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SAR EVALUATION REPORT

Applicant Name:
u-blox AG
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Date of Testing:
02/13/2018 – 03/07/2018
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1712220332-01.XPY

FCC ID: **XPY1CGM5NNN**

APPLICANT: **U-BLOX AG**

DUT Type:	Module Integrated into Portable Pet Collar
Application Type:	Class II Permissive Change
FCC Rule Part(s):	CFR §2.1093
Model:	VSF-001-1
Test Device Serial Number:	Pre-Production [S/N: 1605-1]
Permissive Change(s):	Module Integrated into VSF-001-1 Portable Pet Collar

Equipment Class	Band & Mode	Tx Frequency	SAR
			1g Body (W/kg)
PCB	GPRS/EDGE 850	824.20 - 848.80 MHz	**0.23**
PCB	UMTS 850	826.40 - 846.60 MHz	0.10
PCB	GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.22
PCB	UMTS 1900	1852.4 - 1907.6 MHz	< 0.1
Simultaneous SAR per KDB 690783 D01v01r03:			**0.36**

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 1.7 of this report; for North American frequency bands only.

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

Randy Ortanez
President

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.

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GPRS/EDGE 850	Data	824.20 - 848.80 MHz
UMTS 850	Data	826.40 - 846.60 MHz
GPRS/EDGE 1900	Data	1850.20 - 1909.80 MHz
UMTS 1900	Data	1852.4 - 1907.6 MHz

1.2 Power Reduction for SAR

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

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slots	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GPRS/EDGE 850	Maximum	**33.0**	**33.0**	**32.2**	**31.0**	**27.25**	**27.25**	**26.45**	**25.25**
	Nominal	**32.0**	**32.0**	**31.2**	**30.0**	**26.25**	**26.25**	**25.45**	**24.25**
GPRS/EDGE 1900	Maximum	**30.0**	**30.0**	**29.2**	**28.0**	**26.25**	**26.25**	**25.45**	**24.25**
	Nominal	**29.0**	**29.0**	**28.2**	**27.0**	**25.25**	**25.25**	**24.45**	**23.25**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
UMTS Band 5 (850 MHz)	Maximum	**25.0**	**25.0**	**25.0**
	Nominal	**24.0**	**24.0**	**24.0**
UMTS Band 2 (1900 MHz)	Maximum	**25.0**	**25.0**	**25.0**
	Nominal	**24.0**	**24.0**	**24.0**

1.4 DUT Antenna Locations

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

1.5 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This module is integrated into host model VSF-001-1 with FCC ID: 2APPWSO1 and can transmit simultaneously.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

Table 1-1
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Body
1	UMTS + 2.4 GHz Bluetooth LE	Yes
2	GPRS/EDGE + 2.4 GHz Bluetooth LE	Yes

1. All licensed modes share the same antenna path and cannot transmit simultaneously.

1.6 Miscellaneous SAR Test Considerations

(A) Licensed Transmitter(s)

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

1.7 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D06v02r01 (2G/3G and Hotspot)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)

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/m^3)
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]

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:

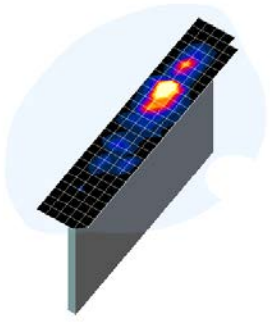

Figure 3-1
Sample SAR Area Scan

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.

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

Frequency	Maximum Area Scan Resolution (mm) (Δx_{area}, Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom}, Δy_{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

4 TEST CONFIGURATION POSITIONS

4.1 Device Holder

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

4.2 Positioning for Testing

Based on FCC guidance and expected exposure conditions, the device was positioned with the outside of the pet collar touching the flat phantom and such that the location of maximum SAR was captured during SAR testing. The SAR test setup photograph is included in Appendix F.

5 RF EXPOSURE LIMITS

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (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.

6 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

6.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. 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.

6.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is $\leq$ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is $\leq$ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

6.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”

The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

6.4 SAR Measurement Conditions for UMTS

6.4.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

6.4.2 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s". The 3G SAR test reduction procedure is applied to other spreading codes and multiple $DPDCH_n$ configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or $DPDCH_n$, for the highest reported SAR configuration in 12.2 kbps RMC.

6.4.3 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

6.4.4 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

7 RF CONDUCTED POWERS

7.1 GSM Conducted Powers

Table 7-1
Maximum Conducted Power

Band	Channel	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	31.08	31.02	30.37	**29.40**	25.81	25.41	24.65	23.70
	190	31.06	31.05	30.36	**29.38**	25.79	25.37	24.67	23.71
	251	31.13	31.08	30.43	**29.46**	25.93	25.53	24.74	23.79
GSM 1900	512	28.21	28.18	27.37	**26.25**	24.27	24.48	23.79	22.61
	661	28.22	28.18	27.46	**26.34**	24.31	24.53	23.88	22.76
	810	28.37	28.37	27.60	**26.48**	24.50	24.72	23.98	22.92

Calculated Maximum Frame-Averaged Output Power									
		GPRS/EDGE Data (GMSK)				*EDGE Data (8-PSK)*			
Band	Channel	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	22.05	25.00	26.11	**26.39**	16.78	19.39	20.39	20.69
	190	22.03	25.03	26.10	**26.37**	16.76	19.35	20.41	20.70
	251	22.10	25.06	26.17	**26.45**	16.90	19.51	20.48	20.78
GSM 1900	512	19.18	22.16	23.11	**23.24**	15.24	18.46	19.53	19.60
	661	19.19	22.16	23.20	**23.33**	15.28	18.51	19.62	19.75
	810	19.34	22.35	23.34	**23.47**	15.47	18.70	19.72	19.91
GSM 850	Frame Avg.Targets:	22.97	25.98	26.94	**26.99**	17.22	20.23	21.19	21.24
GSM 1900		19.97	22.98	23.94	**23.99**	16.22	19.23	20.19	20.24

Note:

1. Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.

2. GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
3. EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.

GSM Class: C
GPRS Multislot class: 12 (Max 4 Tx uplink slots)
EDGE Multislot class: 12 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A

Figure 7-1
Power Measurement Setup

7.2 UMTS Conducted Powers

Table 7-2
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			βc	βd	3GPP MPR [dB]
			4132	4183	4233	9262	9400	9538			
99	WCDMA	12.2 kbps RMC	23.95	23.55	23.64	24.28	24.49	24.98	-	-	-
6	HSDPA	Subtest 1	23.41	23.06	23.17	21.60	21.61	22.14	2	15	0
6		Subtest 2	22.77	22.36	22.46	20.83	20.88	21.52	11	15	0
6		Subtest 3	22.53	22.12	22.21	20.65	20.64	21.32	15	8	0.5
6		Subtest 4	22.30	21.56	21.95	20.42	20.47	21.11	15	4	0.5
6	HSUPA	Subtest 1	22.58	22.13	22.23	20.64	21.04	21.69	10	15	0
6		Subtest 2	20.59	20.21	20.25	18.51	18.94	19.70	6	15	2
6		Subtest 3	21.36	21.01	21.08	19.33	19.71	20.47	15	9	1
6		Subtest 4	20.85	20.44	20.50	18.78	19.29	19.95	2	15	2
6		Subtest 5	22.52	22.21	22.26	20.61	21.05	21.78	14	15	0

This device does not support DC-HSDPA.

It is expected by the manufacturer that MPR for some HSDPA and HSUPA subtests can deviate as much as 1 to 3 dB lower than the usual MPR targets specified by 3GPP.

Figure 7-2
Power Measurement Setup

8 SYSTEM VERIFICATION

8.1 Tissue Verification

Table 8-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
2/14/2018	835B	21.2	820	0.972	53.366	0.969	55.258	*0.31%*	*-3.42%*
			835	0.986	53.219	0.970	55.200	*1.65%*	*-3.59%*
			850	0.998	53.069	0.988	55.154	*1.01%*	*-3.78%*
2/13/2018	1900B	22.5	1850	1.501	52.550	1.520	53.300	*-1.25%*	*-1.41%*
			1880	1.537	52.438	1.520	53.300	*1.12%*	*-1.62%*
			1910	1.573	52.333	1.520	53.300	*3.49%*	*-1.81%*
3/7/2018	1900B	21.4	1850	1.508	52.300	1.520	53.300	*-0.79%*	*-1.88%*
			1880	1.542	52.157	1.520	53.300	*1.45%*	*-2.14%*
			1910	1.577	52.100	1.520	53.300	*3.75%*	*-2.25%*

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.

8.2 Test System Verification

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

Table 8-2
System Verification Results

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)	$Deviation_{1g}$ (%)
H	835	BODY	02/14/2018	23.0	21.0	0.200	4d133	7410	2.020	9.410	10.100	7.33%
I	1900	BODY	02/13/2018	22.6	20.7	0.100	5d080	3347	4.140	39.100	41.400	5.88%
H	1900	BODY	03/07/2018	21.9	21.4	0.100	5d080	7410	4.120	39.100	41.200	5.37%

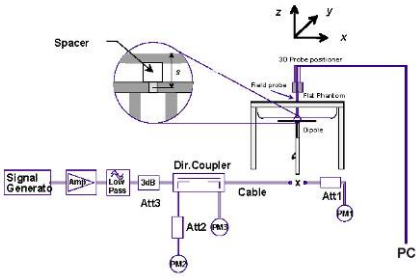

Figure 8-1
System Verification Setup Diagram

Figure 8-2
System Verification Setup Photo

9 SAR DATA SUMMARY

9.1 Standalone Body SAR Data

Table 9-1
UMTS Body SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	SAR Test Duty Cycle	Side	Measured SAR (1g)	Scaling Factor (Power)	Production Duty Cycle	Reported SAR Scaled for Production Duty Factor (1g)	Plot #
MHz	Ch.									(W/kg)			(W/kg)	
836.60	4183	UMTS 850	RMC	25.0	23.55	0.02	0 mm	1:1	outside	0.407	1.396	0.167	0.095	A1
1907.60	9538	UMTS 1900	RMC	25.0	24.98	-0.15	0 mm	1:1	outside	0.437	1.005	0.167	0.073	A2
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 9-2
GSM Body SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	# of GPRS Slots	SAR Test Duty Cycle	Side	Measured SAR (1g)	Scaling Factor (Power)	Production Duty Cycle	Reported SAR Scaled for Production Duty Factor (1g)	Plot #
MHz	Ch.										(W/kg)			(W/kg)	
836.60	190	GSM 850	GPRS	31.0	29.38	-0.06	0 mm	4	1:2.076	outside	0.949	1.452	0.167	**0.230**	A3
836.60	190	GSM 850	GPRS	31.0	29.38	-0.06	0 mm	4	1:2.076	outside	0.891	1.452	0.167	0.216	
1880.00	661	GSM 1900	GPRS	28.0	26.34	-0.21	0 mm	4	1:2.076	outside	0.873	1.466	0.167	0.213	
1880.00	661	GSM 1900	GPRS	28.0	26.34	-0.13	0 mm	4	1:2.076	outside	0.890	1.466	0.167	0.218	A4
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Blue entry represents variability measurement.

9.2 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Per FCC KDB 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. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 11 for variability analysis.
7. SAR Testing was performed with the device configured per KDB 941225 D01. A production duty cycle (1/6) was applied to the measured SAR to account for the intermittent transmission rate of 1 second for every 6 seconds of operational time. This duty cycle is permanently implemented per the manufacturer and cannot be disabled by any end user or carrier.

GSM Test Notes:

1. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

UMTS Notes:

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

10 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

10.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

10.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2 b), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

This module is integrated into host model VSF-001-1 with FCC ID: 2APPWSO1 and can transmit simultaneously. The maximum allowed power of the 2APPWSO1 transmitter was used to estimate the Bluetooth LE SAR for simultaneous transmission analysis.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

Table 10-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Body)
	[MHz]	[dBm]	[mm]	[W/kg]
Bluetooth LE	2480	4.00	5	0.126

Note: Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

10.3 Body Simultaneous Transmission Analysis

Table 10-2
Simultaneous Transmission Scenario with Bluetooth LE (Outside at 0 cm)

Exposure Condition	Mode	2G/3G SAR (W/kg)	Bluetooth LE SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	GPRS 850	0.230	0.126	**0.356**
	UMTS 850	0.095	0.126	0.221
	GPRS 1900	0.218	0.126	0.344
	UMTS 1900	0.073	0.126	0.199

Note: Bluetooth LE SAR was not required to be measured per FCC KDB Publication 447498 D01v06. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

10.4 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

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 preformed 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

BODY VARIABILITY RESULTS

Band	FREQUENCY		Mode	Service	# of Time Slots	Side	Spacing	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)	
835	836.60	190	GSM 850	GPRS	4	outside	0 mm	0.949	0.891	1.07	N/A	N/A	N/A	N/A
1900	1880.00	661	GSM 1900	GPRS	4	outside	0 mm	0.873	0.890	1.02	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram						

11.2 Measurement Uncertainty

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

12 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	E4438C	ESG Vector Signal Generator	3/24/2017	Biennial	3/24/2019	MY42082385
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/22/2017	Annual	3/22/2018	MY45470194
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231538
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231535
Anritsu	MA2411B	Pulse Power Sensor	11/28/2017	Annual	11/28/2018	1027293
Anritsu	ML2495A	Power Meter	11/28/2017	Annual	11/28/2018	1039008
Anritsu	MT8820C	Radio Communication Analyzer	5/23/2017	Annual	5/23/2018	6201240328
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	4040	Digital Thermometer	3/31/2017	Biennial	3/31/2019	170232400
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Seekonk	NC-100	Torque Wrench	12/28/2017	Annual	12/28/2018	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	11/3/2017	Annual	11/3/2018	100976
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	1/22/2018	Annual	1/22/2019	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	EX3DV4	SAR Probe	7/17/2017	Annual	7/17/2018	7410
SPEAG	ES3DV3	SAR Probe	11/14/2017	Annual	11/14/2018	3347
SPEAG	D835V2	835 MHz SAR Dipole	7/11/2017	Annual	7/11/2018	4d133
SPEAG	D1900V2	1900 MHz SAR Dipole	7/8/2016	Biennial	7/8/2018	5d080
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/9/2017	Annual	11/9/2018	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/13/2017	Annual	7/13/2018	1322

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.

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 Unceritainty	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	

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]

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APPENDIX A: SAR TEST DATA

DUT: XPY1CGM5NNN; Type: Module Integrated into Portable Pet Collar

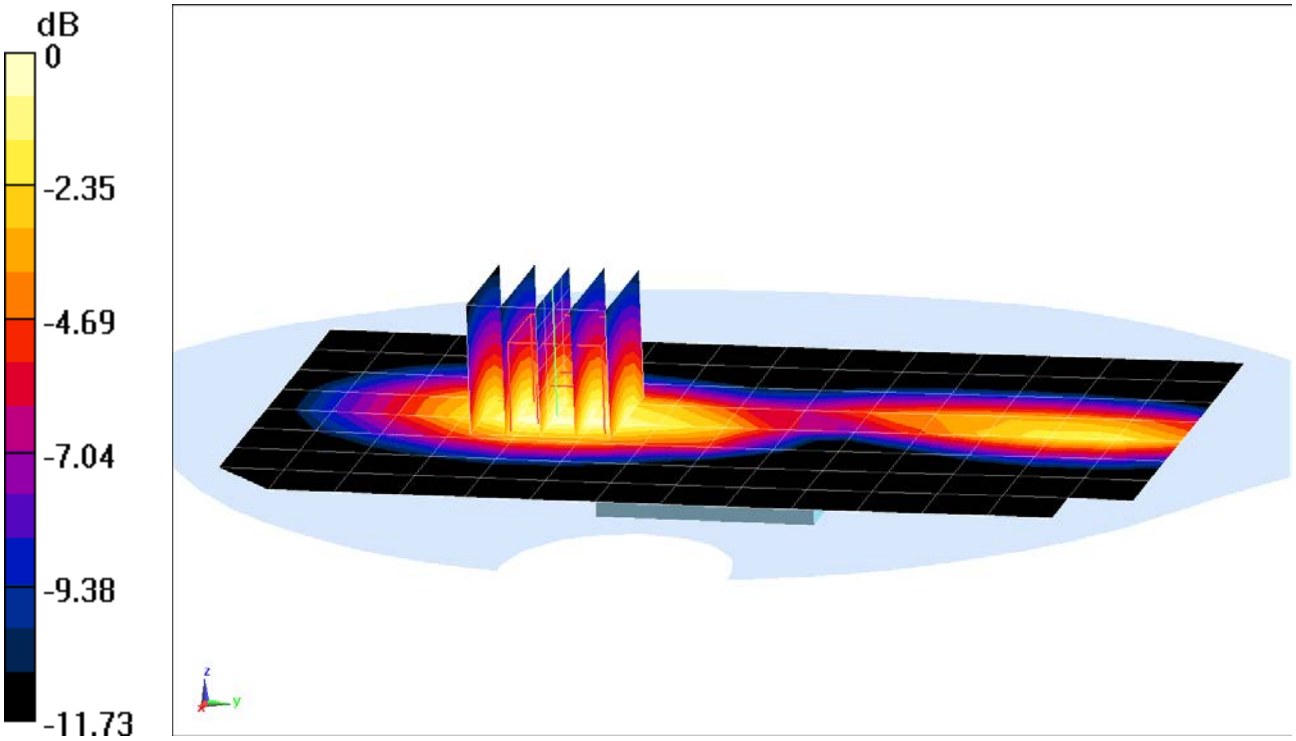
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.987 S/m; ε_r = 53.203; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 02-14-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: UMTS 850, Body SAR, Outside, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.02 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.407 W/kg



0 dB = 0.554 W/kg = -2.56 dBW/kg

DUT: XPY1CGM5NNN; Type: Module Integrated into Portable Pet Collar

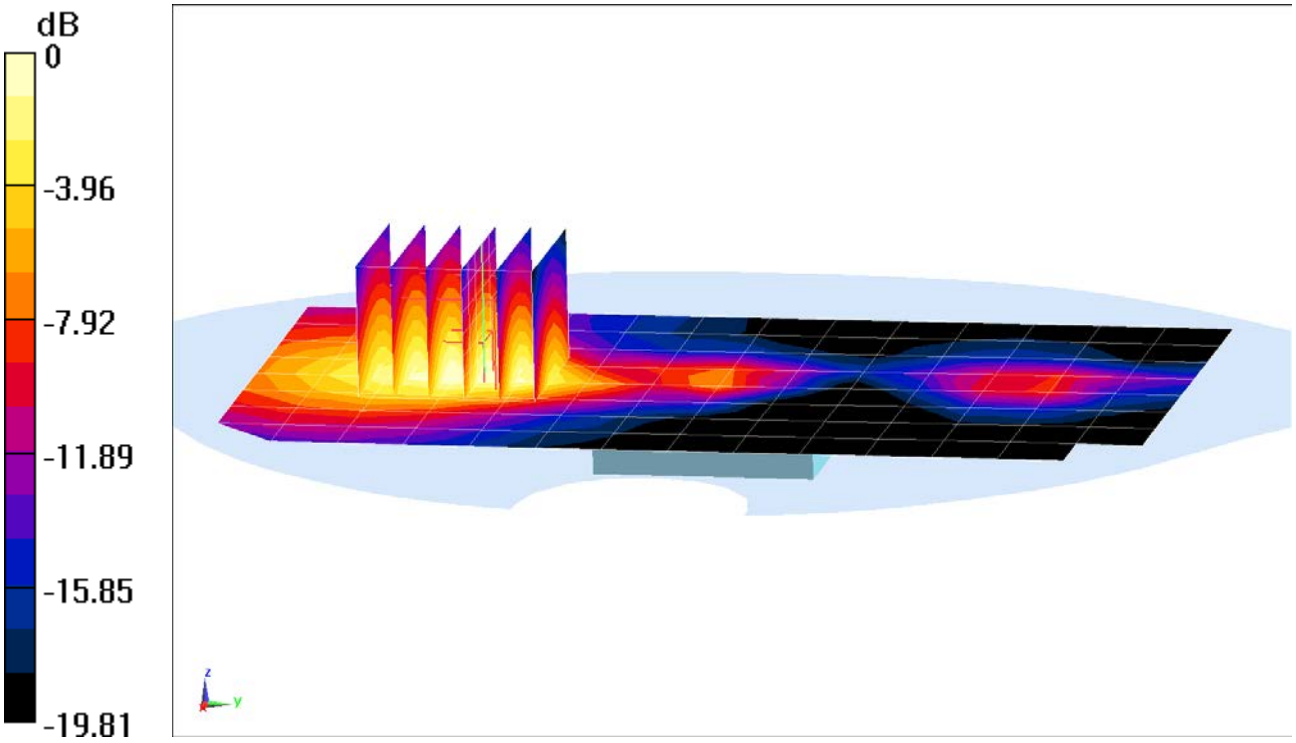
Communication System: UID 0, UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.57 S/m; ε_r = 52.341; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 02-13-2018; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3347; ConvF(4.93, 4.93, 4.93); Calibrated: 11/14/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: SAM Right; Type: SAM; Serial: 1757
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: UMTS 1900, Body SAR, Outside, High.ch

Area Scan (9x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (9x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.82 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.724 W/kg
SAR(1 g) = 0.437 W/kg



0 dB = 0.583 W/kg = -2.34 dBW/kg

DUT: XPY1CGM5NNN; Type: Module Integrated into Portable Pet Collar

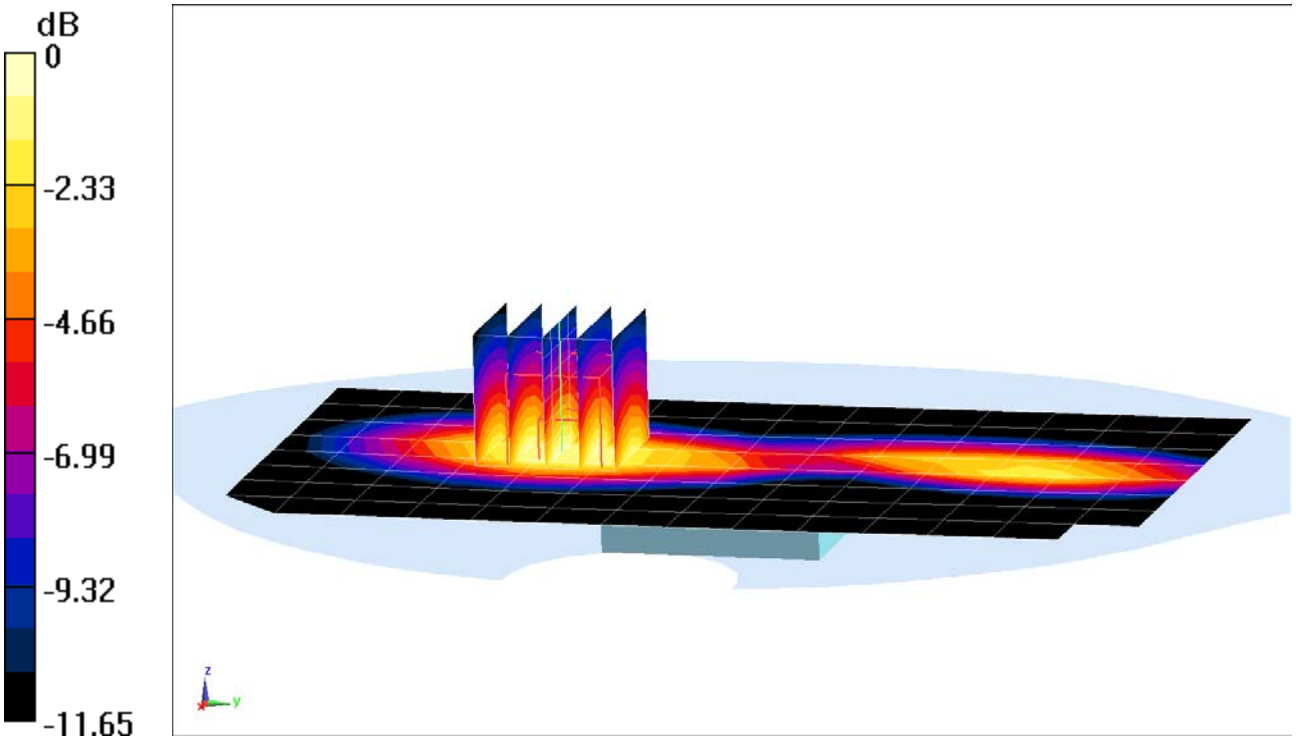
Communication System: UID 0, _GSM GPRS; 4 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.076
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.987 S/m; ε_r = 53.203; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 02-14-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: GPRS 850, Body SAR, Outside, Mid.ch, 4 Tx Slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.36 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.949 W/kg



0 dB = 1.29 W/kg = 1.11 dBW/kg

DUT: XPY1CGM5NNN; Type: Module Integrated into Portable Pet Collar

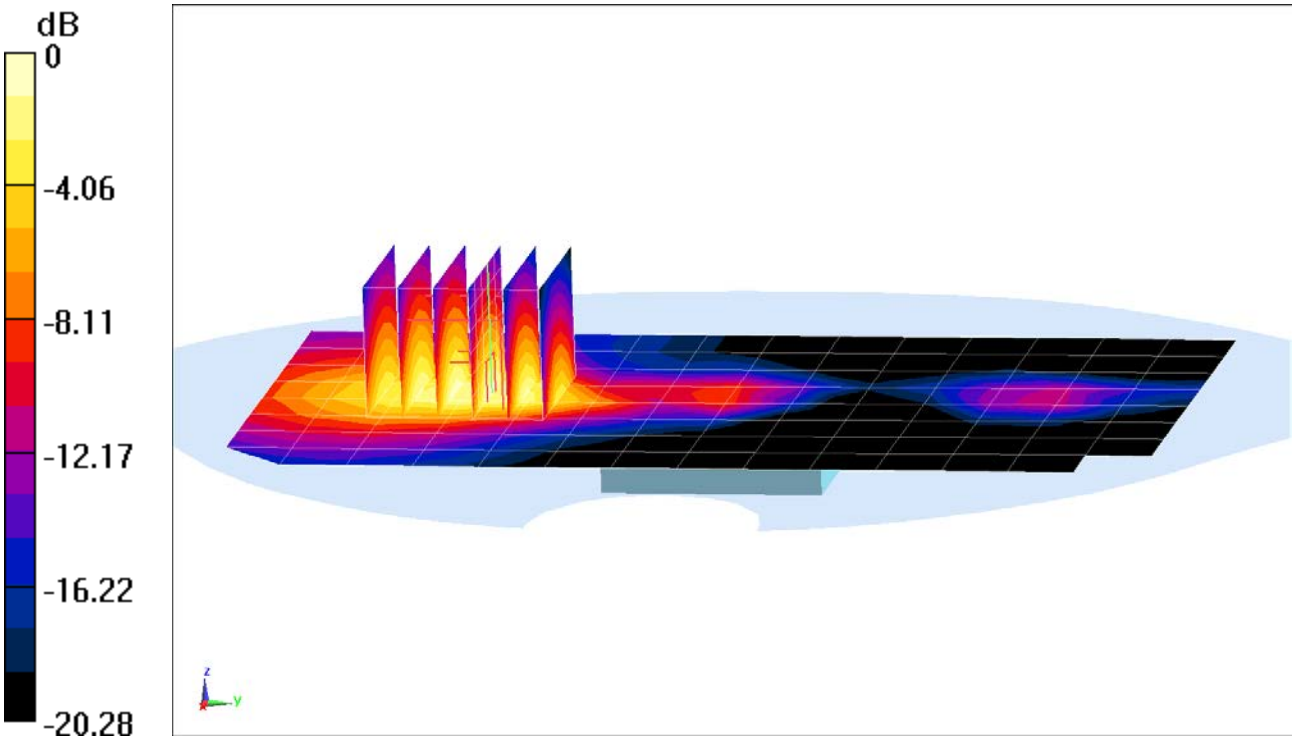
Communication System: UID 0, _GSM GPRS; 4 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.076
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.542 S/m; ε_r = 52.157; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-07-2018; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: GPRS 1900, Body SAR, Outside, Mid.ch, 4 Tx Slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.35 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.890 W/kg



0 dB = 1.24 W/kg = 0.93 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

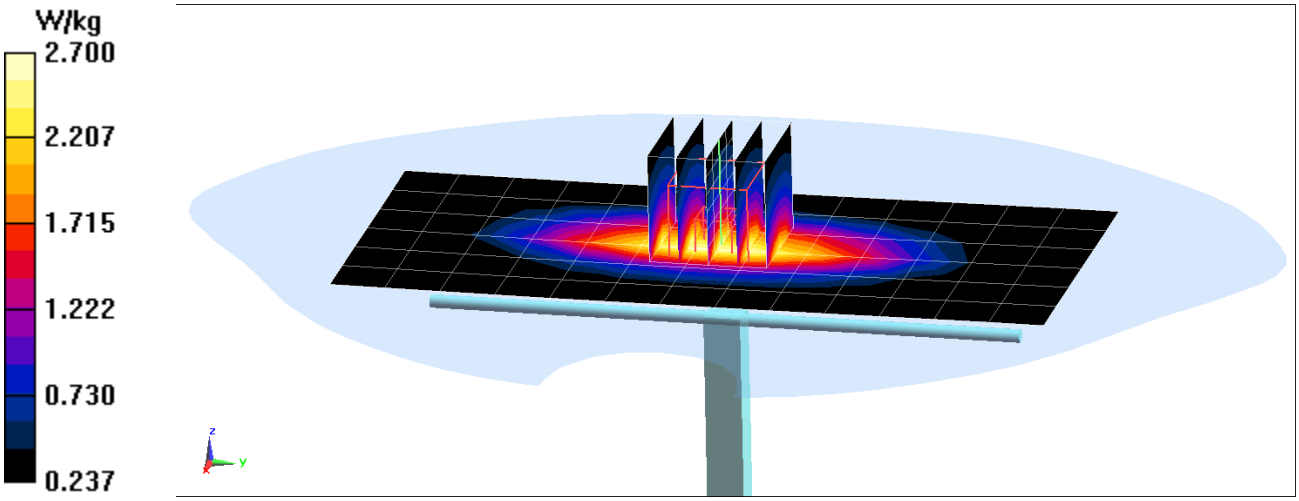
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.986 S/m; ε_r = 53.219; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-14-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.95, 9.95, 9.95); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.04 W/kg
SAR(1 g) = 2.02 W/kg
Deviation(1 g) = 7.33%



DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

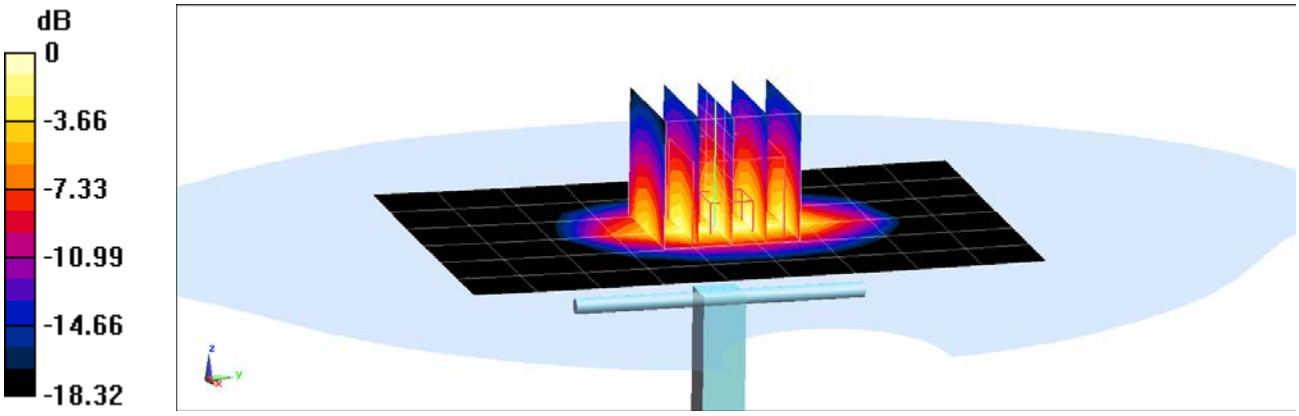
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.561 S/m; ε_r = 52.368; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-13-2018; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3347; ConvF(4.93, 4.93, 4.93); Calibrated: 11/14/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: SAM Right; Type: SAM; Serial: 1757
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.49 W/kg
SAR(1 g) = 4.14 W/kg
Deviation(1 g) = 5.88%



0 dB = 5.22 W/kg = 7.18 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

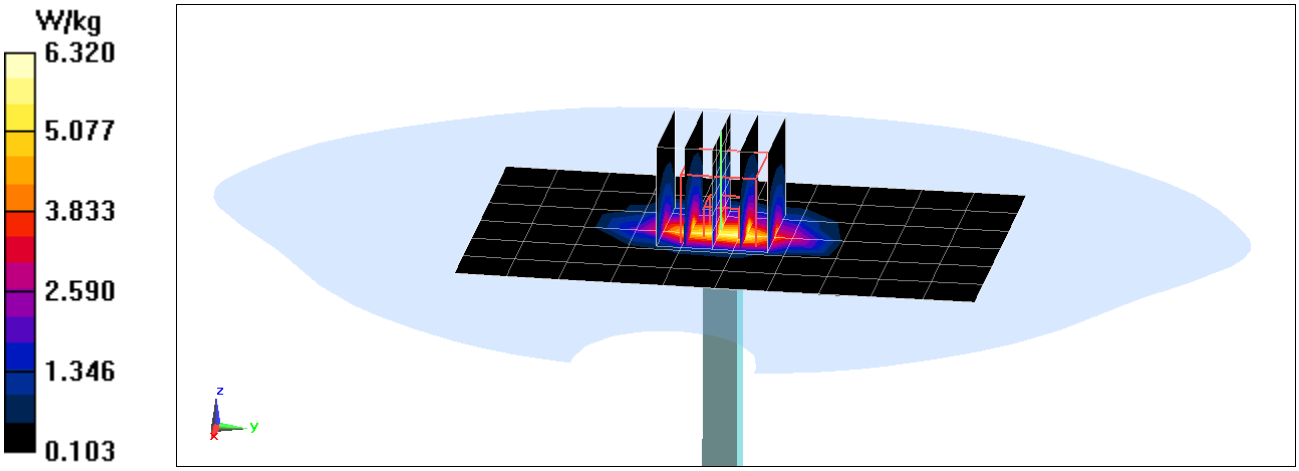
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.565 S/m; ε_r = 52.119; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-07-2018; Ambient Temp: 21.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.38 W/kg
SAR(1 g) = 4.12 W/kg
Deviation(1 g) = 5.37%



APPENDIX C: PROBE CALIBRATION

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

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

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

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D835V2-4d133_Jul17

CALIBRATION CERTIFICATE

Object	D835V2 - SN:4d133
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 11, 2017

BN ✓ 8/3/2017

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. 217-02522)	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

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

Issued: July 12, 2017

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 62209-1, "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"

Additional Documentation:

e) 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	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.8 ± 6 %	0.91 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	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.52 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.10 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	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.8 ± 6 %	1.01 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	2.43 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**9.41 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.58 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**6.16 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	51.0 Ω - 2.9 jΩ
Return Loss	- 30.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.7 Ω - 6.8 jΩ
Return Loss	- 22.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.196 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	July 22, 2011

DASY5 Validation Report for Head TSL

Date: 11.07.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d133

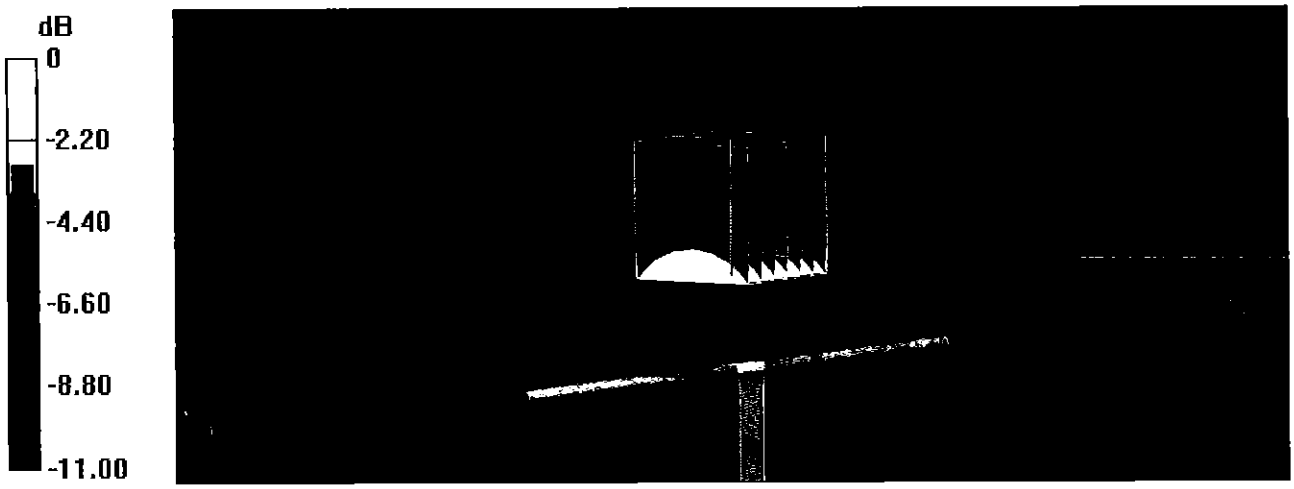
Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.91 S/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.07, 10.07, 10.07); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

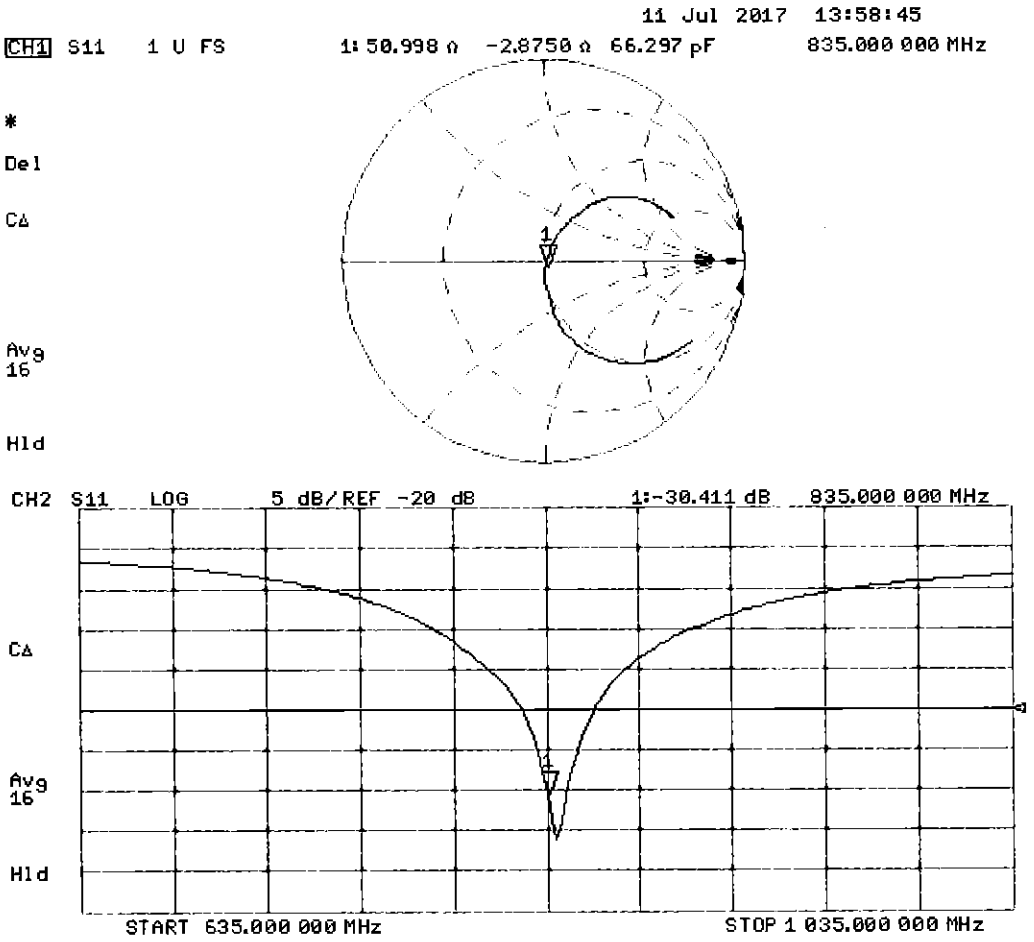
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 62.84 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 3.28 W/kg



0 dB = 3.28 W/kg = 5.16 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 11.07.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d133

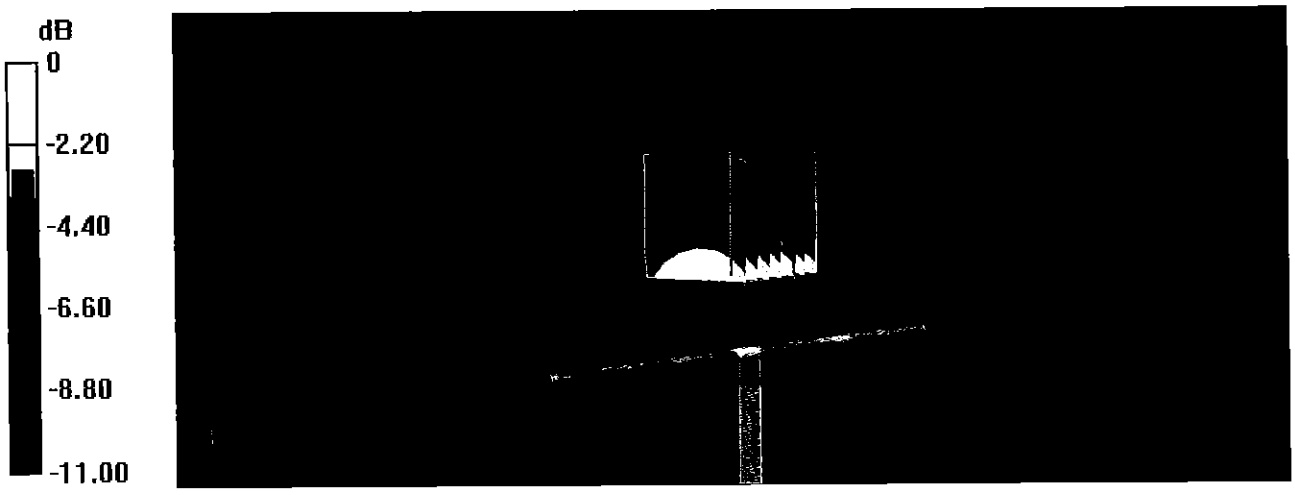
Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.01 S/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.2, 10.2, 10.2); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

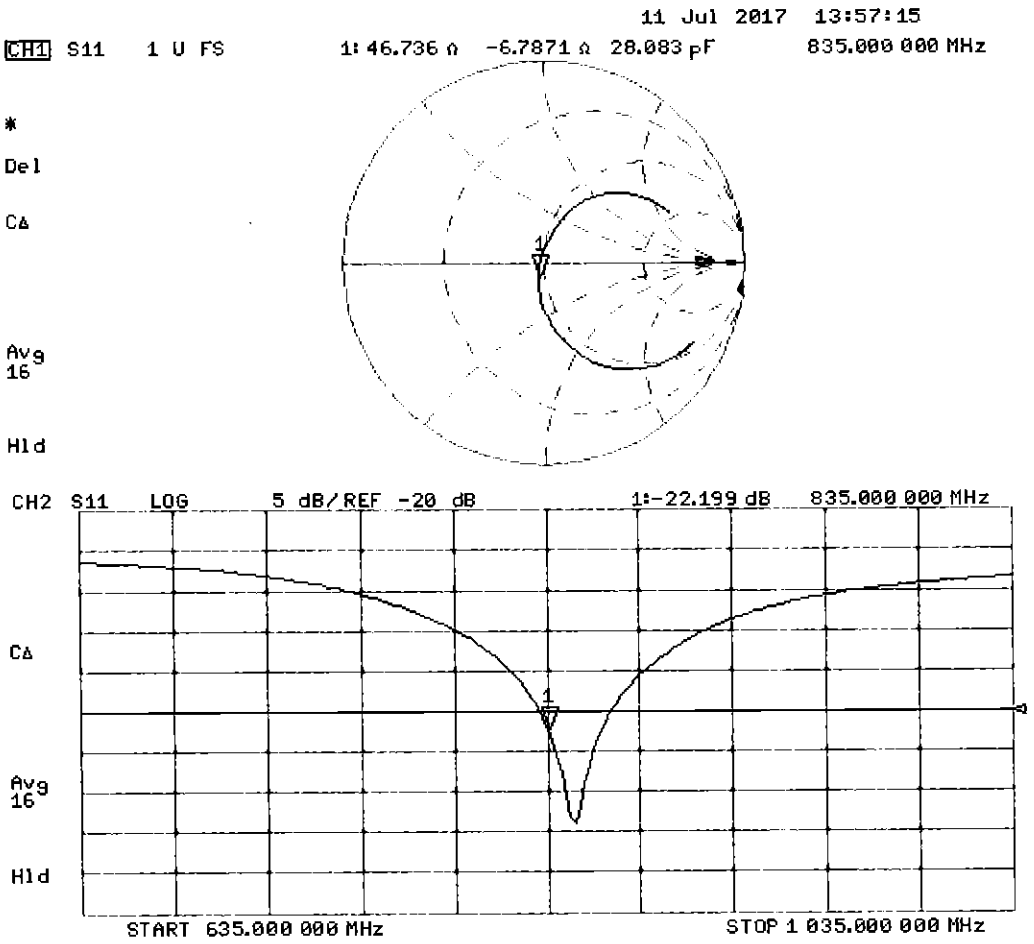
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.25 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.21 W/kg = 5.07 dBW/kg

Impedance Measurement Plot for Body TSL



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

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

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

Accreditation No.: SCS 0108

Client PC Test

Certificate No: D1900V2-5d080_Jul16

CALIBRATION CERTIFICATE

Object: D1900V2 - SN:5d080

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

BN ✓
7/16/2016
Extended
7/2017
SL ✓

Calibration date: July 08, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (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

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

Issued: July 13, 2016

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 62209-1, "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"

Additional Documentation:

e) 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	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.8 ± 6 %	1.38 mho/m ± 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	9.76 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.5 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.7 ± 6 %	1.51 mho/m ± 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	9.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**39.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.7 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	52.1 Ω + 5.3 jΩ
Return Loss	- 25.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.4 Ω + 6.8 jΩ
Return Loss	- 22.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.192 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	June 28, 2006

DASY5 Validation Report for Head TSL

Date: 08.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d080

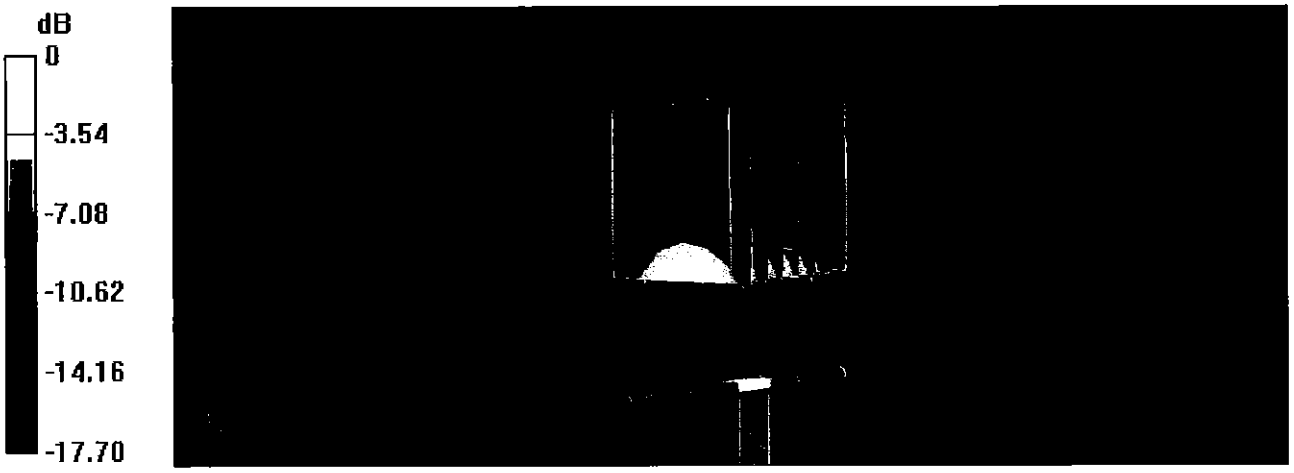
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 S/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.99, 7.99, 7.99); 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)

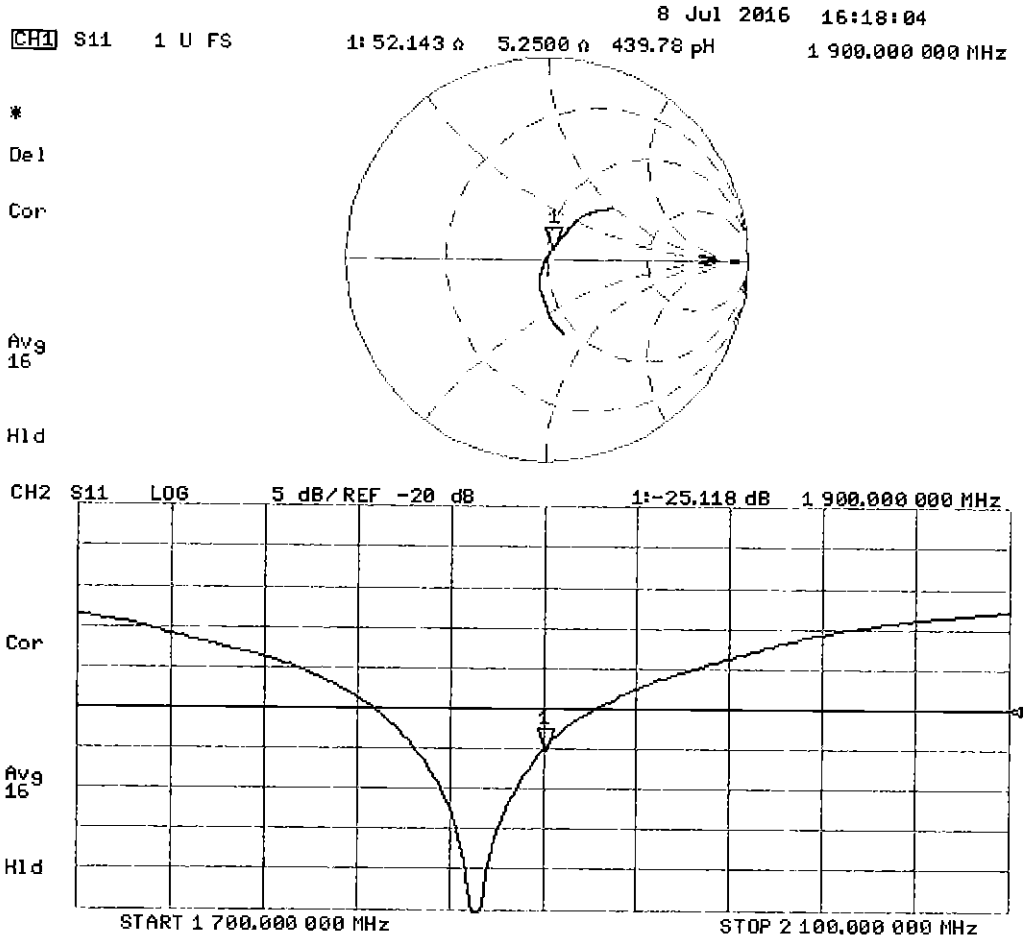
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.6 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 9.76 W/kg; SAR(10 g) = 5.1 W/kg
Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg = 11.76 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 08.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d080

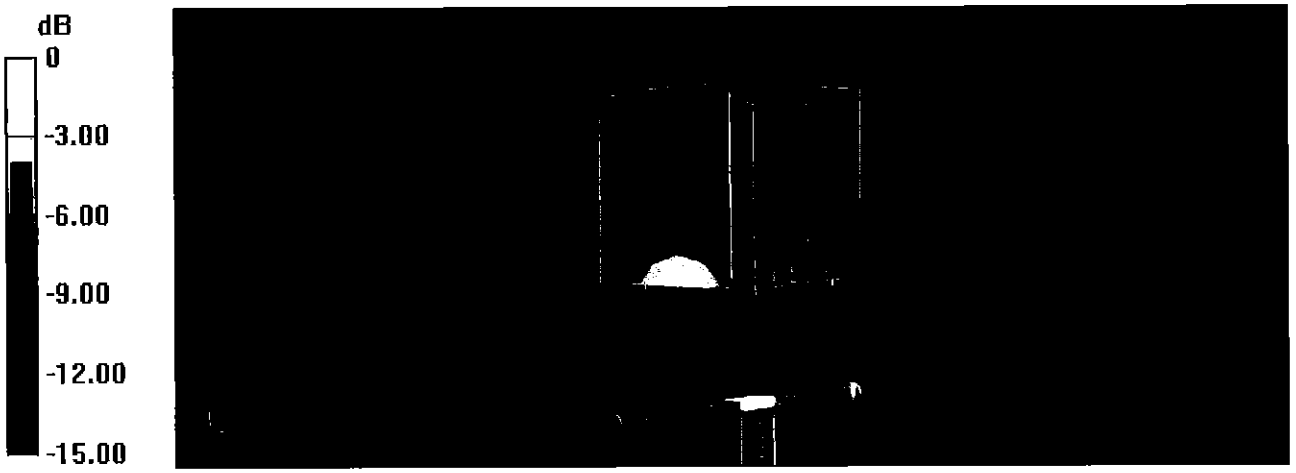
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 S/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.03, 8.03, 8.03); 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)

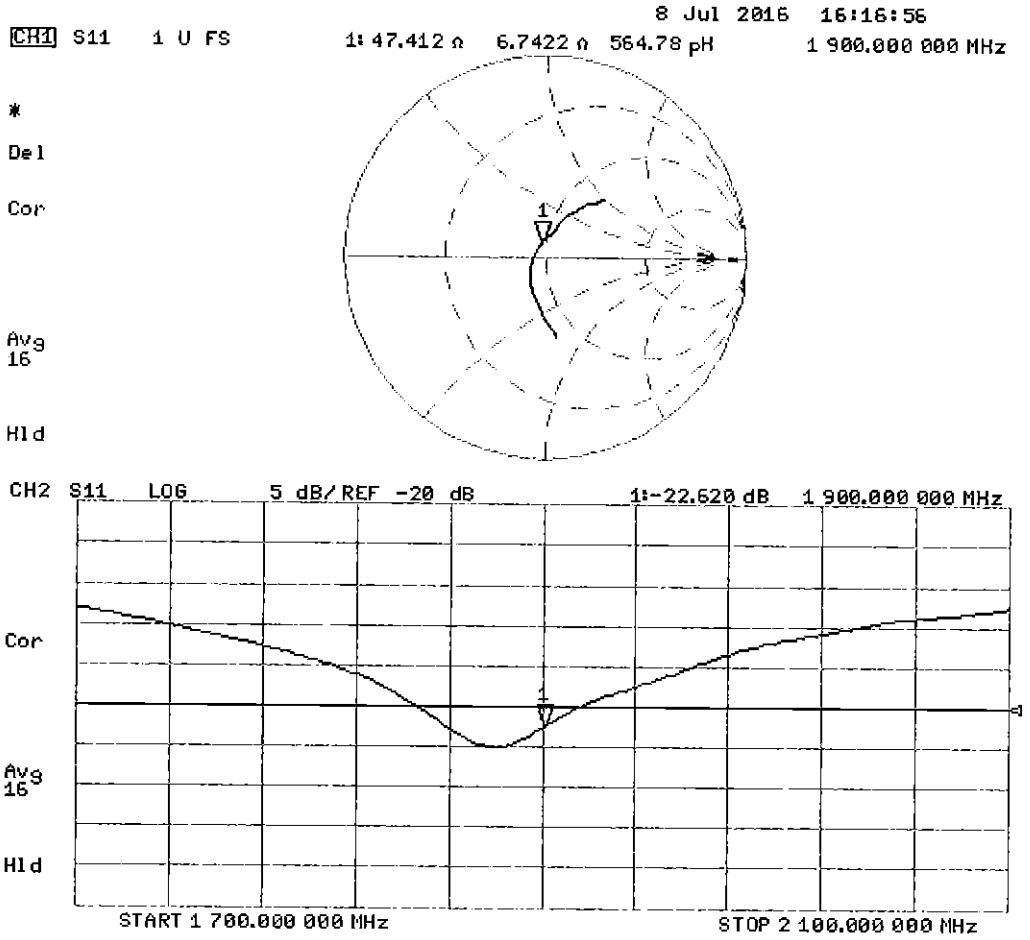
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 103.1 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.75 W/kg; SAR(10 g) = 5.17 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

Impedance Measurement Plot for Body TSL



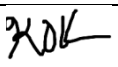
Certification of Calibration

Object	D1900V2 – SN: 5d080
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Calibration date:	July 06, 2017
Description:	SAR Validation Dipole at 1900 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	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
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	3/13/2017	Annual	3/13/2018	1415
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3209
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 = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	

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:

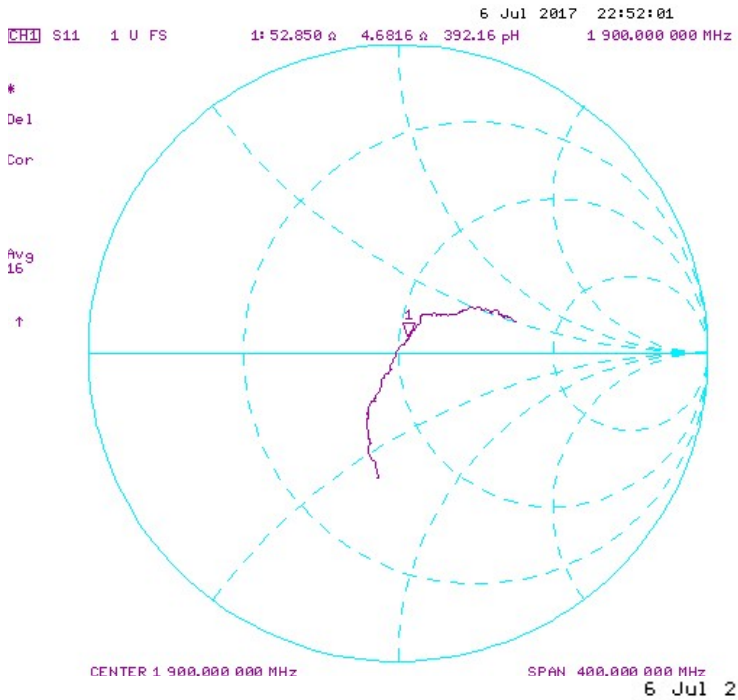
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does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

