



SAR EVALUATION REPORT

Applicant Name:
 Samsung Electronics Co., Ltd.
 129, Samsung-ro, Maetan dong,
 Yeongtong-gu, Suwon-si
 Gyeonggi-do, 16677, Korea

Date of Testing:
 11/13/17 - 11/20/17
Test Site/Location:
 PCTEST Lab, Columbia, MD, USA
Document Serial No.:
 1M1711130295-01.A3L

FCC ID: A3LSMA730X


APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-A730X

Equipment Class	Band & Mode	Tx Frequency	SAR		
			1g Head (W/kg)	1g Body-Worn (W/kg)	10g Phablet (W/kg)
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.91	0.26	1.98
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.54	0.41	2.21
NII	U-NII-2C	5500 - 5720 MHz	0.66	0.24	1.70
NII	U-NII-3	5745 - 5825 MHz	1.01	0.31	1.88
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A	N/A	N/A

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.8 of this report; for North American frequency bands only.

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


 Randy Ortanez
 President



The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.





FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 1 of 28	

TABLE OF CONTENTS

1	DEVICE UNDER TEST	3
2	INTRODUCTION	6
3	DOSIMETRIC ASSESSMENT	7
4	DEFINITION OF REFERENCE POINTS.....	8
5	TEST CONFIGURATION POSITIONS.....	9
6	RF EXPOSURE LIMITS	12
7	FCC MEASUREMENT PROCEDURES.....	13
8	RF CONDUCTED POWERS.....	16
9	SYSTEM VERIFICATION.....	18
10	SAR DATA SUMMARY	20
11	SAR MEASUREMENT VARIABILITY	23
12	EQUIPMENT LIST.....	24
13	MEASUREMENT UNCERTAINTIES.....	25
14	CONCLUSION.....	26
15	REFERENCES	27
APPENDIX A:	SAR TEST PLOTS	
APPENDIX B:	SAR DIPOLE VERIFICATION PLOTS	
APPENDIX C:	PROBE AND DIPOLE CALIBRATION CERTIFICATES	
APPENDIX D:	SAR TISSUE SPECIFICATIONS	
APPENDIX E:	SAR SYSTEM VALIDATION	
APPENDIX F:	DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS	

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 2 of 28	

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
2.4 GHz WLAN	Data	2412 - 2472 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz

1.2 Power Reduction for SAR

This device uses an independent fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.



1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Modulated Average (dBm)				
		Ch 1-9	Ch 10	Ch 11	Ch 12	Ch 13
IEEE 802.11b (2.4 GHz)	Maximum	18.5			16.5	14.5
	Nominal	18.0			16.0	14.0
IEEE 802.11g (2.4 GHz)	Maximum	16.5	15.5	13.5	11.5	3.0
	Nominal	16.0	15.0	13.0	11.0	2.5
IEEE 802.11n (2.4 GHz)	Maximum	16.5	15.5	13.5	11.5	3.0
	Nominal	16.0	15.0	13.0	11.0	2.5

Mode / Band		Modulated Average (dBm)												
		20 MHz Bandwidth				40 MHz Bandwidth				80 MHz Bandwidth				
		Ch 36	Ch 40-60	Ch 64	Ch 100-165	Ch 38	Ch 46-54	Ch 62	Ch 102	Ch 110-159	Ch 42	Ch 58	Ch 106	Ch 122-155
IEEE 802.11a (5 GHz)	Maximum	13.5	15.5	14.5	15.5									
	Nominal	13.0	15.0	14.0	15.0									
IEEE 802.11n (5 GHz)	Maximum	13.5	15.5	14.5	15.5	8.5	14.5	7.5	12.5	14.5				
	Nominal	13.0	15.0	14.0	15.0	8.0	14.0	7.0	12.0	14.0				
IEEE 802.11ac (5 GHz)	Maximum	13.5	15.5	14.5	15.5	8.5	14.5	7.5	12.5	14.5	7.5	5.5	7.5	13.5
	Nominal	13.0	15.0	14.0	15.0	8.0	14.0	7.0	12.0	14.0	7.0	5.0	7.0	13.0

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 3 of 28

Mode / Band		Modulated Average (dBm)
Bluetooth	Maximum	8.5
	Nominal	8.0
Bluetooth LE	Maximum	6.0
	Nominal	5.5

1.3.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)			
		Ch 1-10	Ch 11	Ch 12	Ch 13
IEEE 802.11b (2.4 GHz)	Maximum	15.5			14.5
	Nominal	15.0			14.0
IEEE 802.11g (2.4 GHz)	Maximum	15.5	13.5	11.5	3.0
	Nominal	15.0	13.0	11.0	2.5
IEEE 802.11n (2.4 GHz)	Maximum	15.5	13.5	11.5	3.0
	Nominal	15.0	13.0	11.0	2.5

Mode / Band		Modulated Average (dBm)												
		20 MHz Bandwidth				40 MHz Bandwidth				80 MHz Bandwidth				
		Ch 36	Ch 40-60	Ch 64	Ch 100-165	Ch 38	Ch 46-54	Ch 62	Ch 102	Ch 110-159	Ch 42	Ch 58	Ch 106	Ch 122-155
IEEE 802.11a (5 GHz)	Maximum	13.5	15.5	14.5	15.5									
	Nominal	13.0	15.0	14.0	15.0									
IEEE 802.11n (5 GHz)	Maximum	13.5				8.5	13.5	7.5	12.5	13.5				
	Nominal	13.0				8.0	13.0	7.0	12.0	13.0				
IEEE 802.11ac (5 GHz)	Maximum	13.5				8.5	13.5	7.5	12.5	13.5	7.5	5.5	7.5	13.5
	Nominal	13.0				8.0	13.0	7.0	12.0	13.0	7.0	5.0	7.0	13.0

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix F. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a “phablet.”

Mode	Back	Front	Top	Bottom	Right	Left
2.4 GHz WLAN	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN	Yes	Yes	Yes	No	No	Yes



Note: Particular DUT edges were not required to be evaluated for phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing.

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

There are no simultaneous transmission capabilities. 2.4 GHz and 5 GHz WLAN and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 4 of 28	

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Per FCC KDB 447498 D01v06, the 1g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency(GHz)}} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, body-worn Bluetooth SAR was not required; $[(7/15) * \sqrt{2.480}] = 0.7 < 3.0$. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB 447498 D01v06, the 10g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency(GHz)}} \leq 7.5$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, phablet Bluetooth SAR was not required; $[(7/5) * \sqrt{2.480}] = 2.2 < 7.5$. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 1 Tx antenna output
- d) 256 QAM is supported
- e) TDWR and Band gap channels are supported



This device does not support network-based voice services but does support VOIP operations. Therefore, this device was evaluated per the procedures outlined in KDB 648474 D04 for handsets.

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 10.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 5 of 28	

2 INTRODUCTION

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

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

2.1 SAR Definition

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

Equation 2-1
SAR Mathematical Equation

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



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

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

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

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

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 6 of 28

3 DOSIMETRIC ASSESSMENT

3.1 Measurement Procedure

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

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

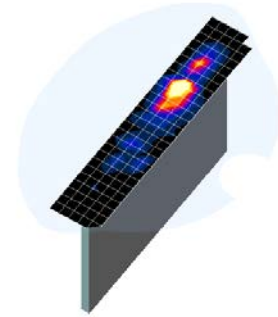




Figure 3-1
Sample SAR Area Scan

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

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

*Also compliant to IEEE 1528-2013 Table 6

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 7 of 28	

4.1 EAR REFERENCE POINT

Figure 4-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 4-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 4-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

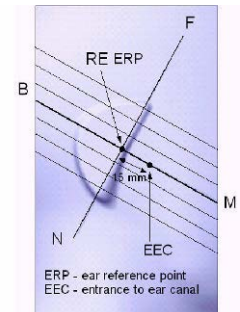


Figure 4-1
Close-Up Side view of ERP

4.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 4-3). The acoustic output was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.



Figure 4-2
Front, back and side view of SAM Twin Phantom

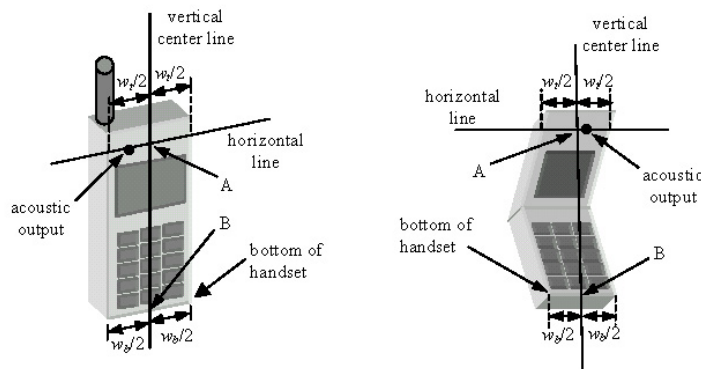


Figure 4-3
Handset Vertical Center & Horizontal Line Reference Points

FCC ID: A3LSMA730X	PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 8 of 28

5 TEST CONFIGURATION POSITIONS

5.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

5.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 5-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

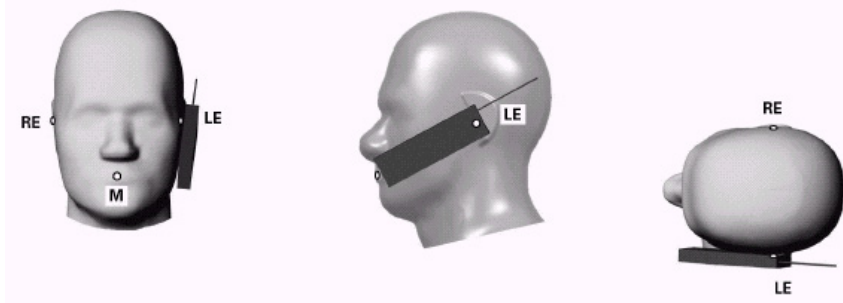




Figure 5-1 Front, Side and Top View of Cheek Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the pinna.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the reference plane.
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 5-2).

5.3 Positioning for Ear / 15° Tilt

With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. In this situation, the tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 5-2).

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 9 of 28

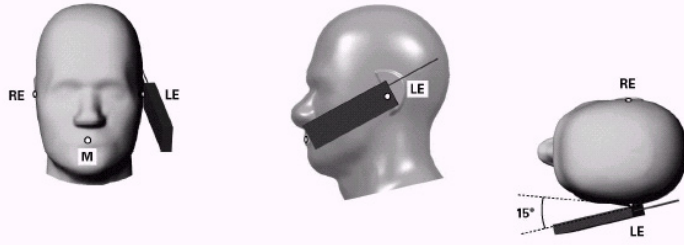


Figure 5-2 Front, Side and Top View of Ear/15° Tilt Position

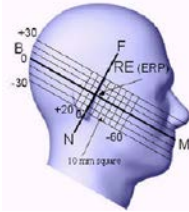


Figure 5-3 Side view w/ relevant markings

5.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. Per IEEE 1528-2013, a rotated SAM phantom is necessary to allow probe access to such regions. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed from the table for emptying and cleaning.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

5.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

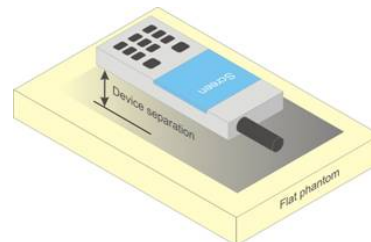




Figure 6-4 Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT	 SAMSUNG	Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 10 of 28

contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



5.6 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

5.7 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna <=25 mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 11 of 28	

6 RF EXPOSURE LIMITS

6.1 Uncontrolled Environment

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



6.2 Controlled Environment

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

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

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

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

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 12 of 28

7 FCC MEASUREMENT PROCEDURES

7.1 Measured and Reported SAR

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

7.2 SAR Testing with 802.11 Transmitters

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

7.2.1 General Device Setup

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



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

7.2.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg.

7.2.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 13 of 28

7.2.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.

7.2.5 2.4 GHz SAR Test Requirements

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

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

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



7.2.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

7.2.7 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.



When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 14 of 28

same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 7.4.6).

7.2.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required.

FCC ID: A3LSMA730X	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 15 of 28

8 RF CONDUCTED POWERS

8.1 WLAN Conducted Powers

Table 8-1
Maximum 2.4 GHz WLAN Average RF Power



2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	17.40	15.88	15.34
2437	6	17.77	16.29	15.67
2457	10	N/A	14.98	15.16
2462	11	17.94	13.08	13.29

Table 8-2
Reduced 2.4 GHz WLAN Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	14.91	14.79	14.40
2437	6	15.26	14.71	15.19
2462	11	15.09	13.08	13.29

Table 8-3
5 GHz WLAN Average RF Power

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	12.84	12.77	13.46
5200	40	15.38	15.00	15.25
5220	44	15.01	14.79	15.10
5240	48	15.10	14.87	14.88
5260	52	15.41	15.21	15.24
5280	56	15.33	15.35	15.14
5300	60	14.89	15.09	15.41
5320	64	13.65	14.08	14.49
5500	100	15.47	15.16	15.49
5600	120	14.88	14.88	15.06
5620	124	14.95	14.75	14.72
5720	144	14.96	14.81	14.91
5745	149	14.92	15.02	15.04
5785	157	14.76	14.81	14.79
5825	165	14.89	14.85	14.59

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 16 of 28

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

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

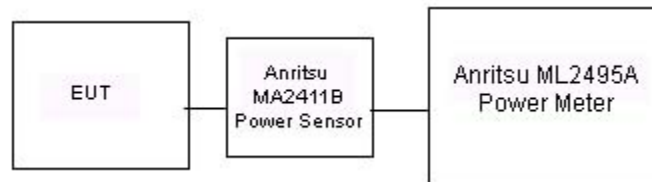




Figure 8-1
Power Measurement Setup for Bandwidths < 50 MHz

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 17 of 28	



9 SYSTEM VERIFICATION

9.1 Tissue Verification

**Table 9-1
Measured Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/13/2017	2450H	20.7	2400	1.812	39.862	1.756	39.289	3.19%	1.46%
			2450	1.874	39.694	1.800	39.200	4.11%	1.26%
			2500	1.925	39.472	1.855	39.136	3.77%	0.86%
11/14/2017	5250H-5750H	20.0	5240	4.660	35.083	4.696	35.940	-0.77%	-2.38%
			5260	4.682	35.048	4.717	35.917	-0.74%	-2.42%
			5500	4.926	34.699	4.963	35.643	-0.75%	-2.65%
			5600	5.029	34.557	5.065	35.529	-0.71%	-2.74%
			5745	5.194	34.295	5.214	35.363	-0.38%	-3.02%
			5765	5.221	34.256	5.234	35.340	-0.25%	-3.07%
			5785	5.244	34.230	5.255	35.317	-0.21%	-3.08%
			5825	5.291	34.193	5.296	35.271	-0.09%	-3.06%
11/20/2017	5750H	20.9	5745	5.026	34.291	5.214	35.363	-3.61%	-3.03%
			5765	5.048	34.286	5.234	35.340	-3.55%	-2.98%
			5825	5.098	34.217	5.296	35.271	-3.74%	-2.99%
11/13/2017	2450B	22.8	2400	1.964	51.206	1.902	52.767	3.26%	-2.96%
			2450	2.029	51.000	1.950	52.700	4.05%	-3.23%
			2500	2.098	50.776	2.021	52.636	3.81%	-3.53%
11/15/2017	5250B-5750B	21.6	5240	5.425	47.585	5.346	48.960	1.48%	-2.81%
			5260	5.435	47.511	5.369	48.933	1.23%	-2.91%
			5280	5.467	47.505	5.393	48.906	1.37%	-2.86%
			5300	5.487	47.474	5.416	48.879	1.31%	-2.87%
			5500	5.754	47.162	5.650	48.607	1.84%	-2.97%
			5600	5.895	46.927	5.766	48.471	2.24%	-3.19%
			5745	6.113	46.682	5.936	48.275	2.98%	-3.30%
			5765	6.142	46.671	5.959	48.248	3.07%	-3.27%

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

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 18 of 28	

9.2 Test System Verification

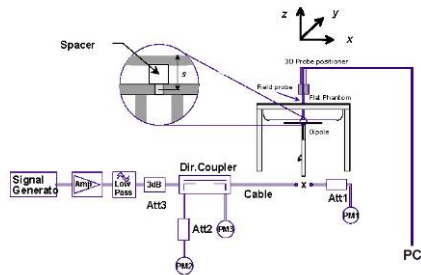
Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

**Table 9-2
System Verification Results – 1g**

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
E	2450	HEAD	11/13/2017	20.3	20.7	0.100	981	3319	4.950	52.800	49.500	-6.25%
H	5250	HEAD	11/14/2017	22.0	19.6	0.050	1057	3914	3.770	81.600	75.400	-7.60%
H	5600	HEAD	11/14/2017	22.0	19.6	0.050	1057	3914	4.180	83.700	83.600	-0.12%
H	5750	HEAD	11/14/2017	22.0	19.6	0.050	1057	3914	4.050	80.000	81.000	1.25%
H	5750	HEAD	11/20/2017	22.4	20.9	0.050	1191	3914	3.770	79.100	75.400	-4.68%
I	2450	BODY	11/13/2017	21.3	21.0	0.100	719	3213	4.860	50.100	48.600	-2.99%
D	5250	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	3.680	76.900	73.600	-4.29%
D	5600	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	3.860	78.500	77.200	-1.66%
D	5750	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	3.690	77.100	73.800	-4.28%

**Table 9-3
System Verification Results – 10g**

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR _{10g} (W/kg)	1 W Target SAR _{10g} (W/kg)	1 W Normalized SAR _{10g} (W/kg)	Deviation _{10g} (%)
I	2450	BODY	11/13/2017	21.3	21.0	0.100	719	3213	2.190	23.700	21.900	-7.59%
D	5250	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	1.040	21.500	20.800	-3.26%
D	5600	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	1.060	22.100	21.200	-4.07%
D	5750	BODY	11/15/2017	22.1	21.7	0.050	1237	7308	1.020	21.400	20.400	-4.67%



**Figure 9-1
System Verification Setup Diagram**



**Figure 9-2
System Verification Setup Photo**

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset		Page 19 of 28

10 SAR DATA SUMMARY

10.1 Standalone Head SAR Data

**Table 10-1
DTS Head SAR**



MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	15.5	14.91	-0.13	Right	Cheek	L1SXW	1	99.4	0.626	0.586	1.146	1.006	0.676	
2437	6	802.11b	DSSS	22	15.5	15.26	0.15	Right	Cheek	L1SXW	1	99.4	1.119	0.740	1.057	1.006	0.787	
2462	11	802.11b	DSSS	22	15.5	15.09	-0.19	Right	Cheek	L1SXW	1	99.4	1.008	0.802	1.099	1.006	0.887	
2437	6	802.11b	DSSS	22	15.5	15.26	0.03	Right	Tilt	L1SXW	1	99.4	1.094	0.616	1.057	1.006	0.655	
2437	6	802.11b	DSSS	22	15.5	15.26	-0.14	Left	Cheek	L1SXW	1	99.4	0.901	-	1.057	1.006	-	
2437	6	802.11b	DSSS	22	15.5	15.26	0.19	Left	Tilt	L1SXW	1	99.4	0.777	-	1.057	1.006	-	
2462	11	802.11b	DSSS	22	15.5	15.09	0.19	Right	Cheek	L1SXW	1	99.4	0.941	0.823	1.099	1.006	0.910	A1
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Blue entry indicates variability measurement.

**Table 10-2
NII Head SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	15.5	15.41	-0.18	Right	Cheek	L1QSZ	6	98.4	0.954	0.519	1.021	1.016	0.538	
5260	52	802.11a	OFDM	20	15.5	15.41	0.13	Right	Tilt	L1QSZ	6	98.4	0.711	0.444	1.021	1.016	0.461	
5260	52	802.11a	OFDM	20	15.5	15.41	0.12	Left	Cheek	L1QSZ	6	98.4	0.366	-	1.021	1.016	-	
5260	52	802.11a	OFDM	20	15.5	15.41	-0.06	Left	Tilt	L1QSZ	6	98.4	0.361	-	1.021	1.016	-	
5500	100	802.11a	OFDM	20	15.5	15.47	0.10	Right	Cheek	L1QSZ	6	98.4	1.271	0.640	1.007	1.016	0.655	
5500	100	802.11a	OFDM	20	15.5	15.47	0.16	Right	Tilt	L1QSZ	6	98.4	1.049	0.494	1.007	1.016	0.505	
5500	100	802.11a	OFDM	20	15.5	15.47	0.11	Left	Cheek	L1QSZ	6	98.4	0.643	-	1.007	1.016	-	
5500	100	802.11a	OFDM	20	15.5	15.47	0.19	Left	Tilt	L1QSZ	6	98.4	0.648	-	1.007	1.016	-	
5745	149	802.11a	OFDM	20	15.5	14.92	0.03	Right	Cheek	L1QSZ	6	98.4	1.524	0.769	1.143	1.016	0.893	
5785	157	802.11a	OFDM	20	15.5	14.76	0.02	Right	Cheek	L1QSZ	6	98.4	1.669	0.715	1.186	1.016	0.862	
5825	165	802.11a	OFDM	20	15.5	14.89	0.14	Right	Cheek	L1QSZ	6	98.4	1.360	0.867	1.151	1.016	1.014	A2
5745	149	802.11a	OFDM	20	15.5	14.92	0.14	Right	Tilt	L1QSZ	6	98.4	1.100	-	1.143	1.016	-	
5745	149	802.11a	OFDM	20	15.5	14.92	-0.06	Left	Cheek	L1QSZ	6	98.4	1.643	0.720	1.143	1.016	0.836	
5825	165	802.11a	OFDM	20	15.5	14.89	-0.18	Left	Cheek	L1QSZ	6	98.4	1.695	0.708	1.151	1.016	0.828	
5745	149	802.11a	OFDM	20	15.5	14.92	-0.19	Left	Tilt	L1QSZ	6	98.4	1.470	0.570	1.143	1.016	0.662	
5825	165	802.11a	OFDM	20	15.5	14.89	0.14	Right	Cheek	L1QSZ	6	98.4	1.320	0.859	1.151	1.016	1.005	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Blue entry indicates variability measurement.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 20 of 28	

10.2 Standalone Body-Worn SAR Data

**Table 10-3
DTS Body-Worn SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	18.5	17.94	0.11	15 mm	L1S7Y	1	back	99.4	0.281	0.231	1.138	1.006	0.264	A3
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram								

**Table 10-4
NII Body-Worn SAR**



MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	15.5	15.41	-0.08	15 mm	L1QSZ	6	back	98.4	0.874	0.399	1.021	1.016	0.414	A4
5500	100	802.11a	OFDM	20	15.5	15.47	-0.08	15 mm	L1QSZ	6	back	98.4	0.487	0.232	1.007	1.016	0.237	
5745	149	802.11a	OFDM	20	15.5	14.92	-0.10	15 mm	L1QSZ	6	back	98.4	0.639	0.268	1.143	1.016	0.311	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram								

10.3 Standalone Phablet SAR Data

**Table 10-5
WLAN Phablet SAR Data**

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	18.5	17.40	-0.15	0 mm	L1S7Y	1	back	99.4	4.268	1.530	1.288	1.006	1.982	A5
2437	6	802.11b	DSSS	22	18.5	17.77	0.05	0 mm	L1S7Y	1	back	99.4	3.167	1.230	1.183	1.006	1.464	
2462	11	802.11b	DSSS	22	18.5	17.94	-0.17	0 mm	L1S7Y	1	back	99.4	4.067	1.510	1.138	1.006	1.729	
2462	11	802.11b	DSSS	22	18.5	17.94	0.13	0 mm	L1S7Y	1	front	99.4	2.535	-	1.138	1.006	-	
2462	11	802.11b	DSSS	22	18.5	17.94	0.10	0 mm	L1S7Y	1	top	99.4	2.754	0.501	1.138	1.006	0.574	
2462	11	802.11b	DSSS	22	18.5	17.94	0.17	0 mm	L1S7Y	1	left	99.4	0.801	-	1.138	1.006	-	
5260	52	802.11a	OFDM	20	15.5	15.41	-0.01	0 mm	L1QSZ	6	back	98.4	38.005	2.130	1.021	1.016	2.210	A6
5280	56	802.11a	OFDM	20	15.5	15.33	0.02	0 mm	L1QSZ	6	back	98.4	35.570	1.990	1.040	1.016	2.103	
5300	60	802.11a	OFDM	20	15.5	14.89	0.01	0 mm	L1QSZ	6	back	98.4	31.531	1.820	1.151	1.016	2.128	
5260	52	802.11a	OFDM	20	15.5	15.41	-0.11	0 mm	L1QSZ	6	front	98.4	1.918	0.264	1.021	1.016	0.274	
5260	52	802.11a	OFDM	20	15.5	15.41	0.11	0 mm	L1QSZ	6	top	98.4	1.436	-	1.021	1.016	-	
5260	52	802.11a	OFDM	20	15.5	15.41	0.10	0 mm	L1QSZ	6	left	98.4	0.764	-	1.021	1.016	-	
5500	100	802.11a	OFDM	20	15.5	15.47	0.02	0 mm	L1QSZ	6	back	98.4	29.965	1.660	1.007	1.016	1.698	
5500	100	802.11a	OFDM	20	15.5	15.47	-0.14	0 mm	L1QSZ	6	front	98.4	3.659	0.425	1.007	1.016	0.435	
5500	100	802.11a	OFDM	20	15.5	15.47	0.11	0 mm	L1QSZ	6	top	98.4	0.825	-	1.007	1.016	-	
5500	100	802.11a	OFDM	20	15.5	15.47	0.00	0 mm	L1QSZ	6	left	98.4	0.772	-	1.007	1.016	-	
5745	149	802.11a	OFDM	20	15.5	14.92	-0.01	0 mm	L1QSZ	6	back	98.4	25.557	1.620	1.143	1.016	1.881	
5745	149	802.11a	OFDM	20	15.5	14.92	-0.11	0 mm	L1QSZ	6	front	98.4	3.439	0.493	1.143	1.016	0.573	
5745	149	802.11a	OFDM	20	15.5	14.92	0.11	0 mm	L1QSZ	6	top	98.4	0.894	-	1.143	1.016	-	
5745	149	802.11a	OFDM	20	15.5	14.92	0.15	0 mm	L1QSZ	6	left	98.4	1.064	-	1.143	1.016	-	
5260	52	802.11a	OFDM	20	15.5	15.41	0.03	0 mm	L1QSZ	6	back	98.4	35.916	2.060	1.021	1.016	2.137	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Phablet 4.0 W/kg (mW/g) averaged over 10 grams								

Note: Blue entry indicates variability measurement.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 21 of 28	



10.4 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1g SAR or 2.0 W/kg for 10g SAR. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 11 for variability analysis.
9. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests were evaluated.

WLAN Notes:

1. For held-to-ear and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations or ≤ 1.0 W/kg for 10g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg for 1g SAR or ≤ 2.0 W/kg for 10g SAR or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.2.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 7.2.6 for more information.
4. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg or the maximum report 10g average SAR is ≤ 2.0 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g or ≤ 3.0 W/kg for 10g or evaluations or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 22 of 28	

11 SAR MEASUREMENT VARIABILITY

11.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

**Table 11-1
Head SAR Measurement Variability Results**



HEAD VARIABILITY RESULTS														
Band	FREQUENCY		Mode/Band	Service	Side	Test Position	Data Rate (Mbps)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2450	2462.00	11	802.11b, 22 MHz Bandwidth	DSSS	Right	Cheek	1	0.802	0.823	1.03	N/A	N/A	N/A	N/A
5750	5825.00	165	802.11a, 20 MHz Bandwidth	OFDM	Right	Cheek	6	0.867	0.859	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-2
Phablet SAR Measurement Variability Results**

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
5250	5260.00	52	802.11a, 20 MHz Bandwidth	OFDM	6	back	0 mm	2.130	2.060	1.03	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

11.2 Measurement Uncertainty



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

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 23 of 28	

12 EQUIPMENT LIST



Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/22/2017	Annual	3/22/2018	MY45470194
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	E4438C	ESG Vector Signal Generator	3/24/2017	Biennial	3/24/2019	MY42082385
Agilent	E4438C	ESG Vector Signal Generator	3/23/2017	Biennial	3/23/2019	MY42082659
Agilent	N9020A	MXA Signal Analyzer	12/28/2016	Annual	12/28/2017	US46470561
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Agilent	8753ES	S-Parameter Network Analyzer	9/14/2017	Annual	9/14/2018	US39170118
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/17/2017	Annual	8/17/2018	MY40003841
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	ML2495A	Power Meter	10/22/2017	Annual	10/22/2018	941001
Anritsu	ML2496A	Power Meter	4/20/2017	Annual	4/20/2018	1306009
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231535
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231538
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M155A00-009
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	3/8/2016	Biennial	3/8/2018	160261694
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mitutoyo	CD-6"CSX	Digital Caliper	3/2/2016	Biennial	3/2/2018	13264162
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	3/8/2017	Annual	3/8/2018	N/A
Seekonk	NC-100	Torque Wrench (8" lb)	9/1/2016	Biennial	9/1/2018	21053
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Annual	8/17/2018	719
SPEAG	D2450V2	2450 MHz SAR Dipole	7/25/2016	Biennial	7/25/2018	981
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/20/2017	Annual	1/20/2018	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Biennial	9/21/2018	1191
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/15/2017	Annual	8/15/2018	1237
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/14/2017	Annual	6/14/2018	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/8/2017	Annual	3/8/2018	1368
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	ES3DV3	SAR Probe	2/10/2017	Annual	2/10/2018	3213
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3319
SPEAG	EX3DV4	SAR Probe	2/13/2017	Annual	2/13/2018	3914
SPEAG	EX3DV4	SAR Probe	8/16/2017	Annual	8/16/2018	7308

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

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 24 of 28	

13 MEASUREMENT UNCERTAINTIES

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



FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 25 of 28	

14 CONCLUSION

14.1 Measurement Conclusion



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

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



FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 26 of 28	

15 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 27 of 28	

- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.
- [21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [29] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 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), Mar. 2010.

FCC ID: A3LSMA730X	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1711130295-01.A3L	Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	Page 28 of 28	

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1SXW

Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
 $f = 2462 \text{ MHz}$; $\sigma = 1.886 \text{ S/m}$; $\epsilon_r = 39.641$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 11-13-2017; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3319; ConvF(4.6, 4.6, 4.6); Calibrated: 3/14/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Right Head, Cheek, Ch 11, 1 Mbps

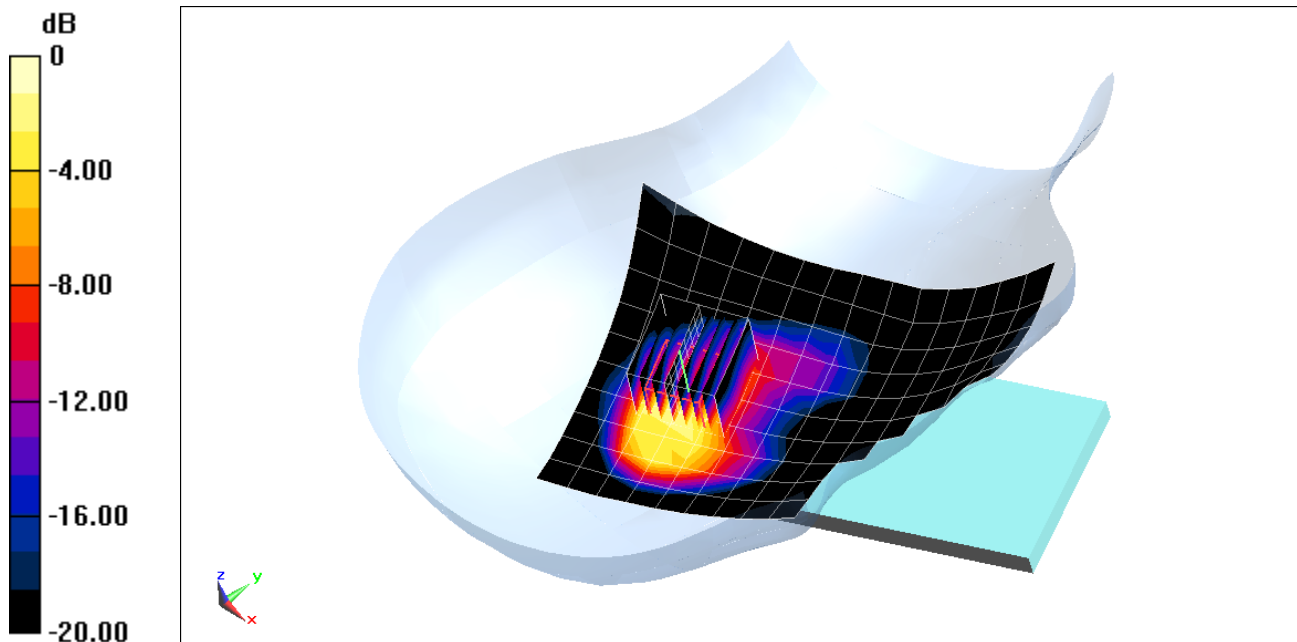
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.87 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.823 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1QSZ

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
 $f = 5825 \text{ MHz}$; $\sigma = 5.291 \text{ S/m}$; $\epsilon_r = 34.193$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 11-14-2017; Ambient Temp: 22.0°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/9/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11a, U-NII-3, 20 MHz Bandwidth, Right Head, Cheek, Ch 165, 6 Mbps

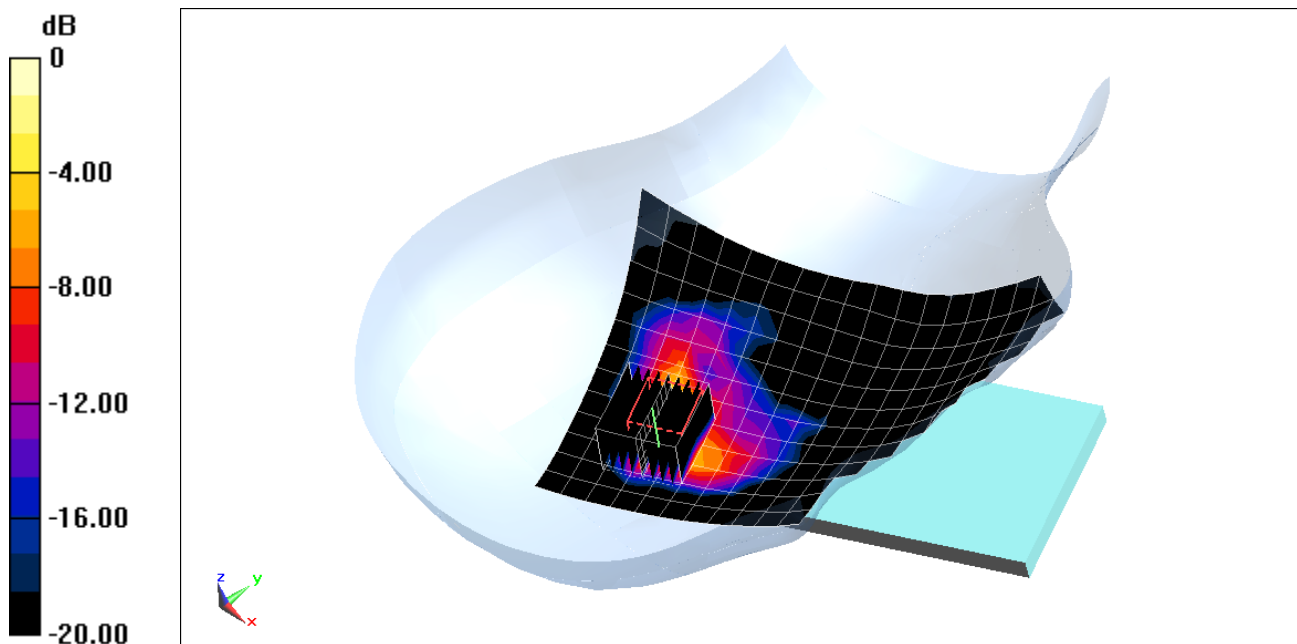
Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 7.165 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 4.95 W/kg

SAR(1 g) = 0.867 W/kg



0 dB = 2.29 W/kg = 3.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1S7Y

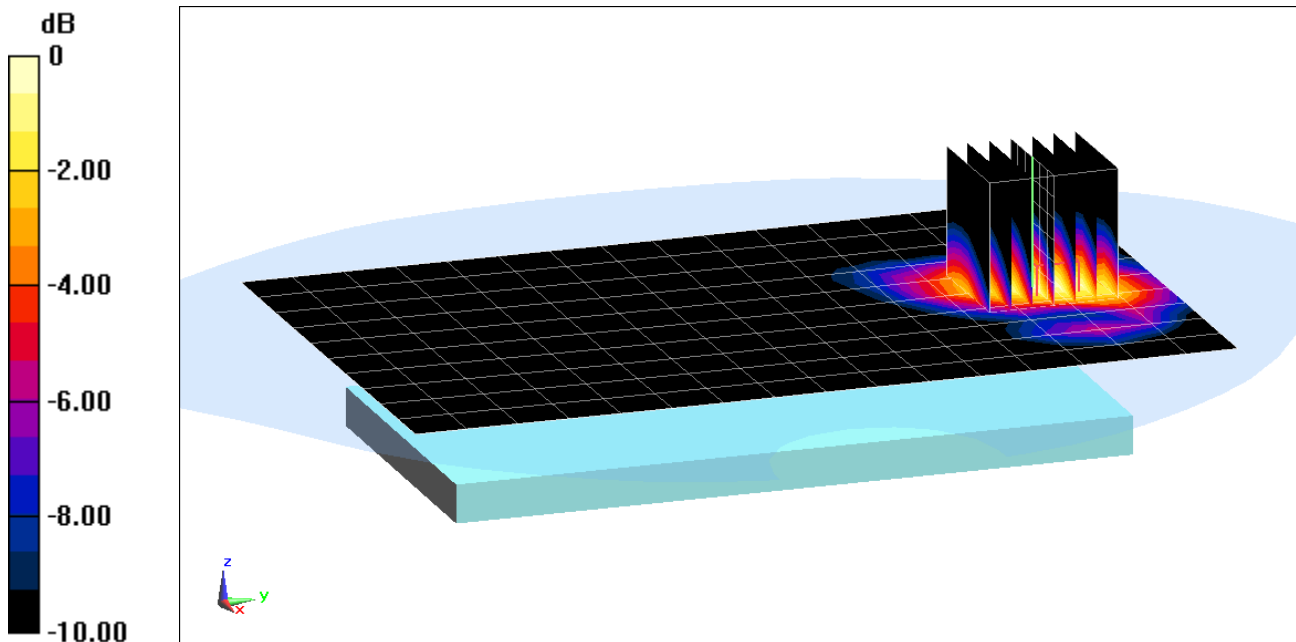
Communication System: UID 0, 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
 $f = 2462 \text{ MHz}$; $\sigma = 2.046 \text{ S/m}$; $\epsilon_r = 50.946$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-13-2017; Ambient Temp: 21.3°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2017
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR, Ch 11, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.19 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.437 W/kg
SAR(1 g) = 0.231 W/kg



0 dB = 0.288 W/kg = -5.41 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1QSZ

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used:
 $f = 5260 \text{ MHz}$; $\sigma = 5.435 \text{ S/m}$; $\epsilon_r = 47.511$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2017; Ambient Temp: 22.1°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7308; ConvF(4.84, 4.84, 4.84); Calibrated: 8/16/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11a, UNII-2A, 20 MHz Bandwidth, Body SAR, Ch 52, 6 Mbps, Back Side

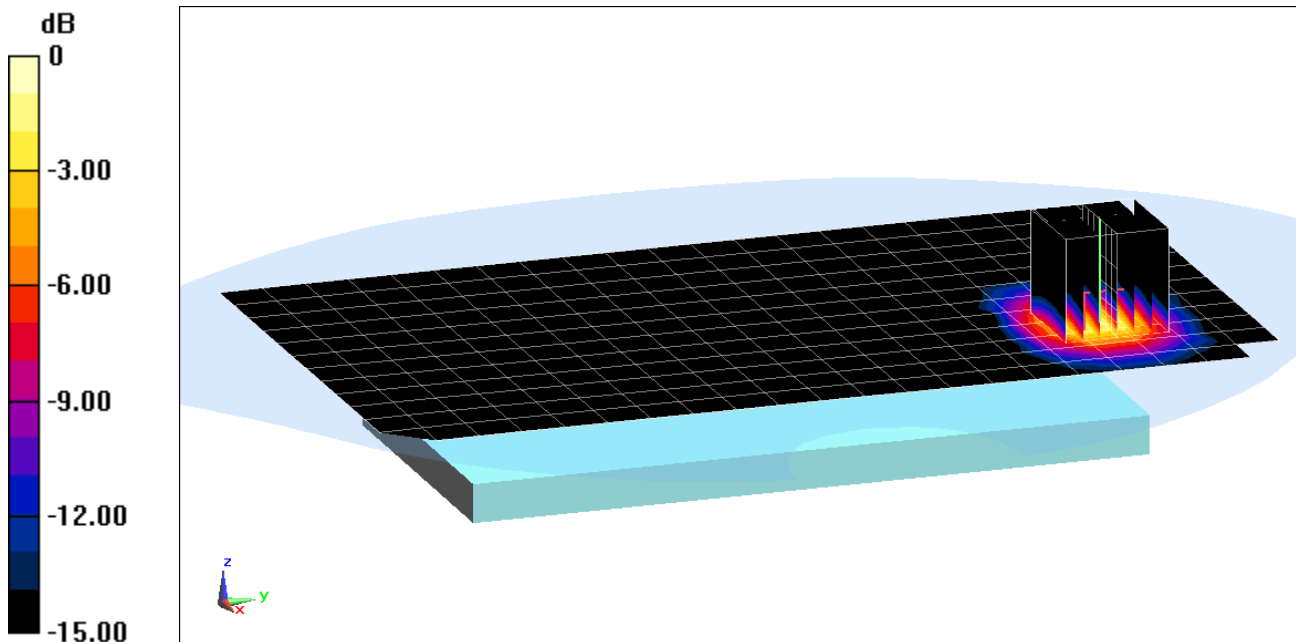
Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 9.043 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.60 W/kg

SAR(1 g) = 0.399 W/kg



0 dB = 0.946 W/kg = -0.24 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1S7Y

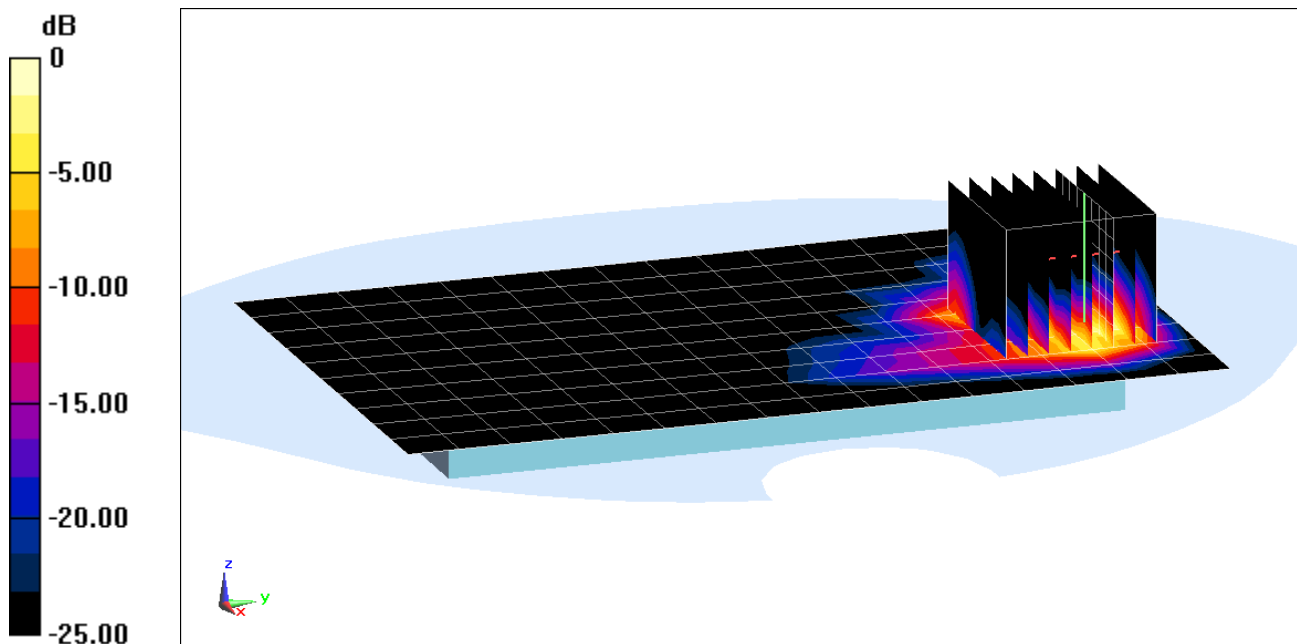
Communication System: UID 0, 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
 $f = 2412 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 51.157$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 11-13-2017; Ambient Temp: 21.3°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2017
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Phablet SAR, Ch 01, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (9x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 40.54 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 8.02 W/kg
SAR(10 g) = 1.53 W/kg



0 dB = 4.75 W/kg = 6.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA730X; Type: Portable Handset; Serial: L1QSZ

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used:
 $f = 5260 \text{ MHz}$; $\sigma = 5.435 \text{ S/m}$; $\epsilon_r = 47.511$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 11-15-2017; Ambient Temp: 22.1°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7308; ConvF(4.84, 4.84, 4.84); Calibrated: 8/16/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11a, U-NII-2A, 20 MHz Bandwidth, Phablet SAR, Ch 52, 6 Mbps, Back Side

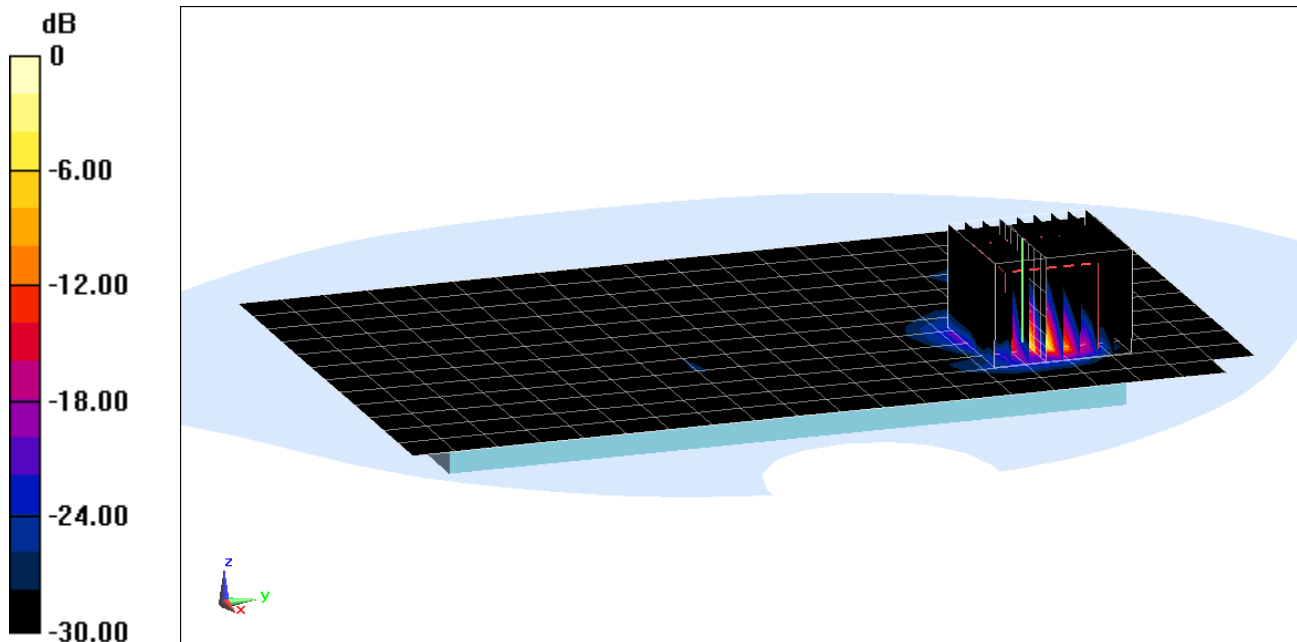
Area Scan (13x21x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 55.60 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 136 W/kg

SAR(10 g) = 2.13 W/kg



0 dB = 46.9 W/kg = 16.71 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

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

Medium: 2450 Head; Medium parameters used:

$f = 2450$ MHz; $\sigma = 1.874$ S/m; $\epsilon_r = 39.694$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-13-2017; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3319; ConvF(4.6, 4.6, 4.6); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

2450 MHz System Verification at 20.0 dBm (100 mW)

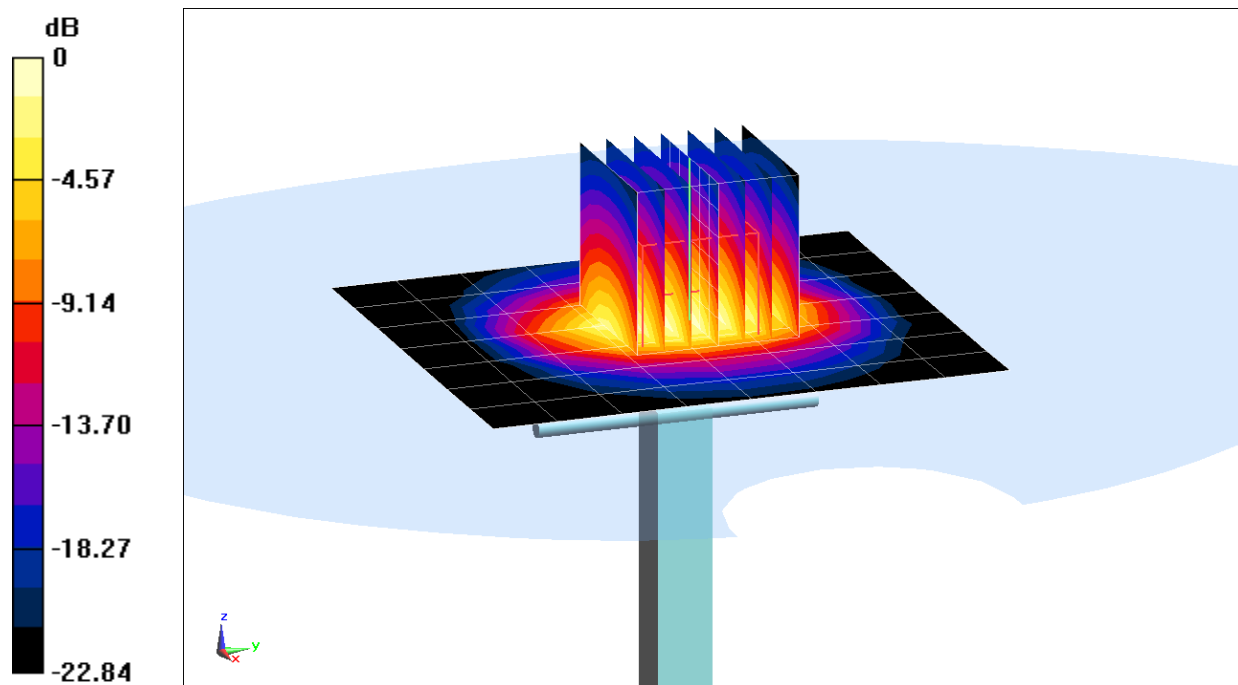
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 10.5 W/kg

SAR(1 g) = 4.95 W/kg

Deviation(1 g) = -6.25%



0 dB = 6.53 W/kg = 8.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used (interpolated):
 $f = 5250 \text{ MHz}$; $\sigma = 4.671 \text{ S/m}$; $\epsilon_r = 35.066$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2017; Ambient Temp: 22.0°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3914; ConvF(5.49, 5.49, 5.49); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/9/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5250 MHz System Verification at 17.0 dBm (50 mW)

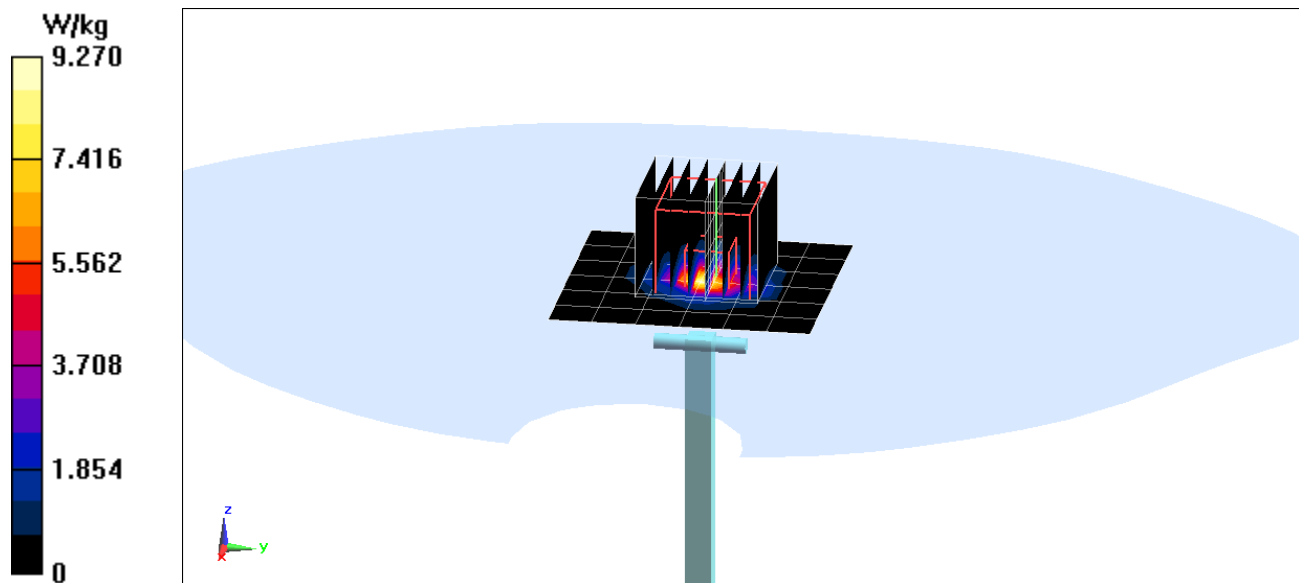
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 3.77 W/kg

Deviation(1 g) = -7.60%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5GHz Head; Medium parameters used:

$f = 5600 \text{ MHz}$; $\sigma = 5.029 \text{ S/m}$; $\epsilon_r = 34.557$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2017; Ambient Temp: 22.0°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3914; ConvF(4.94, 4.94, 4.94); Calibrated: 2/13/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/9/2017

Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5600 MHz System Verification at 17.0 dBm (50 mW)

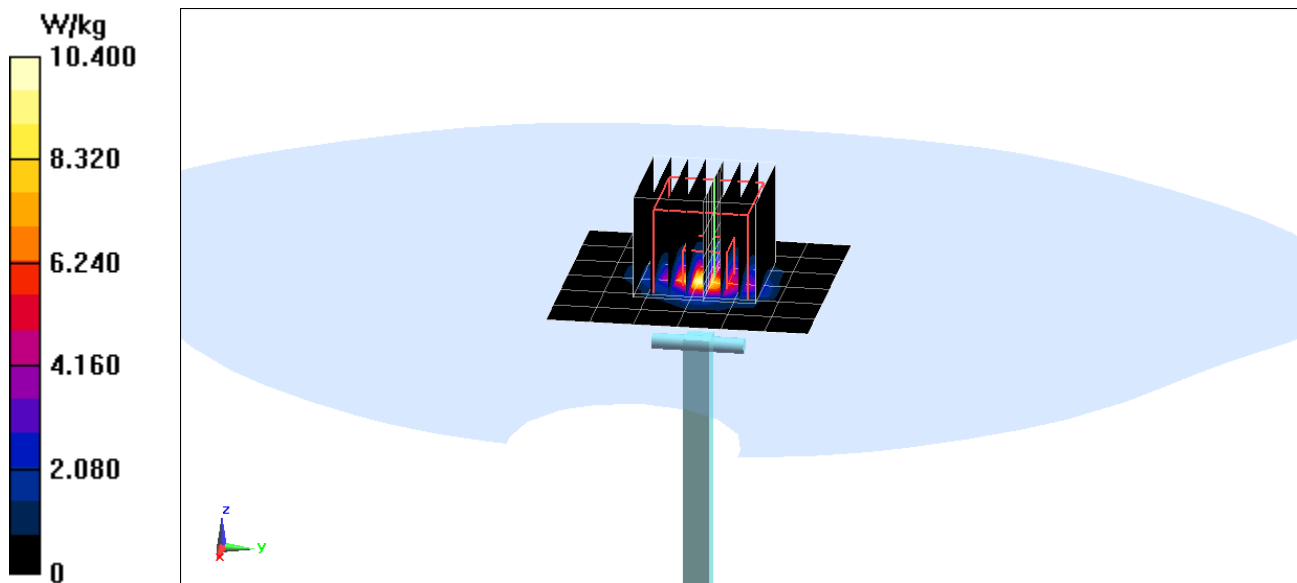
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 19.5 W/kg

SAR(1 g) = 4.18 W/kg

Deviation(1 g) = -0.12%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used (interpolated):
 $f = 5750 \text{ MHz}$; $\sigma = 5.201 \text{ S/m}$; $\epsilon_r = 34.285$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2017; Ambient Temp: 22.0°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/9/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

5750 MHz System Verification at 17.0 dBm (50 mW)

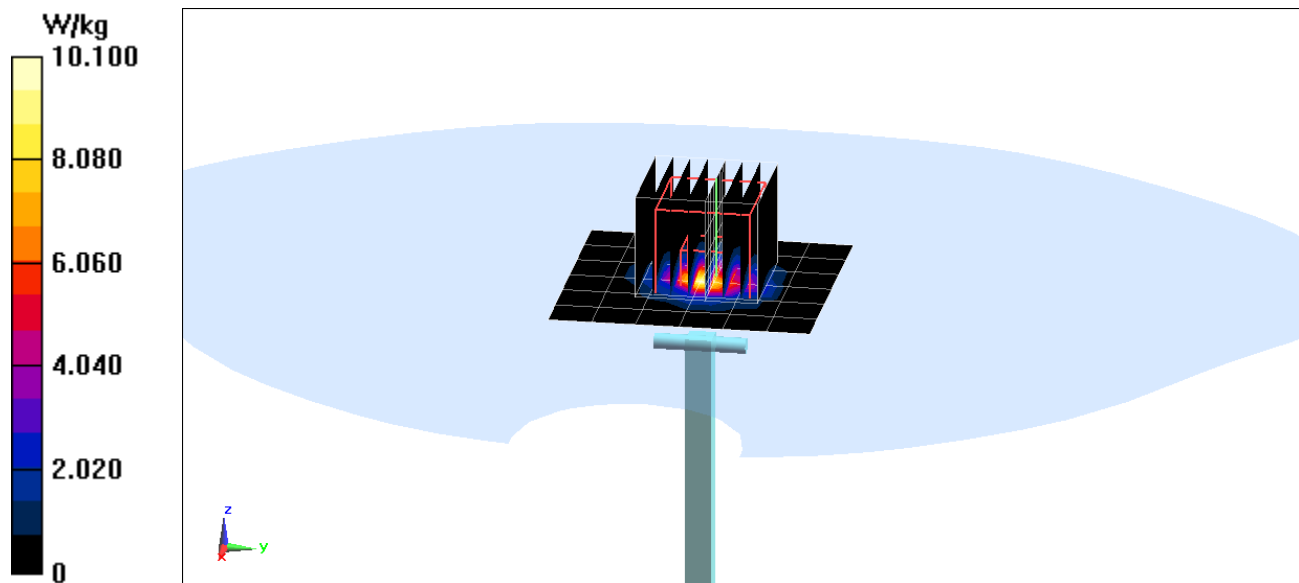
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 19.3 W/kg

SAR(1 g) = 4.05 W/kg

Deviation(1 g) = 1.25%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
 $f = 5750 \text{ MHz}$; $\sigma = 5.031 \text{ S/m}$; $\epsilon_r = 34.29$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-20-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/9/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5750 MHz System Verification at 17.0 dBm (50 mW)

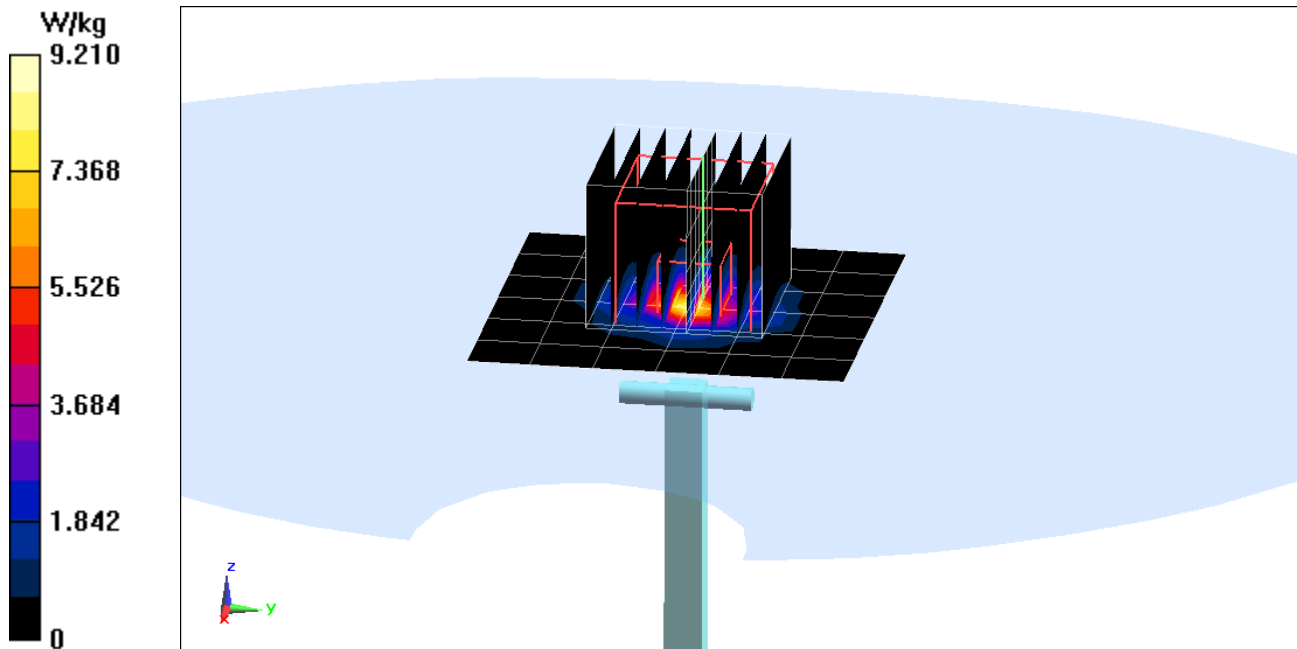
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 3.77 W/kg

