In Collaboration with
s p e a g
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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

| | | |
|---|---|---|
| **DASY Version** | DASY52 | V52.10.4 |
| **Extrapolation** | Advanced Extrapolation | |
| **Phantom** | Triple Flat Phantom 5.1C | |
| **Distance Dipole Center - TSL** | 10 mm | with Spacer |
| **Zoom Scan Resolution** | dx, dy, dz = 5 mm | |
| **Frequency** | 2450 MHz ± 1 MHz | |

## Head TSL parameters

The following parameters and calculations were applied.

| | **Temperature** | **Permittivity** | **Conductivity** |
|---|---|---|---|
| **Nominal Head TSL parameters** | 22.0 °C | 39.2 | 1.80 mho/m |
| **Measured Head TSL parameters** | (22.0 ± 0.2) °C | 39.5 ± 6 % | 1.81 mho/m ± 6 % |
| **Head TSL temperature change during test** | <1.0 °C | ---- | ---- |

## SAR result with Head TSL

| **SAR averaged over 1 $cm^3$ (1 g) of Head TSL** | Condition | |
|---|---|---|
| SAR measured | 250 mW input power | 13.2 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | **52.8 W/kg ± 18.8 % (*k*=2)** |
| **SAR averaged over 10 $cm^3$ (10 g) of Head TSL** | Condition | |
| SAR measured | 250 mW input power | 6.05 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | **24.2 W/kg ± 18.7 % (*k*=2)** |

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## Appendix (Additional assessments outside the scope of CNAS L0570)

### Antenna Parameters with Head TSL

| | |
|---|---|
| Impedance, transformed to feed point | 50.6Ω+ 8.39jΩ |
| Return Loss | - 21.6dB |

### General Antenna Parameters and Design

| | |
|---|---|
| Electrical Delay (one direction) | 1.057 ns |

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

| | |
|---|---|
| Manufactured by | SPEAG |

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**DASY5 Validation Report for Head TSL** Date: 10.21.2021

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 1048**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; $\sigma$ = 1.809 S/m; $\varepsilon_r$ = 39.51; $\rho$ = 1000 kg/m$^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

**Dipole Calibration**/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.6 V/m; Power Drift = -0.02 dB

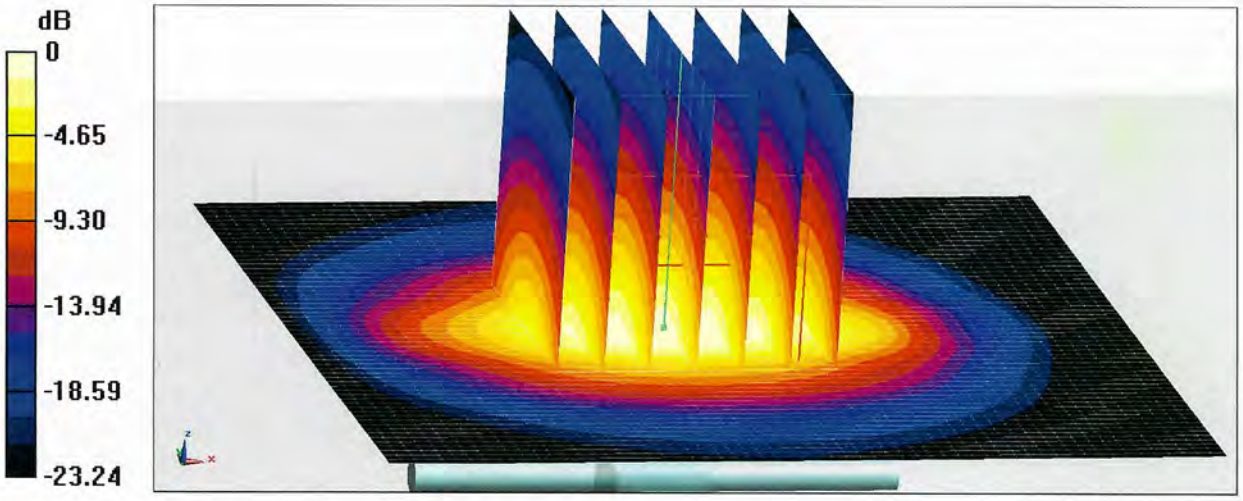
Peak SAR (extrapolated) = 28.0 W/kg

**SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.05 W/kg**

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 47.1%

Maximum value of SAR (measured) = 22.5 W/kg




**0 dB = 22.5 W/kg = 13.52 dBW/kg**

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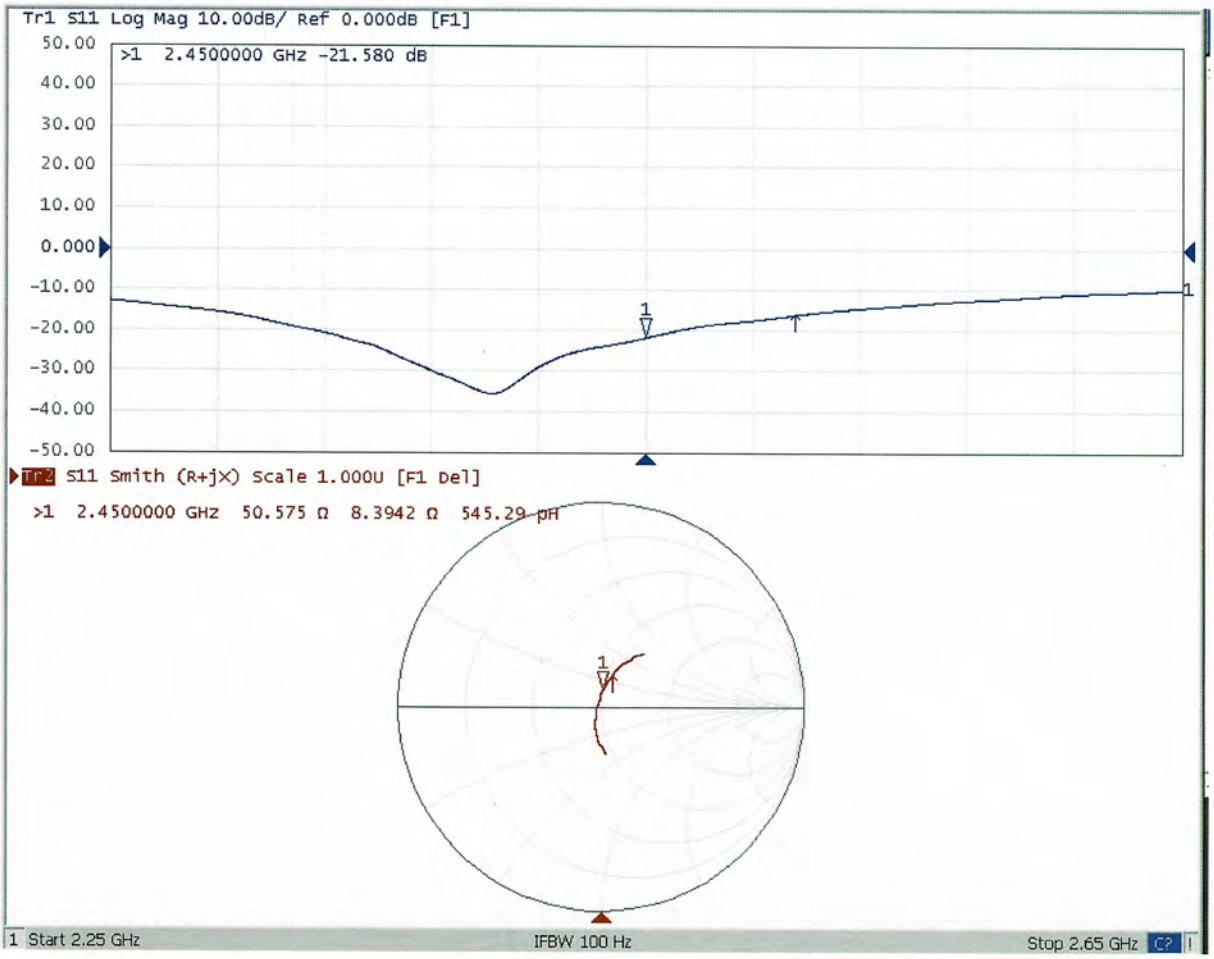
## Impedance Measurement Plot for Head TSL



## D2450V2 - SN: 1048 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

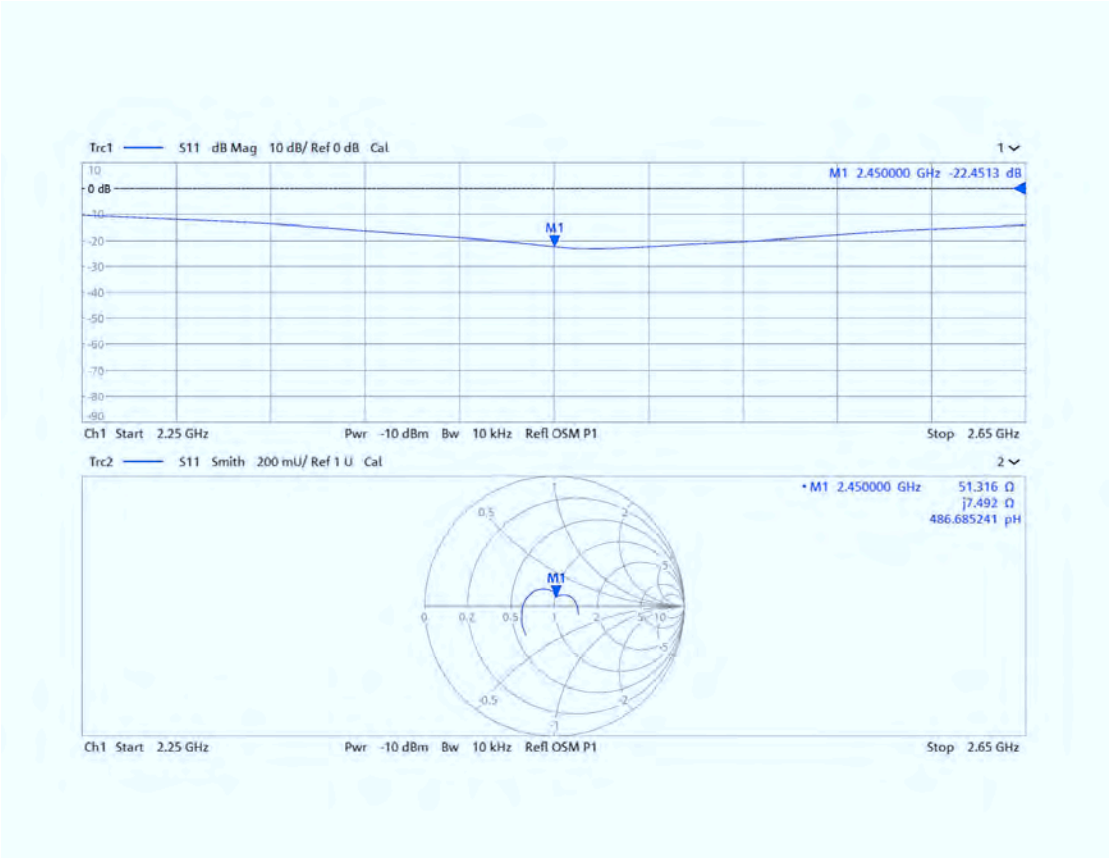
| D2450V2 - SN: 1048 | | | | | | |
|---|---|---|---|---|---|---|
| **2450MHz Head** | | | | | | |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 10.21.2021 | -21.6 | | 50.6 | | 8.39 | |
| 10.20.2022 | -22.45 | 3.94 | 51.32 | 0.72 | 7.49 | -0.90 |
| 10.19.2023 | -24.13 | 11.71 | 47.08 | -3.52 | 5.46 | -2.93 |

**<Justification of the extended calibration>**

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

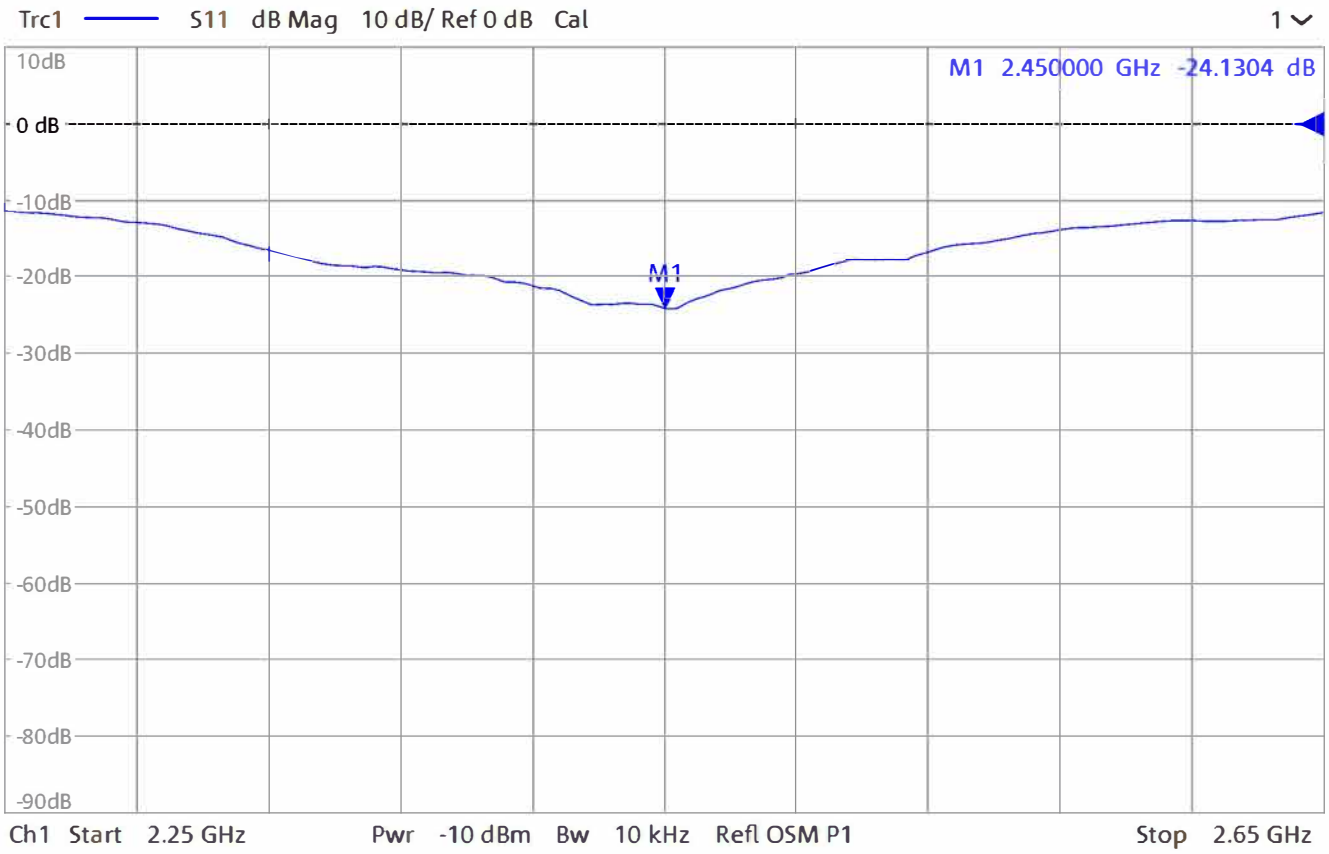
**<Dipole Verification Data>**

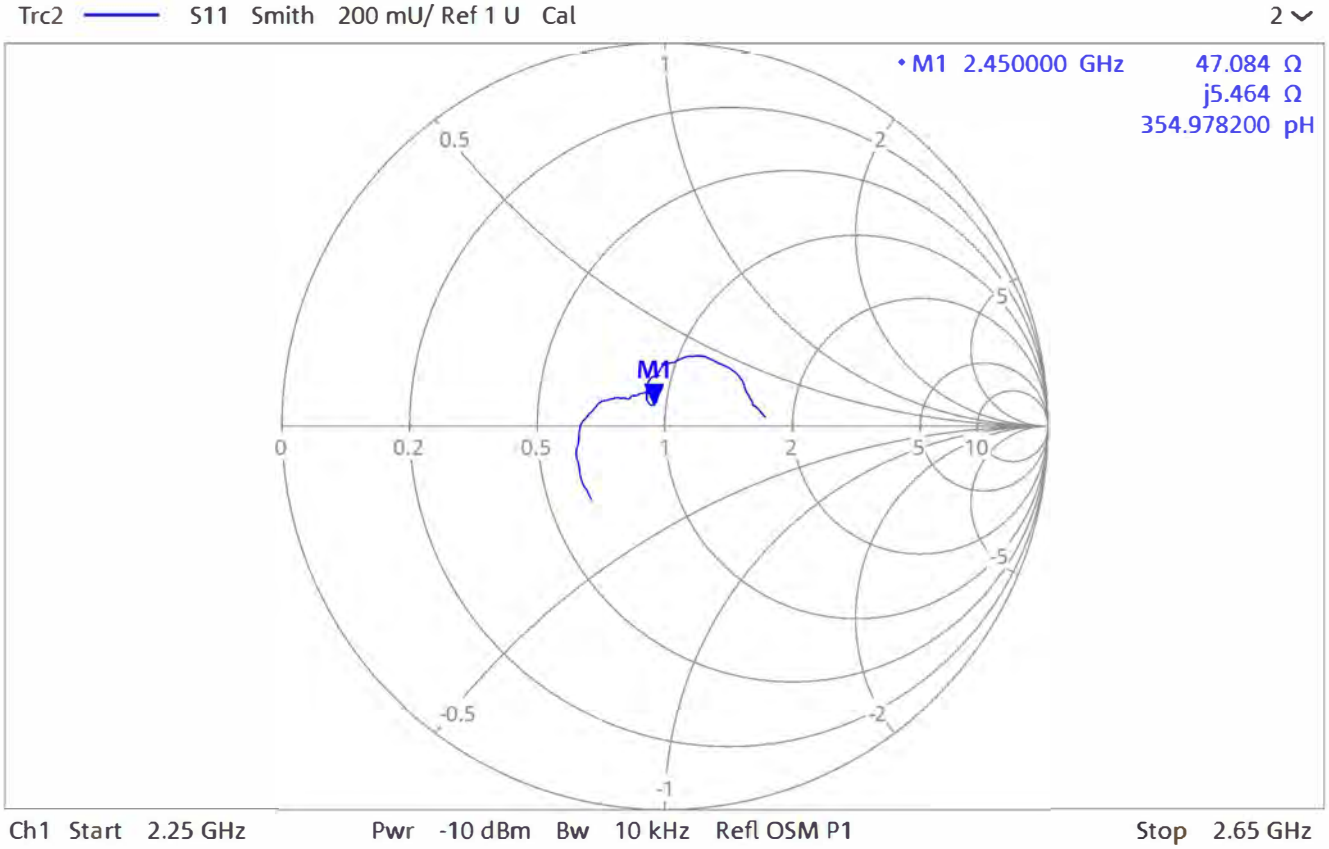
**Head 2450MHz _2022.10.20**



<Dipole Verification Data>

Head 2450MHz _2023.10.19



**Calibration Laboratory of**
Schmid & Partner
Engineering AG
**Zeughausstrasse 43, 8004 Zurich, Switzerland**

**S** Schweizerischer Kalibrierdienst
**C** Service suisse d'étalonnage
**S** Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
**The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates**

**Accreditation No.: SCS 0108**

**Client** 7-Layers (Auden)

**Certificate No: D2550V2-1022_Sep22**

# CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | D2550V2 - SN:1022 |
| Calibration procedure(s) | QA CAL-05.v11<br>Calibration Procedure for SAR Validation Sources between 0.7-3 GHz |
| Calibration date: | September 22, 2022 |

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP | SN: 104778 | 04-Apr-22 (No. 217-03525/03524) | Apr-23 |
| Power sensor NRP-Z91 | SN: 103244 | 04-Apr-22 (No. 217-03524) | Apr-23 |
| Power sensor NRP-Z91 | SN: 103245 | 04-Apr-22 (No. 217-03525) | Apr-23 |
| Reference 20 dB Attenuator | SN: BH9394 (20k) | 04-Apr-22 (No. 217-03527) | Apr-23 |
| Type-N mismatch combination | SN: 310982 / 06327 | 04-Apr-22 (No. 217-03528) | Apr-23 |
| Reference Probe EX3DV4 | SN: 7349 | 31-Dec-21 (No. EX3-7349_Dec21) | Dec-22 |
| DAE4 | SN: 601 | 31-Aug-22 (No. DAE4-601_Aug22) | Aug-23 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter E4419B | SN: GB39512475 | 30-Oct-14 (in house check Oct-20) | In house check: Oct-22 |
| Power sensor HP 8481A | SN: US37292783 | 07-Oct-15 (in house check Oct-20) | In house check: Oct-22 |
| Power sensor HP 8481A | SN: MY41093315 | 07-Oct-15 (in house check Oct-20) | In house check: Oct-22 |
| RF generator R&S SMT-06 | SN: 100972 | 15-Jun-15 (in house check Oct-20) | In house check: Oct-22 |
| Network Analyzer Agilent E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-20) | In house check: Oct-22 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Jeton Kastrati | Laboratory Technician | |
| Approved by: | Sven Kühn | Technical Manager | |

Issued: September 23, 2022

## Glossary:

| | |
|---|---|
| TSL | tissue simulating liquid |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A | not applicable or not measured |

## Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Additional Documentation:

c) DASY System Handbook

## Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The source is mounted in a touch configuration below the center marking of the flat phantom.
- *Return Loss:* This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

| | | |
|---|---|---|
| **DASY Version** | DASY52 | V52.10.4 |
| **Extrapolation** | Advanced Extrapolation | |
| **Phantom** | Modular Flat Phantom | |
| **Distance Dipole Center - TSL** | 10 mm | with Spacer |
| **Zoom Scan Resolution** | dx, dy, dz = 5 mm | |
| **Frequency** | 2550 MHz ± 1 MHz | |

## Head TSL parameters

The following parameters and calculations were applied.

| | **Temperature** | **Permittivity** | **Conductivity** |
|---|---|---|---|
| **Nominal Head TSL parameters** | 22.0 °C | 39.1 | 1.91 mho/m |
| **Measured Head TSL parameters** | (22.0 ± 0.2) °C | 37.4 ± 6 % | 1.95 mho/m ± 6 % |
| **Head TSL temperature change during test** | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL

| **SAR averaged over 1 cm³ (1 g) of Head TSL** | Condition | |
|---|---|---|
| SAR measured | 250 mW input power | 13.5 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | **53.0 W/kg ± 17.0 % (k=2)** |

| **SAR averaged over 10 cm³ (10 g) of Head TSL** | condition | |
|---|---|---|
| SAR measured | 250 mW input power | 6.13 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | **24.2 W/kg ± 16.5 % (k=2)** |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

| | |
|---|---|
| Impedance, transformed to feed point | 52.0 Ω - 4.0 jΩ |
| Return Loss | - 27.1 dB |

### General Antenna Parameters and Design

| | |
|---|---|
| Electrical Delay (one direction) | 1.157 ns |

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

| | |
|---|---|
| Manufactured by | SPEAG |

Date: 22.09.2022

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2550 MHz; Type: D2550V2; Serial: D2550V2 - SN:1022**

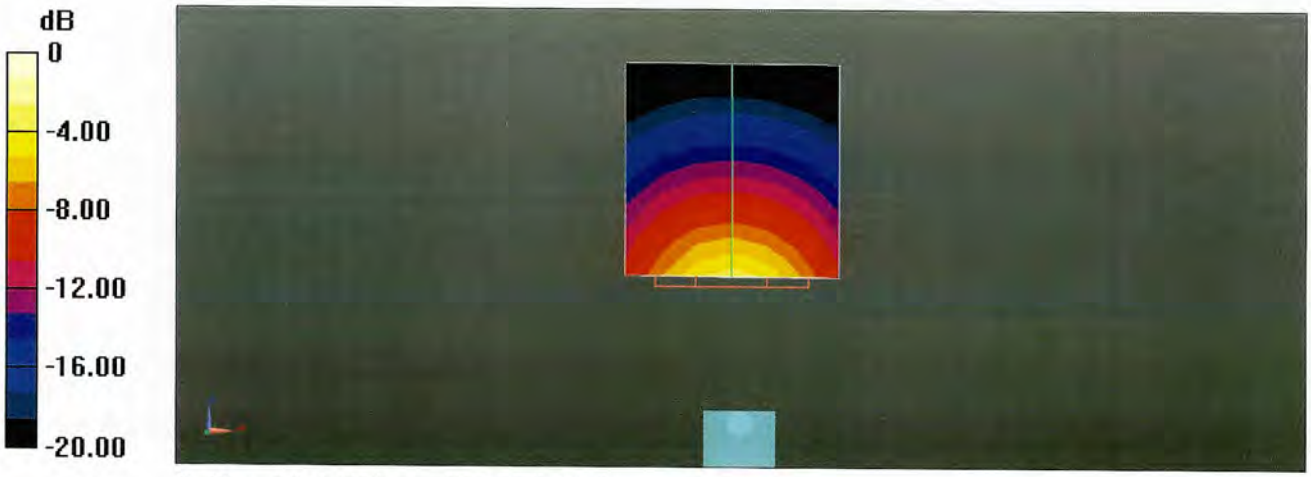
Communication System: UID 0 - CW; Frequency: 2550 MHz
Medium parameters used: f = 2550 MHz; $\sigma$ = 1.95 S/m; $\varepsilon_r$ = 37.4; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.85, 7.85, 7.85) @ 2550 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 31.08.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

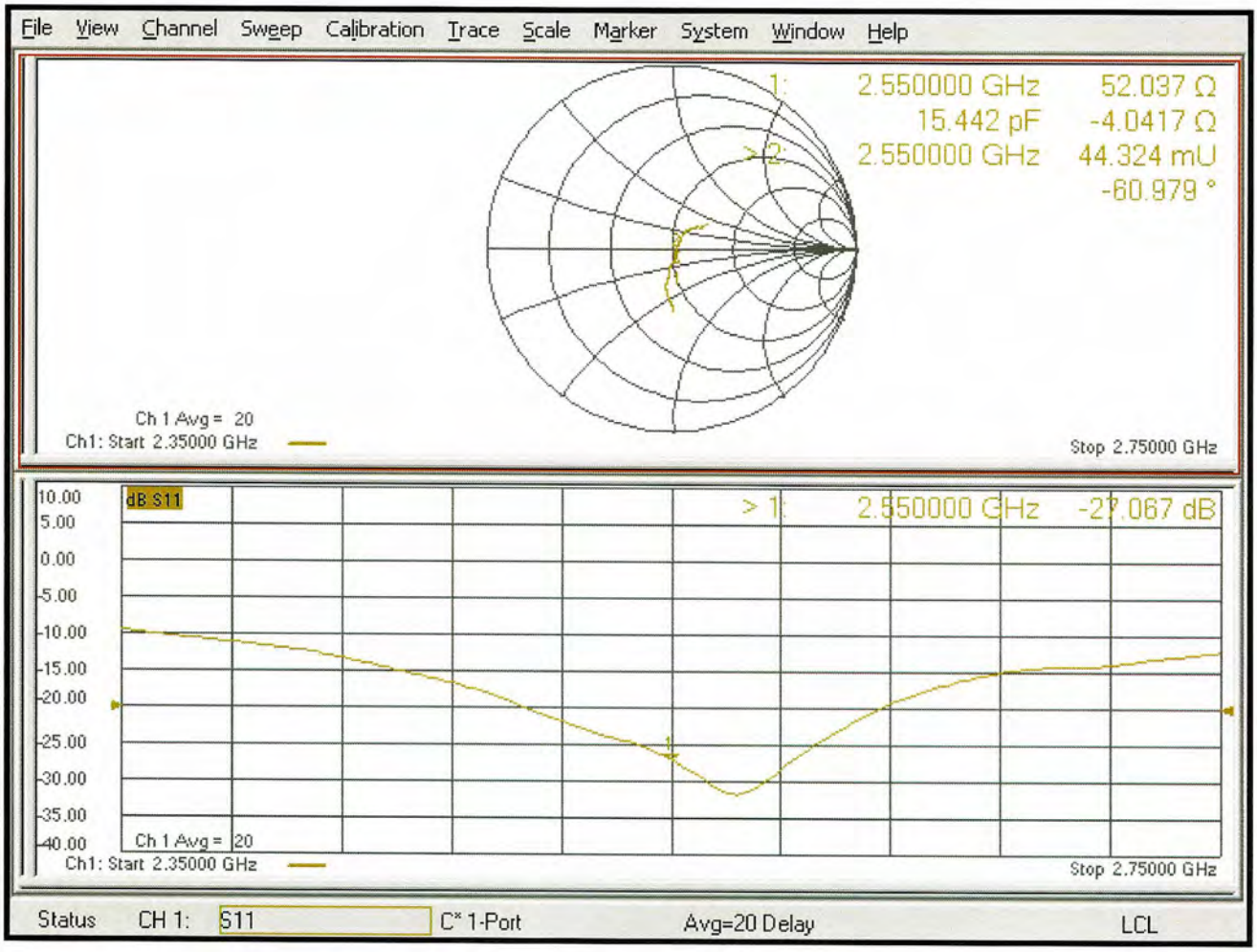
## Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 113.1 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 27.5 W/kg
**SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.13 W/kg**
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 49%
Maximum value of SAR (measured) = 22.6 W/kg




0 dB = 22.6 W/kg = 13.54 dBW/kg

## Impedance Measurement Plot for Head TSL



## D2550V2 - SN: 1022 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

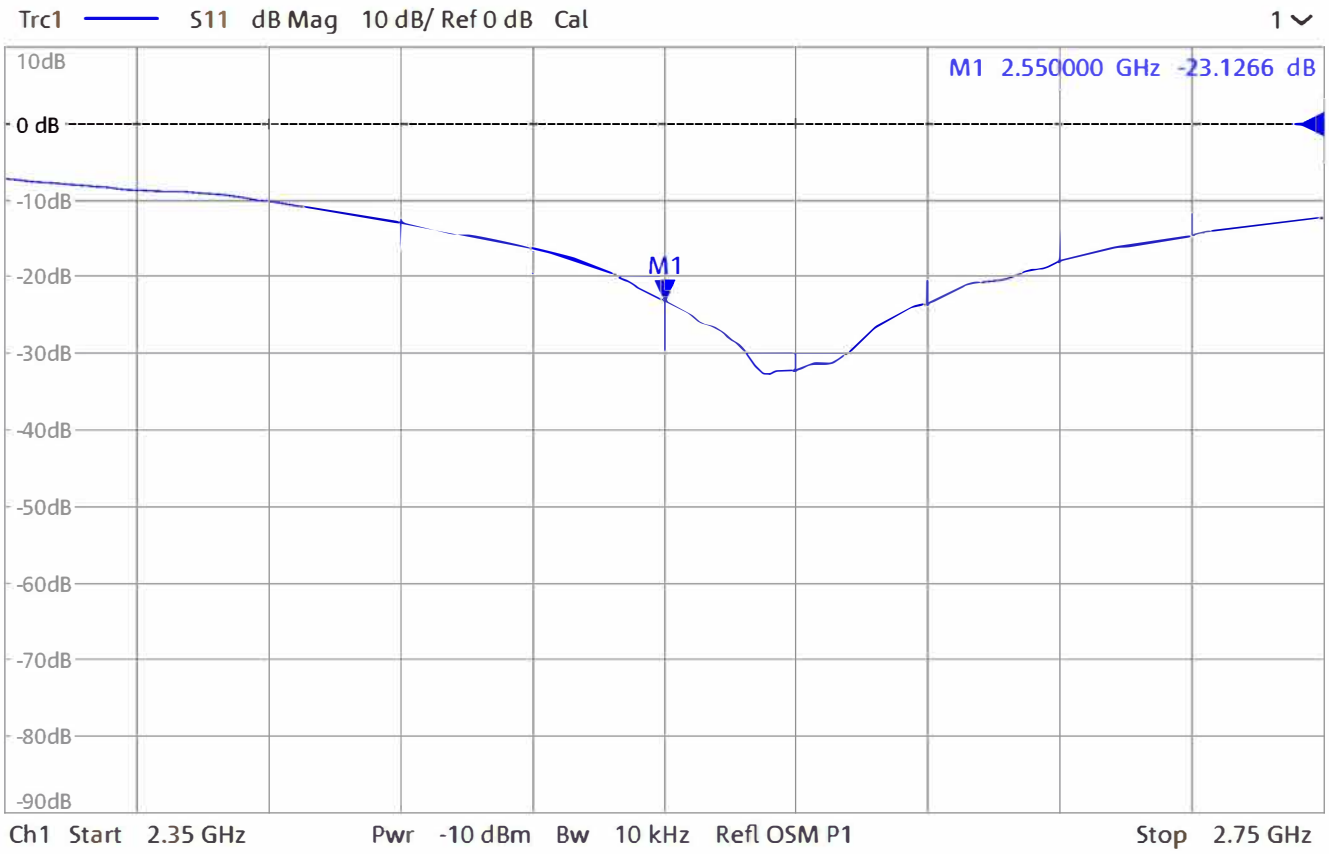
| D2550V2 - SN: 1022 | | | | | | |
|---|---|---|---|---|---|---|
| **2550MHz Head** | | | | | | |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 9.22.2022 | -27.1 | | 52 | | -4 | |
| 9.21.2023 | -23.13 | -14.66 | 54.77 | 2.77 | -5.52 | -1.52 |

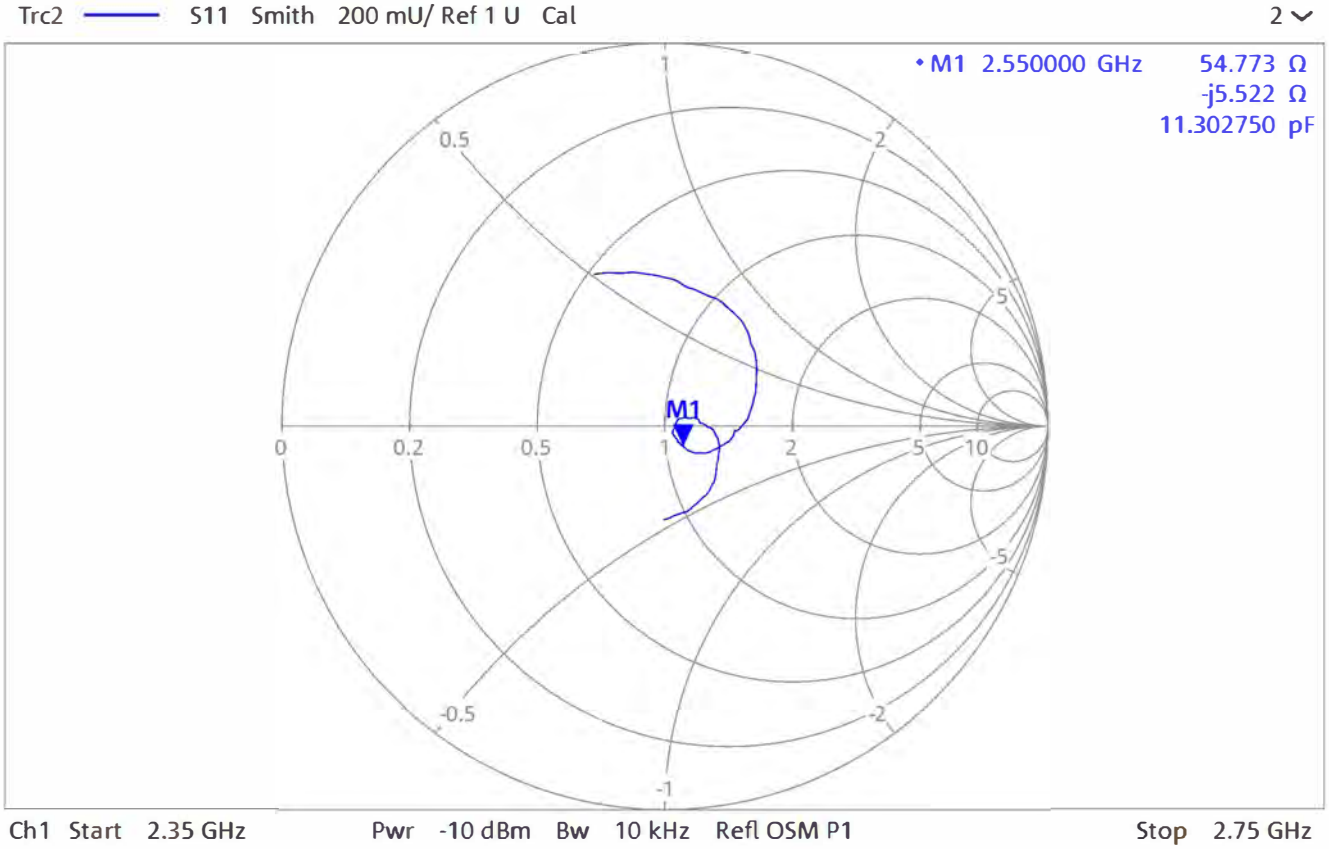
**<Justification of the extended calibration>**

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 2550MHz _2023.09.21



# Appendix D. Conducted RF Output Power Table

The detailed power table are shown as follows.

| Band | GSM850 | | | | GSM1900 | | | |
|---|---|---|---|---|---|---|---|---|
| Channel | 128 | 189 | 251 | Max. Tune-up Power (dBm) | 512 | 661 | 810 | Max. Tune-up Power (dBm) |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 | | 1850.2 | 1880 | 1909.8 | |
| GSM | **32.07** | 32.06 | 32.04 | 32.50 | 29.68 | **29.82** | 29.73 | 31.00 |
| GPRS 1Tx Slot | 30.63 | 30.55 | 30.48 | 31.00 | 29.67 | 29.81 | 29.72 | 31.00 |
| GPRS 2Tx Slot | 28.77 | 28.72 | 28.63 | 29.00 | 27.65 | 27.54 | 27.27 | 28.00 |
| GPRS 3Tx Slot | 26.59 | 26.48 | 26.45 | 27.50 | 26.05 | 26.01 | 25.68 | 26.50 |
| GPRS 4Tx Slot | 24.47 | 24.37 | 24.30 | 25.00 | 23.96 | 23.84 | 23.52 | 24.50 |

| Source-Based Time-Averaged Power | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Band | GSM850 | | | Max. Tune-up Power (dBm) | GSM1900 | | | Max. Tune-up Power (dBm) |
| Channel | 128 | 189 | 251 | | 512 | 661 | 810 | |
| GSM | 23.07 | 23.06 | 23.04 | 23.50 | 20.68 | 20.82 | 20.73 | 22.00 |
| GPRS 1Tx Slot | 21.63 | 21.55 | 21.48 | 22.00 | 20.67 | 20.81 | 20.72 | 22.00 |
| GPRS 2Tx Slot | 22.77 | 22.72 | 22.63 | 23.00 | 21.65 | 21.54 | 21.27 | 22.00 |
| GPRS 3Tx Slot | 22.33 | 22.22 | 22.19 | 23.24 | 21.79 | 21.75 | 21.42 | 22.24 |
| GPRS 4Tx Slot | 21.47 | 21.37 | 21.30 | 22.00 | 20.96 | 20.84 | 20.52 | 21.50 |

| Band | WCDMA II | | | WCDMA II | WCDMA IV | | | WCDMA IV | WCDMA V | | | WCDMA V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TX Channel | 9262 | 9400 | 9538 | Max. Tune-up Power (dBm) | 1312 | 1413 | 1513 | Max. Tune-up Power (dBm) | 4132 | 4182 | 4233 | Max. Tune-up Power (dBm) |
| Rx Channel | 9662 | 9800 | 9938 | | 1537 | 1638 | 1738 | | 4357 | 4407 | 4458 | |
| Frequency (MHz) | 1852.4 | 1880 | 1907.6 | | 1712.4 | 1732.6 | 1752.6 | | 826.4 | 836.4 | 846.6 | |
| RMC 12.2K | 21.77 | 21.75 | **21.84** | **22.00** | 21.69 | 21.72 | **21.77** | **22.50** | 22.44 | 22.48 | **22.57** | **23.50** |
| HSDPA Subtest-1 | 20.73 | 20.81 | 20.79 | 21.00 | 21.11 | 21.14 | 21.19 | 21.50 | 21.48 | 21.49 | 21.60 | 22.50 |
| HSDPA Subtest-2 | 20.74 | 20.78 | 20.75 | 21.00 | 21.10 | 21.13 | 21.18 | 21.50 | 21.48 | 21.51 | 21.61 | 22.50 |
| HSDPA Subtest-3 | 20.28 | 20.31 | 20.28 | 20.50 | 20.59 | 20.62 | 20.67 | 21.00 | 21.01 | 21.02 | 21.12 | 22.00 |
| HSDPA Subtest-4 | 20.23 | 20.32 | 20.26 | 20.50 | 20.58 | 20.61 | 20.66 | 21.00 | 20.94 | 20.98 | 21.05 | 22.00 |
| HSUPA Subtest-1 | 20.78 | 20.81 | 20.85 | 21.00 | 21.07 | 21.10 | 21.15 | 21.50 | 21.55 | 21.59 | 21.64 | 22.50 |
| HSUPA Subtest-2 | 18.81 | 18.88 | 18.86 | 19.00 | 20.06 | 20.09 | 20.14 | 21.00 | 19.56 | 19.58 | 19.71 | 20.50 |
| HSUPA Subtest-3 | 19.83 | 19.85 | 19.84 | 20.00 | 20.54 | 20.58 | 20.63 | 21.00 | 20.62 | 20.63 | 20.75 | 21.50 |
| HSUPA Subtest-4 | 18.81 | 18.85 | 18.87 | 19.00 | 20.03 | 20.07 | 20.12 | 20.50 | 19.51 | 19.60 | 19.68 | 20.50 |
| HSUPA Subtest-5 | 20.75 | 20.73 | 20.79 | 21.00 | 21.02 | 21.06 | 21.11 | 21.50 | 21.54 | 21.55 | 21.64 | 22.50 |

## LTE Band 2

| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
|---|---|---|---|---|---|---|---|
| | | Channel | | 18700 | 18900 | 19100 | |
| | | Frequence (MHz) | | 1860 | 1880 | 1900 | |
| 20M | QPSK | 1 | 0 | 21.93 | 21.95 | 21.89 | 22 |
| | | 1 | 50 | 21.76 | 21.80 | 21.82 | 22 |
| | | 1 | 99 | 21.82 | 21.80 | 21.83 | 22 |
| | | 50 | 0 | 21.17 | 21.14 | 21.09 | 21.5 |
| | | 50 | 25 | 21.18 | 21.25 | 21.23 | 21.5 |
| | | 50 | 50 | 21.17 | 21.20 | 21.16 | 21.5 |
| | | 100 | 0 | 21.25 | 21.31 | 21.23 | 21.5 |
| | 16QAM | 1 | 0 | 21.00 | 21.03 | 20.94 | 21.5 |
| | | 1 | 50 | 20.90 | 20.93 | 20.89 | 21.5 |
| | | 1 | 99 | 20.95 | 20.93 | 20.90 | 21.5 |
| | | 50 | 0 | 20.45 | 20.47 | 20.35 | 20.5 |
| | | 50 | 25 | 20.30 | 20.38 | 20.28 | 20.5 |
| | | 50 | 50 | 20.29 | 20.29 | 20.24 | 20.5 |
| | | 100 | 0 | 20.24 | 20.32 | 20.29 | 20.5 |
| BW | MCS Index | Channel | | 18675 | 18900 | 19125 | Max. Tune-up (dBm) |
| | | Frequence (MHz) | | 1857.5 | 1880 | 1902.5 | |
| 15M | QPSK | 1 | 0 | 21.88 | 21.85 | 21.89 | 22 |
| | | 1 | 37 | 21.66 | 21.71 | 21.77 | 22 |
| | | 1 | 74 | 21.82 | 21.72 | 21.74 | 22 |
| | | 36 | 0 | 21.10 | 21.12 | 21.02 | 21.5 |
| | | 36 | 19 | 21.18 | 21.23 | 21.21 | 21.5 |
| | | 36 | 39 | 21.08 | 21.17 | 21.10 | 21.5 |
| | | 75 | 0 | 21.18 | 21.28 | 21.21 | 21.5 |
| | 16QAM | 1 | 0 | 20.92 | 20.95 | 20.89 | 21.5 |
| | | 1 | 37 | 20.80 | 20.86 | 20.85 | 21.5 |
| | | 1 | 74 | 20.85 | 20.91 | 20.82 | 21.5 |
| | | 36 | 0 | 20.44 | 20.46 | 20.26 | 20.5 |
| | | 36 | 19 | 20.21 | 20.36 | 20.28 | 20.5 |
| | | 36 | 39 | 20.23 | 20.23 | 20.19 | 20.5 |
| | | 75 | 0 | 20.14 | 20.29 | 20.26 | 20.5 |
| BW | MCS Index | Channel | | 18650 | 18900 | 19150 | Max. Tune-up (dBm) |
| | | Frequence (MHz) | | 1855 | 1880 | 1905 | |
| 10M | QPSK | 1 | 0 | 21.84 | 21.91 | 21.88 | 22 |
| | | 1 | 24 | 21.70 | 21.78 | 21.74 | 22 |
| | | 1 | 49 | 21.72 | 21.70 | 21.82 | 22 |
| | | 25 | 0 | 21.09 | 21.13 | 21.07 | 21.5 |
| | | 25 | 12 | 21.18 | 21.18 | 21.18 | 21.5 |
| | | 25 | 25 | 21.11 | 21.16 | 21.12 | 21.5 |
| | | 50 | 0 | 21.20 | 21.24 | 21.15 | 21.5 |
| | 16QAM | 1 | 0 | 20.92 | 20.93 | 20.93 | 21.5 |
| | | 1 | 24 | 20.90 | 20.89 | 20.87 | 21.5 |
| | | 1 | 49 | 20.87 | 20.86 | 20.82 | 21.5 |
| | | 25 | 0 | 20.38 | 20.38 | 20.30 | 20.5 |
| | | 25 | 12 | 20.20 | 20.38 | 20.26 | 20.5 |
| | | 25 | 25 | 20.25 | 20.23 | 20.23 | 20.5 |
| | | 50 | 0 | 20.21 | 20.25 | 20.21 | 20.5 |
| BW | MCS Index | Channel | | 18625 | 18900 | 19175 | Max. Tune-up (dBm) |
| | | Frequence (MHz) | | 1852.5 | 1880 | 1907.5 | |
| 5M | QPSK | 1 | 0 | 21.87 | 21.94 | 21.80 | 22 |
| | | 1 | 12 | 21.76 | 21.73 | 21.81 | 22 |
| | | 1 | 24 | 21.73 | 21.75 | 21.81 | 22 |
| | | 12 | 0 | 21.11 | 21.08 | 21.02 | 21.5 |
| | | 12 | 6 | 21.08 | 21.16 | 21.19 | 21.5 |
| | | 12 | 13 | 21.14 | 21.10 | 21.15 | 21.5 |
| | | 25 | 0 | 21.25 | 21.27 | 21.23 | 21.5 |
| | 16QAM | 1 | 0 | 20.94 | 21.01 | 20.94 | 21.5 |
| | | 1 | 12 | 20.81 | 20.83 | 20.82 | 21.5 |
| | | 1 | 24 | 20.88 | 20.84 | 20.83 | 21.5 |
| | | 12 | 0 | 20.40 | 20.45 | 20.29 | 20.5 |
| | | 12 | 6 | 20.26 | 20.32 | 20.26 | 20.5 |
| | | 12 | 13 | 20.28 | 20.22 | 20.19 | 20.5 |
| | | 25 | 0 | 20.18 | 20.26 | 20.22 | 20.5 |
| BW | MCS Index | Channel | | 18615 | 18900 | 19185 | Max. Tune-up |
| | | Frequence (MHz) | | 1851.5 | 1880 | 1908.5 | |
| 3M | QPSK | 1 | 0 | 21.88 | 21.95 | 21.84 | 22 |
| | | 1 | 7 | 21.66 | 21.70 | 21.74 | 22 |
| | | 1 | 14 | 21.81 | 21.73 | 21.83 | 22 |
| | | 8 | 0 | 21.14 | 21.12 | 21.07 | 21.5 |
| | | 8 | 3 | 21.14 | 21.24 | 21.23 | 21.5 |
| | | 8 | 7 | 21.17 | 21.14 | 21.08 | 21.5 |
| | | 15 | 0 | 21.20 | 21.22 | 21.18 | 21.5 |
| | 16QAM | 1 | 0 | 20.95 | 21.02 | 20.93 | 21.5 |
| | | 1 | 7 | 20.83 | 20.84 | 20.81 | 21.5 |
| | | 1 | 14 | 20.87 | 20.93 | 20.88 | 21.5 |
| | | 8 | 0 | 20.43 | 20.41 | 20.26 | 20.5 |
| | | 8 | 3 | 20.29 | 20.30 | 20.26 | 20.5 |
| | | 8 | 7 | 20.27 | 20.23 | 20.24 | 20.5 |
| | | 15 | 0 | 20.23 | 20.31 | 20.26 | 20.5 |
| BW | MCS Index | Channel | | 18607 | 18900 | 19193 | Max. Tune-up |
| | | Frequence (MHz) | | 1850.7 | 1880 | 1909.3 | |
| 1.4M | QPSK | 1 | 0 | 21.92 | 21.85 | 21.86 | 22 |
| | | 1 | 2 | 21.67 | 21.74 | 21.79 | 22 |
| | | 1 | 5 | 21.72 | 21.75 | 21.81 | 22 |
| | | 3 | 0 | 21.66 | 21.59 | 21.57 | 22 |
| | | 3 | 1 | 21.65 | 21.73 | 21.70 | 22 |
| | | 3 | 3 | 21.64 | 21.61 | 21.66 | 22 |
| | | 6 | 0 | 21.17 | 21.22 | 21.20 | 21.5 |
| | 16QAM | 1 | 0 | 20.98 | 20.98 | 20.96 | 21.5 |
| | | 1 | 2 | 20.82 | 20.83 | 20.80 | 21.5 |
| | | 1 | 5 | 20.88 | 20.85 | 20.82 | 21.5 |
| | | 3 | 0 | 20.87 | 20.96 | 20.77 | 21.5 |
| | | 3 | 1 | 20.72 | 20.79 | 20.73 | 21.5 |
| | | 3 | 3 | 20.78 | 20.79 | 20.67 | 21.5 |
| | | 6 | 0 | 20.20 | 20.31 | 20.28 | 20.5 |

## LTE Band 4

| BW | MCS Index | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
|---|---|---|---|---|---|---|---|
| | | Channel | | 20050 | 20175 | 20300 | |
| | | Frequence (MHz) | | 1720 | 1732.5 | 1745 | |
| 20M | QPSK | 1 | 0 | 22.82 | 22.90 | 22.61 | 23.5 |
| | | 1 | 50 | 22.77 | 22.89 | 22.46 | 23.5 |
| | | 1 | 99 | 22.76 | 22.70 | 22.44 | 23.5 |
| | | 50 | 0 | 21.90 | 21.96 | 21.85 | 23 |
| | | 50 | 25 | 22.01 | 21.98 | 21.94 | 23 |
| | | 50 | 50 | 21.93 | 22.03 | 22.02 | 23 |
| | | 100 | 0 | 21.97 | 21.99 | 21.96 | 23 |
| | 16QAM | 1 | 0 | 22.07 | 21.99 | 22.08 | 23 |
| | | 1 | 50 | 22.08 | 22.05 | 22.10 | 23 |
| | | 1 | 99 | 22.05 | 22.13 | 22.23 | 23 |
| | | 50 | 0 | 21.13 | 21.00 | 20.99 | 22 |
| | | 50 | 25 | 21.05 | 21.14 | 21.06 | 22 |
| | | 50 | 50 | 21.10 | 21.11 | 21.00 | 22 |
| | | 100 | 0 | 21.07 | 21.17 | 21.02 | 22 |
| BW | MCS Index | Channel | | 20025 | 20175 | 20325 | Max. Tune-up |
| | | Frequence (MHz) | | 1717.5 | 1732.5 | 1747.5 | |
| 15M | QPSK | 1 | 0 | 22.82 | 22.80 | 22.56 | 23.5 |
| | | 1 | 37 | 22.70 | 22.80 | 22.40 | 23.5 |
| | | 1 | 74 | 22.75 | 22.70 | 22.42 | 23.5 |
| | | 36 | 0 | 21.80 | 21.93 | 21.82 | 23 |
| | | 36 | 19 | 22.01 | 21.91 | 21.88 | 23 |
| | | 36 | 39 | 21.93 | 22.00 | 22.00 | 23 |
| | | 75 | 0 | 21.97 | 21.93 | 21.96 | 23 |
| | 16QAM | 1 | 0 | 22.05 | 21.99 | 22.05 | 23 |
| | | 1 | 37 | 22.02 | 22.04 | 22.04 | 23 |
| | | 1 | 74 | 21.98 | 22.11 | 22.13 | 23 |
| | | 36 | 0 | 21.08 | 21.00 | 20.89 | 22 |
| | | 36 | 19 | 20.96 | 21.04 | 21.01 | 22 |
| | | 36 | 39 | 21.09 | 21.01 | 20.92 | 22 |
| | | 75 | 0 | 21.00 | 21.08 | 20.97 | 22 |
| BW | MCS Index | Channel | | 20000 | 20175 | 20350 | Max. Tune-up |
| | | Frequence (MHz) | | 1715 | 1732.5 | 1750 | |
| 10M | QPSK | 1 | 0 | 22.72 | 22.85 | 22.61 | 23.5 |
| | | 1 | 24 | 22.67 | 22.81 | 22.38 | 23.5 |
| | | 1 | 49 | 22.68 | 22.64 | 22.40 | 23.5 |
| | | 25 | 0 | 21.87 | 21.88 | 21.78 | 23 |
| | | 25 | 12 | 21.92 | 21.97 | 21.86 | 23 |
| | | 25 | 25 | 21.83 | 22.02 | 21.99 | 23 |
| | | 50 | 0 | 21.93 | 21.93 | 21.96 | 23 |
| | 16QAM | 1 | 0 | 22.06 | 21.98 | 22.01 | 23 |
| | | 1 | 24 | 22.04 | 21.98 | 22.08 | 23 |
| | | 1 | 49 | 21.98 | 22.05 | 22.20 | 23 |
| | | 25 | 0 | 21.09 | 20.93 | 20.99 | 22 |
| | | 25 | 12 | 20.98 | 21.11 | 20.99 | 22 |
| | | 25 | 25 | 21.02 | 21.06 | 20.96 | 22 |
| | | 50 | 0 | 21.00 | 21.12 | 20.92 | 22 |
| BW | MCS Index | Channel | | 19975 | 20175 | 20375 | Max. Tune-up |
| | | Frequence (MHz) | | 1712.5 | 1732.5 | 1752.5 | |
| 5M | QPSK | 1 | 0 | 22.77 | 22.80 | 22.57 | 23.5 |
| | | 1 | 12 | 22.67 | 22.89 | 22.39 | 23.5 |
| | | 1 | 24 | 22.75 | 22.60 | 22.35 | 23.5 |
| | | 12 | 0 | 21.84 | 21.89 | 21.78 | 23 |
| | | 12 | 6 | 22.01 | 21.97 | 21.91 | 23 |
| | | 12 | 13 | 21.92 | 21.99 | 21.97 | 23 |
| | | 25 | 0 | 21.94 | 21.90 | 21.87 | 23 |
| | 16QAM | 1 | 0 | 22.02 | 21.93 | 22.01 | 23 |
| | | 1 | 12 | 22.01 | 22.04 | 22.03 | 23 |
| | | 1 | 24 | 21.95 | 22.08 | 22.18 | 23 |
| | | 12 | 0 | 21.08 | 20.94 | 20.96 | 22 |
| | | 12 | 6 | 20.98 | 21.07 | 20.97 | 22 |
| | | 12 | 13 | 21.05 | 21.07 | 20.92 | 22 |
| | | 25 | 0 | 21.07 | 21.17 | 20.97 | 22 |
| BW | MCS Index | Channel | | 19965 | 20175 | 20385 | Max. Tune-up |
| | | Frequence (MHz) | | 1711.5 | 1732.5 | 1753.5 | |
| 3M | QPSK | 1 | 0 | 22.78 | 22.82 | 22.59 | 23.5 |
| | | 1 | 7 | 22.70 | 22.82 | 22.44 | 23.5 |
| | | 1 | 14 | 22.72 | 22.68 | 22.38 | 23.5 |
| | | 8 | 0 | 21.87 | 21.96 | 21.80 | 23 |
| | | 8 | 3 | 21.94 | 21.93 | 21.91 | 23 |
| | | 8 | 7 | 21.93 | 21.94 | 21.97 | 23 |
| | | 15 | 0 | 21.96 | 21.95 | 21.87 | 23 |
| | 16QAM | 1 | 0 | 21.99 | 21.94 | 22.07 | 23 |
| | | 1 | 7 | 22.02 | 22.02 | 22.02 | 23 |
| | | 1 | 14 | 21.96 | 22.06 | 22.14 | 23 |
| | | 8 | 0 | 21.13 | 20.93 | 20.97 | 22 |
| | | 8 | 3 | 21.05 | 21.05 | 21.01 | 22 |
| | | 8 | 7 | 21.02 | 21.07 | 20.90 | 22 |
| | | 15 | 0 | 20.99 | 21.13 | 20.94 | 22 |
| BW | MCS Index | Channel | | 19957 | 20175 | 20393 | Max. Tune-up |
| | | Frequence (MHz) | | 1710.7 | 1732.5 | 1754.3 | |
| 1.4M | QPSK | 1 | 0 | 22.81 | 22.80 | 22.56 | 23.5 |
| | | 1 | 2 | 22.72 | 22.83 | 22.46 | 23.5 |
| | | 1 | 5 | 22.71 | 22.63 | 22.35 | 23.5 |
| | | 3 | 0 | 22.37 | 22.39 | 22.25 | 23.5 |
| | | 3 | 1 | 22.50 | 22.45 | 22.36 | 23.5 |
| | | 3 | 3 | 22.34 | 22.49 | 22.47 | 23.5 |
| | | 6 | 0 | 21.92 | 21.87 | 21.95 | 23 |
| | 16QAM | 1 | 0 | 21.97 | 21.92 | 21.98 | 23 |
| | | 1 | 2 | 22.01 | 22.02 | 22.02 | 23 |
| | | 1 | 5 | 22.00 | 22.04 | 22.17 | 23 |
| | | 3 | 0 | 22.13 | 21.98 | 21.99 | 23 |
| | | 3 | 1 | 22.03 | 22.07 | 22.06 | 23 |
| | | 3 | 3 | 22.09 | 22.01 | 22.00 | 23 |
| | | 6 | 0 | 21.00 | 21.09 | 20.98 | 22 |

## LTE Band 5

| BW | Modulation | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
|---|---|---|---|---|---|---|---|
| | | Channel | | 20450 | 20525 | 20600 | |
| | | Frequency (MHz) | | 829 | 836.5 | 844 | |
| 10M | QPSK | 1 | 0 | 22.35 | 22.28 | 22.34 | 23.5 |
| | | 1 | 24 | 22.22 | 22.25 | 22.30 | 23.5 |
| | | 1 | 49 | 22.24 | 22.24 | 22.24 | 23.5 |
| | | 25 | 0 | 21.75 | 21.66 | 21.74 | 23 |
| | | 25 | 12 | 21.69 | 21.70 | 21.63 | 23 |
| | | 25 | 25 | 21.68 | 21.71 | 21.67 | 23 |
| | | 50 | 0 | 21.77 | 21.72 | 21.75 | 23 |
| | 16QAM | 1 | 0 | 22.18 | 22.17 | 22.23 | 23 |
| | | 1 | 24 | 22.16 | 22.24 | 22.06 | 23 |
| | | 1 | 49 | 22.15 | 22.20 | 22.08 | 23 |
| | | 25 | 0 | 20.67 | 20.65 | 20.65 | 22 |
| | | 25 | 12 | 20.69 | 20.66 | 20.69 | 22 |
| | | 25 | 25 | 20.68 | 20.77 | 20.72 | 22 |
| | | 50 | 0 | 20.65 | 20.68 | 20.68 | 22 |
| BW | Modulation | Channel | | 20425 | 20525 | 20625 | Max. Tune-up |
| | | Frequency (MHz) | | 826.5 | 836.5 | 846.5 | |
| 5M | QPSK | 1 | 0 | 22.28 | 22.26 | 22.30 | 23.5 |
| | | 1 | 12 | 22.22 | 22.20 | 22.21 | 23.5 |
| | | 1 | 24 | 22.16 | 22.24 | 22.16 | 23.5 |
| | | 12 | 0 | 21.64 | 21.65 | 21.73 | 23 |
| | | 12 | 6 | 21.67 | 21.60 | 21.62 | 23 |
| | | 12 | 13 | 21.61 | 21.69 | 21.67 | 23 |
| | | 25 | 0 | 21.67 | 21.66 | 21.71 | 23 |
| | 16QAM | 1 | 0 | 22.16 | 22.14 | 22.16 | 23 |
| | | 1 | 12 | 22.15 | 22.17 | 21.97 | 23 |
| | | 1 | 24 | 22.10 | 22.14 | 22.06 | 23 |
| | | 12 | 0 | 20.59 | 20.59 | 20.58 | 22 |
| | | 12 | 6 | 20.65 | 20.66 | 20.62 | 22 |
| | | 12 | 13 | 20.60 | 20.75 | 20.62 | 22 |
| | | 25 | 0 | 20.58 | 20.58 | 20.64 | 22 |
| BW | Modulation | Channel | | 20415 | 20525 | 20635 | Max. Tune-up |
| | | Frequency (MHz) | | 825.5 | 836.5 | 847.5 | |
| 3M | QPSK | 1 | 0 | 22.30 | 22.26 | 22.31 | 23.5 |
| | | 1 | 7 | 22.22 | 22.22 | 22.27 | 23.5 |
| | | 1 | 14 | 22.19 | 22.20 | 22.21 | 23.5 |
| | | 8 | 0 | 21.66 | 21.64 | 21.74 | 23 |
| | | 8 | 3 | 21.60 | 21.64 | 21.60 | 23 |
| | | 8 | 7 | 21.64 | 21.64 | 21.63 | 23 |
| | | 15 | 0 | 21.76 | 21.62 | 21.70 | 23 |
| | 16QAM | 1 | 0 | 22.08 | 22.15 | 22.18 | 23 |
| | | 1 | 7 | 22.08 | 22.23 | 22.00 | 23 |
| | | 1 | 14 | 22.06 | 22.18 | 22.06 | 23 |
| | | 8 | 0 | 20.61 | 20.59 | 20.57 | 22 |
| | | 8 | 3 | 20.61 | 20.59 | 20.62 | 22 |
| | | 8 | 7 | 20.67 | 20.77 | 20.63 | 22 |
| | | 15 | 0 | 20.56 | 20.66 | 20.68 | 22 |
| BW | Modulation | Channel | | 20407 | 20525 | 20643 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 824.7 | 836.5 | 848.3 | |
| 1.4M | QPSK | 1 | 0 | 22.32 | 22.19 | 22.32 | 23.5 |
| | | 1 | 2 | 22.17 | 22.24 | 22.29 | 23.5 |
| | | 1 | 5 | 22.21 | 22.17 | 22.23 | 23.5 |
| | | 3 | 0 | 21.63 | 21.65 | 21.71 | 23.5 |
| | | 3 | 1 | 21.65 | 21.68 | 21.57 | 23.5 |
| | | 3 | 3 | 21.66 | 21.62 | 21.62 | 23.5 |
| | | 6 | 0 | 21.68 | 21.66 | 21.70 | 23 |
| | 16QAM | 1 | 0 | 22.16 | 22.07 | 22.23 | 23 |
| | | 1 | 2 | 22.13 | 22.21 | 21.99 | 23 |
| | | 1 | 5 | 22.06 | 22.10 | 22.02 | 23 |
| | | 3 | 0 | 20.59 | 20.60 | 20.61 | 23 |
| | | 3 | 1 | 20.69 | 20.62 | 20.69 | 23 |
| | | 3 | 3 | 20.63 | 20.76 | 20.65 | 23 |
| | | 6 | 0 | 20.61 | 20.66 | 20.68 | 22 |

| LTE Band 7 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BW | Modulation | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
| | | Channel | | 20850 | 21100 | 21350 | |
| | | Frequency (MHz) | | 2510 | 2535 | 2560 | |
| 20M | QPSK | 1 | 0 | 22.61 | 22.55 | 22.54 | 23.5 |
| | | 1 | 50 | 22.57 | 22.54 | 22.52 | 23.5 |
| | | 1 | 99 | 22.51 | 22.51 | 22.45 | 23.5 |
| | | 50 | 0 | 22.16 | 22.11 | 22.04 | 23 |
| | | 50 | 25 | 22.19 | 22.00 | 22.03 | 23 |
| | | 50 | 50 | 22.11 | 22.04 | 22.02 | 23 |
| | | 100 | 0 | 22.17 | 22.09 | 22.13 | 23 |
| | 16QAM | 1 | 0 | 22.55 | 22.52 | 22.43 | 23 |
| | | 1 | 50 | 22.49 | 22.42 | 22.24 | 23 |
| | | 1 | 99 | 22.55 | 22.41 | 22.21 | 23 |
| | | 50 | 0 | 20.97 | 20.93 | 20.93 | 22 |
| | | 50 | 25 | 20.91 | 20.92 | 20.88 | 22 |
| | | 50 | 50 | 20.98 | 20.91 | 20.79 | 22 |
| | | 100 | 0 | 20.93 | 20.93 | 20.90 | 22 |
| BW | Modulation | Channel | | 20825 | 21100 | 21375 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2507.5 | 2535 | 2562.5 | |
| 15M | QPSK | 1 | 0 | 22.59 | 22.47 | 22.53 | 23.5 |
| | | 1 | 37 | 22.56 | 22.45 | 22.46 | 23.5 |
| | | 1 | 74 | 22.42 | 22.48 | 22.37 | 23.5 |
| | | 36 | 0 | 22.08 | 22.02 | 21.99 | 23 |
| | | 36 | 19 | 22.15 | 21.92 | 21.96 | 23 |
| | | 36 | 39 | 22.05 | 21.98 | 21.92 | 23 |
| | | 75 | 0 | 22.15 | 22.00 | 22.04 | 23 |
| | 16QAM | 1 | 0 | 22.53 | 22.45 | 22.41 | 23 |
| | | 1 | 37 | 22.48 | 22.39 | 22.19 | 23 |
| | | 1 | 74 | 22.52 | 22.31 | 22.11 | 23 |
| | | 36 | 0 | 20.90 | 20.85 | 20.88 | 22 |
| | | 36 | 19 | 20.87 | 20.86 | 20.87 | 22 |
| | | 36 | 39 | 20.95 | 20.84 | 20.70 | 22 |
| | | 75 | 0 | 20.86 | 20.93 | 20.84 | 22 |
| BW | Modulation | Channel | | 20800 | 21100 | 21400 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2505 | 2535 | 2565 | |
| 10M | QPSK | 1 | 0 | 22.54 | 22.54 | 22.45 | 23.5 |
| | | 1 | 24 | 22.48 | 22.50 | 22.50 | 23.5 |
| | | 1 | 49 | 22.41 | 22.50 | 22.43 | 23.5 |
| | | 25 | 0 | 22.10 | 22.06 | 22.04 | 23 |
| | | 25 | 12 | 22.14 | 22.00 | 22.03 | 23 |
| | | 25 | 25 | 22.06 | 22.03 | 22.02 | 23 |
| | | 50 | 0 | 22.17 | 22.00 | 22.13 | 23 |
| | 16QAM | 1 | 0 | 22.48 | 22.46 | 22.39 | 23 |
| | | 1 | 24 | 22.47 | 22.42 | 22.22 | 23 |
| | | 1 | 49 | 22.47 | 22.39 | 22.21 | 23 |
| | | 25 | 0 | 20.89 | 20.87 | 20.85 | 22 |
| | | 25 | 12 | 20.83 | 20.88 | 20.85 | 22 |
| | | 25 | 25 | 20.89 | 20.86 | 20.72 | 22 |
| | | 50 | 0 | 20.84 | 20.87 | 20.84 | 22 |
| BW | Modulation | Channel | | 20775 | 21100 | 21425 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2502.5 | 2535 | 2567.5 | |
| 5M | QPSK | 1 | 0 | 22.58 | 22.48 | 22.52 | 23.5 |
| | | 1 | 12 | 22.52 | 22.44 | 22.46 | 23.5 |
| | | 1 | 24 | 22.46 | 22.55 | 22.41 | 23.5 |
| | | 12 | 0 | 22.11 | 22.09 | 22.04 | 23 |
| | | 12 | 6 | 22.17 | 21.94 | 22.03 | 23 |
| | | 12 | 13 | 22.07 | 21.98 | 21.95 | 23 |
| | | 25 | 0 | 22.17 | 22.01 | 22.06 | 23 |
| | 16QAM | 1 | 0 | 22.52 | 22.42 | 22.36 | 23 |
| | | 1 | 12 | 22.48 | 22.41 | 22.24 | 23 |
| | | 1 | 24 | 22.53 | 22.31 | 22.20 | 23 |
| | | 12 | 0 | 20.96 | 20.89 | 20.89 | 22 |
| | | 12 | 6 | 20.88 | 20.87 | 20.84 | 22 |
| | | 12 | 13 | 20.90 | 20.85 | 20.74 | 22 |
| | | 25 | 0 | 20.91 | 20.89 | 20.90 | 22 |

| LTE Band 38 | | | | | | | |
|---|---|---|---|---|---|---|---|
| BW | Modulation | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
| | | Channel | | 37850 | 38000 | 38150 | |
| | | Frequency (MHz) | | 2580 | 2595 | 2610 | |
| 20M | QPSK | 1 | 0 | 22.48 | **22.59** | 22.58 | 23.5 |
| | | 1 | 50 | 22.44 | 22.56 | 22.55 | 23.5 |
| | | 1 | 99 | 22.45 | 22.46 | 22.50 | 23.5 |
| | | 50 | 0 | 21.85 | 21.83 | 21.85 | 23 |
| | | 50 | 25 | 21.94 | **21.96** | 21.95 | 23 |
| | | 50 | 50 | 21.78 | 21.92 | 21.95 | 23 |
| | | 100 | 0 | 21.80 | 21.92 | 21.87 | 23 |
| | 16QAM | 1 | 0 | 22.20 | 22.08 | 22.13 | 23 |
| | | 1 | 50 | 22.16 | 22.14 | 22.14 | 23 |
| | | 1 | 99 | 22.07 | 22.16 | 22.17 | 23 |
| | | 50 | 0 | 21.21 | 21.27 | 21.18 | 22 |
| | | 50 | 25 | 21.14 | 21.24 | 21.21 | 22 |
| | | 50 | 50 | 21.16 | 21.20 | 21.22 | 22 |
| | | 100 | 0 | 21.15 | 21.19 | 21.15 | 22 |
| BW | Modulation | Channel | | 37825 | 38000 | 38175 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2577.5 | 2595 | 2612.5 | |
| 15M | QPSK | 1 | 0 | 22.47 | 22.53 | 22.55 | 23.5 |
| | | 1 | 37 | 22.43 | 22.52 | 22.49 | 23.5 |
| | | 1 | 74 | 22.35 | 22.41 | 22.47 | 23.5 |
| | | 36 | 0 | 21.77 | 21.78 | 21.81 | 23 |
| | | 36 | 19 | 21.94 | 21.88 | 21.96 | 23 |
| | | 36 | 39 | 21.72 | 21.89 | 21.89 | 23 |
| | | 75 | 0 | 21.72 | 21.90 | 21.87 | 23 |
| | 16QAM | 1 | 0 | 22.17 | 22.07 | 22.03 | 23 |
| | | 1 | 37 | 22.10 | 22.08 | 22.04 | 23 |
| | | 1 | 74 | 22.06 | 22.07 | 22.07 | 23 |
| | | 36 | 0 | 21.17 | 21.26 | 21.11 | 22 |
| | | 36 | 19 | 21.12 | 21.23 | 21.21 | 22 |
| | | 36 | 39 | 21.08 | 21.18 | 21.17 | 22 |
| | | 75 | 0 | 21.08 | 21.16 | 21.09 | 22 |
| BW | Modulation | Channel | | 37800 | 38000 | 38200 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2575 | 2595 | 2615 | |
| 10M | QPSK | 1 | 0 | 22.44 | 22.57 | 22.56 | 23.5 |
| | | 1 | 24 | 22.39 | 22.52 | 22.46 | 23.5 |
| | | 1 | 49 | 22.38 | 22.40 | 22.45 | 23.5 |
| | | 25 | 0 | 21.85 | 21.76 | 21.82 | 23 |
| | | 25 | 12 | 21.90 | 21.89 | 21.88 | 23 |
| | | 25 | 25 | 21.77 | 21.90 | 21.90 | 23 |
| | | 50 | 0 | 21.77 | 21.83 | 21.86 | 23 |
| | 16QAM | 1 | 0 | 22.18 | 22.01 | 22.09 | 23 |
| | | 1 | 24 | 22.10 | 22.06 | 22.14 | 23 |
| | | 1 | 49 | 22.03 | 22.07 | 22.09 | 23 |
| | | 25 | 0 | 21.11 | 21.23 | 21.15 | 22 |
| | | 25 | 12 | 21.04 | 21.19 | 21.18 | 22 |
| | | 25 | 25 | 21.11 | 21.12 | 21.16 | 22 |
| | | 50 | 0 | 21.14 | 21.14 | 21.08 | 22 |
| BW | Modulation | Channel | | 37775 | 38000 | 38225 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2572.5 | 2595 | 2617.5 | |
| 5M | QPSK | 1 | 0 | 22.41 | 22.53 | 22.52 | 23.5 |
| | | 1 | 12 | 22.43 | 22.50 | 22.51 | 23.5 |
| | | 1 | 24 | 22.41 | 22.38 | 22.45 | 23.5 |
| | | 12 | 0 | 21.75 | 21.80 | 21.84 | 23 |
| | | 12 | 6 | 21.91 | 21.83 | 21.94 | 23 |
| | | 12 | 13 | 21.72 | 21.88 | 21.90 | 23 |
| | | 25 | 0 | 21.77 | 21.89 | 21.94 | 23 |
| | 16QAM | 1 | 0 | 22.14 | 22.06 | 22.08 | 23 |
| | | 1 | 12 | 22.09 | 22.06 | 22.07 | 23 |
| | | 1 | 24 | 22.02 | 22.14 | 22.11 | 23 |
| | | 12 | 0 | 21.15 | 21.22 | 21.15 | 22 |
| | | 12 | 6 | 21.12 | 21.15 | 21.12 | 22 |
| | | 12 | 13 | 21.16 | 21.16 | 21.13 | 22 |
| | | 25 | 0 | 21.14 | 21.14 | 21.08 | 22 |

| LTE Band 41 (2535 ~ 2655MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|
| BW | Modulation | RB Size | RB Offset | Low | Mid | High | Max. Tune-up (dBm) |
| | | Channel | | 40140 | 40640 | 41140 | |
| | | Frequency (MHz) | | 2545 | 2595 | 2645 | |
| 20M | QPSK | 1 | 0 | **22.75** | 22.70 | 22.51 | 23.5 |
| | | 1 | 50 | 22.65 | 22.55 | 22.38 | 23.5 |
| | | 1 | 99 | 22.53 | 22.49 | 22.37 | 23.5 |
| | | 50 | 0 | 22.13 | 22.10 | 22.04 | 23 |
| | | 50 | 25 | **22.21** | 22.18 | 22.03 | 23 |
| | | 50 | 50 | 22.06 | 22.01 | 21.93 | 23 |
| | | 100 | 0 | 22.23 | 22.16 | 22.06 | 23 |
| | 16QAM | 1 | 0 | 22.01 | 21.95 | 21.91 | 23 |
| | | 1 | 50 | 22.07 | 21.98 | 21.91 | 23 |
| | | 1 | 99 | 22.07 | 21.96 | 21.83 | 23 |
| | | 50 | 0 | 21.46 | 21.37 | 21.30 | 22 |
| | | 50 | 25 | 21.35 | 21.28 | 21.27 | 22 |
| | | 50 | 50 | 21.41 | 21.36 | 21.31 | 22 |
| | | 100 | 0 | 21.28 | 21.28 | 21.27 | 22 |
| BW | Modulation | Channel | | 40115 | 40640 | 41165 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2542.5 | 2595 | 2647.5 | |
| 15M | QPSK | 1 | 0 | 22.73 | 22.67 | 22.50 | 23.5 |
| | | 1 | 37 | 22.61 | 22.49 | 22.38 | 23.5 |
| | | 1 | 74 | 22.47 | 22.46 | 22.35 | 23.5 |
| | | 36 | 0 | 22.07 | 22.10 | 21.96 | 23 |
| | | 36 | 19 | 22.13 | 22.15 | 22.01 | 23 |
| | | 36 | 39 | 22.03 | 21.96 | 21.87 | 23 |
| | | 75 | 0 | 22.17 | 22.07 | 22.01 | 23 |
| | 16QAM | 1 | 0 | 21.98 | 21.85 | 21.90 | 23 |
| | | 1 | 37 | 22.06 | 21.95 | 21.88 | 23 |
| | | 1 | 74 | 22.05 | 21.89 | 21.76 | 23 |
| | | 36 | 0 | 21.36 | 21.30 | 21.25 | 22 |
| | | 36 | 19 | 21.33 | 21.27 | 21.27 | 22 |
| | | 36 | 39 | 21.40 | 21.29 | 21.26 | 22 |
| | | 75 | 0 | 21.26 | 21.25 | 21.26 | 22 |
| BW | Modulation | Channel | | 40090 | 40640 | 41190 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2540 | 2595 | 2650 | |
| 10M | QPSK | 1 | 0 | 22.73 | 22.62 | 22.47 | 23.5 |
| | | 1 | 24 | 22.62 | 22.47 | 22.35 | 23.5 |
| | | 1 | 49 | 22.45 | 22.39 | 22.35 | 23.5 |
| | | 25 | 0 | 22.04 | 22.01 | 21.97 | 23 |
| | | 25 | 12 | 22.12 | 22.08 | 21.94 | 23 |
| | | 25 | 25 | 22.05 | 21.91 | 21.92 | 23 |
| | | 50 | 0 | 22.17 | 22.11 | 22.06 | 23 |
| | 16QAM | 1 | 0 | 22.01 | 21.92 | 21.89 | 23 |
| | | 1 | 24 | 22.03 | 21.95 | 21.90 | 23 |
| | | 1 | 49 | 22.05 | 21.86 | 21.78 | 23 |
| | | 25 | 0 | 21.39 | 21.27 | 21.27 | 22 |
| | | 25 | 12 | 21.34 | 21.19 | 21.27 | 22 |
| | | 25 | 25 | 21.41 | 21.36 | 21.28 | 22 |
| | | 50 | 0 | 21.23 | 21.26 | 21.22 | 22 |
| BW | Modulation | Channel | | 40065 | 40640 | 41215 | Max. Tune-up (dBm) |
| | | Frequency (MHz) | | 2537.5 | 2595 | 2652.5 | |
| 5M | QPSK | 1 | 0 | 22.72 | 22.64 | 22.47 | 23.5 |
| | | 1 | 12 | 22.59 | 22.45 | 22.33 | 23.5 |
| | | 1 | 24 | 22.51 | 22.47 | 22.27 | 23.5 |
| | | 12 | 0 | 22.05 | 22.02 | 21.99 | 23 |
| | | 12 | 6 | 22.11 | 22.15 | 21.94 | 23 |
| | | 12 | 13 | 21.99 | 22.01 | 21.85 | 23 |
| | | 25 | 0 | 22.16 | 22.08 | 22.04 | 23 |
| | 16QAM | 1 | 0 | 21.99 | 21.91 | 21.90 | 23 |
| | | 1 | 12 | 22.03 | 21.98 | 21.88 | 23 |
| | | 1 | 24 | 22.03 | 21.87 | 21.74 | 23 |
| | | 12 | 0 | 21.40 | 21.27 | 21.21 | 22 |
| | | 12 | 6 | 21.29 | 21.20 | 21.19 | 22 |
| | | 12 | 13 | 21.41 | 21.26 | 21.25 | 22 |
| | | 25 | 0 | 21.23 | 21.21 | 21.26 | 22 |

# Conducted Power

| BT | Mode | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|---|---|---|---|---|---|
| BR/EDR | GFSK | 0 | 2402 | 6.94 | 8.00 |
| | | 39 | 2441 | 6.74 | 8.00 |
| | | 78 | 2480 | **7.24** | 8.00 |
| | DQPSK | 0 | 2402 | 5.01 | 6.00 |
| | | 39 | 2441 | 4.60 | 6.00 |
| | | 78 | 2480 | 5.12 | 6.00 |
| | 8DPSK | 0 | 2402 | 5.02 | 6.00 |
| | | 39 | 2441 | 4.61 | 6.00 |
| | | 78 | 2480 | 5.12 | 6.00 |