SAR EVALUATION REPORT

Applicant Name:
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Date of Testing:
02/18/19 - 02/27/19
Test Site/Location:
PCTEST Lab, Morgan Hill, CA, USA
Document Serial No.:
1M1902040021-01.A3L

FCC ID: **A3LSMP200**

APPLICANT: **SAMSUNG ELECTRONICS CO., LTD.**

DUT Type: Portable Tablet
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-P200

Equipment Class	Band & Mode	Tx Frequency	SAR
			1g Body (W/kg)
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.63
NII	U-NII-1	5180 - 5240 MHz	1.37
NII	U-NII-2A	5260 - 5320 MHz	1.40
NII	U-NII-2C	5500 - 5720 MHz	1.04
NII	U-NII-3	5745 - 5825 MHz	0.95
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.7 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
2.4 GHz WLAN	Data	2412 - 2472 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Modulated Average (dBm)		
		Ch. 1-10	Ch. 11	Ch. 12-13
IEEE 802.11b (2.4 GHz)	Maximum	**18.0**		**4.0**
	Nominal	**17.0**		**3.0**
IEEE 802.11g (2.4 GHz)	Maximum	**16.0**	**13.5**	**4.0**
	Nominal	**15.0**	**12.5**	**3.0**
IEEE 802.11n (2.4 GHz)	Maximum	**15.0**	**13.5**	**3.0**
	Nominal	**14.0**	**12.5**	**2.0**

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02/15/2019

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Mode / Band		Modulated Average (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**12.0**		
	Nominal	**11.0**		
IEEE 802.11n (5 GHz)	Maximum	**12.0**	**12.0**	
	Nominal	**11.0**	**11.0**	
IEEE 802.11ac (5 GHz)	Maximum	**12.0**	**12.0**	**11.0**
	Nominal	**11.0**	**11.0**	**10.0**

Mode / Band		Modulated Average (dBm)
Bluetooth BDR	Maximum	**7.0**
	Nominal	**6.0**
Bluetooth EDR	Maximum	**5.0**
	Nominal	**4.0**
Bluetooth LE	Maximum	**5.5**
	Nominal	**4.5**

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1.3.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)	
		Ch. 1-11	Ch. 12-13
IEEE 802.11b (2.4 GHz)	Maximum	**12.0**	**4.0**
	Nominal	**11.0**	**3.0**
IEEE 802.11g (2.4 GHz)	Maximum	**12.0**	**4.0**
	Nominal	**11.0**	**3.0**
IEEE 802.11n (2.4 GHz)	Maximum	**12.0**	**3.0**
	Nominal	**11.0**	**2.0**

Mode / Band		Modulated Average (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**8.5**		
	Nominal	**7.5**		
IEEE 802.11n (5 GHz)	Maximum	**8.5**	**8.5**	
	Nominal	**7.5**	**7.5**	
IEEE 802.11ac (5 GHz)	Maximum	**8.5**	**8.5**	**8.5**
	Nominal	**7.5**	**7.5**	**7.5**

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1.4 DUT Antenna Locations

The overall diagonal dimension of the device is > 200 mm. A diagram showing the locations of the device antennas can be found in Appendix F. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing.

Table 1-1
Device Edges/Sides for SAR Testing

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

Note: Per FCC KDB 616217 D04v01, particular DUT edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D01v05.

1.5 Simultaneous Transmission Capabilities

This device does not support any simultaneous transmission scenarios.

1.6 Miscellaneous SAR Test Considerations

(A) WIFI/BT

This device supports channel 1-13 for 2.4 GHz WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, channels 1, 6 and 11 were considered for SAR testing per FCC KDB 248227 D01V02r02.

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

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

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required; [(5/5)* √2.480] = 1.6 < 3.0. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

This device supports IEEE 802.11ac with the following features:

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

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1.7 Guidance Applied

- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 616217 D04v01r02 (Tablet)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)

1.8 Device Serial Numbers

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

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2 INTRODUCTION

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

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

2.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (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]

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3 DOSIMETRIC ASSESSMENT

3.1 Measurement Procedure

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

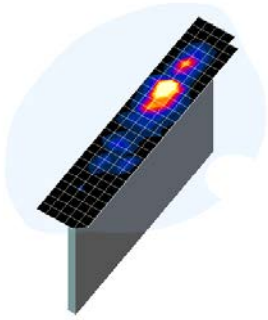

Figure 3-1 Sample SAR Area Scan

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

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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 SAR Testing for Tablet per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

4.3 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

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5 RF EXPOSURE LIMITS

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *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.

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6 FCC MEASUREMENT PROCEDURES

6.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. 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 SAR Testing with 802.11 Transmitters

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

6.2.1 General Device Setup

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

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

6.2.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

6.2.3 U-NII-2C and U-NII-3

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

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6.2.4 2.4 GHz SAR Test Requirements

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

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

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

6.2.5 OFDM Transmission Mode and SAR Test Channel Selection

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

6.2.6 Initial Test Configuration Procedure

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

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 6.2.5). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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6.2.7 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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7 RF CONDUCTED POWERS

7.1 WLAN Conducted Powers

Table 7-1
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	**17.62**	15.72	14.62
2437	6	17.29	15.92	14.76
2462	11	17.43	13.28	13.16

Table 7-2
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	11.47	11.43	11.16
2437	6	**11.48**	11.51	11.20
2462	11	11.45	11.82	11.74

Table 7-3
5 GHz WLAN Maximum Average RF Power

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	11.65	11.64
5230	46	**11.92**	11.67
5270	54	**11.90**	11.86
5310	62	11.68	11.61
5510	102	11.68	11.64
5590	118	**11.90**	11.81
5630	126	11.87	11.82
5710	142	11.89	11.78
5755	151	**11.56**	11.50
5795	159	11.54	11.51

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Table 7-4
5 GHz WLAN Reduced Average RF Power

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5210	42	**7.56**
5290	58	**7.70**
5530	106	8.11
5610	122	**8.28**
5690	138	7.97
5775	155	**7.95**

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

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

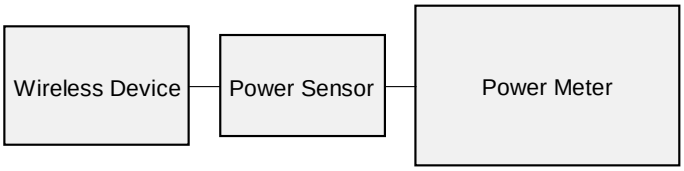

Figure 7-1
Power Measurement Setup

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8 SYSTEM VERIFICATION

8.1 Tissue Verification

Table 8-1
Measured Body 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
02/18/2019	2450B	22.0	2400	1.970	51.607	1.902	52.767	3.58%	-2.20%
			2450	2.035	51.386	1.950	52.700	4.36%	-2.49%
			2500	2.103	51.206	2.021	52.636	4.06%	-2.72%
02/27/2019	5200B-5800B	22.0	5180	5.322	47.569	5.276	49.041	0.87%	-3.00%
			5200	5.349	47.568	5.299	49.014	0.94%	-2.95%
			5220	5.382	47.509	5.323	48.987	1.11%	-3.02%
			5240	5.407	47.445	5.346	48.960	1.14%	-3.09%
			5260	5.435	47.406	5.369	48.933	1.23%	-3.12%
			5280	5.459	47.387	5.393	48.906	1.22%	-3.11%
			5300	5.494	47.322	5.416	48.879	1.44%	-3.19%
			5320	5.518	47.289	5.439	48.851	1.45%	-3.20%
			5500	5.772	46.933	5.650	48.607	2.16%	-3.44%
			5520	5.805	46.915	5.673	48.580	2.33%	-3.43%
			5540	5.833	46.900	5.696	48.553	2.41%	-3.40%
			5560	5.865	46.858	5.720	48.526	2.53%	-3.44%
			5580	5.894	46.825	5.743	48.499	2.63%	-3.45%
			5600	5.922	46.736	5.766	48.471	2.71%	-3.58%
			5620	5.948	46.698	5.790	48.444	2.73%	-3.60%
			5640	5.985	46.673	5.813	48.417	2.96%	-3.60%
			5660	6.009	46.665	5.837	48.390	2.95%	-3.56%
			5680	6.040	46.657	5.860	48.363	3.07%	-3.53%
			5700	6.066	46.570	5.883	48.336	3.11%	-3.65%
			5745	6.133	46.516	5.936	48.275	3.32%	-3.64%
			5765	6.171	46.456	5.959	48.248	3.56%	-3.71%
			5785	6.202	46.441	5.982	48.220	3.68%	-3.69%
			5800	6.224	46.384	6.000	48.200	3.73%	-3.77%
			5805	6.231	46.371	6.006	48.193	3.75%	-3.78%
			5825	6.250	46.366	6.029	48.166	3.67%	-3.74%

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

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8.2 Test System Verification

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

Table 8-2
System Verification Results – 1g

System Verification 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)	$Deviation_{1g}$ (%)
AM6	2450	BODY	02/18/2019	22.1	20.4	0.100	921	3131	5.270	50.800	52.700	3.74%
AM2	5250	BODY	02/27/2019	22.1	21.2	0.050	1123	7416	3.830	74.000	76.600	3.51%
AM2	5600	BODY	02/27/2019	22.1	21.2	0.050	1123	7416	3.970	77.600	79.400	2.32%
AM2	5750	BODY	02/27/2019	22.1	21.2	0.050	1123	7416	3.760	74.700	75.200	0.67%

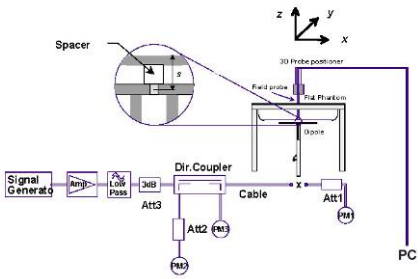

Figure 8-1
System Verification Setup Diagram

Figure 8-2
System Verification Setup Photo

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9 SAR DATA SUMMARY

9.1 Standalone Body SAR Data

Table 9-1
2.4 GHz WLAN Body SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	18.0	17.62	0.09	6 mm	01E6K	1	back	99.8	0.575	1.091	1.002	**0.629**	A1
2437	6	802.11b	DSSS	22	18.0	17.29	-0.11	6 mm	01E6K	1	back	99.8	0.374	1.178	1.002	0.441	
2462	11	802.11b	DSSS	22	18.0	17.43	0.05	6 mm	01E6K	1	back	99.8	0.506	1.140	1.002	0.578	
2412	1	802.11b	DSSS	22	18.0	17.62	-0.19	0 mm	01E6K	1	top	99.8	0.403	1.091	1.002	0.441	
2412	1	802.11b	DSSS	22	18.0	17.62	-0.09	0 mm	01E6K	1	right	99.8	0.309	1.091	1.002	0.338	
2437	6	802.11b	DSSS	22	12.0	11.48	-0.05	0 mm	01E6K	1	back	99.8	0.493	1.127	1.002	0.557	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram									

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Table 9-2
5 GHz WLAN Body SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)			(W/kg)	
5230	46	802.11n	OFDM	40	12.0	11.92	-0.04	6 mm	01ZJW	13.5	back	97.5	0.242	1.019	1.026	0.253	
5190	38	802.11n	OFDM	40	12.0	11.65	-0.06	0 mm	01ZJW	13.5	top	97.5	1.040	1.084	1.026	1.157	
5230	46	802.11n	OFDM	40	12.0	11.92	-0.11	0 mm	01ZJW	13.5	top	97.5	1.310	1.019	1.026	1.370	
5230	46	802.11n	OFDM	40	12.0	11.92	0.04	0 mm	01ZJW	13.5	right	97.5	0.070	1.019	1.026	0.073	
5210	42	802.11ac	OFDM	80	8.5	7.56	0.20	0 mm	01ZJW	29.3	back	91.0	0.655	1.242	1.099	0.894	
5270	54	802.11n	OFDM	40	12.0	11.90	-0.03	6 mm	01ZJW	13.5	back	97.5	0.239	1.023	1.026	0.251	
5270	54	802.11n	OFDM	40	12.0	11.90	0.20	0 mm	01ZJW	13.5	top	97.5	1.330	1.023	1.026	**1.396**	A2
5310	62	802.11n	OFDM	40	12.0	11.68	-0.04	0 mm	01ZJW	13.5	top	97.5	1.170	1.076	1.026	1.292	
5270	54	802.11n	OFDM	40	12.0	11.90	-0.04	0 mm	01ZJW	13.5	right	97.5	0.081	1.023	1.026	0.085	
5290	58	802.11ac	OFDM	80	8.5	7.70	0.04	0 mm	01ZJW	29.3	back	91.0	0.787	1.202	1.099	1.040	
5590	118	802.11n	OFDM	40	12.0	11.90	-0.06	6 mm	01Y0K	13.5	back	97.5	0.368	1.023	1.026	0.386	
5590	118	802.11n	OFDM	40	12.0	11.90	0.03	0 mm	01Y0K	13.5	top	97.5	0.903	1.023	1.026	0.948	
5710	142	802.11n	OFDM	40	12.0	11.89	-0.04	0 mm	01Y0K	13.5	top	97.5	0.760	1.026	1.026	0.800	
5590	118	802.11n	OFDM	40	12.0	11.90	0.07	0 mm	01Y0K	13.5	right	97.5	0.067	1.023	1.026	0.070	
5530	106	802.11ac	OFDM	80	8.5	8.11	0.08	0 mm	01Y0K	29.3	back	91.0	0.866	1.094	1.099	1.041	
5610	122	802.11ac	OFDM	80	8.5	8.28	0.00	0 mm	01Y0K	29.3	back	91.0	0.816	1.052	1.099	0.943	
5755	151	802.11n	OFDM	40	12.0	11.56	-0.15	6 mm	01Y0K	13.5	back	97.5	0.317	1.107	1.026	0.360	
5755	151	802.11n	OFDM	40	12.0	11.56	0.00	0 mm	01Y0K	13.5	top	97.5	0.639	1.107	1.026	0.726	
5755	151	802.11n	OFDM	40	12.0	11.56	-0.20	0 mm	01Y0K	13.5	right	97.5	0.049	1.107	1.026	0.056	
5775	155	802.11ac	OFDM	80	8.5	7.95	0.12	0 mm	01Y0K	29.3	back	91.0	0.758	1.135	1.099	0.946	
5270	54	802.11n	OFDM	40	12.0	11.90	0.21	0 mm	01ZJW	13.5	top	97.5	1.210	1.023	1.026	1.270	
5590	118	802.11n	OFDM	40	12.0	11.90	0.03	0 mm	01Y0K	13.5	top	97.5	0.863	1.023	1.026	0.906	
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.

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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 616217 D04v01r02 and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. 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 10 for variability analysis.
7. FCC KDB Publication 616217 D04v01r02 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR Exclusion Threshold in FCC KDB 447498 D01v06 was applied to determine SAR test exclusion for adjacent edge configurations.

WLAN Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 6.2.4 for more information.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 6.2.5 for more information.
3. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

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10 SAR MEASUREMENT VARIABILITY

10.1 Measurement Variability

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

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

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

Table 10-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	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)	
5250	5270.00	54	802.11n, 40 MHz Bandwidth	OFDM	13.5	top	0 mm	1.330	1.210	1.10	N/A	N/A	N/A	N/A
5600	5590.00	118	802.11n, 40 MHz Bandwidth	OFDM	13.5	top	0 mm	0.903	0.863	1.05	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							

10.2 Measurement Uncertainty

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

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11 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	8/13/2018	Annual	8/13/2019	MY53402352
Agilent	8753ES	S-Parameter Network Analyzer	10/2/2018	Annual	10/2/2019	US39170118
Agilent	E4438C	ESG Vector Signal Generator	6/22/2018	Annual	6/22/2019	MY53401181
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	N5182A	MXG Vector Signal Generator	6/15/2018	Annual	6/15/2019	MY47420837
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MS2692A	Signal Analyzer	10/5/2018	Annual	10/5/2019	6201338962
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1248508
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	MA2411B	Pulse Power Sensor	11/20/2018	Annual	11/20/2019	1339007
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2496A	Power Meter	10/21/2018	Annual	10/21/2019	1138001
Control Company	4040	Digital Thermometer	2/28/2018	Biennial	2/28/2020	130448366
Control Company	4040	Temperature / Humidity Monitor	2/28/2018	Biennial	2/28/2020	150761911
Control Company	4352	Ultra Long Stem Thermometer	6/6/2018	Biennial	6/6/2020	181334694
Control Company	4352	Ultra Long Stem Thermometer	5/21/2018	Biennial	5/21/2020	181292000
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
SPEAG	D2450V2	2450 MHz SAR Dipole	11/12/2018	Annual	11/12/2019	921
SPEAG	D5GHzV2	5 GHz SAR Dipole	3/13/2018	Annual	3/13/2019	1123
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/10/2018	Annual	7/10/2019	1402
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/7/2018	Annual	3/7/2019	604
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	ES3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3131
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7416

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.

Note: Each equipment item was used solely within its respective calibration period.

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12 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	

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02/15/2019

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13 CONCLUSION

13.1 Measurement Conclusion

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

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

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APPENDIX A: SAR TEST DATA

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PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMP200; Type: Portable Tablet; Serial: 01E6K

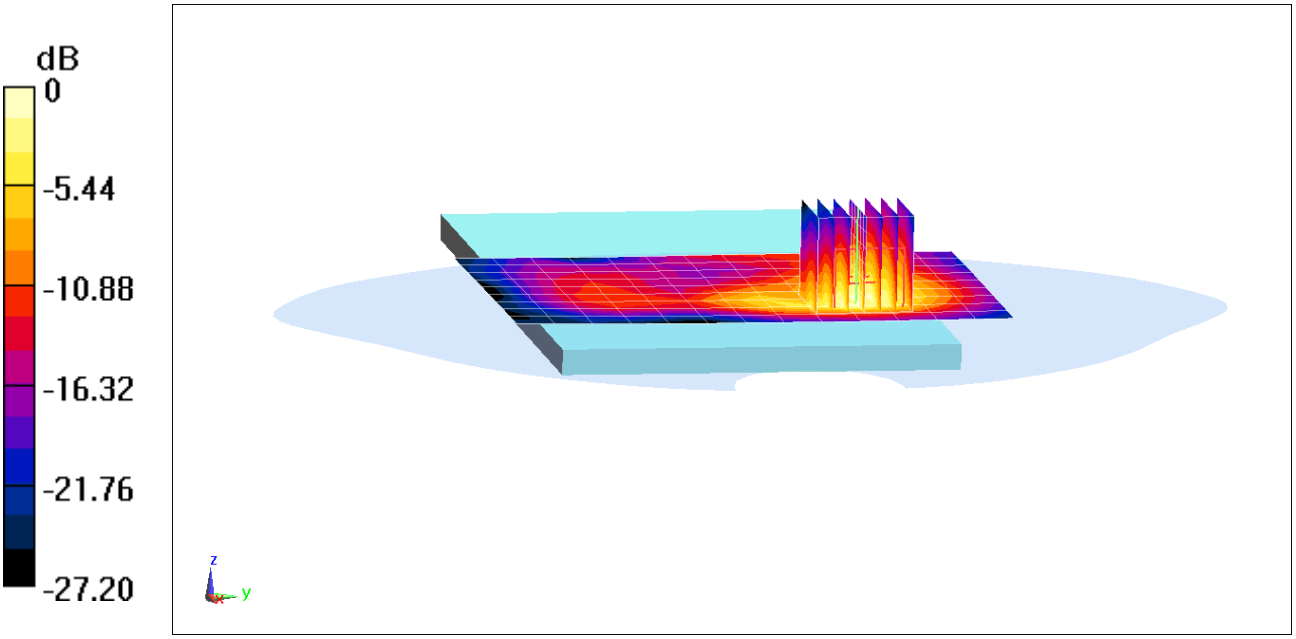
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.986 S/m; ε_r = 51.554; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.6 cm

Test Date: 02-18-2019; Ambient Temp: 22.1°C; Tissue Temp: 20.4°C

Probe: ES3DV3 - SN3131; ConvF(4.45, 4.45, 4.45) @ 2412 MHz; Calibrated: 3/13/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn604; Calibrated: 3/7/2018
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x14x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.25 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.575 W/kg



0 dB = 0.769 W/kg = -1.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMP200; Type: Portable Tablet; Serial: 01ZJW

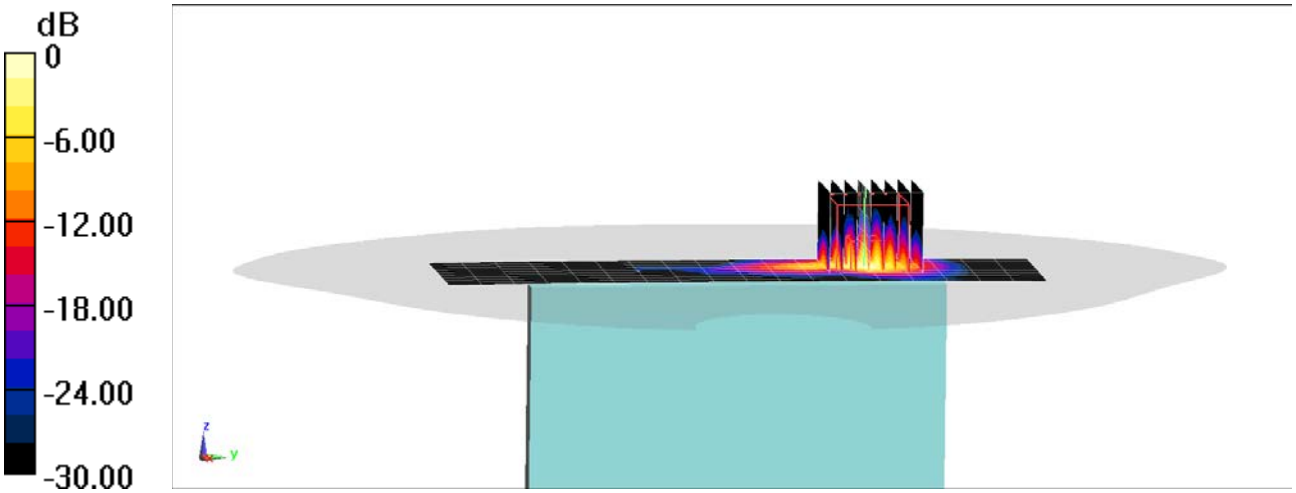
Communication System: UID 0, _IEEE 802.11n; Frequency: 5270 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5270 MHz; σ = 5.447 S/m; ε_r = 47.397; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 02-27-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7416; ConvF(4.61, 4.61, 4.61) @ 5270 MHz; Calibrated: 7/20/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1402; Calibrated: 7/10/2018
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11n, U-NII-2A, 40 MHz Bandwidth, Body SAR, Ch 54, 13.5 Mbps, Top Edge

Area Scan (10x19x1): Measurement grid: dx=5mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 16.67 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 5.90 W/kg
SAR(1 g) = 1.33 W/kg



0 dB = 3.61 W/kg = 5.58 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

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PCTEST ENGINEERING LABORATORY, INC.

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

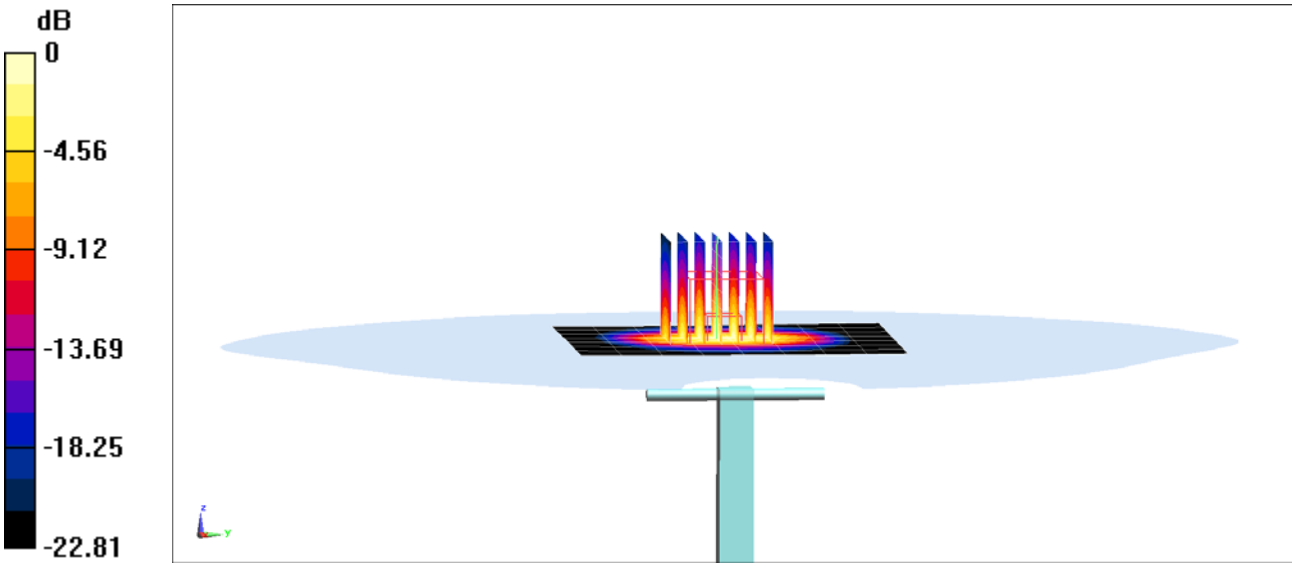
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.035 S/m; ε_r = 51.386; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-18-2019; Ambient Temp: 22.1°C; Tissue Temp: 20.4°C

Probe: ES3DV3 - SN3131; ConvF(4.45, 4.45, 4.45) @ 2450 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn604; Calibrated: 3/7/2018
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.27 W/kg
Deviation(1 g) = 3.74%



0 dB = 6.92 W/kg = 8.40 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

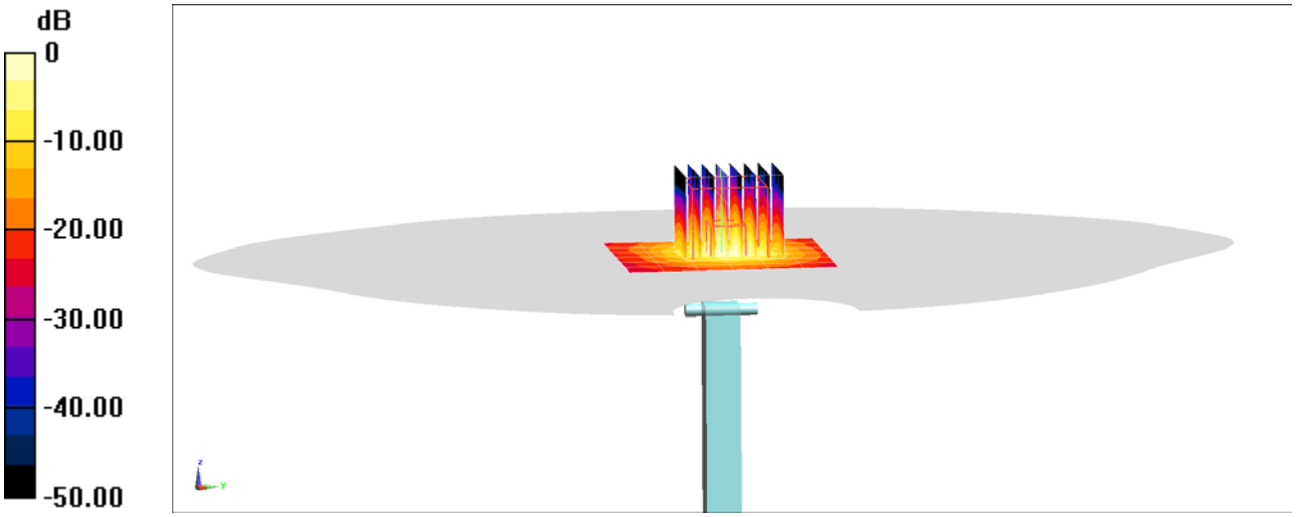
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.421 S/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-27-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7416; ConvF(4.61, 4.61, 4.61) @ 5250 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1402; Calibrated: 7/10/2018
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 3.83 W/kg
Deviation(1 g) = 3.51%



0 dB = 9.20 W/kg = 9.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

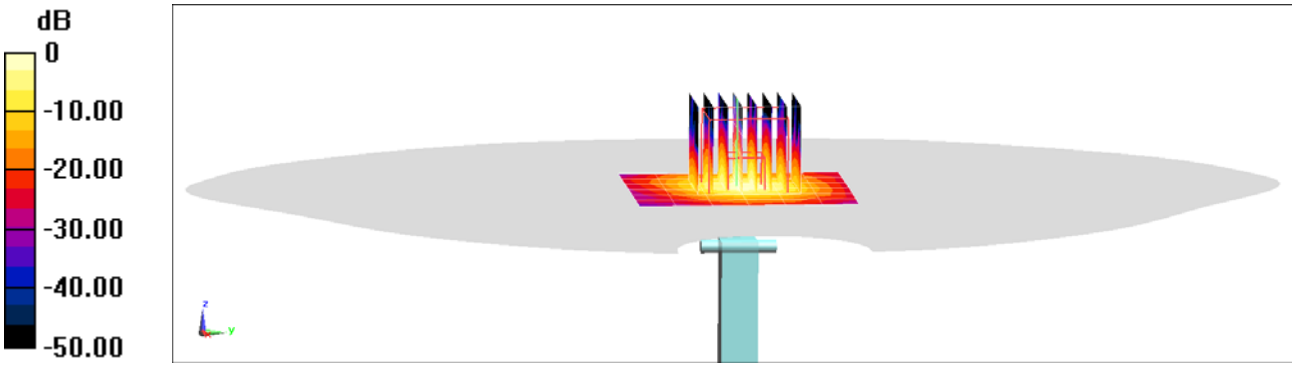
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.922 S/m; ε_r = 46.736; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-27-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7416; ConvF(4.02, 4.02, 4.02) @ 5600 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1402; Calibrated: 7/10/2018
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = 2.32%



