# Report on the Specific Absorption Rate Testing of the A3120

## Apple Inc.
## Model: A3120

## In accordance with FCC 47 CFR 2.1093 and RSS 102 Issue 5

## FCC ID: BCGA3120          IC: 579C-A3120

Prepared for:   Apple Inc
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Cupertino
California
95014
USA

## COMMERCIAL-IN-CONFIDENCE

Document Number: 75960544-03 | Issue: 01

| SIGNATURE | | | |
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| **NAME** | **JOB TITLE** | **RESPONSIBLE FOR** | **ISSUE DATE** |
| Jon Kenny | Technical Director | Authorised Signatory | 26 April 2024 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

**EXECUTIVE SUMMARY**

A sample of this product was tested and found to be compliant with FCC 47 CFR 2.1093 and RSS 102 Issue 5 for the tests detailed in section .

## TÜV SÜD

## CONTENTS

**Section** **Page No**

**SECTION 1**

**REPORT SUMMARY**

Specific Absorption Rate Testing of the A3120

## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate testing of the trackpad to the requirements of FCC 47 CFR 2.1093 and RSS 102 Issue 5.

| | |
|---|---|
| Objective | To determine the Equipment Under Test's (EUT) compliance with the requirements specified within FCC 47 CFR 2.1093 and RSS 102 Issue 5. |
| Applicant | Apple Inc |
| EUT/Sample Identification | Refer to section 1.2 |
| Test Specification/Issue/Date | FCC 47 CFR 2.1093 and RSS 102 Issue 5. |
| Start of Test | 05-April-2024 |
| Finish of Test | 05-April-2024 |
| Related Document(s) | KDB 865664 - D01 v01r04 |
| | KDB 447498 - D01 v06 |
| | IEC-IEEE 62209-1528:2020 |
| | FCC 47 CFR 1.1310 |
| Name of Engineer(s) | Umesh Kabbur |
| | Sruthy Sudevan |

## 1.2 IDENTIFICATION OF THE EUT

The table below details identification of the EUT(s) that have been used to carry out the testing within this report.

| Model: A3120 | | | |
|---|---|---|---|
| Serial Number | Hardware Version | Software Version | Firmware |
| CC2H2D002J5000028F (Radiated) | REV1.0 | 2.5 | - |
| CC2H2D001P5000028F (Radiated) | REV1.0 | 2.5 | - |
| CC2H2D006R5000028F (Conducted) | REV1.0 | 2.5 | - |

**Table 1**

## 1.3 BRIEF SUMMARY OF RESULTS

The measurements shown in this report were made to the requirements of FCC 47 CFR 2.1093. and RSS-102 Issue 5. (2015-03).

### 1.3.1 Summary of Maximum Values

<u>The maximum 1g volume averaged stand-alone SAR found during this Assessment:</u>

| Max 1g SAR (W/kg) Body | 0.060 (Measured) | 0.068 (Scaled) |
|---|---|---|
| The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for FCC General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg in accordance with FCC 47 CFR 1.1310 and RSS-102 Issue 5 (2015-03). | | |

**Table 2**

<u>The maximum 1g volume averaged stand-alone Reported SAR found during this assessment for each supported mode:</u>

| Technology | Band | Test Configuration | Max Reported SAR (W/kg) |
|---|---|---|---|
| Bluetooth | 2450MHz | Body | 0.068 |
| The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for FCC General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg in accordance with FCC 47 CFR 1.1310 and RSS-102 Issue 5 (2015-03). | | | |

**Table 3**

## 1.4 TEST RESULTS SUMMARY

### 1.4.1 Results Summary Tables

Bluetooth - BDR - DH5
Specific Absorption Rate (SAR) 1g Results

| Test Position | Channel Number | Frequency (MHz) | Measured Average Power (dBm) | Tune Up (dBm) | Measured 10g SAR (W/kg) | Scaled 10g SAR (W/kg) | Scan Figure Number |
|---|---|---|---|---|---|---|---|
| 0mm Top Edge | 39 | 2441 | 5.35 | 5.50 | 0.023 | 0.024 | - |
| 0mm Bottom Edge | 39 | 2441 | 5.35 | 5.50 | 0.063 | 0.065 | - |
| 0mm Front | 39 | 2441 | 5.35 | 5.50 | 0.001 | 0.001 | - |
| 0mm Back | 39 | 2441 | 5.35 | 5.50 | 0.034 | 0.035 | - |
| 0mm Left Edge | 39 | 2441 | 5.35 | 5.50 | 0.001 | 0.001 | - |
| 0mm Right Edge | 39 | 2441 | 5.35 | 5.50 | 0.000 | 0.000 | - |
| 0mm Bottom Edge | 0 | 2402 | 4.96 | 5.50 | 0.060 | 0.068 | C.1 |
| 0mm Bottom Edge | 78 | 2480 | 5.31 | 5.50 | 0.061 | 0.064 | - |
| Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) | | | | | | | |

**Table 4**

### 1.4.2 Technical Description

The equipment under test (EUT) is a wireless Trackpad.

### 1.4.3 Test Configuration and Modes of Operation

The testing was performed with an integral battery supplied and manufactured by Apple Inc.

Supported technologies are Bluetooth (BR/EDR).

For each scan, the device was configured into a continuous transmission test mode at a maximum power defined by the customer.

Conducted power measurements were performed on a modified device (accessible conducted port) and the measured SAR results were power scaled to the maximum declared tune-up level.

For each antenna, all of the faces were assessed for SAR.

For SAR assessment, the relevant surfaces of the device were placed against an elliptical phantom with a 0mm separation distance.

The Elliptical Flat Phantom dimensions are 600mm major axis and 400mm minor axis with a shell thickness of 2mm. The phantom was filled to a minimum depth of 150mm with the appropriate liquid. The dielectric properties were in accordance with the requirements specified in KDB 865665.

Included in this report are descriptions of the test method; the equipment used and an analysis of the test uncertainties applicable and diagrams indicating the locations of maximum SAR for each relevant test position.

### 1.4.4 Antenna Location Diagram
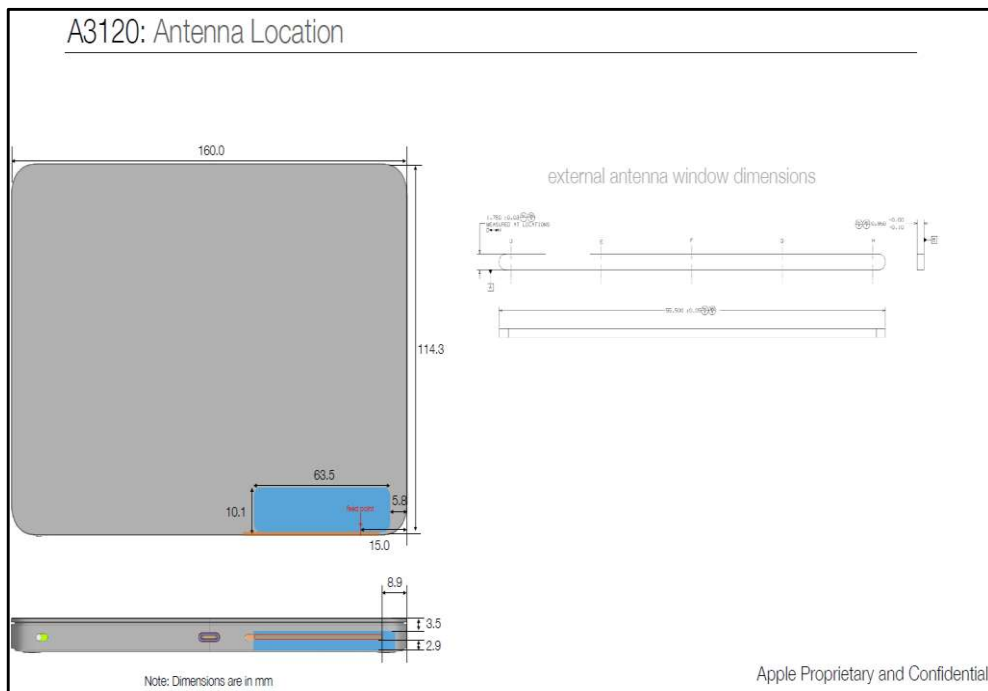


**Figure 1**

## 1.5 POWER TABLES (TUNE UP VALUES)

Note: All values in dBm
NS= Not Supported

### 2.4 GHz Bluetooth

| Technology | BDR | EDR |
|---|---|---|
| Bluetooth | 5.50 | 3.50 |

**Table 5**

## 1.6 CONDUCTED POWER MEASUREMENTS

### 1.6.1 Method

Conducted Power Measurements were made using a power sensor.

