



**SAMM No.0826**

**CERTIFICATE 2518.05**

## DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 1 of 4

**Motorola Solutions Inc.**

## EME Test Laboratory

Motorola Solutions Malaysia Sdn Bhd (Innoplex)

Plot 2A, Medan Bayan Lepas,

Mukim 12 SWD 11900 Bayan Lepas Penang, Malaysia.

**Date of Report:** 11/15/2019

**Report Revision: B**

|                                           |                                                                                                                                                                                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Responsible Engineer:</b>              | Saw Sun Hock (EME Engineer)                                                                                                                                                                                                                             |
| <b>Report Author:</b>                     | Saw Sun Hock (EME Engineer)                                                                                                                                                                                                                             |
| <b>Test Personnel:</b>                    | Zarul, Azrii, Firdaus, Loh, Ammar, Naim, Zakwan, Bala                                                                                                                                                                                                   |
| <b>Date/s Tested:</b>                     | 12/25/2018-12/31/2018, 1/2/2019-1/4/2019, 1/6/2019-2/8/2019, 2/10/2019-2/13/2019, 2/27/2019-2/28/2019, 3/4/2019, 3/6/2019, 3/13/2019-3/15/2019, 3/18/2019-3/19/2019                                                                                     |
| <b>Manufacturer:</b>                      | Motorola Solutions Inc.                                                                                                                                                                                                                                 |
| <b>DUT Description:</b>                   | Handheld Portable – APX NEXT All-band Model 4.5                                                                                                                                                                                                         |
| <b>Test TX mode(s):</b>                   | FM; LTE; WLAN                                                                                                                                                                                                                                           |
| <b>Max. Power output:</b>                 | Refer to Part 1 Table 3                                                                                                                                                                                                                                 |
| <b>Nominal Power:</b>                     | Refer to Part 1 Table 3                                                                                                                                                                                                                                 |
| <b>Tx Frequency Bands:</b>                | Refer to Part 1 Table 3                                                                                                                                                                                                                                 |
| <b>Signaling type:</b>                    | FM, TDMA, SC-FDMA, FHSS, DSSS, OFDM and NFC                                                                                                                                                                                                             |
| <b>Model(s) Tested:</b>                   | H55TGT9PW8AN (PNUW1100A)                                                                                                                                                                                                                                |
| <b>Model(s) Certified:</b>                | H55TGT9PW8AN (PNUW1100A), H45KGT9PW8AN, H45UCT9PW8AN and H45XDT9PW8AN                                                                                                                                                                                   |
| <b>Serial Number(s):</b>                  | 437TUX0100, 437P1C0117, 437P1C0120, 437TUX0109, 437TUX0103, 437TUX0096, 437P1C0122                                                                                                                                                                      |
| <b>Classification:</b>                    | Occupational/Controlled                                                                                                                                                                                                                                 |
| <b>FCC ID:</b>                            | AZ489FT7119; LMR 150.8-173.4 MHz, 406.125-512 MHz, 769-775 MHz, 799-824 MHz, 851-869 MHz; LTE; WLAN 2.4 GH; WLAN 5GHz, Bluetooth, NFC<br>This report contains results that are immaterial for FCC equipment approval, which are clearly identified.     |
| <b>IC:</b>                                | 109U-89FT7119; LMR 138-173.4 MHz, 406.125-430 MHz, 450-470 MHz, 769-775 MHz, 799-824 MHz, 851-869 MHz; LTE; WLAN 2.4 GH; WLAN 5GHz, Bluetooth, NFC<br>This report contains results that are immaterial for IC equipment approval, which are identified. |
| <b>ISED Test Site registration:</b>       | 109AK                                                                                                                                                                                                                                                   |
| <b>FCC Test Firm Registration Number:</b> | 823256                                                                                                                                                                                                                                                  |

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8 W/kg averaged over 1 gram per the requirements of FCC 47 CFR § 2.1093 and RSS-102 (Issue 5).

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 4.0 of this report (no deviation from standard methods). This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc EME Laboratory. I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements. This reporting format is consistent with the suggested guidelines of the TIA TSB-150 December 2004. The results and statements contained in this report pertain only to the device(s) evaluated.

*Tiong*  
**Tiong Nguk Ing**

**Deputy Technical Manager (Approved Signatory)**

**Approval Date:** 11/15/2019

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- A Probe Calibration Certificates
- B Dipole Calibration Certificates
- C System Verification Check Scan
- D DUT Scans

**Exhibit 7B**

DUT, Body worn and Audio accessories photos

**Report Revision History**

| Date       | Revision | Comments                                   |
|------------|----------|--------------------------------------------|
| 4/10/2019  | A        | Initial release                            |
| 11/15/2019 | B        | Corrected typo for FCC/IC ID at cover page |



## 1.0 Introduction

This report details the utilization, test setup, test equipment, and test results of the Specific Absorption Rate (SAR) measurements performed at the Motorola Solutions Inc. EME Test Laboratory for handheld portable model number H55TGT9PW8AN (PNUW1100A). This device is classified as Occupational/Controlled.

## 2.0 FCC SAR Summary

**Table 1**

| Equipment Class                       | Frequency band (MHz) | Max Calc at Body (W/kg) | Max Calc at Face (W/kg) |
|---------------------------------------|----------------------|-------------------------|-------------------------|
|                                       |                      | 1g-SAR                  | 1g-SAR                  |
| TNF                                   | 150.8-173.4          | 1.24                    | 1.19                    |
|                                       | 406.125-470          | 6.50                    | 5.52                    |
|                                       | 450-512              | 6.08                    | 4.48                    |
|                                       | 769-775              | 4.57                    | 1.72                    |
|                                       | 799-824              | 5.41                    | 2.37                    |
|                                       | 851-869              | 4.53                    | 2.15                    |
| PCF                                   | LTE B2               | 0.014                   | 0.416                   |
|                                       | LTE B4               | 0.033                   | 0.325                   |
|                                       | LTE B5               | 0.067                   | 0.164                   |
|                                       | LTE B12              | 0.034                   | 0.160                   |
|                                       | LTE B13              | 0.079                   | 0.157                   |
|                                       | LTE B14              | 0.098                   | 0.186                   |
|                                       | LTE B17              | 0.026                   | 0.160                   |
| DTS                                   | 2.4 GHz              | 0.054                   | 0.262                   |
| NII                                   | 5 GHz                | 0.057                   | 1.183                   |
| *DXX                                  | NFC                  | NA                      | NA                      |
| *DSS                                  | BT                   | NA                      | NA                      |
| Highest Simultaneous Transmission SAR | Sum of SAR (W/kg)    | 6.60                    | 5.58                    |

\*Results not required per KDB (refer to sections 13.2, 13.3 and 14.1)

### 3.0 Abbreviations / Definitions

BT: Bluetooth  
CNR: Calibration Not Required  
CW: Continuous Wave  
DSS: Direct Spread Spectrum  
DTS: Digital Transmission System  
DUT: Device Under Test  
DXX: Part 15 Low Power Communication Device Transmitter  
EME: Electromagnetic Energy  
FHSS: Frequency Hopping Spread Spectrum  
FM: Frequency Modulation  
LMR: Land Mobile Radio  
LTE: Long Term Evolution  
NA: Not Applicable  
OFDM: Orthogonal Frequency Division Multiplexing  
PCF: PCS Licensed Transmitter Held to Face  
PSM: Public Safety Microphone  
PTT: Push to Talk  
QPSK: Quadrature Pulse Shift Key  
RB: Resource Blocks  
RSM: Remote Speaker Microphone  
SAR: Specific Absorption Rate  
TDMA: Time Division Multiple Access  
TNF: Licensed Non-Broadcast Transmitter Held to Face  
16QAM: 16 State Quadrature Amplitude Modulation

Audio accessories: These accessories allow communication while the DUT is worn on the body.

Body worn accessories: These accessories allow the DUT to be worn on the body of the user.

Maximum Power: Defined as the upper limit of the production line final test station.

### 4.0 Referenced Standards and Guidelines

This product is designed to comply with the following applicable national and international standards and guidelines.

- IEC62209-1 (2016) Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
- Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, FCC, Washington, D.C.: 1997.

- IEEE 1528 (2013), Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
  - American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1992
  - Institute of Electrical and Electronics Engineers (IEEE) C95.1-2005
  - International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
  - Ministry of Health (Canada) Safety Code 6 (2015), Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
  - RSS-102 (Issue 5) – Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)
  - Australian Communications Authority Radio communications (Electromagnetic Radiation - Human Exposure) Standard (2014)
  - ANATEL, Brazil Regulatory Authority, Resolution No. 303 of July 2, 2002 "Regulation of the limitation of exposure to electrical, magnetic, and electromagnetic fields in the radio frequency range between 9 kHz and 300 GHz." and "Attachment to resolution # 303 from July 2, 2002"
  - IEC62209-2 Edition 1.0 2010-03, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz).
- 
- FCC KDB – 643646 D01 SAR Test for PTT Radios v01r03
  - FCC KDB – 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
  - FCC KDB – 865664 D02 RF Exposure Reporting v01r02
  - FCC KDB – 447498 D01 General RF Exposure Guidance v06
  - FCC KDB – 941225 D05 SAR for LTE Devices v02r05
  - FCC KDB – 248227 D01 802.11 Wi-Fi SAR v02r02

## 5.0 SAR Limits

**Table 2**

| EXPOSURE LIMITS                                                               | SAR (W/kg)                                                     |                                                        |
|-------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                                               | (General Population /<br>Uncontrolled Exposure<br>Environment) | (Occupational /<br>Controlled Exposure<br>Environment) |
| Spatial Average - ANSI -<br>(averaged over the whole body)                    | 0.08                                                           | 0.4                                                    |
| Spatial Peak - ANSI -<br>(averaged over any 1-g of tissue)                    | 1.6                                                            | 8.0                                                    |
| Spatial Peak – ICNIRP/ANSI -<br>(hands/wrists/feet/ankles averaged over 10-g) | 4.0                                                            | 20.0                                                   |
| Spatial Peak - ICNIRP -<br>(Head and Trunk 10-g)                              | 2.0                                                            | 10.0                                                   |

## 6.0 Description of Device Under Test (DUT)

This portable device operates in the LMR bands using either frequency modulation (FM) with 100% transmit duty cycle or TDMA signals with maximum of 50% transmit duty cycle. For conservative assessment, FM signal was tested. It also contains LTE and WLAN technologies for data application, Bluetooth for short range wireless devices.

The LMR bands in this device operate in a half duplex system. A half duplex system only allows the user to transmit or receive. This device cannot transmit and receive simultaneously. The user must stop transmitting in order to receive a signal or listen for a response, regardless of PTT button or use of voice activated audio accessories. This type of operation, along with the RF safety booklet, which instructs the user to transmit no more than 50% of the time, justifies the use of 50% duty factor for this device.

This device also incorporates a Class 1 Bluetooth device which is a Frequency Hopping Spread Spectrum (FHSS) technology. The Bluetooth radio modem is used to wireless link audio accessories. The maximum actual transmission duty cycle is imposed by the Bluetooth standard. The maximum duty cycle for BT is 77.26%.

The intended operating positions are “at the face” with the DUT at least 2.5 cm from the mouth, and “at the body” by means of the offered body worn accessories. Body worn audio and PTT operation is accomplished by means of optional remote accessories that are connected to the radio. Operation at the body without an audio accessory attached is possible by means of BT accessories.

Table 3 below summarizes the technologies, bands, maximum duty cycles and maximum output powers. Maximum output powers are defined as upper limit of the production line final test station.

**Table 3**

| <b>Technologies</b>                   | <b>Tx Band (MHz)</b> | <b>Transmission</b> | <b>Duty Cycle (%)</b>                              | <b>Nominal Power (W)</b>                                         | <b>Max Power (W)</b>                                                 |
|---------------------------------------|----------------------|---------------------|----------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------|
| LMR                                   | 136-174              | FM                  | *50                                                | 6.00                                                             | 6.60                                                                 |
| LMR                                   | 380-470              | FM                  | *50                                                | 5.00                                                             | 5.70                                                                 |
| LMR                                   | 450-520              | FM                  | *50                                                | 5.00                                                             | 5.70                                                                 |
| LMR                                   | 762-776;<br>792-806  | FM                  | *50                                                | 2.50                                                             | 2.99                                                                 |
| LMR                                   | 806-825;<br>851-870  | FM                  | *50                                                | 3.00                                                             | 3.60                                                                 |
| LTE Band 2                            | 1850-1910            | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 4                            | 1710-1755            | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 5                            | 824-849              | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 12                           | 699-716              | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 13                           | 777-787              | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 14                           | 788-798              | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| LTE Band 17                           | 704-716              | QPSK,<br>16QAM      | 100                                                | 0.200                                                            | 0.252                                                                |
| Bluetooth                             | 2400-2485            | FHSS                | 77.26                                              | 0.009                                                            | 0.0115                                                               |
| Bluetooth LE                          | 2400-2485            | FHSS                | 62.68                                              | 0.009                                                            | 0.0115                                                               |
| NFC                                   | 13.56                | NFC                 | 100                                                | 0.035                                                            | 0.035                                                                |
| WLAN<br>802.11 b                      | 2412-2462            | DSSS                | 99.20                                              | 0.178                                                            | 0.200                                                                |
| WLAN<br>802.11 g / n<br>(20 MHz)      | 2412-2462            | OFDM                | 94.90<br>(802.11g)<br><br>94.36<br>(802.11n)       | 0.033 (CH 1) /<br>0.150 (CH 2-11)                                | 0.045 (CH 1) /<br>0.158 (CH 2-11)                                    |
| WLAN<br>802.11 n<br>(40 MHz)          | 2412-2462            | OFDM                | 89.08                                              | 0.100 (CH 3) /<br>0.063 (CH 9) /<br>0.150 (Other channels)       | 0.126 (CH 3) /<br>0.079 (CH 9) /<br>0.158 (Other channels)           |
| WLAN<br>802.11 a / n / ac<br>(20 MHz) | 5180-5825            | OFDM                | 96.30<br>(802.11a)<br><br>95.59<br>(802.11 n / ac) | 0.089 (CH 140) /<br>0.126 (other Channels)                       | 0.126 (CH 140) /<br>0.158 (other Channels)                           |
| WLAN<br>802.11 n / ac<br>(40 MHz)     | 5180-5825            | OFDM                | 90.94                                              | 0.089 (CH 38, CH 102)<br>0.112 (CH 62)<br>0.126 (other Channels) | 0.100 (CH 38, CH 102) /<br>0.126 (CH 62) /<br>0.158 (other Channels) |

**Table 3 Continued**

| Technologies                  | Tx Band (MHz) | Transmission | Duty Cycle (%) | Nominal Power (W)                                         | Max Power (W)                                             |
|-------------------------------|---------------|--------------|----------------|-----------------------------------------------------------|-----------------------------------------------------------|
| WLAN<br>802.11 ac<br>(80 MHz) | 5180-5825     | OFDM         | 80.27          | 0.063 (CH 42)<br>0.089 (CH 106)<br>0.100 (other Channels) | 0.079 (CH 42)<br>0.100 (CH 106)<br>0.126 (other Channels) |

Note - \* includes 50% PTT operation

## 7.0 Optional Accessories and Test Criteria

This device is offered with optional accessories. All accessories were individually evaluated during the test plan creation as per the guidelines outlined in section 4.0 to assess compliance of this device. The following sections identify the test criteria and details for each accessory category. Refer to Exhibit 7B for the photos of the test configurations, antenna locations and accessories.

### 7.1 Antennas

There are optional removable antennas and internal LTE, WLAN/BT antennas offered for this product. The Table below lists their descriptions.