0 dB = 9.69 W/kg = 9.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

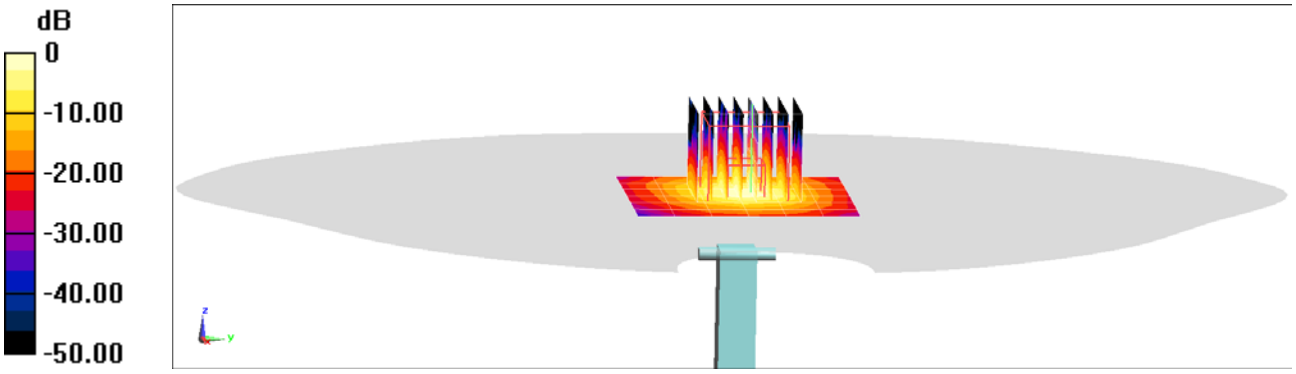
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.143 S/m; ε_r = 46.501; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-27-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7416; ConvF(4.21, 4.21, 4.21) @ 5750 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1402; Calibrated: 7/10/2018
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 3.76 W/kg
Deviation(1 g) = 0.67%



0 dB = 9.21 W/kg = 9.64 dBW/kg

APPENDIX C: PROBE CALIBRATION

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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: ES3-3131_Mar18

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3131
Calibration procedure(s)	QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	March 13, 2018

SC 3/21/18

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	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 13, 2018

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

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:3131

Manufactured: February 6, 2007
Calibrated: March 13, 2018

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3131

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.27	1.26	1.21	± 10.1 %
DCP (mV)[B]	104.8	101.0	102.1	

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	190.2	±3.5 %
		Y	0.0	0.0	1.0		209.7	
		Z	0.0	0.0	1.0		205.3	

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	59.71	424.3	34.95	29.43	2.926	5.10	0.529	0.536	1.010
Y	55.55	399.2	35.49	28.93	2.461	5.10	0.546	0.521	1.009
Z	63.86	454.3	34.89	29.70	3.365	5.10	0.736	0.556	1.011

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

[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:3131

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	0.80	1.13	± 12.0 %
835	41.5	0.90	6.35	6.35	6.35	0.80	1.09	± 12.0 %
1750	40.1	1.37	5.57	5.57	5.57	0.41	1.61	± 12.0 %
1900	40.0	1.40	5.27	5.27	5.27	0.55	1.42	± 12.0 %
2300	39.5	1.67	5.01	5.01	5.01	0.78	1.19	± 12.0 %
2450	39.2	1.80	4.75	4.75	4.75	0.71	1.31	± 12.0 %
2600	39.0	1.96	4.56	4.56	4.56	0.64	1.39	± 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:3131

Calibration Parameter Determined in Body Tissue Simulating Media

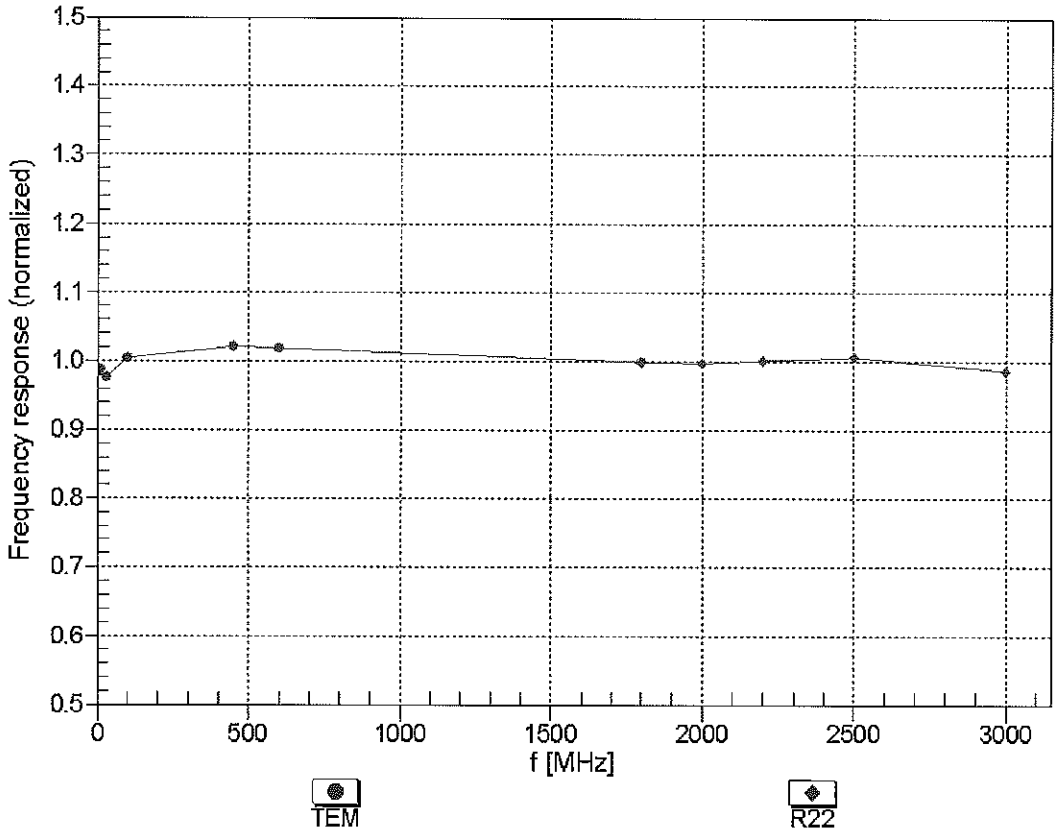
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	6.26	6.26	6.26	0.80	1.10	± 12.0 %
835	55.2	0.97	6.14	6.14	6.14	0.80	1.16	± 12.0 %
1750	53.4	1.49	5.03	5.03	5.03	0.69	1.29	± 12.0 %
1900	53.3	1.52	4.80	4.80	4.80	0.45	1.65	± 12.0 %
2300	52.9	1.81	4.59	4.59	4.59	0.80	1.22	± 12.0 %
2450	52.7	1.95	4.45	4.45	4.45	0.80	1.25	± 12.0 %
2600	52.5	2.16	4.25	4.25	4.25	0.80	1.20	± 12.0 %

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

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

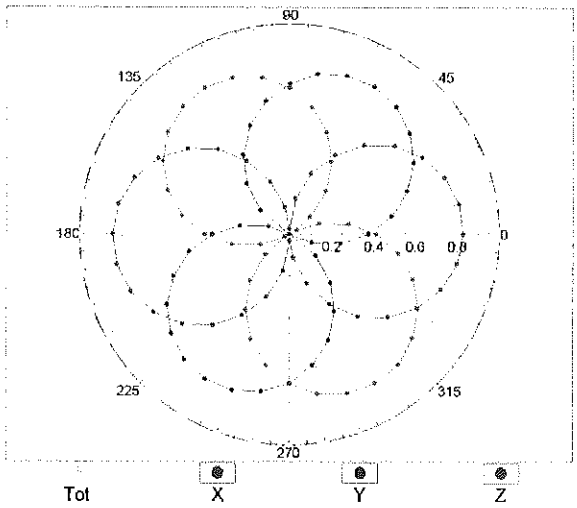
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



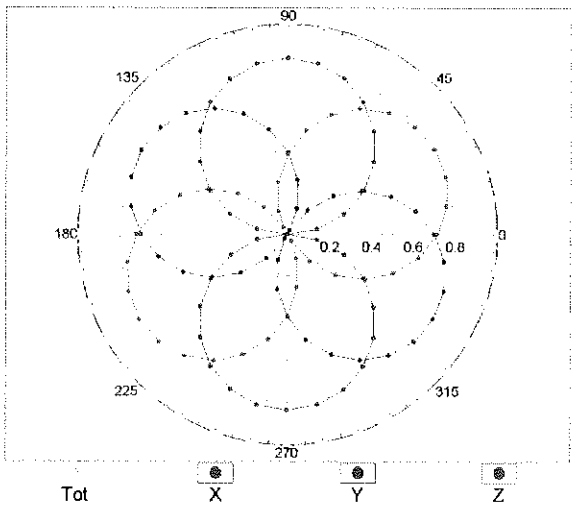
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

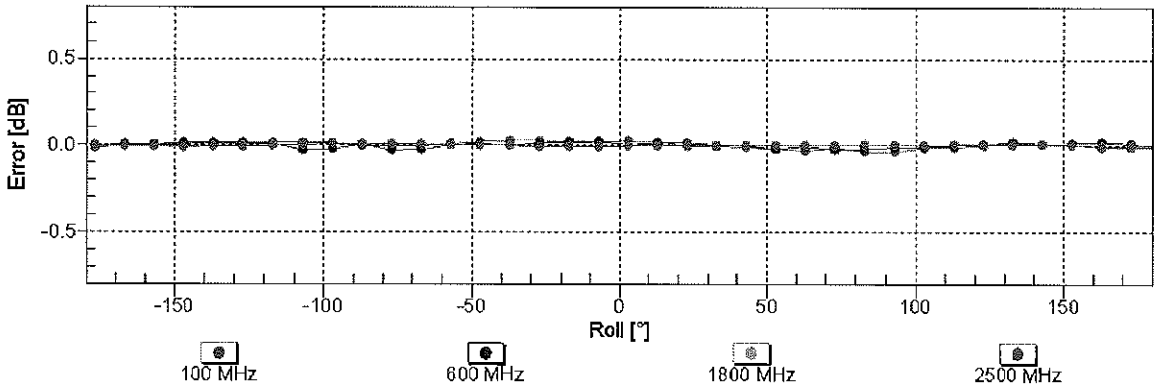
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

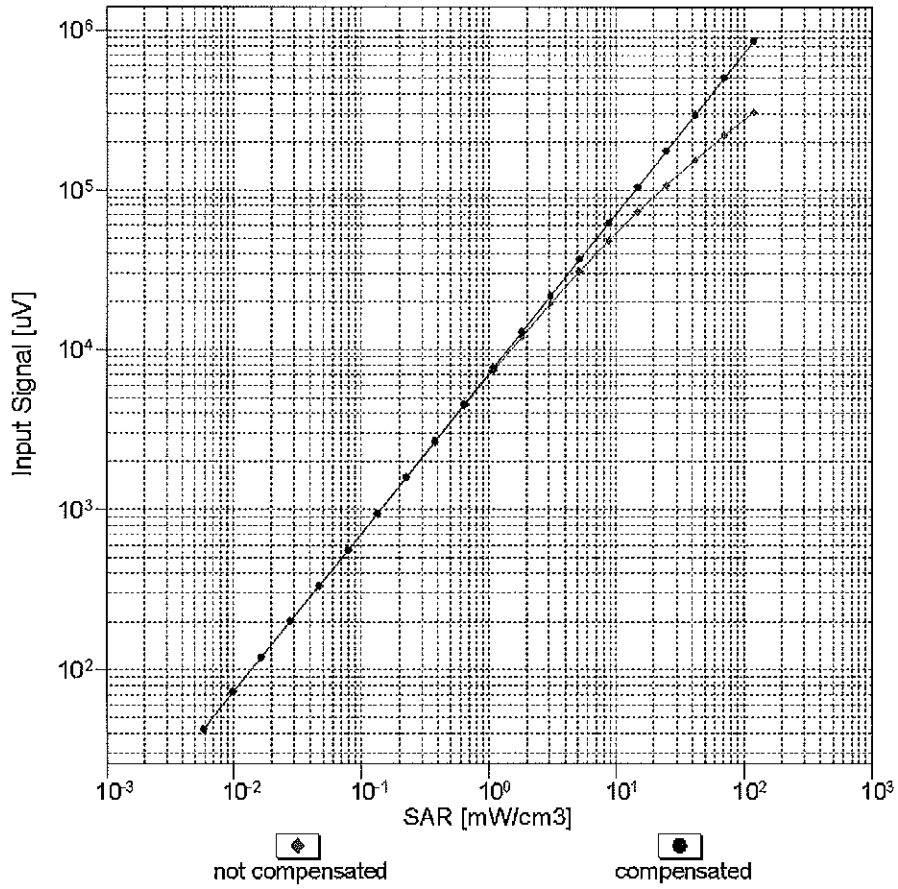


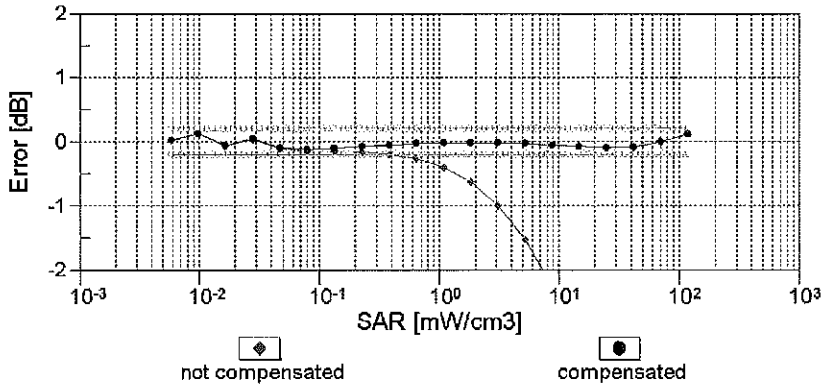


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

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

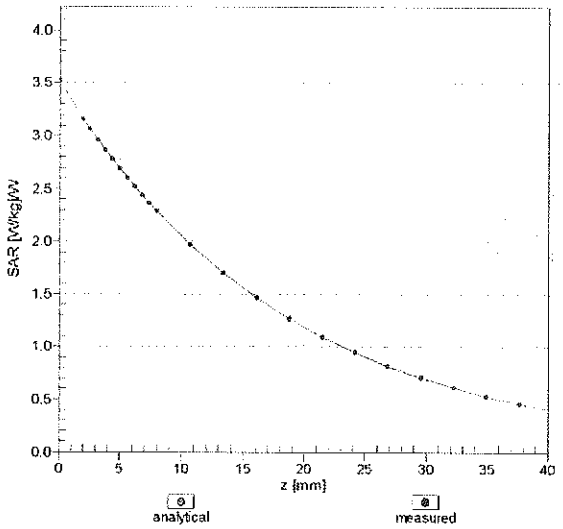




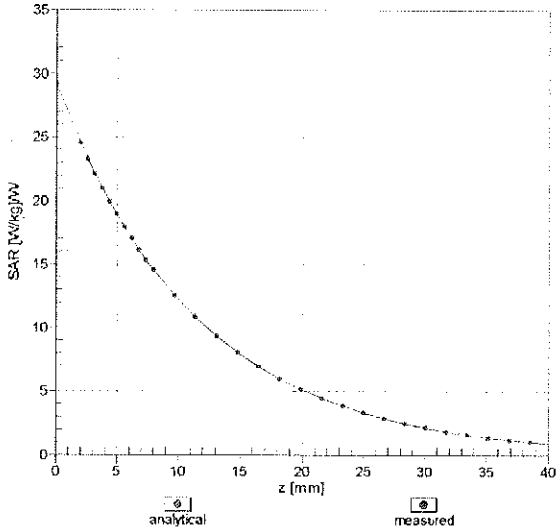
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

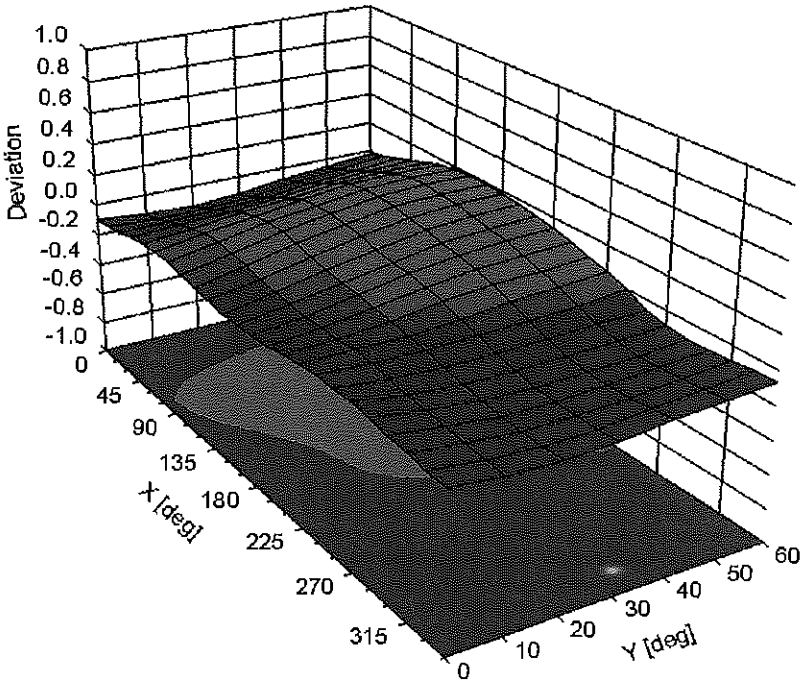


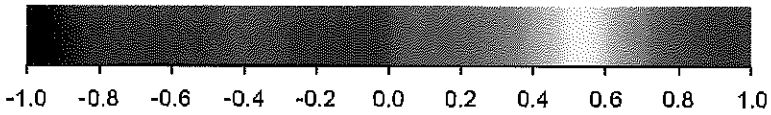
f = 1900 MHz,WGLS R22 (H_convF)