Deviation(1 g) = -4.68%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
 $f = 2450 \text{ MHz}$; $\sigma = 2.029 \text{ S/m}$; $\epsilon_r = 51$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-13-2017; Ambient Temp: 21.3°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2017
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

2450 MHz System Verification at 20.0 dBm (100 mW)

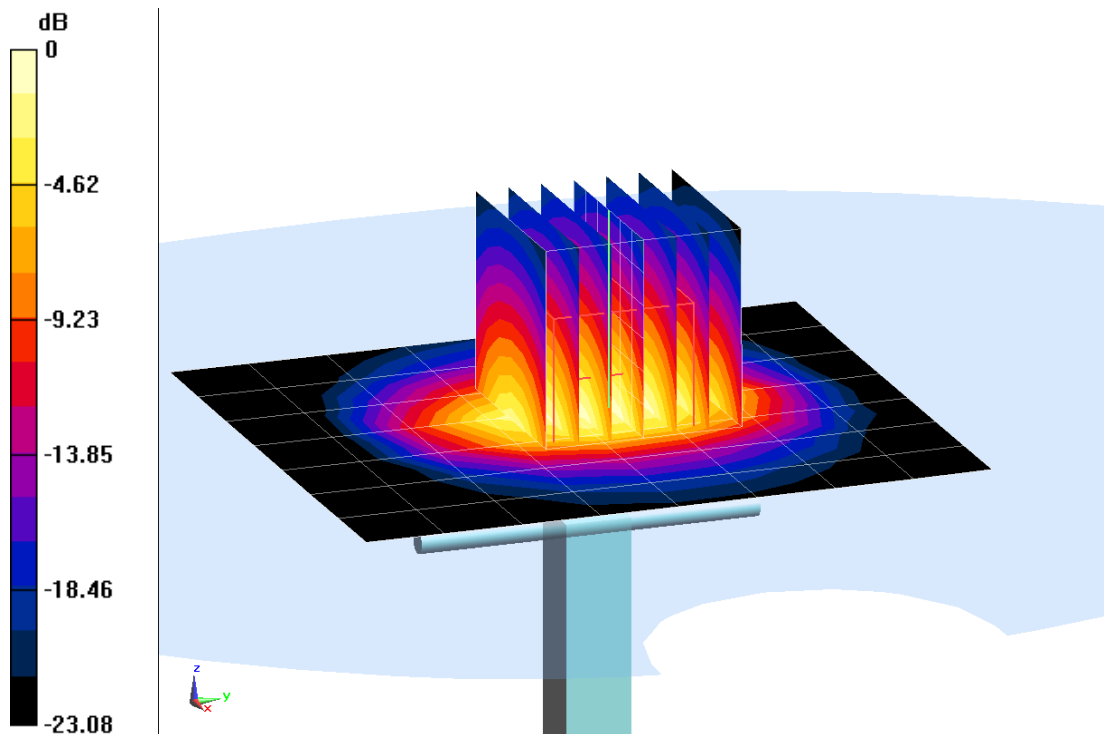
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 10.4 W/kg

SAR(1 g) = 4.86 W/kg; SAR(10 g) = 2.19 W/kg

Deviation(1 g) = -2.99%; Deviation(10 g) = -7.59%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
 $f = 5250 \text{ MHz}$; $\sigma = 5.43 \text{ S/m}$; $\epsilon_r = 47.548$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 22.1°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7308; ConvF(4.84, 4.84, 4.84); Calibrated: 8/16/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5250 MHz System Verification at 17.0 dBm (50 mW)

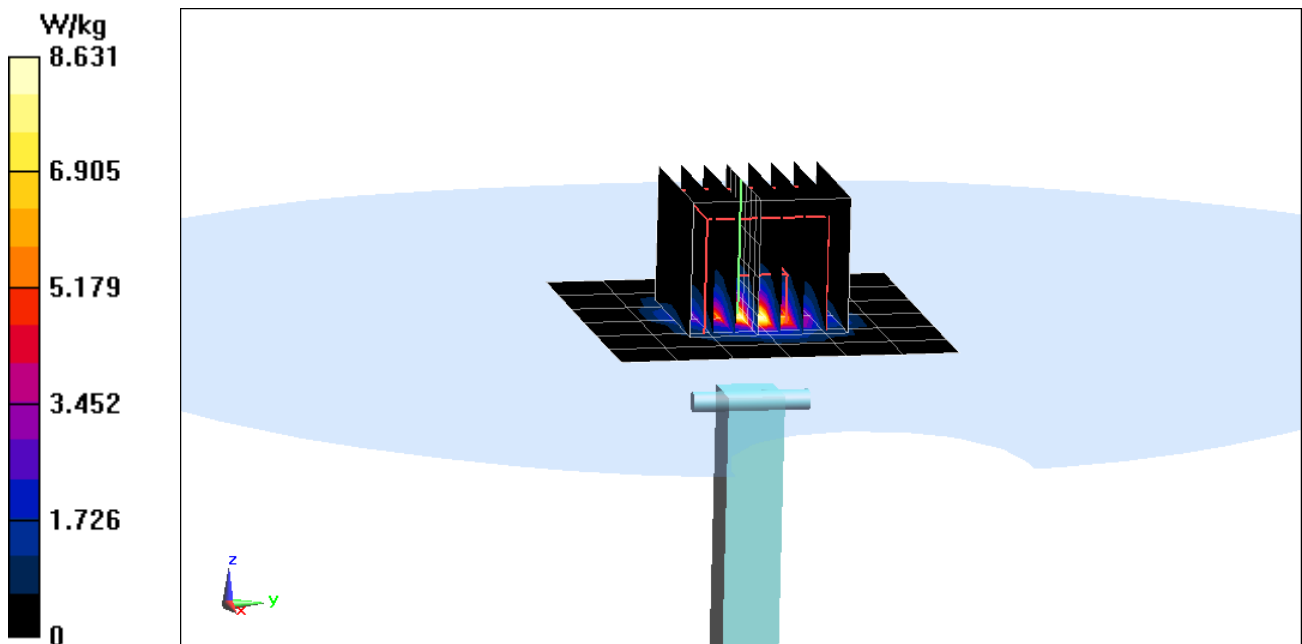
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 3.68 W/kg; SAR(10 g) = 1.04 W/kg

Deviation(1 g) = -4.29%; Deviation(10 g) = -3.26%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used:
 $f = 5600 \text{ MHz}$; $\sigma = 5.895 \text{ S/m}$; $\epsilon_r = 46.927$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 22.1°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7308; ConvF(4.23, 4.23, 4.23); Calibrated: 8/16/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5600 MHz System Verification at 17.0 dBm (50 mW)

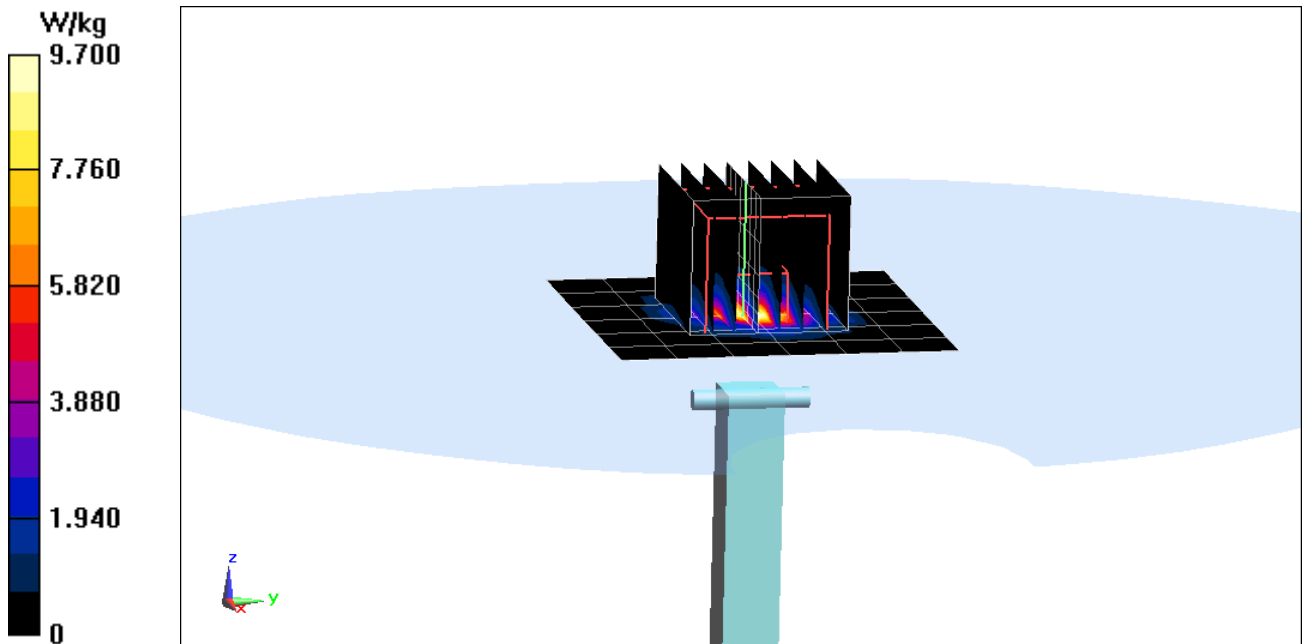
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 3.86 W/kg; SAR(10 g) = 1.06 W/kg

Deviation(1 g) = -1.66%; Deviation(10 g) = -4.07%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
 $f = 5750 \text{ MHz}$; $\sigma = 6.12 \text{ S/m}$; $\epsilon_r = 46.679$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 22.1°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7308; ConvF(4.5, 4.5, 4.5); Calibrated: 8/16/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

5750 MHz System Verification at 17.0 dBm (50 mW)

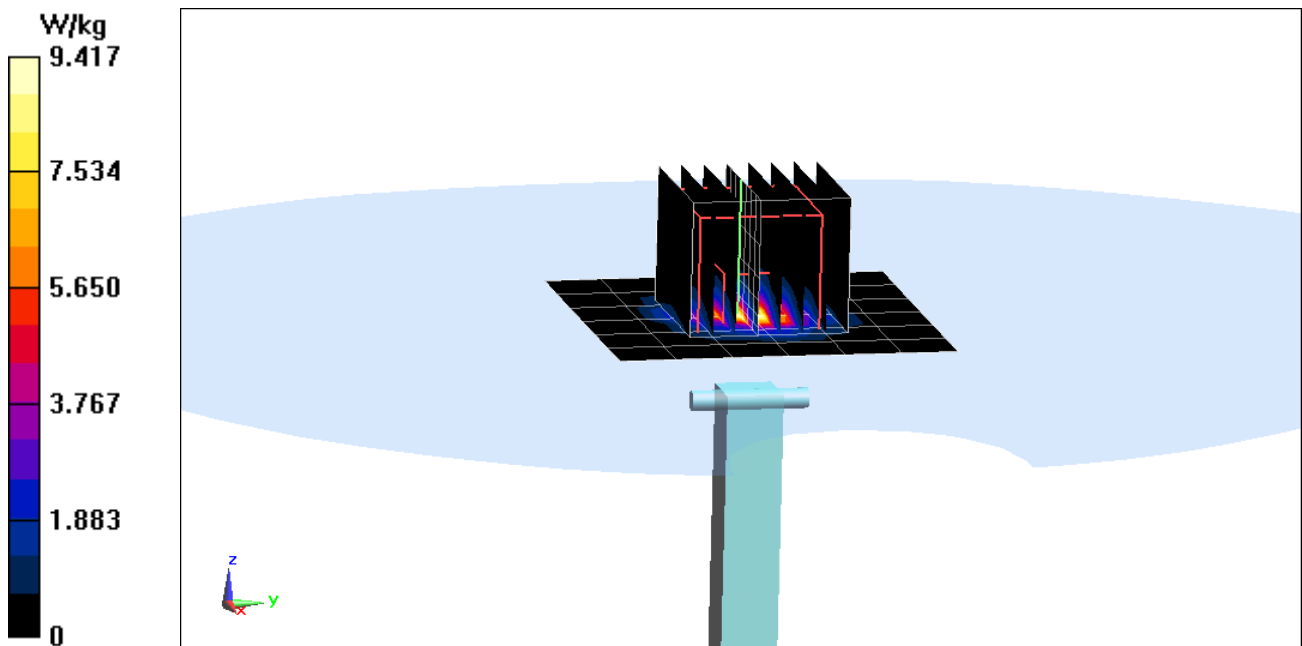
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 3.69 W/kg; SAR(10 g) = 1.02 W/kg

Deviation(1 g) = -4.28%; Deviation(10 g) = -4.67%



APPENDIX C: PROBE CALIBRATION



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D2450V2-981_Jul16**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN:981**

Calibration procedure(s) **QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **July 25, 2016**

*VPN
8/9/16
Extended
7/2017
SCV*

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by: **Michael Weber** (Name) / **Laboratory Technician** (Function) / *M. Weber* (Signature)

Approved by: **Katja Pokovic** (Name) / **Technical Manager** (Function) / *[Signature]*

Issued: July 27, 2016

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



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

Accreditation No.: **SCS 0108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	38.0 \pm 6 %	1.86 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.8 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.7 W/kg \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	51.8 \pm 6 %	2.03 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

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

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.8 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.2 Ω + 3.4 j Ω
Return Loss	- 26.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.2 Ω + 4.5 j Ω
Return Loss	- 27.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.162 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 30, 2014

DASY5 Validation Report for Head TSL

Date: 13.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:981

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ S/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.72, 7.72, 7.72); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

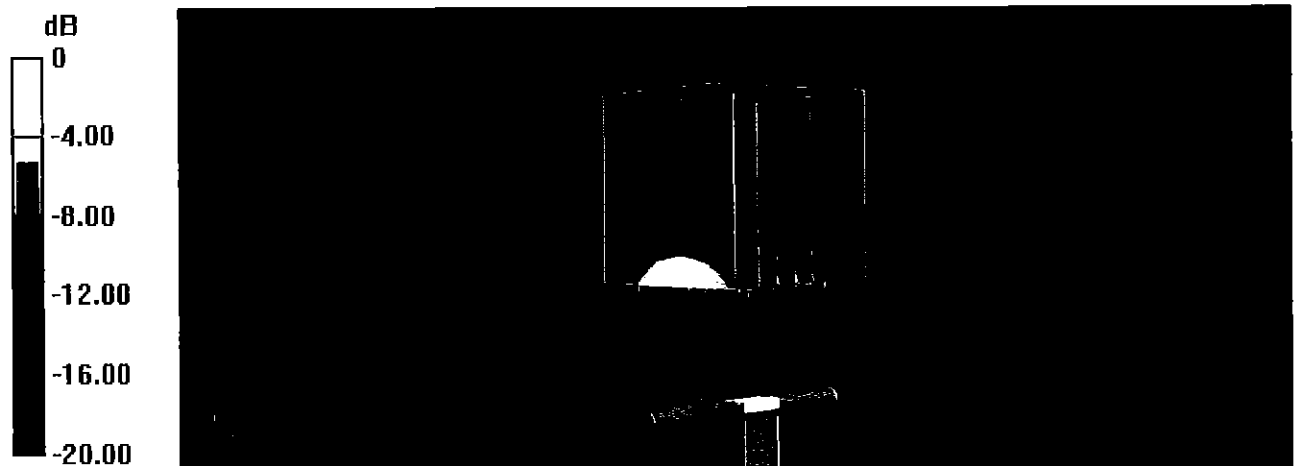
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.8 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.26 W/kg

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



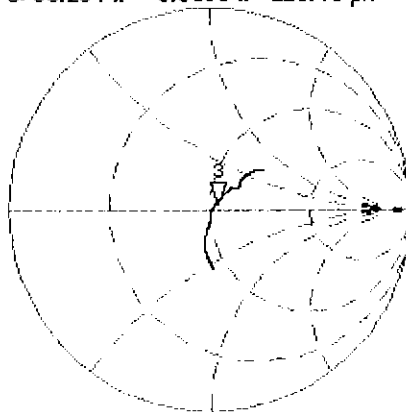
0 dB = 22.5 W/kg = 13.52 dBW/kg

Impedance Measurement Plot for Head TSL

13 Jul 2016 12:53:29

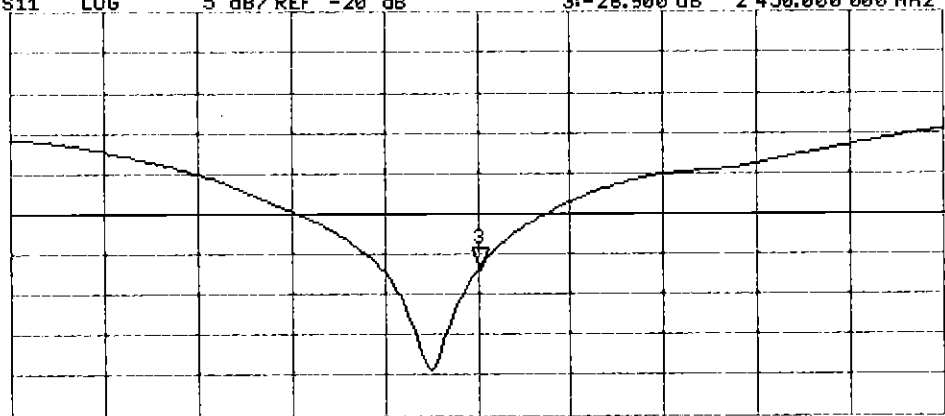
CH1 S11 1 U FS 3: 53.234 Ω 3.3633 Ω 218.48 μH 2 450.000 000 MHz

*
De l
CA
Avg
16
H1 d



CH2 S11 LOG 5 dB/REF -20 dB 3:-26.900 dB 2 450.000 000 MHz

CA
Avg
16
H1 d



START 2 250.000 000 MHz

STOP 2 650.000 000 MHz

DASY5 Validation Report for Body TSL

Date: 25.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:981

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.03$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.79, 7.79, 7.79); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

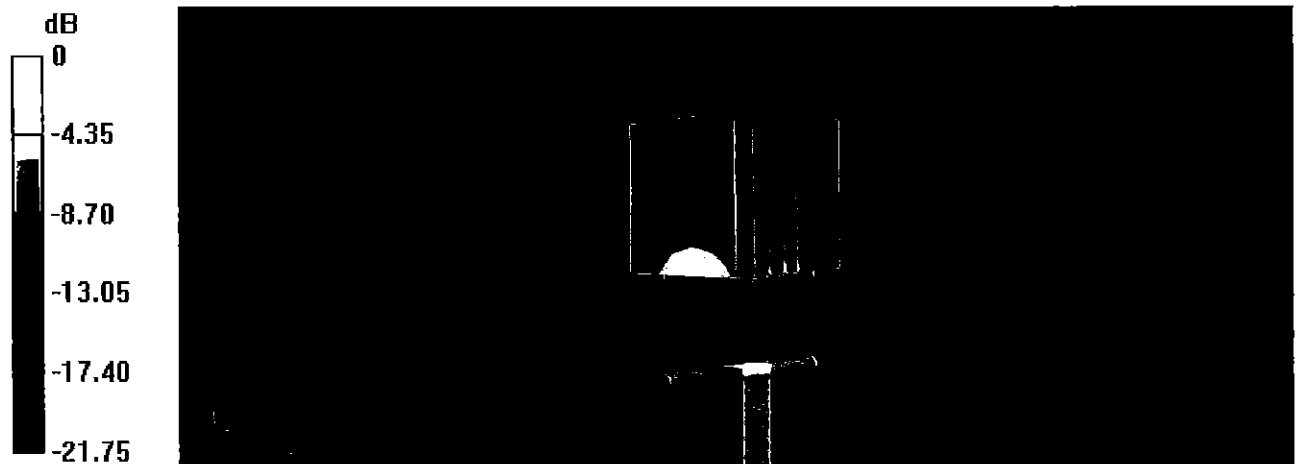
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 107.1 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 26.0 W/kg

SAR(1 g) = 13 W/kg; SAR(10 g) = 6.04 W/kg

Maximum value of SAR (measured) = 21.4 W/kg



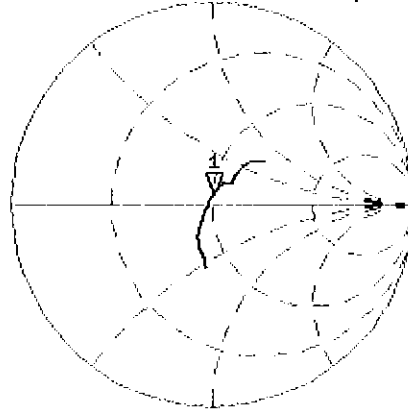
0 dB = 21.4 W/kg = 13.30 dBW/kg

Impedance Measurement Plot for Body TSL

25 Jul 2016 10:03:11

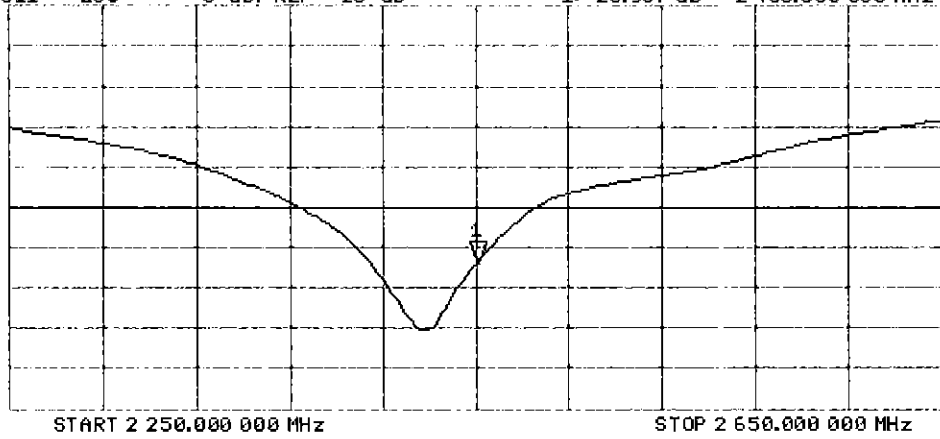
CH1 S11 1 U FS 1: 50.184 Ω 4.4980 Ω 292.20 pF 2 450.000 000 MHz

*
De1
Ca
Avg
16
H1 d



CH2 S11 LOG 5 dB/ REF -20 dB 1: -26.957 dB 2 450.000 000 MHz

Ca
H1 d



Certification of Calibration

Object D2450V2 – SN: 981

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Calibration date: July 24, 2017

Description: SAR Validation Dipole at 2450 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/14/2016	Annual	9/14/2017	1408
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	1272
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	ES3DV3	SAR Probe	9/19/2016	Annual	9/19/2017	3287
SPEAG	ES3DV3	SAR Probe	2/10/2017	Annual	2/10/2018	3213
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halfoster	Test Engineer	<i>BRODIE HALBFOSTER</i>
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	<i>KOK</i>

DIPOLE CALIBRATION EXTENSION

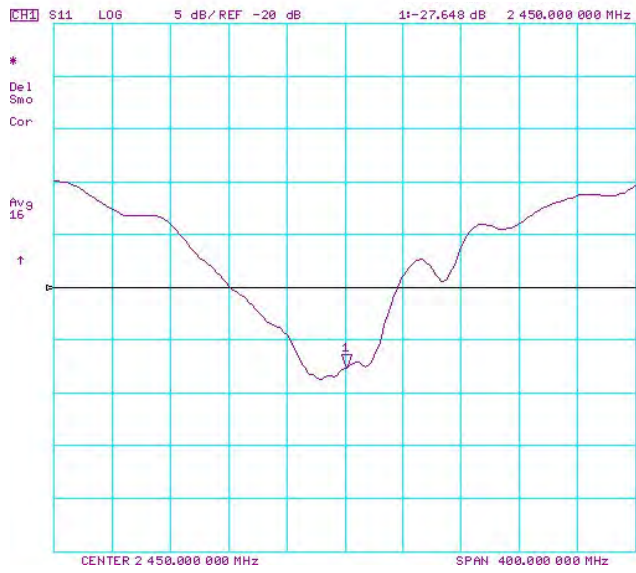
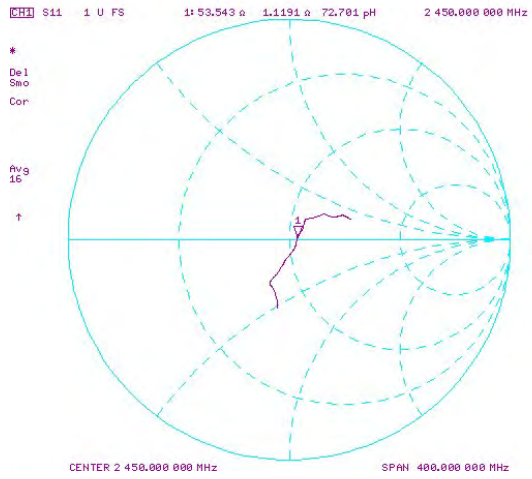
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

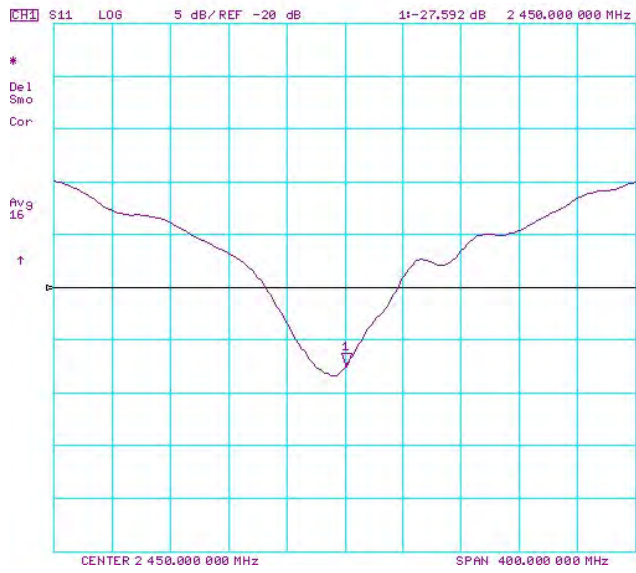
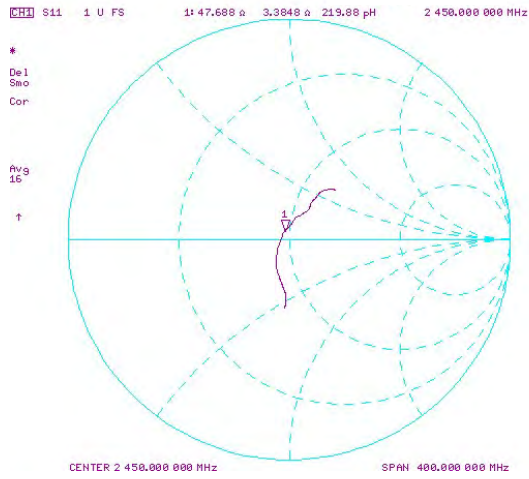
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
7/25/2016	7/24/2017	1.162	5.28	5.57	5.49%	2.47	2.56	3.64%	53.2	53.5	0.3	3.4	1.1	2.3	-26.9	-27.6	-2.60%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
7/25/2016	7/24/2017	1.162	5.08	5.34	5.12%	2.38	2.39	0.42%	50.2	47.7	2.5	4.5	3.4	1.1	-27.0	-27.6	-2.20%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1057_Jan17**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1057**

Calibration procedure(s) **QA CAL-22.v2**
Calibration procedure for dipole validation kits between 3-6 GHz

*BNV
01-26-2017*

Calibration date: **January 20, 2017**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	31-Dec-16 (No. EX3-3503_Dec16)	Dec-17
DAE4	SN: 601	04-Jan-17 (No. DAE4-601_Jan17)	Jan-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-16 (No. 217-02222)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-16 (No. 217-02222)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-16 (No. 217-02223)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by: **Jeton Kastrali** Name: **Jeton Kastrali** Function: **Laboratory Technician**

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

Signature
[Handwritten signatures]

Issued: January 23, 2017

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



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

Accreditation No.: **SCS 0108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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 62209-2, "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
- c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.3 ± 6 %	4.50 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.20 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.4 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	83.7 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.8 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.5 ± 6 %	4.99 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.6 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.4 ± 6 %	5.43 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.50 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.7 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.90 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.95 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	78.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.0 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	6.10 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.60 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.11 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.9 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.1 Ω - 5.1 j Ω
Return Loss	- 25.8 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.9 Ω - 0.7 j Ω
Return Loss	- 26.6 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	52.4 Ω + 0.7 j Ω
Return Loss	- 32.4 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	48.9 Ω - 2.9 j Ω
Return Loss	- 30.0 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	56.4 Ω + 0.1 j Ω
Return Loss	- 24.5 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	52.9 Ω + 2.1 j Ω
Return Loss	- 29.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.204 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

DASY5 Validation Report for Head TSL

Date: 20.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1057

Communication System: UID 0 - CW;

Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.5$ S/m; $\epsilon_r = 35.3$; $\rho = 1000$ kg/m³,

Medium parameters used: $f = 5600$ MHz; $\sigma = 4.85$ S/m; $\epsilon_r = 34.7$; $\rho = 1000$ kg/m³,

Medium parameters used: $f = 5750$ MHz; $\sigma = 4.99$ S/m; $\epsilon_r = 34.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.58, 5.58, 5.58); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.02, 5.02, 5.02); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 72.84 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 31.2 W/kg

SAR(1 g) = 8.2 W/kg; SAR(10 g) = 2.36 W/kg

Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 73.41 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 34.0 W/kg

SAR(1 g) = 8.43 W/kg; SAR(10 g) = 2.4 W/kg

Maximum value of SAR (measured) = 19.9 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan,

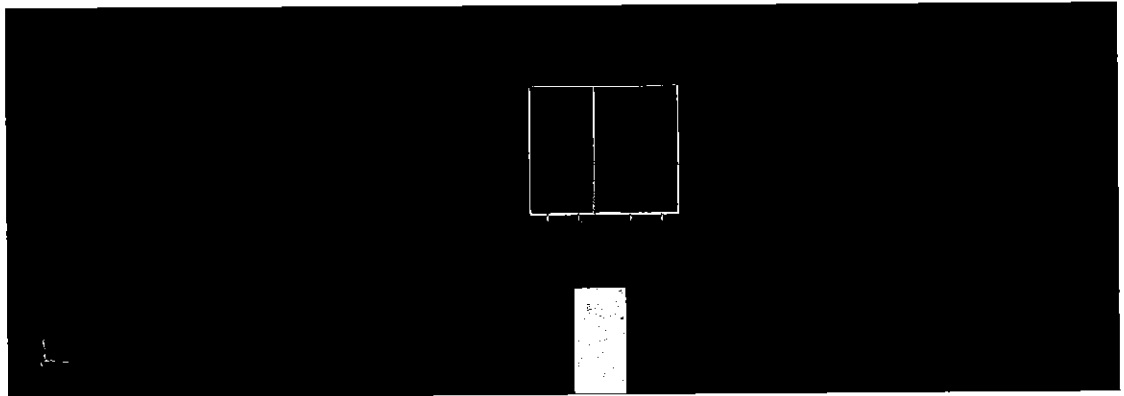
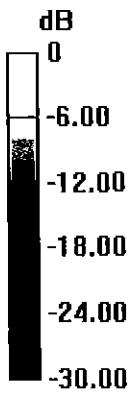
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 71.30 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 33.8 W/kg

SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.28 W/kg

Maximum value of SAR (measured) = 19.3 W/kg



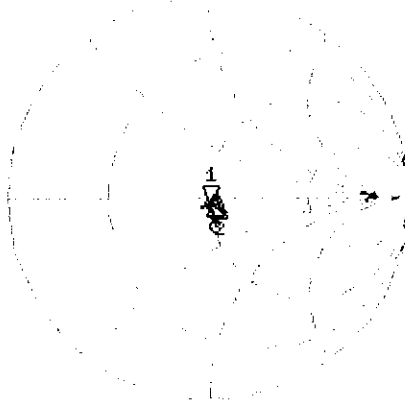
0 dB = 18.8 W/kg = 12.74 dBW/kg

Impedance Measurement Plot for Head TSL

20 Jan 2017 16:34:22

CH1 S11 1 U FS 1: 50.125 Ω -5.1172 Ω 5.9242 pF 5 250.000 000 MHz

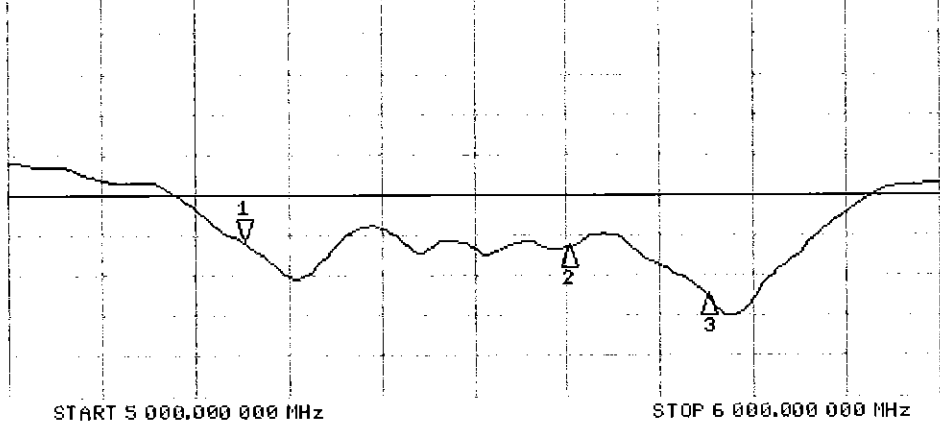
*
Del
Cor
Avg
16
H1d



CH1 Markers
2: 54.855 Ω
-732.42 m Ω
5.60000 GHz
3: 52.365 Ω
0.6797 Ω
5.75000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 1:-25.836 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2:-26.587 dB
5.60000 GHz
3:-32.375 dB
5.75000 GHz

DASY5 Validation Report for Body TSL

Date: 20.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1057

Communication System: UID 0 - CW;

Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 5.43$ S/m; $\epsilon_r = 47.4$; $\rho = 1000$ kg/m³,

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.9$ S/m; $\epsilon_r = 46.6$; $\rho = 1000$ kg/m³,

Medium parameters used: $f = 5750$ MHz; $\sigma = 6.1$ S/m; $\epsilon_r = 46.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.14, 5.14, 5.14); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.52, 4.52, 4.52); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.83 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 29.1 W/kg

SAR(1 g) = 7.5 W/kg; SAR(10 g) = 2.09 W/kg

Maximum value of SAR (measured) = 17.1 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.06 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 33.5 W/kg

SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.22 W/kg

Maximum value of SAR (measured) = 18.7 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan,

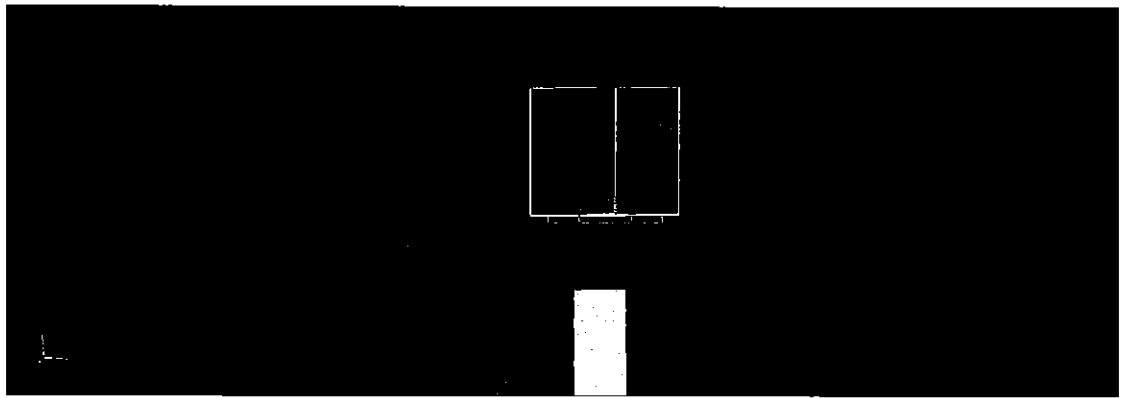
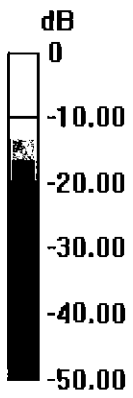
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.46 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 33.4 W/kg

SAR(1 g) = 7.6 W/kg; SAR(10 g) = 2.11 W/kg

Maximum value of SAR (measured) = 18.2 W/kg



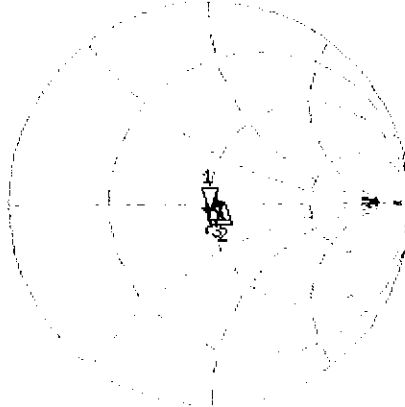
0 dB = 17.1 W/kg = 12.33 dBW/kg

Impedance Measurement Plot for Body TSL

20 Jan 2017 17:18:48

CH1 S11 1 U FS 1: 48.908 Ω -2.9375 Ω 10.320 pF 5 250.000 000 MHz

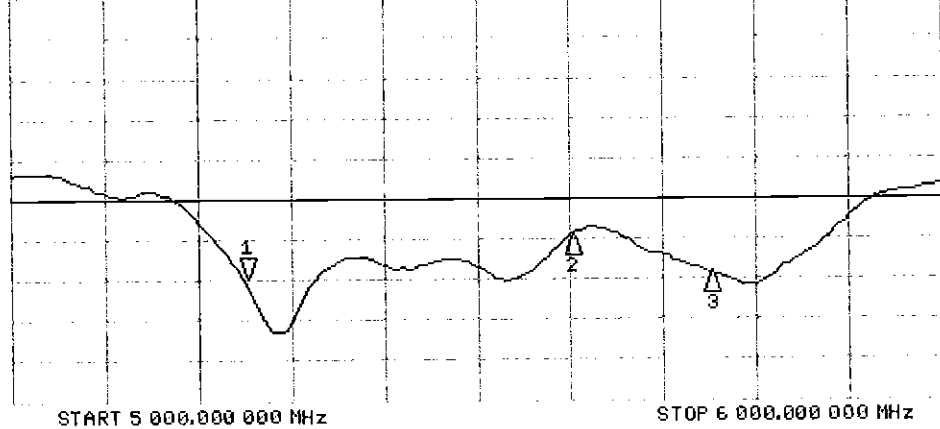
*
Del
Cor
Avg
16
H1d



CH1 Markers
2: 56.365 Ω
0.0645 Ω
5.60000 GHz
3: 52.854 Ω
2.1211 Ω
5.75000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 1: -29.988 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2: -24.455 dB
5.60000 GHz
3: -29.227 dB
5.75000 GHz



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1191_Sep16**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1191**

Calibration procedure(s) **QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz**

BNV
09-28-2016

Calibration date: **September 21, 2016**

Extended
09/2017
SC

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	30-Jun-16 (No. EX3-3503_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	<i>Leif Klysner</i>
Approved by:	Katja Pokovic	Technical Manager	<i>Katja Pokovic</i>

Issued: September 22, 2016

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
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.5 ± 6 %	4.59 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.96 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.6 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	4.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	83.6 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.8 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.8 ± 6 %	5.08 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.99 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.4 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.4 ± 6 %	5.52 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.74 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.6 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	6.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.96 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	79.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.2 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.5 ± 6 %	6.21 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.65 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	76.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.2 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	55.7 Ω - 4.3 j Ω
Return Loss	- 23.4 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	58.3 Ω - 3.2 j Ω
Return Loss	- 21.8 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	58.1 Ω + 4.8 j Ω
Return Loss	- 21.2 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	56.1 Ω - 3.7 j Ω
Return Loss	- 23.4 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.9 Ω - 1.7 j Ω
Return Loss	- 21.7 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	59.5 Ω + 6.9 j Ω
Return Loss	- 19.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.204 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 28, 2003

DASY5 Validation Report for Head TSL

Date: 21.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1191

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: $f = 5250$ MHz; $\sigma = 4.59$ S/m; $\epsilon_r = 34.5$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 4.93$ S/m; $\epsilon_r = 34$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5750$ MHz; $\sigma = 5.08$ S/m; $\epsilon_r = 33.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.42, 5.42, 5.42); Calibrated: 30.06.2016, ConvF(4.89, 4.89, 4.89); Calibrated: 30.06.2016, ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 68.49 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 7.96 W/kg; SAR(10 g) = 2.29 W/kg

Maximum value of SAR (measured) = 18.2 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 69.34 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 8.45 W/kg; SAR(10 g) = 2.41 W/kg

Maximum value of SAR (measured) = 20.0 W/kg

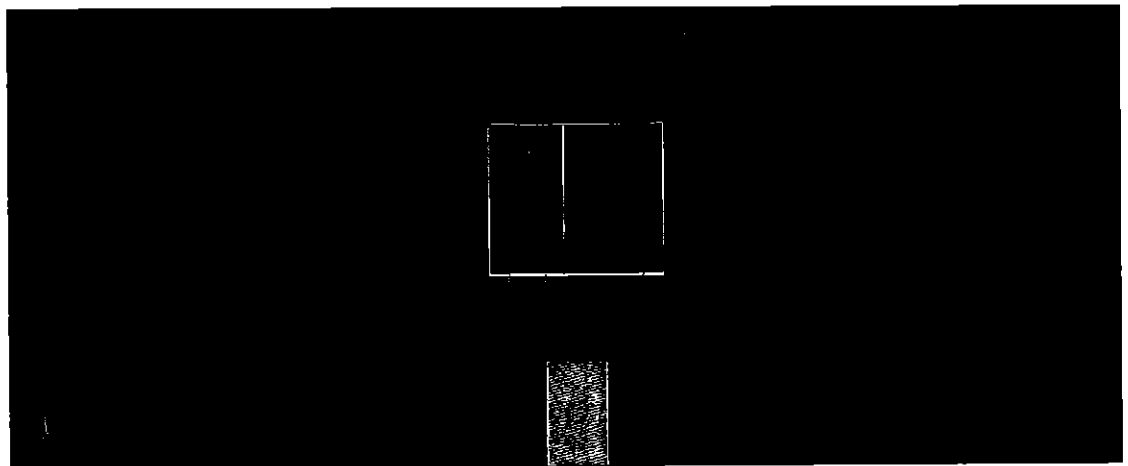
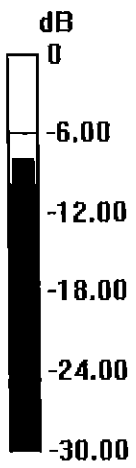
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.15 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 32.3 W/kg

SAR(1 g) = 7.99 W/kg; SAR(10 g) = 2.27 W/kg

Maximum value of SAR (measured) = 19.3 W/kg



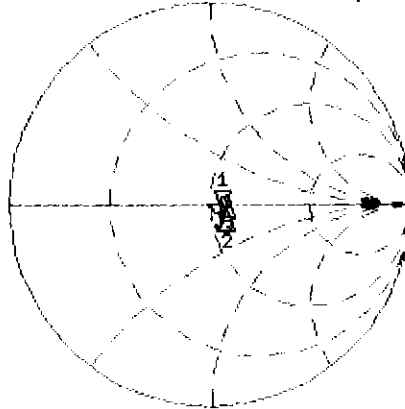
0 dB = 18.2 W/kg = 12.60 dBW/kg

Impedance Measurement Plot for Head TSL

20 Sep 2016 13:20:17

CH1 S11 1 U FS 1: 55.695 Ω -4.2793 Ω 7.0842 pF 5 250.000 000 MHz

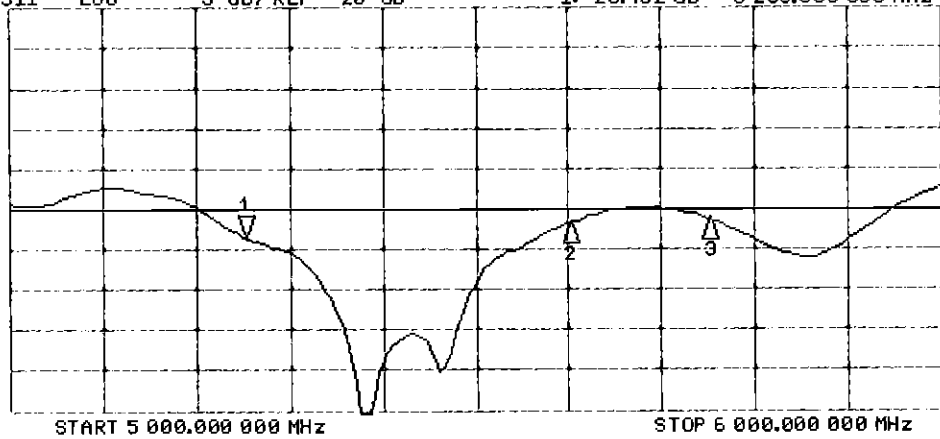
*
De1
Cor
Avg
16
H1d



CH1 Markers
2: 58.262 Ω
-3.1738 Ω
5.60000 GHz
3: 58.078 Ω
4.7969 Ω
5.75000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 1: -23.432 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2: -21.752 dB
5.60000 GHz
3: -21.228 dB
5.75000 GHz

DASY5 Validation Report for Body TSL

Date: 20.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1191

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: $f = 5250$ MHz; $\sigma = 5.52$ S/m; $\epsilon_r = 47.4$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 6$ S/m; $\epsilon_r = 46.8$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5750$ MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 46.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016, ConvF(4.35, 4.35, 4.35); Calibrated: 30.06.2016, ConvF(4.3, 4.3, 4.3); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.49 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 29.1 W/kg

SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.17 W/kg

Maximum value of SAR (measured) = 17.7 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.85 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 7.96 W/kg; SAR(10 g) = 2.24 W/kg

Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan,

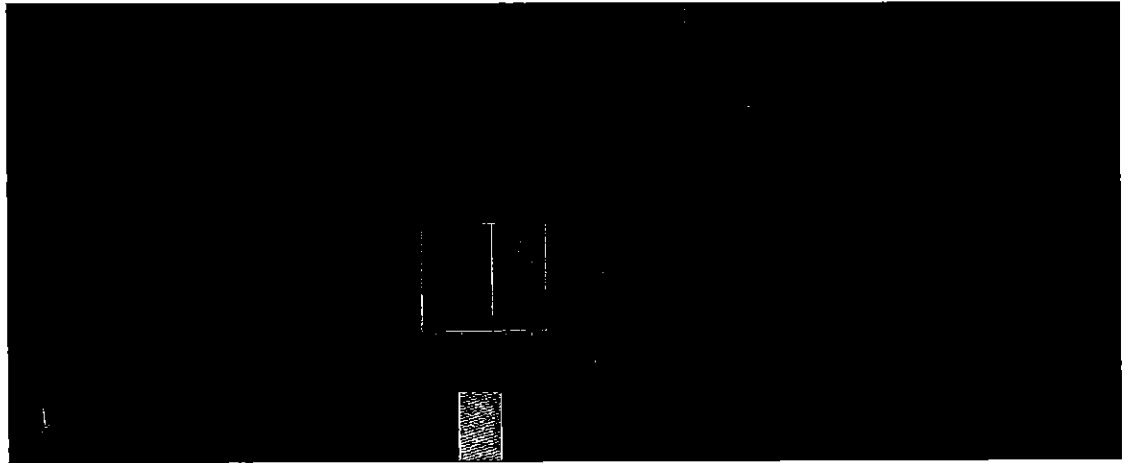
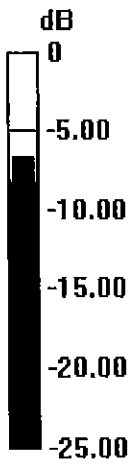
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.21 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 32.7 W/kg

SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.14 W/kg

Maximum value of SAR (measured) = 18.5 W/kg



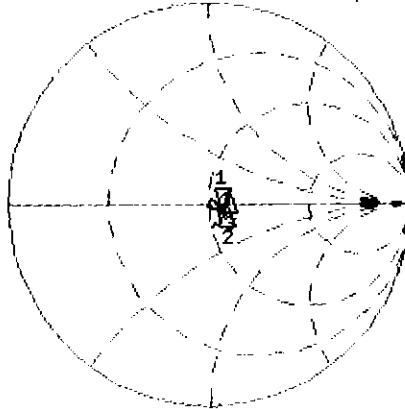
0 dB = 17.7 W/kg = 12.48 dBW/kg

Impedance Measurement Plot for Body TSL

20 Sep 2016 13:19:13

CH1 S11 1 U FS 1: 56.143 Ω -3.6992 Ω 8.1950 pF 5 250.000 000 MHz

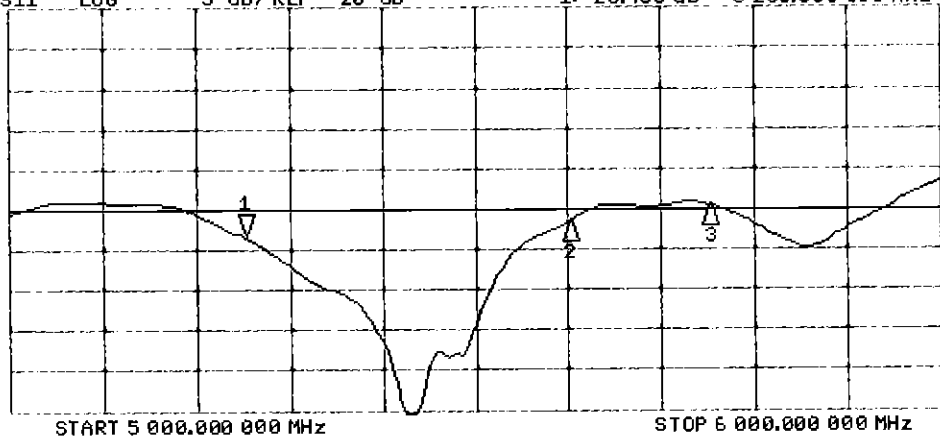
*
De1
Cor
Avg
16
H1d



CH1 Markers
2: 58.887 Ω
-1.6504 Ω
5.60000 GHz
3: 59.510 Ω
6.9121 Ω
5.75000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 1: -23.406 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2: -21.616 dB
5.60000 GHz
3: -19.400 dB
5.75000 GHz

START 5 000.000 000 MHz

STOP 6 000.000 000 MHz

Certification of Calibration

Object: D5GHzV2 – SN: 1191

Calibration procedure(s): Procedure for Calibration Extension for SAR Dipoles.

Extension Calibration date: 9/19/2017

Description: SAR Validation Dipole at 5250, 5600, and 5750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	EX3DV4	SAR Probe	1/13/2017	Annual	1/13/2018	3589
SPEAG	EX3DV4	SAR Probe	2/13/2017	Annual	2/13/2018	3914
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2017	Annual	1/16/2018	1466
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	665
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halfoster	Test Engineer	<i>BRODIE HALBFOSTER</i>
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	<i>KOK</i>

DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

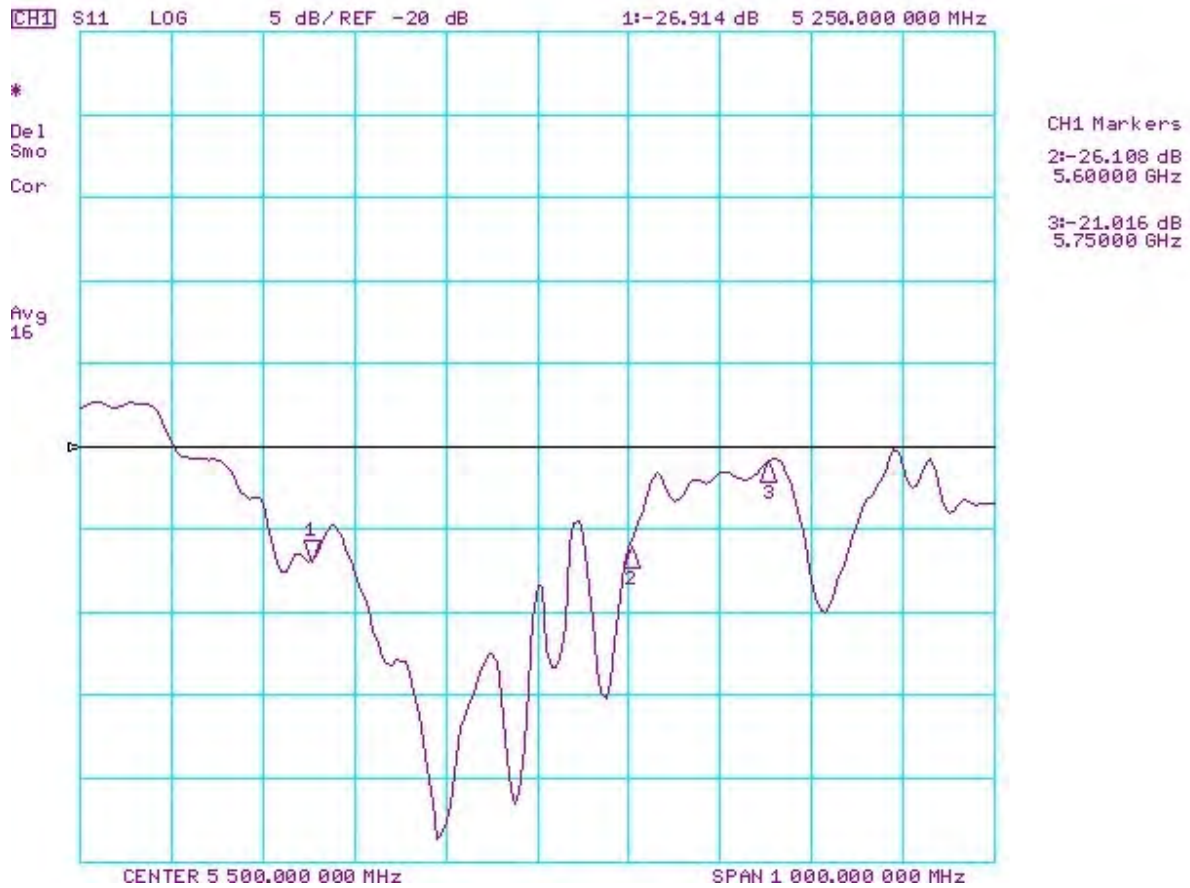
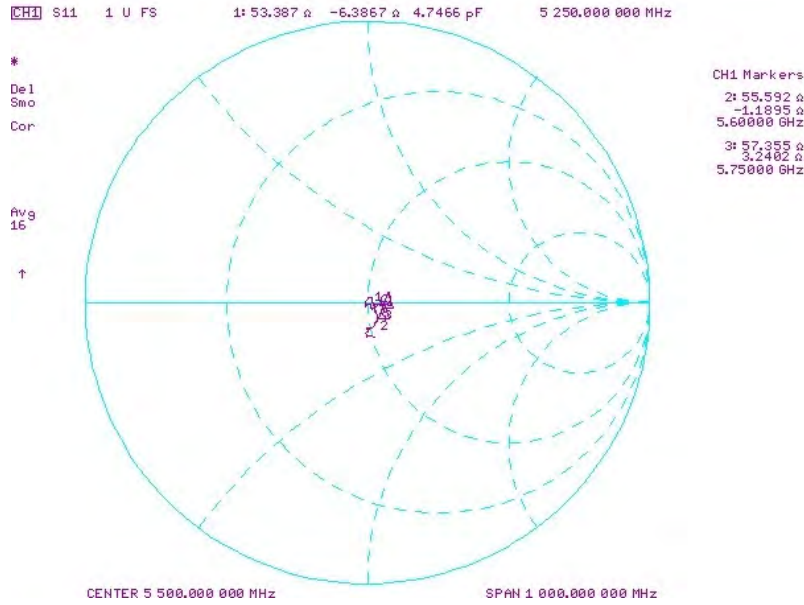
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

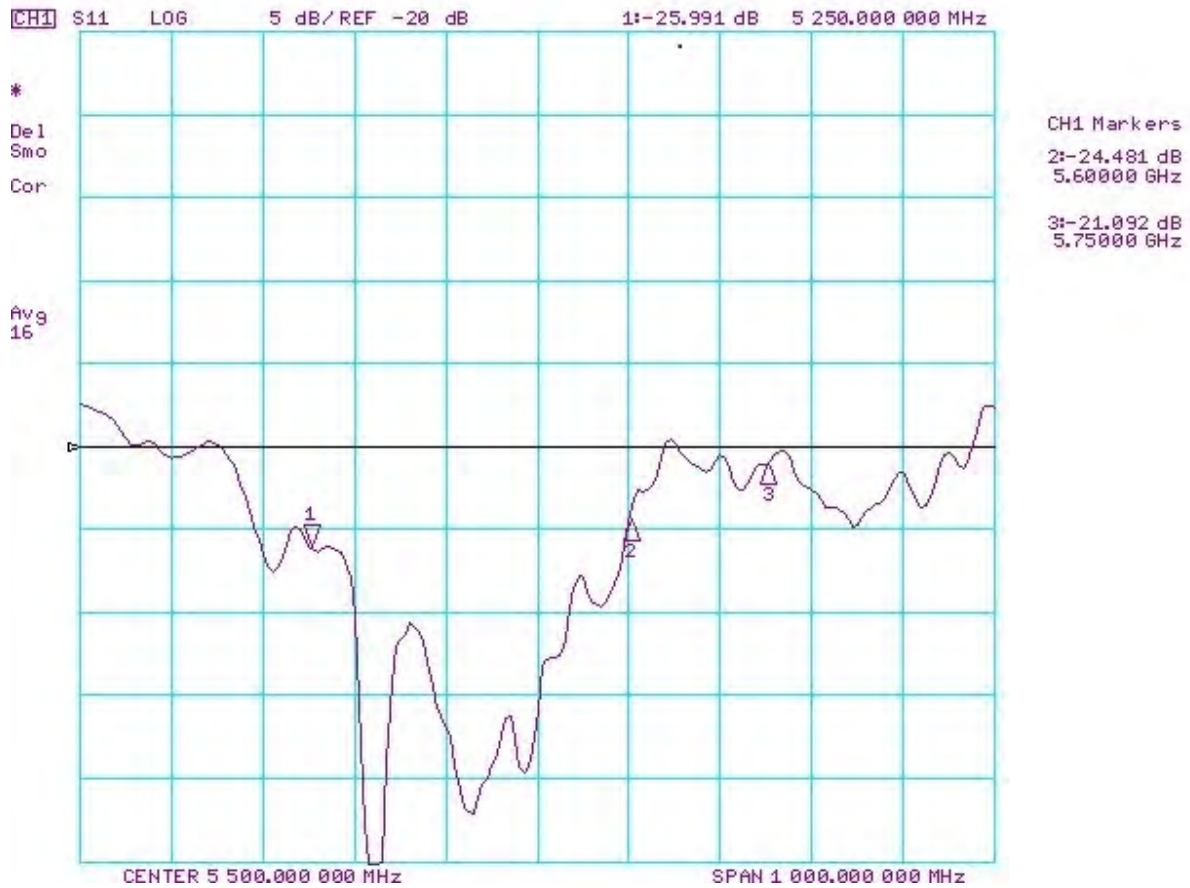
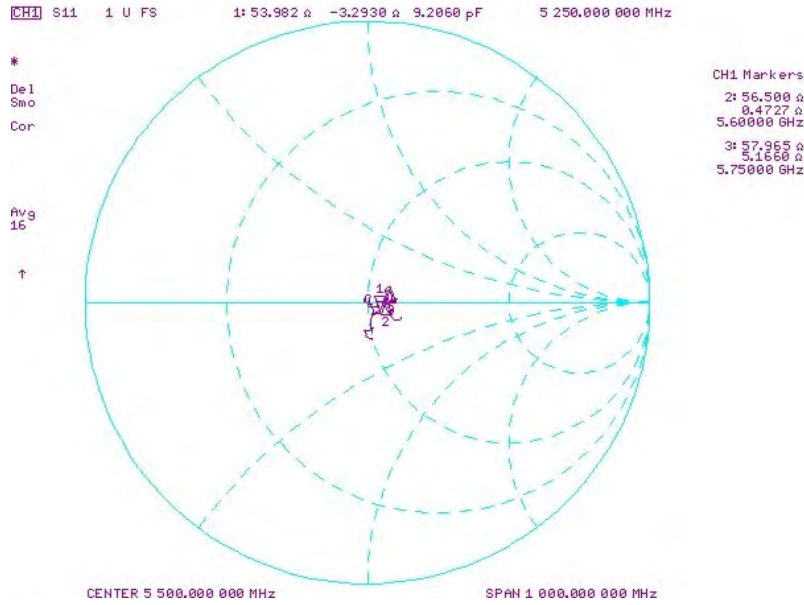
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g W/kg @ 17.0 dBm)	Measured Head SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g W/kg @ 17.0 dBm)	Measured Head SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/19/2017	1.204	3.95	3.70	-6.21%	1.13	1.05	-7.08%	55.7	53.4	2.3	-4.3	-6.4	2.1	-23.4	-26.9	-15.00%	PASS
5600	9/21/2016	9/19/2017	1.204	4.18	4.03	-3.59%	1.19	1.13	-5.04%	58.3	55.8	2.7	-3.2	-1.2	2.0	-21.8	-26.1	-19.80%	PASS
5750	9/21/2016	9/19/2017	1.204	3.96	3.84	-3.03%	1.12	1.10	-1.79%	58.1	57.4	0.7	4.8	3.2	1.6	-21.2	-21.0	0.90%	PASS

Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g W/kg @ 17.0 dBm)	Measured Body SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g W/kg @ 17.0 dBm)	Measured Body SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/19/2017	1.204	3.85	3.80	-1.30%	1.08	1.06	-1.85%	56.1	54.0	2.1	-3.7	-3.3	0.4	-23.4	-26.0	-11.10%	PASS
5600	9/21/2016	9/19/2017	1.204	3.96	4.06	2.53%	1.11	1.13	1.80%	58.9	56.5	2.4	-1.7	0.5	2.2	-21.7	-24.5	-12.80%	PASS
5750	9/21/2016	9/19/2017	1.204	3.81	3.66	-3.81%	1.06	1.02	-3.77%	59.5	58.0	1.5	6.9	5.2	1.7	-19.4	-21.1	-8.70%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D2450V2-719_Aug17**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN:719**