**Table 4**

| Antenna No. | Antenna Models | Description                                                                 | Selected for test | Tested |
|-------------|----------------|-----------------------------------------------------------------------------|-------------------|--------|
| 1           | KT000026A01    | All Band Antenna, ½ wave, -6d Bi (VHF), -1.5 dBi (UHF), -0.9 dBi (7/800MHz) | Yes               | Yes    |
| 2           | PMAD4088B      | VHF Wideband Antenna, 136-174 MHz, 5/8 wave, -8.14 dBd                      | Yes               | Yes    |
| 3           | PMAD4094A      | VHF Stubby Antenna, 147-160 MHz, ¼wave, -12.14dBd                           | Yes               | Yes    |
| 4           | PMAD4095A      | VHF Stubby Antenna, 160-174MHz, ¼ wave, -12.14d Bd                          | Yes               | Yes    |
| 5           | PMAD4093A      | VHF Stubby Antenna, 136-147MHz, ¼ wave, -12.14 dBd                          | Yes               | Yes    |
| 6           | PMAE4100A      | UHF Stubby Antenna, 380-470MHz, ¼ wave, 0 dBi                               | Yes               | Yes    |
| 7           | PMAE4022B      | UHF Whip Antenna, 380-480MHz, , ¼ wave, 0 dBi                               | Yes               | Yes    |
| 8           | PMAE4049A      | UHF Whip Antenna, 450-527 MHz, , ¼ wave, 1.9 dBi                            | Yes               | Yes    |
| 9           | PMAE4102A      | UHF Stubby Antenna, 450-527MHz, ¼ wave, 1.7 dBi                             | Yes               | Yes    |
| 10          | AN000296A01    | 7/800 Stubby Antenna, 760-870MHz, ¼ wave, -0.8 dBi                          | Yes               | Yes    |
| 11          | NAF5080A       | 7/800 Whip Antenna, 7/800MHz, ¼ wave, 0 dBi                                 | Yes               | Yes    |
| 12          | PMAF4022A      | 7/800 Stubby Antenna, 7/800 MHz, ¼ wave, 0 dBi                              | Yes               | Yes    |
| 13          | PMAF4002A      | 7/800 PSM Antenna, 7/800MHz, ¼ wave, 0 dBi                                  | Yes               | Yes*   |

**Table 4 Continued**

| Antenna No. | Antenna Models | Description                                                                                                                                                                                               | Selected for test | Tested |
|-------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|
| 14          | PMAE4065A      | UHF GPS PSM Antenna, 380-520 MHz, ¼ wave, -2 dBd                                                                                                                                                          | Yes               | Yes*   |
| 15          | AN000304A01    | LTE Antenna, 699-798 MHz, 824-849 MHz, 1710-2155MHz, ¼ wave, Band 4 (1.02 dBi), Band 2 (2.15 dBi), Band 12 (-3.18 dBi), Band 13 (-3.00 dBi), Band 14 (-3.52 dBi), Band 5 (-2.34 dBi), Band 17 (-3.65 dBi) | Yes               | Yes    |
| 16          | AN000304A03    | WiFi/BT Antenna, 2400-2480 MHz, 5150-5850 MHz, ¼ wave, 2400 MHz (3.1 dBi), 2440 MHz (3.2 dBi), 2480 MHz (2.9 dBi), 5150MHz (2.8 dBi), 5500MHz (4.0 dBi) , 5850MHz (1.9 dBi)                               | Yes               | Yes    |

Note - \* For PSM only

## 7.2 Battery

There are four batteries offered for this product. The Table below lists their descriptions.

**Table 5**

| Battery No. | Battery Models | Description                                        | Selected for test | Tested | Comments                                                 |
|-------------|----------------|----------------------------------------------------|-------------------|--------|----------------------------------------------------------|
| 1           | NNTN9087A      | Standard Battery, IMPRES GEN2, Li-ion, IP68, 3800T | Yes               | Yes    | Default battery for body testing.                        |
| 2           | NNTN9089A      | High Capacity Battery, IMPRES GEN2, Li-ion, 5650T  | Yes               | Yes    | Default battery for face testing.                        |
| 3           | NNTN9088A      | Standard Battery, IMPRES GEN2, Li-ion, IP68, 3800T | No                | No     | By Similarity to NNTN9087A (Only different label for UL) |
| 4           | NNTN9090A      | High Capacity Battery, IMPRES GEN2, Li-ion, 5650T  | No                | No     | By Similarity to NNTN9089A (Only different label for UL) |

### 7.3 Body worn Accessories

All body worn accessories were considered. The Table below lists the body worn accessories, and body worn accessory descriptions.

**Table 6**

| Body worn No. | Body worn Models | Description                                     | Selected for test | Tested | Comments                                                                                                   |
|---------------|------------------|-------------------------------------------------|-------------------|--------|------------------------------------------------------------------------------------------------------------|
| 1             | PMLN7947A        | Carry Accessory Holster                         | Yes               | Yes    | Test with NTN8266B and PMLN7965A                                                                           |
| 2             | NTN8266B         | Belt Clip Kit                                   | Yes               | Yes    | Test with PMLN7947A, PMLN7948A and PMLN7964A                                                               |
| 3             | PMLN7948A        | Hybrid Carry Case For Standard Capacity Battery | Yes               | Yes    | Test with NTN8266B, PMLN7965A, PMLN5407A, PMLN5408A and PMLN5409A. Compatible with battery NNTN9087A only. |
| 4             | PMLN7965A        | 3" Belt Clip                                    | Yes               | Yes    | Test with PMLN7947A, PMLN7948A and PMLN7964A                                                               |
| 5             | PMLN5407A        | 2.5" Replacement Swivel Belt Loop               | Yes               | Yes    | Test with PMLN7948A and PMLN7964A                                                                          |
| 6             | PMLN5408A        | 2.75" Replacement Swivel Belt Loop              | Yes               | Yes    | Test with PMLN7948A and PMLN7964A                                                                          |
| 7             | PMLN5409A        | 3" Replacement Swivel Belt Loop                 | Yes               | Yes    | Test with PMLN7948A and PMLN7964A                                                                          |
| 8             | PMLN7964A        | Hybrid Carry Case For High Capacity Battery     | Yes               | Yes    | Test with NTN8266B, PMLN7965A, PMLN5407A, PMLN5408A and PMLN5409A. Compatible with battery NNTN9089A only. |
| 9             | 4205823V08       | Belt clip for PSM                               | Yes               | Yes*   | Test with PMMN4059B, PMMN4060B and PMMN4061B                                                               |

Note - \* For PSM only

## 7.4 Audio Accessories

All audio accessories were considered. The Table below lists the offered audio accessories and their descriptions. Exhibit 7B illustrates photos of the tested audio accessories.

**Table 7**

| Audio No. | Audio Acc. Models                     | Description                                                                                                              | Selected for test | Tested | Comments                                            |
|-----------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|--------|-----------------------------------------------------|
| 1         | PMMN4123A                             | Audio Accessory-Remote Speaker Microphone, MC550                                                                         | Yes               | Yes*   | Default Audio                                       |
| 2         | NMN6274B                              | Audio Accessory-Remote Speaker Microphone, IMPRES XP RSM For APX With Dual Microphone Noise Suppression, 3.5mm THRD Jack | Yes               | Yes*   |                                                     |
| 3         | PMLN6129A                             | IMPRES 2 Wires With Translucent Tube - Black                                                                             | Yes               | Yes*   |                                                     |
| 4         | PMMN4065A                             | IMPRES Remote Speaker Microphone IP57                                                                                    | Yes               | Yes*   |                                                     |
| 5         | BDN6783B                              | Audio Accessory adapter With PTT                                                                                         | Yes               | Yes*   | Test with RLN5312B                                  |
| 6         | RLN5312B                              | CMRT Earpiece With Microphone and PTT - Black                                                                            | Yes               | Yes*   | Test with BDN6783B                                  |
| 7         | HMN4101B                              | IPRES Remote Speaker Microphone, No Display With Jack, No Channel                                                        | Yes               | Yes*   |                                                     |
| 8         | PMLN6852A                             | Next Gen Behind The Head Heavy Duty Headset - Gcai                                                                       | Yes               | Yes*   |                                                     |
| 9         | PMMN4106D<br>(Cable length 2.0 meter) | Fire Remote Speaker Microphone XE500 Model 1 Impact Green Color (2.0 meter cable)                                        | Yes               | Yes*   |                                                     |
| 10        | PMMN4106D<br>(Cable length 2.8 meter) | Fire Remote Speaker Microphone XE500 Model 1 Impact Green Color (2.8 meter cable)                                        | Yes               | Yes*   |                                                     |
| 11        | PMMN4059B                             | Audio Accessory – Headset, PSM IP55 with 3.5mm Jack Receive 18 Inches                                                    | Yes               | Yes    | For PSM testing                                     |
| 12        | PMMN4060B                             | Audio Accessory – Headset, PSM IP55 with 3.5mm Jack Receive 24 Inches                                                    | Yes               | Yes    | For PSM testing                                     |
| 13        | PMMN4061B                             | Audio Accessory – Headset, PSM IP55 with 3.5mm Jack Receive 30 Inches                                                    | Yes               | Yes    | For PSM testing                                     |
| 11        | NNTN8235A                             | SRX Remote Speaker Microphone IP57                                                                                       | No                | No     | By Similarity to NMN6274B                           |
| 14        | NNTN8236A                             | SRX IMPRES Remote Speaker Microphone                                                                                     | No                | No     | By Similarity to NMN6274B                           |
| 15        | PMLN6130A                             | IMPRES 2 Wires With Translucent Tube - Beige                                                                             | No                | No     | By Similarity to PMLN6129A                          |
| 16        | PMLN6127A                             | IMPRES 2 Wires Surveillance - Black                                                                                      | No                | No     | By Similarity to PMLN6129A                          |
| 17        | PMMN4069A                             | IMPRES Remote Speaker Microphone, 3.5mm Jack, IP55                                                                       | No                | No     | By Similarity to PMMN4065A                          |
| 18        | PMMN4099B                             | Remote Speaker Microphone IP68, 3.5mm, UL                                                                                | No                | No     | By Similarity to PMMN4065A                          |
| 19        | PMMN4083A                             | IMPRES Large Remote Speaker Microphone, APX IP68 Delta - Gcai                                                            | No                | No     | By Similarity to PMMN4065A                          |
| 20        | PMMN4107D<br>(2.0 meter)              | Fire Remote Speaker Microphone XE500 Model 1.5 Impact Green Color (2.0 meter cable)                                      | No                | No     | By Similarity to PMMN4106D (Cable length 2.0 meter) |

**Table 7 Continued**

| Audio No. | Audio Acc. Models        | Description                                                                         | Selected for test | Tested | Comments                                            |
|-----------|--------------------------|-------------------------------------------------------------------------------------|-------------------|--------|-----------------------------------------------------|
| 21        | PMMN4106CBLK (2.0 meter) | Fire Remote Speaker Microphone XE500 Model 1 Impact Black Color (2.0 meter cable)   | No                | No     | By Similarity to PMMN4106D (Cable length 2.0 meter) |
| 22        | PMMN4107CBLK (2.0 meter) | Fire Remote Speaker Microphone XE500 Model 1.5 Impact Black Color (2.0 meter cable) | No                | No     | By Similarity to PMMN4106D (Cable length 2.0 meter) |
| 23        | PMMN4107D (2.8 meter)    | Fire Remote Speaker Microphone XE500 Model 1.5 Impact Green Color (2.0 meter cable) | No                | No     | By Similarity to PMMN4106D (Cable length 2.8 meter) |
| 24        | PMMN4106CBLK (2.8 meter) | Fire Remote Speaker Microphone XE500 Model 1 Impact Black Color (2.0 meter cable)   | No                | No     | By Similarity to PMMN4106D (Cable length 2.8 meter) |
| 25        | PMMN4107CBLK (2.8 meter) | Fire Remote Speaker Microphone XE500 Model 1.5 Impact Black Color (2.0 meter cable) | No                | No     | By Similarity to PMMN4106D (Cable length 2.8 meter) |

Note - \* Intended for test. Per KDB provision tests not required for VHF band.

## 8.0 Description of Test System



## 8.1 Descriptions of Robotics/Probes/Readout Electronics

**Table 8**

| Dosimetric System type                             | System version | DAE type | Probe Type                     |
|----------------------------------------------------|----------------|----------|--------------------------------|
| Schmid & Partner<br>Engineering AG<br>SPEAG DASY 5 | 52.8.8.1222    | DAE4     | ES3DV3,<br>EX3DV4<br>(E-Field) |

The DASY5™ system is operated per the instructions in the DASY5™ Users Manual. The complete manual is available directly from SPEAG™. All measurement equipment used to assess SAR compliance was calibrated according to ISO/IEC 17025 A2LA guidelines. Section 9.0 presents additional test equipment information. Appendices B and C present the applicable calibration certificates. The E-field probe first scans a coarse grid over a large area inside the phantom in order to locate the interpolated maximum SAR distribution. After the coarse scan measurement, the probe is automatically moved to a position at the interpolated maximum. The subsequent scan can directly use this position as reference for the cube evaluations.

## 8.2 Description of Phantom(s)

**Table 9**

| Phantom Type | Phantom(s) Used | Material Parameters                                         | Phantom Dimensions LxWxD (mm) | Material Thickness (mm) | Support Structure Material | Loss Tangent (wood) |
|--------------|-----------------|-------------------------------------------------------------|-------------------------------|-------------------------|----------------------------|---------------------|
| Triple Flat  | NA              | 200MHz -6GHz;<br>Er = 3-5,<br>Loss Tangent = $\leq 0.05$    | 280x175x175                   | 2mm<br>+/- 0.2mm        | Wood                       | < 0.05              |
| SAM          | NA              | 300MHz -6GHz;<br>Er = < 5,<br>Loss Tangent = $\leq 0.05$    | Human Model                   |                         |                            |                     |
| Oval Flat    | √               | 300MHz -6GHz;<br>Er = 4+/- 1,<br>Loss Tangent = $\leq 0.05$ | 600x400x190                   |                         |                            |                     |

### 8.3 Description of Simulated Tissue

The sugar based simulate tissue is produced by placing the correct measured amount of De-ionized water into a large container. Each of the dried ingredients are weighed and added to the water carefully to avoid clumping. If the solution has a high sugar concentration the water is pre-heated to aid in dissolving the ingredients. For Diacetin and similar type simulates, sugar and HEC ingredients are not needed. The solution is mixed thoroughly, covered, and allowed to sit overnight prior to use.

The simulated tissue mixture was mixed based on the Simulated Tissue Composition indicated in Table 10. During the daily testing of this product, the applicable mixture was used to measure the Di-electric parameters at each of the tested frequencies to verify that the Di-electric parameters were within the tolerance of the tissue specifications.

**Simulated Tissue Composition (percent by mass)**

**Table 10**

| Ingredients        | 150MHz |      | 450MHz |       | 750MHz |      | 835MHz |       |
|--------------------|--------|------|--------|-------|--------|------|--------|-------|
|                    | Head   | Body | Head   | Body  | Head   | Body | Head   | Body  |
| Sugar              | 55.4   | 49.7 | 56.0   | 46.5  | 57.0   | 46   | 57.0   | 44.9  |
| Diacetin           | 0      | 0    | 0      | 0     | 0      | 0    | NA     | NA    |
| De ionized - Water | 38.35  | 46.2 | 39.1   | 50.53 | 40.12  | 51.8 | 40.45  | 53.06 |
| Salt               | 5.15   | 3.00 | 3.8    | 1.87  | 1.78   | 1.1  | 1.45   | 0.94  |
| HEC                | 1      | 1    | 1      | 1     | 1      | 1    | 1      | 1     |
| Bact.              | 0.1    | 0.1  | 0.1    | 0.1   | 0.1    | 0.1  | 0.1    | 0.1   |

**Table 10 Continued**

| Ingredients        | 1750MHz |       | 1900MHz |       | 2450MHz |       | 5GHz <sup>(1)</sup> |      |
|--------------------|---------|-------|---------|-------|---------|-------|---------------------|------|
|                    | Head    | Body  | Head    | Body  | Head    | Body  | Head                | Body |
| Sugar              | NA      | NA    | NA      | NA    | NA      | NA    | NA                  | NA   |
| Diacetin           | 51.5    | 35.0  | 51.5    | 34.5  | 51.0    | 34.5  | NA                  | NA   |
| De ionized - Water | 47.82   | 64.35 | 48.03   | 64.97 | 48.75   | 65.20 | NA                  | NA   |
| Salt               | 0.58    | 0.55  | 0.37    | 0.43  | 0.15    | 0.20  | NA                  | NA   |
| HEC                | NA      | NA    | NA      | NA    | NA      | NA    | NA                  | NA   |
| Bact.              | 0.1     | 0.1   | 0.1     | 0.1   | 0.1     | 0.1   | NA                  | NA   |

Note: (1) SPEAG provides Motorola proprietary stimulant ingredients for the 5GHz band.