### 1.6.2 Measured Results

**Bluetooth**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|---|---|---|---|---|---|---|---|
| BDR | 0 | GFSK | 77 | DH5 | 2402 | 4.96 | 5.50 |
| BDR | 39 | GFSK | 77 | DH5 | 2441 | 5.35 | 5.50 |
| BDR | 78 | GFSK | 77 | DH5 | 2480 | 5.31 | 5.50 |

**Table 6**

| Technology | Channel | Modulation | Duty Cycle (%) | Packet Type | Frequency (MHz) | Measured Power (dBm) | Tune Up (dBm) |
|---|---|---|---|---|---|---|---|
| EDR | 0 | π/4 DQPSK | 77 | 2-DH5 | 2402 | 2.81 | 3.50 |
| EDR | 39 | π/4 DQPSK | 77 | 2-DH5 | 2441 | 3.28 | 3.50 |
| EDR | 78 | π/4 DQPSK | 77 | 2-DH5 | 2480 | 3.27 | 3.50 |
| EDR | 0 | 8-DPSK | 77 | 3-DH5 | 2402 | 2.81 | 3.50 |
| EDR | 39 | 8-DPSK | 77 | 3-DH5 | 2441 | 3.28 | 3.50 |
| EDR | 78 | 8-DPSK | 77 | 3-DH5 | 2480 | 3.02 | 3.50 |

**Table 7**

# SECTION 2

# TEST DETAILS

Specific Absorption Rate Testing of the A3120

## 2.1 DASY6 MEASUREMENT SYSTEM

### 2.1.1 System Description

The DASY6 system for performing compliance tests consists of the following items:
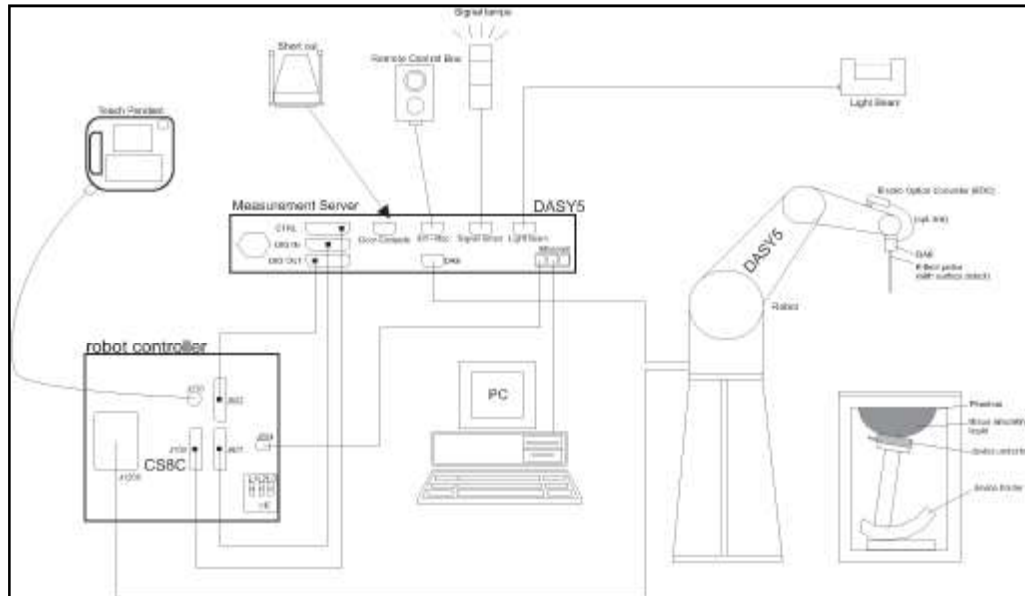


**Figure 2 - System Description Diagram**

A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).

An isotropic field probe optimized and calibrated for the targeted measurement.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc.
The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.

The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

A computer running the DASY6 software to display and interact with the robot and information.

There is a remote control and a teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.

The phantom, the device holder and other accessories according to the targeted measurement.

### 2.1.2 Probe Specification

The probes used by the DASY system are isotropic E-field probes, constructed with a symmetric design and a triangular core. The probes have built-in shielding against static charges and are contained within a PEEK enclosure material. These probes are specially designed and calibrated for use in liquids with high permittivity. The frequency range of the probes are from 6 MHz to 6 GHz.

### 2.1.3 Data Acquisition Electronics

The data acquisition electronics (DAE4 or DAE3) consist 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 with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of both the DAE4 as well as of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

### 2.1.4 SAR Evaluation Description

The cDASY6 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.

**Fast Area Scan:**

The Fast Area Scan provides an easy, time efficient and accurate way to define the optimal power reference location. The location of the power reference and power drift measurements for the subsequent Area, Fast Volume and Zoom Scans will be automatically set at the maximum of the Fast Area Scan.

**Area Scan:**

Area Scans are used to determine the peak location of the measured field before doing a finer measurement around the hotspot. Peak location can be found accurately even on coarse grids using the advanced interpolation routines implemented in cDASY6 Module SAR. Area Scans measure a two dimensional volume covering the full device under test area. cDASY6 Module SAR uses Fast Averaged SAR algorithm to compute the 1g and 10g of simulated tissue from the Area Scan.

**Fast Volume Scans:**

Fast Volume Scans are 3D scans used to assess the peak spatial SAR values within an averaging volume containing 1g and 10g of simulated tissue. It is compatible with any phantom. For regular phantoms, the measurement grid is generated by projecting a plane onto the phantom surface as for Area and Zoom scans. For specific phantoms, the measurement grid is generated by a conformal offset to the phantom surface at the desired distances. The grid extents can be set by the end user to cover the DUT dimensions or the whole measurable area of the phantom.

**Zoom Scan:**

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1g and 10g of simulated tissue. Zoom scans measure a three dimensional volume (cube). The bottom face of the cube is Centreed on the maximum of the preceding Area Scan in the same measurement group. For maxima at border of the phantom, the zoom scan can be enabled to automattically extend in order to ensure correct evaluation of peak spatial SAR.

Zoom Scans can be performed in two different modes:

- Smart Mode: the grid settings are adjusted on the fly based on the distribution being measured to fulfill to the IEC 62209-2 Amendment 1 criteria on grid resolution.

- Custom Mode: the user specifies the grid settings to be used. In both modes, Zoom Scans are always anchored to the peak location of the preceding Fast Area / Area / Fast Volume Scan.

# SECTION 3

# TEST EQUIPMENT USED

## 3.1    TEST EQUIPMENT USED

The following test equipment was used at TÜV SÜD Product Service:

| Instrument Description | Manufacturer | Model Type | TE Number | Cal Period (months) | Calibration Due Date |
|---|---|---|---|---|---|
| Thermometer | LKM Electronics | - | 6693 | 12 | 06-Nov-2024 |
| Hygrometer | R.S Components | Temperature Equip | 5474 | 12 | 21-Apr-2024 |
| SAR holder | Speag | n/a | 3870 | - | TU |
| Measurement server | Speag | DASY 6 Measurement Server | 4692 | - | TU |
| Mounting Platform | Speag | MP6C | 6493 | - | TU |
| Robot | Stäubli | TX2 90XL | 6494 | - | TU |
| Body Phantom | Speag | ELI V8.0 | 6491 | - | TU |
| Dosimetric SAR Probe | Speag | EX3DV4 | 6498 | 12 | 06-April-2024 |
| Data Acquisition Electronics | Speag | DAE4ip | 6500 | 12 | 17-Apr-2024 |
| Validation Dipole 2450MHz | Speag | D2450V2 | 5329 | 12 | 05-Jun-2024 |
| Power Source | Speag | SE UMS 160 CB | 6504 | 12 | 07-Feb-2025 |
| Dielectric Assessment Kit | Speag | DAK-3.5 | 6502 | 12 | TU |
| Signal Conditioning Unit | TUV SUD | SPECTRUM_SCU001 | 6426 | 12 | 09-Feb-2025 |
| USB Power Sensor | Boonton | RTP5008 | 5820 | 12 | 07-Feb-2025 |
| SCU Cable Assembly SCU | TUV SUD | SPECTRUM_SCU_CA | 6752 | 12 | 06-Feb-2025 |
| Tissue Simulant Liquid | Speag | 600-10000V6 | Batch 5 | - | Note 1 |

**Table 8**

TU - Traceability Unscheduled

Note 1: The calibration dates for the relevant batches of TSL can be found in the fluid parameter tables within this report.

