# SAR TEST REPORT

## No. I21Z61265-SEM04

**For**

**Wingtech Group (Hong Kong) Limited**

**LTE 4G moblie phone**

**Model Name: WTVIS01**

**with**

**Hardware Version: V1.1**

**Software Version: WTVIS01_0.01.01**

**FCC ID: 2APXW-WTVIS01**

**Issued Date: 2021-9-13**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

**Test Laboratory:**

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## REPORT HISTORY

| Report Number | Revision | Issue Date | Description |
|---|---|---|---|
| I21Z61265-SEM04 | Rev.0 | 2021-9-4 | Initial creation of test report |
| I21Z61265-SEM04 | Rev.1 | 2021-9-13 | Update tune-up power and reported SAR for LTE band 7 in section13.1 on page 59/60<br>Update 1750MHz system check in sention 8.2 and ANNEX B |

# TABLE OF CONTENT

# 1 Test Laboratory

## 1.1 Testing Location

| | |
|---|---|
| Company Name: | CTTL(Shouxiang) |
| Address: | No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191 |

## 1.2 Testing Environment

| | |
|---|---|
| Temperature: | 18°C~25°C, |
| Relative humidity: | 30%~ 70% |
| Ground system resistance: | < 0.5 Ω |
| Ambient noise & Reflection: | < 0.012 W/kg |

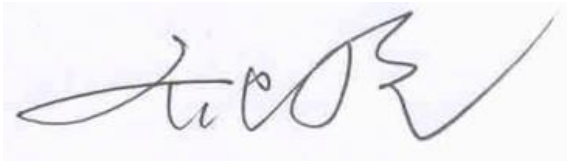
## 1.3 Project Data

| | |
|---|---|
| Project Leader: | Qi Dianyuan |
| Test Engineer: | Lin Xiaojun |
| Testing Start Date: | July 25, 2021 |
| Testing End Date: | August 25, 2021 |

## 1.4 Signature

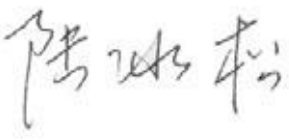
**Lin Xiaojun**

**(Prepared this test report)**



**Qi Dianyuan**

**(Reviewed this test report)**



**Lu Bingsong**

**Deputy Director of the laboratory**

**(Approved this test report)**

## 2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Wingtech Group (Hong Kong) Limited LTE 4G moblie phone WTVIS01 are as follows:

**Table 2.1: Highest Reported SAR -Standalone(1g)**

| Mode | | Highest Reported SAR (1g) | | Product Specific |
|---|---|---|---|---|
| | | 1g SAR Head | 1g SAR Body | 10g SAR 0mm |
| LTE | LTE Band 2 | 0.46 | 1.06 | / |
| | LTE Band 4 | / | / | / |
| | LTE Band 5 | 0.38 | 0.77 | / |
| | LTE Band 7 | 0.10 | 0.49 | / |
| | LTE Band 12 | 0.21 | 0.29 | / |
| | LTE Band 13 | 0.33 | 0.52 | / |
| | LTE Band 66 | 0.30 | 0.59 | / |
| WLAN 2.4 GHz | | 1.11 | 0.26 | / |
| WLAN 5 GHz | | 0.86 | 0.85 | / |

**Note:** The device have similar frequency in some LTE bands ： LTEB4/66 since the supported frequency spans for the smaller LTE bands are completely cover by the larger LTE bands and the channel bandwidth and other operating parameters for the smaller band be fully supported by the larger band, therefore, only larger LTE bands were required to be tested for SAR.

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/kg as averaged over any 1g tissue according to the ANSI C95.1-1992.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10/14mm for body between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output.

The measurement together with the test system set-up is described in annex C. A detailed description of the equipment under test can be found in chapter 4 of this test report.

**Table 2.2: Highest Reported SAR -Simultaneous transmission**

| reported SAR 1g (W/kg) | | | | |
|---|---|---|---|---|
| Head | | LTE Band2 | WiFi2.4G | WWAN+WiFi2.4G |
| Cheek | Left | 0.46 | 1.11 | 1.57 |

The detail for simultaneous transmission consideration is described in chapter 15.

**The highest reported SAR for Head, Body and Simultaneous transmission exposure conditions are 1.11W/kg, 1.06W/kg and 1.57W/kg**

# 3 Client Information

## 3.1 Applicant Information

| | |
|---|---|
| Company Name: | Wingtech Group (Hong Kong) Limited |
| Address/Post: | Flat/RM 1903, 19/F, Podium Plaza 5 Hanoi Road, Tsim Sha Tsui Kowloon, Hong Kong |
| Contact Person: | / |
| Contact Email: | / |
| Telephone: | / |
| Fax | / |

## 3.2 Manufacturer Information

| | |
|---|---|
| Company Name: | Wingtech Group (Hong Kong) Limited |
| Address/Post: | Flat/RM 1903, 19/F, Podium Plaza 5 Hanoi Road, Tsim Sha Tsui Kowloon, Hong Kong |
| Contact Person: | / |
| Contact Email: | / |
| Telephone: | / |
| Fax | / |

# 4 Equipment Under Test (EUT) and Ancillary Equipment (AE)

## 4.1 About EUT

| | |
|---|---|
| Description: | LTE 4G moblie phone |
| Model name: | WTVIS01 |
| Operating mode(s): | LTE Band 2/3/4/5/7/12/13/66, BT, Wi-Fi (2.4G/5G), |
| Tested Tx Frequency: | 1850 – 1910 MHz(LTE Band 2) |
| | 1710 – 1755 MHz (LTE Band 4) |
| | 824 – 849 MHz (LTE Band 5) |
| | 2500 – 2570 MHz(LTE Band 7) |
| | 699 – 716 MHz (LTE Band 12) |
| | 777 –787 MHz (LTE Band 13) |
| | 1710 – 1780 MHz (LTE Band 66) |
| | 2402 – 2480 MHz (Bluetooth) |
| | 2412 – 2462 MHz (Wi-Fi 2.4G) |
| | 5150-5825 MHz (Wi-Fi 5G) |
| Antenna type: | Integrated antenna |
| Hotspot mode: | Support |
| Note:<br>1 The device have similar frequency in some LTE bands ： LTEB4/66, since the supported frequency spans for the smaller LTE bands are completely cover by the larger LTE bands and the channel bandwidth and other operating parameters for the smaller band be fully supported by the larger band, therefore, only larger LTE bands were required to be tested for SAR. | |

## 4.2 Internal Identification of EUT used during the test

| EUT ID* | IMEI | HW | SW Version |
|---|---|---|---|
| EUT1 | 869633050009602 | V1.1 | WTVIS01_0.01.01 |
| EUT2 | 869633050010691 | V1.1 | WTVIS01_0.01.01 |
| EUT3 | 869633050009818 | V1.1 | WTVIS01_0.01.01 |
| EUT4 | 869633050010238 | V1.1 | WTVIS01_0.01.01 |
| EUT5 | 869633050010360 | V1.1 | WTVIS01_0.01.01 |

*EUT ID: is used to identify the test sample in the lab internally.

**Note:** It is performed to test SAR with the EUT1 and conducted power with the EUT2~5.

## 4.3 Internal Identification of AE used during the test

| AE ID* | Description | Model | SN | Manufacturer |
|---|---|---|---|---|
| AE1 | Battery | JU001 | / | Jiade Energy Technology（Zhuhai）Co.,Ltd. |

*AE ID: is used to identify the test sample in the lab internally.

# 5 TEST METHODOLOGY

## 5.1 Applicable Limit Regulations

**ANSI C95.1–1992:**IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

## 5.2 Applicable Measurement Standards

**IEEE 1528–2013:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

**KDB447498 D01: General RF Exposure Guidance v06:** Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

**KDB648474 D04 Handset SAR v01r03:** SAR Evaluation Considerations for Wireless Handsets.

**KDB941225 D01 SAR test for 3G devices v03r01:** SAR Measurement Procedures for 3G Devices

**KDB941225 D05 SAR for LTE Devices v02r05:** SAR Evaluation Considerations for LTE Devices

**KDB941225 D06 Hotspot Mode SAR v02r01:** SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

**KDB248227 D01 802.11 Wi-Fi SAR v02r02:** SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

**KDB865664 D01SAR measurement 100 MHz to 6 GHz v01r04:** SAR Measurement Requirements for 100 MHz to 6 GHz.

**KDB865664 D02RF Exposure Reporting v01r02:** RF Exposure Compliance Reporting and Documentation Considerations
;
**KDB 616217 D04 SAR for laptop and tablets v01r02:** SAR Evaluation Considerations for laptop, notebook, netbook and tablet computers

# 6 Specific Absorption Rate (SAR)

## 6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

## 6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy ($dW$) absorbed by (dissipated in) an incremental mass ($dm$) contained in a volume element ($dv$) of a given density ($\rho$). The equation description is as below:

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

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c\left(\frac{\delta T}{\delta t}\right)$$

Where: C is the specific head capacity, $\delta T$ is the temperature rise and $\delta t$ is the exposure duration, or related to the electrical field in the tissue by

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

Where: $\sigma$ is the conductivity of the tissue, $\rho$ is the mass density of tissue and $E$ is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

# 7 Tissue Simulating Liquids

The temperature of the tissue-equivalent medium used during measurement must also be within 18 ºC to 25 ºC and within ± 2 ºC of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

The dielectric constant (εr) and conductivity (σ) of typical tissue-equivalent media recipes are expected to be within ± 5% of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for εr and σ may be relaxed to ± 10%. This is limited to frequencies ≤ 3 GHz.

## 7.1 Targets for tissue simulating liquid

**Table 7.1: Targets for tissue simulating liquid**

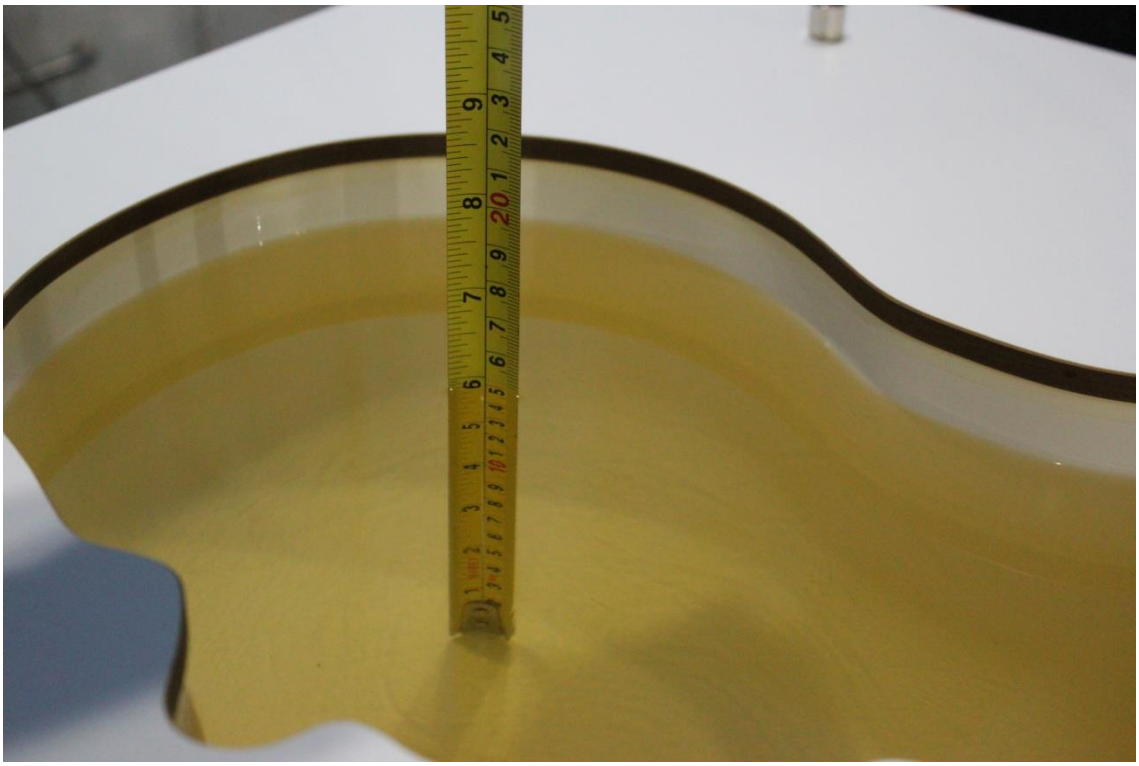
| Frequency(MHz) | Liquid Type | Conductivity(σ) | ±10% Range | Permittivity(ε) | ± 10% Range |
|---|---|---|---|---|---|
| 750 | Head | 0.89 | 0.80～0.98 | 41.94 | 37.75～46.13 |
| 835 | Head | 0.90 | 0.81～0.99 | 41.5 | 37.35～45.65 |
| 1750 | Head | 1.37 | 1.26～1.54 | 40.0 | 36～44 |
| 1900 | Head | 1.40 | 1.26～1.54 | 40.0 | 36～44 |
| 2450 | Head | 1.80 | 1.62～1.98 | 39.2 | 35.28～43.12 |
| 2600 | Head | 1.96 | 1.76～2.16 | 39.01 | 35.11～42.91 |
| Frequency(MHz) | Liquid Type | Conductivity(σ) | ±5% Range | Permittivity(ε) | ± 5% Range |
| 5250 | Head | 4.71 | 4.47～4.95 | 35.93 | 34.13～37.73 |
| 5600 | Head | 5.07 | 4.82～5.32 | 35.53 | 33.8～37.3 |
| 5750 | Head | 5.22 | 4.96～5.48 | 35.36 | 33.59～37.13 |

## 7.2 Dielectric Performance

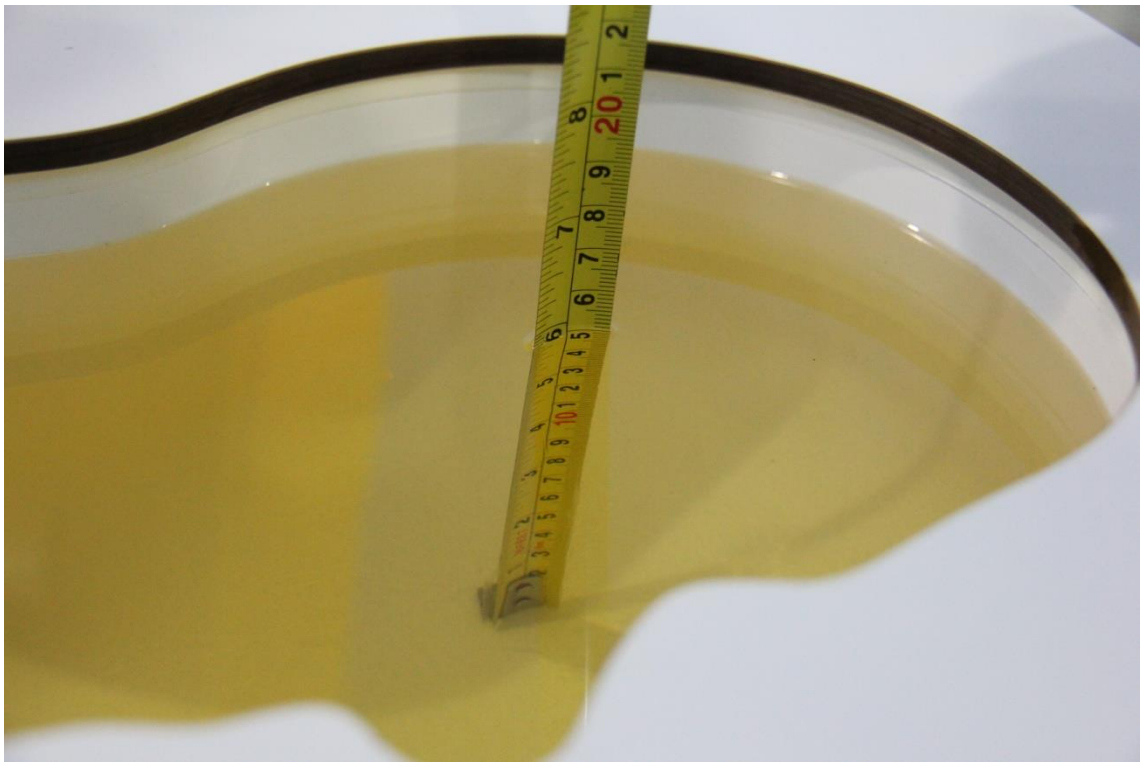
**Table 7.2: Dielectric Performance of Tissue Simulating Liquid**

| Measurement Date (yyyy-mm-dd) | Type | Frequency | Permittivity ε | Drift (%) | Conductivity σ (S/m) | Drift (%) |
|---|---|---|---|---|---|---|
| 2021/7/30 | Head | 750MHz | 44.2 | 5.39% | 0.8255 | -7.25% |
| 2021/7/30 | Head | 835 MHz | 43.93 | 5.86% | 0.8608 | -4.36% |
| 2021/7/30 | Head | 1750MHz | 41.64 | 3.89% | 1.364 | -0.44% |
| 2021/8/2 | Head | 1750MHz | 41.83 | 4.37% | 1.31 | -4.38% |
| 2021/7/30 | Head | 1900 MHz | 41.32 | 3.30% | 1.455 | 3.93% |
| 2021/8/2 | Head | 1900 MHz | 41.38 | 3.45% | 1.376 | -1.71% |
| 2021/8/5 | Head | 2450 MHz | 40.56 | 3.47% | 1.812 | 0.67% |
| 2021/7/30 | Head | 2600 MHz | 40.4 | 3.56% | 1.996 | 1.84% |
| 2021/8/2 | Head | 2600 MHz | 40.47 | 3.74% | 1.987 | 1.38% |
| 2021/8/9 | Head | 5250 MHz | 34.78 | -3.20% | 4.477 | -4.95% |
| 2021/8/9 | Head | 5750 MHz | 33.64 | -4.86% | 5.079 | -2.70% |

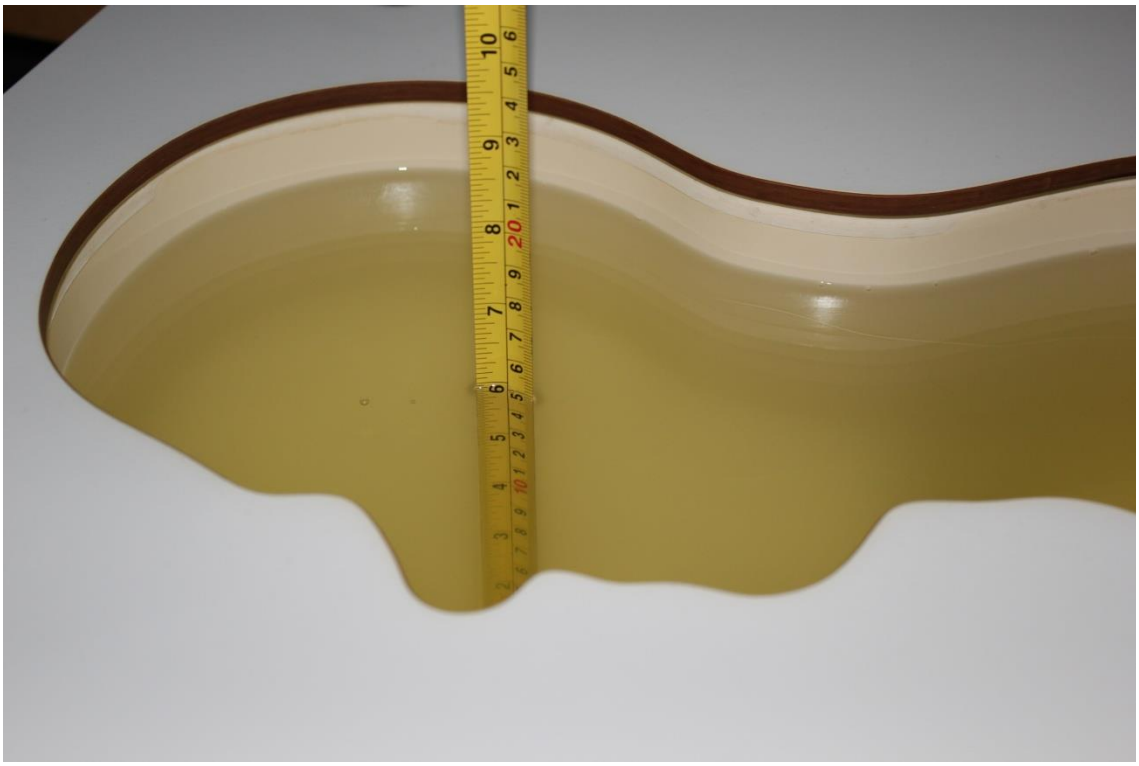
Note: The liquid temperature is 22.0ºC



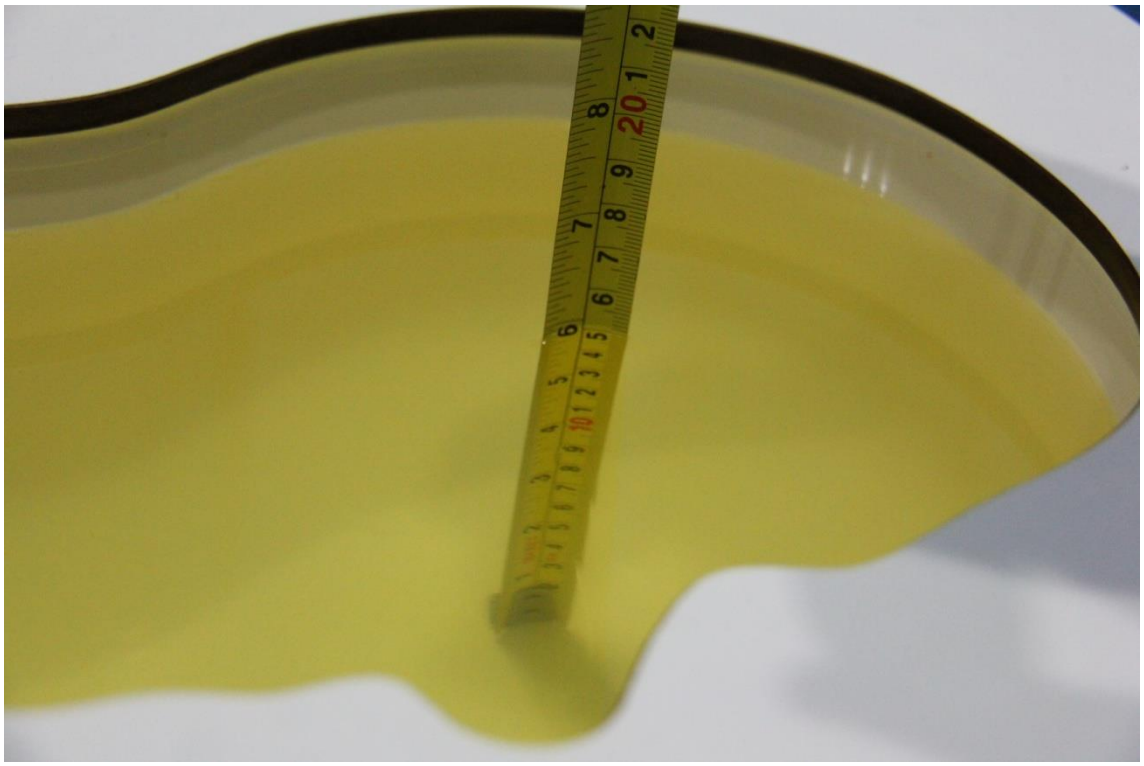
**Picture 7-1 Liquid depth in the Head Phantom (750MHz)**



