

# APPENDIX C Probe CALIBRATION CERTIFICATES

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



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

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

Accreditation No.: **SCS 0108**

Client **Auden**

Certificate No: **EX3-3820\_Jun18**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3820**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6  
Calibration procedure for dosimetric E-field probes**

Calibration date: **June 26, 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 HP 8753E  | SN: US37390585   | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

|                | Name          | Function              | Signature |
|----------------|---------------|-----------------------|-----------|
| Calibrated by: | Leif Klysner  | Laboratory Technician |           |
| Approved by:   | Katja Pokovic | Technical Manager     |           |

Issued: June 27, 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 φ        | φ rotation around probe axis   |
| Polarization ϑ        | ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis |
| Connector Angle       | information used in DASY system to align probe sensor X to the robot coordinate system   |

**Calibration is Performed According to the Following Standards:**

- a) 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
- b) 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
- c) 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
- d) 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 ϑ = 0 (f ≤ 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 ≤ 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 ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORM<sub>x</sub>* (no uncertainty required).

# Probe EX3DV4

## SN:3820

Manufactured: September 2, 2011  
Calibrated: June 26, 2018

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

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3820

### Basic Calibration Parameters

|   | Sensor X | Sensor Y | Sensor Z | Unc (k=2)    |
|---|----------|----------|----------|--------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.40     | 0.47     | 0.50     | $\pm 10.1\%$ |
| DCP (mV) <sup>B</sup>                                     | 97.2     | 102.3    | 99.7     |              |

### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB $\sqrt{\mu\text{V}}$ | 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    | 188.0    | $\pm 3.5\%$               |
|     |                           | Y | 0.0     | 0.0                          | 1.0 |         | 176.4    |                           |
|     |                           | Z | 0.0     | 0.0                          | 1.0 |         | 184.2    |                           |

Note: For details on UID parameters see Appendix.

### Sensor Model Parameters

|   | C1<br>fF | C2<br>fF | $\alpha$<br>V <sup>-1</sup> | T1<br>ms.V <sup>-2</sup> | T2<br>ms.V <sup>-1</sup> | T3<br>ms | T4<br>V <sup>-2</sup> | T5<br>V <sup>-1</sup> | T6    |
|---|----------|----------|-----------------------------|--------------------------|--------------------------|----------|-----------------------|-----------------------|-------|
| X | 47.66    | 365.1    | 37.10                       | 12.32                    | 0.944                    | 5.036    | 0.000                 | 0.592                 | 1.010 |
| Y | 48.98    | 364.1    | 35.44                       | 15.30                    | 0.607                    | 5.083    | 1.076                 | 0.406                 | 1.007 |
| Z | 47.72    | 378.2    | 40.37                       | 16.84                    | 1.209                    | 5.100    | 0.000                 | 0.550                 | 1.022 |

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:3820

### 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                            | 9.72    | 9.72    | 9.72    | 0.33               | 1.06                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 9.40    | 9.40    | 9.40    | 0.46               | 0.85                    | ± 12.0 %  |
| 900                  | 41.5                               | 0.97                            | 9.22    | 9.22    | 9.22    | 0.39               | 0.92                    | ± 12.0 %  |
| 1450                 | 40.5                               | 1.20                            | 8.31    | 8.31    | 8.31    | 0.39               | 0.80                    | ± 12.0 %  |
| 1640                 | 40.2                               | 1.31                            | 7.78    | 7.78    | 7.78    | 0.29               | 0.85                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 7.80    | 7.80    | 7.80    | 0.36               | 0.80                    | ± 12.0 %  |
| 1810                 | 40.0                               | 1.40                            | 7.58    | 7.58    | 7.58    | 0.40               | 0.91                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 7.57    | 7.57    | 7.57    | 0.45               | 0.80                    | ± 12.0 %  |
| 2000                 | 40.0                               | 1.40                            | 7.55    | 7.55    | 7.55    | 0.46               | 0.80                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 6.79    | 6.79    | 6.79    | 0.43               | 0.80                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 6.61    | 6.61    | 6.61    | 0.45               | 0.81                    | ± 12.0 %  |
| 3500                 | 37.9                               | 2.91                            | 6.66    | 6.66    | 6.66    | 0.30               | 1.20                    | ± 13.1 %  |
| 5200                 | 36.0                               | 4.66                            | 4.82    | 4.82    | 4.82    | 0.40               | 1.80                    | ± 13.1 %  |
| 5300                 | 35.9                               | 4.76                            | 4.60    | 4.60    | 4.60    | 0.40               | 1.80                    | ± 13.1 %  |
| 5500                 | 35.6                               | 4.96                            | 4.61    | 4.61    | 4.61    | 0.40               | 1.80                    | ± 13.1 %  |
| 5600                 | 35.5                               | 5.07                            | 4.50    | 4.50    | 4.50    | 0.40               | 1.80                    | ± 13.1 %  |
| 5800                 | 35.3                               | 5.27                            | 4.53    | 4.53    | 4.53    | 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:3820

### 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                            | 9.60    | 9.60    | 9.60    | 0.43               | 0.80                    | ± 12.0 %  |
| 835                  | 55.2                               | 0.97                            | 9.32    | 9.32    | 9.32    | 0.42               | 0.87                    | ± 12.0 %  |
| 900                  | 55.0                               | 1.05                            | 9.28    | 9.28    | 9.28    | 0.47               | 0.85                    | ± 12.0 %  |
| 1450                 | 54.0                               | 1.30                            | 7.92    | 7.92    | 7.92    | 0.34               | 0.80                    | ± 12.0 %  |
| 1640                 | 53.7                               | 1.42                            | 8.03    | 8.03    | 8.03    | 0.45               | 0.80                    | ± 12.0 %  |
| 1750                 | 53.4                               | 1.49                            | 7.55    | 7.55    | 7.55    | 0.43               | 0.80                    | ± 12.0 %  |
| 1810                 | 53.3                               | 1.52                            | 7.42    | 7.42    | 7.42    | 0.43               | 0.80                    | ± 12.0 %  |
| 1900                 | 53.3                               | 1.52                            | 7.36    | 7.36    | 7.36    | 0.40               | 0.80                    | ± 12.0 %  |
| 2000                 | 53.3                               | 1.52                            | 7.31    | 7.31    | 7.31    | 0.42               | 0.80                    | ± 12.0 %  |
| 2450                 | 52.7                               | 1.95                            | 6.84    | 6.84    | 6.84    | 0.34               | 0.93                    | ± 12.0 %  |
| 2600                 | 52.5                               | 2.16                            | 6.75    | 6.75    | 6.75    | 0.27               | 0.95                    | ± 12.0 %  |
| 3500                 | 51.3                               | 3.31                            | 6.62    | 6.62    | 6.62    | 0.25               | 1.25                    | ± 13.1 %  |
| 5200                 | 49.0                               | 5.30                            | 4.40    | 4.40    | 4.40    | 0.50               | 1.90                    | ± 13.1 %  |
| 5300                 | 48.9                               | 5.42                            | 4.23    | 4.23    | 4.23    | 0.50               | 1.90                    | ± 13.1 %  |
| 5500                 | 48.6                               | 5.65                            | 3.99    | 3.99    | 3.99    | 0.50               | 1.90                    | ± 13.1 %  |
| 5600                 | 48.5                               | 5.77                            | 3.84    | 3.84    | 3.84    | 0.50               | 1.90                    | ± 13.1 %  |
| 5800                 | 48.2                               | 6.00                            | 3.94    | 3.94    | 3.94    | 0.50               | 1.90                    | ± 13.1 %  |

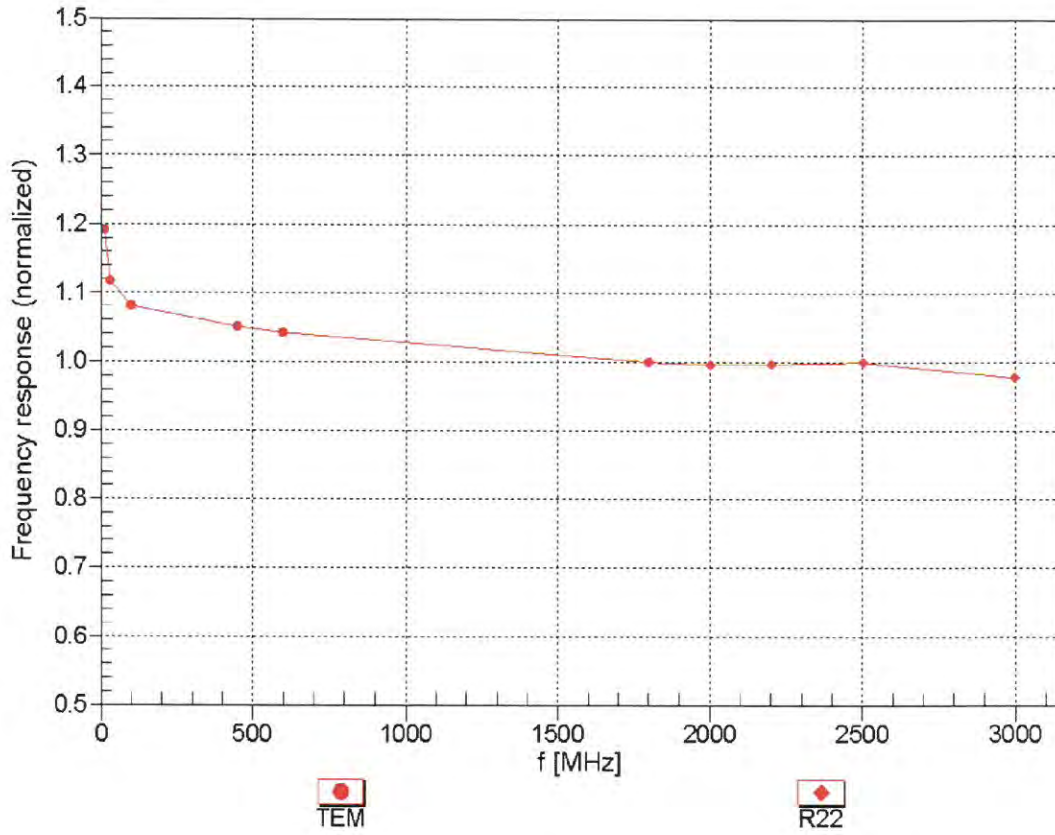
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below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

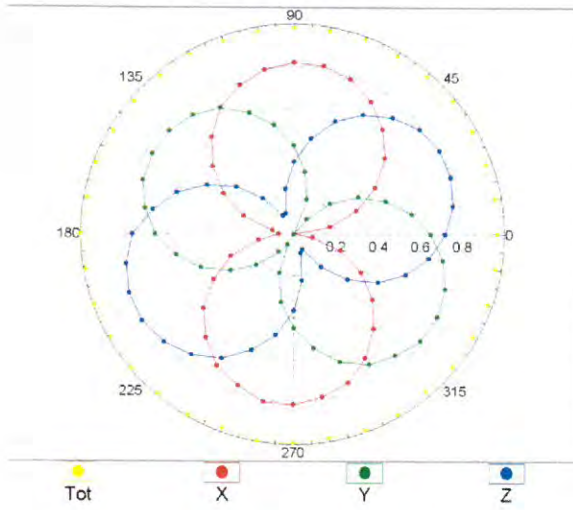
(TEM-Cell:ifi110 EXX, Waveguide: R22)



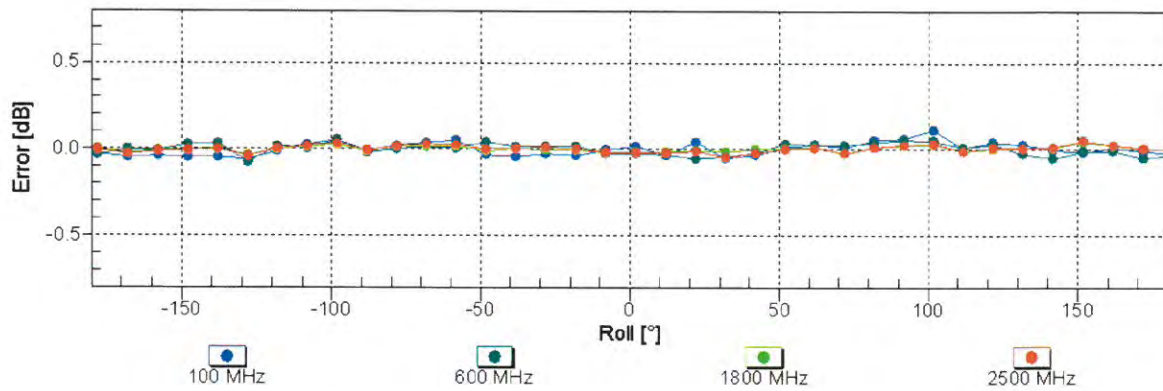
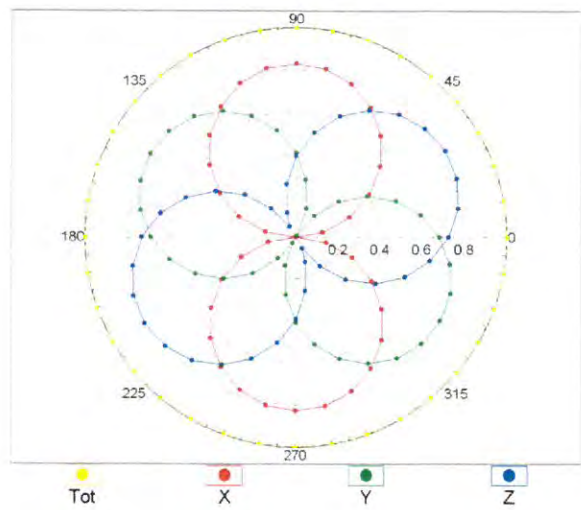
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

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

f=600 MHz,TEM



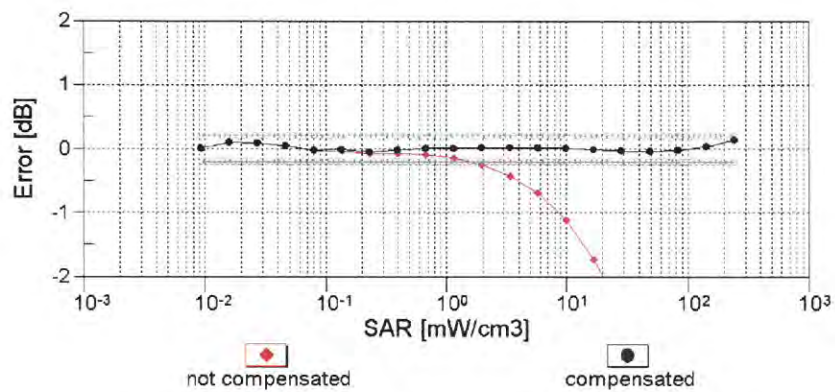
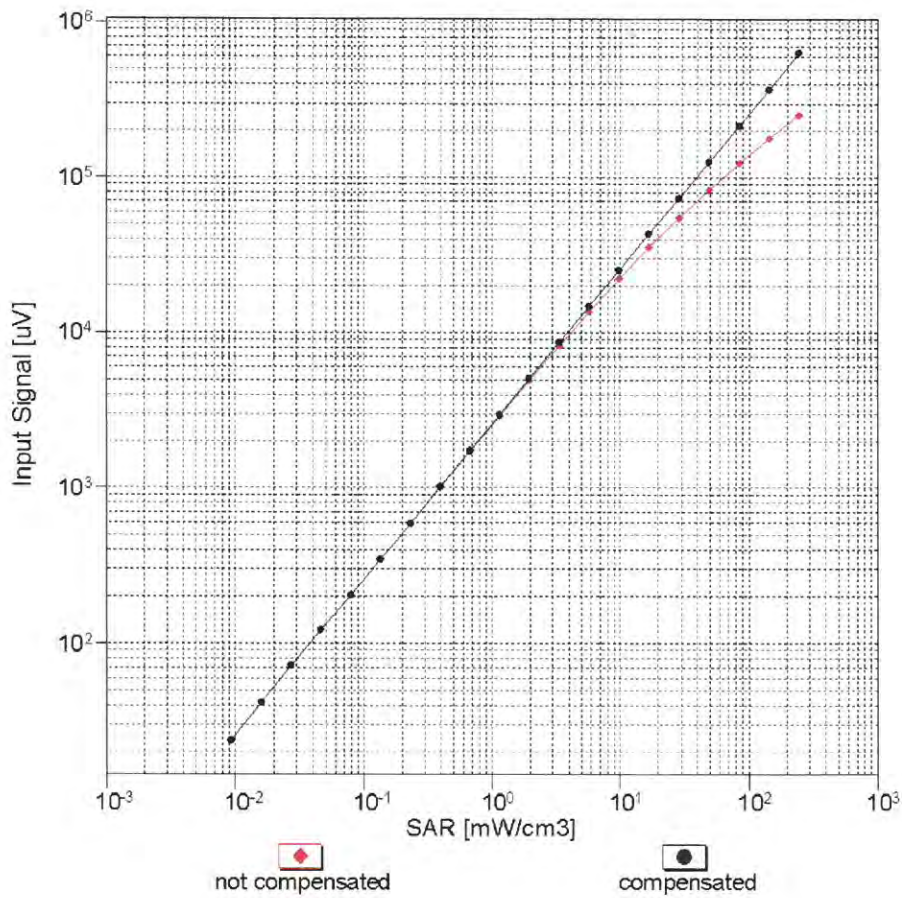
f=1800 MHz,R22



