                                                                            | 3600.8 (55748)                                            | N/A            | 3649.2 (56232) | 3697.5 (56715)  |  |
| LTE Band 48: 10 MHz                                                                                               | 3555 (55290)                                                                                                                                                                                                                                                                                                                                                                                                                              | 3601.7 (55757)                                            | N/A            | 3648.3 (56223) | 3695 (56690)    |  |
| LTE Band 48: 15 MHz                                                                                               | 3557.5 (55315)                                                                                                                                                                                                                                                                                                                                                                                                                            | 3602.5 (55765)                                            | N/A            | 3647.5 (56215) | 3692.5 (56665)  |  |
| LTE Band 48: 20 MHz                                                                                               | 3560 (55340)                                                                                                                                                                                                                                                                                                                                                                                                                              | 3603.3 (55773)                                            | N/A            | 3646.7 (56207) | 3690 (56640)    |  |
| LTE Band 41: 5 MHz                                                                                                | 2506 (39750)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2549.5 (40185)                                            | 2593 (40620)   | 2636.5 (41055) | 2680 (41490)    |  |
| LTE Band 41: 10 MHz                                                                                               | 2506 (39750)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2549.5 (40185)                                            | 2593 (40620)   | 2636.5 (41055) | 2680 (41490)    |  |
| LTE Band 41: 15 MHz                                                                                               | 2506 (39750)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2549.5 (40185)                                            | 2593 (40620)   | 2636.5 (41055) | 2680 (41490)    |  |
| LTE Band 41: 20 MHz                                                                                               | 2506 (39750)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2549.5 (40185)                                            | 2593 (40620)   | 2636.5 (41055) | 2680 (41490)    |  |
| LTE Band 38: 5 MHz                                                                                                | 2572.5 (37775)                                                                                                                                                                                                                                                                                                                                                                                                                            | 2595 (38000)                                              | 2617.5 (38225) | 2680 (41490)   |                 |  |
| LTE Band 38: 10 MHz                                                                                               | 2575 (37800)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2595 (38000)                                              | 2615 (38200)   | 2680 (41490)   |                 |  |
| LTE Band 38: 15 MHz                                                                                               | 2577.5 (37825)                                                                                                                                                                                                                                                                                                                                                                                                                            | 2595 (38000)                                              | 2612.5 (38175) | 2680 (41490)   |                 |  |
| LTE Band 38: 20 MHz                                                                                               | 2580 (37850)                                                                                                                                                                                                                                                                                                                                                                                                                              | 2595 (38000)                                              | 2610 (38150)   | 2680 (41490)   |                 |  |
| UE Category                                                                                                       | DL UE Cat 20, UL UE Cat 18                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |                |                |                 |  |
| Modulations Supported in UL                                                                                       | QPSK, 16QAM, 64QAM, 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |                |                |                 |  |
| LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (manufacturer attestation to be provided) | YES                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                           |                |                |                 |  |
| A-MPR (Additional MPR) disabled for SAR Testing?                                                                  | YES                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                           |                |                |                 |  |
| LTE Carrier Aggregation Possible Combinations                                                                     | The technical description includes all the possible carrier aggregation combinations                                                                                                                                                                                                                                                                                                                                                      |                                                           |                |                |                 |  |
| LTE Additional Information                                                                                        | This device does not support full CA features on 3GPP Release 16. It supports carrier aggregation, downlink MIMO, LAA features as shown in Section 9 and Appendix F. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 16 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA. |                                                           |                |                |                 |  |

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  | SAR EVALUATION REPORT         |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                  | DUT Type:<br>Portable Handset | Page 10 of 34                                                                         |                                 |