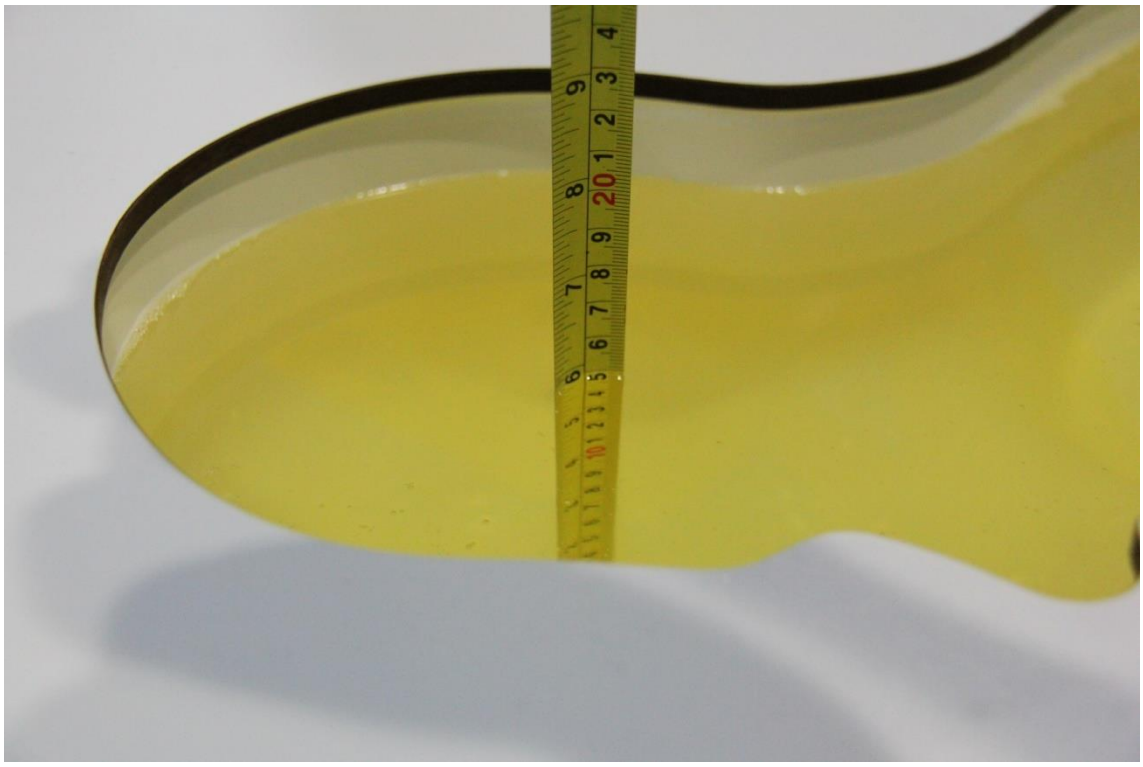
**Picture 7-2 Liquid depth in the Head Phantom (835 MHz)**



**Picture 7-3 Liquid depth in the Head Phantom (1750 MHz)**

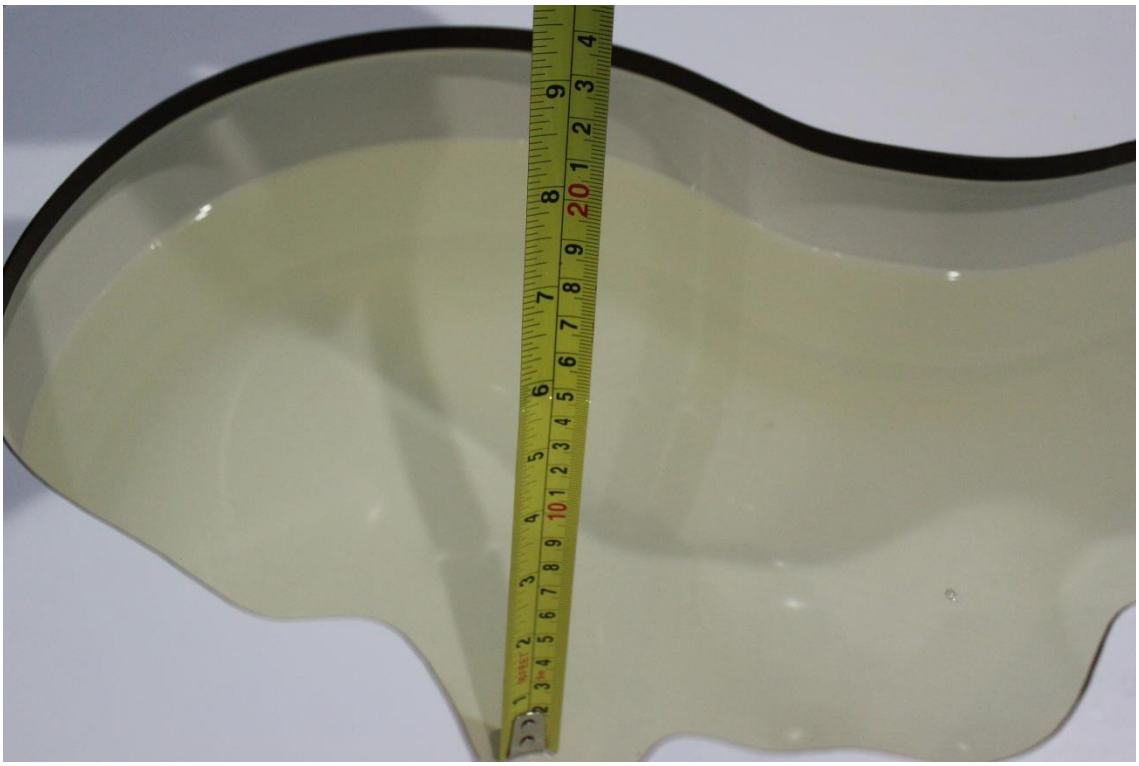


**Picture 7-4 Liquid depth in the Head Phantom (1900 MHz)**



**Picture 7-5 Liquid depth in the Head Phantom (2450MHz)**

**Picture 7-6 Liquid depth in the Head Phantom (2600 MHz)**

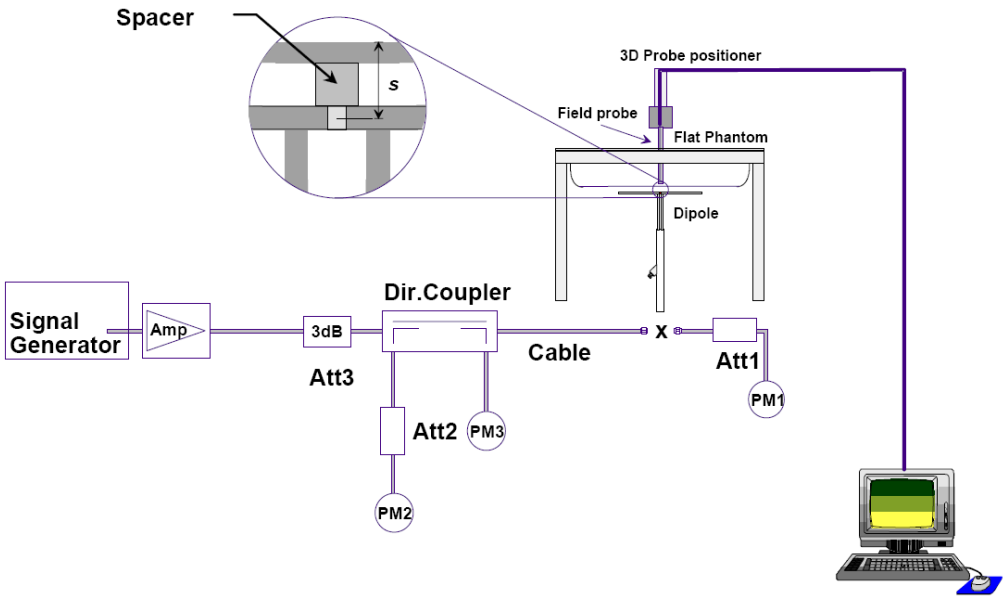


**Picture 7-7 Liquid depth in the Head Phantom (5GHz)**

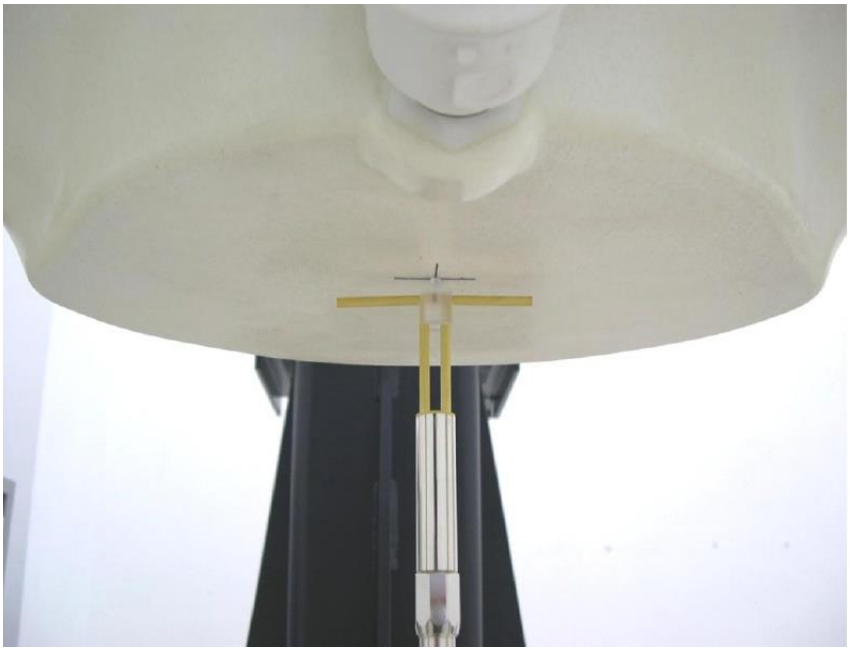
# 8 System verification

## 8.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:




**Picture 8.1 System Setup for System Evaluation**



**Picture 8.2 Photo of Dipole Setup**

## 8.2 System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

**Table 8.1: System Verification of Head**

| Measurement Date (yyyy-mm-dd) | Frequency | Target value (W/kg) | Measured value(W/kg) | Deviation |
|---|---|---|---|---|
| | | 1 g Average | 1 g Average | 1 g Average |
| 2021/7/30 | 750 MHz | 8.59 | 9.36 | 8.96% |
| 2021/7/30 | 835 MHz | 9.49 | 9.76 | 2.85% |
| 2021/7/30 | 1750 MHz | 36.4 | 36.0 | -1.10% |
| 2021/8/2 | 1750 MHz | 36.4 | 35.2 | -3.30% |
| 2021/7/30 | 1900 MHz | 40.1 | 41.2 | 2.74% |
| 2021/8/2 | 1900 MHz | 40.1 | 38.5 | -4.04% |
| 2021/8/5 | 2450 MHz | 53.1 | 53.2 | 0.19% |
| 2021/7/30 | 2600 MHz | 57.0 | 57.2 | 0.35% |
| 2021/8/2 | 2600 MHz | 57.0 | 56.4 | -1.05% |
| 2021/8/9 | 5250 MHz | 78.5 | 78.1 | -0.51% |
| 2021/8/9 | 5750 MHz | 76.7 | 76.4 | -0.39% |

# 9 General Measurement Procedure

## 9.1 *Power Reference Measurement*

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

## 9.2 *Area Scan*

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.
Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

| | ≤ 3 GHz | > 3 GHz |
|---|---|---|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | 5 ± 1 mm | ½·δ·ln(2) ± 0.5 mm |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location | 30° ± 1° | 20° ± 1° |
| Maximum area scan spatial resolution: $\Delta x_{Area}$, $\Delta y_{Area}$ | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm | 3 – 4 GHz: ≤ 12 mm<br>4 – 6 GHz: ≤ 10 mm |
| | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device. | |

### 9.3 *Zoom Scan*

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job’s label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

| | | | | |
|---|---|---|---|---|
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$, $\Delta y_{Zoom}$ | | | ≤ 2 GHz: ≤ 8 mm<br>2 – 3 GHz: ≤ 5 mm* | 3 – 4 GHz: ≤ 5 mm*<br>4 – 6 GHz: ≤ 4 mm* |
| Maximum zoom scan spatial resolution, normal to phantom surface | uniform grid: $\Delta z_{Zoom}(n)$ | | ≤ 5 mm | 3 – 4 GHz: ≤ 4 mm<br>4 – 5 GHz: ≤ 3 mm<br>5 – 6 GHz: ≤ 2 mm |
| | graded grid | $\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface | ≤ 4 mm | 3 – 4 GHz: ≤ 3 mm<br>4 – 5 GHz: ≤ 2.5 mm<br>5 – 6 GHz: ≤ 2 mm |
| | | $\Delta z_{Zoom}(n>1)$: between subsequent points | ≤ 1.5·$\Delta z_{Zoom}(n-1)$ | |
| Minimum zoom scan volume | x, y, z | | ≥ 30 mm | 3 – 4 GHz: ≥ 28 mm<br>4 – 5 GHz: ≥ 25 mm<br>5 – 6 GHz: ≥ 22 mm |

Note: δ 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 ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

### 9.4 *Power drift measurement*

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as 9.1.

# 10 Measurement Procedure for different technologies

This EUT does not support 2G/3G/TDD WWAN therefore disregard all references to 2G/3G/TDD.

## 10.1 GSM/GPRS Measurement Procedures for SAR

GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The 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. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

## 10.2 WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & $DPDCH_n$), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

**For Release 5 HSDPA Data Devices:**

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ （SF） | $\beta_c/\beta_d$ | $\beta_{hs}$ | CM/dB |
|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 |
| 2 | 12/15 | 15/15 | 64 | 12/15 | 24/25 | 1.0 |
| 3 | 15/15 | 8/15 | 64 | 15/8 | 30/15 | 1.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 |

**For Release 6 HSPA Data Devices**

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ （SF） | $\beta_c/\beta_d$ | $\beta_{hs}$ | $\beta_{ec}$ | $\beta_{ed}$ | $\beta_{ed}$ （SF） | $\beta_{ed}$ （codes） | CM (dB) | MPR (dB) | AG Index | E-TFCI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15 | 15/15 | 64 | 11/15 | 22/15 | 209/225 | 1039/225 | 4 | 1 | 1.5 | 1.5 | 20 | 75 |
| 2 | 6/15 | 15/15 | 64 | 6/15 | 12/15 | 12/15 | 12/15 | 4 | 1 | 1.5 | 1.5 | 12 | 67 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 15/15 | 9/15 | 64 | 15/9 | 30/15 | 30/15 | $\beta_{ed1}$:47/15<br>$\beta_{ed2}$:47/15 | 4 | 2 | 1.5 | 1.5 | 15 | 92 |
| 4 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 4/15 | 56/75 | 4 | 1 | 1.5 | 1.5 | 17 | 71 |
| 5 | 15/15 | 15/15 | 64 | 15/15 | 24/15 | 30/15 | 134/15 | 4 | 1 | 1.5 | 1.5 | 21 | 81 |

**Rel.7 Release 7 HSPA+ Data Devices**

**Table** C.11.1.4: **β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

| Sub-test | $\beta_c$ (Note3) | $\beta_d$ | $\beta_{HS}$ (Note1) | $\beta_{ec}$ | $\beta_{ed}$ (2xSF2) (Note 4) | $\beta_{ed}$ (2xSF4) (Note 4) | CM (dB) (Note 2) | MPR (dB) (Note 2) | AG Index (Note 4) | E-TFCI (Note 5) | E-TFCI (boost) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 30/15 | 30/15 | $\beta_{ed}1$: 30/15<br>$\beta_{ed}2$: 30/15 | $\beta_{ed}3$: 24/15<br>$\beta_{ed}4$: 24/15 | 3.5 | 2.5 | 14 | 105 | 105 |

Note 1: $\Delta_{ACK}$, $\Delta_{NACK}$ and $\Delta_{CQI}$ = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$ .
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the $\beta_c$ is set to 1 and $\beta_d$ = 0 by default.
Note 4: $\beta_{ed}$ can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

**Rel.8 DC-HSDPA (Cat 24)**

SAR test exclusion for Rel.8 DC-HSDPA must satisfy the SAR test exclusion requirements of Rel.5 HSDPA. SAR test exclusion for DC-HSDPA devices is determined by power measurements according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to qualify for SAR test exclusion.

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter | Unit | Value |
|---|---|---|
| Nominal Avg. Inf. Bit Rate | kbps | 60 |
| Inter-TTI Distance | TTI's | 1 |
| Number of HARQ Processes | Processes | 6 |
| Information Bit Payload ( $N_{INF}$ ) | Bits | 120 |
| Number Code Blocks | Blocks | 1 |
| Binary Channel Bits Per TTI | Bits | 960 |
| Total Available SML's in UE | SML's | 19200 |
| Number of SML's per HARQ Proc. | SML's | 3200 |
| Coding Rate | | 0.15 |
| Number of Physical Channel Codes | Codes | 1 |
| Modulation | | QPSK |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.<br>Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. | | |

## 10.3 LTE Measurement Procedures for SAR

SAR tests for LTE are performed with a base station simulator, Rohde & Rchwarz CMW500 or . Anritsu MT8821C Closed loop power control was used so the UE transmits with maximum output power during SAR testing.

It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

1) QPSK with 1 RB allocation

   Start with the largest channel bandwidth and measure SAR for QPSK with 1 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 of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

   The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

   For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

### TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 v02r05 and the SAR test guidance provided in April 2013 TCB works hop notes. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05 v02r05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

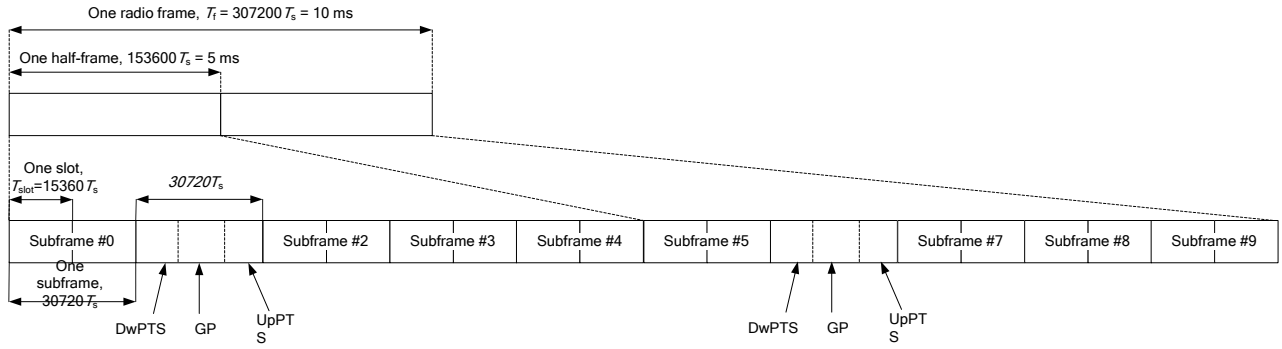



**Figure 10.2: Frame structure type 2 (for 5 ms switch-point periodicity)**

**Table 10.1: 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 | $26336 \cdot T_s$ | | | $7680 \cdot T_s$ | $4384 \cdot T_s$ | $5120 \cdot T_s$ |
| 5 | $6592 \cdot T_s$ | $4384 \cdot T_s$ | $5120 \cdot T_s$ | $20480 \cdot T_s$ | | |
| 6 | $19760 \cdot T_s$ | | | $23040 \cdot T_s$ | | |
| 7 | $21952 \cdot T_s$ | | | $12800 \cdot T_s$ | | |
| 8 | $24144 \cdot T_s$ | | | - | - | - |
| 9 | $13168 \cdot T_s$ | | | - | - | - |

**Table 10.2: 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 |

Duty factor is calculated by:

Duty factor = uplink frame*6+UpPTS*2/one frame length

= (30720.$T_s$ * 6+5120. $T_s$*2)/307200.$T_s$

= 0.633

According to the KDB 447498 D01, SAR should be evaluated at more than 3 frequencies for devices supporting transmit bands wider than 100MHz. Oct.2014 FCC-TCB conference notes (Dec. 2014 rev.) specifies the 5 test channels to use for 3GPP band 38/41 SAR evaluation.

### 10.4 Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. 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 that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a 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. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

# 11 Conducted Output Power

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body. When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, it is necessary to test SAR at a distance 1mm less than the smallest distance from the device and SAR phantom to ensure SAR is compliant when the device is allowed to operate at a nonreduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Annex G. The details of test scenarios categorization in the table below

| Antenna | Sensor deactive (head scenario+ Body scenario) | Sensor active (Body scenario) |
|---|---|---|
| Main antenna | Power Level A1 | Power Level B1 |

## 11.1 LTE Measurement result

**The maximum output power(Tune-up Limit)**

| Band | Tune up | |
|---|---|---|
| | Power Level A1 | Power Level B1 |
| LTE Band 2 | 25 | 20 |
| LTE Band 4/66 | 25 | 21 |
| LTE Band 5 | 25 | 25 |
| LTE Band 7 | 24.5 | 23.5 |
| LTE Band 12 | 25 | 25 |
| LTE Band 13 | 25 | 25 |
| LTE Band 66 | 25 | 21 |

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification. UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3**

| Modulation | Channel bandwidth / Transmission bandwidth ($N_{RB}$) | | | | | | MPR (dB) |
|---|---|---|---|---|---|---|---|
| | 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 |
| 64 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 |
| 64 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 |
| 256 QAM | ≥ 1 | | | | | | ≤ 5 |

