

# TEST REPORT

FCC SAR Part 1 Test for SM-A566E/DS  
Certification

**APPLICANT**  
SAMSUNG Electronics Co., Ltd.

**REPORT NO.**  
HCT-SR-2412-FC008-R2

**DATE OF ISSUE**  
January 7, 2025

**Tested by**  
Gyu Tae Lee



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# TEST REPORT

FCC Part 1 SAR Test  
for certification

REPORT NO.

HCT-SR-2412-FC008-R2

DATE OF ISSUE

Jan. 07, 2025

FCC ID

A3LSMA566E

Applicant

**SAMSUNG Electronics Co., Ltd**

**129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Korea**

Product Name

Mobile Phone

Model Name

SM-A566E/DS

Additional Model Name

SM-A566E

Date of Test

Nov. 13, 2024 ~ Dec. 16, 2024

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing Lab  
(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,  
Gyeonggi-do, 17383 KOREA)

FCC Rule Part(s)

CFR §2.1093

Test Results

PASS (SAR Limit : 1.6 W/kg(1g))  
Refer to the clause 3.2 Attestation of test result

## REVISION HISTORY

The revision history for this test report is shown in table.

| Revision No. | Date of Issue | Description                |
|--------------|---------------|----------------------------|
| 0            | Dec. 23, 2024 | Initial Release            |
| 1            | Jan. 06, 2025 | Revised Sec. 4.2, Sec. 4.3 |
| 2            | Jan. 07, 2025 | Typo Sec. 4.2              |

## Notice

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### Content

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The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked \*.

Information provided by the applicant is marked \*\*.

Test results provided by external providers are marked \*\*\*.

When confirmation of authenticity of this test report is required, please contact [www.hct.co.kr](http://www.hct.co.kr)

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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## 1. Test Regulations

The tests documented in this report were performed in accordance with FCC CFR § 2.1093, IEEE 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB Publication 447498 D01 General RF Exposure Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 616217 D04 v01r02 (Proximity Sensor)
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- FCC KDB Publication 971168 D01 Power Meas License Digital Systems v03r01

In Addition to the above, the following information was used.

- October 2013 TCB Workshop Notes (GPRS testing criteria)
- October 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Overlapping LTE Bands Test exclusion)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- May 2017 TCBC Workshop Notes (LTE Band 41 Power Class 2)
- April 2019 TCBC Workshop Notes (IEEE 802.11 ax)
- April 2018 TCBC Workshop Notes (LTE UL CA, DL CA SAR Test Exclusion)
- April 2022 TCBC Workshop Notes (Sum-Peak Location Separation Ratio)

## 2. Test Location

### 2.1 Test Laboratory

|              |                                                                                 |
|--------------|---------------------------------------------------------------------------------|
| Company Name | HCT Co., Ltd.                                                                   |
| Address      | 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA |
| Telephone    | 031-645-6300                                                                    |
| Fax.         | 031-645-6401                                                                    |

### 2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

|       |                                                         |
|-------|---------------------------------------------------------|
| Korea | National Radio Research Agency (Designation No. KR0032) |
|       | KOLAS (Testing No. KT197)                               |

## 3. Information of the EUT

### 3.1 General Information of the EUT

|                       |                               |
|-----------------------|-------------------------------|
| Model Name            | SM-A566E/DS                   |
| Additional Model Name | SM-A566E                      |
| Equipment Type        | Mobile Phone                  |
| FCC ID                | A3LSMA566E                    |
| Application Type      | Certification                 |
| Applicant             | SAMSUNG Electronics Co., Ltd. |

### 3.2 Attestation of test result of device under test

| The Highest Reported SAR                  |                                                      |                 |                               |               |              |              |
|-------------------------------------------|------------------------------------------------------|-----------------|-------------------------------|---------------|--------------|--------------|
| Band                                      | Tx. Frequency                                        | Equipment Class | Reported SAR (W/kg)           |               |              |              |
|                                           |                                                      |                 | 1 g Head                      | 1 g Body/Worn | 1 g Hotspot  | 10 g Phablet |
| GSM/GPRS/EDGE 850                         | 824.2 MHz ~ 848.8 MHz                                | PCE             | 0.59                          | 0.75          | 0.75         | N/A          |
| GSM/GPRS/EDGE 1900                        | 1 850.2 MHz ~ 1 909.8 MHz                            | PCE             | <0.10                         | 0.52          | 1.13         | N/A          |
| UMTS Band 5                               | 826.4 MHz ~ 846.6 MHz                                | PCE             | 0.75                          | 0.74          | 0.74         | N/A          |
| UMTS Band 4                               | 1 712.4 MHz ~ 1 752.6 MHz                            | PCE             | 0.14                          | 0.61          | <b>1.19</b>  | N/A          |
| UMTS Band 2                               | 1 852.4 MHz ~ 1 907.6 MHz                            | PCE             | 0.18                          | 0.42          | 1.01         | N/A          |
| LTE FDD Band 2 (PCS)                      | 1 850.7 MHz ~ 1 909.3 MHz                            | PCE             | N/A                           | N/A           | N/A          | N/A          |
| LTE FDD Band 5 (Cell)                     | 824.7 MHz ~ 848.3 MHz                                | PCE             | N/A                           | N/A           | N/A          | N/A          |
| LTE FDD Band 12                           | 699.7 MHz ~ 715.3 MHz                                | PCE             | 0.77                          | <b>0.88</b>   | 0.88         | N/A          |
| LTE FDD Band 13                           | 779.5 MHz ~ 784.5 MHz                                | PCE             | 0.75                          | 0.55          | 0.55         | N/A          |
| LTE FDD Band 17                           | 706.5 MHz ~ 713.5 MHz                                | PCE             | N/A                           | N/A           | N/A          | N/A          |
| LTE FDD Band 25 (PCS)                     | 1 850.7 MHz ~ 1 914.3 MHz                            | PCE             | 0.57                          | 0.49          | 1.06         | N/A          |
| LTE FDD Band 26 (Cell)                    | 814.7 MHz ~ 848.3 MHz                                | PCE             | <b>0.87</b>                   | 0.82          | 0.82         | N/A          |
| LTE TDD Band 41                           | 2 498.5 MHz ~ 2 687.5 MHz                            | PCE             | 0.45                          | 0.38          | 0.81         | N/A          |
| LTE FDD Band 66 (AWS)                     | 1 710.7 MHz ~ 1 779.3 MHz                            | PCE             | 0.66                          | 0.57          | 0.84         | N/A          |
| NR FDD Band n5                            | 826.5 MHz ~ 846.5 MHz                                | PCE             | 0.59                          | 0.82          | 0.82         | N/A          |
| NR TDD Band n41                           | 2 506.02 MHz ~ 2 679.99 MHz                          | PCE             | 0.32                          | 0.77          | 0.86         | N/A          |
| NR FDD Band n66                           | 1 712.5 MHz ~ 1 777.5 MHz                            | PCE             | 0.59                          | 0.43          | 0.91         | N/A          |
| NR TDD Band n77                           | 3 445.01 MHz ~ 3 544.98 MHz<br>3 705 MHz ~ 3 975 MHz | PCE             | 0.60                          | 0.53          | 0.61         | N/A          |
| 2.4 GHz WLAN                              | 2 412 MHz ~ 2 462 MHz                                | DTS             | 0.28                          | 0.79          | 0.79         | N/A          |
| U-NII-1                                   | 5 180 MHz ~ 5 240 MHz                                | NII             | N/A                           | N/A           | N/A          | N/A          |
| U-NII-2A                                  | 5 260 MHz ~ 5 320 MHz                                | NII             | 0.18                          | 0.50          | 0.50         | N/A          |
| U-NII-2C                                  | 5 500 MHz ~ 5 720 MHz                                | NII             | 0.46                          | 0.58          | 0.66         | N/A          |
| U-NII-3                                   | 5 745 MHz ~ 5 825 MHz                                | NII             | 0.51                          | 0.47          | 0.49         | N/A          |
| U-NII-4                                   | 5 845 MHz ~ 5 885 MHz                                | NII             | 0.49                          | 0.42          | 0.42         | N/A          |
| Bluetooth                                 | 2 402 MHz ~ 2 480 MHz                                | DSS/DTS         | 0.50                          | 0.55          | 0.55         | N/A          |
| NFC                                       | 13.56 MHz                                            | DXX             | N/A                           | N/A           | N/A          | <0.10        |
| Simultaneous SAR per KDB 690783 D01v01r03 |                                                      |                 | <b>1.576</b>                  | <b>1.595</b>  | <b>1.595</b> | <b>0.021</b> |
| Date(s) of Tests:                         |                                                      |                 | Nov. 13, 2024 ~ Dec. 16, 2024 |               |              |              |

## 4. Device Under Test Description

### 4.1 DUT specification

| Device Wireless specification overview |                                                                                                                                                                                         |                                     |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Band & Mode                            | Operating Mode                                                                                                                                                                          | Tx Frequency                        |
| GSM850                                 | Voice / Data                                                                                                                                                                            | 824.2 MHz ~ 848.8 MHz               |
| GSM1900                                | Voice / Data                                                                                                                                                                            | 1 850.2 MHz ~ 1 909.8 MHz           |
| UMTS Band 2                            | Voice / Data                                                                                                                                                                            | 1 852.4 MHz ~ 1 907.6 MHz           |
| UMTS Band 4                            | Voice / Data                                                                                                                                                                            | 1 712.4 MHz ~ 1 752.6 MHz           |
| UMTS Band 5                            | Voice / Data                                                                                                                                                                            | 826.4 MHz ~ 846.6 MHz               |
| LTE FDD Band 2 (PCS)                   | Voice / Data                                                                                                                                                                            | 1 850.7 MHz ~ 1 909.3 MHz           |
| LTE FDD Band 4 (AWS)                   | Voice / Data                                                                                                                                                                            | 1 710.7 MHz ~ 1 754.3 MHz           |
| LTE FDD Band 5 (Cell)                  | Voice / Data                                                                                                                                                                            | 824.7 MHz ~ 848.3 MHz               |
| LTE FDD Band 12                        | Voice / Data                                                                                                                                                                            | 699.7 MHz ~ 715.3 MHz               |
| LTE FDD Band 13                        | Voice / Data                                                                                                                                                                            | 779.5 MHz ~ 784.5 MHz               |
| LTE FDD Band 17                        | Voice / Data                                                                                                                                                                            | 706.5 MHz ~ 713.5 MHz               |
| LTE FDD Band 25                        | Voice / Data                                                                                                                                                                            | 1 850.7 MHz ~ 1 914.3 MHz           |
| LTE FDD Band 26                        | Voice / Data                                                                                                                                                                            | 814.7 MHz ~ 848.3 MHz               |
| LTE TDD Band 41                        | Voice / Data                                                                                                                                                                            | 2 498.5 MHz ~ 2 687.5 MHz           |
| LTE FDD Band 66 (AWS)                  | Voice / Data                                                                                                                                                                            | 1 710.7 MHz ~ 1 779.3 MHz           |
| NR FDD Band n5                         | Voice / Data                                                                                                                                                                            | 826.5 MHz ~ 846.5 MHz               |
| NR TDD Band n41                        | Voice / Data                                                                                                                                                                            | 2 501.01 MHz ~ 2 685 MHz            |
| NR FDD Band n66                        | Voice / Data                                                                                                                                                                            | 1 712.5 MHz ~ 1 777.5 MHz           |
| NR TDD Band n77                        | Voice / Data                                                                                                                                                                            | 3 705 MHz ~ 3 975 MHz               |
| NR TDD Band n77 DoD                    | Voice / Data                                                                                                                                                                            | 3 445.01 MHz ~ 3 544.98 MHz         |
| U-NII-1                                | Voice / Data                                                                                                                                                                            | 5 180 MHz ~ 5 240 MHz               |
| U-NII-2A                               | Voice / Data                                                                                                                                                                            | 5 260 MHz ~ 5 320 MHz               |
| U-NII-2C                               | Voice / Data                                                                                                                                                                            | 5 500 MHz ~ 5 720 MHz               |
| U-NII-3                                | Voice / Data                                                                                                                                                                            | 5 745 MHz ~ 5 825 MHz               |
| U-NII-4                                | Voice / Data                                                                                                                                                                            | 5 845 MHz ~ 5 885 MHz               |
| 2.4 GHz WLAN                           | Voice / Data                                                                                                                                                                            | 2 412 MHz ~ 2 462 MHz               |
| Bluetooth / LE 5.3                     | Data                                                                                                                                                                                    | 2 402 MHz ~ 2 480 MHz               |
| NFC                                    | Data                                                                                                                                                                                    | 13.56 MHz                           |
| Device Description                     |                                                                                                                                                                                         |                                     |
| Battery                                | Main: EB-BA566ASY(ATL)                                                                                                                                                                  |                                     |
| Device Serial Numbers                  | Mode                                                                                                                                                                                    | Serial Number                       |
|                                        | GSM850 Ant A, GSM 1900 Ant B, UMTS B2,4 Ant B UMTS 5 Ant A, LTE Band 5,12,13,26 Ant A, LTE Band 41 Ant B, LTE Band 66 Ant B, LTE Band 66 Ant F, NR n5 Ant A, NR n66 Ant B, NR n66 Ant F | XJS1085M/XJS1082M/XJU0594M/XJU0740M |
|                                        | GSM 850 Ant E, UMTS 5 Ant E, LTE Band 5,12,13,26 Ant E, LTE Band 25 Ant B, LTE Band 25 Ant F, LTE Band 41 Ant F, NR n5 Ant E, NR n41 Ant B, NR n41 SRS1,2,3                             | XKI1694M                            |
|                                        | NR n77                                                                                                                                                                                  | XKI1622M                            |
|                                        | WLAN2.4 GHz, 5 GHz,Bluetooth                                                                                                                                                            | XJU0765M                            |
|                                        | The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics are within operational tolerances expected for production units.  |                                     |

## 4.2 Time-Averaging Algorithm for RF Exposure Compliance

This WWAN Mode of DUT is equipped with an S.LSI chipset to which the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm is applied. This DUT is enabled with the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm for WWAN /WLAN Mode to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is in compliance with the FCC requirement.

FCC RF exposure limit is based on time averaged RF exposure. The SAR regulatory specification is defined over certain measurement duration allowing for time-averaging. The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm has been designed to meet the compliance limits over the required duration, while still allowing dynamic control of transmit power to satisfy the performance of the system.

This feature performs time averaging SAR algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. The S.LSI TAS algorithms, implemented in WWAN and WLAN modes respectively, are independent and always comply with the FCC's RF exposure limit. Only the BT, NFC mode of the device did not apply the time averaged SAR algorithm.

The Samsung S.LSI TAS algorithm allow the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit NV settings and maximum tune up output power Pmax configured for this DUT for various transmit conditions (Radio SAR indicator RSI for Head /Body SAR of WWAN/WLAN Mode) Note that the device uncertainty for sub-6GHz WLAN/WWAN is 1.0dB for this DUT.

The purpose of this report is to demonstrate that the DUT meets FCC SAR limits when transmitting in static transmission configurations at Plimit specified by manufacturer.

Measurement Condition: All conducted power and SAR measurements in this report were performed by Plimit in static Power condition.

| Plim values in green indicate Plimit < Pmax                        |              |         | Plimit values in grey indicate Plimit > Pmax |                                  |                                                                                |             |
|--------------------------------------------------------------------|--------------|---------|----------------------------------------------|----------------------------------|--------------------------------------------------------------------------------|-------------|
| Plimit corresponding to 1 W/kg (1g) 2.5W/kg(10g) SAR_Design_target |              |         | Pmax                                         |                                  |                                                                                |             |
| SAR Exposure Position                                              |              |         | Head<br>(RCV ON)                             | Non Head<br>(Bodyworn / Hotspot) | Maximum<br>Tune-up<br>Output<br>Power<br>(Frame<br>Averaged<br>Power)<br>[dBm] | UL:DL Ratio |
| Averaging volume                                                   |              |         | 1g                                           | 1g                               |                                                                                |             |
| seperation Distance                                                |              |         | 0 mm                                         | 5 mm                             |                                                                                |             |
| Mode                                                               | Band         | Antenna | RSI = 1                                      | RSI =0                           |                                                                                |             |
| GSM/GPRS/EDGE                                                      | 850          | MAIN 1  | 36.0                                         | 22.5                             | 25.4                                                                           | 48.2%       |
| GSM/GPRS/EDGE                                                      | 850          | Sub 1   | 26.2                                         | 22.3                             | 25.4                                                                           | 48.2%       |
| GSM/GPRS/EDGE                                                      | 1900         | MAIN 2  | 36.7                                         | 19.2                             | 22.0                                                                           | 48.2%       |
| UMTS                                                               | 2            | MAIN 2  | 32.3                                         | 19.0                             | 23.8                                                                           | 100%        |
| UMTS                                                               | 4            | MAIN 2  | 33.4                                         | 18.3                             | 23.8                                                                           | 100%        |
| UMTS                                                               | 5            | MAIN 1  | 32.4                                         | 23.3                             | 24.5                                                                           | 100%        |
| UMTS                                                               | 5 Upper      | Sub 1   | 22.5                                         | 22.5                             | 24.5                                                                           | 100%        |
| LTE FDD                                                            | 25(2) Lower  | MAIN 2  | 32.7                                         | 18.7                             | 23.5                                                                           | 100%        |
| LTE FDD                                                            | 25(2) Upper  | Sub 2   | 21.5                                         | 20.7                             | 23.5                                                                           | 100%        |
| LTE FDD                                                            | 66(4) Lower  | MAIN 2  | 35.1                                         | 21.8                             | 24.0                                                                           | 100%        |
| LTE FDD                                                            | 66(4) Upper  | Sub 2   | 20.4                                         | 19.8                             | 23.5                                                                           | 100%        |
| LTE FDD                                                            | 12(17)       | MAIN 1  | 31.8                                         | 22.0                             | 24.5                                                                           | 100%        |
| LTE FDD                                                            | 12(17) Upper | Sub 1   | 21.1                                         | 22.5                             | 23.0                                                                           | 100%        |
| LTE FDD                                                            | 13           | MAIN 1  | 40.4                                         | 22.0                             | 24.5                                                                           | 100%        |
| LTE FDD                                                            | 13 Upper     | Sub 1   | 21.3                                         | 22.6                             | 23.0                                                                           | 100%        |
| LTE FDD                                                            | 26(5)        | MAIN 1  | 33.9                                         | 23.9                             | 24.5                                                                           | 100%        |
| LTE FDD                                                            | 26(5) Upper  | Sub 1   | 20.6                                         | 22.8                             | 23.0                                                                           | 100%        |
| LTE TDD PC3                                                        | 41           | MAIN 2  | 35.4                                         | 18.5                             | 21.5                                                                           | 63.3%       |
| LTE TDD PC3                                                        | 41 Upper     | Sub 2   | 20.5                                         | 21.7                             | 22.0                                                                           | 63.3%       |
| NR FDD                                                             | 5 Lower      | MAIN 1  | 35.7                                         | 22.0                             | 24.0                                                                           | 100%        |
| NR FDD                                                             | 5 Upper      | Sub 1   | 21.3                                         | 21.9                             | 23.0                                                                           | 100%        |
| NR FDD                                                             | 66 Lower     | MAIN 2  | 33.2                                         | 19.3                             | 24.5                                                                           | 100%        |
| NR FDD                                                             | 66 Upper     | Sub 2   | 21.3                                         | 20.2                             | 24.5                                                                           | 100%        |
| NR TDD                                                             | 41           | MAIN 2  | 44.6                                         | 16.7                             | 23.5                                                                           | 100%        |
| NR TDD                                                             | 41 SRS2      | Sub 2   | 15.5                                         | 11.5                             | 20.0                                                                           | 100%        |
| NR TDD                                                             | 41 SRS3      | Sub 4   | 21.5                                         | 12.5                             | 21.5                                                                           | 100%        |
| NR TDD                                                             | 41 SRS4      | Sub 3   | 37.3                                         | 9.0                              | 18.0                                                                           | 100%        |
| NR TDD                                                             | 77           | Sub 2   | 16.7                                         | 16.9                             | 24.0                                                                           | 100%        |
| WLAN                                                               | 2.4          | Sub 4   | 12.5                                         | 16.0                             | 18.0                                                                           | 100%        |
| WLAN                                                               | 2.4          | Sub 6   | 11.5                                         | 18.4                             | 18.0                                                                           | 100%        |
| WLAN                                                               | 2.4          | Sub4+6  | 15.0                                         | 15.8                             | 19.0                                                                           | 100%        |
| WLAN                                                               | 5            | Sub 3   | 10.0                                         | 17.6                             | 14.0                                                                           | 100%        |
| WLAN                                                               | 5            | Sub 1   | 7.0                                          | 18.8                             | 14.0                                                                           | 100%        |
| BT LE                                                              | 2.4          | Sub 4   | 20.5                                         | 20.1                             | 17.0                                                                           | 100%        |
| BT BDR                                                             | 2.4          | Sub 4   | 21.7                                         | 24.2                             | 17.5                                                                           | 100%        |

\*Note all Plimit and maximum tune up output power Pmax levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM, LTE TDD, 5G NR TDD).

\*The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G WWAN technology, band, and SAR Exposure condition=minimum of "Plimit" and "Maximum tune up output power: "Pmax" + 1dB device uncertainty.

The maximum time averaged output power means Plimit for each modes SAR values in this report were scaled to the maximum allowed output power to determine compliance per KDB Publication 447498 D01v06.

### 4.3 Nominal and Maximum Output Power Specifications

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

\* The output power for SAR test in WWAN modes[2G/3G/4G/5G ]of this device is characterized as Head [RSI=1] and Non-Head [RSI=0], and the output power of non-Head condition.

#### 4.3.1 2G/3G/4G/5G Nominal Output Power

##### A. GSM Modes

| GSM/GPRS/EDGE 850 (Ant A)  |                   |                                    |            |            |            |                                     |            |            |            |
|----------------------------|-------------------|------------------------------------|------------|------------|------------|-------------------------------------|------------|------------|------------|
| Power Level                | Voice<br>(in dBm) | Data – Burst Average GMSK (in dBm) |            |            |            | Data – Burst Average 8-PSK (in dBm) |            |            |            |
|                            | 1 TX Slot         | 1 TX Slots                         | 2 TX Slots | 3 TX Slots | 4 TX Slots | 1 TX Slots                          | 2 TX Slots | 3 TX Slots | 4 TX Slots |
| Pmax                       | 33.0              | 33.0                               | 31.0       | 29.8       | 28.6       | 27.0                                | 25.0       | 23.8       | 22.6       |
| RSI = 0 (Non Head)         | 31.0              | 31.0                               | 28.5       | 26.5       | 25.3       | 27.0                                | 25.0       | 23.8       | 22.6       |
| RSI = 1 (Head)             | 33.0              | 33.0                               | 31.0       | 29.8       | 28.6       | 27.0                                | 25.0       | 23.8       | 22.6       |
| GSM/GPRS/EDGE 1900 (Ant B) |                   |                                    |            |            |            |                                     |            |            |            |
| Power Level                | Voice<br>(in dBm) | Data – Burst Average GMSK (in dBm) |            |            |            | Data – Burst Average 8-PSK (in dBm) |            |            |            |
|                            | 1 TX Slot         | 1 TX Slots                         | 2 TX Slots | 3 TX Slots | 4 TX Slots | 1 TX Slots                          | 2 TX Slots | 3 TX Slots | 4 TX Slots |
| Pmax                       | 30.0              | 30.0                               | 27.8       | 26.2       | 25.2       | 26.0                                | 24.0       | 22.8       | 21.6       |
| RSI = 0 (Non Head)         | 27.0              | 27.0                               | 24.3       | 22.8       | 21.7       | 26.0                                | 24.0       | 22.8       | 21.6       |
| RSI = 1 (Head)             | 30.0              | 30.0                               | 27.8       | 26.2       | 25.2       | 26.0                                | 24.0       | 22.8       | 21.6       |

Tolerance: -1.5 dB ~ +1.0 dB

| GSM/GPRS/EDGE 850 (Ant E) |                   |                                    |            |            |            |                                     |            |            |            |
|---------------------------|-------------------|------------------------------------|------------|------------|------------|-------------------------------------|------------|------------|------------|
| Power Level               | Voice<br>(in dBm) | Data – Burst Average GMSK (in dBm) |            |            |            | Data – Burst Average 8-PSK (in dBm) |            |            |            |
|                           | 1 TX Slot         | 1 TX Slots                         | 2 TX Slots | 3 TX Slots | 4 TX Slots | 1 TX Slots                          | 2 TX Slots | 3 TX Slots | 4 TX Slots |
| Pmax                      | 33.0              | 33.0                               | 31.0       | 29.8       | 28.6       | 27.0                                | 25.0       | 23.8       | 22.6       |
| RSI = 0 (Non Head)        | 31.0              | 31.0                               | 28.5       | 26.5       | 25.3       | 27.0                                | 25.0       | 23.8       | 22.6       |
| RSI = 1 (Head)            | 31.0              | 31.0                               | 28.5       | 26.5       | 25.3       | 27.0                                | 25.0       | 23.8       | 22.6       |

Tolerance: -1.5 dB ~ +1.0 dB

## B. UMTS Modes

| UMTS Band 5 (850 MHz) (Ant A)   |                                         |                    |                |
|---------------------------------|-----------------------------------------|--------------------|----------------|
| Mode / Band                     | Modulated Average Output Power (in dBm) |                    |                |
|                                 | Pmax                                    | RSI = 0 (Non Head) | RSI = 1 (Head) |
| 3GPP WCDMA Rel 99               | 24.5                                    | 21.5               | 24.5           |
| 3GPP HSDPA Rel 5                | 23.0                                    | 20.5               | 22.5           |
| 3GPP HSUPA Rel 6                | 22.5                                    | 19.5               | 22.5           |
| 3GPP DC-HSDPA Rel 8             | 22.5                                    | 20.5               | 22.5           |
| UMTS Band 4 (1 750 MHz) (Ant B) |                                         |                    |                |
| Mode / Band                     | Modulated Average Output Power (in dBm) |                    |                |
|                                 | Pmax                                    | RSI = 0 (Non Head) | RSI = 1 (Head) |
| 3GPP WCDMA Rel 99               | 22.5                                    | 18.0               | 22.5           |
| 3GPP HSDPA Rel 5                | 22.0                                    | 17.5               | 22.0           |
| 3GPP HSUPA Rel 6                | 21.5                                    | 17.0               | 21.5           |
| 3GPP DC-HSDPA Rel 8             | 22.0                                    | 17.5               | 22.0           |
| UMTS Band 2 (1 900 MHz) (Ant B) |                                         |                    |                |
| Mode / Band                     | Modulated Average Output Power (in dBm) |                    |                |
|                                 | Pmax                                    | RSI = 0 (Non Head) | RSI = 1 (Head) |
| 3GPP WCDMA Rel 99               | 23.8                                    | 18.0               | 23.8           |
| 3GPP HSDPA Rel 5                | 23.3                                    | 17.5               | 23.3           |
| 3GPP HSUPA Rel 6                | 22.8                                    | 17.0               | 22.8           |
| 3GPP DC-HSDPA Rel 8             | 23.3                                    | 17.5               | 23.3           |

Tolerance: -1.5 dB ~ +1.0 dB

| UMTS Band 5 (850 MHz) (Ant E) |                                         |                    |                |
|-------------------------------|-----------------------------------------|--------------------|----------------|
| Mode / Band                   | Modulated Average Output Power (in dBm) |                    |                |
|                               | Pmax                                    | RSI = 0 (Non Head) | RSI = 1 (Head) |
| 3GPP WCDMA Rel 99             | 24.0                                    | 22.5               | 22.5           |
| 3GPP HSDPA Rel 5              | 21.5                                    | 21.5               | 21.5           |
| 3GPP HSUPA Rel 6              | 20.5                                    | 20.5               | 20.5           |
| 3GPP DC-HSDPA Rel 8           | 21.5                                    | 21.5               | 21.5           |

### C. LTE Modes

| Mode / Band           | Modulated Average Output Power (in dBm) |                    |                |
|-----------------------|-----------------------------------------|--------------------|----------------|
|                       | Pmax                                    | RSI = 0 (Non Head) | RSI = 1 (Head) |
| LTE FDD Band 12 Ant A | 24.5                                    | 22                 | 24.5           |
| LTE FDD Band 12 Ant E | 23                                      | 19                 | 19             |
| LTE FDD Band 13 Ant A | 24.5                                    | 22                 | 24.5           |
| LTE FDD Band 13 Ant E | 23                                      | 19                 | 19             |
| LTE FDD Band 17 Ant A | 24.5                                    | 22                 | 24.5           |
| LTE FDD Band 17 Ant E | 23                                      | 19                 | 19             |
| LTE FDD Band 26 Ant A | 24.5                                    | 22                 | 24.5           |
| LTE FDD Band 26 Ant E | 23                                      | 19                 | 19             |
| LTE FDD Band 5 Ant A  | 24.5                                    | 22                 | 24.5           |
| LTE FDD Band 5 Ant E  | 23                                      | 19                 | 19             |
| LTE FDD Band 66 Ant B | 24                                      | 18                 | 24             |
| LTE FDD Band 66 Ant F | 23.5                                    | 18                 | 18             |
| LTE FDD Band 4 Ant B  | 24                                      | 18                 | 24             |
| LTE FDD Band 4 Ant F  | 23.5                                    | 18                 | 18             |
| LTE FDD Band 2 Ant B  | 23.5                                    | 18                 | 23.5           |
| LTE FDD Band 2 Ant F  | 23.5                                    | 18                 | 18             |
| LTE FDD Band 25 Ant B | 23.5                                    | 18                 | 23.5           |
| LTE FDD Band 25 Ant F | 23.5                                    | 18                 | 18             |
| LTE TDD Band 41 Ant B | 23.5                                    | 18.5               | 23.5           |
| LTE TDD Band 41 Ant F | 24                                      | 18                 | 18             |

Tolerance: -1.5 dB ~ +1.0 dB

## D. 5G NR SUB 6

| Mode / Band                  | Modulated Average Output Power (in dBm) |                                 |                             |
|------------------------------|-----------------------------------------|---------------------------------|-----------------------------|
|                              | Pmax                                    | RSI = 0 (Non Head)              | RSI = 1 (Head)              |
| NR FDD Band 5 Ant A          | 24                                      | 22                              | 24                          |
| NR FDD Band 5 Ant E          | 23                                      | 20                              | 18                          |
| NR FDD Band 66 Ant B         | 24.5                                    | 18                              | 24.5                        |
| NR FDD Band 66 Ant F         | 24.5                                    | 18                              | 18                          |
| Mode / Band                  | Modulated Average Output Power (in dBm) |                                 |                             |
|                              | Pmax                                    | RSI = 0 (Non Head)<br>Duty 100% | RSI = 1 (Head)<br>Duty 100% |
| NR TDD Band 41 (Ant B, SRS0) | 23.5                                    | 16.5                            | 16.5                        |
| NR TDD Band 41 (Ant F, SRS1) | 20                                      | 11.5                            | 11.5                        |
| NR TDD Band 41 (Ant E, SRS2) | 21.5                                    | 12.5                            | 12.5                        |
| NR TDD Band 41 (Ant D, SRS3) | 18                                      | 9                               | 9                           |
| NR TDD Band 77 Ant F         | 24.5                                    | 13.5                            | 13.5                        |

Tolerance: -1.5 dB ~ +1.0 dB

### 4.3.2 Maximum 2.4 GHz, 5 GHz WIFI output power

#### a. Maximum Power Pmax

| Mode            | Band    | SISO(ANT1)                                         |                                  |                                                                                                          |                                                                                                          |                                                    |                          | SISO(ANT2) |                                            |                                                                            |                                                                            |                |                                       |
|-----------------|---------|----------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------|------------|--------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------|---------------------------------------|
|                 |         | a                                                  | b                                | g                                                                                                        | n                                                                                                        | ac                                                 | ax(SU)                   | a          | b                                          | g                                                                          | n                                                                          | ac             | ax(SU)                                |
| 2.4GHz          | 2.45GHz |                                                    | 18<br>Ch1:17<br>Ch12:7<br>Ch13:7 | 17<br>Ch1:15<br>Ch2:16<br>Ch3:16<br>Ch4:16<br>Ch8:16<br>Ch9:16<br>Ch10:16<br>Ch11:14<br>Ch12:7<br>Ch13:2 | 17<br>Ch1:15<br>Ch2:16<br>Ch3:16<br>Ch4:16<br>Ch8:16<br>Ch9:16<br>Ch10:16<br>Ch11:14<br>Ch12:7<br>Ch13:1 |                                                    | 17<br>Ch12:7<br>Ch13:5.5 |            | 16<br>Ch1:15<br>Ch2:15<br>Ch12:5<br>Ch13:5 | 15<br>Ch1:13<br>Ch2:13<br>Ch3:14<br>Ch10:14<br>Ch11:12<br>Ch12:5<br>Ch13:5 | 15<br>Ch1:13<br>Ch2:14<br>Ch3:14<br>Ch10:14<br>Ch11:12<br>Ch12:5<br>Ch13:4 |                | 14<br>Ch11:10.5<br>Ch12:5<br>Ch13:3.5 |
| 5GHz<br>(20MHz) | 5200MHz | 14                                                 |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       | 11         |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
|                 | 5300MHz | 14                                                 |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       | 11         |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
|                 | 5500MHz | 14<br>Ch100:12<br>Ch104:11<br>Ch108:11<br>Ch112:11 |                                  |                                                                                                          | 14<br>Ch100:12<br>Ch104:11<br>Ch108:11<br>Ch112:11                                                       | 14<br>Ch100:12<br>Ch104:11<br>Ch108:11<br>Ch112:11 | 14<br>Ch100:12.5         | 11         |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
|                 | 5800MHz | 14                                                 |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       | 11         |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
| 5GHz<br>(40MHz) | 5200MHz |                                                    |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       |            |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
|                 | 5300MHz |                                                    |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       |            |                                            |                                                                            | 11<br>Ch102:10                                                             | 11<br>Ch102:10 | 11                                    |
|                 | 5500MHz |                                                    |                                  |                                                                                                          | 14<br>Ch102:12<br>Ch110:12                                                                               | 14<br>Ch102:12<br>Ch110:12                         | 14                       |            |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
|                 | 5800MHz |                                                    |                                  |                                                                                                          | 14                                                                                                       | 14                                                 | 14                       |            |                                            |                                                                            | 11                                                                         | 11             | 11                                    |
| 5GHz<br>(80MHz) | 5200MHz |                                                    |                                  |                                                                                                          |                                                                                                          | 12                                                 | 12                       |            |                                            |                                                                            |                                                                            | 9              | 9<br>Ch42:8                           |
|                 | 5300MHz |                                                    |                                  |                                                                                                          |                                                                                                          | 12<br>Ch58:11                                      | 12                       |            |                                            |                                                                            |                                                                            | 9              | 9                                     |
|                 | 5500MHz |                                                    |                                  |                                                                                                          |                                                                                                          | 12<br>Ch106:10                                     | 12                       |            |                                            |                                                                            |                                                                            | 9              | 9                                     |
|                 | 5800MHz |                                                    |                                  |                                                                                                          |                                                                                                          | 12                                                 | 12                       |            |                                            |                                                                            |                                                                            | 9              | 9                                     |

| Mode            | Band    | MIMO                                   |                        |                                   |                                             |                                        |                                                  |
|-----------------|---------|----------------------------------------|------------------------|-----------------------------------|---------------------------------------------|----------------------------------------|--------------------------------------------------|
|                 |         | a                                      | b                      | g                                 | n                                           | ac                                     | ax(SU)                                           |
| 2.4GHz          | 2.45GHz |                                        | 19<br>Ch12:8<br>Ch13:8 | 18<br>Ch11:17<br>Ch12:8<br>Ch13:5 | 18<br>Ch1:17<br>Ch11:16<br>Ch12:8<br>Ch13:5 |                                        | 18<br>Ch10:16.5<br>Ch11:13.5<br>Ch12:8<br>Ch13:7 |
| 5GHz<br>(20MHz) | 5200MHz | 15<br>Ch36:14                          |                        |                                   | 15<br>Ch36:14                               | 15<br>Ch36:14                          | 15<br>Ch36:11<br>Ch40:13                         |
|                 | 5300MHz | 15                                     |                        |                                   | 15                                          | 15                                     | 15                                               |
|                 | 5500MHz | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13 |                        |                                   | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13      | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13 | 15<br>Ch100:11<br>Ch104:11                       |
|                 | 5800MHz | 15<br>Ch149:14                         |                        |                                   | 15<br>Ch149:14                              | 15<br>Ch149:14                         | 15<br>Ch149:11                                   |
| 5GHz<br>(40MHz) | 5200MHz |                                        |                        |                                   | 15<br>Ch38:12                               | 15<br>Ch38:12                          | 15<br>Ch38:11<br>Ch46:12                         |
|                 | 5300MHz |                                        |                        |                                   | 15                                          | 15                                     | 15                                               |
|                 | 5500MHz |                                        |                        |                                   | 15<br>Ch102:14<br>Ch110:14                  | 15<br>Ch102:14<br>Ch110:14             | 15<br>Ch102:9<br>Ch110:11                        |
|                 | 5800MHz |                                        |                        |                                   | 15                                          | 15                                     | 15<br>Ch151:10                                   |
| 5GHz<br>(80MHz) | 5200MHz |                                        |                        |                                   |                                             | 13<br>Ch42:12                          | 13                                               |
|                 | 5300MHz |                                        |                        |                                   |                                             | 13<br>Ch58:12                          | 13                                               |
|                 | 5500MHz |                                        |                        |                                   |                                             | 13<br>Ch106:10                         | 13<br>Ch106:10                                   |
|                 | 5800MHz |                                        |                        |                                   |                                             | 13                                     | 13                                               |

(Upper tolerance: target +1.0 dB)

## b. Reduced Power Plimit (RSI =0 Non Head)

| Mode            | Band    | SISO(ANT1)                             |                        |                                    |                                        |                                        |                            | SISO(ANT2) |                                            |                                                                            |                                                                            |    |                                       |
|-----------------|---------|----------------------------------------|------------------------|------------------------------------|----------------------------------------|----------------------------------------|----------------------------|------------|--------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----|---------------------------------------|
|                 |         | a                                      | b                      | g                                  | n                                      | ac                                     | ax(SU)                     | a          | b                                          | g                                                                          | n                                                                          | ac | ax(SU)                                |
| 2.4GHz          | 2.45GHz |                                        | 16<br>Ch12:7<br>Ch13:7 | 15<br>Ch11:14<br>Ch12:7<br>Ch13: 2 | 15<br>Ch11:14<br>Ch12:7<br>Ch13:1      |                                        | 14<br>Ch12:7<br>Ch13:5.5   |            | 16<br>Ch1:15<br>Ch2:15<br>Ch12:5<br>Ch13:5 | 15<br>Ch1:13<br>Ch2:13<br>Ch3:14<br>Ch10:14<br>Ch11:12<br>Ch12:5<br>Ch13:5 | 15<br>Ch1:13<br>Ch2:14<br>Ch3:14<br>Ch10:14<br>Ch11:12<br>Ch12:5<br>Ch13:4 |    | 14<br>Ch11:10.5<br>Ch12:5<br>Ch13:3.5 |
| 5GHz<br>(20MHz) | 5200MHz | 14<br>Ch36:13                          |                        |                                    | 14<br>Ch36:13                          | 14<br>Ch36:13                          | 14<br>Ch36:11<br>Ch40:13   | 11         |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5300MHz | 14                                     |                        |                                    | 14                                     | 14                                     | 14                         | 11         |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5500MHz | 14<br>Ch100:13<br>Ch104:12<br>Ch108:12 |                        |                                    | 14<br>Ch100:13<br>Ch104:12<br>Ch108:12 | 14<br>Ch100:13<br>Ch104:12<br>Ch108:12 | 14<br>Ch100:11<br>Ch104:11 | 11         |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5800MHz | 14<br>Ch149:13                         |                        |                                    | 14                                     | 14                                     | 14<br>Ch149:11             | 11         |                                            |                                                                            | 11                                                                         | 11 | 11<br>(165ch : 11)                    |
| 5GHz<br>(40MHz) | 5200MHz |                                        |                        |                                    | 14<br>Ch38:11                          | 14<br>Ch38:11                          | 14<br>Ch38:11<br>Ch46:12   |            |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5300MHz |                                        |                        |                                    | 14                                     | 14                                     | 14                         |            |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5500MHz |                                        |                        |                                    | 14<br>Ch102:13<br>Ch110:13             | 14<br>Ch102:13<br>Ch110:13             | 14<br>Ch102:9<br>Ch110:11  |            |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
|                 | 5800MHz |                                        |                        |                                    | 14                                     | 14                                     | 14<br>Ch151:10             |            |                                            |                                                                            | 11                                                                         | 11 | 11                                    |
| 5GHz<br>(80MHz) | 5200MHz |                                        |                        |                                    |                                        | 12<br>Ch42:11                          | 12                         |            |                                            |                                                                            |                                                                            | 9  | 9                                     |
|                 | 5300MHz |                                        |                        |                                    |                                        | 12<br>Ch58:11                          | 12                         |            |                                            |                                                                            |                                                                            | 9  | 9                                     |
|                 | 5500MHz |                                        |                        |                                    |                                        | 12<br>Ch106:9                          | 12<br>Ch106:10             |            |                                            |                                                                            |                                                                            | 9  | 9                                     |
|                 | 5800MHz |                                        |                        |                                    |                                        | 12                                     | 12                         |            |                                            |                                                                            |                                                                            | 9  | 9                                     |

| Mode            | Band    | MIMO                                   |                        |                                   |                                             |                                        |                                                  |
|-----------------|---------|----------------------------------------|------------------------|-----------------------------------|---------------------------------------------|----------------------------------------|--------------------------------------------------|
|                 |         | a                                      | b                      | g                                 | n                                           | ac                                     | ax(SU)                                           |
| 2.4GHz          | 2.45GHz |                                        | 19<br>Ch12:8<br>Ch13:8 | 18<br>Ch11:17<br>Ch12:8<br>Ch13:5 | 18<br>Ch1:17<br>Ch11:16<br>Ch12:8<br>Ch13:5 |                                        | 18<br>Ch10:16.5<br>Ch11:13.5<br>Ch12:8<br>Ch13:7 |
| 5GHz<br>(20MHz) | 5200MHz | 15<br>Ch36:14                          |                        |                                   | 15<br>Ch36:14                               | 15<br>Ch36:14                          | 15<br>Ch36:11<br>Ch40:13                         |
|                 | 5300MHz | 15                                     |                        |                                   | 15                                          | 15                                     | 15                                               |
|                 | 5500MHz | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13 |                        |                                   | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13      | 15<br>Ch100:14<br>Ch104:13<br>Ch108:13 | 15<br>Ch100:11<br>Ch104:11                       |
|                 | 5800MHz | 15<br>Ch149:14                         |                        |                                   | 15<br>Ch149:14                              | 15<br>Ch149:14                         | 15<br>Ch149:11                                   |
| 5GHz<br>(40MHz) | 5200MHz |                                        |                        |                                   | 15<br>Ch38:12                               | 15<br>Ch38:12                          | 15<br>Ch38:11<br>Ch46:12                         |
|                 | 5300MHz |                                        |                        |                                   | 15                                          | 15                                     | 15                                               |
|                 | 5500MHz |                                        |                        |                                   | 15<br>Ch102:14<br>Ch110:14                  | 15<br>Ch102:14<br>Ch110:14             | 15<br>Ch102:9<br>Ch110:11                        |
|                 | 5800MHz |                                        |                        |                                   | 15                                          | 15                                     | 15<br>Ch151:10                                   |
| 5GHz<br>(80MHz) | 5200MHz |                                        |                        |                                   |                                             | 13<br>Ch42:11                          | 13                                               |
|                 | 5300MHz |                                        |                        |                                   |                                             | 13<br>Ch58:11                          | 13                                               |
|                 | 5500MHz |                                        |                        |                                   |                                             | 13<br>Ch106:9                          | 13<br>Ch106:10                                   |
|                 | 5800MHz |                                        |                        |                                   |                                             | 13                                     | 13                                               |

(Upper tolerance: target +1.0 dB)

## c. Reduced Power Plimit (RSI =1 Head),

| Mode            | Band    | SISO(ANT1) |                          |                                     |                                     |    |                            | SISO(ANT2) |                          |                          |                          |    |                                         |
|-----------------|---------|------------|--------------------------|-------------------------------------|-------------------------------------|----|----------------------------|------------|--------------------------|--------------------------|--------------------------|----|-----------------------------------------|
|                 |         | a          | b                        | g                                   | n                                   | ac | ax(SU)                     | a          | b                        | g                        | n                        | Ac | ax(SU)                                  |
| 2.4GHz          | 2.45GHz |            | 12.5<br>Ch12:5<br>Ch13:5 | 12.5<br>Ch11:12<br>Ch12:5<br>Ch13:5 | 12.5<br>Ch11:12<br>Ch12:5<br>Ch13:4 |    | 12.5<br>Ch12:7<br>Ch13:5.5 |            | 11.5<br>Ch12:5<br>Ch13:5 | 11.5<br>Ch12:5<br>Ch13:5 | 11.5<br>Ch12:5<br>Ch13:4 |    | 11.5<br>Ch11:10.5<br>Ch12:5<br>Ch13:3.5 |
| 5GHz<br>(20MHz) | 5200MHz | 10         |                          |                                     | 10                                  | 10 | 10                         | 7          |                          |                          | 7                        | 7  | 7                                       |
|                 | 5300MHz | 10         |                          |                                     | 10                                  | 10 | 10                         | 7          |                          |                          | 7                        | 7  | 7                                       |
|                 | 5500MHz | 10         |                          |                                     | 10                                  | 10 | 10                         | 7          |                          |                          | 7                        | 7  | 7                                       |
|                 | 5800MHz | 10         |                          |                                     | 10                                  | 10 | 10                         | 7          |                          |                          | 7                        | 7  | 7                                       |
| 5GHz<br>(40MHz) | 5200MHz |            |                          |                                     | 10                                  | 10 | 10                         |            |                          |                          | 7                        | 7  | 7                                       |
|                 | 5300MHz |            |                          |                                     | 10                                  | 10 | 10                         |            |                          |                          | 7                        | 7  | 7                                       |
|                 | 5500MHz |            |                          |                                     | 10                                  | 10 | 10                         |            |                          |                          | 7                        | 7  | 7                                       |
|                 | 5800MHz |            |                          |                                     | 10                                  | 10 | 10                         |            |                          |                          | 7                        | 7  | 7                                       |
| 5GHz<br>(80MHz) | 5200MHz |            |                          |                                     |                                     | 10 | 10                         |            |                          |                          |                          | 7  | 7                                       |
|                 | 5300MHz |            |                          |                                     |                                     | 10 | 10                         |            |                          |                          |                          | 7  | 7                                       |
|                 | 5500MHz |            |                          |                                     |                                     | 10 | 10                         |            |                          |                          |                          | 7  | 7                                       |
|                 | 5800MHz |            |                          |                                     |                                     | 10 | 10                         |            |                          |                          |                          | 7  | 7                                       |

| Mode            | Band    | MIMO |                        |                        |                                   |                  |                                     |
|-----------------|---------|------|------------------------|------------------------|-----------------------------------|------------------|-------------------------------------|
|                 |         | a    | b                      | g                      | n                                 | ac               | ax(SU)                              |
| 2.4GHz          | 2.45GHz |      | 15<br>Ch12:8<br>Ch13:8 | 15<br>Ch12:8<br>Ch13:5 | 15<br>Ch11:16<br>Ch12:8<br>Ch13:5 |                  | 15<br>Ch11:13.5<br>Ch12:8<br>Ch13:7 |
| 5GHz<br>(20MHz) | 5200MHz | 11.5 |                        |                        | 11.5                              | 11.5             | 11.5                                |
|                 | 5300MHz | 11.5 |                        |                        | 11.5                              | 11.5             | 11.5                                |
|                 | 5500MHz | 11.5 |                        |                        | 11.5                              | 11.5             | 11.5                                |
|                 | 5800MHz | 11.5 |                        |                        | 11.5                              | 11.5             | 11.5                                |
| 5GHz<br>(40MHz) | 5200MHz |      |                        |                        | 11.5                              | 11.5             | 11.5                                |
|                 | 5300MHz |      |                        |                        | 11.5                              | 11.5             | 11.5                                |
|                 | 5500MHz |      |                        |                        | 11.5                              | 11.5             | 11.5<br>Ch102:9                     |
|                 | 5800MHz |      |                        |                        | 11.5                              | 11.5             | 11.5                                |
| 5GHz<br>(80MHz) | 5200MHz |      |                        |                        |                                   | 11.5             | 11.5                                |
|                 | 5300MHz |      |                        |                        |                                   | 11.5             | 11.5                                |
|                 | 5500MHz |      |                        |                        |                                   | 11.5<br>Ch106:10 | 11.5<br>Ch106:10                    |
|                 | 5800MHz |      |                        |                        |                                   | 11.5             | 11.5                                |

(Upper tolerance: target +1.0 dB)

The output power of the WLAN mode is defined as a reduced power mode and a maximum power mode. RSI=0 (Non Head) is the maximum power condition, RSI=1 (Head) are specified as the reduced power condition

## d. 802.11ax RU Tx power Tables Maximum Power Pmax

| Mode            | Band    | SISO(2.4G : ANT1 / 5G ANT 1) |               |               |             |      |      | SISO(2.4G : ANT2 / 5G ANT 2) |               |               |               |      |      |
|-----------------|---------|------------------------------|---------------|---------------|-------------|------|------|------------------------------|---------------|---------------|---------------|------|------|
|                 |         | 26T                          | 52T           | 106T          | 242T        | 484T | 996T | 26T                          | 52T           | 106T          | 242T          | 484T | 996T |
| 2.4GHz          | 2.45GHz | 9<br>Ch13:0.5                | 9<br>Ch13:2.5 | 9<br>Ch13:3.5 | 9<br>Ch13:5 |      |      | 7<br>Ch13:2                  | 7<br>Ch13:3.5 | 7<br>Ch13:3.5 | 7<br>Ch13:4.5 |      |      |
|                 | 5200MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5500MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5800MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
| 5GHZ<br>(40MHz) | 5200MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5300MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5500MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5800MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
| 5GHZ<br>(80MHz) | 5200MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5300MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5500MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5800MHz | 8<br>Ch155:7                 | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |

| Mode            | Band    | MIMO         |              |                |              |      |      |
|-----------------|---------|--------------|--------------|----------------|--------------|------|------|
|                 |         | 26T          | 52T          | 106T           | 242T         | 484T | 996T |
| 2.4GHz          | 2.45GHz | 10<br>Ch13:3 | 10<br>Ch13:5 | 10<br>Ch13:5.5 | 10<br>Ch13:7 |      |      |
|                 | 5200MHz | 11           | 11           | 11             | 11           |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5500MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5800MHz | 11           | 11           | 11             | 11           |      |      |
| 5GHZ<br>(40MHz) | 5200MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5300MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5500MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5800MHz | 10           | 10           | 10             | 10           | 10   |      |
| 5GHZ<br>(80MHz) | 5200MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5300MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5500MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5800MHz | 9            | 9            | 9              | 9            | 9    | 9    |

(Upper tolerance: target +1.0 dB)

## e. 802.11ax RU Tx power Tables Reduced Power Plimit (RSI =0 Non Head)

| Mode            | Band    | SISO(2.4G : ANT1 / 5G ANT 1) |               |               |             |      |      | SISO(2.4G : ANT2 / 5G ANT 2) |               |               |               |      |      |
|-----------------|---------|------------------------------|---------------|---------------|-------------|------|------|------------------------------|---------------|---------------|---------------|------|------|
|                 |         | 26T                          | 52T           | 106T          | 242T        | 484T | 996T | 26T                          | 52T           | 106T          | 242T          | 484T | 996T |
| 2.4GHz          | 2.45GHz | 9<br>Ch13:0.5                | 9<br>Ch13:2.5 | 9<br>Ch13:3.5 | 9<br>Ch13:5 |      |      | 7<br>Ch13:2                  | 7<br>Ch13:3.5 | 7<br>Ch13:3.5 | 7<br>Ch13:4.5 |      |      |
|                 | 5200MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5500MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5800MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5200MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
| 5GHZ<br>(40MHz) | 5300MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5500MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5800MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5200MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
| 5GHZ<br>(80MHz) | 5300MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5500MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5800MHz | 8<br>Ch15:7                  | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5200MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |

| Mode            | Band    | MIMO         |              |                |              |      |      |
|-----------------|---------|--------------|--------------|----------------|--------------|------|------|
|                 |         | 26T          | 52T          | 106T           | 242T         | 484T | 996T |
| 2.4GHz          | 2.45GHz | 10<br>Ch13:3 | 10<br>Ch13:5 | 10<br>Ch13:5.5 | 10<br>Ch13:7 |      |      |
|                 | 5200MHz | 11           | 11           | 11             | 11           |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5500MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5800MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5200MHz | 10           | 10           | 10             | 10           | 10   |      |
| 5GHZ<br>(40MHz) | 5300MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5500MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5800MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5200MHz | 9            | 9            | 9              | 9            | 9    | 9    |
| 5GHZ<br>(80MHz) | 5300MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5500MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5800MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5200MHz | 9            | 9            | 9              | 9            | 9    | 9    |

(Upper tolerance: target +1.0 dB)

## f. 802.11ax RU Tx power Tables Reduced Power Plimit: (RSI =1 Head)

| Mode            | Band    | SISO(2.4G : ANT1 / 5G ANT 1) |               |               |             |      |      | SISO(2.4G : ANT2 / 5G ANT 2) |               |               |               |      |      |
|-----------------|---------|------------------------------|---------------|---------------|-------------|------|------|------------------------------|---------------|---------------|---------------|------|------|
|                 |         | 26T                          | 52T           | 106T          | 242T        | 484T | 996T | 26T                          | 52T           | 106T          | 242T          | 484T | 996T |
| 2.4GHz          | 2.45GHz | 9<br>Ch13:0.5                | 9<br>Ch13:2.5 | 9<br>Ch13:3.5 | 9<br>Ch13:5 |      |      | 7<br>Ch13:2                  | 7<br>Ch13:3.5 | 7<br>Ch13:3.5 | 7<br>Ch13:4.5 |      |      |
|                 | 5200MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5500MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5800MHz | 10                           | 10            | 10            | 10          |      |      | 7                            | 7             | 7             | 7             |      |      |
|                 | 5200MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
| 5GHZ<br>(40MHz) | 5300MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5500MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5800MHz | 9                            | 9             | 9             | 9           | 9    |      | 6                            | 6             | 6             | 6             | 6    |      |
|                 | 5200MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
| 5GHZ<br>(80MHz) | 5300MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5500MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5800MHz | 8<br>Ch15:7                  | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |
|                 | 5200MHz | 8                            | 8             | 8             | 8           | 8    | 8    | 5                            | 5             | 5             | 5             | 5    | 5    |

| Mode            | Band    | MIMO         |              |                |              |      |      |
|-----------------|---------|--------------|--------------|----------------|--------------|------|------|
|                 |         | 26T          | 52T          | 106T           | 242T         | 484T | 996T |
| 2.4GHz          | 2.45GHz | 10<br>Ch13:3 | 10<br>Ch13:5 | 10<br>Ch13:5.5 | 10<br>Ch13:7 |      |      |
|                 | 5200MHz | 11           | 11           | 11             | 11           |      |      |
| 5GHZ<br>(20MHz) | 5300MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5500MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5800MHz | 11           | 11           | 11             | 11           |      |      |
|                 | 5200MHz | 10           | 10           | 10             | 10           | 10   |      |
| 5GHZ<br>(40MHz) | 5300MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5500MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5800MHz | 10           | 10           | 10             | 10           | 10   |      |
|                 | 5200MHz | 9            | 9            | 9              | 9            | 9    | 9    |
| 5GHZ<br>(80MHz) | 5300MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5500MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5800MHz | 9            | 9            | 9              | 9            | 9    | 9    |
|                 | 5200MHz | 9            | 9            | 9              | 9            | 9    | 9    |

(Upper tolerance: target +1.0 dB)

The output power of the WLAN mode is defined as a reduced power mode and a maximum power mode. RSI=0 (Non Head) is the maximum power condition, RSI=1 (Head) are specified as the reduced power condition

#### 4.3.3 Maximum Bluetooth Power

##### a. Maximum Power

| Mode                              | ANT1 |
|-----------------------------------|------|
| Bluetooth (1Mbps) (in dBm)        | 18.0 |
| Bluetooth (EDR) (in dBm)          | 12.5 |
| Bluetooth (LE,1M/2M) (in dBm)     | 18.0 |
| Bluetooth (LE,125k/500k) (in dBm) | 14.0 |

(Upper tolerance: target +1.0dB)

##### b. Reduced Power active (RSI = 0 Non Head)

| Mode                              | ANT1 |
|-----------------------------------|------|
| Bluetooth (1Mbps) (in dBm)        | 18.0 |
| Bluetooth (EDR) (in dBm)          | 12.5 |
| Bluetooth (LE,1M/2M) (in dBm)     | 18.0 |
| Bluetooth (LE,125k/500k) (in dBm) | 14.0 |