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:3131

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-37
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	190.2	± 3.5 %
		Y	0.00	0.00	1.00		209.7	
		Z	0.00	0.00	1.00		205.3	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	9.70	81.61	20.07	10.00	25.0	± 9.6 %
		Y	8.09	78.72	18.33		25.0	
		Z	8.65	79.46	19.49		25.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.28	71.48	17.61	0.00	150.0	± 9.6 %
		Y	0.99	67.09	14.81		150.0	
		Z	1.09	68.27	15.63		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.36	66.34	16.80	0.41	150.0	± 9.6 %
		Y	1.25	64.91	15.58		150.0	
		Z	1.31	65.37	15.94		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.18	67.46	17.61	1.46	150.0	± 9.6 %
		Y	5.07	67.19	17.35		150.0	
		Z	5.19	67.29	17.43		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	21.37	96.39	26.81	9.39	50.0	± 9.6 %
		Y	30.58	101.71	27.75		50.0	
		Z	14.87	89.78	24.86		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	19.13	94.38	26.23	9.57	50.0	± 9.6 %
		Y	25.16	98.44	26.84		50.0	
		Z	14.01	88.61	24.51		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	119.54	31.26	6.56	60.0	± 9.6 %
		Y	100.00	117.35	29.89		60.0	
		Z	47.84	108.37	28.65		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	22.23	110.40	41.95	12.57	50.0	± 9.6 %
		Y	17.21	103.09	38.95		50.0	
		Z	18.59	103.51	39.13		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	21.90	105.65	36.48	9.56	60.0	± 9.6 %
		Y	19.07	102.43	35.12		60.0	
		Z	18.57	100.40	34.43		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	118.49	29.81	4.80	80.0	± 9.6 %
		Y	100.00	115.80	28.25		80.0	
		Z	100.00	118.07	29.75		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	118.84	29.12	3.55	100.0	± 9.6 %
		Y	100.00	115.34	27.23		100.0	
		Z	100.00	117.81	28.76		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	15.03	97.24	32.55	7.80	80.0	± 9.6 %
		Y	12.91	93.88	31.10		80.0	
		Z	13.55	93.79	31.06		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	118.09	29.97	5.30	70.0	± 9.6 %
		Y	100.00	115.53	28.47		70.0	
		Z	100.00	117.95	30.06		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	120.93	28.41	1.88	100.0	± 9.6 %
		Y	100.00	113.98	25.09		100.0	
		Z	100.00	118.18	27.28		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	127.01	29.78	1.17	100.0	± 9.6 %
		Y	100.00	114.85	24.36		100.0	
		Z	100.00	121.16	27.38		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	20.78	99.53	27.79	5.30	70.0	± 9.6 %
		Y	19.34	97.65	26.66		70.0	
		Z	13.81	92.04	25.45		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	12.96	96.00	25.24	1.88	100.0	± 9.6 %
		Y	7.44	86.66	21.59		100.0	
		Z	6.91	85.91	21.97		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	7.00	88.70	22.77	1.17	100.0	± 9.6 %
		Y	3.95	79.50	18.86		100.0	
		Z	4.17	80.37	19.79		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	25.54	103.17	28.91	5.30	70.0	± 9.6 %
		Y	24.56	101.70	27.91		70.0	
		Z	15.79	94.44	26.27		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	12.38	95.34	25.01	1.88	100.0	± 9.6 %
		Y	7.01	85.86	21.29		100.0	
		Z	6.72	85.54	21.81		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	7.40	89.83	23.23	1.17	100.0	± 9.6 %
		Y	4.11	80.29	19.23		100.0	
		Z	4.31	81.10	20.14		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	2.72	77.70	18.83	0.00	150.0	± 9.6 %
		Y	1.75	71.04	15.31		150.0	
		Z	1.99	72.39	16.50		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	59.15	110.49	29.04	7.78	50.0	± 9.6 %
		Y	84.85	113.90	29.06		50.0	
		Z	23.75	96.54	25.38		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	120.72	0.22	0.00	150.0	± 9.6 %
		Y	0.02	127.01	0.12		150.0	
		Z	0.00	108.37	4.86		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	11.59	83.57	24.35	13.80	25.0	± 9.6 %
		Y	12.79	85.72	24.55		25.0	
		Z	10.49	80.96	23.58		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	13.73	88.07	24.55	10.79	40.0	± 9.6 %
		Y	15.47	90.03	24.62		40.0	
		Z	11.69	84.69	23.55		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	13.55	88.32	25.13	9.03	50.0	± 9.6 %
		Y	13.84	88.70	24.80		50.0	
		Z	11.76	85.13	24.06		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	11.01	91.12	29.68	6.55	100.0	± 9.6 %
		Y	9.50	88.00	28.27		100.0	
		Z	10.33	88.76	28.55		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.58	69.01	18.07	0.61	110.0	± 9.6 %
		Y	1.42	67.12	16.66		110.0	
		Z	1.51	67.68	17.04		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	132.95	34.51	1.30	110.0	± 9.6 %
		Y	100.00	128.66	32.37		110.0	
		Z	100.00	129.71	33.09		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	20.38	108.34	30.72	2.04	110.0	± 9.6 %
		Y	11.19	97.44	27.03		110.0	
		Z	10.04	95.03	26.45		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.90	67.22	16.91	0.49	100.0	± 9.6 %
		Y	4.79	66.93	16.63		100.0	
		Z	4.90	67.02	16.70		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.94	67.39	17.05	0.72	100.0	± 9.6 %
		Y	4.83	67.10	16.77		100.0	
		Z	4.94	67.19	16.85		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.27	67.72	17.31	0.86	100.0	± 9.6 %
		Y	5.15	67.43	17.04		100.0	
		Z	5.29	67.55	17.13		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.18	67.78	17.49	1.21	100.0	± 9.6 %
		Y	5.06	67.46	17.21		100.0	
		Z	5.20	67.61	17.30		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.24	67.92	17.73	1.46	100.0	± 9.6 %
		Y	5.12	67.60	17.44		100.0	
		Z	5.26	67.76	17.55		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.56	68.08	18.18	2.04	100.0	± 9.6 %
		Y	5.44	67.80	17.91		100.0	
		Z	5.59	67.93	18.02		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.71	68.47	18.57	2.55	100.0	± 9.6 %
		Y	5.57	68.12	18.27		100.0	
		Z	5.76	68.36	18.42		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.79	68.41	18.75	2.67	100.0	± 9.6 %
		Y	5.65	68.09	18.46		100.0	
		Z	5.83	68.29	18.60		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.33	67.71	18.01	1.99	100.0	± 9.6 %
		Y	5.22	67.44	17.74		100.0	
		Z	5.35	67.56	17.84		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.41	68.32	18.35	2.30	100.0	± 9.6 %
		Y	5.28	67.99	18.07		100.0	
		Z	5.43	68.17	18.17		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.55	68.71	18.79	2.83	100.0	± 9.6 %
		Y	5.42	68.35	18.49		100.0	
		Z	5.59	68.57	18.62		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.60	68.80	19.06	3.30	100.0	± 9.6 %
		Y	5.46	68.43	18.75		100.0	
		Z	5.64	68.69	18.91		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.77	69.35	19.60	3.82	90.0	± 9.6 %
		Y	5.61	68.90	19.23		90.0	
		Z	5.83	69.29	19.46		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.79	69.16	19.72	4.15	90.0	± 9.6 %
		Y	5.63	68.72	19.36		90.0	
		Z	5.84	69.09	19.58		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.83	69.26	19.83	4.30	90.0	± 9.6 %
		Y	5.67	68.81	19.47		90.0	
		Z	5.89	69.20	19.69		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.20	71.01	15.79	0.00	150.0	± 9.6 %
		Y	0.81	65.47	12.21		150.0	
		Z	0.96	67.03	13.66		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.34	64.70	9.44	4.77	80.0	± 9.6 %
		Y	1.96	63.12	8.15		80.0	
		Z	2.41	64.66	9.57		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	119.63	31.33	6.56	60.0	± 9.6 %
		Y	100.00	117.44	29.96		60.0	
		Z	46.14	107.88	28.56		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.98	69.13	16.74	0.00	150.0	± 9.6 %
		Y	1.78	67.31	15.40		150.0	
		Z	1.85	67.66	15.78		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.94	69.14	16.74	0.00	150.0	± 9.6 %
		Y	1.74	67.26	15.37		150.0	
		Z	1.81	67.64	15.76		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	21.76	105.45	36.41	9.56	60.0	± 9.6 %
		Y	19.00	102.30	35.08		60.0	
		Z	18.47	100.23	34.37		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.49	72.16	17.57	0.00	150.0	± 9.6 %
		Y	3.13	70.27	16.47		150.0	
		Z	3.30	70.93	16.79		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.43	68.49	16.49	0.00	150.0	± 9.6 %
		Y	3.26	67.60	15.84		150.0	
		Z	3.37	67.97	16.05		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.52	68.35	16.53	0.00	150.0	± 9.6 %
		Y	3.36	67.55	15.94		150.0	
		Z	3.47	67.86	16.12		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	8.96	78.81	21.55	3.98	65.0	± 9.6 %
		Y	8.50	78.18	21.18		65.0	
		Z	8.56	77.50	20.90		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.82	77.41	21.87	3.98	65.0	± 9.6 %
		Y	8.44	76.84	21.50		65.0	
		Z	8.69	76.68	21.44		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	7.81	74.99	21.11	3.98	65.0	± 9.6 %
		Y	7.78	75.24	21.10		65.0	
		Z	7.67	74.19	20.64		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.07	71.34	17.42	0.00	150.0	± 9.6 %
		Y	2.75	69.52	16.31		150.0	
		Z	2.92	70.12	16.62		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.10	68.36	16.46	0.00	150.0	± 9.6 %
		Y	2.92	67.40	15.75		150.0	
		Z	3.04	67.74	15.98		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.52	70.52	17.19	0.00	150.0	± 9.6 %
		Y	2.24	68.59	15.93		150.0	
		Z	2.39	69.17	16.31		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.81	69.10	16.82	0.00	150.0	± 9.6 %
		Y	2.62	68.01	15.98		150.0	
		Z	2.73	68.19	16.21		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.21	68.23	16.45	0.00	150.0	± 9.6 %
		Y	3.04	67.37	15.80		150.0	
		Z	3.16	67.65	16.00		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.96	69.10	16.88	0.00	150.0	± 9.6 %
		Y	2.77	68.13	16.12		150.0	
		Z	2.88	68.24	16.31		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.24	67.53	16.64	0.00	150.0	± 9.6 %
		Y	5.16	67.27	16.41		150.0	
		Z	5.23	67.33	16.43		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.61	67.85	16.80	0.00	150.0	± 9.6 %
		Y	5.52	67.61	16.59		150.0	
		Z	5.60	67.65	16.60		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.38	67.81	16.71	0.00	150.0	± 9.6 %
		Y	5.28	67.54	16.47		150.0	
		Z	5.36	67.60	16.49		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.25	67.54	16.67	0.00	150.0	± 9.6 %
		Y	5.15	67.21	16.40		150.0	
		Z	5.24	67.36	16.47		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.69	68.04	16.91	0.00	150.0	± 9.6 %
		Y	5.61	67.82	16.70		150.0	
		Z	5.67	67.78	16.67		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.35	67.76	16.70	0.00	150.0	± 9.6 %
		Y	5.26	67.48	16.45		150.0	
		Z	5.33	67.55	16.48		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.57	68.35	16.45	0.00	150.0	± 9.6 %
		Y	3.41	67.55	15.86		150.0	
		Z	3.52	67.87	16.05		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.69	68.36	16.57	0.00	150.0	± 9.6 %
		Y	3.53	67.63	16.03		150.0	
		Z	3.64	67.90	16.19		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.31	70.70	17.09	0.00	150.0	± 9.6 %
		Y	2.01	68.47	15.61		150.0	
		Z	2.16	69.06	16.10		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.72	70.07	16.82	0.00	150.0	± 9.6 %
		Y	2.47	68.60	15.71		150.0	
		Z	2.60	68.79	16.08		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.51	67.97	15.36	0.00	150.0	± 9.6 %
		Y	2.28	66.59	14.25		150.0	
		Z	2.44	67.05	14.81		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.68	69.24	14.82	0.00	150.0	± 9.6 %
		Y	1.28	65.49	12.22		150.0	
		Z	1.52	67.19	13.80		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.59	74.27	16.49	0.00	150.0	± 9.6 %
		Y	2.48	69.03	13.53		150.0	
		Z	3.48	73.38	16.27		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.81	78.43	18.29	0.00	150.0	± 9.6 %
		Y	3.06	71.86	14.93		150.0	
		Z	4.39	76.74	17.80		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.11	68.42	16.50	0.00	150.0	± 9.6 %
		Y	2.93	67.46	15.79		150.0	
		Z	3.05	67.79	16.02		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.22	68.28	16.49	0.00	150.0	± 9.6 %
		Y	3.05	67.42	15.84		150.0	
		Z	3.17	67.70	16.04		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.55	81.17	22.58	3.98	65.0	± 9.6 %
		Y	9.21	80.82	22.29		65.0	
		Z	9.01	79.54	21.81		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.49	77.73	21.79	3.98	65.0	± 9.6 %
		Y	8.06	77.04	21.32		65.0	
		Z	8.33	76.87	21.33		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.83	78.38	22.38	3.98	65.0	± 9.6 %
		Y	8.47	77.90	22.02		65.0	
		Z	8.65	77.49	21.91		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.59	70.99	17.47	0.00	150.0	± 9.6 %
		Y	2.29	69.02	16.20		150.0	
		Z	2.45	69.60	16.57		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.81	69.11	16.83	0.00	150.0	± 9.6 %
		Y	2.62	68.02	15.99		150.0	
		Z	2.73	68.19	16.22		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.20	71.20	17.17	0.00	150.0	± 9.6 %
		Y	1.86	68.56	15.44		150.0	
		Z	2.03	69.28	16.06		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.39	68.89	15.65	0.00	150.0	± 9.6 %
		Y	2.11	67.10	14.29		150.0	
		Z	2.28	67.64	14.94		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.96	69.15	16.92	0.00	150.0	± 9.6 %
		Y	2.78	68.19	16.16		150.0	
		Z	2.88	68.29	16.35		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.51	69.32	15.92	0.00	150.0	± 9.6 %
		Y	2.22	67.54	14.58		150.0	
		Z	2.39	68.04	15.21		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.99	69.94	17.05	0.00	150.0	± 9.6 %
		Y	2.77	68.65	16.16		150.0	
		Z	2.88	68.94	16.37		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.11	68.19	16.45	0.00	150.0	± 9.6 %
		Y	2.95	67.33	15.77		150.0	
		Z	3.06	67.58	15.98		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.22	68.24	16.50	0.00	150.0	± 9.6 %
		Y	3.05	67.44	15.87		150.0	
		Z	3.16	67.62	16.05		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.96	70.82	19.89	3.01	150.0	± 9.6 %
		Y	3.78	70.13	19.34		150.0	
		Z	4.03	70.67	19.70		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	5.11	74.26	20.56	3.01	150.0	± 9.6 %
		Y	4.79	73.27	19.88		150.0	
		Z	5.26	74.15	20.39		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	5.60	76.23	21.70	3.01	150.0	± 9.6 %
		Y	5.31	75.53	21.18		150.0	
		Z	5.73	76.01	21.47		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.58	72.12	20.50	3.01	150.0	± 9.6 %
		Y	3.30	70.64	19.56		150.0	
		Z	3.78	72.59	20.51		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	5.42	79.38	23.12	3.01	150.0	± 9.6 %
		Y	4.85	77.44	22.11		150.0	
		Z	5.84	79.95	23.10		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	4.40	74.87	20.38	3.01	150.0	± 9.6 %
		Y	3.89	72.72	19.17		150.0	
		Z	4.70	75.31	20.35		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	34.94	113.16	34.77	6.02	65.0	± 9.6 %
		Y	22.71	105.08	32.22		65.0	
		Z	26.85	106.59	32.64		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	37.64	109.23	31.90	6.02	65.0	± 9.6 %
		Y	35.13	108.10	31.31		65.0	
		Z	28.94	103.32	30.05		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	28.41	102.80	29.56	6.02	65.0	± 9.6 %
		Y	26.93	102.01	29.05		65.0	
		Z	22.73	97.84	27.96		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	3.53	71.78	20.25	3.01	150.0	± 9.6 %
		Y	3.25	70.28	19.30		150.0	
		Z	3.72	72.23	20.26		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	5.43	79.41	23.13	3.01	150.0	± 9.6 %
		Y	4.86	77.46	22.12		150.0	
		Z	5.85	79.97	23.11		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.57	71.95	20.35	3.01	150.0	± 9.6 %
		Y	3.28	70.45	19.40		150.0	
		Z	3.76	72.40	20.36		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	5.35	79.11	22.99	3.01	150.0	± 9.6 %
		Y	4.79	77.17	21.97		150.0	
		Z	5.76	79.65	22.96		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	4.87	77.00	21.61	3.01	150.0	± 9.6 %
		Y	4.32	74.89	20.48		150.0	
		Z	5.21	77.44	21.57		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	4.38	74.78	20.32	3.01	150.0	± 9.6 %
		Y	3.87	72.63	19.11		150.0	
		Z	4.68	75.20	20.29		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.56	71.93	20.34	3.01	150.0	± 9.6 %
		Y	3.28	70.44	19.39		150.0	
		Z	3.75	72.39	20.35		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	5.34	79.09	22.98	3.01	150.0	± 9.6 %
		Y	4.78	77.14	21.96		150.0	
		Z	5.75	79.62	22.95		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	4.37	74.75	20.31	3.01	150.0	± 9.6 %
		Y	3.86	72.60	19.10		150.0	
		Z	4.67	75.17	20.28		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.57	71.98	20.36	3.01	150.0	± 9.6 %
		Y	3.29	70.48	19.42		150.0	
		Z	3.76	72.43	20.37		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	5.37	79.16	23.01	3.01	150.0	± 9.6 %
		Y	4.81	77.22	22.00		150.0	
		Z	5.78	79.70	22.98		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	4.40	74.83	20.35	3.01	150.0	± 9.6 %
		Y	3.88	72.68	19.14		150.0	
		Z	4.70	75.25	20.31		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.58	72.02	20.42	3.01	150.0	± 9.6 %
		Y	3.30	70.53	19.48		150.0	
		Z	3.77	72.48	20.43		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	5.57	79.92	23.41	3.01	150.0	± 9.6 %
		Y	5.00	78.02	22.42		150.0	
		Z	6.00	80.49	23.39		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	4.51	75.31	20.63	3.01	150.0	± 9.6 %
		Y	3.98	73.16	19.43		150.0	
		Z	4.82	75.75	20.60		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.67	66.97	16.43	0.00	150.0	± 9.6 %
		Y	4.56	66.66	16.13		150.0	
		Z	4.66	66.74	16.22		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.86	67.33	16.54	0.00	150.0	± 9.6 %
		Y	4.75	67.00	16.25		150.0	
		Z	4.86	67.11	16.33		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.90	67.34	16.55	0.00	150.0	± 9.6 %
		Y	4.79	67.02	16.26		150.0	
		Z	4.90	67.12	16.33		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.68	67.07	16.46	0.00	150.0	± 9.6 %
		Y	4.57	66.74	16.16		150.0	
		Z	4.68	66.84	16.25		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.88	67.35	16.56	0.00	150.0	± 9.6 %
		Y	4.76	67.02	16.26		150.0	
		Z	4.87	67.14	16.34		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.91	67.36	16.56	0.00	150.0	± 9.6 %
		Y	4.79	67.04	16.28		150.0	
		Z	4.90	67.14	16.35		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.63	67.08	16.43	0.00	150.0	± 9.6 %
		Y	4.52	66.75	16.12		150.0	
		Z	4.63	66.86	16.22		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.88	67.34	16.55	0.00	150.0	± 9.6 %
		Y	4.76	67.01	16.26		150.0	
		Z	4.87	67.13	16.34		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.91	67.29	16.55	0.00	150.0	± 9.6 %
		Y	4.80	66.97	16.26		150.0	
		Z	4.91	67.07	16.34		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.23	67.56	16.67	0.00	150.0	± 9.6 %
		Y	5.12	67.23	16.39		150.0	
		Z	5.22	67.38	16.47		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.59	67.88	16.85	0.00	150.0	± 9.6 %
		Y	5.45	67.47	16.54		150.0	
		Z	5.60	67.75	16.68		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.27	67.65	16.64	0.00	150.0	± 9.6 %
		Y	5.17	67.32	16.36		150.0	
		Z	5.27	67.48	16.44		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.95	66.74	15.92	0.00	150.0	± 9.6 %
		Y	2.82	66.08	15.31		150.0	
		Z	2.92	66.24	15.55		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	39.92	110.44	32.32	6.02	65.0	± 9.6 %
		Y	37.98	109.65	31.83		65.0	
		Z	30.32	104.28	30.40		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	30.54	104.19	30.05	6.02	65.0	± 9.6 %
		Y	29.85	103.92	29.69		65.0	
		Z	24.24	99.06	28.40		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	40.97	116.76	35.87	6.02	65.0	± 9.6 %
		Y	33.05	112.71	34.49		65.0	
		Z	30.60	109.58	33.61		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	37.64	109.22	31.90	6.02	65.0	± 9.6 %
		Y	35.21	108.13	31.33		65.0	
		Z	28.96	103.32	30.05		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	29.14	103.27	29.72	6.02	65.0	± 9.6 %
		Y	28.04	102.73	29.28		65.0	
		Z	23.34	98.31	28.11		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	38.69	115.50	35.45	6.02	65.0	± 9.6 %
		Y	30.84	111.23	34.00		65.0	
		Z	29.25	108.59	33.26		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	37.64	109.22	31.91	6.02	65.0	± 9.6 %
		Y	35.20	108.13	31.32		65.0	
		Z	28.95	103.32	30.05		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	29.17	103.30	29.73	6.02	65.0	± 9.6 %
		Y	28.04	102.74	29.28		65.0	
		Z	23.35	98.33	28.12		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	36.40	114.09	34.96	6.02	65.0	± 9.6 %
		Y	28.84	109.71	33.46		65.0	
		Z	27.86	107.46	32.84		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	37.79	109.31	31.93	6.02	65.0	± 9.6 %
		Y	35.33	108.21	31.35		65.0	
		Z	29.02	103.38	30.07		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	29.44	103.44	29.76	6.02	65.0	± 9.6 %
		Y	28.30	102.88	29.31		65.0	
		Z	23.52	98.44	28.15		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	39.17	115.77	35.53	6.02	65.0	± 9.6 %
		Y	31.13	111.44	34.06		65.0	
		Z	29.52	108.79	33.31		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	37.67	109.25	31.91	6.02	65.0	± 9.6 %
		Y	35.21	108.15	31.33		65.0	
		Z	28.96	103.33	30.06		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	29.19	103.33	29.73	6.02	65.0	± 9.6 %
		Y	28.04	102.76	29.28		65.0	
		Z	23.36	98.35	28.12		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	39.02	115.70	35.51	6.02	65.0	± 9.6 %
		Y	31.02	111.38	34.04		65.0	
		Z	29.43	108.74	33.30		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	12.98	87.83	27.99	6.98	65.0	± 9.6 %
		Y	12.11	86.66	27.31		65.0	
		Z	12.95	87.02	27.60		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	11.85	85.78	27.12	6.98	65.0	± 9.6 %
		Y	11.82	86.11	27.03		65.0	
		Z	11.69	84.73	26.63		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	9.73	83.39	27.11	6.98	65.0	± 9.6 %
		Y	8.46	80.56	25.70		65.0	
		Z	9.65	82.46	26.63		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	9.87	81.23	21.47	3.98	65.0	± 9.6 %
		Y	9.25	80.21	20.66		65.0	
		Z	9.69	80.52	21.33		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	9.71	80.72	21.24	3.98	65.0	± 9.6 %
		Y	9.06	79.63	20.40		65.0	
		Z	9.59	80.11	21.14		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	10.11	84.44	22.62	3.98	65.0	± 9.6 %
		Y	9.22	82.93	21.64		65.0	
		Z	8.93	81.85	21.69		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	8.06	78.54	20.96	3.98	65.0	± 9.6 %
		Y	7.54	77.59	20.24		65.0	
		Z	7.77	77.42	20.53		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	8.03	78.04	20.76	3.98	65.0	± 9.6 %
		Y	7.49	77.03	20.00		65.0	
		Z	7.80	77.05	20.38		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	10.98	86.04	23.80	3.98	65.0	± 9.6 %
		Y	10.39	85.20	23.16		65.0	
		Z	9.61	83.12	22.69		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.85	80.19	22.80	3.98	65.0	± 9.6 %
		Y	8.49	79.74	22.41		65.0	
		Z	8.52	78.91	22.21		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	8.39	78.14	21.73	3.98	65.0	± 9.6 %
		Y	7.96	77.45	21.21		65.0	
		Z	8.18	77.14	21.25		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	10.49	84.62	23.91	3.98	65.0	± 9.6 %
		Y	10.11	84.24	23.55		65.0	
		Z	9.51	82.20	22.88		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	8.26	77.12	21.58	3.98	65.0	± 9.6 %
		Y	7.86	76.46	21.11		65.0	
		Z	8.13	76.32	21.16		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.62	77.80	22.14	3.98	65.0	± 9.6 %
		Y	8.26	77.29	21.75		65.0	
		Z	8.47	76.96	21.70		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	9.24	80.82	22.69	3.98	65.0	± 9.6 %
		Y	8.89	80.44	22.37		65.0	
		Z	8.76	79.27	21.94		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	8.83	79.06	19.89	3.98	65.0	± 9.6 %
		Y	7.90	77.28	18.69		65.0	
		Z	8.86	78.81	19.98		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	8.62	78.33	19.52	3.98	65.0	± 9.6 %
		Y	7.66	76.48	18.29		65.0	
		Z	8.72	78.23	19.68		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	8.73	81.62	21.03	3.98	65.0	± 9.6 %
		Y	7.58	79.33	19.66		65.0	
		Z	8.01	79.82	20.43		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	8.37	79.10	21.60	3.98	65.0	± 9.6 %
		Y	7.91	78.35	21.00		65.0	
		Z	8.06	77.92	21.11		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	8.37	78.81	21.51	3.98	65.0	± 9.6 %
		Y	7.91	78.05	20.90		65.0	
		Z	8.10	77.72	21.05		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	10.34	84.80	23.65	3.98	65.0	± 9.6 %
		Y	9.82	84.08	23.09		65.0	
		Z	9.28	82.27	22.63		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.84	80.16	22.77	3.98	65.0	± 9.6 %
		Y	8.48	79.69	22.38		65.0	
		Z	8.51	78.88	22.18		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	8.38	78.13	21.73	3.98	65.0	± 9.6 %
		Y	7.95	77.44	21.21		65.0	
		Z	8.17	77.14	21.26		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	10.42	84.49	23.84	3.98	65.0	± 9.6 %
		Y	10.03	84.06	23.46		65.0	
		Z	9.46	82.08	22.82		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.49	77.73	21.79	3.98	65.0	± 9.6 %
		Y	8.06	77.04	21.33		65.0	
		Z	8.33	76.88	21.33		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.83	78.38	22.38	3.98	65.0	± 9.6 %
		Y	8.47	77.89	22.02		65.0	
		Z	8.66	77.49	21.90		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.53	81.14	22.57	3.98	65.0	± 9.6 %
		Y	9.19	80.79	22.27		65.0	
		Z	8.99	79.51	21.80		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.88	77.07	21.86	3.98	65.0	± 9.6 %
		Y	8.53	76.57	21.52		65.0	
		Z	8.78	76.39	21.46		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.79	76.65	21.76	3.98	65.0	± 9.6 %
		Y	8.45	76.15	21.41		65.0	
		Z	8.71	76.02	21.39		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.94	78.31	21.61	3.98	65.0	± 9.6 %
		Y	8.64	77.99	21.35		65.0	
		Z	8.68	77.27	21.06		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.71	67.13	15.85	0.00	150.0	± 9.6 %
		Y	2.57	66.31	15.13		150.0	
		Z	2.64	66.45	15.37		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.85	70.30	16.99	0.00	150.0	± 9.6 %
		Y	1.58	67.65	15.24		150.0	
		Z	1.69	68.38	15.77		150.0	
10277-CAA	PHS (QPSK)	X	5.94	70.38	14.66	9.03	50.0	± 9.6 %
		Y	5.17	68.50	13.15		50.0	
		Z	6.22	70.77	15.16		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	9.51	80.33	21.13	9.03	50.0	± 9.6 %
		Y	8.70	78.78	19.94		50.0	
		Z	9.27	79.51	21.02		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	9.68	80.54	21.22	9.03	50.0	± 9.6 %
		Y	8.84	78.95	20.02		50.0	
		Z	9.44	79.73	21.11		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.06	73.44	16.85	0.00	150.0	± 9.6 %
		Y	1.43	68.22	13.77		150.0	
		Z	1.66	69.67	15.05		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.16	70.60	15.59	0.00	150.0	± 9.6 %
		Y	0.80	65.26	12.08		150.0	
		Z	0.93	66.77	13.52		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	1.81	78.25	19.24	0.00	150.0	± 9.6 %
		Y	0.97	68.79	14.20		150.0	
		Z	1.15	70.64	15.76		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	3.34	88.05	23.27	0.00	150.0	± 9.6 %
		Y	1.42	74.19	17.06		150.0	
		Z	1.58	75.44	18.29		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	11.20	84.73	24.67	9.03	50.0	± 9.6 %
		Y	11.16	84.72	24.22		50.0	
		Z	10.30	82.53	23.89		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.08	71.44	17.49	0.00	150.0	± 9.6 %
		Y	2.76	69.62	16.37		150.0	
		Z	2.93	70.21	16.68		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.00	70.97	16.35	0.00	150.0	± 9.6 %
		Y	1.59	67.59	14.12		150.0	
		Z	1.80	68.71	15.16		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.04	75.60	17.83	0.00	150.0	± 9.6 %
		Y	3.13	71.73	15.61		150.0	
		Z	3.87	74.41	17.40		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	2.81	69.39	14.43	0.00	150.0	± 9.6 %
		Y	2.30	66.70	12.58		150.0	
		Z	2.87	69.17	14.42		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.89	68.81	19.16	4.17	80.0	± 9.6 %
		Y	5.66	68.36	18.79		80.0	
		Z	5.92	68.57	18.96		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.47	69.89	20.19	4.96	80.0	± 9.6 %
		Y	6.05	68.47	19.23		80.0	
		Z	6.55	69.84	20.10		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	6.36	70.13	20.33	4.96	80.0	± 9.6 %
		Y	5.89	68.50	19.26		80.0	
		Z	6.45	70.13	20.27		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.92	69.16	19.37	4.17	80.0	± 9.6 %
		Y	5.54	67.83	18.47		80.0	
		Z	5.99	69.06	19.25		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	8.54	79.67	25.07	6.02	50.0	± 9.6 %
		Y	8.44	80.60	25.43		50.0	
		Z	8.86	79.98	25.15		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	7.15	74.17	22.93	6.02	50.0	± 9.6 %
		Y	6.22	70.94	21.02		50.0	
		Z	7.34	74.36	22.97		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	7.37	75.21	23.20	6.02	50.0	± 9.6 %
		Y	7.05	75.26	23.20		50.0	
		Z	7.59	75.43	23.23		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	7.50	75.84	23.49	6.02	50.0	± 9.6 %
		Y	7.19	75.98	23.54		50.0	
		Z	7.73	76.05	23.51		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	7.30	74.58	23.14	6.02	50.0	± 9.6 %
		Y	6.32	71.25	21.19		50.0	
		Z	7.50	74.75	23.17		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	7.21	74.54	23.00	6.02	50.0	± 9.6 %
		Y	6.23	71.15	21.02		50.0	
		Z	7.41	74.72	23.02		50.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.45	70.59	17.05	0.00	150.0	± 9.6 %
		Y	3.11	68.90	16.04		150.0	
		Z	3.28	69.48	16.32		150.0	
10313-AAA	iDEN 1:3	X	8.25	79.81	19.40	6.99	70.0	± 9.6 %
		Y	7.09	77.52	18.13		70.0	
		Z	7.19	77.26	18.43		70.0	
10314-AAA	iDEN 1:6	X	10.47	85.49	23.78	10.00	30.0	± 9.6 %
		Y	9.83	84.58	23.09		30.0	
		Z	8.47	81.15	22.18		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.20	65.79	16.55	0.17	150.0	± 9.6 %
		Y	1.11	64.35	15.27		150.0	
		Z	1.16	64.78	15.62		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.78	67.18	16.65	0.17	150.0	± 9.6 %
		Y	4.67	66.86	16.35		150.0	
		Z	4.77	66.96	16.43		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.78	67.18	16.65	0.17	150.0	± 9.6 %
		Y	4.67	66.86	16.35		150.0	
		Z	4.77	66.96	16.43		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.87	67.42	16.55	0.00	150.0	± 9.6 %
		Y	4.75	67.07	16.25		150.0	
		Z	4.87	67.19	16.33		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.51	67.49	16.64	0.00	150.0	± 9.6 %
		Y	5.43	67.26	16.42		150.0	
		Z	5.49	67.26	16.42		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.81	67.96	16.71	0.00	150.0	± 9.6 %
		Y	5.70	67.66	16.46		150.0	
		Z	5.79	67.80	16.52		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.06	73.44	16.85	0.00	115.0	± 9.6 %
		Y	1.43	68.22	13.77		115.0	
		Z	1.66	69.67	15.05		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.06	73.44	16.85	0.00	115.0	± 9.6 %
		Y	1.43	68.22	13.77		115.0	
		Z	1.66	69.67	15.05		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	125.25	32.47	0.00	100.0	± 9.6 %
		Y	92.30	121.40	30.74		100.0	
		Z	100.00	123.39	31.76		100.0	
10410-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	100.00	121.01	31.06	3.23	80.0	± 9.6 %
		Y	100.00	119.50	30.06		80.0	
		Z	100.00	119.85	30.68		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.04	64.03	15.57	0.00	150.0	± 9.6 %
		Y	0.96	62.80	14.36		150.0	
		Z	1.00	63.15	14.69		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.67	67.01	16.48	0.00	150.0	± 9.6 %
		Y	4.57	66.70	16.19		150.0	
		Z	4.66	66.77	16.26		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.67	67.01	16.48	0.00	150.0	± 9.6 %
		Y	4.57	66.70	16.19		150.0	
		Z	4.66	66.77	16.26		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.66	67.15	16.49	0.00	150.0	± 9.6 %
		Y	4.55	66.84	16.19		150.0	
		Z	4.64	66.90	16.25		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.68	67.11	16.49	0.00	150.0	± 9.6 %
		Y	4.58	66.79	16.20		150.0	
		Z	4.67	66.87	16.27		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.81	67.11	16.50	0.00	150.0	± 9.6 %
		Y	4.70	66.81	16.22		150.0	
		Z	4.80	66.88	16.29		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	5.00	67.48	16.64	0.00	150.0	± 9.6 %
		Y	4.88	67.16	16.35		150.0	
		Z	5.01	67.27	16.43		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.92	67.43	16.61	0.00	150.0	± 9.6 %
		Y	4.80	67.10	16.32		150.0	
		Z	4.91	67.20	16.39		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.49	67.74	16.75	0.00	150.0	± 9.6 %
		Y	5.41	67.50	16.53		150.0	
		Z	5.48	67.54	16.55		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.51	67.77	16.76	0.00	150.0	± 9.6 %
		Y	5.41	67.51	16.53		150.0	
		Z	5.50	67.58	16.57		150.0	