| NR Information                                                                           |                                                                                        |                  |                  |                  |  |  |                  |                  |  |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------|------------------|------------------|--|--|------------------|------------------|--|
| Form Factor                                                                              | Portable Handset                                                                       |                  |                  |                  |  |  |                  |                  |  |
| Frequency Range of each NR transmission band                                             | NR Band n71 (665.5 - 695.5 MHz)                                                        |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n12 (701.5 - 713.5 MHz)                                                        |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n5 (Cell) (826.5 - 846.5 MHz)                                                  |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n66 (AWS) (1712.5 - 1777.5 MHz)                                                |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n25 (PCS) (1852.5 - 1912.5 MHz)                                                |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n2 (PCS) (1852.5 - 1907.5 MHz)                                                 |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n30 (2307.5 - 2312.5 MHz)                                                      |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n41 (2506.02 - 2679.99 MHz)                                                    |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n48 (2655 - 3694.98 MHz)                                                       |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n77 DoD (3460.02 - 3540 MHz)                                                   |                  |                  |                  |  |  |                  |                  |  |
| Channel Bandwidths                                                                       | NR Band n77 (3710.01 - 3969.99 MHz)                                                    |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz                                             |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n12: 5 MHz, 10 MHz, 15 MHz                                                     |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n5 (Cell): 5 MHz, 10 MHz, 15 MHz, 20 MHz                                       |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n66 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz                       |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n25 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz               |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n2 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz                                        |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n30: 5 MHz, 10 MHz                                                             |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n41: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz           |                  |                  |                  |  |  |                  |                  |  |
|                                                                                          | NR Band n48: 10 MHz, 20 MHz, 40 MHz                                                    |                  |                  |                  |  |  |                  |                  |  |
| NR Band n77 DoD: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz |                                                                                        |                  |                  |                  |  |  |                  |                  |  |
| NR Band n77: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz     |                                                                                        |                  |                  |                  |  |  |                  |                  |  |
| Channel Numbers and Frequencies (MHz)                                                    |                                                                                        |                  |                  |                  |  |  |                  |                  |  |
| NR Band n71: 5 MHz                                                                       | 665.5 (133100)                                                                         |                  |                  | 680.5 (136100)   |  |  |                  | 695.5 (139100)   |  |
| NR Band n71: 10 MHz                                                                      | 669 (133600)                                                                           |                  |                  | 680.5 (136100)   |  |  |                  | 693 (139600)     |  |
| NR Band n71: 15 MHz                                                                      | 670.5 (134100)                                                                         |                  |                  | 680.5 (136100)   |  |  |                  | 690.5 (138100)   |  |
| NR Band n71: 20 MHz                                                                      | 673 (134600)                                                                           |                  |                  | 680.5 (136100)   |  |  |                  | 688 (137600)     |  |
| NR Band n12: 5 MHz                                                                       | 701.5 (140300)                                                                         |                  |                  | 707.5 (141500)   |  |  |                  | 713.5 (142700)   |  |
| NR Band n12: 10 MHz                                                                      | 704 (140800)                                                                           |                  |                  | 707.5 (141500)   |  |  |                  | 711 (142200)     |  |
| NR Band n12: 15 MHz                                                                      | 706.5 (141300)                                                                         |                  |                  | 707.5 (141500)   |  |  |                  | 708.5 (141700)   |  |
| NR Band n5 (Cell): 5 MHz                                                                 | 826.5 (165300)                                                                         |                  |                  | 836.5 (167300)   |  |  |                  | 846.5 (169300)   |  |
| NR Band n5 (Cell): 10 MHz                                                                | 829 (165800)                                                                           |                  |                  | 836.5 (167300)   |  |  |                  | 844 (168800)     |  |
| NR Band n5 (Cell): 15 MHz                                                                | 831.5 (166300)                                                                         |                  |                  | 836.5 (167300)   |  |  |                  | 841.5 (168300)   |  |
| NR Band n5 (Cell): 20 MHz                                                                | 834 (166800)                                                                           |                  |                  | 836.5 (167300)   |  |  |                  | 839 (167800)     |  |
| NR Band n66 (AWS): 5 MHz                                                                 | 1712.5 (342500)                                                                        |                  |                  | 1745 (349000)    |  |  |                  | 1777.5 (355500)  |  |
| NR Band n66 (AWS): 10 MHz                                                                | 1715 (343000)                                                                          |                  |                  | 1745 (349000)    |  |  |                  | 1775 (355000)    |  |
| NR Band n66 (AWS): 15 MHz                                                                | 1717.5 (343500)                                                                        |                  |                  | 1745 (349000)    |  |  |                  | 1772.5 (354500)  |  |
| NR Band n66 (AWS): 20 MHz                                                                | 1720 (344000)                                                                          |                  |                  | 1745 (349000)    |  |  |                  | 1770 (354000)    |  |
| NR Band n66 (AWS): 30 MHz                                                                | 1725 (345000)                                                                          |                  |                  | 1745 (349000)    |  |  |                  | 1765 (353000)    |  |
| NR Band n66 (AWS): 40 MHz                                                                | 1730 (346000)                                                                          |                  |                  | 1745 (349000)    |  |  |                  | 1760 (352000)    |  |
| NR Band n25 (PCS): 5 MHz                                                                 | 1852.5 (370500)                                                                        |                  |                  | 1882.5 (376500)  |  |  |                  | 1912.5 (382500)  |  |
| NR Band n25 (PCS): 10 MHz                                                                | 1855 (371000)                                                                          |                  |                  | 1882.5 (376500)  |  |  |                  | 1910 (382000)    |  |
| NR Band n25 (PCS): 15 MHz                                                                | 1857.5 (371500)                                                                        |                  |                  | 1882.5 (376500)  |  |  |                  | 1907.5 (381500)  |  |
| NR Band n25 (PCS): 20 MHz                                                                | 1860 (372000)                                                                          |                  |                  | 1882.5 (376500)  |  |  |                  | 1905 (381000)    |  |
| NR Band n25 (PCS): 25 MHz                                                                | 1862.5 (372500)                                                                        |                  |                  | 1882.5 (376500)  |  |  |                  | 1902.5 (380500)  |  |
| NR Band n25 (PCS): 30 MHz                                                                | 1865 (373000)                                                                          |                  |                  | 1882.5 (376500)  |  |  |                  | 1900 (380000)    |  |
| NR Band n25 (PCS): 40 MHz                                                                | 1870 (374000)                                                                          |                  |                  | 1882.5 (376500)  |  |  |                  | 1895 (379000)    |  |
| NR Band n2 (PCS): 5 MHz                                                                  | 1852.5 (370500)                                                                        |                  |                  | 1880 (376000)    |  |  |                  | 1907.5 (381500)  |  |
| NR Band n2 (PCS): 10 MHz                                                                 | 1855 (371000)                                                                          |                  |                  | 1880 (376000)    |  |  |                  | 1905 (381000)    |  |
| NR Band n2 (PCS): 15 MHz                                                                 | 1857.5 (371500)                                                                        |                  |                  | 1880 (376000)    |  |  |                  | 1902.5 (380500)  |  |
| NR Band n2 (PCS): 20 MHz                                                                 | 1860 (372000)                                                                          |                  |                  | 1880 (376000)    |  |  |                  | 1900 (380000)    |  |
| NR Band n30: 5 MHz                                                                       | 2307.5 (461500)                                                                        |                  |                  | 2310 (462000)    |  |  |                  | 2312.5 (462500)  |  |
| NR Band n30: 10 MHz                                                                      | N/A                                                                                    |                  |                  | 2310 (462000)    |  |  |                  | N/A              |  |
| NR Band n41: 20 MHz                                                                      | 2506.02 (501204)                                                                       | 2549.49 (509988) |                  | 2592.99 (518598) |  |  | 2636.49 (527298) | 2679.99 (535998) |  |
| NR Band n41: 30 MHz                                                                      | 2511 (502200)                                                                          | 2552.01 (510402) |                  | 2592.99 (518598) |  |  | 2634 (526800)    | 2674.98 (534998) |  |
| NR Band n41: 40 MHz                                                                      | 2516.01 (503202)                                                                       | 2567.34 (513468) |                  | N/A              |  |  | 2618.67 (523734) | 2670 (534000)    |  |
| NR Band n41: 50 MHz                                                                      |                                                                                        | 2521.02 (504204) |                  | 2592.99 (518598) |  |  |                  | 2664.99 (532998) |  |
| NR Band n41: 60 MHz                                                                      |                                                                                        | 2526 (505200)    |                  | 2592.99 (518598) |  |  |                  | 2659.98 (531996) |  |
| NR Band n41: 80 MHz                                                                      |                                                                                        | 2536.02 (507204) |                  | N/A              |  |  |                  | 2649.99 (529998) |  |
| NR Band n41: 90 MHz                                                                      |                                                                                        | 2541 (508200)    |                  | N/A              |  |  |                  | 2644.98 (528996) |  |
| NR Band n41: 100 MHz                                                                     |                                                                                        | 2546.01 (509202) |                  | 2592.99 (518598) |  |  |                  | 2640 (528000)    |  |
| NR Band n48: 10 MHz                                                                      | 3555 (637000)                                                                          | 3601.68 (640112) |                  | N/A              |  |  | 3648.33 (643222) | 3694.98 (646332) |  |
| NR Band n48: 20 MHz                                                                      | 3560.01 (637334)                                                                       | 3603.33 (640222) |                  | N/A              |  |  | 3646.68 (643112) | 3690 (646000)    |  |
| NR Band n48: 40 MHz                                                                      | 3570 (638000)                                                                          | N/A              |                  | 3624.99 (641666) |  |  | N/A              | 3679.98 (645332) |  |
| NR Band n77 DoD: 20 MHz                                                                  |                                                                                        | 3460.02 (630668) |                  | 3500.01 (633334) |  |  |                  | 3540 (636000)    |  |
| NR Band n77 DoD: 30 MHz                                                                  |                                                                                        | 3465 (631000)    |                  | 3500.01 (633334) |  |  |                  | 3534.99 (635666) |  |
| NR Band n77 DoD: 40 MHz                                                                  |                                                                                        | 3470.01 (631334) |                  | N/A              |  |  |                  | 3529.98 (635332) |  |
| NR Band n77 DoD: 50 MHz                                                                  |                                                                                        | 3475.02 (631668) |                  | N/A              |  |  |                  | 3525 (635000)    |  |
| NR Band n77 DoD: 60 MHz                                                                  |                                                                                        | N/A              |                  | 3500.01 (633334) |  |  |                  | N/A              |  |
| NR Band n77 DoD: 70 MHz                                                                  |                                                                                        | N/A              |                  | 3500.01 (633334) |  |  |                  | N/A              |  |
| NR Band n77 DoD: 80 MHz                                                                  |                                                                                        | N/A              |                  | 3500.01 (633334) |  |  |                  | N/A              |  |
| NR Band n77 DoD: 90 MHz                                                                  |                                                                                        | N/A              |                  | 3500.01 (633334) |  |  |                  | N/A              |  |
| NR Band n77 DoD: 100 MHz                                                                 |                                                                                        | N/A              |                  | 3500.01 (633334) |  |  |                  | N/A              |  |
| NR Band n77: 20 MHz                                                                      | 3710.01 (647334)                                                                       | 3762 (650800)    | 3813.99 (654266) | 3866.01 (657734) |  |  | 3918 (661200)    | 3969.99 (664666) |  |
| NR Band n77: 30 MHz                                                                      | 3715.02 (647668)                                                                       | 3765 (651000)    | 3815.01 (654334) | 3864.99 (657666) |  |  | 3915 (661000)    | 3964.98 (664332) |  |
| NR Band n77: 40 MHz                                                                      | 3720 (648000)                                                                          | 3768 (651200)    | 3816 (654400)    | 3864 (657600)    |  |  | 3912 (660800)    | 3960 (664000)    |  |
| NR Band n77: 50 MHz                                                                      | 3725.01 (648334)                                                                       | 3782.49 (652166) |                  | 3840 (656000)    |  |  | 3897.51 (659834) | 3954.99 (663666) |  |
| NR Band n77: 60 MHz                                                                      | 3730.02 (648668)                                                                       | 3803.34 (653556) |                  | N/A              |  |  | 3876.66 (658444) | 3949.98 (663332) |  |
| NR Band n77: 70 MHz                                                                      | 3735 (649000)                                                                          | 3804.99 (653666) |                  | N/A              |  |  | 3875.01 (658334) | 3945 (663000)    |  |
| NR Band n77: 80 MHz                                                                      | 3740.01 (649334)                                                                       | N/A              |                  | 3840 (656000)    |  |  | N/A              | 3939.99 (662666) |  |
| NR Band n77: 90 MHz                                                                      | 3745.02 (649668)                                                                       | N/A              |                  | 3840 (656000)    |  |  | N/A              | 3934.98 (662332) |  |
| NR Band n77: 100 MHz                                                                     | 3750 (650000)                                                                          | N/A              |                  | N/A              |  |  | N/A              | 3930 (662000)    |  |
| SCS for NR Band n71/n12/n5/n66/n25/n2/n30                                                |                                                                                        |                  |                  |                  |  |  |                  | 15 kHz           |  |
| SCS for NR Band n41/n48/n77 DoD/n77                                                      |                                                                                        |                  |                  |                  |  |  |                  | 30 kHz           |  |
| Modulations Supported in UL                                                              | DFT-s-OFDM: m2 BPSK, QPSK, 16QAM, 64QAM, 256QAM<br>CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM |                  |                  |                  |  |  |                  |                  |  |
| NR MPR Permanently implemented per 3GPP TS 38.101                                        | YES                                                                                    |                  |                  |                  |  |  |                  |                  |  |
| A-MPR (Additional MPR) disabled for SAR Testing?                                         | YES                                                                                    |                  |                  |                  |  |  |                  |                  |  |
| EN-DC Carrier Aggregation Possible Combinations                                          | The technical description includes all the possible carrier aggregation combinations   |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n71                                                         | LTE Band 66/2                                                                          |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n12                                                         | LTE Band 66/2                                                                          |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n5 (Cell)                                                   | LTE Band 66/2/30/48                                                                    |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n66 (AWS)                                                   | LTE Band 12/13/14/5/2/30/48                                                            |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n25 (PCS)                                                   | LTE Band 12/66                                                                         |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n2 (PCS)                                                    | LTE Band 12/13/14/5/66/30/48                                                           |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n30                                                         | LTE Band 12/14/5                                                                       |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n41                                                         | LTE Band 12/66/25/2/41                                                                 |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n48                                                         | LTE Band 2/66                                                                          |                  |                  |                  |  |  |                  |                  |  |
| LTE Anchor Bands for NR Band n77 DoD/n77                                                 | LTE Band 12/13/14/5/66/2/30                                                            |                  |                  |                  |  |  |                  |                  |  |

|                                      |                                                                                     |                               |                                                                                       |                                 |
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| FCC ID: A3LSMF926U                   |  | SAR EVALUATION REPORT         |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                  | DUT Type:<br>Portable Handset | Page 11 of 34                                                                         |                                 |

### 3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

#### 3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

**Equation 3-1**  
**SAR Mathematical Equation**

$$SAR = \frac{d}{dt} \left( \frac{dU}{dm} \right) = \frac{d}{dt} \left( \frac{dU}{\rho dv} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m<sup>3</sup>)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

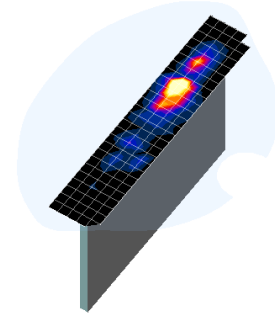
|                                             |                                                                                                                                                                                                              |                                      |                                                                                                                              |
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| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                                    | <b>DUT Type:</b><br>Portable Handset | Page 12 of 34                                                                                                                |

## 4 DOSIMETRIC ASSESSMENT

### 4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
  - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
  - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.