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

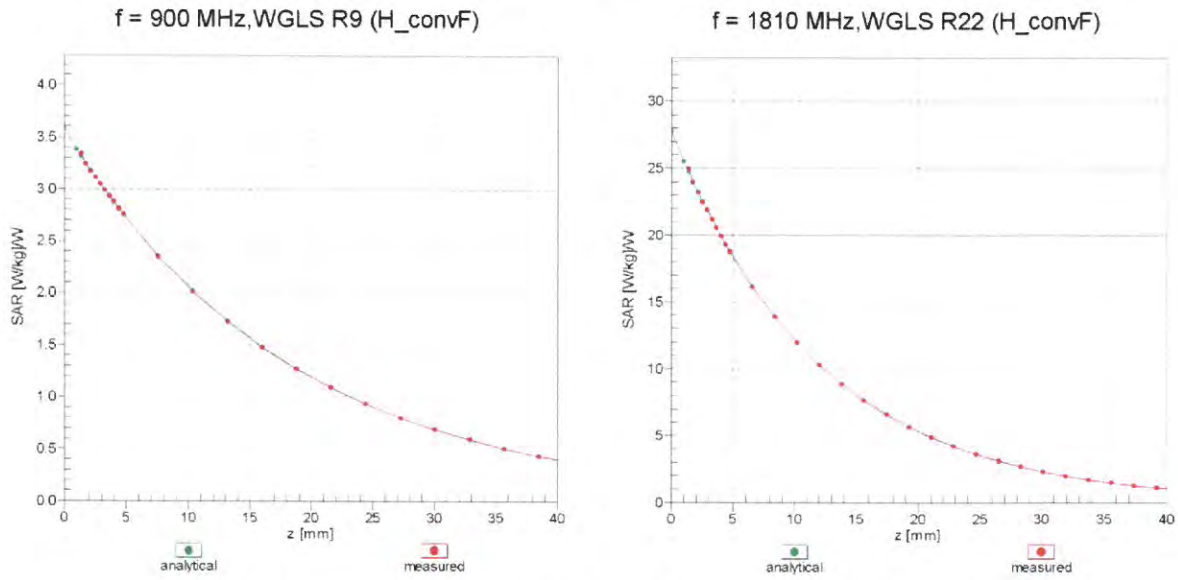


### Dynamic Range f(SAR<sub>head</sub>) (TEM cell , f<sub>eval</sub>= 1900 MHz)

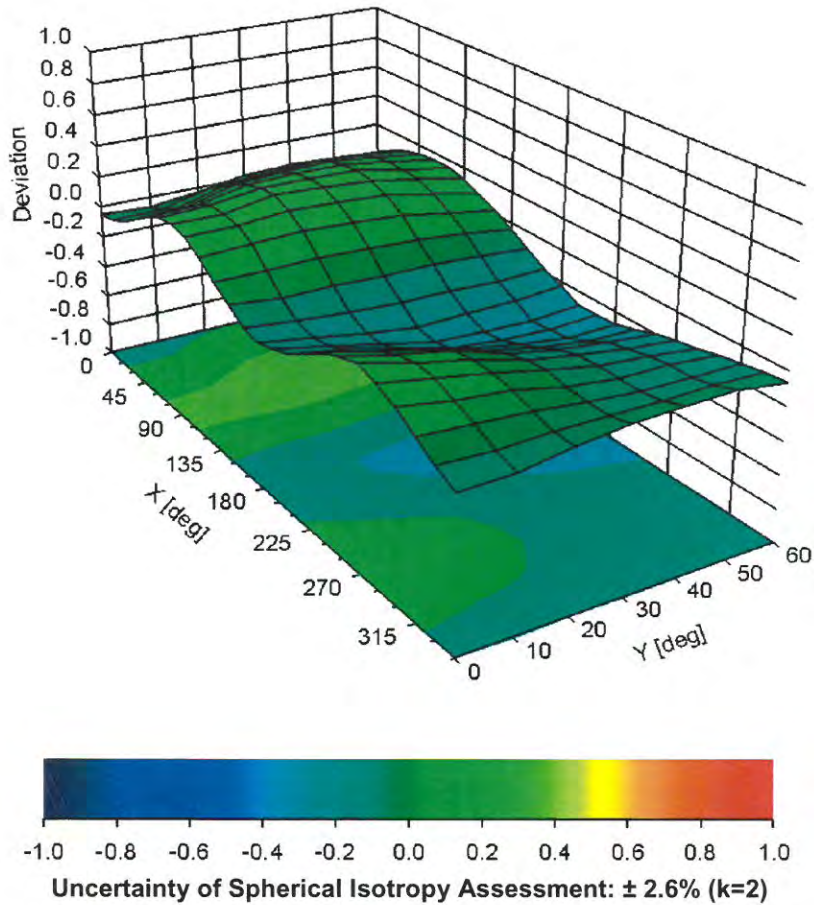


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

# Conversion Factor Assessment



## Deviation from Isotropy in Liquid Error ( $\phi, \vartheta$ ), f = 900 MHz



## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3820

### Other Probe Parameters

|   |            |
|---|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 32.4       |
| 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 $\sqrt{\mu V}$ | 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    | 188.0    | $\pm 3.5\%$                      |
|               |   | Y | 0.00    | 0.00                   | 1.00  |         | 176.4    |                                  |
|               |   | Z | 0.00    | 0.00                   | 1.00  |         | 184.2    |                                  |
| 10010-<br>CAA | SAR Validation (Square, 100ms, 10ms)          | X | 2.27    | 64.87                  | 9.94  | 10.00   | 20.0     | $\pm 9.6\%$                      |
|               |   | Y | 3.59    | 70.77                  | 12.79 |         | 20.0     |                                  |
|               |   | Z | 2.75    | 66.85                  | 11.07 |         | 20.0     |                                  |
| 10011-<br>CAB | UMTS-FDD (WCDMA)                              | X | 0.83    | 64.39                  | 12.93 | 0.00    | 150.0    | $\pm 9.6\%$                      |
|               |   | Y | 1.14    | 69.97                  | 16.70 |         | 150.0    |                                  |
|               |   | Z | 100.00  | 164.68                 | 47.04 |         | 150.0    |                                  |
| 10012-<br>CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)      | X | 1.06    | 62.50                  | 13.97 | 0.41    | 150.0    | $\pm 9.6\%$                      |
|               |   | Y | 1.18    | 64.85                  | 16.05 |         | 150.0    |                                  |
|               |   | Z | 1.72    | 77.78                  | 24.82 |         | 150.0    |                                  |
| 10013-<br>CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | X | 4.78    | 66.26                  | 16.74 | 1.46    | 150.0    | $\pm 9.6\%$                      |
|               |   | Y | 4.89    | 66.88                  | 17.27 |         | 150.0    |                                  |
|               |   | Z | 4.97    | 67.94                  | 18.56 |         | 150.0    |                                  |
| 10021-<br>DAC | GSM-FDD (TDMA, GMSK)                          | X | 29.58   | 96.57                  | 22.64 | 9.39    | 50.0     | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 115.92                 | 28.37 |         | 50.0     |                                  |
|               |   | Z | 100.00  | 116.12                 | 28.80 |         | 50.0     |                                  |
| 10023-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0)                   | X | 17.45   | 89.91                  | 20.80 | 9.57    | 50.0     | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 115.55                 | 28.25 |         | 50.0     |                                  |
|               |   | Z | 100.00  | 115.79                 | 28.70 |         | 50.0     |                                  |
| 10024-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1)                 | X | 100.00  | 108.09                 | 23.68 | 6.56    | 60.0     | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 115.38                 | 27.11 |         | 60.0     |                                  |
|               |   | Z | 100.00  | 114.83                 | 27.07 |         | 60.0     |                                  |
| 10025-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0)                   | X | 3.83    | 66.26                  | 23.12 | 12.57   | 50.0     | $\pm 9.6\%$                      |
|               |   | Y | 6.32    | 83.32                  | 33.10 |         | 50.0     |                                  |
|               |   | Z | 5.27    | 76.55                  | 29.71 |         | 50.0     |                                  |
| 10026-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1)                 | X | 8.30    | 87.99                  | 30.43 | 9.56    | 60.0     | $\pm 9.6\%$                      |
|               |   | Y | 13.69   | 102.61                 | 36.80 |         | 60.0     |                                  |
|               |   | Z | 27.02   | 120.57                 | 42.89 |         | 60.0     |                                  |
| 10027-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2)               | X | 100.00  | 106.08                 | 22.01 | 4.80    | 80.0     | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 116.66                 | 26.90 |         | 80.0     |                                  |
|               |   | Z | 100.00  | 116.26                 | 26.81 |         | 80.0     |                                  |
| 10028-<br>DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)             | X | 100.00  | 104.28                 | 20.57 | 3.55    | 100.0    | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 119.25                 | 27.30 |         | 100.0    |                                  |
|               |   | Z | 100.00  | 120.86                 | 27.94 |         | 100.0    |                                  |
| 10029-<br>DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2)               | X | 5.54    | 79.45                  | 25.98 | 7.80    | 80.0     | $\pm 9.6\%$                      |
|               |   | Y | 7.52    | 87.84                  | 30.19 |         | 80.0     |                                  |
|               |   | Z | 13.09   | 102.56                 | 36.16 |         | 80.0     |                                  |
| 10030-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1)           | X | 39.24   | 96.66                  | 20.08 | 5.30    | 70.0     | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 114.21                 | 26.13 |         | 70.0     |                                  |
|               |   | Z | 100.00  | 113.53                 | 25.95 |         | 70.0     |                                  |
| 10031-<br>CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3)           | X | 0.70    | 64.67                  | 7.60  | 1.88    | 100.0    | $\pm 9.6\%$                      |
|               |   | Y | 100.00  | 119.57                 | 25.93 |         | 100.0    |                                  |
|               |   | Z | 100.00  | 203.35                 | 58.30 |         | 100.0    |                                  |

|           |   |   |        |        |        |       |       |         |
|-----------|---|---|--------|--------|--------|-------|-------|---------|
| 10032-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5)                 | X | 0.22   | 60.00  | 4.46   | 1.17  | 100.0 | ± 9.6 % |
|           |   | Y | 100.00 | 128.90 | 28.50  |       | 100.0 |         |
|           |   | Z | 0.05   | 60.00  | 716.63 |       | 100.0 |         |
| 10033-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)           | X | 5.88   | 82.11  | 20.60  | 5.30  | 70.0  | ± 9.6 % |
|           |   | Y | 100.00 | 130.10 | 35.25  |       | 70.0  |         |
|           |   | Z | 100.00 | 130.44 | 35.50  |       | 70.0  |         |
| 10034-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)           | X | 1.91   | 70.14  | 14.59  | 1.88  | 100.0 | ± 9.6 % |
|           |   | Y | 15.17  | 101.17 | 26.24  |       | 100.0 |         |
|           |   | Z | 100.00 | 133.78 | 35.08  |       | 100.0 |         |
| 10035-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)           | X | 1.40   | 67.44  | 13.13  | 1.17  | 100.0 | ± 9.6 % |
|           |   | Y | 5.12   | 86.66  | 21.65  |       | 100.0 |         |
|           |   | Z | 100.00 | 135.93 | 35.45  |       | 100.0 |         |
| 10036-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1)               | X | 7.18   | 85.26  | 21.74  | 5.30  | 70.0  | ± 9.6 % |
|           |   | Y | 100.00 | 130.56 | 35.46  |       | 70.0  |         |
|           |   | Z | 100.00 | 130.90 | 35.71  |       | 70.0  |         |
| 10037-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3)               | X | 1.82   | 69.68  | 14.36  | 1.88  | 100.0 | ± 9.6 % |
|           |   | Y | 12.48  | 98.46  | 25.46  |       | 100.0 |         |
|           |   | Z | 100.00 | 133.83 | 35.05  |       | 100.0 |         |
| 10038-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5)               | X | 1.40   | 67.68  | 13.34  | 1.17  | 100.0 | ± 9.6 % |
|           |   | Y | 5.36   | 87.69  | 22.12  |       | 100.0 |         |
|           |   | Z | 100.00 | 137.34 | 36.07  |       | 100.0 |         |
| 10039-CAB | CDMA2000 (1xRTT, RC1)                               | X | 1.21   | 66.39  | 12.34  | 0.00  | 150.0 | ± 9.6 % |
|           |   | Y | 2.64   | 77.56  | 17.99  |       | 150.0 |         |
|           |   | Z | 100.00 | 136.32 | 35.05  |       | 150.0 |         |
| 10042-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | X | 8.42   | 80.60  | 16.47  | 7.78  | 50.0  | ± 9.6 % |
|           |   | Y | 100.00 | 111.73 | 25.67  |       | 50.0  |         |
|           |   | Z | 100.00 | 110.52 | 25.33  |       | 50.0  |         |
| 10044-CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM)                    | X | 0.08   | 120.65 | 10.32  | 0.00  | 150.0 | ± 9.6 % |
|           |   | Y | 0.02   | 122.96 | 9.69   |       | 150.0 |         |
|           |   | Z | 0.00   | 63.55  | 28.74  |       | 150.0 |         |
| 10048-CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)           | X | 8.00   | 77.28  | 18.17  | 13.80 | 25.0  | ± 9.6 % |
|           |   | Y | 100.00 | 114.54 | 29.18  |       | 25.0  |         |
|           |   | Z | 100.00 | 115.08 | 29.90  |       | 25.0  |         |
| 10049-CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)         | X | 8.49   | 80.03  | 17.94  | 10.79 | 40.0  | ± 9.6 % |
|           |   | Y | 100.00 | 114.59 | 28.12  |       | 40.0  |         |
|           |   | Z | 100.00 | 115.30 | 28.83  |       | 40.0  |         |
| 10056-CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps)                      | X | 10.16  | 85.42  | 22.06  | 9.03  | 50.0  | ± 9.6 % |
|           |   | Y | 100.00 | 125.26 | 34.24  |       | 50.0  |         |
|           |   | Z | 100.00 | 124.20 | 33.96  |       | 50.0  |         |
| 10058-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)                   | X | 4.34   | 75.04  | 23.40  | 6.55  | 100.0 | ± 9.6 % |
|           |   | Y | 5.46   | 80.99  | 26.66  |       | 100.0 |         |
|           |   | Z | 8.64   | 93.41  | 32.33  |       | 100.0 |         |
| 10059-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)            | X | 1.09   | 63.38  | 14.43  | 0.61  | 110.0 | ± 9.6 % |
|           |   | Y | 1.26   | 66.48  | 16.96  |       | 110.0 |         |
|           |   | Z | 2.62   | 87.60  | 28.83  |       | 110.0 |         |
| 10060-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)          | X | 2.51   | 80.68  | 19.07  | 1.30  | 110.0 | ± 9.6 % |
|           |   | Y | 100.00 | 141.35 | 37.14  |       | 110.0 |         |
|           |   | Z | 100.00 | 167.83 | 48.09  |       | 110.0 |         |

|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)      | X | 2.14   | 74.46  | 18.99 | 2.04 | 110.0 | ± 9.6 % |
|           |  | Y | 7.65   | 98.54  | 28.83 |      | 110.0 |         |
|           |  | Z | 100.00 | 156.65 | 45.98 |      | 110.0 |         |
| 10062-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)       | X | 4.57   | 66.22  | 16.16 | 0.49 | 100.0 | ± 9.6 % |
|           |  | Y | 4.69   | 66.85  | 16.68 |      | 100.0 |         |
|           |  | Z | 4.78   | 68.02  | 18.03 |      | 100.0 |         |
| 10063-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)       | X | 4.59   | 66.31  | 16.25 | 0.72 | 100.0 | ± 9.6 % |
|           |  | Y | 4.71   | 66.97  | 16.79 |      | 100.0 |         |
|           |  | Z | 4.81   | 68.17  | 18.16 |      | 100.0 |         |
| 10064-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)      | X | 4.88   | 66.60  | 16.50 | 0.86 | 100.0 | ± 9.6 % |
|           |  | Y | 5.00   | 67.23  | 17.02 |      | 100.0 |         |
|           |  | Z | 5.10   | 68.35  | 18.32 |      | 100.0 |         |
| 10065-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)      | X | 4.74   | 66.48  | 16.58 | 1.21 | 100.0 | ± 9.6 % |
|           |  | Y | 4.87   | 67.15  | 17.14 |      | 100.0 |         |
|           |  | Z | 4.98   | 68.34  | 18.49 |      | 100.0 |         |
| 10066-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)      | X | 4.76   | 66.51  | 16.74 | 1.46 | 100.0 | ± 9.6 % |
|           |  | Y | 4.89   | 67.19  | 17.32 |      | 100.0 |         |
|           |  | Z | 5.00   | 68.38  | 18.68 |      | 100.0 |         |
| 10067-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)      | X | 5.06   | 66.69  | 17.19 | 2.04 | 100.0 | ± 9.6 % |
|           |  | Y | 5.18   | 67.32  | 17.75 |      | 100.0 |         |
|           |  | Z | 5.28   | 68.42  | 19.03 |      | 100.0 |         |
| 10068-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)      | X | 5.11   | 66.77  | 17.42 | 2.55 | 100.0 | ± 9.6 % |
|           |  | Y | 5.24   | 67.43  | 18.01 |      | 100.0 |         |
|           |  | Z | 5.34   | 68.50  | 19.26 |      | 100.0 |         |
| 10069-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)      | X | 5.19   | 66.78  | 17.61 | 2.67 | 100.0 | ± 9.6 % |
|           |  | Y | 5.32   | 67.39  | 18.18 |      | 100.0 |         |
|           |  | Z | 5.41   | 68.45  | 19.42 |      | 100.0 |         |
| 10071-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)  | X | 4.87   | 66.36  | 17.04 | 1.99 | 100.0 | ± 9.6 % |
|           |  | Y | 4.99   | 66.98  | 17.59 |      | 100.0 |         |
|           |  | Z | 5.08   | 68.03  | 18.86 |      | 100.0 |         |
| 10072-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | X | 4.85   | 66.66  | 17.23 | 2.30 | 100.0 | ± 9.6 % |
|           |  | Y | 4.98   | 67.36  | 17.85 |      | 100.0 |         |
|           |  | Z | 5.10   | 68.57  | 19.20 |      | 100.0 |         |
| 10073-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | X | 4.91   | 66.82  | 17.55 | 2.83 | 100.0 | ± 9.6 % |
|           |  | Y | 5.05   | 67.54  | 18.19 |      | 100.0 |         |
|           |  | Z | 5.18   | 68.80  | 19.56 |      | 100.0 |         |
| 10074-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | X | 4.90   | 66.73  | 17.69 | 3.30 | 100.0 | ± 9.6 % |
|           |  | Y | 5.03   | 67.44  | 18.35 |      | 100.0 |         |
|           |  | Z | 5.17   | 68.69  | 19.70 |      | 100.0 |         |
| 10075-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | X | 4.95   | 66.86  | 18.00 | 3.82 | 90.0  | ± 9.6 % |
|           |  | Y | 5.08   | 67.61  | 18.70 |      | 90.0  |         |
|           |  | Z | 5.23   | 68.89  | 20.05 |      | 90.0  |         |
| 10076-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | X | 4.96   | 66.66  | 18.12 | 4.15 | 90.0  | ± 9.6 % |
|           |  | Y | 5.08   | 67.35  | 18.79 |      | 90.0  |         |
|           |  | Z | 5.22   | 68.57  | 20.11 |      | 90.0  |         |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | X | 4.99   | 66.73  | 18.22 | 4.30 | 90.0  | ± 9.6 % |
|           |  | Y | 5.10   | 67.42  | 18.89 |      | 90.0  |         |
|           |  | Z | 5.25   | 68.64  | 20.20 |      | 90.0  |         |