Calibration procedure(s) **QA CAL-05.v9**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **August 17, 2017**

PM ✓
8/27/17

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by: **Michael Weber** Laboratory Technician

Signature
M. Weber

Approved by: **Katja Pokovic** Technical Manager

Katja Pokovic

Issued: August 17, 2017

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



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

Accreditation No.: **SCS 0108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.8 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	51.9 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.3 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.9 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	50.1 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.00 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.7 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.7 Ω + 7.0 j Ω
Return Loss	- 21.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.4 Ω + 8.1 j Ω
Return Loss	- 21.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 10, 2002

DASY5 Validation Report for Head TSL

Date: 17.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 719

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ S/m; $\epsilon_r = 37.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.12, 8.12, 8.12); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/ $P_{in}=250$ mW, $d=10$ mm/Zoom Scan (7x7x7)/Cube 0:

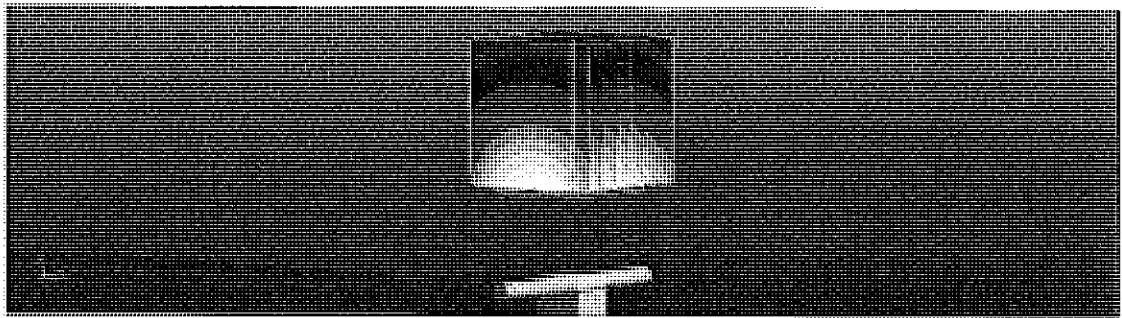
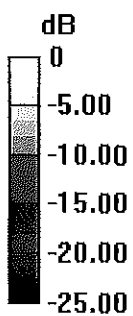
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 112.8 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 26.9 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.15 W/kg

Maximum value of SAR (measured) = 21.6 W/kg

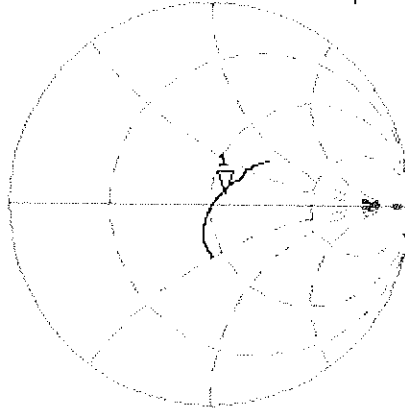


0 dB = 21.6 W/kg = 13.34 dBW/kg

Impedance Measurement Plot for Head TSL

17 Aug 2017 12:38:03
CH1 S11 1 U FS 1: 55.682 Ω 6.9766 Ω 453.21 pF 2 450.000 000 MHz

*
De1
CA



Avg
16

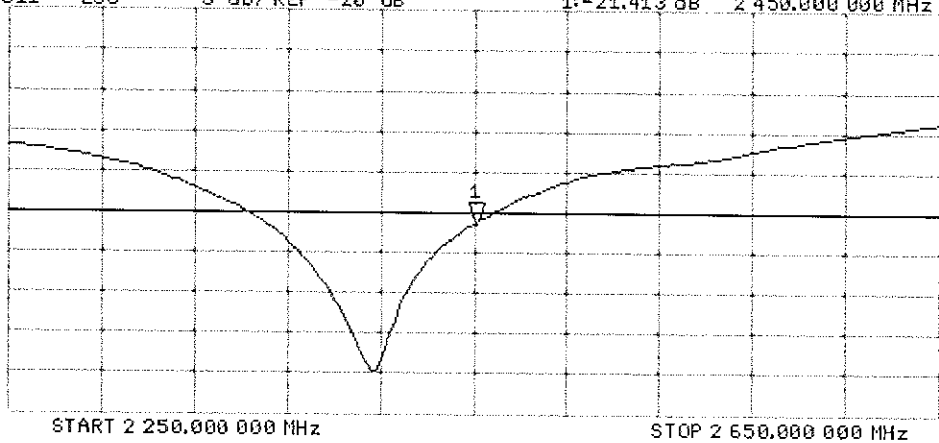
H1d

CH2 S11 LOG 5 dB/REF -20 dB 1: -21.413 dB 2 450.000 000 MHz

CA

Avg
16

H1d



DASY5 Validation Report for Body TSL

Date: 17.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 719

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.03$ S/m; $\epsilon_r = 51.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.1, 8.1, 8.1); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

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

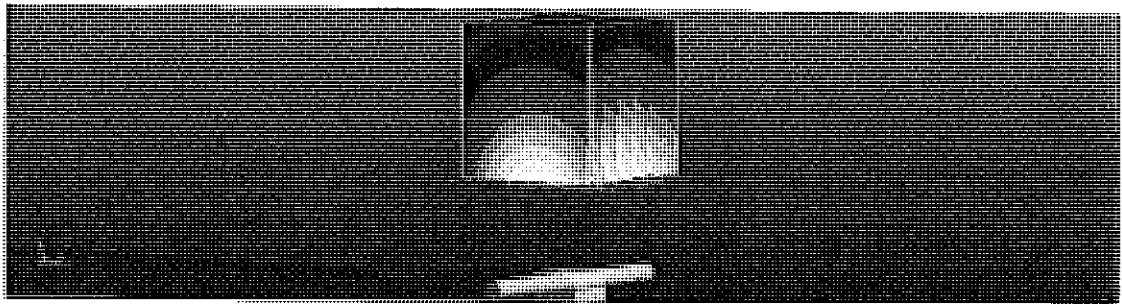
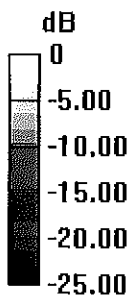
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.0 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 25.2 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 6 W/kg

Maximum value of SAR (measured) = 19.8 W/kg

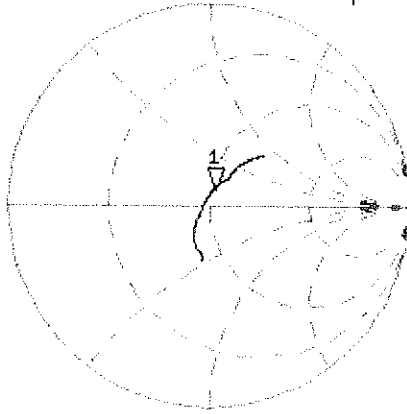


0 dB = 19.8 W/kg = 12.97 dBW/kg

Impedance Measurement Plot for Body TSL

17 Aug 2017 12:37:27
[CH1] S11 1 U FS 1: 51.379 Ω 8.1367 Ω 528.57 pF 2 450.000 000 MHz

*
De1
C4



Avg
16

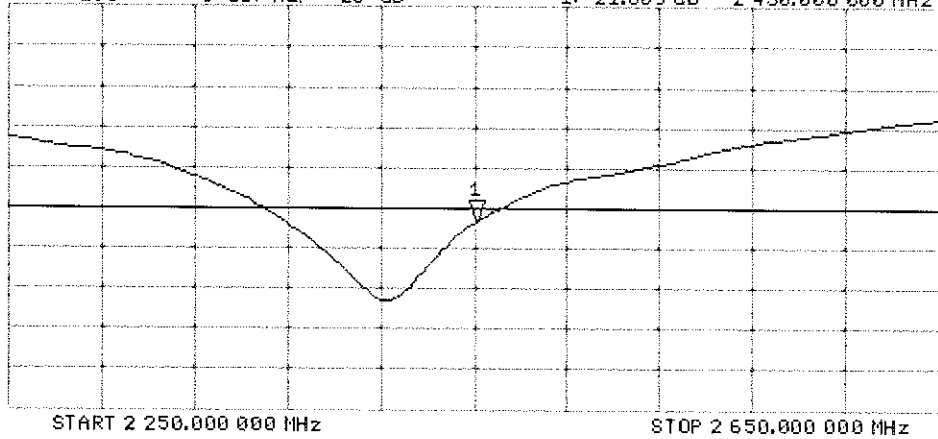
H1d

CH2 S11 LOG 5 dB/REF -20 dB 1: -21.809 dB 2 450.000 000 MHz

C4

Avg
16

H1d





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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1237_Aug17**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1237**

Calibration procedure(s) **QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz**

Calibration date: **August 15, 2017**

PMV
8/27/17

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	31-Dec-16 (No. EX3-3503_Dec16)	Dec-17
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by:	Name Johannes Kurikka	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: August 16, 2017

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



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

Accreditation No.: **SCS 0108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.49 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.7 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.0 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	4.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	82.5 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.5 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	4.99 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.2 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.31 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.8 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.0 ± 6 %	5.46 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	76.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.5 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	5.93 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.91 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	78.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.1 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.13 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.77 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.4 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	49.9 Ω - 5.3 j Ω
Return Loss	- 25.5 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	51.9 Ω + 2.3 j Ω
Return Loss	- 30.7 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	55.6 Ω - 0.5 j Ω
Return Loss	- 25.5 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	46.9 Ω - 4.2 j Ω
Return Loss	- 25.4 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	50.2 Ω + 3.0 j Ω
Return Loss	- 30.4 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	53.4 Ω + 0.2 j Ω
Return Loss	- 29.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 04, 2015

DASY5 Validation Report for Head TSL

Date: 15.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1237

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: $f = 5250$ MHz; $\sigma = 4.49$ S/m; $\epsilon_r = 34.7$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5600$ MHz; $\sigma = 4.84$ S/m; $\epsilon_r = 34.2$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5750$ MHz; $\sigma = 4.99$ S/m; $\epsilon_r = 34$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.58, 5.58, 5.58); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.02, 5.02, 5.02); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.08 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 30.6 W/kg

SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.33 W/kg

Maximum value of SAR (measured) = 19.2 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.04 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 32.7 W/kg

SAR(1 g) = 8.33 W/kg; SAR(10 g) = 2.38 W/kg

Maximum value of SAR (measured) = 19.8 W/kg

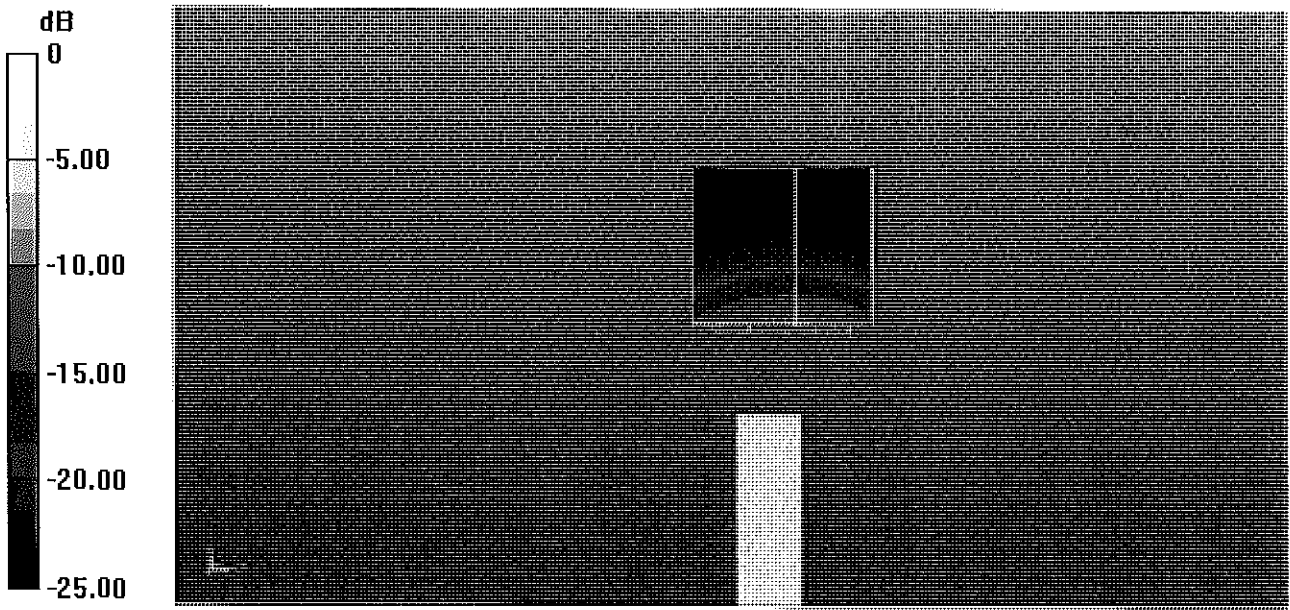
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 69.11 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 32.4 W/kg

SAR(1 g) = 8.1 W/kg; SAR(10 g) = 2.31 W/kg

Maximum value of SAR (measured) = 19.6 W/kg



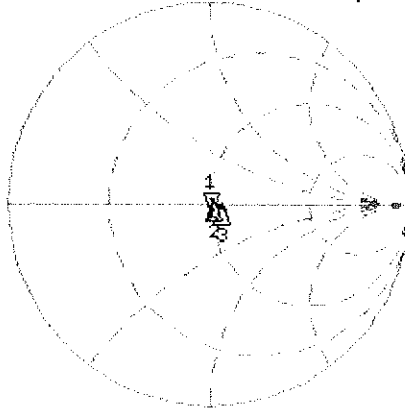
0 dB = 19.2 W/kg = 12.83 dBW/kg

Impedance Measurement Plot for Head TSL

9 Aug 2017 12:04:29

CH1 S11 1 U FS 1: 49.920 Ω -5.3223 Ω 5.6959 pF 5 250.000 000 MHz

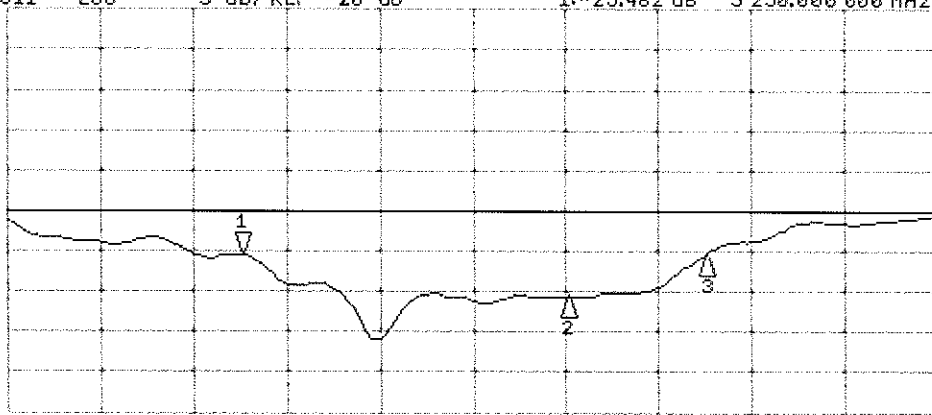
*
De1
Cor
Avg
16
H1d



CH1 Markers
2: 51.904 Ω
2.3008 Ω
5.60000 GHz
3: 55.609 Ω
-492.19 m Ω
5.75000 GHz

CH2 S11 LOG 5 dB/ REF -20 dB 1: -25.482 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2: -30.654 dB
5.60000 GHz
3: -25.460 dB
5.75000 GHz

START 5 000.000 000 MHz

STOP 6 000.000 000 MHz

DASY5 Validation Report for Body TSL

Date: 08.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1237

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: $f = 5250$ MHz; $\sigma = 5.46$ S/m; $\epsilon_r = 47$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.93$ S/m; $\epsilon_r = 46.4$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5750$ MHz; $\sigma = 6.13$ S/m; $\epsilon_r = 46.2$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.14, 5.14, 5.14); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.51, 4.51, 4.51); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.87 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 29.9 W/kg

SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.17 W/kg

Maximum value of SAR (measured) = 18.4 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.11 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 33.0 W/kg

SAR(1 g) = 7.91 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (measured) = 19.3 W/kg

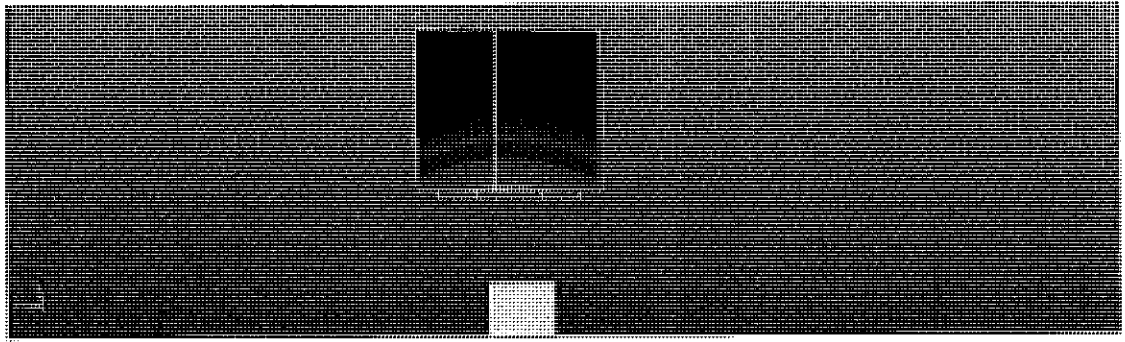
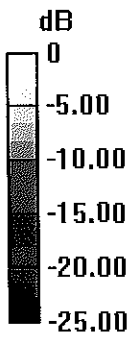
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.64 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 33.8 W/kg

SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.16 W/kg

Maximum value of SAR (measured) = 19.1 W/kg



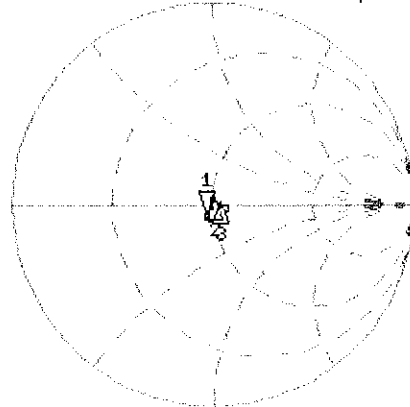
0 dB = 18.4 W/kg = 12.65 dBW/kg

Impedance Measurement Plot for Body TSL

8 Aug 2017 15:23:50

CH1 S11 1 U FS 1: 46.885 Ω -4.1973 Ω 7.2226 pF 5 250.000 000 MHz

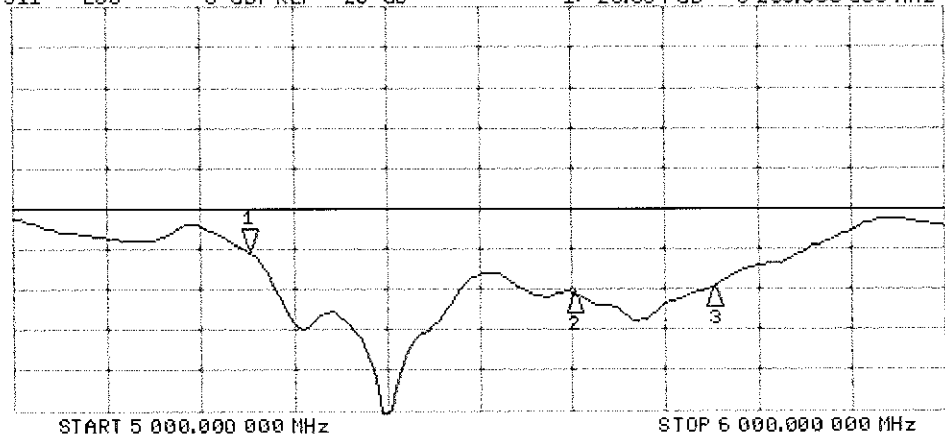
*
De1
Cor
Avg
16
H1d



CH1 Markers
2: 50.184 Ω
3: 0.215 Ω
5.60000 GHz
3: 53.363 Ω
0.1719 Ω
5.75000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 1: -25.364 dB 5 250.000 000 MHz

Cor
Avg
16
H1d



CH2 Markers
2: -30.389 dB
5.60000 GHz
3: -29.742 dB
5.75000 GHz



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **ES3-3319_Mar17**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3319**

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

*BN ✓
03-27-2017*

Calibration date: **March 14, 2017**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: March 16, 2017

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 _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization 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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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_{x,y,z}*: Assessed for E-field polarization θ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). *NORM_{x,y,z}* are only intermediate values, i.e., the uncertainties of *NORM_{x,y,z}* does not affect the E²-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)_{x,y,z}* = *NORM_{x,y,z}* * *frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCP_{x,y,z}*: 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_{x,y,z}*; *B_{x,y,z}*; *C_{x,y,z}*; *D_{x,y,z}*; *VR_{x,y,z}*; *A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF* and *Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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_{x,y,z}* * *ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORM_x* (no uncertainty required).

Probe ES3DV3

SN:3319

Manufactured: January 10, 2012
Calibrated: March 14, 2017

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3319

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	1.07	1.07	1.12	$\pm 10.1 \%$
DCP (mV) ^B	102.5	101.2	103.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	199.3	$\pm 3.5 \%$
		Y	0.0	0.0	1.0		195.9	
		Z	0.0	0.0	1.0		195.7	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $\text{ms}\cdot\text{V}^{-2}$	T2 $\text{ms}\cdot\text{V}^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	70.81	508.1	35.61	29.87	3.768	5.1	0.566	0.571	1.012
Y	67.78	484.5	35.24	29.79	3.269	5.1	1.181	0.458	1.009
Z	70.95	506.9	35.21	30.32	4.051	5.1	1.117	0.534	1.012

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

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

^B Numerical linearization parameter: uncertainty not required.

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3319

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	6.76	6.76	6.76	0.52	1.48	± 12.0 %
835	41.5	0.90	6.46	6.46	6.46	0.59	1.35	± 12.0 %
1750	40.1	1.37	5.38	5.38	5.38	0.57	1.39	± 12.0 %
1900	40.0	1.40	5.20	5.20	5.20	0.80	1.13	± 12.0 %
2300	39.5	1.67	4.86	4.86	4.86	0.48	1.60	± 12.0 %
2450	39.2	1.80	4.60	4.60	4.60	0.76	1.23	± 12.0 %
2600	39.0	1.96	4.41	4.41	4.41	0.80	1.27	± 12.0 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3319

Calibration Parameter Determined in Body Tissue Simulating Media

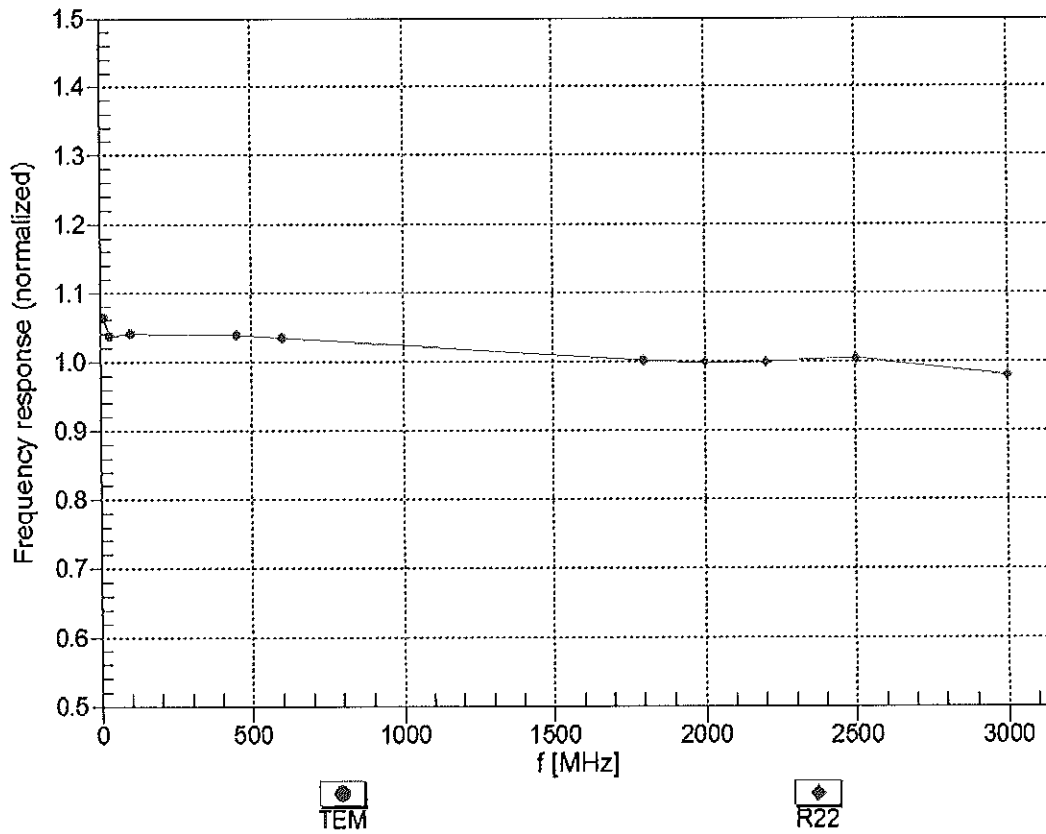
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	6.37	6.37	6.37	0.80	1.19	± 12.0 %
835	55.2	0.97	6.29	6.29	6.29	0.80	1.17	± 12.0 %
1750	53.4	1.49	5.07	5.07	5.07	0.57	1.50	± 12.0 %
1900	53.3	1.52	4.88	4.88	4.88	0.80	1.24	± 12.0 %
2300	52.9	1.81	4.62	4.62	4.62	0.80	1.21	± 12.0 %
2450	52.7	1.95	4.42	4.42	4.42	0.80	1.25	± 12.0 %
2600	52.5	2.16	4.18	4.18	4.18	0.80	1.25	± 12.0 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

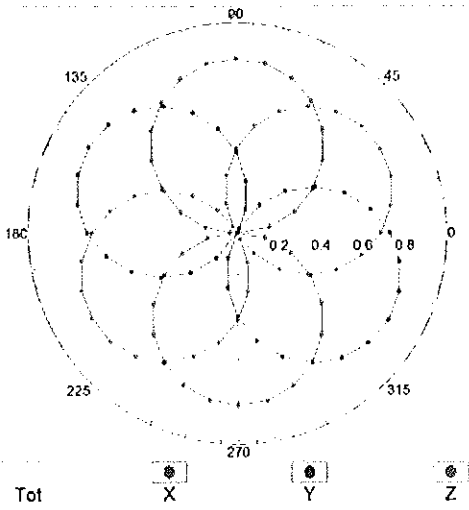
Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



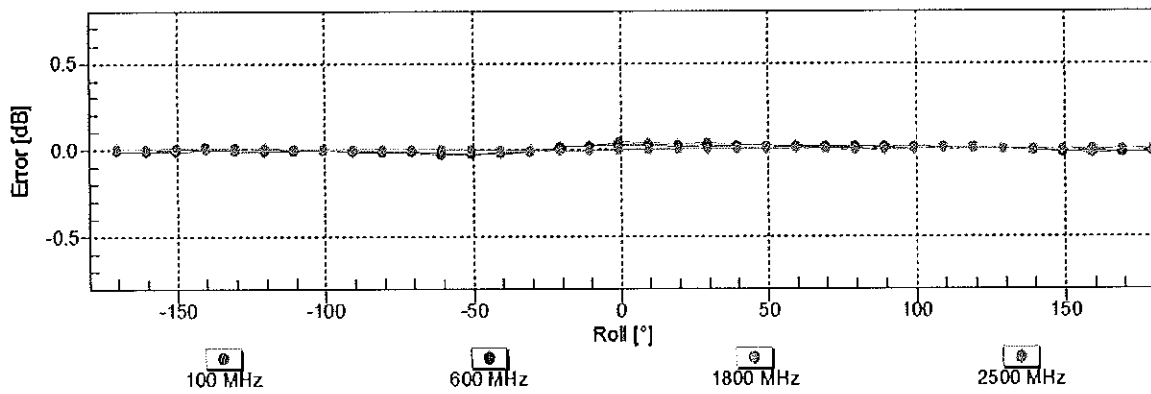
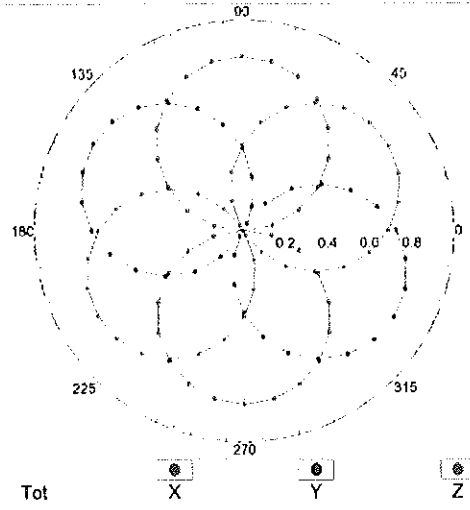
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

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

f=600 MHz, TEM

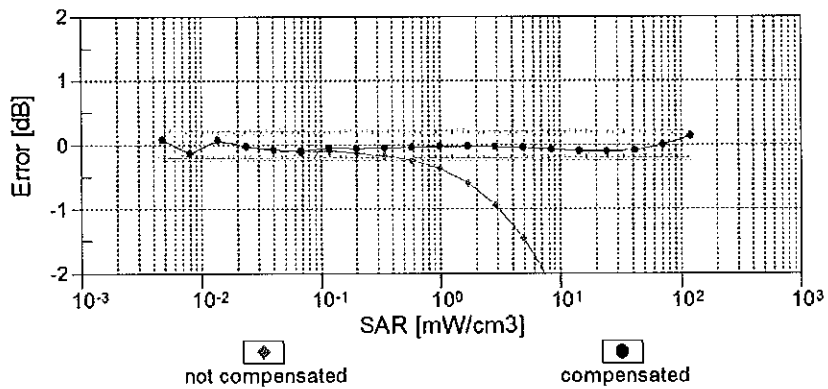
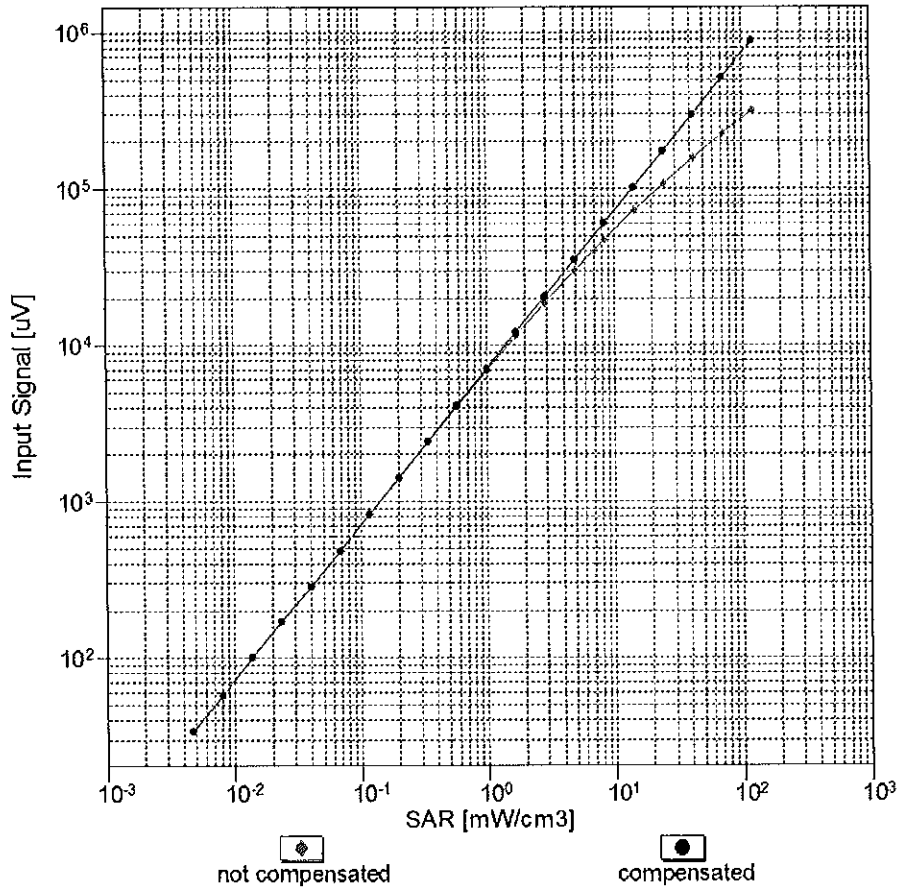


f=1800 MHz, R22



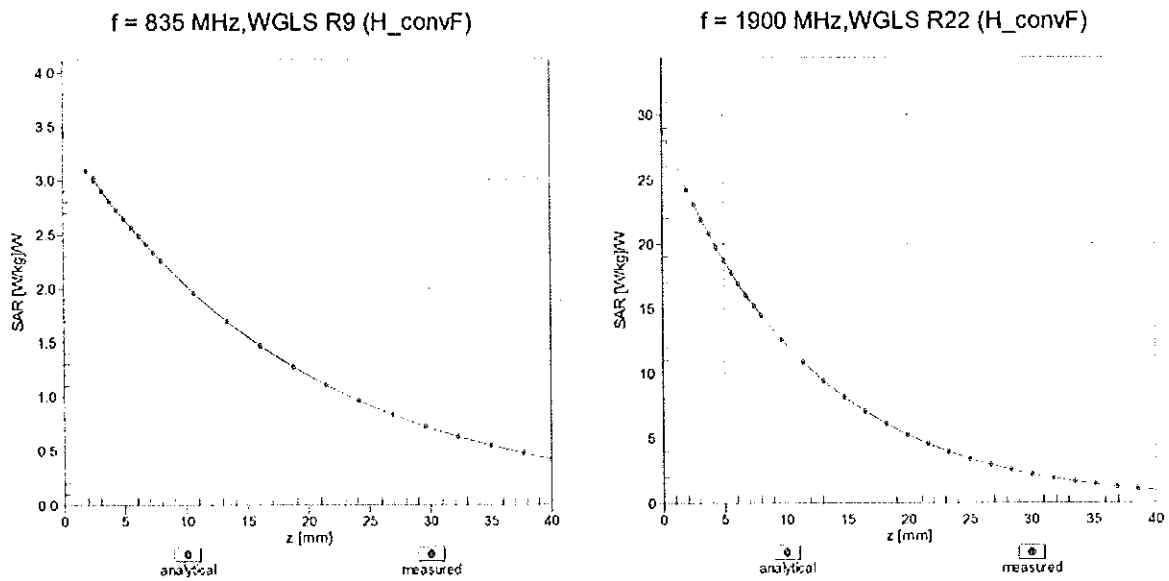
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)

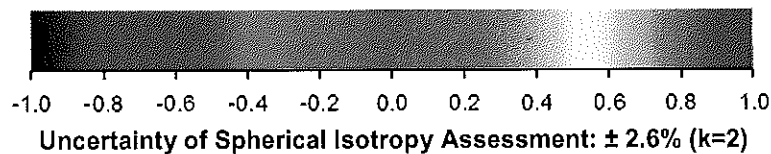
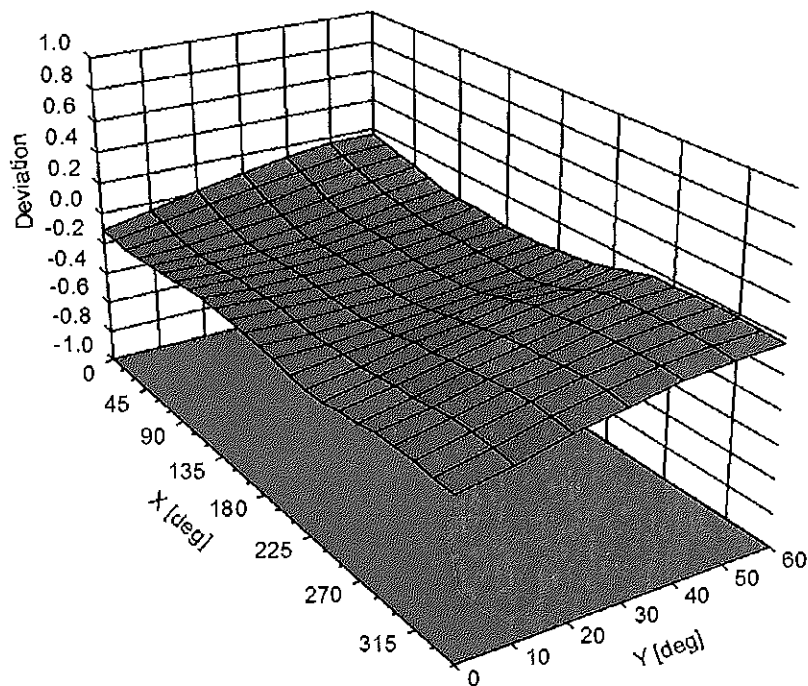


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, θ), f = 900 MHz



DASY/EASY - Parameters of Probe: ES3DV3 - SN:3319**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	59.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	199.3	± 3.5 %
		Y	0.00	0.00	1.00		195.9	
		Z	0.00	0.00	1.00		195.7	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	9.85	81.84	20.91	10.00	25.0	± 9.6 %
		Y	10.35	82.84	20.96		25.0	
		Z	9.24	80.45	20.49		25.0	
10011- CAB	UMTS-FDD (WCDMA)	X	1.42	72.72	18.48	0.00	150.0	± 9.6 %
		Y	1.15	68.46	16.03		150.0	
		Z	1.19	69.33	16.47		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.41	66.60	17.14	0.41	150.0	± 9.6 %
		Y	1.35	65.41	16.14		150.0	
		Z	1.37	65.70	16.31		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.30	67.44	17.71	1.46	150.0	± 9.6 %
		Y	5.25	67.26	17.48		150.0	
		Z	5.29	67.34	17.54		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	15.55	91.05	25.81	9.39	50.0	± 9.6 %
		Y	21.52	97.05	27.50		50.0	
		Z	13.40	88.00	24.84		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	14.67	89.87	25.47	9.57	50.0	± 9.6 %
		Y	19.36	95.07	26.93		50.0	
		Z	12.87	87.11	24.58		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	72.67	116.69	31.50	6.56	60.0	± 9.6 %
		Y	100.00	120.97	32.15		60.0	
		Z	31.96	103.34	28.02		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	17.81	101.87	38.70	12.57	50.0	± 9.6 %
		Y	13.13	92.90	34.83		50.0	
		Z	14.72	95.03	35.71		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	18.31	99.96	34.53	9.56	60.0	± 9.6 %
		Y	16.31	97.17	33.33		60.0	
		Z	16.55	96.65	33.14		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	120.78	31.24	4.80	80.0	± 9.6 %
		Y	100.00	119.86	30.63		80.0	
		Z	100.00	120.27	31.10		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	121.31	30.58	3.55	100.0	± 9.6 %
		Y	100.00	120.10	29.87		100.0	
		Z	100.00	120.31	30.21		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	13.74	94.06	31.43	7.80	80.0	± 9.6 %
		Y	12.10	91.11	30.13		80.0	
		Z	12.69	91.48	30.26		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	120.44	31.46	5.30	70.0	± 9.6 %
		Y	100.00	119.51	30.84		70.0	
		Z	86.39	117.92	30.89		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	124.75	30.39	1.88	100.0	± 9.6 %
		Y	100.00	122.04	29.08		100.0	
		Z	100.00	122.19	29.33		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	132.42	32.41	1.17	100.0	± 9.6 %
		Y	100.00	127.37	30.18		100.0	
		Z	100.00	127.22	30.26		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	16.06	95.52	27.18	5.30	70.0	± 9.6 %
		Y	16.39	95.85	27.05		70.0	
		Z	12.53	90.50	25.41		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	10.70	94.04	25.42	1.88	100.0	± 9.6 %
		Y	7.71	88.38	23.29		100.0	
		Z	7.05	86.80	22.76		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	6.38	88.03	23.33	1.17	100.0	± 9.6 %
		Y	4.42	81.78	20.80		100.0	
		Z	4.44	81.54	20.78		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	18.54	98.19	28.07	5.30	70.0	± 9.6 %
		Y	19.46	98.99	28.08		70.0	
		Z	13.96	92.52	26.13		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	10.52	93.81	25.31	1.88	100.0	± 9.6 %
		Y	7.46	87.90	23.09		100.0	
		Z	6.91	86.34	22.63		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	6.72	89.10	23.77	1.17	100.0	± 9.6 %
		Y	4.58	82.55	21.16		100.0	
		Z	4.59	82.28	21.12		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	2.88	78.08	19.66	0.00	150.0	± 9.6 %
		Y	2.19	73.41	17.38		150.0	
		Z	2.24	73.69	17.58		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	29.89	101.32	27.42	7.78	50.0	± 9.6 %
		Y	57.75	111.39	29.82		50.0	
		Z	20.04	94.63	25.49		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.01	60.00	29147.00	0.00	150.0	± 9.6 %
		Y	0.01	96.41	0.53		150.0	
		Z	0.00	108.36	0.61		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	10.82	81.42	24.20	13.80	25.0	± 9.6 %
		Y	12.01	84.16	25.00		25.0	
		Z	10.45	80.25	23.85		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	12.11	85.56	24.37	10.79	40.0	± 9.6 %
		Y	14.10	88.79	25.27		40.0	
		Z	11.33	83.90	23.85		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	12.14	85.93	24.81	9.03	50.0	± 9.6 %
		Y	12.75	87.19	25.07		50.0	
		Z	11.32	84.12	24.10		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	10.68	89.49	29.10	6.55	100.0	± 9.6 %
		Y	9.42	86.65	27.81		100.0	
		Z	10.05	87.45	28.09		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.65	69.30	18.41	0.61	110.0	± 9.6 %
		Y	1.54	67.66	17.23		110.0	
		Z	1.58	68.07	17.43		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	134.53	35.47	1.30	110.0	± 9.6 %
		Y	100.00	132.25	34.36		110.0	
		Z	100.00	131.68	34.21		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	15.72	103.92	29.80	2.04	110.0	± 9.6 %
		Y	9.78	95.24	26.89		110.0	
		Z	9.50	94.05	26.46		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	5.02	67.22	17.01	0.49	100.0	± 9.6 %
		Y	4.97	67.04	16.79		100.0	
		Z	5.00	67.08	16.82		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	5.07	67.40	17.16	0.72	100.0	± 9.6 %
		Y	5.02	67.21	16.94		100.0	
		Z	5.04	67.26	16.97		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.43	67.77	17.43	0.86	100.0	± 9.6 %
		Y	5.38	67.58	17.21		100.0	
		Z	5.41	67.64	17.25		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.34	67.82	17.61	1.21	100.0	± 9.6 %
		Y	5.28	67.62	17.38		100.0	
		Z	5.32	67.69	17.43		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.40	67.98	17.85	1.46	100.0	± 9.6 %
		Y	5.34	67.76	17.61		100.0	
		Z	5.39	67.85	17.67		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.73	68.10	18.30	2.04	100.0	± 9.6 %
		Y	5.66	67.87	18.05		100.0	
		Z	5.72	68.01	18.13		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.90	68.56	18.70	2.55	100.0	± 9.6 %
		Y	5.82	68.29	18.44		100.0	
		Z	5.90	68.48	18.54		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.97	68.43	18.86	2.67	100.0	± 9.6 %
		Y	5.89	68.17	18.59		100.0	
		Z	5.97	68.35	18.70		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.46	67.71	18.10	1.99	100.0	± 9.6 %
		Y	5.40	67.50	17.87		100.0	
		Z	5.45	67.61	17.94		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.55	68.34	18.45	2.30	100.0	± 9.6 %
		Y	5.48	68.10	18.20		100.0	
		Z	5.55	68.24	18.28		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.71	68.73	18.89	2.83	100.0	± 9.6 %
		Y	5.63	68.45	18.63		100.0	
		Z	5.71	68.65	18.73		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.76	68.86	19.19	3.30	100.0	± 9.6 %
		Y	5.67	68.55	18.90		100.0	
		Z	5.77	68.80	19.03		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.97	69.51	19.77	3.82	90.0	± 9.6 %
		Y	5.85	69.11	19.43		90.0	
		Z	5.99	69.45	19.61		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.96	69.27	19.86	4.15	90.0	± 9.6 %
		Y	5.85	68.87	19.52		90.0	
		Z	5.99	69.24	19.72		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	6.00	69.37	19.97	4.30	90.0	± 9.6 %
		Y	5.89	68.96	19.62		90.0	
		Z	6.03	69.34	19.83		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.41	72.76	17.31	0.00	150.0	± 9.6 %
		Y	1.06	67.92	14.61		150.0	
		Z	1.11	68.62	15.03		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.74	66.09	10.68	4.77	80.0	± 9.6 %
		Y	2.51	65.26	10.02		80.0	
		Z	2.76	65.88	10.66		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	68.83	115.90	31.34	6.56	60.0	± 9.6 %
		Y	100.00	121.06	32.22		60.0	
		Z	31.05	102.92	27.93		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.05	69.35	17.13	0.00	150.0	± 9.6 %
		Y	1.92	67.86	16.10		150.0	
		Z	1.93	68.06	16.23		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	2.02	69.37	17.13	0.00	150.0	± 9.6 %
		Y	1.88	67.83	16.06		150.0	
		Z	1.90	68.05	16.21		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	18.22	99.79	34.47	9.56	60.0	± 9.6 %
		Y	16.25	97.06	33.29		60.0	
		Z	16.47	96.50	33.09		60.0	
10100-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.71	72.76	17.93	0.00	150.0	± 9.6 %
		Y	3.41	71.21	17.05		150.0	
		Z	3.48	71.52	17.17		150.0	
10101-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.57	68.80	16.73	0.00	150.0	± 9.6 %
		Y	3.46	68.11	16.22		150.0	
		Z	3.49	68.27	16.30		150.0	
10102-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.66	68.61	16.75	0.00	150.0	± 9.6 %
		Y	3.56	68.02	16.30		150.0	
		Z	3.58	68.13	16.36		150.0	
10103-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	8.88	78.01	21.33	3.98	65.0	± 9.6 %
		Y	8.67	77.74	21.13		65.0	
		Z	8.55	77.02	20.81		65.0	
10104-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.93	77.00	21.79	3.98	65.0	± 9.6 %
		Y	8.73	76.65	21.51		65.0	
		Z	8.82	76.47	21.44		65.0	
10105-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	7.98	74.72	21.06	3.98	65.0	± 9.6 %
		Y	8.03	74.96	21.06		65.0	
		Z	7.61	73.51	20.40		65.0	
10108-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.27	71.88	17.76	0.00	150.0	± 9.6 %
		Y	3.02	70.38	16.87		150.0	
		Z	3.08	70.66	16.99		150.0	
10109-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.25	68.64	16.73	0.00	150.0	± 9.6 %
		Y	3.13	67.91	16.18		150.0	
		Z	3.16	68.05	16.25		150.0	
10110-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.71	70.99	17.56	0.00	150.0	± 9.6 %
		Y	2.49	69.37	16.56		150.0	
		Z	2.54	69.69	16.72		150.0	
10111-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.94	69.24	17.11	0.00	150.0	± 9.6 %
		Y	2.83	68.45	16.51		150.0	
		Z	2.85	68.47	16.54		150.0	

10112-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.35	68.45	16.70	0.00	150.0	± 9.6 %
		Y	3.25	67.82	16.20		150.0	
		Z	3.28	67.92	16.26		150.0	
10113-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	3.09	69.18	17.14	0.00	150.0	± 9.6 %
		Y	2.99	68.50	16.60		150.0	
		Z	3.00	68.49	16.61		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.36	67.61	16.76	0.00	150.0	± 9.6 %
		Y	5.31	67.41	16.53		150.0	
		Z	5.33	67.45	16.56		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.78	68.00	16.95	0.00	150.0	± 9.6 %
		Y	5.71	67.76	16.71		150.0	
		Z	5.74	67.85	16.76		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.50	67.87	16.80	0.00	150.0	± 9.6 %
		Y	5.45	67.67	16.59		150.0	
		Z	5.46	67.70	16.60		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.37	67.63	16.79	0.00	150.0	± 9.6 %
		Y	5.32	67.44	16.57		150.0	
		Z	5.33	67.46	16.59		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.80	67.97	16.94	0.00	150.0	± 9.6 %
		Y	5.75	67.80	16.74		150.0	
		Z	5.76	67.82	16.75		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.47	67.83	16.80	0.00	150.0	± 9.6 %
		Y	5.42	67.63	16.58		150.0	
		Z	5.43	67.65	16.60		150.0	
10140-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.71	68.61	16.68	0.00	150.0	± 9.6 %
		Y	3.61	68.02	16.22		150.0	
		Z	3.64	68.14	16.28		150.0	
10141-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.82	68.57	16.77	0.00	150.0	± 9.6 %
		Y	3.73	68.05	16.36		150.0	
		Z	3.75	68.13	16.40		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.49	71.10	17.54	0.00	150.0	± 9.6 %
		Y	2.27	69.32	16.43		150.0	
		Z	2.31	69.61	16.60		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.87	70.15	17.21	0.00	150.0	± 9.6 %
		Y	2.72	69.17	16.50		150.0	
		Z	2.73	69.14	16.52		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.68	68.25	15.88	0.00	150.0	± 9.6 %
		Y	2.54	67.28	15.14		150.0	
		Z	2.58	67.43	15.28		150.0	
10145-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.97	70.87	16.37	0.00	150.0	± 9.6 %
		Y	1.68	68.25	14.76		150.0	
		Z	1.73	68.59	15.05		150.0	
10146-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.75	78.42	19.14	0.00	150.0	± 9.6 %
		Y	3.83	74.52	16.97		150.0	
		Z	4.41	76.61	18.14		150.0	
10147-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	6.27	82.79	20.95	0.00	150.0	± 9.6 %
		Y	5.05	78.64	18.78		150.0	
		Z	5.67	80.46	19.79		150.0	

10149-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.26	68.70	16.77	0.00	150.0	± 9.6 %
		Y	3.14	67.97	16.22		150.0	
		Z	3.17	68.10	16.29		150.0	
10150-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.36	68.50	16.73	0.00	150.0	± 9.6 %
		Y	3.26	67.87	16.24		150.0	
		Z	3.28	67.96	16.30		150.0	
10151-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.26	79.92	22.22	3.98	65.0	± 9.6 %
		Y	9.15	79.84	22.08		65.0	
		Z	8.96	78.94	21.70		65.0	
10152-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.60	77.27	21.75	3.98	65.0	± 9.6 %
		Y	8.35	76.82	21.41		65.0	
		Z	8.46	76.64	21.35		65.0	
10153-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.88	77.79	22.28	3.98	65.0	± 9.6 %
		Y	8.70	77.50	22.02		65.0	
		Z	8.75	77.18	21.89		65.0	
10154-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.78	71.52	17.87	0.00	150.0	± 9.6 %
		Y	2.56	69.90	16.88		150.0	
		Z	2.60	70.17	17.01		150.0	
10155-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.94	69.23	17.11	0.00	150.0	± 9.6 %
		Y	2.83	68.44	16.51		150.0	
		Z	2.85	68.47	16.54		150.0	
10156-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.40	71.71	17.74	0.00	150.0	± 9.6 %
		Y	2.14	69.64	16.49		150.0	
		Z	2.19	69.95	16.67		150.0	
10157-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.56	69.20	16.24	0.00	150.0	± 9.6 %
		Y	2.39	67.98	15.37		150.0	
		Z	2.42	68.11	15.51		150.0	
10158-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	3.10	69.22	17.17	0.00	150.0	± 9.6 %
		Y	2.99	68.55	16.64		150.0	
		Z	3.00	68.53	16.65		150.0	
10159-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.68	69.58	16.50	0.00	150.0	± 9.6 %
		Y	2.51	68.44	15.68		150.0	
		Z	2.54	68.50	15.78		150.0	
10160-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.14	70.23	17.31	0.00	150.0	± 9.6 %
		Y	2.97	69.12	16.58		150.0	
		Z	3.01	69.30	16.67		150.0	
10161-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.25	68.37	16.69	0.00	150.0	± 9.6 %
		Y	3.15	67.75	16.20		150.0	
		Z	3.17	67.82	16.25		150.0	
10162-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.35	68.34	16.71	0.00	150.0	± 9.6 %
		Y	3.25	67.77	16.24		150.0	
		Z	3.27	67.82	16.29		150.0	
10166-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	4.16	70.95	20.14	3.01	150.0	± 9.6 %
		Y	4.09	70.57	19.65		150.0	
		Z	4.23	71.07	20.00		150.0	
10167-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	5.42	74.49	20.88	3.01	150.0	± 9.6 %
		Y	5.38	74.26	20.45		150.0	
		Z	5.66	74.92	20.85		150.0	

10168-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	5.88	76.24	21.91	3.01	150.0	± 9.6 %
		Y	5.94	76.40	21.68		150.0	
		Z	6.16	76.77	21.92		150.0	
10169-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.00	73.62	21.32	3.01	150.0	± 9.6 %
		Y	3.90	72.96	20.64		150.0	
		Z	4.22	74.22	21.31		150.0	
10170-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	6.31	81.51	24.09	3.01	150.0	± 9.6 %
		Y	6.48	81.75	23.78		150.0	
		Z	7.05	82.86	24.27		150.0	
10171-AAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	5.08	76.75	21.32	3.01	150.0	± 9.6 %
		Y	4.94	75.94	20.54		150.0	
		Z	5.51	77.53	21.31		150.0	
10172-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	28.35	107.78	33.34	6.02	65.0	± 9.6 %
		Y	28.59	107.61	32.92		65.0	
		Z	27.19	105.85	32.47		65.0	
10173-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	29.50	104.02	30.66	6.02	65.0	± 9.6 %
		Y	34.69	106.60	31.03		65.0	
		Z	27.86	101.98	29.79		65.0	
10174-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	23.87	98.93	28.69	6.02	65.0	± 9.6 %
		Y	26.66	100.64	28.84		65.0	
		Z	22.60	97.09	27.89		65.0	
10175-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	3.94	73.23	21.05	3.01	150.0	± 9.6 %
		Y	3.83	72.52	20.34		150.0	
		Z	4.15	73.80	21.02		150.0	
10176-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	6.32	81.53	24.10	3.01	150.0	± 9.6 %
		Y	6.49	81.78	23.79		150.0	
		Z	7.06	82.89	24.28		150.0	
10177-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.98	73.42	21.16	3.01	150.0	± 9.6 %
		Y	3.88	72.74	20.47		150.0	
		Z	4.19	74.00	21.14		150.0	
10178-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	6.20	81.16	23.93	3.01	150.0	± 9.6 %
		Y	6.35	81.32	23.59		150.0	
		Z	6.91	82.48	24.09		150.0	
10179-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	5.64	78.94	22.55	3.01	150.0	± 9.6 %
		Y	5.60	78.53	21.96		150.0	
		Z	6.18	79.93	22.60		150.0	
10180-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	5.06	76.62	21.25	3.01	150.0	± 9.6 %
		Y	4.91	75.79	20.46		150.0	
		Z	5.47	77.39	21.24		150.0	
10181-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.98	73.40	21.15	3.01	150.0	± 9.6 %
		Y	3.87	72.72	20.46		150.0	
		Z	4.18	73.98	21.13		150.0	
10182-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	6.19	81.13	23.92	3.01	150.0	± 9.6 %
		Y	6.34	81.29	23.57		150.0	
		Z	6.90	82.45	24.08		150.0	
10183-AAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	5.05	76.59	21.24	3.01	150.0	± 9.6 %
		Y	4.90	75.76	20.45		150.0	
		Z	5.46	77.36	21.23		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.99	73.45	21.17	3.01	150.0	± 9.6 %
		Y	3.89	72.78	20.49		150.0	
		Z	4.20	74.03	21.16		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	6.23	81.21	23.95	3.01	150.0	± 9.6 %
		Y	6.37	81.39	23.62		150.0	
		Z	6.94	82.53	24.12		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	5.08	76.67	21.27	3.01	150.0	± 9.6 %
		Y	4.93	75.84	20.48		150.0	
		Z	5.49	77.44	21.26		150.0	
10187-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.00	73.48	21.22	3.01	150.0	± 9.6 %
		Y	3.89	72.80	20.53		150.0	
		Z	4.21	74.07	21.20		150.0	
10188-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	6.48	82.07	24.38	3.01	150.0	± 9.6 %
		Y	6.71	82.45	24.13		150.0	
		Z	7.27	83.49	24.57		150.0	
10189-AAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	5.21	77.21	21.58	3.01	150.0	± 9.6 %
		Y	5.09	76.46	20.83		150.0	
		Z	5.66	78.03	21.58		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.79	66.98	16.56	0.00	150.0	± 9.6 %
		Y	4.74	66.79	16.32		150.0	
		Z	4.76	66.81	16.35		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	5.00	67.38	16.67	0.00	150.0	± 9.6 %
		Y	4.95	67.18	16.43		150.0	
		Z	4.97	67.21	16.46		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	5.04	67.38	16.66	0.00	150.0	± 9.6 %
		Y	4.99	67.18	16.43		150.0	
		Z	5.00	67.20	16.45		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.82	67.11	16.60	0.00	150.0	± 9.6 %
		Y	4.77	66.91	16.36		150.0	
		Z	4.78	66.93	16.39		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	5.02	67.40	16.67	0.00	150.0	± 9.6 %
		Y	4.97	67.20	16.44		150.0	
		Z	4.98	67.22	16.46		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	5.05	67.39	16.67	0.00	150.0	± 9.6 %
		Y	5.00	67.20	16.44		150.0	
		Z	5.01	67.21	16.46		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.77	67.13	16.58	0.00	150.0	± 9.6 %
		Y	4.72	66.92	16.33		150.0	
		Z	4.73	66.95	16.36		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	5.02	67.40	16.68	0.00	150.0	± 9.6 %
		Y	4.97	67.20	16.44		150.0	
		Z	4.99	67.23	16.47		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	5.05	67.33	16.66	0.00	150.0	± 9.6 %
		Y	5.00	67.13	16.44		150.0	
		Z	5.02	67.15	16.46		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.36	67.67	16.80	0.00	150.0	± 9.6 %
		Y	5.31	67.46	16.57		150.0	
		Z	5.32	67.50	16.60		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.75	68.00	16.98	0.00	150.0	± 9.6 %
		Y	5.70	67.82	16.77		150.0	
		Z	5.71	67.82	16.78		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.42	67.80	16.78	0.00	150.0	± 9.6 %
		Y	5.36	67.58	16.55		150.0	
		Z	5.38	67.63	16.58		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	3.07	66.80	16.19	0.00	150.0	± 9.6 %
		Y	3.00	66.35	15.75		150.0	
		Z	3.01	66.39	15.81		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	30.74	104.89	30.99	6.02	65.0	± 9.6 %
		Y	36.94	107.88	31.47		65.0	
		Z	29.00	102.81	30.11		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	24.57	99.58	28.97	6.02	65.0	± 9.6 %
		Y	28.65	102.05	29.35		65.0	
		Z	23.52	97.91	28.22		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	30.31	109.61	33.99	6.02	65.0	± 9.6 %
		Y	29.44	108.70	33.37		65.0	
		Z	27.38	106.50	32.79		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	29.49	104.00	30.66	6.02	65.0	± 9.6 %
		Y	34.74	106.61	31.04		65.0	
		Z	27.87	101.97	29.80		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	23.73	98.88	28.69	6.02	65.0	± 9.6 %
		Y	27.25	101.06	28.99		65.0	
		Z	22.75	97.24	27.95		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	29.15	108.72	33.67	6.02	65.0	± 9.6 %
		Y	27.96	107.57	32.97		65.0	
		Z	26.38	105.67	32.48		65.0	
10232-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	29.48	104.00	30.66	6.02	65.0	± 9.6 %
		Y	34.72	106.61	31.04		65.0	
		Z	27.86	101.97	29.80		65.0	
10233-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	23.75	98.91	28.70	6.02	65.0	± 9.6 %
		Y	27.26	101.08	28.99		65.0	
		Z	22.77	97.26	27.96		65.0	
10234-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	27.90	107.69	33.28	6.02	65.0	± 9.6 %
		Y	26.50	106.35	32.52		65.0	
		Z	25.32	104.71	32.10		65.0	
10235-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	29.56	104.06	30.68	6.02	65.0	± 9.6 %
		Y	34.83	106.68	31.06		65.0	
		Z	27.92	102.02	29.81		65.0	
10236-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	23.93	99.02	28.74	6.02	65.0	± 9.6 %
		Y	27.48	101.20	29.02		65.0	
		Z	22.92	97.36	27.99		65.0	
10237-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	29.43	108.94	33.73	6.02	65.0	± 9.6 %
		Y	28.18	107.75	33.02		65.0	
		Z	26.59	105.85	32.53		65.0	
10238-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	29.51	104.02	30.67	6.02	65.0	± 9.6 %
		Y	34.75	106.63	31.04		65.0	
		Z	27.87	101.98	29.80		65.0	

