



## SAR EVALUATION REPORT

**Applicant Name:**Apple, Inc.  
One Apple Park Way  
Cupertino, CA 95014**Date of Testing:**

06/27/2019 – 07/18/2019

**Test Site/Location:**

PCTEST Lab, Morgan Hill, CA, USA

**Document Serial No.:**

1C1905130006-01-R1.BCG

**FCC ID:****BCG-A2092****APPLICANT:****APPLE, INC.****DUT Type:**

Watch

**Application Type:**

Certification

**FCC Rule Part(s):**

CFR §2.1093

**Model:**

A2092

| Equipment Class | Band & Mode  | Tx Frequency    | SAR            |                      |
|-----------------|--------------|-----------------|----------------|----------------------|
|                 |              |                 | 1g Head (W/kg) | 10g Extremity (W/kg) |
| DTS             | 2.4 GHz WLAN | 2412 - 2472 MHz | 0.31           | <0.1                 |
| DSS/DTS         | Bluetooth    | 2402 - 2480 MHz | 0.17           | <0.1                 |

Note: This revised Test Report (S/N: 1C1905130006-01-R1.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This watch has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.7 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

  
Randy Ortanez  
President

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|                                         |                                                                                     |                              |                                        |
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|                                                |                                                                                                                  |                                        |
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# 1 DEVICE UNDER TEST

## 1.1 Device Overview

| Band & Mode  | Operating Modes | Tx Frequency    |
|--------------|-----------------|-----------------|
| 2.4 GHz WLAN | Data            | 2412 - 2472 MHz |
| Bluetooth    | Data            | 2402 - 2480 MHz |
| NFC          | Data            | 13.56 MHz       |

This device does not support network based voice services. Head SAR was evaluated to address VoIP operations per FCC KDB Publication 447498 D010v06.

## 1.2 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

## 1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

### 1.3.1 Maximum Output Power

Summary Max Conducted Powers – WIFI mode

| Mode / Band            |         | Modulated Average - Single Tx Chain (dBm) |      |        |      |      |      |
|------------------------|---------|-------------------------------------------|------|--------|------|------|------|
| Channel                |         | 1                                         | 2    | 3 - 10 | 11   | 12   | 13   |
| IEEE 802.11b (2.4 GHz) | Maximum | 20.0                                      |      |        |      |      | 18.0 |
| IEEE 802.11g (2.4 GHz) | Maximum | 17.5                                      | 18.5 | 19.0   | 17.0 | 14.5 | 6.5  |
| IEEE 802.11n (2.4 GHz) | Maximum | 17.5                                      | 18.5 | 19.0   | 17.0 | 14.5 | 6.5  |

Summary Nominal and Max Conducted Powers – Bluetooth mode

| Mode/Band      |         | Modulated Average (dBm) |
|----------------|---------|-------------------------|
| Bluetooth BDR  | Maximum | 18.0                    |
|                | Nominal | 17.0                    |
| Bluetooth EDR  | Maximum | 13.0                    |
|                | Nominal | 12.0                    |
| Bluetooth LE   | Maximum | 18.0                    |
|                | Nominal | 17.0                    |
| Bluetooth HDR4 | Maximum | 12.5                    |
|                | Nominal | 11.5                    |
| Bluetooth HDR8 | Maximum | 12.0                    |
|                | Nominal | 11.0                    |

|                                         |                                                                                                                  |                    |                                 |
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## 1.4 DUT Antenna Locations

A diagram showing the location of the device antennas can be found in Appendix F.

## 1.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in Appendix F.

## 1.6 Simultaneous Transmission Capabilities

This Device does not support any simultaneous transmission scenarios.

## 1.7 Guidance Applied

- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)

## 1.8 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 9.

## 1.9 Housing Type and Wrist Band Types

Only one housing type, aluminum, is available for this model. The device can also be used with different wrist band accessories. All metallic wrist bands were tested, and the sport band non-metallic wrist band was tested fully for all required exposure conditions. Other non-metallic wrist-bands were checked to be similar or lower in SAR.

|                                         |                                                                                                                  |                    |                                 |
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## 2 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

### 2.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density ( $\rho$ ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 2-1).

**Equation 2-1**  
**SAR Mathematical Equation**

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

**SAR is expressed in units of Watts per Kilogram (W/kg).**

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

where:

- $\sigma$  = conductivity of the tissue-simulating material (S/m)
- $\rho$  = mass density of the tissue-simulating material (kg/m<sup>3</sup>)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

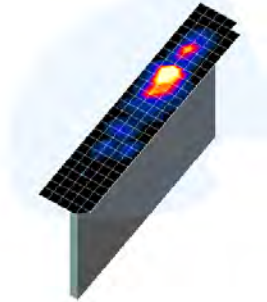
|                                                |                                                                                                                  |                                        |
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## 3 DOSIMETRIC ASSESSMENT

### 3.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 3-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 3-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
  - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 3-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
  - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.



**Figure 3-1**  
**Sample SAR Area**  
**Scan**

**Table 3-1**  
**Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04\***

| Frequency | Maximum Area Scan Resolution (mm)<br>( $\Delta x_{\text{area}}, \Delta y_{\text{area}}$ ) | Maximum Zoom Scan Resolution (mm)<br>( $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$ ) | Maximum Zoom Scan Spatial Resolution (mm) |                             |                                     | Minimum Zoom Scan Volume (mm)<br>(x,y,z) |
|-----------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|-------------------------------------|------------------------------------------|
|           |                                                                                           |                                                                                           | Uniform Grid                              | Graded Grid                 |                                     |                                          |
|           |                                                                                           |                                                                                           |                                           | $\Delta z_{\text{zoom}}(n)$ | $\Delta z_{\text{zoom}}(1)^*$       |                                          |
| ≤2 GHz    | ≤15                                                                                       | ≤8                                                                                        | ≤5                                        | ≤4                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥30                                      |
| 2-3 GHz   | ≤12                                                                                       | ≤5                                                                                        | ≤5                                        | ≤4                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥30                                      |
| 3-4 GHz   | ≤12                                                                                       | ≤5                                                                                        | ≤4                                        | ≤3                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥28                                      |
| 4-5 GHz   | ≤10                                                                                       | ≤4                                                                                        | ≤3                                        | ≤2.5                        | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥25                                      |
| 5-6 GHz   | ≤10                                                                                       | ≤4                                                                                        | ≤2                                        | ≤2                          | ≤1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥22                                      |

\*Also compliant to IEEE 1528-2013 Table 6

|                                         |                                                                                                                  |                    |                                 |
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## 4 TEST CONFIGURATION POSITIONS FOR WRIST-WORN DEVICES

### 4.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ . Additionally, a manufacturer provided low-loss foam was used to position the device for head SAR evaluations.

### 4.2 Positioning for Head

Devices that are designed to be worn on the wrist may operate in speaker mode for voice communication, with the device worn on the wrist and positioned next to the mouth. When next-to-mouth SAR evaluation is required, the device is positioned at 10 mm from a flat phantom filled with head tissue-equivalent medium. The device is evaluated with wrist bands strapped together to represent normal use conditions.

### 4.3 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. When extremity SAR evaluation is required, the device is evaluated with the back of the device touching the flat phantom, which is filled with body tissue-equivalent medium. The device was evaluated with Sport wrist band unstrapped and touching the phantom. For Metal Loop and Metal Links wrist bands, the device was evaluated with wrist bands strapped and the distance between wrist bands and the phantom was minimized to represent the spacing created by actual use conditions.

|                                         |                                                                                                           |                    |                                 |
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## 5 RF EXPOSURE LIMITS

### 5.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

### 5.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

**Table 5-1**  
**SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6**

| HUMAN EXPOSURE LIMITS                                               |                                                                           |                                                                   |
|---------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------|
|                                                                     | UNCONTROLLED ENVIRONMENT<br><i>General Population</i><br>(W/kg) or (mW/g) | CONTROLLED ENVIRONMENT<br><i>Occupational</i><br>(W/kg) or (mW/g) |
| <b>Peak Spatial Average SAR</b><br>Head                             | 1.6                                                                       | 8.0                                                               |
| <b>Whole Body SAR</b>                                               | 0.08                                                                      | 0.4                                                               |
| <b>Peak Spatial Average SAR</b><br>Hands, Feet, Ankle, Wrists, etc. | 4.0                                                                       | 20                                                                |

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

|                                         |                                                                                                                  |                    |                                 |
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## 6 FCC MEASUREMENT PROCEDURES

### 6.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

### 6.2 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

#### 6.2.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

#### 6.2.2 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is  $\leq 0.8$  W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is  $> 0.8$  W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is  $> 1.2$  W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is  $> 1.2$  W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

|                                         |                                                                                                           |                    |                                 |
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## 7 RF CONDUCTED POWERS

### 7.1 WLAN Conducted Powers

Table 7-1  
2.4 GHz WLAN Maximum Average RF Power

| 2.4GHz Conducted Power [dBm] |         |                        |         |         |
|------------------------------|---------|------------------------|---------|---------|
| Freq [MHz]                   | Channel | IEEE Transmission Mode |         |         |
|                              |         | 802.11b                | 802.11g | 802.11n |
|                              |         | Average                | Average | Average |
| 2412                         | 1       | 19.95                  | 17.39   | 17.40   |
| 2417                         | 2       | N/A                    | 18.50   | 18.49   |
| 2422                         | 3       | N/A                    | 18.97   | 18.90   |
| 2437                         | 6       | 19.97                  | 18.94   | 18.97   |
| 2457                         | 10      | N/A                    | 19.00   | 19.00   |
| 2462                         | 11      | <b>20.00</b>           | 16.99   | 17.00   |

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.
- The bolded data rate and channel above were tested for SAR.

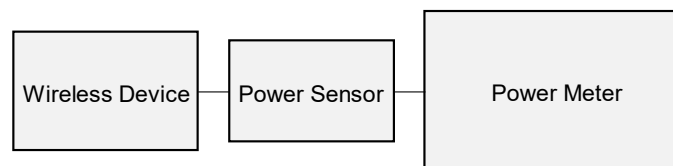


Figure 7-1  
Power Measurement Setup

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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## 7.2 Bluetooth Conducted Powers

Table 7-2  
Bluetooth Average RF Power

| Frequency<br>[MHz] | Modulation | Data Rate<br>[Mbps] | Channel<br>No. | Avg Conducted<br>Power |        |
|--------------------|------------|---------------------|----------------|------------------------|--------|
|                    |            |                     |                | [dBm]                  | [mW]   |
| 2402               | GFSK       | 1.0                 | 0              | <b>16.20</b>           | 41.687 |
| 2441               | GFSK       | 1.0                 | 39             | 16.11                  | 40.832 |
| 2480               | GFSK       | 1.0                 | 78             | 16.00                  | 39.811 |

Notes:

1. The bolded data rates and channel above were tested for SAR.
2. Bluetooth was evaluated with a test mode with 100% transmission duty factor.

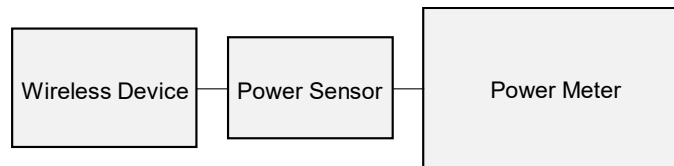


Figure 7-2  
Power Measurement Setup

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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## 8 SYSTEM VERIFICATION

### 8.1 Tissue Verification

**Table 8-1**  
**Measured Tissue Properties**

| Calibrated for Tests Performed on: | Tissue Type | Tissue Temp During Calibration (°C) | Measured Frequency (MHz) | Measured Conductivity, $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | TARGET Conductivity, $\sigma$ (S/m) | TARGET Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
|------------------------------------|-------------|-------------------------------------|--------------------------|---------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|----------------|------------------|
| 6/27/2019                          | 2400H       | 20.9                                | 2400                     | 1.778                                 | 38.709                                   | 1.756                               | 39.289                                 | 1.25%          | -1.48%           |
|                                    |             |                                     | 2450                     | 1.816                                 | 38.640                                   | 1.800                               | 39.200                                 | 0.89%          | -1.43%           |
|                                    |             |                                     | 2500                     | 1.854                                 | 38.550                                   | 1.855                               | 39.136                                 | -0.05%         | -1.50%           |
| 7/18/2019                          | 2400H       | 21.4                                | 2400                     | 1.770                                 | 37.942                                   | 1.756                               | 39.289                                 | 0.80%          | -3.43%           |
|                                    |             |                                     | 2450                     | 1.808                                 | 37.881                                   | 1.800                               | 39.200                                 | 0.44%          | -3.36%           |
|                                    |             |                                     | 2500                     | 1.847                                 | 37.799                                   | 1.855                               | 39.136                                 | -0.43%         | -3.42%           |
| 6/27/2019                          | 2400B       | 21.2                                | 2400                     | 1.982                                 | 52.781                                   | 1.902                               | 52.767                                 | 4.21%          | 0.03%            |
|                                    |             |                                     | 2450                     | 2.032                                 | 52.698                                   | 1.950                               | 52.700                                 | 4.21%          | 0.00%            |
|                                    |             |                                     | 2500                     | 2.076                                 | 52.641                                   | 2.021                               | 52.636                                 | 2.72%          | 0.01%            |
| 7/2/2019                           | 2400B       | 21.6                                | 2400                     | 1.991                                 | 50.564                                   | 1.902                               | 52.767                                 | 4.68%          | -4.17%           |
|                                    |             |                                     | 2450                     | 2.038                                 | 50.496                                   | 1.950                               | 52.700                                 | 4.51%          | -4.18%           |
|                                    |             |                                     | 2500                     | 2.081                                 | 50.413                                   | 2.021                               | 52.636                                 | 2.97%          | -4.22%           |

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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## 8.2 Test System Verification

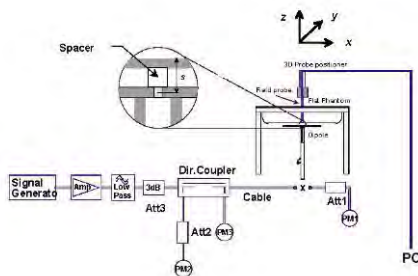
Prior to SAR assessment, the system is verified to  $\pm 10\%$  of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

**Table 8-2**  
**System Verification Results – 1g**

| System Verification<br>TARGET & MEASURED |                        |             |            |                |                  |                 |           |          |                                   |                                     |                                         |                             |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|-----------------------------------|-------------------------------------|-----------------------------------------|-----------------------------|
| SAR System #                             | Tissue Frequency (MHz) | Tissue Type | Date       | Amb. Temp (°C) | Liquid Temp (°C) | Input Power (W) | Source SN | Probe SN | Measured SAR <sub>1g</sub> (W/kg) | 1 W Target SAR <sub>1g</sub> (W/kg) | 1 W Normalized SAR <sub>1g</sub> (W/kg) | Deviation <sub>1g</sub> (%) |
| AM5                                      | 2450                   | HEAD        | 06/27/2019 | 19.9           | 20.5             | 0.100           | 921       | 3318     | 5.570                             | 53.100                              | 55.700                                  | 4.90%                       |
| AM2                                      | 2450                   | HEAD        | 07/18/2019 | 22.1           | 21.4             | 0.100           | 750       | 7490     | 5.330                             | 53.100                              | 53.300                                  | 0.38%                       |

**Table 8-3**  
**System Verification Results – 10g**

| System Verification<br>TARGET & MEASURED |                        |             |            |                |                  |                 |           |          |                                    |                                      |                                          |                              |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|------------------------------------|--------------------------------------|------------------------------------------|------------------------------|
| SAR System #                             | Tissue Frequency (MHz) | Tissue Type | Date       | Amb. Temp (°C) | Liquid Temp (°C) | Input Power (W) | Source SN | Probe SN | Measured SAR <sub>10g</sub> (W/kg) | 1 W Target SAR <sub>10g</sub> (W/kg) | 1 W Normalized SAR <sub>10g</sub> (W/kg) | Deviation <sub>10g</sub> (%) |
| AM4                                      | 2450                   | BODY        | 06/27/2019 | 23.1           | 21.2             | 0.100           | 921       | 7532     | 2.500                              | 23.800                               | 25.000                                   | 5.04%                        |
| AM3                                      | 2450                   | BODY        | 07/02/2019 | 23.1           | 21.6             | 0.100           | 921       | 7420     | 2.510                              | 23.800                               | 25.100                                   | 5.46%                        |



**Figure 8-1**  
**System Verification Setup Diagram**



**Figure 8-2**  
**System Verification Setup Photo**

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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## 9 SAR DATA SUMMARY

### 9.1 Standalone Head SAR Data

**Table 9-1**  
**2.4 GHz WLAN Head SAR Data**

| MEASUREMENT RESULTS                                                                               |     |         |         |                 |                             |                       |                  |                                                 |              |                 |                      |                  |       |                |          |                        |                             |                   |        |
|---------------------------------------------------------------------------------------------------|-----|---------|---------|-----------------|-----------------------------|-----------------------|------------------|-------------------------------------------------|--------------|-----------------|----------------------|------------------|-------|----------------|----------|------------------------|-----------------------------|-------------------|--------|
| FREQUENCY                                                                                         |     | Mode    | Service | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                         | Housing Type | Wrist Band Type | Device Serial Number | Data Rate (Mbps) | Side  | Duty Cycle (%) | SAR (1g) | Scaling Factor (Power) | Scaling Factor (Duty Cycle) | Reported SAR (1g) | Plot # |
| MHz                                                                                               | Ch. |         |         |                 |                             |                       |                  |                                                 |              |                 |                      |                  |       |                | (W/kg)   |                        |                             | (W/kg)            |        |
| 2412                                                                                              | 1   | 802.11b | DSSS    | 22              | 20.0                        | 19.95                 | 0.15             | 10 mm                                           | Aluminum     | Sport           | D92YT009MW5V         | 1                | front | 100.0          | 0.238    | 1.012                  | 1.000                       | 0.241             |        |
| 2437                                                                                              | 6   | 802.11b | DSSS    | 22              | 20.0                        | 19.97                 | 0.18             | 10 mm                                           | Aluminum     | Sport           | D92YT009MW5V         | 1                | front | 100.0          | 0.271    | 1.007                  | 1.000                       | 0.273             |        |
| 2462                                                                                              | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | 0.20             | 10 mm                                           | Aluminum     | Sport           | D92YT00AMW5V         | 1                | front | 100.0          | 0.306    | 1.000                  | 1.000                       | 0.306             | A1     |
| 2462                                                                                              | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | 0.20             | 10 mm                                           | Aluminum     | Metal Links     | D92YT00AMW5V         | 1                | front | 100.0          | 0.195    | 1.000                  | 1.000                       | 0.195             |        |
| 2462                                                                                              | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | -0.10            | 10 mm                                           | Aluminum     | Metal Loop      | D92YT00AMW5V         | 1                | front | 100.0          | 0.209    | 1.000                  | 1.000                       | 0.209             |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |         |         |                 |                             |                       |                  | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |              |                 |                      |                  |       |                |          |                        |                             |                   |        |

**Table 9-2**  
**Bluetooth Head SAR Data**

| MEASUREMENT RESULTS                                                                               |     |           |         |                             |                       |                  |                                                 |              |                 |                      |                  |       |                |          |                             |                             |                   |        |  |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|------------------|-------------------------------------------------|--------------|-----------------|----------------------|------------------|-------|----------------|----------|-----------------------------|-----------------------------|-------------------|--------|--|
| FREQUENCY                                                                                         |     | Mode      | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                         | Housing Type | Wrist Band Type | Device Serial Number | Data Rate [Mbps] | Side  | Duty Cycle (%) | SAR (1g) | Scaling Factor (Cond Power) | Scaling Factor (Duty Cycle) | Reported SAR (1g) | Plot # |  |
| MHz                                                                                               | Ch. |           |         |                             |                       |                  |                                                 |              |                 |                      |                  |       |                | (W/kg)   |                             |                             | (W/kg)            |        |  |
| 2402.00                                                                                           | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | -0.02            | 10 mm                                           | Aluminum     | Sport           | D92YT00AMW/5V        | 1                | front | 100            | 0.085    | 1.514                       | 1:1                         | 0.129             |        |  |
| 2441.00                                                                                           | 39  | Bluetooth | FHSS    | 18.0                        | 16.11                 | -0.01            | 10 mm                                           | Aluminum     | Sport           | D92YT00AMW/5V        | 1                | front | 100            | 0.088    | 1.545                       | 1:1                         | 0.136             |        |  |
| 2480.00                                                                                           | 78  | Bluetooth | FHSS    | 18.0                        | 16.00                 | 0.07             | 10 mm                                           | Aluminum     | Sport           | D92YT00AMW/5V        | 1                | front | 100            | 0.110    | 1.585                       | 1:1                         | 0.174             | A2     |  |
| 2402.00                                                                                           | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | 0.09             | 10 mm                                           | Aluminum     | Metal Links     | D92YT00AMW/5V        | 1                | front | 100            | 0.050    | 1.514                       | 1:1                         | 0.076             |        |  |
| 2402.00                                                                                           | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | -0.02            | 10 mm                                           | Aluminum     | Metal Loop      | D92YT00AMW/5V        | 1                | front | 100            | 0.058    | 1.514                       | 1:1                         | 0.088             |        |  |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |           |         |                             |                       |                  | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |              |                 |                      |                  |       |                |          |                             |                             |                   |        |  |

### 9.2 Standalone Extremity SAR Data

**Table 9-3**  
**2.4 GHz WLAN Extremity SAR Data**

| MEASUREMENT RESULTS                      |     |         |         |                 |                             |                       |                  |                        |              |                 |                      |                  |      |                |                        |                             |           |                    |        |  |
|------------------------------------------|-----|---------|---------|-----------------|-----------------------------|-----------------------|------------------|------------------------|--------------|-----------------|----------------------|------------------|------|----------------|------------------------|-----------------------------|-----------|--------------------|--------|--|
| FREQUENCY                                |     | Mode    | Service | Bandwidth [MHz] | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                | Housing Type | Wrist Band Type | Device Serial Number | Data Rate (Mbps) | Side | Duty Cycle (%) | Scaling Factor (Power) | Scaling Factor (Duty Cycle) | SAR (10g) | Reported SAR (10g) | Plot # |  |
| MHz                                      | Ch. |         |         |                 |                             |                       |                  |                        |              |                 |                      |                  |      |                |                        |                             | (W/kg)    | (W/kg)             |        |  |
| 2412                                     | 1   | 802.11b | DSSS    | 22              | 20.0                        | 19.95                 | -0.06            | 0 mm                   | Aluminum     | Sport           | D92YT009MW5V         | 1                | back | 100.0          | 1.012                  | 1.000                       | 0.052     | 0.053              |        |  |
| 2437                                     | 6   | 802.11b | DSSS    | 22              | 20.0                        | 19.97                 | 0.02             | 0 mm                   | Aluminum     | Sport           | D92YT009MW5V         | 1                | back | 100.0          | 1.007                  | 1.000                       | 0.051     | 0.051              |        |  |
| 2462                                     | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | 0.05             | 0 mm                   | Aluminum     | Sport           | D92YT00AMW5V         | 1                | back | 100.0          | 1.000                  | 1.000                       | 0.073     | 0.073              | A3     |  |
| 2462                                     | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | 0.15             | 0 mm                   | Aluminum     | Metal Links     | D92YT00AMW5V         | 1                | back | 100.0          | 1.000                  | 1.000                       | 0.063     | 0.063              |        |  |
| 2462                                     | 11  | 802.11b | DSSS    | 22              | 20.0                        | 20.00                 | -0.18            | 0 mm                   | Aluminum     | Metal Loop      | D92YT00AMW5V         | 1                | back | 100.0          | 1.000                  | 1.000                       | 0.054     | 0.054              |        |  |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |     |         |         |                 |                             |                       |                  | Extremity              |              |                 |                      |                  |      |                |                        |                             |           |                    |        |  |
| Spatial Peak                             |     |         |         |                 |                             |                       |                  | 4.0 W/kg (mW/g)        |              |                 |                      |                  |      |                |                        |                             |           |                    |        |  |
| Uncontrolled Exposure/General Population |     |         |         |                 |                             |                       |                  | averaged over 10 grams |              |                 |                      |                  |      |                |                        |                             |           |                    |        |  |

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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**Table 9-4**  
**Bluetooth Extremity SAR Data**

| MEASUREMENT RESULTS                                                                               |     |           |         |                             |                       |                  |                                                        |              |                 |                      |                  |      |                |                             |                             |           |                    |        |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|------------------|--------------------------------------------------------|--------------|-----------------|----------------------|------------------|------|----------------|-----------------------------|-----------------------------|-----------|--------------------|--------|
| FREQUENCY                                                                                         |     | Mode      | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                                | Housing Type | Wrist Band Type | Device Serial Number | Data Rate (Mbps) | Side | Duty Cycle (%) | Scaling Factor (Cond Power) | Scaling Factor (Duty Cycle) | SAR (10g) | Reported SAR (10g) | Plot # |
| MHz                                                                                               | Ch. |           |         |                             |                       |                  |                                                        |              |                 |                      |                  |      |                |                             |                             | (W/kg)    | (W/kg)             |        |
| 2402                                                                                              | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | -0.10            | 0 mm                                                   | Aluminum     | Sport           | D92YT00AMW5V         | 1                | back | 100            | 1.514                       | 1:1                         | 0.020     | 0.030              | A4     |
| 2441                                                                                              | 39  | Bluetooth | FHSS    | 18.0                        | 16.11                 | 0.03             | 0 mm                                                   | Aluminum     | Sport           | D92YT00AMW5V         | 1                | back | 100            | 1.545                       | 1:1                         | 0.018     | 0.028              |        |
| 2480                                                                                              | 78  | Bluetooth | FHSS    | 18.0                        | 16.00                 | 0.08             | 0 mm                                                   | Aluminum     | Sport           | D92YT00AMW5V         | 1                | back | 100            | 1.585                       | 1:1                         | 0.018     | 0.029              |        |
| 2402                                                                                              | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | -0.06            | 0 mm                                                   | Aluminum     | Metal Links     | D92YT00AMW5V         | 1                | back | 100            | 1.514                       | 1:1                         | 0.015     | 0.023              |        |
| 2402                                                                                              | 0   | Bluetooth | FHSS    | 18.0                        | 16.20                 | 0.07             | 0 mm                                                   | Aluminum     | Metal Loop      | D92YT00AMW5V         | 1                | back | 100            | 1.514                       | 1:1                         | 0.017     | 0.026              |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |           |         |                             |                       |                  | Extremity<br>4.0 W/kg (mW/g)<br>averaged over 10 grams |              |                 |                      |                  |      |                |                             |                             |           |                    |        |

### 9.3 SAR Test Notes

#### General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Per FCC KDB Publication 865664 D01v01r04, variability SAR tests were not required since measured SAR results for all frequency bands were less than 0.8 W/kg for 1g SAR and 2.0 W/kg for 10g SAR.
7. Only one housing type, aluminum, is available for this model. The non-metallic wrist band, sport band, was evaluated for all exposure conditions. The available metallic wrist accessories, metal links band and metal loop band, were additionally evaluated.
8. This device is a portable wrist-worn device and does not support any other use conditions. Therefore the procedures in FCC KDB Publication 447498 D01v06 Section 6.2 have been applied for extremity and next to mouth (head) conditions.

#### WLAN Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 6.2.2 for more information.
2. When the maximum reported 1g averaged SAR is  $\leq 0.8$  W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was  $\leq 1.20$  W/kg for 1g evaluations or all test channels were measured.
3. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8 MHz, VBW = 50 MHz, and detector = peak per guidance of Section 6.0 b) of ANSI C63. 10-2013 and KDB 558074 D01 v04. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100.

#### Bluetooth Notes

1. To determine compliance, Bluetooth SAR was measured with maximum power condition. Bluetooth was evaluated with a test mode with 100% transmission duty factor.

|                                         |                                                                                                                                   |                              |                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
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## 10 SAR MEASUREMENT VARIABILITY

### 10.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability was not assessed for each frequency band since all measured SAR values are < 0.80 W/kg for 1g SAR and < 2.0 W/kg for 10g SAR.

### 10.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

|                                         |                                                                                                           |                    |                                 |
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# 11 EQUIPMENT LIST

| Manufacturer       | Model     | Description                       | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|--------------------|-----------|-----------------------------------|------------|--------------|------------|---------------|
| Agilent            | 8753ES    | S-Parameter Network Analyzer      | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent            | 8753ES    | Network Analyzer                  | 3/19/2019  | Annual       | 3/19/2020  | MY40001472    |
| Agilent            | E4440A    | PSA Series Spectrum Analyzer      | 11/14/2018 | Annual       | 11/14/2019 | MY46186272    |
| Agilent            | N5182A    | MXG Vector Signal Generator       | 6/27/2019  | Annual       | 6/27/2020  | US46240505    |
| Amplifier Research | 150A100C  | Amplifier                         | CBT        | N/A          | CBT        | 350132        |
| Amplifier Research | 15S1G6    | Amplifier                         | CBT        | N/A          | CBT        | 343972        |
| Amplifier Research | 15S1G6    | Amplifier                         | CBT        | N/A          | CBT        | 343971        |
| Anritsu            | MA24106A  | USB Power Sensor                  | 5/6/2019   | Annual       | 5/6/2020   | 1231538       |
| Anritsu            | MA24106A  | USB Power Sensor                  | 1/31/2019  | Annual       | 1/31/2020  | 1520503       |
| Anritsu            | MA24106A  | USB Power Sensor                  | 1/31/2019  | Annual       | 1/31/2020  | 1520501       |
| Anritsu            | MA2411B   | Pulse Power Sensor                | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu            | MA2411B   | Pulse Power Sensor                | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Anritsu            | ML2495A   | Power Meter                       | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu            | ML2495A   | Power Meter                       | 11/20/2018 | Annual       | 11/20/2019 | 1039008       |
| Anritsu            | ML2496A   | Power Meter                       | 10/21/2018 | Annual       | 10/21/2019 | 1138001       |
| Anritsu            | MT8821C   | Radio Communication Analyzer      | 3/18/2019  | Annual       | 3/18/2020  | 6201144419    |
| Control Company    | 4040      | Temperature / Humidity Monitor    | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company    | 4352      | Ultra Long Stem Thermometer       | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Control Company    | 4352      | Ultra Long Stem Thermometer       | 2/28/2018  | Biennial     | 2/28/2020  | 170330158     |
| MCL                | BW-N6W5+  | 6dB Attenuator                    | CBT        | N/A          | CBT        | 1139          |
| MiniCircuits       | SLP-2400+ | Low Pass Filter                   | CBT        | N/A          | CBT        | R8979500903   |
| Mini-Circuits      | NLP-2950+ | Low Pass Filter DC to 2700 MHz    | CBT        | N/A          | CBT        | N/A           |
| Mitutoyo           | CD-6"CSX  | Digital Caliper                   | 4/18/2018  | Biennial     | 4/18/2020  | 13264165      |
| Narda              | 4772-3    | Attenuator (3dB)                  | CBT        | N/A          | CBT        | 9406          |
| Pasternack         | PE2208-6  | Bidirectional Coupler             | CBT        | N/A          | CBT        | N/A           |
| Pasternack         | PE2209-10 | Bidirectional Coupler             | CBT        | N/A          | CBT        | N/A           |
| Pasternack         | PE5011-1  | Torque Wrench                     | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| Pasternack         | PE5011-1  | Torque Wrench                     | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| Rohde & Schwarz    | CMW500    | Radio Communication Tester        | 4/17/2019  | Annual       | 4/17/2020  | 167285        |
| SPEAG              | D2450V2   | 2450 MHz SAR Dipole               | 11/12/2018 | Annual       | 11/12/2019 | 921           |
| SPEAG              | D2450V2   | 2450 MHz SAR Dipole               | 6/14/2019  | Biennial     | 6/14/2020  | 750           |
| SPEAG              | DAE4      | Dasy Data Acquisition Electronics | 8/14/2018  | Annual       | 8/14/2019  | 1408          |
| SPEAG              | DAE4      | Dasy Data Acquisition Electronics | 11/12/2018 | Annual       | 11/12/2019 | 1449          |
| SPEAG              | DAE4      | Dasy Data Acquisition Electronics | 4/17/2019  | Annual       | 4/17/2020  | 501           |
| SPEAG              | DAE4      | Data Acquisition Electronics      | 1/15/2019  | Annual       | 1/15/2020  | 1532          |
| SPEAG              | ES3DV3    | SAR Probe                         | 11/19/2018 | Annual       | 11/19/2019 | 3318          |
| SPEAG              | EX3DV4    | SAR Probe                         | 9/18/2018  | Annual       | 9/18/2019  | 7420          |
| SPEAG              | EX3DV4    | SAR Probe                         | 1/24/2019  | Annual       | 1/24/2020  | 7490          |
| SPEAG              | EX3DV4    | SAR Probe                         | 4/12/2019  | Annual       | 4/12/2020  | 7532          |

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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## 12 MEASUREMENT UNCERTAINTIES

| a                                                                             | c             | d              | e=<br>f(d,k) | f                     | g                        | h =<br>c x f/e                 | i =<br>c x g/e                   | k              |
|-------------------------------------------------------------------------------|---------------|----------------|--------------|-----------------------|--------------------------|--------------------------------|----------------------------------|----------------|
| Uncertainty Component                                                         | Tol.<br>(± %) | Prob.<br>Dist. | Div.         | c <sub>i</sub><br>1gm | c <sub>i</sub><br>10 gms | 1gm<br>u <sub>i</sub><br>(± %) | 10gms<br>u <sub>i</sub><br>(± %) | v <sub>i</sub> |
| <b>Measurement System</b>                                                     |               |                |              |                       |                          |                                |                                  |                |
| Probe Calibration                                                             | 6.55          | N              | 1            | 1.0                   | 1.0                      | 6.6                            | 6.6                              | ∞              |
| Axial Isotropy                                                                | 0.25          | N              | 1            | 0.7                   | 0.7                      | 0.2                            | 0.2                              | ∞              |
| Hemishperical Isotropy                                                        | 1.3           | N              | 1            | 0.7                   | 0.7                      | 0.9                            | 0.9                              | ∞              |
| Boundary Effect                                                               | 2.0           | R              | 1.73         | 1.0                   | 1.0                      | 1.2                            | 1.2                              | ∞              |
| Linearity                                                                     | 0.3           | N              | 1            | 1.0                   | 1.0                      | 0.3                            | 0.3                              | ∞              |
| System Detection Limits                                                       | 0.25          | R              | 1.73         | 1.0                   | 1.0                      | 0.1                            | 0.1                              | ∞              |
| Readout Electronics                                                           | 0.3           | N              | 1            | 1.0                   | 1.0                      | 0.3                            | 0.3                              | ∞              |
| Response Time                                                                 | 0.8           | R              | 1.73         | 1.0                   | 1.0                      | 0.5                            | 0.5                              | ∞              |
| Integration Time                                                              | 2.6           | R              | 1.73         | 1.0                   | 1.0                      | 1.5                            | 1.5                              | ∞              |
| RF Ambient Conditions - Noise                                                 | 3.0           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| RF Ambient Conditions - Reflections                                           | 3.0           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| Probe Positioner Mechanical Tolerance                                         | 0.4           | R              | 1.73         | 1.0                   | 1.0                      | 0.2                            | 0.2                              | ∞              |
| Probe Positioning w/ respect to Phantom                                       | 6.7           | R              | 1.73         | 1.0                   | 1.0                      | 3.9                            | 3.9                              | ∞              |
| Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation | 4.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.3                            | 2.3                              | ∞              |
| <b>Test Sample Related</b>                                                    |               |                |              |                       |                          |                                |                                  |                |
| Test Sample Positioning                                                       | 2.7           | N              | 1            | 1.0                   | 1.0                      | 2.7                            | 2.7                              | 35             |
| Device Holder Uncertainty                                                     | 1.67          | N              | 1            | 1.0                   | 1.0                      | 1.7                            | 1.7                              | 5              |
| Output Power Variation - SAR drift measurement                                | 5.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.9                            | 2.9                              | ∞              |
| SAR Scaling                                                                   | 0.0           | R              | 1.73         | 1.0                   | 1.0                      | 0.0                            | 0.0                              | ∞              |
| <b>Phantom &amp; Tissue Parameters</b>                                        |               |                |              |                       |                          |                                |                                  |                |
| Phantom Uncertainty (Shape & Thickness tolerances)                            | 7.6           | R              | 1.73         | 1.0                   | 1.0                      | 4.4                            | 4.4                              | ∞              |
| Liquid Conductivity - measurement uncertainty                                 | 4.2           | N              | 1            | 0.78                  | 0.71                     | 3.3                            | 3.0                              | 10             |
| Liquid Permittivity - measurement uncertainty                                 | 4.1           | N              | 1            | 0.23                  | 0.26                     | 1.0                            | 1.1                              | 10             |
| Liquid Conductivity - Temperature Uncertainty                                 | 3.4           | R              | 1.73         | 0.78                  | 0.71                     | 1.5                            | 1.4                              | ∞              |
| Liquid Permittivity - Temperature Uncertainty                                 | 0.6           | R              | 1.73         | 0.23                  | 0.26                     | 0.1                            | 0.1                              | ∞              |
| Liquid Conductivity - deviation from target values                            | 5.0           | R              | 1.73         | 0.64                  | 0.43                     | 1.8                            | 1.2                              | ∞              |
| Liquid Permittivity - deviation from target values                            | 5.0           | R              | 1.73         | 0.60                  | 0.49                     | 1.7                            | 1.4                              | ∞              |
| <b>Combined Standard Uncertainty (k=1)</b>                                    | RSS           |                |              |                       |                          | 11.5                           | 11.3                             | 60             |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL)                         | k=2           |                |              |                       |                          | 23.0                           | 22.6                             |                |

|                                         |                                                                                                                  |                    |                                 |
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## 13 CONCLUSION

### 13.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

|                                                |                                                                                                                  |                           |                                        |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------|
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|                                         |                                                                                                                  |                    |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|
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|                                                |                                                                                                                  |                           |                                        |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------|
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## APPENDIX A: SAR TEST DATA

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: BCG-A2092; Type: Watch; Serial: D92YT00AMW5V**

Communication System: UID 0, \_IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Head; Medium parameters used (interpolated):

$f = 2462$  MHz;  $\sigma = 1.825$  S/m;  $\epsilon_r = 38.618$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-27-2019; Ambient Temp: 19.9°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3318; ConvF(4.59, 4.59, 4.59) @ 2462 MHz; Calibrated: 11/19/2018

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1408; Calibrated: 8/14/2018

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: IEEE 802.11b, 22 MHz Bandwidth, Head SAR, Ch 11, 1 Mbps,  
Front Side, Aluminum, Sport Wrist Band**

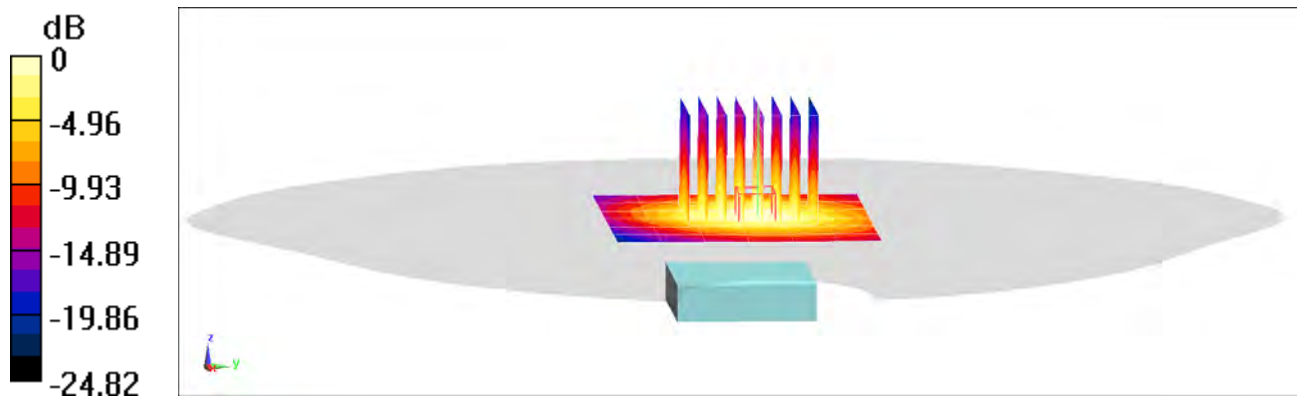
**Area Scan (7x7x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.776 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.533 W/kg

**SAR(1 g) = 0.306 W/kg**



0 dB = 0.378 W/kg = -4.23 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: BCG-A2092; Type: Watch; Serial: D92YT00AMW5V**

Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1

Medium: 2400 MHz Head; Medium parameters used (interpolated):

$f = 2480 \text{ MHz}$ ;  $\sigma = 1.831 \text{ S/m}$ ;  $\epsilon_r = 37.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-18-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7490; ConvF(7.74, 7.74, 7.74) @ 2480 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: Bluetooth, Head SAR, Ch 78, 1 Mbps,  
Front Side, Aluminum, Sport Wrist Band**

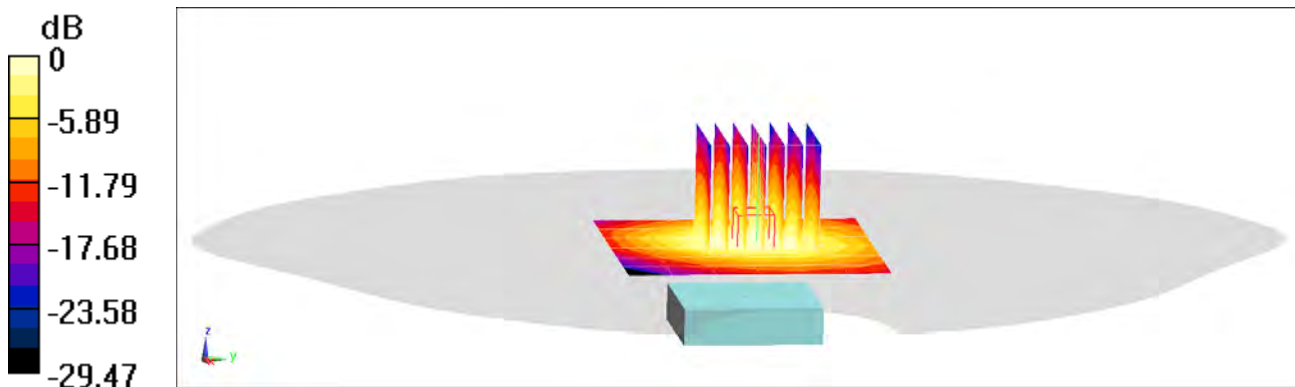
**Area Scan (7x7x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 8.174 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.200 W/kg

**SAR(1 g) = 0.110 W/kg**



0 dB = 0.166 W/kg = -7.80 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: BCG-A2092; Type: Watch; Serial: D92YT00AMW5V**

Communication System: UID 0, \_IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$ ;  $\sigma = 2.043 \text{ S/m}$ ;  $\epsilon_r = 52.684$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-27-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2462 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: IEEE 802.11b, 22 MHz Bandwidth, Extremity SAR, Ch 11, 1 Mbps,  
Back Side, Aluminum, Sport Wrist Band**

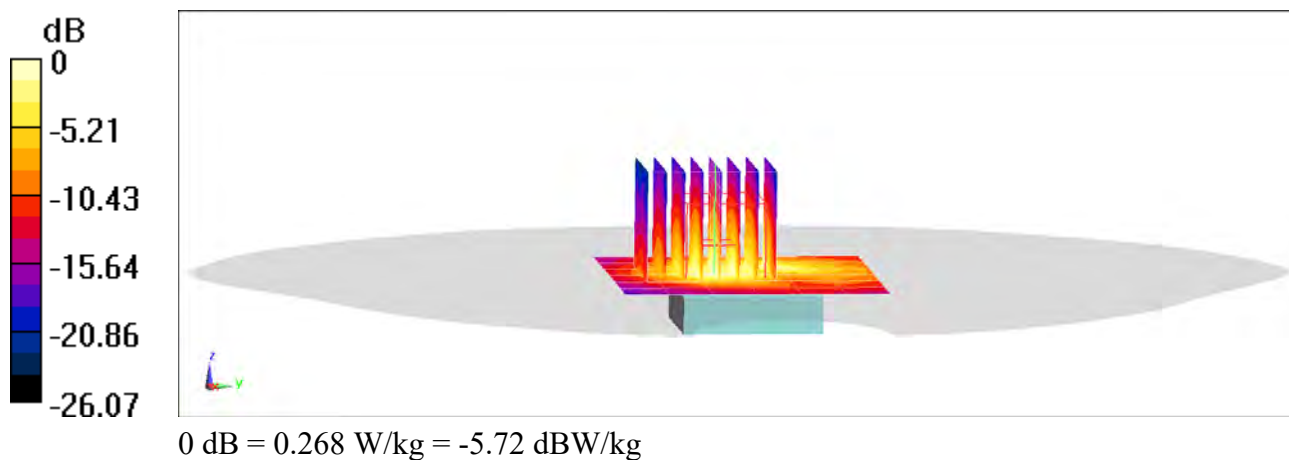
**Area Scan (7x7x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x8x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 2.419 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.342 W/kg

**SAR(10 g) = 0.073 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: BCG-A2092; Type: Watch; Serial: D92YT00AMW5V**

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2402 \text{ MHz}$ ;  $\sigma = 1.993 \text{ S/m}$ ;  $\epsilon_r = 50.561$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 07-02-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7420; ConvF(7.34, 7.34, 7.34) @ 2402 MHz; Calibrated: 9/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1449; Calibrated: 11/12/2018

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1596

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Mode: Bluetooth, Extremity SAR, Ch 0, 1 Mbps,  
Back Side, Aluminum, Sport Wrist Band**

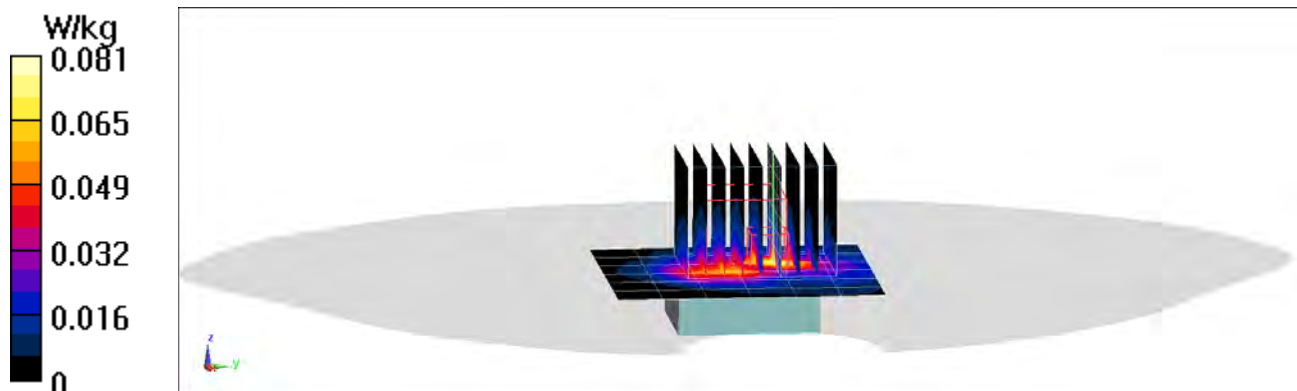
**Area Scan (7x7x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (8x9x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.237 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.105 W/kg

**SAR(10 g) = 0.020 W/kg**



## APPENDIX B: SYSTEM VERIFICATION

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

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

Medium: 2450 MHz Head Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.816 \text{ S/m}$ ;  $\epsilon_r = 38.64$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-27-2019; Ambient Temp: 19.9°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3318; ConvF(4.59, 4.59, 4.59) @ 2450 MHz; Calibrated: 11/19/2018

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1408; Calibrated: 8/14/2018

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

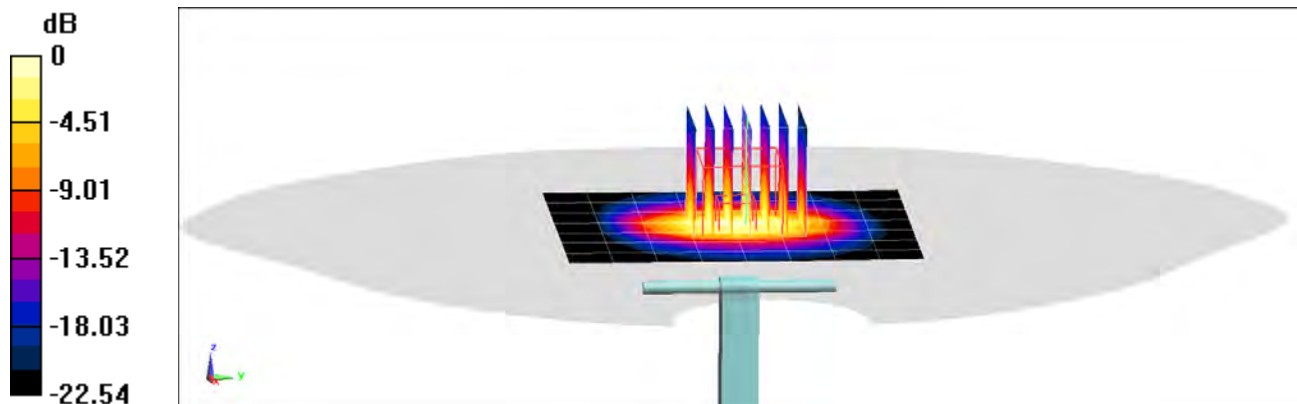
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.5 W/kg

**SAR(1 g) = 5.57 W/kg**

Deviation(1 g) = 4.90%



0 dB = 7.28 W/kg = 8.62 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 750**

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

Medium: 2450 MHz Head Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.808 \text{ S/m}$ ;  $\epsilon_r = 37.881$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-18-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7490; ConvF(7.74, 7.74, 7.74) @ 2450 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

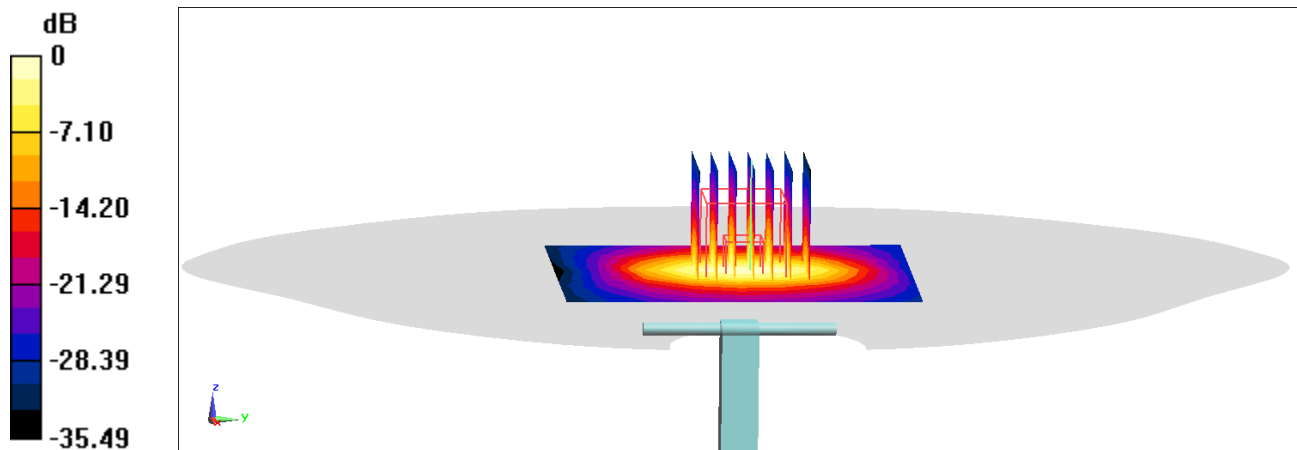
**Area Scan (8x9x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.4 W/kg

**SAR(1 g) = 5.33 W/kg**

Deviation(1 g) = 0.38%



0 dB = 8.88 W/kg = 9.48 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

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

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 2.032 \text{ S/m}$ ;  $\epsilon_r = 52.698$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-27-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2450 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

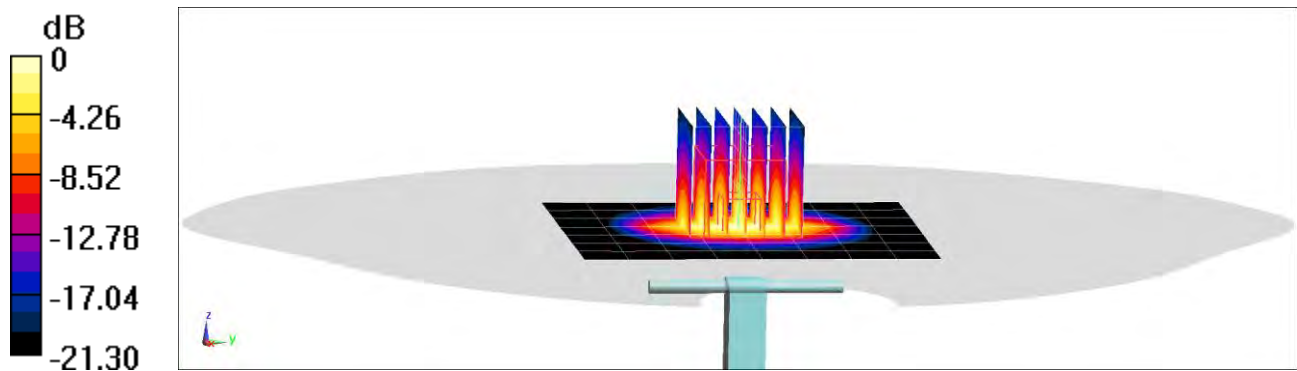
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 10.8 W/kg

**SAR(10 g) = 2.5 W/kg**

Deviation(10 g) = 5.04%



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

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

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 2.038 \text{ S/m}$ ;  $\epsilon_r = 50.496$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-02-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7420; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 9/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1449; Calibrated: 11/12/2018

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1596

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

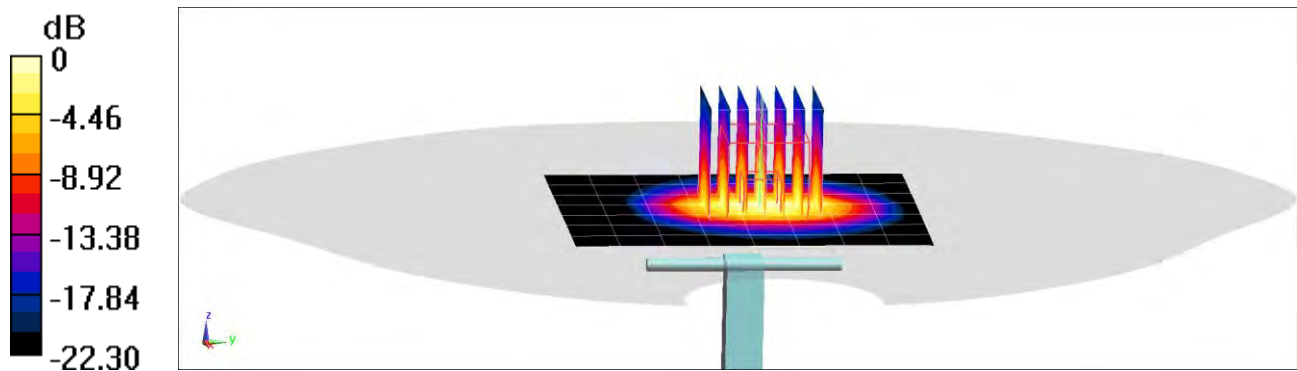
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.5 W/kg

**SAR(10 g) = 2.51 W/kg**

Deviation(10 g) = 5.46%



0 dB = 9.12 W/kg = 9.60 dBW/kg

## APPENDIX C: PROBE CALIBRATION



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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 **PC Test**

Certificate No: **D2450V2-921\_Nov18**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN:921**

Calibration procedure(s) **QA CAL-05.v10  
Calibration procedure for dipole validation kits above 700 MHz**

SC ✓  
12/11/2018

Calibration date: **November 12, 2018**

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 NRP                 | SN: 104778         | 04-Apr-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91            | SN: 103244         | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91            | SN: 103245         | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator      | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| Type-N mismatch combination     | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)         | Apr-19                 |
| Reference Probe EX3DV4          | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)    | Dec-18                 |
| DAE4                            | SN: 601            | 04-Oct-18 (No. DAE4-601_Oct18)    | Oct-19                 |
| Secondary Standards             | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A            | SN: GB37480704     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: US37292783     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: MY41092317     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06         | SN: 100972         | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477     | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

Calibrated by: **Manu Seitz** **Function**  
**Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

**Signature**

Issued: November 12, 2018

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



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**

### 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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. 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.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.2    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 2450 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 39.2                | 1.80 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 37.9 $\pm$ 6 %      | 1.86 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----                | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.6 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>53.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.28 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>24.8 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 52.7                | 1.95 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 51.4 $\pm$ 6 %      | 2.02 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----                | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.0 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>50.8 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.03 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>23.8 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

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

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $54.7 \Omega + 6.5 j\Omega$ |
| Return Loss                          | - 22.3 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.7 \Omega + 7.8 j\Omega$ |
| Return Loss                          | - 22.2 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              |
| Manufactured on | September 26, 2013 |

## DASY5 Validation Report for Head TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:921**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 37.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

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

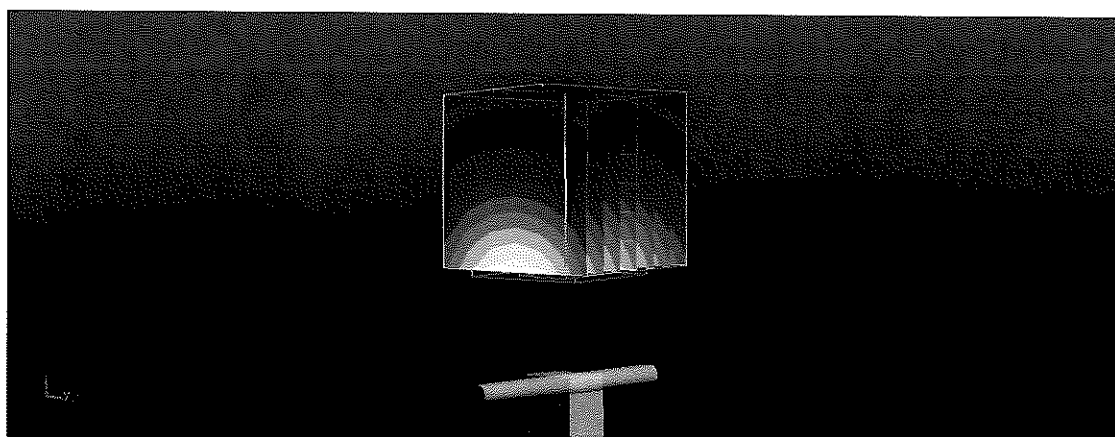
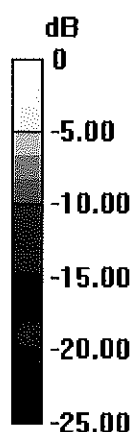
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.7 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 27.4 W/kg