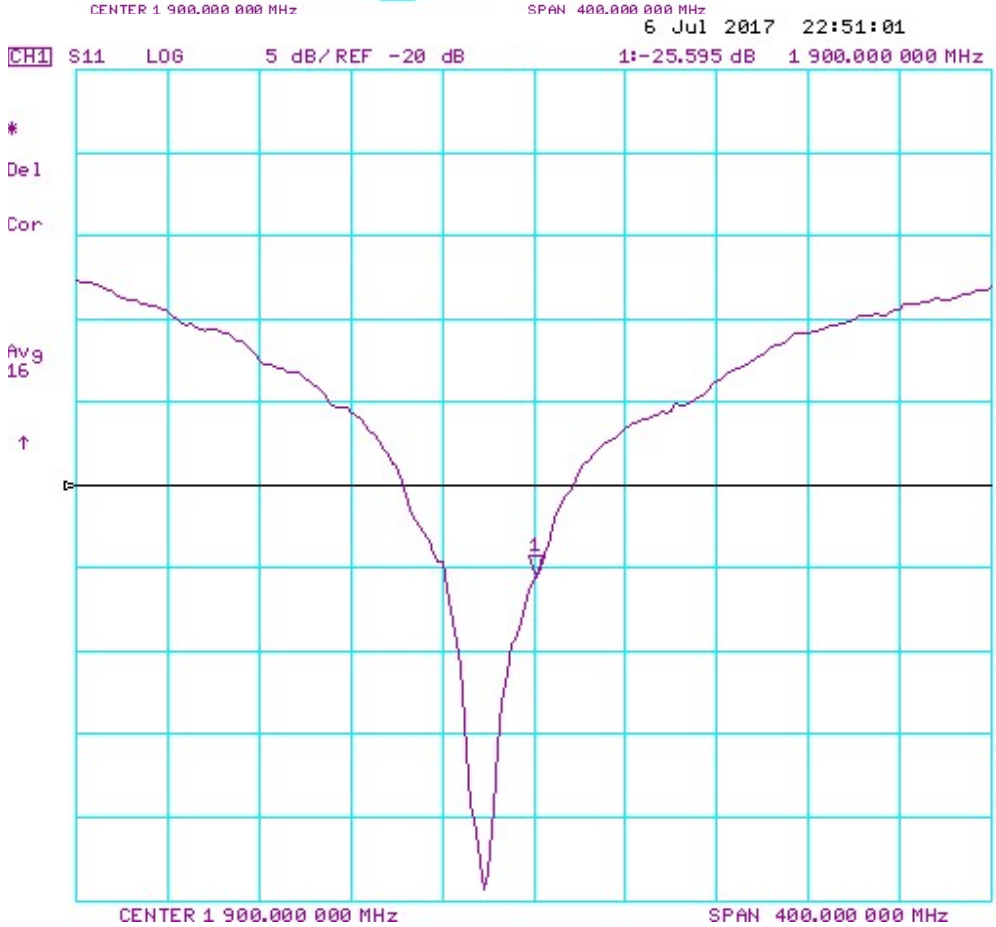
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

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
7/8/2016	7/6/2017	1.192	3.93	3.86	-1.78%	2.05	2	-2.44%	52.1	52.9	0.8	5.3	4.7	0.6	-25.1	-25.6	-2.00%	PASS

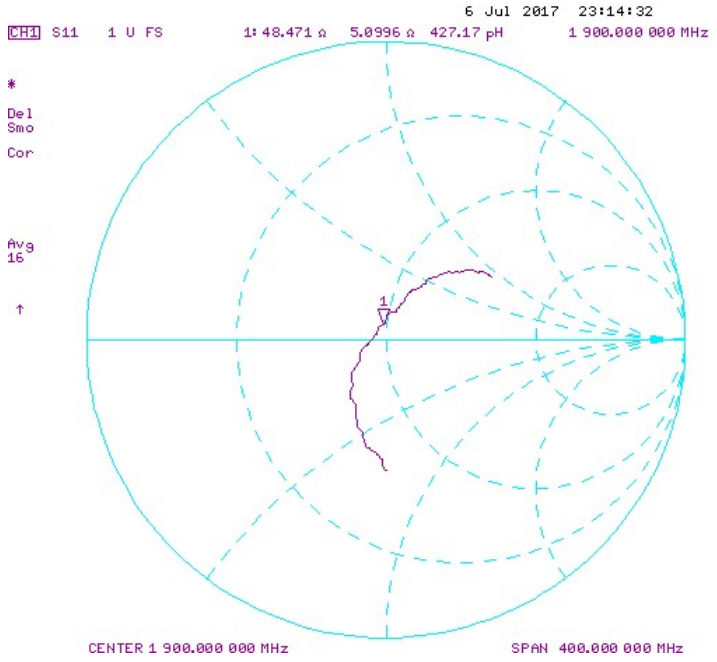
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance 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
7/8/2016	7/6/2017	1.192	3.91	4.05	3.58%	2.07	2.11	1.93%	47.4	48.5	1.1	6.8	5.1	1.7	-22.6	-25.5	-12.80%	PASS

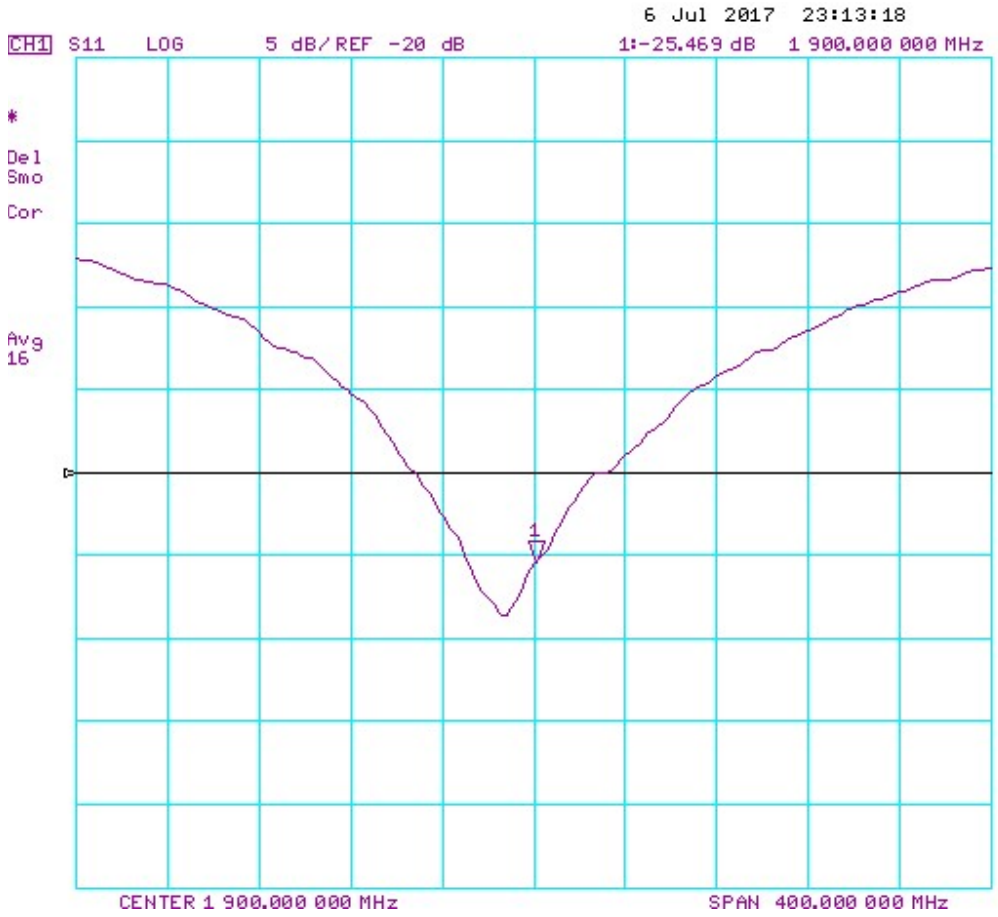
Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL





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

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

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

Accreditation No.: SCS 0108

Client PC Test

Certificate No: EX3-7410_Jul17

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7410
Calibration procedure(s)	QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	July 17, 2017

BN ✓
8/3/2017

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

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

Issued: July 17, 2017

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:7410

Manufactured: November 24, 2015
Calibrated: July 17, 2017

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7410

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.40	0.46	0.43	± 10.1 %
DCP (mV)[B]	95.4	94.7	91.2	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	130.7	±3.5 %
		Y	0.0	0.0	1.0		146.7	
		Z	0.0	0.0	1.0		132.5	

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	41.43	313.6	36.54	8.525	0.381	5.024	0.000	0.467	1.003
Y	41.67	315.5	36.57	10.32	0.000	5.055	0.334	0.426	1.004
Z	51.58	393.9	37.05	11.42	0.427	5.066	0.000	0.561	1.006

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:7410

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	10.60	10.60	10.60	0.53	0.80	± 12.0 %
835	41.5	0.90	10.08	10.08	10.08	0.41	0.98	± 12.0 %
1750	40.1	1.37	8.66	8.66	8.66	0.41	0.82	± 12.0 %
1900	40.0	1.40	8.37	8.37	8.37	0.28	1.19	± 12.0 %
2300	39.5	1.67	8.02	8.02	8.02	0.35	0.80	± 12.0 %
2450	39.2	1.80	7.68	7.68	7.68	0.33	0.89	± 12.0 %
2600	39.0	1.96	7.42	7.42	7.42	0.40	0.80	± 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: EX3DV4 - SN:7410

Calibration Parameter Determined in Body Tissue Simulating Media

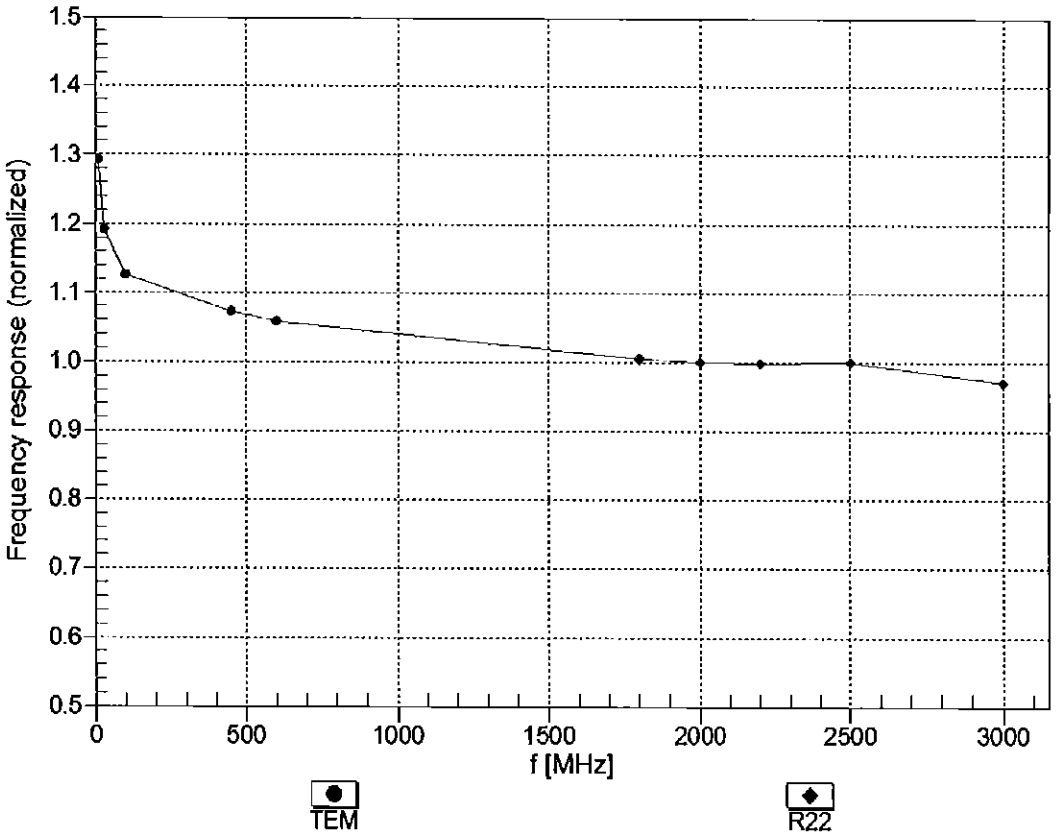
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	10.19	10.19	10.19	0.33	1.02	± 12.0 %
835	55.2	0.97	9.95	9.95	9.95	0.50	0.80	± 12.0 %
1750	53.4	1.49	8.32	8.32	8.32	0.39	0.86	± 12.0 %
1900	53.3	1.52	7.98	7.98	7.98	0.44	0.86	± 12.0 %
2300	52.9	1.81	7.85	7.85	7.85	0.44	0.84	± 12.0 %
2450	52.7	1.95	7.69	7.69	7.69	0.37	0.89	± 12.0 %
2600	52.5	2.16	7.43	7.43	7.43	0.28	0.99	± 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.

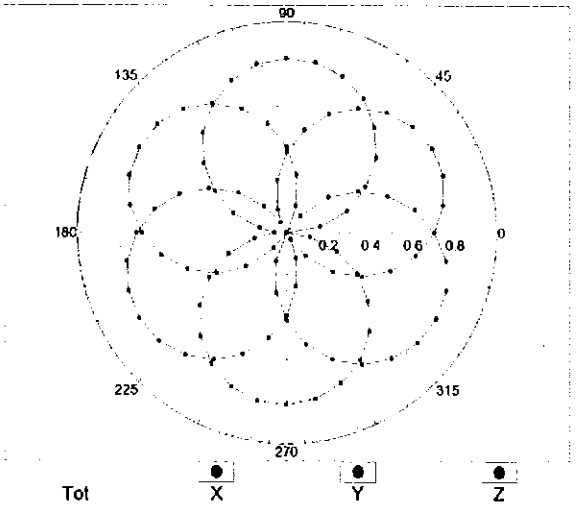
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



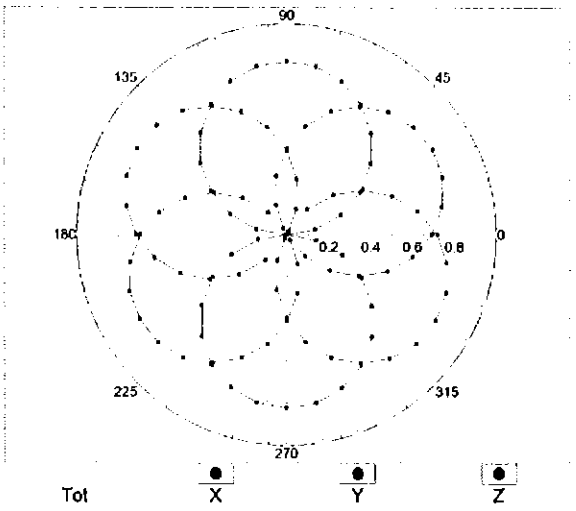
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

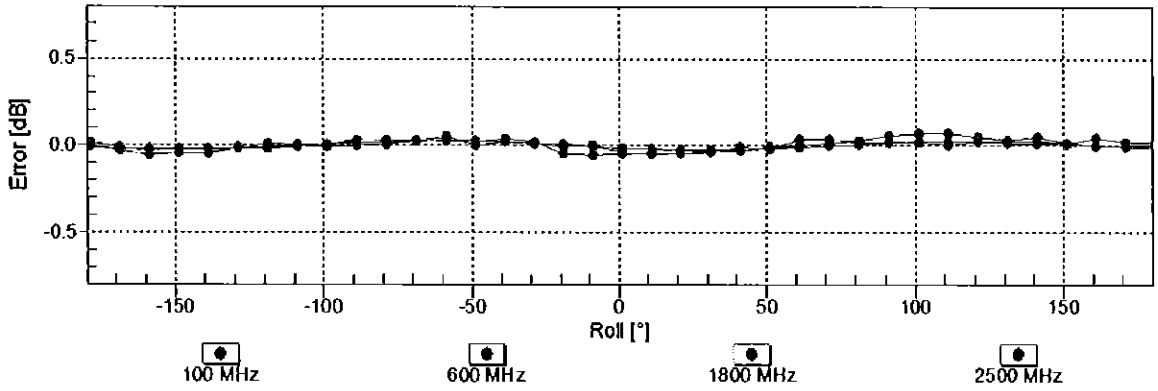
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



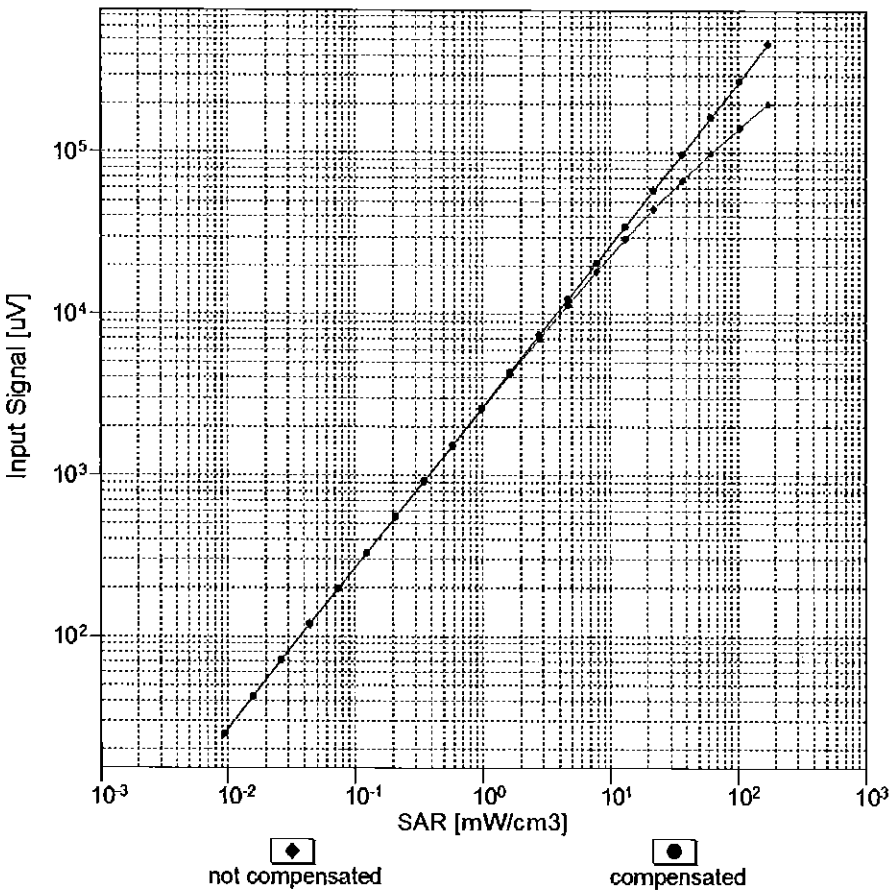
f=1800 MHz,R22

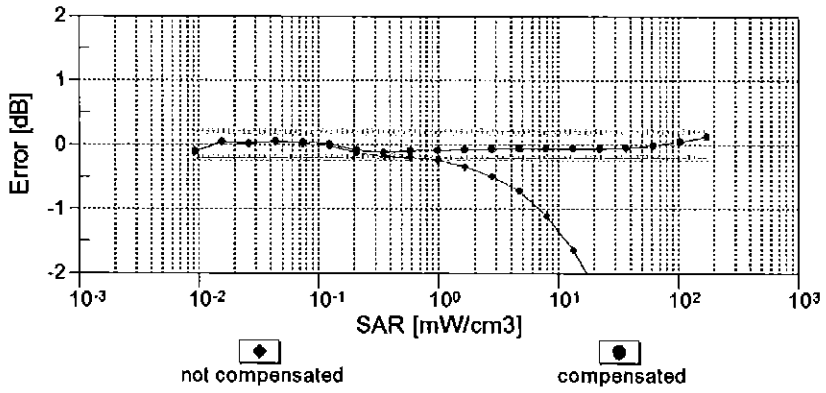




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

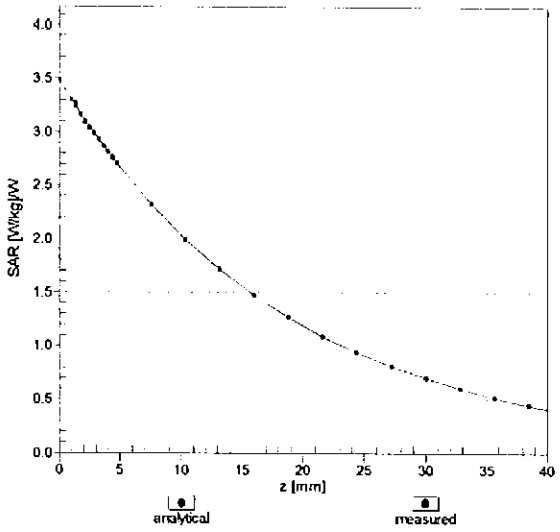




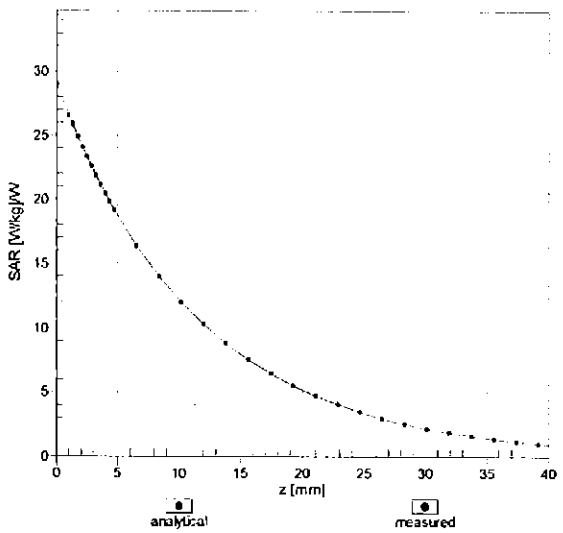
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

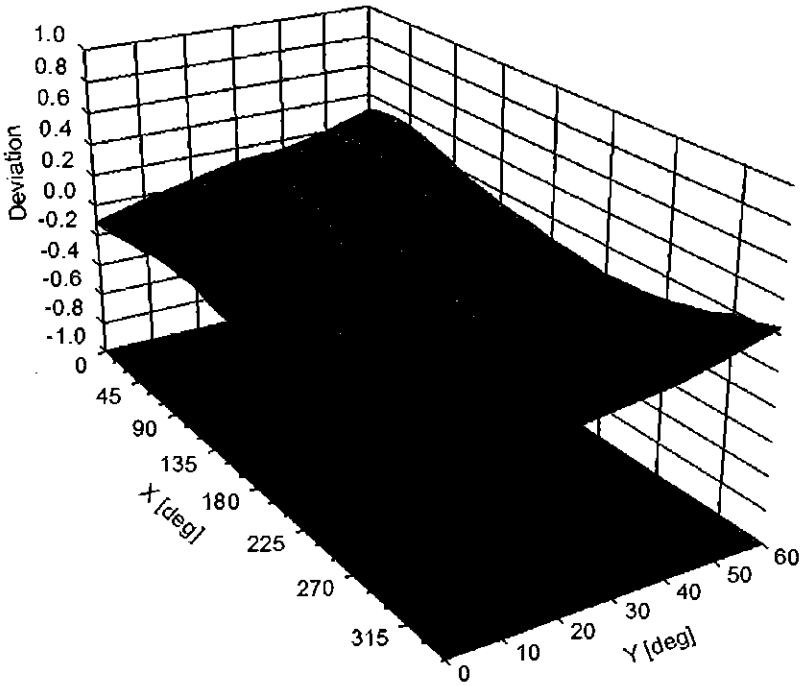


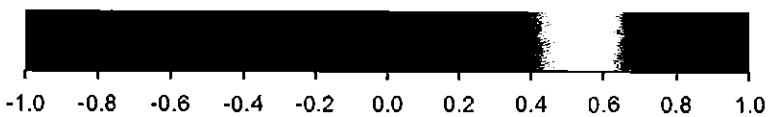
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7410

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	1.2
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√μV	C	D dB	VR mV	Max Unc^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	130.7	± 3.5 %
		Y	0.00	0.00	1.00		146.7	
		Z	0.00	0.00	1.00		132.5	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	2.07	65.38	9.86	10.00	20.0	± 9.6 %
		Y	1.71	64.71	9.07		20.0	
		Z	3.44	71.14	12.92		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.05	67.82	15.62	0.00	150.0	± 9.6 %
		Y	1.11	68.91	16.28		150.0	
		Z	1.02	66.59	14.94		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.16	63.70	15.28	0.41	150.0	± 9.6 %
		Y	1.18	64.10	15.65		150.0	
		Z	1.17	63.41	15.09		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.78	66.61	17.05	1.46	150.0	± 9.6 %
		Y	4.80	66.74	17.21		150.0	
		Z	4.93	66.52	17.11		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	100.00	111.37	25.72	9.39	50.0	± 9.6 %
		Y	100.00	111.58	25.35		50.0	
		Z	100.00	117.02	28.59		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	110.83	25.53	9.57	50.0	± 9.6 %
		Y	1707.76	142.54	31.32		50.0	
		Z	100.00	116.46	28.39		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	111.84	24.81	6.56	60.0	± 9.6 %
		Y	100.00	114.48	25.68		60.0	
		Z	100.00	118.35	28.09		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	3.46	65.17	23.20	12.57	50.0	± 9.6 %
		Y	5.27	82.06	33.95		50.0	
		Z	3.61	65.78	23.81		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	6.19	83.69	29.67	9.56	60.0	± 9.6 %
		Y	7.27	90.43	33.46		60.0	
		Z	7.46	87.49	31.34		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	114.23	25.06	4.80	80.0	± 9.6 %
		Y	100.00	119.65	27.19		80.0	
		Z	100.00	121.09	28.48		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	118.39	26.12	3.55	100.0	± 9.6 %
		Y	100.00	127.35	29.74		100.0	
		Z	100.00	125.00	29.42		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	4.31	75.70	25.15	7.80	80.0	± 9.6 %
		Y	4.62	78.76	27.21		80.0	
		Z	5.10	78.80	26.60		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	110.42	23.70	5.30	70.0	± 9.6 %
		Y	100.00	113.76	24.95		70.0	
		Z	100.00	117.44	27.22		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	118.50	24.77	1.88	100.0	± 9.6 %
		Y	100.00	132.66	30.37		100.0	
		Z	100.00	126.29	28.44		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	133.47	29.67	1.17	100.0	± 9.6 %
		Y	100.00	157.48	38.89		100.0	
		Z	100.00	136.04	31.29		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	8.66	91.15	24.16	5.30	70.0	± 9.6 %
		Y	61.92	124.81	33.89		70.0	
		Z	18.44	105.53	29.79		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	2.66	76.47	17.66	1.88	100.0	± 9.6 %
		Y	4.91	85.76	21.28		100.0	
		Z	3.14	79.12	19.77		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.87	72.76	15.96	1.17	100.0	± 9.6 %
		Y	2.71	78.22	18.36		100.0	
		Z	2.01	73.50	17.25		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	12.89	97.56	26.18	5.30	70.0	± 9.6 %
		Y	100.00	133.04	35.90		70.0	
		Z	33.52	115.95	32.67		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.40	75.20	17.16	1.88	100.0	± 9.6 %
		Y	4.17	83.65	20.57		100.0	
		Z	2.91	78.15	19.38		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.89	73.11	16.24	1.17	100.0	± 9.6 %
		Y	2.73	78.67	18.67		100.0	
		Z	2.03	73.85	17.51		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.93	73.30	15.79	0.00	150.0	± 9.6 %
		Y	2.16	74.82	16.50		150.0	
		Z	1.82	71.39	15.74		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	108.18	23.51	7.78	50.0	± 9.6 %
		Y	100.00	108.75	23.44		50.0	
		Z	100.00	113.77	26.32		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	97.63	1.20	0.00	150.0	± 9.6 %
		Y	0.00	97.90	0.75		150.0	
		Z	0.00	95.09	2.63		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	29.38	92.85	22.01	13.80	25.0	± 9.6 %
		Y	100.00	106.19	24.33		25.0	
		Z	100.00	113.54	28.60		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	92.32	108.50	25.07	10.79	40.0	± 9.6 %
		Y	100.00	108.13	24.14		40.0	
		Z	100.00	114.66	27.93		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	28.80	103.53	27.62	9.03	50.0	± 9.6 %
		Y	100.00	125.87	33.73		50.0	
		Z	90.56	125.80	34.77		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	3.55	72.15	22.79	6.55	100.0	± 9.6 %
		Y	3.72	74.09	24.21		100.0	
		Z	4.11	74.59	23.97		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.17	64.52	15.76	0.61	110.0	± 9.6 %
		Y	1.20	65.09	16.25		110.0	
		Z	1.19	64.38	15.68		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	5.38	97.28	26.54	1.30	110.0	± 9.6 %
		Y	94.12	145.74	39.06		110.0	
		Z	7.25	100.99	27.69		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	2.03	75.84	20.79	2.04	110.0	± 9.6 %
		Y	2.53	80.86	23.32		110.0	
		Z	2.46	78.49	22.05		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.60	66.68	16.54	0.49	100.0	± 9.6 %
		Y	4.62	66.77	16.65		100.0	
		Z	4.74	66.54	16.54		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.61	66.74	16.62	0.72	100.0	± 9.6 %
		Y	4.63	66.85	16.75		100.0	
		Z	4.75	66.63	16.64		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.88	66.97	16.83	0.86	100.0	± 9.6 %
		Y	4.90	67.08	16.96		100.0	
		Z	5.06	66.93	16.89		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.74	66.82	16.90	1.21	100.0	± 9.6 %
		Y	4.76	66.95	17.05		100.0	
		Z	4.91	66.81	16.98		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.74	66.80	17.04	1.46	100.0	± 9.6 %
		Y	4.77	66.94	17.21		100.0	
		Z	4.93	66.83	17.15		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.03	66.98	17.46	2.04	100.0	± 9.6 %
		Y	5.05	67.14	17.66		100.0	
		Z	5.21	66.94	17.57		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.05	66.91	17.63	2.55	100.0	± 9.6 %
		Y	5.07	67.08	17.84		100.0	
		Z	5.27	67.04	17.82		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.12	66.93	17.81	2.67	100.0	± 9.6 %
		Y	5.15	67.10	18.04		100.0	
		Z	5.34	66.99	17.99		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.86	66.65	17.32	1.99	100.0	± 9.6 %
		Y	4.89	66.79	17.50		100.0	
		Z	5.01	66.60	17.41		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.82	66.89	17.50	2.30	100.0	± 9.6 %
		Y	4.84	67.05	17.70		100.0	
		Z	4.99	66.92	17.63		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.86	67.00	17.79	2.83	100.0	± 9.6 %
		Y	4.89	67.17	18.02		100.0	
		Z	5.04	67.03	17.94		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.85	66.87	17.91	3.30	100.0	± 9.6 %
		Y	4.86	67.04	18.15		100.0	
		Z	5.01	66.88	18.08		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.86	66.89	18.16	3.82	90.0	± 9.6 %
		Y	4.87	67.06	18.42		90.0	
		Z	5.04	67.00	18.40		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.88	66.70	18.29	4.15	90.0	± 9.6 %
		Y	4.89	66.85	18.55		90.0	
		Z	5.03	66.71	18.47		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.91	66.76	18.38	4.30	90.0	± 9.6 %
		Y	4.91	66.91	18.65		90.0	
		Z	5.05	66.76	18.56		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.83	66.43	12.40	0.00	150.0	± 9.6 %
		Y	0.90	67.46	13.02		150.0	
		Z	0.87	65.72	12.74		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.60	60.00	4.03	4.77	80.0	± 9.6 %
		Y	1.74	63.67	4.99		80.0	
		Z	0.50	57.10	2.51		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	111.84	24.82	6.56	60.0	± 9.6 %
		Y	100.00	114.47	25.69		60.0	
		Z	100.00	118.36	28.12		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.87	68.36	15.98	0.00	150.0	± 9.6 %
		Y	1.92	68.79	16.27		150.0	
		Z	1.83	67.16	15.53		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.83	68.30	15.96	0.00	150.0	± 9.6 %
		Y	1.88	68.76	16.25		150.0	
		Z	1.79	67.10	15.49		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	6.23	83.81	29.72	9.56	60.0	± 9.6 %
		Y	7.34	90.66	33.54		60.0	
		Z	7.51	87.64	31.39		60.0	
10100-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.10	70.42	16.91	0.00	150.0	± 9.6 %
		Y	3.17	70.79	17.14		150.0	
		Z	3.14	69.95	16.56		150.0	
10101-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.21	67.53	16.05	0.00	150.0	± 9.6 %
		Y	3.24	67.71	16.18		150.0	
		Z	3.28	67.33	15.89		150.0	
10102-CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.31	67.53	16.15	0.00	150.0	± 9.6 %
		Y	3.34	67.67	16.26		150.0	
		Z	3.39	67.31	16.00		150.0	
10103-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.23	73.47	19.72	3.98	65.0	± 9.6 %
		Y	5.84	75.95	21.01		65.0	
		Z	5.88	74.83	20.39		65.0	
10104-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.46	71.98	19.77	3.98	65.0	± 9.6 %
		Y	5.63	73.01	20.49		65.0	
		Z	6.00	73.07	20.39		65.0	
10105-CAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.42	71.61	19.91	3.98	65.0	± 9.6 %
		Y	5.43	72.06	20.36		65.0	
		Z	5.47	71.05	19.77		65.0	
10108-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.70	69.72	16.76	0.00	150.0	± 9.6 %
		Y	2.76	70.10	16.99		150.0	
		Z	2.75	69.19	16.39		150.0	
10109-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.86	67.48	15.96	0.00	150.0	± 9.6 %
		Y	2.89	67.67	16.11		150.0	
		Z	2.94	67.16	15.80		150.0	
10110-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.18	68.93	16.34	0.00	150.0	± 9.6 %
		Y	2.24	69.40	16.63		150.0	
		Z	2.24	68.24	15.99		150.0	
10111-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.61	68.71	16.36	0.00	150.0	± 9.6 %
		Y	2.63	68.84	16.47		150.0	
		Z	2.65	67.91	16.10		150.0	