**Figure 4-1**  
**Sample SAR Area Scan**

**Table 4-1**  
**Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04\***

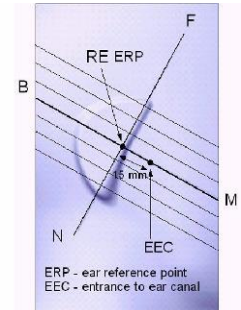
| Frequency | Maximum Area Scan Resolution (mm)<br>( $\Delta x_{\text{area}}, \Delta y_{\text{area}}$ ) | Maximum Zoom Scan Resolution (mm)<br>( $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$ ) | Maximum Zoom Scan Spatial Resolution (mm) |                             |                                     | Minimum Zoom Scan Volume (mm)<br>(x,y,z) |
|-----------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|-------------------------------------|------------------------------------------|
|           |                                                                                           |                                                                                           | Uniform Grid                              | Graded Grid                 |                                     |                                          |
|           |                                                                                           |                                                                                           |                                           | $\Delta z_{\text{zoom}}(n)$ | $\Delta z_{\text{zoom}}(1)^*$       |                                          |
| ≤2 GHz    | ≤15                                                                                       | ≤8                                                                                        | ≤5                                        | ≤4                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥30                                      |
| 2-3 GHz   | ≤12                                                                                       | ≤5                                                                                        | ≤5                                        | ≤4                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥30                                      |
| 3-4 GHz   | ≤12                                                                                       | ≤5                                                                                        | ≤4                                        | ≤3                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥28                                      |
| 4-5 GHz   | ≤10                                                                                       | ≤4                                                                                        | ≤3                                        | ≤2.5                        | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥25                                      |
| 5-6 GHz   | ≤10                                                                                       | ≤4                                                                                        | ≤2                                        | ≤2                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥22                                      |

\*Also compliant to IEEE 1528-2013 Table 6

|                                      |                                                                                     |                               |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  | SAR EVALUATION REPORT         |  |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                  | DUT Type:<br>Portable Handset |  |                                                                                       | Page 13 of 34                   |

### 5.1 EAR REFERENCE POINT

Figure 5-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 5-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 5-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].



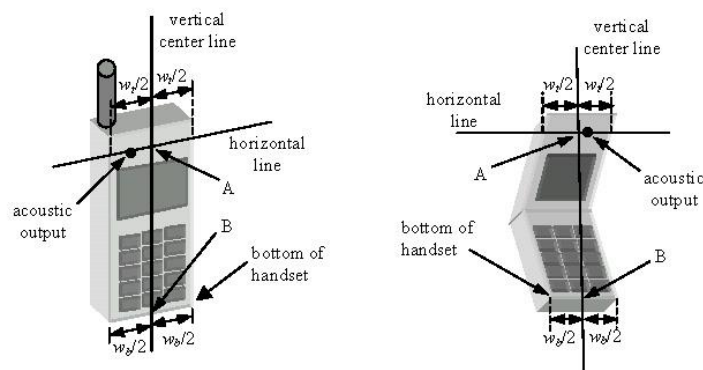
**Figure 5-1**  
Close-Up Side view of ERP

### 5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 5-3). The acoustic output was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.



**Figure 5-2**  
Front, back and side view of SAM Twin Phantom



**Figure 5-3**  
Handset Vertical Center & Horizontal Line Reference Points

|                                      |                                                                                                                                                                                                              |                               |                                                                                                                              |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | SAR EVALUATION REPORT         |  <b>Approved by:</b><br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset | Page 14 of 34                                                                                                                |

## 6 TEST CONFIGURATION POSITIONS

### 6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ .

### 6.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

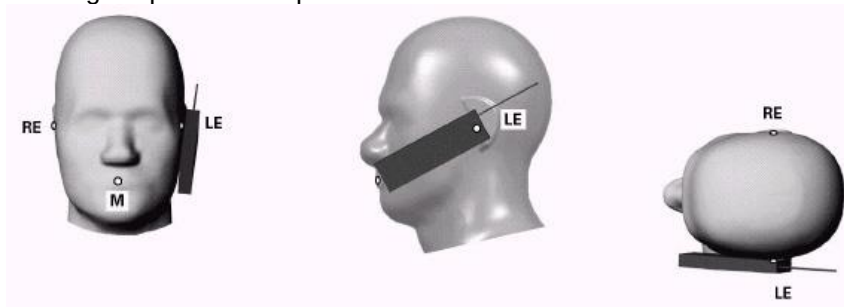


Figure 6-1 Front, Side and Top View of Cheek Position

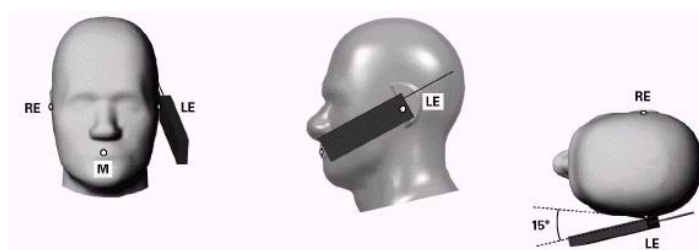
2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the pinna.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the reference plane.
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 6-2).

### 6.3 Positioning for Ear / 15° Tilt

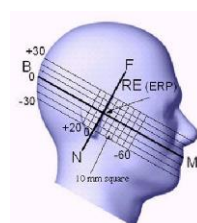
With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. In this situation, the tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

|                                      |                                                                                                                                                                                                              |                               |                                                                                                                              |
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| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  <b>Approved by:</b><br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset | Page 15 of 34                                                                                                                |



**Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position**



**Figure 6-3 Side view w/ relevant markings**

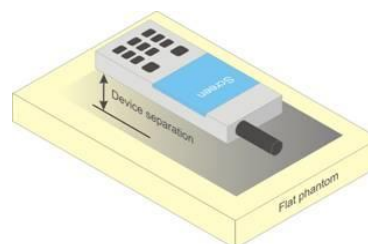
## 6.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. Per IEEE 1528-2013, a rotated SAM phantom is necessary to allow probe access to such regions. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed from the table for emptying and cleaning.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

## 6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.



**Figure 6-4 Sample Body-Worn Diagram**

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that

|                                             |                                                                                                                                                                                                              |                                      |                                                                                       |                                        |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                                    | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 16 of 34                          |

dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

## 6.6 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

## 6.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets ( $L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$ ) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

## 6.8 Phablet Configurations

For smart phones with a display diagonal dimension  $> 150 \text{ mm}$  or an overall diagonal dimension  $> 160 \text{ mm}$  that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 17 of 34                   |

required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna  $\leq 25$  mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR  $> 1.2$  W/kg.

## 6.9 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

## 6.10 UMPC Mini-Tablet Configurations

Small hand-held tablets (and devices of similar form factors that are designed primarily for interactive hand-held use next to or near the body of users) require body SAR and extremity SAR evaluation. These types of mini-tablets are normally optimized for mobile web access and multimedia use. UMPC test procedures are applicable for devices with displays and overall diagonal dimension  $\leq 20$  cm. Devices are to be set up according to KDB publication 941225 D07v01r02 requirements and are configured with maximum output power during SAR assessment for a worst case SAR evaluation.

Per KDB Publication 941225 D07v01r02, UMPC mini-tablet devices must be tested for all surfaces and edges  $\leq 25$  mm from a transmitting antenna. A test separation distance of 10 mm may be considered for 1g SAR, with the addition of 10g SAR measurement at 0 mm test separation distance for all measured 1g SAR (at 10 mm) configurations to address hand exposure.

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 18 of 34                   |

## 7 RF EXPOSURE LIMITS

### 7.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

### 7.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

**Table 7-1**  
**SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6**

| HUMAN EXPOSURE LIMITS                                               |                                                                           |                                                                   |
|---------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------|
|                                                                     | UNCONTROLLED ENVIRONMENT<br><i>General Population</i><br>(W/kg) or (mW/g) | CONTROLLED ENVIRONMENT<br><i>Occupational</i><br>(W/kg) or (mW/g) |
| <b>Peak Spatial Average SAR</b><br>Head                             | 1.6                                                                       | 8.0                                                               |
| <b>Whole Body SAR</b>                                               | 0.08                                                                      | 0.4                                                               |
| <b>Peak Spatial Average SAR</b><br>Hands, Feet, Ankle, Wrists, etc. | 4.0                                                                       | 20                                                                |

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

|                                             |                                                                                                                                                 |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br><small>Proud to be part of Element</small> | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                       | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 19 of 34                          |

## 8 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

### 8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

|                                             |                                                                                                                                                     |                                      |                                                                                       |                                        |
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| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br><small>Proud to be part of the Element</small> | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 20 of 34                          |

## 9 RF CONDUCTED POWERS

### 9.1 NR Conducted Powers

Note: Per October 2020 TCB Workshop Guidance, NR FR1 SAR evaluations are being generally based on adapting the existing LTE SAR procedures (FCC KDB Publication 941225 D05v02r05). Therefore, NR SAR for the lower bandwidths was not required for testing based on the measured output power and the reported NR SAR for the highest bandwidth. Lower bandwidth conducted powers for all NR bands can be found in appendix F.