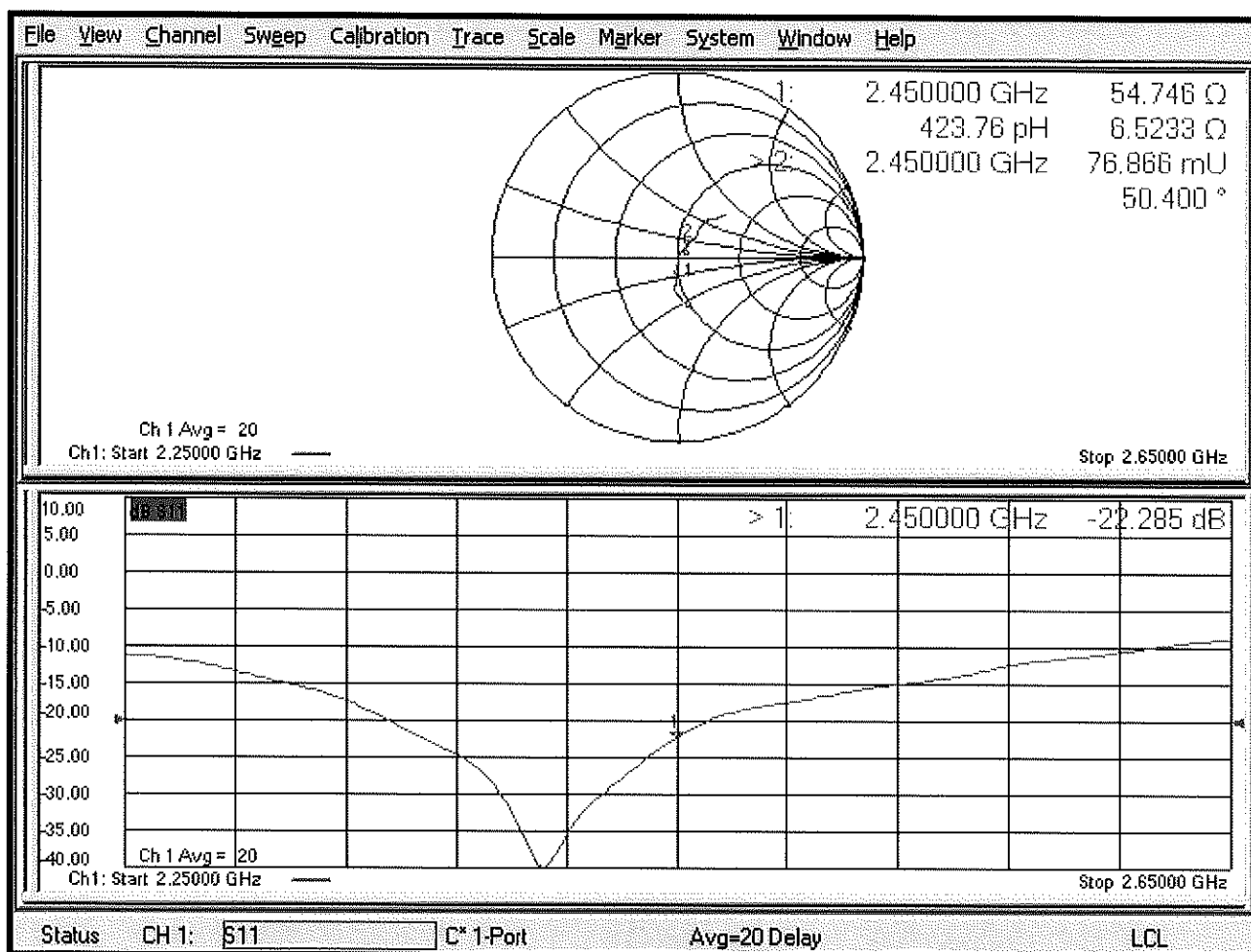
**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.28 W/kg**

Maximum value of SAR (measured) = 22.4 W/kg



0 dB = 22.4 W/kg = 13.50 dBW/kg

## Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:921**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.02$  S/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

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

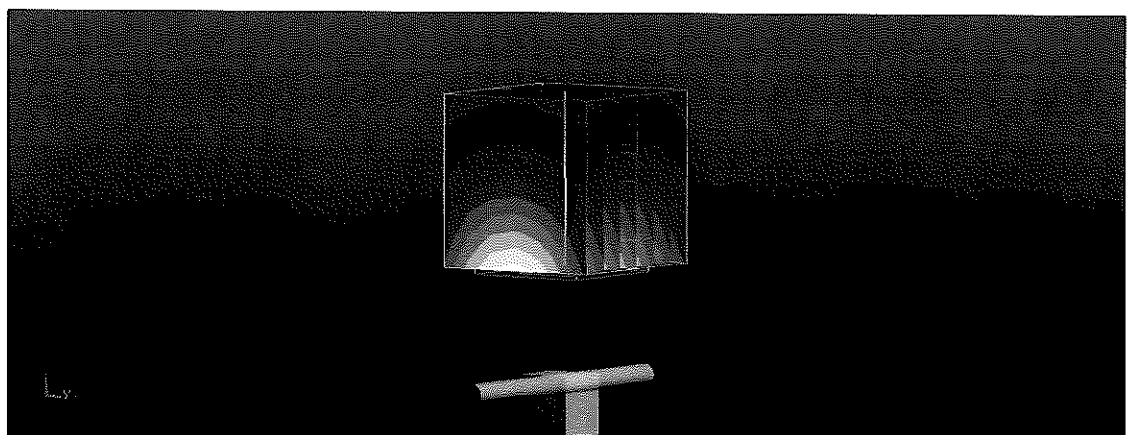
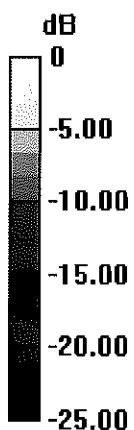
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.6 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.1 W/kg

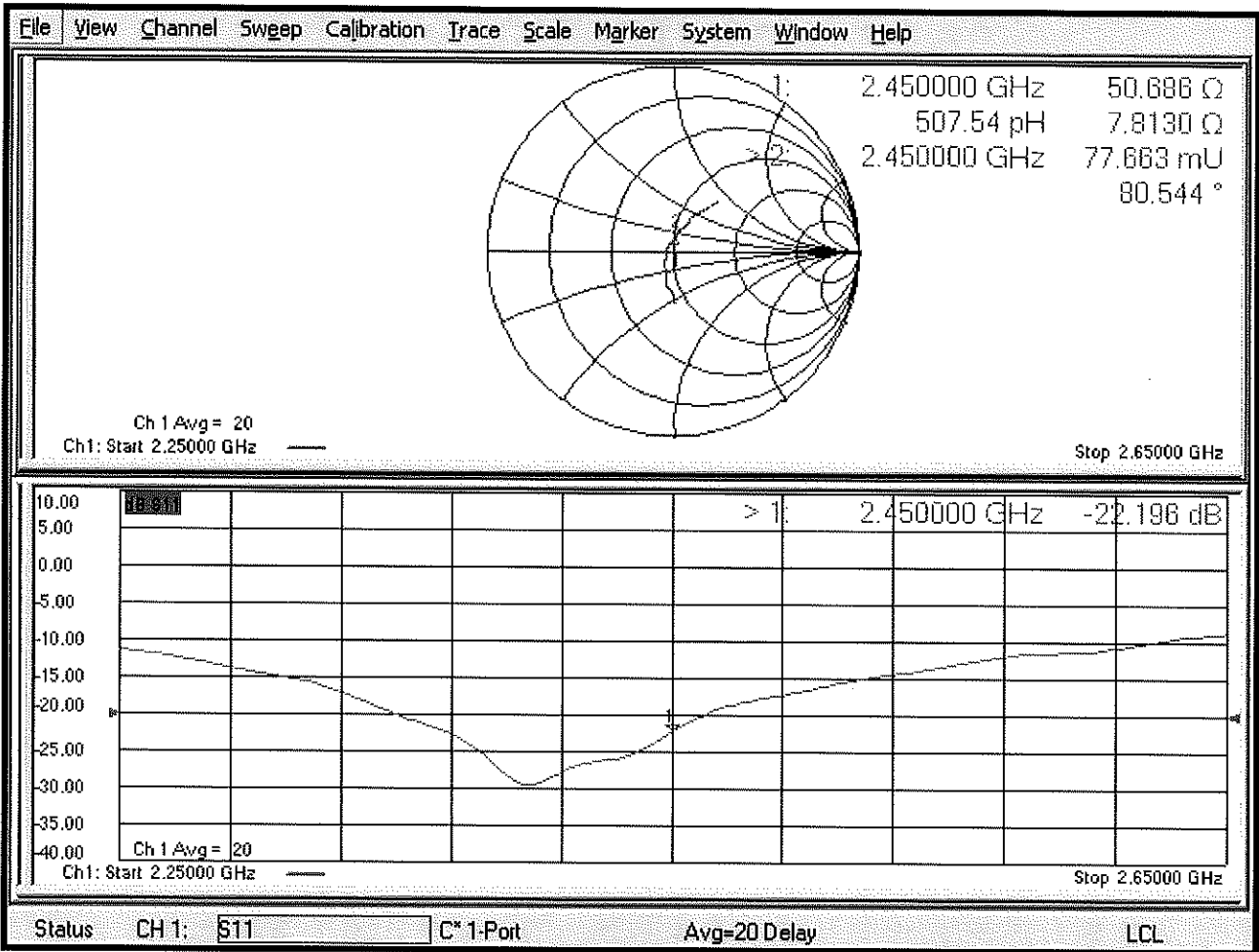
**SAR(1 g) = 13 W/kg; SAR(10 g) = 6.03 W/kg**

Maximum value of SAR (measured) = 21.3 W/kg



0 dB = 21.3 W/kg = 13.28 dBW/kg

Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

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 Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **D2450V2-750\_Jun19**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN:750**

Calibration procedure(s) **QA CAL-05.v11**  
**Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **June 14, 2019**

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  $(22 \pm 3)^{\circ}\text{C}$  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         | 03-Apr-19 (No. 217-02892/02893) | Apr-20                |
| Power sensor NRP-Z91        | SN: 103244         | 03-Apr-19 (No. 217-02892)       | Apr-20                |
| Power sensor NRP-Z91        | SN: 103245         | 03-Apr-19 (No. 217-02893)       | Apr-20                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-19 (No. 217-02894)       | Apr-20                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-19 (No. 217-02895)       | Apr-20                |
| Reference Probe EX3DV4      | SN: 7349           | 29-May-19 (No. EX3-7349_May19)  | May-20                |
| DAE4                        | SN: 601            | 30-Apr-19 (No. DAE4-601_Apr19)  | Apr-20                |

| Secondary Standards             | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------------|----------------|-----------------------------------|------------------------|
| Power meter E4419B              | SN: GB39512475 | 30-Oct-14 (in house check Feb-19) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: US37292783 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: MY41092317 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06         | SN: 100972     | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

|                |                              |                                          |               |
|----------------|------------------------------|------------------------------------------|---------------|
| Calibrated by: | Name<br><b>Michael Weber</b> | Function<br><b>Laboratory Technician</b> | Signature<br> |
| Approved by:   | <b>Katja Pokovic</b>         | <b>Technical Manager</b>                 |               |

Issued: June 20, 2019

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**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:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.2    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 2450 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 39.2           | 1.80 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 37.9 $\pm$ 6 % | 1.86 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.6 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>53.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.34 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>25.0 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 52.7           | 1.95 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 51.0 $\pm$ 6 % | 2.03 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.1 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>51.0 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.12 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>24.1 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

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

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $53.7 \Omega + 3.9 j\Omega$ |
| Return Loss                          | - 25.7 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.3 \Omega + 6.2 j\Omega$ |
| Return Loss                          | - 24.2 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.154 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 |
|-----------------|-------|

## DASY5 Validation Report for Head TSL

Date: 14.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 37.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.9, 7.9, 7.9) @ 2450 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

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

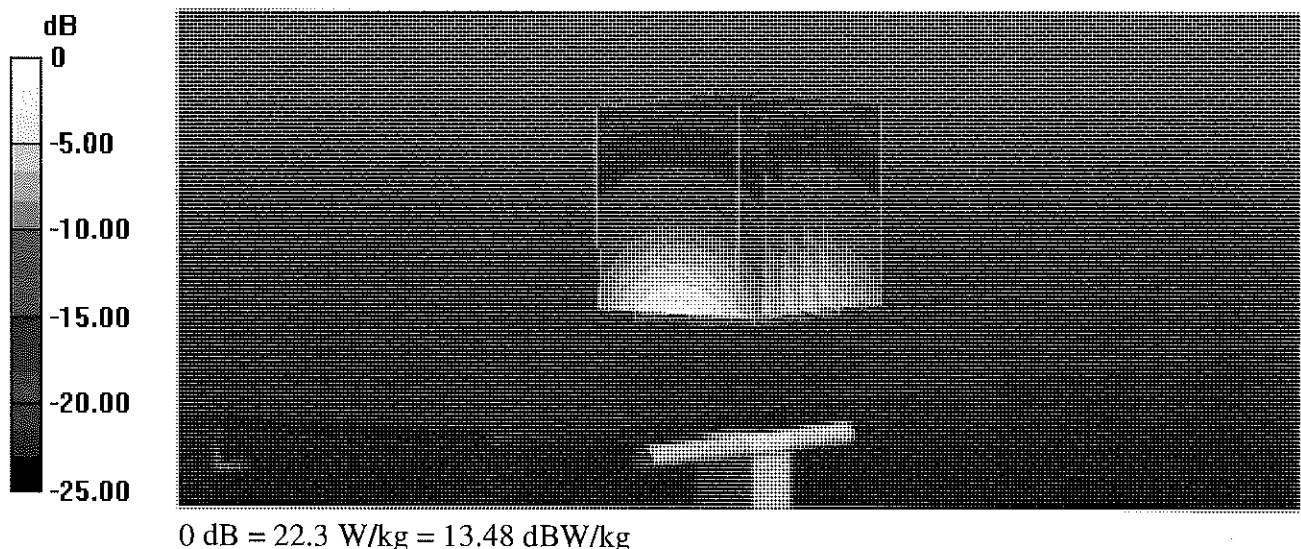
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.9 V/m; Power Drift = -0.02 dB

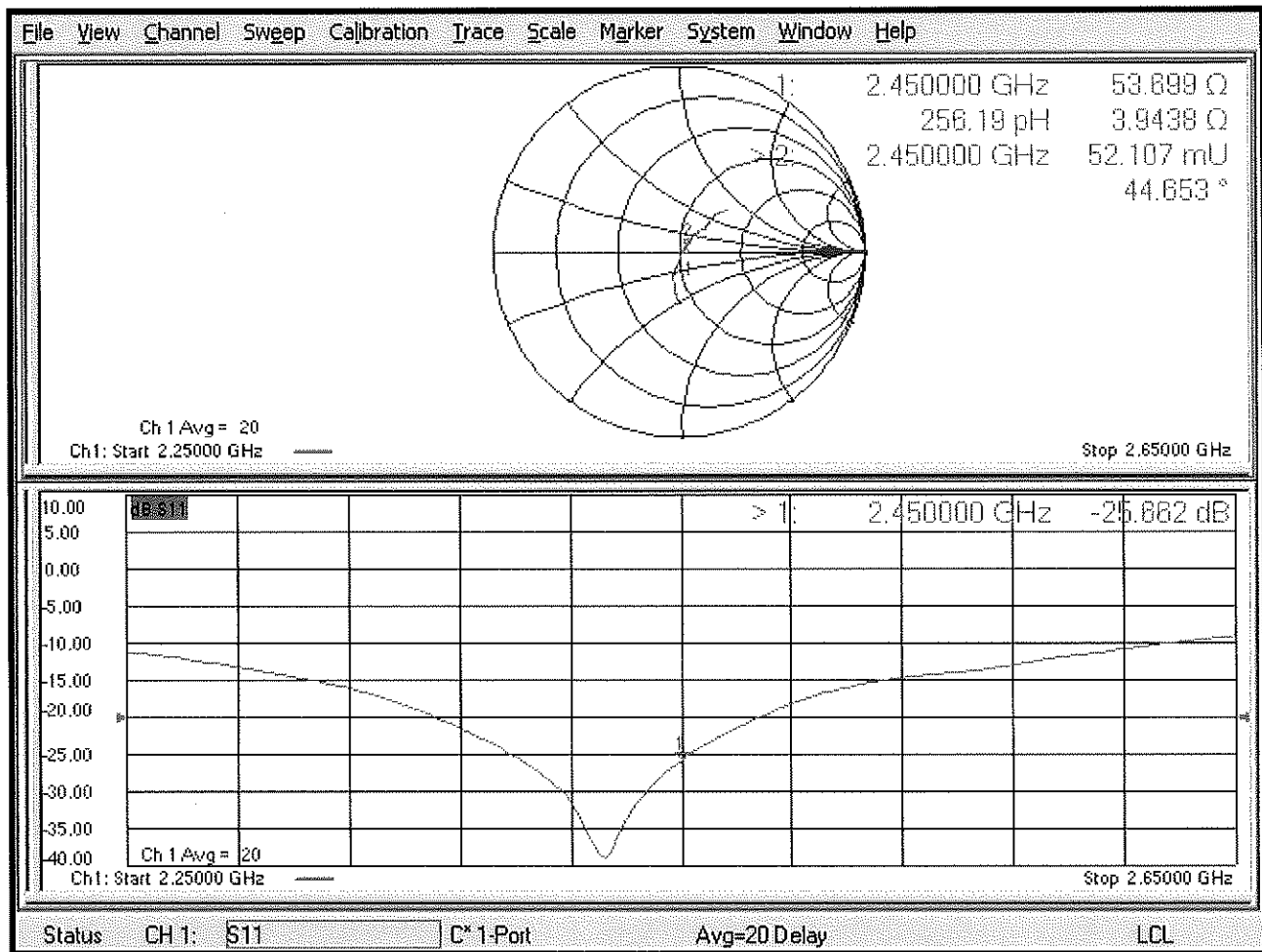
Peak SAR (extrapolated) = 26.7 W/kg

**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.34 W/kg**

Maximum value of SAR (measured) = 22.3 W/kg



## Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 14.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.03$  S/m;  $\epsilon_r = 51$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.94, 7.94, 7.94) @ 2450 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

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

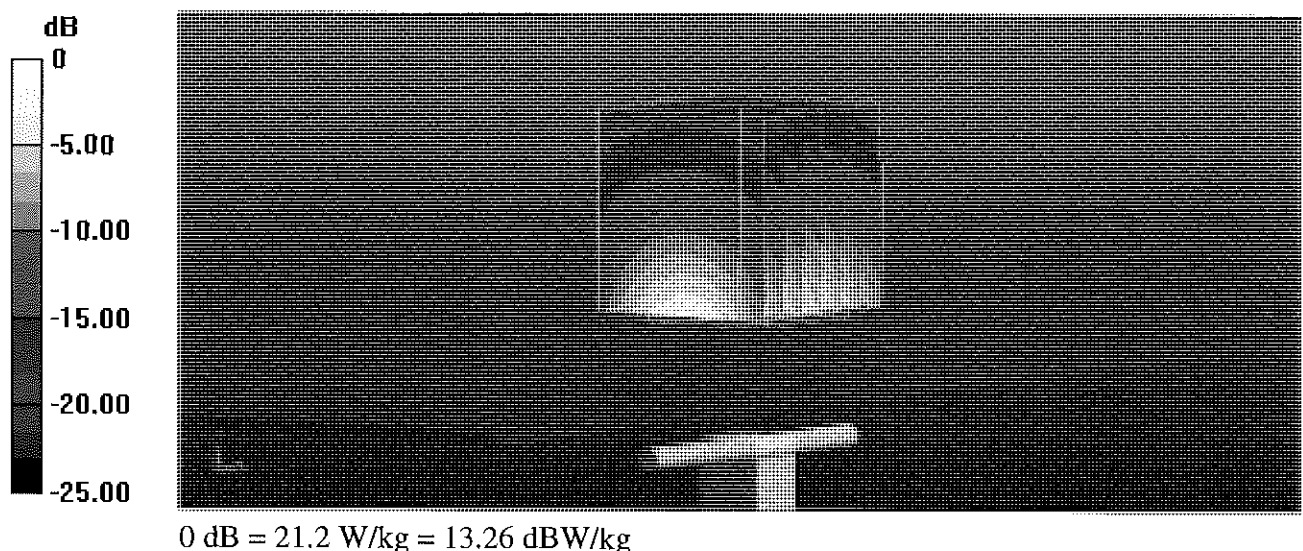
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.6 V/m; Power Drift = -0.06 dB

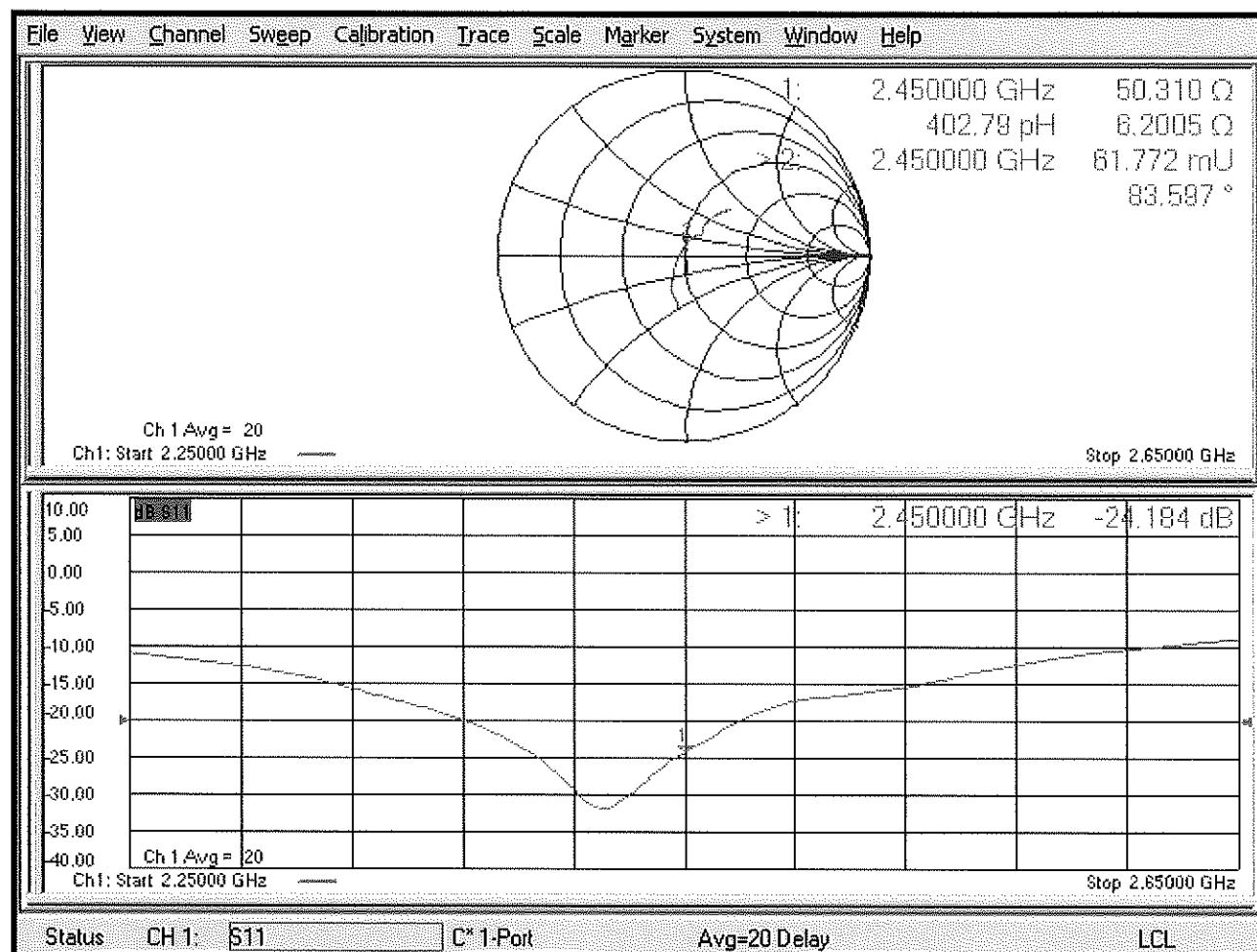
Peak SAR (extrapolated) = 25.9 W/kg

**SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.12 W/kg**

Maximum value of SAR (measured) = 21.2 W/kg



# Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **ES3-3318\_Nov18**

## CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3318**

Calibration procedure(s) **QA CAL 01.V9, QA CAL 23.V5, QA CAL 25.V5**  
 Calibration procedure for dosemeter E-field probes

Calibration date: **November 19, 2018**

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  $(22 \pm 3)^{\circ}\text{C}$  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-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103244       | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103245       | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator | SN: S5277 (20x)  | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| Reference Probe ES3DV2     | SN: 3013         | 30-Dec-17 (No. ES3-3013_Dec17)    | Dec-18                 |
| DAE4                       | SN: 660          | 21-Dec-17 (No. DAE4-660_Dec17)    | Dec-18                 |
| Secondary Standards        | ID               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B         | SN: GB41293874   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: MY41498087   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: 000110210    | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C      | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A    | SN: US41080477   | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

|                                                                                                                 |                               |                                          |                           |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------|---------------------------|
| Calibrated by:                                                                                                  | Name<br><b>Jeton Kastrati</b> | Function<br><b>Laboratory Technician</b> | Signature<br>             |
| Approved by:                                                                                                    | Name<br><b>Katja Pokovic</b>  | Function<br><b>Technical Manager</b>     | Signature<br>             |
|                                                                                                                 |                               |                                          | Issued: November 20, 2018 |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                               |                                          |                           |



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                      | tissue simulating liquid                                                                                                                                |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                               |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                              |
| DCP                      | diode compression point                                                                                                                                 |
| CF                       | crest factor (1/duty_cycle) of the RF signal                                                                                                            |
| A, B, C, D               | modulation dependent linearization parameters                                                                                                           |
| Polarization $\phi$      | $\phi$ rotation around probe axis                                                                                                                       |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center),<br>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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* 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.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; 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 NORM<sub>x,y,z</sub> \* 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  $\pm 50$  MHz to  $\pm 100$  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 NORM<sub>x</sub> (no uncertainty required).

# Probe ES3DV3

## SN:3318

Manufactured: January 10, 2012  
Calibrated: November 19, 2018

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3318

### Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|-----------------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 1.02     | 1.12     | 0.98     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 104.9    | 104.4    | 104.3    |               |

### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB/ $\mu\text{V}$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                    | 1.0 | 0.00    | 194.2    | $\pm 3.5 \%$              |
|     |                           | Y | 0.0     | 0.0                    | 1.0 |         | 175.2    |                           |
|     |                           | Z | 0.0     | 0.0                    | 1.0 |         | 192.9    |                           |

Note: For details on UID parameters see Appendix.

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$\text{V}^{-1}$ | T1<br>$\text{ms} \cdot \text{V}^{-2}$ | T2<br>$\text{ms} \cdot \text{V}^{-1}$ | T3<br>ms | T4<br>$\text{V}^{-2}$ | T5<br>$\text{V}^{-1}$ | T6    |
|---|----------|----------|-----------------------------|---------------------------------------|---------------------------------------|----------|-----------------------|-----------------------|-------|
| X | 41.51    | 291.4    | 34.35                       | 21.91                                 | 0.724                                 | 5.100    | 1.817                 | 0.070                 | 1.010 |
| Y | 42.53    | 303.7    | 35.05                       | 24.14                                 | 0.798                                 | 5.100    | 0.849                 | 0.253                 | 1.009 |
| Z | 42.33    | 295.7    | 33.75                       | 22.26                                 | 0.830                                 | 5.098    | 2.000                 | 0.039                 | 1.011 |

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%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3318

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 41.9                               | 0.89                            | 6.60    | 6.60    | 6.60    | 0.80               | 1.17                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 6.32    | 6.32    | 6.32    | 0.62               | 1.35                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 5.39    | 5.39    | 5.39    | 0.80               | 1.18                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 5.19    | 5.19    | 5.19    | 0.80               | 1.19                    | ± 12.0 %  |
| 2300                 | 39.5                               | 1.67                            | 4.87    | 4.87    | 4.87    | 0.80               | 1.21                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 4.59    | 4.59    | 4.59    | 0.80               | 1.29                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 4.47    | 4.47    | 4.47    | 0.74               | 1.24                    | ± 12.0 %  |

<sup>C</sup> 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. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3318

### Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 55.5                               | 0.96                            | 6.35    | 6.35    | 6.35    | 0.80               | 1.15                    | ± 12.0 %  |
| 835                  | 55.2                               | 0.97                            | 6.21    | 6.21    | 6.21    | 0.80               | 1.17                    | ± 12.0 %  |
| 1750                 | 53.4                               | 1.49                            | 5.05    | 5.05    | 5.05    | 0.39               | 1.79                    | ± 12.0 %  |
| 1900                 | 53.3                               | 1.52                            | 4.79    | 4.79    | 4.79    | 0.48               | 1.65                    | ± 12.0 %  |
| 2300                 | 52.9                               | 1.81                            | 4.65    | 4.65    | 4.65    | 0.80               | 1.27                    | ± 12.0 %  |
| 2450                 | 52.7                               | 1.95                            | 4.49    | 4.49    | 4.49    | 0.80               | 1.08                    | ± 12.0 %  |
| 2600                 | 52.5                               | 2.16                            | 4.32    | 4.32    | 4.32    | 0.80               | 1.10                    | ± 12.0 %  |

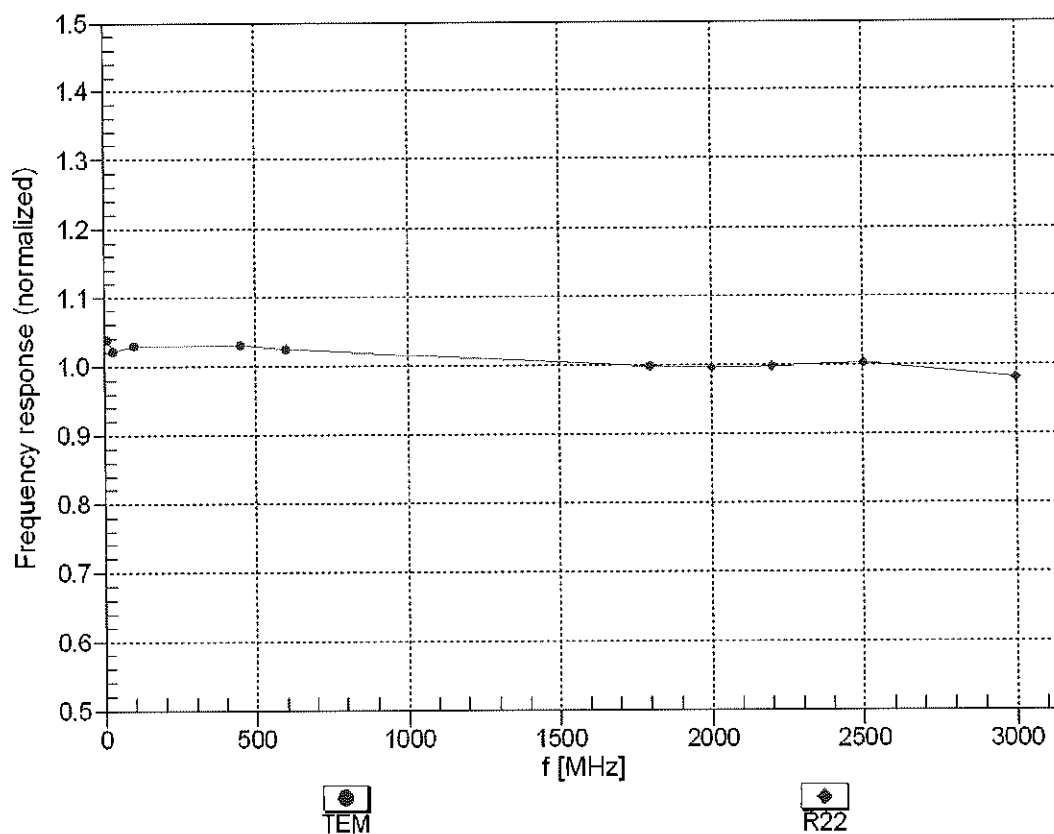
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below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

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## Frequency Response of E-Field

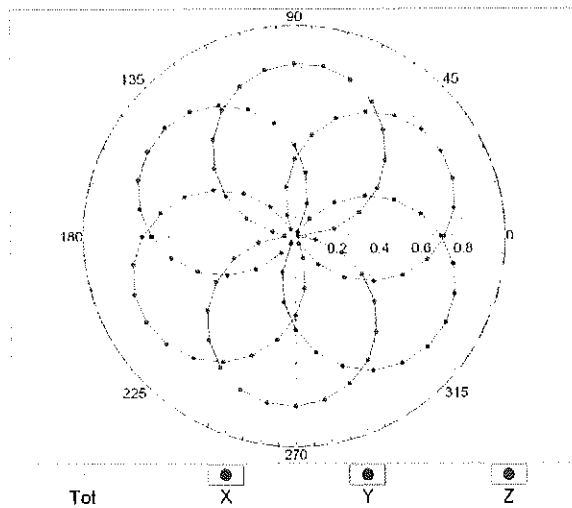
(TEM-Cell:ifi110 EXX, Waveguide: R22)



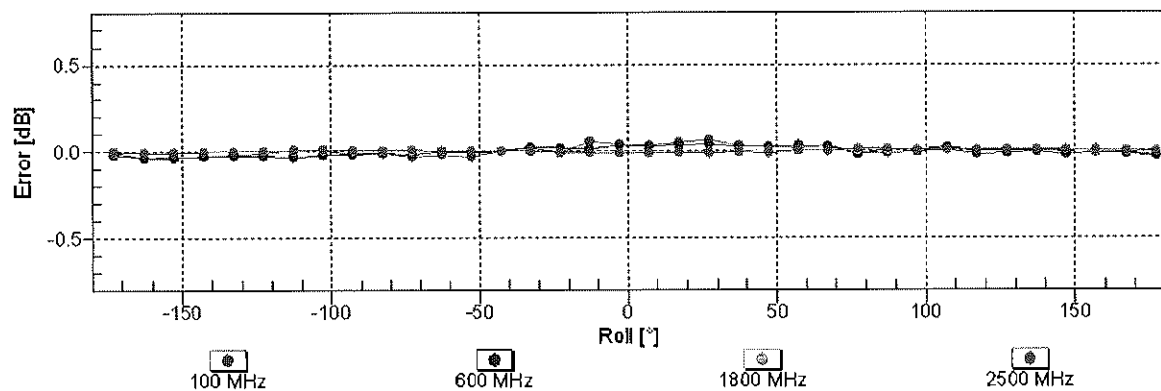
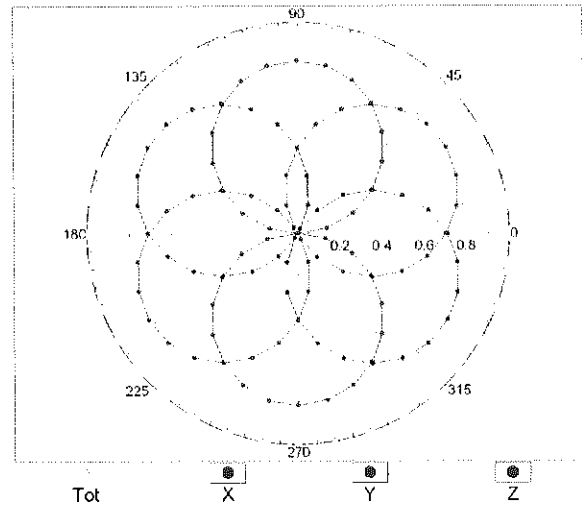
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

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

f=600 MHz,TEM

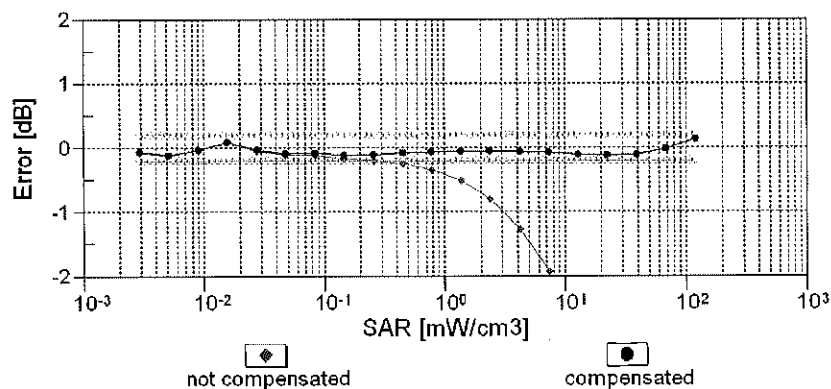
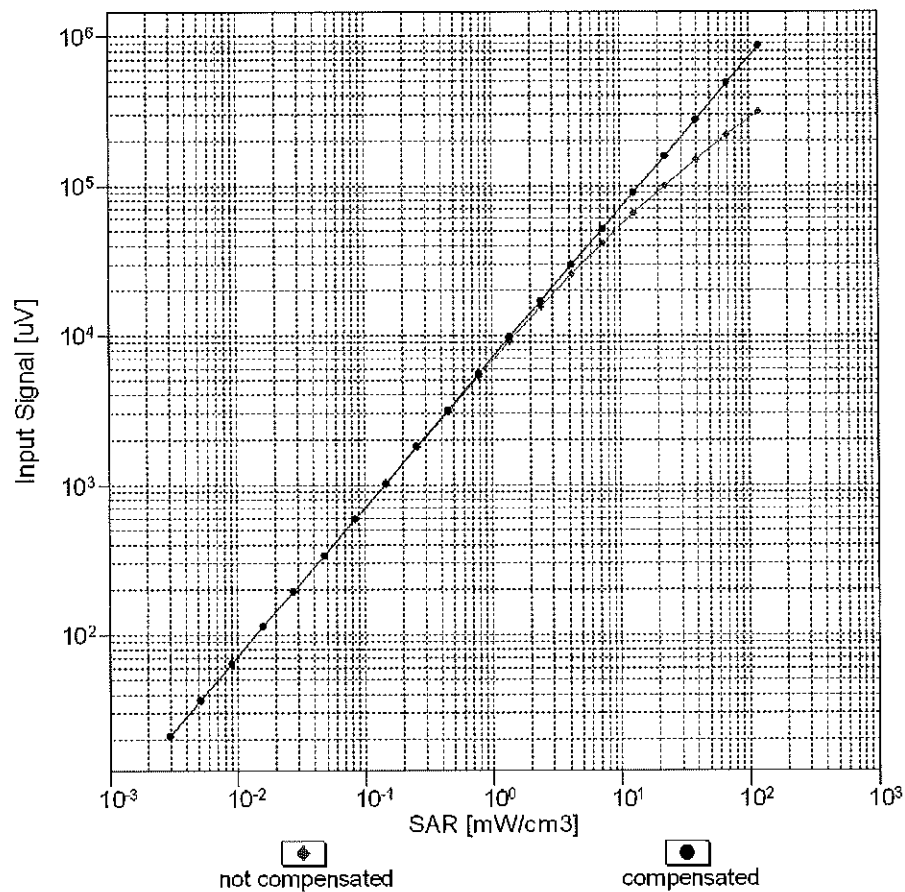


f=1800 MHz,R22



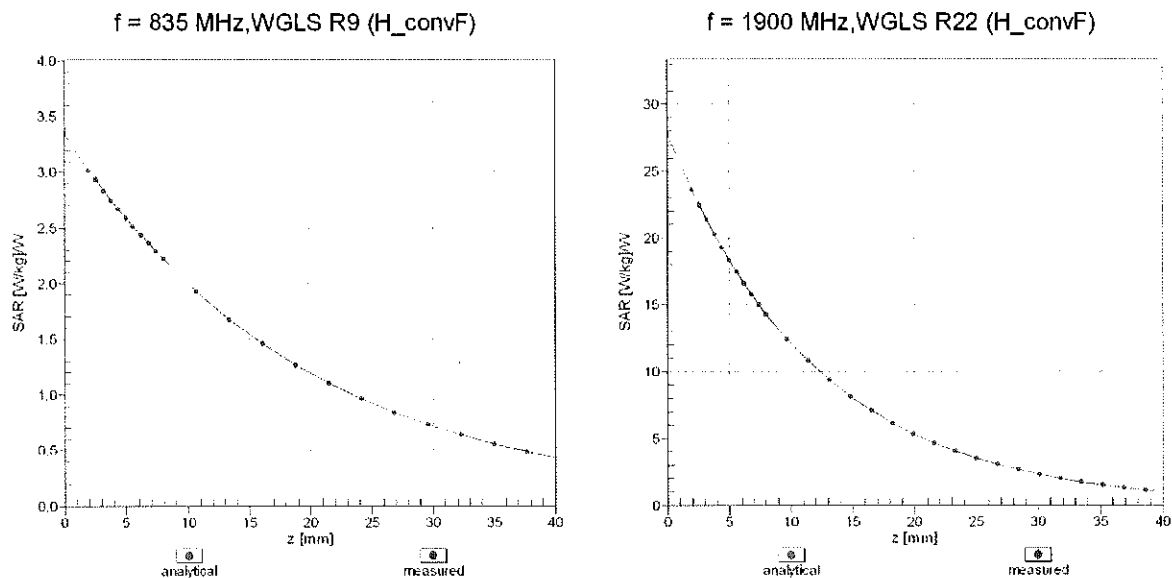
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

## Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f_{\text{eval}} = 1900 \text{ MHz}$ )



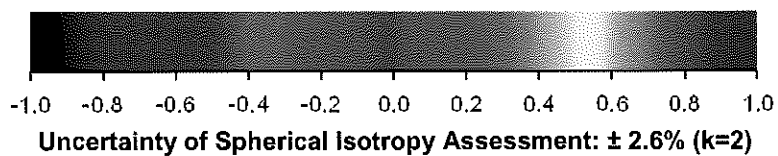
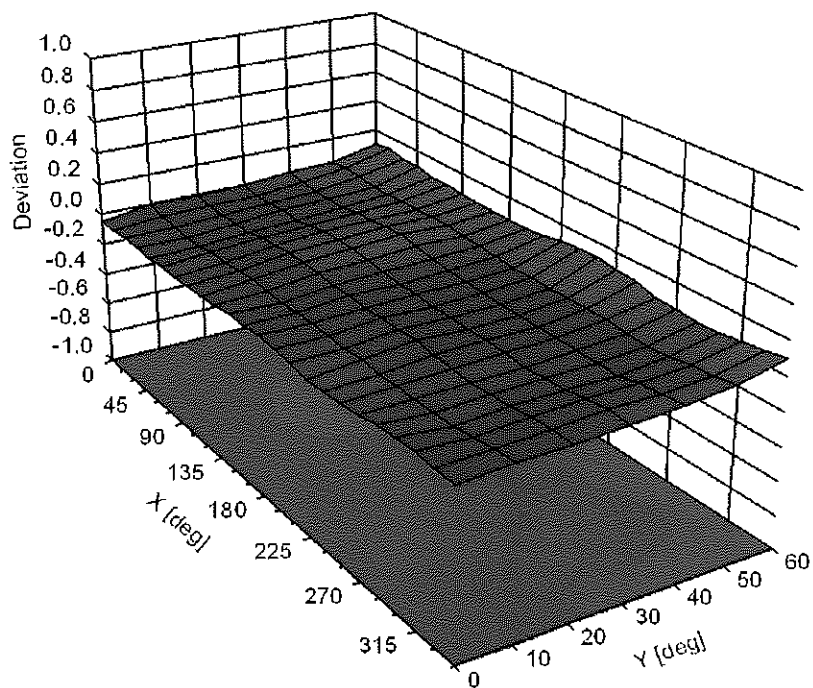
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

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



## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3318

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 77.3       |
| Mechanical Surface Detection Mode             | enabled    |
| Optical Surface Detection Mode                | disabled   |
| Probe Overall Length                          | 337 mm     |
| Probe Body Diameter                           | 10 mm      |
| Tip Length                                    | 10 mm      |
| Tip Diameter                                  | 4 mm       |
| Probe Tip to Sensor X Calibration Point       | 2 mm       |
| Probe Tip to Sensor Y Calibration Point       | 2 mm       |
| Probe Tip to Sensor Z Calibration Point       | 2 mm       |
| Recommended Measurement Distance from Surface | 3 mm       |

**Appendix: Modulation Calibration Parameters**

| UID           | Communication System Name                     |   | A<br>dB | B<br>dB $\sqrt{\mu V}$ | C     | D<br>dB | VR<br>mV | Max<br>Unc <sup>E</sup><br>(k=2) |
|---------------|-----------------------------------------------|---|---------|------------------------|-------|---------|----------|----------------------------------|
| 0             | CW                                            | X | 0.00    | 0.00                   | 1.00  | 0.00    | 194.2    | $\pm 3.5 \%$                     |
|               |                                               | Y | 0.00    | 0.00                   | 1.00  |         | 175.2    |                                  |
|               |                                               | Z | 0.00    | 0.00                   | 1.00  |         | 192.9    |                                  |
| 10010-<br>CAA | SAR Validation (Square, 100ms, 10ms)          | X | 25.14   | 93.58                  | 21.09 | 10.00   | 25.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 6.71    | 77.31                  | 15.93 |         | 25.0     |                                  |
|               |                                               | Z | 11.01   | 83.97                  | 18.50 |         | 25.0     |                                  |
| 10011-<br>CAB | UMTS-FDD (WCDMA)                              | X | 1.70    | 77.88                  | 20.80 | 0.00    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 0.93    | 66.26                  | 14.24 |         | 150.0    |                                  |
|               |                                               | Z | 0.98    | 66.88                  | 14.71 |         | 150.0    |                                  |
| 10012-<br>CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)      | X | 1.35    | 67.34                  | 17.74 | 0.41    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 1.20    | 64.38                  | 15.20 |         | 150.0    |                                  |
|               |                                               | Z | 1.23    | 64.61                  | 15.37 |         | 150.0    |                                  |
| 10013-<br>CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | X | 4.95    | 67.73                  | 17.78 | 1.46    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 4.89    | 67.17                  | 17.26 |         | 150.0    |                                  |
|               |                                               | Z | 4.90    | 67.26                  | 17.26 |         | 150.0    |                                  |
| 10021-<br>DAC | GSM-FDD (TDMA, GMSK)                          | X | 100.00  | 118.94                 | 30.25 | 9.39    | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 116.95                 | 29.43 |         | 50.0     |                                  |
|               |                                               | Z | 100.00  | 118.59                 | 30.23 |         | 50.0     |                                  |
| 10023-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0)                   | X | 100.00  | 118.62                 | 30.14 | 9.57    | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 116.74                 | 29.37 |         | 50.0     |                                  |
|               |                                               | Z | 100.00  | 118.37                 | 30.17 |         | 50.0     |                                  |
| 10024-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1)                 | X | 100.00  | 117.67                 | 28.75 | 6.56    | 60.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 114.18                 | 27.23 |         | 60.0     |                                  |
|               |                                               | Z | 100.00  | 116.19                 | 28.18 |         | 60.0     |                                  |
| 10025-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0)                   | X | 41.71   | 144.97                 | 55.95 | 12.57   | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 16.55   | 111.05                 | 43.74 |         | 50.0     |                                  |
|               |                                               | Z | 21.43   | 120.58                 | 47.56 |         | 50.0     |                                  |
| 10026-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1)                 | X | 47.51   | 134.96                 | 47.05 | 9.56    | 60.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 24.48   | 114.70                 | 40.17 |         | 60.0     |                                  |
|               |                                               | Z | 27.79   | 118.85                 | 41.76 |         | 60.0     |                                  |
| 10027-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2)               | X | 100.00  | 119.04                 | 28.64 | 4.80    | 80.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 113.51                 | 26.21 |         | 80.0     |                                  |
|               |                                               | Z | 100.00  | 116.02                 | 27.37 |         | 80.0     |                                  |
| 10028-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)             | X | 100.00  | 122.36                 | 29.40 | 3.55    | 100.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 113.82                 | 25.69 |         | 100.0    |                                  |
|               |                                               | Z | 100.00  | 117.04                 | 27.14 |         | 100.0    |                                  |
| 10029-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2)               | X | 15.07   | 104.34                 | 36.32 | 7.80    | 80.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 11.60   | 95.84                  | 32.61 |         | 80.0     |                                  |
|               |                                               | Z | 11.90   | 96.99                  | 33.23 |         | 80.0     |                                  |
| 10030-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1)           | X | 100.00  | 116.64                 | 27.83 | 5.30    | 70.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 112.33                 | 25.95 |         | 70.0     |                                  |
|               |                                               | Z | 100.00  | 114.55                 | 26.98 |         | 70.0     |                                  |
| 10031-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3)           | X | 100.00  | 129.47                 | 30.89 | 1.88    | 100.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 111.70                 | 23.43 |         | 100.0    |                                  |
|               |                                               | Z | 100.00  | 117.01                 | 25.74 |         | 100.0    |                                  |

|           |                                                     |   |        |        |       |       |       |         |
|-----------|-----------------------------------------------------|---|--------|--------|-------|-------|-------|---------|
| 10032-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5)                 | X | 100.00 | 149.50 | 37.83 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 100.00 | 113.14 | 23.09 |       | 100.0 |         |
|           |                                                     | Z | 100.00 | 121.62 | 26.66 |       | 100.0 |         |
| 10033-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)           | X | 100.00 | 126.91 | 34.03 | 5.30  | 70.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 123.60 | 32.52 |       | 70.0  |         |
|           |                                                     | Z | 99.51  | 124.84 | 33.14 |       | 70.0  |         |
| 10034-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)           | X | 100.00 | 125.49 | 31.64 | 1.88  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 7.75   | 87.11  | 20.74 |       | 100.0 |         |
|           |                                                     | Z | 8.52   | 89.08  | 21.65 |       | 100.0 |         |
| 10035-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)           | X | 100.00 | 126.12 | 31.42 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 3.37   | 77.61  | 17.24 |       | 100.0 |         |
|           |                                                     | Z | 3.75   | 79.45  | 18.18 |       | 100.0 |         |
| 10036-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1)               | X | 100.00 | 127.26 | 34.19 | 5.30  | 70.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 123.91 | 32.66 |       | 70.0  |         |
|           |                                                     | Z | 100.00 | 125.23 | 33.30 |       | 70.0  |         |
| 10037-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3)               | X | 100.00 | 125.53 | 31.62 | 1.88  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 6.81   | 85.49  | 20.21 |       | 100.0 |         |
|           |                                                     | Z | 7.47   | 87.41  | 21.11 |       | 100.0 |         |
| 10038-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5)               | X | 100.00 | 127.01 | 31.82 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 3.47   | 78.26  | 17.58 |       | 100.0 |         |
|           |                                                     | Z | 3.82   | 80.01  | 18.49 |       | 100.0 |         |
| 10039-CAB | CDMA2000 (1xRTT, RC1)                               | X | 22.47  | 107.52 | 26.72 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.34   | 68.41  | 13.18 |       | 150.0 |         |
|           |                                                     | Z | 1.48   | 69.76  | 14.03 |       | 150.0 |         |
| 10042-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | X | 100.00 | 114.76 | 27.57 | 7.78  | 50.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 112.20 | 26.48 |       | 50.0  |         |
|           |                                                     | Z | 100.00 | 114.09 | 27.39 |       | 50.0  |         |
| 10044-CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM)                    | X | 0.06   | 125.39 | 16.77 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                     | Y | 0.00   | 105.97 | 9.83  |       | 150.0 |         |
|           |                                                     | Z | 0.00   | 94.84  | 0.74  |       | 150.0 |         |
| 10048-CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)           | X | 100.00 | 120.62 | 32.21 | 13.80 | 25.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 119.01 | 31.60 |       | 25.0  |         |
|           |                                                     | Z | 100.00 | 120.66 | 32.46 |       | 25.0  |         |
| 10049-CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)         | X | 100.00 | 118.21 | 30.20 | 10.79 | 40.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 116.81 | 29.66 |       | 40.0  |         |
|           |                                                     | Z | 100.00 | 118.37 | 30.45 |       | 40.0  |         |
| 10056-CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps)                      | X | 100.00 | 124.87 | 34.27 | 9.03  | 50.0  | ± 9.6 % |
|           |                                                     | Y | 73.36  | 117.96 | 32.21 |       | 50.0  |         |
|           |                                                     | Z | 78.14  | 120.09 | 33.04 |       | 50.0  |         |
| 10058-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)                   | X | 8.96   | 92.01  | 31.15 | 6.55  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 7.73   | 86.89  | 28.51 |       | 100.0 |         |
|           |                                                     | Z | 7.73   | 87.23  | 28.78 |       | 100.0 |         |
| 10059-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)            | X | 1.53   | 70.10  | 19.13 | 0.61  | 110.0 | ± 9.6 % |
|           |                                                     | Y | 1.32   | 66.19  | 16.15 |       | 110.0 |         |
|           |                                                     | Z | 1.34   | 66.37  | 16.30 |       | 110.0 |         |
| 10060-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)          | X | 100.00 | 143.54 | 38.54 | 1.30  | 110.0 | ± 9.6 % |
|           |                                                     | Y | 100.00 | 131.45 | 33.20 |       | 110.0 |         |
|           |                                                     | Z | 100.00 | 133.71 | 34.25 |       | 110.0 |         |

|           |                                                |   |        |        |       |      |       |         |
|-----------|------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)      | X | 100.00 | 143.94 | 40.68 | 2.04 | 110.0 | ± 9.6 % |
|           |                                                | Y | 9.36   | 97.35  | 27.31 |      | 110.0 |         |
|           |                                                | Z | 8.48   | 96.24  | 27.19 |      | 110.0 |         |
| 10062-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)       | X | 4.71   | 67.60  | 17.12 | 0.49 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.63   | 66.94  | 16.54 |      | 100.0 |         |
|           |                                                | Z | 4.65   | 67.05  | 16.55 |      | 100.0 |         |
| 10063-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)       | X | 4.74   | 67.74  | 17.25 | 0.72 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.66   | 67.08  | 16.67 |      | 100.0 |         |
|           |                                                | Z | 4.68   | 67.19  | 16.68 |      | 100.0 |         |
| 10064-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)      | X | 5.01   | 67.95  | 17.45 | 0.86 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.94   | 67.35  | 16.91 |      | 100.0 |         |
|           |                                                | Z | 4.95   | 67.44  | 16.92 |      | 100.0 |         |
| 10065-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)      | X | 4.90   | 67.93  | 17.61 | 1.21 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.83   | 67.33  | 17.07 |      | 100.0 |         |
|           |                                                | Z | 4.85   | 67.42  | 17.07 |      | 100.0 |         |
| 10066-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)      | X | 4.93   | 67.99  | 17.81 | 1.46 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.87   | 67.41  | 17.28 |      | 100.0 |         |
|           |                                                | Z | 4.88   | 67.50  | 17.28 |      | 100.0 |         |
| 10067-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)      | X | 5.24   | 68.26  | 18.31 | 2.04 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.19   | 67.72  | 17.81 |      | 100.0 |         |
|           |                                                | Z | 5.20   | 67.81  | 17.81 |      | 100.0 |         |
| 10068-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)      | X | 5.30   | 68.30  | 18.54 | 2.55 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.26   | 67.80  | 18.06 |      | 100.0 |         |
|           |                                                | Z | 5.27   | 67.89  | 18.07 |      | 100.0 |         |
| 10069-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)      | X | 5.38   | 68.33  | 18.75 | 2.67 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.34   | 67.84  | 18.28 |      | 100.0 |         |
|           |                                                | Z | 5.35   | 67.93  | 18.28 |      | 100.0 |         |
| 10071-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)  | X | 5.06   | 67.87  | 18.13 | 1.99 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.01   | 67.35  | 17.63 |      | 100.0 |         |
|           |                                                | Z | 5.02   | 67.44  | 17.63 |      | 100.0 |         |
| 10072-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | X | 5.07   | 68.32  | 18.43 | 2.30 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.02   | 67.76  | 17.91 |      | 100.0 |         |
|           |                                                | Z | 5.03   | 67.85  | 17.91 |      | 100.0 |         |
| 10073-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | X | 5.17   | 68.62  | 18.84 | 2.83 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.12   | 68.08  | 18.33 |      | 100.0 |         |
|           |                                                | Z | 5.13   | 68.16  | 18.33 |      | 100.0 |         |
| 10074-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | X | 5.19   | 68.62  | 19.04 | 3.30 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.14   | 68.10  | 18.54 |      | 100.0 |         |
|           |                                                | Z | 5.16   | 68.18  | 18.55 |      | 100.0 |         |
| 10075-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | X | 5.25   | 68.82  | 19.42 | 3.82 | 90.0  | ± 9.6 % |
|           |                                                | Y | 5.22   | 68.33  | 18.93 |      | 90.0  |         |
|           |                                                | Z | 5.23   | 68.41  | 18.94 |      | 90.0  |         |
| 10076-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | X | 5.28   | 68.67  | 19.58 | 4.15 | 90.0  | ± 9.6 % |
|           |                                                | Y | 5.25   | 68.20  | 19.10 |      | 90.0  |         |
|           |                                                | Z | 5.27   | 68.29  | 19.12 |      | 90.0  |         |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | X | 5.32   | 68.77  | 19.69 | 4.30 | 90.0  | ± 9.6 % |
|           |                                                | Y | 5.29   | 68.30  | 19.22 |      | 90.0  |         |
|           |                                                | Z | 5.30   | 68.40  | 19.23 |      | 90.0  |         |