## 9.0 Additional Test Equipment

The Table below lists additional test equipment used during the SAR assessment.

**Table 11**

| Equipment Type                      | Model Number | Serial Number | Calibration Date | Calibration Due Date |
|-------------------------------------|--------------|---------------|------------------|----------------------|
| Speag Probe                         | EX3DV4       | 7486          | 3/20/2018        | 3/20/2019            |
| Speag Probe                         | ES3DV3       | 3122          | 4/18/2018        | 4/18/2019            |
| Speag Probe                         | EX3DV4       | 3612          | 10/18/2018       | 10/18/2019           |
| Speag Probe                         | EX3DV4       | 7519          | 10/19/2018       | 10/19/2019           |
| Speag DAE                           | DAE4         | 1483          | 1/10/2019        | 1/10/2020            |
| Speag DAE                           | DAE4         | 1488          | 3/9/2018         | 3/9/2019 *           |
| Speag DAE                           | DAE4         | 850           | 3/7/2018         | 3/7/2019*            |
| Speag DAE                           | DAE4         | 684           | 10/9/2018        | 10/9/2019            |
| Speag DAE                           | DAE4         | 1294          | 10/16/2018       | 10/16/2019           |
| Power Meter                         | E4418B       | MY45107917    | 5/22/2017        | 5/22/2019            |
| Power Meter                         | E4418B       | GB40206480    | 9/16/2017        | 9/16/2019            |
| Power Meter                         | E4419B       | MY40330364    | 9/16/2017        | 9/16/2019            |
| Power Meter                         | E4419B       | MY45103725    | 5/22/2017        | 5/22/2019            |
| Power Meter                         | E4418B       | MY45100911    | 7/14/2017        | 7/14/2019            |
| Power Sensor                        | E9301B       | MY50290001    | 4/24/2018        | 4/24/2019            |
| Power Sensor                        | E9301B       | MY41495733    | 4/17/2018        | 4/17/2019            |
| Power Sensor                        | E9301B       | MY41495594    | 8/15/2018        | 8/15/2019            |
| Power Sensor                        | 8481B        | MY41091170    | 4/23/2018        | 4/23/2019            |
| Power Sensor                        | E9301B       | MY50280001    | 7/5/2018         | 7/5/2019             |
| Power Sensor                        | NRP-Z11      | 121252        | 2/6/2017         | 2/6/2019*            |
| Amplifier Power                     | 50W 1000A    | 14715         | CNR              | CNR                  |
| Amplifier Power                     | 10WD1000     | 28782         | CNR              | CNR                  |
| Amplifier Power                     | 5S1G4        | 313326        | CNR              | CNR                  |
| Amplifier Power                     | 10W1000C     | 312859        | CNR              | CNR                  |
| Signal Generator                    | E4438C       | MY44270302    | 3/8/2018         | 3/8/2019*            |
| Signal Generator                    | E4438C       | MY45091270    | 8/13/2018        | 8/13/2020            |
| Bi-direction Coupler                | 3020A        | 41931         | 7/4/2018         | 7/4/2019             |
| Bi-direction Coupler                | 3022         | 81640         | 9/15/2018        | 9/15/2019            |
| Bi-direction Coupler                | 3022         | 77114         | 8/16/2018        | 8/16/2019            |
| Bi-direction Coupler                | 3020A        | 40295         | 9/4/2018         | 9/4/2019             |
| Temperature & Humidity Logger       | TM320        | 12253047      | 10/30/2018       | 10/30/2019           |
| Thermometer                         | HH806AU      | 080307        | 12/5/2018        | 12/5/2019            |
| Thermometer                         | HH202A       | 35881         | 12/26/2018       | 12/26/2019           |
| Wideband Radio Communication Tester | CMW500       | 153170        | 6/2/2017         | 6/2/2019             |
| Temperature Probe                   | 80PK-22      | 06032017      | 12/5/2018        | 12/5/2019            |
| Temperature Probe                   | 80PK-22      | 05032017      | 12/26/2018       | 12/26/2019           |
| Network Analyzer                    | E5071B       | MY42403218    | 9/6/2018         | 9/6/2019             |
| Dielectric Probe Kit (DAK)          | DAK-3.5      | 1120          | 5/15/2018        | 5/15/2019            |
| Dielectric Probe Kit (DAK)          | DAK-12       | 1051          | 5/15/2018        | 5/15/2019            |

**Table 11 Continued**

| <b>Equipment Type</b> | <b>Model Number</b> | <b>Serial Number</b> | <b>Calibration Date</b> | <b>Calibration Due Date</b> |
|-----------------------|---------------------|----------------------|-------------------------|-----------------------------|
| Speag Dipole          | CLA150              | 4005                 | 2/9/2018                | 2/9/2020                    |
| Speag Dipole          | CLA150              | 4016                 | 10/10/2018              | 10/10/2020                  |
| Speag Dipole          | D450V3              | 1054                 | 10/25/2017              | 10/25/2019                  |
| Speag Dipole          | D450V3              | 1053                 | 10/19/2018              | 10/19/2020                  |
| Speag Dipole          | D900V2              | 1d025                | 3/7/2018                | 3/7/2020                    |
| Speag Dipole          | D835V2              | 4d029                | 1/8/2018                | 1/8/2020                    |
| Speag Dipole          | D2450V2             | 782                  | 2/15/2017               | 2/15/2019*                  |
| Speag Dipole          | D5GHzV2             | 1026                 | 10/18/2018              | 10/18/2020                  |
| Speag Dipole          | D750V3              | 1142                 | 10/12/2017              | 10/12/2019                  |
| Speag Dipole          | D1800V2             | 2d119                | 5/17/2018               | 5/17/2020                   |
| Speag Dipole          | D1900V2             | 5d064                | 10/16/2018              | 10/16/2020                  |

Note - \* Equipment used for test dates prior to equipment calibration due date.

## **10.0 SAR Measurement System Validation and Verification**

Calibration certificates of the probes and dipole are included in Appendix of the report.

### **10.1 System Validation**

The SAR measurement system was validated according to procedures in KDB 865664. The validation status summary tables for respective technologies are references to the following parts of the report.

Part 2 for LMR (VHF, UHF1, UHF2, and 7/800)

Part 3 for LTE (Band 2, Band 4, Band 5, Band 12, Band 13, Band 14, and Band 17)

Part 4 for WLAN (2.4 GHz and 5 GHz)

### **10.2 System Verification**

System check results and DASY plots for each day during the SAR assessment are included in Appendix of the report. System verification results are normalized to 1W and summarized in the follow parts of the report.

Part 2 for LMR (VHF, UHF1, UHF2, and 7/800)

Part 3 for LTE (Band 2, Band 4, Band 5, Band 12, Band 13, Band 14, and Band 17)

Part 4 for WLAN (2.4 GHz and 5 GHz)

### 10.3 Equivalent Tissue Test Results

Simulated tissue prepared for SAR measurements is measured daily and within 24 hours prior to actual SAR testing to verify that the tissue is within +/- 5% of target parameters at the center of the transmit band. This measurement is done using the applicable equipment indicated in section 9.0. Measured dielectric properties for simulated tissue are listed in the following parts of the report.

Part 2 for LMR (VHF, UHF1, UHF2, and 7/800)

Part 3 for LTE (Band 2, Band 4, Band 5, Band 12, Band 13, Band 14, and Band 17)

Part 4 for WLAN (2.4 GHz and 5 GHz)

### 11.0 Environmental Test Conditions

The EME Laboratory's ambient environment is well controlled resulting in very stable simulated tissue temperature and therefore stable dielectric properties. Simulated tissue temperature is measured prior to each scan to insure it is within +/- 2°C of the temperature at which the dielectric properties were determined. The liquid depth within the phantom used for measurements was at least 15 cm. Additional precautions are routinely taken to ensure the stability of the simulated tissue such as covering the phantoms when scans are not actively in process in order to minimize evaporation. The lab environment is continuously monitored. The Table below presents the range and average environmental conditions during the SAR tests reported herein:

**Table 15**

|                            | Target     | Measured                             |
|----------------------------|------------|--------------------------------------|
| <b>Ambient Temperature</b> | 18 – 25 °C | Range: 21.3 – 23.4°C<br>Avg. 22.0 °C |
| <b>Tissue Temperature</b>  | 18 – 25 °C | Range: 20.7-22.6°C<br>Avg. 21.6°C    |

Relative humidity target range is a recommended target

The EME Lab RF environment uses a Spectrum Analyzer to monitor for extraneous large signal RF contaminants that could possibly affect the test results. If such unwanted signals are discovered the SAR scans are repeated.

### 12.0 DUT Test Setup and Methodology

#### 12.1 Measurements

SAR measurements were performed using the DASY system described in section 8.0 using zoom scans. Oval flat phantoms filled with applicable simulated tissue were used for body and face testing.

The Table below includes the step sizes and resolution of area and zoom scans per KDB 865664 requirements.

Table 16

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    | $\leq 3$ GHz                                                                                                                                                                                                                                                           | $> 3$ GHz                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface                                                                                                                                                                                                                                                                                                                                             |                                    | $5 \pm 1$ mm                                                                                                                                                                                                                                                           | $\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm                         |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location                                                                                                                                                                                                                                                                                                                                                          |                                    | $30^\circ \pm 1^\circ$                                                                                                                                                                                                                                                 | $20^\circ \pm 1^\circ$                                                     |
| Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$                                                                                                                                                                                                                                                                                                                                                                        |                                    | $\leq 2$ GHz: $\leq 15$ mm<br>2 – 3 GHz: $\leq 12$ mm                                                                                                                                                                                                                  | 3 – 4 GHz: $\leq 12$ mm<br>4 – 6 GHz: $\leq 10$ mm                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                    | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |                                                                            |
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$ , $\Delta y_{Zoom}$                                                                                                                                                                                                                                                                                                                                                                        |                                    | $\leq 2$ GHz: $\leq 8$ mm<br>2 – 3 GHz: $\leq 5$ mm*                                                                                                                                                                                                                   | 3 – 4 GHz: $\leq 5$ mm*<br>4 – 6 GHz: $\leq 4$ mm*                         |
| Maximum zoom scan spatial resolution, normal to phantom surface                                                                                                                                                                                                                                                                                                                                                                                    | uniform grid: $\Delta z_{Zoom}(n)$ | $\leq 5$ mm                                                                                                                                                                                                                                                            | 3 – 4 GHz: $\leq 4$ mm<br>4 – 5 GHz: $\leq 3$ mm<br>5 – 6 GHz: $\leq 2$ mm |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.<br>* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                    |                                                                                                                                                                                                                                                                        |                                                                            |

## 12.2 DUT Configuration(s)

The DUT is a portable device operational at the body and face as described in section 6.0 while using the applicable accessories listed in section 7.0. All accessories listed in section 7.0 of this report were considered when implementing the guidelines specified in KDB 643646 D01 for LMR. KDB 941225 D05 was applied to LTE test configurations and KDB 248227 D01 applied to WLAN test configurations. CMW500 Communication Test set was used for LTE testing.

## 12.3 DUT Positioning Procedures

The positioning of the device for each body location is described below and illustrated in Exhibit 7b.

### 12.3.1 Body

The DUT was positioned in normal use configuration against the phantom with the offered body worn accessory as well as with and without the offered audio accessories as applicable.

### 12.3.2 Head

Not applicable.

### 12.3.3 Face

The DUT was positioned with its' front and back sides separated 2.5cm from the phantom.

## 12.4 DUT Test Channels

The number of test channels was determined by using the following IEEE 1528 equation. The use of this equation produces the same or more test channels compared to the FCC KDB 447498 number of test channels formula.

$$N_c = 2 * \text{roundup}[10 * (f_{\text{high}} - f_{\text{low}}) / f_c] + 1$$

Where

$N_c$  = Number of channels

$F_{\text{high}}$  = Upper channel

$F_{\text{low}}$  = Lower channel

$F_c$  = Center channel

## 12.5 SAR Result Scaling Methodology

The calculated 1-gram and 10-gram averaged SAR results indicated as “Max Calc. 1g-SAR” in the data Tables is determined by scaling the measured SAR to account for power leveling variations and drift. Appendix F includes a shortened scan to justify SAR scaling for drift. For this device the “Max Calc. 1g-SAR” is scaled using the following formula:

$$\text{Max\_Calc} = \text{SAR\_meas} \cdot 10^{\frac{-\text{Drift}}{10}} \cdot \frac{P_{\text{max}}}{P_{\text{int}}} \cdot \text{DC}$$

$P_{\text{max}}$  = Maximum Power (W)

$P_{\text{int}}$  = Initial Power (W)

Drift = DASY drift results (dB)

SAR\_meas = Measured 1-g or 10-g Avg. SAR (W/kg)

DC = Transmission mode duty cycle in % where applicable

50% duty cycle is applied for PTT operation

Note: for conservative results, the following are applied:

If  $P_{\text{int}} > P_{\text{max}}$ , then  $P_{\text{max}}/P_{\text{int}} = 1$ .

Drift = 1 for positive drift

Additional SAR scaling was applied using the methodologies outlined in FCC KDB 865664 using tissue sensitivity values. SAR was scaled for conditions where the tissue permittivity was measured above the nominal target and for tissue conductivity that was measured below the nominal target. Negative or reduced SAR scaling is not permitted.

## 12.6 DUT Test Plan

The guidelines and requirements outlined in section 4.0 were used to assess compliance of this device. All modes of operation identified in section 6.0 were considered during the development of the test plan.

## 13.0 DUT Test Data

### 13.1 Assessment at the LMR, LTE and WLAN bands

Refer to following parts of the reports for SAR assessment results on respective technologies.

Part 2 for LMR (VHF, UHF1, UHF2, and 7/800)

Part 3 for LTE (Band 2, Band 4, Band 5, Band 12, Band 13, Band 14, and Band 17)

Part 4 for WLAN (2.4 GHz and 5 GHz)

### 13.2 Assessment at the Bluetooth band

#### 13.2.1 FCC Requirement

Per guidelines in KDB 447498, the following formula was used to determine the test exclusion for standalone Bluetooth transmitter;

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{F_{(\text{GHz})}}] = 2.8 \text{ W/kg, which is } \leq 3 \text{ W/kg (1g)}$$

Where:

Max. Power = 8.89mW (11.5mW\*77.26 % duty cycle)

Min. test separation distance = 5mm for actual test separation < 5mm

F(GHz) = 2.48 GHz

Per the result from the calculation above, the standalone SAR assessment was not required for Bluetooth band. Therefore, SAR results for Bluetooth are not reported herein.

#### 13.2.2 ISED Canada Requirement

Based on RSS-102 Issue 5, exemption limits for SAR evaluation for controlled devices at Bluetooth frequency band with separation distance  $\leq 5\text{mm}$  was 20 mW.

Standalone Bluetooth transmitter operates at

Maximum conducted power:

= 11.5 mW \* 77.26 %

= 8.89 mW or 9.49 dBm

Equivalent isotropically radiated power (EIRP):  
 = Maximum conducted power, dBm + Antenna gain, dBi  
 = 9.49 dBm + 3.2 dBi  
 = 12.69 dBm or 18.58 mW

Higher output power level, Equivalent isotropically radiated power (EIRP)  
 18.58 mW was below the threshold power level 20 mW. Hence SAR test was not required for Bluetooth band.

### 13.3 Assessment at the NFC

Based on below calculation, SAR test exclusion power threshold at 13.56 MHz is 443 mW. Maximum power for NFC is 35 mW, hence SAR test was not required for NFC.