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.52	67.76	16.75	0.00	150.0	± 9.6 %
		Y	5.42	67.48	16.51		150.0	
		Z	5.52	67.60	16.57		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.36	70.60	18.31	0.00	150.0	± 9.6 %
		Y	4.25	70.46	18.04		150.0	
		Z	4.30	69.92	17.90		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.41	67.63	16.57	0.00	150.0	± 9.6 %
		Y	4.27	67.23	16.20		150.0	
		Z	4.40	67.32	16.32		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.69	67.49	16.59	0.00	150.0	± 9.6 %
		Y	4.57	67.13	16.26		150.0	
		Z	4.69	67.23	16.36		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.93	67.47	16.63	0.00	150.0	± 9.6 %
		Y	4.81	67.14	16.34		150.0	
		Z	4.93	67.25	16.42		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.46	71.39	18.32	0.00	150.0	± 9.6 %
		Y	4.33	71.22	18.00		150.0	
		Z	4.37	70.56	17.87		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	120.84	30.99	3.23	80.0	± 9.6 %
		Y	100.00	119.33	29.98		80.0	
		Z	100.00	119.70	30.61		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.73	67.79	16.13	0.00	150.0	± 9.6 %
		Y	3.56	67.19	15.56		150.0	
		Z	3.71	67.33	15.83		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.23	67.40	16.43	0.00	150.0	± 9.6 %
		Y	4.10	67.00	16.05		150.0	
		Z	4.22	67.08	16.17		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.48	67.31	16.49	0.00	150.0	± 9.6 %
		Y	4.36	66.95	16.15		150.0	
		Z	4.47	67.05	16.25		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.66	67.23	16.49	0.00	150.0	± 9.6 %
		Y	4.55	66.88	16.18		150.0	
		Z	4.65	66.99	16.27		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.67	68.12	15.89	0.00	150.0	± 9.6 %
		Y	3.46	67.39	15.22		150.0	
		Z	3.64	67.60	15.59		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.35	68.33	16.90	0.00	150.0	± 9.6 %
		Y	6.27	68.07	16.69		150.0	
		Z	6.34	68.18	16.74		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.86	65.63	16.22	0.00	150.0	± 9.6 %
		Y	3.78	65.32	15.90		150.0	
		Z	3.84	65.41	15.99		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	4.07	70.58	17.80	0.00	150.0	± 9.6 %
		Y	3.95	70.36	17.39		150.0	
		Z	3.97	69.62	17.31		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.15	67.87	18.11	0.00	150.0	± 9.6 %
		Y	5.07	67.97	18.01		150.0	
		Z	5.11	67.33	17.80		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.14	73.10	18.91	0.00	150.0	± 9.6 %
		Y	0.84	67.69	15.51		150.0	
		Z	0.93	68.92	16.40		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	124.42	32.70	3.29	80.0	± 9.6 %
		Y	100.00	122.81	31.66		80.0	
		Z	100.00	122.33	31.90		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.52	26.05	3.23	80.0	± 9.6 %
		Y	100.00	107.73	24.50		80.0	
		Z	100.00	109.56	25.78		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.72	24.70	3.23	80.0	± 9.6 %
		Y	16.53	86.46	18.64		80.0	
		Z	57.16	100.91	23.16		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.66	31.73	3.23	80.0	± 9.6 %
		Y	100.00	120.75	30.55		80.0	
		Z	100.00	120.64	30.98		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	110.07	25.82	3.23	80.0	± 9.6 %
		Y	63.13	102.33	23.15		80.0	
		Z	100.00	109.15	25.57		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	107.29	24.49	3.23	80.0	± 9.6 %
		Y	9.87	80.97	16.99		80.0	
		Z	32.16	94.29	21.45		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.86	31.82	3.23	80.0	± 9.6 %
		Y	100.00	120.96	30.65		80.0	
		Z	100.00	120.82	31.06		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	110.21	25.89	3.23	80.0	± 9.6 %
		Y	85.23	105.68	23.94		80.0	
		Z	100.00	109.27	25.63		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	107.30	24.49	3.23	80.0	± 9.6 %
		Y	10.04	81.16	17.05		80.0	
		Z	33.09	94.61	21.52		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.89	31.83	3.23	80.0	± 9.6 %
		Y	100.00	120.98	30.65		80.0	
		Z	100.00	120.85	31.06		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	110.17	25.86	3.23	80.0	± 9.6 %
		Y	84.36	105.52	23.89		80.0	
		Z	100.00	109.23	25.61		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	107.26	24.47	3.23	80.0	± 9.6 %
		Y	9.96	81.06	17.00		80.0	
		Z	33.22	94.62	21.52		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.86	31.82	3.23	80.0	± 9.6 %
		Y	100.00	120.95	30.64		80.0	
		Z	100.00	120.82	31.05		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	110.18	25.87	3.23	80.0	± 9.6 %
		Y	82.22	105.25	23.83		80.0	
		Z	100.00	109.24	25.61		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	107.27	24.47	3.23	80.0	± 9.6 %
		Y	9.84	80.95	16.97		80.0	
		Z	32.70	94.46	21.48		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	110.03	25.79	3.23	80.0	± 9.6 %
		Y	66.19	102.79	23.23		80.0	
		Z	100.00	109.11	25.54		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	107.22	24.45	3.23	80.0	± 9.6 %
		Y	9.68	80.75	16.90		80.0	
		Z	32.14	94.24	21.41		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	19.06	98.69	27.56	3.23	80.0	± 9.6 %
		Y	17.48	96.78	26.48		80.0	
		Z	12.38	91.03	25.23		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	19.47	93.39	24.37	3.23	80.0	± 9.6 %
		Y	16.19	90.11	22.82		80.0	
		Z	13.49	87.60	22.69		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	16.31	90.04	23.04	3.23	80.0	± 9.6 %
		Y	12.85	86.16	21.27		80.0	
		Z	11.99	85.24	21.64		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.88	83.55	21.62	2.23	80.0	± 9.6 %
		Y	5.63	78.46	19.33		80.0	
		Z	5.79	78.37	19.74		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	10.35	84.31	21.72	2.23	80.0	± 9.6 %
		Y	8.62	81.30	20.16		80.0	
		Z	8.63	81.26	20.79		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	9.40	82.69	21.19	2.23	80.0	± 9.6 %
		Y	7.82	79.73	19.63		80.0	
		Z	8.11	80.14	20.41		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.65	83.49	22.32	2.23	80.0	± 9.6 %
		Y	5.92	79.52	20.52		80.0	
		Z	6.00	78.96	20.56		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.45	75.29	19.04	2.23	80.0	± 9.6 %
		Y	4.69	73.13	17.78		80.0	
		Z	4.90	73.13	18.12		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.34	74.66	18.79	2.23	80.0	± 9.6 %
		Y	4.63	72.60	17.57		80.0	
		Z	4.87	72.70	17.95		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.80	80.27	21.67	2.23	80.0	± 9.6 %
		Y	5.68	77.52	20.38		80.0	
		Z	5.92	77.32	20.36		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.22	73.60	19.31	2.23	80.0	± 9.6 %
		Y	4.74	72.23	18.49		80.0	
		Z	4.95	72.22	18.59		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.25	73.15	19.15	2.23	80.0	± 9.6 %
		Y	4.79	71.90	18.38		80.0	
		Z	5.01	71.88	18.48		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.15	76.70	20.45	2.23	80.0	± 9.6 %
		Y	5.42	74.81	19.51		80.0	
		Z	5.68	74.81	19.51		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.32	72.07	18.92	2.23	80.0	± 9.6 %
		Y	4.93	71.02	18.28		80.0	
		Z	5.17	71.12	18.37		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.36	71.80	18.83	2.23	80.0	± 9.6 %
		Y	4.98	70.81	18.21		80.0	
		Z	5.22	70.91	18.31		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.04	78.97	21.11	2.23	80.0	± 9.6 %
		Y	6.06	76.67	20.03		80.0	
		Z	6.34	76.66	20.02		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.45	72.70	19.17	2.23	80.0	± 9.6 %
		Y	5.02	71.55	18.50		80.0	
		Z	5.27	71.70	18.59		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.44	72.17	19.00	2.23	80.0	± 9.6 %
		Y	5.06	71.13	18.38		80.0	
		Z	5.30	71.27	18.46		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.31	79.98	19.68	2.23	80.0	± 9.6 %
		Y	4.14	73.96	16.85		80.0	
		Z	4.73	75.49	18.07		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.04	71.02	15.41	2.23	80.0	± 9.6 %
		Y	2.86	66.62	12.92		80.0	
		Z	3.69	69.48	14.89		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.89	70.20	14.95	2.23	80.0	± 9.6 %
		Y	2.76	65.93	12.48		80.0	
		Z	3.63	68.95	14.55		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.92	81.34	21.80	2.23	80.0	± 9.6 %
		Y	5.62	78.13	20.28		80.0	
		Z	5.76	77.71	20.29		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.31	74.43	19.07	2.23	80.0	± 9.6 %
		Y	4.70	72.70	18.03		80.0	
		Z	4.91	72.63	18.25		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.32	74.08	18.88	2.23	80.0	± 9.6 %
		Y	4.73	72.42	17.87		80.0	
		Z	4.94	72.37	18.11		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.70	80.04	21.57	2.23	80.0	± 9.6 %
		Y	5.60	77.28	20.28		80.0	
		Z	5.85	77.13	20.28		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.20	73.52	19.26	2.23	80.0	± 9.6 %
		Y	4.71	72.13	18.43		80.0	
		Z	4.94	72.15	18.55		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.22	73.06	19.10	2.23	80.0	± 9.6 %
		Y	4.76	71.80	18.33		80.0	
		Z	4.99	71.80	18.44		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.98	78.81	21.04	2.23	80.0	± 9.6 %
		Y	6.00	76.50	19.96		80.0	
		Z	6.29	76.52	19.96		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.42	72.64	19.14	2.23	80.0	± 9.6 %
		Y	5.00	71.48	18.47		80.0	
		Z	5.25	71.64	18.56		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.43	72.11	18.96	2.23	80.0	± 9.6 %
		Y	5.04	71.06	18.33		80.0	
		Z	5.29	71.21	18.42		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.59	75.82	19.92	2.23	80.0	± 9.6 %
		Y	5.92	74.23	19.13		80.0	
		Z	6.19	74.33	19.14		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.78	71.79	18.85	2.23	80.0	± 9.6 %
		Y	5.41	70.84	18.30		80.0	
		Z	5.67	71.07	18.39		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.77	71.37	18.73	2.23	80.0	± 9.6 %
		Y	5.43	70.49	18.21		80.0	
		Z	5.68	70.71	18.30		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.41	78.38	20.72	2.23	80.0	± 9.6 %
		Y	6.46	76.27	19.74		80.0	
		Z	6.76	76.38	19.76		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.76	72.39	19.08	2.23	80.0	± 9.6 %
		Y	5.35	71.31	18.47		80.0	
		Z	5.62	71.59	18.57		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.67	71.73	18.87	2.23	80.0	± 9.6 %
		Y	5.31	70.75	18.31		80.0	
		Z	5.56	71.01	18.41		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.00	64.33	15.70	0.00	150.0	± 9.6 %
		Y	0.92	62.97	14.40		150.0	
		Z	0.96	63.35	14.76		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.25	85.06	24.06	0.00	150.0	± 9.6 %
		Y	0.55	69.91	16.29		150.0	
		Z	0.66	72.54	17.95		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.90	67.58	17.08	0.00	150.0	± 9.6 %
		Y	0.77	64.81	14.88		150.0	
		Z	0.82	65.55	15.48		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.67	67.09	16.46	0.00	150.0	± 9.6 %
		Y	4.56	66.77	16.16		150.0	
		Z	4.66	66.85	16.24		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.88	67.37	16.60	0.00	150.0	± 9.6 %
		Y	4.76	67.04	16.30		150.0	
		Z	4.88	67.15	16.39		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.73	67.36	16.53	0.00	150.0	± 9.6 %
		Y	4.61	67.00	16.22		150.0	
		Z	4.73	67.13	16.31		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.66	67.37	16.52	0.00	150.0	± 9.6 %
		Y	4.54	67.00	16.20		150.0	
		Z	4.66	67.14	16.29		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.71	67.36	16.56	0.00	150.0	± 9.6 %
		Y	4.60	67.04	16.27		150.0	
		Z	4.70	67.10	16.32		150.0	

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.58	67.25	16.42	0.00	150.0	± 9.6 %
		Y	4.47	66.91	16.11		150.0	
		Z	4.57	67.00	16.18		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.66	67.32	16.55	0.00	150.0	± 9.6 %
		Y	4.55	66.98	16.24		150.0	
		Z	4.66	67.06	16.31		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.62	66.34	16.13	0.00	150.0	± 9.6 %
		Y	4.52	66.00	15.83		150.0	
		Z	4.61	66.08	15.89		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.82	66.75	16.28	0.00	150.0	± 9.6 %
		Y	4.70	66.39	15.97		150.0	
		Z	4.81	66.49	16.04		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.74	66.72	16.23	0.00	150.0	± 9.6 %
		Y	4.62	66.35	15.92		150.0	
		Z	4.73	66.47	16.00		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.76	66.74	16.26	0.00	150.0	± 9.6 %
		Y	4.64	66.37	15.95		150.0	
		Z	4.75	66.49	16.03		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.76	66.74	16.26	0.00	150.0	± 9.6 %
		Y	4.64	66.37	15.95		150.0	
		Z	4.75	66.49	16.03		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.77	66.89	16.29	0.00	150.0	± 9.6 %
		Y	4.64	66.50	15.97		150.0	
		Z	4.76	66.64	16.06		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.62	66.76	16.24	0.00	150.0	± 9.6 %
		Y	4.49	66.35	15.90		150.0	
		Z	4.61	66.51	16.00		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.77	66.77	16.24	0.00	150.0	± 9.6 %
		Y	4.65	66.41	15.93		150.0	
		Z	4.76	66.51	16.01		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.27	66.85	16.29	0.00	150.0	± 9.6 %
		Y	5.17	66.53	16.03		150.0	
		Z	5.26	66.66	16.09		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.34	67.00	16.35	0.00	150.0	± 9.6 %
		Y	5.24	66.69	16.10		150.0	
		Z	5.33	66.80	16.14		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.21	66.99	16.33	0.00	150.0	± 9.6 %
		Y	5.10	66.65	16.06		150.0	
		Z	5.20	66.79	16.12		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.28	66.96	16.32	0.00	150.0	± 9.6 %
		Y	5.16	66.63	16.05		150.0	
		Z	5.27	66.77	16.11		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.39	67.03	16.39	0.00	150.0	± 9.6 %
		Y	5.27	66.68	16.12		150.0	
		Z	5.38	66.84	16.19		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.29	66.98	16.38	0.00	150.0	± 9.6 %
		Y	5.18	66.66	16.12		150.0	
		Z	5.28	66.78	16.18		150.0	

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.27	66.87	16.32	0.00	150.0	± 9.6 %
		Y	5.16	66.53	16.05		150.0	
		Z	5.26	66.70	16.13		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.42	66.92	16.36	0.00	150.0	± 9.6 %
		Y	5.32	66.61	16.11		150.0	
		Z	5.41	66.73	16.16		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.50	66.93	16.38	0.00	150.0	± 9.6 %
		Y	5.40	66.65	16.14		150.0	
		Z	5.50	66.75	16.19		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.56	66.94	16.26	0.00	150.0	± 9.6 %
		Y	5.46	66.64	16.02		150.0	
		Z	5.54	66.77	16.07		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.77	67.38	16.42	0.00	150.0	± 9.6 %
		Y	5.68	67.09	16.19		150.0	
		Z	5.75	67.17	16.22		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.65	67.23	16.37	0.00	150.0	± 9.6 %
		Y	5.55	66.90	16.11		150.0	
		Z	5.64	67.06	16.18		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.74	67.31	16.40	0.00	150.0	± 9.6 %
		Y	5.64	66.98	16.14		150.0	
		Z	5.73	67.13	16.20		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.08	68.50	16.96	0.00	150.0	± 9.6 %
		Y	5.97	68.15	16.69		150.0	
		Z	6.05	68.25	16.74		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.67	67.18	16.35	0.00	150.0	± 9.6 %
		Y	5.57	66.87	16.11		150.0	
		Z	5.66	67.00	16.16		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.69	67.26	16.35	0.00	150.0	± 9.6 %
		Y	5.57	66.92	16.09		150.0	
		Z	5.68	67.11	16.17		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.58	67.02	16.25	0.00	150.0	± 9.6 %
		Y	5.48	66.70	15.99		150.0	
		Z	5.57	66.86	16.07		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.68	67.07	16.30	0.00	150.0	± 9.6 %
		Y	5.57	66.76	16.05		150.0	
		Z	5.67	66.91	16.12		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.96	67.32	16.35	0.00	150.0	± 9.6 %
		Y	5.87	67.02	16.12		150.0	
		Z	5.94	67.15	16.17		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.11	67.66	16.49	0.00	150.0	± 9.6 %
		Y	6.01	67.35	16.26		150.0	
		Z	6.09	67.50	16.32		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.12	67.68	16.50	0.00	150.0	± 9.6 %
		Y	6.03	67.38	16.27		150.0	
		Z	6.10	67.50	16.31		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.11	67.63	16.50	0.00	150.0	± 9.6 %
		Y	6.00	67.31	16.25		150.0	
		Z	6.09	67.48	16.33		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.17	67.83	16.61	0.00	150.0	± 9.6 %
		Y	6.06	67.49	16.36		150.0	
		Z	6.15	67.68	16.44		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.15	67.64	16.56	0.00	150.0	± 9.6 %
		Y	6.05	67.32	16.31		150.0	
		Z	6.14	67.50	16.39		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.07	67.61	16.58	0.00	150.0	± 9.6 %
		Y	5.97	67.29	16.33		150.0	
		Z	6.05	67.46	16.41		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.24	68.12	16.84	0.00	150.0	± 9.6 %
		Y	6.12	67.76	16.57		150.0	
		Z	6.22	67.97	16.66		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.59	68.70	17.07	0.00	150.0	± 9.6 %
		Y	6.50	68.45	16.86		150.0	
		Z	6.52	68.39	16.82		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	5.01	67.21	16.65	0.46	150.0	± 9.6 %
		Y	4.90	66.90	16.36		150.0	
		Z	5.00	67.01	16.45		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.26	67.68	16.95	0.46	150.0	± 9.6 %
		Y	5.15	67.37	16.68		150.0	
		Z	5.27	67.49	16.76		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.10	67.56	16.80	0.46	150.0	± 9.6 %
		Y	4.98	67.23	16.50		150.0	
		Z	5.10	67.37	16.60		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.12	67.92	17.12	0.46	150.0	± 9.6 %
		Y	5.00	67.60	16.84		150.0	
		Z	5.12	67.71	16.91		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.01	67.34	16.58	0.46	150.0	± 9.6 %
		Y	4.90	67.01	16.28		150.0	
		Z	5.01	67.12	16.37		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.06	67.94	17.14	0.46	150.0	± 9.6 %
		Y	4.95	67.66	16.89		150.0	
		Z	5.06	67.72	16.92		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.11	67.80	17.09	0.46	150.0	± 9.6 %
		Y	4.99	67.52	16.83		150.0	
		Z	5.10	67.57	16.87		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.42	67.47	17.33	0.46	130.0	± 9.6 %
		Y	1.29	65.81	16.00		130.0	
		Z	1.36	66.32	16.37		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.45	68.27	17.77	0.46	130.0	± 9.6 %
		Y	1.31	66.47	16.37		130.0	
		Z	1.39	66.98	16.74		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	147.00	39.19	0.46	130.0	± 9.6 %
		Y	4.99	95.51	25.16		130.0	
		Z	7.12	101.14	27.21		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.99	77.81	22.04	0.46	130.0	± 9.6 %
		Y	1.59	73.42	19.55		130.0	
		Z	1.69	74.01	19.92		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.83	67.10	16.76	0.46	130.0	± 9.6 %
		Y	4.72	66.80	16.47		130.0	
		Z	4.83	66.89	16.55		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.85	67.25	16.81	0.46	130.0	± 9.6 %
		Y	4.75	66.95	16.53		130.0	
		Z	4.85	67.04	16.60		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.08	67.57	16.98	0.46	130.0	± 9.6 %
		Y	4.96	67.26	16.71		130.0	
		Z	5.09	67.37	16.79		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.98	67.73	17.08	0.46	130.0	± 9.6 %
		Y	4.86	67.43	16.80		130.0	
		Z	4.98	67.53	16.87		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.76	67.16	16.49	0.46	130.0	± 9.6 %
		Y	4.64	66.77	16.15		130.0	
		Z	4.77	66.97	16.29		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.81	67.14	16.49	0.46	130.0	± 9.6 %
		Y	4.68	66.77	16.16		130.0	
		Z	4.81	66.93	16.28		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.88	67.83	17.04	0.46	130.0	± 9.6 %
		Y	4.76	67.49	16.75		130.0	
		Z	4.89	67.61	16.83		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.72	66.93	16.30	0.46	130.0	± 9.6 %
		Y	4.58	66.53	15.94		130.0	
		Z	4.73	66.74	16.10		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.83	67.10	16.76	0.46	130.0	± 9.6 %
		Y	4.72	66.80	16.47		130.0	
		Z	4.83	66.89	16.55		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.85	67.25	16.81	0.46	130.0	± 9.6 %
		Y	4.75	66.95	16.53		130.0	
		Z	4.85	67.04	16.60		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.08	67.57	16.98	0.46	130.0	± 9.6 %
		Y	4.96	67.26	16.71		130.0	
		Z	5.09	67.37	16.79		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.98	67.73	17.08	0.46	130.0	± 9.6 %
		Y	4.86	67.43	16.80		130.0	
		Z	4.98	67.53	16.87		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.76	67.16	16.49	0.46	130.0	± 9.6 %
		Y	4.64	66.77	16.15		130.0	
		Z	4.77	66.97	16.29		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.81	67.14	16.49	0.46	130.0	± 9.6 %
		Y	4.68	66.77	16.16		130.0	
		Z	4.81	66.93	16.28		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.88	67.83	17.04	0.46	130.0	± 9.6 %
		Y	4.76	67.49	16.75		130.0	
		Z	4.89	67.61	16.83		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.72	66.93	16.30	0.46	130.0	± 9.6 %
		Y	4.58	66.53	15.94		130.0	
		Z	4.73	66.74	16.10		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.97	67.13	16.83	0.46	130.0	± 9.6 %
		Y	4.87	66.85	16.56		130.0	
		Z	4.97	66.94	16.64		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.15	67.48	16.96	0.46	130.0	± 9.6 %
		Y	5.03	67.19	16.69		130.0	
		Z	5.15	67.28	16.76		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.08	67.44	16.87	0.46	130.0	± 9.6 %
		Y	4.96	67.12	16.59		130.0	
		Z	5.08	67.25	16.68		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.13	67.57	17.00	0.46	130.0	± 9.6 %
		Y	5.01	67.28	16.73		130.0	
		Z	5.13	67.38	16.80		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.10	67.55	16.91	0.46	130.0	± 9.6 %
		Y	4.98	67.24	16.63		130.0	
		Z	5.11	67.36	16.72		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.04	67.57	16.93	0.46	130.0	± 9.6 %
		Y	4.92	67.24	16.64		130.0	
		Z	5.05	67.36	16.72		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.99	67.50	16.83	0.46	130.0	± 9.6 %
		Y	4.87	67.16	16.53		130.0	
		Z	5.00	67.31	16.63		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.97	67.73	17.08	0.46	130.0	± 9.6 %
		Y	4.85	67.40	16.79		130.0	
		Z	4.98	67.54	16.88		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.64	67.71	17.02	0.46	130.0	± 9.6 %
		Y	5.54	67.42	16.77		130.0	
		Z	5.64	67.54	16.83		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.84	68.32	17.30	0.46	130.0	± 9.6 %
		Y	5.74	68.02	17.05		130.0	
		Z	5.86	68.21	17.15		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.70	67.95	17.13	0.46	130.0	± 9.6 %
		Y	5.59	67.66	16.88		130.0	
		Z	5.70	67.81	16.95		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.78	67.96	17.05	0.46	130.0	± 9.6 %
		Y	5.68	67.66	16.80		130.0	
		Z	5.80	67.83	16.89		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.86	68.23	17.31	0.46	130.0	± 9.6 %
		Y	5.76	67.95	17.07		130.0	
		Z	5.90	68.18	17.18		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.64	67.67	17.02	0.46	130.0	± 9.6 %
		Y	5.54	67.38	16.78		130.0	
		Z	5.65	67.52	16.85		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.76	68.00	17.19	0.46	130.0	± 9.6 %
		Y	5.67	67.75	16.97		130.0	
		Z	5.76	67.83	17.01		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.53	67.46	16.79	0.46	130.0	± 9.6 %
		Y	5.42	67.14	16.52		130.0	
		Z	5.54	67.34	16.63		130.0	

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.81	66.43	16.45	0.46	130.0	± 9.6 %
		Y	4.70	66.13	16.17		130.0	
		Z	4.80	66.21	16.23		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.02	66.87	16.61	0.46	130.0	± 9.6 %
		Y	4.90	66.55	16.33		130.0	
		Z	5.02	66.64	16.39		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.91	66.76	16.48	0.46	130.0	± 9.6 %
		Y	4.79	66.41	16.18		130.0	
		Z	4.91	66.53	16.26		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.96	66.90	16.63	0.46	130.0	± 9.6 %
		Y	4.84	66.57	16.34		130.0	
		Z	4.96	66.68	16.41		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.88	66.74	16.50	0.46	130.0	± 9.6 %
		Y	4.76	66.39	16.20		130.0	
		Z	4.89	66.53	16.29		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.90	66.91	16.55	0.46	130.0	± 9.6 %
		Y	4.77	66.55	16.24		130.0	
		Z	4.90	66.68	16.33		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.92	66.84	16.46	0.46	130.0	± 9.6 %
		Y	4.78	66.46	16.14		130.0	
		Z	4.92	66.62	16.24		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.84	66.99	16.66	0.46	130.0	± 9.6 %
		Y	4.72	66.63	16.36		130.0	
		Z	4.84	66.77	16.44		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.89	66.58	16.29	0.46	130.0	± 9.6 %
		Y	4.76	66.22	15.98		130.0	
		Z	4.89	66.36	16.08		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.46	66.96	16.62	0.46	130.0	± 9.6 %
		Y	5.35	66.66	16.37		130.0	
		Z	5.45	66.78	16.43		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.51	67.06	16.64	0.46	130.0	± 9.6 %
		Y	5.42	66.80	16.41		130.0	
		Z	5.51	66.89	16.45		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.41	67.14	16.70	0.46	130.0	± 9.6 %
		Y	5.31	66.84	16.45		130.0	
		Z	5.41	66.96	16.50		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.44	66.98	16.56	0.46	130.0	± 9.6 %
		Y	5.34	66.68	16.31		130.0	
		Z	5.43	66.79	16.36		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.55	67.07	16.65	0.46	130.0	± 9.6 %
		Y	5.44	66.75	16.39		130.0	
		Z	5.55	66.91	16.47		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.52	67.10	16.77	0.46	130.0	± 9.6 %
		Y	5.41	66.81	16.54		130.0	
		Z	5.52	66.94	16.59		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.52	67.23	16.83	0.46	130.0	± 9.6 %
		Y	5.43	66.97	16.61		130.0	
		Z	5.52	67.05	16.64		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.41	66.83	16.52	0.46	130.0	± 9.6 %
		Y	5.30	66.50	16.26		130.0	
		Z	5.42	66.69	16.35		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.60	67.00	16.67	0.46	130.0	± 9.6 %
		Y	5.50	66.72	16.43		130.0	
		Z	5.60	66.82	16.48		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.04	68.15	17.29	0.46	130.0	± 9.6 %
		Y	5.94	67.90	17.06		130.0	
		Z	6.00	67.86	17.04		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.71	66.97	16.54	0.46	130.0	± 9.6 %
		Y	5.63	66.69	16.31		130.0	
		Z	5.70	66.81	16.36		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.98	67.56	16.79	0.46	130.0	± 9.6 %
		Y	5.90	67.32	16.58		130.0	
		Z	5.96	67.36	16.59		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.79	67.17	16.54	0.46	130.0	± 9.6 %
		Y	5.68	66.85	16.29		130.0	
		Z	5.78	67.02	16.36		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.87	67.22	16.56	0.46	130.0	± 9.6 %
		Y	5.77	66.92	16.32		130.0	
		Z	5.87	67.09	16.39		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.48	69.22	17.56	0.46	130.0	± 9.6 %
		Y	6.36	68.86	17.28		130.0	
		Z	6.45	68.98	17.34		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.29	68.75	17.49	0.46	130.0	± 9.6 %
		Y	6.17	68.38	17.23		130.0	
		Z	6.29	68.57	17.31		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.94	67.58	16.93	0.46	130.0	± 9.6 %
		Y	5.85	67.33	16.73		130.0	
		Z	5.93	67.41	16.74		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.87	67.37	16.67	0.46	130.0	± 9.6 %
		Y	5.75	67.00	16.39		130.0	
		Z	5.88	67.29	16.52		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.84	67.34	16.70	0.46	130.0	± 9.6 %
		Y	5.73	67.01	16.46		130.0	
		Z	5.85	67.24	16.55		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.74	66.76	16.17	0.46	130.0	± 9.6 %
		Y	5.62	66.39	15.89		130.0	
		Z	5.74	66.64	16.02		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.13	67.36	16.63	0.46	130.0	± 9.6 %
		Y	6.05	67.09	16.42		130.0	
		Z	6.11	67.20	16.46		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.30	67.76	16.81	0.46	130.0	± 9.6 %
		Y	6.21	67.50	16.60		130.0	
		Z	6.29	67.62	16.64		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.30	67.73	16.78	0.46	130.0	± 9.6 %
		Y	6.21	67.47	16.56		130.0	
		Z	6.28	67.57	16.60		130.0	

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.29	67.73	16.82	0.46	130.0	± 9.6 %
		Y	6.20	67.43	16.59		130.0	
		Z	6.29	67.60	16.66		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.33	67.84	16.82	0.46	130.0	± 9.6 %
		Y	6.22	67.49	16.57		130.0	
		Z	6.32	67.71	16.67		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.32	67.56	16.70	0.46	130.0	± 9.6 %
		Y	6.23	67.29	16.48		130.0	
		Z	6.31	67.42	16.54		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.38	67.85	17.00	0.46	130.0	± 9.6 %
		Y	6.28	67.57	16.79		130.0	
		Z	6.37	67.73	16.85		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.22	67.58	16.78	0.46	130.0	± 9.6 %
		Y	6.12	67.27	16.54		130.0	
		Z	6.21	67.45	16.62		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.45	68.30	17.16	0.46	130.0	± 9.6 %
		Y	6.33	67.92	16.89		130.0	
		Z	6.45	68.18	17.01		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.85	69.01	17.46	0.46	130.0	± 9.6 %
		Y	6.84	68.95	17.35		130.0	
		Z	6.76	68.63	17.18		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	40.26	119.11	39.27	9.30	60.0	± 9.6 %
		Y	36.93	117.62	38.61		60.0	
		Z	28.78	110.02	36.33		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	43.42	121.73	40.16	9.30	60.0	± 9.6 %
		Y	37.87	119.05	39.16		60.0	
		Z	30.35	112.02	37.07		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.89	66.81	13.23	0.00	150.0	± 9.6 %
		Y	0.67	63.28	10.48		150.0	
		Z	0.78	64.48	11.81		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	4.61	69.53	17.90	2.23	80.0	± 9.6 %
		Y	4.34	68.71	17.31		80.0	
		Z	4.53	68.80	17.47		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	5.03	68.53	17.83	2.23	80.0	± 9.6 %
		Y	4.81	67.89	17.37		80.0	
		Z	4.99	68.09	17.51		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.95	68.16	17.81	2.23	80.0	± 9.6 %
		Y	4.75	67.54	17.37		80.0	
		Z	4.92	67.77	17.50		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	5.01	68.19	17.85	2.23	80.0	± 9.6 %
		Y	4.81	67.55	17.41		80.0	
		Z	4.97	67.82	17.55		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	13.53	87.28	23.74	10.00	50.0	± 9.6 %
		Y	14.55	88.29	23.48		50.0	
		Z	11.52	84.09	22.80		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	60.38	110.77	29.03	6.99	60.0	± 9.6 %
		Y	78.03	112.57	28.65		60.0	
		Z	23.63	96.55	25.31		60.0	

10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	116.42	28.34	3.98	80.0	± 9.6 %
		Y	100.00	113.13	26.55		80.0	
		Z	100.00	115.93	28.24		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	118.32	27.69	2.22	100.0	± 9.6 %
		Y	100.00	112.54	24.86		100.0	
		Z	100.00	116.38	26.92		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	100.00	126.39	29.06	0.97	120.0	± 9.6 %
		Y	100.00	111.25	22.47		120.0	
		Z	100.00	119.29	26.16		120.0	

[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
Schmid & Partner
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S Schweizerischer Kalibrierdienst
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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: EX3-7416_Jul18

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:7416

SC ✓ 8/2/2018

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

Calibration date: July 20, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

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

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	M.Weber
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 21, 2018

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

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:7416

Manufactured: March 10, 2016
Calibrated: July 20, 2018

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7416

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.59	0.52	0.53	± 10.1 %
DCP (mV)[B]	97.2	93.5	96.5	

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	149.4	±3.3 %
		Y	0.0	0.0	1.0		140.2	
		Z	0.0	0.0	1.0		147.9	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	29.94	230.8	37.81	8.573	0.020	5.100	0.000	0.329	1.005
Y	35.08	270.5	37.53	5.275	0.109	5.067	0.000	0.317	1.010
Z	37.25	278.1	35.59	8.445	0.000	5.071	1.581	0.146	1.007

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:7416

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	9.95	9.95	9.95	0.38	1.03	± 12.0 %
835	41.5	0.90	9.45	9.45	9.45	0.35	0.96	± 12.0 %
1750	40.1	1.37	8.37	8.37	8.37	0.40	0.84	± 12.0 %
1900	40.0	1.40	8.04	8.04	8.04	0.42	0.90	± 12.0 %
2300	39.5	1.67	7.70	7.70	7.70	0.41	0.84	± 12.0 %
2450	39.2	1.80	7.25	7.25	7.25	0.45	0.81	± 12.0 %
2600	39.0	1.96	7.04	7.04	7.04	0.43	0.84	± 12.0 %
5250	35.9	4.71	5.21	5.21	5.21	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.75	4.75	4.75	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.98	4.98	4.98	0.40	1.80	± 13.1 %

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

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7416

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.60	9.60	9.60	0.47	0.80	± 12.0 %
835	55.2	0.97	9.40	9.40	9.40	0.46	0.85	± 12.0 %
1750	53.4	1.49	7.99	7.99	7.99	0.41	0.85	± 12.0 %
1900	53.3	1.52	7.69	7.69	7.69	0.40	0.84	± 12.0 %
2300	52.9	1.81	7.49	7.49	7.49	0.39	0.84	± 12.0 %
2450	52.7	1.95	7.31	7.31	7.31	0.32	0.96	± 12.0 %
2600	52.5	2.16	7.23	7.23	7.23	0.32	0.97	± 12.0 %
5250	48.9	5.36	4.61	4.61	4.61	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.02	4.02	4.02	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.21	4.21	4.21	0.50	1.90	± 13.1 %