|           |                                                     |   |        |        |       |      |       |         |
|-----------|-----------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10081-CAB | CDMA2000 (1xRTT, RC3)                               | X | 3.59   | 87.01  | 20.70 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 0.67   | 63.86  | 10.45 |      | 150.0 |         |
|           |                                                     | Z | 0.73   | 64.73  | 11.22 |      | 150.0 |         |
| 10082-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | X | 1.13   | 60.99  | 5.92  | 4.77 | 80.0  | ± 9.6 % |
|           |                                                     | Y | 1.16   | 60.60  | 5.66  |      | 80.0  |         |
|           |                                                     | Z | 1.19   | 61.07  | 6.06  |      | 80.0  |         |
| 10090-DAC | GPRS-FDD (TDMA, GMSK, TN 0-4)                       | X | 100.00 | 117.72 | 28.79 | 6.56 | 60.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 114.25 | 27.28 |      | 60.0  |         |
|           |                                                     | Z | 100.00 | 116.24 | 28.22 |      | 60.0  |         |
| 10097-CAB | UMTS-FDD (HSDPA)                                    | X | 2.26   | 72.68  | 18.34 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.73   | 67.23  | 15.04 |      | 150.0 |         |
|           |                                                     | Z | 1.78   | 67.63  | 15.30 |      | 150.0 |         |
| 10098-CAB | UMTS-FDD (HSUPA, Subtest 2)                         | X | 2.23   | 72.74  | 18.38 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.69   | 67.17  | 15.00 |      | 150.0 |         |
|           |                                                     | Z | 1.74   | 67.58  | 15.27 |      | 150.0 |         |
| 10099-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4)                       | X | 47.96  | 135.14 | 47.09 | 9.56 | 60.0  | ± 9.6 % |
|           |                                                     | Y | 24.63  | 114.80 | 40.19 |      | 60.0  |         |
|           |                                                     | Z | 27.96  | 118.94 | 41.78 |      | 60.0  |         |
| 10100-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 3.57   | 73.61  | 18.56 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.95   | 69.65  | 16.23 |      | 150.0 |         |
|           |                                                     | Z | 3.01   | 70.04  | 16.43 |      | 150.0 |         |
| 10101-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 3.37   | 69.07  | 16.96 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 3.13   | 67.28  | 15.66 |      | 150.0 |         |
|           |                                                     | Z | 3.16   | 67.51  | 15.76 |      | 150.0 |         |
| 10102-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 3.45   | 68.93  | 16.98 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 3.24   | 67.28  | 15.77 |      | 150.0 |         |
|           |                                                     | Z | 3.27   | 67.49  | 15.85 |      | 150.0 |         |
| 10103-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 9.47   | 83.08  | 23.62 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 8.35   | 79.92  | 22.04 |      | 65.0  |         |
|           |                                                     | Z | 8.56   | 80.47  | 22.27 |      | 65.0  |         |
| 10104-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 8.19   | 78.95  | 22.85 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 7.81   | 77.25  | 21.80 |      | 65.0  |         |
|           |                                                     | Z | 7.77   | 77.28  | 21.83 |      | 65.0  |         |
| 10105-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 7.45   | 76.98  | 22.31 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 7.29   | 75.86  | 21.52 |      | 65.0  |         |
|           |                                                     | Z | 7.68   | 77.03  | 22.04 |      | 65.0  |         |
| 10108-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | X | 3.11   | 73.03  | 18.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.56   | 68.95  | 16.05 |      | 150.0 |         |
|           |                                                     | Z | 2.61   | 69.30  | 16.24 |      | 150.0 |         |
| 10109-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)          | X | 3.03   | 69.26  | 17.02 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.77   | 67.12  | 15.50 |      | 150.0 |         |
|           |                                                     | Z | 2.81   | 67.35  | 15.61 |      | 150.0 |         |
| 10110-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)             | X | 2.59   | 72.86  | 18.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.06   | 68.06  | 15.56 |      | 150.0 |         |
|           |                                                     | Z | 2.11   | 68.43  | 15.79 |      | 150.0 |         |
| 10111-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)           | X | 2.87   | 71.18  | 17.73 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.47   | 67.85  | 15.61 |      | 150.0 |         |
|           |                                                     | Z | 2.51   | 68.11  | 15.76 |      | 150.0 |         |

|           |                                                |   |      |       |       |      |       |         |
|-----------|------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10112-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | X | 3.15 | 69.16 | 17.00 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.90 | 67.16 | 15.58 |      | 150.0 |         |
|           |                                                | Z | 2.93 | 67.38 | 15.68 |      | 150.0 |         |
| 10113-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | X | 3.01 | 71.16 | 17.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.62 | 68.05 | 15.77 |      | 150.0 |         |
|           |                                                | Z | 2.66 | 68.27 | 15.90 |      | 150.0 |         |
| 10114-CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | X | 5.14 | 67.90 | 16.93 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.05 | 67.29 | 16.39 |      | 150.0 |         |
|           |                                                | Z | 5.06 | 67.39 | 16.39 |      | 150.0 |         |
| 10115-CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | X | 5.38 | 67.92 | 16.93 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.31 | 67.37 | 16.44 |      | 150.0 |         |
|           |                                                | Z | 5.32 | 67.45 | 16.43 |      | 150.0 |         |
| 10116-CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | X | 5.23 | 68.10 | 16.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.14 | 67.47 | 16.41 |      | 150.0 |         |
|           |                                                | Z | 5.14 | 67.56 | 16.40 |      | 150.0 |         |
| 10117-CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | X | 5.10 | 67.77 | 16.88 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.02 | 67.15 | 16.33 |      | 150.0 |         |
|           |                                                | Z | 5.03 | 67.26 | 16.34 |      | 150.0 |         |
| 10118-CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | X | 5.47 | 68.14 | 17.05 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.40 | 67.59 | 16.56 |      | 150.0 |         |
|           |                                                | Z | 5.39 | 67.65 | 16.54 |      | 150.0 |         |
| 10119-CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | X | 5.21 | 68.06 | 16.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.13 | 67.44 | 16.40 |      | 150.0 |         |
|           |                                                | Z | 5.13 | 67.52 | 16.39 |      | 150.0 |         |
| 10140-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | X | 3.49 | 68.96 | 16.90 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 3.26 | 67.29 | 15.68 |      | 150.0 |         |
|           |                                                | Z | 3.30 | 67.51 | 15.78 |      | 150.0 |         |
| 10141-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | X | 3.60 | 69.00 | 17.03 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 3.39 | 67.43 | 15.87 |      | 150.0 |         |
|           |                                                | Z | 3.42 | 67.62 | 15.95 |      | 150.0 |         |
| 10142-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | X | 2.52 | 74.23 | 18.60 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.81 | 67.84 | 14.96 |      | 150.0 |         |
|           |                                                | Z | 1.87 | 68.30 | 15.27 |      | 150.0 |         |
| 10143-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | X | 2.98 | 73.43 | 17.90 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.27 | 68.21 | 14.96 |      | 150.0 |         |
|           |                                                | Z | 2.33 | 68.59 | 15.21 |      | 150.0 |         |
| 10144-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | X | 2.47 | 69.52 | 15.56 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.05 | 65.97 | 13.34 |      | 150.0 |         |
|           |                                                | Z | 2.10 | 66.36 | 13.60 |      | 150.0 |         |
| 10145-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | X | 1.51 | 69.20 | 13.30 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 0.96 | 62.90 | 9.62  |      | 150.0 |         |
|           |                                                | Z | 1.02 | 63.58 | 10.20 |      | 150.0 |         |
| 10146-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | X | 3.09 | 72.32 | 13.66 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.49 | 63.89 | 9.60  |      | 150.0 |         |
|           |                                                | Z | 1.86 | 66.13 | 10.79 |      | 150.0 |         |
| 10147-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | X | 7.36 | 82.04 | 17.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.65 | 65.00 | 10.28 |      | 150.0 |         |
|           |                                                | Z | 2.24 | 68.17 | 11.85 |      | 150.0 |         |

|           |                                            |   |       |       |       |      |       |         |
|-----------|--------------------------------------------|---|-------|-------|-------|------|-------|---------|
| 10149-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 3.05  | 69.34 | 17.07 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.78  | 67.17 | 15.54 |      | 150.0 |         |
|           |                                            | Z | 2.82  | 67.40 | 15.66 |      | 150.0 |         |
| 10150-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 3.16  | 69.22 | 17.05 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.91  | 67.21 | 15.62 |      | 150.0 |         |
|           |                                            | Z | 2.94  | 67.43 | 15.72 |      | 150.0 |         |
| 10151-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)    | X | 11.68 | 88.59 | 25.70 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 9.54  | 83.77 | 23.53 |      | 65.0  |         |
|           |                                            | Z | 9.43  | 83.68 | 23.53 |      | 65.0  |         |
| 10152-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 7.98  | 79.75 | 22.81 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 7.44  | 77.55 | 21.56 |      | 65.0  |         |
|           |                                            | Z | 7.40  | 77.60 | 21.61 |      | 65.0  |         |
| 10153-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 8.48  | 80.83 | 23.60 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 7.94  | 78.72 | 22.40 |      | 65.0  |         |
|           |                                            | Z | 7.87  | 78.64 | 22.39 |      | 65.0  |         |
| 10154-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 2.66  | 73.38 | 18.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.09  | 68.40 | 15.78 |      | 150.0 |         |
|           |                                            | Z | 2.14  | 68.76 | 16.00 |      | 150.0 |         |
| 10155-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 2.88  | 71.22 | 17.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.47  | 67.88 | 15.64 |      | 150.0 |         |
|           |                                            | Z | 2.51  | 68.13 | 15.78 |      | 150.0 |         |
| 10156-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 2.51  | 75.56 | 18.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.63  | 67.62 | 14.50 |      | 150.0 |         |
|           |                                            | Z | 1.69  | 68.15 | 14.87 |      | 150.0 |         |
| 10157-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 2.46  | 71.18 | 16.01 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.86  | 66.20 | 13.11 |      | 150.0 |         |
|           |                                            | Z | 1.92  | 66.68 | 13.45 |      | 150.0 |         |
| 10158-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 3.02  | 71.25 | 17.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.63  | 68.11 | 15.82 |      | 150.0 |         |
|           |                                            | Z | 2.66  | 68.34 | 15.95 |      | 150.0 |         |
| 10159-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 2.60  | 71.71 | 16.29 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.94  | 66.55 | 13.34 |      | 150.0 |         |
|           |                                            | Z | 2.01  | 67.04 | 13.68 |      | 150.0 |         |
| 10160-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)    | X | 3.04  | 71.68 | 18.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.62  | 68.40 | 15.97 |      | 150.0 |         |
|           |                                            | Z | 2.65  | 68.60 | 16.09 |      | 150.0 |         |
| 10161-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 3.06  | 69.29 | 17.02 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.80  | 67.15 | 15.51 |      | 150.0 |         |
|           |                                            | Z | 2.83  | 67.37 | 15.62 |      | 150.0 |         |
| 10162-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 3.17  | 69.44 | 17.11 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.91  | 67.34 | 15.65 |      | 150.0 |         |
|           |                                            | Z | 2.94  | 67.55 | 15.75 |      | 150.0 |         |
| 10166-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 3.84  | 72.82 | 21.21 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.43  | 69.75 | 19.23 |      | 150.0 |         |
|           |                                            | Z | 3.67  | 71.20 | 19.99 |      | 150.0 |         |
| 10167-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 5.47  | 79.00 | 22.86 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 4.19  | 72.97 | 19.81 |      | 150.0 |         |
|           |                                            | Z | 4.94  | 76.18 | 21.22 |      | 150.0 |         |

|           |                                            |   |        |        |       |      |       |         |
|-----------|--------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10168-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 6.54   | 82.93  | 24.78 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 4.72   | 75.59  | 21.31 |      | 150.0 |         |
|           |                                            | Z | 5.72   | 79.32  | 22.86 |      | 150.0 |         |
| 10169-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 3.27   | 73.03  | 21.49 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.77   | 68.70  | 18.82 |      | 150.0 |         |
|           |                                            | Z | 3.12   | 71.30  | 20.13 |      | 150.0 |         |
| 10170-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 6.50   | 87.24  | 26.83 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.78   | 75.16  | 21.45 |      | 150.0 |         |
|           |                                            | Z | 5.43   | 82.38  | 24.34 |      | 150.0 |         |
| 10171-AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 4.58   | 79.37  | 22.73 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.08   | 70.83  | 18.54 |      | 150.0 |         |
|           |                                            | Z | 4.02   | 75.94  | 20.73 |      | 150.0 |         |
| 10172-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 100.00 | 147.26 | 45.54 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 20.32  | 109.42 | 34.52 |      | 65.0  |         |
|           |                                            | Z | 100.00 | 143.11 | 43.56 |      | 65.0  |         |
| 10173-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 100.00 | 135.40 | 39.37 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 100.00 | 132.72 | 38.18 |      | 65.0  |         |
|           |                                            | Z | 100.00 | 132.76 | 38.10 |      | 65.0  |         |
| 10174-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 100.00 | 134.09 | 38.58 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 48.71  | 117.84 | 33.86 |      | 65.0  |         |
|           |                                            | Z | 100.00 | 130.48 | 36.88 |      | 65.0  |         |
| 10175-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)      | X | 3.22   | 72.65  | 21.22 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.74   | 68.42  | 18.58 |      | 150.0 |         |
|           |                                            | Z | 3.08   | 70.97  | 19.87 |      | 150.0 |         |
| 10176-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)    | X | 6.52   | 87.29  | 26.84 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.79   | 75.18  | 21.47 |      | 150.0 |         |
|           |                                            | Z | 5.44   | 82.42  | 24.36 |      | 150.0 |         |
| 10177-CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)       | X | 3.25   | 72.83  | 21.31 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.76   | 68.55  | 18.67 |      | 150.0 |         |
|           |                                            | Z | 3.10   | 71.13  | 19.97 |      | 150.0 |         |
| 10178-CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)     | X | 6.41   | 86.92  | 26.69 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.75   | 74.99  | 21.36 |      | 150.0 |         |
|           |                                            | Z | 5.37   | 82.13  | 24.22 |      | 150.0 |         |
| 10179-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)    | X | 5.47   | 83.22  | 24.67 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.40   | 72.89  | 19.87 |      | 150.0 |         |
|           |                                            | Z | 4.66   | 79.00  | 22.39 |      | 150.0 |         |
| 10180-CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)     | X | 4.56   | 79.27  | 22.67 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.07   | 70.78  | 18.49 |      | 150.0 |         |
|           |                                            | Z | 4.01   | 75.86  | 20.68 |      | 150.0 |         |
| 10181-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 3.25   | 72.81  | 21.31 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.76   | 68.54  | 18.66 |      | 150.0 |         |
|           |                                            | Z | 3.10   | 71.11  | 19.96 |      | 150.0 |         |
| 10182-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)    | X | 6.40   | 86.88  | 26.67 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.75   | 74.96  | 21.35 |      | 150.0 |         |
|           |                                            | Z | 5.35   | 82.09  | 24.21 |      | 150.0 |         |
| 10183-AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 4.55   | 79.22  | 22.65 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.07   | 70.75  | 18.48 |      | 150.0 |         |
|           |                                            | Z | 4.00   | 75.82  | 20.67 |      | 150.0 |         |

|           |                                               |   |      |       |       |      |       |         |
|-----------|-----------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10184-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)          | X | 3.26 | 72.86 | 21.33 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.77 | 68.58 | 18.68 |      | 150.0 |         |
|           |                                               | Z | 3.11 | 71.15 | 19.98 |      | 150.0 |         |
| 10185-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)        | X | 6.44 | 87.01 | 26.72 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.77 | 75.04 | 21.39 |      | 150.0 |         |
|           |                                               | Z | 5.39 | 82.20 | 24.26 |      | 150.0 |         |
| 10186-AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)        | X | 4.59 | 79.34 | 22.70 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.08 | 70.82 | 18.52 |      | 150.0 |         |
|           |                                               | Z | 4.03 | 75.92 | 20.71 |      | 150.0 |         |
| 10187-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)        | X | 3.27 | 72.94 | 21.41 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.78 | 68.64 | 18.75 |      | 150.0 |         |
|           |                                               | Z | 3.12 | 71.23 | 20.06 |      | 150.0 |         |
| 10188-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)      | X | 6.82 | 88.28 | 27.29 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.89 | 75.71 | 21.77 |      | 150.0 |         |
|           |                                               | Z | 5.65 | 83.21 | 24.74 |      | 150.0 |         |
| 10189-AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)      | X | 4.76 | 80.11 | 23.10 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.15 | 71.25 | 18.80 |      | 150.0 |         |
|           |                                               | Z | 4.15 | 76.54 | 21.06 |      | 150.0 |         |
| 10193-CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)  | X | 4.53 | 67.46 | 16.67 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.43 | 66.72 | 16.03 |      | 150.0 |         |
|           |                                               | Z | 4.45 | 66.85 | 16.06 |      | 150.0 |         |
| 10194-CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | X | 4.69 | 67.74 | 16.80 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.59 | 67.01 | 16.17 |      | 150.0 |         |
|           |                                               | Z | 4.61 | 67.14 | 16.19 |      | 150.0 |         |
| 10195-CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | X | 4.73 | 67.77 | 16.81 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.63 | 67.04 | 16.19 |      | 150.0 |         |
|           |                                               | Z | 4.65 | 67.17 | 16.21 |      | 150.0 |         |
| 10196-CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)       | X | 4.52 | 67.50 | 16.68 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.43 | 66.76 | 16.04 |      | 150.0 |         |
|           |                                               | Z | 4.45 | 66.89 | 16.07 |      | 150.0 |         |
| 10197-CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)      | X | 4.70 | 67.76 | 16.80 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.60 | 67.02 | 16.18 |      | 150.0 |         |
|           |                                               | Z | 4.62 | 67.15 | 16.20 |      | 150.0 |         |
| 10198-CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)      | X | 4.72 | 67.78 | 16.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.63 | 67.05 | 16.20 |      | 150.0 |         |
|           |                                               | Z | 4.65 | 67.18 | 16.22 |      | 150.0 |         |
| 10219-CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)       | X | 4.48 | 67.54 | 16.65 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.38 | 66.77 | 16.00 |      | 150.0 |         |
|           |                                               | Z | 4.40 | 66.90 | 16.03 |      | 150.0 |         |
| 10220-CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)    | X | 4.69 | 67.72 | 16.79 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.59 | 66.99 | 16.17 |      | 150.0 |         |
|           |                                               | Z | 4.61 | 67.12 | 16.19 |      | 150.0 |         |
| 10221-CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)    | X | 4.73 | 67.70 | 16.80 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.64 | 66.99 | 16.18 |      | 150.0 |         |
|           |                                               | Z | 4.66 | 67.11 | 16.21 |      | 150.0 |         |
| 10222-CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)        | X | 5.08 | 67.77 | 16.87 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.99 | 67.15 | 16.32 |      | 150.0 |         |
|           |                                               | Z | 5.00 | 67.26 | 16.33 |      | 150.0 |         |

|           |                                           |   |        |        |       |      |       |         |
|-----------|-------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10223-CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)  | X | 5.37   | 67.97  | 16.98 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 5.29   | 67.41  | 16.48 |      | 150.0 |         |
|           |                                           | Z | 5.30   | 67.50  | 16.48 |      | 150.0 |         |
| 10224-CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | X | 5.12   | 67.89  | 16.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 5.03   | 67.25  | 16.30 |      | 150.0 |         |
|           |                                           | Z | 5.04   | 67.36  | 16.31 |      | 150.0 |         |
| 10225-CAB | UMTS-FDD (HSPA+)                          | X | 2.88   | 67.77  | 16.20 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 2.69   | 66.02  | 14.90 |      | 150.0 |         |
|           |                                           | Z | 2.72   | 66.23  | 15.01 |      | 150.0 |         |
| 10226-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)  | X | 100.00 | 135.64 | 39.51 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 132.97 | 38.33 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 133.00 | 38.25 |      | 65.0  |         |
| 10227-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)  | X | 100.00 | 132.62 | 37.95 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 130.22 | 36.90 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 130.15 | 36.77 |      | 65.0  |         |
| 10228-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)    | X | 100.00 | 146.46 | 45.19 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 34.13  | 120.03 | 37.51 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 143.35 | 43.69 |      | 65.0  |         |
| 10229-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)    | X | 100.00 | 135.38 | 39.36 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 132.71 | 38.18 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 132.74 | 38.10 |      | 65.0  |         |
| 10230-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)    | X | 100.00 | 132.48 | 37.85 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 88.08  | 127.82 | 36.25 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 130.00 | 36.66 |      | 65.0  |         |
| 10231-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)      | X | 100.00 | 146.29 | 45.07 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 30.78  | 117.76 | 36.81 |      | 65.0  |         |
|           |                                           | Z | 87.84  | 140.44 | 42.91 |      | 65.0  |         |
| 10232-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)    | X | 100.00 | 135.40 | 39.37 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 132.72 | 38.19 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 132.76 | 38.11 |      | 65.0  |         |
| 10233-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)    | X | 100.00 | 132.50 | 37.86 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 87.85  | 127.79 | 36.24 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 130.02 | 36.67 |      | 65.0  |         |
| 10234-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)      | X | 100.00 | 145.92 | 44.85 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 28.28  | 115.76 | 36.13 |      | 65.0  |         |
|           |                                           | Z | 76.88  | 137.31 | 42.02 |      | 65.0  |         |
| 10235-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)   | X | 100.00 | 135.42 | 39.38 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 132.74 | 38.19 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 132.77 | 38.11 |      | 65.0  |         |
| 10236-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)   | X | 100.00 | 132.43 | 37.83 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 90.27  | 128.21 | 36.33 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 129.96 | 36.64 |      | 65.0  |         |
| 10237-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)     | X | 100.00 | 146.34 | 45.09 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 31.12  | 118.02 | 36.89 |      | 65.0  |         |
|           |                                           | Z | 89.92  | 140.98 | 43.04 |      | 65.0  |         |
| 10238-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)   | X | 100.00 | 135.42 | 39.38 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 100.00 | 132.74 | 38.19 |      | 65.0  |         |
|           |                                           | Z | 100.00 | 132.77 | 38.11 |      | 65.0  |         |

|           |                                            |   |        |        |       |      |      |         |
|-----------|--------------------------------------------|---|--------|--------|-------|------|------|---------|
| 10239-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 100.00 | 132.53 | 37.87 | 6.02 | 65.0 | ± 9.6 % |
|           |                                            | Y | 87.64  | 127.77 | 36.24 |      | 65.0 |         |
|           |                                            | Z | 100.00 | 130.05 | 36.68 |      | 65.0 |         |
| 10240-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 100.00 | 146.36 | 45.09 | 6.02 | 65.0 | ± 9.6 % |
|           |                                            | Y | 30.99  | 117.95 | 36.86 |      | 65.0 |         |
|           |                                            | Z | 89.43  | 140.87 | 43.02 |      | 65.0 |         |
| 10241-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 16.27  | 98.51  | 32.39 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 11.41  | 89.10  | 28.53 |      | 65.0 |         |
|           |                                            | Z | 13.94  | 94.00  | 30.44 |      | 65.0 |         |
| 10242-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 12.63  | 92.92  | 30.37 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 9.96   | 86.21  | 27.37 |      | 65.0 |         |
|           |                                            | Z | 13.43  | 93.24  | 30.11 |      | 65.0 |         |
| 10243-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 8.45   | 85.33  | 28.58 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.60   | 81.57  | 26.50 |      | 65.0 |         |
|           |                                            | Z | 9.13   | 86.24  | 28.59 |      | 65.0 |         |
| 10244-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)   | X | 13.35  | 87.93  | 22.65 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 8.15   | 79.46  | 19.37 |      | 65.0 |         |
|           |                                            | Z | 9.47   | 81.97  | 20.42 |      | 65.0 |         |
| 10245-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)   | X | 11.89  | 85.85  | 21.89 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.71   | 78.38  | 18.91 |      | 65.0 |         |
|           |                                            | Z | 8.86   | 80.71  | 19.89 |      | 65.0 |         |
| 10246-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)     | X | 18.16  | 96.05  | 25.52 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 9.12   | 84.14  | 21.26 |      | 65.0 |         |
|           |                                            | Z | 9.13   | 84.46  | 21.53 |      | 65.0 |         |
| 10247-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 8.08   | 81.25  | 21.31 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 6.75   | 77.40  | 19.50 |      | 65.0 |         |
|           |                                            | Z | 6.72   | 77.49  | 19.63 |      | 65.0 |         |
| 10248-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 7.62   | 79.85  | 20.76 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 6.56   | 76.50  | 19.13 |      | 65.0 |         |
|           |                                            | Z | 6.54   | 76.64  | 19.27 |      | 65.0 |         |
| 10249-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 24.82  | 103.11 | 28.87 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 12.27  | 89.83  | 24.30 |      | 65.0 |         |
|           |                                            | Z | 11.93  | 89.67  | 24.36 |      | 65.0 |         |
| 10250-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 9.24   | 84.44  | 24.47 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 8.13   | 81.08  | 22.80 |      | 65.0 |         |
|           |                                            | Z | 7.98   | 80.84  | 22.75 |      | 65.0 |         |
| 10251-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 8.11   | 80.73  | 22.67 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.36   | 78.06  | 21.25 |      | 65.0 |         |
|           |                                            | Z | 7.31   | 78.07  | 21.31 |      | 65.0 |         |
| 10252-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 17.12  | 97.60  | 28.54 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 11.48  | 88.93  | 25.20 |      | 65.0 |         |
|           |                                            | Z | 11.18  | 88.66  | 25.18 |      | 65.0 |         |
| 10253-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 7.75   | 79.05  | 22.48 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.26   | 76.97  | 21.27 |      | 65.0 |         |
|           |                                            | Z | 7.23   | 77.02  | 21.33 |      | 65.0 |         |
| 10254-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 8.21   | 80.04  | 23.18 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.72   | 78.02  | 22.02 |      | 65.0 |         |
|           |                                            | Z | 7.65   | 77.97  | 22.01 |      | 65.0 |         |

|           |                                             |   |       |       |       |      |      |         |
|-----------|---------------------------------------------|---|-------|-------|-------|------|------|---------|
| 10255-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)     | X | 10.91 | 87.66 | 25.57 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 9.08  | 83.14 | 23.49 |      | 65.0 |         |
|           |                                             | Z | 8.97  | 83.05 | 23.49 |      | 65.0 |         |
| 10256-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 8.22  | 79.40 | 18.39 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.65  | 73.45 | 15.85 |      | 65.0 |         |
|           |                                             | Z | 6.51  | 75.65 | 16.87 |      | 65.0 |         |
| 10257-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 7.20  | 77.18 | 17.44 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.32  | 72.29 | 15.26 |      | 65.0 |         |
|           |                                             | Z | 6.03  | 74.24 | 16.20 |      | 65.0 |         |
| 10258-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)   | X | 9.18  | 84.04 | 20.54 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.78  | 76.46 | 17.46 |      | 65.0 |         |
|           |                                             | Z | 5.96  | 77.19 | 17.90 |      | 65.0 |         |
| 10259-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)   | X | 8.60  | 82.56 | 22.49 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.32  | 78.85 | 20.73 |      | 65.0 |         |
|           |                                             | Z | 7.24  | 78.81 | 20.78 |      | 65.0 |         |
| 10260-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)   | X | 8.36  | 81.74 | 22.18 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.24  | 78.34 | 20.53 |      | 65.0 |         |
|           |                                             | Z | 7.16  | 78.31 | 20.58 |      | 65.0 |         |
| 10261-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)     | X | 18.36 | 98.44 | 28.04 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 11.05 | 88.23 | 24.26 |      | 65.0 |         |
|           |                                             | Z | 10.78 | 88.05 | 24.30 |      | 65.0 |         |
| 10262-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)   | X | 9.20  | 84.35 | 24.41 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 8.11  | 80.99 | 22.75 |      | 65.0 |         |
|           |                                             | Z | 7.96  | 80.76 | 22.70 |      | 65.0 |         |
| 10263-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)   | X | 8.09  | 80.70 | 22.66 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.34  | 78.03 | 21.25 |      | 65.0 |         |
|           |                                             | Z | 7.30  | 78.05 | 21.30 |      | 65.0 |         |
| 10264-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)     | X | 16.79 | 97.20 | 28.40 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 11.31 | 88.64 | 25.08 |      | 65.0 |         |
|           |                                             | Z | 11.04 | 88.40 | 25.06 |      | 65.0 |         |
| 10265-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)  | X | 7.98  | 79.75 | 22.82 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.43  | 77.56 | 21.56 |      | 65.0 |         |
|           |                                             | Z | 7.40  | 77.60 | 21.61 |      | 65.0 |         |
| 10266-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)  | X | 8.48  | 80.82 | 23.59 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.94  | 78.70 | 22.39 |      | 65.0 |         |
|           |                                             | Z | 7.87  | 78.63 | 22.38 |      | 65.0 |         |
| 10267-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)    | X | 11.64 | 88.51 | 25.67 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 9.52  | 83.71 | 23.50 |      | 65.0 |         |
|           |                                             | Z | 9.41  | 83.63 | 23.51 |      | 65.0 |         |
| 10268-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)  | X | 8.24  | 78.53 | 22.77 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.91  | 77.00 | 21.81 |      | 65.0 |         |
|           |                                             | Z | 7.87  | 77.01 | 21.82 |      | 65.0 |         |
| 10269-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)  | X | 8.11  | 77.91 | 22.56 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 7.83  | 76.51 | 21.65 |      | 65.0 |         |
|           |                                             | Z | 7.79  | 76.52 | 21.67 |      | 65.0 |         |
| 10270-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)    | X | 9.23  | 82.14 | 23.50 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 8.41  | 79.54 | 22.12 |      | 65.0 |         |
|           |                                             | Z | 8.35  | 79.50 | 22.12 |      | 65.0 |         |

|           |                                                                    |   |        |        |       |      |       |         |
|-----------|--------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10274-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)                          | X | 2.76   | 68.76  | 16.46 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 2.49   | 66.41  | 14.83 |      | 150.0 |         |
|           |                                                                    | Z | 2.53   | 66.67  | 14.98 |      | 150.0 |         |
| 10275-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)                           | X | 2.12   | 74.09  | 18.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.49   | 67.15  | 14.79 |      | 150.0 |         |
|           |                                                                    | Z | 1.54   | 67.64  | 15.12 |      | 150.0 |         |
| 10277-CAA | PHS (QPSK)                                                         | X | 2.88   | 63.80  | 8.79  | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 3.01   | 63.78  | 8.83  |      | 50.0  |         |
|           |                                                                    | Z | 3.05   | 64.19  | 9.19  |      | 50.0  |         |
| 10278-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5)                                 | X | 8.26   | 79.76  | 18.67 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 6.73   | 76.11  | 17.16 |      | 50.0  |         |
|           |                                                                    | Z | 7.17   | 77.48  | 17.92 |      | 50.0  |         |
| 10279-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38)                                | X | 8.42   | 80.01  | 18.83 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 6.87   | 76.37  | 17.31 |      | 50.0  |         |
|           |                                                                    | Z | 7.31   | 77.72  | 18.06 |      | 50.0  |         |
| 10290-AAB | CDMA2000, RC1, SO55, Full Rate                                     | X | 4.48   | 85.27  | 20.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.10   | 65.94  | 11.72 |      | 150.0 |         |
|           |                                                                    | Z | 1.20   | 66.94  | 12.44 |      | 150.0 |         |
| 10291-AAB | CDMA2000, RC3, SO55, Full Rate                                     | X | 3.17   | 85.37  | 20.15 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.66   | 63.70  | 10.35 |      | 150.0 |         |
|           |                                                                    | Z | 0.71   | 64.55  | 11.10 |      | 150.0 |         |
| 10292-AAB | CDMA2000, RC3, SO32, Full Rate                                     | X | 100.00 | 135.14 | 33.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.79   | 66.62  | 12.22 |      | 150.0 |         |
|           |                                                                    | Z | 0.89   | 68.13  | 13.28 |      | 150.0 |         |
| 10293-AAB | CDMA2000, RC3, SO3, Full Rate                                      | X | 100.00 | 139.96 | 35.72 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.17   | 71.61  | 14.96 |      | 150.0 |         |
|           |                                                                    | Z | 1.38   | 73.91  | 16.26 |      | 150.0 |         |
| 10295-AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr.                              | X | 35.08  | 108.12 | 31.08 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 20.38  | 97.32  | 27.58 |      | 50.0  |         |
|           |                                                                    | Z | 17.64  | 95.44  | 27.23 |      | 50.0  |         |
| 10297-AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)                            | X | 3.13   | 73.17  | 18.60 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 2.57   | 69.04  | 16.12 |      | 150.0 |         |
|           |                                                                    | Z | 2.62   | 69.39  | 16.31 |      | 150.0 |         |
| 10298-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)                             | X | 2.35   | 75.19  | 17.28 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.28   | 65.68  | 12.31 |      | 150.0 |         |
|           |                                                                    | Z | 1.36   | 66.38  | 12.83 |      | 150.0 |         |
| 10299-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)                           | X | 8.70   | 86.10  | 19.99 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 2.22   | 68.10  | 12.86 |      | 150.0 |         |
|           |                                                                    | Z | 3.06   | 71.91  | 14.57 |      | 150.0 |         |
| 10300-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                           | X | 2.38   | 68.58  | 12.60 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.65   | 63.94  | 10.07 |      | 150.0 |         |
|           |                                                                    | Z | 1.93   | 65.55  | 10.93 |      | 150.0 |         |
| 10301-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)                 | X | 5.25   | 68.38  | 18.89 | 4.17 | 80.0  | ± 9.6 % |
|           |                                                                    | Y | 5.02   | 66.92  | 17.88 |      | 80.0  |         |
|           |                                                                    | Z | 5.12   | 67.49  | 18.20 |      | 80.0  |         |
| 10302-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | X | 5.61   | 68.44  | 19.34 | 4.96 | 80.0  | ± 9.6 % |
|           |                                                                    | Y | 5.46   | 67.42  | 18.57 |      | 80.0  |         |
|           |                                                                    | Z | 5.54   | 67.86  | 18.81 |      | 80.0  |         |

|           |                                                                     |   |        |        |       |       |       |         |
|-----------|---------------------------------------------------------------------|---|--------|--------|-------|-------|-------|---------|
| 10303-AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)                 | X | 5.39   | 68.25  | 19.24 | 4.96  | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 5.24   | 67.20  | 18.45 |       | 80.0  |         |
|           |                                                                     | Z | 5.33   | 67.66  | 18.71 |       | 80.0  |         |
| 10304-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)                 | X | 5.16   | 67.97  | 18.64 | 4.17  | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 5.01   | 66.89  | 17.84 |       | 80.0  |         |
|           |                                                                     | Z | 5.08   | 67.29  | 18.05 |       | 80.0  |         |
| 10305-AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)    | X | 5.81   | 74.53  | 22.78 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.47   | 72.49  | 21.48 |       | 50.0  |         |
|           |                                                                     | Z | 5.66   | 73.42  | 22.02 |       | 50.0  |         |
| 10306-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)    | X | 5.37   | 69.80  | 20.53 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.32   | 69.74  | 20.44 |       | 50.0  |         |
|           |                                                                     | Z | 5.31   | 69.10  | 19.95 |       | 50.0  |         |
| 10307-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)     | X | 5.31   | 70.07  | 20.52 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.29   | 70.16  | 20.50 |       | 50.0  |         |
|           |                                                                     | Z | 5.24   | 69.32  | 19.92 |       | 50.0  |         |
| 10308-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)                | X | 5.34   | 70.48  | 20.75 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.32   | 70.58  | 20.74 |       | 50.0  |         |
|           |                                                                     | Z | 5.26   | 69.68  | 20.12 |       | 50.0  |         |
| 10309-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | X | 5.42   | 70.01  | 20.68 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.38   | 69.94  | 20.58 |       | 50.0  |         |
|           |                                                                     | Z | 5.36   | 69.30  | 20.10 |       | 50.0  |         |
| 10310-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)  | X | 5.35   | 69.95  | 20.54 | 6.02  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 5.31   | 69.95  | 20.48 |       | 50.0  |         |
|           |                                                                     | Z | 5.28   | 69.22  | 19.95 |       | 50.0  |         |
| 10311-AAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)                            | X | 3.50   | 71.98  | 17.99 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 2.92   | 68.34  | 15.81 |       | 150.0 |         |
|           |                                                                     | Z | 2.98   | 68.69  | 15.98 |       | 150.0 |         |
| 10313-AAA | IDEN 1:3                                                            | X | 24.72  | 98.44  | 24.84 | 6.99  | 70.0  | ± 9.6 % |
|           |                                                                     | Y | 8.44   | 82.02  | 19.36 |       | 70.0  |         |
|           |                                                                     | Z | 9.04   | 83.60  | 20.13 |       | 70.0  |         |
| 10314-AAA | IDEN 1:6                                                            | X | 100.00 | 129.19 | 36.01 | 10.00 | 30.0  | ± 9.6 % |
|           |                                                                     | Y | 18.20  | 98.60  | 27.51 |       | 30.0  |         |
|           |                                                                     | Z | 15.61  | 97.02  | 27.37 |       | 30.0  |         |
| 10315-AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)           | X | 1.22   | 67.10  | 17.65 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 1.08   | 63.94  | 14.91 |       | 150.0 |         |
|           |                                                                     | Z | 1.11   | 64.20  | 15.09 |       | 150.0 |         |
| 10316-AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)       | X | 4.60   | 67.58  | 16.88 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.51   | 66.87  | 16.26 |       | 150.0 |         |
|           |                                                                     | Z | 4.53   | 66.99  | 16.28 |       | 150.0 |         |
| 10317-AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)             | X | 4.60   | 67.58  | 16.88 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.51   | 66.87  | 16.26 |       | 150.0 |         |
|           |                                                                     | Z | 4.53   | 66.99  | 16.28 |       | 150.0 |         |
| 10400-AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)                 | X | 4.67   | 67.82  | 16.81 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.57   | 67.06  | 16.16 |       | 150.0 |         |
|           |                                                                     | Z | 4.59   | 67.19  | 16.20 |       | 150.0 |         |
| 10401-AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)                 | X | 5.39   | 67.87  | 16.91 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 5.33   | 67.37  | 16.43 |       | 150.0 |         |
|           |                                                                     | Z | 5.31   | 67.36  | 16.38 |       | 150.0 |         |

|           |                                                                                 |   |        |        |       |      |       |         |
|-----------|---------------------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10402-AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)                             | X | 5.63   | 68.05  | 16.85 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.55   | 67.51  | 16.37 |      | 150.0 |         |
|           |                                                                                 | Z | 5.56   | 67.62  | 16.37 |      | 150.0 |         |
| 10403-AAB | CDMA2000 (1xEV-DO, Rev. 0)                                                      | X | 4.48   | 85.27  | 20.06 | 0.00 | 115.0 | ± 9.6 % |
|           |                                                                                 | Y | 1.10   | 65.94  | 11.72 |      | 115.0 |         |
|           |                                                                                 | Z | 1.20   | 66.94  | 12.44 |      | 115.0 |         |
| 10404-AAB | CDMA2000 (1xEV-DO, Rev. A)                                                      | X | 4.48   | 85.27  | 20.06 | 0.00 | 115.0 | ± 9.6 % |
|           |                                                                                 | Y | 1.10   | 65.94  | 11.72 |      | 115.0 |         |
|           |                                                                                 | Z | 1.20   | 66.94  | 12.44 |      | 115.0 |         |
| 10406-AAB | CDMA2000, RC3, SO32, SCH0, Full Rate                                            | X | 100.00 | 120.98 | 29.52 | 0.00 | 100.0 | ± 9.6 % |
|           |                                                                                 | Y | 100.00 | 120.29 | 29.15 |      | 100.0 |         |
|           |                                                                                 | Z | 100.00 | 115.60 | 27.07 |      | 100.0 |         |
| 10410-AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | X | 100.00 | 128.17 | 33.13 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                                 | Y | 100.00 | 122.84 | 30.72 |      | 80.0  |         |
|           |                                                                                 | Z | 100.00 | 123.34 | 30.96 |      | 80.0  |         |
| 10415-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)                       | X | 1.09   | 65.52  | 16.73 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 0.97   | 62.71  | 14.12 |      | 150.0 |         |
|           |                                                                                 | Z | 1.00   | 63.02  | 14.33 |      | 150.0 |         |
| 10416-AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)                   | X | 4.53   | 67.49  | 16.74 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.43   | 66.75  | 16.11 |      | 150.0 |         |
|           |                                                                                 | Z | 4.45   | 66.88  | 16.14 |      | 150.0 |         |
| 10417-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)                       | X | 4.53   | 67.49  | 16.74 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.43   | 66.75  | 16.11 |      | 150.0 |         |
|           |                                                                                 | Z | 4.45   | 66.88  | 16.14 |      | 150.0 |         |
| 10418-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)   | X | 4.53   | 67.70  | 16.80 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.42   | 66.92  | 16.14 |      | 150.0 |         |
|           |                                                                                 | Z | 4.44   | 67.05  | 16.17 |      | 150.0 |         |
| 10419-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | X | 4.54   | 67.63  | 16.79 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.44   | 66.87  | 16.14 |      | 150.0 |         |
|           |                                                                                 | Z | 4.46   | 67.00  | 16.16 |      | 150.0 |         |
| 10422-AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | X | 4.65   | 67.58  | 16.78 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.56   | 66.86  | 16.16 |      | 150.0 |         |
|           |                                                                                 | Z | 4.57   | 66.99  | 16.18 |      | 150.0 |         |
| 10423-AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | X | 4.80   | 67.87  | 16.87 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.70   | 67.15  | 16.26 |      | 150.0 |         |
|           |                                                                                 | Z | 4.72   | 67.28  | 16.28 |      | 150.0 |         |
| 10424-AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | X | 4.72   | 67.84  | 16.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.63   | 67.10  | 16.23 |      | 150.0 |         |
|           |                                                                                 | Z | 4.65   | 67.23  | 16.26 |      | 150.0 |         |
| 10425-AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | X | 5.33   | 67.99  | 16.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.25   | 67.41  | 16.45 |      | 150.0 |         |
|           |                                                                                 | Z | 5.25   | 67.49  | 16.44 |      | 150.0 |         |
| 10426-AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | X | 5.36   | 68.10  | 17.02 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.28   | 67.52  | 16.50 |      | 150.0 |         |
|           |                                                                                 | Z | 5.27   | 67.56  | 16.48 |      | 150.0 |         |

|           |                                                                |   |        |        |       |      |       |         |
|-----------|----------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10427-AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                 | X | 5.34   | 67.96  | 16.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 5.27   | 67.41  | 16.44 |      | 150.0 |         |
|           |                                                                | Z | 5.27   | 67.48  | 16.43 |      | 150.0 |         |
| 10430-AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                               | X | 4.46   | 73.02  | 19.14 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.09   | 70.89  | 17.83 |      | 150.0 |         |
|           |                                                                | Z | 4.08   | 70.81  | 17.76 |      | 150.0 |         |
| 10431-AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                              | X | 4.21   | 68.30  | 16.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.07   | 67.26  | 16.01 |      | 150.0 |         |
|           |                                                                | Z | 4.09   | 67.40  | 16.06 |      | 150.0 |         |
| 10432-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                              | X | 4.50   | 68.00  | 16.85 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.39   | 67.15  | 16.15 |      | 150.0 |         |
|           |                                                                | Z | 4.41   | 67.28  | 16.18 |      | 150.0 |         |
| 10433-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                              | X | 4.74   | 67.87  | 16.88 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.64   | 67.13  | 16.25 |      | 150.0 |         |
|           |                                                                | Z | 4.66   | 67.26  | 16.28 |      | 150.0 |         |
| 10434-AAA | W-CDMA (BS Test Model 1, 64 DPCH)                              | X | 4.69   | 74.39  | 19.24 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.15   | 71.62  | 17.66 |      | 150.0 |         |
|           |                                                                | Z | 4.14   | 71.55  | 17.61 |      | 150.0 |         |
| 10435-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 127.90 | 33.00 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                | Y | 100.00 | 122.60 | 30.61 |      | 80.0  |         |
|           |                                                                | Z | 100.00 | 123.10 | 30.85 |      | 80.0  |         |
| 10447-AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                 | X | 3.55   | 68.74  | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.32   | 67.06  | 15.04 |      | 150.0 |         |
|           |                                                                | Z | 3.36   | 67.27  | 15.15 |      | 150.0 |         |
| 10448-AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                | X | 4.06   | 68.11  | 16.71 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.92   | 67.04  | 15.87 |      | 150.0 |         |
|           |                                                                | Z | 3.95   | 67.19  | 15.92 |      | 150.0 |         |
| 10449-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                | X | 4.33   | 67.85  | 16.77 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.21   | 66.97  | 16.04 |      | 150.0 |         |
|           |                                                                | Z | 4.23   | 67.10  | 16.08 |      | 150.0 |         |
| 10450-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                | X | 4.52   | 67.67  | 16.75 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.42   | 66.89  | 16.10 |      | 150.0 |         |
|           |                                                                | Z | 4.44   | 67.03  | 16.13 |      | 150.0 |         |
| 10451-AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                | X | 3.45   | 68.98  | 15.77 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.16   | 67.01  | 14.46 |      | 150.0 |         |
|           |                                                                | Z | 3.20   | 67.26  | 14.61 |      | 150.0 |         |
| 10456-AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)           | X | 6.26   | 68.57  | 17.12 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 6.18   | 68.07  | 16.68 |      | 150.0 |         |
|           |                                                                | Z | 6.17   | 68.13  | 16.66 |      | 150.0 |         |
| 10457-AAA | UMTS-FDD (DC-HSDPA)                                            | X | 3.81   | 66.13  | 16.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.74   | 65.42  | 15.81 |      | 150.0 |         |
|           |                                                                | Z | 3.75   | 65.56  | 15.84 |      | 150.0 |         |
| 10458-AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers)                         | X | 4.31   | 73.65  | 18.51 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.75   | 70.62  | 16.79 |      | 150.0 |         |
|           |                                                                | Z | 3.77   | 70.71  | 16.85 |      | 150.0 |         |
| 10459-AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers)                         | X | 5.06   | 69.53  | 18.49 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.88   | 68.49  | 17.80 |      | 150.0 |         |
|           |                                                                | Z | 4.89   | 68.50  | 17.75 |      | 150.0 |         |

|           |                                                                   |   |        |        |       |      |       |         |
|-----------|-------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10460-AAA | UMTS-FDD (WCDMA, AMR)                                             | X | 1.79   | 82.82  | 23.49 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                   | Y | 0.80   | 66.75  | 14.86 |      | 150.0 |         |
|           |                                                                   | Z | 0.85   | 67.43  | 15.39 |      | 150.0 |         |
| 10461-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 139.92 | 38.40 | 3.29 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 128.97 | 33.56 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 131.32 | 34.60 |      | 80.0  |         |
| 10462-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 112.90 | 25.69 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 106.15 | 22.85 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 106.59 | 22.96 |      | 80.0  |         |
| 10463-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 106.70 | 22.85 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 3.25   | 71.44  | 12.92 |      | 80.0  |         |
|           |                                                                   | Z | 68.67  | 98.24  | 19.92 |      | 80.0  |         |
| 10464-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 100.00 | 137.68 | 37.15 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 126.27 | 32.14 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 128.76 | 33.25 |      | 80.0  |         |
| 10465-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 111.97 | 25.26 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 31.42  | 94.43  | 20.07 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 105.83 | 22.60 |      | 80.0  |         |
| 10466-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 105.87 | 22.48 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 2.40   | 68.58  | 11.83 |      | 80.0  |         |
|           |                                                                   | Z | 12.16  | 82.88  | 16.14 |      | 80.0  |         |
| 10467-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 100.00 | 138.08 | 37.33 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 126.59 | 32.28 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 129.09 | 33.39 |      | 80.0  |         |
| 10468-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 112.31 | 25.41 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 53.66  | 99.74  | 21.34 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 106.08 | 22.72 |      | 80.0  |         |
| 10469-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 105.91 | 22.49 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 2.42   | 68.68  | 11.86 |      | 80.0  |         |
|           |                                                                   | Z | 12.90  | 83.40  | 16.28 |      | 80.0  |         |
| 10470-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 138.16 | 37.35 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 126.63 | 32.29 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 129.14 | 33.40 |      | 80.0  |         |
| 10471-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 100.00 | 112.22 | 25.37 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 51.21  | 99.22  | 21.20 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 106.00 | 22.68 |      | 80.0  |         |
| 10472-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 100.00 | 105.80 | 22.44 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 2.39   | 68.55  | 11.80 |      | 80.0  |         |
|           |                                                                   | Z | 12.36  | 82.98  | 16.14 |      | 80.0  |         |
| 10473-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 138.13 | 37.34 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 100.00 | 126.59 | 32.27 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 129.10 | 33.39 |      | 80.0  |         |
| 10474-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 100.00 | 112.23 | 25.37 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 49.67  | 98.93  | 21.14 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 106.00 | 22.67 |      | 80.0  |         |
| 10475-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 100.00 | 105.82 | 22.45 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 2.37   | 68.49  | 11.78 |      | 80.0  |         |
|           |                                                                   | Z | 12.04  | 82.77  | 16.09 |      | 80.0  |         |

|           |                                                                     |   |        |        |       |      |      |         |
|-----------|---------------------------------------------------------------------|---|--------|--------|-------|------|------|---------|
| 10477-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 111.93 | 25.23 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 33.07  | 94.87  | 20.15 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 105.75 | 22.56 |      | 80.0 |         |
| 10478-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 105.71 | 22.40 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.34   | 68.36  | 11.72 |      | 80.0 |         |
|           |                                                                     | Z | 11.36  | 82.22  | 15.93 |      | 80.0 |         |
| 10479-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 130.84 | 35.89 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 60.80  | 117.61 | 31.49 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 126.40 | 33.86 |      | 80.0 |         |
| 10480-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 117.92 | 29.69 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 41.60  | 102.80 | 25.25 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 114.58 | 28.17 |      | 80.0 |         |
| 10481-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 115.37 | 28.42 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 19.43  | 91.87  | 21.88 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 112.23 | 27.01 |      | 80.0 |         |
| 10482-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 40.52  | 108.24 | 27.79 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.25   | 75.83  | 17.60 |      | 80.0 |         |
|           |                                                                     | Z | 4.42   | 76.58  | 18.04 |      | 80.0 |         |
| 10483-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 115.06 | 28.63 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 6.47   | 77.91  | 17.87 |      | 80.0 |         |
|           |                                                                     | Z | 9.56   | 83.29  | 19.85 |      | 80.0 |         |
| 10484-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 85.92  | 112.69 | 28.04 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 5.56   | 75.79  | 17.11 |      | 80.0 |         |
|           |                                                                     | Z | 7.75   | 80.38  | 18.90 |      | 80.0 |         |
| 10485-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 19.76  | 101.41 | 27.69 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 5.05   | 78.87  | 19.93 |      | 80.0 |         |
|           |                                                                     | Z | 5.01   | 78.91  | 20.06 |      | 80.0 |         |
| 10486-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 6.97   | 81.23  | 20.60 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 3.90   | 71.80  | 16.61 |      | 80.0 |         |
|           |                                                                     | Z | 3.95   | 72.12  | 16.83 |      | 80.0 |         |
| 10487-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 6.39   | 79.59  | 20.00 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 3.82   | 71.17  | 16.33 |      | 80.0 |         |
|           |                                                                     | Z | 3.87   | 71.50  | 16.55 |      | 80.0 |         |
| 10488-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 8.20   | 87.03  | 24.46 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.80   | 76.79  | 20.15 |      | 80.0 |         |
|           |                                                                     | Z | 4.76   | 76.76  | 20.19 |      | 80.0 |         |
| 10489-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 5.19   | 76.32  | 20.47 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.15   | 71.71  | 18.11 |      | 80.0 |         |
|           |                                                                     | Z | 4.14   | 71.71  | 18.13 |      | 80.0 |         |
| 10490-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 5.15   | 75.62  | 20.19 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.21   | 71.41  | 18.00 |      | 80.0 |         |
|           |                                                                     | Z | 4.20   | 71.42  | 18.02 |      | 80.0 |         |
| 10491-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 6.21   | 79.96  | 22.14 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.67   | 74.12  | 19.33 |      | 80.0 |         |
|           |                                                                     | Z | 4.66   | 74.16  | 19.37 |      | 80.0 |         |
| 10492-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 4.95   | 73.35  | 19.65 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.37   | 70.48  | 18.00 |      | 80.0 |         |
|           |                                                                     | Z | 4.37   | 70.50  | 18.01 |      | 80.0 |         |

|           |                                                                      |   |       |       |       |      |      |         |
|-----------|----------------------------------------------------------------------|---|-------|-------|-------|------|------|---------|
| 10493-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 4.96  | 72.97 | 19.49 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.42  | 70.28 | 17.92 |      | 80.0 |         |
|           |                                                                      | Z | 4.42  | 70.31 | 17.93 |      | 80.0 |         |
| 10494-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 7.46  | 83.10 | 23.12 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 5.17  | 75.85 | 19.87 |      | 80.0 |         |
|           |                                                                      | Z | 5.16  | 75.90 | 19.91 |      | 80.0 |         |
| 10495-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 5.04  | 73.86 | 19.93 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.43  | 70.87 | 18.22 |      | 80.0 |         |
|           |                                                                      | Z | 4.42  | 70.89 | 18.23 |      | 80.0 |         |
| 10496-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 5.01  | 73.19 | 19.67 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.48  | 70.51 | 18.11 |      | 80.0 |         |
|           |                                                                      | Z | 4.47  | 70.52 | 18.11 |      | 80.0 |         |
| 10497-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 18.61 | 93.71 | 22.25 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.45  | 68.31 | 13.45 |      | 80.0 |         |
|           |                                                                      | Z | 2.72  | 69.77 | 14.23 |      | 80.0 |         |
| 10498-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.09  | 64.80 | 11.03 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 1.58  | 61.28 | 9.05  |      | 80.0 |         |
|           |                                                                      | Z | 1.67  | 61.97 | 9.56  |      | 80.0 |         |
| 10499-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.86  | 63.35 | 10.18 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 1.52  | 60.71 | 8.61  |      | 80.0 |         |
|           |                                                                      | Z | 1.60  | 61.32 | 9.07  |      | 80.0 |         |
| 10500-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 11.58 | 93.03 | 25.75 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.82  | 77.65 | 19.90 |      | 80.0 |         |
|           |                                                                      | Z | 4.78  | 77.66 | 19.99 |      | 80.0 |         |
| 10501-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 6.07  | 79.10 | 20.50 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.06  | 71.97 | 17.26 |      | 80.0 |         |
|           |                                                                      | Z | 4.07  | 72.11 | 17.38 |      | 80.0 |         |
| 10502-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 5.97  | 78.41 | 20.16 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.08  | 71.66 | 17.07 |      | 80.0 |         |
|           |                                                                      | Z | 4.10  | 71.82 | 17.20 |      | 80.0 |         |
| 10503-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 8.02  | 86.64 | 24.31 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.72  | 76.54 | 20.04 |      | 80.0 |         |
|           |                                                                      | Z | 4.70  | 76.53 | 20.08 |      | 80.0 |         |
| 10504-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 5.16  | 76.18 | 20.40 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.13  | 71.59 | 18.04 |      | 80.0 |         |
|           |                                                                      | Z | 4.12  | 71.61 | 18.07 |      | 80.0 |         |
| 10505-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 5.12  | 75.50 | 20.12 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.19  | 71.30 | 17.93 |      | 80.0 |         |
|           |                                                                      | Z | 4.18  | 71.32 | 17.96 |      | 80.0 |         |
| 10506-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 7.36  | 82.85 | 23.02 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 5.12  | 75.68 | 19.79 |      | 80.0 |         |
|           |                                                                      | Z | 5.11  | 75.74 | 19.83 |      | 80.0 |         |
| 10507-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 5.02  | 73.79 | 19.89 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 4.41  | 70.80 | 18.18 |      | 80.0 |         |
|           |                                                                      | Z | 4.40  | 70.83 | 18.19 |      | 80.0 |         |

|           |                                                                     |   |       |        |       |      |       |         |
|-----------|---------------------------------------------------------------------|---|-------|--------|-------|------|-------|---------|
| 10508-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.99  | 73.10  | 19.63 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 4.46  | 70.43  | 18.06 |      | 80.0  |         |
|           |                                                                     | Z | 4.45  | 70.45  | 18.07 |      | 80.0  |         |
| 10509-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 6.45  | 78.02  | 21.23 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 5.21  | 73.57  | 19.00 |      | 80.0  |         |
|           |                                                                     | Z | 5.21  | 73.66  | 19.04 |      | 80.0  |         |
| 10510-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.25  | 72.27  | 19.36 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 4.83  | 70.16  | 18.06 |      | 80.0  |         |
|           |                                                                     | Z | 4.83  | 70.21  | 18.07 |      | 80.0  |         |
| 10511-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.25  | 71.79  | 19.19 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 4.87  | 69.87  | 17.98 |      | 80.0  |         |
|           |                                                                     | Z | 4.86  | 69.92  | 17.98 |      | 80.0  |         |
| 10512-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 7.59  | 81.45  | 22.34 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 5.59  | 75.41  | 19.56 |      | 80.0  |         |
|           |                                                                     | Z | 5.60  | 75.54  | 19.63 |      | 80.0  |         |
| 10513-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.21  | 72.82  | 19.60 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 4.74  | 70.48  | 18.19 |      | 80.0  |         |
|           |                                                                     | Z | 4.74  | 70.53  | 18.20 |      | 80.0  |         |
| 10514-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.14  | 72.06  | 19.33 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 4.73  | 69.99  | 18.04 |      | 80.0  |         |
|           |                                                                     | Z | 4.73  | 70.04  | 18.05 |      | 80.0  |         |
| 10515-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)           | X | 1.06  | 65.96  | 16.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.93  | 62.85  | 14.14 |      | 150.0 |         |
|           |                                                                     | Z | 0.96  | 63.17  | 14.37 |      | 150.0 |         |
| 10516-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)         | X | 15.96 | 138.00 | 41.02 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.51  | 67.83  | 15.27 |      | 150.0 |         |
|           |                                                                     | Z | 0.56  | 68.75  | 16.08 |      | 150.0 |         |
| 10517-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)          | X | 1.02  | 71.00  | 19.36 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.77  | 64.31  | 14.46 |      | 150.0 |         |
|           |                                                                     | Z | 0.80  | 64.76  | 14.81 |      | 150.0 |         |
| 10518-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)           | X | 4.52  | 67.59  | 16.74 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.42  | 66.83  | 16.09 |      | 150.0 |         |
|           |                                                                     | Z | 4.44  | 66.96  | 16.12 |      | 150.0 |         |
| 10519-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)          | X | 4.68  | 67.77  | 16.83 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.59  | 67.03  | 16.20 |      | 150.0 |         |
|           |                                                                     | Z | 4.61  | 67.16  | 16.22 |      | 150.0 |         |
| 10520-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)          | X | 4.54  | 67.75  | 16.77 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.44  | 66.97  | 16.11 |      | 150.0 |         |
|           |                                                                     | Z | 4.46  | 67.10  | 16.14 |      | 150.0 |         |
| 10521-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)          | X | 4.48  | 67.75  | 16.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.37  | 66.95  | 16.09 |      | 150.0 |         |
|           |                                                                     | Z | 4.39  | 67.08  | 16.12 |      | 150.0 |         |
| 10522-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)          | X | 4.54  | 67.89  | 16.87 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.43  | 67.08  | 16.19 |      | 150.0 |         |
|           |                                                                     | Z | 4.45  | 67.21  | 16.22 |      | 150.0 |         |