## 3.2    TEST SOFTWARE

The following software was used to control the TÜV SÜD Product Service DASY System.

| Instrument | Version Number |
|---|---|
| DASY System | cDASY6 Module SAR V16.2.2.1588 |

**Table 9**

## 3.3 TEST VERIFICATION

### 3.3.1 System Performance Check Results

Prior to formal testing being performed a System Check was performed in accordance with KDB 865664 and IEC-IEEE 62209-1528:2020 the results were compared against the calibration certificates of each corresponding system verification dipole. The following results were obtained and within the ±10% acceptance criteria.
.

System Performance Check Results

| Date | Frequency (MHz) | Fluid Type | Measured Max 1g SAR (W/kg) * | Max 1g SAR Target (W/kg) | Percentage Deviation from Target 1g (%) |
|---|---|---|---|---|---|
| 05/04/2024 | 2450 | HBBL  5 | 47.49 | 52.20 | -9.03% |

**Table 10**

*Normalised to a forward power of 1W.

## 3.4 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required KDB 865664 and IEC-IEEE 62209-1528:2020.

The dielectric properties of the tissue simulant liquids used are within the ±10% acceptance criteria for the SAR testing at TÜV SÜD Product Service and are as follows:

| Fluid Type and Frequency | Relative Permittivity Measured | Relative Permittivity Target | Conductivity Measured (S/m) | Conductivity Target (S/m) | Date | Fluid Temperature °C |
|---|---|---|---|---|---|---|
| 2450 | 38.64 | 39.20 | 1.79 | 1.80 | 04/04/2024 | 19.95°C |

**Table 11**

## 3.5 TEST CONDITIONS

### 3.5.1 Test Laboratory Conditions

Ambient temperature: Within +18.00°C to +25.00°C.

The actual temperature during the testing ranged from 19.07°C to 21.05°C.

The actual humidity during the testing ranged from 44.35% to 45.61% RH.

The temperature of the fluid during testing does not deviate by more than 2°C for each set of tests.

### 3.5.2 Test Fluid Temperature Range

| Frequency | Body / Head Fluid | Min Temperature °C | Max Temperature °C |
|-----------|-------------------|--------------------|--------------------|
| 2450 MHz  | Head              | 19.07              | 21.05              |

**Table 12**

## 3.6 MEASUREMENT UNCERTAINTY

SAR Measurements, 300 MHz to 3 GHz

| Source of Uncertainty | Uncertainty ± % | Probability distribution | Div | $c_i$ (1g) | Standard Uncertainty ± % (1g) |
|---|---|---|---|---|---|
| **Measurement System Errors** | | | | | |
| Probe Calibration | 12.0 | Normal | 2.00 | 1.00 | 6.0 |
| Probe Calibration Drift | 1.7 | Rectangular | 1.73 | 1.00 | 1.0 |
| Probe Linearity | 4.7 | Rectangular | 1.73 | 1.00 | 2.7 |
| Broadband Signal | 3.0 | Rectangular | 1.73 | 1.00 | 1.7 |
| Probe Isotropy | 7.6 | Rectangular | 1.73 | 1.00 | 4.4 |
| Data Acquisition | 0.3 | Normal | 1.00 | 1.00 | 0.3 |
| RF Ambient | 1.8 | Normal | 1.00 | 1.00 | 1.8 |
| Probe Positioning | 0.2 | Normal | 1.00 | 0.14 | 0.0 |
| Data Processing | 1.2 | Normal | 1.00 | 1.00 | 1.2 |
| **Phantom and Device errors** | | | | | |
| Liquid Conductivity Meas. | 2.5 | Normal | 1.00 | 0.78 | 2.0 |
| Liquid Conductivity Temp | 3.3 | Rectangular | 1.73 | 0.78 | 1.5 |
| Phantom Permittivity | 14.0 | Rectangular | 1.73 | 0.00 | 0.0 |
| Distance DUT - TSL | 2.0 | Normal | 1.00 | 2.00 | 4.0 |
| Device Positioning (±0.5mm) | 1.0 | Normal | 1.00 | 1.00 | 1.0 |
| Device Holder | 3.6 | Normal | 1.00 | 1.00 | 3.6 |
| Device Modulation | 2.4 | Rectangular | 1.73 | 1.00 | 1.4 |
| Time-average SAR | 2.6 | Rectangular | 1.73 | 1.00 | 1.5 |
| DUT Drift | 5.0 | Normal | 1.00 | 1.00 | 5.0 |
| **Correction to the SAR results** | | | | | |
| Deviation to Target | 1.9 | Normal | 1.00 | 1.00 | 1.9 |
| SAR Scaling | 0.0 | Rectangular | 1.73 | 1.00 | 0.0 |
| **Combined Standard Uncertainty** | | **RSS** | | | 11.8 |
| **Expanded Standard Uncertainty** | | **K=2** | | | 23.7 |

**Table 13**

### 3.6.1 Decision Rule

<u>Accuracy Method</u>

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2007, Clause 4.4.3 and 4.5.1. (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8."

# SECTION 4

# ACCREDITATION, DISCLAIMERS AND COPYRIGHT

## 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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**ANNEX A**


**PROBE CALIBRATION REPORT**

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

ilac-MRA

S  Schweizerischer Kalibrierdienst
C  Service suisse d'étalonnage
S  Servizio svizzero di taratura
S  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 | **TüV SÜD** Fareham, United Kingdom | Certificate No. | **EX-7805_Apr23** |
|---|---|---|---|

## CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | EX3DV4 - SN:7805 |
| Calibration procedure(s) | QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6, QA CAL-25.v8 Calibration procedure for dosimetric E-field probes |
| Calibration date | April 06, 2023 |

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 $(22 \pm 3)$ °C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP2 | SN: 104778 | 30-Mar-23 (No. 217-03804/03805) | Mar-24 |
| Power sensor NRP-Z91 | SN: 103244 | 30-Mar-23 (No. 217-03804) | Mar-24 |
| OCP DAK-3.5 (weighted) | SN: 1249 | 20-Oct-22 (OCP-DAK3.5-1249_Oct22) | Oct-23 |
| OCP DAK-12 | SN: 1016 | 20-Oct-22 (OCP-DAK12-1016_Oct22) | Oct-23 |
| Reference 20 dB Attenuator | SN: CC2552 (20x) | 30-Mar-23 (No. 217-03809) | Mar-24 |
| DAE4 | SN: 660 | 16-Mar-23 (No. DAE4-660_Mar23) | Mar-24 |
| Reference Probe ES3DV2 | SN: 3013 | 06-Jan-23 (No. ES3-3013_Jan23) | Jan-24 |

| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter E4419B | SN: GB41293874 | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| Power sensor E4412A | SN: MY41498087 | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| Power sensor E4412A | SN: 000110210 | 06-Apr-16 (in house check Jun-22) | In house check: Jun-24 |
| RF generator HP 8648C | SN: US3642U01700 | 04-Aug-99 (in house check Jun-22) | In house check: Jun-24 |
| Network Analyzer E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-22) | In house check: Oct-24 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by | Jeffrey Katzman | Laboratory Technician | |
| Approved by | Sven Kühn | Technical Manager | |

Issued: April 07, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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

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**

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

Accreditation No.: **SCS 0108**

## Glossary

| | |
|---|---|
| TSL | tissue simulating liquid |
| NORMx,y,z | sensitivity in free space |
| ConvF | sensitivity in TSL / NORMx,y,z |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A, B, C, D | modulation dependent linearization parameters |
| Polarization $\varphi$ | $\varphi$ rotation around probe axis |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis |
| Connector Angle | information used in DASY system to align probe sensor X to the robot coordinate system |

## 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"

## Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z*: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ±50 MHz to ±100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

EX3DV4 - SN:7805

April 06, 2023

## Parameters of Probe: EX3DV4 - SN:7805

### Basic Calibration Parameters

|  | Sensor X | Sensor Y | Sensor Z | Unc ($k = 2$) |
|---|---|---|---|---|
| Norm ($\mu$V/(V/m)$^2$) $^A$ | 0.62 | 0.60 | 0.71 | ±10.1% |
| DCP (mV) $^B$ | 103.0 | 102.0 | 104.0 | ±4.7% |