KDB 447498 4.3.1, b.1) for 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g test exclusion thresholds are determined by following:

*For 100 MHz to 1500 MHz:*

$\{[\text{Power allowed at } \textit{numeric threshold} \text{ for 50 mm at 100 MHz}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\} \text{ mW}$   
 = **474.3 mW**

Where:

Power allowed at *numeric threshold* for 50 mm at 100 MHz = 474.3 mW

Test separation distance = 50 mm

KDB 447498 4.3.1, c.1) for below 100 MHz and test separation distances >50 mm and <200 mm,

Power threshold at the corresponding test separation distance at 100 MHz in step b) is multiply by  $[1 + \log(100/f(\text{MHz}))]$

= 474.3 mW \*  $[1 + \log(100/13.56 \text{ MHz})]$   
 = **885.9 mW**

Where:

$f(\text{MHz}) = 13.56 \text{ MHz}$

KDB 447498 4.3.1, c.2) for below 100 MHz and test separation distances  $\leq 50 \text{ mm}$ , Power threshold determined by equation in c) 1) is multiplied by  $\frac{1}{2}$

= 885.9 mW \* 0.5  
 = **443.0 mW**

.

## 14.0 Simultaneous Transmissions

The Table below summarizes the simultaneous transmission conditions for this device.

**Table 17**

| Exposure Conditions | Item | Capable Simultaneous Transmit Configurations |
|---------------------|------|----------------------------------------------|
| Body-Worn           | 1    | LMR + WLAN 2.4 GHz                           |
|                     | 2    | LMR + WLAN 5 GHz                             |
|                     | 3    | LMR + BT                                     |
|                     | 4    | LMR +LTE                                     |
| Face                | 1    | LMR + WLAN 2.4 GHz                           |
|                     | 2    | LMR + WLAN 5 GHz                             |
|                     | 3    | LMR + BT                                     |
|                     | 4    | LMR +LTE                                     |

WLAN 2.4 GHz, 5GHz and Bluetooth share the same antenna, only one technology to transmit at a single time.

### 14.1 Simultaneous Transmission Exclusion for BT

Per guidelines in KDB 447498, the following formula was used to determine the test exclusion to an antenna that transmits simultaneously with other antennas for test distances  $\leq 50\text{mm}$ :

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] * [\sqrt{F(\text{GHz})/X}] = 0.37 \text{ W/kg}$ , which is  $\leq 0.4 \text{ W/kg}$  (1g)

Where:

$X = 7.5$  for 1g-SAR;  $18.75$  for 10g

Max. Power =  $8.89\text{mW}$  ( $11.5\text{mW} * 77.26\%$  duty cycle)

Min. test separation distance =  $5\text{mm}$  for actual test separation  $< 5\text{mm}$

$F(\text{GHz}) = 2.48 \text{ GHz}$

Per the result from the calculation above, simultaneous exclusion is applied and therefore SAR results are not reported herein.

## 14.2 Simultaneous Transmission for LMR and WLAN 2.4 GHz

**Table 18 (FCC)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR   |              |              |              |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 2.4   | VHF +        | UHF1 +       | UHF2 +       | 7/800 +      |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.036      | 0.65         | <b>6.54</b>  | <b>6.12</b>  | <b>5.45</b>  |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.054      | 0.68         | 5.62         | 5.40         | 5.42         |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.031      | 0.62         | 6.15         | 5.17         | 5.22         |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.043      | <b>1.28</b>  | 5.40         | 4.82         | 5.19         |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.038      | 0.43         | 3.14         | 2.95         | 2.84         |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.037      | 0.33         | 2.84         | 2.83         | 3.61         |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.044      | 0.40         | 2.92         | 2.52         | 3.46         |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.030      | 0.61         | 4.86         | 4.77         | 3.28         |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46         | 4.23         | 4.38         | 3.05         |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.010      | 0.43         | 2.52         | 2.28         | 1.53         |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.012      | 0.37         | 2.56         | 1.91         | 1.82         |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.026      | 0.42         | 2.64         | 2.28         | 1.87         |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.262      | 1.02         | 3.40         | 2.61         | <b>2.46</b>  |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.020      | <b>1.21</b>  | <b>5.54</b>  | <b>4.50</b>  | 2.39         |

**Table 19 (ISED)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR   |              |              |              |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 2.4   | VHF +        | UHF1 +       | UHF2 +       | 7/800 +      |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.036      | 0.65         | <b>6.54</b>  | <b>5.47</b>  | <b>5.45</b>  |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.054      | 0.68         | 5.62         | 4.71         | 5.42         |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.031      | 0.62         | 6.15         | 5.17         | 5.22         |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.043      | <b>1.28</b>  | 5.40         | 4.56         | 5.19         |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.038      | 0.43         | 3.14         | 1.69         | 2.84         |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.037      | 0.33         | 2.84         | 1.15         | 3.61         |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.044      | 0.40         | 2.92         | 1.39         | 3.46         |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.030      | 0.61         | 4.86         | 4.77         | 3.28         |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46         | 4.23         | 4.38         | 3.05         |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.010      | 0.43         | 2.52         | 1.31         | 1.53         |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.012      | 0.37         | 2.56         | 1.11         | 1.82         |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.026      | 0.42         | 2.64         | 1.07         | 1.87         |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.262      | 1.02         | 3.40         | 1.68         | <b>2.46</b>  |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.020      | <b>1.21</b>  | <b>5.54</b>  | <b>2.87</b>  | 2.39         |

**Table 20 (Overall)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR   |              |              |              |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 2.4   | VHF +        | UHF1 +       | UHF2 +       | 7/800 +      |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz | WLAN 2.4 GHz |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.036      | 0.65         | <b>6.54</b>  | <b>6.12</b>  | <b>5.45</b>  |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.054      | 0.68         | 5.62         | 5.40         | 5.42         |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.031      | 0.62         | 6.15         | 5.17         | 5.22         |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.043      | <b>1.68</b>  | 5.40         | 4.82         | 5.19         |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.038      | 0.43         | 3.14         | 2.95         | 2.84         |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.037      | 0.33         | 2.84         | 2.83         | 3.61         |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.044      | 0.40         | 2.92         | 2.52         | 3.46         |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.030      | 0.61         | 4.86         | 4.77         | 3.28         |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46         | 4.23         | 4.38         | 3.05         |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.010      | 0.43         | 2.52         | 2.28         | 1.53         |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.012      | 0.37         | 2.56         | 1.91         | 1.82         |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.026      | 0.42         | 2.64         | 2.28         | 1.87         |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.262      | 1.02         | 3.40         | 2.61         | <b>2.46</b>  |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.020      | <b>1.56</b>  | <b>5.54</b>  | <b>4.50</b>  | 2.39         |

**14.3 Simultaneous Transmission for LMR and WLAN 5 GHz****Table 21 (FCC)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 5 GHz | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | WLAN 5 GHz  | WLAN 5 GHz  | WLAN 5 GHz  | WLAN 5 GHz  |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.041      | 0.65        | <b>6.54</b> | <b>6.12</b> | <b>5.45</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.051      | 0.68        | 5.62        | 5.40        | 5.42        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.038      | 0.63        | 6.16        | 5.18        | 5.23        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.023      | <b>1.26</b> | 5.38        | 4.80        | 5.17        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.030      | 0.42        | 3.13        | 2.94        | 2.83        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.036      | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.046      | 0.41        | 2.93        | 2.53        | 3.47        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.057      | 0.64        | 4.89        | 4.80        | 3.31        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46        | 4.23        | 4.38        | 3.05        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.028      | 0.45        | 2.54        | 2.30        | 1.55        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.031      | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.025      | 0.42        | 2.64        | 2.28        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 1.183      | 1.94        | 4.32        | 3.53        | <b>3.38</b> |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.060      | <b>1.25</b> | <b>5.58</b> | <b>4.54</b> | 2.43        |

**Table 22 (ISED)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR       |                   |                   |                    |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|------------------|-------------------|-------------------|--------------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 5 GHz | VHF + WLAN 5 GHz | UHF1 + WLAN 5 GHz | UHF2 + WLAN 5 GHz | 7/800 + WLAN 5 GHz |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) |                  |                   |                   |                    |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.041      | 0.65             | <b>6.54</b>       | <b>5.47</b>       | <b>5.45</b>        |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.051      | 0.68             | 5.62              | 4.71              | 5.42               |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.038      | 0.63             | 6.16              | 5.18              | 5.23               |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.023      | <b>1.26</b>      | 5.38              | 4.54              | 5.17               |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.030      | 0.42             | 3.13              | 1.68              | 2.83               |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.036      | 0.33             | 2.84              | 1.15              | 3.61               |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.046      | 0.41             | 2.93              | 1.40              | 3.47               |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.057      | 0.64             | 4.89              | 4.80              | 3.31               |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46             | 4.23              | 4.38              | 3.05               |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.028      | 0.45             | 2.54              | 1.33              | 1.55               |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.031      | 0.39             | 2.58              | 1.13              | 1.84               |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.025      | 0.42             | 2.64              | 1.07              | 1.87               |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 1.183      | 1.94             | 4.32              | 2.60              | <b>3.38</b>        |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.060      | <b>1.25</b>      | <b>5.58</b>       | <b>2.91</b>       | 2.43               |

**Table 23 (Overall)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR       |                   |                   |                    |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|------------------|-------------------|-------------------|--------------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | WLAN 5 GHz | VHF + WLAN 5 GHz | UHF1 + WLAN 5 GHz | UHF2 + WLAN 5 GHz | 7/800 + WLAN 5 GHz |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) |                  |                   |                   |                    |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.041      | 0.65             | <b>6.54</b>       | <b>6.12</b>       | <b>5.45</b>        |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.051      | 0.68             | 5.62              | 5.40              | 5.42               |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.038      | 0.63             | 6.16              | 5.18              | 5.23               |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.023      | <b>1.66</b>      | 5.38              | 4.80              | 5.17               |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.030      | 0.42             | 3.13              | 2.94              | 2.83               |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.036      | 0.33             | 2.84              | 2.83              | 3.61               |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.046      | 0.41             | 2.93              | 2.53              | 3.47               |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.057      | 0.64             | 4.89              | 4.80              | 3.31               |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.028      | 0.46             | 4.23              | 4.38              | 3.05               |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.028      | 0.45             | 2.54              | 2.30              | 1.55               |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.031      | 0.39             | 2.58              | 1.93              | 1.84               |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.025      | 0.42             | 2.64              | 2.28              | 1.87               |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 1.183      | 1.94             | 4.32              | 3.53              | <b>3.38</b>        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.060      | <b>1.60</b>      | <b>5.58</b>       | <b>4.54</b>       | 2.43               |

## 14.4 Simultaneous Transmission for LMR and LTE

### Table 24 (FCC, LTE Band 12)

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 12 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B12     | LTE B12     | LTE B12     | LTE B12     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.034       | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.028       | 0.66        | 5.60        | 5.38        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.013       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.013       | <b>1.25</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.007       | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.006       | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.004       | 0.36        | 2.88        | 2.48        | 3.42        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.017       | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.016       | 0.45        | 4.22        | 4.37        | 3.04        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.004       | 0.42        | 2.51        | 2.27        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.004       | 0.36        | 2.55        | 1.90        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.006       | 0.40        | 2.62        | 2.26        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.160       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.036       | <b>1.23</b> | <b>5.56</b> | <b>4.52</b> | <b>2.41</b> |

### Table 25 (ISED, LTE Band 12)

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 12 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B12     | LTE B12     | LTE B12     | LTE B12     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.034       | 0.64        | <b>6.53</b> | <b>5.46</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.028       | 0.66        | 5.60        | 4.69        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.013       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.013       | <b>1.25</b> | 5.37        | 4.53        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.007       | 0.40        | 3.11        | 1.66        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.006       | 0.30        | 2.81        | 1.12        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.004       | 0.36        | 2.88        | 1.35        | 3.42        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.017       | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.016       | 0.45        | 4.22        | 4.37        | 3.04        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.004       | 0.42        | 2.51        | 1.30        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.004       | 0.36        | 2.55        | 1.10        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.006       | 0.40        | 2.62        | 1.05        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.160       | 0.92        | 3.30        | 1.58        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.036       | <b>1.23</b> | <b>5.56</b> | <b>2.89</b> | <b>2.41</b> |

**Table 26 (Overall, LTE Band 12)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 12 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B12     | LTE B12     | LTE B12     | LTE B12     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.034       | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.028       | 0.66        | 5.60        | 5.38        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.013       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.013       | <b>1.65</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.007       | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.006       | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.004       | 0.36        | 2.88        | 2.48        | 3.42        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.017       | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.016       | 0.45        | 4.22        | 4.37        | 3.04        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.004       | 0.42        | 2.51        | 2.27        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.004       | 0.36        | 2.55        | 1.90        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.006       | 0.40        | 2.62        | 2.26        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.160       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.036       | <b>1.58</b> | <b>5.56</b> | <b>4.52</b> | <b>2.41</b> |

**Table 27 (FCC, LTE Band 13)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 13 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B13     | LTE B13     | LTE B13     | LTE B13     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.079       | 0.69        | <b>6.58</b> | <b>6.16</b> | <b>5.49</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.078       | 0.71        | 5.65        | 5.43        | 5.45        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.050       | 0.64        | 6.17        | 5.19        | 5.24        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.049       | <b>1.29</b> | 5.41        | 4.83        | 5.20        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.032       | 0.42        | 3.13        | 2.94        | 2.83        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.037       | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.038       | 0.40        | 2.92        | 2.52        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.041       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.038       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.024       | 0.44        | 2.53        | 2.29        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.027       | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.022       | 0.41        | 2.63        | 2.27        | 1.86        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.157       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.050       | <b>1.24</b> | <b>5.57</b> | <b>4.53</b> | <b>2.42</b> |

**Table 28 (ISED, LTE Band 13)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 13 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B13     | LTE B13     | LTE B13     | LTE B13     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.079       | 0.69        | <b>6.58</b> | <b>5.51</b> | <b>5.49</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.078       | 0.71        | 5.65        | 4.74        | 5.45        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.050       | 0.64        | 6.17        | 5.19        | 5.24        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.049       | <b>1.29</b> | 5.41        | 4.57        | 5.20        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.032       | 0.42        | 3.13        | 1.68        | 2.83        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.037       | 0.33        | 2.84        | 1.15        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.038       | 0.40        | 2.92        | 1.39        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.041       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.038       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.024       | 0.44        | 2.53        | 1.32        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.027       | 0.39        | 2.58        | 1.13        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.022       | 0.41        | 2.63        | 1.06        | 1.86        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.157       | 0.92        | 3.30        | 1.58        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.050       | <b>1.24</b> | <b>5.57</b> | <b>2.90</b> | <b>2.42</b> |

**Table 29 (Overall, LTE Band 13)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 13 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B13     | LTE B13     | LTE B13     | LTE B13     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.079       | 0.69        | <b>6.58</b> | <b>6.16</b> | <b>5.49</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.078       | 0.71        | 5.65        | 5.43        | 5.45        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.050       | 0.64        | 6.17        | 5.19        | 5.24        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.049       | <b>1.69</b> | 5.41        | 4.83        | 5.20        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.032       | 0.42        | 3.13        | 2.94        | 2.83        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.037       | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.038       | 0.40        | 2.92        | 2.52        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.041       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.038       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.024       | 0.44        | 2.53        | 2.29        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.027       | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.022       | 0.41        | 2.63        | 2.27        | 1.86        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.157       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.050       | <b>1.59</b> | <b>5.57</b> | <b>4.53</b> | <b>2.42</b> |

**Table 30 (FCC, LTE Band 14)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 14 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B14     | LTE B14     | LTE B14     | LTE B14     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.096       | 0.71        | <b>6.60</b> | <b>6.18</b> | <b>5.51</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.098       | 0.73        | 5.67        | 5.45        | 5.47        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.069       | 0.66        | 6.19        | 5.21        | 5.26        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.065       | <b>1.31</b> | 5.43        | 4.85        | 5.22        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.045       | 0.44        | 3.15        | 2.96        | 2.85        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.042       | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.044       | 0.40        | 2.92        | 2.52        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.044       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.042       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.027       | 0.45        | 2.54        | 2.30        | 1.55        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.026       | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.026       | 0.42        | 2.64        | 2.28        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.186       | 0.95        | 3.33        | 2.54        | 2.39        |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.063       | <b>1.25</b> | <b>5.58</b> | <b>4.54</b> | <b>2.43</b> |