|           |                                                            |   |      |       |       |      |       |         |
|-----------|------------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10523-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | X | 4.45 | 67.82 | 16.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.33 | 66.98 | 16.06 |      | 150.0 |         |
|           |                                                            | Z | 4.35 | 67.12 | 16.09 |      | 150.0 |         |
| 10524-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | X | 4.48 | 67.81 | 16.84 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.38 | 67.00 | 16.16 |      | 150.0 |         |
|           |                                                            | Z | 4.40 | 67.13 | 16.19 |      | 150.0 |         |
| 10525-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)          | X | 4.50 | 66.88 | 16.44 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.39 | 66.07 | 15.76 |      | 150.0 |         |
|           |                                                            | Z | 4.41 | 66.21 | 15.79 |      | 150.0 |         |
| 10526-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)          | X | 4.65 | 67.22 | 16.57 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.53 | 66.39 | 15.90 |      | 150.0 |         |
|           |                                                            | Z | 4.55 | 66.53 | 15.93 |      | 150.0 |         |
| 10527-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)          | X | 4.58 | 67.20 | 16.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.45 | 66.35 | 15.83 |      | 150.0 |         |
|           |                                                            | Z | 4.48 | 66.49 | 15.86 |      | 150.0 |         |
| 10528-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)          | X | 4.59 | 67.21 | 16.55 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.47 | 66.37 | 15.86 |      | 150.0 |         |
|           |                                                            | Z | 4.49 | 66.51 | 15.89 |      | 150.0 |         |
| 10529-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)          | X | 4.59 | 67.21 | 16.55 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.47 | 66.37 | 15.86 |      | 150.0 |         |
|           |                                                            | Z | 4.49 | 66.51 | 15.89 |      | 150.0 |         |
| 10531-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)          | X | 4.57 | 67.29 | 16.56 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.45 | 66.43 | 15.86 |      | 150.0 |         |
|           |                                                            | Z | 4.47 | 66.57 | 15.89 |      | 150.0 |         |
| 10532-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)          | X | 4.44 | 67.16 | 16.50 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.32 | 66.28 | 15.78 |      | 150.0 |         |
|           |                                                            | Z | 4.34 | 66.42 | 15.82 |      | 150.0 |         |
| 10533-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)          | X | 4.60 | 67.29 | 16.56 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.48 | 66.43 | 15.86 |      | 150.0 |         |
|           |                                                            | Z | 4.50 | 66.57 | 15.89 |      | 150.0 |         |
| 10534-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)          | X | 5.13 | 67.13 | 16.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.03 | 66.47 | 15.96 |      | 150.0 |         |
|           |                                                            | Z | 5.04 | 66.59 | 15.97 |      | 150.0 |         |
| 10535-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)          | X | 5.19 | 67.31 | 16.61 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.09 | 66.65 | 16.05 |      | 150.0 |         |
|           |                                                            | Z | 5.10 | 66.76 | 16.05 |      | 150.0 |         |
| 10536-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)          | X | 5.07 | 67.31 | 16.59 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.97 | 66.61 | 16.00 |      | 150.0 |         |
|           |                                                            | Z | 4.98 | 66.72 | 16.01 |      | 150.0 |         |
| 10537-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)          | X | 5.12 | 67.24 | 16.56 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.02 | 66.57 | 15.99 |      | 150.0 |         |
|           |                                                            | Z | 5.03 | 66.68 | 16.00 |      | 150.0 |         |
| 10538-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)          | X | 5.20 | 67.22 | 16.58 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.10 | 66.57 | 16.03 |      | 150.0 |         |
|           |                                                            | Z | 5.11 | 66.68 | 16.04 |      | 150.0 |         |
| 10540-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)          | X | 5.13 | 67.21 | 16.60 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.03 | 66.56 | 16.04 |      | 150.0 |         |
|           |                                                            | Z | 5.04 | 66.66 | 16.05 |      | 150.0 |         |

|           |                                                    |   |      |       |       |      |       |         |
|-----------|----------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10541-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)  | X | 5.11 | 67.09 | 16.53 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.01 | 66.44 | 15.97 |      | 150.0 |         |
|           |                                                    | Z | 5.02 | 66.56 | 15.98 |      | 150.0 |         |
| 10542-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)  | X | 5.26 | 67.17 | 16.58 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.17 | 66.54 | 16.04 |      | 150.0 |         |
|           |                                                    | Z | 5.18 | 66.66 | 16.05 |      | 150.0 |         |
| 10543-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)  | X | 5.32 | 67.17 | 16.60 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.23 | 66.56 | 16.07 |      | 150.0 |         |
|           |                                                    | Z | 5.24 | 66.67 | 16.08 |      | 150.0 |         |
| 10544-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)  | X | 5.45 | 67.16 | 16.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.36 | 66.58 | 15.96 |      | 150.0 |         |
|           |                                                    | Z | 5.37 | 66.70 | 15.97 |      | 150.0 |         |
| 10545-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)  | X | 5.65 | 67.64 | 16.67 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.55 | 67.04 | 16.15 |      | 150.0 |         |
|           |                                                    | Z | 5.55 | 67.11 | 16.14 |      | 150.0 |         |
| 10546-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)  | X | 5.50 | 67.33 | 16.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.40 | 66.73 | 16.01 |      | 150.0 |         |
|           |                                                    | Z | 5.41 | 66.85 | 16.02 |      | 150.0 |         |
| 10547-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)  | X | 5.57 | 67.40 | 16.55 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.48 | 66.81 | 16.04 |      | 150.0 |         |
|           |                                                    | Z | 5.49 | 66.91 | 16.05 |      | 150.0 |         |
| 10548-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)  | X | 5.80 | 68.28 | 16.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.70 | 67.67 | 16.45 |      | 150.0 |         |
|           |                                                    | Z | 5.67 | 67.67 | 16.40 |      | 150.0 |         |
| 10550-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)  | X | 5.55 | 67.47 | 16.61 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.46 | 66.86 | 16.09 |      | 150.0 |         |
|           |                                                    | Z | 5.45 | 66.94 | 16.08 |      | 150.0 |         |
| 10551-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)  | X | 5.52 | 67.37 | 16.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.43 | 66.79 | 16.01 |      | 150.0 |         |
|           |                                                    | Z | 5.44 | 66.89 | 16.02 |      | 150.0 |         |
| 10552-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)  | X | 5.46 | 67.26 | 16.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.37 | 66.65 | 15.94 |      | 150.0 |         |
|           |                                                    | Z | 5.38 | 66.78 | 15.96 |      | 150.0 |         |
| 10553-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)  | X | 5.53 | 67.23 | 16.48 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.43 | 66.65 | 15.98 |      | 150.0 |         |
|           |                                                    | Z | 5.45 | 66.78 | 15.99 |      | 150.0 |         |
| 10554-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | X | 5.87 | 67.48 | 16.53 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.78 | 66.94 | 16.06 |      | 150.0 |         |
|           |                                                    | Z | 5.78 | 67.05 | 16.06 |      | 150.0 |         |
| 10555-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | X | 5.99 | 67.78 | 16.66 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.90 | 67.23 | 16.19 |      | 150.0 |         |
|           |                                                    | Z | 5.89 | 67.32 | 16.18 |      | 150.0 |         |
| 10556-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | X | 6.02 | 67.86 | 16.69 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.93 | 67.30 | 16.21 |      | 150.0 |         |
|           |                                                    | Z | 5.92 | 67.39 | 16.21 |      | 150.0 |         |
| 10557-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | X | 5.97 | 67.72 | 16.64 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.88 | 67.16 | 16.17 |      | 150.0 |         |
|           |                                                    | Z | 5.88 | 67.27 | 16.17 |      | 150.0 |         |

|           |                                                                 |   |        |        |       |      |       |         |
|-----------|-----------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10558-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)              | X | 6.01   | 67.87  | 16.73 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.92   | 67.31  | 16.26 |      | 150.0 |         |
|           |                                                                 | Z | 5.92   | 67.42  | 16.26 |      | 150.0 |         |
| 10560-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)              | X | 6.00   | 67.71  | 16.69 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.91   | 67.17  | 16.22 |      | 150.0 |         |
|           |                                                                 | Z | 5.92   | 67.28  | 16.23 |      | 150.0 |         |
| 10561-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)              | X | 5.94   | 67.72  | 16.73 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.85   | 67.17  | 16.26 |      | 150.0 |         |
|           |                                                                 | Z | 5.85   | 67.26  | 16.25 |      | 150.0 |         |
| 10562-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)              | X | 6.02   | 67.98  | 16.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.93   | 67.43  | 16.39 |      | 150.0 |         |
|           |                                                                 | Z | 5.93   | 67.53  | 16.39 |      | 150.0 |         |
| 10563-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)              | X | 6.11   | 67.87  | 16.77 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 6.03   | 67.36  | 16.32 |      | 150.0 |         |
|           |                                                                 | Z | 6.01   | 67.42  | 16.30 |      | 150.0 |         |
| 10564-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | X | 4.84   | 67.60  | 16.86 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.76   | 66.94  | 16.28 |      | 150.0 |         |
|           |                                                                 | Z | 4.77   | 67.07  | 16.31 |      | 150.0 |         |
| 10565-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | X | 5.05   | 68.00  | 17.15 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.96   | 67.35  | 16.59 |      | 150.0 |         |
|           |                                                                 | Z | 4.98   | 67.47  | 16.60 |      | 150.0 |         |
| 10566-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | X | 4.89   | 67.87  | 16.99 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.80   | 67.18  | 16.40 |      | 150.0 |         |
|           |                                                                 | Z | 4.82   | 67.31  | 16.42 |      | 150.0 |         |
| 10567-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | X | 4.92   | 68.26  | 17.34 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.83   | 67.55  | 16.75 |      | 150.0 |         |
|           |                                                                 | Z | 4.84   | 67.66  | 16.76 |      | 150.0 |         |
| 10568-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | X | 4.81   | 67.69  | 16.79 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.72   | 67.00  | 16.19 |      | 150.0 |         |
|           |                                                                 | Z | 4.74   | 67.13  | 16.23 |      | 150.0 |         |
| 10569-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | X | 4.90   | 68.45  | 17.47 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.80   | 67.71  | 16.85 |      | 150.0 |         |
|           |                                                                 | Z | 4.82   | 67.82  | 16.85 |      | 150.0 |         |
| 10570-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | X | 4.91   | 68.26  | 17.37 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.82   | 67.54  | 16.77 |      | 150.0 |         |
|           |                                                                 | Z | 4.84   | 67.65  | 16.78 |      | 150.0 |         |
| 10571-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | X | 1.39   | 68.54  | 18.34 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 1.22   | 65.10  | 15.55 |      | 130.0 |         |
|           |                                                                 | Z | 1.24   | 65.31  | 15.71 |      | 130.0 |         |
| 10572-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | X | 1.43   | 69.55  | 18.91 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 1.24   | 65.69  | 15.90 |      | 130.0 |         |
|           |                                                                 | Z | 1.26   | 65.89  | 16.05 |      | 130.0 |         |
| 10573-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | X | 100.00 | 159.88 | 44.36 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 2.62   | 87.08  | 22.76 |      | 130.0 |         |
|           |                                                                 | Z | 2.75   | 88.34  | 23.60 |      | 130.0 |         |
| 10574-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | X | 2.30   | 83.33  | 25.10 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 1.38   | 71.49  | 18.69 |      | 130.0 |         |
|           |                                                                 | Z | 1.40   | 71.55  | 18.82 |      | 130.0 |         |

|           |                                                                 |   |      |       |       |      |       |         |
|-----------|-----------------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10575-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | X | 4.65 | 67.47 | 16.97 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.56 | 66.80 | 16.37 |      | 130.0 |         |
|           |                                                                 | Z | 4.58 | 66.92 | 16.39 |      | 130.0 |         |
| 10576-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | X | 4.68 | 67.67 | 17.04 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.59 | 66.98 | 16.44 |      | 130.0 |         |
|           |                                                                 | Z | 4.61 | 67.09 | 16.46 |      | 130.0 |         |
| 10577-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | X | 4.85 | 67.90 | 17.18 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.77 | 67.23 | 16.59 |      | 130.0 |         |
|           |                                                                 | Z | 4.79 | 67.34 | 16.61 |      | 130.0 |         |
| 10578-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | X | 4.76 | 68.08 | 17.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.67 | 67.37 | 16.69 |      | 130.0 |         |
|           |                                                                 | Z | 4.69 | 67.47 | 16.70 |      | 130.0 |         |
| 10579-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | X | 4.52 | 67.37 | 16.63 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.44 | 66.66 | 16.00 |      | 130.0 |         |
|           |                                                                 | Z | 4.46 | 66.79 | 16.04 |      | 130.0 |         |
| 10580-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | X | 4.57 | 67.45 | 16.67 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.48 | 66.73 | 16.04 |      | 130.0 |         |
|           |                                                                 | Z | 4.51 | 66.87 | 16.08 |      | 130.0 |         |
| 10581-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | X | 4.68 | 68.20 | 17.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.58 | 67.44 | 16.65 |      | 130.0 |         |
|           |                                                                 | Z | 4.59 | 67.55 | 16.66 |      | 130.0 |         |
| 10582-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | X | 4.46 | 67.16 | 16.43 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.38 | 66.43 | 15.80 |      | 130.0 |         |
|           |                                                                 | Z | 4.40 | 66.59 | 15.85 |      | 130.0 |         |
| 10583-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | X | 4.65 | 67.47 | 16.97 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.56 | 66.80 | 16.37 |      | 130.0 |         |
|           |                                                                 | Z | 4.58 | 66.92 | 16.39 |      | 130.0 |         |
| 10584-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | X | 4.68 | 67.67 | 17.04 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.59 | 66.98 | 16.44 |      | 130.0 |         |
|           |                                                                 | Z | 4.61 | 67.09 | 16.46 |      | 130.0 |         |
| 10585-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | X | 4.85 | 67.90 | 17.18 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.77 | 67.23 | 16.59 |      | 130.0 |         |
|           |                                                                 | Z | 4.79 | 67.34 | 16.61 |      | 130.0 |         |
| 10586-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | X | 4.76 | 68.08 | 17.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.67 | 67.37 | 16.69 |      | 130.0 |         |
|           |                                                                 | Z | 4.69 | 67.47 | 16.70 |      | 130.0 |         |
| 10587-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | X | 4.52 | 67.37 | 16.63 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.44 | 66.66 | 16.00 |      | 130.0 |         |
|           |                                                                 | Z | 4.46 | 66.79 | 16.04 |      | 130.0 |         |
| 10588-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)      | X | 4.57 | 67.45 | 16.67 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.48 | 66.73 | 16.04 |      | 130.0 |         |
|           |                                                                 | Z | 4.51 | 66.87 | 16.08 |      | 130.0 |         |
| 10589-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)      | X | 4.68 | 68.20 | 17.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.58 | 67.44 | 16.65 |      | 130.0 |         |
|           |                                                                 | Z | 4.59 | 67.55 | 16.66 |      | 130.0 |         |
| 10590-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)      | X | 4.46 | 67.16 | 16.43 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.38 | 66.43 | 15.80 |      | 130.0 |         |
|           |                                                                 | Z | 4.40 | 66.59 | 15.85 |      | 130.0 |         |

|           |                                                       |   |      |       |       |      |       |         |
|-----------|-------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10591-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | X | 4.79 | 67.49 | 17.04 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.72 | 66.87 | 16.48 |      | 130.0 |         |
|           |                                                       | Z | 4.73 | 66.98 | 16.49 |      | 130.0 |         |
| 10592-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | X | 4.93 | 67.82 | 17.17 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.85 | 67.18 | 16.61 |      | 130.0 |         |
|           |                                                       | Z | 4.87 | 67.29 | 16.62 |      | 130.0 |         |
| 10593-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | X | 4.85 | 67.72 | 17.05 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.77 | 67.07 | 16.48 |      | 130.0 |         |
|           |                                                       | Z | 4.79 | 67.19 | 16.50 |      | 130.0 |         |
| 10594-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | X | 4.91 | 67.89 | 17.21 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.83 | 67.24 | 16.64 |      | 130.0 |         |
|           |                                                       | Z | 4.84 | 67.35 | 16.65 |      | 130.0 |         |
| 10595-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | X | 4.88 | 67.89 | 17.13 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.79 | 67.21 | 16.54 |      | 130.0 |         |
|           |                                                       | Z | 4.81 | 67.33 | 16.56 |      | 130.0 |         |
| 10596-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | X | 4.81 | 67.89 | 17.14 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.73 | 67.20 | 16.54 |      | 130.0 |         |
|           |                                                       | Z | 4.75 | 67.32 | 16.56 |      | 130.0 |         |
| 10597-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | X | 4.76 | 67.77 | 17.01 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.68 | 67.08 | 16.41 |      | 130.0 |         |
|           |                                                       | Z | 4.70 | 67.20 | 16.43 |      | 130.0 |         |
| 10598-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | X | 4.75 | 67.99 | 17.26 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.66 | 67.29 | 16.66 |      | 130.0 |         |
|           |                                                       | Z | 4.68 | 67.40 | 16.67 |      | 130.0 |         |
| 10599-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | X | 5.46 | 67.90 | 17.20 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.39 | 67.38 | 16.72 |      | 130.0 |         |
|           |                                                       | Z | 5.39 | 67.43 | 16.70 |      | 130.0 |         |
| 10600-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | X | 5.60 | 68.37 | 17.41 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.53 | 67.84 | 16.93 |      | 130.0 |         |
|           |                                                       | Z | 5.51 | 67.83 | 16.88 |      | 130.0 |         |
| 10601-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | X | 5.48 | 68.09 | 17.29 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.41 | 67.56 | 16.80 |      | 130.0 |         |
|           |                                                       | Z | 5.41 | 67.60 | 16.78 |      | 130.0 |         |
| 10602-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | X | 5.61 | 68.27 | 17.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.54 | 67.71 | 16.80 |      | 130.0 |         |
|           |                                                       | Z | 5.54 | 67.78 | 16.79 |      | 130.0 |         |
| 10603-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | X | 5.68 | 68.53 | 17.56 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.60 | 67.96 | 17.06 |      | 130.0 |         |
|           |                                                       | Z | 5.59 | 68.00 | 17.03 |      | 130.0 |         |
| 10604-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | X | 5.56 | 68.19 | 17.38 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.48 | 67.64 | 16.88 |      | 130.0 |         |
|           |                                                       | Z | 5.47 | 67.67 | 16.85 |      | 130.0 |         |
| 10605-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | X | 5.59 | 68.28 | 17.42 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.53 | 67.75 | 16.94 |      | 130.0 |         |
|           |                                                       | Z | 5.51 | 67.78 | 16.90 |      | 130.0 |         |
| 10606-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | X | 5.33 | 67.56 | 16.92 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.26 | 67.02 | 16.42 |      | 130.0 |         |
|           |                                                       | Z | 5.26 | 67.10 | 16.42 |      | 130.0 |         |

|           |                                                   |   |      |       |       |      |       |         |
|-----------|---------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10607-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | X | 4.65 | 66.90 | 16.72 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.55 | 66.17 | 16.10 |      | 130.0 |         |
|           |                                                   | Z | 4.57 | 66.30 | 16.12 |      | 130.0 |         |
| 10608-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | X | 4.82 | 67.28 | 16.88 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.71 | 66.54 | 16.26 |      | 130.0 |         |
|           |                                                   | Z | 4.73 | 66.66 | 16.27 |      | 130.0 |         |
| 10609-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | X | 4.71 | 67.14 | 16.72 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.61 | 66.38 | 16.09 |      | 130.0 |         |
|           |                                                   | Z | 4.63 | 66.51 | 16.11 |      | 130.0 |         |
| 10610-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | X | 4.76 | 67.30 | 16.88 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.66 | 66.54 | 16.25 |      | 130.0 |         |
|           |                                                   | Z | 4.67 | 66.66 | 16.27 |      | 130.0 |         |
| 10611-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | X | 4.68 | 67.11 | 16.74 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.57 | 66.35 | 16.10 |      | 130.0 |         |
|           |                                                   | Z | 4.59 | 66.48 | 16.12 |      | 130.0 |         |
| 10612-AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | X | 4.69 | 67.30 | 16.81 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.58 | 66.50 | 16.15 |      | 130.0 |         |
|           |                                                   | Z | 4.60 | 66.63 | 16.17 |      | 130.0 |         |
| 10613-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | X | 4.68 | 67.12 | 16.65 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.57 | 66.35 | 16.01 |      | 130.0 |         |
|           |                                                   | Z | 4.59 | 66.48 | 16.04 |      | 130.0 |         |
| 10614-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | X | 4.64 | 67.32 | 16.89 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.53 | 66.53 | 16.24 |      | 130.0 |         |
|           |                                                   | Z | 4.54 | 66.65 | 16.25 |      | 130.0 |         |
| 10615-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | X | 4.68 | 66.97 | 16.53 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.57 | 66.20 | 15.88 |      | 130.0 |         |
|           |                                                   | Z | 4.59 | 66.34 | 15.92 |      | 130.0 |         |
| 10616-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | X | 5.28 | 67.16 | 16.82 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.20 | 66.58 | 16.30 |      | 130.0 |         |
|           |                                                   | Z | 5.21 | 66.68 | 16.30 |      | 130.0 |         |
| 10617-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | X | 5.36 | 67.40 | 16.91 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.28 | 66.80 | 16.39 |      | 130.0 |         |
|           |                                                   | Z | 5.28 | 66.87 | 16.38 |      | 130.0 |         |
| 10618-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | X | 5.26 | 67.44 | 16.95 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.17 | 66.81 | 16.40 |      | 130.0 |         |
|           |                                                   | Z | 5.17 | 66.89 | 16.40 |      | 130.0 |         |
| 10619-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | X | 5.26 | 67.20 | 16.77 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.17 | 66.59 | 16.23 |      | 130.0 |         |
|           |                                                   | Z | 5.18 | 66.68 | 16.23 |      | 130.0 |         |
| 10620-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | X | 5.34 | 67.21 | 16.81 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.26 | 66.62 | 16.30 |      | 130.0 |         |
|           |                                                   | Z | 5.26 | 66.71 | 16.30 |      | 130.0 |         |
| 10621-AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | X | 5.34 | 67.32 | 16.98 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.26 | 66.75 | 16.48 |      | 130.0 |         |
|           |                                                   | Z | 5.27 | 66.83 | 16.47 |      | 130.0 |         |
| 10622-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | X | 5.35 | 67.46 | 17.05 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.28 | 66.93 | 16.56 |      | 130.0 |         |
|           |                                                   | Z | 5.27 | 66.98 | 16.53 |      | 130.0 |         |

|           |                                                    |   |      |       |       |      |       |         |
|-----------|----------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10623-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)  | X | 5.23 | 66.99 | 16.69 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.15 | 66.41 | 16.18 |      | 130.0 |         |
|           |                                                    | Z | 5.16 | 66.53 | 16.18 |      | 130.0 |         |
| 10624-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)  | X | 5.42 | 67.20 | 16.85 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.34 | 66.64 | 16.35 |      | 130.0 |         |
|           |                                                    | Z | 5.35 | 66.73 | 16.35 |      | 130.0 |         |
| 10625-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)  | X | 5.63 | 67.73 | 17.17 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.58 | 67.24 | 16.71 |      | 130.0 |         |
|           |                                                    | Z | 5.57 | 67.31 | 16.69 |      | 130.0 |         |
| 10626-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)  | X | 5.60 | 67.16 | 16.74 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.52 | 66.64 | 16.27 |      | 130.0 |         |
|           |                                                    | Z | 5.52 | 66.74 | 16.27 |      | 130.0 |         |
| 10627-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)  | X | 5.85 | 67.83 | 17.04 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.77 | 67.28 | 16.56 |      | 130.0 |         |
|           |                                                    | Z | 5.75 | 67.31 | 16.52 |      | 130.0 |         |
| 10628-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)  | X | 5.61 | 67.20 | 16.66 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.53 | 66.67 | 16.19 |      | 130.0 |         |
|           |                                                    | Z | 5.54 | 66.78 | 16.19 |      | 130.0 |         |
| 10629-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)  | X | 5.70 | 67.32 | 16.71 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.62 | 66.78 | 16.24 |      | 130.0 |         |
|           |                                                    | Z | 5.62 | 66.87 | 16.23 |      | 130.0 |         |
| 10630-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)  | X | 6.07 | 68.67 | 17.39 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 6.00 | 68.13 | 16.92 |      | 130.0 |         |
|           |                                                    | Z | 5.94 | 68.05 | 16.83 |      | 130.0 |         |
| 10631-AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)  | X | 5.97 | 68.45 | 17.46 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.89 | 67.90 | 16.98 |      | 130.0 |         |
|           |                                                    | Z | 5.88 | 67.93 | 16.94 |      | 130.0 |         |
| 10632-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)  | X | 5.82 | 67.90 | 17.21 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.74 | 67.35 | 16.73 |      | 130.0 |         |
|           |                                                    | Z | 5.72 | 67.37 | 16.68 |      | 130.0 |         |
| 10633-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)  | X | 5.68 | 67.41 | 16.80 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.60 | 66.87 | 16.32 |      | 130.0 |         |
|           |                                                    | Z | 5.60 | 66.97 | 16.31 |      | 130.0 |         |
| 10634-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)  | X | 5.66 | 67.41 | 16.85 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.57 | 66.87 | 16.37 |      | 130.0 |         |
|           |                                                    | Z | 5.58 | 66.98 | 16.37 |      | 130.0 |         |
| 10635-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)  | X | 5.53 | 66.73 | 16.25 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.45 | 66.20 | 15.78 |      | 130.0 |         |
|           |                                                    | Z | 5.46 | 66.34 | 15.80 |      | 130.0 |         |
| 10636-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | X | 6.03 | 67.50 | 16.80 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.95 | 67.01 | 16.37 |      | 130.0 |         |
|           |                                                    | Z | 5.95 | 67.10 | 16.36 |      | 130.0 |         |
| 10637-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | X | 6.18 | 67.89 | 16.98 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 6.10 | 67.40 | 16.55 |      | 130.0 |         |
|           |                                                    | Z | 6.09 | 67.46 | 16.52 |      | 130.0 |         |
| 10638-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | X | 6.18 | 67.87 | 16.95 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 6.10 | 67.37 | 16.51 |      | 130.0 |         |
|           |                                                    | Z | 6.09 | 67.44 | 16.49 |      | 130.0 |         |

|           |                                                        |   |        |        |       |       |       |         |
|-----------|--------------------------------------------------------|---|--------|--------|-------|-------|-------|---------|
| 10639-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)     | X | 6.14   | 67.77  | 16.94 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.06   | 67.27  | 16.50 |       | 130.0 |         |
|           |                                                        | Z | 6.06   | 67.36  | 16.49 |       | 130.0 |         |
| 10640-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)     | X | 6.14   | 67.79  | 16.90 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.06   | 67.28  | 16.45 |       | 130.0 |         |
|           |                                                        | Z | 6.06   | 67.37  | 16.45 |       | 130.0 |         |
| 10641-AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)     | X | 6.21   | 67.77  | 16.91 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.13   | 67.28  | 16.47 |       | 130.0 |         |
|           |                                                        | Z | 6.12   | 67.34  | 16.45 |       | 130.0 |         |
| 10642-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)     | X | 6.22   | 67.93  | 17.15 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.15   | 67.45  | 16.72 |       | 130.0 |         |
|           |                                                        | Z | 6.14   | 67.53  | 16.70 |       | 130.0 |         |
| 10643-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)     | X | 6.08   | 67.68  | 16.93 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.00   | 67.18  | 16.48 |       | 130.0 |         |
|           |                                                        | Z | 6.00   | 67.26  | 16.47 |       | 130.0 |         |
| 10644-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)     | X | 6.18   | 67.98  | 17.10 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.10   | 67.49  | 16.66 |       | 130.0 |         |
|           |                                                        | Z | 6.10   | 67.58  | 16.65 |       | 130.0 |         |
| 10645-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)     | X | 6.32   | 68.06  | 17.10 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.25   | 67.59  | 16.68 |       | 130.0 |         |
|           |                                                        | Z | 6.22   | 67.60  | 16.62 |       | 130.0 |         |
| 10646-AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)  | X | 100.00 | 154.11 | 50.71 | 9.30  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 85.82  | 146.30 | 47.76 |       | 60.0  |         |
|           |                                                        | Z | 100.00 | 151.52 | 49.47 |       | 60.0  |         |
| 10647-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | X | 100.00 | 155.63 | 51.38 | 9.30  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 67.85  | 141.83 | 46.85 |       | 60.0  |         |
|           |                                                        | Z | 100.00 | 152.93 | 50.09 |       | 60.0  |         |
| 10648-AAA | CDMA2000 (1x Advanced)                                 | X | 1.06   | 70.77  | 14.07 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                        | Y | 0.56   | 62.00  | 8.87  |       | 150.0 |         |
|           |                                                        | Z | 0.60   | 62.58  | 9.50  |       | 150.0 |         |
| 10652-AAD | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)         | X | 4.36   | 70.70  | 18.37 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 3.96   | 68.40  | 16.96 |       | 80.0  |         |
|           |                                                        | Z | 3.96   | 68.48  | 17.00 |       | 80.0  |         |
| 10653-AAD | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)        | X | 4.65   | 68.82  | 18.04 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 4.44   | 67.50  | 17.11 |       | 80.0  |         |
|           |                                                        | Z | 4.44   | 67.58  | 17.12 |       | 80.0  |         |
| 10654-AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)        | X | 4.59   | 68.27  | 17.98 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 4.42   | 67.11  | 17.12 |       | 80.0  |         |
|           |                                                        | Z | 4.42   | 67.19  | 17.13 |       | 80.0  |         |
| 10655-AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)        | X | 4.64   | 68.14  | 17.98 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 4.48   | 67.05  | 17.15 |       | 80.0  |         |
|           |                                                        | Z | 4.49   | 67.14  | 17.17 |       | 80.0  |         |
| 10658-AAA | Pulse Waveform (200Hz, 10%)                            | X | 100.00 | 116.19 | 29.17 | 10.00 | 50.0  | ± 9.6 % |
|           |                                                        | Y | 100.00 | 114.83 | 28.64 |       | 50.0  |         |
|           |                                                        | Z | 100.00 | 116.26 | 29.35 |       | 50.0  |         |
| 10659-AAA | Pulse Waveform (200Hz, 20%)                            | X | 100.00 | 114.21 | 27.33 | 6.99  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 100.00 | 111.64 | 26.23 |       | 60.0  |         |
|           |                                                        | Z | 100.00 | 113.42 | 27.07 |       | 60.0  |         |

|           |                             |   |        |        |       |      |       |         |
|-----------|-----------------------------|---|--------|--------|-------|------|-------|---------|
| 10660-AAA | Pulse Waveform (200Hz, 40%) | X | 100.00 | 115.66 | 26.72 | 3.98 | 80.0  | ± 9.6 % |
|           |                             | Y | 100.00 | 109.80 | 24.16 |      | 80.0  |         |
|           |                             | Z | 100.00 | 112.50 | 25.39 |      | 80.0  |         |
| 10661-AAA | Pulse Waveform (200Hz, 60%) | X | 100.00 | 122.78 | 28.50 | 2.22 | 100.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 109.73 | 22.95 |      | 100.0 |         |
|           |                             | Z | 100.00 | 114.21 | 24.92 |      | 100.0 |         |
| 10662-AAA | Pulse Waveform (200Hz, 80%) | X | 100.00 | 153.24 | 38.77 | 0.97 | 120.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 108.44 | 20.84 |      | 120.0 |         |
|           |                             | Z | 100.00 | 118.57 | 25.05 |      | 120.0 |         |
| 10670-AAA | Bluetooth Low Energy        | X | 100.00 | 122.74 | 28.87 | 2.19 | 100.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 111.53 | 24.06 |      | 100.0 |         |
|           |                             | Z | 100.00 | 115.23 | 25.69 |      | 100.0 |         |

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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 **PC Test**

Certificate No: **EX3-7420\_Sep18/2**

## CALIBRATION CERTIFICATE (Replacement of No: EX3-7420\_Sep18)

Object **EX3DV4 - SN:7420**

Calibration procedure(s) **DA CAL 01.v6, DA CAL 14.v6, DA CAL 23.v6, DA CAL 25.v6**  
 Calibration procedure for dosimetric E-field probes

SC ✓  
 9/21/2018

Calibration date: **September 18, 2018**

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 NRP            | SN: 104778       | 04-Apr-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103244       | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103245       | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator | SN: S5277 (20x)  | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| Reference Probe ES3DV2     | SN: 3013         | 30-Dec-17 (No. ES3-3013_Dec17)    | Dec-18                 |
| DAE4                       | SN: 660          | 21-Dec-17 (No. DAE4-660_Dec17)    | Dec-18                 |
| Secondary Standards        | ID               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B         | SN: GB41293874   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: MY41498087   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: 000110210    | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C      | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A    | SN: US41080477   | 31-Mar-14 (in house check Oct-17) | In house check: Oct-18 |

|                |                 |                       |           |
|----------------|-----------------|-----------------------|-----------|
| Calibrated by: | Name            | Function              | Signature |
|                | Claudio Leubler | Laboratory Technician |           |
| Approved by:   | Name            | Function              | Signature |
|                | Katja Pokovic   | Technical Manager     |           |

Issued: November 1, 2018

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### Glossary:

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                      | tissue simulating liquid                                                                                                                                |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                               |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                              |
| DCP                      | diode compression point                                                                                                                                 |
| CF                       | crest factor (1/duty_cycle) of the RF signal                                                                                                            |
| A, B, C, D               | modulation dependent linearization parameters                                                                                                           |
| Polarization $\phi$      | $\phi$ rotation around probe axis                                                                                                                       |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center),<br>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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* 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.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: 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 NORM<sub>x,y,z</sub> \* 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  $\pm 50$  MHz to  $\pm 100$  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 NORM<sub>x</sub> (no uncertainty required).

# Probe EX3DV4

## SN:7420

Manufactured: March 10, 2016  
Calibrated: September 18, 2018

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7420

### Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|-----------------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.49     | 0.54     | 0.60     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 100.0    | 95.0     | 92.8     |               |

### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB/ $\mu\text{V}$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                    | 1.0 | 0.00    | 142.4    | $\pm 3.0 \%$              |
|     |                           | Y | 0.0     | 0.0                    | 1.0 |         | 149.4    |                           |
|     |                           | Z | 0.0     | 0.0                    | 1.0 |         | 150.8    |                           |

Note: For details on UID parameters see Appendix.

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$\text{V}^{-1}$ | T1<br>$\text{ms} \cdot \text{V}^{-2}$ | T2<br>$\text{ms} \cdot \text{V}^{-1}$ | T3<br>ms | T4<br>$\text{V}^{-2}$ | T5<br>$\text{V}^{-1}$ | T6    |
|---|----------|----------|-----------------------------|---------------------------------------|---------------------------------------|----------|-----------------------|-----------------------|-------|
| X | 43.36    | 323.2    | 35.50                       | 10.05                                 | 0.115                                 | 5.063    | 1.86                  | 0.167                 | 1.006 |
| Y | 39.77    | 309.9    | 38.23                       | 6.054                                 | 0.047                                 | 5.084    | 0.00                  | 0.466                 | 1.008 |
| Z | 27.72    | 219.5    | 39.73                       | 8.921                                 | 0.303                                 | 5.100    | 0.00                  | 0.261                 | 1.008 |

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%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7420

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 41.9                               | 0.89                            | 10.01   | 10.01   | 10.01   | 0.34               | 1.05                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 9.68    | 9.68    | 9.68    | 0.27               | 1.10                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 8.43    | 8.43    | 8.43    | 0.37               | 0.84                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 8.16    | 8.16    | 8.16    | 0.32               | 0.84                    | ± 12.0 %  |
| 2300                 | 39.5                               | 1.67                            | 7.67    | 7.67    | 7.67    | 0.33               | 0.84                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 7.19    | 7.19    | 7.19    | 0.30               | 0.92                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 7.11    | 7.11    | 7.11    | 0.35               | 0.86                    | ± 12.0 %  |
| 5250                 | 35.9                               | 4.71                            | 5.19    | 5.19    | 5.19    | 0.40               | 1.80                    | ± 13.1 %  |
| 5600                 | 35.5                               | 5.07                            | 4.70    | 4.70    | 4.70    | 0.40               | 1.80                    | ± 13.1 %  |
| 5750                 | 35.4                               | 5.22                            | 4.80    | 4.80    | 4.80    | 0.40               | 1.80                    | ± 13.1 %  |

<sup>C</sup> 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. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7420

### Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 55.5                               | 0.96                            | 9.71    | 9.71    | 9.71    | 0.35               | 0.95                    | ± 12.0 %  |
| 835                  | 55.2                               | 0.97                            | 9.61    | 9.61    | 9.61    | 0.51               | 0.81                    | ± 12.0 %  |
| 1750                 | 53.4                               | 1.49                            | 8.03    | 8.03    | 8.03    | 0.37               | 0.85                    | ± 12.0 %  |
| 1900                 | 53.3                               | 1.52                            | 7.70    | 7.70    | 7.70    | 0.39               | 0.84                    | ± 12.0 %  |
| 2300                 | 52.9                               | 1.81                            | 7.48    | 7.48    | 7.48    | 0.38               | 0.84                    | ± 12.0 %  |
| 2450                 | 52.7                               | 1.95                            | 7.34    | 7.34    | 7.34    | 0.32               | 0.88                    | ± 12.0 %  |
| 2600                 | 52.5                               | 2.16                            | 7.22    | 7.22    | 7.22    | 0.30               | 0.88                    | ± 12.0 %  |
| 5250                 | 48.9                               | 5.36                            | 4.79    | 4.79    | 4.79    | 0.50               | 1.90                    | ± 13.1 %  |
| 5600                 | 48.5                               | 5.77                            | 4.08    | 4.08    | 4.08    | 0.50               | 1.90                    | ± 13.1 %  |
| 5750                 | 48.3                               | 5.94                            | 4.36    | 4.36    | 4.36    | 0.50               | 1.90                    | ± 13.1 %  |

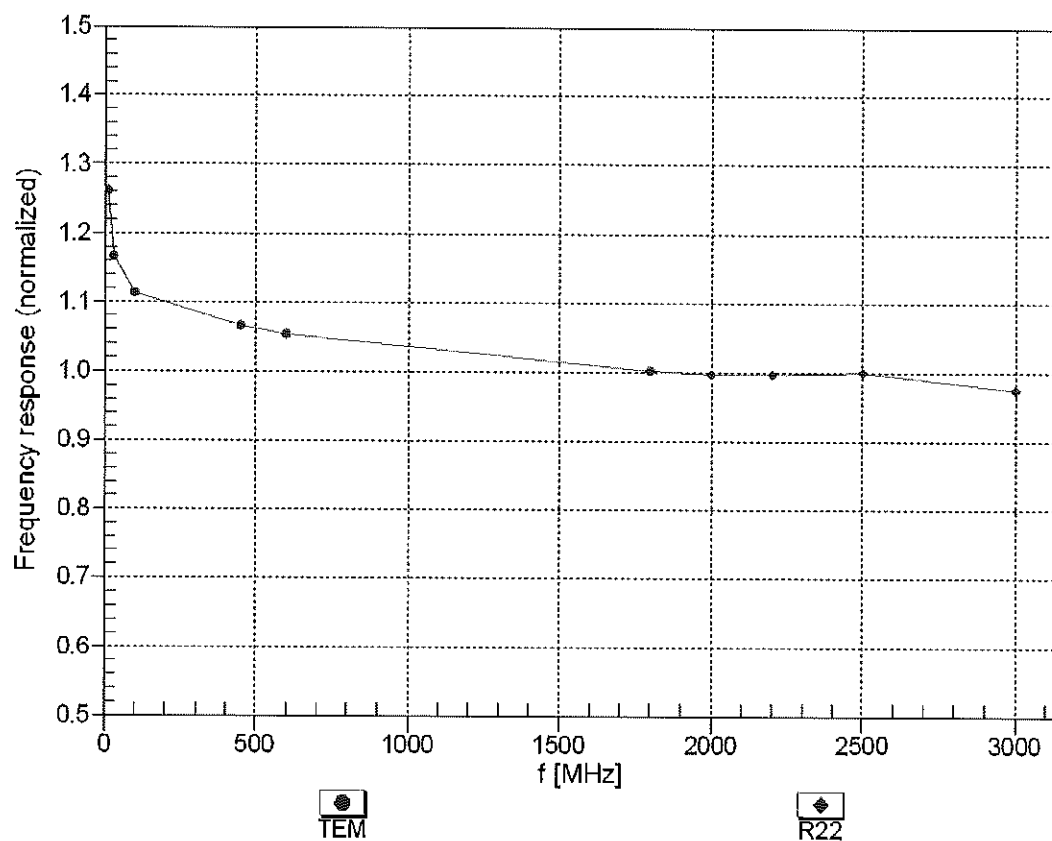
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below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

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## Frequency Response of E-Field

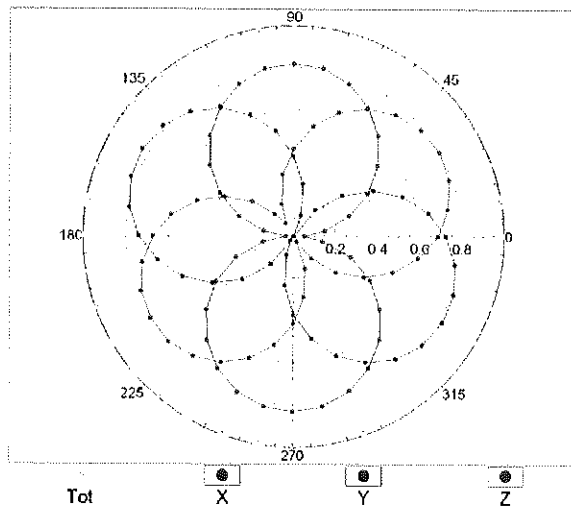
(TEM-Cell:ifi110 EXX, Waveguide: R22)



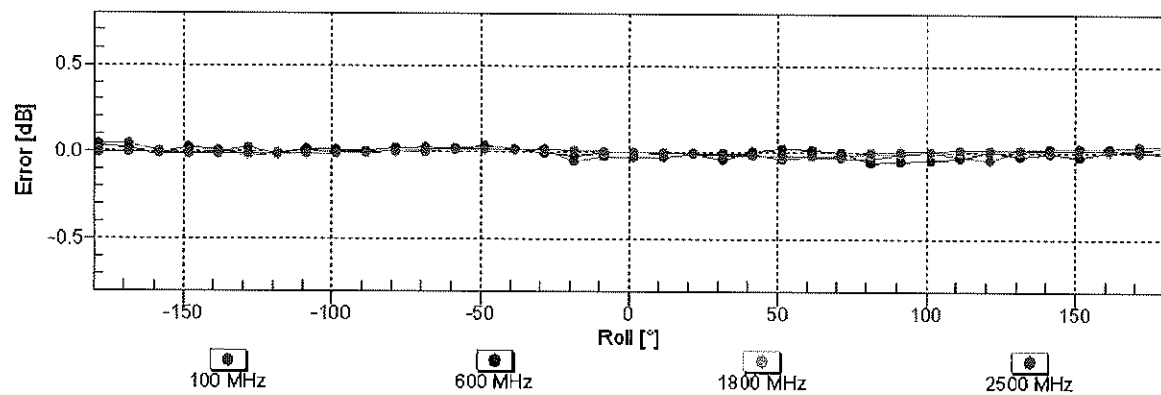
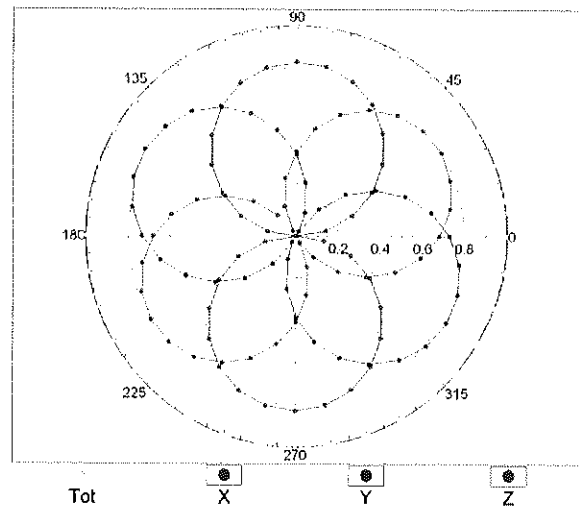
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$

f=600 MHz,TEM

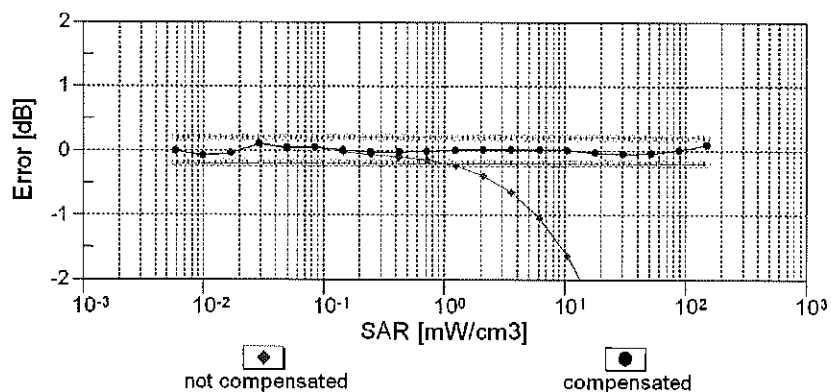
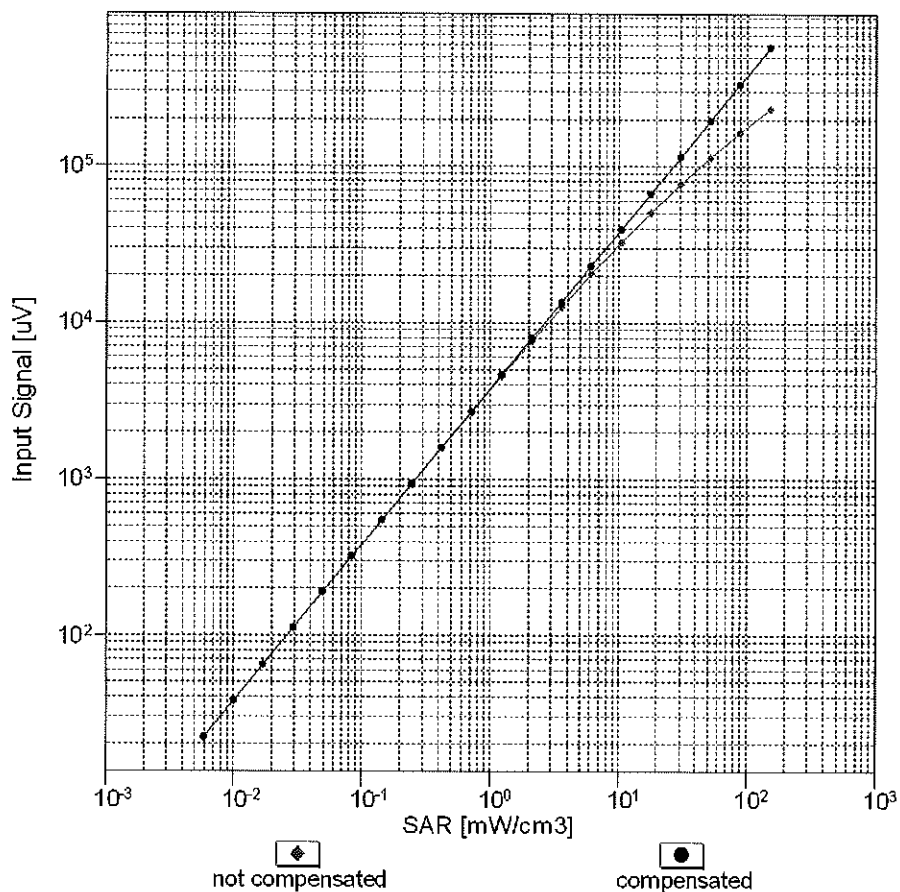


f=1800 MHz,R22



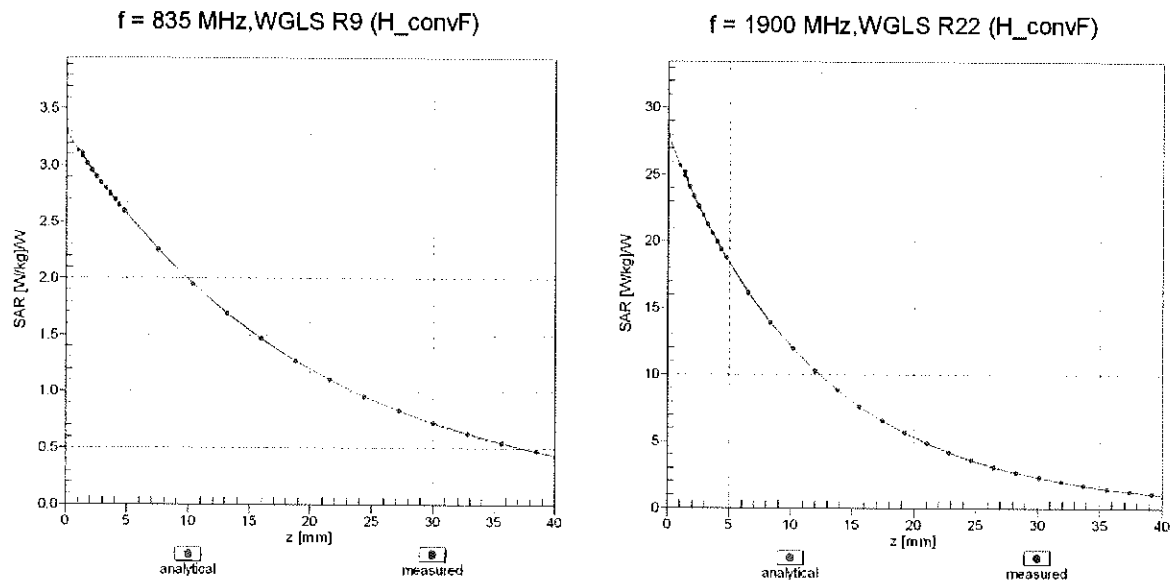
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

## Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f_{\text{eval}} = 1900 \text{ MHz}$ )



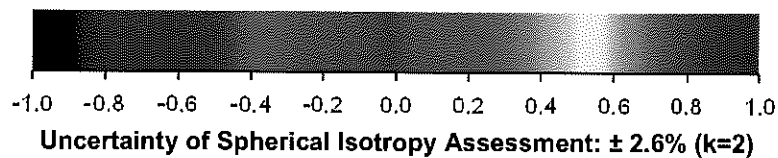
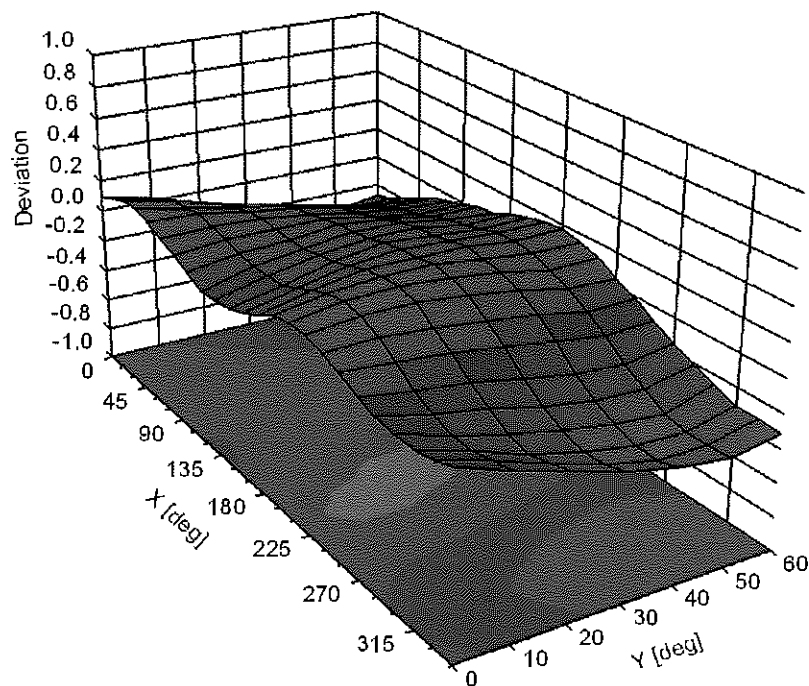
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

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



## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7420

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 41.5       |
| 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     |