(Upper tolerance: target +1.0dB)

##### C. Reduced Power active (RSI = 1 Head)

| Mode                              | ANT1 |
|-----------------------------------|------|
| Bluetooth (1Mbps) (in dBm)        | 18.0 |
| Bluetooth (EDR) (in dBm)          | 12.5 |
| Bluetooth (LE,1M/2M) (in dBm)     | 18.0 |
| Bluetooth (LE,125k/500k) (in dBm) | 14.0 |

(Upper tolerance: target +1.0dB)

#### 4.4 LTE Information

|                    | Item.                 | Description                                   |
|--------------------|-----------------------|-----------------------------------------------|
| Frequency Range    | LTE FDD Band 2 (PCS)  | 1 850.7 MHz ~ 1 909.3 MHz                     |
|                    | LTE FDD Band 4 (AWS)  | 1 710.7 MHz ~ 1 754.3 MHz                     |
|                    | LTE FDD Band 5 (Cell) | 824.7 MHz ~ 848.3 MHz                         |
|                    | LTE FDD Band 12       | 699.7 MHz ~ 715.3 MHz                         |
|                    | LTE FDD Band 13       | 779.5 MHz ~ 784.5 MHz                         |
|                    | LTE FDD Band 17       | 706.5 MHz ~ 713.5 MHz                         |
|                    | LTE FDD Band 25       | 1 850.7 MHz ~ 1 914.3 MHz                     |
|                    | LTE FDD Band 26       | 814.7 MHz ~ 848.3 MHz                         |
|                    | LTE TDD Band 41       | 2 498.5 MHz ~ 2 687.5 MHz                     |
|                    | LTE FDD Band 66 (AWS) | 1 710.7 MHz ~ 1 779.3 MHz                     |
| Channel Bandwidths | LTE FDD Band 2 (PCS)  | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz |
|                    | LTE FDD Band 4 (AWS)  | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz |
|                    | LTE FDD Band 5 (Cell) | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz                 |
|                    | LTE FDD Band 12       | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz                 |
|                    | LTE FDD Band 13       | 5 MHz, 10 MHz                                 |
|                    | LTE FDD Band 17       | 5 MHz, 10 MHz                                 |
|                    | LTE FDD Band 25       | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz |
|                    | LTE FDD Band 26       | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz         |
|                    | LTE TDD Band 41       | 5 MHz, 10 MHz, 15 MHz, 20 MHz                 |
|                    | LTE FDD Band 66 (AWS) | 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz |

| Ch. No.& Freq.(MHz)    |         | Low / Low-Mid   | Mid             | Mid-High / High |
|------------------------|---------|-----------------|-----------------|-----------------|
| LTE FDD Band 2 (PCS)   | 1.4 MHz | 1 850.7 (18607) | 1 880.0 (18900) | 1 909.3 (19193) |
|                        | 3 MHz   | 1 851.5 (18615) | 1 880.0 (18900) | 1 908.5 (19185) |
|                        | 5 MHz   | 1 852.5 (18625) | 1 880.0 (18900) | 1 907.5 (19175) |
|                        | 10 MHz  | 1 855.0 (18650) | 1 880.0 (18900) | 1 905.0 (19150) |
|                        | 15 MHz  | 1 857.5 (18675) | 1 880.0 (18900) | 1 902.5 (19125) |
|                        | 20 MHz  | 1 860.0 (18700) | 1 880.0 (18900) | 1 900.0 (19100) |
| LTE FDD Band 4 (AWS)   | 1.4 MHz | 1 710.7 (19957) | 1 732.5 (20175) | 1 754.3 (20393) |
|                        | 3 MHz   | 1 711.5 (19965) | 1 732.5 (20175) | 1 753.5 (20385) |
|                        | 5 MHz   | 1 712.5 (19975) | 1 732.5 (20175) | 1 752.5 (20375) |
|                        | 10 MHz  | 1 715.0 (20000) | 1 732.5 (20175) | 1 750.0 (20350) |
|                        | 15 MHz  | 1 717.5 (20025) | 1 732.5 (20175) | 1 747.5 (20325) |
|                        | 20 MHz  |                 | 1 732.5 (20175) |                 |
| LTE FDD Band 5 (Cell)  | 1.4 MHz | 824.7 (20407)   | 836.5 (20525)   | 848.3 (20643)   |
|                        | 3 MHz   | 825.5 (20415)   | 836.5 (20525)   | 847.5 (20635)   |
|                        | 5 MHz   | 826.5 (20425)   | 836.5 (20525)   | 846.5 (20625)   |
|                        | 10 MHz  |                 | 836.5 (20525)   |                 |
| LTE FDD Band 12        | 1.4 MHz | 699.7 (23017)   | 707.5 (23095)   | 715.3 (23173)   |
|                        | 3 MHz   | 700.5 (23025)   | 707.5 (23095)   | 714.5 (23165)   |
|                        | 5 MHz   | 701.5 (23035)   | 707.5 (23095)   | 713.5 (23155)   |
|                        | 10 MHz  |                 | 707.5 (23095)   |                 |
| LTE FDD Band 13        | 5 MHz   |                 | 782 (23230)     |                 |
|                        | 10 MHz  |                 | 782 (23230)     |                 |
| LTE FDD Band 17        | 5 MHz   |                 | 710 (23790)     |                 |
|                        | 10 MHz  |                 | 710 (23790)     |                 |
| LTE FDD Band 25(PCS)   | 1.4 MHz | 1 850.7 (26047) | 1 882.5 (26365) | 1 914.3 (26683) |
|                        | 3 MHz   | 1 851.5 (26055) | 1 882.5 (26365) | 1 913.5 (26675) |
|                        | 5 MHz   | 1 852.5 (26065) | 1 882.5 (26365) | 1 912.5 (26665) |
|                        | 10 MHz  | 1 855 (26090)   | 1 882.5 (26365) | 1 910 (26640)   |
|                        | 15 MHz  | 1 857.5 (26115) | 1 882.5 (26365) | 1 907.5 (26615) |
|                        | 20 MHz  | 1 860 (26140)   | 1 882.5 (26365) | 1 905 (26590)   |
| LTE FDD Band 26 (Cell) | 1.4 MHz | 814.7 (26697)   | 831.5 (26865)   | 848.3 (27033)   |
|                        | 3 MHz   | 815.5 (26705)   | 831.5 (26865)   | 847.5 (27025)   |
|                        | 5 MHz   | 816.5 (26715)   | 831.5 (26865)   | 846.5 (27015)   |
|                        | 10 MHz  | 819.0 (26740)   | 831.5 (26865)   | 844.0 (26990)   |
|                        | 15 MHz  |                 | 831.5 (26865)   |                 |

| Ch. No. & Freq. (MHz)                                            |         | Low / Low-Mid                                                                                                                                                                                                                                                                                                                            |                | Mid            | Mid-High / High  |                |
|------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|------------------|----------------|
| LTE FDD Band 66 (AWS)                                            | 1.4 MHz | 1 710.7 (131979)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 779.3 (132665) |                |
|                                                                  | 3 MHz   | 1 711.5 (131987)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 778.5 (132657) |                |
|                                                                  | 5 MHz   | 1 712.5 (131997)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 777.5 (132647) |                |
|                                                                  | 10 MHz  | 1 715.0 (132022)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 775.0 (132622) |                |
|                                                                  | 15 MHz  | 1 717.5 (132047)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 772.5 (132597) |                |
|                                                                  | 20 MHz  | 1 720.0 (132072)                                                                                                                                                                                                                                                                                                                         |                | 1 745 (132322) | 1 770.0 (132572) |                |
| LTE TDD Band 41                                                  | 5 MHz   | 2 506.0(39750)                                                                                                                                                                                                                                                                                                                           | 2 549.5(40185) | 2 593.0(40620) | 2 636.5(41055)   | 2 680.0(41490) |
|                                                                  | 10 MHz  | 2 506.0(39750)                                                                                                                                                                                                                                                                                                                           | 2 549.5(40185) | 2 593.0(40620) | 2 636.5(41055)   | 2 680.0(41490) |
|                                                                  | 15 MHz  | 2 506.0(39750)                                                                                                                                                                                                                                                                                                                           | 2 549.5(40185) | 2 593.0(40620) | 2 636.5(41055)   | 2 680.0(41490) |
|                                                                  | 20 MHz  | 2 506.0(39750)                                                                                                                                                                                                                                                                                                                           | 2 549.5(40185) | 2 593.0(40620) | 2 636.5(41055)   | 2 680.0(41490) |
| UE Category                                                      |         | LTE Rel. 16, DL: Category 18, UL: Category 18                                                                                                                                                                                                                                                                                            |                |                |                  |                |
| HPUE Power Class                                                 |         | LTE TDD 41 Power Class 3 : (Duty : 63.3%)                                                                                                                                                                                                                                                                                                |                |                |                  |                |
| Modulations Supported in UL                                      |         | QPSK, 16QAM, 64QAM, 256 QAM                                                                                                                                                                                                                                                                                                              |                |                |                  |                |
| LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3 |         | Yes                                                                                                                                                                                                                                                                                                                                      |                |                |                  |                |
| A-MPR disabled for SAR Testing.                                  |         | Yes                                                                                                                                                                                                                                                                                                                                      |                |                |                  |                |
| LTE Carrier Aggregation                                          |         | This device supports Inter-Band & Intra-Band DL-link Carrier aggregations and Inter-Band UL-link Carrier aggregations.<br>Detailed information of Down-Link CA is included in Technical Description document.                                                                                                                            |                |                |                  |                |
| LTE Release information                                          |         | This device does not support full CA features on 3GPP Release 16. It supports carrier aggregation, downlink MIMO. All other uplink communications are identical to the release 8 specifications. The following LTE Release 16 Features are not supported: Relay, Hetnet, Enhanced eICl, MDH, cross-carrier Scheduling, Enhanced SC-FDMA. |                |                |                  |                |

#### 4.5 5G NR SUB 6 Information

| Item.              |                     | Description                                                                             |
|--------------------|---------------------|-----------------------------------------------------------------------------------------|
| Frequency Range    | NR FDD Band n5      | 826.5 MHz ~ 846.5 MHz                                                                   |
|                    | NR TDD Band n41     | 2 501.01 MHz ~ 2 685 MHz                                                                |
|                    | NR FDD Band n66     | 1 712.5 MHz ~ 1 777.5 MHz                                                               |
|                    | NR TDD Band n77     | 3 705 MHz ~ 3 975 MHz                                                                   |
|                    | NR TDD Band n77 DoD | 3 445.01 MHz ~ 3 544.98 MHz                                                             |
| Channel Bandwidths | NR FDD Band n5      | 5 MHz, 10 MHz, 15 MHz, 20 MHz                                                           |
|                    | NR TDD Band n41     | 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz |
|                    | NR FDD Band n66     | 5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz                                           |
|                    | NR TDD Band n77     | 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz |
|                    | NR TDD Band n77 DoD | 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz |

| Ch. No.& Freq.(MHz)   |        | Low / Low-Mid   |                 | Mid             |                 | Mid-High / High |
|-----------------------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|
| NR FDD Band n5 (Cell) | 5 MHz  | 826.5 (165300)  |                 | 836.5(167300)   |                 | 846.5 (169300)  |
|                       | 10 MHz |                 |                 | 836.5(167300)   |                 |                 |
|                       | 15 MHz |                 |                 | 836.5(167300)   |                 |                 |
|                       | 20 MHz |                 |                 | 836.5(167300)   |                 |                 |
| NR TDD Band n41       | 10 MHz | 2501.01(500202) | 2547(509400)    | 2592.99(518598) | 2639.01(527802) | 2685(537000)    |
|                       | 15 MHz | 2503.5(500700)  | 2548.26(509652) | 2592.99(518598) | 2637.75(527550) | 2682.51(536502) |
|                       | 20 MHz | 2506.02(501204) | 2549.49(509898) | 2592.99(518598) | 2636.49(527298) | 2679.99(535998) |
|                       | 30 MHz | 2511(502200)    | 2552.01(510402) | 2592.99(518598) | 2634(526800)    | 2674.98(534996) |
|                       | 40 MHz | 2516.01(503202) | 2567.34(513468) |                 | 2618.67(523734) | 2670(534000)    |
|                       | 50 MHz | 2521.02(504204) |                 | 2592.99(518598) |                 | 2664.99(532998) |
|                       | 60 MHz | 2526(505200)    |                 | 2592.99(518598) |                 | 2659.98(531996) |
|                       | 70 MHz | 2531.01(506202) |                 |                 |                 | 2655(531000)    |
|                       | 80 MHz | 2536.02(507204) |                 |                 |                 | 2649.99(529998) |
|                       | 90 MHz | 2541(508200)    |                 |                 |                 | 2644.98(528996) |
| NR FDD Band n66       | 5 MHz  | 1712.5(342500)  |                 | 1745(349000)    |                 | 1777.5(355500)  |
|                       | 10 MHz | 1715(343000)    |                 | 1745(349000)    |                 | 1775(355000)    |
|                       | 15 MHz | 1717.5(343500)  |                 | 1745(349000)    |                 | 1772.5(354500)  |
|                       | 20 MHz | 1720(344000)    |                 | 1745(349000)    |                 | 1770(354000)    |

| Ch. No.& Freq.(MHz)                                                                                                                                                                                             |               | Low / Low-Mid    |                  | Mid                                                                                                   |                  | Mid-High / High  |                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|------------------|-------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|
| NR TDD<br>Band n77                                                                                                                                                                                              | 10 MHz        | 3705(647000)     | 3759(650600)     | 3813(654200)                                                                                          | 3867(657800)     | 3921(661400)     | 3975(665000)     |
|                                                                                                                                                                                                                 | 15 MHz        | 3707.52(647168)  | 3760.5(650700)   | 3813.51(654234)                                                                                       | 3866.49(657766)  | 3919.5(661300)   | 3972.48(664832)  |
|                                                                                                                                                                                                                 | 20 MHz        | 3710.01 (647334) | 3762 (650800)    | 3813.99(654266)                                                                                       | 3866.01 (657734) | 3918 (661200)    | 3969.99 (664666) |
|                                                                                                                                                                                                                 | 30 MHz        | 3715.02 (647668) | 3765 (651000)    | 3815.01(654334)                                                                                       | 3864.99 (657666) | 3915 (661000)    | 3964.98 (664332) |
|                                                                                                                                                                                                                 | 40 MHz        | 3720 (648000)    | 3768 (651200)    | 3816 (654400)                                                                                         | 3864 (657600)    | 3912 (660800)    | 3960 (664000)    |
|                                                                                                                                                                                                                 | 50 MHz        | 3725.01 (648334) | 3782.49 (652166) | 3840 (656000)                                                                                         |                  | 3897.51 (659834) | 3954.99 (663666) |
|                                                                                                                                                                                                                 | 60 MHz        | 3730.02 (648668) | 3803.34(653556)  |                                                                                                       |                  | 3876.66(658444)  | 3949.98 (663332) |
|                                                                                                                                                                                                                 | 70 MHz        | 3735 (649000)    | 3804.99 (654336) |                                                                                                       |                  | 3875.01 (658334) | 3945(663000)     |
|                                                                                                                                                                                                                 | 80 MHz        | 3740.01 (649334) |                  | 3840 (656000)                                                                                         |                  |                  | 3939.99 (662666) |
|                                                                                                                                                                                                                 | 90 MHz        | 3745.02 (649668) |                  | 3840 (656000)                                                                                         |                  | 3934.98 (662332) |                  |
| 100 MHz                                                                                                                                                                                                         | 3750 (650000) |                  | 3840 (656000)    |                                                                                                       | 3930 (662000)    |                  |                  |
| NR TDD<br>Band n77<br>(DoD)                                                                                                                                                                                     | 10 MHz        | 3455.01(630334)  |                  | 3500.01(633334)                                                                                       |                  | 3544.98(636332)  |                  |
|                                                                                                                                                                                                                 | 15 MHz        | 3457.5(630500)   |                  | 3500.01(633334)                                                                                       |                  | 3542.49(636166)  |                  |
|                                                                                                                                                                                                                 | 20 MHz        | 3460.02 (630668) |                  | 3500.01 (633334)                                                                                      |                  | 3540 (636000)    |                  |
|                                                                                                                                                                                                                 | 30 MHz        | 3465 (631000)    |                  | 3500.01 (633334)                                                                                      |                  | 3534.99 (635666) |                  |
|                                                                                                                                                                                                                 | 40 MHz        | 3470.01 (631334) |                  |                                                                                                       |                  | 3529.98 (635332) |                  |
|                                                                                                                                                                                                                 | 50 MHz        | 3475.02 (631668) |                  |                                                                                                       |                  | 3525 (635000)    |                  |
|                                                                                                                                                                                                                 | 60 MHz        |                  |                  | 3500.01 (633334)                                                                                      |                  |                  |                  |
|                                                                                                                                                                                                                 | 70 MHz        |                  |                  | 3500.01 (633334)                                                                                      |                  |                  |                  |
|                                                                                                                                                                                                                 | 80 MHz        |                  |                  | 3500.01 (633334)                                                                                      |                  |                  |                  |
|                                                                                                                                                                                                                 | 90 MHz        |                  |                  | 3500.01 (633334)                                                                                      |                  |                  |                  |
| 100 MHz                                                                                                                                                                                                         |               |                  | 3500.01 (633334) |                                                                                                       |                  |                  |                  |
| Item.                                                                                                                                                                                                           |               |                  |                  | Description                                                                                           |                  |                  |                  |
| NR FDD Band n2/n5/n25/n66 SCS                                                                                                                                                                                   |               |                  |                  | 15 kHz                                                                                                |                  |                  |                  |
| NR TDD Band n41/n77 SCS                                                                                                                                                                                         |               |                  |                  | 30 kHz                                                                                                |                  |                  |                  |
| 3GPP Rel.                                                                                                                                                                                                       |               |                  |                  | Rel.16                                                                                                |                  |                  |                  |
| A-MPR disabled for SAR Testing.                                                                                                                                                                                 |               |                  |                  | Yes                                                                                                   |                  |                  |                  |
| 5G NR UL/DL FR1                                                                                                                                                                                                 |               |                  |                  | CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM<br>DFT-s-OFDM: $\pi/2$ -BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM |                  |                  |                  |
| Non-Standalone & Standalone are supported.<br>5G NR FR1 Bands are supported to NSA and SA Connectivity.<br>More detailed specifications of the 5G NR bands are contained in the technical description document. |               |                  |                  |                                                                                                       |                  |                  |                  |
| EN-DC Carrier Aggregation Possible Combinations                                                                                                                                                                 |               |                  |                  | The technical description includes all the possible carrier aggregation combinations                  |                  |                  |                  |
| LTE Anchor Bands for NR Band n5 (Cell)                                                                                                                                                                          |               |                  |                  | LTE Band 2/66                                                                                         |                  |                  |                  |
| LTE Anchor Bands for NR Band n41                                                                                                                                                                                |               |                  |                  | LTE Band 5/12/26/66                                                                                   |                  |                  |                  |
| LTE Anchor Bands for NR Band n66 (AWS)                                                                                                                                                                          |               |                  |                  | LTE Band 2/5/12                                                                                       |                  |                  |                  |
| LTE Anchor Bands for NR Band n77                                                                                                                                                                                |               |                  |                  | LTE Band 2/12/66                                                                                      |                  |                  |                  |

## 4.6 DUT Antenna Locations

A diagram showing the location of the device antennas for both open and closed configurations can be found in SAR\_setup\_photos. When the device is open, The overall dimensions of this device are > 9 X 5 cm. Since the diagonal dimension of this device is > 160 mm and < 200 mm, it is considered a “phablet”. In the closed configuration, only a simple display/interaction of notifications occurs and overall dimensions are <9 X 5 cm. Therefore, when the device is closed, the only testing considered is for body-worn and hotspot.

| Antenna       | Mode                   | Rear | Front | Left | Right | Bottom | Top |
|---------------|------------------------|------|-------|------|-------|--------|-----|
| Main1 [Ant A] | GSM/GPRS/EDGE 850      | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | GSM/GPRS/EDGE 850      | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main2 [Ant B] | GSM/GPRS/EDGE 1900     | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Main1 [Ant A] | UMTS Band 5            | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | UMTS Band 5            | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main2 [Ant B] | UMTS Band 4            | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Main2 [Ant B] | UMTS Band 2            | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Main2 [Ant B] | LTE FDD Band 2 (PCS)   | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | LTE FDD Band 2 (PCS)   | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main2 [Ant B] | LTE FDD Band 4 (AWS)   | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | LTE FDD Band 4 (AWS)   | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main1 [Ant A] | LTE FDD Band 5         | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | LTE FDD Band 5         | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main1 [Ant A] | LTE FDD Band 12        | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | LTE FDD Band 12        | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main1 [Ant A] | LTE FDD Band 13        | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | LTE FDD Band 13        | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main1 [Ant A] | LTE FDD Band 17        | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | LTE FDD Band 17        | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main2 [Ant B] | LTE FDD Band 25 (PCS)  | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | LTE FDD Band 25 (PCS)  | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main1 [Ant A] | LTE FDD Band 26 (Cell) | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | LTE FDD Band 26 (Cell) | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main2 [Ant B] | LTE TDD Band 41 (PC3)  | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | LTE TDD Band 41 (PC3)  | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main2 [Ant B] | LTE FDD Band 66 (AWS)  | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | LTE FDD Band 66 (AWS)  | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main1 [Ant A] | NR FDD Band n5         | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| SUB1 [Ant E]  | NR FDD Band n5         | Yes  | Yes   | No   | Yes   | No     | Yes |
| Main2 [Ant B] | NR TDD Band n41        | Yes  | Yes   | Yes  | No    | Yes    | No  |
| Sub2 [Ant F]  | NR TDD Band n41(SRS#1) | Yes  | Yes   | Yes  | No    | No     | Yes |
| SUB1 [Ant H]  | NR TDD Band n41(SRS#2) | Yes  | Yes   | Yes  | No    | No     | Yes |
| Main4 [Ant D] | NR TDD Band n41(SRS#3) | Yes  | Yes   | No   | Yes   | Yes    | No  |
| Main2 [Ant B] | NR FDD Band n66        | Yes  | Yes   | Yes  | Yes   | Yes    | No  |
| Sub2 [Ant F]  | NR FDD Band n66        | Yes  | Yes   | Yes  | No    | No     | Yes |
| Sub2 [Ant F]  | NR TDD Band n77        | Yes  | Yes   | Yes  | No    | No     | Yes |
| Sub2 [Ant F]  | NR TDD Band n77 DoD    | Yes  | Yes   | Yes  | No    | No     | Yes |

| Antenna             | Mode         | Rear | Front | Left | Right | Bottom | Top |
|---------------------|--------------|------|-------|------|-------|--------|-----|
| Sub4 [Ant H] WIFI 1 | 2.4 GHz WLAN | Yes  | Yes   | Yes  | No    | No     | Yes |
| Sub6 [Ant J] WIFI 2 | 2.4 GHz WLAN | Yes  | Yes   | No   | Yes   | No     | No  |
| Sub4 [Ant H] BT     | Bluetooth    | Yes  | Yes   | Yes  | No    | No     | Yes |
| Sub3 [Ant G] WIFI 1 | 5 GHz WLAN   | Yes  | Yes   | Yes  | No    | No     | Yes |
| Sub1 [Ant E] WIFI 2 | 5 GHz WLAN   | Yes  | Yes   | No   | Yes   | No     | Yes |
| NFC Ant             | NFC          | Yes  | Yes   | Yes  | No    | No     | Yes |

Particular EUT edges were not required to be evaluated for Bluetooth Tethering and Hotspot SAR if the edges were > 25 mm from the transmitting antenna according to FCC KDB 941225 D06v02r01 on page 2. The distance between the transmit antennas and the edges of the device are included in the filing.

- Note: All test configurations are based on front view position.

#### 4.7 Near Field Communications (NFC) Antenna

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

## 4.8 SAR Summation Scenario

According to FCC KDB 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

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

| Capable Transmit Configuration                              | Head | Body-Worn Accessory | Wireless Router | Phablet |
|-------------------------------------------------------------|------|---------------------|-----------------|---------|
| GSM voice + 2.4 GHz Bluetooth                               | Yes^ | Yes                 | N/A             | Yes     |
| GSM voice + 2.4 GHz WI-FI Ant 1/MIMO                        | Yes  | Yes                 | N/A             | Yes     |
| GSM voice + 5 GHz WI-FI Ant 2/MIMO                          | Yes  | Yes                 | N/A             | Yes     |
| GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO      | Yes^ | Yes                 | N/A             | Yes     |
| UMTS + 2.4 GHz Bluetooth                                    | Yes^ | Yes                 | Yes^            | Yes     |
| UMTS + 2.4 GHz WI-FI Ant 1/MIMO                             | Yes  | Yes                 | Yes             | Yes     |
| UMTS + 5 GHz WI-FI Ant 2/MIMO                               | Yes  | Yes                 | Yes             | Yes     |
| UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO           | Yes^ | Yes                 | Yes^            | Yes     |
| LTE + 2.4 GHz Bluetooth                                     | Yes^ | Yes                 | Yes^            | Yes     |
| LTE + 2.4 GHz WI-FI Ant 1/MIMO                              | Yes  | Yes                 | Yes             | Yes     |
| LTE + 5 GHz WI-FI Ant 2/MIMO                                | Yes  | Yes                 | Yes             | Yes     |
| LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO            | Yes^ | Yes                 | Yes^            | Yes     |
| LTE + 5G NR                                                 | Yes  | Yes                 | Yes             | Yes     |
| LTE + 2.4 GHz Bluetooth + 5G NR                             | Yes^ | Yes                 | Yes^            | Yes     |
| LTE + 2.4 GHz WI-FI Ant 1/MIMO + 5G NR                      | Yes  | Yes                 | Yes             | Yes     |
| LTE + 5 GHz WI-FI Ant 2/MIMO + 5G NR                        | Yes  | Yes                 | Yes             | Yes     |
| LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO + 5G NR    | Yes^ | Yes                 | Yes^            | Yes     |
| GPRS/EDGE Data + 2.4 GHz Bluetooth                          | Yes^ | Yes                 | Yes^            | Yes     |
| GPRS/EDGE Data + 2.4 GHz WI-FI Ant 1/MIMO                   | Yes  | Yes                 | Yes             | Yes     |
| GPRS/EDGE Data + 5G NR WI-FI Ant 2/MIMO                     | Yes  | Yes                 | Yes             | Yes     |
| GPRS/EDGE Data + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO | Yes^ | Yes                 | Yes^            | Yes     |
| 5G NR + 2.4 GHz Bluetooth                                   | Yes^ | Yes                 | Yes^            | Yes     |
| 5G NR + 2.4 GHz WI-FI Ant 1/MIMO                            | Yes  | Yes                 | Yes             | Yes     |
| 5G NR + 5 GHz WI-FI Ant 2/MIMO                              | Yes  | Yes                 | Yes             | Yes     |
| 5G NR + 2.4 GHz Bluetooth + 5 GHz WI-FI Ant 2/MIMO          | Yes^ | Yes                 | Yes^            | Yes     |

### Note:

- 2.4GHz WLAN and Bluetooth share the same antenna path and cannot transmit simultaneously
- When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi- RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario
- Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table
- 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII-2A, U-NII-2C, and U-NII-4 were not evaluated for wireless router conditions.
- This device supports 2x2 MIMO Tx for WLAN 802.11a/b/g/n/ac/ax. 802.11a/b/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.
- This device supports VoWIFI/VoLTE/VoNR.
- LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
- NFC was evaluated for phablet based on expected usage conditions.
- The ^ indicates the BT Tethering feature.

## 4.9 SAR Test Considerations

#### 4.9.1 WiFi

Since wireless router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C and U-NII-4 WiFi, WiFi Hotspot SAR test and combinations are considered only 2.4 GHz and U-NII-3 for SAR with respected to wireless router configurations according to FCC KDB 941225 D06v02r01.

Since U-NII-1 and U-NII-2A Bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg for 1g SAR and is less than 3.0 W/kg for 10g SAR, SAR is not required for U-NII-1 Band according to FCC KDB 248227D01v02r02.

This device supports IEEE 802.11ax with the following features:

- a) Up to 80 MHz Bandwidth only for 5 GHz
- b) Up to 20 MHz Bandwidth only for 2.4 GHz
- c) 2Tx antenna output
- d) Up to 1024 QAM is supported
- e) TDWR and Band gap channels are supported for 5 GHz
- f) MU-MIMO UL Operations are not supported

Per FCC KDB Publication 648474 D04v01r03, this device is considered a “phablet” since the diagonal dimension is greater than 160mm and less than 200 mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A & U-NII-2C, U-NII-4 WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WIFI, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

Per April 2019 TCB Workshop Notes, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection. Therefore, SAR tests were not required for 802.11ax.

The output power of the WLAN is defined as a reduced power mode and a maximum power mode. RSI=0 (Non Head) is the maximum power condition, RSI=1 (Head) are specified as the reduced power condition.

#### 4.9.2 Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US Bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

LTE SAR for the higher modulations and lower Bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest Bandwidth; and the reported LTE SAR for the highest Bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r05.

Per FCC KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

This Device supports 64QAM and 256QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM and 256QAM uplink configurations were measured per section 5.1 of FCC KDB 941225 D05v02r05. SAR was not required for 64QAM or 256QAM since the highest maximum output power for 64QAM and 256QAM is  $\leq 0.5$  dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is  $\leq 1.45$  W/Kg, per section 5.2.4 for FCC KDB 941225 D05v02r05.

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

LTE capabilities with overlapping transmission frequency ranges were applied to LTE Band 4 (1 712.4 MHz ~ 1 752.6 MHz) is covered by LTE Band 66 (1 712.5 MHz ~ 1 777.5 MHz), LTE Band 2 (1 850.7 MHz ~ 1 909.3 MHz) is covered by LTE Band 25 (1 850.7 MHz ~ 1 914.3 MHz), LTE Band 17 (706.5 MHz ~ 713.5 MHz) is covered by LTE Band 12 (699.7 MHz ~ 715.3 MHz) of this model each both LTE bands have the same target powers.

This device supports LTE Carrier Aggregation (CA) in the downlink. All uplink communications are identical to Release 8 specifications. Per FCC KDB publication 941225 D05A v01r02, SAR for LTE DL CA operations was not needed since the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

This device support both Power class 2 (PC2) and Power Class 3 (PC3) for LTE TDD Band 41. Per May 2017 TCB workshop Notes, SAR test were performed with Power Class 3 (given the specific UL/DL Limitations for Power Class 2). Additionally, SAR testing for the power class condition was evaluated for the highest configuration in Power class 3 for each test configuration to confirm the results were scalable linearly.

This device supports NSA (Non-standalone) and SA (Standalone) connectivity for 5G NR FR1 Bands, More

detailed specifications of the Bands are contained in the Technical description document.

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

Per FCC KDB 941225 D01v03r01, 12.2 kbps RMC is the primary mode and HSPA (HSUPA/HSDPA with RMC) is the secondary mode.

Per FCC KDB 941225 D01v03r01, The SAR test exclusion is applied to the secondary mode by the following equation.

$$\text{Adjusted SAR} = \text{Highest Reported SAR} \times \frac{\text{Secondary Max tune - up (mW)}}{\text{Primary Max tune - up (mW)}} \leq 1.2 \text{ W/kg.}$$

Based on the highest Reported SAR, the secondary mode is not required.

## 5. Introduction

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields,” NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

### SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy ( $dW$ ) absorbed by (dissipated in) an incremental mass ( $dm$ ) contained in a volume element ( $dV$ ) of a given density ( $\rho$ ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

$$SAR = \frac{d}{dt} \left( \frac{dW}{dm} \right)$$

Figure 1. SAR Mathematical Equation  
*SAR is expressed in units of Watts per Kilogram (W/kg)*

Where:

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

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

## 6. Description of test equipment

### 6.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 or Windows 10 or Windows 11 is working with SAR Measurement system DASY4 & DASY5 & DASY6 & DASY8 A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

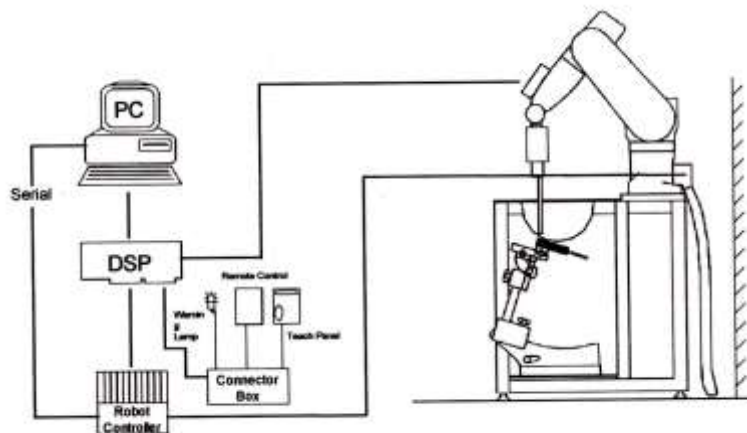


Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

## 7. SAR Measurement Procedure

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

1. The SAR distribution at the exposed side of the head or body was measured at a distance no more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 table 4-1 & IEEE 1528-2013.
2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.
3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)
  - a. The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
  - b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

|                                                                                                                                                                                                                                                                                                                                 |                                           |                                                                                             | $\leq 3 \text{ GHz}$                                                                                                                                                                                                                                                   | $> 3 \text{ GHz}$                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface                                                                                                                                                                                                                          |                                           |                                                                                             | $5 \pm 1 \text{ mm}$                                                                                                                                                                                                                                                   | $\cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$                                                                                                  |
| 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:<br>$\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$                                                                                                                                                                                                                                       |                                           |                                                                                             | $\leq 2 \text{ GHz: } \leq 15 \text{ mm}$<br>$2\text{-}3 \text{ GHz: } \leq 12 \text{ mm}$                                                                                                                                                                             | $3\text{-}4 \text{ GHz: } \leq 12 \text{ mm}$<br>$4\text{-}6 \text{ GHz: } \leq 10 \text{ mm}$                                                  |
|                                                                                                                                                                                                                                                                                                                                 |                                           |                                                                                             | 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: $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$                                                                                                                                                                                                                                          |                                           |                                                                                             | $\leq 2 \text{ GHz: } \leq 8 \text{ mm}$<br>$2\text{-}3 \text{ GHz: } \leq 5 \text{ mm}^*$                                                                                                                                                                             | $3\text{-}4 \text{ GHz: } \leq 5 \text{ mm}^*$<br>$4\text{-}6 \text{ GHz: } \leq 4 \text{ mm}^*$                                                |
| Maximum zoom scan Spatial resolution normal to phantom surface                                                                                                                                                                                                                                                                  | uniform grid: $\Delta z_{\text{zoom}}(n)$ |                                                                                             | $\leq 5 \text{ mm}$                                                                                                                                                                                                                                                    | $3\text{-}4 \text{ GHz: } \leq 4 \text{ mm}$<br>$4\text{-}5 \text{ GHz: } \leq 3 \text{ mm}$<br>$5\text{-}6 \text{ GHz: } \leq 2 \text{ mm}$    |
|                                                                                                                                                                                                                                                                                                                                 | graded grid                               | $\Delta z_{\text{zoom}}(1)$ : between 1 <sup>st</sup> two Points closest to phantom surface | $\leq 4 \text{ mm}$                                                                                                                                                                                                                                                    | $3\text{-}4 \text{ GHz: } \leq 3 \text{ mm}$<br>$4\text{-}5 \text{ GHz: } \leq 2.5 \text{ mm}$<br>$5\text{-}6 \text{ GHz: } \leq 2 \text{ mm}$  |
|                                                                                                                                                                                                                                                                                                                                 |                                           | $\Delta z_{\text{zoom}}(n > 1)$ : between subsequent Points                                 | $\leq 1.5 \cdot \Delta z_{\text{zoom}}(n - 1)$                                                                                                                                                                                                                         |                                                                                                                                                 |
| Minimum zoom scan volume                                                                                                                                                                                                                                                                                                        | x, y, z                                   |                                                                                             | $\geq 30 \text{ mm}$                                                                                                                                                                                                                                                   | $3\text{-}4 \text{ GHz: } \geq 28 \text{ mm}$<br>$4\text{-}5 \text{ GHz: } \geq 25 \text{ mm}$<br>$5\text{-}6 \text{ GHz: } \geq 22 \text{ mm}$ |
| 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.                                                                                                                                                                               |                                           |                                                                                             |                                                                                                                                                                                                                                                                        |                                                                                                                                                 |
| * When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is $\leq 1.4 \text{ W/kg}$ , $\leq 8 \text{ mm}$ , $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                           |                                                                                             |                                                                                                                                                                                                                                                                        |                                                                                                                                                 |

## 8. Description of Test Position

### 8.1 EAR REFERENCE POINT

Figure 8-2 shows the front, back and side views of the SAM phantom. The center-of-mouth reference point is labeled "M", the left ear reference point (ERP) is marked "LE", and the right ERP is marked "RE." Each ERP is on the B-M (back-mouth) line located 15 mm behind the entrance-to-ear-canal (EEC) point, as shown in Figure 6-1. The Reference Plane is defined as passing through the two ear reference point and point M. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (See Figure 5-1), Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning.

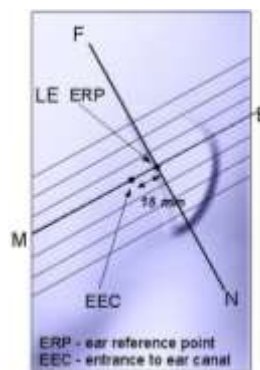


Figure 8-1  
Close-up side view of ERP

## 8.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The device under test was placed in a normal operating position with the acoustic output located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (see Figure 8-3). The acoustic output was then located at the same level as the center of the ear reference point. The device under test was positioned so that the "vertical centerline" was bisecting the front surface of the handset at its top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.



Figure 8-2  
Front, back and side views of SAM Twin Phantom

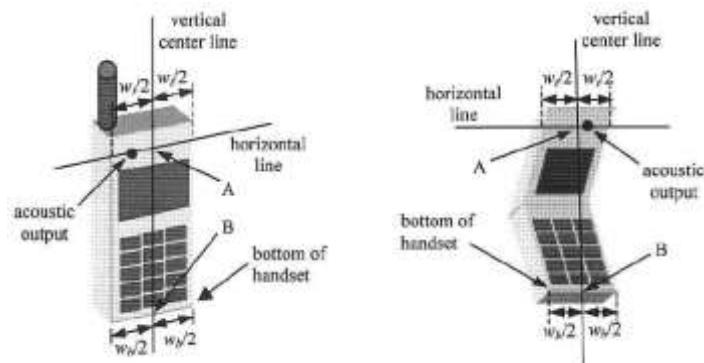


Figure 8-3. Handset vertical and horizontal reference lines

## 8.3 Device Holder

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

## 8.4 Position for cheek

Figure 6.4. shows cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

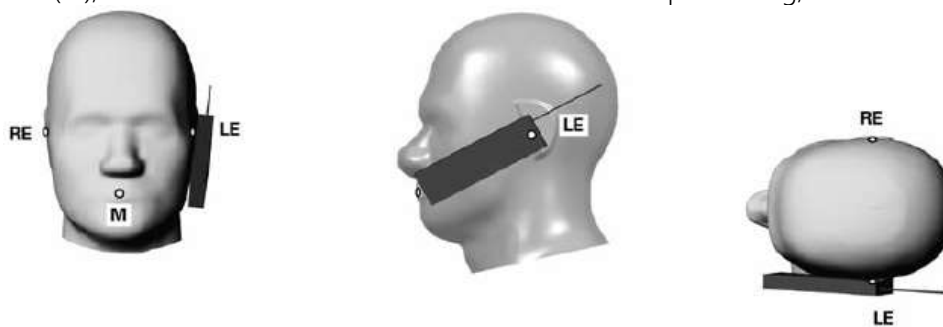


Figure 8.4 Cheek/ Touch position of the wireless device

## 8.5 Definition of the “tilted” position

Figure 6.5. shows tilted position. Place the device in the cheek position. Then while maintaining the orientation of the device, retract the device parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15°.



Figure 8.5. Tilt 15° position of the wireless device

## 8.6 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-dips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-6). Per FCC KDB Publication 648474 D04v01r03 Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in Body-worn accessories. The Body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for Body-worn accessory SAR compliance, without a headset connected to it.. When the reported SAR for a body- worn accessory, measured without a headset connected to the handset, is  $> 1.2 \text{ W/kg}$ , the highest reported SAR configuration for that wireless mode and frequency Band should be repeated for that body- worn accessory with a headset attached to the handset.



Figure 8-6  
Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-dip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

## 8.7 Wireless Router Configurations

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

In the closed configuration, only a simple display/interaction of notifications occurs and overall dimensions are  $< 9 \times 5 \text{ cm}$ . Therefore Per 941225 D06v02r01, when the device is closed, test separation for hotspot mode is 5mm.

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

## 8.8 Extremity Exposure Configurations

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

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear. The phablets procedures outlined in KDB Publication 648474 D04 v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worm accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna  $\leq 25$  mm from that surface or edge, in direct contact with the phantom, for 10-g SAR. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1-g SAR > 1.2 W/kg.

## 8.9 Bluetooth tethering Configurations

Per May 2017 TCBC Workshop Document, When Bluetooth tethering applies, simultaneous transmission SAR needs consideration.

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering.

Therefore, SAR test was performed for additional simultaneous transmissions.

Head and Bluetooth tethering SAR were evaluated for BT BDR tethering applications.

## 9. RF Exposure Limits

### RF Exposure Limits for Frequencies Below 6GHz

| HUMAN EXPOSURE                                         | UNCONTROLLED ENVIRONMENT<br>General Population<br>(W/kg) | CONTROLLED ENVIRONMENT<br>Occupational<br>(W/kg) |
|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|
| SPATIAL PEAK SAR *<br>(Partial Body)                   | 1.6                                                      | 8.0                                              |
| SPATIAL AVERAGE SAR **<br>(Whole Body)                 | 0.08                                                     | 0.4                                              |
| SPATIAL PEAK SAR ***<br>(Hands / Feet / Ankle / Wrist) | 4.0                                                      | 20.0                                             |

#### NOTES:

\*The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

\*\* The Spatial Average value of the SAR averaged over the whole-body.

\*\*\* The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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

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

## RF Exposure Limits for Frequencies Above 6GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of  $\text{mW}/\text{cm}^2$  or  $\text{W}/\text{m}^2$ .

Peak Spatially Averaged Power Density was evaluated over a circular area of  $4 \text{ cm}^2$  per interim.

FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

| HUMAN EXPOSURE                           | Limits For Occupational /<br>Controlled Environments | Limits For General Population /<br>Uncontrolled Environments |
|------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|
| Frequency Range[MHz]                     | 1,500 – 100,000                                      | 1,500 – 100,000                                              |
| Power Density[ $\text{mW}/\text{cm}^2$ ] | 5.0                                                  | 1.0                                                          |
| Average Time[Minutes]                    | 6                                                    | 30                                                           |

NOTES:  $1.0 \text{ mW}/\text{cm}^2$  is  $10 \text{ W}/\text{m}^2$

## 10. FCC SAR General Measurement Procedures

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

### 10.1 Measured and Reported SAR

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

### 10.2 3G SAR Test Reduction Procedure

#### 10.2.1 GSM, GPRS and EDGE

The following procedures may be considered for each frequency Band to determine SAR test reduction for devices operating in GSM/GPRS/EDGE modes to demonstrate RF exposure compliance. GSM voice mode transmits with 1 time-slot. GPRS and EDGE may transmit up to 4 time slots in the 8 time-slot frame according to the multi-slot class implemented in a device.

#### 10.2.2 SAR Test Reduction

In FCC KDB 941225 D01v03r01, certain transmission modes within a frequency Band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is  $\leq 0.25$  dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is  $\leq 1.2$  W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested

#### 10.2.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01v03r01-3G SAR Measurement Procedures. The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement Software calculates a reference point at the start and end of the test to Check for power drifts. If conducted Power deviations of more than 5 % occurred, the tests were repeated.

### 10.3 SAR Measurement Conditions for UMTS

#### 10.3.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in sec. 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all "1s" or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

#### 10.3.2 Body SAR measurements

SAR for body exposure configurations is measured using the 12.2kbps RMC with the TPC bits all "1s". the 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using and applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported SAR configuration in 12.2kbps RMC.

#### 10.3.3 SAR Measurements with Rel. 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using and FRC with H-SET 1 in Sub-test and a 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to release 6 HSPA test procedures. 8.4.5 SAR Measurement with Rel.6 HSUPA The 3G SAR test Reduction Procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, Using H-Set 1 and QPSK for FRC and a 12.2kbps RMC configured in Test Loop Mode 1 and Power Control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

#### 10.3.4 SAR Measurements with Rel. 6 HSUPA

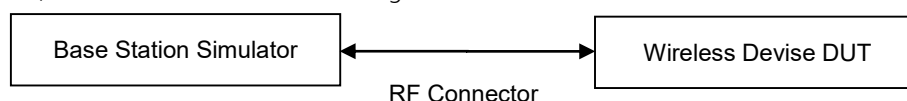
The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

#### 10.3.5 DC-HSDPA

SAR is required for Rel.8 DC-HSDPA when SAR is required for Rel.5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in table C.8.1.12 of 3GPP TS34.121-1 to determine SAR test reduction. Primary and secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

##### DC-HSDPA Configurations

- ◆ 3GPP specification TS 34.121-1 Release 8. Was used for used for DC-HSDPA guidance.
- ◆ H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.



## 10.4 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

### 10.4.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

### 10.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

### 10.4.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

### 10.4.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

- a. Per sec 4.2.1, SAR is required for QPSK 1 RB Allocation for the largest Bandwidth
  - i. The required channel and offset combination with the highest maximum output power is required for SAR.
  - ii. When the reported SAR is  $\leq 0.8$  W/Kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
  - iii. When the reported SAR for a required test channel is  $> 1.45$  W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Sec 4.2.2, SAR is required for 50% RB allocation using the largest Bandwidth following the same procedures outlined in Sec 4.2.1.
- c. Per Sec. 4.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is  $< 0.8$  W/kg.
- d. Per Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower Bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is  $< 1.45$  W/Kg.

### 10.4.5 Downlink Carrier Aggregation

Conducted power measurements with LTE Carrier aggregation (CA) downlink only active are made in accordance to KDB publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. For every supported combination of downlink only carrier aggregation, additional conducted output Powers are measured with downlink carrier aggregation active for the configuration with highest measured maximum conducted power with the downlink carrier aggregation inactive measured

among the channel Bandwidth, modulation and RB combinations in each frequency Band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25dB higher than the average output power with downlink only carrier aggregation inactive.

#### 10.4.7 LTE(TDD) Considerations

According to KDB 941225 D05v02r05, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33 %) using Uplink-downlink configuration 0 and Special subframe configuration 6. LTE TDD Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special sub frame configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

| Special subframe configuration | Normal cyclic prefix in downlink |                                |                                  | Extended cyclic prefix in downlink |                                |                                  |
|--------------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------------------|--------------------------------|----------------------------------|
|                                | DwPTS                            | UpPTS                          |                                  | DwPTS                              | UpPTS                          |                                  |
|                                |                                  | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |                                    | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| 0                              | $6592 \cdot T_s$                 | $2192 \cdot T_s$               | $2560 \cdot T_s$                 | $7680 \cdot T_s$                   | $2192 \cdot T_s$               | $2560 \cdot T_s$                 |
| 1                              | $19760 \cdot T_s$                |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 2                              | $21952 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 3                              | $24144 \cdot T_s$                |                                |                                  | $25600 \cdot T_s$                  |                                |                                  |
| 4                              | $26336 \cdot T_s$                | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $7680 \cdot T_s$                   | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 5                              | $6592 \cdot T_s$                 |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 6                              | $19760 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 7                              | $21952 \cdot T_s$                |                                |                                  | $12800 \cdot T_s$                  |                                |                                  |
| 8                              | $24144 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |
| 9                              | $13168 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |

Calculated Duty Cycle – Extended cyclic prefix in uplink x ( $T_s$ ) x no of S + no of U

Table 4.2-2: Uplink-downlink configurations

| Uplink-downlink configuration | Downlink-to-Uplink Switch-point periodicity | Subframe number |   |   |   |   |   |   |   |   |   |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D |

Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle =  $(5120 \times (1/(15000 \times 2048))) \times 2 + 0.006/0.01 = 63.33 \%$

Where

$T_s = 1/(15000 \times 2048)$  seconds

HPUE :

Calculated Duty Cycle for Uplink-Downlink Configuration 1:

Calculated Duty Cycle =  $5120 \times (1/(15000 \times 2048)) \times 2 + 0.004/0.01 = 43.33 \%$

#### 10.4.8 The Call Box Setup for LTE(TDD)

When you Want to Test for LTE TDD, Please Change Frame Structure TDD and TDD Uplink Downlink Configuration 0 and Special Subframe Configuration 6.

2018/01/08 11:00 Idle( Regist ) Phone-2 W-CDMA Phone-1 LTE  
 <Fundamental Measurement> Output Main Continuous

Parameter Fundamental UE Report

Reference Signal not found UE Power : -21.5 dBm

Power Measurement (Meas. Count : 11/ 20)

|               | Avg.  | Max.  | Min.  | Limit                |
|---------------|-------|-------|-------|----------------------|
| TX Power      | ***** | ***** | ***** | dBm 20.3 to 25.7 dBm |
| Channel Power | ***** | ***** | ***** | dBm                  |

Modulation Analysis View (Meas. Count : 1/ 1)

Common Parameter

Test Parameter TX1 - Max. Power(QPSK/1 RB)

Call Processing On Scenario Normal

Frequency

Frame Structure TDD

Channel Bandwidth FDD Hz

UL Channel & Frequency TDD 20 CH = 2593.000000 MHz

DL Channel & Frequency 40620 CH = 2593.000000 MHz

Operation Band 41

Frequency Separation ( 0 )MHz

Level

Input Level 30.0 dBm

Parameter

Common

Physical Channel

Call Processing

TX Measurement Setup

RX Measurement Setup

Fundamental Measurement

1 2 3 4

2018/01/08 11:01 Idle( Regist ) Phone-2 W-CDMA Phone-1 LTE  
 <Fundamental Measurement> Output Main Continuous

Parameter Fundamental UE Report

Reference Signal not found UE Power : -21.5 dBm

Power Measurement (Meas. Count : 11/ 20)

|               | Avg.  | Max.  | Min.  | Limit                |
|---------------|-------|-------|-------|----------------------|
| TX Power      | ***** | ***** | ***** | dBm 20.3 to 25.7 dBm |
| Channel Power | ***** | ***** | ***** | dBm                  |

Modulation Analysis View (Meas. Count : 1/ 1)

| MCS Index (-)   | 5   | (QPSK)  | (5)  | (2216)  | - | - |
|-----------------|-----|---------|------|---------|---|---|
| MCS Index (5)   | 5   | (QPSK)  | (5)  | (1864)  | 4 | - |
| MCS Index (0)   | 5   | (QPSK)  | (5)  | (2216)  | - | 2 |
| MCS Index (1,6) | N/A | (-----) | (--) | (-----) | - | 2 |
| CFI             | 3   |         |      |         |   |   |

TDD subframe 0 1 2 3 4 5 6 7 8 9

Uplink Downlink Configuration 0 : ( 5ms) D S U U U D S U U U

Special Subframe Configuration 6

Physical Channel Parameter

|              |        |
|--------------|--------|
| PSS Power    | 0.0 dB |
| SSS Power    | 0.0 dB |
| PBCH Power   | 0.0 dB |
| PCFICH Power | 0.0 dB |
| PHICH Power  | 0.0 dB |

Parameter

Common

Physical Channel

Call Processing

TX Measurement Setup

RX Measurement Setup

Fundamental Measurement

1 2 3 4

## 10.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

### 10.5.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR system to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92-96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

### 10.5.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A Bands, when the same maximum output power is specified for both Bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is  $> 1.2$  W/kg for 1g SAR or  $> 3.0$  W/kg for 10g SAR. When different maximum output powers are specified for the Bands, SAR measurement for the U-NII Band with the lower maximum output power is not required unless the highest reported SAR for the U-NII Band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two Bands, is  $> 1.2$  W/kg for 1g SAR or  $> 3.0$  W/kg for 10g SAR.

### 10.5.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 GHz – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 GHz – 5.65 GHz in U-NII-2C Band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless Band gap channels are permanently disabled, SAR must be considered for these channels.

### 10.5.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is  $\leq 0.4$  W/kg for 1g SAR and  $\leq 1.0$  W/kg for 10g SAR, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is  $\leq 0.8$  W/kg for 1g SAR and  $\leq 2.0$  W/kg for 10g SAR or all test positions are measured.

#### 10.5.5 2.4 GHz SAR test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is  $\leq 0.8$  W/kg, no further SAR testing is required for 802.11b DSSS is that exposure configuration.
- 2) When the reported SAR is  $> 0.8$  W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is  $> 1.2$  W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is  $> 1.2$  W/kg. When SAR is required for OFDM modes in 2.4 GHz Band, the Initial Test Configuration Procedures should be followed.

#### 10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz and 5 GHz Bands, when the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency Band or aggregated Band, SAR is measured using the configuration with the largest channel Bandwidth, lowest order modulation and lowest data rate and lowest order 802.11 a/g/n/ac mode. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11 ac or 802.11g and 802.11n with the same channel Bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency Band or aggregated Band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

#### 10.5.7 Initial Test Configuration Procedure

For OFDM, in both 2.4 GHz and 5 GHz Bands, an initial test configuration is determined for each frequency Band and aggregated Band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency Band or aggregated Band, SAR is measured using the configuration(s) with the largest channel Bandwidth, lowest order modulation, and lowest data rate. If the average RF output powers of the highest identical transmission modes are within 0.25 dB of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, the channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is  $\leq 0.8$  W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements.

#### 10.5.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency Band and aggregated Band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position on procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is  $\leq 1.2$  W/kg for 1g SAR and  $\leq 3.0$  W/kg for 10g SAR, no additional SAR tests for the subsequent test configurations are required.

#### 10.5.9 MIMO SAR Considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 D01v06. Should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is  $< 1.6$  W/kg, no additional SAR Measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

## 11. Output Power Specifications

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

### Licensed Bands

| Test Description       | Test Procedure Used                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Conducted Output Power | <ul style="list-style-type: none"> <li>- KDB 971168 D01 v03r01 – Section 5.2.4</li> <li>- ANSI C63.26-2015 – Section 5.2.1 &amp; 5.2.4.2</li> </ul> |

### Test Overview

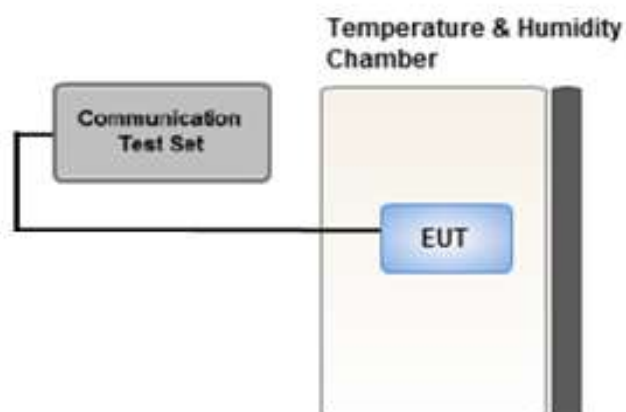
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station emulator, communications test set, call box, or similar instrumentation that is capable of establishing a communications link with the EUT to enable control over variable parameters (e.g., output power, OBW, etc.).

In some cases, these instruments also include basic digital spectrum analyzer and/or power meter capabilities that can be utilized to measure the RF output power if the specified detectors and requirements can be realized and the measurement functions have been calibrated.

### Test Procedure

1. The RF port of the EUT was connected to the Communication Tester via an RF cable.
2. Conducted average power was measured using a calibrated Radio Communication Tester.