#### 9.1.1 NR Band n48

Table 9-1

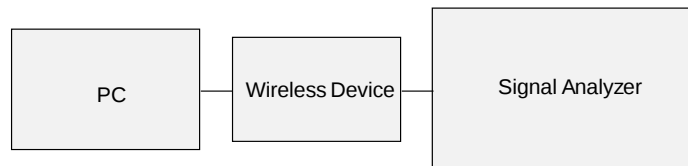
NR Band n48 Measured  $P_{\text{limit}}$  for DSI = 0/11 (Body-worn, or Phablet/UMPC with grip sensor not triggered), or DSI = 1/2 (Phablet or UMPC Extremity with grip sensor active), or DSI = 5/6 (Hotspot Mode), and/or DSI = 7/8 (Earjack active) - 40 MHz Bandwidth

| NR Band n48<br>40 MHz Bandwidth |         |           |                       |                         |                         |                                    |             |
|---------------------------------|---------|-----------|-----------------------|-------------------------|-------------------------|------------------------------------|-------------|
|                                 |         |           | Channel               |                         |                         | MPR<br>Allowed per<br>3GPP<br>[dB] | MPR<br>[dB] |
| Modulation                      | RB Size | RB Offset | 638000<br>(3570 MHz)  | 641666<br>(3624.99 MHz) | 645332<br>(3679.98 MHz) |                                    |             |
|                                 |         |           | Conducted Power [dBm] |                         |                         |                                    |             |
| DFT-s-OFDM<br>$\pi/2$ BPSK      | 1       | 1         | 19.93                 | 19.29                   | 19.20                   | 0                                  | 0.0         |
|                                 | 1       | 53        | 19.80                 | 19.04                   | 19.18                   |                                    | 0.0         |
|                                 | 1       | 104       | 19.80                 | 19.27                   | 19.36                   |                                    | 0.0         |
|                                 | 50      | 0         | 19.89                 | 19.28                   | 19.30                   | 0-0.5                              | 0.0         |
|                                 | 50      | 28        | 19.79                 | 19.14                   | 19.32                   | 0                                  | 0.0         |
|                                 | 50      | 56        | 19.82                 | 19.21                   | 19.44                   | 0-0.5                              | 0.0         |
|                                 | 100     | 0         | 19.85                 | 19.22                   | 19.40                   |                                    | 0.0         |
| DFT-s-OFDM<br>QPSK              | 1       | 1         | <b>19.87</b>          | 19.82                   | 19.31                   | 0                                  | 0.0         |
|                                 | 1       | 53        | 19.68                 | 19.45                   | 19.23                   |                                    | 0.0         |
|                                 | 1       | 104       | 19.61                 | 19.32                   | 19.85                   |                                    | 0.0         |
|                                 | 50      | 0         | 19.64                 | 19.85                   | 19.52                   | 0-1                                | 0.0         |
|                                 | 50      | 28        | 19.61                 | 19.31                   | 19.42                   | 0                                  | 0.0         |
|                                 | 50      | 56        | <b>19.99</b>          | 19.37                   | 19.95                   | 0-1                                | 0.0         |
|                                 | 100     | 0         | 19.74                 | 19.23                   | 19.45                   |                                    | 0.0         |
| DFT-s-OFDM 16QAM                | 1       | 1         | 19.86                 | 19.52                   | 19.58                   | 0-1                                | 0.0         |
| CP-OFDM QPSK                    | 1       | 1         | 19.75                 | 19.29                   | 19.42                   | 0-1.5                              | 0.0         |

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 21 of 34                   |

**Table 9-2**  
**NR Band n48 Measured  $P_{limit}$  for or DSI = 3/4 (Head) - 40 MHz Bandwidth**

| NR Band n48<br>40 MHz Bandwidth |         |           |                       |                         |                         |                                    |             |
|---------------------------------|---------|-----------|-----------------------|-------------------------|-------------------------|------------------------------------|-------------|
|                                 |         |           | Channel               |                         |                         | MPR<br>Allowed per<br>3GPP<br>[dB] | MPR<br>[dB] |
| Modulation                      | RB Size | RB Offset | 638000<br>(3570 MHz)  | 641666<br>(3624.99 MHz) | 645332<br>(3679.98 MHz) |                                    |             |
|                                 |         |           | Conducted Power [dBm] |                         |                         |                                    |             |
| DFT-s-OFDM<br>$\pi/2$ BPSK      | 1       | 1         | 18.54                 | 18.26                   | 18.22                   | 0                                  | 0.0         |
|                                 | 1       | 53        | 18.38                 | 18.00                   | 18.22                   |                                    | 0.0         |
|                                 | 1       | 104       | 18.38                 | 18.17                   | 18.41                   |                                    | 0.0         |
|                                 | 50      | 0         | 18.55                 | 18.18                   | 18.21                   | 0-0.5                              | 0.0         |
|                                 | 50      | 28        | 18.50                 | 18.01                   | 18.20                   | 0                                  | 0.0         |
|                                 | 50      | 56        | 18.43                 | 18.08                   | 18.31                   | 0-0.5                              | 0.0         |
|                                 | 100     | 0         | 18.50                 | 18.04                   | 18.22                   |                                    | 0.0         |
| DFT-s-OFDM<br>QPSK              | 1       | 1         | 18.69                 | 18.27                   | 18.25                   | 0                                  | 0.0         |
|                                 | 1       | 53        | 18.46                 | 17.94                   | 18.23                   |                                    | 0.0         |
|                                 | 1       | 104       | 18.47                 | 18.12                   | 18.44                   |                                    | 0.0         |
|                                 | 50      | 0         | 18.62                 | 18.11                   | 18.27                   | 0-1                                | 0.0         |
|                                 | 50      | 28        | 18.45                 | 18.07                   | 18.25                   | 0                                  | 0.0         |
|                                 | 50      | 56        | 18.42                 | 18.12                   | 18.36                   | 0-1                                | 0.0         |
|                                 | 100     | 0         | 18.51                 | 18.07                   | 18.31                   |                                    | 0.0         |
| DFT-s-OFDM 16QAM                | 1       | 1         | 18.38                 | 18.07                   | 17.98                   | 0-1                                | 0.0         |
| CP-OFDM QPSK                    | 1       | 1         | 18.61                 | 18.44                   | 18.42                   | 0-1.5                              | 0.0         |



**Figure 9-1**  
**Power Measurement Setup**

|                                      |                                                                                                                                   |                               |                                                                                       |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   | <br><small>Proud to be part of Element</small> | SAR EVALUATION REPORT         |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                | DUT Type:<br>Portable Handset | Page 22 of 34                                                                         |                                 |

# 10 SYSTEM VERIFICATION

## 10.1 Tissue Verification

**Table 10-1**  
**Measured Tissue Properties**

| Calibrated for Tests Performed on: | Tissue Type | Tissue Temp During Calibration (°C) | Measured Frequency (MHz) | Measured Conductivity, $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | TARGET Conductivity, $\sigma$ (S/m) | TARGET Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
|------------------------------------|-------------|-------------------------------------|--------------------------|---------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|----------------|------------------|
| 05/23/2021                         | 3600 Head   | 18.7                                | 3500                     | 2.889                                 | 39.340                                   | 2.913                               | 37.929                                 | -0.82%         | 3.72%            |
|                                    |             |                                     | 3550                     | 2.939                                 | 39.250                                   | 2.964                               | 37.871                                 | -0.84%         | 3.64%            |
|                                    |             |                                     | 3560                     | 2.949                                 | 39.237                                   | 2.974                               | 37.860                                 | -0.84%         | 3.64%            |
|                                    |             |                                     | 3600                     | 2.984                                 | 39.155                                   | 3.015                               | 37.814                                 | -1.03%         | 3.55%            |
|                                    |             |                                     | 3650                     | 3.040                                 | 39.059                                   | 3.066                               | 37.757                                 | -0.85%         | 3.45%            |
|                                    |             |                                     | 3690                     | 3.074                                 | 38.991                                   | 3.107                               | 37.711                                 | -1.06%         | 3.39%            |
|                                    |             |                                     | 3700                     | 3.084                                 | 38.966                                   | 3.117                               | 37.700                                 | -1.06%         | 3.36%            |
| 05/27/2021                         | 3600 Body   | 22.4                                | 3500                     | 3.353                                 | 49.610                                   | 3.314                               | 51.321                                 | 1.18%          | -3.33%           |
|                                    |             |                                     | 3550                     | 3.407                                 | 49.549                                   | 3.372                               | 51.254                                 | 1.04%          | -3.33%           |
|                                    |             |                                     | 3560                     | 3.417                                 | 49.539                                   | 3.384                               | 51.240                                 | 0.98%          | -3.32%           |
|                                    |             |                                     | 3600                     | 3.456                                 | 49.495                                   | 3.431                               | 51.186                                 | 0.73%          | -3.30%           |
|                                    |             |                                     | 3650                     | 3.504                                 | 49.404                                   | 3.489                               | 51.118                                 | 0.43%          | -3.35%           |
|                                    |             |                                     | 3690                     | 3.544                                 | 49.339                                   | 3.536                               | 51.063                                 | 0.23%          | -3.38%           |
|                                    |             |                                     | 3700                     | 3.554                                 | 49.323                                   | 3.548                               | 51.050                                 | 0.17%          | -3.38%           |
| 05/31/2021                         | 3600 Body   | 23.0                                | 3500                     | 3.348                                 | 49.600                                   | 3.314                               | 51.321                                 | 1.03%          | -3.35%           |
|                                    |             |                                     | 3550                     | 3.398                                 | 49.526                                   | 3.372                               | 51.254                                 | 0.77%          | -3.37%           |
|                                    |             |                                     | 3560                     | 3.409                                 | 49.512                                   | 3.384                               | 51.240                                 | 0.74%          | -3.37%           |
|                                    |             |                                     | 3600                     | 3.449                                 | 49.474                                   | 3.431                               | 51.186                                 | 0.52%          | -3.34%           |
|                                    |             |                                     | 3650                     | 3.495                                 | 49.415                                   | 3.489                               | 51.118                                 | 0.17%          | -3.33%           |
|                                    |             |                                     | 3690                     | 3.535                                 | 49.372                                   | 3.536                               | 51.063                                 | -0.03%         | -3.31%           |
|                                    |             |                                     | 3700                     | 3.545                                 | 49.359                                   | 3.548                               | 51.050                                 | -0.08%         | -3.31%           |
| 01/03/2022                         | 3600 Body   | 24.0                                | 3500                     | 3.362                                 | 50.200                                   | 3.314                               | 51.321                                 | 1.45%          | -2.18%           |
|                                    |             |                                     | 3550                     | 3.410                                 | 50.127                                   | 3.372                               | 51.254                                 | 1.13%          | -2.20%           |
|                                    |             |                                     | 3560                     | 3.421                                 | 50.112                                   | 3.384                               | 51.240                                 | 1.09%          | -2.20%           |
|                                    |             |                                     | 3600                     | 3.464                                 | 50.059                                   | 3.431                               | 51.186                                 | 0.96%          | -2.20%           |
|                                    |             |                                     | 3650                     | 3.511                                 | 49.976                                   | 3.489                               | 51.118                                 | 0.63%          | -2.23%           |
|                                    |             |                                     | 3690                     | 3.559                                 | 49.948                                   | 3.536                               | 51.063                                 | 0.65%          | -2.18%           |
|                                    |             |                                     | 3700                     | 3.567                                 | 49.936                                   | 3.548                               | 51.050                                 | 0.54%          | -2.18%           |