**Appendix: Modulation Calibration Parameters**

| UID           | Communication System Name                     |   | A<br>dB | B<br>dB $\mu$ V | C     | D<br>dB | VR<br>mV | Max<br>Unc <sup>E</sup><br>(k=2) |
|---------------|-----------------------------------------------|---|---------|-----------------|-------|---------|----------|----------------------------------|
| 0             | CW                                            | X | 0.00    | 0.00            | 1.00  | 0.00    | 142.4    | $\pm 3.0 \%$                     |
|               |                                               | Y | 0.00    | 0.00            | 1.00  |         | 149.4    |                                  |
|               |                                               | Z | 0.00    | 0.00            | 1.00  |         | 150.8    |                                  |
| 10010-<br>CAA | SAR Validation (Square, 100ms, 10ms)          | X | 1.98    | 65.48           | 9.62  | 10.00   | 20.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 1.47    | 62.68           | 7.81  |         | 20.0     |                                  |
|               |                                               | Z | 2.00    | 65.57           | 9.72  |         | 20.0     |                                  |
| 10011-<br>CAB | UMTS-FDD (WCDMA)                              | X | 1.00    | 67.02           | 14.98 | 0.00    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 0.83    | 64.45           | 12.97 |         | 150.0    |                                  |
|               |                                               | Z | 1.96    | 81.22           | 21.14 |         | 150.0    |                                  |
| 10012-<br>CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)      | X | 1.14    | 63.59           | 15.07 | 0.41    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 1.04    | 62.37           | 14.08 |         | 150.0    |                                  |
|               |                                               | Z | 1.16    | 66.22           | 17.23 |         | 150.0    |                                  |
| 10013-<br>CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | X | 4.79    | 66.65           | 17.04 | 1.46    | 150.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 4.69    | 66.38           | 16.93 |         | 150.0    |                                  |
|               |                                               | Z | 4.61    | 67.51           | 17.78 |         | 150.0    |                                  |
| 10021-<br>DAC | GSM-FDD (TDMA, GMSK)                          | X | 100.00  | 111.76          | 25.68 | 9.39    | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 109.09          | 24.23 |         | 50.0     |                                  |
|               |                                               | Z | 100.00  | 114.78          | 27.14 |         | 50.0     |                                  |
| 10023-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0)                   | X | 100.00  | 111.11          | 25.44 | 9.57    | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 127.89          | 27.94 |         | 50.0     |                                  |
|               |                                               | Z | 100.00  | 113.52          | 26.62 |         | 50.0     |                                  |
| 10024-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1)                 | X | 100.00  | 113.65          | 25.51 | 6.56    | 60.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 110.68          | 23.73 |         | 60.0     |                                  |
|               |                                               | Z | 100.00  | 118.22          | 27.47 |         | 60.0     |                                  |
| 10025-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0)                   | X | 6.23    | 86.55           | 35.63 | 12.57   | 50.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 3.75    | 69.80           | 26.94 |         | 50.0     |                                  |
|               |                                               | Z | 11.42   | 109.88          | 46.67 |         | 50.0     |                                  |
| 10026-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1)                 | X | 8.22    | 92.71           | 33.98 | 9.56    | 60.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 5.56    | 83.39           | 30.47 |         | 60.0     |                                  |
|               |                                               | Z | 8.02    | 95.21           | 36.32 |         | 60.0     |                                  |
| 10027-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2)               | X | 100.00  | 117.09          | 26.25 | 4.80    | 80.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 112.75          | 23.76 |         | 80.0     |                                  |
|               |                                               | Z | 100.00  | 126.04          | 29.89 |         | 80.0     |                                  |
| 10028-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)             | X | 100.00  | 121.88          | 27.58 | 3.55    | 100.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 113.78          | 23.43 |         | 100.0    |                                  |
|               |                                               | Z | 100.00  | 141.34          | 35.26 |         | 100.0    |                                  |
| 10029-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2)               | X | 4.93    | 79.80           | 27.39 | 7.80    | 80.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 3.78    | 74.20           | 25.10 |         | 80.0     |                                  |
|               |                                               | Z | 4.76    | 81.21           | 29.20 |         | 80.0     |                                  |
| 10030-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1)           | X | 100.00  | 112.75          | 24.67 | 5.30    | 70.0     | $\pm 9.6 \%$                     |
|               |                                               | Y | 100.00  | 108.52          | 22.29 |         | 70.0     |                                  |
|               |                                               | Z | 100.00  | 116.38          | 26.08 |         | 70.0     |                                  |
| 10031-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3)           | X | 100.00  | 120.79          | 25.70 | 1.88    | 100.0    | $\pm 9.6 \%$                     |
|               |                                               | Y | 99.68   | 90.03           | 12.76 |         | 100.0    |                                  |
|               |                                               | Z | 100.00  | 148.21          | 35.39 |         | 100.0    |                                  |

|           |                                                     |   |        |        |       |       |       |         |
|-----------|-----------------------------------------------------|---|--------|--------|-------|-------|-------|---------|
| 10032-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5)                 | X | 100.00 | 131.66 | 28.96 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 0.14   | 60.00  | 3.20  |       | 100.0 |         |
|           |                                                     | Z | 0.30   | 60.00  | 5.00  |       | 100.0 |         |
| 10033-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)           | X | 34.10  | 114.43 | 31.26 | 5.30  | 70.0  | ± 9.6 % |
|           |                                                     | Y | 12.31  | 98.88  | 26.70 |       | 70.0  |         |
|           |                                                     | Z | 100.00 | 124.15 | 31.42 |       | 70.0  |         |
| 10034-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)           | X | 3.37   | 80.11  | 19.28 | 1.88  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 1.69   | 70.98  | 14.93 |       | 100.0 |         |
|           |                                                     | Z | 100.00 | 112.59 | 24.56 |       | 100.0 |         |
| 10035-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)           | X | 2.03   | 73.99  | 16.65 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 1.18   | 67.07  | 12.74 |       | 100.0 |         |
|           |                                                     | Z | 4.60   | 80.36  | 15.68 |       | 100.0 |         |
| 10036-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1)               | X | 87.17  | 129.81 | 35.04 | 5.30  | 70.0  | ± 9.6 % |
|           |                                                     | Y | 23.49  | 109.32 | 29.66 |       | 70.0  |         |
|           |                                                     | Z | 100.00 | 124.84 | 31.72 |       | 70.0  |         |
| 10037-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3)               | X | 3.02   | 78.74  | 18.77 | 1.88  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 1.56   | 70.11  | 14.55 |       | 100.0 |         |
|           |                                                     | Z | 100.00 | 112.67 | 24.56 |       | 100.0 |         |
| 10038-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5)               | X | 2.04   | 74.33  | 16.91 | 1.17  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 1.18   | 67.29  | 12.96 |       | 100.0 |         |
|           |                                                     | Z | 7.48   | 85.69  | 17.45 |       | 100.0 |         |
| 10039-CAB | CDMA2000 (1xRTT, RC1)                               | X | 1.64   | 70.84  | 14.77 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                     | Y | 0.99   | 64.73  | 10.80 |       | 150.0 |         |
|           |                                                     | Z | 0.55   | 61.60  | 7.23  |       | 150.0 |         |
| 10042-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | X | 100.00 | 108.63 | 23.57 | 7.78  | 50.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 104.99 | 21.61 |       | 50.0  |         |
|           |                                                     | Z | 100.00 | 110.10 | 24.21 |       | 50.0  |         |
| 10044-CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM)                    | X | 0.00   | 98.66  | 3.53  | 0.00  | 150.0 | ± 9.6 % |
|           |                                                     | Y | 0.03   | 121.19 | 2.53  |       | 150.0 |         |
|           |                                                     | Z | 0.03   | 138.40 | 2.04  |       | 150.0 |         |
| 10048-CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)           | X | 100.00 | 107.10 | 25.09 | 13.80 | 25.0  | ± 9.6 % |
|           |                                                     | Y | 61.80  | 98.59  | 22.38 |       | 25.0  |         |
|           |                                                     | Z | 100.00 | 108.47 | 25.89 |       | 25.0  |         |
| 10049-CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)         | X | 100.00 | 108.99 | 24.81 | 10.79 | 40.0  | ± 9.6 % |
|           |                                                     | Y | 195.67 | 113.34 | 24.95 |       | 40.0  |         |
|           |                                                     | Z | 100.00 | 110.63 | 25.67 |       | 40.0  |         |
| 10056-CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps)                      | X | 100.00 | 124.93 | 33.47 | 9.03  | 50.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 123.65 | 32.61 |       | 50.0  |         |
|           |                                                     | Z | 100.00 | 121.51 | 31.54 |       | 50.0  |         |
| 10058-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)                   | X | 3.87   | 74.66  | 24.22 | 6.55  | 100.0 | ± 9.6 % |
|           |                                                     | Y | 3.14   | 70.61  | 22.52 |       | 100.0 |         |
|           |                                                     | Z | 3.77   | 75.92  | 25.92 |       | 100.0 |         |
| 10059-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)            | X | 1.16   | 64.53  | 15.65 | 0.61  | 110.0 | ± 9.6 % |
|           |                                                     | Y | 1.04   | 63.03  | 14.55 |       | 110.0 |         |
|           |                                                     | Z | 1.23   | 68.05  | 18.30 |       | 110.0 |         |
| 10060-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)          | X | 15.10  | 113.48 | 30.90 | 1.30  | 110.0 | ± 9.6 % |
|           |                                                     | Y | 2.20   | 84.00  | 21.73 |       | 110.0 |         |
|           |                                                     | Z | 100.00 | 155.34 | 42.50 |       | 110.0 |         |

|           |                                                |   |       |        |       |      |       |         |
|-----------|------------------------------------------------|---|-------|--------|-------|------|-------|---------|
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)      | X | 2.40  | 79.17  | 22.27 | 2.04 | 110.0 | ± 9.6 % |
|           |                                                | Y | 1.58  | 72.97  | 19.64 |      | 110.0 |         |
|           |                                                | Z | 16.21 | 119.48 | 36.23 |      | 110.0 |         |
| 10062-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)       | X | 4.60  | 66.65  | 16.46 | 0.49 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.49  | 66.31  | 16.28 |      | 100.0 |         |
|           |                                                | Z | 4.38  | 67.35  | 17.07 |      | 100.0 |         |
| 10063-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)       | X | 4.62  | 66.73  | 16.56 | 0.72 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.50  | 66.40  | 16.39 |      | 100.0 |         |
|           |                                                | Z | 4.41  | 67.52  | 17.22 |      | 100.0 |         |
| 10064-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)      | X | 4.89  | 66.98  | 16.79 | 0.86 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.77  | 66.66  | 16.63 |      | 100.0 |         |
|           |                                                | Z | 4.62  | 67.67  | 17.39 |      | 100.0 |         |
| 10065-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)      | X | 4.75  | 66.86  | 16.88 | 1.21 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.63  | 66.51  | 16.72 |      | 100.0 |         |
|           |                                                | Z | 4.51  | 67.52  | 17.51 |      | 100.0 |         |
| 10066-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)      | X | 4.77  | 66.87  | 17.05 | 1.46 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.64  | 66.53  | 16.90 |      | 100.0 |         |
|           |                                                | Z | 4.51  | 67.50  | 17.67 |      | 100.0 |         |
| 10067-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)      | X | 5.05  | 67.07  | 17.51 | 2.04 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.94  | 66.81  | 17.41 |      | 100.0 |         |
|           |                                                | Z | 4.79  | 67.81  | 18.17 |      | 100.0 |         |
| 10068-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)      | X | 5.08  | 67.04  | 17.71 | 2.55 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.96  | 66.73  | 17.60 |      | 100.0 |         |
|           |                                                | Z | 4.85  | 67.85  | 18.44 |      | 100.0 |         |
| 10069-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)      | X | 5.16  | 67.06  | 17.91 | 2.67 | 100.0 | ± 9.6 % |
|           |                                                | Y | 5.04  | 66.79  | 17.81 |      | 100.0 |         |
|           |                                                | Z | 4.89  | 67.81  | 18.59 |      | 100.0 |         |
| 10071-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)  | X | 4.88  | 66.71  | 17.35 | 1.99 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.78  | 66.45  | 17.24 |      | 100.0 |         |
|           |                                                | Z | 4.72  | 67.62  | 18.12 |      | 100.0 |         |
| 10072-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | X | 4.84  | 66.99  | 17.55 | 2.30 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.73  | 66.69  | 17.44 |      | 100.0 |         |
|           |                                                | Z | 4.67  | 67.87  | 18.35 |      | 100.0 |         |
| 10073-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | X | 4.89  | 67.13  | 17.88 | 2.83 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.78  | 66.83  | 17.78 |      | 100.0 |         |
|           |                                                | Z | 4.76  | 68.20  | 18.80 |      | 100.0 |         |
| 10074-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | X | 4.87  | 67.00  | 18.02 | 3.30 | 100.0 | ± 9.6 % |
|           |                                                | Y | 4.76  | 66.71  | 17.92 |      | 100.0 |         |
|           |                                                | Z | 4.79  | 68.25  | 19.02 |      | 100.0 |         |
| 10075-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | X | 4.89  | 67.05  | 18.31 | 3.82 | 90.0  | ± 9.6 % |
|           |                                                | Y | 4.77  | 66.72  | 18.20 |      | 90.0  |         |
|           |                                                | Z | 4.82  | 68.28  | 19.30 |      | 90.0  |         |
| 10076-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | X | 4.90  | 66.85  | 18.44 | 4.15 | 90.0  | ± 9.6 % |
|           |                                                | Y | 4.80  | 66.54  | 18.35 |      | 90.0  |         |
|           |                                                | Z | 4.86  | 68.13  | 19.48 |      | 90.0  |         |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | X | 4.92  | 66.91  | 18.54 | 4.30 | 90.0  | ± 9.6 % |
|           |                                                | Y | 4.82  | 66.61  | 18.45 |      | 90.0  |         |
|           |                                                | Z | 4.90  | 68.27  | 19.62 |      | 90.0  |         |

|           |                                                     |   |        |        |       |      |       |         |
|-----------|-----------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10081-CAB | CDMA2000 (1xRTT, RC3)                               | X | 0.76   | 65.14  | 11.71 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 0.53   | 61.53  | 8.49  |      | 150.0 |         |
|           |                                                     | Z | 0.32   | 60.00  | 5.58  |      | 150.0 |         |
| 10082-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | X | 3.07   | 65.96  | 5.95  | 4.77 | 80.0  | ± 9.6 % |
|           |                                                     | Y | 0.68   | 60.01  | 2.69  |      | 80.0  |         |
|           |                                                     | Z | 3.72   | 65.73  | 5.41  |      | 80.0  |         |
| 10090-DAC | GPRS-FDD (TDMA, GMSK, TN 0-4)                       | X | 100.00 | 113.67 | 25.53 | 6.56 | 60.0  | ± 9.6 % |
|           |                                                     | Y | 100.00 | 110.80 | 23.80 |      | 60.0  |         |
|           |                                                     | Z | 100.00 | 118.34 | 27.54 |      | 60.0  |         |
| 10097-CAB | UMTS-FDD (HSDPA)                                    | X | 1.80   | 67.64  | 15.50 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.60   | 65.93  | 14.18 |      | 150.0 |         |
|           |                                                     | Z | 2.40   | 74.76  | 18.23 |      | 150.0 |         |
| 10098-CAB | UMTS-FDD (HSUPA, Subtest 2)                         | X | 1.76   | 67.59  | 15.48 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.57   | 65.86  | 14.13 |      | 150.0 |         |
|           |                                                     | Z | 2.37   | 74.85  | 18.29 |      | 150.0 |         |
| 10099-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4)                       | X | 8.30   | 92.94  | 34.06 | 9.56 | 60.0  | ± 9.6 % |
|           |                                                     | Y | 5.60   | 83.56  | 30.54 |      | 60.0  |         |
|           |                                                     | Z | 8.11   | 95.47  | 36.42 |      | 60.0  |         |
| 10100-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 3.05   | 70.07  | 16.57 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.76   | 68.39  | 15.63 |      | 150.0 |         |
|           |                                                     | Z | 3.16   | 72.48  | 18.28 |      | 150.0 |         |
| 10101-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 3.18   | 67.38  | 15.83 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 3.02   | 66.47  | 15.28 |      | 150.0 |         |
|           |                                                     | Z | 3.08   | 68.35  | 16.76 |      | 150.0 |         |
| 10102-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 3.28   | 67.36  | 15.93 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 3.13   | 66.51  | 15.41 |      | 150.0 |         |
|           |                                                     | Z | 3.18   | 68.30  | 16.82 |      | 150.0 |         |
| 10103-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 5.68   | 75.14  | 20.49 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 4.89   | 73.15  | 19.84 |      | 65.0  |         |
|           |                                                     | Z | 6.24   | 78.98  | 22.83 |      | 65.0  |         |
| 10104-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 5.70   | 73.02  | 20.33 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 4.99   | 71.04  | 19.60 |      | 65.0  |         |
|           |                                                     | Z | 5.49   | 74.02  | 21.36 |      | 65.0  |         |
| 10105-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 5.24   | 71.14  | 19.77 | 3.98 | 65.0  | ± 9.6 % |
|           |                                                     | Y | 4.74   | 69.73  | 19.27 |      | 65.0  |         |
|           |                                                     | Z | 5.36   | 73.24  | 21.27 |      | 65.0  |         |
| 10108-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | X | 2.65   | 69.31  | 16.39 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.39   | 67.70  | 15.42 |      | 150.0 |         |
|           |                                                     | Z | 2.77   | 72.57  | 18.40 |      | 150.0 |         |
| 10109-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)          | X | 2.83   | 67.24  | 15.71 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.65   | 66.25  | 15.04 |      | 150.0 |         |
|           |                                                     | Z | 2.75   | 68.90  | 16.75 |      | 150.0 |         |
| 10110-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)             | X | 2.14   | 68.44  | 15.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 1.89   | 66.73  | 14.78 |      | 150.0 |         |
|           |                                                     | Z | 2.33   | 73.09  | 18.18 |      | 150.0 |         |
| 10111-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)           | X | 2.55   | 68.11  | 15.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                     | Y | 2.32   | 66.80  | 14.97 |      | 150.0 |         |
|           |                                                     | Z | 2.67   | 71.57  | 17.20 |      | 150.0 |         |

|           |                                                |   |      |       |       |      |       |         |
|-----------|------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10112-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | X | 2.96 | 67.26 | 15.78 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.78 | 66.34 | 15.15 |      | 150.0 |         |
|           |                                                | Z | 2.87 | 68.92 | 16.78 |      | 150.0 |         |
| 10113-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | X | 2.70 | 68.27 | 16.09 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.47 | 67.04 | 15.16 |      | 150.0 |         |
|           |                                                | Z | 2.78 | 71.49 | 17.20 |      | 150.0 |         |
| 10114-CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | X | 5.07 | 67.16 | 16.40 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 4.96 | 66.77 | 16.22 |      | 150.0 |         |
|           |                                                | Z | 4.86 | 67.49 | 16.99 |      | 150.0 |         |
| 10115-CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | X | 5.33 | 67.22 | 16.44 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.22 | 66.88 | 16.29 |      | 150.0 |         |
|           |                                                | Z | 5.13 | 67.68 | 17.06 |      | 150.0 |         |
| 10116-CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | X | 5.15 | 67.33 | 16.41 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.05 | 66.96 | 16.25 |      | 150.0 |         |
|           |                                                | Z | 4.95 | 67.74 | 17.04 |      | 150.0 |         |
| 10117-CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | X | 5.03 | 67.02 | 16.34 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 4.95 | 66.69 | 16.20 |      | 150.0 |         |
|           |                                                | Z | 4.83 | 67.33 | 16.93 |      | 150.0 |         |
| 10118-CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | X | 5.40 | 67.41 | 16.54 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.31 | 67.12 | 16.42 |      | 150.0 |         |
|           |                                                | Z | 5.15 | 67.71 | 17.09 |      | 150.0 |         |
| 10119-CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | X | 5.13 | 67.29 | 16.40 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 5.05 | 66.96 | 16.26 |      | 150.0 |         |
|           |                                                | Z | 4.95 | 67.72 | 17.04 |      | 150.0 |         |
| 10140-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | X | 3.31 | 67.37 | 15.85 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 3.15 | 66.52 | 15.32 |      | 150.0 |         |
|           |                                                | Z | 3.19 | 68.39 | 16.74 |      | 150.0 |         |
| 10141-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | X | 3.44 | 67.49 | 16.02 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 3.28 | 66.69 | 15.53 |      | 150.0 |         |
|           |                                                | Z | 3.31 | 68.55 | 16.92 |      | 150.0 |         |
| 10142-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | X | 1.91 | 68.40 | 15.51 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.63 | 66.25 | 13.94 |      | 150.0 |         |
|           |                                                | Z | 2.18 | 73.58 | 17.08 |      | 150.0 |         |
| 10143-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | X | 2.39 | 68.76 | 15.51 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 2.06 | 66.68 | 13.95 |      | 150.0 |         |
|           |                                                | Z | 2.31 | 70.61 | 14.98 |      | 150.0 |         |
| 10144-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | X | 2.14 | 66.35 | 13.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.88 | 64.69 | 12.43 |      | 150.0 |         |
|           |                                                | Z | 1.86 | 65.35 | 11.84 |      | 150.0 |         |
| 10145-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | X | 1.07 | 63.92 | 10.68 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 0.79 | 60.96 | 7.96  |      | 150.0 |         |
|           |                                                | Z | 0.51 | 60.00 | 5.19  |      | 150.0 |         |
| 10146-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | X | 1.64 | 64.29 | 9.90  | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.16 | 61.35 | 7.84  |      | 150.0 |         |
|           |                                                | Z | 0.53 | 58.05 | 3.61  |      | 150.0 |         |
| 10147-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | X | 1.84 | 65.54 | 10.64 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                | Y | 1.22 | 61.82 | 8.20  |      | 150.0 |         |
|           |                                                | Z | 0.54 | 58.15 | 3.73  |      | 150.0 |         |

|           |                                            |   |      |       |       |      |       |         |
|-----------|--------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10149-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 2.84 | 67.30 | 15.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.66 | 66.31 | 15.09 |      | 150.0 |         |
|           |                                            | Z | 2.77 | 68.99 | 16.81 |      | 150.0 |         |
| 10150-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 2.96 | 67.31 | 15.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.79 | 66.39 | 15.19 |      | 150.0 |         |
|           |                                            | Z | 2.88 | 69.00 | 16.84 |      | 150.0 |         |
| 10151-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)    | X | 6.17 | 78.39 | 21.92 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 5.05 | 75.73 | 21.02 |      | 65.0  |         |
|           |                                            | Z | 7.31 | 84.36 | 24.91 |      | 65.0  |         |
| 10152-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 5.24 | 73.02 | 20.03 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 4.52 | 70.96 | 19.20 |      | 65.0  |         |
|           |                                            | Z | 5.14 | 74.66 | 21.03 |      | 65.0  |         |
| 10153-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 5.59 | 73.97 | 20.81 | 3.98 | 65.0  | ± 9.6 % |
|           |                                            | Y | 4.84 | 71.94 | 20.02 |      | 65.0  |         |
|           |                                            | Z | 5.56 | 75.95 | 21.96 |      | 65.0  |         |
| 10154-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 2.18 | 68.82 | 16.19 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.93 | 67.03 | 14.98 |      | 150.0 |         |
|           |                                            | Z | 2.40 | 73.64 | 18.47 |      | 150.0 |         |
| 10155-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 2.55 | 68.13 | 15.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.32 | 66.82 | 14.99 |      | 150.0 |         |
|           |                                            | Z | 2.68 | 71.67 | 17.26 |      | 150.0 |         |
| 10156-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 1.74 | 68.36 | 15.19 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.43 | 65.76 | 13.26 |      | 150.0 |         |
|           |                                            | Z | 1.84 | 72.05 | 15.53 |      | 150.0 |         |
| 10157-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 1.97 | 66.80 | 13.75 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.65 | 64.60 | 11.97 |      | 150.0 |         |
|           |                                            | Z | 1.34 | 64.28 | 10.56 |      | 150.0 |         |
| 10158-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 2.70 | 68.34 | 16.13 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.47 | 67.10 | 15.21 |      | 150.0 |         |
|           |                                            | Z | 2.80 | 71.64 | 17.29 |      | 150.0 |         |
| 10159-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 2.07 | 67.22 | 14.01 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 1.72 | 64.86 | 12.16 |      | 150.0 |         |
|           |                                            | Z | 1.37 | 64.28 | 10.59 |      | 150.0 |         |
| 10160-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)    | X | 2.67 | 68.50 | 16.19 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.49 | 67.41 | 15.44 |      | 150.0 |         |
|           |                                            | Z | 2.77 | 71.65 | 17.94 |      | 150.0 |         |
| 10161-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 2.86 | 67.26 | 15.73 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.67 | 66.30 | 15.05 |      | 150.0 |         |
|           |                                            | Z | 2.77 | 69.10 | 16.65 |      | 150.0 |         |
| 10162-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 2.97 | 67.44 | 15.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.78 | 66.52 | 15.20 |      | 150.0 |         |
|           |                                            | Z | 2.89 | 69.36 | 16.80 |      | 150.0 |         |
| 10166-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 3.58 | 70.16 | 19.34 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.21 | 68.35 | 18.55 |      | 150.0 |         |
|           |                                            | Z | 2.85 | 69.02 | 19.82 |      | 150.0 |         |
| 10167-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 4.66 | 74.24 | 20.21 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.73 | 70.62 | 18.73 |      | 150.0 |         |
|           |                                            | Z | 3.22 | 71.92 | 20.31 |      | 150.0 |         |

|           |                                            |   |       |        |       |      |       |         |
|-----------|--------------------------------------------|---|-------|--------|-------|------|-------|---------|
| 10168-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 5.33  | 77.12  | 21.77 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 4.14  | 72.91  | 20.14 |      | 150.0 |         |
|           |                                            | Z | 3.62  | 74.71  | 22.00 |      | 150.0 |         |
| 10169-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 3.04  | 70.09  | 19.33 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.57  | 66.72  | 17.79 |      | 150.0 |         |
|           |                                            | Z | 2.29  | 66.69  | 18.75 |      | 150.0 |         |
| 10170-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 4.85  | 78.99  | 22.71 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.18  | 71.08  | 19.61 |      | 150.0 |         |
|           |                                            | Z | 2.66  | 71.22  | 20.84 |      | 150.0 |         |
| 10171-AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 3.69  | 73.30  | 19.35 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.71  | 67.78  | 17.08 |      | 150.0 |         |
|           |                                            | Z | 2.29  | 68.11  | 18.30 |      | 150.0 |         |
| 10172-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 6.13  | 88.39  | 28.20 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 3.72  | 78.66  | 24.84 |      | 65.0  |         |
|           |                                            | Z | 4.52  | 87.17  | 29.75 |      | 65.0  |         |
| 10173-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 38.00 | 117.73 | 34.53 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 6.79  | 88.15  | 26.52 |      | 65.0  |         |
|           |                                            | Z | 10.83 | 103.55 | 33.16 |      | 65.0  |         |
| 10174-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 29.68 | 111.18 | 32.05 | 6.02 | 65.0  | ± 9.6 % |
|           |                                            | Y | 5.46  | 83.31  | 24.22 |      | 65.0  |         |
|           |                                            | Z | 8.53  | 97.38  | 30.44 |      | 65.0  |         |
| 10175-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)      | X | 3.00  | 69.75  | 19.07 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.55  | 66.48  | 17.57 |      | 150.0 |         |
|           |                                            | Z | 2.27  | 66.49  | 18.55 |      | 150.0 |         |
| 10176-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)    | X | 4.86  | 79.02  | 22.73 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.19  | 71.10  | 19.62 |      | 150.0 |         |
|           |                                            | Z | 2.67  | 71.24  | 20.85 |      | 150.0 |         |
| 10177-CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)       | X | 3.02  | 69.91  | 19.16 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.57  | 66.59  | 17.64 |      | 150.0 |         |
|           |                                            | Z | 2.28  | 66.57  | 18.60 |      | 150.0 |         |
| 10178-CAF | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)     | X | 4.80  | 78.76  | 22.60 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.17  | 70.97  | 19.54 |      | 150.0 |         |
|           |                                            | Z | 2.66  | 71.16  | 20.79 |      | 150.0 |         |
| 10179-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)    | X | 4.20  | 75.94  | 20.87 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.92  | 69.33  | 18.22 |      | 150.0 |         |
|           |                                            | Z | 2.47  | 69.69  | 19.50 |      | 150.0 |         |
| 10180-CAF | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)     | X | 3.68  | 73.22  | 19.30 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.70  | 67.74  | 17.05 |      | 150.0 |         |
|           |                                            | Z | 2.29  | 68.11  | 18.28 |      | 150.0 |         |
| 10181-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 3.02  | 69.89  | 19.16 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.56  | 66.58  | 17.64 |      | 150.0 |         |
|           |                                            | Z | 2.28  | 66.56  | 18.60 |      | 150.0 |         |
| 10182-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)    | X | 4.79  | 78.73  | 22.59 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 3.16  | 70.95  | 19.52 |      | 150.0 |         |
|           |                                            | Z | 2.65  | 71.14  | 20.78 |      | 150.0 |         |
| 10183-AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 3.67  | 73.19  | 19.29 | 3.01 | 150.0 | ± 9.6 % |
|           |                                            | Y | 2.70  | 67.72  | 17.04 |      | 150.0 |         |
|           |                                            | Z | 2.29  | 68.09  | 18.27 |      | 150.0 |         |

|           |                                               |   |      |       |       |      |       |         |
|-----------|-----------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10184-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)          | X | 3.03 | 69.94 | 19.18 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.57 | 66.61 | 17.66 |      | 150.0 |         |
|           |                                               | Z | 2.28 | 66.59 | 18.61 |      | 150.0 |         |
| 10185-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)        | X | 4.81 | 78.82 | 22.63 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.18 | 71.01 | 19.56 |      | 150.0 |         |
|           |                                               | Z | 2.67 | 71.20 | 20.82 |      | 150.0 |         |
| 10186-AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)        | X | 3.69 | 73.27 | 19.33 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.71 | 67.78 | 17.07 |      | 150.0 |         |
|           |                                               | Z | 2.30 | 68.14 | 18.30 |      | 150.0 |         |
| 10187-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)        | X | 3.04 | 70.01 | 19.26 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.58 | 66.67 | 17.73 |      | 150.0 |         |
|           |                                               | Z | 2.29 | 66.66 | 18.70 |      | 150.0 |         |
| 10188-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)      | X | 5.03 | 79.71 | 23.08 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 3.25 | 71.50 | 19.88 |      | 150.0 |         |
|           |                                               | Z | 2.72 | 71.61 | 21.11 |      | 150.0 |         |
| 10189-AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)      | X | 3.80 | 73.82 | 19.65 | 3.01 | 150.0 | ± 9.6 % |
|           |                                               | Y | 2.76 | 68.10 | 17.31 |      | 150.0 |         |
|           |                                               | Z | 2.34 | 68.44 | 18.54 |      | 150.0 |         |
| 10193-CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)  | X | 4.46 | 66.62 | 16.08 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.34 | 66.23 | 15.84 |      | 150.0 |         |
|           |                                               | Z | 4.25 | 67.38 | 16.66 |      | 150.0 |         |
| 10194-CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | X | 4.62 | 66.91 | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.49 | 66.50 | 15.98 |      | 150.0 |         |
|           |                                               | Z | 4.36 | 67.53 | 16.79 |      | 150.0 |         |
| 10195-CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | X | 4.66 | 66.94 | 16.23 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.53 | 66.53 | 16.00 |      | 150.0 |         |
|           |                                               | Z | 4.38 | 67.50 | 16.78 |      | 150.0 |         |
| 10196-CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)       | X | 4.46 | 66.66 | 16.09 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.33 | 66.25 | 15.84 |      | 150.0 |         |
|           |                                               | Z | 4.22 | 67.32 | 16.61 |      | 150.0 |         |
| 10197-CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)      | X | 4.63 | 66.93 | 16.22 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.50 | 66.51 | 15.99 |      | 150.0 |         |
|           |                                               | Z | 4.37 | 67.52 | 16.79 |      | 150.0 |         |
| 10198-CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)      | X | 4.66 | 66.95 | 16.24 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.53 | 66.54 | 16.01 |      | 150.0 |         |
|           |                                               | Z | 4.37 | 67.48 | 16.77 |      | 150.0 |         |
| 10219-CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)       | X | 4.41 | 66.68 | 16.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.28 | 66.26 | 15.80 |      | 150.0 |         |
|           |                                               | Z | 4.18 | 67.42 | 16.62 |      | 150.0 |         |
| 10220-CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)    | X | 4.62 | 66.89 | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.50 | 66.48 | 15.98 |      | 150.0 |         |
|           |                                               | Z | 4.36 | 67.48 | 16.77 |      | 150.0 |         |
| 10221-CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)    | X | 4.67 | 66.88 | 16.23 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.54 | 66.48 | 16.00 |      | 150.0 |         |
|           |                                               | Z | 4.39 | 67.44 | 16.77 |      | 150.0 |         |
| 10222-CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)        | X | 5.01 | 67.03 | 16.34 | 0.00 | 150.0 | ± 9.6 % |
|           |                                               | Y | 4.91 | 66.67 | 16.18 |      | 150.0 |         |
|           |                                               | Z | 4.82 | 67.37 | 16.94 |      | 150.0 |         |

|           |                                           |   |       |        |       |      |       |         |
|-----------|-------------------------------------------|---|-------|--------|-------|------|-------|---------|
| 10223-CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)  | X | 5.31  | 67.27  | 16.48 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 5.21  | 66.94  | 16.35 |      | 150.0 |         |
|           |                                           | Z | 5.01  | 67.37  | 16.93 |      | 150.0 |         |
| 10224-CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | X | 5.05  | 67.14  | 16.32 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 4.95  | 66.76  | 16.15 |      | 150.0 |         |
|           |                                           | Z | 4.86  | 67.52  | 16.93 |      | 150.0 |         |
| 10225-CAB | UMTS-FDD (HSPA+)                          | X | 2.74  | 66.08  | 15.13 | 0.00 | 150.0 | ± 9.6 % |
|           |                                           | Y | 2.57  | 65.25  | 14.40 |      | 150.0 |         |
|           |                                           | Z | 2.55  | 67.23  | 15.07 |      | 150.0 |         |
| 10226-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)  | X | 44.72 | 120.94 | 35.47 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 7.20  | 89.32  | 27.02 |      | 65.0  |         |
|           |                                           | Z | 12.04 | 105.88 | 33.97 |      | 65.0  |         |
| 10227-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)  | X | 40.29 | 116.33 | 33.42 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 7.53  | 88.97  | 26.21 |      | 65.0  |         |
|           |                                           | Z | 12.85 | 105.50 | 33.01 |      | 65.0  |         |
| 10228-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)    | X | 9.31  | 97.05  | 31.18 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 4.36  | 82.33  | 26.40 |      | 65.0  |         |
|           |                                           | Z | 5.06  | 90.04  | 30.91 |      | 65.0  |         |
| 10229-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)    | X | 38.44 | 117.91 | 34.59 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 6.84  | 88.25  | 26.56 |      | 65.0  |         |
|           |                                           | Z | 10.89 | 103.62 | 33.19 |      | 65.0  |         |
| 10230-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)    | X | 34.51 | 113.48 | 32.59 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 7.07  | 87.78  | 25.73 |      | 65.0  |         |
|           |                                           | Z | 11.31 | 102.92 | 32.16 |      | 65.0  |         |
| 10231-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)      | X | 8.81  | 95.82  | 30.69 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 4.22  | 81.61  | 26.04 |      | 65.0  |         |
|           |                                           | Z | 4.83  | 88.89  | 30.41 |      | 65.0  |         |
| 10232-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)    | X | 38.37 | 117.90 | 34.59 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 6.83  | 88.23  | 26.55 |      | 65.0  |         |
|           |                                           | Z | 10.87 | 103.59 | 33.18 |      | 65.0  |         |
| 10233-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)    | X | 34.36 | 113.43 | 32.58 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 7.05  | 87.74  | 25.72 |      | 65.0  |         |
|           |                                           | Z | 11.23 | 102.80 | 32.14 |      | 65.0  |         |
| 10234-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)      | X | 8.43  | 94.76  | 30.22 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 4.12  | 81.05  | 25.70 |      | 65.0  |         |
|           |                                           | Z | 4.71  | 88.25  | 30.04 |      | 65.0  |         |
| 10235-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)   | X | 38.57 | 118.01 | 34.62 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 6.83  | 88.26  | 26.57 |      | 65.0  |         |
|           |                                           | Z | 10.91 | 103.70 | 33.22 |      | 65.0  |         |
| 10236-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)   | X | 35.32 | 113.85 | 32.67 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 7.14  | 87.93  | 25.78 |      | 65.0  |         |
|           |                                           | Z | 11.53 | 103.24 | 32.26 |      | 65.0  |         |
| 10237-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)     | X | 8.83  | 95.91  | 30.73 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 4.22  | 81.64  | 26.06 |      | 65.0  |         |
|           |                                           | Z | 4.83  | 88.94  | 30.44 |      | 65.0  |         |
| 10238-CAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)   | X | 38.28 | 117.88 | 34.58 | 6.02 | 65.0  | ± 9.6 % |
|           |                                           | Y | 6.81  | 88.20  | 26.54 |      | 65.0  |         |
|           |                                           | Z | 10.85 | 103.59 | 33.18 |      | 65.0  |         |

|           |                                            |   |       |        |       |      |      |         |
|-----------|--------------------------------------------|---|-------|--------|-------|------|------|---------|
| 10239-CAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 34.18 | 113.37 | 32.56 | 6.02 | 65.0 | ± 9.6 % |
|           |                                            | Y | 7.02  | 87.69  | 25.71 |      | 65.0 |         |
|           |                                            | Z | 11.18 | 102.74 | 32.12 |      | 65.0 |         |
| 10240-CAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 8.80  | 95.85  | 30.71 | 6.02 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.21  | 81.60  | 26.04 |      | 65.0 |         |
|           |                                            | Z | 4.82  | 88.95  | 30.44 |      | 65.0 |         |
| 10241-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 7.98  | 82.84  | 26.32 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 6.25  | 78.17  | 24.62 |      | 65.0 |         |
|           |                                            | Z | 7.24  | 85.75  | 28.71 |      | 65.0 |         |
| 10242-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 7.84  | 82.54  | 26.13 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 5.75  | 76.43  | 23.79 |      | 65.0 |         |
|           |                                            | Z | 6.95  | 84.97  | 28.32 |      | 65.0 |         |
| 10243-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 5.30  | 74.80  | 23.78 | 6.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.77  | 72.98  | 23.12 |      | 65.0 |         |
|           |                                            | Z | 5.45  | 79.70  | 27.16 |      | 65.0 |         |
| 10244-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)   | X | 5.35  | 75.26  | 17.91 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 3.85  | 71.20  | 16.04 |      | 65.0 |         |
|           |                                            | Z | 2.94  | 67.75  | 12.82 |      | 65.0 |         |
| 10245-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)   | X | 5.14  | 74.37  | 17.48 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 3.74  | 70.47  | 15.64 |      | 65.0 |         |
|           |                                            | Z | 2.81  | 66.92  | 12.35 |      | 65.0 |         |
| 10246-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)     | X | 5.18  | 78.96  | 19.98 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 3.49  | 73.78  | 17.58 |      | 65.0 |         |
|           |                                            | Z | 3.87  | 74.84  | 16.54 |      | 65.0 |         |
| 10247-CAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 4.48  | 73.32  | 18.33 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 3.59  | 70.48  | 16.81 |      | 65.0 |         |
|           |                                            | Z | 3.73  | 71.37  | 15.94 |      | 65.0 |         |
| 10248-CAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 4.44  | 72.62  | 17.99 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 3.58  | 69.88  | 16.50 |      | 65.0 |         |
|           |                                            | Z | 3.51  | 70.04  | 15.32 |      | 65.0 |         |
| 10249-CAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 6.46  | 82.83  | 22.54 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.62  | 78.31  | 20.71 |      | 65.0 |         |
|           |                                            | Z | 10.31 | 91.36  | 24.44 |      | 65.0 |         |
| 10250-CAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 5.28  | 75.55  | 21.09 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.43  | 73.18  | 20.10 |      | 65.0 |         |
|           |                                            | Z | 5.62  | 78.69  | 22.14 |      | 65.0 |         |
| 10251-CAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 5.05  | 73.44  | 19.78 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.27  | 71.23  | 18.78 |      | 65.0 |         |
|           |                                            | Z | 4.89  | 74.82  | 20.00 |      | 65.0 |         |
| 10252-CAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 6.38  | 81.60  | 23.17 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.94  | 78.15  | 21.94 |      | 65.0 |         |
|           |                                            | Z | 9.80  | 92.32  | 27.22 |      | 65.0 |         |
| 10253-CAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 5.15  | 72.52  | 19.77 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.46  | 70.58  | 18.95 |      | 65.0 |         |
|           |                                            | Z | 5.07  | 74.27  | 20.61 |      | 65.0 |         |
| 10254-CAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 5.46  | 73.39  | 20.46 | 3.98 | 65.0 | ± 9.6 % |
|           |                                            | Y | 4.75  | 71.45  | 19.67 |      | 65.0 |         |
|           |                                            | Z | 5.41  | 75.29  | 21.36 |      | 65.0 |         |

|           |                                             |   |      |       |       |      |      |         |
|-----------|---------------------------------------------|---|------|-------|-------|------|------|---------|
| 10255-CAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)     | X | 5.81 | 77.49 | 21.77 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.80 | 74.95 | 20.87 |      | 65.0 |         |
|           |                                             | Z | 6.84 | 83.29 | 24.55 |      | 65.0 |         |
| 10256-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 3.73 | 69.85 | 14.38 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 2.70 | 66.29 | 12.42 |      | 65.0 |         |
|           |                                             | Z | 1.84 | 62.37 | 8.56  |      | 65.0 |         |
| 10257-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 3.58 | 68.93 | 13.85 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 2.63 | 65.62 | 11.96 |      | 65.0 |         |
|           |                                             | Z | 1.81 | 61.98 | 8.21  |      | 65.0 |         |
| 10258-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)   | X | 3.55 | 72.74 | 16.44 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 2.36 | 67.80 | 13.71 |      | 65.0 |         |
|           |                                             | Z | 1.76 | 64.10 | 10.09 |      | 65.0 |         |
| 10259-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)   | X | 4.82 | 74.25 | 19.37 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 3.94 | 71.68 | 18.09 |      | 65.0 |         |
|           |                                             | Z | 4.59 | 74.76 | 18.48 |      | 65.0 |         |
| 10260-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)   | X | 4.83 | 73.91 | 19.22 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 3.97 | 71.40 | 17.95 |      | 65.0 |         |
|           |                                             | Z | 4.50 | 74.04 | 18.14 |      | 65.0 |         |
| 10261-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)     | X | 6.01 | 81.19 | 22.39 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.52 | 77.38 | 20.87 |      | 65.0 |         |
|           |                                             | Z | 9.39 | 90.51 | 25.09 |      | 65.0 |         |
| 10262-CAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)   | X | 5.27 | 75.49 | 21.05 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.41 | 73.12 | 20.05 |      | 65.0 |         |
|           |                                             | Z | 5.58 | 78.56 | 22.06 |      | 65.0 |         |
| 10263-CAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)   | X | 5.04 | 73.41 | 19.77 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.26 | 71.21 | 18.77 |      | 65.0 |         |
|           |                                             | Z | 4.88 | 74.80 | 20.00 |      | 65.0 |         |
| 10264-CAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)     | X | 6.31 | 81.38 | 23.06 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.89 | 77.95 | 21.83 |      | 65.0 |         |
|           |                                             | Z | 9.59 | 91.86 | 27.03 |      | 65.0 |         |
| 10265-CAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)  | X | 5.24 | 73.02 | 20.04 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.52 | 70.96 | 19.21 |      | 65.0 |         |
|           |                                             | Z | 5.14 | 74.67 | 21.03 |      | 65.0 |         |
| 10266-CAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)  | X | 5.59 | 73.95 | 20.80 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 4.84 | 71.93 | 20.01 |      | 65.0 |         |
|           |                                             | Z | 5.56 | 75.94 | 21.95 |      | 65.0 |         |
| 10267-CAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)    | X | 6.16 | 78.34 | 21.90 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.05 | 75.68 | 21.00 |      | 65.0 |         |
|           |                                             | Z | 7.28 | 84.25 | 24.86 |      | 65.0 |         |
| 10268-CAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)  | X | 5.85 | 72.87 | 20.36 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.16 | 71.02 | 19.67 |      | 65.0 |         |
|           |                                             | Z | 5.66 | 74.08 | 21.40 |      | 65.0 |         |
| 10269-CAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)  | X | 5.84 | 72.44 | 20.21 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.17 | 70.67 | 19.54 |      | 65.0 |         |
|           |                                             | Z | 5.67 | 73.65 | 21.21 |      | 65.0 |         |
| 10270-CAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)    | X | 5.98 | 75.28 | 20.75 | 3.98 | 65.0 | ± 9.6 % |
|           |                                             | Y | 5.14 | 73.22 | 20.06 |      | 65.0 |         |
|           |                                             | Z | 6.27 | 78.45 | 22.79 |      | 65.0 |         |

|           |                                                                    |   |        |        |       |      |       |         |
|-----------|--------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10274-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)                          | X | 2.54   | 66.52  | 15.09 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 2.38   | 65.58  | 14.29 |      | 150.0 |         |
|           |                                                                    | Z | 2.51   | 68.66  | 15.57 |      | 150.0 |         |
| 10275-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)                           | X | 1.56   | 67.69  | 15.33 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.35   | 65.62  | 13.81 |      | 150.0 |         |
|           |                                                                    | Z | 2.09   | 75.23  | 18.57 |      | 150.0 |         |
| 10277-CAA | PHS (QPSK)                                                         | X | 1.64   | 60.38  | 5.85  | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 1.38   | 59.39  | 4.80  |      | 50.0  |         |
|           |                                                                    | Z | 1.36   | 59.36  | 4.61  |      | 50.0  |         |
| 10278-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5)                                 | X | 4.49   | 73.00  | 15.27 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 3.09   | 68.07  | 12.50 |      | 50.0  |         |
|           |                                                                    | Z | 2.42   | 64.14  | 9.65  |      | 50.0  |         |
| 10279-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38)                                | X | 4.67   | 73.44  | 15.53 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 3.21   | 68.46  | 12.76 |      | 50.0  |         |
|           |                                                                    | Z | 2.46   | 64.27  | 9.79  |      | 50.0  |         |
| 10290-AAB | CDMA2000, RC1, SO55, Full Rate                                     | X | 1.28   | 67.55  | 13.00 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.87   | 63.20  | 9.74  |      | 150.0 |         |
|           |                                                                    | Z | 0.46   | 60.16  | 6.10  |      | 150.0 |         |
| 10291-AAB | CDMA2000, RC3, SO55, Full Rate                                     | X | 0.75   | 64.94  | 11.58 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.53   | 61.44  | 8.41  |      | 150.0 |         |
|           |                                                                    | Z | 0.32   | 60.00  | 5.56  |      | 150.0 |         |
| 10292-AAB | CDMA2000, RC3, SO32, Full Rate                                     | X | 0.98   | 69.24  | 14.07 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.58   | 63.01  | 9.60  |      | 150.0 |         |
|           |                                                                    | Z | 0.33   | 60.54  | 6.17  |      | 150.0 |         |
| 10293-AAB | CDMA2000, RC3, SO3, Full Rate                                      | X | 1.68   | 76.56  | 17.59 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 0.74   | 65.59  | 11.37 |      | 150.0 |         |
|           |                                                                    | Z | 0.97   | 69.23  | 10.62 |      | 150.0 |         |
| 10295-AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr.                              | X | 12.77  | 92.35  | 26.24 | 9.03 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 22.20  | 100.28 | 27.92 |      | 50.0  |         |
|           |                                                                    | Z | 100.00 | 115.37 | 29.46 |      | 50.0  |         |
| 10297-AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)                            | X | 2.66   | 69.41  | 16.46 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 2.40   | 67.79  | 15.48 |      | 150.0 |         |
|           |                                                                    | Z | 2.79   | 72.73  | 18.49 |      | 150.0 |         |
| 10298-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)                             | X | 1.42   | 66.77  | 13.28 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.08   | 63.49  | 10.70 |      | 150.0 |         |
|           |                                                                    | Z | 0.71   | 61.60  | 8.01  |      | 150.0 |         |
| 10299-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)                           | X | 2.44   | 68.55  | 13.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.65   | 64.37  | 10.69 |      | 150.0 |         |
|           |                                                                    | Z | 0.87   | 60.44  | 6.67  |      | 150.0 |         |
| 10300-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                           | X | 1.78   | 64.18  | 10.26 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                    | Y | 1.37   | 61.93  | 8.69  |      | 150.0 |         |
|           |                                                                    | Z | 0.81   | 60.00  | 5.75  |      | 150.0 |         |
| 10301-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)                 | X | 4.62   | 65.42  | 17.37 | 4.17 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 4.51   | 65.22  | 17.15 |      | 50.0  |         |
|           |                                                                    | Z | 4.62   | 67.58  | 18.20 |      | 50.0  |         |
| 10302-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | X | 5.06   | 65.89  | 18.01 | 4.96 | 50.0  | ± 9.6 % |
|           |                                                                    | Y | 4.91   | 65.43  | 17.65 |      | 50.0  |         |
|           |                                                                    | Z | 4.97   | 67.46  | 18.56 |      | 50.0  |         |

|           |                                                                     |   |       |        |       |       |       |         |
|-----------|---------------------------------------------------------------------|---|-------|--------|-------|-------|-------|---------|
| 10303-AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)                 | X | 4.80  | 65.47  | 17.81 | 4.96  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 4.65  | 65.01  | 17.42 |       | 50.0  |         |
|           |                                                                     | Z | 4.76  | 67.28  | 18.38 |       | 50.0  |         |
| 10304-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)                 | X | 4.63  | 65.40  | 17.32 | 4.17  | 50.0  | ± 9.6 % |
|           |                                                                     | Y | 4.47  | 64.93  | 16.94 |       | 50.0  |         |
|           |                                                                     | Z | 4.59  | 67.18  | 17.91 |       | 50.0  |         |
| 10305-AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)    | X | 4.10  | 66.51  | 18.92 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 3.93  | 66.00  | 18.30 |       | 35.0  |         |
|           |                                                                     | Z | 4.59  | 70.79  | 19.72 |       | 35.0  |         |
| 10306-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)    | X | 4.49  | 65.91  | 18.73 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 4.34  | 65.55  | 18.29 |       | 35.0  |         |
|           |                                                                     | Z | 4.69  | 69.17  | 19.61 |       | 35.0  |         |
| 10307-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)     | X | 4.36  | 65.95  | 18.64 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 4.21  | 65.52  | 18.16 |       | 35.0  |         |
|           |                                                                     | Z | 4.59  | 69.24  | 19.50 |       | 35.0  |         |
| 10308-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)                | X | 4.34  | 66.13  | 18.77 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 4.18  | 65.69  | 18.28 |       | 35.0  |         |
|           |                                                                     | Z | 4.61  | 69.65  | 19.75 |       | 35.0  |         |
| 10309-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | X | 4.53  | 66.09  | 18.86 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 4.37  | 65.69  | 18.41 |       | 35.0  |         |
|           |                                                                     | Z | 4.70  | 69.25  | 19.72 |       | 35.0  |         |
| 10310-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)  | X | 4.43  | 65.94  | 18.69 | 6.02  | 35.0  | ± 9.6 % |
|           |                                                                     | Y | 4.28  | 65.57  | 18.25 |       | 35.0  |         |
|           |                                                                     | Z | 4.67  | 69.37  | 19.68 |       | 35.0  |         |
| 10311-AAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)                            | X | 3.02  | 68.71  | 16.12 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 2.74  | 67.13  | 15.24 |       | 150.0 |         |
|           |                                                                     | Z | 3.10  | 71.08  | 17.81 |       | 150.0 |         |
| 10313-AAA | iDEN 1:3                                                            | X | 3.73  | 76.32  | 17.72 | 6.99  | 70.0  | ± 9.6 % |
|           |                                                                     | Y | 2.24  | 71.02  | 15.63 |       | 70.0  |         |
|           |                                                                     | Z | 11.13 | 93.46  | 23.95 |       | 70.0  |         |
| 10314-AAA | iDEN 1:6                                                            | X | 5.96  | 86.74  | 24.63 | 10.00 | 30.0  | ± 9.6 % |
|           |                                                                     | Y | 4.04  | 81.26  | 22.67 |       | 30.0  |         |
|           |                                                                     | Z | 34.68 | 118.42 | 34.23 |       | 30.0  |         |
| 10315-AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)           | X | 1.06  | 63.52  | 14.98 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.97  | 62.27  | 13.91 |       | 150.0 |         |
|           |                                                                     | Z | 1.08  | 66.42  | 17.31 |       | 150.0 |         |
| 10316-AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)       | X | 4.50  | 66.64  | 16.23 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.39  | 66.27  | 16.01 |       | 150.0 |         |
|           |                                                                     | Z | 4.28  | 67.32  | 16.81 |       | 150.0 |         |
| 10317-AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)             | X | 4.50  | 66.64  | 16.23 | 0.17  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.39  | 66.27  | 16.01 |       | 150.0 |         |
|           |                                                                     | Z | 4.28  | 67.32  | 16.81 |       | 150.0 |         |
| 10400-AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)                 | X | 4.60  | 66.96  | 16.21 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.47  | 66.53  | 15.97 |       | 150.0 |         |
|           |                                                                     | Z | 4.29  | 67.46  | 16.74 |       | 150.0 |         |
| 10401-AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)                 | X | 5.31  | 67.10  | 16.37 | 0.00  | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 5.22  | 66.80  | 16.24 |       | 150.0 |         |
|           |                                                                     | Z | 5.09  | 67.45  | 16.93 |       | 150.0 |         |

|           |                                                                                 |   |        |        |       |      |       |         |
|-----------|---------------------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10402-AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)                             | X | 5.57   | 67.40  | 16.38 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.47   | 67.02  | 16.23 |      | 150.0 |         |
|           |                                                                                 | Z | 5.38   | 67.62  | 16.93 |      | 150.0 |         |
| 10403-AAB | CDMA2000 (1xEV-DO, Rev. 0)                                                      | X | 1.28   | 67.55  | 13.00 | 0.00 | 115.0 | ± 9.6 % |
|           |                                                                                 | Y | 0.87   | 63.20  | 9.74  |      | 115.0 |         |
|           |                                                                                 | Z | 0.46   | 60.16  | 6.10  |      | 115.0 |         |
| 10404-AAB | CDMA2000 (1xEV-DO, Rev. A)                                                      | X | 1.28   | 67.55  | 13.00 | 0.00 | 115.0 | ± 9.6 % |
|           |                                                                                 | Y | 0.87   | 63.20  | 9.74  |      | 115.0 |         |
|           |                                                                                 | Z | 0.46   | 60.16  | 6.10  |      | 115.0 |         |
| 10406-AAB | CDMA2000, RC3, SO32, SCH0, Full Rate                                            | X | 100.00 | 114.35 | 26.69 | 0.00 | 100.0 | ± 9.6 % |
|           |                                                                                 | Y | 8.61   | 89.18  | 21.46 |      | 100.0 |         |
|           |                                                                                 | Z | 100.00 | 124.12 | 29.49 |      | 100.0 |         |
| 10410-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | X | 100.00 | 123.47 | 30.44 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                                 | Y | 29.88  | 112.60 | 29.12 |      | 80.0  |         |
|           |                                                                                 | Z | 100.00 | 143.39 | 38.45 |      | 80.0  |         |
| 10415-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)                       | X | 1.00   | 62.89  | 14.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 0.92   | 61.78  | 13.44 |      | 150.0 |         |
|           |                                                                                 | Z | 1.00   | 65.42  | 16.60 |      | 150.0 |         |
| 10416-AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)                   | X | 4.46   | 66.65  | 16.16 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.34   | 66.25  | 15.92 |      | 150.0 |         |
|           |                                                                                 | Z | 4.22   | 67.28  | 16.71 |      | 150.0 |         |
| 10417-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)                       | X | 4.46   | 66.65  | 16.16 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.34   | 66.25  | 15.92 |      | 150.0 |         |
|           |                                                                                 | Z | 4.22   | 67.28  | 16.71 |      | 150.0 |         |
| 10418-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)   | X | 4.45   | 66.82  | 16.19 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.33   | 66.42  | 15.95 |      | 150.0 |         |
|           |                                                                                 | Z | 4.23   | 67.56  | 16.82 |      | 150.0 |         |
| 10419-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | X | 4.47   | 66.77  | 16.18 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.35   | 66.37  | 15.95 |      | 150.0 |         |
|           |                                                                                 | Z | 4.24   | 67.46  | 16.78 |      | 150.0 |         |
| 10422-AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | X | 4.58   | 66.76  | 16.20 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.46   | 66.37  | 15.98 |      | 150.0 |         |
|           |                                                                                 | Z | 4.33   | 67.38  | 16.77 |      | 150.0 |         |
| 10423-AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | X | 4.73   | 67.05  | 16.30 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.60   | 66.64  | 16.07 |      | 150.0 |         |
|           |                                                                                 | Z | 4.44   | 67.62  | 16.84 |      | 150.0 |         |
| 10424-AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | X | 4.66   | 67.00  | 16.28 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 4.53   | 66.59  | 16.05 |      | 150.0 |         |
|           |                                                                                 | Z | 4.37   | 67.55  | 16.82 |      | 150.0 |         |
| 10425-AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | X | 5.26   | 67.24  | 16.44 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.17   | 66.94  | 16.32 |      | 150.0 |         |
|           |                                                                                 | Z | 5.05   | 67.64  | 17.05 |      | 150.0 |         |
| 10426-AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | X | 5.28   | 67.31  | 16.47 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                                 | Y | 5.20   | 67.06  | 16.38 |      | 150.0 |         |
|           |                                                                                 | Z | 5.11   | 67.90  | 17.18 |      | 150.0 |         |

|           |                                                                |   |        |        |       |      |       |         |
|-----------|----------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10427-AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                 | X | 5.28   | 67.25  | 16.44 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 5.17   | 66.88  | 16.28 |      | 150.0 |         |
|           |                                                                | Z | 5.03   | 67.51  | 16.98 |      | 150.0 |         |
| 10430-AAC | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                               | X | 4.17   | 70.94  | 18.03 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.94   | 70.25  | 17.43 |      | 150.0 |         |
|           |                                                                | Z | 4.39   | 74.44  | 18.83 |      | 150.0 |         |
| 10431-AAC | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                              | X | 4.11   | 67.19  | 16.11 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.95   | 66.68  | 15.73 |      | 150.0 |         |
|           |                                                                | Z | 3.82   | 68.15  | 16.50 |      | 150.0 |         |
| 10432-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                              | X | 4.42   | 67.06  | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.28   | 66.62  | 15.93 |      | 150.0 |         |
|           |                                                                | Z | 4.14   | 67.81  | 16.75 |      | 150.0 |         |
| 10433-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                              | X | 4.67   | 67.03  | 16.30 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.54   | 66.62  | 16.06 |      | 150.0 |         |
|           |                                                                | Z | 4.39   | 67.60  | 16.85 |      | 150.0 |         |
| 10434-AAA | W-CDMA (BS Test Model 1, 64 DPCH)                              | X | 4.27   | 71.80  | 17.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.95   | 70.75  | 17.10 |      | 150.0 |         |
|           |                                                                | Z | 4.37   | 74.54  | 18.01 |      | 150.0 |         |
| 10435-AAE | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 123.21 | 30.32 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                | Y | 26.80  | 110.87 | 28.64 |      | 80.0  |         |
|           |                                                                | Z | 100.00 | 143.00 | 38.28 |      | 80.0  |         |
| 10447-AAC | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                 | X | 3.39   | 67.13  | 15.27 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.16   | 66.26  | 14.52 |      | 150.0 |         |
|           |                                                                | Z | 2.97   | 67.52  | 14.59 |      | 150.0 |         |
| 10448-AAC | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                | X | 3.97   | 66.98  | 15.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.81   | 66.46  | 15.58 |      | 150.0 |         |
|           |                                                                | Z | 3.71   | 67.98  | 16.41 |      | 150.0 |         |
| 10449-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                | X | 4.25   | 66.89  | 16.11 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.11   | 66.43  | 15.82 |      | 150.0 |         |
|           |                                                                | Z | 4.00   | 67.65  | 16.67 |      | 150.0 |         |
| 10450-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                | X | 4.45   | 66.81  | 16.15 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.33   | 66.37  | 15.90 |      | 150.0 |         |
|           |                                                                | Z | 4.22   | 67.38  | 16.71 |      | 150.0 |         |
| 10451-AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                | X | 3.25   | 67.18  | 14.78 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 2.97   | 66.04  | 13.81 |      | 150.0 |         |
|           |                                                                | Z | 2.60   | 66.32  | 13.13 |      | 150.0 |         |
| 10456-AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)           | X | 6.15   | 67.84  | 16.63 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 6.15   | 67.72  | 16.63 |      | 150.0 |         |
|           |                                                                | Z | 6.64   | 69.94  | 18.14 |      | 150.0 |         |
| 10457-AAA | UMTS-FDD (DC-HSDPA)                                            | X | 3.75   | 65.32  | 15.86 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.67   | 64.95  | 15.62 |      | 150.0 |         |
|           |                                                                | Z | 3.64   | 66.17  | 16.50 |      | 150.0 |         |
| 10458-AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers)                         | X | 3.89   | 70.96  | 17.20 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 3.49   | 69.40  | 15.97 |      | 150.0 |         |
|           |                                                                | Z | 2.86   | 68.25  | 14.10 |      | 150.0 |         |
| 10459-AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers)                         | X | 4.98   | 68.55  | 17.98 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                | Y | 4.81   | 68.28  | 17.63 |      | 150.0 |         |
|           |                                                                | Z | 4.33   | 68.29  | 16.68 |      | 150.0 |         |

|           |                                                                   |   |        |        |       |      |       |         |
|-----------|-------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10460-AAA | UMTS-FDD (WCDMA, AMR)                                             | X | 0.87   | 67.71  | 15.76 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                   | Y | 0.70   | 64.66  | 13.36 |      | 150.0 |         |
|           |                                                                   | Z | 3.66   | 95.75  | 26.74 |      | 150.0 |         |
| 10461-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 100.00 | 129.54 | 33.26 | 3.29 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 14.50  | 104.88 | 28.18 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 153.17 | 42.85 |      | 80.0  |         |
| 10462-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.39   | 65.03  | 10.31 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 1.03   | 63.23  | 10.14 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 109.05 | 22.95 |      | 80.0  |         |
| 10463-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 0.81   | 60.05  | 7.43  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.75   | 60.00  | 7.90  |      | 80.0  |         |
|           |                                                                   | Z | 0.57   | 60.30  | 7.62  |      | 80.0  |         |
| 10464-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 100.00 | 126.14 | 31.52 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 12.10  | 100.62 | 26.22 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 150.19 | 41.19 |      | 80.0  |         |
| 10465-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.19   | 63.61  | 9.62  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.93   | 62.22  | 9.59  |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 107.75 | 22.39 |      | 80.0  |         |
| 10466-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 0.81   | 60.00  | 7.35  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.75   | 60.00  | 7.84  |      | 80.0  |         |
|           |                                                                   | Z | 0.55   | 60.00  | 7.41  |      | 80.0  |         |
| 10467-AAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 100.00 | 126.52 | 31.69 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 14.79  | 103.62 | 27.06 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 150.92 | 41.50 |      | 80.0  |         |
| 10468-AAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.24   | 63.98  | 9.81  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.95   | 62.51  | 9.76  |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 108.41 | 22.67 |      | 80.0  |         |
| 10469-AAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 0.81   | 60.00  | 7.35  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.75   | 60.00  | 7.84  |      | 80.0  |         |
|           |                                                                   | Z | 0.55   | 60.00  | 7.42  |      | 80.0  |         |
| 10470-AAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 126.55 | 31.69 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 15.04  | 103.89 | 27.13 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 151.07 | 41.55 |      | 80.0  |         |
| 10471-AAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.22   | 63.88  | 9.75  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.95   | 62.45  | 9.71  |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 108.26 | 22.60 |      | 80.0  |         |
| 10472-AAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 0.81   | 60.00  | 7.33  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.75   | 60.00  | 7.83  |      | 80.0  |         |
|           |                                                                   | Z | 0.55   | 60.00  | 7.40  |      | 80.0  |         |
| 10473-AAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 100.00 | 126.51 | 31.67 | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 14.94  | 103.77 | 27.09 |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 151.03 | 41.53 |      | 80.0  |         |
| 10474-AAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.22   | 63.84  | 9.73  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.94   | 62.42  | 9.70  |      | 80.0  |         |
|           |                                                                   | Z | 100.00 | 108.25 | 22.59 |      | 80.0  |         |
| 10475-AAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 0.81   | 60.00  | 7.33  | 3.23 | 80.0  | ± 9.6 % |
|           |                                                                   | Y | 0.75   | 60.00  | 7.83  |      | 80.0  |         |
|           |                                                                   | Z | 0.55   | 60.00  | 7.40  |      | 80.0  |         |