|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10081-CAB | CDMA2000 (1xRTT, RC3)                               | X | 0.62   | 62.47  | 9.69  | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 0.98   | 68.75  | 13.96 |      | 150.0 |         |
|           |   | Z | 100.00 | 144.14 | 36.74 |      | 150.0 |         |
| 10082-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | X | 0.76   | 60.00  | 4.46  | 4.77 | 80.0  | ± 9.6 % |
|           |   | Y | 0.79   | 60.00  | 4.75  |      | 80.0  |         |
|           |   | Z | 0.84   | 60.00  | 4.63  |      | 80.0  |         |
| 10090-DAC | GPRS-FDD (TDMA, GMSK, TN 0-4)                       | X | 100.00 | 108.18 | 23.74 | 6.56 | 60.0  | ± 9.6 % |
|           |   | Y | 100.00 | 115.44 | 27.16 |      | 60.0  |         |
|           |   | Z | 100.00 | 114.99 | 27.16 |      | 60.0  |         |
| 10097-CAB | UMTS-FDD (HSDPA)                                    | X | 1.61   | 65.71  | 14.22 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 1.91   | 69.00  | 16.46 |      | 150.0 |         |
|           |   | Z | 9.83   | 102.12 | 30.17 |      | 150.0 |         |
| 10098-CAB | UMTS-FDD (HSUPA, Subtest 2)                         | X | 1.57   | 65.64  | 14.17 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 1.88   | 68.97  | 16.44 |      | 150.0 |         |
|           |   | Z | 10.76  | 104.21 | 30.81 |      | 150.0 |         |
| 10099-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4)                       | X | 8.35   | 88.07  | 30.46 | 9.56 | 60.0  | ± 9.6 % |
|           |   | Y | 13.81  | 102.80 | 36.86 |      | 60.0  |         |
|           |   | Z | 27.23  | 120.71 | 42.92 |      | 60.0  |         |
| 10100-CAD | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 2.82   | 68.51  | 15.54 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 3.30   | 71.53  | 17.30 |      | 150.0 |         |
|           |   | Z | 6.75   | 86.01  | 24.16 |      | 150.0 |         |
| 10101-CAD | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 3.07   | 66.55  | 15.23 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 3.28   | 68.02  | 16.24 |      | 150.0 |         |
|           |   | Z | 3.86   | 72.40  | 19.31 |      | 150.0 |         |
| 10102-CAD | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 3.18   | 66.59  | 15.37 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 3.38   | 67.95  | 16.32 |      | 150.0 |         |
|           |   | Z | 3.89   | 71.91  | 19.19 |      | 150.0 |         |
| 10103-CAD | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)            | X | 5.78   | 73.84  | 19.40 | 3.98 | 65.0  | ± 9.6 % |
|           |   | Y | 7.24   | 78.41  | 21.73 |      | 65.0  |         |
|           |   | Z | 10.48  | 86.31  | 25.44 |      | 65.0  |         |
| 10104-CAD | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)          | X | 5.93   | 72.40  | 19.61 | 3.98 | 65.0  | ± 9.6 % |
|           |   | Y | 6.74   | 75.29  | 21.26 |      | 65.0  |         |
|           |   | Z | 7.74   | 78.89  | 23.50 |      | 65.0  |         |
| 10105-CAD | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)          | X | 5.64   | 71.33  | 19.45 | 3.98 | 65.0  | ± 9.6 % |
|           |   | Y | 6.26   | 73.70  | 20.88 |      | 65.0  |         |
|           |   | Z | 7.20   | 77.28  | 23.11 |      | 65.0  |         |
| 10108-CAE | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)            | X | 2.46   | 67.78  | 15.34 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 2.87   | 70.74  | 17.15 |      | 150.0 |         |
|           |   | Z | 6.31   | 87.14  | 24.91 |      | 150.0 |         |
| 10109-CAE | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)          | X | 2.72   | 66.30  | 15.05 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 2.94   | 67.95  | 16.20 |      | 150.0 |         |
|           |   | Z | 3.68   | 73.83  | 20.00 |      | 150.0 |         |
| 10110-CAE | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)             | X | 1.97   | 66.77  | 14.80 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 2.33   | 69.93  | 16.83 |      | 150.0 |         |
|           |   | Z | 7.38   | 93.63  | 27.29 |      | 150.0 |         |
| 10111-CAE | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)           | X | 2.40   | 66.79  | 15.11 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 2.70   | 69.09  | 16.66 |      | 150.0 |         |
|           |   | Z | 4.56   | 81.06  | 22.94 |      | 150.0 |         |

|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10112-CAE | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)     | X | 2.85   | 66.36  | 15.15 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.07   | 67.90  | 16.24 |      | 150.0 |         |
|           |  | Z | 3.72   | 73.15  | 19.73 |      | 150.0 |         |
| 10113-CAE | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)      | X | 2.55   | 67.02  | 15.30 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.85   | 69.17  | 16.77 |      | 150.0 |         |
|           |  | Z | 4.50   | 79.81  | 22.48 |      | 150.0 |         |
| 10114-CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)  | X | 5.03   | 66.81  | 16.15 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.12   | 67.32  | 16.54 |      | 150.0 |         |
|           |  | Z | 5.28   | 68.50  | 17.87 |      | 150.0 |         |
| 10115-CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)  | X | 5.32   | 66.97  | 16.25 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.41   | 67.46  | 16.61 |      | 150.0 |         |
|           |  | Z | 5.53   | 68.43  | 17.81 |      | 150.0 |         |
| 10116-CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | X | 5.12   | 66.99  | 16.17 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.22   | 67.53  | 16.56 |      | 150.0 |         |
|           |  | Z | 5.39   | 68.71  | 17.89 |      | 150.0 |         |
| 10117-CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)       | X | 4.99   | 66.66  | 16.09 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.09   | 67.20  | 16.49 |      | 150.0 |         |
|           |  | Z | 5.20   | 68.20  | 17.74 |      | 150.0 |         |
| 10118-CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)       | X | 5.41   | 67.19  | 16.37 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.50   | 67.66  | 16.72 |      | 150.0 |         |
|           |  | Z | 5.70   | 68.93  | 18.07 |      | 150.0 |         |
| 10119-CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)      | X | 5.10   | 66.95  | 16.16 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.19   | 67.47  | 16.54 |      | 150.0 |         |
|           |  | Z | 5.38   | 68.73  | 17.91 |      | 150.0 |         |
| 10140-CAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)     | X | 3.21   | 66.59  | 15.29 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.42   | 67.95  | 16.23 |      | 150.0 |         |
|           |  | Z | 3.93   | 71.85  | 19.05 |      | 150.0 |         |
| 10141-CAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)     | X | 3.34   | 66.74  | 15.49 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.54   | 68.03  | 16.39 |      | 150.0 |         |
|           |  | Z | 4.02   | 71.68  | 19.09 |      | 150.0 |         |
| 10142-CAD | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)        | X | 1.72   | 66.43  | 14.23 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.13   | 70.21  | 16.64 |      | 150.0 |         |
|           |  | Z | 31.12  | 120.09 | 34.26 |      | 150.0 |         |
| 10143-CAD | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)      | X | 2.19   | 66.99  | 14.48 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.63   | 70.26  | 16.58 |      | 150.0 |         |
|           |  | Z | 11.22  | 97.58  | 27.61 |      | 150.0 |         |
| 10144-CAD | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)      | X | 2.03   | 65.12  | 13.06 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.32   | 67.44  | 14.72 |      | 150.0 |         |
|           |  | Z | 4.42   | 80.07  | 20.90 |      | 150.0 |         |
| 10145-CAE | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)      | X | 0.98   | 62.52  | 9.74  | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 1.34   | 66.74  | 12.73 |      | 150.0 |         |
|           |  | Z | 100.00 | 124.26 | 29.87 |      | 150.0 |         |
| 10146-CAE | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)    | X | 1.73   | 64.88  | 10.88 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.39   | 68.68  | 12.88 |      | 150.0 |         |
|           |  | Z | 100.00 | 126.68 | 32.43 |      | 150.0 |         |
| 10147-CAE | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)    | X | 1.97   | 66.42  | 11.78 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.19   | 72.28  | 14.57 |      | 150.0 |         |
|           |  | Z | 100.00 | 128.65 | 33.41 |      | 150.0 |         |



|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10149-CAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 2.73   | 66.36  | 15.09 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.96   | 68.02  | 16.25 |      | 150.0 |         |
|           |  | Z | 3.71   | 73.98  | 20.08 |      | 150.0 |         |
| 10150-CAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 2.86   | 66.42  | 15.19 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.07   | 67.96  | 16.28 |      | 150.0 |         |
|           |  | Z | 3.74   | 73.28  | 19.81 |      | 150.0 |         |
| 10151-CAD | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)    | X | 5.95   | 75.83  | 20.27 | 3.98 | 65.0  | ± 9.6 % |
|           |  | Y | 8.01   | 81.86  | 23.19 |      | 65.0  |         |
|           |  | Z | 14.27  | 94.24  | 28.37 |      | 65.0  |         |
| 10152-CAD | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)  | X | 5.43   | 72.17  | 19.19 | 3.98 | 65.0  | ± 9.6 % |
|           |  | Y | 6.33   | 75.51  | 21.10 |      | 65.0  |         |
|           |  | Z | 7.69   | 80.29  | 23.76 |      | 65.0  |         |
| 10153-CAD | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)  | X | 5.80   | 73.19  | 20.02 | 3.98 | 65.0  | ± 9.6 % |
|           |  | Y | 6.73   | 76.49  | 21.88 |      | 65.0  |         |
|           |  | Z | 8.22   | 81.53  | 24.66 |      | 65.0  |         |
| 10154-CAE | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 2.01   | 67.12  | 15.04 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.40   | 70.46  | 17.14 |      | 150.0 |         |
|           |  | Z | 8.76   | 96.93  | 28.45 |      | 150.0 |         |
| 10155-CAE | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 2.40   | 66.80  | 15.12 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.70   | 69.10  | 16.68 |      | 150.0 |         |
|           |  | Z | 4.57   | 81.09  | 22.97 |      | 150.0 |         |
| 10156-CAE | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 1.55   | 66.19  | 13.80 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.01   | 70.64  | 16.60 |      | 150.0 |         |
|           |  | Z | 100.00 | 140.43 | 38.57 |      | 150.0 |         |
| 10157-CAE | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 1.82   | 65.27  | 12.83 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.20   | 68.35  | 14.92 |      | 150.0 |         |
|           |  | Z | 11.45  | 96.56  | 26.01 |      | 150.0 |         |
| 10158-CAE | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 2.56   | 67.08  | 15.35 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.86   | 69.24  | 16.82 |      | 150.0 |         |
|           |  | Z | 4.55   | 80.05  | 22.60 |      | 150.0 |         |
| 10159-CAE | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 1.91   | 65.64  | 13.09 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.33   | 68.92  | 15.26 |      | 150.0 |         |
|           |  | Z | 13.96  | 99.53  | 26.98 |      | 150.0 |         |
| 10160-CAD | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)    | X | 2.53   | 67.25  | 15.32 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.82   | 69.49  | 16.80 |      | 150.0 |         |
|           |  | Z | 5.02   | 82.00  | 23.21 |      | 150.0 |         |
| 10161-CAD | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 2.75   | 66.32  | 15.09 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.97   | 67.93  | 16.23 |      | 150.0 |         |
|           |  | Z | 3.70   | 73.78  | 20.00 |      | 150.0 |         |
| 10162-CAD | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 2.86   | 66.50  | 15.22 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.08   | 68.06  | 16.33 |      | 150.0 |         |
|           |  | Z | 3.80   | 73.66  | 19.96 |      | 150.0 |         |
| 10166-CAE | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 3.50   | 69.08  | 18.85 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.75   | 70.62  | 19.67 |      | 150.0 |         |
|           |  | Z | 4.70   | 78.19  | 25.09 |      | 150.0 |         |
| 10167-CAE | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 4.23   | 71.58  | 19.13 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 4.87   | 74.34  | 20.39 |      | 150.0 |         |
|           |  | Z | 7.29   | 85.90  | 27.06 |      | 150.0 |         |

|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10168-CAE | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 4.74   | 74.07  | 20.61 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 5.56   | 77.15  | 21.92 |      | 150.0 |         |
|           |  | Z | 9.94   | 93.24  | 30.19 |      | 150.0 |         |
| 10169-CAD | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 2.90   | 68.30  | 18.49 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.25   | 70.96  | 19.84 |      | 150.0 |         |
|           |  | Z | 4.01   | 78.75  | 25.77 |      | 150.0 |         |
| 10170-CAD | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 3.90   | 73.75  | 20.69 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 5.16   | 79.36  | 22.99 |      | 150.0 |         |
|           |  | Z | 10.56  | 100.20 | 33.39 |      | 150.0 |         |
| 10171-AAD | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 3.19   | 69.53  | 17.81 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.94   | 73.66  | 19.65 |      | 150.0 |         |
|           |  | Z | 6.17   | 86.81  | 27.42 |      | 150.0 |         |
| 10172-CAD | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)      | X | 6.79   | 85.96  | 26.31 | 6.02 | 65.0  | ± 9.6 % |
|           |  | Y | 15.63  | 104.26 | 33.03 |      | 65.0  |         |
|           |  | Z | 100.00 | 152.71 | 48.62 |      | 65.0  |         |
| 10173-CAD | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)    | X | 10.73  | 90.79  | 26.15 | 6.02 | 65.0  | ± 9.6 % |
|           |  | Y | 76.03  | 127.18 | 36.79 |      | 65.0  |         |
|           |  | Z | 100.00 | 141.65 | 42.99 |      | 65.0  |         |
| 10174-CAD | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)    | X | 7.02   | 82.76  | 22.95 | 6.02 | 65.0  | ± 9.6 % |
|           |  | Y | 35.67  | 111.71 | 32.19 |      | 65.0  |         |
|           |  | Z | 100.00 | 139.10 | 41.61 |      | 65.0  |         |
| 10175-CAE | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)      | X | 2.87   | 67.97  | 18.23 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.21   | 70.57  | 19.56 |      | 150.0 |         |
|           |  | Z | 3.91   | 78.03  | 25.33 |      | 150.0 |         |
| 10176-CAE | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)    | X | 3.91   | 73.77  | 20.70 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 5.17   | 79.39  | 23.01 |      | 150.0 |         |
|           |  | Z | 10.60  | 100.29 | 33.42 |      | 150.0 |         |
| 10177-CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)       | X | 2.89   | 68.13  | 18.33 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.24   | 70.76  | 19.67 |      | 150.0 |         |
|           |  | Z | 3.97   | 78.38  | 25.51 |      | 150.0 |         |
| 10178-CAE | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)     | X | 3.87   | 73.53  | 20.57 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 5.10   | 79.07  | 22.85 |      | 150.0 |         |
|           |  | Z | 10.19  | 99.34  | 33.07 |      | 150.0 |         |
| 10179-CAE | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)    | X | 3.50   | 71.45  | 19.08 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 4.48   | 76.30  | 21.16 |      | 150.0 |         |
|           |  | Z | 8.22   | 93.64  | 30.41 |      | 150.0 |         |
| 10180-CAE | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)     | X | 3.18   | 69.45  | 17.76 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.93   | 73.56  | 19.59 |      | 150.0 |         |
|           |  | Z | 6.11   | 86.54  | 27.30 |      | 150.0 |         |
| 10181-CAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 2.88   | 68.11  | 18.32 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.23   | 70.74  | 19.66 |      | 150.0 |         |
|           |  | Z | 3.96   | 78.35  | 25.50 |      | 150.0 |         |
| 10182-CAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)    | X | 3.86   | 73.51  | 20.55 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 5.09   | 79.04  | 22.84 |      | 150.0 |         |
|           |  | Z | 10.15  | 99.27  | 33.04 |      | 150.0 |         |
| 10183-AAC | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 3.18   | 69.43  | 17.75 | 3.01 | 150.0 | ± 9.6 % |
|           |  | Y | 3.92   | 73.53  | 19.58 |      | 150.0 |         |
|           |  | Z | 6.08   | 86.47  | 27.28 |      | 150.0 |         |

|           |   |   |       |        |       |      |       |         |
|-----------|---|---|-------|--------|-------|------|-------|---------|
| 10184-CAD | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)          | X | 2.90  | 68.16  | 18.34 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 3.24  | 70.79  | 19.69 |      | 150.0 |         |
|           |   | Z | 3.98  | 78.43  | 25.53 |      | 150.0 |         |
| 10185-CAD | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)        | X | 3.88  | 73.58  | 20.59 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 5.12  | 79.14  | 22.88 |      | 150.0 |         |
|           |   | Z | 10.26 | 99.48  | 33.12 |      | 150.0 |         |
| 10186-AAD | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)        | X | 3.19  | 69.49  | 17.78 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 3.94  | 73.61  | 19.62 |      | 150.0 |         |
|           |   | Z | 6.14  | 86.65  | 27.34 |      | 150.0 |         |
| 10187-CAE | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)        | X | 2.90  | 68.21  | 18.41 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 3.25  | 70.85  | 19.75 |      | 150.0 |         |
|           |   | Z | 3.99  | 78.50  | 25.61 |      | 150.0 |         |
| 10188-CAE | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)      | X | 4.01  | 74.28  | 21.00 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 5.35  | 80.07  | 23.35 |      | 150.0 |         |
|           |   | Z | 11.41 | 102.07 | 34.10 |      | 150.0 |         |
| 10189-AAE | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)      | X | 3.26  | 69.91  | 18.06 | 3.01 | 150.0 | ± 9.6 % |
|           |   | Y | 4.06  | 74.17  | 19.95 |      | 150.0 |         |
|           |   | Z | 6.51  | 88.00  | 27.95 |      | 150.0 |         |
| 10193-CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)  | X | 4.41  | 66.16  | 15.80 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.52  | 66.77  | 16.27 |      | 150.0 |         |
|           |   | Z | 4.62  | 67.98  | 17.65 |      | 150.0 |         |
| 10194-CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | X | 4.58  | 66.47  | 15.93 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.69  | 67.09  | 16.39 |      | 150.0 |         |
|           |   | Z | 4.81  | 68.30  | 17.77 |      | 150.0 |         |
| 10195-CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | X | 4.62  | 66.51  | 15.95 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.74  | 67.11  | 16.41 |      | 150.0 |         |
|           |   | Z | 4.85  | 68.31  | 17.77 |      | 150.0 |         |
| 10196-CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)       | X | 4.42  | 66.22  | 15.81 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.53  | 66.83  | 16.29 |      | 150.0 |         |
|           |   | Z | 4.63  | 68.07  | 17.68 |      | 150.0 |         |
| 10197-CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)      | X | 4.60  | 66.49  | 15.94 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.71  | 67.11  | 16.40 |      | 150.0 |         |
|           |   | Z | 4.82  | 68.32  | 17.78 |      | 150.0 |         |
| 10198-CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)      | X | 4.62  | 66.52  | 15.96 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.74  | 67.13  | 16.42 |      | 150.0 |         |
|           |   | Z | 4.85  | 68.34  | 17.79 |      | 150.0 |         |
| 10219-CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)       | X | 4.36  | 66.22  | 15.77 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.48  | 66.85  | 16.26 |      | 150.0 |         |
|           |   | Z | 4.59  | 68.16  | 17.68 |      | 150.0 |         |
| 10220-CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)    | X | 4.59  | 66.46  | 15.93 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.70  | 67.08  | 16.39 |      | 150.0 |         |
|           |   | Z | 4.81  | 68.28  | 17.76 |      | 150.0 |         |
| 10221-CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)    | X | 4.63  | 66.46  | 15.95 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.75  | 67.05  | 16.40 |      | 150.0 |         |
|           |   | Z | 4.85  | 68.22  | 17.75 |      | 150.0 |         |
| 10222-CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)        | X | 4.97  | 66.66  | 16.09 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.06  | 67.21  | 16.49 |      | 150.0 |         |
|           |   | Z | 5.18  | 68.23  | 17.75 |      | 150.0 |         |