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

|                                             |                                                                                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br><small>Proud to be part of the Element</small> | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 23 of 34                          |

## 10.2 Test System Verification

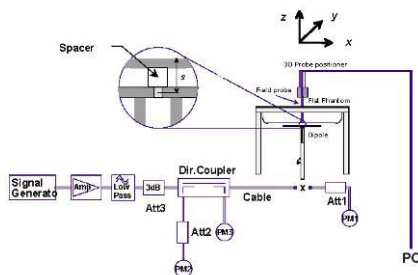
Prior to SAR assessment, the system is verified to  $\pm 10\%$  of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix D.

**Table 10-2**  
**System Verification Results – 1g**

| System Verification<br>TARGET & MEASURED |                        |             |            |                |                  |                 |           |          |                       |                        |                             |                  |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|-----------------------|------------------------|-----------------------------|------------------|
| SAR System                               | Tissue Frequency (MHz) | Tissue Type | Date       | Amb. Temp. (C) | Liquid Temp. (C) | Input Power (W) | Source SN | Probe SN | Measured SAR1g (W/kg) | 1W Target SAR1g (W/kg) | 1W Normalized SAR 1g (W/kg) | Deviation 1g (%) |
| L                                        | 3500                   | HEAD        | 05/23/2021 | 22.1           | 20.3             | 0.10            | 1097      | 7539     | 6.230                 | 66.40                  | 6.640                       | -6.17%           |
| L                                        | 3700                   | HEAD        | 05/23/2021 | 22.1           | 20.3             | 0.10            | 1067      | 7539     | 7.000                 | 67.20                  | 6.720                       | 4.17%            |
| I                                        | 3500                   | BODY        | 05/27/2021 | 23.0           | 22.5             | 0.10            | 1097      | 7551     | 7.000                 | 64.20                  | 6.420                       | 9.03%            |
| I                                        | 3700                   | BODY        | 05/27/2021 | 23.0           | 22.5             | 0.10            | 1067      | 7551     | 6.980                 | 65.20                  | 6.520                       | 7.06%            |
| I                                        | 3500                   | BODY        | 05/31/2021 | 22.0           | 22.0             | 0.10            | 1097      | 7551     | 6.630                 | 64.20                  | 6.420                       | 3.27%            |
| I                                        | 3700                   | BODY        | 05/31/2021 | 22.0           | 22.0             | 0.10            | 1067      | 7551     | 6.600                 | 65.20                  | 6.520                       | 1.23%            |
| L                                        | 3500                   | BODY        | 01/03/2022 | 21.9           | 22.2             | 0.10            | 1097      | 7670     | 5.980                 | 64.20                  | 6.420                       | -6.85%           |
| L                                        | 3700                   | BODY        | 01/03/2022 | 21.9           | 22.2             | 0.10            | 1067      | 7670     | 6.300                 | 65.20                  | 6.520                       | -3.37%           |

**Table 10-3**  
**System Verification Results – 10g**

| System Verification<br>TARGET & MEASURED |                        |             |            |                |                  |                 |           |          |                        |                         |                             |                   |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|------------------------|-------------------------|-----------------------------|-------------------|
| SAR System                               | Tissue Frequency (MHz) | Tissue Type | Date       | Amb. Temp. (C) | Liquid Temp. (C) | Input Power (W) | Source SN | Probe SN | Measured SAR10g (W/kg) | 1W Target SAR10g (W/kg) | 1W Normalized SAR10g (W/kg) | Deviation 10g (%) |
| I                                        | 3500                   | BODY        | 05/31/2021 | 22.0           | 22.0             | 0.10            | 1097      | 7551     | 2.450                  | 23.80                   | 24.500                      | 2.94%             |
| I                                        | 3700                   | BODY        | 05/31/2021 | 22.0           | 22.0             | 0.10            | 1067      | 7551     | 2.360                  | 23.30                   | 23.600                      | 1.29%             |



**Figure 10-1**  
**System Verification Setup Diagram**



**Figure 10-2**  
**System Verification Setup Photo**

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  | SAR EVALUATION REPORT         |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 24 of 34                   |

# 11 SAR DATA SUMMARY

## 11.1 Standalone Head SAR Data

Table 11-1  
NR Band n48 Head SAR

| MEASUREMENT RESULTS                      |        |     |             |                 |                             |                       |                |                  |          |                      |               |            |            |         |           |               |            |          |                |              |
|------------------------------------------|--------|-----|-------------|-----------------|-----------------------------|-----------------------|----------------|------------------|----------|----------------------|---------------|------------|------------|---------|-----------|---------------|------------|----------|----------------|--------------|
| FREQUENCY                                |        |     | Mode        | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Antenna Config | Power Drift [dB] | MPR [dB] | Side                 | Test Position | Waveform   | Modulation | RB Size | RB Offset | Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Reported SAR |
| MHz                                      | Ch.    |     |             |                 |                             |                       |                |                  |          |                      |               |            |            |         |           |               |            | (W/kg)   |                | (W/kg)       |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.69                 | E              | 0.03             | 0        | Right                | Cheek         | DFT-S-OFDM | QPSK       | 1       | 1         | 0356M         | 1:1        | 0.177    | 1.074          | 0.190        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.62                 | E              | 0.04             | 0        | Right                | Cheek         | DFT-S-OFDM | QPSK       | 50      | 0         | 0356M         | 1:1        | 0.179    | 1.091          | 0.195        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.69                 | E              | 0.05             | 0        | Right                | Tilt          | DFT-S-OFDM | QPSK       | 1       | 1         | 0356M         | 1:1        | 0.182    | 1.074          | 0.195        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.62                 | E              | 0.05             | 0        | Right                | Tilt          | DFT-S-OFDM | QPSK       | 50      | 0         | 0356M         | 1:1        | 0.182    | 1.091          | 0.199        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.69                 | E              | -0.05            | 0        | Left                 | Cheek         | DFT-S-OFDM | QPSK       | 1       | 1         | 0356M         | 1:1        | 0.196    | 1.074          | 0.211        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.62                 | E              | -0.06            | 0        | Left                 | Cheek         | DFT-S-OFDM | QPSK       | 50      | 0         | 0356M         | 1:1        | 0.189    | 1.091          | 0.206        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.69                 | E              | 0.02             | 0        | Left                 | Tilt          | DFT-S-OFDM | QPSK       | 1       | 1         | 0356M         | 1:1        | 0.244    | 1.074          | 0.262        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.62                 | E              | -0.08            | 0        | Left                 | Tilt          | DFT-S-OFDM | QPSK       | 50      | 0         | 0356M         | 1:1        | 0.238    | 1.091          | 0.260        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 19.0                        | 18.61                 | E              | -0.07            | 0        | Left                 | Tilt          | CP-OFDM    | QPSK       | 1       | 1         | 0356M         | 1:1        | 0.247    | 1.094          | 0.270        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |        |     |             |                 |                             |                       |                |                  |          | Head                 |               |            |            |         |           |               |            |          |                |              |
| Spatial Peak                             |        |     |             |                 |                             |                       |                |                  |          | 1.6 W/kg (mW/g)      |               |            |            |         |           |               |            |          |                |              |
| Uncontrolled Exposure/General Population |        |     |             |                 |                             |                       |                |                  |          | averaged over 1 gram |               |            |            |         |           |               |            |          |                |              |

## 11.2 Standalone Body-Worn SAR Data

Table 11-2  
NR Band n48 Body-Worn SAR

| MEASUREMENT RESULTS                      |        |     |             |                 |                             |                       |                |                  |          |                      |            |            |         |           |         |      |            |          |                   |        |        |
|------------------------------------------|--------|-----|-------------|-----------------|-----------------------------|-----------------------|----------------|------------------|----------|----------------------|------------|------------|---------|-----------|---------|------|------------|----------|-------------------|--------|--------|
| FREQUENCY                                |        |     | Mode        | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Antenna Config | Power Drift [dB] | MPR [dB] | Serial Number        | Waveform   | Modulation | RB Size | RB Offset | Spacing | Side | Duty Cycle | SAR (1g) | Reported SAR (1g) | Plot # |        |
| MHz                                      | Ch.    |     |             |                 |                             |                       |                |                  |          |                      |            |            |         |           |         |      |            | (W/kg)   |                   |        | (W/kg) |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.87                 | E              | 0.04             | 0        | 0356M                | DFT-S-OFDM | QPSK       | 1       | 1         | 15 mm   | back | 1:1        | 0.208    | 1.030             | 0.214  |        |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.99                 | E              | 0.08             | 0        | 0356M                | DFT-S-OFDM | QPSK       | 50      | 56        | 15 mm   | back | 1:1        | 0.213    | 1.002             | 0.213  | A2     |
| 3570.00                                  | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.75                 | E              | -0.06            | 0        | 0356M                | CP-OFDM    | QPSK       | 1       | 1         | 15 mm   | back | 1:1        | 0.205    | 1.059             | 0.217  |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |        |     |             |                 |                             |                       |                |                  |          | Body                 |            |            |         |           |         |      |            |          |                   |        |        |
| Spatial Peak                             |        |     |             |                 |                             |                       |                |                  |          | 1.6 W/kg (mW/g)      |            |            |         |           |         |      |            |          |                   |        |        |
| Uncontrolled Exposure/General Population |        |     |             |                 |                             |                       |                |                  |          | averaged over 1 gram |            |            |         |           |         |      |            |          |                   |        |        |