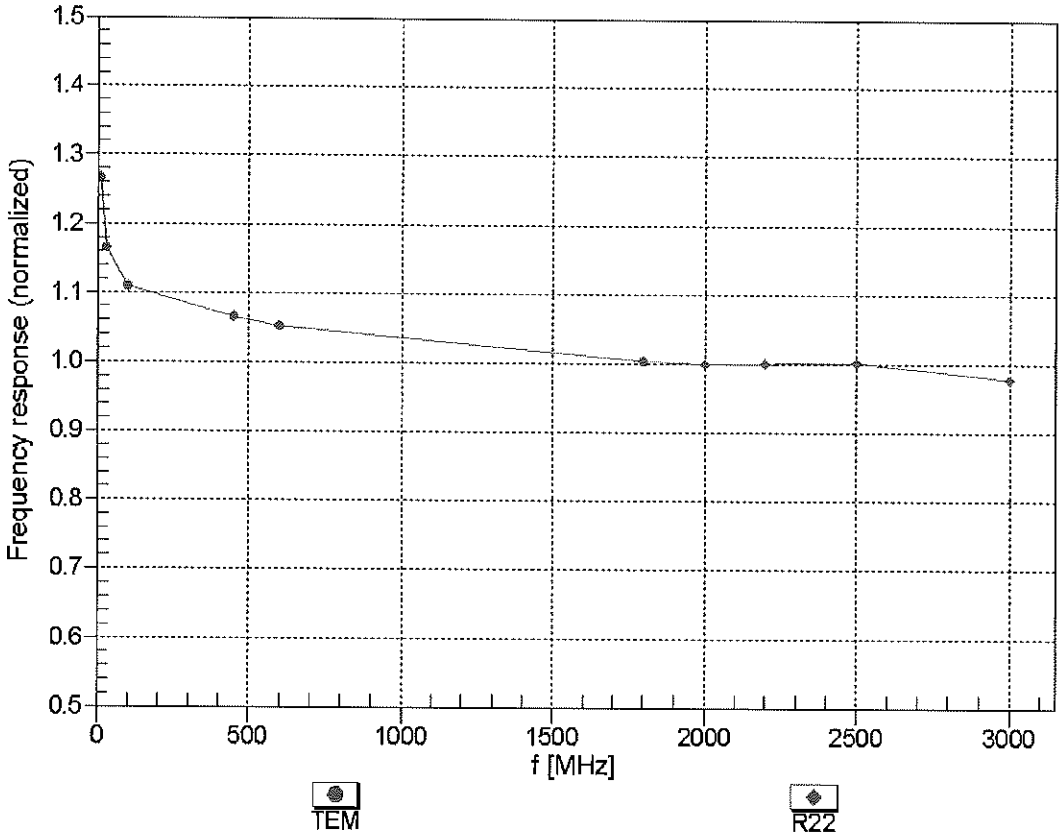
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field

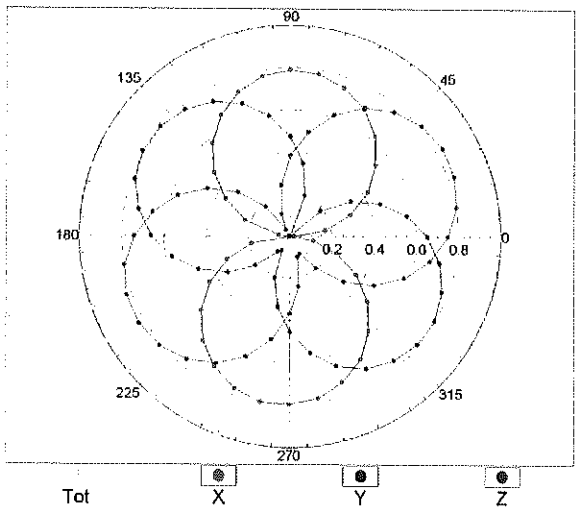
(TEM-Cell:ifi110 EXX, Waveguide: R22)



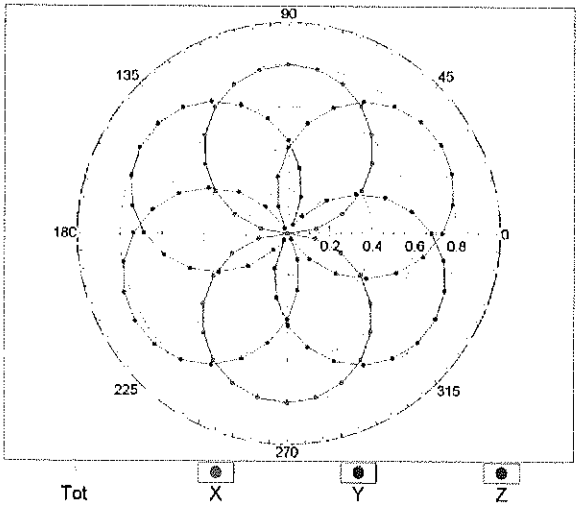
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

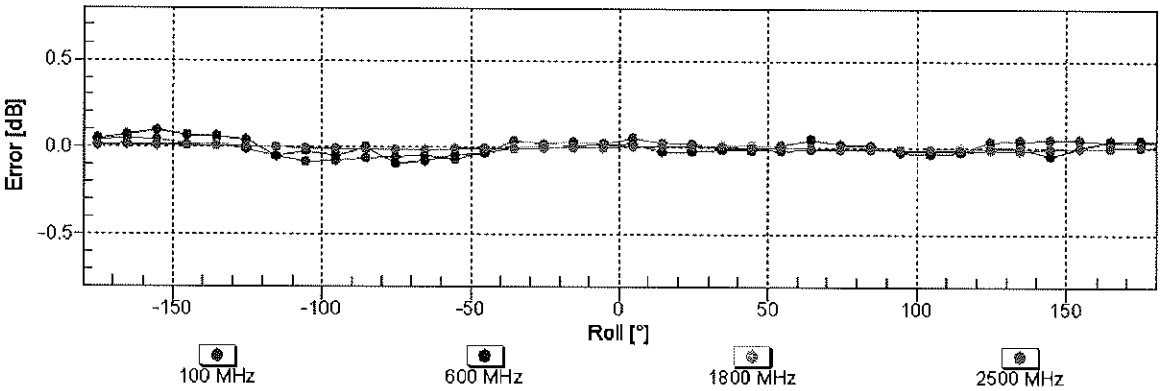
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

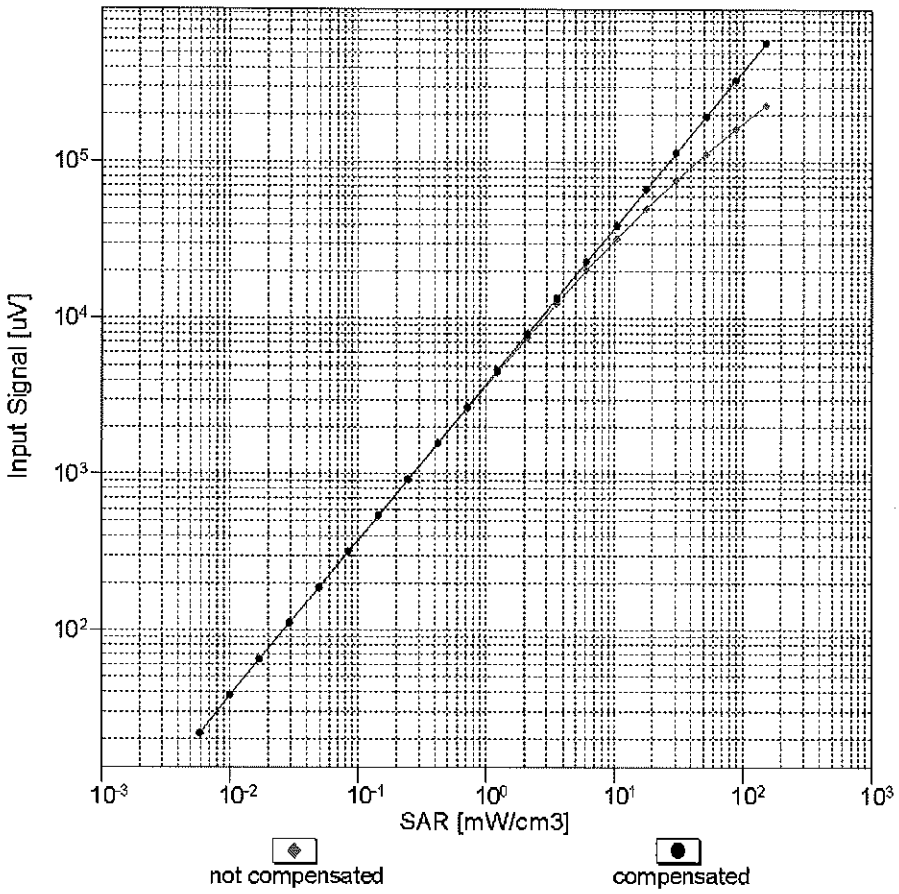


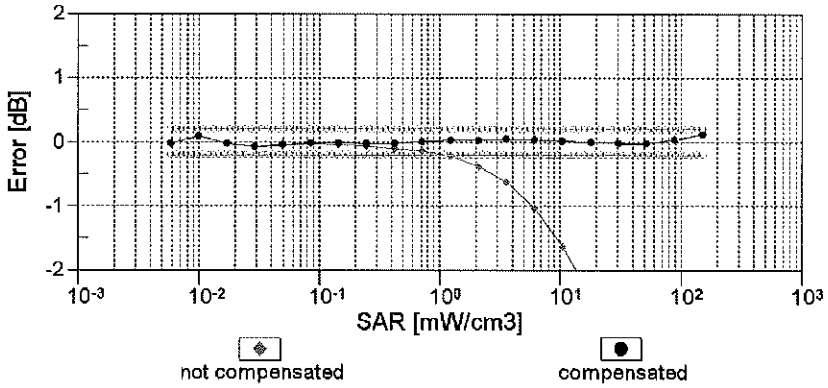


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

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

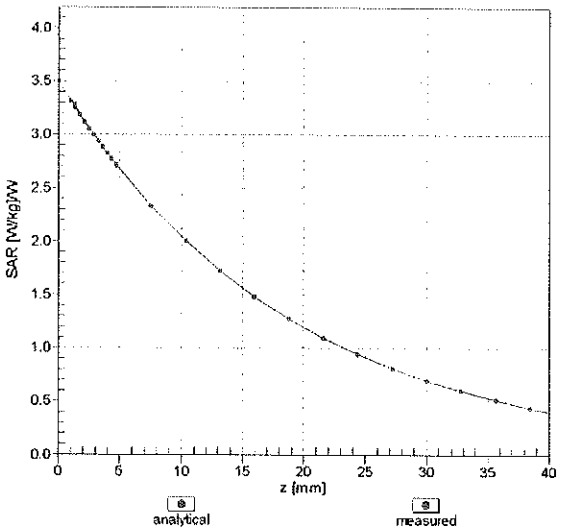




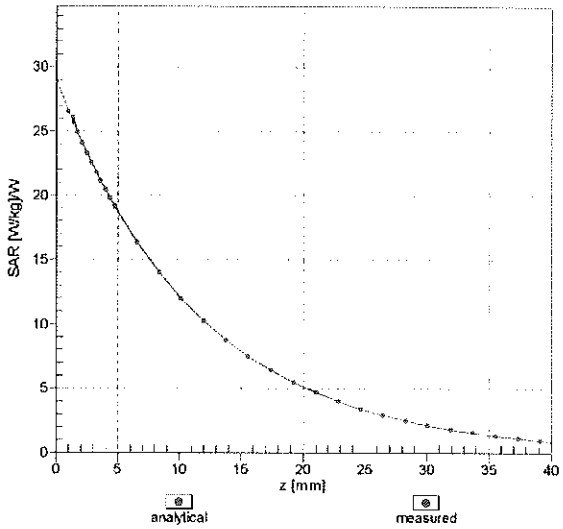
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

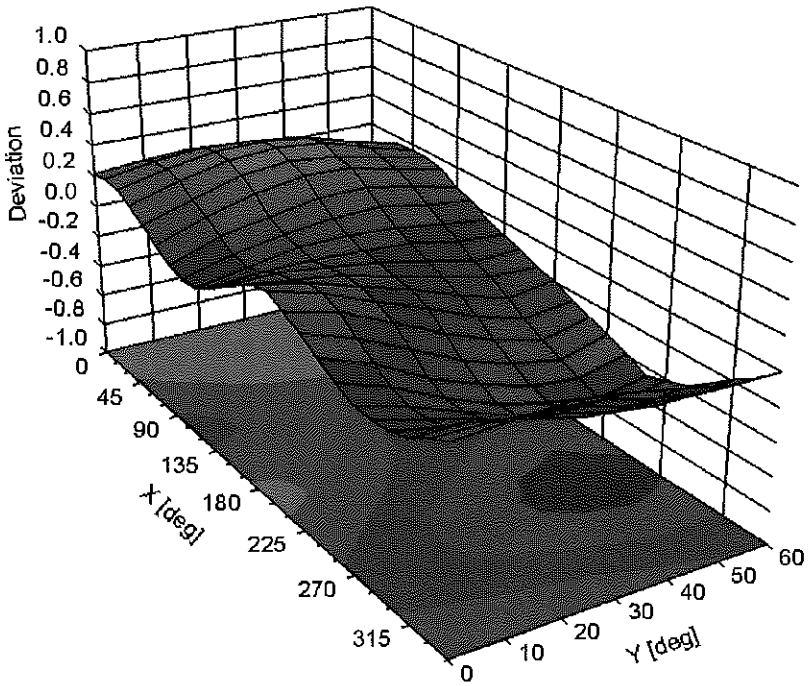


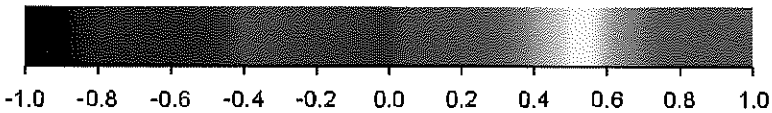
f = 1900 MHz,WGLS R22 (H_convF)



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:7416

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-25.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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	149.4	± 3.3 %
		Y	0.00	0.00	1.00		140.2	
		Z	0.00	0.00	1.00		147.9	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	1.77	64.87	9.11	10.00	20.0	± 9.6 %
		Y	1.63	63.41	8.37		20.0	
		Z	1.76	64.55	8.94		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.21	72.37	17.53	0.00	150.0	± 9.6 %
		Y	0.82	64.46	12.98		150.0	
		Z	0.96	66.91	14.78		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.14	65.01	16.27	0.41	150.0	± 9.6 %
		Y	1.05	62.41	14.04		150.0	
		Z	1.12	63.56	15.01		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.63	67.24	17.52	1.46	150.0	± 9.6 %
		Y	4.63	66.45	16.87		150.0	
		Z	4.71	66.75	17.07		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	100.00	114.11	26.55	9.39	50.0	± 9.6 %
		Y	100.00	109.62	24.58		50.0	
		Z	100.00	111.08	25.19		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	112.70	25.96	9.57	50.0	± 9.6 %
		Y	100.00	108.79	24.27		50.0	
		Z	100.00	110.19	24.84		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	120.02	28.01	6.56	60.0	± 9.6 %
		Y	100.00	111.41	24.12		60.0	
		Z	100.00	114.41	25.59		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	8.40	100.18	43.08	12.57	50.0	± 9.6 %
		Y	3.56	67.47	25.23		50.0	
		Z	6.34	88.37	36.90		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	6.98	91.66	34.92	9.56	60.0	± 9.6 %
		Y	5.10	80.82	29.16		60.0	
		Z	6.93	89.58	33.16		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	130.74	31.67	4.80	80.0	± 9.6 %
		Y	100.00	114.42	24.52		80.0	
		Z	100.00	119.79	27.11		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	148.32	37.98	3.55	100.0	± 9.6 %
		Y	100.00	117.49	25.01		100.0	
		Z	100.00	127.11	29.41		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	4.35	78.88	28.05	7.80	80.0	± 9.6 %
		Y	3.59	72.82	24.31		80.0	
		Z	4.33	77.60	26.71		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	119.14	27.08	5.30	70.0	± 9.6 %
		Y	100.00	109.23	22.63		70.0	
		Z	100.00	113.47	24.71		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	161.91	40.82	1.88	100.0	± 9.6 %
		Y	100.00	96.93	15.49		100.0	
		Z	100.00	123.29	26.32		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	280.92	82.03	1.17	100.0	± 9.6 %
		Y	0.12	60.00	4.04		100.0	
		Z	100.00	135.50	29.96		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	100.00	128.03	33.18	5.30	70.0	± 9.6 %
		Y	7.89	90.52	23.51		70.0	
		Z	61.16	122.77	32.75		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	100.00	117.76	27.00	1.88	100.0	± 9.6 %
		Y	1.49	69.12	13.56		100.0	
		Z	3.50	80.40	18.67		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	6.88	86.78	18.70	1.17	100.0	± 9.6 %
		Y	1.08	66.04	11.73		100.0	
		Z	1.93	73.40	15.69		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	100.00	128.79	33.51	5.30	70.0	± 9.6 %
		Y	12.46	97.66	25.74		70.0	
		Z	100.00	130.93	34.74		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	62.76	112.55	25.87	1.88	100.0	± 9.6 %
		Y	1.37	68.27	13.18		100.0	
		Z	2.98	78.43	17.97		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	8.30	89.45	19.68	1.17	100.0	± 9.6 %
		Y	1.08	66.20	11.94		100.0	
		Z	1.95	73.76	15.98		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	0.88	65.39	10.07	0.00	150.0	± 9.6 %
		Y	0.87	63.82	9.91		150.0	
		Z	1.31	68.61	13.02		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	110.34	24.10	7.78	50.0	± 9.6 %
		Y	100.00	105.89	22.09		50.0	
		Z	100.00	108.02	23.10		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.01	123.11	1.52	0.00	150.0	± 9.6 %
		Y	0.01	119.53	3.43		150.0	
		Z	0.00	101.85	5.28		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	100.00	106.52	24.67	13.80	25.0	± 9.6 %
		Y	32.57	91.78	20.89		25.0	
		Z	100.00	105.11	24.06		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	1149.99	136.06	30.09	10.79	40.0	± 9.6 %
		Y	85.21	104.98	23.36		40.0	
		Z	420.34	123.09	27.26		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	100.00	123.43	32.32	9.03	50.0	± 9.6 %
		Y	100.00	121.65	31.62		50.0	
		Z	100.00	123.95	32.75		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	3.53	74.19	24.94	6.55	100.0	± 9.6 %
		Y	3.03	69.69	21.96		100.0	
		Z	3.51	73.08	23.72		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.18	66.36	17.11	0.61	110.0	± 9.6 %
		Y	1.05	63.01	14.46		110.0	
		Z	1.13	64.45	15.58		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	153.23	41.70	1.30	110.0	± 9.6 %
		Y	1.65	79.63	20.25		110.0	
		Z	14.24	114.10	31.29		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	4.44	94.01	28.61	2.04	110.0	± 9.6 %
		Y	1.48	71.54	18.86		110.0	
		Z	2.17	78.36	22.10		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.41	67.11	16.83	0.49	100.0	± 9.6 %
		Y	4.42	66.37	16.23		100.0	
		Z	4.51	66.70	16.45		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.44	67.26	16.97	0.72	100.0	± 9.6 %
		Y	4.44	66.46	16.33		100.0	
		Z	4.52	66.80	16.56		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.66	67.43	17.15	0.86	100.0	± 9.6 %
		Y	4.68	66.69	16.56		100.0	
		Z	4.77	67.02	16.77		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.54	67.28	17.27	1.21	100.0	± 9.6 %
		Y	4.55	66.53	16.64		100.0	
		Z	4.64	66.88	16.86		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.54	67.27	17.43	1.46	100.0	± 9.6 %
		Y	4.56	66.53	16.81		100.0	
		Z	4.65	66.89	17.03		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	4.83	67.58	17.95	2.04	100.0	± 9.6 %
		Y	4.85	66.84	17.32		100.0	
		Z	4.94	67.15	17.53		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	4.87	67.55	18.17	2.55	100.0	± 9.6 %
		Y	4.87	66.73	17.49		100.0	
		Z	4.96	67.06	17.70		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	4.92	67.54	18.34	2.67	100.0	± 9.6 %
		Y	4.94	66.78	17.69		100.0	
		Z	5.03	67.10	17.91		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.73	67.33	17.85	1.99	100.0	± 9.6 %
		Y	4.72	66.52	17.18		100.0	
		Z	4.80	66.81	17.37		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.68	67.58	18.08	2.30	100.0	± 9.6 %
		Y	4.66	66.72	17.36		100.0	
		Z	4.75	67.06	17.58		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.75	67.85	18.49	2.83	100.0	± 9.6 %
		Y	4.71	66.88	17.70		100.0	
		Z	4.80	67.22	17.92		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.77	67.84	18.69	3.30	100.0	± 9.6 %
		Y	4.71	66.81	17.86		100.0	
		Z	4.79	67.13	18.08		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.79	67.83	18.96	3.82	90.0	± 9.6 %
		Y	4.72	66.78	18.11		90.0	
		Z	4.80	67.13	18.34		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.82	67.68	19.13	4.15	90.0	± 9.6 %
		Y	4.76	66.65	18.28		90.0	
		Z	4.83	66.97	18.50		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.86	67.80	19.27	4.30	90.0	± 9.6 %
		Y	4.78	66.73	18.39		90.0	
		Z	4.86	67.05	18.61		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.44	61.65	7.56	0.00	150.0	± 9.6 %
		Y	0.49	61.12	7.86		150.0	
		Z	0.64	63.85	10.26		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.89	61.48	3.95	4.77	80.0	± 9.6 %
		Y	0.59	60.00	2.93		80.0	
		Z	0.55	60.00	3.58		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	120.10	28.07	6.56	60.0	± 9.6 %
		Y	100.00	111.49	24.17		60.0	
		Z	100.00	114.44	25.62		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.01	71.24	16.81	0.00	150.0	± 9.6 %
		Y	1.59	66.13	14.13		150.0	
		Z	1.77	67.84	15.37		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.98	71.24	16.82	0.00	150.0	± 9.6 %
		Y	1.56	66.06	14.09		150.0	
		Z	1.73	67.79	15.34		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	7.05	91.92	35.02	9.56	60.0	± 9.6 %
		Y	5.13	80.96	29.22		60.0	
		Z	7.00	89.81	33.25		60.0	
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.04	71.26	17.51	0.00	150.0	± 9.6 %
		Y	2.71	68.34	15.65		150.0	
		Z	2.94	69.85	16.50		150.0	
10101-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.07	67.87	16.34	0.00	150.0	± 9.6 %
		Y	2.97	66.45	15.26		150.0	
		Z	3.10	67.26	15.77		150.0	
10102-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.17	67.84	16.41	0.00	150.0	± 9.6 %
		Y	3.08	66.51	15.39		150.0	
		Z	3.20	67.26	15.86		150.0	
10103-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.93	77.85	22.25	3.98	65.0	± 9.6 %
		Y	4.91	73.42	19.90		65.0	
		Z	5.48	75.26	20.69		65.0	
10104-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.36	73.42	20.98	3.98	65.0	± 9.6 %
		Y	4.85	70.69	19.33		65.0	
		Z	5.38	72.53	20.20		65.0	
10105-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.20	72.50	20.84	3.98	65.0	± 9.6 %
		Y	4.80	70.17	19.39		65.0	
		Z	5.06	71.08	19.82		65.0	
10108-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.62	70.93	17.46	0.00	150.0	± 9.6 %
		Y	2.33	67.66	15.42		150.0	
		Z	2.54	69.16	16.32		150.0	
10109-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.72	68.12	16.25	0.00	150.0	± 9.6 %
		Y	2.60	66.27	15.00		150.0	
		Z	2.74	67.17	15.61		150.0	
10110-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.13	70.69	17.04	0.00	150.0	± 9.6 %
		Y	1.84	66.69	14.71		150.0	
		Z	2.04	68.34	15.81		150.0	
10111-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.53	70.01	16.54	0.00	150.0	± 9.6 %
		Y	2.27	66.91	14.87		150.0	
		Z	2.46	68.17	15.78		150.0	

10112-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.85	68.17	16.30	0.00	150.0	± 9.6 %
		Y	2.73	66.39	15.11		150.0	
		Z	2.87	67.23	15.69		150.0	
10113-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.66	70.08	16.61	0.00	150.0	± 9.6 %
		Y	2.41	67.16	15.06		150.0	
		Z	2.61	68.36	15.92		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	4.89	67.34	16.74	0.00	150.0	± 9.6 %
		Y	4.90	66.78	16.20		150.0	
		Z	4.96	67.07	16.36		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.12	67.41	16.76	0.00	150.0	± 9.6 %
		Y	5.15	66.88	16.26		150.0	
		Z	5.21	67.15	16.40		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	4.96	67.51	16.75	0.00	150.0	± 9.6 %
		Y	4.98	66.95	16.22		150.0	
		Z	5.04	67.27	16.38		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.85	67.18	16.68	0.00	150.0	± 9.6 %
		Y	4.89	66.71	16.19		150.0	
		Z	4.95	67.03	16.35		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.21	67.66	16.89	0.00	150.0	± 9.6 %
		Y	5.23	67.11	16.39		150.0	
		Z	5.28	67.32	16.50		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	4.97	67.54	16.77	0.00	150.0	± 9.6 %
		Y	4.98	66.97	16.24		150.0	
		Z	5.04	67.25	16.39		150.0	
10140-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.18	67.90	16.33	0.00	150.0	± 9.6 %
		Y	3.10	66.53	15.31		150.0	
		Z	3.22	67.28	15.78		150.0	
10141-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.31	68.06	16.51	0.00	150.0	± 9.6 %
		Y	3.23	66.72	15.52		150.0	
		Z	3.35	67.43	15.97		150.0	
10142-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.90	70.81	16.08	0.00	150.0	± 9.6 %
		Y	1.56	66.13	13.71		150.0	
		Z	1.79	68.21	15.15		150.0	
10143-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.27	69.87	15.01	0.00	150.0	± 9.6 %
		Y	1.97	66.56	13.59		150.0	
		Z	2.26	68.57	15.01		150.0	
10144-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	1.77	65.70	12.39	0.00	150.0	± 9.6 %
		Y	1.77	64.41	11.96		150.0	
		Z	1.97	65.88	13.14		150.0	
10145-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.57	60.00	6.01	0.00	150.0	± 9.6 %
		Y	0.69	60.18	6.93		150.0	
		Z	0.84	61.95	8.70		150.0	
10146-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	0.77	60.00	5.45	0.00	150.0	± 9.6 %
		Y	0.96	60.51	6.88		150.0	
		Z	1.21	61.91	7.88		150.0	
10147-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	0.78	60.00	5.51	0.00	150.0	± 9.6 %
		Y	1.01	60.88	7.17		150.0	
		Z	1.29	62.52	8.30		150.0	

10149-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.73	68.20	16.30	0.00	150.0	± 9.6 %
		Y	2.61	66.33	15.05		150.0	
		Z	2.75	67.23	15.66		150.0	
10150-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.86	68.24	16.35	0.00	150.0	± 9.6 %
		Y	2.74	66.44	15.16		150.0	
		Z	2.87	67.28	15.73		150.0	
10151-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.63	82.27	24.05	3.98	65.0	± 9.6 %
		Y	4.86	75.26	20.73		65.0	
		Z	5.85	78.40	22.06		65.0	
10152-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	4.98	73.89	20.68	3.98	65.0	± 9.6 %
		Y	4.38	70.57	18.85		65.0	
		Z	4.92	72.60	19.86		65.0	
10153-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.37	75.09	21.57	3.98	65.0	± 9.6 %
		Y	4.71	71.64	19.72		65.0	
		Z	5.27	73.62	20.68		65.0	
10154-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.18	71.12	17.28	0.00	150.0	± 9.6 %
		Y	1.86	66.97	14.90		150.0	
		Z	2.07	68.69	16.03		150.0	
10155-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.54	70.08	16.58	0.00	150.0	± 9.6 %
		Y	2.28	66.95	14.90		150.0	
		Z	2.46	68.21	15.81		150.0	
10156-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.67	70.04	15.04	0.00	150.0	± 9.6 %
		Y	1.35	65.50	12.88		150.0	
		Z	1.61	67.93	14.60		150.0	
10157-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.52	65.24	11.56	0.00	150.0	± 9.6 %
		Y	1.54	64.16	11.37		150.0	
		Z	1.78	66.05	12.85		150.0	
10158-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.68	70.20	16.68	0.00	150.0	± 9.6 %
		Y	2.42	67.23	15.11		150.0	
		Z	2.61	68.43	15.98		150.0	
10159-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.57	65.38	11.65	0.00	150.0	± 9.6 %
		Y	1.59	64.37	11.51		150.0	
		Z	1.86	66.39	13.06		150.0	
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.66	70.27	17.17	0.00	150.0	± 9.6 %
		Y	2.43	67.39	15.40		150.0	
		Z	2.59	68.51	16.14		150.0	
10161-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.74	68.27	16.19	0.00	150.0	± 9.6 %
		Y	2.62	66.35	14.98		150.0	
		Z	2.76	67.24	15.61		150.0	
10162-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.85	68.52	16.34	0.00	150.0	± 9.6 %
		Y	2.73	66.59	15.14		150.0	
		Z	2.87	67.46	15.76		150.0	
10166-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	2.92	68.58	19.12	3.01	150.0	± 9.6 %
		Y	3.05	68.19	18.71		150.0	
		Z	3.38	69.92	19.37		150.0	
10167-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	3.31	71.11	19.43	3.01	150.0	± 9.6 %
		Y	3.43	70.35	18.91		150.0	
		Z	4.27	73.87	20.20		150.0	