### Calibration Results for Modulation Response

| UID | Communication System Name | | A dB | B dB$\sqrt{\mu V}$ | C | D dB | VR mV | Max dev. | Max Unc$^E$ $k = 2$ |
|---|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.00 | 0.00 | 1.00 | 0.00 | 114.0 | ±2.4% | ±4.7% |
|  |  | Y | 0.00 | 0.00 | 1.00 | | 113.6 | | |
|  |  | Z | 0.00 | 0.00 | 1.00 | | 124.2 | | |
| 10352 | Pulse Waveform (200Hz, 10%) | X | 1.35 | 60.00 | 6.03 | 10.00 | 60.0 | ±3.1% | ±9.6% |
|  |  | Y | 1.68 | 61.71 | 7.29 | | 60.0 | | |
|  |  | Z | 1.46 | 60.39 | 6.22 | | 60.0 | | |
| 10353 | Pulse Waveform (200Hz, 20%) | X | 10.00 | 72.00 | 9.00 | 6.99 | 80.0 | ±2.5% | ±9.6% |
|  |  | Y | 0.91 | 60.40 | 5.63 | | 80.0 | | |
|  |  | Z | 0.84 | 60.00 | 5.00 | | 80.0 | | |
| 10354 | Pulse Waveform (200Hz, 40%) | X | 0.45 | 60.00 | 3.80 | 3.98 | 95.0 | ±1.8% | ±9.6% |
|  |  | Y | 0.46 | 60.00 | 4.49 | | 95.0 | | |
|  |  | Z | 0.48 | 60.00 | 3.87 | | 95.0 | | |
| 10355 | Pulse Waveform (200Hz, 60%) | X | 0.31 | 60.00 | 2.97 | 2.22 | 120.0 | ±1.9% | ±9.6% |
|  |  | Y | 12.99 | 159.86 | 1.57 | | 120.0 | | |
|  |  | Z | 10.02 | 84.67 | 3.26 | | 120.0 | | |
| 10387 | QPSK Waveform, 1 MHz | X | 0.63 | 67.34 | 14.78 | 1.00 | 150.0 | ±3.3% | ±9.6% |
|  |  | Y | 0.56 | 64.10 | 12.53 | | 150.0 | | |
|  |  | Z | 0.59 | 65.65 | 13.87 | | 150.0 | | |
| 10388 | QPSK Waveform, 10 MHz | X | 1.48 | 68.40 | 15.12 | 0.00 | 150.0 | ±1.0% | ±9.6% |
|  |  | Y | 1.35 | 66.06 | 13.93 | | 150.0 | | |
|  |  | Z | 1.42 | 67.37 | 14.72 | | 150.0 | | |
| 10396 | 64-QAM Waveform, 100 kHz | X | 1.84 | 66.17 | 16.65 | 3.01 | 150.0 | ±1.2% | ±9.6% |
|  |  | Y | 1.84 | 65.74 | 16.35 | | 150.0 | | |
|  |  | Z | 1.64 | 64.22 | 15.77 | | 150.0 | | |
| 10399 | 64-QAM Waveform, 40 MHz | X | 2.89 | 67.21 | 15.63 | 0.00 | 150.0 | ±1.7% | ±9.6% |
|  |  | Y | 2.83 | 66.37 | 15.10 | | 150.0 | | |
|  |  | Z | 2.85 | 66.76 | 15.39 | | 150.0 | | |
| 10414 | WLAN CCDF, 64-QAM, 40 MHz | X | 3.81 | 66.67 | 15.60 | 0.00 | 150.0 | ±3.1% | ±9.6% |
|  |  | Y | 3.80 | 66.03 | 15.25 | | 150.0 | | |
|  |  | Z | 3.77 | 66.25 | 15.40 | | 150.0 | | |

Note: For details on UID parameters see Appendix

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%.

$^A$ The uncertainties of Norm X,Y,Z do not affect the E$^2$-field uncertainty inside TSL (see Pages 5 and 6).
$^B$ Linearization parameter uncertainty for maximum specified field strength.
$^E$ Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4 - SN:7805                                            April 06, 2023

## Parameters of Probe: EX3DV4 - SN:7805

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$V^{-1}$ | T1<br>$msV^{-2}$ | T2<br>$msV^{-1}$ | T3<br>ms | T4<br>$V^{-2}$ | T5<br>$V^{-1}$ | T6 |
|---|---|---|---|---|---|---|---|---|---|
| x | 8.5 | 60.88 | 33.01 | 4.65 | 0.00 | 4.90 | 0.67 | 0.00 | 1.00 |
| y | 9.5 | 68.51 | 33.09 | 5.59 | 0.00 | 4.95 | 0.73 | 0.00 | 1.00 |
| z | 9.0 | 64.04 | 32.66 | 4.94 | 0.00 | 4.90 | 0.25 | 0.02 | 1.00 |

### Other Probe Parameters

| | |
|---|---|
| Sensor Arrangement | Triangular |
| Connector Angle | -7.8° |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 337 mm |
| Probe Body Diameter | 10 mm |
| Tip Length | 9 mm |
| Tip Diameter | 2.5 mm |
| Probe Tip to Sensor X Calibration Point | 1 mm |
| Probe Tip to Sensor Y Calibration Point | 1 mm |
| Probe Tip to Sensor Z Calibration Point | 1 mm |
| Recommended Measurement Distance from Surface | 1.4 mm |

**Note:** Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

April 06, 2023

## Parameters of Probe: EX3DV4 - SN:7805

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz)[C] | Relative Permittivity[F] | Conductivity[F] (S/m) | ConvF X | ConvF Y | ConvF Z | Alpha[G] | Depth[G] (mm) | Unc (k = 2) |
|---|---|---|---|---|---|---|---|---|
| 128 | 52.8 | 0.76 | 12.30 | 12.30 | 12.30 | 0.00 | 1.25 | ±13.3% |
| 450 | 43.5 | 0.87 | 10.62 | 10.62 | 10.62 | 0.16 | 1.30 | ±13.3% |
| 750 | 41.9 | 0.89 | 9.02 | 9.55 | 9.06 | 0.39 | 1.27 | ±12.0% |
| 835 | 41.5 | 0.90 | 8.96 | 9.50 | 9.01 | 0.38 | 1.27 | ±12.0% |
| 900 | 41.5 | 0.97 | 8.93 | 9.61 | 9.03 | 0.38 | 1.27 | ±12.0% |
| 1300 | 40.8 | 1.14 | 7.78 | 8.31 | 7.96 | 0.50 | 1.27 | ±12.0% |
| 1450 | 40.5 | 1.20 | 7.69 | 8.18 | 7.86 | 0.47 | 1.27 | ±12.0% |
| 1640 | 40.2 | 1.31 | 7.64 | 8.14 | 7.88 | 0.43 | 1.27 | ±12.0% |
| 1750 | 40.1 | 1.37 | 8.00 | 8.66 | 8.21 | 0.26 | 1.27 | ±12.0% |
| 1810 | 40.0 | 1.40 | 7.81 | 8.37 | 7.98 | 0.29 | 1.27 | ±12.0% |
| 1900 | 40.0 | 1.40 | 7.65 | 8.19 | 7.83 | 0.29 | 1.27 | ±12.0% |
| 2000 | 40.0 | 1.40 | 7.47 | 8.00 | 7.63 | 0.29 | 1.27 | ±12.0% |
| 2100 | 39.8 | 1.49 | 7.33 | 7.85 | 7.47 | 0.30 | 1.27 | ±12.0% |
| 2300 | 39.5 | 1.67 | 7.18 | 7.68 | 7.34 | 0.30 | 1.27 | ±12.0% |
| 2450 | 39.2 | 1.80 | 7.04 | 7.51 | 7.18 | 0.29 | 1.27 | ±12.0% |
| 2600 | 39.0 | 1.96 | 6.95 | 7.45 | 7.07 | 0.27 | 1.27 | ±12.0% |
| 3300 | 38.2 | 2.71 | 6.66 | 7.13 | 6.76 | 0.34 | 1.27 | ±14.0% |
| 3500 | 37.9 | 2.91 | 6.63 | 7.08 | 6.72 | 0.36 | 1.27 | ±14.0% |
| 3700 | 37.7 | 3.12 | 6.52 | 6.97 | 6.64 | 0.35 | 1.27 | ±14.0% |
| 4100 | 37.2 | 3.53 | 6.37 | 6.79 | 6.46 | 0.35 | 1.27 | ±14.0% |
| 5200 | 36.0 | 4.66 | 5.21 | 5.54 | 5.30 | 0.30 | 1.67 | ±14.0% |
| 5300 | 35.9 | 4.76 | 5.02 | 5.32 | 5.09 | 0.33 | 1.64 | ±14.0% |
| 5500 | 35.6 | 4.96 | 4.82 | 5.07 | 4.89 | 0.36 | 1.61 | ±14.0% |
| 5600 | 35.5 | 5.07 | 4.65 | 4.86 | 4.76 | 0.36 | 1.67 | ±14.0% |
| 5800 | 35.3 | 5.27 | 4.66 | 4.92 | 4.77 | 0.34 | 1.87 | ±14.0% |