**LTE B2 Power Level A1**

| Band 2 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 1.4MHz | 1RB-High | 1909.3 | 23.95 | 23.29 | 22.26 |
| | | 1880 | 23.99 | 23.29 | 22.24 |
| | | 1850.7 | 24.09 | 23.44 | 22.35 |
| | 1RB-Middle (3) | 1909.3 | 24.07 | 23.36 | 22.36 |
| | | 1880 | 24.14 | 23.35 | 22.34 |
| | | 1850.7 | 24.28 | 23.45 | 22.52 |
| | 1RB-Low (0) | 1909.3 | 23.97 | 23.35 | 22.21 |
| | | 1880 | 24.03 | 23.37 | 22.25 |
| | | 1850.7 | 24.11 | 23.34 | 22.40 |
| | 3RB-High (3) | 1909.3 | 24.06 | 23.07 | 22.16 |
| | | 1880 | 24.13 | 23.07 | 22.26 |
| | | 1850.7 | 24.18 | 23.15 | 22.24 |
| | 3RB-Middle (1) | 1909.3 | 24.10 | 23.18 | 22.21 |
| | | 1880 | 24.18 | 23.18 | 22.21 |
| | | 1850.7 | 24.28 | 23.29 | 22.36 |
| | 3RB-Low (0) | 1909.3 | 24.04 | 23.10 | 22.19 |
| | | 1880 | 24.09 | 23.15 | 22.18 |
| | | 1850.7 | 24.24 | 23.22 | 22.33 |
| | 6RB (0) | 1909.3 | 23.11 | 22.24 | 21.17 |
| | | 1880 | 23.16 | 22.22 | 21.15 |
| | | 1850.7 | 23.25 | 22.33 | 21.22 |
| 3MHz | 1RB-High (14) | 1908.5 | 24.02 | 23.36 | 22.32 |
| | | 1880 | 24.06 | 23.33 | 22.27 |
| | | 1851.5 | 24.18 | 23.49 | 22.42 |
| | 1RB-Middle (7) | 1908.5 | 24.20 | 23.54 | 22.39 |
| | | 1880 | 24.26 | 23.51 | 22.45 |
| | | 1851.5 | 24.36 | 23.60 | 22.51 |
| | 1RB-Low (0) | 1908.5 | 24.00 | 23.27 | 22.27 |
| | | 1880 | 24.09 | 23.46 | 22.36 |
| | | 1851.5 | 24.20 | 23.46 | 22.40 |
| | 8RB-High (7) | 1908.5 | 23.11 | 22.22 | 21.17 |
| | | 1880 | 23.15 | 22.22 | 21.21 |
| | | 1851.5 | 23.24 | 22.30 | 21.24 |
| | 8RB-Middle (4) | 1908.5 | 23.13 | 22.22 | 21.23 |
| | | 1880 | 23.19 | 22.24 | 21.22 |
| | | 1851.5 | 23.27 | 22.37 | 21.31 |
| | 8RB-Low (0) | 1908.5 | 23.11 | 22.19 | 21.19 |
| | | 1880 | 23.16 | 22.22 | 21.17 |
| | | 1851.5 | 23.22 | 22.29 | 21.30 |
| | 15RB (0) | 1908.5 | 23.12 | 22.17 | 21.14 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1880 | 23.14 | 22.15 | 21.13 |
| | | 1851.5 | 23.22 | 22.23 | 21.22 |
| 5MHz | 1RB-High (24) | 1912.5 | 23.89 | 23.32 | 22.16 |
| | | 1882.5 | 23.98 | 23.34 | 22.23 |
| | | 1852.5 | 24.02 | 23.28 | 22.24 |
| | 1RB-Middle (12) | 1912.5 | 24.18 | 23.52 | 22.46 |
| | | 1882.5 | 24.19 | 23.58 | 22.51 |
| | | 1852.5 | 24.41 | 23.69 | 22.57 |
| | 1RB-Low (0) | 1912.5 | 23.89 | 23.23 | 22.20 |
| | | 1882.5 | 23.99 | 23.36 | 22.25 |
| | | 1852.5 | 24.11 | 23.49 | 22.27 |
| | 12RB-High (13) | 1912.5 | 23.10 | 22.15 | 21.16 |
| | | 1882.5 | 23.16 | 22.16 | 21.16 |
| | | 1852.5 | 23.23 | 22.20 | 21.22 |
| | 12RB-Middle (6) | 1912.5 | 23.20 | 22.17 | 21.21 |
| | | 1882.5 | 23.24 | 22.18 | 21.20 |
| | | 1852.5 | 23.28 | 22.25 | 21.28 |
| | 12RB-Low (0) | 1912.5 | 23.10 | 22.17 | 21.15 |
| | | 1882.5 | 23.17 | 22.13 | 21.16 |
| | | 1852.5 | 23.21 | 22.21 | 21.23 |
| | 25RB (0) | 1912.5 | 23.17 | 22.18 | 21.16 |
| | | 1882.5 | 23.19 | 22.17 | 21.13 |
| | | 1852.5 | 23.25 | 22.27 | 21.23 |
| 10MHz | 1RB-High (49) | 1910 | 24.00 | 23.35 | 22.28 |
| | | 1882.5 | 24.04 | 23.34 | 22.34 |
| | | 1855 | 24.10 | 23.47 | 22.26 |
| | 1RB-Middle (24) | 1910 | 24.10 | 23.45 | 22.40 |
| | | 1882.5 | 24.19 | 23.43 | 22.43 |
| | | 1855 | 24.19 | 23.61 | 22.46 |
| | 1RB-Low (0) | 1910 | 24.04 | 23.32 | 22.33 |
| | | 1882.5 | 24.08 | 23.30 | 22.30 |
| | | 1855 | 24.21 | 23.52 | 22.40 |
| | 25RB-High (25) | 1910 | 23.12 | 22.17 | 21.14 |
| | | 1882.5 | 23.21 | 22.20 | 21.20 |
| | | 1855 | 23.27 | 22.27 | 21.22 |
| | 25RB-Middle (12) | 1910 | 23.15 | 22.19 | 21.18 |
| | | 1882.5 | 23.18 | 22.18 | 21.17 |
| | | 1855 | 23.24 | 22.25 | 21.24 |
| | 25RB-Low (0) | 1910 | 23.22 | 22.21 | 21.21 |
| | | 1882.5 | 23.21 | 22.22 | 21.22 |
| | | 1855 | 23.25 | 22.24 | 21.25 |
| | 50RB (0) | 1910 | 23.18 | 22.18 | 21.14 |
| | | 1882.5 | 23.20 | 22.17 | 21.18 |
| | | 1855 | 23.27 | 22.28 | 21.28 |
| 15MHz | 1RB-High (74) | 1907.5 | 23.95 | 23.35 | 22.29 |
| | | 1882.5 | 23.98 | 23.21 | 22.30 |
| | | 1857.5 | 24.04 | 23.34 | 22.26 |
| | 1RB-Middle | 1907.5 | 24.05 | 23.37 | 22.32 |

| | | | | | |
|---|---|---|---|---|---|
| | (37) | 1882.5 | 24.09 | 23.40 | 22.35 |
| | | 1857.5 | 24.17 | 23.51 | 22.33 |
| | 1RB-Low (0) | 1907.5 | 23.99 | 23.43 | 22.30 |
| | | 1882.5 | 24.04 | 23.26 | 22.25 |
| | | 1857.5 | 24.15 | 23.49 | 22.37 |
| | 36RB-High (38) | 1907.5 | 23.11 | 22.12 | 21.12 |
| | | 1882.5 | 23.15 | 22.13 | 21.15 |
| | | 1857.5 | 23.22 | 22.18 | 21.19 |
| | 36RB-Middle (19) | 1907.5 | 23.16 | 22.16 | 21.17 |
| | | 1882.5 | 23.18 | 22.15 | 21.14 |
| | | 1857.5 | 23.23 | 22.23 | 21.21 |
| | 36RB-Low (0) | 1907.5 | 23.17 | 22.15 | 21.15 |
| | | 1882.5 | 23.23 | 22.17 | 21.18 |
| | | 1857.5 | 23.26 | 22.20 | 21.23 |
| | 75RB (0) | 1907.5 | 23.13 | 22.13 | 21.11 |
| | | 1882.5 | 23.20 | 22.19 | 21.17 |
| | | 1857.5 | 23.22 | 22.21 | 21.16 |
| 20MHz | 1RB-High (99) | 1905 | 23.83 | 23.20 | 22.10 |
| | | 1882.5 | 23.85 | 23.22 | 22.18 |
| | | 1860 | 23.93 | 23.21 | 22.19 |
| | 1RB-Middle (50) | 1905 | 24.12 | 23.39 | 22.30 |
| | | 1882.5 | 24.16 | 23.46 | 22.44 |
| | | 1860 | 24.18 | 23.46 | 22.38 |
| | 1RB-Low (0) | 1905 | 23.88 | 23.30 | 22.26 |
| | | 1882.5 | 23.94 | 23.30 | 22.23 |
| | | 1860 | 24.02 | 23.33 | 22.21 |
| | 50RB-High (50) | 1905 | 22.94 | 21.96 | 20.96 |
| | | 1882.5 | 23.08 | 22.08 | 21.09 |
| | | 1860 | 23.14 | 22.15 | 21.09 |
| | 50RB-Middle (25) | 1905 | 23.11 | 22.10 | 21.07 |
| | | 1882.5 | 23.12 | 22.14 | 21.10 |
| | | 1860 | 23.19 | 22.16 | 21.16 |
| | 50RB-Low (0) | 1905 | 23.06 | 22.08 | 21.07 |
| | | 1882.5 | 23.15 | 22.19 | 21.16 |
| | | 1860 | 23.17 | 22.13 | 21.12 |
| | 100RB (0) | 1905 | 23.00 | 22.01 | 21.01 |
| | | 1882.5 | 23.10 | 22.11 | 21.11 |
| | | 1860 | 23.14 | 22.15 | 21.11 |

**LTE B2 Power Level B1**

| Band 2 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| | | 1909.3 | 19.21 | 18.41 | 17.53 |

| | | | | | |
|---|---|---|---|---|---|
| | (5) | 1880 | 19.26 | 18.55 | 17.56 |
| | | 1850.7 | 19.38 | 18.68 | 17.57 |
| | 1RB-Middle (3) | 1909.3 | 19.40 | 18.75 | 17.60 |
| | | 1880 | 19.42 | 18.75 | 17.61 |
| | | 1850.7 | 19.59 | 18.95 | 17.75 |
| | 1RB-Low (0) | 1909.3 | 19.20 | 18.47 | 17.52 |
| | | 1880 | 19.26 | 18.59 | 17.52 |
| | | 1850.7 | 19.42 | 18.78 | 17.67 |
| | 3RB-High (3) | 1909.3 | 19.34 | 18.28 | 17.46 |
| | | 1880 | 19.37 | 18.31 | 17.50 |
| | | 1850.7 | 19.53 | 18.56 | 17.60 |
| | 3RB-Middle (1) | 1909.3 | 19.39 | 18.40 | 17.48 |
| | | 1880 | 19.43 | 18.47 | 17.56 |
| | | 1850.7 | 19.57 | 18.60 | 17.72 |
| | 3RB-Low (0) | 1909.3 | 19.32 | 18.33 | 17.46 |
| | | 1880 | 19.39 | 18.33 | 17.51 |
| | | 1850.7 | 19.53 | 18.55 | 17.69 |
| | 6RB (0) | 1909.3 | 18.28 | 17.47 | 16.32 |
| | | 1880 | 18.34 | 17.46 | 16.41 |
| | | 1850.7 | 18.47 | 17.62 | 16.48 |
| 3MHz | 1RB-High (14) | 1908.5 | 19.20 | 18.55 | 17.52 |
| | | 1880 | 19.26 | 18.63 | 17.45 |
| | | 1851.5 | 19.36 | 18.67 | 17.54 |
| | 1RB-Middle (7) | 1908.5 | 19.38 | 18.68 | 17.49 |
| | | 1880 | 19.50 | 18.63 | 17.64 |
| | | 1851.5 | 19.48 | 18.77 | 17.84 |
| | 1RB-Low (0) | 1908.5 | 19.17 | 18.57 | 17.44 |
| | | 1880 | 19.28 | 18.60 | 17.48 |
| | | 1851.5 | 19.45 | 18.74 | 17.68 |
| | 8RB-High (7) | 1908.5 | 18.21 | 17.36 | 16.30 |
| | | 1880 | 18.26 | 17.38 | 16.37 |
| | | 1851.5 | 18.40 | 17.51 | 16.48 |
| | 8RB-Middle (4) | 1908.5 | 18.26 | 17.40 | 16.31 |
| | | 1880 | 18.29 | 17.41 | 16.36 |
| | | 1851.5 | 18.42 | 17.57 | 16.51 |
| | 8RB-Low (0) | 1908.5 | 18.25 | 17.33 | 16.33 |
| | | 1880 | 18.27 | 17.40 | 16.37 |
| | | 1851.5 | 18.37 | 17.53 | 16.50 |
| | 15RB (0) | 1908.5 | 18.22 | 17.28 | 16.24 |
| | | 1880 | 18.24 | 17.33 | 16.28 |
| | | 1851.5 | 18.37 | 17.44 | 16.45 |
| 5MHz | 1RB-High (24) | 1907.5 | 19.09 | 18.49 | 17.37 |
| | | 1880 | 19.15 | 18.51 | 17.32 |
| | | 1852.5 | 19.24 | 18.48 | 17.49 |
| | 1RB-Middle (12) | 1907.5 | 19.35 | 18.69 | 17.69 |
| | | 1880 | 19.46 | 18.81 | 17.59 |
| | | 1852.5 | 19.57 | 18.87 | 17.82 |
| | 1RB-Low (0) | 1907.5 | 19.05 | 18.43 | 17.29 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1880 | 19.18 | 18.54 | 17.35 |
| | | 1852.5 | 19.34 | 18.63 | 17.62 |
| | 12RB-High (13) | 1907.5 | 18.19 | 17.28 | 16.28 |
| | | 1880 | 18.27 | 17.30 | 16.32 |
| | | 1852.5 | 18.37 | 17.45 | 16.43 |
| | 12RB-Middle (6) | 1907.5 | 18.29 | 17.35 | 16.32 |
| | | 1880 | 18.34 | 17.36 | 16.38 |
| | | 1852.5 | 18.40 | 17.46 | 16.47 |
| | 12RB-Low (0) | 1907.5 | 18.23 | 17.27 | 16.26 |
| | | 1880 | 18.30 | 17.37 | 16.35 |
| | | 1852.5 | 18.36 | 17.42 | 16.39 |
| | 25RB (0) | 1907.5 | 18.24 | 17.32 | 16.26 |
| | | 1880 | 18.29 | 17.33 | 16.32 |
| | | 1852.5 | 18.38 | 17.46 | 16.43 |
| 10MHz | 1RB-High (49) | 1905 (19150) | 19.22 | 18.57 | 17.44 |
| | | 1880 | 19.25 | 18.64 | 17.43 |
| | | 1855 | 19.31 | 18.63 | 17.56 |
| | 1RB-Middle (24) | 1905 (19150) | 19.35 | 18.68 | 17.59 |
| | | 1880 | 19.41 | 18.76 | 17.69 |
| | | 1855 | 19.46 | 18.86 | 17.69 |
| | 1RB-Low (0) | 1905 (19150) | 19.23 | 18.58 | 17.45 |
| | | 1880 | 19.29 | 18.53 | 17.44 |
| | | 1855 | 19.44 | 18.68 | 17.63 |
| | 25RB-High (25) | 1905 (19150) | 18.25 | 17.31 | 16.23 |
| | | 1880 | 18.32 | 17.36 | 16.35 |
| | | 1855 | 18.39 | 17.48 | 16.47 |
| | 25RB-Middle (12) | 1905 (19150) | 18.27 | 17.36 | 16.43 |
| | | 1880 | 18.33 | 17.37 | 16.37 |
| | | 1855 | 18.39 | 17.49 | 16.44 |
| | 25RB-Low (0) | 1905 (19150) | 18.28 | 17.38 | 16.49 |
| | | 1880 | 18.36 | 17.43 | 16.40 |
| | | 1855 | 18.40 | 17.48 | 16.45 |
| | 50RB (0) | 1905 (19150) | 18.23 | 17.33 | 16.30 |
| | | 1880 | 18.32 | 17.38 | 16.35 |
| | | 1855 | 18.41 | 17.48 | 16.43 |
| 15MHz | 1RB-High (74) | 1902.5 | 19.13 | 18.39 | 17.40 |
| | | 1880 | 19.15 | 18.48 | 17.41 |
| | | 1857.5 | 19.20 | 18.59 | 17.39 |
| | 1RB-Middle (37) | 1902.5 | 19.20 | 18.56 | 17.38 |
| | | 1880 | 19.30 | 18.47 | 17.56 |
| | | 1857.5 | 19.32 | 18.62 | 17.50 |
| | 1RB-Low (0) | 1902.5 | 19.16 | 18.54 | 17.34 |
| | | 1880 | 19.20 | 18.50 | 17.46 |
| | | 1857.5 | 19.38 | 18.70 | 17.61 |
| | 36RB-High (38) | 1902.5 | 18.22 | 17.27 | 16.23 |
| | | 1880 | 18.29 | 17.32 | 16.29 |
| | | 1857.5 | 18.35 | 17.36 | 16.37 |
| | 36RB-Middle | 1902.5 | 18.23 | 17.27 | 16.27 |

| | | | | | |
|---|---|---|---|---|---|
| | (19) | 1880 | 18.29 | 17.33 | 16.31 |
| | | 1857.5 | 18.37 | 17.39 | 16.39 |
| | 36RB-Low (0) | 1902.5 | 18.23 | 17.28 | 16.28 |
| | | 1880 | 18.32 | 17.33 | 16.37 |
| | | 1857.5 | 18.38 | 17.41 | 16.41 |
| | 75RB (0) | 1902.5 | 18.22 | 17.29 | 16.22 |
| | | 1880 | 18.28 | 17.32 | 16.30 |
| | | 1857.5 | 18.34 | 17.38 | 16.38 |
| 20MHz | 1RB-High (99) | 1900 (19100) | 19.26 | 18.58 | 17.40 |
| | | 1880 | 19.25 | 18.64 | 17.50 |
| | | 1860 | 19.31 | 18.61 | 17.49 |
| | 1RB-Middle (50) | 1900 (19100) | 19.45 | 18.78 | 17.60 |
| | | 1880 | 19.47 | 18.73 | 17.70 |
| | | 1860 | 19.55 | 18.87 | 17.68 |
| | 1RB-Low (0) | 1900 (19100) | 19.29 | 18.65 | 17.52 |
| | | 1880 | 19.29 | 18.56 | 17.41 |
| | | 1860 | 19.42 | 18.63 | 17.65 |
| | 50RB-High (50) | 1900 (19100) | 18.28 | 17.32 | 16.25 |
| | | 1880 | 18.38 | 17.40 | 16.37 |
| | | 1860 | 18.38 | 17.44 | 16.39 |
| | 50RB-Middle (25) | 1900 (19100) | 18.39 | 17.43 | 16.36 |
| | | 1880 | 18.42 | 17.46 | 16.40 |
| | | 1860 | 18.48 | 17.50 | 16.45 |
| | 50RB-Low (0) | 1900 (19100) | 18.37 | 17.41 | 16.34 |
| | | 1880 | 18.46 | 17.47 | 16.45 |
| | | 1860 | 18.43 | 17.44 | 16.42 |
| | 100RB (0) | 1900 (19100) | 18.32 | 17.35 | 16.29 |
| | | 1880 | 18.41 | 17.44 | 16.38 |
| | | 1860 | 18.43 | 17.44 | 16.41 |

**LTE B5 Power Level A1/B1**

| Band 5 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 1.4MHz | 1RB-High (5) | 848.3 | 23.88 | 23.10 | 22.07 |
| | | 836.5 | 23.85 | 23.10 | 22.09 |
| | | 824.7 | 23.85 | 23.05 | 22.09 |
| | 1RB-Middle (3) | 848.3 | 24.04 | 23.25 | 22.16 |
| | | 836.5 | 24.00 | 23.29 | 22.22 |
| | | 824.7 | 23.95 | 23.15 | 22.23 |
| | 1RB-Low (0) | 848.3 | 23.86 | 23.09 | 22.05 |
| | | 836.5 | 23.85 | 23.15 | 22.12 |
| | | 824.7 | 23.91 | 23.14 | 22.19 |
| | 3RB-High (3) | 848.3 | 23.98 | 23.01 | 22.06 |

| | | | | | |
|---|---|---|---|---|---|
| | | 836.5 | 23.94 | 22.99 | 22.05 |
| | | 824.7 | 23.95 | 22.87 | 22.12 |
| | 3RB-Middle (1) | 848.3 | 24.02 | 23.00 | 22.10 |
| | | 836.5 | 23.97 | 23.03 | 22.13 |
| | | 824.7 | 24.00 | 23.05 | 22.10 |
| | 3RB-Low (0) | 848.3 | 23.97 | 22.92 | 22.05 |
| | | 836.5 | 23.93 | 22.95 | 22.06 |
| | | 824.7 | 24.00 | 22.92 | 22.09 |
| | 6RB (0) | 848.3 | 23.03 | 22.09 | 21.02 |
| | | 836.5 | 23.00 | 22.09 | 20.98 |
| | | 824.7 | 23.02 | 22.11 | 20.98 |
| 3MHz | 1RB-High | 847.5 | 23.92 | 23.13 | 22.11 |
| | | 836.5 | 23.88 | 23.22 | 22.06 |
| | | 825.5 | 23.94 | 23.09 | 22.19 |
| | 1RB-Middle (7) | 847.5 | 24.09 | 23.30 | 22.18 |
| | | 836.5 | 24.04 | 23.29 | 22.29 |
| | | 825.5 | 24.05 | 23.24 | 22.27 |
| | 1RB-Low (0) | 847.5 | 23.91 | 23.16 | 22.11 |
| | | 836.5 | 23.90 | 23.24 | 22.11 |
| | | 825.5 | 23.97 | 23.23 | 22.15 |
| | 8RB-High (7) | 847.5 | 23.01 | 22.01 | 21.00 |
| | | 836.5 | 22.96 | 22.04 | 21.03 |
| | | 825.5 | 22.96 | 22.00 | 20.98 |
| | 8RB-Middle (4) | 847.5 | 23.02 | 22.06 | 21.03 |
| | | 836.5 | 22.99 | 22.08 | 21.04 |
| | | 825.5 | 23.01 | 22.09 | 21.07 |
| | 8RB-Low (0) | 847.5 | 22.97 | 22.03 | 21.02 |
| | | 836.5 | 22.98 | 22.05 | 21.02 |
| | | 825.5 | 22.99 | 22.04 | 21.01 |
| | 15RB (0) | 847.5 | 23.01 | 22.01 | 21.00 |
| | | 836.5 | 22.96 | 22.00 | 20.93 |
| | | 825.5 | 22.97 | 21.98 | 20.97 |
| 5MHz | 1RB-High | 846.5 | 23.81 | 23.08 | 21.96 |
| | | 836.5 | 23.77 | 23.10 | 21.96 |
| | | 826.5 | 23.80 | 23.06 | 22.01 |
| | 1RB-Middle (12) | 846.5 | 24.05 | 23.38 | 22.23 |
| | | 836.5 | 24.00 | 23.43 | 22.29 |
| | | 826.5 | 24.15 | 23.31 | 22.23 |
| | 1RB-Low (0) | 846.5 | 23.80 | 23.03 | 22.05 |
| | | 836.5 | 23.80 | 23.10 | 22.01 |
| | | 826.5 | 23.84 | 23.09 | 22.04 |
| | 12RB-High (13) | 846.5 | 22.97 | 21.96 | 21.00 |
| | | 836.5 | 22.96 | 21.97 | 20.98 |
| | | 826.5 | 22.97 | 21.97 | 20.97 |
| | 12RB-Middle (6) | 846.5 | 23.04 | 22.02 | 21.04 |
| | | 836.5 | 23.03 | 22.02 | 21.05 |
| | | 826.5 | 23.02 | 22.03 | 21.02 |
| | 12RB-Low (0) | 846.5 | 23.04 | 22.02 | 21.01 |

| | | | | | |
|---|---|---|---|---|---|
| | | 836.5 | 22.98 | 21.97 | 21.00 |
| | | 826.5 | 22.96 | 21.93 | 20.96 |
| | 25RB (0) | 846.5 | 22.98 | 22.02 | 20.99 |
| | | 836.5 | 22.99 | 22.01 | 20.99 |
| | | 826.5 | 22.96 | 21.97 | 20.95 |
| 10MHz | 1RB-High | 844 (20600) | 23.90 | 23.18 | 22.04 |
| | | 836.5 | 23.83 | 23.20 | 22.10 |
| | | 829 (20450) | 23.85 | 23.18 | 22.10 |
| | 1RB-Middle (24) | 844 (20600) | 24.00 | 23.29 | 22.17 |
| | | 836.5 | 23.99 | 23.32 | 22.17 |
| | | 829 (20450) | 23.98 | 23.18 | 22.16 |
| | 1RB-Low (0) | 844 (20600) | 23.85 | 23.22 | 22.07 |
| | | 836.5 | 23.92 | 23.27 | 22.13 |
| | | 829 (20450) | 23.93 | 23.25 | 22.17 |
| | 25RB-High (25) | 844 (20600) | 22.98 | 21.98 | 20.97 |
| | | 836.5 | 22.99 | 22.02 | 20.99 |
| | | 829 (20450) | 22.97 | 21.95 | 20.94 |
| | 25RB-Middle (12) | 844 (20600) | 23.09 | 22.02 | 21.02 |
| | | 836.5 | 23.05 | 22.02 | 21.01 |
| | | 829 (20450) | 23.00 | 22.00 | 20.99 |
| | 25RB-Low (0) | 844 (20600) | 23.02 | 22.02 | 21.01 |
| | | 836.5 | 23.08 | 22.08 | 21.07 |
| | | 829 (20450) | 22.99 | 21.97 | 20.97 |
| | 50RB (0) | 844 (20600) | 23.05 | 21.99 | 21.01 |
| | | 836.5 | 23.01 | 22.05 | 21.02 |
| | | 829 (20450) | 22.97 | 21.99 | 20.94 |

**LTE B7 Power Level A1**

| Band 7 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 5MHz | 1RB-High | 2567.5 | 23.36 | 22.67 | 21.77 |
| | | 2535 | 23.66 | 22.90 | 21.75 |
| | | 2502.5 | 23.86 | 23.11 | 21.91 |
| | 1RB-Middle (12) | 2567.5 | 23.66 | 22.96 | 21.97 |
| | | 2535 | 23.90 | 23.13 | 22.07 |
| | | 2502.5 | 24.09 | 23.35 | 22.22 |
| | 1RB-Low (0) | 2567.5 | 23.43 | 22.75 | 21.68 |
| | | 2535 | 23.73 | 22.95 | 21.86 |
| | | 2502.5 | 23.84 | 22.98 | 21.91 |
| | 12RB-High (13) | 2567.5 | 22.57 | 21.61 | 20.55 |
| | | 2535 | 22.82 | 21.77 | 20.76 |
| | | 2502.5 | 22.99 | 21.96 | 20.94 |
| | 12RB-Middle | 2567.5 | 22.64 | 21.70 | 20.65 |