10168-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	3.69	73.59	20.95	3.01	150.0	± 9.6 %
		Y	3.83	72.88	20.47		150.0	
		Z	4.91	76.88	21.85		150.0	
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.36	66.51	18.14	3.01	150.0	± 9.6 %
		Y	2.40	66.07	17.76		150.0	
		Z	2.80	69.10	19.04		150.0	
10170-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	2.79	70.74	19.99	3.01	150.0	± 9.6 %
		Y	2.81	70.18	19.64		150.0	
		Z	4.13	77.05	22.20		150.0	
10171-AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.40	67.71	17.55	3.01	150.0	± 9.6 %
		Y	2.40	66.93	17.03		150.0	
		Z	3.24	71.98	19.00		150.0	
10172-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.00	83.17	27.59	6.02	65.0	± 9.6 %
		Y	3.32	77.43	24.67		65.0	
		Z	4.82	85.38	27.66		65.0	
10173-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	7.95	95.13	29.81	6.02	65.0	± 9.6 %
		Y	5.14	85.14	25.95		65.0	
		Z	22.01	111.28	33.56		65.0	
10174-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	6.44	90.03	27.42	6.02	65.0	± 9.6 %
		Y	4.72	82.84	24.49		65.0	
		Z	11.40	97.81	28.98		65.0	
10175-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.34	66.31	17.94	3.01	150.0	± 9.6 %
		Y	2.38	65.84	17.53		150.0	
		Z	2.77	68.80	18.79		150.0	
10176-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	2.79	70.75	20.00	3.01	150.0	± 9.6 %
		Y	2.81	70.20	19.65		150.0	
		Z	4.14	77.08	22.21		150.0	
10177-CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.35	66.39	17.99	3.01	150.0	± 9.6 %
		Y	2.39	65.94	17.60		150.0	
		Z	2.79	68.93	18.87		150.0	
10178-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	2.78	70.67	19.95	3.01	150.0	± 9.6 %
		Y	2.80	70.08	19.57		150.0	
		Z	4.10	76.88	22.11		150.0	
10179-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	2.58	69.20	18.68	3.01	150.0	± 9.6 %
		Y	2.58	68.48	18.22		150.0	
		Z	3.64	74.38	20.46		150.0	
10180-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.40	67.70	17.53	3.01	150.0	± 9.6 %
		Y	2.40	66.90	17.01		150.0	
		Z	3.24	71.93	18.96		150.0	
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.35	66.38	17.99	3.01	150.0	± 9.6 %
		Y	2.39	65.93	17.60		150.0	
		Z	2.78	68.92	18.87		150.0	
10182-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	2.78	70.65	19.94	3.01	150.0	± 9.6 %
		Y	2.80	70.06	19.56		150.0	
		Z	4.09	76.85	22.10		150.0	
10183-AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.40	67.68	17.52	3.01	150.0	± 9.6 %
		Y	2.40	66.89	16.99		150.0	
		Z	3.23	71.90	18.95		150.0	

10184-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.36	66.41	18.00	3.01	150.0	± 9.6 %
		Y	2.40	65.96	17.62		150.0	
		Z	2.79	68.96	18.89		150.0	
10185-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	2.79	70.71	19.97	3.01	150.0	± 9.6 %
		Y	2.81	70.12	19.59		150.0	
		Z	4.12	76.94	22.14		150.0	
10186-AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.41	67.73	17.55	3.01	150.0	± 9.6 %
		Y	2.41	66.94	17.03		150.0	
		Z	3.25	71.97	18.99		150.0	
10187-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.37	66.48	18.09	3.01	150.0	± 9.6 %
		Y	2.40	66.03	17.69		150.0	
		Z	2.80	69.04	18.97		150.0	
10188-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	2.84	71.12	20.25	3.01	150.0	± 9.6 %
		Y	2.87	70.60	19.92		150.0	
		Z	4.27	77.69	22.54		150.0	
10189-AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	2.45	68.02	17.78	3.01	150.0	± 9.6 %
		Y	2.44	67.25	17.27		150.0	
		Z	3.33	72.45	19.29		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.28	67.12	16.40	0.00	150.0	± 9.6 %
		Y	4.28	66.34	15.82		150.0	
		Z	4.37	66.69	16.05		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.40	67.30	16.54	0.00	150.0	± 9.6 %
		Y	4.42	66.58	15.96		150.0	
		Z	4.51	66.94	16.19		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.43	67.29	16.54	0.00	150.0	± 9.6 %
		Y	4.46	66.60	15.98		150.0	
		Z	4.55	66.96	16.21		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.25	67.08	16.37	0.00	150.0	± 9.6 %
		Y	4.27	66.33	15.80		150.0	
		Z	4.36	66.69	16.05		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.41	67.30	16.54	0.00	150.0	± 9.6 %
		Y	4.43	66.58	15.97		150.0	
		Z	4.52	66.95	16.20		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.42	67.28	16.54	0.00	150.0	± 9.6 %
		Y	4.45	66.60	15.98		150.0	
		Z	4.54	66.96	16.21		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.21	67.15	16.36	0.00	150.0	± 9.6 %
		Y	4.22	66.36	15.77		150.0	
		Z	4.31	66.72	16.02		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.40	67.25	16.53	0.00	150.0	± 9.6 %
		Y	4.42	66.55	15.96		150.0	
		Z	4.51	66.91	16.18		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.44	67.23	16.53	0.00	150.0	± 9.6 %
		Y	4.47	66.55	15.98		150.0	
		Z	4.56	66.90	16.20		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.84	67.21	16.68	0.00	150.0	± 9.6 %
		Y	4.86	66.70	16.17		150.0	
		Z	4.92	67.00	16.33		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.05	67.28	16.71	0.00	150.0	± 9.6 %
		Y	5.13	66.92	16.30		150.0	
		Z	5.19	67.21	16.45		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	4.88	67.36	16.68	0.00	150.0	± 9.6 %
		Y	4.89	66.80	16.15		150.0	
		Z	4.96	67.11	16.31		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.56	66.77	14.96	0.00	150.0	± 9.6 %
		Y	2.51	65.29	14.20		150.0	
		Z	2.64	66.08	14.88		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	8.58	96.74	30.43	6.02	65.0	± 9.6 %
		Y	5.44	86.30	26.47		65.0	
		Z	25.25	114.07	34.44		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	8.97	96.28	29.51	6.02	65.0	± 9.6 %
		Y	5.82	86.62	25.89		65.0	
		Z	26.62	112.59	33.14		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.46	85.84	28.72	6.02	65.0	± 9.6 %
		Y	3.52	78.94	25.38		65.0	
		Z	6.28	91.07	29.77		65.0	
10229-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	8.00	95.21	29.84	6.02	65.0	± 9.6 %
		Y	5.18	85.25	25.99		65.0	
		Z	22.25	111.44	33.61		65.0	
10230-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	8.20	94.53	28.89	6.02	65.0	± 9.6 %
		Y	5.45	85.38	25.38		65.0	
		Z	22.92	109.78	32.30		65.0	
10231-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	4.29	84.95	28.30	6.02	65.0	± 9.6 %
		Y	3.42	78.29	25.03		65.0	
		Z	6.00	90.04	29.32		65.0	
10232-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	7.99	95.19	29.84	6.02	65.0	± 9.6 %
		Y	5.17	85.23	25.98		65.0	
		Z	22.20	111.42	33.61		65.0	
10233-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	8.17	94.46	28.87	6.02	65.0	± 9.6 %
		Y	5.43	85.32	25.36		65.0	
		Z	22.79	109.69	32.28		65.0	
10234-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.20	84.39	27.96	6.02	65.0	± 9.6 %
		Y	3.35	77.81	24.72		65.0	
		Z	5.81	89.24	28.92		65.0	
10235-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	8.00	95.25	29.86	6.02	65.0	± 9.6 %
		Y	5.17	85.25	25.99		65.0	
		Z	22.28	111.52	33.64		65.0	
10236-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	8.32	94.76	28.95	6.02	65.0	± 9.6 %
		Y	5.50	85.52	25.42		65.0	
		Z	23.43	110.13	32.39		65.0	
10237-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.29	84.99	28.32	6.02	65.0	± 9.6 %
		Y	3.42	78.29	25.04		65.0	
		Z	6.00	90.09	29.35		65.0	
10238-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	7.97	95.17	29.84	6.02	65.0	± 9.6 %
		Y	5.16	85.19	25.97		65.0	
		Z	22.13	111.39	33.60		65.0	

10239-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	8.13	94.40	28.85	6.02	65.0	± 9.6 %
		Y	5.41	85.27	25.34		65.0	
		Z	22.65	109.61	32.26		65.0	
10240-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.29	84.98	28.32	6.02	65.0	± 9.6 %
		Y	3.41	78.27	25.03		65.0	
		Z	5.99	90.06	29.34		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	6.78	83.01	27.19	6.98	65.0	± 9.6 %
		Y	5.79	77.77	24.62		65.0	
		Z	7.46	82.96	26.61		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.48	82.12	26.76	6.98	65.0	± 9.6 %
		Y	5.59	77.10	24.26		65.0	
		Z	6.60	80.40	25.51		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.17	77.50	25.78	6.98	65.0	± 9.6 %
		Y	4.73	73.67	23.57		65.0	
		Z	5.15	75.48	24.33		65.0	
10244-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	3.16	68.74	13.63	3.98	65.0	± 9.6 %
		Y	3.46	70.01	15.08		65.0	
		Z	4.53	73.34	16.60		65.0	
10245-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.03	67.91	13.16	3.98	65.0	± 9.6 %
		Y	3.34	69.23	14.64		65.0	
		Z	4.31	72.35	16.12		65.0	
10246-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.58	77.82	18.26	3.98	65.0	± 9.6 %
		Y	2.94	71.18	15.91		65.0	
		Z	4.43	77.10	18.78		65.0	
10247-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	3.93	72.44	16.86	3.98	65.0	± 9.6 %
		Y	3.31	69.30	15.75		65.0	
		Z	4.04	72.29	17.45		65.0	
10248-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	3.71	71.10	16.24	3.98	65.0	± 9.6 %
		Y	3.28	68.68	15.43		65.0	
		Z	3.97	71.47	17.06		65.0	
10249-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	8.97	89.85	24.39	3.98	65.0	± 9.6 %
		Y	4.14	76.51	19.58		65.0	
		Z	6.04	82.54	22.20		65.0	
10250-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.29	77.58	21.84	3.98	65.0	± 9.6 %
		Y	4.28	72.75	19.64		65.0	
		Z	4.96	75.21	20.85		65.0	
10251-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	4.75	74.27	19.93	3.98	65.0	± 9.6 %
		Y	4.08	70.67	18.23		65.0	
		Z	4.69	72.94	19.43		65.0	
10252-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	8.00	88.54	26.02	3.98	65.0	± 9.6 %
		Y	4.67	77.36	21.42		65.0	
		Z	6.06	81.76	23.28		65.0	
10253-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	4.92	73.55	20.33	3.98	65.0	± 9.6 %
		Y	4.33	70.27	18.60		65.0	
		Z	4.85	72.20	19.59		65.0	
10254-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.24	74.52	21.06	3.98	65.0	± 9.6 %
		Y	4.62	71.19	19.34		65.0	
		Z	5.16	73.09	20.30		65.0	

10255-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.21	81.24	23.74	3.98	65.0	± 9.6 %
		Y	4.64	74.55	20.56		65.0	
		Z	5.52	77.51	21.87		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	2.00	63.20	9.38	3.98	65.0	± 9.6 %
		Y	2.33	64.83	11.17		65.0	
		Z	2.92	67.15	12.48		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.96	62.72	8.99	3.98	65.0	± 9.6 %
		Y	2.28	64.22	10.72		65.0	
		Z	2.80	66.30	11.94		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.08	66.35	11.80	3.98	65.0	± 9.6 %
		Y	1.98	65.50	11.93		65.0	
		Z	2.75	69.63	14.40		65.0	
10259-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	4.58	74.93	18.91	3.98	65.0	± 9.6 %
		Y	3.71	70.81	17.27		65.0	
		Z	4.44	73.61	18.79		65.0	
10260-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	4.52	74.29	18.60	3.98	65.0	± 9.6 %
		Y	3.74	70.54	17.12		65.0	
		Z	4.45	73.22	18.60		65.0	
10261-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	7.88	87.94	24.55	3.98	65.0	± 9.6 %
		Y	4.19	76.19	20.04		65.0	
		Z	5.68	81.15	22.23		65.0	
10262-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.27	77.47	21.77	3.98	65.0	± 9.6 %
		Y	4.26	72.68	19.58		65.0	
		Z	4.94	75.14	20.80		65.0	
10263-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	4.75	74.24	19.92	3.98	65.0	± 9.6 %
		Y	4.08	70.65	18.22		65.0	
		Z	4.68	72.91	19.42		65.0	
10264-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	7.86	88.17	25.86	3.98	65.0	± 9.6 %
		Y	4.62	77.15	21.31		65.0	
		Z	5.99	81.52	23.16		65.0	
10265-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	4.98	73.90	20.68	3.98	65.0	± 9.6 %
		Y	4.38	70.57	18.86		65.0	
		Z	4.92	72.60	19.87		65.0	
10266-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.37	75.08	21.56	3.98	65.0	± 9.6 %
		Y	4.71	71.63	19.71		65.0	
		Z	5.27	73.60	20.67		65.0	
10267-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.61	82.19	24.01	3.98	65.0	± 9.6 %
		Y	4.85	75.21	20.70		65.0	
		Z	5.84	78.34	22.04		65.0	
10268-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	5.53	73.44	21.03	3.98	65.0	± 9.6 %
		Y	5.03	70.75	19.43		65.0	
		Z	5.54	72.47	20.25		65.0	
10269-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	5.54	73.02	20.85	3.98	65.0	± 9.6 %
		Y	5.06	70.44	19.31		65.0	
		Z	5.54	72.08	20.10		65.0	
10270-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	5.98	77.31	22.21	3.98	65.0	± 9.6 %
		Y	5.00	72.98	19.88		65.0	
		Z	5.69	75.16	20.83		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.47	67.82	15.27	0.00	150.0	± 9.6 %
		Y	2.33	65.69	14.15		150.0	
		Z	2.48	66.63	14.91		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.71	71.16	16.82	0.00	150.0	± 9.6 %
		Y	1.33	65.66	13.76		150.0	
		Z	1.51	67.66	15.15		150.0	
10277-CAA	PHS (QPSK)	X	1.23	59.02	4.21	9.03	50.0	± 9.6 %
		Y	1.36	59.15	4.53		50.0	
		Z	1.40	59.60	4.92		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	2.49	65.17	10.30	9.03	50.0	± 9.6 %
		Y	2.68	65.81	11.00		50.0	
		Z	3.26	68.70	12.71		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	2.55	65.39	10.49	9.03	50.0	± 9.6 %
		Y	2.76	66.08	11.22		50.0	
		Z	3.39	69.09	12.97		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	0.66	62.54	8.32	0.00	150.0	± 9.6 %
		Y	0.76	62.40	8.87		150.0	
		Z	1.02	65.60	11.30		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.43	61.50	7.46	0.00	150.0	± 9.6 %
		Y	0.48	61.03	7.79		150.0	
		Z	0.63	63.68	10.15		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.68	66.33	10.22	0.00	150.0	± 9.6 %
		Y	0.54	62.59	8.99		150.0	
		Z	0.84	67.69	12.53		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	100.00	115.49	24.39	0.00	150.0	± 9.6 %
		Y	0.69	65.22	10.79		150.0	
		Z	1.61	75.87	16.40		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	100.00	119.39	31.37	9.03	50.0	± 9.6 %
		Y	30.54	103.12	27.89		50.0	
		Z	25.86	103.05	28.71		50.0	
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.64	71.06	17.54	0.00	150.0	± 9.6 %
		Y	2.34	67.75	15.49		150.0	
		Z	2.55	69.26	16.39		150.0	
10298-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	0.90	63.34	9.68	0.00	150.0	± 9.6 %
		Y	0.97	62.80	9.90		150.0	
		Z	1.20	65.31	11.89		150.0	
10299-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	1.04	61.35	7.67	0.00	150.0	± 9.6 %
		Y	1.45	63.85	10.09		150.0	
		Z	1.91	66.23	11.37		150.0	
10300-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	0.88	59.77	6.06	0.00	150.0	± 9.6 %
		Y	1.18	61.29	7.96		150.0	
		Z	1.43	62.58	8.80		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.48	66.53	17.71	4.17	50.0	± 9.6 %
		Y	4.32	64.81	16.78		50.0	
		Z	4.53	65.70	17.38		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	4.90	66.77	18.24	4.96	50.0	± 9.6 %
		Y	4.79	65.40	17.49		50.0	
		Z	4.93	65.95	17.91		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.67	66.48	18.03	4.96	50.0	± 9.6 %
		Y	4.54	65.00	17.25		50.0	
		Z	4.68	65.54	17.69		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.50	66.44	17.58	4.17	50.0	± 9.6 %
		Y	4.37	64.94	16.79		50.0	
		Z	4.51	65.50	17.22		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.12	68.45	18.95	6.02	35.0	± 9.6 %
		Y	3.86	66.02	17.96		35.0	
		Z	3.97	66.57	18.59		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.42	67.53	18.97	6.02	35.0	± 9.6 %
		Y	4.25	65.60	18.06		35.0	
		Z	4.36	66.03	18.53		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.30	67.51	18.83	6.02	35.0	± 9.6 %
		Y	4.12	65.54	17.91		35.0	
		Z	4.23	66.00	18.40		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.29	67.78	19.02	6.02	35.0	± 9.6 %
		Y	4.09	65.70	18.03		35.0	
		Z	4.20	66.19	18.54		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.43	67.59	19.06	6.02	35.0	± 9.6 %
		Y	4.27	65.68	18.15		35.0	
		Z	4.39	66.15	18.64		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.38	67.63	18.98	6.02	35.0	± 9.6 %
		Y	4.20	65.62	18.03		35.0	
		Z	4.31	66.06	18.50		35.0	
10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.99	69.90	17.05	0.00	150.0	± 9.6 %
		Y	2.69	67.10	15.26		150.0	
		Z	2.91	68.52	16.06		150.0	
10313-AAA	iDEN 1:3	X	8.87	90.94	23.28	6.99	70.0	± 9.6 %
		Y	2.18	70.62	15.55		70.0	
		Z	3.65	77.10	18.17		70.0	
10314-AAA	iDEN 1:6	X	23.31	113.29	33.24	10.00	30.0	± 9.6 %
		Y	4.07	81.07	22.63		30.0	
		Z	6.41	89.12	25.62		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.06	65.07	16.25	0.17	150.0	± 9.6 %
		Y	0.98	62.35	13.91		150.0	
		Z	1.04	63.52	14.91		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.31	67.08	16.57	0.17	150.0	± 9.6 %
		Y	4.32	66.32	15.96		150.0	
		Z	4.41	66.68	16.20		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.31	67.08	16.57	0.17	150.0	± 9.6 %
		Y	4.32	66.32	15.96		150.0	
		Z	4.41	66.68	16.20		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.34	67.26	16.50	0.00	150.0	± 9.6 %
		Y	4.38	66.57	15.93		150.0	
		Z	4.48	66.96	16.18		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.02	66.93	16.50	0.00	150.0	± 9.6 %
		Y	5.07	66.49	16.04		150.0	
		Z	5.15	66.85	16.24		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.40	67.50	16.69	0.00	150.0	± 9.6 %
		Y	5.42	67.05	16.22		150.0	
		Z	5.48	67.35	16.37		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	0.66	62.54	8.32	0.00	115.0	± 9.6 %
		Y	0.76	62.40	8.87		115.0	
		Z	1.02	65.60	11.30		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	0.66	62.54	8.32	0.00	115.0	± 9.6 %
		Y	0.76	62.40	8.87		115.0	
		Z	1.02	65.60	11.30		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	120.66	28.47	0.00	100.0	± 9.6 %
		Y	100.00	124.32	30.49		100.0	
		Z	100.00	114.36	26.36		100.0	
10410-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	100.00	137.18	35.87	3.23	80.0	± 9.6 %
		Y	89.20	133.87	34.99		80.0	
		Z	100.00	128.26	32.27		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.00	64.27	15.62	0.00	150.0	± 9.6 %
		Y	0.93	61.90	13.47		150.0	
		Z	0.99	62.92	14.41		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.26	67.05	16.46	0.00	150.0	± 9.6 %
		Y	4.28	66.33	15.89		150.0	
		Z	4.36	66.69	16.13		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.26	67.05	16.46	0.00	150.0	± 9.6 %
		Y	4.28	66.33	15.89		150.0	
		Z	4.36	66.69	16.13		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.26	67.30	16.55	0.00	150.0	± 9.6 %
		Y	4.27	66.52	15.94		150.0	
		Z	4.36	66.88	16.18		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.27	67.21	16.52	0.00	150.0	± 9.6 %
		Y	4.29	66.46	15.93		150.0	
		Z	4.38	66.82	16.17		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.37	67.16	16.52	0.00	150.0	± 9.6 %
		Y	4.40	66.45	15.96		150.0	
		Z	4.48	66.80	16.18		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.48	67.40	16.60	0.00	150.0	± 9.6 %
		Y	4.52	66.70	16.04		150.0	
		Z	4.61	67.06	16.27		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.42	67.34	16.58	0.00	150.0	± 9.6 %
		Y	4.45	66.65	16.02		150.0	
		Z	4.54	67.01	16.25		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.06	67.40	16.76	0.00	150.0	± 9.6 %
		Y	5.10	66.94	16.29		150.0	
		Z	5.16	67.23	16.44		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.11	67.63	16.87	0.00	150.0	± 9.6 %
		Y	5.13	67.07	16.35		150.0	
		Z	5.18	67.30	16.47		150.0	

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.05	67.32	16.71	0.00	150.0	± 9.6 %
		Y	5.08	66.82	16.22		150.0	
		Z	5.15	67.12	16.38		150.0	
10430-AAC	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.23	73.22	18.45	0.00	150.0	± 9.6 %
		Y	3.93	70.77	17.45		150.0	
		Z	4.10	71.37	17.95		150.0	
10431-AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	3.86	67.78	16.28	0.00	150.0	± 9.6 %
		Y	3.86	66.76	15.64		150.0	
		Z	3.98	67.24	16.01		150.0	
10432-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.18	67.53	16.50	0.00	150.0	± 9.6 %
		Y	4.20	66.69	15.89		150.0	
		Z	4.31	67.10	16.17		150.0	
10433-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.44	67.38	16.60	0.00	150.0	± 9.6 %
		Y	4.47	66.68	16.04		150.0	
		Z	4.56	67.05	16.27		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.26	73.70	17.91	0.00	150.0	± 9.6 %
		Y	3.90	71.13	16.99		150.0	
		Z	4.17	72.14	17.74		150.0	
10435-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	136.85	35.71	3.23	80.0	± 9.6 %
		Y	73.85	130.75	34.24		80.0	
		Z	100.00	127.97	32.14		80.0	
10447-AAC	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.04	67.36	14.69	0.00	150.0	± 9.6 %
		Y	3.04	66.19	14.22		150.0	
		Z	3.23	67.03	14.92		150.0	
10448-AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	3.74	67.60	16.17	0.00	150.0	± 9.6 %
		Y	3.73	66.55	15.51		150.0	
		Z	3.85	67.04	15.88		150.0	
10449-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.04	67.36	16.41	0.00	150.0	± 9.6 %
		Y	4.04	66.51	15.78		150.0	
		Z	4.14	66.92	16.07		150.0	
10450-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.25	67.17	16.47	0.00	150.0	± 9.6 %
		Y	4.27	66.44	15.88		150.0	
		Z	4.35	66.83	16.12		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	2.75	66.59	13.54	0.00	150.0	± 9.6 %
		Y	2.81	65.78	13.36		150.0	
		Z	3.04	66.85	14.23		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.15	68.30	17.13	0.00	150.0	± 9.6 %
		Y	6.05	67.54	16.50		150.0	
		Z	6.09	67.83	16.64		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.66	65.89	16.23	0.00	150.0	± 9.6 %
		Y	3.65	65.10	15.61		150.0	
		Z	3.71	65.42	15.85		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.20	69.58	15.19	0.00	150.0	± 9.6 %
		Y	3.29	69.02	15.37		150.0	
		Z	3.67	70.71	16.58		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.50	68.59	17.11	0.00	150.0	± 9.6 %
		Y	4.66	68.32	17.33		150.0	
		Z	4.81	68.67	17.71		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.26	76.31	19.76	0.00	150.0	± 9.6 %
		Y	0.71	64.73	13.42		150.0	
		Z	0.85	67.74	15.61		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	143.66	38.88	3.29	80.0	± 9.6 %
		Y	34.56	122.60	33.52		80.0	
		Z	100.00	134.99	35.38		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	76.64	14.82	3.23	80.0	± 9.6 %
		Y	1.01	64.66	10.84		80.0	
		Z	1.31	65.68	10.55		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.60	60.00	7.56	3.23	80.0	± 9.6 %
		Y	0.63	60.00	7.83		80.0	
		Z	0.70	60.00	7.29		80.0	
10464-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	140.29	37.09	3.23	80.0	± 9.6 %
		Y	41.01	122.69	32.58		80.0	
		Z	100.00	131.53	33.60		80.0	
10465-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.51	68.56	12.04	3.23	80.0	± 9.6 %
		Y	0.85	62.97	9.99		80.0	
		Z	1.06	63.78	9.68		80.0	
10466-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.61	60.00	7.50	3.23	80.0	± 9.6 %
		Y	0.64	60.00	7.76		80.0	
		Z	0.71	60.00	7.23		80.0	
10467-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	140.88	37.35	3.23	80.0	± 9.6 %
		Y	59.18	128.48	33.95		80.0	
		Z	100.00	131.99	33.80		80.0	
10468-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.90	70.77	12.88	3.23	80.0	± 9.6 %
		Y	0.89	63.46	10.25		80.0	
		Z	1.12	64.32	9.94		80.0	
10469-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.60	60.00	7.50	3.23	80.0	± 9.6 %
		Y	0.63	60.00	7.77		80.0	
		Z	0.70	60.00	7.23		80.0	
10470-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	140.97	37.38	3.23	80.0	± 9.6 %
		Y	62.06	129.24	34.12		80.0	
		Z	100.00	132.05	33.81		80.0	
10471-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.84	70.47	12.75	3.23	80.0	± 9.6 %
		Y	0.88	63.38	10.20		80.0	
		Z	1.11	64.20	9.87		80.0	
10472-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.60	60.00	7.48	3.23	80.0	± 9.6 %
		Y	0.63	60.00	7.75		80.0	
		Z	0.70	60.00	7.21		80.0	
10473-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	140.94	37.36	3.23	80.0	± 9.6 %
		Y	61.16	128.99	34.05		80.0	
		Z	100.00	132.00	33.79		80.0	
10474-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.81	70.32	12.70	3.23	80.0	± 9.6 %
		Y	0.88	63.33	10.17		80.0	
		Z	1.10	64.15	9.85		80.0	
10475-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.60	60.00	7.48	3.23	80.0	± 9.6 %
		Y	0.63	60.00	7.75		80.0	
		Z	0.70	60.00	7.21		80.0	

10477-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.53	68.71	12.08	3.23	80.0	± 9.6 %
		Y	0.84	62.95	9.96		80.0	
		Z	1.05	63.70	9.62		80.0	
10478-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.60	60.00	7.47	3.23	80.0	± 9.6 %
		Y	0.63	60.00	7.74		80.0	
		Z	0.70	60.00	7.20		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	131.86	35.15	3.23	80.0	± 9.6 %
		Y	12.94	98.67	26.98		80.0	
		Z	22.21	105.39	28.53		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	113.57	26.62	3.23	80.0	± 9.6 %
		Y	8.74	85.47	20.23		80.0	
		Z	17.38	92.40	21.93		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	18.06	91.55	20.55	3.23	80.0	± 9.6 %
		Y	4.37	76.08	16.65		80.0	
		Z	7.35	80.99	18.05		80.0	
10482-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.29	74.82	16.10	2.23	80.0	± 9.6 %
		Y	1.38	63.83	11.93		80.0	
		Z	2.24	69.89	15.23		80.0	
10483-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.50	62.45	9.85	2.23	80.0	± 9.6 %
		Y	2.04	65.44	12.22		80.0	
		Z	2.87	69.16	14.04		80.0	
10484-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.43	61.71	9.45	2.23	80.0	± 9.6 %
		Y	1.92	64.48	11.76		80.0	
		Z	2.62	67.82	13.47		80.0	
10485-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.78	86.86	22.48	2.23	80.0	± 9.6 %
		Y	1.98	67.95	15.36		80.0	
		Z	2.84	73.18	18.01		80.0	
10486-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.84	70.05	15.08	2.23	80.0	± 9.6 %
		Y	1.97	64.49	12.85		80.0	
		Z	2.60	68.12	14.98		80.0	
10487-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.67	68.87	14.53	2.23	80.0	± 9.6 %
		Y	1.98	64.19	12.66		80.0	
		Z	2.57	67.61	14.72		80.0	
10488-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.07	78.46	21.52	2.23	80.0	± 9.6 %
		Y	2.46	68.67	16.96		80.0	
		Z	3.04	71.93	18.60		80.0	
10489-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.48	71.99	18.44	2.23	80.0	± 9.6 %
		Y	2.66	66.56	15.77		80.0	
		Z	3.05	68.58	16.94		80.0	
10490-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.50	71.49	18.20	2.23	80.0	± 9.6 %
		Y	2.75	66.49	15.73		80.0	
		Z	3.12	68.41	16.86		80.0	
10491-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.72	73.90	20.02	2.23	80.0	± 9.6 %
		Y	2.82	67.95	16.90		80.0	
		Z	3.28	70.32	18.09		80.0	
10492-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.56	69.77	18.10	2.23	80.0	± 9.6 %
		Y	3.07	66.24	16.14		80.0	
		Z	3.38	67.73	16.98		80.0	

