# TEST REPORT FOR SAR TESTING

| | |
|---|---|
| Report No.: | SRTC2023-9004(F)-23111502(H) |
| Product Name: | Wireless Data Terminal |
| Model Name: | H651-62M2 |
| Applicant: | SoftBank Robotics Corp. |
| FCC ID: | 2ATI9-H65162M2 |

| Reference Specification |
|---|
| Part 2.1093 |
| IEEE Std 1528 |
| KDB Procedures |

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# 1 GENERAL INFORMATION

## 1.1 Notes of the test report

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## 1.2 Information about the testing laboratory

| | |
|---|---|
| Company: | The State Radio_monitoring_center Testing Center (SRTC) |
| Designation number: | CN1267 |
| Registration number: | 239125 |
| Address: | 15th Building, No.30 Shixing Street, Shijingshan District, Beijing P.R.China |
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## 1.3 Applicant's details

| | |
|---|---|
| Company: | SoftBank Robotics Corp. |
| Address: | 7-1, Kaigan 1-chome, Minato-ku, Tokyo, Japan |

## 1.4 Manufacturer's details

| | |
|---|---|
| Company: | Shenzhen United Time Technology Co.,LTD |
| Address: | F2.64D-403,Tianzhan Building,Tian'an Cyber Park,Futian District,Shenzhen |

# 2 DESCRIPTION OF THE EQUIPMENT UNDER TEST

## 2.1 DUT information

| Band Information |
|---|
| WCDMA Band II |
| WCDMA Band IV |
| WCDMA Band V |
| LTE Band2 |
| LTE Band4 |
| LTE Band5 |
| LTE Band7 |
| LTE Band12 |
| LTE Band17 |
| LTE Band38 |

| Mode supported | Note |
|---|---|
| WCDMA_RMC Rel.99 | NA |
| WCDMA_HSDPA Rel.5 | NA |
| WCDMA_HSUPA Rel.6 | NA |
| WCDMA_HSPA+ Rel.7 | NA |
| WCDMA_DC-HSDPA Rel.8 | NA |
| LTE_QPSK | NA |
| LTE_16QAM | NA |
| LTE_64QAM | NA |

## 2.2 Exposure conditions

**General description**

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".

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.

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.

Body Configuration: Body SAR is measured for all edges and surfaces of the device or refer to hotspot configuration. (For the device such as tablet and mobile phone etc.)

Limb Configuration: Extremity limb SAR is measured for all edges and surfaces of the device or refer to hotspot configuration.

Body-support Configuration: Body-support device such as laptop is not commonly require SAR test.

| DUT Exposure Condition | Distance(mm) |
|---|---|
| Limb | 0 |

## 2.3 Other information

| | |
|---|---|
| Testing Start Date: | 2023/11/16 |
| Testing End Date: | 2023/12/6 |
| SN: | 353092150000156 / 353092150000164 |
| DUT H/W Version: | G11R |
| DUT S/W Version: | H651-62M2_ V1.12_20231030 |
| Ambient Temperature: | 25℃ |
| Humidity: | 35% |
| Note | N/A |

## 2.4 Usage scenario description

The product tested in this test is used as the screen of a cleaning robot. Considering the actual application scenario, the device is far away from the human body, so the test condition of this test is close, and the test distance is 0 mm.


# 3 SPECIFICATION

| Specification | Version | Title |
|---|---|---|
| Part 2.1093 | Latest | Radio frequency 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 |
| IEC/IEEE 62209-1528 | 2020 | Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1528: Human models, instrumentation, and (Frequency range of 4 MHz to 10 GHz) |
| KDB 248227 D01 | v02r02 | SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS |
| KDB 447498 D01 | v06 | General RF Exposure Guidance |
| KDB 447498 D02 | v02r01 | SAR MEASUREMENT PROCEDURES FOR USB DONGLE TRANSMITTERS |
| KDB 643646 D01 | v01r03 | SAR TEST REDUCTION CONSIDERATIONS FOR OCCUPATIONAL PTT RADIOS |
| KDB 616217 D04 | v01r02 | SAR for laptop and tablets |
| KDB 648474 D04 | v01r03 | Handset SAR |
| KDB 865664 D01 | v01r04 | SAR Measurement from 100 MHz to 6 GHz |
| KDB 865664 D02 | v01r02 | RF Exposure Reporting |
| KDB 941225 D01 | v03r01 | 3G SAR MEAUREMENT PROCEDURES |
| KDB 941225 D05 | v02r05 | SAR for LTE Devices |
| KDB 941225 D06 | v02r01 | SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES |
| KDB 941225 D07 | v01r02 | SAR EVALUATION PROCEDURES FOR UMPC MINI-TABLET DEVICES |

# 4 TEST CONDITIONS

## 4.1 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. Non-signaling mode also applied.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 lowest, middle and highest channels.

## 4.2 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- probe 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 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical Downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection .The robot uses its own controller with a built in VME-bus computer.

## 4.3 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. 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 (see Section 4.6.1) 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.

## 4.4 Tissue stimulants

Recommended values for the dielectric parameters of the tissue simulants are given in reference standards. The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements. The following tissue stimulants were used for test:

| Name | Broadband tissue-equivalent liquid |
|---|---|
| Type | HBBL600-10000V6 Simulating Liquid |
| Supplier | SPEAG |

Liquid depth for SAR Measurement

## 4.5 Device holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy52 system.

## 4.6 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

## 4.7 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 trivariate 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 SUMMARY

The maximum reported SAR values for all exposure conditions supported are given as following. The device meet the compliance.

| Licensed Band Standalone Transmission Summary(1g) | | | | | |
|---|---|---|---|---|---|
| Distance(mm) | Frequency Band | SAR Result(W/kg) | Highest SAR Result(W/kg) 1g | Limit(W/kg) | Verdict |
| Limb | WCDMA Band II | 1.95 | 1.96 | 4.0 | Pass |
| | WCDMA Band IV | 0.80 | | | |
| | WCDMA Band V | 0.84 | | | |
| | LTE Band2 | 1.70 | | | |
| | LTE Band4 | 1.96 | | | |
| | LTE Band5 | 1.01 | | | |
| | LTE Band7 | 1.09 | | | |
| | LTE Band12 | 0.96 | | | |
| | LTE Band17 | 0.95 | | | |
| | LTE Band38 | 0.51 | | | |

| | |
|---|---|
| This Test Report Is Approved by:<br>Mr. Peng Zhen | Review by:<br>Mr. Li Bin |
| Tested and issued by:<br>Mr. Hui Wen | Approved date:<br>20231214 |

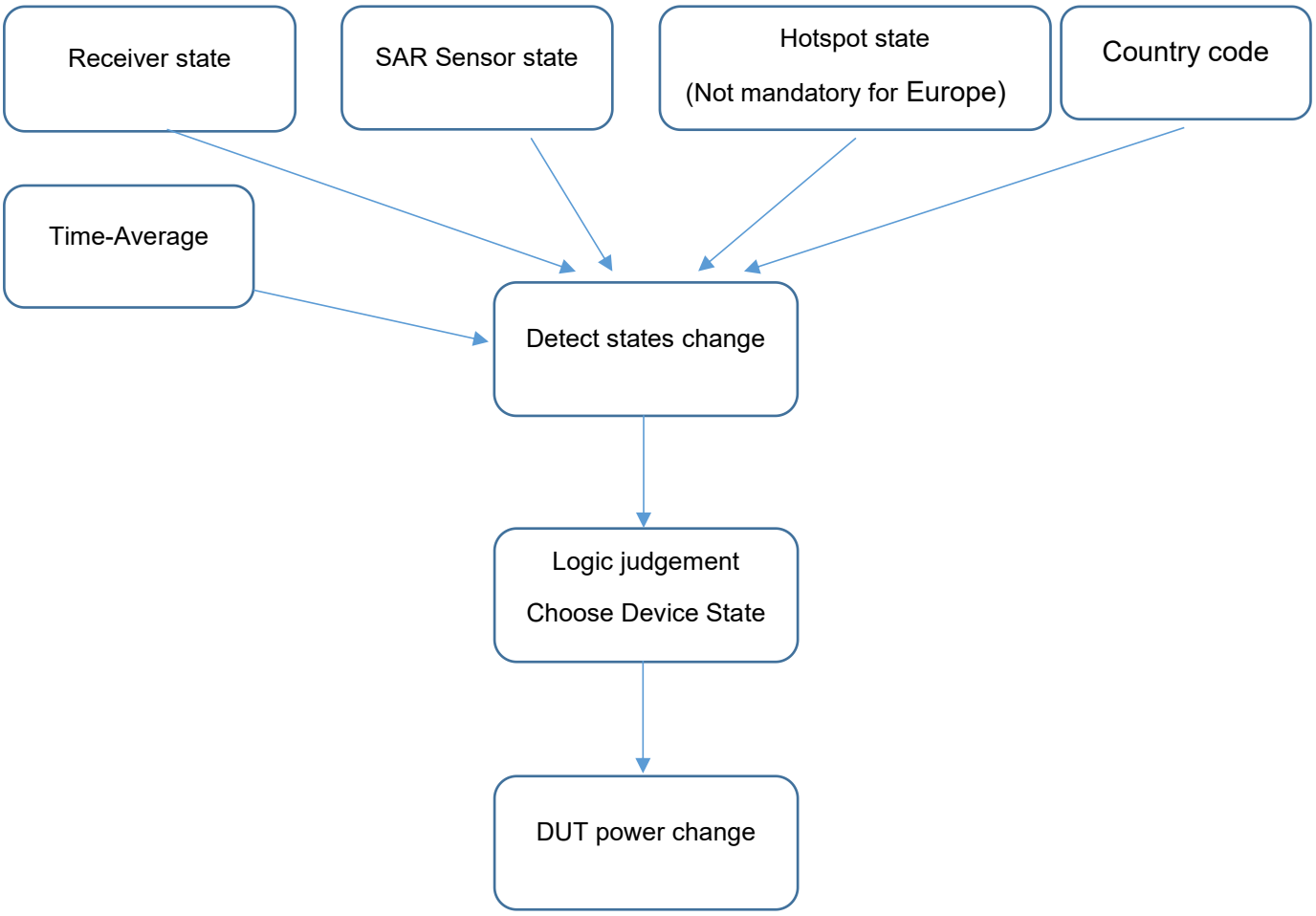
# 6 TEST RESULTS

## 6.1 Scenario

**General description:**

In common, there are several power change schemes based on technologies mentioned below, but different product use different method to change conducted power for relevant transmitters. These methods could be used together on both standalone and simultaneous transmission (Depends on specific scenario)

| | |
|---|---|
| Receiver: | Triggered when receive ON/OFF |
| P-sensor: | Triggered when sensor ON/OFF |
| Hotspot: | Triggered when hotspot ON/OFF |
| Country code: | Triggered through MCC/A-GNSS |
| TA: | Time average SAR based on Qualcomm |



| DUT Power change scheme | Description | Whether support or not |
|---|---|---|
| Receiver: | Triggered when receive ON/OFF | Not support |
| P-sensor: | Triggered when sensor ON/OFF | Not support |
| Body: | Triggered when hotspot ON/OFF | Not support |
| Country code: | Triggered through MCC/A-GNSS | Not support |
| TA: | Time average SAR based on Qualcomm | Not support |

## 6.2 Average conducted power with Tune up tolerance

### 6.2.1 WCDMA

**General description:**

Release 99

The following tests were completed according to the test requirements outlined in 3GPP TS34.121-1 specification.

| 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 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 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 | Processes | 6 |
| Information Bit Payload ($N_{INF}$) | Bits | 120 |
| Number Code Blocks | Blocks | 1 |
| Binary Channel Bits Per TTI | Bits | 960 |
| Total Available SML's in UE | SML's | 19200 |
| Number of SML's per HARQ Proc. | SML's | 3200 |
| Coding Rate | | 0.15 |
| Number of Physical Channel Codes | Codes | 1 |
| Modulation | | QPSK |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. | | |
| 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. | | |

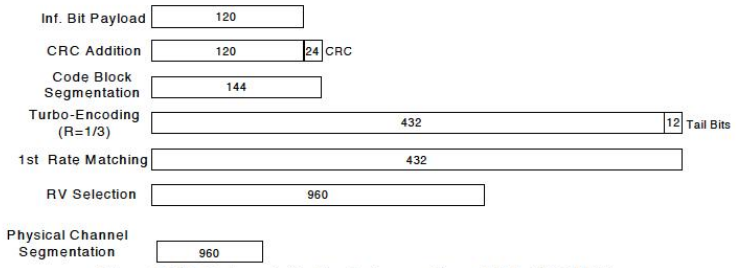



**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in 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 $\beta_d=15/15$.

**Note: UMTS SAR was tested under Rel.99 RMC 12.2kbps mode. For other higher release configuration, SAR was not required.**

***Licensed SISO1.***

Main ANT

band II

| Mode | | RF Output Power(dBm) | | | Tuneup Tolerance (dBm) |
|---|---|---|---|---|---|
| | | 9262 | 9400 | 9538 | |
| | | 1852.4 | 1880 | 1907.6 | |
| Release 99 | RMC,12.2kbps | 22.13 | 22.38 | 22.37 | 22.5 |
| HSDPA | Subtest1 | 21.13 | 21.21 | 21.36 | 21.5 |
| | Subtest2 | 20.59 | 20.66 | 20.82 | 21.0 |
| | Subtest3 | 20.11 | 20.17 | 20.31 | 20.5 |
| | Subtest4 | 19.60 | 19.66 | 19.82 | 20.0 |
| HSUPA | Subtest1 | 19.15 | 19.20 | 19.34 | 19.5 |
| | Subtest2 | 19.15 | 19.21 | 19.37 | 19.5 |
| | Subtest3 | 20.11 | 20.17 | 20.32 | 20.5 |
| | Subtest4 | 18.67 | 18.75 | 18.91 | 19.0 |
| | Subtest5 | 20.54 | 20.61 | 20.78 | 21.0 |
| HSPA+ | QPSK | 20.46 | 20.50 | 20.68 | 21.0 |
| | 16QAM | 20.44 | 20.49 | 20.66 | 21.0 |
| DC-HSDPA | Subtest1 | 21.14 | 21.20 | 21.36 | 21.5 |
| | Subtest2 | 20.96 | 21.04 | 21.20 | 21.5 |
| | Subtest3 | 20.61 | 20.68 | 20.83 | 21.0 |
| | Subtest4 | 20.58 | 20.64 | 20.81 | 21.0 |

band IV

| Mode | | RF Output Power(dBm) | | | Tuneup Tolerance (dBm) |
|---|---|---|---|---|---|
| | | 1312 | 1413 | 1513 | |
| | | 1712.4 | 1732.6 | 1752.6 | |
| Release 99 | RMC,12.2kbps | 22.02 | 22.06 | 21.94 | 22.5 |
| HSDPA | Subtest1 | 21.16 | 21.08 | 21.09 | 21.5 |
| | Subtest2 | 20.61 | 20.50 | 20.53 | 21.0 |
| | Subtest3 | 20.14 | 20.01 | 20.03 | 20.5 |
| | Subtest4 | 19.65 | 19.53 | 19.52 | 20.0 |
| HSUPA | Subtest1 | 19.15 | 19.08 | 19.07 | 19.5 |
| | Subtest2 | 19.13 | 19.08 | 19.08 | 19.5 |
| | Subtest3 | 20.11 | 20.03 | 20.04 | 20.5 |
| | Subtest4 | 18.67 | 18.60 | 18.62 | 19.0 |
| | Subtest5 | 20.53 | 20.44 | 20.47 | 21.0 |
| HSPA+ | QPSK | 20.45 | 20.37 | 20.38 | 20.5 |
| | 16QAM | 20.43 | 20.34 | 20.37 | 20.5 |
| DC-HSDPA | Subtest1 | 21.15 | 21.06 | 21.08 | 21.5 |
| | Subtest2 | 20.98 | 20.89 | 20.90 | 21.0 |
| | Subtest3 | 20.61 | 20.52 | 20.54 | 21.0 |
| | Subtest4 | 20.58 | 20.50 | 20.51 | 21.0 |

band V

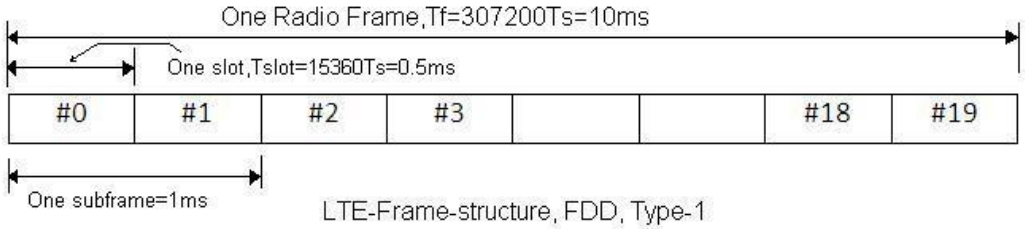
| Mode | RF Output Power(dBm) | Tuneup Tolerance |
|---|---|---|

| | | 4132 | 4183 | 4233 | (dBm) |
|---|---|---|---|---|---|
| | | 826.4 | 836.6 | 846.6 | |
| Release 99 | RMC,12.2kbps | 23.14 | 23.15 | 22.89 | 23.5 |
| HSDPA | Subtest1 | 22.08 | 22.12 | 22.10 | 22.5 |
| | Subtest2 | 21.53 | 21.55 | 21.55 | 22.0 |
| | Subtest3 | 21.07 | 21.11 | 21.07 | 21.5 |
| | Subtest4 | 20.54 | 20.58 | 20.56 | 21.0 |
| HSUPA | Subtest1 | 20.58 | 20.60 | 20.09 | 21.0 |
| | Subtest2 | 20.07 | 20.10 | 20.10 | 20.5 |
| | Subtest3 | 21.07 | 21.09 | 21.08 | 21.5 |
| | Subtest4 | 19.63 | 19.62 | 19.63 | 20.0 |
| | Subtest5 | 21.48 | 21.51 | 21.53 | 22.0 |
| HSPA+ | QPSK | 21.37 | 21.39 | 21.40 | 21.5 |
| | 16QAM | 21.37 | 21.38 | 21.38 | 21.5 |
| DC-HSDPA | Subtest1 | 22.09 | 22.11 | 22.11 | 22.5 |
| | Subtest2 | 21.93 | 21.92 | 21.97 | 22.0 |
| | Subtest3 | 21.55 | 21.56 | 21.57 | 22.0 |
| | Subtest4 | 21.55 | 21.54 | 21.57 | 22.0 |

### 6.2.2 LTE

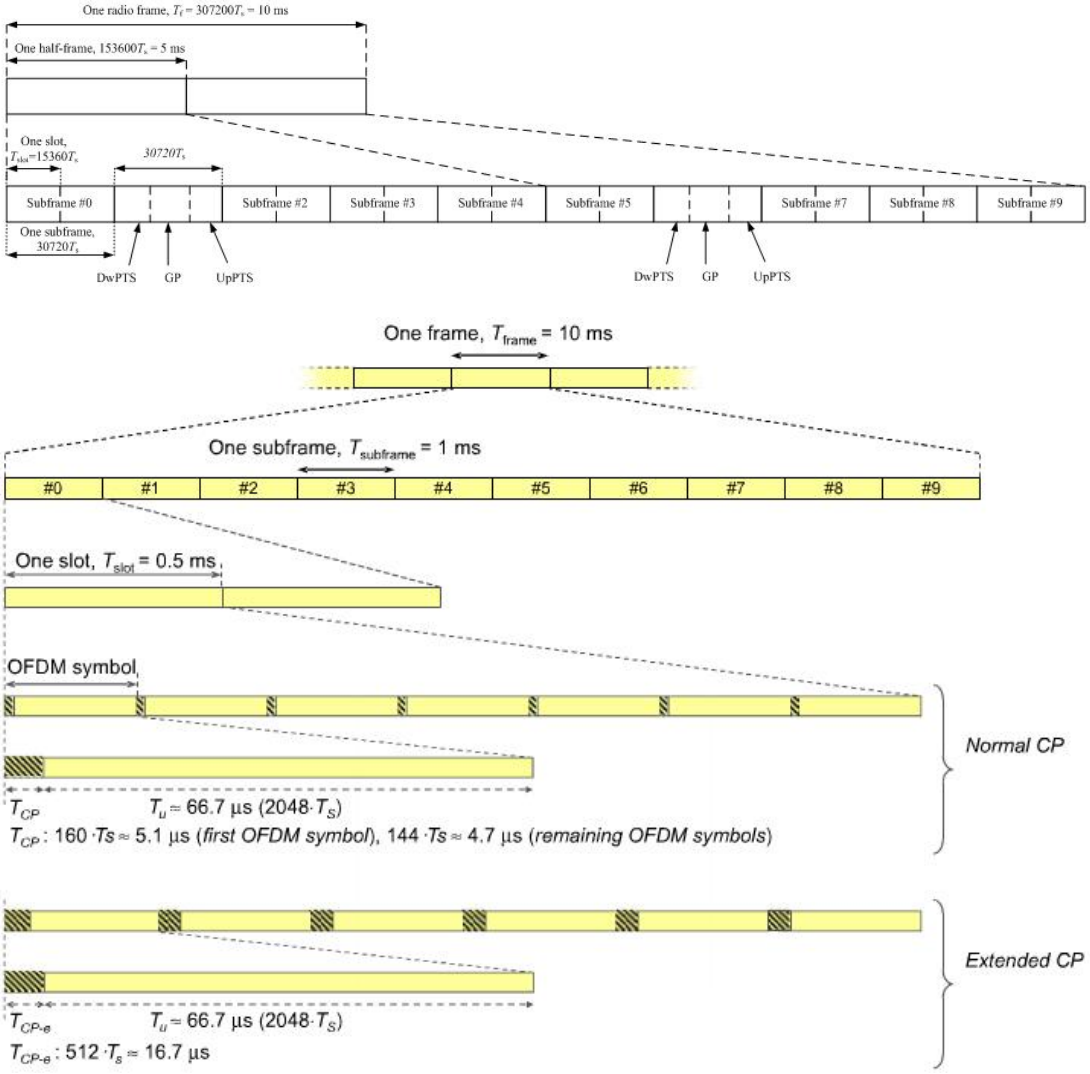
**General description:**

**FDD-LTE frame structure**




Type 1 is used as LTE FDD frame structure. As shown in the figure above, an LTE TDD frame is made of total 20 slots, each of 0.5ms. Two consecutive time slots will form one subframe. 10 such subframes form one radio frame. One subframe duration is about 1 ms. and the duty cycle is inherent as100%.

**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% |

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)

Note: SRTC perform SAR test with maximum duty factor equal to 63.3% by using uplink-downlink configuration 0.

***Licensed SISO1***

Main ANT

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 18607 | 18900 | 19193 | Tune-up Tolerance |
| | | | | 1850.7 | 1880 | 1909.3 | |
| 1.4 | QPSK | 1 | 0 | 22.54 | 22.58 | 22.73 | 23.0 |
| 1.4 | QPSK | 1 | 3 | 22.70 | 22.73 | 22.89 | 23.0 |
| 1.4 | QPSK | 1 | 5 | 22.58 | 22.63 | 22.74 | 23.0 |
| 1.4 | QPSK | 3 | 0 | 22.67 | 22.63 | 22.79 | 23.0 |
| 1.4 | QPSK | 3 | 1 | 22.76 | 22.77 | 22.80 | 23.0 |
| 1.4 | QPSK | 3 | 3 | 22.57 | 22.63 | 22.66 | 23.0 |
| 1.4 | QPSK | 6 | 0 | 21.64 | 21.75 | 21.71 | 22.0 |
| 1.4 | 16QAM | 1 | 0 | 21.47 | 21.77 | 21.86 | 22.0 |
| 1.4 | 16QAM | 1 | 3 | 21.94 | 21.92 | 22.06 | 22.5 |
| 1.4 | 16QAM | 1 | 5 | 21.49 | 21.75 | 21.89 | 22.0 |
| 1.4 | 16QAM | 3 | 0 | 21.59 | 21.59 | 21.72 | 22.0 |
| 1.4 | 16QAM | 3 | 1 | 21.66 | 21.62 | 21.67 | 22.0 |
| 1.4 | 16QAM | 3 | 3 | 21.66 | 21.65 | 21.66 | 22.0 |
| 1.4 | 16QAM | 6 | 0 | 20.79 | 20.79 | 20.85 | 21.0 |
| 1.4 | 64QAM | 1 | 0 | 20.91 | 20.74 | 20.94 | 21.0 |
| 1.4 | 64QAM | 1 | 3 | 21.18 | 20.93 | 21.18 | 21.5 |
| 1.4 | 64QAM | 1 | 5 | 20.92 | 20.78 | 20.87 | 21.0 |
| 1.4 | 64QAM | 3 | 0 | 21.01 | 20.80 | 20.72 | 21.5 |
| 1.4 | 64QAM | 3 | 1 | 20.96 | 20.79 | 20.68 | 21.0 |
| 1.4 | 64QAM | 3 | 3 | 20.97 | 20.81 | 20.67 | 21.0 |
| 1.4 | 64QAM | 6 | 0 | 19.54 | 19.91 | 19.84 | 20.0 |

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 18615 | 18900 | 19185 | Tune-up Tolerance |
| | | | | 1851.5 | 1880 | 1908.5 | |
| 3 | QPSK | 1 | 0 | 22.66 | 22.67 | 22.77 | 23.0 |
| 3 | QPSK | 1 | 8 | 22.64 | 22.67 | 22.82 | 23.0 |
| 3 | QPSK | 1 | 14 | 22.66 | 22.71 | 22.80 | 23.0 |
| 3 | QPSK | 8 | 0 | 21.65 | 21.64 | 21.81 | 22.0 |
| 3 | QPSK | 8 | 4 | 21.64 | 21.70 | 21.86 | 22.0 |
| 3 | QPSK | 8 | 7 | 21.56 | 21.59 | 21.82 | 22.0 |
| 3 | QPSK | 15 | 0 | 21.58 | 21.65 | 21.79 | 22.0 |
| 3 | 16QAM | 1 | 0 | 22.10 | 21.86 | 21.90 | 22.5 |
| 3 | 16QAM | 1 | 8 | 22.07 | 21.84 | 22.00 | 22.5 |
| 3 | 16QAM | 1 | 14 | 22.12 | 21.87 | 21.97 | 22.5 |
| 3 | 16QAM | 8 | 0 | 20.65 | 20.64 | 20.83 | 21.0 |
| 3 | 16QAM | 8 | 4 | 20.68 | 20.67 | 20.80 | 21.0 |
| 3 | 16QAM | 8 | 7 | 20.64 | 20.65 | 20.76 | 21.0 |
| 3 | 16QAM | 15 | 0 | 20.63 | 20.72 | 20.75 | 21.0 |
| 3 | 64QAM | 1 | 0 | 20.93 | 20.80 | 20.94 | 21.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 64QAM | 1 | 8 | 20.91 | 20.81 | 20.97 | 21.0 |
| 3 | 64QAM | 1 | 14 | 20.98 | 20.84 | 20.88 | 21.0 |
| 3 | 64QAM | 3 | 0 | 19.68 | 19.71 | 19.83 | 20.0 |
| 3 | 64QAM | 3 | 4 | 19.74 | 19.78 | 19.82 | 20.0 |
| 3 | 64QAM | 3 | 7 | 19.68 | 19.72 | 19.75 | 20.0 |
| 3 | 64QAM | 6 | 0 | 19.60 | 19.68 | 19.80 | 20.0 |

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 18625 | 18900 | 19175 | |
| | | | | 1852.5 | 1880 | 1907.5 | |
| 5 | QPSK | 1 | 0 | 22.49 | 22.61 | 22.72 | 23.0 |
| 5 | QPSK | 1 | 12 | 22.71 | 22.69 | 22.95 | 23.0 |
| 5 | QPSK | 1 | 24 | 22.50 | 22.66 | 22.71 | 23.0 |
| 5 | QPSK | 12 | 0 | 21.55 | 21.65 | 21.75 | 22.0 |
| 5 | QPSK | 12 | 7 | 21.69 | 21.73 | 21.81 | 22.0 |
| 5 | QPSK | 12 | 13 | 21.56 | 21.61 | 21.68 | 22.0 |
| 5 | QPSK | 25 | 0 | 21.55 | 21.68 | 21.79 | 22.0 |
| 5 | 16QAM | 1 | 0 | 21.61 | 21.99 | 21.87 | 22.0 |
| 5 | 16QAM | 1 | 12 | 21.86 | 22.14 | 22.15 | 22.5 |
| 5 | 16QAM | 1 | 24 | 21.68 | 21.93 | 21.89 | 22.0 |
| 5 | 16QAM | 12 | 0 | 20.53 | 20.59 | 20.67 | 21.0 |
| 5 | 16QAM | 12 | 7 | 20.59 | 20.65 | 20.78 | 21.0 |
| 5 | 16QAM | 12 | 13 | 20.51 | 20.58 | 20.65 | 21.0 |
| 5 | 16QAM | 25 | 0 | 20.54 | 20.63 | 20.78 | 21.0 |
| 5 | 64QAM | 1 | 0 | 20.64 | 20.80 | 20.88 | 21.0 |
| 5 | 64QAM | 1 | 12 | 20.84 | 21.13 | 21.06 | 21.5 |
| 5 | 64QAM | 1 | 24 | 20.49 | 20.89 | 20.87 | 21.0 |
| 5 | 64QAM | 12 | 0 | 19.60 | 19.60 | 19.79 | 20.0 |
| 5 | 64QAM | 12 | 7 | 19.75 | 19.67 | 19.87 | 20.0 |
| 5 | 64QAM | 12 | 13 | 19.64 | 19.58 | 19.71 | 20.0 |
| 5 | 64QAM | 25 | 0 | 19.54 | 19.54 | 19.77 | 20.0 |

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 18650 | 18900 | 19150 | |
| | | | | 1855 | 1880 | 1905 | |
| 10 | QPSK | 1 | 0 | 22.61 | 22.60 | 22.79 | 23.0 |
| 10 | QPSK | 1 | 25 | 22.75 | 22.88 | 22.89 | 23.0 |
| 10 | QPSK | 1 | 49 | 22.57 | 22.62 | 22.79 | 23.0 |
| 10 | QPSK | 25 | 0 | 21.49 | 21.67 | 21.78 | 22.0 |
| 10 | QPSK | 25 | 12 | 21.64 | 21.71 | 21.70 | 22.0 |
| 10 | QPSK | 25 | 25 | 21.62 | 21.66 | 21.71 | 22.0 |
| 10 | QPSK | 50 | 0 | 21.57 | 21.63 | 21.71 | 22.0 |
| 10 | 16QAM | 1 | 0 | 22.13 | 21.86 | 21.81 | 22.5 |
| 10 | 16QAM | 1 | 25 | 22.33 | 22.09 | 21.97 | 22.5 |
| 10 | 16QAM | 1 | 49 | 22.14 | 21.81 | 21.94 | 22.5 |
| 10 | 16QAM | 25 | 0 | 20.57 | 20.71 | 20.77 | 21.0 |
| 10 | 16QAM | 25 | 12 | 20.69 | 20.78 | 20.81 | 21.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 16QAM | 25 | 25 | 20.63 | 20.65 | 20.79 | 21.0 |
| 10 | 16QAM | 50 | 0 | 20.64 | 20.73 | 20.74 | 21.0 |
| 10 | 64QAM | 1 | 0 | 20.87 | 20.83 | 20.90 | 21.0 |
| 10 | 64QAM | 1 | 25 | 20.97 | 21.01 | 20.96 | 21.5 |
| 10 | 64QAM | 1 | 49 | 21.02 | 20.79 | 20.93 | 21.5 |
| 10 | 64QAM | 25 | 0 | 19.62 | 19.75 | 19.87 | 20.0 |
| 10 | 64QAM | 25 | 12 | 19.71 | 19.79 | 19.86 | 20.0 |
| 10 | 64QAM | 25 | 25 | 19.71 | 19.73 | 19.83 | 20.0 |
| 10 | 64QAM | 50 | 0 | 19.58 | 19.73 | 19.71 | 20.0 |

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 18675 | 18900 | 19125 | |
| | | | | 1857.5 | 1880 | 1902.5 | |
| 15 | QPSK | 1 | 0 | 22.47 | 22.57 | 22.65 | 23.0 |
| 15 | QPSK | 1 | 37 | 22.64 | 22.76 | 22.99 | 23.0 |
| 15 | QPSK | 1 | 74 | 22.45 | 22.56 | 22.69 | 23.0 |
| 15 | QPSK | 36 | 0 | 21.63 | 21.64 | 21.78 | 22.0 |
| 15 | QPSK | 36 | 29 | 21.62 | 21.74 | 21.77 | 22.0 |
| 15 | QPSK | 36 | 30 | 21.63 | 21.69 | 21.84 | 22.0 |
| 15 | QPSK | 75 | 0 | 21.60 | 21.70 | 21.78 | 22.0 |
| 15 | 16QAM | 1 | 0 | 21.98 | 21.80 | 21.92 | 22.0 |
| 15 | 16QAM | 1 | 37 | 22.24 | 21.89 | 22.16 | 22.5 |
| 15 | 16QAM | 1 | 74 | 22.01 | 21.86 | 21.97 | 22.5 |
| 15 | 16QAM | 36 | 0 | 20.58 | 20.66 | 20.80 | 21.0 |
| 15 | 16QAM | 36 | 29 | 20.67 | 20.67 | 20.80 | 21.0 |
| 15 | 16QAM | 36 | 30 | 20.65 | 20.66 | 20.71 | 21.0 |
| 15 | 16QAM | 75 | 0 | 20.64 | 20.72 | 20.70 | 21.0 |
| 15 | 64QAM | 1 | 0 | 20.91 | 20.76 | 21.13 | 21.5 |
| 15 | 64QAM | 1 | 37 | 21.08 | 20.97 | 21.30 | 21.5 |
| 15 | 64QAM | 1 | 74 | 20.80 | 20.70 | 21.30 | 21.5 |
| 15 | 64QAM | 36 | 0 | 19.55 | 19.73 | 19.73 | 20.0 |
| 15 | 64QAM | 36 | 29 | 19.59 | 19.69 | 19.70 | 20.0 |
| 15 | 64QAM | 36 | 30 | 19.65 | 19.70 | 19.69 | 20.0 |
| 15 | 64QAM | 75 | 0 | 19.58 | 19.71 | 19.75 | 20.0 |

LTE Band2

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 18700 | 18900 | 19100 | |
| | | | | 1860 | 1880 | 1900 | |
| 20 | QPSK | 1 | 0 | 22.34 | 22.41 | 22.36 | 22.5 |
| 20 | QPSK | 1 | 49 | 22.81 | 22.84 | 22.77 | 23.0 |
| 20 | QPSK | 1 | 99 | 22.43 | 22.46 | 22.54 | 23.0 |
| 20 | QPSK | 50 | 0 | 21.46 | 21.65 | 21.72 | 22.0 |
| 20 | QPSK | 50 | 24 | 21.55 | 21.63 | 21.67 | 22.0 |
| 20 | QPSK | 50 | 50 | 21.58 | 21.59 | 21.64 | 22.0 |
| 20 | QPSK | 100 | 0 | 21.61 | 21.63 | 21.70 | 22.0 |
| 20 | 16QAM | 1 | 0 | 21.71 | 21.64 | 21.71 | 22.0 |
| 20 | 16QAM | 1 | 49 | 21.94 | 21.97 | 21.99 | 22.0 |
| 20 | 16QAM | 1 | 99 | 21.69 | 21.65 | 21.80 | 22.0 |
| 20 | 16QAM | 50 | 0 | 20.52 | 20.64 | 20.64 | 21.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 16QAM | 50 | 24 | 20.59 | 20.66 | 20.69 | 21.0 |
| 20 | 16QAM | 50 | 50 | 20.59 | 20.58 | 20.58 | 21.0 |
| 20 | 16QAM | 100 | 0 | 20.58 | 20.66 | 20.70 | 21.0 |
| 20 | 64QAM | 1 | 0 | 20.61 | 21.02 | 20.58 | 21.5 |
| 20 | 64QAM | 1 | 49 | 20.92 | 21.29 | 20.89 | 21.5 |
| 20 | 64QAM | 1 | 99 | 20.69 | 21.09 | 20.71 | 21.5 |
| 20 | 64QAM | 50 | 0 | 19.58 | 19.68 | 19.72 | 20.0 |
| 20 | 64QAM | 50 | 24 | 19.66 | 19.72 | 19.80 | 20.0 |
| 20 | 64QAM | 50 | 50 | 19.58 | 19.72 | 19.68 | 20.0 |
| 20 | 64QAM | 100 | 0 | 19.66 | 19.62 | 19.73 | 20.0 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 18607 | 18900 | 19193 | Tune-up Tolerance |
| | | | | 1850.7 | 1880 | 1909.3 | |
| 1.4 | QPSK | 1 | 0 | 22.83 | 22.77 | 22.82 | 23.0 |
| 1.4 | QPSK | 1 | 3 | 23.08 | 23.04 | 23.01 | 23.5 |
| 1.4 | QPSK | 1 | 5 | 22.76 | 22.84 | 22.79 | 23.0 |
| 1.4 | QPSK | 3 | 0 | 22.99 | 23.00 | 22.84 | 23.0 |
| 1.4 | QPSK | 3 | 1 | 23.05 | 22.97 | 22.95 | 23.5 |
| 1.4 | QPSK | 3 | 3 | 22.87 | 22.91 | 22.85 | 23.0 |
| 1.4 | QPSK | 6 | 0 | 21.92 | 21.89 | 21.84 | 22.0 |
| 1.4 | 16QAM | 1 | 0 | 21.79 | 21.95 | 21.87 | 22.0 |
| 1.4 | 16QAM | 1 | 3 | 21.93 | 22.39 | 22.19 | 22.5 |
| 1.4 | 16QAM | 1 | 5 | 21.78 | 21.98 | 21.95 | 22.0 |
| 1.4 | 16QAM | 3 | 0 | 21.96 | 21.88 | 21.74 | 22.0 |
| 1.4 | 16QAM | 3 | 1 | 21.91 | 21.83 | 21.71 | 22.0 |
| 1.4 | 16QAM | 3 | 3 | 21.87 | 21.89 | 21.74 | 22.0 |
| 1.4 | 16QAM | 6 | 0 | 21.14 | 20.92 | 20.91 | 21.5 |
| 1.4 | 64QAM | 1 | 0 | 21.23 | 20.97 | 20.93 | 21.5 |
| 1.4 | 64QAM | 1 | 3 | 21.43 | 21.25 | 21.09 | 21.5 |
| 1.4 | 64QAM | 1 | 5 | 21.26 | 20.89 | 20.92 | 21.5 |
| 1.4 | 64QAM | 3 | 0 | 21.29 | 20.97 | 20.84 | 21.5 |
| 1.4 | 64QAM | 3 | 1 | 21.41 | 21.08 | 20.82 | 21.5 |
| 1.4 | 64QAM | 3 | 3 | 21.33 | 21.04 | 20.79 | 21.5 |
| 1.4 | 64QAM | 6 | 0 | 19.94 | 20.06 | 19.89 | 20.5 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 19965 | 20175 | 20385 | Tune-up Tolerance |
| | | | | 1711.5 | 1732.5 | 1753.5 | |
| 3 | QPSK | 1 | 0 | 22.76 | 22.80 | 22.76 | 23.0 |
| 3 | QPSK | 1 | 8 | 22.87 | 22.77 | 22.83 | 23.0 |
| 3 | QPSK | 1 | 14 | 22.82 | 22.73 | 22.77 | 23.0 |
| 3 | QPSK | 8 | 0 | 21.84 | 21.72 | 21.72 | 22.0 |
| 3 | QPSK | 8 | 4 | 21.84 | 21.78 | 21.71 | 22.0 |
| 3 | QPSK | 8 | 7 | 21.76 | 21.71 | 21.71 | 22.0 |
| 3 | QPSK | 15 | 0 | 21.82 | 21.76 | 21.71 | 22.0 |
| 3 | 16QAM | 1 | 0 | 22.30 | 22.01 | 21.96 | 22.5 |
| 3 | 16QAM | 1 | 8 | 22.42 | 21.97 | 21.92 | 22.5 |
| 3 | 16QAM | 1 | 14 | 22.33 | 21.92 | 21.85 | 22.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 16QAM | 8 | 0 | 20.84 | 20.72 | 20.73 | 21.0 |
| 3 | 16QAM | 8 | 4 | 20.89 | 20.80 | 20.71 | 21.0 |
| 3 | 16QAM | 8 | 7 | 20.93 | 20.67 | 20.70 | 21.0 |
| 3 | 16QAM | 15 | 0 | 20.89 | 20.79 | 20.73 | 21.0 |
| 3 | 64QAM | 1 | 0 | 21.17 | 20.92 | 20.95 | 21.5 |
| 3 | 64QAM | 1 | 8 | 21.22 | 20.99 | 20.90 | 21.5 |
| 3 | 64QAM | 1 | 14 | 21.11 | 20.91 | 20.79 | 21.5 |
| 3 | 64QAM | 8 | 0 | 19.95 | 19.81 | 19.77 | 20.0 |
| 3 | 64QAM | 8 | 4 | 19.92 | 19.85 | 19.70 | 20.0 |
| 3 | 64QAM | 8 | 7 | 19.91 | 19.78 | 19.65 | 20.0 |
| 3 | 64QAM | 15 | 0 | 19.77 | 19.80 | 19.78 | 20.0 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 19975 | 20175 | 20375 | |
| | | | | 1712.5 | 1732.5 | 1752.5 | |
| 5 | QPSK | 1 | 0 | 22.68 | 22.68 | 22.72 | 23.0 |
| 5 | QPSK | 1 | 12 | 22.95 | 22.95 | 22.94 | 23.0 |
| 5 | QPSK | 1 | 24 | 22.68 | 22.66 | 22.69 | 23.0 |
| 5 | QPSK | 12 | 0 | 21.81 | 21.73 | 21.73 | 22.0 |
| 5 | QPSK | 12 | 7 | 21.83 | 21.77 | 21.75 | 22.0 |
| 5 | QPSK | 12 | 13 | 21.88 | 21.77 | 21.74 | 22.0 |
| 5 | QPSK | 25 | 0 | 21.78 | 21.71 | 21.71 | 22.0 |
| 5 | 16QAM | 1 | 0 | 21.79 | 22.04 | 21.86 | 22.5 |
| 5 | 16QAM | 1 | 12 | 22.06 | 22.35 | 22.08 | 22.5 |
| 5 | 16QAM | 1 | 24 | 21.90 | 21.98 | 21.79 | 22.0 |
| 5 | 16QAM | 12 | 0 | 20.76 | 20.68 | 20.68 | 21.0 |
| 5 | 16QAM | 12 | 7 | 20.76 | 20.79 | 20.72 | 21.0 |
| 5 | 16QAM | 12 | 13 | 20.81 | 20.70 | 20.69 | 21.0 |
| 5 | 16QAM | 25 | 0 | 20.85 | 20.63 | 20.72 | 21.0 |
| 5 | 64QAM | 1 | 0 | 20.79 | 20.94 | 20.83 | 21.0 |
| 5 | 64QAM | 1 | 12 | 21.12 | 21.19 | 21.10 | 21.5 |
| 5 | 64QAM | 1 | 24 | 20.76 | 20.91 | 20.79 | 21.0 |
| 5 | 64QAM | 12 | 0 | 19.87 | 19.69 | 19.78 | 20.0 |
| 5 | 64QAM | 12 | 7 | 19.90 | 19.80 | 19.78 | 20.0 |
| 5 | 64QAM | 12 | 13 | 19.93 | 19.76 | 19.78 | 20.0 |
| 5 | 64QAM | 25 | 0 | 19.77 | 19.72 | 19.72 | 20.0 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 20000 | 20175 | 20350 | |
| | | | | 1715 | 1732.5 | 1750 | |
| 10 | QPSK | 1 | 0 | 22.78 | 22.75 | 22.79 | 23.0 |
| 10 | QPSK | 1 | 25 | 22.98 | 22.95 | 23.07 | 23.5 |
| 10 | QPSK | 1 | 49 | 22.79 | 22.68 | 22.80 | 23.0 |
| 10 | QPSK | 25 | 0 | 21.77 | 21.79 | 21.72 | 22.0 |
| 10 | QPSK | 25 | 12 | 21.83 | 21.67 | 21.73 | 22.0 |
| 10 | QPSK | 25 | 25 | 21.78 | 21.81 | 21.72 | 22.0 |
| 10 | QPSK | 50 | 0 | 21.85 | 21.82 | 21.66 | 22.0 |
| 10 | 16QAM | 1 | 0 | 22.31 | 21.92 | 21.90 | 22.5 |
| 10 | 16QAM | 1 | 25 | 22.59 | 22.19 | 22.02 | 23.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 16QAM | 1 | 49 | 22.45 | 21.89 | 21.86 | 22.5 |
| 10 | 16QAM | 25 | 0 | 20.85 | 20.82 | 20.74 | 21.0 |
| 10 | 16QAM | 25 | 12 | 20.80 | 20.74 | 20.83 | 21.0 |
| 10 | 16QAM | 25 | 25 | 20.83 | 20.87 | 20.77 | 21.0 |
| 10 | 16QAM | 50 | 0 | 20.91 | 20.81 | 20.77 | 21.0 |
| 10 | 64QAM | 1 | 0 | 21.15 | 20.97 | 20.90 | 21.5 |
| 10 | 64QAM | 1 | 25 | 21.34 | 21.06 | 20.99 | 21.5 |
| 10 | 64QAM | 1 | 49 | 21.16 | 20.95 | 21.11 | 21.5 |
| 10 | 64QAM | 25 | 0 | 19.81 | 19.79 | 19.74 | 20.0 |
| 10 | 64QAM | 25 | 12 | 19.91 | 19.87 | 19.85 | 20.0 |
| 10 | 64QAM | 25 | 25 | 19.83 | 19.81 | 19.85 | 20.0 |
| 10 | 64QAM | 50 | 0 | 19.78 | 19.81 | 19.75 | 20.0 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20025 | 20175 | 20325 | Tune-up Tolerance |
| | | | | 1717.5 | 1732.5 | 1747.5 | |
| 15 | QPSK | 1 | 0 | 22.72 | 22.68 | 22.60 | 23.0 |
| 15 | QPSK | 1 | 37 | 22.87 | 22.89 | 22.98 | 23.0 |
| 15 | QPSK | 1 | 74 | 22.64 | 22.63 | 22.65 | 23.0 |
| 15 | QPSK | 36 | 0 | 21.85 | 21.77 | 21.76 | 22.0 |
| 15 | QPSK | 36 | 29 | 21.78 | 21.74 | 21.88 | 22.0 |
| 15 | QPSK | 36 | 30 | 21.79 | 21.85 | 21.86 | 22.0 |
| 15 | QPSK | 75 | 0 | 21.86 | 21.79 | 21.85 | 22.0 |
| 15 | 16QAM | 1 | 0 | 22.28 | 21.91 | 21.95 | 22.5 |
| 15 | 16QAM | 1 | 37 | 22.51 | 22.16 | 22.22 | 23.0 |
| 15 | 16QAM | 1 | 74 | 22.26 | 21.77 | 21.92 | 22.5 |
| 15 | 16QAM | 36 | 0 | 20.87 | 20.82 | 20.71 | 21.0 |
| 15 | 16QAM | 36 | 29 | 20.83 | 20.85 | 20.85 | 21.0 |
| 15 | 16QAM | 36 | 30 | 20.88 | 20.80 | 20.84 | 21.0 |
| 15 | 16QAM | 75 | 0 | 20.91 | 20.80 | 20.76 | 21.0 |
| 15 | 64QAM | 1 | 0 | 21.05 | 20.83 | 21.17 | 21.5 |
| 15 | 64QAM | 1 | 37 | 21.36 | 21.10 | 21.43 | 21.5 |
| 15 | 64QAM | 1 | 74 | 21.02 | 20.79 | 21.36 | 21.5 |
| 15 | 64QAM | 36 | 0 | 19.77 | 19.86 | 19.69 | 20.0 |
| 15 | 64QAM | 36 | 29 | 19.84 | 19.84 | 19.76 | 20.0 |
| 15 | 64QAM | 36 | 30 | 19.84 | 19.84 | 19.86 | 20.0 |
| 15 | 64QAM | 75 | 0 | 19.75 | 19.76 | 19.79 | 20.0 |

LTE Band4

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20050 | 20175 | 20300 | Tune-up Tolerance |
| | | | | 1720 | 1732.5 | 1745 | |
| 20 | QPSK | 1 | 0 | 22.53 | 22.53 | 22.40 | 23.0 |
| 20 | QPSK | 1 | 49 | 22.84 | 22.90 | 22.86 | 23.0 |
| 20 | QPSK | 1 | 99 | 22.53 | 22.54 | 22.48 | 23.0 |
| 20 | QPSK | 50 | 0 | 21.70 | 21.75 | 21.67 | 22.0 |
| 20 | QPSK | 50 | 24 | 21.78 | 21.78 | 21.81 | 22.0 |
| 20 | QPSK | 50 | 50 | 21.77 | 21.74 | 21.83 | 22.0 |
| 20 | QPSK | 100 | 0 | 21.74 | 21.74 | 21.72 | 22.0 |
| 20 | 16QAM | 1 | 0 | 21.88 | 21.88 | 21.74 | 22.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 16QAM | 1 | 49 | 22.23 | 22.25 | 22.03 | 22.5 |
| 20 | 16QAM | 1 | 99 | 21.93 | 21.77 | 21.77 | 22.0 |
| 20 | 16QAM | 50 | 0 | 20.80 | 20.80 | 20.72 | 21.0 |
| 20 | 16QAM | 50 | 24 | 20.82 | 20.80 | 20.72 | 21.0 |
| 20 | 16QAM | 50 | 50 | 20.82 | 20.82 | 20.84 | 21.0 |
| 20 | 16QAM | 100 | 0 | 20.85 | 20.82 | 20.76 | 21.0 |
| 20 | 64QAM | 1 | 0 | 20.86 | 21.21 | 20.62 | 21.5 |
| 20 | 64QAM | 1 | 49 | 21.18 | 21.45 | 20.92 | 21.5 |
| 20 | 64QAM | 1 | 99 | 20.88 | 21.12 | 20.70 | 21.5 |
| 20 | 64QAM | 50 | 0 | 19.81 | 19.85 | 19.77 | 20.0 |
| 20 | 64QAM | 50 | 24 | 19.84 | 19.86 | 19.77 | 20.0 |
| 20 | 64QAM | 50 | 50 | 19.80 | 19.74 | 19.80 | 20.0 |
| 20 | 64QAM | 100 | 0 | 19.78 | 19.78 | 19.77 | 20.0 |

LTE Band5

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20407 | 20525 | 20643 | Tune-up Tolerance |
| | | | | 824.7 | 836.5 | 848.3 | |
| 1.4 | QPSK | 1 | 0 | 23.48 | 23.49 | 23.45 | 23.5 |
| 1.4 | QPSK | 1 | 3 | 23.75 | 23.66 | 23.54 | 24.0 |
| 1.4 | QPSK | 1 | 5 | 23.60 | 23.49 | 23.44 | 24.0 |
| 1.4 | QPSK | 3 | 0 | 23.62 | 23.58 | 23.52 | 24.0 |
| 1.4 | QPSK | 3 | 1 | 23.60 | 23.59 | 23.54 | 24.0 |
| 1.4 | QPSK | 3 | 3 | 23.63 | 23.70 | 23.53 | 24.0 |
| 1.4 | QPSK | 6 | 0 | 22.64 | 22.55 | 22.58 | 23.0 |
| 1.4 | 16QAM | 1 | 0 | 22.46 | 22.71 | 22.68 | 23.0 |
| 1.4 | 16QAM | 1 | 3 | 22.74 | 22.77 | 22.71 | 23.0 |
| 1.4 | 16QAM | 1 | 5 | 22.47 | 22.70 | 22.66 | 23.0 |
| 1.4 | 16QAM | 3 | 0 | 22.57 | 22.55 | 22.32 | 23.0 |
| 1.4 | 16QAM | 3 | 1 | 22.62 | 22.55 | 22.45 | 23.0 |
| 1.4 | 16QAM | 3 | 3 | 22.58 | 22.55 | 22.37 | 23.0 |
| 1.4 | 16QAM | 6 | 0 | 21.78 | 21.65 | 21.63 | 22.0 |
| 1.4 | 64QAM | 1 | 0 | 21.84 | 21.62 | 21.64 | 22.0 |
| 1.4 | 64QAM | 1 | 3 | 22.05 | 22.04 | 21.67 | 22.5 |
| 1.4 | 64QAM | 1 | 5 | 21.79 | 21.57 | 21.68 | 22.0 |
| 1.4 | 64QAM | 3 | 0 | 21.84 | 21.65 | 21.39 | 22.0 |
| 1.4 | 64QAM | 3 | 1 | 21.91 | 21.62 | 21.45 | 22.0 |
| 1.4 | 64QAM | 3 | 3 | 21.85 | 21.74 | 21.42 | 22.0 |
| 1.4 | 64QAM | 6 | 0 | 20.67 | 20.80 | 20.54 | 21.0 |

LTE Band5

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20415 | 20525 | 20635 | Tune-up Tolerance |
| | | | | 825.5 | 836.5 | 847.5 | |
| 3 | QPSK | 1 | 0 | 23.55 | 23.56 | 23.50 | 24.0 |
| 3 | QPSK | 1 | 8 | 23.52 | 23.52 | 23.53 | 24.0 |
| 3 | QPSK | 1 | 14 | 23.55 | 23.51 | 23.54 | 24.0 |
| 3 | QPSK | 8 | 0 | 22.56 | 22.45 | 22.53 | 23.0 |
| 3 | QPSK | 8 | 4 | 22.60 | 22.60 | 22.49 | 23.0 |
| 3 | QPSK | 8 | 7 | 22.57 | 22.52 | 22.58 | 23.0 |
| 3 | QPSK | 15 | 0 | 22.55 | 22.55 | 22.50 | 23.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 16QAM | 1 | 0 | 22.95 | 22.71 | 22.67 | 23.0 |
| 3 | 16QAM | 1 | 8 | 23.01 | 22.67 | 22.64 | 23.5 |
| 3 | 16QAM | 1 | 14 | 23.06 | 22.69 | 22.71 | 23.5 |
| 3 | 16QAM | 8 | 0 | 21.55 | 21.46 | 21.46 | 22.0 |
| 3 | 16QAM | 8 | 4 | 21.56 | 21.52 | 21.56 | 22.0 |
| 3 | 16QAM | 8 | 7 | 21.58 | 21.46 | 21.50 | 22.0 |
| 3 | 16QAM | 15 | 0 | 21.57 | 21.53 | 21.51 | 22.0 |
| 3 | 64QAM | 1 | 0 | 21.86 | 21.60 | 21.73 | 22.0 |
| 3 | 64QAM | 1 | 8 | 21.88 | 21.66 | 21.69 | 22.0 |
| 3 | 64QAM | 1 | 14 | 21.93 | 21.74 | 21.65 | 22.0 |
| 3 | 64QAM | 8 | 0 | 20.62 | 20.56 | 20.46 | 21.0 |
| 3 | 64QAM | 8 | 4 | 20.61 | 20.60 | 20.41 | 21.0 |
| 3 | 64QAM | 8 | 7 | 20.59 | 20.56 | 20.40 | 21.0 |
| 3 | 64QAM | 15 | 0 | 20.49 | 20.58 | 20.52 | 21.0 |

LTE Band5

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20425 | 20525 | 20625 | Tune-up Tolerance |
| | | | | 826.5 | 836.5 | 846.5 | |
| 5 | QPSK | 1 | 0 | 23.42 | 23.41 | 23.45 | 23.5 |
| 5 | QPSK | 1 | 12 | 23.65 | 23.70 | 23.69 | 24.0 |
| 5 | QPSK | 1 | 24 | 23.45 | 23.45 | 23.42 | 23.5 |
| 5 | QPSK | 12 | 0 | 22.47 | 22.52 | 22.57 | 23.0 |
| 5 | QPSK | 12 | 7 | 22.60 | 22.66 | 22.55 | 23.0 |
| 5 | QPSK | 12 | 13 | 22.52 | 22.55 | 22.48 | 23.0 |
| 5 | QPSK | 25 | 0 | 22.53 | 22.51 | 22.53 | 23.0 |
| 5 | 16QAM | 1 | 0 | 22.51 | 22.80 | 22.66 | 23.0 |
| 5 | 16QAM | 1 | 12 | 22.81 | 23.09 | 22.91 | 23.5 |
| 5 | 16QAM | 1 | 24 | 22.59 | 22.81 | 22.68 | 23.0 |
| 5 | 16QAM | 12 | 0 | 21.46 | 21.48 | 21.40 | 21.5 |
| 5 | 16QAM | 12 | 7 | 21.55 | 21.50 | 21.45 | 22.0 |
| 5 | 16QAM | 12 | 13 | 21.49 | 21.48 | 21.38 | 21.5 |
| 5 | 16QAM | 25 | 0 | 21.47 | 21.55 | 21.44 | 22.0 |
| 5 | 64QAM | 1 | 0 | 21.49 | 21.71 | 21.66 | 22.0 |
| 5 | 64QAM | 1 | 12 | 21.74 | 21.93 | 21.75 | 22.0 |
| 5 | 64QAM | 1 | 24 | 21.50 | 21.64 | 21.63 | 22.0 |
| 5 | 64QAM | 12 | 0 | 20.56 | 20.43 | 20.54 | 21.0 |
| 5 | 64QAM | 12 | 7 | 20.60 | 20.58 | 20.61 | 21.0 |
| 5 | 64QAM | 12 | 13 | 20.60 | 20.48 | 20.48 | 21.0 |
| 5 | 64QAM | 25 | 0 | 20.45 | 20.48 | 20.49 | 20.5 |

LTE Band5

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20450 | 20525 | 20600 | Tune-up Tolerance |
| | | | | 829 | 836.5 | 844 | |
| 10 | QPSK | 1 | 0 | 23.51 | 23.59 | 23.46 | 24.0 |
| 10 | QPSK | 1 | 25 | 23.71 | 23.73 | 23.62 | 24.0 |
| 10 | QPSK | 1 | 49 | 23.53 | 23.45 | 23.50 | 24.0 |
| 10 | QPSK | 25 | 0 | 22.61 | 22.63 | 22.55 | 23.0 |
| 10 | QPSK | 25 | 12 | 22.56 | 22.57 | 22.59 | 23.0 |
| 10 | QPSK | 25 | 25 | 22.55 | 22.57 | 22.53 | 23.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | QPSK | 50 | 0 | 22.63 | 22.59 | 22.52 | 23.0 |
| 10 | 16QAM | 1 | 0 | 22.93 | 22.71 | 22.66 | 23.0 |
| 10 | 16QAM | 1 | 25 | 23.16 | 22.97 | 22.78 | 23.5 |
| 10 | 16QAM | 1 | 49 | 23.06 | 22.68 | 22.73 | 23.5 |
| 10 | 16QAM | 25 | 0 | 21.61 | 21.57 | 21.56 | 22.0 |
| 10 | 16QAM | 25 | 12 | 21.61 | 21.58 | 21.61 | 22.0 |
| 10 | 16QAM | 25 | 25 | 21.59 | 21.56 | 21.55 | 22.0 |
| 10 | 16QAM | 50 | 0 | 21.60 | 21.61 | 21.55 | 22.0 |
| 10 | 64QAM | 1 | 0 | 21.83 | 21.74 | 21.61 | 22.0 |
| 10 | 64QAM | 1 | 25 | 21.98 | 21.74 | 21.70 | 22.0 |
| 10 | 64QAM | 1 | 49 | 21.84 | 21.63 | 21.70 | 22.0 |
| 10 | 64QAM | 25 | 0 | 20.61 | 20.67 | 20.59 | 21.0 |
| 10 | 64QAM | 25 | 12 | 20.64 | 20.61 | 20.67 | 21.0 |
| 10 | 64QAM | 25 | 25 | 20.63 | 20.59 | 20.61 | 21.0 |
| 10 | 64QAM | 50 | 0 | 20.55 | 20.59 | 20.55 | 21.0 |

LTE Band7

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20775 | 21100 | 21425 | Tune-up Tolerance |
| | | | | 2502.5 | 2535 | 2567.5 | |
| 5 | QPSK | 1 | 0 | 23.46 | 23.50 | 23.40 | 23.5 |
| 5 | QPSK | 1 | 12 | 23.74 | 23.75 | 23.60 | 24.0 |
| 5 | QPSK | 1 | 24 | 23.48 | 23.47 | 23.39 | 23.5 |
| 5 | QPSK | 12 | 0 | 22.55 | 22.55 | 22.39 | 23.0 |
| 5 | QPSK | 12 | 7 | 22.59 | 22.65 | 22.52 | 23.0 |
| 5 | QPSK | 12 | 13 | 22.58 | 22.61 | 22.43 | 23.0 |
| 5 | QPSK | 25 | 0 | 22.52 | 22.59 | 22.43 | 23.0 |
| 5 | 16QAM | 1 | 0 | 22.60 | 22.89 | 22.55 | 23.0 |
| 5 | 16QAM | 1 | 12 | 22.83 | 23.05 | 22.73 | 23.5 |
| 5 | 16QAM | 1 | 24 | 22.61 | 22.87 | 22.49 | 23.0 |
| 5 | 16QAM | 12 | 0 | 21.58 | 21.44 | 21.32 | 22.0 |
| 5 | 16QAM | 12 | 7 | 21.64 | 21.53 | 21.40 | 22.0 |
| 5 | 16QAM | 12 | 13 | 21.57 | 21.48 | 21.26 | 22.0 |
| 5 | 16QAM | 25 | 0 | 21.59 | 21.53 | 21.45 | 22.0 |
| 5 | 64QAM | 1 | 0 | 21.52 | 21.65 | 21.44 | 22.0 |
| 5 | 64QAM | 1 | 12 | 21.82 | 21.94 | 21.76 | 22.0 |
| 5 | 64QAM | 1 | 24 | 21.58 | 21.75 | 21.48 | 22.0 |
| 5 | 64QAM | 12 | 0 | 20.59 | 20.49 | 20.45 | 21.0 |
| 5 | 64QAM | 12 | 7 | 20.73 | 20.50 | 20.51 | 21.0 |
| 5 | 64QAM | 12 | 13 | 20.66 | 20.62 | 20.37 | 21.0 |
| 5 | 64QAM | 25 | 0 | 20.56 | 20.57 | 20.49 | 21.0 |

LTE Band7

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20800 | 21100 | 21400 | Tune-up Tolerance |
| | | | | 2505 | 2535 | 2565 | |
| 10 | QPSK | 1 | 0 | 23.70 | 23.56 | 23.49 | 24.0 |
| 10 | QPSK | 1 | 25 | 23.94 | 23.85 | 23.79 | 24.0 |
| 10 | QPSK | 1 | 49 | 23.67 | 23.57 | 23.47 | 24.0 |
| 10 | QPSK | 25 | 0 | 22.61 | 22.61 | 22.54 | 23.0 |
| 10 | QPSK | 25 | 12 | 22.61 | 22.62 | 22.57 | 23.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | QPSK | 25 | 25 | 22.68 | 22.69 | 22.49 | 23.0 |
| 10 | QPSK | 50 | 0 | 22.65 | 22.64 | 22.53 | 23.0 |
| 10 | 16QAM | 1 | 0 | 23.01 | 22.68 | 22.67 | 23.5 |
| 10 | 16QAM | 1 | 25 | 23.19 | 22.83 | 22.64 | 23.5 |
| 10 | 16QAM | 1 | 49 | 23.17 | 22.77 | 22.58 | 23.5 |
| 10 | 16QAM | 25 | 0 | 21.67 | 21.58 | 21.55 | 22.0 |
| 10 | 16QAM | 25 | 12 | 21.67 | 21.66 | 21.55 | 22.0 |
| 10 | 16QAM | 25 | 25 | 21.73 | 21.60 | 21.47 | 22.0 |
| 10 | 16QAM | 50 | 0 | 21.71 | 21.60 | 21.49 | 22.0 |
| 10 | 64QAM | 1 | 0 | 21.93 | 21.68 | 21.57 | 22.0 |
| 10 | 64QAM | 1 | 25 | 22.16 | 21.88 | 21.71 | 22.5 |
| 10 | 64QAM | 1 | 49 | 21.97 | 21.67 | 21.66 | 22.0 |
| 10 | 64QAM | 25 | 0 | 20.68 | 20.71 | 20.60 | 21.0 |
| 10 | 64QAM | 25 | 12 | 20.66 | 20.76 | 20.62 | 21.0 |
| 10 | 64QAM | 25 | 25 | 20.83 | 20.77 | 20.56 | 21.0 |
| 10 | 64QAM | 50 | 0 | 20.74 | 20.66 | 20.53 | 21.0 |

LTE Band7

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20825 | 21100 | 21375 | Tune-up Tolerance |
| | | | | 2507.5 | 2535 | 2562.5 | |
| 15 | QPSK | 1 | 0 | 23.60 | 23.44 | 23.41 | 24.0 |
| 15 | QPSK | 1 | 37 | 23.85 | 23.78 | 23.71 | 24.0 |
| 15 | QPSK | 1 | 74 | 23.55 | 23.51 | 23.38 | 24.0 |
| 15 | QPSK | 36 | 0 | 22.71 | 22.67 | 22.66 | 23.0 |
| 15 | QPSK | 36 | 29 | 22.78 | 22.72 | 22.65 | 23.0 |
| 15 | QPSK | 36 | 30 | 22.73 | 22.75 | 22.61 | 23.0 |
| 15 | QPSK | 75 | 0 | 22.72 | 22.70 | 22.57 | 23.0 |
| 15 | 16QAM | 1 | 0 | 22.97 | 22.71 | 22.78 | 23.0 |
| 15 | 16QAM | 1 | 37 | 23.27 | 22.91 | 22.93 | 23.5 |
| 15 | 16QAM | 1 | 74 | 23.07 | 22.63 | 22.68 | 23.5 |
| 15 | 16QAM | 36 | 0 | 21.70 | 21.58 | 21.62 | 22.0 |
| 15 | 16QAM | 36 | 29 | 21.81 | 21.70 | 21.58 | 22.0 |
| 15 | 16QAM | 36 | 30 | 21.77 | 21.65 | 21.55 | 22.0 |
| 15 | 16QAM | 75 | 0 | 21.69 | 21.76 | 21.47 | 22.0 |
| 15 | 64QAM | 1 | 0 | 21.88 | 21.65 | 21.88 | 22.0 |
| 15 | 64QAM | 1 | 37 | 22.18 | 21.78 | 22.11 | 22.5 |
| 15 | 64QAM | 1 | 74 | 21.86 | 21.64 | 21.85 | 22.0 |
| 15 | 64QAM | 36 | 0 | 20.72 | 20.66 | 20.57 | 21.0 |
| 15 | 64QAM | 36 | 29 | 20.79 | 20.80 | 20.53 | 21.0 |
| 15 | 64QAM | 36 | 30 | 20.75 | 20.78 | 20.50 | 21.0 |
| 15 | 64QAM | 75 | 0 | 20.73 | 20.67 | 20.52 | 21.0 |

LTE Band7

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 20850 | 21100 | 21350 | Tune-up Tolerance |
| | | | | 2510 | 2535 | 2560 | |
| 20 | QPSK | 1 | 0 | 23.43 | 23.32 | 23.28 | 23.5 |
| 20 | QPSK | 1 | 49 | 23.74 | 23.81 | 23.57 | 24.0 |
| 20 | QPSK | 1 | 99 | 23.46 | 23.42 | 23.23 | 23.5 |
| 20 | QPSK | 50 | 0 | 22.61 | 22.57 | 22.50 | 23.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | QPSK | 50 | 24 | 22.65 | 22.64 | 22.50 | 23.0 |
| 20 | QPSK | 50 | 50 | 22.68 | 22.59 | 22.41 | 23.0 |
| 20 | QPSK | 100 | 0 | 22.62 | 22.61 | 22.48 | 23.0 |
| 20 | 16QAM | 1 | 0 | 22.71 | 22.57 | 22.45 | 23.0 |
| 20 | 16QAM | 1 | 49 | 23.11 | 22.86 | 22.87 | 23.5 |
| 20 | 16QAM | 1 | 99 | 22.70 | 22.50 | 22.47 | 23.0 |
| 20 | 16QAM | 50 | 0 | 21.65 | 21.55 | 21.55 | 22.0 |
| 20 | 16QAM | 50 | 24 | 21.70 | 21.64 | 21.46 | 22.0 |
| 20 | 16QAM | 50 | 50 | 21.68 | 21.56 | 21.42 | 22.0 |
| 20 | 16QAM | 100 | 0 | 21.66 | 21.48 | 21.46 | 22.0 |
| 20 | 64QAM | 1 | 0 | 21.65 | 21.90 | 21.32 | 22.0 |
| 20 | 64QAM | 1 | 49 | 21.97 | 22.21 | 21.63 | 22.5 |
| 20 | 64QAM | 1 | 99 | 21.67 | 21.88 | 21.37 | 22.0 |
| 20 | 64QAM | 50 | 0 | 20.65 | 20.57 | 20.50 | 21.0 |
| 20 | 64QAM | 50 | 24 | 20.70 | 20.64 | 20.56 | 21.0 |
| 20 | 64QAM | 50 | 50 | 20.71 | 20.67 | 20.50 | 21.0 |
| 20 | 64QAM | 100 | 0 | 20.70 | 20.58 | 20.48 | 21.0 |

LTE Band12

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 23025 | 23095 | 23165 | |
| | | | | 700.5 | 707.5 | 714.5 | |
| 1.4 | QPSK | 1 | 0 | 23.14 | 23.21 | 23.24 | 23.5 |
| 1.4 | QPSK | 1 | 3 | 23.50 | 23.30 | 23.38 | 23.5 |
| 1.4 | QPSK | 1 | 5 | 23.17 | 23.11 | 23.22 | 23.5 |
| 1.4 | QPSK | 3 | 0 | 23.23 | 23.17 | 23.20 | 23.5 |
| 1.4 | QPSK | 3 | 1 | 23.32 | 23.32 | 23.11 | 23.5 |
| 1.4 | QPSK | 3 | 3 | 23.32 | 23.18 | 23.11 | 23.5 |
| 1.4 | QPSK | 6 | 0 | 22.23 | 22.17 | 22.26 | 22.5 |
| 1.4 | 16QAM | 1 | 0 | 22.03 | 22.31 | 22.24 | 22.5 |
| 1.4 | 16QAM | 1 | 3 | 22.25 | 22.40 | 22.41 | 22.5 |
| 1.4 | 16QAM | 1 | 5 | 22.12 | 22.36 | 22.22 | 22.5 |
| 1.4 | 16QAM | 3 | 0 | 22.21 | 22.12 | 21.90 | 22.5 |
| 1.4 | 16QAM | 3 | 1 | 22.27 | 22.28 | 21.93 | 22.5 |
| 1.4 | 16QAM | 3 | 3 | 22.26 | 22.20 | 22.04 | 22.5 |
| 1.4 | 16QAM | 6 | 0 | 21.36 | 21.32 | 21.21 | 21.5 |
| 1.4 | 64QAM | 1 | 0 | 21.44 | 21.28 | 21.33 | 21.5 |
| 1.4 | 64QAM | 1 | 3 | 21.67 | 21.45 | 21.38 | 22.0 |
| 1.4 | 64QAM | 1 | 5 | 21.50 | 21.27 | 21.27 | 21.5 |
| 1.4 | 64QAM | 3 | 0 | 21.50 | 21.26 | 21.18 | 21.5 |
| 1.4 | 64QAM | 3 | 1 | 21.54 | 21.31 | 21.19 | 22.0 |
| 1.4 | 64QAM | 3 | 3 | 21.44 | 21.25 | 21.09 | 21.5 |
| 1.4 | 64QAM | 6 | 0 | 20.21 | 20.52 | 20.24 | 21.0 |

LTE Band12

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 23025 | 23095 | 23165 | |
| | | | | 700.5 | 707.5 | 714.5 | |
| 3 | QPSK | 1 | 0 | 23.06 | 23.22 | 23.27 | 23.5 |
| 3 | QPSK | 1 | 8 | 23.14 | 23.17 | 23.32 | 23.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | QPSK | 1 | 14 | 23.16 | 23.15 | 23.27 | 23.5 |
| 3 | QPSK | 8 | 0 | 22.06 | 22.13 | 22.22 | 22.5 |
| 3 | QPSK | 8 | 4 | 22.18 | 22.30 | 22.23 | 22.5 |
| 3 | QPSK | 8 | 7 | 22.15 | 22.19 | 22.23 | 22.5 |
| 3 | QPSK | 15 | 0 | 22.09 | 22.22 | 22.19 | 22.5 |
| 3 | 16QAM | 1 | 0 | 22.53 | 22.41 | 22.32 | 23.0 |
| 3 | 16QAM | 1 | 8 | 22.65 | 22.33 | 22.27 | 23.0 |
| 3 | 16QAM | 1 | 14 | 22.66 | 22.26 | 22.20 | 23.0 |
| 3 | 16QAM | 8 | 0 | 21.14 | 21.13 | 21.16 | 21.5 |
| 3 | 16QAM | 8 | 4 | 21.24 | 21.10 | 21.16 | 21.5 |
| 3 | 16QAM | 8 | 7 | 21.31 | 21.13 | 21.15 | 21.5 |
| 3 | 16QAM | 15 | 0 | 21.21 | 21.21 | 21.18 | 21.5 |
| 3 | 64QAM | 1 | 0 | 21.43 | 21.32 | 21.34 | 21.5 |
| 3 | 64QAM | 1 | 8 | 21.46 | 21.32 | 21.30 | 21.5 |
| 3 | 64QAM | 1 | 14 | 21.56 | 21.36 | 21.27 | 22.0 |
| 3 | 64QAM | 8 | 0 | 20.21 | 20.23 | 20.15 | 20.5 |
| 3 | 64QAM | 8 | 4 | 20.22 | 20.18 | 20.17 | 20.5 |
| 3 | 64QAM | 8 | 7 | 20.26 | 20.20 | 20.12 | 20.5 |
| 3 | 64QAM | 15 | 0 | 20.17 | 20.19 | 20.19 | 20.5 |

LTE Band12

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 23035 | 23095 | 23155 | Tune-up Tolerance |
| | | | | 701.5 | 707.5 | 713.5 | |
| 5 | QPSK | 1 | 0 | 23.02 | 23.13 | 23.11 | 23.5 |
| 5 | QPSK | 1 | 12 | 23.34 | 23.33 | 23.38 | 23.5 |
| 5 | QPSK | 1 | 24 | 23.06 | 23.17 | 23.17 | 23.5 |
| 5 | QPSK | 12 | 0 | 22.13 | 22.15 | 22.14 | 22.5 |
| 5 | QPSK | 12 | 7 | 22.18 | 22.15 | 22.27 | 22.5 |
| 5 | QPSK | 12 | 13 | 22.25 | 22.29 | 22.19 | 22.5 |
| 5 | QPSK | 25 | 0 | 22.12 | 22.19 | 22.15 | 22.5 |
| 5 | 16QAM | 1 | 0 | 22.11 | 22.43 | 22.31 | 22.5 |
| 5 | 16QAM | 1 | 12 | 22.36 | 22.72 | 22.45 | 23.0 |
| 5 | 16QAM | 1 | 24 | 22.18 | 22.49 | 22.21 | 22.5 |
| 5 | 16QAM | 12 | 0 | 21.14 | 21.17 | 21.09 | 21.5 |
| 5 | 16QAM | 12 | 7 | 21.11 | 21.15 | 21.17 | 21.5 |
| 5 | 16QAM | 12 | 13 | 21.07 | 21.25 | 21.08 | 21.5 |
| 5 | 16QAM | 25 | 0 | 21.09 | 21.15 | 21.19 | 21.5 |
| 5 | 64QAM | 1 | 0 | 21.18 | 21.30 | 21.23 | 21.5 |
| 5 | 64QAM | 1 | 12 | 21.31 | 21.51 | 21.47 | 22.0 |
| 5 | 64QAM | 1 | 24 | 21.20 | 21.35 | 21.20 | 21.5 |
| 5 | 64QAM | 12 | 0 | 20.22 | 20.14 | 20.21 | 20.5 |
| 5 | 64QAM | 12 | 7 | 20.22 | 20.16 | 20.24 | 20.5 |
| 5 | 64QAM | 12 | 13 | 20.25 | 20.10 | 20.21 | 20.5 |
| 5 | 64QAM | 25 | 0 | 20.11 | 20.13 | 20.19 | 20.5 |

LTE Band12

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 23060 | 23095 | 23130 | Tune-up Tolerance |
| | | | | 704 | 707.5 | 711 | |
| 10 | QPSK | 1 | 0 | 23.12 | 23.10 | 23.15 | 23.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | QPSK | 1 | 25 | 23.31 | 23.35 | 23.33 | 23.5 |
| 10 | QPSK | 1 | 49 | 23.21 | 23.17 | 23.34 | 23.5 |
| 10 | QPSK | 25 | 0 | 22.25 | 22.21 | 22.29 | 22.5 |
| 10 | QPSK | 25 | 12 | 22.24 | 22.19 | 22.19 | 22.5 |
| 10 | QPSK | 25 | 25 | 22.20 | 22.22 | 22.23 | 22.5 |
| 10 | QPSK | 50 | 0 | 22.19 | 22.23 | 22.26 | 22.5 |
| 10 | 16QAM | 1 | 0 | 22.63 | 22.32 | 22.31 | 23.0 |
| 10 | 16QAM | 1 | 25 | 22.82 | 22.45 | 22.42 | 23.0 |
| 10 | 16QAM | 1 | 49 | 22.65 | 22.34 | 22.21 | 23.0 |
| 10 | 16QAM | 25 | 0 | 21.24 | 21.25 | 21.23 | 21.5 |
| 10 | 16QAM | 25 | 12 | 21.27 | 21.25 | 21.23 | 21.5 |
| 10 | 16QAM | 25 | 25 | 21.23 | 21.19 | 21.23 | 21.5 |
| 10 | 16QAM | 50 | 0 | 21.20 | 21.24 | 21.29 | 21.5 |
| 10 | 64QAM | 1 | 0 | 21.42 | 21.29 | 21.41 | 21.5 |
| 10 | 64QAM | 1 | 25 | 21.62 | 21.36 | 21.45 | 22.0 |
| 10 | 64QAM | 1 | 49 | 21.57 | 21.31 | 21.30 | 22.0 |
| 10 | 64QAM | 25 | 0 | 20.26 | 20.30 | 20.30 | 20.5 |
| 10 | 64QAM | 25 | 12 | 20.28 | 20.27 | 20.34 | 20.5 |
| 10 | 64QAM | 25 | 25 | 20.30 | 20.33 | 20.32 | 20.5 |
| 10 | 64QAM | 50 | 0 | 20.27 | 20.24 | 20.29 | 20.5 |

LTE Band17

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 23755 | 23790 | 23825 | |
| | | | | 706.5 | 710 | 713.5 | |
| 5 | QPSK | 1 | 0 | 23.12 | 23.18 | 23.13 | 23.5 |
| 5 | QPSK | 1 | 12 | 23.37 | 23.37 | 23.38 | 23.5 |
| 5 | QPSK | 1 | 24 | 23.11 | 23.13 | 23.16 | 23.5 |
| 5 | QPSK | 12 | 0 | 22.16 | 22.19 | 22.15 | 22.5 |
| 5 | QPSK | 12 | 7 | 22.30 | 22.18 | 22.28 | 22.5 |
| 5 | QPSK | 12 | 13 | 22.20 | 22.10 | 22.18 | 22.5 |
| 5 | QPSK | 25 | 0 | 22.25 | 22.20 | 22.16 | 22.5 |
| 5 | 16QAM | 1 | 0 | 22.19 | 22.56 | 22.25 | 23.0 |
| 5 | 16QAM | 1 | 12 | 22.50 | 22.73 | 22.46 | 23.0 |
| 5 | 16QAM | 1 | 24 | 22.26 | 22.53 | 22.17 | 23.0 |
| 5 | 16QAM | 12 | 0 | 21.15 | 21.27 | 21.18 | 21.5 |
| 5 | 16QAM | 12 | 7 | 21.20 | 21.15 | 21.19 | 21.5 |
| 5 | 16QAM | 12 | 13 | 21.23 | 21.10 | 21.15 | 21.5 |
| 5 | 16QAM | 25 | 0 | 21.20 | 21.23 | 21.22 | 21.5 |
| 5 | 64QAM | 1 | 0 | 21.22 | 21.43 | 21.27 | 21.5 |
| 5 | 64QAM | 1 | 12 | 21.37 | 21.60 | 21.52 | 22.0 |
| 5 | 64QAM | 1 | 24 | 21.31 | 21.29 | 21.25 | 21.5 |
| 5 | 64QAM | 12 | 0 | 20.28 | 20.19 | 20.19 | 20.5 |
| 5 | 64QAM | 12 | 7 | 20.34 | 20.17 | 20.32 | 20.5 |
| 5 | 64QAM | 12 | 13 | 20.30 | 20.11 | 20.27 | 20.5 |
| 5 | 64QAM | 25 | 0 | 20.13 | 20.12 | 20.21 | 20.5 |

LTE Band17

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | Tune-up Tolerance |
|---|---|---|---|---|---|---|---|
| | | | | 23780 | 23790 | 23800 | |
| | | | | 709 | 710 | 711 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | QPSK | 1 | 0 | 23.13 | 23.17 | 23.29 | 23.5 |
| 10 | QPSK | 1 | 25 | 23.39 | 23.42 | 23.36 | 23.5 |
| 10 | QPSK | 1 | 49 | 23.25 | 23.26 | 23.26 | 23.5 |
| 10 | QPSK | 25 | 0 | 22.31 | 22.29 | 22.21 | 22.5 |
| 10 | QPSK | 25 | 12 | 22.22 | 22.22 | 22.28 | 22.5 |
| 10 | QPSK | 25 | 25 | 22.25 | 22.24 | 22.22 | 22.5 |
| 10 | QPSK | 50 | 0 | 22.16 | 22.22 | 22.19 | 22.5 |
| 10 | 16QAM | 1 | 0 | 22.69 | 22.38 | 22.37 | 23.0 |
| 10 | 16QAM | 1 | 25 | 22.81 | 22.53 | 22.52 | 23.0 |
| 10 | 16QAM | 1 | 49 | 22.71 | 22.34 | 22.32 | 23.0 |
| 10 | 16QAM | 25 | 0 | 21.34 | 21.30 | 21.33 | 21.5 |
| 10 | 16QAM | 25 | 12 | 21.25 | 21.25 | 21.33 | 21.5 |
| 10 | 16QAM | 25 | 25 | 21.19 | 21.26 | 21.33 | 21.5 |
| 10 | 16QAM | 50 | 0 | 21.25 | 21.24 | 21.31 | 21.5 |
| 10 | 64QAM | 1 | 0 | 21.47 | 21.35 | 21.45 | 21.5 |
| 10 | 64QAM | 1 | 25 | 21.58 | 21.53 | 21.61 | 22.0 |
| 10 | 64QAM | 1 | 49 | 21.59 | 21.35 | 21.39 | 22.0 |
| 10 | 64QAM | 25 | 0 | 20.40 | 20.42 | 20.38 | 20.5 |
| 10 | 64QAM | 25 | 12 | 20.35 | 20.31 | 20.38 | 20.5 |
| 10 | 64QAM | 25 | 25 | 20.35 | 20.36 | 20.36 | 20.5 |
| 10 | 64QAM | 50 | 0 | 20.30 | 20.27 | 20.35 | 20.5 |

LTE Band38

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 37775 | 38000 | 38225 | Tune-up Tolerance |
| | | | | 2572.5 | 2595 | 2617.5 | |
| 5 | QPSK | 1 | 0 | 23.17 | 23.05 | 23.11 | 23.5 |
| 5 | QPSK | 1 | 12 | 23.41 | 23.35 | 23.35 | 23.5 |
| 5 | QPSK | 1 | 24 | 23.22 | 23.08 | 23.16 | 23.5 |
| 5 | QPSK | 12 | 0 | 22.29 | 22.16 | 22.23 | 22.5 |
| 5 | QPSK | 12 | 7 | 22.36 | 22.22 | 22.30 | 22.5 |
| 5 | QPSK | 12 | 13 | 22.24 | 22.14 | 22.18 | 22.5 |
| 5 | QPSK | 25 | 0 | 22.28 | 22.09 | 22.22 | 22.5 |
| 5 | 16QAM | 1 | 0 | 22.64 | 22.30 | 22.58 | 23.0 |
| 5 | 16QAM | 1 | 12 | 22.88 | 22.65 | 22.82 | 23.0 |
| 5 | 16QAM | 1 | 24 | 22.60 | 22.29 | 22.54 | 23.0 |
| 5 | 16QAM | 12 | 0 | 21.26 | 21.13 | 21.20 | 21.5 |
| 5 | 16QAM | 12 | 7 | 21.37 | 21.25 | 21.31 | 21.5 |
| 5 | 16QAM | 12 | 13 | 21.24 | 21.11 | 21.18 | 21.5 |
| 5 | 16QAM | 25 | 0 | 21.32 | 21.21 | 21.26 | 21.5 |
| 5 | 64QAM | 1 | 0 | 21.59 | 21.09 | 21.53 | 22.0 |
| 5 | 64QAM | 1 | 12 | 21.83 | 21.32 | 21.77 | 22.0 |
| 5 | 64QAM | 1 | 24 | 21.52 | 21.07 | 21.46 | 22.0 |
| 5 | 64QAM | 12 | 0 | 20.28 | 20.12 | 20.22 | 20.5 |
| 5 | 64QAM | 12 | 7 | 20.22 | 20.16 | 20.16 | 20.5 |
| 5 | 64QAM | 12 | 13 | 20.21 | 20.10 | 20.15 | 20.5 |
| 5 | 64QAM | 25 | 0 | 20.23 | 20.14 | 20.17 | 20.5 |

LTE Band38

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 37800 | 38000 | 38200 | Tune-up Tolerance |
| | | | | 2575 | 2595 | 2615 | |
| 10 | QPSK | 1 | 0 | 23.25 | 23.11 | 23.13 | 23.5 |
| 10 | QPSK | 1 | 25 | 23.48 | 23.30 | 23.36 | 23.5 |
| 10 | QPSK | 1 | 49 | 23.17 | 23.10 | 23.15 | 23.5 |
| 10 | QPSK | 25 | 0 | 22.28 | 22.20 | 22.21 | 22.5 |
| 10 | QPSK | 25 | 12 | 22.37 | 22.26 | 22.15 | 22.5 |
| 10 | QPSK | 25 | 25 | 22.30 | 22.21 | 22.13 | 22.5 |
| 10 | QPSK | 50 | 0 | 22.33 | 22.23 | 22.14 | 22.5 |
| 10 | 16QAM | 1 | 0 | 22.47 | 22.51 | 22.26 | 23.0 |
| 10 | 16QAM | 1 | 25 | 22.69 | 22.70 | 22.43 | 23.0 |
| 10 | 16QAM | 1 | 49 | 22.41 | 22.47 | 22.14 | 22.5 |
| 10 | 16QAM | 25 | 0 | 21.36 | 21.19 | 21.19 | 21.5 |
| 10 | 16QAM | 25 | 12 | 21.35 | 21.23 | 21.09 | 21.5 |
| 10 | 16QAM | 25 | 25 | 21.38 | 21.17 | 21.08 | 21.5 |
| 10 | 16QAM | 50 | 0 | 21.36 | 21.27 | 21.12 | 21.5 |
| 10 | 64QAM | 1 | 0 | 21.76 | 21.17 | 20.71 | 22.0 |
| 10 | 64QAM | 1 | 25 | 21.98 | 21.37 | 20.92 | 22.0 |
| 10 | 64QAM | 1 | 49 | 21.71 | 21.13 | 20.70 | 22.0 |
| 10 | 64QAM | 25 | 0 | 20.27 | 20.17 | 20.09 | 20.5 |
| 10 | 64QAM | 25 | 12 | 20.24 | 20.15 | 20.04 | 20.5 |
| 10 | 64QAM | 25 | 25 | 20.25 | 20.19 | 20.10 | 20.5 |
| 10 | 64QAM | 50 | 0 | 20.38 | 20.19 | 20.06 | 20.5 |

LTE Band38

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 37825 | 38000 | 38175 | Tune-up Tolerance |
| | | | | 2577.5 | 2595 | 2612.5 | |
| 15 | QPSK | 1 | 0 | 23.18 | 23.09 | 23.07 | 23.5 |
| 15 | QPSK | 1 | 37 | 23.52 | 23.43 | 23.41 | 24.0 |
| 15 | QPSK | 1 | 74 | 23.07 | 22.98 | 22.96 | 23.5 |
| 15 | QPSK | 36 | 0 | 22.37 | 22.28 | 22.26 | 22.5 |
| 15 | QPSK | 36 | 29 | 22.29 | 22.20 | 22.18 | 22.5 |
| 15 | QPSK | 36 | 30 | 22.29 | 22.20 | 22.18 | 22.5 |
| 15 | QPSK | 75 | 0 | 22.25 | 22.16 | 22.14 | 22.5 |
| 15 | 16QAM | 1 | 0 | 22.40 | 22.31 | 22.29 | 22.5 |
| 15 | 16QAM | 1 | 37 | 22.65 | 22.56 | 22.54 | 23.0 |
| 15 | 16QAM | 1 | 74 | 22.37 | 22.28 | 22.26 | 22.5 |
| 15 | 16QAM | 36 | 0 | 21.28 | 21.19 | 21.17 | 21.5 |
| 15 | 16QAM | 36 | 29 | 21.28 | 21.19 | 21.17 | 21.5 |
| 15 | 16QAM | 36 | 30 | 21.28 | 21.19 | 21.17 | 21.5 |
| 15 | 16QAM | 75 | 0 | 21.24 | 21.15 | 21.13 | 21.5 |
| 15 | 64QAM | 1 | 0 | 21.63 | 21.54 | 21.52 | 22.0 |
| 15 | 64QAM | 1 | 37 | 21.99 | 21.90 | 21.88 | 22.0 |
| 15 | 64QAM | 1 | 74 | 21.62 | 21.53 | 21.51 | 22.0 |
| 15 | 64QAM | 36 | 0 | 20.27 | 20.18 | 20.16 | 20.5 |
| 15 | 64QAM | 36 | 29 | 20.32 | 20.23 | 20.21 | 20.5 |
| 15 | 64QAM | 36 | 30 | 20.26 | 20.17 | 20.15 | 20.5 |
| 15 | 64QAM | 75 | 0 | 20.31 | 20.22 | 20.20 | 20.5 |

LTE Band38

| BW | Modulation | RB Size | RB Offset | Conducted power(dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 37850 | 38000 | 38150 | Tune-up Tolerance |
| | | | | 2580 | 2595 | 2610 | |
| 20 | QPSK | 1 | 0 | 23.01 | 22.91 | 22.88 | 23.5 |
| 20 | QPSK | 1 | 49 | 23.25 | 23.26 | 23.23 | 23.5 |
| 20 | QPSK | 1 | 99 | 23.01 | 22.89 | 22.78 | 23.5 |
| 20 | QPSK | 50 | 0 | 22.21 | 22.22 | 22.09 | 22.5 |
| 20 | QPSK | 50 | 24 | 22.26 | 22.20 | 22.17 | 22.5 |
| 20 | QPSK | 50 | 50 | 22.23 | 22.19 | 22.04 | 22.5 |
| 20 | QPSK | 100 | 0 | 22.25 | 22.19 | 22.12 | 22.5 |
| 20 | 16QAM | 1 | 0 | 22.35 | 21.85 | 22.09 | 22.5 |
| 20 | 16QAM | 1 | 49 | 22.73 | 22.24 | 22.48 | 23.0 |
| 20 | 16QAM | 1 | 99 | 22.29 | 21.73 | 22.05 | 22.5 |
| 20 | 16QAM | 50 | 0 | 21.23 | 21.20 | 21.04 | 21.5 |
| 20 | 16QAM | 50 | 24 | 21.21 | 21.23 | 21.12 | 21.5 |
| 20 | 16QAM | 50 | 50 | 21.20 | 21.23 | 21.05 | 21.5 |
| 20 | 16QAM | 100 | 0 | 21.22 | 21.16 | 21.15 | 21.5 |
| 20 | 64QAM | 1 | 0 | 20.99 | 21.28 | 20.83 | 21.5 |
| 20 | 64QAM | 1 | 49 | 21.36 | 21.65 | 21.23 | 22.0 |
| 20 | 64QAM | 1 | 99 | 20.93 | 21.14 | 20.82 | 21.5 |
| 20 | 64QAM | 50 | 0 | 20.27 | 20.21 | 20.11 | 20.5 |
| 20 | 64QAM | 50 | 24 | 20.28 | 20.29 | 20.14 | 20.5 |
| 20 | 64QAM | 50 | 50 | 20.27 | 20.29 | 20.08 | 20.5 |
| 20 | 64QAM | 100 | 0 | 20.18 | 20.21 | 20.11 | 20.5 |

# 7 SAR RESULTS

## 7.1 T-issue and System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue stimulants 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. All tests were carried out within 24 hours of measuring the dielectric parameters.

| Freq.(MHz) | Date | Liquid parameters | Measured | Target | Delta (%) | Tolerance (%) | Verdict |
|---|---|---|---|---|---|---|---|
| 750 | 2023/11/17 | εr | 41.935 | 41.9 | 0.08 | ±10 | Pass |
| | 2023/11/17 | σ[S/m] | 0.867 | 0.89 | -2.63 | ±10 | Pass |
| 835 | 2023/11/17 | εr | 42.99 | 41.50 | 3.58 | ±10 | Pass |
| | 2023/11/17 | σ[S/m] | 0.93 | 0.90 | 2.78 | ±10 | Pass |
| 900 | 2023/11/17 | εr | 40.05 | 41.50 | -3.51 | ±10 | Pass |
| | 2023/11/17 | σ[S/m] | 1.01 | 0.97 | 4.02 | ±10 | Pass |
| 1800 | 2023/11/17 | εr | 39.31 | 40.00 | -1.72 | ±10 | Pass |
| | 2023/11/17 | σ[S/m] | 1.40 | 1.40 | -0.29 | ±10 | Pass |
| 2000 | 2023/11/18 | εr | 41.31 | 40.00 | 3.28 | ±10 | Pass |
| | 2023/11/18 | σ[S/m] | 1.47 | 1.40 | 4.79 | ±10 | Pass |
| 2450 | 2023/11/19 | εr | 40.83 | 39.20 | 4.17 | ±10 | Pass |
| | 2023/11/19 | σ[S/m] | 1.74 | 1.80 | -3.61 | ±10 | Pass |
| 2600 | 2023/11/19 | εr | 38.65 | 39.00 | -0.89 | ±10 | Pass |
| | 2023/11/19 | σ[S/m] | 1.92 | 1.96 | -2.09 | ±10 | Pass |

A system check measurement was made following the determination of the dielectric parameters of the stimulant, using the dipole validation kit. Dipole was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below. All tests were carried out within 24 hours of checking system. Plots of the system checking scans are given in Annex A. Tissue Stimulants used in the Measurements. **For the same frequency range, SAR measurement is the same day with system check, and there is no need to manually add test date in ANNEX A.**

| Freq.(MHz) | Date | SAR measured (normalized to 1W) | | Target (Ref. Value) | Delta(%) | Tolerance(%) | Verdict |
|---|---|---|---|---|---|---|---|
| 750 | 2023/11/17 | 1g | 8.08 | 8.40 | -3.81 | ±10 | Pass |
| | 2023/11/17 | 10g | 5.32 | 5.70 | -6.67 | ±10 | Pass |
| 835 | 2023/11/17 | 1g | 9.62 | 9.75 | -1.33 | ±10 | Pass |
| | 2023/11/17 | 10g | 6.08 | 6.36 | -4.40 | ±10 | Pass |
| 900 | 2023/11/17 | 1g | 10.72 | 10.80 | -0.79 | ±10 | Pass |
| | 2023/11/17 | 10g | 7.32 | 6.91 | 5.78 | ±10 | Pass |
| 1800 | 2023/11/17 | 1g | 40.00 | 38.90 | 2.83 | ±10 | Pass |
| | 2023/11/17 | 10g | 20.88 | 20.30 | 2.85 | ±10 | Pass |
| 2000 | 2023/11/18 | 1g | 42.56 | 41.50 | 2.55 | ±10 | Pass |
| | 2023/11/18 | 10g | 19.96 | 20.90 | -4.49 | ±10 | Pass |
| 2450 | 2023/11/19 | 1g | 50.76 | 53.90 | -5.82 | ±10 | Pass |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2023/11/19 | 10g | 25.44 | 25.20 | 0.95 | ±10 | Pass |
| 2600 | 2023/11/19 | 1g | 56.08 | 55.30 | 1.41 | ±10 | Pass |
| | 2023/11/19 | 10g | 26.12 | 25.0 | 4.48 | ±10 | Pass |

## 7.2 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 centre 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

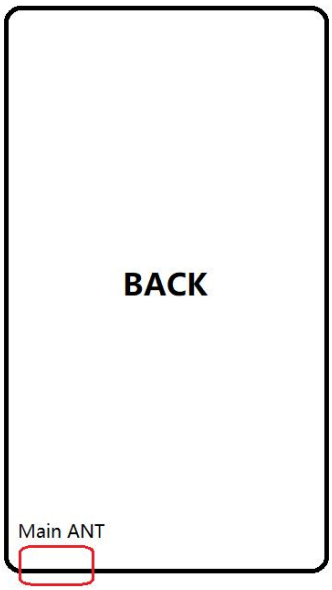
c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., Nc > 3), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

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.

**Test and antenna position describe as follow:**

Note: SRTC defined these positions (Back, Front, left, right, Top, Bottom) when facing the DUT screen.



| License antenna | Position | Distances to edge (mm) | Note |
|---|---|---|---|
| MAIN ANT | Back | 2.2 | ANT for 3/4G |
| | Front | 2.3 | |
| | Top | 150.0 | |
| | Bottom | 2.0 | |
| | Left | 11.0 | |
| | Right | 45.0 | |

**The measured and reported SAR values are tabulated below:**

Non-signaling mode duty cycle could be the most conservative condition which with 100% duty cycle. So duty factor=1/ duty cycle shall be taken into consideration for SAR measurement with Non-signaling mode.

### 7.2.1 Licensed SISO

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| WCDMA II | Test distance | Position | Channel | | | | First | Second | First | Second |
| RMC | 0mm | Back | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Back | M | 22.38 | 22.50 | 1.03 | 1.170 | --- | 1.205 | --- |
| RMC | 0mm | Back | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |
| RMC | 0mm | Front | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Front | M | 22.38 | 22.50 | 1.03 | 0.617 | --- | 0.636 | --- |
| RMC | 0mm | Front | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |
| RMC | 0mm | Top | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Top | M | 22.38 | 22.50 | 1.03 | 0.010 | --- | 0.010 | --- |
| RMC | 0mm | Top | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | M | 22.38 | 22.50 | 1.03 | 1.890 | --- | 1.947 | --- |
| RMC | 0mm | Bottom | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |
| RMC | 0mm | Left | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Left | M | 22.38 | 22.50 | 1.03 | 0.481 | --- | 0.495 | --- |
| RMC | 0mm | Left | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |
| RMC | 0mm | Right | L | 22.13 | 22.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Right | M | 22.38 | 22.50 | 1.03 | 0.010 | --- | 0.010 | --- |
| RMC | 0mm | Right | H | 22.37 | 22.50 | 1.03 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| WCDMA IV | Test distance | Position | Channel | | | | First | Second | First | Second |
| RMC | 0mm | Back | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Back | M | 22.06 | 22.50 | 1.11 | 0.565 | --- | 0.627 | --- |
| RMC | 0mm | Back | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |
| RMC | 0mm | Front | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Front | M | 22.06 | 22.50 | 1.11 | 0.343 | --- | 0.381 | --- |
| RMC | 0mm | Front | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |
| RMC | 0mm | Top | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Top | M | 22.06 | 22.50 | 1.11 | 0.010 | --- | 0.011 | --- |
| RMC | 0mm | Top | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | M | 22.06 | 22.50 | 1.11 | 0.722 | --- | 0.801 | --- |
| RMC | 0mm | Bottom | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |
| RMC | 0mm | Left | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Left | M | 22.06 | 22.50 | 1.11 | 0.189 | --- | 0.210 | --- |
| RMC | 0mm | Left | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |
| RMC | 0mm | Right | L | 22.02 | 22.50 | 1.12 | --- | --- | --- | --- |
| RMC | 0mm | Right | M | 22.06 | 22.50 | 1.11 | 0.069 | --- | 0.077 | --- |
| RMC | 0mm | Right | H | 21.94 | 22.50 | 1.14 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| WCDMA V | Test distance | Position | Channel | | | | First | Second | First | Second |
| RMC | 0mm | Back | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Back | M | 23.15 | 23.50 | 1.08 | 0.527 | --- | 0.569 | --- |
| RMC | 0mm | Back | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |
| RMC | 0mm | Front | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Front | M | 23.15 | 23.50 | 1.08 | 0.312 | --- | 0.337 | --- |
| RMC | 0mm | Front | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |
| RMC | 0mm | Top | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Top | M | 23.15 | 23.50 | 1.08 | 0.010 | --- | 0.011 | --- |
| RMC | 0mm | Top | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Bottom | M | 23.15 | 23.50 | 1.08 | 0.776 | --- | 0.838 | --- |
| RMC | 0mm | Bottom | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |
| RMC | 0mm | Left | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Left | M | 23.15 | 23.50 | 1.08 | 0.089 | --- | 0.096 | --- |
| RMC | 0mm | Left | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |
| RMC | 0mm | Right | L | 23.14 | 23.50 | 1.09 | --- | --- | --- | --- |
| RMC | 0mm | Right | M | 23.15 | 23.50 | 1.08 | 0.251 | --- | 0.271 | --- |
| RMC | 0mm | Right | H | 22.89 | 23.50 | 1.15 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE2 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 22.84 | 23.00 | 1.04 | 1.309 | --- | 1.361 | --- |
| QPSK | 0mm | Back | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 22.84 | 23.00 | 1.04 | 0.689 | --- | 0.717 | --- |
| QPSK | 0mm | Front | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 22.84 | 23.00 | 1.04 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Top | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 22.84 | 23.00 | 1.04 | 1.638 | --- | 1.704 | --- |
| QPSK | 0mm | Bottom | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 22.84 | 23.00 | 1.04 | 0.387 | --- | 0.402 | --- |
| QPSK | 0mm | Left | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 22.81 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 22.84 | 23.00 | 1.04 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Right | H | 22.77 | 23.00 | 1.05 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE4 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 22.90 | 23.00 | 1.02 | 1.757 | --- | 1.792 | --- |
| QPSK | 0mm | Back | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 22.90 | 23.00 | 1.02 | 0.931 | --- | 0.950 | --- |
| QPSK | 0mm | Front | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 22.90 | 23.00 | 1.02 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Top | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 22.90 | 23.00 | 1.02 | 1.925 | --- | 1.964 | --- |
| QPSK | 0mm | Bottom | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 22.90 | 23.00 | 1.02 | 0.462 | --- | 0.471 | --- |
| QPSK | 0mm | Left | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 22.84 | 23.00 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 22.90 | 23.00 | 1.02 | 0.143 | --- | 0.146 | --- |
| QPSK | 0mm | Right | H | 22.86 | 23.00 | 1.03 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE5 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 23.73 | 24.00 | 1.06 | 0.576 | --- | 0.611 | --- |
| QPSK | 0mm | Back | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 23.73 | 24.00 | 1.06 | 0.345 | --- | 0.366 | --- |
| QPSK | 0mm | Front | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 23.73 | 24.00 | 1.06 | 0.010 | --- | 0.011 | --- |
| QPSK | 0mm | Top | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 23.73 | 24.00 | 1.06 | 0.949 | --- | 1.006 | --- |
| QPSK | 0mm | Bottom | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 23.73 | 24.00 | 1.06 | 0.154 | --- | 0.163 | --- |
| QPSK | 0mm | Left | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 23.71 | 24.00 | 1.07 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 23.73 | 24.00 | 1.06 | 0.233 | --- | 0.247 | --- |
| QPSK | 0mm | Right | H | 23.62 | 24.00 | 1.09 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE7 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 23.81 | 24.00 | 1.04 | 0.724 | --- | 0.753 | --- |
| QPSK | 0mm | Back | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 23.81 | 24.00 | 1.04 | 0.764 | --- | 0.795 | --- |
| QPSK | 0mm | Front | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 23.81 | 24.00 | 1.04 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Top | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 23.81 | 24.00 | 1.04 | 1.050 | --- | 1.092 | --- |
| QPSK | 0mm | Bottom | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 23.81 | 24.00 | 1.04 | 0.352 | --- | 0.366 | --- |
| QPSK | 0mm | Left | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 23.74 | 24.00 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 23.81 | 24.00 | 1.04 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Right | H | 23.57 | 24.00 | 1.10 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE12 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 23.35 | 23.50 | 1.04 | 0.919 | --- | 0.956 | --- |
| QPSK | 0mm | Back | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 23.35 | 23.50 | 1.04 | 0.440 | --- | 0.458 | --- |
| QPSK | 0mm | Front | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 23.35 | 23.50 | 1.04 | 0.010 | --- | 0.01 0 | --- |
| QPSK | 0mm | Top | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 23.35 | 23.50 | 1.04 | 0.593 | --- | 0.617 | --- |
| QPSK | 0mm | Bottom | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 23.35 | 23.50 | 1.04 | 0.125 | --- | 0.130 | --- |
| QPSK | 0mm | Left | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 23.31 | 23.50 | 1.04 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 23.35 | 23.50 | 1.04 | 0.238 | --- | 0.248 | --- |
| QPSK | 0mm | Right | H | 23.33 | 23.50 | 1.04 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE17 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 23.42 | 23.50 | 1.02 | 0.933 | --- | 0.952 | --- |
| QPSK | 0mm | Back | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 23.42 | 23.50 | 1.02 | 0.580 | --- | 0.592 | --- |
| QPSK | 0mm | Front | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 23.42 | 23.50 | 1.02 | 0.010 | --- | 0.010 | --- |
| QPSK | 0mm | Top | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 23.42 | 23.50 | 1.02 | 0.612 | --- | 0.624 | --- |
| QPSK | 0mm | Bottom | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 23.42 | 23.50 | 1.02 | 0.144 | --- | 0.147 | --- |
| QPSK | 0mm | Left | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 23.39 | 23.50 | 1.03 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 23.42 | 23.50 | 1.02 | 0.249 | --- | 0.254 | --- |
| QPSK | 0mm | Right | H | 23.36 | 23.50 | 1.03 | --- | --- | --- | --- |

| Test case | | | | Meas power(dBm) | Tune-up(dBm) | Scaling factor | Meas SAR(w/kg) | | Report SAR(w/kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE38 | Test distance | Position | Channel | | | | First | Second | First | Second |
| QPSK | 0mm | Back | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Back | M | 23.26 | 23.50 | 1.06 | 0.481 | --- | 0.510 | --- |
| QPSK | 0mm | Back | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Front | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Front | M | 23.26 | 23.50 | 1.06 | 0.196 | --- | 0.208 | --- |
| QPSK | 0mm | Front | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Top | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Top | M | 23.26 | 23.50 | 1.06 | 0.010 | --- | 0.011 | --- |
| QPSK | 0mm | Top | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Bottom | M | 23.26 | 23.50 | 1.06 | 0.339 | --- | 0.359 | --- |
| QPSK | 0mm | Bottom | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Left | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Left | M | 23.26 | 23.50 | 1.06 | 0.142 | --- | 0.151 | --- |
| QPSK | 0mm | Left | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Right | L | 23.25 | 23.50 | 1.06 | --- | --- | --- | --- |
| QPSK | 0mm | Right | M | 23.26 | 23.50 | 1.06 | 0.010 | --- | 0.011 | --- |
| QPSK | 0mm | Right | H | 23.23 | 23.50 | 1.06 | --- | --- | --- | --- |

# 8 MEASUREMENT UNCERTAINTY

## Uncertainty Budget for System Validation

**(Frequency band: 300 MHz–6 GHz range)**

| Symbol | Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) (1 g) | ($c_i$) (10 g) | Std. Unc. (1 g) | Std. Unc. (10 g) |
|---|---|---|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | | | | |
| CF | Probe Calibration | ±13.1% | N | 2 | 1 | 1 | ±6.55% | ±6.55% |
| $CF_{drift}$ | Probe Calibration Drift | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| LIN | Probe Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| BBS | Broadband Signal | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| ISO | Probe Isotropy (axial) | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| DAE | Other Probe+Electronic | ±1.2% | N | 1 | 1 | 1 | ±1.2% | ±1.2% |
| AMB | RF Ambient | ±0.6% | N | 1 | 1 | 1 | ±0.6% | ±0.6% |
| $\Delta_{sys}$ | Probe Positioning | ±0.5% | N | 1 | 0.29 | 0.29 | ±0.1% | ±0.1% |
| DAT | Data Processing | ±0% | N | 1 | 1 | 1 | ±0% | ±0% |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ($\sigma$) | Conductivity (meas.)$^{DAK}$ | ±2.5% | N | 1 | 0.78 | 0.71 | ±2.0% | ±1.8% |
| LIQ($T_\sigma$) | Conductivity (temp.)$^{BB}$ | ±3.4% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5% | ±1.4% |
| EPS | Phantom Permittivity | ±14.0% | R | $\sqrt{3}$ | 0.25 | 0.25 | ±2.0% | ±2.0% |
| DIS | Distance DUT – TSL | ±1.3% | N | 1 | 2 | 2 | ±2.6% | ±2.6% |
| MOD | DUT Modulation | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| TAS | Time-average SAR | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| VAL | Validation antenna | ±3.2% | N | 1 | 1 | 1 | ±3.2% | ±3.2% |
| $P_{in}$ | Accepted power | ±2.0% | N | 1 | 1 | 1 | ±2.0% | ±2.0% |
| **Correction to the SAR results** | | | | | | | | |
| C($\varepsilon$, $\sigma$) | Deviation to Target | ±1.9% | N | 1 | 1 | 0.84 | ±1.9% | ±1.6% |
| u($\Delta$SAR) | Combined Uncertainty | | | | | | ±9.8% | ±9.7% |
| U | **Expanded Uncertainty** | | | | | | ±19.6% | ±19.5% |

# Uncertainty Budget for System Validation

**(Frequency band: 6 GHz–10 GHz range)**

| Symbol | Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) (1 g) | ($c_i$) (10 g) | Std. Unc. (1 g) | Std. Unc. (10 g) |
|---|---|---|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | | | | |
| CF | Probe Calibration | ±18.6% | N | 2 | 1 | 1 | ±9.30% | ±9.30% |
| $CF_{drift}$ | Probe Calibration Drift | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| LIN | Probe Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| BBS | Broadband Signal | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| ISO | Probe Isotropy (axial) | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| DAE | Other Probe+Electronic | ±2.4% | N | 1 | 1 | 1 | ±2.4% | ±2.4% |
| AMB | RF Ambient | ±0.6% | N | 1 | 1 | 1 | ±0.6% | ±0.6% |
| $\Delta_{sys}$ | Probe Positioning | ±0.5% | N | 1 | 0.50 | 0.50 | ±0.2% | ±0.2% |
| DAT | Data Processing | ±0% | N | 1 | 1 | 1 | ±0% | ±0% |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ($\sigma$) | Conductivity (meas.)$^{DAK}$ | ±2.5% | N | 1 | 0.78 | 0.71 | ±2.0% | ±1.8% |
| LIQ($T_\sigma$) | Conductivity (temp.)$^{BB}$ | ±3.4% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5% | ±1.4% |
| EPS | Phantom Permittivity | ±14.0% | R | $\sqrt{3}$ | 0.5 | 0.5 | ±4.0% | ±4.0% |
| DIS | Distance DUT – TSL | ±2.6% | N | 1 | 2 | 2 | ±5.3% | ±5.3% |
| MOD | DUT Modulation | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| TAS | Time-average SAR | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| VAL | Validation antenna | ±3.2% | N | 1 | 1 | 1 | ±3.2% | ±3.2% |
| $P_{in}$ | Accepted power | ±2.0% | N | 1 | 1 | 1 | ±2.0% | ±2.0% |
| **Correction to the SAR results** | | | | | | | | |
| C($\varepsilon$, $\sigma$) | Deviation to Target | ±1.9% | N | 1 | 1 | 0.84 | ±1.9% | ±1.6% |
| u($\Delta$SAR) | Combined Uncertainty | | | | | | ±13.3% | ±13.2% |
| U | **Expanded Uncertainty** | | | | | | ±26.6% | ±26.4% |

# Uncertainty Budget for DUT

**(Frequency band: 300 MHz–3 GHz range)**

| Symbol | Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) (1 g) | ($c_i$) (10 g) | Std. Unc. (1 g) | Std. Unc. (10 g) |
|---|---|---|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | | | | |
| CF | Probe Calibration | ±12.0% | N | 2 | 1 | 1 | ±6.0% | ±6.0% |
| $CF_{drift}$ | Probe Calibration Drift | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| LIN | Probe Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| BBS | Broadband Signal | ±3.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% |
| ISO | Probe Isotropy | ±7.6% | R | $\sqrt{3}$ | 1 | 1 | ±4.4% | ±4.4% |
| DAE | Other Probe+Electronic | ±0.7% | N | 1 | 1 | 1 | ±0.7% | ±0.7% |
| AMB | RF Ambient | ±1.8% | N | 1 | 1 | 1 | ±1.8% | ±1.8% |
| $\Delta_{sys}$ | Probe Positioning | ±0.006 mm | N | 1 | 0.14 | 0.14 | ±0.10% | ±0.10% |
| DAT | Data Processing | ±1.2% | N | 1 | 1 | 1 | ±1.2% | ±1.2% |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ($\sigma$) | Conductivity (meas.)$^{DAK}$ | ±2.5% | N | 1 | 0.78 | 0.71 | ±2.0% | ±1.8% |
| LIQ($T_\sigma$) | Conductivity (temp.)$^{BB}$ | ±3.3% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5% | ±1.4% |
| EPS | Phantom Permittivity | ±14.0% | R | $\sqrt{3}$ | 0 | 0 | ±0% | ±0% |
| DIS | Distance DUT – TSL | ±2.0% | N | 1 | 2 | 2 | ±4.0% | ±4.0% |
| $D_{xyz}$ | Device Positioning | ±1.0% | N | 1 | 1 | 1 | ±1.0% | ±1.0% |
| H | Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% |
| MOD | DUT Modulation$^{m}$ | ±2.4% | R | $\sqrt{3}$ | 1 | 1 | ±1.4% | ±1.4% |
| TAS | Time-average SAR | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| $RF_{drift}$ | DUT drift | ±2.5% | N | 1 | 1 | 1 | ±2.5% | ±2.5% |
| VAL | Val Antenna Unc.$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| $RF_{in}$ | Unc. Input Power$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| **Correction to the SAR results** | | | | | | | | |
| C($\varepsilon$, $\sigma$) | Deviation to Target | ±1.9% | N | 1 | 1 | 0.84 | ±1.9% | ±1.6% |
| C(R) | SAR scaling$^{p}$ | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| u($\Delta$SAR) | Combined Uncertainty | | | | | | ±10.9% | ±10.9% |
| U | **Expanded Uncertainty** | | | | | | ±21.9% | ±21.8% |

# Uncertainty Budget for DUT

**(Frequency band: 3 GHz–6 GHz range)**

| Symbol | Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) (1 g) | ($c_i$) (10 g) | Std. Unc. (1 g) | Std. Unc. (10 g) |
|---|---|---|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | | | | |
| CF | Probe Calibration | ±13.1% | N | 2 | 1 | 1 | ±6.55% | ±6.55% |
| $CF_{drift}$ | Probe Calibration Drift | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| LIN | Probe Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| BBS | Broadband Signal | ±2.6% | R | $\sqrt{3}$ | 1 | 1 | ±1.5% | ±1.5% |
| ISO | Probe Isotropy | ±7.6% | R | $\sqrt{3}$ | 1 | 1 | ±4.4% | ±4.4% |
| DAE | Other Probe+Electronic | ±1.2% | N | 1 | 1 | 1 | ±1.2% | ±1.2% |
| AMB | RF Ambient | ±1.8% | N | 1 | 1 | 1 | ±1.8% | ±1.8% |
| $\Delta_{sys}$ | Probe Positioning | ±0.005 mm | N | 1 | 0.29 | 0.29 | ±0.15% | ±0.15% |
| DAT | Data Processing | ±2.3% | N | 1 | 1 | 1 | ±2.3% | ±2.3% |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ($\sigma$) | Conductivity (meas.)$^{DAK}$ | ±2.5% | N | 1 | 0.78 | 0.71 | ±2.0% | ±1.8% |
| LIQ($T_\sigma$) | Conductivity (temp.)$^{BB}$ | ±3.4% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.5% | ±1.4% |
| EPS | Phantom Permittivity | ±14.0% | R | $\sqrt{3}$ | 0.25 | 0.25 | ±2.0% | ±2.0% |
| DIS | Distance DUT – TSL | ±2.0% | N | 1 | 2 | 2 | ±4.0% | ±4.0% |
| $D_{xyz}$ | Device Positioning | ±1.0% | N | 1 | 1 | 1 | ±1.0% | ±1.0% |
| H | Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% |
| MOD | DUT Modulation$^{m}$ | ±2.4% | R | $\sqrt{3}$ | 1 | 1 | ±1.4% | ±1.4% |
| TAS | Time-average SAR | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| $RF_{drift}$ | DUT drift | ±2.5% | N | 1 | 1 | 1 | ±2.5% | ±2.5% |
| VAL | Val Antenna Unc.$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| $RF_{in}$ | Unc. Input Power$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| **Correction to the SAR results** | | | | | | | | |
| C($\varepsilon$, $\sigma$) | Deviation to Target | ±1.9% | N | 1 | 1 | 0.84 | ±1.9% | ±1.6% |
| C(R) | SAR scaling$^{p}$ | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| u($\Delta$SAR) | Combined Uncertainty | | | | | | ±11.6% | ±11.5% |
| U | **Expanded Uncertainty** | | | | | | ±23.3% | ±23.0% |

# Uncertainty Budget for DUT

**(Frequency band: 6 GHz–10 GHz range)**

| Symbol | Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) (1 g) | ($c_i$) (10 g) | Std. Unc. (1 g) | Std. Unc. (10 g) |
|---|---|---|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | | | | |
| CF | Probe Calibration | ±18.6% | N | 2 | 1 | 1 | ±9.3% | ±9.3% |
| $CF_{drift}$ | Probe Calibration Drift | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| LIN | Probe Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% |
| BBS | Broadband Signal | ±2.8% | R | $\sqrt{3}$ | 1 | 1 | ±1.6% | ±1.6% |
| ISO | Probe Isotropy | ±7.6% | R | $\sqrt{3}$ | 1 | 1 | ±4.4% | ±4.4% |
| DAE | Other Probe+Electronic | ±2.4% | N | 1 | 1 | 1 | ±2.4% | ±2.4% |
| AMB | RF Ambient | ±1.8% | N | 1 | 1 | 1 | ±1.8% | ±1.8% |
| $\Delta_{sys}$ | Probe Positioning | ±0.005 mm | N | 1 | 0.50 | 0.50 | ±0.25% | ±0.25% |
| DAT | Data Processing | ±3.5% | N | 1 | 1 | 1 | ±3.5% | ±3.5% |
| **Phantom and Device Errors** | | | | | | | | |
| LIQ($\sigma$) | Conductivity (meas.)$^{DAK}$ | ±2.5% | N | 1 | 0.78 | 0.71 | ±2.0% | ±1.8% |
| LIQ($T_\sigma$) | Conductivity (temp.)$^{BB}$ | ±2.4% | R | $\sqrt{3}$ | 0.78 | 0.71 | ±1.1% | ±1.0% |
| EPS | Phantom Permittivity | ±14.0% | R | $\sqrt{3}$ | 0.5 | 0.5 | ±4.0% | ±4.0% |
| DIS | Distance DUT – TSL | ±2.0% | N | 1 | 2 | 2 | ±4.0% | ±4.0% |
| $D_{xyz}$ | Device Positioning | ±1.0% | N | 1 | 1 | 1 | ±1.0% | ±1.0% |
| H | Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% |
| MOD | DUT Modulation$^{m}$ | ±2.4% | R | $\sqrt{3}$ | 1 | 1 | ±1.4% | ±1.4% |
| TAS | Time-average SAR | ±1.7% | R | $\sqrt{3}$ | 1 | 1 | ±1.0% | ±1.0% |
| $RF_{drift}$ | DUT drift | ±2.5% | N | 1 | 1 | 1 | ±2.5% | ±2.5% |
| VAL | Val Antenna Unc.$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| $RF_{in}$ | Unc. Input Power$^{val}$ | ±0.0% | N | 1 | 1 | 1 | ±0% | ±0% |
| **Correction to the SAR results** | | | | | | | | |
| C($\varepsilon$, $\sigma$) | Deviation to Target | ±1.9% | N | 1 | 1 | 0.84 | ±1.9% | ±1.6% |
| C(R) | SAR scaling$^{p}$ | ±0% | R | $\sqrt{3}$ | 1 | 1 | ±0% | ±0% |
| u($\Delta$SAR) | Combined Uncertainty | | | | | | ±14.2% | ±13.9% |
| U | **Expanded Uncertainty** | | | | | | ±28.4% | ±27.9% |

Note: SRTC evaluate the uncertainty of ambient noise, reflections and device Positioning periodically to make sure there is no influence on SAR result. When the measured value less than the value provided by SPEAG, SRTC adopt the worst value as final result.

# 9 TEST EQUIPMENTS

The measurements were performed using an automated near-field scanning system, DASY, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland, all the components and supplement devices listed below.

| Test Equipment | Model | Serial Number | Calibration date | Calibration due data |
|---|---|---|---|---|
| DAE | DAE4 | 546 | 2023/09/15 | 2024/09/14 |
| Dosimetric E-field Probe | EX3DV4 | 3708 | 2023/10/30 | 2024/10/29 |
| Dipole Validation Kit | D750V3 | 1101 | 2023/10/19 | 2026/10/18 |
| Dipole Validation Kit | D835V2 | 4d023 | 2023/10/25 | 2026/10/24 |
| Dipole Validation Kit | D900V2 | 171 | 2023/09/19 | 2026/09/18 |
| Dipole Validation Kit | D1450V2 | 1065 | 2023/10/17 | 2026/10/16 |
| Dipole Validation Kit | D1800V2 | 2d084 | 2023/09/18 | 2026/09/17 |
| Dipole Validation Kit | D2000V2 | 1009 | 2023/10/23 | 2026/10/22 |
| Dipole Validation Kit | D2450V2 | 738 | 2023/10/23 | 2026/10/22 |
| Dipole Validation Kit | D2600V2 | 1166 | 2022/10/19 | 2025/10/18 |

Note: Longer calibration intervals of up to **3 years is acceptable** when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable.

| Test Equipment | Model | Serial Number | Calibration within 1year |
|---|---|---|---|
| Signal Generator | E8257dD | MY46522016 | Comply |
| Power meter | E4417A | MY45101004 | Comply |
| Power Sensor | E9300B | MY41496001 | Comply |
| Power Sensor | E9300B | MY41496003 | Comply |
| Vector Network Analyzer | VNA R140 | 0011213 | Comply |
| Dielectric Parameter Probe | DAKS-3.5 | 1042 | Comply |
| Communication Tester | E5515C | MY48367401 | Comply |
| Communication Tester | CMW500 | 161702 | Comply |
| Communication Tester | MT8820C | 6201300660 | Comply |
| Communication Tester | SP9500 | 20334 | Comply |

| Software | Version |
|---|---|
| DASY5 | 52.10.4.1527 |
| DASY6 | 16.0.0.116 |
| SEMCAD X | 14.6.14 |
| DAK | 3.0.4.1 |

**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. The most recent return-loss result deviates within 20% from the previous measurement. (Target from the last calibration report, Return loss<20db)

| Dipole450 TSL Parameters | | |
|---|---|---|
| (feed point 450MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 56.1Ω+6.06jΩ | 55.5Ω+6.40jΩ |
| Return loss | -21.6 dB | -21.9 dB |
| Dipole750 TSL Parameters | | |
| (feed point 750MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 53.9Ω-2.02jΩ | 53.7Ω-1.63jΩ |
| Return loss | -27.5 dB | -28.2dB |
| Dipole835 TSL Parameters | | |
| (feed point 835MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 53.4Ω-3.16jΩ | 52.6Ω-2.37jΩ |
| Return loss | -30.1 dB | -29.3dB |
| Dipole900 TSL Parameters | | |
| (feed point 900MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 50.6Ω-5.24jΩ | 49.1Ω-6.69jΩ |
| Return loss | -23.8 dB | -23.4dB |
| Dipole1450 TSL Parameters | | |
| (feed point 1450MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 53.7Ω-2.95jΩ | 52.4Ω-1.35jΩ |
| Return loss | -32.1 dB | -31.5dB |
| Dipole1800 TSL Parameters | | |
| (feed point 1800MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 47.8Ω-3.06jΩ | 48.9Ω-2.71jΩ |
| Return loss | -31.3 dB | -30.6dB |
| Dipole2000 TSL Parameters | | |
| (feed point 2000MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 51.1Ω-3.37jΩ | 49.4Ω-2.46jΩ |
| Return loss | -30.6 dB | -31.9dB |
| Dipole2450 TSL Parameters | | |
| (feed point 2450MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 54.2Ω+5.98jΩ | 53.3Ω+6.38jΩ |
| Return loss | -22.9 dB | -23.1dB |
| Dipole2600 TSL Parameters | | |
| (feed point 2600MHz) | | |
| Parameters | Measured data | Target (Ref. Value) |
| Impedance | 48.4Ω-6.71jΩ | 47.9Ω-7.80jΩ |
| Return loss | -22.5 dB | -21.7dB |