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|---|---|---|---|---|---|
| | (6) | 2535 | 22.90 | 21.84 | 20.85 |
| | | 2502.5 | 23.04 | 21.98 | 20.97 |
| | 12RB-Low (0) | 2567.5 | 22.64 | 21.63 | 20.62 |
| | | 2535 | 22.85 | 21.78 | 20.79 |
| | | 2502.5 | 22.96 | 21.90 | 20.90 |
| | 25RB (0) | 2567.5 | 22.58 | 21.64 | 20.58 |
| | | 2535 | 22.83 | 21.83 | 20.77 |
| | | 2502.5 | 23.02 | 21.96 | 20.93 |
| 10MHz | 1RB-High (49) | 2565 | 23.50 | 22.92 | 21.84 |
| | | 2535 | 23.77 | 23.05 | 21.99 |
| | | 2505 | 24.01 | 23.19 | 22.10 |
| | 1RB-Middle (24) | 2565 | 23.69 | 23.04 | 21.87 |
| | | 2535 | 23.99 | 23.25 | 22.13 |
| | | 2505 | 24.09 | 23.36 | 22.16 |
| | 1RB-Low (0) | 2565 | 23.56 | 22.90 | 21.74 |
| | | 2535 | 23.92 | 23.11 | 22.02 |
| | | 2505 | 23.97 | 23.15 | 22.05 |
| | 25RB-High (25) | 2565 | 22.66 | 21.71 | 20.66 |
| | | 2535 | 22.90 | 21.91 | 20.83 |
| | | 2505 | 23.10 | 22.09 | 21.06 |
| | 25RB-Middle (12) | 2565 | 22.71 | 21.70 | 20.67 |
| | | 2535 | 22.95 | 21.93 | 20.90 |
| | | 2505 | 23.09 | 22.06 | 21.03 |
| | 25RB-Low (0) | 2565 | 22.72 | 21.72 | 20.68 |
| | | 2535 | 22.96 | 21.96 | 20.91 |
| | | 2505 | 23.08 | 22.03 | 20.99 |
| | 50RB (0) | 2565 | 22.68 | 21.70 | 20.62 |
| | | 2535 | 22.95 | 21.91 | 20.86 |
| | | 2505 | 23.09 | 22.06 | 21.01 |
| 15MHz | 1RB-High (74) | 2562.5 | 23.62 | 22.92 | 21.74 |
| | | 2535 | 23.81 | 22.97 | 21.98 |
| | | 2507.5 | 24.05 | 23.29 | 22.16 |
| | 1RB-Middle (37) | 2562.5 | 23.76 | 22.98 | 21.85 |
| | | 2535 | 24.02 | 23.19 | 22.16 |
| | | 2507.5 | 24.15 | 23.34 | 22.16 |
| | 1RB-Low (0) | 2562.5 | 23.75 | 22.92 | 21.83 |
| | | 2535 | 24.04 | 23.20 | 22.12 |
| | | 2507.5 | 24.05 | 23.26 | 22.11 |
| | 36RB-High (38) | 2562.5 | 22.79 | 21.75 | 20.75 |
| | | 2535 | 23.02 | 21.93 | 20.88 |
| | | 2507.5 | 23.22 | 22.13 | 21.09 |
| | 36RB-Middle (19) | 2562.5 | 22.85 | 21.82 | 20.77 |
| | | 2535 | 23.09 | 21.99 | 20.94 |
| | | 2507.5 | 23.21 | 22.11 | 21.08 |
| | 36RB-Low (0) | 2562.5 | 22.84 | 21.79 | 20.73 |
| | | 2535 | 23.11 | 22.02 | 20.98 |
| | | 2507.5 | 23.17 | 22.12 | 21.04 |
| | 75RB (0) | 2562.5 | 22.81 | 21.77 | 20.70 |

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| | | 2535 | 23.04 | 22.01 | 20.91 |
| | | 2507.5 | 23.17 | 22.11 | 21.04 |
| 20MHz | 1RB-High (99) | 2560 | 23.36 | 22.75 | 21.70 |
| | | 2535 | 23.52 | 22.82 | 21.83 |
| | | 2510 | 23.75 | 23.10 | 21.96 |
| | 1RB-Middle (50) | 2560 | 23.59 | 22.89 | 21.90 |
| | | 2535 | 23.92 | 23.09 | 22.07 |
| | | 2510 | 24.06 | 23.38 | 22.23 |
| | 1RB-Low (0) | 2560 | 23.52 | 22.88 | 21.84 |
| | | 2535 | 23.82 | 23.11 | 21.98 |
| | | 2510 | 23.80 | 23.11 | 22.02 |
| | 50RB-High (50) | 2560 | 22.54 | 21.57 | 20.53 |
| | | 2535 | 22.76 | 21.79 | 20.75 |
| | | 2510 | 22.96 | 21.99 | 20.99 |
| | 50RB-Middle (25) | 2560 | 22.66 | 21.68 | 20.66 |
| | | 2535 | 22.86 | 21.88 | 20.88 |
| | | 2510 | 23.01 | 22.02 | 21.00 |
| | 50RB-Low (0) | 2560 | 22.63 | 21.70 | 20.66 |
| | | 2535 | 22.91 | 21.93 | 20.91 |
| | | 2510 | 22.98 | 21.98 | 20.96 |
| | 100RB (0) | 2560 | 22.59 | 21.64 | 20.63 |
| | | 2535 | 22.83 | 21.83 | 20.82 |
| | | 2510 | 22.95 | 21.95 | 20.94 |

**LTE B7 Power Level B1**

| Band 7 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 5MHz | 1RB-High | 2567.5 | 22.23 | 21.62 | 20.55 |
| | | 2535 | 22.53 | 21.85 | 20.65 |
| | | 2502.5 | 22.74 | 21.92 | 20.74 |
| | 1RB-Middle (12) | 2567.5 | 22.50 | 21.86 | 20.80 |
| | | 2535 | 22.87 | 22.07 | 20.91 |
| | | 2502.5 | 22.99 | 22.11 | 21.08 |
| | 1RB-Low (0) | 2567.5 | 22.26 | 21.59 | 20.43 |
| | | 2535 | 22.59 | 21.87 | 20.63 |
| | | 2502.5 | 22.73 | 21.98 | 20.84 |
| | 12RB-High (13) | 2567.5 | 21.44 | 20.43 | 19.40 |
| | | 2535 | 21.69 | 20.60 | 19.61 |
| | | 2502.5 | 21.89 | 20.82 | 19.85 |
| | 12RB-Middle (6) | 2567.5 | 21.50 | 20.46 | 19.44 |
| | | 2535 | 21.77 | 20.68 | 19.66 |
| | | 2502.5 | 21.90 | 20.85 | 19.89 |
| | 12RB-Low (0) | 2567.5 | 21.47 | 20.41 | 19.42 |

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| | | 2535 | 21.73 | 20.65 | 19.61 |
| | | 2502.5 | 21.87 | 20.75 | 19.81 |
| | 25RB (0) | 2567.5 | 21.44 | 20.42 | 19.38 |
| | | 2535 | 21.71 | 20.66 | 19.60 |
| | | 2502.5 | 21.86 | 20.81 | 19.85 |
| 10MHz | 1RB-High (49) | 2565 | 22.29 | 21.70 | 20.51 |
| | | 2535 | 22.53 | 21.73 | 20.65 |
| | | 2505 | 22.82 | 21.99 | 20.85 |
| | 1RB-Middle (24) | 2565 | 22.47 | 21.80 | 20.61 |
| | | 2535 | 22.76 | 21.98 | 20.86 |
| | | 2505 | 22.92 | 22.11 | 20.98 |
| | 1RB-Low (0) | 2565 | 22.39 | 21.72 | 20.55 |
| | | 2535 | 22.70 | 21.90 | 20.78 |
| | | 2505 | 22.83 | 21.95 | 20.88 |
| | 25RB-High (25) | 2565 | 21.39 | 20.40 | 19.35 |
| | | 2535 | 21.72 | 20.68 | 19.62 |
| | | 2505 | 21.91 | 20.86 | 19.88 |
| | 25RB-Middle (12) | 2565 | 21.42 | 20.42 | 19.39 |
| | | 2535 | 21.74 | 20.69 | 19.64 |
| | | 2505 | 21.90 | 20.85 | 19.87 |
| | 25RB-Low (0) | 2565 | 21.56 | 20.52 | 19.48 |
| | | 2535 | 21.81 | 20.74 | 19.70 |
| | | 2505 | 21.90 | 20.86 | 19.86 |
| | 50RB (0) | 2565 | 21.46 | 20.45 | 19.42 |
| | | 2535 | 21.73 | 20.71 | 19.65 |
| | | 2505 | 21.89 | 20.86 | 19.86 |
| 15MHz | 1RB-High (74) | 2562.5 | 22.26 | 21.68 | 20.55 |
| | | 2535 | 22.48 | 21.77 | 20.54 |
| | | 2507.5 | 22.77 | 21.98 | 20.83 |
| | 1RB-Middle (37) | 2562.5 | 22.37 | 21.68 | 20.53 |
| | | 2535 | 22.69 | 21.97 | 20.82 |
| | | 2507.5 | 22.86 | 22.08 | 20.95 |
| | 1RB-Low (0) | 2562.5 | 22.36 | 21.68 | 20.51 |
| | | 2535 | 22.70 | 21.82 | 20.75 |
| | | 2507.5 | 22.80 | 22.03 | 20.87 |
| | 36RB-High (38) | 2562.5 | 21.39 | 20.36 | 19.32 |
| | | 2535 | 21.65 | 20.60 | 19.57 |
| | | 2507.5 | 21.90 | 20.83 | 19.83 |
| | 36RB-Middle (19) | 2562.5 | 21.46 | 20.42 | 19.39 |
| | | 2535 | 21.74 | 20.65 | 19.65 |
| | | 2507.5 | 21.86 | 20.81 | 19.83 |
| | 36RB-Low (0) | 2562.5 | 21.49 | 20.42 | 19.40 |
| | | 2535 | 21.77 | 20.71 | 19.67 |
| | | 2507.5 | 21.85 | 20.78 | 19.81 |
| | 75RB (0) | 2562.5 | 21.44 | 20.42 | 19.37 |
| | | 2535 | 21.71 | 20.66 | 19.62 |
| | | 2507.5 | 21.86 | 20.81 | 19.81 |
| 20MHz | 1RB-High | 2560 | 22.08 | 21.47 | 20.28 |

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| | (99) | 2535 | 22.22 | 21.44 | 20.33 |
| | | 2510 | 22.57 | 21.73 | 20.66 |
| | 1RB-Middle (50) | 2560 | 22.38 | 21.58 | 20.40 |
| | | 2535 | 22.65 | 21.95 | 20.61 |
| | | 2510 | 22.80 | 21.95 | 20.83 |
| | 1RB-Low (0) | 2560 | 22.23 | 21.55 | 20.33 |
| | | 2535 | 22.57 | 21.79 | 20.62 |
| | | 2510 | 22.56 | 21.66 | 20.65 |
| | 50RB-High (50) | 2560 | 21.25 | 20.23 | 19.18 |
| | | 2535 | 21.51 | 20.46 | 19.41 |
| | | 2510 | 21.73 | 20.69 | 19.69 |
| | 50RB-Middle (25) | 2560 | 21.35 | 20.35 | 19.32 |
| | | 2535 | 21.61 | 20.58 | 19.52 |
| | | 2510 | 21.74 | 20.69 | 19.70 |
| | 50RB-Low (0) | 2560 | 21.39 | 20.37 | 19.32 |
| | | 2535 | 21.65 | 20.60 | 19.57 |
| | | 2510 | 21.70 | 20.66 | 19.66 |
| | 100RB (0) | 2560 | 21.31 | 20.26 | 19.22 |
| | | 2535 | 21.55 | 20.51 | 19.47 |
| | | 2510 | 21.70 | 20.63 | 19.64 |

**LTE B12 Power Level A1/B1**

| Band 12 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 1.4MHz | 1RB-High | 715.3 | 23.83 | 23.06 | 22.06 |
| | | 707.5 | 23.86 | 23.14 | 22.03 |
| | | 699.7 | 23.93 | 23.18 | 22.06 |
| | 1RB-Middle (3) | 715.3 | 23.94 | 23.18 | 22.20 |
| | | 707.5 | 23.97 | 23.30 | 22.18 |
| | | 699.7 | 24.08 | 23.24 | 22.24 |
| | 1RB-Low (0) | 715.3 | 23.82 | 23.06 | 22.06 |
| | | 707.5 | 23.86 | 23.15 | 22.04 |
| | | 699.7 | 23.94 | 23.02 | 22.08 |
| | 3RB-High (3) | 715.3 | 23.93 | 22.86 | 22.07 |
| | | 707.5 | 23.95 | 22.85 | 22.10 |
| | | 699.7 | 24.03 | 23.02 | 22.04 |
| | 3RB-Middle (1) | 715.3 | 23.98 | 22.94 | 22.14 |
| | | 707.5 | 24.03 | 22.93 | 22.08 |
| | | 699.7 | 24.08 | 23.03 | 22.12 |
| | 3RB-Low (0) | 715.3 | 23.91 | 22.91 | 22.09 |
| | | 707.5 | 23.97 | 22.90 | 22.07 |
| | | 699.7 | 24.00 | 22.91 | 22.09 |
| | 6RB (0) | 715.3 | 22.93 | 22.08 | 20.96 |

| | | | | | |
|---|---|---|---|---|---|
| | | 707.5 | 22.95 | 22.09 | 20.98 |
| | | 699.7 | 23.05 | 22.11 | 21.04 |
| 3MHz | 1RB-High (14) | 714.5 | 23.88 | 23.10 | 22.12 |
| | | 707.5 | 23.93 | 23.06 | 22.13 |
| | | 700.5 | 24.01 | 23.26 | 22.18 |
| | 1RB-Middle (7) | 714.5 | 24.06 | 23.30 | 22.27 |
| | | 707.5 | 24.07 | 23.28 | 22.29 |
| | | 700.5 | 24.17 | 23.33 | 22.39 |
| | 1RB-Low (0) | 714.5 | 23.91 | 23.20 | 22.04 |
| | | 707.5 | 23.94 | 23.19 | 22.18 |
| | | 700.5 | 24.00 | 23.18 | 22.16 |
| | 8RB-High (7) | 714.5 | 22.92 | 22.04 | 21.03 |
| | | 707.5 | 22.95 | 22.05 | 21.01 |
| | | 700.5 | 23.04 | 22.14 | 21.12 |
| | 8RB-Middle (4) | 714.5 | 22.97 | 22.10 | 21.09 |
| | | 707.5 | 23.00 | 22.09 | 21.06 |
| | | 700.5 | 23.13 | 22.17 | 21.17 |
| | 8RB-Low (0) | 714.5 | 22.97 | 22.07 | 21.04 |
| | | 707.5 | 22.97 | 22.09 | 21.05 |
| | | 700.5 | 23.04 | 22.09 | 21.11 |
| | 15RB (0) | 714.5 | 22.96 | 22.00 | 21.02 |
| | | 707.5 | 22.95 | 22.01 | 20.97 |
| | | 700.5 | 23.05 | 22.07 | 21.02 |
| 5MHz | 1RB-High (24) | 713.5 | 23.78 | 23.04 | 22.04 |
| | | 707.5 | 23.80 | 23.01 | 21.99 |
| | | 701.5 | 23.90 | 23.11 | 22.07 |
| | 1RB-Middle (12) | 713.5 | 24.07 | 23.33 | 22.30 |
| | | 707.5 | 24.15 | 23.42 | 22.27 |
| | | 701.5 | 24.27 | 23.31 | 22.40 |
| | 1RB-Low (0) | 713.5 | 23.86 | 23.10 | 22.02 |
| | | 707.5 | 23.91 | 23.18 | 22.13 |
| | | 701.5 | 23.88 | 23.15 | 22.08 |
| | 12RB-High (13) | 713.5 | 23.02 | 22.02 | 21.05 |
| | | 707.5 | 22.97 | 21.99 | 21.03 |
| | | 701.5 | 23.08 | 22.04 | 21.12 |
| | 12RB-Middle (6) | 713.5 | 23.05 | 22.04 | 21.09 |
| | | 707.5 | 23.03 | 22.04 | 21.05 |
| | | 701.5 | 23.14 | 22.14 | 21.14 |
| | 12RB-Low (0) | 713.5 | 23.07 | 22.06 | 21.11 |
| | | 707.5 | 22.99 | 22.02 | 21.02 |
| | | 701.5 | 23.10 | 22.08 | 21.13 |
| | 25RB (0) | 713.5 | 23.05 | 22.10 | 21.08 |
| | | 707.5 | 23.00 | 22.02 | 21.01 |
| | | 701.5 | 23.13 | 22.12 | 21.10 |
| 10MHz | 1RB-High (49) | 711 (23130) | 23.83 | 23.16 | 22.13 |
| | | 707.5 | 23.86 | 22.98 | 22.03 |
| | | 704 (23060) | 23.90 | 23.14 | 22.04 |
| | 1RB-Middle | 711 (23130) | 23.99 | 23.23 | 22.20 |

| | | | | | |
|---|---|---|---|---|---|
| | (24) | 707.5 | 24.01 | 23.19 | 22.20 |
| | | 704 (23060) | 24.17 | 23.43 | 22.42 |
| | 1RB-Low (0) | 711 (23130) | 23.93 | 23.23 | 22.21 |
| | | 707.5 | 24.04 | 23.26 | 22.24 |
| | | 704 (23060) | 24.01 | 23.28 | 22.19 |
| | 25RB-High (25) | 711 (23130) | 22.95 | 21.95 | 20.94 |
| | | 707.5 | 22.92 | 21.93 | 20.92 |
| | | 704 (23060) | 23.12 | 22.15 | 21.08 |
| | 25RB-Middle (12) | 711 (23130) | 23.02 | 22.04 | 21.04 |
| | | 707.5 | 23.04 | 22.06 | 21.04 |
| | | 704 (23060) | 23.13 | 22.17 | 21.15 |
| | 25RB-Low (0) | 711 (23130) | 23.04 | 22.03 | 21.02 |
| | | 707.5 | 23.04 | 22.04 | 21.04 |
| | | 704 (23060) | 23.22 | 22.24 | 21.22 |
| | 50RB (0) | 711 (23130) | 22.99 | 22.02 | 21.01 |
| | | 707.5 | 22.99 | 22.02 | 21.00 |
| | | 704 (23060) | 23.19 | 22.20 | 21.19 |

**LTE B13 Power Level A1/B1**

| Band 17 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 5MHz | 1RB-High | 784.5 | 23.78 | 23.03 | 22.00 |
| | | 782 (23230) | 23.81 | 23.04 | 21.99 |
| | | 779.5 | 23.80 | 23.04 | 22.04 |
| | 1RB-Middle (12) | 784.5 | 24.15 | 23.37 | 22.21 |
| | | 782 (23230) | 24.13 | 23.34 | 22.28 |
| | | 779.5 | 24.05 | 23.28 | 22.24 |
| | 1RB-Low (0) | 784.5 | 23.82 | 23.10 | 22.01 |
| | | 782 (23230) | 23.81 | 23.09 | 22.02 |
| | | 779.5 | 23.80 | 22.85 | 21.92 |
| | 12RB-High (13) | 784.5 | 22.93 | 21.94 | 21.01 |
| | | 782 (23230) | 22.93 | 21.89 | 20.95 |
| | | 779.5 | 22.96 | 21.94 | 21.01 |
| | 12RB-Middle (6) | 784.5 | 23.01 | 22.03 | 21.05 |
| | | 782 (23230) | 23.01 | 22.00 | 21.03 |
| | | 779.5 | 22.97 | 21.98 | 21.03 |
| | 12RB-Low (0) | 784.5 | 23.01 | 21.97 | 21.02 |
| | | 782 (23230) | 22.94 | 21.89 | 20.95 |
| | | 779.5 | 22.89 | 21.89 | 20.94 |
| | 25RB (0) | 784.5 | 22.99 | 21.98 | 21.03 |
| | | 782 (23230) | 22.93 | 21.93 | 20.95 |
| | | 779.5 | 22.96 | 21.95 | 20.98 |
| 10MHz | 1RB-High | 782 (23230) | 23.87 | 23.07 | 22.13 |
| | 1RB-Mid | 782 (23230) | 24.00 | 23.26 | 22.15 |

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|---|---|---|---|---|---|
| | 1RB-Low (0) | 782 (23230) | 23.95 | 23.06 | 22.02 |
| | 25RB-High | 782 (23230) | 22.98 | 21.94 | 21.01 |
| | 25RB-Mid | 782 (23230) | 23.04 | 22.01 | 21.03 |
| | 25RB-Low | 782 (23230) | 22.91 | 21.89 | 20.94 |
| | 50RB (0) | 782 (23230) | 22.97 | 21.96 | 20.99 |

**LTE B66 Power Level A1**

| Band 66 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 1.4MHz | 1RB-High | 1779.3 | 24.01 | 23.28 | 22.35 |
| | | 1745 | 23.97 | 23.26 | 22.22 |
| | | 1710.7 | 24.00 | 23.42 | 22.25 |
| | 1RB-Middle (3) | 1779.3 | 24.14 | 23.53 | 22.45 |
| | | 1745 | 24.09 | 23.46 | 22.38 |
| | | 1710.7 | 24.10 | 23.53 | 22.45 |
| | 1RB-Low (0) | 1779.3 | 23.99 | 23.29 | 22.32 |
| | | 1745 | 24.00 | 23.33 | 22.22 |
| | | 1710.7 | 23.98 | 23.34 | 22.33 |
| | 3RB-High (3) | 1779.3 | 24.07 | 23.14 | 22.24 |
| | | 1745 | 24.13 | 23.06 | 22.18 |
| | | 1710.7 | 24.08 | 23.10 | 22.26 |
| | 3RB-Middle (1) | 1779.3 | 24.11 | 23.19 | 22.28 |
| | | 1745 | 24.14 | 23.18 | 22.22 |
| | | 1710.7 | 24.13 | 23.19 | 22.31 |
| | 3RB-Low (0) | 1779.3 | 24.08 | 23.07 | 22.25 |
| | | 1745 | 24.07 | 23.11 | 22.22 |
| | | 1710.7 | 24.07 | 23.05 | 22.30 |
| | 6RB (0) | 1779.3 | 23.11 | 22.24 | 21.17 |
| | | 1745 | 23.10 | 22.24 | 21.14 |
| | | 1710.7 | 23.11 | 22.24 | 21.20 |
| 3MHz | 1RB-High (14) | 1778.5 | 24.06 | 23.47 | 22.36 |
| | | 1745 | 24.07 | 23.44 | 22.36 |
| | | 1711.5 | 24.07 | 23.32 | 22.44 |
| | 1RB-Middle (7) | 1778.5 | 24.19 | 23.62 | 22.52 |
| | | 1745 | 24.19 | 23.51 | 22.55 |
| | | 1711.5 | 24.25 | 23.50 | 22.56 |
| | 1RB-Low (0) | 1778.5 | 24.07 | 23.49 | 22.38 |
| | | 1745 | 24.09 | 23.37 | 22.28 |
| | | 1711.5 | 24.09 | 23.43 | 22.42 |
| | 8RB-High (7) | 1778.5 | 23.10 | 22.26 | 21.25 |
| | | 1745 | 23.11 | 22.21 | 21.22 |
| | | 1711.5 | 23.11 | 22.27 | 21.30 |
| | 8RB-Middle | 1778.5 | 23.13 | 22.28 | 21.25 |

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| | (4) | 1745 | 23.12 | 22.26 | 21.26 |
| | | 1711.5 | 23.14 | 22.29 | 21.31 |
| | 8RB-Low (0) | 1778.5 | 23.10 | 22.25 | 21.25 |
| | | 1745 | 23.12 | 22.24 | 21.25 |
| | | 1711.5 | 23.10 | 22.27 | 21.28 |
| | 15RB (0) | 1778.5 | 23.11 | 22.16 | 21.19 |
| | | 1745 | 23.13 | 22.16 | 21.17 |
| | | 1711.5 | 23.12 | 22.18 | 21.22 |
| 5MHz | 1RB-High (24) | 1777.5 | 23.95 | 23.33 | 22.26 |
| | | 1745 | 23.92 | 23.39 | 22.23 |
| | | 1712.5 | 23.96 | 23.34 | 22.24 |
| | 1RB-Middle (12) | 1777.5 | 24.18 | 23.60 | 22.43 |
| | | 1745 | 24.18 | 23.60 | 22.46 |
| | | 1712.5 | 24.22 | 23.55 | 22.55 |
| | 1RB-Low (0) | 1777.5 | 23.94 | 23.33 | 22.29 |
| | | 1745 | 23.94 | 23.27 | 22.25 |
| | | 1712.5 | 23.97 | 23.41 | 22.30 |
| | 12RB-High (13) | 1777.5 | 23.11 | 22.17 | 21.25 |
| | | 1745 | 23.11 | 22.16 | 21.19 |
| | | 1712.5 | 23.12 | 22.21 | 21.22 |
| | 12RB-Middle (6) | 1777.5 | 23.18 | 22.21 | 21.29 |
| | | 1745 | 23.18 | 22.22 | 21.25 |
| | | 1712.5 | 23.18 | 22.26 | 21.31 |
| | 12RB-Low (0) | 1777.5 | 23.14 | 22.18 | 21.27 |
| | | 1745 | 23.13 | 22.16 | 21.19 |
| | | 1712.5 | 23.14 | 22.19 | 21.24 |
| | 25RB (0) | 1777.5 | 23.12 | 22.16 | 21.21 |
| | | 1745 | 23.13 | 22.16 | 21.20 |
| | | 1712.5 | 23.14 | 22.20 | 21.21 |
| 10MHz | 1RB-High (49) | 1775 | 24.02 | 23.37 | 22.28 |
| | | 1745 | 24.04 | 23.28 | 22.34 |
| | | 1715 | 24.07 | 23.44 | 22.37 |
| | 1RB-Middle (24) | 1775 | 24.16 | 23.42 | 22.42 |
| | | 1745 | 24.17 | 23.50 | 22.40 |
| | | 1715 | 24.17 | 23.54 | 22.53 |
| | 1RB-Low (0) | 1775 | 24.02 | 23.40 | 22.29 |
| | | 1745 | 24.05 | 23.42 | 22.29 |
| | | 1715 | 24.06 | 23.37 | 22.32 |
| | 25RB-High (25) | 1775 | 23.15 | 22.20 | 21.24 |
| | | 1745 | 23.17 | 22.22 | 21.24 |
| | | 1715 | 23.16 | 22.24 | 21.27 |
| | 25RB-Middle (12) | 1775 | 23.13 | 22.19 | 21.23 |
| | | 1745 | 23.15 | 22.21 | 21.25 |
| | | 1715 | 23.18 | 22.23 | 21.26 |
| | 25RB-Low (0) | 1775 | 23.17 | 22.21 | 21.26 |
| | | 1745 | 23.17 | 22.21 | 21.24 |
| | | 1715 | 23.18 | 22.24 | 21.22 |
| | 50RB (0) | 1775 | 23.15 | 22.20 | 21.22 |

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| | | 1745 | 23.20 | 22.21 | 21.25 |
| | | 1715 | 23.19 | 22.27 | 21.25 |
| 15MHz | 1RB-High (74) | 1772.5 | 23.98 | 23.31 | 22.24 |
| | | 1745 | 23.99 | 23.39 | 22.26 |
| | | 1717.5 | 24.04 | 23.47 | 22.33 |
| | 1RB-Middle (37) | 1772.5 | 24.08 | 23.51 | 22.29 |
| | | 1745 | 24.09 | 23.49 | 22.32 |
| | | 1717.5 (132047) | 24.09 | 23.54 | 22.38 |
| | 1RB-Low (0) | 1772.5 | 24.06 | 23.35 | 22.28 |
| | | 1745 | 24.04 | 23.43 | 22.24 |
| | | 1717.5 (132047) | 24.02 | 23.49 | 22.34 |
| | 36RB-High (38) | 1772.5 | 23.14 | 22.15 | 21.25 |
| | | 1745 | 23.16 | 22.16 | 21.23 |
| | | 1717.5 | 23.20 | 22.25 | 21.28 |
| | 36RB-Middle (19) | 1772.5 | 23.15 | 22.17 | 21.24 |
| | | 1745 | 23.17 | 22.19 | 21.23 |
| | | 1717.5 | 23.17 | 22.23 | 21.25 |
| | 36RB-Low (0) | 1772.5 | 23.18 | 22.20 | 21.25 |
| | | 1745 | 23.17 | 22.18 | 21.21 |
| | | 1717.5 | 23.18 | 22.19 | 21.21 |
| | 75RB (0) | 1772.5 | 23.13 | 22.17 | 21.18 |
| | | 1745 | 23.16 | 22.18 | 21.20 |
| | | 1717.5 | 23.16 | 22.21 | 21.22 |
| 20MHz | 1RB-High (99) | 1770 | 23.93 | 23.28 | 22.24 |
| | | 1745 | 23.93 | 23.23 | 22.21 |
| | | 1720 | 23.97 | 23.36 | 22.28 |
| | 1RB-Middle (50) | 1770 | 24.12 | 23.52 | 22.41 |
| | | 1745 | 24.19 | 23.37 | 22.43 |
| | | 1720 | 24.15 | 23.59 | 22.57 |
| | 1RB-Low (0) | 1770 | 23.95 | 23.41 | 22.23 |
| | | 1745 | 24.01 | 23.32 | 22.21 |
| | | 1720 | 23.97 | 23.30 | 22.25 |
| | 50RB-High (50) | 1770 | 23.03 | 22.08 | 21.11 |
| | | 1745 | 23.12 | 22.14 | 21.18 |
| | | 1720 | 23.14 | 22.22 | 21.22 |
| | 50RB-Middle (25) | 1770 | 23.13 | 22.19 | 21.22 |
| | | 1745 | 23.17 | 22.21 | 21.23 |
| | | 1720 | 23.14 | 22.20 | 21.22 |
| | 50RB-Low (0) | 1770 | 23.16 | 22.22 | 21.22 |
| | | 1745 | 23.16 | 22.20 | 21.24 |
| | | 1720 | 23.10 | 22.18 | 21.18 |
| | 100RB (0) | 1770 | 23.12 | 22.13 | 21.18 |
| | | 1745 | 23.15 | 22.14 | 21.21 |
| | | 1720 | 23.13 | 22.20 | 21.24 |

**LTE B66 Power Level B1**

| Band 66 | | | | | |
|---|---|---|---|---|---|
| Bandwidth (MHz) | RB allocation | Frequency (MHz) | Actual output power (dBm) | | |
| | RB offset | | QPSK | 16QAM | 64QAM |
| 1.4MHz | 1RB-High | 1779.3 | 20.24 | 19.65 | 18.58 |
| | | 1745 | 20.26 | 19.65 | 18.48 |
| | | 1710.7 | 20.28 | 19.64 | 18.57 |
| | 1RB-Middle (3) | 1779.3 | 20.38 | 19.78 | 18.65 |
| | | 1745 | 20.40 | 19.66 | 18.59 |
| | | 1710.7 | 20.40 | 19.79 | 18.64 |
| | 1RB-Low (0) | 1779.3 | 20.26 | 19.62 | 18.61 |
| | | 1745 | 20.25 | 19.64 | 18.55 |
| | | 1710.7 | 20.26 | 19.71 | 18.60 |
| | 3RB-High (3) | 1779.3 | 20.33 | 19.35 | 18.53 |
| | | 1745 | 20.34 | 19.38 | 18.52 |
| | | 1710.7 | 20.39 | 19.39 | 18.56 |
| | 3RB-Middle (1) | 1779.3 | 20.41 | 19.42 | 18.58 |
| | | 1745 | 20.40 | 19.42 | 18.54 |
| | | 1710.7 | 20.45 | 19.48 | 18.60 |
| | 3RB-Low (0) | 1779.3 | 20.34 | 19.30 | 18.53 |
| | | 1745 | 20.33 | 19.31 | 18.49 |
| | | 1710.7 | 20.38 | 19.37 | 18.55 |
| | 6RB (0) | 1779.3 | 19.33 | 18.51 | 17.41 |
| | | 1745 | 19.33 | 18.51 | 17.38 |
| | | 1710.7 | 19.31 | 18.53 | 17.43 |
| 3MHz | 1RB-High (14) | 1778.5 | 20.32 | 19.62 | 18.62 |
| | | 1745 | 20.30 | 19.68 | 18.58 |
| | | 1711.5 | 20.33 | 19.73 | 18.64 |
| | 1RB-Middle (7) | 1778.5 | 20.48 | 19.86 | 18.85 |
| | | 1745 | 20.52 | 19.82 | 18.85 |
| | | 1711.5 | 20.57 | 19.94 | 18.89 |
| | 1RB-Low (0) | 1778.5 | 20.32 | 19.71 | 18.60 |
| | | 1745 | 20.33 | 19.65 | 18.58 |
| | | 1711.5 | 20.31 | 19.62 | 18.59 |
| | 8RB-High (7) | 1778.5 | 19.34 | 18.52 | 17.47 |
| | | 1745 | 19.35 | 18.50 | 17.42 |
| | | 1711.5 | 19.35 | 18.50 | 17.44 |
| | 8RB-Middle (4) | 1778.5 | 19.38 | 18.53 | 17.48 |
| | | 1745 | 19.37 | 18.50 | 17.47 |
| | | 1711.5 | 19.40 | 18.55 | 17.52 |
| | 8RB-Low (0) | 1778.5 | 19.35 | 18.53 | 17.46 |
| | | 1745 | 19.37 | 18.51 | 17.45 |
| | | 1711.5 | 19.36 | 18.49 | 17.47 |
| | 15RB (0) | 1778.5 | 19.30 | 18.40 | 17.41 |

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| | | 1745 | 19.32 | 18.44 | 17.35 |
| | | 1711.5 | 19.33 | 18.44 | 17.39 |
| 5MHz | 1RB-High (24) | 1777.5 | 20.19 | 19.61 | 18.49 |
| | | 1745 | 20.19 | 19.55 | 18.39 |
| | | 1712.5 | 20.20 | 19.62 | 18.47 |
| | 1RB-Middle (12) | 1777.5 | 20.51 | 19.96 | 18.73 |
| | | 1745 | 20.50 | 19.96 | 18.80 |
| | | 1712.5 | 20.52 | 19.86 | 18.82 |
| | 1RB-Low (0) | 1777.5 | 20.17 | 19.57 | 18.38 |
| | | 1745 | 20.21 | 19.65 | 18.42 |
| | | 1712.5 | 20.25 | 19.61 | 18.52 |
| | 12RB-High (13) | 1777.5 | 19.32 | 18.41 | 17.41 |
| | | 1745 | 19.32 | 18.38 | 17.40 |
| | | 1712.5 | 19.34 | 18.37 | 17.42 |
| | 12RB-Middle (6) | 1777.5 | 19.39 | 18.45 | 17.50 |
| | | 1745 | 19.42 | 18.44 | 17.49 |
| | | 1712.5 | 19.40 | 18.49 | 17.46 |
| | 12RB-Low (0) | 1777.5 | 19.34 | 18.41 | 17.42 |
| | | 1745 | 19.35 | 18.42 | 17.44 |
| | | 1712.5 | 19.32 | 18.40 | 17.43 |
| | 25RB (0) | 1777.5 | 19.33 | 18.41 | 17.40 |
| | | 1745 | 19.32 | 18.38 | 17.41 |
| | | 1712.5 | 19.33 | 18.43 | 17.41 |
| 10MHz | 1RB-High (49) | 1775 | 20.25 | 19.71 | 18.57 |
| | | 1745 | 20.24 | 19.66 | 18.57 |
| | | 1715 | 20.26 | 19.71 | 18.60 |
| | 1RB-Middle (24) | 1775 | 20.40 | 19.90 | 18.61 |
| | | 1745 | 20.43 | 19.70 | 18.68 |
| | | 1715 | 20.45 | 19.84 | 18.69 |
| | 1RB-Low (0) | 1775 | 20.31 | 19.69 | 18.55 |
| | | 1745 | 20.33 | 19.55 | 18.61 |
| | | 1715 | 20.30 | 19.67 | 18.63 |
| | 25RB-High (25) | 1775 | 19.30 | 18.41 | 17.40 |
| | | 1745 | 19.32 | 18.40 | 17.40 |
| | | 1715 | 19.33 | 18.42 | 17.42 |
| | 25RB-Middle (12) | 1775 | 19.33 | 18.40 | 17.40 |
| | | 1745 | 19.35 | 18.43 | 17.42 |
| | | 1715 | 19.35 | 18.45 | 17.43 |
| | 25RB-Low (0) | 1775 | 19.37 | 18.46 | 17.43 |
| | | 1745 | 19.40 | 18.48 | 17.47 |
| | | 1715 | 19.34 | 18.42 | 17.42 |
| | 50RB (0) | 1775 | 19.31 | 18.43 | 17.38 |
| | | 1745 | 19.35 | 18.44 | 17.41 |
| | | 1715 | 19.35 | 18.42 | 17.40 |
| 15MHz | 1RB-High (74) | 1772.5 | 20.21 | 19.71 | 18.62 |
| | | 1745 | 20.19 | 19.61 | 18.51 |
| | | 1717.5 | 20.27 | 19.58 | 18.56 |
| | 1RB-Middle | 1772.5 | 20.34 | 19.62 | 18.67 |

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| | (37) | 1745 | 20.37 | 19.77 | 18.53 |
| | | 1717.5 | 20.37 | 19.67 | 18.55 |
| | 1RB-Low (0) | 1772.5 | 20.26 | 19.51 | 18.62 |
| | | 1745 | 20.30 | 19.67 | 18.52 |
| | | 1717.5 | 20.29 | 19.71 | 18.49 |
| | 36RB-High (38) | 1772.5 | 19.32 | 18.37 | 17.38 |
| | | 1745 | 19.33 | 18.35 | 17.38 |
| | | 1717.5 | 19.37 | 18.42 | 17.41 |
| | 36RB-Middle (19) | 1772.5 | 19.34 | 18.39 | 17.41 |
| | | 1745 | 19.35 | 18.41 | 17.40 |
| | | 1717.5 | 19.35 | 18.40 | 17.40 |
| | 36RB-Low (0) | 1772.5 | 19.31 | 18.38 | 17.39 |
| | | 1745 | 19.39 | 18.44 | 17.44 |
| | | 1717.5 | 19.34 | 18.39 | 17.38 |
| | 75RB (0) | 1772.5 | 19.31 | 18.39 | 17.35 |
| | | 1745 | 19.33 | 18.41 | 17.39 |
| | | 1717.5 | 19.32 | 18.38 | 17.38 |
| 20MHz | 1RB-High (99) | 1770 | 20.20 | 19.65 | 18.50 |
| | | 1745 | 20.21 | 19.58 | 18.40 |
| | | 1720 | 20.26 | 19.54 | 18.54 |
| | 1RB-Middle (50) | 1770 | 20.45 | 19.88 | 18.80 |
| | | 1745 | 20.49 | 19.87 | 18.62 |
| | | 1720 | 20.43 | 19.70 | 18.64 |
| | 1RB-Low (0) | 1770 | 20.22 | 19.52 | 18.44 |
| | | 1745 | 20.26 | 19.65 | 18.54 |
| | | 1720 | 20.25 | 19.51 | 18.57 |
| | 50RB-High (50) | 1770 | 19.24 | 18.33 | 17.31 |
| | | 1745 | 19.30 | 18.37 | 17.35 |
| | | 1720 | 19.39 | 18.45 | 17.44 |
| | 50RB-Middle (25) | 1770 | 19.38 | 18.45 | 17.43 |
| | | 1745 | 19.39 | 18.47 | 17.43 |
| | | 1720 | 19.34 | 18.41 | 17.41 |
| | 50RB-Low (0) | 1770 | 19.34 | 18.44 | 17.39 |
| | | 1745 | 19.45 | 18.50 | 17.47 |
| | | 1720 | 19.32 | 18.38 | 17.38 |
| | 100RB (0) | 1770 | 19.34 | 18.37 | 17.35 |
| | | 1745 | 19.38 | 18.42 | 17.40 |
| | | 1720 | 19.37 | 18.42 | 17.41 |

## LTE Carrier Aggregation Conducted Power (Downlink)

Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive. SAR test in not required since maximum output power when downlink carrier aggregation active is not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

**Full power**

| DL LTE CA Class | PCC | | | | | SCC | | | | Power | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PCC Bandwidth | UL channel | DL channel | UL RB | UL RB OFFSET | SCC Bandwidth | DL channel | UL RB | UL RB OFFSET | Rel 8 LTETx Power(dBm) | Rel 10 DL LTE CA Tx Power(dBm) | Tune-up |
| 2C | 15M | 18675 | 675 | 1 | 37 | 15M | 825 | 1 | 0 | 24.17 | 24.22 | 25 |
| 2A-2A | 5M | 18625 | 625 | 1 | 12 | 15M | 1125 | 1 | 0 | 24.41 | 24.3 | 25 |
| 2A-4A | 5M | 18625 | 625 | 1 | 12 | 20M | 2175 | 1 | 0 | 24.41 | 24.32 | 25 |
| 2A-5A | 5M | 18625 | 625 | 1 | 12 | 10M | 2525 | 1 | 0 | 24.41 | 24.33 | 25 |
| 2A-12A | 5M | 18625 | 625 | 1 | 12 | 10M | 5095 | 1 | 0 | 24.41 | 24.36 | 25 |
| 2A-13A | 5M | 18625 | 625 | 1 | 12 | 10M | 5230 | 1 | 0 | 24.41 | 24.35 | 25 |
| 2A-28A | 5M | 18625 | 625 | 1 | 12 | 20M | 9460 | 1 | 0 | 24.41 | 24.35 | 25 |
| 2A-66A | 5M | 18625 | 625 | 1 | 12 | 20M | 66786 | 1 | 0 | 24.41 | 24.26 | 25 |
| 5A-2A | 5M | 20425 | 2425 | 1 | 12 | 20M | 900 | 1 | 0 | 24.15 | 24.03 | 25 |
| 5A-3A | 5M | 20425 | 2425 | 1 | 12 | 20M | 1575 | 1 | 0 | 24.15 | 24.05 | 25 |
| 5A-4A | 5M | 20425 | 2425 | 1 | 12 | 20M | 2175 | 1 | 0 | 24.15 | 24.03 | 25 |
| 5B | 5M | 20425 | 2425 | 1 | 12 | 3M | 2464 | 1 | 0 | 24.15 | 24.03 | 25 |
| 5A-5A | 5M | 20425 | 2425 | 1 | 12 | 10M | 2600 | 1 | 0 | 24.15 | 24.08 | 25 |
| 5A-66A | 5M | 20425 | 2425 | 1 | 12 | 20M | 2145 | 1 | 0 | 24.15 | 24.10 | 25 |
| 7A-7A | 15M | 20825 | 2825 | 1 | 37 | 20M | 3350 | 1 | 0 | 24.15 | 24.11 | 25 |
| 7B | 15M | 20825 | 2825 | 1 | 37 | 5M | 2918 | 1 | 0 | 24.15 | 24.12 | 25 |
| 7C | 15M | 20825 | 2825 | 1 | 37 | 15M | 2975 | 1 | 0 | 24.15 | 24.14 | 25 |
| 7A-28A | 15M | 20825 | 2825 | 1 | 37 | 20M | 9460 | 1 | 0 | 24.15 | 24.12 | 25 |
| 12A-2A | 5M | 23035 | 5035 | 1 | 12 | 20M | 900 | 1 | 0 | 24.27 | 24.51 | 25 |
| 12A-4A | 5M | 23035 | 5035 | 1 | 12 | 20M | 2175 | 1 | 0 | 24.27 | 24.52 | 25 |
| 12B | 5M | 23035 | 5035 | 1 | 12 | 5M | 5083 | 1 | 0 | 24.27 | 24.49 | 25 |
| 12A-66A | 5M | 23035 | 5035 | 1 | 12 | 20M | 66786 | 1 | 0 | 24.27 | 24.45 | 25 |
| 13A-2A | 5M | 23255 | 5255 | 1 | 12 | 20M | 900 | 1 | 0 | 24.27 | 24.47 | 25 |
| 13A-4A | 5M | 23255 | 5255 | 1 | 12 | 20M | 2175 | 1 | 0 | 24.27 | 24.46 | 25 |
| 13A-66A | 5M | 23255 | 5255 | 1 | 12 | 20M | 66786 | 1 | 0 | 24.27 | 24.48 | 25 |
| 66A-2A | 3M | 131987 | 66451 | 1 | 7 | 20M | 900 | 1 | 0 | 24.25 | 24.42 | 25 |
| 66A-5A | 3M | 131987 | 66451 | 1 | 7 | 10M | 2525 | 1 | 0 | 24.25 | 24.4 | 25 |
| 66A-12A | 3M | 131987 | 66451 | 1 | 7 | 10M | 5095 | 1 | 0 | 24.25 | 24.46 | 25 |
| 66A-13A | 3M | 131987 | 66451 | 1 | 7 | 10M | 5230 | 1 | 0 | 24.25 | 24.41 | 25 |
| 66C | 5M | 132647 | 67111 | 1 | 12 | 20M | 67228 | 1 | 0 | 24.18 | 24.37 | 25 |
| 66B | 5M | 131997 | 66461 | 1 | 12 | 5M | 66509 | 1 | 0 | 24.18 | 24.43 | 25 |
| 66A-66A | 5M | 131997 | 66461 | 1 | 12 | 20M | 67236 | 1 | 0 | 24.18 | 24.42 | 25 |

**Reduced Power**

| DL LTE CA Class | PCC | | | | | SCC | | | | Power | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PCC Bandwidth | UL channel | DL channel | UL RB | UL RB OFFSET | SCC Bandwidth | DL channel | UL RB | UL RB OFFSET | Rel 8 LTETx Power(dBm) | Rel 10 DL LTE CA Tx Power(dBm) | Tune-up |
| 2C | 20M | 18700 | 700 | 1 | 50 | 20M | 898 | 1 | 0 | 19.55 | 19.76 | 20 |
| 2A-2A | 5M | 18625 | 625 | 1 | 12 | 20M | 1100 | 1 | 0 | 19.57 | 19.77 | 20 |
| 2A-4A | 1.4M | 18607 | 607 | 1 | 3 | 20M | 2175 | 1 | 0 | 19.59 | 19.83 | 20 |
| 2A-5A | 1.4M | 18607 | 607 | 1 | 3 | 10M | 2525 | 1 | 0 | 19.59 | 19.84 | 20 |
| 2A-12A | 1.4M | 18607 | 607 | 1 | 3 | 10M | 5095 | 1 | 0 | 19.59 | 19.82 | 20 |
| 2A-13A | 1.4M | 18607 | 607 | 1 | 3 | 10M | 5230 | 1 | 0 | 19.59 | 19.84 | 20 |
| 2A-28A | 1.4M | 18607 | 607 | 1 | 3 | 20M | 9460 | 1 | 0 | 19.59 | 19.83 | 20 |
| 2A-66A | 1.4M | 18607 | 607 | 1 | 3 | 20M | 66786 | 1 | 0 | 19.59 | 19.81 | 20 |
| 7A-7A | 5M | 20775 | 2775 | 1 | 12 | 20M | 3350 | 1 | 0 | 22.99 | 22.75 | 23.5 |
| 7B | 15M | 20825 | 2825 | 1 | 37 | 5M | 2918 | 1 | 0 | 22.86 | 22.73 | 23.5 |
| 7C | 15M | 20825 | 2825 | 1 | 37 | 15M | 2975 | 1 | 0 | 22.86 | 22.78 | 23.5 |
| 7A-28A | 5M | 20775 | 2775 | 1 | 12 | 20M | 9460 | 1 | 0 | 22.86 | 22.82 | 23.5 |
| 66A-2A | 3M | 131987 | 66451 | 1 | 7 | 20M | 900 | 1 | 0 | 20.57 | 20.61 | 21 |
| 66A-5A | 3M | 131987 | 66451 | 1 | 7 | 10M | 2525 | 1 | 0 | 20.57 | 20.60 | 21 |
| 66A-12A | 3M | 131987 | 66451 | 1 | 7 | 10M | 5095 | 1 | 0 | 20.57 | 20.65 | 21 |
| 66A-13A | 3M | 131987 | 66451 | 1 | 7 | 10M | 5230 | 1 | 0 | 20.57 | 20.66 | 21 |
| 66C | 5M | 132647 | 67111 | 1 | 12 | 20M | 67228 | 1 | 0 | 20.51 | 20.54 | 21 |
| 66B | 5M | 131997 | 66461 | 1 | 12 | 5M | 66509 | 1 | 0 | 20.52 | 20.62 | 21 |
| 66A-66A | 5M | 131997 | 66461 | 1 | 12 | 20M | 67236 | 1 | 0 | 20.52 | 20.60 | 21 |

### 11.2 Wi-Fi and BT Measurement result

When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, n, ac then ax) is selected. Therefore the SAR measurements performed for the 802.11n/ac modes, as the lowest order modulation, cover 802.11ax modes.
When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
According to KDB 248227 D01, simultaneous SAR provisions in KDB 447498 D01 apply to determine simultaneous transmission SAR test exclusion for Wi-Fi MIMO. If the sum of 1-g single transmission chain SAR measurements is<1.6W/kg and/or the MIMO output power is equal or less than a single chain, then no additional SAR measurements for simultaneously at the specified maximum output power of MIMO operation.
When antennas are spatially separated to the extent that SAR distributions do not overlap and can be treated independently, SAR compliance for simultaneous transmission is determined separately for each individual antenna.

**The maximum output power for WiFi 2.4G**

| Mode | Rate | Channel | Freq. | Output Power Tolerance (dBm) | |
|---|---|---|---|---|---|
| | | | (MHz) | Target | Maximum |
| 802.11b | 1-11Mbps | 1 | 2412 | 18 | 19.5 |
| | | 6 | 2437 | 18 | 19.5 |
| | | 11 | 2462 | 18 | 19.5 |
| 802.11g | 6Mbps | 1 | 2412 | 17.5 | 18 |
| | | 6 | 2437 | 17.5 | 18 |
| | | 11 | 2462 | 17.5 | 18 |
| | 9Mbps | 1 | 2412 | 17.5 | 18 |
| | | 6 | 2437 | 17.5 | 18 |
| | | 11 | 2462 | 17.5 | 18 |
| | 12Mbps | 1 | 2412 | 17 | 18.5 |
| | | 6 | 2437 | 17 | 18.5 |
| | | 11 | 2462 | 17 | 18.5 |
| | 18Mbps | 1 | 2412 | 17 | 18.5 |
| | | 6 | 2437 | 17 | 18.5 |
| | | 11 | 2462 | 17 | 18.5 |
| | 24Mbps | 1 | 2412 | 16.5 | 18 |
| | | 6 | 2437 | 16.5 | 18 |
| | | 11 | 2462 | 16.5 | 18 |
| | 36Mbps | 1 | 2412 | 16 | 17.5 |
| | | 6 | 2437 | 16 | 17.5 |

| | | | | | |
|---|---|---|---|---|---|
| | | 11 | 2462 | 16 | 17.5 |
| | 48Mbps | 1 | 2412 | 15.5 | 17 |
| | | 6 | 2437 | 15.5 | 17 |
| | | 11 | 2462 | 15.5 | 17 |
| | 54Mbps | 1 | 2412 | 15 | 16.5 |
| | | 6 | 2437 | 15 | 16.5 |
| | | 11 | 2462 | 15 | 16.5 |
| 802.11n-20M | 11n MCS0 | 1 | 2412 | 17 | 18 |
| | | 6 | 2437 | 17 | 18 |
| | | 11 | 2462 | 17 | 18 |
| | MCS1 | 1 | 2412 | 16.5 | 17.5 |
| | | 6 | 2437 | 16.5 | 17.5 |
| | | 11 | 2462 | 16.5 | 17.5 |
| | MCS2 | 1 | 2412 | 16.5 | 17.5 |
| | | 6 | 2437 | 16.5 | 17.5 |
| | | 11 | 2462 | 16.5 | 17.5 |
| | MCS3 | 1 | 2412 | 16 | 17 |
| | | 6 | 2437 | 16 | 17 |
| | | 11 | 2462 | 16 | 17 |
| | MCS4 | 1 | 2412 | 16 | 17 |
| | | 6 | 2437 | 16 | 17 |
| | | 11 | 2462 | 16 | 17 |
| | MCS5 | 1 | 2412 | 15.5 | 16.5 |
| | | 6 | 2437 | 15.5 | 16.5 |
| | | 11 | 2462 | 15.5 | 16.5 |
| | MCS6 | 1 | 2412 | 15 | 16 |
| | | 6 | 2437 | 15 | 16 |
| | | 11 | 2462 | 15 | 16 |
| | MCS7 | 1 | 2412 | 14 | 15 |
| | | 6 | 2437 | 14 | 15 |
| | | 11 | 2462 | 14 | 15 |

**The maximum output power for WiFi 5G**

| Mode | Rate | Ch # | Freq. | Output Power Tolerance (dBm) | |
|---|---|---|---|---|---|
| | | | (MHz) | Target | Maximum |
| 802.11a 20M | 6Mbps | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144 | 5500-5720 | 20 | 20.5 |
| | | 149-165 | 5745-5825 | 19 | 20.5 |
| | 9Mbps | 36-64 | 5180-5320 | 18.5 | 19.5 |
| | | 100-144 | 5500-5720 | 19 | 19.5 |

| | | | | | |
|---|---|---|---|---|---|
| | | 149-165 | 5745-5825 | 18.5 | 20 |
| | 12Mbps | 36-64 | 5180-5320 | 18 | 19 |
| | | 100-144 | 5500-5720 | 19 | 19.5 |
| | | 149-165 | 5745-5825 | 18 | 19.5 |
| | 18Mbps | 36-64 | 5180-5320 | 17.5 | 18.5 |
| | | 100-144 | 5500-5720 | 18 | 18.5 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | 24Mbps | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 18 | 18.5 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | 36Mbps | 36-64 | 5180-5320 | 16.5 | 17.5 |
| | | 100-144 | 5500-5720 | 17.5 | 18 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | 48Mbps | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16.5 | 17 |
| | | 149-165 | 5745-5825 | 15.5 | 17 |
| | 54Mbps | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 16 | 16.5 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| 802.11n 20M | MCS0 | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144（no 140） | 5500-5720 | 20 | 20.5 |
| | | 140 | 5700 | 19 | 20.5 |
| | | 149-165 | 5745-5825 | 19 | 20 |
| | MCS1 | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144 | 5500-5720 | 19.5 | 20 |
| | | 149-165 | 5745-5825 | 18.5 | 20 |
| | MCS2 | 36-64 | 5180-5320 | 18 | 19 |
| | | 100-144 | 5500-5720 | 19 | 19.5 |
| | | 149-165 | 5745-5825 | 18 | 19.5 |
| | MCS3 | 36-64 | 5180-5320 | 17.5 | 18.5 |
| | | 100-144 | 5500-5720 | 18.5 | 19 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | MCS4 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | MCS5 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | MCS6 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |

| | | | | | |
|---|---|---|---|---|---|
| | | 149-165 | 5745-5825 | 16 | 17.5 |
| | MCS7 | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| 802.11n 40M | MCS0 | 36-64(no 62) | 5180-5320 | 17.5 | 19 |
| | | 62 | 5310 | 18.5 | 19 |
| | | 100-144 | 5500-5720 | 17.5 | 19 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | MCS1 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 18 | 18.5 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | MCS2 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | MCS3 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |
| | | 149-165 | 5745-5825 | 16 | 17.5 |
| | MCS4 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |
| | | 149-165 | 5745-5825 | 15.5 | 17 |
| | MCS5 | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| | MCS6 | 36-64 | 5180-5320 | 14.5 | 15.5 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 14.5 | 16 |
| | MCS7 | 36-64 | 5180-5320 | 14 | 15 |
| | | 100-144 | 5500-5720 | 14 | 15 |
| | | 149-165 | 5745-5825 | 14 | 15.5 |
| 802.11ac 20M | MCS0 | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144 | 5500-5720 | 20 | 20.5 |
| | | 149-165 | 5745-5825 | 19 | 20.5 |
| | MCS1 | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144 | 5500-5720 | 19 | 20 |
| | | 149-165 | 5745-5825 | 19 | 20.5 |
| | MCS2 | 36-64 | 5180-5320 | 19 | 20 |
| | | 100-144 | 5500-5720 | 19 | 20 |
| | | 149-165 | 5745-5825 | 18.5 | 20 |
| | MCS3 | 36-64 | 5180-5320 | 18 | 19 |
| | | 100-144 | 5500-5720 | 18 | 19 |

| | | | | | |
|---|---|---|---|---|---|
| | | 149-165 | 5745-5825 | 18 | 19.5 |
| | MCS4 | 36-64 | 5180-5320 | 17.5 | 18.5 |
| | | 100-144 | 5500-5720 | 17.5 | 18.5 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | MCS5 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | MCS6 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | MCS7 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |
| | | 149-165 | 5745-5825 | 16 | 17.5 |
| | MCS8 | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| 802.11ac 40M | MCS0 | 36-64 (no 62) | 5180-5320 | 18 | 19 |
| | | 62 | 5310 | 18 | 19 |
| | | 100-144 | 5500-5720 | 18 | 19 |
| | | 149-165 | 5745-5825 | 18 | 19.5 |
| | MCS1 | 36-64 | 5180-5320 | 17.5 | 18.5 |
| | | 100-144 | 5500-5720 | 17.5 | 18.5 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | MCS2 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | MCS3 | 36-64 | 5180-5320 | 16.5 | 17.5 |
| | | 100-144 | 5500-5720 | 16.5 | 17.5 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | MCS4 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |
| | | 149-165 | 5745-5825 | 16 | 17.5 |
| | MCS5 | 36-64 | 5180-5320 | 15.5 | 16.5 |
| | | 100-144 | 5500-5720 | 15.5 | 16.5 |
| | | 149-165 | 5745-5825 | 15.5 | 17 |
| | MCS6 | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| | MCS7 | 36-64 | 5180-5320 | 14.5 | 15.5 |
| | | 100-144 | 5500-5720 | 14.5 | 15.5 |

| | | | | | |
|---|---|---|---|---|---|
| | | 149-165 | 5745-5825 | 14.5 | 16 |
| | MCS8 | 36-64 | 5180-5320 | 14 | 15 |
| | | 100-144 | 5500-5720 | 14 | 15 |
| | | 149-165 | 5745-5825 | 14 | 15.5 |
| | MCS9 | 36-64 | 5180-5320 | 13.5 | 14.5 |
| | | 100-144 | 5500-5720 | 13.5 | 14.5 |
| | | 149-165 | 5745-5825 | 13.5 | 15 |
| 802.11ac 80M | MCS0 | 36-64 | 5180-5320 | 18 | 19 |
| | | 42 58 106 | 5210 5290 5530 | 18 | 19 |
| | | 100-144 | 5500-5720 | 18 | 19.5 |
| | | 149-165 | 5745-5825 | 18 | 19.5 |
| | MCS1 | 36-64 | 5180-5320 | 17.5 | 18.5 |
| | | 100-144 | 5500-5720 | 17.5 | 18.5 |
| | | 149-165 | 5745-5825 | 17.5 | 19 |
| | MCS2 | 36-64 | 5180-5320 | 17 | 18 |
| | | 100-144 | 5500-5720 | 17 | 18 |
| | | 149-165 | 5745-5825 | 17 | 18.5 |
| | MCS3 | 36-64 | 5180-5320 | 16.5 | 17.5 |
| | | 100-144 | 5500-5720 | 16.5 | 17.5 |
| | | 149-165 | 5745-5825 | 16.5 | 18 |
| | MCS4 | 36-64 | 5180-5320 | 16 | 17 |
| | | 100-144 | 5500-5720 | 16 | 17 |
| | | 149-165 | 5745-5825 | 16 | 17.5 |
| | MCS5 | 36-64 | 5180-5320 | 15.5 | 16.5 |
| | | 100-144 | 5500-5720 | 15.5 | 16.5 |
| | | 149-165 | 5745-5825 | 15.5 | 17 |
| | MCS6 | 36-64 | 5180-5320 | 15 | 16 |
| | | 100-144 | 5500-5720 | 15 | 16 |
| | | 149-165 | 5745-5825 | 15 | 16.5 |
| | MCS7 | 36-64 | 5180-5320 | 14.5 | 15.5 |
| | | 100-144 | 5500-5720 | 14.5 | 15.5 |
| | | 149-165 | 5745-5825 | 14.5 | 16 |
| | MCS8 | 36-64 | 5180-5320 | 14 | 15 |
| | | 100-144 | 5500-5720 | 14 | 15 |
| | | 149-165 | 5745-5825 | 14 | 15.5 |
| | MCS9 | 36-64 | 5180-5320 | 13.5 | 14.5 |
| | | 100-144 | 5500-5720 | 13.5 | 14.5 |
| | | 149-165 | 5745-5825 | 13.5 | 15 |

**The maximum output power for BT**

| Band | Mode | Tune up (dBm) |
|---|---|---|
| BT | GFSK | 10 |
| | π /4-DQPSK | 10 |
| | 8-DPSK | 10 |

The average conducted power for Wi-Fi is as following:

| 802.11b | Channel\data rate | 1Mbps |
|---|---|---|
| WLAN2450 | 11(2462MHz) | 18.81 |
| | 6(2437(MHz) | 18.63 |
| | 1(2412MHz) | 18.29 |
| 802.11g | Channel\data rate | 6Mbps |
| WLAN2450 | 11(2462MHz) | 17.88 |
| | 6(2437(MHz) | 17.64 |
| | 1(2412MHz) | 17.38 |
| 802.11n-20MHz | Channel\data rate | MCS0 |
| WLAN2450 | 11(2462MHz) | 17.23 |
| | 6(2437(MHz) | 17.02 |
| | 1(2412MHz) | 16.62 |
| 802.11a | Channel\data rate | 6Mbps |
| WLAN5G | 36(5180 MHz) | 18.56 |
| | 40(5200 MHz) | 18.87 |
| | 44(5220 MHz) | 18.50 |
| | 48(5240 MHz) | 18.52 |
| | 52(5260 MHz) | 19.01 |
| | 56(5280 MHz) | 18.62 |
| | 60(5300 MHz) | 18.61 |
| | 64(5320 MHz) | 18.55 |
| | 100(5500 MHz) | 18.55 |
| | 104(5520 MHz) | 18.98 |
| | 108(5540 MHz) | 18.82 |
| | 112(5560 MHz) | 18.67 |
| | 116(5580 MHz) | 18.82 |
| | 120(5600 MHz) | 18.80 |
| | 124(5620 MHz) | 18.84 |
| | 128(5640 MHz) | 18.99 |
| | 132(5660 MHz) | 19.07 |
| | 136(5680 MHz) | 19.03 |
| | 140(5700 MHz) | 19.56 |
| | 144(5720 MHz) | 19.53 |
| | 149(5745 MHz) | 19.58 |
| | 153(5765 MHz) | 19.37 |

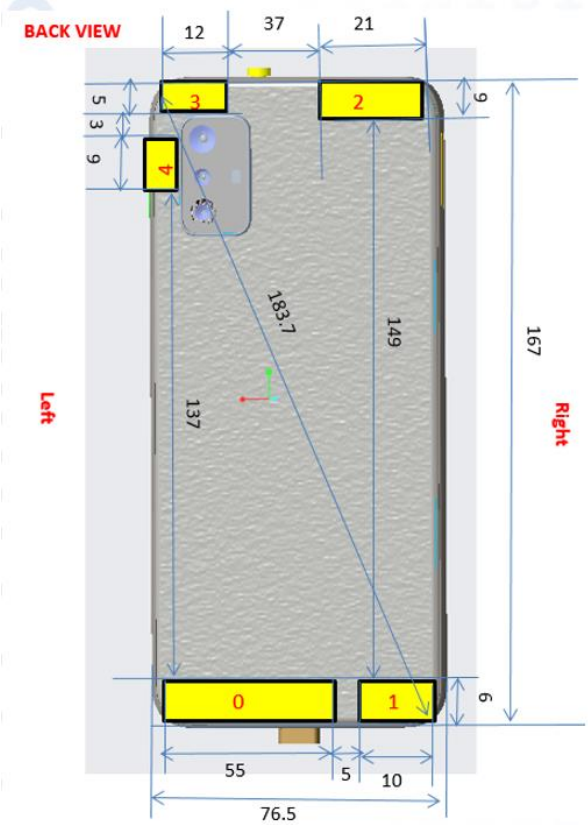
| | | |
|---|---|---|
| | 157(5785 MHz) | 19.42 |
| | 161(5805 MHz) | 19.53 |
| | 165(5825 MHz) | 19.89 |

The average conducted power for BT is as following:

| BR/EDR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | GFSK | | | EDR2M-4_DQPSK | | | EDR3M-8DPSK | | |
| | Ch0 | Ch 39 | Ch 78 | Ch 0 | Ch 39 | Ch 78 | Ch 0 | Ch 39 | Ch 78 |
| Maximum Transmit Power(<20dBm) | 8.77 | 9.39 | 9.71 | 7.90 | 9.13 | 9.26 | 7.87 | 8.68 | 9.23 |

# 12 Antenna Location

## 12.1 Transmit Antenna Separation Distances




| ANT | Mode | Band |
|---|---|---|
| ANT0 | Main antenna LB+HB | FDD B5/7/12/13/28 TRX |
| ANT1 | Main antenna MB | FDD B2/3/4/66 TRX |
| ANT2 | SUB antenna | FDD B2/3/4/5/7/12/13/28/66 DRX |
| ANT3 | GPS/WIFI 2.4G | GPS/WIFI 2.4G TRX |
| ANT4 | WIFI 5G | WIFI 5G TRX |

## 12.2 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

| SAR measurement positions | | | | | | |
|---|---|---|---|---|---|---|
| Mode | Front | Rear | Left edge | Right edge | Top edge | Bottom edge |
| ANT0 | Yes | Yes | Yes | Yes | No | Yes |
| ANT1 | Yes | Yes | Yes | No | No | Yes |
| ANT3 | Yes | Yes | No | Yes | Yes | No |
| ANT4 | Yes | Yes | No | Yes | Yes | No |

## 12.3 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

**Standalone SAR test exclusion considerations**

| Band/Mode | F(GHz) | Position | SAR test exclusion threshold(mW) | RF output power | | SAR test exclusion |
|---|---|---|---|---|---|---|
| | | | | dBm | mW | |
| Bluetooth | 2.441 | Head | 9.60 | 10 | 10.00 | No |
| | | Body | 19.20 | 10 | 10.00 | Yes |
| 2.4GHz WLAN | 2.45 | Head | 9.58 | 19.5 | 89.13 | No |
| | | Body | 19.17 | 19.5 | 89.13 | No |
| 5GHz WLAN | 5.2 | Head | 6.58 | 20 | 100.00 | No |
| | | Body | 13.16 | 20 | 100.00 | No |
| | 5.3 | Head | 6.52 | 20 | 100.00 | No |
| | | Body | 13.03 | 20 | 100.00 | No |
| | 5.6 | Head | 6.34 | 20.5 | 112.20 | No |
| | | Body | 12.68 | 20.5 | 112.20 | No |
| | 5.8 | Head | 6.23 | 20.5 | 112.20 | No |
| | | Body | 12.46 | 20.5 | 112.20 | No |

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

**Estimated SAR for Bluetooth**

| Mode/Band | F (GHz) | Position | Distance (mm) | Upper limit of power * | | Estimated$_{1g}$ (W/kg) |
|---|---|---|---|---|---|---|
| | | | | dBm | mW | |
| Bluetooth | 2.441 | Body | 10 | 10 | 10 | 0.21 |
| Bluetooth | 2.441 | Body | 14 | 10 | 10 | 0.15 |

* - Maximum possible output power declared by manufacturer

# 13 SAR Test Result

**Note:**

**KDB 447498 D01 General RF Exposure Guidance:**

For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor

For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz

≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

**KDB 648474 D04 Handset SAR:**

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

**KDB 941225 D05 SAR for LTE Devices:**

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 of 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.

For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

**KDB 248227 D01 SAR meas for 802.11:**

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions.An initial test configuration is determined

for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s).

When the reported SAR for the initial test position is:

≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.

> 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.

- For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
- When it is unclear, all equivalent conditions must be tested.

For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.

- The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.

When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.

When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

**Duty Cycle**

| Mode | Duty Cycle |
|---|---|
| LTE FDD | 1:1 |

**Ambient Temperature: 21.5-23.5 ℃ Liquid Temperature: 21.5-23.5 ℃**

## 13.1 SAR results for 4G

## Head

| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test Position | Distance | Figure No./Note | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Reported SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Reported SAR 10g (W/kg) | Power Drift |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Head | LTE Band2 | 18700 | 1860 | 1RB-Mid | Cheek Left | 0mm | A.1 | 24.18 | 25 | 0.377 | 0.46 | 0.246 | 0.30 | -0.13 |
| Head | LTE Band2 | 18700 | 1860 | 1RB-Mid | Tilt Left | 0mm | \ | 24.18 | 25 | 0.254 | 0.31 | 0.161 | 0.19 | 0.07 |
| Head | LTE Band2 | 18700 | 1860 | 1RB-Mid | Cheek Right | 0mm | \ | 24.18 | 25 | 0.282 | 0.34 | 0.16 | 0.19 | -0.13 |
| Head | LTE Band2 | 18700 | 1860 | 1RB-Mid | Tilt Right | 0mm | \ | 24.18 | 25 | 0.199 | 0.24 | 0.111 | 0.13 | 0.17 |
| Head | LTE Band2 | 18700 | 1860 | 50RB-Mid | Cheek Left | 0mm | \ | 23.19 | 24 | 0.269 | 0.32 | 0.175 | 0.21 | -0.07 |
| Head | LTE Band2 | 18700 | 1860 | 50RB-Mid | Tilt Left | 0mm | \ | 23.19 | 24 | 0.165 | 0.20 | 0.106 | 0.13 | -0.10 |
| Head | LTE Band2 | 18700 | 1860 | 50RB-Mid | Cheek Right | 0mm | \ | 23.19 | 24 | 0.212 | 0.26 | 0.121 | 0.15 | 0.03 |
| Head | LTE Band2 | 18700 | 1860 | 50RB-Mid | Tilt Right | 0mm | \ | 23.19 | 24 | 0.143 | 0.17 | 0.078 | 0.09 | -0.01 |
| Head | LTE Band5 | 20600 | 844 | 1RB-Mid | Cheek Left | 0mm | \ | 24.00 | 25 | 0.267 | 0.34 | 0.184 | 0.23 | 0.06 |
| Head | LTE Band5 | 20600 | 844 | 1RB-Mid | Tilt Left | 0mm | \ | 24.00 | 25 | 0.159 | 0.20 | 0.115 | 0.14 | 0.13 |
| Head | LTE Band5 | 20600 | 844 | 1RB-Mid | Cheek Right | 0mm | A.2 | 24.00 | 25 | 0.305 | 0.38 | 0.239 | 0.30 | 0.01 |
| Head | LTE Band5 | 20600 | 844 | 1RB-Mid | Tilt Right | 0mm | \ | 24.00 | 25 | 0.176 | 0.22 | 0.141 | 0.18 | -0.19 |
| Head | LTE Band5 | 20600 | 844 | 25RB-Middle | Cheek Left | 0mm | \ | 23.09 | 24 | 0.237 | 0.29 | 0.162 | 0.20 | -0.05 |
| Head | LTE Band5 | 20600 | 844 | 25RB-Middle | Tilt Left | 0mm | \ | 23.09 | 24 | 0.131 | 0.16 | 0.094 | 0.12 | 0.04 |
| Head | LTE Band5 | 20600 | 844 | 25RB-Middle | Cheek Right | 0mm | \ | 23.09 | 24 | 0.261 | 0.32 | 0.203 | 0.25 | -0.09 |
| Head | LTE Band5 | 20600 | 844 | 25RB-Middle | Tilt Right | 0mm | \ | 23.09 | 24 | 0.154 | 0.19 | 0.123 | 0.15 | 0.11 |
| Head | LTE Band7 | 20850 | 2510 | 1RB-Mid | Cheek Left | 0mm | A.3 | 24.06 | 24.5 | 0.094 | 0.10 | 0.048 | 0.05 | 0.05 |
| Head | LTE Band7 | 20850 | 2510 | 1RB-Mid | Tilt Left | 0mm | \ | 24.06 | 24.5 | 0.048 | 0.05 | 0.025 | 0.03 | 0.12 |
| Head | LTE Band7 | 20850 | 2510 | 1RB-Mid | Cheek Right | 0mm | \ | 24.06 | 24.5 | 0.079 | 0.09 | 0.039 | 0.04 | 0.07 |
| Head | LTE Band7 | 20850 | 2510 | 1RB-Mid | Tilt Right | 0mm | \ | 24.06 | 24.5 | 0.045 | 0.05 | 0.023 | 0.03 | -0.17 |
| Head | LTE Band7 | 20850 | 2510 | 50RB-Mid | Cheek Left | 0mm | \ | 23.01 | 23.5 | 0.079 | 0.09 | 0.041 | 0.05 | 0.18 |
| Head | LTE Band7 | 20850 | 2510 | 50RB-Mid | Tilt Left | 0mm | \ | 23.01 | 23.5 | 0.037 | 0.04 | 0.019 | 0.02 | 0.14 |
| Head | LTE Band7 | 20850 | 2510 | 50RB-Mid | Cheek Right | 0mm | \ | 23.01 | 23.5 | 0.061 | 0.07 | 0.029 | 0.03 | 0.14 |
| Head | LTE Band7 | 20850 | 2510 | 50RB-Mid | Tilt Right | 0mm | \ | 23.01 | 23.5 | 0.035 | 0.04 | 0.018 | 0.02 | 0.11 |
| Head | LTE Band12 | 23060 | 704 | 1RB-Mid | Cheek Left | 0mm | \ | 24.17 | 25 | 0.145 | 0.18 | 0.119 | 0.14 | -0.02 |
| Head | LTE Band12 | 23060 | 704 | 1RB-Mid | Tilt Left | 0mm | \ | 24.17 | 25 | 0.074 | 0.09 | 0.063 | 0.08 | -0.12 |
| Head | LTE Band12 | 23060 | 704 | 1RB-Mid | Cheek Right | 0mm | A.4 | 24.17 | 25 | 0.17 | 0.21 | 0.138 | 0.17 | 0.03 |
| Head | LTE Band12 | 23060 | 704 | 1RB-Mid | Tilt Right | 0mm | \ | 24.17 | 25 | 0.096 | 0.12 | 0.08 | 0.10 | 0.09 |
| Head | LTE Band12 | 23060 | 704 | 25RB-Low | Cheek Left | 0mm | \ | 23.22 | 24 | 0.12 | 0.14 | 0.099 | 0.12 | 0.02 |
| Head | LTE Band12 | 23060 | 704 | 25RB-Low | Tilt Left | 0mm | \ | 23.22 | 24 | 0.054 | 0.06 | 0.046 | 0.06 | 0.11 |
| Head | LTE Band12 | 23060 | 704 | 25RB-Low | Cheek Right | 0mm | \ | 23.22 | 24 | 0.139 | 0.17 | 0.114 | 0.14 | -0.15 |
| Head | LTE Band12 | 23060 | 704 | 25RB-Low | Tilt Right | 0mm | \ | 23.22 | 24 | 0.069 | 0.08 | 0.058 | 0.07 | -0.17 |
| Head | LTE Band13 | 23230 | 782 | 1RB-Middle | Cheek Left | 0mm | \ | 24.00 | 25 | 0.195 | 0.25 | 0.154 | 0.19 | -0.03 |
| Head | LTE Band13 | 23230 | 782 | 1RB-Middle | Tilt Left | 0mm | \ | 24.00 | 25 | 0.113 | 0.14 | 0.094 | 0.12 | -0.12 |
| Head | LTE Band13 | 23230 | 782 | 1RB-Middle | Cheek Right | 0mm | A.5 | 24.00 | 25 | 0.264 | 0.33 | 0.209 | 0.26 | 0.06 |
| Head | LTE Band13 | 23230 | 782 | 1RB-Middle | Tilt Right | 0mm | \ | 24.00 | 25 | 0.132 | 0.17 | 0.108 | 0.14 | -0.19 |
| Head | LTE Band13 | 23230 | 782 | 25RB-Mid | Cheek Left | 0mm | \ | 23.04 | 24 | 0.153 | 0.19 | 0.121 | 0.15 | 0.00 |
| Head | LTE Band13 | 23230 | 782 | 25RB-Mid | Tilt Left | 0mm | \ | 23.04 | 24 | 0.096 | 0.12 | 0.077 | 0.10 | -0.04 |
| Head | LTE Band13 | 23230 | 782 | 25RB-Mid | Cheek Right | 0mm | \ | 23.04 | 24 | 0.203 | 0.25 | 0.159 | 0.20 | -0.17 |
| Head | LTE Band13 | 23230 | 782 | 25RB-Mid | Tilt Right | 0mm | \ | 23.04 | 24 | 0.114 | 0.14 | 0.093 | 0.12 | 0.06 |
| Head | LTE Band66 | 132322 | 1745 | 1RB-Middle | Cheek Left | 0mm | A.6 | 24.19 | 25 | 0.245 | 0.30 | 0.163 | 0.20 | 0.17 |
| Head | LTE Band66 | 132322 | 1745 | 1RB-Middle | Tilt Left | 0mm | \ | 24.19 | 25 | 0.195 | 0.23 | 0.13 | 0.16 | -0.18 |
| Head | LTE Band66 | 132322 | 1745 | 1RB-Middle | Cheek Right | 0mm | \ | 24.19 | 25 | 0.232 | 0.28 | 0.15 | 0.18 | 0.07 |
| Head | LTE Band66 | 132322 | 1745 | 1RB-Middle | Tilt Right | 0mm | \ | 24.19 | 25 | 0.142 | 0.17 | 0.09 | 0.11 | 0.14 |
| Head | LTE Band66 | 132322 | 1745 | 50RB-Middle | Cheek Left | 0mm | \ | 23.17 | 24 | 0.199 | 0.24 | 0.132 | 0.16 | 0.09 |
| Head | LTE Band66 | 132322 | 1745 | 50RB-Middle | Tilt Left | 0mm | \ | 23.17 | 24 | 0.126 | 0.15 | 0.083 | 0.10 | -0.08 |
| Head | LTE Band66 | 132322 | 1745 | 50RB-Middle | Cheek Right | 0mm | \ | 23.17 | 24 | 0.214 | 0.26 | 0.139 | 0.17 | 0.16 |
| Head | LTE Band66 | 132322 | 1745 | 50RB-Middle | Tilt Right | 0mm | \ | 23.17 | 24 | 0.157 | 0.19 | 0.103 | 0.12 | 0.03 |

## Body

| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test Position | Distance | Figure No./Note | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Reported SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Reported SAR 10g (W/kg) | Power Drift |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Front | 14mm | \ | 24.18 | 25 | 0.64 | 0.77 | 0.367 | 0.44 | -0.07 |
| Body | LTE Band2 | 19100 | 1900 | 1RB-Mid | Rear | 14mm | \ | 24.12 | 25 | 0.857 | 1.05 | 0.484 | 0.59 | 0.00 |
| Body | LTE Band2 | 18900 | 1880 | 1RB-Mid | Rear | 14mm | \ | 24.16 | 25 | 0.876 | 1.06 | 0.494 | 0.60 | 0.00 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Rear | 14mm | A.7 | 24.18 | 25 | 0.881 | 1.06 | 0.499 | 0.60 | 0.13 |
| Body | LTE Band2 | 19100 | 1900 | 1RB-Mid | Left | 10mm | \ | 24.07 | 25 | 0.687 | 0.85 | 0.392 | 0.49 | 0.16 |
| Body | LTE Band2 | 18900 | 1880 | 1RB-Mid | Left | 10mm | \ | 24.15 | 25 | 0.702 | 0.85 | 0.4 | 0.49 | 0.02 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Left | 10mm | \ | 24.18 | 25 | 0.709 | 0.86 | 0.406 | 0.49 | -0.03 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Right | 10mm | \ | 24.18 | 25 | 0.287 | 0.35 | 0.17 | 0.21 | 0.13 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Bottom | 14mm | \ | 24.18 | 25 | 0.52 | 0.63 | 0.306 | 0.37 | -0.09 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Front | 14mm | \ | 23.19 | 24 | 0.457 | 0.55 | 0.274 | 0.33 | -0.04 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Rear | 14mm | \ | 23.19 | 24 | 0.659 | 0.79 | 0.383 | 0.46 | -0.08 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Left | 10mm | \ | 23.19 | 24 | 0.512 | 0.62 | 0.296 | 0.36 | -0.13 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Right | 10mm | \ | 23.19 | 24 | 0.203 | 0.24 | 0.126 | 0.15 | -0.07 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Bottom | 14mm | \ | 23.19 | 24 | 0.393 | 0.47 | 0.232 | 0.28 | 0.19 |
| Body | LTE Band2 | 18700 | 1860 | 100RB | Rear | 14mm | \ | 23.14 | 24 | 0.681 | 0.83 | 0.396 | 0.48 | -0.14 |
| Body | LTE Band2 | 18700 | 1860 | 100RB | Left | 10mm | \ | 23.14 | 24 | 0.545 | 0.66 | 0.362 | 0.44 | 0.08 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Front | 10mm | \ | 19.55 | 20 | 0.251 | 0.28 | 0.132 | 0.15 | 0.05 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Rear | 10mm | \ | 19.55 | 20 | 0.393 | 0.44 | 0.198 | 0.22 | 0.07 |
| Body | LTE Band2 | 18700 | 1860 | 1RB-Mid | Bottom | 10mm | \ | 19.55 | 20 | 0.274 | 0.30 | 0.16 | 0.18 | -0.07 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Front | 10mm | \ | 18.48 | 19 | 0.251 | 0.28 | 0.129 | 0.15 | 0 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Rear | 10mm | \ | 18.48 | 19 | 0.384 | 0.43 | 0.193 | 0.22 | 0.18 |
| Body | LTE Band2 | 18700 | 1860 | 50RB-Mid | Bottom | 10mm | \ | 18.48 | 19 | 0.212 | 0.24 | 0.124 | 0.14 | 0.16 |
| Body | LTE Band5 | 20600 | 844 | 1RB-Mid | Front | 10mm | \ | 24.00 | 25 | 0.381 | 0.48 | 0.237 | 0.30 | -0.12 |
| Body | LTE Band5 | 20600 | 844 | 1RB-Mid | Rear | 10mm | A.8 | 24.00 | 25 | 0.614 | 0.77 | 0.357 | 0.45 | 0.00 |
| Body | LTE Band5 | 20600 | 844 | 1RB-Mid | Left | 10mm | \ | 24.00 | 25 | 0.173 | 0.22 | 0.114 | 0.14 | -0.03 |
| Body | LTE Band5 | 20600 | 844 | 1RB-Mid | Right | 10mm | \ | 24.00 | 25 | 0.327 | 0.41 | 0.216 | 0.27 | 0.00 |
| Body | LTE Band5 | 20600 | 844 | 1RB-Mid | Bottom | 10mm | \ | 24.00 | 25 | 0.49 | 0.62 | 0.291 | 0.37 | -0.02 |
| Body | LTE Band5 | 20600 | 844 | 25RB-Middle | Front | 10mm | \ | 23.09 | 24 | 0.304 | 0.37 | 0.184 | 0.23 | -0.17 |
| Body | LTE Band5 | 20600 | 844 | 25RB-Middle | Rear | 10mm | \ | 23.09 | 24 | 0.478 | 0.59 | 0.275 | 0.34 | 0.10 |
| Body | LTE Band5 | 20600 | 844 | 25RB-Middle | Left | 10mm | \ | 23.09 | 24 | 0.133 | 0.16 | 0.088 | 0.11 | 0.06 |
| Body | LTE Band5 | 20600 | 844 | 25RB-Middle | Right | 10mm | \ | 23.09 | 24 | 0.256 | 0.32 | 0.168 | 0.21 | -0.12 |
| Body | LTE Band5 | 20600 | 844 | 25RB-Middle | Bottom | 10mm | \ | 23.09 | 24 | 0.378 | 0.47 | 0.224 | 0.28 | 0.18 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Front | 14mm | \ | 24.06 | 24.5 | 0.217 | 0.24 | 0.117 | 0.13 | -0.14 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Rear | 14mm | \ | 24.06 | 24.5 | 0.198 | 0.22 | 0.106 | 0.12 | 0.07 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Left | 10mm | \ | 24.06 | 24.5 | 0.087 | 0.10 | 0.048 | 0.05 | -0.02 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Right | 10mm | \ | 24.06 | 24.5 | 0.118 | 0.13 | 0.064 | 0.07 | -0.05 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Bottom | 14mm | \ | 24.06 | 24.5 | 0.336 | 0.37 | 0.177 | 0.20 | -0.03 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Front | 14mm | \ | 23.01 | 23.5 | 0.155 | 0.17 | 0.083 | 0.09 | 0.18 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Rear | 14mm | \ | 23.01 | 23.5 | 0.147 | 0.16 | 0.074 | 0.08 | 0.18 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Left | 10mm | \ | 23.01 | 23.5 | 0.066 | 0.07 | 0.036 | 0.04 | 0.06 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Right | 10mm | \ | 23.01 | 23.5 | 0.09 | 0.10 | 0.049 | 0.05 | -0.11 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Bottom | 14mm | \ | 23.01 | 23.5 | 0.259 | 0.29 | 0.136 | 0.15 | -0.01 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Front | 10mm | \ | 22.8 | 23.5 | 0.168 | 0.20 | 0.082 | 0.10 | 0.19 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Rear | 10mm | \ | 22.8 | 23.5 | 0.261 | 0.31 | 0.119 | 0.14 | 0.07 |
| Body | LTE Band7 | 20850 | 2510 | 1RB-Mid | Bottom | 10mm | A.9 | 22.8 | 23.5 | 0.419 | 0.49 | 0.212 | 0.25 | -0.02 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Front | 10mm | \ | 21.74 | 22.5 | 0.153 | 0.18 | 0.075 | 0.09 | 0.09 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Rear | 10mm | \ | 21.74 | 22.5 | 0.173 | 0.21 | 0.079 | 0.09 | -0.05 |
| Body | LTE Band7 | 20850 | 2510 | 50RB-Mid | Bottom | 10mm | \ | 21.74 | 22.5 | 0.322 | 0.38 | 0.163 | 0.19 | 0.04 |
| Body | LTE Band12 | 23060 | 704 | 1RB-Middle | Front | 10mm | \ | 24.17 | 25 | 0.166 | 0.20 | 0.128 | 0.15 | 0.10 |
| Body | LTE Band12 | 23060 | 704 | 1RB-Middle | Rear | 10mm | A.10 | 24.17 | 25 | 0.24 | 0.29 | 0.187 | 0.23 | -0.02 |
| Body | LTE Band12 | 23060 | 704 | 1RB-Middle | Left | 10mm | \ | 24.17 | 25 | 0.064 | 0.08 | 0.045 | 0.05 | -0.11 |
| Body | LTE Band12 | 23060 | 704 | 1RB-Middle | Right | 10mm | \ | 24.17 | 25 | 0.128 | 0.15 | 0.089 | 0.11 | -0.14 |
| Body | LTE Band12 | 23060 | 704 | 1RB-Middle | Bottom | 10mm | \ | 24.17 | 25 | 0.155 | 0.19 | 0.088 | 0.11 | -0.04 |
| Body | LTE Band12 | 23060 | 704 | 25RB-Low | Front | 10mm | \ | 23.22 | 24 | 0.128 | 0.15 | 0.099 | 0.12 | 0.00 |
| Body | LTE Band12 | 23060 | 704 | 25RB-Low | Rear | 10mm | \ | 23.22 | 24 | 0.19 | 0.23 | 0.146 | 0.17 | -0.18 |
| Body | LTE Band12 | 23060 | 704 | 25RB-Low | Left | 10mm | \ | 23.22 | 24 | 0.05 | 0.06 | 0.034 | 0.04 | 0.03 |
| Body | LTE Band12 | 23060 | 704 | 25RB-Low | Right | 10mm | \ | 23.22 | 24 | 0.099 | 0.12 | 0.068 | 0.08 | -0.07 |
| Body | LTE Band12 | 23060 | 704 | 25RB-Low | Bottom | 10mm | \ | 23.22 | 24 | 0.118 | 0.14 | 0.066 | 0.08 | 0.05 |
| Body | LTE Band13 | 23230 | 782 | 1RB-Middle | Front | 10mm | \ | 24.00 | 25 | 0.26 | 0.33 | 0.161 | 0.20 | -0.16 |
| Body | LTE Band13 | 23230 | 782 | 1RB-Middle | Rear | 10mm | A.11 | 24.00 | 25 | 0.411 | 0.52 | 0.241 | 0.30 | 0.02 |
| Body | LTE Band13 | 23230 | 782 | 1RB-Middle | Left | 10mm | \ | 24.00 | 25 | 0.177 | 0.22 | 0.119 | 0.15 | 0.01 |
| Body | LTE Band13 | 23230 | 782 | 1RB-Middle | Right | 10mm | \ | 24.00 | 25 | 0.339 | 0.43 | 0.232 | 0.29 | 0.16 |
| Body | LTE Band13 | 23230 | 782 | 1RB-Middle | Bottom | 10mm | \ | 24.00 | 25 | 0.322 | 0.41 | 0.194 | 0.24 | -0.18 |
| Body | LTE Band13 | 23230 | 782 | 25RB-Mid | Front | 10mm | \ | 23.04 | 24 | 0.194 | 0.24 | 0.123 | 0.15 | -0.07 |
| Body | LTE Band13 | 23230 | 782 | 25RB-Mid | Rear | 10mm | \ | 23.04 | 24 | 0.32 | 0.40 | 0.19 | 0.24 | 0.09 |
| Body | LTE Band13 | 23230 | 782 | 25RB-Mid | Left | 10mm | \ | 23.04 | 24 | 0.136 | 0.17 | 0.092 | 0.11 | 0.09 |
| Body | LTE Band13 | 23230 | 782 | 25RB-Mid | Right | 10mm | \ | 23.04 | 24 | 0.268 | 0.33 | 0.181 | 0.23 | -0.14 |
| Body | LTE Band13 | 23230 | 782 | 25RB-Mid | Bottom | 10mm | \ | 23.04 | 24 | 0.249 | 0.31 | 0.15 | 0.19 | -0.09 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Front | 14mm | \ | 24.19 | 25 | 0.352 | 0.42 | 0.195 | 0.23 | -0.12 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Rear | 14mm | A.12 | 24.19 | 25 | 0.492 | 0.59 | 0.293 | 0.35 | 0.05 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Left | 10mm | \ | 24.19 | 25 | 0.404 | 0.49 | 0.218 | 0.26 | -0.06 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Right | 10mm | \ | 24.19 | 25 | 0.268 | 0.32 | 0.148 | 0.18 | 0.09 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Bottom | 14mm | \ | 24.19 | 25 | 0.286 | 0.34 | 0.172 | 0.21 | -0.10 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Middle | Front | 14mm | \ | 23.17 | 24 | 0.276 | 0.33 | 0.152 | 0.18 | 0.04 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Middle | Rear | 14mm | \ | 23.17 | 24 | 0.384 | 0.46 | 0.228 | 0.28 | 0.03 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Middle | Left | 10mm | \ | 23.17 | 24 | 0.312 | 0.38 | 0.17 | 0.21 | -0.06 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Middle | Right | 10mm | \ | 23.17 | 24 | 0.208 | 0.25 | 0.115 | 0.14 | -0.17 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Middle | Bottom | 14mm | \ | 23.17 | 24 | 0.221 | 0.27 | 0.133 | 0.16 | 0.09 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Front | 10mm | \ | 20.49 | 21 | 0.096 | 0.11 | 0.052 | 0.06 | -0.13 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Rear | 10mm | \ | 20.49 | 21 | 0.132 | 0.15 | 0.073 | 0.08 | 0.14 |
| Body | LTE Band66 | 132322 | 1745 | 1RB-Middle | Bottom | 10mm | \ | 20.49 | 21 | 0.207 | 0.23 | 0.122 | 0.14 | 0.01 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Low | Front | 10mm | \ | 19.45 | 20 | 0.086 | 0.10 | 0.049 | 0.06 | -0.16 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Low | Rear | 10mm | \ | 19.45 | 20 | 0.131 | 0.15 | 0.073 | 0.08 | -0.03 |
| Body | LTE Band66 | 132322 | 1745 | 50RB-Low | Bottom | 10mm | \ | 19.45 | 20 | 0.203 | 0.23 | 0.118 | 0.13 | 0.11 |

## 13.2 SAR results for WLAN

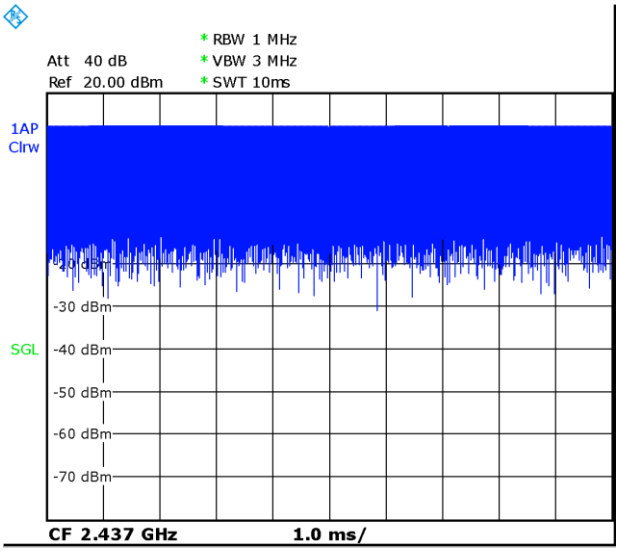
The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.

When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n ac then ax) is selected.

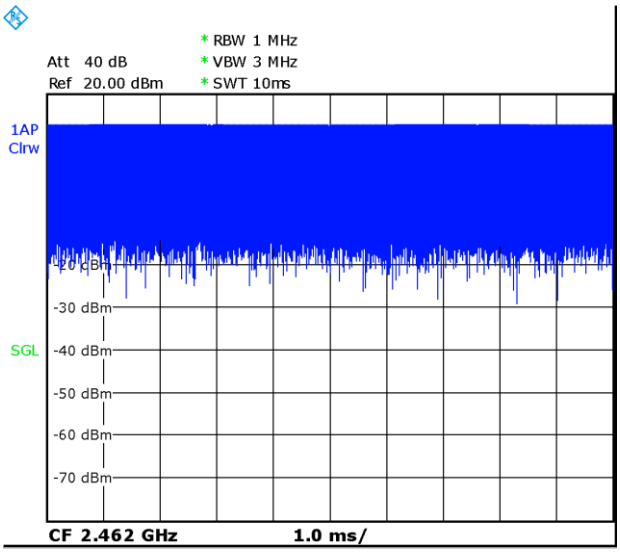
SAR Test reduction was applied from KDB 248227 guidance, when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

### Duty factor plot

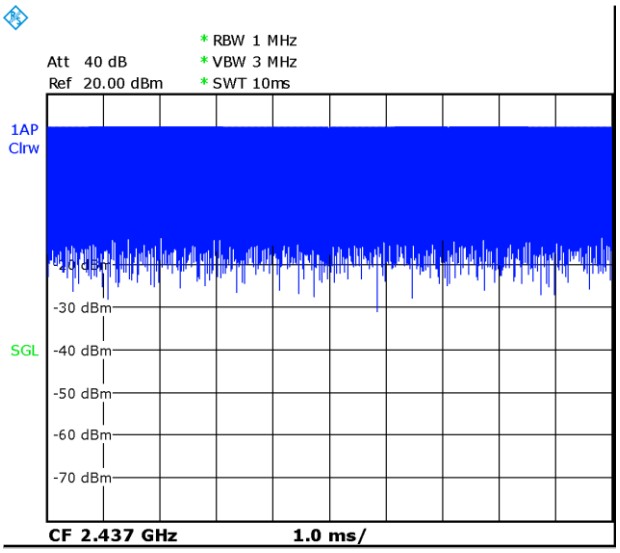
#### CH6



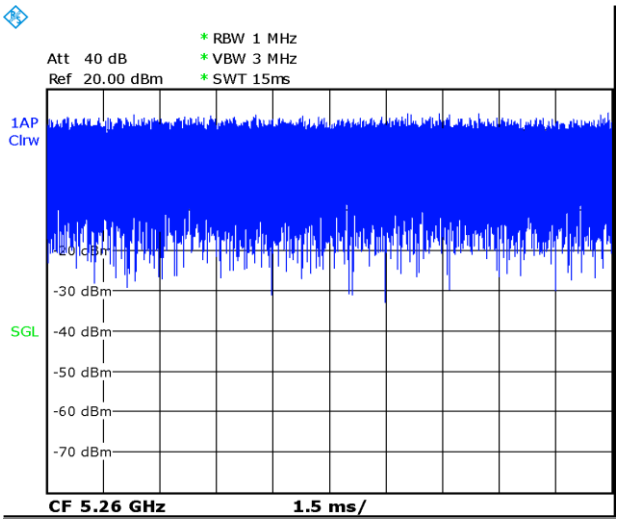
**CH11**



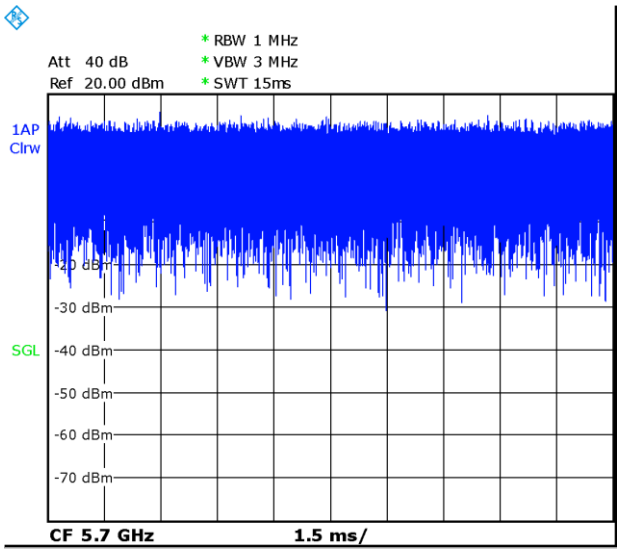

**CH6**



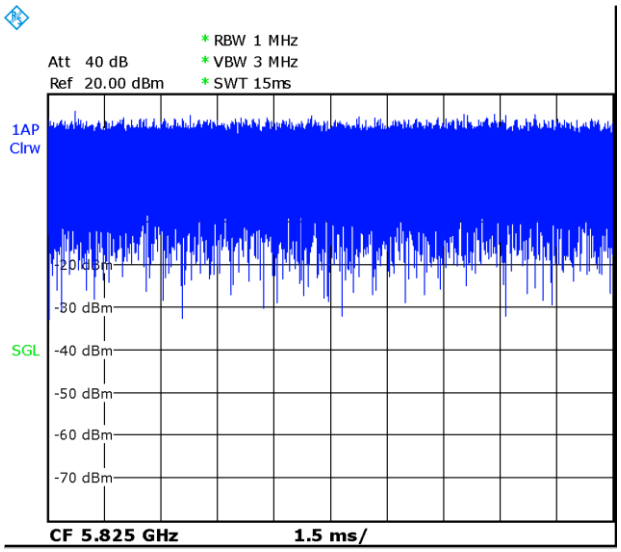

**CH52**




**CH140**




**CH165**



## WLAN 2.4G SISO

| Test Position | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test Position | Distance | Figure No./Note | EUT Measured Power (dBm) | Tune up (dBm) | Duty Cycle | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) | Measured SAR10g (W/kg) | Reported SAR10g (W/kg) | Power Drift |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Head | WLAN 2.4G | 11 | 2462 | 11b 1M | Cheek Left | 0mm | \ | 18.81 | 19.5 | 100% | 0.832 | 0.98 | 0.414 | 0.49 | 0.14 |
| Head | WLAN 2.4G | 6 | 2437 | 11b 1M | Cheek Left | 0mm | A.13 | 18.63 | 19.5 | 100% | 0.907 | 1.11 | 0.450 | 0.55 | -0.11 |
| Head | WLAN 2.4G | 11 | 2462 | 11b 1M | Tilt Left | 0mm | \ | 18.81 | 19.5 | 100% | 0.645 | 0.76 | 0.294 | 0.34 | -0.12 |
| Head | WLAN 2.4G | 11 | 2462 | 11b 1M | Cheek Right | 0mm | \ | 18.81 | 19.5 | 100% | 0.358 | 0.42 | 0.197 | 0.23 | 0.07 |
| Head | WLAN 2.4G | 11 | 2462 | 11b 1M | Tilt Right | 0mm | \ | 18.81 | 19.5 | 100% | 0.311 | 0.36 | 0.161 | 0.19 | -0.09 |
| | | | | | | | | | | | | | | | |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Front | 10mm | \ | 18.81 | 19.5 | 100% | 0.178 | 0.21 | 0.097 | 0.11 | 0.02 |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Rear | 10mm | A.14 | 18.81 | 19.5 | 100% | 0.225 | 0.26 | 0.111 | 0.13 | 0.01 |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Right | 10mm | \ | 18.81 | 19.5 | 100% | 0.200 | 0.23 | 0.104 | 0.12 | -0.05 |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Top | 10mm | \ | 18.81 | 19.5 | 100% | 0.113 | 0.13 | 0.058 | 0.07 | -0.1 |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Front | 14mm | \ | 18.81 | 19.5 | 100% | 0.095 | 0.11 | 0.053 | 0.06 | -0.03 |
| Body | WLAN 2.4G | 11 | 2462 | 11b 1M | Rear | 14mm | \ | 18.81 | 19.5 | 100% | 0.123 | 0.14 | 0.066 | 0.08 | -0.09 |

## WLAN 5G SISO

| Test Position | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test Position | Distance | Figure No./Note | EUT Measured Power (dBm) | Tune up (dBm) | Duty Cycle | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) | Measured SAR10g (W/kg) | Reported SAR10g (W/kg) | Power Drift |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Head | WLAN 5G | 52 | 5260 | 11a 6M | Cheek Left | 0mm | \ | 19.01 | 20 | 100% | 0.474 | 0.60 | 0.148 | 0.19 | -0.03 |
| Head | WLAN 5G | 52 | 5260 | 11a 6M | Tilt Left | 0mm | \ | 19.01 | 20 | 100% | 0.359 | 0.45 | 0.136 | 0.17 | 0.16 |
| Head | WLAN 5G | 52 | 5260 | 11a 6M | Cheek Right | 0mm | \ | 19.01 | 20 | 100% | 0.225 | 0.28 | 0.080 | 0.10 | 0.1 |
| Head | WLAN 5G | 52 | 5260 | 11a 6M | Tilt Right | 0mm | \ | 19.01 | 20 | 100% | 0.237 | 0.30 | 0.085 | 0.11 | 0.17 |
| Head | WLAN 5G | 140 | 5700 | 11a 6M | Cheek Left | 0mm | \ | 19.56 | 20.5 | 100% | 0.452 | 0.56 | 0.153 | 0.19 | -0.15 |
| Head | WLAN 5G | 140 | 5700 | 11a 6M | Tilt Left | 0mm | \ | 19.56 | 20.5 | 100% | 0.328 | 0.41 | 0.123 | 0.15 | 0.06 |
| Head | WLAN 5G | 140 | 5700 | 11a 6M | Cheek Right | 0mm | \ | 19.56 | 20.5 | 100% | 0.235 | 0.29 | 0.086 | 0.11 | 0.18 |
| Head | WLAN 5G | 140 | 5700 | 11a 6M | Tilt Right | 0mm | \ | 19.56 | 20.5 | 100% | 0.288 | 0.36 | 0.104 | 0.13 | 0.08 |
| Head | WLAN 5G | 165 | 5825 | 11a 6M | Cheek Left | 0mm | \ | 19.89 | 20.5 | 100% | 0.457 | 0.53 | 0.154 | 0.18 | 0.02 |
| Head | WLAN 5G | 165 | 5825 | 11a 6M | Tilt Left | 0mm | A.15 | 19.89 | 20.5 | 100% | 0.748 | 0.86 | 0.215 | 0.25 | -0.09 |
| Head | WLAN 5G | 165 | 5825 | 11a 6M | Cheek Right | 0mm | \ | 19.89 | 20.5 | 100% | 0.400 | 0.46 | 0.122 | 0.14 | 0.02 |
| Head | WLAN 5G | 165 | 5825 | 11a 6M | Tilt Right | 0mm | \ | 19.89 | 20.5 | 100% | 0.490 | 0.56 | 0.163 | 0.19 | 0.01 |
| | | | | | | | | | | | | | | | |
| Body | WLAN 5G | 52 | 5260 | 11a 6M | Front | 10mm | \ | 19.01 | 20 | 100% | 0.057 | 0.07 | 0.016 | 0.02 | -0.09 |
| Body | WLAN 5G | 52 | 5260 | 11a 6M | Rear | 10mm | \ | 19.01 | 20 | 100% | 0.247 | 0.31 | 0.076 | 0.10 | 0.06 |
| Body | WLAN 5G | 52 | 5260 | 11a 6M | Right | 10mm | \ | 19.01 | 20 | 100% | 0.122 | 0.15 | 0.047 | 0.06 | 0.11 |
| Body | WLAN 5G | 52 | 5260 | 11a 6M | Top | 10mm | \ | 19.01 | 20 | 100% | 0.200 | 0.25 | 0.072 | 0.09 | -0.04 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Front | 10mm | \ | 19.56 | 20.5 | 100% | 0.134 | 0.17 | 0.043 | 0.05 | 0 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Rear | 10mm | \ | 19.56 | 20.5 | 100% | 0.515 | 0.64 | 0.165 | 0.20 | 0.01 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Right | 10mm | \ | 19.56 | 20.5 | 100% | 0.117 | 0.15 | 0.048 | 0.06 | -0.16 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Top | 10mm | \ | 19.56 | 20.5 | 100% | 0.375 | 0.47 | 0.135 | 0.17 | 0.03 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Front | 14mm | \ | 19.56 | 20.5 | 100% | 0.087 | 0.11 | 0.024 | 0.03 | 0.01 |
| Body | WLAN 5G | 140 | 5700 | 11a 6M | Rear | 14mm | \ | 19.56 | 20.5 | 100% | 0.248 | 0.31 | 0.090 | 0.11 | 0.01 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Front | 10mm | \ | 19.89 | 20.5 | 100% | 0.167 | 0.19 | 0.057 | 0.07 | -0.01 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Rear | 10mm | A.16 | 19.89 | 20.5 | 100% | 0.739 | 0.85 | 0.239 | 0.28 | -0.09 |
| Body | WLAN 5G | 149 | 5745 | 11a 6M | Rear | 10mm | \ | 19.58 | 20.5 | 100% | 0.364 | 0.45 | 0.115 | 0.14 | 0.01 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Right | 10mm | \ | 19.89 | 20.5 | 100% | 0.367 | 0.42 | 0.137 | 0.16 | -0.06 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Top | 10mm | \ | 19.89 | 20.5 | 100% | 0.676 | 0.78 | 0.237 | 0.27 | 0.02 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Front | 14mm | \ | 19.89 | 20.5 | 100% | 0.116 | 0.13 | 0.039 | 0.04 | 0.19 |
| Body | WLAN 5G | 165 | 5825 | 11a 6M | Rear | 14mm | \ | 19.89 | 20.5 | 100% | 0.396 | 0.46 | 0.145 | 0.17 | 0.01 |

## 13.3 SAR results for BT

| Test Position | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test Position | Distance | Figure No./Note | EUT Measured Power (dBm) | Tune up (dBm) | Duty Cycle | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) | Measured SAR10g (W/kg) | Reported SAR10g (W/kg) | Power Drift |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Head | BT | 78 | 2480 | GFSK | Cheek Left | 0mm | A.17 | 9.71 | 10 | 100% | 0.042 | 0.04 | 0.018 | 0.02 | 0.12 |
| Head | BT | 78 | 2480 | GFSK | Tilt Left | 0mm | \ | 9.71 | 10 | 100% | 0.034 | 0.04 | 0.016 | 0.02 | 0.08 |
| Head | BT | 78 | 2480 | GFSK | Cheek Right | 0mm | \ | 9.71 | 10 | 100% | 0.016 | 0.02 | 0.008 | 0.01 | 0.11 |
| Head | BT | 78 | 2480 | GFSK | Tilt Right | 0mm | \ | 9.71 | 10 | 100% | 0.015 | 0.02 | 0.007 | 0.01 | -0.04 |

### 13.4 SAR Evaluation for Phablet

According to the KDB648474 D04, for smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance.

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. The normal tablet procedures in KDB Publication 616217 are required when the overall diagonal dimension of the device is > 20.0 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Extremity 10-g SAR is also not required for the front (top) surface of larger form factor full size tablets. The more conservative normal tablet SAR results can be used to support phablet mode 10-g extremity SAR.
3. The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions

**According to above evaluation procedure , 10-g extremity SAR is not required**

## 14 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 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 ≥ 1.45W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

| Band | Frequency | | Mode | Test Position | Distance (mm) | Highest Measured SAR (W/kg) | First Repeated SAR (W/kg) | The Ratio | Second Repeated SAR (W/kg) |
|---|---|---|---|---|---|---|---|---|---|
| | Ch. | MHz | | | | | | | |
| LTE Band2 | 19100 | 1900 | 1RB-Mid | Rear | 14mm | 0.857 | 0.828 | 1.04 | / |
| LTE Band2 | 18900 | 1880 | 1RB-Mid | Rear | 14mm | 0.876 | 0.859 | 1.02 | / |
| LTE Band2 | 18700 | 1860 | 1RB-Mid | Rear | 14mm | 0.881 | 0.862 | 1.02 | / |
| WLAN 2.4G | 11 | 2462 | 11b 1M | Cheek Left | 0mm | 0.832 | 0.81 | 1.03 | / |
| WLAN 2.4G | 6 | 2437 | 11b 1M | Cheek Left | 0mm | 0.907 | 0.893 | 1.02 | / |

# 15 Evaluation of Simultaneous

## 15.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as WLAN and Bluetooth devices which may simultaneously transmit with the licensed transmitter. KDB 447498 D01 provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

### 15.1.1 Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

### 15.1.2 SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$SPLSR = (SAR1 + SAR2)^{1.5} / Ri$

Where:

*SAR1* is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.

*SAR2* is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first .

*Ri* 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

$[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$

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

$(SAR1 + SAR2)^{1.5} / Ri \leqslant 0.04$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest reported SAR for the frequency bands should be used to determine SAR1 or SAR2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

## 15.2 Simultaneous Transmission Capabilities

The simultaneous transmission possibilities for this device are listed as below:

| Capable Transmit Conf igurations | Head | Body | Product Specific 10-g (0mm) |
|---|---|---|---|
| LTE + BT | Yes | Yes | Yes |
| LTE + Wi-Fi 2.4G SISO | Yes | Yes | Yes |
| LTE + Wi-Fi 5G SISO | Yes | Yes | Yes |

**Note:**

1. Wi-Fi 2.4GHz & Bluetooth cannot transmit simultaneously.
2. Wi-Fi 5GHz & Bluetooth cannot transmit simultaneously.
3. Wi-Fi 2.4GHz & Wi-Fi 5GHz cannot transmit simultaneously.
4. WWAN cannot transmit simultaneously.
5. The reported SAR summation is calculated based on the same configuration and test position.
6. For the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR, we determined the SAR of this edges were less than 0.01. For the convenience of simultaneous transmission calculation, all SAR values less than 0.01 are uniformly written as 0.00

## 15.3 SAR Simultaneous Transmission Analysis

| reported SAR 1g (W/kg) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Head | | LTE Band2 | LTE Band5 | LTE Band7 | LTE Band12 | LTE Band13 | LTE Band66 | 2.4G | 5G | BT | +WiFi2.4G | +WiFi5G | +BT |
| Cheek | L | 0.46 | 0.34 | 0.10 | 0.18 | 0.25 | 0.30 | 1.11 | 0.60 | 0.04 | 1.57 | 1.06 | 0.50 |
| Tilt | L | 0.31 | 0.20 | 0.06 | 0.09 | 0.14 | 0.23 | 0.76 | 0.86 | 0.04 | 1.06 | 1.17 | 0.35 |
| Cheek | R | 0.34 | 0.38 | 0.10 | 0.21 | 0.33 | 0.28 | 0.42 | 0.46 | 0.02 | 0.80 | 0.84 | 0.40 |
| Tilt | R | 0.24 | 0.22 | 0.06 | 0.12 | 0.17 | 0.19 | 0.36 | 0.56 | 0.02 | 0.60 | 0.80 | 0.26 |

| Body | | LTE Band2 | LTE Band5 | LTE Band7 | LTE Band12 | LTE Band13 | LTE Band66 | 2.4G | 5G | BT [1] | +WiFi2.4G | +WiFi5G | +BT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Front | 10mm | 0.28 | 0.48 | 0.20 | 0.20 | 0.33 | 0.11 | 0.21 | 0.19 | 0.21 | 0.69 | 0.67 | 0.69 |
| Rear | 10mm | 0.44 | 0.77 [2] | 0.31 | 0.29 | 0.52 | 0.15 | 0.26 | 0.85 | 0.21 | 0.78 | 1.37 | 0.73 |
| Left | 10mm | 0.86 | 0.22 | 0.11 | 0.08 | 0.22 | 0.49 | 0.00 | 0.00 | 0.00 | 0.86 | 0.86 | 0.86 |
| Right | 10mm | 0.35 | 0.41 | 0.15 | 0.15 | 0.43 | 0.32 | 0.23 | 0.42 | 0.21 | 0.66 | 0.85 | 0.64 |
| Bottom | 10mm | 0.30 | 0.62 | 0.49 | 0.19 | 0.41 | 0.23 | 0.00 | 0.00 | 0.00 | 0.62 | 0.62 | 0.62 |
| Top | 10mm | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.78 | 0.21 | 0.13 | 0.78 | 0.21 |

| Body | | LTE Band2 | LTE Band7 | LTE Band66 | 2.4G | 5G | BT [1] | +WiFi2.4G | +WiFi5G | +BT |
|---|---|---|---|---|---|---|---|---|---|---|
| Front | 14mm | 0.77 | 0.27 | 0.42 | 0.11 | 0.13 | 0.15 | 0.88 | 0.90 | 0.92 |
| Rear | 14mm | 1.06 | 0.25 | 0.59 | 0.14 | 0.46 | 0.15 | 1.20 | 1.52 | 1.21 |
| Bottom | 14mm | 0.63 | 0.42 | 0.34 | 0.00 | 0.00 | 0.00 | 0.63 | 0.63 | 0.63 |

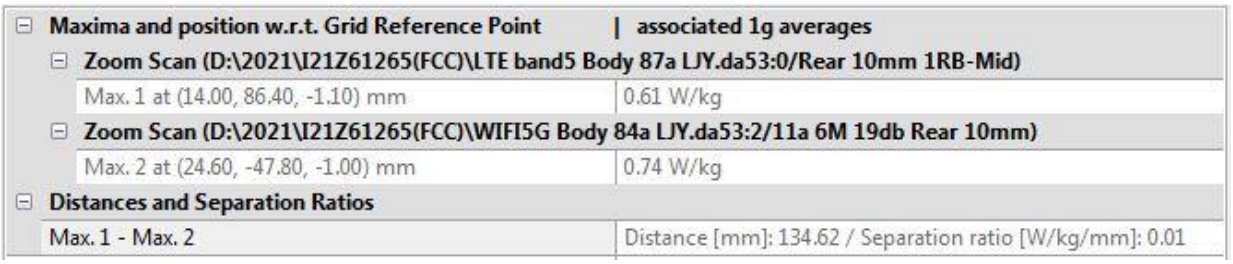
**Note:**

1. Estimated SAR for Bluetooth (see the section 12.3)
2. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLSR between the antenna pairs was not greater than 0.04. See section 15.4 for detailed SPLSR analysis.

## 15.4 SPLSR Evaluation and Analysis

**SAR to Peak Location Separation Ratio Calculations**

| | Position | Band | Main antenna | WiFi5G | Sum (1g) | Distance (mm) | Ratio |
|---|---|---|---|---|---|---|---|
| **Highest reported SAR value for Phablet** | Rear 10mm | LTE Band5 | 0.77 | 0.85 | **1.62** | 134.62 | 0.015 |




## 15.5 Conclusion

According to the above tables, he highest simultaneous transmission reported SAR values is **1.57W/kg (1g).** The sum of reported SAR values is<1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

## 16 Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

**Therefore, the measurement uncertainty is not required.**

## 17 MAIN TEST INSTRUMENTS

| No. | Name | Type | Serial Number | Calibration Date | Valid Period |
|---|---|---|---|---|---|
| 01 | Network analyzer | E5071C | MY46110673 | January 14, 2021 | One year |
| 02 | Power meter | NRP2 | 106276 | May 11, 2021 | One year |
| 03 | Power sensor | NRP6A | 101369 | | |
| 04 | Signal Generator | E4438C | MY49070393 | May 14, 2021 | One Year |
| 05 | Amplifier | 60S1G4 | 0331848 | No Calibration Requested | |
| 06 | BTS | CMW500 | 159890 | January 25 2021 | One year |
| 07 | BTS | CMW500 | 166370 | June 25, 2021 | One year |
| 08 | E-field Probe | SPEAG EX3DV4 | 7464 | December 18,2020 | One year |
| 09 | DAE | SPEAG DAE4 | 1588 | September 2, 2020 | One year |
| 10 | Dipole Validation Kit | SPEAG D750V3 | 1132 | December 23,2020 | One year |
| 11 | Dipole Validation Kit | SPEAG D835V2 | 4d120 | June 23, 2021 | One year |
| 12 | Dipole Validation Kit | SPEAG D1750V2 | 1023 | June 23, 2021 | One year |
| 13 | Dipole Validation Kit | SPEAG D1900V2 | 5d142 | June 25, 2021 | One year |
| 14 | Dipole Validation Kit | SPEAG D2450V2 | 869 | June 22, 2021 | One year |
| 15 | Dipole Validation Kit | SPEAG D2600V2 | 1012 | July 21,2020 | Three year |
| 16 | Dipole Validation Kit | SPEAG D5GHzV2 | 1203 | December 22,2020 | One year |

Note：According to KDB 865664 D01, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the KDB requirements, refer to the appendix I for details.

***END OF REPORT BODY***

## Appendixes

**Refer to separated files for the following appendixes**

**ANNEX A Graph Results**

**ANNEX B System Verification Results**

**ANNEX C SAR Measurement Setup**

**ANNEX D Position of the wireless device in relation to the phantom**

**ANNEX E Equivalent Media Recipes**

**ANNEX F System Validation**

**ANNEX G Probe Calibration Certificate**

**ANNEX H Dipole Calibration Certificate**

**ANNEX I Extended Calibration SAR Dipole**

**ANNEX J Sensor Triggering Data Summary**

**ANNEX K Accreditation Certificate**