|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10223-CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)  | X | 5.28   | 66.91  | 16.24 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.36   | 67.38  | 16.59 |      | 150.0 |         |
|           |   | Z | 5.53   | 68.53  | 17.89 |      | 150.0 |         |
| 10224-CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | X | 5.01   | 66.77  | 16.07 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.11   | 67.33  | 16.47 |      | 150.0 |         |
|           |   | Z | 5.24   | 68.37  | 17.74 |      | 150.0 |         |
| 10225-CAB | UMTS-FDD (HSPA+)                          | X | 2.65   | 65.26  | 14.61 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 2.82   | 66.55  | 15.63 |      | 150.0 |         |
|           |   | Z | 3.24   | 70.82  | 18.67 |      | 150.0 |         |
| 10226-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)  | X | 11.47  | 92.08  | 26.66 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 91.36  | 130.79 | 37.78 |      | 65.0  |         |
|           |   | Z | 100.00 | 141.90 | 43.15 |      | 65.0  |         |
| 10227-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)  | X | 10.85  | 89.85  | 25.35 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 68.33  | 122.93 | 35.09 |      | 65.0  |         |
|           |   | Z | 100.00 | 138.74 | 41.51 |      | 65.0  |         |
| 10228-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)    | X | 8.03   | 89.61  | 27.69 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 24.81  | 114.02 | 35.97 |      | 65.0  |         |
|           |   | Z | 100.00 | 153.31 | 48.90 |      | 65.0  |         |
| 10229-CAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)    | X | 10.81  | 90.89  | 26.19 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 76.70  | 127.32 | 36.84 |      | 65.0  |         |
|           |   | Z | 100.00 | 141.61 | 42.98 |      | 65.0  |         |
| 10230-CAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)    | X | 10.21  | 88.74  | 24.90 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 58.56  | 120.04 | 34.29 |      | 65.0  |         |
|           |   | Z | 100.00 | 138.58 | 41.40 |      | 65.0  |         |
| 10231-CAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)      | X | 7.66   | 88.62  | 27.26 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 22.70  | 112.05 | 35.32 |      | 65.0  |         |
|           |   | Z | 100.00 | 153.11 | 48.77 |      | 65.0  |         |
| 10232-CAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)    | X | 10.79  | 90.87  | 26.18 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 76.69  | 127.33 | 36.84 |      | 65.0  |         |
|           |   | Z | 100.00 | 141.64 | 42.99 |      | 65.0  |         |
| 10233-CAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)    | X | 10.19  | 88.72  | 24.90 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 58.44  | 120.02 | 34.29 |      | 65.0  |         |
|           |   | Z | 100.00 | 138.61 | 41.41 |      | 65.0  |         |
| 10234-CAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)      | X | 7.36   | 87.72  | 26.83 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 21.03  | 110.26 | 34.68 |      | 65.0  |         |
|           |   | Z | 100.00 | 152.70 | 48.52 |      | 65.0  |         |
| 10235-CAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)   | X | 10.79  | 90.90  | 26.19 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 77.22  | 127.47 | 36.88 |      | 65.0  |         |
|           |   | Z | 100.00 | 141.66 | 43.00 |      | 65.0  |         |
| 10236-CAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)   | X | 10.28  | 88.85  | 24.93 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 59.86  | 120.39 | 34.37 |      | 65.0  |         |
|           |   | Z | 100.00 | 138.52 | 41.37 |      | 65.0  |         |
| 10237-CAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)     | X | 7.67   | 88.67  | 27.28 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 22.88  | 112.26 | 35.38 |      | 65.0  |         |
|           |   | Z | 100.00 | 153.17 | 48.79 |      | 65.0  |         |
| 10238-CAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)   | X | 10.76  | 90.85  | 26.17 | 6.02 | 65.0  | ± 9.6 % |
|           |   | Y | 76.68  | 127.34 | 36.84 |      | 65.0  |         |
|           |   | Z | 100.00 | 141.67 | 43.00 |      | 65.0  |         |

|           |  |   |        |        |       |      |      |         |
|-----------|--|---|--------|--------|-------|------|------|---------|
| 10239-CAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)    | X | 10.16  | 88.69  | 24.89 | 6.02 | 65.0 | ± 9.6 % |
|           |  | Y | 58.30  | 120.01 | 34.28 |      | 65.0 |         |
|           |  | Z | 100.00 | 138.65 | 41.42 |      | 65.0 |         |
| 10240-CAD | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)      | X | 7.65   | 88.63  | 27.26 | 6.02 | 65.0 | ± 9.6 % |
|           |  | Y | 22.78  | 112.18 | 35.36 |      | 65.0 |         |
|           |  | Z | 100.00 | 153.20 | 48.80 |      | 65.0 |         |
| 10241-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 7.64   | 79.37  | 24.46 | 6.98 | 65.0 | ± 9.6 % |
|           |  | Y | 9.48   | 84.64  | 26.94 |      | 65.0 |         |
|           |  | Z | 13.65  | 95.22  | 32.26 |      | 65.0 |         |
| 10242-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 7.05   | 77.70  | 23.68 | 6.98 | 65.0 | ± 9.6 % |
|           |  | Y | 8.30   | 81.77  | 25.72 |      | 65.0 |         |
|           |  | Z | 12.41  | 92.80  | 31.22 |      | 65.0 |         |
| 10243-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)   | X | 5.84   | 74.87  | 23.33 | 6.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.46   | 77.70  | 24.98 |      | 65.0 |         |
|           |  | Z | 8.47   | 85.73  | 29.63 |      | 65.0 |         |
| 10244-CAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)   | X | 5.29   | 73.69  | 17.46 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 8.12   | 80.92  | 20.73 |      | 65.0 |         |
|           |  | Z | 100.00 | 126.71 | 35.61 |      | 65.0 |         |
| 10245-CAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)   | X | 5.18   | 73.12  | 17.16 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 7.73   | 79.85  | 20.27 |      | 65.0 |         |
|           |  | Z | 100.00 | 126.21 | 35.40 |      | 65.0 |         |
| 10246-CAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)     | X | 4.31   | 73.88  | 17.47 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 9.24   | 86.90  | 23.16 |      | 65.0 |         |
|           |  | Z | 100.00 | 126.35 | 34.36 |      | 65.0 |         |
| 10247-CAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)   | X | 4.45   | 71.49  | 17.18 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.01   | 77.14  | 20.22 |      | 65.0 |         |
|           |  | Z | 10.59  | 87.86  | 24.60 |      | 65.0 |         |
| 10248-CAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)   | X | 4.48   | 71.09  | 16.99 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 5.87   | 76.20  | 19.81 |      | 65.0 |         |
|           |  | Z | 9.23   | 84.87  | 23.50 |      | 65.0 |         |
| 10249-CAD | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)     | X | 5.36   | 77.27  | 19.79 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 10.78  | 90.11  | 25.21 |      | 65.0 |         |
|           |  | Z | 100.00 | 130.59 | 36.94 |      | 65.0 |         |
| 10250-CAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)  | X | 5.39   | 74.24  | 20.05 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.75   | 78.97  | 22.57 |      | 65.0 |         |
|           |  | Z | 10.28  | 88.53  | 26.89 |      | 65.0 |         |
| 10251-CAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)  | X | 5.19   | 72.32  | 18.86 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.25   | 76.21  | 21.05 |      | 65.0 |         |
|           |  | Z | 8.22   | 82.50  | 24.18 |      | 65.0 |         |
| 10252-CAD | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)    | X | 5.87   | 77.82  | 21.01 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 9.24   | 86.82  | 25.03 |      | 65.0 |         |
|           |  | Z | 37.03  | 114.88 | 34.51 |      | 65.0 |         |
| 10253-CAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)  | X | 5.33   | 71.70  | 18.97 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.16   | 74.84  | 20.81 |      | 65.0 |         |
|           |  | Z | 7.37   | 79.30  | 23.34 |      | 65.0 |         |
| 10254-CAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)  | X | 5.67   | 72.64  | 19.71 | 3.98 | 65.0 | ± 9.6 % |
|           |  | Y | 6.53   | 75.77  | 21.52 |      | 65.0 |         |
|           |  | Z | 7.87   | 80.48  | 24.15 |      | 65.0 |         |

|           |   |   |        |        |       |      |      |         |
|-----------|---|---|--------|--------|-------|------|------|---------|
| 10255-CAD | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)     | X | 5.71   | 75.28  | 20.26 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 7.47   | 80.83  | 23.03 |      | 65.0 |         |
|           |   | Z | 12.56  | 92.28  | 27.97 |      | 65.0 |         |
| 10256-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 4.04   | 69.65  | 14.62 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.07   | 75.95  | 17.72 |      | 65.0 |         |
|           |   | Z | 100.00 | 122.03 | 32.77 |      | 65.0 |         |
| 10257-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 3.95   | 69.00  | 14.23 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 5.69   | 74.62  | 17.08 |      | 65.0 |         |
|           |   | Z | 100.00 | 121.15 | 32.37 |      | 65.0 |         |
| 10258-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)   | X | 3.28   | 69.68  | 14.78 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.37   | 80.32  | 19.92 |      | 65.0 |         |
|           |   | Z | 75.35  | 117.49 | 30.74 |      | 65.0 |         |
| 10259-CAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)   | X | 4.82   | 72.54  | 18.23 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.31   | 77.82  | 21.06 |      | 65.0 |         |
|           |   | Z | 10.52  | 88.16  | 25.44 |      | 65.0 |         |
| 10260-CAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)   | X | 4.87   | 72.35  | 18.16 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.27   | 77.35  | 20.88 |      | 65.0 |         |
|           |   | Z | 9.87   | 86.59  | 24.88 |      | 65.0 |         |
| 10261-CAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)     | X | 5.33   | 76.81  | 20.04 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 9.15   | 87.11  | 24.61 |      | 65.0 |         |
|           |   | Z | 70.08  | 125.67 | 36.47 |      | 65.0 |         |
| 10262-CAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)   | X | 5.38   | 74.18  | 20.01 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.73   | 78.91  | 22.52 |      | 65.0 |         |
|           |   | Z | 10.24  | 88.40  | 26.82 |      | 65.0 |         |
| 10263-CAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)   | X | 5.18   | 72.30  | 18.85 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.24   | 76.18  | 21.05 |      | 65.0 |         |
|           |   | Z | 8.20   | 82.47  | 24.17 |      | 65.0 |         |
| 10264-CAD | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)     | X | 5.82   | 77.64  | 20.91 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 9.12   | 86.55  | 24.91 |      | 65.0 |         |
|           |   | Z | 35.50  | 114.00 | 34.24 |      | 65.0 |         |
| 10265-CAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)  | X | 5.42   | 72.17  | 19.19 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.33   | 75.51  | 21.10 |      | 65.0 |         |
|           |   | Z | 7.69   | 80.30  | 23.77 |      | 65.0 |         |
| 10266-CAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)  | X | 5.79   | 73.18  | 20.01 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.73   | 76.48  | 21.87 |      | 65.0 |         |
|           |   | Z | 8.21   | 81.50  | 24.64 |      | 65.0 |         |
| 10267-CAD | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)    | X | 5.94   | 75.79  | 20.26 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 7.99   | 81.80  | 23.16 |      | 65.0 |         |
|           |   | Z | 14.17  | 94.10  | 28.32 |      | 65.0 |         |
| 10268-CAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)  | X | 6.09   | 72.33  | 19.70 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.85   | 74.98  | 21.24 |      | 65.0 |         |
|           |   | Z | 7.72   | 78.22  | 23.32 |      | 65.0 |         |
| 10269-CAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)  | X | 6.09   | 71.98  | 19.61 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 6.78   | 74.45  | 21.07 |      | 65.0 |         |
|           |   | Z | 7.54   | 77.37  | 23.01 |      | 65.0 |         |
| 10270-CAD | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)    | X | 6.01   | 73.82  | 19.62 | 3.98 | 65.0 | ± 9.6 % |
|           |   | Y | 7.24   | 77.73  | 21.68 |      | 65.0 |         |
|           |   | Z | 9.32   | 83.64  | 24.76 |      | 65.0 |         |

|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10274-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)                          | X | 2.42   | 65.43  | 14.40 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.62   | 67.03  | 15.61 |      | 150.0 |         |
|           |  | Z | 3.33   | 73.26  | 19.54 |      | 150.0 |         |
| 10275-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)                           | X | 1.38   | 65.56  | 13.83 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 1.72   | 69.59  | 16.48 |      | 150.0 |         |
|           |  | Z | 100.00 | 146.31 | 41.06 |      | 150.0 |         |
| 10277-CAA | PHS (QPSK)   | X | 2.29   | 61.61  | 7.35  | 9.03 | 50.0  | ± 9.6 % |
|           |  | Y | 2.34   | 62.34  | 7.90  |      | 50.0  |         |
|           |  | Z | 2.54   | 62.33  | 8.00  |      | 50.0  |         |
| 10278-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5)                                 | X | 4.07   | 69.55  | 14.07 | 9.03 | 50.0  | ± 9.6 % |
|           |  | Y | 7.95   | 80.43  | 19.13 |      | 50.0  |         |
|           |  | Z | 7.26   | 77.94  | 18.06 |      | 50.0  |         |
| 10279-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38)                                | X | 4.18   | 69.82  | 14.25 | 9.03 | 50.0  | ± 9.6 % |
|           |  | Y | 8.16   | 80.74  | 19.30 |      | 50.0  |         |
|           |  | Z | 7.49   | 78.32  | 18.26 |      | 50.0  |         |
| 10290-AAB | CDMA2000, RC1, SO55, Full Rate                                     | X | 1.05   | 64.64  | 11.20 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 1.76   | 71.84  | 15.41 |      | 150.0 |         |
|           |  | Z | 100.00 | 132.28 | 33.17 |      | 150.0 |         |
| 10291-AAB | CDMA2000, RC3, SO55, Full Rate                                     | X | 0.61   | 62.34  | 9.61  | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 0.95   | 68.38  | 13.76 |      | 150.0 |         |
|           |  | Z | 100.00 | 143.78 | 36.57 |      | 150.0 |         |
| 10292-AAB | CDMA2000, RC3, SO32, Full Rate                                     | X | 0.67   | 64.13  | 10.90 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 1.74   | 77.70  | 18.10 |      | 150.0 |         |
|           |  | Z | 100.00 | 159.02 | 42.81 |      | 150.0 |         |
| 10293-AAB | CDMA2000, RC3, SO3, Full Rate                                      | X | 0.85   | 66.91  | 12.76 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 6.38   | 96.73  | 24.88 |      | 150.0 |         |
|           |  | Z | 100.00 | 168.80 | 47.18 |      | 150.0 |         |
| 10295-AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr.                              | X | 7.66   | 80.36  | 21.49 | 9.03 | 50.0  | ± 9.6 % |
|           |  | Y | 12.17  | 90.88  | 26.28 |      | 50.0  |         |
|           |  | Z | 50.80  | 114.51 | 32.91 |      | 50.0  |         |
| 10297-AAC | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)                            | X | 2.47   | 67.87  | 15.40 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.89   | 70.87  | 17.22 |      | 150.0 |         |
|           |  | Z | 6.46   | 87.63  | 25.10 |      | 150.0 |         |
| 10298-AAC | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)                             | X | 1.26   | 64.71  | 11.97 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 1.75   | 69.75  | 15.19 |      | 150.0 |         |
|           |  | Z | 100.00 | 134.02 | 34.83 |      | 150.0 |         |
| 10299-AAC | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)                           | X | 2.36   | 68.20  | 13.52 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.43   | 73.15  | 15.84 |      | 150.0 |         |
|           |  | Z | 100.00 | 132.13 | 35.60 |      | 150.0 |         |
| 10300-AAC | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)                           | X | 1.82   | 64.24  | 10.85 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 2.18   | 66.39  | 12.08 |      | 150.0 |         |
|           |  | Z | 100.00 | 124.21 | 31.76 |      | 150.0 |         |
| 10301-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)                 | X | 4.59   | 64.78  | 16.94 | 4.17 | 50.0  | ± 9.6 % |
|           |  | Y | 4.96   | 66.46  | 18.00 |      | 50.0  |         |
|           |  | Z | 5.39   | 69.01  | 19.81 |      | 50.0  |         |
| 10302-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | X | 5.13   | 65.63  | 17.77 | 4.96 | 50.0  | ± 9.6 % |
|           |  | Y | 5.34   | 66.57  | 18.42 |      | 50.0  |         |
|           |  | Z | 5.63   | 68.33  | 19.79 |      | 50.0  |         |

|           |   |   |        |        |       |       |       |         |
|-----------|---|---|--------|--------|-------|-------|-------|---------|
| 10303-AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)                 | X | 4.88   | 65.29  | 17.60 | 4.96  | 50.0  | ± 9.6 % |
|           |   | Y | 5.09   | 66.26  | 18.29 |       | 50.0  |         |
|           |   | Z | 5.39   | 68.15  | 19.72 |       | 50.0  |         |
| 10304-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)                 | X | 4.68   | 65.10  | 17.07 | 4.17  | 50.0  | ± 9.6 % |
|           |   | Y | 4.89   | 66.08  | 17.75 |       | 50.0  |         |
|           |   | Z | 5.20   | 68.05  | 19.27 |       | 50.0  |         |
| 10305-AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)    | X | 4.48   | 67.75  | 19.41 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.71   | 69.04  | 20.42 |       | 35.0  |         |
|           |   | Z | 6.14   | 75.94  | 23.95 |       | 35.0  |         |
| 10306-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)    | X | 4.73   | 66.53  | 18.94 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.92   | 67.52  | 19.74 |       | 35.0  |         |
|           |   | Z | 5.62   | 71.52  | 22.13 |       | 35.0  |         |
| 10307-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)     | X | 4.64   | 66.74  | 18.93 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.84   | 67.81  | 19.76 |       | 35.0  |         |
|           |   | Z | 5.66   | 72.30  | 22.36 |       | 35.0  |         |
| 10308-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)                | X | 4.62   | 66.96  | 19.06 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.83   | 68.07  | 19.93 |       | 35.0  |         |
|           |   | Z | 5.73   | 72.89  | 22.67 |       | 35.0  |         |
| 10309-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | X | 4.79   | 66.73  | 19.08 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.98   | 67.77  | 19.90 |       | 35.0  |         |
|           |   | Z | 5.71   | 71.84  | 22.32 |       | 35.0  |         |
| 10310-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)  | X | 4.69   | 66.61  | 18.93 | 6.02  | 35.0  | ± 9.6 % |
|           |   | Y | 4.87   | 67.63  | 19.73 |       | 35.0  |         |
|           |   | Z | 5.63   | 71.86  | 22.23 |       | 35.0  |         |
| 10311-AAC | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)                            | X | 2.81   | 67.24  | 15.15 | 0.00  | 150.0 | ± 9.6 % |
|           |   | Y | 3.26   | 70.05  | 16.82 |       | 150.0 |         |
|           |   | Z | 6.11   | 82.76  | 23.09 |       | 150.0 |         |
| 10313-AAA | iDEN 1:3  | X | 2.72   | 68.85  | 13.88 | 6.99  | 70.0  | ± 9.6 % |
|           |   | Y | 6.74   | 81.65  | 19.41 |       | 70.0  |         |
|           |   | Z | 100.00 | 116.93 | 28.94 |       | 70.0  |         |
| 10314-AAA | iDEN 1:6  | X | 3.52   | 73.46  | 18.52 | 10.00 | 30.0  | ± 9.6 % |
|           |   | Y | 14.65  | 98.15  | 27.72 |       | 30.0  |         |
|           |   | Z | 297.27 | 144.47 | 38.49 |       | 30.0  |         |
| 10315-AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)           | X | 0.97   | 62.30  | 13.80 | 0.17  | 150.0 | ± 9.6 % |
|           |   | Y | 1.09   | 64.70  | 15.96 |       | 150.0 |         |
|           |   | Z | 1.69   | 79.83  | 26.00 |       | 150.0 |         |
| 10316-AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)       | X | 4.47   | 66.20  | 15.92 | 0.17  | 150.0 | ± 9.6 % |
|           |   | Y | 4.58   | 66.85  | 16.44 |       | 150.0 |         |
|           |   | Z | 4.69   | 68.08  | 17.83 |       | 150.0 |         |
| 10317-AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)             | X | 4.47   | 66.20  | 15.92 | 0.17  | 150.0 | ± 9.6 % |
|           |   | Y | 4.58   | 66.85  | 16.44 |       | 150.0 |         |
|           |   | Z | 4.69   | 68.08  | 17.83 |       | 150.0 |         |
| 10400-AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)                 | X | 4.57   | 66.51  | 15.91 | 0.00  | 150.0 | ± 9.6 % |
|           |   | Y | 4.69   | 67.14  | 16.38 |       | 150.0 |         |
|           |   | Z | 4.80   | 68.40  | 17.78 |       | 150.0 |         |
| 10401-AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)                 | X | 5.31   | 66.85  | 16.18 | 0.00  | 150.0 | ± 9.6 % |
|           |   | Y | 5.37   | 67.26  | 16.50 |       | 150.0 |         |
|           |   | Z | 5.56   | 68.46  | 17.82 |       | 150.0 |         |