### Test setup



## 11.1 GSM Maximum Output Power

### 11.1.1 GSM Maximum Conducted Output Power

#### GSM850 – MAIN1 [Ant A]

Measured  $P_{max}$  Head(RSI = 1)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 34.00 | 34.00                      | 32.00                | 30.80                | 29.60                | 28.00                | 26.00                | 24.80                | 23.60                |
| Nominal     |     | 33.00 | 33.00                      | 31.00                | 29.80                | 28.60                | 27.00                | 25.00                | 23.80                | 22.60                |
| GSM 850     | 128 | 33.58 | 33.54                      | 31.55                | 30.13                | 28.61                | 27.44                | 25.24                | 24.01                | 22.74                |
|             | 190 | 33.06 | 33.12                      | 30.94                | 29.53                | 28.05                | 26.79                | 24.75                | 23.32                | 22.21                |
|             | 251 | 33.32 | 33.32                      | 30.92                | 29.46                | 28.00                | 26.65                | 24.58                | 23.09                | 22.02                |

GSM Conducted output powers (Burst-Average)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 24.97 | 24.97                      | 25.98                | 26.54                | 26.59                | 18.97                | 19.98                | 20.54                | 20.59                |
| Nominal     |     | 23.97 | 23.97                      | 24.98                | 25.54                | 25.59                | 17.97                | 18.98                | 19.54                | 19.59                |
| GSM 850     | 128 | 24.55 | 24.51                      | 25.53                | 25.87                | 25.60                | 18.41                | 19.22                | 19.75                | 19.73                |
|             | 190 | 24.03 | 24.09                      | 24.92                | 25.27                | 25.04                | 17.76                | 18.73                | 19.06                | 19.20                |
|             | 251 | 24.29 | 24.29                      | 24.90                | 25.20                | 24.99                | 17.62                | 18.56                | 18.83                | 19.01                |

GSM Conducted output powers (Frame-Average)

Measured Non Head(RSI = 0)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 32.00 | 32.00                      | 29.50                | 27.50                | 26.30                | 28.00                | 26.00                | 24.80                | 23.60                |
| Nominal     |     | 31.00 | 31.00                      | 28.50                | 26.50                | 25.30                | 27.00                | 25.00                | 23.80                | 22.60                |
| GSM 850     | 128 | 31.41 | 31.65                      | 28.77                | 26.84                | 25.69                |                      |                      |                      |                      |
|             | 190 | 30.75 | 31.36                      | 28.07                | 26.22                | 25.04                |                      |                      |                      |                      |
|             | 251 | 30.91 | 31.39                      | 28.14                | 26.09                | 24.90                |                      |                      |                      |                      |

GSM Conducted output powers (Burst-Average)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 22.97 | 22.97                      | 23.48                | 23.24                | 23.29                | 18.97                | 19.98                | 20.54                | 20.59                |
| Nominal     |     | 21.97 | 21.97                      | 22.48                | 22.24                | 22.29                | 17.97                | 18.98                | 19.54                | 19.59                |
| GSM 850     | 128 | 22.38 | 22.62                      | 22.75                | 22.58                | 22.68                |                      |                      |                      |                      |
|             | 190 | 21.72 | 22.33                      | 22.05                | 21.96                | 22.03                |                      |                      |                      |                      |
|             | 251 | 21.88 | 22.36                      | 22.12                | 21.83                | 21.89                |                      |                      |                      |                      |

GSM Conducted output powers (Frame-Average)

### GSM850 – SUB1 [Ant E]

Measured  $P_{max}$

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 34.00 | 34.00                      | 32.00                | 30.80                | 29.60                | 28.00                | 26.00                | 24.80                | 23.60                |
| Nominal     |     | 33.00 | 33.00                      | 31.00                | 29.80                | 28.60                | 27.00                | 25.00                | 23.80                | 22.60                |
| GSM 850     | 128 | 32.86 | 32.83                      | 31.53                | 29.74                | 28.26                | 27.65                | 25.32                | 24.01                | 22.86                |
|             | 190 | 32.52 | 32.73                      | 31.67                | 29.79                | 28.45                | 27.58                | 25.39                | 24.16                | 22.90                |
|             | 251 | 32.18 | 32.18                      | 31.41                | 29.63                | 28.21                | 27.28                | 25.16                | 23.68                | 22.39                |

GSM Conducted output powers (Burst-Average)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 24.97 | 24.97                      | 25.98                | 26.54                | 26.59                | 18.97                | 19.98                | 20.54                | 20.59                |
| Nominal     |     | 23.97 | 23.97                      | 24.98                | 25.54                | 25.59                | 17.97                | 18.98                | 19.54                | 19.59                |
| GSM 850     | 128 | 23.83 | 23.80                      | 25.51                | 25.48                | 25.25                | 18.62                | 19.30                | 19.75                | 19.85                |
|             | 190 | 23.49 | 23.70                      | 25.65                | 25.53                | 25.44                | 18.55                | 19.37                | 19.90                | 19.89                |
|             | 251 | 23.15 | 23.15                      | 25.39                | 25.37                | 25.20                | 18.25                | 19.14                | 19.42                | 19.38                |

GSM Conducted output powers (Frame-Average)

Measured Non Head(RSI = 0), Head(RSI = 1)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 32.00 | 32.00                      | 29.50                | 27.50                | 26.30                | 28.00                | 26.00                | 24.80                | 23.60                |
| Nominal     |     | 31.00 | 31.00                      | 28.50                | 26.50                | 25.30                | 27.00                | 25.00                | 23.80                | 22.60                |
| GSM 850     | 128 | 30.80 | 31.32                      | 28.15                | 26.37                | 24.88                |                      |                      |                      |                      |
|             | 190 | 31.06 | 31.45                      | 28.30                | 26.28                | 25.06                |                      |                      |                      |                      |
|             | 251 | 31.03 | 31.41                      | 27.95                | 25.92                | 24.65                |                      |                      |                      |                      |

GSM Conducted output powers (Burst-Average)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 22.97 | 22.97                      | 23.48                | 23.24                | 23.29                | 18.97                | 19.98                | 20.54                | 20.59                |
| Nominal     |     | 21.97 | 21.97                      | 22.48                | 22.24                | 22.29                | 17.97                | 18.98                | 19.54                | 19.59                |
| GSM 850     | 128 | 21.77 | 22.29                      | 22.13                | 22.11                | 21.87                |                      |                      |                      |                      |
|             | 190 | 22.03 | 22.42                      | 22.28                | 22.02                | 22.05                |                      |                      |                      |                      |
|             | 251 | 22.00 | 22.38                      | 21.93                | 21.66                | 21.64                |                      |                      |                      |                      |

GSM Conducted output powers (Frame-Average)

### GSM1900 – MAIN2 [Ant B]

Measured  $P_{max}$  Head(RSI = 1)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 31.00 | 31.00                      | 28.80                | 27.20                | 26.20                | 27.00                | 25.00                | 23.80                | 22.60                |
| Nominal     |     | 30.00 | 30.00                      | 27.80                | 26.20                | 25.20                | 26.00                | 24.00                | 22.80                | 21.60                |
| GSM 1900    | 512 | 30.57 | 30.42                      | 28.19                | 26.25                | 25.10                | 25.82                | 23.93                | 23.11                | 21.59                |
|             | 661 | 30.55 | 30.53                      | 28.43                | 26.51                | 25.30                | 26.10                | 23.80                | 23.10                | 21.59                |
|             | 810 | 30.70 | 30.73                      | 28.57                | 26.75                | 25.53                | 26.22                | 23.94                | 23.10                | 21.60                |

GSM Conducted output powers (Burst-Average)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 21.97 | 21.97                      | 22.78                | 22.94                | 23.19                | 17.97                | 18.98                | 19.54                | 19.59                |
| Nominal     |     | 20.97 | 20.97                      | 21.78                | 21.94                | 22.19                | 16.97                | 17.98                | 18.54                | 18.59                |
| GSM 1900    | 512 | 21.54 | 21.39                      | 22.17                | 21.99                | 22.09                | 16.79                | 17.91                | 18.85                | 18.58                |
|             | 661 | 21.52 | 21.50                      | 22.41                | 22.25                | 22.29                | 17.07                | 17.78                | 18.84                | 18.58                |
|             | 810 | 21.67 | 21.70                      | 22.55                | 22.49                | 22.52                | 17.19                | 17.92                | 18.84                | 18.59                |

GSM Conducted output powers (Frame-Average)

Measured Non Head(RSI = 0)

| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 28.00 | 28.00                      | 25.80                | 24.20                | 23.20                | 27.00                | 25.00                | 23.80                | 22.60                |
| Nominal     |     | 27.00 | 27.00                      | 24.80                | 23.20                | 22.20                | 26.00                | 24.00                | 22.80                | 21.60                |
| GSM 1900    | 512 | 27.15 | 27.64                      | 24.17                | 22.18                | 21.35                |                      |                      |                      |                      |
|             | 661 | 26.98 | 27.68                      | 24.45                | 22.41                | 21.47                |                      |                      |                      |                      |
|             | 810 | 27.11 | 27.95                      | 24.84                | 22.97                | 21.75                |                      |                      |                      |                      |

GSM Conducted output powers (Burst-Average)

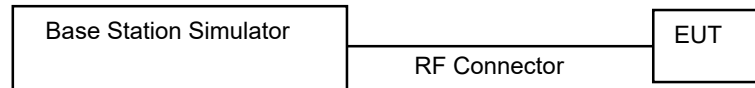
| Mode / Band |     | Voice | GPRS(GMSK) Data – CS1(dBm) |                      |                      |                      | EDGE Data (dBm)      |                      |                      |                      |
|-------------|-----|-------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|             |     | GSM   | GPRS<br>1 TX<br>Slot       | GPRS<br>2 TX<br>Slot | GPRS<br>3 TX<br>Slot | GPRS<br>4 TX<br>Slot | EDGE<br>1 TX<br>Slot | EDGE<br>2 TX<br>Slot | EDGE<br>3 TX<br>Slot | EDGE<br>4 TX<br>Slot |
| Maximum     |     | 18.97 | 18.97                      | 19.78                | 19.94                | 20.19                | 17.97                | 18.98                | 19.54                | 19.59                |
| Nominal     |     | 17.97 | 17.97                      | 18.78                | 18.94                | 19.19                | 16.97                | 17.98                | 18.54                | 18.59                |
| GSM 1900    | 512 | 18.12 | 18.61                      | 18.15                | 17.92                | 18.34                |                      |                      |                      |                      |
|             | 661 | 17.95 | 18.65                      | 18.43                | 18.15                | 18.46                |                      |                      |                      |                      |
|             | 810 | 18.08 | 18.92                      | 18.82                | 18.71                | 18.74                |                      |                      |                      |                      |

GSM Conducted output powers (Frame-Average)

**Note:**

Time slot average factor is as follows:

- 1 Tx slot = 9.19 dB, Frame-Average output power = Burst-Average output power – 9.19 dB
- 2 Tx slot = 6.18 dB, Frame-Average output power = Burst-Average output power – 6.18 dB
- 3 Tx slot = 4.42 dB, Frame-Average output power = Burst-Average output power – 4.42 dB
- 4 Tx slot = 3.17 dB, Frame-Average output power = Burst-Average output power – 3.17 dB



## 11.2 UMTS Maximum Output Power

### HSPA+

This DUT is only capable of QPSK HSPA+ in uplink. Therefore, the RF conducted power is not measured according to 941225 D01v03r01 3G SAR.

### 11.2.1 UMTS Maximum Conducted Output Power

#### UMTS Band 5 Maximum Conducted Output Power – MAIN1 [Ant A]

Measured  $P_{max}$  Head (RSI 1)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 5 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL4132 DL4357     | UL4183 DL4408 | UL4233 DL4458 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 24.09             | 23.84         | 23.81         | -        |
| 99                   |          | 12.2 kbps AMR | 24.05             | 23.80         | 23.78         | -        |
| 5                    | HSDPA    | Subtest 1     | 23.00             | 22.68         | 22.67         | 0        |
| 5                    |          | Subtest 2     | 21.97             | 21.64         | 21.62         | 0        |
| 5                    |          | Subtest 3     | 20.92             | 20.63         | 20.57         | 1        |
| 5                    |          | Subtest 4     | 20.91             | 20.62         | 20.58         | 1        |
| 6                    | HSUPA    | Subtest 1     | 22.01             | 21.70         | 21.60         | 0        |
| 6                    |          | Subtest 2     | 20.04             | 19.69         | 19.62         | 2        |
| 6                    |          | Subtest 3     | 22.01             | 21.47         | 21.52         | 1        |
| 6                    |          | Subtest 4     | 20.00             | 19.64         | 19.61         | 2        |
| 6                    |          | Subtest 5     | 22.20             | 21.85         | 21.80         | 0        |
| 8                    | DC-HSDPA | Subtest1      | 22.72             | 22.34         | 21.89         | 0        |
| 8                    |          | Subtest2      | 21.62             | 21.14         | 21.05         | 0        |
| 8                    |          | Subtest3      | 20.81             | 20.67         | 20.59         | 0.5      |
| 8                    |          | Subtest4      | 20.55             | 20.58         | 20.54         | 0.5      |

UMTS Average Conducted output powers

Measured Non Head (RSI = 0)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 5 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL4132 DL4357     | UL4183 DL4408 | UL4233 DL4458 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 21.66             | 21.25         | 21.22         | -        |
| 99                   |          | 12.2 kbps AMR | 21.46             | 21.20         | 21.18         | -        |
| 5                    | HSDPA    | Subtest 1     | 20.50             | 20.13         | 20.09         | 0        |
| 5                    |          | Subtest 2     | 20.55             | 20.14         | 20.28         | 0        |
| 5                    |          | Subtest 3     | 20.53             | 20.15         | 20.12         | 0.5      |
| 5                    |          | Subtest 4     | 20.56             | 20.13         | 20.11         | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 18.58             | 19.11         | 18.05         | 0        |
| 6                    |          | Subtest 2     | 18.46             | 18.08         | 18.05         | 2        |
| 6                    |          | Subtest 3     | 18.52             | 18.09         | 18.03         | 1        |
| 6                    |          | Subtest 4     | 18.50             | 18.06         | 18.04         | 2        |
| 6                    |          | Subtest 5     | 18.75             | 18.31         | 18.29         | 0        |
| 8                    | DC-HSDPA | Subtest1      | 20.44             | 20.08         | 20.02         | 0        |
| 8                    |          | Subtest2      | 20.42             | 20.09         | 20.04         | 0        |
| 8                    |          | Subtest3      | 20.44             | 20.04         | 19.83         | 0.5      |
| 8                    |          | Subtest4      | 20.43             | 20.66         | 19.82         | 0.5      |

UMTS Average Conducted output powers

### UMTS Band 5 Maximum Conducted Output Power – Sub1 [Ant E]

#### Measured $P_{max}$

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 5 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL4132 DL4357     | UL4183 DL4408 | UL4233 DL4458 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 23.65             | 23.63         | 23.61         | -        |
| 99                   |          | 12.2 kbps AMR | 23.64             | 23.61         | 23.60         | -        |
| 5                    | HSDPA    | Subtest 1     | 21.65             | 21.69         | 21.62         | 0        |
| 5                    |          | Subtest 2     | 21.11             | 21.12         | 21.06         | 0        |
| 5                    |          | Subtest 3     | 20.57             | 20.57         | 20.54         | 1        |
| 5                    |          | Subtest 4     | 20.07             | 20.11         | 20.13         | 1        |
| 6                    | HSUPA    | Subtest 1     | 19.88             | 19.92         | 20.32         | 0        |
| 6                    |          | Subtest 2     | 19.50             | 19.49         | 19.42         | 2        |
| 6                    |          | Subtest 3     | 19.79             | 20.33         | 20.28         | 1        |
| 6                    |          | Subtest 4     | 19.42             | 19.44         | 19.42         | 2        |
| 6                    |          | Subtest 5     | 19.03             | 19.12         | 19.03         | 0        |
| 8                    | DC-HSDPA | Subtest1      | 21.97             | 21.84         | 21.77         | 0        |
| 8                    |          | Subtest2      | 21.07             | 21.33         | 21.32         | 0        |
| 8                    |          | Subtest3      | 20.07             | 20.02         | 20.06         | 0.5      |
| 8                    |          | Subtest4      | 20.02             | 20.22         | 20.12         | 0.5      |

#### UMTS Average Conducted output powers

#### Measured Non Head (RSI = 0), Head (RSI =1)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 5 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL4132 DL4357     | UL4183 DL4408 | UL4233 DL4458 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 22.89             | 22.94         | 22.78         | -        |
| 99                   |          | 12.2 kbps AMR | 22.89             | 22.92         | 22.74         | -        |
| 5                    | HSDPA    | Subtest 1     | 20.10             | 20.08         | 20.04         | 0        |
| 5                    |          | Subtest 2     | 20.55             | 20.53         | 20.46         | 0        |
| 5                    |          | Subtest 3     | 20.04             | 20.01         | 19.96         | 0.5      |
| 5                    |          | Subtest 4     | 20.01             | 20.02         | 19.97         | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 20.14             | 20.18         | 20.21         | 0        |
| 6                    |          | Subtest 2     | 19.15             | 19.36         | 19.26         | 2        |
| 6                    |          | Subtest 3     | 19.70             | 19.74         | 19.74         | 1        |
| 6                    |          | Subtest 4     | 19.35             | 19.31         | 19.46         | 2        |
| 6                    |          | Subtest 5     | 19.30             | 19.31         | 19.46         | 0        |
| 8                    | DC-HSDPA | Subtest1      | 20.34             | 20.34         | 20.02         | 0        |
| 8                    |          | Subtest2      | 20.84             | 20.87         | 20.57         | 0        |
| 8                    |          | Subtest3      | 20.01             | 19.94         | 19.81         | 0.5      |
| 8                    |          | Subtest4      | 20.26             | 20.31         | 20.14         | 0.5      |

#### UMTS Average Conducted output powers

### UMTS Band 4 Maximum Conducted Output Power – MAIN2 [Ant B]

Measured  $P_{max}$  Head (RSI 1)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 4 [dBm]  |                    |                    | 3GPP MPR |
|----------------------|----------|---------------|--------------------|--------------------|--------------------|----------|
|                      |          | Subtest       | UL 1312<br>DL 1537 | UL 1412<br>DL 1637 | UL 1513<br>DL 1738 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 22.34              | 22.45              | 22.45              | -        |
| 99                   |          | 12.2 kbps AMR | 22.34              | 22.46              | 22.50              | -        |
| 5                    | HSDPA    | Subtest 1     | 21.95              | 22.01              | 22.15              | 0        |
| 5                    |          | Subtest 2     | 22.06              | 22.15              | 22.20              | 0        |
| 5                    |          | Subtest 3     | 21.98              | 22.18              | 22.27              | 0.5      |
| 5                    |          | Subtest 4     | 21.53              | 21.69              | 21.76              | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 20.93              | 21.11              | 21.10              | 0        |
| 6                    |          | Subtest 2     | 18.93              | 19.10              | 19.18              | 2        |
| 6                    |          | Subtest 3     | 19.48              | 19.63              | 19.62              | 1        |
| 6                    |          | Subtest 4     | 19.30              | 19.41              | 18.78              | 2        |
| 6                    |          | Subtest 5     | 21.00              | 21.16              | 21.18              | 0        |
| 8                    | DC-HSDPA | Subtest1      | 21.81              | 21.69              | 21.65              | 0        |
| 8                    |          | Subtest2      | 21.94              | 21.87              | 21.79              | 0        |
| 8                    |          | Subtest3      | 20.93              | 20.89              | 20.88              | 0.5      |
| 8                    |          | Subtest4      | 21.32              | 21.29              | 21.30              | 0.5      |

UMTS Average Conducted output powers

Measured Non Head (RSI = 0)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 4 [dBm]  |                    |                    | 3GPP MPR |
|----------------------|----------|---------------|--------------------|--------------------|--------------------|----------|
|                      |          | Subtest       | UL 1312<br>DL 1537 | UL 1412<br>DL 1637 | UL 1513<br>DL 1738 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 17.90              | 17.90              | 17.84              | -        |
| 99                   |          | 12.2 kbps AMR | 17.84              | 17.83              | 17.80              | -        |
| 5                    | HSDPA    | Subtest 1     | 17.22              | 17.30              | 17.24              | 0        |
| 5                    |          | Subtest 2     | 17.42              | 17.34              | 17.32              | 0        |
| 5                    |          | Subtest 3     | 17.41              | 17.37              | 17.29              | 0.5      |
| 5                    |          | Subtest 4     | 17.90              | 17.85              | 17.79              | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 15.88              | 15.83              | 15.57              | 0        |
| 6                    |          | Subtest 2     | 15.42              | 15.35              | 15.29              | 2        |
| 6                    |          | Subtest 3     | 14.89              | 14.88              | 15.73              | 1        |
| 6                    |          | Subtest 4     | 15.66              | 15.62              | 14.90              | 2        |
| 6                    |          | Subtest 5     | 16.84              | 16.79              | 16.70              | 0        |
| 8                    | DC-HSDPA | Subtest1      | 17.14              | 17.06              | 17.19              | 0        |
| 8                    |          | Subtest2      | 17.32              | 17.46              | 17.41              | 0        |
| 8                    |          | Subtest3      | 17.56              | 17.45              | 17.55              | 0.5      |
| 8                    |          | Subtest4      | 17.84              | 17.83              | 17.76              | 0.5      |

UMTS Average Conducted output powers

### UMTS Band 2 Maximum Conducted Output Power – MAIN1 [Ant A]

Measured  $P_{max}$  Head (RSI 1)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 2 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL9262 DL9662     | UL9400 DL9800 | UL9538 DL9938 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 23.62             | 23.61         | 23.96         | -        |
| 99                   |          | 12.2 kbps AMR | 23.58             | 23.58         | 23.60         | -        |
| 5                    | HSDPA    | Subtest 1     | 22.85             | 22.88         | 23.02         | 0        |
| 5                    |          | Subtest 2     | 22.48             | 22.41         | 22.80         | 0        |
| 5                    |          | Subtest 3     | 21.54             | 21.46         | 21.57         | 0.5      |
| 5                    |          | Subtest 4     | 21.54             | 21.46         | 21.57         | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 21.91             | 21.82         | 21.84         | 0        |
| 6                    |          | Subtest 2     | 19.42             | 19.33         | 19.40         | 2        |
| 6                    |          | Subtest 3     | 20.39             | 20.37         | 20.47         | 1        |
| 6                    |          | Subtest 4     | 19.83             | 19.85         | 19.88         | 2        |
| 6                    |          | Subtest 5     | 22.83             | 22.75         | 22.87         | 0        |
| 8                    | DC-HSDPA | Subtest 1     | 22.84             | 22.64         | 22.97         | 0        |
| 8                    |          | Subtest2      | 22.44             | 22.25         | 22.54         | 0        |
| 8                    |          | Subtest3      | 21.38             | 21.33         | 21.56         | 0.5      |
| 8                    |          | Subtest4      | 21.43             | 21.34         | 21.54         | 0.5      |

UMTS Average Conducted output powers

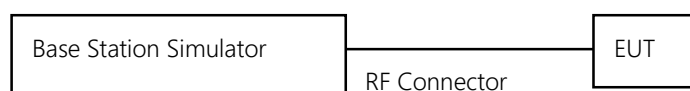
Measured Non Head (RSI = 0)

| 3GPP Release Version | Mode     | 3GPP 34.121   | UMTS Band 2 [dBm] |               |               | 3GPP MPR |
|----------------------|----------|---------------|-------------------|---------------|---------------|----------|
|                      |          | Subtest       | UL9262 DL9662     | UL9400 DL9800 | UL9538 DL9938 |          |
| 99                   | UMTS     | 12.2 kbps RMC | 17.54             | 17.49         | 17.68         | -        |
| 99                   |          | 12.2 kbps AMR | 17.45             | 17.47         | 17.49         | -        |
| 5                    | HSDPA    | Subtest 1     | 17.43             | 17.40         | 17.38         | 0        |
| 5                    |          | Subtest 2     | 17.16             | 17.08         | 17.19         | 0        |
| 5                    |          | Subtest 3     | 17.15             | 17.07         | 17.24         | 0.5      |
| 5                    |          | Subtest 4     | 17.16             | 17.08         | 17.22         | 0.5      |
| 6                    | HSUPA    | Subtest 1     | 15.65             | 15.59         | 15.68         | 0        |
| 6                    |          | Subtest 2     | 15.13             | 15.07         | 15.17         | 2        |
| 6                    |          | Subtest 3     | 14.67             | 14.60         | 14.70         | 1        |
| 6                    |          | Subtest 4     | 15.64             | 15.59         | 15.70         | 2        |
| 6                    |          | Subtest 5     | 16.63             | 16.55         | 16.67         | 0        |
| 8                    | DC-HSDPA | Subtest 1     | 17.51             | 17.46         | 17.12         | 0        |
| 8                    |          | Subtest2      | 17.15             | 17.17         | 17.16         | 0        |
| 8                    |          | Subtest3      | 17.24             | 17.15         | 16.94         | 0.5      |
| 8                    |          | Subtest4      | 17.02             | 17.05         | 17.17         | 0.5      |

UMTS Average Conducted output powers

HSDPA Configurations

- ◆ 3GPP specification TS 34.121-1 Release 8. Was used for used for DC-HSDPA guidance.
- ◆ H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.



## 11.3 LTE Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of LTE Bands according to FCC KDB 941225 D05, are included, and the measurement results of other bandwidths are listed in Appendix K.

LTE B4/B5/B12/B13/B26 at Max Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel Bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

### 11.3.1 LTE Maximum Conducted Power

#### LTE FDD Band 5 Conducted Power \_ Measured $P_{max}$ , Head(RSI 1)\_ Main1 [Ant A]

##### LTE FDD Band 5 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20525 Ch.<br>836.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 24.37                    | 0                         | 0        |
|           |            | 1       | 24        | 24.50                    | 0                         | 0        |
|           |            | 1       | 49        | 24.38                    | 0                         | 0        |
|           |            | 25      | 0         | 23.47                    | 0-1                       | 1        |
|           |            | 25      | 12        | 23.45                    | 0-1                       | 1        |
|           |            | 25      | 24        | 23.42                    | 0-1                       | 1        |
|           |            | 50      | 0         | 23.42                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.75                    | 0-1                       | 1        |
|           |            | 1       | 24        | 23.46                    | 0-1                       | 1        |
|           |            | 1       | 49        | 23.49                    | 0-1                       | 1        |
|           |            | 25      | 0         | 22.45                    | 0-2                       | 2        |
|           |            | 25      | 12        | 22.38                    | 0-2                       | 2        |
|           |            | 25      | 24        | 22.37                    | 0-2                       | 2        |
|           |            | 50      | 0         | 22.34                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.58                    | 0-2                       | 2        |
|           |            | 1       | 24        | 22.38                    | 0-2                       | 2        |
|           |            | 1       | 49        | 22.37                    | 0-2                       | 2        |
|           |            | 25      | 0         | 21.41                    | 0-3                       | 3        |
|           |            | 25      | 12        | 21.33                    | 0-3                       | 3        |
|           |            | 25      | 24        | 21.31                    | 0-3                       | 3        |
|           |            | 50      | 0         | 21.41                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.49                    | 0-5                       | 5        |
|           |            | 1       | 24        | 19.41                    | 0-5                       | 5        |
|           |            | 1       | 49        | 19.41                    | 0-5                       | 5        |
|           |            | 25      | 0         | 19.36                    | 0-5                       | 5        |
|           |            | 25      | 12        | 19.32                    | 0-5                       | 5        |
|           |            | 25      | 24        | 19.33                    | 0-5                       | 5        |
|           |            | 50      | 0         | 19.31                    | 0-5                       | 5        |

# LTE FDD Band 5 Conducted Power \_ Measured Non Head(RSI 0)\_ Main1 [Ant A]

## LTE FDD Band 5 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20525 Ch.<br>836.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 21.40                    | 0                         | 0        |
|           |            | 1       | 24        | 21.32                    | 0                         | 0        |
|           |            | 1       | 49        | 21.23                    | 0                         | 0        |
|           |            | 25      | 0         | 21.22                    | 0 - 1                     | 0        |
|           |            | 25      | 12        | 21.16                    | 0 - 1                     | 0        |
|           |            | 25      | 24        | 21.15                    | 0 - 1                     | 0        |
|           |            | 50      | 0         | 21.19                    | 0 - 1                     | 0        |
|           | 16QAM      | 1       | 0         | 21.54                    | 0 - 1                     | 0        |
|           |            | 1       | 24        | 21.13                    | 0 - 1                     | 0        |
|           |            | 1       | 49        | 21.36                    | 0 - 1                     | 0        |
|           |            | 25      | 0         | 21.24                    | 0 - 2                     | 0        |
|           |            | 25      | 12        | 21.17                    | 0 - 2                     | 0        |
|           |            | 25      | 24        | 21.19                    | 0 - 2                     | 0        |
|           |            | 50      | 0         | 21.15                    | 0 - 2                     | 0        |
|           | 64QAM      | 1       | 0         | 21.42                    | 0 - 2                     | 0        |
|           |            | 1       | 24        | 21.42                    | 0 - 2                     | 0        |
|           |            | 1       | 49        | 21.32                    | 0 - 2                     | 0        |
|           |            | 25      | 0         | 21.25                    | 0 - 3                     | 0.5      |
|           |            | 25      | 12        | 21.15                    | 0 - 3                     | 0.5      |
|           |            | 25      | 24        | 21.17                    | 0 - 3                     | 0.5      |
|           |            | 50      | 0         | 21.16                    | 0 - 3                     | 0.5      |
|           | 256QAM     | 1       | 0         | 19.32                    | 0 - 5                     | 2.5      |
|           |            | 1       | 24        | 19.03                    | 0 - 5                     | 2.5      |
|           |            | 1       | 49        | 19.17                    | 0 - 5                     | 2.5      |
|           |            | 25      | 0         | 19.21                    | 0 - 5                     | 2.5      |
|           |            | 25      | 12        | 19.16                    | 0 - 5                     | 2.5      |
|           |            | 25      | 24        | 19.13                    | 0 - 5                     | 2.5      |
|           |            | 50      | 0         | 19.11                    | 0 - 5                     | 2.5      |

# LTE FDD Band 12 Conducted Power\_ Measured $P_{max}$ , Head(RSI 1)\_ Main1 [Ant A]

## LTE FDD Band 12 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23095 Ch.<br>707.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 24.24                    | 0                         | 0        |
|           |            | 1       | 24        | 24.42                    | 0                         | 0        |
|           |            | 1       | 49        | 24.30                    | 0                         | 0        |
|           |            | 25      | 0         | 23.28                    | 0-1                       | 1        |
|           |            | 25      | 12        | 23.26                    | 0-1                       | 1        |
|           |            | 25      | 24        | 23.24                    | 0-1                       | 1        |
|           |            | 50      | 0         | 23.31                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.50                    | 0-1                       | 1        |
|           |            | 1       | 24        | 23.46                    | 0-1                       | 1        |
|           |            | 1       | 49        | 23.49                    | 0-1                       | 1        |
|           |            | 25      | 0         | 22.24                    | 0-2                       | 2        |
|           |            | 25      | 12        | 22.22                    | 0-2                       | 2        |
|           |            | 25      | 24        | 22.27                    | 0-2                       | 2        |
|           |            | 50      | 0         | 22.25                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.18                    | 0-2                       | 2        |
|           |            | 1       | 24        | 22.31                    | 0-2                       | 2        |
|           |            | 1       | 49        | 22.35                    | 0-2                       | 2        |
|           |            | 25      | 0         | 21.13                    | 0-3                       | 3        |
|           |            | 25      | 12        | 21.16                    | 0-3                       | 3        |
|           |            | 25      | 24        | 21.15                    | 0-3                       | 3        |
|           |            | 50      | 0         | 21.21                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.27                    | 0-5                       | 5        |
|           |            | 1       | 24        | 19.17                    | 0-5                       | 5        |
|           |            | 1       | 49        | 19.29                    | 0-5                       | 5        |
|           |            | 25      | 0         | 19.05                    | 0-5                       | 5        |
|           |            | 25      | 12        | 19.08                    | 0-5                       | 5        |
|           |            | 25      | 24        | 19.08                    | 0-5                       | 5        |
|           |            | 50      | 0         | 19.05                    | 0-5                       | 5        |

# LTE FDD Band 12 Conducted Power\_ Measured Non Head(RSI 0)\_ Main1 [Ant A]

## LTE FDD Band 12 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23095 Ch.<br>707.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 20.94                    | 0                         | 0        |
|           |            | 1       | 24        | 21.11                    | 0                         | 0        |
|           |            | 1       | 49        | 20.98                    | 0                         | 0        |
|           |            | 25      | 0         | 21.13                    | 0 - 1                     | 0        |
|           |            | 25      | 12        | 20.90                    | 0 - 1                     | 0        |
|           |            | 25      | 24        | 20.89                    | 0 - 1                     | 0        |
|           |            | 50      | 0         | 20.97                    | 0 - 1                     | 0        |
|           | 16QAM      | 1       | 0         | 21.04                    | 0 - 1                     | 0        |
|           |            | 1       | 24        | 21.06                    | 0 - 1                     | 0        |
|           |            | 1       | 49        | 21.23                    | 0 - 1                     | 0        |
|           |            | 25      | 0         | 20.94                    | 0 - 2                     | 0        |
|           |            | 25      | 12        | 20.97                    | 0 - 2                     | 0        |
|           |            | 25      | 24        | 21.01                    | 0 - 2                     | 0        |
|           |            | 50      | 0         | 20.97                    | 0 - 2                     | 0        |
|           | 64QAM      | 1       | 0         | 20.94                    | 0 - 2                     | 0        |
|           |            | 1       | 24        | 21.16                    | 0 - 2                     | 0        |
|           |            | 1       | 49        | 21.07                    | 0 - 2                     | 0        |
|           |            | 25      | 0         | 20.93                    | 0 - 3                     | 1        |
|           |            | 25      | 12        | 20.92                    | 0 - 3                     | 1        |
|           |            | 25      | 24        | 20.95                    | 0 - 3                     | 1        |
|           |            | 50      | 0         | 21.00                    | 0 - 3                     | 1        |
|           | 256QAM     | 1       | 0         | 19.02                    | 0 - 5                     | 3        |
|           |            | 1       | 24        | 18.89                    | 0 - 5                     | 3        |
|           |            | 1       | 49        | 18.97                    | 0 - 5                     | 3        |
|           |            | 25      | 0         | 18.84                    | 0 - 5                     | 3        |
|           |            | 25      | 12        | 18.87                    | 0 - 5                     | 3        |
|           |            | 25      | 24        | 18.84                    | 0 - 5                     | 3        |
|           |            | 50      | 0         | 18.79                    | 0 - 5                     | 3        |

# LTE FDD Band 13 Conducted Power\_ Measured $P_{max}$ , Head(RSI 1)\_ Main1 [Ant A]

## LTE FDD Band 13 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23230 Ch. 782 MHz        |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 24.87                    | 0                         | 0        |
|           |            | 1       | 24        | 24.90                    | 0                         | 0        |
|           |            | 1       | 49        | 24.75                    | 0                         | 0        |
|           |            | 25      | 0         | 23.87                    | 0-1                       | 1        |
|           |            | 25      | 12        | 23.86                    | 0-1                       | 1        |
|           |            | 25      | 24        | 23.83                    | 0-1                       | 1        |
|           |            | 50      | 0         | 23.83                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.90                    | 0-1                       | 1        |
|           |            | 1       | 24        | 23.80                    | 0-1                       | 1        |
|           |            | 1       | 49        | 23.76                    | 0-1                       | 1        |
|           |            | 25      | 0         | 22.82                    | 0-2                       | 2        |
|           |            | 25      | 12        | 22.78                    | 0-2                       | 2        |
|           |            | 25      | 24        | 22.78                    | 0-2                       | 2        |
|           |            | 50      | 0         | 22.75                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 23.01                    | 0-2                       | 2        |
|           |            | 1       | 24        | 22.83                    | 0-2                       | 2        |
|           |            | 1       | 49        | 22.77                    | 0-2                       | 2        |
|           |            | 25      | 0         | 21.76                    | 0-3                       | 3        |
|           |            | 25      | 12        | 21.70                    | 0-3                       | 3        |
|           |            | 25      | 24        | 21.67                    | 0-3                       | 3        |
|           |            | 50      | 0         | 21.73                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.84                    | 0-5                       | 5        |
|           |            | 1       | 24        | 19.76                    | 0-5                       | 5        |
|           |            | 1       | 49        | 19.72                    | 0-5                       | 5        |
|           |            | 25      | 0         | 19.70                    | 0-5                       | 5        |
|           |            | 25      | 12        | 19.65                    | 0-5                       | 5        |
|           |            | 25      | 24        | 19.60                    | 0-5                       | 5        |
|           |            | 50      | 0         | 19.65                    | 0-5                       | 5        |

# LTE FDD Band 13 Conducted Power\_ Measured Non Head(RSI 0)\_ Main1 [Ant A]

## LTE FDD Band 13 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23230 Ch. 782 MHz        |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 21.63                    | 0                         | 0        |
|           |            | 1       | 24        | 21.69                    | 0                         | 0        |
|           |            | 1       | 49        | 21.52                    | 0                         | 0        |
|           |            | 25      | 0         | 21.56                    | 0 - 1                     | 0        |
|           |            | 25      | 12        | 21.55                    | 0 - 1                     | 0        |
|           |            | 25      | 24        | 21.55                    | 0 - 1                     | 0        |
|           |            | 50      | 0         | 21.58                    | 0 - 1                     | 0        |
|           | 16QAM      | 1       | 0         | 21.73                    | 0 - 1                     | 0        |
|           |            | 1       | 24        | 21.37                    | 0 - 1                     | 0        |
|           |            | 1       | 49        | 21.60                    | 0 - 1                     | 0        |
|           |            | 25      | 0         | 21.60                    | 0 - 2                     | 0        |
|           |            | 25      | 12        | 21.57                    | 0 - 2                     | 0        |
|           |            | 25      | 24        | 21.54                    | 0 - 2                     | 0        |
|           |            | 50      | 0         | 21.53                    | 0 - 2                     | 0        |
|           | 64QAM      | 1       | 0         | 21.67                    | 0 - 2                     | 0        |
|           |            | 1       | 24        | 21.71                    | 0 - 2                     | 0        |
|           |            | 1       | 49        | 21.57                    | 0 - 2                     | 0        |
|           |            | 25      | 0         | 21.56                    | 0 - 3                     | 0.5      |
|           |            | 25      | 12        | 21.55                    | 0 - 3                     | 0.5      |
|           |            | 25      | 24        | 21.51                    | 0 - 3                     | 0.5      |
|           |            | 50      | 0         | 21.53                    | 0 - 3                     | 0.5      |
|           | 256QAM     | 1       | 0         | 19.63                    | 0 - 5                     | 2.5      |
|           |            | 1       | 24        | 19.43                    | 0 - 5                     | 2.5      |
|           |            | 1       | 49        | 19.53                    | 0 - 5                     | 2.5      |
|           |            | 25      | 0         | 19.51                    | 0 - 5                     | 2.5      |
|           |            | 25      | 12        | 19.45                    | 0 - 5                     | 2.5      |
|           |            | 25      | 24        | 19.43                    | 0 - 5                     | 2.5      |
|           |            | 50      | 0         | 19.49                    | 0 - 5                     | 2.5      |

# LTE FDD Band 17 Conducted Power\_ Measured $P_{max}$ , Head(RSI 1)\_ Main1 [Ant A]

## LTE FDD Band 17 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23790 Ch. 710 MHz        |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 24.30                    | 0                         | 0        |
|           |            | 1       | 24        | 24.45                    | 0                         | 0        |
|           |            | 1       | 49        | 24.35                    | 0                         | 0        |
|           |            | 25      | 0         | 23.33                    | 0-1                       | 1        |
|           |            | 25      | 12        | 23.36                    | 0-1                       | 1        |
|           |            | 25      | 24        | 23.36                    | 0-1                       | 1        |
|           |            | 50      | 0         | 23.37                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.42                    | 0-1                       | 1        |
|           |            | 1       | 24        | 23.43                    | 0-1                       | 1        |
|           |            | 1       | 49        | 23.46                    | 0-1                       | 1        |
|           |            | 25      | 0         | 22.33                    | 0-2                       | 2        |
|           |            | 25      | 12        | 22.31                    | 0-2                       | 2        |
|           |            | 25      | 24        | 22.34                    | 0-2                       | 2        |
|           |            | 50      | 0         | 22.26                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.39                    | 0-2                       | 2        |
|           |            | 1       | 24        | 22.44                    | 0-2                       | 2        |
|           |            | 1       | 49        | 22.40                    | 0-2                       | 2        |
|           |            | 25      | 0         | 21.23                    | 0-3                       | 3        |
|           |            | 25      | 12        | 21.24                    | 0-3                       | 3        |
|           |            | 25      | 24        | 21.23                    | 0-3                       | 3        |
|           |            | 50      | 0         | 21.27                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.29                    | 0-5                       | 5        |
|           |            | 1       | 24        | 19.26                    | 0-5                       | 5        |
|           |            | 1       | 49        | 19.27                    | 0-5                       | 5        |
|           |            | 25      | 0         | 19.12                    | 0-5                       | 5        |
|           |            | 25      | 12        | 19.12                    | 0-5                       | 5        |
|           |            | 25      | 24        | 19.12                    | 0-5                       | 5        |
|           |            | 50      | 0         | 19.11                    | 0-5                       | 5        |

# LTE FDD Band 17 Conducted Power\_ Measured Non Head(RSI 0)\_ Main1 [Ant A]

## LTE FDD Band 17 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23790 Ch.<br>710 MHz     |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 21.07                    | 0                         | 0        |
|           |            | 1       | 24        | 21.20                    | 0                         | 0        |
|           |            | 1       | 49        | 21.07                    | 0                         | 0        |
|           |            | 25      | 0         | 21.06                    | 0 - 1                     | 0        |
|           |            | 25      | 12        | 21.04                    | 0 - 1                     | 0        |
|           |            | 25      | 24        | 21.04                    | 0 - 1                     | 0        |
|           |            | 50      | 0         | 21.07                    | 0 - 1                     | 0        |
|           | 16QAM      | 1       | 0         | 21.20                    | 0 - 1                     | 0        |
|           |            | 1       | 24        | 21.08                    | 0 - 1                     | 0        |
|           |            | 1       | 49        | 21.15                    | 0 - 1                     | 0        |
|           |            | 25      | 0         | 20.96                    | 0 - 2                     | 0        |
|           |            | 25      | 12        | 20.95                    | 0 - 2                     | 0        |
|           |            | 25      | 24        | 20.96                    | 0 - 2                     | 0        |
|           |            | 50      | 0         | 20.93                    | 0 - 2                     | 0        |
|           | 64QAM      | 1       | 0         | 21.01                    | 0 - 2                     | 0        |
|           |            | 1       | 24        | 21.18                    | 0 - 2                     | 0        |
|           |            | 1       | 49        | 21.12                    | 0 - 2                     | 0        |
|           |            | 25      | 0         | 20.94                    | 0 - 3                     | 0.5      |
|           |            | 25      | 12        | 20.84                    | 0 - 3                     | 0.5      |
|           |            | 25      | 24        | 20.86                    | 0 - 3                     | 0.5      |
|           |            | 50      | 0         | 21.02                    | 0 - 3                     | 0.5      |
|           | 256QAM     | 1       | 0         | 18.72                    | 0 - 5                     | 2.5      |
|           |            | 1       | 24        | 18.65                    | 0 - 5                     | 2.5      |
|           |            | 1       | 49        | 18.85                    | 0 - 5                     | 2.5      |
|           |            | 25      | 0         | 18.88                    | 0 - 5                     | 2.5      |
|           |            | 25      | 12        | 18.91                    | 0 - 5                     | 2.5      |
|           |            | 25      | 24        | 18.91                    | 0 - 5                     | 2.5      |
|           |            | 50      | 0         | 18.89                    | 0 - 5                     | 2.5      |

# LTE FDD Band 26 Conducted Power \_ Measured $P_{max}$ , Head(RSI 1)\_Main1 [Ant A]

## LTE FDD Band 26 \_ 15 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 26865 Ch.<br>831.5 MHz   |                           |          |
| 15 MHz    | QPSK       | 1       | 0         | 24.75                    | 0                         | 0        |
|           |            | 1       | 36        | 24.37                    | 0                         | 0        |
|           |            | 1       | 74        | 24.28                    | 0                         | 0        |
|           |            | 36      | 0         | 23.63                    | 0-1                       | 1        |
|           |            | 36      | 18        | 23.50                    | 0-1                       | 1        |
|           |            | 36      | 39        | 23.31                    | 0-1                       | 1        |
|           |            | 75      | 0         | 23.50                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.94                    | 0-1                       | 1        |
|           |            | 1       | 36        | 23.62                    | 0-1                       | 1        |
|           |            | 1       | 74        | 23.44                    | 0-1                       | 1        |
|           |            | 36      | 0         | 22.65                    | 0-2                       | 2        |
|           |            | 36      | 18        | 22.48                    | 0-2                       | 2        |
|           |            | 36      | 39        | 22.32                    | 0-2                       | 2        |
|           |            | 75      | 0         | 22.49                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.86                    | 0-2                       | 2        |
|           |            | 1       | 36        | 22.68                    | 0-2                       | 2        |
|           |            | 1       | 74        | 22.45                    | 0-2                       | 2        |
|           |            | 36      | 0         | 21.65                    | 0-3                       | 3        |
|           |            | 36      | 18        | 21.53                    | 0-3                       | 3        |
|           |            | 36      | 39        | 21.36                    | 0-3                       | 3        |
|           |            | 75      | 0         | 21.51                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.88                    | 0-5                       | 5        |
|           |            | 1       | 36        | 19.72                    | 0-5                       | 5        |
|           |            | 1       | 74        | 19.39                    | 0-5                       | 5        |
|           |            | 36      | 0         | 19.60                    | 0-5                       | 5        |
|           |            | 36      | 18        | 19.47                    | 0-5                       | 5        |
|           |            | 36      | 39        | 19.30                    | 0-5                       | 5        |
|           |            | 75      | 0         | 19.47                    | 0-5                       | 5        |

# LTE FDD Band 26 Conducted Power \_ Measured Non Head(RSI 0)\_Main1 [Ant A]

## LTE FDD Band 26 \_ 15 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 26865 Ch.<br>831.5 MHz   |                           |          |
| 15 MHz    | QPSK       | 1       | 0         | 21.22                    | 0                         | 0        |
|           |            | 1       | 36        | 20.86                    | 0                         | 0        |
|           |            | 1       | 74        | 20.84                    | 0                         | 0        |
|           |            | 36      | 0         | 21.10                    | 0 - 1                     | 0        |
|           |            | 36      | 18        | 20.98                    | 0 - 1                     | 0        |
|           |            | 36      | 39        | 20.87                    | 0 - 1                     | 0        |
|           |            | 75      | 0         | 21.01                    | 0 - 1                     | 0        |
|           | 16QAM      | 1       | 0         | 21.53                    | 0 - 1                     | 0        |
|           |            | 1       | 36        | 21.35                    | 0 - 1                     | 0        |
|           |            | 1       | 74        | 21.18                    | 0 - 1                     | 0        |
|           |            | 36      | 0         | 21.38                    | 0 - 2                     | 0        |
|           |            | 36      | 18        | 21.28                    | 0 - 2                     | 0        |
|           |            | 36      | 39        | 21.08                    | 0 - 2                     | 0        |
|           |            | 75      | 0         | 21.24                    | 0 - 2                     | 0        |
|           | 64QAM      | 1       | 0         | 21.76                    | 0 - 2                     | 0        |
|           |            | 1       | 36        | 21.33                    | 0 - 2                     | 0        |
|           |            | 1       | 74        | 21.24                    | 0 - 2                     | 0        |
|           |            | 36      | 0         | 21.42                    | 0 - 3                     | 0.5      |
|           |            | 36      | 18        | 21.31                    | 0 - 3                     | 0.5      |
|           |            | 36      | 39        | 21.15                    | 0 - 3                     | 0.5      |
|           |            | 75      | 0         | 21.31                    | 0 - 3                     | 0.5      |
|           | 256QAM     | 1       | 0         | 19.60                    | 0 - 5                     | 2.5      |
|           |            | 1       | 36        | 19.37                    | 0 - 5                     | 2.5      |
|           |            | 1       | 74        | 19.05                    | 0 - 5                     | 2.5      |
|           |            | 36      | 0         | 19.34                    | 0 - 5                     | 2.5      |
|           |            | 36      | 18        | 19.14                    | 0 - 5                     | 2.5      |
|           |            | 36      | 39        | 19.04                    | 0 - 5                     | 2.5      |
|           |            | 75      | 0         | 19.22                    | 0 - 5                     | 2.5      |

# LTE FDD Band 2 Conducted Power \_ Measured $P_{max}$ Head(RSI 1) \_ Main2 [Ant B]

## LTE FDD Band 2 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                    |                    | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|--------------------|--------------------|---------------------------|----------|
|           |            |         |           | 18700 Ch. 1860 MHz       | 18900 Ch. 1880 MHz | 19100 Ch. 1900 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 24.30                    | 24.21              | 24.33              | 0                         | 0        |
|           |            | 1       | 49        | 24.35                    | 24.27              | 24.47              | 0                         | 0        |
|           |            | 1       | 99        | 24.25                    | 24.26              | 24.46              | 0                         | 0        |
|           |            | 50      | 0         | 23.27                    | 23.25              | 23.36              | 0-1                       | 1        |
|           |            | 50      | 25        | 23.28                    | 23.20              | 23.45              | 0-1                       | 1        |
|           |            | 50      | 49        | 23.22                    | 23.22              | 23.49              | 0-1                       | 1        |
|           |            | 100     | 0         | 23.29                    | 23.19              | 23.48              | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.38                    | 23.38              | 23.32              | 0-1                       | 1        |
|           |            | 1       | 49        | 23.23                    | 23.01              | 23.38              | 0-1                       | 1        |
|           |            | 1       | 99        | 23.42                    | 23.42              | 23.41              | 0-1                       | 1        |
|           |            | 50      | 0         | 22.28                    | 22.20              | 22.35              | 0-2                       | 2        |
|           |            | 50      | 25        | 22.26                    | 22.16              | 22.41              | 0-2                       | 2        |
|           |            | 50      | 49        | 22.20                    | 22.17              | 22.49              | 0-2                       | 2        |
|           |            | 100     | 0         | 22.27                    | 22.18              | 22.44              | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.37                    | 22.35              | 22.38              | 0-2                       | 2        |
|           |            | 1       | 49        | 22.05                    | 22.23              | 22.49              | 0-2                       | 2        |
|           |            | 1       | 99        | 22.40                    | 22.38              | 22.46              | 0-2                       | 2        |
|           |            | 50      | 0         | 21.31                    | 21.22              | 21.38              | 0-3                       | 3        |
|           |            | 50      | 25        | 21.30                    | 21.23              | 21.44              | 0-3                       | 3        |
|           |            | 50      | 49        | 21.21                    | 21.21              | 21.47              | 0-3                       | 3        |
|           |            | 100     | 0         | 21.23                    | 21.16              | 21.41              | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.33                    | 19.20              | 19.24              | 0-5                       | 5        |
|           |            | 1       | 49        | 19.26                    | 19.20              | 19.47              | 0-5                       | 5        |
|           |            | 1       | 99        | 19.25                    | 19.31              | 19.42              | 0-5                       | 5        |
|           |            | 50      | 0         | 19.21                    | 19.13              | 19.27              | 0-5                       | 5        |
|           |            | 50      | 25        | 19.16                    | 19.08              | 19.33              | 0-5                       | 5        |
|           |            | 50      | 49        | 19.10                    | 19.14              | 19.41              | 0-5                       | 5        |
|           |            | 100     | 0         | 19.21                    | 19.09              | 19.33              | 0-5                       | 5        |

# LTE FDD Band 2 Conducted Power \_ Measured Non Head(RSI 0)\_ Main2 [Ant B]

## LTE FDD Band 2 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                       |                       | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|-----------------------|-----------------------|---------------------------|----------|
|           |            |         |           | 18700 Ch.<br>1860 MHz    | 18900 Ch.<br>1880 MHz | 19100 Ch.<br>1900 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 17.86                    | 17.73                 | 17.81                 | 0                         | 0        |
|           |            | 1       | 49        | 17.91                    | 17.83                 | 18.10                 | 0                         | 0        |
|           |            | 1       | 99        | 17.81                    | 17.65                 | 18.07                 | 0                         | 0        |
|           |            | 50      | 0         | 17.85                    | 17.70                 | 17.84                 | 0-1                       | 0        |
|           |            | 50      | 25        | 17.84                    | 17.71                 | 17.93                 | 0-1                       | 0        |
|           |            | 50      | 49        | 17.74                    | 17.73                 | 17.94                 | 0-1                       | 0        |
|           |            | 100     | 0         | 17.80                    | 17.72                 | 17.91                 | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.17                    | 17.97                 | 18.00                 | 0-1                       | 0        |
|           |            | 1       | 49        | 17.98                    | 17.63                 | 17.92                 | 0-1                       | 0        |
|           |            | 1       | 99        | 17.82                    | 18.02                 | 18.16                 | 0-1                       | 0        |
|           |            | 50      | 0         | 17.76                    | 17.68                 | 17.84                 | 0-2                       | 0        |
|           |            | 50      | 25        | 17.77                    | 17.63                 | 17.93                 | 0-2                       | 0        |
|           |            | 50      | 49        | 17.71                    | 17.73                 | 17.99                 | 0-2                       | 0        |
|           |            | 100     | 0         | 17.74                    | 17.64                 | 17.89                 | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 17.95                    | 17.80                 | 17.86                 | 0-2                       | 0        |
|           |            | 1       | 49        | 17.77                    | 17.77                 | 18.08                 | 0-2                       | 0        |
|           |            | 1       | 99        | 17.92                    | 17.88                 | 18.04                 | 0-2                       | 0        |
|           |            | 50      | 0         | 17.83                    | 17.71                 | 17.89                 | 0-3                       | 0        |
|           |            | 50      | 25        | 17.79                    | 17.69                 | 17.92                 | 0-3                       | 0        |
|           |            | 50      | 49        | 17.70                    | 17.73                 | 17.97                 | 0-3                       | 0        |
|           |            | 100     | 0         | 17.75                    | 17.70                 | 17.91                 | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.90                    | 17.86                 | 17.85                 | 0-5                       | 0        |
|           |            | 1       | 49        | 17.89                    | 17.75                 | 18.03                 | 0-5                       | 0        |
|           |            | 1       | 99        | 17.85                    | 17.94                 | 17.94                 | 0-5                       | 0        |
|           |            | 50      | 0         | 17.84                    | 17.68                 | 17.87                 | 0-5                       | 0        |
|           |            | 50      | 25        | 17.81                    | 17.67                 | 17.91                 | 0-5                       | 0        |
|           |            | 50      | 49        | 17.68                    | 17.73                 | 17.94                 | 0-5                       | 0        |
|           |            | 100     | 0         | 17.79                    | 17.66                 | 17.92                 | 0-5                       | 0        |

# LTE FDD Band 4 Conducted Power \_ Measured $P_{max}$ Head(RSI 1)\_ Main2 [Ant B]

## LTE FDD Band 4 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20175 ch.<br>1732.5 MHz  |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 24.79                    | 0                         | 0        |
|           |            | 1       | 49        | 24.70                    | 0                         | 0        |
|           |            | 1       | 99        | 24.67                    | 0                         | 0        |
|           |            | 50      | 0         | 23.78                    | 0-1                       | 1        |
|           |            | 50      | 25        | 23.67                    | 0-1                       | 1        |
|           |            | 50      | 49        | 23.61                    | 0-1                       | 1        |
|           |            | 100     | 0         | 23.64                    | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.86                    | 0-1                       | 1        |
|           |            | 1       | 49        | 23.84                    | 0-1                       | 1        |
|           |            | 1       | 99        | 23.77                    | 0-1                       | 1        |
|           |            | 50      | 0         | 22.77                    | 0-2                       | 2        |
|           |            | 50      | 25        | 22.66                    | 0-2                       | 2        |
|           |            | 50      | 49        | 22.57                    | 0-2                       | 2        |
|           |            | 100     | 0         | 22.65                    | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.93                    | 0-2                       | 2        |
|           |            | 1       | 49        | 22.66                    | 0-2                       | 2        |
|           |            | 1       | 99        | 22.75                    | 0-2                       | 2        |
|           |            | 50      | 0         | 21.73                    | 0-3                       | 3        |
|           |            | 50      | 25        | 21.66                    | 0-3                       | 3        |
|           |            | 50      | 49        | 21.56                    | 0-3                       | 3        |
|           |            | 100     | 0         | 21.58                    | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.79                    | 0-5                       | 5        |
|           |            | 1       | 49        | 19.64                    | 0-5                       | 5        |
|           |            | 1       | 99        | 19.54                    | 0-5                       | 5        |
|           |            | 50      | 0         | 19.60                    | 0-5                       | 5        |
|           |            | 50      | 25        | 19.55                    | 0-5                       | 5        |
|           |            | 50      | 49        | 19.50                    | 0-5                       | 5        |
|           |            | 100     | 0         | 19.52                    | 0-5                       | 5        |

# LTE FDD Band 4 Conducted Power \_ Measured Non Head(RSI 0)\_Main2 [Ant B]

## LTE FDD Band 4 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20175 ch.<br>1732.5 MHz  |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 18.21                    | 0                         | 0        |
|           |            | 1       | 49        | 18.04                    | 0                         | 0        |
|           |            | 1       | 99        | 17.80                    | 0                         | 0        |
|           |            | 50      | 0         | 18.14                    | 0-1                       | 0        |
|           |            | 50      | 25        | 18.07                    | 0-1                       | 0        |
|           |            | 50      | 49        | 18.03                    | 0-1                       | 0        |
|           |            | 100     | 0         | 18.00                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.33                    | 0-1                       | 0        |
|           |            | 1       | 49        | 17.97                    | 0-1                       | 0        |
|           |            | 1       | 99        | 18.10                    | 0-1                       | 0        |
|           |            | 50      | 0         | 18.12                    | 0-2                       | 0        |
|           |            | 50      | 25        | 18.04                    | 0-2                       | 0        |
|           |            | 50      | 49        | 18.00                    | 0-2                       | 0        |
|           |            | 100     | 0         | 18.04                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.31                    | 0-2                       | 0        |
|           |            | 1       | 49        | 18.08                    | 0-2                       | 0        |
|           |            | 1       | 99        | 18.12                    | 0-2                       | 0        |
|           |            | 50      | 0         | 18.14                    | 0-3                       | 0        |
|           |            | 50      | 25        | 18.07                    | 0-3                       | 0        |
|           |            | 50      | 49        | 17.96                    | 0-3                       | 0        |
|           |            | 100     | 0         | 18.00                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.34                    | 0-5                       | 0        |
|           |            | 1       | 49        | 18.20                    | 0-5                       | 0        |
|           |            | 1       | 99        | 18.16                    | 0-5                       | 0        |
|           |            | 50      | 0         | 18.14                    | 0-5                       | 0        |
|           |            | 50      | 25        | 18.01                    | 0-5                       | 0        |
|           |            | 50      | 49        | 18.03                    | 0-5                       | 0        |
|           |            | 100     | 0         | 18.05                    | 0-5                       | 0        |