10112-CAD	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.99	67.52	16.03	0.00	150.0	± 9.6 %
		Y	3.01	67.67	16.15		150.0	
		Z	3.06	67.16	15.86		150.0	
10113-CAD	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.77	68.89	16.50	0.00	150.0	± 9.6 %
		Y	2.78	68.97	16.58		150.0	
		Z	2.81	68.06	16.24		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.09	67.23	16.55	0.00	150.0	± 9.6 %
		Y	5.10	67.28	16.60		150.0	
		Z	5.19	67.11	16.46		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.34	67.29	16.58	0.00	150.0	± 9.6 %
		Y	5.35	67.33	16.63		150.0	
		Z	5.51	67.33	16.58		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.18	67.42	16.57	0.00	150.0	± 9.6 %
		Y	5.19	67.47	16.62		150.0	
		Z	5.30	67.34	16.50		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.06	67.11	16.50	0.00	150.0	± 9.6 %
		Y	5.07	67.16	16.56		150.0	
		Z	5.16	66.99	16.42		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.42	67.49	16.69	0.00	150.0	± 9.6 %
		Y	5.44	67.54	16.74		150.0	
		Z	5.60	67.55	16.70		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.16	67.38	16.56	0.00	150.0	± 9.6 %
		Y	5.17	67.43	16.62		150.0	
		Z	5.27	67.27	16.48		150.0	
10140-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.34	67.53	16.06	0.00	150.0	± 9.6 %
		Y	3.37	67.68	16.18		150.0	
		Z	3.42	67.31	15.91		150.0	
10141-CAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.47	67.67	16.25	0.00	150.0	± 9.6 %
		Y	3.49	67.79	16.35		150.0	
		Z	3.55	67.42	16.09		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.97	69.09	15.95	0.00	150.0	± 9.6 %
		Y	2.03	69.63	16.28		150.0	
		Z	2.02	68.20	15.69		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.49	69.65	15.98	0.00	150.0	± 9.6 %
		Y	2.52	69.83	16.12		150.0	
		Z	2.51	68.62	15.86		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.16	66.67	13.99	0.00	150.0	± 9.6 %
		Y	2.21	66.99	14.22		150.0	
		Z	2.30	66.43	14.30		150.0	
10145-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.07	64.11	10.67	0.00	150.0	± 9.6 %
		Y	1.11	64.57	11.01		150.0	
		Z	1.31	65.51	12.40		150.0	
10146-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.34	62.65	9.02	0.00	150.0	± 9.6 %
		Y	1.43	63.27	9.42		150.0	
		Z	2.01	66.35	12.18		150.0	
10147-CAD	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.45	63.47	9.57	0.00	150.0	± 9.6 %
		Y	1.57	64.27	10.06		150.0	
		Z	2.34	68.34	13.28		150.0	

10149-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.87	67.55	16.01	0.00	150.0	± 9.6 %
		Y	2.90	67.73	16.15		150.0	
		Z	2.95	67.22	15.84		150.0	
10150-CAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.00	67.58	16.08	0.00	150.0	± 9.6 %
		Y	3.02	67.73	16.20		150.0	
		Z	3.07	67.21	15.90		150.0	
10151-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	5.65	76.57	21.08	3.98	65.0	± 9.6 %
		Y	6.17	78.83	22.29		65.0	
		Z	6.35	77.82	21.74		65.0	
10152-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	4.98	71.84	19.37	3.98	65.0	± 9.6 %
		Y	5.18	73.09	20.20		65.0	
		Z	5.53	73.00	20.11		65.0	
10153-CAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.35	72.93	20.23	3.98	65.0	± 9.6 %
		Y	5.53	74.06	20.99		65.0	
		Z	5.88	73.94	20.90		65.0	
10154-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.24	69.40	16.63	0.00	150.0	± 9.6 %
		Y	2.29	69.81	16.88		150.0	
		Z	2.29	68.69	16.27		150.0	
10155-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.62	68.74	16.38	0.00	150.0	± 9.6 %
		Y	2.64	68.87	16.49		150.0	
		Z	2.65	67.91	16.11		150.0	
10156-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.81	69.21	15.68	0.00	150.0	± 9.6 %
		Y	1.88	69.80	16.04		150.0	
		Z	1.87	68.31	15.53		150.0	
10157-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.01	67.27	13.98	0.00	150.0	± 9.6 %
		Y	2.06	67.66	14.24		150.0	
		Z	2.13	67.00	14.37		150.0	
10158-CAD	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.78	68.97	16.55	0.00	150.0	± 9.6 %
		Y	2.79	69.05	16.63		150.0	
		Z	2.81	68.12	16.28		150.0	
10159-CAD	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.12	67.76	14.27	0.00	150.0	± 9.6 %
		Y	2.17	68.10	14.50		150.0	
		Z	2.25	67.49	14.68		150.0	
10160-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.73	68.96	16.55	0.00	150.0	± 9.6 %
		Y	2.78	69.27	16.76		150.0	
		Z	2.78	68.34	16.22		150.0	
10161-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.89	67.56	16.00	0.00	150.0	± 9.6 %
		Y	2.92	67.72	16.12		150.0	
		Z	2.97	67.14	15.84		150.0	
10162-CAC	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.00	67.76	16.13	0.00	150.0	± 9.6 %
		Y	3.03	67.89	16.24		150.0	
		Z	3.08	67.27	15.94		150.0	
10166-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.29	68.55	18.62	3.01	150.0	± 9.6 %
		Y	3.39	69.14	19.00		150.0	
		Z	3.56	68.77	18.74		150.0	
10167-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	3.85	70.83	18.84	3.01	150.0	± 9.6 %
		Y	4.06	71.87	19.39		150.0	
		Z	4.27	71.19	19.04		150.0	

10168-CAD	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.31	73.34	20.36	3.01	150.0	± 9.6 %
		Y	4.51	74.19	20.77		150.0	
		Z	4.72	73.40	20.38		150.0	
10169-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.65	67.07	17.95	3.01	150.0	± 9.6 %
		Y	2.76	67.90	18.46		150.0	
		Z	2.95	68.18	18.47		150.0	
10170-CAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.35	71.83	19.98	3.01	150.0	± 9.6 %
		Y	3.58	73.08	20.56		150.0	
		Z	3.90	73.37	20.58		150.0	
10171-AAC	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.80	68.11	17.24	3.01	150.0	± 9.6 %
		Y	3.01	69.49	17.99		150.0	
		Z	3.23	69.44	17.85		150.0	
10172-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.65	76.31	22.99	6.02	65.0	± 9.6 %
		Y	5.48	85.89	27.40		65.0	
		Z	5.55	83.03	25.87		65.0	
10173-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	6.66	85.15	24.55	6.02	65.0	± 9.6 %
		Y	10.56	95.03	28.43		65.0	
		Z	12.26	94.72	28.10		65.0	
10174-CAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	4.93	79.32	21.92	6.02	65.0	± 9.6 %
		Y	8.98	90.91	26.48		65.0	
		Z	8.81	87.78	25.30		65.0	
10175-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.62	66.79	17.70	3.01	150.0	± 9.6 %
		Y	2.73	67.64	18.24		150.0	
		Z	2.91	67.87	18.21		150.0	
10176-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.35	71.86	19.99	3.01	150.0	± 9.6 %
		Y	3.58	73.10	20.58		150.0	
		Z	3.90	73.39	20.59		150.0	
10177-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.64	66.92	17.79	3.01	150.0	± 9.6 %
		Y	2.75	67.76	18.31		150.0	
		Z	2.94	68.03	18.32		150.0	
10178-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.33	71.68	19.88	3.01	150.0	± 9.6 %
		Y	3.56	72.95	20.49		150.0	
		Z	3.86	73.15	20.45		150.0	
10179-CAD	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.04	69.83	18.46	3.01	150.0	± 9.6 %
		Y	3.27	71.21	19.16		150.0	
		Z	3.53	71.24	19.06		150.0	
10180-CAD	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.79	68.06	17.20	3.01	150.0	± 9.6 %
		Y	3.00	69.44	17.95		150.0	
		Z	3.23	69.37	17.80		150.0	
10181-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.64	66.91	17.79	3.01	150.0	± 9.6 %
		Y	2.74	67.75	18.31		150.0	
		Z	2.93	68.01	18.31		150.0	
10182-CAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.32	71.66	19.87	3.01	150.0	± 9.6 %
		Y	3.55	72.93	20.48		150.0	
		Z	3.85	73.13	20.44		150.0	
10183-AAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.79	68.04	17.19	3.01	150.0	± 9.6 %
		Y	3.00	69.42	17.94		150.0	
		Z	3.22	69.35	17.79		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.65	66.95	17.81	3.01	150.0	± 9.6 %
		Y	2.75	67.79	18.33		150.0	
		Z	2.95	68.05	18.33		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.34	71.72	19.91	3.01	150.0	± 9.6 %
		Y	3.57	72.99	20.51		150.0	
		Z	3.87	73.20	20.48		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.80	68.09	17.22	3.01	150.0	± 9.6 %
		Y	3.01	69.48	17.97		150.0	
		Z	3.23	69.41	17.82		150.0	
10187-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.66	67.00	17.88	3.01	150.0	± 9.6 %
		Y	2.76	67.84	18.40		150.0	
		Z	2.95	68.09	18.39		150.0	
10188-CAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.43	72.31	20.28	3.01	150.0	± 9.6 %
		Y	3.66	73.53	20.84		150.0	
		Z	4.00	73.86	20.87		150.0	
10189-AAD	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	2.85	68.45	17.48	3.01	150.0	± 9.6 %
		Y	3.07	69.84	18.22		150.0	
		Z	3.30	69.81	18.09		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.48	66.73	16.24	0.00	150.0	± 9.6 %
		Y	4.49	66.78	16.30		150.0	
		Z	4.58	66.49	16.16		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.63	67.01	16.37	0.00	150.0	± 9.6 %
		Y	4.65	67.06	16.43		150.0	
		Z	4.76	66.82	16.28		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.67	67.04	16.38	0.00	150.0	± 9.6 %
		Y	4.69	67.09	16.44		150.0	
		Z	4.80	66.85	16.30		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.47	66.77	16.24	0.00	150.0	± 9.6 %
		Y	4.48	66.82	16.30		150.0	
		Z	4.59	66.56	16.19		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.64	67.02	16.38	0.00	150.0	± 9.6 %
		Y	4.66	67.08	16.44		150.0	
		Z	4.78	66.84	16.30		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.67	67.05	16.39	0.00	150.0	± 9.6 %
		Y	4.68	67.10	16.45		150.0	
		Z	4.81	66.86	16.31		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.42	66.79	16.21	0.00	150.0	± 9.6 %
		Y	4.44	66.84	16.27		150.0	
		Z	4.54	66.57	16.15		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.64	66.99	16.36	0.00	150.0	± 9.6 %
		Y	4.65	67.04	16.42		150.0	
		Z	4.77	66.82	16.29		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.68	66.98	16.38	0.00	150.0	± 9.6 %
		Y	4.69	67.03	16.44		150.0	
		Z	4.81	66.80	16.30		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.03	67.11	16.49	0.00	150.0	± 9.6 %
		Y	5.04	67.15	16.55		150.0	
		Z	5.14	67.00	16.41		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.33	67.33	16.62	0.00	150.0	± 9.6 %
		Y	5.34	67.38	16.68		150.0	
		Z	5.45	67.21	16.54		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.07	67.22	16.48	0.00	150.0	± 9.6 %
		Y	5.09	67.26	16.53		150.0	
		Z	5.18	67.11	16.40		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.76	66.33	15.32	0.00	150.0	± 9.6 %
		Y	2.78	66.46	15.44		150.0	
		Z	2.85	65.93	15.34		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	7.05	86.26	25.03	6.02	65.0	± 9.6 %
		Y	11.33	96.43	28.97		65.0	
		Z	13.18	96.17	28.66		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	7.07	85.23	24.04	6.02	65.0	± 9.6 %
		Y	11.45	95.09	27.83		65.0	
		Z	12.76	94.16	27.40		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.84	82.15	25.37	6.02	65.0	± 9.6 %
		Y	6.17	88.64	28.46		65.0	
		Z	7.76	90.12	28.51		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	6.71	85.26	24.59	6.02	65.0	± 9.6 %
		Y	10.65	95.13	28.47		65.0	
		Z	12.36	94.84	28.14		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	6.68	84.20	23.61	6.02	65.0	± 9.6 %
		Y	10.65	93.73	27.33		65.0	
		Z	11.94	92.89	26.92		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	4.67	81.40	24.99	6.02	65.0	± 9.6 %
		Y	5.94	87.77	28.07		65.0	
		Z	7.43	89.17	28.10		65.0	
10232-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	6.69	85.24	24.58	6.02	65.0	± 9.6 %
		Y	10.63	95.12	28.47		65.0	
		Z	12.34	94.82	28.14		65.0	
10233-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	6.66	84.17	23.60	6.02	65.0	± 9.6 %
		Y	10.62	93.69	27.32		65.0	
		Z	11.91	92.86	26.91		65.0	
10234-CAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.54	80.75	24.63	6.02	65.0	± 9.6 %
		Y	5.76	87.05	27.69		65.0	
		Z	7.17	88.32	27.68		65.0	
10235-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	6.69	85.26	24.59	6.02	65.0	± 9.6 %
		Y	10.64	95.16	28.48		65.0	
		Z	12.35	94.85	28.15		65.0	
10236-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	6.73	84.30	23.64	6.02	65.0	± 9.6 %
		Y	10.78	93.91	27.38		65.0	
		Z	12.05	93.03	26.96		65.0	
10237-CAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.67	81.42	25.00	6.02	65.0	± 9.6 %
		Y	5.94	87.83	28.10		65.0	
		Z	7.43	89.21	28.12		65.0	
10238-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	6.68	85.21	24.57	6.02	65.0	± 9.6 %
		Y	10.60	95.09	28.46		65.0	
		Z	12.31	94.79	28.13		65.0	

10239-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	6.64	84.13	23.58	6.02	65.0	± 9.6 %
		Y	10.57	93.64	27.30		65.0	
		Z	11.87	92.82	26.90		65.0	
10240-CAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.66	81.38	24.99	6.02	65.0	± 9.6 %
		Y	5.92	87.78	28.08		65.0	
		Z	7.41	89.16	28.10		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	6.49	77.69	23.88	6.98	65.0	± 9.6 %
		Y	7.06	80.22	25.34		65.0	
		Z	7.33	78.75	24.61		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	5.69	74.96	22.63	6.98	65.0	± 9.6 %
		Y	6.72	79.20	24.84		65.0	
		Z	6.48	76.10	23.39		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.22	73.93	23.04	6.98	65.0	± 9.6 %
		Y	5.37	75.23	24.06		65.0	
		Z	5.30	72.76	22.72		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.03	70.70	15.63	3.98	65.0	± 9.6 %
		Y	4.63	73.27	17.01		65.0	
		Z	5.80	76.12	19.17		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.94	70.12	15.32	3.98	65.0	± 9.6 %
		Y	4.47	72.48	16.60		65.0	
		Z	5.67	75.49	18.85		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.17	75.16	18.15	3.98	65.0	± 9.6 %
		Y	5.29	79.64	20.23		65.0	
		Z	5.81	80.17	21.10		65.0	
10247-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.10	71.58	17.29	3.98	65.0	± 9.6 %
		Y	4.43	73.43	18.37		65.0	
		Z	4.92	74.07	19.21		65.0	
10248-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.07	70.96	16.98	3.98	65.0	± 9.6 %
		Y	4.37	72.65	17.99		65.0	
		Z	4.90	73.42	18.88		65.0	
10249-CAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	5.33	79.24	20.92	3.98	65.0	± 9.6 %
		Y	6.73	84.01	23.05		65.0	
		Z	6.62	82.34	22.76		65.0	
10250-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	4.99	74.32	20.40	3.98	65.0	± 9.6 %
		Y	5.24	75.79	21.30		65.0	
		Z	5.59	75.60	21.35		65.0	
10251-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	4.75	72.14	19.02	3.98	65.0	± 9.6 %
		Y	4.99	73.56	19.92		65.0	
		Z	5.35	73.44	20.02		65.0	
10252-CAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.62	79.05	22.01	3.98	65.0	± 9.6 %
		Y	6.48	82.42	23.65		65.0	
		Z	6.49	80.72	22.96		65.0	
10253-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	4.91	71.43	19.12	3.98	65.0	± 9.6 %
		Y	5.09	72.60	19.93		65.0	
		Z	5.40	72.41	19.86		65.0	
10254-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.23	72.40	19.88	3.98	65.0	± 9.6 %
		Y	5.41	73.49	20.63		65.0	
		Z	5.73	73.30	20.57		65.0	

10255-CAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	5.37	75.82	20.95	3.98	65.0	± 9.6 %
		Y	5.81	77.90	22.11		65.0	
		Z	5.98	76.90	21.60		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	2.95	66.44	12.43	3.98	65.0	± 9.6 %
		Y	3.25	68.14	13.47		65.0	
		Z	4.63	72.57	16.66		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.90	65.89	12.05	3.98	65.0	± 9.6 %
		Y	3.14	67.36	12.98		65.0	
		Z	4.49	71.73	16.18		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.90	69.51	14.64	3.98	65.0	± 9.6 %
		Y	3.44	72.54	16.25		65.0	
		Z	4.52	75.89	18.60		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	4.46	72.72	18.47	3.98	65.0	± 9.6 %
		Y	4.78	74.47	19.50		65.0	
		Z	5.19	74.62	19.97		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	4.49	72.43	18.33	3.98	65.0	± 9.6 %
		Y	4.79	74.08	19.32		65.0	
		Z	5.22	74.34	19.84		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	5.17	78.27	21.02	3.98	65.0	± 9.6 %
		Y	6.16	82.12	22.85		65.0	
		Z	6.14	80.53	22.44		65.0	
10262-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	4.98	74.25	20.35	3.98	65.0	± 9.6 %
		Y	5.23	75.73	21.26		65.0	
		Z	5.58	75.55	21.31		65.0	
10263-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	4.74	72.12	19.01	3.98	65.0	± 9.6 %
		Y	4.98	73.53	19.91		65.0	
		Z	5.34	73.42	20.01		65.0	
10264-CAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.56	78.83	21.90	3.98	65.0	± 9.6 %
		Y	6.41	82.18	23.54		65.0	
		Z	6.42	80.51	22.86		65.0	
10265-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	4.98	71.84	19.37	3.98	65.0	± 9.6 %
		Y	5.18	73.09	20.20		65.0	
		Z	5.53	73.00	20.12		65.0	
10266-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.34	72.91	20.22	3.98	65.0	± 9.6 %
		Y	5.53	74.04	20.98		65.0	
		Z	5.88	73.92	20.89		65.0	
10267-CAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	5.64	76.53	21.06	3.98	65.0	± 9.6 %
		Y	6.16	78.78	22.27		65.0	
		Z	6.34	77.78	21.72		65.0	
10268-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	5.63	71.94	19.85	3.98	65.0	± 9.6 %
		Y	5.78	72.88	20.51		65.0	
		Z	6.14	72.88	20.41		65.0	
10269-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	5.64	71.57	19.72	3.98	65.0	± 9.6 %
		Y	5.77	72.45	20.36		65.0	
		Z	6.12	72.44	20.27		65.0	
10270-CAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	5.66	74.09	20.17	3.98	65.0	± 9.6 %
		Y	5.94	75.48	21.01		65.0	
		Z	6.22	75.05	20.69		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.58	66.84	15.32	0.00	150.0	± 9.6 %
		Y	2.61	67.05	15.49		150.0	
		Z	2.61	66.19	15.19		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.62	68.33	15.81	0.00	150.0	± 9.6 %
		Y	1.68	69.01	16.23		150.0	
		Z	1.61	67.33	15.34		150.0	
10277-CAA	PHS (QPSK)	X	1.71	60.26	5.85	9.03	50.0	± 9.6 %
		Y	1.46	60.00	5.35		50.0	
		Z	2.08	61.87	7.57		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	3.48	68.77	13.21	9.03	50.0	± 9.6 %
		Y	3.86	71.42	14.38		50.0	
		Z	7.61	81.06	19.61		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	3.59	69.09	13.42	9.03	50.0	± 9.6 %
		Y	4.03	71.88	14.65		50.0	
		Z	7.80	81.31	19.76		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.38	68.75	13.54	0.00	150.0	± 9.6 %
		Y	1.49	69.81	14.11		150.0	
		Z	1.48	68.40	14.11		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.81	66.18	12.25	0.00	150.0	± 9.6 %
		Y	0.88	67.15	12.85		150.0	
		Z	0.85	65.51	12.62		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.25	72.63	15.60	0.00	150.0	± 9.6 %
		Y	1.48	75.02	16.70		150.0	
		Z	1.05	69.24	14.85		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	3.55	87.18	21.36	0.00	150.0	± 9.6 %
		Y	4.57	90.90	22.67		150.0	
		Z	1.55	74.98	17.80		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	10.90	87.79	24.10	9.03	50.0	± 9.6 %
		Y	17.38	97.96	27.91		50.0	
		Z	9.27	86.92	25.25		50.0	
10297-AAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.71	69.84	16.83	0.00	150.0	± 9.6 %
		Y	2.77	70.21	17.06		150.0	
		Z	2.77	69.29	16.46		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.47	67.49	13.62	0.00	150.0	± 9.6 %
		Y	1.54	68.13	14.02		150.0	
		Z	1.61	67.49	14.26		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	1.91	66.04	11.93	0.00	150.0	± 9.6 %
		Y	2.08	67.06	12.49		150.0	
		Z	2.55	68.88	14.29		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.52	62.84	9.56	0.00	150.0	± 9.6 %
		Y	1.60	63.32	9.89		150.0	
		Z	2.01	64.97	11.67		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.49	64.94	17.15	4.17	50.0	± 9.6 %
		Y	4.51	65.12	17.33		50.0	
		Z	4.77	65.09	17.35		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	4.98	65.58	17.87	4.96	50.0	± 9.6 %
		Y	5.02	65.83	18.08		50.0	
		Z	5.23	65.61	18.00		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.72	65.17	17.66	4.96	50.0	± 9.6 %
		Y	4.76	65.39	17.86		50.0	
		Z	4.98	65.24	17.83		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.56	65.16	17.23	4.17	50.0	± 9.6 %
		Y	4.60	65.38	17.42		50.0	
		Z	4.79	65.14	17.34		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.06	66.26	18.68	6.02	35.0	± 9.6 %
		Y	3.98	66.05	18.73		35.0	
		Z	4.32	66.47	19.19		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.43	65.65	18.52	6.02	35.0	± 9.6 %
		Y	4.40	65.62	18.63		35.0	
		Z	4.69	65.80	18.88		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.31	65.69	18.43	6.02	35.0	± 9.6 %
		Y	4.27	65.62	18.52		35.0	
		Z	4.59	65.95	18.85		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.28	65.86	18.56	6.02	35.0	± 9.6 %
		Y	4.24	65.78	18.65		35.0	
		Z	4.55	66.08	18.95		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.47	65.79	18.63	6.02	35.0	± 9.6 %
		Y	4.44	65.78	18.76		35.0	
		Z	4.75	66.03	19.03		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.38	65.69	18.49	6.02	35.0	± 9.6 %
		Y	4.34	65.63	18.59		35.0	
		Z	4.64	65.84	18.85		35.0	
10311-AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.08	69.08	16.47	0.00	150.0	± 9.6 %
		Y	3.14	69.40	16.66		150.0	
		Z	3.12	68.62	16.13		150.0	
10313-AAA	iDEN 1:3	X	2.89	72.65	16.29	6.99	70.0	± 9.6 %
		Y	4.19	78.79	18.89		70.0	
		Z	4.02	76.71	18.18		70.0	
10314-AAA	iDEN 1:6	X	5.30	83.78	23.47	10.00	30.0	± 9.6 %
		Y	6.55	89.94	26.15		30.0	
		Z	6.97	88.50	25.50		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.08	63.77	15.30	0.17	150.0	± 9.6 %
		Y	1.10	64.11	15.62		150.0	
		Z	1.08	63.32	14.99		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.51	66.68	16.32	0.17	150.0	± 9.6 %
		Y	4.53	66.78	16.42		150.0	
		Z	4.64	66.54	16.30		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.51	66.68	16.32	0.17	150.0	± 9.6 %
		Y	4.53	66.78	16.42		150.0	
		Z	4.64	66.54	16.30		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.61	67.03	16.35	0.00	150.0	± 9.6 %
		Y	4.63	67.11	16.42		150.0	
		Z	4.76	66.86	16.27		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.34	67.18	16.51	0.00	150.0	± 9.6 %
		Y	5.36	67.26	16.59		150.0	
		Z	5.46	67.09	16.45		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.59	67.45	16.52	0.00	150.0	± 9.6 %
		Y	5.60	67.49	16.57		150.0	
		Z	5.71	67.42	16.48		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.38	68.75	13.54	0.00	115.0	± 9.6 %
		Y	1.49	69.81	14.11		115.0	
		Z	1.48	68.40	14.11		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.38	68.75	13.54	0.00	115.0	± 9.6 %
		Y	1.49	69.81	14.11		115.0	
		Z	1.48	68.40	14.11		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	17.35	99.43	24.90	0.00	100.0	± 9.6 %
		Y	63.25	115.82	28.80		100.0	
		Z	11.61	93.88	24.12		100.0	
10410-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.36	91.25	22.62	3.23	80.0	± 9.6 %
		Y	100.00	127.16	32.13		80.0	
		Z	100.00	125.70	32.09		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.03	63.22	14.88	0.00	150.0	± 9.6 %
		Y	1.04	63.49	15.13		150.0	
		Z	1.02	62.64	14.46		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.48	66.75	16.31	0.00	150.0	± 9.6 %
		Y	4.49	66.81	16.37		150.0	
		Z	4.59	66.53	16.22		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.48	66.75	16.31	0.00	150.0	± 9.6 %
		Y	4.49	66.81	16.37		150.0	
		Z	4.59	66.53	16.22		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.47	66.94	16.35	0.00	150.0	± 9.6 %
		Y	4.48	67.00	16.41		150.0	
		Z	4.58	66.68	16.24		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.49	66.88	16.34	0.00	150.0	± 9.6 %
		Y	4.50	66.93	16.40		150.0	
		Z	4.60	66.63	16.24		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.60	66.86	16.35	0.00	150.0	± 9.6 %
		Y	4.61	66.91	16.41		150.0	
		Z	4.72	66.64	16.26		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.74	67.14	16.45	0.00	150.0	± 9.6 %
		Y	4.76	67.20	16.51		150.0	
		Z	4.89	66.97	16.38		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.67	67.10	16.43	0.00	150.0	± 9.6 %
		Y	4.68	67.15	16.49		150.0	
		Z	4.81	66.91	16.35		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.29	67.34	16.60	0.00	150.0	± 9.6 %
		Y	5.30	67.39	16.66		150.0	
		Z	5.42	67.29	16.55		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.31	67.43	16.64	0.00	150.0	± 9.6 %
		Y	5.32	67.48	16.70		150.0	
		Z	5.43	67.30	16.56		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.30	67.32	16.58	0.00	150.0	± 9.6 %
		Y	5.31	67.37	16.64		150.0	
		Z	5.44	67.28	16.54		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.41	72.30	18.78	0.00	150.0	± 9.6 %
		Y	4.28	71.61	18.44		150.0	
		Z	4.35	70.84	18.35		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.12	67.35	16.27	0.00	150.0	± 9.6 %
		Y	4.14	67.43	16.34		150.0	
		Z	4.27	67.06	16.22		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.43	67.18	16.37	0.00	150.0	± 9.6 %
		Y	4.45	67.24	16.44		150.0	
		Z	4.58	66.95	16.29		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.69	67.13	16.45	0.00	150.0	± 9.6 %
		Y	4.70	67.18	16.51		150.0	
		Z	4.82	66.95	16.37		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.58	73.43	18.77	0.00	150.0	± 9.6 %
		Y	4.41	72.61	18.39		150.0	
		Z	4.46	71.72	18.35		150.0	
10435-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.84	90.24	22.26	3.23	80.0	± 9.6 %
		Y	100.00	126.90	32.00		80.0	
		Z	100.00	125.48	31.98		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.40	67.35	15.41	0.00	150.0	± 9.6 %
		Y	3.42	67.47	15.52		150.0	
		Z	3.56	67.03	15.56		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	3.98	67.14	16.14	0.00	150.0	± 9.6 %
		Y	4.00	67.22	16.21		150.0	
		Z	4.11	66.83	16.08		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.26	67.02	16.27	0.00	150.0	± 9.6 %
		Y	4.28	67.08	16.34		150.0	
		Z	4.38	66.77	16.19		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.47	66.91	16.31	0.00	150.0	± 9.6 %
		Y	4.48	66.96	16.37		150.0	
		Z	4.58	66.71	16.22		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.25	67.38	14.88	0.00	150.0	± 9.6 %
		Y	3.28	67.53	15.01		150.0	
		Z	3.46	67.22	15.21		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.22	67.99	16.81	0.00	150.0	± 9.6 %
		Y	6.22	68.02	16.86		150.0	
		Z	6.28	67.84	16.71		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.78	65.43	16.02	0.00	150.0	± 9.6 %
		Y	3.79	65.48	16.08		150.0	
		Z	3.83	65.16	15.92		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.02	66.44	14.01	0.00	150.0	± 9.6 %
		Y	3.06	66.64	14.18		150.0	
		Z	3.28	66.54	14.63		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.18	65.23	15.36	0.00	150.0	± 9.6 %
		Y	4.18	65.21	15.41		150.0	
		Z	4.47	65.25	15.75		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.93	68.87	16.62	0.00	150.0	± 9.6 %
		Y	1.00	70.16	17.38		150.0	
		Z	0.88	67.06	15.60		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.32	84.19	21.37	3.29	80.0	± 9.6 %
		Y	46.98	120.39	31.74		80.0	
		Z	70.92	123.84	32.55		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.93	61.17	8.92	3.23	80.0	± 9.6 %
		Y	1.50	66.22	11.48		80.0	
		Z	4.18	75.74	15.77		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.74	3.23	80.0	± 9.6 %
		Y	0.90	60.95	8.47		80.0	
		Z	1.89	66.55	11.77		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.27	79.79	19.27	3.23	80.0	± 9.6 %
		Y	44.63	117.13	30.10		80.0	
		Z	63.16	119.86	30.88		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.88	60.65	8.58	3.23	80.0	± 9.6 %
		Y	1.28	64.64	10.73		80.0	
		Z	2.98	72.01	14.38		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.69	3.23	80.0	± 9.6 %
		Y	0.85	60.44	8.16		80.0	
		Z	1.66	65.17	11.12		80.0	
10467-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.54	80.96	19.70	3.23	80.0	± 9.6 %
		Y	60.93	121.68	31.18		80.0	
		Z	84.88	124.19	31.89		80.0	
10468-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.89	60.80	8.68	3.23	80.0	± 9.6 %
		Y	1.33	65.06	10.94		80.0	
		Z	3.21	72.86	14.71		80.0	
10469-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.69	3.23	80.0	± 9.6 %
		Y	0.85	60.46	8.17		80.0	
		Z	1.66	65.20	11.14		80.0	
10470-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.54	80.99	19.71	3.23	80.0	± 9.6 %
		Y	63.11	122.20	31.29		80.0	
		Z	86.48	124.48	31.95		80.0	
10471-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.88	60.76	8.65	3.23	80.0	± 9.6 %
		Y	1.32	64.98	10.89		80.0	
		Z	3.18	72.76	14.66		80.0	
10472-AAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.68	3.23	80.0	± 9.6 %
		Y	0.84	60.42	8.13		80.0	
		Z	1.65	65.15	11.10		80.0	
10473-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.52	80.93	19.68	3.23	80.0	± 9.6 %
		Y	62.71	122.07	31.26		80.0	
		Z	85.93	124.36	31.91		80.0	
10474-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.88	60.74	8.64	3.23	80.0	± 9.6 %
		Y	1.31	64.94	10.87		80.0	
		Z	3.15	72.67	14.63		80.0	
10475-AAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.68	3.23	80.0	± 9.6 %
		Y	0.84	60.40	8.12		80.0	
		Z	1.64	65.11	11.08		80.0	