10239-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	23.77	98.93	28.71	6.02	65.0	± 9.6 %
		Y	27.27	101.10	29.00		65.0	
		Z	22.78	97.29	27.97		65.0	
10240-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	29.33	108.88	33.71	6.02	65.0	± 9.6 %
		Y	28.09	107.69	33.00		65.0	
		Z	26.51	105.80	32.51		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	12.97	86.83	27.84	6.98	65.0	± 9.6 %
		Y	12.74	86.49	27.42		65.0	
		Z	13.39	87.03	27.74		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	11.77	84.58	26.87	6.98	65.0	± 9.6 %
		Y	12.19	85.46	26.94		65.0	
		Z	12.90	86.14	27.32		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	9.86	82.57	26.93	6.98	65.0	± 9.6 %
		Y	9.88	82.69	26.70		65.0	
		Z	10.64	83.89	27.31		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	10.27	81.73	22.33	3.98	65.0	± 9.6 %
		Y	10.27	81.67	21.99		65.0	
		Z	10.19	81.13	21.98		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	10.17	81.33	22.14	3.98	65.0	± 9.6 %
		Y	10.15	81.24	21.78		65.0	
		Z	10.11	80.77	21.80		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	9.71	83.45	22.80	3.98	65.0	± 9.6 %
		Y	9.49	83.12	22.47		65.0	
		Z	8.94	81.57	21.97		65.0	
10247-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	8.20	78.33	21.34	3.98	65.0	± 9.6 %
		Y	8.00	78.01	21.02		65.0	
		Z	7.96	77.44	20.86		65.0	
10248-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	8.23	77.94	21.17	3.98	65.0	± 9.6 %
		Y	8.00	77.54	20.82		65.0	
		Z	8.02	77.11	20.72		65.0	
10249-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	10.15	84.14	23.49	3.98	65.0	± 9.6 %
		Y	9.98	83.94	23.24		65.0	
		Z	9.39	82.30	22.67		65.0	
10250-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.79	79.35	22.70	3.98	65.0	± 9.6 %
		Y	8.63	79.16	22.48		65.0	
		Z	8.57	78.51	22.22		65.0	
10251-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	8.44	77.55	21.73	3.98	65.0	± 9.6 %
		Y	8.21	77.13	21.40		65.0	
		Z	8.29	76.85	21.32		65.0	
10252-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	9.81	82.69	23.38	3.98	65.0	± 9.6 %
		Y	9.69	82.59	23.21		65.0	
		Z	9.29	81.25	22.69		65.0	
10253-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	8.37	76.69	21.57	3.98	65.0	± 9.6 %
		Y	8.14	76.24	21.23		65.0	
		Z	8.26	76.10	21.20		65.0	
10254-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.69	77.25	22.08	3.98	65.0	± 9.6 %
		Y	8.50	76.93	21.80		65.0	
		Z	8.58	76.68	21.71		65.0	

10255-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	9.00	79.61	22.34	3.98	65.0	± 9.6 %
		Y	8.85	79.45	22.16		65.0	
		Z	8.73	78.67	21.83		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	9.74	80.69	21.31	3.98	65.0	± 9.6 %
		Y	9.59	80.32	20.81		65.0	
		Z	9.63	80.04	20.95		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	9.62	80.13	21.03	3.98	65.0	± 9.6 %
		Y	9.43	79.69	20.50		65.0	
		Z	9.55	79.55	20.70		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	9.09	82.16	21.89	3.98	65.0	± 9.6 %
		Y	8.77	81.62	21.46		65.0	
		Z	8.39	80.38	21.12		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	8.43	78.63	21.79	3.98	65.0	± 9.6 %
		Y	8.23	78.33	21.49		65.0	
		Z	8.20	77.76	21.31		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	8.46	78.42	21.72	3.98	65.0	± 9.6 %
		Y	8.27	78.12	21.43		65.0	
		Z	8.26	77.59	21.26		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	9.72	83.07	23.32	3.98	65.0	± 9.6 %
		Y	9.52	82.82	23.06		65.0	
		Z	9.11	81.46	22.57		65.0	
10262-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.78	79.33	22.68	3.98	65.0	± 9.6 %
		Y	8.62	79.12	22.45		65.0	
		Z	8.57	78.49	22.19		65.0	
10263-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	8.44	77.55	21.74	3.98	65.0	± 9.6 %
		Y	8.21	77.13	21.40		65.0	
		Z	8.29	76.86	21.32		65.0	
10264-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	9.77	82.59	23.33	3.98	65.0	± 9.6 %
		Y	9.63	82.47	23.15		65.0	
		Z	9.25	81.16	22.64		65.0	
10265-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.59	77.27	21.75	3.98	65.0	± 9.6 %
		Y	8.35	76.82	21.41		65.0	
		Z	8.46	76.64	21.35		65.0	
10266-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.88	77.79	22.27	3.98	65.0	± 9.6 %
		Y	8.70	77.49	22.01		65.0	
		Z	8.76	77.18	21.88		65.0	
10267-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.25	79.89	22.21	3.98	65.0	± 9.6 %
		Y	9.14	79.81	22.06		65.0	
		Z	8.95	78.92	21.69		65.0	
10268-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.99	76.65	21.78	3.98	65.0	± 9.6 %
		Y	8.81	76.35	21.53		65.0	
		Z	8.91	76.18	21.46		65.0	
10269-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.91	76.26	21.70	3.98	65.0	± 9.6 %
		Y	8.73	75.96	21.44		65.0	
		Z	8.84	75.83	21.39		65.0	
10270-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.90	77.57	21.40	3.98	65.0	± 9.6 %
		Y	8.79	77.49	21.27		65.0	
		Z	8.75	76.94	21.02		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.78	67.12	16.09	0.00	150.0	± 9.6 %
		Y	2.71	66.52	15.56		150.0	
		Z	2.72	66.59	15.63		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.98	70.91	17.52	0.00	150.0	± 9.6 %
		Y	1.76	68.59	16.10		150.0	
		Z	1.80	69.04	16.33		150.0	
10277-CAA	PHS (QPSK)	X	6.79	72.27	16.39	9.03	50.0	± 9.6 %
		Y	6.45	71.67	15.76		50.0	
		Z	6.90	72.24	16.49		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	10.13	81.40	22.32	9.03	50.0	± 9.6 %
		Y	10.29	81.97	22.29		50.0	
		Z	9.77	80.32	21.92		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	10.33	81.63	22.41	9.03	50.0	± 9.6 %
		Y	10.47	82.16	22.36		50.0	
		Z	9.96	80.55	22.00		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.27	74.32	17.90	0.00	150.0	± 9.6 %
		Y	1.81	70.49	15.86		150.0	
		Z	1.87	70.91	16.13		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.36	72.30	17.10	0.00	150.0	± 9.6 %
		Y	1.04	67.63	14.46		150.0	
		Z	1.08	68.31	14.87		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.99	79.46	20.52	0.00	150.0	± 9.6 %
		Y	1.29	71.82	16.85		150.0	
		Z	1.35	72.59	17.26		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	3.14	87.23	23.85	0.00	150.0	± 9.6 %
		Y	1.79	77.07	19.53		150.0	
		Z	1.82	77.43	19.74		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	10.44	82.93	24.52	9.03	50.0	± 9.6 %
		Y	10.27	82.91	24.32		50.0	
		Z	10.06	81.64	23.93		50.0	
10297-AAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.29	71.99	17.83	0.00	150.0	± 9.6 %
		Y	3.04	70.48	16.94		150.0	
		Z	3.09	70.76	17.06		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.22	71.79	17.28	0.00	150.0	± 9.6 %
		Y	1.94	69.36	15.82		150.0	
		Z	1.98	69.66	16.04		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.69	77.67	19.45	0.00	150.0	± 9.6 %
		Y	4.12	75.07	17.83		150.0	
		Z	4.54	76.51	18.69		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.41	71.70	16.24	0.00	150.0	± 9.6 %
		Y	3.02	69.50	14.72		150.0	
		Z	3.36	70.96	15.66		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	6.06	68.71	19.27	4.17	80.0	± 9.6 %
		Y	5.82	67.97	18.75		80.0	
		Z	6.19	69.17	19.41		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.72	70.11	20.48	4.96	80.0	± 9.6 %
		Y	6.33	68.61	19.48		80.0	
		Z	6.73	69.98	20.27		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	6.65	70.48	20.70	4.96	80.0	± 9.6 %
		Y	6.20	68.74	19.57		80.0	
		Z	6.66	70.35	20.48		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	6.16	69.37	19.66	4.17	80.0	± 9.6 %
		Y	5.81	67.99	18.75		80.0	
		Z	6.16	69.23	19.45		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	9.30	81.07	26.04	6.02	50.0	± 9.6 %
		Y	8.89	81.17	26.15		50.0	
		Z	9.30	80.60	25.61		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	7.60	74.94	23.58	6.02	50.0	± 9.6 %
		Y	6.58	71.27	21.48		50.0	
		Z	7.65	74.77	23.31		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	7.89	76.12	23.89	6.02	50.0	± 9.6 %
		Y	6.67	71.96	21.62		50.0	
		Z	7.93	75.88	23.59		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	8.03	76.77	24.18	6.02	50.0	± 9.6 %
		Y	6.71	72.32	21.80		50.0	
		Z	8.07	76.51	23.87		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	7.75	75.30	23.75	6.02	50.0	± 9.6 %
		Y	6.70	71.56	21.63		50.0	
		Z	7.79	75.10	23.47		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	7.67	75.32	23.64	6.02	50.0	± 9.6 %
		Y	6.59	71.48	21.48		50.0	
		Z	7.72	75.12	23.36		50.0	
10311-AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.65	71.15	17.38	0.00	150.0	± 9.6 %
		Y	3.40	69.80	16.59		150.0	
		Z	3.45	70.04	16.69		150.0	
10313-AAA	IDEN 1:3	X	8.19	79.62	19.75	6.99	70.0	± 9.6 %
		Y	7.93	79.22	19.41		70.0	
		Z	7.49	77.80	19.02		70.0	
10314-AAA	IDEN 1:6	X	9.48	83.29	23.38	10.00	30.0	± 9.6 %
		Y	9.95	84.52	23.69		30.0	
		Z	8.48	80.77	22.38		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.25	66.08	16.91	0.17	150.0	± 9.6 %
		Y	1.20	64.89	15.87		150.0	
		Z	1.21	65.13	16.03		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.90	67.19	16.76	0.17	150.0	± 9.6 %
		Y	4.85	66.99	16.52		150.0	
		Z	4.87	67.02	16.55		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.90	67.19	16.76	0.17	150.0	± 9.6 %
		Y	4.85	66.99	16.52		150.0	
		Z	4.87	67.02	16.55		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	5.03	67.46	16.67	0.00	150.0	± 9.6 %
		Y	4.97	67.23	16.42		150.0	
		Z	4.99	67.27	16.45		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.60	67.40	16.67	0.00	150.0	± 9.6 %
		Y	5.56	67.25	16.46		150.0	
		Z	5.57	67.25	16.48		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.93	68.04	16.82	0.00	150.0	± 9.6 %
		Y	5.88	67.87	16.62		150.0	
		Z	5.89	67.90	16.63		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.27	74.32	17.90	0.00	115.0	± 9.6 %
		Y	1.81	70.49	15.86		115.0	
		Z	1.87	70.91	16.13		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.27	74.32	17.90	0.00	115.0	± 9.6 %
		Y	1.81	70.49	15.86		115.0	
		Z	1.87	70.91	16.13		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	127.40	33.82	0.00	100.0	± 9.6 %
		Y	100.00	122.61	31.43		100.0	
		Z	100.00	123.45	32.03		100.0	
10410-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.97	31.96	3.23	80.0	± 9.6 %
		Y	100.00	119.93	30.78		80.0	
		Z	100.00	120.31	31.22		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.07	64.27	15.93	0.00	150.0	± 9.6 %
		Y	1.04	63.30	14.96		150.0	
		Z	1.04	63.46	15.09		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.79	67.01	16.59	0.00	150.0	± 9.6 %
		Y	4.74	66.82	16.35		150.0	
		Z	4.76	66.83	16.37		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.79	67.01	16.59	0.00	150.0	± 9.6 %
		Y	4.74	66.82	16.35		150.0	
		Z	4.76	66.83	16.37		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.77	67.15	16.59	0.00	150.0	± 9.6 %
		Y	4.73	66.95	16.35		150.0	
		Z	4.74	66.96	16.37		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.80	67.11	16.60	0.00	150.0	± 9.6 %
		Y	4.75	66.92	16.36		150.0	
		Z	4.76	66.93	16.38		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.93	67.11	16.61	0.00	150.0	± 9.6 %
		Y	4.88	66.93	16.38		150.0	
		Z	4.90	66.94	16.40		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	5.16	67.53	16.76	0.00	150.0	± 9.6 %
		Y	5.10	67.33	16.53		150.0	
		Z	5.12	67.36	16.55		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	5.06	67.46	16.72	0.00	150.0	± 9.6 %
		Y	5.01	67.26	16.49		150.0	
		Z	5.02	67.28	16.51		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.63	67.84	16.88	0.00	150.0	± 9.6 %
		Y	5.58	67.63	16.65		150.0	
		Z	5.59	67.66	16.67		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.65	67.87	16.88	0.00	150.0	± 9.6 %
		Y	5.59	67.67	16.66		150.0	
		Z	5.60	67.69	16.68		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.67	67.88	16.88	0.00	150.0	± 9.6 %
		Y	5.61	67.68	16.67		150.0	
		Z	5.63	67.72	16.69		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.49	70.32	18.41	0.00	150.0	± 9.6 %
		Y	4.47	70.35	18.30		150.0	
		Z	4.43	69.94	18.10		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.57	67.64	16.73	0.00	150.0	± 9.6 %
		Y	4.50	67.37	16.44		150.0	
		Z	4.52	67.40	16.48		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.84	67.52	16.72	0.00	150.0	± 9.6 %
		Y	4.78	67.30	16.46		150.0	
		Z	4.81	67.32	16.49		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	5.08	67.52	16.75	0.00	150.0	± 9.6 %
		Y	5.02	67.32	16.52		150.0	
		Z	5.04	67.34	16.54		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.58	71.00	18.44	0.00	150.0	± 9.6 %
		Y	4.56	71.04	18.32		150.0	
		Z	4.50	70.55	18.09		150.0	
10435-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.83	31.89	3.23	80.0	± 9.6 %
		Y	100.00	119.78	30.72		80.0	
		Z	100.00	120.18	31.16		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.91	67.81	16.42	0.00	150.0	± 9.6 %
		Y	3.82	67.43	16.03		150.0	
		Z	3.85	67.45	16.10		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.37	67.41	16.59	0.00	150.0	± 9.6 %
		Y	4.31	67.14	16.30		150.0	
		Z	4.33	67.16	16.33		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.61	67.35	16.62	0.00	150.0	± 9.6 %
		Y	4.56	67.11	16.36		150.0	
		Z	4.57	67.13	16.39		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.78	67.27	16.62	0.00	150.0	± 9.6 %
		Y	4.73	67.06	16.37		150.0	
		Z	4.75	67.08	16.40		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.87	68.19	16.26	0.00	150.0	± 9.6 %
		Y	3.76	67.74	15.84		150.0	
		Z	3.80	67.77	15.91		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.48	68.45	17.03	0.00	150.0	± 9.6 %
		Y	6.43	68.27	16.83		150.0	
		Z	6.44	68.31	16.86		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.93	65.66	16.35	0.00	150.0	± 9.6 %
		Y	3.90	65.46	16.09		150.0	
		Z	3.90	65.49	16.13		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.65	67.27	15.76	0.00	150.0	± 9.6 %
		Y	3.56	66.88	15.33		150.0	
		Z	3.59	66.88	15.43		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.75	65.30	16.25	0.00	150.0	± 9.6 %
		Y	4.56	64.61	15.72		150.0	
		Z	4.62	64.74	15.85		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.26	74.40	19.85	0.00	150.0	± 9.6 %
		Y	0.98	69.11	16.84		150.0	
		Z	1.02	70.09	17.34		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	124.67	33.28	3.29	80.0	± 9.6 %
		Y	100.00	122.71	32.15		80.0	
		Z	100.00	122.52	32.32		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.53	27.42	3.23	80.0	± 9.6 %
		Y	100.00	109.84	25.94		80.0	
		Z	100.00	110.74	26.63		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.09	26.24	3.23	80.0	± 9.6 %
		Y	100.00	107.30	24.71		80.0	
		Z	100.00	108.46	25.52		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.17	32.44	3.23	80.0	± 9.6 %
		Y	100.00	121.02	31.22		80.0	
		Z	100.00	121.02	31.48		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.13	27.22	3.23	80.0	± 9.6 %
		Y	100.00	109.39	25.71		80.0	
		Z	100.00	110.36	26.43		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.70	26.05	3.23	80.0	± 9.6 %
		Y	100.00	106.88	24.51		80.0	
		Z	100.00	108.09	25.34		80.0	
10467-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.35	32.52	3.23	80.0	± 9.6 %
		Y	100.00	121.21	31.30		80.0	
		Z	100.00	121.18	31.55		80.0	
10468-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.26	27.27	3.23	80.0	± 9.6 %
		Y	100.00	109.52	25.77		80.0	
		Z	100.00	110.48	26.49		80.0	
10469-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.71	26.05	3.23	80.0	± 9.6 %
		Y	100.00	106.88	24.50		80.0	
		Z	100.00	108.10	25.34		80.0	
10470-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.38	32.53	3.23	80.0	± 9.6 %
		Y	100.00	121.23	31.30		80.0	
		Z	100.00	121.21	31.55		80.0	
10471-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.22	27.25	3.23	80.0	± 9.6 %
		Y	100.00	109.48	25.75		80.0	
		Z	100.00	110.44	26.46		80.0	
10472-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.68	26.03	3.23	80.0	± 9.6 %
		Y	100.00	106.84	24.48		80.0	
		Z	100.00	108.06	25.32		80.0	
10473-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.36	32.52	3.23	80.0	± 9.6 %
		Y	100.00	121.21	31.29		80.0	
		Z	100.00	121.18	31.54		80.0	
10474-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.23	27.26	3.23	80.0	± 9.6 %
		Y	100.00	109.49	25.75		80.0	
		Z	100.00	110.45	26.47		80.0	
10475-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.69	26.03	3.23	80.0	± 9.6 %
		Y	100.00	106.85	24.48		80.0	
		Z	100.00	108.07	25.32		80.0	

10477-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.10	27.19	3.23	80.0	± 9.6 %
		Y	100.00	109.35	25.68		80.0	
		Z	100.00	110.33	26.40		80.0	
10478-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.65	26.01	3.23	80.0	± 9.6 %
		Y	100.00	106.81	24.47		80.0	
		Z	100.00	108.04	25.30		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	14.38	94.20	26.88	3.23	80.0	± 9.6 %
		Y	12.62	91.51	25.59		80.0	
		Z	11.98	90.33	25.40		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	16.92	91.85	24.70	3.23	80.0	± 9.6 %
		Y	16.07	90.43	23.78		80.0	
		Z	14.43	88.66	23.48		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	15.52	89.82	23.79	3.23	80.0	± 9.6 %
		Y	14.42	88.14	22.78		80.0	
		Z	13.29	86.80	22.62		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.56	82.70	21.88	2.23	80.0	± 9.6 %
		Y	6.34	79.89	20.64		80.0	
		Z	6.13	78.95	20.35		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	10.42	84.68	22.62	2.23	80.0	± 9.6 %
		Y	9.52	82.90	21.60		80.0	
		Z	9.24	82.26	21.60		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	9.76	83.43	22.21	2.23	80.0	± 9.6 %
		Y	8.92	81.70	21.20		80.0	
		Z	8.78	81.26	21.26		80.0	
10485-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.43	82.48	22.31	2.23	80.0	± 9.6 %
		Y	6.34	79.89	21.17		80.0	
		Z	6.26	79.21	20.92		80.0	
10486-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.54	75.02	19.37	2.23	80.0	± 9.6 %
		Y	5.16	73.91	18.72		80.0	
		Z	5.15	73.47	18.58		80.0	
10487-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.49	74.50	19.17	2.23	80.0	± 9.6 %
		Y	5.13	73.46	18.54		80.0	
		Z	5.13	73.07	18.42		80.0	
10488-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.90	79.78	21.64	2.23	80.0	± 9.6 %
		Y	6.14	77.86	20.75		80.0	
		Z	6.18	77.51	20.58		80.0	
10489-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.38	73.43	19.44	2.23	80.0	± 9.6 %
		Y	5.09	72.55	18.91		80.0	
		Z	5.16	72.40	18.83		80.0	
10490-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.41	72.95	19.27	2.23	80.0	± 9.6 %
		Y	5.14	72.16	18.78		80.0	
		Z	5.21	72.02	18.71		80.0	
10491-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.32	76.48	20.47	2.23	80.0	± 9.6 %
		Y	5.85	75.21	19.82		80.0	
		Z	5.92	75.01	19.70		80.0	
10492-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.50	72.00	19.03	2.23	80.0	± 9.6 %
		Y	5.27	71.31	18.59		80.0	
		Z	5.36	71.28	18.56		80.0	

10493-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.54	71.72	18.94	2.23	80.0	± 9.6 %
		Y	5.32	71.08	18.52		80.0	
		Z	5.41	71.05	18.49		80.0	
10494-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.25	78.81	21.14	2.23	80.0	± 9.6 %
		Y	6.59	77.27	20.41		80.0	
		Z	6.62	76.95	20.25		80.0	
10495-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.65	72.70	19.29	2.23	80.0	± 9.6 %
		Y	5.39	71.95	18.83		80.0	
		Z	5.48	71.90	18.78		80.0	
10496-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.64	72.15	19.11	2.23	80.0	± 9.6 %
		Y	5.41	71.48	18.68		80.0	
		Z	5.50	71.45	18.64		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.62	80.74	20.69	2.23	80.0	± 9.6 %
		Y	5.48	77.81	19.35		80.0	
		Z	5.31	76.98	19.14		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.90	73.48	17.22	2.23	80.0	± 9.6 %
		Y	4.27	71.53	16.16		80.0	
		Z	4.35	71.46	16.28		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.83	72.93	16.89	2.23	80.0	± 9.6 %
		Y	4.21	71.00	15.82		80.0	
		Z	4.31	71.03	15.99		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.85	80.51	21.77	2.23	80.0	± 9.6 %
		Y	6.00	78.35	20.77		80.0	
		Z	6.00	77.87	20.57		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.43	74.16	19.30	2.23	80.0	± 9.6 %
		Y	5.10	73.18	18.71		80.0	
		Z	5.13	72.87	18.60		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.44	73.80	19.13	2.23	80.0	± 9.6 %
		Y	5.13	72.89	18.57		80.0	
		Z	5.15	72.59	18.46		80.0	
10503-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.81	79.57	21.56	2.23	80.0	± 9.6 %
		Y	6.06	77.64	20.66		80.0	
		Z	6.11	77.33	20.51		80.0	
10504-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.36	73.36	19.40	2.23	80.0	± 9.6 %
		Y	5.07	72.47	18.86		80.0	
		Z	5.14	72.33	18.79		80.0	
10505-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.38	72.87	19.23	2.23	80.0	± 9.6 %
		Y	5.11	72.07	18.73		80.0	
		Z	5.19	71.95	18.67		80.0	
10506-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.19	78.66	21.07	2.23	80.0	± 9.6 %
		Y	6.54	77.11	20.34		80.0	
		Z	6.57	76.81	20.18		80.0	
10507-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.63	72.64	19.26	2.23	80.0	± 9.6 %
		Y	5.37	71.89	18.79		80.0	
		Z	5.46	71.85	18.75		80.0	

10508-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.63	72.09	19.07	2.23	80.0	± 9.6 %
		Y	5.39	71.41	18.64		80.0	
		Z	5.49	71.39	18.61		80.0	
10509-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.80	75.80	19.99	2.23	80.0	± 9.6 %
		Y	6.40	74.81	19.47		80.0	
		Z	6.44	74.60	19.35		80.0	
10510-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.00	71.87	18.97	2.23	80.0	± 9.6 %
		Y	5.78	71.27	18.59		80.0	
		Z	5.87	71.27	18.56		80.0	
10511-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.98	71.43	18.84	2.23	80.0	± 9.6 %
		Y	5.78	70.88	18.48		80.0	
		Z	5.87	70.89	18.46		80.0	
10512-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.65	78.39	20.81	2.23	80.0	± 9.6 %
		Y	7.04	77.04	20.17		80.0	
		Z	7.05	76.73	20.01		80.0	
10513-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.99	72.54	19.22	2.23	80.0	± 9.6 %
		Y	5.74	71.83	18.79		80.0	
		Z	5.84	71.84	18.77		80.0	
10514-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.89	71.84	19.00	2.23	80.0	± 9.6 %
		Y	5.67	71.22	18.61		80.0	
		Z	5.77	71.23	18.59		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.04	64.60	16.09	0.00	150.0	± 9.6 %
		Y	1.01	63.51	15.03		150.0	
		Z	1.00	63.69	15.18		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.58	89.32	26.18	0.00	150.0	± 9.6 %
		Y	0.68	71.98	18.30		150.0	
		Z	0.78	74.89	19.62		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.96	68.28	17.72	0.00	150.0	± 9.6 %
		Y	0.87	65.73	15.83		150.0	
		Z	0.88	66.23	16.14		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.79	67.10	16.58	0.00	150.0	± 9.6 %
		Y	4.74	66.90	16.34		150.0	
		Z	4.76	66.92	16.36		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	5.03	67.42	16.72	0.00	150.0	± 9.6 %
		Y	4.98	67.22	16.49		150.0	
		Z	5.00	67.24	16.51		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.88	67.42	16.66	0.00	150.0	± 9.6 %
		Y	4.82	67.20	16.42		150.0	
		Z	4.84	67.23	16.44		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.81	67.44	16.66	0.00	150.0	± 9.6 %
		Y	4.75	67.21	16.40		150.0	
		Z	4.77	67.24	16.43		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.84	67.34	16.65	0.00	150.0	± 9.6 %
		Y	4.79	67.14	16.41		150.0	
		Z	4.81	67.14	16.43		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.72	67.29	16.53	0.00	150.0	± 9.6 %
		Y	4.66	67.07	16.29		150.0	
		Z	4.68	67.09	16.31		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.80	67.32	16.65	0.00	150.0	± 9.6 %
		Y	4.75	67.12	16.41		150.0	
		Z	4.77	67.13	16.43		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.74	66.35	16.23	0.00	150.0	± 9.6 %
		Y	4.69	66.14	16.00		150.0	
		Z	4.71	66.16	16.01		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.97	66.77	16.38	0.00	150.0	± 9.6 %
		Y	4.91	66.56	16.14		150.0	
		Z	4.92	66.58	16.16		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.88	66.77	16.35	0.00	150.0	± 9.6 %
		Y	4.82	66.54	16.10		150.0	
		Z	4.84	66.57	16.13		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.90	66.79	16.38	0.00	150.0	± 9.6 %
		Y	4.84	66.56	16.14		150.0	
		Z	4.86	66.59	16.16		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.90	66.79	16.38	0.00	150.0	± 9.6 %
		Y	4.84	66.56	16.14		150.0	
		Z	4.86	66.59	16.16		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.93	66.97	16.42	0.00	150.0	± 9.6 %
		Y	4.86	66.72	16.17		150.0	
		Z	4.88	66.75	16.19		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.77	66.86	16.39	0.00	150.0	± 9.6 %
		Y	4.71	66.60	16.12		150.0	
		Z	4.73	66.64	16.15		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.92	66.80	16.36	0.00	150.0	± 9.6 %
		Y	4.86	66.58	16.11		150.0	
		Z	4.87	66.60	16.13		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.41	66.95	16.41	0.00	150.0	± 9.6 %
		Y	5.35	66.75	16.19		150.0	
		Z	5.37	66.78	16.21		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.48	67.09	16.46	0.00	150.0	± 9.6 %
		Y	5.43	66.89	16.25		150.0	
		Z	5.44	66.92	16.26		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.35	67.09	16.45	0.00	150.0	± 9.6 %
		Y	5.29	66.87	16.23		150.0	
		Z	5.30	66.90	16.24		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.41	67.05	16.43	0.00	150.0	± 9.6 %
		Y	5.36	66.85	16.22		150.0	
		Z	5.37	66.87	16.23		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.54	67.15	16.52	0.00	150.0	± 9.6 %
		Y	5.48	66.94	16.30		150.0	
		Z	5.50	66.97	16.32		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.43	67.07	16.50	0.00	150.0	± 9.6 %
		Y	5.37	66.86	16.28		150.0	
		Z	5.38	66.89	16.29		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.42	67.03	16.48	0.00	150.0	± 9.6 %
		Y	5.36	66.81	16.25		150.0	
		Z	5.38	66.86	16.28		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.56	67.00	16.48	0.00	150.0	± 9.6 %
		Y	5.50	66.81	16.26		150.0	
		Z	5.52	66.84	16.28		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.65	67.02	16.49	0.00	150.0	± 9.6 %
		Y	5.60	66.83	16.28		150.0	
		Z	5.62	66.87	16.31		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.67	67.03	16.38	0.00	150.0	± 9.6 %
		Y	5.62	66.85	16.18		150.0	
		Z	5.63	66.88	16.19		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.89	67.44	16.51	0.00	150.0	± 9.6 %
		Y	5.84	67.25	16.31		150.0	
		Z	5.84	67.26	16.32		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.78	67.35	16.50	0.00	150.0	± 9.6 %
		Y	5.73	67.16	16.29		150.0	
		Z	5.74	67.19	16.30		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.88	67.44	16.53	0.00	150.0	± 9.6 %
		Y	5.82	67.23	16.31		150.0	
		Z	5.84	67.28	16.34		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.24	68.68	17.12	0.00	150.0	± 9.6 %
		Y	6.15	68.36	16.84		150.0	
		Z	6.16	68.38	16.86		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.80	67.28	16.46	0.00	150.0	± 9.6 %
		Y	5.75	67.09	16.26		150.0	
		Z	5.76	67.12	16.27		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.83	67.43	16.50	0.00	150.0	± 9.6 %
		Y	5.77	67.22	16.29		150.0	
		Z	5.78	67.25	16.30		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.72	67.16	16.39	0.00	150.0	± 9.6 %
		Y	5.67	66.97	16.18		150.0	
		Z	5.68	67.00	16.20		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.81	67.18	16.42	0.00	150.0	± 9.6 %
		Y	5.76	67.00	16.22		150.0	
		Z	5.77	67.03	16.23		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	6.07	67.41	16.47	0.00	150.0	± 9.6 %
		Y	6.02	67.24	16.28		150.0	
		Z	6.02	67.27	16.29		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.25	67.82	16.64	0.00	150.0	± 9.6 %
		Y	6.19	67.62	16.43		150.0	
		Z	6.20	67.66	16.46		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.24	67.77	16.61	0.00	150.0	± 9.6 %
		Y	6.19	67.59	16.41		150.0	
		Z	6.19	67.61	16.43		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.24	67.78	16.64	0.00	150.0	± 9.6 %
		Y	6.18	67.59	16.43		150.0	
		Z	6.19	67.62	16.45		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.31	68.00	16.76	0.00	150.0	± 9.6 %
		Y	6.25	67.79	16.55		150.0	
		Z	6.26	67.82	16.57		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.30	67.81	16.70	0.00	150.0	± 9.6 %
		Y	6.24	67.61	16.50		150.0	
		Z	6.26	67.66	16.52		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.20	67.76	16.72	0.00	150.0	± 9.6 %
		Y	6.15	67.55	16.51		150.0	
		Z	6.16	67.60	16.53		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.39	68.33	17.01	0.00	150.0	± 9.6 %
		Y	6.32	68.08	16.77		150.0	
		Z	6.34	68.13	16.81		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.65	68.60	17.09	0.00	150.0	± 9.6 %
		Y	6.59	68.41	16.88		150.0	
		Z	6.58	68.40	16.88		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	5.14	67.24	16.77	0.46	150.0	± 9.6 %
		Y	5.09	67.04	16.53		150.0	
		Z	5.10	67.08	16.57		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.42	67.73	17.08	0.46	150.0	± 9.6 %
		Y	5.36	67.55	16.86		150.0	
		Z	5.38	67.58	16.89		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.25	67.63	16.93	0.46	150.0	± 9.6 %
		Y	5.19	67.42	16.69		150.0	
		Z	5.21	67.47	16.73		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.27	67.98	17.24	0.46	150.0	± 9.6 %
		Y	5.22	67.81	17.03		150.0	
		Z	5.23	67.81	17.03		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.15	67.34	16.68	0.46	150.0	± 9.6 %
		Y	5.09	67.11	16.43		150.0	
		Z	5.12	67.17	16.48		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.20	67.97	17.24	0.46	150.0	± 9.6 %
		Y	5.15	67.81	17.04		150.0	
		Z	5.16	67.80	17.04		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.25	67.80	17.18	0.46	150.0	± 9.6 %
		Y	5.20	67.64	16.98		150.0	
		Z	5.21	67.63	16.98		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.47	67.75	17.68	0.46	130.0	± 9.6 %
		Y	1.40	66.34	16.57		130.0	
		Z	1.42	66.69	16.76		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.51	68.57	18.12	0.46	130.0	± 9.6 %
		Y	1.43	67.03	16.96		130.0	
		Z	1.45	67.37	17.14		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	149.09	40.35	0.46	130.0	± 9.6 %
		Y	5.48	98.07	27.02		130.0	
		Z	8.77	105.39	29.04		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	2.10	78.38	22.53	0.46	130.0	± 9.6 %
		Y	1.75	74.27	20.33		130.0	
		Z	1.81	74.78	20.52		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.95	67.11	16.87	0.46	130.0	± 9.6 %
		Y	4.91	66.91	16.63		130.0	
		Z	4.93	66.95	16.67		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.98	67.26	16.93	0.46	130.0	± 9.6 %
		Y	4.93	67.07	16.70		130.0	
		Z	4.95	67.11	16.73		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.23	67.61	17.11	0.46	130.0	± 9.6 %
		Y	5.18	67.42	16.88		130.0	
		Z	5.21	67.46	16.91		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	5.13	67.79	17.20	0.46	130.0	± 9.6 %
		Y	5.07	67.60	16.98		130.0	
		Z	5.10	67.62	17.00		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.92	67.26	16.64	0.46	130.0	± 9.6 %
		Y	4.85	66.98	16.35		130.0	
		Z	4.89	67.08	16.43		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.96	67.18	16.62	0.46	130.0	± 9.6 %
		Y	4.89	66.92	16.33		130.0	
		Z	4.93	67.01	16.41		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	5.04	67.92	17.18	0.46	130.0	± 9.6 %
		Y	4.98	67.70	16.95		130.0	
		Z	5.01	67.74	16.97		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.88	67.01	16.45	0.46	130.0	± 9.6 %
		Y	4.81	66.72	16.14		130.0	
		Z	4.85	66.84	16.24		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.95	67.11	16.87	0.46	130.0	± 9.6 %
		Y	4.91	66.91	16.63		130.0	
		Z	4.93	66.95	16.67		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.98	67.26	16.93	0.46	130.0	± 9.6 %
		Y	4.93	67.07	16.70		130.0	
		Z	4.95	67.11	16.73		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.23	67.61	17.11	0.46	130.0	± 9.6 %
		Y	5.18	67.42	16.88		130.0	
		Z	5.21	67.46	16.91		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	5.13	67.79	17.20	0.46	130.0	± 9.6 %
		Y	5.07	67.60	16.98		130.0	
		Z	5.10	67.62	17.00		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.92	67.26	16.64	0.46	130.0	± 9.6 %
		Y	4.85	66.98	16.35		130.0	
		Z	4.89	67.08	16.43		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.96	67.18	16.62	0.46	130.0	± 9.6 %
		Y	4.89	66.92	16.33		130.0	
		Z	4.93	67.01	16.41		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	5.04	67.92	17.18	0.46	130.0	± 9.6 %
		Y	4.98	67.70	16.95		130.0	
		Z	5.01	67.74	16.97		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.88	67.01	16.45	0.46	130.0	± 9.6 %
		Y	4.81	66.72	16.14		130.0	
		Z	4.85	66.84	16.24		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	5.10	67.15	16.94	0.46	130.0	± 9.6 %
		Y	5.06	66.97	16.72		130.0	
		Z	5.07	67.00	16.75		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.29	67.50	17.06	0.46	130.0	± 9.6 %
		Y	5.24	67.32	16.84		130.0	
		Z	5.26	67.35	16.87		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.23	67.49	16.99	0.46	130.0	± 9.6 %
		Y	5.17	67.29	16.76		130.0	
		Z	5.20	67.34	16.80		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.27	67.61	17.11	0.46	130.0	± 9.6 %
		Y	5.22	67.43	16.89		130.0	
		Z	5.25	67.46	16.92		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.26	67.62	17.04	0.46	130.0	± 9.6 %
		Y	5.20	67.41	16.81		130.0	
		Z	5.23	67.46	16.84		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.19	67.61	17.04	0.46	130.0	± 9.6 %
		Y	5.14	67.40	16.80		130.0	
		Z	5.17	67.44	16.84		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	5.15	67.57	16.97	0.46	130.0	± 9.6 %
		Y	5.09	67.35	16.72		130.0	
		Z	5.12	67.41	16.76		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	5.13	67.83	17.22	0.46	130.0	± 9.6 %
		Y	5.07	67.62	16.99		130.0	
		Z	5.10	67.66	17.02		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.77	67.78	17.12	0.46	130.0	± 9.6 %
		Y	5.72	67.60	16.91		130.0	
		Z	5.74	67.64	16.94		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	6.05	68.62	17.52	0.46	130.0	± 9.6 %
		Y	5.98	68.34	17.26		130.0	
		Z	6.00	68.41	17.31		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.86	68.09	17.27	0.46	130.0	± 9.6 %
		Y	5.80	67.88	17.04		130.0	
		Z	5.82	67.93	17.07		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.98	68.19	17.24	0.46	130.0	± 9.6 %
		Y	5.90	67.93	16.99		130.0	
		Z	5.94	68.03	17.05		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	6.09	68.56	17.54	0.46	130.0	± 9.6 %
		Y	6.02	68.33	17.31		130.0	
		Z	6.05	68.40	17.35		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.79	67.78	17.15	0.46	130.0	± 9.6 %
		Y	5.74	67.59	16.93		130.0	
		Z	5.76	67.64	16.97		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.91	68.09	17.31	0.46	130.0	± 9.6 %
		Y	5.85	67.88	17.08		130.0	
		Z	5.87	67.94	17.12		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.67	67.56	16.92	0.46	130.0	± 9.6 %
		Y	5.62	67.36	16.69		130.0	
		Z	5.63	67.40	16.73		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.93	66.44	16.55	0.46	130.0	± 9.6 %
		Y	4.88	66.25	16.33		130.0	
		Z	4.90	66.28	16.35		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.16	66.88	16.71	0.46	130.0	± 9.6 %
		Y	5.11	66.69	16.49		130.0	
		Z	5.13	66.71	16.51		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	5.05	66.80	16.60	0.46	130.0	± 9.6 %
		Y	4.99	66.58	16.36		130.0	
		Z	5.02	66.62	16.39		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	5.11	66.94	16.74	0.46	130.0	± 9.6 %
		Y	5.05	66.74	16.51		130.0	
		Z	5.07	66.77	16.54		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	5.04	66.82	16.63	0.46	130.0	± 9.6 %
		Y	4.98	66.59	16.39		130.0	
		Z	5.01	66.64	16.42		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	5.06	66.96	16.66	0.46	130.0	± 9.6 %
		Y	4.99	66.72	16.41		130.0	
		Z	5.02	66.77	16.45		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	5.08	66.91	16.58	0.46	130.0	± 9.6 %
		Y	5.01	66.66	16.32		130.0	
		Z	5.04	66.72	16.37		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	5.00	67.09	16.80	0.46	130.0	± 9.6 %
		Y	4.94	66.86	16.56		130.0	
		Z	4.96	66.90	16.59		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	5.04	66.62	16.41	0.46	130.0	± 9.6 %
		Y	4.98	66.38	16.15		130.0	
		Z	5.01	66.45	16.20		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.59	67.05	16.74	0.46	130.0	± 9.6 %
		Y	5.54	66.86	16.53		130.0	
		Z	5.56	66.89	16.55		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.66	67.16	16.76	0.46	130.0	± 9.6 %
		Y	5.60	66.97	16.55		130.0	
		Z	5.62	67.01	16.57		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.55	67.23	16.82	0.46	130.0	± 9.6 %
		Y	5.50	67.04	16.61		130.0	
		Z	5.51	67.07	16.62		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.57	67.04	16.66	0.46	130.0	± 9.6 %
		Y	5.51	66.84	16.44		130.0	
		Z	5.53	66.88	16.47		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.71	67.21	16.79	0.46	130.0	± 9.6 %
		Y	5.65	66.99	16.56		130.0	
		Z	5.67	67.05	16.60		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.67	67.21	16.90	0.46	130.0	± 9.6 %
		Y	5.61	67.05	16.70		130.0	
		Z	5.63	67.07	16.71		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.66	67.33	16.95	0.46	130.0	± 9.6 %
		Y	5.61	67.14	16.74		130.0	
		Z	5.63	67.17	16.76		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.58	67.03	16.70	0.46	130.0	± 9.6 %
		Y	5.51	66.79	16.46		130.0	
		Z	5.54	66.88	16.51		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.74	67.07	16.77	0.46	130.0	± 9.6 %
		Y	5.68	66.89	16.57		130.0	
		Z	5.70	66.92	16.59		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.12	68.00	17.28	0.46	130.0	± 9.6 %
		Y	6.07	67.85	17.09		130.0	
		Z	6.06	67.78	17.06		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.83	67.05	16.65	0.46	130.0	± 9.6 %
		Y	5.78	66.88	16.46		130.0	
		Z	5.79	66.91	16.47		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	6.10	67.59	16.86	0.46	130.0	± 9.6 %
		Y	6.05	67.42	16.67		130.0	
		Z	6.05	67.42	16.67		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.92	67.28	16.66	0.46	130.0	± 9.6 %
		Y	5.86	67.08	16.45		130.0	
		Z	5.88	67.13	16.48		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	6.03	67.42	16.72	0.46	130.0	± 9.6 %
		Y	5.97	67.19	16.49		130.0	
		Z	5.99	67.27	16.54		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.68	69.49	17.76	0.46	130.0	± 9.6 %
		Y	6.56	69.10	17.44		130.0	
		Z	6.58	69.15	17.48		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.50	69.03	17.69	0.46	130.0	± 9.6 %
		Y	6.41	68.76	17.46		130.0	
		Z	6.44	68.80	17.47		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	6.08	67.69	17.04	0.46	130.0	± 9.6 %
		Y	6.03	67.54	16.87		130.0	
		Z	6.05	67.55	16.87		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	6.06	67.65	16.87	0.46	130.0	± 9.6 %
		Y	5.99	67.42	16.64		130.0	
		Z	6.01	67.48	16.68		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	6.02	67.58	16.89	0.46	130.0	± 9.6 %
		Y	5.96	67.38	16.68		130.0	
		Z	5.98	67.43	16.71		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.89	66.92	16.32	0.46	130.0	± 9.6 %
		Y	5.83	66.68	16.08		130.0	
		Z	5.86	66.78	16.14		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.23	67.45	16.75	0.46	130.0	± 9.6 %
		Y	6.19	67.29	16.56		130.0	
		Z	6.20	67.31	16.57		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.44	67.93	16.96	0.46	130.0	± 9.6 %
		Y	6.38	67.73	16.75		130.0	
		Z	6.40	67.78	16.78		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.41	67.82	16.88	0.46	130.0	± 9.6 %
		Y	6.36	67.64	16.69		130.0	
		Z	6.37	67.67	16.71		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.43	67.88	16.96	0.46	130.0	± 9.6 %
		Y	6.38	67.70	16.77		130.0	
		Z	6.39	67.74	16.79		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.48	68.03	16.99	0.46	130.0	± 9.6 %
		Y	6.42	67.80	16.76		130.0	
		Z	6.43	67.86	16.80		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.45	67.69	16.83	0.46	130.0	± 9.6 %
		Y	6.39	67.49	16.62		130.0	
		Z	6.41	67.55	16.66		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.53	68.02	17.15	0.46	130.0	± 9.6 %
		Y	6.47	67.85	16.96		130.0	
		Z	6.49	67.89	16.98		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.36	67.74	16.93	0.46	130.0	± 9.6 %
		Y	6.30	67.53	16.71		130.0	
		Z	6.31	67.59	16.75		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.64	68.58	17.37	0.46	130.0	± 9.6 %
		Y	6.55	68.29	17.12		130.0	
		Z	6.58	68.38	17.17		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.88	68.81	17.43	0.46	130.0	± 9.6 %
		Y	6.82	68.61	17.21		130.0	
		Z	6.82	68.61	17.22		130.0	
10646-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	25.26	106.71	35.56	9.30	60.0	± 9.6 %
		Y	24.21	105.83	35.01		60.0	
		Z	22.77	103.47	34.30		60.0	
10647-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	26.48	108.55	36.25	9.30	60.0	± 9.6 %
		Y	24.67	107.00	35.49		60.0	
		Z	23.62	105.03	34.91		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	1.07	68.58	14.85	0.00	150.0	± 9.6 %
		Y	0.88	65.28	12.75		150.0	
		Z	0.91	65.79	13.10		150.0	

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



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EX3-3914_Feb17**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3914**

Calibration procedure(s): **QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5,
QA CAL-25.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **February 13, 2017**

*BN ✓
03-01-2017*

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: February 13, 2017

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 _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization 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., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- a) 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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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_{x,y,z}*: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). *NORM_{x,y,z}* are only intermediate values, i.e., the uncertainties of *NORM_{x,y,z}* does not affect the E^2 -field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCP_{x,y,z}*: 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_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}*: *A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORM_{x,y,z} * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORM_x* (no uncertainty required).

Probe EX3DV4

SN:3914

Manufactured: December 18, 2012
Calibrated: February 13, 2017

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.46	0.41	0.44	$\pm 10.1 \%$
DCP (mV) ^B	98.6	102.5	103.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	156.6	$\pm 3.3 \%$
		Y	0.0	0.0	1.0		139.0	
		Z	0.0	0.0	1.0		149.0	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $\text{ms}\cdot\text{V}^{-2}$	T2 $\text{ms}\cdot\text{V}^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	46.19	344.3	35.58	12.88	0.995	4.971	0.985	0.325	1.004
Y	48.34	356	34.87	12.19	1.102	4.961	0.683	0.315	1.003
Z	44.31	328.7	35.26	10.14	1.122	4.975	1.527	0.227	1.005

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

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

^B Numerical linearization parameter: uncertainty not required.

^E 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:3914

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
6	55.5	0.75	21.32	21.32	21.32	0.00	1.00	± 13.3 %
13	55.5	0.75	17.87	17.87	17.87	0.00	1.00	± 13.3 %
5250	35.9	4.71	5.49	5.49	5.49	0.30	1.80	± 13.1 %
5600	35.5	5.07	4.94	4.94	4.94	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.91	4.91	4.91	0.40	1.80	± 13.1 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Calibration Parameter Determined in Body Tissue Simulating Media

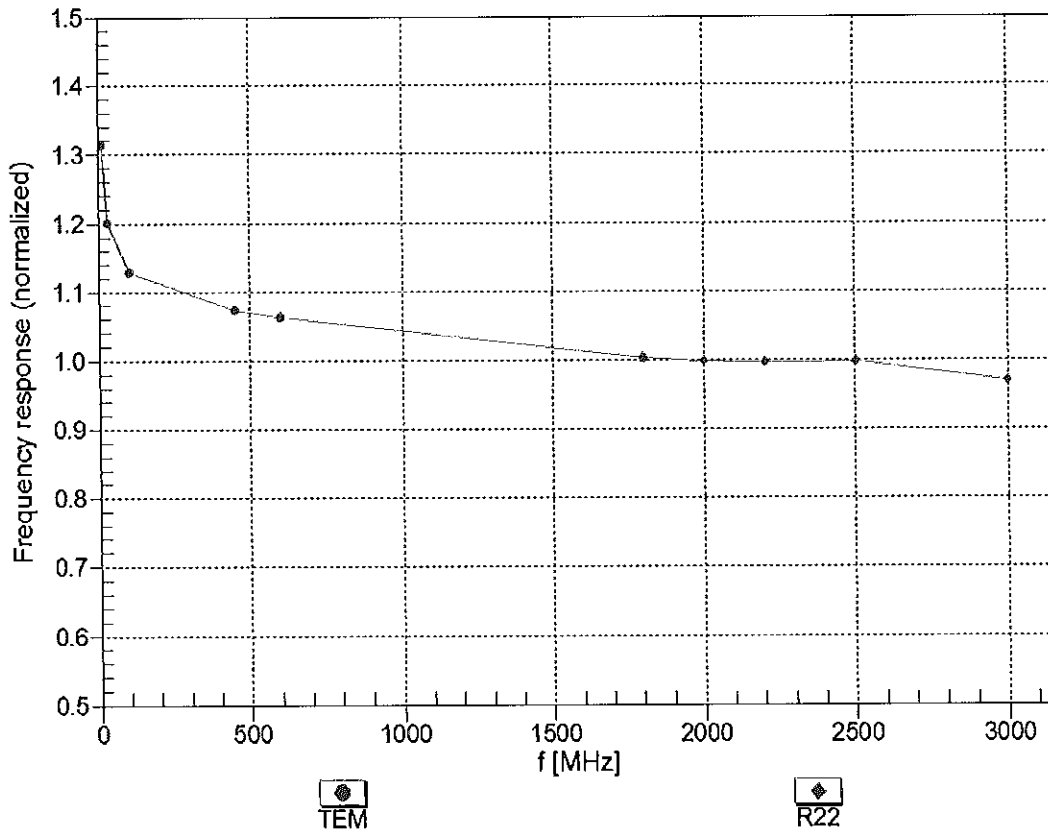
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	9.98	9.98	9.98	0.45	0.88	± 12.0 %
835	55.2	0.97	9.73	9.73	9.73	0.40	0.88	± 12.0 %
1750	53.4	1.49	8.01	8.01	8.01	0.32	1.02	± 12.0 %
1900	53.3	1.52	7.75	7.75	7.75	0.34	0.95	± 12.0 %
2300	52.9	1.81	7.56	7.56	7.56	0.44	0.80	± 12.0 %
2450	52.7	1.95	7.45	7.45	7.45	0.35	0.90	± 12.0 %
2600	52.5	2.16	7.24	7.24	7.24	0.29	0.95	± 12.0 %
5250	48.9	5.36	4.78	4.78	4.78	0.40	1.90	± 13.1 %
5600	48.5	5.77	4.07	4.07	4.07	0.45	1.90	± 13.1 %
5750	48.3	5.94	4.15	4.15	4.15	0.50	1.90	± 13.1 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

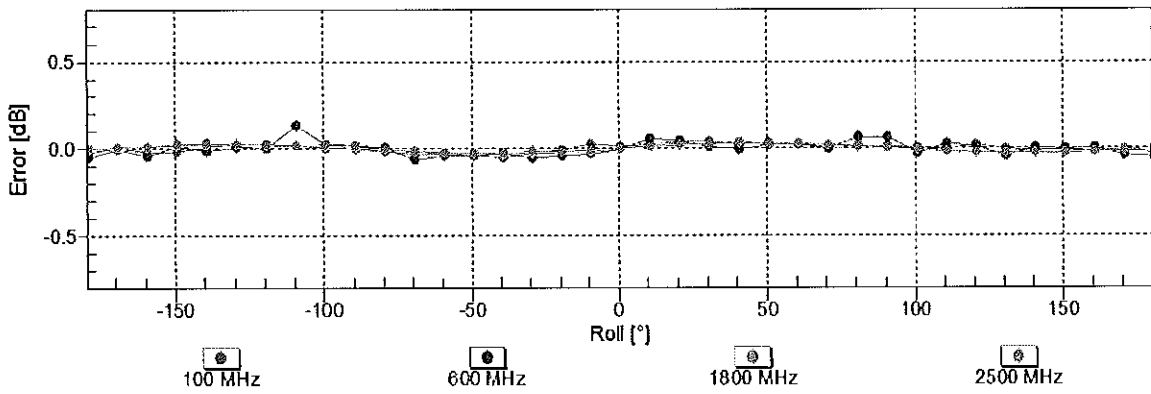
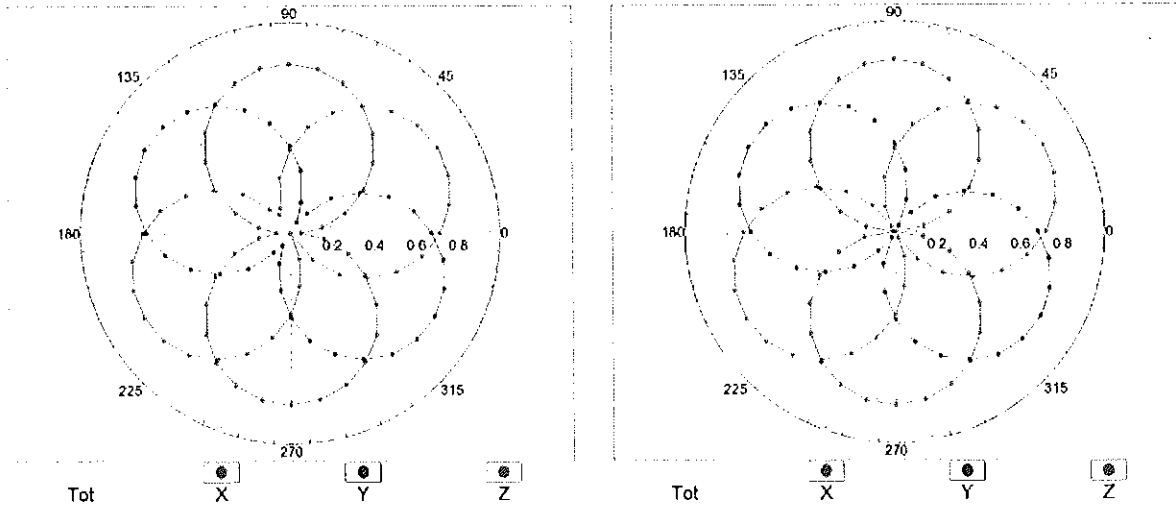


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

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

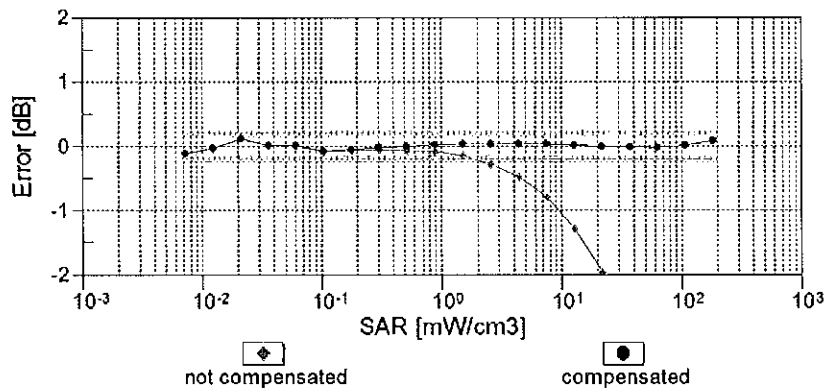
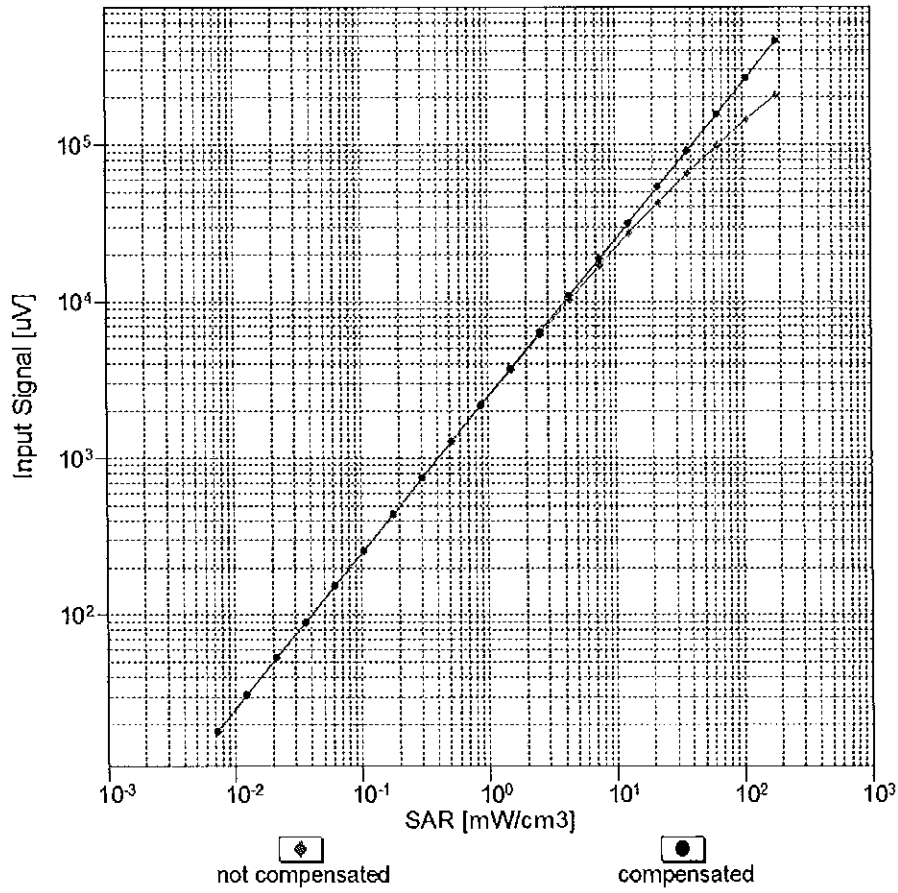
f=600 MHz,TEM

f=1800 MHz,R22



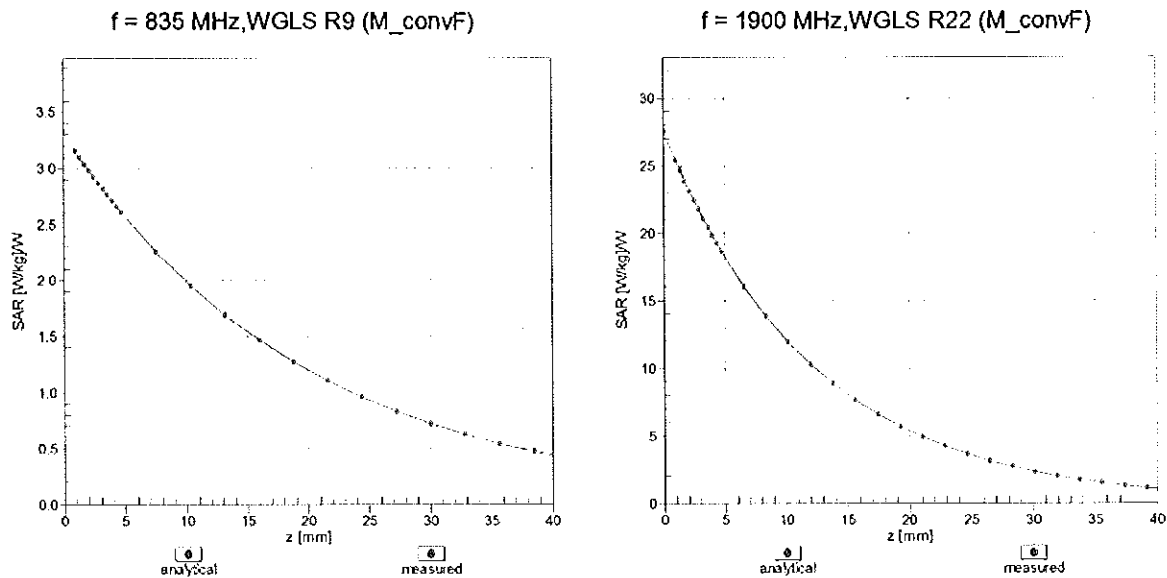
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)

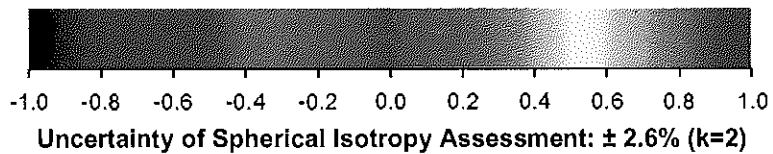
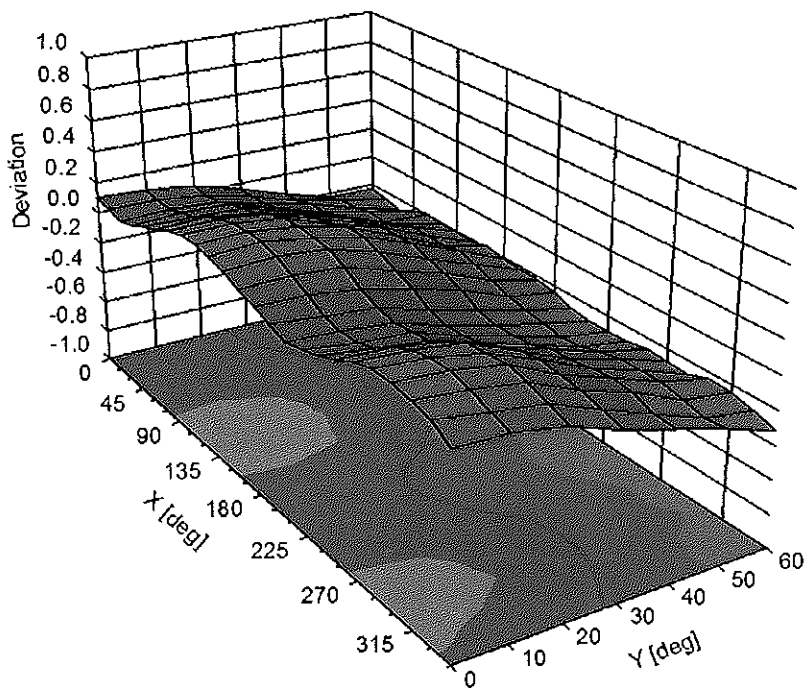