**Table 31 (ISED, LTE Band 14)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 14 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B14     | LTE B14     | LTE B14     | LTE B14     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.096       | 0.71        | <b>6.60</b> | <b>5.53</b> | <b>5.51</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.098       | 0.73        | 5.67        | 4.76        | 5.47        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.069       | 0.66        | 6.19        | 5.21        | 5.26        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.065       | <b>1.31</b> | 5.43        | 4.59        | 5.22        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.045       | 0.44        | 3.15        | 1.70        | 2.85        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.042       | 0.33        | 2.84        | 1.15        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.044       | 0.40        | 2.92        | 1.39        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.044       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.042       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.027       | 0.45        | 2.54        | 1.33        | 1.55        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.026       | 0.39        | 2.58        | 1.13        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.026       | 0.42        | 2.64        | 1.07        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.186       | 0.95        | 3.33        | 1.61        | 2.39        |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.063       | <b>1.25</b> | <b>5.58</b> | <b>2.91</b> | <b>2.43</b> |

**Table 32 (Overall, LTE Band 14)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 14 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B14     | LTE B14     | LTE B14     | LTE B14     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.096       | 0.71        | <b>6.60</b> | <b>6.18</b> | <b>5.51</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.098       | 0.73        | 5.67        | 5.45        | 5.47        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.069       | 0.66        | 6.19        | 5.21        | 5.26        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.065       | <b>1.71</b> | 5.43        | 4.85        | 5.22        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.045       | 0.44        | 3.15        | 2.96        | 2.85        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.042       | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.044       | 0.40        | 2.92        | 2.52        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.044       | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.042       | 0.47        | 4.24        | 4.39        | 3.06        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.027       | 0.45        | 2.54        | 2.30        | 1.55        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.026       | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.026       | 0.42        | 2.64        | 2.28        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.186       | 0.95        | 3.33        | 2.54        | 2.39        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.063       | <b>1.60</b> | <b>5.58</b> | <b>4.54</b> | <b>2.43</b> |

**Table 33 (FCC, LTE Band 17)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 17 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B17     | LTE B17     | LTE B17     | LTE B17     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.026       | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.017       | 0.65        | 5.59        | 5.37        | 5.39        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.007       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.006       | <b>1.25</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.004       | 0.39        | 3.10        | 2.91        | 2.80        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.006       | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.005       | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.012       | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.009       | 0.44        | 4.21        | 4.36        | 3.03        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.007       | 0.43        | 2.52        | 2.28        | 1.53        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.006       | 0.37        | 2.56        | 1.91        | 1.82        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.004       | 0.39        | 2.61        | 2.25        | 1.84        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.160       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.017       | <b>1.21</b> | <b>5.54</b> | <b>4.50</b> | <b>2.39</b> |

**Table 34 (ISED, LTE Band 17)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 17 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B17     | LTE B17     | LTE B17     | LTE B17     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.026       | 0.64        | <b>6.53</b> | <b>5.46</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.017       | 0.65        | 5.59        | 4.68        | 5.39        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.007       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.006       | <b>1.25</b> | 5.37        | 4.53        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.004       | 0.39        | 3.10        | 1.65        | 2.80        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.006       | 0.30        | 2.81        | 1.12        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.005       | 0.37        | 2.89        | 1.36        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.012       | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.009       | 0.44        | 4.21        | 4.36        | 3.03        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.007       | 0.43        | 2.52        | 1.31        | 1.53        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.006       | 0.37        | 2.56        | 1.11        | 1.82        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.004       | 0.39        | 2.61        | 1.04        | 1.84        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.160       | 0.92        | 3.30        | 1.58        | 2.36        |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.017       | <b>1.21</b> | <b>5.54</b> | <b>2.87</b> | <b>2.39</b> |

**Table 35 (Overall, LTE Band 17)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |             | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 17 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg)  | LTE B17     | LTE B17     | LTE B17     | LTE B17     |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.026       | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.017       | 0.65        | 5.59        | 5.37        | 5.39        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.007       | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.006       | <b>1.65</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.004       | 0.39        | 3.10        | 2.91        | 2.80        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.006       | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.005       | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.012       | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.009       | 0.44        | 4.21        | 4.36        | 3.03        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.007       | 0.43        | 2.52        | 2.28        | 1.53        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.006       | 0.37        | 2.56        | 1.91        | 1.82        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.004       | 0.39        | 2.61        | 2.25        | 1.84        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.160       | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.017       | <b>1.56</b> | <b>5.54</b> | <b>4.50</b> | <b>2.39</b> |

**Table 36 (FCC, LTE Band 5)**

| Exposure Conditions | Configurations               | Standalone SAR |               |               |               |               | Sum of SAR      |                  |                  |                   |
|---------------------|------------------------------|----------------|---------------|---------------|---------------|---------------|-----------------|------------------|------------------|-------------------|
|                     |                              | VHF            | UHF R1        | UHF R2        | 7/800         | LTE Band 5    | VHF +<br>LTE B5 | UHF1 +<br>LTE B5 | UHF2 +<br>LTE B5 | 7/800 +<br>LTE B5 |
|                     |                              | SAR<br>(W/kg)  | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) |                 |                  |                  |                   |
| Body-worn exposure  | PMLN7947A w/<br>NTN8266B     | 0.61           | 6.50          | 6.08          | 5.41          | 0.067         | 0.68            | <b>6.57</b>      | <b>6.15</b>      | <b>5.48</b>       |
|                     | PMLN7947A w/<br>PMLN7965A    | 0.63           | 5.57          | 5.35          | 5.37          | 0.067         | 0.70            | 5.64             | 5.42             | 5.44              |
|                     | PMLN7948A w/<br>NTN8266B     | 0.59           | 6.12          | 5.14          | 5.19          | 0.067         | 0.66            | 6.19             | 5.21             | 5.26              |
|                     | PMLN7948A w/<br>PMLN7965A    | 1.24           | 5.36          | 4.78          | 5.15          | 0.065         | <b>1.31</b>     | 5.43             | 4.85             | 5.22              |
|                     | PMLN7948A w/<br>PMLN5407A    | 0.39           | 3.10          | 2.91          | 2.80          | 0.043         | 0.43            | 3.14             | 2.95             | 2.84              |
|                     | PMLN7948A w/<br>PMLN5408A    | 0.29           | 2.80          | 2.79          | 3.57          | 0.041         | 0.33            | 2.84             | 2.83             | 3.61              |
|                     | PMLN7948A w/<br>PMLN5409A    | 0.36           | 2.88          | 2.48          | 3.42          | 0.041         | 0.40            | 2.92             | 2.52             | 3.46              |
|                     | PMLN7964A w/<br>NTN8266B     | 0.58           | 4.83          | 4.74          | 3.25          | 0.044         | 0.62            | 4.87             | 4.78             | 3.29              |
|                     | PMLN7964A w/<br>PMLN7965A    | 0.43           | 4.20          | 4.35          | 3.02          | 0.045         | 0.48            | 4.25             | 4.40             | 3.07              |
|                     | PMLN7964A w/<br>PMLN5407A    | 0.42           | 2.51          | 2.27          | 1.52          | 0.023         | 0.44            | 2.53             | 2.29             | 1.54              |
|                     | PMLN7964A w/<br>PMLN5408A    | 0.36           | 2.55          | 1.9           | 1.81          | 0.024         | 0.38            | 2.57             | 1.92             | 1.83              |
|                     | PMLN7964A w/<br>PMLN5409A    | 0.39           | 2.61          | 2.25          | 1.84          | 0.024         | 0.41            | 2.63             | 2.27             | 1.86              |
| Face exposure       | Face Front (non-<br>display) | 0.76           | 3.14          | 2.35          | 2.20          | 0.164         | 0.92            | 3.30             | 2.51             | 2.36              |
|                     | Face Back (display)          | 1.19           | 5.52          | 4.48          | 2.37          | 0.054         | <b>1.24</b>     | <b>5.57</b>      | <b>4.53</b>      | <b>2.42</b>       |

**Table 37 (ISED, LTE Band 5)**

| Exposure Conditions | Configurations               | Standalone SAR |               |               |               |               | Sum of SAR      |                  |                  |                   |
|---------------------|------------------------------|----------------|---------------|---------------|---------------|---------------|-----------------|------------------|------------------|-------------------|
|                     |                              | VHF            | UHF R1        | UHF R2        | 7/800         | LTE Band 5    | VHF +<br>LTE B5 | UHF1 +<br>LTE B5 | UHF2 +<br>LTE B5 | 7/800 +<br>LTE B5 |
|                     |                              | SAR<br>(W/kg)  | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) |                 |                  |                  |                   |
| Body-worn exposure  | PMLN7947A w/<br>NTN8266B     | 0.61           | 6.50          | 5.43          | 5.41          | 0.067         | 0.68            | <b>6.57</b>      | <b>5.50</b>      | <b>5.48</b>       |
|                     | PMLN7947A w/<br>PMLN7965A    | 0.63           | 5.57          | 4.66          | 5.37          | 0.067         | 0.70            | 5.64             | 4.73             | 5.44              |
|                     | PMLN7948A w/<br>NTN8266B     | 0.59           | 6.12          | 5.14          | 5.19          | 0.067         | 0.66            | 6.19             | 5.21             | 5.26              |
|                     | PMLN7948A w/<br>PMLN7965A    | 1.24           | 5.36          | 4.52          | 5.15          | 0.065         | <b>1.31</b>     | 5.43             | 4.59             | 5.22              |
|                     | PMLN7948A w/<br>PMLN5407A    | 0.39           | 3.10          | 1.65          | 2.80          | 0.043         | 0.43            | 3.14             | 1.69             | 2.84              |
|                     | PMLN7948A w/<br>PMLN5408A    | 0.29           | 2.80          | 1.11          | 3.57          | 0.041         | 0.33            | 2.84             | 1.15             | 3.61              |
|                     | PMLN7948A w/<br>PMLN5409A    | 0.36           | 2.88          | 1.35          | 3.42          | 0.041         | 0.40            | 2.92             | 1.39             | 3.46              |
|                     | PMLN7964A w/<br>NTN8266B     | 0.58           | 4.83          | 4.74          | 3.25          | 0.044         | 0.62            | 4.87             | 4.78             | 3.29              |
|                     | PMLN7964A w/<br>PMLN7965A    | 0.43           | 4.20          | 4.35          | 3.02          | 0.045         | 0.48            | 4.25             | 4.40             | 3.07              |
|                     | PMLN7964A w/<br>PMLN5407A    | 0.42           | 2.51          | 1.3           | 1.52          | 0.023         | 0.44            | 2.53             | 1.32             | 1.54              |
|                     | PMLN7964A w/<br>PMLN5408A    | 0.36           | 2.55          | 1.1           | 1.81          | 0.024         | 0.38            | 2.57             | 1.12             | 1.83              |
|                     | PMLN7964A w/<br>PMLN5409A    | 0.39           | 2.61          | 1.04          | 1.84          | 0.024         | 0.41            | 2.63             | 1.06             | 1.86              |
| Face exposure       | Face Front (non-<br>display) | 0.76           | 3.14          | 1.42          | 2.20          | 0.164         | 0.92            | 3.30             | 1.58             | 2.36              |
|                     | Face Back (display)          | 1.19           | 5.52          | 2.85          | 2.37          | 0.054         | <b>1.24</b>     | <b>5.57</b>      | <b>2.90</b>      | <b>2.42</b>       |

**Table 38 (Overall, LTE Band 5)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 5 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B5      | LTE B5      | LTE B5      | LTE B5      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.067      | 0.68        | <b>6.57</b> | <b>6.15</b> | <b>5.48</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.067      | 0.70        | 5.64        | 5.42        | 5.44        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.067      | 0.66        | 6.19        | 5.21        | 5.26        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.065      | <b>1.71</b> | 5.43        | 4.85        | 5.22        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.043      | 0.43        | 3.14        | 2.95        | 2.84        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.041      | 0.33        | 2.84        | 2.83        | 3.61        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.041      | 0.40        | 2.92        | 2.52        | 3.46        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.044      | 0.62        | 4.87        | 4.78        | 3.29        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.045      | 0.48        | 4.25        | 4.40        | 3.07        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.023      | 0.44        | 2.53        | 2.29        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.024      | 0.38        | 2.57        | 1.92        | 1.83        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.024      | 0.41        | 2.63        | 2.27        | 1.86        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.164      | 0.92        | 3.30        | 2.51        | 2.36        |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.054      | <b>1.59</b> | <b>5.57</b> | <b>4.53</b> | <b>2.42</b> |

**Table 39 (FCC, LTE Band 2)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 2 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B2      | LTE B2      | LTE B2      | LTE B2      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.010      | 0.62        | <b>6.51</b> | <b>6.09</b> | <b>5.42</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.014      | 0.64        | 5.58        | 5.36        | 5.38        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.008      | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.011      | <b>1.25</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.005      | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.003      | 0.29        | 2.80        | 2.79        | 3.57        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.006      | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.006      | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.003      | 0.43        | 4.20        | 4.35        | 3.02        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.003      | 0.42        | 2.51        | 2.27        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.002      | 0.36        | 2.55        | 1.90        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.005      | 0.40        | 2.62        | 2.26        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.416      | 1.18        | 3.56        | 2.77        | <b>2.62</b> |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.005      | <b>1.20</b> | <b>5.53</b> | <b>4.49</b> | 2.38        |

**Table 40 (ISED, LTE Band 2)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 2 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B2      | LTE B2      | LTE B2      | LTE B2      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.010      | 0.62        | <b>6.51</b> | <b>5.44</b> | <b>5.42</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.014      | 0.64        | 5.58        | 4.67        | 5.38        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.008      | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.011      | <b>1.25</b> | 5.37        | 4.53        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.005      | 0.40        | 3.11        | 1.66        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.003      | 0.29        | 2.80        | 1.11        | 3.57        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.006      | 0.37        | 2.89        | 1.36        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.006      | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.003      | 0.43        | 4.20        | 4.35        | 3.02        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.003      | 0.42        | 2.51        | 1.30        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.002      | 0.36        | 2.55        | 1.10        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.005      | 0.40        | 2.62        | 1.05        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.416      | 1.18        | 3.56        | 1.84        | <b>2.62</b> |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.005      | <b>1.20</b> | <b>5.53</b> | <b>2.86</b> | 2.38        |

**Table 41 (Overall, LTE Band 2)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 2 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B2      | LTE B2      | LTE B2      | LTE B2      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.010      | 0.62        | <b>6.51</b> | <b>6.09</b> | <b>5.42</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.014      | 0.64        | 5.58        | 5.36        | 5.38        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.008      | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36       | 4.78       | 5.15       | 0.011      | <b>1.65</b> | 5.37        | 4.79        | 5.16        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.005      | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.003      | 0.29        | 2.80        | 2.79        | 3.57        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.006      | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.006      | 0.59        | 4.84        | 4.75        | 3.26        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.003      | 0.43        | 4.20        | 4.35        | 3.02        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.003      | 0.42        | 2.51        | 2.27        | 1.52        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.002      | 0.36        | 2.55        | 1.90        | 1.81        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.005      | 0.40        | 2.62        | 2.26        | 1.85        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.416      | 1.18        | 3.56        | 2.77        | <b>2.62</b> |
|                     | Face Back (display)      | 1.54           | 5.52       | 4.48       | 2.37       | 0.005      | <b>1.55</b> | <b>5.53</b> | <b>4.49</b> | 2.38        |