|           |                                                                     |   |        |        |       |      |      |         |
|-----------|---------------------------------------------------------------------|---|--------|--------|-------|------|------|---------|
| 10477-AAE | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | X | 1.17   | 63.52  | 9.56  | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 0.92   | 62.18  | 9.55  |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 107.73 | 22.37 |      | 80.0 |         |
| 10478-AAE | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | X | 0.81   | 60.00  | 7.32  | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 0.75   | 60.00  | 7.82  |      | 80.0 |         |
|           |                                                                     | Z | 0.55   | 60.00  | 7.38  |      | 80.0 |         |
| 10479-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 9.04   | 90.33  | 24.26 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 6.61   | 86.66  | 23.14 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 137.19 | 37.34 |      | 80.0 |         |
| 10480-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 8.84   | 83.63  | 19.75 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 4.76   | 76.73  | 17.50 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 115.92 | 27.42 |      | 80.0 |         |
| 10481-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.75   | 77.50  | 17.30 | 3.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 3.37   | 71.81  | 15.25 |      | 80.0 |         |
|           |                                                                     | Z | 100.00 | 111.07 | 25.15 |      | 80.0 |         |
| 10482-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 2.60   | 71.30  | 16.37 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 1.67   | 65.92  | 13.44 |      | 80.0 |         |
|           |                                                                     | Z | 2.83   | 72.35  | 14.46 |      | 80.0 |         |
| 10483-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.50   | 71.18  | 15.46 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.31   | 66.36  | 13.05 |      | 80.0 |         |
|           |                                                                     | Z | 1.29   | 61.22  | 8.83  |      | 80.0 |         |
| 10484-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.25   | 69.98  | 14.98 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.20   | 65.52  | 12.66 |      | 80.0 |         |
|           |                                                                     | Z | 1.23   | 60.55  | 8.44  |      | 80.0 |         |
| 10485-AAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 2.97   | 73.01  | 18.21 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.20   | 69.19  | 16.27 |      | 80.0 |         |
|           |                                                                     | Z | 22.67  | 102.89 | 26.50 |      | 80.0 |         |
| 10486-AAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.86   | 68.82  | 15.74 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.22   | 65.76  | 13.92 |      | 80.0 |         |
|           |                                                                     | Z | 2.70   | 69.32  | 14.28 |      | 80.0 |         |
| 10487-AAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.85   | 68.38  | 15.52 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.23   | 65.43  | 13.74 |      | 80.0 |         |
|           |                                                                     | Z | 2.47   | 67.87  | 13.61 |      | 80.0 |         |
| 10488-AAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 3.20   | 71.90  | 18.58 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.62   | 69.33  | 17.40 |      | 80.0 |         |
|           |                                                                     | Z | 5.59   | 84.24  | 23.63 |      | 80.0 |         |
| 10489-AAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.18   | 68.52  | 17.04 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.77   | 66.86  | 16.15 |      | 80.0 |         |
|           |                                                                     | Z | 3.92   | 74.27  | 19.29 |      | 80.0 |         |
| 10490-AAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.27   | 68.37  | 16.97 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.86   | 66.79  | 16.11 |      | 80.0 |         |
|           |                                                                     | Z | 3.87   | 73.48  | 18.93 |      | 80.0 |         |
| 10491-AAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 3.45   | 70.42  | 18.08 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 2.96   | 68.43  | 17.20 |      | 80.0 |         |
|           |                                                                     | Z | 4.22   | 76.57  | 21.22 |      | 80.0 |         |
| 10492-AAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.52   | 67.77  | 17.04 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                     | Y | 3.17   | 66.45  | 16.39 |      | 80.0 |         |
|           |                                                                     | Z | 3.76   | 71.09  | 18.73 |      | 80.0 |         |

|           |                                                                      |   |       |       |       |      |      |         |
|-----------|----------------------------------------------------------------------|---|-------|-------|-------|------|------|---------|
| 10493-AAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.59  | 67.65 | 16.99 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.24  | 66.37 | 16.35 |      | 80.0 |         |
|           |                                                                      | Z | 3.77  | 70.74 | 18.54 |      | 80.0 |         |
| 10494-AAE | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 3.73  | 71.91 | 18.57 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.14  | 69.59 | 17.59 |      | 80.0 |         |
|           |                                                                      | Z | 4.78  | 78.78 | 22.06 |      | 80.0 |         |
| 10495-AAE | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.54  | 68.08 | 17.23 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.18  | 66.69 | 16.58 |      | 80.0 |         |
|           |                                                                      | Z | 3.77  | 71.24 | 19.01 |      | 80.0 |         |
| 10496-AAE | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.62  | 67.84 | 17.15 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.27  | 66.53 | 16.54 |      | 80.0 |         |
|           |                                                                      | Z | 3.80  | 70.76 | 18.81 |      | 80.0 |         |
| 10497-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 1.73  | 65.94 | 12.85 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 1.06  | 60.88 | 9.56  |      | 80.0 |         |
|           |                                                                      | Z | 0.85  | 60.00 | 7.05  |      | 80.0 |         |
| 10498-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.28  | 60.26 | 8.80  | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 1.16  | 60.00 | 7.85  |      | 80.0 |         |
|           |                                                                      | Z | 1.10  | 60.00 | 5.59  |      | 80.0 |         |
| 10499-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.27  | 60.00 | 8.50  | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 1.18  | 60.00 | 7.69  |      | 80.0 |         |
|           |                                                                      | Z | 1.14  | 60.00 | 5.40  |      | 80.0 |         |
| 10500-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 3.02  | 72.29 | 18.27 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.36  | 69.20 | 16.71 |      | 80.0 |         |
|           |                                                                      | Z | 10.28 | 93.15 | 24.95 |      | 80.0 |         |
| 10501-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.02  | 68.86 | 16.31 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.49  | 66.51 | 14.92 |      | 80.0 |         |
|           |                                                                      | Z | 3.75  | 73.54 | 17.07 |      | 80.0 |         |
| 10502-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.08  | 68.71 | 16.17 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.54  | 66.38 | 14.78 |      | 80.0 |         |
|           |                                                                      | Z | 3.58  | 72.48 | 16.52 |      | 80.0 |         |
| 10503-AAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 3.16  | 71.71 | 18.48 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.59  | 69.16 | 17.30 |      | 80.0 |         |
|           |                                                                      | Z | 5.44  | 83.79 | 23.45 |      | 80.0 |         |
| 10504-AAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.16  | 68.43 | 16.98 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.76  | 66.77 | 16.09 |      | 80.0 |         |
|           |                                                                      | Z | 3.88  | 74.08 | 19.19 |      | 80.0 |         |
| 10505-AAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.25  | 68.28 | 16.92 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 2.85  | 66.70 | 16.06 |      | 80.0 |         |
|           |                                                                      | Z | 3.84  | 73.33 | 18.85 |      | 80.0 |         |
| 10506-AAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 3.70  | 71.78 | 18.50 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.12  | 69.46 | 17.52 |      | 80.0 |         |
|           |                                                                      | Z | 4.72  | 78.55 | 21.96 |      | 80.0 |         |
| 10507-AAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.53  | 68.03 | 17.19 | 2.23 | 80.0 | ± 9.6 % |
|           |                                                                      | Y | 3.17  | 66.63 | 16.54 |      | 80.0 |         |
|           |                                                                      | Z | 3.75  | 71.16 | 18.97 |      | 80.0 |         |

|           |                                                                     |   |        |        |       |      |       |         |
|-----------|---------------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10508-AAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.61   | 67.78  | 17.11 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.26   | 66.47  | 16.49 |      | 80.0  |         |
|           |                                                                     | Z | 3.78   | 70.66  | 18.75 |      | 80.0  |         |
| 10509-AAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 4.07   | 70.61  | 17.99 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.56   | 68.75  | 17.23 |      | 80.0  |         |
|           |                                                                     | Z | 4.50   | 74.42  | 20.36 |      | 80.0  |         |
| 10510-AAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.01   | 67.79  | 17.19 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.67   | 66.54  | 16.66 |      | 80.0  |         |
|           |                                                                     | Z | 4.03   | 69.58  | 18.54 |      | 80.0  |         |
| 10511-AAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.07   | 67.56  | 17.12 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.74   | 66.39  | 16.62 |      | 80.0  |         |
|           |                                                                     | Z | 4.08   | 69.30  | 18.42 |      | 80.0  |         |
| 10512-AAE | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 4.24   | 72.14  | 18.49 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.60   | 69.85  | 17.56 |      | 80.0  |         |
|           |                                                                     | Z | 4.88   | 76.57  | 21.10 |      | 80.0  |         |
| 10513-AAE | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.89   | 68.00  | 17.28 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.54   | 66.65  | 16.71 |      | 80.0  |         |
|           |                                                                     | Z | 3.93   | 69.75  | 18.67 |      | 80.0  |         |
| 10514-AAE | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.93   | 67.61  | 17.16 | 2.23 | 80.0  | ± 9.6 % |
|           |                                                                     | Y | 3.60   | 66.36  | 16.63 |      | 80.0  |         |
|           |                                                                     | Z | 3.95   | 69.22  | 18.46 |      | 80.0  |         |
| 10515-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)           | X | 0.96   | 63.06  | 14.52 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.88   | 61.87  | 13.42 |      | 150.0 |         |
|           |                                                                     | Z | 0.97   | 65.95  | 16.87 |      | 150.0 |         |
| 10516-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)         | X | 0.57   | 69.38  | 16.67 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.42   | 64.94  | 13.06 |      | 150.0 |         |
|           |                                                                     | Z | 100.00 | 169.97 | 46.35 |      | 150.0 |         |
| 10517-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)          | X | 0.80   | 64.78  | 15.05 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 0.70   | 62.90  | 13.39 |      | 150.0 |         |
|           |                                                                     | Z | 0.98   | 72.03  | 19.62 |      | 150.0 |         |
| 10518-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)           | X | 4.45   | 66.73  | 16.14 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.33   | 66.33  | 15.90 |      | 150.0 |         |
|           |                                                                     | Z | 4.22   | 67.44  | 16.73 |      | 150.0 |         |
| 10519-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)          | X | 4.62   | 66.93  | 16.24 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.49   | 66.53  | 16.01 |      | 150.0 |         |
|           |                                                                     | Z | 4.34   | 67.57  | 16.79 |      | 150.0 |         |
| 10520-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)          | X | 4.47   | 66.88  | 16.16 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.34   | 66.44  | 15.91 |      | 150.0 |         |
|           |                                                                     | Z | 4.21   | 67.50  | 16.72 |      | 150.0 |         |
| 10521-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)          | X | 4.41   | 66.87  | 16.15 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.27   | 66.41  | 15.88 |      | 150.0 |         |
|           |                                                                     | Z | 4.14   | 67.42  | 16.68 |      | 150.0 |         |
| 10522-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)          | X | 4.47   | 66.99  | 16.25 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                     | Y | 4.33   | 66.55  | 15.99 |      | 150.0 |         |
|           |                                                                     | Z | 4.16   | 67.47  | 16.72 |      | 150.0 |         |

|           |                                                            |   |      |       |       |      |       |         |
|-----------|------------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10523-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | X | 4.36 | 66.89 | 16.11 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.24 | 66.47 | 15.86 |      | 150.0 |         |
|           |                                                            | Z | 4.15 | 67.74 | 16.81 |      | 150.0 |         |
| 10524-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | X | 4.41 | 66.91 | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.27 | 66.48 | 15.96 |      | 150.0 |         |
|           |                                                            | Z | 4.13 | 67.58 | 16.81 |      | 150.0 |         |
| 10525-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)          | X | 4.42 | 65.98 | 15.82 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.29 | 65.56 | 15.57 |      | 150.0 |         |
|           |                                                            | Z | 4.21 | 66.73 | 16.46 |      | 150.0 |         |
| 10526-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)          | X | 4.56 | 66.31 | 15.95 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.42 | 65.86 | 15.70 |      | 150.0 |         |
|           |                                                            | Z | 4.30 | 66.94 | 16.55 |      | 150.0 |         |
| 10527-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)          | X | 4.49 | 66.27 | 15.89 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.35 | 65.81 | 15.63 |      | 150.0 |         |
|           |                                                            | Z | 4.25 | 66.95 | 16.50 |      | 150.0 |         |
| 10528-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)          | X | 4.50 | 66.29 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.37 | 65.82 | 15.66 |      | 150.0 |         |
|           |                                                            | Z | 4.26 | 66.95 | 16.53 |      | 150.0 |         |
| 10529-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)          | X | 4.50 | 66.29 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.37 | 65.82 | 15.66 |      | 150.0 |         |
|           |                                                            | Z | 4.26 | 66.95 | 16.53 |      | 150.0 |         |
| 10531-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)          | X | 4.48 | 66.36 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.33 | 65.86 | 15.64 |      | 150.0 |         |
|           |                                                            | Z | 4.21 | 66.92 | 16.48 |      | 150.0 |         |
| 10532-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)          | X | 4.35 | 66.22 | 15.85 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.21 | 65.71 | 15.56 |      | 150.0 |         |
|           |                                                            | Z | 4.11 | 66.80 | 16.43 |      | 150.0 |         |
| 10533-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)          | X | 4.51 | 66.35 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.37 | 65.89 | 15.66 |      | 150.0 |         |
|           |                                                            | Z | 4.26 | 67.08 | 16.55 |      | 150.0 |         |
| 10534-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)          | X | 5.05 | 66.37 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.94 | 65.96 | 15.81 |      | 150.0 |         |
|           |                                                            | Z | 4.84 | 66.67 | 16.54 |      | 150.0 |         |
| 10535-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)          | X | 5.11 | 66.53 | 16.07 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.00 | 66.13 | 15.88 |      | 150.0 |         |
|           |                                                            | Z | 4.87 | 66.81 | 16.62 |      | 150.0 |         |
| 10536-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)          | X | 4.99 | 66.50 | 16.03 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.88 | 66.09 | 15.84 |      | 150.0 |         |
|           |                                                            | Z | 4.76 | 66.80 | 16.58 |      | 150.0 |         |
| 10537-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)          | X | 5.04 | 66.45 | 16.01 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.93 | 66.06 | 15.83 |      | 150.0 |         |
|           |                                                            | Z | 4.87 | 66.94 | 16.66 |      | 150.0 |         |
| 10538-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)          | X | 5.12 | 66.46 | 16.05 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 5.01 | 66.06 | 15.88 |      | 150.0 |         |
|           |                                                            | Z | 4.87 | 66.70 | 16.57 |      | 150.0 |         |
| 10540-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)          | X | 5.05 | 66.45 | 16.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                            | Y | 4.94 | 66.03 | 15.87 |      | 150.0 |         |
|           |                                                            | Z | 4.81 | 66.67 | 16.58 |      | 150.0 |         |

|           |                                                    |   |      |       |       |      |       |         |
|-----------|----------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10541-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)  | X | 5.03 | 66.35 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 4.91 | 65.91 | 15.79 |      | 150.0 |         |
|           |                                                    | Z | 4.81 | 66.64 | 16.54 |      | 150.0 |         |
| 10542-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)  | X | 5.19 | 66.43 | 16.06 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.08 | 66.04 | 15.88 |      | 150.0 |         |
|           |                                                    | Z | 4.95 | 66.69 | 16.58 |      | 150.0 |         |
| 10543-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)  | X | 5.25 | 66.44 | 16.09 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.15 | 66.10 | 15.94 |      | 150.0 |         |
|           |                                                    | Z | 5.03 | 66.83 | 16.69 |      | 150.0 |         |
| 10544-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)  | X | 5.37 | 66.47 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.28 | 66.07 | 15.82 |      | 150.0 |         |
|           |                                                    | Z | 5.21 | 66.60 | 16.48 |      | 150.0 |         |
| 10545-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)  | X | 5.55 | 66.87 | 16.14 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.48 | 66.56 | 16.03 |      | 150.0 |         |
|           |                                                    | Z | 5.42 | 67.24 | 16.77 |      | 150.0 |         |
| 10546-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)  | X | 5.42 | 66.63 | 16.03 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.32 | 66.20 | 15.86 |      | 150.0 |         |
|           |                                                    | Z | 5.23 | 66.72 | 16.51 |      | 150.0 |         |
| 10547-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)  | X | 5.49 | 66.69 | 16.05 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.40 | 66.32 | 15.91 |      | 150.0 |         |
|           |                                                    | Z | 5.44 | 67.30 | 16.80 |      | 150.0 |         |
| 10548-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)  | X | 5.68 | 67.44 | 16.41 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.61 | 67.14 | 16.29 |      | 150.0 |         |
|           |                                                    | Z | 5.44 | 67.46 | 16.86 |      | 150.0 |         |
| 10550-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)  | X | 5.46 | 66.70 | 16.08 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.39 | 66.41 | 15.97 |      | 150.0 |         |
|           |                                                    | Z | 5.44 | 67.48 | 16.91 |      | 150.0 |         |
| 10551-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)  | X | 5.45 | 66.69 | 16.03 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.33 | 66.22 | 15.84 |      | 150.0 |         |
|           |                                                    | Z | 5.21 | 66.64 | 16.46 |      | 150.0 |         |
| 10552-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)  | X | 5.38 | 66.56 | 15.97 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.29 | 66.14 | 15.80 |      | 150.0 |         |
|           |                                                    | Z | 5.21 | 66.76 | 16.51 |      | 150.0 |         |
| 10553-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)  | X | 5.45 | 66.56 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.35 | 66.13 | 15.83 |      | 150.0 |         |
|           |                                                    | Z | 5.25 | 66.64 | 16.47 |      | 150.0 |         |
| 10554-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | X | 5.78 | 66.82 | 16.07 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.71 | 66.44 | 15.93 |      | 150.0 |         |
|           |                                                    | Z | 5.67 | 66.90 | 16.54 |      | 150.0 |         |
| 10555-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | X | 5.90 | 67.09 | 16.19 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.82 | 66.72 | 16.05 |      | 150.0 |         |
|           |                                                    | Z | 5.76 | 67.16 | 16.66 |      | 150.0 |         |
| 10556-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | X | 5.92 | 67.15 | 16.21 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.85 | 66.81 | 16.09 |      | 150.0 |         |
|           |                                                    | Z | 5.85 | 67.43 | 16.79 |      | 150.0 |         |
| 10557-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | X | 5.88 | 67.05 | 16.18 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                    | Y | 5.80 | 66.65 | 16.03 |      | 150.0 |         |
|           |                                                    | Z | 5.73 | 67.07 | 16.62 |      | 150.0 |         |

|           |                                                                 |   |        |        |       |      |       |         |
|-----------|-----------------------------------------------------------------|---|--------|--------|-------|------|-------|---------|
| 10558-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)              | X | 5.93   | 67.20  | 16.27 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.83   | 66.77  | 16.10 |      | 150.0 |         |
|           |                                                                 | Z | 5.70   | 67.00  | 16.61 |      | 150.0 |         |
| 10560-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)              | X | 5.92   | 67.06  | 16.23 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.83   | 66.66  | 16.08 |      | 150.0 |         |
|           |                                                                 | Z | 5.73   | 66.98  | 16.63 |      | 150.0 |         |
| 10561-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)              | X | 5.85   | 67.03  | 16.26 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.77   | 66.66  | 16.12 |      | 150.0 |         |
|           |                                                                 | Z | 5.67   | 66.99  | 16.67 |      | 150.0 |         |
| 10562-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)              | X | 5.94   | 67.32  | 16.40 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.83   | 66.85  | 16.21 |      | 150.0 |         |
|           |                                                                 | Z | 5.72   | 67.13  | 16.74 |      | 150.0 |         |
| 10563-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)              | X | 6.03   | 67.22  | 16.31 | 0.00 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 5.94   | 66.85  | 16.18 |      | 150.0 |         |
|           |                                                                 | Z | 5.87   | 67.29  | 16.79 |      | 150.0 |         |
| 10564-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | X | 4.77   | 66.79  | 16.29 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.66   | 66.43  | 16.09 |      | 150.0 |         |
|           |                                                                 | Z | 4.53   | 67.38  | 16.84 |      | 150.0 |         |
| 10565-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | X | 4.99   | 67.21  | 16.61 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.86   | 66.84  | 16.41 |      | 150.0 |         |
|           |                                                                 | Z | 4.70   | 67.76  | 17.13 |      | 150.0 |         |
| 10566-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | X | 4.82   | 67.05  | 16.42 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.69   | 66.65  | 16.20 |      | 150.0 |         |
|           |                                                                 | Z | 4.55   | 67.57  | 16.95 |      | 150.0 |         |
| 10567-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | X | 4.85   | 67.43  | 16.77 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.72   | 67.02  | 16.56 |      | 150.0 |         |
|           |                                                                 | Z | 4.58   | 67.97  | 17.33 |      | 150.0 |         |
| 10568-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | X | 4.73   | 66.84  | 16.20 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.60   | 66.42  | 15.96 |      | 150.0 |         |
|           |                                                                 | Z | 4.41   | 67.18  | 16.62 |      | 150.0 |         |
| 10569-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | X | 4.82   | 67.57  | 16.86 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.69   | 67.19  | 16.66 |      | 150.0 |         |
|           |                                                                 | Z | 4.60   | 68.35  | 17.57 |      | 150.0 |         |
| 10570-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | X | 4.84   | 67.40  | 16.78 | 0.46 | 150.0 | ± 9.6 % |
|           |                                                                 | Y | 4.71   | 67.03  | 16.58 |      | 150.0 |         |
|           |                                                                 | Z | 4.56   | 68.01  | 17.38 |      | 150.0 |         |
| 10571-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | X | 1.12   | 63.92  | 15.25 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 1.01   | 62.56  | 14.19 |      | 130.0 |         |
|           |                                                                 | Z | 1.16   | 67.01  | 17.67 |      | 130.0 |         |
| 10572-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | X | 1.12   | 64.43  | 15.58 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 1.01   | 62.96  | 14.46 |      | 130.0 |         |
|           |                                                                 | Z | 1.19   | 67.98  | 18.26 |      | 130.0 |         |
| 10573-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | X | 1.38   | 80.48  | 21.60 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 0.74   | 70.76  | 16.62 |      | 130.0 |         |
|           |                                                                 | Z | 100.00 | 166.51 | 46.17 |      | 130.0 |         |
| 10574-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | X | 1.17   | 69.37  | 18.21 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 0.97   | 66.56  | 16.37 |      | 130.0 |         |
|           |                                                                 | Z | 1.84   | 82.04  | 24.87 |      | 130.0 |         |

|           |                                                                 |   |      |       |       |      |       |         |
|-----------|-----------------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10575-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | X | 4.55 | 66.56 | 16.33 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.44 | 66.20 | 16.13 |      | 130.0 |         |
|           |                                                                 | Z | 4.32 | 67.20 | 16.89 |      | 130.0 |         |
| 10576-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | X | 4.58 | 66.73 | 16.40 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.46 | 66.38 | 16.20 |      | 130.0 |         |
|           |                                                                 | Z | 4.35 | 67.48 | 17.02 |      | 130.0 |         |
| 10577-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | X | 4.76 | 67.00 | 16.56 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.64 | 66.64 | 16.36 |      | 130.0 |         |
|           |                                                                 | Z | 4.49 | 67.66 | 17.14 |      | 130.0 |         |
| 10578-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | X | 4.66 | 67.14 | 16.65 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.53 | 66.75 | 16.45 |      | 130.0 |         |
|           |                                                                 | Z | 4.41 | 67.83 | 17.27 |      | 130.0 |         |
| 10579-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | X | 4.42 | 66.41 | 15.96 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.29 | 65.99 | 15.72 |      | 130.0 |         |
|           |                                                                 | Z | 4.15 | 66.91 | 16.47 |      | 130.0 |         |
| 10580-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | X | 4.47 | 66.47 | 15.99 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.34 | 66.06 | 15.76 |      | 130.0 |         |
|           |                                                                 | Z | 4.16 | 66.89 | 16.44 |      | 130.0 |         |
| 10581-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | X | 4.56 | 67.18 | 16.60 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.43 | 66.79 | 16.40 |      | 130.0 |         |
|           |                                                                 | Z | 4.35 | 68.05 | 17.33 |      | 130.0 |         |
| 10582-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | X | 4.36 | 66.18 | 15.75 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.23 | 65.77 | 15.51 |      | 130.0 |         |
|           |                                                                 | Z | 4.07 | 66.70 | 16.26 |      | 130.0 |         |
| 10583-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | X | 4.55 | 66.56 | 16.33 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.44 | 66.20 | 16.13 |      | 130.0 |         |
|           |                                                                 | Z | 4.32 | 67.20 | 16.89 |      | 130.0 |         |
| 10584-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | X | 4.58 | 66.73 | 16.40 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.46 | 66.38 | 16.20 |      | 130.0 |         |
|           |                                                                 | Z | 4.35 | 67.48 | 17.02 |      | 130.0 |         |
| 10585-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | X | 4.76 | 67.00 | 16.56 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.64 | 66.64 | 16.36 |      | 130.0 |         |
|           |                                                                 | Z | 4.49 | 67.66 | 17.14 |      | 130.0 |         |
| 10586-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | X | 4.66 | 67.14 | 16.65 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.53 | 66.75 | 16.45 |      | 130.0 |         |
|           |                                                                 | Z | 4.41 | 67.83 | 17.27 |      | 130.0 |         |
| 10587-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | X | 4.42 | 66.41 | 15.96 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.29 | 65.99 | 15.72 |      | 130.0 |         |
|           |                                                                 | Z | 4.15 | 66.91 | 16.47 |      | 130.0 |         |
| 10588-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)      | X | 4.47 | 66.47 | 15.99 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.34 | 66.06 | 15.76 |      | 130.0 |         |
|           |                                                                 | Z | 4.16 | 66.89 | 16.44 |      | 130.0 |         |
| 10589-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)      | X | 4.56 | 67.18 | 16.60 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.43 | 66.79 | 16.40 |      | 130.0 |         |
|           |                                                                 | Z | 4.35 | 68.05 | 17.33 |      | 130.0 |         |
| 10590-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)      | X | 4.36 | 66.18 | 15.75 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                                 | Y | 4.23 | 65.77 | 15.51 |      | 130.0 |         |
|           |                                                                 | Z | 4.07 | 66.70 | 16.26 |      | 130.0 |         |

|           |                                                       |   |      |       |       |      |       |         |
|-----------|-------------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10591-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | X | 4.71 | 66.63 | 16.44 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.60 | 66.29 | 16.26 |      | 130.0 |         |
|           |                                                       | Z | 4.48 | 67.29 | 17.03 |      | 130.0 |         |
| 10592-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | X | 4.84 | 66.95 | 16.57 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.72 | 66.60 | 16.39 |      | 130.0 |         |
|           |                                                       | Z | 4.57 | 67.53 | 17.14 |      | 130.0 |         |
| 10593-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | X | 4.76 | 66.84 | 16.44 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.64 | 66.47 | 16.24 |      | 130.0 |         |
|           |                                                       | Z | 4.49 | 67.44 | 17.01 |      | 130.0 |         |
| 10594-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | X | 4.82 | 67.01 | 16.59 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.69 | 66.64 | 16.41 |      | 130.0 |         |
|           |                                                       | Z | 4.55 | 67.60 | 17.18 |      | 130.0 |         |
| 10595-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | X | 4.78 | 66.97 | 16.49 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.66 | 66.61 | 16.31 |      | 130.0 |         |
|           |                                                       | Z | 4.51 | 67.61 | 17.10 |      | 130.0 |         |
| 10596-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | X | 4.72 | 66.96 | 16.50 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.59 | 66.58 | 16.30 |      | 130.0 |         |
|           |                                                       | Z | 4.43 | 67.54 | 17.08 |      | 130.0 |         |
| 10597-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | X | 4.67 | 66.84 | 16.37 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.54 | 66.45 | 16.16 |      | 130.0 |         |
|           |                                                       | Z | 4.40 | 67.40 | 16.91 |      | 130.0 |         |
| 10598-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | X | 4.65 | 67.06 | 16.62 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 4.52 | 66.66 | 16.41 |      | 130.0 |         |
|           |                                                       | Z | 4.41 | 67.68 | 17.21 |      | 130.0 |         |
| 10599-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | X | 5.37 | 67.11 | 16.64 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.30 | 66.90 | 16.58 |      | 130.0 |         |
|           |                                                       | Z | 5.43 | 68.49 | 17.76 |      | 130.0 |         |
| 10600-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | X | 5.48 | 67.47 | 16.80 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.44 | 67.38 | 16.80 |      | 130.0 |         |
|           |                                                       | Z | 5.37 | 68.31 | 17.64 |      | 130.0 |         |
| 10601-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | X | 5.38 | 67.27 | 16.71 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.32 | 67.07 | 16.65 |      | 130.0 |         |
|           |                                                       | Z | 5.29 | 68.14 | 17.57 |      | 130.0 |         |
| 10602-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | X | 5.51 | 67.42 | 16.71 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.45 | 67.23 | 16.66 |      | 130.0 |         |
|           |                                                       | Z | 5.33 | 67.99 | 17.42 |      | 130.0 |         |
| 10603-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | X | 5.56 | 67.64 | 16.95 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.53 | 67.58 | 16.97 |      | 130.0 |         |
|           |                                                       | Z | 5.29 | 67.90 | 17.51 |      | 130.0 |         |
| 10604-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | X | 5.44 | 67.30 | 16.76 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.41 | 67.23 | 16.78 |      | 130.0 |         |
|           |                                                       | Z | 5.21 | 67.60 | 17.33 |      | 130.0 |         |
| 10605-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | X | 5.49 | 67.43 | 16.83 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.43 | 67.25 | 16.78 |      | 130.0 |         |
|           |                                                       | Z | 5.25 | 67.78 | 17.43 |      | 130.0 |         |
| 10606-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | X | 5.23 | 66.74 | 16.34 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                       | Y | 5.17 | 66.56 | 16.29 |      | 130.0 |         |
|           |                                                       | Z | 5.19 | 67.74 | 17.26 |      | 130.0 |         |

|           |                                                   |   |      |       |       |      |       |         |
|-----------|---------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10607-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | X | 4.55 | 65.96 | 16.07 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.43 | 65.59 | 15.87 |      | 130.0 |         |
|           |                                                   | Z | 4.35 | 66.73 | 16.73 |      | 130.0 |         |
| 10608-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | X | 4.71 | 66.34 | 16.23 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.58 | 65.94 | 16.03 |      | 130.0 |         |
|           |                                                   | Z | 4.45 | 67.00 | 16.86 |      | 130.0 |         |
| 10609-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | X | 4.61 | 66.18 | 16.06 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.48 | 65.77 | 15.84 |      | 130.0 |         |
|           |                                                   | Z | 4.36 | 66.86 | 16.69 |      | 130.0 |         |
| 10610-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | X | 4.66 | 66.33 | 16.22 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.53 | 65.93 | 16.01 |      | 130.0 |         |
|           |                                                   | Z | 4.41 | 67.03 | 16.87 |      | 130.0 |         |
| 10611-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | X | 4.57 | 66.14 | 16.07 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.44 | 65.73 | 15.86 |      | 130.0 |         |
|           |                                                   | Z | 4.32 | 66.80 | 16.69 |      | 130.0 |         |
| 10612-AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | X | 4.57 | 66.29 | 16.12 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.44 | 65.87 | 15.89 |      | 130.0 |         |
|           |                                                   | Z | 4.29 | 66.90 | 16.73 |      | 130.0 |         |
| 10613-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | X | 4.57 | 66.14 | 15.98 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.43 | 65.70 | 15.75 |      | 130.0 |         |
|           |                                                   | Z | 4.29 | 66.69 | 16.55 |      | 130.0 |         |
| 10614-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | X | 4.52 | 66.33 | 16.21 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.39 | 65.89 | 15.98 |      | 130.0 |         |
|           |                                                   | Z | 4.28 | 66.96 | 16.83 |      | 130.0 |         |
| 10615-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | X | 4.57 | 65.99 | 15.86 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 4.44 | 65.58 | 15.63 |      | 130.0 |         |
|           |                                                   | Z | 4.31 | 66.67 | 16.47 |      | 130.0 |         |
| 10616-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | X | 5.19 | 66.38 | 16.26 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.10 | 66.03 | 16.12 |      | 130.0 |         |
|           |                                                   | Z | 4.99 | 66.75 | 16.86 |      | 130.0 |         |
| 10617-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | X | 5.26 | 66.56 | 16.33 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.17 | 66.25 | 16.21 |      | 130.0 |         |
|           |                                                   | Z | 5.03 | 66.90 | 16.92 |      | 130.0 |         |
| 10618-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | X | 5.15 | 66.58 | 16.35 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.06 | 66.26 | 16.22 |      | 130.0 |         |
|           |                                                   | Z | 4.94 | 66.92 | 16.95 |      | 130.0 |         |
| 10619-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | X | 5.16 | 66.37 | 16.18 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.07 | 66.06 | 16.06 |      | 130.0 |         |
|           |                                                   | Z | 5.03 | 67.03 | 16.93 |      | 130.0 |         |
| 10620-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | X | 5.24 | 66.40 | 16.24 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.15 | 66.09 | 16.13 |      | 130.0 |         |
|           |                                                   | Z | 5.01 | 66.69 | 16.81 |      | 130.0 |         |
| 10621-AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | X | 5.25 | 66.54 | 16.43 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.15 | 66.19 | 16.30 |      | 130.0 |         |
|           |                                                   | Z | 5.02 | 66.78 | 16.97 |      | 130.0 |         |
| 10622-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | X | 5.26 | 66.70 | 16.51 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                   | Y | 5.15 | 66.29 | 16.34 |      | 130.0 |         |
|           |                                                   | Z | 5.02 | 66.91 | 17.04 |      | 130.0 |         |

|           |                                                    |   |      |       |       |      |       |         |
|-----------|----------------------------------------------------|---|------|-------|-------|------|-------|---------|
| 10623-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)  | X | 5.14 | 66.22 | 16.14 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.03 | 65.82 | 15.97 |      | 130.0 |         |
|           |                                                    | Z | 4.94 | 66.57 | 16.72 |      | 130.0 |         |
| 10624-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)  | X | 5.33 | 66.43 | 16.30 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.24 | 66.10 | 16.18 |      | 130.0 |         |
|           |                                                    | Z | 5.10 | 66.74 | 16.87 |      | 130.0 |         |
| 10625-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)  | X | 5.58 | 67.07 | 16.68 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.39 | 66.45 | 16.42 |      | 130.0 |         |
|           |                                                    | Z | 5.23 | 67.07 | 17.11 |      | 130.0 |         |
| 10626-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)  | X | 5.51 | 66.45 | 16.23 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.43 | 66.10 | 16.10 |      | 130.0 |         |
|           |                                                    | Z | 5.35 | 66.63 | 16.76 |      | 130.0 |         |
| 10627-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)  | X | 5.73 | 66.99 | 16.46 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.69 | 66.81 | 16.43 |      | 130.0 |         |
|           |                                                    | Z | 5.63 | 67.47 | 17.17 |      | 130.0 |         |
| 10628-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)  | X | 5.52 | 66.48 | 16.14 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.43 | 66.11 | 16.01 |      | 130.0 |         |
|           |                                                    | Z | 5.34 | 66.61 | 16.66 |      | 130.0 |         |
| 10629-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)  | X | 5.60 | 66.56 | 16.18 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.54 | 66.30 | 16.10 |      | 130.0 |         |
|           |                                                    | Z | 5.64 | 67.50 | 17.11 |      | 130.0 |         |
| 10630-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)  | X | 5.92 | 67.73 | 16.77 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.89 | 67.56 | 16.73 |      | 130.0 |         |
|           |                                                    | Z | 5.64 | 67.67 | 17.20 |      | 130.0 |         |
| 10631-AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)  | X | 5.87 | 67.68 | 16.92 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.78 | 67.32 | 16.80 |      | 130.0 |         |
|           |                                                    | Z | 5.62 | 67.70 | 17.39 |      | 130.0 |         |
| 10632-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)  | X | 5.70 | 67.07 | 16.64 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.67 | 66.92 | 16.62 |      | 130.0 |         |
|           |                                                    | Z | 5.80 | 68.22 | 17.68 |      | 130.0 |         |
| 10633-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)  | X | 5.59 | 66.68 | 16.27 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.49 | 66.30 | 16.14 |      | 130.0 |         |
|           |                                                    | Z | 5.36 | 66.70 | 16.74 |      | 130.0 |         |
| 10634-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)  | X | 5.57 | 66.70 | 16.34 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.48 | 66.32 | 16.20 |      | 130.0 |         |
|           |                                                    | Z | 5.40 | 66.93 | 16.91 |      | 130.0 |         |
| 10635-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)  | X | 5.45 | 66.03 | 15.75 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.35 | 65.64 | 15.59 |      | 130.0 |         |
|           |                                                    | Z | 5.23 | 66.11 | 16.22 |      | 130.0 |         |
| 10636-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | X | 5.93 | 66.81 | 16.31 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 5.87 | 66.50 | 16.22 |      | 130.0 |         |
|           |                                                    | Z | 5.83 | 66.96 | 16.84 |      | 130.0 |         |
| 10637-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | X | 6.07 | 67.17 | 16.48 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 6.02 | 66.88 | 16.40 |      | 130.0 |         |
|           |                                                    | Z | 5.97 | 67.37 | 17.04 |      | 130.0 |         |
| 10638-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | X | 6.07 | 67.15 | 16.45 | 0.46 | 130.0 | ± 9.6 % |
|           |                                                    | Y | 6.02 | 66.88 | 16.37 |      | 130.0 |         |
|           |                                                    | Z | 6.05 | 67.63 | 17.15 |      | 130.0 |         |

|           |                                                        |   |        |        |       |       |       |         |
|-----------|--------------------------------------------------------|---|--------|--------|-------|-------|-------|---------|
| 10639-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)     | X | 6.04   | 67.08  | 16.45 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 5.98   | 66.75  | 16.35 |       | 130.0 |         |
|           |                                                        | Z | 5.91   | 67.17  | 16.95 |       | 130.0 |         |
| 10640-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)     | X | 6.04   | 67.08  | 16.40 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 5.96   | 66.72  | 16.28 |       | 130.0 |         |
|           |                                                        | Z | 5.82   | 66.93  | 16.78 |       | 130.0 |         |
| 10641-AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)     | X | 6.10   | 67.04  | 16.40 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.06   | 66.80  | 16.34 |       | 130.0 |         |
|           |                                                        | Z | 6.00   | 67.28  | 16.98 |       | 130.0 |         |
| 10642-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)     | X | 6.13   | 67.25  | 16.67 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.06   | 66.93  | 16.57 |       | 130.0 |         |
|           |                                                        | Z | 5.95   | 67.22  | 17.11 |       | 130.0 |         |
| 10643-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)     | X | 5.98   | 66.96  | 16.42 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 5.92   | 66.68  | 16.34 |       | 130.0 |         |
|           |                                                        | Z | 5.80   | 66.93  | 16.86 |       | 130.0 |         |
| 10644-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)     | X | 6.09   | 67.31  | 16.62 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 5.99   | 66.89  | 16.46 |       | 130.0 |         |
|           |                                                        | Z | 5.86   | 67.11  | 16.97 |       | 130.0 |         |
| 10645-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)     | X | 6.21   | 67.33  | 16.59 | 0.46  | 130.0 | ± 9.6 % |
|           |                                                        | Y | 6.21   | 67.22  | 16.60 |       | 130.0 |         |
|           |                                                        | Z | 6.00   | 67.25  | 17.00 |       | 130.0 |         |
| 10646-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)  | X | 16.42  | 111.83 | 39.08 | 9.30  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 7.48   | 93.91  | 33.51 |       | 60.0  |         |
|           |                                                        | Z | 8.24   | 101.48 | 38.03 |       | 60.0  |         |
| 10647-AAE | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | X | 13.25  | 107.26 | 37.80 | 9.30  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 6.56   | 91.19  | 32.64 |       | 60.0  |         |
|           |                                                        | Z | 6.86   | 97.18  | 36.65 |       | 60.0  |         |
| 10648-AAA | CDMA2000 (1x Advanced)                                 | X | 0.61   | 62.72  | 9.85  | 0.00  | 150.0 | ± 9.6 % |
|           |                                                        | Y | 0.45   | 60.26  | 7.20  |       | 150.0 |         |
|           |                                                        | Z | 0.31   | 60.00  | 4.97  |       | 150.0 |         |
| 10652-AAC | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)         | X | 3.40   | 66.50  | 16.32 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 3.12   | 65.43  | 15.68 |       | 80.0  |         |
|           |                                                        | Z | 3.58   | 69.50  | 17.50 |       | 80.0  |         |
| 10653-AAC | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)        | X | 3.93   | 65.85  | 16.50 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 3.70   | 65.00  | 16.06 |       | 80.0  |         |
|           |                                                        | Z | 3.91   | 67.39  | 17.42 |       | 80.0  |         |
| 10654-AAC | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)        | X | 3.92   | 65.48  | 16.50 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 3.72   | 64.66  | 16.11 |       | 80.0  |         |
|           |                                                        | Z | 3.91   | 66.66  | 17.39 |       | 80.0  |         |
| 10655-AAD | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)        | X | 3.99   | 65.45  | 16.54 | 2.23  | 80.0  | ± 9.6 % |
|           |                                                        | Y | 3.79   | 64.62  | 16.15 |       | 80.0  |         |
|           |                                                        | Z | 3.98   | 66.38  | 17.37 |       | 80.0  |         |
| 10658-AAA | Pulse Waveform (200Hz, 10%)                            | X | 100.00 | 108.15 | 24.34 | 10.00 | 50.0  | ± 9.6 % |
|           |                                                        | Y | 42.87  | 96.86  | 20.96 |       | 50.0  |         |
|           |                                                        | Z | 100.00 | 109.52 | 25.04 |       | 50.0  |         |
| 10659-AAA | Pulse Waveform (200Hz, 20%)                            | X | 100.00 | 107.90 | 23.20 | 6.99  | 60.0  | ± 9.6 % |
|           |                                                        | Y | 100.00 | 104.59 | 21.35 |       | 60.0  |         |
|           |                                                        | Z | 100.00 | 109.57 | 23.91 |       | 60.0  |         |

|           |                             |   |        |        |       |      |       |         |
|-----------|-----------------------------|---|--------|--------|-------|------|-------|---------|
| 10660-AAA | Pulse Waveform (200Hz, 40%) | X | 100.00 | 110.08 | 22.90 | 3.98 | 80.0  | ± 9.6 % |
|           |                             | Y | 100.00 | 101.87 | 18.86 |      | 80.0  |         |
|           |                             | Z | 100.00 | 111.81 | 23.42 |      | 80.0  |         |
| 10661-AAA | Pulse Waveform (200Hz, 60%) | X | 100.00 | 114.06 | 23.41 | 2.22 | 100.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 92.16  | 13.92 |      | 100.0 |         |
|           |                             | Z | 100.00 | 107.18 | 20.20 |      | 100.0 |         |
| 10662-AAA | Pulse Waveform (200Hz, 80%) | X | 100.00 | 119.59 | 23.99 | 0.97 | 120.0 | ± 9.6 % |
|           |                             | Y | 13.69  | 60.41  | 1.41  |      | 120.0 |         |
|           |                             | Z | 0.02   | 60.01  | 20.0  |      | 120.0 |         |

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **EX3-7490\_Jan19**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7490**

Calibration procedure(s) **QA CAL 01.v8, QA CAL 14.v8, QA CAL 23.v5, QA CAL 25.v7**  
 Calibration procedure for dosimetric E-field probes

2/2/19  
 SCV

Calibration date: **January 24, 2019**

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  $(22 \pm 3)^{\circ}\text{C}$  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-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103244       | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91       | SN: 103245       | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator | SN: S5277 (20x)  | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| DAE4                       | SN: 660          | 19-Dec-18 (No. DAE4-660_Dec18)    | Dec-19                 |
| Reference Probe ES3DV2     | SN: 3013         | 31-Dec-18 (No. ES3-3013_Dec18)    | Dec-19                 |
| Secondary Standards        | ID               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B         | SN: GB41293874   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: MY41498087   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: 000110210    | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C      | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A    | SN: US41080477   | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

|                                                                                                                 |                        |                                   |                          |
|-----------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------|--------------------------|
| Calibrated by:                                                                                                  | Name<br>Jeton Kastrati | Function<br>Laboratory Technician | Signature<br>            |
| Approved by:                                                                                                    | Name<br>Katja Pokovic  | Function<br>Technical Manager     | Signature<br>            |
|                                                                                                                 |                        |                                   | Issued: January 29, 2019 |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                        |                                   |                          |



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Accreditation No.: **SCS 0108**

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 Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                      | tissue simulating liquid                                                                                                                                |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                               |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                              |
| 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),<br>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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* 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.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: 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 NORM<sub>x,y,z</sub> \* 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  $\pm 50$  MHz to  $\pm 100$  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 NORM<sub>x</sub> (no uncertainty required).

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:7490

## Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|-----------------------------------------------------------|----------|----------|----------|-----------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.39     | 0.44     | 0.51     | ± 10.1 %  |
| DCP (mV) <sup>B</sup>                                     | 102.2    | 98.6     | 100.2    |           |

## Calibration Results for Modulation Response

| UID       | Communication System Name   |   | A<br>dB | B<br>dB/ $\mu\text{V}$ | C     | D<br>dB | VR<br>mV | Max<br>dev. | Max<br>Unc <sup>E</sup><br>(k=2) |
|-----------|-----------------------------|---|---------|------------------------|-------|---------|----------|-------------|----------------------------------|
| 0         | CW                          | X | 0.00    | 0.00                   | 1.00  | 0.00    | 161.4    | ± 3.0 %     | ± 4.7 %                          |
|           |                             | Y | 0.00    | 0.00                   | 1.00  |         | 170.7    |             |                                  |
|           |                             | Z | 0.00    | 0.00                   | 1.00  |         | 166.0    |             |                                  |
| 10352-AAA | Pulse Waveform (200Hz, 10%) | X | 3.07    | 67.96                  | 11.05 | 10.00   | 60.0     | ± 3.2 %     | ± 9.6 %                          |
|           |                             | Y | 1.87    | 63.48                  | 9.21  |         | 60.0     |             |                                  |
|           |                             | Z | 15.00   | 85.29                  | 17.64 |         | 60.0     |             |                                  |
| 10353-AAA | Pulse Waveform (200Hz, 20%) | X | 2.60    | 69.45                  | 10.67 | 6.99    | 80.0     | ± 2.2 %     | ± 9.6 %                          |
|           |                             | Y | 1.20    | 63.36                  | 7.95  |         | 80.0     |             |                                  |
|           |                             | Z | 15.00   | 87.25                  | 17.34 |         | 80.0     |             |                                  |
| 10354-AAA | Pulse Waveform (200Hz, 40%) | X | 15.00   | 84.46                  | 14.04 | 3.98    | 95.0     | ± 1.3 %     | ± 9.6 %                          |
|           |                             | Y | 0.38    | 60.00                  | 5.02  |         | 95.0     |             |                                  |
|           |                             | Z | 15.00   | 94.75                  | 19.51 |         | 95.0     |             |                                  |
| 10355-AAA | Pulse Waveform (200Hz, 60%) | X | 15.00   | 90.97                  | 15.90 | 2.22    | 120.0    | ± 1.0 %     | ± 9.6 %                          |
|           |                             | Y | 0.25    | 60.00                  | 3.48  |         | 120.0    |             |                                  |
|           |                             | Z | 15.00   | 107.30                 | 23.83 |         | 120.0    |             |                                  |
| 10387-AAA | QPSK Waveform, 1 MHz        | X | 0.47    | 60.00                  | 6.52  | 0.00    | 150.0    | ± 3.3 %     | ± 9.6 %                          |
|           |                             | Y | 0.45    | 60.00                  | 5.15  |         | 150.0    |             |                                  |
|           |                             | Z | 0.51    | 60.00                  | 6.98  |         | 150.0    |             |                                  |
| 10388-AAA | QPSK Waveform, 10 MHz       | X | 2.15    | 68.64                  | 16.29 | 0.00    | 150.0    | ± 1.3 %     | ± 9.6 %                          |
|           |                             | Y | 1.87    | 66.32                  | 14.77 |         | 150.0    |             |                                  |
|           |                             | Z | 2.18    | 68.48                  | 16.14 |         | 150.0    |             |                                  |
| 10396-AAA | 64-QAM Waveform, 100 kHz    | X | 2.27    | 67.74                  | 17.61 | 3.01    | 150.0    | ± 2.4 %     | ± 9.6 %                          |
|           |                             | Y | 2.00    | 66.07                  | 17.36 |         | 150.0    |             |                                  |
|           |                             | Z | 2.26    | 66.81                  | 17.22 |         | 150.0    |             |                                  |
| 10399-AAA | 64-QAM Waveform, 40 MHz     | X | 3.43    | 67.30                  | 15.99 | 0.00    | 150.0    | ± 2.5 %     | ± 9.6 %                          |
|           |                             | Y | 3.28    | 66.35                  | 15.36 |         | 150.0    |             |                                  |
|           |                             | Z | 3.46    | 67.25                  | 15.95 |         | 150.0    |             |                                  |
| 10414-AAA | WLAN CCDF, 64-QAM, 40MHz    | X | 4.67    | 65.77                  | 15.67 | 0.00    | 150.0    | ± 4.2 %     | ± 9.6 %                          |
|           |                             | Y | 4.57    | 65.31                  | 15.38 |         | 150.0    |             |                                  |
|           |                             | Z | 4.73    | 65.70                  | 15.65 |         | 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%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7490

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$V^{-1}$ | T1<br>$ms.V^{-2}$ | T2<br>$ms.V^{-1}$ | T3<br>ms | T4<br>$V^{-2}$ | T5<br>$V^{-1}$ | T6   |
|---|----------|----------|----------------------|-------------------|-------------------|----------|----------------|----------------|------|
| X | 32.3     | 239.01   | 35.01                | 5.10              | 0.00              | 5.00     | 0.90           | 0.13           | 1.00 |
| Y | 30.8     | 237.62   | 37.54                | 3.07              | 0.07              | 5.03     | 0.00           | 0.18           | 1.01 |
| Z | 35.7     | 267.89   | 35.83                | 7.37              | 0.00              | 5.05     | 0.00           | 0.32           | 1.00 |

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | -27.3      |
| 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     |

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7490

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>c</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 41.9                               | 0.89                            | 10.29   | 10.29   | 10.29   | 0.47               | 0.83                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 9.96    | 9.96    | 9.96    | 0.40               | 0.90                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 8.79    | 8.79    | 8.79    | 0.35               | 0.84                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 8.27    | 8.27    | 8.27    | 0.40               | 0.85                    | ± 12.0 %  |
| 2300                 | 39.5                               | 1.67                            | 8.24    | 8.24    | 8.24    | 0.33               | 0.90                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 7.74    | 7.74    | 7.74    | 0.36               | 0.90                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 7.48    | 7.48    | 7.48    | 0.42               | 0.88                    | ± 12.0 %  |
| 3500                 | 37.9                               | 2.91                            | 7.19    | 7.19    | 7.19    | 0.23               | 1.20                    | ± 13.1 %  |
| 3700                 | 37.7                               | 3.12                            | 6.86    | 6.86    | 6.86    | 0.20               | 1.20                    | ± 13.1 %  |
| 5250                 | 35.9                               | 4.71                            | 5.18    | 5.18    | 5.18    | 0.40               | 1.80                    | ± 13.1 %  |
| 5600                 | 35.5                               | 5.07                            | 4.62    | 4.62    | 4.62    | 0.40               | 1.80                    | ± 13.1 %  |
| 5750                 | 35.4                               | 5.22                            | 4.85    | 4.85    | 4.85    | 0.40               | 1.80                    | ± 13.1 %  |

<sup>c</sup> 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7490

### Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 55.5                               | 0.96                            | 10.49   | 10.49   | 10.49   | 0.43               | 0.86                    | ± 12.0 %  |
| 835                  | 55.2                               | 0.97                            | 10.17   | 10.17   | 10.17   | 0.37               | 0.89                    | ± 12.0 %  |
| 1750                 | 53.4                               | 1.49                            | 8.60    | 8.60    | 8.60    | 0.26               | 1.00                    | ± 12.0 %  |
| 1900                 | 53.3                               | 1.52                            | 8.13    | 8.13    | 8.13    | 0.41               | 0.85                    | ± 12.0 %  |
| 2300                 | 52.9                               | 1.81                            | 8.00    | 8.00    | 8.00    | 0.36               | 0.88                    | ± 12.0 %  |
| 2450                 | 52.7                               | 1.95                            | 7.87    | 7.87    | 7.87    | 0.30               | 0.93                    | ± 12.0 %  |
| 2600                 | 52.5                               | 2.16                            | 7.57    | 7.57    | 7.57    | 0.25               | 0.98                    | ± 12.0 %  |
| 3500                 | 51.3                               | 3.31                            | 6.85    | 6.85    | 6.85    | 0.23               | 1.25                    | ± 13.1 %  |
| 3700                 | 51.0                               | 3.55                            | 6.75    | 6.75    | 6.75    | 0.23               | 1.25                    | ± 13.1 %  |
| 5250                 | 48.9                               | 5.36                            | 4.68    | 4.68    | 4.68    | 0.50               | 1.90                    | ± 13.1 %  |
| 5600                 | 48.5                               | 5.77                            | 3.96    | 3.96    | 3.96    | 0.50               | 1.90                    | ± 13.1 %  |
| 5750                 | 48.3                               | 5.94                            | 4.24    | 4.24    | 4.24    | 0.50               | 1.90                    | ± 13.1 %  |

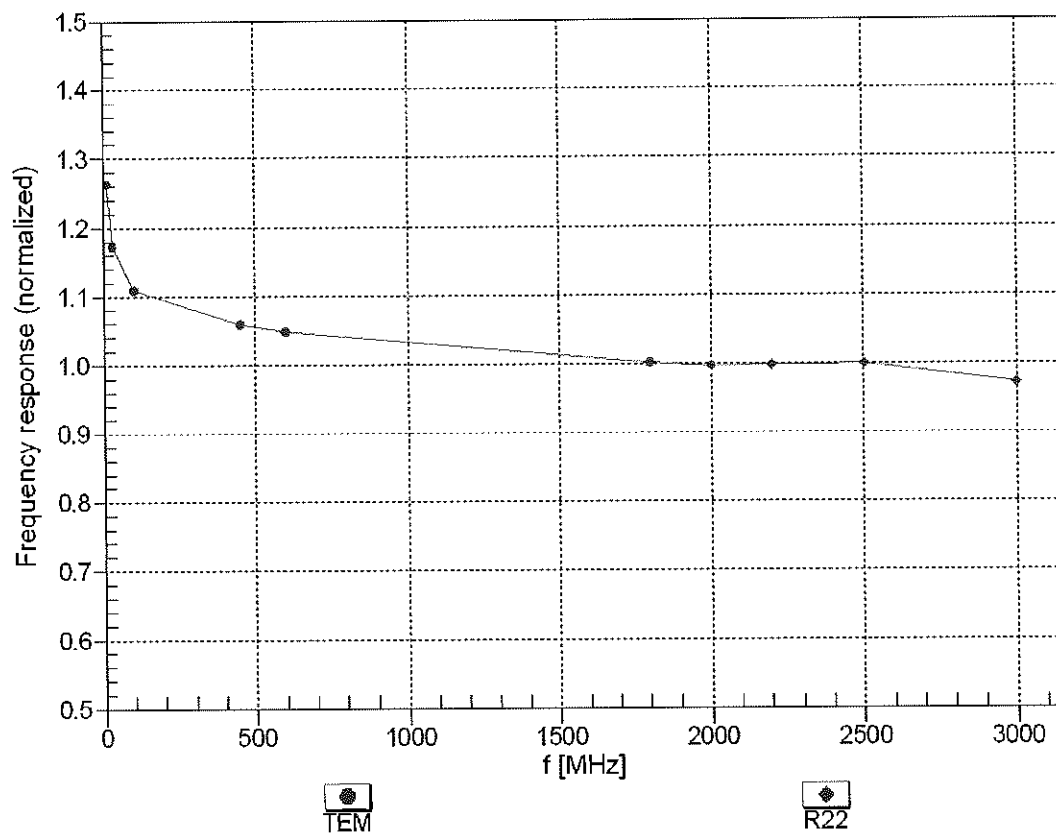
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## Frequency Response of E-Field

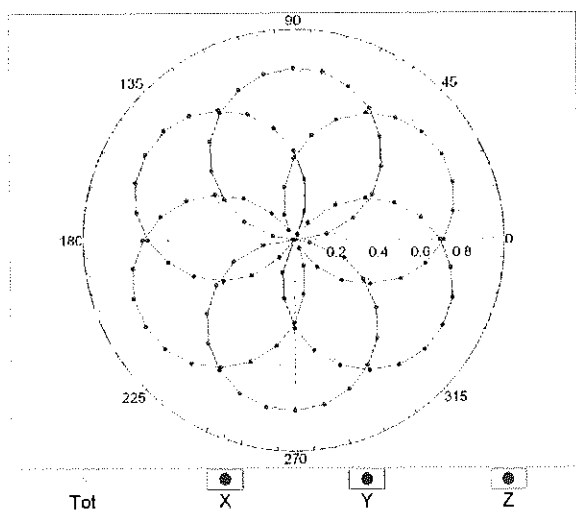
(TEM-Cell:ifi110 EXX, Waveguide: R22)