|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10402-AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)                             | X | 5.54   | 67.08  | 16.16 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.63   | 67.59  | 16.52 |      | 150.0 |         |
|           |   | Z | 5.73   | 68.34  | 17.60 |      | 150.0 |         |
| 10403-AAB | CDMA2000 (1xEV-DO, Rev. 0)  | X | 1.05   | 64.64  | 11.20 | 0.00 | 115.0 | ± 9.6 % |
|           |   | Y | 1.76   | 71.84  | 15.41 |      | 115.0 |         |
|           |   | Z | 100.00 | 132.28 | 33.17 |      | 115.0 |         |
| 10404-AAB | CDMA2000 (1xEV-DO, Rev. A)  | X | 1.05   | 64.64  | 11.20 | 0.00 | 115.0 | ± 9.6 % |
|           |   | Y | 1.76   | 71.84  | 15.41 |      | 115.0 |         |
|           |   | Z | 100.00 | 132.28 | 33.17 |      | 115.0 |         |
| 10406-AAB | CDMA2000, RC3, SO32, SCH0, Full Rate  | X | 19.76  | 100.64 | 25.59 | 0.00 | 100.0 | ± 9.6 % |
|           |   | Y | 100.00 | 120.36 | 29.84 |      | 100.0 |         |
|           |   | Z | 100.00 | 149.48 | 43.21 |      | 100.0 |         |
| 10410-AAD | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | X | 27.32  | 104.37 | 26.03 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 123.54 | 31.08 |      | 80.0  |         |
|           |   | Z | 100.00 | 147.64 | 42.34 |      | 80.0  |         |
| 10415-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)                       | X | 0.90   | 61.64  | 13.32 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 1.00   | 63.67  | 15.26 |      | 150.0 |         |
|           |   | Z | 1.35   | 75.86  | 24.24 |      | 150.0 |         |
| 10416-AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)                   | X | 4.42   | 66.20  | 15.87 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.52   | 66.81  | 16.34 |      | 150.0 |         |
|           |   | Z | 4.63   | 68.03  | 17.73 |      | 150.0 |         |
| 10417-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)                       | X | 4.42   | 66.20  | 15.87 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.52   | 66.81  | 16.34 |      | 150.0 |         |
|           |   | Z | 4.63   | 68.03  | 17.73 |      | 150.0 |         |
| 10418-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)   | X | 4.40   | 66.34  | 15.88 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.52   | 66.98  | 16.36 |      | 150.0 |         |
|           |   | Z | 4.64   | 68.31  | 17.81 |      | 150.0 |         |
| 10419-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)  | X | 4.43   | 66.30  | 15.88 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.54   | 66.92  | 16.36 |      | 150.0 |         |
|           |   | Z | 4.65   | 68.20  | 17.78 |      | 150.0 |         |
| 10422-AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)                                    | X | 4.54   | 66.32  | 15.91 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.65   | 66.91  | 16.37 |      | 150.0 |         |
|           |   | Z | 4.75   | 68.08  | 17.72 |      | 150.0 |         |
| 10423-AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)                                 | X | 4.70   | 66.62  | 16.03 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.82   | 67.23  | 16.48 |      | 150.0 |         |
|           |   | Z | 4.93   | 68.42  | 17.83 |      | 150.0 |         |
| 10424-AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)                                 | X | 4.62   | 66.57  | 15.99 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.74   | 67.18  | 16.46 |      | 150.0 |         |
|           |   | Z | 4.85   | 68.42  | 17.84 |      | 150.0 |         |
| 10425-AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)                                     | X | 5.25   | 66.96  | 16.24 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.33   | 67.44  | 16.60 |      | 150.0 |         |
|           |   | Z | 5.49   | 68.57  | 17.89 |      | 150.0 |         |
| 10426-AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)                                   | X | 5.26   | 67.01  | 16.26 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.33   | 67.46  | 16.60 |      | 150.0 |         |
|           |   | Z | 5.55   | 68.77  | 17.99 |      | 150.0 |         |

|           |  |   |        |        |       |      |       |         |
|-----------|--|---|--------|--------|-------|------|-------|---------|
| 10427-AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)                 | X | 5.26   | 66.96  | 16.24 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.35   | 67.44  | 16.59 |      | 150.0 |         |
|           |  | Z | 5.52   | 68.59  | 17.89 |      | 150.0 |         |
| 10430-AAB | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)                               | X | 4.09   | 70.21  | 17.69 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.37   | 71.56  | 18.62 |      | 150.0 |         |
|           |  | Z | 5.82   | 78.95  | 22.74 |      | 150.0 |         |
| 10431-AAB | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)                              | X | 4.07   | 66.63  | 15.76 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.22   | 67.44  | 16.38 |      | 150.0 |         |
|           |  | Z | 4.44   | 69.46  | 18.16 |      | 150.0 |         |
| 10432-AAB | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)                              | X | 4.38   | 66.58  | 15.90 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.51   | 67.26  | 16.42 |      | 150.0 |         |
|           |  | Z | 4.66   | 68.77  | 17.95 |      | 150.0 |         |
| 10433-AAB | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)                              | X | 4.64   | 66.60  | 16.01 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.76   | 67.22  | 16.48 |      | 150.0 |         |
|           |  | Z | 4.87   | 68.45  | 17.86 |      | 150.0 |         |
| 10434-AAA | W-CDMA (BS Test Model 1, 64 DPCH)                              | X | 4.15   | 70.89  | 17.54 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.53   | 72.64  | 18.67 |      | 150.0 |         |
|           |  | Z | 7.09   | 82.89  | 23.74 |      | 150.0 |         |
| 10435-AAC | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 24.60  | 102.81 | 25.59 | 3.23 | 80.0  | ± 9.6 % |
|           |  | Y | 100.00 | 123.31 | 30.97 |      | 80.0  |         |
|           |  | Z | 100.00 | 147.30 | 42.18 |      | 80.0  |         |
| 10447-AAB | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)                 | X | 3.32   | 66.37  | 14.85 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.53   | 67.60  | 15.79 |      | 150.0 |         |
|           |  | Z | 4.02   | 71.32  | 18.30 |      | 150.0 |         |
| 10448-AAB | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)                | X | 3.91   | 66.40  | 15.61 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.06   | 67.22  | 16.25 |      | 150.0 |         |
|           |  | Z | 4.28   | 69.30  | 18.07 |      | 150.0 |         |
| 10449-AAB | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)                | X | 4.20   | 66.39  | 15.78 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.32   | 67.10  | 16.33 |      | 150.0 |         |
|           |  | Z | 4.48   | 68.69  | 17.92 |      | 150.0 |         |
| 10450-AAB | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)                | X | 4.40   | 66.35  | 15.85 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.52   | 67.00  | 16.34 |      | 150.0 |         |
|           |  | Z | 4.64   | 68.30  | 17.78 |      | 150.0 |         |
| 10451-AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)                | X | 3.18   | 66.38  | 14.35 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.44   | 67.83  | 15.43 |      | 150.0 |         |
|           |  | Z | 4.12   | 72.39  | 18.21 |      | 150.0 |         |
| 10456-AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)           | X | 6.12   | 67.55  | 16.43 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 6.19   | 67.95  | 16.72 |      | 150.0 |         |
|           |  | Z | 6.37   | 68.83  | 17.83 |      | 150.0 |         |
| 10457-AAA | UMTS-FDD (DC-HSDPA)  | X | 3.69   | 64.85  | 15.56 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 3.77   | 65.44  | 16.05 |      | 150.0 |         |
|           |  | Z | 3.83   | 66.57  | 17.51 |      | 150.0 |         |
| 10458-AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers)                         | X | 3.74   | 69.88  | 16.74 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.15   | 71.87  | 18.05 |      | 150.0 |         |
|           |  | Z | 6.76   | 82.62  | 23.25 |      | 150.0 |         |
| 10459-AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers)                         | X | 5.00   | 68.27  | 17.97 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.14   | 68.78  | 18.40 |      | 150.0 |         |
|           |  | Z | 5.73   | 72.13  | 20.67 |      | 150.0 |         |

|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10460-AAA | UMTS-FDD (WCDMA, AMR)   | X | 0.69   | 64.49  | 13.27 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 1.03   | 71.74  | 18.06 |      | 150.0 |         |
|           |   | Z | 100.00 | 184.49 | 54.58 |      | 150.0 |         |
| 10461-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 23.89  | 104.89 | 26.96 | 3.29 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 130.07 | 34.09 |      | 80.0  |         |
|           |   | Z | 100.00 | 170.21 | 52.27 |      | 80.0  |         |
| 10462-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.60   | 64.82  | 10.96 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 106.86 | 23.34 |      | 80.0  |         |
|           |   | Z | 100.00 | 143.39 | 39.69 |      | 80.0  |         |
| 10463-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.16   | 61.38  | 8.85  | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 8.49   | 80.07  | 15.85 |      | 80.0  |         |
|           |   | Z | 100.00 | 136.22 | 36.37 |      | 80.0  |         |
| 10464-AAA | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 15.04  | 97.12  | 24.24 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 127.37 | 32.66 |      | 80.0  |         |
|           |   | Z | 100.00 | 170.30 | 51.97 |      | 80.0  |         |
| 10465-AAA | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.45   | 63.83  | 10.44 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 106.10 | 22.97 |      | 80.0  |         |
|           |   | Z | 100.00 | 141.97 | 39.03 |      | 80.0  |         |
| 10466-AAA | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.11   | 60.93  | 8.58  | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.16   | 73.39  | 13.73 |      | 80.0  |         |
|           |   | Z | 100.00 | 134.48 | 35.59 |      | 80.0  |         |
| 10467-AAC | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 18.13  | 99.69  | 24.95 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 127.69 | 32.81 |      | 80.0  |         |
|           |   | Z | 100.00 | 170.90 | 52.23 |      | 80.0  |         |
| 10468-AAC | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.48   | 64.08  | 10.57 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 106.32 | 23.08 |      | 80.0  |         |
|           |   | Z | 100.00 | 142.55 | 39.29 |      | 80.0  |         |
| 10469-AAC | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 1.11   | 60.94  | 8.58  | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.24   | 73.57  | 13.79 |      | 80.0  |         |
|           |   | Z | 100.00 | 134.69 | 35.67 |      | 80.0  |         |
| 10470-AAC | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 18.25  | 99.80  | 24.97 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 127.74 | 32.82 |      | 80.0  |         |
|           |   | Z | 100.00 | 171.17 | 52.34 |      | 80.0  |         |
| 10471-AAC | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.48   | 64.02  | 10.54 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 106.24 | 23.03 |      | 80.0  |         |
|           |   | Z | 100.00 | 142.54 | 39.28 |      | 80.0  |         |
| 10472-AAC | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.11   | 60.91  | 8.55  | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.14   | 73.34  | 13.70 |      | 80.0  |         |
|           |   | Z | 100.00 | 134.66 | 35.65 |      | 80.0  |         |
| 10473-AAC | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 18.11  | 99.68  | 24.93 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 127.70 | 32.80 |      | 80.0  |         |
|           |   | Z | 100.00 | 171.13 | 52.32 |      | 80.0  |         |
| 10474-AAC | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.47   | 63.99  | 10.52 | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 100.00 | 106.24 | 23.03 |      | 80.0  |         |
|           |   | Z | 100.00 | 142.62 | 39.31 |      | 80.0  |         |
| 10475-AAC | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 1.10   | 60.89  | 8.55  | 3.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.09   | 73.24  | 13.66 |      | 80.0  |         |
|           |   | Z | 100.00 | 134.72 | 35.68 |      | 80.0  |         |

|           |   |   |        |        |       |      |      |         |
|-----------|---|---|--------|--------|-------|------|------|---------|
| 10477-AAC | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)    | X | 1.44   | 63.78  | 10.40 | 3.23 | 80.0 | ± 9.6 % |
|           |   | Y | 100.00 | 106.01 | 22.93 |      | 80.0 |         |
|           |   | Z | 100.00 | 142.22 | 39.12 |      | 80.0 |         |
| 10478-AAC | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)    | X | 1.10   | 60.86  | 8.52  | 3.23 | 80.0 | ± 9.6 % |
|           |   | Y | 3.98   | 72.96  | 13.56 |      | 80.0 |         |
|           |   | Z | 100.00 | 134.57 | 35.61 |      | 80.0 |         |
| 10479-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 6.08   | 82.51  | 21.61 | 3.23 | 80.0 | ± 9.6 % |
|           |   | Y | 34.82  | 110.64 | 30.41 |      | 80.0 |         |
|           |   | Z | 100.00 | 145.60 | 43.20 |      | 80.0 |         |
| 10480-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 5.16   | 75.77  | 17.47 | 3.23 | 80.0 | ± 9.6 % |
|           |   | Y | 42.85  | 104.48 | 26.37 |      | 80.0 |         |
|           |   | Z | 100.00 | 130.57 | 36.17 |      | 80.0 |         |
| 10481-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.16   | 72.48  | 15.88 | 3.23 | 80.0 | ± 9.6 % |
|           |   | Y | 24.18  | 95.59  | 23.58 |      | 80.0 |         |
|           |   | Z | 100.00 | 127.95 | 34.86 |      | 80.0 |         |
| 10482-AAA | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 1.96   | 65.98  | 13.58 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 5.64   | 81.59  | 20.64 |      | 80.0 |         |
|           |   | Z | 100.00 | 127.97 | 34.02 |      | 80.0 |         |
| 10483-AAA | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.49   | 70.21  | 15.33 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 9.22   | 83.90  | 20.77 |      | 80.0 |         |
|           |   | Z | 100.00 | 128.26 | 35.29 |      | 80.0 |         |
| 10484-AAA | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.32   | 69.33  | 14.96 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 7.69   | 81.20  | 19.89 |      | 80.0 |         |
|           |   | Z | 100.00 | 127.48 | 34.99 |      | 80.0 |         |
| 10485-AAC | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 2.39   | 68.19  | 15.57 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 5.26   | 81.08  | 21.53 |      | 80.0 |         |
|           |   | Z | 100.00 | 133.28 | 37.08 |      | 80.0 |         |
| 10486-AAC | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.53   | 65.87  | 14.08 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 4.08   | 73.44  | 18.08 |      | 80.0 |         |
|           |   | Z | 100.00 | 124.45 | 33.58 |      | 80.0 |         |
| 10487-AAC | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.56   | 65.66  | 13.98 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 3.99   | 72.72  | 17.77 |      | 80.0 |         |
|           |   | Z | 100.00 | 123.84 | 33.38 |      | 80.0 |         |
| 10488-AAC | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 2.88   | 68.87  | 16.67 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 4.62   | 77.17  | 20.79 |      | 80.0 |         |
|           |   | Z | 100.00 | 133.82 | 38.32 |      | 80.0 |         |
| 10489-AAC | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.04   | 66.77  | 15.84 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 3.91   | 71.35  | 18.47 |      | 80.0 |         |
|           |   | Z | 9.87   | 89.46  | 26.24 |      | 80.0 |         |
| 10490-AAC | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.14   | 66.73  | 15.85 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 3.97   | 70.99  | 18.33 |      | 80.0 |         |
|           |   | Z | 8.76   | 86.64  | 25.27 |      | 80.0 |         |
| 10491-AAC | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 3.25   | 68.32  | 16.64 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 4.46   | 74.06  | 19.67 |      | 80.0 |         |
|           |   | Z | 16.65  | 99.46  | 29.56 |      | 80.0 |         |
| 10492-AAC | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.47   | 66.60  | 16.14 | 2.23 | 80.0 | ± 9.6 % |
|           |   | Y | 4.11   | 69.87  | 18.11 |      | 80.0 |         |
|           |   | Z | 6.30   | 79.04  | 22.87 |      | 80.0 |         |

|           |  |   |        |        |       |      |      |         |
|-----------|--|---|--------|--------|-------|------|------|---------|
| 10493-AAC | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.54   | 66.55  | 16.14 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.16   | 69.65  | 18.03 |      | 80.0 |         |
|           |  | Z | 6.12   | 78.04  | 22.47 |      | 80.0 |         |
| 10494-AAC | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 3.43   | 69.35  | 16.92 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 5.08   | 76.35  | 20.40 |      | 80.0 |         |
|           |  | Z | 37.13  | 113.21 | 33.12 |      | 80.0 |         |
| 10495-AAC | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.48   | 66.89  | 16.30 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.17   | 70.37  | 18.35 |      | 80.0 |         |
|           |  | Z | 6.63   | 80.25  | 23.38 |      | 80.0 |         |
| 10496-AAC | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.58   | 66.76  | 16.29 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.22   | 69.93  | 18.20 |      | 80.0 |         |
|           |  | Z | 6.24   | 78.46  | 22.71 |      | 80.0 |         |
| 10497-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 1.42   | 62.38  | 10.83 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 3.91   | 75.77  | 17.45 |      | 80.0 |         |
|           |  | Z | 100.00 | 120.52 | 30.09 |      | 80.0 |         |
| 10498-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.37   | 60.00  | 8.61  | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 2.01   | 64.49  | 11.62 |      | 80.0 |         |
|           |  | Z | 41.09  | 97.34  | 21.84 |      | 80.0 |         |
| 10499-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.39   | 60.00  | 8.48  | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 1.89   | 63.54  | 11.02 |      | 80.0 |         |
|           |  | Z | 5.19   | 74.74  | 15.22 |      | 80.0 |         |
| 10500-AAA | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 2.57   | 68.35  | 15.99 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.74   | 78.65  | 20.96 |      | 80.0 |         |
|           |  | Z | 100.00 | 133.37 | 37.55 |      | 80.0 |         |
| 10501-AAA | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.76   | 66.36  | 14.82 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 3.99   | 72.53  | 18.20 |      | 80.0 |         |
|           |  | Z | 37.62  | 110.73 | 31.16 |      | 80.0 |         |
| 10502-AAA | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 2.82   | 66.29  | 14.74 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.03   | 72.24  | 18.02 |      | 80.0 |         |
|           |  | Z | 29.89  | 106.28 | 29.87 |      | 80.0 |         |
| 10503-AAC | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)     | X | 2.85   | 68.70  | 16.58 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.54   | 76.90  | 20.67 |      | 80.0 |         |
|           |  | Z | 100.00 | 133.75 | 38.28 |      | 80.0 |         |
| 10504-AAC | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.03   | 66.68  | 15.78 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 3.89   | 71.24  | 18.41 |      | 80.0 |         |
|           |  | Z | 9.69   | 89.09  | 26.09 |      | 80.0 |         |
| 10505-AAC | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)   | X | 3.13   | 66.65  | 15.79 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 3.95   | 70.89  | 18.26 |      | 80.0 |         |
|           |  | Z | 8.61   | 86.33  | 25.15 |      | 80.0 |         |
| 10506-AAC | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)    | X | 3.40   | 69.23  | 16.86 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 5.02   | 76.15  | 20.31 |      | 80.0 |         |
|           |  | Z | 35.05  | 112.15 | 32.82 |      | 80.0 |         |
| 10507-AAC | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)  | X | 3.47   | 66.84  | 16.26 | 2.23 | 80.0 | ± 9.6 % |
|           |  | Y | 4.15   | 70.30  | 18.31 |      | 80.0 |         |
|           |  | Z | 6.58   | 80.11  | 23.32 |      | 80.0 |         |