**Table 42 (FCC, LTE Band 4)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 4 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B4      | LTE B4      | LTE B4      | LTE B4      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 6.08       | 5.41       | 0.029      | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 5.35       | 5.37       | 0.025      | 0.66        | 5.60        | 5.38        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.013      | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.78       | 5.15       | 0.017      | <b>1.26</b> | 5.38        | 4.80        | 5.17        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 2.91       | 2.80       | 0.013      | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 2.79       | 3.57       | 0.011      | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 2.48       | 3.42       | 0.012      | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.017      | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.033      | 0.46        | 4.23        | 4.38        | 3.05        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 2.27       | 1.52       | 0.022      | 0.44        | 2.53        | 2.29        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.9        | 1.81       | 0.025      | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 2.25       | 1.84       | 0.031      | 0.42        | 2.64        | 2.28        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 2.35       | 2.20       | 0.325      | 1.09        | 3.47        | 2.68        | <b>2.53</b> |
|                     | Face Back (display)      | 1.19           | 5.52       | 4.48       | 2.37       | 0.006      | <b>1.20</b> | <b>5.53</b> | <b>4.49</b> | 2.38        |

**Table 43 (ISED, LTE Band 4)**

| Exposure Conditions | Configurations           | Standalone SAR |            |            |            |            | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1     | UHF R2     | 7/800      | LTE Band 4 | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR (W/kg)     | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | SAR (W/kg) | LTE B4      | LTE B4      | LTE B4      | LTE B4      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50       | 5.43       | 5.41       | 0.029      | 0.64        | <b>6.53</b> | <b>5.46</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57       | 4.66       | 5.37       | 0.025      | 0.66        | 5.60        | 4.69        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12       | 5.14       | 5.19       | 0.013      | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.24           | 5.36       | 4.52       | 5.15       | 0.017      | <b>1.26</b> | 5.38        | 4.54        | 5.17        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10       | 1.65       | 2.80       | 0.013      | 0.40        | 3.11        | 1.66        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80       | 1.11       | 3.57       | 0.011      | 0.30        | 2.81        | 1.12        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88       | 1.35       | 3.42       | 0.012      | 0.37        | 2.89        | 1.36        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83       | 4.74       | 3.25       | 0.017      | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20       | 4.35       | 3.02       | 0.033      | 0.46        | 4.23        | 4.38        | 3.05        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51       | 1.3        | 1.52       | 0.022      | 0.44        | 2.53        | 1.32        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55       | 1.1        | 1.81       | 0.025      | 0.39        | 2.58        | 1.13        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61       | 1.04       | 1.84       | 0.031      | 0.42        | 2.64        | 1.07        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14       | 1.42       | 2.20       | 0.325      | 1.09        | 3.47        | 1.75        | <b>2.53</b> |
|                     | Face Back (display)      | 1.19           | 5.52       | 2.85       | 2.37       | 0.006      | <b>1.20</b> | <b>5.53</b> | <b>2.86</b> | 2.38        |

**Table 44 (Overall, LTE Band 4)**

| Exposure Conditions | Configurations           | Standalone SAR |               |               |               |               | Sum of SAR  |             |             |             |
|---------------------|--------------------------|----------------|---------------|---------------|---------------|---------------|-------------|-------------|-------------|-------------|
|                     |                          | VHF            | UHF R1        | UHF R2        | 7/800         | LTE Band 4    | VHF +       | UHF1 +      | UHF2 +      | 7/800 +     |
|                     |                          | SAR<br>(W/kg)  | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) | SAR<br>(W/kg) | LTE B4      | LTE B4      | LTE B4      | LTE B4      |
| Body-worn exposure  | PMLN7947A w/ NTN8266B    | 0.61           | 6.50          | 6.08          | 5.41          | 0.029         | 0.64        | <b>6.53</b> | <b>6.11</b> | <b>5.44</b> |
|                     | PMLN7947A w/ PMLN7965A   | 0.63           | 5.57          | 5.35          | 5.37          | 0.025         | 0.66        | 5.60        | 5.38        | 5.40        |
|                     | PMLN7948A w/ NTN8266B    | 0.59           | 6.12          | 5.14          | 5.19          | 0.013         | 0.60        | 6.13        | 5.15        | 5.20        |
|                     | PMLN7948A w/ PMLN7965A   | 1.64           | 5.36          | 4.78          | 5.15          | 0.017         | <b>1.66</b> | 5.38        | 4.80        | 5.17        |
|                     | PMLN7948A w/ PMLN5407A   | 0.39           | 3.10          | 2.91          | 2.80          | 0.013         | 0.40        | 3.11        | 2.92        | 2.81        |
|                     | PMLN7948A w/ PMLN5408A   | 0.29           | 2.80          | 2.79          | 3.57          | 0.011         | 0.30        | 2.81        | 2.80        | 3.58        |
|                     | PMLN7948A w/ PMLN5409A   | 0.36           | 2.88          | 2.48          | 3.42          | 0.012         | 0.37        | 2.89        | 2.49        | 3.43        |
|                     | PMLN7964A w/ NTN8266B    | 0.58           | 4.83          | 4.74          | 3.25          | 0.017         | 0.60        | 4.85        | 4.76        | 3.27        |
|                     | PMLN7964A w/ PMLN7965A   | 0.43           | 4.20          | 4.35          | 3.02          | 0.033         | 0.46        | 4.23        | 4.38        | 3.05        |
|                     | PMLN7964A w/ PMLN5407A   | 0.42           | 2.51          | 2.27          | 1.52          | 0.022         | 0.44        | 2.53        | 2.29        | 1.54        |
|                     | PMLN7964A w/ PMLN5408A   | 0.36           | 2.55          | 1.9           | 1.81          | 0.025         | 0.39        | 2.58        | 1.93        | 1.84        |
|                     | PMLN7964A w/ PMLN5409A   | 0.39           | 2.61          | 2.25          | 1.84          | 0.031         | 0.42        | 2.64        | 2.28        | 1.87        |
| Face exposure       | Face Front (non-display) | 0.76           | 3.14          | 2.35          | 2.20          | 0.325         | 1.09        | 3.47        | 2.68        | <b>2.53</b> |
|                     | Face Back (display)      | 1.54           | 5.52          | 4.48          | 2.37          | 0.006         | <b>1.55</b> | <b>5.53</b> | <b>4.49</b> | 2.38        |

## 15.0 Results Summary

Based on the test guideline from section 4.0 and satisfying frequencies within FCC US bands and ISED Canada frequency bands, the highest Operational Maximum Calculated 1-g values found for this filing:

**Table 45 (FCC)**

| Technologies                          | Frequency band (MHz) | Max Calc at Body (W/kg) | Max Calc at Face (W/kg) |
|---------------------------------------|----------------------|-------------------------|-------------------------|
|                                       |                      | 1g-SAR                  | 1g-SAR                  |
| LMR                                   | 150.8-173.4          | 1.24                    | 1.19                    |
|                                       | 406.125-470          | 6.50                    | 5.52                    |
|                                       | 450-512              | 6.08                    | 4.48                    |
|                                       | 769-775              | 4.57                    | 1.72                    |
|                                       | 799-824              | 5.41                    | 2.37                    |
|                                       | 851-869              | 4.53                    | 2.15                    |
| LTE                                   | LTE B2               | 0.014                   | 0.416                   |
|                                       | LTE B4               | 0.033                   | 0.325                   |
|                                       | LTE B5               | 0.067                   | 0.164                   |
|                                       | LTE B12              | 0.034                   | 0.160                   |
|                                       | LTE B13              | 0.079                   | 0.157                   |
|                                       | LTE B14              | 0.098                   | 0.186                   |
|                                       | LTE B17              | 0.026                   | 0.160                   |
| WLAN                                  | 2.4 GHz              | 0.054                   | 0.262                   |
|                                       | 5 GHz                | 0.057                   | 1.183                   |
| Highest Simultaneous Transmission SAR | Sum of SAR (W/kg)    | 6.60                    | 5.58                    |

**Table 46 (ISED)**

| Technologies                          | Frequency band (MHz) | Max Calc at Body (W/kg) | Max Calc at Face (W/kg) |
|---------------------------------------|----------------------|-------------------------|-------------------------|
|                                       |                      | 1g-SAR                  | 1g-SAR                  |
| LMR                                   | 138-173.4            | 1.24                    | 1.19                    |
|                                       | 406.125-430, 450-470 | 6.50                    | 5.52                    |
|                                       | 450-470              | 5.43                    | 2.85                    |
|                                       | 769-775              | 4.57                    | 1.72                    |
|                                       | 799-824              | 5.41                    | 2.37                    |
|                                       | 851-869              | 4.53                    | 2.15                    |
| LTE                                   | LTE B2               | 0.014                   | 0.416                   |
|                                       | LTE B4               | 0.033                   | 0.325                   |
|                                       | LTE B5               | 0.067                   | 0.164                   |
|                                       | LTE B12              | 0.034                   | 0.160                   |
|                                       | LTE B13              | 0.079                   | 0.157                   |
|                                       | LTE B14              | 0.098                   | 0.186                   |
|                                       | LTE B17              | 0.026                   | 0.160                   |
| WLAN                                  | 2.4 GHz              | 0.054                   | 0.262                   |
|                                       | 5 GHz                | 0.057                   | 1.183                   |
| Highest Simultaneous Transmission SAR | Sum of SAR (W/kg)    | 6.60                    | 5.58                    |

**Table 47 (Overall)**

| Technologies                          | Frequency band (MHz) | Max Calc at Body (W/kg) | Max Calc at Face (W/kg) |
|---------------------------------------|----------------------|-------------------------|-------------------------|
|                                       |                      | 1g-SAR                  | 1g-SAR                  |
| LMR                                   | 136-174              | 1.64                    | 1.54                    |
|                                       | 380-470              | 6.50                    | 5.52                    |
|                                       | 450-520              | 6.08                    | 4.48                    |
|                                       | 762-776              | 4.57                    | 1.72                    |
|                                       | 792-825              | 5.41                    | 2.37                    |
|                                       | 851-870              | 4.53                    | 2.15                    |
| LTE                                   | LTE B2               | 0.014                   | 0.416                   |
|                                       | LTE B4               | 0.033                   | 0.325                   |
|                                       | LTE B5               | 0.067                   | 0.164                   |
|                                       | LTE B12              | 0.034                   | 0.160                   |
|                                       | LTE B13              | 0.079                   | 0.157                   |
|                                       | LTE B14              | 0.098                   | 0.186                   |
|                                       | LTE B17              | 0.026                   | 0.160                   |
| WLAN                                  | 2.4 GHz              | 0.054                   | 0.262                   |
|                                       | 5 GHz                | 0.057                   | 1.183                   |
| Highest Simultaneous Transmission SAR | Sum of SAR (W/kg)    | 6.60                    | 5.58                    |

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8.0 W/kg average over 1gram per the requirement of FCC 47 CFR § 2.1093 and ISED RSS-102 (Issue 5).

## 16.0 Measurement System Uncertainty

### Uncertainty Budget for Device Under Test, for 150 MHz to 450 MHz

| <i>a</i>                                              | <i>b</i>          | <i>c</i>   | <i>d</i>    | <i>e = f(d,k)</i> | <i>f</i>                   | <i>g</i>                    | <i>h = c x f / e</i>          | <i>i = c x g / e</i>           | <i>k</i>             |
|-------------------------------------------------------|-------------------|------------|-------------|-------------------|----------------------------|-----------------------------|-------------------------------|--------------------------------|----------------------|
| Uncertainty Component                                 | IEEE 1528 section | Tol. (± %) | Prob Dist   | Div.              | <i>c<sub>i</sub></i> (1 g) | <i>c<sub>i</sub></i> (10 g) | 1 g <i>u<sub>i</sub></i> (±%) | 10 g <i>u<sub>i</sub></i> (±%) | <i>v<sub>i</sub></i> |
| <b>Measurement System</b>                             |                   |            |             |                   |                            |                             |                               |                                |                      |
| Probe Calibration                                     | E.2.1             | 6.7        | N           | 1.00              | 1                          | 1                           | 6.7                           | 6.7                            | ∞                    |
| Axial Isotropy                                        | E.2.2             | 4.7        | R           | 1.73              | 0.707                      | 0.707                       | 1.9                           | 1.9                            | ∞                    |
| Hemispherical Isotropy                                | E.2.2             | 9.6        | R           | 1.73              | 0.707                      | 0.707                       | 3.9                           | 3.9                            | ∞                    |
| Boundary Effect                                       | E.2.3             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Linearity                                             | E.2.4             | 4.7        | R           | 1.73              | 1                          | 1                           | 2.7                           | 2.7                            | ∞                    |
| System Detection Limits                               | E.2.5             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Readout Electronics                                   | E.2.6             | 0.3        | N           | 1.00              | 1                          | 1                           | 0.3                           | 0.3                            | ∞                    |
| Response Time                                         | E.2.7             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Integration Time                                      | E.2.8             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| RF Ambient Conditions - Noise                         | E.6.1             | 3.0        | R           | 1.73              | 1                          | 1                           | 1.7                           | 1.7                            | ∞                    |
| RF Ambient Conditions - Reflections                   | E.6.1             | 0.0        | R           | 1.73              | 1                          | 1                           | 0.0                           | 0.0                            | ∞                    |
| Probe Positioner Mech. Tolerance                      | E.6.2             | 0.4        | R           | 1.73              | 1                          | 1                           | 0.2                           | 0.2                            | ∞                    |
| Probe Positioning w.r.t Phantom                       | E.6.3             | 1.4        | R           | 1.73              | 1                          | 1                           | 0.8                           | 0.8                            | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                | E.5               | 3.4        | R           | 1.73              | 1                          | 1                           | 2.0                           | 2.0                            | ∞                    |
| <b>Test sample Related</b>                            |                   |            |             |                   |                            |                             |                               |                                |                      |
| Test Sample Positioning                               | E.4.2             | 3.2        | N           | 1.00              | 1                          | 1                           | 3.2                           | 3.2                            | 29                   |
| Device Holder Uncertainty                             | E.4.1             | 4.0        | N           | 1.00              | 1                          | 1                           | 4.0                           | 4.0                            | 8                    |
| SAR drift                                             | 6.6.2             | 5.0        | R           | 1.73              | 1                          | 1                           | 2.9                           | 2.9                            | ∞                    |
| <b>Phantom and Tissue Parameters</b>                  |                   |            |             |                   |                            |                             |                               |                                |                      |
| Phantom Uncertainty                                   | E.3.1             | 4.0        | R           | 1.73              | 1                          | 1                           | 2.3                           | 2.3                            | ∞                    |
| Liquid Conductivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.64                       | 0.43                        | 1.8                           | 1.2                            | ∞                    |
| Liquid Conductivity (measurement)                     | E.3.3             | 3.3        | N           | 1.00              | 0.64                       | 0.43                        | 2.1                           | 1.4                            | ∞                    |
| Liquid Permittivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.6                        | 0.49                        | 1.7                           | 1.4                            | ∞                    |
| Liquid Permittivity (measurement)                     | E.3.3             | 1.9        | N           | 1.00              | 0.6                        | 0.49                        | 1.1                           | 0.9                            | ∞                    |
| <b>Combined Standard Uncertainty</b>                  |                   |            | RSS         |                   |                            |                             | 12                            | 11                             | 482                  |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL) |                   |            | <i>k</i> =2 |                   |                            |                             | 23                            | 23                             |                      |

Notes for uncertainty budget Tables:

- Column headings *a-k* are given for reference.
- Tol. - tolerance in influence quantity.
- Prob. Dist. – Probability distribution
- N, R - normal, rectangular probability distributions
- Div. - divisor used to translate tolerance into normally distributed standard uncertainty
- c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
- u<sub>i</sub>* – SAR uncertainty
- v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for Device Under Test, for 750 MHz

| <i>a</i>                                              | <i>b</i>          | <i>c</i>   | <i>d</i>    | <i>e = f(d,k)</i> | <i>f</i>                   | <i>g</i>                    | <i>h = c x f / e</i>          | <i>i = c x g / e</i>           | <i>k</i>             |
|-------------------------------------------------------|-------------------|------------|-------------|-------------------|----------------------------|-----------------------------|-------------------------------|--------------------------------|----------------------|
| Uncertainty Component                                 | IEEE 1528 section | Tol. (± %) | Prob Dist   | Div.              | <i>c<sub>i</sub></i> (1 g) | <i>c<sub>i</sub></i> (10 g) | 1 g <i>u<sub>i</sub></i> (±%) | 10 g <i>u<sub>i</sub></i> (±%) | <i>v<sub>i</sub></i> |
| <b>Measurement System</b>                             |                   |            |             |                   |                            |                             |                               |                                |                      |
| Probe Calibration                                     | E.2.1             | 6.0        | N           | 1.00              | 1                          | 1                           | 6.0                           | 6.0                            | ∞                    |
| Axial Isotropy                                        | E.2.2             | 4.7        | R           | 1.73              | 0.707                      | 0.707                       | 1.9                           | 1.9                            | ∞                    |
| Hemispherical Isotropy                                | E.2.2             | 9.6        | R           | 1.73              | 0.707                      | 0.707                       | 3.9                           | 3.9                            | ∞                    |
| Boundary Effect                                       | E.2.3             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Linearity                                             | E.2.4             | 4.7        | R           | 1.73              | 1                          | 1                           | 2.7                           | 2.7                            | ∞                    |
| System Detection Limits                               | E.2.5             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Readout Electronics                                   | E.2.6             | 0.3        | N           | 1.00              | 1                          | 1                           | 0.3                           | 0.3                            | ∞                    |
| Response Time                                         | E.2.7             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Integration Time                                      | E.2.8             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| RF Ambient Conditions - Noise                         | E.6.1             | 3.0        | R           | 1.73              | 1                          | 1                           | 1.7                           | 1.7                            | ∞                    |
| RF Ambient Conditions - Reflections                   | E.6.1             | 0.0        | R           | 1.73              | 1                          | 1                           | 0.0                           | 0.0                            | ∞                    |
| Probe Positioner Mech. Tolerance                      | E.6.2             | 0.4        | R           | 1.73              | 1                          | 1                           | 0.2                           | 0.2                            | ∞                    |
| Probe Positioning w.r.t Phantom                       | E.6.3             | 1.4        | R           | 1.73              | 1                          | 1                           | 0.8                           | 0.8                            | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                | E.5               | 3.4        | R           | 1.73              | 1                          | 1                           | 2.0                           | 2.0                            | ∞                    |
| <b>Test sample Related</b>                            |                   |            |             |                   |                            |                             |                               |                                |                      |
| Test Sample Positioning                               | E.4.2             | 3.2        | N           | 1.00              | 1                          | 1                           | 3.2                           | 3.2                            | 29                   |
| Device Holder Uncertainty                             | E.4.1             | 4.0        | N           | 1.00              | 1                          | 1                           | 4.0                           | 4.0                            | 8                    |
| SAR drift                                             | 6.6.2             | 5.0        | R           | 1.73              | 1                          | 1                           | 2.9                           | 2.9                            | ∞                    |
| <b>Phantom and Tissue Parameters</b>                  |                   |            |             |                   |                            |                             |                               |                                |                      |
| Phantom Uncertainty                                   | E.3.1             | 4.0        | R           | 1.73              | 1                          | 1                           | 2.3                           | 2.3                            | ∞                    |
| Liquid Conductivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.64                       | 0.43                        | 1.8                           | 1.2                            | ∞                    |
| Liquid Conductivity (measurement)                     | E.3.3             | 3.3        | N           | 1.00              | 0.64                       | 0.43                        | 2.1                           | 1.4                            | ∞                    |
| Liquid Permittivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.6                        | 0.49                        | 1.7                           | 1.4                            | ∞                    |
| Liquid Permittivity (measurement)                     | E.3.3             | 1.9        | N           | 1.00              | 0.6                        | 0.49                        | 1.1                           | 0.9                            | ∞                    |
| <b>Combined Standard Uncertainty</b>                  |                   |            | RSS         |                   |                            |                             | 11                            | 11                             | 419                  |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL) |                   |            | <i>k</i> =2 |                   |                            |                             | 22                            | 22                             |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

d) N, R - normal, rectangular probability distributions

e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.

g) *u<sub>i</sub>* – SAR uncertainty

h) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for Device Under Test, for 800 MHz to 3000 MHz

| <i>a</i>                                              | <i>b</i>          | <i>c</i>   | <i>d</i>    | <i>e = f(d,k)</i> | <i>f</i>                   | <i>g</i>                    | <i>h = c x f / e</i>          | <i>i = c x g / e</i>           | <i>k</i>             |
|-------------------------------------------------------|-------------------|------------|-------------|-------------------|----------------------------|-----------------------------|-------------------------------|--------------------------------|----------------------|
| Uncertainty Component                                 | IEEE 1528 section | Tol. (± %) | Prob Dist   | Div.              | <i>c<sub>i</sub></i> (1 g) | <i>c<sub>i</sub></i> (10 g) | 1 g <i>u<sub>i</sub></i> (±%) | 10 g <i>u<sub>i</sub></i> (±%) | <i>v<sub>i</sub></i> |
| <b>Measurement System</b>                             |                   |            |             |                   |                            |                             |                               |                                |                      |
| Probe Calibration                                     | E.2.1             | 6.0        | N           | 1.00              | 1                          | 1                           | 6.0                           | 6.0                            | ∞                    |
| Axial Isotropy                                        | E.2.2             | 4.7        | R           | 1.73              | 0.707                      | 0.707                       | 1.9                           | 1.9                            | ∞                    |
| Hemispherical Isotropy                                | E.2.2             | 9.6        | R           | 1.73              | 0.707                      | 0.707                       | 3.9                           | 3.9                            | ∞                    |
| Boundary Effect                                       | E.2.3             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Linearity                                             | E.2.4             | 4.7        | R           | 1.73              | 1                          | 1                           | 2.7                           | 2.7                            | ∞                    |
| System Detection Limits                               | E.2.5             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Readout Electronics                                   | E.2.6             | 0.3        | N           | 1.00              | 1                          | 1                           | 0.3                           | 0.3                            | ∞                    |
| Response Time                                         | E.2.7             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Integration Time                                      | E.2.8             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| RF Ambient Conditions - Noise                         | E.6.1             | 3.0        | R           | 1.73              | 1                          | 1                           | 1.7                           | 1.7                            | ∞                    |
| RF Ambient Conditions - Reflections                   | E.6.1             | 0.0        | R           | 1.73              | 1                          | 1                           | 0.0                           | 0.0                            | ∞                    |
| Probe Positioner Mech. Tolerance                      | E.6.2             | 0.4        | R           | 1.73              | 1                          | 1                           | 0.2                           | 0.2                            | ∞                    |
| Probe Positioning w.r.t Phantom                       | E.6.3             | 1.4        | R           | 1.73              | 1                          | 1                           | 0.8                           | 0.8                            | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                | E.5               | 3.4        | R           | 1.73              | 1                          | 1                           | 2.0                           | 2.0                            | ∞                    |
| <b>Test sample Related</b>                            |                   |            |             |                   |                            |                             |                               |                                |                      |
| Test Sample Positioning                               | E.4.2             | 3.2        | N           | 1.00              | 1                          | 1                           | 3.2                           | 3.2                            | 29                   |
| Device Holder Uncertainty                             | E.4.1             | 4.0        | N           | 1.00              | 1                          | 1                           | 4.0                           | 4.0                            | 8                    |
| SAR drift                                             | 6.6.2             | 5.0        | R           | 1.73              | 1                          | 1                           | 2.9                           | 2.9                            | ∞                    |
| <b>Phantom and Tissue Parameters</b>                  |                   |            |             |                   |                            |                             |                               |                                |                      |
| Phantom Uncertainty                                   | E.3.1             | 4.0        | R           | 1.73              | 1                          | 1                           | 2.3                           | 2.3                            | ∞                    |
| Liquid Conductivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.64                       | 0.43                        | 1.8                           | 1.2                            | ∞                    |
| Liquid Conductivity (measurement)                     | E.3.3             | 3.3        | N           | 1.00              | 0.64                       | 0.43                        | 2.1                           | 1.4                            | ∞                    |
| Liquid Permittivity (target)                          | E.3.2             | 5.0        | R           | 1.73              | 0.6                        | 0.49                        | 1.7                           | 1.4                            | ∞                    |
| Liquid Permittivity (measurement)                     | E.3.3             | 1.9        | N           | 1.00              | 0.6                        | 0.49                        | 1.1                           | 0.9                            | ∞                    |
| <b>Combined Standard Uncertainty</b>                  |                   |            | RSS         |                   |                            |                             | 11                            | 11                             | 419                  |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL) |                   |            | <i>k</i> =2 |                   |                            |                             | 22                            | 22                             |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

d) N, R - normal, rectangular probability distributions

e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.g) *u<sub>i</sub>* – SAR uncertaintyh) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for Device Under Test, for 5000 MHz to 5800 MHz

| <i>a</i>                                               | <i>b</i>                | <i>c</i>      | <i>d</i>     | <i>e = f(d,k)</i> | <i>f</i>                      | <i>g</i>                       | <i>h =<br/>c x f / e</i>            | <i>i =<br/>c x g / e</i>             | <i>k</i>             |
|--------------------------------------------------------|-------------------------|---------------|--------------|-------------------|-------------------------------|--------------------------------|-------------------------------------|--------------------------------------|----------------------|
| Uncertainty Component                                  | IEEE<br>1528<br>section | Tol.<br>(± %) | Prob<br>Dist | Div.              | <i>c<sub>i</sub></i><br>(1 g) | <i>c<sub>i</sub></i><br>(10 g) | 1 g<br><i>u<sub>i</sub></i><br>(±%) | 10 g<br><i>u<sub>i</sub></i><br>(±%) | <i>v<sub>i</sub></i> |
| <b>Measurement System</b>                              |                         |               |              |                   |                               |                                |                                     |                                      |                      |
| Probe Calibration                                      | E.2.1                   | 6.6           | N            | 1.00              | 1                             | 1                              | 6.6                                 | 6.6                                  | ∞                    |
| Axial Isotropy                                         | E.2.2                   | 4.7           | R            | 1.73              | 0.707                         | 0.707                          | 1.9                                 | 1.9                                  | ∞                    |
| Hemispherical Isotropy                                 | E.2.2                   | 9.6           | R            | 1.73              | 0.707                         | 0.707                          | 3.9                                 | 3.9                                  | ∞                    |
| Boundary Effect                                        | E.2.3                   | 2.0           | R            | 1.73              | 1                             | 1                              | 1.2                                 | 1.2                                  | ∞                    |
| Linearity                                              | E.2.4                   | 4.7           | R            | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| System Detection Limits                                | E.2.5                   | 1.0           | R            | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Readout Electronics                                    | E.2.6                   | 0.3           | N            | 1.00              | 1                             | 1                              | 0.3                                 | 0.3                                  | ∞                    |
| Response Time                                          | E.2.7                   | 1.1           | R            | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Integration Time                                       | E.2.8                   | 1.1           | R            | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| RF Ambient Conditions - Noise                          | E.6.1                   | 3.0           | R            | 1.73              | 1                             | 1                              | 1.7                                 | 1.7                                  | ∞                    |
| RF Ambient Conditions - Reflections                    | E.6.1                   | 0.0           | R            | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| Probe Positioner Mech. Tolerance                       | E.6.2                   | 1.0           | R            | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Probe Positioning w.r.t Phantom                        | E.6.3                   | 4.0           | R            | 1.73              | 1                             | 1                              | 2.3                                 | 2.3                                  | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                 | E.5                     | 2.1           | R            | 1.73              | 1                             | 1                              | 1.2                                 | 1.2                                  | ∞                    |
| <b>Test sample Related</b>                             |                         |               |              |                   |                               |                                |                                     |                                      |                      |
| Test Sample Positioning                                | E.4.2                   | 3.2           | N            | 1.00              | 1                             | 1                              | 3.2                                 | 3.2                                  | 29                   |
| Device Holder Uncertainty                              | E.4.1                   | 4.0           | N            | 1.00              | 1                             | 1                              | 4.0                                 | 4.0                                  | 8                    |
| SAR drift                                              | 6.6.2                   | 5.0           | R            | 1.73              | 1                             | 1                              | 2.9                                 | 2.9                                  | ∞                    |
| <b>Phantom and Tissue Parameters</b>                   |                         |               |              |                   |                               |                                |                                     |                                      |                      |
| Phantom Uncertainty                                    | E.3.1                   | 4.0           | R            | 1.73              | 1                             | 1                              | 2.3                                 | 2.3                                  | ∞                    |
| Dielectric Parameter Correction                        | --                      | 1.4           | N            | 1.00              | 1                             | 0.79                           | 1.4                                 | 1.1                                  | ∞                    |
| Liquid Conductivity (measurement)                      | E.3.3                   | 3.3           | N            | 1.00              | 0.64                          | 0.43                           | 2.1                                 | 1.4                                  | ∞                    |
| Liquid Permittivity (measurement)                      | E.3.3                   | 1.9           | N            | 1.00              | 0.6                           | 0.49                           | 1.1                                 | 0.9                                  | ∞                    |
| <b>Combined Standard Uncertainty</b>                   |                         |               | RSS          |                   |                               |                                | 11                                  | 11                                   | 465                  |
| <b>Expanded Uncertainty<br/>(95% CONFIDENCE LEVEL)</b> |                         |               | <i>k</i> =2  |                   |                               |                                | 23                                  | 23                                   |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

d) N, R - normal, rectangular probability distributions

e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.g) *u<sub>i</sub>* – SAR uncertaintyh) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for System Validation (dipole &amp; flat phantom) for 150 MHz to 450 MHz

| <i>a</i>                                               | <i>b</i>             | <i>c</i>      | <i>d</i>       | <i>e = f(d,k)</i> | <i>f</i>                      | <i>g</i>                       | <i>h = c x f / e</i>                | <i>i = c x g / e</i>                 | <i>k</i>             |
|--------------------------------------------------------|----------------------|---------------|----------------|-------------------|-------------------------------|--------------------------------|-------------------------------------|--------------------------------------|----------------------|
|                                                        | IEEE 1528<br>section | Tol.<br>(± %) | Prob.<br>Dist. | Div.              | <i>c<sub>i</sub></i><br>(1 g) | <i>c<sub>i</sub></i><br>(10 g) | 1 g<br><i>u<sub>i</sub></i><br>(±%) | 10 g<br><i>u<sub>i</sub></i><br>(±%) | <i>v<sub>i</sub></i> |
| <b>Uncertainty Component</b>                           |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| <b>Measurement System</b>                              |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Probe Calibration                                      | E.2.1                | 6.7           | N              | 1.00              | 1                             | 1                              | 6.7                                 | 6.7                                  | ∞                    |
| Axial Isotropy                                         | E.2.2                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| Spherical Isotropy                                     | E.2.2                | 9.6           | R              | 1.73              | 0                             | 0                              | 0.0                                 | 0.0                                  | ∞                    |
| Boundary Effect                                        | E.2.3                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Linearity                                              | E.2.4                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| System Detection Limits                                | E.2.5                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Readout Electronics                                    | E.2.6                | 0.3           | N              | 1.00              | 1                             | 1                              | 0.3                                 | 0.3                                  | ∞                    |
| Response Time                                          | E.2.7                | 1.1           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Integration Time                                       | E.2.8                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| RF Ambient Conditions - Noise                          | E.6.1                | 3.0           | R              | 1.73              | 1                             | 1                              | 1.7                                 | 1.7                                  | ∞                    |
| RF Ambient Conditions - Reflections                    | E.6.1                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| Probe Positioner Mechanical Tolerance                  | E.6.2                | 0.4           | R              | 1.73              | 1                             | 1                              | 0.2                                 | 0.2                                  | ∞                    |
| Probe Positioning w.r.t. Phantom                       | E.6.3                | 1.4           | R              | 1.73              | 1                             | 1                              | 0.8                                 | 0.8                                  | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                 | E.5                  | 3.4           | R              | 1.73              | 1                             | 1                              | 2.0                                 | 2.0                                  | ∞                    |
| <b>Dipole</b>                                          |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Dipole Axis to Liquid Distance                         | 8, E.4.2             | 2.0           | R              | 1.73              | 1                             | 1                              | 1.2                                 | 1.2                                  | ∞                    |
| Input Power and SAR Drift Measurement                  | 8, 6.6.2             | 5.0           | R              | 1.73              | 1                             | 1                              | 2.9                                 | 2.9                                  | ∞                    |
| <b>Phantom and Tissue Parameters</b>                   |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Phantom Uncertainty                                    | E.3.1                | 4.0           | R              | 1.73              | 1                             | 1                              | 2.3                                 | 2.3                                  | ∞                    |
| Liquid Conductivity (target)                           | E.3.2                | 5.0           | R              | 1.73              | 0.64                          | 0.43                           | 1.8                                 | 1.2                                  | ∞                    |
| Liquid Conductivity (measurement)                      | E.3.3                | 3.3           | R              | 1.73              | 0.64                          | 0.43                           | 1.2                                 | 0.8                                  | ∞                    |
| Liquid Permittivity (target)                           | E.3.2                | 5.0           | R              | 1.73              | 0.6                           | 0.49                           | 1.7                                 | 1.4                                  | ∞                    |
| Liquid Permittivity (measurement)                      | E.3.3                | 1.9           | R              | 1.73              | 0.6                           | 0.49                           | 0.6                                 | 0.5                                  | ∞                    |
| <b>Combined Standard Uncertainty</b>                   |                      |               | RSS            |                   |                               |                                | 10                                  | 9                                    | 99999                |
| <b>Expanded Uncertainty<br/>(95% CONFIDENCE LEVEL)</b> |                      |               | <i>k</i> =2    |                   |                               |                                | 19                                  | 18                                   |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