10477-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.87	60.61	8.55	3.23	80.0	± 9.6 %
		Y	1.27	64.59	10.69		80.0	
		Z	2.97	71.99	14.36		80.0	
10478-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.83	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.84	60.37	8.09		80.0	
		Z	1.63	65.04	11.04		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.53	79.52	20.39	3.23	80.0	± 9.6 %
		Y	7.80	88.47	23.78		80.0	
		Z	5.78	82.49	22.28		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.53	72.09	15.68	3.23	80.0	± 9.6 %
		Y	6.36	79.96	18.76		80.0	
		Z	6.52	79.72	19.55		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.81	68.83	13.98	3.23	80.0	± 9.6 %
		Y	4.53	74.98	16.60		80.0	
		Z	5.48	76.73	18.13		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.20	68.90	15.09	2.23	80.0	± 9.6 %
		Y	2.93	73.22	17.16		80.0	
		Z	2.97	72.34	17.43		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.35	65.97	12.90	2.23	80.0	± 9.6 %
		Y	3.02	69.40	14.64		80.0	
		Z	4.23	73.30	17.24		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.28	65.32	12.60	2.23	80.0	± 9.6 %
		Y	2.83	68.32	14.18		80.0	
		Z	3.99	72.23	16.81		80.0	
10485-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.68	71.36	17.35	2.23	80.0	± 9.6 %
		Y	3.27	74.89	19.08		80.0	
		Z	3.17	72.95	18.56		80.0	
10486-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.64	67.61	15.00	2.23	80.0	± 9.6 %
		Y	2.99	69.69	16.14		80.0	
		Z	3.15	69.34	16.51		80.0	
10487-AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.64	67.21	14.79	2.23	80.0	± 9.6 %
		Y	2.96	69.13	15.87		80.0	
		Z	3.15	68.96	16.33		80.0	
10488-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.00	70.76	18.02	2.23	80.0	± 9.6 %
		Y	3.34	72.92	19.20		80.0	
		Z	3.42	71.88	18.69		80.0	
10489-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.07	67.95	16.69	2.23	80.0	± 9.6 %
		Y	3.24	69.09	17.42		80.0	
		Z	3.37	68.53	17.27		80.0	
10490-AAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.16	67.82	16.63	2.23	80.0	± 9.6 %
		Y	3.32	68.90	17.33		80.0	
		Z	3.47	68.38	17.21		80.0	
10491-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.29	69.57	17.67	2.23	80.0	± 9.6 %
		Y	3.53	71.04	18.54		80.0	
		Z	3.67	70.46	18.17		80.0	
10492-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.43	67.31	16.78	2.23	80.0	± 9.6 %
		Y	3.55	68.11	17.34		80.0	
		Z	3.72	67.80	17.20		80.0	

10493-AAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.50	67.21	16.74	2.23	80.0	± 9.6 %
		Y	3.62	67.97	17.27		80.0	
		Z	3.79	67.69	17.16		80.0	
10494-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.52	70.87	18.10	2.23	80.0	± 9.6 %
		Y	3.84	72.64	19.08		80.0	
		Z	3.98	72.03	18.67		80.0	
10495-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.45	67.59	16.97	2.23	80.0	± 9.6 %
		Y	3.58	68.42	17.54		80.0	
		Z	3.75	68.20	17.40		80.0	
10496-AAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.54	67.39	16.91	2.23	80.0	± 9.6 %
		Y	3.65	68.15	17.44		80.0	
		Z	3.83	67.94	17.32		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.43	63.58	11.40	2.23	80.0	± 9.6 %
		Y	1.80	66.67	13.09		80.0	
		Z	2.27	68.74	14.99		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.24	60.00	8.33	2.23	80.0	± 9.6 %
		Y	1.23	60.00	8.51		80.0	
		Z	1.81	63.14	11.27		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.26	60.00	8.18	2.23	80.0	± 9.6 %
		Y	1.24	60.00	8.34		80.0	
		Z	1.76	62.56	10.83		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.78	70.93	17.56	2.23	80.0	± 9.6 %
		Y	3.23	73.75	19.01		80.0	
		Z	3.21	72.13	18.47		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.86	67.97	15.75	2.23	80.0	± 9.6 %
		Y	3.13	69.65	16.71		80.0	
		Z	3.25	69.01	16.80		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.90	67.83	15.61	2.23	80.0	± 9.6 %
		Y	3.18	69.45	16.55		80.0	
		Z	3.31	68.90	16.69		80.0	
10503-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.96	70.56	17.92	2.23	80.0	± 9.6 %
		Y	3.29	72.71	19.10		80.0	
		Z	3.38	71.68	18.59		80.0	
10504-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.05	67.84	16.62	2.23	80.0	± 9.6 %
		Y	3.22	69.00	17.36		80.0	
		Z	3.35	68.44	17.21		80.0	
10505-AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.14	67.73	16.57	2.23	80.0	± 9.6 %
		Y	3.31	68.81	17.27		80.0	
		Z	3.45	68.28	17.16		80.0	
10506-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.49	70.73	18.03	2.23	80.0	± 9.6 %
		Y	3.81	72.49	19.00		80.0	
		Z	3.95	71.88	18.59		80.0	
10507-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.44	67.53	16.93	2.23	80.0	± 9.6 %
		Y	3.56	68.36	17.50		80.0	
		Z	3.73	68.13	17.36		80.0	

10508-AAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.53	67.32	16.87	2.23	80.0	± 9.6 %
		Y	3.64	68.08	17.40		80.0	
		Z	3.82	67.87	17.27		80.0	
10509-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.90	69.82	17.65	2.23	80.0	± 9.6 %
		Y	4.14	71.06	18.38		80.0	
		Z	4.30	70.72	18.09		80.0	
10510-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.92	67.34	16.97	2.23	80.0	± 9.6 %
		Y	4.03	67.99	17.44		80.0	
		Z	4.22	67.93	17.34		80.0	
10511-AAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.99	67.15	16.93	2.23	80.0	± 9.6 %
		Y	4.09	67.75	17.36		80.0	
		Z	4.28	67.68	17.27		80.0	
10512-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.00	71.09	18.05	2.23	80.0	± 9.6 %
		Y	4.33	72.71	18.93		80.0	
		Z	4.49	72.31	18.60		80.0	
10513-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.80	67.50	17.05	2.23	80.0	± 9.6 %
		Y	3.92	68.21	17.54		80.0	
		Z	4.11	68.20	17.45		80.0	
10514-AAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.85	67.16	16.95	2.23	80.0	± 9.6 %
		Y	3.95	67.80	17.41		80.0	
		Z	4.13	67.78	17.32		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.99	63.41	14.95	0.00	150.0	± 9.6 %
		Y	1.00	63.71	15.22		150.0	
		Z	0.98	62.80	14.50		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.63	71.18	17.99	0.00	150.0	± 9.6 %
		Y	0.75	74.25	19.60		150.0	
		Z	0.56	68.07	16.15		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.84	65.39	15.66	0.00	150.0	± 9.6 %
		Y	0.87	66.03	16.14		150.0	
		Z	0.82	64.43	14.97		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.47	66.84	16.30	0.00	150.0	± 9.6 %
		Y	4.48	66.90	16.36		150.0	
		Z	4.58	66.60	16.20		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.63	67.03	16.39	0.00	150.0	± 9.6 %
		Y	4.64	67.09	16.46		150.0	
		Z	4.77	66.85	16.33		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.49	66.98	16.32	0.00	150.0	± 9.6 %
		Y	4.50	67.04	16.38		150.0	
		Z	4.62	66.81	16.25		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.42	66.97	16.30	0.00	150.0	± 9.6 %
		Y	4.43	67.03	16.37		150.0	
		Z	4.55	66.80	16.23		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.48	67.10	16.40	0.00	150.0	± 9.6 %
		Y	4.49	67.16	16.47		150.0	
		Z	4.61	66.88	16.31		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.38	67.02	16.28	0.00	150.0	± 9.6 %
		Y	4.40	67.08	16.35		150.0	
		Z	4.49	66.74	16.15		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.42	67.02	16.37	0.00	150.0	± 9.6 %
		Y	4.44	67.08	16.44		150.0	
		Z	4.56	66.80	16.28		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.44	66.11	15.98	0.00	150.0	± 9.6 %
		Y	4.45	66.16	16.04		150.0	
		Z	4.54	65.84	15.87		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.58	66.42	16.11	0.00	150.0	± 9.6 %
		Y	4.59	66.48	16.17		150.0	
		Z	4.71	66.22	16.01		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.51	66.39	16.05	0.00	150.0	± 9.6 %
		Y	4.52	66.45	16.12		150.0	
		Z	4.63	66.17	15.95		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.52	66.40	16.08	0.00	150.0	± 9.6 %
		Y	4.54	66.46	16.15		150.0	
		Z	4.65	66.19	15.99		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.52	66.40	16.08	0.00	150.0	± 9.6 %
		Y	4.54	66.46	16.15		150.0	
		Z	4.65	66.19	15.99		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.50	66.46	16.08	0.00	150.0	± 9.6 %
		Y	4.51	66.53	16.14		150.0	
		Z	4.64	66.30	16.00		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.37	66.32	16.01	0.00	150.0	± 9.6 %
		Y	4.39	66.39	16.08		150.0	
		Z	4.50	66.15	15.93		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.53	66.48	16.08	0.00	150.0	± 9.6 %
		Y	4.54	66.54	16.15		150.0	
		Z	4.66	66.23	15.97		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.07	66.45	16.14	0.00	150.0	± 9.6 %
		Y	5.09	66.50	16.19		150.0	
		Z	5.19	66.33	16.06		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.13	66.62	16.22	0.00	150.0	± 9.6 %
		Y	5.14	66.67	16.27		150.0	
		Z	5.25	66.51	16.14		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.01	66.59	16.19	0.00	150.0	± 9.6 %
		Y	5.03	66.64	16.24		150.0	
		Z	5.12	66.45	16.09		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.07	66.55	16.17	0.00	150.0	± 9.6 %
		Y	5.08	66.59	16.22		150.0	
		Z	5.18	66.42	16.08		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.14	66.54	16.20	0.00	150.0	± 9.6 %
		Y	5.15	66.59	16.25		150.0	
		Z	5.27	66.46	16.14		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.07	66.52	16.21	0.00	150.0	± 9.6 %
		Y	5.08	66.57	16.26		150.0	
		Z	5.20	66.47	16.16		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.05	66.41	16.14	0.00	150.0	± 9.6 %
		Y	5.06	66.46	16.20		150.0	
		Z	5.17	66.33	16.08		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.21	66.51	16.21	0.00	150.0	± 9.6 %
		Y	5.22	66.55	16.26		150.0	
		Z	5.33	66.41	16.13		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.27	66.52	16.24	0.00	150.0	± 9.6 %
		Y	5.28	66.56	16.29		150.0	
		Z	5.41	66.45	16.18		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.40	66.53	16.13	0.00	150.0	± 9.6 %
		Y	5.42	66.58	16.18		150.0	
		Z	5.49	66.45	16.06		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.59	66.98	16.30	0.00	150.0	± 9.6 %
		Y	5.60	67.03	16.36		150.0	
		Z	5.69	66.88	16.22		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.45	66.68	16.17	0.00	150.0	± 9.6 %
		Y	5.46	66.73	16.22		150.0	
		Z	5.56	66.67	16.13		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.52	66.76	16.20	0.00	150.0	± 9.6 %
		Y	5.53	66.80	16.25		150.0	
		Z	5.63	66.71	16.14		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.72	67.56	16.57	0.00	150.0	± 9.6 %
		Y	5.74	67.62	16.64		150.0	
		Z	5.92	67.73	16.62		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.50	66.81	16.24	0.00	150.0	± 9.6 %
		Y	5.51	66.85	16.30		150.0	
		Z	5.59	66.68	16.14		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.47	66.72	16.16	0.00	150.0	± 9.6 %
		Y	5.48	66.77	16.22		150.0	
		Z	5.59	66.72	16.13		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.41	66.62	16.12	0.00	150.0	± 9.6 %
		Y	5.42	66.66	16.16		150.0	
		Z	5.50	66.51	16.03		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.48	66.60	16.14	0.00	150.0	± 9.6 %
		Y	5.49	66.65	16.19		150.0	
		Z	5.59	66.56	16.08		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.82	66.88	16.21	0.00	150.0	± 9.6 %
		Y	5.83	66.92	16.26		150.0	
		Z	5.90	66.82	16.15		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.94	67.15	16.33	0.00	150.0	± 9.6 %
		Y	5.95	67.20	16.38		150.0	
		Z	6.03	67.13	16.28		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.96	67.23	16.36	0.00	150.0	± 9.6 %
		Y	5.98	67.27	16.41		150.0	
		Z	6.05	67.17	16.30		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.92	67.10	16.31	0.00	150.0	± 9.6 %
		Y	5.93	67.14	16.36		150.0	
		Z	6.02	67.08	16.27		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.96	67.24	16.39	0.00	150.0	± 9.6 %
		Y	5.97	67.29	16.45		150.0	
		Z	6.07	67.25	16.37		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.95	67.10	16.36	0.00	150.0	± 9.6 %
		Y	5.97	67.14	16.41		150.0	
		Z	6.06	67.09	16.33		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.89	67.09	16.39	0.00	150.0	± 9.6 %
		Y	5.90	67.14	16.45		150.0	
		Z	5.99	67.06	16.35		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.97	67.34	16.52	0.00	150.0	± 9.6 %
		Y	5.98	67.39	16.57		150.0	
		Z	6.12	67.47	16.55		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.05	67.24	16.43	0.00	150.0	± 9.6 %
		Y	6.06	67.29	16.49		150.0	
		Z	6.41	67.91	16.73		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.78	66.85	16.41	0.46	150.0	± 9.6 %
		Y	4.80	66.93	16.49		150.0	
		Z	4.91	66.67	16.35		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.99	67.29	16.74	0.46	150.0	± 9.6 %
		Y	5.01	67.35	16.80		150.0	
		Z	5.14	67.15	16.69		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.83	67.11	16.54	0.46	150.0	± 9.6 %
		Y	4.84	67.18	16.62		150.0	
		Z	4.98	66.99	16.50		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.87	67.55	16.94	0.46	150.0	± 9.6 %
		Y	4.87	67.57	16.98		150.0	
		Z	5.01	67.40	16.87		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.73	66.85	16.28	0.46	150.0	± 9.6 %
		Y	4.75	66.97	16.39		150.0	
		Z	4.88	66.73	16.25		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.84	67.72	17.05	0.46	150.0	± 9.6 %
		Y	4.85	67.73	17.08		150.0	
		Z	4.96	67.48	16.93		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.86	67.53	16.95	0.46	150.0	± 9.6 %
		Y	4.87	67.55	16.99		150.0	
		Z	5.00	67.32	16.86		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.13	63.98	15.42	0.46	130.0	± 9.6 %
		Y	1.15	64.46	15.85		130.0	
		Z	1.15	63.75	15.28		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.14	64.53	15.78	0.46	130.0	± 9.6 %
		Y	1.16	65.03	16.22		130.0	
		Z	1.16	64.27	15.61		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.37	80.51	21.92	0.46	130.0	± 9.6 %
		Y	2.18	89.24	25.44		130.0	
		Z	1.24	77.68	20.60		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.21	70.03	18.74	0.46	130.0	± 9.6 %
		Y	1.26	70.93	19.36		130.0	
		Z	1.21	69.23	18.24		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.55	66.59	16.41	0.46	130.0	± 9.6 %
		Y	4.57	66.69	16.52		130.0	
		Z	4.69	66.45	16.40		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.58	66.78	16.50	0.46	130.0	± 9.6 %
		Y	4.60	66.87	16.60		130.0	
		Z	4.71	66.62	16.47		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.76	67.04	16.65	0.46	130.0	± 9.6 %
		Y	4.78	67.12	16.75		130.0	
		Z	4.92	66.93	16.65		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.67	67.21	16.78	0.46	130.0	± 9.6 %
		Y	4.68	67.27	16.85		130.0	
		Z	4.82	67.09	16.76		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.41	66.37	16.00	0.46	130.0	± 9.6 %
		Y	4.44	66.52	16.15		130.0	
		Z	4.58	66.34	16.04		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.45	66.43	16.02	0.46	130.0	± 9.6 %
		Y	4.49	66.59	16.18		130.0	
		Z	4.62	66.36	16.05		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.57	67.26	16.72	0.46	130.0	± 9.6 %
		Y	4.58	67.33	16.82		130.0	
		Z	4.71	67.12	16.69		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.34	66.11	15.76	0.46	130.0	± 9.6 %
		Y	4.38	66.30	15.94		130.0	
		Z	4.52	66.09	15.82		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.55	66.59	16.41	0.46	130.0	± 9.6 %
		Y	4.57	66.69	16.52		130.0	
		Z	4.69	66.45	16.40		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.58	66.78	16.50	0.46	130.0	± 9.6 %
		Y	4.60	66.87	16.60		130.0	
		Z	4.71	66.62	16.47		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.76	67.04	16.65	0.46	130.0	± 9.6 %
		Y	4.78	67.12	16.75		130.0	
		Z	4.92	66.93	16.65		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.67	67.21	16.78	0.46	130.0	± 9.6 %
		Y	4.68	67.27	16.85		130.0	
		Z	4.82	67.09	16.76		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.41	66.37	16.00	0.46	130.0	± 9.6 %
		Y	4.44	66.52	16.15		130.0	
		Z	4.58	66.34	16.04		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.45	66.43	16.02	0.46	130.0	± 9.6 %
		Y	4.49	66.59	16.18		130.0	
		Z	4.62	66.36	16.05		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.57	67.26	16.72	0.46	130.0	± 9.6 %
		Y	4.58	67.33	16.82		130.0	
		Z	4.71	67.12	16.69		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.34	66.11	15.76	0.46	130.0	± 9.6 %
		Y	4.38	66.30	15.94		130.0	
		Z	4.52	66.09	15.82		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.71	66.67	16.53	0.46	130.0	± 9.6 %
		Y	4.73	66.75	16.62		130.0	
		Z	4.84	66.53	16.51		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.84	66.99	16.66	0.46	130.0	± 9.6 %
		Y	4.86	67.07	16.75		130.0	
		Z	5.00	66.87	16.64		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.76	66.86	16.52	0.46	130.0	± 9.6 %
		Y	4.78	66.96	16.62		130.0	
		Z	4.92	66.77	16.52		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.82	67.05	16.69	0.46	130.0	± 9.6 %
		Y	4.84	67.13	16.78		130.0	
		Z	4.97	66.94	16.68		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.78	67.01	16.59	0.46	130.0	± 9.6 %
		Y	4.80	67.10	16.69		130.0	
		Z	4.94	66.89	16.57		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.71	66.98	16.58	0.46	130.0	± 9.6 %
		Y	4.73	67.08	16.69		130.0	
		Z	4.87	66.88	16.57		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.66	66.85	16.44	0.46	130.0	± 9.6 %
		Y	4.69	66.96	16.56		130.0	
		Z	4.82	66.78	16.45		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.65	67.11	16.73	0.46	130.0	± 9.6 %
		Y	4.67	67.18	16.81		130.0	
		Z	4.81	67.03	16.73		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.39	67.16	16.75	0.46	130.0	± 9.6 %
		Y	5.40	67.23	16.84		130.0	
		Z	5.52	67.11	16.73		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.51	67.57	16.93	0.46	130.0	± 9.6 %
		Y	5.53	67.67	17.03		130.0	
		Z	5.67	67.58	16.94		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.40	67.32	16.82	0.46	130.0	± 9.6 %
		Y	5.42	67.41	16.92		130.0	
		Z	5.55	67.30	16.82		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.53	67.48	16.82	0.46	130.0	± 9.6 %
		Y	5.55	67.58	16.92		130.0	
		Z	5.64	67.31	16.73		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.60	67.77	17.10	0.46	130.0	± 9.6 %
		Y	5.62	67.84	17.19		130.0	
		Z	5.72	67.63	17.03		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.48	67.44	16.92	0.46	130.0	± 9.6 %
		Y	5.50	67.51	17.01		130.0	
		Z	5.52	67.07	16.74		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.51	67.48	16.93	0.46	130.0	± 9.6 %
		Y	5.53	67.59	17.04		130.0	
		Z	5.64	67.42	16.91		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.24	66.77	16.43	0.46	130.0	± 9.6 %
		Y	5.27	66.88	16.54		130.0	
		Z	5.39	66.79	16.45		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.56	66.02	16.17	0.46	130.0	± 9.6 %
		Y	4.58	66.11	16.27		130.0	
		Z	4.68	65.84	16.13		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.71	66.38	16.33	0.46	130.0	± 9.6 %
		Y	4.74	66.48	16.43		130.0	
		Z	4.87	66.25	16.30		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.60	66.21	16.15	0.46	130.0	± 9.6 %
		Y	4.63	66.32	16.26		130.0	
		Z	4.75	66.09	16.13		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.66	66.38	16.32	0.46	130.0	± 9.6 %
		Y	4.68	66.48	16.42		130.0	
		Z	4.81	66.25	16.30		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.57	66.17	16.16	0.46	130.0	± 9.6 %
		Y	4.59	66.28	16.27		130.0	
		Z	4.72	66.06	16.14		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.57	66.31	16.20	0.46	130.0	± 9.6 %
		Y	4.59	66.44	16.32		130.0	
		Z	4.73	66.20	16.18		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.56	66.14	16.05	0.46	130.0	± 9.6 %
		Y	4.59	66.27	16.18		130.0	
		Z	4.73	66.09	16.06		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.53	66.39	16.32	0.46	130.0	± 9.6 %
		Y	4.55	66.47	16.42		130.0	
		Z	4.68	66.29	16.31		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.56	65.98	15.91	0.46	130.0	± 9.6 %
		Y	4.59	66.13	16.05		130.0	
		Z	4.72	65.87	15.91		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.20	66.41	16.36	0.46	130.0	± 9.6 %
		Y	5.22	66.48	16.45		130.0	
		Z	5.34	66.37	16.34		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.27	66.60	16.43	0.46	130.0	± 9.6 %
		Y	5.29	66.69	16.53		130.0	
		Z	5.41	66.54	16.40		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.17	66.64	16.47	0.46	130.0	± 9.6 %
		Y	5.19	66.72	16.55		130.0	
		Z	5.29	66.54	16.42		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.17	66.40	16.28	0.46	130.0	± 9.6 %
		Y	5.19	66.49	16.38		130.0	
		Z	5.31	66.37	16.27		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.25	66.42	16.34	0.46	130.0	± 9.6 %
		Y	5.27	66.52	16.44		130.0	
		Z	5.40	66.41	16.34		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.27	66.59	16.55	0.46	130.0	± 9.6 %
		Y	5.28	66.65	16.62		130.0	
		Z	5.40	66.53	16.52		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.27	66.70	16.60	0.46	130.0	± 9.6 %
		Y	5.28	66.78	16.68		130.0	
		Z	5.41	66.70	16.60		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.14	66.21	16.21	0.46	130.0	± 9.6 %
		Y	5.16	66.31	16.32		130.0	
		Z	5.28	66.20	16.22		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.34	66.45	16.40	0.46	130.0	± 9.6 %
		Y	5.36	66.54	16.49		130.0	
		Z	5.48	66.42	16.39		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.55	66.97	16.72	0.46	130.0	± 9.6 %
		Y	5.57	67.07	16.81		130.0	
		Z	5.88	67.48	16.97		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.53	66.46	16.32	0.46	130.0	± 9.6 %
		Y	5.54	66.54	16.40		130.0	
		Z	5.63	66.43	16.30		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.77	67.07	16.59	0.46	130.0	± 9.6 %
		Y	5.79	67.16	16.68		130.0	
		Z	5.88	67.02	16.56		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.53	66.46	16.22	0.46	130.0	± 9.6 %
		Y	5.55	66.56	16.32		130.0	
		Z	5.67	66.54	16.25		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.62	66.57	16.27	0.46	130.0	± 9.6 %
		Y	5.64	66.67	16.37		130.0	
		Z	5.76	66.64	16.29		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.96	67.80	16.88	0.46	130.0	± 9.6 %
		Y	5.98	67.92	17.00		130.0	
		Z	6.25	68.26	17.09		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.89	67.74	17.06	0.46	130.0	± 9.6 %
		Y	5.91	67.78	17.11		130.0	
		Z	6.11	67.97	17.16		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.75	67.20	16.81	0.46	130.0	± 9.6 %
		Y	5.76	67.24	16.86		130.0	
		Z	5.85	67.08	16.73		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.60	66.69	16.37	0.46	130.0	± 9.6 %
		Y	5.62	66.77	16.45		130.0	
		Z	5.73	66.69	16.36		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.58	66.71	16.44	0.46	130.0	± 9.6 %
		Y	5.60	66.78	16.51		130.0	
		Z	5.72	66.73	16.44		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.44	65.95	15.77	0.46	130.0	± 9.6 %
		Y	5.47	66.09	15.91		130.0	
		Z	5.60	66.05	15.82		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.96	66.83	16.41	0.46	130.0	± 9.6 %
		Y	5.97	66.90	16.49		130.0	
		Z	6.05	66.82	16.40		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.10	67.19	16.58	0.46	130.0	± 9.6 %
		Y	6.12	67.27	16.66		130.0	
		Z	6.21	67.21	16.58		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.10	67.17	16.54	0.46	130.0	± 9.6 %
		Y	6.12	67.25	16.63		130.0	
		Z	6.21	67.17	16.54		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.07	67.09	16.55	0.46	130.0	± 9.6 %
		Y	6.09	67.17	16.63		130.0	
		Z	6.19	67.14	16.56		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.06	67.06	16.47	0.46	130.0	± 9.6 %
		Y	6.08	67.16	16.57		130.0	
		Z	6.19	67.15	16.51		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.13	67.06	16.49	0.46	130.0	± 9.6 %
		Y	6.15	67.15	16.59		130.0	
		Z	6.23	67.02	16.46		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.16	67.29	16.78	0.46	130.0	± 9.6 %
		Y	6.17	67.34	16.84		130.0	
		Z	6.28	67.31	16.78		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.00	66.97	16.51	0.46	130.0	± 9.6 %
		Y	6.02	67.06	16.61		130.0	
		Z	6.11	66.97	16.50		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.09	67.26	16.67	0.46	130.0	± 9.6 %
		Y	6.12	67.36	16.77		130.0	
		Z	6.29	67.52	16.80		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.23	67.33	16.67	0.46	130.0	± 9.6 %
		Y	6.26	67.42	16.77		130.0	
		Z	6.72	68.38	17.18		130.0	
10646-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	7.97	91.85	31.39	9.30	60.0	± 9.6 %
		Y	11.74	104.28	36.86		60.0	
		Z	11.88	99.49	34.28		60.0	
10647-AAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	7.13	89.84	30.79	9.30	60.0	± 9.6 %
		Y	9.93	100.75	35.82		60.0	
		Z	10.62	97.47	33.72		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.64	63.39	10.24	0.00	150.0	± 9.6 %
		Y	0.67	63.88	10.62		150.0	
		Z	0.72	63.48	11.02		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.