10493-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.59	69.52	17.96	2.23	80.0	± 9.6 %
		Y	3.13	66.17	16.10		80.0	
		Z	3.43	67.60	16.92		80.0	
10494-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.13	75.78	20.74	2.23	80.0	± 9.6 %
		Y	2.97	68.99	17.27		80.0	
		Z	3.53	71.74	18.59		80.0	
10495-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	69.95	18.36	2.23	80.0	± 9.6 %
		Y	3.08	66.44	16.34		80.0	
		Z	3.39	67.98	17.18		80.0	
10496-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.63	69.58	18.20	2.23	80.0	± 9.6 %
		Y	3.18	66.32	16.31		80.0	
		Z	3.48	67.76	17.10		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.86	60.00	7.83	2.23	80.0	± 9.6 %
		Y	0.94	60.00	8.43		80.0	
		Z	1.26	62.86	10.60		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.06	60.00	6.32	2.23	80.0	± 9.6 %
		Y	1.11	60.00	7.15		80.0	
		Z	1.15	60.00	7.79		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.09	60.00	6.13	2.23	80.0	± 9.6 %
		Y	1.13	60.00	6.98		80.0	
		Z	1.16	60.00	7.62		80.0	
10500-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.11	82.69	21.91	2.23	80.0	± 9.6 %
		Y	2.18	68.30	16.03		80.0	
		Z	2.89	72.51	18.19		80.0	
10501-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.38	72.12	16.89	2.23	80.0	± 9.6 %
		Y	2.30	65.71	14.16		80.0	
		Z	2.84	68.67	15.89		80.0	
10502-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.32	71.47	16.50	2.23	80.0	± 9.6 %
		Y	2.34	65.56	14.00		80.0	
		Z	2.88	68.46	15.71		80.0	
10503-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.00	78.15	21.38	2.23	80.0	± 9.6 %
		Y	2.43	68.50	16.86		80.0	
		Z	3.00	71.73	18.50		80.0	
10504-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.45	71.84	18.36	2.23	80.0	± 9.6 %
		Y	2.65	66.46	15.71		80.0	
		Z	3.03	68.49	16.88		80.0	
10505-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.47	71.37	18.13	2.23	80.0	± 9.6 %
		Y	2.73	66.40	15.67		80.0	
		Z	3.11	68.32	16.80		80.0	
10506-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.09	75.59	20.65	2.23	80.0	± 9.6 %
		Y	2.95	68.87	17.20		80.0	
		Z	3.51	71.60	18.52		80.0	
10507-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.56	69.88	18.32	2.23	80.0	± 9.6 %
		Y	3.07	66.39	16.30		80.0	
		Z	3.38	67.92	17.15		80.0	

10508-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	69.50	18.15	2.23	80.0	± 9.6 %
		Y	3.17	66.26	16.27		80.0	
		Z	3.46	67.69	17.06		80.0	
10509-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.20	72.86	19.53	2.23	80.0	± 9.6 %
		Y	3.42	68.34	17.01		80.0	
		Z	3.88	70.43	18.01		80.0	
10510-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.92	68.81	18.05	2.23	80.0	± 9.6 %
		Y	3.56	66.32	16.47		80.0	
		Z	3.85	67.60	17.14		80.0	
10511-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.98	68.57	17.95	2.23	80.0	± 9.6 %
		Y	3.64	66.21	16.45		80.0	
		Z	3.92	67.41	17.08		80.0	
10512-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.48	74.72	20.17	2.23	80.0	± 9.6 %
		Y	3.43	69.26	17.28		80.0	
		Z	4.02	71.84	18.48		80.0	
10513-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.82	68.98	18.16	2.23	80.0	± 9.6 %
		Y	3.45	66.38	16.51		80.0	
		Z	3.74	67.76	17.23		80.0	
10514-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.85	68.52	17.99	2.23	80.0	± 9.6 %
		Y	3.51	66.13	16.44		80.0	
		Z	3.78	67.40	17.11		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.96	64.60	15.77	0.00	150.0	± 9.6 %
		Y	0.89	61.99	13.45		150.0	
		Z	0.95	63.08	14.46		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	2.33	97.00	27.78	0.00	150.0	± 9.6 %
		Y	0.43	64.91	13.28		150.0	
		Z	0.56	69.50	16.60		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.86	68.07	17.27	0.00	150.0	± 9.6 %
		Y	0.71	62.96	13.44		150.0	
		Z	0.79	64.75	14.96		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.25	67.19	16.47	0.00	150.0	± 9.6 %
		Y	4.27	66.42	15.88		150.0	
		Z	4.35	66.78	16.12		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.38	67.33	16.55	0.00	150.0	± 9.6 %
		Y	4.41	66.60	15.98		150.0	
		Z	4.50	66.96	16.21		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.25	67.26	16.47	0.00	150.0	± 9.6 %
		Y	4.27	66.51	15.88		150.0	
		Z	4.36	66.89	16.12		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.18	67.20	16.44	0.00	150.0	± 9.6 %
		Y	4.20	66.46	15.85		150.0	
		Z	4.29	66.86	16.10		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.21	67.26	16.50	0.00	150.0	± 9.6 %
		Y	4.24	66.58	15.94		150.0	
		Z	4.35	66.98	16.20		150.0	

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.18	67.45	16.52	0.00	150.0	± 9.6 %
		Y	4.18	66.58	15.86		150.0	
		Z	4.27	66.96	16.11		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.18	67.33	16.55	0.00	150.0	± 9.6 %
		Y	4.20	66.55	15.94		150.0	
		Z	4.30	66.94	16.19		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.24	66.47	16.19	0.00	150.0	± 9.6 %
		Y	4.23	65.66	15.56		150.0	
		Z	4.32	66.04	15.81		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.34	66.70	16.29	0.00	150.0	± 9.6 %
		Y	4.35	65.92	15.67		150.0	
		Z	4.45	66.33	15.93		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.28	66.69	16.24	0.00	150.0	± 9.6 %
		Y	4.28	65.87	15.61		150.0	
		Z	4.38	66.29	15.86		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.29	66.70	16.27	0.00	150.0	± 9.6 %
		Y	4.29	65.89	15.64		150.0	
		Z	4.39	66.31	15.90		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.29	66.70	16.27	0.00	150.0	± 9.6 %
		Y	4.29	65.89	15.64		150.0	
		Z	4.39	66.31	15.90		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.24	66.68	16.22	0.00	150.0	± 9.6 %
		Y	4.25	65.90	15.61		150.0	
		Z	4.36	66.34	15.88		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.14	66.55	16.16	0.00	150.0	± 9.6 %
		Y	4.14	65.75	15.53		150.0	
		Z	4.24	66.20	15.81		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.29	66.80	16.28	0.00	150.0	± 9.6 %
		Y	4.29	65.97	15.64		150.0	
		Z	4.40	66.39	15.90		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	4.86	66.53	16.31	0.00	150.0	± 9.6 %
		Y	4.88	65.98	15.79		150.0	
		Z	4.95	66.32	15.97		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	4.89	66.65	16.37	0.00	150.0	± 9.6 %
		Y	4.91	66.10	15.85		150.0	
		Z	5.00	66.46	16.03		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.79	66.64	16.34	0.00	150.0	± 9.6 %
		Y	4.80	66.08	15.81		150.0	
		Z	4.89	66.46	16.01		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	4.88	66.74	16.39	0.00	150.0	± 9.6 %
		Y	4.88	66.12	15.83		150.0	
		Z	4.95	66.44	16.00		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	4.91	66.59	16.35	0.00	150.0	± 9.6 %
		Y	4.94	66.07	15.85		150.0	
		Z	5.01	66.41	16.03		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	4.85	66.55	16.35	0.00	150.0	± 9.6 %
		Y	4.86	66.01	15.84		150.0	
		Z	4.94	66.38	16.03		150.0	

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	4.84	66.50	16.30	0.00	150.0	± 9.6 %
		Y	4.85	65.93	15.78		150.0	
		Z	4.93	66.29	15.97		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	4.98	66.58	16.36	0.00	150.0	± 9.6 %
		Y	5.01	66.06	15.86		150.0	
		Z	5.08	66.39	16.04		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.07	66.72	16.46	0.00	150.0	± 9.6 %
		Y	5.09	66.19	15.96		150.0	
		Z	5.15	66.45	16.09		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.23	66.52	16.26	0.00	150.0	± 9.6 %
		Y	5.23	66.08	15.80		150.0	
		Z	5.29	66.42	15.97		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.42	67.07	16.51	0.00	150.0	± 9.6 %
		Y	5.42	66.57	16.01		150.0	
		Z	5.47	66.84	16.14		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.25	66.63	16.29	0.00	150.0	± 9.6 %
		Y	5.26	66.19	15.83		150.0	
		Z	5.33	66.54	16.00		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.40	66.98	16.47	0.00	150.0	± 9.6 %
		Y	5.36	66.37	15.91		150.0	
		Z	5.40	66.64	16.04		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.46	67.37	16.64	0.00	150.0	± 9.6 %
		Y	5.49	66.97	16.19		150.0	
		Z	5.55	67.26	16.33		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.39	67.12	16.55	0.00	150.0	± 9.6 %
		Y	5.34	66.47	15.98		150.0	
		Z	5.38	66.70	16.09		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.22	66.55	16.23	0.00	150.0	± 9.6 %
		Y	5.25	66.14	15.78		150.0	
		Z	5.32	66.52	15.96		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.23	66.67	16.28	0.00	150.0	± 9.6 %
		Y	5.24	66.18	15.80		150.0	
		Z	5.30	66.53	15.97		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.27	66.57	16.26	0.00	150.0	± 9.6 %
		Y	5.29	66.14	15.81		150.0	
		Z	5.36	66.48	15.98		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.67	66.83	16.33	0.00	150.0	± 9.6 %
		Y	5.66	66.44	15.91		150.0	
		Z	5.71	66.75	16.05		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.75	67.04	16.43	0.00	150.0	± 9.6 %
		Y	5.76	66.67	16.01		150.0	
		Z	5.81	66.99	16.15		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.82	67.26	16.53	0.00	150.0	± 9.6 %
		Y	5.80	66.81	16.07		150.0	
		Z	5.84	67.08	16.19		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.74	67.02	16.42	0.00	150.0	± 9.6 %
		Y	5.74	66.64	16.00		150.0	
		Z	5.80	66.96	16.15		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.72	66.97	16.42	0.00	150.0	± 9.6 %
		Y	5.74	66.66	16.03		150.0	
		Z	5.82	67.04	16.20		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.75	66.95	16.44	0.00	150.0	± 9.6 %
		Y	5.77	66.62	16.04		150.0	
		Z	5.83	66.96	16.20		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.69	66.96	16.48	0.00	150.0	± 9.6 %
		Y	5.71	66.62	16.07		150.0	
		Z	5.76	66.94	16.22		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.73	67.07	16.54	0.00	150.0	± 9.6 %
		Y	5.75	66.74	16.14		150.0	
		Z	5.82	67.12	16.31		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	5.85	67.14	16.54	0.00	150.0	± 9.6 %
		Y	5.87	66.79	16.13		150.0	
		Z	5.91	67.06	16.25		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.57	67.17	16.61	0.46	150.0	± 9.6 %
		Y	4.59	66.49	16.05		150.0	
		Z	4.67	66.83	16.27		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.74	67.55	16.90	0.46	150.0	± 9.6 %
		Y	4.78	66.90	16.38		150.0	
		Z	4.87	67.23	16.58		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.59	67.37	16.72	0.46	150.0	± 9.6 %
		Y	4.62	66.70	16.17		150.0	
		Z	4.71	67.05	16.39		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.62	67.76	17.09	0.46	150.0	± 9.6 %
		Y	4.65	67.09	16.54		150.0	
		Z	4.74	67.43	16.75		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.46	67.03	16.42	0.46	150.0	± 9.6 %
		Y	4.51	66.42	15.90		150.0	
		Z	4.61	66.81	16.14		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.63	68.10	17.29	0.46	150.0	± 9.6 %
		Y	4.63	67.31	16.68		150.0	
		Z	4.72	67.64	16.87		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.60	67.79	17.13	0.46	150.0	± 9.6 %
		Y	4.64	67.10	16.57		150.0	
		Z	4.73	67.44	16.77		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.13	65.55	16.59	0.46	130.0	± 9.6 %
		Y	1.02	62.57	14.13		130.0	
		Z	1.09	63.87	15.18		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.14	66.28	17.05	0.46	130.0	± 9.6 %
		Y	1.02	62.97	14.40		130.0	
		Z	1.10	64.37	15.52		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	160.36	43.84	0.46	130.0	± 9.6 %
		Y	0.72	69.89	16.37		130.0	
		Z	1.32	80.40	21.60		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.39	74.93	21.47	0.46	130.0	± 9.6 %
		Y	0.97	66.41	16.28		130.0	
		Z	1.14	69.27	18.15		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.35	66.98	16.66	0.46	130.0	± 9.6 %
		Y	4.37	66.25	16.07		130.0	
		Z	4.45	66.60	16.31		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.39	67.23	16.77	0.46	130.0	± 9.6 %
		Y	4.40	66.45	16.16		130.0	
		Z	4.48	66.79	16.39		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.53	67.43	16.90	0.46	130.0	± 9.6 %
		Y	4.55	66.69	16.31		130.0	
		Z	4.65	67.03	16.53		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.44	67.57	17.01	0.46	130.0	± 9.6 %
		Y	4.46	66.81	16.41		130.0	
		Z	4.55	67.16	16.63		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.19	66.71	16.24	0.46	130.0	± 9.6 %
		Y	4.21	65.98	15.64		130.0	
		Z	4.31	66.39	15.91		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.21	66.71	16.23	0.46	130.0	± 9.6 %
		Y	4.24	66.03	15.66		130.0	
		Z	4.35	66.45	15.94		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.37	67.75	17.05	0.46	130.0	± 9.6 %
		Y	4.37	66.88	16.38		130.0	
		Z	4.46	67.24	16.60		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.11	66.49	16.03	0.46	130.0	± 9.6 %
		Y	4.14	65.75	15.42		130.0	
		Z	4.24	66.16	15.70		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.35	66.98	16.66	0.46	130.0	± 9.6 %
		Y	4.37	66.25	16.07		130.0	
		Z	4.45	66.60	16.31		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.39	67.23	16.77	0.46	130.0	± 9.6 %
		Y	4.40	66.45	16.16		130.0	
		Z	4.48	66.79	16.39		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.53	67.43	16.90	0.46	130.0	± 9.6 %
		Y	4.55	66.69	16.31		130.0	
		Z	4.65	67.03	16.53		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.44	67.57	17.01	0.46	130.0	± 9.6 %
		Y	4.46	66.81	16.41		130.0	
		Z	4.55	67.16	16.63		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.19	66.71	16.24	0.46	130.0	± 9.6 %
		Y	4.21	65.98	15.64		130.0	
		Z	4.31	66.39	15.91		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.21	66.71	16.23	0.46	130.0	± 9.6 %
		Y	4.24	66.03	15.66		130.0	
		Z	4.35	66.45	15.94		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.37	67.75	17.05	0.46	130.0	± 9.6 %
		Y	4.37	66.88	16.38		130.0	
		Z	4.46	67.24	16.60		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.11	66.49	16.03	0.46	130.0	± 9.6 %
		Y	4.14	65.75	15.42		130.0	
		Z	4.24	66.16	15.70		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.51	67.07	16.79	0.46	130.0	± 9.6 %
		Y	4.53	66.37	16.22		130.0	
		Z	4.61	66.68	16.43		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.61	67.33	16.91	0.46	130.0	± 9.6 %
		Y	4.64	66.64	16.34		130.0	
		Z	4.73	66.98	16.55		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.53	67.22	16.77	0.46	130.0	± 9.6 %
		Y	4.56	66.51	16.19		130.0	
		Z	4.65	66.86	16.41		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.59	67.39	16.94	0.46	130.0	± 9.6 %
		Y	4.61	66.69	16.36		130.0	
		Z	4.70	67.03	16.57		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.55	67.39	16.86	0.46	130.0	± 9.6 %
		Y	4.58	66.66	16.27		130.0	
		Z	4.67	67.01	16.48		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.48	67.33	16.84	0.46	130.0	± 9.6 %
		Y	4.51	66.61	16.25		130.0	
		Z	4.60	66.98	16.48		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.44	67.19	16.68	0.46	130.0	± 9.6 %
		Y	4.46	66.47	16.09		130.0	
		Z	4.55	66.85	16.33		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.44	67.44	16.96	0.46	130.0	± 9.6 %
		Y	4.45	66.70	16.36		130.0	
		Z	4.54	67.07	16.59		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.25	67.58	17.13	0.46	130.0	± 9.6 %
		Y	5.24	66.95	16.56		130.0	
		Z	5.29	67.14	16.66		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.34	67.95	17.30	0.46	130.0	± 9.6 %
		Y	5.36	67.36	16.74		130.0	
		Z	5.38	67.49	16.81		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.27	67.81	17.24	0.46	130.0	± 9.6 %
		Y	5.25	67.09	16.62		130.0	
		Z	5.29	67.28	16.72		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.32	67.68	17.09	0.46	130.0	± 9.6 %
		Y	5.35	67.17	16.58		130.0	
		Z	5.40	67.38	16.69		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.33	67.78	17.28	0.46	130.0	± 9.6 %
		Y	5.40	67.40	16.84		130.0	
		Z	5.46	67.65	16.96		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.20	67.32	17.02	0.46	130.0	± 9.6 %
		Y	5.27	66.98	16.60		130.0	
		Z	5.35	67.32	16.78		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.29	67.63	17.19	0.46	130.0	± 9.6 %
		Y	5.33	67.16	16.69		130.0	
		Z	5.38	67.39	16.82		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.14	67.30	16.87	0.46	130.0	± 9.6 %
		Y	5.12	66.62	16.27		130.0	
		Z	5.16	66.82	16.38		130.0	

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.38	66.48	16.48	0.46	130.0	± 9.6 %
		Y	4.37	65.68	15.84		130.0	
		Z	4.46	66.03	16.07		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.49	66.76	16.61	0.46	130.0	± 9.6 %
		Y	4.50	65.99	15.98		130.0	
		Z	4.60	66.37	16.22		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.40	66.61	16.43	0.46	130.0	± 9.6 %
		Y	4.40	65.81	15.80		130.0	
		Z	4.50	66.21	16.04		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.45	66.79	16.61	0.46	130.0	± 9.6 %
		Y	4.45	65.98	15.97		130.0	
		Z	4.55	66.37	16.21		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.36	66.56	16.44	0.46	130.0	± 9.6 %
		Y	4.36	65.77	15.81		130.0	
		Z	4.46	66.17	16.06		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.33	66.68	16.48	0.46	130.0	± 9.6 %
		Y	4.35	65.88	15.84		130.0	
		Z	4.45	66.30	16.10		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.33	66.47	16.31	0.46	130.0	± 9.6 %
		Y	4.34	65.70	15.68		130.0	
		Z	4.45	66.12	15.94		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.31	66.72	16.57	0.46	130.0	± 9.6 %
		Y	4.31	65.92	15.93		130.0	
		Z	4.41	66.33	16.19		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.35	66.43	16.22	0.46	130.0	± 9.6 %
		Y	4.35	65.61	15.57		130.0	
		Z	4.46	66.02	15.84		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.02	66.60	16.62	0.46	130.0	± 9.6 %
		Y	5.03	66.05	16.09		130.0	
		Z	5.10	66.36	16.25		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.05	66.72	16.67	0.46	130.0	± 9.6 %
		Y	5.07	66.17	16.13		130.0	
		Z	5.14	66.50	16.30		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	4.96	66.75	16.69	0.46	130.0	± 9.6 %
		Y	4.97	66.21	16.16		130.0	
		Z	5.05	66.56	16.35		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.03	66.77	16.64	0.46	130.0	± 9.6 %
		Y	5.01	66.10	16.04		130.0	
		Z	5.07	66.37	16.19		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.04	66.57	16.58	0.46	130.0	± 9.6 %
		Y	5.07	66.08	16.08		130.0	
		Z	5.14	66.38	16.24		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.05	66.67	16.75	0.46	130.0	± 9.6 %
		Y	5.07	66.16	16.24		130.0	
		Z	5.15	66.49	16.41		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.05	66.78	16.81	0.46	130.0	± 9.6 %
		Y	5.06	66.25	16.29		130.0	
		Z	5.14	66.58	16.45		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	4.96	66.41	16.48	0.46	130.0	± 9.6 %
		Y	4.96	65.81	15.92		130.0	
		Z	5.03	66.14	16.10		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.14	66.62	16.65	0.46	130.0	± 9.6 %
		Y	5.16	66.09	16.13		130.0	
		Z	5.23	66.40	16.29		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.23	66.81	16.81	0.46	130.0	± 9.6 %
		Y	5.24	66.23	16.27		130.0	
		Z	5.33	66.59	16.45		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.37	66.54	16.54	0.46	130.0	± 9.6 %
		Y	5.37	66.08	16.06		130.0	
		Z	5.43	66.40	16.21		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.62	67.27	16.89	0.46	130.0	± 9.6 %
		Y	5.62	66.78	16.39		130.0	
		Z	5.65	66.98	16.48		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.36	66.51	16.44	0.46	130.0	± 9.6 %
		Y	5.36	66.07	15.95		130.0	
		Z	5.42	66.39	16.11		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.56	67.07	16.72	0.46	130.0	± 9.6 %
		Y	5.49	66.34	16.09		130.0	
		Z	5.52	66.54	16.19		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.66	67.55	16.97	0.46	130.0	± 9.6 %
		Y	5.72	67.24	16.55		130.0	
		Z	5.76	67.49	16.67		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.63	67.57	17.15	0.46	130.0	± 9.6 %
		Y	5.67	67.19	16.71		130.0	
		Z	5.73	67.50	16.85		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.69	67.71	17.24	0.46	130.0	± 9.6 %
		Y	5.63	66.98	16.63		130.0	
		Z	5.64	67.12	16.68		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.36	66.53	16.48	0.46	130.0	± 9.6 %
		Y	5.38	66.12	16.02		130.0	
		Z	5.47	66.52	16.21		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.40	66.78	16.65	0.46	130.0	± 9.6 %
		Y	5.41	66.32	16.17		130.0	
		Z	5.48	66.65	16.33		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.26	66.02	16.01	0.46	130.0	± 9.6 %
		Y	5.27	65.59	15.53		130.0	
		Z	5.34	65.94	15.71		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.83	66.88	16.62	0.46	130.0	± 9.6 %
		Y	5.82	66.47	16.18		130.0	
		Z	5.86	66.75	16.30		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	5.94	67.19	16.77	0.46	130.0	± 9.6 %
		Y	5.94	66.79	16.33		130.0	
		Z	5.98	67.06	16.44		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.01	67.39	16.85	0.46	130.0	± 9.6 %
		Y	5.96	66.85	16.33		130.0	
		Z	6.00	67.11	16.45		130.0	

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	5.91	67.09	16.74	0.46	130.0	± 9.6 %
		Y	5.91	66.70	16.30		130.0	
		Z	5.96	67.00	16.43		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	5.83	66.88	16.58	0.46	130.0	± 9.6 %
		Y	5.86	66.56	16.17		130.0	
		Z	5.93	66.93	16.34		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	5.99	67.15	16.74	0.46	130.0	± 9.6 %
		Y	5.98	66.73	16.28		130.0	
		Z	6.02	66.98	16.39		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	5.96	67.18	16.91	0.46	130.0	± 9.6 %
		Y	5.99	66.86	16.51		130.0	
		Z	6.04	67.17	16.64		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.82	66.90	16.67	0.46	130.0	± 9.6 %
		Y	5.84	66.57	16.25		130.0	
		Z	5.89	66.88	16.40		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	5.87	67.05	16.76	0.46	130.0	± 9.6 %
		Y	5.88	66.71	16.35		130.0	
		Z	5.96	67.09	16.52		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.02	67.22	16.81	0.46	130.0	± 9.6 %
		Y	6.06	66.92	16.42		130.0	
		Z	6.08	67.13	16.51		130.0	
10646-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	7.45	98.05	36.37	9.30	60.0	± 9.6 %
		Y	5.70	87.94	31.48		60.0	
		Z	10.68	104.19	37.43		60.0	
10647-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	6.28	94.10	35.07	9.30	60.0	± 9.6 %
		Y	5.09	85.56	30.67		60.0	
		Z	8.75	99.75	36.06		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.35	60.00	5.99	0.00	150.0	± 9.6 %
		Y	0.42	60.00	6.66		150.0	
		Z	0.51	61.64	8.47		150.0	
10652-AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.43	68.40	17.05	2.23	80.0	± 9.6 %
		Y	3.04	65.40	15.46		80.0	
		Z	3.29	66.60	16.23		80.0	
10653-AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.85	66.81	17.07	2.23	80.0	± 9.6 %
		Y	3.63	65.00	15.94		80.0	
		Z	3.82	65.84	16.44		80.0	
10654-AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.86	66.20	17.05	2.23	80.0	± 9.6 %
		Y	3.67	64.66	16.00		80.0	
		Z	3.83	65.44	16.46		80.0	
10655-AAD	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	3.94	66.00	17.05	2.23	80.0	± 9.6 %
		Y	3.75	64.59	16.05		80.0	
		Z	3.91	65.37	16.49		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	100.00	108.27	24.21	10.00	50.0	± 9.6 %
		Y	20.54	89.19	19.09		50.0	
		Z	100.00	106.85	23.58		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	100.00	109.79	23.79	6.99	60.0	± 9.6 %
		Y	100.00	105.04	21.61		60.0	
		Z	100.00	107.25	22.69		60.0	

10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	116.02	25.06	3.98	80.0	± 9.6 %
		Y	100.00	103.57	19.60		80.0	
		Z	100.00	110.44	22.79		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	127.15	28.10	2.22	100.0	± 9.6 %
		Y	100.00	96.83	15.82		100.0	
		Z	100.00	114.65	23.34		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	99.99	357.35	106.97	0.97	120.0	± 9.6 %
		Y	0.15	60.00	2.92		120.0	
		Z	100.00	114.05	21.55		120.0	

[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: D2450V2-921_Nov18

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:921
Calibration procedure(s)	QA CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	November 12, 2018

SC ✓ 12/11/2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	04-Oct-18 (No. DAE4-601_Oct18)	Oct-19

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Manu Seitz	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 12, 2018

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

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	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.4 ± 6 %	2.02 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	13.0 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.03 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.8 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	54.7 Ω + 6.5 jΩ
Return Loss	- 22.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.7 Ω + 7.8 jΩ
Return Loss	- 22.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.157 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 26, 2013

DASY5 Validation Report for Head TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

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

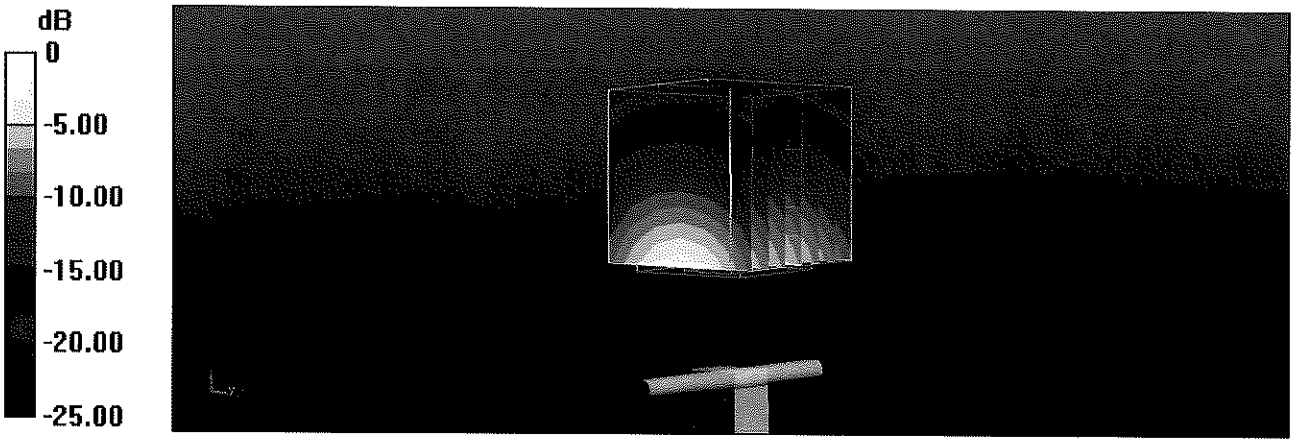
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; ε_r = 37.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