d) N, R - normal, rectangular probability distributions

e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.g) *u<sub>i</sub>* – SAR uncertaintyh) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for System Validation (dipole &amp; flat phantom) for 750 MHz

| <i>a</i>                                               | <i>b</i>             | <i>c</i>      | <i>d</i>       | <i>e = f(d,k)</i> | <i>f</i>                      | <i>g</i>                       | <i>h =<br/>c x f / e</i>            | <i>i =<br/>c x g / e</i>             | <i>k</i>             |
|--------------------------------------------------------|----------------------|---------------|----------------|-------------------|-------------------------------|--------------------------------|-------------------------------------|--------------------------------------|----------------------|
|                                                        | IEEE 1528<br>section | Tol.<br>(± %) | Prob.<br>Dist. | Div.              | <i>c<sub>i</sub></i><br>(1 g) | <i>c<sub>i</sub></i><br>(10 g) | 1 g<br><i>u<sub>i</sub></i><br>(±%) | 10 g<br><i>u<sub>i</sub></i><br>(±%) | <i>v<sub>i</sub></i> |
| <b>Uncertainty Component</b>                           |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| <b>Measurement System</b>                              |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Probe Calibration                                      | E.2.1                | 6.0           | N              | 1.00              | 1                             | 1                              | 6.0                                 | 6.0                                  | ∞                    |
| Axial Isotropy                                         | E.2.2                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| Spherical Isotropy                                     | E.2.2                | 9.6           | R              | 1.73              | 0                             | 0                              | 0.0                                 | 0.0                                  | ∞                    |
| Boundary Effect                                        | E.2.3                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Linearity                                              | E.2.4                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| System Detection Limits                                | E.2.5                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Readout Electronics                                    | E.2.6                | 0.3           | N              | 1.00              | 1                             | 1                              | 0.3                                 | 0.3                                  | ∞                    |
| Response Time                                          | E.2.7                | 1.1           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Integration Time                                       | E.2.8                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| RF Ambient Conditions - Noise                          | E.6.1                | 3.0           | R              | 1.73              | 1                             | 1                              | 1.7                                 | 1.7                                  | ∞                    |
| RF Ambient Conditions - Reflections                    | E.6.1                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| Probe Positioner Mechanical Tolerance                  | E.6.2                | 0.4           | R              | 1.73              | 1                             | 1                              | 0.2                                 | 0.2                                  | ∞                    |
| Probe Positioning w.r.t. Phantom                       | E.6.3                | 1.4           | R              | 1.73              | 1                             | 1                              | 0.8                                 | 0.8                                  | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                 | E.5                  | 3.4           | R              | 1.73              | 1                             | 1                              | 2.0                                 | 2.0                                  | ∞                    |
| <b>Dipole</b>                                          |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Dipole Axis to Liquid Distance                         | 8, E.4.2             | 2.0           | R              | 1.73              | 1                             | 1                              | 1.2                                 | 1.2                                  | ∞                    |
| Input Power and SAR Drift Measurement                  | 8, 6.6.2             | 5.0           | R              | 1.73              | 1                             | 1                              | 2.9                                 | 2.9                                  | ∞                    |
| <b>Phantom and Tissue Parameters</b>                   |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Phantom Uncertainty                                    | E.3.1                | 4.0           | R              | 1.73              | 1                             | 1                              | 2.3                                 | 2.3                                  | ∞                    |
| Liquid Conductivity (target)                           | E.3.2                | 5.0           | R              | 1.73              | 0.64                          | 0.43                           | 1.8                                 | 1.2                                  | ∞                    |
| Liquid Conductivity (measurement)                      | E.3.3                | 3.3           | R              | 1.73              | 0.64                          | 0.43                           | 1.2                                 | 0.8                                  | ∞                    |
| Liquid Permittivity (target)                           | E.3.2                | 5.0           | R              | 1.73              | 0.6                           | 0.49                           | 1.7                                 | 1.4                                  | ∞                    |
| Liquid Permittivity (measurement)                      | E.3.3                | 1.9           | R              | 1.73              | 0.6                           | 0.49                           | 0.6                                 | 0.5                                  | ∞                    |
| <b>Combined Standard Uncertainty</b>                   |                      |               | RSS            |                   |                               |                                | 9                                   | 9                                    | 99999                |
| <b>Expanded Uncertainty<br/>(95% CONFIDENCE LEVEL)</b> |                      |               | <i>k</i> =2    |                   |                               |                                | 18                                  | 17                                   |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

d) N, R - normal, rectangular probability distributions

e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.g) *u<sub>i</sub>* – SAR uncertaintyh) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for System Validation (dipole &amp; flat phantom) for 150 MHz to 450 MHz

| <i>a</i>                                              | <i>b</i>             | <i>c</i>      | <i>d</i>       | <i>e = f(d,k)</i> | <i>f</i>                      | <i>g</i>                       | <i>h =<br/>c x f / e</i>            | <i>i =<br/>c x g / e</i>             | <i>k</i>             |
|-------------------------------------------------------|----------------------|---------------|----------------|-------------------|-------------------------------|--------------------------------|-------------------------------------|--------------------------------------|----------------------|
|                                                       | IEEE 1528<br>section | Tol.<br>(± %) | Prob.<br>Dist. | Div.              | <i>c<sub>i</sub></i><br>(1 g) | <i>c<sub>i</sub></i><br>(10 g) | 1 g<br><i>u<sub>i</sub></i><br>(±%) | 10 g<br><i>u<sub>i</sub></i><br>(±%) | <i>v<sub>i</sub></i> |
| <b>Uncertainty Component</b>                          |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| <b>Measurement System</b>                             |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Probe Calibration                                     | E.2.1                | 6.0           | N              | 1.00              | 1                             | 1                              | 6.0                                 | 6.0                                  | ∞                    |
| Axial Isotropy                                        | E.2.2                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| Spherical Isotropy                                    | E.2.2                | 9.6           | R              | 1.73              | 0                             | 0                              | 0.0                                 | 0.0                                  | ∞                    |
| Boundary Effect                                       | E.2.3                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Linearity                                             | E.2.4                | 4.7           | R              | 1.73              | 1                             | 1                              | 2.7                                 | 2.7                                  | ∞                    |
| System Detection Limits                               | E.2.5                | 1.0           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Readout Electronics                                   | E.2.6                | 0.3           | N              | 1.00              | 1                             | 1                              | 0.3                                 | 0.3                                  | ∞                    |
| Response Time                                         | E.2.7                | 1.1           | R              | 1.73              | 1                             | 1                              | 0.6                                 | 0.6                                  | ∞                    |
| Integration Time                                      | E.2.8                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| RF Ambient Conditions - Noise                         | E.6.1                | 3.0           | R              | 1.73              | 1                             | 1                              | 1.7                                 | 1.7                                  | ∞                    |
| RF Ambient Conditions - Reflections                   | E.6.1                | 0.0           | R              | 1.73              | 1                             | 1                              | 0.0                                 | 0.0                                  | ∞                    |
| Probe Positioner Mechanical Tolerance                 | E.6.2                | 0.4           | R              | 1.73              | 1                             | 1                              | 0.2                                 | 0.2                                  | ∞                    |
| Probe Positioning w.r.t. Phantom                      | E.6.3                | 1.4           | R              | 1.73              | 1                             | 1                              | 0.8                                 | 0.8                                  | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)                | E.5                  | 3.4           | R              | 1.73              | 1                             | 1                              | 2.0                                 | 2.0                                  | ∞                    |
| <b>Dipole</b>                                         |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Dipole Axis to Liquid Distance                        | 8, E.4.2             | 2.0           | R              | 1.73              | 1                             | 1                              | 1.2                                 | 1.2                                  | ∞                    |
| Input Power and SAR Drift                             |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Measurement                                           | 8, 6.6.2             | 5.0           | R              | 1.73              | 1                             | 1                              | 2.9                                 | 2.9                                  | ∞                    |
| <b>Phantom and Tissue Parameters</b>                  |                      |               |                |                   |                               |                                |                                     |                                      |                      |
| Phantom Uncertainty                                   | E.3.1                | 4.0           | R              | 1.73              | 1                             | 1                              | 2.3                                 | 2.3                                  | ∞                    |
| Liquid Conductivity (target)                          | E.3.2                | 5.0           | R              | 1.73              | 0.64                          | 0.43                           | 1.8                                 | 1.2                                  | ∞                    |
| Liquid Conductivity (measurement)                     | E.3.3                | 3.3           | R              | 1.73              | 0.64                          | 0.43                           | 1.2                                 | 0.8                                  | ∞                    |
| Liquid Permittivity (target)                          | E.3.2                | 5.0           | R              | 1.73              | 0.6                           | 0.49                           | 1.7                                 | 1.4                                  | ∞                    |
| Liquid Permittivity (measurement)                     | E.3.3                | 1.9           | R              | 1.73              | 0.6                           | 0.49                           | 0.6                                 | 0.5                                  | ∞                    |
| <b>Combined Standard Uncertainty</b>                  |                      |               | RSS            |                   |                               |                                | 9                                   | 9                                    | 99999                |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL) |                      |               | <i>k</i> =2    |                   |                               |                                | 18                                  | 17                                   |                      |

Notes for uncertainty budget Tables:

a) Column headings *a-k* are given for reference.

b) Tol. - tolerance in influence quantity.

c) Prob. Dist. – Probability distribution

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e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty

f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.g) *u<sub>i</sub>* – SAR uncertaintyh) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

## Uncertainty Budget for System Validation (dipole &amp; flat phantom) for 5000 MHz to 5800 MHz

| <i>a</i>                                           | <i>b</i>          | <i>c</i>   | <i>d</i>    | <i>e = f(d,k)</i> | <i>f</i>                   | <i>g</i>                    | <i>h = c x f / e</i>          | <i>i = c x g / e</i>           | <i>k</i>             |
|----------------------------------------------------|-------------------|------------|-------------|-------------------|----------------------------|-----------------------------|-------------------------------|--------------------------------|----------------------|
| Uncertainty Component                              | IEEE 1528 section | Tol. (± %) | Prob. Dist. | Div.              | <i>c<sub>i</sub></i> (1 g) | <i>c<sub>i</sub></i> (10 g) | 1 g <i>u<sub>i</sub></i> (±%) | 10 g <i>u<sub>i</sub></i> (±%) | <i>v<sub>i</sub></i> |
| <b>Measurement System</b>                          |                   |            |             |                   |                            |                             |                               |                                |                      |
| Probe Calibration                                  | E.2.1             | 6.6        | N           | 1.00              | 1                          | 1                           | 6.6                           | 6.6                            | ∞                    |
| Axial Isotropy                                     | E.2.2             | 4.7        | R           | 1.73              | 1                          | 1                           | 2.7                           | 2.7                            | ∞                    |
| Spherical Isotropy                                 | E.2.2             | 9.6        | R           | 1.73              | 0                          | 0                           | 0.0                           | 0.0                            | ∞                    |
| Boundary Effect                                    | E.2.3             | 2.0        | R           | 1.73              | 1                          | 1                           | 1.2                           | 1.2                            | ∞                    |
| Linearity                                          | E.2.4             | 4.7        | R           | 1.73              | 1                          | 1                           | 2.7                           | 2.7                            | ∞                    |
| System Detection Limits                            | E.2.5             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Readout Electronics                                | E.2.6             | 0.3        | N           | 1.00              | 1                          | 1                           | 0.3                           | 0.3                            | ∞                    |
| Response Time                                      | E.2.7             | 1.1        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Integration Time                                   | E.2.8             | 0.0        | R           | 1.73              | 1                          | 1                           | 0.0                           | 0.0                            | ∞                    |
| RF Ambient Conditions - Noise                      | E.6.1             | 3.0        | R           | 1.73              | 1                          | 1                           | 1.7                           | 1.7                            | ∞                    |
| RF Ambient Conditions - Reflections                | E.6.1             | 0.0        | R           | 1.73              | 1                          | 1                           | 0.0                           | 0.0                            | ∞                    |
| Probe Positioner Mechanical Tolerance              | E.6.2             | 1.0        | R           | 1.73              | 1                          | 1                           | 0.6                           | 0.6                            | ∞                    |
| Probe Positioning w.r.t. Phantom                   | E.6.3             | 4.0        | R           | 1.73              | 1                          | 1                           | 2.3                           | 2.3                            | ∞                    |
| Max. SAR Evaluation (ext., int., avg.)             | E.5               | 2.1        | R           | 1.73              | 1                          | 1                           | 1.2                           | 1.2                            | ∞                    |
| <b>Dipole</b>                                      |                   |            |             |                   |                            |                             |                               |                                |                      |
| Dipole Axis to Liquid Distance                     | 8, E.4.2          | 2.0        | R           | 1.73              | 1                          | 1                           | 1.2                           | 1.2                            | ∞                    |
| Input Power and SAR Drift Measurement              | 8, 6.6.2          | 5.0        | R           | 1.73              | 1                          | 1                           | 2.9                           | 2.9                            | ∞                    |
| <b>Phantom and Tissue Parameters</b>               |                   |            |             |                   |                            |                             |                               |                                |                      |
| Phantom Uncertainty                                | E.3.1             | 4.0        | R           | 1.73              | 1                          | 1                           | 2.3                           | 2.3                            | ∞                    |
| Dielectric Parameter Correction                    | --                | 1.4        | N           | 1.00              | 1                          | 0.79                        | 1.4                           | 1.1                            | ∞                    |
| Liquid Conductivity (measurement)                  | E.3.3             | 3.3        | R           | 1.73              | 0.64                       | 0.43                        | 1.2                           | 0.8                            | ∞                    |
| Liquid Permittivity (measurement)                  | E.3.3             | 1.9        | R           | 1.73              | 0.6                        | 0.49                        | 0.6                           | 0.5                            | ∞                    |
| <b>Combined Standard Uncertainty</b>               |                   |            | RSS         |                   |                            |                             | 9                             | 9                              | 99999                |
| <b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b> |                   |            | <i>k</i> =2 |                   |                            |                             | 19                            | 18                             |                      |

Notes for uncertainty budget Tables:

- a) Column headings *a-k* are given for reference.
- b) Tol. - tolerance in influence quantity.
- c) Prob. Dist. – Probability distribution
- d) N, R - normal, rectangular probability distributions
- e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty
- f) *c<sub>i</sub>* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
- g) *u<sub>i</sub>* – SAR uncertainty
- h) *v<sub>i</sub>* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty