Certificate Number: 5055.02

# TEST REPORT FOR SAR TESTING

Report No.: SRTC2020-9004(F)-20102601 (H)

Product Name: Mobile phone

Product Model: HLTE228E

Applicant: Hisense International Co., Ltd.

Manufacturer: Hisense Communications Co., Ltd.

Specification: Part 2.1093

IEEE Std 1528

KDB Procedures

FCC ID: 2ADOBHLTE228E

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District, Beijing, P.R. China

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# Contents

# 1. GENERAL INFORMATION

## 1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.
The certification and accreditation identifiers used in this report shall not be applicable to the tested or calibrated samples thereof. The manufacturer shall not mark the tested samples or items (or a separate part of the item) with the identifiers of certification and accreditation to mislead relevant parties about the tested samples or items.

## 1.2 Information about the testing laboratory

| | |
|---|---|
| Company: | The State Radio_monitoring_center Testing Center (SRTC) |
| Address: | 15th Building, No.30 Shixing Street, Shijingshan District, Beijing P.R. China |
| City: | Beijing |
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| Email: | liujiaf@srtc.org.cn |

## 1.3 Applicant's details

| | |
|---|---|
| Company: | Hisense International Co., Ltd. |
| Address: | Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China |
| City: | Qingdao |
| Country or Region: | China |
| Contacted person: | Geng Ruifeng |
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| Fax: | --- |
| Email: | gengruifeng@hisense.com |

## 1.4 Manufacturer's details

| | |
|---|---|
| Company: | Hisense Communications Co., Ltd. |
| Address: | 218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao, China |
| City: | Qingdao |
| Country or Region: | P.R. China |
| Contacted person: | Deng Tingting |
| Tel: | +86-532-55753708 |
| Fax: | --- |
| Email: | dengtingting@hisense.com |

### 1.5 Test Environment

| | |
|---|---|
| Date of Receipt of test sample at SRTC: | 2020.10.26 |
| Testing Start Date: | 2020.11.17 |
| Testing End Date: | 2020.11.17 |

| Environmental Data: | Temperature (°C) | Humidity (%) |
|---|---|---|
| Ambient | 25 | 40 |

| | |
|---|---|
| Normal Supply Voltage (Vdc.): | 3.8 |

## 2. DESCRIPTION OF THE DEVICE UNDER TEST

### 2.1 Final Equipment Build Status

| | |
|---|---|
| Wireless Technology and Frequency Bands | ☒GSM Band: GSM850/GSM1900<br>☒WCDMA Band: FDD II/IV/V<br>☒LTE Band: 2/4/5/7/12/26<br>☒Wi-Fi Band: 2.4GHz<br>☒BT/BLE |
| Mode | GSM<br>☒GPRS (GMSK)<br>☒EGPRS (GMSK/8PSK)<br>WCDMA<br>☒UMTS Rel. 99<br>☒HSDPA (Rel. 5)<br>☒HSUPA (Rel. 6)<br>☒HSPA+ (Rel.7)<br>☒DC-HSDPA (Rel.8)<br>Wi-Fi 2.4GHz<br>☒802.11b<br>☒802.11g<br>☒802.11n HT20<br>LTE<br>☒QPSK<br>☒16QAM<br>☐64QAM |
| Duty Cycle* | GPRS: 12.5% (1 Slot), 25% (2 Slots), 37.5% (3 Slots), 50% (4 Slots)<br>EDGE(GMSK/8PSK) 12.5% (1 Slot), 25% (2 Slots), 37.5% (3 Slots), 50% (4 Slots)<br>WCDMA: 100%<br>LTE(FDD): 100%<br>BT:77.2%(DH5),76.88%(2DH5),76.88%(3DH5)<br>BLE:86.92%<br>WIFI：99.47%(11b),95.87%(11g),94.51%(11n20) |

| | |
|---|---|
| Multi-Slot Class for GPRS/EDGE | ☐Class 8 - One Up<br>☐Class 10 - Two Up<br>☒Class 12 - Four Up<br>☐Class 33- Four Up |
| Mobile Phone Capability | ☐Class A - Mobile phones can be connected to both GPRS and GSM services simultaneously.<br>☒Class B - Mobile phones can be attached to both GPRS and GSM services, using one service at a time.<br>☐Class C - Mobile phones are attached to either GPRS or GSM voice service. You need to switch manually between services |
| DTM | Not Supported |
| Note | For licensed cellular network duty cycle is inherent.<br>For unlicensed network, WLAN Duty cycle is depends on the data traffic, and the traffic allocation in operating mode could be the most conservative condition which with 100% duty cycle. SAR measurement also use non signalling mode, so the duty factor shall be taken into consideration. |

## 2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

| | |
|---|---|
| State of sample | Normal |
| H/W Version<br>S/W Version | V3.0<br>Hisense_HLTE228E_10_S03_01_01_MX05<br>Hisense_ HLTE228E_10_S03_01_XX_MX05 |
| IMEI | Main supply: 868508050000572<br>Secondary supply: 868508050001521 |
| Notes | As the information described above, we use test sample offered by the customer. The relevant tests have been performed in order to verify in which combination case the EUT would have the worst features. |

Main and Secondary supply is different on the supplier of Camera and Battery.

**Main Supply**

| Part Name | Model Name | supplier | Remark |
|---|---|---|---|
| battery | LPN440450 | ShenzhenAerospaceElectronicCo.,Ltd | |
| CAM | LH-CFKS228BA | SHENZHEN Imaging TECHNOLOGY CO.,LTD | |

**Secondary Supply**

| Part Name | Model Name | supplier | Remark |
|---|---|---|---|
| battery | LPN440450 | DONGGUANG MILEY ElectronicCo.,Ltd | |
| CAM | H9B13-KS230BA | Hunan Kingcome Optoelectronic Co., Ltd | |

## 3. REFERENCE SPECIFICATION

| Specification | Version | Title |
|---|---|---|
| Part 2.1093 | 2019 | Radiofrequency radiation exposure evaluation: portable devices. |
| IEEE Std 1528 | 2013 | IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques |
| KDB 447498 D01 | v06 | General RF Exposure Guidance |
| KDB 447498 D02 | v02r01 | SAR MEASUREMENT PROCEDURES FOR USB DONGLE TRANSMITTERS |
| KDB 648474 D04 | v01r03 | Handset SAR |
| KDB 941225 D01 | v03r01 | 3G SAR Procedures |
| KDB 248227 D01 | v02r02 | SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS |
| KDB 865664 D01 | v01r04 | SAR Measurement from 100 MHz to 6 GHz |
| KDB 865664 D02 | v01r02 | RF Exposure Reporting |
| KDB 941225 D05 | v02r05 | SAR for LTE Devices |

# 4. TEST CONDITIONS

## 4.1 Picture to demonstrate the required liquid depth

The liquid depth is large than 15cm in the used SAM phantoms in flat section, and the depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.


Liquid depth for SAR Measurement

## 4.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.
The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.
In all operating bands the measurements were performed on middle channel, and few of them were also performed on lowest and highest channels.

## 4.3 SAR Measurement Set-up

The system is based on a high precision robot (working range greater than 0.9m), which positions the probes with a positional repeatability of better than ± 0.02mm. Special E-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit. A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the robot motors.

The PC consists of the Micron Pentium IV computer with Win7 system and SAR Measurement Software DASY5 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot.
A data acquisition electronic (DAE) circuit performs the signal amplification; signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines.
The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection
The robot uses its own controller with a built in VME-bus computer.

### 4.4 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528.
System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.
The SPEAG device holder was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

### 4.5 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528. All tests were carried out using simulants whose dielectric parameters were within ± 10% below 3GHz and ± 5% above 3GHz of the recommended values when use DASY system according to KDB865664D01. All tests were carried out within 24 hours of measuring the dielectric parameters.

| Tissue Stimulant Recipes | |
|---|---|
| Name | Broadband tissue-equivalent liquid |
| Type | HBBL600-6000V6 Simulating Liquid |
| Note: The stimulant could be the same for head and body. | |

## 4.6 DESCRIPTION OF THE TEST PROCEDURE

### 4.6.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.

**Device holder supplied by SPEAG**

### 4.6.2 Test Exposure Conditions

#### 4.6.2.1 Head Configuration

Measurements were made in “cheek” and “tilt” positions on both the left hand and right-hand sides of the phantom.
The positions used in the measurements were according to IEEE 1528 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

#### 4.6.2.2 Body Worn Configuration

The device was placed in the SPEAG holder below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance using a separate flat spacer that was removed before the start of the measurements. And the distance is normally determined according to the actual scene which might be the worst use condition for general exposure. The device’s front and rear were oriented facing the phantom since these orientations give higher results for most regular portable devices.

#### 4.6.2.3 Hotspot Configuration

Hotspot mode SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge; for the data modes, wireless technologies and frequency bands supporting hotspot mode.

### 4.6.3 Scan Procedure

First, area scans were used for determination of the field distribution and the approximate location of the local peak SAR values. The SAR distribution is scanned along the inside surface, at least for an area larger than the projection of the handset and antenna. The angle between the probe axis and the surface normal line is recommended but not required to be less than 30°. The SAR distribution is first measured on a 2-D coarse grid. The scan region should cover all areas that are exposed and encompassed by the projection of the handset. There are 15 mm × 15 mm (equal or less than 2GHz), 12 mm × 12 mm (from 2GHz~4GHz) and 10mm x 10mm (from 4GHz~6GHz) measurement grid used when two staggered one-dimensional cubic splines are used to estimate the maximum SAR location.
When the reported 1g-SAR estimated by area scan is less than 1.40 w/kg.
Zoom scan was performed by using the configuration mentioned below or more conservative scan area and step to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.
Below 3GHz：32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps
2GHz-3GHz：32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps
3GHz-4GHz：28mmX28mmX28mm scan area with 7 mm X7 mm X4 mm steps
4GHz-5GHz： 25mmX25mmX24mm scan area with 5 mm X5 mm X3 mm steps
5GHz-6GHz： 25mmX25mmX22mm scan area with 5 mm X5 mm X2 mm steps

### 4.6.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within DASY5 are all based on the modified Quadratic Shepard's method (Robert J. Renka, Multivariate Interpolation of Large Sets of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A triradiate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighboring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

## 5 RESULT SUMMAR

The maximum reported SAR values for Head configuration and Body Worn configuration are given as follows. The device conforms to the requirements of the standard(s) when the maximum reported SAR value is less than or equal to the limit.

| Exposure Position | Frequency Band | Main supply 1g-SAR Result(W/kg) | Highest 1g-SAR Result(W/kg) | | Limit(W/kg)/1g | Result |
|---|---|---|---|---|---|---|
| Head | GSM 850 | 0.12 | 1.28 | 1.28 | 1.60 | PASS |
| | GSM 1900 | 0.85 | | | | |
| | W 2 | 0.99 | | | | |
| | W 4 | 0.93 | | | | |
| | W 5 | 0.04 | | | | |
| | LTE 2 | 1.02 | | | | |
| | LTE 4 | 1.28 | | | | |
| | LTE 5 | 0.20 | | | | |
| | LTE 7 | 0.08 | | | | |
| | LTE 12 | 0.15 | | | | |
| | LTE 26 | 0.22 | | | | |
| | BT/BLE | 0.00 | | | | |
| | WIFI 2.4G | 0.48 | | | | |
| Body-Worn &Hotspot (10mm Gap) | GSM 850 | 0.14 | 0.58 | | | |
| | GSM 1900 | 0.38 | | | | |
| | W 2 | 0.49 | | | | |
| | W 4 | 0.33 | | | | |
| | W 5 | 0.05 | | | | |
| | LTE 2 | 0.55 | | | | |
| | LTE 4 | 0.58 | | | | |
| | LTE 5 | 0.23 | | | | |
| | LTE 7 | 0.54 | | | | |
| | LTE 12 | 0.07 | | | | |
| | LTE 26 | 0.03 | | | | |
| | BT/BLE | 0.00 | | | | |
| | WIFI 2.4G | 0.05 | | | | |
| Hotspot (10mm Gap) | GSM 850 | 0.14 | 0.90 | | | |
| | GSM 1900 | 0.38 | | | | |
| | W 2 | 0.49 | | | | |
| | W 4 | 0.33 | | | | |
| | W 5 | 0.05 | | | | |
| | LTE 2 | 0.55 | | | | |
| | LTE 4 | 0.58 | | | | |
| | LTE 5 | 0.23 | | | | |
| | LTE 7 | 0.90 | | | | |
| | LTE 12 | 0.07 | | | | |
| | LTE 26 | 0.03 | | | | |
| | BT/BLE | 0.00 | | | | |
| | WIFI 2.4G | 0.13 | | | | |

Simultaneous Transmission Summary

| Exposure Position | Frequency Band | 1g-SAR Result (W/kg) | Highest 1g-SAR Result(W/kg) | | Limit (W/kg)/1g | Result |
|---|---|---|---|---|---|---|
| Head | GSM & Wi-FI | 1.05 | 1.48 | 1.48 | 1.60 | Pass |
| | WCDMA & Wi-Fi | 1.19 | | | | |
| | LTE & Wi-Fi | 1.48 | | | | |
| | GSM & BT/BLE | 0.94 | | | | |
| | WCDMA & BT/BLE | 1.07 | | | | |
| | LTE & BT/BLE | 1.36 | | | | |
| Body-Worn &Hotspot (10mm Gap) | GSM & Wi-FI | 0.43 | 0.68 | | | |
| | WCDMA & Wi-Fi | 0.54 | | | | |
| | LTE & Wi-Fi | 0.63 | | | | |
| | GSM & BT/BLE | 0.49 | | | | |
| | WCDMA & BT/BLE | 0.60 | | | | |
| | LTE & BT/BLE | 0.68 | | | | |
| Hotspot (10mm Gap) | GSM & Wi-FI | 0.43 | 00.90 | | | |
| | WCDMA & Wi-Fi | 0.54 | | | | |
| | LTE & Wi-Fi | 0.90 | | | | |

| | |
|---|---|
| This Test Report Is Issued by:<br>Mr. Peng Zhen | Checked by:<br>Mr. Li Bin |
| Tested by:<br>Miss Jin Wanqing | Issued date:<br>20201120 |

# 6 TEST RESULT

## 6.1 Manufacturing Tolerance

**GSM**

GSM850

| Carrier frequency (MHz) | Channel No. | Tolerance (dBm) |
|---|---|---|
| 824.2 | 128 | 30.0~34.0 |
| 836.4 | 189 | |
| 848.8 | 251 | |

GPRS/EGPRS (GMSK):

| Carrier frequency (MHz) | Channel No. | TX Mode | Tolerance (dBm) |
|---|---|---|---|
| 824.2 | 128 | 4Downlink1uplink | 30.0~34.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 3Downlink2uplink | 28.0~32.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 2Downlink3uplink | 26.0~30.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 1Downlink4uplink | 24.0~28.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |

EGPRS (8PSK):

| Carrier frequency (MHz) | Channel No. | TX Mode | Tolerance (dBm) |
|---|---|---|---|
| 824.2 | 128 | 8PSK 4Downlink1uplink | 23.0~27.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 8PSK 3Downlink2uplink | 22.5~26.5 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 8PSK 2Downlink3uplink | 21.0~25.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |
| 824.2 | 128 | 8PSK 1Downlink4uplink | 19.0~23.0 |
| 836.4 | 189 | | |
| 848.8 | 251 | | |

PCS1900:

| Carrier frequency (MHz) | Channel No. | Tolerance (dBm) |
|---|---|---|
| 1850.2 | 512 | 27.0~31.0 |
| 1880.0 | 661 | |
| 1909.8 | 810 | |

GPRS/EGPRS (GMSK):

| Carrier frequency (MHz) | Channel No. | TX Mode | Tolerance (dBm) |
|---|---|---|---|
| 1850.2 | 512 | 4Downlink1uplink | 27.0~31.0 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 3Downlink2uplink | 24.5~28.5 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 2Downlink3uplink | 23.0~27.0 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 1Downlink4uplink | 21.0~25.0 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |

EGPRS (8PSK):

| Carrier frequency (MHz) | Channel No. | TX Mode | Tolerance (dBm) |
|---|---|---|---|
| 1850.2 | 512 | 8PSK 4Downlink1uplink | 23.0~27.0 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 8PSK 3Downlink2uplink | 22.5~26.5 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 8PSK 2Downlink3uplink | 21.5~25.5 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |
| 1850.2 | 512 | 8PSK 1Downlink4uplink | 19.5~23.5 |
| 1880.0 | 661 | | |
| 1909.8 | 810 | | |

## WCDMA

WCDMA band II

| Mode | | Carrier frequency (MHz) | Channel No. | Tolerance (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 1852.4 | 9262 | 19.5~23.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | RMC,64kbps | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | RMC,144kbps | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | RMC,384kbps | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | AMR,12.2kbps | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| HSDPA | Subtest 1 | 1852.4 | 9262 | 19.0~23.0 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 2 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 3 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 4 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| HSUPA | Subtest 1 | 1852.4 | 9262 | 19.0~23.0 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 2 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 3 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 4 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 5 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |

| | | | | |
|---|---|---|---|---|
| HSPA+ | QPSK | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | 16QAM | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| DC-HSDPA | Subtest 1 | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 2 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 3 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 4 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |

WCDMA band IV

| Mode | | Carrier frequency (MHz) | Channel No. | Tolerance (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 1712.4 | 1312 | 19.5~23.5 |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | RMC,64kbps | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | RMC,144kbps | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | RMC,384kbps | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | AMR,12.2kbps | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| HSDPA | Subtest 1 | 1712.4 | 1312 | 18.5~22.5 |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 2 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 3 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 4 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| HSUPA | Subtest 1 | 1712.4 | 1312 | 18.5~22.5 |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 2 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 3 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 4 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |
| | Subtest 5 | 1712.4 | 1312 | |
| | | 1732.4 | 1412 | |
| | | 1752.6 | 1513 | |

| | | | | |
|---|---|---|---|---|
| HSPA+ | QPSK | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | 16QAM | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| DC-HSDPA | Subtest 1 | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 2 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 3 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 4 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |

WCDMA band V

| Mode | | Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 826.4 | 4132 | 19.0~23.0 |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | RMC,64kbps | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | RMC,144kbps | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | RMC,384kbps | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | AMR,12.2kbps | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| HSDPA | Subtest 1 | 826.4 | 4132 | 18.5~22.5 |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 2 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 3 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 4 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| HSUPA | Subtest 1 | 826.4 | 4132 | 18.5~22.5 |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 2 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 3 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 4 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |
| | Subtest 5 | 826.4 | 4132 | |
| | | 836.6 | 4183 | |
| | | 846.6 | 4233 | |

| | | | | |
|---|---|---|---|---|
| HSPA+ | QPSK | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | 16QAM | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| DC-HSDPA | Subtest 1 | 1852.4 | 9262 | 18.5~22.5 |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 2 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 3 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |
| | Subtest 4 | 1852.4 | 9262 | |
| | | 1880.0 | 9400 | |
| | | 1907.6 | 9538 | |

**LTE**

Note: RB allocation mentioned below is for all Bandwidths, and the Frequency Range are divided to 3 ranges (Low, Mid, High)

**Band 2**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 20.0~24.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.5~23.5 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |

**Band 4**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 20.0~24.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.5~23.5 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |

**Band 5**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 19.5~23.5 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 17.5~21.5 |
| | | | Mid | |
| | | | High | |

**Band 7**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 19.5~23.5 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |

**Band 12**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 19.5~23.5 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |

**Band 26**

| BW | Modulation | RB allocation with different offset | Frequency range | Tolerance (dBm) |
|---|---|---|---|---|
| All Bandwidth | QPSK | 1 | Low | 20.0~24.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.5~22.5 |
| | | | Mid | |
| | | | High | |
| | 16QAM | 1 | Low | 19.0~23.0 |
| | | | Mid | |
| | | | High | |
| | | 50% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |
| | | 100% | Low | 18.0~22.0 |
| | | | Mid | |
| | | | High | |

**Bluetooth**

| Modulation type | Tolerance (dBm) | | |
|---|---|---|---|
| | 2402MHz(Ch0) | 2441MHz(Ch39) | 2480MHz(Ch78) |
| GFSK | 6.0~10.0 | | |
| π/4DQPSK | 4.0~8.0 | | |
| 8DPSK | 4.0~8.0 | | |

**Bluetooth (BLE)**

| Modulation type | Average Power Output (dBm) | | |
|---|---|---|---|
| | 2402MHz (Ch0) | 2440MHz (Ch19) | 2480MHz (Ch39) |
| GFSK (LE 1Mbps) | 0.0~4.0 | | |

**WLAN 2.4GHz**

| Modulation type | Tolerance (dBm) | | |
|---|---|---|---|
| | 2412MHz | 2437MHz | 2462MHz |
| 11b | 14.0~18.0 | | |
| 11g | 12.0~16.0 | | |
| 11n HT20 | 11.0~15.0 | | |

## 6.2 GSM Measurement result

GSM850
GSM Measured Power:

| Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|
| 824.2 | 128 | 33.83 | 24.80 |
| 836.4 | 189 | 33.79 | 24.76 |
| 848.8 | 251 | 33.77 | 24.74 |

GPRS/EGPRS (GMSK) Measured Power:

| Carrier frequency (MHz) | Channel No. | TX Mode | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|---|
| 824.2 | 128 | 4Downlink1uplink | 33.84 | 24.81 |
| 836.4 | 189 | | 33.78 | 24.75 |
| 848.8 | 251 | | 33.76 | 24.73 |
| 824.2 | 128 | 3Downlink2uplink | 31.87 | 25.85 |
| 836.4 | 189 | | 31.68 | 25.66 |
| 848.8 | 251 | | 31.59 | 25.57 |
| 824.2 | 128 | 2Downlink3uplink | 29.91 | 25.65 |
| 836.4 | 189 | | 29.75 | 25.49 |
| 848.8 | 251 | | 29.66 | 25.40 |
| 824.2 | 128 | 1Downlink4uplink | 27.68 | 24.67 |
| 836.4 | 189 | | 27.61 | 24.60 |
| 848.8 | 251 | | 27.51 | 24.50 |

EGPRS (8PSK) Measured Power:

| Carrier frequency (MHz) | Channel No. | TX Mode | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|---|
| 824.2 | 128 | 8PSK 4Downlink1uplink | 26.07 | 17.04 |
| 836.4 | 189 | | 26.65 | 17.62 |
| 848.8 | 251 | | 26.09 | 17.06 |
| 824.2 | 128 | 8PSK 3Downlink2uplink | 25.71 | 19.69 |
| 836.4 | 189 | | 26.48 | 20.46 |
| 848.8 | 251 | | 25.70 | 19.68 |
| 824.2 | 128 | 8PSK 2Downlink3uplink | 24.70 | 20.44 |
| 836.4 | 189 | | 24.61 | 20.35 |
| 848.8 | 251 | | 24.51 | 20.25 |
| 824.2 | 128 | 8PSK 1Downlink4uplink | 21.79 | 18.78 |
| 836.4 | 189 | | 22.60 | 19.59 |
| 848.8 | 251 | | 22.16 | 19.15 |

PCS1900

GSM Measured Power:

| Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|
| 1850.2 | 512 | 30.56 | 21.53 |
| 1880.0 | 661 | 30.57 | 21.54 |
| 1909.8 | 810 | 30.55 | 21.52 |

GPRS/EGPRS (GMSK) Measured Power:

| Carrier frequency (MHz) | Channel No. | TX Mode | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|---|
| 1850.2 | 512 | 4Downlink1uplink | 30.58 | 21.55 |
| 1880.0 | 661 | | 30.57 | 21.54 |
| 1909.8 | 810 | | 30.55 | 21.52 |
| 1850.2 | 512 | 3Downlink2uplink | 28.40 | 22.38 |
| 1880.0 | 661 | | 28.20 | 22.18 |
| 1909.8 | 810 | | 28.07 | 22.05 |
| 1850.2 | 512 | 2Downlink3uplink | 26.83 | 22.57 |
| 1880.0 | 661 | | 26.64 | 22.38 |
| 1909.8 | 810 | | 26.50 | 22.24 |
| 1850.2 | 512 | 1Downlink4uplink | 24.72 | 21.71 |
| 1880.0 | 661 | | 24.57 | 21.56 |
| 1909.8 | 810 | | 24.36 | 21.35 |

EGPRS (8PSK) Measured Power:

| Carrier frequency (MHz) | Channel No. | TX Mode | RF Power Output (dBm) | Frame average power(dBm) |
|---|---|---|---|---|
| 1850.2 | 512 | 8PSK 4Downlink1uplink | 26.15 | 17.12 |
| 1880.0 | 661 | | 26.95 | 17.92 |
| 1909.8 | 810 | | 25.97 | 16.94 |
| 1850.2 | 512 | 8PSK 3Downlink2uplink | 26.19 | 20.17 |
| 1880.0 | 661 | | 26.77 | 20.75 |
| 1909.8 | 810 | | 26.24 | 20.22 |
| 1850.2 | 512 | 8PSK 2Downlink3uplink | 24.76 | 20.50 |
| 1880.0 | 661 | | 25.26 | 21.00 |
| 1909.8 | 810 | | 24.25 | 19.99 |
| 1850.2 | 512 | 8PSK 1Downlink4uplink | 22.26 | 19.25 |
| 1880.0 | 661 | | 23.07 | 20.06 |
| 1909.8 | 810 | | 21.27 | 18.26 |

**Division Factors (for Measured Power and Frame Average Power):**
To average the power, the division factor is as follows:
1TX-slot (1uplink) = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB
2TX-slots(2uplink) = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB
3TX-slots (3uplink) = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB
4TX-slots (4uplink) = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the frame average conducted power, the SAR measurements are performed with **2Txslots (2uplink)** of GPRS850 (GMSK) and **2Txslots (2uplink)** of GPRS1900 (GMSK).

## 6.3 WCDMA Measurement result

Release 99
The following procedures are according to FCC KDB Publication 941225 D01.
The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

| Mode | Subtest | Rel99 |
|---|---|---|
| WCDMA General Settings | Loopback Mode | Test Mode 1 |
| | RMC mode<br>AMR mode | 12.2kbps RMC<br>12.2kbps RMC in 3.4 kbps SRB |
| | Power Control Algorithm | Algorithm2 |
| | βc/βd | 8/15 |

Release 5
The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121.

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$(1) | CM(dB) (2) |
|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 |
| 2 | 12/15(3) | 15/15(3) | 64 | 12/15(3) | 24/15 | 1.0 |
| 3 | 15/15 | 8/15 | 64 | 15/18 | 30/15 | 1.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 |

Note1: $\triangle_{ACK}$, $\triangle_{NACK}$ and $\triangle_{CQI}$ =8⇔ $A_{hs}=\beta_{hs}/\beta_c=30/15 \Leftrightarrow \beta_{hs}=30/15*\beta_c$.
Note2:CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.
Note3: For subtest 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=11/15$ and $\beta_d=15/15$.

Release 6

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$(1) | $\beta_{ec}$ | $\beta_{ed}$ | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM(2) (dB) | MPR (dB) | AG(4) Index | E-TFCI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15(3) | 15/15 (3) | 64 | 11/15(3) | 22/15 | 209/225 | 1039/225 | 4 | 1 | 1.0 | 2.0 | 20 | 75 |
| 2 | 6/15 | 15/15 | 64 | 6/15 | 12/15 | 12/15 | 94/75 | 4 | 1 | 3.0 | 2.0 | 12 | 67 |
| 3 | 15/15 | 9/15 | 64 | 15/9 | 30/15 | 30/15 | $\beta_{ed1}$:47/15 $\beta_{ed2}$:47/15 | 4 | 2 | 2.0 | 2.0 | 15 | 92 |
| 4 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 2/15 | 56/75 | 4 | 1 | 3.0 | 2.0 | 17 | 71 |
| 5 | 15/15 (4) | 15/15 (4) | 64 | 15/15 (4) | 30/15 | 24/15 | 134/15 | 4 | 1 | 1.0 | 2.0 | 21 | 81 |

Note1: $\triangle_{ACK}$, $\triangle_{NACK}$ and $\triangle_{CQI}$ =8⇔$A_{hs}$=$\beta_{hs}/\beta_c$=30/15⇔$\beta_{hs}$=30/15*$\beta_c$.

Note2: CM=1 for $\beta_c/\beta_d$ =12/15, $\beta_{hs}/\beta_c$=24/15. For all other combinations of DPDCH,DPCCH,HS-DPCCH,E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note3: For subtest 1 the $\beta_c/\beta_d$ ratio of 11/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c$=10/15 and $\beta_d$=15/15.

Note4: For subtest 5 the $\beta_c/\beta_d$ ratio of 15/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c$=14/15 and $\beta_d$=15/15.

NOTE5: Testing UE using E-DPDCH Physical layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

NOTE6: $\beta_{ed}$ can not be set directly; it is set by Absolute Grant Value.

Release 7

The following 1 Sub-test was completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121.

**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 $\beta_{ed}$2: 30/15 | $\beta_{ed}$3: 24/15 $\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.

Release 8

**Table E.5.0: Levels for HSDPA connection setup**

| Parameter During Connection setup | Unit | Value |
|---|---|---|
| P-CPICH_Ec/Ior | dB | -10 |
| P-CCPCH and SCH_Ec/Ior | dB | -12 |
| PICH _Ec/Ior | dB | -15 |
| HS-PDSCH | dB | off |
| HS-SCCH_1 | dB | off |
| DPCH_Ec/Ior | dB | -5 |
| OCNS_Ec/Ior | dB | -3.1 |

**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 | Proces ses | 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. | | |
| 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. | | |

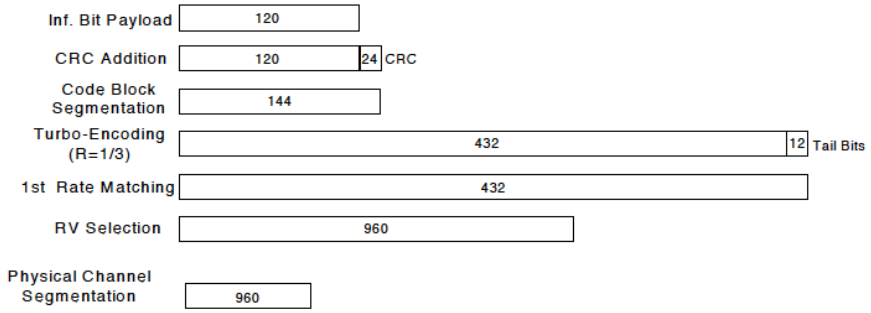



**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121.

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$(1) | CM(dB) (2) |
|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 |
| 2 | 12/15(3) | 15/15(3) | 64 | 12/15(3) | 24/15 | 1.0 |
| 3 | 15/15 | 8/15 | 64 | 15/18 | 30/15 | 1.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 |

Note1: $\triangle_{ACK}$, $\triangle_{NACK}$ and $\triangle_{CQI}$ =8⇔ $A_{hs}=\beta_{hs}/\beta_c=30/15 \Leftrightarrow \beta_{hs}=30/15*\beta_c$.
Note2:CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.
Note3: For subtest 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c$=11/15 and $\beta_d$=15/15.

WCDMA band II

| Mode | | Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 1852.4 | 9262 | 23.08 |
| | | 1880.0 | 9400 | 23.01 |
| | | 1907.6 | 9538 | 23.01 |
| HSDPA | Subtest 1 | 1852.4 | 9262 | 21.97 |
| | | 1880.0 | 9400 | 21.91 |
| | | 1907.6 | 9538 | 21.99 |
| | Subtest 2 | 1852.4 | 9262 | 22.07 |
| | | 1880.0 | 9400 | 22.09 |
| | | 1907.6 | 9538 | 22.08 |
| | Subtest 3 | 1852.4 | 9262 | 22.02 |
| | | 1880.0 | 9400 | 21.98 |
| | | 1907.6 | 9538 | 22.08 |
| | Subtest 4 | 1852.4 | 9262 | 22.00 |
| | | 1880.0 | 9400 | 22.02 |
| | | 1907.6 | 9538 | 22.00 |
| HSUPA | Subtest 1 | 1852.4 | 9262 | 22.15 |
| | | 1880.0 | 9400 | 21.90 |
| | | 1907.6 | 9538 | 21.94 |
| | Subtest 2 | 1852.4 | 9262 | 22.14 |
| | | 1880.0 | 9400 | 21.97 |
| | | 1907.6 | 9538 | 22.04 |
| | Subtest 3 | 1852.4 | 9262 | 22.08 |
| | | 1880.0 | 9400 | 21.91 |
| | | 1907.6 | 9538 | 22.06 |
| | Subtest 4 | 1852.4 | 9262 | 22.04 |
| | | 1880.0 | 9400 | 22.04 |
| | | 1907.6 | 9538 | 21.96 |
| | Subtest 5 | 1852.4 | 9262 | 22.02 |
| | | 1880.0 | 9400 | 21.91 |
| | | 1907.6 | 9538 | 21.99 |
| HSPA+ | QPSK | 1852.4 | 9262 | 22.04 |
| | | 1880.0 | 9400 | 21.91 |
| | | 1907.6 | 9538 | 21.94 |
| | 16QAM | 1852.4 | 9262 | 22.05 |
| | | 1880.0 | 9400 | 22.03 |
| | | 1907.6 | 9538 | 21.96 |

| | | | | |
|---|---|---|---|---|
| DC-HSDPA | Subtest 1 | 1852.4 | 9262 | 22.04 |
| | | 1880.0 | 9400 | 21.91 |
| | | 1907.6 | 9538 | 22.09 |
| | Subtest 2 | 1852.4 | 9262 | 22.04 |
| | | 1880.0 | 9400 | 21.94 |
| | | 1907.6 | 9538 | 22.05 |
| | Subtest 3 | 1852.4 | 9262 | 22.01 |
| | | 1880.0 | 9400 | 22.05 |
| | | 1907.6 | 9538 | 22.07 |
| | Subtest 4 | 1852.4 | 9262 | 22.08 |
| | | 1880.0 | 9400 | 22.03 |
| | | 1907.6 | 9538 | 22.09 |

WCDMA band IV

| Mode | | Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 1712.4 | 1312 | 23.10 |
| | | 1732.4 | 1412 | 23.09 |
| | | 1752.6 | 1513 | 23.12 |
| HSDPA | Subtest 1 | 1712.4 | 1312 | 22.13 |
| | | 1732.4 | 1412 | 22.12 |
| | | 1752.6 | 1513 | 22.17 |
| | Subtest 2 | 1712.4 | 1312 | 22.07 |
| | | 1732.4 | 1412 | 22.00 |
| | | 1752.6 | 1513 | 22.01 |
| | Subtest 3 | 1712.4 | 1312 | 22.00 |
| | | 1732.4 | 1412 | 22.10 |
| | | 1752.6 | 1513 | 22.06 |
| | Subtest 4 | 1712.4 | 1312 | 22.09 |
| | | 1732.4 | 1412 | 22.13 |
| | | 1752.6 | 1513 | 22.20 |
| HSUPA | Subtest 1 | 1712.4 | 1312 | 22.05 |
| | | 1732.4 | 1412 | 22.06 |
| | | 1752.6 | 1513 | 22.13 |
| | Subtest 2 | 1712.4 | 1312 | 22.04 |
| | | 1732.4 | 1412 | 22.06 |
| | | 1752.6 | 1513 | 22.17 |
| | Subtest 3 | 1712.4 | 1312 | 22.18 |
| | | 1732.4 | 1412 | 22.08 |
| | | 1752.6 | 1513 | 22.03 |
| | Subtest 4 | 1712.4 | 1312 | 22.08 |
| | | 1732.4 | 1412 | 22.06 |
| | | 1752.6 | 1513 | 22.19 |
| | Subtest 5 | 1712.4 | 1312 | 22.18 |
| | | 1732.4 | 1412 | 22.05 |
| | | 1752.6 | 1513 | 22.06 |
| HSPA+ | QPSK | 1712.4 | 1312 | 22.17 |
| | | 1732.4 | 1412 | 22.12 |
| | | 1752.6 | 1513 | 22.02 |
| | 16QAM | 1712.4 | 1312 | 22.07 |
| | | 1732.4 | 1412 | 22.14 |
| | | 1752.6 | 1513 | 22.13 |

| | | | | |
|---|---|---|---|---|
| DC-HSDPA | Subtest 1 | 1712.4 | 1312 | 22.09 |
| | | 1732.4 | 1412 | 22.07 |
| | | 1752.6 | 1513 | 22.09 |
| | Subtest 2 | 1712.4 | 1312 | 22.06 |
| | | 1732.4 | 1412 | 22.12 |
| | | 1752.6 | 1513 | 22.06 |
| | Subtest 3 | 1712.4 | 1312 | 22.13 |
| | | 1732.4 | 1412 | 22.06 |
| | | 1752.6 | 1513 | 22.10 |
| | Subtest 4 | 1712.4 | 1312 | 22.14 |
| | | 1732.4 | 1412 | 22.17 |
| | | 1752.6 | 1513 | 22.17 |

WCDMA band V

| Mode | | Carrier frequency (MHz) | Channel No. | RF Power Output (dBm) |
|---|---|---|---|---|
| Release 99 | RMC,12.2kbps | 826.4 | 4132 | 23.00 |
| | | 836.6 | 4183 | 22.99 |
| | | 846.6 | 4233 | 22.89 |
| HSDPA | Subtest 1 | 826.4 | 4132 | 22.00 |
| | | 836.6 | 4183 | 22.05 |
| | | 846.6 | 4233 | 21.81 |
| | Subtest 2 | 826.4 | 4132 | 22.04 |
| | | 836.6 | 4183 | 22.07 |
| | | 846.6 | 4233 | 21.91 |
| | Subtest 3 | 826.4 | 4132 | 21.91 |
| | | 836.6 | 4183 | 21.88 |
| | | 846.6 | 4233 | 21.94 |
| | Subtest 4 | 826.4 | 4132 | 21.96 |
| | | 836.6 | 4183 | 21.99 |
| | | 846.6 | 4233 | 21.84 |
| HSUPA | Subtest 1 | 826.4 | 4132 | 22.04 |
| | | 836.6 | 4183 | 22.02 |
| | | 846.6 | 4233 | 21.78 |
| | Subtest 2 | 826.4 | 4132 | 22.03 |
| | | 836.6 | 4183 | 21.98 |
| | | 846.6 | 4233 | 21.91 |
| | Subtest 3 | 826.4 | 4132 | 21.92 |
| | | 836.6 | 4183 | 21.98 |
| | | 846.6 | 4233 | 21.95 |
| | Subtest 4 | 826.4 | 4132 | 22.02 |
| | | 836.6 | 4183 | 21.88 |
| | | 846.6 | 4233 | 21.78 |
| | Subtest 5 | 826.4 | 4132 | 21.91 |
| | | 836.6 | 4183 | 21.88 |
| | | 846.6 | 4233 | 21.91 |
| HSPA+ | QPSK | 826.4 | 4132 | 21.92 |
| | | 836.6 | 4183 | 21.99 |
| | | 846.6 | 4233 | 21.95 |
| | 16QAM | 826.4 | 4132 | 22.10 |
| | | 836.6 | 4183 | 21.94 |
| | | 846.6 | 4233 | 21.80 |

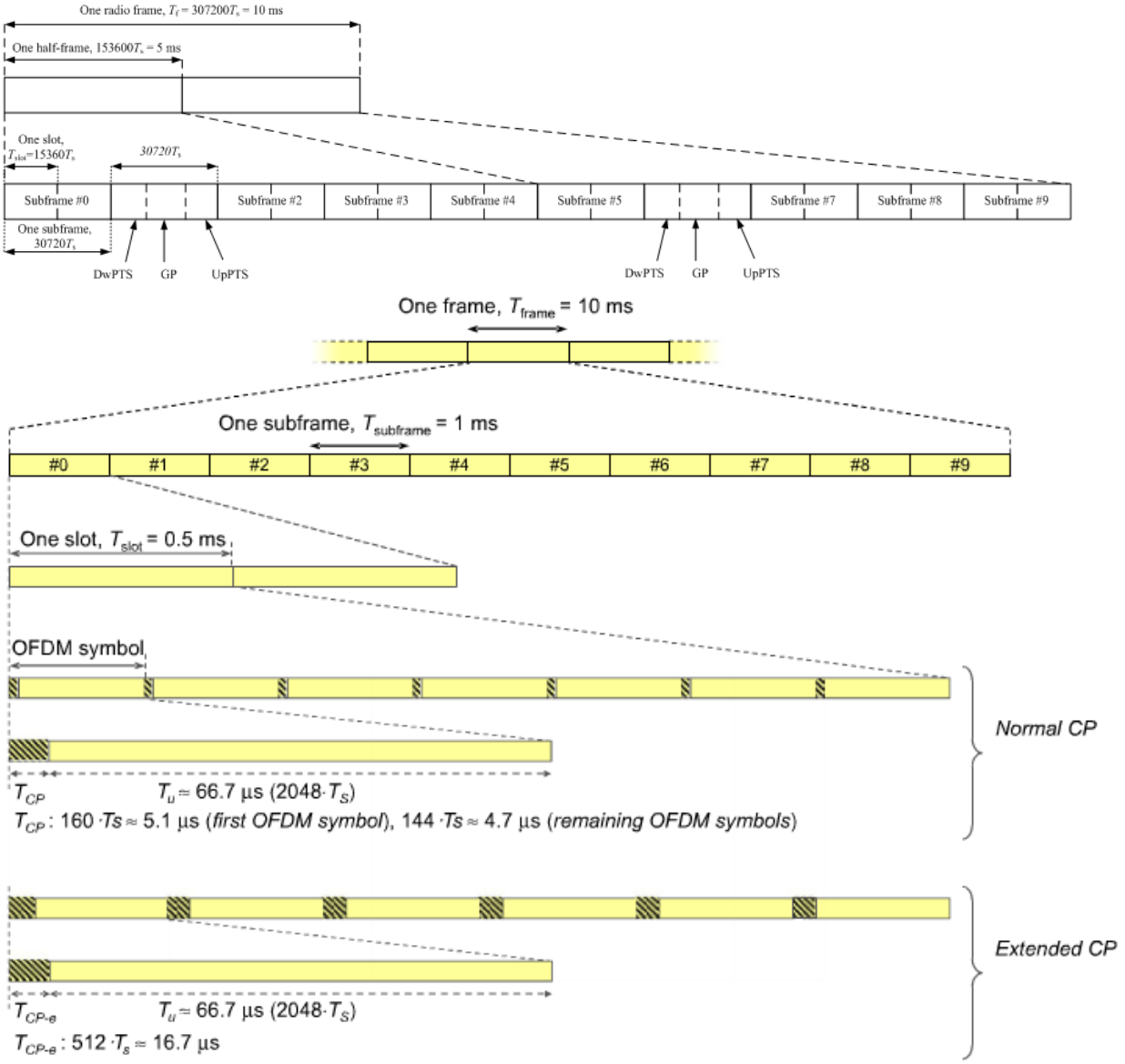
| | | | | |
|---|---|---|---|---|
| DC-HSDPA | Subtest 1 | 826.4 | 4132 | 21.99 |
| | | 836.6 | 4183 | 21.91 |
| | | 846.6 | 4233 | 21.90 |
| | Subtest 2 | 826.4 | 4132 | 22.07 |
| | | 836.6 | 4183 | 21.91 |
| | | 846.6 | 4233 | 21.80 |
| | Subtest 3 | 826.4 | 4132 | 22.10 |
| | | 836.6 | 4183 | 21.91 |
| | | 846.6 | 4233 | 21.93 |
| | Subtest 4 | 826.4 | 4132 | 21.92 |
| | | 836.6 | 4183 | 22.02 |
| | | 846.6 | 4233 | 21.78 |

Note: UMTS SAR was tested under Rel.99 RMC 12.2kbps mode per KDB Publication 941225 D01.for other higher release configuration, SAR was not required since any average output power was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg with RMC mode.

## 6.4 LTE Measurement result

## General description:

## TDD-LTE frame structure



## Uplink-downlink configuration

| 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 |

## Special sub-frame configuration

| 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 | $21952 \cdot T_s$ | | | - | - | - |
| 8 | $24144 \cdot T_s$ | | | - | - | - |

## Special sub-frame with cyclic prefix uplink

| Special sub-frame configuration | | Duty factor with normal cyclic prefix in uplink | Duty factor with extended cyclic prefix in uplink |
|---|---|---|---|
| Normal cyclic prefix in downlink | 0~4 | 7.13% | 8.33% |
| | 5~9 | 14.3% | 16.7% |
| Extended cyclic prefix in downlink | 0~3 | 7.13% | 8.33% |
| | 4~7 | 14.3% | 16.7% |

So we perform SAR test with maximum duty factor equal to 63.3% by using uplink-downlink configuration 0.

Note: One sub-frame is 30720Ts=1ms, when UpPTS(uplink) in special sub-frame with extended cyclic prefix, duty factor = 5120/30720=0.167.There are 5 sub-frames in half frame(3up link),so the final duty factor is (30720*3+5120)/(30720*5)=63.3% which we used to evaluate the SAR compliance (worst case)

**LTE Band 2**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1850.7 | 18607 | 1.4 | 1 | 0 | 23.61 |
| | | | | 1 | 5 | 23.58 |
| | | | | 3 | 2 | 22.55 |
| | | | | 6 | 0 | 22.61 |
| | 1880 | 18900 | | 1 | 0 | 23.51 |
| | | | | 1 | 5 | 23.55 |
| | | | | 3 | 2 | 22.49 |
| | | | | 6 | 0 | 22.46 |
| | 1909.3 | 19193 | | 1 | 0 | 23.37 |
| | | | | 1 | 5 | 23.36 |
| | | | | 3 | 2 | 22.53 |
| | | | | 6 | 0 | 22.36 |
| 16QAM | 1850.7 | 18607 | 1.4 | 1 | 0 | 22.96 |
| | | | | 1 | 5 | 23.00 |
| | | | | 3 | 2 | 21.62 |
| | | | | 6 | 0 | 21.62 |
| | 1880 | 18900 | | 1 | 0 | 22.43 |
| | | | | 1 | 5 | 22.49 |
| | | | | 3 | 2 | 21.53 |
| | | | | 6 | 0 | 21.59 |
| | 1909.3 | 19193 | | 1 | 0 | 23.00 |
| | | | | 1 | 5 | 23.03 |
| | | | | 3 | 2 | 21.56 |
| | | | | 6 | 0 | 21.60 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1851.5 | 18615 | 3 | 1 | 0 | 23.60 |
| | | | | 1 | 14 | 23.62 |
| | | | | 8 | 4 | 22.55 |
| | | | | 15 | 0 | 22.57 |
| | 1880 | 18900 | | 1 | 0 | 23.57 |
| | | | | 1 | 14 | 23.56 |
| | | | | 8 | 4 | 22.49 |
| | | | | 15 | 0 | 22.42 |
| | 1908.5 | 19185 | | 1 | 0 | 23.39 |
| | | | | 1 | 14 | 23.40 |
| | | | | 8 | 4 | 22.53 |
| | | | | 15 | 0 | 22.39 |
| 16QAM | 1851.5 | 18615 | 3 | 1 | 0 | 22.95 |
| | | | | 1 | 14 | 22.97 |
| | | | | 8 | 4 | 21.67 |
| | | | | 15 | 0 | 21.63 |
| | 1880 | 18900 | | 1 | 0 | 22.48 |
| | | | | 1 | 14 | 22.42 |
| | | | | 8 | 4 | 21.59 |
| | | | | 15 | 0 | 21.62 |
| | 1908.5 | 19185 | | 1 | 0 | 22.99 |
| | | | | 1 | 14 | 23.02 |
| | | | | 8 | 4 | 21.53 |
| | | | | 15 | 0 | 21.64 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1852.5 | 18625 | 5 | 1 | 0 | 23.55 |
| | | | | 1 | 24 | 23.61 |
| | | | | 12 | 6 | 22.59 |
| | | | | 25 | 0 | 22.62 |
| | 1880 | 18900 | | 1 | 0 | 23.53 |
| | | | | 1 | 24 | 23.54 |
| | | | | 12 | 6 | 22.44 |
| | | | | 25 | 0 | 22.44 |
| | 1907.5 | 19175 | | 1 | 0 | 23.36 |
| | | | | 1 | 24 | 23.37 |
| | | | | 12 | 6 | 22.56 |
| | | | | 25 | 0 | 22.37 |
| 16QAM | 1852.5 | 18625 | 5 | 1 | 0 | 22.97 |
| | | | | 1 | 24 | 22.97 |
| | | | | 12 | 6 | 21.62 |
| | | | | 25 | 0 | 21.66 |
| | 1880 | 18900 | | 1 | 0 | 22.47 |
| | | | | 1 | 24 | 22.49 |
| | | | | 12 | 6 | 21.59 |
| | | | | 25 | 0 | 21.62 |
| | 1907.5 | 19175 | | 1 | 0 | 23.02 |
| | | | | 1 | 24 | 23.03 |
| | | | | 12 | 6 | 21.57 |
| | | | | 25 | 0 | 21.66 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1855 | 18650 | 10 | 1 | 0 | 23.62 |
| | | | | 1 | 49 | 23.62 |
| | | | | 24 | 12 | 22.61 |
| | | | | 50 | 0 | 22.56 |
| | 1880 | 18900 | | 1 | 0 | 23.54 |
| | | | | 1 | 49 | 23.57 |
| | | | | 24 | 12 | 22.40 |
| | | | | 50 | 0 | 22.46 |
| | 1905 | 19150 | | 1 | 0 | 23.38 |
| | | | | 1 | 49 | 23.41 |
| | | | | 24 | 12 | 22.54 |
| | | | | 50 | 0 | 22.43 |
| 16QAM | 1855 | 18650 | 10 | 1 | 0 | 23.03 |
| | | | | 1 | 49 | 23.00 |
| | | | | 24 | 12 | 21.62 |
| | | | | 50 | 0 | 21.58 |
| | 1880 | 18900 | | 1 | 0 | 22.49 |
| | | | | 1 | 49 | 22.47 |
| | | | | 24 | 12 | 21.58 |
| | | | | 50 | 0 | 21.57 |
| | 1905 | 19150 | | 1 | 0 | 23.00 |
| | | | | 1 | 49 | 23.04 |
| | | | | 24 | 12 | 21.51 |
| | | | | 50 | 0 | 21.66 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1857.5 | 18675 | 15 | 1 | 0 | 23.63 |
| | | | | 1 | 74 | 23.55 |
| | | | | 40 | 18 | 22.56 |
| | | | | 75 | 0 | 22.58 |
| | 1880 | 18900 | | 1 | 0 | 23.52 |
| | | | | 1 | 74 | 23.54 |
| | | | | 40 | 18 | 22.41 |
| | | | | 75 | 0 | 22.45 |
| | 1902.5 | 19125 | | 1 | 0 | 23.34 |
| | | | | 1 | 74 | 23.42 |
| | | | | 40 | 18 | 22.53 |
| | | | | 75 | 0 | 22.41 |
| 16QAM | 1857.5 | 18675 | 15 | 1 | 0 | 23.00 |
| | | | | 1 | 74 | 22.99 |
| | | | | 40 | 18 | 21.65 |
| | | | | 75 | 0 | 21.58 |
| | 1880 | 18900 | | 1 | 0 | 22.47 |
| | | | | 1 | 74 | 22.41 |
| | | | | 40 | 18 | 21.53 |
| | | | | 75 | 0 | 21.64 |
| | 1902.5 | 19125 | | 1 | 0 | 23.03 |
| | | | | 1 | 74 | 23.02 |
| | | | | 40 | 18 | 21.53 |
| | | | | 75 | 0 | 21.66 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1860 | 18700 | 20 | 1 | 0 | 23.66 |
| | | | | 1 | 99 | 23.66 |
| | | | | 50 | 25 | 22.65 |
| | | | | 100 | 0 | 22.67 |
| | 1880 | 18900 | | 1 | 0 | 23.62 |
| | | | | 1 | 99 | 23.62 |
| | | | | 50 | 25 | 22.53 |
| | | | | 100 | 0 | 22.51 |
| | 1900 | 19100 | | 1 | 0 | 23.46 |
| | | | | 1 | 99 | 23.46 |
| | | | | 50 | 25 | 22.64 |
| | | | | 100 | 0 | 22.49 |
| 16QAM | 1860 | 18700 | 20 | 1 | 0 | 23.07 |
| | | | | 1 | 99 | 23.07 |
| | | | | 50 | 25 | 21.73 |
| | | | | 100 | 0 | 21.70 |
| | 1880 | 18900 | | 1 | 0 | 22.53 |
| | | | | 1 | 99 | 22.53 |
| | | | | 50 | 25 | 21.63 |
| | | | | 100 | 0 | 21.70 |
| | 1900 | 19100 | | 1 | 0 | 23.08 |
| | | | | 1 | 99 | 23.08 |
| | | | | 50 | 25 | 21.63 |
| | | | | 100 | 0 | 21.71 |

**LTE Band 4**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1710.7 | 19957 | 1.4 | 1 | 0 | 23.72 |
| | | | | 1 | 5 | 23.77 |
| | | | | 3 | 2 | 22.55 |
| | | | | 6 | 0 | 22.56 |
| | 1732.5 | 20175 | | 1 | 0 | 23.55 |
| | | | | 1 | 5 | 23.55 |
| | | | | 3 | 2 | 22.47 |
| | | | | 6 | 0 | 22.35 |
| | 1754.3 | 20393 | | 1 | 0 | 23.52 |
| | | | | 1 | 5 | 23.51 |
| | | | | 3 | 2 | 22.59 |
| | | | | 6 | 0 | 22.48 |
| 16QAM | 1710.7 | 19957 | 1.4 | 1 | 0 | 23.03 |
| | | | | 1 | 5 | 23.09 |
| | | | | 3 | 2 | 21.64 |
| | | | | 6 | 0 | 21.61 |
| | 1732.5 | 20175 | | 1 | 0 | 22.95 |
| | | | | 1 | 5 | 22.97 |
| | | | | 3 | 2 | 21.64 |
| | | | | 6 | 0 | 21.67 |
| | 1754.3 | 20393 | | 1 | 0 | 22.74 |
| | | | | 1 | 5 | 22.69 |
| | | | | 3 | 2 | 21.55 |
| | | | | 6 | 0 | 21.64 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1711.5 | 19965 | 3 | 1 | 0 | 23.77 |
| | | | | 1 | 14 | 23.76 |
| | | | | 8 | 4 | 22.55 |
| | | | | 15 | 0 | 22.58 |
| | 1732.5 | 20175 | | 1 | 0 | 23.59 |
| | | | | 1 | 14 | 23.61 |
| | | | | 8 | 4 | 22.48 |
| | | | | 15 | 0 | 22.44 |
| | 1753.5 | 20385 | | 1 | 0 | 23.50 |
| | | | | 1 | 14 | 23.51 |
| | | | | 8 | 4 | 22.53 |
| | | | | 15 | 0 | 22.46 |
| 16QAM | 1711.5 | 19965 | 3 | 1 | 0 | 23.03 |
| | | | | 1 | 14 | 23.08 |
| | | | | 8 | 4 | 21.64 |
| | | | | 15 | 0 | 21.62 |
| | 1732.5 | 20175 | | 1 | 0 | 22.99 |
| | | | | 1 | 14 | 22.90 |
| | | | | 8 | 4 | 21.65 |
| | | | | 15 | 0 | 21.65 |
| | 1753.5 | 20385 | | 1 | 0 | 22.75 |
| | | | | 1 | 14 | 22.68 |
| | | | | 8 | 4 | 21.61 |
| | | | | 15 | 0 | 21.69 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1712.5 | 19975 | 5 | 1 | 0 | 23.72 |
| | | | | 1 | 24 | 23.76 |
| | | | | 12 | 6 | 22.53 |
| | | | | 25 | 0 | 22.56 |
| | 1732.5 | 20175 | | 1 | 0 | 23.59 |
| | | | | 1 | 24 | 23.57 |
| | | | | 12 | 6 | 22.54 |
| | | | | 25 | 0 | 22.43 |
| | 1752.5 | 20375 | | 1 | 0 | 23.57 |
| | | | | 1 | 24 | 23.54 |
| | | | | 12 | 6 | 22.56 |
| | | | | 25 | 0 | 22.46 |
| 16QAM | 1712.5 | 19975 | 5 | 1 | 0 | 23.04 |
| | | | | 1 | 24 | 23.04 |
| | | | | 12 | 6 | 21.61 |
| | | | | 25 | 0 | 21.59 |
| | 1732.5 | 20175 | | 1 | 0 | 22.94 |
| | | | | 1 | 24 | 22.98 |
| | | | | 12 | 6 | 21.63 |
| | | | | 25 | 0 | 21.61 |
| | 1752.5 | 20375 | | 1 | 0 | 22.71 |
| | | | | 1 | 24 | 22.74 |
| | | | | 12 | 6 | 21.56 |
| | | | | 25 | 0 | 21.69 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1715 | 20000 | 10 | 1 | 0 | 23.76 |
| | | | | 1 | 49 | 23.79 |
| | | | | 24 | 12 | 22.55 |
| | | | | 50 | 0 | 22.61 |
| | 1732.5 | 20175 | | 1 | 0 | 23.55 |
| | | | | 1 | 49 | 23.55 |
| | | | | 24 | 12 | 22.56 |
| | | | | 50 | 0 | 22.39 |
| | 1750 | 20350 | | 1 | 0 | 23.54 |
| | | | | 1 | 49 | 23.55 |
| | | | | 24 | 12 | 22.49 |
| | | | | 50 | 0 | 22.49 |
| 16QAM | 1715 | 20000 | 10 | 1 | 0 | 23.06 |
| | | | | 1 | 49 | 23.10 |
| | | | | 24 | 12 | 21.68 |
| | | | | 50 | 0 | 21.59 |
| | 1732.5 | 20175 | | 1 | 0 | 22.96 |
| | | | | 1 | 49 | 22.92 |
| | | | | 24 | 12 | 21.68 |
| | | | | 50 | 0 | 21.62 |
| | 1750 | 20350 | | 1 | 0 | 22.68 |
| | | | | 1 | 49 | 22.71 |
| | | | | 24 | 12 | 21.57 |
| | | | | 50 | 0 | 21.67 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1717.5 | 20025 | 15 | 1 | 0 | 23.76 |
| | | | | 1 | 74 | 23.79 |
| | | | | 40 | 18 | 22.53 |
| | | | | 75 | 0 | 22.58 |
| | 1732.5 | 20175 | | 1 | 0 | 23.54 |
| | | | | 1 | 74 | 23.55 |
| | | | | 40 | 18 | 22.48 |
| | | | | 75 | 0 | 22.44 |
| | 1747.5 | 20325 | | 1 | 0 | 23.54 |
| | | | | 1 | 74 | 23.54 |
| | | | | 40 | 18 | 22.55 |
| | | | | 75 | 0 | 22.54 |
| 16QAM | 1717.5 | 20025 | 15 | 1 | 0 | 23.07 |
| | | | | 1 | 74 | 23.10 |
| | | | | 40 | 18 | 21.69 |
| | | | | 75 | 0 | 21.64 |
| | 1732.5 | 20175 | | 1 | 0 | 22.99 |
| | | | | 1 | 74 | 22.94 |
| | | | | 40 | 18 | 21.67 |
| | | | | 75 | 0 | 21.65 |
| | 1747.5 | 20325 | | 1 | 0 | 22.71 |
| | | | | 1 | 74 | 22.70 |
| | | | | 40 | 18 | 21.56 |
| | | | | 75 | 0 | 21.63 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 1720 | 20050 | 20 | 1 | 0 | 23.84 |
| | | | | 1 | 99 | 23.84 |
| | | | | 50 | 25 | 22.65 |
| | | | | 100 | 0 | 22.66 |
| | 1732.5 | 20175 | | 1 | 0 | 23.65 |
| | | | | 1 | 99 | 23.65 |
| | | | | 50 | 25 | 22.60 |
| | | | | 100 | 0 | 22.48 |
| | 1745 | 20300 | | 1 | 0 | 23.60 |
| | | | | 1 | 99 | 23.60 |
| | | | | 50 | 25 | 22.62 |
| | | | | 100 | 0 | 22.58 |
| 16QAM | 1720 | 20050 | 20 | 1 | 0 | 23.15 |
| | | | | 1 | 99 | 23.15 |
| | | | | 50 | 25 | 21.73 |
| | | | | 100 | 0 | 21.68 |
| | 1732.5 | 20175 | | 1 | 0 | 23.03 |
| | | | | 1 | 99 | 23.03 |
| | | | | 50 | 25 | 21.72 |
| | | | | 100 | 0 | 21.71 |
| | 1745 | 20300 | | 1 | 0 | 22.79 |
| | | | | 1 | 99 | 22.79 |
| | | | | 50 | 25 | 21.67 |
| | | | | 100 | 0 | 21.74 |

**LTE Band 5**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 824.7 | 20407 | 1.4 | 1 | 0 | 23.20 |
| | | | | 1 | 5 | 23.29 |
| | | | | 3 | 2 | 22.35 |
| | | | | 6 | 0 | 22.36 |
| | 836.5 | 20525 | | 1 | 0 | 23.65 |
| | | | | 1 | 5 | 23.67 |
| | | | | 3 | 2 | 22.22 |
| | | | | 6 | 0 | 22.22 |
| | 848.3 | 20643 | | 1 | 0 | 23.52 |
| | | | | 1 | 5 | 23.49 |
| | | | | 3 | 2 | 22.25 |
| | | | | 6 | 0 | 22.23 |
| 16QAM | 824.7 | 20407 | 1.4 | 1 | 0 | 22.72 |
| | | | | 1 | 5 | 22.70 |
| | | | | 3 | 2 | 21.38 |
| | | | | 6 | 0 | 21.32 |
| | 836.5 | 20525 | | 1 | 0 | 22.76 |
| | | | | 1 | 5 | 22.72 |
| | | | | 3 | 2 | 21.48 |
| | | | | 6 | 0 | 21.26 |
| | 848.3 | 20643 | | 1 | 0 | 22.82 |
| | | | | 1 | 5 | 22.82 |
| | | | | 3 | 2 | 21.42 |
| | | | | 6 | 0 | 21.29 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 825.5 | 20415 | 3 | 1 | 0 | 23.23 |
| | | | | 1 | 14 | 23.27 |
| | | | | 8 | 4 | 22.35 |
| | | | | 15 | 0 | 22.32 |
| | 836.5 | 20525 | | 1 | 0 | 23.62 |
| | | | | 1 | 14 | 23.61 |
| | | | | 8 | 4 | 22.22 |
| | | | | 15 | 0 | 22.22 |
| | 847.5 | 20635 | | 1 | 0 | 23.57 |
| | | | | 1 | 14 | 23.53 |
| | | | | 8 | 4 | 22.20 |
| | | | | 15 | 0 | 22.19 |
| 16QAM | 825.5 | 20415 | 3 | 1 | 0 | 22.73 |
| | | | | 1 | 14 | 22.68 |
| | | | | 8 | 4 | 21.43 |
| | | | | 15 | 0 | 21.29 |
| | 836.5 | 20525 | | 1 | 0 | 22.71 |
| | | | | 1 | 14 | 22.77 |
| | | | | 8 | 4 | 21.42 |
| | | | | 15 | 0 | 21.25 |
| | 847.5 | 20635 | | 1 | 0 | 22.76 |
| | | | | 1 | 14 | 22.81 |
| | | | | 8 | 4 | 21.37 |
| | | | | 15 | 0 | 21.25 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 826.5 | 20425 | 5 | 1 | 0 | 23.25 |
| | | | | 1 | 24 | 23.28 |
| | | | | 12 | 6 | 22.35 |
| | | | | 25 | 0 | 22.34 |
| | 836.5 | 20525 | | 1 | 0 | 23.65 |
| | | | | 1 | 24 | 23.64 |
| | | | | 12 | 6 | 22.20 |
| | | | | 25 | 0 | 22.19 |
| | 846.5 | 20625 | | 1 | 0 | 23.54 |
| | | | | 1 | 24 | 23.58 |
| | | | | 12 | 6 | 22.20 |
| | | | | 25 | 0 | 22.17 |
| 16QAM | 826.5 | 20425 | 5 | 1 | 0 | 22.74 |
| | | | | 1 | 24 | 22.71 |
| | | | | 12 | 6 | 21.39 |
| | | | | 25 | 0 | 21.30 |
| | 836.5 | 20525 | | 1 | 0 | 22.77 |
| | | | | 1 | 24 | 22.72 |
| | | | | 12 | 6 | 21.49 |
| | | | | 25 | 0 | 21.29 |
| | 846.5 | 20625 | | 1 | 0 | 22.81 |
| | | | | 1 | 24 | 22.83 |
| | | | | 12 | 6 | 21.40 |
| | | | | 25 | 0 | 21.26 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 829 | 20450 | 10 | 1 | 0 | 23.32 |
| | | | | 1 | 49 | 23.32 |
| | | | | 24 | 12 | 22.43 |
| | | | | 50 | 0 | 22.44 |
| | 836.5 | 20525 | | 1 | 0 | 23.71 |
| | | | | 1 | 49 | 23.71 |
| | | | | 24 | 12 | 22.29 |
| | | | | 50 | 0 | 22.32 |
| | 844 | 20600 | | 1 | 0 | 23.61 |
| | | | | 1 | 49 | 23.61 |
| | | | | 24 | 12 | 22.32 |
| | | | | 50 | 0 | 22.30 |
| 16QAM | 829 | 20450 | 10 | 1 | 0 | 22.81 |
| | | | | 1 | 49 | 22.81 |
| | | | | 24 | 12 | 21.48 |
| | | | | 50 | 0 | 21.40 |
| | 836.5 | 20525 | | 1 | 0 | 22.84 |
| | | | | 1 | 49 | 22.84 |
| | | | | 24 | 12 | 21.53 |
| | | | | 50 | 0 | 21.33 |
| | 844 | 20600 | | 1 | 0 | 22.88 |
| | | | | 1 | 49 | 22.88 |
| | | | | 24 | 12 | 21.47 |
| | | | | 50 | 0 | 21.35 |

**LTE Band 7**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 2502.5 | 20775 | 5 | 1 | 0 | 23.09 |
| | | | | 1 | 24 | 23.11 |
| | | | | 12 | 6 | 22.45 |
| | | | | 25 | 0 | 22.47 |
| | 2535 | 21100 | | 1 | 0 | 22.98 |
| | | | | 1 | 24 | 22.94 |
| | | | | 12 | 6 | 22.47 |
| | | | | 25 | 0 | 22.46 |
| | 2567.5 | 21425 | | 1 | 0 | 22.93 |
| | | | | 1 | 24 | 22.93 |
| | | | | 12 | 6 | 22.48 |
| | | | | 25 | 0 | 22.56 |
| 16QAM | 2502.5 | 20775 | 5 | 1 | 0 | 22.78 |
| | | | | 1 | 24 | 22.81 |
| | | | | 12 | 6 | 21.67 |
| | | | | 25 | 0 | 21.59 |
| | 2535 | 21100 | | 1 | 0 | 22.70 |
| | | | | 1 | 24 | 22.64 |
| | | | | 12 | 6 | 21.56 |
| | | | | 25 | 0 | 21.53 |
| | 2567.5 | 21425 | | 1 | 0 | 22.64 |
| | | | | 1 | 24 | 22.66 |
| | | | | 12 | 6 | 21.68 |
| | | | | 25 | 0 | 21.59 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 2505 | 20800 | 10 | 1 | 0 | 23.10 |
| | | | | 1 | 49 | 23.11 |
| | | | | 24 | 12 | 22.40 |
| | | | | 50 | 0 | 22.46 |
| | 2535 | 21100 | | 1 | 0 | 23.00 |
| | | | | 1 | 49 | 23.02 |
| | | | | 24 | 12 | 22.48 |
| | | | | 50 | 0 | 22.44 |
| | 2565 | 21400 | | 1 | 0 | 22.94 |
| | | | | 1 | 49 | 22.95 |
| | | | | 24 | 12 | 22.47 |
| | | | | 50 | 0 | 22.60 |
| 16QAM | 2505 | 20800 | 10 | 1 | 0 | 22.74 |
| | | | | 1 | 49 | 22.78 |
| | | | | 24 | 12 | 21.59 |
| | | | | 50 | 0 | 21.63 |
| | 2535 | 21100 | | 1 | 0 | 22.63 |
| | | | | 1 | 49 | 22.67 |
| | | | | 24 | 12 | 21.58 |
| | | | | 50 | 0 | 21.51 |
| | 2565 | 21400 | | 1 | 0 | 22.62 |
| | | | | 1 | 49 | 22.62 |
| | | | | 24 | 12 | 21.61 |
| | | | | 50 | 0 | 21.62 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 2507.5 | 20825 | 15 | 1 | 0 | 23.08 |
| | | | | 1 | 74 | 23.13 |
| | | | | 40 | 18 | 22.47 |
| | | | | 75 | 0 | 22.42 |
| | 2535 | 21100 | | 1 | 0 | 22.99 |
| | | | | 1 | 74 | 22.94 |
| | | | | 40 | 18 | 22.49 |
| | | | | 75 | 0 | 22.51 |
| | 2562.5 | 21375 | | 1 | 0 | 22.93 |
| | | | | 1 | 74 | 22.95 |
| | | | | 40 | 18 | 22.46 |
| | | | | 75 | 0 | 22.57 |
| 16QAM | 2507.5 | 20825 | 15 | 1 | 0 | 22.82 |
| | | | | 1 | 74 | 22.78 |
| | | | | 40 | 18 | 21.68 |
| | | | | 75 | 0 | 21.62 |
| | 2535 | 21100 | | 1 | 0 | 22.68 |
| | | | | 1 | 74 | 22.69 |
| | | | | 40 | 18 | 21.55 |
| | | | | 75 | 0 | 21.58 |
| | 2562.5 | 21375 | | 1 | 0 | 22.65 |
| | | | | 1 | 74 | 22.67 |
| | | | | 40 | 18 | 21.61 |
| | | | | 75 | 0 | 21.59 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 2510 | 20850 | 20 | 1 | 0 | 23.19 |
| | | | | 1 | 99 | 23.19 |
| | | | | 50 | 25 | 22.51 |
| | | | | 100 | 0 | 22.52 |
| | 2535 | 21100 | | 1 | 0 | 23.05 |
| | | | | 1 | 99 | 23.05 |
| | | | | 50 | 25 | 22.58 |
| | | | | 100 | 0 | 22.57 |
| | 2560 | 21350 | | 1 | 0 | 23.02 |
| | | | | 1 | 99 | 23.02 |
| | | | | 50 | 25 | 22.52 |
| | | | | 100 | 0 | 22.64 |
| 16QAM | 2510 | 20850 | 20 | 1 | 0 | 22.86 |
| | | | | 1 | 99 | 22.86 |
| | | | | 50 | 25 | 21.72 |
| | | | | 100 | 0 | 21.69 |
| | 2535 | 21100 | | 1 | 0 | 22.75 |
| | | | | 1 | 99 | 22.75 |
| | | | | 50 | 25 | 21.67 |
| | | | | 100 | 0 | 21.62 |
| | 2560 | 21350 | | 1 | 0 | 22.71 |
| | | | | 1 | 99 | 22.71 |
| | | | | 50 | 25 | 21.73 |
| | | | | 100 | 0 | 21.68 |

**LTE Band 12**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 699.7 | 23017 | 1.4 | 1 | 0 | 23.24 |
| | | | | 1 | 5 | 23.29 |
| | | | | 3 | 2 | 22.27 |
| | | | | 6 | 0 | 22.23 |
| | 707.5 | 23095 | | 1 | 0 | 23.25 |
| | | | | 1 | 5 | 23.19 |
| | | | | 3 | 2 | 22.34 |
| | | | | 6 | 0 | 22.34 |
| | 715.3 | 23173 | | 1 | 0 | 23.16 |
| | | | | 1 | 5 | 23.18 |
| | | | | 3 | 2 | 22.24 |
| | | | | 6 | 0 | 22.24 |
| 16QAM | 699.7 | 23017 | 1.4 | 1 | 0 | 22.48 |
| | | | | 1 | 5 | 22.52 |
| | | | | 3 | 2 | 21.27 |
| | | | | 6 | 0 | 21.28 |
| | 707.5 | 23095 | | 1 | 0 | 22.53 |
| | | | | 1 | 5 | 22.51 |
| | | | | 3 | 2 | 21.40 |
| | | | | 6 | 0 | 21.31 |
| | 715.3 | 23173 | | 1 | 0 | 22.57 |
| | | | | 1 | 5 | 22.50 |
| | | | | 3 | 2 | 21.73 |
| | | | | 6 | 0 | 21.60 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 700.5 | 23025 | 3 | 1 | 0 | 23.21 |
| | | | | 1 | 14 | 23.26 |
| | | | | 8 | 4 | 22.27 |
| | | | | 15 | 0 | 22.28 |
| | 707.5 | 23095 | | 1 | 0 | 23.19 |
| | | | | 1 | 14 | 23.23 |
| | | | | 8 | 4 | 22.40 |
| | | | | 15 | 0 | 22.31 |
| | 714.5 | 23165 | | 1 | 0 | 23.17 |
| | | | | 1 | 14 | 23.23 |
| | | | | 8 | 4 | 22.21 |
| | | | | 15 | 0 | 22.23 |
| 16QAM | 700.5 | 23025 | 3 | 1 | 0 | 22.51 |
| | | | | 1 | 14 | 22.50 |
| | | | | 8 | 4 | 21.32 |
| | | | | 15 | 0 | 21.29 |
| | 707.5 | 23095 | | 1 | 0 | 22.58 |
| | | | | 1 | 14 | 22.56 |
| | | | | 8 | 4 | 21.44 |
| | | | | 15 | 0 | 21.34 |
| | 714.5 | 23165 | | 1 | 0 | 22.58 |
| | | | | 1 | 14 | 22.58 |
| | | | | 8 | 4 | 21.71 |
| | | | | 15 | 0 | 21.59 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 701.5 | 23035 | 5 | 1 | 0 | 23.28 |
| | | | | 1 | 24 | 23.21 |
| | | | | 12 | 6 | 22.28 |
| | | | | 25 | 0 | 22.27 |
| | 707.5 | 23095 | | 1 | 0 | 23.19 |
| | | | | 1 | 24 | 23.25 |
| | | | | 12 | 6 | 22.36 |
| | | | | 25 | 0 | 22.27 |
| | 713.5 | 23155 | | 1 | 0 | 23.17 |
| | | | | 1 | 24 | 23.21 |
| | | | | 12 | 6 | 22.20 |
| | | | | 25 | 0 | 22.21 |
| 16QAM | 701.5 | 23035 | 5 | 1 | 0 | 22.53 |
| | | | | 1 | 24 | 22.49 |
| | | | | 12 | 6 | 21.30 |
| | | | | 25 | 0 | 21.21 |
| | 707.5 | 23095 | | 1 | 0 | 22.56 |
| | | | | 1 | 24 | 22.56 |
| | | | | 12 | 6 | 21.44 |
| | | | | 25 | 0 | 21.33 |
| | 713.5 | 23155 | | 1 | 0 | 22.49 |
| | | | | 1 | 24 | 22.56 |
| | | | | 12 | 6 | 21.73 |
| | | | | 25 | 0 | 21.54 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 704 | 23060 | 10 | 1 | 0 | 23.33 |
| | | | | 1 | 49 | 23.33 |
| | | | | 24 | 12 | 22.32 |
| | | | | 50 | 0 | 22.33 |
| | 707.5 | 23095 | | 1 | 0 | 23.30 |
| | | | | 1 | 49 | 23.30 |
| | | | | 24 | 12 | 22.46 |
| | | | | 50 | 0 | 22.37 |
| | 711 | 23130 | | 1 | 0 | 23.27 |
| | | | | 1 | 49 | 23.27 |
| | | | | 24 | 12 | 22.31 |
| | | | | 50 | 0 | 22.30 |
| 16QAM | 704 | 23060 | 10 | 1 | 0 | 22.59 |
| | | | | 1 | 49 | 22.59 |
| | | | | 24 | 12 | 21.38 |
| | | | | 50 | 0 | 21.34 |
| | 707.5 | 23095 | | 1 | 0 | 22.63 |
| | | | | 1 | 49 | 22.63 |
| | | | | 24 | 12 | 21.50 |
| | | | | 50 | 0 | 21.41 |
| | 711 | 23130 | | 1 | 0 | 22.62 |
| | | | | 1 | 49 | 22.62 |
| | | | | 24 | 12 | 21.77 |
| | | | | 50 | 0 | 21.67 |

**LTE Band 26**
**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 824.7 | 26797 | 1.4 | 1 | 0 | 23.49 |
| | | | | 1 | 5 | 23.44 |
| | | | | 3 | 2 | 22.31 |
| | | | | 6 | 0 | 22.31 |
| | 836.5 | 26915 | | 1 | 0 | 23.46 |
| | | | | 1 | 5 | 23.42 |
| | | | | 3 | 2 | 22.34 |
| | | | | 6 | 0 | 22.33 |
| | 848.3 | 27033 | | 1 | 0 | 23.44 |
| | | | | 1 | 5 | 23.46 |
| | | | | 3 | 2 | 22.39 |
| | | | | 6 | 0 | 22.38 |
| 16QAM | 824.7 | 26797 | 1.4 | 1 | 0 | 22.95 |
| | | | | 1 | 5 | 22.89 |
| | | | | 3 | 2 | 21.84 |
| | | | | 6 | 0 | 21.85 |
| | 836.5 | 26915 | | 1 | 0 | 22.90 |
| | | | | 1 | 5 | 22.85 |
| | | | | 3 | 2 | 21.87 |
| | | | | 6 | 0 | 21.81 |
| | 848.3 | 27033 | | 1 | 0 | 22.84 |
| | | | | 1 | 5 | 22.86 |
| | | | | 3 | 2 | 21.93 |
| | | | | 6 | 0 | 21.95 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 825.5 | 26805 | 3 | 1 | 0 | 23.43 |
| | | | | 1 | 14 | 23.42 |
| | | | | 8 | 4 | 22.36 |
| | | | | 15 | 0 | 22.31 |
| | 836.5 | 26915 | | 1 | 0 | 23.43 |
| | | | | 1 | 14 | 23.44 |
| | | | | 8 | 4 | 22.29 |
| | | | | 15 | 0 | 22.32 |
| | 847.5 | 27025 | | 1 | 0 | 23.45 |
| | | | | 1 | 14 | 23.48 |
| | | | | 8 | 4 | 22.36 |
| | | | | 15 | 0 | 22.39 |
| 16QAM | 825.5 | 26805 | 3 | 1 | 0 | 22.95 |
| | | | | 1 | 14 | 22.88 |
| | | | | 8 | 4 | 21.79 |
| | | | | 15 | 0 | 21.85 |
| | 836.5 | 26915 | | 1 | 0 | 22.89 |
| | | | | 1 | 14 | 22.93 |
| | | | | 8 | 4 | 21.81 |
| | | | | 15 | 0 | 21.84 |
| | 847.5 | 27025 | | 1 | 0 | 22.88 |
| | | | | 1 | 14 | 22.84 |
| | | | | 8 | 4 | 21.92 |
| | | | | 15 | 0 | 21.89 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 826.5 | 26815 | 5 | 1 | 0 | 23.46 |
| | | | | 1 | 24 | 23.45 |
| | | | | 12 | 6 | 22.37 |
| | | | | 25 | 0 | 22.31 |
| | 836.5 | 26915 | | 1 | 0 | 23.43 |
| | | | | 1 | 24 | 23.48 |
| | | | | 12 | 6 | 22.29 |
| | | | | 25 | 0 | 22.33 |
| | 846.5 | 27015 | | 1 | 0 | 23.50 |
| | | | | 1 | 24 | 23.49 |
| | | | | 12 | 6 | 22.36 |
| | | | | 25 | 0 | 22.33 |
| 16QAM | 826.5 | 26815 | 5 | 1 | 0 | 22.95 |
| | | | | 1 | 24 | 22.93 |
| | | | | 12 | 6 | 21.81 |
| | | | | 25 | 0 | 21.87 |
| | 836.5 | 26915 | | 1 | 0 | 22.85 |
| | | | | 1 | 24 | 22.93 |
| | | | | 12 | 6 | 21.84 |
| | | | | 25 | 0 | 21.81 |
| | 846.5 | 27015 | | 1 | 0 | 22.82 |
| | | | | 1 | 24 | 22.89 |
| | | | | 12 | 6 | 21.94 |
| | | | | 25 | 0 | 21.90 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 829 | 26840 | 10 | 1 | 0 | 23.43 |
| | | | | 1 | 49 | 23.49 |
| | | | | 24 | 12 | 22.31 |
| | | | | 50 | 0 | 22.35 |
| | 836.5 | 26915 | | 1 | 0 | 23.43 |
| | | | | 1 | 49 | 23.46 |
| | | | | 24 | 12 | 22.31 |
| | | | | 50 | 0 | 22.35 |
| | 844 | 26990 | | 1 | 0 | 23.43 |
| | | | | 1 | 49 | 23.48 |
| | | | | 24 | 12 | 22.32 |
| | | | | 50 | 0 | 22.34 |
| 16QAM | 829 | 26840 | 10 | 1 | 0 | 22.90 |
| | | | | 1 | 49 | 22.93 |
| | | | | 24 | 12 | 21.84 |
| | | | | 50 | 0 | 21.86 |
| | 836.5 | 26915 | | 1 | 0 | 22.88 |
| | | | | 1 | 49 | 22.89 |
| | | | | 24 | 12 | 21.87 |
| | | | | 50 | 0 | 21.81 |
| | 844 | 26990 | | 1 | 0 | 22.84 |
| | | | | 1 | 49 | 22.83 |
| | | | | 24 | 12 | 21.87 |
| | | | | 50 | 0 | 21.96 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 831.5 | 26865 | 15 | 1 | 0 | 23.54 |
| | | | | 1 | 74 | 23.54 |
| | | | | 40 | 18 | 22.41 |
| | | | | 75 | 0 | 22.43 |
| | 836.5 | 26915 | | 1 | 0 | 23.53 |
| | | | | 1 | 74 | 23.53 |
| | | | | 40 | 18 | 22.39 |
| | | | | 75 | 0 | 22.39 |
| | 841.5 | 26965 | | 1 | 0 | 23.55 |
| | | | | 1 | 74 | 23.55 |
| | | | | 40 | 18 | 22.43 |
| | | | | 75 | 0 | 22.45 |
| 16QAM | 831.5 | 26865 | 15 | 1 | 0 | 23.00 |
| | | | | 1 | 74 | 23.00 |
| | | | | 40 | 18 | 21.90 |
| | | | | 75 | 0 | 21.93 |
| | 836.5 | 26915 | | 1 | 0 | 22.97 |
| | | | | 1 | 74 | 22.97 |
| | | | | 40 | 18 | 21.91 |
| | | | | 75 | 0 | 21.91 |
| | 841.5 | 26965 | | 1 | 0 | 22.93 |
| | | | | 1 | 74 | 22.93 |
| | | | | 40 | 18 | 21.99 |
| | | | | 75 | 0 | 22.00 |

**LTE Band 26（PART 90）**

**1 RF Power Output**

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 814.7 | 26697 | 1.4 | 1 | 0 | 23.55 |
| | | | | 1 | 5 | 23.56 |
| | | | | 3 | 2 | 22.62 |
| | | | | 6 | 0 | 22.65 |
| | 819 | 26740 | | 1 | 0 | 23.59 |
| | | | | 1 | 5 | 23.53 |
| | | | | 3 | 2 | 22.55 |
| | | | | 6 | 0 | 22.63 |
| | 823.3 | 26783 | | 1 | 0 | 23.58 |
| | | | | 1 | 5 | 23.57 |
| | | | | 3 | 2 | 22.55 |
| | | | | 6 | 0 | 22.57 |
| 16QAM | 814.7 | 26697 | 1.4 | 1 | 0 | 22.96 |
| | | | | 1 | 5 | 22.96 |
| | | | | 3 | 2 | 22.05 |
| | | | | 6 | 0 | 21.94 |
| | 819 | 26740 | | 1 | 0 | 22.95 |
| | | | | 1 | 5 | 22.95 |
| | | | | 3 | 2 | 22.08 |
| | | | | 6 | 0 | 21.93 |
| | 823.3 | 26783 | | 1 | 0 | 22.96 |
| | | | | 1 | 5 | 22.98 |
| | | | | 3 | 2 | 22.02 |
| | | | | 6 | 0 | 21.93 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 815.5 | 26705 | 3 | 1 | 0 | 23.57 |
| | | | | 1 | 14 | 23.54 |
| | | | | 8 | 4 | 22.59 |
| | | | | 15 | 0 | 22.61 |
| | 819 | 26740 | | 1 | 0 | 23.53 |
| | | | | 1 | 14 | 23.53 |
| | | | | 8 | 4 | 22.63 |
| | | | | 15 | 0 | 22.61 |
| | 822.5 | 26775 | | 1 | 0 | 23.58 |
| | | | | 1 | 14 | 23.59 |
| | | | | 8 | 4 | 22.63 |
| | | | | 15 | 0 | 22.58 |
| 16QAM | 815.5 | 26705 | 3 | 1 | 0 | 22.95 |
| | | | | 1 | 14 | 22.99 |
| | | | | 8 | 4 | 22.08 |
| | | | | 15 | 0 | 21.91 |
| | 819 | 26740 | | 1 | 0 | 23.00 |
| | | | | 1 | 14 | 22.98 |
| | | | | 8 | 4 | 22.03 |
| | | | | 15 | 0 | 21.90 |
| | 822.5 | 26775 | | 1 | 0 | 22.96 |
| | | | | 1 | 14 | 22.97 |
| | | | | 8 | 4 | 22.01 |
| | | | | 15 | 0 | 21.91 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 816.5 | 26715 | 5 | 1 | 0 | 23.55 |
| | | | | 1 | 24 | 23.60 |
| | | | | 12 | 6 | 22.55 |
| | | | | 25 | 0 | 22.61 |
| | 819 | 26740 | | 1 | 0 | 23.61 |
| | | | | 1 | 24 | 23.58 |
| | | | | 12 | 6 | 22.61 |
| | | | | 25 | 0 | 22.64 |
| | 821.5 | 26765 | | 1 | 0 | 23.60 |
| | | | | 1 | 24 | 23.56 |
| | | | | 12 | 6 | 22.55 |
| | | | | 25 | 0 | 22.60 |
| 16QAM | 816.5 | 26715 | 5 | 1 | 0 | 22.96 |
| | | | | 1 | 24 | 23.02 |
| | | | | 12 | 6 | 22.03 |
| | | | | 25 | 0 | 21.94 |
| | 819 | 26740 | | 1 | 0 | 22.94 |
| | | | | 1 | 24 | 22.98 |
| | | | | 12 | 6 | 22.02 |
| | | | | 25 | 0 | 21.90 |
| | 821.5 | 26765 | | 1 | 0 | 23.00 |
| | | | | 1 | 24 | 22.95 |
| | | | | 12 | 6 | 22.09 |
| | | | | 25 | 0 | 21.92 |

| Modulation | Carrier frequency (MHz) | UL Channel | BW | RB Size | RB Offset | Conducted power (dBm) |
|---|---|---|---|---|---|---|
| QPSK | 819 | 26740 | 10 | 1 | 0 | 23.64 |
| | | | | 1 | 49 | 23.64 |
| | | | | 24 | 12 | 22.67 |
| | | | | 50 | 0 | 22.69 |
| 16QAM | 819 | 26740 | 10 | 1 | 0 | 23.06 |
| | | | | 1 | 49 | 23.06 |
| | | | | 24 | 12 | 22.14 |
| | | | | 50 | 0 | 22.01 |

## 6.5 Bluetooth Measurement result

**BT**

| Modulation type | Average Power Output (dBm) | | |
|---|---|---|---|
| | 2402MHz(Ch0) | 2441MHz(Ch39) | 2480MHz(Ch78) |
| GFSK | **8.95** | **9.34** | **9.69** |
| π/4DQPSK | 7.80 | 6.45 | 7.46 |
| 8DPSK | 7.79 | 6.50 | 7.48 |

**BLE**

| Modulation type | Average Power Output (dBm) | | |
|---|---|---|---|
| | 2402MHz (Ch0) | 2440MHz (Ch19) | 2480MHz (Ch39) |
| GFSK (LE 1Mbps) | 1.02 | 2.25 | 3.60 |

## 6.6 Wi-Fi Measurement result

**WIFI 2.4GHz**

| Modulation type | Average power output (dBm) | | |
|---|---|---|---|
| | 2412MHz | 2437MHz | 2462MHz |
| 11b | 17.98 | 17.70 | 17.67 |
| 11g | 15.46 | 15.69 | 13.52 |
| 11n HT20 | 14.47 | 14.91 | 14.37 |

## 6.7 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.

### SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

**Mothod1:**
According to the KDB447498 4.3.1 (1)

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

[(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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

This is equivalent to [(max. power of channel, including tune-up tolerance, mW)/(60/√f(GHz) mW)] ·[20 mm/(min.test separation distance, mm)] ≤ 1.0 for 1-g SAR; also see Appendix A for approximate exclusion threshold values at selected frequencies and distances.

**Mothod2:**
According to the KDB447498 appendix A

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

| MHz | 5 | 10 | 15 | 20 | 25 | mm |
|---|---|---|---|---|---|---|
| 150 | 39 | 77 | 116 | 155 | 194 | *SAR Test Exclusion Threshold* (mW) |
| 300 | 27 | 55 | 82 | 110 | 137 | |
| 450 | 22 | 45 | 67 | 89 | 112 | |
| 835 | 16 | 33 | 49 | 66 | 82 | |
| 900 | 16 | 32 | 47 | 63 | 79 | |
| 1500 | 12 | 24 | 37 | 49 | 61 | |
| 1900 | 11 | 22 | 33 | 44 | 54 | |
| 2450 | 10 | 19 | 29 | 38 | 48 | |
| 3600 | 8 | 16 | 24 | 32 | 40 | |
| 5200 | 7 | 13 | 20 | 26 | 33 | |
| 5400 | 6 | 13 | 19 | 26 | 32 | |
| 5800 | 6 | 12 | 19 | 25 | 31 | |

Summary of Transmitters

| Band/Mode | Max conducted power adjusted for tune-up tolerance(mW) | Position | SAR test exclusion threshold (mW) | Standalone SAR Required |
|---|---|---|---|---|
| 2.4GHz BT/BLE | 10 | Head | 10 | Yes |
| | | Body | 19 | No |
| 2.4GHz Wi-Fi | 63.1 | Head | 10 | Yes |
| | | Body | 19 | Yes |

## 6.8 RF exposure conditions

Refer to the follow picture “Antenna information” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.


Main antenna(Antenna Label:A):
LTE FDD B1/B2/B4/B5/B7/B12/B26/B28/ RX&TX ,
WCDMA B1/B2/B4/B5 RX&TX
GSM B2/B3/B5/B8 RX&TX
DIV antenna(Antenna Label:B):
LTE FDD B1/B2/B4/B5/B7/B12/B26/B28 RX
WCDMA B1/B2/B4/B5 RX
GSM B2/B3/B5/B8 RX
WiFi/BT 2.4G2412MHz~2472MHz& GPS: 1570 MHz~1620 MHz

**Note: we defined these position when we face the screen of EUT, the reason why we perform SAR test for these edges is that the structures of antennas is close to our body, and for the other edges do not necessary cause we already consider the worst case.**

### 6.8.1 Head Exposure Conditions

**For WWAN**

| Test Configurations | SAR Required | Note |
|---|---|---|
| Left Touch | Yes | / |
| Left Tilt (15°) | Yes | / |
| Right Touch | Yes | / |
| Right Tilt (15°) | Yes | / |

**For WLAN**

| Test Configurations | SAR Required | Note |
|---|---|---|
| Left Touch | Yes | / |
| Left Tilt (15°) | Yes | / |
| Right Touch | Yes | / |
| Right Tilt (15°) | Yes | / |

**For BT/BLE**

| Test Configurations | SAR Required | Note |
|---|---|---|
| Left Touch | Yes | / |
| Left Tilt (15°) | Yes | / |
| Right Touch | Yes | / |
| Right Tilt (15°) | Yes | / |

### 6.8.2 Body Exposure conditions

**For WWAN**

| Test Configurations | SAR Required | Note |
|---|---|---|
| Back | Yes | / |
| Front | Yes | / |

**For WLAN**

| Test Configurations | SAR Required | Note |
|---|---|---|
| Back | Yes | / |
| Front | Yes | / |

**For BT/BLE**

| Test Configurations | Estimated SAR | Note |
|---|---|---|
| Back | Yes | Excluded from SAR test |
| Front | Yes | |

### 6.8.3 Hotspot Exposure conditions

**For WWAN**

| Test Configurations | SAR Required | Antenna-to-edge(s) distances |
|---|---|---|
| Back | Yes* | ＜25mm |
| Front | Yes* | ＜25mm |
| Top | Yes | ＜25mm |
| Bottom | Yes | ＜25mm |
| Left | Yes | ＜25mm |
| Right | Yes | ＜25mm |

**For WLAN**

| Test Configurations | SAR Required | Antenna-to-edge(s) distances |
|---|---|---|
| Back | Yes* | ＜25mm |
| Front | Yes* | ＜25mm |
| Top | Yes | ＜25mm |
| Bottom | Yes | ＜25mm |
| Left | Yes | ＜25mm |
| Right | Yes | ＜25mm |

**For BT/BLE**

| Test Configurations | SAR evaluation | Note |
|---|---|---|
| Back | No | There is no hotspot mode for BT/BLE |
| Front | | |
| Top | | |
| Bottom | | |
| Left | | |
| Right | | |

**Note*: For hotspot mode, it's not necessary test Rear and Front position cause we already test the these position without hotspot mode in Body Exposure conditions, Normally if the hotspot mode opened, the technology "power reduction" used for mobile, so we consider the worst condition, and remain the data of body worn as hotspots mode.**

## 6.9 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser.

For the measurement of the following parameters the SPEAG DAKS-3.5 dielectric parameter probe is used, representing the open-ended coaxial probe measurement procedure.

| Date Tested | Freq. (MHz) | Liquid parameters | measured | Target | Delta (%) | Tolerance (%) |
|---|---|---|---|---|---|---|
| 2020.10.26 | 750 | εr | 41.75 | 41.9 | -0.35 | ±10 |
| | | σ[S/m] | 0.85 | 0.89 | -4.05 | ±10 |
| 2020.10.26 | 835 | εr | 40.48 | 41.5 | -2.45 | ±10 |
| | | σ[S/m] | 0.87 | 0.9 | -2.88 | ±10 |
| 2020.10.27 | 1800 | εr | 38.35 | 40 | -4.12 | ±10 |
| | | σ[S/m] | 1.44 | 1.4 | 2.70 | ±10 |
| 2020.10.28 | 2000 | εr | 40.99 | 40 | 2.48 | ±10 |
| | | σ[S/m] | 1.39 | 1.4 | -0.80 | ±10 |
| 2020.10.29 | 2450 | εr | 40.60 | 39.2 | 3.57 | ±10 |
| | | σ[S/m] | 1.73 | 1.8 | -3.86 | ±10 |
| 2020.10.30 | 2600 | εr | 37.44 | 39 | -4.00 | ±10 |
| | | σ[S/m] | 1.88 | 1.96 | -4.18 | ±10 |
| 2020.11.02 | 5200 | εr | 34.64 | 36 | -3.78 | ±5 |
| | | σ[S/m] | 4.71 | 4.66 | 1.00 | ±5 |

**Note: For DASY system, the conservative tolerance 5% could expand to 10% when the frequency under 3GHz.**

A system check measurement was made following once the determination of the dielectric parameters of the simulant, using the dipole validation kit. The system checking results (dielectric parameters and SAR values) are given in the table below.

| Date Tested | System dipole | SAR measured (normalized to 1W) | | Target (Ref. Value) | Delta (%) | Tolerance (%) |
|---|---|---|---|---|---|---|
| 2020.10.26 | D750V3 | 1g | 8.24 | 8.40 | -0.24 | ±10 |
| 2020.10.26 | D835V2 | 1g | 9.56 | 9.38 | 1.90 | ±10 |
| 2020.10.27 | D1800V2 | 1g | 37.96 | 38.90 | -2.42 | ±10 |
| 2020.10.28 | D2000V2 | 1g | 39.28 | 41.00 | -2.53 | ±10 |
| 2020.10.29 | D2450V2 | 1g | 54.00 | 53.00 | 3.05 | ±10 |
| 2020.10.30 | D2600V2 | 1g | 56.40 | 56.50 | -0.35 | ±10 |
| 2020.11.02 | D5GHzV3 | 1g | 78.20 | 75.90 | 3.03 | ±10 |

## 6.10 SAR TEST RESULT

In order to determine the largest value of the peak spatial-average SAR of a handset, all device positions, configurations, and operational modes should be tested for each frequency band according to Steps 1 to 3 below.
Step 1: The tests should be performed at the channel that is closest to the center of the transmit frequency band.
a) All device positions (cheek and tilt, for both left and right sides of the SAM phantom),
b) All configurations for each device position in a), e.g., antenna extended and retracted, and
c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., Nc > 3), then all frequencies, configurations and modes shall be tested for all of the above test conditions.
Step 2: For the condition providing the highest peak spatial-average SAR determined in Step 1 for each frequency, perform all tests at all other test frequency channels, e.g., lowest and highest frequencies. In addition, for all other conditions (device position, configuration, and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well.
Step 3: Examine all data to determine the largest value of the peak.
Note:
1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
Duty Factor = 1 / Duty Cycle(%)
For cellular network:
Reported SAR (W/kg) = Measured SAR (W/kg) * Scaling Factor
For WLAN
Reported SAR (W/kg) = Measured SAR (W/kg) * Scaling Factor*Duty factor
2. Per KDB 447498 D01v06, for each exposure position, if the highest output channel reported SAR ≤0.8W/kg, other channels SAR testing are not necessary.
3. The distance between the EUT and the phantom bottom is 10mm.

| Mode | | Duty cycle | Duty factor | Note |
|---|---|---|---|---|
| Licensed Frequency | GSM Band | Depends on UP slots | NA | According to the theory, we configured duty cycle with relevant value on the communication tester, so correction factor do not need such as “duty factor” |
| | WCDMA Band | 100% | | |
| | FDD-LTE Band | 100% | | |
| | TDD-LTE Band | 63.3% | | |
| Unlicensed Frequency | WIFI 2.4GHz 802.11b | 99.6% | 1.01 | SRTC perform SAR test with non-signaling mode, and duty factor shall be considered because of the uncertainty of data traffic. |

**The measured and reported Head/body SAR values for the test device are tabulated below:**

**Mode: GSM 850**

fL(MHz)=824.2MHz fM(MHz)=836.5MHz fH(MHz)= 848.8MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.107 | 0.116 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | LT | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.056 | 0.060 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | RC | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.110 | 0.119 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | RT | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.092 | 0.099 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| BODY | BACK | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.125 | 0.135 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | FRONT | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.095 | 0.103 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | TOP | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.001 | 0.001 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | BOTTOM | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.082 | 0.089 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | LEFT | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.075 | 0.081 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |
| | RIGHT | L | 31.87 | 32.00 | 1.03 | --- | --- |
| | | M | 31.68 | 32.00 | 1.08 | 0.118 | 0.127 |
| | | H | 31.59 | 32.00 | 1.10 | --- | --- |

**Mode: GSM1900**

fL (MHz)=1850.2MHz fM (MHz)=1880.0MHz fH (MHz)=1909.8MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.547 | 0.596 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | LT | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.529 | 0.577 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | RC | L1 | 26.83 | 27.00 | 1.04 | 0.727 | 0.756 |
| | | M1 | 26.64 | 27.00 | 1.09 | 0.780 | 0.850 |
| | | H1 | 26.50 | 27.00 | 1.12 | 0.711 | 0.796 |
| | | L2 | 26.83 | 27.00 | 1.04 | 0.724 | 0.753 |
| | | M2 | 26.64 | 27.00 | 1.09 | 0.771 | 0.840 |
| | | H2 | 26.50 | 27.00 | 1.12 | 0.703 | 0.787 |
| | RT | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.601 | 0.655 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| BODY | BACK | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.351 | 0.383 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | FRONT | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.185 | 0.202 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | TOP | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.285 | 0.311 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | BOTTOM | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.001 | 0.001 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | LEFT | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.080 | 0.087 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |
| | RIGHT | L | 26.83 | 27.00 | 1.04 | --- | --- |
| | | M | 26.64 | 27.00 | 1.09 | 0.001 | 0.001 |
| | | H | 26.50 | 27.00 | 1.12 | --- | --- |

**Mode: WCDMA BAND II**

fL (MHz)= 1852.4MHz fM (MHz)= 1880.0MHz fH (MHz)= 1907.6MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.486 | 0.544 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | LT | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.597 | 0.669 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | RC | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.686 | 0.768 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | RT | L1 | 23.08 | 23.50 | 1.10 | 0.796 | 0.876 |
| | | M1 | 23.01 | 23.50 | 1.12 | 0.883 | 0.989 |
| | | H1 | 23.01 | 23.50 | 1.12 | 0.798 | 0.894 |
| | | L2 | 23.08 | 23.50 | 1.10 | 0.793 | 0.872 |
| | | M2 | 23.01 | 23.50 | 1.12 | 0.880 | 0.985 |
| | | H2 | 23.01 | 23.50 | 1.12 | 0.796 | 0.892 |
| BODY | BACK | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.435 | 0.487 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | FRONT | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.220 | 0.246 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | TOP | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.349 | 0.391 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | BOTTOM | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.001 | 0.001 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | LEFT | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.097 | 0.109 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |
| | RIGHT | L | 23.08 | 23.50 | 1.10 | --- | --- |
| | | M | 23.01 | 23.50 | 1.12 | 0.055 | 0.062 |
| | | H | 23.01 | 23.50 | 1.12 | --- | --- |

**Mode: WCDMA BAND IV**

fL (MHz)=1712.4MHz fM (MHz)=1732.4MHz fH (MHz)= 1752.6MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.431 | 0.474 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | LT | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.477 | 0.525 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | RC | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.841 | 0.925 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | RT | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.515 | 0.567 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| BODY | BACK | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.301 | 0.331 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | FRONT | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.171 | 0.188 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | TOP | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.217 | 0.239 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | BOTTOM | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.001 | 0.001 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | LEFT | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.099 | 0.109 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |
| | RIGHT | L | 23.10 | 23.50 | 1.10 | --- | --- |
| | | M | 23.09 | 23.50 | 1.10 | 0.001 | 0.001 |
| | | H | 23.12 | 23.50 | 1.09 | --- | --- |

**Mode: WCDMA BAND V**

fL (MHz)=826.4MHz fM (MHz)=836.4MHz fH (MHz)= 846.6MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.032 | 0.032 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | LT | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.022 | 0.022 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | RC | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.040 | 0.040 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | RT | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.034 | 0.034 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| BODY | BACK | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.048 | 0.048 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | FRONT | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.038 | 0.038 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | TOP | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.001 | 0.001 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | BOTTOM | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.031 | 0.031 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | LEFT | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.027 | 0.027 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |
| | RIGHT | L | 23.00 | 23.00 | 1.00 | --- | --- |
| | | M | 22.99 | 23.00 | 1.00 | 0.041 | 0.041 |
| | | H | 22.89 | 23.00 | 1.03 | --- | --- |

**Mode: LTE Band 2**

fL (MHz)= 1860MHz fM (MHz)= 1880MHz fH (MHz)= 1900MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

1RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.732 | 0.798 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | LT | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.698 | 0.761 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | RC | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.799 | 0.871 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | RT | L1 | 23.66 | 24.00 | 1.08 | 0.892 | 0.963 |
| | | M1 | 23.62 | 24.00 | 1.09 | 0.939 | 1.024 |
| | | H1 | 23.46 | 24.00 | 1.13 | 0.875 | 0.989 |
| | | L2 | 23.66 | 24.00 | 1.08 | 0.887 | 0.956 |
| | | M2 | 23.62 | 24.00 | 1.09 | 0.929 | 1.013 |
| | | H2 | 23.46 | 24.00 | 1.13 | 0.864 | 0.976 |
| BODY | BACK | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.501 | 0.546 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | FRONT | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.248 | 0.270 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | TOP | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.401 | 0.437 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | BOTTOM | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.001 | 0.001 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | LEFT | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.131 | 0.143 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |
| | RIGHT | L | 23.66 | 24.00 | 1.08 | --- | --- |
| | | M | 23.62 | 24.00 | 1.09 | 0.065 | 0.071 |
| | | H | 23.46 | 24.00 | 1.13 | --- | --- |

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.698 | 0.775 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | LT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.584 | 0.648 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | RC | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.701 | 0.778 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | RT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.727 | 0.807 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| BODY | BACK | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.473 | 0.525 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | FRONT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.232 | 0.258 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | TOP | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.315 | 0.350 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | BOTTOM | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.001 | 0.001 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | LEFT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.098 | 0.109 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |
| | RIGHT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.53 | 23.00 | 1.11 | 0.043 | 0.048 |
| | | H | 22.64 | 23.00 | 1.09 | --- | --- |

**Mode: LTE Band 4** fL (MHz)=1720MHz fM (MHz)= 1732.5MHz fH (MHz)= 1745MHz
**Limit of SAR (W/kg): <1.6W/kg (1g Average)**
1RB

| Exposure condition | Position | CH | Measure Conducted Power(dBm) | Tune-up limit(dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L1 | 23.84 | 24.00 | 1.04 | 0.906 | 0.942 |
| | | M1 | 23.65 | 24.00 | 1.08 | 0.858 | 0.927 |
| | | H1 | 23.64 | 24.00 | 1.09 | 0.977 | 1.065 |
| | | L2 | 23.84 | 24.00 | 1.04 | 0.900 | 0.936 |
| | | M2 | 23.65 | 24.00 | 1.08 | 0.853 | 0.921 |
| | | H2 | 23.64 | 24.00 | 1.09 | 0.972 | 1.059 |
| | LT | L1 | 23.84 | 24.00 | 1.04 | 0.822 | 0.855 |
| | | M1 | 23.65 | 24.00 | 1.08 | 0.823 | 0.889 |
| | | H1 | 23.64 | 24.00 | 1.09 | 0.767 | 0.836 |
| | | L2 | 23.84 | 24.00 | 1.04 | 0.821 | 0.854 |
| | | M2 | 23.65 | 24.00 | 1.08 | 0.820 | 0.886 |
| | | H2 | 23.64 | 24.00 | 1.09 | 0.764 | 0.833 |
| | RC | L1 | 23.84 | 24.00 | 1.04 | 1.009 | 1.049 |
| | | M1 | 23.65 | 24.00 | 1.08 | 1.020 | 1.102 |
| | | H1 | 23.64 | 24.00 | 1.09 | 1.170 | 1.275 |
| | | L2 | 23.84 | 24.00 | 1.04 | 1.001 | 1.041 |
| | | M2 | 23.65 | 24.00 | 1.08 | 1.013 | 1.094 |
| | | H2 | 23.64 | 24.00 | 1.09 | 1.165 | 1.270 |
| | | H[Note1] | 23.64 | 24.00 | 1.09 | 0.600 | 0.654 |
| | RT | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.702 | 0.758 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| BODY | BACK | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.534 | 0.577 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| | FRONT | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.323 | 0.349 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| | TOP | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.318 | 0.343 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| | BOTTOM | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.047 | 0.051 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| | LEFT | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.233 | 0.252 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |
| | RIGHT | L | 23.84 | 24.00 | 1.04 | --- | --- |
| | | M | 23.65 | 24.00 | 1.08 | 0.059 | 0.064 |
| | | H | 23.64 | 24.00 | 1.09 | --- | --- |

**Note1: Secondary supply worst case test result.**

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.721 | 0.793 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | LT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.701 | 0.771 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | RC | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.726 | 0.799 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | RT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.569 | 0.626 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| BODY | BACK | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.395 | 0.435 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | FRONT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.232 | 0.255 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | TOP | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.224 | 0.246 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | BOTTOM | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.001 | 0.001 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | LEFT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.149 | 0.164 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |
| | RIGHT | L | 22.65 | 23.00 | 1.08 | --- | --- |
| | | M | 22.6 | 23.00 | 1.10 | 0.042 | 0.046 |
| | | H | 22.62 | 23.00 | 1.09 | --- | --- |

**Mode: LTE Band 5**

fL (MHz)=829 MHz fM (MHz)=836.5MHz fH (MHz)= 844MHz

**Limit of SAR (W/kg) : <1.6W/kg (1g Average)**

1RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.152 | 0.163 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | LT | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.101 | 0.108 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | RC | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.185 | 0.198 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | RT | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.136 | 0.146 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| BODY | BACK | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.218 | 0.233 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | FRONT | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.182 | 0.195 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | TOP | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.001 | 0.001 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | BOTTOM | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.137 | 0.147 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | LEFT | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.124 | 0.133 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |
| | RIGHT | L | 23.32 | 24.00 | 1.17 | --- | --- |
| | | M | 23.71 | 24.00 | 1.07 | 0.196 | 0.210 |
| | | H | 23.61 | 24.00 | 1.09 | --- | --- |

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.147 | 0.154 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | LT | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.095 | 0.100 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | RC | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.127 | 0.133 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | RT | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.112 | 0.118 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| BODY | BACK | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.182 | 0.191 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | FRONT | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.142 | 0.149 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | TOP | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.001 | 0.001 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | BOTTOM | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.112 | 0.118 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | LEFT | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.102 | 0.107 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |
| | RIGHT | L | 22.43 | 22.50 | 1.02 | --- | --- |
| | | M | 22.29 | 22.50 | 1.05 | 0.150 | 0.158 |
| | | H | 22.32 | 22.50 | 1.04 | --- | --- |

**Mode: LTE Band 7**
fL (MHz)=2510 MHz fM (MHz)=2535MHz fH (MHz)= 2560MHz
**Limit of SAR (W/kg): <1.6W/kg (1g Average)**
1RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.027 | 0.030 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | LT | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.027 | 0.030 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | RC | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.068 | 0.075 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | RT | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.001 | 0.001 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| BODY | BACK | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.490 | 0.544 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | FRONT | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.325 | 0.361 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | TOP | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.001 | 0.001 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | BOTTOM | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.813 | 0.902 |
| | | M[Note1] | 23.05 | 23.50 | 1.11 | 0.810 | 0.899 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | LEFT | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.011 | 0.012 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |
| | RIGHT | L | 23.19 | 23.50 | 1.07 | --- | --- |
| | | M | 23.05 | 23.50 | 1.11 | 0.117 | 0.130 |
| | | H | 23.02 | 23.50 | 1.12 | --- | --- |

**Note1: Secondary supply worst case test result.**

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.020 | 0.022 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | LT | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.023 | 0.026 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | RC | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.057 | 0.063 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | RT | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.001 | 0.001 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| BODY | BACK | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.438 | 0.482 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | FRONT | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.288 | 0.317 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | TOP | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.001 | 0.001 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | BOTTOM | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.594 | 0.653 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | LEFT | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.001 | 0.001 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |
| | RIGHT | L | 22.51 | 23.00 | 1.12 | --- | --- |
| | | M | 22.58 | 23.00 | 1.10 | 0.103 | 0.113 |
| | | H | 22.52 | 23.00 | 1.12 | --- | --- |

**Mode: LTE Band 12**

fL (MHz)=704 MHz fM (MHz)=707.5MHz fH (MHz)= 711MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

1RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.145 | 0.152 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | LT | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.081 | 0.085 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | RC | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.093 | 0.098 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | RT | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.084 | 0.088 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| BODY | BACK | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.071 | 0.075 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | FRONT | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.055 | 0.058 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | TOP | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.001 | 0.001 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | BOTTOM | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.019 | 0.020 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | LEFT | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.051 | 0.054 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |
| | RIGHT | L | 23.33 | 23.50 | 1.04 | --- | --- |
| | | M | 23.30 | 23.50 | 1.05 | 0.070 | 0.074 |
| | | H | 23.27 | 23.50 | 1.05 | --- | --- |

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.111 | 0.112 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | LT | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.074 | 0.075 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | RC | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.074 | 0.075 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | RT | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.072 | 0.073 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| BODY | BACK | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.056 | 0.057 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | FRONT | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.045 | 0.045 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | TOP | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.001 | 0.001 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | BOTTOM | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.019 | 0.019 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | LEFT | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.044 | 0.044 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |
| | RIGHT | L | 22.32 | 22.50 | 1.04 | --- | --- |
| | | M | 22.46 | 22.50 | 1.01 | 0.059 | 0.060 |
| | | H | 22.31 | 22.50 | 1.04 | --- | --- |

**Mode: LTE Band 26**

fL (MHz)=866.5 MHz fM (MHz)=876.5MHz fH (MHz)= 841.5MHz

**Limit of SAR (W/kg): <1.6W/kg (1g Average)**

1RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.173 | 0.192 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | LT | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.104 | 0.115 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | RC | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.200 | 0.222 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | RT | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.001 | 0.001 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| BODY | BACK | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.057 | 0.063 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | FRONT | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.021 | 0.023 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | TOP | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.001 | 0.001 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | BOTTOM | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.001 | 0.001 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | LEFT | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.001 | 0.001 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |
| | RIGHT | L | 23.54 | 24.00 | 1.11 | --- | --- |
| | | M | 23.53 | 24.00 | 1.11 | 0.022 | 0.024 |
| | | H | 23.55 | 24.00 | 1.11 | --- | --- |

50%RB

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.164 | 0.169 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | LT | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.092 | 0.095 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | RC | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.109 | 0.112 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | RT | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.001 | 0.001 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| BODY | BACK | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.014 | 0.014 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | FRONT | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.010 | 0.010 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | TOP | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.001 | 0.001 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | BOTTOM | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.001 | 0.001 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | LEFT | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.001 | 0.001 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |
| | RIGHT | L | 22.41 | 22.50 | 1.02 | --- | --- |
| | | M | 22.39 | 22.50 | 1.03 | 0.019 | 0.020 |
| | | H | 22.43 | 22.50 | 1.02 | --- | --- |

**Mode: BT**

Limit of SAR (W/kg): <1.6W/kg (1g Average)

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | duty factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 8.95 | 10.00 | 1.27 | 1.30 | --- | --- |
| | | M | 9.34 | 10.00 | 1.16 | 1.30 | 0.061 | 0.092 |
| | | H | 9.69 | 10.00 | 1.07 | 1.30 | --- | --- |
| | LT | L | 8.95 | 10.00 | 1.27 | 1.30 | --- | --- |
| | | M | 9.34 | 10.00 | 1.16 | 1.30 | 0.054 | 0.081 |
| | | H | 9.69 | 10.00 | 1.07 | 1.30 | --- | --- |
| | RC | L | 8.95 | 10.00 | 1.27 | 1.30 | --- | --- |
| | | M | 9.34 | 10.00 | 1.16 | 1.30 | 0.057 | 0.086 |
| | | H | 9.69 | 10.00 | 1.07 | 1.30 | --- | --- |
| | RT | L | 8.95 | 10.00 | 1.27 | 1.30 | --- | --- |
| | | M | 9.34 | 10.00 | 1.16 | 1.30 | 0.052 | 0.078 |
| | | H | 9.69 | 10.00 | 1.07 | 1.30 | --- | --- |

| Estimated SAR | | | |
|---|---|---|---|
| MAX power | | Body-worn distance | Body-worn SAR |
| dBm | mw | mm | w/kg |
| 9.69 | 9.31 | 10 | 0.194 |

- *(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f_{(GHz)}}/x$] W/kg for test separation distances ≤ 50 mm;*
  where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.

**Mode: Wi-Fi 2.4GHz**

fL (MHz)=2412MHz fM (MHz)=2437MHz fH (MHz)= 2462MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

| Exposure condition | Position | CH | Measure Conducted Power (dBm) | Tune-up limit (dBm) | Scaling Factor | duty factor | Measure Results (W/kg) 1g Average | Reported Results (W/kg) 1g Average |
|---|---|---|---|---|---|---|---|---|
| HEAD | LC | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.383 | 0.414 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | LT | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.440 | 0.476 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | RC | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.142 | 0.153 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | RT | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.183 | 0.198 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| BODY | BACK | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.047 | 0.050 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | FRONT | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.024 | 0.026 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | TOP | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.043 | 0.046 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | BOTTOM | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.001 | 0.001 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | LEFT | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.001 | 0.001 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |
| | RIGHT | L | 17.98 | 18.00 | 1.00 | 1.01 | --- | --- |
| | | M | 17.70 | 18.00 | 1.07 | 1.01 | 0.024 | 0.026 |
| | | H | 17.67 | 18.00 | 1.08 | 1.01 | --- | --- |

## 6.11 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; steps 2) 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 ≥ 1.45 W/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.

The Highest Reported/Estimated SAR configuration in Each Frequency Band

| Frequency band | Air interface | Head SAR(w/kg) | Body-worn SAR(w/kg) | Hotspot SAR(w/kg) |
|---|---|---|---|---|
| Below 1GHz | GSM850<br>WCDMA BANDV<br>LTE BAND5<br>LTE BAND12<br>LTE BAND26 | <0.8 | <0.8 | <0.8 |
| 1GHz-2GHz | GSM1900<br>WCDMA BANDII<br>WCDMA BANDIV<br>LTE BAND2<br>LTE BAND4 | >0.8 | <0.8 | <0.8 |
| 2GHz-3GHz | BT<br>WIFI 2.4GHz<br>LTE BAND7 | <0.8 | <0.8 | >0.8 |

## 6.12 Simultaneous Transmission SAR Analysis

| Antenna numbers of Simultaneous Transmission | Antennas of Simultaneous Transmission | Simultaneous Transmission Modes |
|---|---|---|
| 2 | MAIN ANT+ WLAN/BT ANT<br>DIVANT + WLAN/BT ANT | Celluar2/3/4G+WIFI 2.4GHz<br>Celluar2/3/4G+BT |

**Head exposure**

| Position of worst case | Licensed band | Unlicensed band | Simultaneous SAR(w/kg) |
|---|---|---|---|
| Left Cheek | LTE band 4 | WIFI 2.4G | 1.48 |

**Body-worn exposure**

| Position of worst case | Licensed band | Unlicensed band | Simultaneous SAR(w/kg) |
|---|---|---|---|
| Back | LTE band 4 | BT | 0.68 |

**Hotspot exposure**

| Position of worst case | Licensed band | Unlicensed band | Simultaneous SAR(w/kg) |
|---|---|---|---|
| Bottom | LTE band 7 | WIFI 2.4G | 0.90 |

According to the above tables, all the exposure condition of SAR values＜1.6W/kg.

# 7 MEASUREMENT UNCERTAINTY

| (0.3 - 3 GHz range) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) 1g | ($c_i$) 10g | Std. Unc. (1g) | Std. Unc. (10g) | ($v_i$) $v_{eff}$ |
| **Measurement System** | | | | | | | | |
| Probe Calibration | ±6.0% | N | 1 | 1 | 1 | ±6.0% | ±6.0% | ∞ |
| Axial Isotropy | ±4.7% | R | $\sqrt{3}$ | 0.7 | 0.7 | ±1.9% | ±1.9% | ∞ |
| Hemispherical Isotropy | ±9.6% | R | $\sqrt{3}$ | 0.7 | 0.7 | ±3.9% | ±3.9% | ∞ |
| Boundary Effects | ±1.0% | R | $\sqrt{3}$ | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% | ∞ |
| System Detection Limits | ±1.0% | R | $\sqrt{3}$ | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Modulation Response$^m$ | ±2.4% | R | $\sqrt{3}$ | 1 | 1 | ±1.4% | ±1.4% | ∞ |
| Readout Electronics | ±0.3% | N | 1 | 1 | 1 | ±0.3% | ±0.3% | ∞ |
| Response Time | ±0.8% | R | $\sqrt{3}$ | 1 | 1 | ±0.5% | ±0.5% | ∞ |
| Integration Time | ±2.6% | R | $\sqrt{3}$ | 1 | 1 | ±1.5% | ±1.5% | ∞ |
| RF Ambient Noise | ±3.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| RF Ambient Reflections | ±3.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Probe Positioner | ±0.4% | R | $\sqrt{3}$ | 1 | 1 | ±0.2% | ±0.2% | ∞ |
| Probe Positioning | ±2.9% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Max. SAR Eval. | ±2.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.2% | ±1.2% | ∞ |
| **Test Sample Related** | | | | | | | | |
| Device Positioning | ±2.9% | N | 1 | 1 | 1 | ±2.9% | ±2.9% | 145 |
| Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% | 5 |
| Power Drift | ±5.0% | R | $\sqrt{3}$ | 1 | 1 | ±2.9% | ±2.9% | ∞ |
| Power Scaling$^p$ | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0.0% | ±0.0% | ∞ |
| **Phantom and Setup** | | | | | | | | |
| Phantom Uncertainty | ±6.1% | R | $\sqrt{3}$ | 1 | 1 | ±3.5% | ±3.5% | ∞ |
| SAR correction | ±1.9% | R | $\sqrt{3}$ | 1 | 0.84 | ±1.1% | ±0.9% | ∞ |
| Liquid Conductivity (mea.)$^{DAK}$ | ±2.5% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.1% | ±1.0% | ∞ |
| Liquid Permittivity (mea.) $^{DAK}$ | ±2.5% | R | $\sqrt{3}$ | 0.26 | 0.26 | ±0.3% | ±0.4% | ∞ |
| Temp. unc. - Conductivity $^{BB}$ | ±3.4% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5% | ±1.4% | ∞ |
| Temp. unc. - Permittivity $^{BB}$ | ±0.4% | R | $\sqrt{3}$ | 0.23 | 0.26 | ±0.1% | ±0.1% | ∞ |
| Combined Std. Uncertainty | | | | | | ±11.2% | ±11.1% | 361 |
| **Expanded STD Uncertainty** | | | | | | **±22.3%** | **±22.2%** | |

| (3 - 6 GHz range) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Error Description | Uncert. value | Prob. Dist. | Div. | $(c_i)$ 1g | $(c_i)$ 10g | Std. Unc. (1g) | Std. Unc. (10g) | $(v_i)$ $v_{eff}$ |
| **Measurement System** | | | | | | | | |
| Probe Calibration | ±6.55 % | N | 1 | 1 | 1 | ±6.55 % | ±6.55 % | ∞ |
| Axial Isotropy | ±4.7 % | R | $\sqrt{3}$ | 0.7 | 0.7 | ±1.9 % | ±1.9 % | ∞ |
| Hemispherical Isotropy | ±9.6 % | R | $\sqrt{3}$ | 0.7 | 0.7 | ±3.9 % | ±3.9 % | ∞ |
| Boundary Effects | ±2.0 % | R | $\sqrt{3}$ | 1 | 1 | ±1.2 % | ±1.2 % | ∞ |
| Linearity | ±4.7 % | R | $\sqrt{3}$ | 1 | 1 | ±2.7 % | ±2.7 % | ∞ |
| System Detection Limits | ±1.0 % | R | $\sqrt{3}$ | 1 | 1 | ±0.6 % | ±0.6 % | ∞ |
| Modulation Response$^{m}$ | ±2.4 % | R | $\sqrt{3}$ | 1 | 1 | ±1.4 % | ±1.4 % | ∞ |
| Readout Electronics | ±0.3 % | N | 1 | 1 | 1 | ±0.3 % | ±0.3 % | ∞ |
| Response Time | ±0.8 % | R | $\sqrt{3}$ | 1 | 1 | ±0.5 % | ±0.5 % | ∞ |
| Integration Time | ±2.6 % | R | $\sqrt{3}$ | 1 | 1 | ±1.5 % | ±1.5 % | ∞ |
| RF Ambient Noise | ±3.0 % | R | $\sqrt{3}$ | 1 | 1 | ±1.7 % | ±1.7 % | ∞ |
| RF Ambient Reflections | ±3.0 % | R | $\sqrt{3}$ | 1 | 1 | ±1.7 % | ±1.7 % | ∞ |
| Probe Positioner | ±0.8 % | R | $\sqrt{3}$ | 1 | 1 | ±0.5 % | ±0.5 % | ∞ |
| Probe Positioning | ±6.7 % | R | $\sqrt{3}$ | 1 | 1 | ±3.9 % | ±3.9 % | ∞ |
| Max. SAR Eval. | ±4.0 % | R | $\sqrt{3}$ | 1 | 1 | ±2.3 % | ±2.3 % | ∞ |
| **Test Sample Related** | | | | | | | | |
| Device Positioning | ±2.9 % | N | 1 | 1 | 1 | ±2.9 % | ±2.9 % | 145 |
| Device Holder | ±3.6 % | N | 1 | 1 | 1 | ±3.6 % | ±3.6 % | 5 |
| Power Drift | ±5.0 % | R | $\sqrt{3}$ | 1 | 1 | ±2.9 % | ±2.9 % | ∞ |
| Power Scaling$^{p}$ | ±0 % | R | $\sqrt{3}$ | 1 | 1 | ±0.0 % | ±0.0 % | ∞ |
| **Phantom and Setup** | | | | | | | | |
| Phantom Uncertainty | ±6.6 % | R | $\sqrt{3}$ | 1 | 1 | ±3.8 % | ±3.8 % | ∞ |
| SAR correction | ±1.9 % | R | $\sqrt{3}$ | 1 | 0.84 | ±1.1 % | ±0.9 % | ∞ |
| Liquid Conductivity (mea.)$^{DAK}$ | ±2.5 % | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.1 % | ±1.0 % | ∞ |
| Liquid Permittivity (mea.) $^{DAK}$ | ±2.5 % | R | $\sqrt{3}$ | 0.26 | 0.26 | ±0.3 % | ±0.4 % | ∞ |
| Temp. unc. - Conductivity $^{BB}$ | ±3.4 % | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5 % | ±1.4 % | ∞ |
| Temp. unc. - Permittivity $^{BB}$ | ±0.4 % | R | $\sqrt{3}$ | 0.23 | 0.26 | ±0.1 % | ±0.1 % | ∞ |
| Combined Std. Uncertainty | | | | | | ±12.3 % | ±12.2 % | 748 |
| **Expanded STD Uncertainty** | | | | | | **±24.6 %** | **±24.5 %** | |

## 8 TEST EQUIPMENTS

The measurements were performed using an automated near-field scanning system, DASY5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the 'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

| Test Equipment | Model | Serial Number | Calibration date | Calibration Due data |
|---|---|---|---|---|
| DAE | DAE4 | 720 | 2020.09.30 | 2021.08.31 |
| Dosimetric E-field Probe | ES3DV3 | 3127 | 2020.09.01 | 2021.08.31 |
| Dipole Validation Kit | D750V3 | 4d023 | 2020.10.16 | 2023.09.12 |
| Dipole Validation Kit | D835V2 | 4d023 | 2020.10.16 | 2023.10.15 |
| Dipole Validation Kit | D1800V2 | 2d084 | 2020.09.18 | 2023.09.17 |
| Dipole Validation Kit | D2000V2 | 1009 | 2020.10.14 | 2023.01.31 |
| Dipole Validation Kit | D2450V2 | 738 | 2020.10.13 | 2023.10.12 |
| Dipole Validation Kit | D2600V2 | 1166 | 2019.11.08 | 2022.11.08 |
| Dipole Validation Kit | D5GHzV2 | 1079 | 2020.10.10 | 2021.10.09 |

Additional test equipment used in testing:

| Test Equipment | Model | Serial Number | Calibration date | Calibration Due data |
|---|---|---|---|---|
| Signal Generator | E4428C | MY45280865 | 2020.08.20 | 2021.08.19 |
| Signal Generator | SML 03 | 103514 | 2020.08.20 | 2021.08.19 |
| Power meter | E4417A | MY45101182 | 2020.08.20 | 2021.08.19 |
| Power Sensor | E4412A | MY41502214 | 2020.08.20 | 2021.08.19 |
| Power Sensor | E4412A | MY41502130 | 2020.08.20 | 2021.08.19 |
| Power meter | E4417A | MY45101004 | 2020.08.20 | 2021.08.19 |
| Power Sensor | E9300B | MY41496001 | 2020.08.20 | 2021.08.19 |
| Power Sensor | E9300B | MY41496003 | 2020.08.20 | 2021.08.19 |
| Communication Tester | E5515C | MY48367401 | 2020.08.20 | 2021.08.19 |
| Communication Tester | CMW500 | 161702 | 2020.08.20 | 2021.08.19 |
| Communication Tester | MT8820C | 6201300660 | 2020.08.20 | 2021.08.19 |
| Communication Tester | MT8821C | 6201547819 | 2020.08.20 | 2021.08.19 |
| Vector Network Analyzer | VNA R140 | 0011213 | 2020.09.18 | 2021.09.17 |
| Dielectric Parameter Probe | DAKS-3.5 | 1042 | 2020.09.17 | 2021.09.16 |

Detailed information of Isotropic E-field Probe Type ES3DV3

| | |
|---|---|
| Construction | Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| Calibration | Calibration certificate in Appendix C |
| Frequency | 10 MHz to 4 GHz;<br>Linearity: ± 0.2 dB (30 MHz to 4 GHz) |
| Optical Surface Detection | ± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces |
| Dimensions | Overall length: 337 mm (Tip: 20 mm)<br>Tip diameter: 3.9 mm (Body: 12 mm)<br>Distance from probe tip to dipole centers: 2.0 mm |
| Dynamic Range | 5 µW/g to > 100 W/kg; Linearity: ± 0.2 dB |
| Application | General dosimetry up to 4 GHz<br>Dosimetry in strong gradient fields<br>Compliance tests of mobile phones |

Detailed information of Isotropic E-field Probe Type EX3DV4

| | |
|---|---|
| Construction | Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| Calibration | Calibration certificate in Appendix C |
| Frequency | 10 MHz to > 6 GHz<br>Linearity: ± 0.2 dB (30 MHz to 6 GHz) |
| Optical Surface Detection | ± 0.3 mm repeatability in air and clear liquids over diffuse reflecting surfaces |
| Dimensions | Overall length: 337 mm (Tip: 20 mm)<br>Tip diameter: 2.5 mm (Body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm |
| Dynamic Range | 10 µW/g to > 100 W/kg<br>Linearity: ± 0.2 dB (noise: typically < 1 µW/g) |
| Application | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%. |

According to KDB 865664 D01 section 3.2.2, instead of the typical annual calibration recommended by measurement standards, 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 following requirements.