|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10508-AAC | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.57   | 66.70  | 16.25 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.20   | 69.85  | 18.15 |      | 80.0  |         |
|           |   | Z | 6.19   | 78.29  | 22.63 |      | 80.0  |         |
| 10509-AAC | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 3.85   | 68.72  | 16.71 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 5.07   | 73.73  | 19.33 |      | 80.0  |         |
|           |   | Z | 11.66  | 89.86  | 26.23 |      | 80.0  |         |
| 10510-AAC | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.99   | 66.90  | 16.45 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.58   | 69.64  | 18.10 |      | 80.0  |         |
|           |   | Z | 6.01   | 75.75  | 21.63 |      | 80.0  |         |
| 10511-AAC | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.06   | 66.75  | 16.43 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.60   | 69.28  | 17.98 |      | 80.0  |         |
|           |   | Z | 5.84   | 74.71  | 21.24 |      | 80.0  |         |
| 10512-AAC | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)   | X | 3.89   | 69.69  | 16.95 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 5.60   | 76.17  | 20.13 |      | 80.0  |         |
|           |   | Z | 22.79  | 102.04 | 29.74 |      | 80.0  |         |
| 10513-AAC | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.86   | 67.04  | 16.49 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.49   | 70.06  | 18.28 |      | 80.0  |         |
|           |   | Z | 6.20   | 77.14  | 22.21 |      | 80.0  |         |
| 10514-AAC | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.91   | 66.76  | 16.43 | 2.23 | 80.0  | ± 9.6 % |
|           |   | Y | 4.47   | 69.48  | 18.08 |      | 80.0  |         |
|           |   | Z | 5.85   | 75.55  | 21.62 |      | 80.0  |         |
| 10515-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)           | X | 0.86   | 61.72  | 13.29 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 0.96   | 63.93  | 15.37 |      | 150.0 |         |
|           |   | Z | 1.46   | 79.09  | 25.79 |      | 150.0 |         |
| 10516-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)         | X | 0.40   | 64.69  | 12.76 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 0.91   | 79.80  | 21.72 |      | 150.0 |         |
|           |   | Z | 100.00 | 307.99 | 99.87 |      | 150.0 |         |
| 10517-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)          | X | 0.69   | 62.75  | 13.23 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 0.84   | 66.74  | 16.49 |      | 150.0 |         |
|           |   | Z | 100.00 | 187.53 | 56.74 |      | 150.0 |         |
| 10518-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)           | X | 4.41   | 66.27  | 15.84 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.52   | 66.89  | 16.32 |      | 150.0 |         |
|           |   | Z | 4.63   | 68.18  | 17.74 |      | 150.0 |         |
| 10519-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)          | X | 4.59   | 66.50  | 15.96 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.70   | 67.11  | 16.43 |      | 150.0 |         |
|           |   | Z | 4.81   | 68.36  | 17.82 |      | 150.0 |         |
| 10520-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)          | X | 4.44   | 66.44  | 15.87 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.56   | 67.09  | 16.36 |      | 150.0 |         |
|           |   | Z | 4.68   | 68.44  | 17.82 |      | 150.0 |         |
| 10521-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)          | X | 4.37   | 66.42  | 15.84 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.49   | 67.09  | 16.35 |      | 150.0 |         |
|           |   | Z | 4.62   | 68.48  | 17.84 |      | 150.0 |         |
| 10522-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)          | X | 4.43   | 66.53  | 15.94 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 4.55   | 67.18  | 16.44 |      | 150.0 |         |
|           |   | Z | 4.69   | 68.60  | 17.93 |      | 150.0 |         |

|           |  |   |      |       |       |      |       |         |
|-----------|--|---|------|-------|-------|------|-------|---------|
| 10523-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | X | 4.31 | 66.38 | 15.78 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.43 | 67.06 | 16.29 |      | 150.0 |         |
|           |  | Z | 4.58 | 68.52 | 17.81 |      | 150.0 |         |
| 10524-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | X | 4.37 | 66.44 | 15.90 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.49 | 67.10 | 16.40 |      | 150.0 |         |
|           |  | Z | 4.63 | 68.53 | 17.91 |      | 150.0 |         |
| 10525-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)          | X | 4.36 | 65.49 | 15.50 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.48 | 66.16 | 16.00 |      | 150.0 |         |
|           |  | Z | 4.63 | 67.54 | 17.48 |      | 150.0 |         |
| 10526-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)          | X | 4.52 | 65.84 | 15.64 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.65 | 66.52 | 16.14 |      | 150.0 |         |
|           |  | Z | 4.82 | 67.95 | 17.63 |      | 150.0 |         |
| 10527-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)          | X | 4.44 | 65.78 | 15.57 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.58 | 66.49 | 16.09 |      | 150.0 |         |
|           |  | Z | 4.75 | 67.97 | 17.61 |      | 150.0 |         |
| 10528-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)          | X | 4.46 | 65.80 | 15.61 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.59 | 66.51 | 16.12 |      | 150.0 |         |
|           |  | Z | 4.76 | 67.98 | 17.63 |      | 150.0 |         |
| 10529-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)          | X | 4.46 | 65.80 | 15.61 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.59 | 66.51 | 16.12 |      | 150.0 |         |
|           |  | Z | 4.76 | 67.98 | 17.63 |      | 150.0 |         |
| 10531-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)          | X | 4.44 | 65.88 | 15.61 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.58 | 66.62 | 16.14 |      | 150.0 |         |
|           |  | Z | 4.77 | 68.16 | 17.68 |      | 150.0 |         |
| 10532-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)          | X | 4.31 | 65.73 | 15.53 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.45 | 66.48 | 16.08 |      | 150.0 |         |
|           |  | Z | 4.63 | 68.06 | 17.66 |      | 150.0 |         |
| 10533-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)          | X | 4.47 | 65.85 | 15.60 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 4.60 | 66.56 | 16.12 |      | 150.0 |         |
|           |  | Z | 4.78 | 68.07 | 17.64 |      | 150.0 |         |
| 10534-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)          | X | 5.01 | 65.98 | 15.73 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.12 | 66.56 | 16.15 |      | 150.0 |         |
|           |  | Z | 5.27 | 67.65 | 17.43 |      | 150.0 |         |
| 10535-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)          | X | 5.08 | 66.16 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.18 | 66.73 | 16.22 |      | 150.0 |         |
|           |  | Z | 5.37 | 67.96 | 17.57 |      | 150.0 |         |
| 10536-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)          | X | 4.94 | 66.09 | 15.75 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.05 | 66.70 | 16.19 |      | 150.0 |         |
|           |  | Z | 5.24 | 67.93 | 17.55 |      | 150.0 |         |
| 10537-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)          | X | 5.00 | 66.06 | 15.75 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.11 | 66.66 | 16.17 |      | 150.0 |         |
|           |  | Z | 5.28 | 67.82 | 17.49 |      | 150.0 |         |
| 10538-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)          | X | 5.09 | 66.09 | 15.80 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.20 | 66.67 | 16.22 |      | 150.0 |         |
|           |  | Z | 5.35 | 67.77 | 17.50 |      | 150.0 |         |
| 10540-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)          | X | 5.03 | 66.12 | 15.83 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.13 | 66.69 | 16.24 |      | 150.0 |         |
|           |  | Z | 5.31 | 67.87 | 17.57 |      | 150.0 |         |

|           |  |   |      |       |       |      |       |         |
|-----------|--|---|------|-------|-------|------|-------|---------|
| 10541-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)  | X | 5.00 | 65.97 | 15.75 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.10 | 66.56 | 16.17 |      | 150.0 |         |
|           |  | Z | 5.26 | 67.66 | 17.46 |      | 150.0 |         |
| 10542-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)  | X | 5.15 | 66.06 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.26 | 66.62 | 16.21 |      | 150.0 |         |
|           |  | Z | 5.40 | 67.65 | 17.46 |      | 150.0 |         |
| 10543-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)  | X | 5.23 | 66.11 | 15.86 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.33 | 66.64 | 16.24 |      | 150.0 |         |
|           |  | Z | 5.48 | 67.68 | 17.49 |      | 150.0 |         |
| 10544-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)  | X | 5.33 | 66.11 | 15.75 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.42 | 66.66 | 16.13 |      | 150.0 |         |
|           |  | Z | 5.56 | 67.54 | 17.28 |      | 150.0 |         |
| 10545-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)  | X | 5.52 | 66.54 | 15.91 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.61 | 67.05 | 16.27 |      | 150.0 |         |
|           |  | Z | 5.85 | 68.25 | 17.57 |      | 150.0 |         |
| 10546-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)  | X | 5.39 | 66.30 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.49 | 66.87 | 16.20 |      | 150.0 |         |
|           |  | Z | 5.65 | 67.81 | 17.38 |      | 150.0 |         |
| 10547-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)  | X | 5.46 | 66.35 | 15.82 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.56 | 66.90 | 16.20 |      | 150.0 |         |
|           |  | Z | 5.73 | 67.87 | 17.39 |      | 150.0 |         |
| 10548-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)  | X | 5.70 | 67.27 | 16.25 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.79 | 67.77 | 16.61 |      | 150.0 |         |
|           |  | Z | 6.27 | 69.70 | 18.24 |      | 150.0 |         |
| 10550-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)  | X | 5.42 | 66.35 | 15.84 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.51 | 66.88 | 16.21 |      | 150.0 |         |
|           |  | Z | 5.72 | 67.99 | 17.48 |      | 150.0 |         |
| 10551-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)  | X | 5.42 | 66.37 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.52 | 66.93 | 16.20 |      | 150.0 |         |
|           |  | Z | 5.67 | 67.83 | 17.36 |      | 150.0 |         |
| 10552-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)  | X | 5.34 | 66.17 | 15.72 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.44 | 66.74 | 16.11 |      | 150.0 |         |
|           |  | Z | 5.57 | 67.60 | 17.25 |      | 150.0 |         |
| 10553-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)  | X | 5.42 | 66.21 | 15.77 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.52 | 66.76 | 16.15 |      | 150.0 |         |
|           |  | Z | 5.64 | 67.57 | 17.26 |      | 150.0 |         |
| 10554-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | X | 5.74 | 66.49 | 15.85 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.83 | 67.00 | 16.20 |      | 150.0 |         |
|           |  | Z | 5.99 | 67.81 | 17.29 |      | 150.0 |         |
| 10555-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | X | 5.86 | 66.79 | 15.98 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.95 | 67.29 | 16.33 |      | 150.0 |         |
|           |  | Z | 6.17 | 68.28 | 17.49 |      | 150.0 |         |
| 10556-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | X | 5.89 | 66.84 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.97 | 67.34 | 16.34 |      | 150.0 |         |
|           |  | Z | 6.18 | 68.28 | 17.48 |      | 150.0 |         |
| 10557-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | X | 5.85 | 66.73 | 15.96 | 0.00 | 150.0 | ± 9.6 % |
|           |  | Y | 5.94 | 67.25 | 16.32 |      | 150.0 |         |
|           |  | Z | 6.11 | 68.10 | 17.42 |      | 150.0 |         |



|           |   |   |        |        |       |      |       |         |
|-----------|---|---|--------|--------|-------|------|-------|---------|
| 10558-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)              | X | 5.89   | 66.89  | 16.06 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.99   | 67.41  | 16.41 |      | 150.0 |         |
|           |   | Z | 6.18   | 68.32  | 17.54 |      | 150.0 |         |
| 10560-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)              | X | 5.89   | 66.74  | 16.02 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.99   | 67.27  | 16.38 |      | 150.0 |         |
|           |   | Z | 6.14   | 68.07  | 17.45 |      | 150.0 |         |
| 10561-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)              | X | 5.82   | 66.72  | 16.05 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 5.91   | 67.23  | 16.40 |      | 150.0 |         |
|           |   | Z | 6.09   | 68.15  | 17.54 |      | 150.0 |         |
| 10562-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)              | X | 5.93   | 67.07  | 16.22 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 6.02   | 67.60  | 16.58 |      | 150.0 |         |
|           |   | Z | 6.23   | 68.56  | 17.73 |      | 150.0 |         |
| 10563-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)              | X | 6.10   | 67.21  | 16.25 | 0.00 | 150.0 | ± 9.6 % |
|           |   | Y | 6.23   | 67.82  | 16.65 |      | 150.0 |         |
|           |   | Z | 6.42   | 68.72  | 17.77 |      | 150.0 |         |
| 10564-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)  | X | 4.74   | 66.37  | 16.01 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.84   | 66.94  | 16.46 |      | 150.0 |         |
|           |   | Z | 4.93   | 67.97  | 17.70 |      | 150.0 |         |
| 10565-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | X | 4.96   | 66.82  | 16.35 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 5.07   | 67.39  | 16.78 |      | 150.0 |         |
|           |   | Z | 5.16   | 68.45  | 18.03 |      | 150.0 |         |
| 10566-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | X | 4.79   | 66.64  | 16.14 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.90   | 67.24  | 16.60 |      | 150.0 |         |
|           |   | Z | 5.00   | 68.35  | 17.89 |      | 150.0 |         |
| 10567-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | X | 4.82   | 67.04  | 16.51 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.94   | 67.66  | 16.97 |      | 150.0 |         |
|           |   | Z | 5.06   | 68.91  | 18.35 |      | 150.0 |         |
| 10568-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | X | 4.70   | 66.40  | 15.89 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.82   | 67.00  | 16.36 |      | 150.0 |         |
|           |   | Z | 4.91   | 68.11  | 17.64 |      | 150.0 |         |
| 10569-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | X | 4.78   | 67.14  | 16.57 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.90   | 67.77  | 17.04 |      | 150.0 |         |
|           |   | Z | 5.04   | 69.13  | 18.50 |      | 150.0 |         |
| 10570-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | X | 4.81   | 66.98  | 16.50 | 0.46 | 150.0 | ± 9.6 % |
|           |   | Y | 4.93   | 67.59  | 16.96 |      | 150.0 |         |
|           |   | Z | 5.05   | 68.87  | 18.36 |      | 150.0 |         |
| 10571-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)       | X | 1.04   | 62.79  | 14.08 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 1.18   | 65.50  | 16.40 |      | 130.0 |         |
|           |   | Z | 2.04   | 82.50  | 26.88 |      | 130.0 |         |
| 10572-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)       | X | 1.04   | 63.21  | 14.35 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 1.20   | 66.22  | 16.84 |      | 130.0 |         |
|           |   | Z | 2.48   | 87.58  | 29.01 |      | 130.0 |         |
| 10573-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)     | X | 0.84   | 70.94  | 15.96 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 25.46  | 129.84 | 35.99 |      | 130.0 |         |
|           |   | Z | 100.00 | 217.49 | 66.83 |      | 130.0 |         |
| 10574-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)      | X | 1.03   | 66.98  | 16.22 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 1.48   | 74.48  | 20.89 |      | 130.0 |         |
|           |   | Z | 100.00 | 181.51 | 55.51 |      | 130.0 |         |

|           |   |   |      |       |       |      |       |         |
|-----------|---|---|------|-------|-------|------|-------|---------|
| 10575-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)  | X | 4.52 | 66.13 | 16.03 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.63 | 66.75 | 16.53 |      | 130.0 |         |
|           |   | Z | 4.72 | 67.89 | 17.87 |      | 130.0 |         |
| 10576-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)  | X | 4.54 | 66.29 | 16.09 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.66 | 66.92 | 16.60 |      | 130.0 |         |
|           |   | Z | 4.76 | 68.14 | 17.98 |      | 130.0 |         |
| 10577-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | X | 4.74 | 66.59 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.86 | 67.21 | 16.77 |      | 130.0 |         |
|           |   | Z | 4.96 | 68.39 | 18.11 |      | 130.0 |         |
| 10578-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | X | 4.64 | 66.73 | 16.37 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.76 | 67.39 | 16.88 |      | 130.0 |         |
|           |   | Z | 4.89 | 68.74 | 18.33 |      | 130.0 |         |
| 10579-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | X | 4.40 | 65.97 | 15.63 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.52 | 66.65 | 16.18 |      | 130.0 |         |
|           |   | Z | 4.62 | 67.82 | 17.52 |      | 130.0 |         |
| 10580-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | X | 4.44 | 66.02 | 15.66 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.57 | 66.69 | 16.20 |      | 130.0 |         |
|           |   | Z | 4.67 | 67.87 | 17.53 |      | 130.0 |         |
| 10581-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | X | 4.53 | 66.73 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.66 | 67.45 | 16.84 |      | 130.0 |         |
|           |   | Z | 4.81 | 68.92 | 18.36 |      | 130.0 |         |
| 10582-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | X | 4.34 | 65.73 | 15.42 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.46 | 66.39 | 15.96 |      | 130.0 |         |
|           |   | Z | 4.55 | 67.53 | 17.26 |      | 130.0 |         |
| 10583-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)       | X | 4.52 | 66.13 | 16.03 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.63 | 66.75 | 16.53 |      | 130.0 |         |
|           |   | Z | 4.72 | 67.89 | 17.87 |      | 130.0 |         |
| 10584-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)       | X | 4.54 | 66.29 | 16.09 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.66 | 66.92 | 16.60 |      | 130.0 |         |
|           |   | Z | 4.76 | 68.14 | 17.98 |      | 130.0 |         |
| 10585-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)      | X | 4.74 | 66.59 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.86 | 67.21 | 16.77 |      | 130.0 |         |
|           |   | Z | 4.96 | 68.39 | 18.11 |      | 130.0 |         |
| 10586-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)      | X | 4.64 | 66.73 | 16.37 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.76 | 67.39 | 16.88 |      | 130.0 |         |
|           |   | Z | 4.89 | 68.74 | 18.33 |      | 130.0 |         |
| 10587-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)      | X | 4.40 | 65.97 | 15.63 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.52 | 66.65 | 16.18 |      | 130.0 |         |
|           |   | Z | 4.62 | 67.82 | 17.52 |      | 130.0 |         |
| 10588-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)      | X | 4.44 | 66.02 | 15.66 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.57 | 66.69 | 16.20 |      | 130.0 |         |
|           |   | Z | 4.67 | 67.87 | 17.53 |      | 130.0 |         |
| 10589-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)      | X | 4.53 | 66.73 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.66 | 67.45 | 16.84 |      | 130.0 |         |
|           |   | Z | 4.81 | 68.92 | 18.36 |      | 130.0 |         |
| 10590-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)      | X | 4.34 | 65.73 | 15.42 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.46 | 66.39 | 15.96 |      | 130.0 |         |
|           |   | Z | 4.55 | 67.53 | 17.26 |      | 130.0 |         |