# LTE FDD Band 25 Conducted Power\_ Measured $P_{max}$ , Head(RSI 1)\_Main2 [Ant B]

## LTE FDD Band 25 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                    | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|----------------------|--------------------|---------------------------|----------|
|           |            |         |           | 26140 Ch. 1860 MHz       | 26365 Ch. 1882.5 MHz | 26590 Ch. 1905 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 23.69                    | 23.67                | 23.81              | 0                         | 0        |
|           |            | 1       | 49        | 23.70                    | 23.65                | 23.87              | 0                         | 0        |
|           |            | 1       | 99        | 23.68                    | 23.73                | 23.59              | 0                         | 0        |
|           |            | 50      | 0         | 22.75                    | 22.68                | 22.91              | 0-1                       | 1        |
|           |            | 50      | 25        | 22.74                    | 22.67                | 22.90              | 0-1                       | 1        |
|           |            | 50      | 49        | 22.65                    | 22.66                | 22.85              | 0-1                       | 1        |
|           |            | 100     | 0         | 22.75                    | 22.67                | 22.83              | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 22.89                    | 22.87                | 22.91              | 0-1                       | 1        |
|           |            | 1       | 49        | 22.65                    | 22.79                | 22.96              | 0-1                       | 1        |
|           |            | 1       | 99        | 22.90                    | 22.90                | 22.94              | 0-1                       | 1        |
|           |            | 50      | 0         | 21.69                    | 21.68                | 21.90              | 0-2                       | 2        |
|           |            | 50      | 25        | 21.69                    | 21.60                | 21.90              | 0-2                       | 2        |
|           |            | 50      | 49        | 21.60                    | 21.64                | 21.82              | 0-2                       | 2        |
|           |            | 100     | 0         | 21.90                    | 21.78                | 21.92              | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 21.81                    | 21.77                | 21.87              | 0-2                       | 2        |
|           |            | 1       | 49        | 21.46                    | 21.49                | 21.75              | 0-2                       | 2        |
|           |            | 1       | 99        | 21.90                    | 21.86                | 22.09              | 0-2                       | 2        |
|           |            | 50      | 0         | 20.73                    | 20.67                | 20.87              | 0-3                       | 3        |
|           |            | 50      | 25        | 20.71                    | 20.64                | 20.90              | 0-3                       | 3        |
|           |            | 50      | 49        | 20.67                    | 20.63                | 20.83              | 0-3                       | 3        |
|           |            | 100     | 0         | 20.74                    | 20.69                | 20.94              | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 18.83                    | 18.70                | 18.81              | 0-5                       | 5        |
|           |            | 1       | 49        | 18.81                    | 18.68                | 18.97              | 0-5                       | 5        |
|           |            | 1       | 99        | 18.76                    | 18.75                | 18.90              | 0-5                       | 5        |
|           |            | 50      | 0         | 18.66                    | 18.58                | 18.77              | 0-5                       | 5        |
|           |            | 50      | 25        | 18.61                    | 18.56                | 18.77              | 0-5                       | 5        |
|           |            | 50      | 49        | 18.58                    | 18.55                | 18.75              | 0-5                       | 5        |
|           |            | 100     | 0         | 18.84                    | 18.66                | 18.91              | 0-5                       | 5        |

# LTE FDD Band 25 Conducted Power\_ Measured Non Head(RSI 0)\_ Main2 [Ant B]

## LTE FDD Band 25 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                    | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|----------------------|--------------------|---------------------------|----------|
|           |            |         |           | 26140 Ch. 1860 MHz       | 26365 Ch. 1882.5 MHz | 26590 Ch. 1905 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 18.50                    | 18.58                | 18.67              | 0                         | 0        |
|           |            | 1       | 49        | 18.64                    | 18.62                | 18.83              | 0                         | 0        |
|           |            | 1       | 99        | 18.54                    | 18.66                | 18.78              | 0                         | 0        |
|           |            | 50      | 0         | 18.57                    | 18.55                | 18.75              | 0-1                       | 0        |
|           |            | 50      | 25        | 18.56                    | 18.51                | 18.76              | 0-1                       | 0        |
|           |            | 50      | 49        | 18.51                    | 18.54                | 18.74              | 0-1                       | 0        |
|           |            | 100     | 0         | 18.65                    | 18.56                | 18.68              | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.77                    | 18.60                | 18.78              | 0-1                       | 0        |
|           |            | 1       | 49        | 18.52                    | 18.31                | 18.63              | 0-1                       | 0        |
|           |            | 1       | 99        | 18.84                    | 18.77                | 18.78              | 0-1                       | 0        |
|           |            | 50      | 0         | 18.57                    | 18.55                | 18.71              | 0-2                       | 0        |
|           |            | 50      | 25        | 18.55                    | 18.53                | 18.73              | 0-2                       | 0        |
|           |            | 50      | 49        | 18.50                    | 18.53                | 18.68              | 0-2                       | 0        |
|           |            | 100     | 0         | 18.76                    | 18.75                | 18.82              | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.68                    | 18.61                | 18.67              | 0-2                       | 0        |
|           |            | 1       | 49        | 18.50                    | 18.48                | 18.68              | 0-2                       | 0        |
|           |            | 1       | 99        | 18.72                    | 18.78                | 18.82              | 0-2                       | 0        |
|           |            | 50      | 0         | 18.59                    | 18.60                | 18.74              | 0-3                       | 0        |
|           |            | 50      | 25        | 18.57                    | 18.52                | 18.82              | 0-3                       | 0        |
|           |            | 50      | 49        | 18.55                    | 18.59                | 18.73              | 0-3                       | 0        |
|           |            | 100     | 0         | 18.78                    | 18.59                | 18.81              | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.73                    | 18.55                | 18.74              | 0-5                       | 0        |
|           |            | 1       | 49        | 18.57                    | 18.56                | 18.87              | 0-5                       | 0        |
|           |            | 1       | 99        | 18.66                    | 18.72                | 18.85              | 0-5                       | 0        |
|           |            | 50      | 0         | 18.58                    | 18.54                | 18.74              | 0-5                       | 0        |
|           |            | 50      | 25        | 18.56                    | 18.54                | 18.74              | 0-5                       | 0        |
|           |            | 50      | 49        | 18.55                    | 18.56                | 18.75              | 0-5                       | 0        |
|           |            | 100     | 0         | 18.79                    | 18.56                | 18.65              | 0-5                       | 0        |

# LTE FDD Band 66 Conducted Power\_ Measured $P_{max}$ Head(RSI 1) \_Main2 [Ant B]

## LTE FDD Band 66 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                     |                     | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------|---------------------|---------------------------|----------|
|           |            |         |           | 132072 Ch. 1720 MHz      | 132322 Ch. 1745 MHz | 132572 Ch. 1770 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 24.77                    | 24.85               | 24.44               | 0                         | 0        |
|           |            | 1       | 49        | 24.98                    | 24.82               | 24.38               | 0                         | 0        |
|           |            | 1       | 99        | 24.95                    | 24.70               | 24.50               | 0                         | 0        |
|           |            | 50      | 0         | 23.87                    | 23.87               | 23.37               | 0-1                       | 1        |
|           |            | 50      | 25        | 23.97                    | 23.80               | 23.35               | 0-1                       | 1        |
|           |            | 50      | 49        | 23.92                    | 23.78               | 23.39               | 0-1                       | 1        |
|           |            | 100     | 0         | 23.96                    | 23.81               | 23.35               | 0-1                       | 1        |
|           | 16QAM      | 1       | 0         | 23.93                    | 23.93               | 23.53               | 0-1                       | 1        |
|           |            | 1       | 49        | 23.93                    | 23.77               | 23.28               | 0-1                       | 1        |
|           |            | 1       | 99        | 23.94                    | 23.83               | 23.73               | 0-1                       | 1        |
|           |            | 50      | 0         | 22.88                    | 22.84               | 22.36               | 0-2                       | 2        |
|           |            | 50      | 25        | 22.97                    | 22.84               | 22.32               | 0-2                       | 2        |
|           |            | 50      | 49        | 22.92                    | 22.79               | 22.37               | 0-2                       | 2        |
|           |            | 100     | 0         | 22.96                    | 22.78               | 22.33               | 0-2                       | 2        |
|           | 64QAM      | 1       | 0         | 22.95                    | 22.96               | 22.47               | 0-2                       | 2        |
|           |            | 1       | 49        | 22.82                    | 22.96               | 22.26               | 0-2                       | 2        |
|           |            | 1       | 99        | 22.93                    | 22.83               | 22.51               | 0-2                       | 2        |
|           |            | 50      | 0         | 21.92                    | 21.84               | 21.33               | 0-3                       | 3        |
|           |            | 50      | 25        | 21.99                    | 21.82               | 21.29               | 0-3                       | 3        |
|           |            | 50      | 49        | 21.91                    | 21.76               | 21.35               | 0-3                       | 3        |
|           |            | 100     | 0         | 21.92                    | 21.78               | 21.30               | 0-3                       | 3        |
|           | 256QAM     | 1       | 0         | 19.84                    | 19.91               | 19.36               | 0-5                       | 5        |
|           |            | 1       | 49        | 19.88                    | 19.73               | 19.25               | 0-5                       | 5        |
|           |            | 1       | 99        | 19.97                    | 19.67               | 19.41               | 0-5                       | 5        |
|           |            | 50      | 0         | 19.81                    | 19.75               | 19.24               | 0-5                       | 5        |
|           |            | 50      | 25        | 19.84                    | 19.71               | 19.20               | 0-5                       | 5        |
|           |            | 50      | 49        | 19.94                    | 19.69               | 19.25               | 0-5                       | 5        |
|           |            | 100     | 0         | 19.86                    | 19.71               | 19.23               | 0-5                       | 5        |

# LTE FDD Band 66 Conducted Power\_ Measured Non Head(RSI 0) \_Main2 [Ant B]

## LTE FDD Band 66 \_ 20 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                     |                     | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------|---------------------|---------------------------|----------|
|           |            |         |           | 132072 Ch. 1720 MHz      | 132322 Ch. 1745 MHz | 132572 Ch. 1770 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 17.96                    | 18.20               | 17.73               | 0                         | 0        |
|           |            | 1       | 49        | 18.25                    | 18.20               | 17.71               | 0                         | 0        |
|           |            | 1       | 99        | 18.19                    | 18.02               | 17.79               | 0                         | 0        |
|           |            | 50      | 0         | 18.08                    | 18.11               | 17.66               | 0-1                       | 0        |
|           |            | 50      | 25        | 18.18                    | 18.13               | 17.63               | 0-1                       | 0        |
|           |            | 50      | 49        | 18.23                    | 18.08               | 17.64               | 0-1                       | 0        |
|           |            | 100     | 0         | 18.20                    | 18.09               | 17.65               | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.23                    | 18.35               | 17.85               | 0-1                       | 0        |
|           |            | 1       | 49        | 18.18                    | 18.19               | 17.78               | 0-1                       | 0        |
|           |            | 1       | 99        | 18.36                    | 17.99               | 17.94               | 0-1                       | 0        |
|           |            | 50      | 0         | 18.05                    | 18.04               | 17.55               | 0-2                       | 0        |
|           |            | 50      | 25        | 18.13                    | 18.02               | 17.56               | 0-2                       | 0        |
|           |            | 50      | 49        | 18.21                    | 18.01               | 17.59               | 0-2                       | 0        |
|           |            | 100     | 0         | 18.16                    | 18.01               | 17.57               | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.05                    | 18.21               | 17.80               | 0-2                       | 0        |
|           |            | 1       | 49        | 18.32                    | 18.07               | 17.54               | 0-2                       | 0        |
|           |            | 1       | 99        | 18.29                    | 18.10               | 17.81               | 0-2                       | 0        |
|           |            | 50      | 0         | 18.07                    | 18.08               | 17.57               | 0-3                       | 0        |
|           |            | 50      | 25        | 18.16                    | 18.05               | 17.60               | 0-3                       | 0        |
|           |            | 50      | 49        | 18.23                    | 18.02               | 17.61               | 0-3                       | 0        |
|           |            | 100     | 0         | 18.17                    | 18.04               | 17.53               | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.06                    | 18.14               | 17.76               | 0-5                       | 0        |
|           |            | 1       | 49        | 18.35                    | 18.09               | 17.61               | 0-5                       | 0        |
|           |            | 1       | 99        | 18.27                    | 17.90               | 17.73               | 0-5                       | 0        |
|           |            | 50      | 0         | 18.03                    | 18.05               | 17.56               | 0-5                       | 0        |
|           |            | 50      | 25        | 18.13                    | 18.03               | 17.51               | 0-5                       | 0        |
|           |            | 50      | 49        | 18.21                    | 18.03               | 17.60               | 0-5                       | 0        |
|           |            | 100     | 0         | 18.17                    | 18.04               | 17.59               | 0-5                       | 0        |

# LTE TDD Band 41 Conducted Power\_Measured $P_{max}$ , Head(RSI 1) \_Main2 [Ant B]

## LTE TDD Band 41 \_ 20 MHz Bandwidth Conducted Power - Power Class 3

| Band width | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                      |                      |                      | MPR Defined by Manufacture [dB] | MPR [dB] |
|------------|------------|---------|-----------|--------------------------|----------------------|----------------------|----------------------|----------------------|---------------------------------|----------|
|            |            |         |           | 39750 Ch. 2506.0 MHz     | 40185 Ch. 2549.5 MHz | 40620 Ch. 2593.0 MHz | 41055 Ch. 2636.5 MHz | 41490 Ch. 2680.0 MHz |                                 |          |
| 20 MHz     | QPSK       | 1       | 0         | 23.78                    | 23.65                | 23.95                | 24.01                | 24.28                | 0                               | 0        |
|            |            | 1       | 49        | 23.73                    | 23.58                | 23.98                | 23.74                | 24.34                | 0                               | 0        |
|            |            | 1       | 99        | 23.66                    | 23.59                | 24.01                | 23.71                | 24.30                | 0                               | 0        |
|            |            | 50      | 0         | 22.93                    | 22.64                | 23.06                | 22.89                | 23.49                | 0 - 1                           | 1        |
|            |            | 50      | 25        | 22.86                    | 22.64                | 23.06                | 22.83                | 23.47                | 0 - 1                           | 1        |
|            |            | 50      | 49        | 22.80                    | 22.64                | 23.07                | 22.80                | 23.49                | 0 - 1                           | 1        |
|            |            | 100     | 0         | 22.85                    | 22.65                | 23.05                | 22.83                | 23.49                | 0 - 1                           | 1        |
|            | 16QAM      | 1       | 0         | 22.73                    | 22.62                | 22.95                | 22.85                | 23.28                | 0 - 1                           | 1        |
|            |            | 1       | 49        | 22.66                    | 22.57                | 22.92                | 22.67                | 23.29                | 0 - 1                           | 1        |
|            |            | 1       | 99        | 22.61                    | 22.48                | 22.97                | 22.66                | 23.31                | 0 - 1                           | 1        |
|            |            | 50      | 0         | 21.91                    | 21.64                | 22.07                | 21.88                | 22.43                | 0 - 2                           | 2        |
|            |            | 50      | 25        | 21.83                    | 21.63                | 22.07                | 21.81                | 22.44                | 0 - 2                           | 2        |
|            |            | 50      | 49        | 21.78                    | 21.63                | 22.06                | 21.80                | 22.44                | 0 - 2                           | 2        |
|            |            | 100     | 0         | 21.88                    | 21.67                | 22.09                | 21.88                | 22.49                | 0 - 2                           | 2        |
|            | 64QAM      | 1       | 0         | 21.95                    | 21.77                | 22.12                | 22.15                | 22.40                | 0 - 2                           | 2        |
|            |            | 1       | 49        | 21.87                    | 21.65                | 22.10                | 21.90                | 22.47                | 0 - 2                           | 2        |
|            |            | 1       | 99        | 21.88                    | 21.80                | 22.22                | 21.93                | 22.48                | 0 - 2                           | 2        |
|            |            | 50      | 0         | 20.96                    | 20.66                | 21.10                | 20.95                | 21.49                | 0 - 3                           | 3        |
|            |            | 50      | 25        | 20.88                    | 20.67                | 21.09                | 20.90                | 21.48                | 0 - 3                           | 3        |
|            |            | 50      | 49        | 20.83                    | 20.68                | 21.09                | 20.86                | 21.45                | 0 - 3                           | 3        |
|            |            | 100     | 0         | 20.84                    | 20.65                | 21.07                | 20.87                | 21.47                | 0 - 3                           | 3        |
|            | 256QAM     | 1       | 0         | 18.84                    | 18.58                | 18.94                | 18.81                | 19.19                | 0 - 5                           | 5        |
|            |            | 1       | 49        | 18.76                    | 18.50                | 18.90                | 18.70                | 19.35                | 0 - 5                           | 5        |
|            |            | 1       | 99        | 18.69                    | 18.55                | 18.95                | 18.63                | 19.27                | 0 - 5                           | 5        |
|            |            | 50      | 0         | 18.94                    | 18.68                | 19.11                | 18.94                | 19.48                | 0 - 5                           | 5        |
|            |            | 50      | 25        | 18.86                    | 18.68                | 19.10                | 18.89                | 19.46                | 0 - 5                           | 5        |
|            |            | 50      | 49        | 18.82                    | 18.68                | 19.10                | 18.86                | 19.47                | 0 - 5                           | 5        |
|            |            | 100     | 0         | 18.79                    | 18.59                | 19.03                | 18.81                | 19.42                | 0 - 5                           | 5        |

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

# LTE TDD Band 41 Conducted Power\_Measured Non Head(RSI 0)\_Main2 [Ant B]

## LTE TDD Band 41 \_ 20 MHz Bandwidth Conducted Power - Power Class 3

| Band width | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                      |                      |                      | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|------------|------------|---------|-----------|--------------------------|----------------------|----------------------|----------------------|----------------------|---------------------------|----------|
|            |            |         |           | 39750 Ch. 2506.0 MHz     | 40185 Ch. 2549.5 MHz | 40620 Ch. 2593.0 MHz | 41055 Ch. 2636.5 MHz | 41490 Ch. 2680.0 MHz |                           |          |
| 20 MHz     | QPSK       | 1       | 0         | 18.77                    | 18.47                | 18.82                | 18.72                | 19.15                | 0                         | 0        |
|            |            | 1       | 49        | 18.62                    | 18.40                | 18.81                | 18.58                | 19.21                | 0                         | 0        |
|            |            | 1       | 99        | 18.49                    | 18.34                | 18.80                | 18.52                | 19.15                | 0                         | 0        |
|            |            | 50      | 0         | 18.75                    | 18.43                | 18.83                | 18.66                | 19.21                | 0-1                       | 0        |
|            |            | 50      | 25        | 18.65                    | 18.41                | 18.81                | 18.59                | 19.22                | 0-1                       | 0        |
|            |            | 50      | 49        | 18.58                    | 18.38                | 18.80                | 18.55                | 19.20                | 0-1                       | 0        |
|            |            | 100     | 0         | 18.66                    | 18.41                | 18.82                | 18.59                | 19.23                | 0-1                       | 0        |
|            | 16QAM      | 1       | 0         | 18.63                    | 18.38                | 18.80                | 18.76                | 19.06                | 0-1                       | 0        |
|            |            | 1       | 49        | 18.46                    | 18.31                | 18.80                | 18.58                | 19.07                | 0-1                       | 0        |
|            |            | 1       | 99        | 18.34                    | 18.26                | 18.73                | 18.49                | 19.08                | 0-1                       | 0        |
|            |            | 50      | 0         | 18.72                    | 18.42                | 18.82                | 18.64                | 19.19                | 0-2                       | 0        |
|            |            | 50      | 25        | 18.63                    | 18.40                | 18.80                | 18.57                | 19.21                | 0-2                       | 0        |
|            |            | 50      | 49        | 18.56                    | 18.38                | 18.79                | 18.54                | 19.19                | 0-2                       | 0        |
|            |            | 100     | 0         | 18.70                    | 18.44                | 18.85                | 18.65                | 19.26                | 0-2                       | 0        |
|            | 64QAM      | 1       | 0         | 18.81                    | 18.57                | 18.81                | 18.83                | 19.21                | 0-2                       | 0        |
|            |            | 1       | 49        | 18.65                    | 18.48                | 18.76                | 18.55                | 19.25                | 0-2                       | 0        |
|            |            | 1       | 99        | 18.61                    | 18.48                | 18.82                | 18.55                | 19.24                | 0-2                       | 0        |
|            |            | 50      | 0         | 18.79                    | 18.48                | 18.88                | 18.71                | 19.25                | 0-3                       | 0        |
|            |            | 50      | 25        | 18.71                    | 18.47                | 18.87                | 18.65                | 19.26                | 0-3                       | 0        |
|            |            | 50      | 49        | 18.63                    | 18.45                | 18.86                | 18.61                | 19.25                | 0-3                       | 0        |
|            |            | 100     | 0         | 18.67                    | 18.42                | 18.83                | 18.61                | 19.23                | 0-3                       | 0        |
|            | 256QAM     | 1       | 0         | 18.71                    | 18.44                | 18.76                | 18.65                | 19.07                | 0-5                       | 0        |
|            |            | 1       | 49        | 18.54                    | 18.32                | 18.72                | 18.45                | 19.12                | 0-5                       | 0        |
|            |            | 1       | 99        | 18.38                    | 18.29                | 18.74                | 18.44                | 19.10                | 0-5                       | 0        |
|            |            | 50      | 0         | 18.83                    | 18.51                | 18.90                | 18.75                | 19.29                | 0-5                       | 0        |
|            |            | 50      | 25        | 18.74                    | 18.49                | 18.89                | 18.69                | 19.31                | 0-5                       | 0        |
|            |            | 50      | 49        | 18.68                    | 18.47                | 18.89                | 18.66                | 19.29                | 0-5                       | 0        |
|            |            | 100     | 0         | 18.65                    | 18.40                | 18.82                | 18.60                | 19.22                | 0-5                       | 0        |

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

# LTE FDD Band 5 Conducted Power \_ Measured Non Head(RSI 0)Head(RSI 1)\_Sub1 [Ant E]

## LTE FDD Band 5 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20525 Ch.<br>836.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 19.49                    | 0                         | 0        |
|           |            | 1       | 24        | 19.55                    | 0                         | 0        |
|           |            | 1       | 49        | 19.26                    | 0                         | 0        |
|           |            | 25      | 0         | 19.47                    | 0-1                       | 0        |
|           |            | 25      | 12        | 19.44                    | 0-1                       | 0        |
|           |            | 25      | 24        | 19.38                    | 0-1                       | 0        |
|           |            | 50      | 0         | 19.45                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 19.63                    | 0-1                       | 0        |
|           |            | 1       | 24        | 19.71                    | 0-1                       | 0        |
|           |            | 1       | 49        | 19.57                    | 0-1                       | 0        |
|           |            | 25      | 0         | 19.41                    | 0-2                       | 0        |
|           |            | 25      | 12        | 19.40                    | 0-2                       | 0        |
|           |            | 25      | 24        | 19.37                    | 0-2                       | 0        |
|           |            | 50      | 0         | 19.42                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 19.56                    | 0-2                       | 0        |
|           |            | 1       | 24        | 19.58                    | 0-2                       | 0        |
|           |            | 1       | 49        | 19.44                    | 0-2                       | 0        |
|           |            | 25      | 0         | 18.91                    | 0-3                       | 0        |
|           |            | 25      | 12        | 18.90                    | 0-3                       | 0        |
|           |            | 25      | 24        | 18.84                    | 0-3                       | 0        |
|           |            | 50      | 0         | 18.92                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.05                    | 0-5                       | 1        |
|           |            | 1       | 24        | 17.03                    | 0-5                       | 1        |
|           |            | 1       | 49        | 16.85                    | 0-5                       | 1        |
|           |            | 25      | 0         | 16.93                    | 0-5                       | 1        |
|           |            | 25      | 12        | 16.90                    | 0-5                       | 1        |
|           |            | 25      | 24        | 16.83                    | 0-5                       | 1        |
|           |            | 50      | 0         | 16.90                    | 0-5                       | 1        |

# LTE FDD Band 12 Conducted Power\_ Measured Non Head (RSI 0), Head(RSI 1)\_ Sub1 [Ant E]

## LTE FDD Band 12 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23095 Ch.<br>707.5 MHz   |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 19.78                    | 0                         | 0        |
|           |            | 1       | 24        | 19.89                    | 0                         | 0        |
|           |            | 1       | 49        | 19.70                    | 0                         | 0        |
|           |            | 25      | 0         | 19.76                    | 0-1                       | 0        |
|           |            | 25      | 12        | 19.73                    | 0-1                       | 0        |
|           |            | 25      | 24        | 19.67                    | 0-1                       | 0        |
|           |            | 50      | 0         | 19.84                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 19.88                    | 0-1                       | 0        |
|           |            | 1       | 24        | 19.83                    | 0-1                       | 0        |
|           |            | 1       | 49        | 19.77                    | 0-1                       | 0        |
|           |            | 25      | 0         | 19.69                    | 0-2                       | 0        |
|           |            | 25      | 12        | 19.67                    | 0-2                       | 0        |
|           |            | 25      | 24        | 19.67                    | 0-2                       | 0        |
|           |            | 50      | 0         | 19.75                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 19.89                    | 0-2                       | 0        |
|           |            | 1       | 24        | 19.82                    | 0-2                       | 0        |
|           |            | 1       | 49        | 19.85                    | 0-2                       | 0        |
|           |            | 25      | 0         | 19.17                    | 0-3                       | 0        |
|           |            | 25      | 12        | 19.16                    | 0-3                       | 0        |
|           |            | 25      | 24        | 19.14                    | 0-3                       | 0        |
|           |            | 50      | 0         | 19.26                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.38                    | 0-5                       | 1        |
|           |            | 1       | 24        | 17.14                    | 0-5                       | 1        |
|           |            | 1       | 49        | 17.20                    | 0-5                       | 1        |
|           |            | 25      | 0         | 17.14                    | 0-5                       | 1        |
|           |            | 25      | 12        | 17.17                    | 0-5                       | 1        |
|           |            | 25      | 24        | 17.19                    | 0-5                       | 1        |
|           |            | 50      | 0         | 17.24                    | 0-5                       | 1        |

# LTE FDD Band 13 Conducted Power\_ Measured Non Head(RSI 0),Head(RSI 1) Sub1[Ant E]

## LTE FDD Band 13 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23230 Ch. 782 MHz        |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 19.38                    | 0                         | 0        |
|           |            | 1       | 24        | 19.51                    | 0                         | 0        |
|           |            | 1       | 49        | 19.37                    | 0                         | 0        |
|           |            | 25      | 0         | 19.42                    | 0-1                       | 0        |
|           |            | 25      | 12        | 19.41                    | 0-1                       | 0        |
|           |            | 25      | 24        | 19.40                    | 0-1                       | 0        |
|           |            | 50      | 0         | 19.47                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 19.57                    | 0-1                       | 0        |
|           |            | 1       | 24        | 19.71                    | 0-1                       | 0        |
|           |            | 1       | 49        | 19.54                    | 0-1                       | 0        |
|           |            | 25      | 0         | 19.42                    | 0-2                       | 0        |
|           |            | 25      | 12        | 19.35                    | 0-2                       | 0        |
|           |            | 25      | 24        | 19.40                    | 0-2                       | 0        |
|           |            | 50      | 0         | 19.42                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 19.55                    | 0-2                       | 0        |
|           |            | 1       | 24        | 19.59                    | 0-2                       | 0        |
|           |            | 1       | 49        | 19.44                    | 0-2                       | 0        |
|           |            | 25      | 0         | 18.91                    | 0-3                       | 0        |
|           |            | 25      | 12        | 18.87                    | 0-3                       | 0        |
|           |            | 25      | 24        | 18.89                    | 0-3                       | 0        |
|           |            | 50      | 0         | 18.94                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.00                    | 0-5                       | 1        |
|           |            | 1       | 24        | 16.79                    | 0-5                       | 1        |
|           |            | 1       | 49        | 16.97                    | 0-5                       | 1        |
|           |            | 25      | 0         | 16.91                    | 0-5                       | 1        |
|           |            | 25      | 12        | 16.91                    | 0-5                       | 1        |
|           |            | 25      | 24        | 16.88                    | 0-5                       | 1        |
|           |            | 50      | 0         | 16.92                    | 0-5                       | 1        |

# LTE FDD Band 17 Conducted Power\_ Measured Non Head(RSI0),Head(RSI 1)\_Sub1[Ant E]

## LTE FDD Band 17 \_ 10 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 23790 Ch.<br>710 MHz     |                           |          |
| 10 MHz    | QPSK       | 1       | 0         | 19.82                    | 0                         | 0        |
|           |            | 1       | 24        | 19.87                    | 0                         | 0        |
|           |            | 1       | 49        | 19.72                    | 0                         | 0        |
|           |            | 25      | 0         | 19.78                    | 0-1                       | 0        |
|           |            | 25      | 12        | 19.74                    | 0-1                       | 0        |
|           |            | 25      | 24        | 19.73                    | 0-1                       | 0        |
|           |            | 50      | 0         | 19.80                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 19.89                    | 0-1                       | 0        |
|           |            | 1       | 24        | 19.78                    | 0-1                       | 0        |
|           |            | 1       | 49        | 19.87                    | 0-1                       | 0        |
|           |            | 25      | 0         | 19.73                    | 0-2                       | 0        |
|           |            | 25      | 12        | 19.67                    | 0-2                       | 0        |
|           |            | 25      | 24        | 19.64                    | 0-2                       | 0        |
|           |            | 50      | 0         | 19.72                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 19.91                    | 0-2                       | 0        |
|           |            | 1       | 24        | 19.96                    | 0-2                       | 0        |
|           |            | 1       | 49        | 19.85                    | 0-2                       | 0        |
|           |            | 25      | 0         | 19.20                    | 0-3                       | 0        |
|           |            | 25      | 12        | 19.13                    | 0-3                       | 0        |
|           |            | 25      | 24        | 19.15                    | 0-3                       | 0        |
|           |            | 50      | 0         | 19.23                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.39                    | 0-5                       | 1        |
|           |            | 1       | 24        | 17.10                    | 0-5                       | 1        |
|           |            | 1       | 49        | 17.30                    | 0-5                       | 1        |
|           |            | 25      | 0         | 17.19                    | 0-5                       | 1        |
|           |            | 25      | 12        | 17.19                    | 0-5                       | 1        |
|           |            | 25      | 24        | 17.16                    | 0-5                       | 1        |
|           |            | 50      | 0         | 17.19                    | 0-5                       | 1        |

# LTE FDD Band 26 Conducted Power\_Measured Non Head(RSI 0),Head(RSI 1)\_Sub1[Ant E]

## LTE FDD Band 26 \_ 15 MHz Bandwidth Conducted Power

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 26865 Ch.<br>831.5 MHz   |                           |          |
| 15 MHz    | QPSK       | 1       | 0         | 19.56                    | 0                         | 0        |
|           |            | 1       | 36        | 19.21                    | 0                         | 0        |
|           |            | 1       | 74        | 19.33                    | 0                         | 0        |
|           |            | 36      | 0         | 19.50                    | 0-1                       | 0        |
|           |            | 36      | 18        | 19.41                    | 0-1                       | 0        |
|           |            | 36      | 39        | 19.37                    | 0-1                       | 0        |
|           |            | 75      | 0         | 19.44                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 19.76                    | 0-1                       | 0        |
|           |            | 1       | 36        | 19.81                    | 0-1                       | 0        |
|           |            | 1       | 74        | 19.53                    | 0-1                       | 0        |
|           |            | 36      | 0         | 19.42                    | 0-2                       | 0        |
|           |            | 36      | 18        | 19.37                    | 0-2                       | 0        |
|           |            | 36      | 39        | 19.31                    | 0-2                       | 0        |
|           |            | 75      | 0         | 19.40                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 19.72                    | 0-2                       | 0        |
|           |            | 1       | 36        | 19.48                    | 0-2                       | 0        |
|           |            | 1       | 74        | 19.46                    | 0-2                       | 0        |
|           |            | 36      | 0         | 18.97                    | 0-3                       | 0        |
|           |            | 36      | 18        | 18.89                    | 0-3                       | 0        |
|           |            | 36      | 39        | 18.82                    | 0-3                       | 0        |
|           |            | 75      | 0         | 18.93                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.12                    | 0-5                       | 1        |
|           |            | 1       | 36        | 17.00                    | 0-5                       | 1        |
|           |            | 1       | 74        | 16.92                    | 0-5                       | 1        |
|           |            | 36      | 0         | 16.93                    | 0-5                       | 1        |
|           |            | 36      | 18        | 16.87                    | 0-5                       | 1        |
|           |            | 36      | 39        | 16.80                    | 0-5                       | 1        |
|           |            | 75      | 0         | 16.87                    | 0-5                       | 1        |

### LTE FDD Band 2 Conducted Power \_ Measured Non Head(RSI 0), Head(RSI 1)\_Sub2 [Ant F]

#### LTE FDD Band 2 \_ 20 MHz Bandwidth Conducted Power\_ Upper Antenna

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                       |                       | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|-----------------------|-----------------------|---------------------------|----------|
|           |            |         |           | 18700 Ch.<br>1860 MHz    | 18900 Ch.<br>1880 MHz | 19100 Ch.<br>1900 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 18.06                    | 18.21                 | 18.20                 | 0                         | 0        |
|           |            | 1       | 49        | 18.18                    | 18.25                 | 18.40                 | 0                         | 0        |
|           |            | 1       | 99        | 18.16                    | 18.21                 | 18.22                 | 0                         | 0        |
|           |            | 50      | 0         | 18.05                    | 18.12                 | 18.23                 | 0-1                       | 0        |
|           |            | 50      | 25        | 18.08                    | 18.11                 | 18.24                 | 0-1                       | 0        |
|           |            | 50      | 49        | 18.05                    | 18.14                 | 18.25                 | 0-1                       | 0        |
|           |            | 100     | 0         | 18.12                    | 18.13                 | 18.25                 | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.27                    | 18.40                 | 18.26                 | 0-1                       | 0        |
|           |            | 1       | 49        | 18.17                    | 18.18                 | 18.21                 | 0-1                       | 0        |
|           |            | 1       | 99        | 18.42                    | 18.47                 | 18.36                 | 0-1                       | 0        |
|           |            | 50      | 0         | 18.05                    | 18.12                 | 18.21                 | 0-2                       | 0        |
|           |            | 50      | 25        | 18.10                    | 18.09                 | 18.22                 | 0-2                       | 0        |
|           |            | 50      | 49        | 18.06                    | 18.08                 | 18.23                 | 0-2                       | 0        |
|           |            | 100     | 0         | 18.03                    | 18.11                 | 18.20                 | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.27                    | 18.25                 | 18.25                 | 0-2                       | 0        |
|           |            | 1       | 49        | 18.14                    | 18.23                 | 18.42                 | 0-2                       | 0        |
|           |            | 1       | 99        | 18.27                    | 18.37                 | 18.27                 | 0-2                       | 0        |
|           |            | 50      | 0         | 18.10                    | 18.17                 | 18.27                 | 0-3                       | 0        |
|           |            | 50      | 25        | 18.13                    | 18.11                 | 18.24                 | 0-3                       | 0        |
|           |            | 50      | 49        | 18.11                    | 18.10                 | 18.25                 | 0-3                       | 0        |
|           |            | 100     | 0         | 18.10                    | 18.08                 | 18.18                 | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.23                    | 18.27                 | 18.20                 | 0-5                       | 0        |
|           |            | 1       | 49        | 18.10                    | 18.11                 | 18.21                 | 0-5                       | 0        |
|           |            | 1       | 99        | 18.26                    | 18.31                 | 18.25                 | 0-5                       | 0        |
|           |            | 50      | 0         | 18.08                    | 18.16                 | 18.22                 | 0-5                       | 0        |
|           |            | 50      | 25        | 18.13                    | 18.13                 | 18.23                 | 0-5                       | 0        |
|           |            | 50      | 49        | 18.11                    | 18.12                 | 18.21                 | 0-5                       | 0        |
|           |            | 100     | 0         | 18.11                    | 18.08                 | 18.23                 | 0-5                       | 0        |

# LTE FDD Band 4 Conducted Power\_Measured Non Head(RSI 0),Head(RSI 1)\_Sub2 [Ant F]

## LTE FDD Band 4 \_ 20 MHz Bandwidth Conducted Power\_ Upper Antenna

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------------|----------|
|           |            |         |           | 20175 ch.<br>1732.5 MHz  |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 18.34                    | 0                         | 0        |
|           |            | 1       | 49        | 18.43                    | 0                         | 0        |
|           |            | 1       | 99        | 18.26                    | 0                         | 0        |
|           |            | 50      | 0         | 18.26                    | 0-1                       | 0        |
|           |            | 50      | 25        | 18.27                    | 0-1                       | 0        |
|           |            | 50      | 49        | 18.30                    | 0-1                       | 0        |
|           |            | 100     | 0         | 18.28                    | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.53                    | 0-1                       | 0        |
|           |            | 1       | 49        | 18.33                    | 0-1                       | 0        |
|           |            | 1       | 99        | 18.44                    | 0-1                       | 0        |
|           |            | 50      | 0         | 18.24                    | 0-2                       | 0        |
|           |            | 50      | 25        | 18.22                    | 0-2                       | 0        |
|           |            | 50      | 49        | 18.26                    | 0-2                       | 0        |
|           |            | 100     | 0         | 18.26                    | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.34                    | 0-2                       | 0        |
|           |            | 1       | 49        | 18.34                    | 0-2                       | 0        |
|           |            | 1       | 99        | 18.32                    | 0-2                       | 0        |
|           |            | 50      | 0         | 18.32                    | 0-3                       | 0        |
|           |            | 50      | 25        | 18.29                    | 0-3                       | 0        |
|           |            | 50      | 49        | 18.28                    | 0-3                       | 0        |
|           |            | 100     | 0         | 18.23                    | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.37                    | 0-5                       | 0.5      |
|           |            | 1       | 49        | 18.34                    | 0-5                       | 0.5      |
|           |            | 1       | 99        | 18.24                    | 0-5                       | 0.5      |
|           |            | 50      | 0         | 18.24                    | 0-5                       | 0.5      |
|           |            | 50      | 25        | 18.23                    | 0-5                       | 0.5      |
|           |            | 50      | 49        | 18.28                    | 0-5                       | 0.5      |
|           |            | 100     | 0         | 18.22                    | 0-5                       | 0.5      |

# LTE FDD Band 25 Conducted Power\_Measured Non Head(RSI 0),Head(RSI 1)\_Sub2[Ant F]

## LTE FDD Band 25 \_ 20 MHz Bandwidth Conducted Power\_ Upper Antenna

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                    | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|----------------------|--------------------|---------------------------|----------|
|           |            |         |           | 26140 Ch. 1860 MHz       | 26365 Ch. 1882.5 MHz | 26590 Ch. 1905 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 17.36                    | 17.56                | 17.69              | 0                         | 0        |
|           |            | 1       | 49        | 17.55                    | 17.66                | 17.74              | 0                         | 0        |
|           |            | 1       | 99        | 17.50                    | 17.70                | 17.63              | 0                         | 0        |
|           |            | 50      | 0         | 17.44                    | 17.52                | 17.65              | 0-1                       | 0        |
|           |            | 50      | 25        | 17.47                    | 17.57                | 17.64              | 0-1                       | 0        |
|           |            | 50      | 49        | 17.50                    | 17.60                | 17.63              | 0-1                       | 0        |
|           |            | 100     | 0         | 17.48                    | 17.51                | 17.71              | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 17.58                    | 17.73                | 17.82              | 0-1                       | 0        |
|           |            | 1       | 49        | 17.51                    | 17.73                | 17.72              | 0-1                       | 0        |
|           |            | 1       | 99        | 17.62                    | 17.77                | 17.66              | 0-1                       | 0        |
|           |            | 50      | 0         | 17.45                    | 17.50                | 17.65              | 0-2                       | 0        |
|           |            | 50      | 25        | 17.45                    | 17.50                | 17.60              | 0-2                       | 0        |
|           |            | 50      | 49        | 17.49                    | 17.55                | 17.62              | 0-2                       | 0        |
|           |            | 100     | 0         | 17.64                    | 17.67                | 17.90              | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 17.63                    | 17.56                | 17.73              | 0-2                       | 0        |
|           |            | 1       | 49        | 17.62                    | 17.51                | 17.56              | 0-2                       | 0        |
|           |            | 1       | 99        | 17.77                    | 17.75                | 17.72              | 0-2                       | 0        |
|           |            | 50      | 0         | 17.53                    | 17.50                | 17.68              | 0-3                       | 0        |
|           |            | 50      | 25        | 17.44                    | 17.51                | 17.58              | 0-3                       | 0        |
|           |            | 50      | 49        | 17.50                    | 17.58                | 17.66              | 0-3                       | 0        |
|           |            | 100     | 0         | 17.54                    | 17.60                | 17.76              | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 17.41                    | 17.55                | 17.68              | 0-5                       | 0        |
|           |            | 1       | 49        | 17.59                    | 17.55                | 17.77              | 0-5                       | 0        |
|           |            | 1       | 99        | 17.59                    | 17.71                | 17.72              | 0-5                       | 0        |
|           |            | 50      | 0         | 17.47                    | 17.50                | 17.65              | 0-5                       | 0        |
|           |            | 50      | 25        | 17.49                    | 17.52                | 17.63              | 0-5                       | 0        |
|           |            | 50      | 49        | 17.52                    | 17.61                | 17.64              | 0-5                       | 0        |
|           |            | 100     | 0         | 17.53                    | 17.55                | 17.66              | 0-5                       | 0        |

# LTE FDD Band 66 Conducted Power\_ Measured Non Head(RSI 0), Head(RSI 1)\_Sub2[Ant F]

## LTE FDD Band 66 \_ 20 MHz Bandwidth Conducted Power\_ Upper Antenna

| Bandwidth | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                     |                     | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|-----------|------------|---------|-----------|--------------------------|---------------------|---------------------|---------------------------|----------|
|           |            |         |           | 132072 Ch. 1720 MHz      | 132322 Ch. 1745 MHz | 132572 Ch. 1770 MHz |                           |          |
| 20 MHz    | QPSK       | 1       | 0         | 18.16                    | 18.32               | 17.90               | 0                         | 0        |
|           |            | 1       | 49        | 18.46                    | 18.10               | 18.03               | 0                         | 0        |
|           |            | 1       | 99        | 18.32                    | 18.00               | 18.04               | 0                         | 0        |
|           |            | 50      | 0         | 18.19                    | 18.25               | 17.81               | 0-1                       | 0        |
|           |            | 50      | 25        | 18.29                    | 18.23               | 17.87               | 0-1                       | 0        |
|           |            | 50      | 49        | 18.30                    | 18.18               | 17.89               | 0-1                       | 0        |
|           |            | 100     | 0         | 18.28                    | 18.22               | 17.85               | 0-1                       | 0        |
|           | 16QAM      | 1       | 0         | 18.35                    | 18.33               | 17.98               | 0-1                       | 0        |
|           |            | 1       | 49        | 18.36                    | 18.33               | 17.87               | 0-1                       | 0        |
|           |            | 1       | 99        | 18.53                    | 18.30               | 18.10               | 0-1                       | 0        |
|           |            | 50      | 0         | 18.19                    | 17.99               | 17.81               | 0-2                       | 0        |
|           |            | 50      | 25        | 18.27                    | 18.18               | 17.82               | 0-2                       | 0        |
|           |            | 50      | 49        | 18.34                    | 18.16               | 17.86               | 0-2                       | 0        |
|           |            | 100     | 0         | 18.31                    | 18.20               | 17.86               | 0-2                       | 0        |
|           | 64QAM      | 1       | 0         | 18.21                    | 18.29               | 17.88               | 0-2                       | 0        |
|           |            | 1       | 49        | 18.45                    | 18.21               | 17.84               | 0-2                       | 0        |
|           |            | 1       | 99        | 18.47                    | 18.19               | 18.09               | 0-2                       | 0        |
|           |            | 50      | 0         | 18.26                    | 18.22               | 17.84               | 0-3                       | 0        |
|           |            | 50      | 25        | 18.34                    | 18.24               | 17.87               | 0-3                       | 0        |
|           |            | 50      | 49        | 18.34                    | 18.23               | 17.89               | 0-3                       | 0        |
|           |            | 100     | 0         | 18.34                    | 18.20               | 17.82               | 0-3                       | 0        |
|           | 256QAM     | 1       | 0         | 18.28                    | 18.31               | 17.96               | 0-5                       | 0.5      |
|           |            | 1       | 49        | 18.35                    | 18.23               | 17.84               | 0-5                       | 0.5      |
|           |            | 1       | 99        | 18.40                    | 18.25               | 18.01               | 0-5                       | 0.5      |
|           |            | 50      | 0         | 18.21                    | 18.22               | 17.82               | 0-5                       | 0.5      |
|           |            | 50      | 25        | 18.32                    | 18.20               | 17.84               | 0-5                       | 0.5      |
|           |            | 50      | 49        | 18.38                    | 18.17               | 17.89               | 0-5                       | 0.5      |
|           |            | 100     | 0         | 18.34                    | 18.23               | 17.82               | 0-5                       | 0.5      |

# LTE TDD Band 41 Conducted Power\_Measured Non Head(RSI 0),Head(RSI 1)\_Sub2[Ant F]

## LTE TDD Band 41 \_ 20 MHz Bandwidth Conducted Power - Power Class 3\_ Upper Antenna

| Band width | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |                      |                      |                      |                      | MPR Allowed Per 3GPP [dB] | MPR [dB] |
|------------|------------|---------|-----------|--------------------------|----------------------|----------------------|----------------------|----------------------|---------------------------|----------|
|            |            |         |           | 39750 Ch. 2506.0 MHz     | 40185 Ch. 2549.5 MHz | 40620 Ch. 2593.0 MHz | 41055 Ch. 2636.5 MHz | 41490 Ch. 2680.0 MHz |                           |          |
| 20 MHz     | QPSK       | 1       | 0         | 18.59                    | 18.41                | 18.65                | 18.52                | 18.92                | 0                         | 0        |
|            |            | 1       | 49        | 18.59                    | 18.44                | 18.71                | 18.44                | 18.98                | 0                         | 0        |
|            |            | 1       | 99        | 18.34                    | 18.37                | 18.64                | 18.38                | 18.82                | 0                         | 0        |
|            |            | 50      | 0         | 18.62                    | 18.47                | 18.68                | 18.52                | 18.98                | 0-1                       | 0        |
|            |            | 50      | 25        | 18.54                    | 18.41                | 18.68                | 18.44                | 18.97                | 0-1                       | 0        |
|            |            | 50      | 49        | 18.46                    | 18.41                | 18.67                | 18.45                | 18.90                | 0-1                       | 0        |
|            |            | 100     | 0         | 18.52                    | 18.39                | 18.70                | 18.46                | 18.98                | 0-1                       | 0        |
|            | 16QAM      | 1       | 0         | 18.64                    | 18.41                | 18.66                | 18.59                | 18.90                | 0-1                       | 0        |
|            |            | 1       | 49        | 18.69                    | 18.54                | 18.82                | 18.65                | 18.88                | 0-1                       | 0        |
|            |            | 1       | 99        | 18.37                    | 18.36                | 18.65                | 18.43                | 18.83                | 0-1                       | 0        |
|            |            | 50      | 0         | 18.64                    | 18.47                | 18.69                | 18.43                | 18.99                | 0-2                       | 0        |
|            |            | 50      | 25        | 18.54                    | 18.42                | 18.70                | 18.49                | 18.96                | 0-2                       | 0        |
|            |            | 50      | 49        | 18.47                    | 18.44                | 18.67                | 18.47                | 18.91                | 0-2                       | 0        |
|            |            | 100     | 0         | 18.57                    | 18.43                | 18.72                | 18.49                | 18.84                | 0-2                       | 0        |
|            | 64QAM      | 1       | 0         | 18.36                    | 18.11                | 18.35                | 18.28                | 18.62                | 0-2                       | 0        |
|            |            | 1       | 49        | 18.31                    | 18.19                | 18.46                | 18.25                | 18.74                | 0-2                       | 0        |
|            |            | 1       | 99        | 18.05                    | 18.05                | 18.32                | 18.09                | 18.49                | 0-2                       | 0        |
|            |            | 50      | 0         | 18.67                    | 18.05                | 18.73                | 18.60                | 18.82                | 0-3                       | 0        |
|            |            | 50      | 25        | 18.58                    | 18.47                | 18.75                | 18.54                | 18.82                | 0-3                       | 0        |
|            |            | 50      | 49        | 18.50                    | 18.46                | 18.72                | 18.51                | 18.93                | 0-3                       | 0        |
|            |            | 100     | 0         | 18.56                    | 18.42                | 18.72                | 18.48                | 18.98                | 0-3                       | 0        |
|            | 256QAM     | 1       | 0         | 18.50                    | 18.28                | 18.52                | 18.43                | 18.77                | 0-5                       | 0        |
|            |            | 1       | 49        | 18.43                    | 18.29                | 18.58                | 18.39                | 18.84                | 0-5                       | 0        |
|            |            | 1       | 99        | 18.22                    | 18.25                | 18.52                | 18.29                | 18.69                | 0-5                       | 0        |
|            |            | 50      | 0         | 18.68                    | 18.53                | 18.75                | 18.62                | 18.78                | 0-5                       | 0        |
|            |            | 50      | 25        | 18.68                    | 18.47                | 18.75                | 18.57                | 18.81                | 0-5                       | 0        |
|            |            | 50      | 49        | 18.53                    | 18.50                | 18.75                | 18.55                | 18.98                | 0-5                       | 0        |
|            |            | 100     | 0         | 18.55                    | 18.43                | 18.73                | 18.49                | 18.80                | 0-5                       | 0        |

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

## 11.4 NR Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of NR Bands according to FCC KDB 941225 D05, are included, and the measurement results of other bandwidths are listed in Appendix L.