Calibration Laboratory of
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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: ES3-3347_Nov17

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3347

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

BN ✓
1/3/2018

Calibration date: November 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	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-17)	In house check: Oct-18

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

Issued: November 15, 2017

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Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe ES3DV3

SN:3347

Manufactured: March 15, 2012
Calibrated: November 14, 2017

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.16	1.35	1.21	± 10.1 %
DCP (mV)[B]	101.8	103.3	100.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	180.3	±3.5 %
		Y	0.0	0.0	1.0		184.2	
		Z	0.0	0.0	1.0		182.7	

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	56.85	405.7	35.26	28.78	2.146	5.1	1.078	0.389	1.015
Y	53.71	386.4	35.65	28.84	2.390	5.1	0.960	0.434	1.014
Z	52.49	373.6	35.24	27.58	1.840	5.1	0.845	0.389	1.013

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:3347

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	6.65	6.65	6.65	0.61	1.33	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.57	1.33	± 12.0 %
1750	40.1	1.37	5.48	5.48	5.48	0.59	1.33	± 12.0 %
1900	40.0	1.40	5.24	5.24	5.24	0.57	1.40	± 12.0 %
2300	39.5	1.67	4.94	4.94	4.94	0.57	1.44	± 12.0 %
2450	39.2	1.80	4.64	4.64	4.64	0.67	1.40	± 12.0 %
2600	39.0	1.96	4.47	4.47	4.47	0.80	1.31	± 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:3347

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	6.45	6.45	6.45	0.47	1.56	± 12.0 %
835	55.2	0.97	6.29	6.29	6.29	0.66	1.29	± 12.0 %
1750	53.4	1.49	5.15	5.15	5.15	0.68	1.33	± 12.0 %
1900	53.3	1.52	4.93	4.93	4.93	0.59	1.42	± 12.0 %
2300	52.9	1.81	4.71	4.71	4.71	0.80	1.27	± 12.0 %
2450	52.7	1.95	4.53	4.53	4.53	0.75	1.25	± 12.0 %
2600	52.5	2.16	4.35	4.35	4.35	0.80	1.25	± 12.0 %

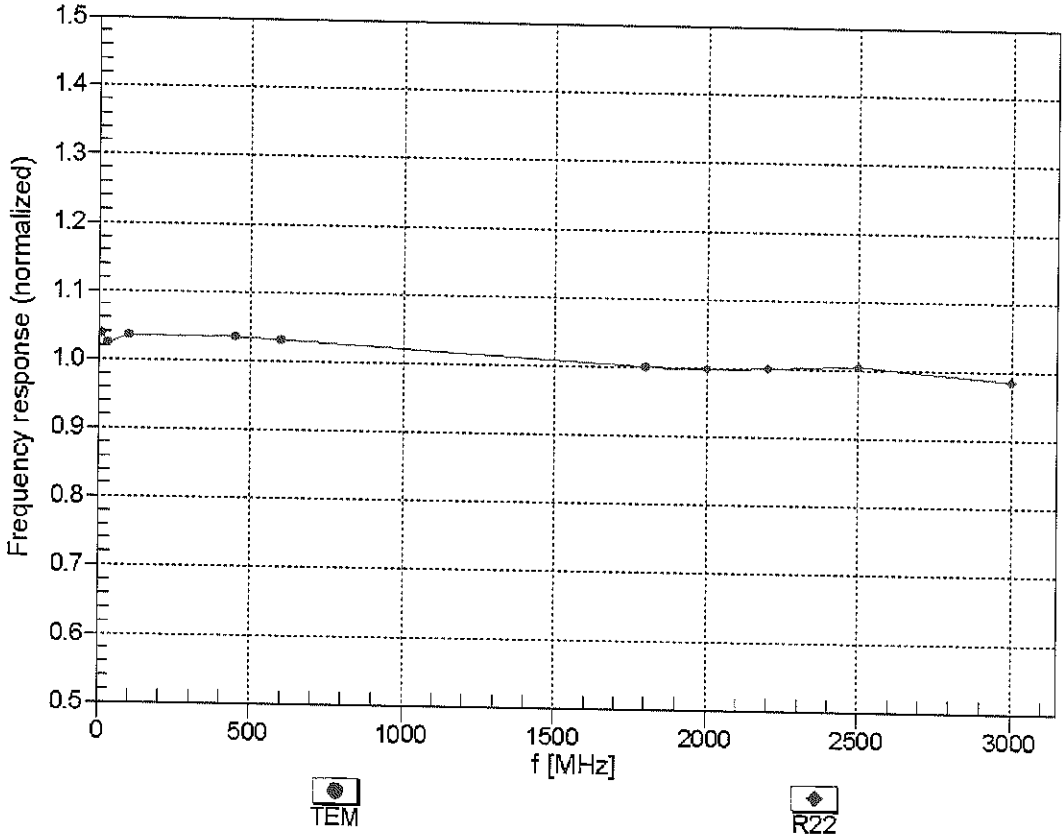
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

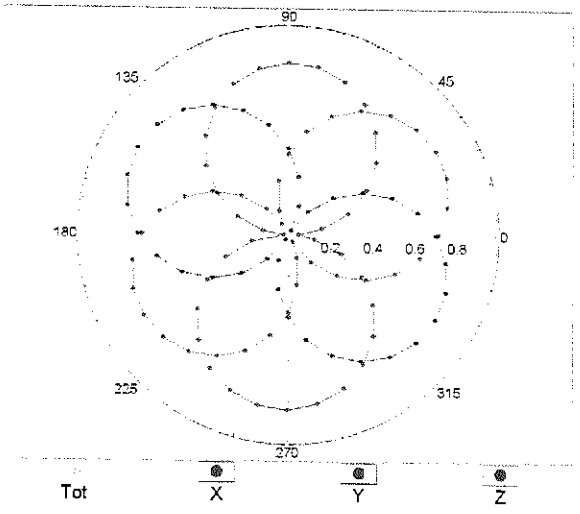
(TEM-Cell:ifi110 EXX, Waveguide: R22)



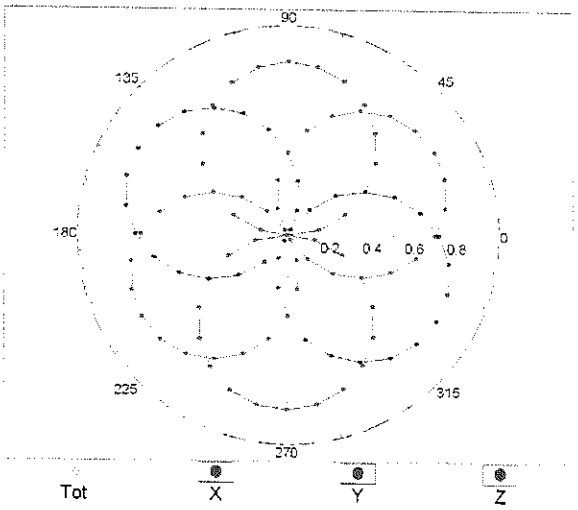
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

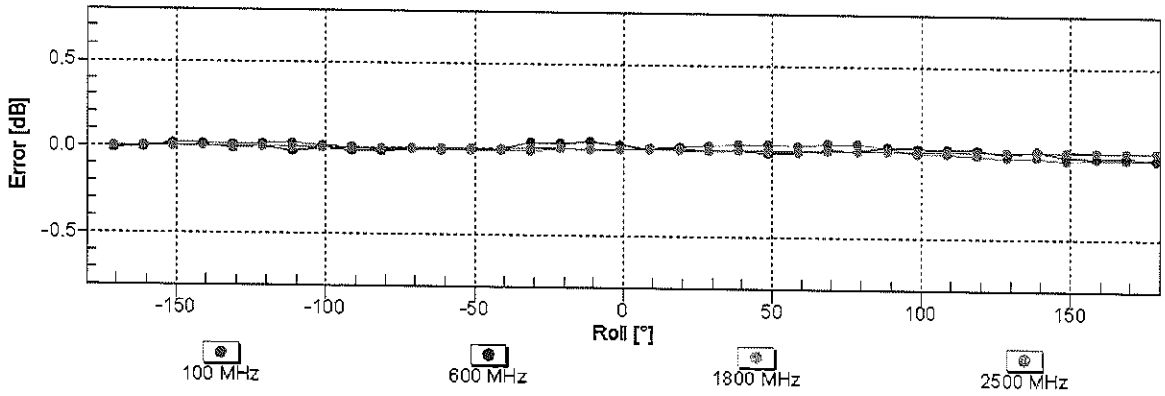
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

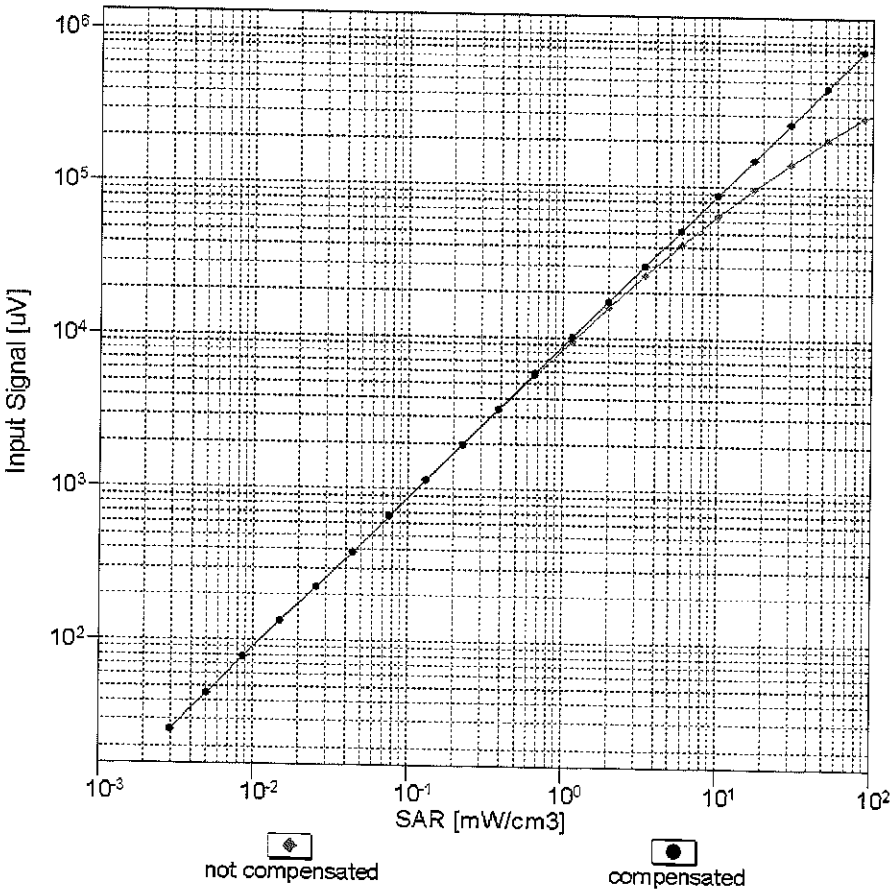


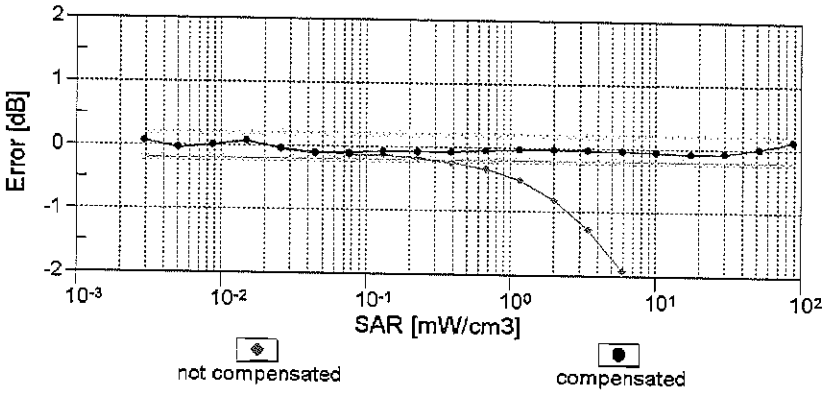


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

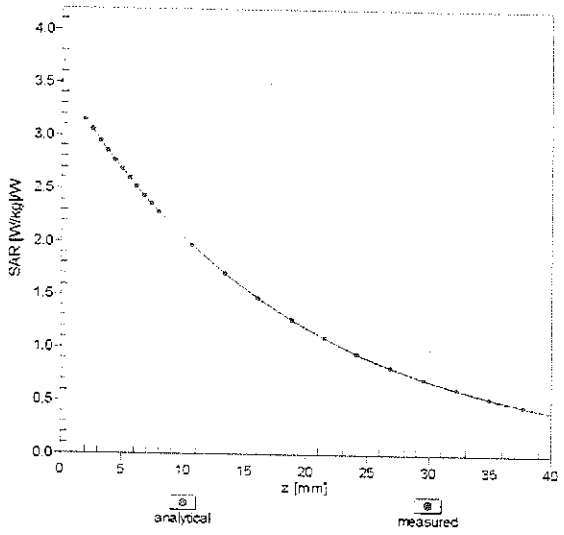




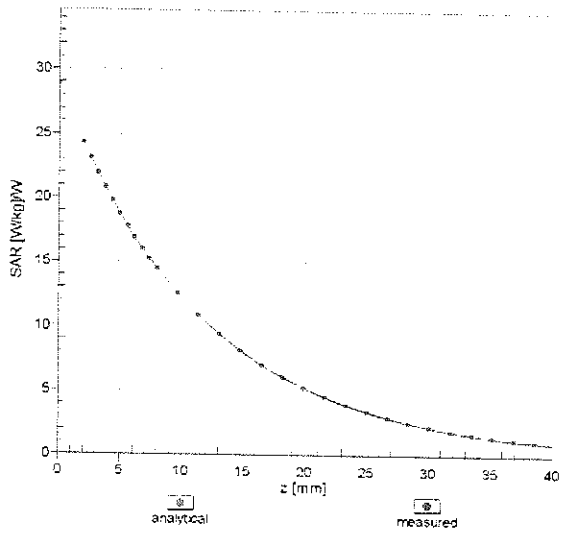
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