[C] Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

[F] The probes are calibrated using tissue simulating liquids (TSL) that deviate for $\varepsilon$ and $\sigma$ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10%. If TSL with deviations from the target of less than ±5% are used, the calibration uncertainties are 11.1% for 0.7 - 3 GHz and 13.1% for 3 - 6 GHz.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4 - SN:7805                                                                April 06, 2023

## Parameters of Probe: EX3DV4 - SN:7805

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz)$^C$ | Relative Permittivity$^F$ | Conductivity$^F$ (S/m) | ConvF X | ConvF Y | ConvF Z | Alpha$^G$ | Depth$^G$ (mm) | Unc ($k=2$) |
|---|---|---|---|---|---|---|---|---|
| 6500 | 34.5 | 6.07 | 5.07 | 5.31 | 5.09 | 0.20 | 2.00 | ±18.6% |

$^C$ Frequency validity at 6.5 GHz is −600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
$^F$ The probes are calibrated using tissue simulating liquids (TSL) that deviate for $\varepsilon$ and $\sigma$ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.
$^G$ Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4 - SN:7805

April 06, 2023

## Frequency Response of E-Field

### (TEM-Cell:ifi110 EXX, Waveguide:R22)
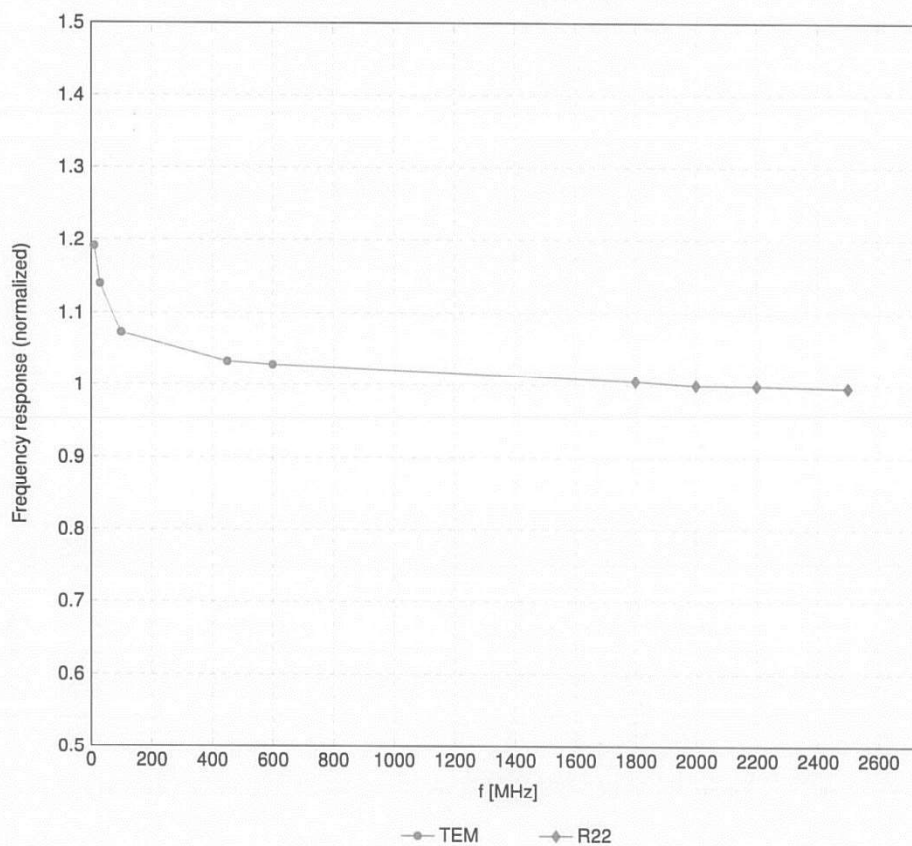


Uncertainty of Frequency Response of E-field: ±6.3% (k=2)

EX3DV4 - SN:7805

April 06, 2023

## Receiving Pattern ($\phi$), $\vartheta = 0°$



f=600 MHz, TEM, 0°



f=1800 MHz, R22, 0°
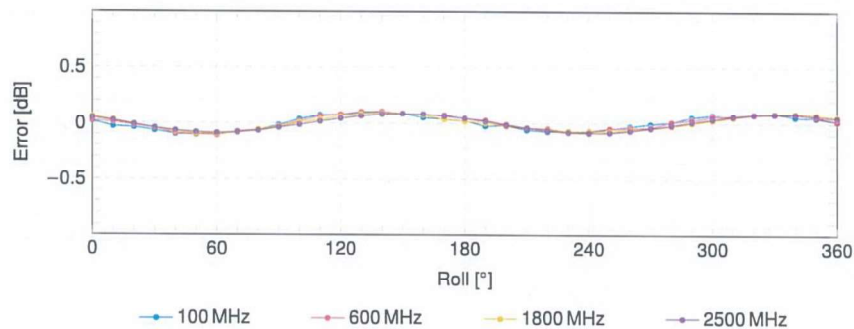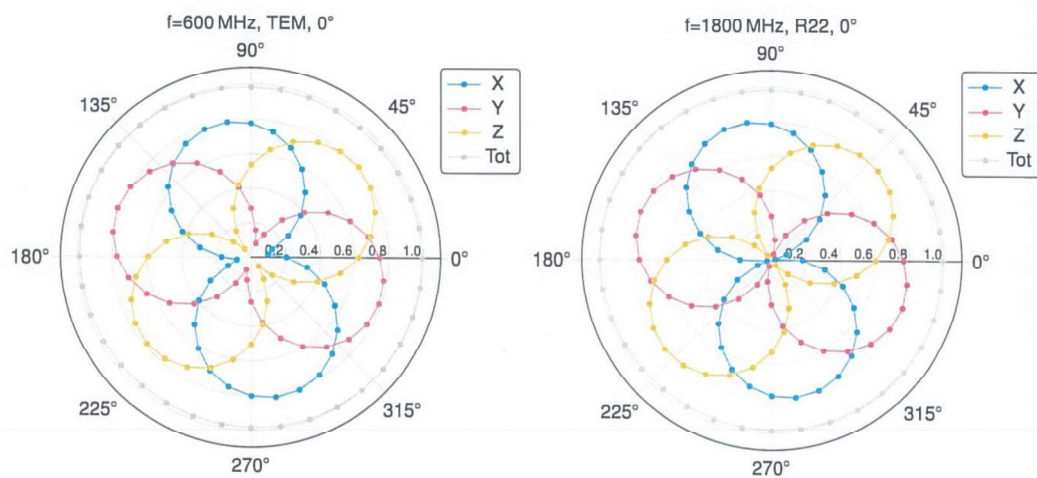


Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)

EX3DV4 - SN:7805                                                                                    April 06, 2023