## 11.3 Standalone Hotspot SAR Data

Table 11-3  
NR Band n48 Hotspot SAR

| MEASUREMENT RESULTS                      |        |      |                 |                             |                       |                |                  |           |               |                      |            |         |           |         |       |            |          |                |                   |        |    |
|------------------------------------------|--------|------|-----------------|-----------------------------|-----------------------|----------------|------------------|-----------|---------------|----------------------|------------|---------|-----------|---------|-------|------------|----------|----------------|-------------------|--------|----|
| FREQUENCY                                |        | Mode | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Antenna Config | Power Drift [dB] | MPRR [dB] | Serial Number | Waveform             | Modulation | RB Size | RB Offset | Spacing | Side  | Duty Cycle | SAR (1g) | Scaling Factor | Reported SAR (1g) | Plot # |    |
| MHz                                      | Ch.    |      |                 |                             |                       |                |                  |           |               |                      |            |         |           |         |       |            | (W/kg)   |                | (W/kg)            |        |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E                | 0.00      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 1         | 1       | 10 mm | back       | 1:1      | 0.210          | 1.030             | 0.216  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E                | 0.00      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 50        | 56      | 10 mm | back       | 1:1      | 0.204          | 1.002             | 0.204  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E                | 0.07      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 1         | 1       | 10 mm | front      | 1:1      | 0.034          | 1.030             | 0.035  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E                | 0.17      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 50        | 56      | 10 mm | front      | 1:1      | 0.032          | 1.002             | 0.032  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E                | 0.04      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 1         | 1       | 10 mm | top        | 1:1      | 0.224          | 1.030             | 0.231  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E                | -0.03     | 0             | 0356M                | DFT-S-OFDM | QPSK    | 50        | 56      | 10 mm | top        | 1:1      | 0.223          | 1.002             | 0.223  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.75          | E                | 0.04      | 0             | 0356M                | CP-OFDM    | QPSK    | 1         | 1       | 10 mm | top        | 1:1      | 0.252          | 1.059             | 0.267  | A3 |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E                | 0.02      | 0             | 0356M                | DFT-S-OFDM | QPSK    | 1         | 1       | 10 mm | left       | 1:1      | 0.024          | 1.030             | 0.025  |    |
| 3570.00                                  | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E                | -0.06     | 0             | 0356M                | DFT-S-OFDM | QPSK    | 50        | 56      | 10 mm | left       | 1:1      | 0.027          | 1.002             | 0.027  |    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |        |      |                 |                             |                       |                |                  |           |               | Body                 |            |         |           |         |       |            |          |                |                   |        |    |
| Spatial Peak                             |        |      |                 |                             |                       |                |                  |           |               | 1.6 W/kg (mW/g)      |            |         |           |         |       |            |          |                |                   |        |    |
| Uncontrolled Exposure/General Population |        |      |                 |                             |                       |                |                  |           |               | averaged over 1 gram |            |         |           |         |       |            |          |                |                   |        |    |

|                                      |                                                                                                                                                                                                |                               |                                                                                       |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   | <br>Proud to be part of  | SAR EVALUATION REPORT         |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                             | DUT Type:<br>Portable Handset |                                                                                       | Page 25 of 34                   |

## 11.4 Standalone UMPC Body SAR

Table 11-4  
NR Band n48 UMPC Body SAR

| MEASUREMENT RESULTS                                                                               |        |     |             |                 |                             |                       |                |                  |                                                      |               |            |            |         |           |         |       |            |          |                   |        |
|---------------------------------------------------------------------------------------------------|--------|-----|-------------|-----------------|-----------------------------|-----------------------|----------------|------------------|------------------------------------------------------|---------------|------------|------------|---------|-----------|---------|-------|------------|----------|-------------------|--------|
| FREQUENCY                                                                                         |        |     | Mode        | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Antenna Config | Power Drift [dB] | MPR [dB]                                             | Serial Number | Waveform   | Modulation | RB Size | RB Offset | Spacing | Side  | Duty Cycle | SAR (1g) | Reported SAR (1g) | Plot # |
| MHz                                                                                               | Ch.    |     |             |                 |                             |                       |                |                  |                                                      |               |            |            |         |           |         |       |            | (W/kg)   | (W/kg)            |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.87                 | E              | 0.00             | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 1       | 1         | 10 mm   | back  | 1.1        | 0.363    | 0.374             | A4     |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.99                 | E              | -0.08            | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 50      | 56        | 10 mm   | back  | 1.1        | 0.387    | 0.388             |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.75                 | E              | 0.07             | 0                                                    | 0356M         | CP-OFDM    | QPSK       | 1       | 1         | 10 mm   | back  | 1.1        | 0.348    | 0.369             |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.87                 | E              | 0.03             | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 1       | 1         | 10 mm   | front | 1.1        | 0.187    | 0.193             |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.99                 | E              | 0.03             | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 50      | 56        | 10 mm   | front | 1.1        | 0.196    | 0.196             |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.87                 | E              | 0.02             | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 1       | 1         | 10 mm   | top   | 1.1        | 0.320    | 0.330             |        |
| 3570.00                                                                                           | 638000 | Low | NR Band n48 | 40              | 20.0                        | 19.99                 | E              | 0.00             | 0                                                    | 0356M         | DFT-S-OFDM | QPSK       | 50      | 56        | 10 mm   | top   | 1.1        | 0.320    | 0.321             |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |        |     |             |                 |                             |                       |                |                  | UMPC Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |               |            |            |         |           |         |       |            |          |                   |        |

## 11.5 Standalone UMPC Extremity SAR

Table 11-5  
NR Band n48 UMPC Extremity SAR

| MEASUREMENT RESULTS                                                                               |        |      |                 |                             |                       |                |     |                  |          |                                                             |          |            |         |           |         |      |            |                  |                |                           |        |    |
|---------------------------------------------------------------------------------------------------|--------|------|-----------------|-----------------------------|-----------------------|----------------|-----|------------------|----------|-------------------------------------------------------------|----------|------------|---------|-----------|---------|------|------------|------------------|----------------|---------------------------|--------|----|
| FREQUENCY                                                                                         |        | Mode | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Antenna Config | DSI | Power Drift [dB] | MPR [dB] | Serial Number                                               | Waveform | Modulation | RB Size | RB Offset | Spacing | Side | Duty Cycle | SAR (10g) [W/kg] | Scaling Factor | Reported SAR (10g) [W/kg] | Plot # |    |
| MHz                                                                                               | Ch.    |      |                 |                             |                       |                |     |                  |          |                                                             |          |            |         |           |         |      |            |                  |                |                           |        |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E   | 0                | 0.01     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 1         | 1       | 0 mm | back       | 1:1              | 1.030          | 1.030                     | 1.061  | A5 |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E   | 0                | 0.02     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 56      | 0 mm | back       | 1:1              | 1.100          | 1.002                     | 1.102  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E   | 0                | 0.07     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 1         | 1       | 0 mm | front      | 1:1              | 1.300          | 1.030                     | 1.339  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E   | 0                | 0.00     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 56      | 0 mm | front      | 1:1              | 1.360          | 1.002                     | 1.363  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.87          | E   | 0                | -0.07    | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 1         | 1       | 0 mm | top        | 1:1              | 2.140          | 1.030                     | 2.204  |    |
| 3624.99                                                                                           | 641666 | Mid  | NR Band n48     | 40                          | 20.0                  | 19.82          | E   | 0                | 0.02     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 1         | 1       | 0 mm | top        | 1:1              | 2.470          | 1.042                     | 2.574  |    |
| 3679.98                                                                                           | 645332 | High | NR Band n48     | 40                          | 20.0                  | 19.85          | E   | 0                | 0.00     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 1         | 104     | 0 mm | top        | 1:1              | 2.490          | 1.035                     | 2.577  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.99          | E   | 0                | -0.02    | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 56      | 0 mm | top        | 1:1              | 2.340          | 1.002                     | 2.345  |    |
| 3624.99                                                                                           | 641666 | Mid  | NR Band n48     | 40                          | 20.0                  | 19.85          | E   | 0                | -0.01    | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 0       | 0 mm | top        | 1:1              | 2.460          | 1.035                     | 2.546  |    |
| 3679.98                                                                                           | 645332 | High | NR Band n48     | 40                          | 20.0                  | 19.95          | E   | 0                | 0.01     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 56      | 0 mm | top        | 1:1              | 2.550          | 1.012                     | 2.581  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.74          | E   | 0                | 0.00     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 100       | 0       | 0 mm | top        | 1:1              | 2.440          | 1.062                     | 2.591  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.75          | E   | 0                | 0.06     | 0                                                           | 0356M    | CP-OFDM    | QPSK    | 1         | 1       | 0 mm | top        | 1:1              | 2.290          | 1.059                     | 2.425  |    |
| 3570.00                                                                                           | 638000 | Low  | NR Band n48     | 40                          | 20.0                  | 19.74          | E   | 0                | -0.05    | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 100       | 0       | 0 mm | top        | 1:1              | 2.390          | 1.062                     | 2.538  |    |
| 3679.98                                                                                           | 645332 | High | NR Band n48     | 40                          | 20.0                  | 19.95          | E   | 0                | 0.02     | 0                                                           | 0356M    | DFT-S-OFDM | QPSK    | 50        | 56      | 0 mm | top        | 1:1              | 2.530          | 1.012                     | 2.560  |    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |        |      |                 |                             |                       |                |     |                  |          | UMPC Extremity<br>4.0 W/kg (mW/g)<br>averaged over 10 grams |          |            |         |           |         |      |            |                  |                |                           |        |    |

Note: Blue entries represent variability measurements

## 11.6 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
- Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was  $\leq 1.2$  W/kg, no additional body-worn SAR evaluations using a headset cable were required.