### 11.4.1 NR Band Maximum Conducted Power

#### NR FDD Band n5 Conducted Power\_ Measured $P_{max}$ , Head(RSI 1) \_ Main1 [Ant A]

##### NR FDD Band n5\_ 20 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|
|           |          |            |            |         |           | 167300                   |          |
|           |          |            |            |         |           | 836.5 MHz                |          |
| 20 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 23.99                    | 0        |
|           |          |            |            | 1       | 53        | 23.76                    | 0        |
|           |          |            |            | 1       | 104       | 23.79                    | 0        |
|           |          |            |            | 50      | 0         | 23.40                    | 0.5      |
|           |          |            |            | 50      | 28        | 23.71                    | 0        |
|           |          |            |            | 50      | 56        | 23.22                    | 0.5      |
|           |          |            |            | 100     | 0         | 23.25                    | 0.5      |
|           |          |            | QPSK       | 1       | 1         | 24.07                    | 0        |
|           |          |            |            | 1       | 53        | 23.89                    | 0        |
|           |          |            |            | 1       | 104       | 23.84                    | 0        |
|           |          |            |            | 50      | 0         | 22.92                    | 1        |
|           |          |            |            | 50      | 28        | 23.76                    | 0        |
|           |          |            |            | 50      | 56        | 22.75                    | 1        |
|           |          |            |            | 100     | 0         | 22.77                    | 1        |
|           |          |            | 16QAM      | 1       | 1         | 23.14                    | 1        |
|           |          |            | 64QAM      | 1       | 1         | 21.51                    | 2.5      |
|           |          |            | 256QAM     | 1       | 1         | 19.40                    | 4.5      |
|           |          | CP         | QPSK       | 1       | 1         | 22.47                    | 1.5      |

### NR FDD Band n5 Conducted Power\_ Measured Non Head(RSI 0) \_ Main1 [Ant A]

#### NR FDD Band n5\_ 20 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |           | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|-----------|----------|
|           |          |            |            |         |           | 167300                   | 836.5 MHz |          |
|           |          |            |            |         |           |                          |           |          |
| 20 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 21.85                    |           | 0        |
|           |          |            |            | 1       | 53        | 21.60                    |           | 0        |
|           |          |            |            | 1       | 104       | 21.64                    |           | 0        |
|           |          |            |            | 50      | 0         | 21.75                    |           | 0        |
|           |          |            |            | 50      | 28        | 21.58                    |           | 0        |
|           |          |            |            | 50      | 56        | 21.61                    |           | 0        |
|           |          |            |            | 100     | 0         | 21.58                    |           | 0        |
|           |          |            | QPSK       | 1       | 1         | 21.95                    |           | 0        |
|           |          |            |            | 1       | 53        | 21.68                    |           | 0        |
|           |          |            |            | 1       | 104       | 21.66                    |           | 0        |
|           |          |            |            | 50      | 0         | 21.79                    |           | 0        |
|           |          |            |            | 50      | 28        | 21.59                    |           | 0        |
|           |          |            |            | 50      | 56        | 21.63                    |           | 0        |
|           |          |            |            | 100     | 0         | 21.60                    |           | 0        |
|           |          |            | 16QAM      | 1       | 1         | 21.93                    |           | 0        |
|           |          |            | 64QAM      | 1       | 1         | 21.94                    |           | 0.5      |
|           |          |            | 256QAM     | 1       | 1         | 20.43                    |           | 2.5      |
|           |          | CP         | QPSK       | 1       | 1         | 21.92                    |           | 0        |

### NR FDD Band n66 Conducted Power\_ Measured $P_{max}$ Head(RSI 1) \_ MAIN2 [Ant B]

#### NR FDD Band n66 \_ 40 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |          | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|----------|
|           |          |            |            |         |           | 349000                   | 1745 MHz |          |
|           |          |            |            |         |           |                          |          |          |
| 40 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 24.57                    |          | 0        |
|           |          |            |            | 1       | 108       | 24.70                    |          | 0        |
|           |          |            |            | 1       | 214       | 24.23                    |          | 0        |
|           |          |            |            | 108     | 0         | 24.11                    |          | 0.5      |
|           |          |            |            | 108     | 54        | 24.62                    |          | 0        |
|           |          |            |            | 108     | 108       | 24.01                    |          | 0.5      |
|           |          |            |            | 216     | 0         | 24.13                    |          | 0.5      |
|           |          |            | QPSK       | 1       | 1         | 24.66                    |          | 0        |
|           |          |            |            | 1       | 108       | 24.74                    |          | 0        |
|           |          |            |            | 1       | 214       | 24.27                    |          | 0        |
|           |          |            |            | 108     | 0         | 23.65                    |          | 1        |
|           |          |            |            | 108     | 54        | 24.67                    |          | 0        |
|           |          |            |            | 108     | 108       | 23.53                    |          | 1        |
|           |          |            |            | 216     | 0         | 23.63                    |          | 1        |
|           |          |            | 16QAM      | 1       | 1         | 23.72                    |          | 1        |
|           |          |            | 64QAM      | 1       | 1         | 22.17                    |          | 2.5      |
|           |          |            | 256QAM     | 1       | 1         | 19.99                    |          | 4.5      |
|           |          | CP         | QPSK       | 1       | 1         | 23.11                    |          | 1.5      |

### NR FDD Band n66 Conducted Power\_ Measured Non Head(RSI 0) \_ MAIN2 [Ant B]

#### NR FDD Band n66 \_ 40 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |          |  | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|--|----------|
|           |          |            |            |         |           |                          | 349000   |  |          |
|           |          |            |            |         |           |                          | 1745 MHz |  |          |
| 40 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         |                          | 17.95    |  | 0        |
|           |          |            |            | 1       | 108       |                          | 18.03    |  | 0        |
|           |          |            |            | 1       | 214       |                          | 17.44    |  | 0        |
|           |          |            |            | 108     | 0         |                          | 17.93    |  | 0        |
|           |          |            |            | 108     | 54        |                          | 17.95    |  | 0        |
|           |          |            |            | 108     | 108       |                          | 17.77    |  | 0        |
|           |          |            |            | 216     | 0         |                          | 17.89    |  | 0        |
|           |          |            | QPSK       | 1       | 1         |                          | 17.96    |  | 0        |
|           |          |            |            | 1       | 108       |                          | 17.98    |  | 0        |
|           |          |            |            | 1       | 214       |                          | 17.45    |  | 0        |
|           |          |            |            | 108     | 0         |                          | 17.97    |  | 0        |
|           |          |            |            | 108     | 54        |                          | 17.95    |  | 0        |
|           |          |            |            | 108     | 108       |                          | 17.77    |  | 0        |
|           |          |            |            | 216     | 0         |                          | 17.91    |  | 0        |
|           |          |            | 16QAM      | 1       | 1         |                          | 18.06    |  | 0        |
|           |          |            | 64QAM      | 1       | 1         |                          | 17.92    |  | 0        |
|           |          |            | 256QAM     | 1       | 1         |                          | 17.91    |  | 0        |
|           |          | CP         | QPSK       | 1       | 1         |                          | 17.94    |  | 0        |

### NR TDD Band n41 Conducted Power\_ Measured Non Head(RSI 0), Head(RSI 1) \_Main2[Ant B]

#### NR TDD Band n41 \_100 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM  | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |             |  | MPR [dB] |
|-----------|----------|-------|------------|---------|-----------|--------------------------|-------------|--|----------|
|           |          |       |            |         |           |                          | 518598      |  |          |
|           |          |       |            |         |           |                          | 2592.99 MHz |  |          |
| 100 MHz   | 30       | DFT-s | pi/2 BPSK  | 1       | 1         |                          | 16.39       |  | 0        |
|           |          |       |            | 1       | 137       |                          | 16.68       |  | 0        |
|           |          |       |            | 1       | 271       |                          | 16.33       |  | 0        |
|           |          |       |            | 135     | 0         |                          | 16.43       |  | 0        |
|           |          |       |            | 135     | 69        |                          | 16.68       |  | 0        |
|           |          |       |            | 135     | 138       |                          | 16.64       |  | 0        |
|           |          |       |            | 270     | 0         |                          | 16.65       |  | 0        |
|           |          |       | QPSK       | 1       | 1         |                          | 16.55       |  | 0        |
|           |          |       |            | 1       | 137       |                          | 16.56       |  | 0        |
|           |          |       |            | 1       | 271       |                          | 16.49       |  | 0        |
|           |          |       |            | 135     | 0         |                          | 16.30       |  | 0        |
|           |          |       |            | 135     | 69        |                          | 16.52       |  | 0        |
|           |          |       |            | 135     | 138       |                          | 16.67       |  | 0        |
|           |          |       |            | 270     | 0         |                          | 17.12       |  | 0        |
|           |          |       | 16QAM      | 1       | 1         |                          | 16.34       |  | 0        |
|           |          |       | 64QAM      | 1       | 1         |                          | 16.38       |  | 0        |
|           |          |       | 256QAM     | 1       | 1         |                          | 16.33       |  | 0        |
|           |          | CP    | QPSK       | 1       | 1         |                          | 16.00       |  | 0        |

### NR FDD Band n5 Conducted Power\_ Measured Non Head(RSI 0)\_ Sub1 [Ant E]

#### NR FDD Band n5\_ 20 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|
|           |          |            |            |         |           | 167300                   |          |
|           |          |            |            |         |           | 836.5 MHz                |          |
| 20 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 20.29                    | 0        |
|           |          |            |            | 1       | 53        | 20.25                    | 0        |
|           |          |            |            | 1       | 104       | 19.98                    | 0        |
|           |          |            |            | 50      | 0         | 20.30                    | 0        |
|           |          |            |            | 50      | 28        | 20.22                    | 0        |
|           |          |            |            | 50      | 56        | 20.11                    | 0        |
|           |          |            |            | 100     | 0         | 20.26                    | 0        |
|           |          |            | QPSK       | 1       | 1         | 20.35                    | 0        |
|           |          |            |            | 1       | 53        | 20.34                    | 0        |
|           |          |            |            | 1       | 104       | 20.03                    | 0        |
|           |          |            |            | 50      | 0         | 20.31                    | 0        |
|           |          |            |            | 50      | 28        | 20.25                    | 0        |
|           |          |            |            | 50      | 56        | 20.13                    | 0        |
|           |          |            |            | 100     | 0         | 20.23                    | 0        |
|           |          |            | 16QAM      | 1       | 1         | 20.41                    | 0        |
|           |          |            | 64QAM      | 1       | 1         | 20.37                    | 0        |
|           |          |            | 256QAM     | 1       | 1         | 18.87                    | 1.5      |
|           |          | CP         | QPSK       | 1       | 1         | 20.32                    | 0        |

### NR FDD Band n5 Conducted Power\_ Measured Head(RSI 1)\_ Sub1 [Ant E]

#### NR FDD Band n5\_ 20 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|
|           |          |            |            |         |           | 167300                   |          |
|           |          |            |            |         |           | 836.5 MHz                |          |
| 20 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 18.27                    | 0        |
|           |          |            |            | 1       | 53        | 18.21                    | 0        |
|           |          |            |            | 1       | 104       | 17.95                    | 0        |
|           |          |            |            | 50      | 0         | 18.28                    | 0        |
|           |          |            |            | 50      | 28        | 18.19                    | 0        |
|           |          |            |            | 50      | 56        | 18.08                    | 0        |
|           |          |            |            | 100     | 0         | 18.22                    | 0        |
|           |          |            | QPSK       | 1       | 1         | 18.32                    | 0        |
|           |          |            |            | 1       | 53        | 18.26                    | 0        |
|           |          |            |            | 1       | 104       | 18.00                    | 0        |
|           |          |            |            | 50      | 0         | 18.30                    | 0        |
|           |          |            |            | 50      | 28        | 18.23                    | 0        |
|           |          |            |            | 50      | 56        | 18.11                    | 0        |
|           |          |            |            | 100     | 0         | 18.22                    | 0        |
|           |          |            | 16QAM      | 1       | 1         | 18.33                    | 0        |
|           |          |            | 64QAM      | 1       | 1         | 18.40                    | 0        |
|           |          |            | 256QAM     | 1       | 1         | 18.26                    | 0        |
|           |          | CP         | QPSK       | 1       | 1         | 18.30                    | 0        |

### NR FDD Band n66 Conducted Power\_ Measured Non Head(RSI 0) \_ Sub2 [Ant F]

#### NR FDD Band n66 \_ 40 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power [dBm] |          |  | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|----------|--|----------|
|           |          |            |            |         |           |                          | 349000   |  |          |
|           |          |            |            |         |           |                          | 1745 MHz |  |          |
| 40 MHz    | 15       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         |                          | 18.49    |  | 0        |
|           |          |            |            | 1       | 108       |                          | 18.61    |  | 0        |
|           |          |            |            | 1       | 214       |                          | 18.18    |  | 0        |
|           |          |            |            | 108     | 0         |                          | 18.58    |  | 0        |
|           |          |            |            | 108     | 54        |                          | 18.58    |  | 0        |
|           |          |            |            | 108     | 108       |                          | 18.44    |  | 0        |
|           |          |            |            | 216     | 0         |                          | 18.58    |  | 0        |
|           |          |            | QPSK       | 1       | 1         |                          | 18.64    |  | 0        |
|           |          |            |            | 1       | 108       |                          | 18.70    |  | 0        |
|           |          |            |            | 1       | 214       |                          | 18.23    |  | 0        |
|           |          |            |            | 108     | 0         |                          | 18.62    |  | 0        |
|           |          |            |            | 108     | 54        |                          | 18.61    |  | 0        |
|           |          |            |            | 108     | 108       |                          | 18.42    |  | 0        |
|           |          |            |            | 216     | 0         |                          | 18.60    |  | 0        |
|           |          |            | 16QAM      | 1       | 1         |                          | 18.53    |  | 0        |
|           |          |            | 64QAM      | 1       | 1         |                          | 18.74    |  | 0        |
|           |          |            | 256QAM     | 1       | 1         |                          | 18.50    |  | 0        |
|           |          | CP         | QPSK       | 1       | 1         |                          | 18.56    |  | 0        |

### NR TDD Band n77 Conducted Power\_ Measured Non Head(RSI 0), Head(RSI 1)\_Sub2[Ant F]

#### NR TDD Band n77\_ 100 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM       | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |  |  |          | MPR [dB] |
|-----------|----------|------------|------------|---------|-----------|--------------------------|--|--|----------|----------|
|           |          |            |            |         |           | 650000                   |  |  | 662000   |          |
|           |          |            |            |         |           | 3750 MHz                 |  |  | 3930 MHz |          |
| 100 MHz   | 30       | DFT-s OFDM | pi/2 BPSK  | 1       | 1         | 14.21                    |  |  | 13.81    | 0        |
|           |          |            |            | 1       | 137       | 13.27                    |  |  | 13.88    | 0        |
|           |          |            |            | 1       | 271       | 14.32                    |  |  | 14.30    | 0        |
|           |          |            |            | 135     | 0         | 13.46                    |  |  | 13.63    | 0        |
|           |          |            |            | 135     | 69        | 13.27                    |  |  | 13.88    | 0        |
|           |          |            |            | 135     | 138       | 13.27                    |  |  | 14.18    | 0        |
|           |          |            | QPSK       | 270     | 0         | 13.31                    |  |  | 13.86    | 0        |
|           |          |            |            | 1       | 1         | 14.21                    |  |  | 13.82    | 0        |
|           |          |            |            | 1       | 137       | 13.25                    |  |  | 13.87    | 0        |
|           |          |            |            | 1       | 271       | 14.29                    |  |  | 14.31    | 0        |
|           |          |            |            | 135     | 0         | 13.45                    |  |  | 13.67    | 0        |
|           |          |            |            | 135     | 69        | 13.27                    |  |  | 13.87    | 0        |
|           |          |            |            | 135     | 138       | 13.56                    |  |  | 14.15    | 0        |
|           |          |            |            | 270     | 0         | 13.36                    |  |  | 13.87    | 0        |
|           |          |            | 16QAM      | 1       | 1         | 14.22                    |  |  | 13.87    | 0        |
|           |          |            | 64QAM      | 1       | 1         | 14.11                    |  |  | 13.84    | 0        |
|           |          |            | 256QAM     | 1       | 1         | 13.43                    |  |  | 13.82    | 0        |
|           |          | CP         | QPSK       | 1       | 1         | 14.24                    |  |  | 14.35    | 0        |

# NR TDD Band n77 DoD Conducted Power\_ Measured Non Head(RSI 0), Head(RSI 1) \_ Sub2 [Ant F]

## NR TDD Band n77 DoD\_100 MHz Bandwidth Conducted Power

| Bandwidth | SCS(kHz) | OFDM  | Modulation | RB Size | RB Offset | Max. Average Power (dBm) |             |  | MPR [dB] |
|-----------|----------|-------|------------|---------|-----------|--------------------------|-------------|--|----------|
|           |          |       |            |         |           |                          | 633334      |  |          |
|           |          |       |            |         |           |                          | 3500.01 MHz |  |          |
| 100MHz    | 30       | DFT-s | pi/2 BPSK  | 1       | 1         |                          | 13.49       |  | 0        |
|           |          |       |            | 1       | 137       |                          | 13.30       |  | 0        |
|           |          |       |            | 1       | 271       |                          | 13.72       |  | 0        |
|           |          |       |            | 135     | 0         |                          | 13.26       |  | 0        |
|           |          |       |            | 135     | 69        |                          | 13.27       |  | 0        |
|           |          |       |            | 135     | 138       |                          | 13.91       |  | 0        |
|           |          |       |            | 270     | 0         |                          | 13.27       |  | 0        |
|           |          |       | QPSK       | 1       | 1         |                          | 13.42       |  | 0        |
|           |          |       |            | 1       | 137       |                          | 13.30       |  | 0        |
|           |          |       |            | 1       | 271       |                          | 13.70       |  | 0        |
|           |          |       |            | 135     | 0         |                          | 13.28       |  | 0        |
|           |          |       |            | 135     | 69        |                          | 13.30       |  | 0        |
|           |          |       |            | 135     | 138       |                          | 13.95       |  | 0        |
|           |          |       |            | 270     | 0         |                          | 13.26       |  | 0        |
|           |          |       | 16QAM      | 1       | 1         |                          | 13.47       |  | 0        |
|           |          |       | 64QAM      | 1       | 1         |                          | 13.53       |  | 0        |
|           |          |       | 256QAM     | 1       | 1         |                          | 13.46       |  | 0        |
|           |          | CP    | QPSK       | 1       | 1         |                          | 13.94       |  | 0        |

### 11.4.3 NR Band SRS Conducted Power

[NR TDD Band n41 SRS Conducted Power]

Measured Non Head(RSI 0), Head(RSI 1)

NR TDD Band n41\_ 100 MHz Bandwidth Conducted Power\_ Antenna: Sub2(Ant F), SRS1

| Bandwidth | SCS(kHz) | Modulation | Max. Average Power [dBm] |             |  | MPR [dB] |
|-----------|----------|------------|--------------------------|-------------|--|----------|
|           |          |            |                          | 518598      |  |          |
|           |          |            |                          | 2592.99 MHz |  |          |
| 100 MHz   | 30       | CW         |                          | 12.20       |  | 0        |

NR TDD Band n41\_ 100 MHz Bandwidth Conducted Power\_ Antenna: Sub4(Ant H), SRS2

| Bandwidth | SCS(kHz) | Modulation | Max. Average Power [dBm] |             |  | MPR [dB] |
|-----------|----------|------------|--------------------------|-------------|--|----------|
|           |          |            |                          | 518598      |  |          |
|           |          |            |                          | 2592.99 MHz |  |          |
| 100 MHz   | 30       | CW         |                          | 13.37       |  | 0        |

NR TDD Band n41\_ 100 MHz Bandwidth Conducted Power\_ Antenna: Main4(Ant D), SRS3

| Bandwidth | SCS(kHz) | Modulation | Max. Average Power [dBm] |             |  | MPR [dB] |
|-----------|----------|------------|--------------------------|-------------|--|----------|
|           |          |            |                          | 518598      |  |          |
|           |          |            |                          | 2592.99 MHz |  |          |
| 100 MHz   | 30       | CW         |                          | 9.28        |  | 0        |

## 11.5 WIFI Conducted Power measurement method

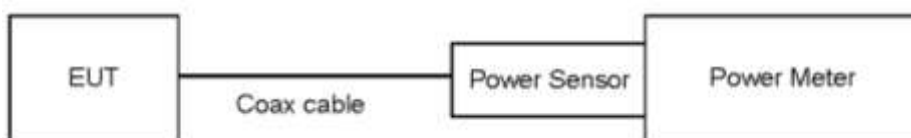
### Un-Licensed Bands (DTS Band)

| Test Description       | Test Procedure Used                                                        |
|------------------------|----------------------------------------------------------------------------|
| Conducted Output Power | - KDB 558074 v05 – Section 8.3.2.3<br>- ANSI 63.10-2013 – Section 11.9.2.3 |

### Test Procedure

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add  $10 \log (1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

### Test setup



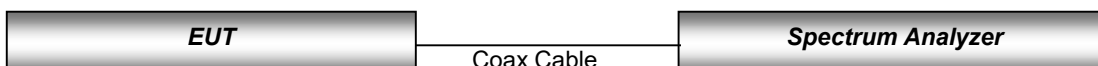
### Un-Licensed Bands (NII Band)

| Test Description       | Test Procedure Used                     |
|------------------------|-----------------------------------------|
| Conducted Output Power | - KDB 789033 D02 v02r01 – Section E.3.a |

### Test Procedure

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add  $10 \log (1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

### Test setup



### 11.5.1 IEEE 802.11 (2.4 GHz) Maximum Conducted Power

| Mode    | Frequency [MHz] | Channel | IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm] |        |       |
|---------|-----------------|---------|--------------------------------------------------------|--------|-------|
|         |                 |         | WIFI 1                                                 | WIFI 2 | MIMO  |
| 802.11b | 2 412           | 1       | 17.40                                                  | 14.94  | 19.20 |
|         | 2 437           | 6       | 18.82                                                  | 16.22  | 19.65 |
|         | 2 462           | 11      | 18.87                                                  | 15.43  | 19.03 |
|         | 2 467           | 12      | 7.84                                                   | 5.03   | 8.23  |
|         | 2 472           | 13      | 7.82                                                   | 5.18   | 8.33  |

### 11.5.2 IEEE 802.11 (2.4 GHz) Conducted Power RSI =0 Non Head

| Mode    | Frequency [MHz] | Channel | IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm] |        |
|---------|-----------------|---------|--------------------------------------------------------|--------|
|         |                 |         | WIFI 1                                                 | WIFI 2 |
| 802.11b | 2 412           | 1       | 16.55                                                  | 14.94  |
|         | 2 437           | 6       | 16.66                                                  | 16.22  |
|         | 2 462           | 11      | 16.57                                                  | 15.43  |
|         | 2 467           | 12      | 7.84                                                   | 5.03   |
|         | 2 472           | 13      | 7.82                                                   | 5.18   |

### 11.5.3 IEEE 802.11 (2.4 GHz) Conducted Power RSI =1 Head

| Mode    | Frequency [MHz] | Channel | IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm] |        |
|---------|-----------------|---------|--------------------------------------------------------|--------|
|         |                 |         | WIFI 1                                                 | WIFI 2 |
| 802.11b | 2 412           | 1       | 13.14                                                  | 11.14  |
|         | 2 437           | 6       | 13.38                                                  | 11.79  |
|         | 2 462           | 11      | 13.36                                                  | 10.70  |
|         | 2 467           | 12      | 7.84                                                   | 5.03   |
|         | 2 472           | 13      | 8.24                                                   | 5.18   |

#### 11.5.4 IEEE 802.11 (5 GHz) Maximum Conducted Power

| Mode                   | Frequency [MHz] | Channel | IEEE 802.11 (5 GHz) Average RF Conducted Power [dBm] |        |
|------------------------|-----------------|---------|------------------------------------------------------|--------|
|                        |                 |         | WIFI 1                                               | WIFI 2 |
| 802.11a<br>(20 MHz BW) | 5 190           | 38      | 13.98                                                | 10.13  |
|                        | 5 230           | 46      | 14.16                                                | 10.77  |
|                        | 5 270           | 54      | 14.01                                                | 10.90  |
|                        | 5 310           | 62      | 13.71                                                | 11.15  |
|                        | 5 510           | 102     | 11.49                                                | 10.26  |
|                        | 5 590           | 118     | 13.94                                                | 10.67  |
|                        | 5 630           | 126     | 14.62                                                | 11.16  |
|                        | 5 710           | 142     | 14.27                                                | 10.74  |
|                        | 5 755           | 151     | 14.31                                                | 10.51  |
|                        | 5 795           | 159     | 14.29                                                | 9.99   |
|                        | 5 835           | 167     | 14.35                                                | 10.52  |
|                        | 5 875           | 175     | 14.18                                                | 9.87   |

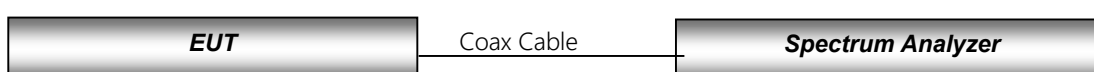
#### 11.5.5 IEEE 802.11 (5 GHz) Reduced Conducted Power

| Mode                    | Frequency [MHz] | Channel | IEEE 802.11 (5 GHz) Average RF Conducted Power [dBm] |        |
|-------------------------|-----------------|---------|------------------------------------------------------|--------|
|                         |                 |         | WIFI 1                                               | WIFI 2 |
| 802.11ac<br>(80 MHz BW) | 5 210           | 42      | 10.48                                                | 7.47   |
|                         | 5 290           | 58      | 10.18                                                | 7.63   |
|                         | 5 530           | 106     | 9.86                                                 | 7.45   |
|                         | 5 610           | 122     | 10.69                                                | 7.98   |
|                         | 5 690           | 138     | 10.56                                                | 7.95   |
|                         | 5 775           | 155     | 10.44                                                | 7.74   |
|                         | 5 855           | 171     | 10.27                                                | 7.18   |

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission mode with the same maximum output power specification, powers were measured for the largest channel Bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel Bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-Band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-Band channels, due to an even number of channels, both channels were measured.

#### Test Configuration



## 11.6 Bluetooth Conducted Power

### 11.6.1 Bluetooth Maximum Conducted Power

#### The Burst Averaged-conducted power

| Mode  | Channel | Max. Average Conducted Power [dBm] |
|-------|---------|------------------------------------|
|       |         | Ant. 1                             |
| DH5   | 0       | 18.07                              |
|       | 39      | 18.37                              |
|       | 78      | 16.75                              |
| 2-DH5 | 0       | 13.00                              |
|       | 39      | 13.23                              |
|       | 78      | 11.71                              |
| 3-DH5 | 0       | 13.01                              |
|       | 39      | 13.24                              |
|       | 78      | 11.72                              |

#### 11.6.1.1 Bluetooth Receiver on Reduced Conducted Power

#### The Burst Averaged-conducted power

| Mode  | Channel | Max. Average Conducted Power [dBm] |
|-------|---------|------------------------------------|
|       |         | Ant. 1                             |
| DH5   | 0       | 18.07                              |
|       | 39      | 18.37                              |
|       | 78      | 16.75                              |
| 2-DH5 | 0       | 13.00                              |
|       | 39      | 13.23                              |
|       | 78      | 11.71                              |
| 3-DH5 | 0       | 13.01                              |
|       | 39      | 13.24                              |
|       | 78      | 11.72                              |

Per October 2016 TCB Workshop Notes:

When call box and Bluetooth protocol are used for Bluetooth SAR measurement, time-domain plot is required to identify duty factor for supporting the test setup and result.

Bluetooth duty cycle was measured using Bluetooth tester equipment (CBT / R&S) with Bluetooth.

## 11.6.2 Bluetooth-LE Maximum Conducted Power

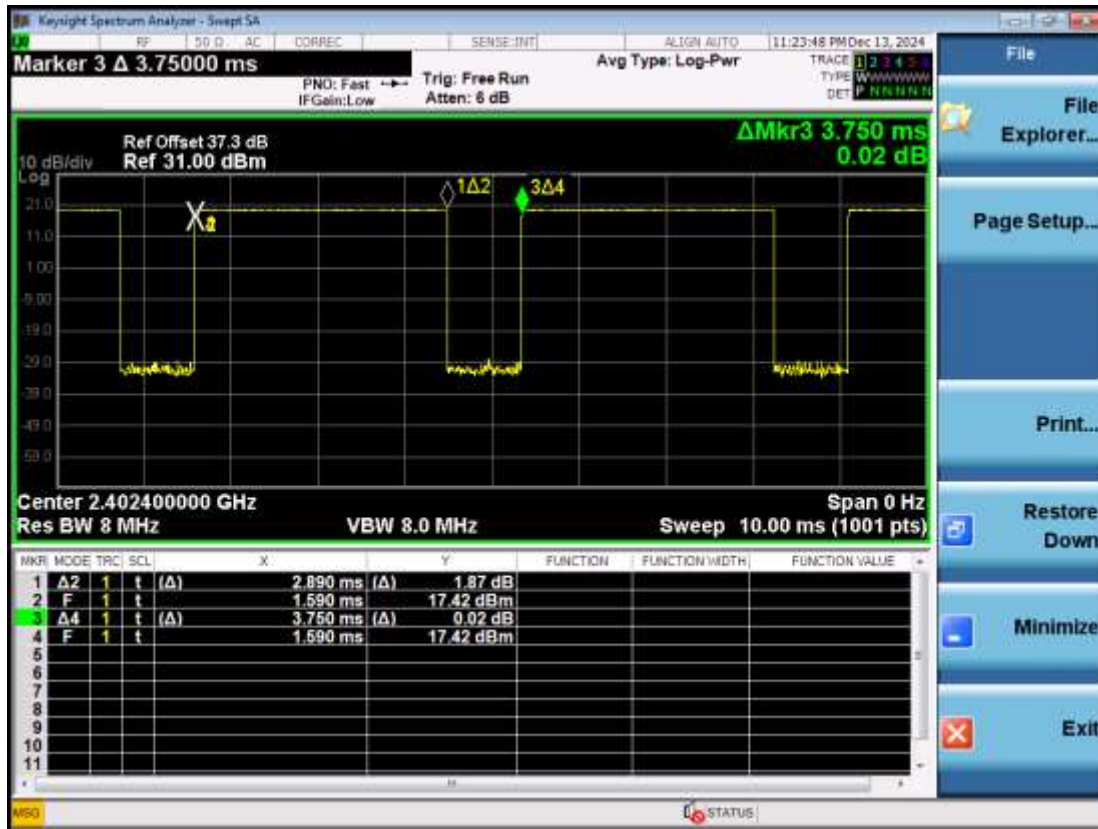
### The Burst Averaged-conducted power

| Mode          | Channel | Max. Average Conducted Power [dBm] |
|---------------|---------|------------------------------------|
|               |         | Ant. 1                             |
| 1M 37 Packet  | 37      | 18.13                              |
|               | 17      | 18.54                              |
|               | 39      | 17.09                              |
| 1M 255 Packet | 37      | 18.14                              |
|               | 17      | 18.45                              |
|               | 39      | 17.01                              |
| 2M 37 Packet  | 0       | 18.31                              |
|               | 17      | 18.64                              |
|               | 36      | 18.10                              |
| 2M 255 Packet | 0       | 18.39                              |
|               | 17      | 18.66                              |
|               | 36      | 17.96                              |

### The Burst Averaged-conducted power

| Mode          | Channel | Max. Average Conducted Power [dBm] |
|---------------|---------|------------------------------------|
|               |         | Ant. 1                             |
| 1M 37 Packet  | 37      | 18.13                              |
|               | 17      | 18.54                              |
|               | 39      | 17.09                              |
| 1M 255 Packet | 37      | 18.14                              |
|               | 17      | 18.45                              |
|               | 39      | 17.01                              |
| 2M 37 Packet  | 0       | 18.31                              |
|               | 17      | 18.64                              |
|               | 36      | 18.10                              |
| 2M 255 Packet | 0       | 18.39                              |
|               | 17      | 18.66                              |
|               | 36      | 17.96                              |

## Bluetooth DH 5 Mode



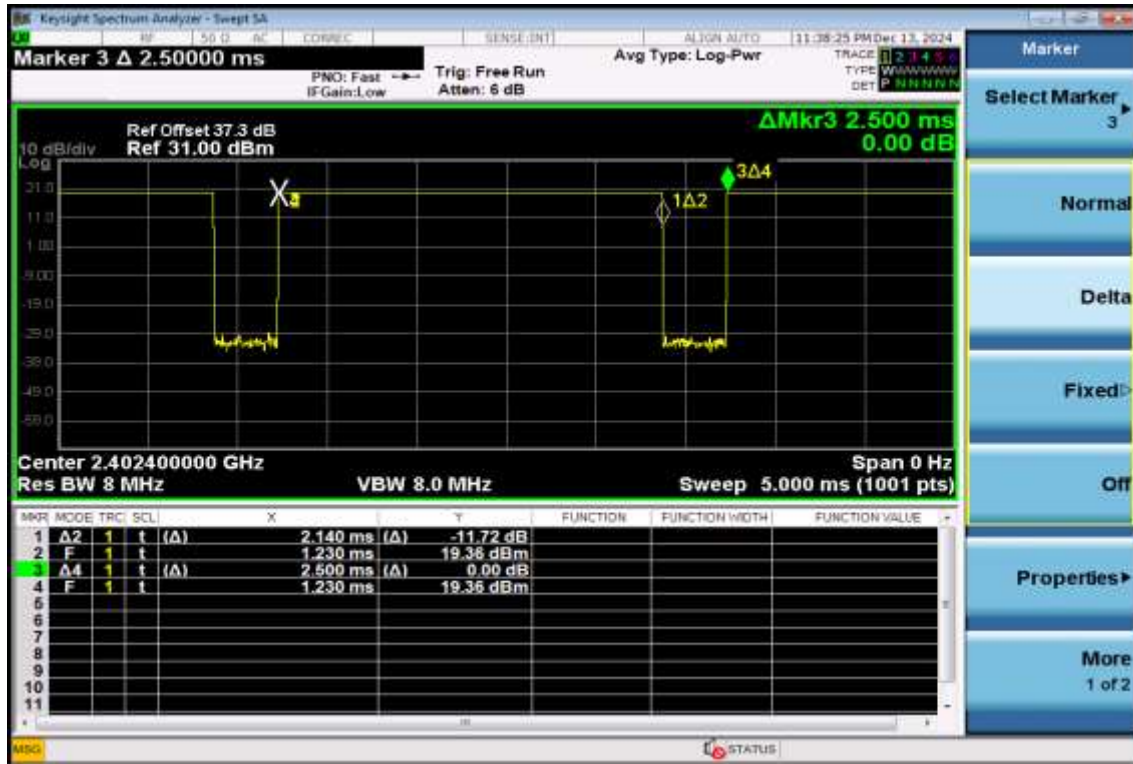
## Duty Cycle

$$= (\text{BT-On time} / \text{BT-Full time}) = (2.890 / 3.750) = 0.771 \text{ (DH5)}$$

## BT DH5 Maximum Duty Factor:

The theoretical maximum duty cycle defined by chipset manufacturer is 76.56 % In the ideal theory Duty Cycle, the test error tolerance [1%] of the test equipment was considered and applied to the measurement results. The duty cycle of DH5 measured by DUT was 77.1%, and the duty cycle was compensated by applying test error tolerance 1%. For more information on BT , please refer to the technical description document.

## BluetoothLE 1M Mode



## Duty Cycle

$$= (\text{BT-On time} / \text{BT-Full time}) = (2.140 / 2.500) = 0.856 \text{ (1M)}$$

## BT DH5 Maximum Duty Factor:

The theoretical maximum duty cycle defined by chipset manufacturer is 84.8 % In the ideal theory Duty Cycle, the test error tolerance [1%] of the test equipment was considered and applied to the measurement results. The duty cycle of DH5 measured by DUT was 85.7%, and the duty cycle was compensated by applying test error tolerance 1%. For more information on BT , please refer to the technical description document.

## 12. System Verification

### 12.1 Tissue Verification

The head simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

| Table for Head Tissue Verification |                   |             |             |                                      |                                          |                                    |                                        |                |                  |
|------------------------------------|-------------------|-------------|-------------|--------------------------------------|------------------------------------------|------------------------------------|----------------------------------------|----------------|------------------|
| Date of Tests                      | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | Target Conductivity $\sigma$ (S/m) | Target Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
| 12/02/2024                         | 22.9              | 13H         | 12          | 0.730                                | 54.397                                   | 0.750                              | 55.000                                 | - 2.67         | - 1.10           |
|                                    |                   |             | 13          | 0.735                                | 54.551                                   | 0.750                              | 55.000                                 | - 2.00         | - 0.82           |
|                                    |                   |             | 14          | 0.740                                | 54.580                                   | 0.750                              | 55.000                                 | - 1.33         | - 0.76           |
| 11/25/2024                         | 19.3              | 750H        | 705         | 0.869                                | 42.049                                   | 0.889                              | 42.174                                 | - 2.25         | - 0.30           |
|                                    |                   |             | 710         | 0.871                                | 42.045                                   | 0.890                              | 42.148                                 | - 2.13         | - 0.24           |
|                                    |                   |             | 750         | 0.886                                | 41.875                                   | 0.893                              | 41.940                                 | - 0.78         | - 0.15           |
| 12/05/2024                         | 19.2              | 750H        | 705         | 0.872                                | 42.552                                   | 0.889                              | 42.174                                 | - 1.91         | + 0.90           |
|                                    |                   |             | 710         | 0.873                                | 42.523                                   | 0.890                              | 42.148                                 | - 1.91         | + 0.89           |
|                                    |                   |             | 750         | 0.889                                | 42.340                                   | 0.893                              | 41.940                                 | - 0.45         | + 0.95           |
| 11/26/2024                         | 19.8              | 750H        | 750         | 0.881                                | 41.958                                   | 0.893                              | 41.940                                 | - 1.34         | + 0.04           |
|                                    |                   |             | 785         | 0.897                                | 41.838                                   | 0.896                              | 41.758                                 | + 0.11         | + 0.19           |
| 12/06/2024                         | 19.6              | 750H        | 750         | 0.895                                | 43.727                                   | 0.893                              | 41.940                                 | + 0.22         | + 4.26           |
|                                    |                   |             | 785         | 0.908                                | 43.598                                   | 0.896                              | 41.758                                 | + 1.34         | + 4.41           |
| 11/14/2024                         | 20.4              | 835H        | 820         | 0.916                                | 43.170                                   | 0.899                              | 41.577                                 | + 1.89         | + 3.83           |
|                                    |                   |             | 835         | 0.921                                | 43.116                                   | 0.900                              | 41.500                                 | + 2.33         | + 3.89           |
|                                    |                   |             | 850         | 0.927                                | 43.068                                   | 0.916                              | 41.500                                 | + 1.20         | + 3.78           |
| 12/02/2024                         | 19.9              | 835H        | 820         | 0.907                                | 41.601                                   | 0.899                              | 41.577                                 | + 0.89         | + 0.06           |
|                                    |                   |             | 835         | 0.912                                | 41.548                                   | 0.900                              | 41.500                                 | + 1.33         | + 0.12           |
|                                    |                   |             | 850         | 0.918                                | 41.500                                   | 0.916                              | 41.500                                 | + 0.22         | + 0.00           |
| 11/22/2024                         | 20.7              | 835H        | 820         | 0.916                                | 41.893                                   | 0.920                              | 42.079                                 | - 0.43         | - 0.44           |
|                                    |                   |             | 835         | 0.922                                | 41.839                                   | 0.936                              | 41.875                                 | - 1.50         | - 0.09           |
|                                    |                   |             | 850         | 0.928                                | 41.791                                   | 0.951                              | 41.674                                 | - 2.42         | + 0.28           |
| 12/03/2024                         | 19.9              | 835H        | 820         | 0.907                                | 41.631                                   | 0.920                              | 42.079                                 | - 1.41         | - 1.06           |
|                                    |                   |             | 835         | 0.912                                | 41.578                                   | 0.936                              | 41.875                                 | - 2.56         | - 0.71           |
|                                    |                   |             | 850         | 0.918                                | 41.530                                   | 0.951                              | 41.674                                 | - 3.47         | - 0.35           |
| 11/24/2024                         | 21.4              | 835H        | 820         | 0.901                                | 42.239                                   | 0.920                              | 42.079                                 | - 2.07         | + 0.38           |
|                                    |                   |             | 835         | 0.903                                | 42.185                                   | 0.936                              | 41.875                                 | - 3.53         | + 0.74           |
|                                    |                   |             | 850         | 0.914                                | 42.136                                   | 0.951                              | 41.674                                 | - 3.89         | + 1.11           |
| 12/09/2024                         | 19.7              | 835H        | 820         | 0.918                                | 41.923                                   | 0.920                              | 42.079                                 | - 0.22         | - 0.37           |
|                                    |                   |             | 835         | 0.924                                | 41.868                                   | 0.936                              | 41.875                                 | - 1.28         | - 0.02           |
|                                    |                   |             | 850         | 0.930                                | 41.820                                   | 0.951                              | 41.674                                 | - 2.21         | + 0.35           |

| Table for Head Tissue Verification |                   |             |             |                                      |                                          |                                    |                                        |                |                  |
|------------------------------------|-------------------|-------------|-------------|--------------------------------------|------------------------------------------|------------------------------------|----------------------------------------|----------------|------------------|
| Date of Tests                      | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | Target Conductivity $\sigma$ (S/m) | Target Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
| 11/21/2024                         | 20.9              | 1800H       | 1 710       | 1.340                                | 40.489                                   | 1.348                              | 40.144                                 | - 0.59         | + 0.86           |
|                                    |                   |             | 1 750       | 1.364                                | 40.517                                   | 1.371                              | 40.080                                 | - 0.51         | + 1.09           |
|                                    |                   |             | 1 800       | 1.403                                | 40.472                                   | 1.400                              | 40.000                                 | + 0.21         | + 1.18           |
| 11/18/2024                         | 20.0              | 1800H       | 1 710       | 1.325                                | 40.310                                   | 1.348                              | 40.144                                 | - 1.71         | + 0.41           |
|                                    |                   |             | 1 750       | 1.347                                | 40.334                                   | 1.371                              | 40.080                                 | - 1.75         | + 0.63           |
|                                    |                   |             | 1 800       | 1.385                                | 40.284                                   | 1.400                              | 40.000                                 | - 1.07         | + 0.71           |
| 11/19/2024                         | 19.1              | 1800H       | 1 710       | 1.340                                | 40.394                                   | 1.348                              | 40.144                                 | - 0.59         | + 0.62           |
|                                    |                   |             | 1 750       | 1.364                                | 40.417                                   | 1.371                              | 40.080                                 | - 0.51         | + 0.84           |
|                                    |                   |             | 1 800       | 1.404                                | 40.372                                   | 1.400                              | 40.000                                 | + 0.29         | + 0.93           |
| 11/13/2024                         | 20.0              | 1900H       | 1 850       | 1.379                                | 40.573                                   | 1.400                              | 40.000                                 | - 1.50         | + 1.43           |
|                                    |                   |             | 1 900       | 1.406                                | 40.438                                   | 1.400                              | 40.000                                 | + 0.43         | + 1.10           |
|                                    |                   |             | 1 910       | 1.411                                | 40.416                                   | 1.400                              | 40.000                                 | + 0.79         | + 1.04           |
| 11/20/2024                         | 20.1              | 1900H       | 1 850       | 1.383                                | 40.207                                   | 1.400                              | 40.000                                 | - 1.21         | + 0.52           |
|                                    |                   |             | 1 900       | 1.410                                | 40.074                                   | 1.400                              | 40.000                                 | + 0.71         | + 0.18           |
|                                    |                   |             | 1 910       | 1.414                                | 40.053                                   | 1.400                              | 40.000                                 | + 1.00         | + 0.13           |
| 12/11/2024                         | 19.2              | 1900H       | 1 850       | 1.379                                | 40.669                                   | 1.400                              | 40.000                                 | - 1.50         | + 1.67           |
|                                    |                   |             | 1 900       | 1.406                                | 40.534                                   | 1.400                              | 40.000                                 | + 0.43         | + 1.33           |
|                                    |                   |             | 1 910       | 1.411                                | 40.512                                   | 1.400                              | 40.000                                 | + 0.79         | + 1.28           |
| 12/12/2024                         | 19.2              | 1900H       | 1 850       | 1.370                                | 40.739                                   | 1.400                              | 40.000                                 | - 2.14         | + 1.85           |
|                                    |                   |             | 1 900       | 1.397                                | 40.602                                   | 1.400                              | 40.000                                 | - 0.21         | + 1.51           |
|                                    |                   |             | 1 910       | 1.402                                | 40.580                                   | 1.400                              | 40.000                                 | + 0.14         | + 1.45           |
| 12/16/2024                         | 21.5              | 2450H       | 2 400       | 1.741                                | 39.783                                   | 1.756                              | 39.290                                 | - 0.85         | + 1.25           |
|                                    |                   |             | 2 450       | 1.796                                | 39.607                                   | 1.800                              | 39.200                                 | - 0.22         | + 1.04           |
|                                    |                   |             | 2 500       | 1.852                                | 39.453                                   | 1.855                              | 39.140                                 | - 0.16         | + 0.80           |
| 11/21/2024                         | 21.8              | 2450H       | 2 400       | 1.742                                | 39.179                                   | 1.756                              | 39.290                                 | - 0.80         | - 0.28           |
|                                    |                   |             | 2 450       | 1.796                                | 39.005                                   | 1.800                              | 39.200                                 | - 0.22         | - 0.50           |
|                                    |                   |             | 2 500       | 1.852                                | 38.854                                   | 1.855                              | 39.140                                 | - 0.16         | - 0.73           |
| 11/20/2024                         | 22.0              | 2450H       | 2 400       | 1.742                                | 39.785                                   | 1.756                              | 39.290                                 | - 0.80         | + 1.26           |
|                                    |                   |             | 2 450       | 1.797                                | 39.608                                   | 1.800                              | 39.200                                 | - 0.17         | + 1.04           |
|                                    |                   |             | 2 500       | 1.853                                | 39.459                                   | 1.855                              | 39.140                                 | - 0.11         | + 0.82           |
| 11/27/2024                         | 19.4              | 2600H       | 2 500       | 1.852                                | 39.353                                   | 1.855                              | 39.140                                 | - 0.16         | + 0.54           |
|                                    |                   |             | 2 600       | 1.964                                | 38.940                                   | 1.964                              | 39.010                                 | + 0.00         | - 0.18           |
|                                    |                   |             | 2 690       | 2.064                                | 38.471                                   | 2.062                              | 38.894                                 | + 0.10         | - 1.09           |
| 12/13/2024                         | 19.6              | 2600H       | 2 500       | 1.883                                | 39.661                                   | 1.855                              | 39.140                                 | + 1.51         | + 1.33           |
|                                    |                   |             | 2 600       | 1.966                                | 39.716                                   | 1.964                              | 39.010                                 | + 0.10         | + 1.81           |
|                                    |                   |             | 2 690       | 2.139                                | 38.317                                   | 2.062                              | 38.894                                 | + 3.73         | - 1.48           |

| Table for Head Tissue Verification |                   |             |             |                                      |                                          |                                    |                                        |                |                  |
|------------------------------------|-------------------|-------------|-------------|--------------------------------------|------------------------------------------|------------------------------------|----------------------------------------|----------------|------------------|
| Date of Tests                      | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | Target Conductivity $\sigma$ (S/m) | Target Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
| 12/10/2024                         | 18.6              | 5180H-5320H | 5 180       | 4.661                                | 36.370                                   | 4.635                              | 36.010                                 | + 0.56         | + 1.00           |
|                                    |                   |             | 5 250       | 4.749                                | 36.136                                   | 4.706                              | 35.930                                 | + 0.91         | + 0.57           |
|                                    |                   |             | 5 280       | 4.791                                | 36.068                                   | 4.737                              | 35.894                                 | + 1.14         | + 0.48           |
|                                    |                   |             | 5 320       | 4.848                                | 36.032                                   | 4.778                              | 35.846                                 | + 1.47         | + 0.52           |
| 12/11/2024                         | 22.0              | 5500H-5600H | 5 500       | 5.016                                | 35.300                                   | 4.963                              | 35.640                                 | + 1.07         | - 0.95           |
|                                    |                   |             | 5 600       | 5.115                                | 35.116                                   | 5.065                              | 35.530                                 | + 0.99         | - 1.17           |
|                                    |                   |             | 5 750       | 5.333                                | 35.002                                   | 5.219                              | 35.360                                 | + 2.18         | - 1.01           |
| 12/12/2024                         | 19.5              | 5750H-5825H | 5 750       | 5.302                                | 35.501                                   | 5.219                              | 35.360                                 | + 1.59         | + 0.40           |
|                                    |                   |             | 5 800       | 5.231                                | 35.510                                   | 5.270                              | 35.300                                 | - 0.74         | + 0.59           |
|                                    |                   |             | 5 825       | 5.199                                | 35.470                                   | 5.296                              | 35.270                                 | - 1.83         | + 0.57           |
| 12/13/2024                         | 20.2              | 5800H-5885H | 5 800       | 5.292                                | 35.781                                   | 5.270                              | 35.300                                 | + 0.42         | + 1.36           |
|                                    |                   |             | 5 835       | 5.252                                | 35.707                                   | 5.306                              | 35.258                                 | - 1.02         | + 1.27           |
|                                    |                   |             | 5 845       | 5.246                                | 35.669                                   | 5.316                              | 35.246                                 | - 1.32         | + 1.20           |
|                                    |                   |             | 5 855       | 5.243                                | 35.624                                   | 5.326                              | 35.235                                 | - 1.56         | + 1.10           |
|                                    |                   |             | 5 865       | 5.244                                | 35.574                                   | 5.337                              | 35.225                                 | - 1.74         | + 0.99           |
|                                    |                   |             | 5 875       | 5.247                                | 35.519                                   | 5.347                              | 35.215                                 | - 1.87         | + 0.86           |
|                                    |                   |             | 5 885       | 5.254                                | 35.462                                   | 5.357                              | 35.205                                 | - 1.92         | + 0.73           |

◆ 5G NR SUB 6

| Table for Head Tissue Verification |                   |             |             |                                      |                                          |                                    |                                        |                |                  |
|------------------------------------|-------------------|-------------|-------------|--------------------------------------|------------------------------------------|------------------------------------|----------------------------------------|----------------|------------------|
| Date of Tests                      | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | Target Conductivity $\sigma$ (S/m) | Target Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
| 11/28/2024                         | 19.8              | 835H        | 820         | 0.915                                | 43.154                                   | 0.899                              | 41.577                                 | + 1.78         | + 3.79           |
|                                    |                   |             | 835         | 0.920                                | 43.100                                   | 0.900                              | 41.500                                 | + 2.22         | + 3.86           |
|                                    |                   |             | 850         | 0.926                                | 43.052                                   | 0.916                              | 41.500                                 | + 1.09         | + 3.74           |
| 12/10/2024                         | 19.3              | 835H        | 820         | 0.907                                | 41.580                                   | 0.899                              | 41.577                                 | + 0.89         | + 0.01           |
|                                    |                   |             | 835         | 0.912                                | 41.526                                   | 0.900                              | 41.500                                 | + 1.33         | + 0.06           |
|                                    |                   |             | 850         | 0.918                                | 41.479                                   | 0.916                              | 41.500                                 | + 0.22         | - 0.05           |
| 11/29/2024                         | 20.0              | 1 800H      | 1 710       | 1.343                                | 41.620                                   | 1.348                              | 40.144                                 | - 0.37         | + 3.68           |
|                                    |                   |             | 1 750       | 1.366                                | 41.642                                   | 1.371                              | 40.080                                 | - 0.36         | + 3.90           |
|                                    |                   |             | 1 800       | 1.405                                | 41.591                                   | 1.400                              | 40.000                                 | + 0.36         | + 3.98           |
| 11/30/2024                         | 20.0              | 1 800H      | 1 710       | 1.324                                | 40.414                                   | 1.348                              | 40.144                                 | - 1.78         | + 0.67           |
|                                    |                   |             | 1 750       | 1.347                                | 40.437                                   | 1.371                              | 40.080                                 | - 1.75         | + 0.89           |
|                                    |                   |             | 1 800       | 1.385                                | 40.387                                   | 1.400                              | 40.000                                 | - 1.07         | + 0.97           |
| 12/15/2024                         | 19.4              | 2 600H      | 2 500       | 1.843                                | 38.617                                   | 1.855                              | 39.140                                 | - 0.65         | - 1.34           |
|                                    |                   |             | 2 600       | 1.895                                | 38.672                                   | 1.964                              | 39.010                                 | - 3.51         | - 0.87           |
|                                    |                   |             | 2 690       | 2.065                                | 37.452                                   | 2.062                              | 38.894                                 | + 0.15         | - 3.71           |
| 12/16/2024                         | 19.0              | 2 600H      | 2 500       | 1.886                                | 39.724                                   | 1.855                              | 39.140                                 | + 1.67         | + 1.49           |
|                                    |                   |             | 2 600       | 1.895                                | 39.777                                   | 1.964                              | 39.010                                 | - 3.51         | + 1.97           |
|                                    |                   |             | 2 690       | 2.065                                | 38.373                                   | 2.062                              | 38.894                                 | + 0.15         | - 1.34           |
| 12/15/2024                         | 21.1              | 3500H       | 3 400       | 2.806                                | 38.684                                   | 2.810                              | 38.040                                 | - 0.14         | + 1.69           |
|                                    |                   |             | 3 500       | 2.898                                | 38.518                                   | 2.913                              | 37.930                                 | - 0.51         | + 1.55           |
|                                    |                   |             | 3 550       | 2.946                                | 38.435                                   | 2.964                              | 37.870                                 | - 0.61         | + 1.49           |
| 12/15/2024                         | 21.1              | 3700H-3970  | 3 700       | 3.087                                | 38.194                                   | 3.118                              | 37.700                                 | - 0.99         | + 1.31           |
|                                    |                   |             | 3 750       | 3.136                                | 38.129                                   | 3.169                              | 37.640                                 | - 1.04         | + 1.30           |
|                                    |                   |             | 3 800       | 3.184                                | 38.068                                   | 3.220                              | 37.590                                 | - 1.12         | + 1.27           |
|                                    |                   |             | 3 900       | 3.278                                | 37.924                                   | 3.233                              | 37.470                                 | + 1.39         | + 1.21           |
|                                    |                   |             | 3 970       | 3.352                                | 37.809                                   | 3.394                              | 37.390                                 | - 1.24         | + 1.12           |

## 12.2 System Verification

Input Power: 50 mW

| Freq. | Date       | Probe | Dipole | Liquid | Amb. Temp. | Liquid Temp. | 1 W Target SAR <sub>1a</sub> (SPEAG) | 50mW Measured SAR <sub>1a</sub> | 1 W Normalized SAR <sub>1a</sub> | Deviation | Limit |
|-------|------------|-------|--------|--------|------------|--------------|--------------------------------------|---------------------------------|----------------------------------|-----------|-------|
| [MHz] |            | (S/N) | (S/N)  |        | [°C]       | [°C]         | [W/kg]                               | [W/kg]                          | [W/kg]                           | [%]       | [%]   |
| 750   | 11/25/2024 | 7679  | 1014   | Head   | 19.4       | 19.3         | 8.50                                 | 0.410                           | 8.20                             | - 3.53    | ± 10  |
| 750   | 12/05/2024 | 7679  |        | Head   | 19.4       | 19.2         | 8.50                                 | 0.442                           | 8.84                             | + 4.00    | ± 10  |
| 750   | 11/26/2024 | 7679  |        | Head   | 20.0       | 19.8         | 8.50                                 | 0.405                           | 8.10                             | - 4.71    | ± 10  |
| 750   | 12/06/2024 | 7679  |        | Head   | 19.7       | 19.6         | 8.50                                 | 0.447                           | 8.94                             | + 5.18    | ± 10  |
| 835   | 11/14/2024 | 7679  | 441    | Head   | 20.5       | 20.4         | 9.73                                 | 0.509                           | 10.18                            | + 4.62    | ± 10  |
| 835   | 12/02/2024 | 7679  |        | Head   | 20.0       | 19.9         | 9.73                                 | 0.520                           | 10.40                            | + 6.89    | ± 10  |
| 835   | 11/22/2024 | 7679  |        | Head   | 20.8       | 20.7         | 9.73                                 | 0.505                           | 10.10                            | + 3.80    | ± 10  |
| 835   | 12/03/2024 | 7679  |        | Head   | 20.0       | 19.9         | 9.73                                 | 0.514                           | 10.28                            | + 5.65    | ± 10  |
| 835   | 11/24/2024 | 7679  |        | Head   | 21.5       | 21.4         | 9.73                                 | 0.534                           | 10.68                            | + 9.76    | ± 10  |
| 835   | 12/09/2024 | 7679  |        | Head   | 19.9       | 19.7         | 9.73                                 | 0.510                           | 10.20                            | + 4.83    | ± 10  |
| 1 800 | 11/21/2024 | 7679  | 2d007  | Head   | 21.0       | 20.9         | 39.0                                 | 1.83                            | 36.60                            | - 6.15    | ± 10  |
| 1 800 | 11/18/2024 | 7732  |        | Head   | 20.2       | 20.0         | 39.0                                 | 2.01                            | 40.20                            | + 3.08    | ± 10  |
| 1 800 | 11/19/2024 | 7732  |        | Head   | 19.3       | 19.1         | 39.0                                 | 2.04                            | 40.80                            | + 4.62    | ± 10  |
| 1 900 | 11/13/2024 | 7679  | 5d032  | Head   | 20.2       | 20.0         | 40.2                                 | 1.92                            | 38.40                            | - 4.48    | ± 10  |
| 1 900 | 11/20/2024 | 7679  |        | Head   | 20.2       | 20.1         | 40.2                                 | 1.92                            | 38.40                            | - 4.48    | ± 10  |
| 1 900 | 12/11/2024 | 7679  |        | Head   | 19.4       | 19.2         | 40.2                                 | 2.07                            | 41.40                            | + 2.99    | ± 10  |
| 1 900 | 12/12/2024 | 7679  |        | Head   | 19.3       | 19.2         | 40.2                                 | 2.07                            | 41.40                            | + 2.99    | ± 10  |
| 2 450 | 12/16/2024 | 7732  | 743    | Head   | 21.7       | 21.5         | 51.8                                 | 2.51                            | 50.20                            | - 3.09    | ± 10  |
| 2 450 | 11/21/2024 | 7732  |        | Head   | 22.0       | 21.8         | 51.8                                 | 2.52                            | 50.40                            | - 2.70    | ± 10  |
| 2 450 | 11/20/2024 | 7732  |        | Head   | 22.1       | 22.0         | 51.8                                 | 2.54                            | 50.80                            | - 1.93    | ± 10  |
| 2 600 | 11/27/2024 | 7732  | 1015   | Head   | 19.6       | 19.4         | 56.4                                 | 3.04                            | 60.80                            | + 7.80    | ± 10  |
| 2 600 | 12/13/2024 | 7679  |        | Head   | 19.7       | 19.6         | 56.4                                 | 2.83                            | 56.60                            | + 0.35    | ± 10  |
| 5 250 | 12/10/2024 | 7309  | 1107   | Head   | 18.7       | 18.6         | 80.2                                 | 4.01                            | 80.20                            | + 0.00    | ± 10  |
| 5 600 | 12/11/2024 | 7309  |        | Head   | 22.1       | 22.0         | 82.1                                 | 4.37                            | 87.40                            | + 6.46    | ± 10  |
| 5 750 | 12/12/2024 | 7309  |        | Head   | 19.7       | 19.5         | 79.9                                 | 4.07                            | 81.40                            | + 1.88    | ± 10  |
| 5 800 | 12/13/2024 | 7309  |        | Head   | 20.2       | 20.1         | 79.3                                 | 4.17                            | 83.40                            | + 5.17    | ± 10  |

### ◆ 5G NR SUB 6

Input Power: 50 mW

| Freq. | Date       | Probe (S/N) | Dipole (S/N) | Liquid | Amb. Temp. | Liquid Temp. | 1 W Target SAR <sub>1g</sub> (SPEAG) | 50mW Measured SAR <sub>1g</sub> | 1 W Normalized SAR <sub>1g</sub> | Deviation | Limit |
|-------|------------|-------------|--------------|--------|------------|--------------|--------------------------------------|---------------------------------|----------------------------------|-----------|-------|
| [MHz] |            |             |              |        | [°C]       | [°C]         | [W/kg]                               | [W/kg]                          | [W/kg]                           | [%]       | [%]   |
| 835   | 11/28/2024 | 7679        | 441          | Head   | 20.0       | 19.8         | 9.73                                 | 0.525                           | 10.50                            | + 7.91    | ± 10  |
| 835   | 12/10/2024 | 7679        |              | Head   | 19.4       | 19.3         | 9.73                                 | 0.516                           | 10.32                            | + 6.06    | ± 10  |
| 1 800 | 11/29/2024 | 7679        | 2d007        | Head   | 20.1       | 20.0         | 39.0                                 | 1.86                            | 37.20                            | - 4.62    | ± 10  |
| 1 800 | 11/30/2024 | 7679        |              | Head   | 20.2       | 20.0         | 39.0                                 | 2.00                            | 40.00                            | + 2.56    | ± 10  |
| 2 600 | 12/15/2024 | 7679        | 1015         | Head   | 19.5       | 19.4         | 56.4                                 | 2.79                            | 55.80                            | - 1.06    | ± 10  |
| 2 600 | 12/16/2024 | 7679        |              | Head   | 19.1       | 19.0         | 56.4                                 | 2.84                            | 56.80                            | + 0.71    | ± 10  |
| 3 500 | 12/15/2024 | 7654        | 1132         | Head   | 21.2       | 21.1         | 65.1                                 | 3.09                            | 61.80                            | - 5.07    | ± 10  |
| 3 700 | 12/15/2024 | 7654        | 1105         | Head   | 21.2       | 21.1         | 69.3                                 | 3.28                            | 65.60                            | - 5.34    | ± 10  |
| 3 900 | 12/15/2024 | 7654        | 1086         | Head   | 21.2       | 21.1         | 67.6                                 | 3.25                            | 65.00                            | - 3.85    | ± 10  |

### ◆ System Verification Results – Extremity SAR

Input Power: 50 mW

| Freq. | Date       | Probe (S/N) | Dipole (S/N) | Liquid | Amb. Temp. | Liquid Temp. | 1 W Target SAR <sub>10g</sub> (SPEAG) | 50mW Measured SAR <sub>10g</sub> | 1 W Normalized SAR <sub>10g</sub> | Deviation | Limit |
|-------|------------|-------------|--------------|--------|------------|--------------|---------------------------------------|----------------------------------|-----------------------------------|-----------|-------|
| [MHz] |            |             |              |        | [°C]       | [°C]         | [W/kg]                                | [W/kg]                           | [W/kg]                            | [%]       | [%]   |
| 13    | 12/02/2024 | 3076        | 1016         | Head   | 23.1       | 22.9         | 0.347                                 | 0.018                            | 0.36                              | + 3.75    | ± 10  |

## 12.3 System Verification Procedure

### For SAR Measurement

SAR measurement was prior to assessment; the system is verified to the ± 10 % of the specifications at each frequency band by using the system verification kit. (Graphic Plots Attached)

- Cabling the system, using the verification kit equipment.
- Generate about 50 mW Input level from the signal generator to the Dipole Antenna.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

Note;

SAR Verification was performed according to the FCC KDB 865664 D01v01r04.