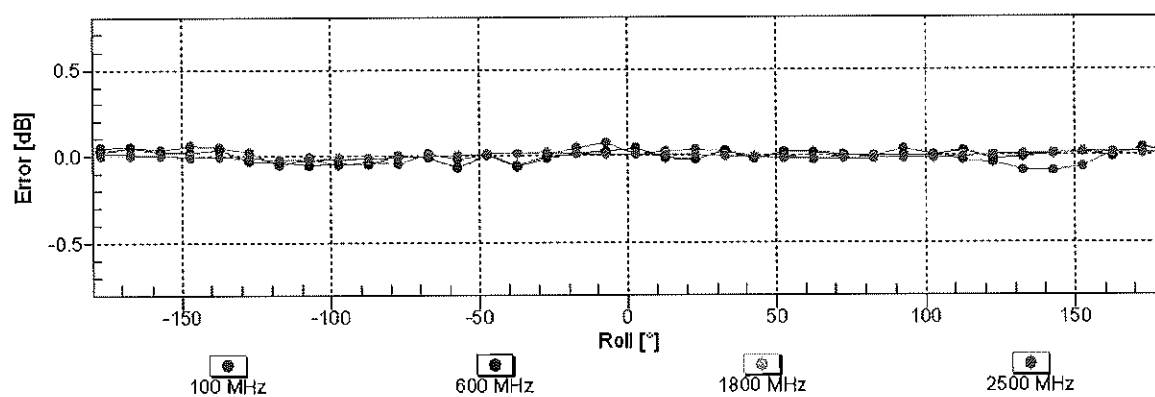
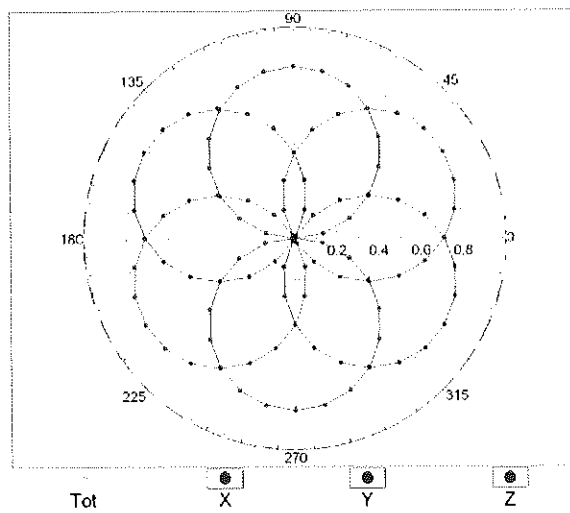
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$

f=600 MHz,TEM

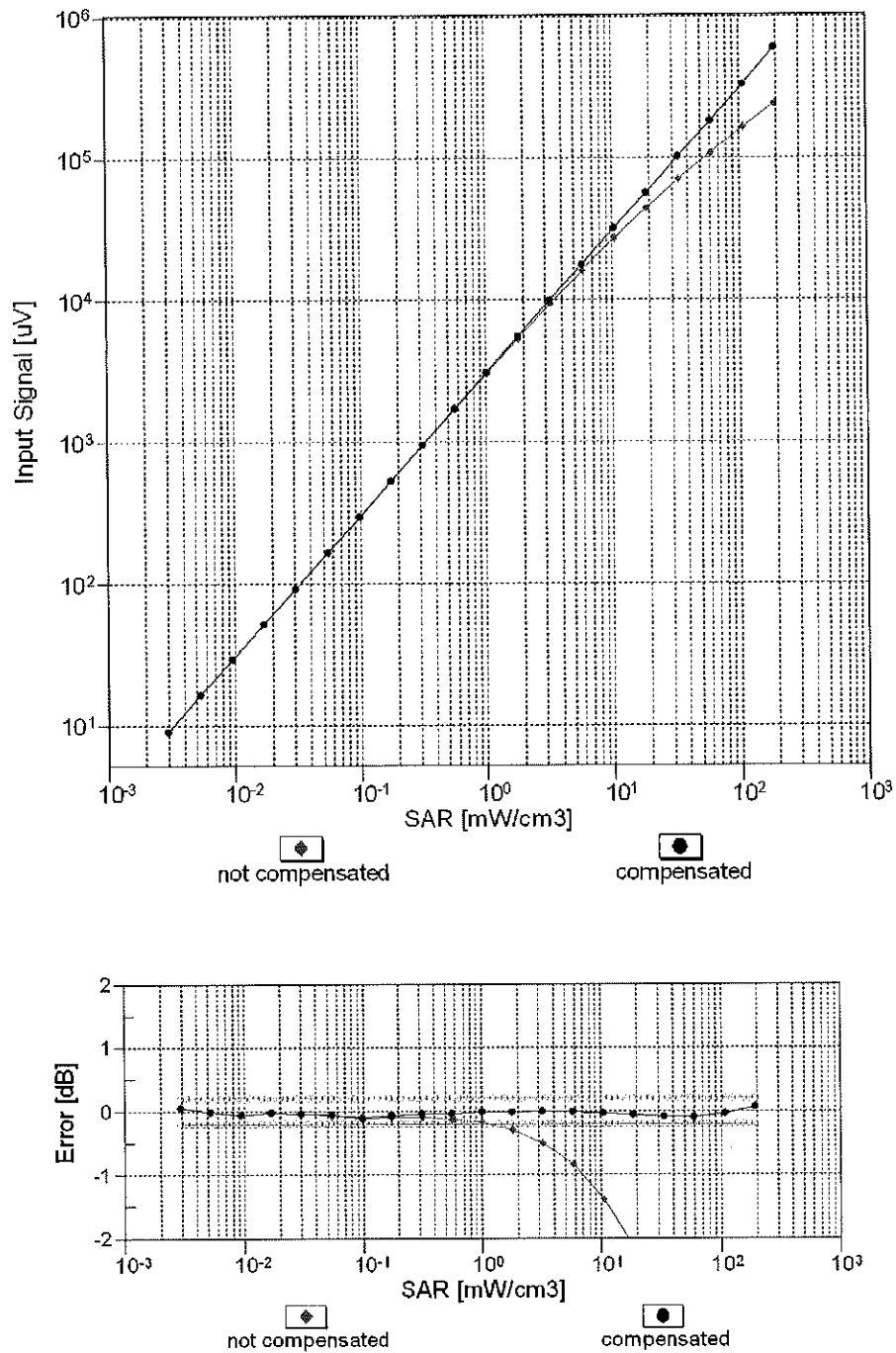


f=1800 MHz,R22



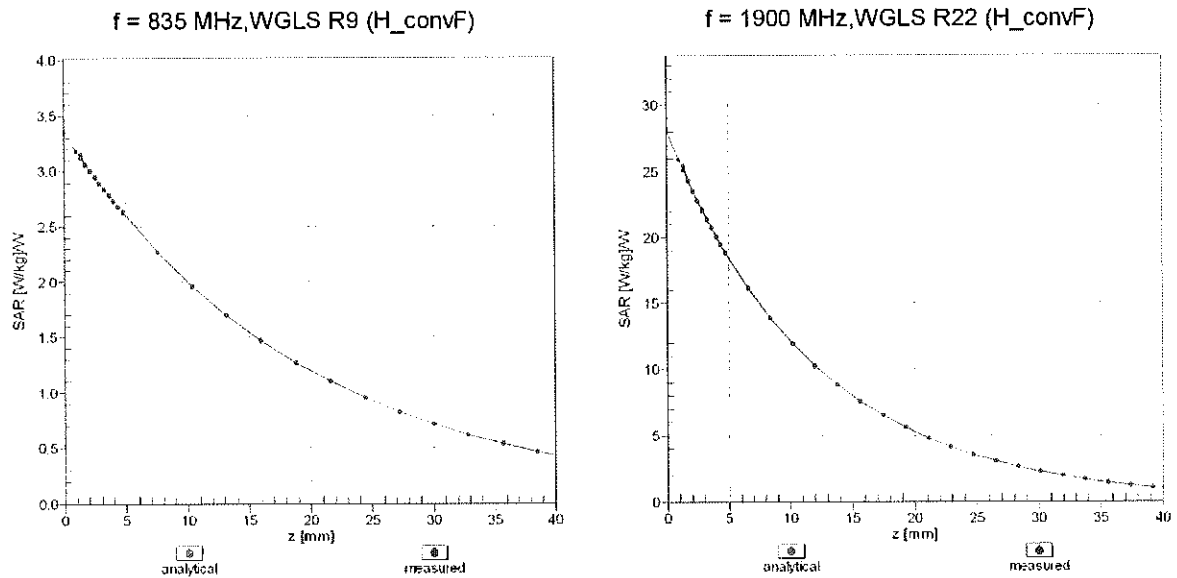
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  (k=2)

# Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f_{\text{eval}} = 1900 \text{ MHz}$ )



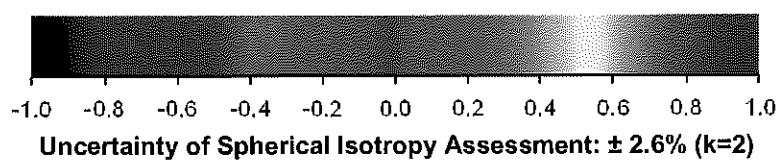
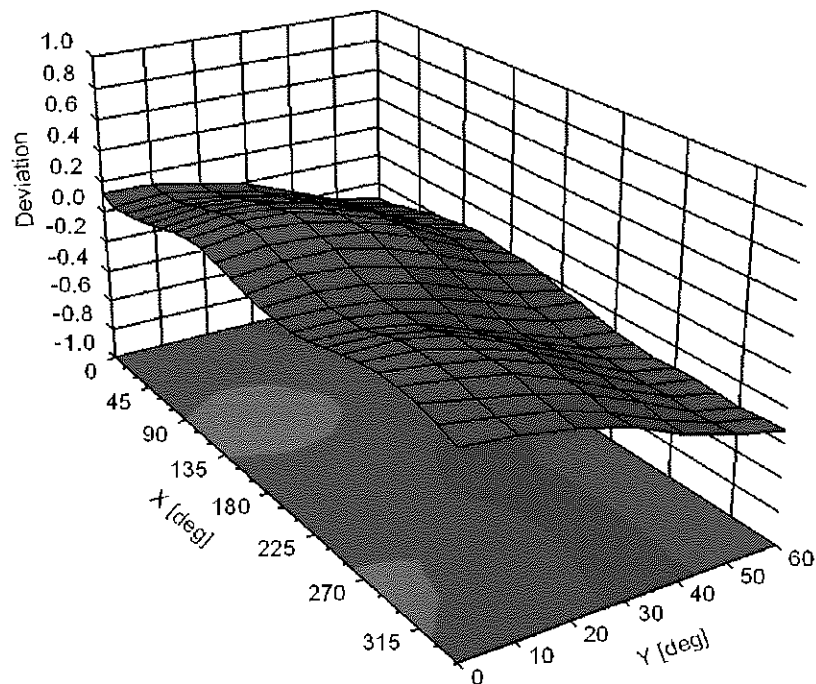
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

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



**Appendix: Modulation Calibration Parameters**

| UID   | Rev | Communication System Name                           | Group     | PAR (dB) | Unc <sup>E</sup> (k=2) |
|-------|-----|-----------------------------------------------------|-----------|----------|------------------------|
| 0     |     | CW                                                  | CW        | 0.00     | ± 4.7 %                |
| 10010 | CAA | SAR Validation (Square, 100ms, 10ms)                | Test      | 10.00    | ± 9.6 %                |
| 10011 | CAB | 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 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)            | WLAN      | 8.68     | ± 9.6 %                |
| 10063 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)            | WLAN      | 8.63     | ± 9.6 %                |
| 10064 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)           | WLAN      | 9.09     | ± 9.6 %                |
| 10065 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)           | WLAN      | 9.00     | ± 9.6 %                |
| 10066 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)           | WLAN      | 9.38     | ± 9.6 %                |
| 10067 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)           | WLAN      | 10.12    | ± 9.6 %                |
| 10068 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)           | WLAN      | 10.24    | ± 9.6 %                |
| 10069 | CAC | 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 | CAB | UMTS-FDD (HSDPA)                                    | WCDMA     | 3.98     | ± 9.6 %                |
| 10098 | CAB | 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 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-FDD   | 5.67     | ± 9.6 %                |
| 10101 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-FDD   | 6.42     | ± 9.6 %                |
| 10102 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-FDD   | 6.60     | ± 9.6 %                |
| 10103 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-TDD   | 9.29     | ± 9.6 %                |
| 10104 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-TDD   | 9.97     | ± 9.6 %                |
| 10105 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-TDD   | 10.01    | ± 9.6 %                |
| 10108 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | LTE-FDD   | 5.80     | ± 9.6 %                |

|       |     |                                                |         |       |         |
|-------|-----|------------------------------------------------|---------|-------|---------|
| 10109 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)     | LTE-FDD | 6.43  | ± 9.6 % |
| 10110 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)        | LTE-FDD | 5.75  | ± 9.6 % |
| 10111 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)      | LTE-FDD | 6.44  | ± 9.6 % |
| 10112 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | LTE-FDD | 6.59  | ± 9.6 % |
| 10113 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | LTE-FDD | 6.62  | ± 9.6 % |
| 10114 | CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | WLAN    | 8.10  | ± 9.6 % |
| 10115 | CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | WLAN    | 8.46  | ± 9.6 % |
| 10116 | CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN    | 8.15  | ± 9.6 % |
| 10117 | CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | WLAN    | 8.07  | ± 9.6 % |
| 10118 | CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | WLAN    | 8.59  | ± 9.6 % |
| 10119 | CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | WLAN    | 8.13  | ± 9.6 % |
| 10140 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | LTE-FDD | 6.49  | ± 9.6 % |
| 10141 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | LTE-FDD | 6.53  | ± 9.6 % |
| 10142 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | LTE-FDD | 5.73  | ± 9.6 % |
| 10143 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | LTE-FDD | 6.35  | ± 9.6 % |
| 10144 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | LTE-FDD | 6.65  | ± 9.6 % |
| 10145 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | LTE-FDD | 5.76  | ± 9.6 % |
| 10146 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | LTE-FDD | 6.41  | ± 9.6 % |
| 10147 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | LTE-FDD | 6.72  | ± 9.6 % |
| 10149 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-FDD | 6.42  | ± 9.6 % |
| 10150 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-FDD | 6.60  | ± 9.6 % |
| 10151 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)        | LTE-TDD | 9.28  | ± 9.6 % |
| 10152 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-TDD | 9.92  | ± 9.6 % |
| 10153 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-TDD | 10.05 | ± 9.6 % |
| 10154 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)        | LTE-FDD | 5.75  | ± 9.6 % |
| 10155 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)      | LTE-FDD | 6.43  | ± 9.6 % |
| 10156 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)         | LTE-FDD | 5.79  | ± 9.6 % |
| 10157 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)       | LTE-FDD | 6.49  | ± 9.6 % |
| 10158 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)      | LTE-FDD | 6.62  | ± 9.6 % |
| 10159 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)       | LTE-FDD | 6.56  | ± 9.6 % |
| 10160 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)        | LTE-FDD | 5.82  | ± 9.6 % |
| 10161 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)      | LTE-FDD | 6.43  | ± 9.6 % |
| 10162 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)      | LTE-FDD | 6.58  | ± 9.6 % |
| 10166 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)       | LTE-FDD | 5.46  | ± 9.6 % |
| 10167 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)     | LTE-FDD | 6.21  | ± 9.6 % |
| 10168 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)     | LTE-FDD | 6.79  | ± 9.6 % |
| 10169 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-FDD | 5.73  | ± 9.6 % |
| 10170 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10171 | AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-FDD | 6.49  | ± 9.6 % |
| 10172 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-TDD | 9.21  | ± 9.6 % |
| 10173 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-TDD | 9.48  | ± 9.6 % |
| 10174 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-TDD | 10.25 | ± 9.6 % |
| 10175 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)          | LTE-FDD | 5.72  | ± 9.6 % |
| 10176 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10177 | CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)           | LTE-FDD | 5.73  | ± 9.6 % |
| 10178 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)         | LTE-FDD | 6.52  | ± 9.6 % |
| 10179 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)        | LTE-FDD | 6.50  | ± 9.6 % |
| 10180 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)         | LTE-FDD | 6.50  | ± 9.6 % |
| 10181 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)          | LTE-FDD | 5.72  | ± 9.6 % |
| 10182 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10183 | AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)        | LTE-FDD | 6.50  | ± 9.6 % |
| 10184 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)           | LTE-FDD | 5.73  | ± 9.6 % |
| 10185 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)         | LTE-FDD | 6.51  | ± 9.6 % |
| 10186 | AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)         | LTE-FDD | 6.50  | ± 9.6 % |
| 10187 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)         | LTE-FDD | 5.73  | ± 9.6 % |
| 10188 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)       | LTE-FDD | 6.52  | ± 9.6 % |
| 10189 | AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)       | LTE-FDD | 6.50  | ± 9.6 % |
| 10193 | CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)   | WLAN    | 8.09  | ± 9.6 % |
| 10194 | CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)  | WLAN    | 8.12  | ± 9.6 % |
| 10195 | CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)  | WLAN    | 8.21  | ± 9.6 % |
| 10196 | CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)        | WLAN    | 8.10  | ± 9.6 % |
| 10197 | CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)       | WLAN    | 8.13  | ± 9.6 % |
| 10198 | CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)       | WLAN    | 8.27  | ± 9.6 % |
| 10219 | CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)        | WLAN    | 8.03  | ± 9.6 % |

|       |     |                                             |          |       |         |
|-------|-----|---------------------------------------------|----------|-------|---------|
| 10220 | CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)  | WLAN     | 8.13  | ± 9.6 % |
| 10221 | CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)  | WLAN     | 8.27  | ± 9.6 % |
| 10222 | CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)      | WLAN     | 8.06  | ± 9.6 % |
| 10223 | CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)    | WLAN     | 8.48  | ± 9.6 % |
| 10224 | CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)   | WLAN     | 8.08  | ± 9.6 % |
| 10225 | CAB | UMTS-FDD (HSPA+)                            | WCDMA    | 5.97  | ± 9.6 % |
| 10226 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)    | LTE-TDD  | 9.49  | ± 9.6 % |
| 10227 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)    | LTE-TDD  | 10.26 | ± 9.6 % |
| 10228 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)      | LTE-TDD  | 9.22  | ± 9.6 % |
| 10229 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)      | LTE-TDD  | 9.48  | ± 9.6 % |
| 10230 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)      | LTE-TDD  | 10.25 | ± 9.6 % |
| 10231 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)        | LTE-TDD  | 9.19  | ± 9.6 % |
| 10232 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)      | LTE-TDD  | 9.48  | ± 9.6 % |
| 10233 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)      | LTE-TDD  | 10.25 | ± 9.6 % |
| 10234 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)        | LTE-TDD  | 9.21  | ± 9.6 % |
| 10235 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)     | LTE-TDD  | 9.48  | ± 9.6 % |
| 10236 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)     | LTE-TDD  | 10.25 | ± 9.6 % |
| 10237 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)       | LTE-TDD  | 9.21  | ± 9.6 % |
| 10238 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)     | LTE-TDD  | 9.48  | ± 9.6 % |
| 10239 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)     | LTE-TDD  | 10.25 | ± 9.6 % |
| 10240 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)       | LTE-TDD  | 9.21  | ± 9.6 % |
| 10241 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)  | LTE-TDD  | 9.82  | ± 9.6 % |
| 10242 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)  | LTE-TDD  | 9.86  | ± 9.6 % |
| 10243 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)    | LTE-TDD  | 9.46  | ± 9.6 % |
| 10244 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)    | LTE-TDD  | 10.06 | ± 9.6 % |
| 10245 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)    | LTE-TDD  | 10.06 | ± 9.6 % |
| 10246 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)      | LTE-TDD  | 9.30  | ± 9.6 % |
| 10247 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)    | LTE-TDD  | 9.91  | ± 9.6 % |
| 10248 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)    | LTE-TDD  | 10.09 | ± 9.6 % |
| 10249 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)      | LTE-TDD  | 9.29  | ± 9.6 % |
| 10250 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)   | LTE-TDD  | 9.81  | ± 9.6 % |
| 10251 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)   | LTE-TDD  | 10.17 | ± 9.6 % |
| 10252 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)     | LTE-TDD  | 9.24  | ± 9.6 % |
| 10253 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)   | LTE-TDD  | 9.90  | ± 9.6 % |
| 10254 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)   | LTE-TDD  | 10.14 | ± 9.6 % |
| 10255 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)     | LTE-TDD  | 9.20  | ± 9.6 % |
| 10256 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-TDD  | 9.96  | ± 9.6 % |
| 10257 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-TDD  | 10.08 | ± 9.6 % |
| 10258 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)   | LTE-TDD  | 9.34  | ± 9.6 % |
| 10259 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)   | LTE-TDD  | 9.98  | ± 9.6 % |
| 10260 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)   | LTE-TDD  | 9.97  | ± 9.6 % |
| 10261 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)     | LTE-TDD  | 9.24  | ± 9.6 % |
| 10262 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)   | LTE-TDD  | 9.83  | ± 9.6 % |
| 10263 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)   | LTE-TDD  | 10.16 | ± 9.6 % |
| 10264 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)     | LTE-TDD  | 9.23  | ± 9.6 % |
| 10265 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)  | LTE-TDD  | 9.92  | ± 9.6 % |
| 10266 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)  | LTE-TDD  | 10.07 | ± 9.6 % |
| 10267 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)    | LTE-TDD  | 9.30  | ± 9.6 % |
| 10268 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)  | LTE-TDD  | 10.06 | ± 9.6 % |
| 10269 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)  | LTE-TDD  | 10.13 | ± 9.6 % |
| 10270 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)    | LTE-TDD  | 9.58  | ± 9.6 % |
| 10274 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)   | WCDMA    | 4.87  | ± 9.6 % |
| 10275 | CAB | 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 884MHz, Rolloff 0.5)          | PHS      | 11.81 | ± 9.6 % |
| 10279 | CAA | PHS (QPSK, BW 884MHz, 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 | AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)     | LTE-FDD  | 5.81  | ± 9.6 % |
| 10298 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)      | LTE-FDD  | 5.72  | ± 9.6 % |
| 10299 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)    | LTE-FDD  | 6.39  | ± 9.6 % |

|       |     |                                                                                 |          |       |         |
|-------|-----|---------------------------------------------------------------------------------|----------|-------|---------|
| 10300 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                                        | LTE-FDD  | 6.60  | ± 9.6 % |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)                              | WiMAX    | 12.03 | ± 9.6 % |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)              | WiMAX    | 12.57 | ± 9.6 % |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)                             | WiMAX    | 12.52 | ± 9.6 % |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)                             | WiMAX    | 11.86 | ± 9.6 % |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)                | WiMAX    | 15.24 | ± 9.6 % |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)                | WiMAX    | 14.67 | ± 9.6 % |
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)                 | WiMAX    | 14.49 | ± 9.6 % |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)                            | WiMAX    | 14.46 | ± 9.6 % |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)             | WiMAX    | 14.58 | ± 9.6 % |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)              | WiMAX    | 14.57 | ± 9.6 % |
| 10311 | AAD | 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 | AAC | 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 | AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)                             | WLAN     | 8.37  | ± 9.6 % |
| 10401 | AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)                             | WLAN     | 8.60  | ± 9.6 % |
| 10402 | AAD | IEEE 802.11ac WiFi (80MHz, 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 | AAF | 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, 40MHz                                                        | 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 | AAB | 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 preamble)   | WLAN     | 8.14  | ± 9.6 % |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | WLAN     | 8.19  | ± 9.6 % |
| 10422 | AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | WLAN     | 8.32  | ± 9.6 % |
| 10423 | AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | WLAN     | 8.47  | ± 9.6 % |
| 10424 | AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | WLAN     | 8.40  | ± 9.6 % |
| 10425 | AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | WLAN     | 8.41  | ± 9.6 % |
| 10426 | AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | WLAN     | 8.45  | ± 9.6 % |
| 10427 | AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                                  | WLAN     | 8.41  | ± 9.6 % |
| 10430 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                                                | LTE-FDD  | 8.28  | ± 9.6 % |
| 10431 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.38  | ± 9.6 % |
| 10432 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34  | ± 9.6 % |
| 10433 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34  | ± 9.6 % |
| 10434 | AAA | W-CDMA (BS Test Model 1, 64 DPCH)                                               | WCDMA    | 8.60  | ± 9.6 % |
| 10435 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                  | LTE-TDD  | 7.82  | ± 9.6 % |
| 10447 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                                  | LTE-FDD  | 7.56  | ± 9.6 % |
| 10448 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.53  | ± 9.6 % |
| 10449 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.51  | ± 9.6 % |
| 10450 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.48  | ± 9.6 % |

|       |     |                                                                        |          |      |         |
|-------|-----|------------------------------------------------------------------------|----------|------|---------|
| 10451 | AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                        | WCDMA    | 7.59 | ± 9.6 % |
| 10456 | AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)                   | WLAN     | 8.63 | ± 9.6 % |
| 10457 | AAA | 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 | AAA | UMTS-FDD (WCDMA, AMR)                                                  | WCDMA    | 2.39 | ± 9.6 % |
| 10461 | AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 7.82 | ± 9.6 % |
| 10462 | AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.30 | ± 9.6 % |
| 10463 | AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.56 | ± 9.6 % |
| 10464 | AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)       | LTE-TDD  | 7.82 | ± 9.6 % |
| 10465 | AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 8.32 | ± 9.6 % |
| 10466 | AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 8.57 | ± 9.6 % |
| 10467 | AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)       | LTE-TDD  | 7.82 | ± 9.6 % |
| 10468 | AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 8.32 | ± 9.6 % |
| 10469 | AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 8.56 | ± 9.6 % |
| 10470 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)      | LTE-TDD  | 7.82 | ± 9.6 % |
| 10471 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10472 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10473 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)      | LTE-TDD  | 7.82 | ± 9.6 % |
| 10474 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10475 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10477 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10478 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10479 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 7.74 | ± 9.6 % |
| 10480 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9) | LTE-TDD  | 8.18 | ± 9.6 % |
| 10481 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9) | LTE-TDD  | 8.45 | ± 9.6 % |
| 10482 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 7.71 | ± 9.6 % |
| 10483 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.39 | ± 9.6 % |
| 10484 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.47 | ± 9.6 % |
| 10485 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)     | LTE-TDD  | 7.59 | ± 9.6 % |
| 10486 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.38 | ± 9.6 % |
| 10487 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.60 | ± 9.6 % |
| 10488 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 7.70 | ± 9.6 % |
| 10489 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL<br>Subframe=2,3,4,7,8,9)  | LTE-TDD  | 8.31 | ± 9.6 % |
| 10490 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL<br>Subframe=2,3,4,7,8,9)  | LTE-TDD  | 8.54 | ± 9.6 % |
| 10491 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL<br>Subframe=2,3,4,7,8,9)    | LTE-TDD  | 7.74 | ± 9.6 % |

|       |     |                                                                      |         |      |         |
|-------|-----|----------------------------------------------------------------------|---------|------|---------|
| 10492 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.41 | ± 9.6 % |
| 10493 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.55 | ± 9.6 % |
| 10494 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.74 | ± 9.6 % |
| 10495 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.37 | ± 9.6 % |
| 10496 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54 | ± 9.6 % |
| 10497 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 7.67 | ± 9.6 % |
| 10498 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.40 | ± 9.6 % |
| 10499 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.68 | ± 9.6 % |
| 10500 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.67 | ± 9.6 % |
| 10501 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.44 | ± 9.6 % |
| 10502 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.52 | ± 9.6 % |
| 10503 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.72 | ± 9.6 % |
| 10504 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.31 | ± 9.6 % |
| 10505 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54 | ± 9.6 % |
| 10506 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74 | ± 9.6 % |
| 10507 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.36 | ± 9.6 % |
| 10508 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.55 | ± 9.6 % |
| 10509 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.99 | ± 9.6 % |
| 10510 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.49 | ± 9.6 % |
| 10511 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.51 | ± 9.6 % |
| 10512 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74 | ± 9.6 % |
| 10513 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.42 | ± 9.6 % |
| 10514 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.45 | ± 9.6 % |
| 10515 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)            | WLAN    | 1.58 | ± 9.6 % |
| 10516 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)          | WLAN    | 1.57 | ± 9.6 % |
| 10517 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)           | WLAN    | 1.58 | ± 9.6 % |
| 10518 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)            | WLAN    | 8.23 | ± 9.6 % |
| 10519 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)           | WLAN    | 8.39 | ± 9.6 % |
| 10520 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)           | WLAN    | 8.12 | ± 9.6 % |
| 10521 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)           | WLAN    | 7.97 | ± 9.6 % |
| 10522 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)           | WLAN    | 8.45 | ± 9.6 % |
| 10523 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)           | WLAN    | 8.08 | ± 9.6 % |
| 10524 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)           | WLAN    | 8.27 | ± 9.6 % |
| 10525 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10526 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)                    | WLAN    | 8.42 | ± 9.6 % |
| 10527 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)                    | WLAN    | 8.21 | ± 9.6 % |
| 10528 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10529 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10531 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)                    | WLAN    | 8.43 | ± 9.6 % |
| 10532 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)                    | WLAN    | 8.29 | ± 9.6 % |
| 10533 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)                    | WLAN    | 8.38 | ± 9.6 % |
| 10534 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)                    | WLAN    | 8.45 | ± 9.6 % |

|       |     |                                                                 |      |      |         |
|-------|-----|-----------------------------------------------------------------|------|------|---------|
| 10535 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)               | WLAN | 8.45 | ± 9.6 % |
| 10536 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)               | WLAN | 8.32 | ± 9.6 % |
| 10537 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)               | WLAN | 8.44 | ± 9.6 % |
| 10538 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)               | WLAN | 8.54 | ± 9.6 % |
| 10540 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)               | WLAN | 8.39 | ± 9.6 % |
| 10541 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)               | WLAN | 8.46 | ± 9.6 % |
| 10542 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)               | WLAN | 8.65 | ± 9.6 % |
| 10543 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)               | WLAN | 8.65 | ± 9.6 % |
| 10544 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)               | WLAN | 8.47 | ± 9.6 % |
| 10545 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)               | WLAN | 8.55 | ± 9.6 % |
| 10546 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)               | WLAN | 8.35 | ± 9.6 % |
| 10547 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)               | WLAN | 8.49 | ± 9.6 % |
| 10548 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)               | WLAN | 8.37 | ± 9.6 % |
| 10550 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)               | WLAN | 8.38 | ± 9.6 % |
| 10551 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)               | WLAN | 8.50 | ± 9.6 % |
| 10552 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)               | WLAN | 8.42 | ± 9.6 % |
| 10553 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)               | WLAN | 8.45 | ± 9.6 % |
| 10554 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)              | WLAN | 8.48 | ± 9.6 % |
| 10555 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)              | WLAN | 8.47 | ± 9.6 % |
| 10556 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)              | WLAN | 8.50 | ± 9.6 % |
| 10557 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)              | WLAN | 8.52 | ± 9.6 % |
| 10558 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)              | WLAN | 8.61 | ± 9.6 % |
| 10560 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)              | WLAN | 8.73 | ± 9.6 % |
| 10561 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)              | WLAN | 8.56 | ± 9.6 % |
| 10562 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)              | WLAN | 8.69 | ± 9.6 % |
| 10563 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)              | WLAN | 8.77 | ± 9.6 % |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | WLAN | 8.25 | ± 9.6 % |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.13 | ± 9.6 % |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 8.00 | ± 9.6 % |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.10 | ± 9.6 % |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | WLAN | 1.99 | ± 9.6 % |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | WLAN | 1.99 | ± 9.6 % |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | WLAN | 1.98 | ± 9.6 % |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | WLAN | 1.98 | ± 9.6 % |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | WLAN | 8.59 | ± 9.6 % |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | WLAN | 8.60 | ± 9.6 % |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10583 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | WLAN | 8.59 | ± 9.6 % |
| 10584 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | WLAN | 8.60 | ± 9.6 % |
| 10585 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | WLAN | 8.70 | ± 9.6 % |
| 10586 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | WLAN | 8.49 | ± 9.6 % |
| 10587 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | WLAN | 8.36 | ± 9.6 % |

|       |     |                                                            |          |       |         |
|-------|-----|------------------------------------------------------------|----------|-------|---------|
| 10588 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle) | WLAN     | 8.76  | ± 9.6 % |
| 10589 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle) | WLAN     | 8.35  | ± 9.6 % |
| 10590 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle) | WLAN     | 8.67  | ± 9.6 % |
| 10591 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)      | WLAN     | 8.63  | ± 9.6 % |
| 10592 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)      | WLAN     | 8.79  | ± 9.6 % |
| 10593 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)      | WLAN     | 8.64  | ± 9.6 % |
| 10594 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)      | WLAN     | 8.74  | ± 9.6 % |
| 10595 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)      | WLAN     | 8.74  | ± 9.6 % |
| 10596 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)      | WLAN     | 8.71  | ± 9.6 % |
| 10597 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)      | WLAN     | 8.72  | ± 9.6 % |
| 10598 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)      | WLAN     | 8.50  | ± 9.6 % |
| 10599 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)      | WLAN     | 8.79  | ± 9.6 % |
| 10600 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)      | WLAN     | 8.88  | ± 9.6 % |
| 10601 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)      | WLAN     | 8.82  | ± 9.6 % |
| 10602 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)      | WLAN     | 8.94  | ± 9.6 % |
| 10603 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)      | WLAN     | 9.03  | ± 9.6 % |
| 10604 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)      | WLAN     | 8.76  | ± 9.6 % |
| 10605 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)      | WLAN     | 8.97  | ± 9.6 % |
| 10606 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)      | WLAN     | 8.82  | ± 9.6 % |
| 10607 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.64  | ± 9.6 % |
| 10608 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10609 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.57  | ± 9.6 % |
| 10610 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.78  | ± 9.6 % |
| 10611 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.70  | ± 9.6 % |
| 10612 | AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10613 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.94  | ± 9.6 % |
| 10614 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.59  | ± 9.6 % |
| 10615 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10616 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10617 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10618 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.58  | ± 9.6 % |
| 10619 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.86  | ± 9.6 % |
| 10620 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.87  | ± 9.6 % |
| 10621 | AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10622 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.68  | ± 9.6 % |
| 10623 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10624 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.96  | ± 9.6 % |
| 10625 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)          | WLAN     | 8.96  | ± 9.6 % |
| 10626 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.83  | ± 9.6 % |
| 10627 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.88  | ± 9.6 % |
| 10628 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.71  | ± 9.6 % |
| 10629 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.85  | ± 9.6 % |
| 10630 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.72  | ± 9.6 % |
| 10631 | AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10632 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.74  | ± 9.6 % |
| 10633 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.83  | ± 9.6 % |
| 10634 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.80  | ± 9.6 % |
| 10635 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10636 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)         | WLAN     | 8.83  | ± 9.6 % |
| 10637 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)         | WLAN     | 8.79  | ± 9.6 % |
| 10638 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)         | WLAN     | 8.86  | ± 9.6 % |
| 10639 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)         | WLAN     | 8.85  | ± 9.6 % |
| 10640 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)         | WLAN     | 8.98  | ± 9.6 % |
| 10641 | AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)         | WLAN     | 9.06  | ± 9.6 % |
| 10642 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)         | WLAN     | 9.06  | ± 9.6 % |
| 10643 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)         | WLAN     | 8.89  | ± 9.6 % |
| 10644 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)         | WLAN     | 9.05  | ± 9.6 % |
| 10645 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)         | WLAN     | 9.11  | ± 9.6 % |
| 10646 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)      | LTE-TDD  | 11.96 | ± 9.6 % |
| 10647 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)     | LTE-TDD  | 11.96 | ± 9.6 % |
| 10648 | AAA | CDMA2000 (1x Advanced)                                     | CDMA2000 | 3.45  | ± 9.6 % |
| 10652 | AAD | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)             | LTE-TDD  | 6.91  | ± 9.6 % |
| 10653 | AAD | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)            | LTE-TDD  | 7.42  | ± 9.6 % |
| 10654 | AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)            | LTE-TDD  | 6.96  | ± 9.6 % |

|       |     |                                                 |           |       |         |
|-------|-----|-------------------------------------------------|-----------|-------|---------|
| 10655 | AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD   | 7.21  | ± 9.6 % |
| 10658 | AAA | Pulse Waveform (200Hz, 10%)                     | Test      | 10.00 | ± 9.6 % |
| 10659 | AAA | Pulse Waveform (200Hz, 20%)                     | Test      | 6.99  | ± 9.6 % |
| 10660 | AAA | Pulse Waveform (200Hz, 40%)                     | Test      | 3.98  | ± 9.6 % |
| 10661 | AAA | Pulse Waveform (200Hz, 60%)                     | Test      | 2.22  | ± 9.6 % |
| 10662 | AAA | Pulse Waveform (200Hz, 80%)                     | Test      | 0.97  | ± 9.6 % |
| 10670 | AAA | Bluetooth Low Energy                            | Bluetooth | 2.19  | ± 9.6 % |

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EX3-7532\_Apr19**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7532**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v7  
Calibration procedure for dosimetric E-field probes**

Calibration date: **April 12, 2019**

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 NRP            | SN: 104778       | 03-Apr-19 (No. 217-02892/02893)   | Apr-20                 |
| Power sensor NRP-Z91       | SN: 103244       | 03-Apr-19 (No. 217-02892)         | Apr-20                 |
| Power sensor NRP-Z91       | SN: 103245       | 03-Apr-19 (No. 217-02893)         | Apr-20                 |
| Reference 20 dB Attenuator | SN: S5277 (20x)  | 04-Apr-19 (No. 217-02894)         | Apr-20                 |
| DAE4                       | SN: 660          | 19-Dec-18 (No. DAE4-660_Dec18)    | Dec-19                 |
| Reference Probe ES3DV2     | SN: 3013         | 31-Dec-18 (No. ES3-3013_Dec18)    | Dec-19                 |
| Secondary Standards        | ID               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B         | SN: GB41293874   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: MY41498087   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: 000110210    | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C      | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A    | SN: US41080477   | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

|                                                                                                                 |                               |                                          |                        |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------|------------------------|
| Calibrated by:                                                                                                  | Name<br><b>Jeton Kastrati</b> | Function<br><b>Laboratory Technician</b> | Signature<br>          |
| Approved by:                                                                                                    | Name<br><b>Katja Pokovic</b>  | Function<br><b>Technical Manager</b>     | Signature<br>          |
|                                                                                                                 |                               |                                          | Issued: April 18, 2019 |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                               |                                          |                        |



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 Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                      | tissue simulating liquid                                                                                                                                |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                               |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                              |
| 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),<br>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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* 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.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: 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 NORM<sub>x,y,z</sub> \* 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  $\pm 50$  MHz to  $\pm 100$  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 NORM<sub>x</sub> (no uncertainty required).

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:7532

## Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|-----------------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.46     | 0.41     | 0.48     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 95.9     | 99.2     | 101.2    |               |

## Calibration Results for Modulation Response

| UID           | Communication System Name   |   | A<br>dB | B<br>dB $\sqrt{\mu\text{V}}$ | C     | D<br>dB | VR<br>mV | Max<br>dev.  | Max<br>Unc <sup>E</sup><br>(k=2) |
|---------------|-----------------------------|---|---------|------------------------------|-------|---------|----------|--------------|----------------------------------|
| 0             | CW                          | X | 0.00    | 0.00                         | 1.00  | 0.00    | 130.6    | $\pm 3.8 \%$ | $\pm 4.7 \%$                     |
|               |                             | Y | 0.00    | 0.00                         | 1.00  |         | 143.6    |              |                                  |
|               |                             | Z | 0.00    | 0.00                         | 1.00  |         | 134.6    |              |                                  |
| 10352-<br>AAA | Pulse Waveform (200Hz, 10%) | X | 8.28    | 78.46                        | 15.24 | 10.00   | 60.0     | $\pm 3.0 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 2.33    | 65.30                        | 10.44 |         | 60.0     |              |                                  |
|               |                             | Z | 6.14    | 75.22                        | 14.10 |         | 60.0     |              |                                  |
| 10353-<br>AAA | Pulse Waveform (200Hz, 20%) | X | 15.00   | 85.55                        | 16.34 | 6.99    | 80.0     | $\pm 2.1 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 1.95    | 66.76                        | 9.83  |         | 80.0     |              |                                  |
|               |                             | Z | 15.00   | 84.94                        | 16.01 |         | 80.0     |              |                                  |
| 10354-<br>AAA | Pulse Waveform (200Hz, 40%) | X | 15.00   | 89.33                        | 16.76 | 3.98    | 95.0     | $\pm 1.2 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 0.55    | 61.56                        | 6.38  |         | 95.0     |              |                                  |
|               |                             | Z | 15.00   | 88.27                        | 16.22 |         | 95.0     |              |                                  |
| 10355-<br>AAA | Pulse Waveform (200Hz, 60%) | X | 15.00   | 96.18                        | 18.66 | 2.22    | 120.0    | $\pm 1.0 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 0.26    | 60.00                        | 4.30  |         | 120.0    |              |                                  |
|               |                             | Z | 15.00   | 93.58                        | 17.48 |         | 120.0    |              |                                  |
| 10387-<br>AAA | QPSK Waveform, 1 MHz        | X | 0.48    | 60.00                        | 6.53  | 0.00    | 150.0    | $\pm 3.1 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 0.47    | 60.00                        | 5.61  |         | 150.0    |              |                                  |
|               |                             | Z | 0.47    | 60.00                        | 6.40  |         | 150.0    |              |                                  |
| 10388-<br>AAA | QPSK Waveform, 10 MHz       | X | 2.25    | 69.41                        | 16.61 | 0.00    | 150.0    | $\pm 1.3 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 1.84    | 65.93                        | 14.51 |         | 150.0    |              |                                  |
|               |                             | Z | 2.21    | 69.11                        | 16.38 |         | 150.0    |              |                                  |
| 10396-<br>AAA | 64-QAM Waveform, 100 kHz    | X | 2.77    | 71.23                        | 19.25 | 3.01    | 150.0    | $\pm 1.2 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 2.12    | 65.82                        | 16.55 |         | 150.0    |              |                                  |
|               |                             | Z | 2.88    | 72.11                        | 19.54 |         | 150.0    |              |                                  |
| 10399-<br>AAA | 64-QAM Waveform, 40 MHz     | X | 3.52    | 67.74                        | 16.20 | 0.00    | 150.0    | $\pm 2.4 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 3.24    | 66.16                        | 15.20 |         | 150.0    |              |                                  |
|               |                             | Z | 3.48    | 67.65                        | 16.08 |         | 150.0    |              |                                  |
| 10414-<br>AAA | WLAN CCDF, 64-QAM, 40MHz    | X | 4.78    | 66.13                        | 15.86 | 0.00    | 150.0    | $\pm 4.3 \%$ | $\pm 9.6 \%$                     |
|               |                             | Y | 4.55    | 65.17                        | 15.25 |         | 150.0    |              |                                  |
|               |                             | Z | 4.59    | 65.54                        | 15.49 |         | 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%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7532

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>$V^{-1}$ | T1<br>$ms.V^{-2}$ | T2<br>$ms.V^{-1}$ | T3<br>ms | T4<br>$V^{-2}$ | T5<br>$V^{-1}$ | T6   |
|---|----------|----------|----------------------|-------------------|-------------------|----------|----------------|----------------|------|
| X | 33.7     | 250.12   | 35.29                | 7.37              | 0.00              | 5.04     | 1.41           | 0.10           | 1.00 |
| Y | 32.5     | 247.13   | 36.50                | 4.60              | 0.24              | 5.02     | 0.00           | 0.31           | 1.01 |
| Z | 32.7     | 238.86   | 34.29                | 6.99              | 0.00              | 5.03     | 1.69           | 0.03           | 1.01 |

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 25         |
| 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     |

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7532

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 41.9                               | 0.89                            | 10.84   | 10.84   | 10.84   | 0.35               | 1.20                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 10.45   | 10.45   | 10.45   | 0.35               | 1.20                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 8.46    | 8.46    | 8.46    | 0.34               | 0.88                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 8.17    | 8.17    | 8.17    | 0.36               | 0.90                    | ± 12.0 %  |
| 2300                 | 39.5                               | 1.67                            | 7.89    | 7.89    | 7.89    | 0.30               | 0.90                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 7.55    | 7.55    | 7.55    | 0.28               | 1.20                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 7.33    | 7.33    | 7.33    | 0.40               | 0.90                    | ± 12.0 %  |

<sup>C</sup> 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7532

### Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth (mm) <sup>G</sup> | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 55.5                               | 0.96                            | 10.60   | 10.60   | 10.60   | 0.39               | 0.95                    | ± 12.0 %  |
| 835                  | 55.2                               | 0.97                            | 10.14   | 10.14   | 10.14   | 0.46               | 0.80                    | ± 12.0 %  |
| 1750                 | 53.4                               | 1.49                            | 8.44    | 8.44    | 8.44    | 0.40               | 0.85                    | ± 12.0 %  |
| 1900                 | 53.3                               | 1.52                            | 8.03    | 8.03    | 8.03    | 0.40               | 0.86                    | ± 12.0 %  |
| 2300                 | 52.9                               | 1.81                            | 7.93    | 7.93    | 7.93    | 0.45               | 0.80                    | ± 12.0 %  |
| 2450                 | 52.7                               | 1.95                            | 7.66    | 7.66    | 7.66    | 0.35               | 0.95                    | ± 12.0 %  |
| 2600                 | 52.5                               | 2.16                            | 7.47    | 7.47    | 7.47    | 0.22               | 1.00                    | ± 12.0 %  |

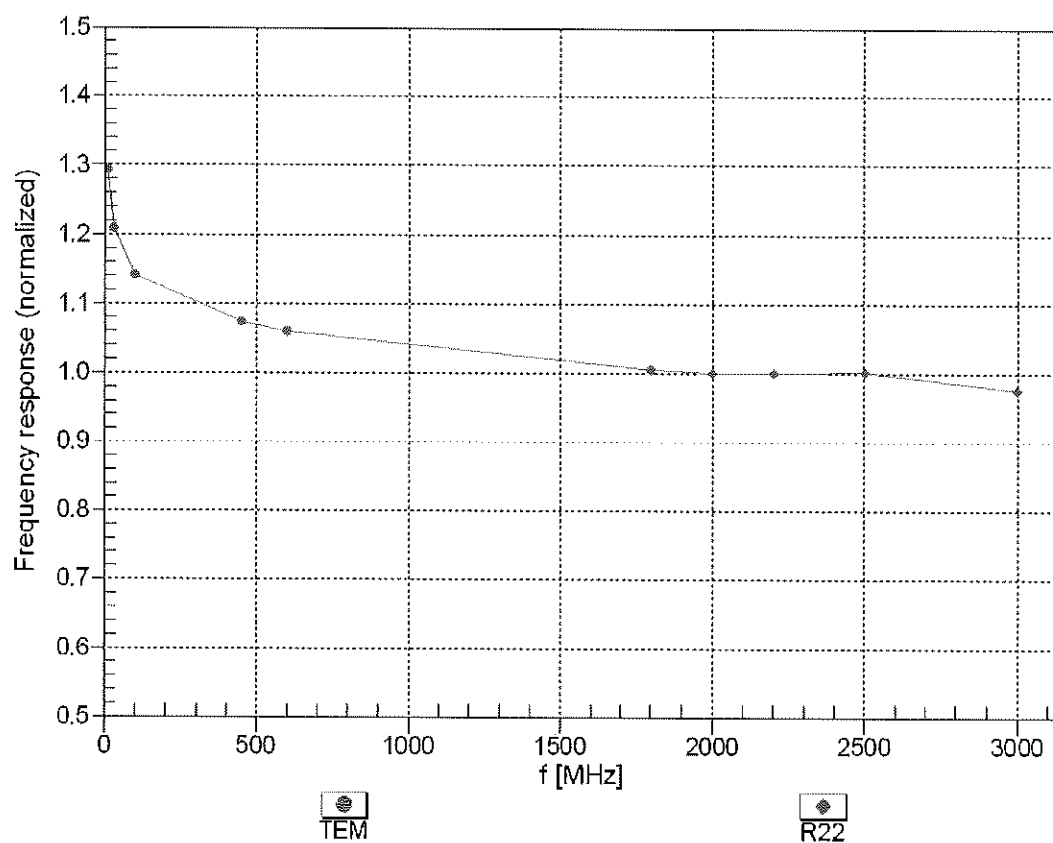
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.

## Frequency Response of E-Field

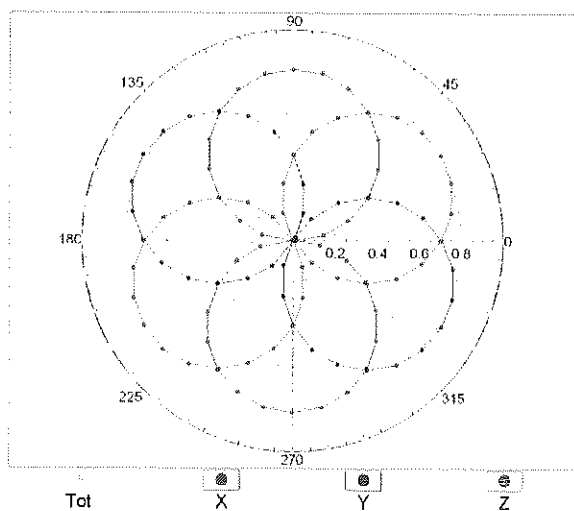
(TEM-Cell:ifi110 EXX, Waveguide: R22)



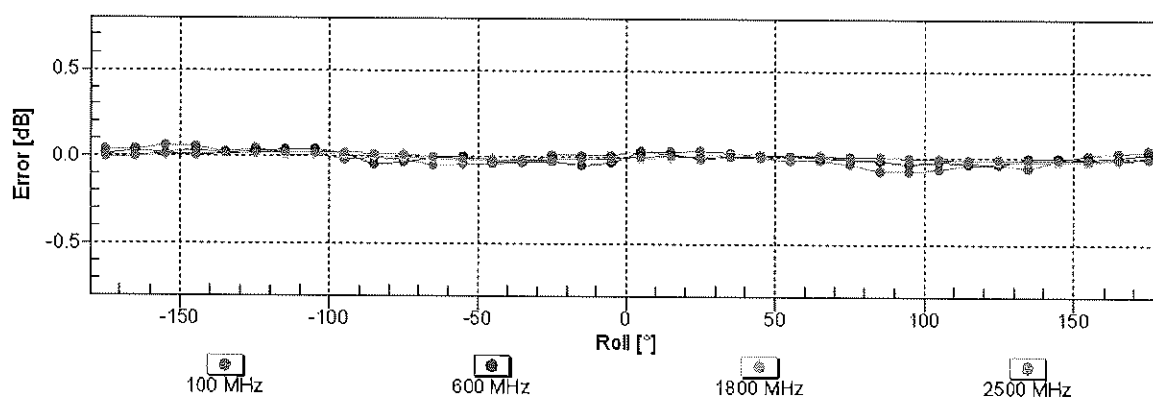
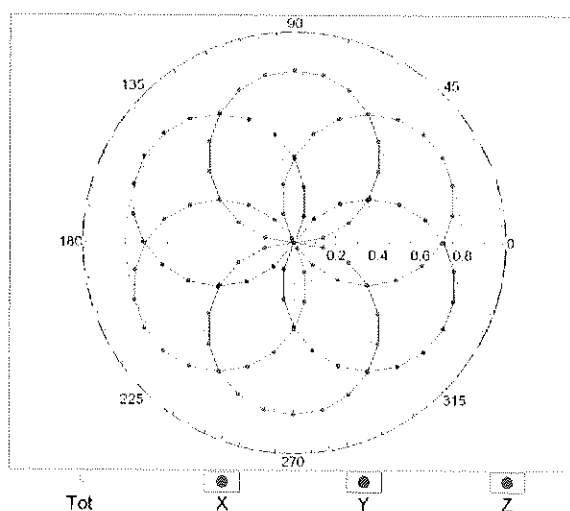
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$

f=600 MHz,TEM



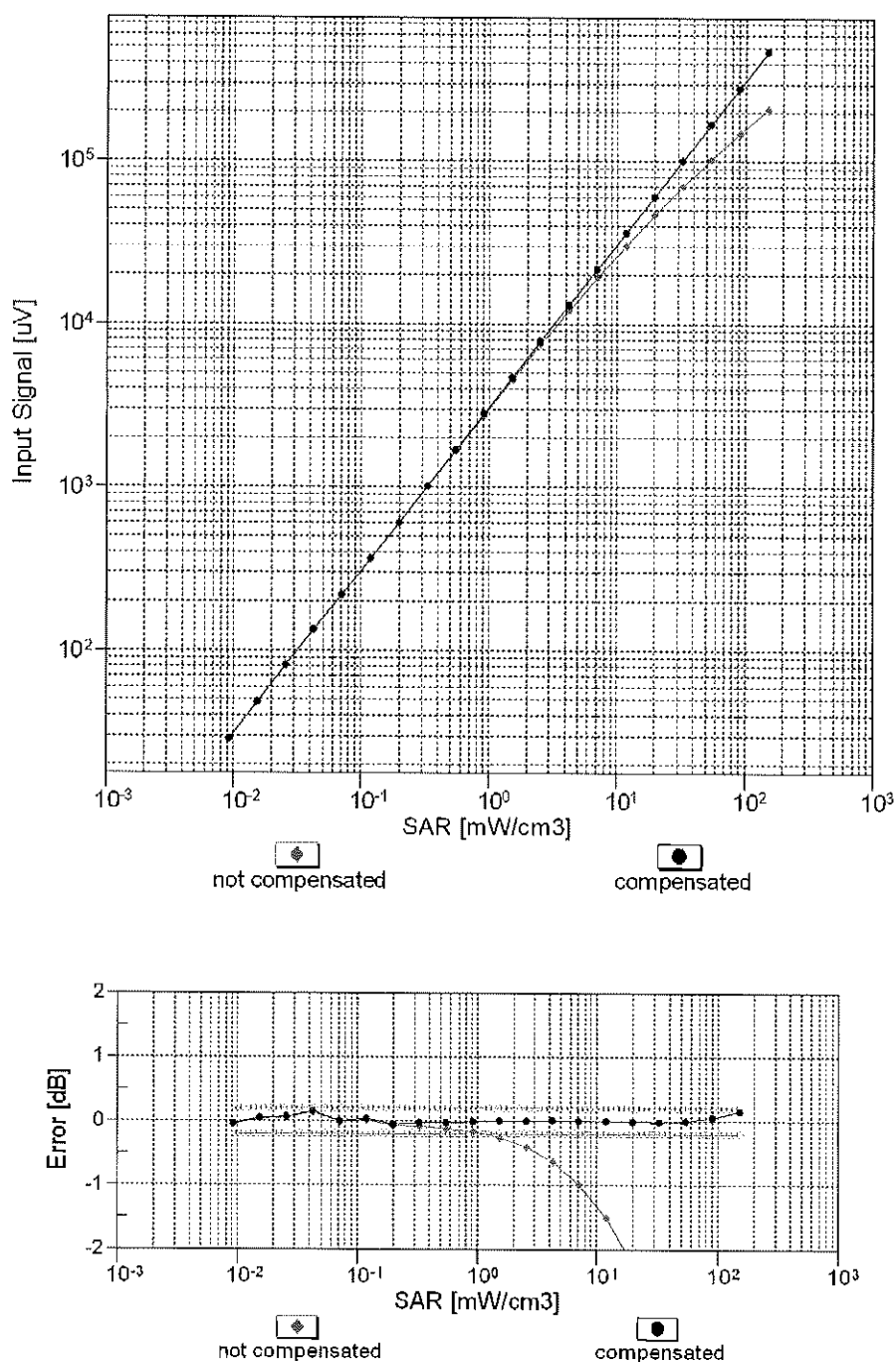
f=1800 MHz,R22



Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

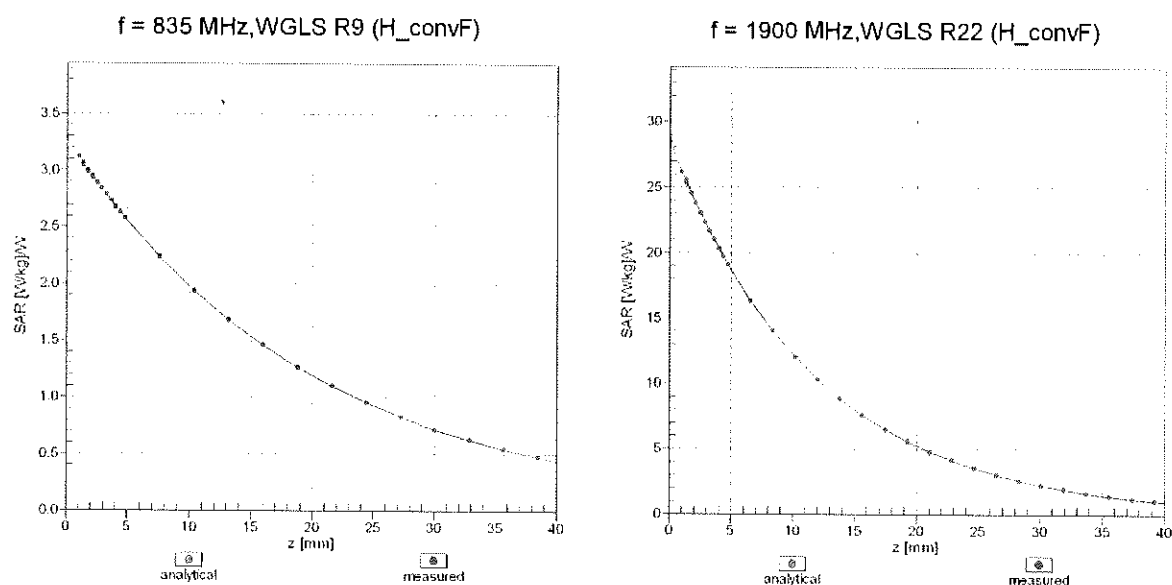
# Dynamic Range f(SAR<sub>head</sub>)

(TEM cell , f<sub>eval</sub>= 1900 MHz)



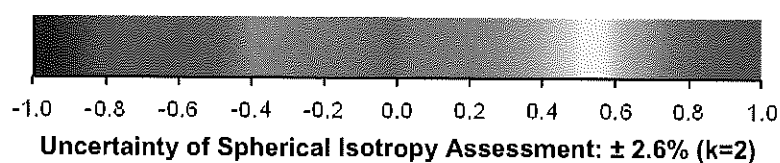
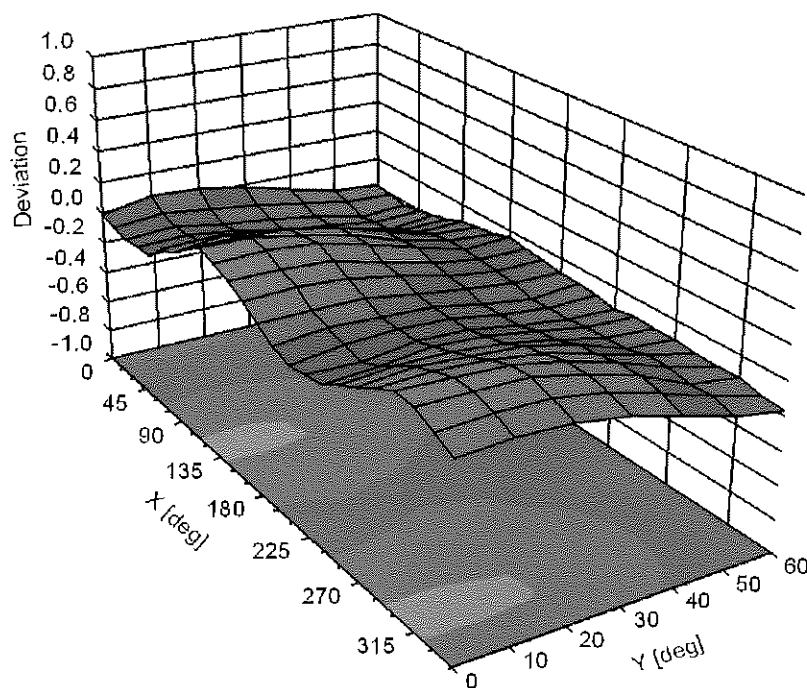
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  (k=2)