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, ϑ), f = 900 MHz



DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	130.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	156.6	± 3.3 %
		Y	0.00	0.00	1.00		139.0	
		Z	0.00	0.00	1.00		149.0	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	2.67	66.07	10.73	10.00	20.0	± 9.6 %
		Y	2.77	66.16	10.84		20.0	
		Z	3.01	67.22	11.52		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	1.07	68.17	15.86	0.00	150.0	± 9.6 %
		Y	1.14	69.43	16.60		150.0	
		Z	1.05	67.81	15.63		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.18	63.94	15.29	0.41	150.0	± 9.6 %
		Y	1.19	64.27	15.54		150.0	
		Z	1.17	63.79	15.16		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.82	66.52	16.88	1.46	150.0	± 9.6 %
		Y	4.84	66.55	16.88		150.0	
		Z	4.80	66.54	16.86		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	10.62	83.12	18.62	9.39	50.0	± 9.6 %
		Y	8.33	79.79	17.55		50.0	
		Z	13.42	86.52	20.09		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	8.76	80.53	17.78	9.57	50.0	± 9.6 %
		Y	7.40	78.13	16.99		50.0	
		Z	10.55	83.20	19.04		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	21.17	91.31	19.68	6.56	60.0	± 9.6 %
		Y	12.07	85.13	17.96		60.0	
		Z	52.32	102.57	22.98		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	4.95	72.82	26.24	12.57	50.0	± 9.6 %
		Y	7.53	84.57	31.77		50.0	
		Z	4.80	71.26	25.29		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	8.84	88.73	30.42	9.56	60.0	± 9.6 %
		Y	10.05	91.59	31.44		60.0	
		Z	8.11	86.61	29.62		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	106.86	22.53	4.80	80.0	± 9.6 %
		Y	100.00	106.55	22.42		80.0	
		Z	100.00	109.38	23.65		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	107.35	22.11	3.55	100.0	± 9.6 %
		Y	100.00	107.02	21.99		100.0	
		Z	100.00	110.40	23.40		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	5.77	79.87	25.94	7.80	80.0	± 9.6 %
		Y	6.21	81.41	26.54		80.0	
		Z	5.35	78.22	25.29		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	13.42	86.20	17.57	5.30	70.0	± 9.6 %
		Y	9.31	82.44	16.50		70.0	
		Z	29.70	95.60	20.46		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	106.43	20.54	1.88	100.0	± 9.6 %
		Y	100.00	106.56	20.60		100.0	
		Z	100.00	109.99	21.95		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	112.98	22.39	1.17	100.0	± 9.6 %
		Y	100.00	114.09	22.82		100.0	
		Z	100.00	117.75	24.22		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	5.28	79.65	19.49	5.30	70.0	± 9.6 %
		Y	5.39	79.85	19.61		70.0	
		Z	4.87	78.68	19.23		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	2.39	73.05	16.10	1.88	100.0	± 9.6 %
		Y	2.51	73.86	16.59		100.0	
		Z	2.22	72.28	15.77		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.86	71.23	15.30	1.17	100.0	± 9.6 %
		Y	1.97	72.22	15.90		100.0	
		Z	1.74	70.56	14.96		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	6.16	82.06	20.41	5.30	70.0	± 9.6 %
		Y	6.25	82.19	20.50		70.0	
		Z	5.60	80.92	20.11		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.26	72.39	15.80	1.88	100.0	± 9.6 %
		Y	2.37	73.21	16.30		100.0	
		Z	2.09	71.60	15.47		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.87	71.57	15.55	1.17	100.0	± 9.6 %
		Y	2.00	72.59	16.17		100.0	
		Z	1.75	70.84	15.19		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	2.22	74.99	16.99	0.00	150.0	± 9.6 %
		Y	2.65	77.61	18.26		150.0	
		Z	2.08	74.23	16.52		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	7.56	79.14	16.13	7.78	50.0	± 9.6 %
		Y	6.34	77.01	15.44		50.0	
		Z	11.33	84.23	18.10		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	97.59	0.84	0.00	150.0	± 9.6 %
		Y	0.00	98.99	0.04		150.0	
		Z	0.00	96.10	0.72		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	6.44	73.35	16.60	13.80	25.0	± 9.6 %
		Y	6.16	72.26	16.24		25.0	
		Z	7.34	74.65	17.41		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	6.68	76.08	16.45	10.79	40.0	± 9.6 %
		Y	6.26	74.90	16.07		40.0	
		Z	7.59	77.73	17.40		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	8.65	81.91	20.55	9.03	50.0	± 9.6 %
		Y	8.47	81.27	20.33		50.0	
		Z	8.59	81.70	20.58		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.50	75.41	23.42	6.55	100.0	± 9.6 %
		Y	4.71	76.39	23.81		100.0	
		Z	4.21	74.08	22.88		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.22	64.88	15.72	0.61	110.0	± 9.6 %
		Y	1.23	65.26	15.98		110.0	
		Z	1.20	64.63	15.56		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	5.20	91.89	23.64	1.30	110.0	± 9.6 %
		Y	8.22	98.67	25.63		110.0	
		Z	3.57	87.17	22.39		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	2.42	76.11	19.87	2.04	110.0	± 9.6 %
		Y	2.58	77.18	20.29		110.0	
		Z	2.18	74.61	19.37		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.65	66.63	16.45	0.49	100.0	± 9.6 %
		Y	4.67	66.69	16.47		100.0	
		Z	4.63	66.64	16.42		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.66	66.68	16.51	0.72	100.0	± 9.6 %
		Y	4.68	66.74	16.53		100.0	
		Z	4.63	66.69	16.48		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.94	66.91	16.71	0.86	100.0	± 9.6 %
		Y	4.96	66.98	16.73		100.0	
		Z	4.91	66.92	16.68		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.80	66.77	16.76	1.21	100.0	± 9.6 %
		Y	4.82	66.84	16.78		100.0	
		Z	4.77	66.77	16.73		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.81	66.75	16.88	1.46	100.0	± 9.6 %
		Y	4.83	66.82	16.89		100.0	
		Z	4.78	66.75	16.85		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.09	66.88	17.26	2.04	100.0	± 9.6 %
		Y	5.11	66.92	17.27		100.0	
		Z	5.07	66.91	17.25		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.13	66.89	17.43	2.55	100.0	± 9.6 %
		Y	5.16	66.96	17.45		100.0	
		Z	5.10	66.89	17.41		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.21	66.88	17.61	2.67	100.0	± 9.6 %
		Y	5.23	66.94	17.62		100.0	
		Z	5.18	66.90	17.59		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.91	66.56	17.12	1.99	100.0	± 9.6 %
		Y	4.92	66.60	17.13		100.0	
		Z	4.89	66.58	17.10		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.88	66.83	17.29	2.30	100.0	± 9.6 %
		Y	4.90	66.89	17.30		100.0	
		Z	4.86	66.85	17.27		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.94	66.95	17.56	2.83	100.0	± 9.6 %
		Y	4.95	67.01	17.56		100.0	
		Z	4.92	66.98	17.54		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.92	66.84	17.68	3.30	100.0	± 9.6 %
		Y	4.94	66.89	17.68		100.0	
		Z	4.91	66.87	17.66		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.96	66.95	17.95	3.82	90.0	± 9.6 %
		Y	4.99	67.03	17.97		90.0	
		Z	4.95	66.97	17.93		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.98	66.76	18.06	4.15	90.0	± 9.6 %
		Y	5.00	66.82	18.07		90.0	
		Z	4.98	66.79	18.06		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.01	66.82	18.15	4.30	90.0	± 9.6 %
		Y	5.02	66.89	18.16		90.0	
		Z	5.01	66.87	18.15		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.92	67.41	13.37	0.00	150.0	± 9.6 %
		Y	1.03	69.09	14.44		150.0	
		Z	0.88	66.94	12.99		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.63	57.80	3.24	4.77	80.0	± 9.6 %
		Y	0.66	58.21	3.60		80.0	
		Z	0.62	57.96	3.46		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	20.08	90.74	19.54	6.56	60.0	± 9.6 %
		Y	11.65	84.73	17.86		60.0	
		Z	47.95	101.61	22.77		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.89	68.37	16.12	0.00	150.0	± 9.6 %
		Y	1.94	68.91	16.47		150.0	
		Z	1.87	68.28	16.00		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.85	68.32	16.09	0.00	150.0	± 9.6 %
		Y	1.90	68.87	16.45		150.0	
		Z	1.83	68.22	15.96		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	8.88	88.80	30.43	9.56	60.0	± 9.6 %
		Y	10.09	91.64	31.45		60.0	
		Z	8.15	86.66	29.63		60.0	
10100-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.20	70.80	17.02	0.00	150.0	± 9.6 %
		Y	3.31	71.44	17.31		150.0	
		Z	3.15	70.62	16.92		150.0	
10101-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.26	67.72	16.10	0.00	150.0	± 9.6 %
		Y	3.31	68.03	16.26		150.0	
		Z	3.23	67.65	16.04		150.0	
10102-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.37	67.70	16.20	0.00	150.0	± 9.6 %
		Y	3.41	67.97	16.34		150.0	
		Z	3.34	67.64	16.14		150.0	
10103-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.10	74.42	19.52	3.98	65.0	± 9.6 %
		Y	5.87	73.66	19.14		65.0	
		Z	5.74	73.57	19.22		65.0	
10104-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	6.15	72.80	19.65	3.98	65.0	± 9.6 %
		Y	6.23	72.96	19.68		65.0	
		Z	5.94	72.31	19.46		65.0	
10105-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.87	71.80	19.52	3.98	65.0	± 9.6 %
		Y	5.67	71.06	19.13		65.0	
		Z	5.56	70.91	19.13		65.0	
10108-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.79	70.03	16.86	0.00	150.0	± 9.6 %
		Y	2.88	70.63	17.15		150.0	
		Z	2.74	69.86	16.75		150.0	
10109-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.92	67.64	16.04	0.00	150.0	± 9.6 %
		Y	2.97	67.95	16.22		150.0	
		Z	2.89	67.57	15.96		150.0	
10110-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.26	69.17	16.48	0.00	150.0	± 9.6 %
		Y	2.35	69.78	16.82		150.0	
		Z	2.22	68.99	16.35		150.0	
10111-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.67	68.78	16.48	0.00	150.0	± 9.6 %
		Y	2.73	69.09	16.70		150.0	
		Z	2.65	68.73	16.39		150.0	

10112-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.05	67.64	16.10	0.00	150.0	± 9.6 %
		Y	3.10	67.91	16.26		150.0	
		Z	3.02	67.58	16.03		150.0	
10113-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.83	68.92	16.61	0.00	150.0	± 9.6 %
		Y	2.88	69.19	16.80		150.0	
		Z	2.80	68.89	16.53		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.14	67.30	16.52	0.00	150.0	± 9.6 %
		Y	5.15	67.37	16.54		150.0	
		Z	5.11	67.28	16.49		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.41	67.39	16.58	0.00	150.0	± 9.6 %
		Y	5.44	67.49	16.61		150.0	
		Z	5.37	67.35	16.53		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.23	67.48	16.54	0.00	150.0	± 9.6 %
		Y	5.25	67.56	16.57		150.0	
		Z	5.20	67.46	16.50		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.10	67.15	16.47	0.00	150.0	± 9.6 %
		Y	5.12	67.24	16.50		150.0	
		Z	5.07	67.14	16.44		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.49	67.59	16.68	0.00	150.0	± 9.6 %
		Y	5.52	67.68	16.71		150.0	
		Z	5.45	67.53	16.63		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.21	67.43	16.53	0.00	150.0	± 9.6 %
		Y	5.22	67.50	16.55		150.0	
		Z	5.18	67.41	16.49		150.0	
10140-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.40	67.70	16.11	0.00	150.0	± 9.6 %
		Y	3.45	67.97	16.25		150.0	
		Z	3.37	67.64	16.05		150.0	
10141-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.53	67.82	16.29	0.00	150.0	± 9.6 %
		Y	3.57	68.05	16.41		150.0	
		Z	3.50	67.77	16.23		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.05	69.36	16.22	0.00	150.0	± 9.6 %
		Y	2.15	70.07	16.65		150.0	
		Z	2.01	69.16	16.05		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.58	69.85	16.32	0.00	150.0	± 9.6 %
		Y	2.67	70.31	16.66		150.0	
		Z	2.55	69.76	16.17		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.27	67.04	14.44	0.00	150.0	± 9.6 %
		Y	2.35	67.51	14.81		150.0	
		Z	2.23	66.89	14.26		150.0	
10145-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.27	65.89	12.21	0.00	150.0	± 9.6 %
		Y	1.42	67.33	13.21		150.0	
		Z	1.20	65.32	11.71		150.0	
10146-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.76	65.12	10.79	0.00	150.0	± 9.6 %
		Y	1.85	65.98	11.50		150.0	
		Z	1.79	65.33	10.70		150.0	
10147-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.02	66.77	11.72	0.00	150.0	± 9.6 %
		Y	2.20	68.07	12.63		150.0	
		Z	2.10	67.13	11.69		150.0	

10149-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.93	67.71	16.09	0.00	150.0	± 9.6 %
		Y	2.98	68.02	16.27		150.0	
		Z	2.90	67.64	16.02		150.0	
10150-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.06	67.71	16.14	0.00	150.0	± 9.6 %
		Y	3.10	67.97	16.30		150.0	
		Z	3.03	67.65	16.07		150.0	
10151-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.20	76.14	20.26	3.98	65.0	± 9.6 %
		Y	6.27	76.18	20.22		65.0	
		Z	5.93	75.60	20.10		65.0	
10152-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.64	72.55	19.21	3.98	65.0	± 9.6 %
		Y	5.73	72.74	19.28		65.0	
		Z	5.43	72.04	19.00		65.0	
10153-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	6.03	73.59	20.04	3.98	65.0	± 9.6 %
		Y	6.10	73.69	20.06		65.0	
		Z	5.81	73.08	19.84		65.0	
10154-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.32	69.68	16.78	0.00	150.0	± 9.6 %
		Y	2.41	70.30	17.13		150.0	
		Z	2.28	69.49	16.65		150.0	
10155-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.68	68.79	16.50	0.00	150.0	± 9.6 %
		Y	2.73	69.11	16.71		150.0	
		Z	2.65	68.75	16.41		150.0	
10156-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.92	69.63	16.09	0.00	150.0	± 9.6 %
		Y	2.03	70.50	16.63		150.0	
		Z	1.87	69.37	15.88		150.0	
10157-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.14	67.82	14.58	0.00	150.0	± 9.6 %
		Y	2.24	68.46	15.06		150.0	
		Z	2.09	67.62	14.35		150.0	
10158-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.84	69.00	16.66	0.00	150.0	± 9.6 %
		Y	2.89	69.26	16.85		150.0	
		Z	2.81	68.97	16.58		150.0	
10159-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.26	68.38	14.91	0.00	150.0	± 9.6 %
		Y	2.37	69.05	15.40		150.0	
		Z	2.21	68.17	14.68		150.0	
10160-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.78	69.02	16.58	0.00	150.0	± 9.6 %
		Y	2.84	69.39	16.78		150.0	
		Z	2.74	68.91	16.49		150.0	
10161-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.96	67.68	16.09	0.00	150.0	± 9.6 %
		Y	3.00	67.95	16.25		150.0	
		Z	2.93	67.62	16.01		150.0	
10162-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.07	67.83	16.20	0.00	150.0	± 9.6 %
		Y	3.11	68.07	16.35		150.0	
		Z	3.04	67.79	16.13		150.0	
10166-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.52	69.42	18.97	3.01	150.0	± 9.6 %
		Y	3.48	69.21	18.88		150.0	
		Z	3.58	69.99	19.29		150.0	
10167-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.35	72.55	19.50	3.01	150.0	± 9.6 %
		Y	4.23	72.10	19.35		150.0	
		Z	4.57	73.71	20.03		150.0	

10168-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.95	75.33	21.09	3.01	150.0	± 9.6 %
		Y	4.74	74.55	20.78		150.0	
		Z	5.31	76.94	21.79		150.0	
10169-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.92	68.92	18.76	3.01	150.0	± 9.6 %
		Y	2.83	68.61	18.65		150.0	
		Z	3.02	69.75	19.20		150.0	
10170-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	4.20	75.93	21.56	3.01	150.0	± 9.6 %
		Y	3.90	74.95	21.22		150.0	
		Z	4.73	78.44	22.61		150.0	
10171-AAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.29	70.86	18.34	3.01	150.0	± 9.6 %
		Y	3.14	70.43	18.23		150.0	
		Z	3.53	72.31	18.98		150.0	
10172-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	6.18	83.60	24.73	6.02	65.0	± 9.6 %
		Y	5.31	80.83	23.64		65.0	
		Z	5.59	82.35	24.48		65.0	
10173-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	9.66	88.05	24.34	6.02	65.0	± 9.6 %
		Y	9.20	87.15	23.96		65.0	
		Z	11.03	90.93	25.45		65.0	
10174-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	7.49	83.02	22.12	6.02	65.0	± 9.6 %
		Y	6.16	79.95	20.98		65.0	
		Z	7.52	83.81	22.58		65.0	
10175-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.88	68.56	18.48	3.01	150.0	± 9.6 %
		Y	2.79	68.29	18.39		150.0	
		Z	2.97	69.36	18.91		150.0	
10176-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	4.20	75.96	21.58	3.01	150.0	± 9.6 %
		Y	3.90	74.98	21.23		150.0	
		Z	4.74	78.47	22.62		150.0	
10177-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.90	68.74	18.59	3.01	150.0	± 9.6 %
		Y	2.82	68.45	18.49		150.0	
		Z	3.00	69.54	19.02		150.0	
10178-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	4.15	75.68	21.43	3.01	150.0	± 9.6 %
		Y	3.86	74.72	21.10		150.0	
		Z	4.66	78.13	22.46		150.0	
10179-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.69	73.16	19.77	3.01	150.0	± 9.6 %
		Y	3.48	72.54	19.57		150.0	
		Z	4.04	75.08	20.59		150.0	
10180-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.28	70.77	18.28	3.01	150.0	± 9.6 %
		Y	3.13	70.35	18.17		150.0	
		Z	3.52	72.21	18.92		150.0	
10181-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.90	68.71	18.58	3.01	150.0	± 9.6 %
		Y	2.81	68.43	18.49		150.0	
		Z	2.99	69.52	19.01		150.0	
10182-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	4.14	75.65	21.42	3.01	150.0	± 9.6 %
		Y	3.85	74.70	21.08		150.0	
		Z	4.65	78.10	22.45		150.0	
10183-AAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.28	70.75	18.27	3.01	150.0	± 9.6 %
		Y	3.12	70.33	18.16		150.0	
		Z	3.51	72.19	18.91		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.91	68.76	18.61	3.01	150.0	± 9.6 %
		Y	2.82	68.48	18.51		150.0	
		Z	3.00	69.57	19.04		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	4.16	75.74	21.46	3.01	150.0	± 9.6 %
		Y	3.87	74.78	21.12		150.0	
		Z	4.68	78.20	22.50		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.29	70.82	18.30	3.01	150.0	± 9.6 %
		Y	3.14	70.40	18.20		150.0	
		Z	3.53	72.27	18.95		150.0	
10187-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.92	68.82	18.67	3.01	150.0	± 9.6 %
		Y	2.83	68.53	18.57		150.0	
		Z	3.01	69.64	19.11		150.0	
10188-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	4.34	76.58	21.92	3.01	150.0	± 9.6 %
		Y	4.01	75.52	21.54		150.0	
		Z	4.92	79.24	23.02		150.0	
10189-AAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.38	71.31	18.62	3.01	150.0	± 9.6 %
		Y	3.21	70.86	18.50		150.0	
		Z	3.64	72.84	19.29		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.53	66.74	16.24	0.00	150.0	± 9.6 %
		Y	4.55	66.82	16.28		150.0	
		Z	4.50	66.75	16.20		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.70	67.04	16.36	0.00	150.0	± 9.6 %
		Y	4.73	67.14	16.40		150.0	
		Z	4.67	67.04	16.32		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.74	67.07	16.38	0.00	150.0	± 9.6 %
		Y	4.77	67.16	16.42		150.0	
		Z	4.71	67.07	16.34		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.53	66.80	16.25	0.00	150.0	± 9.6 %
		Y	4.56	66.89	16.30		150.0	
		Z	4.50	66.80	16.21		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.71	67.06	16.37	0.00	150.0	± 9.6 %
		Y	4.74	67.16	16.41		150.0	
		Z	4.68	67.06	16.33		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.74	67.09	16.39	0.00	150.0	± 9.6 %
		Y	4.77	67.18	16.43		150.0	
		Z	4.71	67.09	16.35		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.48	66.81	16.22	0.00	150.0	± 9.6 %
		Y	4.51	66.91	16.27		150.0	
		Z	4.45	66.82	16.18		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.70	67.03	16.36	0.00	150.0	± 9.6 %
		Y	4.73	67.13	16.40		150.0	
		Z	4.67	67.03	16.32		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.75	67.02	16.37	0.00	150.0	± 9.6 %
		Y	4.78	67.11	16.41		150.0	
		Z	4.72	67.01	16.33		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.07	67.16	16.47	0.00	150.0	± 9.6 %
		Y	5.09	67.26	16.50		150.0	
		Z	5.05	67.15	16.43		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.37	67.36	16.58	0.00	150.0	± 9.6 %
		Y	5.39	67.42	16.59		150.0	
		Z	5.35	67.37	16.56		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.12	67.28	16.45	0.00	150.0	± 9.6 %
		Y	5.14	67.37	16.48		150.0	
		Z	5.09	67.26	16.42		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.82	66.40	15.48	0.00	150.0	± 9.6 %
		Y	2.86	66.59	15.66		150.0	
		Z	2.79	66.37	15.39		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	10.34	89.28	24.84	6.02	65.0	± 9.6 %
		Y	9.78	88.26	24.43		65.0	
		Z	11.95	92.40	26.02		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	9.45	86.56	23.34	6.02	65.0	± 9.6 %
		Y	8.84	85.37	22.86		65.0	
		Z	10.93	89.56	24.47		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	7.32	86.94	25.98	6.02	65.0	± 9.6 %
		Y	7.51	87.27	26.00		65.0	
		Z	7.20	87.24	26.30		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	9.74	88.16	24.39	6.02	65.0	± 9.6 %
		Y	9.28	87.26	24.01		65.0	
		Z	11.13	91.06	25.50		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	8.91	85.54	22.92	6.02	65.0	± 9.6 %
		Y	8.39	84.47	22.48		65.0	
		Z	10.18	88.33	24.00		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	7.00	86.05	25.58	6.02	65.0	± 9.6 %
		Y	7.21	86.43	25.62		65.0	
		Z	6.88	86.32	25.89		65.0	
10232-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	9.72	88.14	24.38	6.02	65.0	± 9.6 %
		Y	9.26	87.24	24.00		65.0	
		Z	11.11	91.04	25.49		65.0	
10233-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	8.89	85.52	22.92	6.02	65.0	± 9.6 %
		Y	8.37	84.45	22.47		65.0	
		Z	10.16	88.31	23.99		65.0	
10234-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	6.73	85.20	25.16	6.02	65.0	± 9.6 %
		Y	6.94	85.61	25.22		65.0	
		Z	6.62	85.46	25.47		65.0	
10235-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	9.73	88.16	24.39	6.02	65.0	± 9.6 %
		Y	9.26	87.26	24.01		65.0	
		Z	11.12	91.07	25.50		65.0	
10236-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	8.97	85.63	22.95	6.02	65.0	± 9.6 %
		Y	8.44	84.56	22.50		65.0	
		Z	10.26	88.43	24.03		65.0	
10237-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	7.00	86.09	25.59	6.02	65.0	± 9.6 %
		Y	7.21	86.48	25.64		65.0	
		Z	6.88	86.35	25.91		65.0	
10238-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	9.70	88.11	24.37	6.02	65.0	± 9.6 %
		Y	9.24	87.21	23.99		65.0	
		Z	11.08	91.01	25.48		65.0	

10239-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	8.86	85.49	22.91	6.02	65.0	± 9.6 %
		Y	8.34	84.42	22.46		65.0	
		Z	10.12	88.27	23.98		65.0	
10240-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	6.98	86.05	25.58	6.02	65.0	± 9.6 %
		Y	7.19	86.44	25.63		65.0	
		Z	6.87	86.32	25.89		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.66	79.41	24.04	6.98	65.0	± 9.6 %
		Y	7.53	78.99	23.87		65.0	
		Z	7.72	79.98	24.35		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	7.08	77.85	23.32	6.98	65.0	± 9.6 %
		Y	6.56	76.18	22.61		65.0	
		Z	6.82	77.47	23.23		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.72	74.40	22.72	6.98	65.0	± 9.6 %
		Y	5.45	73.28	22.19		65.0	
		Z	5.52	73.92	22.57		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.75	71.39	15.87	3.98	65.0	± 9.6 %
		Y	4.77	71.48	16.03		65.0	
		Z	4.72	71.54	15.92		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	4.68	70.96	15.63	3.98	65.0	± 9.6 %
		Y	4.72	71.09	15.82		65.0	
		Z	4.64	71.06	15.66		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.46	73.85	17.32	3.98	65.0	± 9.6 %
		Y	4.61	74.27	17.59		65.0	
		Z	4.17	73.10	17.00		65.0	
10247-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.62	71.66	17.10	3.98	65.0	± 9.6 %
		Y	4.72	71.92	17.30		65.0	
		Z	4.41	71.11	16.82		65.0	
10248-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.64	71.26	16.91	3.98	65.0	± 9.6 %
		Y	4.75	71.55	17.13		65.0	
		Z	4.42	70.71	16.63		65.0	
10249-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	5.55	77.29	19.64	3.98	65.0	± 9.6 %
		Y	5.67	77.48	19.75		65.0	
		Z	5.19	76.50	19.35		65.0	
10250-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.62	74.57	20.02	3.98	65.0	± 9.6 %
		Y	5.69	74.63	20.05		65.0	
		Z	5.39	73.98	19.78		65.0	
10251-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.39	72.65	18.85	3.98	65.0	± 9.6 %
		Y	5.48	72.84	18.95		65.0	
		Z	5.18	72.13	18.61		65.0	
10252-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.13	78.05	20.93	3.98	65.0	± 9.6 %
		Y	6.21	78.10	20.92		65.0	
		Z	5.78	77.32	20.70		65.0	
10253-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.54	72.10	19.00	3.98	65.0	± 9.6 %
		Y	5.62	72.26	19.07		65.0	
		Z	5.35	71.63	18.79		65.0	
10254-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.89	73.05	19.74	3.98	65.0	± 9.6 %
		Y	5.96	73.15	19.77		65.0	
		Z	5.69	72.56	19.53		65.0	

10255-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	5.96	75.63	20.26	3.98	65.0	± 9.6 %
		Y	6.03	75.68	20.24		65.0	
		Z	5.70	75.08	20.08		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.65	67.68	13.12	3.98	65.0	± 9.6 %
		Y	3.72	67.99	13.43		65.0	
		Z	3.58	67.63	13.06		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.61	67.24	12.83	3.98	65.0	± 9.6 %
		Y	3.69	67.57	13.15		65.0	
		Z	3.52	67.14	12.74		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	3.39	69.66	14.64	3.98	65.0	± 9.6 %
		Y	3.55	70.26	15.05		65.0	
		Z	3.18	68.99	14.30		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.01	72.76	18.17	3.98	65.0	± 9.6 %
		Y	5.10	72.95	18.31		65.0	
		Z	4.79	72.21	17.91		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.05	72.57	18.09	3.98	65.0	± 9.6 %
		Y	5.14	72.76	18.24		65.0	
		Z	4.83	72.02	17.83		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	5.55	76.95	19.93	3.98	65.0	± 9.6 %
		Y	5.66	77.10	20.01		65.0	
		Z	5.23	76.20	19.66		65.0	
10262-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.61	74.51	19.98	3.98	65.0	± 9.6 %
		Y	5.68	74.58	20.01		65.0	
		Z	5.37	73.92	19.73		65.0	
10263-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.38	72.63	18.84	3.98	65.0	± 9.6 %
		Y	5.47	72.82	18.95		65.0	
		Z	5.17	72.10	18.61		65.0	
10264-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	6.07	77.87	20.84	3.98	65.0	± 9.6 %
		Y	6.16	77.94	20.84		65.0	
		Z	5.73	77.15	20.61		65.0	
10265-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.64	72.55	19.22	3.98	65.0	± 9.6 %
		Y	5.73	72.74	19.29		65.0	
		Z	5.43	72.04	19.01		65.0	
10266-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	6.02	73.57	20.03	3.98	65.0	± 9.6 %
		Y	6.09	73.68	20.05		65.0	
		Z	5.81	73.06	19.83		65.0	
10267-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.19	76.11	20.24	3.98	65.0	± 9.6 %
		Y	6.26	76.15	20.20		65.0	
		Z	5.92	75.57	20.08		65.0	
10268-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.31	72.74	19.74	3.98	65.0	± 9.6 %
		Y	6.38	72.86	19.76		65.0	
		Z	6.11	72.28	19.56		65.0	
10269-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.31	72.40	19.66	3.98	65.0	± 9.6 %
		Y	6.37	72.52	19.68		65.0	
		Z	6.11	71.95	19.47		65.0	
10270-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.25	74.19	19.65	3.98	65.0	± 9.6 %
		Y	6.30	74.22	19.60		65.0	
		Z	6.03	73.76	19.52		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.62	66.83	15.44	0.00	150.0	± 9.6 %
		Y	2.65	67.06	15.64		150.0	
		Z	2.60	66.81	15.36		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.66	68.56	15.99	0.00	150.0	± 9.6 %
		Y	1.74	69.37	16.47		150.0	
		Z	1.63	68.35	15.83		150.0	
10277-CAA	PHS (QPSK)	X	2.45	61.81	7.48	9.03	50.0	± 9.6 %
		Y	2.59	62.16	7.82		50.0	
		Z	2.54	62.07	7.75		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	4.03	68.72	13.51	9.03	50.0	± 9.6 %
		Y	4.22	69.17	13.84		50.0	
		Z	4.10	68.73	13.58		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	4.13	68.96	13.67	9.03	50.0	± 9.6 %
		Y	4.33	69.41	14.00		50.0	
		Z	4.19	68.95	13.73		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.59	70.25	14.71	0.00	150.0	± 9.6 %
		Y	1.82	72.15	15.78		150.0	
		Z	1.50	69.65	14.28		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.90	67.12	13.22	0.00	150.0	± 9.6 %
		Y	1.00	68.73	14.25		150.0	
		Z	0.86	66.67	12.84		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.36	73.82	16.65	0.00	150.0	± 9.6 %
		Y	1.71	77.26	18.32		150.0	
		Z	1.28	73.01	16.14		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	3.29	86.77	21.89	0.00	150.0	± 9.6 %
		Y	4.71	92.66	24.11		150.0	
		Z	3.08	85.69	21.33		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	7.29	78.77	20.59	9.03	50.0	± 9.6 %
		Y	7.06	78.09	20.40		50.0	
		Z	7.48	78.90	20.60		50.0	
10297-AAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.80	70.15	16.93	0.00	150.0	± 9.6 %
		Y	2.90	70.75	17.22		150.0	
		Z	2.76	69.98	16.83		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.64	68.64	14.60	0.00	150.0	± 9.6 %
		Y	1.79	69.89	15.40		150.0	
		Z	1.57	68.20	14.24		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.47	68.83	13.61	0.00	150.0	± 9.6 %
		Y	2.54	69.43	14.13		150.0	
		Z	2.67	69.79	13.88		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.84	64.47	10.78	0.00	150.0	± 9.6 %
		Y	1.87	64.82	11.18		150.0	
		Z	1.87	64.71	10.75		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.69	65.44	17.46	4.17	50.0	± 9.6 %
		Y	4.63	65.10	17.32		50.0	
		Z	4.65	65.38	17.36		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.12	65.81	18.03	4.96	50.0	± 9.6 %
		Y	5.16	65.97	18.16		50.0	
		Z	5.12	65.91	18.02		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.87	65.45	17.87	4.96	50.0	± 9.6 %
		Y	4.92	65.62	18.01		50.0	
		Z	4.87	65.57	17.85		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.68	65.35	17.39	4.17	50.0	± 9.6 %
		Y	4.72	65.48	17.50		50.0	
		Z	4.68	65.45	17.37		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.39	67.43	19.46	6.02	35.0	± 9.6 %
		Y	4.48	67.81	19.80		35.0	
		Z	4.49	68.01	19.61		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.67	66.30	18.98	6.02	35.0	± 9.6 %
		Y	4.73	66.54	19.21		35.0	
		Z	4.72	66.69	19.08		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.58	66.51	18.97	6.02	35.0	± 9.6 %
		Y	4.65	66.79	19.23		35.0	
		Z	4.64	66.91	19.08		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.56	66.71	19.12	6.02	35.0	± 9.6 %
		Y	4.63	67.02	19.38		35.0	
		Z	4.62	67.14	19.23		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.72	66.48	19.11	6.02	35.0	± 9.6 %
		Y	4.79	66.75	19.35		35.0	
		Z	4.77	66.86	19.21		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.62	66.39	18.97	6.02	35.0	± 9.6 %
		Y	4.69	66.63	19.20		35.0	
		Z	4.68	66.79	19.08		35.0	
10311-AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.17	69.43	16.56	0.00	150.0	± 9.6 %
		Y	3.28	70.00	16.83		150.0	
		Z	3.13	69.27	16.47		150.0	
10313-AAA	IDEN 1:3	X	3.04	69.90	14.46	6.99	70.0	± 9.6 %
		Y	3.00	69.58	14.26		70.0	
		Z	2.91	69.76	14.60		70.0	
10314-AAA	IDEN 1:6	X	4.05	75.03	19.23	10.00	30.0	± 9.6 %
		Y	3.94	74.12	18.73		30.0	
		Z	4.12	75.22	19.44		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.10	63.97	15.35	0.17	150.0	± 9.6 %
		Y	1.11	64.32	15.62		150.0	
		Z	1.09	63.83	15.22		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.56	66.66	16.26	0.17	150.0	± 9.6 %
		Y	4.58	66.74	16.29		150.0	
		Z	4.53	66.67	16.22		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.56	66.66	16.26	0.17	150.0	± 9.6 %
		Y	4.58	66.74	16.29		150.0	
		Z	4.53	66.67	16.22		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.68	67.08	16.34	0.00	150.0	± 9.6 %
		Y	4.72	67.18	16.39		150.0	
		Z	4.65	67.07	16.30		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.39	67.23	16.48	0.00	150.0	± 9.6 %
		Y	5.40	67.28	16.50		150.0	
		Z	5.35	67.18	16.43		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.64	67.54	16.50	0.00	150.0	± 9.6 %
		Y	5.66	67.64	16.53		150.0	
		Z	5.61	67.52	16.47		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.59	70.25	14.71	0.00	115.0	± 9.6 %
		Y	1.82	72.15	15.78		115.0	
		Z	1.50	69.65	14.28		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.59	70.25	14.71	0.00	115.0	± 9.6 %
		Y	1.82	72.15	15.78		115.0	
		Z	1.50	69.65	14.28		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	119.40	29.12	0.00	100.0	± 9.6 %
		Y	100.00	122.00	30.20		100.0	
		Z	100.00	117.27	28.11		100.0	
10410-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.12	84.42	19.31	3.23	80.0	± 9.6 %
		Y	6.26	82.81	18.74		80.0	
		Z	11.96	91.59	21.64		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.03	63.32	14.96	0.00	150.0	± 9.6 %
		Y	1.04	63.68	15.26		150.0	
		Z	1.03	63.25	14.86		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.53	66.77	16.30	0.00	150.0	± 9.6 %
		Y	4.56	66.86	16.35		150.0	
		Z	4.51	66.78	16.27		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.53	66.77	16.30	0.00	150.0	± 9.6 %
		Y	4.56	66.86	16.35		150.0	
		Z	4.51	66.78	16.27		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.52	66.95	16.33	0.00	150.0	± 9.6 %
		Y	4.55	67.03	16.37		150.0	
		Z	4.50	66.95	16.30		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.54	66.89	16.33	0.00	150.0	± 9.6 %
		Y	4.57	66.97	16.37		150.0	
		Z	4.52	66.90	16.30		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.66	66.88	16.34	0.00	150.0	± 9.6 %
		Y	4.68	66.96	16.38		150.0	
		Z	4.63	66.88	16.30		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.82	67.18	16.45	0.00	150.0	± 9.6 %
		Y	4.85	67.27	16.49		150.0	
		Z	4.78	67.18	16.41		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.74	67.14	16.42	0.00	150.0	± 9.6 %
		Y	4.77	67.23	16.47		150.0	
		Z	4.71	67.13	16.39		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.34	67.39	16.57	0.00	150.0	± 9.6 %
		Y	5.35	67.47	16.59		150.0	
		Z	5.30	67.36	16.53		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.35	67.44	16.59	0.00	150.0	± 9.6 %
		Y	5.36	67.49	16.60		150.0	
		Z	5.32	67.42	16.56		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.36	67.40	16.57	0.00	150.0	± 9.6 %
		Y	5.37	67.48	16.59		150.0	
		Z	5.32	67.37	16.53		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.43	71.93	18.75	0.00	150.0	± 9.6 %
		Y	4.42	71.71	18.69		150.0	
		Z	4.43	72.11	18.76		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.21	67.37	16.31	0.00	150.0	± 9.6 %
		Y	4.25	67.48	16.39		150.0	
		Z	4.17	67.37	16.26		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.51	67.21	16.38	0.00	150.0	± 9.6 %
		Y	4.54	67.31	16.43		150.0	
		Z	4.47	67.21	16.34		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.75	67.17	16.44	0.00	150.0	± 9.6 %
		Y	4.79	67.27	16.49		150.0	
		Z	4.72	67.17	16.41		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.61	73.06	18.81	0.00	150.0	± 9.6 %
		Y	4.59	72.83	18.78		150.0	
		Z	4.61	73.27	18.81		150.0	
10435-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.74	83.64	19.02	3.23	80.0	± 9.6 %
		Y	5.96	82.09	18.46		80.0	
		Z	10.99	90.40	21.25		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.51	67.45	15.64	0.00	150.0	± 9.6 %
		Y	3.57	67.65	15.82		150.0	
		Z	3.46	67.42	15.53		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.05	67.16	16.18	0.00	150.0	± 9.6 %
		Y	4.09	67.27	16.26		150.0	
		Z	4.02	67.16	16.13		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.33	67.05	16.28	0.00	150.0	± 9.6 %
		Y	4.36	67.15	16.34		150.0	
		Z	4.30	67.04	16.24		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.52	66.95	16.30	0.00	150.0	± 9.6 %
		Y	4.55	67.05	16.35		150.0	
		Z	4.50	66.95	16.27		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.39	67.63	15.23	0.00	150.0	± 9.6 %
		Y	3.47	67.90	15.48		150.0	
		Z	3.34	67.55	15.09		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.21	67.93	16.72	0.00	150.0	± 9.6 %
		Y	6.21	67.99	16.72		150.0	
		Z	6.19	67.92	16.69		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.80	65.42	16.01	0.00	150.0	± 9.6 %
		Y	3.81	65.50	16.06		150.0	
		Z	3.79	65.44	15.98		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.19	66.85	14.54	0.00	150.0	± 9.6 %
		Y	3.28	67.17	14.85		150.0	
		Z	3.13	66.73	14.35		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.26	65.09	15.50	0.00	150.0	± 9.6 %
		Y	4.45	65.72	15.90		150.0	
		Z	4.15	64.82	15.27		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.95	69.24	16.88	0.00	150.0	± 9.6 %
		Y	1.02	70.79	17.77		150.0	
		Z	0.93	68.79	16.59		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.16	76.40	17.59	3.29	80.0	± 9.6 %
		Y	3.00	75.64	17.23		80.0	
		Z	4.60	82.00	19.74		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.95	60.00	7.73	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.68		80.0	
		Z	0.93	60.16	7.81		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	7.25	3.23	80.0	± 9.6 %
		Y	0.96	60.00	7.20		80.0	
		Z	0.93	60.00	7.22		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.40	72.59	15.64	3.23	80.0	± 9.6 %
		Y	2.28	71.93	15.30		80.0	
		Z	3.30	77.16	17.51		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.61		80.0	
		Z	0.91	60.00	7.66		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.97	60.00	7.21	3.23	80.0	± 9.6 %
		Y	0.96	60.00	7.15		80.0	
		Z	0.93	60.00	7.18		80.0	
10467-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.51	73.23	15.91	3.23	80.0	± 9.6 %
		Y	2.39	72.52	15.56		80.0	
		Z	3.54	78.13	17.88		80.0	
10468-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.68	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.62		80.0	
		Z	0.91	60.00	7.68		80.0	
10469-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.97	60.00	7.20	3.23	80.0	± 9.6 %
		Y	0.96	60.00	7.15		80.0	
		Z	0.93	60.00	7.18		80.0	
10470-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.50	73.21	15.89	3.23	80.0	± 9.6 %
		Y	2.37	72.50	15.54		80.0	
		Z	3.54	78.12	17.87		80.0	
10471-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.61		80.0	
		Z	0.91	60.00	7.66		80.0	
10472-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	7.19	3.23	80.0	± 9.6 %
		Y	0.96	60.00	7.14		80.0	
		Z	0.93	60.00	7.16		80.0	
10473-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.50	73.17	15.87	3.23	80.0	± 9.6 %
		Y	2.37	72.47	15.52		80.0	
		Z	3.52	78.07	17.84		80.0	
10474-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.61		80.0	
		Z	0.91	60.00	7.66		80.0	
10475-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	7.19	3.23	80.0	± 9.6 %
		Y	0.95	60.00	7.14		80.0	
		Z	0.93	60.00	7.16		80.0	

10477-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.65	3.23	80.0	± 9.6 %
		Y	0.93	60.00	7.59		80.0	
		Z	0.91	60.00	7.64		80.0	
10478-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	7.18	3.23	80.0	± 9.6 %
		Y	0.96	60.00	7.13		80.0	
		Z	0.93	60.00	7.15		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.82	75.02	18.32	3.23	80.0	± 9.6 %
		Y	3.62	74.21	18.05		80.0	
		Z	4.46	77.72	19.42		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.25	69.58	14.47	3.23	80.0	± 9.6 %
		Y	3.17	69.32	14.47		80.0	
		Z	3.70	71.50	15.22		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.76	67.27	13.16	3.23	80.0	± 9.6 %
		Y	2.74	67.18	13.23		80.0	
		Z	3.01	68.58	13.68		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.20	67.37	14.31	2.23	80.0	± 9.6 %
		Y	2.35	68.14	14.78		80.0	
		Z	2.08	66.84	14.02		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.64	66.33	13.17	2.23	80.0	± 9.6 %
		Y	2.72	66.71	13.49		80.0	
		Z	2.71	66.89	13.39		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.59	65.86	12.96	2.23	80.0	± 9.6 %
		Y	2.68	66.27	13.30		80.0	
		Z	2.63	66.32	13.14		80.0	
10485-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.65	69.52	16.23	2.23	80.0	± 9.6 %
		Y	2.77	70.09	16.54		80.0	
		Z	2.52	69.04	16.02		80.0	
10486-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.73	66.83	14.56	2.23	80.0	± 9.6 %
		Y	2.83	67.27	14.87		80.0	
		Z	2.62	66.49	14.35		80.0	
10487-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.75	66.57	14.44	2.23	80.0	± 9.6 %
		Y	2.85	67.00	14.75		80.0	
		Z	2.64	66.24	14.22		80.0	
10488-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.11	69.87	17.17	2.23	80.0	± 9.6 %
		Y	3.21	70.31	17.35		80.0	
		Z	2.98	69.45	17.00		80.0	
10489-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.21	67.51	16.20	2.23	80.0	± 9.6 %
		Y	3.27	67.74	16.32		80.0	
		Z	3.12	67.26	16.07		80.0	
10490-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.31	67.44	16.19	2.23	80.0	± 9.6 %
		Y	3.37	67.66	16.31		80.0	
		Z	3.22	67.20	16.06		80.0	
10491-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.45	69.12	17.04	2.23	80.0	± 9.6 %
		Y	3.54	69.47	17.16		80.0	
		Z	3.34	68.78	16.91		80.0	
10492-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	67.20	16.42	2.23	80.0	± 9.6 %
		Y	3.67	67.39	16.51		80.0	
		Z	3.53	66.97	16.31		80.0	

10493-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.68	67.13	16.41	2.23	80.0	± 9.6 %
		Y	3.74	67.31	16.49		80.0	
		Z	3.60	66.91	16.30		80.0	
10494-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.65	70.25	17.36	2.23	80.0	± 9.6 %
		Y	3.77	70.66	17.50		80.0	
		Z	3.52	69.86	17.23		80.0	
10495-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.63	67.51	16.59	2.23	80.0	± 9.6 %
		Y	3.69	67.72	16.68		80.0	
		Z	3.55	67.26	16.48		80.0	
10496-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.72	67.34	16.57	2.23	80.0	± 9.6 %
		Y	3.78	67.53	16.64		80.0	
		Z	3.64	67.11	16.46		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.59	63.52	11.51	2.23	80.0	± 9.6 %
		Y	1.71	64.33	12.09		80.0	
		Z	1.49	63.03	11.17		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.40	60.13	8.74	2.23	80.0	± 9.6 %
		Y	1.50	60.76	9.30		80.0	
		Z	1.35	60.00	8.54		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.40	60.00	8.54	2.23	80.0	± 9.6 %
		Y	1.47	60.38	8.96		80.0	
		Z	1.37	60.00	8.41		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.81	69.52	16.57	2.23	80.0	± 9.6 %
		Y	2.92	70.00	16.81		80.0	
		Z	2.69	69.09	16.38		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.95	67.23	15.25	2.23	80.0	± 9.6 %
		Y	3.03	67.55	15.48		80.0	
		Z	2.85	66.94	15.08		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.01	67.14	15.16	2.23	80.0	± 9.6 %
		Y	3.09	67.47	15.39		80.0	
		Z	2.91	66.86	14.98		80.0	
10503-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.07	69.70	17.08	2.23	80.0	± 9.6 %
		Y	3.18	70.14	17.26		80.0	
		Z	2.95	69.28	16.91		80.0	
10504-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.19	67.42	16.14	2.23	80.0	± 9.6 %
		Y	3.25	67.66	16.27		80.0	
		Z	3.11	67.17	16.01		80.0	
10505-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.29	67.35	16.13	2.23	80.0	± 9.6 %
		Y	3.35	67.57	16.26		80.0	
		Z	3.20	67.11	16.00		80.0	
10506-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.63	70.12	17.29	2.23	80.0	± 9.6 %
		Y	3.74	70.54	17.44		80.0	
		Z	3.50	69.73	17.16		80.0	
10507-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.62	67.45	16.55	2.23	80.0	± 9.6 %
		Y	3.67	67.66	16.64		80.0	
		Z	3.53	67.20	16.44		80.0	

10508-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.71	67.28	16.52	2.23	80.0	± 9.6 %
		Y	3.77	67.47	16.60		80.0	
		Z	3.63	67.04	16.41		80.0	
10509-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.06	69.48	17.08	2.23	80.0	± 9.6 %
		Y	4.15	69.80	17.17		80.0	
		Z	3.94	69.18	16.98		80.0	
10510-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.13	67.43	16.69	2.23	80.0	± 9.6 %
		Y	4.18	67.63	16.75		80.0	
		Z	4.04	67.20	16.59		80.0	
10511-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.20	67.25	16.66	2.23	80.0	± 9.6 %
		Y	4.25	67.43	16.72		80.0	
		Z	4.11	67.04	16.57		80.0	
10512-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.13	70.56	17.37	2.23	80.0	± 9.6 %
		Y	4.25	70.98	17.50		80.0	
		Z	4.00	70.21	17.25		80.0	
10513-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.00	67.59	16.74	2.23	80.0	± 9.6 %
		Y	4.06	67.82	16.82		80.0	
		Z	3.91	67.34	16.64		80.0	
10514-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.05	67.28	16.67	2.23	80.0	± 9.6 %
		Y	4.10	67.48	16.74		80.0	
		Z	3.96	67.05	16.57		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.99	63.52	15.04	0.00	150.0	± 9.6 %
		Y	1.00	63.92	15.36		150.0	
		Z	0.99	63.44	14.93		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.65	71.87	18.40	0.00	150.0	± 9.6 %
		Y	0.77	75.38	20.23		150.0	
		Z	0.62	70.84	17.85		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.85	65.63	15.82	0.00	150.0	± 9.6 %
		Y	0.87	66.42	16.38		150.0	
		Z	0.84	65.40	15.63		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.52	66.86	16.29	0.00	150.0	± 9.6 %
		Y	4.55	66.94	16.33		150.0	
		Z	4.50	66.86	16.25		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.70	67.07	16.39	0.00	150.0	± 9.6 %
		Y	4.73	67.16	16.44		150.0	
		Z	4.67	67.07	16.35		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.55	67.03	16.32	0.00	150.0	± 9.6 %
		Y	4.59	67.14	16.37		150.0	
		Z	4.52	67.02	16.28		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.49	67.03	16.31	0.00	150.0	± 9.6 %
		Y	4.52	67.14	16.36		150.0	
		Z	4.46	67.02	16.27		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.55	67.14	16.40	0.00	150.0	± 9.6 %
		Y	4.58	67.23	16.45		150.0	
		Z	4.52	67.13	16.36		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.44	67.02	16.26	0.00	150.0	± 9.6 %
		Y	4.47	67.12	16.31		150.0	
		Z	4.41	67.03	16.23		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.49	67.05	16.37	0.00	150.0	± 9.6 %
		Y	4.52	67.14	16.41		150.0	
		Z	4.46	67.05	16.33		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.49	66.12	15.97	0.00	150.0	± 9.6 %
		Y	4.51	66.21	16.02		150.0	
		Z	4.46	66.13	15.94		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.65	66.47	16.11	0.00	150.0	± 9.6 %
		Y	4.68	66.57	16.15		150.0	
		Z	4.62	66.46	16.07		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.57	66.44	16.05	0.00	150.0	± 9.6 %
		Y	4.61	66.54	16.10		150.0	
		Z	4.54	66.43	16.01		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.59	66.45	16.08	0.00	150.0	± 9.6 %
		Y	4.62	66.56	16.13		150.0	
		Z	4.56	66.44	16.04		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.59	66.45	16.08	0.00	150.0	± 9.6 %
		Y	4.62	66.56	16.13		150.0	
		Z	4.56	66.44	16.04		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.57	66.54	16.09	0.00	150.0	± 9.6 %
		Y	4.61	66.66	16.15		150.0	
		Z	4.54	66.52	16.05		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.44	66.40	16.03	0.00	150.0	± 9.6 %
		Y	4.47	66.53	16.09		150.0	
		Z	4.41	66.38	15.98		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.60	66.51	16.08	0.00	150.0	± 9.6 %
		Y	4.63	66.61	16.13		150.0	
		Z	4.57	66.51	16.04		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.12	66.51	16.12	0.00	150.0	± 9.6 %
		Y	5.14	66.61	16.16		150.0	
		Z	5.10	66.50	16.09		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.19	66.69	16.20	0.00	150.0	± 9.6 %
		Y	5.21	66.78	16.23		150.0	
		Z	5.16	66.67	16.17		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.06	66.65	16.16	0.00	150.0	± 9.6 %
		Y	5.08	66.75	16.20		150.0	
		Z	5.03	66.64	16.13		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.12	66.61	16.15	0.00	150.0	± 9.6 %
		Y	5.14	66.71	16.18		150.0	
		Z	5.09	66.59	16.11		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.20	66.61	16.19	0.00	150.0	± 9.6 %
		Y	5.23	66.72	16.22		150.0	
		Z	5.17	66.59	16.15		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.13	66.62	16.21	0.00	150.0	± 9.6 %
		Y	5.16	66.73	16.24		150.0	
		Z	5.10	66.59	16.16		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.11	66.51	16.14	0.00	150.0	± 9.6 %
		Y	5.13	66.61	16.18		150.0	
		Z	5.08	66.49	16.10		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.26	66.57	16.19	0.00	150.0	± 9.6 %
		Y	5.29	66.67	16.22		150.0	
		Z	5.23	66.56	16.15		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.33	66.59	16.22	0.00	150.0	± 9.6 %
		Y	5.36	66.69	16.25		150.0	
		Z	5.30	66.57	16.18		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.44	66.62	16.11	0.00	150.0	± 9.6 %
		Y	5.45	66.72	16.14		150.0	
		Z	5.42	66.60	16.08		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.62	67.02	16.26	0.00	150.0	± 9.6 %
		Y	5.64	67.09	16.28		150.0	
		Z	5.59	66.99	16.23		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.50	66.80	16.17	0.00	150.0	± 9.6 %
		Y	5.52	66.92	16.21		150.0	
		Z	5.47	66.77	16.13		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.57	66.85	16.18	0.00	150.0	± 9.6 %
		Y	5.59	66.95	16.21		150.0	
		Z	5.54	66.82	16.15		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.78	67.66	16.56	0.00	150.0	± 9.6 %
		Y	5.79	67.74	16.58		150.0	
		Z	5.73	67.57	16.50		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.53	66.84	16.20	0.00	150.0	± 9.6 %
		Y	5.54	66.93	16.22		150.0	
		Z	5.50	66.82	16.17		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.53	66.87	16.18	0.00	150.0	± 9.6 %
		Y	5.55	66.98	16.21		150.0	
		Z	5.50	66.83	16.13		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.45	66.69	16.10	0.00	150.0	± 9.6 %
		Y	5.47	66.80	16.13		150.0	
		Z	5.43	66.69	16.07		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.53	66.71	16.13	0.00	150.0	± 9.6 %
		Y	5.55	66.82	16.17		150.0	
		Z	5.50	66.69	16.10		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.85	66.97	16.19	0.00	150.0	± 9.6 %
		Y	5.86	67.06	16.22		150.0	
		Z	5.83	66.95	16.16		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.97	67.25	16.31	0.00	150.0	± 9.6 %
		Y	5.98	67.34	16.33		150.0	
		Z	5.94	67.22	16.27		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.99	67.30	16.33	0.00	150.0	± 9.6 %
		Y	6.00	67.39	16.35		150.0	
		Z	5.96	67.27	16.29		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.95	67.20	16.30	0.00	150.0	± 9.6 %
		Y	5.97	67.30	16.33		150.0	
		Z	5.93	67.17	16.26		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.00	67.35	16.39	0.00	150.0	± 9.6 %
		Y	6.01	67.46	16.42		150.0	
		Z	5.97	67.32	16.35		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.00	67.21	16.36	0.00	150.0	± 9.6 %
		Y	6.01	67.32	16.39		150.0	
		Z	5.97	67.18	16.32		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.92	67.18	16.38	0.00	150.0	± 9.6 %
		Y	5.93	67.28	16.40		150.0	
		Z	5.89	67.15	16.34		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.03	67.51	16.54	0.00	150.0	± 9.6 %
		Y	6.05	67.63	16.58		150.0	
		Z	5.99	67.45	16.49		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.16	67.54	16.51	0.00	150.0	± 9.6 %
		Y	6.24	67.80	16.62		150.0	
		Z	6.09	67.38	16.42		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.84	66.87	16.39	0.46	150.0	± 9.6 %
		Y	4.86	66.95	16.43		150.0	
		Z	4.81	66.87	16.35		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.06	67.32	16.72	0.46	150.0	± 9.6 %
		Y	5.09	67.40	16.76		150.0	
		Z	5.03	67.32	16.69		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.90	67.15	16.53	0.46	150.0	± 9.6 %
		Y	4.93	67.25	16.57		150.0	
		Z	4.86	67.14	16.49		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.93	67.58	16.91	0.46	150.0	± 9.6 %
		Y	4.96	67.66	16.94		150.0	
		Z	4.90	67.58	16.88		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.80	66.88	16.26	0.46	150.0	± 9.6 %
		Y	4.83	66.98	16.31		150.0	
		Z	4.77	66.87	16.22		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.89	67.70	16.99	0.46	150.0	± 9.6 %
		Y	4.92	67.76	17.00		150.0	
		Z	4.87	67.71	16.96		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.92	67.54	16.91	0.46	150.0	± 9.6 %
		Y	4.95	67.61	16.94		150.0	
		Z	4.89	67.54	16.89		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.16	64.28	15.41	0.46	130.0	± 9.6 %
		Y	1.17	64.64	15.67		130.0	
		Z	1.15	64.08	15.27		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.18	64.84	15.77	0.46	130.0	± 9.6 %
		Y	1.19	65.22	16.04		130.0	
		Z	1.16	64.62	15.61		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.62	81.69	21.81	0.46	130.0	± 9.6 %
		Y	2.21	87.31	23.95		130.0	
		Z	1.35	78.93	20.83		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.28	70.51	18.69	0.46	130.0	± 9.6 %
		Y	1.33	71.36	19.17		130.0	
		Z	1.24	69.92	18.40		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.60	66.56	16.34	0.46	130.0	± 9.6 %
		Y	4.63	66.64	16.38		130.0	
		Z	4.58	66.57	16.31		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.63	66.74	16.42	0.46	130.0	± 9.6 %
		Y	4.65	66.81	16.45		130.0	
		Z	4.61	66.75	16.39		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.82	67.02	16.59	0.46	130.0	± 9.6 %
		Y	4.85	67.10	16.62		130.0	
		Z	4.79	67.02	16.55		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.73	67.20	16.71	0.46	130.0	± 9.6 %
		Y	4.75	67.27	16.73		130.0	
		Z	4.70	67.20	16.68		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.48	66.39	15.95	0.46	130.0	± 9.6 %
		Y	4.51	66.51	16.01		130.0	
		Z	4.45	66.37	15.90		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.52	66.43	15.97	0.46	130.0	± 9.6 %
		Y	4.55	66.54	16.03		130.0	
		Z	4.49	66.42	15.93		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.62	67.23	16.64	0.46	130.0	± 9.6 %
		Y	4.65	67.31	16.67		130.0	
		Z	4.60	67.23	16.61		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.41	66.13	15.72	0.46	130.0	± 9.6 %
		Y	4.45	66.25	15.79		130.0	
		Z	4.38	66.11	15.67		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.60	66.56	16.34	0.46	130.0	± 9.6 %
		Y	4.63	66.64	16.38		130.0	
		Z	4.58	66.57	16.31		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.63	66.74	16.42	0.46	130.0	± 9.6 %
		Y	4.65	66.81	16.45		130.0	
		Z	4.61	66.75	16.39		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.82	67.02	16.59	0.46	130.0	± 9.6 %
		Y	4.85	67.10	16.62		130.0	
		Z	4.79	67.02	16.55		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.73	67.20	16.71	0.46	130.0	± 9.6 %
		Y	4.75	67.27	16.73		130.0	
		Z	4.70	67.20	16.68		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.48	66.39	15.95	0.46	130.0	± 9.6 %
		Y	4.51	66.51	16.01		130.0	
		Z	4.45	66.37	15.90		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.52	66.43	15.97	0.46	130.0	± 9.6 %
		Y	4.55	66.54	16.03		130.0	
		Z	4.49	66.42	15.93		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.62	67.23	16.64	0.46	130.0	± 9.6 %
		Y	4.65	67.31	16.67		130.0	
		Z	4.60	67.23	16.61		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.41	66.13	15.72	0.46	130.0	± 9.6 %
		Y	4.45	66.25	15.79		130.0	
		Z	4.38	66.11	15.67		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.76	66.64	16.46	0.46	130.0	± 9.6 %
		Y	4.78	66.70	16.48		130.0	
		Z	4.73	66.65	16.43		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.90	66.97	16.59	0.46	130.0	± 9.6 %
		Y	4.93	67.04	16.61		130.0	
		Z	4.87	66.97	16.56		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.82	66.86	16.45	0.46	130.0	± 9.6 %
		Y	4.85	66.94	16.49		130.0	
		Z	4.79	66.85	16.42		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.88	67.04	16.62	0.46	130.0	± 9.6 %
		Y	4.90	67.11	16.65		130.0	
		Z	4.85	67.04	16.59		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.84	66.98	16.51	0.46	130.0	± 9.6 %
		Y	4.87	67.06	16.54		130.0	
		Z	4.81	66.98	16.48		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.78	66.97	16.51	0.46	130.0	± 9.6 %
		Y	4.81	67.05	16.54		130.0	
		Z	4.75	66.96	16.47		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.73	66.86	16.38	0.46	130.0	± 9.6 %
		Y	4.76	66.95	16.42		130.0	
		Z	4.69	66.85	16.34		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.71	67.12	16.66	0.46	130.0	± 9.6 %
		Y	4.74	67.20	16.70		130.0	
		Z	4.69	67.11	16.63		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.42	67.13	16.65	0.46	130.0	± 9.6 %
		Y	5.44	67.22	16.67		130.0	
		Z	5.39	67.11	16.62		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.54	67.51	16.81	0.46	130.0	± 9.6 %
		Y	5.55	67.54	16.80		130.0	
		Z	5.50	67.46	16.76		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.44	67.29	16.72	0.46	130.0	± 9.6 %
		Y	5.45	67.35	16.73		130.0	
		Z	5.40	67.27	16.68		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.54	67.36	16.67	0.46	130.0	± 9.6 %
		Y	5.55	67.38	16.66		130.0	
		Z	5.52	67.38	16.65		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.61	67.63	16.94	0.46	130.0	± 9.6 %
		Y	5.62	67.67	16.94		130.0	
		Z	5.58	67.64	16.92		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.46	67.22	16.72	0.46	130.0	± 9.6 %
		Y	5.45	67.21	16.69		130.0	
		Z	5.45	67.27	16.72		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.53	67.42	16.82	0.46	130.0	± 9.6 %
		Y	5.54	67.45	16.81		130.0	
		Z	5.50	67.41	16.78		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.27	66.74	16.33	0.46	130.0	± 9.6 %
		Y	5.30	66.85	16.37		130.0	
		Z	5.24	66.71	16.29		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.60	65.96	16.09	0.46	130.0	± 9.6 %
		Y	4.62	66.04	16.12		130.0	
		Z	4.57	65.98	16.06		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.77	66.35	16.25	0.46	130.0	± 9.6 %
		Y	4.80	66.43	16.28		130.0	
		Z	4.74	66.36	16.22		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.66	66.18	16.07	0.46	130.0	± 9.6 %
		Y	4.69	66.28	16.12		130.0	
		Z	4.63	66.18	16.04		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.71	66.35	16.24	0.46	130.0	± 9.6 %
		Y	4.74	66.44	16.28		130.0	
		Z	4.68	66.36	16.21		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.63	66.15	16.08	0.46	130.0	± 9.6 %
		Y	4.66	66.24	16.12		130.0	
		Z	4.60	66.15	16.05		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.63	66.27	16.11	0.46	130.0	± 9.6 %
		Y	4.66	66.38	16.15		130.0	
		Z	4.59	66.27	16.08		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.63	66.15	15.99	0.46	130.0	± 9.6 %
		Y	4.66	66.26	16.04		130.0	
		Z	4.59	66.13	15.95		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.58	66.38	16.25	0.46	130.0	± 9.6 %
		Y	4.61	66.48	16.29		130.0	
		Z	4.56	66.37	16.22		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.62	65.95	15.84	0.46	130.0	± 9.6 %
		Y	4.65	66.05	15.89		130.0	
		Z	4.59	65.95	15.80		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.24	66.41	16.28	0.46	130.0	± 9.6 %
		Y	5.26	66.49	16.30		130.0	
		Z	5.21	66.40	16.25		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.31	66.58	16.34	0.46	130.0	± 9.6 %
		Y	5.32	66.64	16.34		130.0	
		Z	5.28	66.57	16.31		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.20	66.60	16.36	0.46	130.0	± 9.6 %
		Y	5.21	66.67	16.38		130.0	
		Z	5.17	66.60	16.34		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.20	66.38	16.18	0.46	130.0	± 9.6 %
		Y	5.22	66.46	16.20		130.0	
		Z	5.18	66.37	16.15		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.29	66.42	16.25	0.46	130.0	± 9.6 %
		Y	5.31	66.50	16.28		130.0	
		Z	5.26	66.40	16.22		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.31	66.59	16.47	0.46	130.0	± 9.6 %
		Y	5.32	66.66	16.47		130.0	
		Z	5.28	66.59	16.44		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.31	66.74	16.53	0.46	130.0	± 9.6 %
		Y	5.33	66.80	16.54		130.0	
		Z	5.29	66.75	16.51		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.19	66.24	16.15	0.46	130.0	± 9.6 %
		Y	5.21	66.33	16.17		130.0	
		Z	5.16	66.23	16.11		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.38	66.45	16.32	0.46	130.0	± 9.6 %
		Y	5.40	66.52	16.33		130.0	
		Z	5.35	66.44	16.29		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.69	67.26	16.78	0.46	130.0	± 9.6 %
		Y	5.73	67.39	16.82		130.0	
		Z	5.62	67.15	16.69		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.54	66.47	16.24	0.46	130.0	± 9.6 %
		Y	5.55	66.55	16.25		130.0	
		Z	5.52	66.47	16.21		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.77	67.01	16.47	0.46	130.0	± 9.6 %
		Y	5.77	67.06	16.46		130.0	
		Z	5.74	66.99	16.44		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.56	66.51	16.15	0.46	130.0	± 9.6 %
		Y	5.58	66.61	16.18		130.0	
		Z	5.53	66.48	16.12		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.63	66.57	16.17	0.46	130.0	± 9.6 %
		Y	5.65	66.66	16.19		130.0	
		Z	5.61	66.55	16.14		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.00	67.86	16.82	0.46	130.0	± 9.6 %
		Y	6.01	67.93	16.83		130.0	
		Z	5.94	67.73	16.73		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.95	67.83	17.01	0.46	130.0	± 9.6 %
		Y	5.97	67.92	17.02		130.0	
		Z	5.91	67.77	16.96		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.75	67.12	16.67	0.46	130.0	± 9.6 %
		Y	5.75	67.15	16.65		130.0	
		Z	5.73	67.12	16.65		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.63	66.72	16.29	0.46	130.0	± 9.6 %
		Y	5.65	66.81	16.31		130.0	
		Z	5.61	66.70	16.26		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.62	66.75	16.37	0.46	130.0	± 9.6 %
		Y	5.64	66.85	16.39		130.0	
		Z	5.59	66.74	16.34		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.48	66.01	15.71	0.46	130.0	± 9.6 %
		Y	5.51	66.14	15.76		130.0	
		Z	5.45	65.98	15.67		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.96	66.83	16.32	0.46	130.0	± 9.6 %
		Y	5.96	66.90	16.33		130.0	
		Z	5.94	66.82	16.30		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.11	67.19	16.49	0.46	130.0	± 9.6 %
		Y	6.11	67.25	16.49		130.0	
		Z	6.08	67.17	16.46		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.11	67.17	16.45	0.46	130.0	± 9.6 %
		Y	6.11	67.25	16.46		130.0	
		Z	6.08	67.16	16.42		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.08	67.12	16.47	0.46	130.0	± 9.6 %
		Y	6.09	67.20	16.48		130.0	
		Z	6.06	67.10	16.44		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.08	67.10	16.40	0.46	130.0	± 9.6 %
		Y	6.09	67.19	16.42		130.0	
		Z	6.05	67.07	16.36		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.13	67.03	16.39	0.46	130.0	± 9.6 %
		Y	6.13	67.10	16.39		130.0	
		Z	6.11	67.02	16.36		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.18	67.31	16.70	0.46	130.0	± 9.6 %
		Y	6.19	67.39	16.71		130.0	
		Z	6.15	67.29	16.67		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.01	66.96	16.42	0.46	130.0	± 9.6 %
		Y	6.01	67.04	16.43		130.0	
		Z	5.98	66.94	16.38		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.14	67.38	16.65	0.46	130.0	± 9.6 %
		Y	6.16	67.50	16.68		130.0	
		Z	6.11	67.32	16.59		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.34	67.58	16.70	0.46	130.0	± 9.6 %
		Y	6.43	67.90	16.84		130.0	
		Z	6.25	67.39	16.59		130.0	
10646-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	12.03	96.53	31.61	9.30	60.0	± 9.6 %
		Y	13.68	98.80	32.22		60.0	
		Z	11.35	95.67	31.51		60.0	
10647-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	10.87	95.02	31.23	9.30	60.0	± 9.6 %
		Y	12.42	97.44	31.90		60.0	
		Z	10.19	94.02	31.08		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.71	64.17	11.16	0.00	150.0	± 9.6 %
		Y	0.76	65.11	11.91		150.0	
		Z	0.68	63.86	10.84		150.0	

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



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **ES3-3213_Feb17**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3213**

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

Calibration date: **February 10, 2017**

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)

*Bny
03-01-2017*

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by: **Claudio Leubler** (Name) **Laboratory Technician** (Function) *[Signature]* (Signature)

Approved by: **Katja Pokovic** (Name) **Technical Manager** (Function) *[Signature]* (Signature)

Issued: February 13, 2017

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



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

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization 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., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- a) 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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- 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_{x,y,z}*: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). *NORM_{x,y,z}* are only intermediate values, i.e., the uncertainties of *NORM_{x,y,z}* does not affect the E^2 -field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)_{x,y,z}* = *NORM_{x,y,z}* * *frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCP_{x,y,z}*: 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_{x,y,z}*; *B_{x,y,z}*; *C_{x,y,z}*; *D_{x,y,z}*; *VR_{x,y,z}*: *A*, *B*, *C*, *D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF* and *Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORM_{x,y,z}* * *ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORM_x* (no uncertainty required).