### 13. RF Exposure Test Data Summary

#### 13.1 SAR Measurement Results

##### 13.1.1 Head SAR Measurement Results

| GSM 850 Head SAR                                                                                    |     |          |      |               |             |             |                                          |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-----|----------|------|---------------|-------------|-------------|------------------------------------------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |     | Mode     | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch. |          |      | (dB)          | (dB)        | (dB)        |                                          |            | (W/kg)       |                | (W/kg)       |           |
| 824.2                                                                                               | 128 | GPRS 4TX | A    | 29.6          | 28.61       | 0.18        | Left Cheek                               | 1:2.07     | 0.066        | 1.256          | 0.083        | -         |
| 824.2                                                                                               | 128 | GPRS 4TX | A    | 29.6          | 28.61       | -0.17       | Left Tilt                                | 1:2.07     | 0.034        | 1.256          | 0.043        | -         |
| 824.2                                                                                               | 128 | GPRS 4TX | A    | 29.6          | 28.61       | -0.14       | Right Cheek                              | 1:2.07     | 0.088        | 1.256          | 0.111        | -         |
| 824.2                                                                                               | 128 | GPRS 4TX | A    | 29.6          | 28.61       | 0.16        | Right Tilt                               | 1:2.07     | 0.039        | 1.256          | 0.049        | -         |
| 824.2                                                                                               | 128 | GSM      | A    | 34.0          | 33.58       | -0.15       | Left Cheek                               | 1:8.30     | 0.062        | 1.102          | 0.068        | -         |
| 824.2                                                                                               | 128 | GSM      | A    | 34.0          | 33.58       | 0.09        | Left Tilt                                | 1:8.30     | 0.036        | 1.102          | 0.040        | -         |
| 824.2                                                                                               | 128 | GSM      | A    | 34.0          | 33.58       | 0.18        | Right Cheek                              | 1:8.30     | 0.081        | 1.102          | 0.089        | -         |
| 824.2                                                                                               | 128 | GSM      | A    | 34.0          | 33.58       | 0.11        | Right Tilt                               | 1:8.30     | 0.038        | 1.102          | 0.042        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.01       | Left Cheek                               | 1:4.15     | 0.390        | 1.318          | 0.514        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.14       | Left Tilt                                | 1:4.15     | 0.334        | 1.318          | 0.440        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.10       | Right Cheek                              | 1:4.15     | 0.252        | 1.318          | 0.332        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | 0.18        | Right Tilt                               | 1:4.15     | 0.286        | 1.318          | 0.377        | -         |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | 0.13        | Left Cheek                               | 1:8.30     | <b>0.478</b> | 1.242          | <b>0.594</b> | <b>A1</b> |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | -0.11       | Left Tilt                                | 1:8.30     | 0.411        | 1.242          | 0.510        | -         |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | -0.10       | Right Cheek                              | 1:8.30     | 0.377        | 1.242          | 0.468        | -         |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | 0.00        | Right Tilt                               | 1:8.30     | 0.296        | 1.242          | 0.368        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |          |      |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |            |              |                |              |           |

| GSM1900 Head SAR                                                                                    |     |          |      |               |             |             |                                          |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-----|----------|------|---------------|-------------|-------------|------------------------------------------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |     | Mode     | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch. |          |      | (dB)          | (dB)        | (dB)        |                                          |            | (W/kg)       |                | (W/kg)       |           |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 26.2          | 25.30       | 0.00        | Left Cheek                               | 1:2.07     | <b>0.032</b> | 1.230          | <b>0.039</b> | <b>A2</b> |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 26.2          | 25.30       | -0.18       | Left Tilt                                | 1:2.07     | 0.014        | 1.230          | 0.017        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 26.2          | 25.30       | -0.10       | Right Cheek                              | 1:2.07     | 0.027        | 1.230          | 0.033        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 26.2          | 25.30       | -0.13       | Right Tilt                               | 1:2.07     | 0.008        | 1.230          | 0.010        | -         |
| 1880                                                                                                | 661 | GSM      | B    | 31.0          | 30.55       | 0.14        | Left Cheek                               | 1:8.30     | 0.031        | 1.109          | 0.034        | -         |
| 1880                                                                                                | 661 | GSM      | B    | 31.0          | 30.55       | 0.17        | Left Tilt                                | 1:8.30     | 0.009        | 1.109          | 0.010        | -         |
| 1880                                                                                                | 661 | GSM      | B    | 31.0          | 30.55       | -0.18       | Right Cheek                              | 1:8.30     | 0.029        | 1.109          | 0.032        | -         |
| 1880                                                                                                | 661 | GSM      | B    | 31.0          | 30.55       | 0.12        | Right Tilt                               | 1:8.30     | 0.009        | 1.109          | 0.010        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |          |      |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |            |              |                |              |           |

| UMTS Band 2 Head SAR                                                                                |      |      |      |               |             |             |                                          |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|------|------|------|---------------|-------------|-------------|------------------------------------------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.  |      |      | (dB)          | (dB)        | (dB)        |                                          |            | (W/kg)       |                | (W/kg)       |           |
| 1 880                                                                                               | 9400 | RMC  | B    | 24.8          | 23.61       | 0.19        | Left Cheek                               | 1:1        | <b>0.135</b> | 1.315          | <b>0.178</b> | <b>A3</b> |
| 1 880                                                                                               | 9400 | RMC  | B    | 24.8          | 23.61       | 0.04        | Left Tilt                                | 1:1        | 0.094        | 1.315          | 0.124        | -         |
| 1 880                                                                                               | 9400 | RMC  | B    | 24.8          | 23.61       | -0.14       | Right Cheek                              | 1:1        | 0.104        | 1.315          | 0.137        | -         |
| 1 880                                                                                               | 9400 | RMC  | B    | 24.8          | 23.61       | 0.07        | Right Tilt                               | 1:1        | 0.087        | 1.315          | 0.114        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |            |              |                |              |           |

| UMTS Band 4 Head SAR                                                                                |      |      |      |               |             |                                          |               |            |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|------|------|------|---------------|-------------|------------------------------------------|---------------|------------|-----------|----------------|------------|----------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-Up Limit | Meas. Power | Power Drift                              | Test Position | Duty Cycle | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch.  |      |      | (dB)          | (dB)        | (dB)                                     |               |            | (W/kg)    |                | (W/kg)     |          |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 24.8          | 24.18       | 0.16                                     | Left Cheek    | 1:1        | 0.119     | 1.153          | 0.137      | A4       |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 24.8          | 24.18       | 0.18                                     | Left Tilt     | 1:1        | 0.083     | 1.153          | 0.096      | -        |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 24.8          | 24.18       | -0.11                                    | Right Cheek   | 1:1        | 0.112     | 1.153          | 0.129      | -        |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 24.8          | 24.18       | 0.10                                     | Right Tilt    | 1:1        | 0.075     | 1.153          | 0.086      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |               |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |               |            |           |                |            |          |

| UMTS Band 5 Head SAR                                                                                |      |      |      |                   |                |                |                                          |               |              |                   |               |             |
|-----------------------------------------------------------------------------------------------------|------|------|------|-------------------|----------------|----------------|------------------------------------------|---------------|--------------|-------------------|---------------|-------------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-<br>Up Limit | Meas.<br>Power | Power<br>Drift | Test Position                            | Duty<br>Cycle | Meas.<br>SAR | Scaling<br>Factor | Scaled<br>SAR | Plot<br>No. |
| MHz                                                                                                 | Ch.  |      |      | (dB)              | (dB)           | (dB)           |                                          |               | (W/kg)       |                   | (W/kg)        |             |
| 836.6                                                                                               | 4183 | RMC  | A    | 23.5              | 22.94          | -0.12          | Left Cheek                               | 1:1           | 0.095        | 1.138             | 0.108         | -           |
| 836.6                                                                                               | 4183 | RMC  | A    | 23.5              | 22.94          | 0.11           | Left Tilt                                | 1:1           | 0.064        | 1.138             | 0.073         | -           |
| 836.6                                                                                               | 4183 | RMC  | A    | 23.5              | 22.94          | -0.13          | Right Cheek                              | 1:1           | 0.138        | 1.138             | 0.157         | -           |
| 836.6                                                                                               | 4183 | RMC  | A    | 23.5              | 22.94          | -0.07          | Right Tilt                               | 1:1           | 0.061        | 1.138             | 0.069         | -           |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5              | 22.94          | -0.18          | Left Cheek                               | 1:1           | 0.650        | 1.138             | 0.740         |             |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5              | 22.94          | 0.04           | Left Tilt                                | 1:1           | <b>0.656</b> | 1.138             | <b>0.747</b>  | <b>A5</b>   |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5              | 22.94          | -0.09          | Right Cheek                              | 1:1           | 0.479        | 1.138             | 0.545         |             |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5              | 22.94          | 0.11           | Right Tilt                               | 1:1           | 0.443        | 1.138             | 0.504         |             |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |                   |                |                | Head<br>1.6 W/kg<br>Averaged over 1 gram |               |              |                   |               |             |

| LTE Band 12 Head SAR                                                                                |       |      |      |            |               |             |             |                                          |     |         |           |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|-----|---------|-----------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.   |      |      |            |               |             |             |                                          |     |         |           |            | (W/kg)       |                | (W/kg)       |           |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 25.0          | 24.42       | -0.17       | Left Cheek                               | 0   | 1       | 24        | 1:1        | 0.139        | 1.143          | 0.159        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 24.0          | 23.28       | 0.13        | Left Cheek                               | 0   | 25      | 0         | 1:1        | 0.109        | 1.180          | 0.129        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 25.0          | 24.42       | -0.00       | Left Tilt                                | 0   | 1       | 24        | 1:1        | 0.048        | 1.143          | 0.055        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 24.0          | 23.28       | 0.00        | Left Tilt                                | 0   | 25      | 0         | 1:1        | 0.038        | 1.180          | 0.045        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 25.0          | 24.42       | 0.13        | Right Cheek                              | 0   | 1       | 24        | 1:1        | 0.184        | 1.143          | 0.210        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 24.0          | 23.28       | 0.14        | Right Cheek                              | 0   | 25      | 0         | 1:1        | 0.144        | 1.180          | 0.170        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 25.0          | 24.42       | -0.11       | Right Tilt                               | 0   | 1       | 24        | 1:1        | 0.091        | 1.143          | 0.104        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 24.0          | 23.28       | 0.03        | Right Tilt                               | 0   | 25      | 0         | 1:1        | 0.065        | 1.180          | 0.077        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | 0.01        | Left Cheek                               | 0   | 1       | 24        | 1:1        | <b>0.753</b> | 1.026          | <b>0.773</b> | <b>A6</b> |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | -0.13       | Left Cheek                               | 0   | 25      | 0         | 1:1        | 0.708        | 1.057          | 0.748        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.84       | -0.03       | Left Cheek                               | 0   | 50      | 0         | 1:1        | 0.727        | 1.038          | 0.755        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | -0.10       | Left Tilt                                | 0   | 1       | 24        | 1:1        | 0.599        | 1.026          | 0.615        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | -0.08       | Left Tilt                                | 0   | 25      | 0         | 1:1        | 0.585        | 1.057          | 0.618        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | -0.10       | Right Cheek                              | 0   | 1       | 24        | 1:1        | 0.538        | 1.026          | 0.552        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | 0.00        | Right Cheek                              | 0   | 25      | 0         | 1:1        | 0.519        | 1.057          | 0.549        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | -0.04       | Right Tilt                               | 0   | 1       | 24        | 1:1        | 0.476        | 1.026          | 0.488        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | -0.01       | Right Tilt                               | 0   | 25      | 0         | 1:1        | 0.462        | 1.057          | 0.488        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |     |         |           |            |              |                |              |           |

| LTE Band 13 Head SAR                                                                                |       |      |      |            |               |             |             |                                          |     |         |           |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|-----|---------|-----------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.   |      |      |            |               |             |             |                                          |     |         |           |            | (W/kg)       |                | (W/kg)       |           |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 25.5          | 24.90       | 0.00        | Left Cheek                               | 0   | 1       | 24        | 1:1        | 0.014        | 1.148          | 0.016        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 24.5          | 23.87       | 0.00        | Left Cheek                               | 1   | 25      | 0         | 1:1        | 0.00973      | 1.156          | 0.011        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 25.5          | 24.90       | 0.00        | Left Tilt                                | 0   | 1       | 24        | 1:1        | 0.00701      | 1.148          | 0.008        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 24.5          | 23.87       | 0.00        | Left Tilt                                | 1   | 25      | 0         | 1:1        | 0.0045       | 1.156          | 0.005        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 25.5          | 24.90       | 0.00        | Right Cheek                              | 0   | 1       | 24        | 1:1        | 0.028        | 1.148          | 0.032        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 24.5          | 23.87       | 0.00        | Right Cheek                              | 1   | 25      | 0         | 1:1        | 0.018        | 1.156          | 0.021        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 25.5          | 24.90       | 0.19        | Right Tilt                               | 0   | 1       | 24        | 1:1        | 0.011        | 1.148          | 0.013        | -         |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 24.5          | 23.87       | -0.19       | Right Tilt                               | 1   | 25      | 0         | 1:1        | 0.00779      | 1.156          | 0.009        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.10       | Left Cheek                               | 0   | 1       | 24        | 1:1        | <b>0.669</b> | 1.119          | <b>0.749</b> | <b>A7</b> |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | -0.05       | Left Cheek                               | 0   | 25      | 0         | 1:1        | 0.648        | 1.143          | 0.741        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.47       | -0.03       | Left Cheek                               | 0   | 50      | 0         | 1:1        | 0.653        | 1.130          | 0.738        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | 0.01        | Left Tilt                                | 0   | 1       | 24        | 1:1        | 0.535        | 1.119          | 0.599        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | -0.08       | Left Tilt                                | 0   | 25      | 0         | 1:1        | 0.512        | 1.143          | 0.585        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.03       | Right Cheek                              | 0   | 1       | 24        | 1:1        | 0.457        | 1.119          | 0.511        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | 0.04        | Right Cheek                              | 0   | 25      | 0         | 1:1        | 0.448        | 1.143          | 0.512        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.00       | Right Tilt                               | 0   | 1       | 24        | 1:1        | 0.414        | 1.119          | 0.463        | -         |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | 0.00        | Right Tilt                               | 0   | 25      | 0         | 1:1        | 0.399        | 1.143          | 0.456        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |     |         |           |            |              |                |              |           |

| LTE Band 25 Head SAR                                                                                |       |      |      |            |               |             |             |                                          |     |         |           |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|-----|---------|-----------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.   |      |      |            |               |             |             |                                          |     |         |           |            |              |                |              |           |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 24.5          | 23.87       | 0.00        | Left Cheek                               | 0   | 1       | 49        | 1:1        | 0.130        | 1.156          | 0.150        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 23.5          | 22.91       | -0.10       | Left Cheek                               | 0   | 50      | 0         | 1:1        | 0.043        | 1.146          | 0.049        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 24.5          | 23.87       | 0.19        | Left Tilt                                | 0   | 1       | 49        | 1:1        | 0.019        | 1.156          | 0.022        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 23.5          | 22.91       | 0.10        | Left Tilt                                | 0   | 50      | 0         | 1:1        | 0.017        | 1.146          | 0.019        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 24.5          | 23.87       | 0.18        | Right Cheek                              | 0   | 1       | 49        | 1:1        | 0.104        | 1.156          | 0.120        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 23.5          | 22.91       | -0.18       | Right Cheek                              | 0   | 50      | 0         | 1:1        | 0.078        | 1.146          | 0.089        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 24.5          | 23.87       | 0.19        | Right Tilt                               | 0   | 1       | 49        | 1:1        | 0.051        | 1.156          | 0.059        | -         |
| 1905                                                                                                | 26590 | QPSK | B    | 20         | 23.5          | 22.91       | -0.07       | Right Tilt                               | 0   | 50      | 0         | 1:1        | 0.040        | 1.146          | 0.046        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.16        | Left Cheek                               | 0   | 1       | 49        | 1:1        | 0.210        | 1.337          | 0.281        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | -0.06       | Left Cheek                               | 0   | 50      | 0         | 1:1        | 0.204        | 1.365          | 0.278        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | -0.04       | Left Tilt                                | 0   | 1       | 49        | 1:1        | 0.258        | 1.337          | 0.345        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | -0.01       | Left Tilt                                | 0   | 50      | 0         | 1:1        | 0.254        | 1.365          | 0.347        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | -0.17       | Right Cheek                              | 0   | 1       | 49        | 1:1        | 0.406        | 1.337          | 0.543        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | 0.11        | Right Cheek                              | 0   | 50      | 0         | 1:1        | 0.416        | 1.365          | 0.568        | -         |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.06        | Right Tilt                               | 0   | 1       | 49        | 1:1        | <b>0.425</b> | 1.337          | 0.568        | <b>A8</b> |
| 1905                                                                                                | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | 0.00        | Right Tilt                               | 0   | 50      | 0         | 1:1        | 0.419        | 1.365          | <b>0.572</b> | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |     |         |           |            |              |                |              |           |

| LTE Band 26 Head SAR                                                                                |       |      |      |            |               |             |             |                                          |        |    |           |            |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|--------|----|-----------|------------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MP     | RB | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.   |      |      |            |               |             |             |                                          | R (dB) |    |           |            |              |                |              |           |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 25.5          | 24.75       | 0.08        | Left Cheek                               | 0      | 1  | 0         | 1:1        | 0.083        | 1.189          | 0.099        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 24.5          | 23.63       | 0.04        | Left Cheek                               | 1      | 36 | 0         | 1:1        | 0.067        | 1.222          | 0.082        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 25.5          | 24.75       | -0.17       | Left Tilt                                | 0      | 1  | 0         | 1:1        | 0.046        | 1.189          | 0.055        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 24.5          | 23.63       | 0.11        | Left Tilt                                | 1      | 36 | 0         | 1:1        | 0.049        | 1.222          | 0.060        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 25.5          | 24.75       | 0.19        | Right Cheek                              | 0      | 1  | 0         | 1:1        | 0.121        | 1.189          | 0.144        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 24.5          | 23.63       | 0.12        | Right Cheek                              | 1      | 36 | 0         | 1:1        | 0.100        | 1.222          | 0.122        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 25.5          | 24.75       | -0.12       | Right Tilt                               | 0      | 1  | 0         | 1:1        | 0.060        | 1.189          | 0.071        | -         |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 24.5          | 23.63       | 0.10        | Right Tilt                               | 1      | 36 | 0         | 1:1        | 0.049        | 1.222          | 0.060        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | -0.04       | Left Cheek                               | 0      | 1  | 0         | 1:1        | 0.771        | 1.107          | 0.853        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | -0.18       | Left Cheek                               | 0      | 36 | 0         | 1:1        | <b>0.771</b> | 1.122          | <b>0.865</b> | <b>A9</b> |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.44       | -0.06       | Left Cheek                               | 0      | 75 | 0         | 1:1        | 0.740        | 1.138          | 0.842        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | 0.10        | Left Tilt                                | 0      | 1  | 0         | 1:1        | 0.606        | 1.107          | 0.671        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | -0.05       | Left Tilt                                | 0      | 36 | 0         | 1:1        | 0.618        | 1.122          | 0.693        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.44       | -0.12       | Left Tilt                                | 0      | 75 | 0         | 1:1        | 0.628        | 1.138          | 0.715        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | -0.15       | Right Cheek                              | 0      | 1  | 0         | 1:1        | 0.505        | 1.107          | 0.559        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | 0.05        | Right Cheek                              | 0      | 36 | 0         | 1:1        | 0.518        | 1.122          | 0.581        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | -0.10       | Right Tilt                               | 0      | 1  | 0         | 1:1        | 0.424        | 1.107          | 0.469        | -         |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | -0.14       | Right Tilt                               | 0      | 36 | 0         | 1:1        | 0.336        | 1.122          | 0.377        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |        |    |           |            |              |                |              |           |

| LTE Band 41 Head SAR                                                                                |       |      |      |            |               |             |             |                                          |       |         |           |            |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|-------|---------|-----------|------------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MP R  | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.   |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB ) |         |           |            | (W/kg)       |                | (W/kg)       |            |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 25.5          | 24.34       | 0.00        | Left Cheek                               | 0     | 1       | 49        | 1:1        | 0.034        | 1.306          | 0.044        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 24.5          | 23.49       | 0.00        | Left Cheek                               | 1     | 50      | 0         | 1:1        | 0.027        | 1.262          | 0.034        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 25.5          | 24.34       | 0.11        | Left Tilt                                | 0     | 1       | 49        | 1:1        | 0.016        | 1.306          | 0.021        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 24.5          | 23.49       | -0.13       | Left Tilt                                | 1     | 50      | 0         | 1:1        | 0.013        | 1.262          | 0.016        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 25.5          | 24.34       | 0.00        | Right Cheek                              | 0     | 1       | 49        | 1:1        | 0.041        | 1.306          | 0.054        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 24.5          | 23.49       | 0.00        | Right Cheek                              | 1     | 50      | 0         | 1:1        | 0.031        | 1.262          | 0.039        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 25.5          | 24.34       | -0.19       | Right Tilt                               | 0     | 1       | 49        | 1:1        | 0.008        | 1.306          | 0.010        | -          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 24.5          | 23.49       | 0.00        | Right Tilt                               | 1     | 50      | 0         | 1:1        | 0.015        | 1.262          | 0.019        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.02        | Left Cheek                               | 0     | 1       | 49        | 1:1.58     | 0.198        | 1.005          | 0.199        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.06        | Left Cheek                               | 0     | 50      | 0         | 1:1.58     | 0.197        | 1.005          | 0.198        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.05        | Left Tilt                                | 0     | 1       | 49        | 1:1.58     | 0.202        | 1.005          | 0.203        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.09        | Left Tilt                                | 0     | 50      | 0         | 1:1.58     | 0.231        | 1.005          | 0.232        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.09       | Right Cheek                              | 0     | 1       | 49        | 1:1.58     | 0.318        | 1.005          | 0.320        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.04       | Right Cheek                              | 0     | 50      | 0         | 1:1.58     | 0.325        | 1.005          | 0.327        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.15       | Right Tilt                               | 0     | 1       | 49        | 1:1.58     | 0.442        | 1.005          | 0.444        | -          |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.12       | Right Tilt                               | 0     | 50      | 0         | 1:1.58     | <b>0.446</b> | 1.005          | <b>0.448</b> | <b>A10</b> |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |       |         |           |            |              |                |              |            |

| LTE Band 66 Head SAR                                                                                |        |      |      |            |               |             |             |                                          |       |         |           |            |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|------|------|------------|---------------|-------------|-------------|------------------------------------------|-------|---------|-----------|------------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MP R  | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| Mhz                                                                                                 | Ch.    |      |      | (Mhz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB ) |         |           |            | (W/kg)       |                | (W/kg)       |            |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 25.0          | 24.98       | -0.19       | Left Cheek                               | 0     | 1       | 49        | 1:1        | 0.098        | 1.005          | 0.098        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 24.0          | 23.97       | 0.16        | Left Cheek                               | 1     | 50      | 0         | 1:1        | 0.052        | 1.007          | 0.052        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 25.0          | 24.98       | -0.11       | Left Tilt                                | 0     | 1       | 49        | 1:1        | 0.098        | 1.005          | 0.098        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 24.0          | 23.97       | 0.17        | Left Tilt                                | 1     | 50      | 0         | 1:1        | 0.075        | 1.007          | 0.076        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 25.0          | 24.98       | -0.06       | Right Cheek                              | 0     | 1       | 49        | 1:1        | 0.089        | 1.005          | 0.089        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 24.0          | 23.97       | 0.02        | Right Cheek                              | 1     | 50      | 0         | 1:1        | 0.069        | 1.007          | 0.069        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 25.0          | 24.98       | 0.17        | Right Tilt                               | 0     | 1       | 49        | 1:1        | 0.072        | 1.005          | 0.072        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 24.0          | 23.97       | 0.17        | Right Tilt                               | 1     | 50      | 0         | 1:1        | 0.065        | 1.007          | 0.065        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.46       | 0.06        | Left Cheek                               | 0     | 1       | 49        | 1:1.58     | 0.525        | 1.132          | 0.594        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.30       | 0.01        | Left Cheek                               | 0     | 50      | 0         | 1:1.58     | 0.508        | 1.175          | 0.597        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.46       | -0.13       | Left Tilt                                | 0     | 1       | 49        | 1:1.58     | <b>0.582</b> | 1.132          | <b>0.659</b> | <b>A11</b> |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.30       | 0.04        | Left Tilt                                | 0     | 50      | 0         | 1:1.58     | 0.619        | 1.175          | 0.727        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.46       | -0.14       | Right Cheek                              | 0     | 1       | 49        | 1:1.58     | 0.548        | 1.132          | 0.620        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.30       | -0.17       | Right Cheek                              | 0     | 50      | 0         | 1:1.58     | 0.605        | 1.175          | 0.711        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.46       | 0.05        | Right Tilt                               | 0     | 1       | 49        | 1:1.58     | 0.542        | 1.132          | 0.614        | -          |
| 1 720                                                                                               | 132072 | QPSK | F    | 20         | 19.0          | 18.30       | -0.03       | Right Tilt                               | 0     | 50      | 0         | 1:1.58     | 0.527        | 1.175          | 0.619        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |      |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |       |         |           |            |              |                |              |            |

| NR Band n5(Cell) Head SAR                                                                           |        |                 |      |            |               |             |             |                                          |      |      |        |            |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|------|--------|------------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB   | RB     | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) | Size | Offset |            | (W/kg)       |                | (W/kg)       |            |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 24.07       | 0.11        | Left Touch                               | 0    | 1    | 1      | 1:1        | 0.039        | 1.239          | 0.048        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 23.76       | 0.00        | Left Touch                               | 0    | 50   | 28     | 1:1        | 0.040        | 1.330          | 0.053        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 24.07       | -0.16       | Left Tilt                                | 0    | 1    | 1      | 1:1        | 0.027        | 1.239          | 0.033        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 23.76       | 0.12        | Left Tilt                                | 0    | 50   | 28     | 1:1        | 0.028        | 1.330          | 0.037        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 24.07       | 0.14        | Right Touch                              | 0    | 1    | 1      | 1:1        | 0.068        | 1.239          | 0.084        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 23.76       | -0.15       | Right Touch                              | 0    | 50   | 28     | 1:1        | 0.061        | 1.330          | 0.081        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 24.07       | -0.11       | Right Tilt                               | 0    | 1    | 1      | 1:1        | 0.032        | 1.239          | 0.040        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 25.0          | 23.76       | 0.12        | Right Tilt                               | 0    | 50   | 28     | 1:1        | 0.032        | 1.330          | 0.043        | -          |
| 836.5                                                                                               | 167300 | CP OFDM QPSK    | A    | 20         | 23.5          | 22.47       | 0.17        | Right Touch                              | 1.5  | 1    | 1      | 1:1        | 0.066        | 1.268          | 0.084        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.32       | -0.17       | Left Cheek                               | 0    | 1    | 1      | 1:1        | <b>0.503</b> | 1.169          | <b>0.588</b> | <b>A12</b> |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.30       | -0.01       | Left Cheek                               | 0    | 50   | 0      | 1:1        | 0.493        | 1.175          | 0.579        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.32       | 0.02        | Left Tilt                                | 0    | 1    | 1      | 1:1        | 0.464        | 1.169          | 0.542        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.30       | -0.07       | Left Tilt                                | 0    | 50   | 0      | 1:1        | 0.471        | 1.175          | 0.553        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.32       | -0.13       | Right Cheek                              | 0    | 1    | 1      | 1:1        | 0.282        | 1.169          | 0.330        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.30       | 0.02        | Right Cheek                              | 0    | 50   | 0      | 1:1        | 0.293        | 1.175          | 0.344        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.32       | -0.19       | Right Tilt                               |      | 1    | 1      | 1:1        | 0.349        | 1.169          | 0.408        | -          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | E    | 20         | 19.0          | 18.30       | 0.07        | Right Tilt                               | 0    | 50   | 0      | 1:1        | 0.354        | 1.175          | 0.416        | -          |
| 836.5                                                                                               | 167300 | CP OFDM QPSK    | E    | 20         | 19.0          | 18.30       | -0.05       | Left Cheek                               | 0    | 1    | 1      | 1:1        | 0.499        | 1.175          | 0.586        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |      |      |        |            |              |                |              |            |

| NR Band n41 Head SAR                                                                                |        |                 |      |            |               |             |             |                                          |      |         |           |            |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|-----------|----------------|------------|----------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| Mhz                                                                                                 | Ch.    |                 |      | (Mhz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) | (dB)    | (W/kg)    |            | (W/kg)    |                |            |          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Left Cheek                               | 0    | 1       | 137       | 1:1        | 0.000     | 1.242          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Left Cheek                               | 0    | 135     | 138       | 1:1        | 0.000     | 1.211          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Left Tilt                                | 0    | 1       | 137       | 1:1        | 0.000     | 1.242          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Left Tilt                                | 0    | 135     | 138       | 1:1        | 0.000     | 1.211          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Right Cheek                              | 0    | 1       | 137       | 1:1        | 0.000     | 1.242          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Right Cheek                              | 0    | 135     | 138       | 1:1        | 0.000     | 1.211          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Right Tilt                               | 0    | 1       | 137       | 1:1        | 0.000     | 1.242          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Right Tilt                               | 0    | 135     | 138       | 1:1        | 0.000     | 1.211          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | CP OFDM QPSK    | B    | 100        | 17.5          | 16.00       | 0.00        | Right Cheek                              | 0    | 1       | 1         | 1:1        | 0.000     | 1.413          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.15        | Left Touch                               | 0    | -       | -         | 1:1        | 0.107     | 1.072          | 0.115      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.13        | Left Tilt                                | 0    | -       | -         | 1:1        | 0.118     | 1.072          | 0.126      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | -0.18       | Right Touch                              | 0    | -       | -         | 1:1        | 0.264     | 1.072          | 0.283      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | -0.04       | Right Tilt                               | 0    | -       | -         | 1:1        | 0.295     | 1.072          | 0.316      | A13      |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.00        | Left Touch                               | 0    | -       | -         | 1:1        | 0.014     | 1.030          | 0.014      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.00        | Left Tilt                                | 0    | -       | -         | 1:1        | 0.012     | 1.030          | 0.012      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.00        | Right Touch                              | 0    | -       | -         | 1:1        | 0.097     | 1.030          | 0.100      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.00        | Right Tilt                               | 0    | -       | -         | 1:1        | 0.095     | 1.030          | 0.098      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Left Touch                               | 0    | -       | -         | 1:1        | 0.000     | 1.180          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Left Tilt                                | 0    | -       | -         | 1:1        | 0.000     | 1.180          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Right Touch                              | 0    | -       | -         | 1:1        | 0.000     | 1.180          | 0.000      | -        |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Right Tilt                               | 0    | -       | -         | 1:1        | 0.000     | 1.180          | 0.000      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |           |                |            |          |

| NR Band n66 Head SAR                                                                                |        |                 |      |            |               |             |             |                                          |      |         |           |            |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (W/kg)       |                | (W/kg)       |            |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 24.47       | -0.16       | Left Touch                               | 0    | 1       | 108       | 1:1        | 0.134        | 1.268          | 0.170        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 23.67       | -0.14       | Left Touch                               | 0    | 108     | 54        | 1:1        | 0.114        | 1.524          | 0.174        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 24.47       | -0.10       | Left Tilt                                | 0    | 1       | 108       | 1:1        | 0.016        | 1.268          | 0.020        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 23.67       | 0.19        | Left Tilt                                | 0    | 108     | 54        | 1:1        | 0.016        | 1.524          | 0.024        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 24.47       | -0.15       | Right Touch                              | 0    | 1       | 108       | 1:1        | 0.022        | 1.268          | 0.028        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 23.67       | -0.15       | Right Touch                              | 0    | 108     | 54        | 1:1        | 0.016        | 1.524          | 0.024        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 24.47       | 0.10        | Right Tilt                               | 0    | 1       | 108       | 1:1        | 0.014        | 1.268          | 0.018        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | B    | 40         | 25.5          | 23.67       | -0.03       | Right Tilt                               | 0    | 108     | 54        | 1:1        | 0.014        | 1.524          | 0.021        | -          |
| 1745.0                                                                                              | 349000 | CP OFDM QPSK    | B    | 40         | 24.0          | 23.11       | -0.10       | Left Touch                               | 1.5  | 1       | 1         | 1:1        | 0.038        | 1.227          | 0.047        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.08       | Left Cheek                               | 0    | 1       | 108       | 1:1        | 0.374        | 1.072          | 0.401        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.11        | Left Cheek                               | 0    | 108     | 0         | 1:1        | 0.380        | 1.091          | 0.415        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.01       | Left Tilt                                | 0    | 1       | 108       | 1:1        | 0.459        | 1.072          | 0.492        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | -0.02       | Left Tilt                                | 0    | 108     | 0         | 1:1        | 0.460        | 1.091          | 0.502        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.02       | Right Cheek                              | 0    | 1       | 108       | 1:1        | 0.464        | 1.072          | 0.497        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.09        | Right Cheek                              | 0    | 108     | 0         | 1:1        | 0.468        | 1.091          | 0.511        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.01       | Right Tilt                               | 0    | 1       | 108       | 1:1        | 0.501        | 1.072          | 0.537        | -          |
| 1745.0                                                                                              | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | -0.03       | Right Tilt                               | 0    | 108     | 0         | 1:1        | 0.522        | 1.091          | 0.570        | -          |
| 1745.0                                                                                              | 349000 | CP OFDM QPSK    | F    | 40         | 19.0          | 18.56       | -0.00       | Right Tilt                               | 0    | 1       | 1         | 1:1        | <b>0.531</b> | 1.107          | <b>0.588</b> | <b>A14</b> |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Head<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |              |                |              |            |

| NR Band n77 Head SAR                                                                                |        |                 |      |            |               |             |             |               |                                          |         |           |            |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|---------------|------------------------------------------|---------|-----------|------------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position | MPR                                      | RB Size | RB Offset | Duty Cycle | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |               | (dB)                                     |         |           |            | (W/kg)       |                | (W/kg)       |            |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | 0.18        | Left Cheek    | 0                                        | 1       | 271       | 1:1        | 0.204        | 1.045          | 0.213        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.07        | Left Cheek    | 0                                        | 135     | 138       | 1:1        | 0.154        | 1.084          | 0.167        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | -0.16       | Left Tilt     | 0                                        | 1       | 271       | 1:1        | 0.213        | 1.045          | 0.223        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.04        | Left Tilt     | 0                                        | 135     | 138       | 1:1        | 0.218        | 1.084          | 0.236        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | 0.15        | Right Cheek   | 0                                        | 1       | 271       | 1:1        | 0.409        | 1.045          | 0.427        | -          |
| 3 750                                                                                               | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.29       | -0.13       | Right Cheek   | 0                                        | 1       | 271       | 1:1        | 0.423        | 1.050          | 0.444        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.12        | Right Cheek   | 0                                        | 135     | 138       | 1:1        | 0.465        | 1.084          | 0.504        | -          |
| 3 750                                                                                               | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.56       | 0.17        | Right Cheek   | 0                                        | 135     | 138       | 1:1        | 0.464        | 1.242          | 0.576        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.87       | 0.11        | Right Tilt    | 0                                        | 270     | 0         | 1:1        | 0.365        | 1.156          | 0.422        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | -0.17       | Right Cheek   | 0                                        | 1       | 271       | 1:1        | 0.394        | 1.045          | 0.412        | -          |
| 3 750                                                                                               | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.29       | 0.11        | Right Tilt    | 0                                        | 1       | 271       | 1:1        | 0.425        | 1.050          | 0.446        | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.19        | Right Tilt    | 0                                        | 135     | 138       | 1:1        | 0.500        | 1.084          | 0.542        | -          |
| 3 750                                                                                               | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.56       | 0.19        | Right Tilt    | 0                                        | 135     | 138       | 1:1        | 0.485        | 1.242          | <b>0.602</b> | -          |
| 3 930                                                                                               | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.87       | 0.12        | Right Tilt    | 0                                        | 270     | 0         | 1:1        | <b>0.516</b> | 1.156          | 0.596        | <b>A15</b> |
| 3 930                                                                                               | 662000 | CP OFDM QPSK    | F    | 100        | 14.5          | 14.35       | 0.05        | Right Tilt    | 0                                        | 1       | 1         | 1:1        | 0.496        | 1.035          | 0.513        | -          |
| 3 500.01                                                                                            | 633334 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.95       | -0.16       | Right Tilt    | 0                                        | 135     | 138       | 1:1        | 0.468        | 1.135          | 0.531        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             |               | Head<br>1.6 W/kg<br>Averaged over 1 gram |         |           |            |              |                |              |            |

| DTS Head SAR                                                                                        |     |         |      |            |           |               |             |             |               |                                          |            |                    |              |                |                |              |            |
|-----------------------------------------------------------------------------------------------------|-----|---------|------|------------|-----------|---------------|-------------|-------------|---------------|------------------------------------------|------------|--------------------|--------------|----------------|----------------|--------------|------------|
| Frequency                                                                                           |     | Mode    | Ant. | Band width | Data Rate | Tune-Up Limit | Meas. Power | Power Drift | Test Position | Ant. Config.                             | Duty Cycle | Area Scan Peak SAR | Meas. SAR    | Scaling Factor | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch. |         |      | (MHz)      | (Mbps)    | (dBm)         | (dBm)       | (dB)        |               |                                          |            | (W/kg)             | (W/kg)       |                | (Duty)         | (W/kg)       |            |
| 2 437                                                                                               | 6   | 802.11b | H    | 20         | 1         | 13.5          | 13.38       | -0.18       | Left Cheek    | Ant.1                                    | 98.6       | 0.186              | 0.078        | 1.028          | 1.014          | 0.081        | -          |
| 2 437                                                                                               | 6   | 802.11b | H    | 20         | 1         | 13.5          | 13.38       | 0.07        | Left Tilt     | Ant.1                                    | 98.6       | 0.163              | 0.097        | 1.028          | 1.014          | 0.101        | -          |
| 2 437                                                                                               | 6   | 802.11b | H    | 20         | 1         | 13.5          | 13.38       | -0.17       | Right Cheek   | Ant.1                                    | 98.6       | 0.548              | <b>0.264</b> | 1.028          | 1.014          | <b>0.275</b> | <b>A16</b> |
| 2 437                                                                                               | 6   | 802.11b | H    | 20         | 1         | 13.5          | 13.38       | 0.13        | Right Tilt    | Ant.1                                    | 98.6       | 0.436              | 0.254        | 1.028          | 1.014          | 0.265        | -          |
| 2 437                                                                                               | 6   | 802.11b | J    | 20         | 1         | 12.5          | 11.79       | 0.00        | Left Cheek    | Ant.2                                    | 98.6       | 0.162              | 0.088        | 1.178          | 1.014          | 0.105        | -          |
| 2 437                                                                                               | 6   | 802.11b | J    | 20         | 1         | 12.5          | 11.79       | 0.15        | Left Tilt     | Ant.2                                    | 98.6       | 0.163              | 0.097        | 1.178          | 1.014          | 0.116        | -          |
| 2 437                                                                                               | 6   | 802.11b | J    | 20         | 1         | 12.5          | 11.79       | 0.00        | Right Cheek   | Ant.2                                    | 98.6       | 0.264              | 0.184        | 1.178          | 1.014          | 0.220        | -          |
| 2 437                                                                                               | 6   | 802.11b | J    | 20         | 1         | 12.5          | 11.79       | 0.00        | Right Tilt    | Ant.2                                    | 98.6       | 0.0376             | 0.00952      | 1.178          | 1.014          | 0.011        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |         |      |            |           |               |             |             |               | Head<br>1.6 W/kg<br>Averaged over 1 gram |            |                    |              |                |                |              |            |

| NII Head SAR                                                                                        |     |          |      |            |           |               |             |             |               |                                          |            |                    |              |                |                       |                   |            |
|-----------------------------------------------------------------------------------------------------|-----|----------|------|------------|-----------|---------------|-------------|-------------|---------------|------------------------------------------|------------|--------------------|--------------|----------------|-----------------------|-------------------|------------|
| Frequency                                                                                           |     | Mode     | Ant. | Band width | Data Rate | Tune-Up Limit | Meas. Power | Power Drift | Test Position | Ant. Config.                             | Duty Cycle | Area Scan Peak SAR | Meas. SAR    | Scaling Factor | Scaling Factor (Duty) | Scaled SAR (W/kg) | Plot No.   |
| MHz                                                                                                 | Ch. |          |      | (MHz)      | (Mbps)    | (dBm)         | (dBm)       | (dB)        |               |                                          |            | (W/kg)             | (W/kg)       |                |                       |                   |            |
| 5 290                                                                                               | 58  | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.18       | -0.14       | Left Cheek    | Ant.1                                    | 88.6       | 0.324              | 0.074        | 1.208          | 1.129                 | 0.101             | -          |
| 5 290                                                                                               | 58  | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.18       | 0.13        | Left Tilt     | Ant.1                                    | 88.6       | 0.238              | 0.089        | 1.208          | 1.129                 | 0.121             | -          |
| 5 290                                                                                               | 58  | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.18       | -0.07       | Right Cheek   | Ant.1                                    | 88.6       | 0.418              | 0.135        | 1.208          | 1.129                 | 0.184             | -          |
| 5 290                                                                                               | 58  | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.18       | 0.06        | Right Tilt    | Ant.1                                    | 88.6       | 0.223              | 0.076        | 1.208          | 1.129                 | 0.104             | -          |
| 5 610                                                                                               | 122 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.69       | -0.19       | Left Cheek    | Ant.1                                    | 88.6       | 0.177              | 0.055        | 1.074          | 1.129                 | 0.067             | -          |
| 5 610                                                                                               | 122 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.69       | -0.17       | Left Tilt     | Ant.1                                    | 88.6       | 0.126              | 0.026        | 1.074          | 1.129                 | 0.032             | -          |
| 5 610                                                                                               | 122 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.69       | 0.12        | Right Cheek   | Ant.1                                    | 88.6       | 0.851              | 0.376        | 1.074          | 1.129                 | 0.456             | -          |
| 5 610                                                                                               | 122 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.69       | -0.12       | Right Tilt    | Ant.1                                    | 88.6       | 0.309              | 0.097        | 1.074          | 1.129                 | 0.118             | -          |
| 5 775                                                                                               | 155 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.44       | -0.19       | Left Cheek    | Ant.1                                    | 88.6       | 0.394              | 0.057        | 1.138          | 1.129                 | 0.073             |            |
| 5 775                                                                                               | 155 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.44       | 0.11        | Left Tilt     | Ant.1                                    | 88.6       | 0.168              | 0.048        | 1.138          | 1.129                 | 0.062             |            |
| 5 775                                                                                               | 155 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.44       | -0.12       | Right Cheek   | Ant.1                                    | 88.6       | 1.29               | <b>0.395</b> | 1.138          | 1.129                 | <b>0.507</b>      | <b>A17</b> |
| 5 775                                                                                               | 155 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.44       | -0.16       | Right Tilt    | Ant.1                                    | 88.6       | 0.362              | 0.138        | 1.138          | 1.129                 | 0.177             |            |
| 5 855                                                                                               | 171 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.27       | -0.15       | Left Cheek    | Ant.1                                    | 88.6       | 0.256              | 0.059        | 1.183          | 1.129                 | 0.079             |            |
| 5 855                                                                                               | 171 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.27       | -0.15       | Left Tilt     | Ant.1                                    | 88.6       | 0.145              | 0.049        | 1.183          | 1.129                 | 0.065             |            |
| 5 855                                                                                               | 171 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.27       | -0.13       | Right Cheek   | Ant.1                                    | 88.6       | 1.01               | 0.366        | 1.183          | 1.129                 | 0.489             |            |
| 5 855                                                                                               | 171 | 802.11ac | G    | 80         | MCS0      | 11.0          | 10.27       | 0.10        | Right Tilt    | Ant.1                                    | 88.6       | 0.359              | 0.115        | 1.183          | 1.129                 | 0.154             |            |
| 5 290                                                                                               | 58  | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.63        | 0.14        | Left Cheek    | Ant.2                                    | 88.6       | 0.599              | 0.136        | 1.089          | 1.129                 | 0.167             |            |
| 5 290                                                                                               | 58  | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.63        | 0.07        | Left Tilt     | Ant.2                                    | 88.6       | 0.330              | 0.112        | 1.089          | 1.129                 | 0.138             |            |
| 5 290                                                                                               | 58  | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.63        | -0.19       | Right Cheek   | Ant.2                                    | 88.6       | 0.406              | 0.120        | 1.089          | 1.129                 | 0.147             |            |
| 5 290                                                                                               | 58  | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.63        | 0.15        | Right Tilt    | Ant.2                                    | 88.6       | 0.303              | 0.099        | 1.089          | 1.129                 | 0.122             |            |
| 5 610                                                                                               | 122 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.98        | -0.17       | Left Cheek    | Ant.2                                    | 88.6       | 0.224              | 0.094        | 1.005          | 1.129                 | 0.107             |            |
| 5 610                                                                                               | 122 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.98        | -0.14       | Left Tilt     | Ant.2                                    | 88.6       | 0.390              | 0.071        | 1.005          | 1.129                 | 0.081             |            |
| 5 610                                                                                               | 122 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.98        | -0.17       | Right Cheek   | Ant.2                                    | 88.6       | 0.192              | 0.081        | 1.005          | 1.129                 | 0.092             |            |
| 5 610                                                                                               | 122 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.98        | -0.11       | Right Tilt    | Ant.2                                    | 88.6       | 0.139              | 0.056        | 1.005          | 1.129                 | 0.064             |            |
| 5 775                                                                                               | 155 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.74        | -0.15       | Left Cheek    | Ant.2                                    | 88.6       | 0.532              | 0.08         | 1.062          | 1.129                 | 0.096             |            |
| 5 775                                                                                               | 155 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.74        | 0.18        | Left Tilt     | Ant.2                                    | 88.6       | 0.193              | 0.073        | 1.062          | 1.129                 | 0.088             |            |
| 5 775                                                                                               | 155 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.74        | 0.17        | Right Cheek   | Ant.2                                    | 88.6       | 0.314              | 0.088        | 1.062          | 1.129                 | 0.105             |            |
| 5 775                                                                                               | 155 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.74        | -0.00       | Right Tilt    | Ant.2                                    | 88.6       | 0.150              | 0.052        | 1.062          | 1.129                 | 0.062             |            |
| 5 855                                                                                               | 171 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.18        | -0.19       | Left Cheek    | Ant.2                                    | 88.6       | 0.344              | 0.12         | 1.208          | 1.129                 | 0.164             |            |
| 5 855                                                                                               | 171 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.18        | 0.05        | Left Tilt     | Ant.2                                    | 88.6       | 0.563              | 0.097        | 1.208          | 1.129                 | 0.132             |            |
| 5 855                                                                                               | 171 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.18        | -0.17       | Right Cheek   | Ant.2                                    | 88.6       | 0.615              | 0.106        | 1.208          | 1.129                 | 0.145             |            |
| 5 855                                                                                               | 171 | 802.11ac | E    | 80         | MCS0      | 8.0           | 7.18        | 0.07        | Right Tilt    | Ant.2                                    | 88.6       | 0.465              | 0.086        | 1.208          | 1.129                 | 0.117             |            |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |          |      |            |           |               |             |             |               | Head<br>1.6 W/kg<br>Averaged over 1 gram |            |                    |              |                |                       |                   |            |

| DSS Head SAR                                                                                       |     |                      |      |                   |                |                |                                          |                 |              |                   |                   |               |             |
|----------------------------------------------------------------------------------------------------|-----|----------------------|------|-------------------|----------------|----------------|------------------------------------------|-----------------|--------------|-------------------|-------------------|---------------|-------------|
| Frequency                                                                                          |     | Mode                 | Ant. | Tune-<br>Up Limit | Meas.<br>Power | Power<br>Drift | Test Position                            | Ant.<br>Config. | Meas.<br>SAR | Scaling<br>Factor | Scaling<br>Factor | Scaled<br>SAR | Plot<br>No. |
| MHz                                                                                                | Ch. |                      |      | (dBm)             | (dBm)          | (dB)           |                                          |                 | (W/kg)       |                   | (Duty)            | (W/kg)        |             |
| 2 441                                                                                              | 39  | Bluetooth DH5        | H    | 19.0              | 18.37          | 0.00           | Left Cheek                               | Ant.1           | 0.016        | 1.156             | 1.000             | 0.018         | -           |
| 2 441                                                                                              | 39  | Bluetooth DH5        | H    | 19.0              | 18.37          | -0.12          | Left Tilt                                | Ant.1           | 0.020        | 1.156             | 1.000             | 0.023         | -           |
| 2 441                                                                                              | 39  | Bluetooth DH5        | H    | 19.0              | 18.37          | 0.17           | Right Cheek                              | Ant.1           | 0.310        | 1.156             | 1.000             | 0.358         | -           |
| 2 441                                                                                              | 39  | Bluetooth DH5        | H    | 19.0              | 18.37          | -0.14          | Right Tilt                               | Ant.1           | 0.328        | 1.156             | 1.000             | 0.379         | -           |
| 2 440                                                                                              | 17  | Bluetooth LE 1M(255) | H    | 19.0              | 18.45          | -0.10          | Left Cheek                               | Ant.1           | 0.138        | 1.135             | 1.000             | 0.157         | -           |
| 2 440                                                                                              | 17  | Bluetooth LE 1M(255) | H    | 19.0              | 18.45          | -0.06          | Left Tilt                                | Ant.1           | 0.163        | 1.135             | 1.000             | 0.185         | -           |
| 2 440                                                                                              | 17  | Bluetooth LE 1M(255) | H    | 19.0              | 18.45          | -0.10          | Right Cheek                              | Ant.1           | <b>0.438</b> | 1.135             | 1.000             | <b>0.497</b>  | <b>A18</b>  |
| 2 440                                                                                              | 17  | Bluetooth LE 1M(255) | H    | 19.0              | 18.45          | 0.13           | Right Tilt                               | Ant.1           | 0.412        | 1.135             | 1.000             | 0.468         | -           |
| ANSI/ IEEE C95.1 - 2005– Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |                      |      |                   |                |                | Head<br>1.6 W/kg<br>Averaged over 1 gram |                 |              |                   |                   |               |             |

### 13.1.2 Hotspot/Body Worn SAR Measurement Results

| GSM 850 Body SAR                                                                                    |     |          |      |               |             |             |                                          |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-----|----------|------|---------------|-------------|-------------|------------------------------------------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |     | Mode     | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch. |          |      | (dB)          | (dB)        | (dB)        |                                          |            |          |              |                |              |           |
| 824.2                                                                                               | 128 | GPRS 2TX | A    | 29.5          | 28.77       | 0.07        | Rear                                     | 1:4.15     | 5        | 0.630        | 1.183          | 0.745        | -         |
| 824.2                                                                                               | 128 | GPRS 2TX | A    | 29.5          | 28.77       | -0.12       | Front                                    | 1:4.15     | 5        | 0.492        | 1.183          | 0.582        | -         |
| 824.2                                                                                               | 128 | GPRS 2TX | A    | 29.5          | 28.77       | -0.03       | Left                                     | 1:4.15     | 5        | 0.094        | 1.183          | 0.111        | -         |
| 824.2                                                                                               | 128 | GPRS 2TX | A    | 29.5          | 28.77       | 0.00        | Right                                    | 1:4.15     | 5        | 0.346        | 1.183          | 0.409        | -         |
| 824.2                                                                                               | 128 | GPRS 2TX | A    | 29.5          | 28.77       | 0.17        | Bottom                                   | 1:4.15     | 5        | 0.430        | 1.183          | 0.509        | -         |
| 824.2                                                                                               | 128 | GSM      | A    | 32.0          | 31.41       | -0.14       | Rear                                     | 1:8.30     | 5        | <b>0.654</b> | 1.146          | <b>0.749</b> | <b>B1</b> |
| 824.2                                                                                               | 128 | GSM      | A    | 32.0          | 31.41       | 0.06        | Front                                    | 1:8.30     | 5        | 0.605        | 1.146          | 0.693        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.14       | Rear                                     | 1:4.15     | 5        | 0.277        | 1.318          | 0.365        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.12       | Front                                    | 1:4.15     | 5        | 0.243        | 1.318          | 0.320        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.04       | Left                                     | 1:4.15     | 5        | 0.032        | 1.318          | 0.042        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | -0.10       | Right                                    | 1:4.15     | 5        | 0.240        | 1.318          | 0.316        | -         |
| 836.6                                                                                               | 190 | GPRS 2TX | E    | 29.5          | 28.30       | 0.01        | Top                                      | 1:4.15     | 5        | 0.357        | 1.318          | 0.471        | -         |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | -0.17       | Rear                                     | 1:8.30     | 5        | 0.354        | 1.242          | 0.440        | -         |
| 836.6                                                                                               | 190 | GSM      | E    | 32.0          | 31.06       | 0.10        | Front                                    | 1:8.30     | 5        | 0.286        | 1.242          | 0.355        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |          |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |              |                |              |           |

| GSM 1900 Body SAR                                                                                   |     |          |      |               |             |             |                                          |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-----|----------|------|---------------|-------------|-------------|------------------------------------------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |     | Mode     | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch. |          |      | (dB)          | (dB)        | (dB)        |                                          |            |          |              |                |              |           |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 22.7          | 21.47       | -0.11       | Rear                                     | 1:2.07     | 5        | 0.392        | 1.327          | 0.520        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 22.7          | 21.47       | -0.15       | Front                                    | 1:2.07     | 5        | 0.307        | 1.327          | 0.407        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 22.7          | 21.47       | 0.16        | Left                                     | 1:2.07     | 5        | 0.130        | 1.327          | 0.173        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 22.7          | 21.47       | 0.15        | Bottom                                   | 1:2.07     | 5        | <b>0.850</b> | 1.327          | <b>1.128</b> | <b>B2</b> |
| 1850.2                                                                                              | 512 | GPRS 4TX | B    | 22.7          | 21.35       | 0.14        | Bottom                                   | 1:2.07     | 5        | 0.781        | 1.365          | 1.066        | -         |
| 1909.8                                                                                              | 810 | GPRS 4TX | B    | 22.7          | 21.75       | -0.10       | Bottom                                   | 1:2.07     | 5        | 0.812        | 1.245          | 1.011        | -         |
| 1880                                                                                                | 661 | GPRS 4TX | B    | 22.7          | 21.47       | 0.13        | Bottom                                   | 1:2.07     | 5        | 0.839        | 1.327          | 1.113        | #         |
| 1880                                                                                                | 661 | GSM      | B    | 28.0          | 26.98       | 0.07        | Rear                                     | 1:8.30     | 5        | 0.262        | 1.265          | 0.331        | -         |
| 1880                                                                                                | 661 | GSM      | B    | 28.0          | 26.98       | 0.15        | Front                                    | 1:8.30     | 5        | 0.267        | 1.265          | 0.338        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |          |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |              |                |              |           |

#Measurement Validity

| UMTS Band 2 Body SAR                                                                                |      |      |      |               |             |             |                                          |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|------|------|------|---------------|-------------|-------------|------------------------------------------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.  |      |      | (dB)          | (dB)        | (dB)        |                                          |            | (mm)     | (W/kg)       |                | (W/kg)       |           |
| 1 880                                                                                               | 9400 | RMC  | B    | 19.0          | 17.49       | 0.17        | Rear                                     | 1:1        | 5        | 0.297        | 1.416          | 0.421        | -         |
| 1 880                                                                                               | 9400 | RMC  | B    | 19.0          | 17.49       | 0.09        | Front                                    | 1:1        | 5        | 0.232        | 1.416          | 0.329        | -         |
| 1 880                                                                                               | 9400 | RMC  | B    | 19.0          | 17.49       | -0.09       | Left                                     | 1:1        | 5        | 0.154        | 1.416          | 0.218        | -         |
| 1 880                                                                                               | 9400 | RMC  | B    | 19.0          | 17.49       | -0.09       | Bottom                                   | 1:1        | 5        | 0.697        | 1.416          | 0.987        | -         |
| 1 852.4                                                                                             | 9262 | RMC  | B    | 19.0          | 17.54       | -0.14       | Bottom                                   | 1:1        | 5        | <b>0.718</b> | 1.400          | <b>1.005</b> | <b>B3</b> |
| 1 907.6                                                                                             | 9538 | RMC  | B    | 19.0          | 17.68       | -0.12       | Bottom                                   | 1:1        | 5        | 0.687        | 1.355          | 0.931        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |              |                |              |           |

| UMTS Band 4 Body SAR                                                                                |      |      |      |               |             |             |                                          |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|------|------|------|---------------|-------------|-------------|------------------------------------------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.  |      |      | (dB)          | (dB)        | (dB)        |                                          |            | (mm)     | (W/kg)       |                | (W/kg)       |           |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 19.0          | 17.90       | -0.15       | Rear                                     | 1:1        | 5        | 0.383        | 1.288          | 0.493        | -         |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 19.0          | 17.90       | -0.12       | Front                                    | 1:1        | 5        | 0.472        | 1.288          | 0.608        | -         |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 19.0          | 17.90       | -0.15       | Left                                     | 1:1        | 5        | 0.208        | 1.288          | 0.268        | -         |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 19.0          | 17.90       | 0.01        | Bottom                                   | 1:1        | 5        | <b>0.918</b> | 1.288          | 1.182        | <b>B4</b> |
| 1 712.4                                                                                             | 1312 | RMC  | B    | 19.0          | 17.90       | -0.03       | Bottom                                   | 1:1        | 5        | 0.866        | 1.288          | 1.115        | -         |
| 1 752.6                                                                                             | 1513 | RMC  | B    | 19.0          | 17.84       | 0.01        | Bottom                                   | 1:1        | 5        | 0.909        | 1.306          | <b>1.187</b> | -         |
| 1 732.4                                                                                             | 1412 | RMC  | B    | 19.0          | 17.90       | -0.02       | Bottom                                   | 1:1        | 5        | 0.910        | 1.288          | 1.172        | <b>#</b>  |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |              |                |              |           |