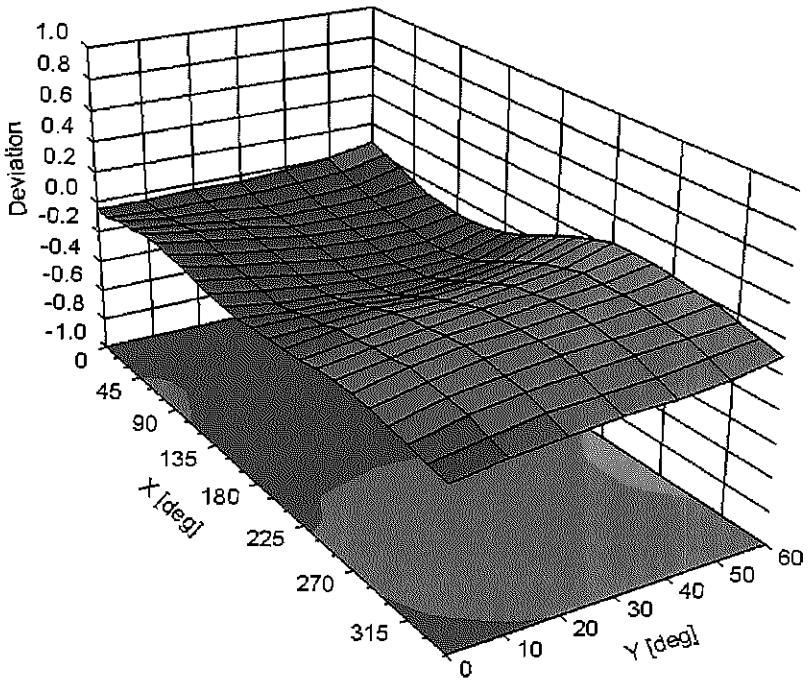


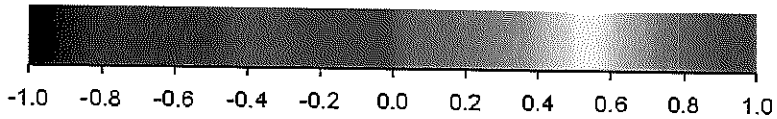
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-31.2
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√μV	C	D dB	VR mV	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	180.3	± 3.5 %
		Y	0.00	0.00	1.00		184.2	
		Z	0.00	0.00	1.00		182.7	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	10.13	82.41	19.62	10.00	25.0	± 9.6 %
		Y	9.84	82.02	19.71		25.0	
		Z	14.66	87.98	21.30		25.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.40	73.24	18.56	0.00	150.0	± 9.6 %
		Y	1.15	69.55	16.47		150.0	
		Z	1.95	80.03	22.00		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.36	66.66	17.13	0.41	150.0	± 9.6 %
		Y	1.31	65.74	16.36		150.0	
		Z	1.42	68.00	18.26		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.14	67.48	17.69	1.46	150.0	± 9.6 %
		Y	5.11	67.37	17.55		150.0	
		Z	5.12	67.70	17.90		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	50.38	109.96	29.91	9.39	50.0	± 9.6 %
		Y	44.87	108.65	29.87		50.0	
		Z	100.00	121.19	32.58		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	38.97	105.78	28.82	9.57	50.0	± 9.6 %
		Y	34.67	104.32	28.72		50.0	
		Z	100.00	121.17	32.63		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	117.95	30.08	6.56	60.0	± 9.6 %
		Y	100.00	118.51	30.45		60.0	
		Z	100.00	118.75	30.27		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	50.01	138.88	51.87	12.57	50.0	± 9.6 %
		Y	16.98	103.84	39.71		50.0	
		Z	38.73	132.84	50.41		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	35.46	119.89	41.37	9.56	60.0	± 9.6 %
		Y	22.06	106.97	37.01		60.0	
		Z	41.81	125.63	43.40		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	117.25	28.87	4.80	80.0	± 9.6 %
		Y	100.00	117.48	29.06		80.0	
		Z	100.00	118.84	29.46		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	117.96	28.39	3.55	100.0	± 9.6 %
		Y	100.00	117.75	28.37		100.0	
		Z	100.00	120.65	29.49		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	19.28	104.88	35.49	7.80	80.0	± 9.6 %
		Y	14.07	96.63	32.42		80.0	
		Z	20.06	107.12	36.54		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	116.63	28.91	5.30	70.0	± 9.6 %
		Y	100.00	116.93	29.14		70.0	
		Z	100.00	117.70	29.26		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	120.56	27.97	1.88	100.0	± 9.6 %
		Y	100.00	118.66	27.19		100.0	
		Z	100.00	126.63	30.49		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	128.07	29.96	1.17	100.0	± 9.6 %
		Y	100.00	123.28	28.00		100.0	
		Z	100.00	141.07	35.28		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	43.99	112.54	31.22	5.30	70.0	± 9.6 %
		Y	26.02	103.18	28.50		70.0	
		Z	100.00	126.99	34.88		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	22.91	104.90	27.62	1.88	100.0	± 9.6 %
		Y	12.27	94.53	24.31		100.0	
		Z	100.00	128.12	33.47		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	10.17	94.66	24.53	1.17	100.0	± 9.6 %
		Y	6.03	86.03	21.40		100.0	
		Z	100.00	129.58	33.57		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	64.69	119.13	32.96	5.30	70.0	± 9.6 %
		Y	34.68	108.08	29.93		70.0	
		Z	100.00	127.22	35.00		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	21.57	104.03	27.34	1.88	100.0	± 9.6 %
		Y	11.35	93.46	23.95		100.0	
		Z	100.00	128.11	33.43		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	10.97	96.14	25.08	1.17	100.0	± 9.6 %
		Y	6.35	87.07	21.84		100.0	
		Z	100.00	130.31	33.90		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	3.20	80.44	19.80	0.00	150.0	± 9.6 %
		Y	2.29	75.23	17.35		150.0	
		Z	11.88	100.98	26.51		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	116.59	29.68	7.78	50.0	± 9.6 %
		Y	100.00	117.23	30.11		50.0	
		Z	100.00	116.98	29.67		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.03	131.84	12.80	0.00	150.0	± 9.6 %
		Y	0.00	109.47	3.03		150.0	
		Z	0.02	60.00	8.00		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	14.72	88.78	25.46	13.80	25.0	± 9.6 %
		Y	14.14	87.99	25.47		25.0	
		Z	23.63	97.71	28.12		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	19.10	93.91	25.74	10.79	40.0	± 9.6 %
		Y	18.21	93.30	25.83		40.0	
		Z	39.23	106.27	29.23		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	18.24	94.41	26.86	9.03	50.0	± 9.6 %
		Y	15.68	91.39	25.87		50.0	
		Z	27.99	102.68	29.38		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	12.48	95.42	31.54	6.55	100.0	± 9.6 %
		Y	10.03	89.81	29.27		100.0	
		Z	12.45	96.50	32.24		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.58	69.48	18.48	0.61	110.0	± 9.6 %
		Y	1.51	68.18	17.54		110.0	
		Z	1.69	71.32	19.83		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	134.61	35.09	1.30	110.0	± 9.6 %
		Y	100.00	132.26	34.07		110.0	
		Z	100.00	139.79	37.36		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	48.51	124.63	35.13	2.04	110.0	± 9.6 %
		Y	17.31	105.89	29.95		110.0	
		Z	100.00	140.23	39.46		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.87	67.28	16.99	0.49	100.0	± 9.6 %
		Y	4.83	67.13	16.84		100.0	
		Z	4.87	67.54	17.23		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.91	67.44	17.13	0.72	100.0	± 9.6 %
		Y	4.87	67.29	16.98		100.0	
		Z	4.91	67.70	17.37		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.23	67.76	17.38	0.86	100.0	± 9.6 %
		Y	5.18	67.60	17.23		100.0	
		Z	5.22	67.98	17.60		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.13	67.79	17.56	1.21	100.0	± 9.6 %
		Y	5.09	67.64	17.41		100.0	
		Z	5.11	68.00	17.77		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.19	67.92	17.79	1.46	100.0	± 9.6 %
		Y	5.15	67.78	17.64		100.0	
		Z	5.16	68.12	18.00		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.50	68.09	18.25	2.04	100.0	± 9.6 %
		Y	5.47	67.97	18.11		100.0	
		Z	5.47	68.28	18.44		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.63	68.44	18.63	2.55	100.0	± 9.6 %
		Y	5.60	68.28	18.46		100.0	
		Z	5.59	68.55	18.78		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.71	68.40	18.83	2.67	100.0	± 9.6 %
		Y	5.68	68.26	18.65		100.0	
		Z	5.67	68.53	18.97		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.28	67.72	18.08	1.99	100.0	± 9.6 %
		Y	5.25	67.61	17.94		100.0	
		Z	5.26	67.91	18.27		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.34	68.30	18.42	2.30	100.0	± 9.6 %
		Y	5.31	68.17	18.27		100.0	
		Z	5.31	68.47	18.61		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.47	68.66	18.85	2.83	100.0	± 9.6 %
		Y	5.45	68.53	18.69		100.0	
		Z	5.43	68.82	19.03		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.50	68.72	19.10	3.30	100.0	± 9.6 %
		Y	5.49	68.61	18.95		100.0	
		Z	5.46	68.85	19.26		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.65	69.22	19.62	3.82	90.0	± 9.6 %
		Y	5.63	69.06	19.43		90.0	
		Z	5.59	69.28	19.74		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.66	69.02	19.75	4.15	90.0	± 9.6 %
		Y	5.65	68.89	19.57		90.0	
		Z	5.60	69.08	19.87		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.69	69.11	19.86	4.30	90.0	± 9.6 %
		Y	5.70	68.99	19.68		90.0	
		Z	5.64	69.18	19.98		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.38	73.33	16.77	0.00	150.0	± 9.6 %
		Y	0.99	68.32	14.00		150.0	
		Z	3.92	89.84	23.08		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.00	63.70	8.48	4.77	80.0	± 9.6 %
		Y	2.04	63.70	8.57		80.0	
		Z	1.92	63.74	8.38		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	118.03	30.14	6.56	60.0	± 9.6 %
		Y	100.00	118.59	30.51		60.0	
		Z	100.00	118.82	30.33		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.03	69.76	17.11	0.00	150.0	± 9.6 %
		Y	1.91	68.55	16.27		150.0	
		Z	2.27	72.26	18.56		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	2.00	69.79	17.12	0.00	150.0	± 9.6 %
		Y	1.87	68.53	16.25		150.0	
		Z	2.24	72.36	18.61		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	35.11	119.59	41.28	9.56	60.0	± 9.6 %
		Y	21.95	106.81	36.96		60.0	
		Z	41.44	125.35	43.31		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.55	72.57	17.86	0.00	150.0	± 9.6 %
		Y	3.31	71.30	17.17		150.0	
		Z	3.84	74.35	18.92		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.44	68.66	16.65	0.00	150.0	± 9.6 %
		Y	3.34	68.08	16.26		150.0	
		Z	3.52	69.37	17.19		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.53	68.49	16.67	0.00	150.0	± 9.6 %
		Y	3.44	67.99	16.32		150.0	
		Z	3.60	69.15	17.19		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	9.32	80.19	22.17	3.98	65.0	± 9.6 %
		Y	8.99	79.40	21.83		65.0	
		Z	9.79	81.73	22.96		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.89	78.25	22.32	3.98	65.0	± 9.6 %
		Y	8.59	77.39	21.88		65.0	
		Z	8.97	78.98	22.77		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	8.14	76.50	21.87	3.98	65.0	± 9.6 %
		Y	7.82	75.52	21.36		65.0	
		Z	8.44	77.76	22.56		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.11	71.78	17.73	0.00	150.0	± 9.6 %
		Y	2.90	70.55	17.03		150.0	
		Z	3.35	73.62	18.84		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.10	68.57	16.63	0.00	150.0	± 9.6 %
		Y	3.00	67.96	16.20		150.0	
		Z	3.19	69.45	17.27		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.56	71.09	17.55	0.00	150.0	± 9.6 %
		Y	2.37	69.75	16.73		150.0	
		Z	2.80	73.24	18.82		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.82	69.41	17.01	0.00	150.0	± 9.6 %
		Y	2.72	68.77	16.53		150.0	
		Z	2.98	70.89	17.92		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.22	68.42	16.61	0.00	150.0	± 9.6 %
		Y	3.12	67.89	16.23		150.0	
		Z	3.29	69.25	17.21		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.97	69.39	17.06	0.00	150.0	± 9.6 %
		Y	2.87	68.84	16.63		150.0	
		Z	3.11	70.79	17.91		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.25	67.62	16.75	0.00	150.0	± 9.6 %
		Y	5.21	67.48	16.62		150.0	
		Z	5.27	67.92	17.02		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.61	67.96	16.92	0.00	150.0	± 9.6 %
		Y	5.55	67.75	16.77		150.0	
		Z	5.60	68.12	17.12		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.37	67.91	16.82	0.00	150.0	± 9.6 %
		Y	5.33	67.75	16.68		150.0	
		Z	5.39	68.18	17.07		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.24	67.59	16.75	0.00	150.0	± 9.6 %
		Y	5.18	67.39	16.59		150.0	
		Z	5.24	67.80	16.97		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.70	68.16	17.04	0.00	150.0	± 9.6 %
		Y	5.65	68.00	16.90		150.0	
		Z	5.70	68.38	17.26		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.35	67.85	16.80	0.00	150.0	± 9.6 %
		Y	5.30	67.68	16.66		150.0	
		Z	5.36	68.11	17.05		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.57	68.50	16.59	0.00	150.0	± 9.6 %
		Y	3.48	67.99	16.24		150.0	
		Z	3.64	69.16	17.11		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.69	68.49	16.70	0.00	150.0	± 9.6 %
		Y	3.60	68.05	16.39		150.0	
		Z	3.75	69.13	17.20		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.37	71.41	17.48	0.00	150.0	± 9.6 %
		Y	2.16	69.87	16.52		150.0	
		Z	2.69	74.33	19.05		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.75	70.51	17.02	0.00	150.0	± 9.6 %
		Y	2.61	69.67	16.39		150.0	
		Z	3.04	72.85	18.24		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.53	68.33	15.53	0.00	150.0	± 9.6 %
		Y	2.38	67.41	14.82		150.0	
		Z	2.68	69.87	16.37		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.72	69.83	14.97	0.00	150.0	± 9.6 %
		Y	1.42	67.06	13.18		150.0	
		Z	2.35	74.94	17.17		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	6.48	82.85	19.80	0.00	150.0	± 9.6 %
		Y	4.60	77.64	17.45		150.0	
		Z	11.46	90.81	22.10		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	11.52	91.11	22.66	0.00	150.0	± 9.6 %
		Y	8.23	85.64	20.41		150.0	
		Z	44.64	109.68	27.44		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.11	68.62	16.67	0.00	150.0	± 9.6 %
		Y	3.01	68.02	16.24		150.0	
		Z	3.20	69.52	17.31		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.22	68.47	16.65	0.00	150.0	± 9.6 %
		Y	3.13	67.94	16.27		150.0	
		Z	3.30	69.30	17.26		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	10.10	82.94	23.33	3.98	65.0	± 9.6 %
		Y	9.61	81.89	22.87		65.0	
		Z	11.06	85.40	24.44		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.61	78.74	22.29	3.98	65.0	± 9.6 %
		Y	8.25	77.70	21.74		65.0	
		Z	8.75	79.65	22.79		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.97	79.41	22.89	3.98	65.0	± 9.6 %
		Y	8.65	78.52	22.42		65.0	
		Z	9.15	80.42	23.43		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.62	71.53	17.81	0.00	150.0	± 9.6 %
		Y	2.43	70.20	17.01		150.0	
		Z	2.88	73.80	19.13		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.82	69.42	17.03	0.00	150.0	± 9.6 %
		Y	2.72	68.78	16.55		150.0	
		Z	2.98	70.91	17.94		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.27	72.03	17.59	0.00	150.0	± 9.6 %
		Y	2.03	70.19	16.46		150.0	
		Z	2.69	75.75	19.46		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.42	69.36	15.84	0.00	150.0	± 9.6 %
		Y	2.24	68.18	14.98		150.0	
		Z	2.68	71.66	17.00		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.97	69.44	17.10	0.00	150.0	± 9.6 %
		Y	2.87	68.90	16.67		150.0	
		Z	3.12	70.85	17.96		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.53	69.76	16.09	0.00	150.0	± 9.6 %
		Y	2.35	68.64	15.26		150.0	
		Z	2.82	72.14	17.27		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.03	70.37	17.34	0.00	150.0	± 9.6 %
		Y	2.89	69.52	16.79		150.0	
		Z	3.21	71.85	18.28		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.12	68.40	16.61	0.00	150.0	± 9.6 %
		Y	3.02	67.87	16.21		150.0	
		Z	3.20	69.31	17.24		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.22	68.45	16.67	0.00	150.0	± 9.6 %
		Y	3.13	67.97	16.30		150.0	
		Z	3.31	69.36	17.29		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	4.12	72.10	20.82	3.01	150.0	± 9.6 %
		Y	4.00	71.56	20.43		150.0	
		Z	4.06	72.41	21.12		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	5.55	76.59	21.87	3.01	150.0	± 9.6 %
		Y	5.29	75.66	21.32		150.0	
		Z	5.44	76.99	22.19		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.16	78.89	23.12	3.01	150.0	± 9.6 %
		Y	5.95	78.24	22.73		150.0	
		Z	6.13	79.62	23.59		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.77	73.91	21.75	3.01	150.0	± 9.6 %
		Y	3.57	72.54	20.95		150.0	
		Z	3.58	73.38	21.73		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	6.47	84.03	25.38	3.01	150.0	± 9.6 %
		Y	5.79	81.57	24.28		150.0	
		Z	5.98	83.42	25.45		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	5.04	78.45	22.28	3.01	150.0	± 9.6 %
		Y	4.51	76.03	21.10		150.0	
		Z	4.68	77.84	22.28		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	100.00	137.35	41.72	6.02	65.0	± 9.6 %
		Y	67.19	128.64	39.39		65.0	
		Z	100.00	139.83	42.79		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	100.00	129.26	37.48	6.02	65.0	± 9.6 %
		Y	100.00	129.10	37.42		65.0	
		Z	100.00	131.03	38.19		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	100.00	127.24	36.41	6.02	65.0	± 9.6 %
		Y	65.07	119.30	34.36		65.0	
		Z	100.00	129.02	37.12		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	3.72	73.54	21.49	3.01	150.0	± 9.6 %
		Y	3.52	72.16	20.68		150.0	
		Z	3.53	73.03	21.47		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	6.48	84.06	25.39	3.01	150.0	± 9.6 %
		Y	5.80	81.60	24.30		150.0	
		Z	6.00	83.46	25.46		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.76	73.72	21.59	3.01	150.0	± 9.6 %
		Y	3.55	72.35	20.78		150.0	
		Z	3.56	73.20	21.57		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	6.37	83.70	25.23	3.01	150.0	± 9.6 %
		Y	5.71	81.26	24.14		150.0	
		Z	5.90	83.12	25.31		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	5.71	81.14	23.70	3.01	150.0	± 9.6 %
		Y	5.10	78.67	22.56		150.0	
		Z	5.31	80.60	23.77		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	5.02	78.34	22.21	3.01	150.0	± 9.6 %
		Y	4.49	75.93	21.04		150.0	
		Z	4.66	77.74	22.22		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.75	73.70	21.58	3.01	150.0	± 9.6 %
		Y	3.54	72.33	20.77		150.0	
		Z	3.56	73.19	21.56		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	6.36	83.67	25.22	3.01	150.0	± 9.6 %
		Y	5.70	81.23	24.13		150.0	
		Z	5.89	83.09	25.29		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	5.01	78.31	22.20	3.01	150.0	± 9.6 %
		Y	4.48	75.90	21.03		150.0	
		Z	4.65	77.70	22.20		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.76	73.75	21.60	3.01	150.0	± 9.6 %
		Y	3.56	72.37	20.80		150.0	
		Z	3.57	73.23	21.58		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	6.40	83.76	25.26	3.01	150.0	± 9.6 %
		Y	5.73	81.32	24.17		150.0	
		Z	5.93	83.18	25.34		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	5.04	78.40	22.24	3.01	150.0	± 9.6 %
		Y	4.51	75.98	21.07		150.0	
		Z	4.68	77.80	22.25		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.77	73.80	21.66	3.01	150.0	± 9.6 %
		Y	3.57	72.43	20.86		150.0	
		Z	3.58	73.29	21.64		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	6.68	84.71	25.71	3.01	150.0	± 9.6 %
		Y	5.99	82.25	24.62		150.0	
		Z	6.18	84.12	25.79		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	5.19	79.00	22.56	3.01	150.0	± 9.6 %
		Y	4.64	76.56	21.39		150.0	
		Z	4.82	78.39	22.57		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.65	67.05	16.52	0.00	150.0	± 9.6 %
		Y	4.60	66.87	16.34		150.0	
		Z	4.66	67.35	16.78		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.85	67.41	16.64	0.00	150.0	± 9.6 %
		Y	4.78	67.21	16.46		150.0	
		Z	4.85	67.69	16.90		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.89	67.42	16.65	0.00	150.0	± 9.6 %
		Y	4.83	67.23	16.48		150.0	
		Z	4.89	67.71	16.91		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.67	67.14	16.55	0.00	150.0	± 9.6 %
		Y	4.61	66.95	16.37		150.0	
		Z	4.67	67.44	16.81		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.86	67.43	16.65	0.00	150.0	± 9.6 %
		Y	4.80	67.23	16.48		150.0	
		Z	4.86	67.72	16.91		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.89	67.44	16.66	0.00	150.0	± 9.6 %
		Y	4.83	67.25	16.49		150.0	
		Z	4.89	67.74	16.92		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.62	67.16	16.52	0.00	150.0	± 9.6 %
		Y	4.56	66.97	16.33		150.0	
		Z	4.63	67.47	16.78		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.86	67.41	16.64	0.00	150.0	± 9.6 %
		Y	4.80	67.21	16.47		150.0	
		Z	4.86	67.69	16.90		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.90	67.37	16.64	0.00	150.0	± 9.6 %
		Y	4.84	67.18	16.48		150.0	
		Z	4.90	67.65	16.90		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.22	67.61	16.75	0.00	150.0	± 9.6 %
		Y	5.16	67.40	16.59		150.0	
		Z	5.22	67.81	16.97		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.55	67.86	16.90	0.00	150.0	± 9.6 %
		Y	5.48	67.61	16.72		150.0	
		Z	5.53	67.99	17.08		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.26	67.70	16.72	0.00	150.0	± 9.6 %
		Y	5.21	67.50	16.56		150.0	
		Z	5.27	67.93	16.96		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.95	66.92	16.04	0.00	150.0	± 9.6 %
		Y	2.88	66.53	15.67		150.0	
		Z	3.00	67.65	16.54		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	100.00	129.45	37.61	6.02	65.0	± 9.6 %
		Y	100.00	129.29	37.54		65.0	
		Z	100.00	131.22	38.32		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	100.00	127.42	36.54	6.02	65.0	± 9.6 %
		Y	76.12	122.32	35.23		65.0	
		Z	100.00	128.99	37.15		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	100.00	137.91	41.98	6.02	65.0	± 9.6 %
		Y	72.71	130.80	40.06		65.0	
		Z	100.00	139.98	42.85		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	100.00	129.25	37.49	6.02	65.0	± 9.6 %
		Y	100.00	129.09	37.42		65.0	
		Z	100.00	131.01	38.20		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	100.00	127.28	36.44	6.02	65.0	± 9.6 %
		Y	69.40	120.51	34.70		65.0	
		Z	100.00	128.86	37.05		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	100.00	137.77	41.88	6.02	65.0	± 9.6 %
		Y	66.12	128.70	39.45		65.0	
		Z	100.00	139.84	42.75		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	100.00	129.26	37.49	6.02	65.0	± 9.6 %
		Y	100.00	129.10	37.42		65.0	
		Z	100.00	131.02	38.20		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	100.00	127.29	36.44	6.02	65.0	± 9.6 %
		Y	69.52	120.56	34.71		65.0	
		Z	100.00	128.87	37.06		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	100.00	137.49	41.71	6.02	65.0	± 9.6 %
		Y	60.36	126.57	38.80		65.0	
		Z	100.00	139.54	42.57		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	100.00	129.28	37.49	6.02	65.0	± 9.6 %
		Y	100.00	129.12	37.43		65.0	
		Z	100.00	131.04	38.21		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	100.00	127.25	36.42	6.02	65.0	± 9.6 %
		Y	70.59	120.79	34.76		65.0	
		Z	100.00	128.82	37.04		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	100.00	137.79	41.88	6.02	65.0	± 9.6 %
		Y	67.33	129.09	39.56		65.0	
		Z	100.00	139.86	42.76		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	100.00	129.27	37.49	6.02	65.0	± 9.6 %
		Y	100.00	129.11	37.42		65.0	
		Z	100.00	131.04	38.20		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	100.00	127.31	36.45	6.02	65.0	± 9.6 %
		Y	69.64	120.60	34.72		65.0	
		Z	100.00	128.89	37.07		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	100.00	137.80	41.89	6.02	65.0	± 9.6 %
		Y	67.01	129.01	39.53		65.0	
		Z	100.00	139.88	42.76		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	14.83	92.29	30.01	6.98	65.0	± 9.6 %
		Y	13.65	90.03	28.96		65.0	
		Z	14.80	93.09	30.38		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	14.59	91.90	29.80	6.98	65.0	± 9.6 %
		Y	13.15	89.18	28.56		65.0	
		Z	13.21	90.49	29.34		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	11.35	88.48	29.59	6.98	65.0	± 9.6 %
		Y	10.30	85.71	28.22		65.0	
		Z	10.07	86.37	28.82		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	11.72	84.97	22.91	3.98	65.0	± 9.6 %
		Y	10.99	83.58	22.20		65.0	
		Z	12.79	86.87	23.44		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	11.34	84.17	22.57	3.98	65.0	± 9.6 %
		Y	10.64	82.78	21.85		65.0	
		Z	12.16	85.75	22.99		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	11.48	87.15	23.44	3.98	65.0	± 9.6 %
		Y	10.09	84.69	22.39		65.0	
		Z	14.93	92.12	25.09		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	8.24	79.59	21.31	3.98	65.0	± 9.6 %
		Y	7.80	78.37	20.63		65.0	
		Z	8.75	81.21	21.92		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	8.17	78.99	21.06	3.98	65.0	± 9.6 %
		Y	7.71	77.75	20.37		65.0	
		Z	8.53	80.31	21.56		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	12.80	89.43	24.93	3.98	65.0	± 9.6 %
		Y	11.40	87.14	23.99		65.0	
		Z	16.84	94.99	26.84		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	9.14	81.59	23.40	3.98	65.0	± 9.6 %
		Y	8.74	80.52	22.85		65.0	
		Z	9.63	83.27	24.17		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	8.56	79.26	22.22	3.98	65.0	± 9.6 %
		Y	8.18	78.19	21.64		65.0	
		Z	8.81	80.43	22.77		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	11.72	87.47	24.98	3.98	65.0	± 9.6 %
		Y	10.81	85.79	24.29		65.0	
		Z	13.94	91.53	26.58		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	8.35	78.06	22.04	3.98	65.0	± 9.6 %
		Y	8.03	77.10	21.51		65.0	
		Z	8.47	78.91	22.50		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.72	78.75	22.61	3.98	65.0	± 9.6 %
		Y	8.43	77.90	22.13		65.0	
		Z	8.87	79.69	23.10		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	9.73	82.56	23.43	3.98	65.0	± 9.6 %
		Y	9.26	81.48	22.94		65.0	
		Z	10.55	84.84	24.47		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	10.24	82.17	21.04	3.98	65.0	± 9.6 %
		Y	9.40	80.46	20.17		65.0	
		Z	10.73	83.20	21.19		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	9.75	81.02	20.53	3.98	65.0	± 9.6 %
		Y	8.95	79.33	19.65		65.0	
		Z	9.97	81.66	20.53		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	9.29	83.12	21.37	3.98	65.0	± 9.6 %
		Y	8.11	80.61	20.22		65.0	
		Z	11.03	86.29	22.38		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	8.60	80.29	22.04	3.98	65.0	± 9.6 %
		Y	8.17	79.14	21.42		65.0	
		Z	9.10	81.94	22.71		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	8.56	79.91	21.91	3.98	65.0	± 9.6 %
		Y	8.14	78.78	21.29		65.0	
		Z	8.98	81.38	22.51		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	11.70	87.77	24.70	3.98	65.0	± 9.6 %
		Y	10.60	85.76	23.85		65.0	
		Z	14.35	92.23	26.34		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	9.13	81.55	23.37	3.98	65.0	± 9.6 %
		Y	8.73	80.47	22.82		65.0	
		Z	9.62	83.22	24.13		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	8.55	79.25	22.22	3.98	65.0	± 9.6 %
		Y	8.17	78.17	21.63		65.0	
		Z	8.80	80.41	22.76		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	11.63	87.30	24.91	3.98	65.0	± 9.6 %
		Y	10.72	85.62	24.21		65.0	
		Z	13.79	91.31	26.48		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.61	78.74	22.29	3.98	65.0	± 9.6 %
		Y	8.25	77.71	21.75		65.0	
		Z	8.75	79.65	22.79		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.96	79.40	22.89	3.98	65.0	± 9.6 %
		Y	8.65	78.51	22.41		65.0	
		Z	9.14	80.41	23.42		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	10.08	82.90	23.31	3.98	65.0	± 9.6 %
		Y	9.59	81.85	22.86		65.0	
		Z	11.04	85.35	24.42		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.92	77.83	22.28	3.98	65.0	± 9.6 %
		Y	8.66	77.07	21.87		65.0	
		Z	8.98	78.50	22.70		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.81	77.35	22.16	3.98	65.0	± 9.6 %
		Y	8.58	76.63	21.76		65.0	
		Z	8.85	77.96	22.54		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	9.12	79.35	22.10	3.98	65.0	± 9.6 %
		Y	8.86	78.67	21.79		65.0	
		Z	9.49	80.74	22.83		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.72	67.41	16.03	0.00	150.0	± 9.6 %
		Y	2.65	66.91	15.59		150.0	
		Z	2.82	68.44	16.69		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.92	71.20	17.51	0.00	150.0	± 9.6 %
		Y	1.73	69.25	16.33		150.0	
		Z	2.25	74.57	19.38		150.0	
10277-CAA	PHS (QPSK)	X	5.16	68.88	13.28	9.03	50.0	± 9.6 %
		Y	5.22	68.83	13.33		50.0	
		Z	4.81	68.30	12.68		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	9.78	81.37	21.03	9.03	50.0	± 9.6 %
		Y	8.99	79.58	20.31		50.0	
		Z	10.31	82.57	21.25		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	9.97	81.61	21.15	9.03	50.0	± 9.6 %
		Y	9.14	79.76	20.40		50.0	
		Z	10.50	82.78	21.35		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.29	75.33	17.56	0.00	150.0	± 9.6 %
		Y	1.73	71.15	15.36		150.0	
		Z	4.93	87.41	22.07		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.32	72.83	16.54	0.00	150.0	± 9.6 %
		Y	0.96	68.00	13.83		150.0	
		Z	3.56	88.42	22.61		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	2.47	83.29	21.06	0.00	150.0	± 9.6 %
		Y	1.41	74.36	17.07		150.0	
		Z	100.00	141.64	36.82		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	5.82	97.10	26.09	0.00	150.0	± 9.6 %
		Y	2.66	83.93	21.20		150.0	
		Z	100.00	145.56	38.71		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	12.82	88.35	25.85	9.03	50.0	± 9.6 %
		Y	12.13	86.63	25.04		50.0	
		Z	15.26	92.16	27.09		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.12	71.89	17.79	0.00	150.0	± 9.6 %
		Y	2.92	70.65	17.10		150.0	
		Z	3.37	73.74	18.92		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.07	71.88	16.72	0.00	150.0	± 9.6 %
		Y	1.77	69.44	15.22		150.0	
		Z	2.75	77.05	19.04		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.37	82.96	20.78	0.00	150.0	± 9.6 %
		Y	5.31	79.88	19.28		150.0	
		Z	9.58	89.56	22.90		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.53	73.03	16.17	0.00	150.0	± 9.6 %
		Y	2.95	70.35	14.64		150.0	
		Z	3.75	74.39	16.60		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.90	69.43	19.63	4.17	80.0	± 9.6 %
		Y	5.76	68.84	19.14		80.0	
		Z	5.67	68.79	19.29		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.30	69.74	20.23	4.96	80.0	± 9.6 %
		Y	6.16	69.02	19.64		80.0	
		Z	6.18	69.57	20.16		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	6.16	69.89	20.33	4.96	80.0	± 9.6 %
		Y	6.00	69.08	19.68		80.0	
		Z	6.01	69.63	20.21		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.77	69.00	19.40	4.17	80.0	± 9.6 %
		Y	5.64	68.36	18.86		80.0	
		Z	5.67	68.94	19.39		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	7.84	78.69	24.87	6.02	50.0	± 9.6 %
		Y	9.09	82.67	26.46		50.0	
		Z	8.68	82.73	26.94		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	6.75	73.54	22.80	6.02	50.0	± 9.6 %
		Y	6.44	71.98	21.66		50.0	
		Z	6.43	72.74	22.36		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	6.91	74.50	23.06	6.02	50.0	± 9.6 %
		Y	6.52	72.66	21.80		50.0	
		Z	6.54	73.53	22.56		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	7.02	75.11	23.35	6.02	50.0	± 9.6 %
		Y	7.48	77.22	24.27		50.0	
		Z	6.63	74.11	22.85		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	6.90	73.98	23.04	6.02	50.0	± 9.6 %
		Y	6.54	72.31	21.85		50.0	
		Z	6.56	73.12	22.58		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	6.79	73.89	22.87	6.02	50.0	± 9.6 %
		Y	6.45	72.23	21.69		50.0	
		Z	6.46	73.04	22.42		50.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.49	70.94	17.30	0.00	150.0	± 9.6 %
		Y	3.28	69.84	16.68		150.0	
		Z	3.74	72.56	18.28		150.0	
10313-AAA	iDEN 1:3	X	9.34	82.16	20.02	6.99	70.0	± 9.6 %
		Y	8.31	80.30	19.40		70.0	
		Z	13.26	87.99	22.08		70.0	
10314-AAA	iDEN 1:6	X	13.74	91.13	25.52	10.00	30.0	± 9.6 %
		Y	11.69	88.12	24.57		30.0	
		Z	24.94	102.20	29.03		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.21	66.13	16.89	0.17	150.0	± 9.6 %
		Y	1.17	65.22	16.09		150.0	
		Z	1.28	67.59	18.12		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.76	67.25	16.74	0.17	150.0	± 9.6 %
		Y	4.71	67.07	16.57		150.0	
		Z	4.76	67.53	16.99		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.76	67.25	16.74	0.17	150.0	± 9.6 %
		Y	4.71	67.07	16.57		150.0	
		Z	4.76	67.53	16.99		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.86	67.51	16.66	0.00	150.0	± 9.6 %
		Y	4.79	67.29	16.47		150.0	
		Z	4.86	67.79	16.92		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.52	67.61	16.76	0.00	150.0	± 9.6 %
		Y	5.48	67.49	16.64		150.0	
		Z	5.54	67.90	17.02		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.80	68.01	16.79	0.00	150.0	± 9.6 %
		Y	5.74	67.81	16.64		150.0	
		Z	5.79	68.17	16.98		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.29	75.33	17.56	0.00	115.0	± 9.6 %
		Y	1.73	71.15	15.36		115.0	
		Z	4.93	87.41	22.07		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.29	75.33	17.56	0.00	115.0	± 9.6 %
		Y	1.73	71.15	15.36		115.0	
		Z	4.93	87.41	22.07		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	126.38	32.92	0.00	100.0	± 9.6 %
		Y	100.00	125.07	32.28		100.0	
		Z	100.00	128.97	33.98		100.0	
10410-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.65	32.14	3.23	80.0	± 9.6 %
		Y	100.00	123.24	31.93		80.0	
		Z	100.00	126.05	33.09		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.05	64.38	15.91	0.00	150.0	± 9.6 %
		Y	1.02	63.59	15.15		150.0	
		Z	1.10	65.66	17.08		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.66	67.10	16.58	0.00	150.0	± 9.6 %
		Y	4.61	66.91	16.40		150.0	
		Z	4.67	67.40	16.84		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.66	67.10	16.58	0.00	150.0	± 9.6 %
		Y	4.61	66.91	16.40		150.0	
		Z	4.67	67.40	16.84		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.65	67.25	16.59	0.00	150.0	± 9.6 %
		Y	4.59	67.07	16.42		150.0	
		Z	4.66	67.58	16.87		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.67	67.20	16.59	0.00	150.0	± 9.6 %
		Y	4.62	67.02	16.42		150.0	
		Z	4.68	67.52	16.87		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.79	67.20	16.60	0.00	150.0	± 9.6 %
		Y	4.74	67.02	16.44		150.0	
		Z	4.80	67.49	16.86		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.98	67.56	16.73	0.00	150.0	± 9.6 %
		Y	4.92	67.36	16.56		150.0	
		Z	4.98	67.84	16.99		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.90	67.51	16.70	0.00	150.0	± 9.6 %
		Y	4.83	67.31	16.53		150.0	
		Z	4.90	67.80	16.97		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.49	67.84	16.87	0.00	150.0	± 9.6 %
		Y	5.45	67.70	16.74		150.0	
		Z	5.51	68.10	17.11		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.50	67.86	16.87	0.00	150.0	± 9.6 %
		Y	5.46	67.71	16.74		150.0	
		Z	5.51	68.12	17.11		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.51	67.83	16.85	0.00	150.0	± 9.6 %
		Y	5.46	67.67	16.72		150.0	
		Z	5.52	68.07	17.09		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.33	70.71	18.35	0.00	150.0	± 9.6 %
		Y	4.30	70.83	18.30		150.0	
		Z	4.47	71.91	19.03		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.39	67.75	16.67	0.00	150.0	± 9.6 %
		Y	4.31	67.51	16.45		150.0	
		Z	4.40	68.18	16.99		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.67	67.58	16.68	0.00	150.0	± 9.6 %
		Y	4.60	67.37	16.49		150.0	
		Z	4.68	67.92	16.97		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.91	67.55	16.73	0.00	150.0	± 9.6 %
		Y	4.85	67.35	16.55		150.0	
		Z	4.91	67.83	16.99		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.43	71.53	18.35	0.00	150.0	± 9.6 %
		Y	4.41	71.68	18.29		150.0	
		Z	4.65	73.05	19.14		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	123.46	32.05	3.23	80.0	± 9.6 %
		Y	100.00	123.05	31.84		80.0	
		Z	100.00	125.84	32.99		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.72	67.96	16.21	0.00	150.0	± 9.6 %
		Y	3.62	67.60	15.87		150.0	
		Z	3.76	68.65	16.62		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.21	67.53	16.53	0.00	150.0	± 9.6 %
		Y	4.14	67.29	16.31		150.0	
		Z	4.23	67.97	16.87		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.47	67.41	16.59	0.00	150.0	± 9.6 %
		Y	4.41	67.19	16.39		150.0	
		Z	4.48	67.77	16.89		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.65	67.31	16.59	0.00	150.0	± 9.6 %
		Y	4.60	67.11	16.41		150.0	
		Z	4.67	67.62	16.86		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.65	68.30	15.96	0.00	150.0	± 9.6 %
		Y	3.53	67.85	15.54		150.0	
		Z	3.71	69.10	16.39		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.35	68.37	16.99	0.00	150.0	± 9.6 %
		Y	6.31	68.22	16.86		150.0	
		Z	6.36	68.55	17.18		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.86	65.71	16.31	0.00	150.0	± 9.6 %
		Y	3.83	65.53	16.12		150.0	
		Z	3.88	66.00	16.58		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	4.08	70.87	17.88	0.00	150.0	± 9.6 %
		Y	4.05	70.95	17.73		150.0	
		Z	4.31	72.52	18.68		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.10	67.90	18.10	0.00	150.0	± 9.6 %
		Y	5.08	68.13	18.12		150.0	
		Z	5.19	68.77	18.56		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.28	75.46	20.14	0.00	150.0	± 9.6 %
		Y	1.01	70.79	17.56		150.0	
		Z	2.05	85.40	24.88		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	129.70	34.97	3.29	80.0	± 9.6 %
		Y	100.00	128.65	34.47		80.0	
		Z	100.00	133.57	36.56		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	113.45	27.17	3.23	80.0	± 9.6 %
		Y	100.00	112.60	26.79		80.0	
		Z	100.00	115.86	28.09		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	110.13	25.59	3.23	80.0	± 9.6 %
		Y	100.00	109.32	25.21		80.0	
		Z	100.00	112.12	26.31		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.95	33.99	3.23	80.0	± 9.6 %
		Y	100.00	126.84	33.46		80.0	
		Z	100.00	131.83	35.57		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	112.94	26.92	3.23	80.0	± 9.6 %
		Y	100.00	112.07	26.53		80.0	
		Z	100.00	115.28	27.81		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	109.63	25.35	3.23	80.0	± 9.6 %
		Y	100.00	108.81	24.97		80.0	
		Z	100.00	111.54	26.04		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.18	34.09	3.23	80.0	± 9.6 %
		Y	100.00	127.07	33.57		80.0	
		Z	100.00	132.10	35.69		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	113.11	27.00	3.23	80.0	± 9.6 %
		Y	100.00	112.25	26.61		80.0	
		Z	100.00	115.49	27.90		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.65	25.35	3.23	80.0	± 9.6 %
		Y	100.00	108.83	24.97		80.0	
		Z	100.00	111.57	26.05		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.23	34.10	3.23	80.0	± 9.6 %
		Y	100.00	127.12	33.58		80.0	
		Z	100.00	132.16	35.71		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	113.07	26.97	3.23	80.0	± 9.6 %
		Y	100.00	112.20	26.58		80.0	
		Z	100.00	115.44	27.88		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.61	25.32	3.23	80.0	± 9.6 %
		Y	100.00	108.78	24.95		80.0	
		Z	100.00	111.52	26.02		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.20	34.09	3.23	80.0	± 9.6 %
		Y	100.00	127.09	33.57		80.0	
		Z	100.00	132.13	35.70		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	113.08	26.98	3.23	80.0	± 9.6 %
		Y	100.00	112.21	26.58		80.0	
		Z	100.00	115.45	27.88		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.62	25.33	3.23	80.0	± 9.6 %
		Y	100.00	108.79	24.95		80.0	
		Z	100.00	111.54	26.02		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.91	26.90	3.23	80.0	± 9.6 %
		Y	100.00	112.04	26.50		80.0	
		Z	100.00	115.26	27.79		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	109.57	25.30	3.23	80.0	± 9.6 %
		Y	100.00	108.74	24.93		80.0	
		Z	100.00	111.47	25.99		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	93.91	126.96	35.35	3.23	80.0	± 9.6 %
		Y	99.44	126.63	34.89		80.0	
		Z	100.00	129.46	36.10		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	118.51	31.10	3.23	80.0	± 9.6 %
		Y	100.00	117.40	30.49		80.0	
		Z	100.00	119.35	31.31		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	78.24	113.43	29.46	3.23	80.0	± 9.6 %
		Y	80.59	112.78	28.96		80.0	
		Z	100.00	117.55	30.39		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.23	86.48	22.53	2.23	80.0	± 9.6 %
		Y	7.26	82.47	20.90		80.0	
		Z	23.40	101.02	26.91		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	19.79	94.89	25.20	2.23	80.0	± 9.6 %
		Y	20.06	94.34	24.69		80.0	
		Z	58.67	111.11	29.39		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	16.11	91.63	24.24	2.23	80.0	± 9.6 %
		Y	16.01	90.87	23.67		80.0	
		Z	36.85	104.10	27.61		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.67	86.19	23.27	2.23	80.0	± 9.6 %
		Y	7.19	82.89	21.92		80.0	
		Z	15.73	96.67	26.75		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.56	76.17	19.34	2.23	80.0	± 9.6 %
		Y	5.16	74.80	18.58		80.0	
		Z	7.01	80.41	20.99		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.41	75.40	19.04	2.23	80.0	± 9.6 %
		Y	5.05	74.13	18.31		80.0	
		Z	6.62	79.17	20.53		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.17	81.89	22.37	2.23	80.0	± 9.6 %
		Y	6.33	79.62	21.40		80.0	
		Z	9.20	87.01	24.43		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.21	74.17	19.60	2.23	80.0	± 9.6 %
		Y	4.98	73.27	19.08		80.0	
		Z	5.69	76.33	20.65		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.23	73.67	19.42	2.23	80.0	± 9.6 %
		Y	5.01	72.86	18.94		80.0	
		Z	5.64	75.63	20.39		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.26	77.61	20.92	2.23	80.0	± 9.6 %
		Y	5.79	76.17	20.25		80.0	
		Z	7.08	80.47	22.26		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.27	72.43	19.16	2.23	80.0	± 9.6 %
		Y	5.10	71.74	18.75		80.0	
		Z	5.50	73.74	19.89		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.30	72.14	19.05	2.23	80.0	± 9.6 %
		Y	5.14	71.49	18.66		80.0	
		Z	5.50	73.35	19.74		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.27	80.12	21.64	2.23	80.0	± 9.6 %
		Y	6.57	78.29	20.87		80.0	
		Z	8.61	83.76	23.24		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.40	73.08	19.42	2.23	80.0	± 9.6 %
		Y	5.20	72.30	18.98		80.0	
		Z	5.65	74.45	20.19		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.39	72.50	19.22	2.23	80.0	± 9.6 %
		Y	5.21	71.81	18.82		80.0	
		Z	5.59	73.72	19.93		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.99	81.81	20.14	2.23	80.0	± 9.6 %
		Y	5.33	77.57	18.31		80.0	
		Z	18.22	95.35	24.20		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.86	70.78	15.09	2.23	80.0	± 9.6 %
		Y	3.14	67.94	13.56		80.0	
		Z	4.75	73.71	16.05		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.66	69.79	14.55	2.23	80.0	± 9.6 %
		Y	2.98	67.04	13.03		80.0	
		Z	4.25	71.98	15.23		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.54	83.45	22.61	2.23	80.0	± 9.6 %
		Y	6.51	80.82	21.48		80.0	
		Z	11.15	90.79	25.28		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.37	75.18	19.36	2.23	80.0	± 9.6 %
		Y	5.06	74.08	18.72		80.0	
		Z	6.29	78.41	20.72		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.36	74.77	19.16	2.23	80.0	± 9.6 %
		Y	5.08	73.74	18.54		80.0	
		Z	6.22	77.81	20.44		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.07	81.64	22.27	2.23	80.0	± 9.6 %
		Y	6.24	79.38	21.29		80.0	
		Z	9.02	86.67	24.31		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.19	74.08	19.55	2.23	80.0	± 9.6 %
		Y	4.95	73.17	19.03		80.0	
		Z	5.65	76.22	20.59		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.20	73.58	19.37	2.23	80.0	± 9.6 %
		Y	4.99	72.76	18.88		80.0	
		Z	5.61	75.52	20.33		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.20	79.95	21.57	2.23	80.0	± 9.6 %
		Y	6.51	78.12	20.79		80.0	
		Z	8.50	83.53	23.15		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.38	73.02	19.39	2.23	80.0	± 9.6 %
		Y	5.18	72.24	18.95		80.0	
		Z	5.63	74.38	20.16		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.37	72.44	19.19	2.23	80.0	± 9.6 %
		Y	5.19	71.74	18.78		80.0	
		Z	5.57	73.64	19.89		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.63	76.44	20.27	2.23	80.0	± 9.6 %
		Y	6.24	75.29	19.74		80.0	
		Z	7.26	78.60	21.35		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.71	72.04	19.05	2.23	80.0	± 9.6 %
		Y	5.54	71.40	18.69		80.0	
		Z	5.85	72.94	19.63		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.70	71.59	18.91	2.23	80.0	± 9.6 %
		Y	5.55	71.01	18.58		80.0	
		Z	5.81	72.41	19.45		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.58	79.28	21.16	2.23	80.0	± 9.6 %
		Y	6.93	77.65	20.47		80.0	
		Z	8.72	82.28	22.52		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.70	72.66	19.29	2.23	80.0	± 9.6 %
		Y	5.50	71.92	18.89		80.0	
		Z	5.86	73.67	19.92		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.60	71.96	19.07	2.23	80.0	± 9.6 %
		Y	5.44	71.30	18.70		80.0	
		Z	5.74	72.84	19.64		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.01	64.72	16.07	0.00	150.0	± 9.6 %
		Y	0.98	63.83	15.25		150.0	
		Z	1.07	66.15	17.35		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	2.33	97.38	28.67	0.00	150.0	± 9.6 %
		Y	0.83	77.16	20.49		150.0	
		Z	100.00	177.66	50.48		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.94	68.55	17.77	0.00	150.0	± 9.6 %
		Y	0.86	66.46	16.26		150.0	
		Z	1.08	72.03	20.16		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.65	67.18	16.56	0.00	150.0	± 9.6 %
		Y	4.60	66.99	16.39		150.0	
		Z	4.66	67.49	16.83		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.86	67.45	16.69	0.00	150.0	± 9.6 %
		Y	4.80	67.25	16.51		150.0	
		Z	4.86	67.73	16.95		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.71	67.43	16.62	0.00	150.0	± 9.6 %
		Y	4.65	67.22	16.44		150.0	
		Z	4.72	67.74	16.89		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.65	67.44	16.61	0.00	150.0	± 9.6 %
		Y	4.58	67.22	16.43		150.0	
		Z	4.65	67.75	16.89		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.70	67.47	16.67	0.00	150.0	± 9.6 %
		Y	4.64	67.28	16.50		150.0	
		Z	4.71	67.82	16.97		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.57	67.35	16.52	0.00	150.0	± 9.6 %
		Y	4.51	67.15	16.34		150.0	
		Z	4.59	67.69	16.82		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.65	67.41	16.65	0.00	150.0	± 9.6 %
		Y	4.58	67.21	16.47		150.0	
		Z	4.65	67.74	16.94		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.62	66.43	16.22	0.00	150.0	± 9.6 %
		Y	4.56	66.24	16.05		150.0	
		Z	4.64	66.77	16.51		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.81	66.84	16.38	0.00	150.0	± 9.6 %
		Y	4.74	66.63	16.20		150.0	
		Z	4.82	67.17	16.66		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.73	66.81	16.33	0.00	150.0	± 9.6 %
		Y	4.66	66.59	16.15		150.0	
		Z	4.74	67.15	16.62		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.75	66.83	16.36	0.00	150.0	± 9.6 %
		Y	4.68	66.61	16.18		150.0	
		Z	4.76	67.16	16.65		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.75	66.83	16.36	0.00	150.0	± 9.6 %
		Y	4.68	66.61	16.18		150.0	
		Z	4.76	67.16	16.65		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.75	66.98	16.39	0.00	150.0	± 9.6 %
		Y	4.68	66.74	16.20		150.0	
		Z	4.76	67.31	16.68		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.60	66.84	16.33	0.00	150.0	± 9.6 %
		Y	4.53	66.59	16.14		150.0	
		Z	4.62	67.17	16.63		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.76	66.86	16.34	0.00	150.0	± 9.6 %
		Y	4.69	66.65	16.17		150.0	
		Z	4.77	67.21	16.64		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.26	66.91	16.38	0.00	150.0	± 9.6 %
		Y	5.21	66.72	16.23		150.0	
		Z	5.28	67.16	16.62		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.33	67.07	16.45	0.00	150.0	± 9.6 %
		Y	5.28	66.90	16.31		150.0	
		Z	5.35	67.36	16.71		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.20	67.05	16.42	0.00	150.0	± 9.6 %
		Y	5.15	66.85	16.27		150.0	
		Z	5.22	67.33	16.68		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.27	67.02	16.41	0.00	150.0	± 9.6 %
		Y	5.21	66.82	16.25		150.0	
		Z	5.28	67.28	16.66		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.37	67.07	16.47	0.00	150.0	± 9.6 %
		Y	5.31	66.86	16.31		150.0	
		Z	5.37	67.29	16.70		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.28	67.05	16.48	0.00	150.0	± 9.6 %
		Y	5.23	66.86	16.33		150.0	
		Z	5.30	67.32	16.73		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.26	66.92	16.41	0.00	150.0	± 9.6 %
		Y	5.20	66.72	16.25		150.0	
		Z	5.27	67.16	16.65		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.41	66.98	16.45	0.00	150.0	± 9.6 %
		Y	5.36	66.79	16.30		150.0	
		Z	5.42	67.21	16.68		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.49	67.00	16.48	0.00	150.0	± 9.6 %
		Y	5.44	66.84	16.34		150.0	
		Z	5.50	67.25	16.72		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.55	66.99	16.34	0.00	150.0	± 9.6 %
		Y	5.51	66.81	16.21		150.0	
		Z	5.58	67.22	16.57		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.77	67.45	16.52	0.00	150.0	± 9.6 %
		Y	5.73	67.28	16.39		150.0	
		Z	5.80	67.70	16.76		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.65	67.27	16.45	0.00	150.0	± 9.6 %
		Y	5.59	67.07	16.30		150.0	
		Z	5.66	67.48	16.67		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.74	67.36	16.48	0.00	150.0	± 9.6 %
		Y	5.67	67.13	16.32		150.0	
		Z	5.73	67.52	16.67		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.09	68.60	17.08	0.00	150.0	± 9.6 %
		Y	6.02	68.35	16.90		150.0	
		Z	6.09	68.78	17.28		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.66	67.23	16.44	0.00	150.0	± 9.6 %
		Y	5.61	67.06	16.30		150.0	
		Z	5.68	67.48	16.67		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.67	67.29	16.43	0.00	150.0	± 9.6 %
		Y	5.62	67.09	16.28		150.0	
		Z	5.69	67.51	16.65		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.58	67.06	16.32	0.00	150.0	± 9.6 %
		Y	5.53	66.87	16.18		150.0	
		Z	5.59	67.28	16.55		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.67	67.11	16.38	0.00	150.0	± 9.6 %
		Y	5.61	66.92	16.23		150.0	
		Z	5.68	67.31	16.59		150.0	
10554-AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.96	67.36	16.43	0.00	150.0	± 9.6 %
		Y	5.92	67.18	16.30		150.0	
		Z	5.99	67.56	16.64		150.0	
10555-AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.11	67.70	16.57	0.00	150.0	± 9.6 %
		Y	6.06	67.52	16.44		150.0	
		Z	6.13	67.91	16.79		150.0	
10556-AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.13	67.73	16.58	0.00	150.0	± 9.6 %
		Y	6.08	67.56	16.45		150.0	
		Z	6.15	67.95	16.80		150.0	
10557-AAB	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.10	67.66	16.57	0.00	150.0	± 9.6 %
		Y	6.05	67.47	16.43		150.0	
		Z	6.12	67.85	16.77		150.0	