1) The test laboratory must ensure that the required supporting information and documentation are included in the SAR report to qualify for the three-year extended calibration interval; otherwise, the IEEE Std 1528-2013 recommended annual calibration applies.
2) Immediate re-calibration is required for the following conditions.
a) After a dipole is damaged and properly repaired to meet required specifications.
b) When the measured SAR deviates from the calibrated SAR value by more than 10% due to changes in physical, mechanical, electrical or other relevant dipole conditions; i.e., the error is not introduced by incorrect measurement procedures or other issues relating to the SAR measurement system.
c) When the most recent return-loss result, measured at least annually, deviates by more than 20% from the previous measurement (i.e. value in dB×0.2) or not meeting the required 20 dB minimum return-loss requirement.
d) When the most recent measurement of the real or imaginary parts of the impedance, measured at least annually, deviates by more than 5 Ω from the previous measurement.

## Dipole 750

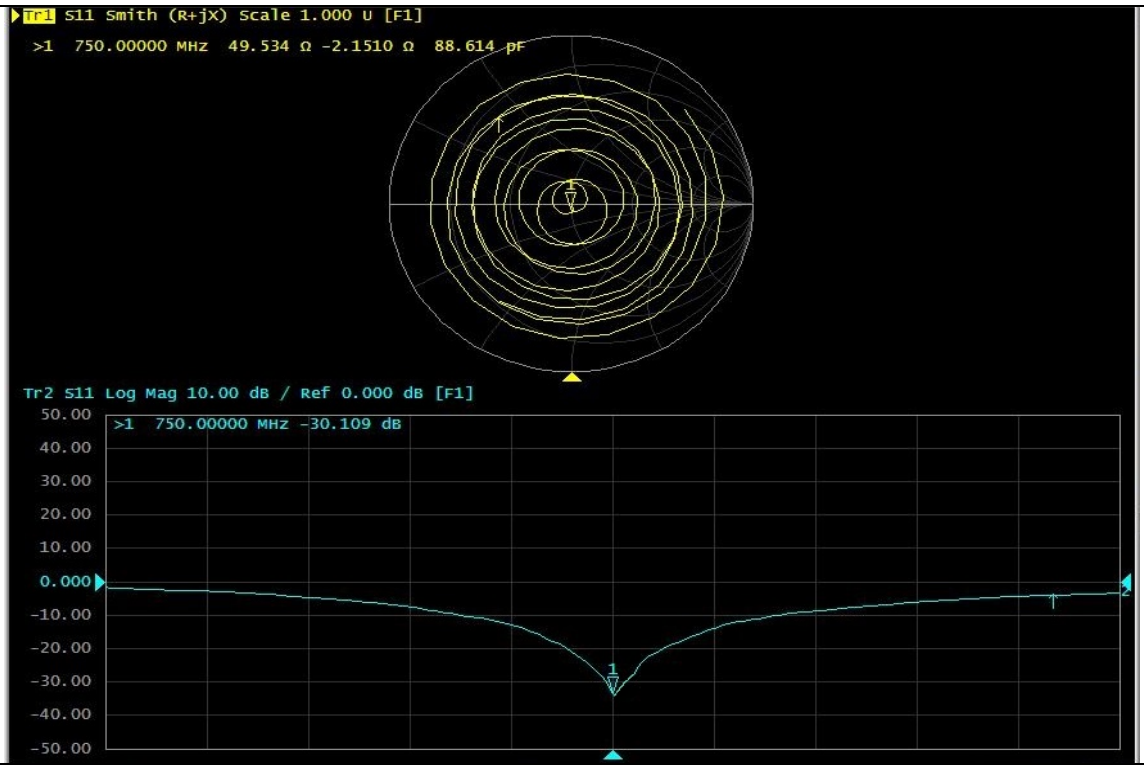
### SAR target

Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

### Impedance and Return loss measured by Network analyzer

The most recent measurement of the real or imaginary parts of the impedance, deviates within 5 Ω from the previous measurement. (Data from the last calibration report)
The most recent return-loss result deviates within 20% from the previous measurement. (Data from the last calibration report)

| Head TSL Parameters | | | |
|---|---|---|---|
| Parameters | Target (Ref. Value) | Measured data | Deviation |
| Impedance | 53.9Ω+0.24jΩ | 49.5Ω-2.15jΩ | <5Ω |
| Return loss | -28.4dB | -29.8dB | <20% |




Head TSL Parameters

## Dipole 835

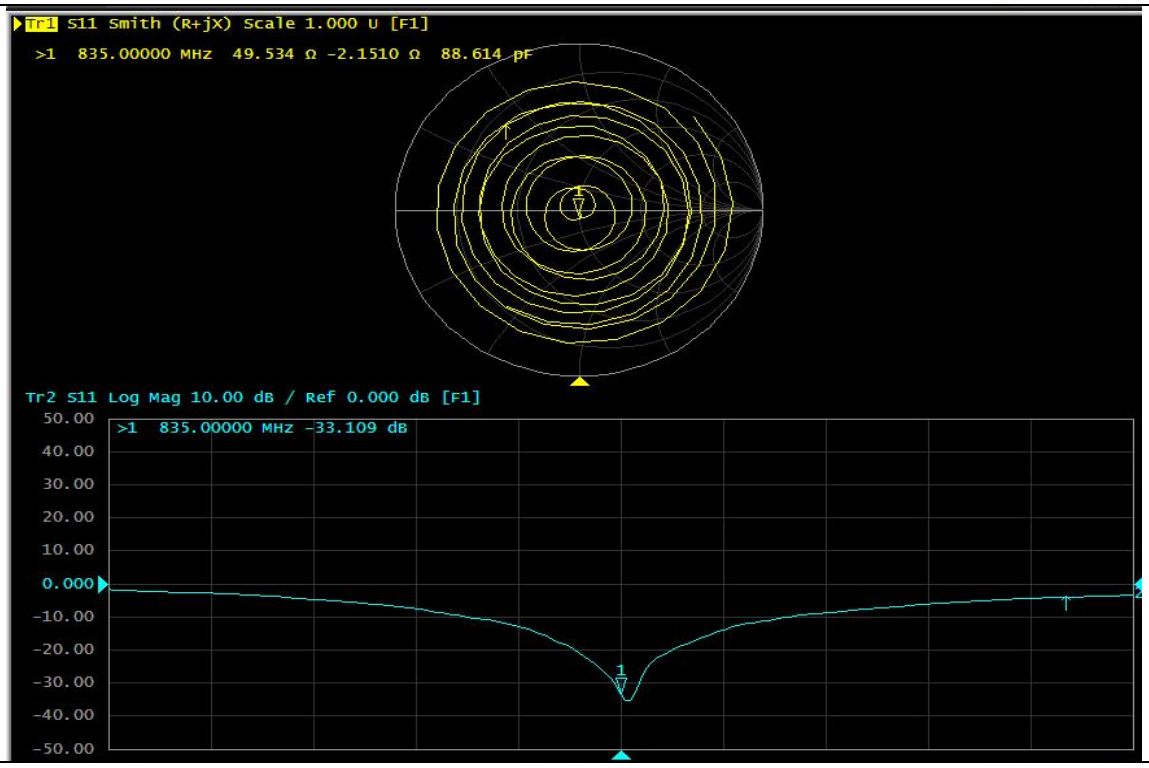
**SAR target**

Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

**Impedance and Return loss measured by Network analyzer**

The most recent measurement of the real or imaginary parts of the impedance, deviates within 5 Ω from the previous measurement. (Data from the last calibration report)
The most recent return-loss result deviates within 20% from the previous measurement. (Data from the last calibration report)

| TSL Parameters | | | |
|---|---|---|---|
| Parameters | Target (Ref. Value) | Measured data | Deviation |
| Impedance | 51.0Ω-2.79jΩ | 49.5Ω-2.15jΩ | <5Ω |
| Return loss | -30.7 dB | -33.1 dB | <20% |




TSL Parameters

## Dipole1800

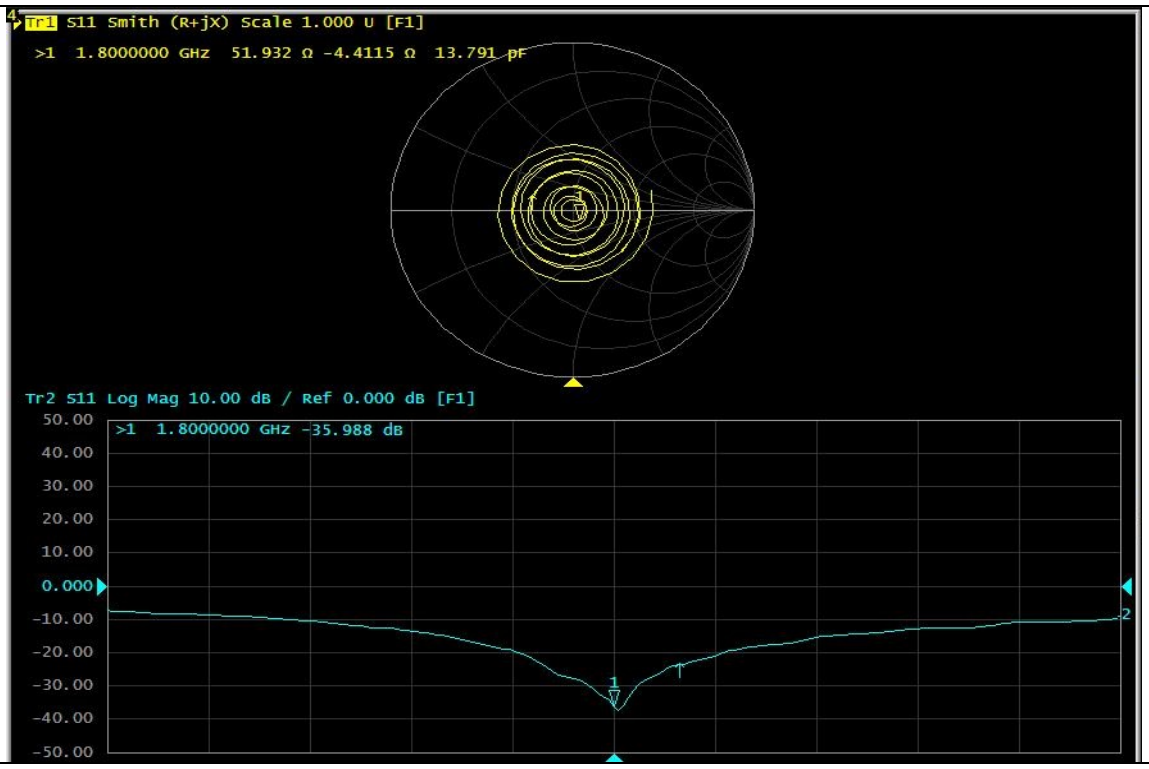
**SAR target**

Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

**Impedance and Return loss measured by Network analyzer**

The most recent measurement of the real or imaginary parts of the impedance, deviates within 5 Ω from the previous measurement. (Data from the last calibration report)
The most recent return-loss result deviates within 20% from the previous measurement. (Data from the last calibration report)

| TSL Parameters | | | |
|---|---|---|---|
| Parameters | Target (Ref. Value) | Measured data | Deviation |
| Impedance | 49.3Ω-1.55jΩ | 51.9Ω-4.41jΩ | <5Ω |
| Return loss | -35.4 dB | -36.0dB | <20% |




TSL Parameters

## Dipole2000

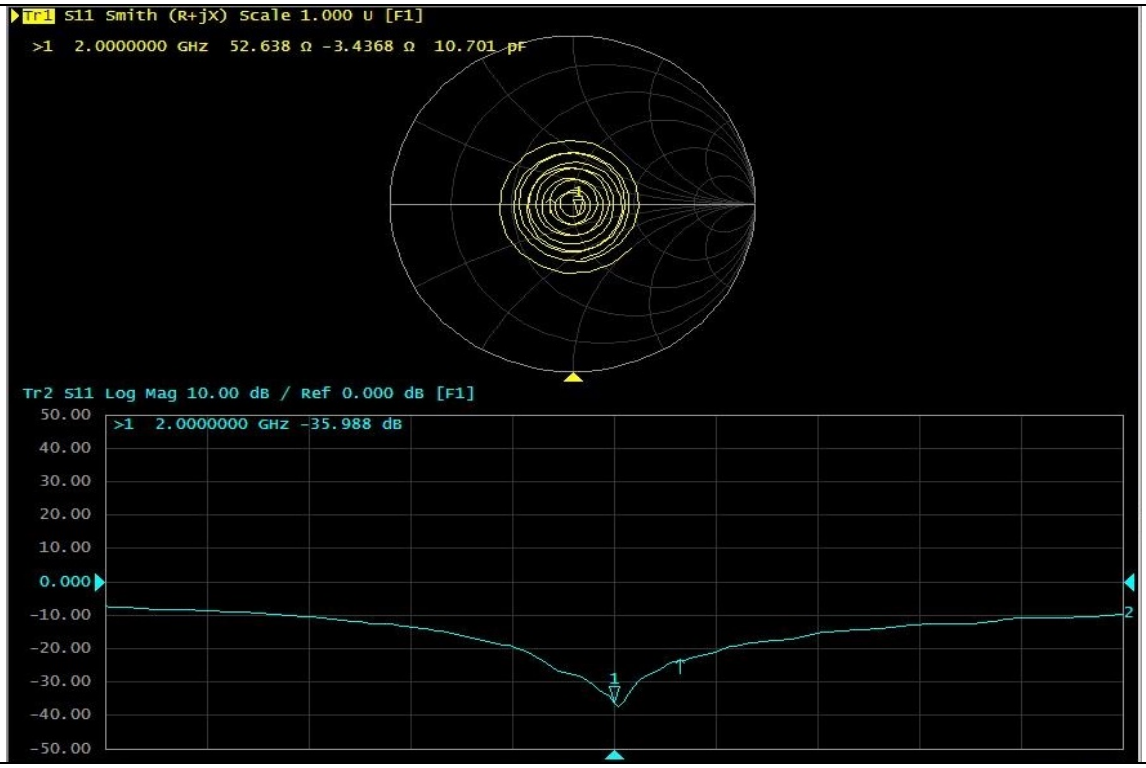
**SAR target**

Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

**Impedance and Return loss measured by Network analyzer**

The most recent measurement of the real or imaginary parts of the impedance, deviates within 5 Ω from the previous measurement. (Data from the last calibration report)
The most recent return-loss result deviates within 20% from the previous measurement. (Data from the last calibration report)

| TSL Parameters | | | |
|---|---|---|---|
| Parameters | Target (Ref. Value) | Measured data | Deviation |
| Impedance | 49.8Ω-2.08jΩ | 52.6Ω-3.44jΩ | <5Ω |
| Return loss | -33.6dB | -36.0dB | <20% |




TSL Parameters

## Dipole2450

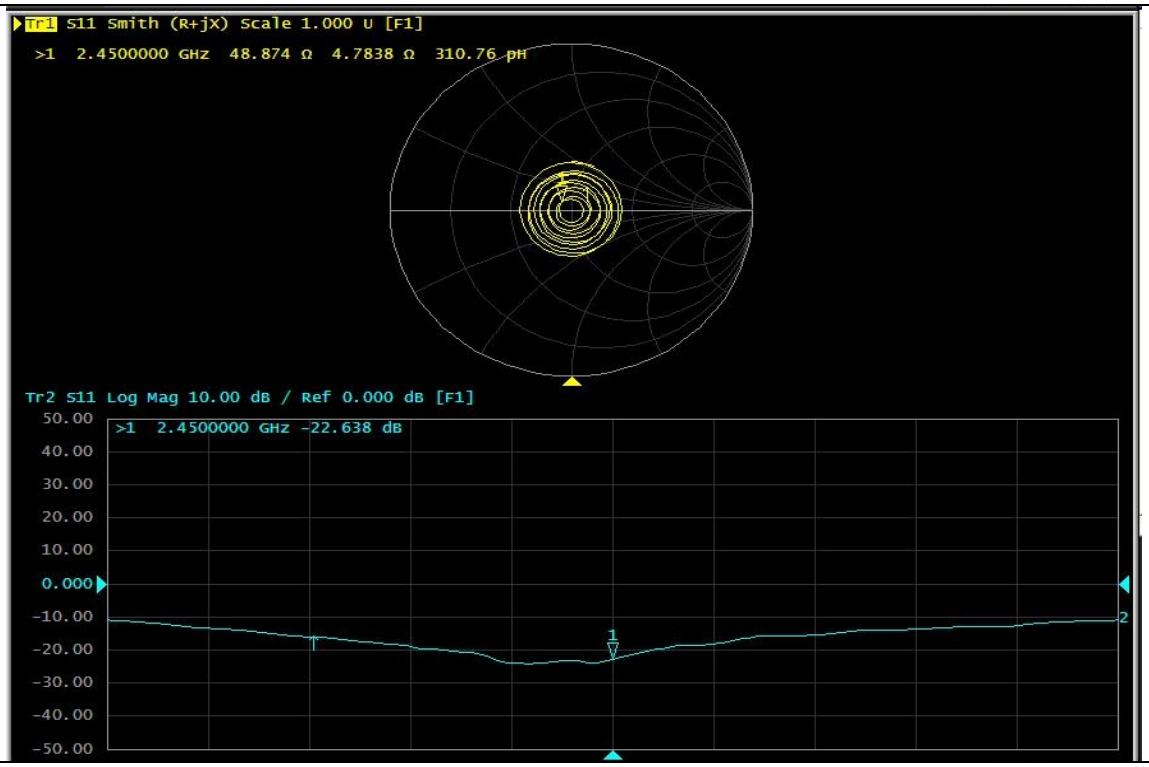
**SAR target**

Refers to system check, measured SAR (1g and 10g) deviates from the Target SAR value of calibration report within 10%.

**Impedance and Return loss measured by Network analyzer**

The most recent measurement of the real or imaginary parts of the impedance deviates within 5 Ω from the previous measurement. (Data from the last calibration report)
The most recent return-loss result deviates within 20% from the previous measurement. (Data from the last calibration report)

| TSL Parameters | | | |
|---|---|---|---|
| Parameters | Target (Ref. Value) | Measured data | Deviation |
| Impedance | 51.3Ω+5.92jΩ | 48.9Ω+4.78jΩ | <5Ω |
| Return loss | -24.5 dB | -22.6dB | <20% |




TSL Parameters

## ANNEX A – TEST PLOTS

Please refer to the attachment.

## ANNEX B – RELEVANT PAGES FROM CALIBRATION REPORTS

Please refer to the attachment.