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                        |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | <b>Approved by:</b><br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 26 of 34                          |

8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is in closed configuration since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)
11. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
12. Per FCC KDB Publication 941225 D07v01r02, this device is considered a "UMPC mini-tablet" when it is in open configuration. UMPC body 1g SAR tests are required on all surfaces and edges  $\leq 25$  mm from a transmitting antenna. Therefore, to address hand exposure, UMPC extremity 10g SAR tests are required at a test separation distance of 0 mm for all measured 1g SAR (at 10 mm) configurations.
13. This device uses Qualcomm Smart Transmit for 2G/3G/4G/5G operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).

NR Notes:

1. NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
3. Simultaneous transmission analysis for EN-DC operations is addressed in the Part 2 Test Report (Serial Number can be found in the bibliography).
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. Per FCC Guidance, the device was configured with the tuner state selected by the device in LTE mode with auto-tune active at the same frequency as the NR test results. Additional tuner states were evaluated per April 2019 TCBC Workshop Guidance. Please see Section 14 for supplemental data.
6. Per FCC Guidance, NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.
7. For final implementation, NR Band n41 and n77 slot configuration is synchronized using maximum duty cycle of 100%. SAR testing was performed using FTM mode with a 100% duty cycle applied to match final duty cycle.
8. Per FCC KDB Publication 447498 D01v06, when the reported NR Band n77 SAR measured at the highest output power channel in a given a test configuration was > 0.4 W/kg for 1g evaluations and > 1 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.

|                                             |                                                                                                                                  |                                      |                                                                                       |                                        |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br>Proud to be part of Samsung | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                        | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 27 of 34                          |

## 12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

### 12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

### 12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is  $\leq 1.6$  W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-”).

(\*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G and time averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G operations is demonstrated in the Part 2 Report during algorithm validation.

The standalone reported SAR in the original filing was used to determine simultaneous transmission compliance as it is more conservative. Please see the original filing for complete evaluation of simultaneous transmission analysis.

### 12.3 Simultaneous Transmission Conclusion

The above numerical summed SAR results are sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

|                                             |                                                                                                                                                                                                              |                                      |                                                                                       |                                        |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                                    | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 28 of 34                          |

## 13 SAR MEASUREMENT VARIABILITY

### 13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

**Table 13-1**  
**10g Phablet/UMPC SAR Measurement Variability Results**

| UMPC Extremity VARIABILITY RESULTS       |           |        |                               |                                       |      |         |                |                        |                        |       |                        |       |                        |
|------------------------------------------|-----------|--------|-------------------------------|---------------------------------------|------|---------|----------------|------------------------|------------------------|-------|------------------------|-------|------------------------|
| Band                                     | FREQUENCY |        | Mode                          | Service                               | Side | Spacing | Antenna Config | Measured SAR (10g)     | 1st Repeated SAR (10g) | Ratio | 2nd Repeated SAR (10g) | Ratio | 3rd Repeated SAR (10g) |
|                                          | MHz       | Ch.    |                               |                                       |      |         |                | (W/kg)                 | (W/kg)                 |       | (W/kg)                 |       | (W/kg)                 |
| 3500                                     | 3570.00   | 638000 | NR Band n48, 40 MHz Bandwidth | DFT-S-OFDM, QPSK, 100 RB, 0 RB Offset | top  | 0 mm    | E              | 2.440                  | 2.390                  | 1.02  | N/A                    | N/A   | N/A                    |
| 3700                                     | 3679.98   | 645332 | NR Band n48, 40 MHz Bandwidth | DFT-S-OFDM, QPSK, 50 RB, 56 RB Offset | top  | 0 mm    | E              | 2.550                  | 2.530                  | 1.01  | N/A                    | N/A   | N/A                    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT)   |           |        |                               |                                       |      |         |                | UMPC Extremity         |                        |       |                        |       |                        |
| Spatial Peak                             |           |        |                               |                                       |      |         |                | 4.0 W/kg (mW/g)        |                        |       |                        |       |                        |
| Uncontrolled Exposure/General Population |           |        |                               |                                       |      |         |                | averaged over 10 grams |                        |       |                        |       |                        |

### 13.2 Measurement Uncertainty

The measured SAR was  $< 1.5$  W/kg for 1g and  $< 3.75$  W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | Approved by:<br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 29 of 34                   |

# 14 EQUIPMENT LIST

| Manufacturer          | Model           | Description                                   | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------------|-----------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8594A           | (9kHz-2.9GHz) Spectrum Analyzer               | CBT        | N/A          | CBT        | 3051A00187    |
| Agilent               | E4438C          | ESG Vector Signal Generator                   | 12/14/2020 | Biennial     | 12/14/2022 | MY42082385    |
| Agilent               | E4432B          | ESG-D Series Signal Generator                 | 2/24/2021  | Annual       | 2/24/2022  | US40053896    |
| Agilent               | N5182B          | MXG Vector Signal Generator                   | 11/13/2020 | Annual       | 11/13/2021 | MY57300156    |
| Agilent               | N5182A          | MXG Vector Signal Generator                   | 6/21/2021  | Annual       | 6/21/2022  | MY47420603    |
| Agilent               | 8753ES          | S-Parameter Network Analyzer                  | 2/2/2021   | Annual       | 2/2/2022   | US39170122    |
| Agilent               | 8753ES          | S-Parameter Vector Network Analyzer           | 2/2/2021   | Annual       | 2/2/2022   | US39170122    |
| Agilent               | E5515C          | Wireless Communications Test Set              | 2/4/2021   | Annual       | 2/4/2022   | GB43193563    |
| Agilent               | E5515C          | Wireless Communications Test Set              | CBT        | N/A          | CBT        | US41140256    |
| Agilent               | N4010A          | Wireless Connectivity Test Set                | CBT        | N/A          | CBT        | GB44450273    |
| Agilent               | N4010A          | Wireless Connectivity Test Set                | CBT        | N/A          | CBT        | GB46170464    |
| Amplifier Research    | 1551G6          | Amplifier                                     | CBT        | N/A          | CBT        | 353317        |
| Amplifier Research    | 1551G6          | Amplifier                                     | CBT        | N/A          | CBT        | 433978        |
| Anritsu               | MN8110B         | I/O Adaptor                                   | CBT        | N/A          | CBT        | 6261747881    |
| Anritsu               | ML2496A         | Power Meter                                   | 3/3/2021   | Annual       | 3/3/2022   | 1306009       |
| Anritsu               | ML2496A         | Power Meter                                   | 4/21/2021  | Annual       | 4/21/2022  | 1351001       |
| Anritsu               | MA2411B         | Pulse Power Sensor                            | 3/9/2021   | Annual       | 3/9/2022   | 1207470       |
| Anritsu               | MT8821C         | Radio Communication Analyzer                  | 4/16/2021  | Annual       | 4/16/2022  | 6200901190    |
| Anritsu               | MA24106A        | USB Power Sensor                              | 3/2/2021   | Annual       | 3/2/2022   | 1349509       |
| COMTECH               | AR85729-5       | Solid State Amplifier                         | CBT        | N/A          | CBT        | M155A00-009   |
| COMTECH               | AR85729-5/5759B | Solid State Amplifier                         | CBT        | N/A          | CBT        | M3W1A00-1002  |
| Control Company       | 4352            | Long Stem Thermometer                         | 1/24/2020  | Biennial     | 1/24/2022  | 200043588     |
| Control Company       | 4352            | Long Stem Thermometer                         | 5/16/2020  | Biennial     | 5/16/2022  | 200294567     |
| Control Company       | 4040            | Therm./ Clock/ Humidity Monitor               | 3/6/2020   | Biennial     | 3/6/2022   | 200170296     |
| Control Company       | 4040            | Therm./ Clock/ Humidity Monitor               | 3/6/2020   | Biennial     | 3/6/2022   | 200170313     |
| Insize                | 1108-150        | Digital Caliper                               | 1/17/2020  | Biennial     | 1/17/2022  | 409193536     |
| Intelligent Weigh     | PD-3000         | Electronic Balance                            | CBT        | N/A          | CBT        | 11081534      |
| Intelligent Weighing  | PD-3000         | Electronic Balance                            | CBT        | N/A          | CBT        | 120405017     |
| Keysight              | 772D            | Dual Directional Coupler                      | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | N6705B          | DC Power Analyzer                             | 5/5/2021   | Triennial    | 5/5/2024   | MY53004059    |
| Keysight Technologies | N9020A          | MXA Signal Analyzer                           | 2/24/2021  | Annual       | 2/24/2022  | MY48010233    |
| MCL                   | BW-N6W5+        | 6dB Attenuator                                | CBT        | N/A          | CBT        | 1139          |
| MiniCircuits          | VLF-6000+       | Low Pass Filter                               | CBT        | N/A          | CBT        | N/A           |
| MiniCircuits          | SLP-2400+       | Low Pass Filter                               | CBT        | N/A          | CBT        | R8979500903   |
| Mini-Circuits         | BW-N20W5+       | DC to 18 GHz Precision Fixed 20 dB Attenuator | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-1200+       | Low Pass Filter DC to 1000 MHz                | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+       | Low Pass Filter DC to 2700 MHz                | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | BW-N20W5        | Power Attenuator                              | CBT        | N/A          | CBT        | 1226          |
| Mini-Circuits         | TVA-11-422      | RF Power Amp                                  | CBT        | N/A          | CBT        | QA1303002     |
| Narda                 | 4014C-6         | 4 - 8 GHz SMA 6 dB Directional Coupler        | CBT        | N/A          | CBT        | N/A           |
| Narda                 | BW-53W2         | Attenuator (3dB)                              | CBT        | N/A          | CBT        | 120           |
| Narda                 | 4772-3          | Attenuator (3dB)                              | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2208-6        | Bidirectional Coupler                         | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE2209-10       | Bidirectional Coupler                         | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | NC-100          | Torque Wrench                                 | 8/4/2020   | Biennial     | 8/4/2022   | 1445          |
| Pasternack            | NC-100          | Torque Wrench (8in-lbs)                       | 8/5/2020   | Biennial     | 8/5/2022   | 47639-47      |
| Rohde & Schwarz       | CMW500          | Radio Communication Tester                    | 1/19/2021  | Annual       | 1/19/2022  | 111427        |
| Rohde & Schwarz       | CMW500          | Radio Communication Tester                    | 3/22/2021  | Annual       | 3/22/2022  | 167283        |
| Rohde & Schwarz       | CMW500          | Wideband Radio Communication Tester           | 2/10/2021  | Annual       | 2/10/2022  | 161662        |
| SPEAG                 | D3500V2         | 3500 MHz SAR Dipole                           | 1/21/2020  | Biennial     | 1/21/2022  | 1097          |
| SPEAG                 | D3700V2         | 3700 MHz SAR Dipole                           | 1/21/2020  | Biennial     | 1/21/2022  | 1067          |
| SPEAG                 | DAE4            | Dasy Data Acquisition Electronics             | 10/16/2020 | Annual       | 10/16/2021 | 1333          |
| SPEAG                 | DAE4            | Dasy Data Acquisition Electronics             | 3/10/2021  | Annual       | 3/10/2022  | 1415          |
| SPEAG                 | DAE4            | Dasy Data Acquisition Electronics             | 8/3/2021   | Annual       | 8/3/2022   | 1681          |
| SPEAG                 | DAK-3.5         | Dielectric Assessment Kit                     | 5/12/2021  | Annual       | 5/12/2022  | 1070          |
| SPEAG                 | EX3DV4          | SAR Probe                                     | 10/20/2020 | Annual       | 10/20/2021 | 7539          |
| SPEAG                 | EX3DV4          | SAR Probe                                     | 10/20/2020 | Annual       | 10/20/2021 | 7551          |
| SPEAG                 | EX3DV4          | SAR Probe                                     | 8/5/2021   | Annual       | 8/5/2022   | 7670          |