10558-AAB	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.16	67.86	16.68	0.00	150.0	± 9.6 %
		Y	6.11	67.65	16.54		150.0	
		Z	6.17	68.04	16.88		150.0	
10560-AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.15	67.67	16.63	0.00	150.0	± 9.6 %
		Y	6.09	67.47	16.48		150.0	
		Z	6.16	67.84	16.82		150.0	
10561-AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.07	67.65	16.66	0.00	150.0	± 9.6 %
		Y	6.02	67.45	16.51		150.0	
		Z	6.08	67.84	16.86		150.0	
10562-AAB	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.23	68.16	16.92	0.00	150.0	± 9.6 %
		Y	6.17	67.92	16.75		150.0	
		Z	6.23	68.31	17.10		150.0	
10563-AAB	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.62	68.85	17.21	0.00	150.0	± 9.6 %
		Y	6.53	68.57	17.03		150.0	
		Z	6.57	68.88	17.33		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.99	67.30	16.74	0.46	150.0	± 9.6 %
		Y	4.94	67.11	16.57		150.0	
		Z	5.00	67.55	16.97		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.24	67.74	17.04	0.46	150.0	± 9.6 %
		Y	5.18	67.56	16.88		150.0	
		Z	5.23	67.98	17.27		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.08	67.63	16.89	0.46	150.0	± 9.6 %
		Y	5.01	67.42	16.71		150.0	
		Z	5.07	67.88	17.12		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.10	67.97	17.19	0.46	150.0	± 9.6 %
		Y	5.04	67.79	17.04		150.0	
		Z	5.10	68.24	17.45		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.00	67.45	16.70	0.46	150.0	± 9.6 %
		Y	4.94	67.23	16.50		150.0	
		Z	5.00	67.71	16.93		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.04	68.01	17.22	0.46	150.0	± 9.6 %
		Y	4.99	67.86	17.09		150.0	
		Z	5.05	68.33	17.51		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.09	67.88	17.18	0.46	150.0	± 9.6 %
		Y	5.03	67.72	17.03		150.0	
		Z	5.09	68.17	17.44		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.42	67.86	17.70	0.46	130.0	± 9.6 %
		Y	1.36	66.76	16.84		130.0	
		Z	1.50	69.45	18.96		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.46	68.71	18.17	0.46	130.0	± 9.6 %
		Y	1.39	67.51	17.26		130.0	
		Z	1.55	70.54	19.54		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	149.83	40.32	0.46	130.0	± 9.6 %
		Y	34.76	128.40	34.67		130.0	
		Z	100.00	158.26	43.98		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	2.10	79.47	22.96	0.46	130.0	± 9.6 %
		Y	1.81	76.00	21.13		130.0	
		Z	2.81	86.47	26.37		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.81	67.17	16.85	0.46	130.0	± 9.6 %
		Y	4.76	67.00	16.68		130.0	
		Z	4.81	67.43	17.09		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.83	67.32	16.90	0.46	130.0	± 9.6 %
		Y	4.78	67.16	16.74		130.0	
		Z	4.83	67.60	17.15		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.05	67.62	17.07	0.46	130.0	± 9.6 %
		Y	5.00	67.45	16.91		130.0	
		Z	5.04	67.88	17.30		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.95	67.78	17.16	0.46	130.0	± 9.6 %
		Y	4.89	67.62	17.01		130.0	
		Z	4.94	68.07	17.42		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.74	67.23	16.58	0.46	130.0	± 9.6 %
		Y	4.67	66.99	16.37		130.0	
		Z	4.73	67.46	16.81		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.78	67.23	16.60	0.46	130.0	± 9.6 %
		Y	4.72	67.00	16.39		130.0	
		Z	4.77	67.49	16.83		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.85	67.87	17.12	0.46	130.0	± 9.6 %
		Y	4.80	67.69	16.96		130.0	
		Z	4.85	68.17	17.40		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.69	67.03	16.41	0.46	130.0	± 9.6 %
		Y	4.62	66.76	16.17		130.0	
		Z	4.67	67.25	16.62		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.81	67.17	16.85	0.46	130.0	± 9.6 %
		Y	4.76	67.00	16.68		130.0	
		Z	4.81	67.43	17.09		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.83	67.32	16.90	0.46	130.0	± 9.6 %
		Y	4.78	67.16	16.74		130.0	
		Z	4.83	67.60	17.15		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.05	67.62	17.07	0.46	130.0	± 9.6 %
		Y	5.00	67.45	16.91		130.0	
		Z	5.04	67.88	17.30		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.95	67.78	17.16	0.46	130.0	± 9.6 %
		Y	4.89	67.62	17.01		130.0	
		Z	4.94	68.07	17.42		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.74	67.23	16.58	0.46	130.0	± 9.6 %
		Y	4.67	66.99	16.37		130.0	
		Z	4.73	67.46	16.81		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.78	67.23	16.60	0.46	130.0	± 9.6 %
		Y	4.72	67.00	16.39		130.0	
		Z	4.77	67.49	16.83		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.85	67.87	17.12	0.46	130.0	± 9.6 %
		Y	4.80	67.69	16.96		130.0	
		Z	4.85	68.17	17.40		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.69	67.03	16.41	0.46	130.0	± 9.6 %
		Y	4.62	66.76	16.17		130.0	
		Z	4.67	67.25	16.62		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.95	67.19	16.92	0.46	130.0	± 9.6 %
		Y	4.91	67.04	16.76		130.0	
		Z	4.95	67.44	17.15		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.12	67.54	17.04	0.46	130.0	± 9.6 %
		Y	5.07	67.38	16.89		130.0	
		Z	5.11	67.79	17.28		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.05	67.49	16.96	0.46	130.0	± 9.6 %
		Y	4.99	67.31	16.79		130.0	
		Z	5.04	67.73	17.18		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.10	67.63	17.09	0.46	130.0	± 9.6 %
		Y	5.05	67.46	16.93		130.0	
		Z	5.09	67.88	17.32		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.07	67.61	17.00	0.46	130.0	± 9.6 %
		Y	5.02	67.43	16.84		130.0	
		Z	5.06	67.86	17.23		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.02	67.63	17.02	0.46	130.0	± 9.6 %
		Y	4.96	67.44	16.85		130.0	
		Z	5.01	67.89	17.26		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.97	67.56	16.92	0.46	130.0	± 9.6 %
		Y	4.91	67.36	16.74		130.0	
		Z	4.96	67.81	17.15		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.94	67.77	17.16	0.46	130.0	± 9.6 %
		Y	4.89	67.59	16.99		130.0	
		Z	4.94	68.03	17.40		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.62	67.74	17.10	0.46	130.0	± 9.6 %
		Y	5.58	67.58	16.96		130.0	
		Z	5.62	67.93	17.30		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.83	68.39	17.40	0.46	130.0	± 9.6 %
		Y	5.77	68.19	17.24		130.0	
		Z	5.81	68.54	17.58		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.68	68.01	17.22	0.46	130.0	± 9.6 %
		Y	5.63	67.84	17.08		130.0	
		Z	5.67	68.19	17.42		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.76	68.01	17.15	0.46	130.0	± 9.6 %
		Y	5.72	67.84	17.00		130.0	
		Z	5.76	68.21	17.35		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.84	68.27	17.39	0.46	130.0	± 9.6 %
		Y	5.79	68.13	17.27		130.0	
		Z	5.83	68.48	17.61		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.62	67.70	17.10	0.46	130.0	± 9.6 %
		Y	5.58	67.54	16.96		130.0	
		Z	5.62	67.88	17.30		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.75	68.10	17.31	0.46	130.0	± 9.6 %
		Y	5.71	67.96	17.18		130.0	
		Z	5.76	68.33	17.53		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.51	67.50	16.88	0.46	130.0	± 9.6 %
		Y	5.46	67.32	16.72		130.0	
		Z	5.51	67.70	17.09		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.79	66.50	16.53	0.46	130.0	± 9.6 %
		Y	4.74	66.34	16.38		130.0	
		Z	4.80	66.80	16.80		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.00	66.94	16.70	0.46	130.0	± 9.6 %
		Y	4.94	66.76	16.55		130.0	
		Z	5.00	67.23	16.97		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.89	66.83	16.57	0.46	130.0	± 9.6 %
		Y	4.83	66.63	16.40		130.0	
		Z	4.89	67.12	16.83		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.94	66.97	16.72	0.46	130.0	± 9.6 %
		Y	4.88	66.78	16.56		130.0	
		Z	4.94	67.26	16.98		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.86	66.80	16.58	0.46	130.0	± 9.6 %
		Y	4.80	66.60	16.41		130.0	
		Z	4.86	67.09	16.84		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.88	66.99	16.65	0.46	130.0	± 9.6 %
		Y	4.81	66.78	16.47		130.0	
		Z	4.88	67.29	16.92		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.89	66.91	16.55	0.46	130.0	± 9.6 %
		Y	4.82	66.68	16.36		130.0	
		Z	4.89	67.18	16.80		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.82	67.04	16.74	0.46	130.0	± 9.6 %
		Y	4.76	66.84	16.58		130.0	
		Z	4.82	67.34	17.02		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.87	66.66	16.39	0.46	130.0	± 9.6 %
		Y	4.80	66.45	16.20		130.0	
		Z	4.87	66.94	16.64		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.44	67.00	16.70	0.46	130.0	± 9.6 %
		Y	5.39	66.83	16.57		130.0	
		Z	5.45	67.22	16.93		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.50	67.14	16.74	0.46	130.0	± 9.6 %
		Y	5.47	67.01	16.63		130.0	
		Z	5.53	67.43	17.00		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.40	67.20	16.79	0.46	130.0	± 9.6 %
		Y	5.35	67.03	16.65		130.0	
		Z	5.41	67.44	17.03		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.43	67.05	16.65	0.46	130.0	± 9.6 %
		Y	5.38	66.88	16.51		130.0	
		Z	5.43	67.28	16.89		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.53	67.12	16.74	0.46	130.0	± 9.6 %
		Y	5.47	66.91	16.58		130.0	
		Z	5.52	67.29	16.94		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.50	67.12	16.84	0.46	130.0	± 9.6 %
		Y	5.45	66.97	16.72		130.0	
		Z	5.50	67.35	17.07		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.51	67.30	16.93	0.46	130.0	± 9.6 %
		Y	5.47	67.17	16.81		130.0	
		Z	5.53	67.57	17.18		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.39	66.87	16.60	0.46	130.0	± 9.6 %
		Y	5.34	66.69	16.45		130.0	
		Z	5.40	67.09	16.83		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.59	67.05	16.75	0.46	130.0	± 9.6 %
		Y	5.54	66.89	16.62		130.0	
		Z	5.59	67.27	16.97		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.04	68.29	17.42	0.46	130.0	± 9.6 %
		Y	5.98	68.09	17.27		130.0	
		Z	6.04	68.48	17.62		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.71	67.01	16.62	0.46	130.0	± 9.6 %
		Y	5.67	66.86	16.50		130.0	
		Z	5.72	67.21	16.83		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.98	67.64	16.90	0.46	130.0	± 9.6 %
		Y	5.95	67.51	16.78		130.0	
		Z	6.00	67.88	17.13		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.78	67.21	16.62	0.46	130.0	± 9.6 %
		Y	5.73	67.02	16.48		130.0	
		Z	5.78	67.39	16.83		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.86	67.26	16.64	0.46	130.0	± 9.6 %
		Y	5.82	67.11	16.52		130.0	
		Z	5.88	67.49	16.87		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.49	69.35	17.69	0.46	130.0	± 9.6 %
		Y	6.42	69.07	17.49		130.0	
		Z	6.48	69.48	17.86		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.27	68.75	17.56	0.46	130.0	± 9.6 %
		Y	6.19	68.51	17.40		130.0	
		Z	6.25	68.87	17.73		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.93	67.62	17.01	0.46	130.0	± 9.6 %
		Y	5.90	67.51	16.91		130.0	
		Z	5.95	67.87	17.25		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.84	67.36	16.72	0.46	130.0	± 9.6 %
		Y	5.78	67.14	16.56		130.0	
		Z	5.84	67.50	16.90		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.82	67.34	16.76	0.46	130.0	± 9.6 %
		Y	5.76	67.16	16.63		130.0	
		Z	5.82	67.51	16.96		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.72	66.79	16.26	0.46	130.0	± 9.6 %
		Y	5.66	66.55	16.08		130.0	
		Z	5.71	66.92	16.43		130.0	
10636-AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.13	67.40	16.71	0.46	130.0	± 9.6 %
		Y	6.09	67.24	16.59		130.0	
		Z	6.15	67.58	16.91		130.0	
10637-AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.30	67.81	16.90	0.46	130.0	± 9.6 %
		Y	6.26	67.67	16.79		130.0	
		Z	6.32	68.02	17.11		130.0	
10638-AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.30	67.79	16.87	0.46	130.0	± 9.6 %
		Y	6.26	67.64	16.75		130.0	
		Z	6.32	67.99	17.07		130.0	

10639-AAB	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.28	67.75	16.89	0.46	130.0	± 9.6 %
		Y	6.24	67.58	16.76		130.0	
		Z	6.29	67.91	17.08		130.0	
10640-AAB	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.32	67.86	16.90	0.46	130.0	± 9.6 %
		Y	6.26	67.64	16.74		130.0	
		Z	6.31	67.99	17.06		130.0	
10641-AAB	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.31	67.61	16.79	0.46	130.0	± 9.6 %
		Y	6.28	67.46	16.67		130.0	
		Z	6.34	67.81	16.99		130.0	
10642-AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.36	67.87	17.07	0.46	130.0	± 9.6 %
		Y	6.32	67.71	16.95		130.0	
		Z	6.37	68.04	17.26		130.0	
10643-AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.21	67.62	16.86	0.46	130.0	± 9.6 %
		Y	6.16	67.44	16.72		130.0	
		Z	6.22	67.79	17.05		130.0	
10644-AAB	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.44	68.32	17.24	0.46	130.0	± 9.6 %
		Y	6.37	68.06	17.06		130.0	
		Z	6.42	68.41	17.38		130.0	
10645-AAB	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.93	69.31	17.68	0.46	130.0	± 9.6 %
		Y	6.90	69.18	17.57		130.0	
		Z	6.94	69.49	17.88		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	100.00	143.75	46.61	9.30	60.0	± 9.6 %
		Y	66.95	133.56	43.77		60.0	
		Z	100.00	145.58	47.35		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	100.00	144.82	47.06	9.30	60.0	± 9.6 %
		Y	70.78	135.89	44.56		60.0	
		Z	100.00	146.77	47.85		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.95	68.06	13.80	0.00	150.0	± 9.6 %
		Y	0.76	64.92	11.72		150.0	
		Z	1.56	75.79	17.40		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	4.56	69.75	18.05	2.23	80.0	± 9.6 %
		Y	4.46	69.30	17.71		80.0	
		Z	4.70	70.77	18.63		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.96	68.64	17.95	2.23	80.0	± 9.6 %
		Y	4.89	68.27	17.67		80.0	
		Z	5.01	69.17	18.32		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.89	68.25	17.93	2.23	80.0	± 9.6 %
		Y	4.83	67.89	17.66		80.0	
		Z	4.92	68.70	18.27		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.95	68.27	17.97	2.23	80.0	± 9.6 %
		Y	4.88	67.89	17.69		80.0	
		Z	4.98	68.67	18.30		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_r' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2}\int_a^b\int_a^b\int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r'\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

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)	835	1900
Tissue	Body	Body
Ingredients (% by weight)		
Bactericide	0.1	
DGBE		29.44
HEC	1	
NaCl	0.94	0.39
Sucrose	44.9	
Water	53.06	70.17

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. (σ)	PERM. (εr)	CW VALIDATION			MOD. VALIDATION		
									SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
H	835	8/31/2017	7410	EX3DV4	835	Body	0.992	53.254	PASS	PASS	PASS	GMSK	PASS	N/A
H	1900	9/5/2017	7410	EX3DV4	1900	Body	1.580	52.546	PASS	PASS	PASS	GMSK	PASS	N/A
I	1900	1/22/2018	3347	ES3DV3	1900	Body	1.578	52.281	PASS	PASS	PASS	GMSK	PASS	N/A

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.