Probe ES3DV3

SN:3213

Manufactured: October 14, 2008
Calibrated: February 10, 2017

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3213

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	1.44	1.32	1.29	$\pm 10.1 \%$
DCP (mV) ^B	101.3	102.3	101.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	228.2	$\pm 3.5 \%$
		Y	0.0	0.0	1.0		230.0	
		Z	0.0	0.0	1.0		221.7	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $\text{ms}\cdot\text{V}^{-2}$	T2 $\text{ms}\cdot\text{V}^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	56.23	407.2	35.93	28.85	2.251	5.1	1.129	0.439	1.012
Y	55.47	400.7	35.87	28.65	2.277	5.1	1.321	0.386	1.013
Z	51.67	374.7	36	28.45	2.103	5.1	0.358	0.504	1.009

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

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

^B Numerical linearization parameter: uncertainty not required.

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3213

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	6.85	6.85	6.85	0.80	1.18	± 12.0 %
835	41.5	0.90	6.49	6.49	6.49	0.49	1.52	± 12.0 %
1750	40.1	1.37	5.49	5.49	5.49	0.60	1.35	± 12.0 %
1900	40.0	1.40	5.29	5.29	5.29	0.68	1.27	± 12.0 %
2300	39.5	1.67	4.95	4.95	4.95	0.70	1.28	± 12.0 %
2450	39.2	1.80	4.70	4.70	4.70	0.80	1.24	± 12.0 %
2600	39.0	1.96	4.52	4.52	4.52	0.78	1.28	± 12.0 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3213

Calibration Parameter Determined in Body Tissue Simulating Media

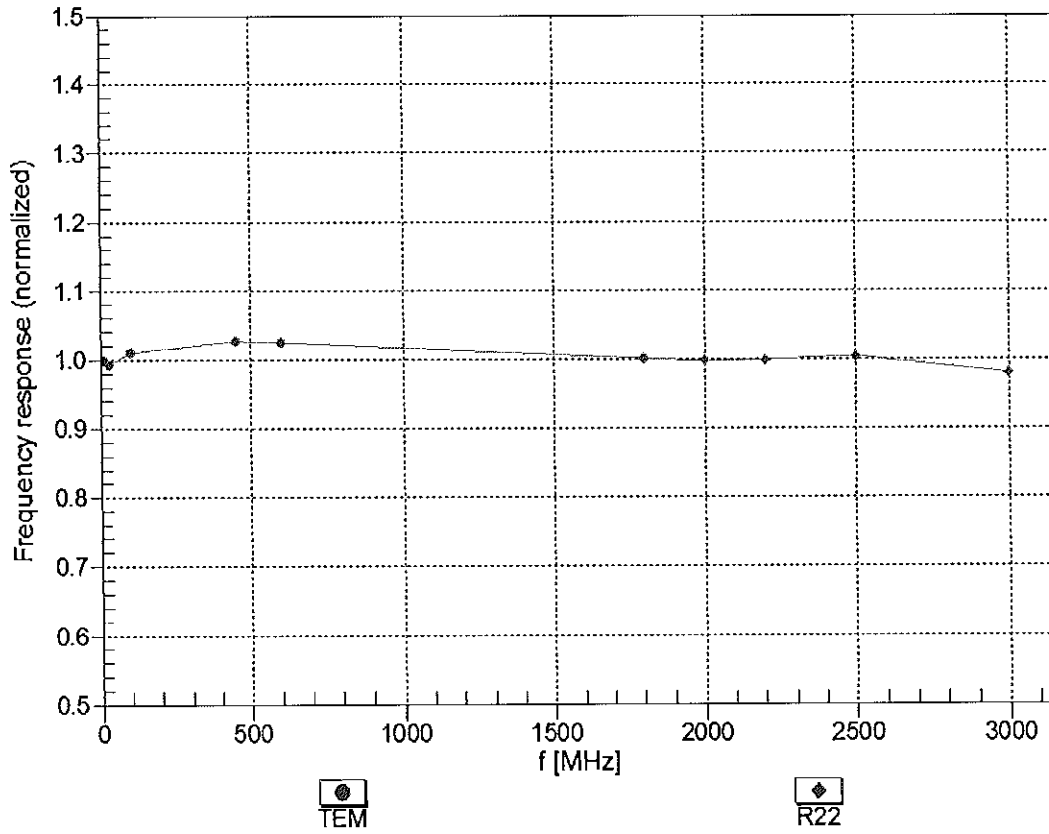
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	6.38	6.38	6.38	0.60	1.31	± 12.0 %
835	55.2	0.97	6.28	6.28	6.28	0.80	1.20	± 12.0 %
1750	53.4	1.49	5.09	5.09	5.09	0.66	1.33	± 12.0 %
1900	53.3	1.52	4.94	4.94	4.94	0.40	1.85	± 12.0 %
2300	52.9	1.81	4.69	4.69	4.69	0.80	1.24	± 12.0 %
2450	52.7	1.95	4.53	4.53	4.53	0.72	1.28	± 12.0 %
2600	52.5	2.16	4.32	4.32	4.32	0.80	1.20	± 12.0 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

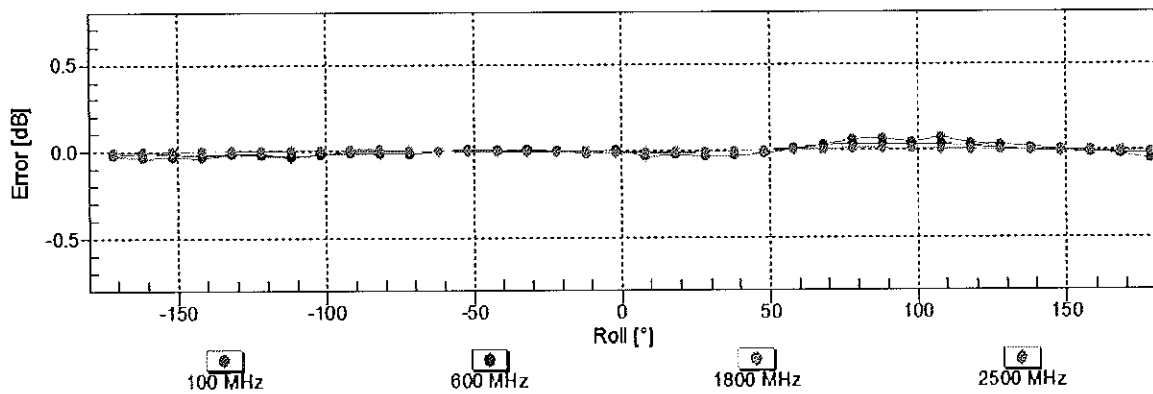
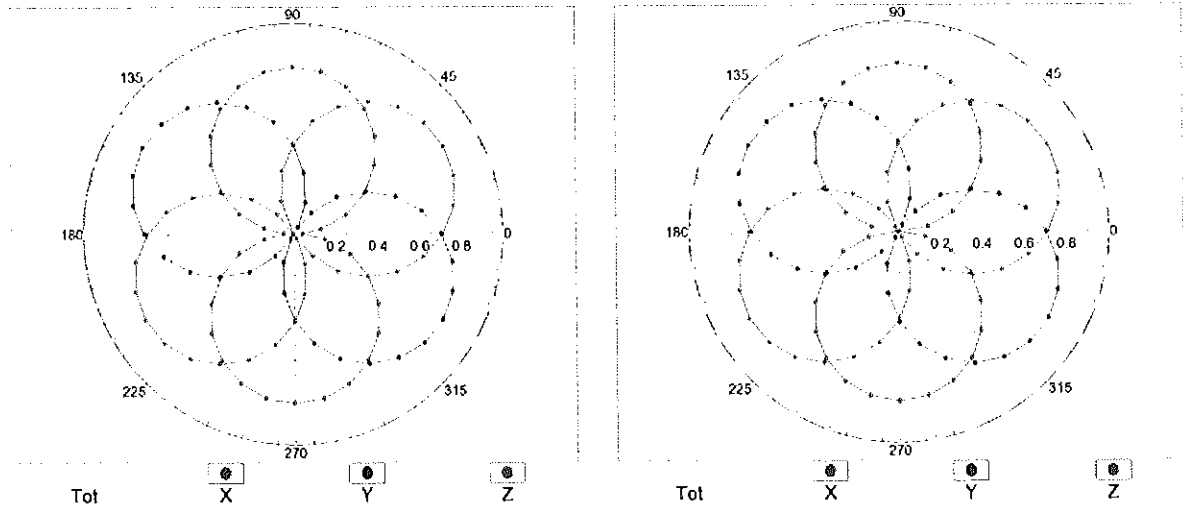


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

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

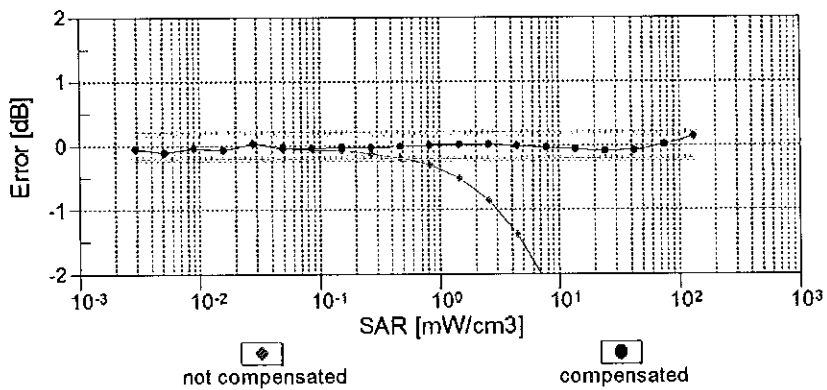
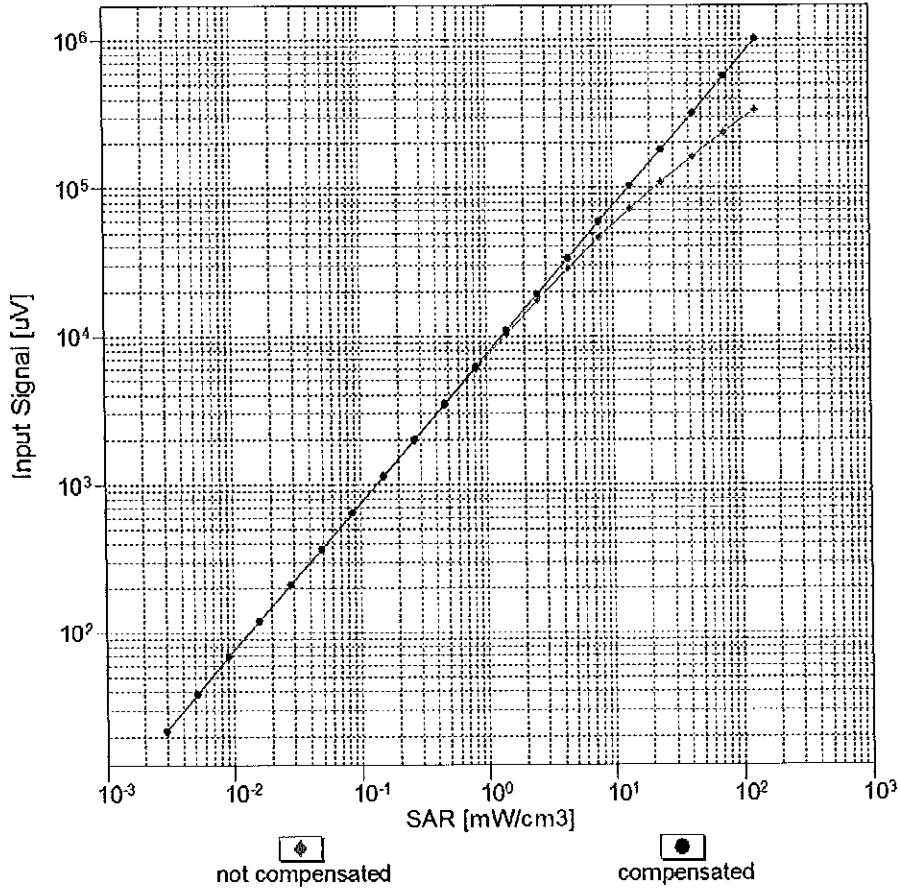
f=600 MHz, TEM

f=1800 MHz, R22



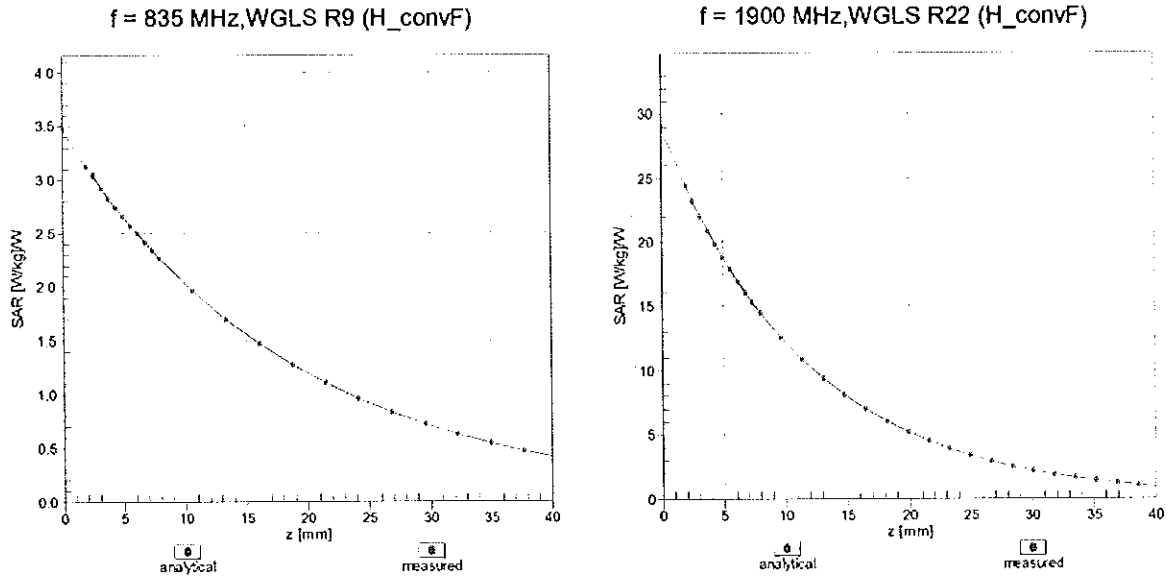
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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

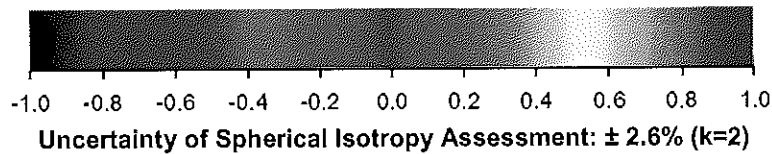
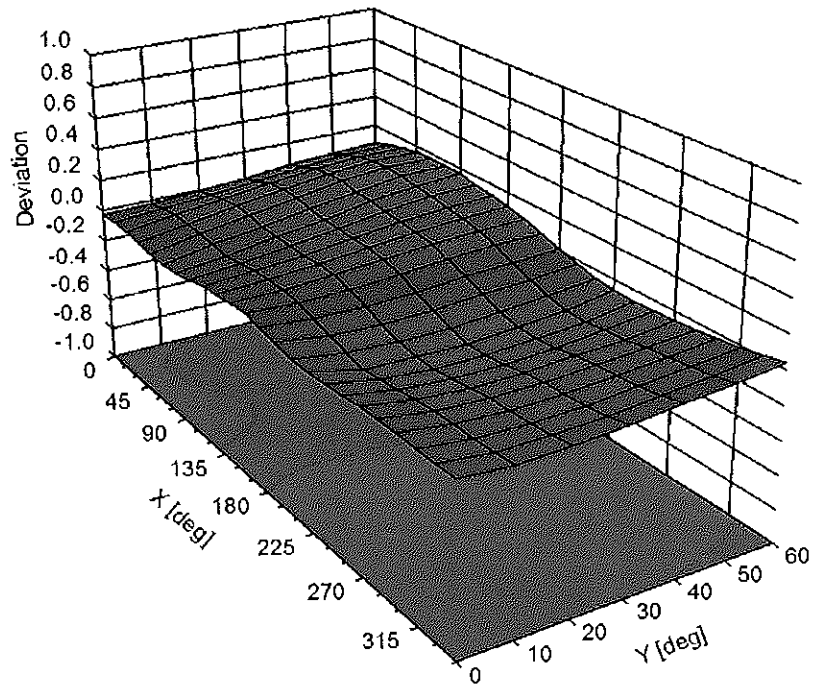


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, ϑ), f = 900 MHz



DASY/EASY - Parameters of Probe: ES3DV3 - SN:3213**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	98.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu}$ V	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	228.2	± 3.5 %
		Y	0.00	0.00	1.00		230.0	
		Z	0.00	0.00	1.00		221.7	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	11.07	84.26	20.62	10.00	25.0	± 9.6 %
		Y	10.49	83.36	20.27		25.0	
		Z	11.03	84.22	20.43		25.0	
10011- CAB	UMTS-FDD (WCDMA)	X	1.04	66.65	14.82	0.00	150.0	± 9.6 %
		Y	1.16	69.13	16.33		150.0	
		Z	1.01	66.30	14.54		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.30	64.60	15.49	0.41	150.0	± 9.6 %
		Y	1.33	65.49	16.22		150.0	
		Z	1.28	64.47	15.36		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.14	67.15	17.39	1.46	150.0	± 9.6 %
		Y	5.14	67.35	17.57		150.0	
		Z	5.09	67.17	17.37		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	62.94	114.81	31.61	9.39	50.0	± 9.6 %
		Y	41.95	107.82	29.66		50.0	
		Z	94.76	121.25	33.03		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	46.50	109.76	30.33	9.57	50.0	± 9.6 %
		Y	33.70	104.15	28.69		50.0	
		Z	62.69	114.46	31.37		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	119.19	30.75	6.56	60.0	± 9.6 %
		Y	100.00	118.97	30.64		60.0	
		Z	100.00	118.83	30.48		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	18.95	107.68	41.29	12.57	50.0	± 9.6 %
		Y	31.91	124.81	47.58		50.0	
		Z	17.05	104.98	40.36		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	20.29	105.23	36.57	9.56	60.0	± 9.6 %
		Y	28.92	114.92	39.99		60.0	
		Z	20.11	105.49	36.71		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	118.17	29.38	4.80	80.0	± 9.6 %
		Y	100.00	118.12	29.34		80.0	
		Z	100.00	117.81	29.12		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	118.40	28.68	3.55	100.0	± 9.6 %
		Y	100.00	118.60	28.76		100.0	
		Z	100.00	118.00	28.41		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	12.78	94.46	31.72	7.80	80.0	± 9.6 %
		Y	16.27	100.85	34.22		80.0	
		Z	12.37	94.11	31.64		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	117.61	29.45	5.30	70.0	± 9.6 %
		Y	100.00	117.52	29.40		70.0	
		Z	100.00	117.17	29.14		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	119.11	27.47	1.88	100.0	± 9.6 %
		Y	100.00	120.30	27.96		100.0	
		Z	100.00	118.27	27.02		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	123.13	28.10	1.17	100.0	± 9.6 %
		Y	100.00	125.86	29.19		100.0	
		Z	100.00	121.81	27.46		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	19.81	99.27	27.58	5.30	70.0	± 9.6 %
		Y	23.75	102.32	28.48		70.0	
		Z	20.10	99.19	27.31		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	6.18	84.61	21.36	1.88	100.0	± 9.6 %
		Y	8.74	90.01	23.19		100.0	
		Z	6.07	84.02	20.83		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	3.50	78.04	18.75	1.17	100.0	± 9.6 %
		Y	4.77	82.88	20.59		100.0	
		Z	3.40	77.42	18.19		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	25.06	103.36	28.83	5.30	70.0	± 9.6 %
		Y	30.48	106.66	29.76		70.0	
		Z	25.78	103.46	28.61		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	5.91	84.02	21.13	1.88	100.0	± 9.6 %
		Y	8.37	89.43	22.97		100.0	
		Z	5.74	83.28	20.55		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	3.58	78.59	19.05	1.17	100.0	± 9.6 %
		Y	4.93	83.62	20.94		100.0	
		Z	3.47	77.94	18.48		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.75	70.49	15.41	0.00	150.0	± 9.6 %
		Y	2.11	73.63	16.88		150.0	
		Z	1.63	69.80	14.78		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	117.99	30.44	7.78	50.0	± 9.6 %
		Y	100.00	117.70	30.30		50.0	
		Z	100.00	117.57	30.13		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.01	92.86	0.28	0.00	150.0	± 9.6 %
		Y	0.00	128.30	10.22		150.0	
		Z	0.01	91.94	0.27		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	16.43	91.36	26.72	13.80	25.0	± 9.6 %
		Y	14.26	88.55	25.69		25.0	
		Z	18.21	93.36	27.20		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	21.81	96.95	27.09	10.79	40.0	± 9.6 %
		Y	18.36	93.74	25.99		40.0	
		Z	24.94	99.20	27.59		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	16.12	92.43	26.40	9.03	50.0	± 9.6 %
		Y	16.40	92.69	26.46		50.0	
		Z	16.84	93.23	26.48		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	9.13	87.64	28.49	6.55	100.0	± 9.6 %
		Y	10.85	92.11	30.40		100.0	
		Z	8.80	87.14	28.33		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.45	66.53	16.46	0.61	110.0	± 9.6 %
		Y	1.51	67.75	17.33		110.0	
		Z	1.43	66.36	16.31		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	71.32	126.43	32.69	1.30	110.0	± 9.6 %
		Y	100.00	133.00	34.47		110.0	
		Z	56.46	122.77	31.74		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	7.70	91.83	25.70	2.04	110.0	± 9.6 %
		Y	12.85	101.15	28.77		110.0	
		Z	7.42	91.30	25.47		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.86	66.91	16.67	0.49	100.0	± 9.6 %
		Y	4.87	67.10	16.85		100.0	
		Z	4.81	66.91	16.64		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.90	67.06	16.81	0.72	100.0	± 9.6 %
		Y	4.91	67.26	16.99		100.0	
		Z	4.85	67.06	16.78		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.22	67.40	17.08	0.86	100.0	± 9.6 %
		Y	5.23	67.59	17.25		100.0	
		Z	5.16	67.38	17.04		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.12	67.42	17.25	1.21	100.0	± 9.6 %
		Y	5.13	67.61	17.43		100.0	
		Z	5.06	67.40	17.21		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.18	67.55	17.48	1.46	100.0	± 9.6 %
		Y	5.19	67.76	17.66		100.0	
		Z	5.11	67.52	17.44		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.50	67.74	17.95	2.04	100.0	± 9.6 %
		Y	5.51	67.96	18.15		100.0	
		Z	5.44	67.76	17.93		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.63	68.06	18.32	2.55	100.0	± 9.6 %
		Y	5.64	68.30	18.53		100.0	
		Z	5.56	68.03	18.28		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.71	68.03	18.50	2.67	100.0	± 9.6 %
		Y	5.72	68.29	18.74		100.0	
		Z	5.64	68.03	18.48		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.28	67.38	17.78	1.99	100.0	± 9.6 %
		Y	5.29	67.59	17.97		100.0	
		Z	5.23	67.40	17.76		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.33	67.91	18.09	2.30	100.0	± 9.6 %
		Y	5.34	68.14	18.30		100.0	
		Z	5.28	67.91	18.07		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.46	68.24	18.51	2.83	100.0	± 9.6 %
		Y	5.48	68.51	18.74		100.0	
		Z	5.40	68.25	18.50		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.49	68.30	18.76	3.30	100.0	± 9.6 %
		Y	5.51	68.58	19.00		100.0	
		Z	5.44	68.31	18.74		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.63	68.74	19.25	3.82	90.0	± 9.6 %
		Y	5.66	69.06	19.51		90.0	
		Z	5.57	68.71	19.21		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.64	68.56	19.38	4.15	90.0	± 9.6 %
		Y	5.68	68.89	19.66		90.0	
		Z	5.60	68.57	19.36		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.68	68.64	19.49	4.30	90.0	± 9.6 %
		Y	5.71	68.99	19.77		90.0	
		Z	5.64	68.66	19.47		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.88	65.55	12.70	0.00	150.0	± 9.6 %
		Y	1.01	67.94	14.05		150.0	
		Z	0.82	64.98	12.07		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.05	63.91	8.77	4.77	80.0	± 9.6 %
		Y	2.06	64.02	8.81		80.0	
		Z	1.95	63.58	8.48		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	119.26	30.80	6.56	60.0	± 9.6 %
		Y	100.00	119.04	30.70		60.0	
		Z	100.00	118.90	30.53		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.83	67.01	15.38	0.00	150.0	± 9.6 %
		Y	1.91	68.15	16.11		150.0	
		Z	1.80	66.92	15.21		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.79	66.97	15.34	0.00	150.0	± 9.6 %
		Y	1.88	68.14	16.10		150.0	
		Z	1.76	66.87	15.18		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	20.23	105.10	36.53	9.56	60.0	± 9.6 %
		Y	28.70	114.68	39.91		60.0	
		Z	20.06	105.38	36.67		60.0	
10100-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.16	69.99	16.45	0.00	150.0	± 9.6 %
		Y	3.31	71.03	17.06		150.0	
		Z	3.09	69.73	16.33		150.0	
10101-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.32	67.51	15.87	0.00	150.0	± 9.6 %
		Y	3.38	68.00	16.23		150.0	
		Z	3.27	67.36	15.78		150.0	
10102-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.43	67.46	15.96	0.00	150.0	± 9.6 %
		Y	3.47	67.89	16.28		150.0	
		Z	3.37	67.33	15.88		150.0	
10103-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	8.65	78.54	21.48	3.98	65.0	± 9.6 %
		Y	8.85	79.12	21.77		65.0	
		Z	8.48	78.45	21.46		65.0	
10104-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.46	76.91	21.67	3.98	65.0	± 9.6 %
		Y	8.66	77.60	22.06		65.0	
		Z	8.34	76.89	21.66		65.0	
10105-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	7.58	74.70	20.99	3.98	65.0	± 9.6 %
		Y	7.79	75.45	21.40		65.0	
		Z	7.31	74.25	20.79		65.0	
10108-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.79	69.24	16.28	0.00	150.0	± 9.6 %
		Y	2.91	70.28	16.91		150.0	
		Z	2.71	69.00	16.16		150.0	
10109-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.98	67.28	15.76	0.00	150.0	± 9.6 %
		Y	3.03	67.83	16.15		150.0	
		Z	2.92	67.15	15.65		150.0	
10110-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.28	68.31	15.91	0.00	150.0	± 9.6 %
		Y	2.39	69.47	16.63		150.0	
		Z	2.21	68.09	15.75		150.0	
10111-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.66	67.75	15.94	0.00	150.0	± 9.6 %
		Y	2.72	68.40	16.37		150.0	
		Z	2.60	67.66	15.80		150.0	

10112-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.11	67.26	15.82	0.00	150.0	± 9.6 %
		Y	3.15	67.75	16.17		150.0	
		Z	3.05	67.15	15.72		150.0	
10113-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.82	67.88	16.07	0.00	150.0	± 9.6 %
		Y	2.87	68.46	16.46		150.0	
		Z	2.76	67.81	15.94		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.24	67.28	16.46	0.00	150.0	± 9.6 %
		Y	5.25	67.46	16.63		150.0	
		Z	5.20	67.29	16.46		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.61	67.64	16.65	0.00	150.0	± 9.6 %
		Y	5.61	67.79	16.81		150.0	
		Z	5.52	67.52	16.58		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.36	67.55	16.52	0.00	150.0	± 9.6 %
		Y	5.37	67.74	16.69		150.0	
		Z	5.32	67.53	16.51		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.22	67.23	16.45	0.00	150.0	± 9.6 %
		Y	5.23	67.39	16.61		150.0	
		Z	5.17	67.16	16.41		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.69	67.85	16.77	0.00	150.0	± 9.6 %
		Y	5.70	68.02	16.93		150.0	
		Z	5.63	67.79	16.73		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.34	67.49	16.51	0.00	150.0	± 9.6 %
		Y	5.35	67.67	16.67		150.0	
		Z	5.29	67.47	16.49		150.0	
10140-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.47	67.47	15.89	0.00	150.0	± 9.6 %
		Y	3.51	67.91	16.21		150.0	
		Z	3.41	67.34	15.80		150.0	
10141-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.59	67.54	16.05	0.00	150.0	± 9.6 %
		Y	3.63	67.94	16.35		150.0	
		Z	3.53	67.43	15.97		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.05	68.16	15.60	0.00	150.0	± 9.6 %
		Y	2.17	69.48	16.39		150.0	
		Z	1.97	67.92	15.36		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.51	68.28	15.68	0.00	150.0	± 9.6 %
		Y	2.59	69.11	16.17		150.0	
		Z	2.43	68.15	15.43		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.35	66.54	14.37	0.00	150.0	± 9.6 %
		Y	2.42	67.28	14.84		150.0	
		Z	2.27	66.32	14.07		150.0	
10145-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.37	65.72	12.66	0.00	150.0	± 9.6 %
		Y	1.46	66.99	13.37		150.0	
		Z	1.25	64.89	11.82		150.0	
10146-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.11	71.69	15.06	0.00	150.0	± 9.6 %
		Y	3.87	74.93	16.48		150.0	
		Z	2.20	67.57	12.72		150.0	
10147-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.99	75.14	16.65	0.00	150.0	± 9.6 %
		Y	5.26	79.21	18.27		150.0	
		Z	2.59	69.69	13.85		150.0	

10149-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.99	67.34	15.80	0.00	150.0	± 9.6 %
		Y	3.04	67.88	16.19		150.0	
		Z	2.93	67.20	15.70		150.0	
10150-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.11	67.30	15.85	0.00	150.0	± 9.6 %
		Y	3.16	67.79	16.21		150.0	
		Z	3.05	67.19	15.76		150.0	
10151-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.14	80.78	22.44	3.98	65.0	± 9.6 %
		Y	9.49	81.66	22.85		65.0	
		Z	9.14	81.08	22.55		65.0	
10152-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.08	77.12	21.52	3.98	65.0	± 9.6 %
		Y	8.33	77.95	21.96		65.0	
		Z	7.95	77.09	21.46		65.0	
10153-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.46	77.89	22.17	3.98	65.0	± 9.6 %
		Y	8.68	78.63	22.56		65.0	
		Z	8.36	77.94	22.15		65.0	
10154-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.33	68.67	16.15	0.00	150.0	± 9.6 %
		Y	2.44	69.83	16.86		150.0	
		Z	2.25	68.43	15.98		150.0	
10155-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.66	67.76	15.95	0.00	150.0	± 9.6 %
		Y	2.72	68.41	16.38		150.0	
		Z	2.60	67.68	15.82		150.0	
10156-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.90	68.21	15.44	0.00	150.0	± 9.6 %
		Y	2.03	69.70	16.30		150.0	
		Z	1.81	67.89	15.12		150.0	
10157-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.18	67.00	14.41	0.00	150.0	± 9.6 %
		Y	2.26	67.93	14.96		150.0	
		Z	2.09	66.73	14.04		150.0	
10158-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.82	67.92	16.11	0.00	150.0	± 9.6 %
		Y	2.87	68.51	16.50		150.0	
		Z	2.76	67.86	15.98		150.0	
10159-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.28	67.39	14.67	0.00	150.0	± 9.6 %
		Y	2.36	68.28	15.19		150.0	
		Z	2.18	67.11	14.29		150.0	
10160-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.82	68.45	16.16	0.00	150.0	± 9.6 %
		Y	2.91	69.30	16.70		150.0	
		Z	2.76	68.35	16.07		150.0	
10161-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.01	67.20	15.78	0.00	150.0	± 9.6 %
		Y	3.05	67.71	16.14		150.0	
		Z	2.95	67.10	15.68		150.0	
10162-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.11	67.31	15.88	0.00	150.0	± 9.6 %
		Y	3.16	67.80	16.23		150.0	
		Z	3.06	67.24	15.78		150.0	
10166-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.96	70.63	19.76	3.01	150.0	± 9.6 %
		Y	4.08	71.58	20.41		150.0	
		Z	3.69	69.63	19.19		150.0	
10167-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	5.16	74.36	20.54	3.01	150.0	± 9.6 %
		Y	5.47	75.92	21.41		150.0	
		Z	4.54	72.52	19.67		150.0	

10168-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	5.71	76.55	21.79	3.01	150.0	± 9.6 %
		Y	6.04	78.08	22.60		150.0	
		Z	4.98	74.53	20.87		150.0	
10169-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.56	71.66	20.23	3.01	150.0	± 9.6 %
		Y	3.72	73.10	21.16		150.0	
		Z	3.12	69.36	19.09		150.0	
10170-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	5.50	79.49	23.11	3.01	150.0	± 9.6 %
		Y	6.14	82.25	24.43		150.0	
		Z	4.23	74.96	21.26		150.0	
10171-AAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	4.39	74.63	20.21	3.01	150.0	± 9.6 %
		Y	4.87	77.16	21.52		150.0	
		Z	3.55	71.26	18.74		150.0	
10172-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	36.90	115.61	35.71	6.02	65.0	± 9.6 %
		Y	89.16	134.58	40.97		65.0	
		Z	21.04	105.02	32.65		65.0	
10173-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	54.93	117.26	34.23	6.02	65.0	± 9.6 %
		Y	100.00	128.92	37.35		65.0	
		Z	30.85	107.44	31.57		65.0	
10174-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	39.60	109.76	31.68	6.02	65.0	± 9.6 %
		Y	70.95	120.74	34.73		65.0	
		Z	23.48	101.22	29.25		65.0	
10175-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	3.51	71.32	19.98	3.01	150.0	± 9.6 %
		Y	3.68	72.77	20.92		150.0	
		Z	3.08	69.09	18.87		150.0	
10176-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	5.51	79.52	23.12	3.01	150.0	± 9.6 %
		Y	6.15	82.28	24.44		150.0	
		Z	4.23	74.98	21.27		150.0	
10177-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.54	71.49	20.08	3.01	150.0	± 9.6 %
		Y	3.71	72.93	21.01		150.0	
		Z	3.11	69.22	18.95		150.0	
10178-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	5.43	79.21	22.98	3.01	150.0	± 9.6 %
		Y	6.06	81.97	24.30		150.0	
		Z	4.19	74.78	21.16		150.0	
10179-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	4.90	76.90	21.51	3.01	150.0	± 9.6 %
		Y	5.47	79.59	22.84		150.0	
		Z	3.86	73.02	19.88		150.0	
10180-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	4.38	74.54	20.15	3.01	150.0	± 9.6 %
		Y	4.86	77.07	21.46		150.0	
		Z	3.54	71.20	18.69		150.0	
10181-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.54	71.47	20.07	3.01	150.0	± 9.6 %
		Y	3.70	72.91	21.00		150.0	
		Z	3.10	69.21	18.95		150.0	
10182-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	5.42	79.19	22.97	3.01	150.0	± 9.6 %
		Y	6.05	81.94	24.29		150.0	
		Z	4.19	74.76	21.15		150.0	
10183-AAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	4.37	74.51	20.14	3.01	150.0	± 9.6 %
		Y	4.85	77.04	21.45		150.0	
		Z	3.53	71.17	18.68		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.55	71.52	20.09	3.01	150.0	± 9.6 %
		Y	3.72	72.96	21.02		150.0	
		Z	3.11	69.25	18.97		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	5.45	79.27	23.00	3.01	150.0	± 9.6 %
		Y	6.09	82.03	24.33		150.0	
		Z	4.20	74.82	21.19		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	4.39	74.59	20.17	3.01	150.0	± 9.6 %
		Y	4.88	77.13	21.49		150.0	
		Z	3.55	71.24	18.71		150.0	
10187-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.56	71.57	20.15	3.01	150.0	± 9.6 %
		Y	3.73	73.01	21.08		150.0	
		Z	3.12	69.30	19.03		150.0	
10188-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	5.67	80.08	23.42	3.01	150.0	± 9.6 %
		Y	6.33	82.86	24.73		150.0	
		Z	4.33	75.42	21.53		150.0	
10189-AAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	4.51	75.09	20.47	3.01	150.0	± 9.6 %
		Y	5.01	77.67	21.79		150.0	
		Z	3.62	71.63	18.97		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.64	66.65	16.17	0.00	150.0	± 9.6 %
		Y	4.65	66.84	16.35		150.0	
		Z	4.59	66.64	16.13		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.82	67.00	16.30	0.00	150.0	± 9.6 %
		Y	4.83	67.19	16.48		150.0	
		Z	4.76	66.96	16.26		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.87	67.02	16.31	0.00	150.0	± 9.6 %
		Y	4.87	67.22	16.49		150.0	
		Z	4.81	67.00	16.28		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.65	66.74	16.20	0.00	150.0	± 9.6 %
		Y	4.66	66.93	16.38		150.0	
		Z	4.59	66.71	16.15		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.84	67.02	16.31	0.00	150.0	± 9.6 %
		Y	4.85	67.22	16.49		150.0	
		Z	4.78	66.99	16.27		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.87	67.04	16.32	0.00	150.0	± 9.6 %
		Y	4.88	67.24	16.50		150.0	
		Z	4.81	67.01	16.29		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.60	66.74	16.16	0.00	150.0	± 9.6 %
		Y	4.61	66.94	16.34		150.0	
		Z	4.54	66.71	16.11		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.84	67.00	16.31	0.00	150.0	± 9.6 %
		Y	4.84	67.20	16.48		150.0	
		Z	4.77	66.96	16.26		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.88	66.97	16.31	0.00	150.0	± 9.6 %
		Y	4.89	67.16	16.49		150.0	
		Z	4.82	66.95	16.28		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.20	67.24	16.45	0.00	150.0	± 9.6 %
		Y	5.21	67.41	16.61		150.0	
		Z	5.15	67.17	16.40		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.54	67.51	16.61	0.00	150.0	± 9.6 %
		Y	5.54	67.65	16.76		150.0	
		Z	5.46	67.41	16.55		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.24	67.33	16.42	0.00	150.0	± 9.6 %
		Y	5.25	67.50	16.58		150.0	
		Z	5.19	67.27	16.38		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.89	66.01	15.34	0.00	150.0	± 9.6 %
		Y	2.91	66.41	15.64		150.0	
		Z	2.83	65.96	15.20		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	60.00	119.05	34.79	6.02	65.0	± 9.6 %
		Y	100.00	129.10	37.47		65.0	
		Z	33.08	108.86	32.05		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	44.36	111.89	32.33	6.02	65.0	± 9.6 %
		Y	77.77	122.52	35.25		65.0	
		Z	27.85	104.26	30.19		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	40.71	118.07	36.50	6.02	65.0	± 9.6 %
		Y	92.59	135.95	41.44		65.0	
		Z	26.22	109.78	34.13		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	54.96	117.26	34.24	6.02	65.0	± 9.6 %
		Y	100.00	128.91	37.35		65.0	
		Z	30.93	107.47	31.58		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	41.37	110.53	31.89	6.02	65.0	± 9.6 %
		Y	71.92	120.98	34.79		65.0	
		Z	26.25	103.12	29.80		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	37.97	116.54	36.00	6.02	65.0	± 9.6 %
		Y	84.76	133.97	40.88		65.0	
		Z	24.71	108.49	33.69		65.0	
10232-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	54.99	117.28	34.24	6.02	65.0	± 9.6 %
		Y	100.00	128.92	37.35		65.0	
		Z	30.92	107.48	31.58		65.0	
10233-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	41.40	110.55	31.90	6.02	65.0	± 9.6 %
		Y	72.14	121.04	34.81		65.0	
		Z	26.24	103.13	29.80		65.0	
10234-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	35.49	114.97	35.47	6.02	65.0	± 9.6 %
		Y	77.34	131.82	40.23		65.0	
		Z	23.39	107.20	33.21		65.0	
10235-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	55.28	117.39	34.27	6.02	65.0	± 9.6 %
		Y	100.00	128.93	37.36		65.0	
		Z	31.03	107.56	31.61		65.0	
10236-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	41.91	110.74	31.95	6.02	65.0	± 9.6 %
		Y	73.33	121.30	34.87		65.0	
		Z	26.52	103.28	29.84		65.0	
10237-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	38.41	116.80	36.08	6.02	65.0	± 9.6 %
		Y	86.80	134.49	41.01		65.0	
		Z	24.91	108.68	33.74		65.0	
10238-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	55.05	117.31	34.25	6.02	65.0	± 9.6 %
		Y	100.00	128.93	37.35		65.0	
		Z	30.91	107.49	31.58		65.0	

10239-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	41.42	110.58	31.91	6.02	65.0	± 9.6 %
		Y	72.33	121.11	34.83		65.0	
		Z	26.22	103.13	29.80		65.0	
10240-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	38.25	116.72	36.05	6.02	65.0	± 9.6 %
		Y	86.28	134.37	40.98		65.0	
		Z	24.82	108.62	33.73		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	12.92	88.42	28.30	6.98	65.0	± 9.6 %
		Y	14.47	91.50	29.64		65.0	
		Z	11.71	86.68	27.54		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	12.30	87.28	27.78	6.98	65.0	± 9.6 %
		Y	13.91	90.55	29.21		65.0	
		Z	10.78	84.84	26.74		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	9.57	83.58	27.27	6.98	65.0	± 9.6 %
		Y	10.70	86.76	28.80		65.0	
		Z	8.63	81.57	26.33		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	9.97	81.73	21.53	3.98	65.0	± 9.6 %
		Y	10.43	82.64	21.91		65.0	
		Z	8.76	79.58	20.36		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	9.75	81.12	21.26	3.98	65.0	± 9.6 %
		Y	10.17	81.97	21.61		65.0	
		Z	8.56	78.97	20.07		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	9.14	83.08	21.95	3.98	65.0	± 9.6 %
		Y	9.72	84.22	22.38		65.0	
		Z	8.89	82.67	21.56		65.0	
10247-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	7.53	77.68	20.47	3.98	65.0	± 9.6 %
		Y	7.73	78.28	20.74		65.0	
		Z	7.33	77.37	20.13		65.0	
10248-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	7.50	77.17	20.25	3.98	65.0	± 9.6 %
		Y	7.71	77.80	20.54		65.0	
		Z	7.27	76.81	19.89		65.0	
10249-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	10.17	85.08	23.35	3.98	65.0	± 9.6 %
		Y	10.94	86.52	23.90		65.0	
		Z	10.18	85.27	23.26		65.0	
10250-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.40	79.60	22.53	3.98	65.0	± 9.6 %
		Y	8.67	80.38	22.90		65.0	
		Z	8.32	79.67	22.46		65.0	
10251-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	7.96	77.51	21.40	3.98	65.0	± 9.6 %
		Y	8.23	78.35	21.83		65.0	
		Z	7.84	77.49	21.29		65.0	
10252-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	9.91	84.03	23.67	3.98	65.0	± 9.6 %
		Y	10.54	85.36	24.22		65.0	
		Z	9.99	84.47	23.78		65.0	
10253-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	7.87	76.54	21.30	3.98	65.0	± 9.6 %
		Y	8.11	77.33	21.72		65.0	
		Z	7.77	76.53	21.24		65.0	
10254-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.25	77.30	21.90	3.98	65.0	± 9.6 %
		Y	8.47	78.02	22.29		65.0	
		Z	8.16	77.35	21.86		65.0	

10255- CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	8.82	80.37	22.51	3.98	65.0	± 9.6 %
		Y	9.18	81.32	22.95		65.0	
		Z	8.82	80.67	22.60		65.0	
10256- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	8.67	79.06	19.69	3.98	65.0	± 9.6 %
		Y	9.00	79.76	19.98		65.0	
		Z	7.35	76.40	18.22		65.0	
10257- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	8.39	78.18	19.27	3.98	65.0	± 9.6 %
		Y	8.67	78.82	19.53		65.0	
		Z	7.11	75.57	17.80		65.0	
10258- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	7.67	79.80	20.11	3.98	65.0	± 9.6 %
		Y	7.97	80.50	20.36		65.0	
		Z	7.13	78.64	19.35		65.0	
10259- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	7.87	78.36	21.19	3.98	65.0	± 9.6 %
		Y	8.11	79.04	21.50		65.0	
		Z	7.72	78.21	20.96		65.0	
10260- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	7.88	78.07	21.09	3.98	65.0	± 9.6 %
		Y	8.10	78.72	21.39		65.0	
		Z	7.71	77.89	20.85		65.0	
10261- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	9.63	83.94	23.25	3.98	65.0	± 9.6 %
		Y	10.30	85.33	23.81		65.0	
		Z	9.64	84.17	23.22		65.0	
10262- CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.39	79.56	22.49	3.98	65.0	± 9.6 %
		Y	8.66	80.34	22.86		65.0	
		Z	8.31	79.62	22.42		65.0	
10263- CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	7.95	77.50	21.40	3.98	65.0	± 9.6 %
		Y	8.22	78.34	21.82		65.0	
		Z	7.83	77.47	21.29		65.0	
10264- CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	9.83	83.88	23.59	3.98	65.0	± 9.6 %
		Y	10.46	85.22	24.15		65.0	
		Z	9.91	84.30	23.70		65.0	
10265- CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.08	77.12	21.52	3.98	65.0	± 9.6 %
		Y	8.33	77.96	21.96		65.0	
		Z	7.95	77.09	21.47		65.0	
10266- CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.45	77.88	22.16	3.98	65.0	± 9.6 %
		Y	8.68	78.62	22.55		65.0	
		Z	8.36	77.93	22.14		65.0	
10267- CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.12	80.75	22.43	3.98	65.0	± 9.6 %
		Y	9.47	81.62	22.84		65.0	
		Z	9.12	81.04	22.54		65.0	
10268- CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.54	76.63	21.68	3.98	65.0	± 9.6 %
		Y	8.73	77.26	22.04		65.0	
		Z	8.44	76.63	21.67		65.0	
10269- CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.47	76.21	21.58	3.98	65.0	± 9.6 %
		Y	8.64	76.83	21.94		65.0	
		Z	8.37	76.22	21.56		65.0	
10270- CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.62	78.00	21.50	3.98	65.0	± 9.6 %
		Y	8.81	78.56	21.80		65.0	
		Z	8.57	78.16	21.57		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.63	66.22	15.16	0.00	150.0	± 9.6 %
		Y	2.68	66.76	15.56		150.0	
		Z	2.60	66.20	15.05		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.63	67.34	15.24	0.00	150.0	± 9.6 %
		Y	1.75	68.91	16.21		150.0	
		Z	1.59	67.10	15.04		150.0	
10277-CAA	PHS (QPSK)	X	5.23	69.17	13.58	9.03	50.0	± 9.6 %
		Y	5.23	69.14	13.54		50.0	
		Z	4.94	68.42	12.95		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	9.44	80.92	21.03	9.03	50.0	± 9.6 %
		Y	9.27	80.52	20.82		50.0	
		Z	8.80	79.60	20.21		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	9.60	81.11	21.12	9.03	50.0	± 9.6 %
		Y	9.45	80.75	20.93		50.0	
		Z	8.93	79.76	20.30		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.49	68.14	14.07	0.00	150.0	± 9.6 %
		Y	1.71	70.53	15.29		150.0	
		Z	1.38	67.47	13.43		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.87	65.35	12.59	0.00	150.0	± 9.6 %
		Y	0.98	67.67	13.90		150.0	
		Z	0.81	64.81	11.96		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.01	68.28	14.43	0.00	150.0	± 9.6 %
		Y	1.28	72.37	16.47		150.0	
		Z	0.94	67.61	13.77		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.31	72.09	16.62	0.00	150.0	± 9.6 %
		Y	1.86	78.07	19.28		150.0	
		Z	1.24	71.48	16.00		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	11.68	86.43	25.21	9.03	50.0	± 9.6 %
		Y	12.34	87.51	25.61		50.0	
		Z	12.30	87.31	25.27		50.0	
10297-AAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.80	69.32	16.34	0.00	150.0	± 9.6 %
		Y	2.92	70.37	16.97		150.0	
		Z	2.72	69.08	16.22		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.65	67.43	14.29	0.00	150.0	± 9.6 %
		Y	1.78	69.00	15.16		150.0	
		Z	1.54	66.87	13.72		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	3.71	73.80	16.79	0.00	150.0	± 9.6 %
		Y	4.50	76.98	18.19		150.0	
		Z	2.80	70.24	14.88		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	2.66	68.22	13.61	0.00	150.0	± 9.6 %
		Y	2.97	70.07	14.57		150.0	
		Z	2.16	65.95	12.13		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.56	67.67	18.53	4.17	80.0	± 9.6 %
		Y	5.78	68.72	19.18		80.0	
		Z	5.51	67.68	18.44		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.08	68.43	19.36	4.96	80.0	± 9.6 %
		Y	6.31	69.64	20.14		80.0	
		Z	6.00	68.40	19.26		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	5.91	68.44	19.38	4.96	80.0	± 9.6 %
		Y	6.17	69.77	20.23		80.0	
		Z	5.83	68.37	19.25		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.57	67.76	18.57	4.17	80.0	± 9.6 %
		Y	5.77	68.85	19.27		80.0	
		Z	5.49	67.73	18.47		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	7.72	78.82	24.99	6.02	50.0	± 9.6 %
		Y	9.80	85.05	27.90		50.0	
		Z	7.68	78.78	24.73		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	6.19	70.81	21.17	6.02	50.0	± 9.6 %
		Y	6.78	73.45	22.69		50.0	
		Z	6.09	70.68	20.96		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	6.23	71.39	21.28	6.02	50.0	± 9.6 %
		Y	6.93	74.34	22.91		50.0	
		Z	6.66	74.17	22.78		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	6.84	74.87	23.29	6.02	50.0	± 9.6 %
		Y	7.04	74.94	23.20		50.0	
		Z	6.77	74.83	23.10		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	6.29	71.13	21.36	6.02	50.0	± 9.6 %
		Y	6.92	73.87	22.92		50.0	
		Z	6.18	70.98	21.13		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	6.19	71.01	21.18	6.02	50.0	± 9.6 %
		Y	6.82	73.78	22.75		50.0	
		Z	6.55	73.55	22.58		50.0	
10311-AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.15	68.64	16.01	0.00	150.0	± 9.6 %
		Y	3.28	69.57	16.56		150.0	
		Z	3.07	68.40	15.89		150.0	
10313-AAA	iDEN 1:3	X	7.93	80.00	19.43	6.99	70.0	± 9.6 %
		Y	8.50	81.06	19.83		70.0	
		Z	7.91	80.08	19.40		70.0	
10314-AAA	iDEN 1:6	X	10.36	86.77	24.35	10.00	30.0	± 9.6 %
		Y	11.09	87.90	24.72		30.0	
		Z	10.57	87.37	24.52		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.16	64.08	15.18	0.17	150.0	± 9.6 %
		Y	1.19	64.95	15.92		150.0	
		Z	1.15	63.96	15.05		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.74	66.85	16.40	0.17	150.0	± 9.6 %
		Y	4.75	67.05	16.58		150.0	
		Z	4.69	66.84	16.36		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.74	66.85	16.40	0.17	150.0	± 9.6 %
		Y	4.75	67.05	16.58		150.0	
		Z	4.69	66.84	16.36		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.83	67.07	16.30	0.00	150.0	± 9.6 %
		Y	4.84	67.29	16.50		150.0	
		Z	4.76	67.04	16.26		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.51	67.29	16.49	0.00	150.0	± 9.6 %
		Y	5.53	67.49	16.67		150.0	
		Z	5.49	67.36	16.51		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.79	67.69	16.53	0.00	150.0	± 9.6 %
		Y	5.79	67.83	16.67		150.0	
		Z	5.72	67.60	16.48		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.49	68.14	14.07	0.00	115.0	± 9.6 %
		Y	1.71	70.53	15.29		115.0	
		Z	1.38	67.47	13.43		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.49	68.14	14.07	0.00	115.0	± 9.6 %
		Y	1.71	70.53	15.29		115.0	
		Z	1.38	67.47	13.43		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	122.23	31.08	0.00	100.0	± 9.6 %
		Y	100.00	122.94	31.38		100.0	
		Z	21.98	102.39	26.35		100.0	
10410-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.68	31.26	3.23	80.0	± 9.6 %
		Y	100.00	122.54	31.65		80.0	
		Z	100.00	121.97	31.19		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.03	62.73	14.35	0.00	150.0	± 9.6 %
		Y	1.04	63.46	15.05		150.0	
		Z	1.02	62.64	14.23		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.64	66.69	16.23	0.00	150.0	± 9.6 %
		Y	4.65	66.89	16.41		150.0	
		Z	4.59	66.68	16.20		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.64	66.69	16.23	0.00	150.0	± 9.6 %
		Y	4.65	66.89	16.41		150.0	
		Z	4.59	66.68	16.20		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.63	66.83	16.23	0.00	150.0	± 9.6 %
		Y	4.64	67.04	16.42		150.0	
		Z	4.58	66.82	16.21		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.65	66.79	16.24	0.00	150.0	± 9.6 %
		Y	4.66	66.99	16.43		150.0	
		Z	4.60	66.78	16.21		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.78	66.81	16.27	0.00	150.0	± 9.6 %
		Y	4.78	67.00	16.45		150.0	
		Z	4.72	66.79	16.24		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.96	67.16	16.40	0.00	150.0	± 9.6 %
		Y	4.97	67.35	16.58		150.0	
		Z	4.89	67.12	16.36		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.88	67.10	16.36	0.00	150.0	± 9.6 %
		Y	4.88	67.30	16.54		150.0	
		Z	4.81	67.07	16.33		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.49	67.52	16.59	0.00	150.0	± 9.6 %
		Y	5.50	67.70	16.76		150.0	
		Z	5.44	67.51	16.58		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.49	67.54	16.59	0.00	150.0	± 9.6 %
		Y	5.50	67.71	16.76		150.0	
		Z	5.45	67.53	16.59		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.50	67.50	16.57	0.00	150.0	± 9.6 %
		Y	5.51	67.67	16.73		150.0	
		Z	5.45	67.48	16.56		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.25	70.00	17.85	0.00	150.0	± 9.6 %
		Y	4.23	70.09	17.93		150.0	
		Z	4.19	70.14	17.80		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.34	67.20	16.23	0.00	150.0	± 9.6 %
		Y	4.36	67.46	16.45		150.0	
		Z	4.27	67.18	16.16		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.64	67.12	16.31	0.00	150.0	± 9.6 %
		Y	4.65	67.34	16.50		150.0	
		Z	4.57	67.09	16.26		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.89	67.13	16.38	0.00	150.0	± 9.6 %
		Y	4.90	67.33	16.56		150.0	
		Z	4.82	67.10	16.34		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.31	70.67	17.79	0.00	150.0	± 9.6 %
		Y	4.30	70.79	17.87		150.0	
		Z	4.25	70.82	17.71		150.0	
10435-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.51	31.18	3.23	80.0	± 9.6 %
		Y	100.00	122.37	31.57		80.0	
		Z	100.00	121.79	31.11		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.63	67.13	15.60	0.00	150.0	± 9.6 %
		Y	3.66	67.50	15.86		150.0	
		Z	3.54	67.07	15.44		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.17	66.96	16.08	0.00	150.0	± 9.6 %
		Y	4.19	67.23	16.30		150.0	
		Z	4.10	66.94	16.02		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.44	66.92	16.19	0.00	150.0	± 9.6 %
		Y	4.45	67.15	16.39		150.0	
		Z	4.38	66.90	16.14		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.63	66.87	16.23	0.00	150.0	± 9.6 %
		Y	4.64	67.08	16.41		150.0	
		Z	4.58	66.85	16.19		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.53	67.33	15.28	0.00	150.0	± 9.6 %
		Y	3.57	67.74	15.55		150.0	
		Z	3.43	67.21	15.05		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.35	68.11	16.76	0.00	150.0	± 9.6 %
		Y	6.36	68.24	16.90		150.0	
		Z	6.31	68.06	16.74		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.86	65.32	15.94	0.00	150.0	± 9.6 %
		Y	3.86	65.52	16.13		150.0	
		Z	3.83	65.31	15.89		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.37	66.71	14.79	0.00	150.0	± 9.6 %
		Y	3.41	67.16	15.08		150.0	
		Z	3.26	66.61	14.51		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.52	65.23	15.77	0.00	150.0	± 9.6 %
		Y	4.60	65.75	16.11		150.0	
		Z	4.38	65.07	15.54		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.89	66.92	15.35	0.00	150.0	± 9.6 %
		Y	1.01	69.93	17.18		150.0	
		Z	0.86	66.57	15.06		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.62	33.15	3.29	80.0	± 9.6 %
		Y	100.00	127.39	33.94		80.0	
		Z	100.00	125.16	32.74		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.62	25.96	3.23	80.0	± 9.6 %
		Y	100.00	111.65	26.39		80.0	
		Z	84.76	108.06	25.05		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.62	24.51	3.23	80.0	± 9.6 %
		Y	100.00	108.53	24.89		80.0	
		Z	14.33	86.37	18.99		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.78	32.14	3.23	80.0	± 9.6 %
		Y	100.00	125.58	32.94		80.0	
		Z	100.00	123.19	31.67		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.13	25.71	3.23	80.0	± 9.6 %
		Y	100.00	111.18	26.15		80.0	
		Z	35.58	97.99	22.58		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	95.39	106.65	24.18	3.23	80.0	± 9.6 %
		Y	100.00	108.07	24.67		80.0	
		Z	9.21	81.47	17.50		80.0	
10467-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.99	32.23	3.23	80.0	± 9.6 %
		Y	100.00	125.80	33.04		80.0	
		Z	100.00	123.41	31.77		80.0	
10468-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.29	25.79	3.23	80.0	± 9.6 %
		Y	100.00	111.34	26.23		80.0	
		Z	43.78	100.42	23.20		80.0	
10469-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	99.99	107.17	24.29	3.23	80.0	± 9.6 %
		Y	100.00	108.09	24.67		80.0	
		Z	9.38	81.68	17.56		80.0	
10470-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	124.02	32.24	3.23	80.0	± 9.6 %
		Y	100.00	125.83	33.05		80.0	
		Z	100.00	123.44	31.77		80.0	
10471-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.24	25.76	3.23	80.0	± 9.6 %
		Y	100.00	111.29	26.20		80.0	
		Z	43.76	100.38	23.18		80.0	
10472-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.12	24.26	3.23	80.0	± 9.6 %
		Y	100.00	108.04	24.64		80.0	
		Z	9.36	81.64	17.53		80.0	
10473-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.99	32.23	3.23	80.0	± 9.6 %
		Y	100.00	125.81	33.03		80.0	
		Z	100.00	123.41	31.76		80.0	
10474-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.25	25.76	3.23	80.0	± 9.6 %
		Y	100.00	111.30	26.20		80.0	
		Z	42.90	100.17	23.13		80.0	
10475-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	99.25	107.05	24.25	3.23	80.0	± 9.6 %
		Y	100.00	108.06	24.65		80.0	
		Z	9.24	81.52	17.50		80.0	