## Dynamic Range f(SAR$_{head}$)

### (TEM cell, f$_{eval}$ = 1900 MHz)
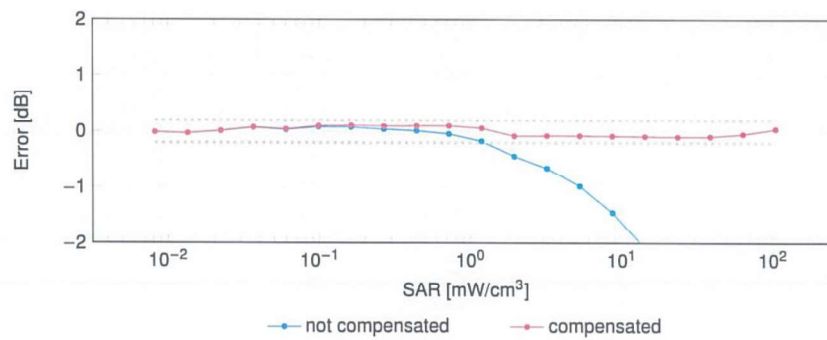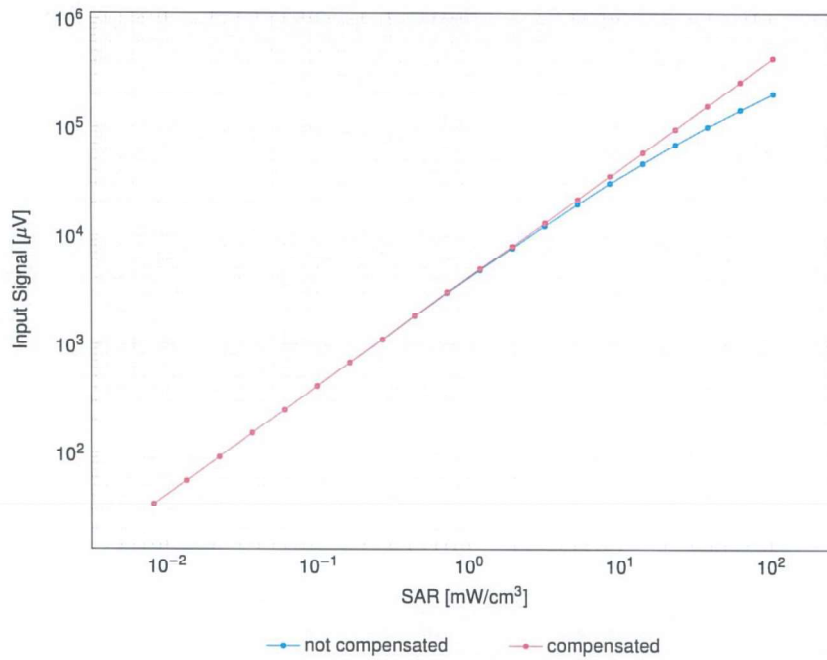


Uncertainty of Linearity Assessment: ±0.6% (k=2)

EX3DV4 - SN:7805

April 06, 2023

## Conversion Factor Assessment

f=1900 MHz, WGLS R22 (H_convF)



analytical — measured
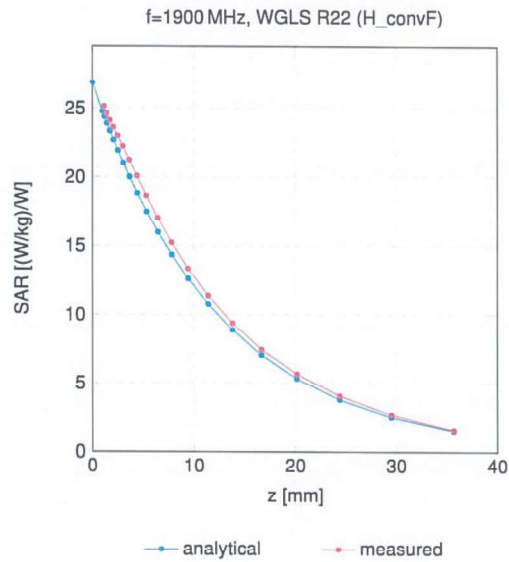
## Deviation from Isotropy in Liquid

Error $(\phi, \theta)$, f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ±2.6% (k=2)
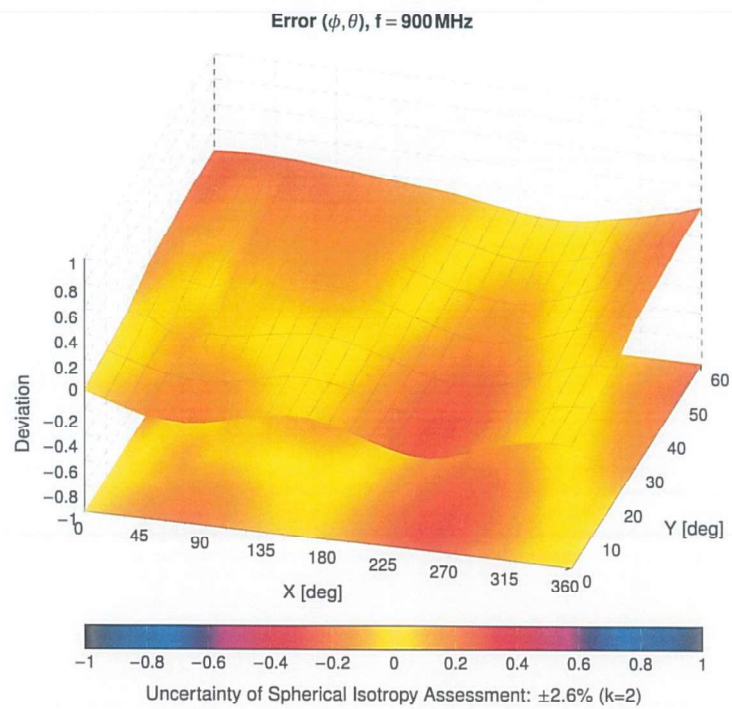
EX3DV4 - SN:7805                                                                 April 06, 2023

## Appendix: Modulation Calibration Parameters

| UID | Rev | Communication System Name | Group | PAR (dB) | Unc$^E$ $k=2$ |
|---|---|---|---|---|---|
| 0 | | CW | CW | 0.00 | ±4.7 |
| 10010 | CAB | SAR Validation (Square, 100 ms, 10 ms) | Test | 10.00 | ±9.6 |
| 10011 | CAC | UMTS-FDD (WCDMA) | WCDMA | 2.91 | ±9.6 |
| 10012 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) | WLAN | 1.87 | ±9.6 |
| 10013 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | WLAN | 9.46 | ±9.6 |
| 10021 | DAC | GSM-FDD (TDMA, GMSK) | GSM | 9.39 | ±9.6 |
| 10023 | DAC | GPRS-FDD (TDMA, GMSK, TN 0) | GSM | 9.57 | ±9.6 |
| 10024 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1) | GSM | 6.56 | ±9.6 |
| 10025 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0) | GSM | 12.62 | ±9.6 |
| 10026 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1) | GSM | 9.55 | ±9.6 |
| 10027 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2) | GSM | 4.80 | ±9.6 |
| 10028 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3) | GSM | 3.55 | ±9.6 |
| 10029 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2) | GSM | 7.78 | ±9.6 |
| 10030 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1) | Bluetooth | 5.30 | ±9.6 |
| 10031 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3) | Bluetooth | 1.87 | ±9.6 |
| 10032 | CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5) | Bluetooth | 1.16 | ±9.6 |
| 10033 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1) | Bluetooth | 7.74 | ±9.6 |
| 10034 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3) | Bluetooth | 4.53 | ±9.6 |
| 10035 | CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5) | Bluetooth | 3.83 | ±9.6 |
| 10036 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1) | Bluetooth | 8.01 | ±9.6 |
| 10037 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3) | Bluetooth | 4.77 | ±9.6 |
| 10038 | CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5) | Bluetooth | 4.10 | ±9.6 |
| 10039 | CAB | CDMA2000 (1xRTT, RC1) | CDMA2000 | 4.57 | ±9.6 |
| 10042 | CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | AMPS | 7.78 | ±9.6 |
| 10044 | CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM) | AMPS | 0.00 | ±9.6 |
| 10048 | CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24) | DECT | 13.80 | ±9.6 |
| 10049 | CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12) | DECT | 10.79 | ±9.6 |
| 10056 | CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps) | TD-SCDMA | 11.01 | ±9.6 |
| 10058 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3) | GSM | 6.52 | ±9.6 |
| 10059 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps) | WLAN | 2.12 | ±9.6 |
| 10060 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps) | WLAN | 2.83 | ±9.6 |
| 10061 | CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps) | WLAN | 3.60 | ±9.6 |
| 10062 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps) | WLAN | 8.68 | ±9.6 |
| 10063 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps) | WLAN | 8.63 | ±9.6 |
| 10064 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps) | WLAN | 9.09 | ±9.6 |
| 10065 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps) | WLAN | 9.00 | ±9.6 |
| 10066 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps) | WLAN | 9.38 | ±9.6 |
| 10067 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps) | WLAN | 10.12 | ±9.6 |
| 10068 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps) | WLAN | 10.24 | ±9.6 |
| 10069 | CAD | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps) | WLAN | 10.56 | ±9.6 |
| 10071 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps) | WLAN | 9.83 | ±9.6 |
| 10072 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | WLAN | 9.62 | ±9.6 |
| 10073 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | WLAN | 9.94 | ±9.6 |
| 10074 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | WLAN | 10.30 | ±9.6 |
| 10075 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | WLAN | 10.77 | ±9.6 |
| 10076 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | WLAN | 10.94 | ±9.6 |
| 10077 | CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | WLAN | 11.00 | ±9.6 |
| 10081 | CAB | CDMA2000 (1xRTT, RC3) | CDMA2000 | 3.97 | ±9.6 |
| 10082 | CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | AMPS | 4.77 | ±9.6 |
| 10090 | DAC | GPRS-FDD (TDMA, GMSK, TN 0-4) | GSM | 6.56 | ±9.6 |
| 10097 | CAC | UMTS-FDD (HSDPA) | WCDMA | 3.98 | ±9.6 |
| 10098 | CAC | UMTS-FDD (HSUPA, Subtest 2) | WCDMA | 3.98 | ±9.6 |
| 10099 | DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4) | GSM | 9.55 | ±9.6 |
| 10100 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | LTE-FDD | 5.67 | ±9.6 |
| 10101 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | LTE-FDD | 6.42 | ±9.6 |
| 10102 | CAF | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | LTE-FDD | 6.60 | ±9.6 |
| 10103 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | LTE-TDD | 9.29 | ±9.6 |
| 10104 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | LTE-TDD | 9.97 | ±9.6 |
| 10105 | CAH | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | LTE-TDD | 10.01 | ±9.6 |
| 10108 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | LTE-FDD | 5.80 | ±9.6 |
| 10109 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ±9.6 |
| 10110 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-FDD | 5.75 | ±9.6 |
| 10111 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.44 | ±9.6 |