#Measurement Validity

| UMTS Band 5 Body SAR                                                                                |      |      |      |               |             |             |                                          |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|------|------|------|---------------|-------------|-------------|------------------------------------------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |      | Mode | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.  |      |      | (dB)          | (dB)        | (dB)        |                                          |            | (mm)     | (W/kg)       |                | (W/kg)       |           |
| 836.6                                                                                               | 4183 | RMC  | A    | 22.5          | 21.25       | 0.09        | Rear                                     | 1:1        | 5        | <b>0.551</b> | 1.334          | <b>0.735</b> | <b>B5</b> |
| 836.6                                                                                               | 4183 | RMC  | A    | 22.5          | 21.25       | 0.08        | Front                                    | 1:1        | 5        | 0.431        | 1.334          | 0.575        | -         |
| 836.6                                                                                               | 4183 | RMC  | A    | 22.5          | 21.25       | 0.11        | Left                                     | 1:1        | 5        | 0.030        | 1.334          | 0.040        | -         |
| 836.6                                                                                               | 4183 | RMC  | A    | 22.5          | 21.25       | -0.16       | Right                                    | 1:1        | 5        | 0.267        | 1.334          | 0.356        | -         |
| 836.6                                                                                               | 4183 | RMC  | A    | 22.5          | 21.25       | 0.11        | Bottom                                   | 1:1        | 5        | 0.385        | 1.334          | 0.514        | -         |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5          | 22.94       | -0.13       | Rear                                     | 1:1        | 5        | 0.501        | 1.138          | 0.570        | -         |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5          | 22.94       | 0.10        | Front                                    | 1:1        | 5        | 0.402        | 1.138          | 0.457        | -         |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5          | 22.94       | 0.08        | Left                                     | 1:1        | 5        | 0.045        | 1.138          | 0.051        | -         |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5          | 22.94       | -0.03       | Right                                    | 1:1        | 5        | 0.212        | 1.138          | 0.241        | -         |
| 836.6                                                                                               | 4183 | RMC  | E    | 23.5          | 22.94       | 0.15        | Top                                      | 1:1        | 5        | 0.492        | 1.138          | 0.560        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |      |      |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |              |                |              |           |

| LTE Band 12 Body SAR                                                                                |       |      |      |            |               |             |             |                                          |      |         |           |            |          |              |                |              |           |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|--------------|----------------|--------------|-----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.  |
| MHz                                                                                                 | Ch.   |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)       |                | (W/kg)       |           |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.11       | -0.03       | Rear                                     | 0    | 1       | 24        | 1:1        | 5        | <b>0.567</b> | 1.545          | <b>0.876</b> | <b>B6</b> |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.13       | -0.07       | Rear                                     | 0    | 25      | 0         | 1:1        | 5        | 0.549        | 1.538          | 0.844        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.11       | 0.09        | Front                                    | 0    | 1       | 24        | 1:1        | 5        | 0.403        | 1.545          | 0.623        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.13       | 0.10        | Front                                    | 0    | 36      | 0         | 1:1        | 5        | 0.354        | 1.538          | 0.544        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.11       | 0.10        | Left                                     | 0    | 1       | 24        | 1:1        | 5        | 0.059        | 1.545          | 0.091        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.13       | 0.16        | Left                                     | 0    | 25      | 0         | 1:1        | 5        | 0.057        | 1.538          | 0.088        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.11       | 0.10        | Right                                    | 0    | 1       | 24        | 1:1        | 5        | 0.350        | 1.545          | 0.541        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.13       | -0.10       | Right                                    | 0    | 25      | 0         | 1:1        | 5        | 0.336        | 1.538          | 0.517        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.11       | 0.11        | Bottom                                   | 0    | 1       | 24        | 1:1        | 5        | 0.430        | 1.545          | 0.664        | -         |
| 707.5                                                                                               | 23095 | QPSK | A    | 10         | 23.0          | 21.13       | 0.13        | Bottom                                   | 0    | 25      | 0         | 1:1        | 5        | 0.376        | 1.538          | 0.578        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | 0.03        | Rear                                     | 0    | 1       | 24        | 1:1        | 5        | 0.545        | 1.026          | 0.559        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | -0.06       | Rear                                     | 0    | 25      | 0         | 1:1        | 5        | 0.524        | 1.057          | 0.554        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | 0.00        | Front                                    | 0    | 1       | 24        | 1:1        | 5        | 0.399        | 1.026          | 0.409        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | 0.07        | Front                                    | 0    | 36      | 0         | 1:1        | 5        | 0.384        | 1.057          | 0.406        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | 0.09        | Right                                    | 0    | 1       | 24        | 1:1        | 5        | 0.192        | 1.026          | 0.197        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | 0.04        | Right                                    | 0    | 25      | 0         | 1:1        | 5        | 0.189        | 1.057          | 0.200        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.89       | -0.15       | Top                                      | 0    | 1       | 24        | 1:1        | 5        | 0.459        | 1.026          | 0.471        | -         |
| 707.5                                                                                               | 23095 | QPSK | E    | 10         | 20.0          | 19.76       | -0.19       | Top                                      | 0    | 25      | 0         | 1:1        | 5        | 0.443        | 1.057          | 0.468        | -         |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |              |                |              |           |

| LTE Band 13 Body SAR                                                                                |       |      |      |            |               |             |             |                                          |      |         |           |            |          |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|-----------|----------------|------------|----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch.   |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)    |                | (W/kg)     |          |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.69       | 0.12        | Rear                                     | 0    | 1       | 24        | 1:1        | 5        | 0.270     | 1.352          | 0.365      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.56       | -0.13       | Rear                                     | 0    | 25      | 0         | 1:1        | 5        | 0.279     | 1.393          | 0.389      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.69       | 0.12        | Front                                    | 0    | 1       | 24        | 1:1        | 5        | 0.266     | 1.352          | 0.360      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.56       | 0.09        | Front                                    | 0    | 25      | 0         | 1:1        | 5        | 0.320     | 1.393          | 0.446      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.69       | 0.11        | Left                                     | 0    | 1       | 24        | 1:1        | 5        | 0.029     | 1.352          | 0.039      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.56       | 0.03        | Left                                     | 0    | 25      | 0         | 1:1        | 5        | 0.031     | 1.393          | 0.043      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.69       | 0.01        | Right                                    | 0    | 1       | 24        | 1:1        | 5        | 0.122     | 1.352          | 0.165      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.56       | 0.03        | Right                                    | 0    | 25      | 0         | 1:1        | 5        | 0.129     | 1.393          | 0.180      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.69       | 0.13        | Bottom                                   | 0    | 1       | 24        | 1:1        | 5        | 0.260     | 1.352          | 0.352      | -        |
| 782                                                                                                 | 23230 | QPSK | A    | 10         | 23.0          | 21.56       | 0.15        | Bottom                                   | 0    | 25      | 0         | 1:1        | 5        | 0.301     | 1.393          | 0.419      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.12       | Rear                                     | 0    | 1       | 24        | 1:1        | 5        | 0.487     | 1.119          | 0.545      | B7       |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | -0.17       | Rear                                     | 0    | 25      | 0         | 1:1        | 5        | 0.473     | 1.143          | 0.541      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.03       | Front                                    | 0    | 1       | 24        | 1:1        | 5        | 0.335     | 1.119          | 0.375      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | 0.05        | Front                                    | 0    | 25      | 0         | 1:1        | 5        | 0.333     | 1.143          | 0.381      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | 0.06        | Right                                    | 0    | 1       | 24        | 1:1        | 5        | 0.228     | 1.119          | 0.255      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | 0.06        | Right                                    | 0    | 25      | 0         | 1:1        | 5        | 0.22      | 1.143          | 0.251      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.51       | -0.12       | Top                                      | 0    | 1       | 24        | 1:1        | 5        | 0.407     | 1.119          | 0.455      | -        |
| 782                                                                                                 | 23230 | QPSK | E    | 10         | 20.0          | 19.42       | -0.13       | Top                                      | 0    | 25      | 0         | 1:1        | 5        | 0.393     | 1.143          | 0.449      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |           |                |            |          |

| LTE Band 25 Body SAR                                                                                |       |      |      |            |               |             |             |                                          |      |         |           |            |          |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|-----------|----------------|------------|----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch.   |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)    |                | (W/kg)     |          |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.83       | 0.10        | Rear                                     | 0    | 1       | 49        | 1:1        | 5        | 0.466     | 1.040          | 0.485      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.76       | -0.05       | Rear                                     | 0    | 50      | 25        | 1:1        | 5        | 0.455     | 1.057          | 0.481      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.83       | -0.12       | Front                                    | 0    | 1       | 49        | 1:1        | 5        | 0.334     | 1.040          | 0.347      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.76       | 0.15        | Front                                    | 0    | 50      | 25        | 1:1        | 5        | 0.329     | 1.057          | 0.348      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.83       | -0.19       | Left                                     | 0    | 1       | 49        | 1:1        | 5        | 0.126     | 1.040          | 0.131      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.76       | -0.10       | Left                                     | 0    | 50      | 25        | 1:1        | 5        | 0.121     | 1.057          | 0.128      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.83       | 0.15        | Bottom                                   | 0    | 1       | 49        | 1:1        | 5        | 1.020     | 1.040          | 1.061      | B8       |
| 1 860                                                                                               | 26140 | QPSK | B    | 20         | 19.0          | 18.64       | 0.19        | Bottom                                   | 0    | 1       | 49        | 1:1        | 5        | 0.893     | 1.086          | 0.970      | -        |
| 1 882.5                                                                                             | 26365 | QPSK | B    | 20         | 19.0          | 18.66       | 0.15        | Bottom                                   | 0    | 1       | 99        | 1:1        | 5        | 0.880     | 1.081          | 0.951      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.76       | 0.12        | Bottom                                   | 0    | 50      | 25        | 1:1        | 5        | 0.948     | 1.057          | 1.002      | -        |
| 1 860                                                                                               | 26140 | QPSK | B    | 20         | 19.0          | 18.57       | 0.19        | Bottom                                   | 0    | 50      | 0         | 1:1        | 5        | 0.888     | 1.104          | 0.980      | -        |
| 1 882.5                                                                                             | 26365 | QPSK | B    | 20         | 19.0          | 18.55       | 0.19        | Bottom                                   | 0    | 50      | 0         | 1:1        | 5        | 0.877     | 1.109          | 0.973      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.68       | 0.18        | Bottom                                   | 0    | 100     | 0         | 1:1        | 5        | 0.922     | 1.076          | 0.992      | -        |
| 1 905                                                                                               | 26590 | QPSK | B    | 20         | 19.0          | 18.83       | 0.07        | Bottom                                   | 0    | 1       | 49        | 1:1        | 5        | 1.010     | 1.040          | 1.050      | #        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.19        | Rear                                     | 0    | 1       | 49        | 1:1        | 5        | 0.199     | 1.337          | 0.266      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.17        | Rear                                     | 0    | 1       | 49        | 1:1        | 5        | 0.201     | 1.337          | 0.269      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.12        | Front                                    | 0    | 1       | 49        | 1:1        | 5        | 0.205     | 1.337          | 0.274      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | -0.03       | Front                                    | 0    | 50      | 0         | 1:1        | 5        | 0.200     | 1.365          | 0.273      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.16        | Left                                     | 0    | 1       | 49        | 1:1        | 5        | 0.059     | 1.337          | 0.079      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | 0.12        | Left                                     | 0    | 50      | 0         | 1:1        | 5        | 0.060     | 1.365          | 0.082      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.74       | 0.04        | Top                                      | 0    | 1       | 49        | 1:1        | 5        | 0.498     | 1.337          | 0.666      | -        |
| 1 905                                                                                               | 26590 | QPSK | F    | 20         | 19.0          | 17.65       | 0.10        | Top                                      | 0    | 50      | 0         | 1:1        | 5        | 0.499     | 1.365          | 0.681      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |           |                |            |          |

#Measurement Validity

| LTE Band 26 Body SAR                                                                                |       |      |      |            |               |             |             |                                          |      |         |           |            |          |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|-----------|----------------|------------|----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch.   |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)    |                | (W/kg)     |          |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.22       | -0.07       | Rear                                     | 0    | 1       | 0         | 1:1        | 5        | 0.523     | 1.507          | 0.788      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.10       | -0.06       | Rear                                     | 0    | 36      | 0         | 1:1        | 5        | 0.529     | 1.549          | 0.819      | B9       |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.22       | 0.11        | Front                                    | 0    | 1       | 0         | 1:1        | 5        | 0.356     | 1.507          | 0.536      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.10       | 0.16        | Front                                    | 0    | 36      | 0         | 1:1        | 5        | 0.360     | 1.549          | 0.558      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.22       | 0.13        | Left                                     | 0    | 1       | 0         | 1:1        | 5        | 0.019     | 1.507          | 0.029      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.10       | 0.10        | Left                                     | 0    | 36      | 0         | 1:1        | 5        | 0.020     | 1.549          | 0.031      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.22       | 0.10        | Right                                    | 0    | 1       | 0         | 1:1        | 5        | 0.167     | 1.507          | 0.252      | -        |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.10       | 0.00        | Right                                    | 0    | 36      | 0         | 1:1        | 5        | 0.169     | 1.549          | 0.262      |          |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.22       | -0.10       | Bottom                                   | 0    | 1       | 0         | 1:1        | 5        | 0.305     | 1.507          | 0.460      |          |
| 831.5                                                                                               | 26865 | QPSK | A    | 15         | 23.0          | 21.10       | 0.04        | Bottom                                   | 0    | 36      | 0         | 1:1        | 5        | 0.316     | 1.549          | 0.489      |          |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | -0.10       | Rear                                     | 0    | 1       | 0         | 1:1        | 5        | 0.457     | 1.107          | 0.506      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | 0.06        | Rear                                     | 0    | 36      | 0         | 1:1        | 5        | 0.467     | 1.122          | 0.524      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | 0.13        | Front                                    | 0    | 1       | 0         | 1:1        | 5        | 0.401     | 1.107          | 0.444      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | 0.13        | Front                                    | 0    | 36      | 0         | 1:1        | 5        | 0.405     | 1.122          | 0.454      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | -0.01       | Right                                    | 0    | 1       | 0         | 1:1        | 5        | 0.203     | 1.107          | 0.225      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | -0.02       | Right                                    | 0    | 36      | 0         | 1:1        | 5        | 0.201     | 1.122          | 0.226      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.56       | 0.15        | Top                                      | 0    | 1       | 0         | 1:1        | 5        | 0.442     | 1.107          | 0.489      | -        |
| 831.5                                                                                               | 26865 | QPSK | E    | 15         | 20.0          | 19.50       | -0.14       | Top                                      | 0    | 36      | 0         | 1:1        | 5        | 0.452     | 1.122          | 0.507      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |           |                |            |          |

| LTE Band 41 Body SAR                                                                                |       |      |      |            |               |             |             |                                          |      |         |           |            |          |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|-------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|-----------|----------------|------------|----------|
| Frequency                                                                                           |       | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| Mhz                                                                                                 | Ch.   |      |      | (Mhz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)    |                | (W/kg)     |          |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.21       | 0.00        | Rear                                     | 0    | 1       | 49        | 1:1.58     | 5        | 0.324     | 1.069          | 0.346      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.22       | 0.08        | Rear                                     | 0    | 50      | 25        | 1:1.58     | 5        | 0.360     | 1.067          | 0.384      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.21       | -0.10       | Front                                    | 0    | 1       | 49        | 1:1.58     | 5        | 0.257     | 1.069          | 0.275      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.22       | 0.18        | Front                                    | 0    | 50      | 25        | 1:1.58     | 5        | 0.261     | 1.067          | 0.278      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.21       | 0.18        | Left                                     | 0    | 1       | 49        | 1:1.58     | 5        | 0.056     | 1.069          | 0.060      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.22       | -0.02       | Left                                     | 0    | 50      | 25        | 1:1.58     | 5        | 0.054     | 1.067          | 0.058      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.21       | 0.16        | Bottom                                   | 0    | 1       | 49        | 1:1.58     | 5        | 0.665     | 1.069          | 0.711      | -        |
| 2 506                                                                                               | 39750 | QPSK | B    | 20         | 19.5          | 18.77       | 0.05        | Bottom                                   | 0    | 1       | 0         | 1:1.58     | 5        | 0.536     | 1.183          | 0.634      | -        |
| 2 550                                                                                               | 40185 | QPSK | B    | 20         | 19.5          | 18.47       | 0.16        | Bottom                                   | 0    | 1       | 0         | 1:1.58     | 5        | 0.510     | 1.268          | 0.647      | -        |
| 2 593                                                                                               | 40620 | QPSK | B    | 20         | 19.5          | 18.82       | 0.02        | Bottom                                   | 0    | 1       | 0         | 1:1.58     | 5        | 0.646     | 1.169          | 0.755      | -        |
| 2 637                                                                                               | 41055 | QPSK | B    | 20         | 19.5          | 18.72       | 0.05        | Bottom                                   | 0    | 1       | 0         | 1:1.58     | 5        | 0.653     | 1.197          | 0.782      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.22       | 0.06        | Bottom                                   | 0    | 50      | 25        | 1:1.58     | 5        | 0.664     | 1.067          | 0.708      | -        |
| 2 506                                                                                               | 39750 | QPSK | B    | 20         | 19.5          | 18.75       | 0.07        | Bottom                                   | 0    | 50      | 0         | 1:1.58     | 5        | 0.534     | 1.189          | 0.635      | -        |
| 2 550                                                                                               | 40185 | QPSK | B    | 20         | 19.5          | 18.43       | 0.07        | Bottom                                   | 0    | 50      | 0         | 1:1.58     | 5        | 0.495     | 1.279          | 0.633      | -        |
| 2 593                                                                                               | 40620 | QPSK | B    | 20         | 19.5          | 18.83       | 0.06        | Bottom                                   | 0    | 50      | 0         | 1:1.58     | 5        | 0.648     | 1.167          | 0.756      | -        |
| 2 637                                                                                               | 41055 | QPSK | B    | 20         | 19.5          | 18.66       | 0.18        | Bottom                                   | 0    | 50      | 0         | 1:1.58     | 5        | 0.669     | 1.213          | 0.811      | -        |
| 2 680                                                                                               | 41490 | QPSK | B    | 20         | 19.5          | 19.23       | 0.13        | Bottom                                   | 0    | 100     | 0         | 1:1.58     | 5        | 0.745     | 1.064          | 0.793      | B10      |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.10        | Rear                                     | 0    | 1       | 49        | 1:1.58     | 5        | 0.185     | 1.005          | 0.186      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.00        | Rear                                     | 0    | 50      | 0         | 1:1.58     | 5        | 0.185     | 1.005          | 0.186      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.18        | Front                                    | 0    | 1       | 49        | 1:1.58     | 5        | 0.199     | 1.005          | 0.200      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.00       | Front                                    | 0    | 50      | 0         | 1:1.58     | 5        | 0.168     | 1.005          | 0.169      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.14        | Left                                     | 0    | 1       | 49        | 1:1.58     | 5        | 0.020     | 1.005          | 0.020      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | 0.13        | Left                                     | 0    | 50      | 0         | 1:1.58     | 5        | 0.021     | 1.005          | 0.021      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.03       | Top                                      | 0    | 1       | 49        | 1:1.58     | 5        | 0.338     | 1.005          | 0.340      | -        |
| 2 680                                                                                               | 41490 | QPSK | F    | 20         | 19.0          | 18.98       | -0.01       | Top                                      | 0    | 50      | 0         | 1:1.58     | 5        | 0.335     | 1.005          | 0.337      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |       |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |           |                |            |          |

| LTE Band 66 Body SAR                                                                                |        |      |      |            |               |             |             |                                          |      |         |           |            |          |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |      |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) |         |           |            | (mm)     | (W/kg)       |                | (W/kg)       |            |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.25       | 0.17        | Rear                                     | 0    | 1       | 49        | 1:1        | 5        | 0.482        | 1.189          | 0.573        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.23       | 0.16        | Rear                                     | 0    | 50      | 49        | 1:1        | 5        | 0.472        | 1.194          | 0.564        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.25       | 0.14        | Front                                    | 0    | 1       | 49        | 1:1        | 5        | 0.303        | 1.189          | 0.360        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.23       | 0.19        | Front                                    | 0    | 50      | 49        | 1:1        | 5        | 0.295        | 1.194          | 0.352        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.25       | 0.16        | Left                                     | 0    | 1       | 49        | 1:1        | 5        | 0.163        | 1.189          | 0.194        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.23       | 0.17        | Left                                     | 0    | 50      | 49        | 1:1        | 5        | 0.152        | 1.194          | 0.181        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.25       | 0.12        | Bottom                                   | 0    | 1       | 49        | 1:1        | 5        | 0.602        | 1.189          | 0.716        | -          |
| 1 720                                                                                               | 132072 | QPSK | B    | 20         | 19.0          | 18.23       | 0.16        | Bottom                                   | 0    | 50      | 49        | 1:1        | 5        | 0.591        | 1.194          | 0.706        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | 0.10        | Rear                                     | 0    | 1       | 49        | 1:1        | 5        | 0.387        | 1.132          | 0.438        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | 0.00        | Rear                                     | 0    | 50      | 0         | 1:1        | 5        | 0.388        | 1.175          | 0.456        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | 0.18        | Front                                    | 0    | 1       | 49        | 1:1        | 5        | 0.334        | 1.132          | 0.378        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | -0.00       | Front                                    | 0    | 50      | 0         | 1:1        | 5        | 0.321        | 1.175          | 0.377        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | 0.14        | Left                                     | 0    | 1       | 49        | 1:1        | 5        | 0.121        | 1.132          | 0.137        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | 0.13        | Left                                     | 0    | 50      | 0         | 1:1        | 5        | 0.119        | 1.175          | 0.140        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | -0.03       | Top                                      | 0    | 1       | 49        | 1:1        | 5        | 0.716        | 1.132          | 0.811        | -          |
| 2 680                                                                                               | 41490  | QPSK | F    | 20         | 19.0          | 18.98       | -0.01       | Top                                      | 0    | 50      | 0         | 1:1        | 5        | <b>0.716</b> | 1.175          | <b>0.841</b> | <b>B11</b> |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |      |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |              |                |              |            |

| NR Band n5 (Cell) Body SAR                                                                          |        |                 |      |            |               |             |             |                                          |      |         |           |            |          |           |                |            |          |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|-----------|----------------|------------|----------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) | (mm)    | (W/kg)    | (W/kg)     |          |           |                |            |          |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.95       | -0.10       | Rear                                     | 0    | 1       | 1         | 1:1        | 5        | 0.402     | 1.274          | 0.512      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.79       | -0.07       | Rear                                     | 0    | 50      | 0         | 1:1        | 5        | 0.399     | 1.321          | 0.527      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.95       | 0.06        | Front                                    | 0    | 1       | 1         | 1:1        | 5        | 0.323     | 1.274          | 0.412      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.79       | 0.18        | Front                                    | 0    | 50      | 0         | 1:1        | 5        | 0.321     | 1.321          | 0.424      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.95       | -0.09       | left                                     | 0    | 1       | 1         | 1:1        | 5        | 0.039     | 1.274          | 0.050      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.79       | -0.13       | left                                     | 0    | 50      | 0         | 1:1        | 5        | 0.040     | 1.321          | 0.053      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.95       | 0.02        | Right                                    | 0    | 1       | 1         | 1:1        | 5        | 0.215     | 1.274          | 0.274      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.79       | 0.00        | Right                                    | 0    | 50      | 0         | 1:1        | 5        | 0.213     | 1.321          | 0.281      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.95       | 0.11        | Bottom                                   | 0    | 1       | 1         | 1:1        | 5        | 0.402     | 1.274          | 0.512      | -        |
| 836.5                                                                                               | 167300 | DFT-s OFDM QPSK | A    | 20         | 23.0          | 21.79       | 0.11        | Bottom                                   | 0    | 50      | 0         | 1:1        | 5        | 0.406     | 1.321          | 0.536      | -        |
| 836.5                                                                                               | 167300 | CP OFDM QPSK    | A    | 20         | 23.0          | 21.92       | 0.19        | Bottom                                   | 0    | 1       | 1         | 1:1        | 5        | 0.396     | 1.282          | 0.508      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.35       | -0.17       | Rear                                     | 0    | 1       | 1         | 1:1        | 5        | 0.684     | 1.161          | 0.794      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.31       | -0.09       | Rear                                     | 0    | 50      | 0         | 1:1        | 5        | 0.690     | 1.172          | 0.809      | B12      |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.23       | 0.00        | Rear                                     | 0    | 100     | 0         | 1:1        | 5        | 0.689     | 1.194          | 0.823      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.35       | 0.02        | Front                                    | 0    | 1       | 1         | 1:1        | 5        | 0.608     | 1.161          | 0.706      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.31       | 0.11        | Front                                    | 0    | 50      | 0         | 1:1        | 5        | 0.618     | 1.172          | 0.724      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.35       | 0.15        | Right                                    | 0    | 1       | 1         | 1:1        | 5        | 0.225     | 1.161          | 0.261      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.31       | 0.16        | Right                                    | 0    | 50      | 0         | 1:1        | 5        | 0.233     | 1.172          | 0.273      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.35       | 0.13        | Top                                      | 0    | 1       | 1         | 1:1        | 5        | 0.546     | 1.161          | 0.634      | -        |
| 836.5                                                                                               | 167300 | DFT-s QPSK      | E    | 20         | 21.0          | 20.31       | 0.16        | Top                                      | 0    | 50      | 0         | 1:1        | 5        | 0.561     | 1.172          | 0.657      | -        |
| 836.5                                                                                               | 167300 | CP QPSK         | E    | 20         | 21.0          | 20.32       | -0.06       | Rear                                     | 0    | 1       | 1         | 1:1        | 5        | 0.656     | 1.169          | 0.767      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |           |                |            |          |

| NR Band n66 Body SAR                                                                                |        |                 |      |            |               |             |             |                                          |      |         |           |            |          |              |                |              |            |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|---------|-----------|------------|----------|--------------|----------------|--------------|------------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) | (mm)    | (W/kg)    |            | (W/kg)   |              |                |              |            |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.98       | -0.01       | Rear                                     | 0    | 1       | 108       | 1:1        | 5        | 0.237        | 1.265          | 0.300        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.97       | 0.11        | Rear                                     | 0    | 108     | 0         | 1:1        | 5        | 0.235        | 1.268          | 0.298        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.98       | 0.10        | Front                                    | 0    | 1       | 108       | 1:1        | 5        | 0.339        | 1.265          | 0.429        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.97       | 0.03        | Front                                    | 0    | 108     | 0         | 1:1        | 5        | 0.353        | 1.268          | 0.448        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.98       | -0.18       | left                                     | 0    | 1       | 108       | 1:1        | 5        | 0.147        | 1.265          | 0.186        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.97       | -0.02       | left                                     | 0    | 108     | 0         | 1:1        | 5        | 0.152        | 1.268          | 0.193        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.98       | -0.01       | Right                                    | 0    | 1       | 108       | 1:1        | 5        | 0.700        | 1.265          | 0.886        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.97       | -0.19       | Right                                    | 0    | 108     | 0         | 1:1        | 5        | 0.690        | 1.268          | 0.875        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | B    | 40         | 19.0          | 17.91       | 0.15        | Bottom                                   | 0    | 216     | 0         | 1:1        | 5        | 0.695        | 1.285          | 0.893        | -          |
| 1 745.0                                                                                             | 349000 | CP OFDM QPSK    | B    | 40         | 19.0          | 17.94       | 0.02        | Bottom                                   | 0    | 1       | 1         | 1:1        | 5        | <b>0.715</b> | 1.276          | <b>0.912</b> | <b>B13</b> |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | 0.14        | Rear                                     | 0    | 1       | 108       | 1:1        | 5        | 0.386        | 1.072          | 0.414        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.16        | Rear                                     | 0    | 108     | 0         | 1:1        | 5        | 0.392        | 1.091          | 0.428        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | 0.17        | Front                                    | 0    | 1       | 108       | 1:1        | 5        | 0.199        | 1.072          | 0.213        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.16        | Front                                    | 0    | 108     | 0         | 1:1        | 5        | 0.207        | 1.091          | 0.226        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.13       | Left                                     | 0    | 1       | 108       | 1:1        | 5        | 0.096        | 1.072          | 0.103        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.14        | Left                                     | 0    | 108     | 0         | 1:1        | 5        | 0.105        | 1.091          | 0.115        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.70       | -0.07       | Top                                      | 0    | 1       | 108       | 1:1        | 5        | 0.648        | 1.072          | 0.695        | -          |
| 1 745.0                                                                                             | 349000 | DFT-s OFDM QPSK | F    | 40         | 19.0          | 18.62       | 0.15        | Top                                      | 0    | 108     | 0         | 1:1        | 5        | 0.680        | 1.091          | 0.742        | -          |
| 1 745.0                                                                                             | 349000 | CP OFDM QPSK    | F    | 40         | 19.0          | 18.56       | 0.17        | Top                                      | 0    | 1       | 1         | 1:1        | 5        | 0.687        | 1.107          | 0.761        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |         |           |            |          |              |                |              |            |

| NR Band n41 Body SAR                                                                                |        |                 |      |            |               |             |             |                                          |      |      |      |            |          |              |         |              |            |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|------|------|------|------------|----------|--------------|---------|--------------|------------|
| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR  | RB   | RB   | Duty Cycle | Distance | Meas. SAR    | Scaling | Scaled SAR   | Plot No.   |
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          | (dB) | (dB) | Size |            | Offset   | (mm)         | (W/kg)  | Factor       |            |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Rear                                     | 0    | 1    | 137  | 1:1        | 5        | 0.609        | 1.242   | 0.756        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Rear                                     | 0    | 135  | 138  | 1:1        | 5        | 0.567        | 1.211   | 0.687        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 17.12       | 0.00        | Rear                                     | 0    | 270  | 0    | 1:1        | 5        | <b>0.704</b> | 1.091   | <b>0.768</b> | <b>B14</b> |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.00        | Front                                    | 0    | 1    | 137  | 1:1        | 5        | 0.455        | 1.242   | 0.565        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Front                                    | 0    | 135  | 138  | 1:1        | 5        | 0.404        | 1.211   | 0.489        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.06        | Left                                     | 0    | 1    | 137  | 1:1        | 5        | 0.052        | 1.242   | 0.065        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.67       | 0.00        | Left                                     | 0    | 135  | 138  | 1:1        | 5        | 0.051        | 1.211   | 0.062        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.13        | Bottom                                   | 0    | 1    | 137  | 1:1        | 5        | 0.551        | 1.242   | 0.684        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.56       | 0.13        | Bottom                                   | 0    | 135  | 138  | 1:1        | 5        | 0.511        | 1.242   | 0.635        | -          |
| 2 592.99                                                                                            | 518598 | DFT-s OFDM QPSK | B    | 100        | 17.5          | 16.65       | 0.00        | Bottom                                   | 0    | 270  | 0    | 1:1        | 5        | 0.681        | 1.216   | 0.828        | -          |
| 2 592.99                                                                                            | 518598 | CP OFDM QPSK    | B    | 100        | 17.5          | 16.00       | 0.00        | Rear                                     | 0    | 1    | 1    | 1:1        | 5        | 0.473        | 1.413   | 0.668        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.00        | Rear                                     | 0    | -    | -    | 1:1        | 5        | 0.094        | 1.072   | 0.101        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.00        | Front                                    | 0    | -    | -    | 1:1        | 5        | 0.078        | 1.072   | 0.084        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.00        | Left                                     | 0    | -    | -    | 1:1        | 5        | 0.016        | 1.072   | 0.017        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#1)       | F    | 100        | 12.5          | 12.20       | 0.04        | Top                                      | 0    | -    | -    | 1:1        | 5        | 0.215        | 1.072   | 0.230        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | -0.00       | Rear                                     | 0    | -    | -    | 1:1        | 5        | 0.044        | 1.030   | 0.045        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.00        | Front                                    | 0    | -    | -    | 1:1        | 5        | 0.032        | 1.030   | 0.033        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | 0.06        | Left                                     | 0    | -    | -    | 1:1        | 5        | 0.048        | 1.030   | 0.049        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#2)       | H    | 100        | 13.5          | 13.37       | -0.13       | Top                                      | 0    | -    | -    | 1:1        | 5        | 0.070        | 1.030   | 0.072        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Rear                                     | 0    | -    | -    | 1:1        | 5        | 0.041        | 1.180   | 0.048        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Front                                    | 0    | -    | -    | 1:1        | 5        | 0.031        | 1.180   | 0.037        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Right                                    | 0    | -    | -    | 1:1        | 5        | 0.000        | 1.180   | 0.000        | -          |
| 2 592.99                                                                                            | 518598 | CW(SRS#3)       | D    | 100        | 10.0          | 9.28        | 0.00        | Bottom                                   | 0    | -    | -    | 1:1        | 5        | 0.014        | 1.180   | 0.017        | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |      |      |      |            |          |              |         |              |            |

### NR Band n77 Body SAR

| Frequency                                                                                           |        | Mode            | Ant. | Band width | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | MPR (dB) | RB Size | RB Offset | Duty Cycle | Distance | Meas. SAR    | Scaling Factor | Scaled SAR   | Plot No.   |
|-----------------------------------------------------------------------------------------------------|--------|-----------------|------|------------|---------------|-------------|-------------|------------------------------------------|----------|---------|-----------|------------|----------|--------------|----------------|--------------|------------|
| MHz                                                                                                 | Ch.    |                 |      | (MHz)      | (dBm)         | (dBm)       | (dB)        |                                          |          |         |           |            | (mm)     | (W/kg)       |                | (W/kg)       |            |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | 0.00        | Rear                                     | 0        | 1       | 271       | 1:1        | 5        | 0.504        | 1.045          | 0.527        | -          |
| 3 750.00                                                                                            | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.29       | 0.00        | Rear                                     | 0        | 1       | 271       | 1:1        | 5        | 0.367        | 1.050          | 0.385        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.00        | Rear                                     | 0        | 135     | 138       | 1:1        | 5        | 0.406        | 1.084          | 0.440        | -          |
| 3 750.00                                                                                            | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.56       | 0.00        | Rear                                     | 0        | 135     | 138       | 1:1        | 5        | 0.330        | 1.242          | 0.410        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.87       | 0.00        | Rear                                     | 0        | 270     | 0         | 1:1        | 5        | 0.390        | 1.156          | 0.451        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | 0.00        | Front                                    | 0        | 1       | 271       | 1:1        | 5        | 0.172        | 1.045          | 0.180        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.00        | Front                                    | 0        | 135     | 138       | 1:1        | 5        | 0.181        | 1.084          | 0.196        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | 0.00        | Left                                     | 0        | 1       | 271       | 1:1        | 5        | 0.000        | 1.045          | 0.000        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | 0.00        | Left                                     | 0        | 135     | 138       | 1:1        | 5        | 0.000        | 1.084          | 0.000        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.31       | -0.09       | Top                                      | 0        | 1       | 271       | 1:1        | 5        | 0.394        | 1.045          | 0.412        | -          |
| 3 750.00                                                                                            | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.29       | 0.17        | Top                                      | 0        | 1       | 271       | 1:1        | 5        | <b>0.548</b> | 1.050          | 0.575        | <b>B15</b> |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 14.15       | -0.08       | Top                                      | 0        | 135     | 138       | 1:1        | 5        | 0.431        | 1.084          | 0.467        | -          |
| 3 750.00                                                                                            | 650000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.56       | 0.09        | Top                                      | 0        | 135     | 138       | 1:1        | 5        | 0.366        | 1.242          | 0.455        | -          |
| 3 930.00                                                                                            | 662000 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.87       | 0.15        | Top                                      | 0        | 270     | 0         | 1:1        | 5        | 0.436        | 1.156          | 0.504        | -          |
| 3 930.00                                                                                            | 662000 | CP OFDM QPSK    | F    | 100        | 14.5          | 13.56       | 0.01        | Top                                      | 0        | 1       | 1         | 1:1        | 5        | 0.400        | 1.242          | 0.497        | -          |
| 3 500.01                                                                                            | 633334 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.70       | -0.11       | Top                                      | 0        | 1       | 271       | 1:1        | 5        | 0.415        | 1.202          | 0.499        | -          |
| 3 500.01                                                                                            | 633334 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.95       | -0.12       | Top                                      | 0        | 135     | 138       | 1:1        | 5        | 0.345        | 1.135          | 0.392        | -          |
| 3 500.01                                                                                            | 633334 | DFT-s OFDM QPSK | F    | 100        | 14.5          | 13.26       | -0.06       | Top                                      | 0        | 270     | 0         | 1:1        | 5        | 0.460        | 1.330          | <b>0.612</b> | -          |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |        |                 |      |            |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |          |         |           |            |          |              |                |              |            |

### DTS Hotspot SAR

| DTS Hotspot SAR                                                                                    |     |         |      |            |           |               |             |             |               |                                          |            |          |           |           |         |         |            |          |
|----------------------------------------------------------------------------------------------------|-----|---------|------|------------|-----------|---------------|-------------|-------------|---------------|------------------------------------------|------------|----------|-----------|-----------|---------|---------|------------|----------|
| Frequency                                                                                          |     | Mode    | Ant. | Band width | Data Rate | Tune-Up Limit | Meas. Power | Power Drift | Test Position | Ant. Config.                             | Duty Cycle | Distance | Area Scan | Meas. SAR | Scaling | Scaling | Scaled SAR | Plot No. |
|                                                                                                    |     |         |      |            |           |               |             |             |               |                                          |            | (mm)     | Peak SAR  | SAR       | Factor  | Factor  | SAR        |          |
| MHz                                                                                                | Ch. |         |      | (MHz)      | (Mbps)    | (dBm)         | (dBm)       | (dB)        |               |                                          |            |          | (W/kg)    | (W/kg)    |         | (Duty)  | (W/kg)     |          |
| 2 442                                                                                              | 6   | 802.11b | H    | 20         | 1         | 17.0          | 16.66       | 0.14        | Rear          | 1                                        | 98.6       | 5        | 0.844     | 0.496     | 1.081   | 1.014   | 0.544      | -        |
| 2 442                                                                                              | 6   | 802.11b | H    | 20         | 1         | 17.0          | 16.66       | -0.18       | Front         | 1                                        | 98.6       | 5        | 0.683     | 0.377     | 1.081   | 1.014   | 0.413      | -        |
| 2 442                                                                                              | 6   | 802.11b | H    | 20         | 1         | 17.0          | 16.66       | 0.12        | Left          | 1                                        | 98.6       | 5        | 1.100     | 0.617     | 1.081   | 1.014   | 0.676      | -        |
| 2 442                                                                                              | 6   | 802.11b | H    | 20         | 1         | 17.0          | 16.66       | 0.13        | Top           | 1                                        | 98.6       | 5        | 0.852     | 0.397     | 1.081   | 1.014   | 0.435      | -        |
| 2 442                                                                                              | 6   | 802.11b | J    | 20         | 1         | 17.0          | 16.22       | -0.03       | Rear          | 2                                        | 98.6       | 5        | 0.649     | 0.455     | 1.112   | 1.014   | 0.552      | -        |
| 2 442                                                                                              | 6   | 802.11b | J    | 20         | 1         | 17.0          | 16.22       | -0.12       | Front         | 2                                        | 98.6       | 5        | 0.448     | 0.302     | 1.112   | 1.014   | 0.367      | -        |
| 2 442                                                                                              | 6   | 802.11b | J    | 20         | 1         | 17.0          | 16.22       | 0.19        | Right         | 2                                        | 98.6       | 5        | 0.220     | 0.108     | 1.112   | 1.014   | 0.131      | -        |
| 2 442                                                                                              | 6   | 802.11b | J    | 20         | 1         | 17.0          | 16.22       | 0.00        | Top           | 2                                        | 98.6       | 5        | 0.000     | 0.000     | 1.112   | 1.014   | 0.000      | -        |
| 2 442                                                                                              | 6   | 802.11b | H+J  | 20         | 1         | 17.0          | 16.61       | -0.19       | Rear          | 1+2                                      | 98.6       | 5        | 1.360     | 0.708     | 1.094   | 1.014   | 0.786      | B16      |
| 2 442                                                                                              | 6   | 802.11b | H+J  | 20         | 1         | 17.0          | 16.61       | 0.06        | Front         | 1+2                                      | 98.6       | 5        | 0.577     | 0.387     | 1.094   | 1.014   | 0.429      | -        |
| 2 442                                                                                              | 6   | 802.11b | H+J  | 20         | 1         | 17.0          | 16.61       | 0.12        | Left          | 1+2                                      | 98.6       | 5        | 1.430     | 0.662     | 1.094   | 1.014   | 0.735      | -        |
| 2 442                                                                                              | 6   | 802.11b | H+J  | 20         | 1         | 17.0          | 16.61       | 0.16        | Right         | 1+2                                      | 98.6       | 5        | 0.384     | 0.235     | 1.094   | 1.014   | 0.261      | -        |
| 2 442                                                                                              | 6   | 802.11b | H+J  | 20         | 1         | 17.0          | 16.61       | 0.19        | Top           | 1+2                                      | 98.6       | 5        | 1.130     | 0.616     | 1.094   | 1.014   | 0.683      | -        |
| ANSI/ IEEE C95.1 - 2005– Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |         |      |            |           |               |             |             |               | Body<br>1.6 W/kg<br>Averaged over 1 gram |            |          |           |           |         |         |            |          |

| NII Hotspot SAR                                                                                    |     |         |      |               |              |                   |                |                |                  |                                          |               |          |                       |              |                   |                   |               |             |
|----------------------------------------------------------------------------------------------------|-----|---------|------|---------------|--------------|-------------------|----------------|----------------|------------------|------------------------------------------|---------------|----------|-----------------------|--------------|-------------------|-------------------|---------------|-------------|
| Frequency                                                                                          |     | Mode    | Ant. | Band<br>width | Data<br>Rate | Tune-<br>Up Limit | Meas.<br>Power | Power<br>Drift | Test<br>Position | Ant.<br>Config.                          | Duty<br>Cycle | Distance | Area Scan<br>Peak SAR | Meas.<br>SAR | Scaling<br>Factor | Scaling<br>Factor | Scaled<br>SAR | Plot<br>No. |
| MHz                                                                                                | Ch. |         |      |               |              |                   |                |                |                  |                                          |               |          |                       |              |                   |                   |               |             |
| 5 270                                                                                              | 54  | 802.11n | G    | 40            | MCS0         | 15.0              | 14.01          | 0.00           | Rear             | 1                                        | 90.4          | 5        | 0.833                 | 0.360        | 1.256             | 1.106             | 0.500         | -           |
| 5 270                                                                                              | 54  | 802.11n | G    | 40            | MCS0         | 15.0              | 14.01          | 0.00           | Front            | 1                                        | 90.4          | 5        | 0.413                 | 0.127        | 1.256             | 1.106             | 0.176         | -           |
| 5 270                                                                                              | 54  | 802.11n | G    | 40            | MCS0         | 15.0              | 14.01          | -0.14          | Left             | 1                                        | 90.4          | 5        | 0.649                 | 0.265        | 1.256             | 1.106             | 0.368         | -           |
| 5 270                                                                                              | 54  | 802.11n | G    | 40            | MCS0         | 15.0              | 14.01          | 0.19           | Top              | 1                                        | 90.4          | 5        | 0.303                 | 0.119        | 1.256             | 1.106             | 0.165         | -           |
| 5 630                                                                                              | 126 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.62          | 0.00           | Rear             | 1                                        | 90.4          | 5        | 1.06                  | 0.484        | 1.091             | 1.106             | 0.584         | -           |
| 5 630                                                                                              | 126 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.62          | 0.00           | Front            | 1                                        | 90.4          | 5        | 0.912                 | 0.328        | 1.091             | 1.106             | 0.396         | -           |
| 5 630                                                                                              | 126 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.62          | 0.16           | Left             | 1                                        | 90.4          | 5        | 1.39                  | 0.546        | 1.091             | 1.106             | 0.659         | B17         |
| 5 630                                                                                              | 126 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.62          | 0.14           | Top              | 1                                        | 90.4          | 5        | 0.422                 | 0.172        | 1.091             | 1.106             | 0.208         | -           |
| 5 755                                                                                              | 151 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.31          | 0.00           | Rear             | 1                                        | 90.4          | 5        | 0.732                 | 0.268        | 1.172             | 1.106             | 0.347         | -           |
| 5 755                                                                                              | 151 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.31          | 0.00           | Front            | 1                                        | 90.4          | 5        | 0.9                   | 0.361        | 1.172             | 1.106             | 0.468         | -           |
| 5 755                                                                                              | 151 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.31          | 0.14           | Left             | 1                                        | 90.4          | 5        | 0.940                 | 0.374        | 1.172             | 1.106             | 0.485         | -           |
| 5 755                                                                                              | 151 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.31          | 0.12           | Top              | 1                                        | 90.4          | 5        | 0.0841                | 0.03         | 1.172             | 1.106             | 0.039         | -           |
| 5 835                                                                                              | 167 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.35          | 0.00           | Rear             | 1                                        | 90.4          | 5        | 0.823                 | 0.259        | 1.161             | 1.106             | 0.333         | -           |
| 5 835                                                                                              | 167 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.35          | 0.00           | Front            | 1                                        | 90.4          | 5        | 0.813                 | 0.328        | 1.161             | 1.106             | 0.421         | -           |
| 5 835                                                                                              | 167 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.35          | -0.17          | Left             | 1                                        | 90.4          | 5        | 0.530                 | 0.228        | 1.161             | 1.106             | 0.293         | -           |
| 5 835                                                                                              | 167 | 802.11n | G    | 40            | MCS0         | 15.0              | 14.35          | 0.09           | Top              | 1                                        | 90.4          | 5        | 0.149                 | 0.04         | 1.161             | 1.106             | 0.051         | -           |
| 5 310                                                                                              | 62  | 802.11n | E    | 40            | MCS0         | 12.0              | 11.15          | 0.00           | Rear             | 2                                        | 90.4          | 5        | 0.465                 | 0.163        | 1.216             | 1.106             | 0.219         | -           |
| 5 310                                                                                              | 62  | 802.11n | E    | 40            | MCS0         | 12.0              | 11.15          | 0.00           | Front            | 2                                        | 90.4          | 5        | 0.282                 | 0.143        | 1.216             | 1.106             | 0.192         | -           |
| 5 310                                                                                              | 62  | 802.11n | E    | 40            | MCS0         | 12.0              | 11.15          | -0.14          | Right            | 2                                        | 90.4          | 5        | 0.505                 | 0.121        | 1.216             | 1.106             | 0.163         | -           |
| 5 310                                                                                              | 62  | 802.11n | E    | 40            | MCS0         | 12.0              | 11.15          | 0.18           | Top              | 2                                        | 90.4          | 5        | 0.232                 | 0.074        | 1.216             | 1.106             | 0.100         | -           |
| 5 630                                                                                              | 126 | 802.11n | E    | 40            | MCS0         | 12.0              | 11.16          | 0.00           | Rear             | 2                                        | 90.4          | 5        | 0.479                 | 0.187        | 1.213             | 1.106             | 0.251         | -           |
| 5 630                                                                                              | 126 | 802.11n | E    | 40            | MCS0         | 12.0              | 11.16          | 0.00           | Front            | 2                                        | 90.4          | 5        | 0.402                 | 0.094        | 1.213             | 1.106             | 0.126         | -           |
| 5 630                                                                                              | 126 | 802.11n | E    | 40            | MCS0         | 12.0              | 11.16          | 0.19           | Right            | 2                                        | 90.4          | 5        | 0.650                 | 0.093        | 1.213             | 1.106             | 0.125         | -           |
| 5 630                                                                                              | 126 | 802.11n | E    | 40            | MCS0         | 12.0              | 11.16          | 0.11           | Top              | 2                                        | 90.4          | 5        | 0.222                 | 0.091        | 1.213             | 1.106             | 0.122         | -           |
| 5 755                                                                                              | 151 | 802.11n | E    | 40            | MCS0         | 12.0              | 9.67           | 0.00           | Rear             | 2                                        | 90.4          | 5        | 0.347                 | 0.132        | 1.710             | 1.106             | 0.250         | -           |
| 5 755                                                                                              | 151 | 802.11n | E    | 40            | MCS0         | 12.0              | 9.67           | 0.00           | Front            | 2                                        | 90.4          | 5        | 0.365                 | 0.107        | 1.710             | 1.106             | 0.202         | -           |
| 5 755                                                                                              | 151 | 802.11n | E    | 40            | MCS0         | 12.0              | 9.67           | -0.13          | Right            | 2                                        | 90.4          | 5        | 0.341                 | 0.075        | 1.710             | 1.106             | 0.142         | -           |
| 5 755                                                                                              | 151 | 802.11n | E    | 40            | MCS0         | 12.0              | 9.67           | 0.04           | Top              | 2                                        | 90.4          | 5        | 0.145                 | 0.04         | 1.710             | 1.106             | 0.076         | -           |
| 5 835                                                                                              | 167 | 802.11n | E    | 40            | MCS0         | 12.0              | 10.52          | 0.00           | Rear             | 2                                        | 90.4          | 5        | 0.392                 | 0.104        | 1.406             | 1.106             | 0.162         | -           |
| 5 835                                                                                              | 167 | 802.11n | E    | 40            | MCS0         | 12.0              | 10.52          | 0.00           | Front            | 2                                        | 90.4          | 5        | 0.374                 | 0.099        | 1.406             | 1.106             | 0.154         | -           |
| 5 835                                                                                              | 167 | 802.11n | E    | 40            | MCS0         | 12.0              | 10.52          | 0.00           | Right            | 2                                        | 90.4          | 5        | 0.420                 | 0.066        | 1.406             | 1.106             | 0.103         | -           |
| 5 835                                                                                              | 167 | 802.11n | E    | 40            | MCS0         | 12.0              | 10.52          | -0.10          | Top              | 2                                        | 90.4          | 5        | 0.154                 | 0.018        | 1.406             | 1.106             | 0.028         | -           |
| ANSI/ IEEE C95.1 - 2005– Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |         |      |               |              |                   |                |                |                  | Body<br>1.6 W/kg<br>Averaged over 1 gram |               |          |                       |              |                   |                   |               |             |

| DSS Hotspot SAR                                                                                     |     |                      |      |               |             |             |                                          |             |               |           |                |                |            |          |
|-----------------------------------------------------------------------------------------------------|-----|----------------------|------|---------------|-------------|-------------|------------------------------------------|-------------|---------------|-----------|----------------|----------------|------------|----------|
| Frequency                                                                                           |     | Mode                 | Ant. | Tune-Up Limit | Meas. Power | Power Drift | Test Position                            | Ant. Config | Distance (mm) | Meas. SAR | Scaling Factor | Scaling Factor | Scaled SAR | Plot No. |
| MHz                                                                                                 | Ch. |                      |      | (dBm)         | (dBm)       | (dB)        |                                          |             |               | (W/kg)    |                | (Duty)         | (W/kg)     |          |
| 2 441                                                                                               | 39  | Bluetooth DH5        | H    | 19.0          | 18.37       | -0.19       | Rear                                     | 1           | 5             | 0.126     | 1.156          | 1.000          | 0.146      | -        |
| 2 441                                                                                               | 39  | Bluetooth DH5        | H    | 19.0          | 18.37       | 0.12        | Front                                    | 1           | 5             | 0.101     | 1.156          | 1.000          | 0.117      | -        |
| 2 441                                                                                               | 39  | Bluetooth DH5        | H    | 19.0          | 18.37       | 0.17        | Left                                     | 1           | 5             | 0.181     | 1.156          | 1.000          | 0.209      | -        |
| 2 441                                                                                               | 39  | Bluetooth DH5        | H    | 19.0          | 18.37       | 0.14        | Top                                      | 1           | 5             | 0.025     | 1.156          | 1.000          | 0.029      | -        |
| 2 440                                                                                               | 17  | Bluetooth LE 1M(255) | H    | 19.0          | 18.45       | -0.18       | Rear                                     | 1           | 5             | 0.355     | 1.135          | 1.000          | 0.403      | -        |
| 2 440                                                                                               | 17  | Bluetooth LE 1M(255) | H    | 19.0          | 18.45       | -0.16       | Front                                    | 1           | 5             | 0.480     | 1.135          | 1.000          | 0.545      | B18      |
| 2 440                                                                                               | 17  | Bluetooth LE 1M(255) | H    | 19.0          | 18.45       | 0.06        | Left                                     | 1           | 5             | 0.403     | 1.135          | 1.000          | 0.457      | -        |
| 2 440                                                                                               | 17  | Bluetooth LE 1M(255) | H    | 19.0          | 18.45       | -0.09       | Top                                      | 1           | 5             | 0.228     | 1.135          | 1.000          | 0.259      | -        |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |     |                      |      |               |             |             | Body<br>1.6 W/kg<br>Averaged over 1 gram |             |               |           |                |                |            |          |

### 13.1.3 Phablet SAR Measurement Considerations

Per FCC KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

### 13.1.4 Phablet SAR Measurement Results

| NFC Phablet SAR _10g                                                                                |              |                     |                     |               |                                           |                     |             |
|-----------------------------------------------------------------------------------------------------|--------------|---------------------|---------------------|---------------|-------------------------------------------|---------------------|-------------|
| Frequency<br>MHz                                                                                    | Mode         | Data Rate<br>(Kbps) | Power Drift<br>(dB) | Test Position | Distance<br>(mm)                          | Meas. SAR<br>(W/kg) | Plot<br>No. |
| 13.56                                                                                               | NFC (Type A) | 106                 | 0.19                | Rear          | 0                                         | <b>0.021</b>        | <b>C1</b>   |
| 13.56                                                                                               | NFC (Type B) | 106                 | -                   | Rear          | 0                                         | 0                   | -           |
| 13.56                                                                                               | NFC (Type F) | 106                 | -0.00               | Rear          | 0                                         | 0.00000204          | -           |
| 13.56                                                                                               | NFC (Type A) | 106                 | -                   | Front         | 0                                         | 0                   | -           |
| 13.56                                                                                               | NFC (Type A) | 106                 | -                   | Left          | 0                                         | 0                   | -           |
| 13.56                                                                                               | NFC (Type A) | 106                 | -                   | Top           | 0                                         | 0                   | -           |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Uncontrolled Exposure/ General Population |              |                     |                     |               | Hand<br>4.0 W/kg<br>Averaged over 10 gram |                     |             |

## 13.2 SAR Test Notes

### General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB 648474 D04v01r03, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was 1.2 W/kg, no additional SAR evaluation using a headset cable were required.
8. Per KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is > 160 mm and < 200 mm. When hotspot mode applies, extremity SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (with tolerance) is 1 g SAR > 1.2 W/kg.
9. Per FCC KDB 865664 D01v01r04, variability SAR measurement were performed when the measured SAR results for a frequency Band were greater than or equal to 0.8 W/kg for 1g SAR and >2 for 10g SAR Please see Section 15 for variability analysis.
10. This device utilizes power reduction for some wireless mode and technologies, as outlined in sec. 4 The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous scenarios.
11. During SAR testing for the Hotspot conditions per KDB 941225 D06v02r01, the actual portable hotspot operation (with actual simultaneous transmission of a transmitter with WiFi) was not activated.
12. Per FCC guidance SAR was performed using 6.5 GHz SAR probe calibration factors. Per October 2020 TCBC Workshop notes, 5 channels were tested. Absorbed power density(APD) using a 4 cm<sup>2</sup> averaging area is reported based on SAR measurements.

### GSM/GPRS Test Notes:

1. This EUT'S GSM and GPRS device class is B.
2. This device supports GPRS VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB 941225 D01v03r01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power including tolerance was evaluated for SAR.
4. Per FCC KDB 447498 D04v01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.

### UMTS Notes:

1. The 12.2 kbps RMC mode is the primary mode per KDB 941225 D01v03r01.
2. UMTS SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB publication 941225

D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.

3. Per FCC KDB 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the channel highest output power channel was used.

#### LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r05.
2. According to FCC KDB 941225 D05v02r05:  
When the reported SAR is 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.  
Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to target MPR is indicated alongside the SAR results.
4. When Power reduction is applied, MPR is 0 for some modes.
5. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
6. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) LTE TDD Band 41 SAR measured at the highest output power channel for each test configuration is 0.6 W/kg then testing at the other channels is not required for such test configurations.
7. TDD LTE (Power Class 3) was tested using UL-DL configuration 0 with 6 UL sub frames and 2S sub frames using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633(cf=1.58).
8. Per KDB 941225 D05Av01r02, SAR for LTE Carrier Aggregation operations was not needed because the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink CA was not activated.
9. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The Highest available duty cycle for Power Class 2 operations is 43.3% using UL-DL configuration 1. Per May TCB Workshop notes, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions.
10. SAR test reduction is applied using the following criteria:  
Start with the largest channel Bandwidth and measure SAR for QPSK with 1 RB, and 50 % RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50 % RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel Bandwidths is not required because the reported SAR for the highest channel Bandwidth is <1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel Bandwidth.