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

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



**Appendix: Modulation Calibration Parameters**

| UID   | Rev | Communication System Name                           | Group     | PAR (dB) | Unc <sup>E</sup> (k=2) |
|-------|-----|-----------------------------------------------------|-----------|----------|------------------------|
| 0     |     | CW                                                  | CW        | 0.00     | ± 4.7 %                |
| 10010 | CAA | SAR Validation (Square, 100ms, 10ms)                | Test      | 10.00    | ± 9.6 %                |
| 10011 | CAB | 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 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)            | WLAN      | 8.68     | ± 9.6 %                |
| 10063 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)            | WLAN      | 8.63     | ± 9.6 %                |
| 10064 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)           | WLAN      | 9.09     | ± 9.6 %                |
| 10065 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)           | WLAN      | 9.00     | ± 9.6 %                |
| 10066 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)           | WLAN      | 9.38     | ± 9.6 %                |
| 10067 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)           | WLAN      | 10.12    | ± 9.6 %                |
| 10068 | CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)           | WLAN      | 10.24    | ± 9.6 %                |
| 10069 | CAC | 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 | CAB | UMTS-FDD (HSDPA)                                    | WCDMA     | 3.98     | ± 9.6 %                |
| 10098 | CAB | 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 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-FDD   | 5.67     | ± 9.6 %                |
| 10101 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-FDD   | 6.42     | ± 9.6 %                |
| 10102 | CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-FDD   | 6.60     | ± 9.6 %                |
| 10103 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | LTE-TDD   | 9.29     | ± 9.6 %                |
| 10104 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | LTE-TDD   | 9.97     | ± 9.6 %                |
| 10105 | CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | LTE-TDD   | 10.01    | ± 9.6 %                |
| 10108 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | LTE-FDD   | 5.80     | ± 9.6 %                |

|       |     |                                                |         |       |         |
|-------|-----|------------------------------------------------|---------|-------|---------|
| 10109 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)     | LTE-FDD | 6.43  | ± 9.6 % |
| 10110 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)        | LTE-FDD | 5.75  | ± 9.6 % |
| 10111 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)      | LTE-FDD | 6.44  | ± 9.6 % |
| 10112 | CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | LTE-FDD | 6.59  | ± 9.6 % |
| 10113 | CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | LTE-FDD | 6.62  | ± 9.6 % |
| 10114 | CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | WLAN    | 8.10  | ± 9.6 % |
| 10115 | CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | WLAN    | 8.46  | ± 9.6 % |
| 10116 | CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | WLAN    | 8.15  | ± 9.6 % |
| 10117 | CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | WLAN    | 8.07  | ± 9.6 % |
| 10118 | CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | WLAN    | 8.59  | ± 9.6 % |
| 10119 | CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | WLAN    | 8.13  | ± 9.6 % |
| 10140 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | LTE-FDD | 6.49  | ± 9.6 % |
| 10141 | CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | LTE-FDD | 6.53  | ± 9.6 % |
| 10142 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | LTE-FDD | 5.73  | ± 9.6 % |
| 10143 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | LTE-FDD | 6.35  | ± 9.6 % |
| 10144 | CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | LTE-FDD | 6.65  | ± 9.6 % |
| 10145 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | LTE-FDD | 5.76  | ± 9.6 % |
| 10146 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | LTE-FDD | 6.41  | ± 9.6 % |
| 10147 | CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | LTE-FDD | 6.72  | ± 9.6 % |
| 10149 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-FDD | 6.42  | ± 9.6 % |
| 10150 | CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-FDD | 6.60  | ± 9.6 % |
| 10151 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)        | LTE-TDD | 9.28  | ± 9.6 % |
| 10152 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)      | LTE-TDD | 9.92  | ± 9.6 % |
| 10153 | CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)      | LTE-TDD | 10.05 | ± 9.6 % |
| 10154 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)        | LTE-FDD | 5.75  | ± 9.6 % |
| 10155 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)      | LTE-FDD | 6.43  | ± 9.6 % |
| 10156 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)         | LTE-FDD | 5.79  | ± 9.6 % |
| 10157 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)       | LTE-FDD | 6.49  | ± 9.6 % |
| 10158 | CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)      | LTE-FDD | 6.62  | ± 9.6 % |
| 10159 | CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)       | LTE-FDD | 6.56  | ± 9.6 % |
| 10160 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)        | LTE-FDD | 5.82  | ± 9.6 % |
| 10161 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)      | LTE-FDD | 6.43  | ± 9.6 % |
| 10162 | CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)      | LTE-FDD | 6.58  | ± 9.6 % |
| 10166 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)       | LTE-FDD | 5.46  | ± 9.6 % |
| 10167 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)     | LTE-FDD | 6.21  | ± 9.6 % |
| 10168 | CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)     | LTE-FDD | 6.79  | ± 9.6 % |
| 10169 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-FDD | 5.73  | ± 9.6 % |
| 10170 | CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10171 | AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-FDD | 6.49  | ± 9.6 % |
| 10172 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)          | LTE-TDD | 9.21  | ± 9.6 % |
| 10173 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)        | LTE-TDD | 9.48  | ± 9.6 % |
| 10174 | CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)        | LTE-TDD | 10.25 | ± 9.6 % |
| 10175 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)          | LTE-FDD | 5.72  | ± 9.6 % |
| 10176 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10177 | CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)           | LTE-FDD | 5.73  | ± 9.6 % |
| 10178 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)         | LTE-FDD | 6.52  | ± 9.6 % |
| 10179 | CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)        | LTE-FDD | 6.50  | ± 9.6 % |
| 10180 | CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)         | LTE-FDD | 6.50  | ± 9.6 % |
| 10181 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)          | LTE-FDD | 5.72  | ± 9.6 % |
| 10182 | CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)        | LTE-FDD | 6.52  | ± 9.6 % |
| 10183 | AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)        | LTE-FDD | 6.50  | ± 9.6 % |
| 10184 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)           | LTE-FDD | 5.73  | ± 9.6 % |
| 10185 | CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)         | LTE-FDD | 6.51  | ± 9.6 % |
| 10186 | AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)         | LTE-FDD | 6.50  | ± 9.6 % |
| 10187 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)         | LTE-FDD | 5.73  | ± 9.6 % |
| 10188 | CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)       | LTE-FDD | 6.52  | ± 9.6 % |
| 10189 | AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)       | LTE-FDD | 6.50  | ± 9.6 % |
| 10193 | CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)   | WLAN    | 8.09  | ± 9.6 % |
| 10194 | CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)  | WLAN    | 8.12  | ± 9.6 % |
| 10195 | CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)  | WLAN    | 8.21  | ± 9.6 % |
| 10196 | CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)        | WLAN    | 8.10  | ± 9.6 % |
| 10197 | CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)       | WLAN    | 8.13  | ± 9.6 % |
| 10198 | CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)       | WLAN    | 8.27  | ± 9.6 % |
| 10219 | CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)        | WLAN    | 8.03  | ± 9.6 % |

|       |     |                                             |          |       |         |
|-------|-----|---------------------------------------------|----------|-------|---------|
| 10220 | CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)  | WLAN     | 8.13  | ± 9.6 % |
| 10221 | CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)  | WLAN     | 8.27  | ± 9.6 % |
| 10222 | CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)      | WLAN     | 8.06  | ± 9.6 % |
| 10223 | CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)    | WLAN     | 8.48  | ± 9.6 % |
| 10224 | CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)   | WLAN     | 8.08  | ± 9.6 % |
| 10225 | CAB | UMTS-FDD (HSPA+)                            | WCDMA    | 5.97  | ± 9.6 % |
| 10226 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)    | LTE-TDD  | 9.49  | ± 9.6 % |
| 10227 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)    | LTE-TDD  | 10.26 | ± 9.6 % |
| 10228 | CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)      | LTE-TDD  | 9.22  | ± 9.6 % |
| 10229 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)      | LTE-TDD  | 9.48  | ± 9.6 % |
| 10230 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)      | LTE-TDD  | 10.25 | ± 9.6 % |
| 10231 | CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)        | LTE-TDD  | 9.19  | ± 9.6 % |
| 10232 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)      | LTE-TDD  | 9.48  | ± 9.6 % |
| 10233 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)      | LTE-TDD  | 10.25 | ± 9.6 % |
| 10234 | CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)        | LTE-TDD  | 9.21  | ± 9.6 % |
| 10235 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)     | LTE-TDD  | 9.48  | ± 9.6 % |
| 10236 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)     | LTE-TDD  | 10.25 | ± 9.6 % |
| 10237 | CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)       | LTE-TDD  | 9.21  | ± 9.6 % |
| 10238 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)     | LTE-TDD  | 9.48  | ± 9.6 % |
| 10239 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)     | LTE-TDD  | 10.25 | ± 9.6 % |
| 10240 | CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)       | LTE-TDD  | 9.21  | ± 9.6 % |
| 10241 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)  | LTE-TDD  | 9.82  | ± 9.6 % |
| 10242 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)  | LTE-TDD  | 9.86  | ± 9.6 % |
| 10243 | CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)    | LTE-TDD  | 9.46  | ± 9.6 % |
| 10244 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)    | LTE-TDD  | 10.06 | ± 9.6 % |
| 10245 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)    | LTE-TDD  | 10.06 | ± 9.6 % |
| 10246 | CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)      | LTE-TDD  | 9.30  | ± 9.6 % |
| 10247 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)    | LTE-TDD  | 9.91  | ± 9.6 % |
| 10248 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)    | LTE-TDD  | 10.09 | ± 9.6 % |
| 10249 | CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)      | LTE-TDD  | 9.29  | ± 9.6 % |
| 10250 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)   | LTE-TDD  | 9.81  | ± 9.6 % |
| 10251 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)   | LTE-TDD  | 10.17 | ± 9.6 % |
| 10252 | CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)     | LTE-TDD  | 9.24  | ± 9.6 % |
| 10253 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)   | LTE-TDD  | 9.90  | ± 9.6 % |
| 10254 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)   | LTE-TDD  | 10.14 | ± 9.6 % |
| 10255 | CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)     | LTE-TDD  | 9.20  | ± 9.6 % |
| 10256 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | LTE-TDD  | 9.96  | ± 9.6 % |
| 10257 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | LTE-TDD  | 10.08 | ± 9.6 % |
| 10258 | CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)   | LTE-TDD  | 9.34  | ± 9.6 % |
| 10259 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)   | LTE-TDD  | 9.98  | ± 9.6 % |
| 10260 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)   | LTE-TDD  | 9.97  | ± 9.6 % |
| 10261 | CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)     | LTE-TDD  | 9.24  | ± 9.6 % |
| 10262 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)   | LTE-TDD  | 9.83  | ± 9.6 % |
| 10263 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)   | LTE-TDD  | 10.16 | ± 9.6 % |
| 10264 | CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)     | LTE-TDD  | 9.23  | ± 9.6 % |
| 10265 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)  | LTE-TDD  | 9.92  | ± 9.6 % |
| 10266 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)  | LTE-TDD  | 10.07 | ± 9.6 % |
| 10267 | CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)    | LTE-TDD  | 9.30  | ± 9.6 % |
| 10268 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)  | LTE-TDD  | 10.06 | ± 9.6 % |
| 10269 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)  | LTE-TDD  | 10.13 | ± 9.6 % |
| 10270 | CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)    | LTE-TDD  | 9.58  | ± 9.6 % |
| 10274 | CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)   | WCDMA    | 4.87  | ± 9.6 % |
| 10275 | CAB | 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 884MHz, Rolloff 0.5)          | PHS      | 11.81 | ± 9.6 % |
| 10279 | CAA | PHS (QPSK, BW 884MHz, 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 | AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)     | LTE-FDD  | 5.81  | ± 9.6 % |
| 10298 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)      | LTE-FDD  | 5.72  | ± 9.6 % |
| 10299 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)    | LTE-FDD  | 6.39  | ± 9.6 % |

|       |     |                                                                                 |          |       |         |
|-------|-----|---------------------------------------------------------------------------------|----------|-------|---------|
| 10300 | AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                                        | LTE-FDD  | 6.60  | ± 9.6 % |
| 10301 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)                              | WiMAX    | 12.03 | ± 9.6 % |
| 10302 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)              | WiMAX    | 12.57 | ± 9.6 % |
| 10303 | AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)                             | WiMAX    | 12.52 | ± 9.6 % |
| 10304 | AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)                             | WiMAX    | 11.86 | ± 9.6 % |
| 10305 | AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)                | WiMAX    | 15.24 | ± 9.6 % |
| 10306 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)                | WiMAX    | 14.67 | ± 9.6 % |
| 10307 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)                 | WiMAX    | 14.49 | ± 9.6 % |
| 10308 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)                            | WiMAX    | 14.46 | ± 9.6 % |
| 10309 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)             | WiMAX    | 14.58 | ± 9.6 % |
| 10310 | AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)              | WiMAX    | 14.57 | ± 9.6 % |
| 10311 | AAD | 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 | AAC | 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 | AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)                             | WLAN     | 8.37  | ± 9.6 % |
| 10401 | AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)                             | WLAN     | 8.60  | ± 9.6 % |
| 10402 | AAD | IEEE 802.11ac WiFi (80MHz, 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 | AAF | 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, 40MHz                                                        | 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 | AAB | 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 preamble)   | WLAN     | 8.14  | ± 9.6 % |
| 10419 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | WLAN     | 8.19  | ± 9.6 % |
| 10422 | AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | WLAN     | 8.32  | ± 9.6 % |
| 10423 | AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | WLAN     | 8.47  | ± 9.6 % |
| 10424 | AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | WLAN     | 8.40  | ± 9.6 % |
| 10425 | AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | WLAN     | 8.41  | ± 9.6 % |
| 10426 | AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | WLAN     | 8.45  | ± 9.6 % |
| 10427 | AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                                  | WLAN     | 8.41  | ± 9.6 % |
| 10430 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                                                | LTE-FDD  | 8.28  | ± 9.6 % |
| 10431 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.38  | ± 9.6 % |
| 10432 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34  | ± 9.6 % |
| 10433 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                                               | LTE-FDD  | 8.34  | ± 9.6 % |
| 10434 | AAA | W-CDMA (BS Test Model 1, 64 DPCH)                                               | WCDMA    | 8.60  | ± 9.6 % |
| 10435 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)                  | LTE-TDD  | 7.82  | ± 9.6 % |
| 10447 | AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                                  | LTE-FDD  | 7.56  | ± 9.6 % |
| 10448 | AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.53  | ± 9.6 % |
| 10449 | AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.51  | ± 9.6 % |
| 10450 | AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                                 | LTE-FDD  | 7.48  | ± 9.6 % |

|       |     |                                                                     |          |      |         |
|-------|-----|---------------------------------------------------------------------|----------|------|---------|
| 10451 | AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                     | WCDMA    | 7.59 | ± 9.6 % |
| 10456 | AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)                | WLAN     | 8.63 | ± 9.6 % |
| 10457 | AAA | 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 | AAA | UMTS-FDD (WCDMA, AMR)                                               | WCDMA    | 2.39 | ± 9.6 % |
| 10461 | AAA | 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 | AAA | 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 | AAA | 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 | AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)       | LTE-TDD  | 7.82 | ± 9.6 % |
| 10465 | AAB | 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 | AAB | 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 | AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)       | LTE-TDD  | 7.82 | ± 9.6 % |
| 10468 | AAE | 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 | AAE | 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 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | LTE-TDD  | 7.82 | ± 9.6 % |
| 10471 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10472 | AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10473 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)      | LTE-TDD  | 7.82 | ± 9.6 % |
| 10474 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10475 | AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10477 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.32 | ± 9.6 % |
| 10478 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 8.57 | ± 9.6 % |
| 10479 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | LTE-TDD  | 7.74 | ± 9.6 % |
| 10480 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD  | 8.18 | ± 9.6 % |
| 10481 | AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD  | 8.45 | ± 9.6 % |
| 10482 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD  | 7.71 | ± 9.6 % |
| 10483 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.39 | ± 9.6 % |
| 10484 | AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.47 | ± 9.6 % |
| 10485 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD  | 7.59 | ± 9.6 % |
| 10486 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.38 | ± 9.6 % |
| 10487 | AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD  | 8.60 | ± 9.6 % |
| 10488 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 7.70 | ± 9.6 % |
| 10489 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD  | 8.31 | ± 9.6 % |
| 10490 | AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD  | 8.54 | ± 9.6 % |
| 10491 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD  | 7.74 | ± 9.6 % |

|       |     |                                                                      |         |      |         |
|-------|-----|----------------------------------------------------------------------|---------|------|---------|
| 10492 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.41 | ± 9.6 % |
| 10493 | AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.55 | ± 9.6 % |
| 10494 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.74 | ± 9.6 % |
| 10495 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.37 | ± 9.6 % |
| 10496 | AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54 | ± 9.6 % |
| 10497 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 7.67 | ± 9.6 % |
| 10498 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.40 | ± 9.6 % |
| 10499 | AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | LTE-TDD | 8.68 | ± 9.6 % |
| 10500 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.67 | ± 9.6 % |
| 10501 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.44 | ± 9.6 % |
| 10502 | AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.52 | ± 9.6 % |
| 10503 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | LTE-TDD | 7.72 | ± 9.6 % |
| 10504 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.31 | ± 9.6 % |
| 10505 | AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | LTE-TDD | 8.54 | ± 9.6 % |
| 10506 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74 | ± 9.6 % |
| 10507 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.36 | ± 9.6 % |
| 10508 | AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.55 | ± 9.6 % |
| 10509 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.99 | ± 9.6 % |
| 10510 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.49 | ± 9.6 % |
| 10511 | AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.51 | ± 9.6 % |
| 10512 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | LTE-TDD | 7.74 | ± 9.6 % |
| 10513 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.42 | ± 9.6 % |
| 10514 | AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | LTE-TDD | 8.45 | ± 9.6 % |
| 10515 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)            | WLAN    | 1.58 | ± 9.6 % |
| 10516 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)          | WLAN    | 1.57 | ± 9.6 % |
| 10517 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)           | WLAN    | 1.58 | ± 9.6 % |
| 10518 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)            | WLAN    | 8.23 | ± 9.6 % |
| 10519 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)           | WLAN    | 8.39 | ± 9.6 % |
| 10520 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)           | WLAN    | 8.12 | ± 9.6 % |
| 10521 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)           | WLAN    | 7.97 | ± 9.6 % |
| 10522 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)           | WLAN    | 8.45 | ± 9.6 % |
| 10523 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)           | WLAN    | 8.08 | ± 9.6 % |
| 10524 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)           | WLAN    | 8.27 | ± 9.6 % |
| 10525 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10526 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)                    | WLAN    | 8.42 | ± 9.6 % |
| 10527 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)                    | WLAN    | 8.21 | ± 9.6 % |
| 10528 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10529 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)                    | WLAN    | 8.36 | ± 9.6 % |
| 10531 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)                    | WLAN    | 8.43 | ± 9.6 % |
| 10532 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)                    | WLAN    | 8.29 | ± 9.6 % |
| 10533 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)                    | WLAN    | 8.38 | ± 9.6 % |
| 10534 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)                    | WLAN    | 8.45 | ± 9.6 % |

|       |     |                                                                 |      |      |         |
|-------|-----|-----------------------------------------------------------------|------|------|---------|
| 10535 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)               | WLAN | 8.45 | ± 9.6 % |
| 10536 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)               | WLAN | 8.32 | ± 9.6 % |
| 10537 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)               | WLAN | 8.44 | ± 9.6 % |
| 10538 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)               | WLAN | 8.54 | ± 9.6 % |
| 10540 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)               | WLAN | 8.39 | ± 9.6 % |
| 10541 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)               | WLAN | 8.46 | ± 9.6 % |
| 10542 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)               | WLAN | 8.65 | ± 9.6 % |
| 10543 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)               | WLAN | 8.65 | ± 9.6 % |
| 10544 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)               | WLAN | 8.47 | ± 9.6 % |
| 10545 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)               | WLAN | 8.55 | ± 9.6 % |
| 10546 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)               | WLAN | 8.35 | ± 9.6 % |
| 10547 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)               | WLAN | 8.49 | ± 9.6 % |
| 10548 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)               | WLAN | 8.37 | ± 9.6 % |
| 10550 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)               | WLAN | 8.38 | ± 9.6 % |
| 10551 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)               | WLAN | 8.50 | ± 9.6 % |
| 10552 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)               | WLAN | 8.42 | ± 9.6 % |
| 10553 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)               | WLAN | 8.45 | ± 9.6 % |
| 10554 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)              | WLAN | 8.48 | ± 9.6 % |
| 10555 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)              | WLAN | 8.47 | ± 9.6 % |
| 10556 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)              | WLAN | 8.50 | ± 9.6 % |
| 10557 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)              | WLAN | 8.52 | ± 9.6 % |
| 10558 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)              | WLAN | 8.61 | ± 9.6 % |
| 10560 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)              | WLAN | 8.73 | ± 9.6 % |
| 10561 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)              | WLAN | 8.56 | ± 9.6 % |
| 10562 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)              | WLAN | 8.69 | ± 9.6 % |
| 10563 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)              | WLAN | 8.77 | ± 9.6 % |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | WLAN | 8.25 | ± 9.6 % |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | WLAN | 8.45 | ± 9.6 % |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | WLAN | 8.13 | ± 9.6 % |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | WLAN | 8.00 | ± 9.6 % |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | WLAN | 8.37 | ± 9.6 % |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | WLAN | 8.10 | ± 9.6 % |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | WLAN | 8.30 | ± 9.6 % |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | WLAN | 1.99 | ± 9.6 % |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | WLAN | 1.99 | ± 9.6 % |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | WLAN | 1.98 | ± 9.6 % |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | WLAN | 1.98 | ± 9.6 % |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | WLAN | 8.59 | ± 9.6 % |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | WLAN | 8.60 | ± 9.6 % |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | WLAN | 8.70 | ± 9.6 % |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | WLAN | 8.49 | ± 9.6 % |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | WLAN | 8.36 | ± 9.6 % |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | WLAN | 8.76 | ± 9.6 % |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | WLAN | 8.35 | ± 9.6 % |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | WLAN | 8.67 | ± 9.6 % |
| 10583 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | WLAN | 8.59 | ± 9.6 % |
| 10584 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | WLAN | 8.60 | ± 9.6 % |
| 10585 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | WLAN | 8.70 | ± 9.6 % |
| 10586 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | WLAN | 8.49 | ± 9.6 % |
| 10587 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | WLAN | 8.36 | ± 9.6 % |

|       |     |                                                            |          |       |         |
|-------|-----|------------------------------------------------------------|----------|-------|---------|
| 10588 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle) | WLAN     | 8.76  | ± 9.6 % |
| 10589 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle) | WLAN     | 8.35  | ± 9.6 % |
| 10590 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle) | WLAN     | 8.67  | ± 9.6 % |
| 10591 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)      | WLAN     | 8.63  | ± 9.6 % |
| 10592 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)      | WLAN     | 8.79  | ± 9.6 % |
| 10593 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)      | WLAN     | 8.64  | ± 9.6 % |
| 10594 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)      | WLAN     | 8.74  | ± 9.6 % |
| 10595 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)      | WLAN     | 8.74  | ± 9.6 % |
| 10596 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)      | WLAN     | 8.71  | ± 9.6 % |
| 10597 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)      | WLAN     | 8.72  | ± 9.6 % |
| 10598 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)      | WLAN     | 8.50  | ± 9.6 % |
| 10599 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)      | WLAN     | 8.79  | ± 9.6 % |
| 10600 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)      | WLAN     | 8.88  | ± 9.6 % |
| 10601 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)      | WLAN     | 8.82  | ± 9.6 % |
| 10602 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)      | WLAN     | 8.94  | ± 9.6 % |
| 10603 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)      | WLAN     | 9.03  | ± 9.6 % |
| 10604 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)      | WLAN     | 8.76  | ± 9.6 % |
| 10605 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)      | WLAN     | 8.97  | ± 9.6 % |
| 10606 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)      | WLAN     | 8.82  | ± 9.6 % |
| 10607 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.64  | ± 9.6 % |
| 10608 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10609 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.57  | ± 9.6 % |
| 10610 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.78  | ± 9.6 % |
| 10611 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.70  | ± 9.6 % |
| 10612 | AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10613 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.94  | ± 9.6 % |
| 10614 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.59  | ± 9.6 % |
| 10615 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10616 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10617 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10618 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.58  | ± 9.6 % |
| 10619 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.86  | ± 9.6 % |
| 10620 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.87  | ± 9.6 % |
| 10621 | AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.77  | ± 9.6 % |
| 10622 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.68  | ± 9.6 % |
| 10623 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.82  | ± 9.6 % |
| 10624 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.96  | ± 9.6 % |
| 10625 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)          | WLAN     | 8.96  | ± 9.6 % |
| 10626 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)          | WLAN     | 8.83  | ± 9.6 % |
| 10627 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)          | WLAN     | 8.88  | ± 9.6 % |
| 10628 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)          | WLAN     | 8.71  | ± 9.6 % |
| 10629 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)          | WLAN     | 8.85  | ± 9.6 % |
| 10630 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)          | WLAN     | 8.72  | ± 9.6 % |
| 10631 | AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10632 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)          | WLAN     | 8.74  | ± 9.6 % |
| 10633 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)          | WLAN     | 8.83  | ± 9.6 % |
| 10634 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)          | WLAN     | 8.80  | ± 9.6 % |
| 10635 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)          | WLAN     | 8.81  | ± 9.6 % |
| 10636 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)         | WLAN     | 8.83  | ± 9.6 % |
| 10637 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)         | WLAN     | 8.79  | ± 9.6 % |
| 10638 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)         | WLAN     | 8.86  | ± 9.6 % |
| 10639 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)         | WLAN     | 8.85  | ± 9.6 % |
| 10640 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)         | WLAN     | 8.98  | ± 9.6 % |
| 10641 | AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)         | WLAN     | 9.06  | ± 9.6 % |
| 10642 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)         | WLAN     | 9.06  | ± 9.6 % |
| 10643 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)         | WLAN     | 8.89  | ± 9.6 % |
| 10644 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)         | WLAN     | 9.05  | ± 9.6 % |
| 10645 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)         | WLAN     | 9.11  | ± 9.6 % |
| 10646 | AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)      | LTE-TDD  | 11.96 | ± 9.6 % |
| 10647 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)     | LTE-TDD  | 11.96 | ± 9.6 % |
| 10648 | AAA | CDMA2000 (1x Advanced)                                     | CDMA2000 | 3.45  | ± 9.6 % |
| 10652 | AAD | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)             | LTE-TDD  | 6.91  | ± 9.6 % |
| 10653 | AAD | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)            | LTE-TDD  | 7.42  | ± 9.6 % |
| 10654 | AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)            | LTE-TDD  | 6.96  | ± 9.6 % |

|       |     |                                                 |           |       |         |
|-------|-----|-------------------------------------------------|-----------|-------|---------|
| 10655 | AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD   | 7.21  | ± 9.6 % |
| 10658 | AAA | Pulse Waveform (200Hz, 10%)                     | Test      | 10.00 | ± 9.6 % |
| 10659 | AAA | Pulse Waveform (200Hz, 20%)                     | Test      | 6.99  | ± 9.6 % |
| 10660 | AAA | Pulse Waveform (200Hz, 40%)                     | Test      | 3.98  | ± 9.6 % |
| 10661 | AAA | Pulse Waveform (200Hz, 60%)                     | Test      | 2.22  | ± 9.6 % |
| 10662 | AAA | Pulse Waveform (200Hz, 80%)                     | Test      | 0.97  | ± 9.6 % |
| 10670 | AAA | Bluetooth Low Energy                            | Bluetooth | 2.19  | ± 9.6 % |
| 10671 | AAA | IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)    | WLAN      | 9.09  | ± 9.6 % |
| 10672 | AAA | IEEE 802.11ax (20MHz, MCS1, 90pc duty cycle)    | WLAN      | 8.57  | ± 9.6 % |
| 10673 | AAA | IEEE 802.11ax (20MHz, MCS2, 90pc duty cycle)    | WLAN      | 8.78  | ± 9.6 % |
| 10674 | AAA | IEEE 802.11ax (20MHz, MCS3, 90pc duty cycle)    | WLAN      | 8.74  | ± 9.6 % |
| 10675 | AAA | IEEE 802.11ax (20MHz, MCS4, 90pc duty cycle)    | WLAN      | 8.90  | ± 9.6 % |
| 10676 | AAA | IEEE 802.11ax (20MHz, MCS5, 90pc duty cycle)    | WLAN      | 8.77  | ± 9.6 % |
| 10677 | AAA | IEEE 802.11ax (20MHz, MCS6, 90pc duty cycle)    | WLAN      | 8.73  | ± 9.6 % |
| 10678 | AAA | IEEE 802.11ax (20MHz, MCS7, 90pc duty cycle)    | WLAN      | 8.78  | ± 9.6 % |
| 10679 | AAA | IEEE 802.11ax (20MHz, MCS8, 90pc duty cycle)    | WLAN      | 8.89  | ± 9.6 % |
| 10680 | AAA | IEEE 802.11ax (20MHz, MCS9, 90pc duty cycle)    | WLAN      | 8.80  | ± 9.6 % |
| 10681 | AAA | IEEE 802.11ax (20MHz, MCS10, 90pc duty cycle)   | WLAN      | 8.62  | ± 9.6 % |
| 10682 | AAA | IEEE 802.11ax (20MHz, MCS11, 90pc duty cycle)   | WLAN      | 8.83  | ± 9.6 % |
| 10683 | AAA | IEEE 802.11ax (20MHz, MCS0, 99pc duty cycle)    | WLAN      | 8.42  | ± 9.6 % |
| 10684 | AAA | IEEE 802.11ax (20MHz, MCS1, 99pc duty cycle)    | WLAN      | 8.26  | ± 9.6 % |
| 10685 | AAA | IEEE 802.11ax (20MHz, MCS2, 99pc duty cycle)    | WLAN      | 8.33  | ± 9.6 % |
| 10686 | AAA | IEEE 802.11ax (20MHz, MCS3, 99pc duty cycle)    | WLAN      | 8.28  | ± 9.6 % |
| 10687 | AAA | IEEE 802.11ax (20MHz, MCS4, 99pc duty cycle)    | WLAN      | 8.45  | ± 9.6 % |
| 10688 | AAA | IEEE 802.11ax (20MHz, MCS5, 99pc duty cycle)    | WLAN      | 8.29  | ± 9.6 % |
| 10689 | AAA | IEEE 802.11ax (20MHz, MCS6, 99pc duty cycle)    | WLAN      | 8.55  | ± 9.6 % |
| 10690 | AAA | IEEE 802.11ax (20MHz, MCS7, 99pc duty cycle)    | WLAN      | 8.29  | ± 9.6 % |
| 10691 | AAA | IEEE 802.11ax (20MHz, MCS8, 99pc duty cycle)    | WLAN      | 8.25  | ± 9.6 % |
| 10692 | AAA | IEEE 802.11ax (20MHz, MCS9, 99pc duty cycle)    | WLAN      | 8.29  | ± 9.6 % |
| 10693 | AAA | IEEE 802.11ax (20MHz, MCS10, 99pc duty cycle)   | WLAN      | 8.25  | ± 9.6 % |
| 10694 | AAA | IEEE 802.11ax (20MHz, MCS11, 99pc duty cycle)   | WLAN      | 8.57  | ± 9.6 % |
| 10695 | AAA | IEEE 802.11ax (40MHz, MCS0, 90pc duty cycle)    | WLAN      | 8.78  | ± 9.6 % |
| 10696 | AAA | IEEE 802.11ax (40MHz, MCS1, 90pc duty cycle)    | WLAN      | 8.91  | ± 9.6 % |
| 10697 | AAA | IEEE 802.11ax (40MHz, MCS2, 90pc duty cycle)    | WLAN      | 8.61  | ± 9.6 % |
| 10698 | AAA | IEEE 802.11ax (40MHz, MCS3, 90pc duty cycle)    | WLAN      | 8.89  | ± 9.6 % |
| 10699 | AAA | IEEE 802.11ax (40MHz, MCS4, 90pc duty cycle)    | WLAN      | 8.82  | ± 9.6 % |
| 10700 | AAA | IEEE 802.11ax (40MHz, MCS5, 90pc duty cycle)    | WLAN      | 8.73  | ± 9.6 % |
| 10701 | AAA | IEEE 802.11ax (40MHz, MCS6, 90pc duty cycle)    | WLAN      | 8.86  | ± 9.6 % |
| 10702 | AAA | IEEE 802.11ax (40MHz, MCS7, 90pc duty cycle)    | WLAN      | 8.70  | ± 9.6 % |
| 10703 | AAA | IEEE 802.11ax (40MHz, MCS8, 90pc duty cycle)    | WLAN      | 8.82  | ± 9.6 % |
| 10704 | AAA | IEEE 802.11ax (40MHz, MCS9, 90pc duty cycle)    | WLAN      | 8.56  | ± 9.6 % |
| 10705 | AAA | IEEE 802.11ax (40MHz, MCS10, 90pc duty cycle)   | WLAN      | 8.69  | ± 9.6 % |
| 10706 | AAA | IEEE 802.11ax (40MHz, MCS11, 90pc duty cycle)   | WLAN      | 8.66  | ± 9.6 % |
| 10707 | AAA | IEEE 802.11ax (40MHz, MCS0, 99pc duty cycle)    | WLAN      | 8.32  | ± 9.6 % |
| 10708 | AAA | IEEE 802.11ax (40MHz, MCS1, 99pc duty cycle)    | WLAN      | 8.55  | ± 9.6 % |
| 10709 | AAA | IEEE 802.11ax (40MHz, MCS2, 99pc duty cycle)    | WLAN      | 8.33  | ± 9.6 % |
| 10710 | AAA | IEEE 802.11ax (40MHz, MCS3, 99pc duty cycle)    | WLAN      | 8.29  | ± 9.6 % |
| 10711 | AAA | IEEE 802.11ax (40MHz, MCS4, 99pc duty cycle)    | WLAN      | 8.39  | ± 9.6 % |
| 10712 | AAA | IEEE 802.11ax (40MHz, MCS5, 99pc duty cycle)    | WLAN      | 8.67  | ± 9.6 % |
| 10713 | AAA | IEEE 802.11ax (40MHz, MCS6, 99pc duty cycle)    | WLAN      | 8.33  | ± 9.6 % |
| 10714 | AAA | IEEE 802.11ax (40MHz, MCS7, 99pc duty cycle)    | WLAN      | 8.26  | ± 9.6 % |
| 10715 | AAA | IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle)    | WLAN      | 8.45  | ± 9.6 % |
| 10716 | AAA | IEEE 802.11ax (40MHz, MCS9, 99pc duty cycle)    | WLAN      | 8.30  | ± 9.6 % |
| 10717 | AAA | IEEE 802.11ax (40MHz, MCS10, 99pc duty cycle)   | WLAN      | 8.48  | ± 9.6 % |
| 10718 | AAA | IEEE 802.11ax (40MHz, MCS11, 99pc duty cycle)   | WLAN      | 8.24  | ± 9.6 % |
| 10719 | AAA | IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle)    | WLAN      | 8.81  | ± 9.6 % |
| 10720 | AAA | IEEE 802.11ax (80MHz, MCS1, 90pc duty cycle)    | WLAN      | 8.87  | ± 9.6 % |
| 10721 | AAA | IEEE 802.11ax (80MHz, MCS2, 90pc duty cycle)    | WLAN      | 8.76  | ± 9.6 % |
| 10722 | AAA | IEEE 802.11ax (80MHz, MCS3, 90pc duty cycle)    | WLAN      | 8.55  | ± 9.6 % |
| 10723 | AAA | IEEE 802.11ax (80MHz, MCS4, 90pc duty cycle)    | WLAN      | 8.70  | ± 9.6 % |
| 10724 | AAA | IEEE 802.11ax (80MHz, MCS5, 90pc duty cycle)    | WLAN      | 8.90  | ± 9.6 % |
| 10725 | AAA | IEEE 802.11ax (80MHz, MCS6, 90pc duty cycle)    | WLAN      | 8.74  | ± 9.6 % |
| 10726 | AAA | IEEE 802.11ax (80MHz, MCS7, 90pc duty cycle)    | WLAN      | 8.72  | ± 9.6 % |
| 10727 | AAA | IEEE 802.11ax (80MHz, MCS8, 90pc duty cycle)    | WLAN      | 8.66  | ± 9.6 % |

|       |     |                                                |      |      |         |
|-------|-----|------------------------------------------------|------|------|---------|
| 10728 | AAA | IEEE 802.11ax (80MHz, MCS9, 90pc duty cycle)   | WLAN | 8.65 | ± 9.6 % |
| 10729 | AAA | IEEE 802.11ax (80MHz, MCS10, 90pc duty cycle)  | WLAN | 8.64 | ± 9.6 % |
| 10730 | AAA | IEEE 802.11ax (80MHz, MCS11, 90pc duty cycle)  | WLAN | 8.67 | ± 9.6 % |
| 10731 | AAA | IEEE 802.11ax (80MHz, MCS0, 99pc duty cycle)   | WLAN | 8.42 | ± 9.6 % |
| 10732 | AAA | IEEE 802.11ax (80MHz, MCS1, 99pc duty cycle)   | WLAN | 8.46 | ± 9.6 % |
| 10733 | AAA | IEEE 802.11ax (80MHz, MCS2, 99pc duty cycle)   | WLAN | 8.40 | ± 9.6 % |
| 10734 | AAA | IEEE 802.11ax (80MHz, MCS3, 99pc duty cycle)   | WLAN | 8.25 | ± 9.6 % |
| 10735 | AAA | IEEE 802.11ax (80MHz, MCS4, 99pc duty cycle)   | WLAN | 8.33 | ± 9.6 % |
| 10736 | AAA | IEEE 802.11ax (80MHz, MCS5, 99pc duty cycle)   | WLAN | 8.27 | ± 9.6 % |
| 10737 | AAA | IEEE 802.11ax (80MHz, MCS6, 99pc duty cycle)   | WLAN | 8.36 | ± 9.6 % |
| 10738 | AAA | IEEE 802.11ax (80MHz, MCS7, 99pc duty cycle)   | WLAN | 8.42 | ± 9.6 % |
| 10739 | AAA | IEEE 802.11ax (80MHz, MCS8, 99pc duty cycle)   | WLAN | 8.29 | ± 9.6 % |
| 10740 | AAA | IEEE 802.11ax (80MHz, MCS9, 99pc duty cycle)   | WLAN | 8.48 | ± 9.6 % |
| 10741 | AAA | IEEE 802.11ax (80MHz, MCS10, 99pc duty cycle)  | WLAN | 8.40 | ± 9.6 % |
| 10742 | AAA | IEEE 802.11ax (80MHz, MCS11, 99pc duty cycle)  | WLAN | 8.43 | ± 9.6 % |
| 10743 | AAA | IEEE 802.11ax (160MHz, MCS0, 90pc duty cycle)  | WLAN | 8.94 | ± 9.6 % |
| 10744 | AAA | IEEE 802.11ax (160MHz, MCS1, 90pc duty cycle)  | WLAN | 9.16 | ± 9.6 % |
| 10745 | AAA | IEEE 802.11ax (160MHz, MCS2, 90pc duty cycle)  | WLAN | 8.93 | ± 9.6 % |
| 10746 | AAA | IEEE 802.11ax (160MHz, MCS3, 90pc duty cycle)  | WLAN | 9.11 | ± 9.6 % |
| 10747 | AAA | IEEE 802.11ax (160MHz, MCS4, 90pc duty cycle)  | WLAN | 9.04 | ± 9.6 % |
| 10748 | AAA | IEEE 802.11ax (160MHz, MCS5, 90pc duty cycle)  | WLAN | 8.93 | ± 9.6 % |
| 10749 | AAA | IEEE 802.11ax (160MHz, MCS6, 90pc duty cycle)  | WLAN | 8.90 | ± 9.6 % |
| 10750 | AAA | IEEE 802.11ax (160MHz, MCS7, 90pc duty cycle)  | WLAN | 8.79 | ± 9.6 % |
| 10751 | AAA | IEEE 802.11ax (160MHz, MCS8, 90pc duty cycle)  | WLAN | 8.82 | ± 9.6 % |
| 10752 | AAA | IEEE 802.11ax (160MHz, MCS9, 90pc duty cycle)  | WLAN | 8.81 | ± 9.6 % |
| 10753 | AAA | IEEE 802.11ax (160MHz, MCS10, 90pc duty cycle) | WLAN | 9.00 | ± 9.6 % |
| 10754 | AAA | IEEE 802.11ax (160MHz, MCS11, 90pc duty cycle) | WLAN | 8.94 | ± 9.6 % |
| 10755 | AAA | IEEE 802.11ax (160MHz, MCS0, 99pc duty cycle)  | WLAN | 8.64 | ± 9.6 % |
| 10756 | AAA | IEEE 802.11ax (160MHz, MCS1, 99pc duty cycle)  | WLAN | 8.77 | ± 9.6 % |
| 10757 | AAA | IEEE 802.11ax (160MHz, MCS2, 99pc duty cycle)  | WLAN | 8.77 | ± 9.6 % |
| 10758 | AAA | IEEE 802.11ax (160MHz, MCS3, 99pc duty cycle)  | WLAN | 8.69 | ± 9.6 % |
| 10759 | AAA | IEEE 802.11ax (160MHz, MCS4, 99pc duty cycle)  | WLAN | 8.58 | ± 9.6 % |
| 10760 | AAA | IEEE 802.11ax (160MHz, MCS5, 99pc duty cycle)  | WLAN | 8.49 | ± 9.6 % |
| 10761 | AAA | IEEE 802.11ax (160MHz, MCS6, 99pc duty cycle)  | WLAN | 8.58 | ± 9.6 % |
| 10762 | AAA | IEEE 802.11ax (160MHz, MCS7, 99pc duty cycle)  | WLAN | 8.49 | ± 9.6 % |
| 10763 | AAA | IEEE 802.11ax (160MHz, MCS8, 99pc duty cycle)  | WLAN | 8.53 | ± 9.6 % |
| 10764 | AAA | IEEE 802.11ax (160MHz, MCS9, 99pc duty cycle)  | WLAN | 8.54 | ± 9.6 % |
| 10765 | AAA | IEEE 802.11ax (160MHz, MCS10, 99pc duty cycle) | WLAN | 8.54 | ± 9.6 % |
| 10766 | AAA | IEEE 802.11ax (160MHz, MCS11, 99pc duty cycle) | WLAN | 8.51 | ± 9.6 % |

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## APPENDIX D: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity  $\epsilon'$  can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where  $Y$  is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively,  $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$ ,  $\omega$  is the angular frequency, and  $j = \sqrt{-1}$ .

### 3 Composition / Information on ingredients

#### 3.2 Mixtures

**Description:** Aqueous solution with surfactants and inhibitors

**Declarable, or hazardous components:**

|                                                                        |                                                                                                                       |           |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------|
| CAS: 107-21-1<br>EINECS: 203-473-3<br>Reg.nr.: 01-2119456816-28-0000   | <b>Ethanediol</b><br>STOT RE 2, H373;<br>Acute Tox. 4, H302                                                           | >1.0-4.9% |
| CAS: 68608-26-4<br>EINECS: 271-781-5<br>Reg.nr.: 01-2119527859-22-0000 | <b>Sodium petroleum sulfonate</b><br>Eye Irrit. 2, H319                                                               | < 2.9%    |
| CAS: 107-41-5<br>EINECS: 203-489-0<br>Reg.nr.: 01-2119539582-35-0000   | <b>Hexylene Glycol / 2-Methyl-pentane-2,4-diol</b><br>Skin Irrit. 2, H315; Eye Irrit. 2, H319                         | < 2.9%    |
| CAS: 68920-66-1<br>NLP: 500-236-9<br>Reg.nr.: 01-2119489407-26-0000    | <b>Alkoxyated alcohol, &gt; C<sub>16</sub></b><br>Aquatic Chronic 2, H411;<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319 | < 2.0%    |

#### Additional information:

For the wording of the listed risk phrases refer to section 16.

Not mentioned CAS-, EINECS- or registration numbers are to be regarded as Proprietary/Confidential.

The specific chemical identity and/or exact percentage concentration of proprietary components is withheld as a trade secret.

**Figure D-1**  
**Composition of the Tissue Equivalent Matter**

Note: Liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

|                                               |                                                                                                                                   |                              |                                        |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCG-A2092                             |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b> | <b>Approved by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>06/27/2019 – 07/18/2019 | <b>DUT Type:</b><br>Watch                                                                                                         |                              | <b>APPENDIX D:</b><br>Page 1 of 3      |

## Measurement Certificate / Material Test

Item Name **Body Tissue Simulating Liquid (MBBL600-6000V6)**  
Product No. **SL AAM U16 BC (Batch: 181029-1)**  
Manufacturer **SPEAG**

## Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

## Target Parameters

Target parameters as defined in the KDB 865664 compliance standard.

## Test Condition

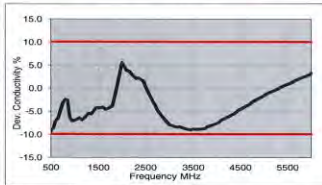
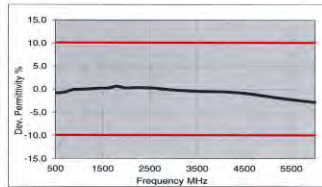
Ambient Condition **22°C ; 30% humidity**  
TSL Temperature **22°C**  
Test Date **30-Oct-18**  
Operator **CL**

## Additional Information

TSL Density  
TSL Heat-capacity

## Results

| f (MHz) | ε'   | ε''  | sigma | eps  | sigma | Δ-eps | Δ-sigma |
|---------|------|------|-------|------|-------|-------|---------|
| 800     | 55.1 | 21.3 | 0.95  | 55.3 | 0.97  | -0.4  | -2.1    |
| 825     | 55.1 | 20.8 | 0.96  | 55.2 | 0.98  | -0.3  | -2.0    |
| 850     | 55.1 | 20.6 | 0.96  | 55.1 | 0.99  | -0.0  | -2.5    |
| 850     | 55.1 | 20.4 | 0.95  | 55.2 | 0.99  | -0.1  | -3.0    |
| 900     | 55.0 | 19.7 | 0.98  | 55.0 | 1.05  | 0.0   | -6.7    |
| 1400    | 54.2 | 15.6 | 1.22  | 54.1 | 1.28  | 0.2   | -4.7    |
| 1450    | 54.1 | 15.4 | 1.24  | 54.0 | 1.30  | 0.2   | -4.6    |
| 1500    | 54.1 | 15.3 | 1.27  | 53.9 | 1.33  | 0.3   | -4.5    |
| 1550    | 54.0 | 15.1 | 1.30  | 53.9 | 1.36  | 0.2   | -4.4    |
| 1600    | 53.9 | 15.0 | 1.33  | 53.8 | 1.39  | 0.2   | -4.3    |
| 1625    | 53.9 | 14.9 | 1.35  | 53.8 | 1.41  | 0.3   | -4.3    |
| 1640    | 53.9 | 14.9 | 1.36  | 53.7 | 1.42  | 0.3   | -4.2    |
| 1690    | 53.8 | 14.8 | 1.36  | 53.7 | 1.43  | 0.2   | -4.9    |
| 1700    | 53.8 | 14.8 | 1.40  | 53.6 | 1.46  | 0.4   | -4.1    |
| 1750    | 53.7 | 14.7 | 1.43  | 53.4 | 1.49  | 0.5   | -4.0    |
| 1800    | 53.7 | 14.6 | 1.46  | 53.3 | 1.50  | 0.8   | -3.9    |
| 1810    | 53.7 | 14.6 | 1.47  | 53.3 | 1.52  | 0.8   | -3.3    |
| 1825    | 53.7 | 14.6 | 1.48  | 53.3 | 1.52  | 0.8   | -2.6    |
| 1850    | 53.6 | 14.5 | 1.50  | 53.3 | 1.52  | 0.6   | -1.3    |
| 1900    | 53.5 | 14.5 | 1.53  | 53.3 | 1.52  | 0.4   | 0.7     |
| 1950    | 53.5 | 14.5 | 1.57  | 53.3 | 1.52  | 0.4   | 3.3     |
| 2000    | 53.4 | 14.4 | 1.60  | 53.3 | 1.52  | 0.2   | 5.3     |
| 2050    | 53.4 | 14.4 | 1.64  | 53.2 | 1.57  | 0.3   | 4.5     |
| 2100    | 53.3 | 14.4 | 1.68  | 53.2 | 1.62  | 0.2   | 3.7     |
| 2150    | 53.3 | 14.4 | 1.72  | 53.1 | 1.66  | 0.4   | 3.6     |
| 2200    | 53.2 | 14.4 | 1.76  | 53.0 | 1.71  | 0.3   | 2.9     |
| 2250    | 53.1 | 14.4 | 1.81  | 53.0 | 1.76  | 0.2   | 2.8     |
| 2300    | 53.1 | 14.4 | 1.85  | 52.9 | 1.81  | 0.4   | 2.2     |
| 2350    | 53.0 | 14.5 | 1.89  | 52.8 | 1.85  | 0.3   | 2.2     |
| 2400    | 52.9 | 14.5 | 1.94  | 52.8 | 1.90  | 0.2   | 2.1     |
| 2450    | 52.9 | 14.5 | 1.98  | 52.7 | 1.95  | 0.4   | 1.5     |
| 2500    | 52.8 | 14.6 | 2.03  | 52.6 | 2.02  | 0.3   | 0.5     |
| 2550    | 52.7 | 14.6 | 2.07  | 52.6 | 2.09  | 0.2   | -1.0    |
| 2600    | 52.6 | 14.7 | 2.12  | 52.5 | 2.16  | 0.2   | -1.8    |



|      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|
| 3500 | 51.1 | 15.5 | 3.02 | 51.3 | 3.31 | -0.4 | -8.8 |
| 3700 | 50.8 | 15.7 | 3.24 | 51.1 | 3.55 | -0.5 | -8.8 |
| 4200 | 48.1 | 16.5 | 5.27 | 49.0 | 5.30 | -1.8 | -0.6 |
| 4250 | 48.0 | 18.3 | 5.34 | 49.0 | 5.36 | -1.9 | -0.4 |
| 4300 | 47.9 | 18.4 | 5.41 | 48.9 | 5.42 | -2.0 | -0.2 |
| 4500 | 47.5 | 18.6 | 5.70 | 48.6 | 5.65 | -2.2 | 0.8  |
| 5600 | 47.3 | 18.8 | 5.84 | 48.5 | 5.77 | -2.3 | 1.3  |
| 5700 | 47.1 | 18.9 | 5.99 | 48.3 | 5.88 | -2.5 | 1.6  |
| 5800 | 47.0 | 19.0 | 6.14 | 48.2 | 6.00 | -2.6 | 2.3  |

TSL Dielectric Parameters

1

Figure D-2  
750 – 5800 MHz Body Tissue Equivalent Matter

|                                        |                                                                                     |                       |                                 |
|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCG-A2092                      |  | SAR EVALUATION REPORT | Approved by:<br>Quality Manager |
| Test Dates:<br>06/27/2019 – 07/18/2019 | DUT Type:<br>Watch                                                                  |                       | APPENDIX D:<br>Page 2 of 3      |

## Measurement Certificate / Material Test

Item Name: Head Tissue Simulating Liquid (HBBL600-10000V6)  
Product No.: SL AAH U16 BC (Batch: 181031-2)  
Manufacturer: SPEAG

## Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

## Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

## Test Condition

Ambient Condition 22°C ; 30% humidity

TSL Temperature 22°C

Test Date 31-Oct-18

Operator CL

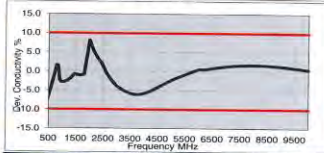
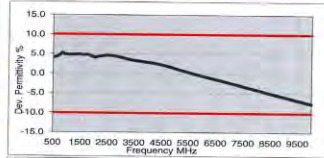
## Additional Information

TSL Density

TSL Heat-capacity

## Results

| f [MHz] | ε'   | ε''  | sigma | eps. sigma | Δ-eps | Δ-sigma |
|---------|------|------|-------|------------|-------|---------|
| 800     | 43.8 | 20.5 | 0.91  | 41.7       | 0.90  | 5.1     |
| 825     | 43.8 | 20.1 | 0.92  | 41.6       | 0.91  | 5.3     |
| 850     | 43.6 | 19.9 | 0.93  | 41.5       | 0.91  | 5.4     |
| 875     | 43.7 | 19.7 | 0.93  | 41.5       | 0.92  | 5.3     |
| 900     | 43.5 | 18.9 | 0.95  | 41.5       | 0.97  | 4.8     |
| 1400    | 42.5 | 15.0 | 1.17  | 40.6       | 1.18  | 4.7     |
| 1450    | 42.5 | 14.8 | 1.19  | 40.5       | 1.20  | 4.9     |
| 1600    | 42.2 | 14.3 | 1.27  | 40.3       | 1.28  | 4.7     |
| 1625    | 42.2 | 14.2 | 1.29  | 40.3       | 1.30  | 4.8     |
| 1640    | 42.2 | 14.2 | 1.30  | 40.3       | 1.31  | 4.8     |
| 1650    | 42.1 | 14.2 | 1.30  | 40.2       | 1.31  | 4.6     |
| 1700    | 42.1 | 14.0 | 1.33  | 40.2       | 1.34  | 4.8     |
| 1750    | 42.0 | 13.9 | 1.36  | 40.1       | 1.37  | 4.8     |
| 1800    | 41.9 | 13.9 | 1.39  | 40.0       | 1.40  | 4.7     |
| 1810    | 41.9 | 13.8 | 1.40  | 40.0       | 1.40  | 4.7     |
| 1825    | 41.9 | 13.8 | 1.41  | 40.0       | 1.40  | 4.7     |
| 1850    | 41.8 | 13.8 | 1.42  | 40.0       | 1.40  | 4.5     |
| 1900    | 41.6 | 13.7 | 1.45  | 40.0       | 1.40  | 4.5     |
| 1950    | 41.7 | 13.7 | 1.48  | 40.0       | 1.40  | 4.3     |
| 2000    | 41.6 | 13.6 | 1.51  | 40.0       | 1.40  | 4.0     |
| 2050    | 41.6 | 13.6 | 1.55  | 39.9       | 1.44  | 4.2     |
| 2100    | 41.5 | 13.5 | 1.58  | 39.8       | 1.49  | 4.2     |
| 2150    | 41.4 | 13.5 | 1.62  | 39.7       | 1.53  | 4.2     |
| 2200    | 41.4 | 13.5 | 1.65  | 39.6       | 1.58  | 4.4     |
| 2250    | 41.3 | 13.5 | 1.69  | 39.6       | 1.62  | 4.4     |
| 2300    | 41.2 | 13.5 | 1.72  | 39.5       | 1.67  | 4.4     |
| 2350    | 41.1 | 13.5 | 1.76  | 39.4       | 1.71  | 4.4     |
| 2400    | 41.1 | 13.5 | 1.80  | 39.3       | 1.76  | 4.6     |
| 2450    | 41.0 | 13.5 | 1.84  | 39.2       | 1.80  | 4.6     |
| 2500    | 40.9 | 13.5 | 1.88  | 39.1       | 1.85  | 4.5     |
| 2550    | 40.8 | 13.5 | 1.92  | 39.1       | 1.91  | 4.4     |
| 2600    | 40.8 | 13.5 | 1.98  | 39.0       | 1.96  | 4.6     |
| 3500    | 39.2 | 14.1 | 2.74  | 37.9       | 2.91  | 3.3     |
| 3700    | 38.9 | 14.2 | 2.93  | 37.7       | 3.12  | 3.1     |



|       |      |      |       |      |       |      |      |
|-------|------|------|-------|------|-------|------|------|
| 5200  | 38.3 | 15.8 | 4.57  | 36.0 | 4.68  | 0.6  | 1.7  |
| 5250  | 38.2 | 15.9 | 4.63  | 35.9 | 4.71  | 0.8  | 1.6  |
| 5300  | 38.1 | 15.9 | 4.69  | 35.9 | 4.76  | 0.7  | 1.4  |
| 5800  | 37.5 | 16.1 | 4.92  | 35.6 | 4.95  | 0.3  | 0.9  |
| 5800  | 35.6 | 16.2 | 5.04  | 35.5 | 5.07  | 0.1  | -0.6 |
| 5700  | 35.4 | 16.2 | 5.15  | 35.4 | 5.17  | 0.0  | -0.3 |
| 5800  | 35.2 | 16.3 | 5.27  | 35.3 | 5.27  | -0.2 | 0.0  |
| 6000  | 34.9 | 16.5 | 5.50  | 35.1 | 5.48  | -0.6 | 0.5  |
| 6500  | 34.0 | 16.9 | 6.12  | 34.5 | 6.07  | -1.4 | 0.9  |
| 7000  | 33.1 | 17.3 | 6.74  | 33.9 | 6.65  | -2.3 | 1.3  |
| 7500  | 32.2 | 17.6 | 7.36  | 33.3 | 7.24  | -3.2 | 1.6  |
| 8000  | 31.4 | 17.9 | 7.97  | 32.7 | 7.84  | -4.1 | 1.7  |
| 8500  | 30.5 | 18.2 | 8.59  | 32.1 | 8.45  | -5.0 | 1.6  |
| 9000  | 29.7 | 18.4 | 9.20  | 31.5 | 9.08  | -5.9 | 1.3  |
| 9500  | 28.9 | 18.5 | 9.80  | 31.0 | 9.71  | -6.8 | 0.9  |
| 10000 | 28.1 | 18.7 | 10.40 | 30.4 | 10.36 | -7.6 | 0.4  |

TSL Dielectric Parameters

Figure D-3  
750 – 5800 MHz Head Tissue Equivalent Matter

|                                        |                                                                                     |                       |                                 |
|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCG-A2092                      |  | SAR EVALUATION REPORT | Approved by:<br>Quality Manager |
| Test Dates:<br>06/27/2019 – 07/18/2019 | DUT Type:<br>Watch                                                                  |                       | APPENDIX D:<br>Page 3 of 3      |

## APPENDIX E: SAR SYSTEM VALIDATION

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

**Table E-1**  
**SAR System Validation Summary – 1g**

| SAR SYSTEM # | FREQ. [MHz] | DATE      | PROBE SN | PROBE TYPE | PROBE CAL. POINT |      | COND. | PERM.  | CW VALIDATION |                 |                | MOD. VALIDATION |             |      |
|--------------|-------------|-----------|----------|------------|------------------|------|-------|--------|---------------|-----------------|----------------|-----------------|-------------|------|
|              |             |           |          |            |                  |      | (σ)   | (εr)   | SENSITIVITY   | PROBE LINEARITY | PROBE ISOTROPY | MOD. TYPE       | DUTY FACTOR | PAR  |
| AM2          | 2450        | 6/17/2019 | 7490     | EX3DV4     | 2450             | Head | 1.786 | 37.800 | PASS          | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |
| AM5          | 2450        | 4/16/2019 | 3318     | ES3DV3     | 2450             | Head | 1.867 | 37.929 | PASS          | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |

**Table E-2**  
**SAR System Validation Summary – 10g**

| SAR SYSTEM # | FREQ. [MHz] | DATE       | PROBE SN | PROBE TYPE | PROBE CAL. POINT |      | COND. VAL. |        | PERM. CW VALIDATION |                 |                | MOD. VALIDATION |             |      |
|--------------|-------------|------------|----------|------------|------------------|------|------------|--------|---------------------|-----------------|----------------|-----------------|-------------|------|
|              |             |            |          |            |                  |      | (σ)        | (εr)   | SENSITIVITY         | PROBE LINEARITY | PROBE ISOTROPY | MOD. TYPE       | DUTY FACTOR | PAR  |
| AM3          | 2450        | 12/10/2018 | 7420     | EX3DV4     | 2450             | Body | 2.044      | 51.289 | PASS                | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |
| AM4          | 2450        | 4/23/2019  | 7532     | EX3DV4     | 2450             | Body | 2.027      | 50.762 | PASS                | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 865664 D01v01r04

|                                        |                                                                                     |                       |                                 |
|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCG-A2092                      |  | SAR EVALUATION REPORT | Approved by:<br>Quality Manager |
| Test Dates:<br>06/27/2019 – 07/18/2019 | DUT Type:<br>Watch                                                                  |                       | APPENDIX E:<br>Page 1 of 1      |