Certificate No: EX-7805_Apr23                          Page 11 of 22

EX3DV4 - SN:7805          April 06, 2023

| UID | Rev | Communication System Name | Group | PAR (dB) | Unc$^E$ $k = 2$ |
|---|---|---|---|---|---|
| 10112 | CAH | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.59 | ±9.6 |
| 10113 | CAH | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.62 | ±9.6 |
| 10114 | CAD | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK) | WLAN | 8.10 | ±9.6 |
| 10115 | CAD | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM) | WLAN | 8.46 | ±9.6 |
| 10116 | CAD | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN | 8.15 | ±9.6 |
| 10117 | CAD | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK) | WLAN | 8.07 | ±9.6 |
| 10118 | CAD | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM) | WLAN | 8.59 | ±9.6 |
| 10119 | CAD | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM) | WLAN | 8.13 | ±9.6 |
| 10140 | CAF | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.49 | ±9.6 |
| 10141 | CAF | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.53 | ±9.6 |
| 10142 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ±9.6 |
| 10143 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.35 | ±9.6 |
| 10144 | CAF | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.65 | ±9.6 |
| 10145 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.76 | ±9.6 |
| 10146 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.41 | ±9.6 |
| 10147 | CAG | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.72 | ±9.6 |
| 10149 | CAF | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-FDD | 6.42 | ±9.6 |
| 10150 | CAF | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-FDD | 6.60 | ±9.6 |
| 10151 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-TDD | 9.28 | ±9.6 |
| 10152 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | LTE-TDD | 9.92 | ±9.6 |
| 10153 | CAH | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | LTE-TDD | 10.05 | ±9.6 |
| 10154 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-FDD | 5.75 | ±9.6 |
| 10155 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-FDD | 6.43 | ±9.6 |
| 10156 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-FDD | 5.79 | ±9.6 |
| 10157 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-FDD | 6.49 | ±9.6 |
| 10158 | CAH | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-FDD | 6.62 | ±9.6 |
| 10159 | CAH | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-FDD | 6.56 | ±9.6 |
| 10160 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-FDD | 5.82 | ±9.6 |
| 10161 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-FDD | 6.43 | ±9.6 |
| 10162 | CAF | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-FDD | 6.58 | ±9.6 |
| 10166 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-FDD | 5.46 | ±9.6 |
| 10167 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.21 | ±9.6 |
| 10168 | CAG | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.79 | ±9.6 |
| 10169 | CAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-FDD | 5.73 | ±9.6 |
| 10170 | CAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-FDD | 6.52 | ±9.6 |
| 10171 | AAF | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-FDD | 6.49 | ±9.6 |
| 10172 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | LTE-TDD | 9.21 | ±9.6 |
| 10173 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | LTE-TDD | 9.48 | ±9.6 |
| 10174 | CAH | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | LTE-TDD | 10.25 | ±9.6 |
| 10175 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-FDD | 5.72 | ±9.6 |
| 10176 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-FDD | 6.52 | ±9.6 |
| 10177 | CAJ | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-FDD | 5.73 | ±9.6 |
| 10178 | CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-FDD | 6.52 | ±9.6 |
| 10179 | CAH | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-FDD | 6.50 | ±9.6 |
| 10180 | CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-FDD | 6.50 | ±9.6 |
| 10181 | CAF | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-FDD | 5.72 | ±9.6 |
| 10182 | CAF | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-FDD | 6.52 | ±9.6 |
| 10183 | AAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-FDD | 6.50 | ±9.6 |
| 10184 | CAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-FDD | 5.73 | ±9.6 |
| 10185 | CAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-FDD | 6.51 | ±9.6 |
| 10186 | AAF | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-FDD | 6.50 | ±9.6 |
| 10187 | CAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-FDD | 5.73 | ±9.6 |
| 10188 | CAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-FDD | 6.52 | ±9.6 |
| 10189 | AAG | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-FDD | 6.50 | ±9.6 |
| 10193 | CAD | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK) | WLAN | 8.09 | ±9.6 |
| 10194 | CAD | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | WLAN | 8.12 | ±9.6 |
| 10195 | CAD | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | WLAN | 8.21 | ±9.6 |
| 10196 | CAD | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK) | WLAN | 8.10 | ±9.6 |
| 10197 | CAD | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM) | WLAN | 8.13 | ±9.6 |
| 10198 | CAD | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM) | WLAN | 8.27 | ±9.6 |
| 10219 | CAD | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK) | WLAN | 8.03 | ±9.6 |
| 10220 | CAD | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM) | WLAN | 8.13 | ±9.6 |
| 10221 | CAD | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) | WLAN | 8.27 | ±9.6 |
| 10222 | CAD | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK) | WLAN | 8.06 | ±9.6 |
| 10223 | CAD | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM) | WLAN | 8.48 | ±9.6 |
| 10224 | CAD | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | WLAN | 8.08 | ±9.6 |