**NR Notes:**

1. This device supports SA and NSA mode for NR implementation. In EN-DC Mode, NR operate with the LTE Bands shown in the NR FR1 checklist acting as anchor Bands.
2. Due to Limitations of the SAR measurement equipment, SAR testing for NR Bands was performed separately using test mode (FTM) software.
3. More detailed specifications of the NR Bands are contained in the technical description document.
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. For NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power was evaluated for SAR tests.

**WLAN Notes:**

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. For initial test position, the highest extrapolated peak SAR will be used. When reported SAR for the initial test position is  $\leq 0.4$  W/kg for 1g SAR and  $\leq 1.0$  W/kg for 10g SAR, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR results is  $\leq 0.8$  W/kg for 1g SAR and  $\leq 2.0$  W/kg for 10 g SAR or all test position are measured.
2. Per KDB 2482227 D01v02r02 justification for test configurations of 2.4 GHz WiFi Single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11 g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.
3. Per KDB 2482227 D01v02r02 justification for test configurations of 5 GHz WiFi Single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission mode was not investigated since the highest reported SAR for initial test configuration adjusted by the ration of maximum output powers is less than 1.2 W/kg for 1 g SAR and less than 3.0 W/kg for 10 g SAR.
4. When the maximum reported 1g averaged SAR is  $\leq 0.8$  W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was  $\leq 1.20$  W/kg or all test channels were measured.
5. The device was configured to transmit continuously at the required data rated, channel Bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated WLAN test reports.
6. The device was configured to transmit continuously at the required data rated, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated WLAN test reports.

**Bluetooth Notes:**

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests mode type. Per October 2016 TCBC Workshop Notes, the reported SAR was scaled to 100% transmission duty factor to determine compliance. Please see sec.11 for the time-domain plot and calculation for duty factor of the device.
2. Head and Bluetooth tethering SAR were evaluated for BT BDR tethering applications.

## 14. Simultaneous SAR Analysis

This device is contained transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per KDB Publication 447498 D01v06 4.3.2, simultaneous transmission SAR test exclusion may be applied when the sum of 1g SAR and 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is  $\leq 1.6\text{W/kg}$  for 1g SAR and  $\leq 4\text{ W/kg}$  for 10g SAR. The different test positions in an exposure condition may be considered collectively to determine SAR exclusion according to the sum of 1g or 10g SAR.

This device is enabled with S.LSI Time average SAR algorithm with pre-defined sub6 antenna groups (AG0 and AG1). Simultaneous transmission analysis is performed per antenna groups. Section 14.2 contains analysis to demonstrate the AG0 and AG1+WLAN5 GHz+BT/AG0+WLAN2.4 GHz and AG1+WLAN2.4 GHz are operate mutually exclusive. Additional analysis is provided below to show compliance between AG0 and AG1+WLAN5 GHz+BT/AG0+WLAN2.4 GHz and AG1+WLAN2.4 GHz.

The simultaneous transmission analysis of each antenna group and WLAN/BT was evaluated based on the maximum Reported SAR of the antenna in each Antenna group and the nearest y-axis coordinate of each antenna Group and WLAN/BT

If the sum result with each antenna exceeds the FCC SAR limit of 1.6 W/kg 1g ,4.0 W/kg 10g, the SPLSR was re-evaluated according to FCC KDB 447498 D01v06 4.3.2.

### 14.1 Sub6 Antenna Groups

S.LSI Time average SAR(TAS) algorithm operates based on pre-defined sub6 antenna groups (AG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating either of below conditions for all exposure scenarios:

LSI Algorithm in WWAN/WLAN adds directly adds the time-averaged RF exposure (LTE+ sub6 NR, WLAN 5 GHz + BT). Smart Transmit algorithm controls the total RF exposure (LTE+ sub6 NR, WLAN 5 GHz + BT) to not exceed FCC limit. Therefore, simultaneous transmission compliance between SAR radio1 + SAR radio2 operations within an antenna group is demonstrated in the Part 2 Report during algorithm validation.

Sum of SAR of one antenna from each of the sub6 AGs and the RF exposure from radios outside TAS is less than regulatory limits. This condition must be demonstrated for all antenna combinations of sub6 AGs.

This device supports two sub6 AG: AG0 and AG1, with AG0 having 4 antennas (Main1(A), Main2(B), Main3(C), Main4(D)) and AG1 having 3 antenna(Sub1(E), Sub2(F), Sub4(H)), ER(WLAN,BT,NFC). The conditions are verified through the following criteria.

The highest reported SAR at Plimit (or Pmax when Plimit > Pmax) for each antenna should be obtained out of all supported WWAN technologies and frequency bands for each exposure condition Demonstrate that the sum of reported SAR of antenna from each of the sub6 AGs and the sum of RF exposure of TAS should be less than the regulatory limit as given below for each RSI.

Obtain the worst-case reported SAR for each antenna group (i.e., maximum reported SAR at Plimit (or Pmax when Plimit > Pmax) out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure, and demonstrate that the sum of these RF exposures meets

$[ \text{Max.SAR.AG0} + \text{Max.SAR.AG1} ] + [ \text{Max.WLAN} + \text{Max.Bluetooth} ] \leq 1.6$  (for 1g SAR or 4.0 for 10g)

AG0, AG1,ER(WLAN/BT) are described in the table below.

| AG0            |                                                    |
|----------------|----------------------------------------------------|
| ANT A (Main1)  | GSM850, UMTS 5, LTE 12(17)/13/26(5), NR n5         |
| ANT B (Main 2) | GSM 1900, UMTS 2,4, LTE 25(2)/41/66(4), NR n41/n66 |
| ANT D (Main 4) | NR n41 SRS#3                                       |
| AG1            |                                                    |
| ANT E (Sub 1)  | GSM850, UMTS 5, LTE 12(17)/13/26(5), NR n5         |
| ANT F (Sub 2)  | LTE 25(2)/41/66(4) NR n66/n77, NR n41 SRS#1        |
| ANT H (Sub 4)  | NR n41 SRS#2                                       |
| ER(WLAN/BT)    |                                                    |
| ANT E (Sub 1)  | WLAN 5 GHz(Ant2)                                   |
| ANT G (Sub 3)  | WLAN 5 GHz(Ant1)                                   |
| ANT H (Sub 4)  | WLAN 2.4 GHz(Ant 1), Bluetooth(Ant1)               |
| ANT J (Sub 6)  | WLAN 2.4 GHz(Ant 2)                                |
| NFC            | NFC                                                |

Per S.LSI TAS's the technical document, the Sub6 antenna groups were decoupled by normalizing the maximum measurement results between the module and antenna based on TER, ensuring that the antenna group and module can operate independently while meeting regulatory requirements.

### 14.2 Head SAR Simultaneous Transmission Analysis

| AG0         |       |       |       |       |
|-------------|-------|-------|-------|-------|
| Position    | ANT A | ANT B | ANT D | Worst |
| Left Touch  | 0.159 | 0.178 | 0     | 0.178 |
| Left Tilt   | 0.094 | 0.124 | 0     | 0.124 |
| Right Touch | 0.210 | 0.137 | 0     | 0.210 |
| Right Tilt  | 0.104 | 0.114 | 0     | 0.114 |

| AG1         |       |       |       |       |
|-------------|-------|-------|-------|-------|
| Position    | ANT E | ANT F | ANT H | Worst |
| Left Touch  | 0.865 | 0.597 | 0.014 | 0.865 |
| Left Tilt   | 0.747 | 0.727 | 0.012 | 0.747 |
| Right Touch | 0.606 | 0.711 | 0.100 | 0.711 |
| Right Tilt  | 0.558 | 0.666 | 0.098 | 0.666 |

#### 14.2.1 WLAN + BT Simultaneous SAR Head Case

| Position    | 2.4 GHz<br>Ant H<br>(Ant.1) | 2.4 GHz<br>Ant H+J<br>MIMO | 5 GHz<br>Ant E<br>(Ant.2) | 5 GHz<br>Ant G+E<br>MIMO | BT<br>Ant H<br>(Ant.1) | Worst |
|-------------|-----------------------------|----------------------------|---------------------------|--------------------------|------------------------|-------|
| Left Touch  | 0.081                       | 0.186                      | 0.167                     | 0.268                    | 0.180                  | 0.268 |
| Left Tilt   | 0.101                       | 0.217                      | 0.138                     | 0.259                    | 0.213                  | 0.259 |
| Right Touch | 0.275                       | 0.495                      | 0.147                     | 0.655                    | 0.571                  | 0.655 |
| Right Tilt  | 0.265                       | 0.276                      | 0.122                     | 0.299                    | 0.537                  | 0.537 |

#### 14.2.2 WWAN+WLAN 2.4 GHz/5 GHz+BT Simultaneous SAR Head Case

| Position    | AG0   | AG1   | WLAN+BT | Summation    |
|-------------|-------|-------|---------|--------------|
| Left Touch  | 0.178 | 0.865 | 0.268   | 1.311        |
| Left Tilt   | 0.124 | 0.747 | 0.259   | 1.130        |
| Right Touch | 0.210 | 0.711 | 0.655   | <b>1.576</b> |
| Right Tilt  | 0.114 | 0.666 | 0.537   | 1.317        |

### 14.3 BodyWorn/Hotspot SAR Simultaneous Transmission Analysis

| AG0      |       |       |       |       |
|----------|-------|-------|-------|-------|
| Position | ANT A | ANT B | ANT D | Worst |
| Rear     | 0.876 | 0.856 | 0.048 | 0.876 |
| Front    | 0.693 | 0.608 | 0.037 | 0.693 |

| AG1      |       |       |       |       |
|----------|-------|-------|-------|-------|
| Position | ANT E | ANT F | ANT H | Worst |
| Rear     | 0.823 | 0.527 | 0.045 | 0.823 |
| Front    | 0.724 | 0.378 | 0.033 | 0.724 |

#### 14.4.1 WLAN + BT Simultaneous SAR BodyWorn/Hotspot Case

| Position | 2.4 GHz<br>Ant H<br>(Ant.1) | 2.4 GHz<br>Ant H+J<br>MIMO | 5 GHz<br>Ant E<br>(Ant.2) | 5 GHz<br>Ant G+E<br>MIMO | BT_BDR<br>Ant H (Ant.1) | BT_LE<br>Ant H (Ant.1) | Worst |
|----------|-----------------------------|----------------------------|---------------------------|--------------------------|-------------------------|------------------------|-------|
| Rear     | 0.544                       | 0.786                      | 0.251                     | 0.835                    | 0.184                   | 0.463                  | 0.835 |
| Front    | 0.413                       | 0.429                      | 0.202                     | 0.670                    | 0.148                   | 0.626                  | 0.670 |

#### 14.4.2 WWAN+WLAN 2.4 GHz/5 GHz+BT Simultaneous SAR BodyWorn/Hotspot Case

| Position | AG0   | AG1   | WLAN+BT | Summation       |
|----------|-------|-------|---------|-----------------|
| Rear     | 0.876 | 0.823 | 0.835   | See Sec. 14.6.1 |
| Front    | 0.693 | 0.724 | 0.670   | See Sec. 14.6.2 |

### 14.4.3 WWAN+WLAN 2.4 GHz/5 GHz+BT Simultaneous SAR BodyWorn/Hotspot Case

| Ant. | AG0         | Body | SAR   | AG1 Worst | 2.4G Ant1 | 2.4G MIMO | 5G Ant2 | 5G MIMO | Sum. Main+ 2.4G Ant1 | Sum. Main+ 2.4G MIMO | Sum. Main+ 5G Ant2 | Sum. Main+ 5G MIMO |
|------|-------------|------|-------|-----------|-----------|-----------|---------|---------|----------------------|----------------------|--------------------|--------------------|
| A    | GSM850      | Rear | 0.749 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| A    | GSM1900     | Rear | 0.520 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.595              | See Sec. 14.6.1    |
| A    | UMTS B5     | Rear | 0.735 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| B    | UMTS B4     | Rear | 0.493 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.568              | See Sec. 14.6.1    |
| B    | UMTS B2     | Rear | 0.421 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.496              | See Sec. 14.6.1    |
| A    | LTE B12     | Rear | 0.876 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| A    | LTE B13     | Rear | 0.389 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.464              | See Sec. 14.6.1    |
| A    | LTE B26     | Rear | 0.819 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| A    | LTE B25     | Rear | 0.485 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.560              | See Sec. 14.6.1    |
| B    | LTE B66     | Rear | 0.573 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| B    | LTE B41     | Rear | 0.384 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.459              | See Sec. 14.6.1    |
| A    | NR n5       | Rear | 0.527 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| B    | NR n66      | Rear | 0.300 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | 1.375              | See Sec. 14.6.1    |
| B    | NR n41      | Rear | 0.856 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | See Sec. 14.6.1      | See Sec. 14.6.1      | See Sec. 14.6.1    | See Sec. 14.6.1    |
| D    | NR n41 SRS2 | Rear | 0.048 | 0.824     | 0.557     | 0.790     | 0.251   | 0.835   | 1.429                | See Sec. 14.6.1      | 1.123              | See Sec. 14.6.1    |

| Ant. | AG0         | Body  | SAR   | AG1 Worst | 2.4G Ant1 | 2.4G MIMO | 5G Ant2 | 5G MIMO | Sum. Main+ 2.4G Ant1 | Sum. Main+ 2.4G MIMO | Sum. Main+ 5G Ant2 | Sum. Main+ 5G MIMO |
|------|-------------|-------|-------|-----------|-----------|-----------|---------|---------|----------------------|----------------------|--------------------|--------------------|
| A    | GSM850      | Front | 0.693 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | See Sec. 14.6.2    | See Sec. 14.6.2    |
| A    | GSM1900     | Front | 0.407 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.547                | 1.563                | 1.333              | See Sec. 14.6.2    |
| A    | UMTS B5     | Front | 0.575 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | 1.501              | See Sec. 14.6.2    |
| B    | UMTS B4     | Front | 0.608 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | 1.534              | See Sec. 14.6.2    |
| B    | UMTS B2     | Front | 0.329 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.469                | 1.485                | 1.255              | See Sec. 14.6.2    |
| A    | LTE B12     | Front | 0.623 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | 1.549              | See Sec. 14.6.2    |
| A    | LTE B13     | Front | 0.446 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.586                | See Sec. 14.6.2      | 1.372              | See Sec. 14.6.2    |
| A    | LTE B26     | Front | 0.558 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | 1.484              | See Sec. 14.6.2    |
| A    | LTE B25     | Front | 0.348 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.488                | 1.504                | 1.274              | See Sec. 14.6.2    |
| B    | LTE B66     | Front | 0.333 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.473                | 1.489                | 1.259              | See Sec. 14.6.2    |
| B    | LTE B41     | Front | 0.278 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.418                | 1.434                | 1.204              | See Sec. 14.6.2    |
| A    | NR n5       | Front | 0.424 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.564                | 1.580                | 1.350              | See Sec. 14.6.2    |
| B    | NR n66      | Front | 0.448 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.588                | See Sec. 14.6.2      | 1.374              | See Sec. 14.6.2    |
| B    | NR n41      | Front | 0.565 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | See Sec. 14.6.2      | See Sec. 14.6.2      | 1.491              | See Sec. 14.6.2    |
| D    | NR n41 SRS2 | Front | 0.048 | 0.724     | 0.416     | 0.432     | 0.202   | 0.670   | 1.188                | 1.204                | 0.974              | 1.442              |

#### 14.4 Hotspot SAR Simultaneous Transmission Analysis

| AG0      |              |       |       |       |
|----------|--------------|-------|-------|-------|
| Position | ANT A        | ANT B | ANT D | Worst |
| Rear     | <b>0.876</b> | 0.856 | 0.048 | 0.876 |
| Front    | <b>0.693</b> | 0.608 | 0.037 | 0.693 |
| Left     | 0.111        | 0.268 |       | 0.268 |
| Right    | 0.541        |       | 0.000 | 0.541 |
| Top      |              |       |       | 0.000 |
| Bottom   | 0.664        | 1.187 | 0.017 | 1.187 |

| AG1      |              |       |       |       |
|----------|--------------|-------|-------|-------|
| Position | ANT E        | ANT F | ANT H | Worst |
| Rear     | <b>0.823</b> | 0.527 | 0.045 | 0.823 |
| Front    | <b>0.724</b> | 0.378 | 0.033 | 0.724 |
| Left     |              | 0.140 | 0.049 | 0.140 |
| Right    | 0.316        |       |       | 0.316 |
| Top      | 0.657        | 0.841 | 0.072 | 0.841 |
| Bottom   |              |       |       | 0.000 |

##### 14.4.1 WLAN + BT Simultaneous SAR Hotspot Case

| Position | 2.4 GHz<br>Ant H<br>(Ant.1) | 2.4 GHz<br>Ant H+J<br>MIMO | 5 GHz<br>Ant E<br>(Ant.2) | 5 GHz<br>Ant G+E<br>MIMO | BT_BDR<br>Ant H (Ant.1) | BT_LE<br>Ant H (Ant.1) | Worst |
|----------|-----------------------------|----------------------------|---------------------------|--------------------------|-------------------------|------------------------|-------|
| Rear     | 0.544                       | 0.786                      | 0.251                     | <b>0.835</b>             | 0.184                   | 0.463                  | 0.835 |
| Front    | 0.413                       | 0.429                      | 0.202                     | <b>0.670</b>             | 0.148                   | 0.626                  | 0.670 |
| Left     | 0.676                       | <b>0.735</b>               |                           | 0.659                    | 0.265                   | 0.526                  | 0.735 |
| Right    |                             | <b>0.261</b>               | 0.163                     | 0.163                    | 0.000                   |                        | 0.261 |
| Top      | 0.435                       | <b>0.683</b>               | 0.122                     | 0.330                    | 0.037                   | 0.297                  | 0.683 |
| Bottom   |                             |                            |                           |                          |                         |                        | 0.000 |

##### 14.4.2 WWAN+WLAN 2.4 GHz/5 GHz+BT Simultaneous SAR Hotspot Case

| Position | AG0   | AG1   | WLAN/BT | Summation       |
|----------|-------|-------|---------|-----------------|
| Rear     | 0.876 | 0.823 | 0.835   | See Sec. 14.6.1 |
| Front    | 0.693 | 0.724 | 0.670   | See Sec. 14.6.2 |
| Left     | 0.268 | 0.140 | 0.735   | 1.276           |
| Right    | 0.541 | 0.316 | 0.261   | 1.118           |
| Top      |       | 0.841 | 0.683   | <b>1.524</b>    |
| Bottom   | 1.187 |       |         | 1.187           |

#### 14.5 Phablet SAR Simultaneous Transmission Analysis

| Position | NFC   | Worst        |
|----------|-------|--------------|
| Rear     | 0.021 | <b>0.021</b> |
| Front    | 0     | 0.000        |
| Left     | 0     | 0.000        |
| Right    |       | 0.000        |
| Top      | 0     | 0.000        |
| Bottom   |       | 0.000        |

## 14.6 SAR to Peak Location Separation Ratio (SPLSR)

FCC KDB 447498 D01v06 General RF Exposure Guidance introduces a new formula for calculating the SAR a Peak Location Separation Ratio(SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR_i = (SAR_1 + SAR_2)^{1.5} / R_i$$

Where:

**SAR<sub>1</sub>** is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

**SAR<sub>2</sub>** is the highest measured of estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

**R<sub>i</sub>** is the separation distance between the pair of simultaneous transmitting antennas, When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of  $[(X_1 - X_2)^2 + (Y_1 - Y_2)^2 + (Z_1 - Z_2)^2]$

In order for a pair of simultaneous transmitting antennas with the sum 1-g of SAR > 1.6 W/kg and with the sum 10-g of SAR > 4 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / R_i \leq 0.04 \text{ for 1g SAR and } (SAR_1 + SAR_2)^{1.5} / R_i \leq 0.1 \text{ for 10g SAR}$$

### 14.6.1 BodyWorn/Hotspot SPLSR Evaluation(Rear)

#### Ant Group 0

| Mode/Band   | Antenna | X(mm)        | Y(mm)       | Z(mm)       | Reported SAR [W/kg] |
|-------------|---------|--------------|-------------|-------------|---------------------|
| GSM850      | A       | -14.5        | 78.5        | -209        | 0.749               |
| UMTS 5      | A       | -16          | 78.5        | -209        | 0.735               |
| LTE 12      | A       | -28          | 81.5        | -209        | <b>0.876</b>        |
| LTE 13      | A       | -17.5        | 80          | -209        | 0.389               |
| LTE 26      | A       | <b>-16</b>   | <b>76.5</b> | <b>-209</b> | 0.819               |
| NR n5       | A       | -11.5        | 84          | -209        | 0.527               |
| GSM1900     | B       | -59.5        | 77          | -209        | 0.520               |
| UMTS 4      | B       | -46          | 92          | -209        | 0.493               |
| UMTS 2      | B       | -46          | 92          | -209        | 0.421               |
| LTE 25      | B       | -58          | 73.5        | -209        | 0.485               |
| LTE 41      | B       | -39.8        | 84.2        | -204        | 0.384               |
| LTE 66      | B       | -38          | 81.5        | -204        | 0.573               |
| NR n41      | B       | <b>-52.6</b> | <b>70.8</b> | <b>-209</b> | <b>0.768</b>        |
| NR n66      | B       | -56.5        | 73.5        | -209        | 0.300               |
| NR n41 SRS3 | D       | <b>-69.4</b> | <b>49.2</b> | <b>-209</b> | <b>0.048</b>        |

#### Ant Group 1

| Mode/Band   | Antenna | X(mm)        | Y(mm)        | Z(mm)       | Reported SAR [W/kg] |
|-------------|---------|--------------|--------------|-------------|---------------------|
| GSM850      | E       | <b>8</b>     | <b>-78.5</b> | <b>-208</b> | 0.440               |
| UMTS 5      | E       | -4           | -88.5        | -208        | 0.570               |
| LTE 12      | E       | -16          | -90          | -208        | 0.559               |
| LTE 13      | E       | -16          | -90          | -208        | 0.545               |
| LTE 26      | E       | -16          | -88.5        | -208        | 0.524               |
| NR n5       | E       | -13          | -81.5        | -208        | <b>0.823</b>        |
| LTE 25      | F       | -43          | -73.5        | -208        | 0.274               |
| LTE 41      | F       | -38.2        | -81.6        | -208        | 0.186               |
| LTE 66      | F       | <b>-42.5</b> | <b>-70.5</b> | <b>-205</b> | 0.456               |
| NR n66      | F       | -44.5        | -70.5        | -208        | 0.428               |
| NR n77      | F       | -32.6        | -76          | -206        | <b>0.527</b>        |
| NR n41 SRS1 | F       | -66.1        | -75.6        | -208        | 0.101               |
| NR n41 SRS2 | H       | <b>-43.3</b> | <b>-91.2</b> | <b>-208</b> | <b>0.045</b>        |

#### WLAN Group

| Mode/Band     | Antenna | X(mm)        | Y(mm)        | Z(mm)       | Reported SAR [W/kg] |
|---------------|---------|--------------|--------------|-------------|---------------------|
| WLAN2.4GAnt.1 | H       | -56.0        | -70.8        | -205        | 0.557               |
| WLAN2.4GAnt.2 | J       | <b>17.8</b>  | <b>-13.2</b> | <b>-204</b> | 0.516               |
| WLAN2.4G MIMO | H+J     | 16.6         | -14.4        | -205        | <b>0.790</b>        |
| WLAN5GAnt.1   | G       | -64.0        | -64.0        | -205        | 0.584               |
| WLAN5GAnt.2   | E       | -18.0        | -74.5        | -205        | 0.251               |
| WLAN5G MIMO   | G+E     | <b>-64.0</b> | <b>-64.0</b> | <b>-205</b> | <b>0.835</b>        |
| BT__Ant.1     | H       | -59.0        | -69.6        | -205        | 0.403               |

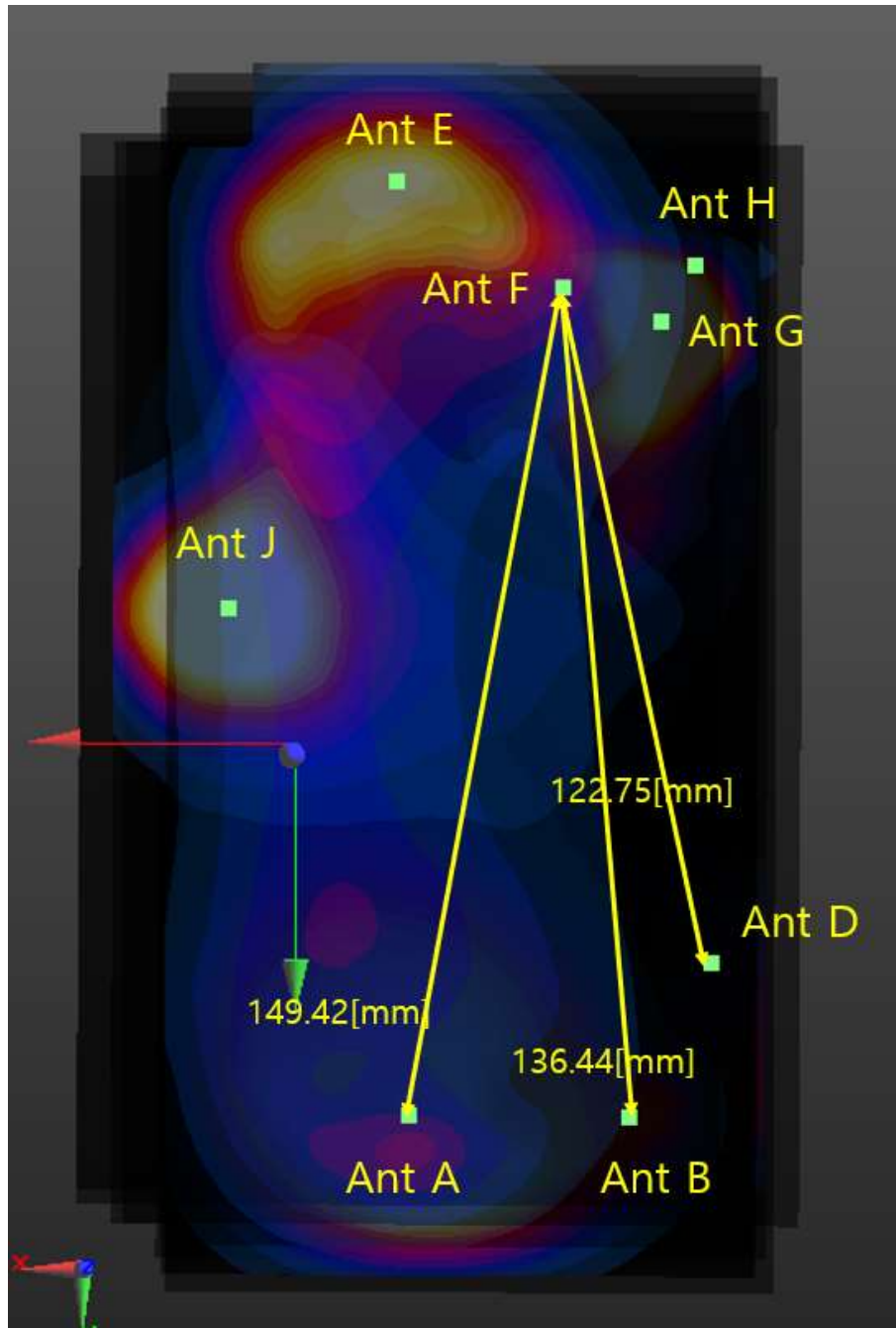
#### 14.6.1.1 Group analysis SPLSR 2.4 GHz

|                              | AG0   | AG1              | 2.4 GHz WLAN |
|------------------------------|-------|------------------|--------------|
| Min Y-axis(mm)               | 49.2  |                  |              |
| Max SAR(W/kg)                | 0.876 |                  |              |
| Max Y-axis(mm)               |       | -70.5            | -13.2        |
| Max SAR(W/kg)                |       | 0.823            | 0.790        |
| AG0, AG1/WLAN Distance(mm)   |       | 119.7            | 62.4         |
| (AG0+ER)+(AG1+ER) SAR(W/kg)  |       | 3.279            |              |
| AG0, AG1+2.4 GHz WLAN(SPLSR) |       | See Sec 14.6.1.2 |              |

#### 14.6.1.2 BodyWorn/Hotspot SPLSR Evaluation(Rear)

|                              | AG0<br>Ant A  | AG0<br>Ant B | AG0<br>Ant D | AG1   | 2.4 GHz<br>WLAN |
|------------------------------|---------------|--------------|--------------|-------|-----------------|
| Max SAR(W/kg)                | 0.876         | 0.768        | 0.048        | 0.823 | 0.790           |
| AG0, AG1/WLAN Distance(mm)   | 149.42        | 136.44       | 122.75       |       |                 |
| (AG0+ER)+(AG1+ER) SAR(W/kg)  | 3.279         | 3.222        | 2.451        |       |                 |
| AG0, AG1+2.4 GHz WLAN(SPLSR) | <b>0.0397</b> | 0.0398       | 0.0313       |       |                 |

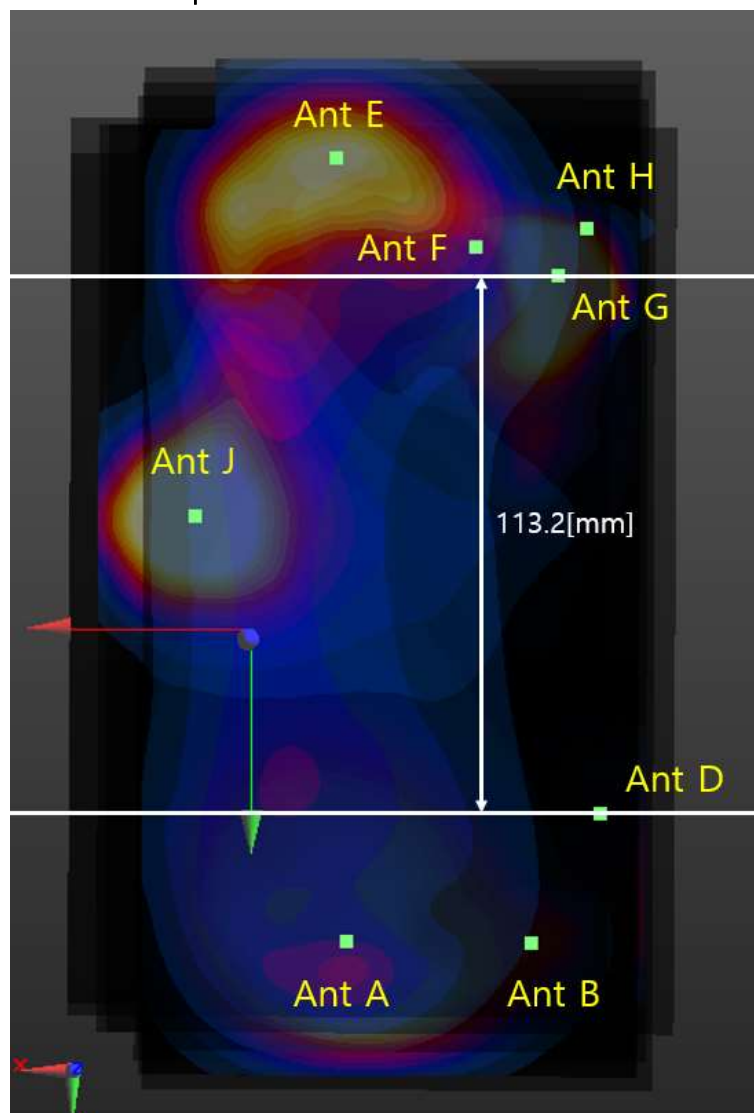
# SPLSR Plot for Antenna Group



## 14.6.1.3 Group analysis SPLSR 5 GHz+BT

|                                   | AG0   | AG1    | 5 GHz WLAN+BT |
|-----------------------------------|-------|--------|---------------|
| Min Y-axis(mm)                    | 49.2  |        |               |
| Max SAR(W/kg)                     | 0.876 |        |               |
| Max Y-axis(mm)                    |       | -70.5  | -64.0         |
| Max SAR(W/kg)                     |       | 0.823  | 0.835         |
| AG0, AG1/WLAN Distance(mm)        |       | 113.2  |               |
| AG0+(AG1+5 GHz WLAN+BT) SAR(W/kg) |       | 2.534  |               |
| AG0, (AG1+5 GHz WLAN+BT)(SPLSR)   |       | 0.0356 |               |

### SPLSR Plot for Antenna Group



## 14.6.2 BodyWorn/Hotspot SPLSR Evaluation(Front)

### Ant Group 0

| Mode/Band   | Antenna | X(mm)      | Y(mm)       | Z(mm)       | Reported SAR [W/kg] |
|-------------|---------|------------|-------------|-------------|---------------------|
| GSM850      | A       | -49        | 78.5        | -209        | <b>0.693</b>        |
| UMTS 5      | A       | -37        | 80          | -209        | 0.575               |
| LTE 12      | A       | -61        | 75          | -209        | 0.623               |
| LTE 13      | A       | -47.5      | 78.5        | -209        | 0.446               |
| LTE 26      | A       | <b>-58</b> | <b>73.5</b> | <b>-209</b> | 0.558               |
| NR n5       | A       | -41.5      | 79.5        | -209        | 0.424               |
| GSM1900     | B       | -1         | 77          | -208        | 0.407               |
| UMTS 4      | B       | 11         | 78.5        | -209        | <b>0.608</b>        |
| UMTS 2      | B       | <b>9.5</b> | <b>63.5</b> | <b>-209</b> | 0.329               |
| LTE 25      | B       | 9.5        | 76.5        | -209        | 0.348               |
| LTE 41      | B       | 5.8        | 85.4        | -204        | 0.278               |
| LTE 66      | B       | 8.5        | 80          | -204        | 0.333               |
| NR n41      | B       | -1         | 75.6        | -209        | 0.565               |
| NR n66      | B       | 9.5        | 82.5        | -208        | 0.448               |
| NR n41 SRS3 | D       | <b>7.4</b> | <b>50.4</b> | <b>-209</b> | <b>0.048</b>        |

### Ant Group 1

| Mode/Band   | Antenna | X(mm)       | Y(mm)        | Z(mm)       | Reported SAR [W/kg] |
|-------------|---------|-------------|--------------|-------------|---------------------|
| GSM850      | E       | -32.5       | -93.5        | -208        | 0.355               |
| UMTS 5      | E       | -32.5       | -93.5        | -208        | 0.457               |
| LTE 12      | E       | -17.5       | -91.5        | -208        | 0.409               |
| LTE 13      | E       | -17.5       | -91.5        | -208        | 0.381               |
| LTE 26      | E       | -22         | -91.5        | -208        | 0.454               |
| NR n5       | E       | -32.5       | -92          | -208        | <b>0.724</b>        |
| LTE 25      | F       | -1          | -77          | -208        | 0.274               |
| LTE 41      | F       | 1.4         | -78          | -208        | 0.200               |
| LTE 66      | F       | 8.5         | -72          | -204        | 0.378               |
| NR n66      | F       | 8           | -76.5        | -208        | 0.226               |
| NR n77      | F       | 10.6        | -88          | -206        | 0.196               |
| NR n41 SRS1 | F       | -6.1        | -94.8        | -208        | 0.084               |
| NR n41 SRS2 | H       | <b>-0.1</b> | <b>-67.2</b> | <b>-208</b> | 0.033               |

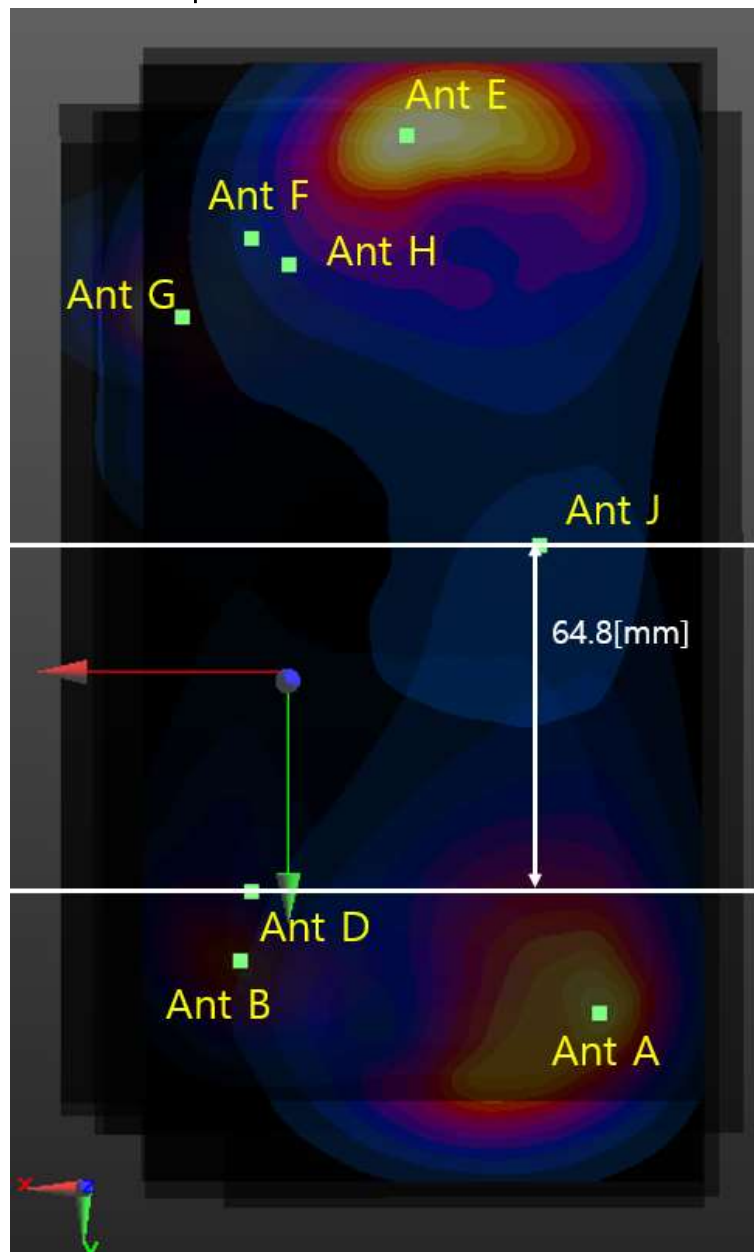
### WLAN Group

| Mode/Band     | Antenna | X(mm)      | Y(mm)        | Z(mm)       | Reported SAR [W/kg] |
|---------------|---------|------------|--------------|-------------|---------------------|
| WLAN2.4GAnt.1 | H       | 13         | -81          | -204        | 0.416               |
| WLAN2.4GAnt.2 | J       | <b>-47</b> | <b>-14.4</b> | <b>-205</b> | 0.343               |
| WLAN2.4G MIMO | H+J     | -51.8      | -14.4        | -205        | <b>0.432</b>        |
| WLAN5GAnt.1   | G       | 20         | -57.5        | -204        | 0.468               |
| WLAN5GAnt.2   | E       | -47        | -66.5        | -205        | 0.202               |
| WLAN5G MIMO   | G+E     | <b>20</b>  | <b>-57.5</b> | <b>-204</b> | <b>0.670</b>        |
| BT__Ant.1     | H       | 13         | -81          | -204        | 0.545               |

### 14.6.2.1 Group analysis SPLSR 2.4 GHz

|                              | AG0   | AG1   | 2.4 GHz WLAN |
|------------------------------|-------|-------|--------------|
| Min Y-axis(mm)               | 50.4  |       |              |
| Max SAR(W/kg)                | 0.693 |       |              |
| Max Y-axis(mm)               |       | -67.2 | -14.4        |
| Max SAR(W/kg)                |       | 0.724 | 0.432        |
| AG0, AG1/WLAN Distance(mm)   |       | 117.6 | 64.8         |
| (AG0+ER)+(AG1+ER) SAR(W/kg)  |       | 2.281 |              |
| AG0, AG1+2.4 GHz WLAN(SPLSR) |       | 0.039 |              |

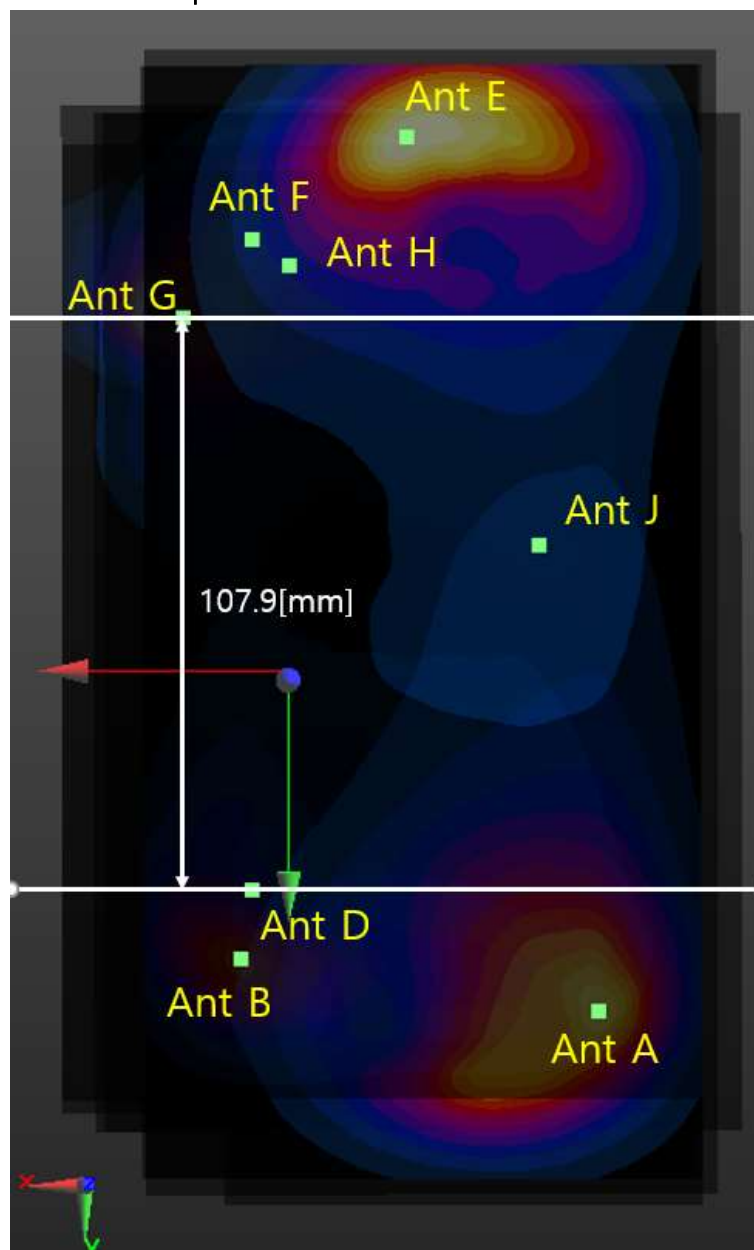
SPLSR Plot for Antenna Group



## 14.6.2.2 Group analysis SPLSR 5 GHz+BT

|                                   | AG0   | AG1   | 5 GHz WLAN+BT |
|-----------------------------------|-------|-------|---------------|
| Min Y-axis(mm)                    | 50.4  |       |               |
| Max SAR(W/kg)                     | 0.693 |       |               |
| Max Y-axis(mm)                    |       | -67.2 | -57.5         |
| Max SAR(W/kg)                     |       | 0.724 | 0.670         |
| AG0, AG1/WLAN Distance(mm)        |       | 117.6 | 107.9         |
| AG0+(AG1+5 GHz WLAN+BT) SAR(W/kg) |       | 2.087 |               |
| AG0, (AG1+5 GHz WLAN+BT)(SPLSR)   |       | 0.028 |               |

### SPLSR Plot for Antenna Group



## 14.7 Conclusion

The above numerical summed SAR results is sufficient to show that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01V06 and IEEE 1528-2013 Section 6.3.4.1

## 15. SAR Measurement Variability and Uncertainty

In accordance with KDB procedure 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz, SAR additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency Band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement variability was assessed using the following procedures for each frequency Band:

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg for 1g SAR or < 2.0 W/kg for 10g SAR; steps 2) through 4) do not apply.
- 2) When the original highest measured 1g SAR is  $\geq 0.80$  W/kg or 10g SAR  $\geq 2.0$  W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is  $\geq 1.45$  W/kg for 1g SAR or  $\geq 3.625$  W/kg for 10g SAR (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg for 1g SAR or  $\geq 3.75$  W/kg for 10g SAR and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

| Frequency |         | Mode/Band                     | Configuration | Measured SAR (W/kg) | Repeated SAR (W/kg) | SAR Ratio |
|-----------|---------|-------------------------------|---------------|---------------------|---------------------|-----------|
| MHz       | Channel |                               |               |                     |                     |           |
| 1 880     | 661     | GSM1900 GPRS 4Tx              | Bottom        | 0.850               | 0.839               | 1.01      |
| 1 732.4   | 1412    | UMTS Band 4 RMC               | Bottom        | 0.918               | 0.910               | 1.01      |
| 1 905     | 26590   | LTE Band 25 QPSK 1RB 49offset | Bottom        | 1.02                | 1.01                | 1.01      |

## 16. Measurement Uncertainty

The measured SAR was  $<1.5$  W/Kg for 1g SAR and  $<3.75$  W/Kg For 10g SAR for all frequency Bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

## 17. SAR Test Equipment

| Manufacturer | Type / Model             | S/N                | Calib. Date | Calib.Interval | Calib.Due  |
|--------------|--------------------------|--------------------|-------------|----------------|------------|
| SPEAG        | SAM Phantom              | -                  | N/A         | N/A            | N/A        |
| SPEAG        | ELI Phantom              | -                  | N/A         | N/A            | N/A        |
| SPEAG        | cDASY6 5G Module Phantom |                    | N/A         | N/A            | N/A        |
| HP           | SAR System Control PC    | -                  | N/A         | N/A            | N/A        |
| Staubli      | CS8Cspeag-TX90           | F13/ 5R4XF1/ C/ 01 | N/A         | N/A            | N/A        |
| Staubli      | TX90 XLspeag             | F13/ 5R4XF1/ A/ 01 | N/A         | N/A            | N/A        |
| Staubli      | Teach Pendant (Joystick) | S-1338 1332        | N/A         | N/A            | N/A        |
| TESTO        | 175-H1/Thermometer       | 40331953309        | 01/18/2024  | Annual         | 01/18/2025 |
| Staubli      | CS8Cspeag-TX90           | F08/5AJ0A1/C/01    | N/A         | N/A            | N/A        |
| Staubli      | TX90 XLspeag             | F08/5AJ0A1/A/01    | N/A         | N/A            | N/A        |
| Staubli      | Teach Pendant (Joystick) | S-0008             | N/A         | N/A            | N/A        |
| TESTO        | 175-H1/Thermometer       | 40331949309        | 12/26/2023  | Annual         | 12/26/2024 |
| Staubli      | CS8Cspeag-TX90           | F13/ 5SD0A1/ C/ 01 | N/A         | N/A            | N/A        |
| Staubli      | TX90 XLspeag             | F13/ 5SD0A1/ A/ 01 | N/A         | N/A            | N/A        |
| Staubli      | Teach Pendant (Joystick) | 001729             | N/A         | N/A            | N/A        |
| TESTO        | 608-H1/Thermometer       | 83348029           | 03/20/2024  | Annual         | 03/20/2025 |
| Staubli      | CS9spe-TX2-60            | F/21/0029002/C/001 | N/A         | N/A            | N/A        |
| Staubli      | TX2-60 Lspeag            | F/21/0029002/A/001 | N/A         | N/A            | N/A        |
| Staubli      | Teach Pendant (Joystick) | D21144507C         | N/A         | N/A            | N/A        |
| TESTO        | 608-H1/Thermometer       | 83239085           | 10/24/2023  | Annual         | 10/24/2024 |
| Staubli      | CS8Cspeag-TX90           | F07/56W9A1/C/01    | N/A         | N/A            | N/A        |
| Staubli      | TX90 XLspeag             | F07/56W9A1/A/01    | N/A         | N/A            | N/A        |
| Staubli      | Teach Pendant (Joystick) | S-0602             | N/A         | N/A            | N/A        |
| TESTO        | 608-H1/Thermometer       | 83406789           | 06/26/2024  | Annual         | 06/26/2025 |
| SPEAG        | DAE4                     | 1417               | 02/16/2024  | Annual         | 02/16/2025 |
| SPEAG        | DAE4                     | 1720               | 04/19/2024  | Annual         | 04/19/2025 |
| SPEAG        | DAE4                     | 1254               | 05/16/2024  | Annual         | 05/16/2025 |
| SPEAG        | DAE4                     | 504                | 01/30/2024  | Annual         | 01/30/2025 |
| SPEAG        | DAE4                     | 869                | 03/15/2024  | Annual         | 03/15/2025 |
| SPEAG        | E-Field Probe EX3DV4     | 7654               | 05/22/2024  | Annual         | 05/22/2025 |
| SPEAG        | E-Field Probe EX3DV4     | 3768               | 10/07/2024  | Annual         | 10/07/2025 |
| SPEAG        | E-Field Probe EX3DV4     | 7732               | 06/19/2024  | Annual         | 06/19/2025 |
| SPEAG        | E-Field Probe EX3DV4     | 7309               | 06/19/2024  | Annual         | 06/19/2025 |
| SPEAG        | E-Field Probe EX3DV4     | 7679               | 08/22/2024  | Annual         | 08/22/2025 |
| SPEAG        | E-Field Probe ES3DV3     | 3076               | 07/17/2024  | Annual         | 07/17/2024 |
| SPEAG        | CLA13                    | 1016               | 11/19/2024  | Annual         | 11/19/2025 |
| SPEAG        | Dipole D750V3            | 1014               | 05/20/2024  | Annual         | 05/20/2025 |
| SPEAG        | Dipole D835V2            | 441                | 04/18/2024  | Annual         | 04/18/2025 |
| SPEAG        | Dipole D1800V2           | 2d007              | 04/15/2024  | Annual         | 04/15/2025 |
| SPEAG        | Dipole D1900V2           | 5d032              | 01/18/2024  | Annual         | 01/23/2025 |
| SPEAG        | Dipole D2450V2           | 743                | 03/14/2024  | Annual         | 03/14/2025 |
| SPEAG        | Dipole D2600V2           | 1015               | 04/22/2024  | Annual         | 04/22/2025 |
| SPEAG        | Dipole D3500V2           | 1132               | 01/23/2024  | Annual         | 01/23/2025 |
| SPEAG        | Dipole D3700V2           | 1105               | 09/18/2024  | Annual         | 09/18/2025 |
| SPEAG        | Dipole D3900V2           | 1086               | 05/21/2024  | Annual         | 05/21/2025 |
| SPEAG        | Dipole D5GHzV2           | 1107               | 04/19/2024  | Annual         | 05/17/2025 |

| Manufacturer  | Type / Model                             | S/N         | Calib. Date | Calib.Interval | Calib.Due  |
|---------------|------------------------------------------|-------------|-------------|----------------|------------|
| Agilent       | Power Meter E4419B                       | MY41291386  | 09/11/2024  | Annual         | 09/11/2025 |
| Agilent       | Power Meter N1911A                       | MY45101406  | 05/21/2024  | Annual         | 05/21/2025 |
| Agilent       | Power Sensor 8481A                       | SG1091286   | 09/12/2024  | Annual         | 09/12/2025 |
| H.P           | Power Sensor 8481A                       | MY41090675  | 09/12/2024  | Annual         | 09/12/2025 |
| Agilent       | Wideband Power Sensor N1921A             | MY55220026  | 07/30/2024  | Annual         | 07/30/2025 |
| Agilent       | 11636B/Power Divider                     | 58698       | 01/15/2024  | Annual         | 01/15/2025 |
| SPEAG         | DAKS 3.5                                 | 1038        | 01/22/2024  | Annual         | 01/22/2025 |
| SPEAG         | Vector Reflectometer                     | 0141013     | 01/11/2024  | Annual         | 01/11/2025 |
| SPEAG         | DAKS 12                                  | 1048        | 03/20/2024  | Annual         | 03/20/2025 |
| SPEAG         | Vector Reflectometer                     | 21393001    | 03/21/2024  | Annual         | 03/21/2025 |
| SPEAG         | MXA Signal Analyzer                      | MY49100108  | 01/09/2024  | Annual         | 01/09/2025 |
| H.P           | Network Analyzer /8753ES                 | JP39240221  | 12/26/2023  | Annual         | 12/26/2024 |
| Protek        | NETWORK ANALYZER                         | X11-15305   | 02/15/2024  | Annual         | 02/15/2025 |
| Agilent       | WIRELESS COMMUNICATION E5515C            | MY48361100  | 09/11/2024  | Annual         | 09/11/2025 |
| Agilent       | WIRELESS COMMUNICATION E5515C            | MY48360252  | 07/29/2024  | Annual         | 07/29/2025 |
| R&S           | Wireless Communication Test Set CMW500   | 115733      | 03/19/2024  | Annual         | 03/19/2025 |
| R&S           | Wireless Communication Test Set CMW500   | 139333      | 12/09/2024  | Annual         | 12/09/2025 |
| Agilent       | SIGNAL GENERATOR N5182A                  | MY47070230  | 03/19/2024  | Annual         | 03/19/2025 |
| Keysight      | PSG Vector Signal Generator              | MY50350097  | 03/05/2024  | Annual         | 03/05/2025 |
| EMPOWER       | RF Power Amplifier                       | 1084        | 05/21/2024  | Annual         | 05/21/2025 |
| EMPOWER       | RF Power Amplifier                       | 1041D/C0508 | 05/21/2024  | Annual         | 05/21/2025 |
| EMPOWER       | RF Power Amplifier                       | 1011        | 09/11/2024  | Annual         | 09/11/2025 |
| MICRO LAB     | LP Filter / LA-15N                       | 10453       | 09/11/2024  | Annual         | 09/11/2025 |
| MICRO LAB     | LP Filter / LA-30N                       | -           | 09/11/2024  | Annual         | 09/11/2025 |
| MICRO LAB     | LP Filter / LA-60N                       | 32011       | 09/11/2024  | Annual         | 09/11/2025 |
| Agilent       | Attenuator (3dB) 8693B                   | MY39260298  | 08/20/2024  | Annual         | 08/20/2025 |
| HP            | Attenuator (20dB) 8493C                  | 09271       | 08/21/2024  | Annual         | 08/21/2025 |
| Agilent       | Directional Bridge 86205A                | 3140A04581  | 04/22/2024  | Annual         | 04/22/2026 |
| Agilent       | MXA Signal Analyzer N9020A               | MY50510407  | 06/04/2024  | Annual         | 06/04/2025 |
| KEYSIGHT      | EXG Vector Signal Generator              | MY50350097  | 03/05/2024  | Annual         | 03/05/2025 |
| HP            | Dual Directional Coupler                 | 16072       | 09/11/2024  | Annual         | 09/11/2025 |
| Narda         | DIRECTIONAL COUPLER                      | 07066       | 01/08/2024  | Annual         | 01/08/2025 |
| Anritsu       | Radio Communication Test Station MT8000A | 6261987928  | 01/18/2024  | Annual         | 01/18/2025 |
| Anritsu       | Radio Communication Test Station MT8000A | 6262036812  | 11/27/2024  | Annual         | 11/27/2025 |
| Anritsu       | Radio Communication Tester MT8820C       | 6201074225  | 01/17/2024  | Annual         | 01/17/2025 |
| Anritsu       | Radio Communication Tester MT8820C       | 6200695605  | 03/19/2024  | Annual         | 03/19/2025 |
| Anritsu       | Radio Communication Tester MT8821C       | 6262044720  | 11/27/2024  | Annual         | 11/27/2025 |
| Anritsu       | Radio Communication Tester MT8821C       | 6201664725  | 01/17/2024  | Annual         | 01/17/2025 |
| Agilent       | WIRELESS COMMUNICATION E5515C            | MY50260992  | 05/22/2024  | Annual         | 05/22/2025 |
| ROHDE&SCHWARZ | BLUETOOTH TESTER CBT                     | 100272      | 01/16/2024  | Annual         | 01/16/2025 |
| YAMADA        | STRAIGHT RULE                            | -           | 06/25/2024  | Annual         | 06/25/2025 |

\* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

## 18. Conclusion

The SAR and RF Exposure measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements were taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

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

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[28] SAR Measurement and Reporting Requirements for 100 MHz – 6 GHz, KDB 865664 D01, D02.

[29] FCC General RF Exposure Guidance KDB 447498 D01v06.

## Appendix A. DUT Ant. Information & SETUP PHOTO

Please refer to test DUT Ant. Information & setup photo file no. as follows:

| Report No.          |
|---------------------|
| HCT-SR-2412-FC008-P |