10477-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.09	25.68	3.23	80.0	± 9.6 %
		Y	100.00	111.14	26.12		80.0	
		Z	37.23	98.47	22.68		80.0	
10478-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	95.92	106.64	24.15	3.23	80.0	± 9.6 %
		Y	100.00	108.00	24.62		80.0	
		Z	9.13	81.36	17.44		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	15.99	96.17	26.79	3.23	80.0	± 9.6 %
		Y	25.94	104.65	29.40		80.0	
		Z	12.83	92.51	25.34		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	19.48	93.48	24.25	3.23	80.0	± 9.6 %
		Y	30.64	100.38	26.28		80.0	
		Z	12.85	87.46	22.08		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	16.00	89.85	22.83	3.23	80.0	± 9.6 %
		Y	23.58	95.63	24.59		80.0	
		Z	10.55	84.00	20.64		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.04	76.94	19.04	2.23	80.0	± 9.6 %
		Y	6.02	79.79	20.13		80.0	
		Z	4.78	76.30	18.55		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	9.12	82.48	20.94	2.23	80.0	± 9.6 %
		Y	10.77	85.20	21.94		80.0	
		Z	6.99	78.47	19.09		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	8.29	80.89	20.40	2.23	80.0	± 9.6 %
		Y	9.58	83.28	21.31		80.0	
		Z	6.43	77.10	18.60		80.0	
10485-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.28	77.72	20.08	2.23	80.0	± 9.6 %
		Y	6.19	80.50	21.18		80.0	
		Z	5.13	77.51	19.85		80.0	
10486-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.51	72.42	17.68	2.23	80.0	± 9.6 %
		Y	4.81	73.61	18.21		80.0	
		Z	4.36	72.13	17.34		80.0	
10487-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.47	71.97	17.49	2.23	80.0	± 9.6 %
		Y	4.74	73.05	17.98		80.0	
		Z	4.32	71.65	17.14		80.0	
10488-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.28	76.23	20.05	2.23	80.0	± 9.6 %
		Y	5.88	78.28	20.95		80.0	
		Z	5.13	76.06	19.94		80.0	
10489-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.61	71.60	18.35	2.23	80.0	± 9.6 %
		Y	4.82	72.56	18.83		80.0	
		Z	4.51	71.52	18.23		80.0	
10490-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.69	71.33	18.26	2.23	80.0	± 9.6 %
		Y	4.87	72.22	18.72		80.0	
		Z	4.59	71.26	18.14		80.0	
10491-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.21	74.00	19.31	2.23	80.0	± 9.6 %
		Y	5.57	75.36	19.96		80.0	
		Z	5.08	73.85	19.24		80.0	
10492-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.87	70.59	18.20	2.23	80.0	± 9.6 %
		Y	5.02	71.33	18.60		80.0	
		Z	4.77	70.51	18.12		80.0	

10493-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.93	70.41	18.14	2.23	80.0	± 9.6 %
		Y	5.07	71.11	18.53		80.0	
		Z	4.83	70.34	18.06		80.0	
10494-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.74	75.68	19.79	2.23	80.0	± 9.6 %
		Y	6.23	77.26	20.51		80.0	
		Z	5.57	75.46	19.70		80.0	
10495-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.94	71.08	18.40	2.23	80.0	± 9.6 %
		Y	5.11	71.86	18.83		80.0	
		Z	4.84	70.96	18.32		80.0	
10496-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.99	70.71	18.29	2.23	80.0	± 9.6 %
		Y	5.14	71.42	18.69		80.0	
		Z	4.89	70.61	18.21		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.95	73.39	16.94	2.23	80.0	± 9.6 %
		Y	4.59	75.63	17.82		80.0	
		Z	3.56	72.03	16.04		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.99	67.14	13.42	2.23	80.0	± 9.6 %
		Y	3.17	68.04	13.81		80.0	
		Z	2.58	65.48	12.27		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.90	66.50	13.01	2.23	80.0	± 9.6 %
		Y	3.06	67.30	13.36		80.0	
		Z	2.49	64.82	11.82		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.14	76.64	19.91	2.23	80.0	± 9.6 %
		Y	5.86	79.02	20.91		80.0	
		Z	5.00	76.51	19.75		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.55	72.03	17.90	2.23	80.0	± 9.6 %
		Y	4.80	73.10	18.41		80.0	
		Z	4.43	71.87	17.67		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.59	71.80	17.77	2.23	80.0	± 9.6 %
		Y	4.83	72.81	18.25		80.0	
		Z	4.47	71.64	17.53		80.0	
10503-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.22	76.03	19.96	2.23	80.0	± 9.6 %
		Y	5.81	78.08	20.86		80.0	
		Z	5.07	75.86	19.85		80.0	
10504-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.59	71.52	18.30	2.23	80.0	± 9.6 %
		Y	4.80	72.48	18.79		80.0	
		Z	4.49	71.43	18.18		80.0	
10505-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.66	71.24	18.21	2.23	80.0	± 9.6 %
		Y	4.85	72.13	18.67		80.0	
		Z	4.56	71.17	18.09		80.0	
10506-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.69	75.54	19.72	2.23	80.0	± 9.6 %
		Y	6.18	77.12	20.44		80.0	
		Z	5.52	75.31	19.63		80.0	
10507-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.93	71.03	18.37	2.23	80.0	± 9.6 %
		Y	5.09	71.81	18.80		80.0	
		Z	4.82	70.90	18.29		80.0	

10508-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.98	70.65	18.25	2.23	80.0	± 9.6 %
		Y	5.12	71.36	18.65		80.0	
		Z	4.87	70.54	18.17		80.0	
10509-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.75	73.61	18.99	2.23	80.0	± 9.6 %
		Y	6.04	74.62	19.49		80.0	
		Z	5.61	73.42	18.92		80.0	
10510-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.37	70.52	18.25	2.23	80.0	± 9.6 %
		Y	5.50	71.12	18.60		80.0	
		Z	5.26	70.38	18.18		80.0	
10511-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.39	70.20	18.16	2.23	80.0	± 9.6 %
		Y	5.51	70.76	18.50		80.0	
		Z	5.29	70.08	18.10		80.0	
10512-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.17	75.45	19.55	2.23	80.0	± 9.6 %
		Y	6.61	76.77	20.16		80.0	
		Z	5.99	75.18	19.45		80.0	
10513-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.29	70.93	18.40	2.23	80.0	± 9.6 %
		Y	5.44	71.61	18.78		80.0	
		Z	5.18	70.76	18.31		80.0	
10514-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.26	70.42	18.25	2.23	80.0	± 9.6 %
		Y	5.39	71.03	18.61		80.0	
		Z	5.16	70.27	18.17		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.99	62.88	14.39	0.00	150.0	± 9.6 %
		Y	1.01	63.69	15.14		150.0	
		Z	0.98	62.78	14.25		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.57	67.90	15.77	0.00	150.0	± 9.6 %
		Y	0.79	74.76	19.51		150.0	
		Z	0.54	67.33	15.34		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.83	64.48	14.80	0.00	150.0	± 9.6 %
		Y	0.88	66.11	16.05		150.0	
		Z	0.82	64.26	14.59		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.64	66.76	16.21	0.00	150.0	± 9.6 %
		Y	4.64	66.97	16.39		150.0	
		Z	4.58	66.75	16.17		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.84	67.04	16.35	0.00	150.0	± 9.6 %
		Y	4.85	67.24	16.53		150.0	
		Z	4.77	67.00	16.30		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.69	67.00	16.26	0.00	150.0	± 9.6 %
		Y	4.70	67.20	16.45		150.0	
		Z	4.62	66.95	16.22		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.62	66.99	16.24	0.00	150.0	± 9.6 %
		Y	4.63	67.20	16.43		150.0	
		Z	4.55	66.94	16.20		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.67	67.03	16.31	0.00	150.0	± 9.6 %
		Y	4.69	67.25	16.50		150.0	
		Z	4.61	67.03	16.28		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.55	66.89	16.15	0.00	150.0	± 9.6 %
		Y	4.56	67.11	16.34		150.0	
		Z	4.49	66.88	16.12		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.62	66.97	16.28	0.00	150.0	± 9.6 %
		Y	4.63	67.19	16.48		150.0	
		Z	4.56	66.95	16.25		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.59	65.99	15.86	0.00	150.0	± 9.6 %
		Y	4.60	66.20	16.05		150.0	
		Z	4.54	65.98	15.83		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.77	66.38	16.01	0.00	150.0	± 9.6 %
		Y	4.79	66.60	16.20		150.0	
		Z	4.71	66.35	15.98		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.69	66.34	15.95	0.00	150.0	± 9.6 %
		Y	4.71	66.56	16.15		150.0	
		Z	4.63	66.30	15.91		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.71	66.36	15.99	0.00	150.0	± 9.6 %
		Y	4.72	66.58	16.18		150.0	
		Z	4.65	66.32	15.95		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.71	66.36	15.99	0.00	150.0	± 9.6 %
		Y	4.72	66.58	16.18		150.0	
		Z	4.65	66.32	15.95		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.71	66.48	16.01	0.00	150.0	± 9.6 %
		Y	4.73	66.71	16.20		150.0	
		Z	4.64	66.43	15.96		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.56	66.33	15.94	0.00	150.0	± 9.6 %
		Y	4.58	66.56	16.14		150.0	
		Z	4.50	66.27	15.89		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.72	66.39	15.97	0.00	150.0	± 9.6 %
		Y	4.73	66.61	16.16		150.0	
		Z	4.65	66.36	15.93		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.24	66.54	16.07	0.00	150.0	± 9.6 %
		Y	5.25	66.71	16.24		150.0	
		Z	5.19	66.49	16.04		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.31	66.70	16.14	0.00	150.0	± 9.6 %
		Y	5.33	66.88	16.31		150.0	
		Z	5.26	66.68	16.13		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.18	66.65	16.10	0.00	150.0	± 9.6 %
		Y	5.19	66.84	16.27		150.0	
		Z	5.12	66.60	16.07		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.24	66.63	16.10	0.00	150.0	± 9.6 %
		Y	5.25	66.81	16.26		150.0	
		Z	5.19	66.58	16.06		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.35	66.69	16.17	0.00	150.0	± 9.6 %
		Y	5.36	66.87	16.33		150.0	
		Z	5.28	66.62	16.12		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.26	66.66	16.17	0.00	150.0	± 9.6 %
		Y	5.27	66.85	16.34		150.0	
		Z	5.21	66.63	16.14		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.23	66.53	16.10	0.00	150.0	± 9.6 %
		Y	5.24	66.71	16.26		150.0	
		Z	5.18	66.49	16.06		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.39	66.62	16.16	0.00	150.0	± 9.6 %
		Y	5.40	66.79	16.32		150.0	
		Z	5.34	66.57	16.12		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.48	66.66	16.19	0.00	150.0	± 9.6 %
		Y	5.49	66.83	16.36		150.0	
		Z	5.42	66.63	16.18		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.54	66.65	16.07	0.00	150.0	± 9.6 %
		Y	5.55	66.80	16.22		150.0	
		Z	5.50	66.61	16.04		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.76	67.11	16.24	0.00	150.0	± 9.6 %
		Y	5.77	67.28	16.40		150.0	
		Z	5.71	67.07	16.23		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.63	66.91	16.16	0.00	150.0	± 9.6 %
		Y	5.64	67.07	16.32		150.0	
		Z	5.57	66.84	16.12		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.72	67.00	16.20	0.00	150.0	± 9.6 %
		Y	5.72	67.16	16.35		150.0	
		Z	5.65	66.88	16.14		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.07	68.22	16.78	0.00	150.0	± 9.6 %
		Y	6.08	68.42	16.96		150.0	
		Z	5.98	68.06	16.70		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.65	66.89	16.16	0.00	150.0	± 9.6 %
		Y	5.66	67.05	16.31		150.0	
		Z	5.60	66.86	16.14		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.65	66.93	16.14	0.00	150.0	± 9.6 %
		Y	5.66	67.09	16.29		150.0	
		Z	5.60	66.87	16.11		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.56	66.71	16.04	0.00	150.0	± 9.6 %
		Y	5.57	66.86	16.19		150.0	
		Z	5.51	66.66	16.01		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.65	66.77	16.10	0.00	150.0	± 9.6 %
		Y	5.66	66.92	16.25		150.0	
		Z	5.60	66.70	16.07		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.95	67.04	16.18	0.00	150.0	± 9.6 %
		Y	5.96	67.19	16.31		150.0	
		Z	5.91	66.99	16.15		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.09	67.37	16.32	0.00	150.0	± 9.6 %
		Y	6.11	67.53	16.46		150.0	
		Z	6.05	67.32	16.29		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.11	67.40	16.33	0.00	150.0	± 9.6 %
		Y	6.12	67.56	16.47		150.0	
		Z	6.07	67.36	16.30		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.08	67.33	16.31	0.00	150.0	± 9.6 %
		Y	6.09	67.48	16.45		150.0	
		Z	6.03	67.26	16.27		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.14	67.52	16.42	0.00	150.0	± 9.6 %
		Y	6.15	67.67	16.56		150.0	
		Z	6.09	67.43	16.37		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.13	67.34	16.37	0.00	150.0	± 9.6 %
		Y	6.14	67.49	16.51		150.0	
		Z	6.07	67.26	16.33		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.05	67.31	16.39	0.00	150.0	± 9.6 %
		Y	6.06	67.47	16.54		150.0	
		Z	6.00	67.24	16.36		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.21	67.80	16.64	0.00	150.0	± 9.6 %
		Y	6.22	67.97	16.79		150.0	
		Z	6.14	67.67	16.57		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.60	68.52	16.95	0.00	150.0	± 9.6 %
		Y	6.61	68.70	17.11		150.0	
		Z	6.44	68.18	16.78		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.98	66.92	16.42	0.46	150.0	± 9.6 %
		Y	4.99	67.12	16.60		150.0	
		Z	4.93	66.90	16.38		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.22	67.37	16.73	0.46	150.0	± 9.6 %
		Y	5.23	67.55	16.90		150.0	
		Z	5.16	67.34	16.69		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.06	67.23	16.56	0.46	150.0	± 9.6 %
		Y	5.06	67.43	16.74		150.0	
		Z	4.99	67.19	16.51		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.08	67.57	16.87	0.46	150.0	± 9.6 %
		Y	5.08	67.74	17.03		150.0	
		Z	5.01	67.53	16.84		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.98	67.03	16.35	0.46	150.0	± 9.6 %
		Y	4.99	67.26	16.56		150.0	
		Z	4.91	67.01	16.31		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.02	67.62	16.91	0.46	150.0	± 9.6 %
		Y	5.03	67.78	17.06		150.0	
		Z	4.97	67.61	16.89		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.07	67.49	16.86	0.46	150.0	± 9.6 %
		Y	5.07	67.68	17.03		150.0	
		Z	5.00	67.48	16.83		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.33	65.38	15.85	0.46	130.0	± 9.6 %
		Y	1.37	66.42	16.66		130.0	
		Z	1.31	65.23	15.71		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.35	65.94	16.19	0.46	130.0	± 9.6 %
		Y	1.40	67.08	17.03		130.0	
		Z	1.33	65.79	16.04		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	2.45	84.59	22.30	0.46	130.0	± 9.6 %
		Y	10.53	109.30	30.18		130.0	
		Z	2.23	83.07	21.66		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.51	71.42	18.78	0.46	130.0	± 9.6 %
		Y	1.69	74.14	20.31		130.0	
		Z	1.47	71.09	18.56		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.80	66.79	16.52	0.46	130.0	± 9.6 %
		Y	4.80	66.99	16.70		130.0	
		Z	4.74	66.78	16.48		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.82	66.93	16.57	0.46	130.0	± 9.6 %
		Y	4.83	67.13	16.75		130.0	
		Z	4.77	66.93	16.54		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.04	67.25	16.75	0.46	130.0	± 9.6 %
		Y	5.04	67.43	16.92		130.0	
		Z	4.97	67.22	16.71		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.93	67.39	16.83	0.46	130.0	± 9.6 %
		Y	4.93	67.57	17.00		130.0	
		Z	4.87	67.36	16.79		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.71	66.78	16.21	0.46	130.0	± 9.6 %
		Y	4.73	67.02	16.43		130.0	
		Z	4.65	66.73	16.16		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.76	66.79	16.23	0.46	130.0	± 9.6 %
		Y	4.77	67.05	16.45		130.0	
		Z	4.69	66.76	16.18		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.83	67.44	16.78	0.46	130.0	± 9.6 %
		Y	4.84	67.63	16.95		130.0	
		Z	4.77	67.41	16.74		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.66	66.56	16.03	0.46	130.0	± 9.6 %
		Y	4.68	66.83	16.26		130.0	
		Z	4.59	66.51	15.97		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.80	66.79	16.52	0.46	130.0	± 9.6 %
		Y	4.80	66.99	16.70		130.0	
		Z	4.74	66.78	16.48		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.82	66.93	16.57	0.46	130.0	± 9.6 %
		Y	4.83	67.13	16.75		130.0	
		Z	4.77	66.93	16.54		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.04	67.25	16.75	0.46	130.0	± 9.6 %
		Y	5.04	67.43	16.92		130.0	
		Z	4.97	67.22	16.71		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.93	67.39	16.83	0.46	130.0	± 9.6 %
		Y	4.93	67.57	17.00		130.0	
		Z	4.87	67.36	16.79		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.71	66.78	16.21	0.46	130.0	± 9.6 %
		Y	4.73	67.02	16.43		130.0	
		Z	4.65	66.73	16.16		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.76	66.79	16.23	0.46	130.0	± 9.6 %
		Y	4.77	67.05	16.45		130.0	
		Z	4.69	66.76	16.18		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.83	67.44	16.78	0.46	130.0	± 9.6 %
		Y	4.84	67.63	16.95		130.0	
		Z	4.77	67.41	16.74		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.66	66.56	16.03	0.46	130.0	± 9.6 %
		Y	4.68	66.83	16.26		130.0	
		Z	4.59	66.51	15.97		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.94	66.84	16.61	0.46	130.0	± 9.6 %
		Y	4.95	67.02	16.78		130.0	
		Z	4.89	66.83	16.58		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.11	67.18	16.74	0.46	130.0	± 9.6 %
		Y	5.11	67.36	16.91		130.0	
		Z	5.05	67.16	16.71		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.04	67.12	16.64	0.46	130.0	± 9.6 %
		Y	5.04	67.31	16.81		130.0	
		Z	4.97	67.08	16.60		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.09	67.26	16.77	0.46	130.0	± 9.6 %
		Y	5.09	67.44	16.95		130.0	
		Z	5.02	67.24	16.74		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.06	67.23	16.68	0.46	130.0	± 9.6 %
		Y	5.07	67.42	16.86		130.0	
		Z	4.99	67.20	16.64		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.00	67.23	16.68	0.46	130.0	± 9.6 %
		Y	5.01	67.44	16.87		130.0	
		Z	4.93	67.20	16.65		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.95	67.15	16.58	0.46	130.0	± 9.6 %
		Y	4.96	67.36	16.77		130.0	
		Z	4.88	67.11	16.54		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.92	67.37	16.82	0.46	130.0	± 9.6 %
		Y	4.93	67.55	16.99		130.0	
		Z	4.86	67.32	16.78		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.62	67.44	16.83	0.46	130.0	± 9.6 %
		Y	5.62	67.59	16.99		130.0	
		Z	5.57	67.41	16.81		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.83	68.08	17.13	0.46	130.0	± 9.6 %
		Y	5.83	68.26	17.31		130.0	
		Z	5.75	67.98	17.08		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.67	67.70	16.95	0.46	130.0	± 9.6 %
		Y	5.68	67.87	17.12		130.0	
		Z	5.61	67.65	16.92		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.76	67.70	16.88	0.46	130.0	± 9.6 %
		Y	5.77	67.88	17.05		130.0	
		Z	5.71	67.69	16.87		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.83	67.96	17.13	0.46	130.0	± 9.6 %
		Y	5.84	68.14	17.30		130.0	
		Z	5.78	67.93	17.11		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.62	67.40	16.84	0.46	130.0	± 9.6 %
		Y	5.63	67.56	17.00		130.0	
		Z	5.57	67.37	16.81		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.75	67.79	17.04	0.46	130.0	± 9.6 %
		Y	5.76	67.98	17.22		130.0	
		Z	5.71	67.80	17.04		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.50	67.17	16.59	0.46	130.0	± 9.6 %
		Y	5.51	67.36	16.78		130.0	
		Z	5.45	67.15	16.57		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.77	66.11	16.20	0.46	130.0	± 9.6 %
		Y	4.78	66.31	16.38		130.0	
		Z	4.72	66.10	16.17		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.97	66.53	16.37	0.46	130.0	± 9.6 %
		Y	4.98	66.73	16.55		130.0	
		Z	4.91	66.51	16.34		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.86	66.39	16.22	0.46	130.0	± 9.6 %
		Y	4.87	66.61	16.41		130.0	
		Z	4.80	66.37	16.19		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.91	66.54	16.37	0.46	130.0	± 9.6 %
		Y	4.92	66.75	16.55		130.0	
		Z	4.85	66.52	16.34		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.83	66.37	16.24	0.46	130.0	± 9.6 %
		Y	4.84	66.58	16.42		130.0	
		Z	4.77	66.34	16.20		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.85	66.53	16.28	0.46	130.0	± 9.6 %
		Y	4.86	66.77	16.48		130.0	
		Z	4.78	66.50	16.25		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.86	66.45	16.19	0.46	130.0	± 9.6 %
		Y	4.87	66.68	16.39		130.0	
		Z	4.79	66.40	16.14		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.79	66.59	16.39	0.46	130.0	± 9.6 %
		Y	4.80	66.80	16.57		130.0	
		Z	4.72	66.55	16.34		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.84	66.22	16.03	0.46	130.0	± 9.6 %
		Y	4.85	66.46	16.24		130.0	
		Z	4.77	66.19	15.99		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.43	66.66	16.42	0.46	130.0	± 9.6 %
		Y	5.44	66.83	16.58		130.0	
		Z	5.38	66.62	16.39		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.49	66.80	16.46	0.46	130.0	± 9.6 %
		Y	5.50	66.99	16.63		130.0	
		Z	5.45	66.83	16.47		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.38	66.84	16.49	0.46	130.0	± 9.6 %
		Y	5.39	67.01	16.65		130.0	
		Z	5.33	66.80	16.47		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.41	66.69	16.36	0.46	130.0	± 9.6 %
		Y	5.42	66.88	16.53		130.0	
		Z	5.36	66.66	16.34		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.51	66.76	16.45	0.46	130.0	± 9.6 %
		Y	5.52	66.94	16.61		130.0	
		Z	5.45	66.69	16.40		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.49	66.80	16.57	0.46	130.0	± 9.6 %
		Y	5.49	66.95	16.72		130.0	
		Z	5.43	66.76	16.55		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.50	66.97	16.65	0.46	130.0	± 9.6 %
		Y	5.51	67.14	16.81		130.0	
		Z	5.46	66.96	16.64		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.38	66.52	16.31	0.46	130.0	± 9.6 %
		Y	5.39	66.70	16.48		130.0	
		Z	5.33	66.49	16.29		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.58	66.73	16.48	0.46	130.0	± 9.6 %
		Y	5.59	66.90	16.64		130.0	
		Z	5.52	66.69	16.46		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.03	67.94	17.14	0.46	130.0	± 9.6 %
		Y	6.04	68.15	17.32		130.0	
		Z	5.94	67.84	17.08		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.70	66.70	16.37	0.46	130.0	± 9.6 %
		Y	5.71	66.85	16.51		130.0	
		Z	5.66	66.67	16.35		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.98	67.34	16.65	0.46	130.0	± 9.6 %
		Y	5.99	67.51	16.80		130.0	
		Z	5.93	67.32	16.64		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.76	66.88	16.35	0.46	130.0	± 9.6 %
		Y	5.78	67.04	16.51		130.0	
		Z	5.72	66.82	16.32		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.85	66.94	16.38	0.46	130.0	± 9.6 %
		Y	5.86	67.11	16.54		130.0	
		Z	5.81	66.93	16.37		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.47	68.96	17.39	0.46	130.0	± 9.6 %
		Y	6.50	69.20	17.59		130.0	
		Z	6.37	68.78	17.30		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.25	68.39	17.28	0.46	130.0	± 9.6 %
		Y	6.25	68.53	17.42		130.0	
		Z	6.15	68.22	17.20		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.93	67.33	16.77	0.46	130.0	± 9.6 %
		Y	5.93	67.47	16.90		130.0	
		Z	5.89	67.32	16.77		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.83	67.02	16.45	0.46	130.0	± 9.6 %
		Y	5.83	67.17	16.59		130.0	
		Z	5.76	66.93	16.40		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.80	67.01	16.50	0.46	130.0	± 9.6 %
		Y	5.81	67.15	16.64		130.0	
		Z	5.75	66.94	16.47		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.71	66.44	15.97	0.46	130.0	± 9.6 %
		Y	5.72	66.63	16.15		130.0	
		Z	5.64	66.35	15.92		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.12	67.11	16.48	0.46	130.0	± 9.6 %
		Y	6.13	67.25	16.62		130.0	
		Z	6.09	67.07	16.46		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.30	67.52	16.67	0.46	130.0	± 9.6 %
		Y	6.31	67.68	16.81		130.0	
		Z	6.26	67.49	16.65		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.30	67.50	16.63	0.46	130.0	± 9.6 %
		Y	6.31	67.65	16.78		130.0	
		Z	6.26	67.46	16.61		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.28	67.46	16.65	0.46	130.0	± 9.6 %
		Y	6.28	67.59	16.79		130.0	
		Z	6.23	67.38	16.62		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.30	67.54	16.64	0.46	130.0	± 9.6 %
		Y	6.31	67.70	16.79		130.0	
		Z	6.24	67.43	16.59		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.31	67.32	16.55	0.46	130.0	± 9.6 %
		Y	6.32	67.48	16.70		130.0	
		Z	6.28	67.31	16.54		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.36	67.59	16.84	0.46	130.0	± 9.6 %
		Y	6.36	67.71	16.97		130.0	
		Z	6.31	67.52	16.81		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.20	67.31	16.61	0.46	130.0	± 9.6 %
		Y	6.21	67.47	16.77		130.0	
		Z	6.16	67.26	16.58		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.42	67.97	16.97	0.46	130.0	± 9.6 %
		Y	6.43	68.15	17.13		130.0	
		Z	6.34	67.82	16.88		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.93	69.02	17.44	0.46	130.0	± 9.6 %
		Y	6.97	69.27	17.65		130.0	
		Z	6.82	68.81	17.34		130.0	
10646-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	47.20	124.94	41.34	9.30	60.0	± 9.6 %
		Y	100.00	143.87	46.72		60.0	
		Z	42.87	123.31	40.85		60.0	
10647-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	47.80	126.16	41.84	9.30	60.0	± 9.6 %
		Y	100.00	144.94	47.17		60.0	
		Z	42.80	124.20	41.27		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.75	63.57	11.13	0.00	150.0	± 9.6 %
		Y	0.80	64.99	12.02		150.0	
		Z	0.70	63.11	10.54		150.0	

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



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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EX3-7308_Aug17**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:7308**

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**

*PM ✓
8/27/17*

Calibration date: **August 16, 2017**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by:	Name Leif Klysnar	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: August 16, 2017

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 _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization 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., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Probe EX3DV4

SN:7308

Manufactured: March 11, 2014
Calibrated: August 16, 2017

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7308

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.49	0.60	0.44	$\pm 10.1 \%$
DCP (mV) ^B	97.0	91.7	98.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	134.5	$\pm 3.3 \%$
		Y	0.0	0.0	1.0		130.8	
		Z	0.0	0.0	1.0		149.9	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 ms.V ⁻²	T2 ms.V ⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	T6
X	46.65	351.1	36.16	14.68	0.000	5.088	0.834	0.399	1.005
Y	52.88	402.1	36.74	19.55	0.309	5.100	0.477	0.605	1.007
Z	36.70	273.3	35.48	9.322	0.000	5.034	0.373	0.314	1.002

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

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E 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:7308

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
5250	35.9	4.71	5.25	5.25	5.25	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.83	4.83	4.83	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.11	5.11	5.11	0.40	1.80	± 13.1 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7308

Calibration Parameter Determined in Body Tissue Simulating Media

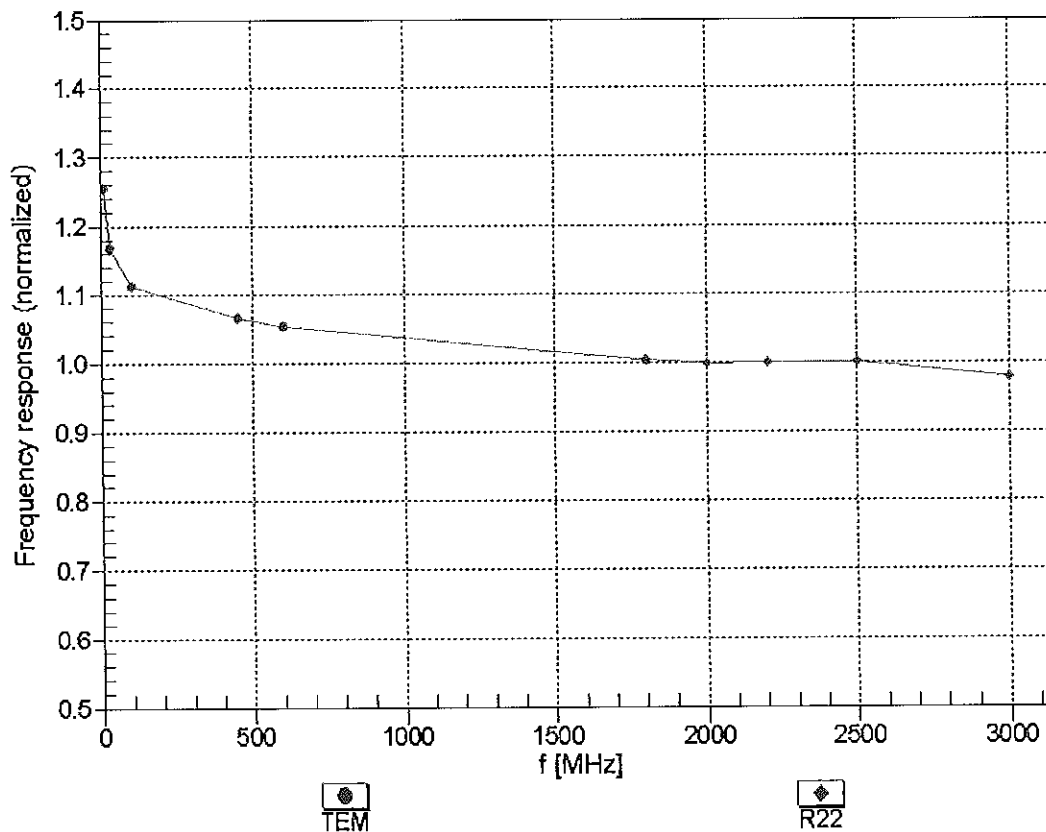
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	10.39	10.39	10.39	0.54	0.85	± 12.0 %
835	55.2	0.97	10.21	10.21	10.21	0.47	0.84	± 12.0 %
1750	53.4	1.49	8.24	8.24	8.24	0.41	0.84	± 12.0 %
1900	53.3	1.52	7.96	7.96	7.96	0.37	0.80	± 12.0 %
2300	52.9	1.81	7.77	7.77	7.77	0.39	0.86	± 12.0 %
2450	52.7	1.95	7.66	7.66	7.66	0.35	0.85	± 12.0 %
2600	52.5	2.16	7.46	7.46	7.46	0.31	0.95	± 12.0 %
5250	48.9	5.36	4.84	4.84	4.84	0.35	1.90	± 13.1 %
5600	48.5	5.77	4.23	4.23	4.23	0.40	1.90	± 13.1 %
5750	48.3	5.94	4.50	4.50	4.50	0.40	1.90	± 13.1 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) 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 (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

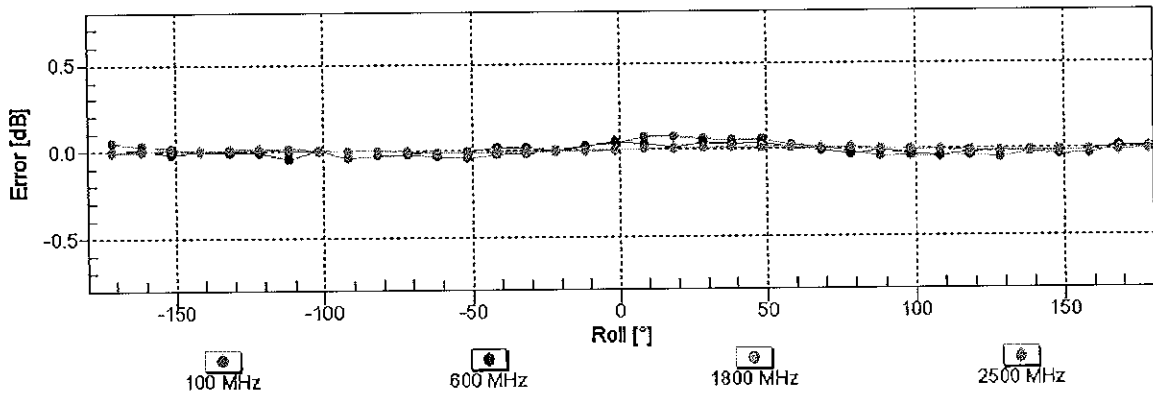
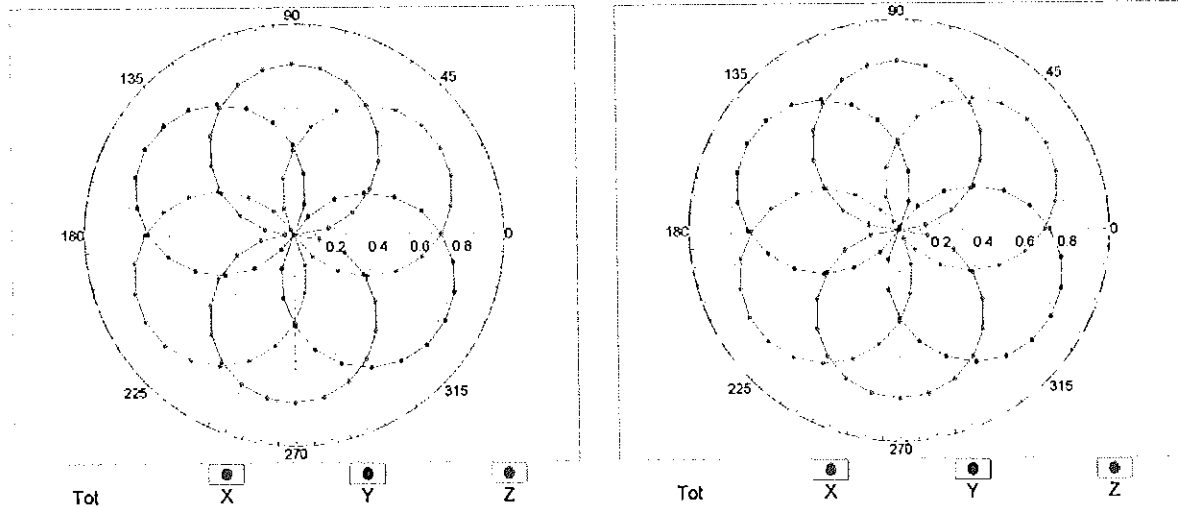


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

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

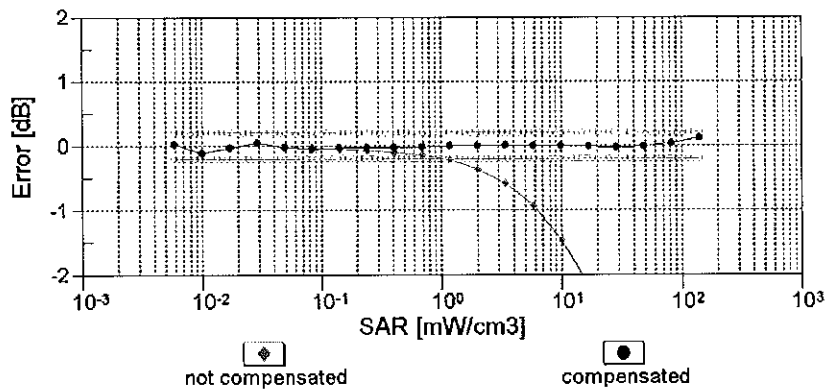
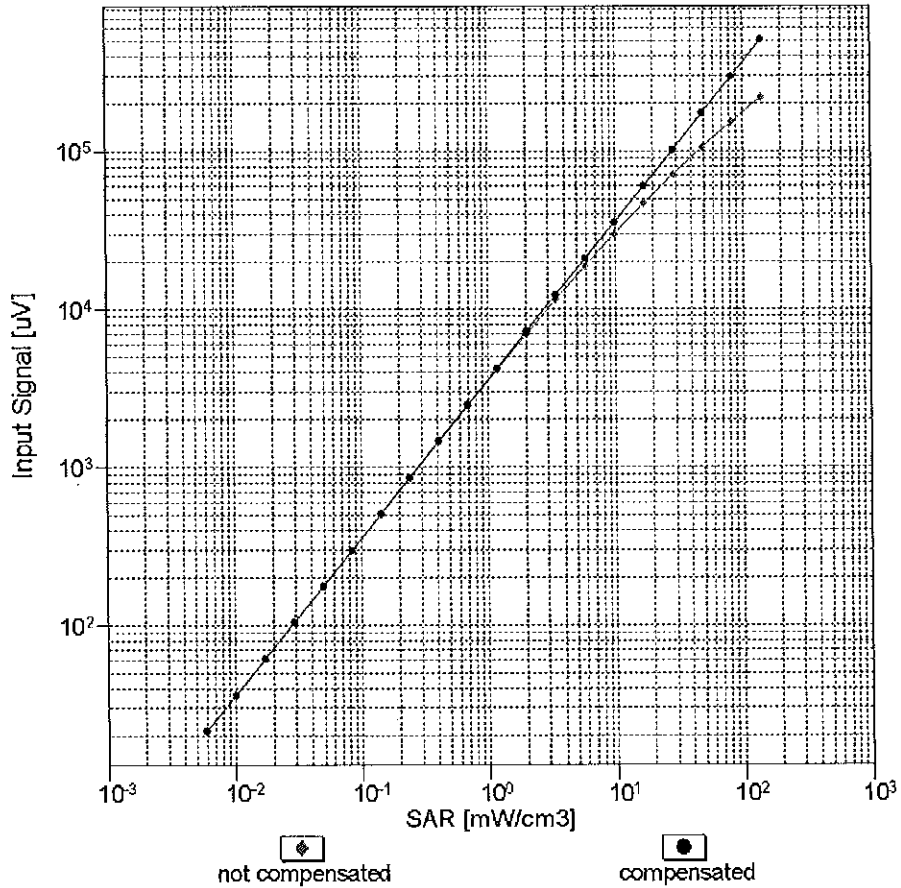
f=600 MHz,TEM

f=1800 MHz,R22



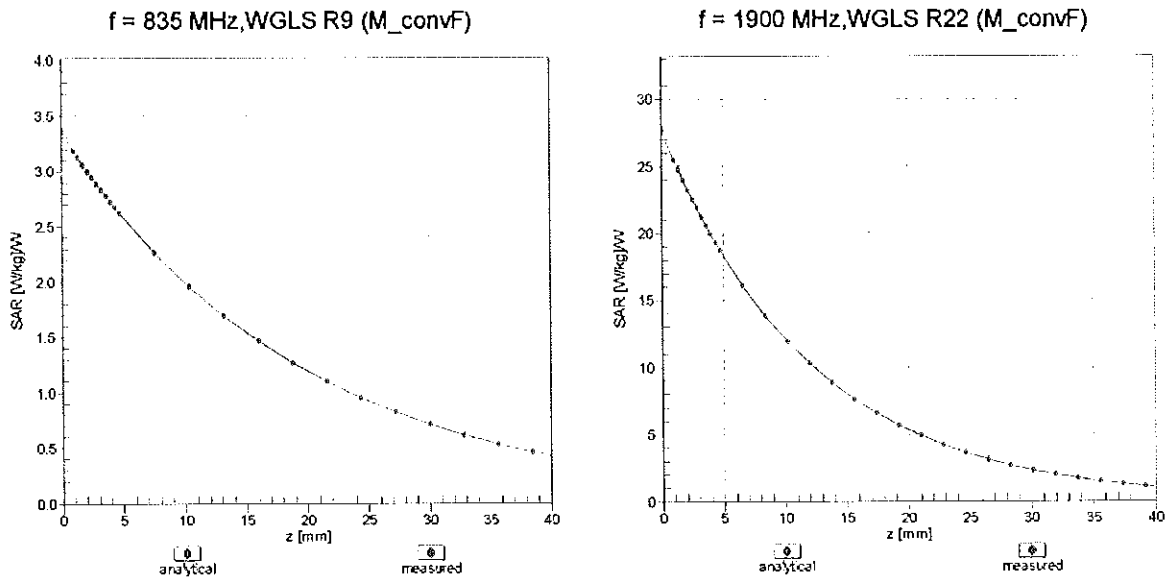
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

Dynamic Range $f(SAR_{head})$ (TEM cell , $f_{eval} = 1900$ MHz)

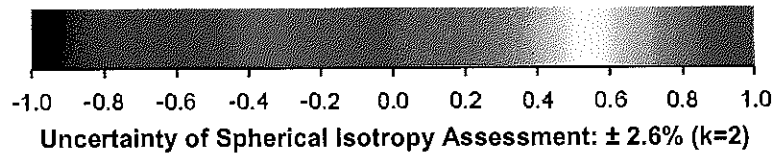
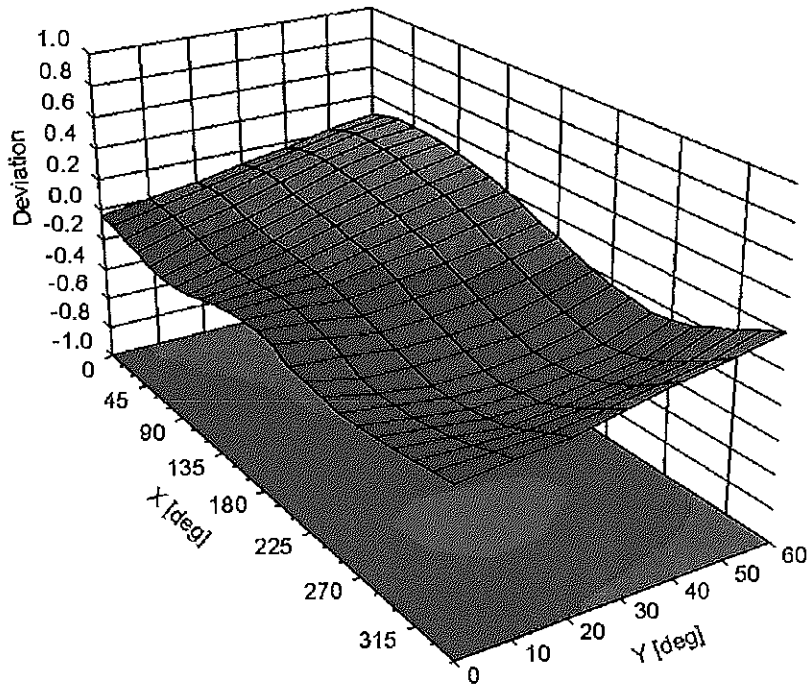


Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, θ), f = 900 MHz



DASY/EASY - Parameters of Probe: EX3DV4 - SN:7308

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	108.4
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 dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	134.5	$\pm 3.3\%$
		Y	0.00	0.00	1.00		130.8	
		Z	0.00	0.00	1.00		149.9	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	2.82	69.38	11.47	10.00	20.0	$\pm 9.6\%$
		Y	8.85	81.60	16.75		20.0	
		Z	1.57	63.55	8.34		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	1.10	68.34	15.94	0.00	150.0	$\pm 9.6\%$
		Y	1.03	66.61	14.91		150.0	
		Z	1.05	68.21	15.74		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.19	64.20	15.65	0.41	150.0	$\pm 9.6\%$
		Y	1.20	63.83	15.29		150.0	
		Z	1.16	63.91	15.33		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.89	66.77	17.26	1.46	150.0	$\pm 9.6\%$
		Y	4.97	66.66	17.21		150.0	
		Z	4.71	66.76	17.06		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	100.00	115.21	27.27	9.39	50.0	$\pm 9.6\%$
		Y	100.00	118.99	29.62		50.0	
		Z	100.00	108.16	23.75		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	114.49	26.98	9.57	50.0	$\pm 9.6\%$
		Y	100.00	118.59	29.46		50.0	
		Z	100.00	107.44	23.48		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	117.36	27.41	6.56	60.0	$\pm 9.6\%$
		Y	100.00	118.20	28.43		60.0	
		Z	100.00	109.72	23.49		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	9.43	102.43	43.37	12.57	50.0	$\pm 9.6\%$
		Y	5.76	81.81	33.21		50.0	
		Z	6.64	89.92	37.39		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	12.23	103.58	38.33	9.56	60.0	$\pm 9.6\%$
		Y	13.89	103.56	37.54		60.0	
		Z	6.87	89.09	32.73		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	121.12	28.38	4.80	80.0	$\pm 9.6\%$
		Y	100.00	119.35	28.26		80.0	
		Z	100.00	113.58	24.47		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	126.40	29.97	3.55	100.0	$\pm 9.6\%$
		Y	100.00	121.68	28.61		100.0	
		Z	100.00	119.83	26.46		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	6.36	85.88	30.18	7.80	80.0	$\pm 9.6\%$
		Y	7.77	88.44	30.64		80.0	
		Z	4.37	77.58	26.51		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	116.71	26.74	5.30	70.0	$\pm 9.6\%$
		Y	100.00	116.86	27.45		70.0	
		Z	100.00	108.46	22.53		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	130.68	30.26	1.88	100.0	$\pm 9.6\%$
		Y	100.00	122.76	27.68		100.0	
		Z	100.00	121.33	25.72		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	146.47	35.43	1.17	100.0	± 9.6 %
		Y	100.00	130.05	29.64		100.0	
		Z	100.00	142.38	32.95		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	100.00	133.81	36.67	5.30	70.0	± 9.6 %
		Y	100.00	132.56	36.57		70.0	
		Z	18.79	102.95	27.19		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	7.76	92.37	23.91	1.88	100.0	± 9.6 %
		Y	6.00	87.65	22.68		100.0	
		Z	3.22	78.87	18.00		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	3.37	81.04	19.87	1.17	100.0	± 9.6 %
		Y	2.89	77.85	18.94		100.0	
		Z	2.06	74.00	15.93		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	100.00	134.35	36.91	5.30	70.0	± 9.6 %
		Y	100.00	133.01	36.79		70.0	
		Z	38.41	113.99	30.14		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	6.72	90.40	23.29	1.88	100.0	± 9.6 %
		Y	5.52	86.51	22.28		100.0	
		Z	2.77	77.09	17.35		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	3.40	81.53	20.18	1.17	100.0	± 9.6 %
		Y	2.93	78.34	19.24		100.0	
		Z	2.07	74.35	16.21		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	2.05	73.74	16.48	0.00	150.0	± 9.6 %
		Y	1.78	70.97	15.59		150.0	
		Z	1.68	71.87	14.68		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	111.92	25.18	7.78	50.0	± 9.6 %
		Y	100.00	114.62	26.97		50.0	
		Z	100.00	105.38	21.87		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	97.13	0.41	0.00	150.0	± 9.6 %
		Y	0.00	93.19	1.28		150.0	
		Z	0.01	94.96	0.54		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	100.00	111.98	26.96	13.80	25.0	± 9.6 %
		Y	100.00	121.05	31.60		25.0	
		Z	34.07	91.91	20.28		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	1284.72	142.21	32.21	10.79	40.0	± 9.6 %
		Y	100.00	117.51	29.18		40.0	
		Z	145.96	109.32	23.74		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	100.00	128.20	35.15	9.03	50.0	± 9.6 %
		Y	100.00	128.83	35.96		50.0	
		Z	100.00	122.10	31.77		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.71	78.88	26.31	6.55	100.0	± 9.6 %
		Y	5.67	81.33	26.92		100.0	
		Z	3.54	73.15	23.60		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.24	65.47	16.42	0.61	110.0	± 9.6 %
		Y	1.27	65.23	16.10		110.0	
		Z	1.17	64.77	15.84		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	144.38	38.50	1.30	110.0	± 9.6 %
		Y	100.00	138.88	36.40		110.0	
		Z	13.09	112.30	30.84		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	4.05	88.33	25.97	2.04	110.0	± 9.6 %
		Y	4.75	88.86	25.68		110.0	
		Z	2.16	77.73	21.68		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.69	66.76	16.65	0.49	100.0	± 9.6 %
		Y	4.76	66.60	16.58		100.0	
		Z	4.53	66.78	16.51		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.71	66.86	16.76	0.72	100.0	± 9.6 %
		Y	4.78	66.72	16.70		100.0	
		Z	4.54	66.86	16.60		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.99	67.12	16.99	0.86	100.0	± 9.6 %
		Y	5.09	67.02	16.95		100.0	
		Z	4.78	67.06	16.80		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.86	67.02	17.11	1.21	100.0	± 9.6 %
		Y	4.96	66.95	17.08		100.0	
		Z	4.65	66.90	16.87		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.88	67.05	17.29	1.46	100.0	± 9.6 %
		Y	4.99	66.99	17.27		100.0	
		Z	4.65	66.88	17.02		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.16	67.22	17.75	2.04	100.0	± 9.6 %
		Y	5.27	67.12	17.71		100.0	
		Z	4.93	67.13	17.49		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.20	67.26	17.98	2.55	100.0	± 9.6 %
		Y	5.34	67.28	18.00		100.0	
		Z	4.95	67.02	17.64		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.28	67.26	18.18	2.67	100.0	± 9.6 %
		Y	5.42	67.23	18.17		100.0	
		Z	5.02	67.05	17.83		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.98	66.86	17.58	1.99	100.0	± 9.6 %
		Y	5.07	66.77	17.55		100.0	
		Z	4.79	66.80	17.35		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.95	67.19	17.81	2.30	100.0	± 9.6 %
		Y	5.06	67.16	17.80		100.0	
		Z	4.74	67.03	17.53		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.00	67.34	18.16	2.83	100.0	± 9.6 %
		Y	5.12	67.33	18.16		100.0	
		Z	4.79	67.17	17.85		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.97	67.20	18.31	3.30	100.0	± 9.6 %
		Y	5.10	67.22	18.33		100.0	
		Z	4.78	67.07	17.99		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.00	67.30	18.63	3.82	90.0	± 9.6 %
		Y	5.15	67.40	18.70		90.0	
		Z	4.78	67.05	18.23		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.00	67.05	18.74	4.15	90.0	± 9.6 %
		Y	5.14	67.12	18.78		90.0	
		Z	4.81	66.90	18.39		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.02	67.11	18.84	4.30	90.0	± 9.6 %
		Y	5.16	67.16	18.87		90.0	
		Z	4.84	66.97	18.50		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.91	67.10	13.23	0.00	150.0	± 9.6 %
		Y	0.87	65.55	12.69		150.0	
		Z	0.76	65.80	11.60		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.67	60.00	4.34	4.77	80.0	± 9.6 %
		Y	0.83	60.00	4.98		80.0	
		Z	1.32	62.68	4.53		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	117.37	27.43	6.56	60.0	± 9.6 %
		Y	100.00	118.23	28.46		60.0	
		Z	100.00	109.70	23.50		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.89	68.18	16.03	0.00	150.0	± 9.6 %
		Y	1.82	67.06	15.47		150.0	
		Z	1.87	68.73	15.97		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.85	68.15	16.01	0.00	150.0	± 9.6 %
		Y	1.78	67.01	15.43		150.0	
		Z	1.83	68.68	15.95		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	12.41	103.93	38.44	9.56	60.0	± 9.6 %
		Y	14.05	103.81	37.62		60.0	
		Z	6.94	89.30	32.81		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.20	70.68	16.98	0.00	150.0	± 9.6 %
		Y	3.15	69.96	16.53		150.0	
		Z	3.05	70.44	16.91		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.27	67.67	16.10	0.00	150.0	± 9.6 %
		Y	3.29	67.34	15.87		150.0	
		Z	3.15	67.56	16.02		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.37	67.61	16.17	0.00	150.0	± 9.6 %
		Y	3.39	67.30	15.96		150.0	
		Z	3.26	67.54	16.10		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.70	77.76	21.71	3.98	65.0	± 9.6 %
		Y	7.25	78.01	21.66		65.0	
		Z	5.31	74.49	20.24		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	6.39	74.88	21.30	3.98	65.0	± 9.6 %
		Y	7.01	75.63	21.49		65.0	
		Z	5.41	72.53	20.08		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.93	73.22	20.87	3.98	65.0	± 9.6 %
		Y	6.37	73.62	20.93		65.0	
		Z	4.98	70.66	19.52		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.79	69.92	16.81	0.00	150.0	± 9.6 %
		Y	2.76	69.17	16.35		150.0	
		Z	2.63	69.76	16.75		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.93	67.55	16.01	0.00	150.0	± 9.6 %
		Y	2.94	67.14	15.76		150.0	
		Z	2.80	67.54	15.90		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.27	69.10	16.46	0.00	150.0	± 9.6 %
		Y	2.25	68.23	15.96		150.0	
		Z	2.13	69.06	16.32		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.65	68.45	16.32	0.00	150.0	± 9.6 %
		Y	2.64	67.76	16.00		150.0	
		Z	2.55	68.78	16.20		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.05	67.53	16.06	0.00	150.0	± 9.6 %
		Y	3.07	67.13	15.82		150.0	
		Z	2.92	67.58	15.97		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.80	68.56	16.43	0.00	150.0	± 9.6 %
		Y	2.80	67.90	16.13		150.0	
		Z	2.69	68.93	16.32		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.15	67.26	16.54	0.00	150.0	± 9.6 %
		Y	5.19	67.08	16.42		150.0	
		Z	4.99	67.20	16.47		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.43	67.37	16.60	0.00	150.0	± 9.6 %
		Y	5.52	67.34	16.56		150.0	
		Z	5.24	67.27	16.51		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.24	67.44	16.56	0.00	150.0	± 9.6 %
		Y	5.30	67.32	16.46		150.0	
		Z	5.08	67.39	16.50		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.11	67.11	16.48	0.00	150.0	± 9.6 %
		Y	5.16	66.99	16.39		150.0	
		Z	4.99	67.15	16.47		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.51	67.58	16.71	0.00	150.0	± 9.6 %
		Y	5.61	67.54	16.67		150.0	
		Z	5.31	67.44	16.61		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.22	67.40	16.54	0.00	150.0	± 9.6 %
		Y	5.27	67.25	16.44		150.0	
		Z	5.07	67.38	16.51		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.41	67.63	16.10	0.00	150.0	± 9.6 %
		Y	3.43	67.31	15.88		150.0	
		Z	3.28	67.57	16.02		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.53	67.71	16.25	0.00	150.0	± 9.6 %
		Y	3.55	67.40	16.05		150.0	
		Z	3.40	67.71	16.20		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.05	69.21	16.15	0.00	150.0	± 9.6 %
		Y	2.02	68.14	15.65		150.0	
		Z	1.90	69.18	15.79		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.53	69.32	16.06	0.00	150.0	± 9.6 %
		Y	2.50	68.40	15.76		150.0	
		Z	2.39	69.52	15.59		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.28	66.94	14.41	0.00	150.0	± 9.6 %
		Y	2.31	66.41	14.31		150.0	
		Z	2.06	66.49	13.57		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.26	65.57	12.06	0.00	150.0	± 9.6 %
		Y	1.33	65.51	12.47		150.0	
		Z	0.90	62.72	9.31		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.87	65.71	11.26	0.00	150.0	± 9.6 %
		Y	2.34	67.84	13.03		150.0	
		Z	1.05	60.97	7.27		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.17	67.47	12.23	0.00	150.0	± 9.6 %
		Y	2.79	70.16	14.23		150.0	
		Z	1.11	61.38	7.60		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.93	67.61	16.06	0.00	150.0	± 9.6 %
		Y	2.95	67.20	15.81		150.0	
		Z	2.81	67.60	15.95		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.06	67.58	16.10	0.00	150.0	± 9.6 %
		Y	3.08	67.18	15.86		150.0	
		Z	2.93	67.64	16.01		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	7.47	81.50	23.31	3.98	65.0	± 9.6 %
		Y	8.13	81.64	23.19		65.0	
		Z	5.82	78.02	21.74		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.96	75.09	21.13	3.98	65.0	± 9.6 %
		Y	6.59	75.82	21.34		65.0	
		Z	4.95	72.53	19.69		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	6.33	76.00	21.87	3.98	65.0	± 9.6 %
		Y	6.98	76.72	22.08		65.0	
		Z	5.31	73.57	20.52		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.32	69.50	16.70	0.00	150.0	± 9.6 %
		Y	2.30	68.63	16.21		150.0	
		Z	2.17	69.43	16.55		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.65	68.47	16.34	0.00	150.0	± 9.6 %
		Y	2.64	67.77	16.01		150.0	
		Z	2.55	68.82	16.23		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.90	69.38	15.98	0.00	150.0	± 9.6 %
		Y	1.87	68.22	15.49		150.0	
		Z	1.73	69.10	15.35		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.13	67.61	14.49	0.00	150.0	± 9.6 %
		Y	2.14	66.94	14.37		150.0	
		Z	1.88	66.88	13.39		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.80	68.62	16.48	0.00	150.0	± 9.6 %
		Y	2.80	67.95	16.18		150.0	
		Z	2.70	69.02	16.37		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.24	68.05	14.76	0.00	150.0	± 9.6 %
		Y	2.25	67.38	14.65		150.0	
		Z	1.97	67.26	13.62		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.79	68.96	16.56	0.00	150.0	± 9.6 %
		Y	2.78	68.29	16.16		150.0	
		Z	2.67	69.03	16.52		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.95	67.54	16.03	0.00	150.0	± 9.6 %
		Y	2.97	67.10	15.79		150.0	
		Z	2.82	67.63	15.91		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.06	67.69	16.14	0.00	150.0	± 9.6 %
		Y	3.08	67.22	15.89		150.0	
		Z	2.94	67.84	16.05		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.60	69.71	19.22	3.01	150.0	± 9.6 %
		Y	3.76	69.53	19.10		150.0	
		Z	3.14	68.43	18.52		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.49	72.92	19.79	3.01	150.0	± 9.6 %
		Y	4.71	72.48	19.58		150.0	
		Z	3.64	70.88	18.81		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.99	75.19	21.10	3.01	150.0	± 9.6 %
		Y	5.19	74.57	20.82		150.0	
		Z	4.03	73.14	20.19		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.02	69.31	19.06	3.01	150.0	± 9.6 %
		Y	3.27	69.70	19.15		150.0	
		Z	2.51	66.78	17.76		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	4.24	75.66	21.52	3.01	150.0	± 9.6 %
		Y	4.60	75.59	21.37		150.0	
		Z	3.08	71.28	19.66		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.48	71.52	18.79	3.01	150.0	± 9.6 %
		Y	3.80	71.54	18.73		150.0	
		Z	2.62	68.04	17.18		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	9.86	97.03	31.31	6.02	65.0	± 9.6 %
		Y	11.94	97.60	31.03		65.0	
		Z	3.49	77.54	23.86		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	35.90	116.24	34.55	6.02	65.0	± 9.6 %
		Y	33.36	111.72	33.12		65.0	
		Z	6.56	87.15	25.45		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	21.48	105.16	30.85	6.02	65.0	± 9.6 %
		Y	20.65	101.59	29.68		65.0	
		Z	4.70	80.63	22.56		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.98	69.02	18.83	3.01	150.0	± 9.6 %
		Y	3.23	69.39	18.90		150.0	
		Z	2.49	66.55	17.55		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	4.24	75.68	21.53	3.01	150.0	± 9.6 %
		Y	4.61	75.61	21.38		150.0	
		Z	3.09	71.30	19.67		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.01	69.16	18.92	3.01	150.0	± 9.6 %
		Y	3.26	69.54	19.00		150.0	
		Z	2.50	66.65	17.62		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	4.21	75.48	21.42	3.01	150.0	± 9.6 %
		Y	4.56	75.38	21.26		150.0	
		Z	3.07	71.19	19.60		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.83	73.49	20.03	3.01	150.0	± 9.6 %
		Y	4.16	73.42	19.91		150.0	
		Z	2.83	69.59	18.31		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.47	71.46	18.75	3.01	150.0	± 9.6 %
		Y	3.79	71.47	18.68		150.0	
		Z	2.62	68.01	17.15		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.00	69.14	18.91	3.01	150.0	± 9.6 %
		Y	3.26	69.52	18.99		150.0	
		Z	2.50	66.64	17.62		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	4.20	75.46	21.41	3.01	150.0	± 9.6 %
		Y	4.55	75.36	21.25		150.0	
		Z	3.07	71.17	19.59		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.46	71.44	18.74	3.01	150.0	± 9.6 %
		Y	3.78	71.45	18.67		150.0	
		Z	2.62	68.00	17.14		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.01	69.18	18.93	3.01	150.0	± 9.6 %
		Y	3.27	69.56	19.01		150.0	
		Z	2.51	66.67	17.63		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	4.22	75.53	21.45	3.01	150.0	± 9.6 %
		Y	4.57	75.42	21.28		150.0	
		Z	3.08	71.23	19.63		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.48	71.51	18.77	3.01	150.0	± 9.6 %
		Y	3.80	71.51	18.70		150.0	
		Z	2.63	68.05	17.17		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.02	69.24	19.00	3.01	150.0	± 9.6 %
		Y	3.28	69.61	19.07		150.0	
		Z	2.52	66.73	17.71		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	4.35	76.17	21.80	3.01	150.0	± 9.6 %
		Y	4.72	76.08	21.65		150.0	
		Z	3.15	71.69	19.93		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.56	71.93	19.04	3.01	150.0	± 9.6 %
		Y	3.88	71.93	18.97		150.0	
		Z	2.67	68.37	17.41		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.54	66.68	16.24	0.00	150.0	± 9.6 %
		Y	4.59	66.47	16.13		150.0	
		Z	4.40	66.85	16.19		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.70	66.99	16.36	0.00	150.0	± 9.6 %
		Y	4.77	66.80	16.26		150.0	
		Z	4.55	67.09	16.33		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.74	67.02	16.38	0.00	150.0	± 9.6 %
		Y	4.81	66.83	16.27		150.0	
		Z	4.58	67.11	16.34		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.54	66.74	16.25	0.00	150.0	± 9.6 %
		Y	4.60	66.55	16.16		150.0	
		Z	4.39	66.85	16.19		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.72	67.01	16.37	0.00	150.0	± 9.6 %
		Y	4.78	66.83	16.27		150.0	
		Z	4.56	67.10	16.33		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.75	67.04	16.39	0.00	150.0	± 9.6 %
		Y	4.81	66.85	16.28		150.0	
		Z	4.58	67.11	16.34		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.49	66.76	16.22	0.00	150.0	± 9.6 %
		Y	4.55	66.56	16.12		150.0	
		Z	4.34	66.89	16.16		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.71	66.98	16.36	0.00	150.0	± 9.6 %
		Y	4.78	66.81	16.26		150.0	
		Z	4.55	67.06	16.32		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.75	66.96	16.37	0.00	150.0	± 9.6 %
		Y	4.82	66.78	16.27		150.0	
		Z	4.59	67.05	16.33		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.08	67.12	16.48	0.00	150.0	± 9.6 %
		Y	5.14	67.00	16.39		150.0	
		Z	4.96	67.13	16.45		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.38	67.33	16.60	0.00	150.0	± 9.6 %
		Y	5.45	67.20	16.51		150.0	
		Z	5.23	67.33	16.56		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.13	67.23	16.46	0.00	150.0	± 9.6 %
		Y	5.19	67.11	16.37		150.0	
		Z	4.99	67.25	16.44		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.82	66.29	15.44	0.00	150.0	± 9.6 %
		Y	2.85	65.89	15.31		150.0	
		Z	2.69	66.42	15.13		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	40.58	118.73	35.31	6.02	65.0	± 9.6 %
		Y	36.88	113.76	33.77		65.0	
		Z	6.94	88.26	25.92		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	36.33	114.29	33.35	6.02	65.0	± 9.6 %
		Y	31.30	108.87	31.78		65.0	
		Z	6.95	87.06	24.80		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	13.65	104.05	33.59	6.02	65.0	± 9.6 %
		Y	18.81	107.23	34.08		65.0	
		Z	4.50	82.80	25.97		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	36.18	116.36	34.59	6.02	65.0	± 9.6 %
		Y	33.58	111.82	33.15		65.0	
		Z	6.61	87.25	25.49		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	32.38	112.10	32.69	6.02	65.0	± 9.6 %
		Y	28.70	107.19	31.24		65.0	
		Z	6.54	85.97	24.36		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	12.84	102.68	33.09	6.02	65.0	± 9.6 %
		Y	17.62	105.78	33.56		65.0	
		Z	4.35	82.09	25.62		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	36.15	116.36	34.59	6.02	65.0	± 9.6 %
		Y	33.55	111.82	33.15		65.0	
		Z	6.59	87.23	25.48		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	32.28	112.07	32.68	6.02	65.0	± 9.6 %
		Y	28.65	107.18	31.24		65.0	
		Z	6.52	85.93	24.35		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	12.22	101.47	32.58	6.02	65.0	± 9.6 %
		Y	16.65	104.42	33.04		65.0	
		Z	4.24	81.51	25.28		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	36.31	116.46	34.62	6.02	65.0	± 9.6 %
		Y	33.66	111.90	33.18		65.0	
		Z	6.60	87.26	25.49		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	33.06	112.44	32.77	6.02	65.0	± 9.6 %
		Y	29.12	107.43	31.30		65.0	
		Z	6.60	86.11	24.40		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	12.90	102.82	33.13	6.02	65.0	± 9.6 %
		Y	17.72	105.93	33.61		65.0	
		Z	4.35	82.12	25.64		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	36.09	116.34	34.59	6.02	65.0	± 9.6 %
		Y	33.52	111.82	33.15		65.0	
		Z	6.58	87.20	25.47		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	32.17	112.03	32.67	6.02	65.0	± 9.6 %
		Y	28.59	107.16	31.23		65.0	
		Z	6.49	85.89	24.34		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	12.85	102.75	33.11	6.02	65.0	± 9.6 %
		Y	17.65	105.86	33.59		65.0	
		Z	4.34	82.09	25.63		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	8.52	83.40	26.72	6.98	65.0	± 9.6 %
		Y	9.34	83.46	26.63		65.0	
		Z	6.49	79.39	24.77		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	7.72	81.29	25.79	6.98	65.0	± 9.6 %
		Y	8.22	80.66	25.42		65.0	
		Z	5.72	76.85	23.63		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.95	76.72	24.82	6.98	65.0	± 9.6 %
		Y	6.41	76.67	24.65		65.0	
		Z	4.75	73.34	22.98		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.67	78.45	19.67	3.98	65.0	± 9.6 %
		Y	8.20	80.91	21.14		65.0	
		Z	3.50	69.23	14.35		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	6.39	77.48	19.23	3.98	65.0	± 9.6 %
		Y	7.92	80.07	20.76		65.0	
		Z	3.42	68.65	14.03		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	8.15	85.97	22.95	3.98	65.0	± 9.6 %
		Y	9.24	86.80	23.49		65.0	
		Z	4.03	75.23	17.77		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	5.50	76.42	20.00	3.98	65.0	± 9.6 %
		Y	6.26	77.49	20.66		65.0	
		Z	3.95	71.61	16.94		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	5.40	75.54	19.60	3.98	65.0	± 9.6 %
		Y	6.16	76.66	20.28		65.0	
		Z	3.89	70.88	16.59		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	9.66	89.43	25.19	3.98	65.0	± 9.6 %
		Y	10.35	89.11	25.13		65.0	
		Z	5.64	80.91	21.33		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	6.21	78.20	22.44	3.98	65.0	± 9.6 %
		Y	6.93	79.00	22.73		65.0	
		Z	4.95	74.96	20.57		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.85	75.76	21.03	3.98	65.0	± 9.6 %
		Y	6.49	76.44	21.31		65.0	
		Z	4.69	72.73	19.17		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	8.41	86.24	25.10	3.98	65.0	± 9.6 %
		Y	9.13	86.11	24.91		65.0	
		Z	5.95	81.04	22.79		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.81	74.45	20.83	3.98	65.0	± 9.6 %
		Y	6.39	75.11	21.05		65.0	
		Z	4.88	72.13	19.42		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	6.16	75.32	21.51	3.98	65.0	± 9.6 %
		Y	6.77	75.99	21.73		65.0	
		Z	5.19	73.05	20.14		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.96	80.42	23.12	3.98	65.0	± 9.6 %
		Y	7.59	80.64	23.06		65.0	
		Z	5.51	77.21	21.58		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.89	73.41	16.49	3.98	65.0	± 9.6 %
		Y	6.68	77.30	18.76		65.0	
		Z	2.46	64.75	10.88		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.63	72.26	15.89	3.98	65.0	± 9.6 %
		Y	6.35	76.13	18.19		65.0	
		Z	2.42	64.27	10.52		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	5.50	79.01	19.45	3.98	65.0	± 9.6 %
		Y	7.01	81.77	20.90		65.0	
		Z	2.56	68.30	13.54		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.80	77.14	20.90	3.98	65.0	± 9.6 %
		Y	6.53	78.01	21.38		65.0	
		Z	4.38	73.08	18.36		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.78	76.67	20.70	3.98	65.0	± 9.6 %
		Y	6.51	77.60	21.22		65.0	
		Z	4.39	72.73	18.19		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	8.27	86.47	24.62	3.98	65.0	± 9.6 %
		Y	9.00	86.40	24.57		65.0	
		Z	5.46	80.05	21.57		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	6.19	78.15	22.39	3.98	65.0	± 9.6 %
		Y	6.92	78.95	22.69		65.0	
		Z	4.94	74.88	20.51		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.84	75.72	21.02	3.98	65.0	± 9.6 %
		Y	6.48	76.42	21.31		65.0	
		Z	4.68	72.71	19.16		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	8.30	85.98	24.99	3.98	65.0	± 9.6 %
		Y	9.03	85.88	24.80		65.0	
		Z	5.88	80.81	22.67		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.96	75.09	21.13	3.98	65.0	± 9.6 %
		Y	6.59	75.82	21.35		65.0	
		Z	4.95	72.53	19.70		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	6.33	75.99	21.86	3.98	65.0	± 9.6 %
		Y	6.97	76.70	22.07		65.0	
		Z	5.31	73.56	20.51		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	7.45	81.44	23.28	3.98	65.0	± 9.6 %
		Y	8.11	81.58	23.17		65.0	
		Z	5.81	77.97	21.72		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.50	74.59	21.27	3.98	65.0	± 9.6 %
		Y	7.11	75.29	21.47		65.0	
		Z	5.58	72.49	20.14		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.45	74.07	21.10	3.98	65.0	± 9.6 %
		Y	7.04	74.76	21.30		65.0	
		Z	5.59	72.11	20.01		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.83	77.38	21.77	3.98	65.0	± 9.6 %
		Y	7.44	77.78	21.79		65.0	
		Z	5.71	75.01	20.64		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.62	66.75	15.42	0.00	150.0	± 9.6 %
		Y	2.61	66.15	15.17		150.0	
		Z	2.54	67.07	15.23		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.67	68.55	15.99	0.00	150.0	± 9.6 %
		Y	1.61	67.31	15.31		150.0	
		Z	1.61	68.63	15.84		150.0	
10277-CAA	PHS (QPSK)	X	1.74	60.91	6.37	9.03	50.0	± 9.6 %
		Y	2.31	62.75	8.24		50.0	
		Z	1.34	59.32	4.61		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	9.23	83.71	19.86	9.03	50.0	± 9.6 %
		Y	16.13	92.59	23.80		50.0	
		Z	2.80	66.68	11.50		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	9.55	84.14	20.09	9.03	50.0	± 9.6 %
		Y	16.22	92.62	23.87		50.0	
		Z	2.90	67.01	11.74		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.55	69.78	14.51	0.00	150.0	± 9.6 %
		Y	1.48	68.23	14.09		150.0	
		Z	1.19	67.52	12.47		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.89	66.83	13.08	0.00	150.0	± 9.6 %
		Y	0.85	65.35	12.57		150.0	
		Z	0.74	65.55	11.46		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.27	72.61	16.13	0.00	150.0	± 9.6 %
		Y	1.03	68.80	14.67		150.0	
		Z	1.20	72.32	14.93		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	2.34	81.60	20.09	0.00	150.0	± 9.6 %
		Y	1.43	73.64	17.27		150.0	
		Z	3.93	87.90	20.92		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	16.32	98.49	29.02	9.03	50.0	± 9.6 %
		Y	11.98	92.39	27.58		50.0	
		Z	18.77	96.90	26.52		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.80	70.02	16.88	0.00	150.0	± 9.6 %
		Y	2.77	69.27	16.41		150.0	
		Z	2.65	69.87	16.82		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.62	68.28	14.44	0.00	150.0	± 9.6 %
		Y	1.62	67.40	14.26		150.0	
		Z	1.32	66.56	12.71		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.59	69.34	14.00	0.00	150.0	± 9.6 %
		Y	2.92	70.30	15.01		150.0	
		Z	1.54	64.05	10.22		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.92	64.86	11.14	0.00	150.0	± 9.6 %
		Y	2.24	65.95	12.27		150.0	
		Z	1.26	61.60	8.20		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.85	66.06	17.86	4.17	50.0	± 9.6 %
		Y	4.97	65.84	17.76		50.0	
		Z	4.42	65.27	17.23		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.22	66.19	18.31	4.96	50.0	± 9.6 %
		Y	5.38	66.17	18.31		50.0	
		Z	4.86	65.76	17.88		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.96	65.79	18.13	4.96	50.0	± 9.6 %
		Y	5.14	65.84	18.17		50.0	
		Z	4.61	65.34	17.65		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.78	65.69	17.62	4.17	50.0	± 9.6 %
		Y	4.94	65.66	17.62		50.0	
		Z	4.45	65.35	17.22		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.24	66.91	19.40	6.02	35.0	± 9.6 %
		Y	4.54	67.57	19.86		35.0	
		Z	3.84	65.89	18.29		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.62	66.22	19.11	6.02	35.0	± 9.6 %
		Y	4.86	66.59	19.39		35.0	
		Z	4.26	65.53	18.31		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.50	66.31	19.05	6.02	35.0	± 9.6 %
		Y	4.77	66.81	19.39		35.0	
		Z	4.12	65.47	18.17		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.47	66.49	19.18	6.02	35.0	± 9.6 %
		Y	4.73	66.98	19.51		35.0	
		Z	4.09	65.63	18.30		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.68	66.45	19.27	6.02	35.0	± 9.6 %
		Y	4.93	66.86	19.56		35.0	
		Z	4.28	65.63	18.41		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.56	66.25	19.08	6.02	35.0	± 9.6 %
		Y	4.81	66.65	19.36		35.0	
		Z	4.20	65.54	18.28		35.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.16	69.26	16.50	0.00	150.0	± 9.6 %
		Y	3.13	68.60	16.08		150.0	
		Z	3.01	69.09	16.45		150.0	
10313-AAA	IDEN 1:3	X	8.00	86.23	21.34	6.99	70.0	± 9.6 %
		Y	8.53	85.21	20.95		70.0	
		Z	3.31	75.28	17.31		70.0	
10314-AAA	IDEN 1:6	X	12.68	100.31	29.33	10.00	30.0	± 9.6 %
		Y	13.31	98.73	28.67		30.0	
		Z	5.19	85.23	24.17		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.10	64.07	15.53	0.17	150.0	± 9.6 %
		Y	1.10	63.56	15.08		150.0	
		Z	1.08	63.95	15.31		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.59	66.75	16.41	0.17	150.0	± 9.6 %
		Y	4.66	66.58	16.32		150.0	
		Z	4.43	66.78	16.29		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.59	66.75	16.41	0.17	150.0	± 9.6 %
		Y	4.66	66.58	16.32		150.0	
		Z	4.43	66.78	16.29		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.69	67.06	16.37	0.00	150.0	± 9.6 %
		Y	4.77	66.86	16.25		150.0	
		Z	4.51	67.11	16.31		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.41	67.26	16.54	0.00	150.0	± 9.6 %
		Y	5.45	67.06	16.42		150.0	
		Z	5.18	66.94	16.33		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.65	67.49	16.51	0.00	150.0	± 9.6 %
		Y	5.72	67.43	16.45		150.0	
		Z	5.51	67.47	16.48		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.55	69.78	14.51	0.00	115.0	± 9.6 %
		Y	1.48	68.23	14.09		115.0	
		Z	1.19	67.52	12.47		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.55	69.78	14.51	0.00	115.0	± 9.6 %
		Y	1.48	68.23	14.09		115.0	
		Z	1.19	67.52	12.47		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	120.41	29.76	0.00	100.0	± 9.6 %
		Y	19.72	99.25	25.38		100.0	
		Z	22.86	100.95	24.14		100.0	
10410-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.71	31.88	3.23	80.0	± 9.6 %
		Y	100.00	124.16	31.78		80.0	
		Z	8.15	91.76	22.46		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.03	63.26	14.92	0.00	150.0	± 9.6 %
		Y	1.02	62.63	14.41		150.0	
		Z	1.03	63.39	14.88		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.54	66.72	16.31	0.00	150.0	± 9.6 %
		Y	4.59	66.51	16.19		150.0	
		Z	4.40	66.84	16.26		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.54	66.72	16.31	0.00	150.0	± 9.6 %
		Y	4.59	66.51	16.19		150.0	
		Z	4.40	66.84	16.26		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.53	66.89	16.33	0.00	150.0	± 9.6 %
		Y	4.58	66.66	16.20		150.0	
		Z	4.40	67.05	16.32		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.55	66.83	16.33	0.00	150.0	± 9.6 %
		Y	4.60	66.61	16.21		150.0	
		Z	4.41	66.98	16.30		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.66	66.83	16.34	0.00	150.0	± 9.6 %
		Y	4.72	66.62	16.23		150.0	
		Z	4.52	66.95	16.31		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.82	67.13	16.45	0.00	150.0	± 9.6 %
		Y	4.90	66.96	16.35		150.0	
		Z	4.65	67.21	16.40		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.75	67.09	16.43	0.00	150.0	± 9.6 %
		Y	4.82	66.90	16.32		150.0	
		Z	4.58	67.17	16.38		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.35	67.37	16.60	0.00	150.0	± 9.6 %
		Y	5.42	67.27	16.52		150.0	
		Z	5.19	67.35	16.55		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.36	67.42	16.62	0.00	150.0	± 9.6 %
		Y	5.42	67.27	16.52		150.0	
		Z	5.21	67.42	16.58		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.37	67.38	16.60	0.00	150.0	± 9.6 %
		Y	5.43	67.25	16.50		150.0	
		Z	5.18	67.23	16.48		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.24	70.83	18.17	0.00	150.0	± 9.6 %
		Y	4.26	70.25	18.02		150.0	
		Z	4.20	71.89	18.27		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.21	67.30	16.30	0.00	150.0	± 9.6 %
		Y	4.28	67.03	16.19		150.0	
		Z	4.03	67.45	16.18		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.51	67.15	16.38	0.00	150.0	± 9.6 %
		Y	4.58	66.93	16.27		150.0	
		Z	4.34	67.27	16.32		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.76	67.12	16.45	0.00	150.0	± 9.6 %
		Y	4.83	66.94	16.34		150.0	
		Z	4.59	67.20	16.40		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.34	71.72	18.14	0.00	150.0	± 9.6 %
		Y	4.35	71.03	17.99		150.0	
		Z	4.31	72.81	18.12		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.48	31.77	3.23	80.0	± 9.6 %
		Y	100.00	123.97	31.69		80.0	
		Z	7.63	90.76	22.11		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.51	67.35	15.60	0.00	150.0	± 9.6 %
		Y	3.58	66.99	15.55		150.0	
		Z	3.28	67.36	15.16		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.06	67.09	16.17	0.00	150.0	± 9.6 %
		Y	4.12	66.80	16.05		150.0	
		Z	3.89	67.25	16.05		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.33	66.98	16.28	0.00	150.0	± 9.6 %
		Y	4.39	66.75	16.16		150.0	
		Z	4.18	67.10	16.22		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.53	66.89	16.30	0.00	150.0	± 9.6 %
		Y	4.58	66.69	16.19		150.0	
		Z	4.39	66.98	16.26		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.39	67.51	15.20	0.00	150.0	± 9.6 %
		Y	3.48	67.19	15.21		150.0	
		Z	3.10	67.22	14.48		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.22	67.91	16.74	0.00	150.0	± 9.6 %
		Y	6.28	67.83	16.68		150.0	
		Z	6.11	67.90	16.72		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.80	65.37	16.02	0.00	150.0	± 9.6 %
		Y	3.83	65.15	15.90		150.0	
		Z	3.74	65.57	15.99		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.21	66.83	14.57	0.00	150.0	± 9.6 %
		Y	3.31	66.55	14.68		150.0	
		Z	2.82	66.01	13.39		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.29	65.14	15.57	0.00	150.0	± 9.6 %
		Y	4.36	64.71	15.51		150.0	
		Z	4.04	65.27	15.07		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.96	69.26	16.86	0.00	150.0	± 9.6 %
		Y	0.88	67.02	15.53		150.0	
		Z	0.94	69.35	16.76		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	131.25	34.47	3.29	80.0	± 9.6 %
		Y	100.00	128.59	33.89		80.0	
		Z	3.16	81.29	20.28		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	18.15	90.54	19.55	3.23	80.0	± 9.6 %
		Y	100.00	110.06	25.23		80.0	
		Z	0.71	60.00	7.72		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.32	68.92	12.27	3.23	80.0	± 9.6 %
		Y	12.78	85.50	18.46		80.0	
		Z	0.72	60.00	7.06		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.50	33.02	3.23	80.0	± 9.6 %
		Y	100.00	126.31	32.66		80.0	
		Z	2.43	77.27	18.20		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.48	81.44	16.98	3.23	80.0	± 9.6 %
		Y	53.06	102.63	23.42		80.0	
		Z	0.71	60.00	7.65		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.86	66.75	11.37	3.23	80.0	± 9.6 %
		Y	7.10	79.26	16.56		80.0	
		Z	0.72	60.00	7.01		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.82	33.16	3.23	80.0	± 9.6 %
		Y	100.00	126.57	32.78		80.0	
		Z	2.60	78.29	18.60		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	9.21	83.60	17.62	3.23	80.0	± 9.6 %
		Y	76.07	106.68	24.37		80.0	
		Z	0.70	60.00	7.67		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.87	66.82	11.40	3.23	80.0	± 9.6 %
		Y	7.22	79.45	16.62		80.0	
		Z	0.72	60.00	7.01		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.87	33.17	3.23	80.0	± 9.6 %
		Y	100.00	126.61	32.79		80.0	
		Z	2.61	78.33	18.61		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	9.03	83.37	17.54	3.23	80.0	± 9.6 %
		Y	75.72	106.57	24.32		80.0	
		Z	0.70	60.00	7.66		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.85	66.72	11.34	3.23	80.0	± 9.6 %
		Y	7.17	79.36	16.58		80.0	
		Z	0.72	60.00	6.99		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.83	33.15	3.23	80.0	± 9.6 %
		Y	100.00	126.57	32.77		80.0	
		Z	2.60	78.28	18.59		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	8.86	83.19	17.49	3.23	80.0	± 9.6 %
		Y	73.20	106.22	24.25		80.0	
		Z	0.70	60.00	7.66		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.84	66.67	11.33	3.23	80.0	± 9.6 %
		Y	7.07	79.22	16.54		80.0	
		Z	0.72	60.00	6.99		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.55	81.52	16.98	3.23	80.0	± 9.6 %
		Y	56.45	103.26	23.54		80.0	
		Z	0.70	60.00	7.63		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.82	66.56	11.27	3.23	80.0	± 9.6 %
		Y	6.95	79.03	16.47		80.0	
		Z	0.72	60.00	6.98		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	10.99	93.23	25.61	3.23	80.0	± 9.6 %
		Y	9.79	90.18	24.96		80.0	
		Z	4.54	80.48	20.41		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	12.16	88.23	21.88	3.23	80.0	± 9.6 %
		Y	11.98	87.55	22.28		80.0	
		Z	2.88	70.37	14.48		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	8.71	82.91	19.80	3.23	80.0	± 9.6 %
		Y	9.82	84.02	20.80		80.0	
		Z	2.18	66.77	12.57		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.05	77.33	19.19	2.23	80.0	± 9.6 %
		Y	4.17	76.68	19.19		80.0	
		Z	2.07	68.66	14.58		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.93	75.57	17.70	2.23	80.0	± 9.6 %
		Y	6.34	78.50	19.36		80.0	
		Z	1.80	63.38	11.04		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.47	74.01	17.11	2.23	80.0	± 9.6 %
		Y	5.79	76.98	18.82		80.0	
		Z	1.76	62.89	10.79		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.05	77.49	20.34	2.23	80.0	± 9.6 %
		Y	4.20	76.76	20.09		80.0	
		Z	2.71	72.24	17.50		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.54	71.63	17.34	2.23	80.0	± 9.6 %
		Y	3.76	71.58	17.54		80.0	
		Z	2.51	67.51	14.60		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.49	71.03	17.07	2.23	80.0	± 9.6 %
		Y	3.74	71.08	17.31		80.0	
		Z	2.49	67.04	14.35		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.92	74.84	20.03	2.23	80.0	± 9.6 %
		Y	4.21	74.77	19.87		80.0	
		Z	2.99	71.49	18.31		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.58	70.14	18.01	2.23	80.0	± 9.6 %
		Y	3.82	70.22	18.04		80.0	
		Z	3.03	68.36	16.75		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.66	69.89	17.90	2.23	80.0	± 9.6 %
		Y	3.90	69.97	17.95		80.0	
		Z	3.10	68.21	16.67		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.00	72.50	19.16	2.23	80.0	± 9.6 %
		Y	4.28	72.62	19.08		80.0	
		Z	3.25	70.05	17.90		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.86	68.99	17.79	2.23	80.0	± 9.6 %
		Y	4.11	69.18	17.85		80.0	
		Z	3.37	67.61	16.86		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.92	68.82	17.72	2.23	80.0	± 9.6 %
		Y	4.17	69.02	17.78		80.0	
		Z	3.43	67.50	16.80		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.43	74.41	19.78	2.23	80.0	± 9.6 %
		Y	4.75	74.52	19.68		80.0	
		Z	3.49	71.39	18.37		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.90	69.39	18.01	2.23	80.0	± 9.6 %
		Y	4.16	69.65	18.06		80.0	
		Z	3.39	67.86	17.06		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.97	69.05	17.88	2.23	80.0	± 9.6 %
		Y	4.22	69.30	17.94		80.0	
		Z	3.47	67.65	16.99		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.87	72.14	16.05	2.23	80.0	± 9.6 %
		Y	3.23	72.92	16.83		80.0	
		Z	1.19	62.14	10.12		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.73	63.11	10.85	2.23	80.0	± 9.6 %
		Y	2.27	65.45	12.56		80.0	
		Z	1.15	60.00	7.68		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.65	62.30	10.28	2.23	80.0	± 9.6 %
		Y	2.18	64.69	12.05		80.0	
		Z	1.17	60.00	7.51		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.87	75.87	20.03	2.23	80.0	± 9.6 %
		Y	4.07	75.40	19.81		80.0	
		Z	2.80	71.83	17.80		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	71.05	17.60	2.23	80.0	± 9.6 %
		Y	3.78	70.97	17.70		80.0	
		Z	2.79	68.23	15.59		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	70.84	17.44	2.23	80.0	± 9.6 %
		Y	3.84	70.79	17.56		80.0	
		Z	2.82	68.03	15.41		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.87	74.62	19.92	2.23	80.0	± 9.6 %
		Y	4.15	74.55	19.77		80.0	
		Z	2.95	71.29	18.21		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	70.04	17.95	2.23	80.0	± 9.6 %
		Y	3.80	70.13	17.99		80.0	
		Z	3.01	68.26	16.69		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.64	69.79	17.85	2.23	80.0	± 9.6 %
		Y	3.88	69.88	17.89		80.0	
		Z	3.09	68.12	16.62		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.39	74.26	19.71	2.23	80.0	± 9.6 %
		Y	4.71	74.37	19.61		80.0	
		Z	3.46	71.26	18.30		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.89	69.33	17.97	2.23	80.0	± 9.6 %
		Y	4.14	69.59	18.03		80.0	
		Z	3.38	67.80	17.02		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.95	68.98	17.84	2.23	80.0	± 9.6 %
		Y	4.21	69.23	17.90		80.0	
		Z	3.46	67.59	16.95		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.62	72.40	18.91	2.23	80.0	± 9.6 %
		Y	4.92	72.59	18.86		80.0	
		Z	3.86	70.20	17.85		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.34	68.87	17.84	2.23	80.0	± 9.6 %
		Y	4.61	69.18	17.91		80.0	
		Z	3.85	67.53	17.06		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.39	68.57	17.74	2.23	80.0	± 9.6 %
		Y	4.65	68.86	17.81		80.0	
		Z	3.92	67.35	17.00		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.95	74.43	19.59	2.23	80.0	± 9.6 %
		Y	5.29	74.60	19.52		80.0	
		Z	3.97	71.52	18.28		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.24	69.19	17.98	2.23	80.0	± 9.6 %
		Y	4.52	69.55	18.06		80.0	
		Z	3.73	67.67	17.13		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.25	68.69	17.82	2.23	80.0	± 9.6 %
		Y	4.51	69.03	17.90		80.0	
		Z	3.78	67.33	17.02		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.99	63.46	15.00	0.00	150.0	± 9.6 %
		Y	0.98	62.78	14.45		150.0	
		Z	0.99	63.59	14.96		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.69	72.54	18.63	0.00	150.0	± 9.6 %
		Y	0.56	68.11	16.08		150.0	
		Z	0.67	72.15	18.45		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.85	65.62	15.80	0.00	150.0	± 9.6 %
		Y	0.82	64.42	14.91		150.0	
		Z	0.84	65.62	15.72		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.53	66.80	16.29	0.00	150.0	± 9.6 %
		Y	4.59	66.58	16.17		150.0	
		Z	4.39	66.94	16.26		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.71	67.02	16.40	0.00	150.0	± 9.6 %
		Y	4.78	66.84	16.30		150.0	
		Z	4.54	67.11	16.34		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.56	66.98	16.32	0.00	150.0	± 9.6 %
		Y	4.63	66.80	16.22		150.0	
		Z	4.40	67.05	16.26		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.49	66.97	16.31	0.00	150.0	± 9.6 %
		Y	4.56	66.79	16.20		150.0	
		Z	4.33	67.02	16.25		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.56	67.08	16.40	0.00	150.0	± 9.6 %
		Y	4.62	66.86	16.28		150.0	
		Z	4.38	67.14	16.34		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.44	66.96	16.26	0.00	150.0	± 9.6 %
		Y	4.50	66.72	16.12		150.0	
		Z	4.31	67.14	16.26		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.50	67.00	16.37	0.00	150.0	± 9.6 %
		Y	4.57	66.78	16.25		150.0	
		Z	4.33	67.10	16.33		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.49	66.06	15.96	0.00	150.0	± 9.6 %
		Y	4.54	65.82	15.83		150.0	
		Z	4.36	66.21	15.95		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.65	66.41	16.10	0.00	150.0	± 9.6 %
		Y	4.72	66.20	15.98		150.0	
		Z	4.49	66.49	16.07		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.58	66.37	16.05	0.00	150.0	± 9.6 %
		Y	4.64	66.16	15.92		150.0	
		Z	4.42	66.47	16.01		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.59	66.39	16.08	0.00	150.0	± 9.6 %
		Y	4.65	66.18	15.96		150.0	
		Z	4.43	66.48	16.04		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.59	66.39	16.08	0.00	150.0	± 9.6 %
		Y	4.65	66.18	15.96		150.0	
		Z	4.43	66.48	16.04		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.58	66.48	16.09	0.00	150.0	± 9.6 %
		Y	4.65	66.29	15.97		150.0	
		Z	4.40	66.51	16.02		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.44	66.34	16.02	0.00	150.0	± 9.6 %
		Y	4.51	66.14	15.90		150.0	
		Z	4.28	66.37	15.96		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.60	66.44	16.07	0.00	150.0	± 9.6 %
		Y	4.66	66.22	15.94		150.0	
		Z	4.44	66.56	16.05		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.13	66.46	16.12	0.00	150.0	± 9.6 %
		Y	5.19	66.32	16.03		150.0	
		Z	4.99	66.46	16.09		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.20	66.64	16.21	0.00	150.0	± 9.6 %
		Y	5.25	66.49	16.10		150.0	
		Z	5.03	66.59	16.15		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.07	66.60	16.17	0.00	150.0	± 9.6 %
		Y	5.12	66.44	16.06		150.0	
		Z	4.92	66.60	16.13		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.12	66.56	16.15	0.00	150.0	± 9.6 %
		Y	5.18	66.41	16.05		150.0	
		Z	4.98	66.58	16.13		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.21	66.56	16.19	0.00	150.0	± 9.6 %
		Y	5.28	66.45	16.11		150.0	
		Z	5.05	66.54	16.15		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.14	66.58	16.22	0.00	150.0	± 9.6 %
		Y	5.20	66.45	16.12		150.0	
		Z	4.98	66.51	16.15		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.12	66.46	16.14	0.00	150.0	± 9.6 %
		Y	5.18	66.32	16.05		150.0	
		Z	4.96	66.43	16.09		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.27	66.53	16.19	0.00	150.0	± 9.6 %
		Y	5.33	66.40	16.10		150.0	
		Z	5.12	66.52	16.15		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.34	66.55	16.23	0.00	150.0	± 9.6 %
		Y	5.41	66.44	16.14		150.0	
		Z	5.19	66.58	16.21		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.45	66.57	16.12	0.00	150.0	± 9.6 %
		Y	5.49	66.44	16.03		150.0	
		Z	5.33	66.54	16.08		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.64	66.98	16.28	0.00	150.0	± 9.6 %
		Y	5.69	66.86	16.18		150.0	
		Z	5.50	66.96	16.25		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.50	66.75	16.18	0.00	150.0	± 9.6 %
		Y	5.56	66.68	16.11		150.0	
		Z	5.36	66.66	16.11		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.57	66.80	16.19	0.00	150.0	± 9.6 %
		Y	5.64	66.72	16.12		150.0	
		Z	5.44	66.76	16.16		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.80	67.67	16.61	0.00	150.0	± 9.6 %
		Y	5.91	67.72	16.59		150.0	
		Z	5.58	67.38	16.44		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.54	66.80	16.21	0.00	150.0	± 9.6 %
		Y	5.59	66.67	16.11		150.0	
		Z	5.42	66.83	16.21		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.54	66.82	16.18	0.00	150.0	± 9.6 %
		Y	5.59	66.72	16.10		150.0	
		Z	5.36	66.63	16.07		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.46	66.64	16.10	0.00	150.0	± 9.6 %
		Y	5.51	66.51	16.00		150.0	
		Z	5.34	66.66	16.08		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.54	66.66	16.14	0.00	150.0	± 9.6 %
		Y	5.59	66.56	16.06		150.0	
		Z	5.39	66.61	16.09		150.0	
10554-AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.86	66.92	16.20	0.00	150.0	± 9.6 %
		Y	5.89	66.81	16.12		150.0	
		Z	5.75	66.87	16.15		150.0	
10555-AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.98	67.22	16.33	0.00	150.0	± 9.6 %
		Y	6.03	67.12	16.25		150.0	
		Z	5.84	67.10	16.25		150.0	
10556-AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.00	67.27	16.35	0.00	150.0	± 9.6 %
		Y	6.05	67.16	16.27		150.0	
		Z	5.88	67.20	16.30		150.0	
10557-AAB	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.96	67.16	16.31	0.00	150.0	± 9.6 %
		Y	6.02	67.08	16.25		150.0	
		Z	5.84	67.08	16.25		150.0	

10558-AAB	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.01	67.32	16.41	0.00	150.0	± 9.6 %
		Y	6.07	67.25	16.34		150.0	
		Z	5.85	67.15	16.31		150.0	
10560-AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.01	67.17	16.37	0.00	150.0	± 9.6 %
		Y	6.06	67.10	16.31		150.0	
		Z	5.87	67.07	16.30		150.0	
10561-AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.93	67.15	16.40	0.00	150.0	± 9.6 %
		Y	5.98	67.06	16.32		150.0	
		Z	5.80	67.05	16.32		150.0	
10562-AAB	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.04	67.49	16.57	0.00	150.0	± 9.6 %
		Y	6.12	67.48	16.53		150.0	
		Z	5.85	67.23	16.41		150.0	
10563-AAB	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.18	67.55	16.56	0.00	150.0	± 9.6 %
		Y	6.43	68.00	16.75		150.0	
		Z	5.95	67.17	16.35		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.86	66.88	16.45	0.46	150.0	± 9.6 %
		Y	4.92	66.69	16.36		150.0	
		Z	4.71	66.96	16.39		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.08	67.30	16.76	0.46	150.0	± 9.6 %
		Y	5.16	67.15	16.67		150.0	
		Z	4.90	67.36	16.69		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.91	67.15	16.58	0.46	150.0	± 9.6 %
		Y	4.99	67.00	16.50		150.0	
		Z	4.74	67.18	16.50		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.94	67.52	16.92	0.46	150.0	± 9.6 %
		Y	5.01	67.38	16.84		150.0	
		Z	4.77	67.57	16.87		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.83	66.96	16.38	0.46	150.0	± 9.6 %
		Y	4.90	66.77	16.27		150.0	
		Z	4.63	66.92	16.25		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.90	67.63	17.00	0.46	150.0	± 9.6 %
		Y	4.96	67.44	16.88		150.0	
		Z	4.75	67.78	17.00		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.93	67.48	16.92	0.46	150.0	± 9.6 %
		Y	5.00	67.29	16.82		150.0	
		Z	4.76	67.58	16.89		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.18	64.69	15.93	0.46	130.0	± 9.6 %
		Y	1.20	64.37	15.58		130.0	
		Z	1.13	64.22	15.49		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.19	65.27	16.29	0.46	130.0	± 9.6 %
		Y	1.21	64.91	15.92		130.0	
		Z	1.14	64.74	15.83		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	2.77	92.16	26.12	0.46	130.0	± 9.6 %
		Y	1.86	83.27	22.47		130.0	
		Z	1.57	83.20	23.00		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.31	71.26	19.39	0.46	130.0	± 9.6 %
		Y	1.31	70.26	18.63		130.0	
		Z	1.20	70.00	18.67		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.64	66.67	16.51	0.46	130.0	± 9.6 %
		Y	4.71	66.50	16.43		130.0	
		Z	4.47	66.69	16.39		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.66	66.83	16.58	0.46	130.0	± 9.6 %
		Y	4.73	66.66	16.49		130.0	
		Z	4.50	66.89	16.47		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.86	67.11	16.74	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.66		130.0	
		Z	4.67	67.12	16.61		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.76	67.25	16.83	0.46	130.0	± 9.6 %
		Y	4.84	67.12	16.76		130.0	
		Z	4.57	67.26	16.72		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.52	66.57	16.17	0.46	130.0	± 9.6 %
		Y	4.61	66.44	16.10		130.0	
		Z	4.33	66.48	15.99		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.57	66.63	16.21	0.46	130.0	± 9.6 %
		Y	4.66	66.47	16.12		130.0	
		Z	4.36	66.53	16.01		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.65	67.30	16.78	0.46	130.0	± 9.6 %
		Y	4.73	67.15	16.70		130.0	
		Z	4.48	67.34	16.69		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.47	66.35	15.97	0.46	130.0	± 9.6 %
		Y	4.56	66.21	15.89		130.0	
		Z	4.26	66.25	15.78		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.64	66.67	16.51	0.46	130.0	± 9.6 %
		Y	4.71	66.50	16.43		130.0	
		Z	4.47	66.69	16.39		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.66	66.83	16.58	0.46	130.0	± 9.6 %
		Y	4.73	66.66	16.49		130.0	
		Z	4.50	66.89	16.47		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.86	67.11	16.74	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.66		130.0	
		Z	4.67	67.12	16.61		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.76	67.25	16.83	0.46	130.0	± 9.6 %
		Y	4.84	67.12	16.76		130.0	
		Z	4.57	67.26	16.72		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.52	66.57	16.17	0.46	130.0	± 9.6 %
		Y	4.61	66.44	16.10		130.0	
		Z	4.33	66.48	15.99		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.57	66.63	16.21	0.46	130.0	± 9.6 %
		Y	4.66	66.47	16.12		130.0	
		Z	4.36	66.53	16.01		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.65	67.30	16.78	0.46	130.0	± 9.6 %
		Y	4.73	67.15	16.70		130.0	
		Z	4.48	67.34	16.69		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.47	66.35	15.97	0.46	130.0	± 9.6 %
		Y	4.56	66.21	15.89		130.0	
		Z	4.26	66.25	15.78		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.79	66.72	16.61	0.46	130.0	± 9.6 %
		Y	4.86	66.57	16.53		130.0	
		Z	4.63	66.78	16.50		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.94	67.05	16.74	0.46	130.0	± 9.6 %
		Y	5.02	66.91	16.66		130.0	
		Z	4.75	67.07	16.63		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.86	66.96	16.62	0.46	130.0	± 9.6 %
		Y	4.94	66.83	16.55		130.0	
		Z	4.67	66.95	16.49		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.91	67.12	16.77	0.46	130.0	± 9.6 %
		Y	5.00	66.98	16.70		130.0	
		Z	4.72	67.12	16.65		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.88	67.08	16.67	0.46	130.0	± 9.6 %
		Y	4.96	66.94	16.59		130.0	
		Z	4.69	67.10	16.56		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.82	67.08	16.68	0.46	130.0	± 9.6 %
		Y	4.90	66.94	16.60		130.0	
		Z	4.62	67.07	16.55		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.77	66.98	16.56	0.46	130.0	± 9.6 %
		Y	4.85	66.85	16.49		130.0	
		Z	4.57	66.94	16.41		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.75	67.19	16.80	0.46	130.0	± 9.6 %
		Y	4.83	67.08	16.74		130.0	
		Z	4.56	67.16	16.67		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.46	67.23	16.81	0.46	130.0	± 9.6 %
		Y	5.53	67.13	16.74		130.0	
		Z	5.31	67.22	16.74		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.59	67.67	17.00	0.46	130.0	± 9.6 %
		Y	5.69	67.62	16.95		130.0	
		Z	5.40	67.56	16.88		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.48	67.41	16.88	0.46	130.0	± 9.6 %
		Y	5.56	67.33	16.83		130.0	
		Z	5.31	67.36	16.79		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.59	67.49	16.85	0.46	130.0	± 9.6 %
		Y	5.65	67.34	16.75		130.0	
		Z	5.41	67.42	16.75		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.65	67.74	17.10	0.46	130.0	± 9.6 %
		Y	5.74	67.66	17.04		130.0	
		Z	5.48	67.71	17.02		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.49	67.31	16.87	0.46	130.0	± 9.6 %
		Y	5.53	67.10	16.74		130.0	
		Z	5.37	67.37	16.83		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.58	67.57	17.01	0.46	130.0	± 9.6 %
		Y	5.65	67.44	16.92		130.0	
		Z	5.40	67.46	16.88		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.32	66.88	16.52	0.46	130.0	± 9.6 %
		Y	5.42	66.88	16.50		130.0	
		Z	5.18	66.90	16.45		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.63	66.06	16.24	0.46	130.0	± 9.6 %
		Y	4.69	65.87	16.14		130.0	
		Z	4.48	66.14	16.16		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.81	66.46	16.41	0.46	130.0	± 9.6 %
		Y	4.89	66.28	16.31		130.0	
		Z	4.62	66.47	16.30		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.70	66.31	16.25	0.46	130.0	± 9.6 %
		Y	4.78	66.14	16.15		130.0	
		Z	4.52	66.31	16.13		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.75	66.46	16.40	0.46	130.0	± 9.6 %
		Y	4.83	66.29	16.31		130.0	
		Z	4.57	66.47	16.29		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.67	66.27	16.25	0.46	130.0	± 9.6 %
		Y	4.74	66.11	16.17		130.0	
		Z	4.48	66.27	16.14		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.68	66.43	16.31	0.46	130.0	± 9.6 %
		Y	4.76	66.26	16.21		130.0	
		Z	4.47	66.40	16.18		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.68	66.30	16.19	0.46	130.0	± 9.6 %
		Y	4.76	66.16	16.10		130.0	
		Z	4.47	66.22	16.03		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.62	66.47	16.40	0.46	130.0	± 9.6 %
		Y	4.70	66.33	16.32		130.0	
		Z	4.44	66.44	16.27		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.67	66.12	16.05	0.46	130.0	± 9.6 %
		Y	4.75	65.95	15.95		130.0	
		Z	4.48	66.11	15.92		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.28	66.50	16.42	0.46	130.0	± 9.6 %
		Y	5.35	66.40	16.35		130.0	
		Z	5.12	66.44	16.33		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.35	66.70	16.50	0.46	130.0	± 9.6 %
		Y	5.42	66.55	16.40		130.0	
		Z	5.16	66.57	16.37		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.24	66.70	16.51	0.46	130.0	± 9.6 %
		Y	5.30	66.57	16.42		130.0	
		Z	5.08	66.64	16.42		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.25	66.50	16.35	0.46	130.0	± 9.6 %
		Y	5.33	66.41	16.28		130.0	
		Z	5.09	66.45	16.26		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.34	66.53	16.41	0.46	130.0	± 9.6 %
		Y	5.42	66.46	16.35		130.0	
		Z	5.16	66.45	16.31		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.34	66.65	16.59	0.46	130.0	± 9.6 %
		Y	5.41	66.55	16.51		130.0	
		Z	5.17	66.56	16.48		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.35	66.81	16.66	0.46	130.0	± 9.6 %
		Y	5.42	66.71	16.59		130.0	
		Z	5.16	66.65	16.52		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.23	66.36	16.32	0.46	130.0	± 9.6 %
		Y	5.30	66.25	16.24		130.0	
		Z	5.05	66.22	16.17		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.42	66.55	16.47	0.46	130.0	± 9.6 %
		Y	5.50	66.45	16.40		130.0	
		Z	5.25	66.47	16.36		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.75	67.41	16.95	0.46	130.0	± 9.6 %
		Y	5.89	67.51	16.98		130.0	
		Z	5.34	66.63	16.50		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.59	66.56	16.38	0.46	130.0	± 9.6 %
		Y	5.64	66.46	16.31		130.0	
		Z	5.45	66.47	16.28		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.82	67.13	16.63	0.46	130.0	± 9.6 %
		Y	5.88	67.03	16.55		130.0	
		Z	5.67	67.05	16.54		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.61	66.64	16.32	0.46	130.0	± 9.6 %
		Y	5.68	66.59	16.27		130.0	
		Z	5.44	66.46	16.18		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.69	66.69	16.34	0.46	130.0	± 9.6 %
		Y	5.78	66.69	16.31		130.0	
		Z	5.54	66.62	16.26		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.09	68.10	17.05	0.46	130.0	± 9.6 %
		Y	6.25	68.29	17.11		130.0	
		Z	5.78	67.54	16.72		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.99	67.90	17.13	0.46	130.0	± 9.6 %
		Y	6.12	67.99	17.15		130.0	
		Z	5.75	67.56	16.92		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.79	67.18	16.78	0.46	130.0	± 9.6 %
		Y	5.85	67.07	16.70		130.0	
		Z	5.67	67.21	16.76		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.68	66.80	16.43	0.46	130.0	± 9.6 %
		Y	5.74	66.74	16.37		130.0	
		Z	5.48	66.57	16.27		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.66	66.82	16.49	0.46	130.0	± 9.6 %
		Y	5.73	66.76	16.44		130.0	
		Z	5.50	66.72	16.40		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.54	66.19	15.93	0.46	130.0	± 9.6 %
		Y	5.62	66.14	15.87		130.0	
		Z	5.36	66.00	15.77		130.0	
10636-AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.00	66.92	16.46	0.46	130.0	± 9.6 %
		Y	6.05	66.85	16.41		130.0	
		Z	5.88	66.82	16.36		130.0	
10637-AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.16	67.31	16.64	0.46	130.0	± 9.6 %
		Y	6.21	67.23	16.58		130.0	
		Z	6.00	67.12	16.50		130.0	
10638-AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.16	67.28	16.60	0.46	130.0	± 9.6 %
		Y	6.21	67.20	16.54		130.0	
		Z	6.02	67.18	16.51		130.0	

10639-AAB	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.13	67.21	16.61	0.46	130.0	± 9.6 %
		Y	6.20	67.17	16.57		130.0	
		Z	5.98	67.06	16.49		130.0	
10640-AAB	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.13	67.23	16.57	0.46	130.0	± 9.6 %
		Y	6.21	67.21	16.53		130.0	
		Z	5.95	66.98	16.40		130.0	
10641-AAB	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.19	67.17	16.55	0.46	130.0	± 9.6 %
		Y	6.24	67.06	16.48		130.0	
		Z	6.04	67.04	16.44		130.0	
10642-AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.22	67.37	16.82	0.46	130.0	± 9.6 %
		Y	6.28	67.33	16.77		130.0	
		Z	6.06	67.23	16.70		130.0	
10643-AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.06	67.09	16.58	0.46	130.0	± 9.6 %
		Y	6.12	67.02	16.52		130.0	
		Z	5.91	66.93	16.45		130.0	
10644-AAB	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.20	67.52	16.82	0.46	130.0	± 9.6 %
		Y	6.31	67.59	16.83		130.0	
		Z	5.97	67.13	16.57		130.0	
10645-AAB	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.41	67.77	16.91	0.46	130.0	± 9.6 %
		Y	6.76	68.49	17.23		130.0	
		Z	6.10	67.18	16.56		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	32.54	128.38	44.23	9.30	60.0	± 9.6 %
		Y	33.21	124.21	42.28		60.0	
		Z	8.58	97.27	34.21		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	24.86	122.50	42.74	9.30	60.0	± 9.6 %
		Y	27.83	120.75	41.46		60.0	
		Z	7.33	94.04	33.20		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.71	63.99	11.07	0.00	150.0	± 9.6 %
		Y	0.72	63.38	11.01		150.0	
		Z	0.57	62.72	9.40		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.64	67.29	16.91	2.23	80.0	± 9.6 %
		Y	3.79	67.25	16.93		80.0	
		Z	3.31	66.63	16.20		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.13	66.44	16.95	2.23	80.0	± 9.6 %
		Y	4.30	66.53	16.99		80.0	
		Z	3.84	65.89	16.44		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.11	66.04	16.93	2.23	80.0	± 9.6 %
		Y	4.26	66.17	16.97		80.0	
		Z	3.86	65.50	16.46		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.17	66.02	16.96	2.23	80.0	± 9.6 %
		Y	4.32	66.18	17.01		80.0	
		Z	3.93	65.42	16.50		80.0	

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

APPENDIX D: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:



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

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

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

**Table D-I
Composition of the Tissue Equivalent Matter**

Frequency (MHz)	2450	2450	5200-5800	5200-5800
Tissue	Head	Body	Head	Body
Ingredients (% by weight)				
DGBE	See page 2	26.7	See page 3	
NaCl		0.1		
Polysorbate (Tween) 80				20
Water		73.2		80

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset			APPENDIX D: Page 1 of 3

3 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	50 – 73 %	
Non-ionic detergents	25 – 50 %	polyoxyethylenesorbitan monolaurate
NaCl	0 – 2 %	
Preservative	0.05 – 0.1%	Preventol-D7

Safety relevant ingredients:

CAS-No. 55965-84-9	< 0.1 %	aqueous preparation, containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyl-3(2H)-isothiazolone
--------------------	---------	--

CAS-No. 9005-64-5 <50 % polyoxyethylenesorbitan monolaurate

According to international guidelines, the product is not a dangerous mixture and therefore not required to be marked by symbols.

Figure D-1
Composition of 2.4 GHz Head Tissue Equivalent Matter

Note: 2.4 GHz head liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Measurement Certificate / Material Test

Item Name	Head Tissue Simulating Liquid (HBBL1900-3800V3)
Product No.	SL AAH 196 AB (Batch: 160330-1)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Setup Validation

Validation results were within ± 2.5% towards the target values of Methanol.

Target Parameters

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

Test Condition

Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	30-Mar-16
Operator	WM

Additional Information

TSL Density 1.054 g/cm³

TSL Heat-capacity 3.389 kJ/(kg·K)

f [MHz]	Measured			Target			Diff to Target [%]	
	e'	e''	sigma	eps	sigma	delta-eps	delta-sigma	
1900	40.7	12.3	1.3	40.0	1.4	1.7	-6.9	
1950	40.5	12.5	1.4	40.0	1.4	1.2	-3.3	
2000	40.3	12.6	1.4	40.0	1.4	0.8	0.1	
2050	40.1	12.7	1.5	39.9	1.4	0.6	0.5	
2100	39.9	12.9	1.5	39.8	1.5	0.3	0.9	
2150	39.8	13.0	1.6	39.7	1.5	0.1	1.2	
2200	39.6	13.1	1.6	39.6	1.6	-0.2	1.7	
2250	39.4	13.2	1.7	39.6	1.6	-0.3	2.0	
2300	39.2	13.3	1.7	39.5	1.7	-0.6	2.4	
2350	39.1	13.5	1.8	39.4	1.7	-0.8	2.9	
2400	38.9	13.6	1.8	39.3	1.8	-1.0	3.4	
2450	38.7	13.7	1.9	39.2	1.8	-1.2	4.0	
2500	38.5	13.8	1.9	39.1	1.9	-1.5	3.9	
2550	38.3	13.9	2.0	39.1	1.9	-1.9	3.5	
2600	38.2	14.1	2.0	39.0	2.0	-2.2	3.9	
2650	37.9	14.2	2.1	38.9	2.0	-2.6	3.8	
2700	37.8	14.3	2.2	38.9	2.1	-2.8	3.9	
2750	37.5	14.4	2.2	38.8	2.1	-3.3	3.6	
2800	37.4	14.5	2.3	38.8	2.2	-3.6	3.6	
2850	37.2	14.6	2.3	38.7	2.2	-3.9	3.7	
2900	37.0	14.7	2.4	38.6	2.3	-4.1	3.8	
2950	36.8	14.8	2.4	38.6	2.3	-4.5	3.7	
3000	36.6	14.9	2.5	38.5	2.4	-4.8	3.6	
3050	36.4	15.0	2.5	38.4	2.5	-5.2	3.8	
3100	36.2	15.1	2.6	38.4	2.5	-5.6	3.8	
3150	36.1	15.2	2.7	38.3	2.6	-5.9	4.0	
3200	35.9	15.2	2.7	38.3	2.6	-6.2	3.9	
3250	35.7	15.3	2.8	38.2	2.7	-6.6	4.1	
3300	35.5	15.3	2.8	38.2	2.7	-6.9	4.0	
3350	35.4	15.4	2.9	38.1	2.8	-7.2	4.2	
3400	35.2	15.5	2.9	38.0	2.8	-7.5	4.1	
3450	35.0	15.5	3.0	38.0	2.9	-7.8	4.2	
3500	34.9	15.6	3.0	37.9	2.9	-8.1	4.2	
3550	34.7	15.6	3.1	37.9	3.0	-8.4	4.2	
3600	34.5	15.7	3.1	37.8	3.0	-8.7	4.4	
3650	34.4	15.8	3.2	37.8	3.1	-9.0	4.3	
3700	34.2	15.8	3.3	37.7	3.1	-9.3	4.5	
3750	34.1	15.9	3.3	37.6	3.2	-9.5	4.4	
3800	33.9	15.9	3.4	37.6	3.2	-9.9	4.7	
3850	33.7	16.0	3.4	37.5	3.3	-10.1	4.7	

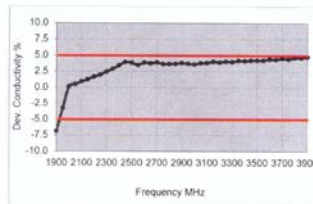
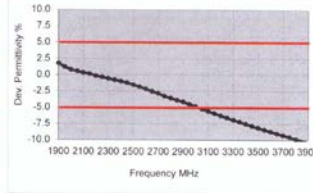




Figure D-2
2.4 GHz Head Tissue Equivalent Matter

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset			APPENDIX D: Page 2 of 3

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	50 – 65%
Mineral oil	10 – 30%
Emulsifiers	8 – 25%
Sodium salt	0 – 1.5%

Figure D-3

Composition of 5 GHz Head Tissue Equivalent Matter

Note: 5GHz head liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Measurement Certificate / Material Test

Item Name	Head Tissue Simulating Liquid (HBBL3500-5800V5)
Product No.	SL AAH 502 AG (Batch: 160331-2)
Manufacturer	SPEAG
Measurement Method	
TSL dielectric parameters measured using calibrated DAK probe.	
Setup Validation	
Validation results were within $\pm 2.5\%$ towards the target values of Methanol.	
Target Parameters	
Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.	
Test Condition	
Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	4-Apr-16
Operator	WM
Additional Information	
TSL Density	0.985 g/cm ³
TSL Heat-capacity	3.383 kJ/(kg*K)

f (MHz)	Measured			Target		Diff.to Target (%)	
	e'	e''	sigma	eps	sigma	Δ-eps	Δ-sigma
3400	39.0	15.12	2.86	38.0	2.81	2.5	1.8
3500	38.8	15.09	2.94	37.9	2.91	2.3	0.9
3600	38.7	15.08	3.02	37.8	3.02	2.3	0.2
3700	38.6	15.08	3.10	37.7	3.12	2.4	-0.6
3800	38.4	15.07	3.19	37.6	3.22	2.2	-0.9
3900	38.3	15.09	3.27	37.5	3.32	2.2	-1.6
4000	38.2	15.10	3.36	37.4	3.43	2.3	-1.9
4100	38.1	15.13	3.45	37.2	3.53	2.3	-2.2
4200	38.0	15.18	3.55	37.1	3.63	2.3	-2.2
4300	37.8	15.22	3.64	37.0	3.73	2.1	-2.5
4400	37.7	15.29	3.74	36.9	3.84	2.2	-2.5
4500	37.6	15.34	3.84	36.8	3.94	2.2	-2.5
4600	37.4	15.41	3.94	36.7	4.04	2.0	-2.5
4700	37.3	15.47	4.05	36.6	4.14	2.0	-2.2
4800	37.1	15.53	4.15	36.4	4.25	1.8	-2.2
4850	37.1	15.57	4.20	36.4	4.30	2.0	-2.2
4900	37.0	15.60	4.25	36.3	4.35	1.8	-2.2
4950	36.9	15.62	4.30	36.3	4.40	1.7	-2.2
5000	36.8	15.66	4.35	36.2	4.45	1.6	-2.2
5050	36.8	15.68	4.40	36.2	4.50	1.8	-2.2
5100	36.7	15.73	4.46	36.1	4.55	1.7	-2.0
5150	36.6	15.75	4.51	36.0	4.60	1.5	-2.0
5200	36.5	15.78	4.57	36.0	4.68	1.4	-1.8
5250	36.4	15.80	4.62	35.9	4.71	1.3	-1.8
5300	36.4	15.84	4.67	35.9	4.76	1.5	-1.8
5350	36.3	15.85	4.72	35.8	4.81	1.4	-1.8
5400	36.2	15.88	4.77	35.8	4.86	1.2	-1.9
5450	36.2	15.90	4.82	35.7	4.91	1.4	-1.9
5500	36.1	15.91	4.87	35.6	4.96	1.3	-1.9
5550	36.0	15.95	4.93	35.6	5.01	1.2	-1.7
5600	35.9	15.99	4.98	35.5	5.07	1.0	-1.7
5650	35.9	16.02	5.04	35.5	5.12	1.2	-1.5
5700	35.8	16.05	5.09	35.4	5.17	1.1	-1.5
5750	35.7	16.09	5.15	35.4	5.22	1.0	-1.3
5800	35.7	16.10	5.20	35.3	5.27	1.1	-1.3
5850	35.6	16.14	5.25	35.3	5.34	0.8	-1.6
5900	35.5	16.15	5.30	35.3	5.40	0.6	-1.9

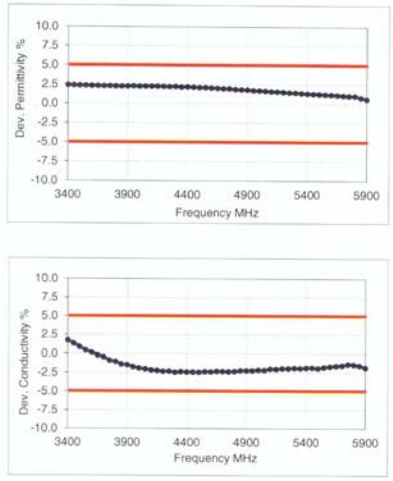




Figure D-4
5GHz Head Tissue Equivalent Matter

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset			APPENDIX D: Page 3 of 3

APPENDIX E: SAR SYSTEM VALIDATION

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

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



Table E-1
SAR System Validation Summary – 1g

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
							(σ)	(εr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
E	2450	4/3/2017	3319	ES3DV3	2450	Head	1.869	38.994	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
H	5250	6/10/2017	3914	EX3DV4	5250	Head	4.580	35.029	PASS	PASS	PASS	OFDM	N/A	PASS
H	5600	6/10/2017	3914	EX3DV4	5600	Head	4.940	34.501	PASS	PASS	PASS	OFDM	N/A	PASS
H	5750	6/10/2017	3914	EX3DV4	5750	Head	5.103	34.300	PASS	PASS	PASS	OFDM	N/A	PASS
I	2450	5/10/2017	3213	ES3DV3	2450	Body	2.003	51.944	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
D	5250	10/24/2017	7308	EX3DV4	5250	Body	5.405	48.529	PASS	PASS	PASS	OFDM	N/A	PASS
D	5600	10/24/2017	7308	EX3DV4	5600	Body	5.910	47.818	PASS	PASS	PASS	OFDM	N/A	PASS
D	5750	10/24/2017	7308	EX3DV4	5750	Body	6.135	47.546	PASS	PASS	PASS	OFDM	N/A	PASS

Table E-2
SAR System Validation Summary – 10g

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
							(σ)	(εr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
I	2450	5/10/2017	3213	ES3DV3	2450	Body	2.003	51.944	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
D	5250	10/24/2017	7308	EX3DV4	5250	Body	5.405	48.529	PASS	PASS	PASS	OFDM	N/A	PASS
D	5600	10/24/2017	7308	EX3DV4	5600	Body	5.910	47.818	PASS	PASS	PASS	OFDM	N/A	PASS
D	5750	10/24/2017	7308	EX3DV4	5750	Body	6.135	47.546	PASS	PASS	PASS	OFDM	N/A	PASS

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

FCC ID: A3LSMA730X		SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 11/13/17 - 11/20/17	DUT Type: Portable Handset	APPENDIX E: Page 1 of 1		