|           |   |   |      |       |       |      |       |         |
|-----------|---|---|------|-------|-------|------|-------|---------|
| 10591-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | X | 4.67 | 66.22 | 16.15 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.78 | 66.80 | 16.62 |      | 130.0 |         |
|           |   | Z | 4.86 | 67.85 | 17.91 |      | 130.0 |         |
| 10592-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | X | 4.82 | 66.55 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.93 | 67.14 | 16.76 |      | 130.0 |         |
|           |   | Z | 5.02 | 68.23 | 18.05 |      | 130.0 |         |
| 10593-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | X | 4.74 | 66.43 | 16.15 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.86 | 67.05 | 16.64 |      | 130.0 |         |
|           |   | Z | 4.95 | 68.15 | 17.94 |      | 130.0 |         |
| 10594-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | X | 4.79 | 66.61 | 16.31 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.91 | 67.22 | 16.80 |      | 130.0 |         |
|           |   | Z | 5.01 | 68.36 | 18.12 |      | 130.0 |         |
| 10595-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | X | 4.76 | 66.55 | 16.20 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.88 | 67.17 | 16.69 |      | 130.0 |         |
|           |   | Z | 4.98 | 68.34 | 18.02 |      | 130.0 |         |
| 10596-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | X | 4.69 | 66.53 | 16.19 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.81 | 67.18 | 16.70 |      | 130.0 |         |
|           |   | Z | 4.92 | 68.37 | 18.06 |      | 130.0 |         |
| 10597-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | X | 4.64 | 66.42 | 16.06 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.76 | 67.08 | 16.58 |      | 130.0 |         |
|           |   | Z | 4.87 | 68.26 | 17.92 |      | 130.0 |         |
| 10598-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | X | 4.62 | 66.66 | 16.33 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.75 | 67.33 | 16.85 |      | 130.0 |         |
|           |   | Z | 4.87 | 68.62 | 18.28 |      | 130.0 |         |
| 10599-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | X | 5.36 | 66.82 | 16.42 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.45 | 67.32 | 16.81 |      | 130.0 |         |
|           |   | Z | 5.56 | 68.24 | 17.99 |      | 130.0 |         |
| 10600-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | X | 5.49 | 67.26 | 16.61 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.56 | 67.67 | 16.95 |      | 130.0 |         |
|           |   | Z | 5.87 | 69.29 | 18.48 |      | 130.0 |         |
| 10601-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | X | 5.37 | 66.98 | 16.49 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.46 | 67.46 | 16.87 |      | 130.0 |         |
|           |   | Z | 5.65 | 68.68 | 18.20 |      | 130.0 |         |
| 10602-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | X | 5.48 | 67.04 | 16.43 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.55 | 67.48 | 16.79 |      | 130.0 |         |
|           |   | Z | 5.78 | 68.80 | 18.16 |      | 130.0 |         |
| 10603-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | X | 5.55 | 67.32 | 16.71 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.64 | 67.79 | 17.08 |      | 130.0 |         |
|           |   | Z | 5.82 | 68.99 | 18.40 |      | 130.0 |         |
| 10604-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | X | 5.38 | 66.84 | 16.46 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.45 | 67.29 | 16.82 |      | 130.0 |         |
|           |   | Z | 5.58 | 68.28 | 18.03 |      | 130.0 |         |
| 10605-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | X | 5.48 | 67.13 | 16.60 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.55 | 67.58 | 16.96 |      | 130.0 |         |
|           |   | Z | 5.79 | 68.96 | 18.37 |      | 130.0 |         |
| 10606-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | X | 5.21 | 66.41 | 16.09 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.31 | 66.95 | 16.51 |      | 130.0 |         |
|           |   | Z | 5.39 | 67.75 | 17.62 |      | 130.0 |         |

|           |   |   |      |       |       |      |       |         |
|-----------|---|---|------|-------|-------|------|-------|---------|
| 10607-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | X | 4.50 | 65.48 | 15.75 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.63 | 66.16 | 16.27 |      | 130.0 |         |
|           |   | Z | 4.76 | 67.43 | 17.68 |      | 130.0 |         |
| 10608-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | X | 4.68 | 65.87 | 15.91 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.81 | 66.57 | 16.44 |      | 130.0 |         |
|           |   | Z | 4.96 | 67.88 | 17.86 |      | 130.0 |         |
| 10609-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | X | 4.57 | 65.70 | 15.73 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.70 | 66.42 | 16.28 |      | 130.0 |         |
|           |   | Z | 4.85 | 67.75 | 17.71 |      | 130.0 |         |
| 10610-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | X | 4.62 | 65.87 | 15.90 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.75 | 66.58 | 16.44 |      | 130.0 |         |
|           |   | Z | 4.91 | 67.95 | 17.90 |      | 130.0 |         |
| 10611-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | X | 4.53 | 65.67 | 15.74 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.67 | 66.38 | 16.29 |      | 130.0 |         |
|           |   | Z | 4.82 | 67.73 | 17.74 |      | 130.0 |         |
| 10612-AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | X | 4.53 | 65.80 | 15.77 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.68 | 66.54 | 16.34 |      | 130.0 |         |
|           |   | Z | 4.84 | 67.98 | 17.83 |      | 130.0 |         |
| 10613-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | X | 4.54 | 65.68 | 15.65 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.68 | 66.42 | 16.21 |      | 130.0 |         |
|           |   | Z | 4.83 | 67.77 | 17.65 |      | 130.0 |         |
| 10614-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | X | 4.48 | 65.87 | 15.89 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.63 | 66.62 | 16.46 |      | 130.0 |         |
|           |   | Z | 4.80 | 68.12 | 17.99 |      | 130.0 |         |
| 10615-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | X | 4.53 | 65.49 | 15.51 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 4.67 | 66.20 | 16.06 |      | 130.0 |         |
|           |   | Z | 4.81 | 67.48 | 17.45 |      | 130.0 |         |
| 10616-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | X | 5.16 | 66.01 | 16.00 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.27 | 66.60 | 16.44 |      | 130.0 |         |
|           |   | Z | 5.41 | 67.63 | 17.68 |      | 130.0 |         |
| 10617-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | X | 5.23 | 66.20 | 16.06 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.34 | 66.76 | 16.49 |      | 130.0 |         |
|           |   | Z | 5.54 | 68.02 | 17.85 |      | 130.0 |         |
| 10618-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | X | 5.11 | 66.18 | 16.07 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.22 | 66.79 | 16.52 |      | 130.0 |         |
|           |   | Z | 5.41 | 68.02 | 17.88 |      | 130.0 |         |
| 10619-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | X | 5.13 | 65.99 | 15.91 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.24 | 66.58 | 16.35 |      | 130.0 |         |
|           |   | Z | 5.42 | 67.75 | 17.67 |      | 130.0 |         |
| 10620-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | X | 5.22 | 66.04 | 15.98 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.33 | 66.62 | 16.42 |      | 130.0 |         |
|           |   | Z | 5.49 | 67.70 | 17.69 |      | 130.0 |         |
| 10621-AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | X | 5.22 | 66.19 | 16.18 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.33 | 66.76 | 16.61 |      | 130.0 |         |
|           |   | Z | 5.49 | 67.85 | 17.90 |      | 130.0 |         |
| 10622-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | X | 5.23 | 66.34 | 16.25 | 0.46 | 130.0 | ± 9.6 % |
|           |   | Y | 5.34 | 66.92 | 16.68 |      | 130.0 |         |
|           |   | Z | 5.55 | 68.18 | 18.05 |      | 130.0 |         |

|           |  |   |      |       |       |      |       |         |
|-----------|--|---|------|-------|-------|------|-------|---------|
| 10623-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)  | X | 5.11 | 65.86 | 15.88 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.22 | 66.44 | 16.31 |      | 130.0 |         |
|           |  | Z | 5.37 | 67.49 | 17.57 |      | 130.0 |         |
| 10624-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)  | X | 5.30 | 66.08 | 16.06 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.41 | 66.63 | 16.47 |      | 130.0 |         |
|           |  | Z | 5.56 | 67.66 | 17.71 |      | 130.0 |         |
| 10625-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)  | X | 5.65 | 67.00 | 16.57 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.76 | 67.56 | 16.98 |      | 130.0 |         |
|           |  | Z | 6.03 | 68.97 | 18.39 |      | 130.0 |         |
| 10626-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)  | X | 5.46 | 66.10 | 15.98 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.56 | 66.64 | 16.38 |      | 130.0 |         |
|           |  | Z | 5.69 | 67.48 | 17.50 |      | 130.0 |         |
| 10627-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)  | X | 5.71 | 66.69 | 16.24 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.79 | 67.17 | 16.60 |      | 130.0 |         |
|           |  | Z | 6.06 | 68.44 | 17.93 |      | 130.0 |         |
| 10628-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)  | X | 5.49 | 66.16 | 15.90 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.59 | 66.72 | 16.32 |      | 130.0 |         |
|           |  | Z | 5.75 | 67.65 | 17.48 |      | 130.0 |         |
| 10629-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)  | X | 5.56 | 66.22 | 15.93 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.67 | 66.77 | 16.33 |      | 130.0 |         |
|           |  | Z | 5.83 | 67.71 | 17.50 |      | 130.0 |         |
| 10630-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)  | X | 6.00 | 67.72 | 16.67 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 6.07 | 68.17 | 17.03 |      | 130.0 |         |
|           |  | Z | 6.71 | 70.51 | 18.84 |      | 130.0 |         |
| 10631-AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)  | X | 5.89 | 67.50 | 16.77 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 6.00 | 68.06 | 17.17 |      | 130.0 |         |
|           |  | Z | 6.28 | 69.41 | 18.54 |      | 130.0 |         |
| 10632-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)  | X | 5.68 | 66.76 | 16.42 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.77 | 67.25 | 16.78 |      | 130.0 |         |
|           |  | Z | 6.03 | 68.55 | 18.14 |      | 130.0 |         |
| 10633-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)  | X | 5.55 | 66.32 | 16.02 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.66 | 66.90 | 16.43 |      | 130.0 |         |
|           |  | Z | 5.78 | 67.69 | 17.53 |      | 130.0 |         |
| 10634-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)  | X | 5.53 | 66.36 | 16.09 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.65 | 66.93 | 16.51 |      | 130.0 |         |
|           |  | Z | 5.77 | 67.77 | 17.64 |      | 130.0 |         |
| 10635-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)  | X | 5.42 | 65.68 | 15.48 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.52 | 66.24 | 15.90 |      | 130.0 |         |
|           |  | Z | 5.61 | 66.90 | 16.91 |      | 130.0 |         |
| 10636-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | X | 5.88 | 66.48 | 16.08 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 5.97 | 66.99 | 16.45 |      | 130.0 |         |
|           |  | Z | 6.13 | 67.79 | 17.53 |      | 130.0 |         |
| 10637-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | X | 6.04 | 66.87 | 16.26 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 6.12 | 67.36 | 16.62 |      | 130.0 |         |
|           |  | Z | 6.37 | 68.41 | 17.81 |      | 130.0 |         |
| 10638-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | X | 6.03 | 66.83 | 16.22 | 0.46 | 130.0 | ± 9.6 % |
|           |  | Y | 6.13 | 67.34 | 16.59 |      | 130.0 |         |
|           |  | Z | 6.36 | 68.36 | 17.76 |      | 130.0 |         |

|           |  |   |        |        |       |       |       |         |
|-----------|--|---|--------|--------|-------|-------|-------|---------|
| 10639-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)     | X | 6.01   | 66.77  | 16.23 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.11   | 67.30  | 16.61 |       | 130.0 |         |
|           |  | Z | 6.28   | 68.13  | 17.70 |       | 130.0 |         |
| 10640-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)     | X | 6.01   | 66.77  | 16.17 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.11   | 67.30  | 16.55 |       | 130.0 |         |
|           |  | Z | 6.29   | 68.15  | 17.64 |       | 130.0 |         |
| 10641-AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)     | X | 6.07   | 66.72  | 16.17 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.15   | 67.20  | 16.52 |       | 130.0 |         |
|           |  | Z | 6.35   | 68.09  | 17.63 |       | 130.0 |         |
| 10642-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)     | X | 6.10   | 66.96  | 16.46 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.20   | 67.47  | 16.82 |       | 130.0 |         |
|           |  | Z | 6.37   | 68.31  | 17.92 |       | 130.0 |         |
| 10643-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)     | X | 5.94   | 66.64  | 16.19 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.03   | 67.14  | 16.56 |       | 130.0 |         |
|           |  | Z | 6.23   | 68.06  | 17.69 |       | 130.0 |         |
| 10644-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)     | X | 6.08   | 67.08  | 16.43 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.19   | 67.63  | 16.82 |       | 130.0 |         |
|           |  | Z | 6.38   | 68.53  | 17.94 |       | 130.0 |         |
| 10645-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)     | X | 6.34   | 67.46  | 16.59 | 0.46  | 130.0 | ± 9.6 % |
|           |  | Y | 6.49   | 68.13  | 17.03 |       | 130.0 |         |
|           |  | Z | 6.73   | 69.17  | 18.21 |       | 130.0 |         |
| 10646-AAD | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)  | X | 12.72  | 99.19  | 33.35 | 9.30  | 60.0  | ± 9.6 % |
|           |  | Y | 38.29  | 127.59 | 42.90 |       | 60.0  |         |
|           |  | Z | 100.00 | 156.53 | 52.24 |       | 60.0  |         |
| 10647-AAC | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | X | 11.53  | 97.66  | 32.97 | 9.30  | 60.0  | ± 9.6 % |
|           |  | Y | 31.46  | 123.83 | 42.04 |       | 60.0  |         |
|           |  | Z | 100.00 | 158.04 | 52.90 |       | 60.0  |         |
| 10648-AAA | CDMA2000 (1x Advanced)                                 | X | 0.53   | 61.07  | 8.36  | 0.00  | 150.0 | ± 9.6 % |
|           |  | Y | 0.71   | 64.63  | 11.33 |       | 150.0 |         |
|           |  | Z | 100.00 | 131.33 | 31.12 |       | 150.0 |         |
| 10652-AAB | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)         | X | 3.34   | 65.47  | 15.58 | 2.23  | 80.0  | ± 9.6 % |
|           |  | Y | 3.79   | 67.90  | 17.18 |       | 80.0  |         |
|           |  | Z | 5.08   | 74.52  | 20.94 |       | 80.0  |         |
| 10653-AAB | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)        | X | 3.92   | 65.25  | 16.00 | 2.23  | 80.0  | ± 9.6 % |
|           |  | Y | 4.24   | 66.88  | 17.11 |       | 80.0  |         |
|           |  | Z | 4.81   | 70.18  | 19.49 |       | 80.0  |         |
| 10654-AAB | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)        | X | 3.92   | 64.97  | 16.04 | 2.23  | 80.0  | ± 9.6 % |
|           |  | Y | 4.20   | 66.47  | 17.09 |       | 80.0  |         |
|           |  | Z | 4.67   | 69.32  | 19.28 |       | 80.0  |         |
| 10655-AAB | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)        | X | 3.99   | 64.97  | 16.10 | 2.23  | 80.0  | ± 9.6 % |
|           |  | Y | 4.26   | 66.44  | 17.11 |       | 80.0  |         |
|           |  | Z | 4.70   | 69.09  | 19.22 |       | 80.0  |         |
| 10658-AAA | Pulse Waveform (200Hz, 10%)                            | X | 6.09   | 75.48  | 15.93 | 10.00 | 50.0  | ± 9.6 % |
|           |  | Y | 100.00 | 113.01 | 27.29 |       | 50.0  |         |
|           |  | Z | 100.00 | 113.66 | 27.93 |       | 50.0  |         |
| 10659-AAA | Pulse Waveform (200Hz, 20%)                            | X | 7.36   | 78.97  | 15.80 | 6.99  | 60.0  | ± 9.6 % |
|           |  | Y | 100.00 | 111.38 | 25.51 |       | 60.0  |         |
|           |  | Z | 100.00 | 111.00 | 25.55 |       | 60.0  |         |

|           |                             |   |        |        |          |      |       |         |
|-----------|-----------------------------|---|--------|--------|----------|------|-------|---------|
| 10660-AAA | Pulse Waveform (200Hz, 40%) | X | 8.43   | 80.82  | 14.63    | 3.98 | 80.0  | ± 9.6 % |
|           |                             | Y | 100.00 | 111.85 | 24.40    |      | 80.0  |         |
|           |                             | Z | 100.00 | 110.00 | 23.61    |      | 80.0  |         |
| 10661-AAA | Pulse Waveform (200Hz, 60%) | X | 1.23   | 67.24  | 8.82     | 2.22 | 100.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 114.58 | 24.29    |      | 100.0 |         |
|           |                             | Z | 100.00 | 106.40 | 20.63    |      | 100.0 |         |
| 10662-AAA | Pulse Waveform (200Hz, 80%) | X | 0.20   | 60.00  | 3.70     | 0.97 | 120.0 | ± 9.6 % |
|           |                             | Y | 100.00 | 118.12 | 23.89    |      | 120.0 |         |
|           |                             | Z | 0.04   | 60.00  | 57467.54 |      | 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.

# APPENDIX D DIPOLE CALIBRATION CERTIFICATES



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY



中国认可  
国际互认  
校准  
CALIBRATION  
CNAS L0570

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Client

**BACL**

Certificate No: **Z16-97195**

## CALIBRATION CERTIFICATE

Object **D835V2 - SN: 445**

Calibration Procedure(s) **FD-Z11-003-01**  
**Calibration Procedures for dipole validation kits**

Calibration date: **October 26, 2016**

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

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

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|------------|--|-----------------------|
| Power Meter NRP2        | 101919     | 27-Jun-16 (CTTL, No.J16X04777)           | Jun-17                |
| Power sensor NRP-Z91    | 101547     | 27-Jun-16 (CTTL, No.J16X04777)           | Jun-17                |
| Reference Probe EX3DV4  | SN 7433    | 26-Sep-16(SPEAG,No.EX3-7433_Sep16)       | Sep-17                |
| DAE4                    | SN 777     | 22-Aug-16(CTTL-SPEAG,No.Z16-97138)       | Aug-17                |
| Secondary Standards     | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 01-Feb-16 (CTTL, No.J16X00893)           | Jan-17                |
| Network Analyzer E5071C | MY46110673 | 26-Jan-16 (CTTL, No.J16X00894)           | Jan-17                |

|                | Name        | Function                          | Signature |
|----------------|-------------|-----------------------------------|-----------|
| Calibrated by: | Zhao Jing   | SAR Test Engineer                 |           |
| Reviewed by:   | Qi Dianyuan | SAR Project Leader                |           |
| Approved by:   | Liu Wei     | Deputy Director of SEM Department |           |

Issued: October 27, 2016

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





In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

**Glossary:**

|       |  |
|-------|--|
| TSL   | tissue simulating liquid                   |
| ConvF | sensitivity in TSL / NORM <sub>x,y,z</sub> |
| 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, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, 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%.