EX3DV4 - SN:7805                                                April 06, 2023

| UID | Rev | Communication System Name | Group | PAR (dB) | Unc$^E$ $k=2$ |
|-----|-----|---------------------------|-------|----------|------------|
| 10225 | CAC | UMTS-FDD (HSPA+) | WCDMA | 5.97 | ±9.6 |
| 10226 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.49 | ±9.6 |
| 10227 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.26 | ±9.6 |
| 10228 | CAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | LTE-TDD | 9.22 | ±9.6 |
| 10229 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | LTE-TDD | 9.48 | ±9.6 |
| 10230 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | LTE-TDD | 10.25 | ±9.6 |
| 10231 | CAE | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | LTE-TDD | 9.19 | ±9.6 |
| 10232 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | LTE-TDD | 9.48 | ±9.6 |
| 10233 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | LTE-TDD | 10.25 | ±9.6 |
| 10234 | CAH | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | LTE-TDD | 9.21 | ±9.6 |
| 10235 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | LTE-TDD | 9.48 | ±9.6 |
| 10236 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | LTE-TDD | 10.25 | ±9.6 |
| 10237 | CAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | LTE-TDD | 9.21 | ±9.6 |
| 10238 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | LTE-TDD | 9.48 | ±9.6 |
| 10239 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | LTE-TDD | 10.25 | ±9.6 |
| 10240 | CAG | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | LTE-TDD | 9.21 | ±9.6 |
| 10241 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.82 | ±9.6 |
| 10242 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 9.86 | ±9.6 |
| 10243 | CAC | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.46 | ±9.6 |
| 10244 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-TDD | 10.06 | ±9.6 |
| 10245 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-TDD | 10.06 | ±9.6 |
| 10246 | CAE | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-TDD | 9.30 | ±9.6 |
| 10247 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.91 | ±9.6 |
| 10248 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.09 | ±9.6 |
| 10249 | CAH | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | LTE-TDD | 9.29 | ±9.6 |
| 10250 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.81 | ±9.6 |
| 10251 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.17 | ±9.6 |
| 10252 | CAH | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | LTE-TDD | 9.24 | ±9.6 |
| 10253 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | LTE-TDD | 9.90 | ±9.6 |
| 10254 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.14 | ±9.6 |
| 10255 | CAG | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | LTE-TDD | 9.20 | ±9.6 |
| 10256 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-TDD | 9.96 | ±9.6 |
| 10257 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-TDD | 10.08 | ±9.6 |
| 10258 | CAC | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | LTE-TDD | 9.34 | ±9.6 |
| 10259 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | LTE-TDD | 9.98 | ±9.6 |
| 10260 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | LTE-TDD | 9.97 | ±9.6 |
| 10261 | CAE | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | LTE-TDD | 9.24 | ±9.6 |
| 10262 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | LTE-TDD | 9.83 | ±9.6 |
| 10263 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | LTE-TDD | 10.16 | ±9.6 |
| 10264 | CAH | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | LTE-TDD | 9.23 | ±9.6 |
| 10265 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | LTE-TDD | 9.92 | ±9.6 |
| 10266 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | LTE-TDD | 10.07 | ±9.6 |
| 10267 | CAH | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | LTE-TDD | 9.30 | ±9.6 |
| 10268 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | LTE-TDD | 10.06 | ±9.6 |
| 10269 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | LTE-TDD | 10.13 | ±9.6 |
| 10270 | CAG | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-TDD | 9.58 | ±9.6 |
| 10274 | CAC | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10) | WCDMA | 4.87 | ±9.6 |
| 10275 | CAC | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4) | WCDMA | 3.96 | ±9.6 |
| 10277 | CAA | PHS (QPSK) | PHS | 11.81 | ±9.6 |
| 10278 | CAA | PHS (QPSK, BW 884 MHz, Rolloff 0.5) | PHS | 11.81 | ±9.6 |
| 10279 | CAA | PHS (QPSK, BW 884 MHz, Rolloff 0.38) | PHS | 12.18 | ±9.6 |
| 10290 | AAB | CDMA2000, RC1, SO55, Full Rate | CDMA2000 | 3.91 | ±9.6 |
| 10291 | AAB | CDMA2000, RC3, SO55, Full Rate | CDMA2000 | 3.46 | ±9.6 |
| 10292 | AAB | CDMA2000, RC3, SO32, Full Rate | CDMA2000 | 3.39 | ±9.6 |
| 10293 | AAB | CDMA2000, RC3, SO3, Full Rate | CDMA2000 | 3.50 | ±9.6 |
| 10295 | AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr. | CDMA2000 | 12.49 | ±9.6 |
| 10297 | AAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | LTE-FDD | 5.81 | ±9.6 |
| 10298 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | LTE-FDD | 5.72 | ±9.6 |
| 10299 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | LTE-FDD | 6.39 | ±9.6 |
| 10300 | AAE | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | LTE-FDD | 6.60 | ±9.6 |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC) | WiMAX | 12.03 | ±9.6 |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC, 3 CTRL symbols) | WiMAX | 12.57 | ±9.6 |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5 ms, 10 MHz, 64QAM, PUSC) | WiMAX | 12.52 | ±9.6 |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, 64QAM, PUSC) | WiMAX | 11.86 | ±9.6 |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols) | WiMAX | 15.24 | ±9.6 |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols) | WiMAX | 14.67 | ±9.6 |

Certificate No: EX-7805_Apr23                  Page 13 of 22

EX3DV4 - SN:7805        April 06, 2023

| UID | Rev | Communication System Name | Group | PAR (dB) | Unc$^E$ $k=2$ |
|---|---|---|---|---|---|
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, QPSK, PUSC, 18 symbols) | WiMAX | 14.49 | ±9.6 |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC) | WiMAX | 14.46 | ±9.6 |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols) | WiMAX | 14.58 | ±9.6 |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols) | WiMAX | 14.57 | ±9.6 |
| 10311 | AAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | LTE-FDD | 6.06 | ±9.6 |
| 10313 | AAA | iDEN 1:3 | iDEN | 10.51 | ±9.6 |
| 10314 | AAA | iDEN 1:6 | iDEN | 13.48 | ±9.6 |
| 10315 | AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle) | WLAN | 1.71 | ±9.6 |
| 10316 | AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ±9.6 |
| 10317 | AAD | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle) | WLAN | 8.36 | ±9.6 |
| 10352 | AAA | Pulse Waveform (200Hz, 10%) | Generic | 10.00 | ±9.6 |
| 10353 | AAA | Pulse Waveform (200Hz, 20%) | Generic | 6.99 | ±9.6 |
| 10354 | AAA | Pulse Waveform (200Hz, 40%) | Generic | 3.98 | ±9.6 |
| 10355 | AAA | Pulse Waveform (200Hz, 60%) | Generic | 2.22 | ±9.6 |
| 10356 | AAA | Pulse Waveform (200Hz, 80%) | Generic | 0.97 | ±9.6 |
| 10387 | AAA | QPSK Waveform, 1 MHz | Generic | 5.10 | ±9.6 |
| 10388 | AAA | QPSK Waveform, 10 MHz | Generic | 5.22 | ±9.6 |
| 10396 | AAA | 64-QAM Waveform, 100 kHz | Generic | 6.27 | ±9.6 |
| 10399 | AAA | 64-QAM Waveform, 40 MHz | Generic | 6.27 | ±9.6 |
| 10400 | AAE | IEEE 802.11ac WiFi (20 MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.37 | ±9.6 |
| 10401 | AAE | IEEE 802.11ac WiFi (40 MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.60 | ±9.6 |
| 10402 | AAE | IEEE 802.11ac WiFi (80 MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.53 | ±9.6 |
| 10403 | AAB | CDMA2000 (1xEV-DO, Rev. 0) | CDMA2000 | 3.76 | ±9.6 |
| 10404 | AAB | CDMA2000 (1xEV-DO, Rev. A) | CDMA2000 | 3.77 | ±9.6 |
| 10406 | AAB | CDMA2000, RC3, SO32, SCH0, Full Rate | CDMA2000 | 5.22 | ±9.6 |
| 10410 | AAH | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | LTE-TDD | 7.82 | ±9.6 |
| 10414 | AAA | WLAN CCDF, 64-QAM, 40 MHz | Generic | 8.54 | ±9.6 |
| 10415 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle) | WLAN | 1.54 | ±9.6 |
| 10416 | AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ±9.6 |
| 10417 | AAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle) | WLAN | 8.23 | ±9.6 |
| 10418 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule) | WLAN | 8.14 | ±9.6 |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule) | WLAN | 8.19 | ±9.6 |
| 10422 | AAC | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK) | WLAN | 8.32 | ±9.6 |
| 10423 | AAC | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM) | WLAN | 8.47 | ±9.6 |
| 10424 | AAC | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM) | WLAN | 8.40 | ±9.6 |
| 10425 | AAC | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK) | WLAN | 8.41 | ±9.6 |
| 10426 | AAC | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM) | WLAN | 8.45 | ±9.6 |
| 10427 | AAC | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM) | WLAN | 8.41 | ±9.6 |
| 10430 | AAE | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1) | LTE-FDD | 8.28 | ±9.6 |
| 10431 | AAE | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1) | LTE-FDD | 8.38 | ±9.6 |
| 10432 | AAD | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ±9.6 |
| 10433 | AAD | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1) | LTE-FDD | 8.34 | ±9.6 |
| 10434 | AAB | W-CDMA (BS Test Model 1, 64 DPCH) | WCDMA | 8.60 | ±9.6 |
| 10435 | AAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ±9.6 |
| 10447 | AAE | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.56 | ±9.6 |
| 10448 | AAE | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%) | LTE-FDD | 7.53 | ±9.6 |
| 10449 | AAD | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%) | LTE-FDD | 7.51 | ±9.6 |
| 10450 | AAD | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-FDD | 7.48 | ±9.6 |
| 10451 | AAB | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%) | WCDMA | 7.59 | ±9.6 |
| 10453 | AAE | Validation (Square, 10 ms, 1 ms) | Test | 10.00 | ±9.6 |
| 10456 | AAC | IEEE 802.11ac WiFi (160 MHz, 64-QAM, 99pc duty cycle) | WLAN | 8.63 | ±9.6 |
| 10457 | AAB | UMTS-FDD (DC-HSDPA) | WCDMA | 6.62 | ±9.6 |
| 10458 | AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers) | CDMA2000 | 6.55 | ±9.6 |
| 10459 | AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers) | CDMA2000 | 8.25 | ±9.6 |
| 10460 | AAB | UMTS-FDD (WCDMA, AMR) | WCDMA | 2.39 | ±9.6 |
| 10461 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ±9.6 |
| 10462 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.30 | ±9.6 |
| 10463 | AAC | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ±9.6 |
| 10464 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ±9.6 |
| 10465 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ±9.6 |
| 10466 | AAD | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.57 | ±9.6 |
| 10467 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ±9.6 |
| 10468 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ±9.6 |
| 10469 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.56 | ±9.6 |
| 10470 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 7.82 | ±9.6 |
| 10471 | AAG | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.32 | ±9.6 |