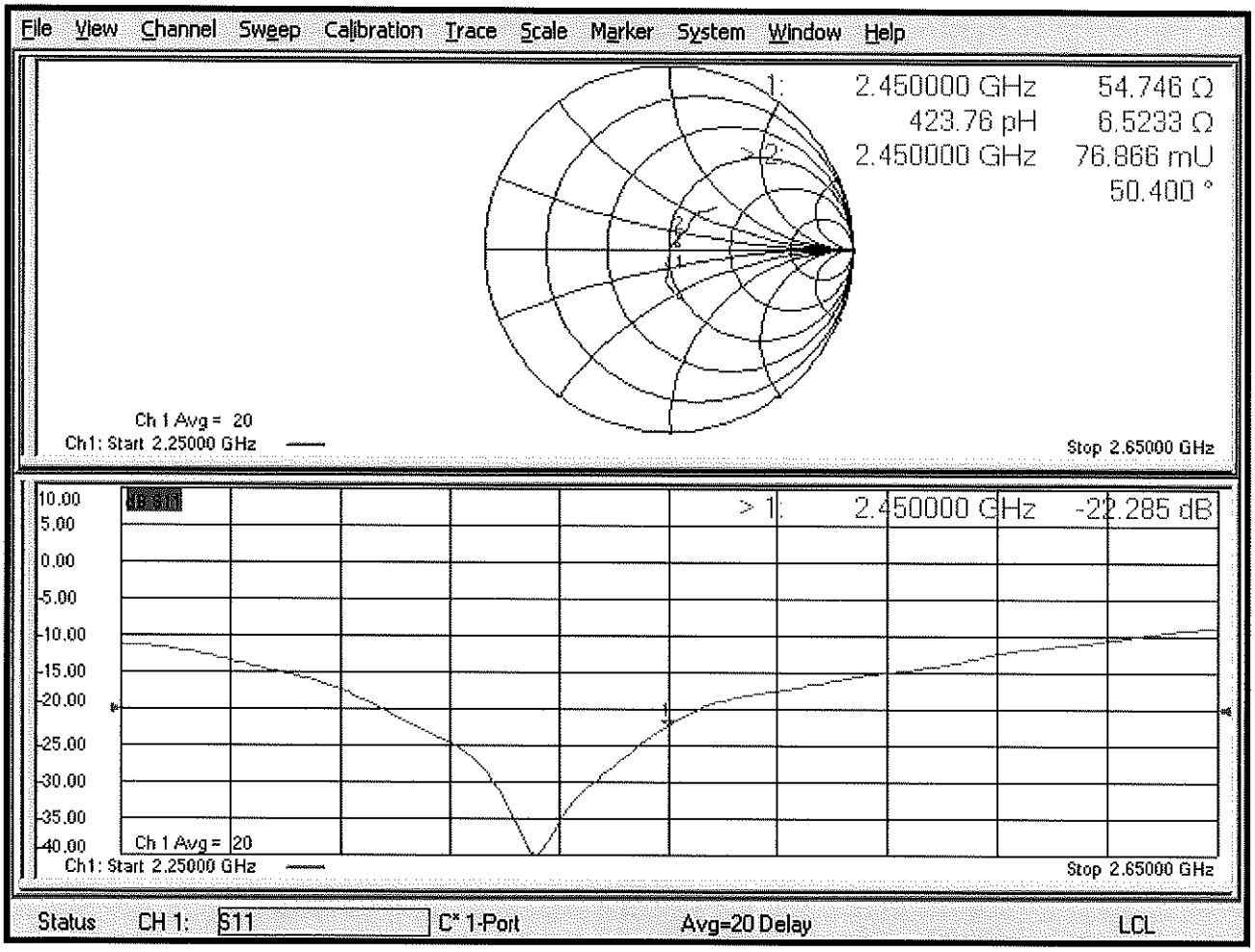
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 117.7 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 27.4 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.28 W/kg
Maximum value of SAR (measured) = 22.4 W/kg



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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

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

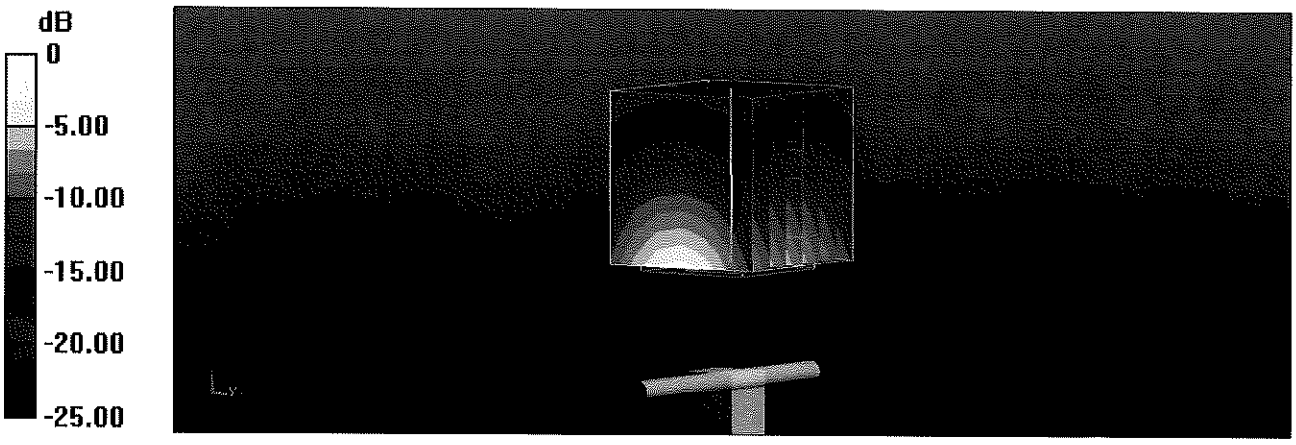
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 S/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

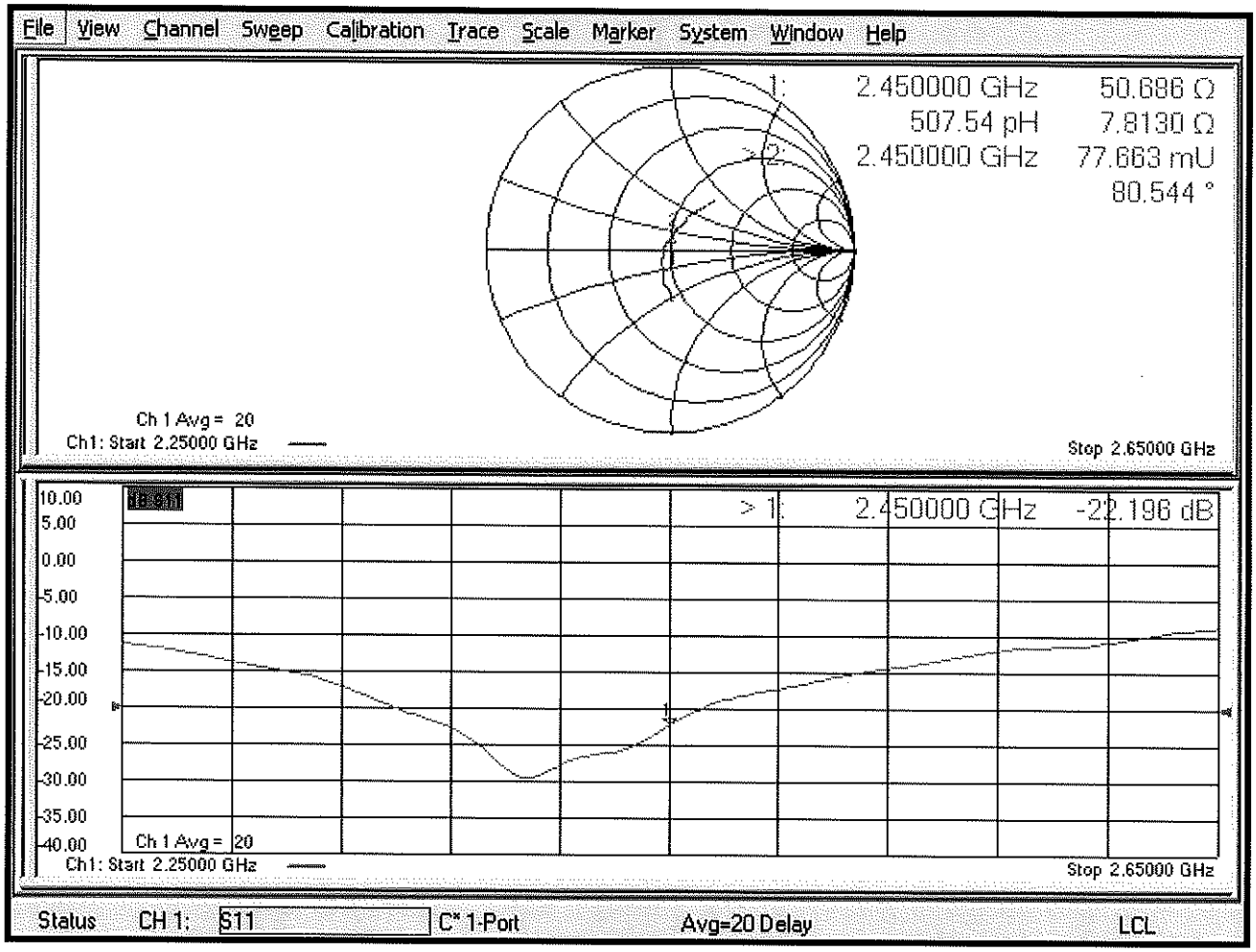
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.6 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.03 W/kg
Maximum value of SAR (measured) = 21.3 W/kg



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

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 0108

Client PC Test

Certificate No: D5GHzV2-1123_Mar18

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN:1123

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

SC ✓ 3/21/18

Calibration date: March 13, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	30-Dec-17 (No. EX3-3503_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

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

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

Issued: March 14, 2018

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

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 V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.2 ± 6 %	4.58 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.7 ± 6 %	4.94 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.51 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**85.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.3 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	5.10 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.9 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.1 ± 6 %	5.49 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.45 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**74.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.08 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.6 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	5.97 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.82 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.19 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.7 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.18 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.52 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**74.7 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.8 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	53.2 Ω - 5.2 jΩ
Return Loss	- 24.6 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	57.2 Ω - 0.4 jΩ
Return Loss	- 23.4 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	56.7 Ω + 0.9 jΩ
Return Loss	- 23.9 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	51.6 Ω - 4.3 jΩ
Return Loss	- 26.9 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	59.0 Ω - 0.3 jΩ
Return Loss	- 21.7 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	57.8 Ω + 1.0 jΩ
Return Loss	- 22.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.205 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 08, 2011

DASY5 Validation Report for Head TSL

Date: 13.03.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1123

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.58 S/m; ε_r = 36.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 4.94 S/m; ε_r = 35.7; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 5.1 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

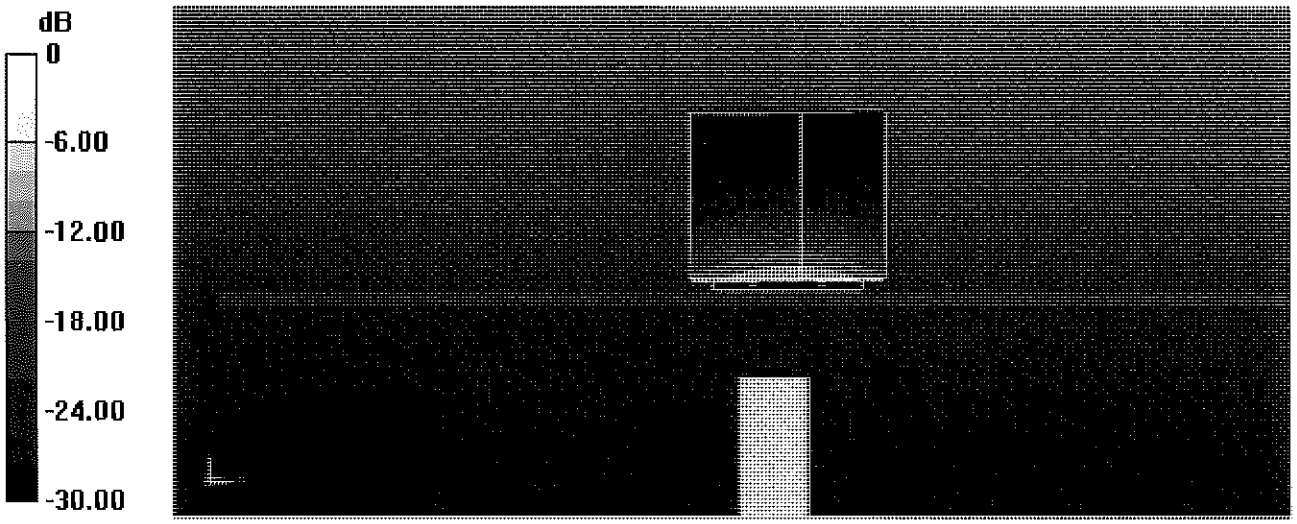
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.51, 5.51, 5.51); Calibrated: 30.12.2017, ConvF(5.05, 5.05, 5.05); Calibrated: 30.12.2017, ConvF(4.98, 4.98, 4.98); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 73.12 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 28.1 W/kg
SAR(1 g) = 8.15 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 18.4 W/kg

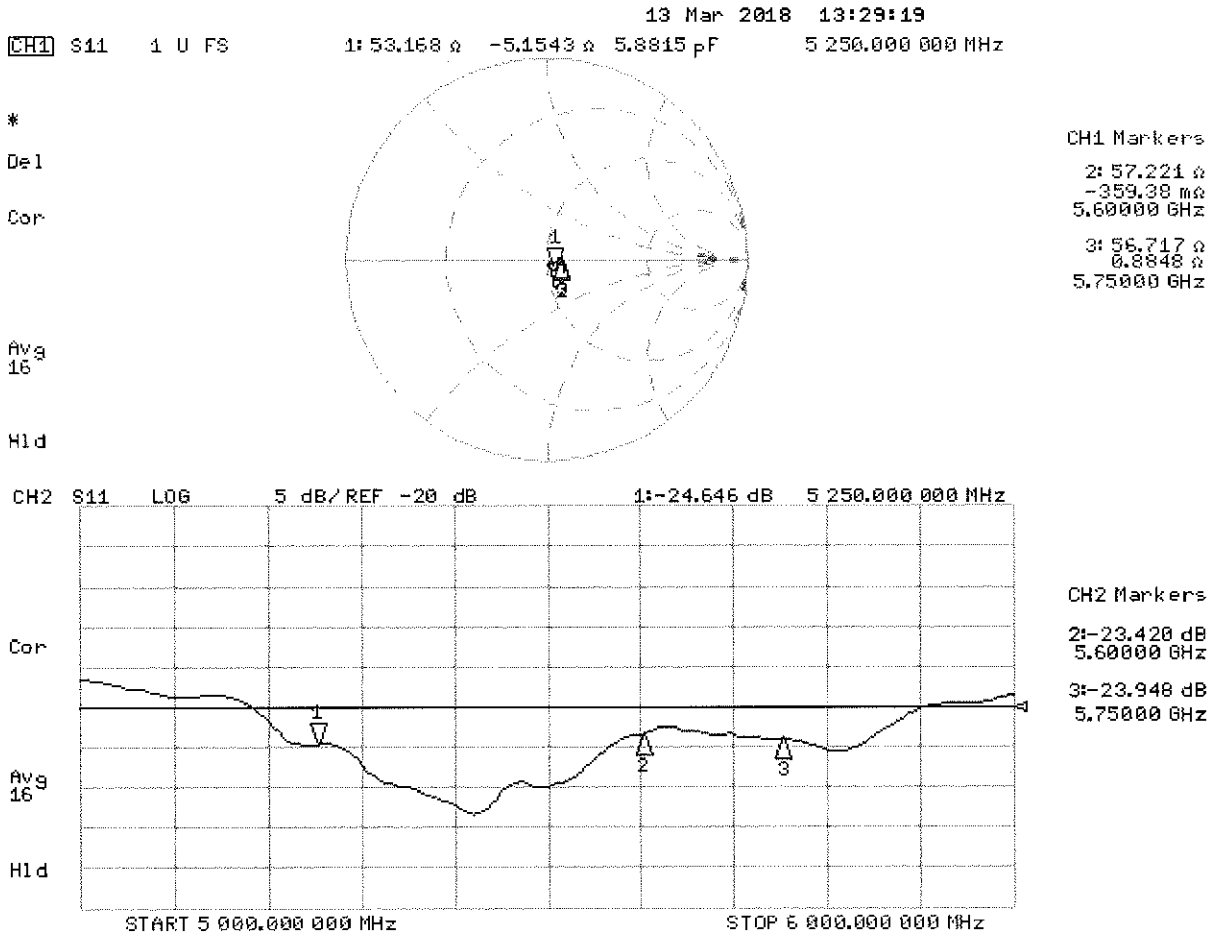
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.34 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 8.51 W/kg; SAR(10 g) = 2.43 W/kg
Maximum value of SAR (measured) = 19.8 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.38 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 31.4 W/kg
SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.29 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 12.03.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1123

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 5.49 S/m; ε_r = 47.1; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 5.97 S/m; ε_r = 46.4; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 6.18 S/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

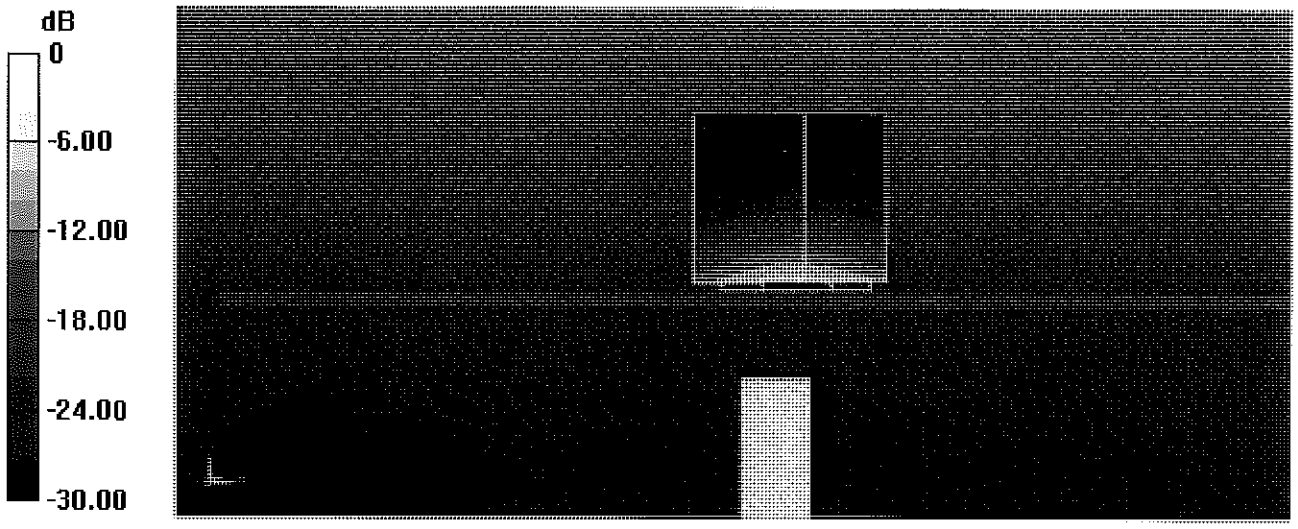
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.26, 5.26, 5.26); Calibrated: 30.12.2017, ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2017, ConvF(4.57, 4.57, 4.57); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.35 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 7.45 W/kg; SAR(10 g) = 2.08 W/kg
Maximum value of SAR (measured) = 17.6 W/kg

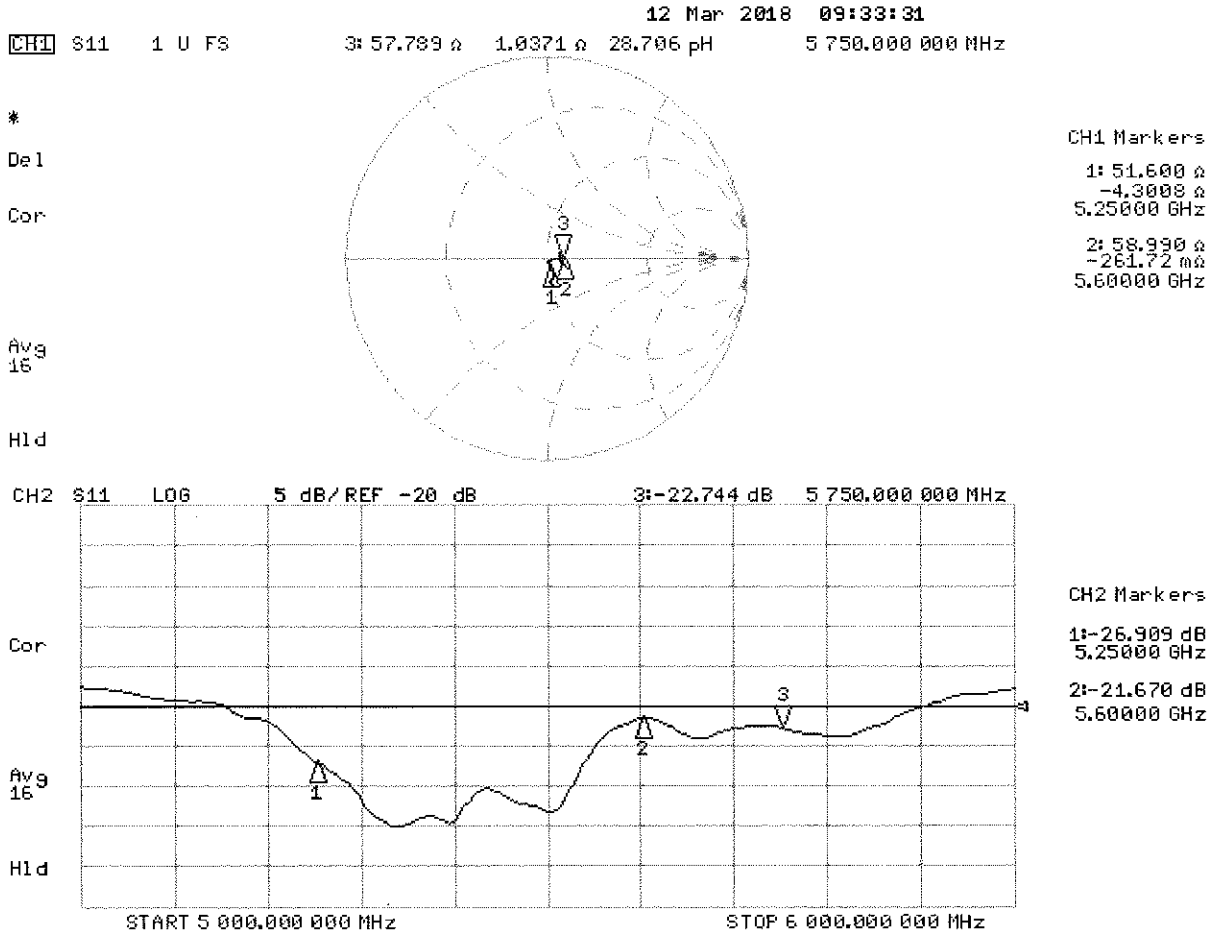
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.20 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 19.0 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.74 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 31.8 W/kg
SAR(1 g) = 7.52 W/kg; SAR(10 g) = 2.1 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

Impedance Measurement Plot for Body TSL



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 $\varepsilon_r^{'}$ can be calculated from the below equation (Pournaropoulos and Misra):

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

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)	2450	5200 - 5800
Tissue	Body	Body
DGBE	26.7	See Page 2
NaCl	0.1	
Water	73.2	

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3 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	60 – 80%
Esters, Emulsifiers, Inhibitors	20 – 40%
Sodium salt	0 – 1.5%

Figure D-1
Composition of 5 GHz Body Tissue Equivalent Matter

Note: 3.5 – 5 GHz Body liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

Measurement Certificate / Material Test

Item Name	**Body Tissue Simulating Liquid (MBBL3500-5800V5)**
Product No.	SL AAM 501 EA (Batch: 180423-2)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Setup Validation

Validation results were within ± 2.5% towards the target values of Methanol.

Target Parameters

Target parameters as defined in the KDB 865664 compliance standard.

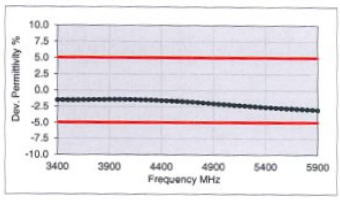
Test Condition

Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	25-Apr-18
Operator	WM

Additional Information

TSL Density	0.996 g/cm3
TSL Heat-capacity	3.765 kJ/(kg*K)

	Measured			Target		Diff.to Target [%]	
f [MHz]	e'	e''	sigma	eps	sigma	Δ-eps	Δ-sigma
3400	50.7	16.46	3.11	51.5	3.20	-1.5	-2.7
3500	50.5	16.50	3.21	51.3	3.31	-1.6	-3.1
3600	50.4	16.56	3.32	51.2	3.43	-1.5	-3.2
3700	50.3	16.63	3.42	51.1	3.55	-1.5	-3.6
3800	50.2	16.72	3.53	50.9	3.66	-1.4	-3.7
3900	50.1	16.81	3.65	50.8	3.78	-1.3	-3.5
4000	49.9	16.93	3.77	50.6	3.90	-1.5	-3.3
4100	49.8	17.05	3.89	50.5	4.01	-1.4	-3.1
4200	49.6	17.18	4.01	50.4	4.13	-1.5	-2.9
4300	49.5	17.32	4.14	50.2	4.25	-1.5	-2.5
4400	49.3	17.46	4.27	50.1	4.37	-1.6	-2.2
4500	49.2	17.59	4.40	50.0	4.48	-1.5	-1.8
4600	49.0	17.73	4.54	49.8	4.60	-1.7	-1.3
4700	48.8	17.86	4.67	49.7	4.72	-1.8	-1.0
4800	48.6	17.99	4.80	49.6	4.83	-1.9	-0.7
4850	48.5	18.05	4.87	49.5	4.89	-2.0	-0.4
4900	48.4	18.11	4.94	49.4	4.95	-2.1	-0.2
4950	48.3	18.17	5.00	49.4	5.01	-2.1	-0.1
5000	48.2	18.23	5.07	49.3	5.07	-2.2	0.1
5050	48.1	18.29	5.14	49.2	5.12	-2.3	0.3
5100	48.0	18.34	5.20	49.2	5.18	-2.3	0.3
5150	47.9	18.39	5.27	49.1	5.24	-2.4	0.6
5200	47.9	18.45	5.34	49.0	5.30	-2.3	0.8
5250	47.8	18.50	5.40	48.9	5.36	-2.3	0.8
5300	47.7	18.56	5.47	48.9	5.42	-2.4	1.0
5350	47.6	18.61	5.54	48.8	5.47	-2.5	1.2
5400	47.5	18.67	5.61	48.7	5.53	-2.5	1.4
5450	47.4	18.72	5.68	48.7	5.59	-2.6	1.6
5500	47.3	18.77	5.74	48.6	5.65	-2.7	1.6
5550	47.2	18.83	5.81	48.5	5.71	-2.8	1.8
5600	47.1	18.88	5.88	48.5	5.77	-2.8	2.0
5650	47.1	18.93	5.95	48.4	5.82	-2.7	2.1
5700	47.0	18.99	6.02	48.3	5.88	-2.8	2.3
5750	46.9	19.04	6.09	48.3	5.94	-2.8	2.5
5800	46.8	19.10	6.16	48.2	6.00	-2.9	2.7
5850	46.7	19.16	6.23	48.1	6.06	-3.0	2.8
5900	46.6	19.22	6.31	48.1	6.12	-3.0	3.2



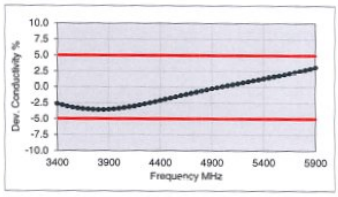


Figure D-2
5 GHz Body Tissue Equivalent Matter

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APPENDIX E: SAR SYSTEM VALIDATION

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

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

Table E-1
SAR System Validation Summary – 1g

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND.	PERM.	CW VALIDATION			MOD. VALIDATION		
							(σ)	(εr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
AM6	2450	4/3/2018	3131	ES3DV3	2450	Body	2.023	50.604	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
AM2	5250	11/13/2018	7416	EX3DV4	5250	Body	5.514	48.030	PASS	PASS	PASS	OFDM	N/A	PASS
AM2	5600	11/13/2018	7416	EX3DV4	5600	Body	5.991	47.432	PASS	PASS	PASS	OFDM	N/A	PASS
AM2	5750	11/13/2018	7416	EX3DV4	5750	Body	6.190	47.195	PASS	PASS	PASS	OFDM	N/A	PASS

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

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APPENDIX G POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the triggering distances for proximity-based sensors.

G.1 Power Verification Procedure

The power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.

2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.

3. Steps 1 and 2 were repeated for all individual power reduction mechanisms and combinations thereof. For the combination cases, one mechanism was switched to a 'triggered' state at a time; powers were confirmed to be within tolerances after each additional mechanism was activated.

G.2 Distance Verification Procedure

The distance verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.

2. The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced, per KDB Publication 616217 D04v01r02 and FCC Guidance. Each applicable test position was evaluated. The distances were confirmed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.

3. Steps 1 through 2 were repeated for all distance-based power reduction mechanisms.

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G.3 WIFI Verification Summary

Table G-1
Power Measurement Verification WIFI

Mechanism(s)	Mode/Band	Conducted Power (dBm)	
1st		Un-triggered (Max)	Mechanism #1 (Reduced)
Grip	802.11b	16.68	9.31
Grip	802.11g	14.81	9.61
Grip	802.11n (2.4GHz)	13.57	9.03
Grip	802.11a	11.22	7.87
Grip	802.11n (5GHz, 20MHz BW)	11.07	7.53
Grip	802.11ac (20MHz BW)	10.98	7.37
Grip	802.11n (5GHz, 40MHz BW)	11.99	8.45
Grip	802.11ac (40MHz BW)	11.85	8.43
Grip	802.11ac (80MHz BW)	10.73	8.27

Table G-2
Distance Measurement Verification for WIFI

Mechanism(s)	Test Condition	Band	Distance Measurements (mm)		Minimum Distance per Manufacturer (mm)
			Moving Toward	Moving Away	
Grip	Body - Back Side	2.4GHz	7	9	7
Grip	Body - Back Side	5GHz	7	9	7

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