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

### Measurement Conditions

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

|                              |                          |             |
|------------------------------|--------------------------|-------------|
| DASY Version                 | DASY52                   | 52.8.8.1258 |
| Extrapolation                | Advanced Extrapolation   |             |
| Phantom                      | Triple Flat Phantom 5.1C |             |
| Distance Dipole Center - TSL | 15 mm                    | with Spacer |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm        |             |
| Frequency                    | 835 MHz $\pm$ 1 MHz      |             |

### Head TSL parameters

The following parameters and calculations were applied.

|   | Temperature         | Permittivity   | Conductivity         |
|---|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 41.5           | 0.90 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 41.4 $\pm$ 6 % | 0.92 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | <1.0 °C             | ----           | ----                 |

### SAR result with Head TSL

|   |                    |                                |
|---|--------------------|--------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL   | Condition          |                                |
| SAR measured  | 250 mW input power | 2.41 mW / g                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 9.46 mW / g $\pm$ 20.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | Condition          |                                |
| SAR measured  | 250 mW input power | 1.58 mW / g                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 6.23 mW / g $\pm$ 20.4 % (k=2) |

### Body TSL parameters

The following parameters and calculations were applied.

|   | Temperature         | Permittivity   | Conductivity         |
|---|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 55.2           | 0.97 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 55.8 $\pm$ 6 % | 0.95 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | <1.0 °C             | ----           | ----                 |

### SAR result with Body TSL

|   |                    |                                |
|---|--------------------|--------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                                |
| SAR measured  | 250 mW input power | 2.36 mW / g                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 9.60 mW / g $\pm$ 20.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                                |
| SAR measured  | 250 mW input power | 1.59 mW / g                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 6.44 mW / g $\pm$ 20.4 % (k=2) |



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

## Appendix

### Antenna Parameters with Head TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 45.5Ω- 3.43jΩ |
| Return Loss                          | - 24.6dB      |

### Antenna Parameters with Body TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 47.5Ω- 7.29jΩ |
| Return Loss                          | - 22.1dB      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.497 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 |
|-----------------|-------|



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

**DASY5 Validation Report for Head TSL**

Date: 10.26.2016

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 445**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.922 \text{ S/m}$ ;  $\epsilon_r = 41.42$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7433; ConvF(9.82, 9.82, 9.82); Calibrated: 9/26/2016;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn777; Calibrated: 2016-08-22
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

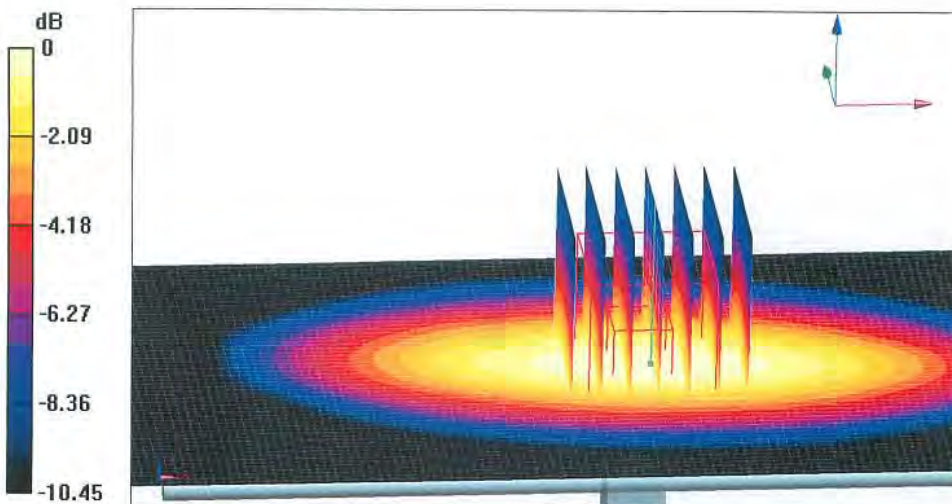
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $58.51 \text{ V/m}$ ; Power Drift =  $-0.02 \text{ dB}$

Peak SAR (extrapolated) =  $3.63 \text{ W/kg}$

**SAR(1 g) =  $2.41 \text{ W/kg}$ ; SAR(10 g) =  $1.58 \text{ W/kg}$**

Maximum value of SAR (measured) =  $3.07 \text{ W/kg}$



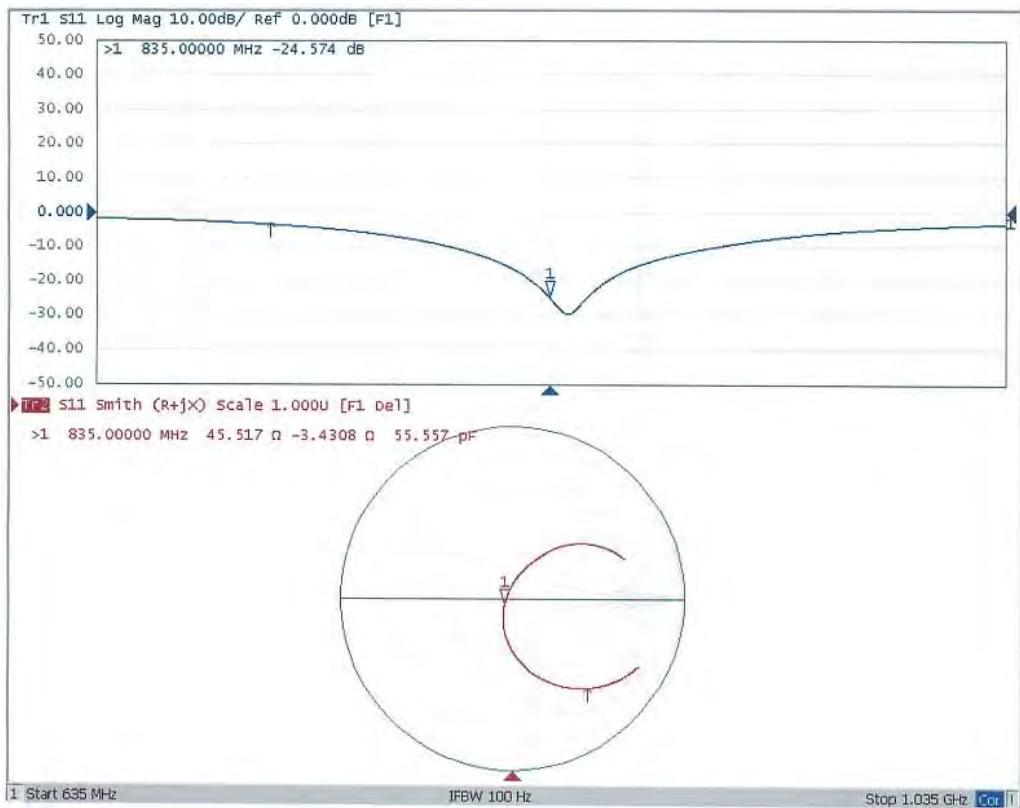
**0 dB =  $3.07 \text{ W/kg}$  =  $4.87 \text{ dBW/kg}$**



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

### Impedance Measurement Plot for Head TSL





In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

**DASY5 Validation Report for Body TSL**

Date: 10.26.2016

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 445**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.952 \text{ S/m}$ ;  $\epsilon_r = 55.79$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7433; ConvF(9.5,9.5, 9.5); Calibrated: 9/26/2016;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn777; Calibrated: 2016-08-22
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

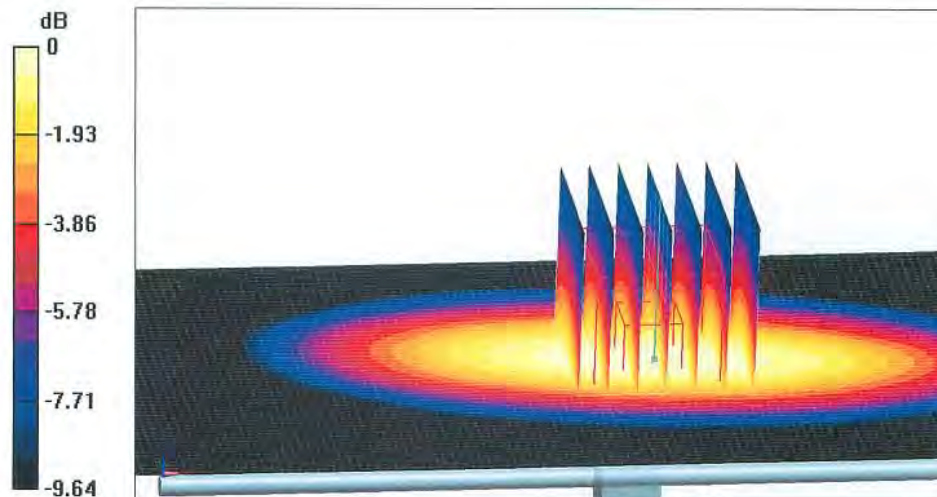
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 56.01 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.44 W/kg

**SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.59 W/kg**

Maximum value of SAR (measured) = 2.95 W/kg

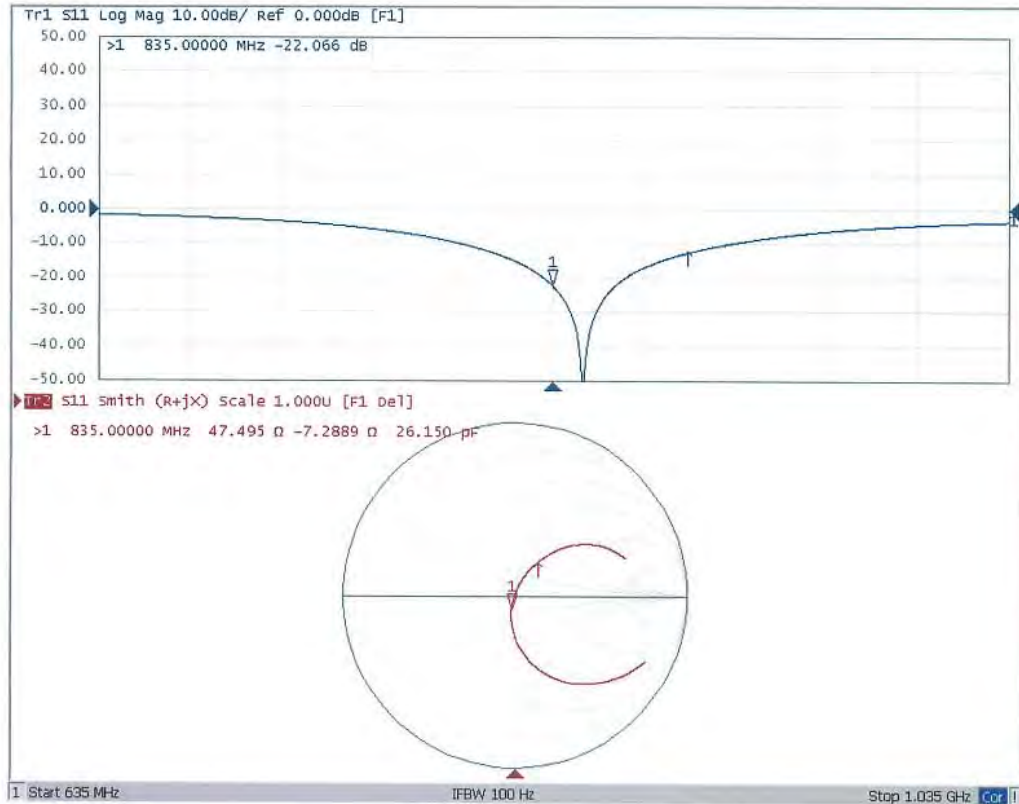




In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com Http://www.chinattl.cn

### Impedance Measurement Plot for Body TSL



---

**NCL CALIBRATION LABORATORIES**

Calibration File No: DC-1748  
Project Number: 5822

**Client: BACL Corp.**  
Address: 6/F, the 3rd Phase of Wan Li Industrial Bldg., Shihua Rd.,  
FuTian Free Trade Zone, Shenzhen, China

**CERTIFICATE OF CALIBRATION**

It is certified that the equipment identified below has been calibrated in the  
**NCL CALIBRATION LABORATORIES** by qualified personnel following recognized  
procedures and using transfer standards traceable to NRC/NIST.


Validation Dipole (Head & Body)

Manufacturer: APREL Laboratories  
Part number: ALS-D-1900-S-2  
Frequency: 1900 MHz  
Serial No: 210-00710

Calibrated: 20<sup>th</sup> September 2017  
Released on: 27<sup>th</sup> September 2017

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: \_\_\_\_\_



Art Brennan, Quality Manager

**NCL CALIBRATION LABORATORIES**

Suite 102, 303 Terry Fox Dr.  
Kanata, ONTARIO  
CANADA, K2K 3J1

Division of APREL Lab.  
TEL: (613) 435-8300  
FAX: (613)435-8306

---



---

**NCL Calibration Laboratories**

Division of APREL Laboratories

DC-1748

**Conditions**


Dipole 210-00710 was a re-calibration.

**Ambient Temperature of the Laboratory:** 21 °C +/- 0.5°C  
**Temperature of the Tissue:** 21 °C +/- 0.5°C

**Attestation**

The below named signatories have conducted the calibration and review of the data which is presented in this calibration report.

We the undersigned attest that to the best of our knowledge the calibration of this system has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Art Brennan QM



Maryna Nesterova R&amp;D Engineer

**Primary Measurement Standards**

| <b>Instrument</b>               | <b>Serial Number</b> | <b>Cal due date</b> |
|---------------------------------|----------------------|---------------------|
| Tektronix USB Power Meter       | 11C940               | April 13, 2019      |
| Network Analyzer Anritsu 37347C | 002106               | Jan. 26, 2019       |
| Agilent Signal Generator        | MY45094463           | Dec. 11, 2017       |

Dipole SN 210-00710

Page 2 of 7

This page has been reviewed for content and attested to on Page 2 of this document.

---

**Calibration Results Summary**

The following results relate the Calibrated Dipole and should be used as a quick reference for the user.

**Mechanical Dimensions**

| Length  | Height  | Diameter |
|---------|---------|----------|
| 67.5 mm | 39.5 mm | 3.6 mm   |

**Tissue Validation**

| Tissue | Frequency | Dielectric constant, $\epsilon_r$ | Conductivity, $\sigma$ [S/m] |
|--------|-----------|-----------------------------------|------------------------------|
| Head   | 1900 MHz  | 39.44                             | 1.41                         |
| Body   | 1900 MHz  | 52.70                             | 1.57                         |

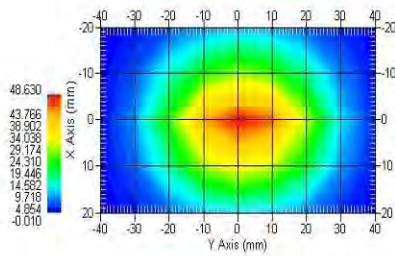
**Electrical Specification**

| Tissue | Frequency | Return Loss | SWR     | Impedance       |
|--------|-----------|-------------|---------|-----------------|
| Head   | 1900 MHz  | -28.662 dB  | 1.077 U | 52.368 $\Omega$ |
| Body   | 1900 MHz  | -22.498 dB  | 1.162 U | 55.211 $\Omega$ |

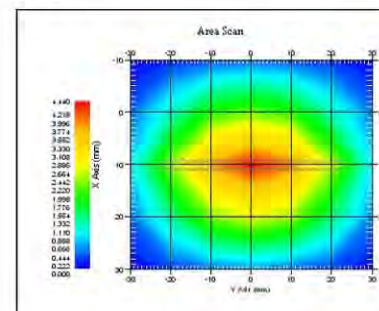
**System Validation Results**

| Tissue | Frequency | 1 Gram, W/kg | 10 Gram, W/kg |
|--------|-----------|--------------|---------------|
| Head   | 1900 MHz  | 42.14        | 21.89         |
| Body   | 1900 MHz  | 42.11        | 22.12         |

**Head**



**Body**



## Introduction

This Calibration Report has been produced in line with the SSI Dipole Calibration Procedure SSI-TP-018-ALSAS. The results contained within this report are for Validation Dipole 210-00710. The calibration routine consisted of a three-step process. Step 1 was a mechanical verification of the dipole to ensure that it meets the mechanical specifications. Step 2 was an Electrical Calibration for the Validation Dipole, where the SWR, Impedance, and the Return loss were assessed. Step 3 involved a System Validation using the ALSAS-10U, along with APREL E-020 30 MHz to 6 GHz E-Field Probe Serial Number 225.

## References

- IEEE Standard 1528:2013  
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- EN 62209-1:2006  
Human Exposure to RF Fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to measure the Specific Absorption Rate (SAR) for hand-held mobile wireless devices
- IEC 62209-2:2010  
Human exposure to RF fields from hand-held and body-mounted wireless devices - Human models, instrumentation, and procedures - Part 2: specific absorption rate (SAR) for wireless communication devices (30 MHz - 6 GHz)
- D22-012-Tissue dielectric tissue calibration procedure
- D28-002-Dipole procedure for validation of SAR system using a dipole
- IEEE 1309 Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 kHz to 40 GHz

## Conditions

**Ambient Temperature of the Laboratory:** 21 °C +/- 0.5°C

**Temperature of the Tissue:** 21 °C +/- 0.5°C

## Dipole Calibration uncertainty

The calibration uncertainty for the dipole is made up of various parameters presented below.

|                          |       |
|--------------------------|-------|
| <b>Mechanical</b>        | 1%    |
| <b>Positioning Error</b> | 1.22% |
| <b>Electrical</b>        | 1.7%  |
| <b>Tissue</b>            | 2.2%  |
| <b>Dipole Validation</b> | 2.2%  |

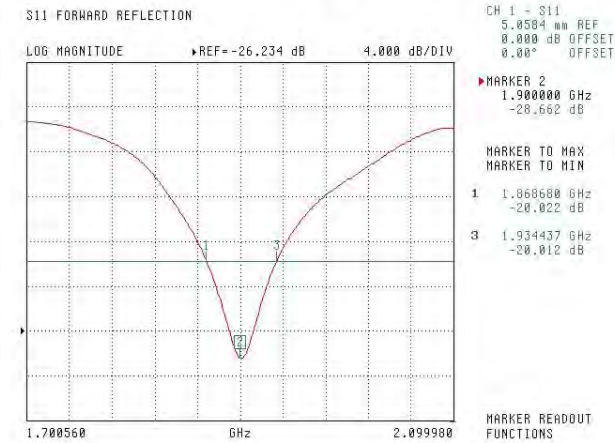
**Combined Standard Uncertainty** 3.88% (7.76% K=2)

The Following Graphs are the results as displayed on the Vector Network Analyzer.

## S11 Parameter Return Loss

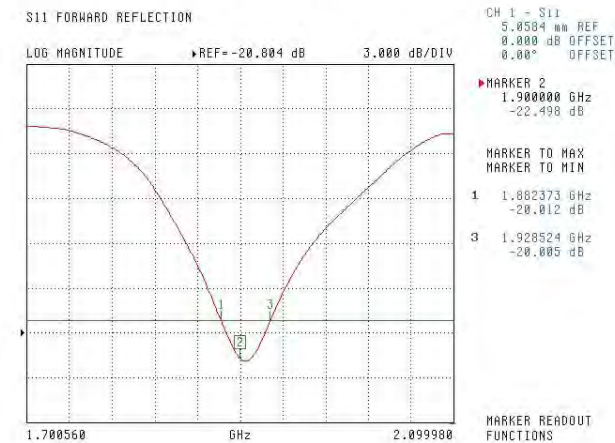
### Head

Frequency Range 1868.68 MHz to 1934.44 MHz



### Body

Frequency Range 1882.37 MHz to 1928.52 MHz



## SWR

### Head

S11 FORWARD REFLECTION

SWR REF=854.955 mU 300.000 mU/DIV



CH 1 - S11  
5.0584 m REF  
0.000 dB OFFSET  
0.00° OFFSET

MARKER 2  
1.900000 GHz  
1.077 U

MARKER TO MAX  
MARKER TO MIN

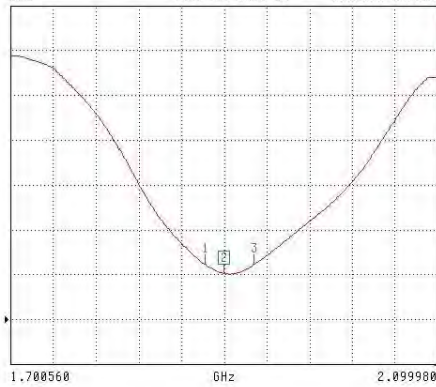
1 1.868680 GHz  
1.223 U  
3 1.934437 GHz  
1.223 U

MARKER READOUT  
FUNCTIONS

### Body

S11 FORWARD REFLECTION

SWR REF=854.955 mU 300.000 mU/DIV



CH 1 - S11  
5.0584 m REF  
0.000 dB OFFSET  
0.00° OFFSET

MARKER 2  
1.900000 GHz  
1.162 U

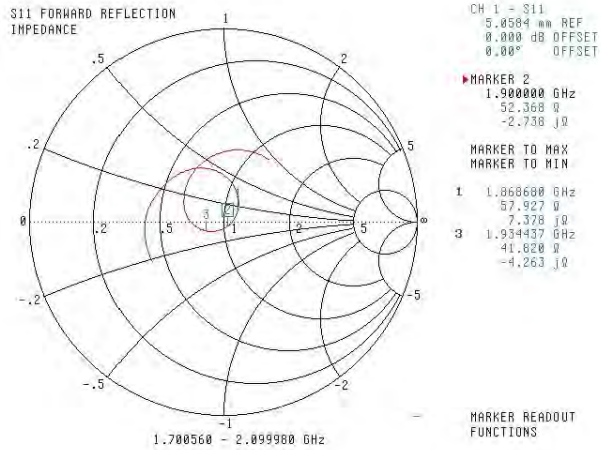
MARKER TO MAX  
MARKER TO MIN

1 1.882373 GHz  
1.223 U  
3 1.928524 GHz  
1.223 U

MARKER READOUT  
FUNCTIONS

## Smith Chart Dipole Impedance

### Head



### Body