Note: 1. Each equipment item was used solely within its respective calibration period.

2. CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

|                                             |                                                                                                                                                                                                              |                                      |                                                                                       |                                        |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                          |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>         |  | <b>Approved by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                                    | <b>DUT Type:</b><br>Portable Handset | Page 30 of 34                                                                         |                                        |

# 15 MEASUREMENT UNCERTAINTIES

| a                                                                             | b                    | c             | d              | e=<br>f(d,k) | f                     | g                        | h =<br>c x f/e                 | i =<br>c x g/e                   | k              |
|-------------------------------------------------------------------------------|----------------------|---------------|----------------|--------------|-----------------------|--------------------------|--------------------------------|----------------------------------|----------------|
| Uncertainty Component                                                         | IEEE<br>1528<br>Sec. | Tol.<br>(± %) | Prob.<br>Dist. | Div.         | c <sub>i</sub><br>1gm | c <sub>i</sub><br>10 gms | 1gm<br>u <sub>i</sub><br>(± %) | 10gms<br>u <sub>i</sub><br>(± %) | v <sub>i</sub> |
| <b>Measurement System</b>                                                     |                      |               |                |              |                       |                          |                                |                                  |                |
| Probe Calibration                                                             | E.2.1                | 7             | N              | 1            | 1                     | 1                        | 7.0                            | 7.0                              | ∞              |
| Axial Isotropy                                                                | E.2.2                | 0.25          | N              | 1            | 0.7                   | 0.7                      | 0.2                            | 0.2                              | ∞              |
| Hemishperical Isotropy                                                        | E.2.2                | 1.3           | N              | 1            | 0.7                   | 0.7                      | 0.9                            | 0.9                              | ∞              |
| Boundary Effect                                                               | E.2.3                | 2             | R              | 1.732        | 1                     | 1                        | 1.2                            | 1.2                              | ∞              |
| Linearity                                                                     | E.2.4                | 0.3           | N              | 1            | 1                     | 1                        | 0.3                            | 0.3                              | ∞              |
| System Detection Limits                                                       | E.2.4                | 0.25          | R              | 1.732        | 1                     | 1                        | 0.1                            | 0.1                              | ∞              |
| Modulation Response                                                           | E.2.5                | 4.8           | R              | 1.732        | 1                     | 1                        | 2.8                            | 2.8                              | ∞              |
| Readout Electronics                                                           | E.2.6                | 0.3           | N              | 1            | 1                     | 1                        | 0.3                            | 0.3                              | ∞              |
| Response Time                                                                 | E.2.7                | 0.8           | R              | 1.732        | 1                     | 1                        | 0.5                            | 0.5                              | ∞              |
| Integration Time                                                              | E.2.8                | 2.6           | R              | 1.732        | 1                     | 1                        | 1.5                            | 1.5                              | ∞              |
| RF Ambient Conditions - Noise                                                 | E.6.1                | 3             | R              | 1.732        | 1                     | 1                        | 1.7                            | 1.7                              | ∞              |
| RF Ambient Conditions - Reflections                                           | E.6.1                | 3             | R              | 1.732        | 1                     | 1                        | 1.7                            | 1.7                              | ∞              |
| Probe Positioner Mechanical Tolerance                                         | E.6.2                | 0.8           | R              | 1.732        | 1                     | 1                        | 0.5                            | 0.5                              | ∞              |
| Probe Positioning w/ respect to Phantom                                       | E.6.3                | 6.7           | R              | 1.732        | 1                     | 1                        | 3.9                            | 3.9                              | ∞              |
| Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation | E.5                  | 4             | R              | 1.732        | 1                     | 1                        | 2.3                            | 2.3                              | ∞              |
| <b>Test Sample Related</b>                                                    |                      |               |                |              |                       |                          |                                |                                  |                |
| Test Sample Positioning                                                       | E.4.2                | 3.12          | N              | 1            | 1                     | 1                        | 3.1                            | 3.1                              | 35             |
| Device Holder Uncertainty                                                     | E.4.1                | 1.67          | N              | 1            | 1                     | 1                        | 1.7                            | 1.7                              | 5              |
| Output Power Variation - SAR drift measurement                                | E.2.9                | 5             | R              | 1.732        | 1                     | 1                        | 2.9                            | 2.9                              | ∞              |
| SAR Scaling                                                                   | E.6.5                | 0             | R              | 1.732        | 1                     | 1                        | 0.0                            | 0.0                              | ∞              |
| <b>Phantom &amp; Tissue Parameters</b>                                        |                      |               |                |              |                       |                          |                                |                                  |                |
| Phantom Uncertainty (Shape & Thickness tolerances)                            | E.3.1                | 7.6           | R              | 1.73         | 1.0                   | 1.0                      | 4.4                            | 4.4                              | ∞              |
| Liquid Conductivity - measurement uncertainty                                 | E.3.3                | 4.3           | N              | 1            | 0.78                  | 0.71                     | 3.3                            | 3.0                              | 76             |
| Liquid Permittivity - measurement uncertainty                                 | E.3.3                | 4.2           | N              | 1            | 0.23                  | 0.26                     | 1.0                            | 1.1                              | 75             |
| Liquid Conductivity - Temperature Uncertainty                                 | E.3.4                | 3.4           | R              | 1.732        | 0.78                  | 0.71                     | 1.5                            | 1.4                              | ∞              |
| Liquid Permittivity - Temperature Uncertainty                                 | E.3.4                | 0.6           | R              | 1.732        | 0.23                  | 0.26                     | 0.1                            | 0.1                              | ∞              |
| Liquid Conductivity - deviation from target values                            | E.3.2                | 5.0           | R              | 1.73         | 0.64                  | 0.43                     | 1.8                            | 1.2                              | ∞              |
| Liquid Permittivity - deviation from target values                            | E.3.2                | 5.0           | R              | 1.73         | 0.60                  | 0.49                     | 1.7                            | 1.4                              | ∞              |
| <b>Combined Standard Uncertainty (k=1)</b>                                    |                      |               |                |              |                       |                          | RSS                            | 12.2                             | 12.0           |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL)                         |                      |               |                |              |                       |                          | k=2                            | 24.4                             | 24.0           |

The above measurement uncertainties are according to IEEE Std. 1528-2013

|                                      |                                                                                                                                                                                                              |                               |                                                                                       |                                        |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSMF926U                   |  <b>PCTEST</b><br>Proud to be part of  | <b>SAR EVALUATION REPORT</b>  |  | <b>Approved by:</b><br>Quality Manager |
| Document S/N:<br>1M2112280170-01.A3L | Test Dates:<br>05/23/21 - 01/03/22                                                                                                                                                                           | DUT Type:<br>Portable Handset |                                                                                       | Page 31 of 34                          |

## 16 CONCLUSION

### 16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. 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.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

|                                             |                                                                                                                                                                                                              |                                      |                                                                                       |                                        |
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| <b>Document S/N:</b><br>1M2112280170-01.A3L | <b>Test Dates:</b><br>05/23/21 - 01/03/22                                                                                                                                                                    | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 32 of 34                          |

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